Stormwater Management Pond Design Brief

Greely Village Centre
- Commercial Phase - Ultimate Conditions -
- City of Ottawa -

December 2008

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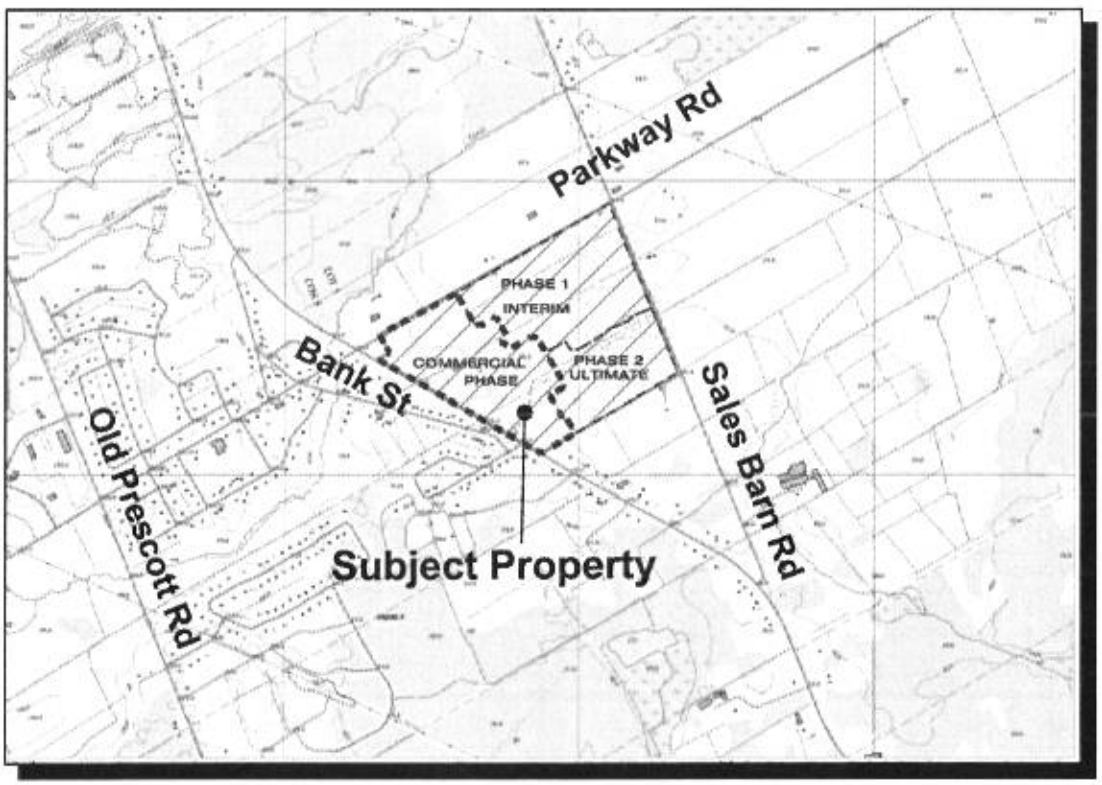

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1.0 Introduction and Study Objectives

J.F. Sabourin and Associates Inc. (JFSA) were retained by Atrel Engineering Ltd (AEL) to assist with the design of the Stormwater Management Pond which will provide quantity and quality control, for the surface runoff from the proposed development of Greely Village Centre - Commercial Phase - Ultimate Conditions. The general location of the subject property is shown in Figure 1 and is situated between Bank Street and Sales Barn Road, just south of Parkway Road in the Village of Greely, City of Ottawa. It is noted that the main objective of the proposed SWM Pond is to provide a "Lake" feature within the development as in other nearby subdivisions.

The proposed SWM Pond will service a total drainage area of approximately 16.71 ha consisting of approximately 16.21 ha for the Greely Village Centre commercial subdivision, including 1.57 ha for the pond block and future septic beds, and an additional 0.50 ha from an existing external property located south-east of the intersection of Bank Street and Parkway.

Flows from the proposed pond will discharge to a new drainage channel that will be intercepted by a realigned portion of the McEnvoy Municipal Drain which then flows to the Shields Municipal Drain along Sales Barn Road until it reaches Shields Creek (see Figure 4a).

The purpose of the present design brief is: i) to document and evaluate the existing drainage conditions of the subject site and nearby watercourse, ii) to undertake and the document the necessary analyses to size the proposed wet pond and configure the outlet control structure to provide the required controls, and iii) to document the hydraulic operation of the pond.

The drainage of the proposed commercial Greely Village Centre development was designed by AEL.

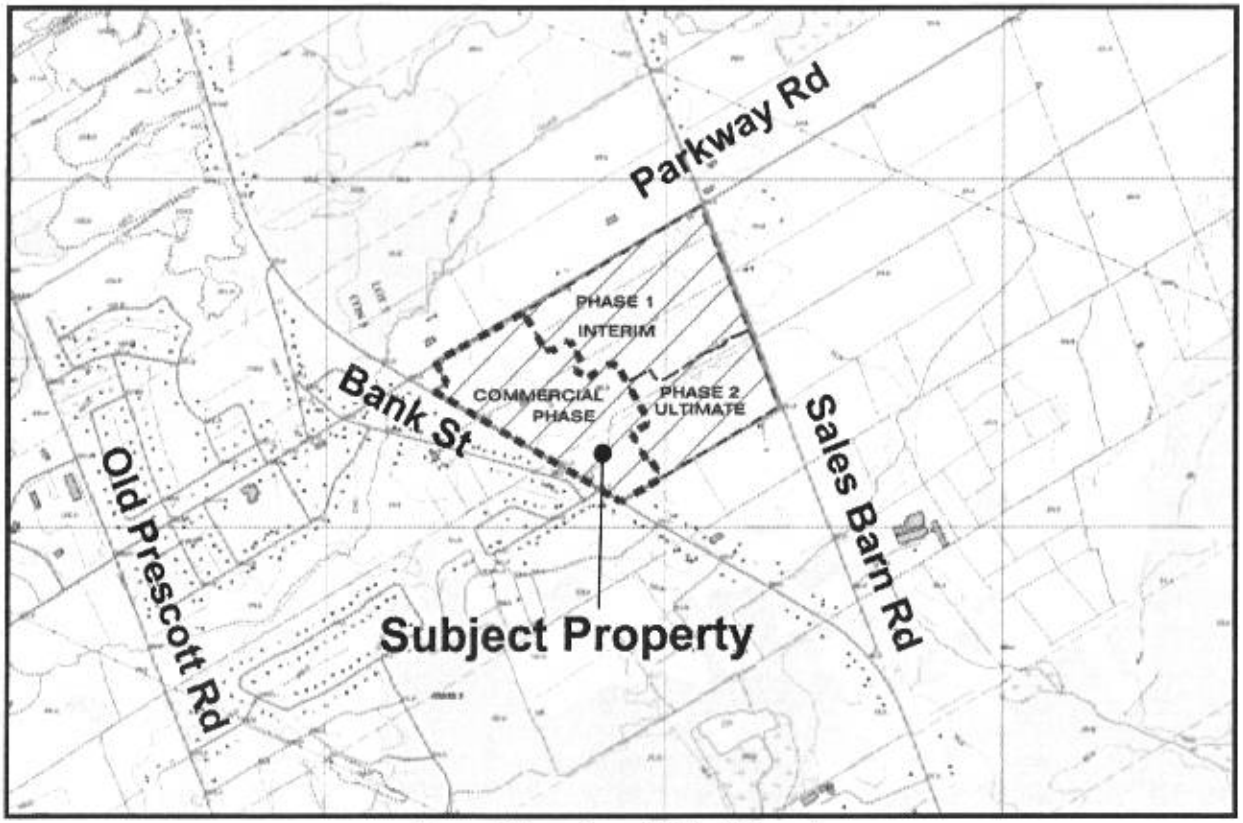


Figure 1: Location of Subject Property

2.0 Background Information and Assumptions

Relevant background information and assumptions used in this study / report are provided below.

2.1 Design Objectives and Criteria

- Summer design storms: 4 hour Chicago and 24 hour SCS Type II distributions for 2 to 100 year storms (for quantity control) based on the updated City of Ottawa Design Guideline IDF curves. The summer design storms are provided in Appendix A.
- Quantity control from the proposed SWM pond is to maintain future peak runoff flows, on the receiving watercourses, to existing levels or lower for the 2 year to 100 year design storms. Existing and proposed hydrological conditions are described in Sections 3.0 and 4.0 respectively.
- Quality control from the proposed SWM pond is to provide 80% long-term suspended sediment removal, described as "Enhanced" protection level. Estimated quality pond volume requirements are provided in Appendix C along with the stage-storage curves for the proposed pond cell.
- The pond's extended detention volume (for quality control purposes) is to be released over a period of 24 hours to 48 hours.

2.2 Drainage Areas, Time to Peak, CN Numbers and Imperviousness:

< ref: Plans, Profiles and Drainage Areas as provided by Atrel Engineering Ltd>
< ref: Stantec Consulting Ltd: " Greely/Shields Creek Stormwater and Drainage Study", 2002, + maps>
< ref: MTO Drainage Manual, Chapter H Volume 2. 1982>

- As per the design details provided by AEL, the total drainage area to the proposed commercial pond is 16.71 ha. This area consists of 8.30 ha of future commercial establishments (catchment C1 on Figure 4a), 6.34 ha of future recreational and industrial areas (catchment C2 on Figure 4a), and 0.50 ha from an existing external property located south-east of Parkway and Bank Street (catchment EX4 on Figure 4a).
- As per Stantec, the CN* values are 75 for the McEnvoy Branch (headwaters) upstream of Bank Street and 69 for the remaining area draining to Shields Creek. Unit hydrograph time to peak values for all rural areas were obtained with the Upland Method as per Stantec. The SWMHYMO model for existing conditions and associated input/output files are presented in Appendix D.
- Imperviousness ratios, in the SWMHYMO modelling were estimated from the proposed runoff coefficients on Figure B5 using the accepted relation C = 0.9 * imp + 0.2 * (1 - imp). For the commercial area, the XIMP parameter in the SWMHYMO model was set as equal to the TIMP value while for the downstream residential areas, the XIMP values were set to the TIMP value less 10% to account for the disconnection of roof top drainage. The SWMHYMO model for proposed conditions and associated input/output files are presented in Appendix D.
- The pervious areas within the commercial lots were assigned a CN* of 71 based on the standard CN values for urban grassed area.

2.3 Pond Inlet, Maximum Operating Level and Pond Outlet:

< ref: Plans and Profile as provided by Atrel Engineering Ltd >

- The inlet to the SWM Pond is a concrete pipe with a diameter of 1050 mm and an invert elevation set at 86.73 m.
- As per AEL, because the commercial development consist of slab on grade, the maximum allowable operating pond level was set to 88.00 m which corresponds to the top of the pond.
- The pond outlet will discharge to a new channel which will be intercepted by the realigned portion of the McEnvoy Drain which then drains to the Shields Municipal Drain some 770 m downstream. In order to prevent backflow from the watercourse from interfering with the pond's hydraulics, the pond's lowest weir outlet has been set at an elevation of 87.15 m, 54 cm higher than the channel bottom (86.61 m) at this location.

2.4 Inflows to Pond

- Inflows to the proposed SWM pond were simulated using SWMHYMO with various summer design storms.
- The drainage system for the proposed commercial development will be provided by means of storm sewers, roadside ditches, grass swales and overland sheet flow . The various inlet points to the SWM pond are shown in Figure 4b.

2.5 Confluence of Shields Municipal Drain with Shields Creek

- For existing conditions, as per Stantec's parameters (with some areas modified as per AEL drawings), the flow conveyance of Shields Municipal Drain at the confluence of Shields Creek was established for the 4 hour Chicago 2 year to 100 year and the 24 hour SCS Type II design storms. The peak design flows were also determined based on JFSA's updated SWMHYMO model. This allowed JFSA to obtain the flows at the Parkway Road culvert, which bounds the drainage outflow of the Greely Village Centre development more tightly. The peak flow results are presented in Table 1.
- For proposed conditions, the future peak design flows were controlled to existing levels or lower for the 2 to 100 year design storms at the confluence of Shields Creek as per the Stantec report.
- As per the Stantec study report, the 100 year surface water elevation on Shields Creek at the confluence with the Shields Municipal Drain is 84.30 m.

2.6 Parkway Road Culvert

- At the time when the present analysis was initiated, the Parkway Road culvert was a 1500 mm diameter CSP with an upstream invert elevation of approximately 83.11 m. The top of the road elevation at this location is approximately 85.15 m. Using the MTO nomograph (see Appendix E) the culvert's conveyance capacity was established for the maximum upstream water depth (before overtopping the road) at 2.04 m. On this basis, the maximum culvert capacity is found to be 4.4 m^3/s based on inlet control with MTO nomograph Chart D5-1G, (see Appendix E).
- Under existing conditions, the 25 year and 100 year design flows at the Parkway Road culvert have been estimated at 4.3 m^3/s and 5.7 m^3/s respectively.
- Under proposed conditions, the level of service provided by the Parkway Road culvert must be maintained or improved. Based on the quantity controls being proposed for both the residential and commercial areas, the anticipated 25 year and 100 year design flows at the Parkway Road culvert have been estimated at 2.9 m^3/s and 3.7 m^3/s respectively.

2.7 Twin Set of Culverts Under Proposed Street Upstream of Node N0

- For proposed conditions, a twin set of 900 mm diameter culverts will be installed under the proposed street located upstream of Node N0 to convey the flows from the commercial SWM pond and from the adjacent backyards (see Figure 4a and 4b). The culverts will be approximately 360 m downstream of the proposed commercial SWM pond, and will have upstream and downstream inverts set to 85.71 m 85.65 m respectively.
- In order to avoid submergence effects or hydraulic interference with the proposed SWM pond outlet structure and with the pond outflow, the culverts will have sufficient capacity to convey flows up to the 100 year event.

2.8 Proposed Channel, Downstream of Commercial SWM Pond

- The channel downstream of the proposed commercial SWM Pond will have a trapezoidal shape with a 1.0 m bottom width, 4H:1V side slopes, and a 0.25% longitudinal slope.
- The invert of the channel at the outlet of proposed commercial SWM Pond is 86.61 m.
- Based on the 100 yr SCS design flow of 1.336 m^3/s at the proposed pond outlet, the normal flow depth at the same location was estimated to be 0.54 m (elevation 87.15 m), which is also the elevation of the lowest pond outlet.

3.0 Existing Drainage Conditions

Existing peak design flows have been estimated at the location of the proposed commercial pond outlet (Node N-R2A as per Ultimate conditions model - see Figure 3), at the confluence of Shields Municipal Drain with Shields Creek and at the Parkway Road culvert (see Figure 2). Using the summer design storms presented in Appendix A, and based on the SWMHYMO model presented in Appendix D, Table 1 summarizes the computed design flows at these locations for both the 4 hr Chicago and 24 hr SCS Type II design storms for the 2 yr to 100 yr return periods.

Design peak flows for the existing conditions at the commercial pond outlet were assessed with the Ultimate model configuration instead of the Existing model configuration. This is because the existing flows at node N-R2A were reassessed to obtain more conservative results in the receiving channel of the commercial pond outlet. The existing model only accounts for the flows from the 3.13 ha draining at node N-R2A, while under the Ultimate conditions, the model accounts for more than 13 ha draining at the same node by including the area R1A upstream. By doing this, the flows from catchment R3A and R3B are excluded and compares favourably to the area drained by the proposed commercial development totalling 16.71 ha. Therefore the flows in the Ultimate conditions at the N-R2A node drain nearly the totality of the area to be developed as commercial land use but at the same time, produces target flows are more conservative.

The results presented in Table 1 shows that the SCS Type II design storm generates larger peak flows than the Chicago 4 hour storm, for all return periods. The results also show that the flows from the JFSA model generates higher flows than the model previously developed by Stantec's.

The flows determined by the Stantec model were chosen as target design flows as they are lower and more conservative than the updated JFSA results. However, the higher JFSA SWMHYMO peak flow results were used to insure that the culvert conveyance was not exceeded at the Parkway Road culvert.

Table 1: Existing Summer Peak Design Flows at Shields Creek Confluence, at Parkway Road Culvert and at the Pond Outlet

Summer Design Storms (derived from City of Ottawa IDF Curves)		Stantec Results[1]		JFSA Results					
		Peak Flows at Shields Creek Confluence (m^3/s)				Peak Flows at Parkway Road Culvert (m^3/s)		Peak Flows at Pond Outlet (node NR2A)[2] (m^3/s)	
4 hr - 25 mm Storm		0.481		0.499		0.537		0.119	
2 yr - 4 hr Chicago	2 yr - 24 hr SCS Type II	0.875	1.232	0.950	1.430	1.016	1.524	0.221	0.345
5 yr - 4 hr Chicago	5 yr - 24 hr SCS Type II	1.513	2.031	1.746	2.457	1.838	2.575	0.398	0.577
10 yr - 4 hr Chicago	10 yr - 24 hr SCS Type II	1.995	2.625	2.419	3.424	2.461	3.579	0.531	0.746
25 yr - 4 hr Chicago	25 yr - 24 hr SCS Type II	2.673	3.426	3.325	4.164	3.591	4.275	0.722	0.985
50 yr - 4 hr Chicago	50 yr - 24 hr SCS Type II	3.229	4.071	3.910	4.778	4.113	5.027	0.878	1.171
100 yr - 4 hr Chicago	100 yr - 24 hr SCS Type II	3.848	4.777	4.595	5.563	4.719	5.696	1.049	1.379
July 1st, 1979		5.460		6.786		6.294		1.32	

Notes: 1) Results obtained by JFSA using Stantec input data as per "Greely / Shields Creek Stormwater and Drainage Study" report.
2) Same location as pond outlet in Ultimate conditions model for upstream existing conditions. Does not account for flows generated from area R3A and R3B.

4.0 Future Drainage Conditions

As with the existing conditions, peak design flows for the proposed final drainage conditions (see Figure 4a and 4b) were simulated with the SWMHYMO model presented in Appendix D. Table 2, summarizes the commercial pond inflows and outflows, the total flows at the pond outlet , the total flows at the Parkway Road culvert and the total flows at the Shields Creek confluence.

All the proposed flows at the pond outlet, Shield Creek and the Parkway Road culvert are lower than the existing flows.

The possibility of submergence was assessed and considered to have no impact on the operation of the pond receiving the drainage from the commercial area. The maximum water

level in the channel will not be higher than the weir invert (87.15 m) and will cause no interference for all Chicago and SCS events. Similarly the twin set of culverts at the proposed road just upstream of Node N0 were assessed and will not create backwater to the pond outlet.

Table 2: Summer Peak Design Flows at Inlet / Outlet of Proposed SWM Pond and comparison of Peak Flows at Pond Outlet and at Shields Creek Confluence

Summer Design Storms (derived from City of Ottawa IDF Curves)	Pond Inflows (m^3/s)	Pond Outflows (m^3/s)	Peak Flows at Pond Outlet (m^3/s)	Existing Peak Flows at Pond Outlet (Node R2A)[1] (m^3/s)	Peak Flows at Parkway Culvert (m^3/s)	Existing Peak Flows at Parkway Culvert (m^3/s)	Peak Flows at Shields Creek Confluence (m^3/s)	Existing Peak Flows at Shields Creek Confluence as per Stantec (m^3/s)
SCENARIO 1								
4 hr - 25 mm storm	1.505	0.113	0.118	0.119	0.341	0.537	0.387	0.481
2 yr - 4 hr Chicago	2.120	0.207	0.218	0.221	0.651	1.016	0.737	0.875
5 yr - 4 hr Chicago	3.085	0.328	0.349	0.398	1.161	1.838	1.282	1.513
10 yr - 4 hr Chicago	3.588	0.449	0.479	0.531	1.575	2.461	1.731	1.995
25 yr - 4 hr Chicago	4.363	0.635	0.681	0.722	2.158	3.591	2.410	2.673
50 yr - 4 hr Chicago	4.931	0.792	0.850	0.878	2.771	4.113	2.955	3.229
100 yr - 4 hr Chicago	5.565	0.969	1.045	1.049	3.098	4.719	3.289	3.848
2 yr - 24 hr SCS Type II	1.760	0.277	0.296	0.345	0.954	1.524	1.039	1.232
5 yr - 24 hr SCS Type II	2.441	0.444	0.479	0.577	1.617	2.575	1.751	2.031
10 yr - 24 hr SCS Type II	2.913	0.599	0.654	0.746	2.137	3.579	2.342	2.625
25 yr - 24 hr SCS Type II	3.495	0.823	0.902	0.985	2.903	4.275	3.091	3.426
50 yr - 24 hr SCS Type II	3.952	1.009	1.109	1.171	3.202	5.027	3.639	4.071
100 yr - 24 hr SCS Type II	4.450	1.212	1.336	1.379	3.690	5.696	4.079	4.777
July 1st, 1979 Event	3.586	1.356	1.448	1.320	4.185	6.294	4.566	5.460

Note: [1] Same location as pond outlet in existing conditions as depicted in ultimate condition model. Does not account for flows generated from existing area R3A and R3B.

Both scenarios assessed for the SWM Pond of Phase 2 - Ultimate condition analysis were reviewed to insure that the residential pond operation was still working with the drainage modifications caused by the commercial phase of the development. The two SWM Pond operating Scenarios considered were; Scenario 1: The water levels in the channel at the outlet of the pond do not interfere with the operation of the pond; Scenario 2: The channel

water level at the outlet of the pond increases in such a way as to prevent water from the pond to be released until such time that the water level in the pond exceeds the water level along the channel. For the 100 year event, and under the Scenario 2 conditions, the pond starts to release when the pond water level exceeds an elevation of 85.36 m (water level in receiving channel 85.36 m).

5.0 Proposed SWM Pond

As previously indicated, the storm water requirements for this site include quality and quantity controls such as to i) remove 80% of suspended sediments from the locally collected surface stormwater runoff, ii) control post-development flows to pre-development levels for return periods of 2 years to 100 years.

A secondary objective of the proposed SWM Pond is to provide a "Lake" feature within the development. Because of this secondary objective, the propose SWM Pond provides substantially more (9 times) permanent pool volume than required. For this reason, the proposed SWM pond does not have a conventional configuration, in that it only has one cell, which can be considered as a large forebay.

The proposed SWM pond characteristics were defined through iterative hydrologic modelling and design discussions with AEL. The location of the pond was selected by AEL.

5.1 Description of Pond

As shown in the details of the AEL design drawings presented in Appendix B, the proposed commercial stormwater management facility will have one cell; 141 m long by approximately an average 28 m wide main pond cell, all measured at the bottom elevations. Designed in accordance with the requirements of the MOEE SWMPD Manual (March 2003), the pond will have the following components;

i) a large forebay cell,
ii) a water quality outlet control at the end of the pond,
iii) a quantity control outlet and overflow structure at the end of the pond.

Based on local site conditions, the overall size (length, width, and depth) of the pond was selected in order to provide the hydraulic characteristics required to achieve the necessary control. With respect to the quality storage requirements, the required pond permanent pool volume was estimated at 2,987 m^3 and the required extended detention volume was estimated at 668 m^3 (for a total area of 16.71 ha with an imperviousness of 67%, see Appendix C for details). The resulting design, which is discussed in the following sections, is presented in the AEL's design drawings provided in Appendix B.

5.2 Drainage Area and Design Inflows

As per the drawings provided by AEL (Appendix B), the total area which will drain to the pond during the ultimate is approximately 16.71 ha with a weighted average runoff coefficient of 0.67 which corresponds to an imperviousness of approximately 67% (based on the relation C= 0.9 x imp + 0.2 x (1 - imp)).

Using a detailed model of the proposed drainage area (see Figure 4a and 4b), design inflows to the pond were simulated with the SWMHYMO model and the selected summer events. Appendix D presents the input and output files of the hydrologic model.

Outflows from the SWM pond will then be conveyed by a new channel to a realigned portion of the McEnvoy Drain which then drains to the Shields Municipal Drain. The pond outflows will travel approximately 770 m before reaching the Shields Municipal Drain which then drains to Shields Creek some 1025 m further.

A summary of design peak pond inflows, outflows, operating levels and storage volumes used are provided in Tables 3 for the Chicago and SCS Type II design storms.

5.3 Pond Inlets

The inlet structure will consist of concrete pipe with a 1050 mm diameter as shown in Figure 4b. The pipe will convey the 5 year minor system runoff from 8.30 ha of commercial urban development. Flows in excess of the 5 year event will be temporarily stored over the parking lot areas and will drain to the pond as sheet flow. The maximum ponding depths over the parking areas will be limited to 0.30 m.

An additional 6.34 ha of development will drain to the pond through road side ditches, a swale and as sheet flow. In addition to this, 0.50 ha of existing commercial land will also drain to the pond. As depicted by the details shown in the AEL drawings (Appendix B), the invert of the pipe that drains to the pond will be set at an elevation of 86.73 m, some 0.42 m below the permanent pool level.

5.4 Pond Forebay / Main Pond Cell

As per the AEL drawings, with a permanent pool elevation of 87.15 m, the commercial SWM pond will cover an approximate area of 10,384 m^2 (176 m long by 59 m wide).

The side slope of the pond will be 3h:1v up to elevation 85.95 m and 7h:1v up to 87.15 m, the permanent pool water level, and 3h:1v above that elevation (see AEL drawings provided in Appendix B).

Based on a bottom elevation of 82.95 m which will provide an average water depth of 4.20 m, the permanent pool volume in the main pond cell is estimated at 26,882 m^3. The total permanent pool volume in the entire pond is nearly 9 times the minimum required volume of 2,987 m^3 as per by the MOE SWMPD Manual.

According to the SWMHYMO simulations provided in Appendix D, the maximum pond outflow during the quality event (25 mm 4 hr Chicago) will be 0.113 m^3/s (see Table 3). For such a flow, the following equation (1) (from the MOE SWMPD Manual) can be used to confirm that the distance to the pond outlet of 81 m is adequate. (This equation gives a required forebay length of 44 m). This adds to the argument that the pond even without a forebay is more than adequate to capture and retain the suspended particles.

$$Dist = \sqrt{\left(r \times Qp \div Vs\right)} \qquad (1)$$

Where,

	$Dist$	=	forebay length (m)
	r	=	length to width ratio of forebay, taken as 5.036 (141 m ÷ 28 m) for this facility
	Vs	=	settling velocity (m/s), taken as 0.0003 m/s
	Qp	=	peak discharge to pond during design quality storm, taken as 0.113 m^3/s for this facility

A check for the length between the pond inlet to the pond outlet can also be made to ascertain that it is long enough to disperse the velocity jet of the maximum design flow to the pond to a velocity less than 0.5 m/s. Using the equation (2), taken from the MOE SWMPD Manual, with the 5 year inflow of 1.383 m^3/s (1.366 m^3/s from area C1 + 0.17 m^3/s from area EX4 generated by the Chicago design storm, see SWMHYMO model of proposed conditions) and the permanent pool depth of 4.20 m, the required forebay dispersion length can be computed to be 5.3 m which is less than the 81 m provided.

$$Dist = \left(8 \times Q\right) \div \left(d \times V_f\right) \qquad (2)$$

Where,

$Dist$	=	forebay length (m)
Q	=	maximum inflow flow (5 year), taken as 1.383 m^3/s for this facility
d	=	depth of permanent pool in forebay, taken as 4.2 m for this facility
V_f	=	desired maximum velocity in forebay, taken as 0.5 m/s for this facility

A guideline for the minimum bottom width of the forebay section of the pond can be estimated with equation (3) provided below which yields a value of 10 m. The provided bottom width of the forebay is 28 m, greater than the required minimum.

$$Width = Dist \div 8 \qquad (3)$$

Where,

$Width$	=	the minimum required forebay bottom width (m)
$Dist$	=	the minimum forebay length, taken as 10 m for this facility

For a 100 year level of 87.76 m the flowing area provided by the pond cross-section is 170 m^2 and can accommodate the 100 year Chicago storm inflow of 5.57 m^3/s with a velocity of 0.033 m/s. This is well below the maximum recommended of 0.5 m/s at a forebay berm and to prevent erosion of the riprap.

5.5 Outlet Structures, Operating Pond Levels and Outlet Flows

The pond outlet structure will consist of four main components; i) a quality controlling outlet consisting of a rectangular broad crested weir 450 mm wide by 100 mm high with an invert set to 87.15 m; ii) a quantity controlling rectangular weir, 1.5 m wide by 200 mm high with an

invert set at 87.25 m; iii) a quantity controlling rectangular weir, 3.0 m wide by 0.31 m high with an invert set at 87.45 m; and iv) an overflow weir with an invert at 87.76 m to accommodate the flows in excess of the 100 year return period;

In a previous report, for the assessment of residential "Phase 2 Ultimate Development Conditions", it was recommended that a temporary metal plate be fitted and bolted on the side of the concrete outlet structure of the residential pond (see Figure 3 and Figure B4). The metal plate was to be modified to have different dimensions for each phase of development, and for the Commercial Ultimate Conditions the metal plate was to be removed entirely and rely on the concrete weir dimensions underlying it. Refer to report entitled: *Greely Village Centre; Phase 2 - Ultimate Conditions; City of Ottawa, September 2008* for specific dimensions. However, after the more detailed analysis of the Commercial Development, it was found that the metal plate, design for the residential Phase 2, should remain in place under the Commercial Ultimate Conditions. Refer to Appendix B for additional details.

With the quality control rectangular weir invert elevation of 87.15 m, the active storage volume in the Commercial SWM pond will have a depth of 100 mm and a corresponding volume of approximately 1,046 m^3. This is more than 1.5 times the minimum required volume of extended detention of 668 m^3 (40 m^3/ha x 16.71 ha). Based on the design characteristics of the rectangular weir, it can be estimated that the extended detention volume would take approximately 37 hours to be release at an average flow rate of 0.008 m^3/s. Refer to Appendix C for details.

Based on the pond's stage-storage characteristics and the main pond cell outlet stage-storage-outflow characteristics, all of which are presented in Appendix C, the SWMHYMO model was used to simulate the operation of the pond. For the results presented in Appendix D, Tables 3 summarizes, for the summer Chicago and SCS design storms respectively, the pond inflows and outflows and the maximum operating water levels and pond volumes.

From the results presented in Table 2, it can be seen that all future design peak flows will be controlled to less than the corresponding existing levels previously defined by Stantec, first; at the pond outlet corresponding to node N-R2A in the existing conditions as defined by the Residential Ultimate condition model, second at the Parkway culvert and third; at the confluence with Shields Creek.

Table 3: Summary of SWM Pond Design Inflows, Outflows, Operating Levels and Volumes

Design Storm	SWM Pond Peak Inflows (m^3/s)	SWM Pond Outflow (m^3/s)	Max. Water Level Reached in SWM Pond (m)	Max. Pond Volume Used above Permanent Pool (m^3)
25 mm - 4 hr Chicago	1.505	0.113	87.35	2,131
2 yr - 4 hr Chicago	2.120	0.207	87.42	2,811
5 yr - 4 hr Chicago	3.005	0.328	87.50	3,741
10 yr - 4 hr Chicago	3.588	0.449	87.55	4,325
25 yr - 4 hr Chicago	4.363	0.635	87.61	4,996
50 yr - 4 hr Chicago	4.931	0.792	87.66	5,494
100 yr - 4 hr Chicago	5.565	0.969	87.71	6,009
2 yr - 24 hr SCS Type II	1.760	0.277	87.46	3,292
5 yr - 24 hr SCS Type II	2.441	0.444	87.55	4,301
10 yr - 24 hr SCS Type II	2.913	0.599	87.61	4,887
25 yr - 24 hr SCS Type II	3.495	0.823	87.67	5,584
50 yr - 24 hr SCS Type II	3.952	1.009	87.71	6,110
100 yr - 24 hr SCS Type II	4.450	1.212	87.76	6,645
July 1st, 1979	3.586	1.356	87.81	7,237

From the results presented in Table 3, the simulated maximum pond water level reached during the 25 mm design storm is 87.35 m, 0.20 m over the permanent pool elevation while the maximum pond water levels for the 5 yr and 100 yr SCS Type II design events are 87.55 m and 87.76 m respectively, well below the maximum allowable operating level of 88.00 m.

The maximum accumulated stormwater volume in the SWM pond for the 100 year SCS Type II storm event is 6,645 m^3.

6.0 Summary and Conclusions

The general location of the subject property is shown in Figure 1 and is located between Bank Street and Sales Barn Road, just south of Parkway Road in the village of Greely, City of Ottawa. The drainage of the subject property, including upstream undeveloped lands, is conveyed by two unnamed watercourses and the McEnvoy Drain which discharge to Shields Municipal Drain along Sales Barn Road (from South to North). Shields Municipal Drain

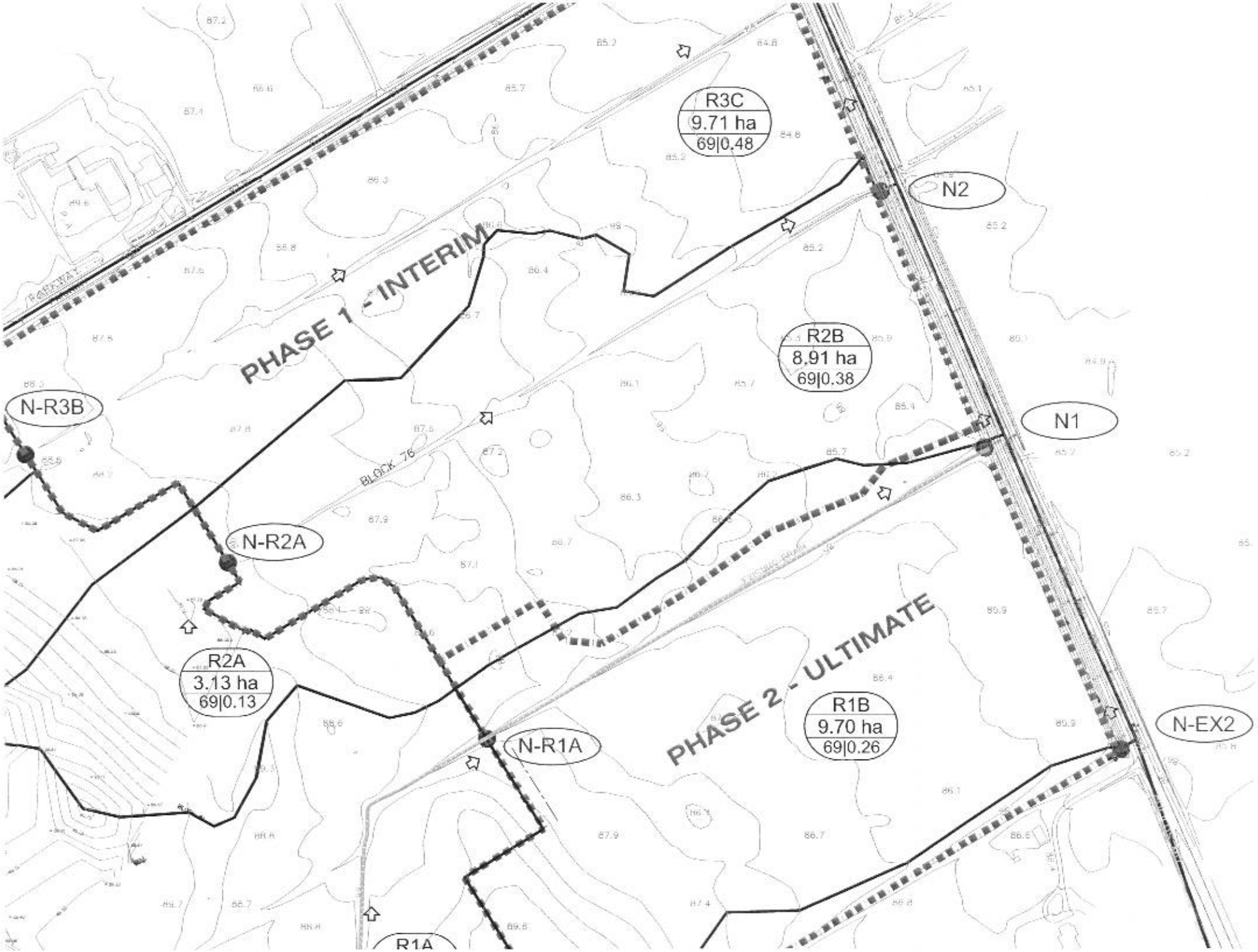
crosses through the Parkway Road culvert and then flows to Shields Creek. The total drainage area at the Parkway Road culvert is approximately 83 ha which increases to approximately 104 ha some 135 m downstream at the confluence with Shields Creek.

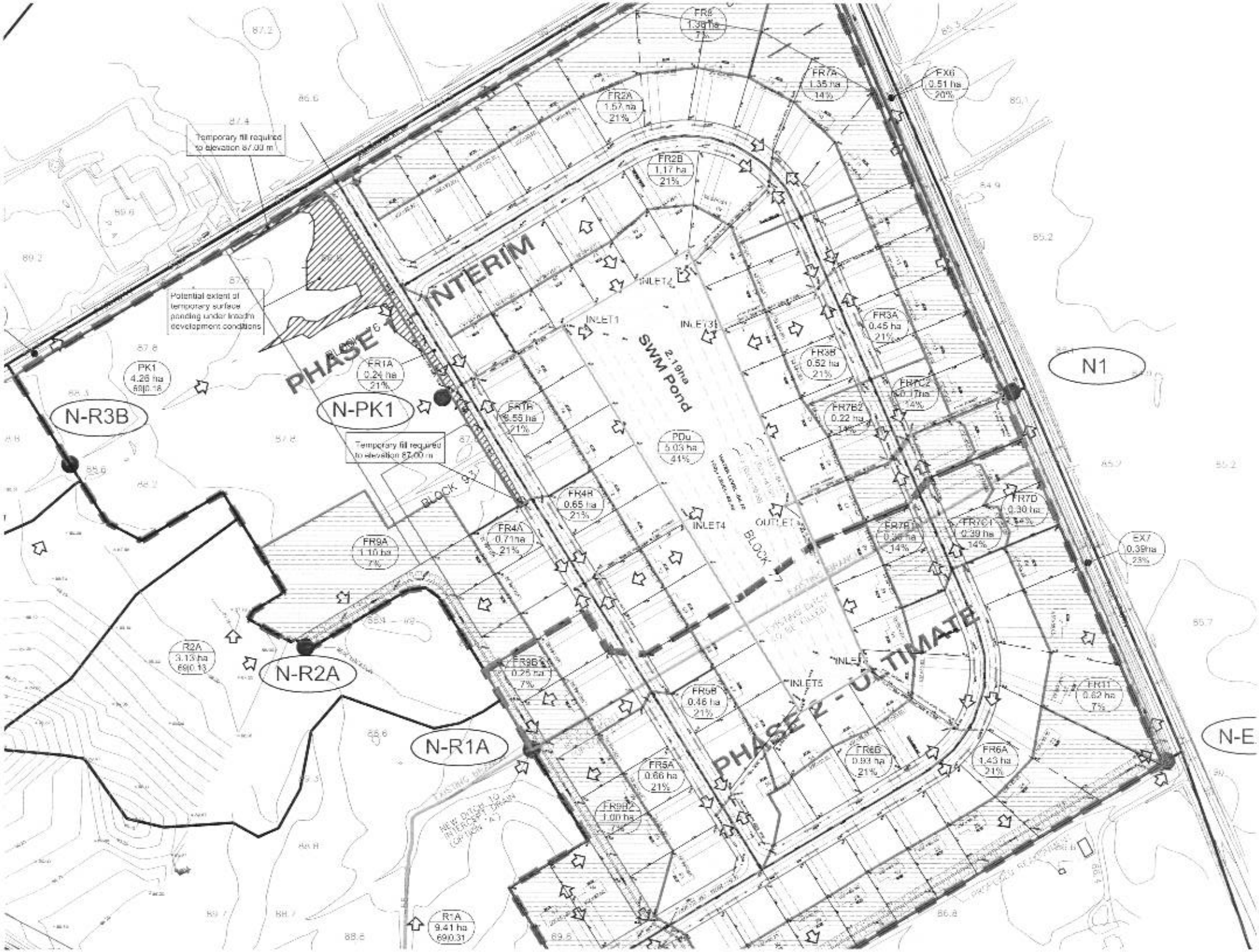
The proposed subdivision was designed by Atrel Engineering Ltd.

The capacity of the existing 1500 mm diameter culvert under Parkway Road is approximately 4.4 m^3/s with an upstream water level of 2.04 m (elevation 85.15 m) before overtopping the road. Based on the hydrologic simulations presented in this report, the existing capacity of the Parkway Road culvert is essentially equivalent to the existing 25 year design peak flow (4.3 m^3/s) as modelled by JFSA at the same location (see Table 1).

With the development of the Greely Village Centre - Commercial Phase and the proposed SWM Pond, the design peak flows at the receiving channel at the pond outlet will be maintained to existing conditions or lower. Additionally, the design peak flows at the Shields Creek confluence will be maintained to existing conditions or lower, and the Parkway Road culvert capacity will not be exceeded.

The proposed SWM Pond has been design to not only provide the necessary quantity control but also, as an added benefit, for some quality control.


R3C
9.71 ha
69|0.48
N2
PHASE 1 - INTERIM
R2B
8.91 ha
69|0.38
N-R3B
N1
BLOCK 76
N-R2A
R2A
3.13 ha
69|0.13
PHASE 2 - ULTIMATE
R1B
9.70 ha
69|0.26
N-EX2
N-R1A
R1A


PHASE 1 - INTERIM
PHASE 2 - ULTIMATE
SWM Pond 2.19ha
Temporary fill required to elevation 87.00 m
Potential extent of temporary surface ponding under interim development conditions
Temporary fill required to elevation 87.00 m
N-R3B
N-PK1
N-R2A
N-R1A
N1
N-E
PK1 4.26 ha 69|0.18
R2A 3.13 ha 69|0.13
R1A 9.41 ha 69|0.31
FR1A 0.24 ha 21%
FR1B 0.55 ha 21%
FR2A 1.57 ha 21%
FR2B 1.17 ha 21%
FR3A 0.45 ha 21%
FR3B 0.52 ha 21%
FR4A 0.71ha 21%
FR4B 0.65 ha 21%
FR5A 0.66 ha 21%
FR5B 0.46 ha 21%
FR6A 1.43 ha 21%
FR6B 0.93 ha 21%
FR7A 1.35 ha 14%
FR7B 0.36 ha 14%
FR7B2 0.22 ha 14%
FR7C1 0.39 ha 14%
FR7C2 0.17ha 14%
FR7D 0.30 ha 14%
FR8 1.38 ha 7%
FR9A 1.10 ha 7%
FR9B 0.25 ha 7%
FR9B2 1.00 ha 7%
FR11 0.82 ha 7%
PDu 5.03 ha 41%
EX6 0.51 ha 20%
EX7 0.39ha 23%
INLET1
INLET2
INLET3
INLET4
INLET5
OUTLET
BLOCK 97
BLOCK
EXISTING DITCH TO BE FILLED
NEW DITCH TO INTERCEPT DRAIN (BY OTHERS)

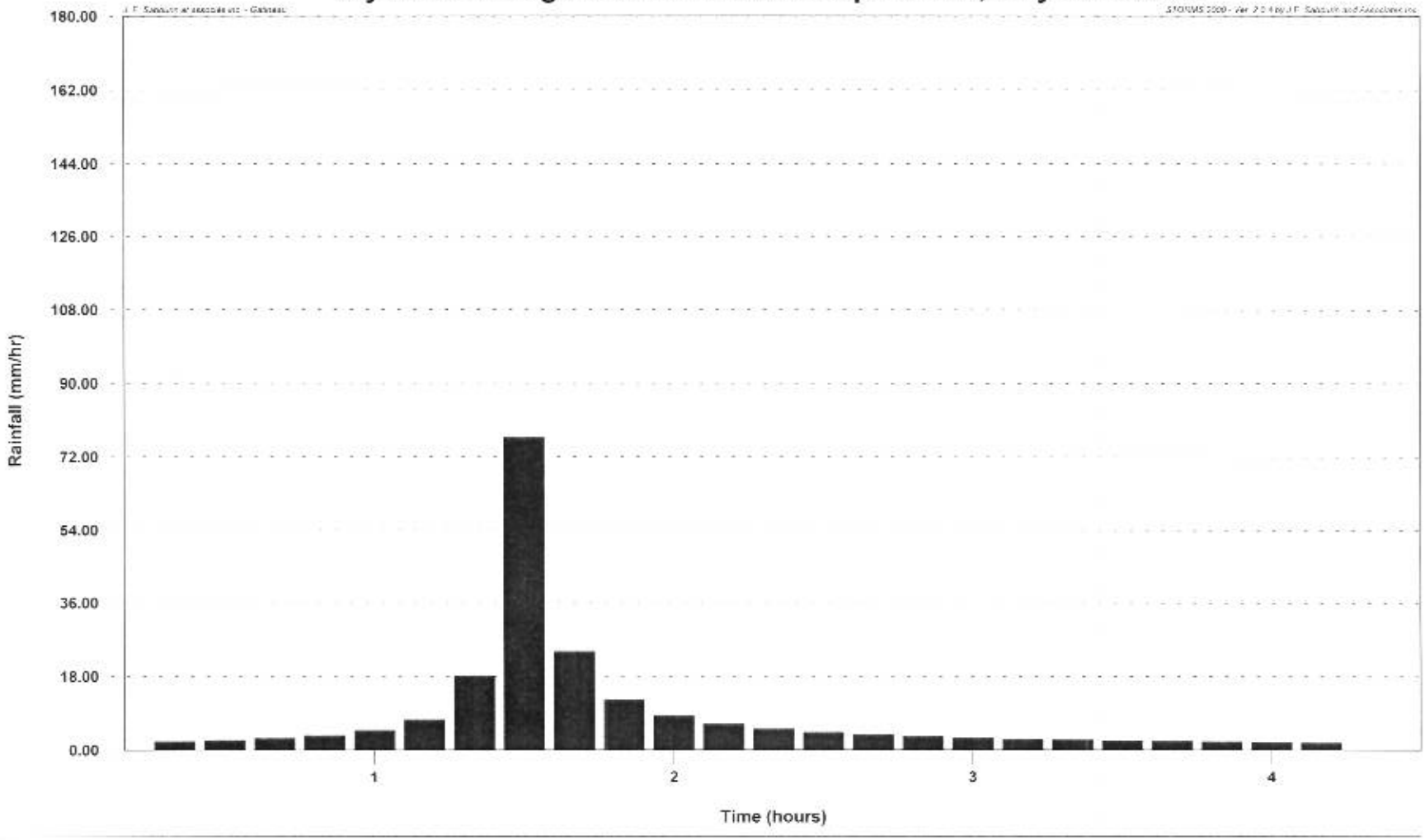

PHASE 1 - INTERIM
PHASE 2 - ULTIMATE
COMMERCIAL PHASE - FINAL
N-PK1
N1
N-EX2
SALES BARN
SWM Pond
2.19ha
INLET1
INLET2
INLET3
INLET4
INLET5
INLET6
OUTLET
BLOCK 40
BLOCK 7
BLOCK 2
BLOCK 4
BLOCK 6
BLOCK 8
PK1
4.26 ha
69|0.18
FR1A
0.24 ha
21%
FR1B
0.55 ha
21%
FR2A
1.57 ha
21%
FR2B
1.17 ha
21%
FR3A
0.45 ha
21%
FR3B
0.52 ha
21%
FR4A
0.71ha
21%
FR4B
0.65 ha
21%
FR5A
0.66 ha
21%
FR5B1
0.25 ha
7%
FR5B2
1.00 ha
7%
FR5B
0.46 ha
21%
FR6A
1.43 ha
21%
FR6B
0.93 ha
21%
FR7A
1.35 ha
14%
FR7B1
0.39 ha
14%
FR7B2
0.22 ha
14%
FR7C1
0.39 ha
14%
FR7C2
0.47ha
14%
FR7D
0.30 ha
14%
FR9A
1.10 ha
7%
FR11
0.62 ha
7%
EX6
0.51 ha
20%
EX7
0.39ha
23%
PDb
5.03 ha
44%
PDc
1.97 ha
87%
C2
6.34 ha
79%


COMMERCIAL PHASE - FINAL
PDc
1.57 ha
67%
FR9B
0.25 ha
7%
C2
6.34 ha
79%
WATER LEVEL=87.15
100yr LEVEL=87.76
1.04ha
SWM Pond
BUILDING 'A'
SEPTIC BED
450 m
(4,840 ft)
BUILDING 'C'
SEPTIC BED
200 m
(2,150 ft)
BUILDING 'C'
SEPTIC BED
200 m
(2,150 ft)
BLOCK 2
BLOCK 4
BLOCK 7
BLOCK 1
BLOCK 3
BLOCK 84
BLOCK 5
BLOCK 6
SEPTIC AREA
SEPTIC AREA

Appendix A

City of Ottawa IDF Curves
and Design Storms
4 hour, 2 year Chicago storm
4 hour, 5 year Chicago storm
4 hour, 10 year Chicago storm
4 hour, 25 year Chicago storm
4 hour, 50 year Chicago storm
4 hour, 100 year Chicago storm
24 hour, 2 year SCS Type II storm
24 hour, 5 year SCS Type II storm
24 hour, 10 year SCS Type II storm
24 hour, 25 year SCS Type II storm
24 hour, 50 year SCS Type II storm
24 hour, 100 year SCS Type II storm

2 years Chicago Storm 4 Hours step 10 min, City of Ottawa



Storm Statistics:

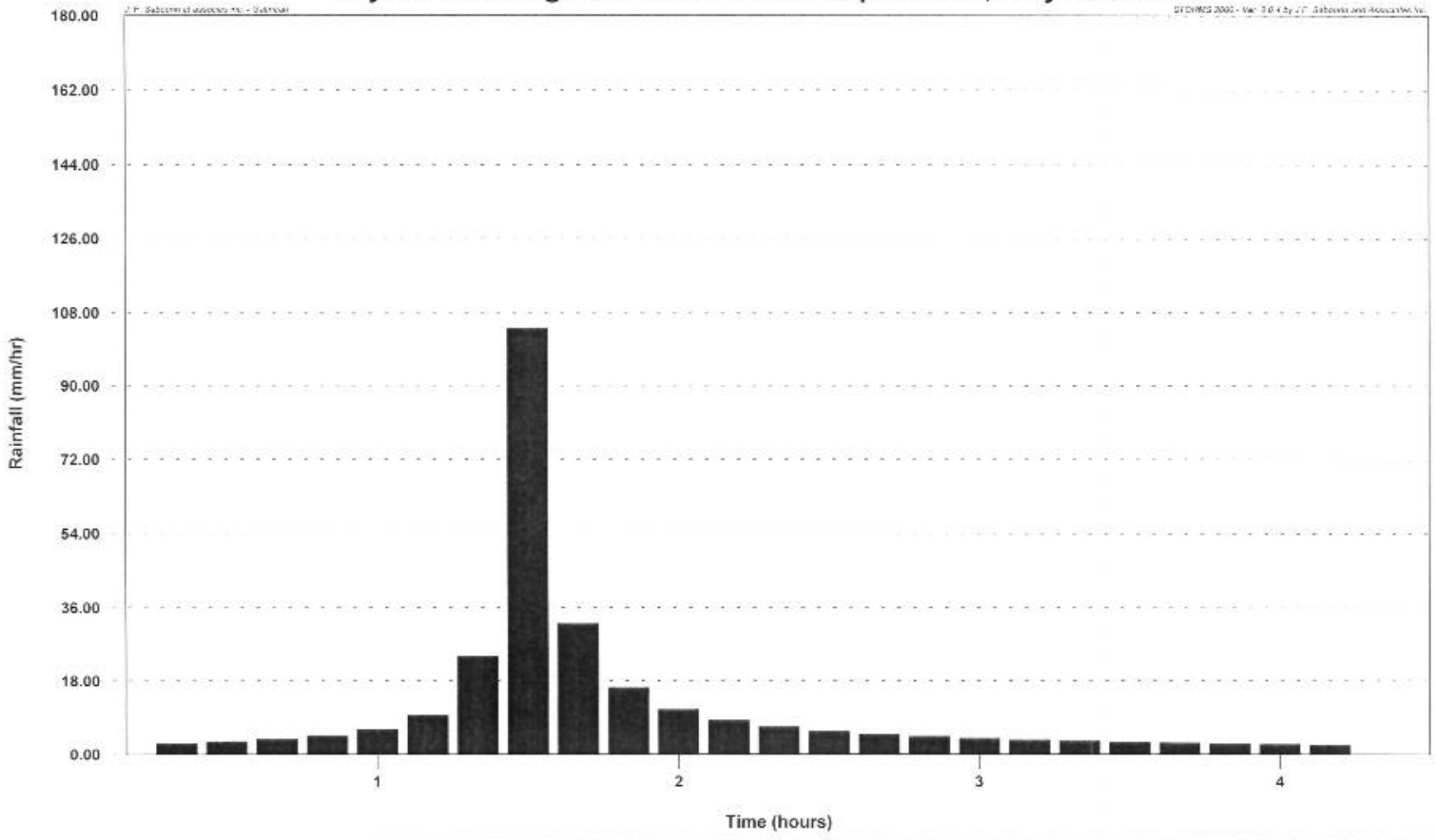
Storm Filename: F:\Proj\647-07\Design\SWMHYMO\temporary\CH4H002x.stm
Storm File Comment: 2 years Chicago Storm 4 Hours step 10 min, City of Ottawa

Total Rain	=	33.89 (mm)
Storm Duration (hrs):	=	4:00:00
Ave. Intensity	=	8.47 (mm/hr)
Max. Intensity	=	76.81 (mm/hr) at 70.00 (minutes)

Maximum Average Intensities: (mm/hr)

Time Window	5 min	10 min	15 min	30 min	1 hr	2 hrs	3 hrs	6 hrs	12 hrs	24 hrs
Ave. Intensity (mm/hr)	76.81	76.81	59.23	39.70	24.52	14.56	10.63	5.65	2.82	1.41

5 years Chicago Storm 4 Hours step 10 min, City of Ottawa



Storm Statistics:

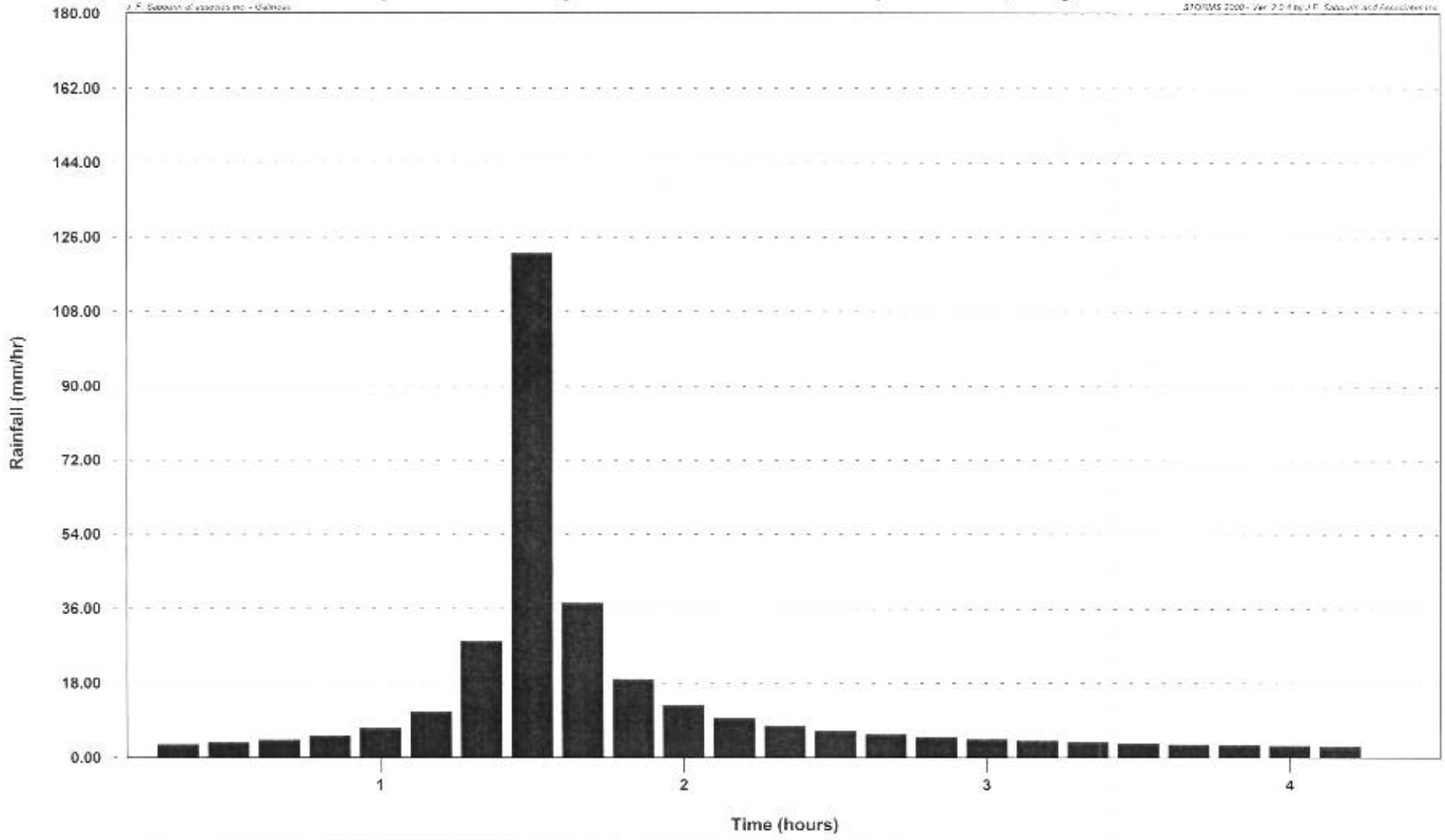
Storm Filename: F:\Proj\647-07\Design\SWMHYMO\temporary\CH4H005x.stm
Storm File Comment: 5 years Chicago Storm 4 Hours step 10 min, City of Ottawa

Total Rain	=	45.17 (mm)
Storm Duration (hrs):	=	4:00:00
Ave. Intensity	=	11.29 (mm/hr)
Max. Intensity	=	104.19 (mm/hr) at 70.00 (minutes)

Maximum Average Intensities: (mm/hr)

Time Window	5 min	10 min	15 min	30 min	1 hr	2 hrs	3 hrs	6 hrs	12 hrs	24 hrs
Ave. Intensity (mm/hr)	104.19	104.19	80.14	53.47	32.89	19.46	14.18	7.53	3.76	1.88

10 years Chicago Storm 4 Hours step 10 min, City of Ottawa



Storm Statistics:

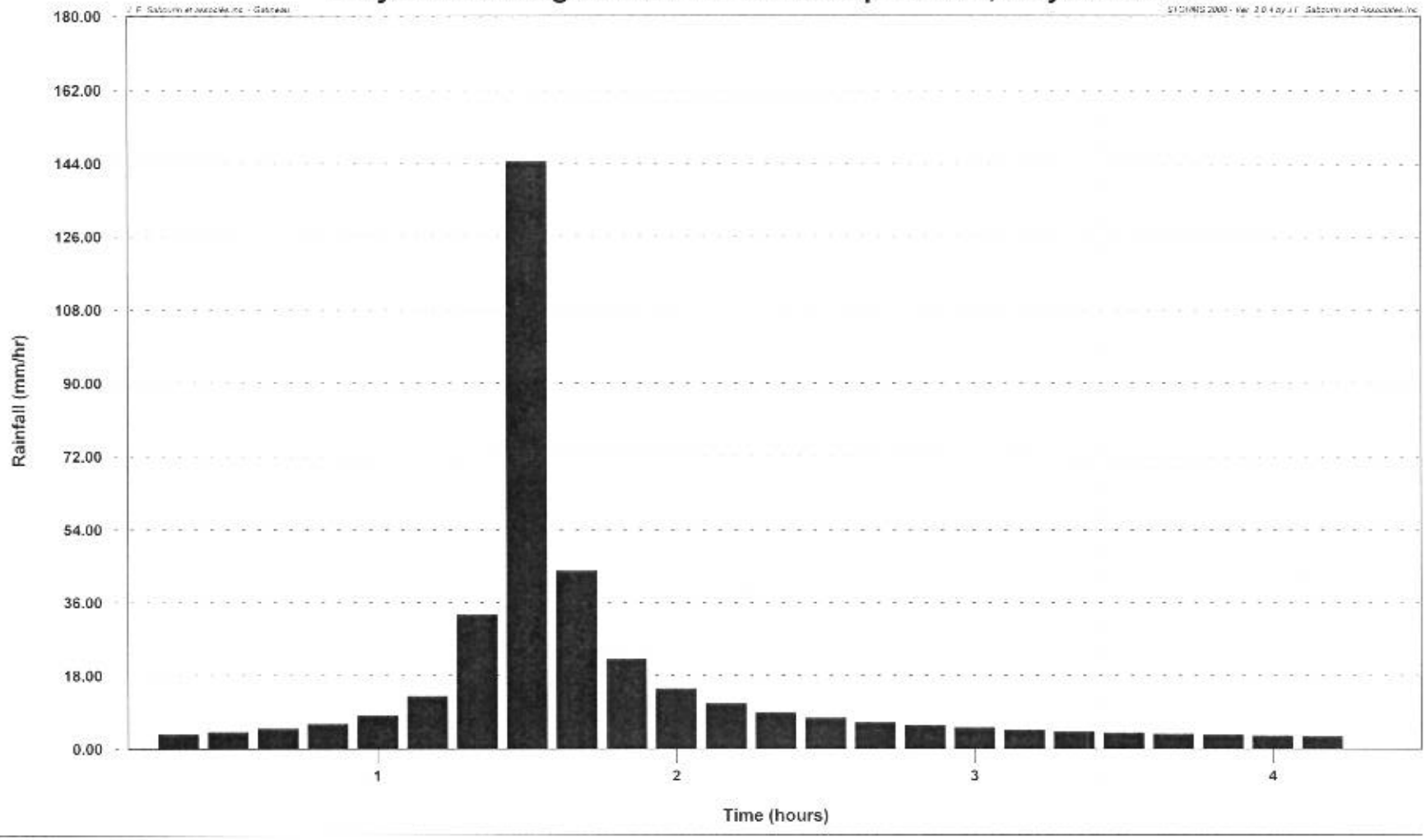
Storm Filename: F:\Proj\647-07\Design\SWMHYMO\temporary\CH4H010x.stm
Storm File Comment: 10 years Chicago Storm 4 Hours step 10 min. City of Ottawa

Total Rain	=	52.56 (mm)
Storm Duration (hrs):	=	4:00:00
Ave. Intensity	=	13.14 (mm/hr)
Max. Intensity	=	122.14 (mm/hr) at 70.00 (minutes)

Maximum Average Intensities: (mm/hr)

Time Window	5 min	10 min	15 min	30 min	1 hr	2 hrs	3 hrs	6 hrs	12 hrs	24 hrs
Ave. Intensity (mm/hr)	122.14	122.14	93.85	62.51	38.39	22.68	16.51	8.76	4.38	2.19

25 years Chicago Storm 4 Hours step 10 min, City of Ottawa



Storm Statistics:

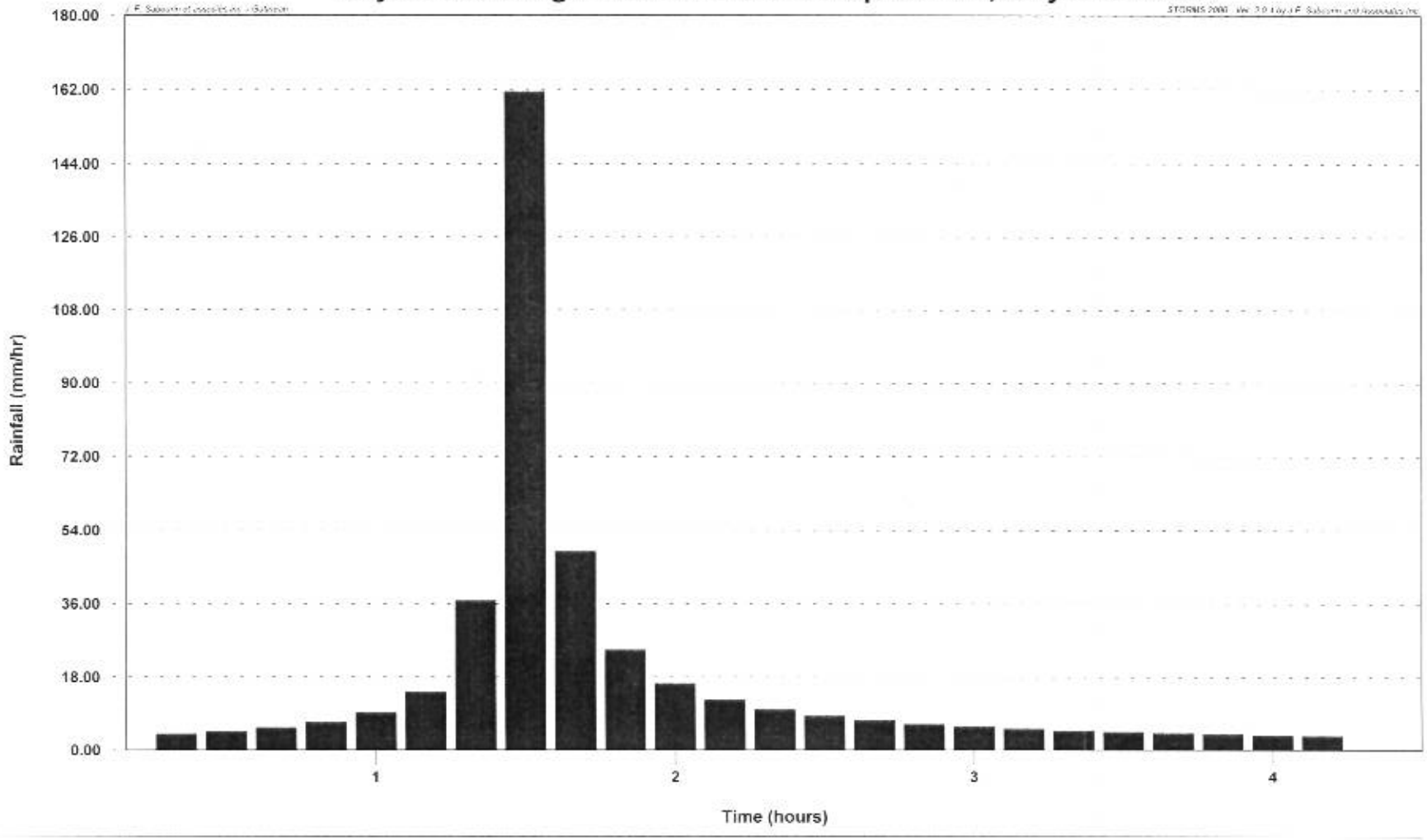
Storm Filename: F:\Proj\647-07\Design\SWMHYMO\temporary\CH4H025x.stm
Storm File Comment: 25 years Chicago Storm 4 Hours step 10 min, City of Ottawa

Total Rain	=	61.77 (mm)
Storm Duration (hrs):	=	4:00:00
Ave. Intensity	=	15.44 (mm/hr)
Max. Intensity	=	144.69 (mm/hr) at 70.00 (minutes)

Maximum Average Intensities: (mm/hr)

Time Window	5 min	10 min	15 min	30 min	1 hr	2 hrs	3 hrs	6 hrs	12 hrs	24 hrs
Ave. Intensity (mm/hr)	144.69	144.69	111.09	73.88	45.29	26.71	19.42	10.29	5.15	2.57

50 years Chicago Storm 4 Hours step 10 min, City of Ottawa



Storm Statistics:

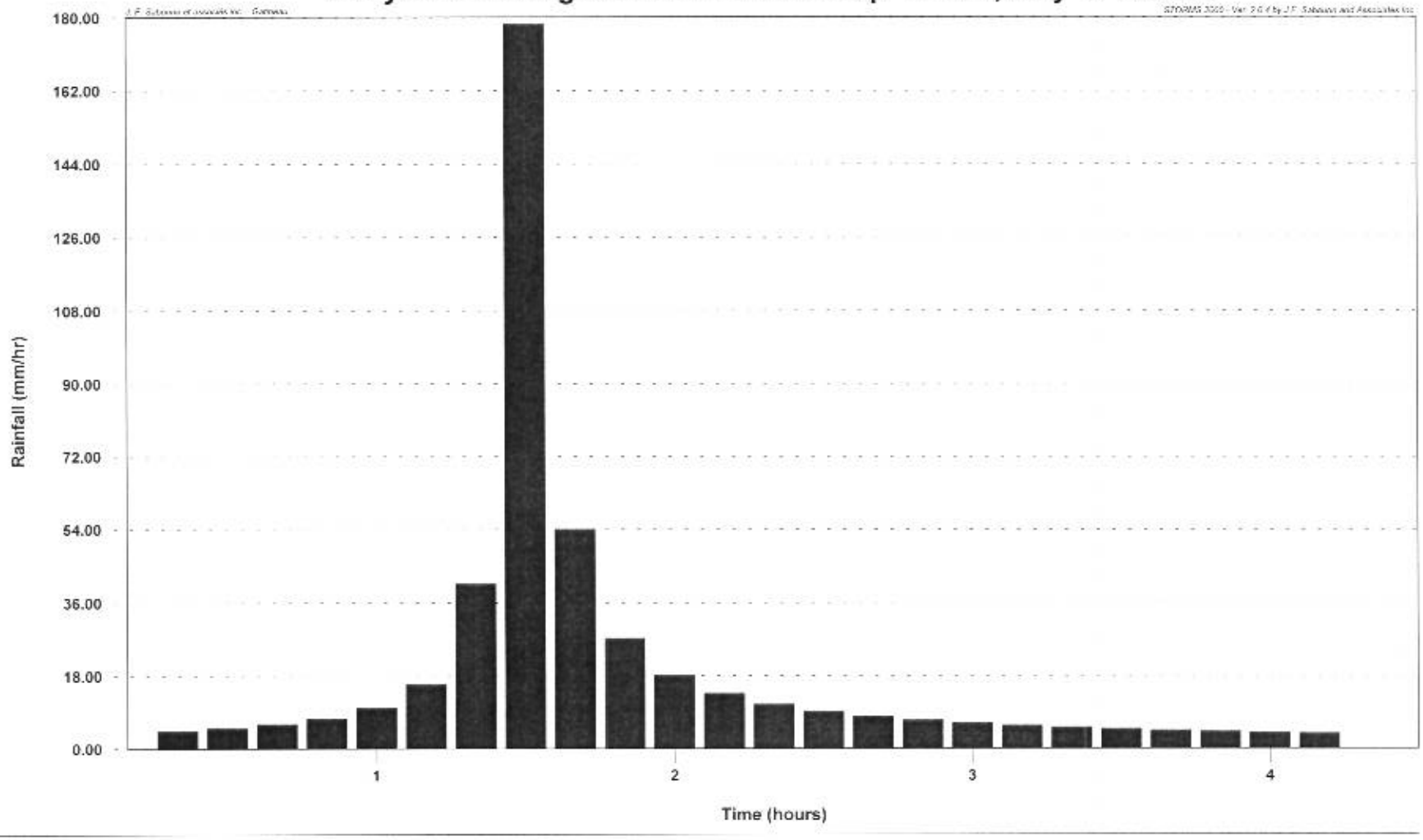
Storm Filename: F:\Proj\647-07\Design\SWMHYMO\temporary\CH4H050x.stm
Storm File Comment: 50 years Chicago Storm 4 Hours step 10 min, City of Ottawa

Total Rain	=	68.73 (mm)
Storm Duration (hrs):	=	4:00:00
Ave. Intensity	=	17.18 (mm/hr)
Max. Intensity	=	161.47 (mm/hr) at 70.00 (minutes)

Maximum Average Intensities: (mm/hr)

Time Window	5 min	10 min	15 min	30 min	1 hr	2 hrs	3 hrs	6 hrs	12 hrs	24 hrs
Ave. Intensity (mm/hr)	161.47	161.47	123.94	82.37	50.46	29.74	21.61	11.45	5.73	2.86

100 years Chicago Storm 4 Hours step 10 min, City of Ottawa



Storm Statistics:

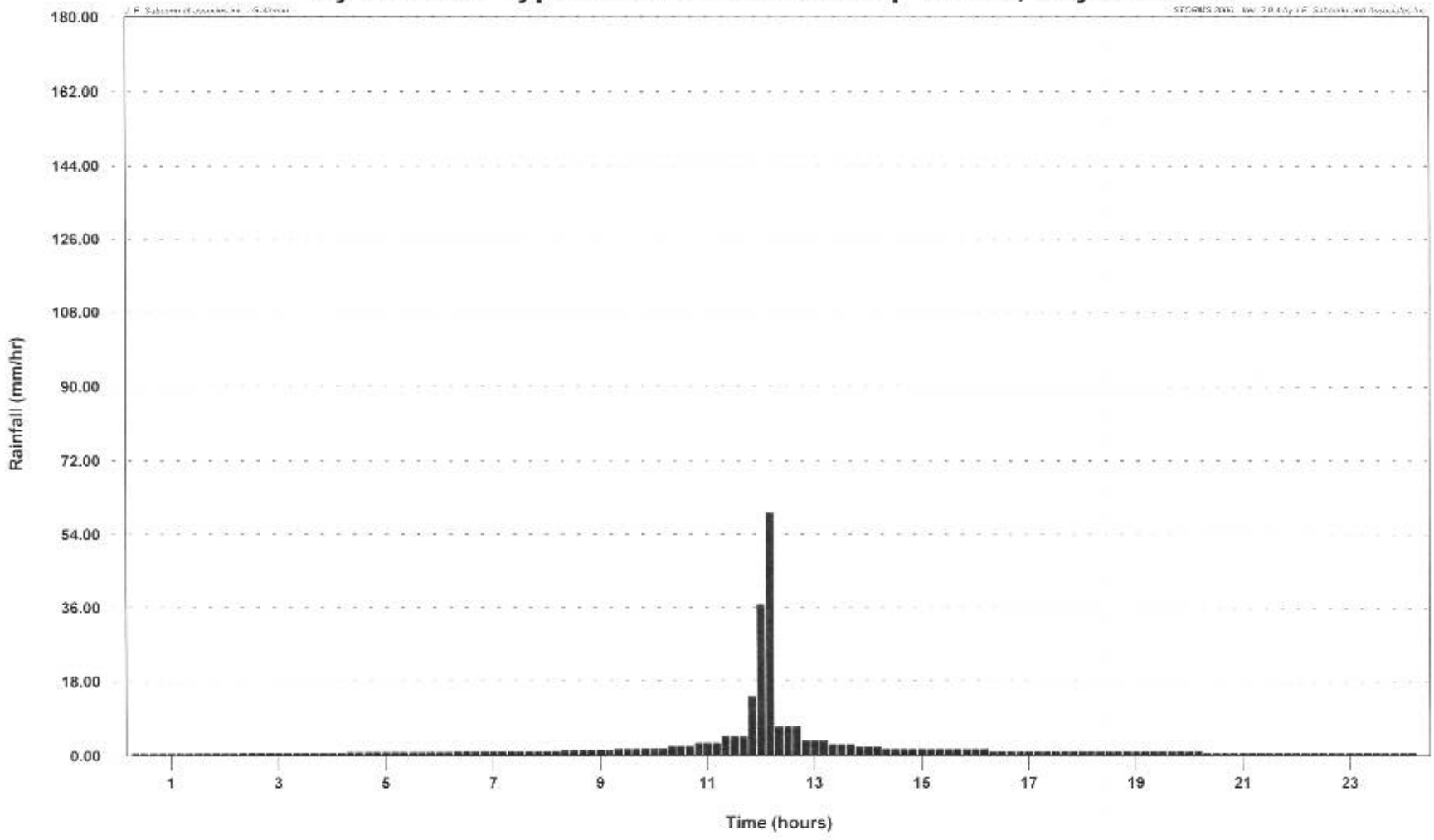
Storm Filename: F:\Proj\647-07\Design\SWMHYMO\temporary\CH4H100x.stm
Storm File Comment: 100 years Chicago Storm 4 Hours step 10 min, City of Ottawa

Total Rain	=	76.00 (mm)
Storm Duration (hrs)	=	4:00:00
Ave. Intensity	=	19.00 (mm/hr)
Max. Intensity	=	178.56 (mm/hr) at 70.00 (minutes)

Maximum Average Intensities: (mm/hr)

Time Window	5 min	10 min	15 min	30 min	1 hr	2 hrs	3 hrs	6 hrs	12 hrs	24 hrs
Ave. Intensity (mm/hr)	178.56	178.56	137.05	91.09	55.80	32.88	23.90	12.67	6.33	3.17

2 years SCS Type 2 Storm 24 Hours step 10 min, City of Ottawa



Storm Statistics:

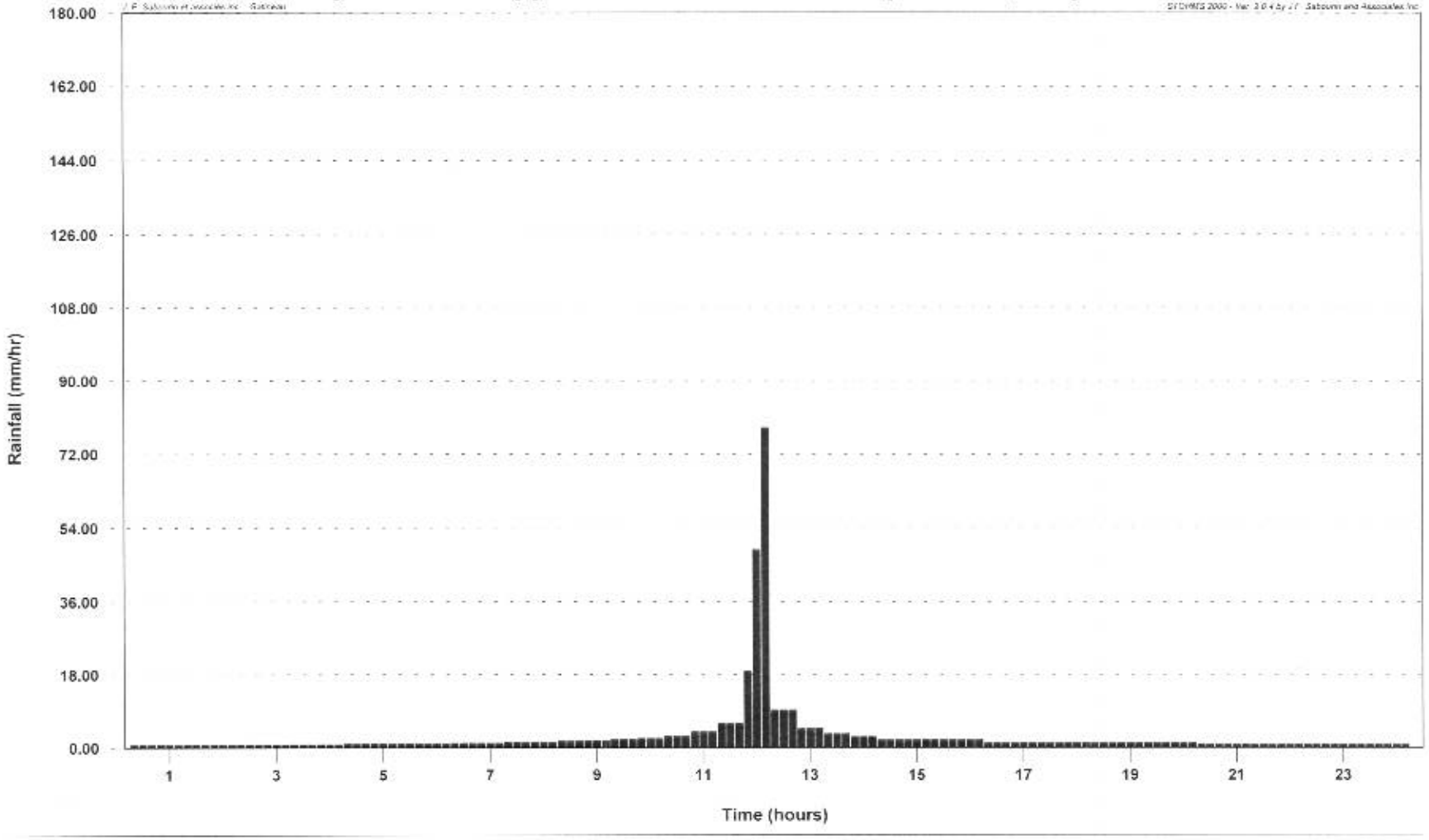
Storm Filename: F:\Proj\647-07\Design\SWMHYMO\temporary\SC24002x.stm
Storm File Comment: 2 years SCS Type 2 Storm 24 Hours step 10 min, City of Ottawa

Total Rain	=	48.46 (mm)
Storm Duration (hrs):	=	24:00:00
Ave. Intensity	=	2.02 (mm/hr)
Max. Intensity	=	59.33 (mm/hr) at 710.00 (minutes)

Maximum Average Intensities: (mm/hr)

Time Window	5 min	10 min	15 min	30 min	1 hr	2 hrs	3 hrs	6 hrs	12 hrs	24 hrs
Ave. Intensity (mm/hr)	59.33	59.33	51.83	36.84	21.91	13.02	9.61	5.68	3.38	2.02

5 years SCS Type 2 Storm 24 Hours step 10 min, City of Ottawa



Storm Statistics:

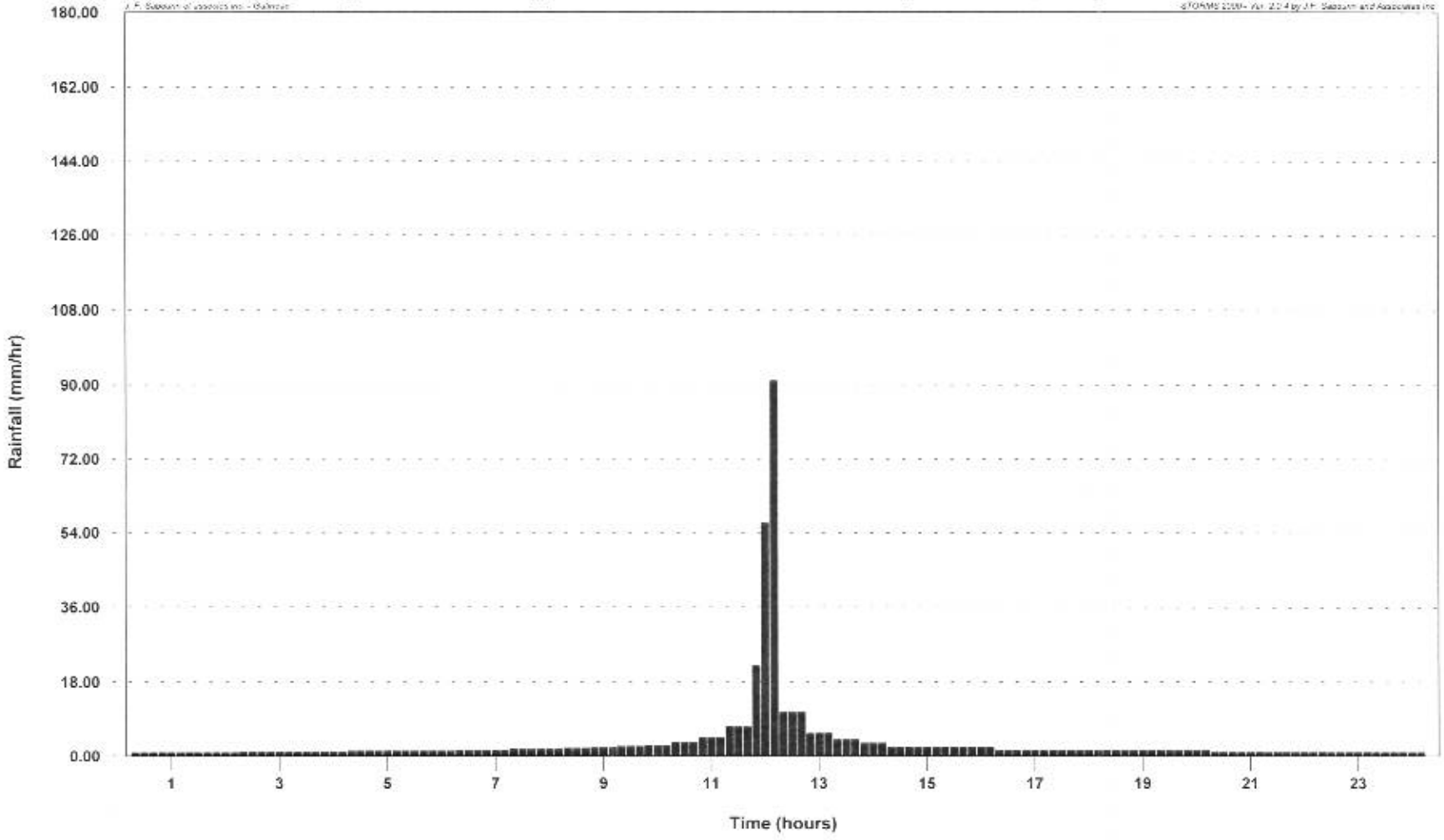
Storm Filename: F:\Proj\647-07\Design\SWMHYMO\temporary\SC24005x.stm
Storm File Comment: 5 years SCS Type 2 Storm 24 Hours step 10 min. City of Ottawa

Total Rain	=	64.11 (mm)
Storm Duration (hrs):	=	24:00:00
Ave. Intensity	=	2.67 (mm/hr)
Max. Intensity	=	78.48 (mm/hr) at 710.00 (minutes)

Maximum Average Intensities: (mm/hr)

Time Window	5 min	10 min	15 min	30 min	1 hr	2 hrs	3 hrs	6 hrs	12 hrs	24 hrs
Ave. Intensity (mm/hr)	78.48	78.48	68.56	48.73	28.98	17.22	12.72	7.51	4.47	2.67

10 years SCS Type 2 Storm 24 Hours step 10 min, City of Ottawa



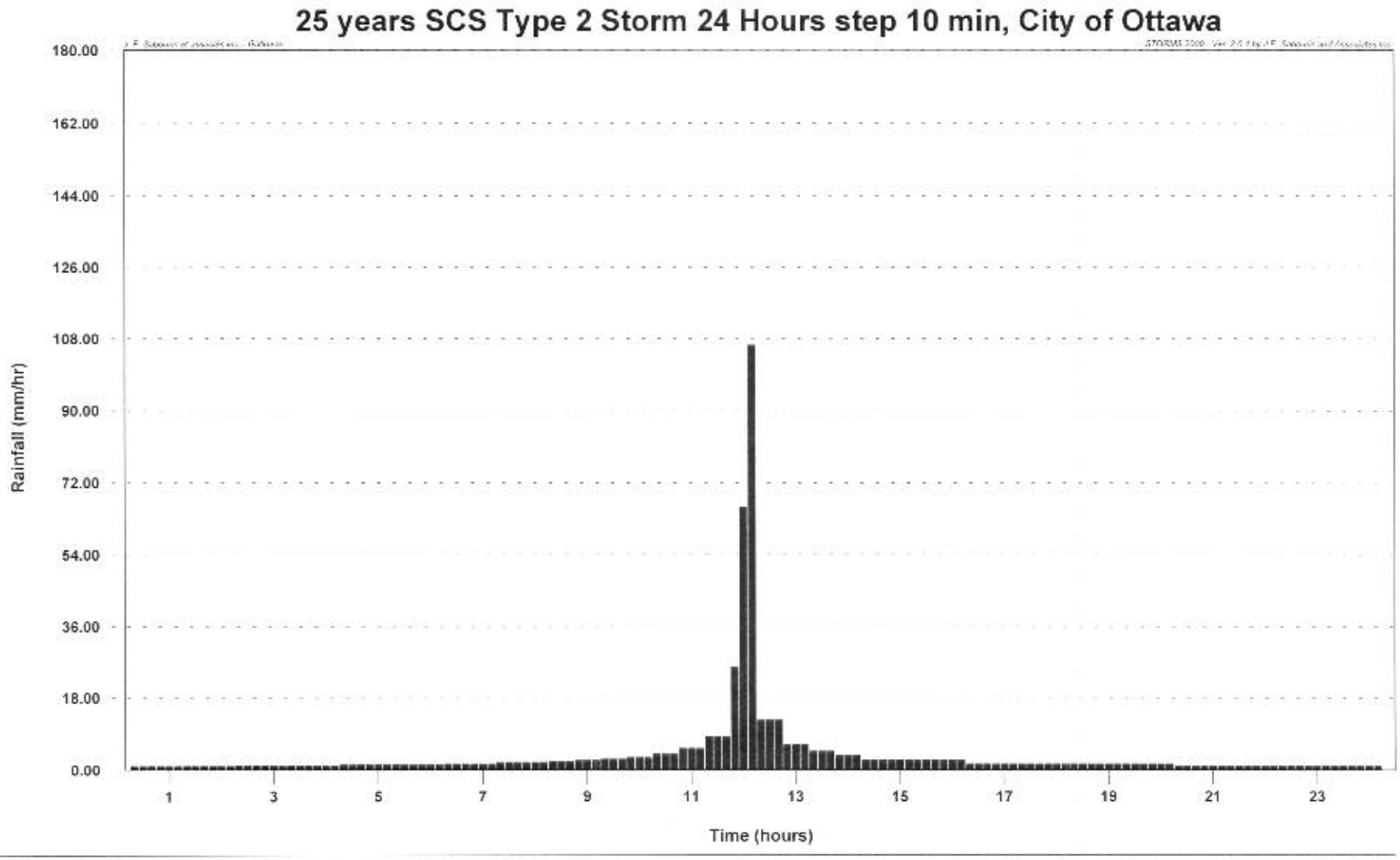
Storm Statistics:

Storm Filename: F:\Proj\647-07\Design\SWMHYMO\temporary\SC24010x.stm
Storm File Comment: 10 years SCS Type 2 Storm 24 Hours step 10 min, City of Ottawa

Total Rain	=	74.35 (mm)
Storm Duration (hrs)	=	24:00.00
Ave. Intensity	=	3.10 (mm/hr)
Max. Intensity	=	90.99 (mm/hr) at 710.00 (minutes)

Maximum Average Intensities: (mm/hr)

Time Window	5 min	10 min	15 min	30 min	1 hr	2 hrs	3 hrs	6 hrs	12 hrs	24 hrs
Ave. Intensity (mm/hr)	90.99	90.99	79.49	56.50	33.60	19.96	14.74	8.71	5.18	3.10



Storm Statistics:

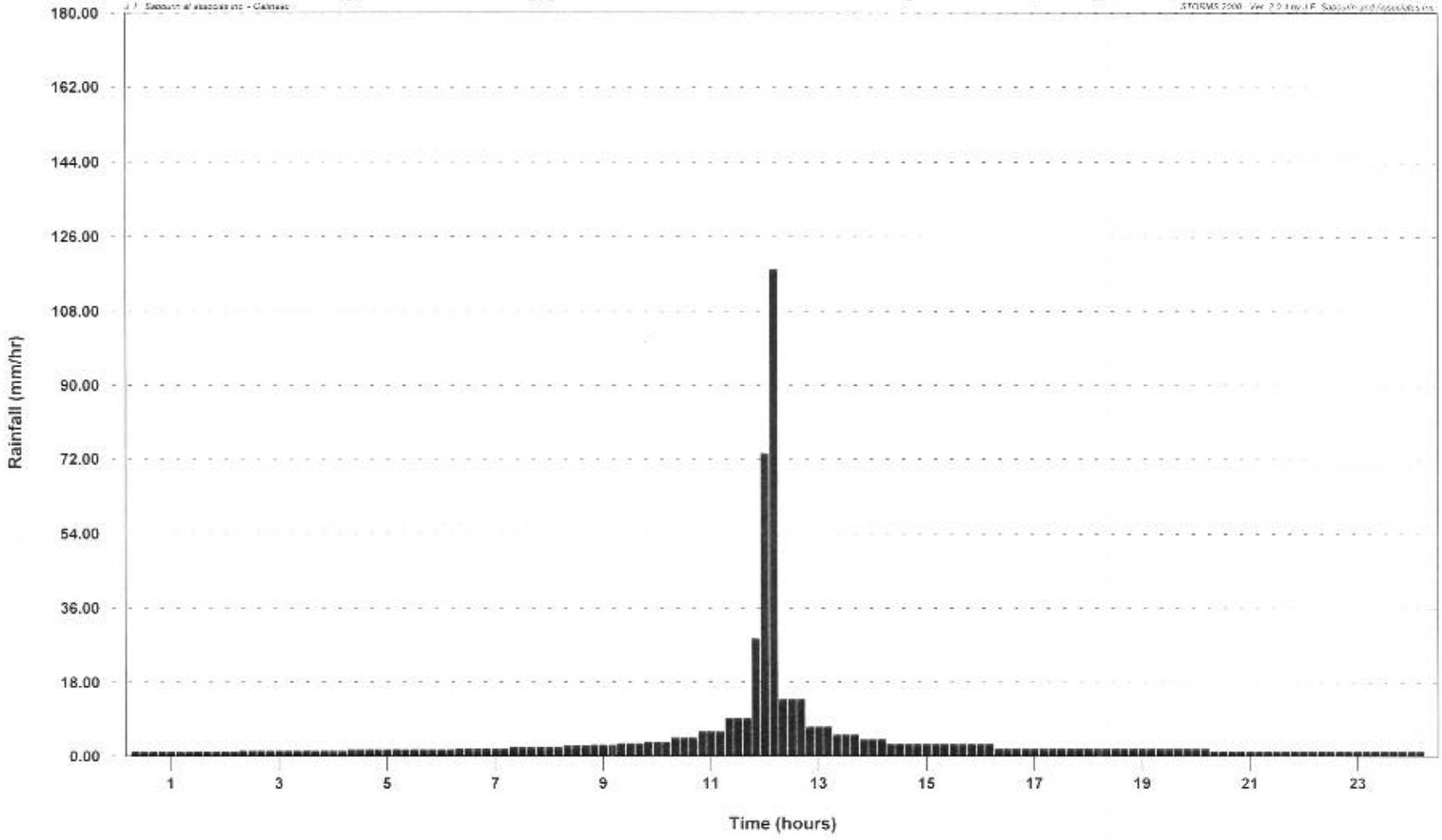
Storm Filename: F:\Proj\647-07\Design\SWMHYMO\temporary\SC24025x.stm
Storm File Comment: 25 years SCS Type 2 Storm 24 Hours step 10 min, City of Ottawa

Total Rain	=	86.89 (mm)
Storm Duration (hrs):	=	24:00:00
Ave. Intensity	=	3.62 (mm/hr)
Max. Intensity	=	106.38 (mm/hr) at 710.00 (minutes)

Maximum Average Intensities: (mm/hr)

Time Window	5 min	10 min	15 min	30 min	1 hr	2 hrs	3 hrs	6 hrs	12 hrs	24 hrs
Ave. Intensity (mm/hr)	106.38	106.38	92.94	66.05	39.29	23.34	17.24	10.18	6.05	3.62

50 years SCS Type 2 Storm 24 Hours step 10 min, City of Ottawa



Storm Statistics:

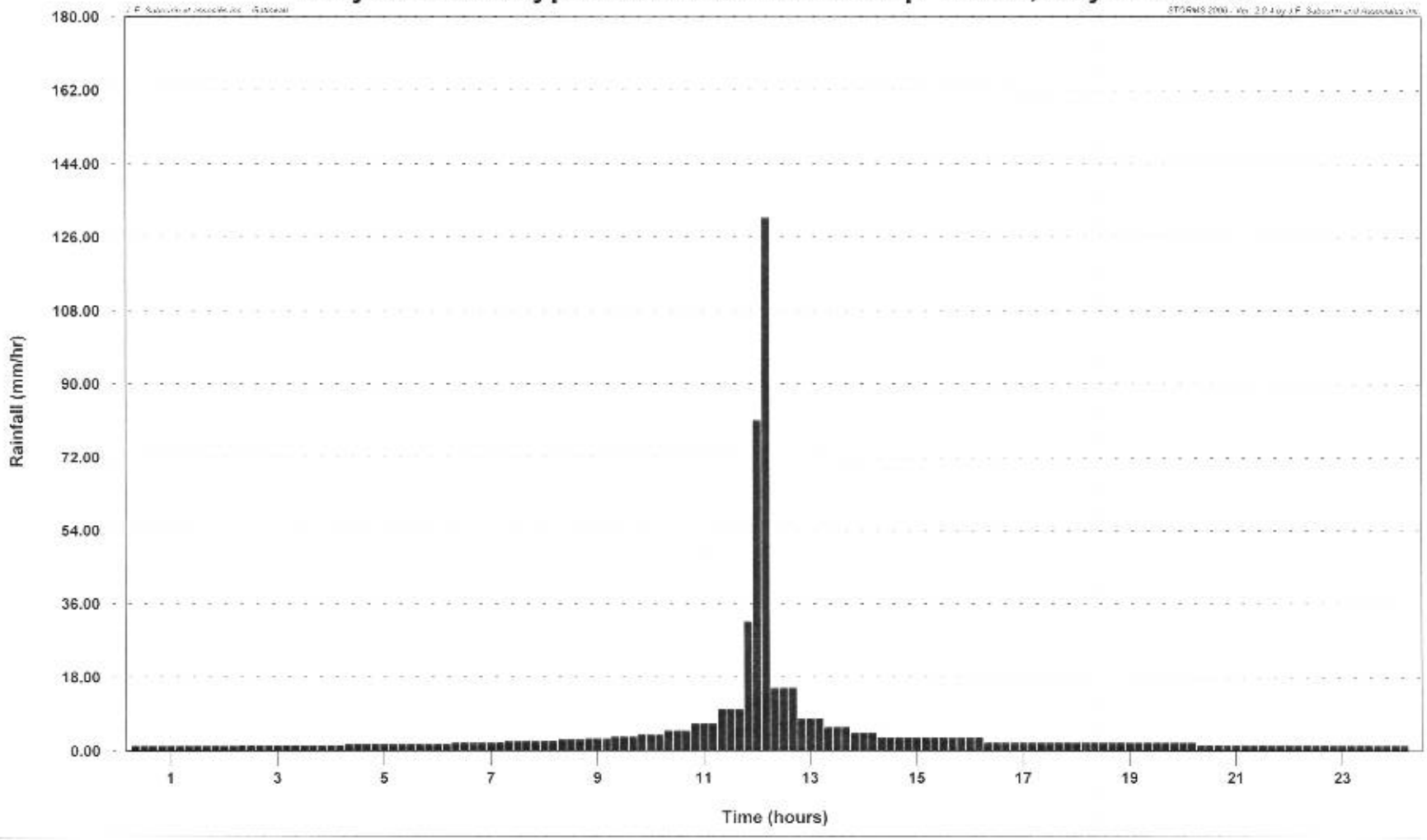
Storm Filename: F:\Proj\647-07\Design\SWMHYMO\temporary\SC24050x.stm
Storm File Comment: 50 years SCS Type 2 Storm 24 Hours step 10 min, City of Ottawa

Total Rain	=	96.53 (mm)
Storm Duration (hrs):	=	24:00:00
Ave. Intensity	=	4.02 (mm/hr)
Max. Intensity	=	118.15 (mm/hr) at 710.00 (minutes)

Maximum Average Intensities: (mm/hr)

Time Window	5 min	10 min	15 min	30 min	1 hr	2 hrs	3 hrs	6 hrs	12 hrs	24 hrs
Ave. Intensity (mm/hr)	118.15	118.15	103.22	73.36	43.63	25.92	19.14	11.31	6.73	4.02

100 years SCS Type 2 Storm 24 Hours step 10 min, City of Ottawa



Storm Statistics:

Storm Filename: F:\Proj\647-07\Design\SWMHYMO\temporary\SC24100x.stm
Storm File Comment: 100 years SCS Type 2 Storm 24 Hours step 10 min, City of Ottawa

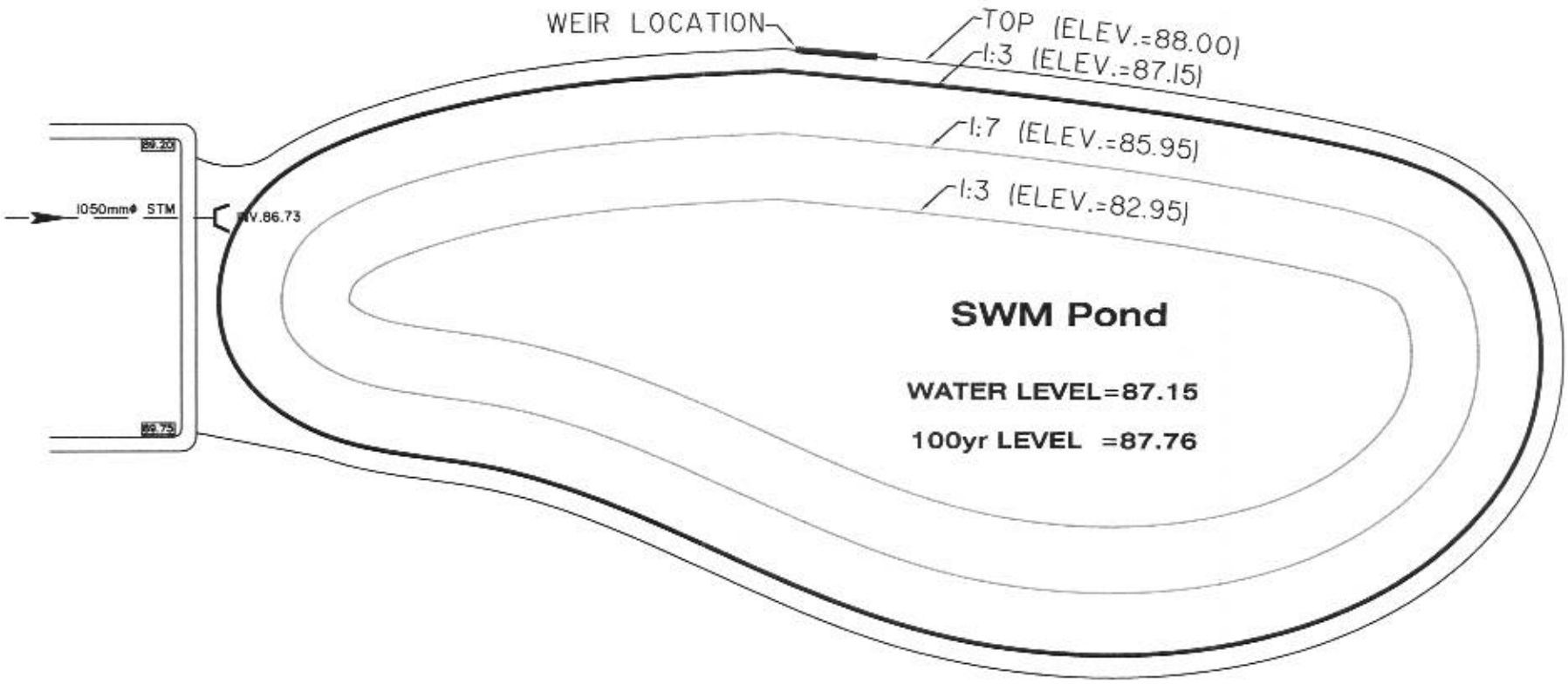
Total Rain	=	106.73 (mm)
Storm Duration (hrs):	=	24:00.00
Ave. Intensity	=	4.45 (mm/hr)
Max. Intensity	=	130.65 (mm/hr) at 710.00 (minutes)

Maximum Average Intensities: (mm/hr)

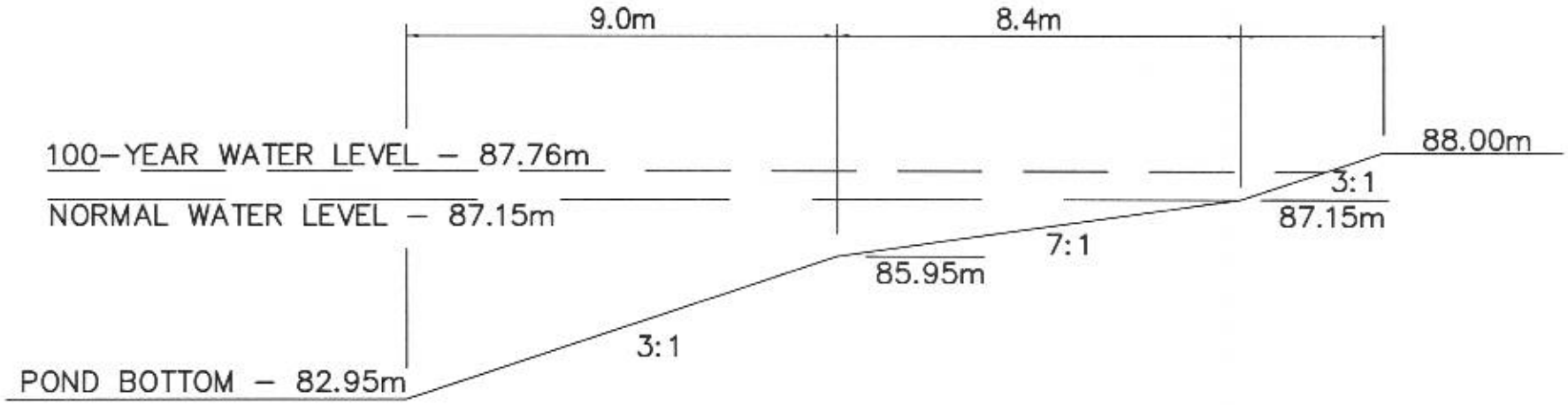
Time Window	5 min	10 min	15 min	30 min	1 hr	2 hrs	3 hrs	6 hrs	12 hrs	24 hrs
Ave. Intensity (mm/hr)	130.65	130.65	114.14	81.12	48.25	28.66	21.17	12.51	7.44	4.45

Appendix B

Atrel Engineering Limited
Design Drawings



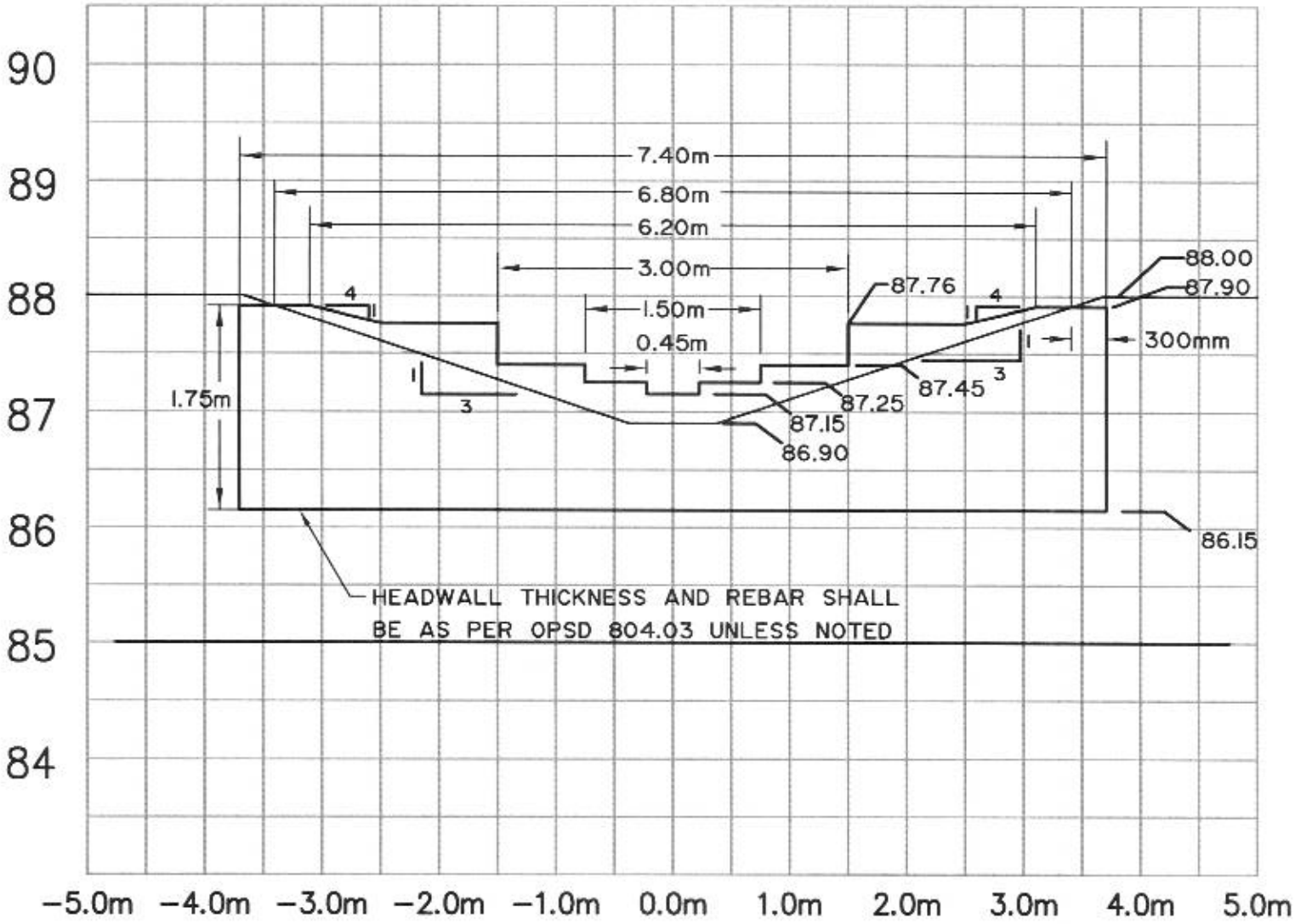
ATREL Engineering Ltd.
Engineers - Ingénieurs
380 LAURIER ST., ROCKLAND, ONTARIO K4K 1G2
TEL.: (613) 446-7423 FAX: (613) 446-7425



TYPICAL POND X-SECTION ELEVATION

(N.T.S)

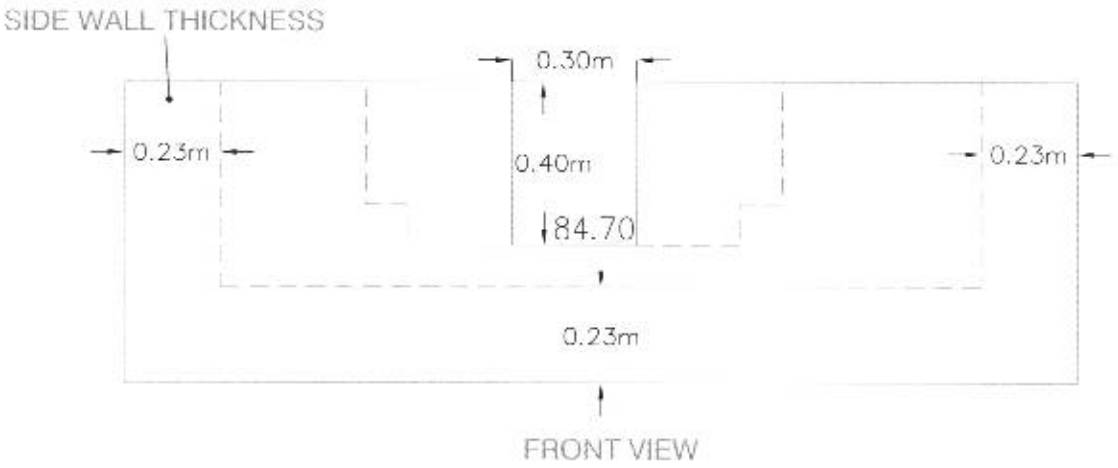
ATREL Engineering Ltd Ltée
Engineers - Ingénieurs
380 LAURIER ST., ROCKLAND, ONTARIO K4K 1G2
TEL.: (613) 446-7423 FAX: (613) 446-7425



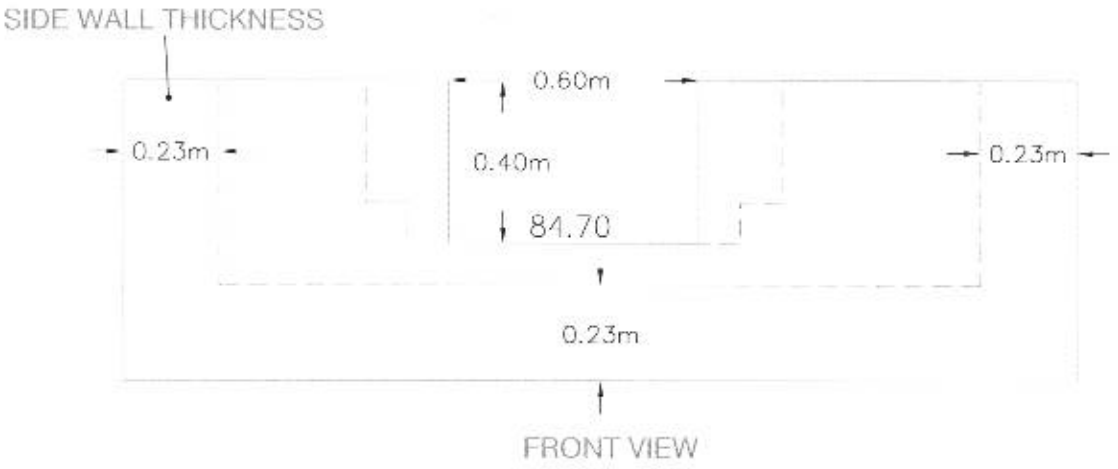
WEIR STRUCTURE

(N.T.S)

ATREL Engineering Ltd. Ltée.
Engineers - Ingénieurs
380 LAURIER ST., ROCKLAND, ONTARIO K4K 1G2
TEL.: (613) 446-7423 FAX: (613) 446-7425



INTERIM METAL PLATE



ULTIMATE METAL PLATE

LEGEND :

N.T.S.

J.F. Sabourin & Associates Inc.
WATER RESOURCES AND ENVIRONMENTAL CONSULTANTS
OTTAWA (613) 836-3884
GATINEAU (819) 243-6858

CLIENT : ATREL Engineering

380 LAURIER ST., ROCKLAND, ONTARIO K4K 1G2
TEL.: (613) 446-7423 FAX: (613) 446-7425

PROJECT :

GREELY VILLAGE CENTRE
OTTAWA

No.	BY	DATE	DESCRIPTION	BY

Weir Structure
Temporary Metal Plates

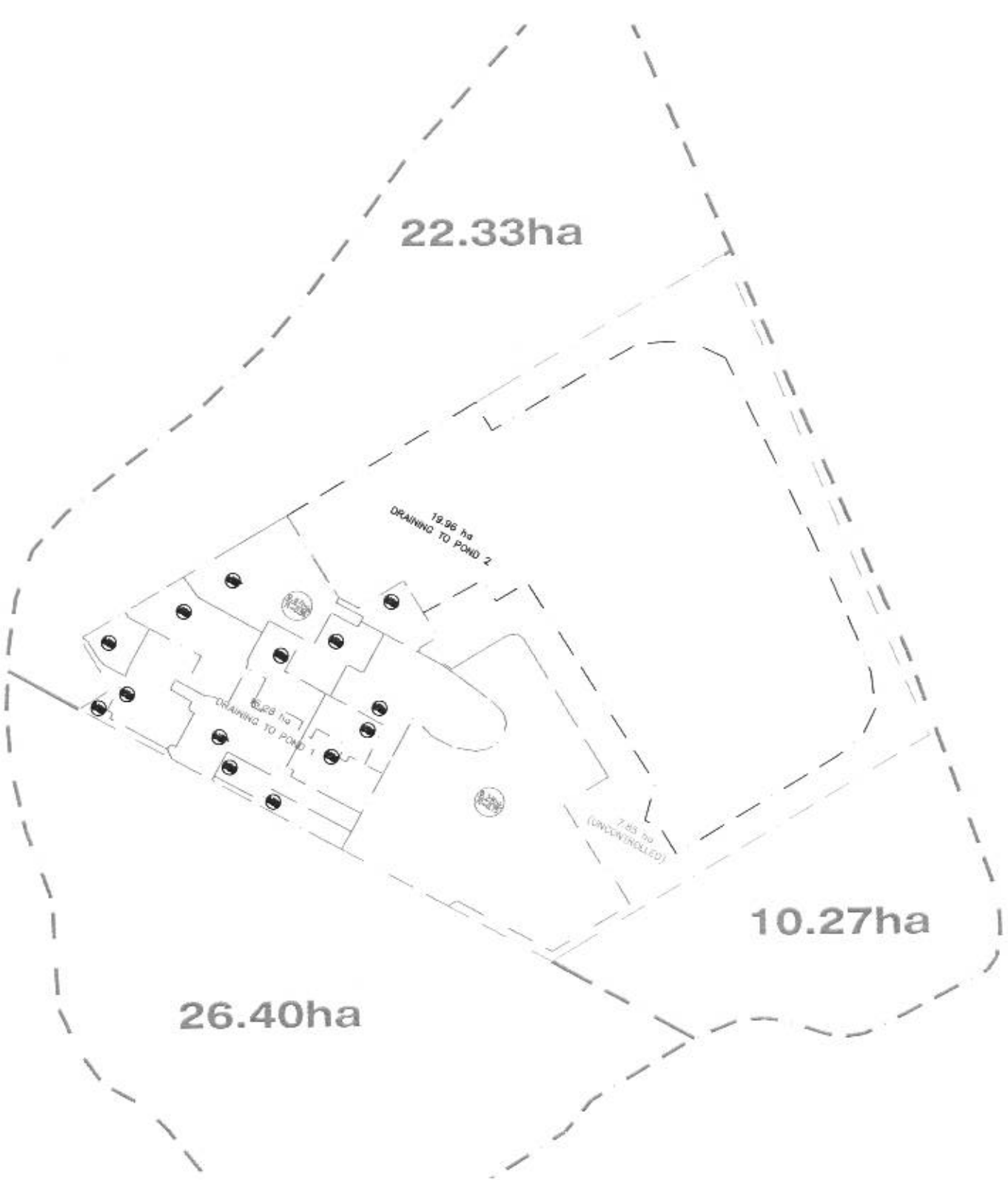
FIGURE B4

DESIGN:
DRAWN: JHF
VERIFIED: JFS
APPROVED:

DRAWING REF: 647-07\Design\CAD\Jpg...070803c Pt2.dwg

DATE: Sept 2008

PROJECT No. 647-07



1.38ha
R=0.84

BY :

CLIENT :

PROJECT :

No. BY

TITLE :

Appendix C

SWM Pond Sizing,
and Stage-Storage Curves

Project: Greely Village Centre - Commercial Phase
Project No.: 64707
Quality Pond Sizing

Date: May 28, 2008
By: JHF

POND CMRC
Lands to be developped
(Final Conditions)
(All land is developped)

Catchment No.	Description	Drainage Area (ha)	Imp. (%)		Area incl.	Area (ha)	Imp (ha)	
COM-1	Commercial lands	14.64	69		X	14.64	10.10	
RES-1	Residential lands (Phase 1)	5.83	21					
RES-2	Residential lands (Phase 2 incl. Phase 1)	9.34	21					
POND-1	Pond block (Phase 1)	3.57	48					
POND-2	Pond block (Phase 2)	5.03	47					
PK-1	Green space	4.26	0					
UND-1	Undevelopped Lands (Phase 1 & 2)	6.85	0					
EX4	Existing Residential (EX4)	0.50	22		X	0.50	0.11	
POND-C	Pond block (Commercial)	1.57	66		X	1.57	1.04	

Totals= 16.71 11.25

Avg Imp= 67.31 %

As per MOEE,

Req'd Pond Vol.=	219	cu.m/ha
Total Pond Volume	3655	cu.m
Permanent Pool=	2987	cu.m
Ext.Det. Volume=	668	cu.m

Commercial Pond

PP 2987
AS 668

10-Dec-08

	Quality and extended control based on 40 cu.m x 16.71 ha = 668 cu.m. Vol/24 hr/3600 x 2 =0.0155 cms		Quantity control weir (Broad)		Quantity control weir (Broad)		Overflow weir (Broad), Top		
	Rectangular broad crested weir		Length	1.50	Length	3.00	Length	6.2	
	Length	0.45	Height	0.2	Height	0.31	Height	0.24	
	Height	0.10					Top elevation	88	
	Cw (for the weir)	1.71	Cw (for the weir)	1.85	Cw (for the weir)	1.85	Cw	1.85	
	Contractions	2	Contractions	2	Contractions	2	Contractions	2	
	Invert elevation (m)	87.15	Invert elevation (m)	87.25	Invert elevation (m)	87.45	Invert elevation (m)	87.76	
	Q weir at H = Qtarget=	0.023	Q weir at H = Qtarget=	0.242	Q weir at H = Qtarget=	0.938	Q weir at H =	1.338	

elevation	Volume										Total
above P.P.	Total volume	above P.P.	Head (m)	Outflow (cms)		Outflow (cms)		Outflow (cms)	Head (m)	Outflow (cms)	Outflow (cms)
87.15	26882	0	weir behavior	0.000		0.000		0.000	0.00	0.000	0.000
87.20	27403	521		0.008		0.000		0.000	0.00	0.000	0.008
87.21	27550	668		0.012		0.000		0.000	0.00	0.000	0.012
87.25	27928	1046	quality vol.	0.023		0.000		0.000	0.00	0.000	0.023
87.30	28457	1575		0.023		0.031		0.000	0.00	0.000	0.054
87.35	28989	2108		0.023		0.087		0.000	0.00	0.000	0.110
87.40	29526	2644		0.023		0.158		0.000	0.00	0.000	0.181
87.45	30067	3185		0.023		0.242		0.000	0.00	0.000	0.265
87.50	30611	3729		0.023		0.242		0.052	0.00	0.000	0.327
87.55	31159	4278		0.023		0.242		0.174	0.00	0.000	0.439
87.60	31711	4830		0.023		0.242		0.319	0.00	0.000	0.584
87.65	32267	5386		0.023		0.242		0.490	0.00	0.000	0.755
87.70	32827	5945		0.023		0.242		0.682	0.00	0.000	0.947
87.75	33391	6509		0.023		0.242		0.894	0.00	0.000	1.159
87.76	33504	6622		0.023		0.242		0.938	0.00	0.000	1.203
87.80	33958	7076		0.023		0.242		0.938	0.04	0.092	1.295
87.85	34529	7647		0.023		0.242		0.938	0.09	0.309	1.512
88.00	36264	9382		0.023		0.242		0.938	0.24	1.338	2.541

Drawdown time

Volume (m^3)	Q (cms)	Time (hours)
0	0.0000	0
668.00	0.0121	30.7
1045.96	0.0233	5.9
		36.6

Commercial Pond Storage Area

Elev.	Depth	Area	Elev. Diff.	Total Volume	Comment
82.95	0.00	3985.85	0	0	
83.00	0.05	4032.78	0.05	200	
83.05	0.10	4079.86	0.05	403	
83.10	0.15	4127.11	0.05	608	
83.15	0.20	4174.51	0.05	816	
83.20	0.25	4222.06	0.05	1026	
83.25	0.30	4269.78	0.05	1238	
83.30	0.35	4317.65	0.05	1453	
83.35	0.40	4365.98	0.05	1670	
83.40	0.45	4413.87	0.05	1889	
83.45	0.50	4462.21	0.05	2111	
83.50	0.55	4510.72	0.05	2336	
83.55	0.60	4559.38	0.05	2562	
83.60	0.65	4608.19	0.05	2792	
83.65	0.70	4657.17	0.05	3023	
83.70	0.75	4706.30	0.05	3257	
83.75	0.80	4755.59	0.05	3494	
83.80	0.85	4805.04	0.05	3733	
83.85	0.90	4854.65	0.05	3974	
83.90	0.95	4904.41	0.05	4218	
83.95	1.00	4954.33	0.05	4465	
84.00	1.05	5004.41	0.05	4714	
84.05	1.10	5054.65	0.05	4965	
84.10	1.15	5105.04	0.05	5219	
84.15	1.20	5155.59	0.05	5476	
84.20	1.25	5206.30	0.05	5735	
84.25	1.30	5257.16	0.05	5996	
84.30	1.35	5308.19	0.05	6261	
84.35	1.40	5359.37	0.05	6527	
84.40	1.45	5410.71	0.05	6796	
84.45	1.50	5462.20	0.05	7068	
84.50	1.55	5513.86	0.05	7343	
84.55	1.60	5565.67	0.05	7620	
84.60	1.65	5617.64	0.05	7899	
84.65	1.70	5669.77	0.05	8181	
84.70	1.75	5722.05	0.05	8466	
84.75	1.80	5774.49	0.05	8754	
84.80	1.85	5827.09	0.05	9044	
84.85	1.90	5879.85	0.05	9336	
84.90	1.95	5932.76	0.05	9632	
84.95	2.00	5985.83	0.05	9930	
85.00	2.05	6039.06	0.05	10230	
85.05	2.10	6092.45	0.05	10534	
85.10	2.15	6145.99	0.05	10840	
85.15	2.20	6199.70	0.05	11148	
85.20	2.25	6253.56	0.05	11460	
85.25	2.30	6307.27	0.05	11774	
85.30	2.35	6361.75	0.05	12090	
85.35	2.40	6416.08	0.05	12410	
85.40	2.45	6470.57	0.05	12732	
85.45	2.50	6525.22	0.05	13057	
85.50	2.55	6580.02	0.05	13384	
85.55	2.60	6634.99	0.05	13715	
85.60	2.65	6690.11	0.05	14048	

Commercial Pond Storage Area

Elev.	Depth	Area	Elev. Diff.	Total Volume	Comment
85.65	2.70	6745.38	0.05	14384	
85.70	2.75	6800.82	0.05	14722	
85.75	2.80	6856.41	0.05	15064	
85.80	2.85	6912.16	0.05	15408	
85.85	2.90	6968.07	0.05	15755	
85.90	2.95	7024.14	0.05	16105	
85.95	3.00	7080.38	0.05	16457	
86.00	3.05	7207.47	0.05	16815	
86.05	3.10	7335.45	0.05	17178	
86.10	3.15	7464.35	0.05	17548	
86.15	3.20	7594.15	0.05	17925	
86.20	3.25	7724.86	0.05	18308	
86.25	3.30	7856.48	0.05	18697	
86.30	3.35	7989.00	0.05	19093	
86.35	3.40	8122.43	0.05	19496	
86.40	3.45	8256.77	0.05	19906	
86.45	3.50	8392.01	0.05	20322	
86.50	3.55	8528.16	0.05	20745	
86.55	3.60	8665.22	0.05	21175	
86.60	3.65	8803.19	0.05	21611	
86.65	3.70	8942.06	0.05	22055	
86.70	3.75	9081.84	0.05	22506	
86.75	3.80	9222.53	0.05	22963	
86.80	3.85	9364.12	0.05	23428	
86.85	3.90	9506.62	0.05	23900	
86.90	3.95	9650.03	0.05	24379	
86.95	4.00	9794.34	0.05	24865	
87.00	4.05	9939.57	0.05	25358	
87.05	4.10	10085.70	0.05	25859	
87.10	4.15	10232.73	0.05	26367	
87.15	**4.20**	**10380.68**	**0.05**	**26882**	**Permanent**
87.20	4.25	10459.64	0.05	27403	
87.25	4.30	10538.29	0.05	27928	
87.30	4.35	10616.63	0.05	28457	
87.35	4.40	10694.66	0.05	28989	
87.40	4.45	10772.38	0.05	29526	
87.45	4.50	10849.78	0.05	30067	
87.50	4.55	10926.87	0.05	30611	
87.55	4.60	11003.65	0.05	31159	
87.60	4.65	11080.12	0.05	31711	
87.65	4.70	11156.27	0.05	32267	
87.70	4.75	11232.11	0.05	32827	
87.76	4.81	11307.64	0.06	**33503**	**100 yr**
87.80	4.85	11382.86	0.04	33957	
87.85	4.90	11457.77	0.05	34528	
87.90	4.95	11532.36	0.05	35103	
87.95	5.00	11606.64	0.05	35681	
88.00	5.05	11680.61	0.05	36264	

STORM SEWER COMPUTATION FORM

DESIGNED BY: DRP
CHECKED BY:

Greely Village
Sunset Lakes Coporation
070903
ATREL ENGINEERING LTD
January 2009

STORM FREQUENCY: 5 YEAR
RATIONAL METHOD Q= 2.78 AIR
PVC/CONC N= 0.0130

LOCATION				AREA (ha.) RUNOFF COEFFICIENT									RATIONAL METHOD		5 YEAR TIME	RAINF.	ACTUAL	PIPE			SEWER DATA						UpStream		DwStream	Number	MH	Forced	Inv to	DwStream	
FROM (Up)		TO (Down)		0.20	0.40	0.50	0.55	0.60	0.65	0.70	0.80	0.90	INDIV. 2.78AR	ACCUM. 2.78AR	CONC. (MIN)	INTENS. (MM/HR)	PIPE FLOW (L/S)	TYPE	DIA. (NOM) (mm)	(ACT)	SLOPE (%)	LENGTH (M)	CAP. (L/S)	Remaining Capacity (%)	VEL. (M/S)	TIME OF FLOW (MIN)	Obv (M)	Inv. (M)	Sewer Band	of Reqd	Drop (M)	drop (M)	Inv (M)	Obv. (M)	Inv. (M)
MH	101	MH	102							0.30			0.58	0.58	10.00	104.19	**60.83**	PVC	375	388.4	0.35	85.5	97.52	38%	0.92	1.18	89.39	89.02	45	1			no	89.16	88.79
MH	102	MH	103									0.87	2.18	2.76	11.18	98.35	**271.60**	CONC	600	609.6	0.25	36.5	320.28	15%	1.10	0.55	89.16	88.53	45	1			no	89.07	88.47
MH	103	MH	104						1.12				2.02	4.78	11.73	95.84	**458.53**	CONC	750	762.0	0.20	119.0	519.40	12%	1.14	1.74	89.07	88.32	90	1		0.32	no	88.63	88.08
															13.46																			
MH	108	MH	104									0.47	1.18	1.18	10.00	104.19	**122.52**	PVC	375	366.4	1.20	42.0	180.57	32%	1.71	0.41	88.82	88.45				-0.19	no	88.32	87.95
															10.41																			
MH	109	MH	104									0.57	1.43	1.43	10.00	104.19	**148.59**	PVC	375	388.4	1.00	80.0	164.84	10%	1.56	0.85	89.54	89.17	90	1		0.23	no	88.74	88.37
															10.85																			
MH	104	MH	105											7.38	13.46	88.83	**656.14**	CONC	825	838.2	0.25	69.5	748.75	12%	1.36	0.85	88.51	87.89					no	88.34	87.52
															14.33																			
MH	110	MH	105									0.37	0.93	0.93	10.00	104.19	**96.45**	PVC	300	295.2	1.30	34.0	109.48	12%	1.56	0.36	88.78	88.48	90	1			no	88.34	88.04
															10.36																			
MH	111	MH	112			1.02							1.42	1.42	10.00	104.19	**147.72**	CONC	525	533.4	0.25	57.0	224.33	34%	1.03	0.55	88.42	87.50	45	1			no	88.26	87.76
MH	112	MH	105							0.55			1.07	2.49	10.95	99.45	**247.44**	CONC	600	609.6	0.25	85.5	320.28	23%	1.10	1.30	88.28	87.68	90	1		-0.27	no	88.07	87.47
															12.24																			
MH	105	MH	106											10.80	14.33	85.79	**926.56**	CONC	975	990.6	0.20	79.5	1045.58	11%	1.36	0.98	88.34	87.37	90	1		0.33	no	88.18	87.21
															15.31																			
MH	113	MH	114		1.49								1.66	1.66	10.00	104.19	**172.63**	CONC	600	609.6	0.15	125.5	248.09	30%	0.85	2.46	87.75	87.15	90	1			no	87.56	86.96
MH	114	MH	108								0.42		0.93	2.59	12.46	92.77	**240.36**	CONC	675	685.8	0.15	15.0	339.63	29%	0.92	0.27	87.56	86.88	90	1	0.06		1	87.54	86.86
															12.73																			
MH	108	MH	Pond				0.59						0.80	14.29	15.31	82.58	**1180.35**	CONC	1050	1066.8	0.20	32.0	1274.02	7%	1.43	0.39	87.85	86.80					no	87.78	**86.73**
															15.68																			

Appendix D

SWMHYMO Model,
Input and Output Files
for Existing and Proposed Conditions

NOTES:

Some warnings have appeared in the SWMHYMO output file for the proposed conditions. Therefore the warnings were reviewed to insure that there were no outstanding issues.

CALIB STANDHYD *** WARNING: For areas with impervious ratios below 20%, this routine may not be applicable.

This warning occurs when the STANDHYD routine is utilised for lower impervious ratios. However, because the areas analysed are large residential lots where the impervious areas are uniformly distributed, the routine is appropriate.

ROUTE PIPE -> *** WARNING: New pipe size used for routing.

This warning occurs when flow exceed the pipe's free flow capacity. Because the pipes in a residential development are sized for the 5 year event, the flows greater than the pipe capacity will generate this warning. However, the development will accommodate the excess flows though a set of swales (see Figure 3 for details).

Note that the time step was reduced to 1 min from 5 min in the propose commercial in order to eliminate the warnings caused by the time step. No significant change was observed relating to this measure.

```
ID    Metric units / ID numbers OFF
*#*****************************************************************************
*#  SWMHYMO Ver.5.02/Jan 2001 <BETA> / INPUT DATA FILE
*#*****************************************************************************
*#  Project Name: [Greely Village Center]    Project Number: [437-01]
*#  Date         : 04-09-2008
*#  Modeller     : [odr]
*#  Company      : JFSAinc.
*#  License #    : 2547452
*#*****************************************************************************
*#
*# SWMHYMO model of the Greely Village Center - Residential Area - Phase 1
*# Existing conditions.
*# Filename stands for: GRP1E - Greely, Residential, Phase 1, Existing
*#
*# Dec 15, 2008
*# Added July 1st 1979 event
*#
*# *#  EXISTING CONDITIONS ASSUMPTIONS:
*#  CN*, XIMP, TIMP,
*#  as per Stantec Report, Oct. 2002, Greely Shield Creek, Stormwater
*#  and drainage study.
*#  and as per Atrel drawing: Greely Village Area.dwg
*#  as modified per subwatershed
*#  Tp calculated using the Upland Method as per Stantec. (Tp = Tc * 2/3)
*#
*#*****************************************************************************
START                    TZERO=[0.0], METOUT=[2], NSTORM=[1], NRUN=[1]
                         ["C4H25MM.STM"] <--storm filename, one per line for NSTORM time
*#-------------------|---------------------------------------------------------
READ STORM               STORM_FILENAME=["storm.001"]
*#-------------------|---------------------------------------------------------
*#*****************************************************************************
*# Existing flow - McEvoy Branch of Shield Creek - Areas
*# Area u/s of proposed development (residential)
*# CN=75, slope = 0.8, Tp=0.16, XIMP=5, TIMP=15, see SC002 as per Stantec
*# Area partially adjusted based on Atrel drawings.
*#*****************************************************************************
*# u/s of Bank St.as per Atrel - with modified boundaries and Tp.
DESIGN NASHYD            NHYD=["EX1"], DT=[5]min, AREA=[26.12](ha),
                         DWF=[0](cms), CN/C=[75], TP=[0.27]hrs,
                         RAINFALL=[ , , , , ](mm/hr), END=-1
*#-------------------|---------------------------------------------------------
*#*****************************************************************************
*# Existing flow - McEvoy Branch of Shields Creek (d/s of Bank St.)
*# CN= 69, as per Stantec see SC010.
*# Area partially adjusted based on Atrel drawings.
*#*****************************************************************************
*# Areas External to development
DESIGN NASHYD            NHYD=["EX2"], DT=[5]min, AREA=[10.94](ha),
                         DWF=[0](cms), CN/C=[69], TP=[0.67]hrs,
                         RAINFALL=[ , , , , ](mm/hr), END=-1
*#-------------------|---------------------------------------------------------
DESIGN NASHYD            NHYD=["EX3"], DT=[5]min, AREA=[1.30](ha),
                         DWF=[0](cms), CN/C=[69], TP=[0.53]hrs,
                         RAINFALL=[ , , , , ](mm/hr), END=-1
*#-------------------|---------------------------------------------------------
*# Slope, Ximp, Timp, Area from Atrel Drawing
*# CN from Stantec (SC001)
*# Ximp   Timp = 16
DESIGN STANDHYD          NHYD=["EX4"], DT=[5]min, AREA=[0.50](ha),
                         XIMP=[0.11], TIMP=[0.22], DWF=[0](cms), LOSS=[2], CN=[69],
                         SLOPE=[1](%), RAINFALL=[ , , , , ](mm/hr), END=-1
*#-------------------|---------------------------------------------------------
*# Areas to be occupied by commercial development
DESIGN NASHYD            NHYD=["R1A"], DT=[5]min, AREA=[9.08](ha),
                         DWF=[0](cms), CN/C=[69], TP=[0.31]hrs,
                         RAINFALL=[ , , , , ](mm/hr), END=-1
*#-------------------|---------------------------------------------------------
DESIGN NASHYD            NHYD=["R2A"], DT=[5]min, AREA=[3.13](ha),
                         DWF=[0](cms), CN/C=[69], TP=[0.17]hrs,
                         RAINFALL=[ , , , , ](mm/hr), END=-1
*#-------------------|---------------------------------------------------------
DESIGN NASHYD            NHYD=["R3A"], DT=[5]min, AREA=[4.14](ha),
                         DWF=[0](cms), CN/C=[69], TP=[0.21]hrs,
                         RAINFALL=[ , , , , ](mm/hr), END=-1
*#-------------------|---------------------------------------------------------
DESIGN NASHYD            NHYD=["R3B"], DT=[5]min, AREA=[2.21](ha),
                         DWF=[0](cms), CN/C=[69], TP=[0.22]hrs,
                         RAINFALL=[ , , , , ](mm/hr), END=-1
*#-------------------|---------------------------------------------------------
*# Areas to be occupied by residential development
DESIGN NASHYD            NHYD=["R1B"], DT=[5]min, AREA=[9.00](ha),
                         DWF=[0](cms), CN/C=[69], TP=[0.34]hrs,
                         RAINFALL=[ , , , , ](mm/hr), END=-1
*#-------------------|---------------------------------------------------------
DESIGN NASHYD            NHYD=["R2B"], DT=[5]min, AREA=[8.91](ha),
                         DWF=[0](cms), CN/C=[69], TP=[0.38]hrs,
                         RAINFALL=[ , , , , ](mm/hr), END=-1
*#-------------------|---------------------------------------------------------
DESIGN NASHYD            NHYD=["R3C"], DT=[5]min, AREA=[8.71](ha),
                         DWF=[0](cms), CN/C=[69], TP=[0.48]hrs,
                         RAINFALL=[ , , , , ](mm/hr), END=-1
*#-------------------|---------------------------------------------------------
*#*****************************************************************************
*# EXISTING FLOW - Total Flow to Shield Creek (Stantec Node SC128)
*#*****************************************************************************
*# McEvoy Drain, u/s of residential area
ADD HYD                  NHYDsum=["R1ab"], NHYDs to add=["EX1"+"R1A"]
*#-------------------|---------------------------------------------------------
*# Typical Section based on McEvoy Branch Vee Ditch 1.5:1 slopes
*# provided by Atrel
*# Manning's n is Channel not maintained, light brush on banks
*# Route R1ab to d/s node N1
*# Slope = 1% as per Atrel drawing
ROUTE CHANNEL            NHYDout=["RR1ab"],NHYDin=["R1ab"],
                         RDT=[5](min),
                         CHLGTH=[375](m),  CHSLOPE=[1.00](%),
                                                  FPSLOPE=[1.00](%),
                          SECNUM=[01],        NSEG=[1]
                         ( SEGROUGH, SEGDIST (m)) [0.050,48.80] NSEG times
                         ( DISTANCE (m), ELEVATION (m))=[0,        85.43]
                                                         [ 3.02,  83.43]
                                                         [ 4.61,  84.50]
                                                         [ 5.41,  85.00]
                                                         [48.80,  85.90]
*#-------------------|---------------------------------------------------------
*# Typical Section based on Shields MD Vee ditch 3:1 banks
*# provided by Atrel
*# Manning's n is Channel not maintained, light brush on banks
*# Route EX2 to d/s node N1
*# Slope = 0.05% as per plan provided by Atrel.
ROUTE CHANNEL            NHYDout=["REX2"],NHYDin=["EX2"],
                         RDT=[5](min),
                         CHLGTH=[224](m),  CHSLOPE=[0.05](%),
                                                  FPSLOPE=[0.05](%),
                          SECNUM=[0.1],        NSEG=[3]
                         ( SEGROUGH, SEGDIST (m))=[0.05,6.0 -0.035,6.6 0.05,51.80] NSEG times
                         ( DISTANCE (m), ELEVATION (m))=[0,     85.53]
                                                       [6.0,  85.53]
                                                       [6.30, 83.47]
                                                       [6.60, 83.53]
                                                       [10.50, 85.23]
                                                       [13.40, 85.00]
                                                       [51.80, 85.90]
*#-------------------|---------------------------------------------------------
*#  McEvoy Drain, d/s of residential area along Sales Barn Rd
ADD HYD                  NHYDsum=["N1"], NHYDs to add=["REX2"+"RR1ab"+"R1B"]
*#-------------------|---------------------------------------------------------
*# Route Node N1 to Node N2
*# Typical section based on Shields MD Vee Ditch 3:1 banks
*# provided by Atrel
*# Manning's n is Channel not maintained, light brush on banks
*# Slope = 0.05% as per plan provided by Atrel.
ROUTE CHANNEL            NHYDout=["RN1"],NHYDin=["N1"],
                         RDT=[5](min),
                         CHLGTH=[184](m),  CHSLOPE=[0.05](%),
                                                  FPSLOPE=[0.05](%),
                          SECNUM=[01],        NSEG=[3]
                         ( SEGROUGH, SEGDIST (m))=[0.05,6.0 -0.035,6.6 0.05,51.80] NSEG times
                         ( DISTANCE (m), ELEVATION (m))=[0,     85.53]
                                                       [6.0,  83.53]
                                                       [6.30, 83.47]
                                                       [6.60, 83.53]
                                                       [10.50, 84.53]
                                                       [17.40, 85.00]
                                                       [51.80, 85.90]
*#-------------------|---------------------------------------------------------
*# Typical Section based on Atrel drawing ditch u/s of N2
*# Manning's n is Channel not maintained, light brush on banks
*# Route node R2ab to d/s node N2
*# Slope = (88-84.5)/487
ROUTE CHANNEL            NHYDout=["RR2A"],NHYDin=["R2A"],
                         RDT=[5](min),
                         CHLGTH=[487](m),  CHSLOPE=[0.72](%),
                                                  FPSLOPE=[0.72](%),
```

```
                        SECNUM=[0].       NSEC=[]
                      | SEGROUP, SEGLIST (n)=[0.050,50] NSEG lines
                      | DISTANCE (m), ELEVATION (m)=[0,      86.55]
                                                    [12.72,  86.50]
                                                    [14.80,  86.01]
                                                    [16.70,  86.00]
                                                    [18.15,  86.50]
                                                    [20.00,  86.55]
*----------------|-------------------------------------------------------------------------------
*#  Drain 2, d/a of residential area
ADD HYD           HYDname["DA"], NHYDs to add-["RB1"-"RB2A"-"R2B"]
*|---------------|-------------------------------------------------------------------------------
*# ROUTE HY to N1
*# Typical  Section based on Sample NE Yee Ditch 3:1 banks
*# provided by Atrel
*# Manning's n is Channel not maintained, light brush on banks
*# Slope = 0.05% as per plan provided by Atrel.
ROUTE CHANNEL     HYDout ["R4"] ,HYDin=["R3"] ,
                  ROT-[5](min),
                  CHLGTH=[210](m),  CHSLOPE=[0.05](%),
                                    FPSLOPE=[0.02](%),
                    SECNUM [0.],      NSEC=[7]
                    | SEGROUP, SEGLIST (n)=[0.05,0.0  0.035,0.6 0.05,51.80] NSEG lines
                    | DISTANCE (m), ELEVATION (m)=[0,     85.53]
                                                  [6.0,  83.53]
                                                  [6.30, 83.03]
                                                  [6.60, 83.53]
                                                  [10.50, 84.93]
                                                  [12.40, 85.80]
                                                  [15.80, 85.90]
*----------------|-------------------------------------------------------------------------------
*# Add Drain 3 d/a of residential area
ADD HYD           DAname["R3DA"], HYDs to add-["R3A"-"R3B"-"DA4"]
*|---------------|-------------------------------------------------------------------------------
*# Typical Section based on Area Drawing drain btw d/a of R2
*# Manning's n is Channel not maintained, light brush on banks
*# Route to d/a area
*# Slope = [28.84]/[86]
ROUTE CHANNEL     HYDout ["R3DCS", ,HYDin=["R3DA"] ,
                  ROT [5](min),
                  CHLGTH [645](m),  CHSLOPE=[0.08](%),
                                    FPSLOPE=[0.02](%),
                    SECNUM [0],       NSEG=[]
                    | SEGROUP, SEGLIST (n)=[0.050,30] NSEG lines
                    | DISTANCE (m), ELEVATION (m)=[0,      86.03]
                                                  [12.72,  86.50]
                                                  [14.80,  86.01]
                                                  [16.70,  86.00]
                                                  [18.15,  86.50]
                                                  [20.00,  86.55]
*----------------|-------------------------------------------------------------------------------
*#  Drain 4, d/a of residential area
ADD HYD           RHYDnum ["R3"], HYDs to Add-["RND"-"RBnum"-"R3C"]
*|---------------|-------------------------------------------------------------------------------
*# ROUTE R3 to ROUTE
*# Typical Section based on SB e da X3 Yee Ditch 3:1 banks
*# provided by Atrel
*# Manning's n is Channel not maintained, light brush on banks
*# Slope = 0.05% as per plan provided by Atrel.
ROUTE CHANNEL     RHYDout-["R3"] ,RHYDin-["R3"] ,
                  ROT-[5](min),
                  CHLGTH-[415](m),  CHSLOPE [0.05](%),
                                    FPSLOPE [0.05] (%),
                    SECNUM-[0],       NSEG=[]
                    | SEGROUP, SEGLIST (n)=[0.05,0.0  0.035,0.6 0.05,5.40] NSEG lines
                    | DISTANCE (m), ELEVATION (m)=[0,     85.53]
                                                  [6.0,  83.53]
                                                  [6.30, 83.43]
                                                  [6.60, 83.53]
                                                  [10.50, 84.93]
                                                  [12.40, 85.80]
                                                  [15.80, 85.90]
*----------------|-------------------------------------------------------------------------------
*# Flow at Station node NCR127 for comparison
*# Routs R3 plus EX3
ADD HYD           RHYDnum-["NCR128"], HYDs to add ["RR3"+"EX3"]
*|---------------|-------------------------------------------------------------------------------
*# Flow from Station at node NCR128 for comparison
Design NASH1      RHYD ["NCR01"], DT-[5]min, AREA= 74.1[ha],
                  CWF-[0.1]cms, CN/C=[69], TP=[0.5]hrs,
                  RAINFALL-[ ,  ,  ,  ,  ,  ](mm/hr), SCS=-1
*----------------|-------------------------------------------------------------------------------
*# Typical Section based on McEvoy Branch Yee Ditch 1.5:1 slopes
*# provided by Atrel
*# Route from R-SC  to NCR129
*# Manning's n is Channel not maintained, light brush on banks
*# Invert at NCR128 as per Atrel bottom of ditch points = 87.50 m
*# Slope = (89.70-87.50)/1517
ROUTE CHANNEL     RHYDout["REX1A"] ,RHYDin= "SX " ,
                  RDT-[5](min),
                  CHLGTH= 1517(m),  CHSLOPE=[0.47](%),
                                    FPSLOPE=[0.47](%),
                  SECNUM-[0].       NSEC-[2]
                  | SEGROUP, SEGLIST (n): [0.050,16.80] NSEG lines
                  | DISTANCE (m), ELEVATION (m)=[0,      85.03]
                                                [ 3.00,  83.03]
                                                [ 3.30,  84.50]
                                                [ 6.41,  85.80]
                                                [45.30,  85.90]
*----------------|-------------------------------------------------------------------------------
ADD HYD           RHYDnum["StnTot"], NHYDs to add=["SC10C1" "REX1B"]
*|---------------|-------------------------------------------------------------------------------
*|...............|...............................................................................
*|---------------|-------------------------------------------------------------------------------
*# Simulations with 4 hour Chicago from City of Ottawa
START             TZERO [0.0],  VSTOUT=[1],   NSTORM=[ ] ,  NRUN=[]
                   "SC1H3C05x.sto"] <--storm filename, one per line for NSTORM time
*|---------------|-------------------------------------------------------------------------------
START             TZERO-[0.0],  NSTOUT-[2],   NSTORM-[1],  NRUN-[5]
                   "SC4H3C05x.sto"] <--storm filename, one per line for NSTORM time
*|---------------|-------------------------------------------------------------------------------
START             TZERO [0.0],  NSTOUT-[2],   NSTORM-[1],  NRUN-[10]
                   "SC4H3C10x.sto"] <--storm filename, one per line for NSTORM time
*|---------------|-------------------------------------------------------------------------------
START             TZERO-[0.0],  NSTOUT-[2],   NSTORM-[1],  NRUN-[25]
                   "SC4H3C25x.sto"] <--storm filename, one per line for NSTORM time
*|---------------|-------------------------------------------------------------------------------
START             TZERO [0.0],  NSTOUT [2],   NSTORM [1],  NRUN [50]
                   "SC4H3C50x.sto"] <--storm filename, one per line for NSTORM time
*|---------------|-------------------------------------------------------------------------------
START             TZERO-[0.0],  NSTOUT-[2],   NSTORM-[1],  NRUN-[100]
                   "SC4H3C100x.sto"] <--storm filename, one per line for NSTORM time
*|---------------|-------------------------------------------------------------------------------
*# add 24 hours type 2, from City of Ottawa
START             TZERO-[0.0],  NSTOUT [2],   NSTORM [1],  NRUN [200]
                   "SC24H02x.sto"] <--storm filename, one per line for NSTORM time
*|---------------|-------------------------------------------------------------------------------
START             TZERO-[0.0],  NSTOUT-[2],   NSTORM-[1],  NRUN-[100]
                   "SC24H02x.sto"] <--storm filename, one per line for NSTORM time
*|---------------|-------------------------------------------------------------------------------
START             TZERO-[0.0],  NSTOUT-[2],   NSTORM-[1],  NRUN-[200]
                   "SC24H05x.sto"] <--storm filename, one per line for NSTORM time
*|---------------|-------------------------------------------------------------------------------
START             TZERO-[0.0],  NSTOUT-[2],   NSTORM-[1],  NRUN-[100]
                   "SC24H10x.sto"] <--storm filename, one per line for NSTORM time
*|---------------|-------------------------------------------------------------------------------
START             TZERO [0.0],  NSTOUT [2],   NSTORM [1],  NRUN [200]
                   "SC24H25x.sto"] <--storm filename, one per line for NSTORM time
*|---------------|-------------------------------------------------------------------------------
START             TZERO-[0.0],  NSTOUT-[2],   NSTORM-[1],  NRUN-[200]
                   "SC24H50x.sto"] <--storm filename, one per line for NSTORM time
*|---------------|-------------------------------------------------------------------------------
START             TZERO-[0.0],  NSTOUT-[2],   NSTORM-[1],  NRUN-[200]
                   "SC24H100x.sto"] <--storm filename, one per line for NSTORM time
*|---------------|-------------------------------------------------------------------------------
*# Simulations with July  , 1979 Historical Event, City of Ottawa
START             TZERO=[0.0],  NSTOUT=[2],   NSTORM=[1],  NRUN=[301]
                   "1979JUL01.STM"] <--storm filename, one per line for NSTORM time
*|---------------|-------------------------------------------------------------------------------
END
END
```

```
 ---------------------------------------------------------------------------

 SSSSS  W   W  M   M  H   H  Y   Y  M   M   OOO       999    999   =========
 S      W W W  MM MM  H   H   Y Y   MM MM  O   O      9   9  9   9
 SSSSS  W W W  M M M  HHHHH    Y    M M M  O   O  ##  9   9  9   9  Ver4.0ata
     S  W W W  M   M  H   H    Y    M   M  O   O       9999   9999  Sept. 2000
 SSSSS   W W   M   M  H   H    Y    M   M   OOO           9      9  =========
                                                      9   9  9   9  # 2547402
    StormWater Management HYdrologic Model              999    999  =========

 *************************************************************************
 ************************ SWMHYMO Ver/4.0ata ******************************
 *******  A single event and continuous hydrologic simulation model  *******
 *******     based on the principles of HYMO and its successors     *******
 *******                 OTTHYMO-83 and OTTHYMO-89.                 *******
 *************************************************************************
 ******* Distributed by:  J.F. Sabourin and Associates Inc.          *******
 *******                 Ottawa, Ontario: (613) 727-5199            *******
 *******                 Gatineau, Quebec: (819) 243-6858           *******
 *******                 E-Mail: swmhymo@jfsa.Com                   *******
 *************************************************************************

 +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
 ++++++ Licensed user: JFSAinc.                                    +++++++
 ++++++               in any City              SERIAL#:2547402      +++++++
 +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++

 *************************************************************************
 *******          ++++++ PROGRAM ARRAYS DIMENSIONS ++++++         *******
 *******          Maximum value for ID numbers :     10           *******
 *******          Max. number of rainfall points:  52750          *******
 *******          Max. number of flow points    :  52750          *******
 *************************************************************************

 *** DESCRIPTION SUMMARY TABLE HEADERS (units depend on METOUT in START) ***
 ***-------------------------------------------------------------------***
 ***    ID:  Hydrograph IDentification numbers, (1-10).                ***
 ***  NHYD:  Hydrograph reference numbers, (6 digits or characters).   ***
 ***  AREA:  Drainage area associated with hydrograph, (ac.) or (ha.). ***
 *** QPEAK:  Peak flow of simulated hydrograph, (ft^3/s) or (m^3/s).  ***
 *** TpeakDate_hh:mm is the date and time of the peak flow.            ***
 ***  R.V.:  Runoff Volume of simulated hydrograph, (in) or (mm).      ***
 ***  R.C.:  Runoff Coefficient of simulated hydrograph, (ratio).      ***
 ***    *:   see WARNING or NOTE message printed at end of run.        ***
 ***   **:   see  ERROR  message printed at end of run.                ***
 *************************************************************************

 :::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::

 *************************************************************************

 ********************   S U M M A R Y   O U T P U T   ********************
 *************************************************************************
 *      DATE: 2008-12-15      TIME: 09:33:17      RUN COUNTER: 001391     *
 *************************************************************************
 * Input   filename: Z:\PROJ\647-07\Design\SWMHYMO\COMMSR~1\GRP1Ec.dat    *
 * Output  filename: Z:\PROJ\647-07\Design\SWMHYMO\COMMSR~1\GRP1Ec.out    *
 * Summary filename: Z:\PROJ\647-07\Design\SWMHYMO\COMMSR~1\GRP1Ec.sum    *
 * User comments:                                                         *
 * 1:_____________________________________________________________________*
 * 2:_____________________________________________________________________*
 * 3:_____________________________________________________________________*
 *************************************************************************


 #************************************************************************
 #  SWMHYMO Ver:5.02/Jan 2001 <BETA> / INPUT DATA FILE
 #************************************************************************
 #  Project Name: [Greely Village Center]     Project Number: [647-07]
 #  Date         : 01-09-2008
 #  Modeller     : [JRF]
 #  Company      : JFSAinc.
 #  License #    : 2547402
 #************************************************************************
 #
 # SWMHYMO model of the Greely Village Center - Residential Area - Phase I
 # Existing conditions
 # Filename stands for  GRP1E - Greely, Residential, Phase 1, Existing
 #
 # Dec 15, 2008
 # Added July 1st 1979 event
 #
 # ** EXISTING CONDITIONS ASSUMPTIONS:
 #  CN*, XIMP, TIMP,
 #  as per Stantec Report, Oct. 2002: Greely Shields Creek, Stormwater
 #  and Drainage Study.
 #  and as per Atrel Drawing: Greely Village Area.dwg
 #  as specified per subwatershed
 #  Tp calculated using the Upland Method as per Stantec. (Tp = Tc * 2/3)
 #
 #************************************************************************
  RUN:COMMANDS
  001:0001--------------------------------------------------------------
      START
       [TZERO  =    .00 hrs on        0]
       [METOUT=     2     (1=imperial, 2=metric output)]
       [NSTORM=     1 ]
       [NRUN  =     1 ]
  001:0002--------------------------------------------------------------
      READ STORM
       Filename = storm.001
       Comment  = 25 mm 4 Hours step 10 min, City of Ottawa
       [SDT=10.00:SDUR=   4.00:PTOT=  25.00]
 #************************************************************************
 # Existing flow - McEvoy Branch of Shield Creek - Areas
 # Area u/s of proposed development (residential)
 # CN*=75, slope = 0.8, Tp 0.16, XIMP=0, TIMP=15, see 2000B as per Stantec
 # Area partially adjusted based on Atrel drawings.
 #************************************************************************
 # u/s of Bank Street per Atrel - with modified boundaries and Tp.
  001:0003----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.
      DESIGN NASHYD        01:EX1        24.62      .140 No_date    1:35     5.11 .204
       [CN= 75.0: N= 3.00]
       [Tp=  .28:DT= 5.00]
 #************************************************************************
 # Existing flow - McEvoy Branch of Shields Creek (d/s of Bank St.)
 # CN*=69, as per Stantec See 3000I
 # Area partially adjusted based on Atrel drawings.
 #************************************************************************
 # Areas External to development
  001:0004----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.
      DESIGN NASHYD        01:EX2        10.94      .061 No_date    1:10     4.01 .161
       [CN= 69.0: N= 3.00]
       [Tp=  .40:DT= 5.00]
  001:0005----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      DESIGN NASHYD        01:EX3        21.36      .102 No_date    2:25     4.01 .161
       [CN= 69.0: N= 3.00]
       [Tp=  .83:DT= 5.00]
 # Slope, Ximp, Timp, Area from Atrel Drawing
 # CN from Stantec (3000I)
 # Ximp = Timp = 10
  001:0006----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
    *  DESIGN STANDHYD     01:EX4          .50      .005 No_date    1:20     6.90 .260
       [XIMP=.10:TIMP=.32]
       [SLP=1.00:DT= 5.00]
       [LOSS= 2 :CN= 69.0]
 # Areas to be occupied by commercial development
  001:0007----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      DESIGN NASHYD        01:R1A         7.02      .084 No_date    1:40     4.01 .161
       [CN= 69.0: N= 3.00]
       [Tp=  .31:DT= 5.00]
  001:0008----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
    *  DESIGN NASHYD       01:R2A         3.13      .046 No_date    1:25     4.01 .161
       [CN= 69.0: N= 3.00]
       [Tp=  .19:DT= 5.00]
  001:0009----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      DESIGN NASHYD        01:R3A         4.14      .047 No_date    1:30     4.01 .161
       [CN= 69.0: N= 3.00]
       [Tp=  .21:DT= 5.00]
  001:0010----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      DESIGN NASHYD        01:R3B         2.22      .024 No_date    1:35     4.01 .161
       [CN= 69.0: N= 3.00]
       [Tp=  .23:DT= 5.00]
 # Areas to be occupied by residential development
  001:0011----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      DESIGN NASHYD        01:R4B         9.70      .099 No_date    1:30     4.01 .161
       [CN= 69.0: N= 3.00]
       [Tp=  .22:DT= 5.00]
  001:0012----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.
      DESIGN NASHYD        01:R2B         4.01      .032 No_date    1:45     4.01 .161
       [CN= 69.0: N= 3.00]
       [Tp=  .38:DT= 5.00]
  001:0013----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      DESIGN NASHYD        01:R3C         9.71      .080 No_date    1:55     4.01 .161
       [CN= 69.0: N= 3.00]
```

```
[Tp= .98:RT= 5.00]
*****************************************************************************
* Existing Flow - Total Flow to Shield Creek (Stanley Node NCR28)
*****************************************************************************
*  McEvoy Drain, d/s of residential area
 001:0a  ----------ID:MEVE-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ADD HYD          01:ME1       21.62     .710 No_date    1:35    5.17  n/a
                    + 02:R1A        1.85     .084 No_date    1:40    4.81  n/a
     [VT= 5.00]  SUM= 01:R1aa      23.70     .427 No_date    1:35    4.82  n/a
* Typical Section based on McEvoy Branch Vee Ditch 1.5:1 slopes
* provided by Atrel
* Manning's n is Channel not maintained, light brush on banks
* Route Plus to d/s node N1
* Slope = 1% as per Atrel drawing
 001:0a15----------ID:MEVE-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ROUTE CHANNEL   -> 02:R.aa      23.70     .427 No_date    1:50    4.81  n/a
      [RD= 5.00] out<- 01:R1aa      23.70     .385 No_date    1:00    4.81  n/a
      [L/S/n= 375/1.9G3/.050]
      [Vmax= .786:Dmax=  .599]
* Typical Section based on Shields MD Vee Ditch 3:1 banks
* provided by Atrel
* Manning's n is Channel not maintained, light brush on banks
* Route FX2 to d/s Node N1
* Slope = 0.5% as per plan provided by Atrel.
 001:0b15----------ID:EX2Y-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ROUTE CHANNEL   -> 02:EX2        10.98      .861 No_date    2:10    4.01  n/a
      [RD= 5.00] out<- 01:REX2       10.98      .855 No_date    2:05    4.01  n/a
      [L/S/n= 1794/.050/.035]
      [Vmax= .5:Dcrit= .329]
*  McEvoy Drain, d/s of residential area along Soles Barn Rd
 001:0017----------ID:EMY2-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ADD HYD          01:EMY2      10.98      .855 No_date    2:05    4.01  n/a
                    + 03:XP1aa     23.70     .389 No_date    1:40    4.81  n/a
                    + 04:XR1A       9.76     .099 No_date    1:35    4.01  n/a
     [DT= 5.00]  SUM= 01:N1        34.34     .502 No_date    1:40    4.51  n/a
* Route Node N1 to Node N2
* Typical Section based on Shields MD Vee Ditch 3:1 banks
* provided by Atrel
* Manning's n is Channel not maintained, light brush on banks
* Slope = 0.05% as per plan provided by Atrel.
 001:0c15----------ID:EMY2-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ROUTE CHANNEL   -> 02:N1         34.34     .502 No_date    1:40    4.51  n/a
      [RD= 5.00] out<- 01:EN2        34.34     .422 No_date    1:50    4.51  n/a
      [L/S/n=  384/.050/.035]
      [Vmax=  .281:Dmax=  .179]
* Typical Section based on Atrel Drawing drain d/s of N2
* Manning's n is Channel not maintained, light brush on banks
* Route node N2 to d/s node N3
* Slope = (83.66-83.5)/680
 001:0.9----------ID:MEVE-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ROUTE CHANNEL   -> 02:N2A        3.13     .043 No_date    1:25    4.01  n/a
      [RD= 5.00] out<- 01:RE2A       3.13     .015 No_date    1:05    4.01  n/a
      [L/S/n=  487/ .72:/.050]
      [Vmax=  .291:Dmax=  .085]
*  Drain 1, d/s of residential area
 001:0c----------ID:NEVE-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ADD HYD          02:NE1       54.34     .422 No_date    1:50    4.51  n/a
                    + 03:RE2A       3.13     .015 No_date    1:05    4.01  n/a
                    + 04:N2B        8.51     .072 No_date    1:40    4.01  n/a
     [VT= 5.00]  SUM= 01:N3        66.00     .51  No_date    1:50    4.47  n/a
* ROUTE N3 to N4
* Typical Section based on Shields MD Vee Ditch 3:1 banks
* provided by Atrel
* Manning's n is Channel not maintained, light brush on banks
* Slope = 0.05% as per plan provided by Atrel
 001:0d21----------ID:NEVE-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ROUTE CHANNEL   -> 02:N3         66.00     .511 No_date    1:50    4.47  n/a
      [RD= 5.00] out<- 01:RN2        68.28     .443 No_date    1:55    4.43  n/a
      [L/S/n=  918/ .053/.035]
      [Vmax=  .282:Dmax=  .785]
* Add Drain 2 d/s of residential area
 001:0e21----------ID:NEVE-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ADD HYD          02:N3A        4.14      .047 No_date    1:30    4.01  n/a
                    + 03:N3B        2.21      .021 No_date    1:55    4.01  n/a
                    + 04:EX4        .70       .004 No_date    1:20    4.79  n/a
     [VT= 5.00]  SUM= 01:N3aa       6.35      .074 No_date    1:30    4.31  n/a
* Typical Section based on Atrel Drawing drain btw d/s of N3
* Manning's n is Channel not maintained, light brush on banks
* Route to d/s area
* Slope = (78-84)/360
 001:0d21----------ID:NEVY-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ROUTE CHANNEL   -> 02:N3aa       6.35      .074 No_date    1:30    4.31  n/a
      [RD= 5.00] out<- 01:RN3aa       6.35      .038 No_date    1:55    4.31  n/a
      [T/S/n=  668/ .0307.050]
      [Vmax=  .310:Dmax=  .220]
*  Drain 3, d/s of residential area
 001:0024----------ID:NEVE-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ADD HYD          01:NE2       66.00     .511 No_date    1:50    4.47  n/a
                    + 02:N4B        6.85     .038 No_date    1:50    4.21  n/a
                    + 04:XR4C       2.71     .020 No_date    1:50    4.01  n/a
     [VT= 5.00]  SUM= 01:N3        82.56     .557 No_date    1:55    4.35  n/a
* ROUTE N3 to NCR28
* Typical Section based on Shields MD Vee Ditch 3:1 banks
* provided by Atrel
* Manning's n is Channel not maintained, light brush on banks
* Slope = 0.05% as per plan provided by Atrel.
 001:0025----------ID:NEVE-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ROUTE CHANNEL   -> 02:N3         82.56     .557 No_date    1:55    4.35  n/a
      [RD= 5.00] out<- 01:RN3        82.56     .557 No_date    1:55    4.35  n/a
      [L/S/n=  715/ .050/.035]
      [Vmax=  .285:Dmax=  .580]
* Flow at Stanley Node NCR.28 for comparison
* Routes N3 plus EX3
 001:0028----------ID:NEVE-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ADD HYD          02:NE3       82.96     .597 No_date    2:15    4.32  n/a
                    + 03:EX3        21.30     .102 No_date    2:25    4.01  n/a
     [DT= 5.00]  SUM= 01:NCR28     104.26     .699 No_date    2:15    4.28  n/a
* Flow from Stanley at node NCR123 for comparison
 001:0a1----------ID:NEVY-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     DESIGN MANHYD    01:SC4C1      78.11     .554 No_date    2:10    4.01  .161
      [CN= 69.0: N= 3.00]
      [Tp=  .91:DT= 5.00]
* Typical Section based on McEvoy Branch Vee Ditch 1.5:1 slopes
* provided by Atrel
* Route from R-EX1 to NCR 28
* Manning's n is Channel not maintained, light brush on banks
* Invert at N.4128 as per Atrel bottom of ditch points = 82.52 m
* Slope = (89.70-82.52)/1217
 001:0028----------ID:NEVY-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ROUTE CHANNEL   -> 02:EX1        28.62     .106 No_date    1:35    5.11  n/a
      [RD= 5.00] out<- 01:REX1       28.62     .106 No_date    1:35    5.11  n/a
      [L/S/n= 15.7./ .4+07.050]
      [Vmax=  .586:Dmax=  .6a7]
 001:0029----------ID:EX1J-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ADD HYD          02:SC01      78.11     .353 No_date    2:30    4.01  n/a
                    + 03:REX1       28.62     .106 No_date    2:30    5.11  n/a
     [DT= 5.00]  SUM= 01:StnCot    102.73     .481 No_date    2:20    4.27  n/a
*****************************************************************************
* Simulation ends with 6 hour Chicago from City of Ottawa
  ** END OF RUN :
*****************************************************************************
 RUN:COMMENCE
 CN:RUN ------------------------------------------------------------------------
     START
       [TZERO =    .00 hrs on      ]
       [METOUT=   2    (1=imperial, 2=metric output)]
       [NSTORM=   1 ]
       [NRUN  =   1 ]
*-----------------------------------------------------------------------------
*  SWMHYMO Version.00/Jan 2001 (METAL) / INPUT DATA FILE
*-----------------------------------------------------------------------------
*  Project Name: [Greely Village Center]    Project Number: [547-07]
*  Date        : 01-05-2008
*  Modeller    : TEE]
*  Company     : JFSAinc.
*  License #   : 2554/A0
*-----------------------------------------------------------------------------
*
* SWMHYMO model of the Greely Village Center - Residential Area - Phase 1
* Existing conditions.
* Filename stands for: GRP1E - Greely, Residential, Phase 1, Existing
*
* Dec 15, 2008
* Added July 1st 1979 event
*
*  EXISTING CONDITIONS ASSUMPTIONS:
*  CN=, XIMP, TIMP,
*  as per Stantec Report, Oct. 2007: Greely Shield Creek, Stormwater
*  and Drainage Study.
*  and as per Atrel drawing: Greely Village Area.dwg
```

```
* as specified per subwatershed
* to calculated using the Upland Method as per Standard. (Tc = Tc * 2/3)
*
*************************************************************************
* 002:0002----------------------------------------------------------------
     RAIN STORM
      Filename = storm.dat
      Comment  = 2 years Chicago Storm ( Unare step is min, City of Ottawa
      [SET TO.00:RECORD=  4.00:PTCT= 64.83]
*************************************************************************
* Existing Flow - McEvoy Branch of Shield Creek - Areas
* Area c/s of proposed development (residential)
* CN=78, slope = 0.8, Ia=0.16, Ximp=0, Timp 15, per MOHO as per Standard
* Area partially adjusted based on Atrel drawings.
*************************************************************************
* c/s of Each Drain per Acre - with modified boundaries and Ia.
* 002:0001----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     DESIGN NASHYD      01:EX1       26.82      .620 No_date    1:35    8.96 .264
      [CN= 78.0: N= 3.00]
      [Ia=  .23:SP=  5.00]
*************************************************************************
* Existing flow - McEvoy Branch or Shield Creek (c/s of Bank St.)
* CN=78, as per Standard Ame SCHOOL.
* Area partially adjusted based on Atrel Drawings.
*************************************************************************
* Areas External to Development
* 002:0004----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     DESIGN NASHYD      01:EX2       10.94      .210 No_date    1:10    7.16 .211
      [CN= 65.0: N= 3.00]
      [Ia=  .67:ST= 5.00]
* 002:0005----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     DESIGN NASHYD      01:EX3       21.30      .385 No_date    1:20    7.16 .211
      [CN= 67.0: N= 3.00]
      [Ia=  .63:ST= 5.00]
* Slope, Ximp, Timp, Area from Atrel Drawing
* CN from Standard (SCHOOL)
* Ximp = Timp = 0%
* 002:0006----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
  *  DESIGN STANDARD    01:EX4        .50      .014 No_date    1:10   10.76 .519
      [AIMP=.1.:IA=.22]
      [SLP= 1.00:SC= 5.00]
      [L=35  2 :CN= 65.0
* Areas to be occupied by commercial development
* 002:0007----------ID:NHYD-------AREA    QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     DESIGN NASHYD      01:BIA        5.05     .152 No_date    1:40    7.18 .211
      [CN= 89.0: N= 3.00]
      [Ia=  .31:SC= 5.00]
* 002:0008----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
  *  DESIGN NASHYD      01:BIA        1.53     .046 No_date    1:35    7.18 .211
      [CN= 89.0: N= 3.00]
      [Ia=  .31:SC= 5.00]
* 002:0009----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     DESIGN NASHYD      01:BIB        1.10     .033 No_date    1:30    7.18 .211
      [CN= 89.0: N= 3.00]
      [Ia=  .27:ST= 5.00]
* 002:0010----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     DESIGN NASHYD      01:BIC        2.21     .066 No_date    1:30    7.18 .211
      [CN= 89.0: N= 3.00]
      [Ia=  .23:SC= 5.00]
* Areas to be occupied by residential development
* 002:0011----------ID:NHYD-------AREA    QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     DESIGN NASHYD      01:RIB        9.38     .184 No_date    1:35    7.18 .211
      [CN= 84.0: N= 3.00]
      [Ia=  .43:ST= 5.00]
* 002:0012----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     DESIGN NASHYD      01:RIB        5.01     .131 No_date    1:40    7.18 .211
      [CN= 84.0: N= 3.00]
      [Ia=  .38:ST= 5.00]
* 002:0013----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     DESIGN NASHYD      02:RIC        8.71     .123 No_date    1:55    7.17 .211
      [CN= 69.0: N= 3.00]
      [Ia=  .60:ST= 5.00]
*************************************************************************
* EXISTING Flow - Total Flow to Shield Creek (Channel Node NC128)
*************************************************************************
* McEvoy Fiels, c/s of residential area
* 002:0014----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ADD HYD            02:EX2       10.97     .210 No_date    1:10    7.16 n/a
                    +   03:RIA        9.88     .152 No_date    1:40    7.18 n/a
     [ST= 5.00]   SUM=  01:RIA       20.85     .362 No_date    1:25    7.17 n/a
* Typical Section based on McEvoy Branch Vee Ditch 3.5:1 slopes
* provided by Atrel
* Manning's n is Channel not maintained, light brush on banks
* Route EX01 to d/s node EI
* Slope = 1.0% as per Atrel drawing
* 002:0015----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ROUTE CHANNEL   -> 02:EX1       20.82      .620 No_date    1:35    8.96 c/s
      [ST= 5.00] outs= 01:EX1       20.82      .620 No_date    1:35    8.96 c/s
       [L/S/n=  379./1.000/.035]
       [Vmax=  .916:Tmax=  .740]
* Typical Section based on Shields MD Vee Ditch 3:1 Banks
* provided by Atrel
* Manning's n is Channel not maintained, light brush on banks
* Route EX02 to d/s node EI
* Slope = 0.65% as per plan provided by Atrel.
* 002:0016----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ROUTE CHANNEL   -> 02:EX2       10.96      .119 No_date    1:10    7.16 n/a
      [ST= 5.00] outs= 01:EX2       10.96      .867 No_date    1:05    7.16 n/a
       [L/S/n=  225./ .065/.035]
       [Vmax=  .783:Tmax=  .472]
* McEvoy Drain, c/s of residential area along Sales Barn Rd
* 002:0017----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ADD HYD            03:RA3       10.94      .857 No_date    1:25    7.16 n/a
                    +   04:RA1a      33.70      .720 No_date    1:40    8.48 n/a
                    +   05:EX3       21.30      .385 No_date    1:30    7.16 n/a
     [ST= 5.00]   SUM=  01:EI        65.94     1.962 No_date    1:30    7.98 n/a
* Route Node EI to Node NI
* Typical Section based on Shields MD Vee Ditch 3:1 Banks
* provided by Atrel
* Manning's n is Channel not maintained, light brush on banks
* Slope = 0.05% as per plan provided by Atrel.
* 002:0018----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ROUTE CHANNEL   -> 02:NI        54.34      .952 No_date    1:30    7.98 n/a
  *  [EOT= 5.00] outs= 01:NI        54.34      .952 No_date    1:45    7.98 n/a
       [L/S/n=  184./ .050/.035]
       [Vmax=  .819:Tmax=  .998]
* Typical Section based on Atrel Drawing drain c/s of N2
* Manning's n is Channel not maintained, light brush on banks
* Route node N2C1 to d/s node N2
* Slope = 98-84.51/400
* 002:0019----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ROUTE CHANNEL   -> 01:N2A        3.13      .084 No_date    1:05    7.16 n/a
      [ST= 5.00] outs= 01:N2A        3.13      .084 No_date    1:40    7.16 n/a
       [L/S/n=  483./ .020/.050]
       [Vmax=  .154:Tmax=  .121]
*  Drain 2, c/s of residential area
* 002:0020----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ADD HYD            02:NI1       54.34     1.752 No_date    1:45    7.98 n/a
                    +   03:RB3b       1.15      .041 No_date    1:40    7.16 n/a
                    +   04:RB3       1.03      .111 No_date    1:45    7.16 n/a
     [ST= 5.00]   SUM=  01:N2       56.51     1.955 No_date    1:45    7.93 n/a
* ROUTE N2 to N3
* Typical Section based on Shields MD Vee Ditch 3:1 Banks
* provided by Atrel
* Manning's n is Channel not maintained, light brush on banks
* Slope = 0.5% as per plan provided by Atrel.
* 002:0021----------ID:NHYD-------AREA    QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ROUTE CHANNEL   -> 02:N2        65.28      .955 No_date    1:45    7.82 n/a
  *  [EOT= 5.00] outs= 01:PE2       66.38      .816 No_date    1:50    7.82 n/a
       [L/S/n=  215./ .953/.035]
       [Vmax=  .722:Tmax= 1.011]
* Add Drain 1 c/s of residents area
* 002:0022----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ADD HYD            02:RIA        4.24      .057 No_date    1:10    7.16 n/a
                    +   03:RIB        2.21      .044 No_date    1:35    7.16 n/a
                    +   04:EX4         .50      .014 No_date    1:20   10.76 n/a
     [ST= 5.00]   SUM=  01:RIC        6.95      .140 No_date    1:30    7.42 n/a
* Typical Section based on Atrel Drawing Drain btw c/s of N2
* Manning's n is Channel not maintained, light brush on banks
* Route to d/s area
* Slope = (88-84)/660
* 002:0023----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ROUTE CHANNEL   -> 01:RIC        6.95      .140 No_date    1:30    7.42 n/a
      [EOT= 5.00] outs= 01:RIC        6.95      .140 No_date    1:30    7.42 n/a
       [L/S/n=  660./ .0e07.050]
       [Vmax=  .373:Tmax=  .66]
*  Drain 3, c/s of residential area
* 002:0024----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ADD HYD            03:R4F       68.38     1.816 No_date    1:50    7.83 n/a
                    +   01:RIC        6.95      .140 No_date    1:50    7.42 n/a
                    +   04:EX2       10.97      .210 No_date    1:10    7.16 n/a
     [ST= 5.00]   SUM=  01:N3       82.04     2.015 No_date    1:50    7.72 n/a
* ROUTE N3 to NC128
* Typical Section based on Shields MD Vee Ditch 3:1 banks
* provided by Atrel
* Manning's n is Channel not maintained, light brush on banks
```

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0049Q> * Slope = 0.69  as per plan provided by Attc..
0050H  002:0025----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
0051>      ROUTE CHANNEL   -> 02:EX1       17.94     .616 No date    1:50    7.72  n/a
0052>        [EXT  5.0] out<- 01:EX2       10.84     .771 No date    2:10    7.72  n/a
0053>        [L/S/n=  675./ .036/.045]
0054>        [Vmax=  .676:Dmax=ERROR]
0055> * Flow at Stantec node NCH128 for comparison
0056> * Routed #3 plus EX2
0057Q  002:0026----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
0058>      ADD HYD           02:ex3       28.84     .771 No date    2:10    7.72  n/a
0059>                      + 03:EX2       21.30     .185 No date    2:20    3.16  n/a
0060>        [J2= 5.0C]  SUM   01:NCH126  184.27     .956 No date    9:10    7.60  n/a
0061> * Flow from station at node NCH128 for comparison
0062Q  002:0027----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
0063>      DESIGN HASHYD     01:SC001     78.11     .634 No date    2:50    7.16  .271
0064>        [Ch= 69.0: N= 3.00]
0065>        [Tp=  .51:DT= 5.00]
0066> P Typical Section based on McEvoy Branch Yew Ditch 1.5:1 slopes
0067> P provided by Attel
0068> P Route from EX-FX1 to NCH128
0069> P Manning's n is Channel not maintained, light brush on banks
0070> P Invert at NCH128 as per Attel bottom of ditch points  82.52 W
0071> P Slope = (89.70-82.52)/1517
0072Q  002:0028----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
0073>      ROUTE CHANNEL   -> 02:EX1       17.94     .620 No date    1:45    5.56  n/a
0074>        [SC=  5.00  out<- 01:NCH128   24.62     .289 No date    1:55    5.56  n/a
0075>        [L/S/n= 1517./ .040/.050]
0076>        [Vmax=  .650:Dmax=  .791]
0077Q  002:0029----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
0078>      ADD HYD           02:SC001     78.11     .636 No date    2:50    7.16  n/a
0079>                      + 03:EX2       21.62     .251 No date    1:55    5.56  n/a
0080>        [ET  5.00]  SUM   01:FnTot   [99.73     .805 No date    2:50    7.50  n/a
0081> *----------------------------------------------------------------------------
0082> * Simulations with 4 hour Chicago from City of Ottawa
0083>   ** END OF RUN :  4
0084>
0085> ------------------------------------------------------------------------------
0086>
0087>
0088>
0089>
0090>
0091>
0092>  RUN:COMMAND$
0093Q  003:0001----------------------------------------------------------------------
0094>      START
0095>        [TYPE= 1 for hrs on       ]
0096>        [METOUT=  2    (1=Imperial, 2=metric output)]
0097>        [NSTORM=  1 ]
0098>        [NRUN  =  5 ]
0099> *------------------------------------------------------------------------------
0100> *  SWMHYMO Ver:5.02/Jun 2001 <BETA> / INPUT DATA FILE
0101> *------------------------------------------------------------------------------
0102> *  Project Name: (Greely Village Center)    Project Number: (647-07)
0103> *  Date        : 04-05-2008
0104> *  Modeller    : (JSA)
0105> *  Company     : JFSAinc.
0106> *  License #   : 2047s02
0107> *------------------------------------------------------------------------------
0108> *
0109> * SWMHYMO model of the Greely Village Center - Residential Area - Phase 1
0110> * Existing conditions
0111> * Filename stands for: GRP1E - Greely, Residential, Phase 1, Existing
0112> *
0113> * Dec 15, 2008
0114> * Added July 1st 1979 event
0115> *
0116> *** EXISTING CONDITIONS ASSUMPTIONS:
0117> *  CN*, R'VP, TIMP,
0118> *  as per Stantec Report, Oct. 2002: Greely Shield Creek, Stormwater
0119> *  and Drainage Study.
0120> *  and as per Attel Drawing: Greely Village Area.dwg
0121> *  as specified per assumptions
0122> *  Tp calculated using the Upland Method as per Stantec. (Tp = Tc * 2/3)
0123> *
0124> *------------------------------------------------------------------------------
0125Q  003:0007----------------------------------------------------------------------
0126>      READ STORM
0127>        Filename = ximm.4.0.
0128>        Comment  = 5 years Chicago Storm 4 Hours step 10 min. City of Ottawa
0129>        [S/T=10.00:Peak=   4.63:Ptot=  45.17]
0130> *------------------------------------------------------------------------------
0131> * Existing flow - McEvoy branch of Shield Creek - Areas
0132> * Area a/s of proposed development (residential)
0133> P CN= 75, slope = 0.0, Tp=0.16, TIMP=n, TIMP=n, see S:\07 as per Stantec
0134> P Area partially adjusted based on Attel drawings.
0135> P-------------------------------------------------------------------------
0136> * a/s at Bank St.as per Attel - with modified boundaries and Tp.
0137Q  005:0002----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
0138>      DESIGN HASHYD     01:EX1       24.62    1.062 No date    1:30   10.56  .329
0139>        [Ch= 75.0: N= 3.00]
0140>        [Tp=  .73:DT= 5.00]
0141> *------------------------------------------------------------------------------
0142> * Existing flow - McEvoy branch of Shield Creek (a/s of Bank St.)
0143> * CN*=89, as per Stantec Dec 2003.
0144> * Area partially adjusted based on Attel drawings.
0145> *------------------------------------------------------------------------------
0146> * Areas External  to development
0147Q  005:0004----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
0148>      DESIGN HASHYD     01:EX2       10.84     .199 No date    2:10   12.08  .268
0149>        [Ch= 89.0: N= 3.00]
0150>        [Tp=  .67:DT= 5.00]
0151Q  005:0005----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
0152>      DESIGN HASHYD     01:EX3       21.30     .138 No date    2:20   12.08  .268
0153>        [Ch= 89.0: N= 3.00]
0154>        [Tp=  .81:DT= 5.00]
0155> * Slope, X-sp, Time, Area from Attel Drawing
0156> * CN from Stantec (2003)
0157> * X-sp = 1-sp = 15
0158Q  005:0006----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
0159>      * DESIGN STANDHYD    01:FX1       1.50     .019 No date    1:30   10.76  .321
0160>        [XIMP=.1:TIMP=.22]
0161>        [SLP=1.0c:DT= 5.00]
0162>        [AMUSE= 2 :CN= 69.0]
0163> * Areas to be occupied by Commercial Development
0164Q  005:0007----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
0165>      DESIGN HASHYD     01:NIA       9.08     .284 No date    1:40   12.08  .288
0166>        [Ch= 69.0: N= 3.00]
0167>        [Tp=  .31:DT= 5.00]
0168Q  005:0008----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
0169>      * DESIGN HASHYD     01:B2A       3.13     .097 No date    1:25   12.08  .288
0170>        [CN= 69.0: N= 3.00]
0171>        [Tp=  .13:DT= 5.00]
0172Q  005:0009----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
0173>      DESIGN HASHYD     01:B3A       4.14     .152 No date    1:30   12.08  .288
0174>        [CN= 69.0  N= 3.00]
0175>        [Tp=  .21:DT= 5.00]
0176Q  005:0010----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
0177>      DESIGN HASHYD     01:B3B       2.01     .075 No date    1:25   12.08  .288
0178>        [CN= 89.0: N= 3.00]
0179>        [Tp=  .23:DT= 5.00]
0180> P Areas to be occupied by residential development
0181Q  005:0011----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
0182>      DESIGN HASHYD     01:R1B       5.70     .315 No date    1:35   12.08  .288
0183>        [CN= 89.0  N= 3.00]
0184>        [Tp=  .26:DT= 5.00]
0185Q  005:0012----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
0186>      DESIGN HASHYD     01:R2B       8.91     .228 No date    1:45   12.08  .288
0187>        [CN= 89.0: N= 3.00]
0188>        [Tp=  .38:DT= 5.00]
0189Q  005:0013----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
0190>      DESIGN HASHYD     01:R3C       9.71     .212 No date    1:55   12.08  .288
0191>        [CN= 89.0  N= 3.00]
0192>        [Tp=  .48:DT= 5.00]
0193> *------------------------------------------------------------------------------
0194> * EXISTING flow - Total Flow to Shield Creek (Stantec Node NCH1/4)
0195> *------------------------------------------------------------------------------
0196> *  McEvoy Drain, a/s of residential area
0197Q  005:0014----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
0198>      ADD HYD           02:EX1       21.62    1.062 No date    1:30   10.56  n/a
0199>                      + 03:R1A       9.08     .284 No date    1:40   12.08  n/a
0200>        [J2= 5.0C]  SUM   01:R1a       30.70    1.34 / No date    1:35   10.1   n/a
0201> * Typical Section based on McEvoy Branch Yew Ditch 1.5:1 slopes
0202> * provided by Attel
0203> * Manning's n is Channel not maintained, light brush on banks
0204> * Route R1a to a/s node R
0205> * Slope = 1% as per Attel drawing
0206Q  005:0015----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
0207>      ROUTE CHANNEL   -> 02:R1a       30.70    1.337 No date    1:35   14.17  n/a
0208>        [SC1= 5.00] out<- 01:R1Rtd     29.70    1.284 No date    1:40   14.11  n/a
0209>        [L/S/n= 375./1.0C3/.050]
0210>        [Vmax= 1.046:Dmax=  .9.2]
0211> * Typical Section based on Shields NE Yew Ditch 3:1 banks
0212> * provided by Attel
0213> * Manning's n is Channel not maintained, light brush on banks
0214> * Route EX2 to a/s Node N1
0215> * Slope =  0.0% as per plan provided by Attel.
```

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00665> CO5:0C1C----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
00666>      ROUTE CHANNEL   -> 01:EX2        10.04     .150 No_date    2:10   12.08  n/a
00667>   *    [RT2  5.00] out<- 01:EX2        10.04     .148 No_date    2:20   12.08  n/a
00668>        [I/O/n=  .074/ .0500.015]
00669>        (Vmax=  .73/:Tmax=  .527)
00670> *  McEvoy Drain, d/s of residential, runs along Sales Barn Rd
00671> J05:0017----------ID:NHYD-------AREA    QPEAK-TpeakDate hh:mm-----R.V.-R.C.-
00672>      ADD HYD                 02:NEX1     10.04     .168 No_date    2:20   12.08  n/a
00673>                            + 03:EX1.1S   33.76     .479 No_date    1:40   14.11  n/a
00674>                            + 01:EX1S     43.80     .615 No_date    2:15   12.08  n/a
00675>        [D/  5.00]  SUM=  01:NH     54.54     .828 No_date    1:40   13.34  n/a
00676> # Route Node N1 to Node N2
00677> # Typical Section based on Shields ND Vee Ditch 3:1 sides
00678> # provided by Atkel
00679> # Manning's n is Channel not maintained, light brush on banks
00680> # Slope = 0.05% as per plan provided by Atkel.
00681> NC6:0018----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
00682>      ROUTE CHANNEL   -> 02:N        54.54     1.828 No_date    1:50   13.34  n/a
00683>   *    [RIT  5.00] out<- 01:NN1      54.54     1.411 No_date    1:45   13.34  n/a
00684>        [I/O/n=  136./ .0500/.015]
00685>        (Vmax=  .368:Tmax= 1.245)
00686> # Typical Section based on Atkel Drawing drain c/s of N2
00687> # Manning's n is Channel not maintained, light brush on banks
00688> # Route node N2nn to d/s node N2
00689> # Slope =  (98-84.5)/467
00690> C01:0019----------ID:NHYD-------AREA    QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
00691>      ROUTE CHANNEL   -> 02:R2A        3.13      .147 No_date    1:25   12.08  n/a
00692>        [RIT= 5.00] out<- 01:AR2A     3.13      .089 No_date    1:45   12.08  n/a
00693>        [I/O/n=  457./ .720/.050]
00694>        (Vmax=  .403:Tmax=  .767)
00695> #  Drain 2, d/s of residential area
00696> J05:0018----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
00697>      ADD HYD                 02:N1       54.54     1.413 No_date    1:45   13.34  n/a
00698>                            + 03:EX1A     3.13      .078 No_date    1:40   12.08  n/a
00699>                            + 01:EX2B     8.9       .230 No_date    1:45   12.08  n/a
00700>        [D/  5.00]  SUM=  01:N2     66.58     1.716 No_date    1:45   13.11  n/a
00701> # ROUTE N2 to N3
00702> # Typical Section based on Shields ND Vee Ditch 3:1 sides
00703> # provided by Atkel
00704> # Manning's n is Channel not maintained, light brush on banks
00705> # Slope = 0.05% as per plan provided by Atkel.
00706> 05:0021----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
00707>      ROUTE CHANNEL   -> 02:N2       66.58     1.716 No_date    1:45   13.11  n/a
00708>   *    [RIT= 5.00] out<- 01:NN2      66.58     1.478 No_date    1:50   13.11  n/a
00709>        [I/O/n=  .0/ .0/.050/.0035]
00710>        (Vmax=  .58:Tmax= 1.271)
00711> # Add Drn N 3 d/s of residential area
00712> C05:0022----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
00713>      ADD HYD                 02:R3A      4.04      .152 No_date    1:30   13.08  n/a
00714>                            - 03:R3B      3.71      .076 No_date    1:55   12.08  n/a
00715>                            - 04:EX3      .30       .003 No_date    1:20   10.75  n/a
00716>        [RT  5.00]  SUM=  01:R3in     6.05      .249 No_date    1:30   12.48  n/a
00717> # Typical Section based on Atkel Drawing drain btw c/s of N2
00718> # Manning's n is Channel not maintained, light brush on banks
00719> # Route to d/s area
00720> # Slope = (98-84)/363
00721> J05:0023----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
00722>      ROUTE CHANNEL   -> 02:R3in     6.05      .249 No_date    1:30   12.48  n/a
00723>        [RIT  5.00] out<- 01:RR3in    6.05      .148 No_date    1:50   12.48  n/a
00724>        [I/O/n=  661./ .100/.050]
00725>        (Vmax=  .440:Tmax=  .222)
00726> #  Drain 4, d/s of residential area
00727> J05:0024----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
00728>      ADD HYD                 02:NN3      82.58     1.478 No_date    1:50   13.11  n/a
00729>                            + 03:RR3in    6.05      .148 No_date    1:50   12.48  n/a
00730>                            + 04:EX4      9.71      .212 No_date    1:55   12.08  n/a
00731>        [TC= 5.00  SUM=  01:N3     98.34     1.838 No_date    1:50   12.94  n/a
00732> # ROUTE N3 to RCR2a
00733> # Typical Section based on Shields ND Vee Ditch 3:1 sides
00734> # provided by Atkel
00735> # Manning's n is Channel not maintained, light brush on banks
00736> # Slope = 0.05% as per plan provided by Atkel.
00737> 05:0025----------ID:NHYD-------AREA    QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
00738>      ROUTE CHANNEL   -> 02:N3       98.34     1.838 No_date    1:50   12.94  n/a
00739>   *    [RIT  5.00] out<- 01:NN3      98.34     1.447 No_date    2:05   12.94  n/a
00740>        [I/O/n=  4.8/ .0500/.035]
00741>        (Vmax=  .359:Tmax= 1.305)
00742> # Flow at Stantec node RCR.28 for comparison
00743> # Added NS Ditch EX3
00744> 005:0026----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
00745>      ADD HYD                 02:NN3      82.58     1.147 No_date    2:05   13.47  n/a
00746>                            - 03:EX3      .30       .010 No_date    2:20   10.75  n/a
00747>        [01= 5.00]  SUM=  01:NORTH   108.79     1.741 No_date    2:05   12.76  n/a
00748> # Flow from Stantec at node RCR128 for comparison
00749> C05:0027----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
00750>      JESSICA SHEDIP     31.90301     78.11    1.0000 No_date    2:15   12.08  .250
00751>        [CN= 69.0: N  3.00]
00752>        [Tp   .51:DT= 5.00]
00753> # Typical Section based on McEvoy Branch Vee Ditch 1.5:1 slopes
00754> # provided by Atkel
00755> # Route from N-Exi to RCR128
00756> # Manning's n is Channel not maintained, light brush on banks
00757> # Invert at RCR128 as per Atkel bottom of ditch points - 82.52 a
00758> # Slope = (89.70-82.52)/1517
00759> C05:0C28----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
00760>      ROUTE CHANNEL   -> 01:EX1        23.61     1.067 No_date    1:30   14.46  n/a
00761>        [EDC  5.00] out<- 01:EX1S     24.67     1.041 No_date    1:55   14.68  n/a
00762>        [I/O/n=  1517./ .470/.050]
00763>        (Vmax=  .748:Tmax=  .370)
00764> C06:0029----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
00765>      ADD HYD                 02:EX2C     78.11     1.095 No_date    2:25   12.08  n/a
00766>                            + C3:REA1a    24.62      .042 No_date    3:55   10.66  n/a
00767>        [DC= 5.00]  SUM=  C1:station   102.73     1.513 No_date    2:35   12.75  n/a
00768> #*******************************************************************
00769> # simulations with 4 hour Chicago from City of Ottawa
00770> ** END OF RUN (  8
00771>
00772> ********************************************************************
00773>
00774>
00775>
00776>
00777>
00778> RTN:CONVRUN#
00779> N:NHYD------------------------------------------------------------------
00780>      START
00781>        [YZERO =     .00 hrs on        0]
00782>        [NET/CT=    2    (1:Imperial, 2:metric output)]
00783>        [METORM=    1 ]
00784>        [NROW  =   10 ]
00785> #*******************************************************************
00786> #  SWMHYMO Ver:5.02/Jan 2001 rev:Win / INPUT DATA FILE
00787> #*******************************************************************
00788> #  Project Name: [Greely Village Center]     Project Number: [07-01]
00789> #  Date        : 01-/4-2008
00790> #  Modeller    : [MF]
00791> #  Company     : JFSAinc.
00792> #  License #   :  254/482
00793> #*******************************************************************
00794> #
00795> # SWMHYMO model of the Greely Village Center - Residential Area - Phase 1
00796> # Existing conditions.
00797> # Filename stands for: CRE1E - Greely, Residential, Phase 1, Existing
00798> #
00799> # Dec 10, 2008
00800> # Added July 1st 1979 event
00801> #
00802> # *E  EXISTING CONDITIONS ASSUMPTIONS:
00803> #  CN=, XIMP, TIMP.
00804> #  as per Stantec Report, Oct. 2002: Greely Shield Creek, Stormwater
00805> #  and Drainage Study.
00806> #  and as per Atkel drawing: Greely Village Area.dwg
00807> #  As specified per subwatershed
00808> #  Tp calculated using the Upland Method as per Stantec. (Tp = 2L * 2/3)
00809> #
00810> #*******************************************************************
00811> C10:0C02----------------------------------------------------------------
00812>      READ STORM
00813>        [Filename = storm.OH]
00814>        [Ptotal   = 10 years Chicago Short 4 Hours step 10 min, City of Ottawa]
00815>        [SDT= 0.00:SVOL=   4.00:PTOT=  52.58]
00816> #*******************************************************************
00817> # Existing Flow - McEvoy Branch of Shield Creek - Area5
00818> # Area u/s of proposed development (realistic?)
00819> # CN=75, slope = 0.5, Tp 0.1h, XIMP 5, TIMP 15, see sc002 as per Stantec
00820> # Area partially adjusted based on Atkel Drawings.
00821> #*******************************************************************
00822> # u/s of Bank St.as per Atkel - with modified boundaries and Tp
00823> C1C:0C03----------ID:NHYD-------AREA    QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
00824>      DES ON MAINTD      C1:EX1      24.62     1.401 No_date    1:30   14.21  .365
00825>        [CN= 75.0: N= 3.00]
00826>        [Tp=  .1:Dt= 5.00]
00827> #*******************************************************************
00828> # Existing Flow - McEvoy Branch of Shield Creek (u/s of Bank St.)
00829> # CN=69, as per Stantec sce.sc01c.
00830> # Area partially adjusted based on Atkel Drawings
```

```
* Areas Potential to development
 Q10:0004----------ID:RM1J-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      DESIGN KASHYD      01:EX2        10.94     .250 No_date    2:05   15.78 .100
        [CN= 69.0: R= 1.04]
        [Tp= .47:SD= 5.00]
 Q10:0005----------ID:RM1J-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      DESIGN KASHYD      01:EX3        21.96     .419 No_date    2:10   15.78 .100
        [CN= 69.0: R= 1.04]
        [Tp= .54:SD= 5.00]
* Slope, Xlng, Tlng, Area from Atrel Drawing
* CN from Scatter (60NCE)
* Xlng = Tlng = 10
 Q10:0006----------ID:RM1J-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
   *  DESIGN STANDHYD    01:EX4         .50     .025 No_date    1:20   21.14 .602
        [XIMP .10:TIMP .02]
        [SLP 1.00:SD= 5.00]
        [L/SCA= 2.:CN= 60.0
* Areas to be occupied by commercial development
 Q10:0007----------ID:RM1K-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      DESIGN NASHYD      01:EX1A       9.68     .350 No_date    1:00   15.78 .300
        [CN= 68.0: N= 3.00]
        [Tp= .31:SD= 5.00]
 Q10:0008----------ID:RM1K-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      DESIGN NASHYD      01:EX1B       5.13     .196 No_date    1:00   15.78 .300
        [CN= 68.0: N= 3.00]
        [Tp= .23:SD= 5.00]
 Q10:0009----------ID:RM1K-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      DESIGN NASHYD      01:EX1C       2.21     .101 No_date    1:00   15.78 .300
        [CN= 68.0: N= 3.00]
        [Tp= .22:SD= 5.00]
* Areas to be occupied by residential development
 Q10:0010----------ID:RM1K-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      DESIGN NASHYD      01:EX1D       3.58     .141 No_date    1:00   15.78 .300
        [CN= 68.0: N= 3.00]
        [Tp= .26:SD= 5.00]
 Q10:0011----------ID:RM1K-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      DESIGN NASHYD      01:EX1E       6.81     .301 No_date    1:05   15.78 .300
        [CN= 68.0: N= 3.00]
        [Tp= .28:SD= 5.00]
 Q10:0012----------ID:RM1J-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      DESIGN NASHYD      01:EX2        9.71     .380 No_date    1:00   15.78 .300
        [CN= 68.0: N= 3.00]
        [Tp= .26:SD= 5.00]
*****************************************************************************
* EXISTING Flow  Total flow to Shields Creek (Junction Node NC138)
*****************************************************************************
*  McEnvoy Drain, d/s of residential area
 Q10:0014----------ID:RM1C-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ADD HYD            01:EX1       71.67    1.401 No_date    1:55   19.21 n/a
                    +  01:EX1A        9.68     .350 No_date    1:40   15.78 n/a
                    +  01:EX1B        5.13     .196 No_date    1:40   15.78 n/a
      [CN= 69.0: N= 3.00]  SUM=  01:EX1a      86.48    1.710 No_date    1:55   18.38 n/a
* Typical Section Based on McEnvoy Branch Vee Ditch .5:1 slopes
* provided by Atrel
* Manning's n is Channel not maintained, light brush on banks
* Route Flow to d/s Node N1
* Slope - 1% as per Atrel Drawing
 Q10:0015----------ID:RM1C-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ROUTE CHANNEL   -> 01:N1        71.76    1.710 No_date    1:55   19.20 n/a
        [CN= 5.00] outc= 01:EX1a      86.48    1.659 No_date    1:40   18.38 n/a
        [L/S/n= 1265./ .050/ .035]
        [Vmax= 1.2:Dmax= 1.11]
* Typical Section Based on Shields MD Vee Ditch .5:1 banks
* provided by Atrel
* Manning's n is Channel not maintained, light brush on banks
* Route EX2 to d/s Node N1
* Slope = 0.05  as per plan provided by Atrel.
 Q10:0016----------ID:RM1C-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ROUTE CHANNEL   -> 01:EX2        10.94     .250 No_date    2:05   15.78 n/a
   *    [CN= 5.00] outc= 01:EX2a      10.94     .249 No_date    2:10   15.78 n/a
        [L/S/n= 1274./ .050/.035]
        [Vmax= .284:Dmax= .287]
*  McEnvoy Drain, d/s of residential area along Sales Barn Rd
 Q10:0017----------ID:RM1Y-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ADD HYD            01:EX2        10.94     .250 No_date    2:05   15.78 n/a
                    +  01:EX2a        10.94     .249 No_date    2:10   15.78 n/a
                    +  01:EX1a        86.48    1.659 No_date    1:55   18.38 n/a
      [CN= 5.00]  SUM=  01:N1         97.42    1.908 No_date    1:55   18.20 n/a
* Route Node N1 to Node N2
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* Typical Section Based on Shields MD Vee Ditch 3:1 banks
* provided by Atrel
* Manning's n is Channel  not maintained, light brush on banks
* Slope = 0.05  as per plan provided by Atrel.
 Q10:0018----------ID:RM1J-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ROUTE CHANNEL   -> 01:N1        97.42    1.908 No_date    1:55   18.20 n/a
   *    [CN= 5.00] outc= 01:EX1       97.42    1.871 No_date    1:55   17.73 n/a
        [L/S/n= 1843./ .050/.035]
        [Vmax= .315:Dmax= 1.290]
* Typical Section Based on Atrel Drawing Drain d/s of N2
* Manning's n is Channel not maintained, light brush on banks
* Route node N2&3 to d/s node N2
* Slope = (98-84.6)/487
 Q10:0019----------ID:RM1J-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ROUTE CHANNEL   -> 01:P2A         3.13     .196 No_date    1:20   15.78 n/a
   *    [CN= 5.00] outc= 01:EX2         3.13     .112 No_date    1:35   15.78 n/a
        [L/S/n= 1677./ .070/.050]
        [Vmax= .458:Dmax= .183]
*  Drain d, d/s of residential area
 Q10:0020----------ID:RM1K-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ADD HYD            01:P2A        54.34    1.675 No_date    1:40   17.33 n/a
                    +  01:P2B         7.15     .112 No_date    1:35   15.78 n/a
                    +  01:P2C         4.91     .301 No_date    1:45   15.78 n/a
      [CN= 5.00]  SUM=  01:N2         66.39    2.079 No_date    1:40   17.05 n/a
* ROUTE N2 to N3
* Typical Section based on Shields MD Vee Ditch 3:1 banks
* provided by Atrel
* Manning's n is Channel not maintained, light brush on banks
* Slope = 0.05  as per plan provided by Atrel.
* Route Flow 3 d/s of residential area
 Q10:0021----------ID:RM1K-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ADD HYD            02:P3A        6.14     .202 No_date    1:30   15.78 n/a
                    +  03:P3B        3.31     .101 No_date    1:30   15.78 n/a
                    +  04:EX4         .50     .028 No_date    1:20   21.14 n/a
      [CN= 5.00]  SUM=  01:P3a        9.95     .331 No_date    1:30   16.17 n/a
* Typical Section Based on Atrel Drawing drain d/s of N2
* Manning's n is Channel not maintained, light brush on banks
* Route to d/s area
* Slope = (88-83)/660
 Q10:0022----------ID:RM1Y-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ROUTE CHANNEL   -> 02:N3a         6.68     .203 No_date    1:05   16.17 n/a
        [CN= 5.00] outc= 01:N3a         6.68     .203 No_date    1:05   16.17 n/a
        [L/S/n= 653./ .050/.030]
        [Vmax= .477:Dmax= .226]
*  Drain d, d/s of residential area
 Q10:0023----------ID:RM1Y-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ADD HYD            02:N2        66.39    1.967 No_date    1:45   17.05 n/a
                    +  03:N3a         6.68     .203 No_date    1:45   16.17 n/a
                    +  04:P3C         9.71     .280 No_date    1:50   15.78 n/a
      [CN= 5.00]  SUM=  01:N3         82.94    2.451 No_date    1:45   16.83 n/a
* ROUTE N3 to NC138
* Typical Section Based on Shields MD Vee Ditch 3:1 banks
* provided by Atrel
* Manning's n is Channel  not maintained, light brush on banks
* Slope = 9.05  as per plan provided by Atrel.
 Q10:0025----------ID:RM1J-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ROUTE CHANNEL   -> 02:N3        82.94    2.451 No_date    1:45   16.83 n/a
        [CN= 5.00] outc= 01:N3        82.94    2.024 No_date    2:05   16.83 n/a
        [L/S/n= 415./ .050/.035]
        [Vmax= .394:Dmax= 1.460]
* Flow at Station Code NC8128 for comparison
* Routed N3 plus EX3
 Q10:0026----------ID:RM1Y-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ADD HYD            01:EX3        10.94    2.024 No_date    2:05   16.83 n/a
                    +  04:EX4          .50     .115 No_date    2:20   15.78 n/a
      [CN= 5.00]  SUM=  01:NC8128      94.29    2.415 No_date    2:05   16.62 n/a
* Flow from Station at node NC8128 for comparison
 Q10:0027----------ID:RM1J-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      DESIGN NASHYD      01:EC001      78.11    2.435 No_date    2:25   15.78 .300
        [CN= 69.0: N= 3.00]
        [Tp= .91:SD= 5.00]
* Typical Section Based on McEnvoy Branch Vee Ditch 1.5:1 slopes
* provided by Atrel
* Route from P-EX1 to NC8128
* Manning's n is channel not maintained, light brush on banks
* Invert at NC8128 as per Atrel bottom of ditch points - 82.50 a
* Slope = (85.74-82.50)/(15*)
 Q10:0028----------ID:RM1Y-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
```

```
      ROUTE CHANNEL   -> 02:EX1        24.62     1.401 No_data   1:30   19.21  n/a
       [RDT= 5.00] out<- 01:RBX15      24.62      .741 No_data   1:50   19.21  n/a
       [L/S/n= 1517./ .070/.040]
       {Vmax= .753:Dmax= 1.087}
 010:0029-----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ADD HYD             02:SC001      75.14     1.836 No_date   2:25   15.36  n/a
                       + 03:RBX15      24.62      .741 No_date   1:50   19.21  n/a
       [DT= 5.00]  SUM= 01:StnTot     100.13     1.955 No_date   2:15   16.60  n/a
#................................................................................
# Simulations with 4 hour Chicago from City of Ottawa
  ** END OF RUN : 24
*********************************************************************************




  RUN:COMMAND#
  015:0001 ----------------------------------------------------------------------
      START
       [TZERO = .00 hrs on 0]
       [METOUT= 2 (1=imperial, 2=metric output)]
       [NSTORM= 1 ]
       [NRUN = 25]
#*********************************************************************************
#  SWMHYMO Ver:5.02/Jan 2001 <BETA> / INPUT DATA FILE
#*********************************************************************************
#  Project Name: [Greely Village Center]    Project Number: [A07-001]
#  Date        : 04-09-2008
#  Modeller    : [JHP]
#  Company     : JFSAinc.
#  License #   : 7547467
#*********************************************************************************
#
# SWMHYMO model of the Greely Village Center - Residential Area - Phase 1
# Existing conditions.
# Filename stands for: GRP1E - Greely, Residential, Phase 1, Existing
#
# Dec 15, 2008
# Added July 1st 1979 event
#
# ** EXISTING CONDITIONS ASSUMPTIONS:
#  CN's, XIMP, TIMP,
#  as per Stantec Report, Oct. 2002: Greely Shield Creek, Stormwater
#  and drainage study:
#  and as per Atrel drawing: Greely Village Area.dwg
#  as specified per subwatershed
#  Tp calculated using the Upland Method as per Stantec. (Tp = Tc * 2/3)
#
#*********************************************************************************
  075:0002-------------------------------------------------------------------------
      READ STORM
       Filename = storm.001
       Comment  = 25 years Chicago storm 4 Hours step 10 min, City of Ottawa
       [SDT=10.00:SDUR=  4.00:PTOT=  61.77]
#*********************************************************************************
# Existing flow - McEvoy Branch of Shields Creek - Areas
# Area u/s of proposed development (residential)
# CN=75, slope = 0.5, Tp=0.16, XIMP=5, TIMP=15, see SD:00 as per Stantec
# Area partially adjusted based on Atrel drawings.
#*********************************************************************************
# u/s of Bank St. as per Atrel - with modified boundaries and Tp.
  025:0003-----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      DESIGN NASHYD        01:EX1        21.00     1.367 No_date   1:30   25.66  .406
       [CN= 75.0: N= 3.00]
       [Tp=  .29:DT= 5.00]
#*********************************************************************************
# Existing flow - McEvoy Branch of Shields Creek (d/s of Bank St.)
# CN=69, as per Stantec see SD:00.
# Area partially adjusted based on Atrel drawings.
#*********************************************************************************
# Areas External to development
  025:0004-----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      DESIGN NASHYD        01:EX2        10.94      .335 No_date   2:05   20.83  .337
       [CN= 69.0: N= 3.00]
       [Tp=  .57:DT= 5.00]
  025:0005-----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      DESIGN NASHYD        01:EX3        21.50      .568 No_date   2:20   20.83  .337
       [CN= 69.0: N= 3.00]
       [Tp=  .73:DT= 5.00]
# Slope, Ximp, Timp, Area from Atrel Drawing
# CN from Stantec (SD:00)
# Ximp = Timp - 10%
  025:0006-----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
   *  DESIGN STANDHYD      01:EX4          .50      .039 No_date   1:10   26.90  .077
       [XIMP=.11:TIMP=.22]
       [SLP=1.00:DT= 5.00]
       [LOSS= 2 :CN= 69.0]
# Areas to be occupied by commercial development
  025:0007-----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      DESIGN NASHYD        01:R1A         9.08      .469 No_date   1:20   20.83  .337
       [CN= 69.0: N= 3.00]
       [Tp=  .31:DT= 5.00]
  025:0008-----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
   *  DESIGN NASHYD        01:R2A         3.13      .184 No_date   1:25   20.83  .337
       [CN= 69.0: N= 3.00]
       [Tp=  .23:DT= 5.00]
  025:0009-----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      DESIGN NASHYD        01:R3A         4.14      .272 No_date   1:30   20.83  .337
       [CN= 69.0: N= 3.00]
       [Tp=  .21:DT= 5.00]
  025:0010-----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      DESIGN NASHYD        01:R3B         2.21      .146 No_date   1:30   20.83  .337
       [CN= 69.0: N= 3.00]
       [Tp=  .23:DT= 5.00]
# Areas to be occupied by residential development
  025:0011-----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      DESIGN NASHYD        01:R1B         9.70      .561 No_date   1:35   20.83  .337
       [CN= 69.0: N= 3.00]
       [Tp=  .26:DT= 5.00]
  025:0012-----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      DESIGN NASHYD        01:R2B         6.61      .404 No_date   1:45   20.83  .337
       [CN= 69.0: N= 3.00]
       [Tp=  .38:DT= 5.00]
  025:0013-----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      DESIGN NASHYD        01:R3C         9.11      .315 No_date   1:50   20.83  .337
       [CN= 69.0: N= 3.00]
       [Tp=  .48:DT= 5.00]
#*********************************************************************************
# EXISTING flow - Total Flow to Shields Creek (Stantec Node NC125)
#*********************************************************************************
#  McEvoy Drain, u/s of residential area
  025:0014-----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ADD HYD              02:EX1        24.62     1.867 No_date   1:30   25.06  n/a
                         - 03:R1A         9.08      .469 No_date   1:40   20.83  n/a
       [DT= 5.00]  SUM= 01:R1us         33.70     2.104 No_date   1:35   23.92  n/a
# Typical Section based on McEvoy Branch Vee Ditch 1.5:1 slopes
# provided by Atrel
# Manning's n is Channel not maintained, light brush on banks
# Route R1us to d/s node N1
# Slope = 1% as per Atrel drawing
  025:0015-----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ROUTE CHANNEL   -> 02:R1us       33.70     2.104 No_date   1:35   23.92  n/a
       [RDT= 5.00] out<- 01:RR1us      33.70     2.102 No_date   1:40   23.92  n/a
       [L/S/n= 175./1.000/.050]
       {Vmax= 1.173:Dmax= 1.160}
# Typical Section based on Shields YD Vee Ditch 3:1 banks
# provided by Atrel
# Manning's n is Channel not maintained, light brush on banks
# Route EX2 to d/s Node N1
# Slope = 0.05% as per plan provided by Atrel.
  025:0016-----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ROUTE CHANNEL   -> 02:EX2        10.94      .335 No_date   2:05   20.83  n/a
   *   [RDT= 5.00] out<- 01:REX2       10.94      .297 No_date   2:15   20.83  n/a
       [L/S/n= 224./ .050/.035]
       {Vmax= .251:Dmax= .661}
#  McEvoy Drain, d/s of residential area along Sales Barn Rd
  025:0017-----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ADD HYD              02:REX2       10.94      .297 No_date   2:15   20.83  n/a
                         + 03:RR1us      33.70     2.102 No_date   1:40   23.92  n/a
                         + 04:R1B         9.70      .561 No_date   1:35   20.83  n/a
       [DT= 5.00]  SUM= 01:N1           54.34     2.855 No_date   1:40   22.75  n/a
# Route Node N1 to Node N2
# Typical section based on Shields HD Vee Ditch 3:1 banks
# provided by Atrel
# Manning's n is Channel not maintained, light brush on banks
# Slope = 0.05% as per plan provided by Atrel.
  025:0018-----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ROUTE CHANNEL   -> 02:N1         54.34     2.855 No_date   1:40   22.75  n/a
   *   [RDT= 5.00] out<- 01:RN1        54.34     2.852 No_date   1:40   22.75  n/a
       [L/S/n= 184./ .050/.035]
       {Vmax= .375:Dmax= 1.601}
# Typical Section based on Atrel Drawing drain u/s of N2
# Manning's n is channel not maintained, light brush on banks
# Route node N2us to d/s node N2
```

```
# Slope = (88-84)/797
 025:0019------------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ROUTE CHANNEL   -> 02:R2A          3.11      .264 No_date    1:35   20.83  n/a
      [RDT= 5.00] out<- 01:RE2A         3.11      .150 No_date    1:35   20.83  n/a
      [L/S/n= 180./ .0287/.050]
      {Vmax= .477:Dmax= .111}
#  Drain 2, d/s of residential area
 025:0020------------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ADD HYD                 02:RK1        54.44     2.882 No_date    1:40   22.75  n/a
                          +  03:RE2A        3.11      .150 No_date    1:35   20.83  n/a
                          +  04:R2S         8.91      .404 No_date    1:40   20.83  n/a
      [DT= 5.00]  SUM=  01:N2          66.38     3.232 No_date    1:00   22.40  n/a
# ROUTE N2 to N3
# Typical Section based on Shields XD Vee Ditch 3:1 banks
# provided by Atrel
# Manning's n is Channel not maintained, light brush on banks
# Slope = 0.05% as per plan provided by Atrel.
 025:0021------------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ROUTE CHANNEL   -> 02:N2          66.38     3.232 No_date    1:40   22.40  n/a
  *   [RDT= 5.00] out<- 01:RN2         66.38     2.945 No_date    1:55   22.10  n/a
      [L/S/n= 210./ .050/.035]
      {Vmax= .350:Dmax= 1.690}
# Add Drain 3 u/s of residential area
 025:0022------------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ADD HYD                 02:R3A         4.14      .272 No_date    1:30   20.83  n/a
                          +  03:R3E         2.21      .136 No_date    1:30   20.83  n/a
                          +  04:EX4          .50      .039 No_date    1:30   26.98  n/a
      [DT= 5.00]  SUM=  01:R3ue         6.85      .417 No_date    1:30   21.20  n/a
# Typical Section based on Atrel Drawing drain bow u/s of N3
# Manning's n is Channel not maintained, light brush on banks
# Route to d/s area
# Slope = (88-84)/863
 025:0023------------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ROUTE CHANNEL   -> 02:R3ue         6.85      .447 No_date    1:30   21.28  n/a
      [RDT= 5.00] out<- 01:RR3ue        6.85      .255 No_date    1:45   21.28  n/a
      [L/S/n= 863./ .0046/.050]
      {Vmax= .318:Dmax= .293}
#  Drain 3, d/s of residential area
 025:0024------------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ADD HYD                 02:RN2        66.38     2.945 No_date    1:45   22.10  n/a
                          +  03:RR3ue       6.85      .255 No_date    1:45   21.28  n/a
                          +  04:R3C         9.71      .375 No_date    1:50   20.83  n/a
      [DT= 5.00]  SUM=  01:N3          82.94     3.591 No_date    1:45   22.12  n/a
# ROUTE N3 to NCR128
# Typical Section based on Shields XD Vee Ditch 3:1 banks
# provided by Atrel
# Manning's n is Channel not maintained, light brush on banks
# Slope = 0.05% as per plan provided by Atrel.
 025:0025------------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ROUTE CHANNEL   -> 02:N3          82.94     3.591 No_date    1:45   22.12  n/a
  *   [RDT= 5.00] out<- 01:RN3         82.94     3.322 No_date    2:00   22.12  n/a
      [L/S/n= 415./ .050/.035]
      {Vmax= .354:Dmax= 1.763}
# Flow at Stantec node NCR128 for comparison
# Routed N3 plus EX3
 025:0026------------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ADD HYD                 02:RN3        82.94     3.322 No_date    2:00   22.12  n/a
                          +  03:EX3        21.30     1.058 No_date    2:20   20.83  n/a
      [DT= 5.00]  SUM=  01:NCR128     104.24     3.320 No_date    2:00   21.86  n/a
# Flow from Stantec at node NCR128 for comparison
 025:0027------------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     DESIGN NASHYD           01:SC001      74.11     1.917 No_date    2:25   20.83  .317
      [CN= 69.0: N= 3.00]
      [Tp= 1.03:DT= 5.00]
# Typical Section based on McEvoy Branch Vee Ditch 1.5:1 slopes
# provided by Atrel
# Route from N-EX1 to NCR128
# Manning's n is Channel not maintained, light brush on banks
# Invert at NCR128 as per Atrel bottom of ditch points = 82.52 m
# Slope = (85.78-82.52)/1517
 025:0028------------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ROUTE CHANNEL   -> 02:EX1         24.52     1.867 No_date    1:30   25.06  n/a
      [RDT= 5.00] out<- 01:REX1S       24.52     1.040 No_date    1:50   25.06  n/a
      [L/S/n= 1517./ .0410/.050]
      {Vmax= .769:Dmax= 1.216}
 025:0029------------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ADD HYD                 02:SC001      78.11     1.913 No_date    2:25   20.83  n/a
                          +  01:REX1S      24.62     1.010 No_date    1:50   25.06  n/a
      [DT= 5.00]  SUM=  01:StnTot     102.73     2.675 No_date    2:10   21.13  n/a
#*******************************************************************************
# Simulations with 4 hour Chicago from City of Ottawa
  ** END OF RUN : 25

*******************************************************************************






 RUN:COMMAND#
 050:0001-----------------------------------------------------------------------
     START
       [TZERO =    .00 hrs on          0]
       [METOUT=    2  (1=imperial, 2=metric output)]
       [NSTORM=    1 ]
       [NRUN  =   50 ]
#*******************************************************************************
#  SWMHYMO Ver/5.02/Jan 2001 (R32A) - INPUT DATA FILE
#*******************************************************************************
#  Project Name: [Greely Village Center]    Project Number: [847-07]
#  Date          : 04-09-2008
#  Modeller      : [JRE]
#  Company       : JFSAinc
#  License #     : 2537202
#*******************************************************************************
#
# SWMHYMO model of the Greely Village Center - Residential Area - Phase 1
# existing conditions.
# Filename stands for: GRP1E - Greely, Residential, Phase 1, Existing
#
# Dec 15, 2008
# Added July 1st 1979 event
#
# *E  EXISTING CONDITIONS ASSUMPTIONS:
#  CN*, XIMP, TIMP,
#   as per Stantec Report, Oct. 2002: Greely Shield Creek, Stormwater
#   and drainage study.
#   and as per Atrel drawing: Greely Village Area.dwg
#   as specified per subwatershed
#   Tp calculated using the Upland Method as per Stantec. (Tp = Tc * 2/3)
#
#*******************************************************************************
 050:0002-----------------------------------------------------------------------
     READ STORM
       Filename = storm.001
       Comment  = 50 years Chicago Storm 4 Hours step 10 min, City of Ottawa
       [SDT=10.00:SDUR=  4.00:PTOT=  88.73]
#*******************************************************************************
# Existing flow - McEvoy Branch of Shields Creek - Areas
# Area u/s of proposed development (residential)
# CN*=75, slope = 0.3, Tp 0.16, XIMP 5, TIMP 15, see SC002 as per Stantec
# Area partially adjusted based on Atrel drawings.
#*******************************************************************************
# u/s of Bank St. as per Atrel - with modified boundaries and Tp.
 050:0003------------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     DESIGN NASHYD           01:EX1        24.62     2.242 No_date    1:30   33.65  .433
      [CN= 75.0: N= 3.00]
      [Tp=  .23:DT= 5.00]
#*******************************************************************************
# Existing flow - McEvoy Branch of Shields Creek (u/s of Bank St.)
# CN*=69, as per Stantec see SC001.
# Area partially adjusted based on Atrel drawings.
#*******************************************************************************
# Areas External to development
 050:0004------------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     DESIGN NASHYD           01:EX2        10.54      .403 No_date    2:05   24.92  .363
      [CN= 69.0: N= 3.00]
      [Tp=  .67:DT= 5.00]
 050:0005------------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     DESIGN NASHYD           01:EX3        21.30     1.031 No_date    2:20   24.92  .363
      [CN= 69.0: N= 3.00]
      [Tp=  .82:DT= 5.00]
# Slope, Ximp, Timp, Area from Atrel Drawing
# CN from Stantec (SC001)
# Ximp = Timp = 10
 050:0006------------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
  *   DESIGN STANDHYD        01:EX4          .50      .057 No_date    1:20   31.67  .163
       [XIMP= .10:TIMP= .22]
       [SLP=1.00:DT= 5.00]
       [LOSS= 2 :CN= 69.0]
# Areas to be occupied by Commercial development
 050:0007------------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     DESIGN NASHYD           01:E1A         9.50      .596 No_date    1:40   24.92  .363
      [CN= 69.0: N= 3.00]
      [Tp=  .51:DT= 5.00]
 050:0008------------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
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    *  DESIGN NASHYD      01:R2A        3.13     .318 No_date    1:25   24.92 .363
        [CN= 65.0: N= 3.00]
        [Tp=  .13:DT= 5.00]
 050:0009-----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      DESIGN NASHYD      01:R3A        4.14     .329 No_date    1:30   24.92 .363
        [CN= 65.0: N= 3.00]
        [Tp=  .21:DT= 5.00]
 050:0010-----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      DESIGN NASHYD      01:R3B        2.97     .165 No_date    1:30   24.92 .363
        [CN= 65.0: N= 3.00]
        [Tp=  .21:DT= 5.00]
# Areas to be occupied by residential development
 050:0011-----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      DESIGN NASHYD      01:R1B        9.70     .621 No_date    1:15   24.92 .363
        [CN= 65.0: N= 3.00]
        [Tp=  .20:DT= 5.00]
 050:0012-----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      DESIGN NASHYD      01:R2B        8.51     .487 No_date    1:45   24.92 .363
        [CN= 65.0: N= 3.00]
        [Tp=  .38:DT= 5.00]
 050:0013-----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      DESIGN NASHYD      01:R2C        5.71     .452 No_date    1:30   24.92 .363
        [CN= 65.0: N= 3.00]
        [Tp=  .48:DT= 5.00]
#**************************************************************************************
# EXISTING FLOW - Total Flow to Shields Creek (Stantec Node DC118)
#**************************************************************************************
#  McEvoy Drain, u/s of residential area
 050:0014-----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ADD HYD            02:EX1       24.62    2.243 No_date    1:30   29.75  n/a
                       + 03:R1A        9.08     .566 No_date    1:40   24.92  n/a
        [DT= 5.00]  SUM= 01:R1us      33.70    2.750 No_date    1:35   28.15  n/a
# Typical section based on McEvoy Branch Vee Ditch 1.5:1 slopes
# provided by Atrel
# Manning's n is Channel not maintained, light brush on banks
# Route R1us to d/s node N1
# Slope = 1% as per Atrel drawing
 050:0015-----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ROUTE CHANNEL   -> 02:R1us      33.70    2.764 No_date    1:35   28.45  n/a
        [RDT= 5.00] out<= 01:RR1us    33.70    2.606 No_date    1:40   28.45  n/a
        [L/S/n= 375./1.000/.050]
        [Vmax= 1.121:Dmax= 1.104]
# Typical Section based on Shields MD Vee Ditch 3:1 banks
# provided by Atrel
# Manning's n is Channel not maintained, light brush on banks
# Route EX2 to d/s Node N1
# Slope = 0.05% as per plan provided by Atrel
 050:0016-----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ROUTE CHANNEL   -> 02:EX2       10.94     .408 No_date    2:05   24.92  n/a
    *   [RDT= 5.00] out<= 01:REX2     10.94     .361 No_date    2:15   24.92  n/a
        [L/S/n= 224./ .050/.035]
        [Vmax= .269:Dmax= .411]
#  McEvoy Drain, d/s of residential area along Galex Barn Rd
 050:0017-----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ADD HYD            02:REX2      10.94     .361 No_date    2:15   24.92  n/a
                       + 03:RR1us     33.70    2.606 No_date    1:40   28.45  n/a
                       + 04:R1s        9.70     .677 No_date    1:35   24.92  n/a
        [DT= 5.00]  SUM= 01:N1        54.34    3.422 No_date    1:40   27.11  n/a
# Route Node N1 to Node N2
# Typical Section based on Shields MD Vee Ditch 3:1 banks
# provided by Atrel
# Manning's n is Channel not maintained, light brush on banks
# Slope = 0.05% as per plan provided by Atrel
 050:0018-----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ROUTE CHANNEL   -> 02:N1        54.34    3.422 No_date    1:40   27.11  n/a
    *   [RDT= 5.00] out<= 01:RN1      54.34    3.185 No_date    1:45   27.11  n/a
        [L/S/n= 184./ .050/.035]
        [Vmax= .356:Dmax= 1.731]
# Typical section based on Atrel Drawing drain d/s of N7
# Manning's n is Channel not maintained, light brush on banks
# Route node N1us to d/s node N2
# Slope = (85-84.5)/487
 050:0019-----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ROUTE CHANNEL   -> 02:R2A        3.13     .318 No_date    1:25   24.92  n/a
        [RDT= 5.00] out<= 01:RR2A      3.13     .198 No_date    1:30   24.92  n/a
        [L/S/n= 487./ .100/.050]
        [Vmax= .150:Dmax= .243]
#  Drain 2, d/s of residential area
 050:0020-----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ADD HYD            02:RN1       54.34    3.185 No_date    1:45   27.11  n/a
                       + 03:RR2A       3.13     .198 No_date    1:30   24.92  n/a
                       + 04:R2B        8.51     .487 No_date    1:45   24.92  n/a
        [DT= 5.00]  SUM= 01:N2        66.38    3.841 No_date    1:45   26.71  n/a
# ROUTE N2 to N3
# Typical Section based on Shields MD Vee Ditch 3:1 banks
# provided by Atrel
# Manning's n is Channel not maintained, light brush on banks
# Slope = 0.05% as per plan provided by Atrel
 050:0021-----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ROUTE CHANNEL   -> 02:N2        66.38    3.841 No_date    1:45   26.71  n/a
    *   [RDT= 5.00] out<= 01:RN2      66.38    3.315 No_date    1:50   26.71  n/a
        [L/S/n= 210./ .050/.035]
        [Vmax= .351:Dmax= 1.798]
# Add Drain 3 d/s of residential area
 050:0022-----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ADD HYD            02:R3A        4.14     .329 No_date    1:30   24.92  n/a
                       + 03:R3B        2.97     .165 No_date    1:30   24.92  n/a
                       + 04:EX4         .60     .051 No_date    1:20   31.83  n/a
        [DT= 5.00]  SUM= 01:R3us       6.85     .545 No_date    1:30   25.41  n/a
# Typical Section based on Atrel Drawing drain btw d/s of N2
# Manning's n is Channel not maintained, light brush on banks
# Route to d/s area
# Slope = (88-84)/683
 050:0023-----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ROUTE CHANNEL   -> 02:R3us       6.85     .545 No_date    1:30   25.41  n/a
        [RDT= 5.00] out<= 01:RR3us     6.85     .353 No_date    1:45   25.41  n/a
        [L/S/n= 683./ .600/.050]
        [Vmax= .240:Dmax= .321]
#  Drain 3, d/s of residential area
 050:0024-----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ADD HYD            02:RN2       66.38    3.316 No_date    1:50   26.71  n/a
                       + 03:RR3us      6.85     .353 No_date    1:45   25.41  n/a
                       + 04:R3C        9.71     .452 No_date    1:30   24.92  n/a
        [DT= 5.00]  SUM= 01:N3        82.94    4.113 No_date    1:30   26.40  n/a
# ROUTE N3 to DC120
# Typical Section based on Shields MD Vee Ditch 3:1 banks
# provided by Atrel
# Manning's n is Channel not maintained, light brush on banks
# Slope = 0.05% as per plan provided by Atrel
 050:0025-----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ROUTE CHANNEL   -> 02:N3        82.94    4.113 No_date    1:50   26.40  n/a
    *   [RDT= 5.00] out<= 01:RN3      82.94    3.271 No_date    2:05   26.40  n/a
        [L/S/n= 415./ .050/.035]
        [Vmax= .351:Dmax= 1.831]
# Flow at Stantec node NCR120 for comparison
# Routed N3 plus EX3
 050:0026-----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ADD HYD            02:RN3       82.94    3.271 No_date    2:05   26.40  n/a
                       + 03:EX3       21.30     .671 No_date    2:20   24.92  n/a
        [DT= 5.00]  SUM= 01:NCR120   104.24    3.930 No_date    2:05   26.10  n/a
# Flow from Stantec at node NCR120 for comparison
 050:0027-----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      DESIGN NASHYD      01:DC034      78.1     2.101 No_date    2:25   24.92 .363
        [CN= 69.0: N= 3.00]
        [Tp=  .61:DT= 5.00]
# Typical Section based on McEvoy Branch Vee Ditch 1.5:1 slopes
# provided by Atrel
# Route from N-EX1 to NCR121
# Manning's n is Channel not maintained, light brush on banks
# Invert at NCR-28 as per Atrel bottom of ditch points = 89.52 T
# Slope = (89.70-82.32)/1517
 050:0028-----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ROUTE CHANNEL   -> 02:EX1       24.62    2.243 No_date    1:30   29.75  n/a
        [RDT= 5.00] out<= 01:REX1S    24.62    1.251 No_date    1:55   29.75  n/a
        [L/S/n= 1517./ .110/.050]
        [Vmax= .370:Dmax= 1.113]
 050:0029-----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ADD HYD            02:DC034     78.11    2.101 No_date    2:25   24.92  n/a
                       + 03:REX1S     24.62    1.251 No_date    1:55   29.75  n/a
        [DT= 5.00]  SUM= 01:SUMTOT   102.73    3.229 No_date    2:10   26.08  n/a
#**************************************************************************************
# Simulations with 4 hour Chicago from City of Ottawa
    ** END OF RUN :  59

-------------------------------------------------------------------------------------

RUN:COMMAND#
 INFO:0001-------------------------------------------------------------------------
      START
        [TZERO =    .00 hrs on       0]
        [METOUT=   2   (1=imperial, 2=metric output)]
        [NSTORM=   1 ]
```

```
[NRUN  = 160 ]
*****************************************************************************
*  SWMM5000 Ver 5.0(Jan 2001 CRTAB / INPUT DATA file
*****************************************************************************
*  Project Name: [Greely Village Center]    Project Number: [407-07]
*  Date        : 04-09-2008
*  Modeller    : [JHF]
*  Company     : JFSAinc.
*  Timenas #   : 264/402
*****************************************************************************
*
* SWMMHYM model of the Greely Village Center - Residential Area - Phase 1
* Existing conditions.
* Filename example for: GBV1E - Greely, Residential, Phase 1, Existing
*
* Dec 15, 2008
* Added Only 1st 1979 event
*
* *  EXISTING CONDITIONS ASSUMPTIONS:
*  CN=, AIMP, ISMP,
*  as per Stantec Report, Oct 2002: Greely Shield Creek, Stormwater
*  and drainage study
*  and as per Atrel drawing: Greely Village Area.dwg
*  as specified per snowstorehed
*  Tp calculated using the Dp and Method as per Stantec: Tp = Tc * 2/3)
*
*****************************************************************************
------------------------------------------------------------------------------
    REAL STORM
     Filename   storm.031
     Comment    100 years Chicago Start 6 hours step 10 min, City of Ottawa
     [SUM= 0.00:STORM=   4.80:TOTAL=  78.60]
*****************************************************************************
* Existing Flow - McEvoy Branch of Shield Creek - Areas
* Area d/s of proposed development (residential)
* CN=(%, < Ia= 0.0, Tp=0.16, X(3)=5, TIMP=15, Area SCS02 as per Stantec
* Area partially adjusted based on Atrel drawings.
*****************************************************************************
* d/s of bank st.as per Atrel - With modified boundaries and Tp
 100:0090]----------ID:RHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
     [DESIGN HASHYD      01:EX1        26.62      2.651 No data    1:30   34.57 .469
      [CN= 75.0: N= 5.00]
      [Tp=  .74:UT= 5.00]
*****************************************************************************
* Existing Flow - McEvoy branch of Shield Creek (d/s of bank st.)
* CN=-89, as per stantec rpt 20001
* Area partially adjusted based on Atrel drawings
*****************************************************************************
* Areas Subtract to development
 100:0087----------ID:RHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
     [DESIGN HASHYD      01:EX0        18.94      .478 No data    2:05   29.42 .387
      [CN= 60.0: N= 5.00]
      [Tp=  .67:UT= 5.00]
 100:0085----------ID:RHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
     [DESIGN HASHYD      01:EX3        21.36      .795 No data    2:20   29.42 .387
      [CN= 69.0: N= 5.00]
      [Tp=  .82:UT= 5.00]
* Slope, Xisp, Ting, Area from Atrel Drawing
* CN from Stantec (SCS-1)
* Xisp = Tisp - 10)
 100:0084----------ID:RHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
   + [DESIGN STANDHYD    01:EX4         .52      .068 No data    1:20   36.69 .081
      [XIMP=.11:TIMP=.22]
      [CS= 1.00:UT= 5.00]
      [LOSS= 2.00= 65.0
* Areas to be occupied by commercial development
 100:0067----------ID:RHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
     [DESIGN HASHYD      01:EX5A       9.08      .672 No data    1:10   29.47 .587
      [CN= 85.0: N= 5.00]
      [Tp=  .73:UT= 5.00]
 100:0078----------ID:RHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
   + [DESIGN HASHYD      01:EX2A       5.13      .380 No data    1:25   29.43 .587
      [CN= 69.0: N= 5.00]
      [Tp=  .11:UT= 5.00]
 100:0079----------ID:RHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
     [DESIGN HASHYD      01:EX1A       4.14      .306 No data    1:30   29.43 .587
      [CN= 69.0: N= 5.00]
      [Tp=  .73:UT= 5.00]
 100:0078----------ID:RHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
     [DESIGN HASHYD      01:EX1B       3.91      .198 No data    1:30   29.42 .387
      [CN= 69.0: N= 5.00]
      [Tp=  .73:UT= 5.00]
* Areas to be occupied by residential areas
 100:0010----------ID:RHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
     [DESIGN HASHYD      01:EX6        10.70      .792 No data    1:30   29.42 .387
      [CN= 69.0: N= 5.00]
      [Tp=  .73:UT= 5.00]
 100:0011----------ID:RHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
     [DESIGN HASHYD      01:EX7        11.70      .865 No data    1:30   29.42 .387
      [CN= 69.0: N= 5.00]
      [Tp=  .73:UT= 5.00]
 100:0012----------ID:RHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
     [DESIGN HASHYD      01:EX8        11.70      .865 No data    1:30   29.42 .387
      [CN= 69.0: N= 5.00]
      [Tp=  .73:UT= 5.00]
 100:0013----------ID:RHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
     [DESIGN HASHYD      01:EX9        11.70      .865 No data    1:30   29.42 .387
      [CN= 69.0: N= 5.00]
      [Tp=  .73:UT= 5.00]
*****************************************************************************
* Existing Flow - Total Flow to Shield Creek (Stantec Node EC128)
*****************************************************************************
* McEvoy Drain, d/s of residential area
 100:0014----------ID:RHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
     ADD HYD             01:EX0        24.62      1.255 No data    1:30   34.57  n/a
                       + 02:EX1A       0.88       .870 No data    1:40   29.48  n/a
                       = 01:EX1B      33.70      3.264 No data    1:30   33.40  n/a
      [It= 5.00]  SUM=  01:EX1B      33.70      3.264 No data    1:30   33.40  n/a
* Typical Section based on McEvoy stanca Ver Ditch 1.5:1 slopes
* provided by Atrel
* Manning's n is Channel not maintained, light brush on banks
* Route flow to d/s node N1
* Slope   1% as per Atrel drawing
 100:0015----------ID:RHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
     ROUTE CHANNEL    -> 02:EX1A      33.70      3.264 No data    1:30   33.40  n/a
      [RTT= 5.00] outf= 01:EX1B      33.70      3.074 No data    1:40   33.40  n/a
       [L/S/n=  670./1.00/.050]
       [Vmax= 1.136:Dmax= 1.317]
* Typical Section based on Shields MD Ver Ditch 3:1 Banks
* provided by Atrel
* Manning's n is Channel not maintained, light brush on banks
* Route EX1 to d/s node N1
* Slope = 0.6% as per plan provided by Atrel.
 100:0016----------ID:RHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
     ROUTE CHANNEL    -> 02:EX2      10.94       .478 No data    2:05   29.43  n/a
   + [RDT= 5.00] outf= 01:EX1       33.70      3.074 No data    1:40   33.40  n/a
       [L/S/n=  290./ .050/.035]
       [Vmax= .478:Dmax= .784]
*  McEvoy Drain, d/s of residential area along Selwa Farm Rd
 100:0017----------ID:RHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
     ADD HYD             02:EX2        10.94       .428 No data    2:05   29.43  n/a
                       + 03:EX1C       33.70      3.074 No data    1:40   33.40  n/a
                       = 04:EX1B       44.70      3.805 No data    1:35   29.43  n/a
      [DT= 5.00]  SUM=  01:EX1B       44.70      4.018 No data    1:40   31.89  n/a
* Route Node EX1 to Node N1
* Typical Section based on Shields MD Ver Ditch 3:1 Banks
* provided by Atrel
* Manning's n is Channel not maintained, light brush on banks
* Slope = 0.6% as per plan provided by Atrel.
 100:0018----------ID:RHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
     ROUTE CHANNEL    -> 02:EX1      54.34      4.018 No data    1:40   31.89  n/a
   + [RDT= 5.00] outf= 01:EX1       54.34      3.583 No data    1:50   31.89  n/a
       [L/S/n=  154./ .050/.035]
       [Vmax= .351:Dmax= 1.424]
* Typical Section based on Atrel Drawing Grass d/s of N1
* Manning's n is Channel not maintained, light brush on banks
* Route node N1 to d/s node N2
* Slope = [68-64.5]/487
 100:0019----------ID:RHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
     ROUTE CHANNEL    -> 02:EX2A      7.17       .503 No data    1:25   29.43  n/a
       [RDT= 5.00] outf= 01:EX1B      7.17       .291 No data    1:35   29.42  n/a
       [L/S/n=  487./ .020/.050]
       [Vmax= .330:Dmax= .262]
*  Drain 2, d/s of residential area
 100:0020----------ID:RHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
     ADD HYD             03:EX1        54.34      3.583 No data    1:50   31.89  n/a
                       + 04:EX2A       7.17       .503 No data    1:25   29.43  n/a
                       = 05:EX2B       6.91       .675 No data    1:45   29.43  n/a
      [DT= 5.00]  SUM=  01:EX2        68.38      4.316 No data    1:50   31.44  n/a
* Route N2 to N3
* Typical Section based on Shields MD Ver Ditch 3:1 Banks
* provided by Atrel
* Manning's n is Channel not maintained, light brush on banks
* Slope = 0.6% as per plan provided by Atrel.
 100:0021----------ID:RHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
     ROUTE CHANNEL    -> 02:EX2      68.38      4.316 No data    1:50   31.44  n/a
   + [RDT= 5.00] outf= 01:EX3       68.38      3.861 No data    2:00   31.44  n/a
       [L/S/n=  210./ .050/.035]
       [Vmax= .385:Dmax= 1.859]
* Add Drain 3 d/s of residential area
 100:0022----------ID:RHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
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0165I>      ADD HYD           02:RSA        0.14      391 Ac_Date    1:30   29.42  n/a
0166I>                      + 03:R3E        2.11     .136 Ac_Date    1:30   29.02  n/a
0167I>                      + 04:EX4         .58     .048 Ac_Date    1:20   30.69  n/a
0168I>        [TP= 5.00]  SUM=  01:R3uz      6.85     .642 Ac_Date    1:45   29.06  n/a
0169I> # Typical Section based on Atrel Drawing Xsls-Dtw-Lro-01 Rd
0170I> # Manning's n is Channel, not maintained, light brush on banks
0171I> # Route to d/s area
0172I> # Slope = (98-84)/667
0173I>  190:0.21----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
0174I>      ROUTE CHANNEL    -> 01:R3uz       6.85      .642 Ac_Date    1:45   29.06  n/a
0175I>        [RVS= 5.00] out-> 01:R3sux      6.85      .32+ Ac_Date    1:45   29.06  n/a
0176I>        [L/S/n=  683./ .0030/.050]
0177I>        [Vmax=  .571:Dmax=  .352]
0178I> #  Route to d/s of residential area
0179I>  190:0.24----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
0180I>      ADD HYD           02:R4Z       66.38     3.851 Ac_Date    7:00   31.41  n/a
0181I>                      + 03:R3Sux      6.85     .428 Ac_Date    1:45   29.06  n/a
0182I>                      + 04:R1C        7.41     .537 Ac_Date    1:50   29.45  n/a
0183I>        [TP= 5.00]  SUM=  01:R1       87.69    4.719 Ac_Date    2:00   31.08  n/a
0184I> # ROUTE R3 to R1.28
0185I> # Typical Section based on Shields Rd Ave Ditch S1 Banks
0186I> # provided by Atrel
0187I> # Manning's n is Channel not maintained, light brush on banks
0188I> # Slope = 0.05  as per plan provided by Atrel.
0189I>  100:0.25----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
0190I>      ROUTE CHANNEL    -> 02:R3        8.24     4.719 Ac_Date    2:00   31.08  n/a
0191I>    + (RET  5.00) out-> 01:R3        82.94     3.131 Ac_Date    2:05   31.08  n/a
0192I>        [L/S/n=  915./ .050/.035]
0193I>        [Vmax=  .349:Tmax=  1.305]
0194I> # Flow at Station node RCR.28 for comparison
0195I> # Routed R3 plus RX3
0196I>  100:0.26----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
0197I>      ADD HYD           02:R3        82.94     3.131 Ac_Date    2:05   31.08  n/a
0198I>                      + 03:RX3        21.30     .795 Ac_Date    2:10   25.33  n/a
0199I>        [TP= 5.00]  SUM=  01:RCR.28  104.24     4.086 Ac_Date    2:05   30.75  n/a
0200I> # Flow from Station at node RCR.28 for comparison
0201I>  100:0.27----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
0202I>      DESIGN HASHYD     01:RCR.28      78.1     3.290 Ac_Date    2:15   29.44  .281
0203I>        [CN= 65.0] B= 3.00]
0204I>        [Tp=  .9:dT= 5.00]
0205I> # Typical Section based on McEvoy Branch Ave Ditch 1.5:1 slopes
0206I> # provided by Atrel
0207I> # Route from RCR.28 to RCR.29
0208I> # Manning's n is Channel not maintained, light brush on banks
0209I> # Invert at RCR.28 as per Atrel bottom of ditch points  82.02 m
0210I> # Slope = (89.70-82.02)/1017
0211I>  100:0.28----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
0212I>      ROUTE CHANNEL    -> 01:RCR.28     24.82     2.681 Ac_Date    1:55   30.87  n/a
0213I>        [RVS= 5.00] out-> 01:RCR.29     24.82     1.484 Ac_Date    1:55   30.87  n/a
0214I>        [L/S/n= 1017./ .030/.050]
0215I>        [Vmax=  .795:Tmax=  .190]
0216I>  190:0.029----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
0217I>      ADD HYD           02:SC001      78.11     3.770 Ac_Date    2:20   29.48  n/a
0218I>                      + 03:RCR.29     24.82     1.484 Ac_Date    1:55   30.87  n/a
0219I>        [TP= 5.00]  SUM=  01:StnTyr   102.73     3.848 Ac_Date    2:10   31.73  n/a
0220I> *************************************************************************
0221I> # simulation with 4 hour Chicago from City of Ottawa
0222I> # RCR.24 Route Type 2, from City of Ottawa
0223I>  ** END OF RUN :  101
0224I>  ------------------------------------------------------------------------
0225I>
0226I>
0227I>
0228I>
0229I>
0230I>
0231I>  RUN COMMANDS
0232I>  *** 001:------------------------------------------------------------------
0233I>      START
0234I>        [TZERO =    .00 hrs on        0]
0235I>        [METOUT=    2     (1=Imperial, 2=metric output)]
0236I>        [NSTORM=    0 ]
0237I>        [NRUN  = 101 ]
0238I> *************************************************************************
0239I> *  SWMHYMO Version 2.02a 2001 <BETA> / INPUT DATA FILE
0240I> *************************************************************************
0241I> *  Project Name: [Greely Village Center      Project Number: [647-07]
0242I> *  Date        : [4-09-2008
0243I> *  Modeller    : [JRF]
0244I> *  Company     : JFSAinc
0245I> *  License #   : [7567102
0246I> *************************************************************************
0247I> #
0248I> # SWMHYMO model of the Greely Village Center - Residential Area - Phase 1
0249I> # Existing Conditions.
0250I> # Filename stands for: GR.1E - Greely, Raw Centre, Phase 1, Existing
0251I> #
0252I> # Dec 15, 2008
0253I> # Added July 1st 1979 event
0254I> #
0255I> # **  EXISTING CONDITIONS ASSUMPTIONS:
0256I> #  CN=, XIMP, TIMP,
0257I> #  as per Stantec Report, Oct. 2002 "Greely Shield Creek, Stormwater
0258I> #  and Drainage Study."
0259I> #  and as per Atrel drawing: Greely Village Area.dwg
0260I> #  as specified per subwatershed
0261I> #  Tp calculated using the Upland Method as per Stantec. (Lp = Ua * L/S)
0262I> #
0263I> #*************************************************************************
0264I>  001:0.01----------------------------------------  ------------------------
0265I>      READ STORM
0266I>        filename = storm.001
0267I>        Comment  = 2 years SCS Type 2 Storm 24 hours step .5 min, City of Ottaw
0268I>        [ptot=32.00:iunit=  1:METOUT=  2]
0269I> #*************************************************************************
0270I> # Existing flow - McEvoy Branch at Shield Creek - Areas
0271I> # Area n/a of proposed development (residential)
0272I> # CN's=?, slope = 0.5, Tp 0.16, Ximp=0, Timp=?, see SC001 as per Stantec
0273I> # Area partially adjusted based on Atrel drawings.
0274I> #*************************************************************************
0275I> # d/s of Bank St.as per Atrel - with modified boundaries and Tp.
0276I>  001:0.01----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
0277I>      DESIGN HASHYD     01:EX.         84.60     3.971 Ac_Date   12:05   .8.18 .340
0278I>        [CN= 65.0  B= 3.00]
0279I>        [Tp=  .9:dT= 5.00]
0280I> #*************************************************************************
0281I> # Existing flow - McEvoy Branch at Shield Creek (d/s of Bank St.)
0282I> # CN= 68, as per Stantec see SC001.
0283I> # Area partially adjusted based on Atrel drawings.
0284I> #*************************************************************************
0285I> # Areas external to development
0286I>  202:0.04----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
0287I>      DESIGN HASHYD     01:EX2         10.94      .498 Ac_Date   12:05   11.69 .282
0288I>        [CN= 68.0: B= 3.00]
0289I>        [Tp=  .67:dT= 5.00]
0290I>  202:0.05----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
0291I>      DESIGN HASHYD     01:EX3         71.66     3.258 Ac_Date   12:05   11.69 .282
0292I>        [CN= 68.0: B= 3.00]
0293I>        [Tp=  .80:dT= 5.00]
0294I> # slope, Ximp, Timp, Area from Atrel Drawing
0295I> # CN from Stantec (SC001)
0296I> # Ximp = Timp = 0%
0297I>  202:0.06----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
0298I>      * DESIGN STANDHYD    01:EX4          .50      .017 Ac_Date   12:00   10.69 .386
0299I>        [XIMP= 10:TIMP= .20]
0300I>        [SCP=1.00:SC= 5.00]
0301I>        [Lcode= 2 :CN= 68.0]
0302I> # Areas to be occupied by commercial development
0303I>  202:0.07----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
0304I>      DESIGN HASHYD     01:R1A         9.08      .229 Ac_Date   12:10   11.65 .282
0305I>        [CN= 69.0: B= 3.00]
0306I>        [Tp=  .12:dT= 5.00]
0307I>  202:0.08----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
0308I>      * DESIGN HASHYD     01:R2A         3.38      .115 Ac_Date   12:00   10.69 .386
0309I>        [CN= 68.0: B= 3.00]
0310I>        [Tp=  .12:dT= 5.00]
0311I>  202:0.09----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
0312I>      DESIGN HASHYD     01:R3A         4.06      .133 Ac_Date   12:05   11.69 .282
0313I>        [CN= 68.0: B= 3.00]
0314I>        [Tp=  .21:dT= 5.00]
0315I>  202:0.10----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
0316I>      DESIGN HASHYD     01:R3B         2.21      .061 Ac_Date   12:00   10.69 .282
0317I>        [CN= 68.0: B= 3.00]
0318I>        [Tp=  .23:dT= 5.00]
0319I> # Areas to be occupied by residential development
0320I>  202:0.11----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
0321I>      DESIGN HASHYD     01:R1B         5.70      .268 Ac_Date   12:10   11.69 .282
0322I>        [CN= 68.0: B= 3.00]
0323I>        [Tp=  .16:dT= 5.00]
0324I>  202:0.12----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
0325I>      DESIGN HASHYD     01:R2B         8.93      .180 Ac_Date   12:15   11.69 .282
0326I>        [CN= 68.0: B= 3.00]
0327I>        [Tp=  .28:dT= 5.00]
0328I>  202:0.13----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
0329I>      DESIGN HASHYD     01:R3C         5.27      .174 Ac_Date   12:20   11.69 .282
0330I>        [CN= 68.0: B= 3.00]
```

```
[Tp=  .48:01- 1.02]

#*******************************************************************************
# Existing Flow - Total Flow to Shirib Creek (Stantec Node SC128)
#*******************************************************************************
#  McEnvoy Drain, c/s of residential area
 100:0014--------------ID:EX1>--------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
      ADD HYD           02:EX1       14.42     .931 No date   12:05    6.75  n/a
                      + 03:R1A         8.08     .263 No date   12:10   3.89  n/a
      [DT= 5.00]  SUM=  01:R1a        22.50    1.129 No date   12:05   10.83  n/a
# Typical Section based on McEvoy Branch Veg Ditch 1.5:1 slopes
# provided by Atrel
# Manning's n is Channel not maintained, light brush on banks
# Route flow to R/S node R1
# Slope = 1% as per Atrel drawing
 200:0015--------------ID:R1>--------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
      ROUTE CHANNEL   -> 02:R1c        22.50    1.129 No date   12:05   10.83  n/a
       [RT= 5.00] DUM= 01:RE1a         22.50    1.074 No date   12:10   10.83  n/a
       [L/S/m=  179.2/1.000/.050]
       [Vmax=  1.000:Rmax=  .16]
# Typical Section based on Shields MD Veg Ditch 3:1 banks
# provided by Atrel
# Manning's n is Channel not maintained, light brush on banks
# Route flow to R/S node R2
# Slope = 0.5% as per plan provided by Atrel.
 200:0016--------------ID:EX2>--------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
      ROUTE CHANNEL   -> 02:EX2        10.84     .191 No_date   12:30   13.69  n/a
       [RT= 5.00] DUM= 01:RE2a         10.84     .191 No_date   12:30   13.69  n/a
       [L/S/m=  226.7/ .950/.075]
       [Vmax=  .222:Rmax=  .082]
#  McEnvoy Drain, c/s of Residential area a org Ta as Part R4
 200:0017--------------ID:NEW1-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
      ADD HYD           03:R2C2       13.48     .146 No_date   12:40   11.89  n/a
                      + 04:R4ln       31.30    1.048 No_date   12:10   13.93  n/a
                      + 04:R2B         8.70     .265 No_date   12:10   13.89  n/a
      [DT= 5.00]  SUM=  01:R1         54.34    1.373 No_date   12:10   13.08  n/a
# Route Node R1 to Node R2
# Typical Section based on Shields MD Veg Ditch 3:1 banks
# provided by Atrel
# Manning's n is Channel not maintained, light brush on banks
# Slope = 0.8%  as per plan provided by Atrel.
 200:0018--------------ID:R1>--------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
      ROUTE CHANNEL   -> 02:R1         54.34    1.373 No_date   12:10   15.08  n/a
       [RT= 5.00] DUM= 01:RM1          54.34    1.199 No_date   12:15   15.08  n/a
       [L/S/m=  184.2/ .650/.035]
       [Vmax=  .157:Rmax=  .065]
# Typical Section based on Atrel Drawing Drain c/s at R2
# Manning's n is Channel not maintained, light brush on banks
# Route Node R2c1 to R/S node R2
# Slope =  .68-84.51/1487
 200:0019--------------ID:R2C1-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
      ROUTE CHANNEL   -> 02:R2A        5.13     .134 No_date   12:10   3.89  n/a
       [RT= 5.00] DUM= 01:RM2A         5.13     .070 No_date   12:10   3.89  n/a
       [L/S/m=  457./ .720/.050]
       [Vmax=  .391:Rmax=  .104]
#  Drain 2, c/s of residential area
 200:0020--------------ID:R4C2-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
      ADD HYD           01:R4C       54.34     .191 No_date   12:15   15.08  n/a
                      + 01:R2A         5.13     .070 No_date   12:10   3.89  n/a
                      + 04:R2B         8.70     .119 No_date   12:15   3.89  n/a
      [DT= 5.00]  SUM=  01:R2         68.18    1.446 No_date   12:15   14.82  n/a
# ROUTE R2 to R3
# Typical Section based on Shields MD Veg Ditch 3:1 banks
# provided by Atrel
# Manning's n is Channel not maintained, light brush on banks
# Slope = 0.6%  as per plan provided by Atrel.
 200:0021--------------ID:R2C2-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
      ROUTE CHANNEL   -> 02:R2         68.18    1.314 No_date   12:15   14.82  n/a
       [RT= 5.00] DUM= 01:RM3          68.18    1.294 No_date   12:15   14.82  n/a
       [L/S/m=  170./ .650/.035]
       [Vmax=  .15:Rmax=  1.88]
# Add Trib 2 c/s of residential area
 200:0022--------------ID:R3T1-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
      ADD HYD           02:R3A        6.85     .153 No_date   12:05   13.69  n/a
                      + 03:R3C         .97     .067 No_date   12:05   18.63  n/a
                      + 04:RXA         .80     .017 No_date   12:00   18.63  n/a
      [DT= 5.00]  SUM=  01:R3c        9.85     .212 No_date   12:05   14.00  n/a
# Typical Section based on Atrel Drawing Drain c/s at c/s of R2
# Manning's n is Channel not maintained, light brush on banks
# Route to R/S area
# Slope = 188-841/663
 200:0023--------------ID:NEW1-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
      ROUTE CHANNEL   -> 02:R3ab       9.85     .212 No_date   12:05   14.00  n/a
       [RT= 5.00] DUM= 01:RM3ab        9.85     .122 No_date   12:20   14.00  n/a
       [L/S/m=  693./ .600/.030]
       [Vmax=  .421 Dmax=  .275]
#  Drain 3, c/s of residential area
 200:0024--------------ID:NEW1-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
      ADD HYD           03:R4C       86.38    1.229 No_date   12:20   14.82  n/a
                      + 03:R4ab        6.60     .122 No_date   12:20   14.05  n/a
                      + 04:R3C         9.71     .174 No_date   12:20   13.69  n/a
      [DT= 5.00]  SUM=  01:R3         97.94    1.574 No_date   12:20   14.55  n/a
# ROUTE R3 to MC128
# Typical Section based on Shields MD Veg Ditch 3:1 Banks
# provided by Atrel
# Manning's n is Channel not maintained, light brush on banks
# Slope = 0.05% as per plan provided by Atrel.
 200:0025--------------ID:R3C2-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
      ROUTE CHANNEL   -> 02:R3         97.94    1.574 No_date   12:20   14.55  n/a
       [RT= 5.00] DUM= 01:RM4          97.94    1.183 No_date   12:45   14.55  n/a
       [L/S/m=  415./ .650/.035]
       [Vmax=  .359:Rmax=  1.211]
# Flow at Stantec Node SCR128 for comparison
# Route R3 plus EX3
 200:0026--------------ID:NEW1-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
      ADD HYD           01:RM1          97.94    1.183 No_date   12:45   14.55  n/a
                      + 02:EX3         10.84     .191 No_date   12:30   13.69  n/a
      [DT= 5.00]  SUM=  01:RE3a       108.24    1.443 No_date   12:45   14.44  n/a
# Flow from Stantec at node SCR128 for comparison
 200:0027--------------ID:NEW1-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
      DBSCS@ KR/NEW2      01:SCR128       79.21      nan No_date   12:55   13.68  .382
       CN= 66.0  Ia= 5.08
       Tp=  .19:CP= 0.58
# Typical Section based on McEvoy Branch Veg Ditch 1.5:1 slopes
# provided by Atrel
# Manning's n is Channel not maintained, light brush on banks
# Invert at SCR128 as per Atrel bottom of ditch points   82.52 m
# Slope = 189.70-82.52/1517
 200:0028--------------ID:NEW1-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
      ROUTE CHANNEL   -> 02:EX1        26.62     .921 No_date   12:05   16.75  n/a
       [RT= 5.00] DUM= 01:RE3c         26.62     .916 No_date   12:20   16.75  n/a
       [L/S/m=  357./ .650/.035]
       [Vmax=  .270:Rmax=  .093]
 200:0029--------------ID:NEW1-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
      ADD HYD           02:SC9C1        76.11     .858 No_date   12:55   11.63  n/a
                      + 03:SC9C2        26.62     .446 No_date   12:30   16.75  n/a
      [DT= 5.00]  SUM=  01:SC9Out     102.73    1.232 No_date   12:40   14.42  n/a
#*******************************************************************************
# Simulations with 4 hour Chicago from City of Ottawa
# SCS 24 hours type 2, from City of Ottawa
  ** END OF RUN : 204
#*******************************************************************************
#
#
#
#
#
 RUN COMMAND
 200:0001--------------------------------------------------------------------------
      START
      [TZERO =    .00 hrs or        0
      [METOUT=   2    (1=imperial, 2=metric output)
      [NSTORM=   1 ]
      [NRUN  = 206 ]
#*******************************************************************************
#  SWMHYMO Ver:5.02/Jun 2008, <EXE32> / INPUT DATA FILE
#*******************************************************************************
#  Project Name: [Greely Village Center]    Project Number: [647-07]
#  Date        : 04-09-2008
#  Modeller    : [JMF]
#  Company     : JFSAinc.
#  License #   : 1547402
#*******************************************************************************
#
# SWMHYMO model of the Greely Village Center - Residential Area - Phase 1
# Ex xisting conditions.
# Filename example (ie: GRP1T - Greely, Residential, Phase 1, Existing
#
# Dec 15, 2008
# Added Only 1st 1979 Event
#
# *4  ASSUMPTIONS CONDITIONS ASSUMPTIONS:
#  CN*, AIMP, I.A.,
#  as per Stantec Report, Oct. 2002: Greely Shirib Creek, Stormwater
#  and Drainage Study.
```

```
* And as per Atrel drawing: Greely Village Area.dwg
*  as specified per subwatershed
*  Tp values used being the Uplands Method as per Standard. (Tp = Tc * 2/3)
*
*****************************************************************************
 205:0002----------                                                          -----
      ARAD SHORM
       Filename = sromn.dat
       Comment  = 5 years SCS Type 2 Storm 24 hours step 10 min, City of Ottawa
       [SDT=15.00;SDOR=  24.00;PVCT=  64.11]
*****************************************************************************
* Existing flow - McEvoy Branch of Shield Creek - Areas
* Area c/a of proposed development (residential)
* CN= 77; slope = 0.5; Ia=0.15, SIMP=5, TIMP=15, see SCS02 as per Standard
* Area partially adjusted based on Atrel drawings.
*****************************************************************************
* n/a at Bank Stages per Atrel - with modified boundaries and Tp.
 205:0003---------------ID:MHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
      DESIGN HASHYD      01:EX1        24.62     3.450 No_Save    12:05    70.47  .615
       [CN= 75.0; N= 3.00]
       [Ia=  .2;ST=  5.00]
*****************************************************************************
* Existing flow - McEvoy Branch of Shield Creek (d/s of Bank St.)
* CN*=80, as per Stantec see SC001.
* Area partially adjusted based on Atrel drawings.
*****************************************************************************
* Areas external to development
 205:0004---------------ID:MHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
      DESIGN HASHYD      01:EX2        10.94     1.450 No_date    12:15    22.18  .346
       [CN= 78.0; N= 3.00]
       [Ia=  .2;ST=  5.00]
 205:0005---------------ID:MHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
      DESIGN HASHYD      01:EX3        21.30     .422 No_date    12:45    22.18  .346
       [CN= 69.0; N= 3.00]
       [Ia=  .93;ST=  5.00]
* Storm, Xinp, Tinp, Area from Atrel Drawing
* CN from Stantec [SC007]
* Also - Vinp  10:
 205:0006---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
   *  DESIGN STANDARD    01:EX4         .50       .931 No_date    12:00    25.62  .445
       [XIMP=  .1;TIMP  .22]
       [SCS= .00;CN= 5.00]
       [Ia=2 ;CN= 69.0]
* Areas to be occupied by commercial development
 205:0007---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
      DESIGN HASHYD      01:EX.A       3.87     .566 No_date    12:10    70.14  .346
       [CN= 69.0; N= 3.00]
       [Ia=  .7;ST=  5.00]
 205:0008---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
   *  DESIGN HASHYD      01:EX.A       3.13     .248 No_date    12:00    22.18  .346
       [CN= 69.0; N= 3.00]
       [Ia=  .11;ST=  5.00]
 205:0009---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
      DESIGN HASHYD      01:EX.A       4.14     .317 No_date    12:05    22.18  .346
       [CN= 69.0; N= 3.00]
       [Ia=  .21;ST=  5.00]
 205:0010---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
      DESIGN HASHYD      01:EX.B       2.20     .174 No_date    12:05    22.18  .346
       [CN= 69.0; N= 3.00]
       [Ia=  .1;ST=  5.00]
* Areas to be occupied by residential development
 205:0011---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
      DESIGN HASHYD      01:EX.E       9.48     .835 No_date    12:05    22.18  .346
       [CN= 69.0; N= 3.00]
       [Ia=  .4;ST=  5.00]
 205:0012---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
      DESIGN HASHYD      01:EX.F       9.91     .811 No_date    12:15    21.18  .346
       [CN= 69.0; N= 3.00]
       [Ia=  .75;ST=  5.00]
 205:0013---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
      DESIGN HASHYD      01:EX.G       9.71     .765 No_date    12:20    22.18  .346
       [CN= 69.0; N= 3.00]
       [Ia=  .4;ST=  5.00]
*****************************************************************************
* EXIST'NG flow - Total Flow to Shield Creek (Storm Node SC128)
*****************************************************************************
* McEvoy Drain, c/a of residential area
 205:0014---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
      ADD HYD            02:EX1        24.62     3.450 No_date    12:05    70.47  n/a
                       + 03:EX.A        1.87     .566 No_date    12:10    22.18  n/a
      [ST  5.00]  SUM=  01:EX.A       26.49     3.621 No_date    12:05    68.47  n/a
* Typical Section based on McEvoy Branch Vee Ditch 1:3:1 slopes
* provided by Atrel
* Manning's n is Channel not maintained, light brush on banks
* Route Bl1a to c/a node B:
* Slope   1: as per Atrel drawing
 205:0015---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
      ROUTE CHANNEL   -> 02:B1a        22.10     1.807 No_date    12:05    20.42  n/a
       [RDT= 5.00] out<- 01:EX.E       22.10     1.807 No_date    12:10    20.42  n/a
       [L/S/n=  575.7/1.000/.050]
       [Vmax=  1.137;Cmax= 1.931]
* Typical Section based on Shields MD Vee Ditch 3:1 banks
* provided by Atrel
* Manning's n is Channel not maintained, light brush on banks
* Route EX2 to c/a node B1
* Slope   0.05: as per plan provided by Atrel
 205:0016---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
      ROUTE CHANNEL   -> 02:EX2        10.94      .450 No_date    12:30    22.18  n/a
       [RDT= 5.00] out<- 01:EX2        10.94      .125 No_date    12:35    22.18  n/a
       [L/S/n=  284.2/ .050/.035]
       [Vmax=  .246;Cmax=  .59:]
* McEvoy Drain, c/a of residential area along Bales Road
 205:0017---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
      ADD HYD            02:EX2        10.94      .325 No_date    12:40    22.18  n/a
                       + 03:EX.A        1.87      .566 No_date    12:10    22.18  n/a
                       + 04:EX.E        9.48      .835 No_date    12:05    22.18  n/a
      [ST= 5.00]  SUM=  01:EX3        24.34     1.681 No_date    12:10    24.19  n/a
* Route Node B1 to Node B:
* Typical section based on Shields MD Vee Ditch 3:1 banks
* provided by Atrel
* Manning's n is Channel not maintained, light brush on banks
* Slope   0.05: as per plan provided by Atrel.
 205:0018---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
   *  ROUTE CHANNEL   -> 02:EX1        24.34     1.681 No_date    12:10    24.19  n/a
       [RDT= 5.00] out<- 01:EX1        24.34     1.049 No_date    12:15    24.19  n/a
       [L/S/n=  184.7/ .050/.035]
       [Vmax=  .387;Cmax= 1.94 ]
* Typical section based on Atrel drawing drain c/a of B2
* Manning's n is Channel not maintained, light brush on banks
* Route node N'ew to c/a node B2
* Slope = 100 (64.5)/580
 205:0019---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
      ROUTE CHANNEL   -> 02:B2A         5.29      .218 No_date    12:00    22.18  n/a
       [RDT= 5.00] out<- 01:B2A         5.29      .125 No_date    12:05    22.18  n/a
       [L/S/n=  181.7/ .720/.050]
       [Vmax=  .251;Cmax=  .158]
* Drain 2, c/a of residential area
 205:0020---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
      ADD HYD            01:EX.B       2.20      .174 No_date    12:05    22.18  n/a
                       + 03:EX.A        1.13      .125 No_date    12:10    22.18  n/a
                       + 04:EX.E        9.48      .835 No_date    12:05    22.18  n/a
      [ST= 5.00]  SUM=  01:B2         12.81     1.134 No_date    12:10    21.47  n/a
* ROUTE B2 to N'
* Typical Section based on Shields MD Vee Ditch 3:1 banks
* provided by Atrel
* Slope = 0.05: as per plan provided by Atrel.
 205:0021---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
      ROUTE CHANNEL   -> 02:B2         66.38     2.430 No_date    12:10    23.82  n/a
   *  [RDT= 5.00] out<- 01:EX.D       66.38     2.079 No_date    12:20    23.82  n/a
       [L/S/n=  210.7 .050/.035]
       [Vmax=  .382;Cmax=  .456]
* Add Drain 5 c/a of residential area
 205:0022---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
      ADD HYD            03:EX.A       1.14      .317 No_date    12:05    22.18  n/a
                       + 04:EX.E        9.21      .109 No_date    12:05    22.18  n/a
                       + 05:EX.F         .50      .031 No_date    12:00    20.52  n/a
      [ST= 5.00]  SUM=  01:EX.G        8.85      .352 No_date    12:05    22.61  n/a
* Typical Section based on Atrel drawing drain new c/a of B2
* Manning's n is Channel not maintained, light brush on banks
* Route to d/s area
* Slope = 100-84)/650
 205:0023---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
      ROUTE CHANNEL   -> 02:B3a        8.85      .352 No_date    12:05    22.61  n/a
       [RDT= 5.00] out<- 01:EX.G       8.85      .215 No_date    12:15    22.64  n/a
       [L/S/n=  66.7 / .600/.050]
       [Vmax=  .183;Cmax=  .263]
* Drain 6, c/a of residential area
 205:0024---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
      ADD HYD            02:EX.F       9.91      .811 No_date    12:15    21.18  n/a
                       + 03:EX.G        8.85      .215 No_date    12:15    22.64  n/a
                       + 04:EX.H        9.71      .285 No_date    12:20    22.18  n/a
      [ST  5.00]  SUM=  01:B4         28.46     1.311 No_date    12:20    22.02  n/a
* ROUTE B5 to SC128
* Typical Section based on Shields MD Vee Ditch 3:1 banks
* provided by Atrel
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02150> # Manning's n is channel not maintained, light brush on banks
02160> # Slope - 0.5% as per plan provided by Aire..
02170> 205:0025----------T:NHYD-------AREA----QPEAK-TpeakDate hrmn----R.V.-R.C.-
02180>      ROUTE CHANNEL    -> 02:N2        81.64    2.075 No date   12:30   27.53  n/a
02190>      [RI= 5.00] outC= 01:ch3         82.64    2.069 No date   12:30   24.51  n/a
02200>      [L/S/n= 4.3/.7 .050/.035]
02210>      [Vmax   .99]Cmax= 1.56]
02220> # Flow at Stanley node HCH.28 for comparison
02230> # Routed Ns plus 4%:
02240> 205:0026----------I:NHYD-------AREA----QPEAK-TpeakDate hrmn----R.V.-R.C.-
02250>      ADD HYD          02:NH3        82.95    2.067 No date   12:30   24.83  n/a
02260>                     + 03:EX5         2.33     .422 No date   12:45   22.18  n/a
02270>      [DT= 5.00]  SUM= 01:NCH16      85.24    2.457 No date   12:30   23.26  n/a
02280> # Flow from Stanley at node HCH.28 for comparison
02290> 205:0027----------ID:NHYD-------AREA----QPEAK-TpeakDate hrmn----R.V.-R.C.-
02300>      DESIGN HASHID     01:HC001     75.11    1.916 No date   12:30   23.14  n/a
02310>       Ch= 80.2: N= 3.00]
02320>       Tp=  .61:DT= 5.00]
02330> # Typical Section based on McEvoy Branch Vee Ditch 1.5:1 slopes
02340> # provided by Aire:
02350> # Route from N-EX1 to ECH.28
02360> # Manning's n is Channel not maintained, light brush on banks
02370> # Invert at ECH.28 as per Aire: bottom of ditch points - 82.52 m
02380> # Slope - [89.70-82.52]/1017
02390> 205:0028----------T:NHYD-------AREA----QPEAK-TpeakDate hrmn----R.V.-R.C.-
02400>      ROUTE CHANNEL    -> 02:EX1       24.62     .777 No date   12:20   26.61  n/a
02410>      [RI= 5.00] outC= 01:EX1E        24.62     .777 No date   12:20   26.61  n/a
02420>      [L/S/n= 1317.7 .470/.050]
02430>      [Vmax=  .77]Cmax= 1.12]
02440> 205:0029----------I:NHYD-------AREA----QPEAK-TpeakDate hrmn----R.V.-R.C.-
02450>      ADD HYD          02:EC2T        (0.1      .14] No date   12:50   22.18  n/a
02460>                     + 03:EX1E        24.62     .777 No date   12:20   26.6.  n/a
02470>      [DT= 5.00]  SUM= 01:EC2Tot      24.72    2.031 No date   12:40   23.24  n/a
02480> #*********************************************************************
02490> # Simulations with 4 hour Chicago from City of Ottawa
02500> # Use 24 hours type 2, from City of Ottawa
02510>   ** END OF RUN : 2C9
02520> ----------------------------------------------------------------------
02530>
02540>
02550>
02560>
02570>
02580>  RTE COMMANDS
02590>  [T:0:0.0 ----------------------------------------------------------------
02600>       START          [TZERO =    .00 hrs on        0]
02610>       [METOUT=   2   \1-Imperial, 2-metric output:]
02620>       [NSTORM=   1 ]
02630>       [NRUN    210 ]
02640> #*********************************************************************
02650> #  SWMM5 Version 5.0 (Jan 2008) <METRIC> / INPUT DATA FILE
02660> #*********************************************************************
02670> #  Project Name: [Greely Village Center]    Project Number: [667-07]
02680> #  Date       : 04-08-2008
02690> #  Modeller   : [JHE]
02700> #  Company    : JFSAinc.
02710> #  License #  : 5547402
02720> #*********************************************************************
02730> #
02740> # SWMM5/HYM model of the Greely Village Center - Residential Area - Phase 1
02750> # Existing conditions.
02760> # Filename stands for: GRPIE - Greely, Residential, Phase 1, Existing
02770> #
02780> # Dec 15, 2008
02790> # Added Only Lot 9/10 event
02800> #
02810> #*  EXISTING CONDITIONS ASSUMPTIONS:
02820> #  Ch=, XIMP, I.A.,
02830> #  as per Stantec Report, Oct. 2002: Greely Shield Creek, Stormwater
02840> #  and Drainage Study.
02850> #  and as per Atrel Drawing  Greely Village Area.dwg
02860> #  As specified per Subwatershed
02870> #  Tp Calculated using the Upland Method as per Stantec. (Tp = Tc * 2/3)
02880> #
02890> #*********************************************************************
02900>  ----------------------------------------------------------------------
02910>  205:0002----------
02920>       REAL STORM
02930>       Filename = Storm.DC1
02940>       Comment  = 10 years 90% Type 2 Storm 24 Hours step 10 min, City of Ott
02950>       [SIT 17.0]:[TOT=  90.0]:[TOT=  24.0%]
02960> #*********************************************************************

02970> # Existing flow - McEvoy Branch of Shield Creek   Areas
02980> # Rows n/s of Proposed development (residential)
02990> # CN*=69, a spe = 2.5, Tp=0.15, XIMP=0, I.A.=15. Use 0.002 as per Stantec
03000> # Area partially adjusted based on Atrel drawings.
03010> #*********************************************************************
03020> # n/s of Bank St.es per Atrel - with modified boundaries and Tp.
03030>  210:0001----------T:NHYD-------AREA----QPEAK-Tpeak<Date hrmn----R.V.-R.C.-
03040>      DESIGN HASHYD     01:EX1       24.62    1.884 No date   12:05   33.68  .453
03050>       [CN= 70.0: N= 3.00]
03060>       [Tp=  .23:DT= 5.00]
03070> #*********************************************************************
03080> # Existing flow - McEvoy Branch of Shield Creek n/s of Bank St.;
03090> # CN*=69, as per Stantec Rep ECH.0 .
03100> # Area partially adjusted based on Atrel Drawings.
03110> #*********************************************************************
03120> # Areas External to Development
03130>  210:0004----------I:NHYD-------AREA----QPEAK-TpeakDate hrmn----R.V.-R.C.-
03140>      DESIGN HASHYD     01:EX2       10.94     .327 No date   12:35   28.09  .382
03150>       [CN= 69.0: N= 3.00]
03160>       [Tp=  .67:DT= 5.00]
03170>  210:0005----------ID:NHYD-------AREA----QPEAK-TpeakDate hrmn----R.V.-R.C.-
03180>      DESIGN HASHYD     01:EX3       11.58     .354 No date   12:45   28.47  .387
03190>       [CN= 69.0: N= 3.00]
03200>       [Tp=  .81:DT= 5.00]
03210> # Slope, Ximp, Timp, Area from Atrel Drawing
03220> # CN from Stantec Rep ECH.0 .
03230> # Ximp  Timp = 10
03240>  210:0006----------T:NHYD-------AREA----QPEAK-TpeakDate hrmn----R.V.-R.C.-
03250>   *  DESIGN STANDARD   01:EX4        .50     .015 No date   12:00   35.00  .478
03260>       [XIMP=.1:TIMP=.2]
03270>       [S.P=1.00:CN= 8.00]
03280>       [Loss= 2 :Ch=  69.0]
03290> # Areas to be occupied by commercial development
03300>  210:0007----------T:NHYD-------AREA----QPEAK-TpeakDate hrmn----R.V.-R.C.-
03310>      DESIGN HASHYD     01:EA       9.08     .271 No date   12:10   28.19  .385
03320>       [CN= 89.0: N= 3.00]
03330>       [Tp=  .31:DT= 5.00]
03340>  210:0008----------ID:NHYD-------AREA----QPEAK-TpeakDate hrmn----R.V.-R.C.-
03350>   *  DESIGN HASHYD     01:EA2       3.13     .282 No date   12:00   35.38  .382
03360>       [XI  65.0  S  5.00]
03370>       [Tp=  .13:DT= 5.00]
03380>  210:0009----------I:NHYD-------AREA----QPEAK-Tpeak<Date hrmn----R.V.-R.C.-
03390>      DESIGN HASHYD     01:EA       4.16     .209 No date   12:05   30.39  .382
03400>       [CN= 89.0: N= 5.00]
03410>       [Tp=  .2:DT= 5.00]
03420>  210:0010----------ID:NHYD-------AREA----QPEAK-TpeakDate hrmn----R.V.-R.C.-
03430>      DESIGN HASHYD     01:EA2       2.21     .141 No date   12:05   28.65  .382
03440>       [CN= 89.0: N= 3.00]
03450>       [Tp=  .23:DT= 5.00]
03460> # Areas to be occupied by residential development
03470>  210:0011----------I:NHYD-------AREA----QPEAK-TpeakDate hrmn----R.V.-R.C.-
03480>      DESIGN HASHYD     01:EA 5      9.08     .568 No date   12:05   28.95  .382
03490>       [CN= 69.0: N= 3.00]
03500>       [Tp=  .26:DT= 5.00]
03510>  210:0012----------ID:NHYD-------AREA----QPEAK-TpeakDate hrmn----R.V.-R.C.-
03520>      DESIGN HASHYD     01:EA6       7.91     .494 No date   12:15   28.35  .382
03530>       [CN= 69.0: N= 3.00]
03540>       [Tp=  .32:DT= 5.00]
03550>  210:0013----------ID:NHYD-------AREA----QPEAK-TpeakDate hrmn----R.V.-R.C.-
03560>      DESIGN HASHYD     01:EA7       9.71     .608 No date   12:20   28.39  .382
03570>       [CN= 69.0: N= 3.00]
03580>       [Tp=  .43:DT= 5.00]
03590> #*********************************************************************
03600> # EXISTING Flow - Local Flow to Shield Creek (Inlet at Node NCH.0)
03610> #*********************************************************************
03620> #  McEvoy Branch, n/s of residential area
03630>  210:0014----------I:NHYD-------AREA----QPEAK-TpeakDate hrmn----R.V.-R.C.-
03640>      ADD HYD          02:EX1       24.62     .854 No date   12:05   31.69  n/a
03650>                     + 03:EA        9.08     .471 No date   12:10   28.19  n/a
03660>      [RI= 5.00]  SUM= 01:EA1a      33.70    2.325 No date   12:05   32.24  n/a
03670> # Typical Section based on McEvoy Branch Vee Ditch 1.5:1 slopes
03680> # provided by Aire:
03690> # Manning's n is Channel not maintained, light brush on banks
03700> # Slope - 1% as per Atrel Drawing
03710>  210:0015----------I:NHYD-------AREA----QPEAK-TpeakDate hrmn----R.V.-R.C.-
03720>      ROUTE CHANNEL    -> 01:EA1a      33.70     .179 No date   17:40   31.76  n/a
03730>      [RI= 5.00] outC= 01:EA1.a       33.70    2.161 No date   12:10   32.24  n/a
03740>      [L/S/n= 375./1.0307.050]
03750>      [Vmax= 1.12]Cmax= 1.16]
03760> # Typical Section based on Shields SD Vee Ditch 3:1 banks
03770> # provided by Aire:
03780> # Manning's n is Channel not maintained, light brush or banks
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* Route EX2 to D/S Node 31
* Slope = 0.05% as per plan provided by Atrel.
 210:0031----------ID:NHYD--------AREA-----QPEAK-TpeakDate_hh:mm-----R.V.-R.C.-
      ROUTE CHANNEL   -> 03:EX2       10.61      .327 No_date   12:55   28.38  n/a
       [RIT= 5.00] outs= 01:REX2      10.61      .290 No_date   12:40   28.38  n/a
       [I/O]n= (274./.05)/.015]
       [Vmax= .255:Tmax= .055]
* McEvoy Drain, D/S of residential area & org Sales Barn Rd
 210:0027----------ID:NHYD--------AREA-----QPEAK-TpeakDate_hh:mm-----R.V.-R.C.-
      ADD HYD         02:REX2      10.61      .290 No_date   12:40   28.38  n/a
                    + 01:RP1ex     37.73     2.163 No_date   12:10   32.28  n/a
                    + 04:R1C       5.33      .560 No_date   12:05   28.28  n/a
       [DT= 5.00]  SUM= 01:R1      54.34     2.760 No_date   12:10   30.79  n/a
* Route Node R1 to Node R2
* Typical section based on Shields RD Vee Ditch 3:1 banks
* provided by Atrel
* Manning's n is Channel not maintained, light brush on banks
* Slope = 0.05% as per plan provided by Atrel.
 210:0018----------ID:NHYD--------AREA-----QPEAK-TpeakDate_hh:mm-----R.V.-R.C.-
      ROUTE CHANNEL   -> 02:R1        54.34     2.867 No_date   12:10   30.79  n/a
       [RIT= 5.00] outs= 01:RR1       54.34     2.722 No_date   12:10   30.79  n/a
       [I/O]n= (84./.05)/.035]
       [Vmax= .134:Tmax= 1.00]
* Typical Section based on Atrel Drawing drain D/S of R2
* Manning's n is Channel not maintained, light brush on banks
* Route Node R1to to D/S Node R2
* Slope = (84-81.5)/187
 210:0019----------ID:NHYD--------AREA-----QPEAK-TpeakDate_hh:mm-----R.V.-R.C.-
      ROUTE CHANNEL   -> 02:R2A       3.13      .286 No_date   12:10   28.38  n/a
       [RIT= 5.00] outs= 01:RP1A      3.13      .166 No_date   12:10   28.38  n/a
       [I/O]n= (87./.05)/.035]
       [Vmax= .488:Tmax= ..25]
*  Drain 2, D/S of residential area
 210:0020----------ID:NHYD--------AREA-----QPEAK-TpeakDate_hh:mm-----R.V.-R.C.-
      ADD HYD         02:R2C      54.34     2.722 No_date   12:10   30.79  n/a
                    + 03:RP1A      3.13      .166 No_date   12:10   28.38  n/a
                    + 04:R2B       8.91      .430 No_date   12:15   28.38  n/a
       [DT= 5.00]  SUM= 01:R2      66.38     3.270 No_date   12:15   30.36  n/a
* ROUTE R2 to R3
* Typical Section based on Shields RD Vee Ditch 3:1 banks
* provided by Atrel
* Manning's n is Channel not maintained, light brush on banks
* Slope = 0.05% as per plan provided by Atrel.
 210:0021----------ID:NHYD--------AREA-----QPEAK-TpeakDate_hh:mm-----R.V.-R.C.-
      ROUTE CHANNEL   -> 02:R2        66.38     3.270 No_date   12:15   30.36  n/a
       [RIT= 5.00] outs= 01:RR2       66.38     2.928 No_date   12:30   30.36  n/a
       [I/O]n= (10./.05)/.035]
       [Vmax= .158:Tmax= 1.00]
* Add Drain 4 D/S of residential area
 210:0022----------ID:NHYD--------AREA-----QPEAK-TpeakDate_hh:mm-----R.V.-R.C.-
      ADD HYD         02:RR2      66.38     2.928 No_date   12:30   30.36  n/a
                    + 03:R4A       2.21      .141 No_date   12:05   28.38  n/a
                    + 04:R2C4       .96      .049 No_date   12:00   35.53  n/a
       [DT= 5.00]  SUM= 01:R3ex    6.85      .464 No_date   12:05   29.91  n/a
* Typical Section based on Atrel Drawing drain D/W D/S of R3
* Manning's n is Channel not maintained, light brush on banks
* Route to D/S area
* Slope = (88.84)/361
 210:0023----------ID:NHYD--------AREA-----QPEAK-TpeakDate_hh:mm-----R.V.-R.C.-
      ROUTE CHANNEL   -> 02:R3ex      6.85      .457 No_date   12:05   28.91  n/a
       [RIT= 5.00] outs= 01:RR3ex     6.85      .238 No_date   12:10   28.91  n/a
       [I/O]n= (63./.05)/.035]
       [Vmax= .519:Tmax= .076]
*  Drain 5, D/S of residential area
 210:0024----------ID:NHYD--------AREA-----QPEAK-TpeakDate_hh:mm-----R.V.-R.C.-
      ADD HYD         02:R3C      68.38     2.928 No_date   12:30   30.36  n/a
                    + 03:RP3ex     6.85      .238 No_date   12:10   28.91  n/a
                    + 04:R3C       3.71      .308 No_date   12:20   35.53  n/a
       [DT= 5.00]  SUM= 01:R3      79.44     3.579 No_date   12:20   30.01  n/a
* ROUTE R3 to R128
* Typical section based on Shields RD Vee Ditch 3:1 Banks
* provided by Atrel
* Manning's n is Channel not maintained, light brush on banks
* Slope = 0.05% as per plan provided by Atrel.
 210:0025----------ID:NHYD--------AREA-----QPEAK-TpeakDate_hh:mm-----R.V.-R.C.-
      ROUTE CHANNEL   -> 02:R3        82.64     3.577 No_date   12:20   30.01  n/a
       [RIT= 5.00] outs= 01:RR3       82.64     2.980 No_date   12:35   30.01  n/a
       [I/S]n= (215./.050/.035]
       [Vmax= .354:Tmax= 1.72]
* Flow at Starrec node BCR128 for comparison
* Routed to plus RX1
 210:0026----------ID:NHYD--------AREA-----QPEAK-TpeakDate_hh:mm-----R.V.-R.C.-
      ADD HYD         01:RR3      82.64     2.980 No_date   12:36   30.01  n/a
                    + C3:EX3       3.42      .548 No_date   12:45   28.38  n/a
      [DT= 5.00]  SUM= C1:R.R128   86.06     3.528 No_date   12:45   29.88  n/a
* Flow from Starrec at node BCR128 for comparison
 210:0027----------ID:NHYD--------AREA-----QPEAK-TpeakDate_hh:mm-----R.V.-R.C.-
      RESTON RESHYD   C1:RC001     79.11     1.662 No_date   12:40   28.89  .380
       CN= 60.0  N= 5.00
       Tp=  .91 DT= 5.00]
* Typical Section based on McEvoy Branch Vee Ditch 1.5:1 slopes
* provided by Atrel
* Route from D-EX1 to RCH128
* Manning's n is Channel not maintained, light brush on banks
* Invert at BCR128 as per Atrel Outlet of Ditch points = 82.5' m
* Slope = [85.7-82.5]/1917
 210:0028----------ID:NHYD--------AREA-----QPEAK-TpeakDate_hh:mm-----R.V.-R.C.-
      ROUTE CHANNEL   -> 02:XX        24.62     1.980 No_date   12:40   33.89  n/a
       [RIT= 5.00] outs= 01:REX1C     24.62     1.907 No_date   12:20   33.89  n/a
       [I/S]n= [217./.470/.050]
       [Vmax= .760:Tmax= 1.283]
 210:0029----------ID:NHYD--------AREA-----QPEAK-TpeakDate_hh:mm-----R.V.-R.C.-
      ADD HYD         02:CCC01      78.11     1.662 No_date   12:50   28.39  n/a
                    + 03:REX1C     24.62     1.907 No_date   12:20   33.89  n/a
       [DT= 5.00]  SUM= 01:STATE1   82.73     1.675 No_date   12:35   29.66  n/a
*-------------------------------------------------------------------------------
* Sima arrive with 6 hour Chicago from City of Ottawa
* NCDC 24 hours type 2, from City of Ottawa
** END OF RUN : 1/4

*-------------------------------------------------------------------------------


 RUN:COMMAND#
 2/Batch ----------------------------------------------------------------------
      START
       [YEAR0 =    06 Yrs or       0]
       [METUOUT=   2    [1=Imperial, 2=Metric output]]
       [MSYEAR=    1 ]
       [NEOB   =  225 ]
*-------------------------------------------------------------------------------
*  SAMPYR0 Version:01/Jan 2006 <BETA> / INPUT DATA FILE
*-------------------------------------------------------------------------------
*  Project Name: [Greely Village Center     Project Number: [647.07]
*  Date        : 04-09-2008
*  Modeller    : [CHP]
*  Company     : JFSAinc.
*  License #   : [541/02]
*-------------------------------------------------------------------------------
*
* SAMPYR0 model of the Greely Village Center - Residential Area - Phase 1
* Existing conditions.
* Filename stands for: GR1Ec - Greely, Residential, Phase 1, Existing
*
* Dec 15, 2008
* Annual July 1st 1:5 event
*
*  EXISTING CONDITIONS ASSUMPTIONS:
*  CN*, R1R, TIMP,
*  as per Stantec Report, Oct. 2007: Greely Shield Creek, Stormwater
*  and Drainage Study.
*  and as per Atrel Drawing: Greely Village Area.dwg
*  as specified per Manwaring
*  Tp (calculated using Lin Upland Method as per Stantec. (Tp = Lt * 2/3)
*
*-------------------------------------------------------------------------------
 Version2----------------------------------------------------------------------
      READ STORM
       filename = storm.dat
       Comment  = 25 years SCS Type 2 Storm 24 Hours step 10 min, City of Ott
       [SDT=10.00;SUR=  24.00;YUD=  86.00]
*-------------------------------------------------------------------------------
* Existing  Ch. - McEvoy Branch of Shield Creek - Areas
* Area C/S of proposed development (residential)
* CN*=77, iloss = 0.2, Tp=0.6h, YIMP=5, TIMP 15. See BC002 as per Stantec
* Area partially adjusted based on Atrel drawings.
*-------------------------------------------------------------------------------
* n/s of Bank St.as per Atrel - with modified boundaries and Tp
 Version3----------ID:NHYD--------AREA-----QPEAK-TpeakDate_hh:mm-----R.V.-R.C.-
      RESTON RESHYD   C1:EX1       24.62     2.611 No_date   12:05   32.87  .493
       CN= 75.0  N= 5.00
       Tp=  .22:LT= 5.00]
*-------------------------------------------------------------------------------
```

```
# Remaining flow - McEvoy Branch of Shields Creek (d/s of Bank St.)
# CN=~69, as per Stantec sec 3(DR).
# Area partially adjusted based on Atrel drawings.
*****************************************************************************
* Areas External to Development
 [ 27A:0.04]----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      Lag(CN NASHYD      01:EX2         0.94      .470 No date   12:35   36.55 .421
       (CN= 69.0: N= 3.00)
       (Tp=  .17:DT= 5.00)
 [ 28B:0.00]----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      Lag(CN NASHYD      01:EX3        21.70     7.705 No date   12:45   36.55 .421
       (CN= 69.0: N= 3.00)
       (Tp=  .47:DT= 5.00)
* Slope, Xinp, Tinp, Area from Atrel Drawing
* CN from Stantec (SC001)
* Xinp + Tinp = 10:
 [ 23B:0.00]----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
   *  DESIGN STANDBYD    01:EX1         .56      .048 No date   12:00   44.56 .511
       (XINP= 11.TIME= .22)
       (SLE=1.00:ET= 5.00)
       (CNR= 0 :CN= 69.0)
* Areas to be occupied by commercial development
 [ 22A:0.00]----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      DESIGN NASHYD      01:21A         9.08      .811 No_date   12:10   36.55 .421
       (CN= 69.0: N= 3.00)
       (Tp=  .11:DT= 5.00)
 [ 22B:0.00]----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      DESIGN NASHYD      01:22A         1.11      .362 No_date   12:05   36.55 .421
       (CN= 69.0: N= 3.00)
       (Tp=  .12:DT= 5.00)
 [ 22C:0.00]----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      DESIGN NASHYD      01:23A         3.51      .382 No_date   12:05   36.55 .421
       (CN= 69.0: N= 3.00)
       (Tp=  .17:DT= 5.00)
* Areas to be occupied by residential development
 [ 21A:0.00]----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      DESIGN NASHYD      01:21A         8.73      .727 No_date   12:00   36.55 .421
       (CN= 69.0: N= 3.00)
       (Tp=  .26:DT= 5.00)
 [ 22A:0.00]----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      DESIGN NASHYD      01:22A         3.51      .382 No_date   12:05   36.55 .421
       (CN= 69.0: N= 3.00)
       (Tp=  .32:DT= 5.00)
 [ 22B:0.00]----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      DESIGN NASHYD      01:22B         9.71      .477 No_date   12:20   36.55 .421
       (CN= 69.0: N= 3.00)
       (Tp=  .46:DT= 5.00)
*****************************************************************************
* EXISTING Flow - Total Flow to Shield Creek (Stantec Node HC120)
*****************************************************************************
* McEvoy Drain, d/s of residential area
 [ 32A:0.14]----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ADD HYD            03:EX1        24.20    8.401 No date   12:00   41.17  n/a
                       + 03:R.A         5.68     .611 No date   12:10   55.55  n/a
       [n1= 3.60]  SUM=  01:R.1a       29.70    2.985 No_date   12:00   41.17  n/a
* Typical Section based on McEvoy Branch Ves Ditch 1.5:1 slopes
* provided by Atrel
* Manning's n is Channel  not maintained, light brush on banks
* Route flow to d/s node E1
* Slope = 1% as per Atrel drawing
 [ 25A:0.15]----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ROUTE CHANNEL    -> 02:R1a       29.70    2.985 No_date   12:05   41.17  n/a
       [RCC  5.00] outs= 01:RR1c5      29.70    2.729 No_date   12:10   41.17  n/a
       [1/2/n=  87.5/1.000/.050]
       (Vmax= 1.17:Tmax= 1.25)
* Typical Section Based on Shields ME Ves Ditch 3:1 banks
* provided by Atrel
* Manning's n is Channel not maintained, light brush on banks
* Route EX2 to d/s Node N1
* Slope = 0.05% as per plan provided by Atrel.
 [ 22C:0.01]----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ROUTE CHANNEL    -> 02:EX2        19.04     .424 No_date   12:45   36.55  n/a
       [RCC  5.00] outs= 01:RR1c2       19.04     .379 No_date   12:45   36.55  n/a
       [1/2/n=  224./ .050/.035]
       (Vmax= .272:Tmax=  .730)
*  McEvoy Drain, d/s of residential area along Bells Burn Rd
 [ 32B:0.17]----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ADD HYD            02:RR1c2        19.04     .379 No_date   12:45   36.55  n/a
                       + 03:R.A1a       33.70    2.729 No_date   12:10   41.17  n/a
                       + 04:EX3         21.30     .705 No_date   12:45   36.55  n/a
       [n1= 3.60]  SUM=  01:R.1a       74.04    3.813 No_date   12:10   39.41  n/a
* Route to d/s area
* Slope = [n1-R1]/665
 [ 28B:0.00]----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ROUTE CHANNEL    -> 02:R.1a       74.04    3.813 No_date   12:10   39.41  n/a
       [RCC  5.00] outs= 01:RR.1a      74.04    3.504 No_date   12:15   39.41  n/a
       [1/2/n=  210./ .050/.035]
       (Vmax= .351:Tmax= 1.813)
* Add Drain 3, d/s of residential area
 [ 32B:0.07]----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ADD HYD            01:R1A          4.19      .363 No_date   12:05   36.55  n/a
                       + 03:R3A         3.21      .198 No_date   12:05   36.55  n/a
                       + 04:EX4          .60      .060 No_date   12:00   46.69  n/a
       [n1= 3.60]  SUM=  01:R3a        81.90    4.275 No_date   12:10   41.13  n/a
* Typical Section based on Atrel Drawing Dwelling Btw d/s of N2
* Manning's n is Channel not maintained, light brush on banks
* Route to d/s area
* Slope = [n1-R2]/665
 [ 28B:0.00]----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ROUTE CHANNEL    -> 02:R3a        6.45      .561 No_date   12:05   37.13  n/a
       [RCC  5.00] outs= 01:RR3a       6.45      .388 No_date   12:15   37.13  n/a
       [1/2/n=  66./ .080/.035]
       (Vmax= .358:Tmax=  .33)
*  Drain 3, d/s of residential area
 [ 22C:0.04]----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ADD HYD            02:R2        68.38    5.964 No_date   12:10   38.68  n/a
                       + 03:RR3a        6.45     .388 No_date   12:15   37.13  n/a
                       + 04:R3C         3.71     .477 No_date   12:20   36.06  n/a
       [n1= 3.60]  SUM=  01:N1         82.90    6.275 No_date   12:10   38.67  n/a
* ROUTE N1 to KC1 0
* Typical Section based on Shields N2 Ves Ditch 3:1 banks
* provided by Atrel
* Manning's n is Channel not maintained, light brush on banks
* Slope = 0.05% as per plan provided by Atrel.
 [ 25A:0.15]----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ROUTE CHANNEL    -> 02:N1        82.90    6.275 No_date   12:10   38.67  n/a
   *   [RCC= 5.00] outs= 01:RN1        82.58    5.469 No_date   12:15   38.67  n/a
       [1/2/n=  415./ .080/.035]
       (Vmax=  .359:Tmax= 1.803)
* Flow at Stantec node DUB128 for comparison
* Routed EX plus EX2
 [ 22A:0.16]----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ADD HYD            02:RN1       82.94    5.893 No_date   12:15   38.47  n/a
                       + 03:EX3         21.30     .705 No_date   12:45   36.55  n/a
       [n2= 5.00]  SUM=  01:NCR 2B     104.24    6.169 No_date   12:15   38.08  n/a
* Flow from Stantec at node NCR127 for comparison
 [ 23A:0.00]----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      DEVELOPMENT NASHYD      01:SC001     78.11    2.415 No_date   12:50   36.55 .421
       (CN= 69.0: N= 3.00)
       (Tp=  .9 :DT= 5.00)
* Typical Section based on McEvoy Branch Ves Ditch 1.5:1 slopes
* provided by Atrel
* Route from N-EX1 to NCR128
* Manning's n is Channel not maintained, light brush on banks
```

```
02657> * Invert at SCB124 as per Atrel bottom of ditch points = 82.62 m
02658> * S_spe = [86.70-82.62]/.517
02659> 225:0028----------ID:NHYD-------AREA----QPEAK-TpeakDate_hr:mn----R.V.-R.C.-
02660>      ROUTE CHANNEL   -> 02:EX1       24.62     2.411 No_date   12:05   62.89  n/a
02661>       [Rtl= 0.60] outs= 01:REX16     24.62     1.731 No_date   12:30   62.89  n/a
02662>       [L/S/n= 1517./ .170/.050]
02663>       [Vmax=  .78 <Tmax= 1.95]
02664> 226:0A.9----------ID:NHYD-------AREA----QPEAK-TpeakDate_hr:mn----R.V.-R.C.-
02665>      ADD HYD         + 02:SC01     79.11     2.412 No_date   12:30   38.52  n/a
02666>                      + 05:REX16    24.62     1.731 No_date   12:30   62.89  n/a
02667>       [DT= 5.00]  SUM= 01:StrTot   103.73    3.424 No_date   12:30   48.84  n/a
02668> *********************************************************************
02669> * Simulations with 4 hour Chicago from City of Ottawa
02670> * SCS 24 hours type 2, from City of Ottawa
02671> ** RES OF RUN : 249
02672>
02673> ---------------------------------------------------------------------------
02674>
02675>
02676>
02677>
02678>
02679> RUN:COMMANDS
02680> 250:0001----------------------------------------------------------------
02681>      START
02682>       [TZERO =    .00 hrs on        0]
02683>       [METOUT=   2     (1-Imperial, 2-metric output)]
02684>       [NSTORM=   1 ]
02685>       [NRUN  =  250 ]
02686> *********************************************************************
02687> *  SWMHYMO Version 3.05 Jan 2003 (METRIC) / INPUT DATA FILE
02688> *********************************************************************
02689> *  Project Name: [Greely Village Center]    Project Number: [8497-07]
02690> *  Date        : 04-08-2008
02691> *  Modeller    : [CHP]
02692> *  Company     : JFSAinc.
02693> *  License #   : [54/4/07
02694> *********************************************************************
02695> *
02696> * SWMHYMO model of the Greely Village Center - Residential Area  Phase 1
02697> * Existing conditions.
02698> * Filename stands for: GRP1E - Greely, Residential, Phase 1, Existing
02699> *
02700> * Dec 15, 2008
02701> * Added July 1st 1979 event
02702> *
02703> * 'A' EXISTING CONDITIONS ASSUMPTIONS:
02704> *  CN*, XIMP, TIMP,
02705> *  as per Stantec Report, Oct. 2002. Greely Shield Creek, Stormwater
02706> *  and drainage study.
02707> *  and as per Atrel drawing: Greely Village Area.dwg
02708> *  as specified per subwatershed
02709> *  Tc calculated using the Celuno Method as per Stantec. (Tp = Tc * 2/3)
02710> *
02711> *********************************************************************
02712> 250:0002----------------------------------------------------------------
02713>      READ STORM
02714>       Filename = storm.001
02715>       Comment  = 50 years SCS Type 2 Storm 24 hours step 10 min, City of Otta
02716>       [ptot=10.00:itot=  24.00:iout=  26.53]
02717> *********************************************************************
02718> * Existing flow - McEvoy Branch of Shield Creek - Area
02719> * Area c/s of proposed development (residential)
02720> * CN*=76, Ximp = 0.5, Tp=0.15, TIMP=1, TIMP=1, see SCB02 as per Stantec
02721> * Area partially adjusted based on Atrel drawings.
02722> *********************************************************************
02723> * c/s at Node 21.as per Atrel - with modified boundaries and Tc.
02724> 250:0003----------ID:NHYD-------AREA----QPEAK-TpeakDate_hr:mn----R.V.-R.C.-
02725>      DESIGN HASHYD       01:EX1       24.62     2.833 No_date   12:05   58.05 .58
02726>       [CN= 76.0: N= 3.00]
02727>       [Ia=  .23:S1=  5.00]
02728> *********************************************************************
02729> * Existing flow - McEvoy Branch of Shield Creek (c/s of Bank st.)
02730> * CN*=69, as per Stantec see SCB01.
02731> * Area partially adjusted based on Atrel drawings.
02732> *********************************************************************
02733> * Areas External to development
02734> 250:0004----------ID:NHYD-------AREA----QPEAK-TpeakDate_hr:mn----R.V.-R.C.-
02735>      DESIGN HASHYD       01:EX2       10.94      .503 No_date   12:05   42.18 .441
02736>       [CN= 69.0: N= 3.00]
02737>       [Ia=  .67:S1=  5.00]
02738> 250:0005----------ID:NHYD-------AREA----QPEAK-TpeakDate_hr:mn----R.V.-R.C.-
02739>      DESIGN HASHYD       01:EX3       27.34     1.434 No_date   12:05   54.19 .547
02740>       [CN= 69.0: N= 3.00]
02741>       [Ia=  .83:S1=  5.00]
02742> * Slope, Ximp, Timp, Area from Atrel Drawing
02743> * CN from Stantec (SCB01)
02744> * Ximp = Timp = 1.0
02745> 250:0006----------ID:NHYD-------AREA----QPEAK-TpeakDate_hr:mn----R.V.-R.C.-
02746>  *  DESIGN STANDBYL    01:EX4       .50      .107 No_date   12:05   51.66 .521
02747>       [Ximp=1.0:Timp=1.00]
02748>       [Slp=1.00:S1=  5.00]
02749>       [Tc50= 2.0:CN= 69.0]
02750> * Areas to be occupied by commercial development
02751> 250:0007----------ID:NHYD-------AREA----QPEAK-TpeakDate_hr:mn----R.V.-R.C.-
02752>      DESIGN HASHYD       01:EX5       5.00      .976 No_date   12:05   63.18 .637
02753>       [CN= 69.0: N= 3.00]
02754>       [Ia=  .31:S1=  5.00]
02755> 250:0008----------ID:NHYD-------AREA----QPEAK-TpeakDate_hr:mn----R.V.-R.C.-
02756>  *  DESIGN HASHYD       01:EX6       3.13      .429 No_date   12:05   43.18 .447
02757>       [CN= 69.0: N= 3.00]
02758>       [Ia=  .13:S1=  5.00]
02759> 250:0009----------ID:NHYD-------AREA----QPEAK-TpeakDate_hr:mn----R.V.-R.C.-
02760>      DESIGN HASHYD       01:EX7       4.77      .654 No_date   12:05   43.18 .447
02761>       [CN= 69.0: N= 3.00]
02762>       [Ia=  .22:S1=  5.00]
02763> 250:0010----------ID:NHYD-------AREA----QPEAK-TpeakDate_hr:mn----R.V.-R.C.-
02764>      DESIGN HASHYD       01:EX8       3.03      .276 No_date   12:05   43.18 .447
02765>       [CN= 69.0: N= 3.00]
02766>       [Ia=  .23:S1=  5.00]
02767> * Areas to be occupied by residential development
02768> 250:0011----------ID:NHYD-------AREA----QPEAK-TpeakDate_hr:mn----R.V.-R.C.-
02769>      DESIGN HASHYD       01:EX9       9.70      .892 No_date   12:05   63.18 .647
02770>       [CN= 69.0: N= 3.00]
02771>       [Ia=  .09:S1= 5.00]
02772> 250:0012----------ID:NHYD-------AREA----QPEAK-TpeakDate_hr:mn----R.V.-R.C.-
02773>      DESIGN HASHYD       01:EX10      8.91      .615 No_date   12:15   43.18 .447
02774>       [CN= 69.0: N= 3.00]
02775>       [Ia=  .38:S1=  5.00]
02776> 250:0013----------ID:NHYD-------AREA----QPEAK-TpeakDate_hr:mn----R.V.-R.C.-
02777>      DESIGN HASHYD       01:EX11      9.71      .586 No_date   12:20   43.18 .447
02778>       [CN= 69.0: N= 3.00]
02779>       [Ia=  .40:S1=  5.00]
02780> *********************************************************************
02781> * Existing flow - Total Flow to Shield Creek (Control Node EC13)
02782> *********************************************************************
02783> *  McEvoy Drain, c/s of residential area
02784> 250:0014----------ID:NHYD-------AREA----QPEAK-TpeakDate_hr:mn----R.V.-R.C.-
02785>      ADD HYD             02:EX1       24.62     2.833 No_date   12:05   58.05  n/a
02786>                      +  03:EX5        5.00      .726 No_date   12:10   43.18  n/a
02787>       [Tf= 5.00]  SUM=  04:Plus       29.62     3.535 No_date   12:05   48.34  n/a
02788> * Typical Section based on McEvoy Branch Vee Ditch 1.0:1 slopes
02789> * provided by Atrel
02790> * Manning's n is Channel not maintained, light brush on banks
02791> * Route P as c/s node N1
02792> * Slope = 1% as per Atrel drawing
02793> 250:0015----------ID:NHYD-------AREA----QPEAK-TpeakDate_hr:mn----R.V.-R.C.-
02794>      ROUTE CHANNEL   -> 03:Plus      29.62     3.535 No_date   12:05   58.05  n/a
02795>       [RDT= 5.00] outs= 01:McFlow     29.62     3.527 No_date   12:10   58.05  n/a
02796>       [L/S/n= 375./1.000/.050]
02797>       [Vmax=  1.145 Tmax=  .351]
02798> * Typical Section based on Shields MH Vee Ditch 3:1 banks
02799> * provided by Atrel
02800> * Manning's n is Channel, not maintained, light brush on banks
02801> * Route EX2 to c/s Node N.
02802> * Slope = 0.05% as per plan provided by Atrel.
02803> 250:0016----------ID:NHYD-------AREA----QPEAK-TpeakDate_hr:mn----R.V.-R.C.-
02804>      ROUTE CHANNEL   -> 02:EX2       10.94      .503 No_date   12:05   42.18  n/a
02805>       [RDT= 5.00] outs= 01:REX2      10.94      .453 No_date   12:40   42.18  n/a
02806>       [L/S/n=  254 / .050/.035]
02807>       [Vmax=  .251 Tmax=  .676]
02808> *  McEvoy Drain, c/s of residential area along Sales Barn Rd
02809> 250:0017----------ID:NHYD-------AREA----QPEAK-TpeakDate_hr:mn----R.V.-R.C.-
02810>      ADD HYD             01:REX2      10.94      .453 No_date   12:40   42.18  n/a
02811>                      +  02:Minus     34.56     3.979 No_date   12:10   46.36  n/a
02812>                      +  04:EX8        9.76      .667 No_date   12:05   41.71  n/a
02813>       [Tf= 5.00]  SUM=  01:N1        54.34     4.231 No_date   12:10   46.18  n/a
02814> * Route Node N1 to Node N2
02815> * Typical Section based on Shields MH Vee Ditch 3:1 banks
02816> * provided by Atrel
02817> * Manning's n is Channel not maintained, light brush on banks
02818> * Slope = 0.05% as per plan provided by Atrel.
02819> 250:0018----------ID:NHYD-------AREA----QPEAK-TpeakDate_hr:mn----R.V.-R.C.-
02820>      ROUTE CHANNEL   -> 02:N1        54.34     4.231 No_date   12:10   46.18  n/a
02821>  *    [EDT= 5.00] outs= 01:EN1       54.34     3.864 No_date   12:20   46.18  n/a
02822>       [L/S/n=  184./ .050/.035]
```

```
[Vmax=  .05:Qmax= 1.65]
* Typical Section based on Atkel Drawing drain d/s of R2
* Manning's n is Channel not maintained, light brush on banks
* Route node R1a2 to d/s node R2
* slope =  (88-84.5)/487
 220.0018----------T:MHYD-------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
      ROUTE CHANNEL    -> 02:R/A        3.13     .429 No_date   12:20   45.18  n/a
      [RT= 5.00] out<- 01:R1A2         3.13     .267 No_date   12:10   43.18  n/a
      [L/S/n=  487./ .720/.050]
      [Vmax=  .5461Qmax=  .277]
* Drain 2, d/s of residential area
 230.0019----------ID:MHYD-------AREA    QPEAK Tpeakdate hr:mn    R.V. R.C.
      ADD HYD          02:RA1       54.34    3.864 No_date   12:20   45.80  n/a
                     + 03:RB2A       7.15     .267 No_date   12:10   43.18  n/a
                     + 04:R2A        4.63     .215 No_date   12:15   43.74  n/a
      [VT= 5.00]  SUM= 01:R2        66.12    4.845 No_date   12:20   45.80  n/a
* ROUTE R2 to R3
* Typical Section based on Shields RD Vee Ditch 3:1 banks
* provided by Atkel
* Manning's n is Channe  not maintained, light brush on banks
* Slope = 0.05  as per plan provided by Atkel.
 240.0020----------ID:MHYD-------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
      ROUTE CHANNEL    -> 02:R2         66.38    4.648 No_date   12:20   45.80  n/a
    * [RO= 5.00] out<- 01:R3          66.38    4.002 No_date   12:25   45.80  n/a
      [L/S/n=  210./ .050/.035]
      [Vmax=  .3959Qmax=  .030]
* Add Drain 3 d/s of residential area
 250.0021----------ID:MHYD-------AREA    QPEAK Tpeakdate hr:mn    R.V. R.C.
      ADD HYD          02:R3A       4.14     .429 No_date   12:05   45.18  n/a
                     + 03:R3B       2.21     .238 No_date   12:05   43.18  n/a
                     + 04:EA4        .36     .071 No_date   12:00   51.96  n/a
      [VT= 5.00]  SUM= 01:R3        6.85     .701 No_date   12:05   45.81  n/a
* Typical Section Based on Atkel Drawing drain btw d/s of R2
* Manning's n is Channel not maintained, light brush on banks
* Route to d/s area
* Slope = (88-84)/800
 260.0022----------ID:MHYD-------AREA----QPEAK Tpeakdate hr:mn    R.V. R.C.
      ROUTE CHANNEL    -> 02:R3a        6.85     .701 No_date   12:05   45.81  n/a
      [RO= 5.00] out<- 01:R3.1a        6.85     .467 No_date   12:15   43.81  n/a
      [L/S/n=  661./ .050/.056]
      [Vmax=  .5841Qmax=  .261]
* Drain 4, d/s of residential area
 270.0023----------ID:MHYD-------AREA----QPEAK Tpeakdate hr:mn    R.V. R.C.
      ADD HYD          02:R4        66.38    4.002 No_date   12:25   45.80  n/a
                     + 03:RB3a       6.87     .467 No_date   12:15   43.81  n/a
                     + 04:R3C        4.77     .566 No_date   12:20   53.19  n/a
      [VT= 5.00]  SUM= 01:R4        78.04    5.037 No_date   12:25   45.33  n/a
* ROUTE R4 to R5.1a
* Typical Section based on Shields RD Vee Ditch 3:1 banks
* provided by Atkel
* Manning's n is Channel not maintained, light brush on banks
* Slope =  0.05% as per plan provided by Atkel.
 280.0024----------ID:MHYD-------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
      ROUTE CHANNEL    -> 02:R4         62.84    5.027 No_date   12:25   45.33  n/a
    * [RT= 5.00] out<- 01:R5.1         67.84    3.969 No_date   12:35   45.33  n/a
      [L/S/n=  415./ .050/.035]
      [Vmax=  .2421Qmax= 1.895]
* Flow at Stantec node NCR128 for comparison
* Routed R3 plus R4.3
 290.0025----------ID:MHYD-------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
      ADD HYD          02:R4.3      62.84    3.969 No_date   12:35   45.33  n/a
                     + 03:RX3       21.00     .836 No_date   12:45   43.18  n/a
      [VT= 5.00]  SUM= 01:NCR128   104.24    4.778 No_date   12:35   44.89  n/a
* Flow from Stantec at node NCR128 for comparison
 300.0027----------ID:MHYD-------AREA    QPEAK Tpeakdate hr:mn    R.V. R.C.
      DESIGN PAIRED    01:SC01      78.11    3.863 No_date   12:30   43.18 .643
      [CN= 89.0: R= 3.00]
      [Tp=  .81:DT= 5.00]
* Typical Section based on McEvoy Branch Vee Ditch 1.5:1 slopes
* provided by Atkel
* Route from N-EX1 to NEX12
* Manning's n is Channel not maintained, light brush on banks
* Invert at NEX12 as per Atkel bottom of ditch points = 92.72 m
* slope =  (89.79-82.52)/.517
 250.0028----------ID:MHYD-------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
      ROUTE CHANNEL    -> 02:EX1        24.62    2.331 No_date   12:05   56.25  n/a
      [RT= 5.00] out<- 01:NEX12        24.62    1.563 No_date   12:10   56.25  n/a
      [L/S/n=  517./ .070/.050]
      [Vmax=  .6013Qmax= 1.413]
 280.0029----------ID:MHYD-------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
      ADD HYD          02:R5.2b1    78.11    3.863 No_date   12:30   43.18  n/a
                     + 03:REX12     24.62    1.536 No_date   12:20   56.25  n/a
      [VT= 5.00]  SUM= 01:Out/Out  102.73    4.071 No_date   12:35   44.87  n/a
```

```
*************************************************************************
* Simulations with 4 hour Chicago from City of Ottawa
* SCS 24 hours type 1, from City of Ottawa
*  ** END OF RUN : 7hr
*
*************************************************************************
*
*
*
*
*
*
 RUN:COMMAND4
 29s:0001-----------------------------------------------------------------------
      START
       [TZERO =    .0 hrs on      0]
       [METOUT=   2   (1=Imperial, 2=metric output)]
       [NSTORM=   1 ]
       [NRUN   =  259 ]
*************************************************************************
* SWMHYMO Version 3.02(Jan 2001 CURTAIN / INPUT DATA FILE
*************************************************************************
* Project Name: [Greely Village Center]    Project Number: [47-07]
* Date        : 04-Dec-2008
* Modules     : [Dec]
* Company     : JFSAinc.
* License #   :  2007002
*************************************************************************
*
* SWMHYMO model of the Greely Village Center - Residential Area - Phase 1
* Existing conditions.
* Filename stands for GRP1E = Greely, Residential, Phase 1, Existing
*
* Dec 10, 2008
* After July 1st 1979 event
*
* -#  EXISTING CONDITIONS ASSUMPTIONS:
* CN=, Xinc, Timp,
* as per Stantec Report, Oct. 2007: Greely Shield Creek, Stormwater
* and Drainage Study.
* and as per Atkel drawing: Greely Village Area.dwg
* as specified per subwatershed
* Tp calculated using the Upland Method as per Stantec. (Tp = Tc * 2/3)
*
*************************************************************************
 299:0002-----------------------------------------------------------------------
      READ STORM
       Filename = storm.001
       Comment  = 100 years SCS Type 2 Storm 24 Hours step 10 min, City of Ott
       [SDT 10.00 :SDD=  24.00:PIUG= 106.73]
*************************************************************************
* Existing Flow - McEvoy Branch of Shield Creek - Areas
* Area a/s of proposed development (residential)
* CN*=75, a:Tpe = 0.0, Tp=8.10, XIMP=0, TIMP=0, see AC001 as per Stantec
* Area partially adjusted based on Atkel drawings.
*************************************************************************
* a/s of Back St at por Atkel - with modified boundaries (no lp.
 295:0C01----------ID:MHYD-------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
      DESIGN RASEYD    01:EX1       24.62    1.294 No_date   12:00   58.31 .526
       CN= 65.0: R= 1.00]
       Tp=  .65:DT= 5.00]
*************************************************************************
* Existing Flow  McEvoy Branch of Shield Creek (d/s of Bank St.)
* CN*=39, as per Stantec see EC001.
* Area partially adjusted based on Atkel drawings.
*************************************************************************
* Areas Potential to development
 295:0C04----------ID:MHYD-------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
      DESIGN RASEYD    01:EX2       10.04     .490 No_date   12:15   50.18 .473
       CN= 59.0: R= 1.00]
       Tp=  .67:DT= 5.00]
 295:0C05----------ID:MHYD-------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
      DESIGN RASEYD    01:EX3       21.00     .902 No_date   12:40   50.48 .473
       CN= 65.0: R= 1.00]
       Tp=  .65:DT= 5.00]
* Slope, Xinc, Timp, Area from Atkel Drawing
* CN from Stantec (SC001)
* Ximp = Timp = 10
 295:0C06----------ID:MHYD-------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
    * DESIGN SCSRAEYD    01:EX4        .20     .083 No_date   12:00   59.80 .580
       X:Y=.11:TIMP=.22]
       SLP=1.0:DT= 5.00]
       TOTAL= 2 :CN= 69.0]
* Areas to be occupied by commercial development
```

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 299:0007---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     DESIGN NASHYD      01:R1A        9.04     .851 No_date  12:10   50.48  .473
       [CN= 65.0: N= 3.00]
       [Tp=  .13:DT= 5.00]
 299:0008---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
  *  DESIGN NASHYD      01:R2A        3.14     .504 No_date  12:10   50.48  .473
       [CN= 65.0: N= 3.00]
       [Tp=  .11:DT= 5.00]
 299:0009---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     DESIGN NASHYD      01:R3A        4.14     .504 No_date  12:15   50.48  .473
       [CN= 65.0: N= 3.00]
       [Tp=  .12:DT= 5.00]
 299:0010---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     DESIGN NASHYD      01:B3B        2.21     .254 No_date  12:05   50.48  .473
       [CN= 65.0: N= 3.00]
       [Tp=  .12:DT= 5.00]
 # Areas to be occupied by residential development
 299:0011---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     DESIGN NASHYD      01:R1B        9.70    1.013 No_date  12:05   50.48  .473
       [CN= 65.0: N= 3.00]
       [Tp=  .12:DT= 5.00]
 299:0012---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     DESIGN NASHYD      01:R2B        4.51     .471 No_date  12:15   50.48  .473
       [CN= 65.0: N= 3.00]
       [Tp=  .14:DT= 5.00]
 299:0013---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     DESIGN NASHYD      01:B3C        9.71     .663 No_date  12:20   50.48  .473
       [CN= 65.0: N= 3.00]
       [Tp=  .14:DT= 5.00]
 *****************************************************************************
 # EXISTING Flow - Total Flow to Shields Creek (Stantec Node NC128)
 *****************************************************************************
 #  McEvoy Drain, d/s of residential area
 299:0014---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ADD HYD            02:EX1       24.62    3.298 No_date  12:05   58.31  n/a
                      + 03:R1A        9.08     .851 No_date  12:10   50.48  n/a
       [DT= 5.00]  SUM= 01:R1Aa      33.70    4.109 No_date  12:05   56.20  n/a
 # Typical Section based on McEvoy Branch Vee Ditch 1.5:1 slopes
 # provided by Atrel
 # Manning's n is Channel not maintained, light brush on banks
 # Route R1Aa to d/s node N1
 # Slope = as per Atrel drawing
 299:0015---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ROUTE CHANNEL   -> 02:R1Aa      33.70    4.109 No_date  12:05   56.20  n/a
       [RDT= 5.00] out<- 01:RR1Aa    33.70    3.789 No_date  12:15   56.20  n/a
       [L/S/n=  375./1.030/.050]
       [Vmax=  1.165:Dmax=  1.414]
 # Typical Section based on Shields MD Vee Ditch 3:1 banks
 # provided by Atrel
 # Manning's n is Channel not maintained, light brush on banks
 # Route EX2 to d/s Node N1
 # Slope = 0.05% as per plan provided by Atrel.
 299:0016---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ROUTE CHANNEL   -> 02:EX2       10.94     .590 No_date  12:35   50.48  n/a
       [RDT= 5.00] out<- 01:REX2     10.94     .535 No_date  12:40   50.48  n/a
       [L/S/n=  284./ .050/.035]
       [Vmax=  .190:Dmax=  .333]
 #  McEvoy Drain, d/s of residential area along Gales Barn Rd
 299:0017---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ADD HYD            02:REX2      10.94     .535 No_date  12:40   50.48  n/a
                      + 03:RR1Aa     33.70    3.789 No_date  12:15   56.20  n/a
                      + 04:R1B        9.70    1.013 No_date  12:05   50.48  n/a
       [DT= 5.00]  SUM= 01:N1        54.34    5.078 No_date  12:10   54.03  n/a
 # Route Node N1 to Node N2
 # Typical Section based on Shields MD Vee Ditch 3:1 banks
 # provided by Atrel
 # Manning's n is Channel not maintained, light brush on banks
 # Slope = 0.05% as per plan provided by Atrel.
 299:0018---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ROUTE CHANNEL   -> 02:N1        54.34    5.078 No_date  12:10   54.03  n/a
  *    [RDT= 5.00] out<- 01:RN1      54.34    4.340 No_date  12:15   54.03  n/a
       [L/S/n=  184./ .050/.035]
       [Vmax=  .345:Dmax=  1.342]
 # Typical Section based on Atrel Drawing drain d/s of N2
 # Manning's n is Channel not maintained, light brush on banks
 # Route node N2 to d/s node N3
 # Slope = (88-86.5)/1000
 299:0019---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ROUTE CHANNEL   -> 02:R2A        3.13     .504 No_date  12:00   50.48  n/a
       [RDT= 5.00] out<- 01:RR2A      3.13     .320 No_date  12:05   50.48  n/a
       [L/S/n=  487./ .720/.050]
       [Vmax=  .501:Dmax=  .291]
 # Drain 2, d/s of residential area
 299:0020---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ADD HYD            02:RN1       54.34    4.340 No_date  12:15   54.03  n/a
                      + 03:RR2A       4.13     .320 No_date  12:05   50.48  n/a
                      + 04:R2B        8.91     .723 No_date  12:15   50.48  n/a
       [DT= 5.00]  SUM= 01:N2        66.38    5.342 No_date  12:15   53.39  n/a
 # ROUTE N2 to N3
 # Typical Section based on Shields MD Vee Ditch 3:1 banks
 # provided by Atrel
 # Manning's n is Channel not maintained, light brush on banks
 # Slope = 0.05% as per plan provided by Atrel.
 299:0021---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ROUTE CHANNEL   -> 02:N2        66.38    5.342 No_date  12:15   53.39  n/a
  *    [RDT= 5.00] out<- 01:RN2      66.38    4.501 No_date  12:25   53.39  n/a
       [L/S/n=  210./ .050/.035]
       [Vmax=  .350:Dmax= 1.368]
 # Add Drain 3 d/s of residential area
 299:0022---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ADD HYD            02:R3A        4.14     .503 No_date  12:05   50.48  n/a
                      + 03:R3B        2.21     .254 No_date  12:05   50.48  n/a
                      + 03:EX4         .50     .081 No_date  12:00   59.60  n/a
       [DT= 5.00]  SUM= 01:R3Aa       6.85     .823 No_date  12:05   51.16  n/a
 # Typical Section based on Atrel Drawing drain btw d/s of R3
 # Manning's n is Channel not maintained, light brush on banks
 # Route to d/s area
 # Slope = (88-84)/653
 299:0023---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ROUTE CHANNEL   -> 02:R3Aa       6.85     .823 No_date  12:05   51.16  n/a
       [RDT= 5.00] out<- 01:RR3Aa     6.35     .558 No_date  12:15   51.16  n/a
       [L/S/n=  653./ .600/.050]
       [Vmax=  .410:Dmax=  .355]
 #  Drain 3, d/s of residential area
 299:0024---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ADD HYD            02:RN2       66.38    4.502 No_date  12:25   53.39  n/a
                      + 03:RR3Aa      6.35     .558 No_date  12:15   51.16  n/a
                      + 04:R3C        9.71     .605 No_date  12:20   50.48  n/a
       [DT= 5.00]  SUM= 01:N3        82.94    5.606 No_date  12:20   52.86  n/a
 # ROUTE N3 to NC128
 # Typical Section based on Shields MD Vee Ditch 3:1 banks
 # provided by Atrel
 # Manning's n is Channel not maintained, light brush on banks
 # Slope = 0.05% as per plan provided by Atrel.
 299:0025---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ROUTE CHANNEL   -> 02:N3        82.94    5.606 No_date  12:20   52.86  n/a
  *    [RDT= 5.00] out<- 01:RN3      82.94    4.712 No_date  12:25   52.86  n/a
       [L/S/n=  4.5./ .050/.035]
       [Vmax=  .350:Dmax= 1.595]
 # Flow at Stantec node NCR128 for comparison
 # Routed N3 plus EX3
 299:0026---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ADD HYD            02:RN3       82.94    4.712 No_date  12:25   52.88  n/a
                      + 03:EX3       21.30     .592 No_date  12:15   50.48  n/a
       [DT= 5.00]  SUM= 01:NCR128   104.24    5.384 No_date  12:25   52.38  n/a
 # Flow from Stantec at node NCR128 for comparison
 299:0027---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     DESIGN NASHYD      01:SC001     78.11    3.363 No_date  12:50   50.48  .473
       [CN= 65.0: N= 3.00]
       [Tp=  .51:DT= 5.00]
 # Typical Section based on McEvoy Branch Vee Ditch 1.5:1 slopes
 # provided by Atrel
 # Route from N EX1 to NCR128
 # Manning's n is Channel not maintained, light brush on banks
 # Invert at NCR128 as per Atrel bottom of ditch points = 82.52 m
 # Slope = (89.70-82.52)/1517
 299:0028---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ROUTE CHANNEL   -> 02:EX1       24.62    3.298 No_date  12:05   58.31  n/a
       [RDT= 5.00] out<- 01:REX1B    24.62    1.780 No_date  12:20   58.31  n/a
       [L/S/n= 1517./ .470/.050]
       [Vmax=  .822:Dmax= 1.424]
 299:0029---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ADD HYD            02:SC001     78.11    3.363 No_date  12:50   50.48  n/a
                      + 03:REX1B     24.62    1.780 No_date  12:20   58.31  n/a
       [DT= 5.00]  SUM= 01:StnTot   102.73    4.977 No_date  12:35   52.36  n/a
 *****************************************************************************
 # Simulations with 4 hour Chicago from City of Ottawa
 # SCS 24 hours type 2, from City of Ottawa
 # Simulations with July 1, 1979 Historical Event, City of Ottawa
   ** END OF RUN : 300
 
 *****************************************************************************
```

```
RUN:COMMAND#
301:0001-----------------------------------------------------------------------
     START
       [TZERO =      .00 hrs on        0]
       [METOUT=   2    (1=imperial, 2=metric output)]
       [NSTORM=   1 ]
       [NRUN  =  301 ]
#******************************************************************************
# SWMHYMO Ver/5.02/Jan 2001 <RSTAB / INPUT DATA FILE
#******************************************************************************
#  Project Name: [Greely Village Center]    Project Number: [647-07]
#  Date         : 04-03-2008
#  Modeller     : [JHF]
#  Company      : JFSAinc.
#  License #    :  2547402
#******************************************************************************
#
# SWMHYMO model of the Greely Village Center - Residential Area - Phase 1
# Existing conditions.
# Filename stands for: GRP1E - Greely, Residential, Phase 1, Existing
#
# Oct 15, 2008
# Added July 1st 1979 event
#
# *#  EXISTING CONDITIONS ASSUMPTIONS:
#  CN*, XIMP, TIMP,
#  as per Stantec Report, Oct. 2003: Greely Shield Creek, Stormwater
#  and drainage study.
#  And as per Atrel drawing: Greely Village Area.dwg
#  as specified per subwatershed
#  Tp calculated using the Upland Method as per Stantec. (Tp = Tc * 2/3)
#
#******************************************************************************
 301:0002-----------------------------------------------------------------------
     READ STORM
       Filename = storm.001
       Comment  = July 1st, 1979 Storm (3H) - Ottawa International Airport sta
       [SDT= 5.00:SDUR=   3.00:PTOT=  83.99]
#******************************************************************************
# Existing flow - McEvoy Branch of Shield Creek - Areas
# Area U/S of proposed development (residential)
# CN* 75, slope  0.5, Tp 0.16, XIMP 5, TIMP 15, see SC03C as per Stantec
# Area partially adjusted based on Atrel drawings.
#******************************************************************************
# U/S of Bank Stree per Atrel   with modified boundaries and Tp.
 301:0003---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     DESIGN NASHYD      01:EX1       21.52    3.075 No_date    1:40   40.71 .485
       [CN= 75.0: N= 3.00]
       [Tp=  .11:DT= 5.00]
#******************************************************************************
# Existing flow - McEvoy Branch of Shield Creek (d/s of Bank St.)
# CN*=69, as per Stantec see SC03C.
# Area partially adjusted based on Atrel drawings.
#******************************************************************************
# Areas External to development
 301:0004---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     DESIGN NASHYD      01:EX2       10.54     .671 No_date    2:10   34.61 .412
       [CN= 69.0: N= 3.00]
       [Tp=  .67:DT= 5.00]
 301:0005---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     DESIGN NASHYD      01:EX3       23.70    1.110 No_date    2:20   34.61 .412
       [CN= 69.0: N= 3.00]
       [Tp=  .83:DT= 5.00]
# Slope, Ximp, Timp, Area from Atrel Drawing
# CN from Stantec (2003)
# Ximp = Timp = 10%
 301:0006---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
  *  DESIGN STANDHYD    01:EX4         .59     .064 No_date    1:40   42.45 .505
       [XIMP=.11:TIMP=.11]
       [SLP=1.00:DT= 5.00]
       [LOSS= 2 :CN= 69.0]
# Areas to be occupied by commercial development
 301:0007---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     DESIGN NASHYD      01:R1A        9.08     .820 No_date    1:50   34.61 .412
       [CN= 69.0: N= 3.00]
       [Tp=  .71:DT= 5.00]
 301:0008---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
  *  DESIGN NASHYD      01:R2A        3.13     .302 No_date    1:45   34.61 .412
       [CN= 69.0: N= 3.00]
       [Tp=  .15:DT= 5.00]
 301:0009---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     DESIGN NASHYD      01:R3A        4.14     .450 No_date    1:40   34.81 .412
       [CN= 69.0: N= 3.00]
       [Tp=  .23:DT= 5.00]
 301:0010---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     DESIGN NASHYD      01:R4B        2.24     .235 No_date    1:40   34.61 .412
       [CN= 69.0: N= 3.00]
       [Tp=  .23:DT= 5.00]
# Areas to be occupied by residential development
 301:0011---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     DESIGN NASHYD      01:R1B        9.70     .991 No_date    1:45   34.61 .412
       [CN= 69.0: N= 3.00]
       [Tp=  .25:DT= 5.00]
 301:0012---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     DESIGN NASHYD      01:R2B        4.81     .756 No_date    1:55   34.61 .412
       [CN= 69.0: N= 3.00]
       [Tp=  .30:DT= 5.00]
 301:0013---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     DESIGN NASHYD      01:R3C        9.71     .733 No_date    2:00   34.61 .412
       [CN= 69.0: N= 3.00]
       [Tp=  .48:DT= 5.00]
#******************************************************************************
# EXISTING flow - Total Flow to Shield Creek (Stantec Node NC13)
#******************************************************************************
#  McEvoy Drain, u/s of residential area
 301:0014               ID:NHYD       AREA    QPEAK TpeakDate_hh:mm    R.V.-R.C.-
     ADD HYD            02:EX1       24.62    3.075 No_date    1:40   40.71  n/a
                     +  03:R1A        9.08     .850 No_date    1:50   34.61  n/a
       [DT= 5.00]  SUM= 01:R1us      33.70    3.502 No_date    1:45   39.06  n/a
# Typical Section based on McEvoy Branch Vee Ditch 1.5:1 slopes
# provided by Atrel
# Manning's n is Channel not maintained, light brush on banks
# Route R1us to d/s node N1
# Slope = 1% as per Atrel drawing
 301:0015---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ROUTE CHANNEL   -> 02:R1us      33.70    3.502 No_date    1:45   39.06  n/a
       [RDT= 5.00] out<= 01:RR1us    33.70    3.737 No_date    1:50   39.06  n/a
       [L/S/n=  115./ .100/.050]
       [Vmax= 1.161:Dmax= 1.194]
# Typical Section based on Shields RD Vee Ditch 3:1 banks
# provided by Atrel
# Manning's n is Channel not maintained, light brush on banks
# Route EX2 to d/s Node N1
# Slope = 0.05% as per plan provided by Atrel.
 301:0016---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ROUTE CHANNEL   -> 02:EX2       10.54     .671 No_date    2:10   34.61  n/a
  *    [RDT= 5.00] out<= 01:REX2     10.54     .606 No_date    2:20   34.61  n/a
       [L/S/n=  324./ .050/.035]
       [Vmax=  .098:Dmax=  .525]
#  McEvoy Drain, d/s of residential area along Sales Barn Rd
 301:0017---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ADD HYD            02:REX2      10.54     .606 No_date    2:20   34.61  n/a
                     +  03:RR1us     33.70    3.737 No_date    1:50   39.06  n/a
                     +  04:R1B        9.70     .991 No_date    1:45   10.61  n/a
       [DT= 5.00]  SUM= 01:N1        54.24    5.075 No_date    1:50   37.37  n/a
# Route Node N1 to Node N2
# Typical Section based on shields RD Vee Ditch 3:1 banks
# provided by Atrel
# Manning's n is Channel not maintained, light brush on banks
# Slope = 0.05% as per plan provided by Atrel.
 301:0018---------------ID:NHYD       AREA    QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ROUTE CHANNEL   -> 02:N1        54.24    5.075 No_date    1:50   37.37  n/a
  *    [RDT= 5.00] out<= 01:RN1      54.24    4.550 No_date    2:00   37.37  n/a
       [L/S/n=  184./ .050/.035]
       [Vmax=  .349:Dmax= 1.941]
# Typical Section based on Atrel Drawing drain u/s of N2
# Manning's n is Channel not maintained, light brush on banks
# Route node N2us to d/s node N
# Slope = (84-84.5)/487
 301:0019               ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ROUTE CHANNEL   -> 02:R2A        3.13     .300 No_date    1:45   34.61  n/a
       [RDT= 5.00] out<= 01:RR2A      3.13     .312 No_date    1:45   34.61  n/a
       [L/S/n=  487./ .100/.050]
       [Vmax=  .506:Dmax=  .266]
#  Drain 2, d/s of residential area
 301:0020---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ADD HYD            02:RN1       54.24    4.550 No_date    2:00   37.37  n/a
                     +  03:RR2A       3.13     .312 No_date    1:45   34.61  n/a
                     +  04:R2B        8.91     .756 No_date    1:55   34.61  n/a
       [DT= 5.00]  SUM= 01:N2        66.38    5.565 No_date    2:00   36.87  n/a
# ROUTE N2 to N3
# Typical Section based on Shields RD Vee Ditch 3:1 banks
# provided by Atrel
# Manning's n is Channel not maintained, light brush on banks
# Slope = 0.05% as per plan provided by Atrel.
```

```
03321>  29:0021----------ID:RHD--------AREA----QPEAK-Tpeakdate_hh:mm----R.V.-R.C.-
03322>      ROUTE CHANNEL   -> 02:RC        66.38     5.585 3c_date    2:00   36.37  n/a
03323>    * [RC= 5.00] outs= 01:RHD        66.38     5.869 3c_date    2:00   36.37  n/a
03324>       [/s/n= 710./ .050/.035]
03325>       -Vmax= .150:Dmax= 1.508]
03326> # End Drain 1 c/s of residential area
03327>  30:0022----------ID:RHD--------AREA----QPEAK-Tpeakdate_hh:mm----R.V.-R.C.-
03328>      ADD HYD           01:R3D        3.14      .400 3c_date    2:45   36.61  n/a
03329>                      + 02:RFB        7.27      .975 3c_date    2:30   31.61  n/a
03330>                      + 04:DX4         .56      .064 3c_date    2:45   45.45  n/a
03331>       [DT= 5.00]  SUM=  01:R3MA       6.5       .759 3c_date    2:40   35.18  n/a
03332> # Typical Section based on Atkel Paving Drain btw c/s of R1
03333> # Remarks n is Channel not maintained, light brush on banks
03334> # Route to d/s area
03335> # Slope = (98-84)/661
03336>  31:0023----------ID:RHD--------AREA----QPEAK-Tpeakdate_hh:mm----R.V.-R.C.-
03337>      ROUTE CHANNEL   -> 02:R3MA       6.5       .759 3c_date    2:40   35.18  n/a
03338>       [R/D= 5.00] outs= 01:RR3CD      6.85      .580 3c_date    2:55   35.18  n/a
03339>       [L/S/n= 663./ .030/.050]
03340>       [Vmax= .593:Dmax= .283]
03341> #  Drain 3, d/s of residential area
03342>  32:0024----------ID:RHD--------AREA----QPEAK-Tpeakdate_hh:mm----R.V.-R.C.-
03343>      ADD HYD           02:R3A       86.38     5.000 3c_date    2:00   36.57  n/a
03344>                      + 03:RR3CD      6.85      .580 3c_date    2:55   35.18  n/a
03345>                      + 04:R3C        9.71      .733 3c_date    2:00   36.61  n/a
03346>       [DT= 5.00]  SUM=  01:R3        82.84     6.256 3c_date    2:00   36.47  n/a
03347> # ROUTE R3 to R12:
03348> # Typical Section based on Enfield MD Yee Ditch 1:1 banks
03349> # provided by Alex.
03350> # Remarks n is Channel not maintained, light brush on banks
03351> # Slope = 0.05  as per plan provided by Alex.
03352>  33:0025----------ID:RHD--------AREA----QPEAK-Tpeakdate_hh:mm----R.V.-R.C.-
03353>      ROUTE CHANNEL   -> 02:R3        82.84     6.294 3c_date    2:00   36.47  n/a
03354>    * [RDT= 5.00] outs= 01:R3D        82.84     6.713 3c_date    2:10   36.47  n/a
03355>       [C/S/n=  115./ .050/.035]
03356>       [Vmax= .154:Dmax= 1.068]
03357> # Flow at planned node RCA12B for comparison
03358> # Routed R3 plus EA3
03359>  34:0026----------ID:RHD--------AREA----QPEAK-Tpeakdate_hh:mm----R.V.-R.C.-
03360>      ADD HYD           03:R3T       92.94     6.713 3c_date    2:10   36.47  n/a
03361>                      + 01:DX4        1.36      .176 3c_date    2:00   36.61  n/a
03362>       [DT= 5.00]  SUM=  01:RCA12B   104.24     6.876 3c_date    2:10   36.39  n/a
03363> # Flow from Station at node RCA12B for comparison
03364>  35:0027----------ID:RHD--------AREA----QPEAK-Tpeakdate_hh:mm----R.V.-R.C.-
03365>      DESIGN KARHYD     01:C06C1      78.11     3.810 3c_date    2:25   34.81 .412
03366>       [CN= 69.0: K= 1.00]
03367>       [Tp=  .91:LT= 1.00]
03368> # Typical Section based on Mallory Branch Yee Ditch 1:1 slopes
03369> # provided by Alex.
03370> # Route from D-EA2 to RCA12B
03371> # Remarks n is Channel not maintained, light brush on banks
03372> # Invert at RCA12B as per Atkel bottom of ditch points - 82.52 m
03373> # Slope   (88.0-82.52)/1519
03374>  36:0028----------ID:RHD--------AREA----QPEAK-Tpeakdate_hh:mm----R.V.-R.C.-
03375>      ROUTE CHANNEL   -> 02:DC        34.62     3.079 3c_date    2:40   40.71  n/a
03376>       [RDT= 5.00] outs= 01:RX1B       4.67      .438 3c_date    2:00   40.71  n/a
03377>       [C/S/n= 1611./ .070/.050]
03378>       [Vmax=  .214:Dmax= 1.454]
03379>  37:0029----------ID:RHD--------AREA----QPEAK-Tpeakdate_hh:mm----R.V.-R.C.-
03380>      ADD HYD           02:DC01       78.1      4.838 3c_date    2:25   39.61  n/a
03381>                      + 03:RX1B       24.62     1.948 3c_date    2:00   40.71  n/a
03382>       [DT= 5.00]  SUM=  01:RCA2Tot   102.73     6.480 3c_date    2:15   36.97  n/a
03383> +-----------------------------------------------------------------------------+
03384> # Simulations with 4 hour Chicago from City of Ottawa
03385> # SCS 24 hours type 1, from City of Ottawa
03386> # Simulations with July 1, 1979 Historical Event, City of Ottawa
03387>  38:0002-----------------------------------------------------------------------
03388>       FINISH
03389> -------------------------------------------------------------------------------
03390> *******************************************************************************
03391>      WARNINGS / ERRORS / NOTES
03392>      -------------------------
03393>  39:0005 DESIGN STANDHYD
03394>       *** WARNING: Storage Coefficient is smaller than DT!
03395>                    Use a smaller DT or a larger area.
03396>  40:0005 DESIGN KARHYD
03397>       *** WARNING: Time step is too large for value of TP.
03398>                    R.V. may be ok.  Peak flow could be off.
03399>  41:0005 DESIGN STANDHYD
03400>       *** WARNING: Storage Coefficient is smaller than DT!
03401>                    Use a smaller DT or a larger area.
03402>  42:0005 DESIGN NASHYD
03403>       *** WARNING: Time step is too large for value of TP.
03404>                    R.V. may be ok.  Peak flow could be off.
03405>  43:0005 DESIGN STANDHYD
03406>       *** WARNING: Storage Coefficient is smaller than DT!
03407>                    Use a smaller DT or a larger area.
03408>  44:0005 DESIGN NASHYD
03409>       *** WARNING: Time step is too large for value of TP.
03410>                    R.V. may be ok.  Peak flow could be off.
03411>  45:0006 DESIGN STANDHYD
03412>       *** WARNING: Storage Coefficient is smaller than DT!
03413>                    Use a smaller DT or a larger area.
03414>  46:0006 DESIGN NASHYD
03415>       *** WARNING: Time step is too large for value of TP.
03416>                    R.V. may be ok.  Peak flow could be off.
03417>  47:0006 DESIGN STANDHYD
03418>       *** WARNING: Storage Coefficient is smaller than DT!
03419>                    Use a smaller DT or a larger area.
03420>  48:0006 DESIGN NASHYD
03421>       *** WARNING: Time step is too large for value of TP.
03422>                    R.V. may be ok.  Peak flow could be off.
03423>  49:0006 DESIGN STANDHYD
03424>       *** WARNING: Storage Coefficient is smaller than DT!
03425>                    Use a smaller DT or a larger area.
03426>  50:0006 DESIGN NASHYD
03427>       *** WARNING: Time step is too large for value of TP.
03428>                    R.V. may be ok.  Peak flow could be off.
03429>  51:0006 DESIGN STANDHYD
03430>       *** WARNING: Storage Coefficient is smaller than DT!
03431>                    Use a smaller DT or a larger area.
03432>  52:0006 DESIGN NASHYD
03433>       *** WARNING: Time step is too large for value of TP.
03434>                    R.V. may be ok.  Peak flow could be off.
03435>  53:0006 DESIGN STANDHYD
03436>       *** WARNING: Storage Coefficient is smaller than DT!
03437>                    Use a smaller DT or a larger area.
03438>  54:0006 DESIGN NASHYD
03439>       *** WARNING: Time step is too large for value of TP.
03440>                    R.V. may be ok.  Peak flow could be off.
03441>  55:0006 DESIGN STANDHYD
03442>       *** WARNING: Storage Coefficient is smaller than DT!
03443>                    Use a smaller DT or a larger area.
03444>  56:0006 DESIGN NASHYD
03445>       *** WARNING: Time step is too large for value of TP.
03446>                    R.V. may be ok.  Peak flow could be off.
03447>  57:0006 DESIGN STANDHYD
03448>       *** WARNING: Storage Coefficient is smaller than DT!
03449>                    Use a smaller DT or a larger area.
03450>  58:0006 DESIGN NASHYD
03451>       *** WARNING: Time step is too large for value of TP.
03452>                    R.V. may be ok.  Peak flow could be off.
03453>  59:0006 DESIGN STANDHYD
03454>       *** WARNING: Storage Coefficient is smaller than DT!
03455>                    Use a smaller DT or a larger area.
03456>  60:0006 DESIGN NASHYD
03457>       *** WARNING: Time step is too large for value of TP.
03458>                    R.V. may be ok.  Peak flow could be off.
03459>  61:0006 DESIGN STANDHYD
03460>       *** WARNING: Storage Coefficient is smaller than DT!
03461>                    Use a smaller DT or a larger area.
03462>  62:0006 DESIGN NASHYD
03463>       *** WARNING: Time step is too large for value of TP.
03464>                    R.V. may be ok.  Peak flow could be off.
03465>  63:0006 DESIGN STANDHYD
03466>       *** WARNING: Storage Coefficient is smaller than DT!
03467>                    Use a smaller DT or a larger area.
03468>  64:0006 DESIGN NASHYD
03469>       *** WARNING: Time step is too large for value of TP.
03470>                    R.V. may be ok.  Peak flow could be off.
03471>  295 0025 ROUTE CHANNEL   ->
03472>       *** WARNING: TRAVEL TIME TABLE was exceeded
03473>  65:0006 DESIGN STANDHYD
03474>       *** WARNING: Storage Coefficient is smaller than DT!
03475>                    Use a smaller DT or a larger area.
03476>  66:0006 DESIGN NASHYD
03477>       *** WARNING: Time step is too large for value of TP.
03478>                    R.V. may be ok.  Peak flow could be off.
03479>  67:0025 ROUTE CHANNEL   ->
03480>       *** WARNING: TRAVEL TIME TABLE was exceeded
03481>    Simulation ended on 2008-12-17      at 09:39:38
03482> -------------------------------------------------------------------------------
03483>
03484>
```

```
2    Metric units / ID numbers OFF
*....................................................................
*#  SWMHYMO Ver/5.02/Jan 2001 <BETA> / INPUT DATA FILE
*#*******************************************************************
*#  Project Name: [Greely Village Centre]     Project Number: [467-07]
*#  Date        : 15-05-2008
*#  Modeller    : [JEF]
*#  Company     : JFSAinc.
*#  License #   : 2561007
*....................................................................
*#
*# SWMHYMO model of the Greely Village Centre - Residential Area - Phase 2
*# Proposed Ultimate conditions. OPTION B
*# Filename stands for: GRP2u2a - Greely, Residential, Phase 2, ultimate w2 weir 3
*#
*                    THIS MODEL USES CALIB STANDHYD
*               THE POND IS CALIBRATED FOR ULTIMATE CONDITIONS
*                        THE WEIR IS 16/ 16/ 3.0
*
*# December 15, 2008
*# "a" at the end of filename: Added July 1st 1979 Event
*
*  EXISTING CONDITIONS ASSUMPTIONS:
*  CN*, XIMP, TIMP,
*  as per Stantec Report, Oct. 2002: Greely Shields Creek, Stormwater
*  and drainage study.
*  and as per Atrel drawing: Greely Village Area.dwg
*  as specified per subwatershed
*  Tp calculated using the Upland Method as per Stantec (Tp = Tc * 2/3)
*                              ALSO COMMENTS
*  Developped Areas: CN=71, as per soil type C and Open spaces with Fair grass cover.
*  Predominant slope within area as per Atrel drawing.
*  Ximp = Timp - 10% unless otherwised noted.
*  Initial Abstraction (IA) set to 4.67 mm for pervious surfaces, as per City Standards
*  Initial Abstraction (IA) set to 1.57 mm for impervious surfaces, as per City Standards
*  Average pervious lengths (LPG) from typical lot based on average lot size (40 m)
*  Average impervious lengths (LGI) in STANDHYD based on A=1.5 LGI^2)
*  Average pervious slope (SLPP) = 1% as default)
*  Average impervious slope (SLPI) 1% as default)
*  Average pervious roughness (MNP) 0.25 as default)
*  Average impervious roughness (MNI) 0.045 weighted average of 0.013 for
*    roads x-length of 5 m and 0.050 for ditch length over average lot width
*    of 40 m.)
*
*....................................................................
START           TZERO=[0.0],   METOUT=[2],   NSTORM=[1],   NRUN=[1]
*               ["C4HRSCHK.STM"] <--storm filename, one per line for NSTORM time
*-----------------|------------------------------------------------|
READ STORM      STORM_FILENAME=["storm.001"]
*-----------------|------------------------------------------------|
*....................................................................
*# Existing flow - McEvoy Branch of Shield Creek - Areas
*# Area u/s of proposed development (residential)
*# CN=75, slope = 0.8, Tp=0.?, XIMP=5, TIMP=5, see SC007 as per Stantec
*# Area partially adjusted based on Atrel drawings.
*....................................................................
*# u/s of Bank st. as per Atrel - with modified boundaries and Tp.
DESIGN NASHYD   NHYD=["EX1"], DT=[5]min, AREA=[24.62](ha),
                DWF=[0](cms), CN/C=[75], TP=[0.33]hrs,
                RAINFALL=[ , , , , ](mm/hr), END=-1
*-----------------|------------------------------------------------|
*....................................................................
*# Existing flow - External areas d/s of Bank st.
*# CN=69, as per Stantec see SC007.
*# Area partially adjusted based on Atrel drawings.
*....................................................................
*# Areas External to development.
*# Part of EX2 is to be developped in Phase 1 so area is smaller
DESIGN NASHYD   NHYD=["EX2"], DT=[5]min, AREA=[9.89](ha),
                DWF=[0](cms), CN/C=[69], TP=[0.67]hrs,
                RAINFALL=[ , , , , ](mm/hr), END=-1
*-----------------|------------------------------------------------|
DESIGN NASHYD   NHYD=["EX3"], DT=[5]min, AREA=[21.30](ha),
                DWF=[0](cms), CN/C=[69], TP=[0.33]hrs,
                RAINFALL=[ , , , , ](mm/hr), END=-1
*-----------------|------------------------------------------------|
*# Slope, Timp, Area from Atrel drawing
*# CN from Stantec (SC001)
*# Ximp = Timp - 10
CALIB STANDHYD  NHYD=["EX4"], DT=[5](min), AREA=[0.53](ha),
                XIMP=[0.11], TIMP=[0.22], DWF=[0](cms), LOSS=[2],
                SCS curve number CN=[69],
                Pervious   surfaces: IAper=[4.67](mm), SLPP=[1](%),
                                     LGP=[40](m), MNP=[0.25], SCP=[0](min),
                Impervious surfaces: IAimp=[1.57](mm), SLPI=[1](%),
                                     LGI=[57.7](m), MNI=[0.045], SCI=[0](min),
                RAINFALL=[ , , , , ](mm/hr) , END=-1
*-----------------|------------------------------------------------|
*# Road and road side ditch along projected residential development Parkway dd
*# Timp = Ximp = 0.27 ha /0.57 ha = 0.46
*# CN*=69, as per Stantec see SC001.
*# Slope is estimated at 1%
*# Ximp = Timp - 10%
CALIB STANDHYD  NHYD=["EX5"], DT=[5](min), AREA=[0.52](ha),
                XIMP=[0.36], TIMP=[0.46], DWF=[0](cms), LOSS=[2],
                SCS curve number CN=[69],
                Pervious   surfaces: IAper=[4.67](mm), SLPP=[1](%),
                                     LGP=[40](m), MNP=[0.25], SCP=[0](min),
                Impervious surfaces: IAimp=[1.57](mm), SLPI=[1](%),
                                     LGI=[58.8](m), MNI=[0.045], SCI=[0](min),
                RAINFALL=[ , , , , ](mm/hr) , END=-1
*-----------------|------------------------------------------------|
*# Road and road side ditch along projected residential development Saleseain dd
*# Timp = Ximp = 0.10 ha /0.51 ha = 0.20
*# CN*=69, as per Stantec see SC001.
*# Slope is estimated at 1%
*# Ximp = Timp - 10%
CALIB STANDHYD  NHYD=["EX6"], DT=[5](min), AREA=[0.51](ha),
                XIMP=[0.10], TIMP=[0.20], DWF=[0](cms), LOSS=[2],
                SCS curve number CN=[69],
                Pervious   surfaces: IAper=[4.67](mm), SLPP=[1](%),
                                     LGP=[40](m), MNP=[0.25], SCP=[0](min),
                Impervious surfaces: IAimp=[1.57](mm), SLPI=[1](%),
                                     LGI=[58.3](m), MNI=[0.045], SCI=[0](min),
                RAINFALL=[ , , , , ](mm/hr) , END=-1
*-----------------|------------------------------------------------|
*# Road and road side ditch along projected residential development Saleshorn Rd
*# Timp = Ximp = 0.09 ha /0.39 ha = 0.23
*# CN*=69, as per Stantec see SC001.
*# Slope is estimated at 1%
*# Ximp = Timp - 10%
CALIB STANDHYD  NHYD=["EX7"], DT=[5](min), AREA=[0.39](ha),
                XIMP=[0.13], TIMP=[0.23], DWF=[0](cms), LOSS=[2],
                SCS curve number CN=[69],
                Pervious   surfaces: IAper=[4.67](mm), SLPP=[1](%),
                                     LGP=[40](m), MNP=[0.25], SCP=[0](min),
                Impervious surfaces: IAimp=[1.57](mm), SLPI=[1](%),
                                     LGI=[51.0](m), MNI=[0.045], SCI=[0](min),
                RAINFALL=[ , , , , ](mm/hr) , END=-1
*-----------------|------------------------------------------------|
*# Areas to be occupied by commercial development
*# CN* 69, as per Stantec see SC001.
DESIGN NASHYD   NHYD=["R1A"], DT=[5]min, AREA=[9.40](ha),
                DWF=[0](cms), CN/C=[69], TP=[0.3 ]hrs,
                RAINFALL=[ , , , , ](mm/hr), END=-1
*-----------------|------------------------------------------------|
DESIGN NASHYD   NHYD=["R2A"], DT=[5]min, AREA=[3.13](ha),
                DWF=[0](cms), CN/C=[69], TP=[0.13]hrs,
                RAINFALL=[ , , , , ](mm/hr), END=-1
*-----------------|------------------------------------------------|
DESIGN NASHYD   NHYD=["R2B"], DT=[5]min, AREA=[4.14](ha),
                DWF=[0](cms), CN/C=[69], TP=[0.21]hrs,
                RAINFALL=[ , , , , ](mm/hr), END=-1
*-----------------|------------------------------------------------|
DESIGN NASHYD   NHYD=["R3B"], DT=[5]min, AREA=[ . ](ha),
                DWF=[0](cms), CN/C=[69], TP=[0.22]hrs,
                RAINFALL=[ , , , , ](mm/hr), END=-1
*-----------------|------------------------------------------------|
*#####################################################################
*#*******************************************************************
*# PROPOSED RESIDENTIAL SUBWATERSHEDS    Residential Area Phase 1 and 2
*#*******************************************************************
*# CN* 69, as per Stantec see SC001.
*# Tp estimated with Upland method.
DESIGN NASHYD   NHYD=["PR1"], DT=[5]min, AREA=[4.26](ha),
                DWF=[0](cms), CN/C=[69], TP=[0.18]hrs,
                RAINFALL=[ , , , , ](mm/hr), END=-1
*-----------------|------------------------------------------------|
*#*******************************************************************
*# AREAS GOING TO POND
*#*******************************************************************
*#
CALIB STANDHYD  NHYD=["PR1A"], DT=[5](min), AREA=[0.24](ha),
                XIMP=[0.11], TIMP=[0.21], DWF=[0](cms), LOSS=[2],
                SCS curve number CN=[71],
                Pervious   surfaces: IAper=[4.67](mm), SLPP=[1](%),
```

```
                                    IGP=.40|(n), MNP=|0.25|, SCP=|0|(min),
                  Impervious surfaces: IAimp= 1.57|(mm), SLP1=|1.|(),
                                    IGI=|45.6|(n), MNI=|0.045|, SCI=.0|(min),
                  RAINFALL=[ ,  ,  ,  ,  ,  ,  ]|mm/hr| ,  END =1
* ------------------|-------------------------------------------------------|
CALIB STANDHYD      |HYD=|"FR1A"|, DT=|5 |min|, AREA=|0.55|(ha),
                    |XIMP= 0.11|, TIMP= |0.21|, DWF=|0|(cms), LOSS=|2|,
                    |SCS curve number CN=|71|,
                    |Pervious   surfaces: |Aper=|4.67|(mm), SLPP=|1|(),
                    |IGP= |40|(n), MNP=|0.25|, SCP=|0|(min),
                    |Impervious surfaces: |IAimp= 1.57|(mm), SLPI =|1|(),
                    |IGI= |50.3|(n), MNI=|0.045|, SCI=|0|(min),
                    |RAINFALL=[ ,  ,  ,  ,  ,  ,  ]|mm/hr| ,  END =1
* ------------------|-------------------------------------------------------|
CALIB STANDHYD      |HYD=|"FR1B"|, DT=|5 |min|, AREA=|1.17|(ha),
                    |XIMP=|0.11|, TIMP=|0.21|, DWF=|0|(cms), LOSS=|2|,
                    |SCS curve number CN=|71|,
                    |Pervious   surfaces: |Aper= |4.67|(mm), SLPP=|1|(),
                    |IGP=|40|(n), MNP=|0.25|, SCP=|0|(min),
                    |Impervious surfaces: |IAimp=|1.57|(mm), SLPI=|1|(),
                    |IGI=|45.6|(n), MNI=|0.045|, SCI=|0 (min),
                    |RAINFALL=[ ,  ,  ,  ,  ,  ,  ]|mm/hr| ,  END=1
* ------------------|-------------------------------------------------------|
CALIB STANDHYD      |HYD=|"FR1C"|, DT=|5|min|, AREA=|0.45|(ha),
                    |XIMP=|0.11|, TIMP=|0.21|, DWF=|0|(cms), LOSS=|2|,
                    |SCS curve number CN=|71|,
                    |Pervious   surfaces: |Aper=|4.67|(mm), SLPP=|1|(),
                    |IGP=|40|(n), MNP=|0.25|, SCP=|0|(min),
                    |Impervious surfaces: |IAimp=|1.57|(mm), SLPI=|1|(),
                    |IGI=|50.3|(n), MNI=|0.045|, SCI=|0|(min),
                    |RAINFALL=[ ,  ,  ,  ,  ,  ,  ]|mm/hr| ,  END=-1
* ------------------|-------------------------------------------------------|
CALIB STANDHYD      |HYD=|"FR1D"|, DT=|5|min|, AREA=|0.52|(ha),
                    |XIMP |0.11|, TIMP |0.21|, DWF=|0|(cms), LOSS=|2|,
                    |SCS curve number CN=|71|,
                    |Pervious   surfaces: |Aper=|4.67|(mm), SLPP=|1|(),
                    |IGP=|40|(n), MNP=|0.25|, SCP=|0|(min),
                    |Impervious surfaces: |IAimp=|1.57|(mm), SLPI=|1|(),
                    |IGI=|50.3|(n), MNI=|0.045|, SCI=|0|(min),
                    |RAINFALL=[ ,  ,  ,  ,  ,  ,  ]|mm/hr| ,  END=-1
* ------------------|-------------------------------------------------------|
CALIB STANDHYD      |HYD=|"FR1E"|, DT=|5|min|, AREA=|0.63|(ha),
                    |XIMP |0.11|, TIMP |0.21|, DWF=|0|(cms), LOSS=|2|,
                    |SCS curve number CN=|71|,
                    |Pervious   surfaces: |Aper=|4.67|(mm), SLPP=|1|(),
                    |IGP=|40|(n), MNP=|0.25|, SCP=|0|(min),
                    |Impervious surfaces: |IAimp=|1.57|(mm), SLPI=|1|(),
                    |IGI=|65.8|(n), MNI=|0.045|, SCI=|0|(min),
                    |RAINFALL=[ ,  ,  ,  ,  ,  ,  ]|mm/hr| ,  END=-1
*|
CALIB STANDHYD      |HYD=|"FR5A"|, DT=|5|min|, AREA=|0.66|(ha),
                    |XIMP=|0.11|, TIMP=|0.21|, DWF=|0|(cms), LOSS=|2|,
                    |SCS curve number CN=|71|,
                    |Pervious   surfaces: |Aper= |4.67|(mm), SLPP=|1|(),
                    |IGP= |40|(n), MNP |0.25|, SCP=|0|(min),
                    |Impervious surfaces: |IAimp=|1.57|(mm), SLPI=|1|(),
                    |IGI=|60.7|(n), MNI=|0.045|, SCI |0|(min),
                    |RAINFALL=[ ,  ,  ,  ,  ,  ,  ]|mm/hr| ,  END= .
* ------------------|-------------------------------------------------------|
CALIB STANDHYD      |HYD=|"FR5B"|, DT=|5|min|, AREA=|0.48|(ha),
                    |XIMP |0.11|, TIMP |0.21|, DWF |0|(cms), LOSS |2|,
                    |SCS curve number CN=|71|,
                    |Pervious   surfaces: |Aper |4.67|(mm), SLPP |1|(),
                    |IGP= 40|(n), MNP=|0.25|, SCP=|0|(min),
                    |Impervious surfaces: |IAimp=|1.57|(mm), SLPI |1|(),
                    |IGI=|55.4|(n), MN=.0.045|, SCI=|0|(min),
                    |RAINFALL=[ ,  ,  ,  ,  ,  ,  ]|mm/hr| ,  END= 1
*|-----------------|-------------------------------------------------------|
CALIB STANDHYD      |HYD=|"FR5A"|, DT=|5|min|, AREA=|1.13|(ha),
                    |X.XX=|0.11|, TIMP=|0.21|, DWF=|0|(cms), LOSS=|2|,
                    |SCS curve number CN=|71|,
                    |Pervious   surfaces: |Aper=|4.67|(mm), SLPP=|1|(),
                    |IGP= |40|(n), MNP=|0.25|, SCP=|0|(min),
                    |Impervious surfaces: |IAimp=|1.57|(mm), SLPI=|1|(),
                    |IGI=|55.0|(n), MNI=|0.045|, SCI |0|(min),
                    |RAINFALL=[ ,  ,  ,  ,  ,  ,  ]|mm/hr| ,  END=-1
*|-----------------|-------------------------------------------------------|
*| Tlag and Xlag based on total pond area
*| Ximp = 0 pond/A rer
*| Timp = weighted average of pond and backyards
CALIB STANDHYD      |HYD=|"FR5C"|, DT=|5 |min|, AREA=|5.63|(ha),
                    |X.XX=|0.64|, TIMP=|0.47|, DWF=|0|(cms), LOSS=|0|,
                    |SCS curve number CN=|71|,
                    |Pervious   surfaces: |Aper=|4.67|(mm), SLPP=|1|(),
                    |IGP= |40|(n), MNP=|0.25|, SCP=|0|(min),
                    |Impervious surfaces: |IAimp= 1.57|(mm), SLPI =|1|(),
                    |IGI=|80. |(n), MNI=|0.035|, SCI=|0|(min),
                    |RAINFALL=[ ,  ,  ,  ,  ,  ,  ]|mm/hr| ,  END=-1
*|-----------------|-------------------------------------------------------|
*|*****************************************************************
*| CONTROLLED AREAS
*|*****************************************************************
*|
CALIB STANDHYD      |HYD=|"FR7A"|, DT=|5|min|, AREA=|1.35|(ha),
                    |XIMP |0.02|, TIMP=|0.14|, DWF=|0|(cms), LOSS=|0|,
                    |SCS curve number CN=|71|,
                    |Pervious   surfaces: |Aper |1.67|(mm), SLPP=|1|(),
                    |IGP=|40|(n), XMP |0.25|, SCP=|0|(min),
                    |Impervious surfaces: |IAimp=|1.57|(mm), SLPI=|1|(),
                    |IGI=|94.9 |(n), MNI=|0.035|, SCI |0|(min),
                    |RAINFALL=[ ,  ,  ,  ,  ,  ,  ]|mm/hr| ,  END=-1
*|-----------------|-------------------------------------------------------|
CALIB STANDHYD      |HYD |"FR7B1"|, DT |5|min|, AREA=|0.36|(ha),
                    |XIMP=|0.02|, TIMP |0.14|, DWF |0|(cms), LOSS=|2|,
                    |SCS curve numbe= CN=|71|,
                    |Pervious   surfaces: |Aper=|4.67|(mm), SLPP=|1|(),
                    |IGP=|40|(n), MNP=|0.25|, SCP=|0|(min),
                    |Impervious surfaces: |IAimp=|1.57|(mm), SLPI=|1|(),
                    |IGI= |95.0|(n), MNI |0.045|, SCI=|0|(min),
                    |RAINFALL=[ ,  ,  ,  ,  ,  ,  ]|YR/HR| ,  END=-1
*|-----------------|-------------------------------------------------------|
CALIB STANDHYD      |HYD=|"FR7B2"|, DT=|5|min|, AREA=|0.77|(ha),
                    |XIMP=|0.02|, TIMP=|0.14|, DWF=|0|(cms), LOSS=|2|,
                    |S.S Curve number CN=|71|,
                    |Pervious   surfaces: |Aper=|4.67|(mm), SLPP=|1|(),
                    |IGP=|40|(n), MNP=|0.25|, SCP=|0|(min),
                    |Impervious surfaces: |IAimp=|1.57|(mm), SLPI=|1|(),
                    |IGI= |98.3|(n), MNI=|0.045|, SCI=|0|(min),
                    |RAINFALL=[ ,  ,  ,  ,  ,  ,  ]|YR/HR| ,  END=-1
*|-----------------|-------------------------------------------------------|
CALIB STANDHYD      |HYD=|"FR7C1"|, DT=|5|min|, AREA=|3.5|(ha),
                    |XIMP=|0.02|, TIMP=|0.14|, DWF=|0|(cms), LOSS=|2|,
                    |SCS Curve number CN=|71|,
                    |Pervious   surfaces: |Aper=|4.67|(mm), SLPP=|1|(),
                    |IGP=|40|(n), MNP=|0.25|, SCP=|0|(min),
                    |Impervious surfaces: |IAimp=|1.57|(mm), SLPI=|1|(),
                    |IGI=|51.0|(n), MNI |0.045|, SCI=|0|(min),
                    |RAINFALL=[ ,  ,  ,  ,  ,  ,  ]|YR/HR| ,  END=-1
*|-----------------|-------------------------------------------------------|
CALIB STANDHYD      |HYD=|"FR7C2"|, DT=|5|min|, AREA=|0.17|(ha),
                    |XIMP |0.02|, TIMP |0.14|, DWF |0|(cms), LOSS=|2|,
                    |SCS curve number CN=|71|,
                    |Pervious   surfaces: |Aper |0.67|(mm), SLPP=|1|(),
                    |IGP=|40|(n), MNP=|0.25|, SCP |0|(min),
                    |Impervious surfaces: |IAimp= 1.57|(mm), SLPI=|1|(),
                    |IGI=|51.0|(n), MNI=|0.045|, SCI |0|(min),
                    |RAINFALL=[ ,  ,  ,  ,  ,  ,  ]|mm/hr| ,  END=-1
*|-----------------|-------------------------------------------------------|
```

```
CALIB STANDHYD      NHYD ["FR1D"], DT=[5](min), AREA=[0.40](ha),
                    XIMP [0.00], TIMP= 0.14], IMP=[0](ha), LOSS=[2],
                    SCS curve number CN=[71],
                    Pervious   surfaces: IAper=[4.87](mm), SLPP=[1](%),
                                        LGP=[40](m), MNP=[0.25], SCP=[0](min),
                    Impervious surfaces: IAimp=[1.57](mm), SLPI [1](%),
                                        LGI [47.7](m), MNI [0.015], SCI= 0](min),
                    RAINFALL=[ ,  ,  ,  ,  ](mm/hr) ,  END=-1
*-------------------|-------------------------------------------------------------|
CALIB STANDHYD      NHYD=["FR2A"], DT=[5](min), AREA=[1.58](ha),
                    XIMP [0.01], TIMP [0.07], IMP=[0](ha), LOSS=[2],
                    SCS curve number CN=[71],
                    Pervious   surfaces: IAper=[4.87](mm), SLPP=[1](%),
                                        LGP=[40](m), MNP [0.25], SCP [3](min),
                    Impervious surfaces: IAimp=[1.57](mm), SLPI [1](%),
                                        LGI=[55.9](m), MNI=[0.015], SCI=[0](min),
                    RAINFALL=[ ,  ,  ,  ,  ](mm/hr) ,  END=-1
*-------------------|-------------------------------------------------------------|
CALIB STANDHYD      NHYD= "FR3A" , DT=[5](min), AREA=[1.10](ha),
                    XIMP=[0.01], TIMP=[0.07], IMP=[2](ha), LOSS=[2],
                    SCS curve number CN=[71],
                    Pervious   surfaces: IAper=[4.87](mm), SLPP=[1](%),
                                        LGP=[40](m), MNP= 0.25 , SCP= 0](min),
                    Impervious surfaces: IAimp=[1.57](mm), SLPI=[1](%),
                                        LGI=[55.6](m), MNI=[0.045], SCI=[0](min),
                    RAINFALL=[ ,  ,  ,  ,  ](mm/hr) ,  END=-1
*-------------------|-------------------------------------------------------------|
CALIB STANDHYD      NHYL=["FR3E."], DT=[5](min), AREA=[0.23](ha),
                    XIMP=[0.01], TIMP=[0.07], IMP [2](ha), LOSS [2],
                    SCS curve number CN=[71],
                    Pervious   surfaces: IAper=[4.87](mm), SLPP=[1](%),
                                        LGP=[40](m), MNP=[0.25], SCP=[0](min),
                    Impervious surfaces: IAimp=[1.57](mm), SLPI=[1](%),
                                        LGI=[49.8](m), MN.=[0.045], SCI=[0](min),
                    RAINFALL=[ ,  ,  ,  ,  ](mm/hr) ,  END=-1
*-------------------|-------------------------------------------------------------|
CALIB STANDHYD      NHYD ["FR3E2"], DT=[5](min), AREA=[1.03](ha),
                    XIMP=[0.01], TIMP=[0.07], IMP=[0](ha), LOSS=[2],
                    SCS curve number CN=[71],
                    Pervious   surfaces: IAper=[4.87](mm), SLPP=[1](%),
                                        LGP [40](m), MNP=[0.25], SCP=[0](min),
                    Impervious surfaces: IAimp=[1.57](mm), SLPI=[1](%),
                                        LGI=[ 0.0](m), MNI=[0.045], SCI= 0](min),
                    RAINFALL=[ ,  ,  ,  ,  ](mm/hr) ,  END=-1
*-------------------|-------------------------------------------------------------|
CALIB STANDHYD      NHYD=["FR1C"], DT=[5](min), AREA=[1.82](ha),
                    XIMP=[0.01], TIMP=[0.07], IMP=[0](ha), LOSS=[2],
                    SCS curve number CN=[71],
                    Pervious   surfaces: IAper=[4.87](mm), SLPP=[1](%),
                                        LGP=[40](m), MNP [0.25], SCP [3](min),
                    Impervious surfaces: IAimp=[1.57](mm), SLPI=[1](%),
                                        LGI=[47.7](m), MNI=[0.015], SCI= 0](min),
                    RAINFALL=[ ,  ,  ,  ,  ](mm/hr) ,  END=-1
*-------------------|-------------------------------------------------------------|
*|*************************************************************************
*& Existing Flow - Upstream of Residential Area Phase 1 and 2
*|*************************************************************************
*$ Typical Section based on proposed channel provided by AEL
*& All bank slopes, Long Slope = 0.50%, Manning's n is 0.03
*& Route EX1 to D/S node RD
ROUTE CHANNEL       RHYDout["REX1" ,NHYDin ["RX1"] ,
                    RDT=[5](min),
                    CHLATH=[517](m),  CHSLOPE=[0.50](%),
                                      FPSLOPE=[0.50](%),
                    SECNUM=[1],       NSEG=[1]
                    ( SEGROUGH, SEGDIST (m)[=[0.03,0.0] NSEG times
                    ( DISTANCE (m), ELEVATION (m)[=[0,     1.00]
                                                  [ 4.5,   0.00]
                                                  [ 5.5,   0.00]
                                                  [ 10.0,  1.00]
*-------------------|-------------------------------------------------------------|
*& Total flow at node RD
*& (Note that EX2 will be sheet draining to proposed channel)
ADD HYD             RHYDsum["RD"], RHYDs to add ["REX2A"+"REX1"+"FR5B1"
                                                +"FR5B2"+"EX2",
*-------------------|-------------------------------------------------------------|
*$ Typical Section based on proposed channel provided by AEL
*& All bank slopes, Long Slope = 0.50%, Manning's n is 0.03
*& Route EX2 draining at RD to d/s node N-2RC
ROUTE CHANNEL       RHYDout=["RD"] ,NHYDin=["RC"] ,
                    RDT=[5](min),
                    CHLSID [326](m),  CHSLOPE [0.50](%),
                                      FPSLOPE [0.50](%),
                    SECNUM [2],       NSEG [1]
                    ( SEGROUGH, SEGDIST (m)[ (0.03,10.0) NSEG times
                    ( DISTANCE (m), ELEVATION (m)[=[0,     1.00]
                                                  [ 4.5,   0.00]
                                                  [ 5.5,   0.00]
                                                  [ 10.0,  1.00]
*-------------------|-------------------------------------------------------------|
*& Total flow at node N-RC2
ADD HYD             RHYDsum ["NEX2"], RHYDs to add ["RC2"+"FR1C"]
*-------------------|-------------------------------------------------------------|
*& Route Node N-EX2 to Node N1
*& Typical Section based on Skiview MH 9ca ditch fill banks
*& provided by Attel
*& Manning's n is Channel not maintained, light brush on banks
*& Slope = 0.05% as per plan provided by Attel
ROUTE CHANNEL       RHYDout=["RNEX2" ,NHYDin=["NEX2"] ,
                    RDT=[5](min),
                    CHLGTH=[223](m),  CHSLOPE=[0.05](%),
                                      FPSLOPE [0.05](%),
                    SECNUM [3],       NSEG [3]
                    ( SEGROUGH, SEGDIST (m)[ (0.03,6.0 -0.035,6.0 0.05,51.80] NSEG times
                    ( DISTANCE (m), ELEVATION (m)[ (0,    85.00]
                                                  [0.0,  85.53]
                                                  [0.50,  85.53]
                                                  [0.50,  85.53]
                                                  [10.50, 84.93]
                                                  [12.40, 85.80]
                                                  [51.80, 85.90]
*-------------------|-------------------------------------------------------------|
*|*************************************************************************
*& Residential Development - Phase 1 and 2
*|*************************************************************************
*& Peak flow at node N-R1A
ADD HYD             RHYDsum "NR1A" , RHYDs to add "FR3A"+"FR3B"+"EX4"
*-------------------|-------------------------------------------------------------|
*& Route Node NR1A to Node N-FR1
*& Typical Section based on McEvoy Avenue 9ca Ditch 1.5:1 slopes
*& provided by Attel
*& Manning's n is Channel not maintained, light brush on banks
*& Slope = 0.6%, approximate y as per Attel drawing (86-10.1)/100m
ROUTE CHANNEL       RHYDout="RNR1A" ,NHYDin["NR1A"] ,
                    RDT=[5](min),
                    CHLOCH [318](m),  CHSLOPE [0.60](%),
                                      FPSLOPE [0.60](%),
                    SECNUM=[1],       NSEG=[1]
                    ( SEGROUGH, SEGDIST (m)[=[0.050,41.00] NSEG times
                    ( D STANCE (m), ELEVATION (m)[=[0,     85.15]
                                                  [ 7.00,  85.15]
                                                  [ 8.41,  84.30]
                                                  [ 9.41,  85.30]
                                                  [48.80,  85.90]
*-------------------|-------------------------------------------------------------|
*& Total flow at node N-FR1
ADD HYD             RHYDsum["NFR1"], RHYDs to add ["FR1"+"RNR1B"+"FR1A"]
*-------------------|-------------------------------------------------------------|
*& Volume to ponding area is FR1
```

```
*# Q=0.550 m3/s required as per SCS 100yr Existing conditions
*# Culvert from inlet 1
*# Assuming outlet culvert is 600 mm, slope = 1.2 , HDPE smooth walls
*# Manning's n = 0.012, inlet control nomograph
*# Hydraulic head = 0.9m, Q=0.410
COMPUTE DUALHYD           NHYDin=["PEX1"], CINLET=[0.410](cms), NINLET=[1],
                          MajNHYD=["MPK1M"]
                          MinNHYD=["MPK1Mn"]
                          TMJSTO=[99999](cu-m)
*%-----------------|------------------------------------------------------|
*# Input to inlet 1 pipe
ADD HYD                   NHYDsum=["In1"], NHYDs to add=["PR1B"+"MPK1Mn"]
*%-----------------|------------------------------------------------------|
*# Pipe from inlet 1 - Route to pond
*# HDPE smooth wall pipe Manning's n = 0.012
ROUTE PIPE                PTYPE=[1]circ, NHYDout=["Pin1"] ,NNUMBER=[1],
                          PDIAM=[600](mm), PLENGTH=[65](m),
                          PROUGH=[0.012], PSLOPE=[0.016](m/m), NHYDin=["In1"] ,
                          RDT=[5](min)
*%-----------------|------------------------------------------------------|
*# Culvert from inlet 2
*# HDPE smooth wall pipe Manning's n = 0.012
ROUTE PIPE                PTYPE=[1]circ, NHYDout=["CIn2"] ,NNUMBER=[1],
                          PDIAM=[300](mm), PLENGTH=[17.5](m),
                          PROUGH=[0.012], PSLOPE=[0.034](m/m), NHYDin=["PR2A"] ,
                          RDT=[5](min)
*%-----------------|------------------------------------------------------|
*# Input to inlet 2 pipe
ADD HYD                   NHYDsum=["In2"], NHYDs to add=["PR2B"+"CIn2"]
*%-----------------|------------------------------------------------------|
*# Pipe from inlet 2 - Route to pond
*# HDPE smooth wall pipe Manning's n = 0.012
ROUTE PIPE                PTYPE=[1]circ, NHYDout=["Pin2"] ,NNUMBER=[1],
                          PDIAM=[300](mm), PLENGTH=[75](m),
                          PROUGH=[0.012], PSLOPE=[0.002](m/m), NHYDin=["In2"] ,
                          RDT=[5](min)
*%-----------------|------------------------------------------------------|
*# Culvert from inlet 3
*# HDPE smooth wall pipe Manning's n = 0.012
ROUTE PIPE                PTYPE=[1]circ, NHYDout=["CIn3"] ,NNUMBER=[1],
                          PDIAM=[500](mm), PLENGTH=[12.5](m),
                          PROUGH=[0.012], PSLOPE=[0.004](m/m), NHYDin=["PR3A"] ,
                          RDT=[5](min)
*%-----------------|------------------------------------------------------|
*# Input to inlet 3 pipe
ADD HYD                   NHYDsum=["In3"], NHYDs to add=["PR3B"+"CIn3"]
*%-----------------|------------------------------------------------------|
*# Pipe from inlet 3 - Route to pond
*# HDPE smooth wall pipe Manning's n = 0.012
ROUTE PIPE                PTYPE=[1]circ, NHYDout=["Pin3"] ,NNUMBER=[1],
                          PDIAM=[500](mm), PLENGTH=[35](m),
                          PROUGH=[0.012], PSLOPE=[0.002](m/m), NHYDin=["In3"] ,
                          RDT=[5](min)
*%-----------------|------------------------------------------------------|
*# Culvert from inlet 4
*# HDPE smooth wall pipe Manning's n = 0.012
ROUTE PIPE                PTYPE=[1]circ, NHYDout=["CIn4"] ,NNUMBER=[1],
                          PDIAM=[500](mm), PLENGTH=[12.5](m),
                          PROUGH=[0.012], PSLOPE=[0.004](m/m), NHYDin=["PR4A"] ,
                          RDT=[5](min)
*%-----------------|------------------------------------------------------|
*# Input to inlet 4 pipe
ADD HYD                   NHYDsum=["In4"], NHYDs to add=["PR4B"+"CIn4"]
*%-----------------|------------------------------------------------------|
*# Pipe from inlet 4 (ULTIMATE CONDITIONS) - Route to pond
*# HDPE smooth wall pipe Manning's n = 0.012
ROUTE PIPE                PTYPE=[1]circ, NHYDout=["Pin4"] ,NNUMBER=[1],
                          PDIAM=[500](mm), PLENGTH=[45](m),
                          PROUGH=[0.012], PSLOPE=[0.019](m/m), NHYDin=["In4"] ,
                          RDT=[5](min)
*%-----------------|------------------------------------------------------|
*# Culvert from inlet 5
*# HDPE smooth wall pipe Manning's n = 0.012
ROUTE PIPE                PTYPE=[1]circ, NHYDout=["CIn5"] ,NNUMBER=[1],
                          PDIAM=[500](mm), PLENGTH=[12.5](m),
                          PROUGH=[0.012], PSLOPE=[0.004](m/m), NHYDin=["PR5A"] ,
                          RDT=[5](min)
*%-----------------|------------------------------------------------------|
*# Input to inlet 5 pipe
ADD HYD                   NHYDsum=["In5"], NHYDs to add=["PR5B"+"CIn5"]
*%-----------------|------------------------------------------------------|
*# Pipe from inlet 5 - Route to pond
*# HDPE smooth wall pipe Manning's n = 0.012
ROUTE PIPE                PTYPE=[1]circ, NHYDout=["Pin5"] ,NNUMBER=[1],
                          PDIAM=[500](mm), PLENGTH=[55](m),
                          PROUGH=[0.012], PSLOPE=[0.016](m/m), NHYDin=["In5"] ,
                          RDT=[5](min)
*%-----------------|------------------------------------------------------|
*# Culvert from inlet 6
*# HDPE smooth wall pipe Manning's n = 0.012
ROUTE PIPE                PTYPE=[1]circ, NHYDout=["CIn6"] ,NNUMBER=[1],
                          PDIAM=[500](mm), PLENGTH=[12.5](m),
                          PROUGH=[0.012], PSLOPE=[0.004](m/m), NHYDin=["PR6A"] ,
                          RDT=[5](min)
*%-----------------|------------------------------------------------------|
*# Input to inlet 6 pipe
ADD HYD                   NHYDsum=["In6"], NHYDs to add=["PR6B"+"CIn6"]
*%-----------------|------------------------------------------------------|
*# Pipe from inlet 6 - Route to pond
*# HDPE smooth wall pipe Manning's n = 0.012
ROUTE PIPE                PTYPE=[1]circ, NHYDout=["Pin6"] ,NNUMBER=[1],
                          PDIAM=[500](mm), PLENGTH=[70](m),
                          PROUGH=[0.012], PSLOPE=[0.003](m/m), NHYDin=["In6"] ,
                          RDT=[5](min)
*%-----------------|------------------------------------------------------|
*# VOLUME TO POND ULTIMATE RESIDENTIAL
ADD HYD                   NHYDsum=["PONDin"], NHYDs to add=["Pin1"+"Pin2"+"Pin3"
                                +"Pin4"+"Pin5"+"Pin6"+"Pdu"]
*%                 |------------------------------------------------------|
*%TEST TO KNOW FLOW PRODUCED BY EXTERNAL AREAS cinlet=0.001
*%COMPUTE DUALHYD         NHYDin=["PONDin"], CINLET=[0.001](cms), NINLET=[1],
*%                        MajNHYD=["PDMj"]
*%                        MinNHYD=["PDMn"]
*%                        TMJSTO=[99999](cu-m)
*%-----------------|------------------------------------------------------|
*#  Pond outflow for ultimate conditions using weir (6, 16) 3.0
ROUTE RESERVOIR           NHYDout=["PDout"] ,NHYDin=["PONDin"] ,
                          RDT=[5](min),
                                TABLE of ( OUTFLOW-STORAGE ) values
                                          (cms) - (ha-m)
                                        [  0.0 ,  0.0  ]
                                         0.0114 0.0790
                                         0.0163 0.1019
                                         0.0319 0.1582
                                         0.0377 0.2006
                                         0.0619 0.3212
                                         0.0967 0.4069
                                         0.1261 0.4919
                                         0.1561 0.5781
                                         0.1925 0.6655
                                         0.2443 0.7541
                                         0.3389 0.8440
                                         0.4669 0.9321
                                         0.7682 1.1210
                                         1.1129 1.3118
                                         1.5736 1.5097
                                         2.0521 1.7086
                                         2.8480 2.0159
                                        [  -1  ,  -1  ]  (max twenty pts)
                                NHYDovf ["ovf0"] ,
*%-----------------|------------------------------------------------------|
*# Simulating SCS 100 yr conditions with submergence of outflow weir
*# Updated for weir (6, 16) 3.0
*% and elevations: SCS100 is in channel = 85.35
*%                                   POND XL = 85.70
*%                            TOP of POND XL = 85.90
*#ROUTE RESERVOIR         NHYDout=["PDout"] ,NHYDin=["PONDin"] ,
*#                        RDT=[5](min),
*#                              TABLE of ( OUTFLOW-STORAGE ) values
*#                                        (cms) - (ha-m)
*#                                      [  0.0 ,  0.0 ]
*#                                       0.0038  , 1.1700
*#                                       0.20    , 1.8115
*#                                       0.33    , 2.0150
*#                                      [  -1  ,  -1  ]  (max twenty pts)
*#                              NHYDovf ,"ovf0", ,
*%-----------------|------------------------------------------------------|
*# Route pond output through first set of pipes
*# 2 x 600 pipes simulated with 1 pipe of equivalent capacity (780 mm dia)
*  Does not take into account hydraulic head caused by Shields TD backwater
*# HDPE smooth wall pipe Manning's n = 0.012
ROUTE PIPE                PTYPE=[1]circ, NHYDout=["Pout"] ,NNUMBER=[1],
                          PDIAM=[780](mm), PLENGTH=[75](m),
                          PROUGH=[0.012], PSLOPE=[0.002](m/m), NHYDin=["PDout"] ,
                          RDT [5](min)
*%-----------------|------------------------------------------------------|
```

```
00665> *# Flow c/a of outlet culverts
00666> ADD HYD              KHYDsum= "FSout"[, NHYDs to add=["FR1B"+"FR27"+"FR28"+"FR2C."]
00667> *|-------------------|-------------------------------------------------------------|
00668> *| Route outflow through set of Culverts
00669> *| 2 x 600 culverts simulated with 1 culvert of equivalent capacity ( 750 mm Dia)
00670> *| CSPC smooth wall pipe Manning's n = 0.012
00671> ROUTE PIPE            SHAPE [1]<1to7>, NHYDout= ["Cout"] ,RUNMARK=[1],
00672>                       SHAPE=[750](mm), HEIGHT=[29.5](m),
00673>                       PROUGH=[0.012], PSLOPE=[0.024](m/m), NHYDin=["FSOUT"] ,
00674>                       RDT=[5](min)
00675> *|-------------------|-------------------------------------------------------------|
00676> *# Flow c/a of second set of outflow pipes
00677> ADD HYD              NHYDsum= ["Cout2"], NHYDs to add ["FR1C"+"FR2C2"-"Cout"]
00678> *|-------------------|-------------------------------------------------------------|
00679> *# Route outflow through second set of pipes
00680> *# 2 x 600 pipes simulated with 1 pipe of equivalent capacity (=780 mm dia)
00681> *# CSPC smooth wall pipe Manning's n = 0.012
00682> ROUTE PIPE            SHAPE [1]<1to7, NHYDout ["Cout2"] ,RUNMARK=[1],
00683>                       SHAPE [780] (mm), HEIGHT= 0 (m),
00684>                       PROUGH=[0.012], PSLOPE=[0.024 (m/m), NHYDin=["FSOUT"] ,
00685>                       RDT=[5](min)
00686> *|-------------------|-------------------------------------------------------------|
00687> *# Total flow at Node N1 (Vehicle MD along Sales Back Rd)
00688> ADD HYD              NHYDsum=["N1"], NHYDs to add=["NHYD"+("Pout2"-"NHYD"
00689>                                 +("FR1D"+"FR11")
00690> *|-------------------|-------------------------------------------------------------|
00691> *# ROUTE N1 to N2
00692> *# Typical Section based on Shields MD Vee Ditch 3:1 Banks
00693> *# provided by Ariel
00694> *# Manning's n is Channel not maintained, light brush on Banks
00695> *# Slope = 0.05% as per plan provided by Ariel.
00696> ROUTE CHANNEL         NHYDout= ["N2"] ,NHYDin=["N1"] ,
00697>                       RDT= 5 (min),
00698>                       CHLGTH=[349](m),  CHSLOPE=[0.05](%),
00699>                                         FPSLOPE=[0.05](%),
00700>                        SECNUM=[3],      NSEG [3]
00701>                        ( SEGLNGTH, SEGDIST (m)- [0.05,6.0 -0.05,6.6 0.05,51.80] NSEG lines
00702>                        ( DISTANCE (m), ELEVATION (m))-[0,    85.53]
00703>                                                      [6.6, 85.53]
00704>                                                      [6.60, 83.43]
00705>                                                      [8.60, 83.53]
00706>                                                      [10.50, 84.93]
00707>                                                      [12.40, 85.00]
00708>                                                      [51.80, 85.90]
00709> *|-------------------|-------------------------------------------------------------|
00710> *| VOLUME from residential area at NW interim
00711> ADD HYD              NHYDsum=["N2"], NHYDs to add=["N0A"-"Pond"]
00712> *|-------------------|-------------------------------------------------------------|
00713> *# Added VOLUME from external area contributing to N2
00714> ADD HYD              NHYDsum= ["N3"], NHYDs to add=["FR1"+"N1"-"FR5"+"FR6"
00715> *|-------------------|-------------------------------------------------------------|
00716> *| ROUTE N3 to Exit 1
00717> *| Typical Section based on Shields MD Vee Ditch 3:1 Banks
00718> *| provided by Ariel
00719> *| Manning's n is Channel not maintained, light brush on Banks
00720> *| Slope = 0.05% as per plan provided by Ariel.
00721> ROUTE CHANNEL         NHYDout= ["EX1"] ,NHYDin= ["N3"] ,
00722>                       RDT [5](min),
00723>                       CHLGTH=[115](m),  CHSLOPE=[0.05](%),
00724>                                         FPSLOPE=[0.05](%),
00725>                        SECNUM=[0.],     NSEG=[3]
00726>                        ( SEGLNGTH, SEGDIST (m)-[0.05,6.0 -0.05,6.6 0.05,51.80] NSEG lines
00727>                        ( DISTANCE (m), ELEVATION (m))-[0,    85.53]
00728>                                                      [6.6, 85.53]
00729>                                                      [8.30, 83.43]
00730>                                                      [8.60, 83.53]
00731>                                                      [10.50, 84.93]
00732>                                                      [12.40, 85.00]
00733>                                                      [51.80, 85.90]
00734> *|-------------------|-------------------------------------------------------------|
00735> *# Flow at Stantec node ECH.28 for comparison
00736> *# routed by pipe EX1
00737> ADD HYD              NHYDsum ["EX1&2"], NHYDs to add ["EX1"+"EX2"]
00738> *|-------------------|-------------------------------------------------------------|
00739> *# AREA CHECK
00740> *#
00741> ADD HYD              NHYDsum=["Total"], NHYDs to add="EX1"+"EX2"+"EX3"+"EX4"
00742>                                          +"EX5"+"EX6"+"EX7"+"FR1A"+"FR1C"
00743> ADD HYD              NHYDsum=["Tot2"], NHYDs to add-"Total"-"FR2A"-"FR2B"-"FR3A"
00744>                                 +"FR3B"+"FR1A"+"FR1B"+"FR2A"+"FR2B"]
00745> ADD HYD              NHYDsum=["Tot3"], NHYDs to add="Tot2"-"FR1A"-"FR1B"-"FR1D"
00746>                          ("FR1C"-"FR2C2"-"FR1C.1"-"FR2C2"-"FR2C"
00747> ADD HYD              NHYDsum=["Tot4"], NHYDs to add= "Tot3"-"FR11"+"FR9A"+"FR9B"
00748>                                 -"FR5a2"+"FR10"+"FR11"+"FR1"-"FR6"]
00749> ADD HYD              NHYDsum ["Tot5"], NHYDs to add=["Tot4"-"FR1A"+"FR1A"-"FR1A"
00750>                                 +"FR1C"
00751> *|-------------------|-------------------------------------------------------------|
00752> *|-------------------|-------------------------------------------------------------|
00753> *|-------------------|-------------------------------------------------------------|
00754> *|-------------------|-------------------------------------------------------------|
00755> *# Simulations with 4 hour Chicago from city of Ottawa
00756> START                TZERO=[0.0],   NSTORM [2],  NSTORM2 [1],  NRUN [2]
00757> *|                    "CH4H002%.str"] <--storm filename, one per line for NSTORM line
00758> *|-------------------|-------------------------------------------------------------|
00759> START                TZERO=[0.0 ,   NSTORM=[2],  NSTORM=[ ],  NRUN=[5]
00760> *                     "CH4H005%.str"] <--storm filename, one per line for NSTORM line
00761> *|                   |                                                             |
00762> START                TZERO=[0.0],   NSTORM=[2],  NSTORM=[2],  NRUN=[10]
00763> *|                    "CH4H010%.str"] <--storm filename, one per line for NSTORM line
00764> *|-------------------|-------------------------------------------------------------|
00765> START                TZERO=[0.0 ,   NSTORM=[2],  NSTORM=[ ],  NRUN=[25]
00766> *|                    "CH4H025%.str"] <--storm filename, one per line for NSTORM line
00767> *|-------------------|-------------------------------------------------------------|
00768> START                TZERO=[0.0],   NSTORM [2],  NSTORM [2],  NRUN [50]
00769> *                     "CH4H050%.str"] <--storm filename, one per line for NSTORM line
00770> *|                   |                                                             |
00771> START                TZERO=[0.0],   NSTORM=[2],  NSTORM=[1],  NRUN=[100]
00772> *|                    "CH4H100%.str"] <--storm filename, one per line for NSTORM line
00773> *|-------------------|-------------------------------------------------------------|
00774> *4 hour 24 hours type 2, from City of Ottawa
00775> START                TZERO [0.0],   NSTORM [2],  NSTORM [1],  NRUN [200]
00776> *                     ["SC24H02% .stm" <--storm filename, one per line for NSTORM line
00777> *|-------------------|-------------------------------------------------------------|
00778> START                TZERO=[0.0],   NSTORM=[2 ,  NSTORM=[1],  NRUN=[ 5]
00779> *                     ["SC24H05%.stm" <--storm filename, one per line for NSTORM line
00780> *|-------------------|-------------------------------------------------------------|
00781> START                TZERO=[0.0],   NSTORM=[2],  NSTORM=[1],  NRUN=[10]
00782> *                     ["SC24H10%.stm"] <--storm filename, one per line for NSTORM line
00783> *|-------------------|-------------------------------------------------------------|
00784> START                TZERO=[0.0],   NSTORM=[2],  NSTORM=[1],  NRUN=[100]
00785> *                     ["SC24H25% .stm" <--storm filename, one per line for NSTORM line
00786> *|-------------------|-------------------------------------------------------------|
00787> START                TZERO=[0.0],   NSTORM=[2],  NSTORM=[1],  NRUN=[250]
00788> *                     ["SC24H50%.stm" <--storm filename, one per line for NSTORM line
00789> *|-------------------|-------------------------------------------------------------|
00790> START                TZERO=[0.0],   NSTORM=[2],  NSTORM=[1],  NRUN=[500]
00791> *                     ["SC24H100%.stm"] <--storm filename, one per line for NSTORM line
00792> *|-------------------|-------------------------------------------------------------|
00793> *# Simulation with July 1, 1979 Historical Event, City of Ottawa
00794> START                TZERO=[0.0],   NSTORM=[2],  NSTORM=[ ],  NRE  N=[10]
00795> *                     ["1979070].stm"] <--storm filename, one per line for NSTORM line
00796> *|-------------------|-------------------------------------------------------------|
00797> FINISH
00798> FINISH
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00001> ------------------------------------------------------------------------
00002>
00003>  SSSSS   A    M   M   M   M   H   H   Y   Y   M   M   X   X   OOO         999    999  ----------
00004> S      A A   MM MM   MM MM   H   H   Y Y    MM MM   X X   O   O       9   9  9   9
00005>  SSSS  AAAAA  M M M   M M M   HHHHH    Y     M M M    X    O   O   ff  9   9  9   9  Ver5 Beta
00006>      S A   A  M   M   M   M   H   H    Y     M   M   X X   O   O      9999   9999  Sept 2008
00007> SSSSS  A   A  M   M   M   M   H   H    Y     M   M  X   X   OOO          9      9  ==========
00008>                                                                  9   9   9   9  # 2547402
00009>       StormWater Management Hydrologic Model                    999   999
00010>
00011>  ************************************************************************
00012>  ************************** SWMHYMO Ver5.02a ******************************
00013>  ******* A single event and continuous hydrologic simulation model  *******
00014>  *******     based on the principles of HYMO and its successors      *******
00015>  *******                    OTTHYMO-83 and OTTHYMO-89.               *******
00016>  ************************************************************************
00017>  ****** Distributed by:  J.F. Sabourin and Associates Inc.           *******
00018>  *******                    Ottawa, Ontario: (613) 727-5186          *******
00019>  *******                    Gatineau, Quebec: (819) 243-6858         *******
00020>  *******                    E-Mail : sabhyma@jfsa.com                *******
00021>  ************************************************************************
00022>
00023>  ------------+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+
00024>  ******* Licensed User: JFSAinc.                                     *******
00025>  *******                    in Ady City              SERIAL#:2547402  *******
00026>  ------------+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+
00027>
00028>  ************************************************************************
00029>  *******          ++++++ PROGRAM ARRAY DIMENSIONS ++++++          *******
00030>  *******          Maximum value for ID numbers  :     10          *******
00031>  *******          Num. number of rainfall points:  52560          *******
00032>  *******          Num. number of flow points    :  52560          *******
00033>  ************************************************************************
00034>
00035>  *** DESCRIPTION SUMMARY TABLE HEADERS (units depend on METOUT in START): ***
00036>  ***-------------------------------------------------------------------***
00037>  ***     ID: Hydrograph Identification numbers, (1-10).                ***
00038>  ***  HYD: Hydrograph reference number, (6 digits or characters).      ***
00039>  ***  AREA: Drainage area associated with hydrograph, (sq.i) or (ha.).  ***
00040>  *** QPEAK: Peak flow of simulated hydrograph, (ft**3/s) or (m**3/s).  ***
00041>  *** TpeakHrs hours is the date and time of the peak flow.             ***
00042>  ***  R.V.: Runoff volume of simulated hydrograph, (in) or (mm).       ***
00043>  *** R.C.: Runoff Coefficient of simulated hydrograph, (ratio).        ***
00044>  ***     *: see WARNING or NOTE message printed at end of run.         ***
00045>  ***    **: see  ERROR  message printed at end of run                  ***
00046>  ************************************************************************
00047>  ************************************************************************
00048>
00049> ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
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00051>  ************************************************************************
00052>
00053>  ********************  S U M M A R Y   O U T P U T  ********************
00054>  ************************************************************************
00055>  *       DATE: 2008-12-12     TIME: 09:43:59     RUN COUNTER: 001984      *
00056>  ************************************************************************
00057>  * Input  filename: Z:\PROJ\647-07\Design\SWMHYMO\COMMER-1\GRP2u2a.dat    *
00058>  * Output filename: c:\PROJ\647-07\Design\SWMHYMO\COMMER-1\GRP2u2a.out    *
00059>  * Summary filename: Z:\PROJ\647-07\Design\SWMHYMO\COMMER-1\GRP2u2a.sum   *
00060>  * User comment:                                                         *
00061>  * 1                                                                    *
00062>  * 2:                                                                   *
00063>  * 3:                                                                   *
00064>  ************************************************************************
00065>
00066>
00067> p***********************************************************************
00068> *  SWMHYMO Ver5.02/Jan 2001 <BETA> / INPUT DATA FILE                    *
00069> p***********************************************************************
00070> *  Project Name: [Greely Village Center]    Project Number: [647-07]
00071> *  Date        : 04-02-2008
00072> *  Modelled    : [AM]
00073> *  Company     : JFSAinc.
00074> *  License #   : 2547402
00075> p***********************************************************************
00076> *
00077> * SAMHYMO model of the Greely Village Center - Residential Area - Phase 2
00078> * Proposed Ultimate Conditions, OPTION B
00079> * Filename stands for: GRP2u2a  Greely, Residential, Phase 2, Ultimate v2 with
00080> *
00081> *  December 15, 2008
00082> *  "a" at the end of filenames Added July 1st 1999 Evert
00083> p***********************************************************************
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          [CN= 69.0: N= 3.00]
          [Tp= .13:DT= 5.00]
 001:0011-----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
    *  DESIGN NASHYD       01:R7A         3.15     .045 No_date    1:25    4.01 .181
          [CN= 69.0: N= 3.00]
          [Tp= .11:DT= 5.00]
 001:0012-----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
       DESIGN NASHYD       01:R7B         4.17     .043 No_date    1:30    4.01 .181
          [CN= 69.0: N= 3.00]
          [Tp= .20:DT= 5.00]
 001:0013-----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
       DESIGN NASHYD       01:R2B         2.21     .024 No_date    1:35    4.01 .181
          [CN= 69.0: N= 3.00]
          [Tp= .23:DT= 5.00]
****************************************************************
*...................................................................
* PROPOSED RESIDENTIAL SUBWATERSHEDS - Residential Area Phase 1 and 2
*...................................................................
* CN=69, as per Stantec see SC001.
* Tp estimated with Uplands Method.
 001:0014-----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
       DESIGN NASHYD       01:FX1         4.76     .055 No_date    1:40    4.01 .181
          [CN= 69.0: N= 3.00]
          [Tp= .18:DT= 5.00]
*...................................................................
* AREAS GOING TO POND
*...................................................................
*
 001:0015-----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
    *  CALIB STANDHYD      01:FR1A         .24     .004 No_date    1:20    6.00 .240
          [XIMP=.11:TIMP=.21]
          [LOSS= 2 :CN= 71.0]
          [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
          [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  40.:MNI=.045:SCI=   .0]
 001:0016-----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
       CALIB STANDHYD      01:FR1B         .55     .008 No_date    1:20    6.00 .240
          [XIMP=.11:TIMP=.21]
          [LOSS= 2 :CN= 71.0]
          [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  30.:MNP=.250:SCP=   .0]
          [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  47.:MNI=.045:SCI=   .0]
 001:0017-----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
       CALIB STANDHYD      01:FR2A        1.57     .023 No_date    1:20    6.00 .240
          [XIMP=.11:TIMP=.21]
          [LOSS= 2 :CN= 71.0]
          [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
          [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI= 102.:MNI=.045:SCI=   .0]
 001:0018-----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
       CALIB STANDHYD      01:FR2B        1.17     .017 No_date    1:20    6.00 .240
          [XIMP=.11:TIMP=.21]
          [LOSS= 2 :CN= 71.0]
          [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
          [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  88.:MNI=.045:SCI=   .0]
 001:0019-----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
    *  CALIB STANDHYD      01:FR3A         .15     .002 No_date    1:20    6.00 .240
          [XIMP=.11:TIMP=.21]
          [LOSS= 2 :CN= 71.0]
          [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
          [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  55.:MNI=.045:SCI=   .0]
 001:0020-----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
    *  CALIB STANDHYD      01:FR3B         .09     .001 No_date    1:20    6.00 .240
          [XIMP=.11:TIMP=.21]
          [LOSS= 2 :CN= 71.0]
          [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
          [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  59.:MNI=.045:SCI=   .0]
 001:0021-----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
       CALIB STANDHYD      01:FR3A         .71     .011 No_date    1:20    6.00 .240
          [XIMP=.11:TIMP=.21]
          [LOSS= 2 :CN= 71.0]
          [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
          [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  69.:MNI=.045:SCI=   .0]
 001:0022-----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
       CALIB STANDHYD      01:FR4a         .05     .010 No_date    1:20    6.00 .240
          [XIMP=.11:TIMP=.21]
          [LOSS= 2 :CN= 71.0]
          [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
          [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  66.:MNI=.045:SCI=   .0]
 001:0023-----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
       CALIB STANDHYD      01:FR4B         .66     .010 No_date    1:20    6.00 .240
          [XIMP=.11:TIMP=.21]
          [LOSS= 2 :CN= 71.0]
          [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
          [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  65.:MNI=.045:SCI=   .0]
 001:0024-----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
    *  CALIB STANDHYD      01:FR5B         .48     .007 No_date    1:20    6.00 .240
          [XIMP=.11:TIMP=.21]
          [LOSS= 2 :CN= 71.0]
          [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
          [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  56.:MNI=.045:SCI=   .0]
 001:0025-----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
       CALIB STANDHYD      01:FR5A         .43     .021 No_date    1:20    6.00 .240
          [XIMP=.11:TIMP=.21]
          [LOSS= 2 :CN= 71.0]
          [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
          [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  58.:MNI=.045:SCI=   .0]
 001:0026-----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
       CALIB STANDHYD      01:FR6B         .53     .014 No_date    1:20    6.00 .240
          [XIMP=.11:TIMP=.21]
          [LOSS= 2 :CN= 71.0]
          [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
          [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  50.:MNI=.045:SCI=   .0]
* Ximp estimated at 7% based on backyard swales.
* Timp and Ximp based on total pond area
* Ximp = A pond/A tot
* Timp = weighted average of pond and backyards
 001:0027-----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
       CALIB STANDHYD      01:P3d         5.53     .225 No_date    1:25   12.31 .492
          [XIMP=.07:TIMP=.47]
          [LOSS= 2 :CN= 71.0]
          [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
          [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI= 183.:MNI=.045:SCI=   .0]
*...................................................................
* UNCONTROLLED AREAS
*...................................................................
*
 001:0028-----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
    *  CALIB STANDHYD      01:FU1A        1.35     .004 No_date    2:05    4.29 .172
          [XIMP=.02:TIMP=.14]
          [LOSS= 2 :CN= 71.0]
          [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
          [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  95.:MNI=.045:SCI=   .0]
 001:0029-----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
    *  CALIB STANDHYD      01:FR7B1        .16     .001 No_date    2:00    4.29 .172
          [XIMP=.02:TIMP=.14]
          [LOSS= 2 :CN= 71.0]
          [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
          [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  49.:MNI=.045:SCI=   .0]
 001:0030-----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
    *  CALIB STANDHYD      01:FR7B2        .22     .001 No_date    2:03    4.29 .172
          [XIMP=.02:TIMP=.14]
          [LOSS= 2 :CN= 71.0]
          [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
          [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  38.:MNI=.045:SCI=   .0]
 001:0031-----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
    *  CALIB STANDHYD      01:FR7C1        .19     .002 No_date    2:00    4.29 .172
          [XIMP=.02:TIMP=.14]
          [LOSS= 2 :CN= 71.0]
          [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
          [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  51.:MNI=.045:SCI=   .0]
 001:0032-----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
    *  CALIB STANDHYD      01:FR7C2        .17     .001 No_date    2:00    4.29 .172
          [XIMP=.02:TIMP=.14]
          [LOSS= 2 :CN= 71.0]
          [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
          [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  34.:MNI=.045:SCI=   .0]
 001:0033-----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
    *  CALIB STANDHYD      01:FR7D         .30     .002 No_date    2:00    4.29 .172
          [XIMP=.02:TIMP=.14]
          [LOSS= 2 :CN= 71.0]
          [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
          [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  45.:MNI=.045:SCI=   .0]
 001:0034-----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
    *  CALIB STANDHYD      01:FR8         1.38     .007 No_date    2:05    3.80 .152
          [XIMP=.01:TIMP=.07]
          [LOSS= 2 :CN= 71.0]
          [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
          [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  95.:MNI=.045:SCI=   .0]
 001:0035-----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
    *  CALIB STANDHYD      01:FR9A        1.16     .006 No_date    2:05    3.80 .152
          [XIMP=.01:TIMP=.07]
          [LOSS= 2 :CN= 71.0]
          [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
          [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  85.:MNI=.045:SCI=   .0]
 001:0036-----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
    *  CALIB STANDHYD      01:FR8A1        .23     .001 No_date    2:00    3.80 .152
          [XIMP=.01:TIMP=.07]
          [LOSS= 2 :CN= 71.0]
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00333>       |Pervious     area: IApe= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0|
00334>       |Impervious   area: IAimp= 1.57:SLPI 1.00:LGI   1.:MNI=.035:SCI=   .0|
00335> 001:0021---------------ID:RH2>-------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
00336>  * CALIB STANDHYD     01:FR3>       1.04     .034 No date    2:05    3.86 .162
00337>       |XIMP= .01:TIMP=.01|
00338>       |CNSS= 2 :CN= 71.0|
00339>       |Pervious     area: IApe= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0|
00340>       |Impervious   area: IAimp= 1.57:SLPI 1.00:LGI   11.:MNI=.035:SCI=   .0|
00341> 001:0029---------------ID:RH3>-------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
00342>  * CALIB STANDHYD     01:FR1>       1.04     .034 No date    2:05    3.86 .162
00343>       |XIMP= .01:TIMP=.01|
00344>       |CNSS= 2 :CN= 71.0|
00345>       |Pervious     area: IApe= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0|
00346>       |Impervious   area: IAimp= 1.57:SLPI 1.00:LGI   11.:MNI=.035:SCI=   .0|
00347> 001:0039---------------ID:RH4>-------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
00348>  * CALIB STANDHYD     01:FR1>       1.04     .034 No date    2:05    3.86 .162
00349>       |XIMP= .01:TIMP=.01|
00350>       |CNSS= 2 :CN= 71.0|
00351>       |Pervious     area: IApe= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0|
00352>       |Impervious   area: IAimp= 1.57:SLPI 1.00:LGI   61.:MNI=.035:SCI=   .0|
00353> *********************************************************************
00354> * EXISTING Flow - Parcel at Residential Area Phase 1 and 2
00355> *********************************************************************
00356> * Typical Section based on proposed channel provided by AEL
00357> * 4:1 Bank slopes, Long slope   0.56%, Manning's n is 0.03
00358> * Route EX1 to W/S node N8
00359>  001:0010---------------ID:NEW1-------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
00360>      ROUTE CHANNEL   -> 02:EX1        24.62     .319 No date    1:45    5.11  n/a
00361>       |RC= 5.00  out= 01:EX2        24.62     .319 No date    1:50    5.11  n/a
00362>       |L/S/n=  312./ .060/.030|
00363>       |Vmax=  .678:Dmax=  .1240|
00364> * Total flow at N-R2A
00365> * (Note that R2A will be short during to proposed channel)
00366>  001:0061---------------ID:NEW2-------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
00367>      ADD HYD         + 02:R1E         9.43     .081 No date    1:55    4.01  n/a
00368>                      + 03:EX1        24.62     .319 No date    1:45    5.11  n/a
00369>                      + 04:FR9A        1.10     .006 No date    2:05    3.80  n/a
00370>       |T= 5.00|  SUM= 01:R2A       35.84    1.09 No date    1:55    4.00  n/a
00371> * Typical Section based on proposed channel provided by AEL
00372> * 4:1 Bank slopes, Long Slope = 0.00%, Manning's n is 0.03
00373> * Route to drainage at N-R2A to W/S node N2
00374>  001:0042---------------ID:NEW3-------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
00375>      ROUTE CHANNEL   -> 02:ER2A       35.84     .179 No date    1:45    4.00  n/a
00376>       |RT= 5.00| out= 01:R2A        35.84     .020 No date    1:50    4.00  n/a
00377>       |L/S/n=  442./ .030/.030|
00378>       |Vmax=  .499:Dmax=  .1260|
00379> * Total flow at node N8
00380> * (Route that EX2 will be sheet draining to proposed channel)
00381>  001:0043---------------ID:NEW3-------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
00382>      ADD HYD         + 02:R2A        35.84     .098 No date    1:50    4.00  n/a
00383>                      + 03:EX1        24.62     .319 No date    1:45    5.11  n/a
00384>                      + 04:FR9A        1.10     .006 No date    2:05    3.80  n/a
00385>                      + 05:FR9B2       1.06     .035 No date    2:05    3.80  n/a
00386>                      + 06:EX2         9.43     .055 No date    2:10    3.91  n/a
00387>       |T= 5.00|  SUM= 01:N8        48.46     .451 No date    1:45    4.55  n/a
00388> * Typical Section based on proposed channel provided by AEL
00389> * 4:1 Bank slopes, Long Slope = 0.00%, Manning's n is 0.03
00390> * Route to drainage at N8 to W/S node N-EX2
00391>  001:0044---------------ID:RH5>-------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
00392>      ROUTE CHANNEL   -> 02:N8        48.46     .451 No date    1:45    4.55  n/a
00393>       |RT= 5.00| out= 01:EX2        48.46     .438 No date    1:50    4.55  n/a
00394>       |L/S/n=  724./ .030/.030|
00395>       |Vmax=  .793:Dmax=  .124|
00396> * Total flow at node N-EX2
00397>  001:0045---------------ID:NEW3-------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
00398>      ADD HYD         + 02:EX2        48.46     .438 No date    1:50    4.55  n/a
00399>                      + 03:FR9B        1.84     .009 No date    2:05    3.80  n/a
00400>       |D/S= 5.00|  SUM= 01:NEX2      51.24     .438 No date    1:50    4.52  n/a
00401> * Route Node N-EX2 to Node N1
00402> * Typical Section based on Shields MD Vee Ditch 3:1 banks
00403> * provided by Atre:
00404> * Manning's n is Channel not maintained, input grass on banks
00405> * Slope = 0.05  as per plan provided by Atre:
00406>  001:0046---------------ID:RH7>-------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
00407>      ROUTE CHANNEL   -> 02:NEX2      51.24     .438 No date    1:50    4.52  n/a
00408>       |RT= 5.00| out= 01:NEX2       51.24     .047 No date    2:00    4.57  n/a
00409>       |L/S/n=  563./ .060/.035|
00410>       |Vmax=  .2274:Dmax=  .135|
00411> *********************************************************************
00412> * Residential Development - Phase 1 and 2
00413> *********************************************************************
00414> * Total flow at node N-P1B
00415>  001:0047---------------ID:NEW1-------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
00416>      ADD HYD         + 02:R1E         4.14     .043 No date    1:50    4.01  n/a
00417>                      + 04:R3B         2.31     .024 No date    1:55    4.01  n/a
00418>                      + 04:EX4          .50     .008 No date    1:20    5.79  n/a
00419>       |T= 5.00|  SUM= 01:R3B         6.95     .075 No date    1:50    4.11  n/a
00420> * Route Node R3B to Node N-PB1
00421> * Typical Section based on McEvoy Branch Vee Ditch 3.5:1 slopes
00422> * provided by Atre:
00423> * Manning's n is Channel not maintained, input grass on banks
00424> * Slope = 0.05  approximately as per Atre: drawing (Sr=6.1:318)
00425>  001:0048---------------ID:RH8>-------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
00426>      ROUTE CHANNEL   -> 02:R3B         6.95     .075 No date    1:50    4.11  n/a
00427>       |RT= 5.00| out= 01:FNB3B        6.95     .061 No date    1:55    4.13  n/a
00428>       |L/S/n=  318./ .060/.050|
00429>       |Vmax=  .413:Dmax=  .193|
00430> * Tota  flow at node N-PB1
00431>  001:0049---------------ID:NEW1-------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
00432>      ADD HYD         + 02:PB1         4.26     .023 No date    1:30    4.01  n/a
00433>                      + 03:FNB3B       6.85     .061 No date    1:45    4.15  n/a
00434>                      + 04:FR1A         .26     .004 No date    2:20    6.00  n/a
00435>       |T= 5.00|  SUM= 01:NFX1        11.35     .105 No date    1:55    4.14  n/a
00436> * Volume to ponding area in FX1
00437> * Q=0.55S ac/s required as per SCS 100yr Existing conditions
00438> * Culvert from Inlet 1
00439> * Assuming outlet culvert is 60" dia. slope   1.2 , HDPE smooth walls
00440> * Manning's n   0.012, inlet control nomograph
00441> * Hydrau ic head = 0.9m, Q=0.6(
00442>  001:0050---------------ID:NEW1-------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
00443>      COMPUTE QUALITY(D   01:NFX1        11.35     .105 No date    1:55    4.14  n/a
00444>        Major System /   02:NFXIMP       .00     .000 No date    0:00     .00  n/a
00445>        Minor System %   03:NFXIMn     11.35     .105 No date    1:55    4.14  n/a
00446>       [M]Syste=-.0003E-00, Vol=0.2Vol=-.0000E+00, N-Vol=    0, Pollut=Vol=    0.0:0:
00447> * Input to Inlet 1 pipe
00448>  001:0051---------------ID:NEW1-------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
00449>      ADD HYD         + 02:FR1B         .05     .004 No date    2:20    6.00  n/a
00450>                      + 03:NFX1MN     11.35     .105 No date    1:55    4.14  n/a
00451>       |T= 5.00|  SUM= 01:T1         11.40     .109 No date    1:55    4.22  n/a
00452> * Pipe from Inlet 1 - Route to pond
00453> * HDPE smooth wall pipe Manning's n = 0.012
00454>  001:0052---------------ID:NEW1-------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
00455>      ROUTE PIPE      -> 02:in1        11.40     .109 No date    1:55    4.22  n/a
00456>       |RT= 5.00| out= 01:Pin1       11.40     .109 No date    1:55    4.22  n/a
00457>       |L/S/n    55./1.600/.012|
00458>       |Vmax  2.073:Dmax=  .145|
00459>       |Tc=  .080:Dused=  .600|
00460> * Culvert from Inlet 2
00461> * HDPE smooth wall pipe Manning's n = 0.012
00462>  001:0053---------------ID:RH1>-------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
00463>      ROUTE PIPE      -> 02:FR2A        1.57     .023 No date    1:20    6.00  n/a
00464>       |RT= 5.00| out= 01:Pin2        1.57     .024 No date    1:20    6.00  n/a
00465>       |L/S/n=   5./ .400/.012|
00466>       |Vmax= .864:Dmax=  .100|
00467>       |Tc=  .500:Dused=  .600|
00468> * Input to Inlet 2 pipe
00469>  001:0054---------------ID:NEW1-------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
00470>      ADD HYD         + 02:FR2B         1.17     .019 No date    1:20    6.00  n/a
00471>                      + 03:in1         11.40     .109 No date    1:55    4.22  n/a
00472>       |T= 5.00|  SUM= 01:in2         12.58     .067 No date    1:50    4.87  n/a
00473> * Pipe from Inlet 2 - Route to pond
00474> * HDPE smooth wall pipe Manning's n = 0.012
00475>  001:0055---------------ID:RH1>-------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
00476>      ROUTE PIPE      -> 02:Pin2        2.74     .001 No date    1:20    6.01  n/a
00477>       |RT= 5.00| out= 01:Pin2        2.74     .000 No date    1:20    6.01  n/a
00478>       |L/S/n=   5./ .200/.012|
00479>       |Vmax= .7:1:Dmax=  .(6)|
00480>       |Tc=  .5(:Dused=  .(0)|
00481> * Culvert from Inlet 3
00482> * HDPE smooth wa l pipe Manning's n = 0.012
00483>  001:0056---------------ID:RH2>-------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
00484>      ROUTE PIPE      -> 02:FR3A         .46     .001 No date    1:20    6.00  n/a
00485>       |RT= 5.00| out= 01:Pin3         .46     .008 No date    1:20    6.00  n/a
00486>       |L/S/n=   13./ .400/.012|
00487>       |Vmax=  .5(7:Dmax=  .(6)|
00488>       |Tc=  .5(0:Dused=  .(0)|
00489> * Input to Inlet 3 pipe
00490>  001:0057---------------ID:RH3>-------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
00491>      ADD HYD         + 02:FR3B         .52     .009 No date    1:20    6.00  n/a
00492>                      + 03:in2         12.58     .067 No date    1:50    4.87  n/a
00493>       |T= 5.00|  SUM= 01:in3         13.10     .076 No date    1:50    4.78  n/a
00494> * Pipe from Inlet 3 - Route to pond
00495> * HDPE smooth wall pipe Manning's n = 0.012
00496>  001:0058---------------ID:RH4>-------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
00497>      ROUTE PIPE      -> 02:in3         .97     .015 No date    1:20    6.00  n/a
00498>       |RT= 5.00| out= 01:Pin3         .97     .015 No date    1:20    6.00  n/a
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        [L/S/n=   70./ .200/.012]
        [Vmax=  .540:Dmax=  .100]
        [Din=  .500:Dused=  .500]
 # Culvert from inlet 3
 # HDPE smooth wall pipe Manning's n = 0.012
 001:0059----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
       ROUTE PIPE     -> 02:FR3A        .71      .011 No_date    1:20    6.00  n/a
        [RDT= 5.00] out<- 01:Cin4       .71      .011 No_date    1:20    6.00  n/a
        [L/S/n=   13./ .400/.012]
        [Vmax=  .638:Dmax=  .070]
        [Din=  .500:Dused=  .500]
 # Input to inlet 4 pipe
 001:0060                ID:NHYD       AREA    QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
       ADD HYD           02:FR4B        .55      .010 No_date    1:20    6.00  n/a
                       + 03:Cin4        .71      .012 No_date    1:20    6.00  n/a
        [DT= 5.00]  SUM= 01:In4        1.36      .022 No_date    1:20    6.00  n/a
 # Pipe from inlet 4 (ULTIMATE CONDITIONS) - Route to pond
 # HDPE smooth wall pipe Manning's n = 0.012
 001:0061----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
       ROUTE PIPE     -> 02:In4        1.36      .022 No_date    1:20    6.00  n/a
        [RDT= 5.00] out<- 01:Pin4      1.36      .022 No_date    1:20    6.00  n/a
        [L/S/n=   65./1.500/.012]
        [Vmax= 1.345:Dmax=  .066]
        [Din=  .500:Dused=  .500]
 # Culvert from inlet 5
 # HDPE smooth wall pipe Manning's n = 0.012
 001:0062----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
       ROUTE PIPE     -> 02:FR5A        .66      .010 No_date    1:20    6.00  n/a
        [RDT= 5.00] out<- 01:Cin5       .66      .011 No_date    1:20    6.00  n/a
        [L/S/n=   14./ .400/.012]
        [Vmax=  .623:Dmax=  .067]
        [Din=  .500:Dused=  .500]
 # Input to inlet 5 pipe
 001:0063                ID:NHYD       AREA    QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
       ADD HYD           02:FR5B        .46      .007 No_date    1:20    6.00  n/a
                       + 03:Cin5        .66      .011 No_date    1:20    6.00  n/a
        [DT= 5.00]  SUM= 01:In5        1.12      .018 No_date    1:20    6.00  n/a
 # Pipe from inlet 5 - Route to pond
 # HDPE smooth wall pipe Manning's n = 0.012
 001:0064----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
       ROUTE PIPE     -> 02:In5        1.12      .018 No_date    1:20    6.00  n/a
        [RDT= 5.00] out<- 01:Pin5      1.12      .018 No_date    1:20    6.00  n/a
        [L/S/n=   75./1.400/.012]
        [Vmax= 1.301:Dmax=  .061]
        [Din=  .500:Dused=  .500]
 # Culvert from inlet 6
 # HDPE smooth wall pipe Manning's n = 0.012
 001:0065----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
       ROUTE PIPE     -> 02:FR6A       1.43      .021 No_date    1:20    6.00  n/a
        [RDT= 5.00] out<- 01:Cin6      1.43      .022 No_date    1:20    6.00  n/a
        [L/S/n=   13./ .400/.012]
        [Vmax=  .751:Dmax=  .095]
        [Din=  .500:Dused=  .500]
 # Input to inlet 6 pipe
 001:0066                ID:NHYD       AREA    QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
       ADD HYD           02:FR6B        .94      .014 No_date    1:20    6.00  n/a
                       + 03:Cin6       1.42      .022 No_date    1:20    6.00  n/a
        [DT= 5.00]  SUM= 01:In6        2.36      .036 No_date    1:20    6.00  n/a
 # Pipe from inlet 6 - Route to pond
 # HDPE smooth wall pipe Manning's n = 0.012
 001:0067----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
       ROUTE PIPE     -> 02:In6        2.36      .036 No_date    1:20    6.00  n/a
        [RDT= 5.00] out<- 01:Pin6      2.36      .036 No_date    1:20    6.00  n/a
        [L/S/n=   70./ .300/.012]
        [Vmax=  .834:Dmax=  .135]
        [Din=  .500:Dused=  .500]
 # VOLUME TO POND ULTIMATE RESIDENTIAL
 001:0068----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
       ADD HYD           02:Pin1       1.90      .029 No_date    1:15    6.31  n/a
                       + 03:Pin2       2.74      .040 No_date    1:20    6.01  n/a
                       + 04:Pin3        .97      .015 No_date    1:20    6.00  n/a
                       + 05:Pin4       1.36      .022 No_date    1:20    6.00  n/a
                       + 06:Pin5       1.12      .018 No_date    1:20    6.00  n/a
                       + 07:Pin6       2.36      .036 No_date    1:20    6.01  n/a
                       + 08:FR8        5.03      .225 No_date    1:15   12.31  n/a
        [DT= 5.00]  SUM= 01:PONDin    15.48      .413 No_date    1:15    8.87  n/a
 001:0069                ID:NHYD       AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
       ROUTE RESERVOIR -> 02:PONDin   15.48      .413 No_date    1:15    8.87  n/a
        [RDT= 5.00] out<- 01:Pout     15.48      .026 No_date    4:20    8.47  n/a
                 overflow <- 03:ovflw   .00      .000 No_date    0:00     .00  n/a
        {MxStoUsed=.1371E+00, TotOvfVol=.0000E+00, N-Ovf= 0, TotDurOvf= 0.hrs}
 # simulating 5:5 100 yr conditions with submergence of outflow weir
 # updated for weir (8: .6: 2.0

 #ROUTE RESERVOIR     NHYDout=["Pout"],NHYDin=["PONDin"],
 #                    RDT=[5](min),
 #                        TABLE of ( OUTFLOW-STORAGE ) values
 #                              (cms) - (ha-m)
 #                            [  0.0 ,  0.0  ]
 #                            [ 0.00001 , 1.1899 ]
 #                            [ 0.20   , 1.8110 ]
 #                            [ 0.33   , 2.0195 ]
 #                            [  -1  ,  -1  ]  (max twenty pts)
 #                        NHYDovf=["ovfg"],
 # Route pond output through first set of pipes
 # 2 x 600 pipes simulated with 1 pipe of equivalent capacity (~780 mm dia)
 # HDPE smooth wall pipe Manning's n = 0.012
 001:0070----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
       ROUTE PIPE     -> 02:Pout      15.48      .026 No_date    4:20    8.42  n/a
        [RDT= 5.00] out<- 01:Pout1    15.48      .026 No_date    4:20    8.47  n/a
        [L/S/n=   75./ .200/.012]
        [Vmax=  .608:Dmax=  .109]
        [Din=  .780:Dused=  .780]
 # Flow u/s of outlet culverts
 001:0071----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
       ADD HYD           02:FR7C1       .16      .002 No_date    2:00    4.29  n/a
                       + 03:FR7C2       .12      .001 No_date    2:00    4.29  n/a
                       + 04:Pout1     15.48      .026 No_date    4:20    4.17  n/a
        [DT= 5.00]  SUM= 01:Pout1     26.06      .027 No_date    4:15    4.34  n/a
 # Route outflow through set of culverts
 # 2 x 600 culverts simulated with 1 culvert of equivalent capacity (~780 mm dia
 # HDPE smooth wall pipe Manning's n = 0.012
 001:0072----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
       ROUTE PIPE     -> 02:Pout      26.06      .027 No_date    4:15    4.37  n/a
        [RDT= 5.00] out<- 01:Cout     26.06      .027 No_date    4:15    4.37  n/a
        [L/S/n=   13./ .400/.012]
        [Vmax=  .792:Dmax=  .093]
        [Din=  .780:Dused=  .780]
 # Flow u/s of second set of outflow pipes
 001:0073----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
       ADD HYD           02:FR7C1       .35      .002 No_date    2:00    4.29  n/a
                       + 03:FR7C2       .19      .001 No_date    2:00    4.29  n/a
                       + 04:Cout      26.06      .027 No_date    4:15    4.37  n/a
        [DT= 5.00]  SUM= 01:Pout2     26.62      .028 No_date    4:05    4.34  n/a
 # Route outflow through second set of pipes
 # 2 x 600 pipes simulated with 1 pipe of equivalent capacity (~780 mm dia)
 # HDPE smooth wall pipe Manning's n = 0.012
 001:0074----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
       ROUTE PIPE     -> 02:Pout2     26.62      .028 No_date    4:05    4.34  n/a
        [RDT= 5.00] out<- 01:PoutF    26.62      .028 No_date    4:05    4.34  n/a
        [L/S/n=   65./ .200/.012]
        [Vmax=  .623:Dmax=  .117]
        [Din=  .780:Dused=  .780]
 # Total flow at node N1 (Shields MD along Sales Barn Rd)
 001:0075----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
       ADD HYD           02:BNDX2     51.24      .187 No_date    2:00    4.52  n/a
                       + 03:PoutF     26.62      .028 No_date    2:05    5.33  n/a
                       + 04:EX7         .35      .007 No_date    1:20    4.15  n/a
                       + 05:FR7b        .60      .002 No_date    2:00    4.29  n/a
                       + 06:FR11        .62      .003 No_date    2:05    3.80  n/a
        [DT= 5.00]  SUM= 01:N1        79.17      .374 No_date    2:00    5.13  n/a
 # ROUTE N1 to N3
 # Typical Section based on Shields MD Vee Ditch 3:1 banks
 # provided by Aztec
 # Manning's n is channel not maintained, light brush on banks
 # slope = 0.35% as per plan provided by Aztec
 001:0076----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
       ROUTE CHANNEL  -> 02:N1        79.17      .374 No_date    2:00    5.13  n/a
        [RDT= 5.00] out<- 01:RN1      79.17      .258 No_date    2:20    5.13  n/a
        [L/S/n= 349./ .350/.035]
        [Vmax=  .256:Dmax=  .291]
 # VOLUME from residential area at N3 Interim
 001:0077----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
       ADD HYD           02:FR7A       1.35      .008 No_date    2:00    4.29  n/a
                       + 03:FR8        1.38      .007 No_date    2:05    3.80  n/a
        [DT= 5.00]  SUM= 01:N3i        2.73      .015 No_date    2:05    4.04  n/a
 # Added VOLUME from external area contributing to N3
 001:0078----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
       ADD HYD           02:RN1       79.17      .258 No_date    2:20    5.13  n/a
                       + 03:N3i        2.73      .015 No_date    2:05    4.04  n/a
                       + 04:EX5         .57      .002 No_date    1:20    5.63  n/a
                       + 05:EX6         .51      .001 No_date    1:20    5.56  n/a
        [DT= 5.00]  SUM= 01:N3        82.98      .267 No_date    2:20    5.13  n/a
 # ROUTE N3 to NC128
 # Typical Section based on Shields MD Vee Ditch 3:1 banks
 # provided by Aztec
 # Manning's n is channel not maintained, light brush on banks
```

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# Slope = 0.05  as per plan provided by Atrel.
001:0079-----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
    ROUTE CHANNEL  -> 02:R1          80.91     .107 No_date    2:20     5.12  n/a
    [RDT= 5.00] out<- 01:R6S         80.91     .150 No_date    2:45     5.12  n/a
      [L/S/n= 415./ .050/.035]
      [Vmax=  .255:Dmax=  .645]
# Flow at Stantec node NCR128 for comparison
# Routed Hr plus EX1
001:0080-----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
    ADD HYD               02:RE1         82.97     .150 No_date    2:15     5.12  n/a
                        + 03:EX1         21.30     .107 No_date    2:25     4.01  n/a
      [DT= 5.00]  SUM=   01:NCR128      104.27     .248 No_date    2:15     4.90  n/a
# AREA CHECK
#
001:0081-----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
    ADD HYD               02:EX1         24.62     .149 No_date    1:35     5.11  n/a
                        + 03:EX2          9.89     .052 No_date    2:10     4.01  n/a
                        + 04:EX3         21.33     .102 No_date    2:25     4.01  n/a
                        - 05:EX4           .53     .008 No_date    1:20     5.79  n/a
                        - 06:EX5           .57     .022 No_date    1:20     5.43  n/a
                        - 07:EX6           .51     .003 No_date    1:20     5.84  n/a
                        - 08:EX7           .39     .007 No_date    1:20     6.19  n/a
                        - 09:EF1A          .24     .004 No_date    1:20     6.00  n/a
                        - 10:EF1B          .55     .009 No_date    1:20     6.00  n/a
      [DT= 5.00]  SUM=   01:Tot1         58.72     .331 No_date    1:35     4.59  n/a
001:0082-----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
    ADD HYD               02:Tot1        58.72     .434 No_date    1:35     4.59  n/a
                        - 03:EX2A         1.17     .023 No_date    1:20     6.00  n/a
                        - 04:EX2B         1.17     .018 No_date    1:20     6.00  n/a
                        - 05:EF3A          .15     .007 No_date    1:20     6.00  n/a
                        - 06:EF3B          .72     .009 No_date    1:20     6.00  n/a
                        - 07:EX4A          .24     .011 No_date    1:20     6.00  n/a
                        - 08:EX4B          .45     .010 No_date    1:20     6.00  n/a
                        - 09:EX5A          .36     .010 No_date    1:20     6.00  n/a
                        - 10:EX5B          .46     .007 No_date    1:20     6.00  n/a
      [DT= 5.00]  SUM=   01:Tot2         61.71     .476 No_date    1:35     4.73  n/a
001:0083-----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
    ADD HYD               02:Tot2        61.71     .476 No_date    1:35     4.73  n/a
                        + 03:EX6A         1.43     .021 No_date    1:20     6.00  n/a
                        - 04:EX6B          .53     .014 No_date    1:20     6.00  n/a
                        - 05:EX7A         1.35     .068 No_date    2:00     4.29  n/a
                        + 06:ER7B1         .16     .002 No_date    2:00     4.29  n/a
                        + 07:ER7B2         .22     .001 No_date    2:00     4.29  n/a
                        + 08:ER7C1         .38     .002 No_date    2:00     4.29  n/a
                        + 09:ER7C2         .17     .001 No_date    2:00     4.29  n/a
                        + 10:ER7D          .10     .002 No_date    2:00     4.29  n/a
      [DT= 5.00]  SUM=   01:Tot3         59.56     .562 No_date    1:35     4.75  n/a
001:0084-----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
    ADD HYD               02:Tot3        59.56     .562 No_date    1:35     4.75  n/a
                        - 03:EF8          1.38     .067 No_date    2:05     3.80  n/a
                        - 04:EF9A         1.10     .006 No_date    2:05     3.80  n/a
                        - 05:EF9B1         .25     .061 No_date    2:00     3.80  n/a
                        + 06:EF9B2        1.00     .065 No_date    2:05     3.80  n/a
                        - 07:EX10         1.54     .069 No_date    2:05     3.80  n/a
                        - 08:EX11          .52     .063 No_date    2:05     3.80  n/a
                        + 09:EX1          6.26     .053 No_date    1:30     4.01  n/a
                        + 10:EDa          5.03     .225 No_date    1:25    12.31  n/a
      [DT= 5.00]  SUM=   01:Tot4         85.14     .744 No_date    1:30     5.09  n/a
001:0085-----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
    ADD HYD               02:Tot4        85.14     .744 No_date    1:30     5.09  n/a
                        - 03:R11          9.41     .087 No_date    1:40     4.01  n/a
                        + 04:R16          5.23     .046 No_date    1:25     4.01  n/a
                        + 05:R15          4.14     .047 No_date    1:30     4.01  n/a
                        + 06:R18          2.21     .021 No_date    1:35     4.01  n/a
      [DT= 5.00]  SUM=   01:Tot5        105.13     .932 No_date    1:30     4.50  n/a
#**************************************************************************************
# Simulations with 4 hour Chicago from City of Ottawa
  ** END OF RUN :    1

***************************************************************************************





 RUN:COMMAND#
 002:0001-------------------------------------------------------------------------------
    START
      [TZERO      .00 hrs on        0]
      [METOUT    2    (1 imperial, 2 metric output)]
      [NSTORM    1 ]
      [NRUN  =   2 ]
#**************************************************************************************
#  SWMHYMO Ver:5.02/Jan 2001 <BETA> / INPUT DATA FILE
#**************************************************************************************
#  Project Name: [Greely Village Center]     Project Number: [507-07]
#  Date         : 04-09-2008
#  Modeller     : [JHF]
#  Company      : JFSAinc.
#  License #    : 2507102
#**************************************************************************************
#
# SWMHYMO model of the Greely Village Center - Residential Area - Phase 2
# Proposed Ultimate conditions: OPTION B
# Filename stands for: GRP2u2a - Greely, Residential, Phase 2, Ultimate V2 Weir
#
#  December 15, 2008
#  "2" at the end of filename Added July 1st 1979 Event
#**************************************************************************************
 002:0002-------------------------------------------------------------------------------
    READ STORM
      Filename = storm.001
      Comment  =  2 years Chicago storm 4 hours step 10 min, City of Ottawa
      [SDT 10.00:SDUR=  4.00:PTOT=  33.89]
#**************************************************************************************
# Existing flow - McEvoy Branch of Shields Creek - Areas
# Area u/s of proposed development (residential)
# CN*=75, slope = 0.5, Ip=1.16, XIMP=0, TIMP=15, see SCHP3 as per Stantec
# Area partially adjusted based on Atrel drawings.
#**************************************************************************************
# u/s of Bank Street per Atrel - with modified boundaries and Tp.
 002:0003-----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
    DESIGN NASHYD          01:EX1        24.62     .070 No_date    2:35     8.96  .261
      [CN= 75.0: N= 3.00]
      [Tp=  .23:DT= 5.00]
#**************************************************************************************
# Existing flow - External areas u/s of Bank St.
# CN*=69, as per Stantec see SCO1.
# Area partially adjusted based on Atrel drawings.
#**************************************************************************************
# Areas External to development
 002:0004-----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
    DESIGN NASHYD          01:EX2         9.85     .100 No_date    2:10     7.16  .211
      [CN= 69.0: N= 3.00]
      [Tp=  .46:DT= 5.00]
 002:0005-----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
    DESIGN NASHYD          01:EX3        11.10     .185 No_date    2:20     7.15  .211
      [CN= 69.0: N= 3.00]
      [Tp=  .18:DT= 5.00]
# Slope, Timp, Area from Atrel Drawing
# CN from Stantec (SCO1)
# Ximp = Timp = 15
 002:0006-----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
    * CALIB STANDHYD       01:EX1          .50     .012 No_date    1:20     9.64  .285
      [XIMP=.15:TIMP=.22]
      [LOSS= 2 :CN= 69.0]
      [Pervious    area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=    .0]
      [Impervious  area: IAimp= 1.57:SLPI=1.00:LGI=  58.:MNI=.013:SCI=    .0]
# Road and road side ditch along projected residential development Parkway Rd
# Timp = Ximp = 0.2  ha /0.5  ha = 0.40
# CN*=69, as per Stantec see SCO1.
# Slope is estimated at 1%
# Ximp = Timp = 15
 002:0007-----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
    * CALIB STANDHYD       01:EX5          .52     .032 No_date    1:20    14.55  .431
      [XIMP=.40:TIMP=.40]
      [LOSS= 2 :CN= 69.0]
      [Pervious    area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=    .0]
      [Impervious  area: IAimp= 1.57:SLPI=1.00:LGI=  58.:MNI=.013:SCI=    .0]
# Road and road side ditch along projected residential development Salissaro Rd
# Timp = Ximp = 0.2  ha /0.5  ha = 0.40
# CN*=69, as per Stantec see SCO1.
# Slope is estimated at 1%
# Ximp = Timp = 15
 002:0008-----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
    * CALIB STANDHYD       01:EX6          .31     .011 No_date    1:20     9.56  .282
      [XIMP=.10:TIMP=.20]
      [LOSS= 2 :CN= 69.0]
      [Pervious    area: IAper= 4.67:SLPP=1.00:LGP=  18.:MNP=.250:SCP=    .0]
      [Impervious  area: IAimp= 1.57:SLPI=1.00:LGI=  50.:MNI=.013:SCI=    .0]
# Road and road side ditch along projected residential development SalesSarn Rd
# Timp = Ximp = 0.05 ha /0.39 ha = 0.23
# CN*=69, as per Stantec see SCO1.
# Slope is estimated at 1%
# Ximp = Timp = [illegible]
 002:0009-----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
```

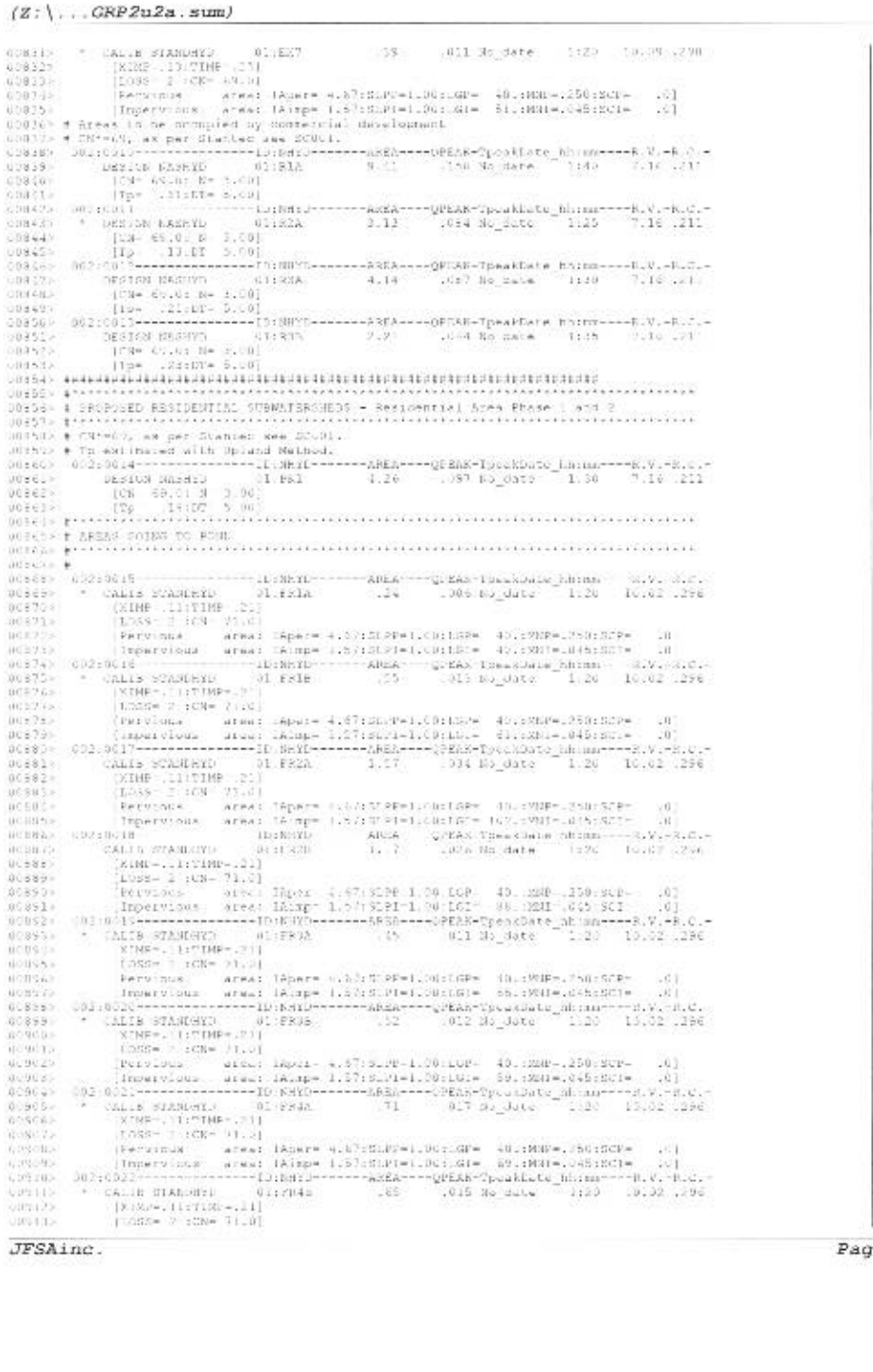

```
 * CALIB STANDHYD    01:PHSA       1.10     .013 No_date    1:50    7.11 .210
      [X:XL=-.01:TIME=.07]
      [Loss  2 :CN= 71.0]
      [Excvious     area: [Aper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
      [Ingcvious    area: [Aing= 1.57:SLPI=1.00:LGI=  84.:MNI=.045:SCI=   .0]
002:0037----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
 * CALIB STANDHYD    01:PHSB2      1.00     .012 No_date    1:50    7.11 .210
      [XIMP=.01:TIMP=.07]
      [Loss= 2 :CN= 71.0]
      [Pervious     area: [Aper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
      [Impervious   area: [Aimp= 1.57:SLPI=1.00:LGI=  84.:MNI=.045:SCI=   .0]
002:0038----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
 * CALIB STANDHYD    01:PHSB1      2.70     .032 No_date    1:50    7.11 .210
      [XIMP=.01:TIMP=.07]
      [Loss= 2 :CN= 71.0]
      [Pervious     area: [Aper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
      [Impervious   area: [Aimp= 1.57:SLPI=1.00:LGI=  84.:MNI=.045:SCI=   .0]
002:0039----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
 * CALIB STANDHYD    01:PH11       .62      .009 No_date    1:50    7.11 .210
      [XIMP=.01:TIMP=.07]
      [Loss= 2 :CN= 71.0]
      [Pervious     area: [Aper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
      [Impervious   area: [Aimp= 1.57:SLPI=1.00:LGI=  84.:MNI=.045:SCI=   .0]
********************************************************************************
* EXISTING flow - Upstream of Residential Area Phase 1 and 2
********************************************************************************
* Typical Section based on proposed channel provided by AEL
* 4:1 bank slopes, Long Slope = 0.5%, Manning's n is 0.03
* Route EX1 to d/s node N1
002:0040----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ROUTE CHANNEL  -> 02:EX1       24.62     .596 No_date    1:40    8.96 n/a
      [RDT= 5.00] out<- 01:EX1       24.62     .596 No_date    1:40    8.96 n/a
       [L/S/n= 412./ .500/.030]
       [Vmax= .798:Emax= .115]
* Total flow at N-2A
* Note that PIA will be short drainig to proposed channel
002:0041----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ADD HYD           02:PIA        9.01     .158 No_date    1:45    7.16 n/a
                     + 03:EX1       24.62     .596 No_date    1:40    8.96 n/a
                     + 04:PHSA       1.10     .013 No_date    1:50    7.11 n/a
                     + 05:PH11        .62     .009 No_date    1:50    7.11 n/a
      [D/= 5.00]  SUM= 01:NH2A      35.64     .776 No_date    1:45    7.16 n/a
* Typical Section based on proposed channel provided by AEL
* 4:1 bank slopes, Long Slope = 0.50%, Manning's n is 0.03
* Route SW draining at N-2A to d/s node N3
002:0042----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ROUTE CHANNEL  -> 02:NF2A      33.64     .731 No_date    1:45    7.16 n/a
      [RDT= 5.00] out<- 03:NHN2A     33.64     .731 No_date    1:45    7.16 n/a
       [L/S/n= 480./ .500/.030]
       [Vmax= .595:Emax= .174]
* Total flow at node N
* Note that EX1 will be short draining to proposed channel
002:0043----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ADD HYD           02:NH2A      33.64     .731 No_date    1:45    7.16 n/a
                     + 03:EX1       24.62     .596 No_date    1:40    8.96 n/a
                     + 05:PH5A       .95     .023 No_date    1:45    7.11 n/a
                     + 06:PH2N2      1.30     .032 No_date    1:50    7.11 n/a
                     + 08:EX2        9.82     .190 No_date    1:10    7.16 n/a
      [D2= 5.00]  SUM= 01:N0        68.40    1.847 No_date    1:40    8.06 n/a
* Typical Section based on proposed channel provided by AEL
* 4:1 bank slopes, Long Slope = 0.50%, Manning's n is 0.03
* Route SW draining at N0 to d/s node N-EX2
002:0044----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ROUTE CHANNEL  -> 02:N0        68.40    1.847 No_date    1:40    8.06 n/a
      [RDT= 5.00] out<- 01:N0        68.40    1.847 No_date    1:40    8.06 n/a
       [L/S/n= 324./ .500/.030]
       [Vmax= .666:Emax= .169]
* Total flow at node N-EX2
002:0045----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ADD HYD           02:NX2       68.40    1.847 No_date    1:45    8.06 n/a
                     + 03:PH10       1.84     .022 No_date    1:50    7.11 n/a
      [DT= 5.00]  SUM= 01:NX2       70.24    1.869 No_date    1:45    8.03 n/a
* Route Node N-EX2 to Node N1
* Typical Section based on Shale do Y3 Vee Ditch :  banks
* provided by Ainel
* Manning's n is Channel not maintained, light brush on banks
* Slope = 0.5% as per plan provided by Ainel.
002:0046----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ROUTE CHANNEL  -> 02:NX2       68.40    1.847 No_date    1:45    8.06 n/a
      [RDT= 5.00] out<- 01:N1        68.40    1.847 No_date    1:45    8.06 n/a
       [L/S/n= 324./ .500/.030]
       [Vmax= .666:Emax= .169]
* Total flow at node N1
* Typical Section based on proposed channel provided by AEL
* 4:1 bank slopes, Long Slope = 0.50%, Manning's n is 0.03
* Route SW draining at N1 to d/s node N-EX3
002:0047----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ROUTE CHANNEL  -> 02:N1        68.40    1.847 No_date    1:45    8.06 n/a
      [RDT= 5.00] out<- 01:N1        68.40    1.847 No_date    1:45    8.06 n/a
       [L/S/n= 324./ .500/.030]
       [Vmax= .666:Emax= .169]
* Total flow at node N-EX3
002:0048----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ADD HYD           02:NX3       68.40    1.847 No_date    1:45    8.06 n/a
                     + 03:PH12       1.84     .022 No_date    1:50    7.11 n/a
      [DT= 5.00]  SUM= 01:NX3       70.24    1.869 No_date    1:45    8.03 n/a
* Route Node N-EX3 to Node N2
* Typical Section based on Shale do Y3 Vee Ditch :  banks
* provided by Ainel
* Manning's n is Channel not maintained, light brush on banks
* Slope = 0.5% as per plan provided by Ainel.
002:0049----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ROUTE CHANNEL  -> 02:NX3       68.40    1.847 No_date    1:45    8.06 n/a
      [RDT= 5.00] out<- 01:N2        68.40    1.847 No_date    1:45    8.06 n/a
       [L/S/n= 324./ .500/.030]
       [Vmax= .666:Emax= .169]
* Total flow at node N2
* Typical Section based on proposed channel provided by AEL
* 4:1 bank slopes, Long Slope = 0.50%, Manning's n is 0.03
* Route SW draining at N2 to d/s node N-EX4
002:0050----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ROUTE CHANNEL  -> 02:N2        68.40    1.847 No_date    1:45    8.06 n/a
      [RDT= 5.00] out<- 01:N2        68.40    1.847 No_date    1:45    8.06 n/a
       [L/S/n= 324./ .500/.030]
       [Vmax= .666:Emax= .169]
* Total flow at node N-EX4
002:0051----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ADD HYD           02:NX4       68.40    1.847 No_date    1:45    8.06 n/a
                     + 03:PH13       1.84     .022 No_date    1:50    7.11 n/a
      [DT= 5.00]  SUM= 01:NX4       70.24    1.869 No_date    1:45    8.03 n/a
* Route Node N-EX4 to Node N3
* Typical Section based on Shale do Y3 Vee Ditch :  banks
* provided by Ainel
* Manning's n is Channel not maintained, light brush on banks
* Slope = 0.5% as per plan provided by Ainel.
002:0052----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ROUTE CHANNEL  -> 02:NX4       68.40    1.847 No_date    1:45    8.06 n/a
      [RDT= 5.00] out<- 01:N3        68.40    1.847 No_date    1:45    8.06 n/a
       [L/S/n= 324./ .500/.030]
       [Vmax= .666:Emax= .169]
* Total flow at node N3
* Typical Section based on proposed channel provided by AEL
* 4:1 bank slopes, Long Slope = 0.50%, Manning's n is 0.03
* Route SW draining at N3 to d/s node N-EX5
002:0053----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ROUTE CHANNEL  -> 02:N3        68.40    1.847 No_date    1:45    8.06 n/a
      [RDT= 5.00] out<- 01:N3        68.40    1.847 No_date    1:45    8.06 n/a
       [L/S/n= 324./ .500/.030]
       [Vmax= .666:Emax= .169]
* Total flow at node N-EX5
002:0054----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ADD HYD           02:NX5       68.40    1.847 No_date    1:45    8.06 n/a
                     + 03:PH14       1.84     .022 No_date    1:50    7.11 n/a
      [DT= 5.00]  SUM= 01:NX5       70.24    1.869 No_date    1:45    8.03 n/a
* Route Node N-EX5 to Node N4
* Typical Section based on Shale do Y3 Vee Ditch :  banks
* provided by Ainel
* Manning's n is Channel not maintained, light brush on banks
* Slope = 0.5% as per plan provided by Ainel.
002:0055----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ROUTE CHANNEL  -> 02:NX5       68.40    1.847 No_date    1:45    8.06 n/a
      [RDT= 5.00] out<- 01:N4        68.40    1.847 No_date    1:45    8.06 n/a
       [L/S/n= 324./ .500/.030]
       [Vmax= .666:Emax= .169]
* Total flow at node N4
* Typical Section based on proposed channel provided by AEL
* 4:1 bank slopes, Long Slope = 0.50%, Manning's n is 0.03
* Route SW draining at N4 to d/s node N-EX6
002:0056----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ROUTE CHANNEL  -> 02:N4        68.40    1.847 No_date    1:45    8.06 n/a
      [RDT= 5.00] out<- 01:N4        68.40    1.847 No_date    1:45    8.06 n/a
       [L/S/n= 324./ .500/.030]
       [Vmax= .666:Emax= .169]
* Total flow at node N-EX6
002:0057----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ADD HYD           02:NX6       68.40    1.847 No_date    1:45    8.06 n/a
                     + 03:PH15       1.84     .022 No_date    1:50    7.11 n/a
      [DT= 5.00]  SUM= 01:NX6       70.24    1.869 No_date    1:45    8.03 n/a
* Route Node N-EX6 to Node N5
* Typical Section based on Shale do Y3 Vee Ditch :  banks
* provided by Ainel
* Manning's n is Channel not maintained, light brush on banks
* Slope = 0.5% as per plan provided by Ainel.
002:0058----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ROUTE CHANNEL  -> 02:NX6       68.40    1.847 No_date    1:45    8.06 n/a
      [RDT= 5.00] out<- 01:N5        68.40    1.847 No_date    1:45    8.06 n/a
       [L/S/n= 324./ .500/.030]
       [Vmax= .666:Emax= .169]
* Total flow at node N5
* Typical Section based on proposed channel provided by AEL
* 4:1 bank slopes, Long Slope = 0.50%, Manning's n is 0.03
* Route SW draining at N5 to d/s node N-EX7
002:0059----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ROUTE CHANNEL  -> 02:N5        68.40    1.847 No_date    1:45    8.06 n/a
      [RDT= 5.00] out<- 01:N5        68.40    1.847 No_date    1:45    8.06 n/a
       [L/S/n= 324./ .500/.030]
       [Vmax= .666:Emax= .169]
* Total flow at node N-EX7
002:0060----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ADD HYD           02:NX7       68.40    1.847 No_date    1:45    8.06 n/a
                     + 03:PH16       1.84     .022 No_date    1:50    7.11 n/a
      [DT= 5.00]  SUM= 01:NX7       70.24    1.869 No_date    1:45    8.03 n/a
* Route Node N-EX7 to Node N6
* Typical Section based on Shale do Y3 Vee Ditch :  banks
* provided by Ainel
* Manning's n is Channel not maintained, light brush on banks
* Slope = 0.5% as per plan provided by Ainel.
002:0061----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ROUTE CHANNEL  -> 02:NX7       68.40    1.847 No_date    1:45    8.06 n/a
      [RDT= 5.00] out<- 01:N6        68.40    1.847 No_date    1:45    8.06 n/a
       [L/S/n= 324./ .500/.030]
       [Vmax= .666:Emax= .169]
* Total flow at node N6
* Typical Section based on proposed channel provided by AEL
* 4:1 bank slopes, Long Slope = 0.50%, Manning's n is 0.03
* Route SW draining at N6 to d/s node N-EX8
002:0062----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ROUTE CHANNEL  -> 02:N6        68.40    1.847 No_date    1:45    8.06 n/a
      [RDT= 5.00] out<- 01:N6        68.40    1.847 No_date    1:45    8.06 n/a
       [L/S/n= 324./ .500/.030]
       [Vmax= .666:Emax= .169]
* Total flow at node N-EX8
002:0063----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ADD HYD           02:NX8       68.40    1.847 No_date    1:45    8.06 n/a
                     + 03:PH17       1.84     .022 No_date    1:50    7.11 n/a
      [DT= 5.00]  SUM= 01:NX8       70.24    1.869 No_date    1:45    8.03 n/a
* Route Node N-EX8 to Node N7
* Typical Section based on Shale do Y3 Vee Ditch :  banks
* provided by Ainel
* Manning's n is Channel not maintained, light brush on banks
* Slope = 0.5% as per plan provided by Ainel.
002:0064----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ROUTE CHANNEL  -> 02:NX8       68.40    1.847 No_date    1:45    8.06 n/a
      [RDT= 5.00] out<- 01:N7        68.40    1.847 No_date    1:45    8.06 n/a
       [L/S/n= 324./ .500/.030]
       [Vmax= .666:Emax= .169]
* Total flow at node N7
* Typical Section based on proposed channel provided by AEL
* 4:1 bank slopes, Long Slope = 0.50%, Manning's n is 0.03
* Route SW draining at N7 to d/s node N-EX9
002:0065----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ROUTE CHANNEL  -> 02:N7        68.40    1.847 No_date    1:45    8.06 n/a
      [RDT= 5.00] out<- 01:N7        68.40    1.847 No_date    1:45    8.06 n/a
       [L/S/n= 324./ .500/.030]
       [Vmax= .666:Emax= .169]
* Total flow at node N-EX9
002:0066----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ADD HYD           02:NX9       68.40    1.847 No_date    1:45    8.06 n/a
                     + 03:PH18       1.84     .022 No_date    1:50    7.11 n/a
      [DT= 5.00]  SUM= 01:NX9       70.24    1.869 No_date    1:45    8.03 n/a
* Route Node N-EX9 to Node N8
* Typical Section based on Shale do Y3 Vee Ditch :  banks
* provided by Ainel
* Manning's n is Channel not maintained, light brush on banks
* Slope = 0.5% as per plan provided by Ainel.
002:0067----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ROUTE CHANNEL  -> 02:NX9       68.40    1.847 No_date    1:45    8.06 n/a
      [RDT= 5.00] out<- 01:N8        68.40    1.847 No_date    1:45    8.06 n/a
       [L/S/n= 324./ .500/.030]
       [Vmax= .666:Emax= .169]
* Total flow at node N8
* Typical Section based on proposed channel provided by AEL
* 4:1 bank slopes, Long Slope = 0.50%, Manning's n is 0.03
* Route SW draining at N8 to d/s node N-EX10
002:0068----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ROUTE CHANNEL  -> 02:N8        68.40    1.847 No_date    1:45    8.06 n/a
      [RDT= 5.00] out<- 01:N8        68.40    1.847 No_date    1:45    8.06 n/a
       [L/S/n= 324./ .500/.030]
       [Vmax= .666:Emax= .169]
* Total flow at node N-EX10
002:0069----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ADD HYD           02:NX10      68.40    1.847 No_date    1:45    8.06 n/a
                     + 03:PH19       1.84     .022 No_date    1:50    7.11 n/a
      [DT= 5.00]  SUM= 01:NX10      70.24    1.869 No_date    1:45    8.03 n/a
* Route Node N-EX10 to Node N9
* Typical Section based on Shale do Y3 Vee Ditch :  banks
* provided by Ainel
* Manning's n is Channel not maintained, light brush on banks
* Slope = 0.5% as per plan provided by Ainel.
002:0070----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ROUTE CHANNEL  -> 02:NX10      68.40    1.847 No_date    1:45    8.06 n/a
      [RDT= 5.00] out<- 01:N9        68.40    1.847 No_date    1:45    8.06 n/a
       [L/S/n= 324./ .500/.030]
       [Vmax= .666:Emax= .169]
* Total flow at node N9
* Typical Section based on proposed channel provided by AEL
* 4:1 bank slopes, Long Slope = 0.50%, Manning's n is 0.03
* Route SW draining at N9 to d/s node N-EX11
002:0071----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ROUTE CHANNEL  -> 02:N9        68.40    1.847 No_date    1:45    8.06 n/a
      [RDT= 5.00] out<- 01:N9        68.40    1.847 No_date    1:45    8.06 n/a
       [L/S/n= 324./ .500/.030]
       [Vmax= .666:Emax= .169]
* Total flow at node N-EX11
002:0072----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ADD HYD           02:NX11      68.40    1.847 No_date    1:45    8.06 n/a
                     + 03:PH20       1.84     .022 No_date    1:50    7.11 n/a
      [DT= 5.00]  SUM= 01:NX11      70.24    1.869 No_date    1:45    8.03 n/a
* Route Node N-EX11 to Node N10
* Typical Section based on Shale do Y3 Vee Ditch :  banks
* provided by Ainel
* Manning's n is Channel not maintained, light brush on banks
* Slope = 0.5% as per plan provided by Ainel.
002:0073----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ROUTE CHANNEL  -> 02:NX11      68.40    1.847 No_date    1:45    8.06 n/a
      [RDT= 5.00] out<- 01:N10       68.40    1.847 No_date    1:45    8.06 n/a
       [L/S/n= 324./ .500/.030]
       [Vmax= .666:Emax= .169]
* Total flow at node N10
* Typical Section based on proposed channel provided by AEL
* 4:1 bank slopes, Long Slope = 0.50%, Manning's n is 0.03
* Route SW draining at N10 to d/s node N-EX12
002:0074----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ROUTE CHANNEL  -> 02:N10       68.40    1.847 No_date    1:45    8.06 n/a
      [RDT= 5.00] out<- 01:N10       68.40    1.847 No_date    1:45    8.06 n/a
       [L/S/n= 324./ .500/.030]
       [Vmax= .666:Emax= .169]
* Total flow at node N-EX12
002:0075----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ADD HYD           02:NX12      68.40    1.847 No_date    1:45    8.06 n/a
                     + 03:PH21       1.84     .022 No_date    1:50    7.11 n/a
      [DT= 5.00]  SUM= 01:NX12      70.24    1.869 No_date    1:45    8.03 n/a
* Route Node N-EX12 to Node N11
* Typical Section based on Shale do Y3 Vee Ditch :  banks
* provided by Ainel
* Manning's n is Channel not maintained, light brush on banks
* Slope = 0.5% as per plan provided by Ainel.
002:0076----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ROUTE CHANNEL  -> 02:NX12      68.40    1.847 No_date    1:45    8.06 n/a
      [RDT= 5.00] out<- 01:N11       68.40    1.847 No_date    1:45    8.06 n/a
       [L/S/n= 324./ .500/.030]
       [Vmax= .666:Emax= .169]
* Total flow at node N11
* Typical Section based on proposed channel provided by AEL
* 4:1 bank slopes, Long Slope = 0.50%, Manning's n is 0.03
* Route SW draining at N11 to d/s node N-EX13
002:0077----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ROUTE CHANNEL  -> 02:N11       68.40    1.847 No_date    1:45    8.06 n/a
      [RDT= 5.00] out<- 01:N11       68.40    1.847 No_date    1:45    8.06 n/a
       [L/S/n= 324./ .500/.030]
       [Vmax= .666:Emax= .169]
* Total flow at node N-EX13
002:0078----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ADD HYD           02:NX13      68.40    1.847 No_date    1:45    8.06 n/a
                     + 03:PH22       1.84     .022 No_date    1:50    7.11 n/a
      [DT= 5.00]  SUM= 01:NX13      70.24    1.869 No_date    1:45    8.03 n/a
* Route Node N-EX13 to Node N12
* Typical Section based on Shale do Y3 Vee Ditch :  banks
* provided by Ainel
* Manning's n is Channel not maintained, light brush on banks
* Slope = 0.5% as per plan provided by Ainel.
002:0079----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ROUTE CHANNEL  -> 02:NX13      68.40    1.847 No_date    1:45    8.06 n/a
      [RDT= 5.00] out<- 01:N12       68.40    1.847 No_date    1:45    8.06 n/a
       [L/S/n= 324./ .500/.030]
       [Vmax= .666:Emax= .169]
* Total flow at node N12
* Typical Section based on proposed channel provided by AEL
* 4:1 bank slopes, Long Slope = 0.50%, Manning's n is 0.03
* Route SW draining at N12 to d/s node N-EX14
002:0080----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ROUTE CHANNEL  -> 02:N12       68.40    1.847 No_date    1:45    8.06 n/a
      [RDT= 5.00] out<- 01:N12       68.40    1.847 No_date    1:45    8.06 n/a
       [L/S/n= 324./ .500/.030]
       [Vmax= .666:Emax= .169]
* Total flow at node N-EX14
002:0081----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ADD HYD           02:NX14      68.40    1.847 No_date    1:45    8.06 n/a
                     + 03:PH23       1.84     .022 No_date    1:50    7.11 n/a
      [DT= 5.00]  SUM= 01:NX14      70.24    1.869 No_date    1:45    8.03 n/a
* Route Node N-EX14 to Node N13
* Typical Section based on Shale do Y3 Vee Ditch :  banks
* provided by Ainel
* Manning's n is Channel not maintained, light brush on banks
* Slope = 0.5% as per plan provided by Ainel.
002:0082----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ROUTE CHANNEL  -> 02:NX14      68.40    1.847 No_date    1:45    8.06 n/a
      [RDT= 5.00] out<- 01:N13       68.40    1.847 No_date    1:45    8.06 n/a
       [L/S/n= 324./ .500/.030]
       [Vmax= .666:Emax= .169]
* Total flow at node N13
* Typical Section based on proposed channel provided by AEL
* 4:1 bank slopes, Long Slope = 0.50%, Manning's n is 0.03
* Route SW draining at N13 to d/s node N-EX15
002:0083----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ROUTE CHANNEL  -> 02:N13       68.40    1.847 No_date    1:45    8.06 n/a
      [RDT= 5.00] out<- 01:N13       68.40    1.847 No_date    1:45    8.06 n/a
       [L/S/n= 324./ .500/.030]
       [Vmax= .666:Emax= .169]
* Total flow at node N-EX15
002:0084----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ADD HYD           02:NX15      68.40    1.847 No_date    1:45    8.06 n/a
                     + 03:PH24       1.84     .022 No_date    1:50    7.11 n/a
      [DT= 5.00]  SUM= 01:NX15      70.24    1.869 No_date    1:45    8.03 n/a
* Route Node N-EX15 to Node N14
* Typical Section based on Shale do Y3 Vee Ditch :  banks
* provided by Ainel
* Manning's n is Channel not maintained, light brush on banks
* Slope = 0.5% as per plan provided by Ainel.
002:0085----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ROUTE CHANNEL  -> 02:NX15      68.40    1.847 No_date    1:45    8.06 n/a
      [RDT= 5.00] out<- 01:N14       68.40    1.847 No_date    1:45    8.06 n/a
       [L/S/n= 324./ .500/.030]
       [Vmax= .666:Emax= .169]
* Total flow at node N14
* Typical Section based on proposed channel provided by AEL
* 4:1 bank slopes, Long Slope = 0.50%, Manning's n is 0.03
* Route SW draining at N14 to d/s node N-EX16
002:0086----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ROUTE CHANNEL  -> 02:N14       68.40    1.847 No_date    1:45    8.06 n/a
      [RDT= 5.00] out<- 01:N14       68.40    1.847 No_date    1:45    8.06 n/a
       [L/S/n= 324./ .500/.030]
       [Vmax= .666:Emax= .169]
* Total flow at node N-EX16
002:0087----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ADD HYD           02:NX16      68.40    1.847 No_date    1:45    8.06 n/a
                     + 03:PH25       1.84     .022 No_date    1:50    7.11 n/a
      [DT= 5.00]  SUM= 01:NX16      70.24    1.869 No_date    1:45    8.03 n/a
* Route Node N-EX16 to Node N15
* Typical Section based on Shale do Y3 Vee Ditch :  banks
* provided by Ainel
* Manning's n is Channel not maintained, light brush on banks
* Slope = 0.5% as per plan provided by Ainel.
002:0088----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ROUTE CHANNEL  -> 02:NX16      68.40    1.847 No_date    1:45    8.06 n/a
      [RDT= 5.00] out<- 01:N15       68.40    1.847 No_date    1:45    8.06 n/a
       [L/S/n= 324./ .500/.030]
       [Vmax= .666:Emax= .169]
* Total flow at node N15
* Typical Section based on proposed channel provided by AEL
* 4:1 bank slopes, Long Slope = 0.50%, Manning's n is 0.03
* Route SW draining at N15 to d/s node N-EX17
002:0089----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ROUTE CHANNEL  -> 02:N15       68.40    1.847 No_date    1:45    8.06 n/a
      [RDT= 5.00] out<- 01:N15       68.40    1.847 No_date    1:45    8.06 n/a
       [L/S/n= 324./ .500/.030]
       [Vmax= .666:Emax= .169]
* Total flow at node N-EX17
002:0090----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ADD HYD           02:NX17      68.40    1.847 No_date    1:45    8.06 n/a
                     + 03:PH26       1.84     .022 No_date    1:50    7.11 n/a
      [DT= 5.00]  SUM= 01:NX17      70.24    1.869 No_date    1:45    8.03 n/a
* Route Node N-EX17 to Node N16
* Typical Section based on Shale do Y3 Vee Ditch :  banks
* provided by Ainel
* Manning's n is Channel not maintained, light brush on banks
* Slope = 0.5% as per plan provided by Ainel.
002:0091----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ROUTE CHANNEL  -> 02:NX17      68.40    1.847 No_date    1:45    8.06 n/a
      [RDT= 5.00] out<- 01:N16       68.40    1.847 No_date    1:45    8.06 n/a
       [L/S/n= 324./ .500/.030]
       [Vmax= .666:Emax= .169]
* Total flow at node N16
* Typical Section based on proposed channel provided by AEL
* 4:1 bank slopes, Long Slope = 0.50%, Manning's n is 0.03
* Route SW draining at N16 to d/s node N-EX18
002:0092----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ROUTE CHANNEL  -> 02:N16       68.40    1.847 No_date    1:45    8.06 n/a
      [RDT= 5.00] out<- 01:N16       68.40    1.847 No_date    1:45    8.06 n/a
       [L/S/n= 324./ .500/.030]
       [Vmax= .666:Emax= .169]
* Total flow at node N-EX18
002:0093----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ADD HYD           02:NX18      68.40    1.847 No_date    1:45    8.06 n/a
                     + 03:PH27       1.84     .022 No_date    1:50    7.11 n/a
      [DT= 5.00]  SUM= 01:NX18      70.24    1.869 No_date    1:45    8.03 n/a
* Route Node N-EX18 to Node N17
* Typical Section based on Shale do Y3 Vee Ditch :  banks
* provided by Ainel
* Manning's n is Channel not maintained, light brush on banks
* Slope = 0.5% as per plan provided by Ainel.
002:0094----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ROUTE CHANNEL  -> 02:NX18      68.40    1.847 No_date    1:45    8.06 n/a
      [RDT= 5.00] out<- 01:N17       68.40    1.847 No_date    1:45    8.06 n/a
       [L/S/n= 324./ .500/.030]
       [Vmax= .666:Emax= .169]
* Total flow at node N17
* Typical Section based on proposed channel provided by AEL
* 4:1 bank slopes, Long Slope = 0.50%, Manning's n is 0.03
* Route SW draining at N17 to d/s node N-EX19
002:0095----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ROUTE CHANNEL  -> 02:N17       68.40    1.847 No_date    1:45    8.06 n/a
      [RDT= 5.00] out<- 01:N17       68.40    1.847 No_date    1:45    8.06 n/a
       [L/S/n= 324./ .500/.030]
       [Vmax= .666:Emax= .169]
* Total flow at node N-EX19
002:0096----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ADD HYD           02:NX19      68.40    1.847 No_date    1:45    8.06 n/a
                     + 03:PH28       1.84     .022 No_date    1:50    7.11 n/a
      [DT= 5.00]  SUM= 01:NX19      70.24    1.869 No_date    1:45    8.03 n/a
* Route Node N-EX19 to Node N18
* Typical Section based on Shale do Y3 Vee Ditch :  banks
* provided by Ainel
* Manning's n is Channel not maintained, light brush on banks
* Slope = 0.5% as per plan provided by Ainel.
002:0097----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ROUTE CHANNEL  -> 02:NX19      68.40    1.847 No_date    1:45    8.06 n/a
      [RDT= 5.00] out<- 01:N18       68.40    1.847 No_date    1:45    8.06 n/a
       [L/S/n= 324./ .500/.030]
       [Vmax= .666:Emax= .169]
* Total flow at node N18
* Typical Section based on proposed channel provided by AEL
* 4:1 bank slopes, Long Slope = 0.50%, Manning's n is 0.03
* Route SW draining at N18 to d/s node N-EX20
002:0098----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ROUTE CHANNEL  -> 02:N18       68.40    1.847 No_date    1:45    8.06 n/a
      [RDT= 5.00] out<- 01:N18       68.40    1.847 No_date    1:45    8.06 n/a
       [L/S/n= 324./ .500/.030]
       [Vmax= .666:Emax= .169]
* Total flow at node N-EX20
002:0099----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ADD HYD           02:NX20      68.40    1.847 No_date    1:45    8.06 n/a
                     + 03:PH29       1.84     .022 No_date    1:50    7.11 n/a
      [DT= 5.00]  SUM= 01:NX20      70.24    1.869 No_date    1:45    8.03 n/a
* Route Node N-EX20 to Node N19
* Typical Section based on Shale do Y3 Vee Ditch :  banks
* provided by Ainel
* Manning's n is Channel not maintained, light brush on banks
* Slope = 0.5% as per plan provided by Ainel.
002:0100----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ROUTE CHANNEL  -> 02:NX20      68.40    1.847 No_date    1:45    8.06 n/a
      [RDT= 5.00] out<- 01:N19       68.40    1.847 No_date    1:45    8.06 n/a
       [L/S/n= 324./ .500/.030]
       [Vmax= .666:Emax= .169]
* Total flow at node N19
* Typical Section based on proposed channel provided by AEL
* 4:1 bank slopes, Long Slope = 0.50%, Manning's n is 0.03
* Route SW draining at N19 to d/s node N-EX21
002:0101----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ROUTE CHANNEL  -> 02:N19       68.40    1.847 No_date    1:45    8.06 n/a
      [RDT= 5.00] out<- 01:N19       68.40    1.847 No_date    1:45    8.06 n/a
       [L/S/n= 324./ .500/.030]
       [Vmax= .666:Emax= .169]
* Total flow at node N-EX21
002:0102----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ADD HYD           02:NX21      68.40    1.847
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01146>  ADD HYD                02:FR3S          .57     .017 No date    1:25   10.41  n/a
01147>                        + 03:CIn7          .97     .024 No date    1:20   10.02  n/a
01148>  [DT- 5.00]  SUM=  01:Out1          .97     .024 No date    1:20   10.02  n/a
01149> * Pipe from inlet 7 - Route to pond
01150> * HDPE smooth wall pipe Manning's n = 0.012
01151>  002:0059----------------ID:NHYD-------AREA-----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
01152>      ROUTE PIPE      => 03:Out1          .97     .024 No date    1:20   10.02  n/a
01153>        [RDT= 5.00] outf= 01:Pin7          .97     .023 No date    1:20   10.02  n/a
01154>        [L/S/n=  75./ .200/.012]
01155>        [Vmax=  .640:Dmax=  .122]
01156>        [Din=  .500:Dused=  .500]
01157> * Culvert from Inlet 4
01158> * HDPE smooth wall pipe Manning's n = 0.012
01159>  002:0059----------------ID:NHYD-------AREA-----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
01160>      ROUTE PIPE      => 03:Out1          .97     .024 No date    1:20   10.02  n/a
01161>        [RDT= 5.00] outf= 01:Pin4          .97     .023 No date    1:20   10.02  n/a
01162>        [L/S/n=  75./ .200/.012]
01163>        [Vmax=  .640:Dmax=  .122]
01164>        [Din=  .500:Dused=  .500]
01165> * Input to Inlet 6 pipe
01166>  002:0060----------------ID:NHYD-------AREA-----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
01167>      ADD HYD                02:FR4B          .65     .015 No date    1:20   10.02  n/a
01168>                           + 03:CIn4          .71     .018 No date    1:20   10.02  n/a
01169>  [DT- 5.00]  SUM=  01:In4          1.36     .033 No date    1:20   10.02  n/a
01170> * Pipe from Inlet 4 (ULTIMATE CONDITIONS) - Route to pond
01171> * HDPE smooth wall pipe Manning's n = 0.012
01172>  002:0061----------------ID:NHYD-------AREA-----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
01173>      ROUTE PIPE      => 02:In4           1.36     .033 No date    1:20   10.02  n/a
01174>        [RDT= 5.00] outf= 01:Pin4          1.36     .031 No date    1:20   10.02  n/a
01175>        [L/S/n=  65./1.500/.012]
01176>        [Vmax=  .859:Dmax=  .183]
01177>        [Din=  .500:Dused=  .500]
01178> * Culvert from Inlet 5
01179> * HDPE smooth wall pipe Manning's n = 0.012
01180>  002:0062----------------ID:NHYD-------AREA-----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
01181>      ROUTE PIPE      => 02:FR5A          .66     .016 No date    1:20   10.02  n/a
01182>        [RDT= 5.00] outf= 01:CIn5          .66     .016 No date    1:20   10.02  n/a
01183>        [L/S/n=  17./ .100/.012]
01184>        [Vmax=  .726:Dmax=  .153]
01185>        [Din=  .500:Dused=  .500]
01186> * Input to Inlet 5 pipe
01187>  002:CIn7----------------ID:NHYD-------AREA-----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
01188>      ADD HYD                02:FR5A          .66     .016 No date    1:20   10.02  n/a
01189>                           + 03:CIn5          .66     .016 No date    1:20   10.02  n/a
01190>  [DT- 5.00]  SUM=  01:In5          1.32     .032 No date    1:20   10.02  n/a
01191> * Pipe from Inlet 5 - Route to pond
01192> * HDPE smooth wall pipe Manning's n = 0.012
01193>  002:0063----------------ID:NHYD-------AREA-----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
01194>      ROUTE PIPE      => 03:In5           1.32     .028 No date    1:20   10.02  n/a
01195>        [RDT= 5.00] outf= 01:Pin5          1.32     .029 No date    1:20   10.02  n/a
01196>        [L/S/n=  75./1.800/.012]
01197>        [Vmax= 1.398:Dmax=  .078]
01198>        [Din=  .500:Dused=  .500]
01199> * Culvert from Inlet 6
01200> * HDPE smooth wall pipe Manning's n = 0.012
01201>  002:0065----------------ID:NHYD-------AREA-----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
01202>      ROUTE PIPE      => 02:FR6A          1.43     .031 No data    1:20   10.02  n/a
01203>        [RDT= 5.00] outf= 01:CIL6          1.43     .032 No data    1:20   10.02  n/a
01204>        [L/S/n=  17./ .100/.012]
01205>        [Vmax=  .881:Dmax=  .171]
01206>        [Din=  .500:Dused=  .500]
01207> * Input to Inlet 6 pipe
01208>  002:0066----------------ID:NHYD-------AREA-----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
01209>      ADD HYD                02:FR6B          .93     .022 No data    1:20   10.02  n/a
01210>                           + 03:CIn6          1.43     .032 No data    1:20   10.02  n/a
01211>  [DT- 5.00]  SUM=  01:In6          2.36     .054 No data    1:20   10.02  n/a
01212> * Pipe from Inlet 6 - Route to pond
01213> * HDPE smooth wall pipe Manning's n = 0.012
01214>  002:0067----------------ID:NHYD-------AREA-----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
01215>      ROUTE PIPE      => 03:In6           2.36     .054 No data    1:20   10.02  n/a
01216>        [RDT= 5.00] outf= 01:Pin6          2.36     .053 No data    1:20   10.02  n/a
01217>        [L/S/n=  65./1.500/.012]
01218>        [Vmax=  .938:Dmax=  .167]
01219>        [Din=  .500:Dused=  .500]
01220> * VOLUME TO POND ULTIMATE RESIDENTIAL
01221>  002:0068----------------ID:NHYD-------AREA-----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
01222>      ADD HYD                02:Pin1          [1.53     .389 No date    1:25   9.47  n/a
01223>                           + 03:Pin2          1.70     .409 No date    1:25   10.04  n/a
01224>                           + 04:Pin3          .67     .091 No date    1:25   10.02  n/a
01225>                           + 05:Pin4          1.36     .034 No date    1:20   10.02  n/a
01226>                           + 06:Pin5          1.32     .029 No date    1:20   10.02  n/a
01227>                           + 07:Pin6          2.36     .053 No date    1:20   10.03  n/a
01228>                           + 08:2Ua           5.02     .123 No date    1:25   10.41  n/a
01229>  [DT- 5.00]  SUM=  01:POR7in        26.48     .641 No date    1:25   10.41  n/a
01230>  002:0068----------------ID:NHYD-------AREA-----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
01231>      ROUTE RESERVOIR => 01:POR3in        26.48     .639 No data    1:25   10.41  n/a
01232>        [RDT= 5.00] outf= 01:Pout          26.48     .641 No data    4:20   10.41  n/a
01233>                 swallow <- 01:Spillway          .00     .000 No data    0.00    .00  n/a
01234>        [MaxToDead=.2231E+30, ToVolToVol=.6300E+30, H-OVF=    0, ToTarget=    0.hrs]
01235> * Simulating 0.5 100 yr conditions with submergence of outflow weir
01236> * Updated for weir .2, .4, 1.0
01237> #ROUTE RESERVOIR     NHYDout=["Pout"] ,hHYDin=["POR3in"] ,
01238> #                    RDT=[5.(min),
01239> #                         TABLE of | OUTFLOW-STORAGE | Values
01240> #                                  (cms) - (ha-m)
01241> #                                 [   0.0 ,   0.0 ]
01242> #                                  0.60001 , 1.1209
01243> #                                  0.80    , 1.8110
01244> #                                  0.90    , 2.0195
01245> #                                 [    -1 ,    -1 ]    (max number pts)
01246> #                         NHYDout["SvrQ"] ,
01247> # Route pond output through first set of pipes
01248> # 2 x 600 pipes simulated with 1 pipe of equivalent capacity (=780 mm dia)
01249> # HDPE smooth wall pipe Manning's n = 0.012
01250>  002:0070----------------ID:NHYD-------AREA-----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
01251>      ROUTE PIPE      => 02:POut          26.48     .641 No date    4:20   10.41  n/a
01252>        [RDT= 5.00] outf= 01:Pout          26.48     .641 No date    4:20   10.41  n/a
01253>        [L/S/n=  75./ .200/.012]
01254>        [Vmax=  .705:Dmax=  .137]
01255>        [Din=  .780:Dused=  .780]
01256> * Flow c/s of culvert culverts
01257>  003:0071----------------ID:NHYD-------AREA-----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
01258>      ADD HYD                02:FR4B          .65     .015 No date    1:25   2.84  n/a
01259>                           + 03:CIn4          .71     .018 No date    1:20   2.84  n/a
01260>                           + 04:POut1         25.48     .641 No date    4:20   10.41  n/a
01261>  [DT- 5.00]  SUM=  01:Pout          26.56     .642 No data    4:05   10.35  n/a
01262> # Route outflow through set of Culverts
01263> # 2 x 600 culverts simulated with 1 culvert of equivalent capacity (=780 mm dia
01264> # HDPE smooth wall pipe Manning's n = 0.012
01265>  002:0072----------------ID:NHYD-------AREA-----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
01266>      ROUTE PIPE      => 03:Pout          26.56     .642 No date    5:05   10.35  n/a
01267>        [RDT= 5.00] outf= 01:Pout          26.56     .642 No date    5:05   10.35  n/a
01268>        [L/S/n=  65./ .060/.012]
01269>        [Vmax=  .909:Dmax=  .177]
01270>        [Din=  .780:Dused=  .780]
01271> * Flow c/s of second set of outflow pipes
01272>  003:0073----------------ID:NHYD-------AREA-----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
01273>      ADD HYD                02:FR7C1         .95     .036 No data    1:45   7.84  n/a
01274>                           + 03:FR7C2         .17     .032 No data    1:40   7.84  n/a
01275>                           + 04:Cout          26.56     .642 No data    4:05   10.36  n/a
01276>  [DT- 5.00]  SUM=  01:Pout2         26.62     .654 No data    2:15   10.33  n/a
01277> # Route outflow through second set of pipes
01278> # 2 x 600 pipes simulated with 1 pipe of equivalent capacity (=780 mm dia)
01279> # HDPE smooth wall pipe Manning's n = 0.012
01280>  002:0074----------------ID:NHYD-------AREA-----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
01281>      ROUTE PIPE      => 03:Pout2         26.62     .654 No data    2:15   10.33  n/a
01282>        [RDT= 5.00] outf= 01:PoutF         26.62     .654 No data    2:15   10.33  n/a
01283>        [L/S/n=  65./ .060/.012]
01284>        [Vmax=  .911:Dmax=  .178]
01285>        [Din=  .780:Dused=  .780]
01286> * Total flow at node N1 (sn.old MH along Zulea Extn Rd)
01287>  002:0075----------------ID:NHYD-------AREA-----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
01288>      ADD HYD                01:RNEW2         51.21     .079 No data    1:55   8.02  n/a
01289>                           + 03:PoutF         26.62     .654 No data    2:15   10.39  n/a
01290>                           + 04:FR7C          .19     .011 No data    1:20   10.08  n/a
01291>                           + 05:FR10          .40     .084 No data    1:45   7.44  n/a
01292>                           + 06:FR11          .60     .085 No data    1:50   7.71  n/a
01293>  [DT- 5.00]  SUM=  01:N1          79.17     .732 No data    1:55   8.79  n/a
01294> # ROUTE N1 to N3
01295> # Typical Section based on Salelds 2D Vee Ditch 3:1 Banks
01296> # provided by Attel.
01297> # Manning's n is Channel not maintained, light brush on banks
01298> # Slope = 0.80% as per plan provided by Attel.
01299>  003:0076----------------ID:NHYD-------AREA-----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
01300>      ROUTE CHANNEL   => 01:N1          79.17     .732 No data    1:55   8.79  n/a
01301>        RDT= 5.00] outf= 01:N3          79.17     .569 No data    2:10   8.79  n/a
01302>        [L/S/n=  140./ .050/.035]
01303>        [Vmax=  .304:Dmax=  .905]
01304> # VOLUME from pre10cential area at N3 Attelia
01305>  002:0077----------------ID:NHYD-------AREA-----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
01306>      ADD HYD                02:FR7A          1.75     .016 No date    2:50   7.84  n/a
01307>                           + 03:FR8          1.36     .016 No date    2:50   7.31  n/a
01308>  [DT= 5.00]  SUM=  01:N3          3.09     .016 No date    2:50   7.67  n/a
01309> # Added VOLUME from external area contributing to N3
01310>  002:0078----------------ID:NHYD-------AREA-----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
```

```
       ADD HYD                  02:RB1       79.17    .569 No_date   2:10    8.75  n/a
                            +   03:N31        2.73    .034 No_date   1:50    9.47  n/a
                            +   04:EX5         .52    .037 No_date   1:20   14.59  n/a
                            +   05:EX6         .51    .011 No_date   1:20    9.50  n/a
         [DT= 5.00]  SUM=   01:N3        82.94    .604 No_date   2:10    8.79  n/a
# ROUTE N3 to NCR24
# Typical Section based on Shields MD Vee Ditch 3:1 banks
# provided by Atrel
# Manning's n is Channel not maintained, light brush on banks
# Slope = 0.05% as per plan provided by Atrel.
 002:0075---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
       ROUTE CHANNEL   ->   02:N3        82.93    .602 No_date   2:10    8.79  n/a
        [RDT= 5.00]  out<-  01:RN3       82.93    .485 No_date   2:30    8.79  n/a
        [L/S/n= 415./ .050/.035]
        {Vmax= .293:Dmax= .873}
# Flow at Stantec node NCR124 for comparison
# Routed N3 plus EX3
 002:0080---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
       ADD HYD                  02:RN3       82.93    .485 No_date   2:30    8.79  n/a
                            +   01:EX3       21.30    .195 No_date   2:20    7.16  n/a
         [DT= 5.00]  SUM=   03:NCR124   104.24    .649 No_date   2:25    8.46  n/a
# AREA CHECK
#
 002:0081---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
       ADD HYD                  02:EX1       24.62    .620 No_date   1:35    8.96  n/a
                            +   03:EX2        5.39    .100 No_date   2:10    7.16  n/a
                            +   01:EX3       21.30    .195 No_date   2:20    7.16  n/a
                            +   05:EX4         .50    .017 No_date   1:20    9.64  n/a
                            +   06:EX5         .52    .017 No_date   1:20   14.59  n/a
                            +   07:EX6         .51    .011 No_date   1:20    9.50  n/a
                            +   08:EX7         .39    .011 No_date   1:20   10.09  n/a
                            +   09:PR1A        .24    .006 No_date   1:20   10.02  n/a
                            +   10:PR1B        .55    .013 No_date   1:20   10.02  n/a
         [DT= 5.00]  SUM=   11:Tot1      56.52    .747 No_date   1:35    8.08  n/a
 002:0082---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
       ADD HYD                  11:Tot1      56.52    .747 No_date   1:35    8.08  n/a
                            +   03:PR2A       1.57    .044 No_date   1:20   10.02  n/a
                            +   04:PR2B       1.17    .026 No_date   1:20   10.02  n/a
                            +   05:PR3A        .45    .011 No_date   1:20   10.02  n/a
                            +   06:PR3B        .32    .012 No_date   1:20   10.02  n/a
                            +   07:PR4A        .71    .017 No_date   1:20   10.02  n/a
                            +   08:PR4B        .65    .015 No_date   1:20   10.02  n/a
                            +   09:PR5A        .86    .016 No_date   1:20   10.02  n/a
                            +   10:PR5B        .46    .011 No_date   1:20   10.02  n/a
         [DT= 5.00]  SUM=   01:Tot2      64.71    .877 No_date   1:35    8.27  n/a
 002:0083---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
       ADD HYD                  02:Tot2      64.71    .877 No_date   1:35    8.27  n/a
                            +   03:PR6A       1.43    .041 No_date   1:20   10.02  n/a
                            +   04:PR6B        .94    .022 No_date   1:20   10.02  n/a
                            +   05:PR7A       1.35    .018 No_date   1:50    7.84  n/a
                            +   06:PR7B1       .36    .005 No_date   1:45    7.84  n/a
                            +   07:PR7B2       .22    .003 No_date   1:40    7.84  n/a
                            +   08:PR7C1       .38    .026 No_date   1:45    7.84  n/a
                            +   09:PR7C2       .17    .002 No_date   1:40    7.84  n/a
                            +   10:PR7D        .56    .004 No_date   1:45    7.84  n/a
         [DT= 5.00]  SUM=   01:Tot3      69.50    .944 No_date   1:40    8.31  n/a
 002:0084---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
       ADD HYD                  02:Tot3      69.50    .944 No_date   1:40    8.31  n/a
                            +   03:PR8        1.28    .016 No_date   1:50    7.11  n/a
                            +   04:PR9A       1.10    .013 No_date   1:50    7.11  n/a
                            +   05:PR9B1       .25    .003 No_date   1:45    7.11  n/a
                            +   06:PR9B2      1.06    .012 No_date   1:50    7.11  n/a
                            +   07:PR10       1.34    .022 No_date   1:50    7.11  n/a
                            +   08:PR11        .62    .008 No_date   1:50    7.11  n/a
                            +   09:RX1        5.26    .087 No_date   1:30    7.16  n/a
                            +   10:EDu        5.03    .375 No_date   1:25   15.03  n/a
         [DT= 5.00]  SUM=   01:Tot4      85.34   1.297 No_date   1:35    8.73  n/a
 002:0085---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
       ADD HYD                  02:Tot4      85.34   1.297 No_date   1:35    8.74  n/a
                            +   03:B1A        9.41    .108 No_date   1:40    7.16  n/a
                            +   04:B2A        5.11    .045 No_date   1:25    7.16  n/a
                            +   05:B3A        4.14    .047 No_date   1:30    7.16  n/a
                            +   05:B3B        2.21    .044 No_date   1:35    7.16  n/a
         [DT= 5.00]  SUM=   01:Tot5     104.23   1.437 No_date   1:35    8.45  n/a
***********************************************************************************
# Simulations with 4 hour Chicago from City of Ottawa
  ** END OF RUN :    4

***********************************************************************************




 RUN:COMMAND#
 006:0001--------------------------------------------------------------------------
      START
       [TZERO =     .00 hrs on        0]
       [METOUT=    2    (1=imperial, 2=metric output)]
       [NSTORM=    1  ]
       [NRUN  =    5  ]
#**********************************************************************************
#  SWMHYMO Ver:5.02/Jan 2001 <BETA> / INPUT DATA FILE
#**********************************************************************************
#  Project Name: [Greely Village Center]    Project Number: [647-07]
#  Date         : 24-05-2008
#  Modeller     : [JHR]
#  Company      : JFSAinc.
#  License #    : 2547302
#**********************************************************************************
#
# SWMHYMO model of the Greely Village Center - Residential Area - Phase 2
# Proposed Ultimate conditions. OPTION E
# Filename stands for: GR2u2a - Greely, Residential, Phase 2, ultimate 02 weir
#
#  December 15, 2008
#  "a" at the end of filename: Added July 1st 1979 Event
#**********************************************************************************
 005:0002--------------------------------------------------------------------------
      READ STORM
       Filename = storm.C0
       Comment  = 5 years Chicago Storm 4 hours step 10 min, City of Ottawa
       [SDT=10.00:SDUR=  4.00:PTOT=  45.17]
#**********************************************************************************
# Existing flow - McEvoy Branch of Shield Creek - Areas
# Area u/s of proposed development (residential)
# CN*=75, slope = 0.8, Tp=0.16, XIVP=6, TIME=15, see SC001 as per Stantec
# Area partially adjusted based on Atrel drawings.
#**********************************************************************************
# u/s of Bank Street per Atrel   with modified boundaries and Tp.
 005:0003---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      DESIGN NASHYD       01:EX1         24.62    1.082 No_date    1:30   14.86 .329
       [CN= 75.0: N= 3.00]
       [Tp=  .22:DT= 5.00]
#**********************************************************************************
# Existing flow - External areas d/s of Bank St.
# CN*=69, as per Stantec see SC001.
# Area partially adjusted based on Atrel drawings.
#**********************************************************************************
# Areas External to development
 005:0004---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      DESIGN NASHYD       03:EX2          5.39     .171 No_date    2:10   12.05 .268
       [CN= 69.0: N= 3.00]
       [Tp=  .67:DT= 5.00]
 005:0005---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      DESIGN NASHYD       01:EX3         21.30     .218 No_date    2:20   12.05 .268
       [CN= 69.0: N= 3.00]
       [Tp=  .83:DT= 5.00]
# Slope, Time, Area from Atrel Drawing
# CN from Stantec (SC00.)
# Ximp = Timp = 10%
 005:0006---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
   *  CALIB STANDHYD      01:EX4           .50     .019 No_date    1:20   15.47 .342
       [XIMP=.11:TIMP=.22]
       [LOSS= 2 :CN= 69.0]
       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=    .0]
       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  58.:MNI=.045:SCI=    .0]
# Road and road side ditch along projected residential development Parkway Rd
# Timp = Ximp = 0.21 ha /0.57 ha = 0.40
# CN*=69, as per Stantec see SC001.
# Slope is estimated at 1%
# Ximp = Timp = 10%
 005:0007---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
   *  CALIB STANDHYD      01:EX5           .52     .046 No_date    1:20   21.81 .479
       [XIMP=.35:TIMP=.40]
       [LOSS= 2 :CN= 69.0]
       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=    .0]
       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  58.:MNI=.045:SCI=    .0]
# Road and road side ditch along projected residential development Dalesharn Rd
# Timp = Ximp = 0.01 ha /0.51 ha = 0.20
# CN*=69, as per Stantec see SC001.
# Slope is estimated at 1%
# Ximp = Timp = 10%
 005:0008---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
   *  CALIB STANDHYD      01:EX6           .51     .010 No_date    1:20   14.99 .332
       [XIMP=.10:TIMP=.20]
```

```
[Loss= 2 :CN= 69.0]
[Pervious     Area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
[Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  58.:MNI=.045:SCI=   .0]
# Road and road side ditch along projected residential development Sales Barn Rd
# Tlag = Xlag + 0.69 Da /0.38 Ia - 0.25
# CN= 69, as per Stantec see SC001.
# Slope is estimated at 1
# Xlag = Ylag = 10
.00:0.005----------ID:RHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
 * CALIB STANDHYD     01:EXD          .09     .07 No data     1:20   15.98 .154
      [XIMP=.1:TIMP=.2]
      [Loss= 2 :CN= 69.0]
      [Pervious     Area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
      [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  51.:MNI=.045:SCI=   .0]
# Areas to be occupied by Commercial development
# CN= 69, as per Stantec see SC001.
.00:0.010----------ID:RHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
    DESIGN RAINYD      01:R1A          0.41      .214 No data     1:40   15.98 .154
      [CN= 69.0: R= 3.00]
      [Ia=  .3]:ET= 5.00]
.005:0.011----------ID:RHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
 * DESIGN RAINYD      01:R2A          3.13     1.47 No_data     1:25   15.98 .684
      [CN= 69.0: R= 3.00]
      [Ia=  .3]:ET= 5.00]
.005:0.012----------ID:RHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
    DESIGN RAINYD      01:R3A          3.14     1.152 No_date    1:30   15.98 .1068
      [CN= 69.0: R= 3.00]
      [Ia=  .3]:ET= 5.00]
.005:0.013----------ID:RHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
    DESIGN RAINYD      01:R4A          2.2      .076 No data     1:45   15.98 .068
      [CN= 69.0: R= 3.00]
      [Ia=  .3]:ET= 5.00]
#*******************************************************************************
#*******************************************************************************
# CHLOPED RESIDENTIAL SUBWATERSHED - Residential Area Phase 1 and 2
#*******************************************************************************
# CN= 69, as per Stantec see SC001
# Tp estimated with Qp and Method.
.005:0.014----------ID:RHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
    DESIGN RAINYD      01:R5A          4.28     1.76 No data     1:30   15.98 .1483
      [CN= 69.0: R= 3.00]
      [Ia=  .3]:ET= 5.00]
#*******************************************************************************
#*******************************************************************************
# AREAS GOING TO POND
#*******************************************************************************
#
.005:0.5----------ID:RHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
 * CALIB STANDHYD     01:FR1A          .24     .095 No data     1:10   16.05 .355
      [XIMP=.1:TIMP=.21]
      [Loss= 2 :CN= 71.0]
      [Pervious     Area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
      [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  36.:MNI=.045:SCI=   .0]
.005:0.6----------ID:RHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
 * CALIB STANDHYD     01:FR1B          .55     .221 No data     1:10   16.05 .355
      [XIMP=.1:TIMP=.21]
      [Loss= 2 :CN= 71.0]
      [Pervious     Area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
      [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  61.:MNI=.045:SCI=   .0]
.005:0.7----------ID:RHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
    CALIB STANDHYD     01:FR2A          1.51     .606 No data     1:10   16.05 .1353
      [XIMP=.1:TIMP=.21]
      [Loss= 2 :CN= 71.0]
      [Pervious     Area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
      [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI= 102.:MNI=.045:SCI=   .0]
.005:0.8----------ID:RHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
 * CALIB STANDHYD     01:FR2B          .18     .072 No data     1:10   16.05 .1353
      [XIMP=.1:TIMP=.21]
      [Loss= 2 :CN= 71.0]
      [Pervious     Area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
      [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  88.:MNI=.045:SCI=   .0]
.005:0.9----------ID:RHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
 * CALIB STANDHYD     01:FR3A          .05     .019 No data     1:10   16.05 .1353
      [XIMP=.1:TIMP=.21]
      [Loss= 2 :CN= 71.0]
      [Pervious     Area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
      [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  95.:MNI=.045:SCI=   .0]
.005:0.0020----------ID:RHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
 * CALIB STANDHYD     01:FR3B          .52     .210 No_date     1:20   16.05 .1353
      [XIMP=.1:TIMP=.21]
      [Loss= 2 :CN= 71.0]
      [Pervious     Area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
      [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  58.:MNI=.045:SCI=   .0]
.005:0021----------ID:RHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
 * CALIB STANDHYD     01:FR4A          .71     .626 No_date     1:00   16.05 .355
      [XIMP=.1:TIMP=.21]
      [Loss= 2 :CN= 71.0]
      [Pervious     Area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
      [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  65.:MNI=.045:SCI=   .0]
.005:0022----------ID:RHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
 * CALIB STANDHYD     01:FR4B          .60     .024 No_date     1:20   16.05 .355
      [XIMP=.1:TIMP=.21]
      [Loss= 2 :CN= 71.0]
      [Pervious     Area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
      [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  65.:MNI=.045:SCI=   .0]
.005:0023----------ID:RHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
 * CALIB STANDHYD     01:FR5A          .66     .029 No_date     1:20   16.05 .355
      [XIMP=.1:TIMP=.21]
      [Loss= 2 :CN= 71.0]
      [Pervious     Area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
      [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  66.:MNI=.045:SCI=   .0]
.005:0024----------ID:RHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
 * CALIB STANDHYD     01:FR6A          .46     .017 No_date     1:20   16.05 .355
      [XIMP=.1:TIMP=.21]
      [Loss= 2 :CN= 71.0]
      [Pervious     Area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
      [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  59.:MNI=.045:SCI=   .0]
.005:0025----------ID:RHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
    CALIB STANDHYD     01:FR6B          .81     .034 No_date     1:20   16.05 .355
      [XIMP=.1:TIMP=.21]
      [Loss= 2 :CN= 71.0]
      [Pervious     Area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
      [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  59.:MNI=.045:SCI=   .0]
# Slope estimated at 2% based on Geotech studies.
# Tlag and Xlag based on total pond area.
# Xlag = A pond/A tot
# Ylag = weighted average of pond and backyards
.005:0027----------ID:RHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
    CALIB STANDHYD     01:FR7A          5.01     .469 No data     1:25   15.97 .1771
      [XIMP=.1:TIMP=.47]
      [Loss= 2 :CN= 71.0]
      [Pervious     Area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
      [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI= 103.:MNI=.045:SCI=   .0]
#*******************************************************************************
# 2 YEAR/CONTROLLED AREAS
#*******************************************************************************
#
.005:0028----------ID:RHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
 * CALIB STANDHYD     01:FR7A          1.32     .040 No_date     1:30   15.98 .1496
      [XIMP=.07:TIMP=.1]
      [Loss= 2 :CN= 71.0]
      [Pervious     Area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
      [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  95.:MNI=.045:SCI=   .0]
.005:0029----------ID:RHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
 * CALIB STANDHYD     01:FR7B1         .38     .011 No_date     1:30   15.98 .1496
      [XIMP=.07:TIMP=.1]
      [Loss= 2 :CN= 71.0]
      [Pervious     Area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
      [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  49.:MNI=.045:SCI=   .0]
.005:0030----------ID:RHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
 * CALIB STANDHYD     01:FR7B2         .22     .007 No_date     1:30   15.98 .1496
      [XIMP=.07:TIMP=.1]
      [Loss= 2 :CN= 71.0]
      [Pervious     Area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
      [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  49.:MNI=.045:SCI=   .0]
.005:0031----------ID:RHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
 * CALIB STANDHYD     01:FR7C1         .39     .011 No_date     1:30   15.98 .1496
      [XIMP=.07:TIMP=.1]
      [Loss= 2 :CN= 71.0]
      [Pervious     Area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
      [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  51.:MNI=.045:SCI=   .0]
.005:0032----------ID:RHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
 * CALIB STANDHYD     01:FR7C2         .17     .005 No_date     1:30   15.98 .1496
      [XIMP=.07:TIMP=.1]
      [Loss= 2 :CN= 71.0]
      [Pervious     Area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
      [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  54.:MNI=.045:SCI=   .0]
.005:0033----------ID:RHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
 * CALIB STANDHYD     01:FR7D          .30     .009 No_date     1:30   15.98 .1496
      [XIMP=.07:TIMP=.1]
      [Loss= 2 :CN= 71.0]
```

```
        [Pervious    area: TAper= 1.67:SLPP=1.50:LGP=  40.:MNP=.250:SCP=   .0]
        [Impervious  area: TAimp= 1.57:SLPI=1.00:LGI=  45.:MNI=.045:SCI=   .0]
 005:0034-------------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
   *  CALIB STANDHYD      01:FR8          1.38      .035 No_date    1:40   12.34 .273
        [XIMP=.01:TIMP=.07]
        [LOSS= 2 :CN= 71.0]
        [Pervious    area: TAper= 4.07:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
        [Impervious  area: TAimp= 1.57:SLPI=1.00:LGI=  96.:MNI=.045:SCI=   .0]
 005:0035-------------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
   *  CALIB STANDHYD      01:FR9A         1.16      .029 No_date    1:35   12.34 .273
        [XIMP=.01:TIMP=.07]
        [LOSS= 2 :CN= 71.0]
        [Pervious    area: TAper= 4.07:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
        [Impervious  area: TAimp= 1.57:SLPI=1.00:LGI=  56.:MNI=.045:SCI=   .0]
 005:0036-------------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
   *  CALIB STANDHYD      01:FR9B1         .23      .007 No_date    1:35   12.34 .273
        [XIMP=.01:TIMP=.07]
        [LOSS= 2 :CN= 71.0]
        [Pervious    area: TAper= 4.07:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
        [Impervious  area: TAimp= 1.57:SLPI=1.00:LGI=  41.:MNI=.045:SCI=   .0]
 005:0037-------------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
   *  CALIB STANDHYD      01:FR9B2        1.00      .027 No_date    1:35   12.34 .273
        [XIMP=.01:TIMP=.07]
        [LOSS= 2 :CN= 71.0]
        [Pervious    area: TAper= 4.07:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
        [Impervious  area: TAimp= 1.57:SLPI=1.00:LGI=  82.:MNI=.045:SCI=   .0]
 005:0038-------------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
   *  CALIB STANDHYD      01:FR10         1.84      .048 No_date    1:40   12.34 .273
        [XIMP=.01:TIMP=.07]
        [LOSS= 2 :CN= 71.0]
        [Pervious    area: TAper= 4.07:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
        [Impervious  area: TAimp= 1.57:SLPI=1.00:LGI= 111.:MNI=.045:SCI=   .0]
 005:0039-------------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
   *  CALIB STANDHYD      01:FR11          .62      .017 No_date    1:35   12.34 .273
        [XIMP=.01:TIMP=.07]
        [LOSS= 2 :CN= 71.0]
        [Pervious    area: TAper= 4.07:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
        [Impervious  area: TAimp= 1.57:SLPI=1.00:LGI=  64.:MNI=.045:SCI=   .0]
*******************************************************************************
* EXISTING flow - Upstream of Residential Area Phase 1 and 2
*******************************************************************************
# Typical section based on proposed channel provided by AEL
# 4:1 bank slopes, Long slope = 0.50%, Manning's n is 0.03
# Route EX1 to d/s node N0
 005:0040-------------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ROUTE CHANNEL    -> 02:EX1         24.67     1.062 No_date    1:30   14.86  n/a
        [RDT= 5.00] out<- 01:REX1        24.67     1.005 No_date    1:35   14.86  n/a
        [L/S/n= 312./ .500/.030]
        [Vmax= .915:Dmax= .467]
# Total flow at N-FIR
# (Note that R16 will be sheet draining to proposed channel)
 005:0041-------------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ADD HYD                02:N1A         9.41      .274 No_date    1:40   17.08  n/a
                           + 03:N2A         3.13      .147 No_date    1:25   17.08  n/a
                           + 04:FR9A        1.10      .029 No_date    1:35   12.34  n/a
        [DT= 5.00]  SUM=   01:NR2A        13.64      .398 No_date    1:35   12.11  n/a
# Typical Section based on proposed channel provided by AEL
# 4:1 bank slopes, Long Slope = 0.50%, Manning's n is 0.03
# Route SW draining at N-R2A to d/s node N0
 005:0042-------------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ROUTE CHANNEL    -> 02:NR2A        13.64      .398 No_date    1:35   12.11  n/a
        [RDT= 5.00] out<- 01:RNR2A       13.64      .353 No_date    1:45   12.16  n/a
        [L/S/n= 447./ .500/.030]
        [Vmax= .708:Dmax= .258]
# Total flow at node K0
# (Note that EX2 will be sheet draining to proposed channel)
 005:0043-------------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ADD HYD                02:RNR2A       13.64      .353 No_date    1:45   12.16  n/a
                           + 03:REX1        24.62     1.005 No_date    1:35   14.86  n/a
                           + 04:FR9B1         .23      .007 No_date    1:35   12.34  n/a
                           + 05:FR9B2        1.00      .027 No_date    1:35   12.34  n/a
                           + 06:EX2          5.89      .171 No_date    2:10   12.08  n/a
        [DT= 5.00]  SUM=   01:N0          45.40     1.504 No_date    1:40   13.48  n/a
# Typical Section based on proposed channel provided by AEL
# 4:1 bank slopes, Long Slope = 0.50%, Manning's n is 0.03
# Route SW draining at N0 to d/s node K EX2
 005:0044-------------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ROUTE CHANNEL    -> 02:N0          45.40     1.504 No_date    1:40   13.48  n/a
        [RDT= 5.00] out<- 01:RN0         45.40     1.457 No_date    1:45   13.48  n/a
        [L/S/n= 324./ .500/.030]
        [Vmax= 1.040:Dmax= .479]
# Total flow at node K-EX2
 005:0045-------------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ADD HYD                02:RN0         45.40     1.457 No_date    1:45   13.48  n/a
                           + 03:FR10         1.84      .048 No_date    1:40   12.34  n/a
        [DT= 5.00]  SUM=   01:NEX2        47.24     1.500 No_date    1:45   13.43  n/a
# Route node K-EX2 to node K1
# Typical Section based on Shields ND Vee ditch 3:1 banks
# provided by Ariel
# Manning's n is 0.035, not maintained, light brush on banks
# Slope = 0.05% as per plan provided by Ariel
 005:0046-------------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ROUTE CHANNEL    -> 02:NEX2        51.24     1.503 No_date    1:45   13.44  n/a
   *    [RDT= 5.00] out<- 01:RNEX2       51.24     1.236 No_date    1:50   13.44  n/a
        [L/S/n= 253./ .050/.035]
        [Vmax= .354:Dmax= 1.206]
*******************************************************************************
* Residential Development - Phase 1 and 2
*******************************************************************************
* Total flow at node N-RR3
 005:0047-------------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ADD HYD                02:R3A         4.14      .152 No_date    1:30   12.08  n/a
                           + 03:R3B         2.21      .076 No_date    1:35   12.08  n/a
                           + 04:EX4          .50      .019 No_date    1:20   13.44  n/a
        [DT= 5.00]  SUM=   01:NRR3         6.85      .244 No_date    1:30   12.33  n/a
# Route node NRR3 to Node N-PR1
# Typical Section based on Mabey Branch Vee Ditch 1.5:1 slopes
# provided by Ariel
# Manning's n is channel not maintained, light brush on banks
# Slope = 0.60% Approximately as per Ariel drawing (85-56.11/318m)
 005:0048-------------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ROUTE CHANNEL    -> 02:NRR3         6.85      .244 No_date    1:30   12.33  n/a
        [RDT= 5.00] out<- 01:RNRSP        6.85      .241 No_date    1:30   12.33  n/a
        [L/S/n= 318./ .600/.050]
        [Vmax= .567:Dmax= .533]
# Total flow at node N-PR1
 005:0049-------------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ADD HYD                02:PR1         4.20      .170 No_date    1:30   12.08  n/a
                           + 03:RNRSP       6.85      .241 No_date    1:30   12.33  n/a
                           + 04:EX1A         .28      .009 No_date    1:20   16.05  n/a
        [DT= 5.00]  SUM=   01:NPR1        11.33      .383 No_date    1:35   12.33  n/a
# Volume to ponding area in PR1
# Q 0.350 m3/s localized as per SCS 100yr Existing conditions
# Culvert from Inlet 1
# Assuming outlet culvert is 600 mm, slope = 1.2%, HDPE smooth walls
# Manning's n = 0.012, inlet control headwater
# Hydraulic head = 0.9m, Q=0.616
 005:0050-------------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      COMPUTE DUALHYD        01:NPR1        11.33      .383 No_date    1:35   12.33  n/a
        Major System  /  02:NPRIMj          .00      .000 No_date    0:00     .00  n/a
        Minor System  \  03:NPRIMn        11.33      .383 No_date    1:35   12.33  n/a
        [Qsystem=.000E+00, Vol=/Vol=.000E+00, 1-Outf=  0, TotOutf=   0.Ltr]
# Input to Inlet 1 pipe
 005:0051-------------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ADD HYD                02:PRIR          .55      .021 No_date    1:20   16.05  n/a
                           + 03:NPRIMn      11.33      .383 No_date    1:35   12.33  n/a
        [DT= 5.00]  SUM=   01:In1         11.50      .383 No_date    1:35   12.50  n/a
# Pipe from Inlet 1 - Route to pond
# HDPE smooth wall pipe Manning's n = 0.012
 005:0052-------------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ROUTE PIPE       -> 02:In1         11.50      .383 No_date    1:35   12.50  n/a
        [RDT= 5.00] out<- 01:PIn1        11.50      .383 No_date    1:35   12.50  n/a
        [L/S/n=  65./1.500/.012]
        [Vmax= 2.500:Dmax= .283]
        [Din=  .600:Dused= .600]
# Culvert from Inlet 2
# HDPE smooth wall pipe Manning's n = 0.012
 005:0053-------------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ROUTE PIPE       -> 02:PR2A         1.57      .056 No_date    1:20   16.05  n/a
        [RDT= 5.00] out<- 01:Pin2         1.57      .057 No_date    1:20   16.05  n/a
        [L/S/n=  13./ .400/.013]
        [Vmax= 1.049:Dmax= .157]
        [Din= .500:Dused= .500]
# Input to Inlet 2 pipe
 005:0054-------------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ADD HYD                02:PR2B          1.17      .042 No_date    1:20   16.05  n/a
                           + 03:Pin2         1.57      .057 No_date    1:20   16.05  n/a
        [DT= 5.00]  SUM=   01:In2          2.74      .103 No_date    1:20   16.07  n/a
# Pipe from Inlet 2 - Route to pond
# HDPE smooth wall pipe Manning's n = 0.012
 005:0055-------------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ROUTE PIPE       -> 02:In2          2.74      .100 No_date    1:20   16.07  n/a
        [RDT= 5.00] out<- 01:PIn2         2.74      .097 No_date    1:20   16.07  n/a
        [L/S/n=  75./ .300/.012]
        [Vmax= .552:Dmax= .261]
        [Din= .500:Dused= .500]
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01827> # Culvert from inlet 3
01828> # HDPE smooth wall pipe Manning's n = 0.012
01829>  005:0056----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01830>       ROUTE PIPE        -> 02:PR3A         .45      .017 No_date    1:20   16.05  n/a
01831>        [RDT= 5.00] out<- 01:CIn3         .45      .018 No_date    1:20   16.05  n/a
01832>        [L/S/n=  11./ .400/.012]
01833>        [Vmax=  .134:Dmax=  .086]
01834>        [Dini=  .500:Dused=  .500]
01835> # Input to inlet 3 pipe
01836>  005:0057----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01837>       ADD HYD               02:PR3B         .52      .020 No_date    1:20   16.05  n/a
01838>                          +  03:CIn3         .45      .018 No_date    1:20   16.05  n/a
01839>        [DT= 5.00]  SUM=  01:In3          .97      .038 No_date    1:20   16.05  n/a
01840> # Pipe from inlet 3 - Route to pond
01841> # HDPE smooth wall pipe Manning's n = 0.012
01842>  005:0058----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01843>       ROUTE PIPE        -> 02:In3          .97      .038 No_date    1:20   16.05  n/a
01844>        [RDT= 5.00] out<- 01:Pin3         .97      .038 No_date    1:20   16.05  n/a
01845>        [L/S/n=  75./ .200/.012]
01846>        [Vmax=  .732:Dmax=  .154]
01847>        [Dini=  .500:Dused=  .500]
01848> # Culvert from inlet 4
01849> # HDPE smooth wall pipe Manning's n = 0.012
01850>  005:0059----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.
01851>       ROUTE PIPE        -> 02:PR4A         .71      .026 No_date    1:20   16.05  n/a
01852>        [RDT= 5.00] out<- 01:CIn4         .71      .028 No_date    1:20   16.05  n/a
01853>        [L/S/n=  11./ .400/.012]
01854>        [Vmax=  .145:Dmax=  .108]
01855>        [Dini=  .500:Dused=  .500]
01856> # Input to inlet 4 pipe
01857>  005:0060----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.
01858>       ADD HYD               02:PR4B         .65      .024 No_date    1:20   16.05  n/a
01859>                          +  03:CIn4         .71      .028 No_date    1:20   16.05  n/a
01860>        [DT= 5.00]  SUM=  01:In4         1.36      .052 No_date    1:20   16.05  n/a
01861> # Pipe from inlet 4 (ULTIMATE CONDITIONS) - Route to pond
01862> # HDPE smooth wall pipe Manning's n = 0.012
01863>  005:0061----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01864>       ROUTE PIPE        -> 02:In4         1.36      .052 No_date    1:20   16.05  n/a
01865>        [RDT= 5.00] out<- 01:Pin4        1.36      .051 No_date    1:20   16.05  n/a
01866>        [L/S/n=  65./1.900/.012]
01867>        [Vmax= 1.749:Dmax=  .160]
01868>        [Dini=  .500:Dused=  .500]
01869> # Culvert from inlet 5
01870> # HDPE smooth wall pipe Manning's n = 0.012
01871>  005:0062----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01872>       ROUTE PIPE        -> 02:PR5A         .56      .025 No_date    1:20   16.05  n/a
01873>        [RDT= 5.00] out<- 01:CIn5         .56      .026 No_date    1:20   16.05  n/a
01874>        [L/S/n=  13./ .400/.012]
01875>        [Vmax=  .826:Dmax=  .104]
01876>        [Dini=  .500:Dused=  .500]
01877> # Input to inlet 5 pipe
01878>  005:0063----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01879>       ADD HYD               02:PR5B         .46      .017 No_date    1:20   16.05  n/a
01880>                          +  03:CIn5         .56      .026 No_date    1:20   16.05  n/a
01881>        [DT= 5.00]  SUM=  01:In5         1.12      .043 No_date    1:20   16.05  n/a
01882> # Pipe from inlet 5 - Route to pond
01883> # HDPE smooth wall pipe Manning's n = 0.012
01884>  005:0064----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01885>       ROUTE PIPE        -> 02:In5         1.12      .043 No_date    1:20   16.05  n/a
01886>        [RDT= 5.00] out<- 01:Pin5        1.12      .043 No_date    1:20   16.05  n/a
01887>        [L/S/n=  71./1.600/.012]
01888>        [Vmax= 1.578:Dmax=  .130]
01889>        [Dini=  .500:Dused=  .500]
01890> # Culvert from inlet 6
01891> # HDPE smooth wall pipe Manning's n = 0.012
01892>  005:0065----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01893>       ROUTE PIPE        -> 02:PR6A        1.43      .051 No_date    1:20   16.05  n/a
01894>        [RDT= 5.00] out<- 01:CIn6        1.43      .051 No_date    1:20   16.05  n/a
01895>        [L/S/n=  17./ .400/.012]
01896>        [Vmax= 1.012:Dmax=  .150]
01897>        [Dini=  .500:Dused=  .500]
01898> # Input to inlet 6 pipe
01899>  005:0066----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01900>       ADD HYD               02:PR6B         .93      .034 No_date    1:20   16.05  n/a
01901>                          +  03:CIn6        1.43      .051 No_date    1:20   16.05  n/a
01902>        [DT= 5.00]  SUM=  01:In6         2.36      .087 No_date    1:20   16.05  n/a
01903> # Pipe from inlet 6 - Route to pond
01904> # HDPE smooth wall pipe Manning's n = 0.012
01905>  005:0067----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01906>       ROUTE PIPE        -> 02:In6         2.36      .087 No_date    1:20   16.05  n/a
01907>        [RDT= 5.00] out<- 01:Pin6        2.36      .086 No_date    1:20   16.05  n/a
01908>        [L/S/n=  70./ .300/.012]
01909>        [Vmax=  .862:Dmax=  .216]
01910>        [Dini=  .500:Dused=  .500]
01911> # VOLUME TO POND ULTIMATE RESIDENTIAL
01912>  005:0068----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01913>       ADD HYD               02:Pin1       11.90      .181 No_date    1:35   12.51  n/a
01914>                          +  03:Pin2        9.74      .097 No_date    1:20   15.11  n/a
01915>                          +  04:Pin3         .97      .038 No_date    1:20   16.05  n/a
01916>                          +  05:Pin4        1.36      .054 No_date    1:20   16.05  n/a
01917>                          +  06:Pin5        1.12      .043 No_date    1:20   16.05  n/a
01918>                          +  07:Pin6        2.36      .086 No_date    1:20   16.05  n/a
01919>                          +  08:PDC         5.03      .169 No_date    1:25   25.37  n/a
01920>        [DT= 5.00]  SUM=  01:PONDin      25.48     1.034 No_date    1:25   16.34  n/a
01921>  005:0069----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.
01922>       ROUTE RESERVOIR -> 02:PONDin      25.48     1.034 No_date    1:25   16.34  n/a
01923>        [RDT= 5.00] out<- 01:PDout       25.48      .072 No_date    4:10   16.34  n/a
01924>                overflow <= 03:ovrfl       .00      .000 No_date    0:00     .00  n/a
01925>        {MxStoUsed=.3403E-00, TotOvfVol=.0000E+00, N-Ovf=    0, TotDurOvf=    0.0hrs}
01926> # Simulating SCS 100 yr conditions with submergence of outflow weir
01927> # updated for weir .6: .6: 5.0
01928> #ROUTE RESERVOIR       NHYDout=["PDout"],NHYDin=["PONDin"],
01929> #                       RDT=[5](min),
01930> #                           TABLE of ( OUTFLOW-STORAGE ) values
01931> #                                    (cms) - (ha-m)
01932> #                                  [  0.0 ,   0.0 ]
01933> #                                   0.0030 , 1.1100
01934> #                                   0.30   , 1.3070
01935> #                                   0.83   , 2.0195
01936> #                                      -1  ,  -1  ]   (max twenty pts)
01937> #                       NHYDovf=["ovrfl"],
01938> # Route pond output through first set of pipes
01939> # 2 x 600 pipes simulated with 1 pipe of equivalent capacity (~780 mm dia)
01940> # HDPE smooth wall pipe Manning's n = 0.012
01941>  005:0070----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01942>       ROUTE PIPE        -> 02:PDout      25.48      .072 No_date    4:10   16.34  n/a
01943>        [RDT= 5.00] out<- 01:Pout1       25.48      .072 No_date    4:10   16.34  n/a
01944>        [L/S/n=  75./ .200/.012]
01945>        [Vmax=  .330:Dmax=  .100]
01946>        [Dini=  .780:Dused=  .780]
01947> # Flow u/s of outlet culverts
01948>  005:0071----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01949>       ADD HYD               02:EX7B1        .16      .011 No_date    1:35   13.38  n/a
01950>                          +  03:EX7B7        .12      .007 No_date    1:45   13.38  n/a
01951>                          +  04:Pout1      25.48      .072 No_date    4:10   16.34  n/a
01952>        [DT= 5.00]  SUM=  01:Pout       28.06      .074 No_date    4:00   16.28  n/a
01953> # Route outflow through set of Culverts
01954> # 2 x 600 culverts simulated with 1 culvert of equivalent capacity (~780 mm dia
01955> # HDPE smooth wall pipe Manning's n = 0.012
01956>  005:0072----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01957>       ROUTE PIPE        -> 02:Pout       26.06      .074 No_date    4:05   16.28  n/a
01958>        [RDT= 5.00] out<- 01:Cout       26.06      .074 No_date    4:05   16.28  n/a
01959>        [L/S/n=  13./ .400/.012]
01960>        [Vmax= 1.078:Dmax=  .135]
01961>        [Dini=  .780:Dused=  .780]
01962> # Flow u/s of second set of outflow pipes
01963>  005:0073----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01964>       ADD HYD               02:EX7C1        .39      .012 No_date    1:35   13.38  n/a
01965>                          +  03:EX7C2        .17      .005 No_date    1:35   13.38  n/a
01966>                          +  04:Cout       26.06      .074 No_date    4:05   16.28  n/a
01967>        [DT= 5.00]  SUM=  01:Pout2      26.62      .076 No_date    4:00   16.21  n/a
01968> # Route outflow through second set of pipes
01969> # 2 x 600 pipes simulated with 1 pipe of equivalent capacity (~780 mm dia)
01970> # HDPE smooth wall pipe Manning's n = 0.012
01971>  005:0074----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01972>       ROUTE PIPE        -> 02:Pout2      26.62      .076 No_date    4:00   16.21  n/a
01973>        [RDT= 5.00] out<- 01:PoutF      26.62      .076 No_date    4:00   16.21  n/a
01974>        [L/S/n=  65./ .200/.012]
01975>        [Vmax=  .352:Dmax=  .102]
01976>        [Dini=  .780:Dused=  .780]
01977> # Total flow at node N1 (Shield MD along Galea Barn Rd)
01978>  005:0075----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01979>       ADD HYD               02:PNEXI      51.21     1.235 No_date    1:50   13.14  n/a
01980>                          +  03:PoutF      26.62      .076 No_date    4:00   16.21  n/a
01981>                          +  04:XXX          .35      .014 No_date    1:20   15.98  n/a
01982>                          +  05:PROD         .33      .009 No_date    1:45   13.38  n/a
01983>                          +  06:PKI          .82      .017 No_date    1:35   12.34  n/a
01984>        [DT= 5.00]  SUM=  01:N1         79.17     1.329 No_date    1:50   14.37  n/a
01985> # ROUTE N1 to N2
01986> # Typical Section based on Shields MD Vee Ditch 3:1 banks
01987> # provided by Atrel
01988> # Manning's n is Channel not maintained, light brush on banks
01989> # Slope = 0.05% as per plan provided by Atrel.
01990>  005:0076----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01991>       ROUTE CHANNEL    -> 02:N1        79.17     1.329 No_date    1:50   14.37  n/a
01992>        [RDT= 5.00] out<- 01:RN1        79.17     1.039 No_date    2:00   14.37  n/a
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00597>      CALIB STANDHYD     01:FR6A       1.43      .628 No_date    1:23   10.02 .296
00598>        [XIMP=.11:TIMP=.21]
00599>        [LOSS= 2 :CN= 71.0]
01000>        |Pervious     area: IAper= 1.32:SLPP=1.00:LGP=  30.:MNP=.250:SCP=   .0|
01001>        |Impervious   area: IAimp= 1.43:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0|
01002> 002:0070---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01003>      CALIB STANDHYD     01:FR6B       .93      .420 No_date    1:22   10.02 .296
01004>        [XIMP=.1 :TIMP=.2]
01005>        [LOSS= 2 :CN= 71.0]
01006>        |Pervious     area: IApere= 4.87:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0|
01007>        |Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0|
01008> # slope estimates at 2% based on backyard swales.
01009> # Ximp and Timp based on total pond area
01010> # Simp = A pond/A tot
01011> # Timp = weighted average of pond and backyards
01012> 002:0070---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01013>      CALIB STANDHYD     01:FR6u       5.07      .715 No_date    1:25   10.02 .532
01014>        [XIMP=.44:TIMP=.44]
01015>        [LOSS= 2 :CN= 71.0]
01016>        |Pervious     area: IAper= 4.87:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0|
01017>        |Impervious   area: IAimp= 1.57:SLPI=1.00:LGI= 183.:MNI=.045:SCI=   .0|
01018> *************************************************************************
01019> # UNCONTROLLED AREAS
01020> *************************************************************************
01021> #
01022>  002:0031---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01023>   *  CALIB STANDHYD     01:FR7A       1.57      .618 No_date    1:48   7.84 .231
01024>        [XIMP=.02:TIMP=.14]
01025>        [LOSS= 2 :CN= 71.0]
01026>        |Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  30.:MNP=.250:SCP=   .0|
01027>        |Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0|
01028> 002:0032---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01029>   *  CALIB STANDHYD     01:FR7B       .38      .095 No_date    1:46   7.80 .231
01030>        [XIMP=.02:TIMP=.14]
01031>        [LOSS= 2 :CN= 71.0]
01032>        |Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0|
01033>        |Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  49.:MNI=.045:SCI=   .0|
01034> 002:0033---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01035>   *  CALIB STANDHYD     01:FR7b2      .22      .093 No_date    1:40   7.84 .231
01036>        [XIMP=.02:TIMP=.14]
01037>        [LOSS= 2 :CN= 71.0]
01038>        |Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  30.:MNP=.250:SCP=   .0|
01039>        |Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0|
01040> 002:0034---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01041>   *  CALIB STANDHYD     01:FR7C1      .38      .092 No_date    1:46   7.84 .231
01042>        [XIMP=.02:TIMP=.14]
01043>        [LOSS= 2 :CN= 71.0]
01044>        |Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  30.:MNP=.250:SCP=   .0|
01045>        |Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0|
01046> 002:0035---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01047>   *  CALIB STANDHYD     01:FR7C2      .17      .092 No_date    1:40   7.84 .231
01048>        [XIMP=.02:TIMP=.14]
01049>        [LOSS= 2 :CN= 71.0]
01050>        |Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0|
01051>        |Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  34.:MNI=.045:SCI=   .0|
01052> 002:0036---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01053>   *  CALIB STANDHYD     01:FR7D       .30      .004 No_date    1:40   7.84 .231
01054>        [XIMP=.02:TIMP=.14]
01055>        [LOSS= 2 :CN= 71.0]
01056>        |Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0|
01057>        |Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  45.:MNI=.045:SCI=   .0|
01058> 002:0037---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01059>   *  CALIB STANDHYD     01:FR8        1.33      .491 No_date    1:52   7.21 .210
01060>        [XIMP=.01:TIMP=.07]
01061>        [LOSS= 2 :CN= 71.0]
01062>        |Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0|
01063>        |Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0|
01064> 002:0038---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01065>   *  CALIB STANDHYD     01:FR9A       1.10      .313 No_date    1:52   7.11 .210
01066>        [XIMP=.01:TIMP=.07]
01067>        [LOSS= 2 :CN= 71.0]
01068>        |Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0|
01069>        |Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  86.:MNI=.045:SCI=   .0|
01070> 002:0039---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01071>   *  CALIB STANDHYD     01:FR9B       .25      .081 No_date    1:40   7.11 .210
01072>        [XIMP=.01:TIMP=.07]
01073>        [LOSS= 2 :CN= 71.0]
01074>        |Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0|
01075>        |Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  41.:MNI=.045:SCI=   .0|
01076> 002:0040---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01077>   *  CALIB STANDHYD     01:FR9B1      1.80      .807 No_date    1:51   7.11 .210
01078>        [XIMP=.01:TIMP=.07]
01079>        [LOSS= 2 :CN= 71.0]
01080>        |Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0|
01081>        |Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  83.:MNI=.045:SCI=   .0|
01082> 002:0041---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01083>   *  CALIB STANDHYD     01:FR10       1.80      .027 No_date    1:53   7.11 .210
01084>        [XIMP=.01:TIMP=.07]
01085>        [LOSS= 2 :CN= 71.0]
01086>        |Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0|
01087>        |Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  71.:MNI=.045:SCI=   .0|
01088> 002:0042---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01089>   *  CALIB STANDHYD     01:FR11       .62      .008 No_date    1:50   7.11 .210
01090>        [XIMP=.01:TIMP=.07]
01091>        [LOSS= 2 :CN= 71.0]
01092>        |Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0|
01093>        |Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  81.:MNI=.045:SCI=   .0|
01094> *************************************************************************
01095> # EXISTING Flow - Upstream of Proposed Development
01096> *************************************************************************
01097> # Total flow at node N-EX1
01098> 002:0043---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01099>      ADD HYD            02:EX1       24.62      .627 No_date    1:30   8.98  n/a
01100>                       + 03:EXC1       1.19      .064 No_date    1:20  14.56  n/a
01101>                       + 04:EXC2       1.07      .080 No_date    1:20  16.59  n/a
01102>        [CC= 1.00]  SUM= 01:NEX1      26.79      .674 No_date    1:34   9.50  n/a
01103> # Typical Section based on proposed channel provided by AEL
01104> # 4:1 bank slopes, Long slope = 0.65%, Manning's n is 0.03
01105> # Route Node N-EX1 to d/s node N0
01106> 002:0044---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01107>      ROUTE CHANNEL      -> 02:NEX1      26.79      .671 No_date    1:34   9.50  n/a
01108>        [RDT= 1.00] sum<- 01:EX1       26.79      .669 No_date    1:38   9.50  n/a
01109>        [L/S/n= 312./ .650/.030]
01110>        [Vmax= 1.017:Qmax=  .201]
01111> *************************************************************************
01112> # TOTAL INFLOW TO COMMERCIAL POND PDC
01113> *************************************************************************
01114> 002:0045---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01115>      ADD HYD            02:EX1        .00      .011 No_date    1:20   9.64  n/a
01116>                       + 03:C1        8.30      .958 No_date    1:20  23.76  n/a
01117>                       + 04:C7        6.36      .943 No_date    1:20  27.78  n/a
01118>                       + 05:FDc       1.27      .218 No_date    1:20  24.71  n/a
01119>        [CC= 1.00]  SUM= 01:PDCin     16.73     2.120 No_date    1:21  24.51  n/a
01120> 002:0046---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01121>      ROUTE RESERVOIR -> 02:PDCin     16.73     2.120 No_date    1:21  24.51  n/a
01122>        [RDT= 1.00] sto<- 01:PDCout   16.71      .207 No_date    2:15  24.51  n/a
01123>              overflow <- 03:Ovr2      .00      .000 No_date    0:00   .00  n/a
01124>        (MxStorage=.30 OF=0, TotOvrVol=.0000E-00, N-Ovf     0, IctUnroof=    0.0ha)
01125> # Total flow at outlet of commercial pond
01126> 002:0047---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01127>      ADD HYD            02:PDCout     16.71      .207 No_date    2:15  24.51  n/a
01128>                       + 03:FDRA        .20      .013 No_date    1:52   7.11  n/a
01129>        [CC= 1.00]  SUM= 01:N-Pdc      17.81      .218 No_date    2:12  23.81  n/a
01130> # Route pond outflow at pipe u/s of node N0
01131> # Typical Section based on proposed channel provided by AEL
01132> # 4:1 bank slopes, Long slope = 0.25%, Manning's n is 0.03
01133> 002:0048---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01134>      ROUTE CHANNEL      -> 02:SPDc      17.81      .218 No_date    2:12  23.81  n/a
01135>        [RDT= 1.00] sto<- 01:FnPDc     17.81      .214 No_date    2:20  23.81  n/a
01136>        [L/S/n= 350./ .250/.030]
01137>        [Vmax=  .479:Qmax=  .234]
01138> # Total channel flow at pipe u/s of node N0
01139> 002:0049---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01140>      ADD HYD            02:FnPDc      17.81      .214 No_date    2:20  23.81  n/a
01141>                       + 03:EXBE1      .25      .003 No_date    1:40   7.  n/a
01142>                       + 04:EXBE2     1.00      .012 No_date    1:5    7.1  n/a
01143>        [CC= 1.00]  SUM= 01:nN0       19.06      .224 No_date    2:21  22.72  n/a
01144> ********************
01145> # Total flow at node N0
01146> # (Note that EX2 at 1 ac wheel drainig to proposed channel)
01147> 002:0050---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01148>      ADD HYD            02:nuN0       19.06      .224 No_date    2:21  22.72  n/a
01149>                       + 03:EXBE1     26.79      .649 No_date    1:39   9.50  n/a
01150>                       + 04:EX2        9.88      .109 No_date    2:11   7.16  n/a
01151>                         05:EX3         .39      .050 No_date    1:20  32.56  n/a
01152>        [CC= 1.00]  SUM= 01:N0        55.98      .847 No_date    1:43  15.68  n/a
01153> # Typical Section based on proposed channel provided by AEL
01154> # 4:1 bank slopes, Long slope = 0.40%, Manning's n is 0.03
01155> # Route SW draining at N0 to d/s node N-EX2
01156> 002:0051---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01157>      ROUTE CHANNEL      -> 02:N0       55.98      .847 No_date    1:43  15.68  n/a
01158>        [RDT= 1.00] sto<- 01:nN0       55.98      .808 No_date    1:40   9.50  n/a
01159>        [L/S/n=  924./ .400/.030]
01160>        [Vmax=  .815:Qmax=  .398]
01161> # Total flow at node N-EX2
01162> 002:0052---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
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01163>       ADD HYD          02:RO40      55.98     .808 No_date    1:40   13.65  n/a
01164>                      + 03:rv1C       1.67     .022 No_date    1:03    7.11  n/a
01165>       [DT= 1.00]  SUM= 01:nEX2      57.85     .830 No_date    1:40   13.47  n/a
01166> # Route Node N-EX2 to Node N1
01167> # Typical section based on Sheicles MD Vee Ditch 7:1 ranes
01168> # provided by Arrel
01169> # Manning's n is Channel, not mainstream, light brush on banks
01170> # Slope = 0.05> as per plan provided by Arrel.
01171>  002:0054----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
01172>       ROUTE CHANNEL    -> 02:nEX2      57.85     .830 No_date    1:40   13.47  n/a
01173>       [RDT= 1.00] out<- 01:nNO2       57.85     .894 No_date    1:58   13.47  n/a
01174>       [L/S/n=  958./ .050/ 0.05]
01175>       [Vmax=  .317:Dmax=  .554]
01176> *********************************************************************
01177> * Residential Development - Phase 1 and 2
01178> *********************************************************************
01179> * Total flow at node N-PE1
01180>  002:0054----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
01181>       ADD HYD          02:PE1          4.26     .097 No_date    1:31    7.16  n/a
01182>                      + 01:P1A          .24     .008 No_date    1:20   10.02  n/a
01183>       [IT= 1.00]  SUM= 01:nPE1        4.50     .101 No_date    1:31    7.21  n/a
01184> * Volume to ponding area in PE1
01185> * Q=0.555 m3/s supplied as per YCS 100yr Existing conditions
01186> * Culvert from Inlet 1
01187> * Assuming outlet culvert is 600 mm, slope = 1.2%, HDPE smooth walls
01188> * Manning's n = 0.012, inlet control nomograph
01189> * Hydraulic head = 0.9m, Q=0.616
01190>  002:0055----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
01191>       CONJOIN JUALREY  01:nRA1         4.50     .101 No_date    1:31    7.21  n/a
01192>          Major System /  02:NEXTMj       .00     .000 No_date    0:00    .00  n/a
01193>          Minor System \  03:NEXTMn      4.50     .101 No_date    1:31    7.21  n/a
01194>          (MjSysFlow=.000CMS, TotCtrVol=.000E+00, N-Qvl=    0, TotSurCv=    0.hrs)
01195> * Input to Inlet 3 pipe
01196>  002:0056----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
01197>       ADD HYD          02:PE1B          .55     .012 No_date    1:21   10.02  n/a
01198>                      + 03:NEXTMn       4.50     .101 No_date    1:31    7.21  n/a
01199>       [IT= 1.00]  SUM= 01:In1         5.05     .109 No_date    1:31    7.21  n/a
01200> # Pipe from Inlet 1 - Route to pond
01201> # HDPE smooth wall pipe Manning's n = 0.012
01202>  002:0057----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
01203>       ROUTE PIPE       -> 02:In1       5.05     .109 No_date    1:32    7.21  n/a
01204>       [RDT= 1.00] out<- 01:Pin1        5.05     .109 No_date    1:32    7.21  n/a
01205>       [L/S/n=  60./1.800/.012]
01206>       [Vmax= 2.035:Dmax=  .145]
01207>       [Din=  .600:Dused=  .600]
01208> # Culvert from Inlet 2
01209> # HDPE smooth wall pipe Manning's n = 0.012
01210>  002:0058----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
01211>       ROUTE PIPE       -> 02:PE2A       1.57     .042 No_date    1:23   10.02  n/a
01212>       [RDT= 1.00] out<- 01:Cin2        1.57     .042 No_date    1:23   10.02  n/a
01213>       [L/S/n=  13./ .400/.012]
01214>       [Vmax=  .988:Dmax=  .115]
01215>       [Din=  .500:Dused=  .500]
01216> # Input to Inlet 2 pipe
01217>  002:0059----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
01218>       ADD HYD          02:PE2B          1.57     .034 No_date    1:22   10.00  n/a
01219>                      + 03:Cin2         1.57     .042 No_date    1:23   10.02  n/a
01220>       [DT= 1.00]  SUM= 01:In2         3.14     .076 No_date    1:23   10.10  n/a
01221> # Pipe from Inlet 2 - Route to pond
01222> # HDPE smooth wall pipe Manning's n = 0.012
01223>  002:0060----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
01224>       ROUTE PIPE       -> 02:In2       3.14     .076 No_date    1:23   10.10  n/a
01225>       [RDT= 1.00] out<- 01:Pin2        3.14     .076 No_date    1:24   10.10  n/a
01226>       [L/S/n=  75./ .200/.012]
01227>       [Vmax=  .815:Dmax=  .150]
01228>       [Din=  .300:Dused=  .300]
01229> # Culvert from Inlet 3
01230> # HDPE smooth wall pipe Manning's n = 0.012
01231>  002:0061----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
01232>       ROUTE PIPE       -> 02:PE3A        .45     .010 No_date    1:21   10.02  n/a
01233>       [RDT= 1.00] out<- 01:Cin3         .45     .010 No_date    1:21   10.02  n/a
01234>       [L/S/n=  13./ .400/.012]
01235>       [Vmax=  .619:Dmax=  .066]
01236>       [Din=  .300:Dused=  .300]
01237> * Input to Inlet 4 pipe
01238>  002:0062----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
01239>       ADD HYD          02:PE3B          .52     .012 No_date    1:21   10.02  n/a
01240>                      + 03:Cin3          .45     .010 No_date    1:21   10.02  n/a
01241>       [DT= 1.00]  SUM= 01:In3           .97     .022 No_date    1:21   10.02  n/a
01242> # Pipe from Inlet 3 - Route to pond
01243> # HDPE smooth wall pipe Manning's n = 0.012
01244>  002:0063----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
01245>       ROUTE PIPE       -> 02:In3         .97     .022 No_date    1:21   10.02  n/a
01246>       [RDT= 1.00] out<- 01:Pin3         .97     .022 No_date    1:22   10.02  n/a
01247>       [L/S/n=  75./ .200/.012]
01248>       [Vmax=  .622:Dmax=  .116]
01249>       [Din=  .300:Dused=  .300]
01250> * Culvert from Inlet 4
01251> * HDPE smooth wall pipe Manning's n = 0.012
01252>  002:0064----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
01253>       ROUTE PIPE       -> 02:PE4A        .71     .015 No_date    1:22   10.02  n/a
01254>       [RDT= 1.00] out<- 01:Cin4         .71     .015 No_date    1:22   10.02  n/a
01255>       [L/S/n=  15./ .060/.012]
01256>       [Vmax=  .715:Dmax=  .082]
01257>       [Din=  .300:Dused=  .300]
01258> * Input to Inlet 5 pipe
01259>  002:0065----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
01260>       ADD HYD          02:PE4B          .65     .014 No_date    1:21   10.02  n/a
01261>                      + 03:Cin4          .71     .015 No_date    1:22   10.02  n/a
01262>       [DT= 1.00]  SUM= 01:In4          1.36     .029 No_date    1:22   10.02  n/a
01263> # Pipe from Inlet 4 (ULTIMATE CONDITIONS) - Route to pond
01264> # HDPE smooth wall pipe Manning's n = 0.012
01265>  002:0066----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
01266>       ROUTE PIPE       -> 02:In4-A       1.36     .029 No_date    1:22   10.02  n/a
01267>       [RDT= 1.00] out<- 01:Pin4         1.36     .029 No_date    1:22   10.02  n/a
01268>       [L/S/n=  55./1.900/.012]
01269>       [Vmax= 1.572:Dmax=  .078]
01270>       [Din=  .300:Dused=  .300]
01271> * Culvert from Inlet 5
01272> * HDPE smooth wall pipe Manning's n = 0.012
01273>  002:0067----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
01274>       ROUTE PIPE       -> 02:In5A        .66     .014 No_date    1:22   10.02  n/a
01275>       [RDT= 1.00] out<- 01:Cin5         .66     .014 No_date    1:22   10.02  n/a
01276>       [L/S/n=  13./ .400/.012]
01277>       [Vmax=  .707:Dmax=  .088]
01278>       [Din=  .300:Dused=  .300]
01279> * Input to Inlet 5 pipe
01280>  002:0068----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
01281>       ADD HYD          02:PE5B          .46     .010 No_date    1:21   10.02  n/a
01282>                      + 03:Cin5          .66     .014 No_date    1:22   10.02  n/a
01283>       [DT= 1.00]  SUM= 01:In5          1.12     .025 No_date    1:21   10.02  n/a
01284> # Pipe from Inlet 5 - Route to pond
01285> # HDPE smooth wall pipe Manning's n = 0.012
01286>  002:0069----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
01287>       ROUTE PIPE       -> 02:In5         1.12     .025 No_date    1:21   10.02  n/a
01288>       [RDT= 1.00] out<- 01:Pin5         1.12     .025 No_date    1:22   10.02  n/a
01289>       [L/S/n=  75./1.600/.012]
01290>       [Vmax= 1.330:Dmax=  .074]
01291>       [Din=  .300:Dused=  .300]
01292> # Culvert from Inlet 6
01293> # HDPE smooth wall pipe Manning's n = 0.012
01294>  002:0070----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
01295>       ROUTE PIPE       -> 02:PE6A        1.41     .029 No_date    1:23   10.02  n/a
01296>       [RDT= 1.00] out<- 01:Cin6         1.41     .029 No_date    1:23   10.02  n/a
01297>       [L/S/n=  13./ .400/.012]
01298>       [Vmax=  .867:Dmax=  .113]
01299>       [Din=  .300:Dused=  .300]
01300> # Input to Inlet 6 pipe
01301>  002:0071----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
01302>       ADD HYD          02:PE6B           .93     .020 No_date    1:22   10.00  n/a
01303>                      + 03:Cin6          1.41     .029 No_date    1:23   10.02  n/a
01304>       [DT= 1.00]  SUM= 01:In6          2.34     .049 No_date    1:22   10.02  n/a
01305> # Pipe from Inlet 6 - Route to pond
01306> # HDPE smooth wall pipe Manning's n = 0.012
01307>  002:0072----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
01308>       ROUTE PIPE       -> 02:In6         2.34     .049 No_date    1:22   10.02  n/a
01309>       [RDT= 1.00] out<- 01:Pin6         2.34     .048 No_date    1:23   10.02  n/a
01310>       [L/S/n=  70./ .300/.012]
01311>       [Vmax=  .913:Dmax=  .159]
01312>       [Din=  .500:Dused=  .500]
01313> * VOLUME TO POND ULTIMATE RESIDENTIAL
01314>  002:0073----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
01315>       ADD HYD          02:Pin1          5.05     .109 No_date    1:32    7.21  n/a
01316>                      + 03:Pin2          2.74     .055 No_date    1:24   10.10  n/a
01317>                      + 04:Pin3           .97     .021 No_date    1:22   10.02  n/a
01318>                      + 05:Pin4          1.36     .030 No_date    1:22   10.02  n/a
01319>                      + 06:Pin5          1.12     .025 No_date    1:22   10.02  n/a
01320>                      + 07:Pin6          2.36     .048 No_date    1:23   10.02  n/a
01321>                      + 08:PEo           5.05     .519 No_date    1:25   18.67  n/a
01322>       [DT= 1.00]  SUM= 01:POND1n      18.65     .583 No_date    1:24   11.57  n/a
01323> *  Pond outflow for ultimate conditions using weir .8; .e; 2.0
01324>  002:0074----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
01325>       ROUTE RESERVOIR  -> 02:POND1n    18.65     .583 No_date    1:24   11.57  n/a
01326>       [RDT= 1.00] out<- 01:Pout        18.65     .015 No_date    4:15   11.57  n/a
01327>                      overflow <- 03:ovrQ          .00     .000 No_date    0:00    .00  n/a
01328>       (MxStoUsed=.18028+00, TotvolVol=.00008+00, N-Qvl=    0, TotSurCv=    0.hrs)
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01329> * Simulating 5CH 100 yr conditions with submergence of outflow wells
01330> * Updated for wells .6; .6; 3.0
01331> *ROUTE RESERVOIR     NAME=Pout-["POUT"] ,NEYDIR ["PONDIR"] ,
01332> *                    RET-[1](min),
01333> *                              TABLE OF | OUTFLOW-STORAGE | values
01334> *                                       (CFS) - (Ac-ft)
01335> *                                     |   0.0  ,   0.0 |
01336> *                                     0.80861 , 1.2809
01337> *                                     0.20    , 1.8110
01338> *                                     0.30    , 2.0165
01339> *                                     |   1  ,   1  |   (Max twenty pts)
01340> *                              NAME=Pout=["OUT"] ,
01341> * Route pond outout through first set of pipes
01342> * 2 x 600 pipes simulated with 1 pipe of equivalent capacity [=760 mm dia]
01343> * HDPE smooth wall pipe Manning's n = 0.012
01344> 002:0045----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
01345>      ROUTE PIPE      => 02:POut      18.63     .035 No date    4:15   11.57  n/a
01346>        [RET= 1.00] out= 01:Pout1     18.63     .035 No date    4:17   11.57  n/a
01347>        [L/S/n=  72./ .260/.012]
01348>        [Vmax=  .675:Dmax=  .127]
01349>        [Dln   .760:Dused=  .760]
01350> F Flow o/s of outlet culverts
01351> 002:0070----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
01352>      ADD HYD         02:ER7B1      .16     .005 No date    1:46    7.84  n/a
01353>                    + 03:ER7B2      .22     .003 No date    1:46    7.84  n/a
01354>                    + 04:Pout1    18.63     .035 No date    4:17   11.57  n/a
01355>        [02= 1.00]  SUM=  01:Pout    19.21     .036 No date    4:01   11.45  n/a
01356> 4 Route outflow through set of culverts
01357> 4 2 x 600 culverts simulated with 1 culvert of equivalent capacity [ 760 mm dia]
01358> # HDPE smooth wall pipe Manning's n = 0.012
01359> 002:0077----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
01360>      ROUTE PIPE      => 02:Pout      19.21     .036 No date    4:01   11.45  n/a
01361>        [RET= 1.00] out= 01:Out1    19.21     .036 No date    4:01   11.45  n/a
01362>        [L/S/n=  18./ .400/.012]
01363>        [Vmax=  .856:Dmax=  .138]
01364>        [Dln   .780:Dused=  .780]
01365> # Flow o/s of second set of outflow pipes
01366> 002:0078----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
01367>      ADD HYD         03:ER7C1      .16     .005 No date    1:46    7.84  n/a
01368>                    + 04:ER7C2      .17     .002 No date    1:46    7.84  n/a
01369>                    + 04:Out1     19.21     .036 No date    4:01   11.45  n/a
01370>        [01= 1.00]  SUM=  01:Pout2    19.77     .039 No date    2:05   11.35  n/a
01371> 4 Route outflow through second set of pipes
01372> 4 2 x 600 pipes simulated with 1 pipe of equivalent capacity [=760 mm dia]
01373> # HDPE smooth wall pipe Manning's n = 0.012
01374> 002:0079----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
01375>      ROUTE PIPE      => 02:Pout2   19.77     .039 No date    2:05   11.35  n/a
01376>        [RET= 1.00] out= 01:Pout3   19.77     .039 No date    2:50   11.35  n/a
01377>        [L/S/n=  65./ .230/.012]
01378>        [Vmax=  .695:Dmax=  .133]
01379>        [Dln   .780:Dused=  .780]
01380> * Total flow at node N7 (Shield MD along Swan Park Rd)
01381> 002:0080----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
01382>      ADD HYD         02:ANNX2      57.85     .894 No date    1:58   13.47  n/a
01383>                    + 03:Pout3    19.77     .039 No date    2:50   11.35  n/a
01384>                    + 04:EX7      .39     .014 No date    1:23   12.02  n/a
01385>                    + 05:ER7L     .33     .004 No date    1:45    7.93  n/a
01386>                    + 06:ER11     .62     .008 No date    1:50    7.11  n/a
01387>        [11= 1.00]  SUM=  01:N7       79.55     .711 No date    1:52   13.36  n/a
01388> # ROUTE N7 to N3
01389> # Typical Section based on Shields MD Vee Ditch 3:1 banks
01390> # provided by Ariel
01391> # Manning's n is Channel not maintained, light brush on banks
01392> # Slope = 0.05% as per plan provided by Ariel.
01393> 002:0081----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
01394>      ROUTE CHANNEL   => 02:N7        78.99     .710 No date    1:59   12.86  n/a
01395>        [RET= 1.00] out= 01:RN7       78.99     .610 No date    2:17   12.86  n/a
01396>        [L/S/n=  549./ .050/.035]
01397>        [Vmax=  .509:Dmax=  .912]
01398> 4 VOLUME from residential area contributing to N3
01399> 002:0082----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
01400>      ADD HYD         02:ER7A       1.35     .018 No date    1:49    7.84  n/a
01401>                    - 03:ER8        1.58     .016 No date    1:52    7.11  n/a
01402>        [02- 1.00]  SUM=  01:EX5      2.73     .035 No date    1:51    7.47  n/a
01403> 4 Added VOLUME from external area contributing to N3
01404> 002:0083----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
01405>      ADD HYD         03:RN7       78.99     .610 No date    2:17   12.86  n/a
01406>                    + 01:ex5      2.73     .035 No date    1:51    7.47  n/a
01407>                    + 04:ex6       .52     .022 No date    1:28   10.53  n/a
01408>                    + 05:ex4       .51     .017 No date    1:24   11.73  n/a
01409>                    + 06:ex7       .22     .024 No date    1:20   20.40  n/a
01410>        [01= 1.00]  SUM=  01:N3       83.96     .656 No date    2:16   12.72  n/a
01411> * ROUTE N3 to DC120
01412> * Typical Section based on Shields MD Vee Ditch 3:1 banks
01413> * provided by Ariel
01414> * Manning's n is Channel not maintained, light brush on banks
01415> * Slope = 0.05% as per plan provided by Ariel.
01416> 002:0084----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
01417>      ROUTE CHANNEL   => 02:N3        83.96     .651 No date    2:16   12.47  n/a
01418>        [RET= 1.00] out= 01:RN3       83.96     .555 No date    2:30   12.47  n/a
01419>        [L/S/n=  415./ .050/.025]
01420>        [Vmax=  .975:Dmax=  .835]
01421> # Flow at Stanley node DC0120 for comparison
01422> # routed N3 plus EX3
01423> 002:0085----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
01424>      ADD HYD         03:RN3       83.96     .556 No date    2:30   12.72  n/a
01425>                    + 02:EX3      21.50     .166 No date    2:24    7.16  n/a
01426>        [01= 1.00]  SUM=  01:DC0120  104.81     .737 No date    2:35   11.58  n/a
01427> F AREA CREEK
01428> F
01429> 002:0086----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
01430>      ADD HYD         01:EX1       54.67     .422 No date    1:35    8.96  n/a
01431>                    + 02:EX2       9.89     .106 No date    1:31    7.16  n/a
01432>                    + 04:EX3      21.50     .166 No date    1:24    7.16  n/a
01433>                    + 05:EX4        .50     .011 No date    1:31    9.64  n/a
01434>                    + 06:EX5        .50     .005 No date    1:24   16.58  n/a
01435>                    + 07:EX6        .51     .016 No date    1:24   11.23  n/a
01436>                    + 08:EX7        .35     .014 No date    1:15   12.02  n/a
01437>                    + 09:FR1A       .24     .006 No date    1:20   10.02  n/a
01438>                    + 10:FR1B       .55     .013 No date    1:21   10.02  n/a
01439>        [01= 1.00]  SUM=  01:Tot1    58.52     .390 No date    1:37    8.13  n/a
01440> 002:0087----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
01441>      ADD HYD         02:Tot1      58.52     .390 No date    1:37    8.13  n/a
01442>                    + 03:FR2A       1.50     .032 No date    1:23   10.02  n/a
01443>                    + 04:FR2B       1.17     .024 No date    1:22   10.02  n/a
01444>                    + 05:FR3A       1.45     .030 No date    1:21   10.02  n/a
01445>                    + 06:FR3B        .52     .012 No date    1:21   10.02  n/a
01446>                    + 07:FR4A        .71     .017 No date    1:22   10.02  n/a
01447>                    + 08:FR4B        .65     .011 No date    1:22   10.02  n/a
01448>                    + 09:FR5A        .66     .014 No date    1:22   10.02  n/a
01449>                    + 10:FR5B        .46     .010 No date    1:21   10.02  n/a
01450>        [02= 1.00]  SUM=  01:Tot2    64.71     .491 No date    1:38    8.31  n/a
01451> 002:0088----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
01452>      ADD HYD         02:Tot2      64.71     .491 No date    1:38    8.31  n/a
01453>                    + 03:FR6A       1.45     .029 No date    1:23   10.02  n/a
01454>                    + 04:FR6B        .93     .020 No date    1:22   10.02  n/a
01455>                    + 05:FR7A       1.45     .015 No date    1:40    7.84  n/a
01456>                    + 06:FR7B1      .36     .005 No date    1:46    7.84  n/a
01457>                    + 07 FR7B2      .22     .003 No date    1:40    7.84  n/a
01458>                    + 08:FR7C1      .39     .005 No date    1:46    7.84  n/a
01459>                    + 09:FR7C2      .17     .002 No date    1:40    7.84  n/a
01460>                    + 10:FR7D       .10     .001 No date    1:40    7.84  n/a
01461>        [77= 1.00]  SUM=  01:Tot3    69.66     .958 No date    1:35    8.35  n/a
01462> 002:0089----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
01463>      ADD HYD         02:Tot3      69.66     .958 No date    1:35    8.35  n/a
01464>                    + 03:EX8        1.38     .016 No date    1:52    7.11  n/a
01465>                    + 04:ER8A       1.10     .013 No date    1:52    7.11  n/a
01466>                    + 05 ER8B1      .25     .003 No date    1:49    7.11  n/a
01467>                    + 06:ER8B2      1.08     .012 No date    1:52    7.11  n/a
01468>                    + 07:ER9C       1.57     .017 No date    1:52    7.11  n/a
01469>                    + 08:ER11       .62     .008 No date    1:50    7.11  n/a
01470>                    + 09:EX1        4.26     .057 No date    1:41    7.16  n/a
01471>                    + 10:Pja        5.03     .139 No date    1:25   16.03  n/a
01472>        [DI  1.00]  SUM=  01:Tot4    85.37    1.308 No date    1:36    8.57  n/a
01473> 002:0090----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
01474>      ADD HYD         01:Tot4      85.37    1.308 No date    1:36    8.57  n/a
01475>                    + 01:C1         8.50     .959 No date    1:21   25.70  n/a
01476>                    + 04:C2         6.84     .563 No date    1:20   27.75  n/a
01477>                    + 05:C3          .24     .050 No date    1:20   32.58  n/a
01478>                    + 06:EXC1       1.10     .664 No date    1:20   34.59  n/a
01479>                    + 07:EXC2       1.80     .666 No date    1:20   34.59  n/a
01480>                    + 08:EXC4        .22     .074 No date    1:20   28.40  n/a
01481>                    + 09:PEA        1.57     .218 No date    1:20   24.71  n/a
01482>        [10= 1.00]  SUM=  01:Tot5   104.21    3.252 No date    1:21   11.58  n/a
01483> *********************************************************************
01484> * simulations with 4 hour Chicago from City of Ottawa
01485>   ** END OF RUN :   1
01486>
01487> ---------------------------------------------------------------------
01488>
01489>
01490>
01491>
01492>
01493> ADD:COMMAND#
01494> 005:0001----------------------------------------------------------------
```

```
      START
        [TZERO =    .00 hrs on        0]
        [METOUT=    2     (1=Imperial, 2=metric output)]
        [NSTORM=    1 ]
        [NRUN  =    5 ]
*******************************************************************************
*  SWMHYMO Ver:5.02/Jun 2001 <RECAP / INPUT DATA FILE
*******************************************************************************
*  Project Name: [Greely Village Center]    Project Number: [647-07]
*  Date        : 04-09-2008
*  Modeller    : [JHR]
*  Company     : JFSAInc.
*  License #   : 2947402
*******************************************************************************
*
* SWMHYMO model of the Greely Village Center - Residential Area - Phase 2
* Proposed Ultimate conditions. OPTION B
* Filename stands for: Greely, Commercial, Proposed
*******************************************************************************
 005:0007----------------------------------------------------------------------
      READ STORM
        Filename = stm1.961
        Comment  = 5 years Chicago Storm 4 Hours step 10 min, City of Ottawa
        [SCF 38.8:STORM    0.00:PTOT=  65.1]
*******************************************************************************
* Existing flow - McEvoy Branch of Shields Creek - Areas
* Area c/s of proposed development (residential)
* CN=75, sImp = 0.0, Ip=0.15, XIMP=.5, TIMP=.5, see SC002 as per Stantec
* Area partially adjusted based on Atrel drawings. Ip adjusted accordingly.
*******************************************************************************
* c/s of Bank St.s0 per Atrel - with modified boundaries and To.
 005:0008----------ID:NHYD--------AREA----QPEAK-TpeakDate hh:mn----R.V.-R.C.-
      DESIGN HASHYD      01:EX1        21.62     1.00% No_date    1:30   10.66 .325
        [CN= 75.0: N= 3.00]
        [Ip=    23:DT= 1.00]
*******************************************************************************
* Existing flow   External areas c/s of Bank St.
* CN*=80, as per Stantec see SC002.
* Area partially adjusted based on Atrel drawings.
*******************************************************************************
* Areas External to development
 005:0009----------ID:NHYD--------AREA----QPEAK-TpeakDate hh:mn----R.V.-R.C.-
      DESIGN HASHYD      01:EX2        9.99      .172 No_date    1:10   12.88 .264
        [CN= 69.0: N= 3.00]
        [Ip=  .18:DT= 1.00]
 005:0005----------ID:NHYD--------AREA----QPEAK-TpeakDate hh:mn----R.V.-R.C.-
      DESIGN HASHYD      01:EX3        21.28     .339 No_date    2:20   12.82 .261
        [CN= 69.0: N= 3.00]
        [Ip=    83:DT= 1.00]
* Slope, Trap. Area from Atrel Drawing
* CN from Stantec (SC001)
* Ximp = Timp = 10%
 005:0006----------ID:NHYD--------AREA----QPEAK-TpeakDate hh:mn----R.V.-R.C.-
      CALIB STANDHYD     01:EX4         .50      .017 No_date    1:21   15.44 .342
        [XIMP =.10:TIMP =.20]
        [LOSS= 2 :CN= 69.0]
        [Pervious     area: IApar= 4.87:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  58.:MNI=.045:SCI=   .0]
* Road and road side ditch along projected residential development Parkway Rd
* Timp - Ximp = 0.21 ha /0.52 ha = 0.40
* CN*=69, as per Stantec see SC001.
* Slope is estimated at 1%
* LGT based on centroid of area due to elongated shape  630m/2   = 300
 005:0007----------ID:NHYD--------AREA----QPEAK-TpeakDate hh:mn----R.V.-R.C.-
      CALIB STANDHYD     01:EX5         .52      .038 No_date    1:06   24.80 .527
        [XIMP=.40:TIMP=.40]
        [LOSS= 2 :CN= 69.0]
        [Pervious     area: IApar= 4.87:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  300.:MNI=.045:SCI=   .0]
* Road and road side ditch along projected residential development Sales/Barn Rd
* Timp - Ximp = 0.1 ha /0.51 ha = 0.20
* CN* 69, as per Stantec see SC001.
* Slope is estimated at 1%
* LGT based on centroid of area due to elongated shape = 354m/2 = 177
 005:0008----------ID:NHYD--------AREA----QPEAK-TpeakDate hh:mn----R.V.-R.C.-
      CALIB STANDHYD     01:EX6         .51      .023 No_date    1:24   17.20 .381
        [XIMP=.20:TIMP=.20]
        [LOSS= 2 :CN= 69.0]
        [Pervious     area: IApar= 4.87:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI= 177.:MNI=.045:SCI=   .0]
* Road and road side ditch along projected residential development Sales/Barn Rd
* Timp - Ximp = 0.08 ha /0.38 ha = 0.21
* CN*=69, as per Stantec see SC001.
* Slope is estimated at 1%
* LGT based on centroid of area due to elongated shape = 250m/2 = 125.0
 005:0009----------ID:NHYD--------AREA----QPEAK-TpeakDate hh:mn----R.V.-R.C.-
      CALIB STANDHYD     01:EX7         .38      .021 No_date    1:22   18.18 .403
        [XIMP=.20:TIMP=.20]
        [LOSS= 2 :CN= 69.0]
        [Pervious     area: IApar= 4.87:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  125.:MNI=.045:SCI=   .0]
*******************************************************************************
* PROPOSED COMMERCIAL DEVELOPMENT
*******************************************************************************
* CN = 79 as per 1a:: grass cover with C soil type for top soil; CN*=71
* XIMP = TIMP to be conservative
*******************************************************************************
 005:0010----------ID:NHYD--------AREA----QPEAK-TpeakDate hh:mn----R.V.-R.C.-
      DESIGN STANDHYD    01:C1         8.38     1.346 No_date    1:20   32.74 .725
        [XIMP=.63:TIMP=.63]
        [SLP=1.00:DT= 1.00]
        [Loss  2 :CN= 71.0]
 005:0011----------ID:NHYD--------AREA----QPEAK-TpeakDate hh:mn----R.V.-R.C.-
      DESIGN STANDHYD    01:C2         8.38     1.321 No_date    1:20   31.76 .686
        [XIMP=.70:TIMP=.70]
        [SLP=1.00:DT= 1.00]
        [Loss  2 :CN= 71.0]
 005:0012----------ID:NHYD--------AREA----QPEAK-TpeakDate hh:mn----R.V.-R.C.-
      DESIGN STANDHYD    01:C3         .24      .058 No_date    1:20   43.74 .768
        [XIMP=.65:TIMP=.93]
        [SLP= 1.00:DT= 1.00]
        [Loss= 2 :CN= 71.0]
* Simp = Imp ha/Local area = 0.80/1.10 ha = .73
 005:0013----------ID:NHYD--------AREA----QPEAK-TpeakDate hh:mn----R.V.-R.C.-
      DESIGN STANDHYD    01:EA21       1.10      .092 No_date    1:20   31.47 .674
        [XIMP=.27:TIMP=.27]
        [SLP 1.00:DT= 1.00]
        [Loss  2 :CN  71.0]
* Simp = Imp ha/total area =  0.35/1.07 ha =  .32
 005:0014----------ID:NHYD--------AREA----QPEAK-TpeakDate hh:mn----R.V.-R.C.-
      DESIGN STANDHYD    01:EA22       1.07      .113 No_date    1:20   23.97 .550
        [XIMP=.35:TIMP=.35]
        [SLP=1.00:DT= 1.00]
        [Loss= 2 :CN= 71.0]
* Simp   Imp ha/total area = 0.11/0.22ha = .50
 005:0015----------ID:NHYD--------AREA----QPEAK-TpeakDate hh:mn----R.V.-R.C.-
      DESIGN STANDHYD    01:EA23        .22      .033 No_date    1:20   28.65 .664
        [XIMP=.50:TIMP=.50]
        [SLP=1.00:DT= 1.00]
        [Loss= 2 :CN= 71.0]
*******************************************************************************
* Commercial pond (EA1)
* Slope estimated at 1% based on elevations around pond.
* Timp and Ximp based on total pond area
* ximp = A pond/A tot [1.04/1.57]
 005:0016----------ID:NHYD--------AREA----QPEAK-TpeakDate hh:mn----R.V.-R.C.-
      DESIGN STANDHYD    01:EA1        1.57      .291 No_date    1:30   68.90 .953
        [XIMP =.67:TIMP =.67]
        [SLP=1.00:DT= 1.00]
        [Loss= 2 :CN= 71.0]
##################################################################################
*******************************************************************************
* PROPOSED RESIDENTIAL SUBWATERSHEDS - Residential Area Phase 1 and 2
*******************************************************************************
* CN* 69, as per Stantec see SC001.
* Tp estimated with Bgland Method.
 005:0017----------ID:NHYD--------AREA----QPEAK-TpeakDate hh:mn----R.V.-R.C.-
      DESIGN HASHYD      01:PR1        4.76      .100 No_date    1:31   12.89 .266
        [CN= 60.0: N= 3.00]
        [Ip=  .18:DT= 1.00]
*******************************************************************************
* AREAS GOING TO RESIDENTIAL POND (EA1)
*******************************************************************************
*
 005:0018----------ID:NHYD--------AREA----QPEAK-TpeakDate hh:mn----R.V.-R.C.-
      CALIB STANDHYD     01:PR1A        .76      .019 No_date    1:20   16.05 .355
        [XIMP=.11:TIMP=.21]
        [LOSS= 2 :CN= 71.0]
        [Pervious     area: IApar= 4.87:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  40.:MNI=.045:SCI=   .0]
 005:0019----------ID:NHYD--------AREA----QPEAK-TpeakDate hh:mn----R.V.-R.C.-
      CALIB STANDHYD     01:PR1B        .55      .019 No_date    1:21   18.05 .355
        [XIMP =.11:TIMP =.21]
        [LOSS= 2 :CN= 71.0]
        [Pervious     area: IApar= 4.87:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  81.:MNI=.045:SCI=   .0]
```

```
 CALIB STANDHYD     01:FR3A        1.67      .061 No date     1:25   16.05 .350
   [XIMP=.11:TIMP=.21]
   [LOSS= 2 :CN= 71.0]
   [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
   [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
005:0021----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mn----R.V.-R.C.-
 CALIB STANDHYD     01:FR2B        1.17      .039 No date     1:22   16.05 .355
   [XIMP=.11:TIMP=.21]
   [LOSS= 2 :CN= 71.0]
   [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
   [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
005:0022----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mn----R.V.-R.C.-
 CALIB STANDHYD     01:FR3A        1.45      .046 No date     1:21   16.05 .350
   [XIMP=.11:TIMP=.21]
   [LOSS= 2 :CN= 71.0]
   [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
   [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
005:0023----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mn----R.V.-R.C.-
 CALIB STANDHYD     01:FR3B        1.52      .038 No date     1:21   16.05 .355
   [XIMP=.11:TIMP=.21]
   [LOSS= 2 :CN= 71.0]
   [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
   [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
005:0024----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mn----R.V.-R.C.-
 CALIB STANDHYD     01:FR4A        1.71      .044 No date     1:21   16.05 .355
   [XIMP=.11:TIMP=.21]
   [LOSS= 2 :CN= 71.0]
   [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
   [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
005:0025----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mn----R.V.-R.C.-
 CALIB STANDHYD     01:FR4B        1.66      .043 No date     1:21   16.05 .355
   [XIMP=.11:TIMP=.21]
   [LOSS= 2 :CN= 71.0]
   [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
   [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
005:0026----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mn----R.V.-R.C.-
 CALIB STANDHYD     01:FR5A        1.45      .038 No date     1:21   16.05 .355
   [XIMP=.11:TIMP=.21]
   [LOSS= 2 :CN= 71.0]
   [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
   [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
005:0027----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mn----R.V.-R.C.-
 CALIB STANDHYD     01:FR5B        1.46      .038 No date     1:21   16.05 .355
   [XIMP=.11:TIMP=.21]
   [LOSS= 2 :CN= 71.0]
   [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
   [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
005:0028----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mn----R.V.-R.C.-
 CALIB STANDHYD     01:FR6A        1.47      .041 No date     1:22   16.05 .355
   [XIMP=.11:TIMP=.21]
   [LOSS= 2 :CN= 71.0]
   [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
   [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
005:0029----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mn----R.V.-R.C.-
 CALIB STANDHYD     01:FR6B        1.53      .042 No date     1:22   16.05 .355
   [XIMP=.11:TIMP=.21]
   [LOSS= 2 :CN= 71.0]
   [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
   [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  79.:MNI=.045:SCI=   .0]
* slope estimated at 2  based on backyard swales.
* Cimp and Ximp based on total pond area
* ximp = A pond/A tot
* Cimp = weighted average of pond and backyards
005:0030----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mn----R.V.-R.C.-
 CALIB STANDHYD     01:POL         5.03      .465 No date     1:24   16.37 .503
   [XIMP=.44:TIMP=.47]
   [LOSS= 2 :CN= 71.0]
   [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
   [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI= 183.:MNI=.045:SCI=   .0]
*------------------------------------------------------------------------------
* UNCONTROLLED AREAS
*------------------------------------------------------------------------------
*
005:0031----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mn----R.V.-R.C.-
* CALIB STANDHYD     01:FR7A        1.35      .036 No date     1:21   15.38 .296
   [XIMP=.02:TIMP=.14]
   [LOSS= 2 :CN= 71.0]
   [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
   [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  55.:MNI=.045:SCI=   .0]
005:0032----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mn----R.V.-R.C.-
* CALIB STANDHYD     01:FR7B1       .38      .010 No date     1:19   15.38 .296
   [XIMP=.02:TIMP=.14]
   [LOSS= 2 :CN= 71.0]
   [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
   [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  55.:MNI=.045:SCI=   .0]
005:0033----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mn----R.V.-R.C.-
* CALIB STANDHYD     01:FR7C1       .39      .010 No date     1:19   15.38 .296
   [XIMP=.02:TIMP=.14]
   [LOSS= 2 :CN= 71.0]
   [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
   [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  55.:MNI=.045:SCI=   .0]
005:0034----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mn----R.V.-R.C.-
* CALIB STANDHYD     01:FR7C2       .37      .009 No date     1:18   15.38 .296
   [XIMP=.02:TIMP=.14]
   [LOSS= 2 :CN= 71.0]
   [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
   [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  55.:MNI=.045:SCI=   .0]
005:0035----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mn----R.V.-R.C.-
* CALIB STANDHYD     01:FR7D        .30      .009 No date     1:18   15.38 .296
   [XIMP=.02:TIMP=.14]
   [LOSS= 2 :CN= 71.0]
   [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
   [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  55.:MNI=.045:SCI=   .0]
005:0036----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mn----R.V.-R.C.-
* CALIB STANDHYD     01:FR8         1.38      .036 No date     1:19   15.34 .293
   [XIMP=.01:TIMP=.07]
   [LOSS= 2 :CN= 71.0]
   [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
   [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  90.:MNI=.045:SCI=   .0]
005:0037----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mn----R.V.-R.C.-
* CALIB STANDHYD     01:FR9A        1.10      .029 No date     1:41   15.34 .293
   [XIMP=.01:TIMP=.07]
   [LOSS= 2 :CN= 71.0]
   [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
   [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  86.:MNI=.045:SCI=   .0]
005:0038----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mn----R.V.-R.C.-
* CALIB STANDHYD     01:FR9B1       .25      .007 No date     1:39   15.34 .293
   [XIMP=.01:TIMP=.07]
   [LOSS= 2 :CN= 71.0]
   [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
   [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  41.:MNI=.045:SCI=   .0]
005:0040----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mn----R.V.-R.C.-
* CALIB STANDHYD     01:FR9C        1.00      .026 No date     1:41   15.34 .293
   [XIMP=.01:TIMP=.07]
   [LOSS= 2 :CN= 71.0]
   [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
   [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  82.:MNI=.045:SCI=   .0]
005:0041----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mn----R.V.-R.C.-
* CALIB STANDHYD     01:FR10        1.37      .048 No date     1:42   15.34 .293
   [XIMP=.01:TIMP=.07]
   [LOSS= 2 :CN= 71.0]
   [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
   [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI= 111.:MNI=.045:SCI=   .0]
005:0042----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mn----R.V.-R.C.-
* CALIB STANDHYD     01:FR11        .62      .017 No date     1:40   15.34 .293
   [XIMP=.01:TIMP=.07]
   [LOSS= 2 :CN= 71.0]
   [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
   [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  54.:MNI=.045:SCI=   .0]
*------------------------------------------------------------------------------
* EXIST.NO flow - Upstream of Proposed Development
*------------------------------------------------------------------------------
* Total flow at node B-EX1
005:0015----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mn----R.V.-R.C.-
   ADD HYD            02:EX1        24.82     1.036 No date     1:34   15.86 n/a
                    + 03:EX2C1       1.10      .052 No date     1:20   21.42 n/a
                    + 04:EX2C2       1.07      .113 No date     1:20   21.55 n/a
   [XT= 1.06]  SUM=   01:NEX1       26.79     1.159 No date     1:34   15.49 n/a
* Typical Section based on proposed channel provided by AEL
* 4:1 bank slopes, Long Slope = 0.8%, Manning's n is 0.03
* Route Node B-EX1 to J/L node N0
005:0016----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mn----R.V.-R.C.-
   ROUTE CHANNEL   => 01:NEX1       26.79     1.159 No date     1:34   15.49 n/a
   [RT= 1.00] cur= 01:EXDEX1        26.79     1.118 No date     1:35   15.49 n/a
   [L/S/n= 572./.80/.030]
   [Vmax= 1.158]Tmax= .396]
*------------------------------------------------------------------------------
* TOTAL INFLOW TO COMMERCIAL POND POC
*------------------------------------------------------------------------------
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01807>  005:0045----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01808>      ADD HYD            02:EX4          .50     .017 No_date    1:21   15.44  n/a
01809>                       + 03:01          8.50    1.366 No_date    1:20   32.74  n/a
01810>                       + 04:07          6.54    1.171 No_date    1:20   37.76  n/a
01811>                       = 05:PDa         1.57     .301 No_date    1:20   33.89  n/a
01812>        [DT= 1.00]  SUM=  01:POUTin     16.71    4.005 No_date    1:18   34.24  n/a
01813> 005:0046----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01814>      ROUTE RESERVOIR -> 02:POUTin      16.71    3.606 No_date    1:18   34.24  n/a
01815>        [RDT= 1.00] outf= 01:POUTout     16.71     .228 No_date    2:07   34.24  n/a
01816>                 overflow = 03:Overg       .00     .000 No_date    0:00    .00  n/a
01817>       [Max(Volume)-.3734E+00, TotVolVol-.0000E+00, M-Out=     0, TotDurOvf=    0.hrs]
01818> # Total flow at outlet of commercial pond
01819>  005:0047----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01820>      ADD HYD            01:POUTout      16.71     .408 No_date    2:07   34.24  n/a
01821>                       + 02:PMA         1.10     .029 No_date    1:41   12.24  n/a
01822>        [DT= 1.00]  SUM=  03:POUT        17.81     .345 No_date    2:06   32.89  n/a
01823> # Route pond outflow at ploc d/s of node N0
01824> # Typical Section based on proposed channel provided by AEL
01825> # 4:1 bank slopes, Long Slope = 0.25%, Manning's n is 0.03
01826>  005:0048----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01827>      ROUTE CHANNEL   -> 02:POUT        17.81     .342 No_date    2:14   32.89  n/a
01828>        [RDT= 1.00] outf= 01:POUTout     17.81     .342 No_date    2:14   32.89  n/a
01829>        [L/S/n=  160./ .250/ .030]
01830>        [Vmax=  .564:Dmax=  .294]
01831> # Total channel flow at pipe n/s of node N0
01832>  005:0049----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01833>      ADD HYD            02:POUTout      17.81     .342 No_date    2:14   32.89  n/a
01834>                       + 03:rM9s1         .25     .007 No_date    1:36   12.24  n/a
01835>                       + 04:rM9s2        1.00     .026 No_date    1:41   12.24  n/a
01836>        [DT  1.00]  SUM=  01:POUT        19.06     .367 No_date    2:05   31.51  n/a
01837> # ************
01838> # Total flow at node N0
01839> # (Note that EX2 will be sheet draining to proposed channel)
01840>  005:0050----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01841>      ADD HYD            02:POUT         19.06     .367 No_date    2:05   31.51  n/a
01842>                       + 03:rNEX1        26.79    1.118 No_date    1:38   15.49  n/a
01843>                       + 04:EX2          9.89     .172 No_date    2:10   12.08  n/a
01844>                       + 05:C3          1.25     .068 No_date    1:20   41.76  n/a
01845>        [DT= 1.00]  SUM=  01:N0          56.98    1.540 No_date    1:41   20.47  n/a
01846> # Typical Section based on proposed channel provided by AEL
01847> # 4:1 bank slopes, Long Slope = 0.40%, Manning's n is 0.03
01848> # Route SW draining at N0 to d/s node N-EX2
01849>  005:0051----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01850>      ROUTE CHANNEL   -> 02:N0          56.98    1.540 No_date    1:41   20.47  n/a
01851>        [RDT= 1.00] outf= 01:N0          56.98    1.443 No_date    1:41   20.47  n/a
01852>        [L/S/n=  324./ .400/ .030]
01853>        [Vmax=  .946:Dmax=  .515]
01854> # Total flow at node N-EX2
01855>  005:0052----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01856>      ADD HYD            02:N0          56.98    1.443 No_date    1:41   20.47  n/a
01857>                       + 03:FR10         1.87     .046 No_date    1:42   12.34  n/a
01858>        [DT  1.00]  SUM=  01:NEX2        57.85    1.485 No_date    1:46   20.21  n/a
01859> # Route Node N-EX2 to Node N1
01860> # Typical Section based on Sheet A6 Yee Ditch (1) banks
01861> # provided by Atrel
01862> # Manning's n is Channel not maintained, light brush on banks
01863> # Slope = 0.65% as per plan provided by Atrel.
01864>  005:0053----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01865>      ROUTE CHANNEL   -> 02:NEX2        57.85    1.485 No_date    1:46   20.21  n/a
01866>        [RDT= 1.00] outf= 01:rNEX2       57.85    1.345 No_date    1:53   20.21  n/a
01867>        [L/S/n=  751./ .050/ .035]
01868>        [Vmax=  .951:Dmax= 1.203]
01869> #*************************************************************************
01870> # Residential Development - Phase 1 and 2
01871> #*************************************************************************
01872> # Total flow at node N-PR1
01873>  005:0054----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01874>      ADD HYD            02:PR1           4.50     .178 No_date    1:31   12.30  n/a
01875>                       + 03:FR1A         1.36     .069 No_date    1:20   16.05  n/a
01876>        [DT= 1.00]  SUM=  01:rN/R1        5.86     .247 No_date    1:31   12.30  n/a
01877> # Volume to ponding area in PR1
01878> # Q=0.035 m3/s required as per SCS 100yr Existing Conditions
01879> # Culvert from Inlet 1
01880> # Assuming outlet culvert is 600 mm, slope = 1.0%, HDPE smooth wa is
01881> # Manning's n  0.012, Inlet control nomograph
01882> # Hydraulic head = 0.9m, Q=0.6 m
01883>  005:0055----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01884>      COMPUTE ROUTING    01:rPR1          4.50     .178 No_date    1:31   12.30  n/a
01885>          Major System /  02:rPR1Mj       .00     .000 No_date    0:00    .00  n/a
01886>          Minor System \  03:rPR1Mn      4.50     .178 No_date    1:31   12.30  n/a
01887>       [Min(system=.0000E+00, TotOvfVol-.0000E+00, M-Ovf=     0, TotDurOvf=    0.hrs]
01888> # Input to Inlet 1 pipe
01889>  005:0056----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01890>      ADD HYD            02:PR1           4.50     .178 No_date    1:31   12.30  n/a
01891>                       + 03:rPR1Mn       4.50     .178 No_date    1:31   12.30  n/a
01892>        [DT= 1.00]  SUM=  01:In1         9.00     .356 No_date    1:31   12.30  n/a
01893> # Pipe from Inlet 1 - Route to pond
01894> # HDPE smooth wall pipe Manning's n = 0.012
01895>  005:0057----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01896>      ROUTE PIPE      -> 02:In1          9.00     .190 No_date    1:31   12.70  n/a
01897>        [RDT= 1.00] outf= 01:Pip1        9.00     .189 No_date    1:32   12.70  n/a
01898>        [L/S/n=  65./1.800/ .012]
01899>        [Vmax= 2.417:Dmax=  .798]
01900>        [Dia=  .600:Dused=  .600]
01901> # Culvert from Inlet 2
01902> # HDPE smooth wall pipe Manning's n = 0.012
01903>  005:0058----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01904>      ROUTE PIPE      -> 02:FR2B         1.57     .051 No_date    1:23   16.05  n/a
01905>        [RDT= 1.00] outf= 01:rCul2       1.57     .051 No_date    1:23   16.05  n/a
01906>        [L/S/n=  13./ .400/ .012]
01907>        [Vmax=  1.019:Dmax=  .150]
01908>        [Dia=  .200:Dused=  .200]
01909> # Input to Inlet 2 pipe
01910>  005:0059----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01911>      ADD HYD            02:FR2B          1.57     .039 No_date    1:22   16.05  n/a
01912>                       + 03:rCIn2         2.57     .056 No_date    8:08   16.26  n/a
01913>        [DT= 1.00]  SUM=  01:In2         4.70     .089 No_date    1:23   16.17  n/a
01914> # Pipe from Inlet 2 - Route to pond
01915> # HDPE smooth wall pipe Manning's n = 0.012
01916>  005:0060----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01917>      ROUTE PIPE      -> 02:In2          4.70     .089 No_date    1:23   16.17  n/a
01918>        [RDT= 1.00] outf= 01:Pip2        4.70     .088 No_date    1:23   16.17  n/a
01919>        [L/S/n=  75./ .200/ .012]
01920>        [Vmax=  .825:Dmax=  .248]
01921>        [Dia=  .300:Dused=  .300]
01922> # Culvert from Inlet 3
01923> # HDPE smooth wall pipe Manning's n  0.012
01924>  005:0061----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01925>      ROUTE PIPE      -> 02:rR3A          .45     .016 No_date    1:21   16.05  n/a
01926>        [RDT= 1.00] outf= 01:rCin3        .45     .016 No_date    1:21   16.05  n/a
01927>        [L/S/n=  13./ .400/ .012]
01928>        [Vmax=  .723:Dmax=  .094]
01929>        [Dia=  .500:Dused=  .500]
01930> # Input to Inlet 3 pipe
01931>  005:0062----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01932>      ADD HYD            02:rR3E          .52     .018 No_date    1:21   16.05  n/a
01933>                       + 03:rCIn3         .45     .016 No_date    1:21   16.05  n/a
01934>        [DT= 1.00]  SUM=  01:In3          .97     .034 No_date    1:21   16.05  n/a
01935> # Pipe from Inlet 3 - Route to pond
01936> # HDPE smooth wall pipe Manning's n = 0.012
01937>  005:0063----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01938>      ROUTE PIPE      -> 02:In3          .97     .034 No_date    1:21   16.05  n/a
01939>        [RDT= 1.00] outf= 01:Pip3        .97     .033 No_date    1:22   16.05  n/a
01940>        [L/S/n=  75./ .200/ .012]
01941>        [Vmax=  .728:Dmax=  .116]
01942>        [Dia=  .300:Dused=  .300]
01943> # Culvert from Inlet 4
01944> # HDPE smooth wall pipe Manning's n = 0.012
01945>  005:0064----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01946>      ROUTE PIPE      -> 02:rM4A          .71     .024 No_date    1:21   16.05  n/a
01947>        [RDT= 1.00] outf= 01:rCin4        .71     .024 No_date    1:22   16.05  n/a
01948>        [L/S/n=  13./ .400/ .012]
01949>        [Vmax=  .824:Dmax=  .107]
01950>        [Dia=  .500:Dused=  .500]
01951> # Input to Inlet 4 pipe
01952>  005:0065----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01953>      ADD HYD            02:rM4s          .65     .022 No_date    1:21   16.05  n/a
01954>                       + 03:rCin4         .71     .024 No_date    1:22   16.05  n/a
01955>        [DT= 1.00]  SUM=  01:In4          1.36     .047 No_date    1:21   16.05  n/a
01956> # Pipe from Inlet 4 (ULTIMATE CONDITIONS) - Route to pond
01957> # HDPE smooth wall pipe Manning's n = 0.012
01958>  005:0066----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01959>      ROUTE PIPE      -> 02:In4          1.36     .047 No_date    1:21   16.05  n/a
01960>        [RDT= 1.00] outf= 01:Pip4        1.36     .047 No_date    1:22   16.05  n/a
01961>        [L/S/n=  65./1.800/ .012]
01962>        [Vmax= 1.012:Dmax=  .196]
01963>        [Dia=  .150:Dused=  .150]
01964> # Culvert from Inlet 5
01965> # HDPE smooth wall pipe Manning's n = 0.012
01966>  005:0067----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01967>      ROUTE PIPE      -> 02:rR5A          .66     .023 No_date    1:21   16.05  n/a
01968>        [RDT= 1.00] outf= 01:rCin5        .66     .023 No_date    1:21   16.05  n/a
01969>        [L/S/n=  17./ .400/ .012]
01970>        [Vmax=  .802:Dmax=  .089]
01971>        [Dia=  .550:Dused=  .550]
01972> # Input to Inlet 5 pipe
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 018993>  005:0068----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
 018994>       ADD HYD            02:PR3B         .46     .316 No_date    1:21   16.05  n/a
 018995>                        + 03:C1n5         .56     .021 No_date    1:21   16.05  n/a
 018996>       [IT= 1.00]  SUM=  01:1n3          1.12     .319 No_date    1:21   16.05  n/a
 018997> * Pipe from Inlet 5 - Route to pond
 018998> * HDPE smooth wall pipe Manning's n = 0.012
 018999>  005:0069----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
 019000>       ROUTE PIPE       => 02:1n5          1.12     .319 No_date    1:21   16.05  n/a
 019001>         [RDT= 1.00] ours<- 01:Pin5       1.12     .319 No_date    1:22   16.05  n/a
 019002>         [I/S/n=   75./1.000/.012]
 019003>         [Vmax= 1.52:Tmax=  .002]
 019004>         [Din=  .500:Dused=  .500]
 019005> * Culvert from 5n at 6
 019006> * HDPE smooth wall pipe Manning's n = 0.012
 019007>  005:0070----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
 019008>       ROUTE PIPE       => 02:PR6A         1.43     .047 No_date    1:22   16.00  n/a
 019009>         [RDT= 1.00] ours<- 01:C1n6       1.43     .047 No_date    1:23   16.00  n/a
 019010>         [I/S/n=   75./1.000/.012]
 019011>         [Vmax=  .95:Tmax=  .143]
 019012>         [Din=  .500:Dused=  .500]
 019013> * Input to Inlet 6 pipe
 019014>  005:0071----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
 019015>       ADD HYD            02:PR6B          .83     .602 No_date    1:22   16.00  n/a
 019016>                        + 03:C1n6         1.43     .047 No_date    1:23   16.00  n/a
 019017>       [VT= 1.00]  SUM=  01:1n6          2.26     .618 No_date    1:22   16.00  n/a
 019018> * Pipe from Inlet 6 - Route to pond
 019019> * HDPE smooth wall pipe Manning's n = 0.012
 019020>  005:0072----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
 019021>       ROUTE PIPE       => 02:1n6          2.26     .618 No_date    1:22   16.00  n/a
 019022>         [RDT= 1.00] ours<- 01:Pin6       2.26     .677 No_date    1:23   16.00  n/a
 019023>         [I/S/n=   75./1.000/.012]
 019024>         [Vmax= 1.07:Tmax=  .230]
 019025>         [Din=  .500:Dused=  .500]
 019026> * VOLUME TO POND UPSTREAM RESIDENTIAL
 019027>  005:0073----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
 019028>       ADD HYD            01:P1n1          .95     .95 No_date     1:17   17.29  n/a
 019029>                        + 02:P1n2         2.74     .863 No_date    1:24   16.21  n/a
 019030>                        + 04:C1n3          .97     .038 No_date    1:22   16.05  n/a
 019031>                        + 05:C1n4         1.36     .047 No_date    1:22   16.05  n/a
 019032>                        + 06:C1n5         1.12     .039 No_date    1:22   16.05  n/a
 019033>                        + 07:C1n6         2.36     .077 No_date    1:23   16.05  n/a
 019034>                        + 08:P3u          5.03     .166 No_date    1:24   22.87  n/a
 019035>       [IT= 1.00]  SUM=  01:POND1in      18.63     .505 No_date    1:24   17.85  n/a
 019036> *  Pond outflow for all rate conditions using weir .6; .6; 4.8
 019037>  005:0074----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
 019038>       ROUTE WEIRWEIR   => 02:POND1in     18.63     .505 No_date    1:24   17.85  n/a
 019039>         [RDT= 1.00] ours<- 01:POut       18.63     .053 No_date    4:12   17.85  n/a
 019040>                 overflow <- 03:overQ       .00     .000 No_date    0:00    .00  n/a
 019041>         [MaxStoRed .2805ft=00, TotOutVol=.8008cf=00, M-Out=    0, TotTrigOut=     0 hrs]
 019042> * Simulating SCS 100 yr conditions with submergence of overflow weir
 019043> * updated for weir .6;.6; 4.8
 019044> *ROUTE WEIRWEIR     NHYDout=["POut"] ,NHYDin=["POND1in"] ,
 019045> *                   RUC-[1](min),
 019046> *                        TABLE of | OUTFLOW-STORAGE | values
 019047> *                                 (Cms) - (ha-m)
 019048> *                                |   0.0 ,   0.0 |
 019049> *                                 0.80801 ,  1.2909
 019050> *                                 0.90   ,  1.5818
 019051> *                                 0.91   ,  3.0165
 019052> *                                |   1   ,   1   |  (max twenty pts)
 019053> *                        NHYDovf=["ovrQ"] ,
 019054> * Route pond output through first set of pipes
 019055> * 2 x 600 pipes simulated with 1 pipe of equivalent capacity (.780 mm dia)
 019056> * HDPE smooth wall pipe Manning's n = 0.012
 019057>  005:0075----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
 019058>       ROUTE PIPE       => 03:POout      18.63     .053 No_date    4:12   17.85  n/a
 019059>         ROT= 1.00] ours<- 01:POut      18.63     .053 No_date    4:12   17.85  n/a
 019060>         [I/S/n=   75./1.000/.012]
 019061>         [Vmax=  .768:Tmax=  .157]
 019062>         [Din=  .780:Dused=  .780]
 019063> * Flow u/s of outlet culverts
 019064>  005:0076----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
 019065>       ADD HYD            03:PR7B          .16     .011 No_date    1:19   15.38  n/a
 019066>                        + 03:PR7B2        .22     .007 No_date    1:18   15.38  n/a
 019067>                        + 04:POut1      18.83     .053 No_date    4:13   17.85  n/a
 019068>       [IT= 1.00]  SUM=  01:Pout        19.21     .055 No_date    4:04   17.71  n/a
 019069> * Route outflow through set of culverts
 019070> * 2 x 600 Culverts simulated with 1 culvert of equivalent capacity (=780 mm dia
 019071> * HDPE smooth wall pipe Manning's n = 0.012
 019072>  005:0077----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
 019073>       ROUTE PIPE       => 02:Pout       19.21     .055 No_date    4:04   17.71  n/a
 019074>         [RDT= 1.00] outs<- 01:Cout      19.21     .055 No_date    4:05   17.71  n/a
 019075>         [I/S/n=   13./ .600/.012]
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 020760>       [Vmax=  .987:Tmax=  .154]
 020770>       [Din=  .780:Dused=  .780]
 020780> * Flow u/s of second set of outflow pipes
 020790>  005:0078----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
 020800>       ADD HYD            02:PR7C1         .59     .012 No_date    1:19   15.38  n/a
 020810>                        + 03:PR7C2         .17     .005 No_date    1:18   15.38  n/a
 020820>                        + 04:Cout        19.21     .055 No_date    4:05   17.71  n/a
 020830>       [IT= 1.00]  SUM=  01:CoutL2      19.77     .063 No_date    1:49   17.56  n/a
 020840> * Route outflow through second set of pipes
 020850> * 2 x 600 pipes simulated with 1 pipe of equivalent capacity (=780 mm dia)
 020860> * HDPE smooth wall pipe Manning's n = 0.012
 020870>  005:0079----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
 020880>       ROUTE PIPE       => 02:CoutL2     19.77     .063 No_date    1:49   17.56  n/a
 020890>         [RDT= 1.00] ours<- 01:PoutF     19.77     .063 No_date    1:50   17.56  n/a
 020900>         [I/S/n=   65./1.000/.012]
 020910>         [Vmax=  .910:Tmax=  .170]
 020920>         [Din=  .780:Dused=  .780]
 020930> * Total flow at node N1 (shield MH alone Sales Barn MH)
 020940>  005:0080----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
 020950>       ADD HYD            02:PNEX2        57.80    1.240 No_date    1:53   20.21  n/a
 020960>                        + 03:PoutF        19.77     .063 No_date    1:50   17.56  n/a
 020970>                        + 04:OK1           .39     .021 No_date    1:22   18.15  n/a
 020980>                        + 05:PR5E          .30     .009 No_date    1:38   13.38  n/a
 020990>                        + 06:PR14          .61     .017 No_date    1:48   12.34  n/a
 021000>       [IT= 1.00]  SUM=  01:N1           78.93    1.339 No_date    1:53   19.40  n/a
 021010> * ROUTE N1 to N3
 021020> * Typical Section based on Shields MD Vee Ditch 3:1 banks
 021030> * provided by Atkel
 021040> * Manning's n is Channel not maintained, light brush on banks
 021050> * Slope   0.005 as per plan provided by Atkel.
 021060>  005:0081----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
 021070>       ROUTE CHANNEL    => 02:N1          78.93    1.339 No_date    1:54   19.40  n/a
 021080>         [RDT= 1.00] outs<- 01:BN1        78.93    1.079 No_date    2:06   19.40  n/a
 021090>         [I/S/n=  349./ .050/.035]
 021100>         [Vmax=  .346:Tmax= 1.154]
 021110> * VOLUME from residential area at N3 Interim
 021120>  005:0082----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
 021130>       ADD HYD            03:PR9A          1.39     .036 No_date    1:41   13.38  n/a
 021140>                        + 04:PR8           1.38     .036 No_date    1:42   12.34  n/a
 021150>       [VT= 1.00]  SUM=  01:N31           2.77     .074 No_date    1:57   15.86  n/a
 021160> * Added VOLUME from external area contributing to N3
 021170>  005:0083----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
 021180>       ADD HYD            02:BN1           78.93    1.079 No_date    2:06   19.40  n/a
 021190>                        + 03:N31           2.77     .074 No_date    1:42   12.85  n/a
 021200>                        + 04:EX5           .52     .038 No_date    1:26   23.80  n/a
 021210>                        + 05:EX4           .53     .027 No_date    1:24   17.20  n/a
 021220>                        + 06:EXC4          .27     .013 No_date    1:20   20.65  n/a
 021230>       [VT= 1.00]  SUM=  01:N3           83.01    1.161 No_date    2:01   19.28  n/a
 021240> * ROUTE N3 to BC128
 021250> * Typical Section based on Shields MD Vee Ditch 3:1 banks
 021260> * provided by Atkel
 021270> * Manning's n is Channel not maintained, light brush on banks
 021280> * Slope = 0.005 as per plan provided by Atkel.
 021290>  005:0084----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
 021300>       ROUTE CHANNEL    => 02:N3          82.91    1.161 No_date    2:01   19.28  n/a
 021310>         [RDT= 1.00] outs<- 01:BN3        82.91     .961 No_date    2:31   19.28  n/a
 021320>         [I/S/n=  915./ .050/.035]
 021330>         [Vmax=  .935:Tmax= 1.089]
 021340> * Flow at Stanley node ECR-29 for comparison
 021350> * Routed to plus EX3
 021360>  005:0085----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
 021370>       ADD HYD            02:BN3           82.91     .964 No_date    2:31   19.28  n/a
 021380>                        + 03:EX3           21.30     .318 No_date    2:22   12.08  n/a
 021390>       [VT= 1.00]  SUM=  01:NCR128       104.21    1.282 No_date    2:21   17.81  n/a
 021400> * AREA CHECK
 021410> *
 021420>  005:0086----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
 021430>       ADD HYD            02:EX1           24.82    1.076 No_date    1:44   14.66  n/a
 021440>                        - 03:EX2           9.89     .172 No_date    2:10   10.68  n/a
 021450>                        - 04:EX3           21.30     .318 No_date    2:22   12.08  n/a
 021460>                        - 05:EX5           .50     .017 No_date    1:21   13.44  n/a
 021470>                        - 06:EX6           .52     .018 No_date    1:26   23.80  n/a
 021480>                        - 07:EX6           .51     .015 No_date    1:24   17.20  n/a
 021490>                        - 08:EX7           .39     .021 No_date    1:20   20.65  n/a
 021500>                        - 09:PR1A          .24     .009 No_date    1:20   16.05  n/a
 021510>                        - 10:PR1B          .55     .019 No_date    1:21   16.05  n/a
 021520>       [IT= 1.00]  SUM=  01:Tot1         58.52    1.377 No_date    1:37   13.02  n/a
 021530>  005:0087----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
 021540>       ADD HYD            01:Tot1          58.52    1.377 No_date    1:37   13.02  n/a
 021550>                        - 03:PR2A          1.67     .051 No_date    1:23   16.05  n/a
 021560>                        - 04:PR2B          1.17     .039 No_date    1:22   16.05  n/a
 021570>                        - 05:PR3A          .06     .002 No_date    1:21   16.05  n/a
 021580>                        - 06:PR3B          .52     .018 No_date    1:21   16.05  n/a
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02159>                    -  03:ER9A        .61      .026 No date     1:21   16.0?  n/a
02160>                    -  04:ER8B        .85      .032 No date     1:21   16.0?  n/a
02161>                    -  05:ER8A        .86      .023 No date     1:21   16.0?  n/a
02162>                    -  10:ER5E        .46      .016 No_date     1:21   16.0?  n/a
02163>       [DT= 1.00]  SUM=  01:Tot2      64.71    1.571 No_date     1:37   13.7?  n/a
02164> 005:0088----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
02165>      ADD HYD           02:Tot2       64.71    1.571 No_date     1:37   13.7?  n/a
02166>                    -  03:ER6A        1.41      .047 No_date     1:22   14.0?  n/a
02167>                    -  04:ER6B        .93       .032 No_date     1:22   14.0?  n/a
02168>                    -  05:ER7A        1.95      .059 No_date     1:21   13.3?  n/a
02169>                    -  06:ER7B1       .36       .011 No_date     1:19   13.3?  n/a
02170>                    -  07:ER7B2       .22       .007 No_date     1:18   13.3?  n/a
02171>                    -  08:ER7C1       .39       .012 No_date     1:19   13.3?  n/a
02172>                    -  09:ER7C2       .17       .005 No_date     1:18   13.3?  n/a
02173>                    -  10:ER7D        .30       .008 No_date     1:18   13.3?  n/a
02174>       [DT= 1.00]  SUM=  01:Tot3      68.66    1.726 No_date     1:30   13.0?  n/a
02175> 005:0089----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
02176>      ADD HYD           02:Tot3       68.66    1.726 No_date     1:30   13.0?  n/a
02177>                    -  03:ER8         1.58      .036 No_date     1:42   12.3?  n/a
02178>                    -  04:ER9A        1.16      .029 No_date     1:41   12.3?  n/a
02179>                    -  05:ER9B1       .28       .007 No_date     1:19   12.3?  n/a
02180>                    -  06:ER9B2       1.30      .026 No_date     1:41   12.3?  n/a
02181>                    -  07:ER10C       1.87      .048 No_date     1:42   12.3?  n/a
02182>                    -  08:ER11        .82       .017 No_date     1:46   12.3?  n/a
02183>                    -  09:ER1         4.26      .170 No_date     1:11   12.0?  n/a
02184>                    -  10:ER3D        5.03      .466 No_date     1:24   25.0?  n/a
02185>       [DT= 1.00]  SUM=  01:Tot4      95.37    2.314 No_date     1:35   14.3?  n/a
02186> 005:0090----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
02187>      ADD HYD           02:Tot4       95.37    2.314 No_date     1:35   14.3?  n/a
02188>                    -  03:C1          8.30      1.366 No_date     1:20   32.7?  n/a
02189>                    -  04:C2          6.34      1.321 No_date     1:20   37.7?  n/a
02190>                    -  05:C3           .24       .068 No_date     1:20   33.7?  n/a
02191>                    -  06:EXC1        1.10      .032 No_date     1:20   27.4?  n/a
02192>                    -  07:EXC2        1.07      .113 No_date     1:20   24.9?  n/a
02193>                    -  08:EXC3         .22      .033 No_date     1:20   28.6?  n/a
02194>                    -  09:E3C         1.57      .301 No_date     1:20   33.5?  n/a
02195>       [DT= 1.00]  SUM=  01:Tot5     104.91    4.705 No_date     1:21   17.8?  n/a
02196> *****************************************************************************
02197> * Simulations with 4 hour Chicago from City of Ottawa
02198>   ** END OF RUN :   9
02199>
02200> *****************************************************************************
02201>
02202>
02203>
02204>
02205>
02206> RUN:COMMAND#
02207> 010:0001----------------------------------------------------------------------
02208>      START
02209>       [TZERO =    .00 hrs on      0]
02210>       [METOUT=    2    (1-Imperial, 2-metric output)]
02211>       [NSTORM=    1 ]
02212>       [IHYDR=    10 ]
02213> *****************************************************************************
02214> *  SWMHYMO Version 3.0 /Jan 2008  <CETTAS / INPUT NAME FILE
02215> *****************************************************************************
02216> *  Project Name: [Greely Village Centre]     Project Number: [647-97]
02217> *  Date        : 04-03-2008
02218> *  Modeller    : [JMF]
02219> *  Company     : JFSAinc.
02220> *  License #   : 2541402
02221> *****************************************************************************
02222> *
02223> * SWMHYMO model of the Greely Village Center - Residential Area - Phase 2
02224> * Proposed Ultimate Conditions, OPTION B
02225> * Filename Stamps for: Greely, Commercial, Proposed
02226> *****************************************************************************
02227> 010.0002----------------------------------------------------------------------
02228>      READ STORM
02229>       Filename  = storm.001
02230>       Comment   = 10 years Chicago Storm 4 Hours Step 10 min, City of Ottawa
02231>       [STORM=10.00:STORM=  0.00:PTOT=  57.15]
02232> *****************************************************************************
02233> * Existing flow - McEvoy Branch of Shirley Brook - Areas
02234> * Area a/s of proposed development (residential)
02235> * CN*-75, slope = 0.5, Ip-0.10, XIMP 5, TIMP 15, see SC002 as per Stantec
02236> * Area partially adjusted based on Attel drawings. Ip adjusted accordingly.
02237> *****************************************************************************
02238> * a/s at Bank St.as per Attel - with modified boundaries and Tc.
02239> 010:0003----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
02240>      DESIGN RATIONAL   01:Ex1        21.62    1.016 No_date     1:36   19.21  .367
02241>       [CN= 75.0: IA= 5.00]
02242>       [Ip=  .23:DT= 1.00]
02243> *****************************************************************************
02244> * Existing flow - External areas d/s of Bank St.
02245> * CN*=80, as per Stantec see SC001.
02246> * Area partially adjusted based on Attel drawings.
02247> *****************************************************************************
02248> * Areas external to development
02249> 010:0004----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
02250>      DESIGN RATIONAL   01:EX2        5.89      .227 No_date     1:09   15.7? .580
02251>       [CN= 69.0: IA= 5.00]
02252>       [Ip=  .67:DT= 1.00]
02253> 010:0005----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
02254>      DESIGN RATIONAL   01:EX3        21.30     .820 No_date     1:22   15.7? .580
02255>       [CN= 69.0: IA= 5.00]
02256>       [Ip=  .83:DT= 1.00]
02257> * Slope, Tlap, Area from Attel Drawing
02258> * CN from Stantec (SC001)
02259> * Ximp = Timp = 10%
02260> 010:0006----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
02261>      CALIB STANDHYD    01:EX4         .50      .022 No_date     1:02   19.6? .575
02262>       [XIMP= 11 TIMP= 22]
02263>       [LOSS= 2 :CN= 69.0]
02264>       [Pervious     area: [Apc= 4.67:SLPP=1.00:LGP=  40.:NMP=.250:SCP=   .0]
02265>       [Impervious   area: [Aimp= 1.57:SLPI 1.00:LGI=  98.:NMI=.045:SCI=   .0]
02266> * Road and road side ditch along projected residential development Parkway Rd
02267> * Timp = Ximp = 0.71 ha /0.57 ha = 0.46
02268> * CN*=69, as per Stantec see SC001.
02269> * Slope is estimated at 1%
02270> * IGT based on centroid of area due to elongated shape = 500m/2 = 250
02271> 010:0007----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
02272>      CALIB STANDHYD    01:EX5         .52      .047 No_date     1:26   28.8? .553
02273>       [XIMP=.46:TIMP=.46]
02274>       [LOSS= 2 :CN= 69.0]
02275>       [Pervious     area: [Apc= 4.67:SLPP=1.00:LGP=  40.:NMP=.250:SCP=   .0]
02276>       [Impervious   area: [Aimp= 1.57:SLPI 1.00:LGI=  300.:NMI=.045:SCI=   .0]
02277> * Road and road side ditch along projected residential development Sallie Burn Rd
02278> * Timp = Ximp = 0.1 ha /0.81 ha = 0.12
02279> * CN* 69, as per Stantec see SC001.
02280> * Slope is estimated at 1%
02281> * IGT based on centroid of area due to elongated shape = 354m/2 = 177
02282> 010:0008----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
02283>      CALIB STANDHYD    01:EX6         .51      .029 No_date     1:24   21.5? .489
02284>       [XIMP=.20:TIMP=.20]
02285>       [LOSS= 2 :CN= 69.0]
02286>       [Pervious     area: [Apc= 4.67:SLPP=1.00:LGP=  40.:NMP=.250:SCP=   .0]
02287>       [Impervious   area: [Aimp= .84:SLPI=1.00:LGI= 177.:NMI=.045:SCI=   .0]
02288> * Road and road side ditch along projected residential development Sallie Burn Rd
02289> * Timp = Ximp = 0.05 ha /0.59 ha = 0.09
02290> * CN*=69, as per Stantec see SC001.
02291> * Slope is estimated at 1%
02292> * IGT based on centroid of area due to elongated shape = 270m/2 = 135.0
02293> 010:0009----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
02294>      CALIB STANDHYD    01:EX7         .19      .026 No_date     1:23   22.6? .431
02295>       [XIMP=.22:TIMP=.22]
02296>       [LOSS= 2 :CN= 69.0]
02297>       [Pervious     area: [Apc= 4.67:SLPP=1.00:LGP=  40.:NMP=.250:SCP=   .0]
02298>       [Impervious   area: [Aimp= 1.57:SLPI=1.00:LGI= 137.:NMI=.045:SCI=   .0]
02299> *****************************************************************************
02300> * PROPOSED COMMERCIAL DEVELOPMENT
02301> *****************************************************************************
02302> * CN - 79 as per fair grass cover with C soil type (or Imp and ; CN*=)
02303> * XIMP - TIMP to be conservative
02304> *****************************************************************************
02305> 010:0010----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
02306>      DESIGN STANDHYD   01:C1          1.10     1.69? No_date     1:20   36.8? .739
02307>       [XIMP=.65:TIMP=.65]
02308>       [SLP=1.00:DT= 1.00]
02309>       [LOSS= 2 :CN= 71.0]
02310> 010.0011----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
02311>      DESIGN STANDHYD   01:C2          6.34     1.57? No_date     1:20   44.4? .849
02312>       [XIMP=.79:TIMP=.79]
02313>       [SLP=1.00:DT= 1.00]
02314>       [LOSS= 2 :CN= 71.0]
02315> 010:0012----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
02316>      DESIGN STANDHYD   01:C3          .24      .0?0 No_date     1:20   41.0? .797
02317>       [XIMP=.98:TIMP=.98]
02318>       [SLP= 1.00:DT= 1.00]
02319>       [LOSS= 2 :CN= 71.0]
02320> * Simp = Imp ha/total area = 0.90/1.10 ha = .27
02321> 010:0013----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
02322>      DESIGN STANDHYD   01:EXC1        1.10      .1?1 No_date     1:20   76.2? .?00
02323>       [XIMP=.27:TIMP=.27]
02324>       [SLP=1.00:DT= 1.00]
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02325>       [Loss= 2 :CN= 71.0]
02326> * Imp  Imp ha/total area   0.35/1.07 ha =  .35
02327> 010:0010----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
02328>      DESIGN STANDHYD     01:FHC3        1.07      .156 No_date    1:20   25.08 .553
02329>       [XIMP=.35:TIMP=.35]
02330>       [SLP=1.00:DC= 1.00]
02331>       [Loss= 2 :CN= 71.0]
02332> * Imp - Imp ha/total area = 0.11/0.22ha = .50
02333> 010:0015----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
02334>      DESIGN STANDHYD     01:FHC2        .22      .039 No_date    1:08   34.90 .653
02335>       [XIMP=.50:TIMP=.50]
02336>       [SLP=1.00:DC= 1.00]
02337>       [Loss= 2 :CN= 72.0]
02338> *------------------------------------------------------------------------
02339> * Commercial pond (FHC)
02340> * slope estimated at 1% based on elevations around pond.
02341> * Timp and Ximp based on total pond area
02342> * ximp = A pond/A tot (1.04/1.57)
02343> 010:0016----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
02344>      DESIGN STANDHYD     01:FHC        1.57      .359 No_date    1:20   46.23 .766
02345>       [XIMP=.67:TIMP=.67]
02346>       [SLP=1.00:DC= 1.00]
02347>       [Loss= 2 :CN= 71.0]
02348> #*#*#*#
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02481>   *  CALIB STANDHYD     01:PRNA       1.10      .012 No_date    1:38   16.29  .310
02482>        [XIMP=.01:TIMP=.07]
02483>        [LOSS= 2 :CN= 71.0]
02484>        [Pervious     area: IAper= 4.67:SLPP=1.00:LCP=  40.:MNP=.250:SCP=   .0]
02485>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LCI=  98.:MNI=.015:SCI=   .0]
02486> 010:0040----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
02487>   *  CALIB STANDHYD     01:PRNX       1.00      .020 No_date    1:38   16.29  .310
02488>        [XIMP=.01:TIMP=.07]
02489>        [LOSS= 2 :CN= 71.0]
02490>        [Pervious     area: IAper= 4.67:SLPP=1.00:LCP=  40.:MNP=.250:SCP=   .0]
02491>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LCI=  98.:MNI=.015:SCI=   .0]
02492> 010:0040----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
02493>   *  CALIB STANDHYD     01:PRNW       1.00      .020 No_date    1:38   16.29  .310
02494>        [XIMP=.01:TIMP=.07]
02495>        [LOSS= 2 :CN= 71.0]
02496>        [Pervious     area: IAper= 4.67:SLPP=1.00:LCP=  40.:MNP=.250:SCP=   .0]
02497>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LCI=  98.:MNI=.015:SCI=   .0]
02498> 010:0041----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
02499>   *  CALIB STANDHYD     01:PR1        .62      .024 No_date    1:36   16.29  .310
02500>        [XIMP=.01:TIMP=.07]
02501>        [LOSS= 2 :CN= 71.0]
02502>        [Pervious     area: IAper= 4.67:SLPP=1.00:LCP=  40.:MNP=.250:SCP=   .0]
02503>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LCI=  98.:MNI=.015:SCI=   .0]
02504> 010:0042----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
02505>   *  CALIB STANDHYD     01:PR2        .62      .024 No_date    1:36   16.29  .310
02506>        [XIMP=.01:TIMP=.07]
02507>        [LOSS= 2 :CN= 71.0]
02508>        [Pervious     area: IAper= 4.67:SLPP=1.00:LCP=  40.:MNP=.250:SCP=   .0]
02509>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LCI=  98.:MNI=.015:SCI=   .0]
02510> 010:0043----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
02511>   *  CALIB STANDHYD     01:PR3        .62      .024 No_date    1:36   16.29  .310
02512>        [XIMP=.01:TIMP=.07]
02513>        [LOSS= 2 :CN= 71.0]
02514>        [Pervious     area: IAper= 4.67:SLPP=1.00:LCP=  40.:MNP=.250:SCP=   .0]
02515>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LCI=  98.:MNI=.015:SCI=   .0]
02516> *****************************************************************************
02517> * EXISTING flow - Upstream of Proposed Development
02518> *****************************************************************************
02519> * Total flow at node N-EX1
02520> 010:0040----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
02521>      ADD HYD            02:EX1       24.62     1.416 No_date    1:34   19.21  n/a
02522>                       + 03:EXC1       1.13      .111 No_date    1:20   26.27  n/a
02523>                       + 04:EXC2       1.07      .139 No_date    1:20   29.06  n/a
02524>        [T= 1.00]  SUM= 01:NEX1      26.79     1.577 No_date    1:34   19.49  n/a
02525> * Typical Section based on proposed channel provided by ASL
02526> * 4:1 bank slopes, Long Slope = 0.25%, Manning's n is 0.03
02527> * Route Node N-EX1 to d/s node N2
02528> 010:0044----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
02529>      ROUTE CHANNEL   -> 02:N2EX1      26.79     1.525 No_date    1:34   19.89  n/a
02530>        [RJT= 1.00] outx= 01:N2EX1     26.79     1.477 No_date    1:38   19.85  n/a
02531>        [J/S/n=  312./ .050/.030]
02532>        [Vmax= 1.256:Dmax=  .579]
02533> *****************************************************************************
02534> * TOTAL INFLOW TO COMMERCIAL POND PDC
02535> *****************************************************************************
02536> 010:0047----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
02537>      ADD HYD            02:EX4        .50      .022 No_date    1:22   18.69  n/a
02538>                       + 03:C1         8.30     1.635 No_date    1:20   30.84  n/a
02539>                       + 04:C2         6.73     1.595 No_date    1:20   33.02  n/a
02540>                       + 05:PDC        1.57      .359 No_date    1:20   48.71  n/a
02541>        [T= 1.00]  SUM= 01:PDCin      16.11     4.558 No_date    1:20   48.51  n/a
02542> 010:0046----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
02543>      ROUTE RESERVOIR -> 02:PdCin     16.71     3.098 No_date    1:20   40.51  n/a
02544>        [RJT= 1.00] outx= 01:EOCout    16.71      .419 No_date    2:01   40.51  n/a
02545>             overflow <- 03:OvEO        .00      .000 No_date    0:00    .00  n/a
02546>        (MaxToFeed=.7316:Ks, TorOverVo =.0000:Kin, K-Ovr=    0, TotDur-Out=    0.hrs)
02547> * Total flow at outlet of commercial pond
02548> 010:0047----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
02549>      ADD HYD            01:PdCout      6.71      .469 No_date    2:01   48.51  n/a
02550>                       + 02:P2BA       1.16      .042 No_date    1:36   16.36  n/a
02551>        [VT= 1.00]  SUM= 03:sPDC        7.87      .479 No_date    1:57   39.02  n/a
02552> * Route peak outflow at node b/a of node b0
02553> * Typical Section based on proposed channel provided by AEL
02554> * 4:1 bank slopes, Long Slope = 0.25%, Manning's n is 0.03
02555> 0.0:0048----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
02556>      ROUTE CHANNEL   -> 02:sPDC      17.87      .475 No_date    1:57   39.02  n/a
02557>        [RJT= 1.00] outx= 01:R4Pdc     17.87      .465 No_date    2:08   39.02  n/a
02558>        [J/S/n=  300./ .250/.030]
02559>        (Vmax=  .530:Dmax=  .361)
02560> * Total channel flow at node b/a of node B0
02561> 0.0:0049----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
02562>      ADD HYD            02:R4PDc       17.87      .465 No_date    2:08   39.02  n/a
02563>                       + 01:PR5A        .95      .036 No_date    1:57   18.28  n/a
02564>                       + 04:PR5B        1.86      .078 No_date    1:38   18.28  n/a
02565>        [VT= 1.00]  SUM= 01:comB       19.68      .494 No_date    2:07   37.52  n/a
02566> ********************
02567> * Total flow at node BC
02568> * (Note that BC will be sheet draining to proposed channel)
02569> 010:0050----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
02570>      ADD HYD            02:comB0      19.68      .494 No_date    2:06   37.52  n/a
02571>                       + 03:PRNEX1     26.79     1.477 No_date    1:38   19.85  n/a
02572>                       + 02:EX2         9.09      .227 No_date    2:09   15.78  n/a
02573>                       + 05:C3          .25      .080 No_date    1:20   51.06  n/a
02574>        [VT= 1.00]  SUM= 01:N2         55.81     1.983 No_date    1:41   25.33  n/a
02575> * Typical Section based on proposed channel provided by ASL
02576> * 4:1 bank slopes, Long Slope = 0.40%, Manning's n is 0.03
02577> * provides SW draining at EC to d/s node N-EX2
02578> 010:0051----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
02579>      ROUTE CHANNEL   -> 02:N2        55.81     1.953 No_date    1:41   25.33  n/a
02580>        [RJT= 1.00] outx= 01:EC2       55.81     1.916 No_date    1:46   25.33  n/a
02581>        [J/S/n=  526./ .400/.030]
02582>        [Vmax= 1.315:Dmax=  .580]
02583> * Total flow at node N-EX2
02584> 010:0052----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
02585>      ADD HYD            02:EC2       55.81     1.916 No_date    1:46   25.33  n/a
02586>                       + 03:PR10        1.47      .075 No_date    1:40   15.26  n/a
02587>        [VT= 1.00]  SUM= 01:NEX2      57.85     1.983 No_date    1:45   25.01  n/a
02588> * Route Node N-EX2 to Node N1
02589> * Typical Section based on Site as MS Vee Ditch 3:1 banks
02590> * provided by Atrel
02591> * Manning's n is channel not maintained, light brush on banks
02592> * Slope = 0.55% as per plan provided by Atrel.
02593> 010:0053----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
02594>      ROUTE CHANNEL   -> 02:N2EX2     57.85     1.983 No_date    1:45   25.01  n/a
02595>   *    [RJT= 1.00] outx= 01:PNEX2     57.85     1.938 No_date    1:50   25.01  n/a
02596>        [L/S/n=  253./ .050/.035]
02597>        [Vmax=  .376:Dmax= 1.345]
02598> *****************************************************************************
02599> * Residential Development - Phase 1 and 2
02600> *****************************************************************************
02601> * Total flow at node N-PR1
02602> 010:0054----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
02603>      ADD HYD            02:PR1        4.28      .206 No_date    1:1    15.08  n/a
02604>                       + 03:PrDiA       .26      .011 No_date    1:2    90.45  n/a
02605>        [T= 1.00]  SUM= 01:NPR1        4.50      .227 No_date    1:3    16.03  n/a
02606> * Volume to ponding area in PR1
02607> * Q=0.5\5 m3/s required as per SCS 100yr Existing conditions
02608> * Culvert from inlet 1
02609> * Assuming one at culvert is 600 mm, slope = 1.0%, HDPE smooth walls
02610> * Manning's n = 0.012, inlet control nomograph
02611> * Hydraulic head = 0.9m, Q=0.6\0
02612> 010:0055----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
02613>      CUMPOTB D/ALHRID   01:PPR1        4.50      .227 No_date    1:31   16.03  n/a
02614>         Major System /  02:PPR1X       .00      .000 No_date    0:00    .00  n/a
02615>         Minor System \  03:PPR1M       4.50      .227 No_date    1:31   16.03  n/a
02616>        (MajSysFrom=.0000:Kin, TorOverVo=.0000:Kin, K-Ovr=    0, TotDur-Ovf=    0.hrs)
02617> * Input to Inlet 1 pipe
02618> 010:0056----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
02619>      ADD HYD            02:PrDiA       .26      .011 No_date    1:10   90.45  n/a
02620>                       + 03:PPR1M      4.50      .227 No_date    1:31   16.03  n/a
02621>        [T= 1.00]  SUM= 01:In1         4.76      .262 No_date    1:31   16.51  n/a
02622> * Pipe from inlet 1 - Route to pond
02623> * HDPE smooth wall pipe Manning's n = 0.012
02624> 010:0057----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
02625>      ROUTE PIPE      -> 02:In1         4.95      .262 No_date    1:31   16.51  n/a
02626>        [RJC= 1.00] outx= 01:Pin1       4.95      .262 No_date    1:31   16.51  n/a
02627>        [J/S/n=  65%/1.00/.012]
02628>        (Vmax= 2.624:Dmax=  .190)
02629>        (D:n=  .600:Dused=  .600)
02630> * Culvert from inlet 2
02631> * HDPE smooth wall pipe Manning's n = 0.012
02632> 010:0058----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
02633>      ROUTE PIPE      -> 02:PR2A        1.57      .072 No_date    1:34   20.45  n/a
02634>        [RJT= 1.00] outx= 01:Pin2       1.57      .072 No_date    1:34   20.45  n/a
02635>        [J/S/n=  17./ .100/.012]
02636>        (Vmax= 1.125:Dmax=  .180)
02637>        (D:n=  .500:Dused=  .500)
02638> * Input to inlet 2 pipe
02639> 0.0:0059----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
02640>      ADD HYE            02:PR2B        1.17      .055 No_date    1:34   20.45  n/a
02641>                       + 03:PrDiA       .27      .013 No_date    7:43   20.73  n/a
02642>        [VT= 1.00]  SUM= 01:In2         2.74      .125 No_date    1:34   20.51  n/a
02643> * Pipe from inlet 2 - Route to pond
02644> * HDPE smooth wall pipe Manning's n = 0.012
02645> 0.0:0060----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
02646>      ROUTE PIPE      -> 02:In2         2.74      .125 No_date    1:34   20.51  n/a
02647>        [RJT= 1.00] outx= 01:Pin2       2.74      .125 No_date    1:32   20.51  n/a
02648>        [L/S/n=  7%./ .200/.012]
02649>        (Vmax= 1.063:Dmax=  .464)
02650>        [Dia=  .500:Dused=  .500]
02651> * Culvert from inlet 3
02652> * HDPE smooth wall pipe Manning's n = 0.012
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02657> 010:0061----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
02658>     ROUTE PIPE      -> 02:FR3A        .45      .320 No_date    1:21   20.45  n/a
02659>      [RDC= 1.00] out<- 01:C1c3        .45      .321 No_date    1:21   20.45  n/a
02660>       [L/S/n=   13./ .400/.012]
02661>       [Vmax=  .773:Dmax=  .094]
02662>       [Din=  .500:Dused=  .500]
02663> # Input to in.wl 2 pipe
02664> 010:0062----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
02665>     ADD HYD         02:FR3E        .52      .824 No_date    1:35   20.45  n/a
02666>                   + 03:C1c3        .45      .321 No_date    1:21   20.45  n/a
02667>      [DT= 1.00]  SUM   01:In2        .97     1.015 No_date    1:31   20.45  n/a
02668> # Pipe from inlet 3 - Route to pond
02669> # HDPE smooth wall pipe Manning's n = 0.012
02670> 010:0063----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
02671>     ROUTE PIPE      -> 02:In3         .97      .045 No_date    1:32   20.45  n/a
02672>      [RDT= 1.00] out<- 01:Pin3        .97      .044 No_date    1:35   20.45  n/a
02673>       [L/S/n=   72./ .200/.012]
02674>       [Vmax=  .766:Dmax=  .168]
02675>       [Din=  .500:Dused=  .500]
02676> # Culvert from inlet 4
02677> # HDPE smooth wall pipe Manning's n = 0.012
02678> 010:0064----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
02679>     ROUTE PIPE      -> 02:In4         .71      .033 No_date    1:33   20.45  n/a
02680>      [RDT= 1.00] out<- 01:C.n4        .71      .033 No_date    1:33   20.45  n/a
02681>       [L/S/n=   15./ .400/.012]
02682>       [Vmax=  .895:Dmax=  .120]
02683>       [Din=  .500:Dused=  .500]
02684> # Input to inlet 4 pipe
02685> 010:0065----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
02686>     ADD HYD         02:FR3F        .65      .038 No_date    1:33   20.45  n/a
02687>                   + 03:C1n4        .71      .033 No_date    1:33   20.45  n/a
02688>      [DT= 1.00]  SUM=  01:In4        1.36     .063 No_date    1:33   20.45  n/a
02689> # Pipe from inlet 4 (ULTIMATE CONDITIONS) - Route to pond
02690> # HDPE smooth wall pipe Manning's n = 0.012
02691> 010:0066----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
02692>     ROUTE PIPE      -> 02:In4         1.36     .063 No_date    1:33   20.45  n/a
02693>      [RDT= 1.00] out<- 01:Pin4        1.36     .063 No_date    1:34   20.45  n/a
02694>       [L/S/n=   55./1.900/.012]
02695>       [Vmax= 1.882:Dmax=  .112]
02696>       [Din=  .500:Dused=  .500]
02697> # Culvert from inlet 5
02698> # HDPE smooth wall pipe Manning's n = 0.012
02699> 010:0067----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
02700>     ROUTE PIPE      -> 02:In5A        .66      .031 No_date    1:33   20.45  n/a
02701>      [RDT= 1.00] out<- 01:C1n2        .66      .031 No_date    1:33   20.45  n/a
02702>       [L/S/n=   13./ .400/.012]
02703>       [Vmax=  .876:Dmax=  .115]
02704>       [Din=  .500:Dused=  .500]
02705> # Input to inlet 5 pipe
02706> 010:0068----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
02707>     ADD HYD         02:FR5A        .66      .031 No_date    1:33   20.45  n/a
02708>                   + 03:C1n5        .68      .031 No_date    1:33   20.45  n/a
02709>      [DT= 1.00]  SUM=  01:In5        1.33     .061 No_date    1:33   20.45  n/a
02710> # Pipe from inlet 5 - Route to pond
02711> # HDPE smooth wall pipe Manning's n = 0.012
02712> 010:0069----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
02713>     ROUTE PIPE      -> 02:In5         1.33     .061 No_date    1:33   20.45  n/a
02714>      [RDC= 1.00] out<- 01:Pin5        1.33     .061 No_date    1:34   20.45  n/a
02715>       [L/S/n=   75./ .400/.012]
02716>       [Vmax= 1.280:Dmax=  .108]
02717>       [Din=  .500:Dused=  .500]
02718> # Culvert from inlet 6
02719> # HDPE smooth wall pipe Manning's n = 0.012
02720> 010:0070----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
02721>     ROUTE PIPE      -> 02:FR6A        1.43     .065 No_date    1:34   20.45  n/a
02722>      [RDT= 1.00] out<- 01:C1n6        1.43     .065 No_date    1:34   20.45  n/a
02723>       [L/S/n=   13./ .400/.012]
02724>       [Vmax= 1.095:Dmax=  .171]
02725>       [Din=  .500:Dused=  .500]
02726> # Input to inlet 6 pipe
02727> 010:0071----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
02728>     ADD HYD         02:FR6B        .93      .042 No_date    1:35   20.45  n/a
02729>                   + 03:C1n6        1.43     .065 No_date    1:34   20.45  n/a
02730>      [DT= 1.00]  SUM=  01:In6        2.36     .107 No_date    1:34   20.45  n/a
02731> # Pipe from inlet 6 - Route to pond
02732> # HDPE smooth wall pipe Manning's n = 0.012
02733> 010:0072----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
02734>     ROUTE PIPE      -> 02:In6         2.36     .107 No_date    1:34   20.45  n/a
02735>      [RDT= 1.00] out<- 01:P.n6        2.36     .107 No_date    1:35   20.45  n/a
02736>       [L/S/n=   90./ .360/.012]
02737>       [Vmax= 1.125:Dmax=  .243]
02738>       [Din=  .500:Dused=  .500]
02739> # VOLUME TO POND ULTIMATE RESIDENTIAL
02740> 010:0073----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
02741>     ADD HYD         02:Pin1        5.05      .262 No_date    1:31   16.62  n/a
02742>                   + 03:Pin2        2.78      .125 No_date    1:35   20.74  n/a
02743>                   + 04:Pin3         .97      .044 No_date    1:35   20.45  n/a
02744>                   + 05:Pin4        1.36      .063 No_date    1:34   20.45  n/a
02745>                   + 06:Pin5        1.33      .061 No_date    1:34   20.45  n/a
02746>                   + 07:Pin6        2.36      .107 No_date    1:35   20.45  n/a
02747>                   + 08:P2u         5.03      .574 No_date    1:23   31.30  n/a
02748>      [DT= 1.00]  SUM=  01:POND1u   18.63     1.155 No_date    1:24   22.39  n/a
02749> #  Pond outflow for ultimate conditions using weir .6, .6, 3.0
02750> 010:0074----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
02751>     ROUTE RESERVOIR -> 03:POND1c   18.63     1.155 No_date    1:30   22.38  n/a
02752>      [RDT= 1.00] out<- 01:P2out     18.63     .672 No_date    4:09   22.38  n/a
02753>            overflow <- 02:ovfw1     .06       .000 No_date    0:00    .00  n/a
02754>      [MaxStoSwd=.3498E+00, ToCovfVel=.0000E+00, K=n/a     0, Tailwtr/F=    3.n/a]
02755> # Simulating 50% 100 yr conditions with subsequence of outflow weir
02756> # updated for weir .6, .6, 3.0
02757> ROUTE RESERVOIR     NHYDout ["P2out"] ,NHYDin-["POND1c"] ,
02758>                     RDC-[1(cfs),
02759> #                         TABLE of [ OUTFLOW-STORAGE ] values
02760> #                                  (cfs) - (ha-m)
02761> #                                  [   0.0 ,   0.0 ]
02762> #                                  0.3E+00 , 7.5E+0
02763> #                                  0.6  ,  1.81E+0
02764> #                                  0.8  ,  3.61E+0
02765> #                                  [     1 ,     1 ]  [max tweny pts]
02766> #                           NHYDovf=["ovfw"] ,
02767> # Route pond output through first set of pipes
02768> # 2 x 600 pipes simulated with 1 pipe of equivalent capacity (=780 mm dia)
02769> # HDPE smooth wall pipe Manning's n = 0.012
02770> 010:0075----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
02771>     ROUTE PIPE      -> 02:PEout    18.63     .672 No_date    4:09   22.38  n/a
02772>      [RDT= 1.00] out<- 01:Pout1    18.63     .672 No_date    4:10   22.38  n/a
02773>       [L/S/n=   75./ .200/.012]
02774>       [Vmax=  .939:Dmax=  .192]
02775>       [Din=  .780:Dused=  .780]
02776> # Flow n/s at outlet culverts
02777> 010:0076----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
02778>     ADD HYD         02:FR7E1       .36      .018 No_date    1:36   17.52  n/a
02779>                   + 03:FR7E2       .22      .010 No_date    1:35   17.52  n/a
02780>                   + 04:Pout1     18.63     .672 No_date    4:10   22.38  n/a
02781>      [DT= 1.00]  SUM=  01:Pout     19.21     .675 No_date    4:00   22.24  n/a
02782> # Route outflow through set of culverts
02783> # 2 x 800 culverts simulated with 1 culvert of equivalent capacity (=900 mm dia
02784> # HDPE smooth wall pipe Manning's n = 0.012
02785> 010:0077----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
02786>     ROUTE PIPE      -> 02:Pout     19.21     .675 No_date    4:00   22.24  n/a
02787>      [RDT= 1.00] out<- 01:Cout     19.21     .673 No_date    4:04   22.24  n/a
02788>       [L/S/n=   13./ .009/.012]
02789>       [Vmax= 1.583:Dmax=  .156]
02790>       [Din=  .780:Dused=  .780]
02791> # Flow n/s at second set of outflow pipes
02792> 010:0078----------ID:NHYD-------AREA----QPEAV-TpeakDate_hh:mm----R.V.-R.C.-
02793>     ADD HYD         02:FR7E1       .19      .001 No_date    1:35   17.52  n/a
02794>                   + 03:FR7E2       .17      .008 No_date    1:35   17.52  n/a
02795>                   + 04:Cout      19.21     .675 No_date    4:04   22.24  n/a
02796>      [DT= 1.00]  SUM=  01:Pout2    19.77     .681 No_date    1:42   22.10  n/a
02797> # Route outflow through second set of pipes
02798> # 2 x 600 pipes simulated with 1 pipe of equivalent capacity (=780 mm dia)
02799> # HDPE smooth wall pipe Manning's n = 0.012
02800> 010:0079----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
02801>     ROUTE PIPE      -> 02:Pout2    19.77     .681 No_date    1:42   22.10  n/a
02802>      [RDT= 1.00] out<- 01:PoutF    19.77     .681 No_date    1:41   22.10  n/a
02803>       [L/S/n=   65./ .009/.012]
02804>       [Vmax=  .870:Dmax=  .158]
02805>       [Din=  .780:Dused=  .780]
02806> # Total flow at Node 01 (Shield MD along Weld Burn Rd)
02807> 010:0080----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
02808>     ADD HYD         02:RMEX2      57.85     1.668 No_date    1:52   25.01  n/a
02809>                   + 03:PoutF      19.77     .681 No_date    1:47   22.10  n/a
02810>                   + 04:FX7        1.58      .026 No_date    1:23   22.03  n/a
02811>                   + 05:FR7D       1.58      .013 No_date    1:16   14.52  n/a
02812>                   + 06:FR1I       1.62      .074 No_date    1:18   16.78  n/a
02813>      [DT= 1.00]  SUM=  01:N1        78.93     1.788 No_date    1:50   24.17  n/a
02814> # ROUTE N1 to N3
02815> # Typical Section based on Suilds MD Vol Pitch 3:1 banks
02816> # provided by Atrel
02817> # Manning's n is channel not maintained, light brush on banks
02818> # Slope   0.05% as per plan provided by Atrel
02819> 010:0081----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
02820>     ROUTE CHANNEL   -> 03:N3        78.93     1.780 No_date    1:50   24.17  n/a
02821>      [RDC= 1.00] out<- 01:rN1       78.93     1.467 No_date    2:02   24.17  n/a
02822>       [L/S/n=  345./ .050/.035]
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02822>       [Vmax=  .167:Dmax= 1.292]
02823> # VOLUME from residential Area at N3 interim
02825>  010:0082----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm-----R.V.-R.C.-
02826>      ADD HYD           02:FR3A       1.35      .857 No_date     1:38   17.52  n/a
02827>                      + 03:FR8        3.18      .892 No_date     1:39   16.28  n/a
02828>       [ID= 1.00]  SUM=  01:N31        4.53     1.749 No_date     1:38   16.65  n/a
02829> # Added VOLUME from external area contributing to N3
02830>  010:0083----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm-----R.V.-R.C.-
02831>      ADD HYD           02:HN1       75.93    1.467 No_date     2:07   24.13  n/a
02832>                      + 03:N31        4.53     1.749 No_date     1:38   16.65  n/a
02833>                      + 04:EX5         .22      .047 No_date     1:26   28.69  n/a
02834>                      + 05:EX6         .51      .029 No_date     1:26   11.52  n/a
02835>                      + 06:EXC1        .22      .039 No_date     1:20   34.30  n/a
02836>       [ID= 1.00]  SUM=  01:N3       81.01    1.535 No_date     2:01   23.97  n/a
02837> # Route N3 to NC12s
02838> # Typical section based on Shields MP Voc Ditch 3:1 Banks
02839> # provided by Attel
02840> # Manning's n is Channel not maintained, light brush on banks
02841> # Slope   0.5% as per plan provided by Attel
02842>  010:0084----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm-----R.V.-R.C.-
02843>      ROUTE CHANNEL   -> 02:N3        81.01    1.535 No_date     2:01   23.97  n/a
02844>       [ROT= 1.00] SUM=  01:HN3       81.01    1.534 No_date     2:07   23.97  n/a
02845>       [L/S/n=  415./ .050/.035]
02846>       [Vmax=  .357:Dmax= 1.228]
02847> # Flow at Stantec node BCB128 for comparison
02848> # Routes N3 plus EX3
02849>  010:0085----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm-----R.V.-R.C.-
02850>      ADD HYD           02:AB3       82.91    1.310 No_date     2:27   23.97  n/a
02851>                      + 03:EX3        21.70     .629 No_date     2:22   15.78  n/a
02852>       [ID= 1.00]  SUM=  01:NCR12B   104.61    1.771 No_date     2:27   22.56  n/a
02853> # AREA CHECK
02854> #
02855>  010:0086----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm-----R.V.-R.C.-
02856>      ADD HYD           02:EX1       24.82    1.418 No_date     1:34   19.21  n/a
02857>                      + 03:EX2        9.89     .227 No_date     1:09   15.78  n/a
02858>                      + 04:EX3       21.70     .629 No_date     2:22   15.78  n/a
02859>                      + 05:EX4         .58     .012 No_date     1:22   18.65  n/a
02860>                      + 06:EX5         .22     .047 No_date     1:26   28.69  n/a
02861>                      + 07:EX6         .51     .029 No_date     1:26   11.52  n/a
02862>                      + 08:EX7         .39     .026 No_date     1:25   17.63  n/a
02863>                      + 09:fR1A        .24     .011 No_date     1:21   20.05  n/a
02864>                      + 10:fR1B        .35     .025 No_date     1:35   28.45  n/a
02865>       [ID= 1.00]  SUM=  01:Tot1      58.33    1.816 No_date     1:17   17.84  n/a
02866>  010:0087----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm-----R.V.-R.C.-
02867>      ADD HYD           02:Tot1      58.33    1.816 No_date     1:17   17.53  n/a
02868>                      + 03:fR2A        1.37     .072 No_date     1:34   20.45  n/a
02869>                      + 04:fR2E        1.17     .053 No_date     1:34   20.45  n/a
02870>                      + 05:fR3A         .45     .020 No_date     1:21   20.45  n/a
02871>                      + 06:fR3B         .52     .026 No_date     1:33   20.45  n/a
02872>                      + 07:fR4A         .43     .015 No_date     1:17   20.05  n/a
02873>                      + 08:fR4B         .65     .030 No_date     1:33   20.05  n/a
02874>                      + 09:fR5A         .86     .031 No_date     1:33   18.85  n/a
02875>                      + 10:fR5B         .46     .017 No_date     1:21   18.85  n/a
02876>       [ID= 1.00]  SUM=  01:Tot2      64.71    2.096 No_date     1:16   17.81  n/a
02877>  010:0088----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm-----R.V.-R.C.-
02878>      ADD HYD           02:Tot2      64.71    2.096 No_date     1:16   17.81  n/a
02879>                    - 03:fR6A        1.43     .065 No_date     1:34   20.45  n/a
02880>                    - 04:fR6B         .93     .042 No_date     1:33   20.45  n/a
02881>                      05:fR7A        1.35     .057 No_date     1:19   17.52  n/a
02882>                      06:fR7B1        .56     .016 No_date     1:16   17.52  n/a
02883>                      07:fR7B2        .27     .008 No_date     1:15   17.52  n/a
02884>                    - 08:fR721       .89     .017 No_date     1:16   17.52  n/a
02885>                    - 09:fR7C2       .17     .008 No_date     1:15   17.52  n/a
02886>                    - 10:fR7D        .30     .013 No_date     1:16   17.52  n/a
02887>       [ID= 1.00]  SUM=  01:Tot3      68.66    2.323 No_date     1:16   17.80  n/a
02888>  010:0089----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm-----R.V.-R.C.-
02889>      ADD HYD           02:Tot3      68.66    2.323 No_date     1:16   17.80  n/a
02890>                      + 03:fR8         1.58     .062 No_date     1:19   16.28  n/a
02891>                      + 04:fR9A        1.10     .042 No_date     1:19   16.28  n/a
02892>                    - 05:fr9e1         .25     .010 No_date     1:27   16.28  n/a
02893>                    - 06:fR9e2       1.00     .039 No_date     1:38   16.28  n/a
02894>                    - 07:fR10        1.57     .070 No_date     1:10   16.28  n/a
02895>                      08:fR11         .60     .024 No_date     1:10   16.23  n/a
02896>                      09:fR1          4.06     .092 No_date     1:31   15.74  n/a
02897>                      10:fR3a         5.83     .574 No_date     1:23   5.80  n/a
02898>       [ID= 1.00]  SUM=  01:Tot4      85.37    3.118 No_date     1:35   18.46  n/a
02899>  010:0090----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm-----R.V.-R.C.-
02900>      ADD HYD           02:Tot4      85.37    3.118 No_date     1:35   18.46  n/a
02901>                    - 03:C1          8.36    1.634 No_date     1:20   38.84  n/a
02902>                    - 04:C2          8.54    1.573 No_date     1:20   64.42  n/a
02903>                      05:C3           .24     .038 No_date     1:08   57.06  n/a
02904>                      06:EXC1        1.16     .11 No_date      1:08   26.71  n/a
02905>                      07:EXC2        1.03     .36 No_date      1:08   39.68  n/a
02906>                      08:EXC3         .22     .039 No_date     1:20   34.30  n/a
02907>                      09:Pbc         1.59     .359 No_date     1:20   40.38  n/a
02908>       [ID= 1.00]  SUM=  01:Tot5     104.21    5.865 No_date     1:21   22.05  n/a
02909> ************************************************************************
02910> # Simulations with 4 hour Chicago from City of Ottawa
02911>  ** END OF RUN :  34
02912>
02913> ************************************************************************
02914>
02915>
02916>
02917>
02918>
02919>  RUN:C:\OTTAWA\JF
02920>  025:0001----------------------------------------------------------------------
02921>      START
02922>       [TZERO =    .00 Hrs on        0]
02923>       [METOUT=   2    (1=imperial, 2=metric output)]
02924>       [NSTORM=   1 ]
02925>       [NRUN  =  25 ]
02926> ************************************************************************
02927> #  SWMHYMO Ver:5.02/Jun 2001 <KEYAD / INPUT DATA FILE
02928> ************************************************************************
02929> #  Project Name: [Greely Village Centre]    Job/Sec Number: [841-07]
02930> #  Date        : 01-JAN-2008
02931> #  Modeller    : [CHP]
02932> #  Company     : JFSAinc.
02933> #  License #   : [547402]
02934> ************************************************************************
02935> #
02936> # SWMHYMO model of the Greely Village Center - Residential Area - Phase 2
02937> # Proposed Ultimate conditions. OPTION 0
02938> # Filename stands for: Greely, Commercial, Proposed
02939> ************************************************************************
02940>  025:0002----------------------------------------------------------------------
02941>      READ STORM
02942>       filename = storm.001
02943>       Comment  = 25 years Chicago Storm 6 Hours step 10 min, City of Ottawa
02944>       [STORM=1.00:RAIN=  4.60:PTOT=  61.70]
02945> ************************************************************************
02946> # Existing flow - Mosvey branch of Shield Creek - Areas
02947> # Area n/s of proposed development (residential)
02948> # CN=*95, slope   0.8, Tp 9.16, XIMP=5, TIMP=45, see SC002 as per Stantec
02949> # Area partially adjusted based on Attel drawings. Tp adjusted accordingly.
02950> ************************************************************************
02951> # n/s of Bank St.as per Attel - with modified boundaries and Tp.
02952>  025:0003----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm-----R.V.-R.C.-
02953>      ESTIMATE STANDHYD      01:EX1       24.82    1.883 No_date     1:16   75.06  .406
02954>       [CN= 95.0: N= 3.00]
02955>       [Ia=  .25:Sa=  .00]
02956> ************************************************************************
02957> # Existing flow - External areas d/s of Bank St.
02958> # CN* 68, as per Stantec see SC001.
02959> # Area partially adjusted based on Attel drawings.
02960> ************************************************************************
02961> # Areas External to development
02962>  025:0004----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm-----R.V.-R.C.-
02963>      ESTIMATE STANDHYD      01:EX2        9.89     .191 No_date     1:09   20.82  .237
02964>       [CN= 68.0: N= 3.00]
02965>       [Ia=  .67:Sa=  .00]
02966>  025:0005----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm-----R.V.-R.C.-
02967>      ESTIMATE STANDHYD      01:EX3       21.70     .559 No_date     1:21   20.82  .237
02968>       [CN= 68.0: N= 3.00]
02969>       [Ia=  .67:Sa=  .00]
02970> # Slope, Timp, Area from Attel Drawing
02971> # Ck from Stantec (BCB01)
02972> # Ximp = Timp = 10%
02973>  025:0006----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm-----R.V.-R.C.-
02974>      CALIB STANDHYD      01:EX4         .58     .032 No_date     1:12   25.40  .431
02975>       [XIMP=.10:TIMP=.32]
02976>       [DCIA=  0 :CN= 68.0]
02977>       [Pervious      Area: [Aperv= 4.67:SLPP=  .05:LGP=   40.:MNP=.250:SCP=    0]
02978>       [Impervious    Area: [Aimp= 1.57:SLPI=  .05:LGI=   50.:MNI=.015:SCI=    0]
02979> # Road and road side ditch along projected residential development Parkway No
02980> # Timp = Ximp = 0.21 ha /0.52 ha   0.40
02981> # CN*=80, as per Stantec see SC001.
02982> # Slope is estimated at 1%
02983> # LGI based on centroid of area due to elongated shape = 100m/2 = 50m
02984>  025:0007----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm-----R.V.-R.C.-
02985>      CALIB STANDHYD      01:EX5         .52     .082 No_date     1:05   35.50  .575
02986>       [XIMP=.60:TIMP=.60]
02987>       [DCIA= 2 :CN= 68.0]
02988>       [Pervious      Area: [Aperv= 4.67:SLPP=1.00:LGP=   40.:MNP=.250:SCP=    0]
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02889>       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI= 100.:MNI=.045:SCI=   .0]
02950> # Road and road side ditch along projected residential development Salesbarn Rd
02951> # Timp = Ximp = 0.1 ha /0.51 ha = 0.20
02952> # CN*=65, as per Stantec see SC001.
02953> # Slope is estimated at 1%
02954> # LGI based on centroid of area due to elongated shape - 354m/2 = 177
02955>  025:0008----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
02956>      CALIB STANDHYD     01:EX6          .51     .037 No_date    1:24   27.27 .642
02957>       [XIMP=.20:TIMP=.20]
02958>       [LOSS= 2 :CN= 69.0]
02959>       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
02960>       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI= 177.:MNI=.045:SCI=   .0]
02961> # Road and road side ditch along projected residential development Salesbarn Rd
02962> # Timp = Ximp = 0.69 ha /0.33 ha = 0.5%
02963> # CN*=69, as per Stantec see SC001.
02964> # Slope is estimated at 1%
02965> # LGI based on centroid of area due to elongated shape = 275m/2 = 137.5
02966>  025:0009----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
02967>      CALIB STANDHYD     01:EX7          .99     .083 No_date    1:24   25.51 .682
02968>       [XIMP=.23:TIMP=.23]
02969>       [LOSS= 2 :CN= 69.0]
02970>       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
02971>       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI= 137.:MNI=.045:SCI=   .0]
02972> #*************************************************************************
02973> # PROPOSED COMMERCIAL DEVELOPMENT
02974> #*************************************************************************
02975> # CN   79 as per fair grass cover with C soil type for top soil; CN*=71
02976> # XIMP = TIMP to be conservative
02977> #*************************************************************************
02978>  025:0010----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
02979>      DESIGN STANDHYD    01:C1           8.80    1.98 No_date    1:26   46.80 .758
02980>       [XIMP=.63:TIMP=.63]
02981>       [SLP=1.00:IA= 1.00]
02982>       [Loss= 2 :CN= 71.0]
02983>  025:0011----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
02984>      DESIGN STANDHYD    01:C2           6.31    1.921 No_date    1:20   52.81 .855
02985>       [XIMP=.79:TIMP=.79]
02986>       [SLP=1.00:IA= .60]
02987>       [Loss= 2 :CN= 71.0]
02988>  025:0012----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
02989>      DESIGN STANDHYD    01:C3           .24     .095 No_date    1:26   60.79 .984
02990>       [XIMP=.96:TIMP=.96]
02991>       [SLP=1.00:IA= 1.00]
02992>       [Loss= 2 :CN= 71.0]
02993> # Timp = Tmp ha/total area = 0.70/1.10 ha = .27
02994>  025:0013----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
02995>      DESIGN STANDHYD    01:EXC1         1.10     .358 No_date    1:26   47.65 .838
02996>       [XIMP=.27:TIMP=.27]
02997>       [SLP=1.00:IA= 1.00]
02998>       [Loss= 2 :CN= 71.0]
02999> # Timp = Tmp ha/total area = 0.35/1.07 ha = .35
03000>  025:0014----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
03001>      DESIGN STANDHYD    01:EXC2         1.07     .364 No_date    1:26   35.73 .578
03002>       [XIMP=.15:TIMP=.15]
03003>       [SLP=1.00:IA= 1.00]
03004>       [Loss= 2 :CN= 71.0]
03005> # Timp = Tmp ha/total area = 0.21/0.22ha = .96
03006>  025:0015----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
03007>      DESIGN STANDHYD    01:EXC3         .22     .071 No_date    1:20   41.56 .673
03008>       [XIMP=.98:TIMP=.98]
03009>       [SLP=1.00:IA= 1.00]
03010>       [Loss= 2 :CN= 71.0]
03011> #*************************************************************************
03012> # Commercial pond POND
03013> # slope estimated at 1% based on elevations around pond.
03014> # Ting and Xing based on total pond area
03015> # Xing = A pond/A tot /1.94/1.57
03016>  025:0016----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
03017>      DESIGN STANDHYD    01:POC          1.57     .610 No_date    1:24   48.36 .780
03018>       [XIMP=.67:TIMP=.87]
03019>       [SLP=1.00:IA= 1.00]
03020>       [Loss= 2 :CN= 71.0]
03021> ********************************************************************************
03022> #*************************************************************************
03023> # PROPOSED RESIDENTIAL SUBWATERSHEDS - Residential Area Phase 1 and 2
03024> #*************************************************************************
03025> # CN*=69, as per Stantec see SC001.
03026> # Tp estimated with Uplands Method.
03027>  025:0017----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
03028>      DESIGN NASHYD      01:PR1          4.26     .304 No_date    1:31   20.82 .237
03029>       [UH= 69.0: R= 3.00]
03030>       [Tp= .10:IA= 1.00]
03031> #*************************************************************************

03072> # AREA3 GOING TO RESIDENTIAL POND POND1
03073> #*************************************************************************
03074> #
03075>  025:0018----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
03076>      CALIB STANDHYD     01:FR1A         .24     .017 No_date    1:31   26.35 .427
03077>       [XIMP=.11:TIMP=.11]
03078>       [LOSS= 2 :CN= 71.0]
03079>       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
03080>       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  40.:MNI=.045:SCI=   .0]
03081>  025:0019----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
03082>      CALIB STANDHYD     01:FR1B         .53     .037 No_date    1:32   26.35 .427
03083>       [XIMP=.11:TIMP=.21]
03084>       [LOSS= 2 :CN= 71.0]
03085>       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
03086>       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  40.:MNI=.045:SCI=   .0]
03087>  025:0020----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
03088>      CALIB STANDHYD     01:FR2A         .67     .106 No_date    1:33   25.36 .427
03089>       [XIMP=.11:TIMP=.21]
03090>       [LOSS= 2 :CN= 71.0]
03091>       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
03092>       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI= 102.:MNI=.045:SCI=   .0]
03093>  025:0021----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
03094>      CALIB STANDHYD     01:FR2B         .57     .077 No_date    1:33   26.36 .427
03095>       [XIMP=.11:TIMP=.21]
03096>       [LOSS= 2 :CN= 71.0]
03097>       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
03098>       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  85.:MNI=.045:SCI=   .0]
03099>  025:0022----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
03100>      CALIB STANDHYD     01:FR3A         .45     .060 No_date    1:32   26.36 .427
03101>       [XIMP=.11:TIMP=.21]
03102>       [LOSS= 2 :CN= 71.0]
03103>       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
03104>       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  55.:MNI=.045:SCI=   .0]
03105>  025:0023----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
03106>      CALIB STANDHYD     01:FR3B         .62     .015 No_date    1:32   26.36 .427
03107>       [XIMP=.11:TIMP=.21]
03108>       [LOSS= 2 :CN= 71.0]
03109>       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
03110>       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  50.:MNI=.045:SCI=   .0]
03111>  025:0024----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
03112>      CALIB STANDHYD     01:FR4A         .71     .044 No_date    1:32   26.36 .427
03113>       [XIMP=.11:TIMP=.21]
03114>       [LOSS= 2 :CN= 71.0]
03115>       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
03116>       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  60.:MNI=.045:SCI=   .0]
03117>  025:0025----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
03118>      CALIB STANDHYD     01:FR4B         .66     .044 No_date    1:32   26.36 .427
03119>       [XIMP=.11:TIMP=.21]
03120>       [LOSS= 2 :CN= 71.0]
03121>       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
03122>       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  60.:MNI=.045:SCI=   .0]
03123>  025:0026----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
03124>      CALIB STANDHYD     01:FR5A         .56     .045 No_date    1:32   26.36 .427
03125>       [XIMP=.11:TIMP=.21]
03126>       [LOSS= 2 :CN= 71.0]
03127>       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
03128>       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  55.:MNI=.045:SCI=   .0]
03129>  025:0027----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
03130>      CALIB STANDHYD     01:FR5B         .46     .031 No_date    1:32   26.36 .427
03131>       [XIMP=.11:TIMP=.21]
03132>       [LOSS= 2 :CN= 71.0]
03133>       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
03134>       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  55.:MNI=.045:SCI=   .0]
03135>  025:0028----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
03136>      CALIB STANDHYD     01:FR6A         1.63     .095 No_date    1:32   26.36 .427
03137>       [XIMP=.11:TIMP=.21]
03138>       [LOSS= 2 :CN= 71.0]
03139>       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
03140>       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
03141>  025:0029----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
03142>      CALIB STANDHYD     01:FR6B         .91     .063 No_date    1:32   26.36 .427
03143>       [XIMP=.11:TIMP=.21]
03144>       [LOSS= 2 :CN= 71.0]
03145>       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
03146>       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  75.:MNI=.045:SCI=   .0]
03147> # slope estimated at 2% based on backyard swales.
03148> # Ting and Xing based on total pond area
03149> # xing = A pond/A tot
03150> # Timp = weighted average of pond and backyards
03151>  025:0030----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
03152>      CALIB STANDHYD     02:POND         5.03     .713 No_date    1:28   38.33 .592
03153>       [XIMP=.44:TIMP=.44]
03154>       [LOSS= 2 :CN= 71.0]
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|Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
|Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  185.:MNI=.045:SCI=   .0]
+-----------------------------------------------------------------------
+ UNCONTROLLED AREAS
+-----------------------------------------------------------------------
+
025:0031----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
 * CALIB STANDHYD    01:PR1A        .35     .083 No date    1:35   25.12 .374
   [XIMP .02:TIMP=.14]
   [LOSS= 2 :CN= 71.0]
   |Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
   |Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  95.:MNI=.015:SCI=   .0]
025:0032----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
 * CALIB STANDHYD    01:PR1B        .46     .023 No date    1:35   25.12 .374
   [XIMP .02:TIMP=.14]
   [LOSS= 2 :CN= 71.0]
   |Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
   |Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  48.:MNI=.045:SCI=   .0]
025:0033----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
 * CALIB STANDHYD    01:PR2B2       .12     .015 No date    1:33   25.12 .374
   [XIMP=.02:TIMP=.14]
   [LOSS= 2 :CN= 71.0]
   |Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
   |Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  34.:MNI=.045:SCI=   .0]
025:0034----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
 * CALIB STANDHYD    01:PR2C1       .10     .026 No date    1:34   25.12 .374
   [XIMP .02:TIMP=.14]
   [LOSS= 2 :CN= 71.0]
   |Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
   |Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  51.:MNI=.045:SCI=   .0]
025:0035----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
 * CALIB STANDHYD    01:PR2C2       .17     .041 No date    1:33   25.12 .374
   [XIMP=.02:TIMP=.14]
   [LOSS= 2 :CN= 71.0]
   |Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
   |Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  34.:MNI=.045:SCI=   .0]
025:0036----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
 * CALIB STANDHYD    01:PR3D        .30     .072 No date    1:31   25.12 .374
   [XIMP=.02:TIMP=.14]
   [LOSS= 2 :CN= 71.0]
   |Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
   |Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  45.:MNI=.045:SCI=   .0]
025:0037----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
 * CALIB STANDHYD    01:PR4         1.38     .377 No date    1:36   21.65 .351
   [X.Xm=.01:TIMP=.07]
   [LOSS= 2 :CN= 71.0]
   |Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
   |Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  66.:MNI=.045:SCI=   .0]
025:0038----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
 * CALIB STANDHYD    01:PR5A        1.18     .0852 No date    1:36   21.65 .351
   [XIMP=.01:TIMP=.07]
   [LOSS= 2 :CN= 71.0]
   |Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
   |Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  66.:MNI=.045:SCI=   .0]
025:0039----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
 * CALIB STANDHYD    01:PR5B1       .05     .0145 No date    1:34   21.65 .351
   [XIMP=.01:TIMP=.07]
   [LOSS= 2 :CN= 71.0]
   |Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
   |Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  51.:MNI=.045:SCI=   .0]
025:0040----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
 * CALIB STANDHYD    01:PR5B2       1.08     .067 No date    1:36   21.65 .351
   [XIMP=.01:TIMP=.07]
   [LOSS= 2 :CN= 71.0]
   |Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
   |Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  51.:MNI=.045:SCI=   .0]
025:0041----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
 * CALIB STANDHYD    01:PR1C        1.80     .103 No date    1:37   21.65 .351
   [XIMP=.01:TIMP=.07]
   [LOSS= 2 :CN= 71.0]
   |Pervious     area: IAper= 4.67:SLPP=.05:LGP=  40.:MNP=.250:SCP=   .0]
   |Impervious   area: IAimp= 1.57:SLPI=.05:LGI=  111.:MNI=.045:SCI=   .0]
025:0042----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
 * CALIB STANDHYD    01:PR1I        .62     .036 No date    1:35   21.65 .351
   [XIMP=.01:TIMP=.07]
   [LOSS= 2 :CN= 71.0]
   |Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
   |Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  86.:MNI=.045:SCI=   .0]
+-----------------------------------------------------------------------
# EXISTING Flow - Upstream of Proposed Development
#-----------------------------------------------------------------------
# Total flow at node N-EX1
025:0043----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
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ADD HYD           02:EX1       25.02    1.881 No date    1:31   25.06  n/a
                +  03:EXC        1.10     .118 No date    1:30   35.65  n/a
                +  04:EXC2       1.07     .106 No date    1:30   35.75  n/a
    [IT= 1.00]  SUM=  01:NEX1   26.79    2.029 No date    1:34   25.80  n/a
# Typical Section based on proposed channel provided by AEL
# 4:1 bank slopes, Long Slope = 0.85%, Manning's n is 0.03
# Route N-EX1 to S/s node N0
025:0044----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
    ROUTE CHANNEL   -> 02:REX1      26.79    2.029 No date    1:34   25.80  n/a
     [PDT 1.00] out<- 01:RNEX1      26.75    1.971 No date    1:37   25.80  n/a
     [L/S/n=  312./ .050/.030]
     [Vmax= 1.452:Dmax=  .404]
+-----------------------------------------------------------------------
# Total INFLOW TO COMMERCIAL POND #30
#-----------------------------------------------------------------------
025:0045----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
    ADD HYD           02:EX4        .56     .032 No date    1:32   25.60  n/a
                +  03:C1         8.36    1.581 No date    1:20   16.00  n/a
                +  04:C2         6.34    1.923 No date    1:20   52.81  n/a
                +  05:PDc        1.50     .436 No date    1:30   48.14  n/a
     [DT= 1.00]  SUM=  01:PECin  16.75    4.161 No date    1:30   30.47  n/a
025:0046----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
    ROUTE RESERVOIR -> 01:PECin      16.7     4.161 No date    1:30   30.47  n/a
     [RDT= 1.00] out<- 01:PECout     16.71     .885 No date    1:54   48.47  n/a
          Overflow <= 05:Ovrq         .00     .000 No date    0:00    .00  n/a
    (MaxToAdd=.4957E-06, ToOvfVol=.0000E+00, N-Ovf=    0, TotDurOvf=    0.hrs)
# Total flow at outlet of Commercial pond
025:0047----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
    ADD HYD           02:PECout    16.71     .885 No date    1:54   48.47  n/a
                +  03:PR5A       1.10     .062 No date    1:32   21.65  n/a
     [DT= 1.00]  SUM=  01:NPOc   17.81     .681 No date    1:52   46.81  n/a
# Route pond outflow at pipe s/s of node N0
# Typical Section based on proposed channel provided by AEL
# 4:1 bank slopes, Long Slope = 0.25%, Manning's n is 0.03
025:0048----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
    ROUTE CHANNEL   -> 02:NPOc       17.81     .681 No date    1:52   46.81  n/a
     [RDT= 1.00] out<- 01:RNPOc      17.81     .655 No date    2:00   46.81  n/a
     [L/S/n=  880./ .250/.030]
     [Vmax=  .647:Dmax=  .401]
# Total channel flow at pipe s/s of node N0
025:0049----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
    ADD HYD           03:RNPOc     17.81     .655 No date    2:00   46.81  n/a
                +  04:PR5B1      1.05     .057 No date    1:34   21.65  n/a
     [DT= 1.00]  SUM=  01:NEX0   18.86     .698 No date    1:58   45.16  n/a
+ ------------
# Total flow at node N0
+ (Note that EX2 will be sheet draining to proposed channel)
025:0050----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
    ADD HYD           02:NEX0     18.86     .698 No date    1:58   45.16  n/a
                +  03:RNEX1     36.79    1.971 No date    1:37   25.80  n/a
                +  04:EX2        9.89     .403 No date    1:39   30.53  n/a
                +  05:C3         .34     .095 No date    1:20   60.19  n/a
     [DT= 1.00]  SUM=  01:N0     55.98    2.718 No date    1:40   31.66  n/a
# Typical Section Based on proposed channel provided by AEL
# 4:1 bank slopes, Long Slope = 0.40%, Manning's n is 0.03
# Route SW draining at N0 to s/s node N-EX2
025:0051----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
    ROUTE CHANNEL   -> 02:N0        55.98    2.718 No date    1:40   31.66  n/a
     [RDT= 1.00] out<- 01:RN0       55.98    2.622 No date    1:45   31.66  n/a
     [L/S/n=  324./ .400/.030]
     [Vmax= 1.102:Dmax=  .670]
# Total flow at node N-EX2
025:0052----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
    ADD HYD           02:RN0      55.98    2.622 No date    1:45   31.66  n/a
                +  03:PR3D       1.07     .103 No date    1:37   21.65  n/a
     [DT= 1.00]  SUM=  01:NEX2   57.05    2.715 No date    1:44   31.32  n/a
# Route Node N-EX2 to Node N1
# Typical Section based on SB's da N3 Vee Ditch 3:1 banks
# provided by Ariel
# Manning's n is Channel not maintained, light brush on banks
# Slope = 0.05% as per plan provided by Ariel.
025:0053----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
    ROUTE CHANNEL   -> 02:NEX2      57.05    2.715 No date    1:44   31.32  n/a
 *   [RDT= 1.00] out<- 01:RNEX2     57.05    2.029 No date    1:48   31.32  n/a
     [L/S/n=  253./ .050/.075]
     (Vmax=  .383:Dmax= 1.556)
+-----------------------------------------------------------------------
+ Residential Development - Phase 1 and 2
+-----------------------------------------------------------------------
+ Total flow at node N-PK1
025:0054----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
    ADD HYD           01:PK1       4.26     .304 No date    1:31   28.63  n/a
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03321>                    +  03:FP4A        .24      .017 No data    1:31   26.36  n/a
03322>       [IT  1.00]  SUM=  01:NPX1       4.50      .321 No data    1:31   21.12  n/a
03323> # Volume to ponding area in PX1
03324> # Q 0.550 m3/s required as per 2YR 100yr Existing conditions
03325> # Culvert from inlet 1
03326> # Assuming outlet culvert is 600 mm, slope = 1.2%, HDPE smooth walls
03327> # Manning's n = 0.012, inlet control nomograph
03328> # Hydraulic head = 0.5m, Q=0.619
03329> 025:0055---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
03330>      COMPUTE DUALSYS    01:NPX1         4.50      .321 No date    1:31   21.17  n/a
03331>           Major system /  02:NPX1MJ       .06      .030 No date    0:08     .80  n/a
03332>           Minor system \  03:NPX1MN      4.50      .321 No date    1:31   21.17  n/a
03333>        [MJsyssto .0000E+00, IotOutVol= 0.000E+00, M-Over=    0, TotDurOvr=    0.hrs]
03334> # Input to inlet 1 pipe
03335> 025:0056---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
03336>      ADD HYD            02:PR1A         .50      .037 No date    1:32   26.36  n/a
03337>                       + 03:EPX1XL      4.50      .321 No date    1:31   21.12  n/a
03338>       [DT  1.00]  SUM=  01:In1         5.00      .358 No date    1:31   21.69  n/a
03339> # Pipe from inlet 1 - Route to pond
03340> # HDPE smooth wall pipe Manning's n = 0.012
03341> 025:0057---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
03342>      ROUTE PIPE       -> 02:In1         5.00      .358 No date    1:31   21.69  n/a
03343>       [RDT= 1.00] out<- 01:Pin1         5.00      .358 No date    1:31   21.69  n/a
03344>       [L/S/n=   60./1.600/.012]
03345>       [Vmax= 2.801:Dmax=   .277]
03346>       [Din=  .600:Dused=  .600]
03347> # Culvert from inlet 2
03348> # HDPE smooth wall pipe Manning's n = 0.012
03349> 025:0058---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
03350>      ROUTE PIPE       -> 01:PR2A         .67      .104 No data    1:33   26.36  n/a
03351>       [RDT= 1.00] out<- 01:Cin2         .67      .104 No data    1:33   26.36  n/a
03352>       [L/S/n=   13./ .400/.012]
03353>       [Vmax= 1.264:Dmax=   .220]
03354>       [Din=  .500:Dused=  .500]
03355> # Input to inlet 2 pipe
03356> 025:0059---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
03357>      ADD HYD            02:PR1B         .17      .077 No data    1:33   26.36  n/a
03358>                       + 03:Cin2         .67      .104 No data    1:33   26.71  n/a
03359>       [DT= 1.00]  SUM=  01:In2         2.74      .181 No data    1:33   26.56  n/a
03360> # Pipe from inlet 2 - Route to pond
03361> # HDPE smooth wall pipe Manning's n = 0.012
03362> 025:0060---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
03363>      ROUTE PIPE       -> 02:In2         2.74      .181 No data    1:33   26.56  n/a
03364>       [RDT= .400] out<- 01:Pin2         2.74      .180 No data    1:34   26.56  n/a
03365>       [L/S/n=   75./ .600/.012]
03366>       [Vmax= 1.062:Dmax=   .405]
03367>       [Din=  .500:Dused=  .500]
03368> # Culvert from inlet 3
03369> # HDPE smooth wall pipe Manning's n = 0.012
03370> 025:0061---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
03371>      ROUTE PIPE       -> 02:PR3A         .46      .030 No data    1:32   26.36  n/a
03372>       [RDT= 1.00] out<- 01:Cin3         .46      .030 No data    1:32   26.36  n/a
03373>       [L/S/n=   55./ .600/.012]
03374>       [Vmax=  .874:Dmax=  .115]
03375>       [Din=  .500:Dused=  .500]
03376> # Input to inlet 3 pipe
03377> 025:0062---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
03378>      ADD HYD            02:PR3B         .52      .035 No data    1:32   26.36  n/a
03379>                       + 03:Cin3         .05      .030 No data    1:32   26.36  n/a
03380>       [DT  1.00]  SUM=  01:In3         .57      .065 No data    1:32   26.36  n/a
03381> # Pipe from inlet 3 - Route to pond
03382> # HDPE smooth wall pipe Manning's n = 0.012
03383> 025:0063---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
03384>      ROUTE PIPE       -> 02:In3         .57      .065 No data    1:32   26.36  n/a
03385>       [RDT= 1.00] out<- 01:Pin3         .57      .064 No data    1:33   26.36  n/a
03386>       [L/S/n=   75./ .250/.012]
03387>       [Vmax=  .852:Dmax=  .196]
03388>       [Din=  .500:Dused=  .500]
03389> # Culvert from inlet 4
03390> # HDPE smooth wall pipe Manning's n = 0.012
03391> 025:0064---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
03392>      ROUTE PIPE       -> 02:PR4A         .71      .049 No data    1:32   26.36  n/a
03393>       [RDT= 1.00] out<- 01:Cin4         .71      .049 No data    1:32   26.36  n/a
03394>       [L/S/n=   17./ .400/.013]
03395>       [Vmax= 1.007:Dmax=   .145]
03396>       [Din=  .500:Dused=  .500]
03397> # Input to inlet 4 pipe
03398> 025:0065---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
03399>      ADD HYD            02:PR4B         .65      .010 No data    1:32   26.36  n/a
03400>                       + 03:Cin4        1.01      .048 No data    1:32   26.36  n/a
03401>       [DT  1.00]  SUM=  01:In4         1.36      .092 No data    1:32   26.36  n/a
03402> # Pipe from inlet 4 (ULTIMATE CONDITIONS) - Route to pond
03403> # HDPE smooth wall pipe Manning's n = 0.012
03404> 025:0066---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
03405>      ROUTE PIPE       -> 02:In4         1.36      .092 No data    1:32   26.36  n/a
03406>       [RDT= 1.00] out<- 01:Pin4         1.36      .092 No data    1:33   26.36  n/a
03407>       [L/S/n=   85./1.800/.012]
03408>       [Vmax= 2.100:Dmax=   .236]
03409>       [Din=  .500:Dused=  .500]
03410> # Culvert from inlet 5
03411> # HDPE smooth wall pipe Manning's n = 0.012
03412> 025:0067---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
03413>      ROUTE PIPE       -> 02:PR5A         .66      .045 No data    1:32   26.36  n/a
03414>       [RDT= 1.00] out<- 01:Cin5         .66      .045 No data    1:32   26.36  n/a
03415>       [L/S/n=   13./ .400/.013]
03416>       [Vmax=  .981:Dmax=  .140]
03417>       [Din=  .500:Dused=  .500]
03418> # Input to inlet 5 pipe
03419> 025:0068---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
03420>      ADD HYD            02:PR5B         .16      .011 No data    1:32   26.36  n/a
03421>                       + 03:Cin5         .66      .045 No data    1:32   26.36  n/a
03422>       [DT= 1.00]  SUM=  01:In5         .82      .079 No data    1:32   26.36  n/a
03423> # Pipe from inlet 5 - Route to pond
03424> # HDPE smooth wall pipe Manning's n = 0.012
03425> 025:0069---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
03426>      ROUTE PIPE       -> 02:In5         .82      .079 No data    1:32   26.36  n/a
03427>       [RDT= 1.00] out<- 01:Pin5         .82      .079 No data    1:33   26.36  n/a
03428>       [L/S/n=   25./1.600/.013]
03429>       [Vmax= 1.874:Dmax=   .129]
03430>       [Din=  .300:Dused=  .500]
03431> # Culvert from inlet 6
03432> # HDPE smooth wall pipe Manning's n = 0.012
03433> 025:0070---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
03434>      ROUTE PIPE       -> 02:PR6A        1.43      .095 No data    1:33   26.36  n/a
03435>       [RDT  1.00] out<- 01:Cin6        1.43      .095 No data    1:33   26.36  n/a
03436>       [L/S/n=   23./ .900/.012]
03437>       [Vmax= 1.975:Dmax=   .209]
03438>       [Din=  .500:Dused=  .500]
03439> # Input to inlet 6 pipe
03440> 025:0071---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
03441>      ADD HYD            02:PR6B         .93      .060 No data    1:32   26.36  n/a
03442>                       + 03:Cin6        1.43      .095 No data    1:33   26.36  n/a
03443>       [DT= 1.00]  SUM=  01:In6         2.36      .157 No data    1:33   26.36  n/a
03444> # Pipe from inlet 6 - Route to pond
03445> # HDPE smooth wall pipe Manning's n = 0.012
03446> 025:0072---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
03447>      ROUTE PIPE       -> 02:In6         2.36      .157 No data    1:33   26.36  n/a
03448>       [RDT= 1.00] out<- 01:Pin6        2.36      .157 No data    1:33   26.36  n/a
03449>       [L/S/n=   70./ .300/.013]
03450>       [Vmax= 1.765:Dmax=   .400]
03451>       [Din=  .500:Dused=  .500]
03452> # VOLUME TO POND CULTIVATE RESIDENTIAL
03453> 025:0073---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
03454>      ADD HYD            02:Pin1         5.00      .358 No data    1:31   21.63  n/a
03455>                       + 03:Pin2         2.74      .180 No data    1:34   26.72  n/a
03456>                       + 04:Pin3          .99      .064 No data    1:33   26.36  n/a
03457>                       + 05:Pin4         1.36      .092 No data    1:33   26.36  n/a
03458>                       + 06:Pin5          .82      .079 No data    1:33   26.36  n/a
03459>                       + 07:Pin6         2.36      .157 No data    1:33   26.36  n/a
03460>                       + 08:PR4          5.03      .713 No data    1:23   38.33  n/a
03461>       [DT= 1.00]  SUM=  01:POND1n      18.63     1.508 No data    1:24   28.41  n/a
03462> #  Pond outflow for ultimate conditions using weir .6, .6, 3.0
03463> 025:0074---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
03464>      ROUTE RESERVOIR -> 02:POND1n     18.63     1.508 No data    1:24   28.41  n/a
03465>       [RDT= 1.00] out<- 01:POut      18.63      .101 No data    4:06   28.41  n/a
03466>            overflow <- 03:over2         .00      .000 No data    0:00     .00  n/a
03467>       [MaxStage=.xx:IterNo, TotVolVol=.000E+00, M-Over=    0, TotDurOvr=    0.hrs]
03468> # Simulating 5YR 100 yr conditions with submergence of outflow weir
03469> # Control for weir .6, .6, 3.0
03470> $ROUTE RESERVOIR     RNYDout ["POut"] ,RNYDin ["POND1n"] ,
03471> !                    RDT=[1](min),
03472> !                          TABLE of | OUTFLOW STORAGE | values
03473> !                                     (cms)    (ha-m)
03474> !                                   |   0.0 ,   0.0 |
03475> !                                    0.09001 , 1.1259
03476> !                                    0.20  , 1.8110
03477> !                                    0.39  , 2.8195
03478> !                                    |   |  ,   |  |  (max twenty pts)
03479> !                             RNYDovf=["over"] ,
03480> # Route pond output through first set of pipes
03481> # 2 x 600 pipes simulated with 1 pipe of equivalent capacity (=960 m3/s)
03482> # HDPE smooth wall pipe Manning's n = 0.012
03483> 025:0075---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
03484>      ROUTE PIPE       -> 02:POut      18.63      .101 No data    4:06   28.41  n/a
03485>       [RDT= 1.00] out<- 01:POut1     18.63      .101 No data    0:07   28.01  n/a
03486>       [L/S/n=   70./ .250/.012]
```

```
                (Vmax=  .629:Dmax=  .216)
                [Dia=  .780:Dused=  .780)
# Flow s/s of outlet culverts
 025:0076---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ADD HYD             03:PR1B       .16     .023 No_date    1:33   25.12  n/a
                      +  04:PROL1     16.83     .101 No_date    4:07   28.01  n/a
     [DT= 1.00]  SUM=   01:Pout      19.21     .103 No_date    4:01   28.25  n/a
# Route outflow through set of Culverts
# 2 x 600 culverts simulated with 1 culvert of equivalent capacity [ 780 mm dia
# HDPE smooth wall pipe Manning's n = 0.012
 025:0077---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ROUTE PIPE      -> 02:Pout      19.21     .105 No_date    4:01   28.25  n/a
     [RDT= 1.00] outs=  01:Cout      19.21     .105 No_date    4:01   28.25  n/a
     [L/s/m=  13./ .400/.012]
     (Vmax= 1.184:Dmax=  .156)
     [Dia=  .780:Dused=  .780]
# Flow s/s of second set of outflow pipes
 025:0078---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ADD HYD             02:PROC1       .39     .025 No_date    1:33   25.12  n/a
                      +  03:PROC2       .17     .012 No_date    1:32   27.72  n/a
                      +  04:Cout      19.21     .105 No_date    4:01   28.25  n/a
     [DT= 1.00]  SUM=   01:Pout2     19.77     .103 No_date    4:00   28.11  n/a
# Route outflow through second set of pipes
# 2 x 600 pipes simulated with 1 pipe of equivalent capacity [=780 mm dia]
# HDPE smooth wall pipe Manning's n = 0.012
 025:0079---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ROUTE PIPE      -> 02:Pout2     19.77     .103 No_date    3:59   28.11  n/a
     [RDT= 1.00] outs=  01:Pout2     19.77     .101 No_date    4:00   28.11  n/a
     [L/s/m    65./ .080/.012]
     (Vmax= .990:Dmax=  .229)
     [Dia=  .780:Dused=  .780]
# Total flow at node N1 (Shield RD along Sales Barn Rd)
 025:0080---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ADD HYD             02:BREK2     57.85    2.979 No_date    1:48   31.54  n/a
                      +  03:RouteF    19.77     .106 No_date    4:00   28.11  n/a
                      +  04:EX7       .39     .033 No_date    1:23   28.51  n/a
                      +  05:PR7D      .56     .030 No_date    1:33   23.12  n/a
                      +  06:PR7       .82     .036 No_date    1:35   21.85  n/a
     [DT= 1.00]  SUM=   01:N1        78.93    3.495 No_date    1:48   30.41  n/a
# ROUTE N1 to N3
# Typical Section based on Shields MD Vee ditch 3:1 sides
# provided by Attrel
# Manning's n is Channel not maintained, light brush on banks
# Slope = 0.3% as per plan provided by Attrel.
 025:0081---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ROUTE CHANNEL   -> 02:N1        78.93    3.495 No_date    1:48   30.41  n/a
     [RDT= 1.00] outs=  01:N3        78.93    3.020 No_date    2:01   30.41  n/a
     [L/s/m    333./ .050/.035]
     (Vmax=  .494:Dmax= 1.478)
# VOLUME from residential area at N3 interim
 025:0082---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ADD HYD             02:PR7A       .39     .033 No_date    1:23   28.51  n/a
                      +  03:PR7       1.38     .077 No_date    1:36   21.65  n/a
     [DT= 1.00]  SUM=   01:N3        2.73     .109 No_date    1:36   22.38  n/a
# Added VOLUME from external area contributing to N3
 025:0083---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ADD HYD             02:EX5       5.69    2.870 No_date    2:01   30.41  n/a
                      +  03:N3        2.73     .109 No_date    1:36   22.38  n/a
                      +  04:EX6        .52     .059 No_date    1:25   35.56  n/a
                      +  05:EX6        .51     .047 No_date    1:24   27.27  n/a
                      +  06:EXC1      1.09     .047 No_date    1:20   61.56  n/a
     [DT= 1.00]  SUM=   01:N7        80.97    3.158 No_date    2:01   30.19  n/a
# ROUTE N3 to N3120
# Typical section based on Shields MD Vee ditch 3:1 sides
# provided by Attrel
# Manning's n is Channel not maintained, light brush on banks
# Slope = 0.3% as per plan provided by Attrel.
 025:0084---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ROUTE CHANNEL   -> 02:N3        80.97    3.158 No_date    2:01   30.18  n/a
     [RDT= 1.00] outs=  01:EN3       80.97    1.550 No_date    2:20   30.18  n/a
     [L/s/m=  415./ .050/.035]
     (Vmax=  .783:Dmax= 1.567)
# Flow at Stantec node NCR1B for comparison
# Scaled 44 plus 100
 025:0085---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ADD HYD             02:EN3       80.97    1.550 No_date    2:20   30.18  n/a
                      +  03:EX5       23.50     .559 No_date    2:21   20.53  n/a
     [DT= 1.00]  SUM=   01:NCR1B     104.21    2.410 No_date    2:20   28.27  n/a
# AREA CHECK
 025:0086---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ADD HYD             02:EX3       24.62    1.883 No_date    1:39   35.86  n/a
                      -  03:EX2        8.85     .303 No_date    1:49   30.61  n/a
                      -  04:EX3       11.58     .559 No_date    1:23   30.63  n/a
                      -  05:EX1         .58     .032 No_date    1:3    25.48  n/a
                      -  06:EX5         .52     .059 No_date    1:25   35.56  n/a
                      -  07:EX6         .51     .047 No_date    1:24   27.27  n/a
                      -  08:EX7         .39     .033 No_date    1:23   28.51  n/a
                      -  09:PR1A        .24     .017 No_date    1:31   26.36  n/a
                      -  10:PR1B        .55     .037 No_date    1:32   26.36  n/a
     [DT= 1.00]  SUM=   01:Tot1      58.52    2.420 No_date    1:36   22.96  n/a
 025:0087---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ADD HYD             02:Tot1     58.52    2.420 No_date    1:36   22.96  n/a
                      +  03:PR2A      1.57     .104 No_date    1:33   26.56  n/a
                      +  04:PR2B      1.17     .077 No_date    1:33   26.35  n/a
                      +  05:PR1A       .47     .030 No_date    1:32   20.48  n/a
                      +  06:PR1B       .61     .037 No_date    1:32   20.48  n/a
                      +  07:PR4A       .71     .045 No_date    1:32   20.48  n/a
                      +  08:PR1B       .55     .037 No_date    1:32   26.36  n/a
                      +  09:PR5A       .68     .045 No_date    1:32   26.36  n/a
                      +  10:PR5B       .46     .031 No_date    1:32   26.36  n/a
     [DT= 1.00]  SUM=   01:Tot2     64.71    2.817 No_date    1:30   23.29  n/a
 025:0088---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ADD HYD             02:Tot2     64.71    2.817 No_date    1:35   23.29  n/a
                      -  03:PR6A      1.13     .095 No_date    1:31   26.16  n/a
                      -  04:PR6B       .79     .063 No_date    1:31   26.16  n/a
                      -  05:PR7A      1.55     .083 No_date    1:35   23.12  n/a
                      -  06:PR7B1      .56     .023 No_date    1:33   23.12  n/a
                      -  07:PR7B2      .22     .015 No_date    1:33   23.12  n/a
                      -  08:PR7C1      .55     .025 No_date    1:35   23.12  n/a
                      -  09:PR7C2      .17     .011 No_date    1:32   23.12  n/a
     [DT= 1.00]  SUM=   01:Tot3     59.86    2.146 No_date    1:35   23.38  n/a
 025:0089---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ADD HYD             02:Tot3     59.86    2.146 No_date    1:35   23.38  n/a
                      +  03:PR8       1.78     .077 No_date    1:16   31.65  n/a
                      +  04:PR9A      1.10     .062 No_date    1:16   31.65  n/a
                      +  05:PR9B1      .75     .015 No_date    1:18   31.65  n/a
                      +  06:PR9B2     1.80     .057 No_date    1:16   31.65  n/a
                      +  07:PR1.0     1.87     .103 No_date    1:17   21.65  n/a
                      +  08:PR1.1      .68     .038 No_date    1:18   21.65  n/a
                      +  09:PR1       4.28     .304 No_date    1:31   20.82  n/a
                      +  10:PR1       5.03     .713 No_date    1:23   38.33  n/a
     [DT= 1.00]  SUM=   01:Tot4     80.37    4.256 No_date    1:34   24.01  n/a
 025:0090---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ADD HYD             02:Tot4     80.37    4.256 No_date    1:34   24.01  n/a
                      +  03:C1        4.19    1.981 No_date    1:20   46.60  n/a
                      +  04:C2        6.36    1.923 No_date    1:20   52.81  n/a
                      +  05:C3         .24     .095 No_date    1:20   60.19  n/a
                      +  06:EXC1      1.09     .138 No_date    1:20   32.63  n/a
                      +  07:EXC2      1.07     .166 No_date    1:20   35.71  n/a
                      +  08:EXC3       .32     .047 No_date    1:20   41.56  n/a
                      +  09:PR1       1.62     .410 No_date    1:20   42.6   n/a
     [DT= 1.00]  SUM=   01:Tot5     104.01    7.384 No_date    1:21   28.26  n/a
#------------------------------------------------------------------------
# Simulations with 4 hour Chicago from City of Ottawa
  ** END OF RUN :  45
#------------------------------------------------------------------------
 RUN:COMMAND4
 DES:C001---------------------------------------------------------------------
     START
      [IDEB=      .00 hrs on        0]
      [METOUT    2    (1=imperial), Vmetric output)]
      [NSTORM=   1]
      [NRUN  =   5]
#------------------------------------------------------------------------
# SWMHYMO Ver:5.02/Jun 2001 <esIA> / INPUT DATA FILE
#------------------------------------------------------------------------
#  Project Name: [Greely Village Center]    Project Number: [567 01]
#  Date        : 01-09-2009
#  Modeller    : [JDT
#  Company     : JFSAinc.
#  License #   : 2047402
#------------------------------------------------------------------------
#
# SWMHYMO model of the Greely Village Center - Residential Area - Phase 2
# Proposed Ultimate Conditions. Option B
# Filename stands for: Greely, Commercial, Proposed
#------------------------------------------------------------------------
```

```
03653> 050:0002----------------------------------------------------------------------
03654>       READ STORM
03655>        Filename = storm.001
03656>        Comment  = 50 years Chicago Storm 4 Hours step 10 min, City of Ottawa
03657>        ptot=50.00:iteq=    4.00 ptot   49.73]
03658> #*************************************************************************
03659> # Existing Flow - McEvoy Branch of Shield Creek - Areas
03660> # Area c/s of proposed development (residential)
03661> # CN= 75, slope = 0.8, Iper=.16, Ximp=.1, CIMP=.15, see SCH07 as per Stantec
03662> # Area partially adjusted based on Attel drawings. To adjusted accordingly.
03663> #*************************************************************************
03664> # c/s of Bank St.as per Attel - with modified boundaries and Tp.
03665>  050:0003---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
03666>       DESIGN NASHYD      01:EX1       24.62     1.256 No date    1:54   29.75 .423
03667>        [CN= 75.0: N= 3.00]
03668>        [Tp=  .23:d3= 1.00]
03669> #*************************************************************************
03670> # Existing flow - External areas c/s of Bank St.
03671> # CN=49, as per Stantec see SC001.
03672> # Area partially adjusted based on Attel drawings.
03673> #*************************************************************************
03674> # Areas External to development
03675>  050:0004---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
03676>       Dev.LD BASEYD      01:EX2        9.89     .365 No date    1:48   26.92 .183
03677>        [CN= 69.0: N= 3.00]
03678>        [Ia=   .67:IT= 1.00]
03679>  050:0005---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
03680>       DESIGN NASHYD      01:EX3       21.30     .671 No date    2:21   24.92 .361
03681>        [CN= 69.0: N= 3.00]
03682>        [Ia=  .82:IC= 1.00]
03683> # Slope, Tlag, Area from Attel Drawing
03684> # CN from Stantec (49.00)
03685> # Xlag   Tlag = .10
03686>  050:0006---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm    R.V.-R.C.-
03687>       CALIB STANDHYD     02:EX4        .50     .036 No data    1:52   29.97 .436
03688>        [XIMP=..1:TIMP= .22]
03689>        [LOSS= 2 :CN= 69.0]
03690>        [Pervious      area: IAper= 4.67:SLPP=1.00:IGP=  40.:MNP=.250:SCP=   .0]
03691>        [Impervious    area: IAimp= 1.57:SLPI=1.00:IGI=  98.:MNI=.045:SCI=   .0]
03692> # Road and road side ditch along projected residential development Parkway Rd
03693> # Tlag = Xlag = 0.21 ha /0.02 ha =  8.90
03694> # CN=69, as per Stantec see SC001.
03695> # Slope is estimated at 1%
03696> # LGI based on centroid of area due to elongated shape   600m/2 = 300
03697>  050:0007---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
03698>       CALIB STANDHYD     03:EX5        .02     .068 No date    1:26   40.68 .592
03699>        [XIMP= .00:TIMP=.40]
03700>        [LOSS= 2 :CN= 69.0]
03701>        [Pervious      area: IAper= 4.67:SLPP=1.00:IGP=  40.:MNP=.250:SCP=   .0]
03702>        [Impervious    area: IAimp= 1.57:SLPI=1.00:IGI= 300.:MNI=.045:SCI=   .0]
03703> # Road and road side ditch along projected residential development Salesbarn Rd
03704> # Tlag = Xlag = 0.1 ha /0.51 ha =  6.90
03705> # CN=69, as per Stantec see SC001.
03706> # Slope is estimated at 1%
03707> # LGI based on centroid of area due to elongated shape   354m/2 = 177
03708>  050:0008---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm    R.V.-R.C.-
03709>       CALIB STANDHYD     04:EX6        .01     .031 No data    1:24   31.86 .464
03710>        [XIMP=.00:TIMP=.20]
03711>        [LOSS= 2 :CN= 69.0]
03712>        [Pervious      area: IAper= 4.67:SLPP=1.00:IGP=  40.:MNP=.250:SCP=   .0]
03713>        [Impervious    area: IAimp= 1.57:SLPI=1.00:IGI= 177.:MNI=.045:SCI=   .0]
03714> # Road and road side ditch along projected residential development Salesbarn Rd
03715> # Tlag   Xlag = 0.03 ha /0.39 ha =  0.23
03716> # CN=69, as per Stantec see SC001.
03717> # Slope is estimated at 1%
03718> # LGI based on centroid of area due to elongated shape   205m/2 = 102.5
03719>  050:0009---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm    R.V.-R.C.-
03720>       CALIB STANDHYD     05:EX7        .38     .638 No data    1:52   33.18 .483
03721>        [XIMP= .21:TIMP=.21]
03722>        [LOSS= 2 :CN= 69.0]
03723>        [Pervious      area: IAper= 4.67:SLPP=1.00:IGP=  40.:MNP=.250:SCP=   .0]
03724>        [Impervious    area: IAimp= 1.57:SLPI=1.00:IGI= 137.:MNI=.045:SCI=   .0]
03725> #*************************************************************************
03726> # PROPOSED COMMERCIAL DEVELOPMENT
03727> #*************************************************************************
03728> # CN = 79 as per full grass cover with C soil type for top soil; CN*=80
03729> # XIMP = TIMP to be conservative
03730> #*************************************************************************
03731>  050:0010---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
03732>       DESIGN STANDHYD    01:EC        8.30     2.744 No data    1:20   32.57 .766
03733>        [XIMP= .61:TIMP=.84]
03734>        [SLP=1.00:DC= 1.00]
03735>        [LOSS= 2 :CN= 72.0]
03736>  050:0011---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
03737>       DESIGN STANDHYD    02:EC2       6.58     2.167 No data    1:20   29.21 .862
03738>        [XIMP=.79:TIMP=.79]
03739>        [SLP 1.00:DC= 1.00]
03740>        [LOSS= 2 :CN= 72.0]
03741>  050:0012---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
03742>       DESIGN STANDHYD    03:EC3        .24     .106 No data    1:38   27.16 .779
03743>        [XIMP=.98:TIMP=.98]
03744>        [SLP=1.00:DC= 1.00]
03745>        [LOSS= 2 :CN= 72.0]
03746> # Xlag = Imp ha/total area = 0.10/1.78 ha = .07
03747>  050:0013---------------ID:NHYD-------AREA    QPEAK-TpeakDate hh:mm----R.V.-R.C.-
03748>       DESIGN STANDHYD    04:EXC1       1.10     .158 No data    1:26   37.61 .548
03749>        [XIMP=.27:TIMP=.27]
03750>        [SLP=1.00:DC= 1.00]
03751>        [LOSS= 2 :CN= 72.0]
03752> # Xlag = Imp ha/total area = 0.35/1.07 ha = .35
03753>  050:0014---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
03754>       DESIGN STANDHYD    05:EXC2       1.07     .169 No data    1:20   40.86 .596
03755>        [XIMP= .35:TIMP= .35]
03756>        [SLP 1.00:DC= 1.00]
03757>        [LOSS= 2 :CN= 72.0]
03758> # Xlag = Imp ha/total area = 0.11/0.22ha = .50
03759>  050:0015---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
03760>       DESIGN STANDHYD    06:EXC3        .22     .053 No data    1:20   47.18 .686
03761>        [XIMP=.50:TIMP=.50]
03762>        [SLP=1.00:DC= 1.00]
03763>        [LOSS= 2 :CN= 72.0]
03764> #*************************************************************************
03765> # Commercial pond (Pdc)
03766> # slope estimated at 1% based on elevations around pond.
03767> # Timp and Ximp based on total pond area.
03768> # Ximp = A pond/A tot (1.84/1.57)
03769>  050:0016---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
03770>       DESIGN STANDHYD    01:Pdc        1.57     .484 No data    1:20   94.23 .789
03771>        [XIMP= .67:TIMP= .67]
03772>        [SLP 1.00:DC= 1.00]
03773>        [LOSS= 0 :CN= 71.0]
03774> ##########################################################################
03775> #*************************************************************************
03776> # PROPOSED RESIDENTIAL SUBWATERSHEDS - Residential Area Phase 1 and 2
03777> #*************************************************************************
03778> # CN= 69, as per Stantec see SC001.
03779> # Tp estimated with Uplans Method.
03780>  050:0017---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
03781>       DESIGN NASHYD      07:ra1        4.26     .368 No data    1:10   34.97 .464
03782>        [CN= 69.0: N= 3.00]
03783>        [Ia=  .18:d1= 1.00]
03784> #*************************************************************************
03785> # AREAs GOING TO RESIDENTIAL POND (PDc)
03786> #*************************************************************************
03787> #
03788>  050:0018---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
03789>       CALIB STANDHYD     08:PR1A       .36     .021 No data    1:51    8.08 .482
03790>        [XIMP=.11:TIMP=.21]
03791>        [LOSS= 2 :CN= 71.0]
03792>        [Pervious      area: IAper= 4.67:SLPP=1.00:IGP=  40.:MNP=.250:SCP=   .0]
03793>        [Impervious    area: IAimp= 1.57:SLPI=1.00:IGI=  40.:MNI=.045:SCI=   .0]
03794>  050:0019---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
03795>       CALIB STANDHYD     09:PR1B       .55     .047 No data    1:51   11.08 .482
03796>        [XIMP=..11:TIMP=.21]
03797>        [LOSS= 2 :CN= 71.0]
03798>        [Pervious      area: IAper= 4.67:SLPP=1.00:IGP=  40.:MNP=.250:SCP=   .0]
03799>        [Impervious    area: IAimp= 1.57:SLPI=1.00:IGI=  61.:MNI=.045:SCI=   .0]
03800>  050:0020---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
03801>       CALIB STANDHYD     01:PR2A       1.57     .171 No data    1:52   31.08 .482
03802>        [XIMP=.11:TIMP=.21]
03803>        [LOSS= 2 :CN= 71.0]
03804>        [Pervious      area: IAper= 4.67:SLPP=1.00:IGP=  40.:MNP=.250:SCP=   .0]
03805>        [Impervious    area: IAimp= 1.57:SLPI=1.00:IGI= 102.:MNI=.045:SCI=   .0]
03806>  050:0021---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
03807>       CALIB STANDHYD     01:PR2B       .17     .007 No data    1:52    8.08 .482
03808>        [XIMP=.11:TIMP=.21]
03809>        [LOSS= 2 :CN= 71.0]
03810>        [Pervious      area: IAper= 4.67:SLPP=1.00:IGP=  40.:MNP=.250:SCP=   .0]
03811>        [Impervious    area: IAimp= 1.57:SLPI=1.00:IGI=  98.:MNI=.045:SCI=   .0]
03812>  050:0022---------------ID:NHYD-------AREA    QPEAK-TpeakDate hh:mm----R.V.-R.C.-
03813>       CALIB STANDHYD     01:PR3A       .45     .039 No data    1:51   11.08 .482
03814>        [XIMP=.11:TIMP=.21]
03815>        [LOSS= 2 :CN= 71.0]
03816>        [Pervious      area: IAper= 4.67:SLPP 1.00:IGP=  40.:MNP=.250:SCP=   .0]
03817>        [Impervious    area: IAimp= 1.57:SLPI=1.00:IGI=  98.:MNI=.045:SCI=   .0]
03818>  050:0023---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
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03819>      CALIB STANDHYD     01:FR3B          .52      .085 No date     1:31    31.08 .452
03820>        [XIMP=.11:TIMP=.21]
03821>        [LOSS= 2 :CN= 71.0]
03822>        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
03823>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
03824> 050:0029----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
03825>      CALIB STANDHYD     01:FR3A          .71      .040 No date     1:32    31.08 .452
03826>        [XIMP=.11:TIMP=.21]
03827>        [LOSS= 2 :CN= 71.0]
03828>        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
03829>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
03830> 050:0030----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
03831>      CALIB STANDHYD     01:FR4A          .60      .050 No_date     1:31    31.08 .452
03832>        [XIMP=.11:TIMP=.21]
03833>        [LOSS= 2 :CN= 71.0]
03834>        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
03835>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
03836> 050:0026----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
03837>      CALIB STANDHYD     01:FR5A          .66      .056 No_date     1:31    31.08 .452
03838>        [XIMP=.11:TIMP=.21]
03839>        [LOSS= 2 :CN= 71.0]
03840>        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
03841>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
03842> 050:0027----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
03843>      CALIB STANDHYD     01:FR5B          .46      .039 No_date     1:31    31.08 .452
03844>        [XIMP=.11:TIMP=.21]
03845>        [LOSS= 2 :CN= 71.0]
03846>        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
03847>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
03848> 050:0025----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
03849>      CALIB STANDHYD     01:FR6A          1.43     .118 No_date     1:32    31.08 .452
03850>        [XIMP=.11:TIMP=.21]
03851>        [LOSS= 2 :CN= 71.0]
03852>        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
03853>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
03854> 050:0028----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
03855>      CALIB STANDHYD     01:FR6B          .93      .077 No_date     1:32    31.08 .452
03856>        [XIMP=.11:TIMP=.21]
03857>        [LOSS= 2 :CN= 71.0]
03858>        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
03859>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
03860> * ximpe estimated at 2% based on backyard decks.
03861> * Timp and Ximp based on total pond area
03862> * ximp   = pond/A ror
03863> * Timp   = weighted average of pond and backyards
03864> 050:0038----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
03865>      CALIB STANDHYD     01:POND          5.03     .825 No_date     1:23    43.80 .637
03866>        [XIMP=.44:TIMP=.47]
03867>        [LOSS= 2 :CN= 71.0]
03868>        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
03869>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI= 182.:MNI=.045:SCI=   .0]
03870> +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
03871> * UNCONTROLLED AREAS
03872> +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
03873> *
03874> 050:0031----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
03875>  * CALIB STANDHYD     01:FR7A          1.35     .100 No_date     1:31    2.60 .402
03876>        [XIMP=.02:TIMP=.14]
03877>        [LOSS= 2 :CN= 71.0]
03878>        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
03879>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
03880> 050:0032----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
03881>  * CALIB STANDHYD     01:FR7B1         .58      .030 No_date     1:32    27.64 .402
03882>        [XIMP=.02:TIMP=.14]
03883>        [LOSS= 2 :CN= 71.0]
03884>        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
03885>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
03886> 050:0033----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
03887>  * CALIB STANDHYD     01:FR7B2         .22      .018 No_date     1:32    27.64 .402
03888>        [XIMP=.02:TIMP=.14]
03889>        [LOSS= 2 :CN= 71.0]
03890>        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
03891>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
03892> 050:0034----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
03893>  * CALIB STANDHYD     01:FR7C1         .39      .032 No_date     1:32    27.64 .402
03894>        [XIMP=.02:TIMP=.14]
03895>        [LOSS= 2 :CN= 71.0]
03896>        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
03897>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
03898> 050:0035----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
03899>  * CALIB STANDHYD     01:FR7C2         .17      .015 No_date     1:31    27.64 .402
03900>        [XIMP=.02:TIMP=.14]
03901>        [LOSS= 2 :CN= 71.0]
03902>        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
03903>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  84.:MNI=.045:SCI=   .0]
03904> 050:0036----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
03905>  * CALIB STANDHYD     01:FR8B          .80      .035 No_date     1:32    27.64 .402
03906>        [XIMP=.02:TIMP=.14]
03907>        [LOSS= 2 :CN= 71.0]
03908>        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
03909>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  84.:MNI=.045:SCI=   .0]
03910> 050:0037----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
03911>  * CALIB STANDHYD     01:FR8          .10      .005 No_date     1:34    26.00 .378
03912>        [XIMP=.01:TIMP=.07]
03913>        [LOSS= 2 :CN= 71.0]
03914>        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
03915>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
03916> 050:0039----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
03917>  * CALIB STANDHYD     01:FR9A          1.10     .089 No_date     1:34    26.00 .378
03918>        [XIMP=.01:TIMP=.07]
03919>        [LOSS= 2 :CN= 71.0]
03920>        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
03921>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
03922> 050:0019----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
03923>  * CALIB STANDHYD     01:FR9B1         .25      .019 No_date     1:32    26.00 .378
03924>        [XIMP=.01:TIMP=.07]
03925>        [LOSS= 2 :CN= 71.0]
03926>        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
03927>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
03928> 050:0040----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
03929>  * CALIB STANDHYD     01:FR9B2         1.00     .073 No_date     1:34    26.00 .378
03930>        [XIMP=.01:TIMP=.07]
03931>        [LOSS= 2 :CN= 71.0]
03932>        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
03933>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  82.:MNI=.045:SCI=   .0]
03934> 050:0041----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
03935>  * CALIB STANDHYD     01:FR10          1.00     .079 No_date     1:35    26.00 .378
03936>        [XIMP=.01:TIMP=.07]
03937>        [LOSS= 2 :CN= 71.0]
03938>        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
03939>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  82.:MNI=.045:SCI=   .0]
03940> 050:0042----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
03941>  * CALIB STANDHYD     01:FR11          .62      .050 No_date     1:33    26.00 .378
03942>        [XIMP=.01:TIMP=.07]
03943>        [LOSS= 2 :CN= 71.0]
03944>        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
03945>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  84.:MNI=.045:SCI=   .0]
03946> 1*****************************************************************************
03947> * EXISTING flow - Upstream of Proposed Development
03948> +*****************************************************************************
03949> * Total flow at node K-FX1
03950> 050:0045----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
03951>      ADD HYD            02:EX1.        24.62     2.259 No_date     1:34    36.75  n/a
03952>                       + 03:EXC1         1.10      .159 No_date     1:20    37.64  n/a
03953>                       + 04:EXC2         1.07      .152 No_date     1:20    40.96  n/a
03954>        [T= 1.00]  SUM= 01:NEW1         26.79     2.416 No_date     1:31    30.53  n/a
03955> * Typical Section based on proposed channel provided by AXY
03956> * 4:1 bank slopes, Long Slope = 0.25%, Manning's n is 0.03
03957> * Route Node K-FX1 to d/s node R0
03958>  050:0046----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
03959>      ROUTE CHANNEL    > 02:NEW1        26.79     2.416 No_date     1:33    30.53  n/a
03960>        [RI= 1.00] out<- 01:UNEX1        26.79     3.371 No_date     1:37    30.53  n/a
03961>        [L/s/L=  312.5 /.850/.030]
03962>        [Qbank  1.418:Dbank   .542]
03963> r*****************************************************************************
03964> r TOTAL INFLOW TO COMMERCIAL POND F3b
03965> r*****************************************************************************
03966> 050:0048----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
03967>      ADD HYD            02:EX4           .50      .040 No_date     1:31    29.97  n/a
03968>                       + 03:C1          8.30     1.264 No_date     1:20    52.57  n/a
03969>                       + 04:C2          6.34     1.167 No_date     1:20    54.21  n/a
03970>                       + 05:PEx         1.54      .424 No_date     1:20    54.21  n/a
03971>        [T= 1.00]  SUM= 01:PRCIN        16.71     4.531 No_date     1:20    54.57  n/a
03972> 050:0049----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
03973>      ROUTE RESERVOIR => 01:PICin       16.71     4.531 No_date     1:20    54.57  n/a
03974>        [ROC  1.00] out<- 01:PICout      16.71     .792 No_date     1:52    54.57  n/a
03975>                  overflow <= 01:OvrQ      .00      .000 No_date     0:00     .00  n/a
03976>        (MxStrgUsed=.5494F 00, TotInVol=.6390E+00, N-Ovf=    3, TotDurOvf=    0.000)
03977> * Total flow at outlet of commercial pond
03978> 050:0047----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
03979>      ADD HYD            02:PICout        16.71      .792 No_date     1:52    54.57  n/a
03980>                       + 03:FRVA          3.10      .080 No_date     1:54    25.00  n/a
03981>        [T= 1.00]  SUM= 01:POut          19.81      .850 No_date     1:48    52.81  n/a
03982> * Route pond outflow at pipe d/s of node R0
03983> * Typical Section based on proposed channel provided by RBL
03984> * 4:1 bank slopes, Long Slope = 0.25%, Manning's n is 0.03
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03956> 050:0048----------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
03956>       ROUTE CHANNEL    -> 01:inPDc      17.81     .850 No_date    1:00   52.81  n/a
03957>         [RDT= 1.00] out<- 01:RsPDc      17.81     .817 No_date    1:58   57.01  n/a
03958>         [L/S/n= 3600./ .250/.030]
03959>         (Vmax= .426:Dmax= .444)
03960> # Total channel flow at pipe C/s of node 30
03961> 050:0049----------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
03962>       ADD HYD          02:RsPDc      17.81     .817 No_date    1:58   57.01  n/a
03963>                      + 03:FR9B1       .25     .019 No_date    1:32   26.06  n/a
03964>                      + 04:FR9B2      1.00     .075 No_date    1:34   26.06  n/a
03965>       [PT= 1.00]  SUM= 01:ou30      19.06     .901 No_date    1:56   51.05  n/a
03966> # ............
03967> # Total flow at node 30
03968> # (Note that EX2 will be sheet draining to proposed channel)
03969> 050:0050----------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
04000>       ADD HYD          02:ou30      19.06     .891 No_date    1:56   51.05  n/a
04001>                      + 03:NWEX1      26.79    2.291 No_date    1:37   38.51  n/a
04002>                      + 04:EX2         9.58     .365 No_date    1:18   24.93  n/a
04003>                      + 05:o23          .24     .196 No_date    1:18   67.16  n/a
04004>       [PT= 1.00]  SUM= 01:30        55.90    3.315 No_date    1:40   36.68  n/a
04005> # Typical Section based on proposed channel provided by AEL
04006> # 4:1 bank slopes, Long Slope = 0.40%, Manning's n is 0.03
04007> # Route SW draining at 30 to n/x node N-EX2
04008> 050:0051----------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
04009>       ROUTE CHANNEL    -> 02:NO        55.98    3.315 No_date    1:40   36.68  n/a
04010>         [RDT= 1.00] out<- 01:xNO        55.98    3.285 No_date    1:44   36.56  n/a
04011>         [L/S/n= 324./ .400/.030]
04012>         (Vmax= 1.159:Dmax=  .730)
04013> # Total flow at node N-EX2
04014> 050:0052----------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
04015>       ADD HYD          02:xNO        55.98    3.285 No_date    1:44   36.56  n/a
04016>                      + 03:FR10        1.87     .131 No_date    1:35   26.06  n/a
04017>       [PT= 1.00]  SUM= 01:NEX2      57.85    3.377 No_date    1:44   36.33  n/a
04018> # Route Node N-EX2 to Node N1
04019> # Typical section based on Show da MH Vee Ditch 3:1 banks
04020> # provided by Ayres
04021> # Manning's n is Channel not maintained, light brush on banks
04022> # Slope = 0.75% as per plan provided by Ayres.
04023> 050:0053----------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
04024>       ROUTE CHANNEL    -> 02:NEX2      57.85    3.377 No_date    1:44   36.33  n/a
04025>         [RDT= 1.00] out<- 01:RNEX2      57.85    3.053 No_date    1:58   34.33  n/a
04026>         [L/S/n= 1253./ .050/.035]
04027>         (Vmax= .307:Dmax= 1.713)
04028> #*******************************************************************************
04029> # Residential Development - Phase 1 and 2
04030> #*******************************************************************************
04031> # Total flow at node N-PK
04032> 050:0054----------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
04033>       ADD HYD          02:rN1        4.26     .168 No_date    1:30   24.00  n/a
04034>                      + 03:FR1A        .24     .021 No_date    1:30   31.08  n/a
04035>       [PT= 1.00]  SUM= 01:NPK1        4.50     .189 No_date    1:30   25.25  n/a
04036> # Va ane to manning also in PK1
04037> # Q=0.695 a/s required as per SCS 10yr Existing conditions
04038> # Culvert from Inlet 1
04039> # Assuming outlet culvert is 600 mm, slope = 1.2%, HDPE smooth walls
04040> # Manning's n = 0.012, Inlet control nomograph
04041> # Hydraulic Head = 0.9m, Q=0.610
04042> 050:0055----------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
04043>       COMPUTE DIVERTD   01:NPK1         4.50     .189 No_date    1:30   25.25  n/a
04044>         Major System /  02:NOrIN         .00     .000 No_date    0:00    .00  n/a
04045>         Minor System \  03:NorINn       4.50     .189 No_date    1:30   25.25  n/a
04046>         (MjSysCfs=.0000E+00, TotVolVol=.0000E+00, K-Curve=    0, TotExcVol=    0.000)
04047> ¶ Input to Inlet 1 pipe
04048> 050:0056----------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
04049>       ADD HYD          02:FR1B          .58     .047 No_date    1:31   31.08  n/a
04050>                      + 03:NPK Vr       4.50     .189 No_date    1:30   25.25  n/a
04051>       [PT= 1.00]  SUM= 01:In1         5.08     .438 No_date    1:31   27.98  n/a
04052> # Pipe from Inlet 1 - Route to pond
04053> # HDPE smooth wall pipe Manning's n = 0.012
04054> 050:0057----------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
04055>       ROUTE PIPE       -> 02:In1       5.85     .438 No_date    1:31   25.39  n/a
04056>         [RDT= 1.00] out<- 01:Pin1       5.85     .438 No_date    1:31   25.39  n/a
04057>         [L/S/n=  67./1.600/.012]
04058>         (Vmax= 2.595:Dmax=  .588)
04059>         [Din=  .600:Dused=  .600]
04060> # Culvert from Inlet 2
04061> # HDPE smooth wall pipe Manning's n = 0.012
04062> 050:0058----------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
04063>       ROUTE PIPE       -> 02:FR2A       1.57     .111 No_date    1:13   31.08  n/a
04064>         [RDT= 1.00] out<- 01:Cin2       1.57     .111 No_date    1:13   31.08  n/a
04065>         [L/S/n=  19./ .400/.012]
04066>         (Vmax= 1.319:Dmax=  .251)
04067>         [Din=  .300:Dused=  .300]
04068> # Input to Inlet 2 pipe
04069> 050:0059----------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
04070>       ADD HYD          02:FR2B          .17     .007 No_date    1:13   31.08  n/a
04071>                      + 03:CIn2         1.57     .111 No_date    1:13   31.08  n/a
04072>       [PT= 1.00]  SUM= 01:In2         1.74     .227 No_date    1:13   31.21  n/a
04073> ¶ Pipe from Inlet 2 - Route to pond
04074> ¶ HDPE smooth wall pipe Manning's n = 0.012
04075> 050:0060----------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
04076>       ROUTE PIPE       -> 02:Pin2       1.74     .227 No_date    1:32   31.21  n/a
04077>         [RDT= 1.00] out<- 01:Pin2       1.74     .226 No_date    1:33   31.21  n/a
04078>         [L/S/n=  15./ .250/.012]
04079>         (Vmax= 1.121:Dmax=  .465)
04080>         [Din=  .500:Dused=  .500]
04081> # Culvert from Inlet 3
04082> # HDPE smooth wall pipe Manning's n =  0.012
04083> 050:0061----------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
04084>       ROUTE PIPE       -> 02:FR3A        .45     .033 No_date    1:31   31.08  n/a
04085>         [RDT= 1.00] out<- 01:Cin3        .45     .033 No_date    1:31   31.08  n/a
04086>         [L/S/n=  13./ .400/.012]
04087>         (Vmax= .950:Dmax=  .181)
04088>         [Din=  .300:Dused=  .300]
04089> # Input to Inlet 3 pipe
04090> 050:0062----------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
04091>       ADD HYD          02:FR3B          .52     .040 No_date    1:31   31.08  n/a
04092>                      + 03:CIn3         .45     .033 No_date    1:31   31.08  n/a
04093>       [PT= 1.00]  SUM= 01:In3          .97     .068 No_date    1:31   31.08  n/a
04094> ¶ Pipe from Inlet 3 - Route to pond
04095> ¶ HDPE smooth wall pipe Manning's n = 0.012
04096> 050:0063----------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
04097>       ROUTE PIPE       -> 02:In3        .97     .068 No_date    1:31   31.08  n/a
04098>         [RDT= 1.00] out<- 01:Pin3        .97     .068 No_date    1:31   31.08  n/a
04099>         [L/S/n=  35./ .250/.012]
04100>         (Vmax= .493:Dmax=  .268)
04101>         [Din=  .300:Dused=  .300]
04102> # Culvert from Inlet 4
04103> # HDPE smooth wall pipe Manning's n =  0.012
04104> 050:0064----------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
04105>       ROUTE PIPE       -> 02:FR4A        .27     .020 No_date    1:32   31.08  n/a
04106>         [RDT= 1.00] out<- 01:CIn4        .27     .020 No_date    1:32   31.08  n/a
04107>         [L/S/n=  11./ .400/.012]
04108>         (Vmax= 1.073:Dmax=  .164)
04109>         [Din=  .300:Dused=  .300]
04110> ¶ Input to Inlet 4 pipe
04111> 050:0065----------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
04112>       ADD HYD          02:FR4B          .65     .050 No_date    1:31   31.08  n/a
04113>                      + 03:CIn4         .71     .060 No_date    1:57   31.08  n/a
04114>       [PT= 1.00]  SUM= 01:In4          1.36     .110 No_date    1:57   31.08  n/a
04115> # Pipe from Inlet 4 (ULTIMATE CONDITIONS) - Route to pond
04116> ¶ HDPE smooth wall pipe Manning's n = 0.012
04117> 050:0066----------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
04118>       ROUTE PIPE       -> 02:In4        1.36     .110 No_date    1:32   31.08  n/a
04119>         [RDT= 1.00] out<- 01:Pin4        1.36     .110 No_date    1:32   31.08  n/a
04120>         [L/S/n=  65./1.900/.012]
04121>         (Vmax= 2.270:Dmax=  .150)
04122>         [Din=  .300:Dused=  .300]
04123> ¶ Culvert from Inlet 5
04124> ¶ HDPE smooth wall pipe Manning's n = 0.012
04125> 050:0067----------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
04126>       ROUTE PIPE       -> 02:FR5A        .66     .050 No_date    1:31   31.08  n/a
04127>         [RDT= 1.00] out<- 01:CIn5        .66     .050 No_date    1:32   31.08  n/a
04128>         [L/S/n=  11./ .400/.012]
04129>         (Vmax= 1.051:Dmax=  .158)
04130>         [Din=  .300:Dused=  .300]
04131> # Input to Inlet 5 pipe
04132> 050:0068----------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
04133>       ADD HYD          02:FR5B          .16     .030 No_date    1:31   31.08  n/a
04134>                      + 03:CIn5         .66     .050 No_date    1:31   31.08  n/a
04135>       [PT= 1.00]  SUM= 01:In5          .82     .094 No_date    1:31   31.08  n/a
04136> # Pipe from Inlet 5 - Route to pond
04137> # HDPE smooth wall pipe Manning's n = 0.012
04138> 050:0069----------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
04139>       ROUTE PIPE       -> 02:In5        1.12     .096 No_date    1:32   31.08  n/a
04140>         [RDT= 1.00] out<- 01:Pin5        1.12     .096 No_date    1:32   31.08  n/a
04141>         [L/S/n=  75./1.600/.012]
04142>         (Vmax= 2.001:Dmax=  .165)
04143>         [Din=  .300:Dused=  .300]
04144> # Culvert from Inlet 6
04145> ¶ HDPE smooth wall pipe Manning's n = 0.012
04146> 050:0070----------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
04147>       ROUTE PIPE       -> 02:FR6A        1.43     .118 No_date    1:32   31.08  n/a
04148>         [RDT= 1.00] out<- 01:CIn6        1.43     .118 No_date    1:32   31.08  n/a
04149>         [L/S/n=  18./ .400/.012]
04150>         (Vmax= 1.288:Dmax=  .237)
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04151>       [Din=  .500:Dsed=  .500]
04152> # Input to inlet 6 pipe
04153> 050:0071----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
04154>      ADD HYD          02:rvAb      .93     .078 No_date    1:32    31.07  n/a
04155>                     - 03:C1n6     1.43     .118 No_date    1:32    31.04  n/a
04156>       [JT= 1.00]  SUM=  01:In6     2.36     .196 No_date    1:32    31.05  n/a
04157> # Pipe from inlet 6 - Route to pond
04158> # 600 smooth wall pipe Manning's n = 0.012
04159> 050:0072----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
04160>      ROUTE PIPE       -> 01:In6       2.36     .196 No_date    1:32    31.05  n/a
04161>       [RT= 1.00] cur<- 01:Pin6       2.36     .196 No_date    1:32    31.05  n/a
04162>       [L/S/n=  30./ .500/.012]
04163>       [Vmax= 1.268:tmax=  .364]
04164>       [Din=  .500:Dsed=  .500]
04165> # VOLUME TO POND ULTIMATE CONDITION A1
04166> 050:0073----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
04167>      ADD HYD          02:Pin1      5.05     .436 No_date    1:31    26.04  n/a
04168>                     + 03:Pin2      2.76     .226 No_date    1:32    31.08  n/a
04169>                     + 04:Pin3       .97     .080 No_date    1:32    31.08  n/a
04170>                     + 05:Pin4      1.36     .105 No_date    1:32    31.08  n/a
04171>                     + 06:Pin5      1.72     .136 No_date    1:32    31.08  n/a
04172>                     + 07:Pin6      2.16     .196 No_date    1:33    31.08  n/a
04173>                     + 08:Pin       5.05     .275 No_date    1:25    45.60  n/a
04174>       [DT= 1.00]  SUM=  01:POND1n   18.83    1.795 No_date    1:26    33.21  n/a
04175> #  Pond outflow for ultimate conditions using weir .6; .6; 3.0
04176> 050:0074----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
04177>      ROUTE RESERVOIR -> 02:POND1n   18.83    1.795 No_date    1:26    33.21  n/a
04178>       [RUT= 1.00] out<- 01:PDout    18.83     .126 No_date    4:05    33.21  n/a
04179>              overflow <- 03:Ovf1       .00     .000 No_date    0:00     .00  n/a
04180>       (MaxOutQ=  .5003E+00, TotOvfVol=  .0000E+00, K-Ovf=    0, VolErrDef=    0.0:a)
04181> # Simulating 5cs 100 yr conditions with submergence of outflow weir
04182> # updated for weir .6; .6; 3.0
04183> #ROUTE RESERVOIR     NHYDout=["PDout"] ,NHrDin=["POND1n"] ,
04184> #                    RET=[1]min),
04185> #                          TABLE of ( OUTFLOW-STORAGE ) values
04186> #                                    (cms) - (ha-m)
04187> #                                  (   0.0 ,   0.0 )
04188> #                                   0.3000 , 1.1185
04189> #                                   0.36   , .8110
04190> #                                   0.33   , 2.0195
04191> #                                  (   -1  ,   -1  )  max twenty pts)
04192> #                          RHEDovf ["Ovf0"] ,
04193> # Route Pond output through first set of pipes
04194> # 2 x 600 pipes simulated with 1 pipe of equivalent capacity (=750 mm dia)
04195> # HDPE smooth wall pipe Manning's n = 0.012
04196> 050:0075----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
04197>      ROUTE PIPE       -> 01:PDout    18.83     .126 No_date    4:05    33.21  n/a
04198>       [RT= 1.00] cur<- 01:Pout1     18.83     .126 No_date    4:04    33.21  n/a
04199>       [L/S/n=  35./ .500/.012]
04200>       [Vmax=  .630:tmax=  .143]
04201>       [Din=  .750:Dused=  .750]
04202> # Flow c/s of outlet culverts
04203> 050:0076----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
04204>      ADD HYD          02:FP1B       .16     .010 No_date    1:32    27.64  n/a
04205>                     + 03:FP1C       .20     .015 No_date    1:32    27.64  n/a
04206>                     + 04:Pout1    18.83     .126 No_date    4:04    33.21  n/a
04207>       [DT= 1.00]  SUM=  01:Pout     19.21     .130 No_date    4:03    33.04  n/a
04208> # Route outflow through set of culverts
04209> # 2 x 600 culverts simulated with 1 culvert of equivalent capacity (=750 mm dia
04210> # HDPE smooth wall pipe Manning's n = 0.012
04211> 050:0077----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
04212>      ROUTE PIPE       -> 02:Pout     19.21     .130 No_date    4:03    33.04  n/a
04213>       [RT= 1.00] cur<- 01:Cout      19.21     .130 No_date    4:03    33.04  n/a
04214>       [L/S/n=  35./ .500/.012]
04215>       [Vmax= 1.281:tmax=  .206]
04216>       [Din=  .750:Dused=  .750]
04217> # Flow c/s of second set of outflow pipes
04218> 050:0078----------ID:NHYD-------AREA    QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
04219>      ADD HYD          02:FP2C1      .39     .032 No_date    1:32    27.64  n/a
04220>                     + 04:FP2C2      .17     .015 No_date    1:31    27.64  n/a
04221>                     - 04:Cout     19.21     .130 No_date    4:03    33.04  n/a
04222>       [DT= 1.00]  SUM=  01:Pout2    19.77     .164 No_date    3:40    32.89  n/a
04223> # Route outflow through second set of pipes
04224> # 2 x 600 pipes simulated with 1 pipe of equivalent capacity ( 780 mm dia)
04225> # HDPE smooth wall pipe Manning's n = 0.012
04226> 050:0079----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
04227>      ROUTE PIPE       -> 01:Pout2    19.77     .134 No_date    3:58    32.89  n/a
04228>       [RT= 1.00] cur<- 01:Pout     19.77     .134 No_date    3:58    32.89  n/a
04229>       [L/S/n=  65./ .500/.012]
04230>       [Vmax= 1.699:tmax=  .151]
04231>       [Din=  .780:Dused=  .780]
04232> # Total flow at node N1 (Shield MD along 9a ex Farm Rd)
04233> 050:0080----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
04234>      ADD HYD          01:RNEW2     57.85     3.454 No_date    1:58    30.33  n/a
04235>                     + 03:Pond1f    16.71     1.364 No_date    1:43    32.80  n/a
04236>                     + 04:EX1       1.39     .089 No_date    1:32    23.19  n/a
04237>                     + 05:FR1E      1.30     .025 No_date    1:32    27.64  n/a
04238>                     + 06:FR1I      1.62     .048 No_date    1:33    26.00  n/a
04239>       [DT= 1.00]  SUM=  01:N1      78.93    3.033 No_date    1:58    30.34  n/a
04240> # ROUTE N1 to N3
04241> # Typical section based on Shields MD Voc Ditch 3:1 banks
04242> # provided by Ariel
04243> # Manning's n is Channel not maintained, light brush on banks
04244> # Slope = 0.05% as per plan provided by Ariel.
04245> 050:0081----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
04246>      ROUTE CHANNEL    -> 02:N.      78.93    3.033 No_date    1:58    30.34  n/a
04247>  *    [RT= 1.00] out<- 01:FD1     78.93    2.019 No_date    2:07    35.53  n/a
04248>       [L/S/n=  319./ .050/.035]
04249>       [Vmax=  .484:tmax= 1.665]
04250> # VOLUME from residential area at N1 in-site
04251> 050:0082----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
04252>      ADD HYD          02:rA7A       1.35     .105 No_date    1:34    27.64  n/a
04253>                     - 03:FR8       1.38     .099 No_date    1:34    26.00  n/a
04254>       [DT= 1.00]  SUM=  01:N31     2.73     .204 No_date    1:34    26.81  n/a
04255> # Added VOLUME from external area contributing to N3
04256> 050:0083----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
04257>      ADD HYD          02:EX1       78.93    3.619 No_date    2:03    35.54  n/a
04258>                     - 03:FP1       2.73     .204 No_date    1:34    26.81  n/a
04259>                     - 04:FP5        .50     .038 No_date    1:36    40.68  n/a
04260>                     - 05:FP6        .50     .044 No_date    1:35    41.66  n/a
04261>                     - 06:FR2S       .22     .053 No_date    1:20    47.18  n/a
04262>       [DT= 1.00]  SUM=  01:N3      82.91    3.371 No_date    2:01    35.10  n/a
04263> # ROUTE N3 to NCR128
04264> # Typical section based on Shields MD Voc Ditch 3:1 banks
04265> # provided by Ariel
04266> # Manning's n is Channel not maintained, light brush on banks
04267> # Slope = 0.05% as per plan provided by Ariel.
04268> 050:0084----------ID:NHYD-------AREA    QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
04269>      ROUTE CHANNEL    -> 02:N3      82.91    3.371 No_date    2:01    35.10  n/a
04270>       [RT= 1.00] out<- 01:N3      82.91    3.320 No_date    2:06    35.10  n/a
04271>       [L/S/n=  415./ .050/.035]
04272>       [Vmax=  .380:tmax= 1.576]
04273> # Flow at Stapleton node NCR128 for comparison
04274> # Routed N1 plus EX1
04275> 050:0085----------ID:NHYD-------AREA    QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
04276>      ADD HYD          02:N3        82.91    3.320 No_date    2:06    35.10  n/a
04277>                     + 03:EX3       21.30     673 No_date    2:21    24.92  n/a
04278>       [DT= 1.00]  SUM=  01:NCR128  104.21    3.955 No_date    2:06    33.02  n/a
04279> # AREA CHECK
04280> #
04281> 050:0086----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
04282>      ADD HYD          02:FX1       26.57    2.249 No_date    1:34    32.35  n/a
04283>                     - 03:EX2        9.39     .865 No_date    2:06    24.92  n/a
04284>                     - 04:EX3       21.30     .673 No_date    2:21    24.92  n/a
04285>                     - 05:EX4         .50     .040 No_date    1:31    26.57  n/a
04286>                     - 06:EX5         .52     .058 No_date    1:26    40.68  n/a
04287>                     - 07:EX6         .51     .043 No_date    1:27    33.96  n/a
04288>                     - 08:EX7         .58     .019 No_date    1:07    15.18  n/a
04289>                     - 09:FR1A        .24     .021 No_date    1:31    31.08  n/a
04290>                     - 10:FR1A        .66     .047 No_date    1:31    31.08  n/a
04291>       [DT= 1.00]  SUM=  01:Out1     38.52    2.908 No_date    1:36    27.54  n/a
04292> 050:0087----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
04293>      ADD HYD          02:Tot1      58.52    2.908 No_date    1:36    27.54  n/a
04294>                     + 03:FR2A       1.57     .111 No_date    1:32    31.08  n/a
04295>                     + 04:FR7B       1.19     .097 No_date    1:32    31.08  n/a
04296>                     + 05:FR1A        .45     .038 No_date    1:31    31.08  n/a
04297>                     + 06:FR3B        .52     .045 No_date    1:31    31.08  n/a
04298>                     + 07:FR4A        .71     .060 No_date    1:32    31.08  n/a
04299>                     + 08:FR1B        .65     .055 No_date    1:31    31.08  n/a
04300>                     + 09:FR4A        .68     .056 No_date    1:31    31.08  n/a
04301>                     + 10:FR5B        .48     .040 No_date    1:31    31.08  n/a
04302>       [DT= 1.00]  SUM=  01:Tot2     64.71    3.398 No_date    1:35    27.69  n/a
04303> 050:0088----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
04304>      ADD HYD          02:Tot2      64.71    3.398 No_date    1:35    27.69  n/a
04305>                     + 03:FR6A       .43     .111 No_date    1:32    31.08  n/a
04306>                     + 04:FR4B       .93     .079 No_date    1:32    31.08  n/a
04307>                     + 05:FR7A       1.35     .105 No_date    1:34    27.64  n/a
04308>                     + 06:FR7B        .38     .030 No_date    1:32    27.64  n/a
04309>                     + 07:FR7E2       .22     .018 No_date    1:32    27.64  n/a
04310>                     + 08:FR7C1       .38     .032 No_date    1:32    27.64  n/a
04311>                     + 09:FR7C2       .17     .015 No_date    1:31    27.64  n/a
04312>                     - 10:FR7D        .30     .025 No_date    1:32    27.64  n/a
04313>       [DT= 1.00]  SUM=  01:Tot3     68.96    3.804 No_date    1:34    27.81  n/a
04314> 050:0089----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
04315>      ADD HYD          02:Tot3      69.56    3.809 No_date    1:34    27.61  n/a
04316>                     - 03:FR8        1.38     .099 No_date    1:34    26.00  n/a
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                    -  04:FPSA      1.10     .080 No_date    1:34   26.00  n/a
                    -  05:FPSB1      .25     .019 No_date    1:32   26.00  n/a
                    -  06:FPSB2     1.00     .073 No_date    1:34   26.00  n/a
                    -  07:FP1C      1.87     .132 No_date    1:35   26.00  n/a
                    -  08:FP1L       .62     .046 No_date    1:33   26.00  n/a
                    -  09:FP1       4.26     .368 No_date    1:30   24.92  n/a
                    -  10:PDc       5.03     .825 No_date    1:23   43.80  n/a
      [DT= 1.00]  SUM=  01:Tot1    55.37    5.162 No_date    1:33   28.47  n/a
 ##*:0098----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ADD HYD         01:Tot1     55.37    5.162 No_date    1:33   28.47  n/a
                     02:FP1      8.56    1.264 No_date    1:20   52.17  n/a
                     04:PDc      4.54     .163 No_date    1:20   55.21  n/a
                     05:FP1      .94     .136 No_date    1:20   47.13  n/a
                  -  06:EX01     1.10     .159 No_date    1:20   47.64  n/a
                  -  07:EX02     1.87     .190 No_date    1:20   46.96  n/a
                  -  08:EX03      .22     .053 No_date    1:20   47.18  n/a
                  -  09:PDc      1.57     .484 No_date    1:20   54.23  n/a
      [DT= 1.00]  SUM=  01:Tot2    104.21    8.691 No_date    1:21   33.00  n/a
 *+++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
 # Simulations with 4 hour Chicago from City of Ottawa
   ** END OF RUN :  99
 ********************************************************************************
 RUN:COMMAND*
 100:0001----------------------------------------------------------------------
     START
       [TZERO      .00 hrs on        0]
       [METOUT     2     (1 imperial, 2 metric output)]
       [NSTORM=    1 ]
       [NRUN  = 100 ]
 *+++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
 #  SWMHYMO Ver:5.02/Jun 2001 <RELEASE / INPUT DATA FILE
 *+++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
 #  Project Name: [Greely Village Centre]    Project Number: [647-07]
 #  Date        : 04-09-2008
 #  Modeller    : [JHE]
 #  Company     : JFSA inc.
 #  License #   : 2541402
 *+++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
 #
 # SWMHYMO model of the Greely Village Centre - Residential Area - Phase 2
 # Proposed Ultimate Conditions. OPTION B
 # Filename stands for: Greely, Commercial, Proposed
 *+++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
  100:0002----------------------------------------------------------------------
      READ STORM
       Filename = storm.001
       Comment  = 100 years Chicago Storm 4 Hours step 10 min, City of Ottawa
       [STM=0.0mm:STORM=   4.00:PTOT=  26.00]
 *+++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
 # Existing Flow - McKeevy Branch of Shield Creek - Areas
 # Area s/s of proposed development (residential)
 # CN*=76, slope = 0.8, Tp=0.16, XIMP=5, TIMP=15, see SC002 as per Stantec
 # Area partially adjusted based on Atrel drawings. Tp adjusted accordingly.
 *+++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
 # s/s of Bank St.as per Atrel - with modified boundaries and Ip.
  100:0007----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      DESIGN NASHYD     01:EX1      24.67    3.067 No_date    1:34   36.97  .498
       [CN= 76.0: N= 3.00]
       [Tp=  .17:STORE= 1.00]
 *+++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
 # Existing Flow - Ximmpa areas s/s of Bank St.
 # CN*=69. as per Stantec Sec SC001.
 # Area partially adjusted based on Atrel drawings.
 *+++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
 # Areas External to development
  100:0004----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      [BASIN NASHYD     01:EX2      9.83     .681 No_date    1:45   29.23  .183
       CN= 69.0: N= 3.00]
       [Tp=  .67:STORE= 1.00]
  100:0005----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      [BASIN NASHYD     01:EX3      21.10    1.784 No_date    1:20   29.23  .183
       CN= 69.0: N= 3.00]
       [Tp=  .33:STORE= 1.00]
 # Slope, Timp, Area from Atrel Drawing
 # CN from Stantec (SC001)
 # Ximp   Timp = 10
  100:0006----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      DATA STANDHYD     01:EX1      .50     .056 No_date    1:31   54.95  .660
       [XIMP=.15:TIMP=.72]
       [SCS= 2 :CN= 69.0]
       [Pervious    area: [Aper= 4.67:SLPP=1.00:LGP=  40.:NNP=.250:SCP=   .0]
       [Impervious  area: [Aimp= 1.57:SLPI=1.00:LGI=  58.:NNI=.045:SCI=   .0]
 # Road and road side ditch along projected residential development Parkway Rd
 # Timp = Ximp = 0.21 ha /0.52 ha  = 0.40
 # CN*=80, as per Stantec see SC001.
 # Slope is estimated at 1%
 # IGI based on centroid of area due to elongated shape  = 500m/2 = 250
  100:0007----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      DATA STANDHYD     01:EX2      .52     .078 No_date    1:22   48.23  .606
       [XIMP=.40:TIMP=.40]
       [SCS= 2 :CN= 80.0]
       [Pervious    area: [Aper= 4.67:SLPP=1.00:LGP=  40.:NNP=.250:SCP=   .0]
       [Impervious  area: [Aimp= 1.57:SLPI=1.00:LGI= 300.:NNI=.045:SCI=   .0]
 # Road and road side ditch along projected residential development Delawhern Rd
 # Timp = Ximp = 0.1 ha /0.51 ha = 0.20
 # CN*=80, as per Stantec see SC001.
 # Slope is estimated at 1%
 # IGI based on centroid of area due to elongated shape = 354m/2 = 177
  100:0008----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      DATA STANDHYD     01:EX3      .51     .052 No_date    1:24   36.85  .486
       [XIMP=.20:TIMP=.20]
       [SCS= 2 :CN= 80.0]
       [Pervious    area: [Aper= 4.67:SLPP=1.00:LGP=  40.:NNP=.250:SCP=   .0]
       [Impervious  area: [Aimp= 1.57:SLPI=1.00:LGI= 177.:NNI=.045:SCI=   .0]
 # Road and road side ditch along projected residential development Delawhern Rd
 # Timp = Ximp = 0.05 ha /0.38 ha  = 0.13
 # CN*=80, as per Stantec see SC001.
 # Slope is estimated at 1%
 # IGI based on centroid of area due to elongated shape  = 275m/2 = 137.5
  100:0009----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      DATA STANDHYD     01:EX4      .19     .045 No_date    1:22   38.24  .503
       [XIMP=.13:TIMP=.13]
       [SCS= 2 :CN= 69.0]
       [Pervious    area: [Aper= 4.67:SLPP=1.00:LGP=  40.:NNP=.250:SCP=   .0]
       [Impervious  area: [Aimp= 1.57:SLPI=1.00:LGI= 137.:NNI=.045:SCI=   .0]
 *+++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
 # EXISTING COMMERCIAL DEVELOPMENT
 *+++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
 # LS - 79 ha per full grass cover with C and D type for top soil; CN* 71
 # XIMP - TIMP to be conservative
 *+++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
  100:0010----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      DESIGN STANDHYD   01:C1       8.30    2.062 No_date    1:20   58.90  .775
       [XIMP=.65:TIMP=.65]
       [SLP=1.00:LG= 1.00]
       [LOSS= 2 :CN= 71.0]
  100:0011----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      DESIGN STANDHYD   01:C2       6.36    2.020 No_date    1:20   67.95  .808
       [XIMP=.75:TIMP=.75]
       [SLP=1.00:LG= 1.00]
       [LOSS= 2 :CN= 71.0]
  100:0012----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      DESIGN STANDHYD   01:C3       .24     .117 No_date    1:20   74.31  .931
       [XIMP= 90:TIMP=.90]
       [SLP=1.00:LG= 1.00]
       [LOSS= 2 :CN= 71.0]
 # timp = imp ha/total area = 0.30/1.10 ha = .27
  100:0013----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      DESIGN STANDHYD   01:EXC1       1.10     .183 No_date    1:20   47.05  .566
       [XIMP=.27:TIMP=.27]
       [SLP 1.00:LG= 1.00]
       [LOSS= 2 :CN= 71.0]
 # timp = imp ha/total area = 0.35/1.87 ha = .35
  100:0014----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      DESIGN STANDHYD   01:EXC2       1.87     .297 No_date    1:20   46.96  .613
       [XIMP=.35:TIMP=.35]
       [SLP=1.00:LG= 1.00]
       [LOSS= 2 :CN= 71.0]
 # timp = imp ha/total area = 0.11/0.22ha = .50
  100:0015----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      DESIGN STANDHYD   01:EXC3       .22     .046 No_date    1:20   59.19  .758
       [XIMP=.50:TIMP=.50]
       [SLP 1.00:LG= 1.00]
       [LOSS= 2 :CN= 71.0]
 *+++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
 # Commercial pond (PDc)
 # Slope estimated at 1% based on elevations around pond.
 # Timp and Ximp based on total pond area
 # ximp = A pond/A tot (5.06/13.57)
  100:0016----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
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04480> DESIGN STANDHYD 01:POC 1.57 .541 No_Date 1:20 60.66 .798
04484> [XIMP=.67:TIMP=.67]
04485> [SLP= 1.00:DT= 1.00]
04486> [LOSS= 2 :CN= 71.0]
04487> ********************************************************************************
04488> *--------------------------------------------------------------------------------
04489> * PROPOSED RESIDENTIAL SUBWATERSHEDS - Mobilehome Area Phase 1 and 2
04490> *--------------------------------------------------------------------------------
04491> # CN*-69, 45 per standic soil group.
04492> # Tp estimated with Upland Method.
04493> 100:0017----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
04494> DESIGN NRCSHYD 01:PR1 0.26 .138 No_Date 1:10 28.41 .580
04495> [CN= 69.0: A= 3.00]
04496> [Tp= .13:07= 1.00]
04497> *--------------------------------------------------------------------------------
04498> * AREAS GOING TO RESIDENTIAL POND (PR1)
04499> *--------------------------------------------------------------------------------
04500> *
04501> 100:0018----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
04502> CALIB STANDHYD 01:PR1A .24 .122 No_date 1:10 30.71 .647
04503> [XIMP=.11:TIMP=.21]
04504> [LOSS= 2 :CN= 71.0]
04505> [Pervious area: IAper= 4.67:SLPP=1.00:LGP= 40.:MNP=.250:SCP= .0]
04506> [Impervious area: IAimp= 1.57:SLPI=1.00:LGI= 40.:MNI=.045:SCI= .0]
04507> 100:0019----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
04508> CALIB STANDHYD 01:PR1B .55 .259 No_date 1:10 30.21 .477
04509> [XIMP=.11:TIMP=.21]
04510> [LOSS= 2 :CN= 71.0]
04511> [Pervious area: IAper= 4.67:SLPP=1.00:LGP= 40.:MNP=.250:SCP= .0]
04512> [Impervious area: IAimp= 1.57:SLPI=1.00:LGI= 40.:MNI=.045:SCI= .0]
04513> 100:0020----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
04514> CALIB STANDHYD 01:PR2A .57 .160 No_date 1:32 30.21 .477
04515> [XIMP=.11:TIMP=.21]
04516> [LOSS= 2 :CN= 71.0]
04517> [Pervious area: IAper= 4.67:SLPP=1.00:LGP= 40.:MNP=.250:SCP= .0]
04518> [Impervious area: IAimp= 1.57:SLPI=1.00:LGI= 40.:MNI=.045:SCI= .0]
04519> 100:0021----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
04520> CALIB STANDHYD 01:PR3A .11 .032 No_date 1:31 30.21 .477
04521> [XIMP=.11:TIMP=.21]
04522> [LOSS= 2 :CN= 71.0]
04523> [Pervious area: IAper= 4.67:SLPP=1.00:LGP= 40.:MNP=.250:SCP= .0]
04524> [Impervious area: IAimp= 1.57:SLPI=1.00:LGI= 40.:MNI=.045:SCI= .0]
04525> 100:0022----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
04526> CALIB STANDHYD 01:PR3B .45 .118 No_date 1:31 30.21 .477
04527> [XIMP=.11:TIMP=.21]
04528> [LOSS= 2 :CN= 71.0]
04529> [Pervious area: IAper= 4.67:SLPP=1.00:LGP= 40.:MNP=.250:SCP= .0]
04530> [Impervious area: IAimp= 1.57:SLPI=1.00:LGI= 40.:MNI=.045:SCI= .0]
04531> 100:0023----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
04532> CALIB STANDHYD 01:PR3B .52 .056 No_date 1:31 30.21 .477
04533> [XIMP=.11:TIMP=.21]
04534> [LOSS= 2 :CN= 71.0]
04535> [Pervious area: IAper= 4.67:SLPP=1.00:LGP= 40.:MNP=.250:SCP= .0]
04536> [Impervious area: IAimp= 1.57:SLPI=1.00:LGI= 40.:MNI=.045:SCI= .0]
04537> 100:0024----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
04538> CALIB STANDHYD 01:PR4A .71 .074 No_date 1:31 30.21 .477
04539> [XIMP=.11:TIMP=.21]
04540> [LOSS= 2 :CN= 71.0]
04541> [Pervious area: IAper= 4.67:SLPP=1.00:LGP= 40.:MNP=.250:SCP= .0]
04542> [Impervious area: IAimp= 1.57:SLPI=1.00:LGI= 40.:MNI=.045:SCI= .0]
04543> 100:0025----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
04544> CALIB STANDHYD 01:PR4B .65 .068 No_date 1:31 30.21 .477
04545> [XIMP=.11:TIMP=.21]
04546> [LOSS= 2 :CN= 71.0]
04547> [Pervious area: IAper= 4.67:SLPP=1.00:LGP= 40.:MNP=.250:SCP= .0]
04548> [Impervious area: IAimp= 1.57:SLPI=1.00:LGI= 40.:MNI=.045:SCI= .0]
04549> 100:0026----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
04550> CALIB STANDHYD 01:PR5A .86 .089 No_date 1:31 30.21 .477
04551> [XIMP=.11:TIMP=.21]
04552> [LOSS= 2 :CN= 71.0]
04553> [Pervious area: IAper= 4.67:SLPP=1.00:LGP= 40.:MNP=.250:SCP= .0]
04554> [Impervious area: IAimp= 1.57:SLPI=1.00:LGI= 40.:MNI=.045:SCI= .0]
04555> 100:0027----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
04556> CALIB STANDHYD 01:PR5B .40 .049 No_date 1:30 30.21 .477
04557> [XIMP=.11:TIMP=.21]
04558> [LOSS= 2 :CN= 71.0]
04559> [Pervious area: IAper= 4.67:SLPP=1.00:LGP= 40.:MNP=.250:SCP= .0]
04560> [Impervious area: IAimp= 1.57:SLPI=1.00:LGI= 40.:MNI=.045:SCI= .0]
04561> 100:0028----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
04562> CALIB STANDHYD 01:PR6A 1.43 .336 No_date 1:37 30.31 .477
04563> [XIMP=.11:TIMP=.21]
04564> [LOSS= 2 :CN= 71.0]
04565> [Pervious area: IAper= 4.67:SLPP=1.00:LGP= 40.:MNP=.250:SCP= .0]
04566> [Impervious area: IAimp= 1.57:SLPI=1.00:LGI= 40.:MNI=.045:SCI= .0]
04567> 100:0029----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
04568> CALIB STANDHYD 01:PR6B .93 .098 No_date 1:31 30.27 .479
04569> [XIMP=.11:TIMP=.21]
04570> [LOSS= 2 :CN= 71.0]
04571> [Pervious area: IAper= 4.67:SLPP=1.00:LGP= 40.:MNP=.250:SCP= .0]
04572> [Impervious area: IAimp= 1.57:SLPI=1.00:LGI= 40.:MNI=.045:SCI= .0]
04573> # slope estimated at 2% based on backyard swales
04574> # Timp and Ximp based on total pond area
04575> # ximp = A pond/A tot
04576> # Timp = weighted average of pond and backyards
04577> 100:0030----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
04578> CALIB STANDHYD 01:PR1C 5.03 .948 No_date 1:23 49.65 .653
04579> [XIMP=.44:TIMP=.47]
04580> [LOSS= 2 :CN= 71.0]
04581> [Pervious area: IAper= 4.67:SLPP=1.00:LGP= 40.:MNP=.250:SCP= .0]
04582> [Impervious area: IAimp= 1.57:SLPI=1.00:LGI= 40.:MNI=.045:SCI= .0]
04583> *--------------------------------------------------------------------------------
04584> * CONTROLLED AREAS
04585> *--------------------------------------------------------------------------------
04586> *
04587> 100:0031----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
04588> * CALIB STANDHYD 01:PR1A 1.15 .211 No_date 1:33 32.58 .429
04589> [XIMP=.03:TIMP=.14]
04590> [LOSS= 2 :CN= 71.0]
04591> [Pervious area: IAper= 4.67:SLPP=1.00:LGP= 40.:MNP=.250:SCP= .0]
04592> [Impervious area: IAimp= 1.57:SLPI=1.00:LGI= 40.:MNI=.045:SCI= .0]
04593> 100:0032----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
04594> * CALIB STANDHYD 01:PR7B1 .36 .037 No_date 1:31 32.58 .429
04595> [XIMP=.03:TIMP=.14]
04596> [LOSS= 2 :CN= 71.0]
04597> [Pervious area: IAper= 4.67:SLPP=1.00:LGP= 40.:MNP=.250:SCP= .0]
04598> [Impervious area: IAimp= 1.57:SLPI=1.00:LGI= 40.:MNI=.045:SCI= .0]
04599> 100:0033----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
04600> * CALIB STANDHYD 01:PR7B2 .22 .023 No_date 1:30 32.58 .429
04601> [XIMP=.03:TIMP=.14]
04602> [LOSS= 2 :CN= 71.0]
04603> [Pervious area: IAper= 4.67:SLPP=1.00:LGP= 40.:MNP=.250:SCP= .0]
04604> [Impervious area: IAimp= 1.57:SLPI=1.00:LGI= 40.:MNI=.045:SCI= .0]
04605> 100:0034----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
04606> * CALIB STANDHYD 01:PR7C1 .39 .040 No_date 1:31 32.58 .429
04607> [XIMP=.02:TIMP=.14]
04608> [LOSS= 2 :CN= 71.0]
04609> [Pervious area: IAper= 4.67:SLPP=1.00:LGP= 40.:MNP=.250:SCP= .0]
04610> [Impervious area: IAimp= 1.57:SLPI=1.00:LGI= 40.:MNI=.045:SCI= .0]
04611> 100:0035----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
04612> * CALIB STANDHYD 01:PR7C2 .17 .018 No_date 1:31 32.58 .429
04613> [XIMP=.02:TIMP=.14]
04614> [LOSS= 2 :CN= 71.0]
04615> [Pervious area: IAper= 4.67:SLPP=1.00:LGP= 40.:MNP=.250:SCP= .0]
04616> [Impervious area: IAimp= 1.57:SLPI=1.00:LGI= 40.:MNI=.045:SCI= .0]
04617> 100:0036----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
04618> * CALIB STANDHYD 01:PR7D .58 .061 No_date 1:31 32.58 .429
04619> [XIMP=.02:TIMP=.14]
04620> [LOSS= 2 :CN= 71.0]
04621> [Pervious area: IAper= 4.67:SLPP=1.00:LGP= 40.:MNP=.250:SCP= .0]
04622> [Impervious area: IAimp= 1.57:SLPI=1.00:LGI= 40.:MNI=.045:SCI= .0]
04623> 100:0037----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
04624> * CALIB STANDHYD 01:PR8 1.38 .224 No_date 1:33 30.77 .405
04625> [XIMP=.01:TIMP=.07]
04626> [LOSS= 2 :CN= 71.0]
04627> [Pervious area: IAper= 4.67:SLPP=1.00:LGP= 40.:MNP=.250:SCP= .0]
04628> [Impervious area: IAimp= 1.57:SLPI=1.00:LGI= 40.:MNI=.045:SCI= .0]
04629> 100:0038----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
04630> * CALIB STANDHYD 01:PR9A 1.10 .196 No_date 1:33 30.77 .405
04631> [XIMP=.01:TIMP=.07]
04632> [LOSS= 2 :CN= 71.0]
04633> [Pervious area: IAper= 4.67:SLPP=1.00:LGP= 40.:MNP=.250:SCP= .0]
04634> [Impervious area: IAimp= 1.57:SLPI=1.00:LGI= 40.:MNI=.045:SCI= .0]
04635> 100:0039----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
04636> * CALIB STANDHYD 01:PR9B1 .20 .021 No_date 1:31 30.77 .405
04637> [XIMP=.01:TIMP=.07]
04638> [LOSS= 2 :CN= 71.0]
04639> [Pervious area: IAper= 4.67:SLPP=1.00:LGP= 40.:MNP=.250:SCP= .0]
04640> [Impervious area: IAimp= 1.57:SLPI=1.00:LGI= 40.:MNI=.045:SCI= .0]
04641> 100:0040----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
04642> * CALIB STANDHYD 01:PR9B2 1.00 .091 No_date 1:33 30.77 .405
04643> [XIMP=.01:TIMP=.07]
04644> [LOSS= 2 :CN= 71.0]
04645> [Pervious area: IAper= 4.67:SLPP=1.00:LGP= 40.:MNP=.250:SCP= .0]
04646> [Impervious area: IAimp= 1.57:SLPI=1.00:LGI= 40.:MNI=.045:SCI= .0]
04647> 100:0041----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
04648> * CALIB STANDHYD 01:PR10 1.37 .196 No_date 1:34 30.77 .405
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[XIMP=.01:TIMP=.07]
[LOSS= 2 :CN= 71.0]
[Pervious    area: IAper= 4.67:SLP%=1.00:LSL=  40.:NHP=.250:nP=   .0]
[Impervious  area: IAimp= 1.57:SLP%=1.00:LSI=  11.:NHI=.015:nI=   .0]
HOUSE RESERVOIR -> 02:SDCin    16.71    5.565 No_date    1:30    6.62  n/a
[MAX= 1.00] outs= 01:SDCout    16.71    .065 No_date    1:48    6.62  n/a
overflow <= 03:SDovQ     .00     .000 No_date    0:00     .00  n/a
[MaxStMed=.600:Option, TailDiVol=.000Cf*00, M-DivF=    0.:TotDumDivf=    0.hrs]
* Total flow at outlet of commercial pond
ADD HYD            02:PCout    16.71     .965 No_date    1:48   61.02  n/a
+ 03:PR8A      7.10     .740 No_date    1:33   30.77  n/a
[PI= 1.00]  SUM=  01:PCOut    23.81    1.045 No_date    1:48   59.15  n/a
* Route pond outflow at pipe n/a at node N8
* Typical Section based on proposed channel provided by AEL
* 2:1 bank slopes, long slope = 0.25%, Manning's n is 0.03
ROUTE CHANNEL   -> 02:RtP8e    17.81    1.045 No_date    1:45   59.15  n/a
[RT= 1.00] outs= 01:RtP8e    17.81    1.041 No_date    1:55   59.15  n/a
[.5/n=  20.7/ .290/.020]
[Vmax=  .724:Dmax=   .688]
* Total channel flow at pipe o/s of node N8
ADD HYD            02:RtP8e    17.81    1.041 No_date    1:55   59.15  n/a
+ 03:PR9B1     .25     .024 No_date    1:31   38.77  n/a
+ 04:PR9B2    1.20     .091 No_date    1:33   38.77  n/a
[PI= 1.00]  SUM=  01:P830    19.06    1.068 No_date    1:53   57.28  n/a
* Total flow at node N9
* (Note that EX2 will be sheet draining to proposed channel)
ADD HYD            09:newN    19.06    1.089 No_date    1:53   57.28  n/a
+ 02:NewX1    26.75    2.804 No_date    1:56   75.47  n/a
+ 04:EX2      8.89     .453 No_date    2:00   74.62  n/a
+ 05:C3       .24     .013 No_date    1:20   74.62  n/a
[PI= 1.00]  SUM=  01:N9       55.93    3.987 No_date    1:58   42.09  n/a
* Typical Section based on proposed channel provided by AEL
* 4:1 bank slopes, long S ope = 0.40%, Manning's n is 0.03
* Route SW draining at N9 to n/a node N-EX2
ROUTE CHANNEL   -> 02:N9       55.93    3.987 No_date    1:40   42.09  n/a
[RT= 1.00] outs= 01:NN9       55.93    3.861 No_date    1:44   42.09  n/a
[.5/n=  324./ .400/.030]
(Vmax= 1.214:Dmax=   .790)
* Total flow at node N-EX2
ADD HYD            02:NN9       55.08    3.865 No_date    1:40   42.08  n/a
+ 03:PR10     1.87     .156 No_date    1:30   18.07  n/a
[PI= 1.00]  SUM=  01:NEX2     57.85    4.006 No_date    1:45   41.74  n/a
* Route Node N-EX2 to Node N1
* Typical Section based on Shields VG Vee Ditch 2:1 banks
* provided by Ariel
* Manning's n is Channel not maintained, light brush on banks
* Slope = 0.05% as per plan provided by Ariel.
ROUTE CHANNEL   -> 02:NEX2     57.85    4.006 No_date    1:45   41.73  n/a
*  [RT= 1.00] outs= 01:NEX2     57.85    3.265 No_date    1:53   41.73  n/a
[L/S/n=  253./ .005/.035]
[Vmax=  .351:Dmax=  1.818]
* Residential Development - Phase 1 and 2
* Total flow at node N-PR1
ADD HYD            02:EX1        6.26     .439 No_date    1:30   29.03  n/a
+ 03:PR1A      .24     .016 No_date    1:30   36.21  n/a
[PI= 1.00]  SUM=  01:NPR1      6.50     .454 No_date    1:30   29.79  n/a
* Volume to storage area in PR1
* Qmax.655 cfs required as per SCS 100yr Existing conditions
* Culvert from Inlet 1
* Assuming outlet culvert is 600 mm, slope = 1.2%, HDPE smooth walls
* Manning's n = 0.012, Inlet control nomograph
* Hydraulic head = 0.8m, Q=0.610
MAJOR SYSTEM          02:NPR1      4.56     .464 No_date    1:30   29.79  n/a
Major System /  03:NPR1Mj      .00     .000 No_date    0:00     .00  n/a
Minor System \  03:NPR1Mn     4.56     .464 No_date    1:30   29.79  n/a
(MjSysHtm=.000Ft.00, TailDiVol=.000Cf*00, M-DivF=    0.:TotDumDivf=    0.hrs)
* Input to Inlet 2 pipe
ADD HYD            02:PR1A       .65     .059 No_date    1:30   36.21  n/a
+ 03:NPR1Mn     4.56     .464 No_date    1:30   29.79  n/a
[PI= 1.00]  SUM=  01:In1      5.05     .523 No_date    1:30   30.49  n/a
* Pipe from Inlet 1 - Route to pond
* HDPE smooth wall pipe Manning's n = 0.012
ROUTE PIPE      -> 02:In1      5.05     .523 No_date    1:30   30.49  n/a
[RT= 1.00] outs= 01:PIn1     5.02     .522 No_date    1:31   30.49  n/a
[L/S/n=  65./1.600/.012]
(Vmax= 5.176:Dmax=  .542)
[Dia=  .600:Dused=  .600]
* Culvert from Inlet 2
* HDPE smooth wall pipe Manning's n = 0.012
ROUTE PIPE      -> 02:PR2A     1.57     .150 No_date    1:32   36.21  n/a
[PI= 1.00] outs= 01:PIn2     1.57     .150 No_date    1:37   36.21  n/a
[L/S/n=  13./ .900/.012]
(Vmax= 1.786:Dmax=  .290)
[Dia=  .300:Dused=  .300]
* Input to Inlet 2 pipe
ADD HYD            02:PR2a       1.17     .122 No_date    1:31   36.21  n/a
+ 03:PIn2      1.57     .150 No_date    1:31   36.67  n/a
[PI= 1.00]  SUM=  01:In2      2.74     .262 No_date    1:31   36.67  n/a
* Pipe from Inlet 2 - Route to pond
* HDPE smooth wall pipe Manning's n = 0.012
ROUTE PIPE      -> 02:In2      2.74     .262 No_date    1:31   36.67  n/a
*  [RT= 1.00] outs= 01:PIn2     2.74     .259 No_date    1:31   36.67  n/a
[L/S/n=  75./ .250/.012]
(Vmax= 1.283:Dmax=  .483)
[Dia=  .500:Dused=  .500]
* Culvert from Inlet 3
* HDPE smooth wall pipe Manning's n = 0.012
ROUTE PIPE      -> 02:PR3A      .45     .048 No_date    1:30   36.21  n/a
[RT= 1.00] outs= 01:PIn3      .45     .047 No_date    1:30   36.21  n/a
[L/S/n=  15./ .200/.012]
(Vmax= 1.006:Dmax=  .146)
[Dia=  .300:Dused=  .300]
* Input to Inlet 3 pipe
ADD HYD            02:PR3B       .52     .056 No_date    1:30   36.21  n/a
+ 03:PIn3      .45     .048 No_date    1:30   36.21  n/a
[PI= 1.00]  SUM=  01:In3      .97     .104 No_date    1:30   36.21  n/a
* Pipe from Inlet 3 - Route to pond
* HDPE smooth wa l pipe Manning's n = 0.012
ROUTE PIPE      -> 02:In3      .97     .104 No_date    1:30   36.21  n/a
[PI= 1.00] outs= 01:PIn3      .97     .103 No_date    1:31   36.21  n/a
[L/S/n=  75./ .200/.012]
(Vmax=  .9:1:Dmax=  .226)
[Dia=  .300:Dused=  .300]
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04815> * Culvert from inlet 4
04816> * HDPE smooth wall pipe Manning's n = 0.012
04817> 100:0084----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
04818>      ROUTE PIPE       -> 02:FR4A        .71      .074 No_date    1:31    36.21  n/a
04819>        [RT= 1.00] outs= 01:Cln4
04820>        [L/S/n=  13./ .400/.012]
04821>        [Vmax= 1.138:Dmax=  .183]
04822>        [Dln=  .500:Dused=  .500]
04823> * Input to inlet 4 pipe
04824>  100:0085----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
04825>      ADD HYD          02:FR4B        .65      .068 No_date    1:31    36.21  n/a
04826>                     + 03:Cln4        .71      .074 No_date    1:31    36.21  n/a
04827>        [ID= 1.00]  SUM= 01:Cn4         1.36      .142 No_date    1:31    36.21  n/a
04828> * Pipe from inlet 4 (ULTIMATE CONDITIONS) - Route to pond
04829> * HDPE smooth wall pipe Manning's n = 0.012
04830>  100:0086----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
04831>      ROUTE PIPE       -> 02:In4         1.36      .142 No_date    1:31    36.21  n/a
04832>        [RT= 1.00] outs= 01:Pin4
04833>        [L/S/n=  67./1.900/.012]
04834>        [Vmax= 2.186:Dmax=  .171]
04835>        [D/n=  .500:Dused=  .500]
04836> * Culvert from inlet 5
04837> * HDPE smooth wall pipe Manning's n = 0.012
04838>  100:0087----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
04839>      ROUTE PIPE       -> 02:FR5A        .66      .069 No_date    1:31    36.21  n/a
04840>        [RT= 1.00] outs= 01:Cln5
04841>        [L/S/n=  13./ .400/.012]
04842>        [Vmax= 1.113:Dmax=  .176]
04843>        [Dln=  .500:Dused=  .500]
04844> * Input to inlet 5 pipe
04845>  100:0088----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
04846>      ADD HYD          02:FR5B        .46      .049 No_date    1:30    36.21  n/a
04847>                     + 03:Cln5        .66      .069 No_date    1:31    36.21  n/a
04848>        [ID= 1.00]  SUM= 01:In5         1.12      .118 No_date    1:31    36.21  n/a
04849> * Pipe from inlet 5   Route to pond
04850> * HDPE smooth wall pipe Manning's n = 0.012
04851>  100:0089----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
04852>      ROUTE PIPE       -> 02:In5         1.12      .118 No_date    1:31    36.21  n/a
04853>        [RT= 1.00] outs= 01:Pin5
04854>        [L/S/n=  95./1.900/.012]
04855>        [Vmax= 2.119:Dmax=  .167]
04856>        [D/n=  .500:Dused=  .500]
04857> * Culvert from inlet 6
04858> * Back smooth wall pipe Manning's n =  0.012
04859>  100:0070----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
04860>      ROUTE PIPE       -> 02:FR6A        1.47      .146 No_date    1:30    36.21  n/a
04861>        [RT= 1.00] outs= 01:Cln6        1.61      .186 No_date    1:30    36.21  n/a
04862>        [L/S/n=  13./ .400/.012]
04863>        [Vmax= 1.196:Dmax=  .188]
04864>        [Dln=  .500:Dused=  .500]
04865> * Input to inlet 6 pipe
04866>  100:0071----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
04867>      ADD HYD          02:FR6B        .90      .098 No_date    1:30    36.21  n/a
04868>                     + 03:Cln6        1.47      .146 No_date    1:30    36.21  n/a
04869>        [ID= 1.00]  SUM= 01:In6         2.36      .243 No_date    1:31    36.21  n/a
04870> * Pipe from inlet 6 - Route to pond
04871> * HDPE smooth wall pipe Manning's n = 0.012
04872>  100:0072----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
04873>      ROUTE PIPE       -> 02:In6         2.36      .243 No_date    1:31    36.21  n/a
04874>        [RT= 1.00] outs= 01:Pin6
04875>        [L/S/n=  70./ .300/.012]
04876>        [Vmax= 1.327:Dmax=  .225]
04877>        [Dln=  .500:Dused=  .500]
04878> * VOLUME TO POND ULTIMATE RESIDENTIAL
04879>  100:0077----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
04880>      ADD HYD          02:Pin1        5.05      .522 No_date    1:31    36.67  n/a
04881>                     + 03:Pin2        2.74      .279 No_date    1:31    36.67  n/a
04882>                     + 04:Pin3         .87      .103 No_date    1:31    36.21  n/a
04883>                     + 05:Pin4        1.36      .142 No_date    1:31    36.21  n/a
04884>                     + 06:Pin5        1.12      .118 No_date    1:31    36.21  n/a
04885>                     + 07:Pin6        2.36      .243 No_date    1:31    36.21  n/a
04886>                     + 08:FPon        5.03      .948 No_date    1:28    48.65  n/a
04887>        [ID= 1.00]  SUM= 01:PONDin     18.63     2.146 No_date    1:25    38.41  n/a
04888> *  Pond outflow for ultimate conditions using weir  6, .6, 3.0
04889>  100:0094----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
04890>      ROUTE RESERVOIR -> 02:PONDin     18.63     1.746 No_date    1:25    38.41  n/a
04891>        [SID= 1.00] outs= 01:POout      18.63      .955 No_date    3:00    38.40  n/a
04892>              Overflow -> 01:overQ        .00      .000 No_date    0:00     .00  n/a
04893>        [MxStoRed=.5/ExtRtn, In:OvfVol=.0000E+00, R-Ovf=    0, TotDurOvf      0.hrs]
04894> * Simulating SCS 100 yr conditions with storage of outflow weir
04895> * Updated for weir .6, .6, 3.0
04896> &ROUTE RESERVOIR      NHYDout=["POout"] ,NHYDin=["PONDin"] ,
04897> &                     RDC= 3:(min),
04898> &                          Vault of | DOUTLOW-STORAGE | values
04899> &                                  (cms)    (ha-m)
04900> &                               [   0.0 ,   0.0 ]
04901> &                                0.00001 , 1.1209
04902> &                                0.20    , 1.4110
04903> &                                0.33    , 2.0165
04904> &                               [   -1  ,   -1  ]  (max twenty pts)
04905> &                          NHYDovf-["ovrQ"] ,
04906> * Route pond output through first set of pipes
04907> * 2 x 600 pipes simulated with 1 pipe of equivalent capacity (=780 mm dia)
04908> * HDPE smooth wall pipe Manning's n = 0.012
04909>  100:0075----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
04910>      ROUTE PIPE       -> 02:POout1    18.63      .155 No_date    3:59    35.10  n/a
04911>        [RT= 1.00] outs= 01:Pout1
04912>        [L/S/n=  95./ .200/.012]
04913>        [Vmax= 1.048:Dmax=  .278]
04914>        [D/n=  .780:Dused=  .780]
04915> * Flow d/s of outlet culverts
04916>  100:0076----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
04917>      ADD HYD          02:FR75I       .36      .037 No_date    1:31    32.58  n/a
04918>                     + 03:FR75S       .22      .023 No_date    1:30    32.58  n/a
04919>                     + 04:Pout1     18.63      .155 No_date    3:59    35.10  n/a
04920>        [ET= 1.00]  SUM= 01:Pout      19.21      .764 No_date    3:46    34.93  n/a
04921> * Route outflow through set of Culverts
04922> * 2 x 600 culverts simulated with 1 culvert of equivalent capacity (=780 mm dia
04923> * HDPE smooth wall pipe Manning's n =  0.012
04924>  100:0077----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
04925>      ROUTE PIPE       -> 02:Pout      19.21      .155 No_date    3:16    34.23  n/a
04926>        [RT= 1.00] outs= 01:Cout
04927>        [L/S/n=  13./ .400/.013]
04928>        [Vmax= 1.252:Dmax=  .228]
04929>        [Dln=  .780:Dused=  .780]
04930> * Flow d/s of second set of outflow pipes
04931>  100:0078----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
04932>      ADD HYD          02:FR7CI       .36      .040 No_date    1:31    32.58  n/a
04933>                     + 03:FR7CI       .19      .018 No_date    1:30    32.58  n/a
04934>                     + 04:Cout      19.21      .155 No_date    3:16    34.23  n/a
04935>        [ET= 1.00]  SUM= 01:Pout      19.77      .164 No_date    3:51    34.01  n/a
04936> * Route outflow through second set of pipes
04937> * 2 x 600 pipes simulated with 1 pipe of equivalent capacity (=780 mm dia)
04938> * HDPE smooth wall pipe Manning's n = 0.012
04939>  100:0079----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
04940>      ROUTE PIPE       -> 02:Pout2     19.77      .164 No_date    3:51    34.07  n/a
04941>        [RT= 1.00] outs= 01:Pout7
04942>        [L/S/n=  95./ .200/.012]
04943>        [Vmax= 1.067:Dmax=  .279]
04944>        [Dln=  .780:Dused=  .780]
04945> * Total flow at node h1 (Shields MD along Bates Beach Rd)
04946>  100:0080----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
04947>      ADD HYD          03:PEXX7       51.85     5.260 No_date    1:51    31.75  n/a
04948>                     + 03:Pout7      19.77      .164 No_date    3:50    34.07  n/a
04949>                     + 04:EX7         .19      .045 No_date    1:20    46.04  n/a
04950>                     + 05:Ex7D        .30      .031 No_date    1:3.    32.58  n/a
04951>                     + 06:EX11        .62      .078 No_date    1:32    30.77  n/a
04952>        [ET= 1.00]  SUM= 01:H1        78.93     5.488 No_date    1:51    40.67  n/a
04953> * ROUTE H1 to H3
04954> * Typical Section based on Shields MD Vee Ditch 3:1 banks
04955> * provided by Atrel
04956> * Manning's n is Channel not maintained, light brush on banks
04957> * Slope = 0.05: as per plan provided by Atrel.
04958>  100:0081----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
04959>      ROUTE CHANNEL    -> 02:H1        78.93     3.488 No_date    1:51    40.67  n/a
04960>    *   [RT= 1.00] outs= 01:HCH1
04961>        [L/S/n=  348./ .050/.035]
04962>        [Vmax=  .355 Dmax= 1.762]
04963> * VOLUME from residential area at E3 intersit
04964>  100:0082----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
04965>      ADD HYD          03:FR3A        1.35      .131 No_date    1:33    32.58  n/a
04966>                     + 02:FR3B        1.38      .134 No_date    1:33    30.77  n/a
04967>        [ID= 1.00]  SUM= 01:H3i        2.73      .265 No_date    1:33    31.67  n/a
04968> * Added Volume from external area contributing to E3
04969>  100:0083----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
04970>      ADD HYD          02:EX3         78.93     5.488 No_date    1:51    40.67  n/a
04971>                     + 03:H3i         2.73      .265 No_date    1:33    31.67  n/a
04972>                     + 04:EX5         .52      .078 No_date    1:25    46.23  n/a
04973>                     + 05:EX6         .51      .052 No_date    1:24    34.85  n/a
04974>                     + 06:EXC3        .22      .060 No_date    1:20    51.19  n/a
04975>        [ET= 1.00]  SUM= 01:H3        82.91     5.945 No_date    1:51    40.43  n/a
04976> * ROUTE H3 to HCH3
04977> * Typical Section based on Shields MD Vee Ditch 3:1 banks
04978> * provided by Atrel
04979> * Manning's n is Channel not maintained, light brush on banks
04980> * Slope = 0.05: as per plan provided by Atrel.
```

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04981> 100:0084----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
04982>     ROUTE CHANNEL    -> 02:3D        87.91     9.805 No date     2:05    40.42  n/a
04983>   *   [RDT= 1.00] DLTR= 01:RD3       82.91     7.557 No date     2:03    40.42  n/a
04984>       [J/Sf= 415.7 .0570 .075]
04985>       [Vmax=  .361:Dmax= 1.472]
04986> # Flow at Granter node NCR128 for comparison
04987> # Routed to pink XX1
04988> 100:0085----------------ID:NHYD-------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
04989>     ADD HYD              02:EX3       82.91     7.557 No date     2:03    40.42  n/a
04990>                        - 03:EX3       21.50      .798 No date     2:08    29.43  n/a
04991>     [VT= 1.00]  SUM=   01:NCR128    104.21    1.2169 No date     2:03    38.17  n/a
04992> # AREA CHECK
04993> #
04994> 100:0086----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
04995>     ADD HYD              02:EX1       24.62     2.867 No_date     1:54    31.87  n/a
04996>                        + 03:EX3        6.89      .433 No_date     2:08    29.13  n/a
04997>                        + 04:EX1       21.30      .788 No_date     2:20    29.63  n/a
04998>                        + 05:EX4         .50      .050 No_date     1:31    36.05  n/a
04999>                        + 06:EX5         .22      .023 No_date     1:26    36.53  n/a
05000>                        + 07:EX6         .51      .053 No_date     1:26    36.53  n/a
05001>                        + 08:EX7         .39      .041 No_date     1:22    28.24  n/a
05002>                        + 09:EB1A        .24      .076 No_date     1:30    36.21  n/a
05003>                        + 10:EB1B        .55      .089 No_date     1:30    36.21  n/a
05004>     [DT= 1.00]  SUM=   01:Tot1      58.52     3.438 No_date     1:36    32.13  n/a
05005> 100:0087----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05006>     ADD HYD              02:Tot1      58.52     3.438 No_date     1:36    32.13  n/a
05007>                        + 03:EB2A        1.27      .160 No_date     1:32    36.21  n/a
05008>                        + 04:EB2B        1.17      .172 No_date     1:31    36.21  n/a
05009>                        + 05:EB3A         .65      .060 No_date     1:30    36.21  n/a
05010>                        + 06:EB3B         .52      .056 No_date     1:30    36.21  n/a
05011>                        + 07:EB4A         .71      .074 No_date     1:31    36.21  n/a
05012>                        + 08:EB4B         .85      .068 No_date     1:31    36.21  n/a
05013>                        + 09:EB5A         .66      .065 No_date     1:31    36.21  n/a
05014>                        + 10:EB5B         .58      .060 No_date     1:30    36.21  n/a
05015>     [DT= 1.00]  SUM=   02:Tot2      64.71     4.027 No_date     1:34    32.52  n/a
05016> 100:0088----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05017>     ADD HYD              07:Tot2      64.71     4.027 No_date     1:34    32.52  n/a
05018>                        + 01:EB6A        1.43      .148 No_date     1:32    36.21  n/a
05019>                        + 02:EB6B         .93      .098 No_date     1:32    36.21  n/a
05020>                        + 03:EB7A        1.35      .131 No_date     1:37    32.58  n/a
05021>                        + 04:EB7B1        .36      .037 No_date     1:41    32.58  n/a
05022>                        + 07:EB7B2        .22      .023 No_date     1:41    32.58  n/a
05023>                        + 08:EB7C1        .39      .040 No_date     1:41    32.58  n/a
05024>                        + 09:EB7C2        .17      .018 No_date     1:40    32.58  n/a
05025>                        + 10:EB7D         .70      .073 No_date     1:41    32.58  n/a
05026>     [DT= 1.00]  SUM=   01:Tot3      69.86     4.513 No_date     1:34    32.65  n/a
05027> 100:0089----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05028>     ADD HYD              02:Tot3      69.86     4.513 No_date     1:34    32.65  n/a
05029>                        + 03:FB1         1.38      .126 No_date     1:37    36.77  n/a
05030>                        + 04:EB9A        1.10      .100 No_date     1:33    36.77  n/a
05031>                        + 05:EB9B1        .25      .023 No_date     1:31    36.77  n/a
05032>                        + 06:EB9B2       1.50      .091 No_date     1:53    36.77  n/a
05033>                        + 07:EB10        1.57      .164 No_date     1:34    36.77  n/a
05034>                        + 08:EB11         .60      .058 No_date     1:32    36.77  n/a
05035>                        + 09:EB3         4.36      .438 No_date     1:30    29.43  n/a
05036>                        + 10:EB2A        9.93      .948 No_date     1:31    30.05  n/a
05037>     [DT= 1.00]  SUM=   01:Tot4      85.07     6.172 No_date     1:37    32.85  n/a
05038> 100:0090----------------ID:NHYD-------AREA----QPEAK-TpeakDa_e_hh:mm----R.V.-R.C.-
05039>     ADD HYD              02:Tot4      85.07     6.172 No_date     1:32    33.25  n/a
05040>                        + 01:C1          8.30     2.562 No_date     1:20    58.50  n/a
05041>                        + 04:C2          6.34     2.420 No_date     1:20    65.95  n/a
05042>                        + 05:C3          .26      .117 No_date     1:20    74.52  n/a
05043>                        + 06:EXC1        1.19      .101 No_date     1:20    46.06  n/a
05044>                        + 07:EXC2        1.80      .211 No_date     1:20    46.06  n/a
05045>                        + 08:EXC3         .72      .060 No_date     1:20    25.17  n/a
05046>                        + 09:PDC         1.67      .541 No_date     1:20    59.66  n/a
05047>     [DT= 1.00]  SUM=   01:Tot5      104.21    9.9.5 No_date     1:21    38.15  n/a
05048> #*************************************************************************
05049> # Simulations with 4 hour Chicago from City of Ottawa
05050> # SCS 24 hours type 2, from City of Ottawa
05051>   ** END OF RUN : 201
05052>
05053> ------------------------------------------------------------------------------
05054>
05055>
05056>
05057>
05058>
05059> RUN:COMMANDS
05060> 202 SCS|-------------------------------------------------------------------
05061>     START
05062>       TAREA =    .00 hrs on        0|
05063>       [METOUT=   2    (1 imperial, 2metric output)]
05064>       [NSTORM=   1 ]
05065>       [NRUN  = 202 ]
05066> #*************************************************************************
05067> #  SWMHYMO Ver:5.02/Jan 2001 <BETA> / INPUT DATA FILE
05068> #*************************************************************************
05069> #  Project Name: Greely Village Center      Project Number: 1847-07
05070> #  Date        : 01-08-2008
05071> #  Modeller    : [JHF]
05072> #  Company     : JFSAinc.
05073> #  License #   : 2547480
05074> #*************************************************************************
05075> #
05076> # SWMHYMO model of the Greely Village Center - Residential Area - Phase 2
05077> # Proposed Ultimate Conditions: 5YCDOK.P
05078> # Filename stands for: Greely Commercial, Proposed
05079> #*************************************************************************
05080> 202:0002----------------------------------------------------------------------
05081>     READ STORM
05082>       Filename = storm.001
05083>       Comment  = 2 years SCS Type 2 Storm 24 hours step 10 min, City of Ottaw
05084>       [PTP=0.00:RAIN= 24.00:PRUN= 48.46]
05085> #*************************************************************************
05086> # Existing flow - Mahoney branch of Shield Creek - Areas
05087> # Area a/s of proposed development (residential)
05088> # CN=75, slope = 0.8, Cp 0.15, XIMP 5, TIMP 15, see SC002 as per Stantec
05089> # Area partially adjusted based on Arch. drawings. Tp adjusted accordingly.
05090> #*************************************************************************
05091> # a/s of Bank St.as per Arcel - with modified boundaries and Cp.
05092> 202:0001----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05093>     DESIGN NASHYD      01:EX1       24.62      .916 No_date    12:08    16.75 .306
05094>       [CN= 75.0: N= 3.00]
05095>       [Ia=  .13:DT= 1.00]
05096> #*************************************************************************
05097> # Existing flow - External areas a/s of Bank St.
05098> # CN'ed, as per Stantec dwg SC001.
05099> # Area partially adjusted based on Arcel drawings.
05100> #*************************************************************************
05101> # Areas External to development
05102> 202:0004----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
05103>     DESIGN NASHYD      01:EX2        9.89      .140 No_date    12:12    13.89 .262
05104>       [CN= 59.0: N= 3.00]
05105>       [Ia=  .43:DT= 1.00]
05106> 202:0005----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05107>     DESIGN NASHYD      01:EX3       21.30      .258 No_date    12:48    15.68 .282
05108>       [CN= 59.0: N= 3.00]
05109>       [Ia=  .43:DT= 1.00]
05110> # Slope, Timp, Area from Arcel Drawing
05111> # Ch from Stantec (SC001)
05112> # Ximp = Timp = 10
05113> 202:0006----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05114>     CALIB STANDHYD     01:EX4         .50      .013 No_date    12:02    17.29 .357
05115>       [XIMP=.10:TIMP=.22]
05116>       [CHNL= 2 :CN= 59.0]
05117>       [Pervious     area: IAper=  4.67:SLPP= 1.00:LGP=  40.:NMP=.250:SCP=   .0]
05118>       [Impervious   area: IAimp=  1.57:SLPI=1.00:LGI=  50.:NMI=.045:SCI=   .0]
05119> # Road and road side ditch along projected residential development Parkway Ro
05120> # Timp = Ximp = 0.2 ha /0.57 ha = 0.40
05121> # CN'ed, as per Stantec dwg SC001.
05122> # Slope is estimated at 1%
05123> # LGI based on centroid of area due to elongated shape = 285m/2 = 100
05124> 202:0007----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05125>     CALIB STANDHYD     01:EX5         .52      .023 No_date    12:07    26.04 .537
05126>       [XIMP=.40:TIMP=.40]
05127>       [CHNL= 2 :CN= 69.0]
05128>       [Pervious     area: IAper=  4.67:SLPP= 1.00:LGP=  40.:NMP=.250:SCP=   .0]
05129>       [Impervious   area: IAimp=  1.57:SLPI=1.00:LGI=  50.:NMI=.045:SCI=   .0]
05130> # Road and road side ditch along projected residential development SalesBarn Ro
05131> # Timp = Ximp = 0.1 ha /0.5? ha = 0.20
05132> # CN'ed, as per Stantec dwg SC001.
05133> # Slope is estimated at 1%
05134> # LGI based on centroid of area due to elongated shape = 350m/2 = 177
05135> 202:0008----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05136>     CALIB STANDHYD     01:EX6         .51      .015 No_date    12:04    15.80 .294
05137>       [XIMP=.20:TIMP=.20]
05138>       [CHNL= 2 :CN= 69.0]
05139>       [Pervious     area: IAper=  4.67:SLPP=1.00:LGP=  40.:NMP=.250:SCP=   .0]
05140>       [Impervious   area: IAimp=  1.57:SLPI=1.00:LGI=  177.:NMI=.045:SCI=   .0]
05141> # Road and road side ditch along projected residential development SalesBarn Ro
05142> # Timp = Ximp = 0.0? ha /0.5? ha = 0.20
05143> # CN'ed, as per Stantec dwg SC001.
05144> # Slope is estimated at 1%
05145> # LGI based on centroid of area due to elongated shape = 270m/2 = 137.0
05146> 202:0009----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
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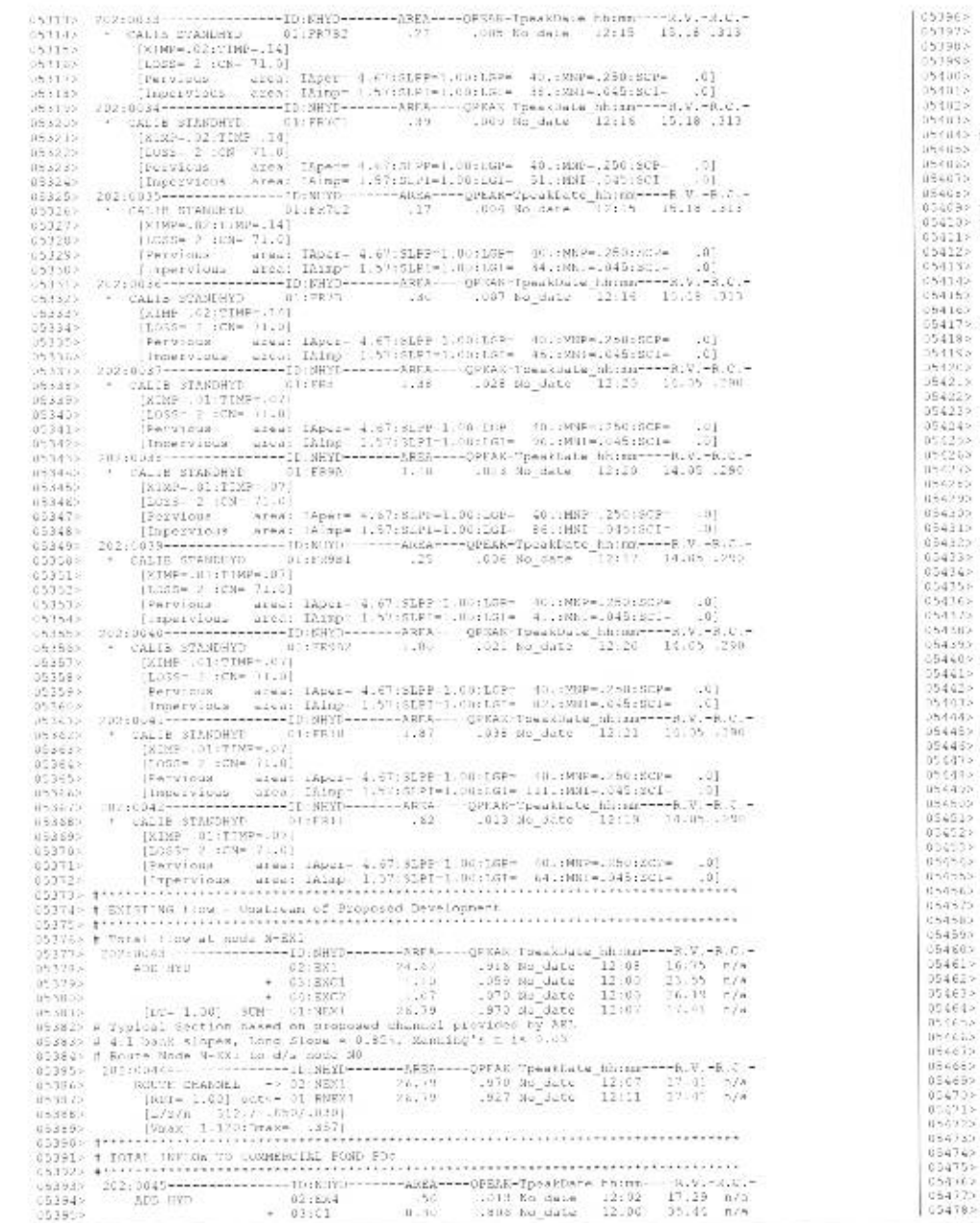
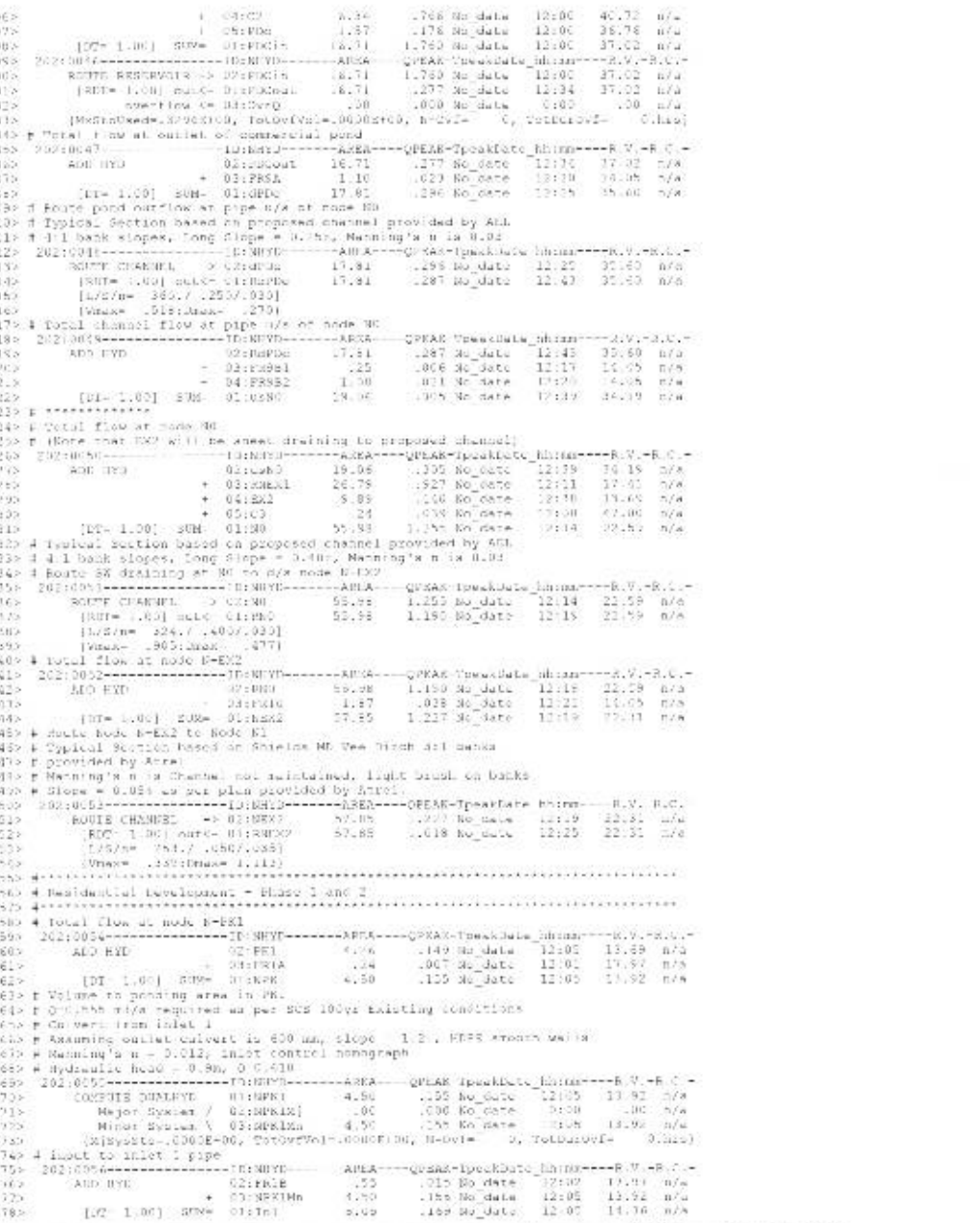
05144>       CALIB STANDHYD    01:EXT          .39      .014 No_date   12:05   28.14 .415
05145>         [X,Z]=.23:TIMP=.23]
05146>         [LOSS= 2 :CN= 69.0]
05147>         [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
05148>         [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  110.:MNI=.045:SCI=   .0]
05149> *********************************************************************
05150> # PROPOSED COMMERCIAL DEVELOPMENT
05151> *********************************************************************
05152> # CN   79 as per rate grass cover with C soil type for Log soil; CN*=71
05153> # XIMP   TIMP to be conservative
05154> *********************************************************************
05155>  202:0010----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05156>       DESIGN STANDHYD    01:C1          8.36      .836 No_date   12:00   35.45 .771
05157>         [XIMP=.63:TIMP=.63]
05158>         [SLP=1.00:DT= 1.00]
05159>         [LOSS= 2 :CN= 71.0]
05160>  202:0011----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05161>       DESIGN STANDHYD    01:C2          6.94      .694 No_date   12:00   40.57 .840
05162>         [XIMP=.79:TIMP=.79]
05163>         [SLP=1.00:DT= 1.00]
05164>         [LOSS= 2 :CN= 71.0]
05165>  202:0012----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05166>       DESIGN STANDHYD    01:C3           .24      .036 No_date   12:00   46.98 .570
05167>         [XIMP=.98:TIMP=.98]
05168>         [SLP=1.00:DT= 1.00]
05169>         [LOSS= 2 :CN= 71.0]
05170> * imp = imp ha/total area = 0.30/1.10 ha = .27
05171>  202:0013----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05172>       DESIGN STANDHYD    01:EXC1         1.10      .060 No_date   12:00   23.55 .456
05173>         [XIMP=.27:TIMP=.27]
05174>         [SLP 1.00:DT= 1.00]
05175>         [LOSS= 2 :CN= 71.0]
05176> * imp = imp ha/total area = 0.35/1.07 ha = .33
05177>  202:0014----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05178>       DESIGN STANDHYD    01:EXC2         1.07      .070 No_date   12:00   26.19 .490
05179>         [X,Z]=.33:TIMP=.33]
05180>         [SLP 1.00:DT= 1.00]
05181>         [LOSS= 2 :CN= 71.0]
05182> * imp = imp ha/total area = 0.11/0.22ha = .50
05183>  202:0015----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05184>       DESIGN STANDHYD    01:EXC3          .22      .020 No_date   12:00   31.14 .641
05185>         [XIMP=.50:TIMP=.50]
05186>         [SLP=1.00:DT= 1.00]
05187>         [LOSS= 2 :CN= 71.0]
05188> *********************************************************************
05189> # Commercial Pond (PC0)
05190> # slope estimated at 2% based on elevations around pond.
05191> # Tlag and Xlag based on total pond area
05192> # xlag = A pond/A tot (1.05/2.57)
05193>  202:0016----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05194>       DESIGN STANDHYD    01:PC0          2.57      .771 No_date   12:00   60.78 .789
05195>         [XIMP=.67:TIMP=.67]
05196>         [SLP 1.00:DT= 1.00]
05197>         [LOSS= 2 :CN= 71.0]
05198> ##################################################################
05199> *********************************************************************
05200> * PROPOSED RESIDENTIAL SUBDIVISION - Residential Area Phase 1 and 2
05201> *********************************************************************
05202> # CN*=69, as per Standard new 20001.
05203> # Tp estimated with Uplund Method.
05204>  202:0017----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05205>       DESIGN NASHYD      01:PR           4.76      .142 No_date   12:05   15.99 .282
05206>         [CN= 69.0: N= 3.00]
05207>         [Tp=  .18:DT= 1.00]
05208> *********************************************************************
05209> * AREAS GOING TO RESIDENTIAL POND (PC0)
05210> *********************************************************************
05211> *
05212>  202:0018----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05213>       CALIB STANDHYD     01:PR1A          .24      .007 No_date   12:01   17.97 .371
05214>         [X,Z]=.11:TIMP=.21]
05215>         [LOSS= 2 :CN= 71.0]
05216>         [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
05217>         [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  40.:MNI=.045:SCI=   .0]
05218>  202:0019----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05219>       CALIB STANDHYD     01:PR1B          .55      .015 No_date   12:02   17.97 .371
05220>         [XIMP=.11:TIMP=.21]
05221>         [LOSS= 2 :CN= 71.0]
05222>         [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
05223>         [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  41.:MNI=.045:SCI=   .0]
05224>  202:0020----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05225>       CALIB STANDHYD     01:PR2A          .64      .041 No_date   12:04   17.97 .371
05226>         [XIMP .11:TIMP=.21]
05227>         [LOSS= 2 :CN= 71.0]
05228>         [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
05229>         [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  55.:MNI=.045:SCI=   .0]
05230>  202:0021----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05231>       CALIB STANDHYD     01:PR2B          1.17      .031 No_date   12:03   17.97 .371
05232>         [XIMP .11:TIMP .21]
05233>         [LOSS  2 :CN= 71.0]
05234>         [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
05235>         [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  88.:MNI=.045:SCI=   .0]
05236>  202:0022----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05237>       CALIB STANDHYD     01:PR3A          .45      .011 No_date   12:02   17.97 .371
05238>         [XIMP=.11:TIMP=.21]
05239>         [LOSS= 2 :CN= 71.0]
05240>         [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
05241>         [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  55.:MNI=.045:SCI=   .0]
05242>  202:0023----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05243>       CALIB STANDHYD     01:PR3B          .59      .015 No_date   12:02   17.97 .371
05244>         [XIMP=.11:TIMP=.21]
05245>         [LOSS= 2 :CN= 71.0]
05246>         [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
05247>         [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  58.:MNI=.045:SCI=   .0]
05248>  202:0024----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05249>       CALIB STANDHYD     01:PR4A          .91      .019 No_date   12:02   17.97 .371
05250>         [XIMP=.11:TIMP=.21]
05251>         [LOSS= 2 :CN= 71.0]
05252>         [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
05253>         [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  59.:MNI=.045:SCI=   .0]
05254>  202:0025----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05255>       CALIB STANDHYD     01:PR4B          .65      .015 No_date   12:02   17.97 .371
05256>         [XIMP=.11:TIMP=.21]
05257>         [LOSS= 2 :CN= 71.0]
05258>         [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
05259>         [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  66.:MNI=.045:SCI=   .0]
05260>  202:0026----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05261>       CALIB STANDHYD     01:PR5A          .66      .018 No_date   12:02   17.97 .371
05262>         [XIMP=..11:TIMP=.21]
05263>         [LOSS= 2 :CN= 71.0]
05264>         [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
05265>         [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  66.:MNI=.045:SCI=   .0]
05266>  202:0027----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05267>       CALIB STANDHYD     01:PR5B          .46      .013 No_date   12:02   17.97 .371
05268>         [XIMP=..11:TIMP=.21]
05269>         [LOSS= 2 :CN= 71.0]
05270>         [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
05271>         [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  55.:MNI=.045:SCI=   .0]
05272>  202:0028----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05273>       CALIB STANDHYD     01:PR6A          1.41      .038 No_date   12:03   17.97 .371
05274>         [XIMP=..11:TIMP=.21]
05275>         [LOSS= 2 :CN= 71.0]
05276>         [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
05277>         [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
05278>  202:0029----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05279>       CALIB STANDHYD     01:PR6B          .93      .025 No_date   12:03   17.97 .371
05280>         [XIMP .11:TIMP .21]
05281>         [LOSS  2 :CN= 71.0]
05282>         [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
05283>         [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  59.:MNI=.045:SCI=   .0]
05284> * xlope estimated at 2% based on backyard swales.
05285> * Tlag and Xlag based on total pond area
05286> * xlag = A pond/A tot
05287> * tlag = weighted average of pond and backyards
05288>  202:0030----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05289>       CALIB STANDHYD     01:PC0          5.03      .291 No_date   12:04   25.76 .533
05290>         [XIMP=.4:TIMP=.4]
05291>         [LOSS= 2 :CN= 71.6]
05292>         [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
05293>         [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  153.:MNI=.045:SCI=   .0]
05294> *********************************************************************
05295> * UNCONTROLLED AREAS
05296> *********************************************************************
05297> *
05298>  202:0031----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05299>   *  CALIB STANDHYD     01:PR7A          1.35      .031 No_date   12:09   15.10 .311
05300>         [XIMP=.07:TIMP=.14]
05301>         [LOSS= 2 :CN= 71.0]
05302>         [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
05303>         [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  85.:MNI=.045:SCI=   .0]
05304>  202:0032----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05305>   *  CALIB STANDHYD     01:PR7B          .36      .008 No_date   12:16   15.10 .313
05306>         [XIMP .02:TIMP .10]
05307>         [LOSS  2 :CN= 71.0]
05308>         [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
05309>         [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  49.:MNI=.045:SCI=   .0]
```





```
05479> # Pipe from inlet 1 - Route to pond
05480> # HDPE smooth wall pipe Manning's n = 0.012
05481> 202:0057----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05482>      ROUTE PIPE      -> 02:in1          5.05      .168 No_date   12:05    .4.36  n/a
05483>        [RT= 1.00] outc= 01:Pin1         5.05      .168 No_date   12:05    .4.36  n/a
05484>        [L/S/n=   65./1.600/.012]
05485>        [Vmax= 2.317:Dmax=   .332]
05486>        [Dia=   .600:Dused=  .600]
05487> # Culvert from inlet 2
05488> # HDPE smooth wall pipe Manning's n = 0.012
05489>  202:0058----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05490>      ROUTE PIPE      -> 02:FR2A         1.57      .031 No_date   12:04   17.87  n/a
05491>        [RT= 1.00] outc= 01:Cin2         1.57      .031 No_date   12:04   17.87  n/a
05492>        [L/S/n=   13./ .600/.012]
05493>        [Vmax=  .838:Dmax=   .134]
05494>        [Dia=   .500:Dused=  .500]
05495> # Input to inlet 2 pipe
05496>  202:0059----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05497>      ADD HYD         02:FR2A         1.17      .031 No_date   12:01   17.97  n/a
05498>                    + 03:Cin2         1.57      .031 No_date   12:04   17.87  n/a
05499>        [DT= 1.00]  SUM=  01:in2        2.73      .061 No_date   12:04   17.91  n/a
05500> # Pipe from inlet 2 - Route to pond
05501> # HDPE smooth wall pipe Manning's n = 0.012
05502>  202:0060----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05503>      ROUTE PIPE      -> 02:in2          2.74      .071 No_date   12:05    18.01  n/a
05504>        [RT= 1.00] outc= 01:Pin2         2.74      .069 No_date   12:05    18.01  n/a
05505>        [L/S/n=   75./ .600/.012]
05506>        [Vmax=  .67?:Dmax=  .217]
05507>        [Dia=   .600:Dused=  .500]
05508> # Culvert from inlet 3
05509> # HDPE smooth wall pipe Manning's n = 0.012
05510>  202:0061----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05511>      ROUTE PIPE      -> 02:FR3A          .62      .013 No_date   12:02   17.97  n/a
05512>        [RT= 1.00] outc= 01:Cin3          .62      .013 No_date   12:02   17.97  n/a
05513>        [L/S/n=   13./ .600/.012]
05514>        [Vmax=  .672:Dmax=   .074]
05515>        [Dia=   .500:Dused=  .500]
05516> # Input to inlet 3 pipe
05517>  202:0062----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05518>      ADD HYD         02:FR3A          .62      .013 No_date   12:02   17.97  n/a
05519>                    + 03:Cin3          .85      .033 No_date   12:02   17.97  n/a
05520>        [DT= 1.00]  SUM=  01:in3         .97      .027 No_date   12:02   17.97  n/a
05521> # Pipe from inlet 3 - Route to pond
05522> # HDPE smooth wall pipe Manning's n = 0.012
05523>  202:0063----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05524>      ROUTE PIPE      -> 02:in3          .97      .027 No_date   12:02   17.97  n/a
05525>        [RT= 1.00] outc= 01:Pin3         .97      .027 No_date   12:03   17.97  n/a
05526>        [L/S/n=   75./ .600/.012]
05527>        [Vmax=  .66?:Dmax=  .132]
05528>        [Dia=   .500:Dused=  .500]
05529> # Culvert from inlet 4
05530> # HDPE smooth wall pipe Manning's n = 0.012
05531>  202:0064----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05532>      ROUTE PIPE      -> 02:FR4A          .71      .019 No_date   12:02   17.97  n/a
05533>        [RT= 1.00] outc= 01:Cin4          .71      .019 No_date   12:02   17.97  n/a
05534>        [L/S/n=   13./ .600/.012]
05535>        [Vmax=  .75?:Dmax=  .092]
05536>        [Dia=   .500:Dused=  .500]
05537> # Input to inlet 4 pipe
05538>  202:0065----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05539>      ADD HYD         02:FR4A          .62      .018 No_date   12:02   17.97  n/a
05540>                    + 03:Cin4          .71      .019 No_date   12:02   17.97  n/a
05541>        [DT= 1.00]  SUM=  01:in4         1.34      .037 No_date   12:02   17.97  n/a
05542> # Pipe from inlet 4 (ULTIMATE CONDITIONS) - Route to pond
05543> # HDPE smooth wall pipe Manning's n = 0.012
05544>  202:0066----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05545>      ROUTE PIPE      -> 02:in4          1.34      .037 No_date   12:05   17.97  n/a
05546>        [RT= 1.00] outc= 01:Pin4         1.34      .037 No_date   12:05   17.97  n/a
05547>        [L/S/n=   65./1.600/.012]
05548>        [Vmax= 1.802:Dmax=  .086]
05549>        [Dia=   .500:Dused=  .500]
05550> # Culvert from inlet 5
05551> # HDPE smooth wall pipe Manning's n = 0.012
05552>  202:0067----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05553>      ROUTE PIPE      -> 02:FR5A          .66      .018 No_date   12:02   17.97  n/a
05554>        [RT= 1.00] outc= 01:Cin5          .66      .018 No_date   12:02   17.97  n/a
05555>        [L/S/n=   13./ .600/.012]
05556>        [Vmax=  .746:Dmax=  .058]
05557>        [Dia=   .500:Dused=  .500]
05558> # Input to inlet 5 pipe
05559>  202:0068----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05560>      ADD HYD         02:FR5A          .48      .013 No_date   12:02   17.97  n/a
05561>                    + 03:Cin5          .66      .018 No_date   12:02   17.97  n/a
05562>        [DT= 1.00]  SUM=  01:in5         1.12      .031 No_date   12:02   17.97  n/a
05563> # Pipe from inlet 5 - Route to pond
05564> # HDPE smooth wall pipe Manning's n = 0.012
05565>  202:0069----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05566>      ROUTE PIPE      -> 02:in5          1.12      .031 No_date   12:02   17.97  n/a
05567>        [RT= 1.00] outc= 01:Pin5         1.12      .031 No_date   12:03   17.97  n/a
05568>        [L/S/n=   70./1.600/.012]
05569>        [Vmax= 1.137:Dmax=  .083]
05570>        [Dia=   .500:Dused=  .500]
05571> # Culvert from inlet 6
05572> # HDPE smooth wall pipe Manning's n = 0.012
05573>  202:0070----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05574>      ROUTE PIPE      -> 02:FR6A          .43      .035 No_date   12:04   17.87  n/a
05575>        [RT= 1.00] outc= 01:Cin6          .43      .035 No_date   12:04   17.87  n/a
05576>        [L/S/n=   13./ .600/.012]
05577>        [Vmax=  .938:Dmax=   .128]
05578>        [Dia=   .500:Dused=  .500]
05579> # Input to inlet 6 pipe
05580>  202:0071----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05581>      ADD HYD         02:FR6A          .08      .035 No_date   12:03   17.87  n/a
05582>                    + 03:Cin6          .43      .035 No_date   12:04   17.87  n/a
05583>        [DT= 1.00]  SUM=  01:in6         2.36      .053 No_date   12:04   17.97  n/a
05584> # Pipe from inlet 6 - Route to pond
05585> # HDPE smooth wall pipe Manning's n = 0.012
05586>  202:0072----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05587>      ROUTE PIPE      -> 02:in6          2.36      .053 No_date   12:04   17.97  n/a
05588>        [RT= 1.00] outc= 01:Pin6         2.36      .053 No_date   12:04   17.97  n/a
05589>        [L/S/n=   60./ .600/.012]
05590>        [Vmax=  .97?:Dmax=  .191]
05591>        [Dia=   .600:Dused=  .500]
05592> # VOLUME TO POND OUTFLOW RESTRICTED
05593>  202:0073----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05594>      ADD HYD         01:Pin1          5.05      .168 No_date   12:05   14.38  n/a
05595>                    + 02:Pin2          2.74      .069 No_date   12:05   18.01  n/a
05596>                    + 04:Pin3          .97       .027 No_date   12:03   17.97  n/a
05597>                    + 05:Pin4          1.34      .037 No_date   12:03   17.97  n/a
05598>                    + 06:Pin5          1.12      .031 No_date   12:03   17.97  n/a
05599>                    + 07:Pin6          2.36      .065 No_date   12:04   17.91  n/a
05600>                    + 08:FD1           5.05      .091 No_date   12:04   20.26  n/a
05601>        [DT= 1.00]  STR=  01:POND1 n    15.55      .685 No_date   12:04   19.79  n/a
05602> #  Pond outflow for ultimate conditions using weir .5; .6; 3.0
05603>  202:0074----------ID:NHYD-------AREA    QPEAK TpeakDate_hh:mm----R.V.-R.C.-
05604>      ROUTE RESERVOIR -> 02:POND1 n     15.55      .685 No_date   12:04   19.79  n/a
05605>        [RT= 1.00] outc= 01:Pout1       15.55      .042 No_date   16:05   19.79  n/a
05606>             overflow = 03:ovfl          .00      .000 No_date    0:00     .00  n/a
05607>       [MAXstOvwd=.23612+00, IotovfVol=.00308+00, R-ovf      0, TotRunOff=     0.fre]
05608> # Simulating 2Cs 100 yr conditions with submergence of outflow weir
05609> #  updated for weir .6; 6; 3.0
05610> ROUTE RESERVOIR     "NHYDout=["Pout1"] ,NHYDin=["POND1n"] ,
05611> #                   HUY= 1 ;min] ,
05612> #                          TABLE OF [ OUTFLOW-STORAGE ] values
05613> #                                    (cms) - (ha-m)
05614> #                                  [   0.0 ,   0.0 ]
05615> #                                   0.00001 , 1.7282
05616> #                                   0.20    , 1.8110
05617> #                                   0.42    , 2.0195
05618> #                                  [   -1  ,   -1  ]  [max twenty pts]
05619> #                            XmlDovf-["over"] ,
05620> # Route pond output through first set of pipes
05621> # 2 x 600 pipes simulated with 1 pipe of equivalent capacity (=780 mm dia)
05622> # HDPE smooth wall pipe Manning's n = 0.012
05623> 202:0075----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05624>      ROUTE PIPE      -> 02:Pout1       15.53      .042 No_date   16:05   19.79  n/a
05625>        [RT= 1.00] outc= 01 Sout1       15.53      .042 No_date   16:05   19.79  n/a
05626>        [L/S/n=   75./ .200/.012]
05627>        [Vmax=  .?1?:Dmax=  .159]
05628>        [Dia=   .780:Dused=  .780]
05629> # Flow s/a of outlet culverts
05630> 202:0076----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05631>      ADD HYD         02:FR7s1          .36      .009 No_date   12:06    5.18  n/a
05632>                    + 03:FR7s2          .22      .005 No_date   12:05    5.18  n/a
05633>                    + 01:Pout1        18.63      .042 No_date   16:06   19.79  n/a
05634>        [DT= 1.00]  SUM=  01:Pout        19.21      .044 No_date   16:09   19.62  n/a
05635> # Route outflow through set of culverts
05636> # 2 x 600 culverts simulated with 1 culvert of equivalent capacity (=780 mm dia)
05637> # HDPE smooth wall pipe Manning's n = 0.012
05638> 202:0077----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05639>      ROUTE PIPE      -> 02:Pout1       19.21      .044 No_date   16:05   19.65  n/a
05640>        [RT= 1.00] outc= 01:Cout1       19.21      .044 No_date   16:05   19.65  n/a
05641>        [L/S/n=   15./ .600/.012]
05642>        [Vmax=  .825:Dmax=   .120]
05643>        [Dia=   .780:Dused=  .780]
05644> # Flow s/a of second set of outflow pipes
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05634> 202:0078----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05635>     ADD HYD                 02:FR3C      .49     .069 No_date   12:16   15.18  n/a
05636>                           + 03:FR3C2     .17     .064 No_date   12:15   15.18  n/a
05637>                           + 04:Cour      10.11   .046 No_date   14:09   24.65  n/a
05638>       [DT= 1.00]  SUM     01:Four1     19.77     .055 No_date   12:21   19.52  n/a
05639> # Route outflow through second set of pipes
05640> # 2 x 600 pipes simulated with 1 pipe of equivalent capacity (~780 mm dia)
05641> # HDPE smooth wall pipe Manning's n = 0.012
05642> 202:0079----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05643>     ROUTE PIPE          -> 02:Four2     19.77     .055 No_date   12:21   19.52  n/a
05644>       [RT= 1.00] SUM=   01:FourF     19.77     .055 No_date   12:22   19.52  n/a
05645>       [L/S/n=  55.2 .200/.012]
05646>       [Vmax=  .778:Dmax=  .758]
05647>       [Dia=  .780:Dmax=  .780]
05648> # Total flow at node 99 (shield MH along Sales Barn Rd)
05649> 202:0074----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05650>     ADD HYD                 02:NEA2     57.85    1.014 No_date   12:26   22.31  n/a
05651>                           + 03:FourF     19.77     .055 No_date   12:22   19.52  n/a
05652>                           + 04:SW1       .49     .014 No_date   12:03   20.73  n/a
05653>                           + 05:FR3L      .35     .007 No_date   12:16   15.18  n/a
05654>                           + 06:FR2L      .62     .017 No_date   12:19   14.06  n/a
05655>       [DT= 1.00]  SUM=    01:Out1     78.55    1.089 No_date   12:26   21.51  n/a
05656> # ROUTE N1 to N2
05657> # Typical Section based on Shield MH Vee Ditch sil banks
05658> # provided by Atrel
05659> # Manning's n is Channel not maintained, light brush on banks
05660> # Slope = 0.05% as per plan provided by Atrel.
05661> 202:0081----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05662>     ROUTE CHANNEL       -> 02:N1        78.55    1.089 No_date   12:26   21.51  n/a
05663>       [RT= 1.00] SUM=   01:NN1       78.55     .087 No_date   12:36   21.51  n/a
05664>       [L/S/n=  349./ .050/.035]
05665>       [Vmax=  .331:Dmax=  1.066]
05666> # VOLUME from residential area at E3 interim
05667> 202:0082----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05668>     ADD HYD                 02:FR3A      1.38     .031 No_date   12:19   15.18  n/a
05669>                           + 03:FR8       1.38     .028 No_date   12:26   14.05  n/a
05670>       [DT= 1.00]  SUM=    01:NN1       2.73     .058 No_date   12:26   14.61  n/a
05671> # Added VOLUME from external area contributing to N3
05672> 202:0083----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05673>     ADD HYD                 02:NE2      78.55    1.089 No_date   12:26   21.51  n/a
05674>                           + 03:EX1       7.09     .069 No_date   12:20   16.61  n/a
05675>                           + 04:EX5       .62      .023 No_date   12:07   20.38  n/a
05676>                           + 05:EX6       .51      .015 No_date   12:06   19.09  n/a
05677>                           + 06:EXC3      .22      .009 No_date   12:00   31.14  n/a
05678>       [DT= 1.00]  SUM=    01:N3        82.91    1.156 No_date   12:26   21.52  n/a
05679> # ROUTE N3 to bc128
05680> # Typical Section based on Shield MH Vee Ditch sil banks
05681> # provided by Atrel
05682> # Manning's n is Channel not maintained, light brush on banks
05683> # Slope   0.05% as per plan provided by Atrel.
05684> 202:0085----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05685>     ADD HYD                 02:NN3      82.91     .781 No_date   12:52   21.52  n/a
05686>                           + 03:EX3      21.20     .258 No_date   12:49   16.69  n/a
05687>       [LT= 1.00]  SUM=    01:N3R1/E   104.11    1.038 No_date   12:52   19.66  n/a
05688> # AREA CHECK
05689> #
05690> 202:0088----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05691>     ADD HYD                 02:EX1      20.07     .416 No_date   12:08   16.75  n/a
05692>                           + 03:EX2       9.69     .140 No_date   12:38   13.65  n/a
05693>                           + 04:EX3      21.20     .258 No_date   12:49   16.69  n/a
05694>                           - 05:EX4       .50      .013 No_date   12:07   17.00  n/a
05695>                           | 06:EX5       .52      .023 No_date   12:07   20.04  n/a
05696>                           - 07:EX6       .51      .015 No_date   12:06   19.09  n/a
05697>                           - 08:EX7       .38      .014 No_date   12:03   20.13  n/a
05698>                           + 09:FR1A      .24      .007 No_date   12:01   19.97  n/a
05699>                           + 10:FR1L      .22      .011 No_date   12:00   19.97  n/a
05700>       [DT= 1.00]  SUM=    01:Out1     58.52    1.195 No_date   12:05   15.27  n/a
05701> 202:0087----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05702>     ADD HYD                 02:Out1     58.52    1.195 No_date   12:05   15.27  n/a
05703>                           + 03:FR2A      1.51     .041 No_date   12:01   17.97  n/a
05704>                           + 04:FR1B      1.17     .031 No_date   12:01   17.97  n/a
05705>                           + 05:FR1B      .45      .013 No_date   12:02   17.97  n/a
05706>                           + 06:FR3B      .52      .015 No_date   12:02   17.97  n/a
05707>                           + 07:FR4A      .71      .019 No_date   12:02   17.97  n/a
05708>                           - 08:FR4B      .65      .016 No_date   12:02   17.97  n/a
05709>                           - 09:FR5A      .66      .018 No_date   12:02   17.97  n/a
05710>                           - 10:FR5B      .51      .014 No_date   12:02   17.97  n/a
05711>                           - 11:FR6       .46      .013 No_date   12:02   17.97  n/a
05712>       [DT= 1.00]  SUM=    01:Out1     64.71    1.341 No_date   12:05   15.52  n/a
05713> 202:0088----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05714>     ADD HYD                 01:Out2     64.71    1.341 No_date   12:05   15.52  n/a
05715>                           + 02:FR4A      1.43     .038 No_date   12:04   17.97  n/a
05716>                           + 03:FR5A      .92      .025 No_date   12:03   17.97  n/a
05717>                           + 04:FR5B      1.35     .031 No_date   12:18   15.18  n/a
05718>                           + 05:FR7E1     .36      .008 No_date   12:16   15.18  n/a
05719>                           + 06:FR7E2     .22      .005 No_date   12:15   15.18  n/a
05720>                           + 07:FR7C1     .39      .009 No_date   12:16   15.18  n/a
05721>                           + 08:FR7C2     .17      .004 No_date   12:16   15.18  n/a
05722>                           + 09:FR7D      .10      .001 No_date   12:16   15.18  n/a
05723>       [DT= 1.00]  SUM=    01:Out3     64.71    1.341 No_date   12:05   15.52  n/a
05724> 202:0089----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05725>     ADD HYD                 02:Out3     64.71    1.341 No_date   12:05   15.52  n/a
05726>                           + 03:FR8       1.38     .028 No_date   12:26   14.05  n/a
05727>                           - 04:FR9A      1.10     .023 No_date   12:26   14.05  n/a
05728>                           - 05:FR9B1     .35      .006 No_date   12:17   14.05  n/a
05729>                           - 06:FR9B2     1.00     .021 No_date   12:20   14.05  n/a
05730>                           | 07:FR10      1.57     .038 No_date   12:21   15.05  n/a
05731>                           | 08:FR11      .62      .013 No_date   12:19   14.05  n/a
05732>                           - 09:FR1       4.26     .119 No_date   12:05   15.69  n/a
05733>                           + 10:FR2       5.03     .297 No_date   12:04   38.26  n/a
05734>       [DT= 1.00]  SUM=    01:Out1     85.37    1.964 No_date   12:07   16.13  n/a
05735> 202:0090----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05736>     ADD HYD                 02:Out4     85.37    1.964 No_date   12:07   16.13  n/a
05737>                           + 03:C1        8.30     .406 No_date   12:00   35.44  n/a
05738>                           | 04:C2        6.34     .788 No_date   12:00   48.72  n/a
05739>                           | 05:C3        .24      .035 No_date   12:00   47.00  n/a
05740>                           | 06:EXC1      1.10     .058 No_date   12:00   27.55  n/a
05741>                           + 07:EXC2      1.07     .070 No_date   12:00   34.19  n/a
05742>                           + 08:EXC3      .22      .020 No_date   12:00   51.14  n/a
05743>                           + 09:PDC       2.57     .176 No_date   12:00   38.75  n/a
05744>       [DT= 1.00]  SUM=    01:Out1     104.71   3.680 No_date   12:01   19.76  n/a
05745> #*************************************************************************
05746> # Simulations with 4 hour Chicago from City of Ottawa
05747> # SCS 24 hours type 2, from City of Ottawa
05748> #  1:  NO. OF RUN : 204
05749> #
05750> #-------------------------------------------------------------------------
05751>
05752>
05753>
05754>
05755>
05756>
05757> RUN:COMMAND#
05758> 200:0001----------------------------------------------------------------------
05759>     START
05760>       TZERO =    .00 hrs on        0|
05761>       METOUT=    2    [1=Imperial, 2=metric output]
05762>       NSTORM=    1 ]
05763>       [NRUN  = 200 ]
05764> #*************************************************************************
05765> #  SWMM5 Ver:5.022/Jan 2021 <BETA> / INPUT DATA FILE
05766> #*************************************************************************
05767> #  Project Name:  [Greely Village Center]    Project Number: [647-07]
05768> #  Date        : 04-DE-2008
05769> #  Modeller    : [JDT]
05770> #  Company     : JFSA Inc.
05771> #  License #   : 3547402
05772> #*************************************************************************
05773> #
05774> # SWMM5/EPA model of the Greely Village Center - Residential Area - Phase 2
05775> # Proposed Ultimate conditions. OPTION B
05776> # Filename stands for: Greely, Commercial, Proposed
05777> #*************************************************************************
05778> 200:0007----------------------------------------------------------------------
05779>     READ STORM
05780>       Filename = Otta1.001
05781>       Comment  = 5 years SCS Type 2 Storm 24 hours step 10 min, City of Ottaw
05782>       [SDT 10.00:SFR=  54.00:PTOT=  64.11]
05783> #*************************************************************************
05784> # Existing flow - Mcevoy Branch of Shield Creek - Areas
05785> # Area c/a of proposed development (residential)
05786> # CN=70, slope = 0.8, Tp=0.76, XIMP=8, TIMP=15, Swm SC002 as per Stantec
05787> # Area partially adjusted based on Atrel drawings. Tp adjusted accordingly.
05788> #*************************************************************************
05789> # c/a or Tank Sizes per Atrel - With modified boundaries and Tp.
05790> 200:0008----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05791>     ENGLISH MANHYD      01:EX1       24.62    1.411 No_date   12:08   26.81  .410
05792>       [CN= 70.0: A= 3.00]
05793>       [Tp   .23 DT=  1.00]
05794> #*************************************************************************
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058:1> # Existing flow - External areas d/s of Bank St.
05812> # CN*=69, as per Stantec rpt SC001.
05813> # Area partially adjusted based on Atkel drawings.
05814> #*******************************************************************
05815> # Areas External to development
05816> 205:0004----------------TO:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
05817>      DESIGN STANDHYD     01:EX2          5.09     .230 No date   12:58   23.18 .316
05818>       [CN= 69.0: N= 3.00]
05819>       [Tp=  .6:TT= 1.00]
05820> 205:0005----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
05821>      DESIGN STANDHYD     01:EX3          21.80     .421 No date   12:00   77.76 .316
05822>       [CN= 69.0: N= 3.00]
05823>       [Tp=  .8:TT= 1.00]
05824> # Slope, Tlag, Area from Atkel Drawing
05825> # CN from Stantec (SC001)
05826> # Xlag  Tlag = 10\
05827> 205:0006----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
05828>      CALIB STANDHYD      01:EX4          .50     .024 No date   12:02   2.591 .420
05829>       [XIMP=.1:TIMP=.27]
05830>       [LOSS= 2 :CN= 69.0]
05831>       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
05832>       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  55.:MNI=.045:SCI=   .0]
05833> # Road and road side ditch along projected residential development Parkway Rd
05834> # Tlag  Xlag   0.21 ha /0.52 ha  0.20
05835> # CN* 69, as per Stantec see SC001
05836> # Slope is estimated at 1%
05837> # LG* based on centroid of area due to elongated shape = 580m/2 = 290
05838> 205:0007----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
05839>      CALIB STANDHYD      01:EX5          .02     .001 No date   12:05   .071 .561
05840>       [XIMP=.40:TIMP=.49]
05841>       [LOSS= 2 :CN= 69.0]
05842>       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
05843>       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI= 580.:MNI=.045:SCI=   .0]
05844> # Road and road side ditch along projected residential development SalesBarn Rd
05845> # Tlag = Xlag = 0.1 ha /0.5  ha = 0.20
05846> # CN*=69, as per Stantec see SC001.
05847> # Slope is estimated at 1%
05848> # LG* based on centroid of area due to elongated shape = 354m/2 = 177
05849> 205:0008----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
05850>      CALIB STANDHYD      01:EX6          .51     .025 No date   12:04   2.175 .465
05851>       [XIMP=.20:TIMP=.29]
05852>       [LOSS= 2 :CN= 69.0]
05853>       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
05854>       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI= 177.:MNI=.045:SCI=   .0]
05855> # Road and road side ditch along projected residential development SalesBarn Rd
05856> # Tlag  Xlag   0.08 ha /0.38 ha  0.23
05857> # CN* 69, as per Stantec see SC001
05858> # Slope is estimated at 1%
05859> # LG* based on centroid of area due to elongated shape = 272m/2 = 136.5
05860> 205:0009----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
05861>      CALIB STANDHYD      01:EX7          .29     .012 No date   12:03   .606 .469
05862>       [XIMP=.23:TIMP=.29]
05863>       [LOSS= 2 :CN= 69.0]
05864>       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
05865>       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI= 137.:MNI=.045:SCI=   .0]
05866> #*******************************************************************
05867> # PROPOSED COMMERCIAL DEVELOPMENT
05868> #*******************************************************************
05869> # CN - 79 as per fall grass cover with C soil type for top soil. CN*=71
05870> # XIMP - TIMP to be conservative
05871> #*******************************************************************
05872> 205:0010----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
05873>      DESIGN STANDHYD     01:C1           5.30    1.122 No date   12:00   4h:60 .958
05874>       [XIMP=.63:TIMP=.63]
05875>       [SLP=1.00:LT= 1.00]
05876>       [LOSS= 2 :CN= 71.0]
05877> 205:0011----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
05878>      DESIGN STANDHYD     01:C2           6.34    1.028 No date   12:03   24.96 .857
05879>       [XIMP=.79:TIMP=.79]
05880>       [SLP=1.00:LT= 1.00]
05881>       [LOSS= 2 :CN= 71.0]
05882> 205:0012----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
05883>      DESIGN STANDHYD     01:C3           .34     .051 No date   12:00   4h:45 .975
05884>       [XIMP=.98:TIMP=.98]
05885>       [SLP=1.00:LT= 1.00]
05886>       [LOSS= 2 :CN= 71.0]
05887> # Imp = Imp ha/total area = 0.30/1.10 ha = .27
05888> 205:0013----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
05889>      DESIGN STANDHYD     01:EX01         1.10     .048 No date   12:00   4.299 .535
05890>       [XIMP=.27:TIMP=.27]
05891>       [SLP=1.00:LT= 1.00]
05892>       [LOSS= 2 :CN= 71.0]
05893> # Imp  Imp ha/total area = 0.35/1.10 ha = .32

05894> 205:0014----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
05895>      DESIGN STANDHYD     01:EX02         1.07     .046 No date   12:00   4.147 .505
05896>       [XIMP=.35:TIMP=.35]
05897>       [SLP=1.00:LT= 1.00]
05898>       [LOSS= 2 :CN= 71.0]
05899> # Imp  Imp ha/total area = 0.11/0.22ha = .50
05900> 205:0015----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
05901>      DESIGN STANDHYD     01:EX03         .22     .008 No date   12:00   .843 .676
05902>       [XIMP=.50:TIMP=.50]
05903>       [SLP=1.00:LT= 1.00]
05904>       [LOSS= 2 :CN= 71.0]
05905> #*******************************************************************
05906> # Commercial pond (PDc)
05907> # ximpe estimated at 1% based on elevations around pond.
05908> # Timp and Ximp based on total pond area
05909> # Ximp = A pond/A tot (1.84/1.45)
05910> 205:0016----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
05911>      DESIGN STANDHYD     01:PDc          1.57     .243 No date   12:00   5.019 .787
05912>       [XIMP=.67:TIMP=.67]
05913>       [SLP=1.00:LT= 1.00]
05914>       [LOSS= 2 :CN= 71.0]
05915> ********************************************************************
05916> #*******************************************************************
05917> # PROPOSED RESIDENTIAL SUBMATKRSUTSS - Residential Area Phase 1 and 2
05918> #*******************************************************************
05919> # CN* 69, as per Stantec see SC001.
05920> # Tp estimated with Uplans method.
05921> 205:0017----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
05922>      DESIGN STANDHYD     01:RR1          6.26     .245 No date   12:01   22.18 .546
05923>       [CN= 69.0: N= 3.00]
05924>       [Tp=  .1:LG= 1.00]
05925> #*******************************************************************
05926> # AREAS COMBG TO RESIDENTIAL POND (PDc)
05927> #*******************************************************************
05928> #
05929> 205:0018----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
05930>      CALIB STANDHYD      01:RR1A         .24     .012 No date   12:00   .976 .436
05931>       [XIMP=.11:TIMP=.27]
05932>       [LOSS= 2 :CN= 71.0]
05933>       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
05934>       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  55.:MNI=.045:SCI=   .0]
05935> 205:0019----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
05936>      CALIB STANDHYD      01:rr1b         .55     .026 No date   12:00   2.192 .436
05937>       [XIMP=.11:TIMP=.21]
05938>       [LOSS= 2 :CN= 71.0]
05939>       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
05940>       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  55.:MNI=.045:SCI=   .0]
05941> 205:0020----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
05942>      CALIB STANDHYD      01:RR2A         1.57     .074 No date   12:04   6.592 .436
05943>       [XIMP=.11:TIMP=.21]
05944>       [LOSS= 2 :CN= 71.0]
05945>       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
05946>       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  55.:MNI=.045:SCI=   .0]
05947> 205:0021----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
05948>      CALIB STANDHYD      01:RR2b         1.17     .056 No date   12:04   4.992 .436
05949>       [XIMP=.11:TIMP=.21]
05950>       [LOSS= 2 :CN= 71.0]
05951>       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
05952>       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  55.:MNI=.045:SCI=   .0]
05953> 205:0022----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
05954>      CALIB STANDHYD      01:RR3A         .40     .023 No date   12:07   1.992 .436
05955>       [XIMP=.11:TIMP=.21]
05956>       [LOSS= 2 :CN= 71.0]
05957>       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
05958>       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  55.:MNI=.045:SCI=   .0]
05959> 205:0023----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
05960>      CALIB STANDHYD      01:RR4          .57     .026 No date   12:02   2.782 .436
05961>       [XIMP=.11:TIMP=.21]
05962>       [LOSS= 2 :CN= 71.0]
05963>       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
05964>       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  55.:MNI=.045:SCI=   .0]
05965> 205:0024----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
05966>      CALIB STANDHYD      01:RR4A         .71     .035 No date   12:03   3.782 .436
05967>       [XIMP=.11:TIMP=.21]
05968>       [LOSS= 2 :CN= 71.0]
05969>       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
05970>       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  55.:MNI=.045:SCI=   .0]
05971> 205:0025----------------ID:NHYD-------AREA----QPEAS-TpeakDate hh:mm----R.V.-R.C.-
05972>      CALIB STANDHYD      01:RR1B         .65     .032 No date   12:03   3.582 .436
05973>       [XIMP=.11:TIMP=.21]
05974>       [LOSS= 2 :CN= 71.0]
05975>       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
05976>       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  55.:MNI=.045:SCI=   .0]
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05977> 205:0025----------ID:NHSI-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
05978>     CALIB STANDHYD     01:FRSA        .66      .072 No date   12:03   27.92 .436
05979>       [XIMP=.11:TIMP=.21]
05980>       [LOSS= 2 :CN= 71.0]
05981>       [Pervious     area: [Apr= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
05982>       [Impervious   area: [Aimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
05983> 205:0027----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
05984>     CALIB STANDHYD     01:FRAB        .46      .023 No date   12:02   27.92 .436
05985>       [XIMP=.12:TIMP=.21]
05986>       [LOSS= 2 :CN= 71.0]
05987>       [Pervious     area: [Apr= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
05988>       [Impervious   area: [Aimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
05989> 205:0028----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
05990>     CALIB STANDHYD     01:FRBA        .41      .048 No date   12:04   27.92 .436
05991>       [XIMP=.11:TIMP=.21]
05992>       [LOSS= 2 :CN= 71.0]
05993>       [Pervious     area: [Apr= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
05994>       [Impervious   area: [Aimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
05995> 205:0029----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
05996>     CALIB STANDHYD     01:FRBB        .83      .095 No date   12:03   27.92 .436
05997>       [XIMP=.11:TIMP=.21]
05998>       [LOSS= 2 :CN= 71.0]
05999>       [Pervious     area: [Apr= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
06000>       [Impervious   area: [Aimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
06001> # slope estimated at 2% based on backyard swale.
06002> # Tlag and Xlag based on total pond area
06003> # xlag - a ponder tor
06004> # Tlag - weighted average of pond and backyards
06005> 205:0030----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
06006>     CALIB STANDHYD     01:POA         5.07     .479 No date   12:04   40.18 .828
06007>       [XIMP=.44:TIMP=.47]
06008>       [LOSS= 2 :CN= 71.0]
06009>       [Pervious     area: [Apr= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
06010>       [Impervious   area: [Aimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
06011> *****************************************************************************
06012> * UNCONTROLLED AREAS
06013> *****************************************************************************
06014> *
06015> 205:0031----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
06016>   * CALIB STANDHYD     01:FRUA        1.35      .058 No date   12:11   24.61 .384
06017>       [XIMP=.02:TIMP=.10]
06018>       [LOSS= 2 :CN= 71.0]
06019>       [Pervious     area: [Apr= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
06020>       [Impervious   area: [Aimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
06021> 205:0032----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
06022>   * CALIB STANDHYD     01:FRTB1       .76      .033 No date   12:12   24.61 .384
06023>       [XIMP=.02:TIMP=.14]
06024>       [LOSS= 2 :CN= 71.0]
06025>       [Pervious     area: [Apr= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
06026>       [Impervious   area: [Aimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
06027> 205:0033----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
06028>   * CALIB STANDHYD     01:FRTB2       .22      .010 No date   12:11   24.61 .384
06029>       [XIMP=.02:TIMP=.14]
06030>       [LOSS= 2 :CN= 71.0]
06031>       [Pervious     area: [Apr= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
06032>       [Impervious   area: [Aimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
06033> 205:0034----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
06034>   * CALIB STANDHYD     01:FRUC1       .39      .018 No date   12:11   24.61 .384
06035>       [XIMP=.02:TIMP=.14]
06036>       [LOSS= 2 :CN= 71.0]
06037>       [Pervious     area: [Apr= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
06038>       [Impervious   area: [Aimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
06039> 205:0035----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
06040>   * CALIB STANDHYD     01:FRUC2       .17      .008 No date   12:11   24.61 .384
06041>       [XIMP=.02:TIMP=.14]
06042>       [LOSS= 2 :CN= 71.0]
06043>       [Pervious     area: [Apr= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
06044>       [Impervious   area: [Aimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
06045> 205:0036----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
06046>   * CALIB STANDHYD     01:FRUD        .58      .024 No date   12:11   24.61 .384
06047>       [XIMP=.02:TIMP=.14]
06048>       [LOSS= 2 :CN= 71.0]
06049>       [Pervious     area: [Apr= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
06050>       [Impervious   area: [Aimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
06051> 205:0037----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
06052>   * CALIB STANDHYD     01:FPB         1.50      .065 No date   12:15   23.09 .360
06053>       [XIMP=.01:TIMP=.07]
06054>       [LOSS= 2 :CN= 71.0]
06055>       [Pervious     area: [Apr= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
06056>       [Impervious   area: [Aimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
06057> 205:0038----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
06058>   * CALIB STANDHYD     01:FPBA        1.10      .045 No date   12:14   23.09 .360
06059>       [XIMP=.01:TIMP=.07]
06060>       [LOSS= 2 :CN= 71.0]
06061>       [Pervious     area: [Apr= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
06062>       [Impervious   area: [Aimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
06063> 205:0039----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
06064>   * CALIB STANDHYD     01:FRBB1       .28      .011 No date   12:12   23.09 .360
06065>       [XIMP=.01:TIMP=.07]
06066>       [LOSS= 2 :CN= 71.0]
06067>       [Pervious     area: [Apr= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
06068>       [Impervious   area: [Aimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
06069> 205:0040----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
06070>   * CALIB STANDHYD     01:FRBC        .83      .041 No date   12:14   23.09 .360
06071>       [XIMP=.01:TIMP=.07]
06072>       [LOSS= 2 :CN= 71.0]
06073>       [Pervious     area: [Apr= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
06074>       [Impervious   area: [Aimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
06075> 205:0041----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
06076>   * CALIB STANDHYD     01:FRBD        1.47      .063 No date   12:13   23.09 .360
06077>       [XIMP=.01:TIMP=.07]
06078>       [LOSS= 2 :CN= 71.0]
06079>       [Pervious     area: [Apr= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
06080>       [Impervious   area: [Aimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
06081> 205:0042----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
06082>   * CALIB STANDHYD     01:FRTB        .62      .026 No date   12:13   23.09 .360
06083>       [XIMP=.01:TIMP=.07]
06084>       [LOSS= 2 :CN= 71.0]
06085>       [Pervious     area: [Apr= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
06086>       [Impervious   area: [Aimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
06087> ******************************************************************************
06088> * EXISTING flow - Upstream of Proposed Development
06089> ******************************************************************************
06090> * Total flow at node N-EX1
06091> 205:0043----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
06092>     ADD HYD            02:EX1       24.62    1.471 No date   12:00   26.47  n/a
06093>                      + 03:EXC1       .10      .082 No date   12:00   34.20  n/a
06094>                      + 04:EXC2       .01      .182 No date   12:00   37.47  n/a
06095>       [PT= 1.00]  SUM= 01:NEX1     28.79    1.565 No date   12:07   27.36  n/a
06096> * Typical Section based on proposed channel provided by AEL
06097> * 4:1 bank slopes, Long Slope = 0.85%, Manning's n is 0.07
06098> * Route Node N-EX1 to d/s node N0
06099> 205:0044----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
06100>     ROUTE CHANNEL   -> 02:NEX1     28.79    1.565 No date   12:07   27.36  n/a
06101>       [PT= 1.00] cms= 01:RNEX1     28.79    1.567 No date   12:11   27.38  n/a
06102>       [L/S/D=  322./ .85%/.030]
06103>       [Vtrav= 1.28 hr:max= .444]
06104> ******************************************************************************
06105> * TOTAL INFLOW TO COMMERCIAL POND #2E
06106> ******************************************************************************
06107> 205:0045----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
06108>     ADD HYD            02:EX4        .50      .029 No date   12:07   26.91  n/a
06109>                      + 03:C1        8.70    1.790 No date   12:10   48.66  n/a
06110>                      + 04:C2        3.44    1.068 No date   12:10   34.96  n/a
06111>                      + 05:PDC       1.67     .240 No date   12:30   50.15  n/a
06112>       [PT= 1.00]  SUM= 01:PDCin     16.71    3.441 No date   12:00   50.51  n/a
06113> 205:0046----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
06114>     ROUTE RESERVOIR -> 02:PDCin     16.71    3.441 No date   12:00   50.51  n/a
06115>       [AR= 1.00] outs= 01:PDCout    16.71     .644 No date   12:30   50.51  n/a
06116>            overflow <- 03:Ovf       .00      .000 No date    0:00    .00  n/a
06117>       [MxStorage=.0954E+00, TotVolVol=.0809E+00, N-Ovf=    0, TotOutOvf=     0.hrs]
06118> * Total flow at outlet of commercial pond
06119> 205:0047----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
06120>     ADD HYD            02:PDCout    16.71     .644 No date   12:30   50.51  n/a
06121>                      - 03:EX8A      1.10     .045 No date   12:14   23.09  n/a
06122>       [VI= 1.00]  SUM= 01:SPDC      17.81     .689 No date   12:15   48.82  n/a
06123> * Route pond outflow at pipe d/s of node N0
06124> * Typical Section based on proposed channel provided by AEL
06125> * 4:1 bank slopes, Long Slope = 0.25%, Manning's n is 0.07
06126> 205:0048----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
06127>     ROUTE CHANNEL   -> 02:SPDC     17.81     .689 No date   12:15   48.82  n/a
06128>       [RVC= 1.00] outs= 01:RPDC     17.80     .687 No date   12:35   48.82  n/a
06129>       [L/S/D=  760./ .25%/.070]
06130>       [Vtrav=  .59 hr:max=  .34]
06131> * Total channel flow at pipe d/s of node N0
06132> 205:0049----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
06133>     ADD HYD            02:RPDC      17.80     .687 No date   12:35   48.82  n/a
06134>                      + 03:FRPBI       .25      .017 No date   12:10   23.09  n/a
06135>                      + 04:FRPBT       .00      .041 No date   12:14   23.09  n/a
06136>       [VI= 1.00]  SUM= 01:sN0       18.06     .693 No date   12:32   47.13  n/a
06137> * ------------
06138> * Total flow at node N0
06139> * (Note that EX2 will be about dividing to proposed channel)
06140> 205:0050----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
06141>     ADD HYD            02:sN0       18.06     .693 No date   12:32   47.13  n/a
06142>                      - 03:RNEX1     28.79    1.567 No date   12:11   27.38  n/a
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                    +  34:EX2        9.59     .238 No date   12:18   22.15  n/a
                    +  05:C3         .94     .061 No date   12:10   22.61  n/a
      [Q= 1.00]  SUM=  01:E3        55.98    2.081 No date   12:18   22.33  n/a
# Typical section based on proposed channel provided by AEL
# 4:1 bank slopes, Long Slope = 0.40%, Manning's n is 0.02
$ Route SW draining at NB to n/a node B EX2
 205:0051---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ROUTE CHANNEL    -> 02:NB         55.98    2.081 No date   12:17   33.73  n/a
        ROT= 1.00] out<- 01:NB         55.98    1.986 No date   12:17   33.73  n/a
          [S/S/n=  .324/ .400/.030]
          [Vmax= 1.630:Dmax=  .597]
# Total flow at node B-EX2
 205:0052---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ADD HYD          02:NB         55.98    1.986 No date   12:17   33.33  n/a
                     + 03:FR1B        1.87     .074 No date   12:15   23.09  n/a
      [T= 1.00]  SUM=  01:NBX2       57.85    2.059 No date   12:17   33.00  n/a
# Route Node B-EX2 to Node N1
# Typical Section based on Shields MD Vee Ditch 3:1 banks
# provided by Atzel
# Manning's n is Channel not maintained, light brush on banks
# slope = 0.05% as per plan provided by Atzel.
 205:0053---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ROUTE CHANNEL    -> 02:NBX2       57.85    2.059 No date   12:17   33.00  n/a
    + [RT= 1.00] out<- 01:NBEX2       57.85    1.727 No date   12:22   33.00  n/a
        [S/S/n=  .05%/ .050/.035]
        [Vmax= .519:Dmax= 1.356]
*-------------------------------------------------------------------------
* Residential Development - Phase 1 and 2
*-------------------------------------------------------------------------
# Total flow at node B-PR1
 205:0054---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ADD HYD          02:PR1         4.06     .144 No date   12:05   22.18  n/a
                     + 01:FR1A        .24      .012 No date   12:01   27.92  n/a
      [T= 1.00]  SUM=  01:PR1        4.30     .154 No date   12:05   22.48  n/a
# Volume to ponding area in PR1
# Qw=.566 m3/s (wetlnd as per SCS 100yr Existing conditions
# Culvert from Inlet 1
# Assuming outlet culvert is 600 mm, slope = 1.2%, HDPE smooth walls
# Manning's n = 0.012, in at control nomograph
# Hydraulic head = 0.9m, Qw=.616
 205:0055---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      CUMULATIVE DURATHYD    01:NPX1        1.53     .251 No date   17:05   79.48  n/a
        Major System /  02:NPXIM1         .03     .000 No date   0:00     .00  n/a
        Minor System \  03:NPXIMn        4.50     .254 No date   12:05   22.48  n/a
      (M)System:0.000E+00, TotCurVol=.000E+00,  0, TotDurHr=     0.119)
# Input to inlet 1 pipe
 205:0056---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ADD HYD          02:FR1B          .25      .025 No date   12:00   27.92  n/a
                     + 03:NPXIMn       4.50     .254 No date   12:05   22.48  n/a
      [DC= 1.00]  SUM=  01:In1         4.75     .260 No date   12:05   23.08  n/a
# Pipe from Inlet 1 - Route to pond
# HDPE smooth wall pipe Manning's n = 0.012
 205:0057---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ROUTE PIPE       -> 02:In1        4.75     .260 No date   12:05   23.08  n/a
        [RT= 1.00] out<- 01:Pin1        4.75     .260 No date   12:05   23.08  n/a
        [L/S/n=  65./1.900/.012]
        [Vmax= 2.670:Tmax=  .398]
        [Di= .600:Dused=  .600]
# Culvert from Inlet 2
# HDPE smooth wall pipe Manning's n = 0.012
 205:0058---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ROUTE PIPE       -> 02:FR2A        1.51     .074 No date   12:04   27.92  n/a
        [RT= 1.00] out<- 01:CT2         1.51     .074 No date   12:04   27.92  n/a
        [L/S/n=  13./ .400/.012]
        [Vmax= 1.738:Tmax=  .183]
         Di= .300:Dused=  .300]
# Input to Inlet 2 pipe
 205:0059---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ADD HYD          02:FR2B          .17      .006 No date   12:04   27.92  n/a
                     + 03:CT2         1.51     .074 No date   12:04   27.92  n/a
      [DC= 1.00]  SUM=  01:In2         1.68     .080 No date   12:04   27.92  n/a
# Pipe from Inlet 2 - Route to pond
# HDPE smooth wall pipe Manning's n = 0.012
 205:0060---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ROUTE PIPE       -> 02:In2        1.68     .080 No date   12:04   27.92  n/a
        [RT= 1.00] out<- 01:Pin2        1.68     .080 No date   12:05   27.92  n/a
        [L/S/n=  75./ .200/.012]
        [Vmax= 1.012:Tmax=  .431]
        [Di= .300:Dused=  .300]
# Culvert from Inlet 3
# HDPE smooth wall pipe Manning's n = 0.012
 205:0061---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ROUTE PIPE       -> 02:FR3A        .48      .023 No date   12:02   27.92  n/a
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        [RT= 1.00] out<- 01:CT3         .48      .023 No date   12:02   27.92  n/a
        [L/S/n=  11./ .400/.013]
        [Vmax= .681:Tmax=  .269]
        [Di= .300:Dused=  .300]
# Input to Inlet 3 pipe
 205:0062---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ADD HYD          02:FR3B          .02      .008 No date   12:02   27.92  n/a
                     + 03:In3          .45      .023 No date   12:02   27.92  n/a
      [DT= 1.00]  SUM=  01:In3         .47      .049 No date   12:02   27.92  n/a
# Pipe from Inlet 3 - Route to pond
# HDPE smooth wall pipe Manning's n = 0.012
 205:0063---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ROUTE PIPE       -> 02:In3        .97      .049 No date   12:02   27.92  n/a
        [RT= 1.00] out<- 01:Pin3        .97      .048 No date   12:03   27.92  n/a
        [L/S/n=  75./ .200/.012]
        [Vmax= .756:Tmax=  .176]
        [Di= .450:Dused=  .450]
# Culvert from Inlet 4
# HDPE smooth wall pipe Manning's n = 0.012
 205:0064---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ROUTE PIPE       -> 02:FR4B        .27      .035 No date   12:03   27.92  n/a
        [RT= 1.00] out<- 01:CT4         .27      .035 No date   12:03   27.92  n/a
        [L/S/n=  13./ .400/.013]
        [Vmax= .612:Tmax=  .123]
        [Di= .300:Dused=  .300]
# Input to Inlet 4 pipe
 205:0065---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ADD HYD          02:FR4B          .65      .032 No date   12:03   27.92  n/a
                     + 03:In4          .71      .035 No date   12:03   27.92  n/a
      [DC= 1.00]  SUM=  01:In4         1.36     .067 No date   12:03   27.92  n/a
# Pipe from Inlet 4 (ULTIMATE CONDITIONS) - Route to pond
# HDPE smooth wall pipe Manning's n = 0.012
 205:0066---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ROUTE PIPE       -> 02:In4        1.36     .067 No date   12:03   27.92  n/a
        [RT= 1.00] out<- 01:Pin4        1.36     .067 No date   12:03   27.92  n/a
        [L/S/n=  65./1.900/.012]
        [Vmax= 1.812:Tmax=  .116]
        [Di= .300:Dused=  .300]
# Culvert from Inlet 5
# HDPE smooth wall pipe Manning's n = 0.012
 205:0067---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ROUTE PIPE       -> 02:FR5A        .66      .032 No date   12:01   27.92  n/a
        [RT= 1.00] out<- 01:CT5         .66      .032 No date   12:01   27.92  n/a
        [L/S/n=  13./ .400/.013]
        [Vmax= .809:Tmax=  .119]
        [Di= .300:Dused=  .300]
# Input to Inlet 5 pipe
 205:0068---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ADD HYD          02:FR5B          .06      .003 No date   12:00   27.92  n/a
                     + 03:CT5         .64      .032 No date   12:03   27.92  n/a
      [DT= 1.00]  SUM=  01:In5         1.12     .035 No date   12:02   27.92  n/a
# Pipe from Inlet 5 - Route to pond
# HDPE smooth wall pipe Manning's n = 0.012
 205:0069---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ROUTE PIPE       -> 02:In5        1.12     .050 No date   12:02   27.92  n/a
        [RT= 1.00] out<- 01:Pin5        1.12     .050 No date   12:03   27.92  n/a
        [L/S/n=  75./1.890/.012]
        [Vmax= 1.709:Tmax=  .113]
        [Di= .300:Dused=  .300]
# Culvert from Inlet 6
# HDPE smooth wall pipe Manning's n = 0.012
 205:0070---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ROUTE PIPE       -> 02:FR6A        1.43     .068 No date   12:04   27.92  n/a
        [RT= 1.00] out<- 01:CT6         1.43     .068 No date   12:04   27.92  n/a
        [L/S/n=  13./ .400/.012]
        [Vmax= 1.106:Tmax=  .179]
        [Di= .300:Dused=  .300]
# Input to Inlet 6 pipe
 205:0071---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ADD HYD          02:FR6B          .93      .045 No date   12:03   27.92  n/a
                     + 03:In6          1.43     .068 No date   12:06   27.92  n/a
      [DT= 1.00]  SUM=  01:In6         2.36     .113 No date   12:06   27.92  n/a
# Pipe from Inlet 6 - Route to pond
# HDPE smooth wall pipe Manning's n = 0.012
 205:0072---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ROUTE PIPE       -> 02:In6        2.36     .113 No date   12:06   27.92  n/a
        [RT= 1.00] out<- 01:Pin6        2.36     .112 No date   12:06   27.92  n/a
        [L/S/n=  70./ .100/.013]
        [Vmax= 1.162:Tmax=  .251]
        [Di= .450:Dused=  .450]
# VOLUME TO POND ULTIMATE RESIDENTIAL
 205:0073---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ADD HYD          02:Pin1          5.05     .180 No date   12:05   23.11  n/a
```

```
                    -  04:Pin2        2.74     .129 No date   12:05   28.81  n/a
                    -  04:Pin3         .97     .048 No_date   12:03   27.92  n/a
                    -  05:Pin4        1.36     .067 No_date   12:03   27.92  n/a
                    -  06:Pin5        1.12     .055 No_date   12:03   27.92  n/a
                    -  07:Pin6        2.36     .112 No_date   12:04   27.92  n/a
                    -  08:POu         5.93     .428 No_date   12:04   60.15  n/a
      [PT= 1.00]  SUM=  01:POUTin    16.63    1.116 No_date   12:04   29.94  n/a
# Pond outflow for ultimate conditions using weir  6;  6; 3.0
 205:0070----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ROUTE RESERVOIR  -> 09:POUTin     6.63    1.116 No_date   12:04   29.94  n/a
      [RET= 1.00] out<-  01:POout      6.63     .073 No_date   12:29   29.93  n/a
          overflow <- 08:ovrQ          .00     .000 No_date   00:00    .00  n/a
      (VaSloLoad=.sSoutlo, ToLoVlv =.HOUrSlo, R-Cv=    0, TotDurOvf=     0.hrs)
# Simulating SCS 100 yr conditions with subsequence of outflow weir
# updated for weir .6; .6; 3.0
*ROUTE RESERVOIR     SHYDout-["POout"] ,SHYDin-["POUTin"] ,
                     RET-[1](min),
                                TABLE of ( OUTFLOW-STORAGE ) values
                                          (cms) - (ha-m)
                                        [   0.0 ,  0.0 ]
                                         0.08201 , 1.1200
                                         0.20  , 1.8110
                                         0.33  , 2.0150
                                        [   -1  ,  -1  ]  (max twenty pts)
                              RESVault= "ovrQ" ,
# Route pond output through first set of pipes
# 2 x 600 pipes simulated with 1 pipe of equivalent capacity (=80 mm dia)
# HDPE smooth wall pipe Manning's n   0.012
 205:0075----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ROUTE PIPE       -> 07:POout      0.63     .073 No_date   12:29   29.93  n/a
      [RET= 1.00] out<-  01:POout1     0.63     .073 No_date   12:30   29.93  n/a
      [L/S/n=   75./ .2000/.012]
      [Vmax=  .840:DmAx=  .151]
      [Dia=  .780:DmeA=  .780]
# Flow c/s of outlet culverts
 205:0076----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ADD HYD          02:Ex7b1       .26     .017 No_date   12:12   34.6   n/a
                   -  03:FR7B2       .22     .010 No_date   12:11   34.6   n/a
                   -  04:Pout1     18.83     .073 No_date   14:38   29.93  n/a
      [DT= 1.00]  SUM=  01:Pout     19.21     .075 No_date   14:12   29.77  n/a
# Route outflow through set of Culverts
# 2 x 600 cm verts simulated with 1 culvert of equivalent capacity (=780 mm dia
# HDPE smooth wall pipe Manning's n = 0.012
 205:0077----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ROUTE PIPE       -> 02:Pout       19.21     .075 No_date   14:12   29.77  n/a
      [RET= 1.00] out<-  01:Cout       19.21     .075 No_date   14:12   29.77  n/a
      [L/S/n=   15./ .600/.012]
      [Vmax= 1.08:Vmax=  .156]
      [Dia=  .156:DmeA=  .780]
# Flow c/s of second set of outflow pipes
 205:0078----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ADD HYD          02:FR7C1       .39     .018 No_date   12:12   34.6   n/a
                   -  03:FR7C2       .17     .008 No_date   12:11   34.6   n/a
                      04:Cout      19.21     .075 No_date   14:12   29.77  n/a
      [DT= 1.00]  SUM=  01:Pout2    19.77     .091 No_date   12:10   29.63  n/a
# Route outflow through second set of pipes
# 2 x 600 pipes simulated with 1 pipe of equivalent capacity (=80 mm dia)
# HDPE smooth wall pipe Manning's n   0.012
 205:0079----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ROUTE PIPE       -> 02:Pout2    19.77     .091 No_date   12:14   29.63  n/a
      [RET= 1.00] out<-  01:PoutF    19.77     .090 No_date   12:14   29.63  n/a
      [L/S/n=   65./ .2000/.012]
      [Vmax=  .908:TmaX=  .1265]
      [Dia=  .780:DmeA=  .780]
# Total flow at node N1 (Shields MS along Sales Barn Rd)
 205:0080----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ADD HYD          02:ROMEA2     37.80    1.727 No_date   12:02   33.40  n/a
                   -  03:PoutF     19.77     .090 No_date   12:14   29.63  n/a
                   -  04:EX7         .35     .022 No_date   12:09   30.05  n/a
                   -  05:FR7D        .58     .014 No_date   12:11   24.61  n/a
                   -  06:FR11        .62     .026 No_date   12:19   27.05  n/a
      [DT= 1.00]  SUM=  01:N1       18.93     .856 No_date   12:12   32.83  n/a
# ROUTE N1 to N2
# Typical Section based on Shields MS Yew Ditch fri banks
# provided by Atrel
# Manning's n is Channel not maintained, light brush on banks
# Slope   0.05% as per plan provided by Atrel.
 205:0081----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ROUTE CHANNEL    -> 02:N1        18.93     .856 No_date   12:32   32.83  n/a
      [RET= 1.00] out<-  01:N2I       18.93    1.498 No_date   12:30   32.83  n/a
      [L/S/n=  349./ .0300/.025]
      [Vmax=  .577:TmaX=  1.310]
# WATER from residential area at N1 intensity
```

```
 205:0082----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ADD HYD          02:FR7A       1.35     .059 No_date   12:14   34.41  n/a
                   +  03:FR8        1.35     .055 No_date   12:15   23.05  n/a
      [DT= 1.00]  SUM=  01:N21      2.73     .114 No_date   12:14   28.83  n/a
# Added VOLUME from external area contributing to N3
 205:0083----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ADD HYD          02:RN1       78.93    1.498 No_date   12:30   32.83  n/a
                   +  03:RN2        2.73     .114 No_date   12:14   28.84  n/a
                   +  04:EX5         .52     .032 No_date   12:06   37.21  n/a
                   +  05:EX6         .51     .020 No_date   12:04   28.75  n/a
                   +  06:EX7A        .22     .028 No_date   12:00   43.43  n/a
      [DT= 1.00]  SUM=  01:N3       82.91    1.617 No_date   12:27   31.80  n/a
# ROUTE N3 to NCIRB
# Typical Section based on Shields MS Yew Ditch fri banks
# provided by Atrel
# Manning's n is Channel not maintained, light brush on banks
# Slope   0.05% as per plan provided by Atrel.
 205:0084----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ROUTE CHANNEL    -> 02:N3        82.91    1.617 No_date   12:27   31.80  n/a
      [RET= 1.00] out<-  01:N3I       82.91    1.729 No_date   12:56   31.80  n/a
      [L/S/n=  415./ .050/.035]
      [Vmax=  .360:TmaX= 1.242]
# Flow at Student Node NCR128 for Comparison
# Routes N1 plus EX1
 205:0085----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ADD HYD          02:RN3       82.91    1.728 No_date   12:56   31.80  n/a
                   +  03:EX3       21.40     .123 No_date   12:48   22.18  n/a
      [DT= 1.00]  SUM=  01:NCR128  104.31    1.85  No_date   12:47   29.83  n/a
# AREA CHECK
#
 205:0086----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ADD HYD          02:EX1       24.62    1.471 No_date   12:38   26.61  n/a
                   +  03:EX2       21.09     .130 No_date   12:38   22.18  n/a
                   +  04:EX3       21.40     .123 No_date   12:48   22.18  n/a
                   +  05:EX4         .50     .024 No_date   12:32   26.99  n/a
                   +  06:EX5         .52     .032 No_date   12:06   37.23  n/a
                   +  07:EX6         .51     .025 No_date   12:04   28.75  n/a
                   +  08:EX7         .49     .027 No_date   12:03   30.05  n/a
                   +  09:FR1A        .24     .013 No_date   12:01   27.92  n/a
                   +  10:FR1B        .55     .028 No_date   12:02   27.92  n/a
      [DT= 1.00]  SUM=  01:Cat1     58.52    1.988 No_date   12:09   24.41  n/a
 205:0087----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ADD HYD          02:Cat1      58.52    1.988 No_date   12:09   24.41  n/a
                   +  03:FR2A        1.57     .074 No_date   12:04   27.92  n/a
                   +  04:FR2B        1.19     .056 No_date   12:04   27.92  n/a
                   +  05:FR3A         .85     .023 No_date   12:02   27.92  n/a
                   +  06:FR3B         .50     .026 No_date   12:02   27.92  n/a
                   +  07:FR4A         .71     .035 No_date   12:03   27.92  n/a
                   +  08:FR4B         .62     .032 No_date   12:04   27.92  n/a
                   +  09:FR5A         .66     .032 No_date   12:04   27.92  n/a
                   +  10:FR5B         .46     .023 No_date   12:02   27.92  n/a
      [DT= 1.00]  SUM=  01:Cat2     64.71    2.215 No_date   12:09   24.74  n/a
 205:0088----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ADD HYD          02:Cat2      64.71    2.219 No_date   12:09   24.74  n/a
                   +  03:FR6A        1.47     .068 No_date   12:04   27.92  n/a
                   +  04:FR6B         .93     .045 No_date   12:03   27.92  n/a
                   +  05:FR7A        1.35     .059 No_date   12:16   24.61  n/a
                   +  06:FR7B1        .36     .017 No_date   12:12   24.61  n/a
                   +  07:FR7B2        .22     .010 No_date   12:11   24.61  n/a
                   +  08:FR7C1        .39     .018 No_date   12:12   24.61  n/a
                   +  09:FR7C2        .17     .008 No_date   12:11   24.61  n/a
                   +  10:FR7D         .30     .014 No_date   12:11   24.61  n/a
      [DT= 1.00]  SUM=  01:Cat3     69.86    2.408 No_date   12:09   24.84  n/a
 205:0089----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ADD HYD          02:Cat3      69.86    2.409 No_date   12:09   24.84  n/a
                   +  03:FR8        1.35     .055 No_date   12:15   23.05  n/a
                   +  04:FR9A       1.10     .042 No_date   12:10   24.05  n/a
                   +  05:FR9B1       .25     .011 No_date   12:12   23.05  n/a
                   +  06:FR9B2      1.00     .041 No_date   12:14   23.05  n/a
                   +  07:FR10       1.00     .074 No_date   12:15   23.05  n/a
                   +  08:FR11        .62     .026 No_date   12:19   23.05  n/a
                   +  09:PK1        4.26     .743 No_date   12:35   22.18  n/a
                   +  10:PKa        6.03     .470 No_date   12:00   50.15  n/a
      [DT= 1.00]  SUM=  01:Cat4     85.37    3.283 No_date   12:07   25.40  n/a
 205:0090----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ADD HYD          02:Cat4      85.37    3.283 No_date   12:07   25.40  n/a
                   +  03:C1         8.36    1.126 No_date   12:30   48.60  n/a
                   +  04:C2         6.44    1.058 No_date   12:30   54.96  n/a
                   +  05:C3          .24     .057 No_date   12:30   62.51  n/a
                   +  06:EXC1       1.16     .082 No_date   12:30   54.95  n/a
                   +  07:EXC2       1.07     .102 No_date   12:30   57.47  n/a
                   +  08:EXC3        .22     .028 No_date   12:30   63.42  n/a
                   +  09:PKc        1.53     .240 No_date   12:00   50.15  n/a
```

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                [Ia= 1.00]  sUM=  01:Tot3      104.21     5.175 Ho_date   12:00    29.61  n/a
*****************************************************************************
* Simulations with 4 hour Chicago from City of Ottawa
* SCS 24 hours type 2, from City of Ottawa
  ** END OF RUN : 209
*****************************************************************************
*
*
*
*
*
*
 RUN COMMAND*
 210:0001-------------------------------------------------------------------
      START
       [TZERO =     .00 hrs on        0]
       [METOUT=    2     (1-Imperial, 2-metric output)]
       [NSTORM=    1 ]
       [NRUN    210 ]
*****************************************************************************
*  SWMHYMO Ver 5.02/Jan 2001 <RETAD / INPUT DATA FILE
*****************************************************************************
*  Project Name: [Greely Village Center]     Project Number: [647-07]
*  Date        : 04-09-2008
*  Made by     : [JMP]
*  Company     : JFSAinc.
*  License #   :  2547402
*****************************************************************************
*
* SWMHYMO model of the Greely Village Center - Residential Area - Phase 2
* Proposed Ultimate conditions. OPTION 8
* Filename stands for: Greely, Commercial, Proposed
*****************************************************************************
 210:0002-------------------------------------------------------------------
      READ STORM
       Filename = story.307
       Comment  = 10 years SCS Type 2 Storm 24 hours step 10 min, City of Otta
       [STO=10.00:IZUR=  24.00:PTOT=  74.35]
*****************************************************************************
* Existing flow - McEvoy Branch at Shield Creek - Areas
* Area d/s of proposed development (residential)
* CN**5, Ximp = 0.0, Tp=..h, X.MX=5, TIMP=10, see SC002 as per Stantec
* Area partially adjusted based on Arrel drawings. Ip adjusted accordingly.
*****************************************************************************
* d/s of Bank St.as per Arrel - with modified boundaries and Tp.
 210:0003---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      DESIGN NASHYD      01:EX1        24.82     1.871 No_date   12:08    33.69 .052
       [CN= 75.0: N= 3.00]
       [Ia=  .2:IC= 1.00]
*****************************************************************************
* Existing flow - External areas d/s of Bank St.
* CN*=69, as per Stantec ser SC001.
* Area partially adjusted based on Arrel drawings.
*****************************************************************************
* Areas External to Development
 210:0004---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      DESIGN NASHYD      01:EX2         9.69      .286 No_date   12:17    29.39 .049
       [CN= 69.0: N= 3.00]
       [Ia=  .67:IC= 1.00]
 210:0005---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      DESIGN NASHYD      01:EX3        21.80      .948 No_date   12:48    28.38 .382
       [CN= 69.0: N= 3.00]
       [Ia=  .33:IC= 1.00]
* Slope, Tlag, Area from Arrel Drawing
* CN from Stantec (SC001)
* Ximp = Timp - 10%
 210:0006---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      CALIB STANDHYD     01:EX4         .53      .032 No_date   12:07    35.31 .455
        [XIMP=.11:TIMP=.22]
        [Loss= 2 :CN= 69.0]
        [Pervious     area: [Aper= 4.67:sLPP=1.00:LGP=  40.:NMP=.250:SCP=   .0]
        [Impervious   area: [AImp= 1.57:sLPI=1.00:LGI=  98.:NMI=.045:SCI=   .0]
* Road and road side ditch along projected residential development Parkway Rd
* Timp = Ximp = 0.21 ha /0.50 ha = 0.40
* CN* 69, as per Stantec see SC001.
* Slope is estimated at 1%
* ZOI based on centroid of area due to elongated shape = 600m/2 = 300
 210:0007---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      CALIB STANDHYD     01:EX5         .50      .044 No_date   12:06    64.90 .605
       [XIMP=.40:TIMP=.40]
       [Loss= 2 :CN= 69.0]
       [Pervious     area: [Aper= 4.67:sLPP=1.00:LGP=  40.:NMP=.250:SCP=   0]
       [Impervious   area: [AImp= 1.57:sLPI=1.00:LGI=  300.:NMI .045:SCI=   .0]
* Road and road side ditch along projected residential development Parkway Rd
* Timp = Ximp = 0.1 ha /0.51 ha = 0.20
* CN*=69, as per Stantec ser SC001.
* Slope is estimated at 1%
* LGI based on centroid of area due to elongated shape = 300m/2 = 177
 210:0008---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      CALIB STANDHYD     01:EX6         .51      .032 No_date   12:04    35.69 .060
        XIMP=.20:TIMP=.20]
        [Loss= 2 :CN= 69.0]
        [Pervious     area: [Aper= 4.67:sLPP=1.00:LGP=  40.:NMP=.250:SCP=   .0]
        [Impervious   area: [AImp= 1.57:sLPI=1.00:LGI=  177.:NMI=.045:SCI=   .0]
* Road and road side ditch along projected residential development Parkway Rd
* Timp = Ximp = 0.05 ha /0.39 ha = 0.23
* CN*=69, as per Stantec see SC001.
* Slope is estimated at 1%
* LGI based on centroid of area due to elongated shape = 250m/2 = 112.5
 210:0009---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      CALIB STANDHYD     01:EX7         .39      .026 No_date   12:03    37.05 .069
       [XIMP=.23:TIMP=.23]
       [Loss= 2 :CN= 69.0]
       [Pervious     area: [Aper= 4.67:sLPP=1.00:LGP=  40.:NMP=.250:SCP=   .0]
       [Impervious   area: [AImp= 1.57:sLPI=1.00:LGI  177.:NMI .045:SCI    .0]
*****************************************************************************
* PROPOSED COMMERCIAL DEVELOPMENT
*****************************************************************************
* CN = 79 as per fair grass cover with C soil type for top soil: CN*=81
* XIMP = TIMP to be conservative
*****************************************************************************
 210:0010---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      DESIGN STANDHYD    01:C1          8.38     1.709 No_date   12:00    57.16 .773
       [XIMP .63:TIMP .63]
       [SLP=1.00:IC= 1.00]
       [Loss= 2 :CN= 81.0]
 210:0011---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      DESIGN STANDHYD    01:C2          6.34     1.248 No_date   12:00    64.42 .866
       [XIMP .79:TIMP .79]
       [SLP=1.00:IC= 1.00]
       [Loss= 2 :CN= 81.0]
 210:0012---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      DESIGN STANDHYD    01:C3          .24      .060 No_date   12:00    72.68 .978
       [XIMP .98:TIMP .98]
       [SLP=1.00:IC= 1.00]
       [Loss= 2 :CN= 81.0]
* Ximp = Imp ha/total area = 0.39/1.13 Ha = .35
 210:0013---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      DESIGN STANDHYD    01:EX8         1.10      .137 No_date   12:00    31.00 .562
       XIMP=.22:TIMP=.22]
       SLP=1.00:IC= 1.00]
       Loss= 2 :CN= 81.0]
* Timp = Imp ha/total area = 0.35/1.67 Ha = .35
 210:0014---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      DESIGN STANDHYD    01:EX10        1.07      .126 No_date   12:00    30.28 .609
       [XIMP=.35:TIMP .35]
       [SLP=1.00:IC= 1.00]
       [Loss= 2 :CN= 81.0]
* Ximp = Imp ha/total area = 0.170./Ha = .50
 210:0015---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      DESIGN STANDHYD    01:EX13        .22      .033 No_date   12:00    51.80 .857
       [XIMP=.50:TIMP=.50]
       [SLP 1.00:IC= 1.00]
       [Loss= 2 :CN= 71.0]
*****************************************************************************
* Commercial Pond (Pc)
* slope estimated at 1% based on elevations around pond.
* Timp and Ximp based on total pond area
* ximp = A pond/A tot (1.0/1.57)
 210:0016---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      DESIGN STANDHYD    01:Pc          1.57      .285 No_date   12:00    29.20 .796
       [XIMP=.67:TIMP=.67]
       [SLP=1.00:IC= 1.00]
       [Loss= 2 :CN= 71.0]
##############################################################################
*****************************************************************************
* PROPOSED RESIDENTIAL SUBDIVISIONS - Residential Area Phase 1 and 2
*****************************************************************************
* CN*=80, as per Stantec see SC001.
* Tp estimated with Uplend Method.
 210:0017---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      DRE ON NASHYD      01:PR1         4.26      .313 No_date   12:05    28.39 .382
       [CN= 69.0: N= 3.00]
       [Tp    10 :IC= 1.00]
*****************************************************************************
* AREAS GOING TO RESIDENTIAL POND (PD1)
```

```
*----------------------------------------------------------------------------
*
 210:0010----------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      CALIB STANDHYD     01:FR1A          .24      .018 No_date   12:01   35.04 .471
        [XIMP=.11:TIMP=.21]
        [LOSS= 2 :CN= 71.0]
        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
 210:0010----------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      CALIB STANDHYD     01:FR1B          .09      .006 No_date   12:09   35.04 .471
        [XIMP=.11:TIMP=.21]
        [LOSS= 2 :CN= 71.0]
        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
 210:0020----------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      CALIB STANDHYD     01:FR2A          1.57      .101 No_date   12:04   35.01 .471
        [XIMP=.11:TIMP=.21]
        [LOSS= 2 :CN= 71.0]
        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
 210:0021----------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      CALIB STANDHYD     01:FR2B          1.17      .075 No_date   12:07   35.04 .471
        [XIMP=.11:TIMP=.21]
        [LOSS= 2 :CN= 71.0]
        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
 210:0022----------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      CALIB STANDHYD     01:FR3A          .45      .031 No_date   12:02   35.04 .471
        [XIMP=.11:TIMP=.21]
        [LOSS= 2 :CN= 71.0]
        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
 210:0023----------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      CALIB STANDHYD     01:FR3B          .52      .036 No_date   12:02   35.04 .471
        [XIMP=.11:TIMP=.21]
        [LOSS= 2 :CN= 71.0]
        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
 210:0024----------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      CALIB STANDHYD     01:FR4A          .71      .049 No_date   12:02   35.04 .471
        [XIMP=.11:TIMP=.21]
        [LOSS= 2 :CN= 71.0]
        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
 210:0025----------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      CALIB STANDHYD     01:FR4B          .63      .043 No_date   12:02   35.04 .471
        [XIMP=.11:TIMP=.21]
        [LOSS= 2 :CN= 71.0]
        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
 210:0026----------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      CALIB STANDHYD     01:FR5A          .66      .045 No_date   12:02   35.04 .471
        [XIMP=.11:TIMP=.21]
        [LOSS= 2 :CN= 71.0]
        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
 210:0027----------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      CALIB STANDHYD     01:FR5B          .50      .034 No_date   12:02   35.04 .471
        [XIMP=.11:TIMP=.21]
        [LOSS= 2 :CN= 71.0]
        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
 210:0028----------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      CALIB STANDHYD     01:FR6A          1.43      .092 No_date   12:04   35.04 .471
        [XIMP=.11:TIMP=.21]
        [LOSS= 2 :CN= 71.0]
        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
 210:0029----------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      CALIB STANDHYD     01:FR6B          .53      .061 No_date   12:07   35.04 .471
        [XIMP=.11:TIMP=.21]
        [LOSS= 2 :CN= 71.0]
        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
# slope estimate at 2: based on backyard swales.
# Iimp and Ximp based on total pond area
# ximp = A pond/A tot
# T:tp = weighted average of pond and backyards
 210:0030----------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      CALIB STANDHYD     01:FR8A          5.90      .369 No_date   12:03   28.32 .450
        [XIMP=.44:TIMP=.47]
        [LOSS= 2 :CN= 71.0]
        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
*----------------------------------------------------------------------------
*
 210:0031----------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      CALIB STANDHYD     01:FR7A          1.35      .084 No_date   12:07   31.44 .424
        [XIMP=.02:TIMP=.16]
        [LOSS= 2 :CN= 71.0]
        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
 210:0032----------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      CALIB STANDHYD     01:FR7B          .16      .009 No_date   12:10   31.44 .424
        [XIMP=.02:TIMP=.16]
        [LOSS= 2 :CN= 71.0]
        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
 210:0033----------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      CALIB STANDHYD     01:FR7C          .22      .015 No_date   12:09   31.44 .423
        [XIMP=.02:TIMP=.16]
        [LOSS= 2 :CN= 71.0]
        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
 210:0034----------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      CALIB STANDHYD     01:FR7C1         .39      .026 No_date   12:10   31.44 .423
        [XIMP=.02:TIMP=.16]
        [LOSS= 2 :CN= 71.0]
        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
 210:0035----------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      CALIB STANDHYD     01:FR7C2         .17      .011 No_date   12:09   31.44 .423
        [XIMP=.02:TIMP=.16]
        [LOSS= 2 :CN= 71.0]
        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
 210:0036----------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      CALIB STANDHYD     01:FR8A          .30      .019 No_date   12:10   31.44 .423
        [XIMP=.02:TIMP=.16]
        [LOSS= 2 :CN= 71.0]
        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
 210:0037----------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      CALIB STANDHYD     01:FR8B          1.38      .077 No_date   12:13   28.67 .398
        [XIMP=.01:TIMP=.07]
        [LOSS= 2 :CN= 71.0]
        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
 210:0038----------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      CALIB STANDHYD     01:FR8A          1.10      .062 No_date   12:12   28.67 .398
        [XIMP=.01:TIMP=.07]
        [LOSS= 2 :CN= 71.0]
        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
 210:0039----------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      CALIB STANDHYD     01:FR9A          .20      .015 No_date   12:10   28.67 .398
        [XIMP=.01:TIMP=.07]
        [LOSS= 2 :CN= 71.0]
        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
 210:0040----------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      CALIB STANDHYD     01:FR9B          .60      .043 No_date   12:12   28.67 .398
        [XIMP=.01:TIMP=.07]
        [LOSS= 2 :CN= 71.0]
        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
 210:0041----------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      CALIB STANDHYD     01:FR10          1.97      .141 No_date   12:11   28.67 .398
        [XIMP=.01:TIMP=.07]
        [LOSS= 2 :CN= 71.0]
        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
 210:0042----------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      CALIB STANDHYD     01:FR11          .62      .044 No_date   12:11   28.67 .398
        [XIMP=.01:TIMP=.07]
        [LOSS= 2 :CN= 71.0]
        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
*----------------------------------------------------------------------------
# EXISTING flow - Upstream of Proposed Development
*----------------------------------------------------------------------------
# Total flow at node E-FX1
 210:0043----------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ADD HYD            02:EX1           24.62     1.671 No_date   12:00   31.99  n/a
        [Tpervious    area: IAimp= 1.57:SLPI=1.00:LGI=  183.:MNI=.045:SCI=   .0]
*----------------------------------------------------------------------------
*
# UNCONTROLLED AREAS
*----------------------------------------------------------------------------
*
 210:0031----------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
  * CALIB STANDHYD     01:FR7A          1.35      .084 No_date   12:07   31.44 .424
        [XIMP=.02:TIMP=.16]
        [LOSS= 2 :CN= 71.0]
        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
 210:0032----------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
  * CALIB STANDHYD     01:FR7B          .16      .009 No_date   12:10   31.44 .424
        [XIMP=.02:TIMP=.16]
        [LOSS= 2 :CN= 71.0]
        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
 210:0033----------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
  * CALIB STANDHYD     01:FR7C          .22      .015 No_date   12:09   31.44 .423
        [XIMP=.02:TIMP=.16]
        [LOSS= 2 :CN= 71.0]
        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
 210:0034----------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
  * CALIB STANDHYD     01:FR7C1         .39      .026 No_date   12:10   31.44 .423
        [XIMP=.02:TIMP=.16]
        [LOSS= 2 :CN= 71.0]
        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
 210:0035----------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
  * CALIB STANDHYD     01:FR7C2         .17      .011 No_date   12:09   31.44 .423
        [XIMP=.02:TIMP=.16]
        [LOSS= 2 :CN= 71.0]
        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
 210:0036----------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
  * CALIB STANDHYD     01:FR8A          .30      .019 No_date   12:10   31.44 .423
        [XIMP=.02:TIMP=.16]
        [LOSS= 2 :CN= 71.0]
        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
 210:0037----------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
  * CALIB STANDHYD     01:FR8B          1.38      .077 No_date   12:13   28.67 .398
        [XIMP=.01:TIMP=.07]
        [LOSS= 2 :CN= 71.0]
        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
 210:0038----------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
  * CALIB STANDHYD     01:FR8A          1.10      .062 No_date   12:12   28.67 .398
        [XIMP=.01:TIMP=.07]
        [LOSS= 2 :CN= 71.0]
        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
 210:0039----------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
  * CALIB STANDHYD     01:FR9A          .20      .015 No_date   12:10   28.67 .398
        [XIMP=.01:TIMP=.07]
        [LOSS= 2 :CN= 71.0]
        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
 210:0040----------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
  * CALIB STANDHYD     01:FR9B          .60      .043 No_date   12:12   28.67 .398
        [XIMP=.01:TIMP=.07]
        [LOSS= 2 :CN= 71.0]
        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
 210:0041----------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
  * CALIB STANDHYD     01:FR10          1.97      .141 No_date   12:11   28.67 .398
        [XIMP=.01:TIMP=.07]
        [LOSS= 2 :CN= 71.0]
        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  111.:MNI=.045:SCI=   .0]
 210:0042----------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
  * CALIB STANDHYD     01:FR11          .62      .044 No_date   12:11   28.67 .398
        [XIMP=.01:TIMP=.07]
        [LOSS= 2 :CN= 71.0]
        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  61.:MNI=.045:SCI=   .0]
*----------------------------------------------------------------------------
# EXISTING flow - Upstream of Proposed Development
*----------------------------------------------------------------------------
# Total flow at node E-FX1
 210:0043----------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ADD HYD            02:EX1           24.62     1.671 No_date   12:00   31.99  n/a
```

```
                    +  03:EXC1        1.10      .112 No date   12:00   41.86  n/a
                    +  04:EXC2        1.07      .126 No date   12:00   45.28  n/a
     [DT= 1.00]  SUM=  01:EXC       26.79     1.994 No date   12:07   54.49  n/a

* Typical Section based on proposed channel provided by AEL
* 4:1 bank slopes, Long Slope = 0.85%, Manning's n is 0.03
* Route Node N-EX1 to S/S node NC
 2:0:0044----------ID:NEYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
     ROUTE CHANNEL   -> 02:NEX1       26.79     1.994 No date   12:07   54.49  n/a
      [RT= 1.00] outs=  01:NEX1       26.79     1.928 No date   12:16   54.49  n/a
      [L/S/n=  312./ .850/.030]
      [Vmax= 1.346:Dmax=  .495]
*****************************************************************************
* TOTAL INFLOW TO COMMERCIAL POND Pic
*****************************************************************************
 210:0045----------ID:NEYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
     ADD HYD         02:EX4         .50      .032 No date   12:00   55.61  n/a
                   + 03:C1          8.39     1.050 No date   12:00   57.46  n/a
                   + 04:C2          8.39     1.249 No date   12:00   64.42  n/a
                   + 05:EC          7.57      .748 No date   12:00   58.20  n/a
      [DT= 1.00]  SUM  01:PDC1     18.71     2.913 No date   12:00   58.55  n/a
 210:0046----------ID:NEYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
     ROUTE RESERVOIR -> 02:PDC1a    18.71     2.913 No date   12:00   58.55  n/a
      [RT= 1.00] outs=  01:PDCout   18.71      .599 No date   12:21   58.55  n/a
                 overflw =  03:Ovrflw2        .00      .000 No date    0:00    .00  n/a
      [MxStoMass=.486E+06], TotOvfVol=.000E+00, R-Vrf=     0, OutlowOut=     0.hrs]
* Total flow at outlet of commercial pond
 210:0047----------ID:NEYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
     ADD HYD         02:EOCom       6.11      .599 No date   12:21   58.55  n/a
                   + 03:FRVA        1.10      .082 No date   12:12   28.67  n/a
      [DT= 1.00]  SUM=  01:EPDA      7.81      .654 No date   12:17   57.01  n/a
* Route pond outflow at pipe n/s of node E2
* Typical Section based on proposed channel provided by AEL
* 4:1 bank slopes, Long Slope = 0.75%, Manning's n is 0.03
 210:0048----------ID:NEYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
     ROUTE CHANNEL   -> 02:rPDe       17.81      .654 No date   12:17   57.01  n/a
      [RT= 1.00] outs=  01:rPDe       17.81      .622 No date   12:31   57.01  n/a
      [L/S/n=  760./ .950/.030]
      [Vmax=  .540:Dmax=  .394]
* Total channel flow at pipe n/s of node E2
 210:0049----------ID:NEYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
     ADD HYD         02:ADPDC      17.81      .622 No date   12:31   57.01  n/a
                   + 03:FRSE1       .25      .031 No date   12:10   29.87  n/a
                   + 04:FRSE2       .25      .031 No date   12:10   29.87  n/a
      [DT= 1.00]  SUM  01:DSE2      18.06      .665 No date   12:27   55.87  n/a
* *************
* Total flow at node E2
* (Note that EX2 will be sheet draining to proposed channel)
 210:0050----------ID:NEYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
     ADD HYD         03:ADE2       18.06      .665 No date   12:27   55.87  n/a
                   + 03:RNEX1      16.75     1.826 No date   12:10   54.40  n/a
                   + 04:EX2         9.39      .736 No date   12:17   28.52  n/a
                   + 05:C7          .54      .050 No date   12:00   72.68  n/a
      [DT= 1.00]  SUM  01:NO       55.98     2.713 No date   12:19   40.85  n/a
* Typical Section based on proposed channel provided by AEL
* 4:1 bank slopes, Long Slope = 0.40%, Manning's n is 0.03
* Route SW draining at N0 to S/s node N-EX2
 2:0:0051----------ID:KHYD-------AREA    QPEAK-TpeakDate hh:mm----R.V.-R.C.-
     ROUTE CHANNEL   -> 02:RN0      55.98     2.713 No date   12:19   40.85  n/a
      [RT= 1.00] outs=  01:RN0      55.98     2.086 No date   12:37   40.85  n/a
      [L/S/n=  434./ .400/.030]
      [Vmax=  .710:Dmax=  .570]
* Total flow at node N-EX2
 210:0052----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
     ADD HYD         02:RN0        55.98     2.086 No date   12:17   40.85  n/a
                   + 03:FR10        1.84      .101 No date   12:13   28.97  n/a
      [DT= 1.00]  SUM=  01:NEX2     57.85     2.895 No date   12:16   40.19  n/a
* Route Node N-EX2 to Node N1
* Typical Section based on Shields RJ Ave Ditch 3:1 banks
* provided by Attn:
* Manning's n is Channel not maintained, light brush on banks
* Slope = 0.6%, as per plan provided by Attn:
 210:0053----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm    R.V.-R.C.-
     ROUTE CHANNEL   -> 02:rEX2     57.85     2.895 No date   12:16   40.48  n/a
      [RT= 1.00] outs=  01:REX2     57.85     2.794 No date   12:20   40.48  n/a
      [L/S/n=  210./ .050/.035]
      [Vmax=  .386:Dmax=  1.549]
*****************************************************************************
* Residential Development - Phase 1 and 2
*****************************************************************************
* Total flow at node N-PR.
 210:0054----------ID:KHYD-------AREA    QPEAK-TpeakDate hh:mm----R.V.-R.C.-
     ADD HYD         01:PR1         4.26      .313 No date   12:05   26.29  n/a
                   + 02:PRA         .24      .016 No date   12:00   35.04  n/a
      [DT= 1.00]  SUM=  01:NPR1      4.50      .328 No date   12:05   28.71  n/a
* Volume to ponding area in PR1
* q=0.555 m3/s required as per bcs 100yr Existing conditions
* Culvert from Inlet 1
* Assuming outlet culvert is 600 mm, slope = 1.0 , HDPE smooth walls
* Manning's n = 0.012, inlet control nomograph
* Hydraulic head = 0.4m, Q=0.610
 210:0055----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
     COMPUTE DETAINYD    01:NPR1        4.50      .328 No date   12:05   28.74  n/a
       Major System /    02:NPR1Mj       .00      .000 No date    0:00    .00  n/a
       Minor System \    03:NPR1Mn      4.50      .328 No date   12:05   28.74  n/a
      [MjSysStor=.000E+00], TotOutVol=.000E+00, R-Qvr=     0, TpOutVol=     0.hrs]
* Input to inlet 1 pipe
 210:0056----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
     ADD HYD         02:PR1S        .55      .036 No date   12:01   35.04  n/a
                   + 03:NPR1Mn     3.95      .292 No date   12:05   28.74  n/a
      [DT= 1.00]  SUM   01:In1       5.05      .363 No date   12:05   29.63  n/a
* Pipe from inlet 1 - Route to pond
* HDPE smooth wall pipe Manning's n = 0.012
 210:0057----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
     ROUTE PIPE      -> 02:in1      5.05      .363 No date   12:05   29.63  n/a
      [RT= 1.00] outs=  01:in1      5.05      .362 No date   12:05   29.63  n/a
      [L/S/n=  85./1.600/.012]
      [Vmax= 2.862:Dmax=  .372]
      [Din=  .600:Dused=  .600]
* Culvert from Inlet 2
* HDPE smooth wall pipe Manning's n = 0.012
 210:0058----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
     ROUTE PIPE      -> 02:PR2A     1.57      .101 No date   12:04   35.04  n/a
      [RT= 1.00] outs=  01:CIL2     1.57      .101 No date   12:04   35.04  n/a
      [L/S/n=  13./ .400/.012]
      [Vmax= 1.274:Dmax=  .276]
      [Din=  .500:Dused=  .500]
* Input to Inlet 2 pipe
 2:0:0059----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
     ADD HYD         02:PR2E        1.17      .075 No date   12:03   35.05  n/a
                   + 03:cin2        1.57      .101 No date   12:04   35.25  n/a
      [DT= 1.00]  SUM=  01:In2       2.74      .175 No date   12:04   35.10  n/a
* Pipe from Inlet 2 - Route to pond
* HDPE smooth wall pipe Manning's n = 0.012
 210:0060----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm    R.V.-R.C.-
     ROUTE PIPE      -> 02:in2      2.74      .175 No date   12:04   35.10  n/a
      [RT= 1.00] outs=  01:Pin2     2.74      .172 No date   12:05   35.10  n/a
      [L/S/n=  15./ .250/.012]
      [Vmax= 1.081:Dmax=  .402]
      [Din=  .500:Dused=  .500]
* Culvert from Inlet 3
* HDPE smooth wall pipe Manning's n = 0.012
 210:0061----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
     ROUTE PIPE      -> 02:PR3A      .45      .031 No date   12:02   35.04  n/a
      [RT= 1.00] outs=  01:CIn3      .45      .031 No date   12:02   35.04  n/a
      [L/S/n=  13./ .400/.012]
      [Vmax=  .679:Dmax=  .115]
      [Din=  .500:Dused=  .500]
* Input to Inlet 3 pipe
 210:0062----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
     ADD HYD         02:PR3E        .22      .014 No date   12:02   35.04  n/a
                   + 03:cIn3        .45      .031 No date   12:02   35.04  n/a
      [DT= 1.00]  SUM   01:In3       .67      .045 No date   12:02   35.04  n/a
* Pipe from inlet 3 - Route to pond
* HDPE smooth wall pipe Manning's n = 0.012
 2:0:0063----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
     ROUTE PIPE      -> 02:in3      .67      .045 No date   12:02   35.04  n/a
      [RT= 1.00] outs=  01:Pin3     .67      .045 No date   12:07   35.04  n/a
      [L/S/n=  75./ .200/.012]
      [Vmax=  .852:Dmax=  .206]
      [Din=  .500:Dused=  .500]
* Culvert from Inlet 4
* HDPE smooth wall pipe Manning's n = 0.012
 210:0064----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
     ROUTE PIPE      -> 02:PR4A      .71      .047 No date   12:02   35.04  n/a
      [RT= 1.00] outs=  01:CIn4      .71      .046 No date   12:02   35.04  n/a
      [L/S/n=  13./ .400/.012]
      [Vmax=  .993:Dmax=  .143]
      [Din=  .500:Dused=  .500]
* Input to inlet 1 pipe
 210:0065----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
     ADD HYD         02:PR4E        .65      .043 No date   12:02   35.04  n/a
                   + 03:CIn4        .71      .046 No date   12:02   35.04  n/a
      [DT= 1.00]  SUM=  01:In4       1.36      .089 No date   12:02   35.04  n/a
* Pipe from Inlet 4 (ULTIMATE CONDITIONS) - Route to pond
* HDPE smooth wall pipe Manning's n = 0.012
 2:0:0066----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
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06973>       ROUTE PIPE      -> 02:In4          1.36      .088 No_date   12:02   35.04  n/a
06974>         [RO= 1.00] outc= 01:Pin4         1.36      .088 No_date   12:02   35.04  n/a
06975>         [L/S/n=   65./1.900/.013]
06976>         [Vmax= 7.071:Dmax=  .114]
06977>         [Dia=  .500:Dused=  .500]
06978> # Culvert from Inlet 5
06979> # HDPE smooth wall pipe Manning's n = 0.012
06980> 210:0067----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
06981>       ROUTE PIPE      -> 02:Pin5          .66      .043 No_date   12:02   35.04  n/a
06982>         [RO= 1.00] outc= 01:Out          .66      .043 No_date   12:02   35.04  n/a
06983>         [L/S/n=   13./ .400/.012]
06984>         [Vmax=  .871:Dmax=  .176]
06985>         [Dia=  .500:Dused=  .500]
06986> # Input to Inlet 5 pipe
06987> 210:0068----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
06988>       ADD HYD         02:PIN5          .66      .043 No_date   12:02   35.04  n/a
06989>                     + 03:Cin5          .66      .043 No_date   12:02   35.04  n/a
06990>         [DT= 1.00]  SUM= 01:In5          1.32      .085 No_date   12:02   35.04  n/a
06991> # Pipe from Inlet 5 - Route to pond
06992> # HDPE smooth wall pipe Manning's n = 0.012
06993> 210:0069----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
06994>       ROUTE PIPE      -> 02:In5          1.12      .075 No_date   12:02   35.04  n/a
06995>         [RO= 1.00] outc= 01:In5          1.12      .075 No_date   12:03   35.04  n/a
06996>         [L/S/n=   75./1.600/.012]
06997>         [Vmax= 1.868:Dmax=  .128]
06998>         [Dia=  .500:Dused=  .500]
06999> # Culvert from Inlet 6
07000> # HDPE smooth wall pipe Manning's n = 0.012
07001> 210:0070----------------ID:NHYD-------AREA    QPEAK TpeakDate_hh:mm    R.V.-R.C.-
07002>       ROUTE PIPE      -> 02:Pin6          1.48      .092 No_date   12:04   35.04  n/a
07003>         [RO= 1.00] outc= 01:In6          1.48      .092 No_date   12:04   35.04  n/a
07004>         [L/S/n=   13./ .400/.012]
07005>         [Vmax= 1.205:Dmax=  .206]
07006>         [Dia=  .500:Dused=  .500]
07007> # Input to Inlet 6 pipe
07008> 210:0071----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
07009>       ADD HYD         02:PIN6          .63      .041 No_date   12:03   35.04  n/a
07010>                     + 03:Cin6          .85      .052 No_date   12:04   35.04  n/a
07011>         [DT= 1.00]  SUM= 01:In6          2.36      .153 No_date   12:04   35.04  n/a
07012> # Pipe from Inlet 6 - Route to pond
07013> # HDPE smooth wall pipe Manning's n = 0.012
07014> 210:0072----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
07015>       ROUTE PIPE      -> 02:In6          2.36      .153 No_date   12:04   35.04  n/a
07016>         [RO= 1.00] outc= 01:Pin6         2.36      .152 No_date   12:05   35.04  n/a
07017>         [L/S/n=   70./ .300/.012]
07018>         [Vmax= 1.228:Dmax=  .303]
07019>         [Dia=  .500:Dused=  .500]
07020> # VOLUME TO POND ULTIMATE RESIDENTIAL
07021> 210:0073----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
07022>       ADD HYD         02:Pin1          5.05      .362 No_date   12:05   39.43  n/a
07023>                     + 03:Pin2          7.08      .510 No_date   12:05   35.16  n/a
07024>                     + 04:Pin3          .27      .054 No_date   12:03   35.04  n/a
07025>                     + 05:Pin4          1.36      .089 No_date   12:08   35.04  n/a
07026>                     + 06:Pin5          1.12      .075 No_date   12:03   35.04  n/a
07027>                     + 07:Pin6          2.36      .152 No_date   12:05   35.04  n/a
07028>                     + 08:Pin7          5.03      .530 No_date   12:03   48.31  n/a
07029>         [DT= 1.00]  SUM= 01:POND1n     28.63     1.435 No_date   12:04   37.13  n/a
07030> #  Pond outflow for ultimate conditions using Weir .6/.6/ 3.0
07031> 210:0074----------------ID:KHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
07032>       ROUTE RESERVOIR -> 02:POND1n     28.63     1.435 No_date   12:04   37.13  n/a
07033>         [MI= 1.00] outc= 01:POut        28.63      .698 No_date   12:16   37.13  n/a
07034>              overflow -> 01:ov-Q          .00      .000 No_date   00:00    .00  n/a
07035>       [MaxStaRes=.4800EP00, TocOvrVol=.8000EP00, M-Ovf=    0, TotDurOvf=    0.hrs]
07036> # Simulating SCS 100 yr demolition with submerged use of outflow weir
07037> # updated for we.r .6/ .6/ 3.0
07038> #ROUTE RESERVOIR     NHYDout ["POut"] ,NHYDin=["POND1n"] ,
07039> #                    RDC=[1](min),
07040> #                           TABLE of [ OUTFLOW-STORAGE ] values
07041> #                                      (cms) - (ha-m)
07042> #                                   [   0.0 ,   0.0 ]
07043> #                                   0.00001 , 0.1209
07044> #                                   0.50    , 3.8130
07045> #                                   0.65    , 7.0105
07046> #                                   [   -1  ,   -1  ]   (max twenty pts)
07047> #                             NHYDout=["ovrQ"] ,
07048> # Route pond output through final set of pipes
07049> # 2 x 600 pipes simulated with 1 pipe of equivalent capacity (~780 mm dia)
07050> # HDPE smooth wall pipe Manning's n = 0.012
07051> 210:0075----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
07052>       ROUTE PIPE      -> 02:POut1     18.63      .959 No_date   11:16   37.13  n/a
07053>         [RO= 1.00] outc= 01:Pout1     18.63      .959 No_date   11:17   37.13  n/a
07054>         [L/S/n=   75./ .200/.012]
07055>         [Vmax=  .823:Dmax=  .214]
07056>         [Dia=  .700:Dused=  .750]
07057> # Flow o/s of outlet on weir
07058> 210:0076----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
07059>       ADD HYD         02:rW7a1         .56      .039 No_date   12:10   31.44  n/a
07060>                     + 03:rW7a2         .22      .015 No_date   12:09   31.44  n/a
07061>                     + 04:Pout1       18.63      .099 No_date   14:17   37.13  n/a
07062>         [DT= 1.00]  SUM= 01:Pout       19.21      .102 No_date   14:06   36.96  n/a
07063> # Route outflow through set of culverts
07064> # 2 x 600 culverts simulated with 1 culvert of equivalent capacity (~780 mm dia
07065> # HDPE smooth wall pipe Manning's n = 0.012
07066> 210:0077----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
07067>       ROUTE PIPE      -> 02:Pout      19.21      .102 No_date   14:06   36.96  n/a
07068>         [RO= 1.00] outc= 01:Out1      19.21      .102 No_date   14:07   36.96  n/a
07069>         [L/S/n=   13./ .400/.012]
07070>         [Vmax= 1.186:Dmax=  .182]
07071>         [Dia=  .700:Dused=  .780]
07072> # Flow o/s of second set of outflow pipes
07073> 210:0078----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
07074>       ADD HYD         02:rW7b1         .19      .009 No_date   12:10   31.44  n/a
07075>                     + 03:rW7b2         .07      .011 No_date   12:09   31.44  n/a
07076>                     + 04:Out1        19.21      .102 No_date   14:07   36.96  n/a
07077>         [DT= 1.00]  SUM= 01:Pout2      19.77      .115 No_date   12:12   36.89  n/a
07078> # Route outflow through second set of pipes
07079> # 2 x 600 pipes simulated with 1 pipe of equivalent capacity (~780 mm dia)
07080> # HDPE smooth wall pipe Manning's n = 0.012
07081> 210:0079----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
07082>       ROUTE PIPE      -> 02:Pout      19.77      .115 No_date   12:11   36.89  n/a
07083>         [RO= 1.00] outc= 01:Pout2     19.77      .115 No_date   12:11   36.89  n/a
07084>         [L/S/n=   86./ .200/.012]
07085>         [Vmax=  .871:Dmax=  .224]
07086>         [Dia=  .780:Dused=  .780]
07087> # Total flow at node B1 (Shield MJ along Selby Burn Rd)
07088> 210:0080----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
07089>       ADD HYD         02:PBEX2         57.85     2.294 No_date   12:20   40.49  n/a
07090>                     + 03:Pout2       19.77      .115 No_date   12:11   36.89  n/a
07091>                     + 04:rX7         .59      .038 No_date   12:05   31.08  n/a
07092>                     + 05:rW7b        .26      .019 No_date   12:10   31.44  n/a
07093>                     + 06:rW11        .62      .036 No_date   12:11   29.87  n/a
07094>         [DT= 1.00]  SUM= 01:B1       78.93     2.467 No_date   12:20   38.43  n/a
07095> # ROUTE B1 to M3
07096> # Typical Section based on Shields MJ Vee Ditch 3:1 parts
07097> # provided by Aitel
07098> # Manning's n is Channel not maintained, light brush on banks
07099> # Slope = 0.05% as per plan provided by Aitel.
07100> 210:0081----------------ID:KHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
07101>       ROUTE CHANNEL   -> 02:B1         78.93     2.467 No_date   12:20   38.43  n/a
07102>  *      [RDC= 1.00] outc= 01:RM1        78.93     1.887 No_date   12:28   38.43  n/a
07103>         [L/S/n=  350./ .050/.035]
07104>         [Vmax=  .194:Dmax=  .467]
07105> # VOLUME from residential area at B3 inlet
07106> 210:0082----------------ID:NHYD-------AREA    QPEAK TpeakDate_hh:mm    R.V.-R.C.-
07107>       ADD HYD         01:rM7A          1.38      .081 No_date   12:12   31.44  n/a
07108>                     + 03:rM8         1.38      .077 No_date   12:13   29.87  n/a
07109>         [DT= 1.00]  SUM= 01:M31        2.75      .157 No_date   12:12   30.65  n/a
07110> # Added VOLUME from external area contributing to B3
07111> 210:0083----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
07112>       ADD HYD         02:BM1          78.93     1.987 No_date   12:28   38.43  n/a
07113>                     + 03:rM9          2.73      .157 No_date   12:12   30.65  n/a
07114>                     + 04:EX6          .51      .044 No_date   12:06   44.96  n/a
07115>                     + 05:EX8          .51      .032 No_date   12:04   35.69  n/a
07116>                     + 06:EXC3         .22      .033 No_date   12:00   51.80  n/a
07117>         [DT= 1.00]  SUM= 01:M3       82.91     2.137 No_date   12:27   38.16  n/a
07118> # ROUTE M3 to KO128
07119> # Typical Section based on Shields MJ Vee Ditch 3:1 banks
07120> # provided by Aitel
07121> # Manning's n is Channel not maintained, light brush on banks
07122> # Slope = 0.05% as per plan provided by Aitel.
07123> 210:0084----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
07124>       ROUTE CHANNEL   -> 02:M3         82.91     2.137 No_date   12:27   38.16  n/a
07125>         [RDC= 1.00] outc= 01:RM3        82.91     1.797 No_date   12:48   37.38  n/a
07126>         [L/S/n=  4.5./ .050/.035]
07127>         [Vmax=  .382:Dmax= 1.386]
07128> # Flow at Stantec node KO128 for comparison
07129> # Routed M3 plus EX3
07130> 210:0085----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
07131>       ADD HYD         02:RM3          82.91     1.797 No_date   12:48   38.38  n/a
07132>                     + 03:EX3          23.58      .545 No_date   12:48   31.38  n/a
07133>         [DT= 1.00]  SUM= 01:KO128    106.51     2.342 No_date   12:48   36.98  n/a
07134> # AREA CHECK
07135> #
07136> 210:0086----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
07137>       ADD HYD         02:EX1          24.62     1.871 No_date   12:08   33.68  n/a
07138>                     + 03:EX2          9.85      .286 No_date   13:32   28.38  n/a
```

```
07139>                    +  40:EX3       21.30      .545 No_date   12:45   28.35  n/a
07140>                    +  05:EX4         .50      .012 No_date   12:02   15.61  n/a
07141>                    +  06:EX5         .92      .040 No_date   12:06   16.96  n/a
07142>                    +  07:EX6         .61      .013 No_date   12:05   15.68  n/a
07143>                    +  08:EX7         .49      .028 No_date   12:05   17.08  n/a
07144>                    +  09:FR1A        .4       .0 6 No_date   12:01   15.04  n/a
07145>                    +  10:FR1B        .55      .036 No_date   12:02   15.04  n/a
07146>       [DT= 1.00]  SUM=  01:Tot1     58.52    2.480 No_date   12:09   31.02  n/a
07147>  210:0080----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm-----R.V.-R.C.-
07148>      ADD HYD             02:Tot2     58.72    2.489 No_date   12:09   31.02  n/a
07149>                    +  03:FR2A        1.57      .101 No_date   12:04   15.04  n/a
07150>                    +  04:FR2B        1.17      .075 No_date   12:03   15.04  n/a
07151>                    +  05:FR3A         .45      .031 No_date   12:02   15.04  n/a
07152>                    +  06:FR3B         .52      .034 No_date   12:02   15.04  n/a
07153>                    +  07:FR4A         .71      .047 No_date   12:02   15.04  n/a
07154>                    +  08:FR4B         .65      .043 No_date   12:02   15.04  n/a
07155>                    +  09:FR5A         .66      .043 No_date   12:02   15.04  n/a
07156>                    +  10:FR5B         .46      .031 No_date   12:02   15.04  n/a
07157>       [DT= 1.00]  SUM=  01:Tot2     60.71    2.863 No_date   12:09   31.41  n/a
07158>  210:0085----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm-----R.V.-R.C.-
07159>      ADD HYD             02:Tot2     60.71    2.863 No_date   12:09   31.41  n/a
07160>                    +  03:FR6A        1.43      .099 No_date   12:04   15.04  n/a
07161>                    +  04:FR6B         .93      .061 No_date   12:03   15.04  n/a
07162>                    +  05:ex7A        1.35      .061 No_date   12:2    31.44  n/a
07163>                    +  06:ex7B1        .36      .023 No_date   12:0    31.44  n/a
07164>                    +  07:FR7B2        .23      .015 No_date   12:09   31.44  n/a
07165>                    +  08:FR7C1        .39      .025 No_date   12:10   31.44  n/a
07166>                    +  09:FR7C2        .17      .011 No_date   12:09   31.44  n/a
07167>                    +  10:FR7D         .56      .019 No_date   12:10   31.44  n/a
07168>       [DT= 1.00]  SUM=  01:Tot1     64.16    3.183 No_date   12:09   31.53  n/a
07169>  210:0089----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm-----R.V.-R.C.-
07170>      ADD HYD             02:Tot2     59.66    2.767 No_date   12:09   31.53  n/a
07171>                    +  03:FR8         1.58      .017 No_date   12:03   29.67  n/a
07172>                    +  04:ex8A        1.10      .062 No_date   12:09   29.67  n/a
07173>                    +  05:ex8e1       .25       .015 No_date   12:10   29.67  n/a
07174>                    +  06:ex8e2       1.06      .057 No_date   12:12   29.67  n/a
07175>                    +  07:ex1C        1.87      .103 No_date   12:13   29.67  n/a
07176>                    +  08:FR1C         .62      .036 No_date   12:11   29.67  n/a
07177>                    +  09:FR1         0.26      .013 No_date   12:05   28.38  n/a
07178>                    +  10:FOu         5.03      .530 No_date   12:09   58.31  n/a
07179>       [DT= 1.00]  SUM=  01:Tot4     65.57    4.260 No_date   12:07   57.93  n/a
07180>  210:0090----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm-----R.V.-R.C.-
07181>      ADD HYD             02:Tot4     65.57    4.260 No_date   12:07   32.22  n/a
07182>                    +  03:C1          8.58     1.350 No_date   12:00   97.46  n/a
07183>                    +  04:C2          6.54     1.210 No_date   12:00   64.42  n/a
07184>                    +  05:C3          .94       .060 No_date   12:08   72.69  n/a
07185>                    +  06:EXC         1.10      .112 No_date   12:08   21.80  n/a
07186>                    +  07:EXC2        1.97      .126 No_date   12:08   45.73  n/a
07187>                    +  08:EXC3         .22      .033 No_date   12:06   5.86   n/a
07188>                    +  09:EXC         1.57      .255 No_date   12:06   56.22  n/a
07189>       [DT= 1.00]  SUM=  01:Tot5     86.37    6.828 No_date   12:01   58.57  n/a
07190> *****************************************************************************
07191> * Simulations with 4 hour Chicago from City of Ottawa
07192> * SCS 24 hours type I, from City of Ottawa
07193> **  END OF RUN : 224
07194>
07195> *****************************************************************************
07196>
07197>
07198>
07199>
07200>
07201>  RUN:COMMAND*
07202>  225:0001----------------------------------------------------------------------
07203>      START
07204>        [TZERO =     .00 hrs on        0]
07205>        [METOUT=    2     (1:Imperial, 2:Metric output)]
07206>        [NSTORM=    1 ]
07207>        [NRUN  =  225 ]
07208> *****************************************************************************
07209> *  SWMHYMO Ver:5.02/Jan 2001 <BETA> / INPUT DATA FILE
07210> *****************************************************************************
07211> *  Project Name: [Greely Village Center]    Project Number: [647-01]
07212> *  Date        : 04/09/2008
07213> *  Modeller    : [JMR]
07214> *  Company     : JFSAInc.
07215> *  License #   : 1547402
07216> *****************************************************************************
07217> *
07218> * SWMHYMO model of the Greely Village Center - Residential Area - Phase 2
07219> * Proposed Ultimate Conditions. OPTION B
07220> * Filename stands for: Greely, Commercial, Proposed
07221> *****************************************************************************
07222>  225:0002----------------------------------------------------------------------
07223>      READ STORM
07224>        Filename = storm.00!
07225>        Comment  = 25 years SCS Type 2 Storm 24 hours step 10 min, City of Ott
07226>        [SDC=10.00:SDU%=  24.00:PTU%=  56.89]
07227> *****************************************************************************
07228> * Existing flow - Midway branch of Shield Creek - Areas
07229> * Area 0/s of proposed development (residential)
07230> * CN=75, slope   0.8, Tp 0.16, XIMP=5, TIMP=15, see SC002 as per Stantec
07231> * Area partially adjusted based on Aerial drawings. Tp adjusted accordingly.
07232> *****************************************************************************
07233> * 0/s of Bank St.as per Aerial - with modified boundaries and Tp.
07234>  225:0003----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm-----R.V.-R.C.-
07235>      DESIGN EASEYD       01:EX1       24.62     2.693 No_date   12:08   72.80  .797
07236>        [CN= 75.0: R= 3.00]
07237>        [Tp=  .23 DT=  1.00]
07238> *****************************************************************************
07239> * Existing flow - Externa. areas 0/s of Bank St.
07240> * CN'=80, as per Stantec see SC001
07241> * Area partially adjusted based on Aerial drawings.
07242> *****************************************************************************
07243> * Areas External to development
07244>  225:0004----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm-----R.V.-R.C.-
07245>      DESIGN EASEYD       01:EX2        5.86      .384 No_date   12:17   36.54  .421
07246>        [CN= 80.0: R= 3.00]
07247>        [Tp=  .83:DT= 1.00]
07248>  225:0005----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm-----R.V.-R.C.-
07249>      DESIGN EASHYD       01:EX3       21.40     1.401 No_date   12:10   36.54  .421
07250>        [CN= 80.0: R= 3.00]
07251>        [Tp=  .83:DT= 1.00]
07252> * Slope, Tlag, Area from Aerial Drawing
07253> * CN from Stantec (SC001)
07254> * Ximp   Timp - 10:
07255>  225:0006----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm-----R.V.-R.C.-
07256>      CALIB STANDHYD      01:EX4         .50      .044 No_date   12:00   40.75  .690
07257>        [XIMP=.10:TIMP=.22]
07258>        [CURB= 5 :CN= 89.0]
07259>        [Pervious    area: [Ape= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
07260>        [Impervious  area: [Aimp= 1.57:SLPI=1.00:LGI=  58.:MNI=.045:SCI=   .0]
07261> * Road and road side ditch along projected residential development Parkway Rd
07262> * Timp   Ximp - 0.21 ha /0.52 ha = 0.40
07263> * CN'=85, as per Stantec see SC001.
07264> * Slope is estimated at 1%
07265> * LGI based on centroid of area due to elongated shape   500m/2   300
07266>  225:0007----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm-----R.V.-R.C.-
07267>      CALIB STANDHYD      01:EX5         .52      .050 No_date   12:05   54.78  .631
07268>        [XIMP=.40:TIMP=.40]
07269>        [CURB= 2 :CN= 89.0]
07270>        [Pervious    area: [Ape= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
07271>        [Impervious  area: [Aimp= 1.57:SLPI=1.00:LGI=  58.:MNI=.045:SCI=   .0]
07272> * Road and road side ditch along projected residential development Sw Kahara Rd
07273> * Timp   Ximp   0.1 ha /0.51 ha   0.20
07274> * CN'=85, as per Stantec see SC001.
07275> * Slope is estimated at 1%
07276> * LGI based on centroid of area due to elongated shape   354m/2   177
07277>  225:0008----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm-----R.V.-R.C.-
07278>      CALIB STANDHYD      01:EX6         .51      .047 No_date   12:04   44.61  .513
07279>        [XIMP=.20:TIMP=.20]
07280>        [CURB= 2 :CN= 89.0]
07281>        [Pervious    area: [Ape= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
07282>        [Impervious  area: [Aimp= 1.57:SLPI=1.00:LGI=  177.:MNI=.045:SCI=   .0]
07283> * Road and road side ditch along projected residential development Sullivan Rd
07284> * Timp = Ximp = 0.0% ha /0.5% ha = 0.2)
07285> * CN'=80, as per Stantec see SC001.
07286> * Slope is estimated at 1%
07287> * LGI based on centroid of area due to elongated shape = 170m/2 = 170.5
07288>  225:0009----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm-----R.V.-R.C.-
07289>      CALIB STANDHYD      01:EX7         .39      .028 No_date   12:03   48.13  .541
07290>        [XIMP=.23:TIMP=.23]
07291>        [LOSS= 2 :CN= 89.0]
07292>        [Pervious    area: [Ape= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
07293>        [Impervious  area: [Aimp= 1.57:SLPI=1.00:LGI=  177.:MNI=.045:SCI=   .0]
07294> *****************************************************************************
07295> * PROPOSED COMMERCIAL DEVELOPMENT
07296> *****************************************************************************
07297> * CN   79 as per fair grass cover with C soil type for top soil; CN'=71
07298> * XIMP - TIMP to be conservative.
07299> *****************************************************************************
07300>  225:0010----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm-----R.V.-R.C.-
07301>      DESIGN STANDHYD     01:C1          5.30     1.629 No_date   12:05   69.58  .788
07302>        [XIMP=.63:TIMP=.63]
07303>        [SCP=1.00:CN= 71.0]
07304>        [LOSS= 2 :CN= 71.0]
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07305>  225:0011---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
07306>       DESIGN STANDHYD     01:C2          6.34     1.484 No_date   12:08   68.10 .676
07307>         [XIMP=.79:TIMP=.79]
07308>         [sLP 1.00:DT= 1.00]
07309>         [Loss= 2 :CN= 71.0]
07310>  225:0012---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
07311>       DESIGN STANDHYD     01:C3          .94      .070 No_date   12:00   85.13 .989
07312>         [XIMP=.98:TIMP=.98]
07313>         [SLP= 1.00:DT= 1.00]
07314>         [Loss= 2 :CN= 71.0]
07315> *  Imp = Imp ha/total area = 0.30/1.10 ha = .27
07316> *****************************************************************************
07317>  225:0013---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
07318>       DESIGN STANDHYD     01:EXC1        1.10      .140 No_date   12:06   51.38 .591
07319>         [XIMP .27:TIMP .27]
07320>         [sLP 1.00:DT= 1.00]
07321>         [Loss= 2 :CN= 71.0]
07322> *  Imp = Imp ha/total area = 0.35/1.07 ha = .33
07323> *****************************************************************************
07324>  225:0014---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
07325>       DESIGN STANDHYD     01:EXC2        1.07      .156 No_date   12:06   55.18 .635
07326>         [XIMP=.35:TIMP=.35]
07327>         [SLP=1.00:DT= 1.00]
07328>         [Loss= 2 :CN= 71.0]
07329> *  Imp = Imp ha/total area = 0.11/0.22ha = .50
07330> *****************************************************************************
07331>  225:0015---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
07332>       DESIGN STANDHYD     01:EXC3         .22      .040 No_date   12:02   62.32 .717
07333>         [XIMP .50:TIMP .50]
07334>         [SLP 1.00:DT= 1.00]
07335>         [Loss= 2 :CN= 71.0]
07336> ***************************************************************************
07337> # Commercial pond (Pdc)
07338> # slope estimated at 1% based on elevations around pond.
07339> # Timp and Ximp based on total pond area
07340> # ximp = A pond/A tot (1.04/1.57)
07341>  225:0016---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
07342>       DESIGN STANDHYD     01:PDc         1.57      .341 No_date   12:00   88.08 .876
07343>         [XIMP .67:TIMP=.67]
07344>         [SLP=1.00:DT= 1.00]
07345>         [Loss= 2 :CN= 71.0]
07346> ***************************************************************************
07347> ***************************************************************************
07348> # PROPOSED RESIDENTIAL SUBWATERSHED - Residential Area Phase 1 and 2
07349> ***************************************************************************
07350> # CN's=65, as per Stantec dec 8/2001.
07351> # Ip calculated with Uplan method.
07352>  225:0017---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
07353>       DESIGN NASHYD       01:P&I         4.26      .405 No_date   12:05   36.54 .621
07354>         [CN= 69.6: N= 3.00]
07355>         [Tp=  .18:TP= 1.00]
07356> ***************************************************************************
07357> ***************************************************************************
07358> # AREAS GOING TO RESIDENTIAL POND (PDc)
07359> ***************************************************************************
07360> #
07361>  225:0018---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
07362>       CALIB STANDHYD      01:P&1A         .94      .074 No_date   12:01   44.24 .509
07363>         [XIMP=.21:TIMP=.21]
07364>         [Loss= 2 :CN= 71.0]
07365>         [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
07366>         [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  102.:MNI=.045:SCI=   .0]
07367>  225:0019---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
07368>       CALIB STANDHYD      01:P1B          .59      .050 No_date   12:02   44.24 .509
07369>         [XIMP=..1:TIMP=.21]
07370>         [Loss= 2 :CN= 71.0]
07371>         [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
07372>         [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  102.:MNI=.045:SCI=   .0]
07373>  225:0020---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
07374>       CALIB STANDHYD      01:P1A          .51      .043 No_date   12:04   44.24 .509
07375>         [XIMP=..1:TIMP=.21]
07376>         [Loss= 2 :CN= 71.0]
07377>         [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
07378>         [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  88.:MNI=.045:SCI=   .0]
07379>  225:0021---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
07380>       CALIB STANDHYD      01:P2B          .17      .015 No_date   12:00   40.39 .484
07381>         [XIMP=..1:TIMP=.21]
07382>         [Loss= 2 :CN= 71.0]
07383>         [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
07384>         [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  88.:MNI=.045:SCI=   .0]
07385>  225:0022---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
07386>       CALIB STANDHYD      01:P3A          .45      .041 No_date   12:02   44.24 .509
07387>         [XIMP=..1:TIMP=.21]
07388>         [Loss= 2 :CN= 71.0]
07389>         [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
07390>         [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  55.:MNI=.045:SCI=   .0]
07391>  225:0023---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
07392>       CALIB STANDHYD      01:P3B          .52      .047 No_date   12:02   44.24 .509
07393>         [XIMP=..1:TIMP=.21]
07394>         [Loss= 2 :CN= 71.0]
07395>         [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
07396>         [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  88.:MNI=.045:SCI=   .0]
07397>  225:0024---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
07398>       CALIB STANDHYD      01:P4A          .71      .064 No_date   12:02   44.24 .509
07399>         [XIMP=..1:TIMP=.21]
07400>         [Loss= 2 :CN= 71.0]
07401>         [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
07402>         [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  88.:MNI=.045:SCI=   .0]
07403>  225:0025---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
07404>       CALIB STANDHYD      01:P4B          .65      .059 No_date   12:02   44.24 .509
07405>         [XIMP=..1:TIMP=.21]
07406>         [Loss= 2 :CN= 71.0]
07407>         [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
07408>         [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  88.:MNI=.045:SCI=   .0]
07409>  225:0026---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
07410>       CALIB STANDHYD      01:P5A          .66      .059 No_date   12:02   44.24 .509
07411>         [XIMP=..1:TIMP=.21]
07412>         [Loss= 2 :CN= 71.0]
07413>         [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
07414>         [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  88.:MNI=.045:SCI=   .0]
07415>  225:0027---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
07416>       CALIB STANDHYD      01:P5B          .46      .042 No_date   12:01   44.24 .509
07417>         [XIMP=..1:TIMP=.21]
07418>         [Loss= 2 :CN= 71.0]
07419>         [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
07420>         [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  88.:MNI=.045:SCI=   .0]
07421>  225:0028---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm    R.V. R.C.-
07422>       CALIB STANDHYD      01:P6A          1.43      .125 No_date   12:04   44.24 .509
07423>         [XIMP=..1:TIMP=.21]
07424>         [Loss= 2 :CN= 71.0]
07425>         [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
07426>         [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  88.:MNI=.045:SCI=   .0]
07427>  225:0029---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
07428>       CALIB STANDHYD      01:P6B          .94      .082 No_date   12:03   44.24 .509
07429>         [XIMP=..1:TIMP=.21]
07430>         [Loss= 2 :CN= 71.0]
07431>         [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
07432>         [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  88.:MNI=.045:SCI=   .0]
07433> # slope estimated at 2% based on backyard swales.
07434> # Timp and Ximp based on total pond area
07435> # ximp = A pond/A tot
07436> # Timp = weighted average of pond and backyards
07437>  225:0030---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
07438>       CALIB STANDHYD      01:PDc          5.01      .586 No_date   12:03   58.67 .676
07439>         [XIMP=.44:TIMP=.47]
07440>         [Loss= 2 :CN= 71.0]
07441>         [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
07442>         [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  102.:MNI=.045:SCI=   .0]
07443> ***************************************************************************
07444> # UNCONTROLLED AREAS
07445> ***************************************************************************
07446> #
07447>  225:0031---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
07448>    * CALIB STANDHYD      01:PR1A         1.45      .112 No_date   12:10   40.35 .464
07449>         [XIMP=.00:TIMP=.14]
07450>         [Loss= 2 :CN= 71.0]
07451>         [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
07452>         [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  88.:MNI=.045:SCI=   .0]
07453>  225:0032---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
07454>    * CALIB STANDHYD      01:PR1B         .38      .029 No_date   12:08   40.35 .464
07455>         [XIMP=.00:TIMP=.14]
07456>         [Loss= 2 :CN= 71.0]
07457>         [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
07458>         [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  88.:MNI=.045:SCI=   .0]
07459>  225:0033---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
07460>    * CALIB STANDHYD      01:PR2B         .22      .020 No_date   12:08   40.35 .464
07461>         [XIMP=.00:TIMP=.14]
07462>         [Loss= 2 :CN= 71.0]
07463>         [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
07464>         [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  88.:MNI=.045:SCI=   .0]
07465>  225:0034---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
07466>    * CALIB STANDHYD      01:PR7C1        .38      .035 No_date   12:08   40.35 .464
07467>         [XIMP=.02:TIMP=.14]
07468>         [Loss= 2 :CN= 71.0]
07469>         [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
07470>         [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  51.:MNI=.045:SCI=   .0]
07471>  225:0035---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
07472>    * CALIB STANDHYD      01:PR7C2        .17      .015 No_date   12:08   40.35 .464
07473>         [XIMP=.02:TIMP=.14]
07474>         [Loss= 2 :CN= 71.0]
```

```
[Pervious    area: IAper= 4.67:SLPP=1.00:LGP=  90.:MNP=.250:SCP=   .0]
[Impervious  area: IAimp= 1.57:SLPI=1.00:LGI=  44.:MNI=.045:SCI=   .0]
225:0056---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
 * CALIB STANDHYD     01:FR8          .30      .027 No_date   12:08   40.35 .484
   [XIMP=.01:TIMP=.16]
   [LOSS= 2 :CN= 71.0]
   [Pervious    area: IAper= 4.67:SLPP=1.00:LGP=  90.:MNP=.250:SCP=   .0]
   [Impervious  area: IAimp= 1.57:SLPI=1.00:LGI=  44.:MNI=.045:SCI=   .0]
225:0057---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
 * CALIB STANDHYD     01:FR8A         1.19     .097 No_date   12:10   38.30 .484
   [XIMP=.01:TIMP=.07]
   [LOSS= 2 :CN= 71.0]
   [Pervious    area: IAper= 4.67:SLPP=1.00:LGP=  90.:MNP=.250:SCP=   .0]
   [Impervious  area: IAimp= 1.57:SLPI=1.00:LGI=  44.:MNI=.045:SCI=   .0]
225:0058---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
 * CALIB STANDHYD     01:FR8B         1.00     .079 No_date   12:10   38.30 .484
   [XIMP=.01:TIMP=.07]
   [LOSS= 2 :CN= 71.0]
   [Pervious    area: IAper= 4.67:SLPP=1.00:LGP=  90.:MNP=.250:SCP=   .0]
   [Impervious  area: IAimp= 1.57:SLPI=1.00:LGI=  44.:MNI=.045:SCI=   .0]
225:0059---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
 * CALIB STANDHYD     01:FR10         1.87     .149 No_date   12:11   38.30 .484
   [XIMP=.01:TIMP=.07]
   [LOSS= 2 :CN= 71.0]
   [Pervious    area: IAper= 4.67:SLPP=1.00:LGP=  90.:MNP=.250:SCP=   .0]
   [Impervious  area: IAimp= 1.57:SLPI=1.00:LGI=  44.:MNI=.045:SCI=   .0]
225:0060---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
 * CALIB STANDHYD     01:FR11         .67      .053 No_date   12:10   38.30 .484
   [XIMP=.01:TIMP=.07]
   [LOSS= 2 :CN= 71.0]
   [Pervious    area: IAper= 4.67:SLPP=1.00:LGP=  90.:MNP=.250:SCP=   .0]
   [Impervious  area: IAimp= 1.57:SLPI=1.00:LGI=  44.:MNI=.045:SCI=   .0]
*****************************************************************************
* EXIST.NG flow - Upstream of Proposed Development
*****************************************************************************
* Total flow at node N-EX1
225:0063---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
   ADD HYD            02:EX1         24.67    7.797 No_date   12:08   47.87 n/a
                    + 03:EX2          1.10     .348 No_date   12:06   51.35 n/a
                    + 04:EX3          1.80     .568 No_date   12:06   55.19 n/a
     [DI= 1.00] SUM=  01:NEX1        26.77    8.587 No_date   12:07   42.71 n/a
* Typical Section Based on proposed channel provided by AEL
* 4:1 Bank slopes, Long Slope = 0.85%, Manning's n is 0.03
* Route Node N-EX1 to d/s node N2
225:0064---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
   ROUTE CHANNEL    -> 02:NEX1        26.77    7.587 No_date   12:07   43.71 n/a
     [ROC  1.00] out<- 01:RNEX1       26.77    8.424 No_date   12:16   43.71 n/a
     [I/S/n=  312./ .850/.030]
     [Vmax= 1.436:Dmax=  .852]
*****************************************************************************
* TOTAL INFLOW TO COMMERCIAL POND PEC
*****************************************************************************
225:0067---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V. R.C.
   ADD HYD            03:EX4          .60      .044 No_date   12:02   42.76 n/a
                    + 04:C1          8.19    1.629 No_date   12:05   68.50 n/a
                    + 04:C2          8.14    1.484 No_date   12:03   76.10 n/a
                    + 05:Pin         1.27      .341 No_date   12:03   70.00 n/a
     [DI= 1.00] SUM=  01:PinIn      18.71    3.955 No_date   12:03   70.79 n/a
225:0068---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
   ROUTE RESERVOIR -> 02:PinIn      18.71    3.495 No_date   12:09   70.79 n/a
     [RNI= 1.00] out<- 01:PinOut    18.71     .823 No_date   12:17   70.79 n/a
           overflow <- 03:Ovrf         .00      .000 No_date    0:00    .00 n/a
   [MaxStaWse=.66:ExfR=0, TotOvfVol=.3000ac-ft, k-ovf=    0, TotExfOvf      0.0ac-
* Total flow at outlet of commercial pond
225:0047---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
   ADD HYD            02 EXOut        18.71    3.825 No_date   12:09   70.79 n/a
                    + 03:FR8A         1.19     .097 No_date   12:10   38.30 n/a
     [DI= 1.00] SUM=  01:aPin        17.81    3.922 No_date   12:14   88.78 n/a
* Route pond outflow at pipe d/s of node N2
* Typical Section Based on proposed channel provided by AEL
* 4:1 Bank slopes, Long Slope = 0.25%, Manning's n is 0.03
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225:0048---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
   ROUTE CHANNEL    -> 02:dPin       17.81    .902 No_date   12:14   68.78 n/a
     [RFI= 1.00] out<- 01:RaPin     17.81    .846 No_date   12:29   68.78 n/a
     [L/S/n=  380./ .250/.030]
     [Vmax=  .697:Dmax=  .456]
* Total channel flow at pipe d/s of node N2
225:0049---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
   ADD HYD            03:FnPOr         .00      .000 No_date   12:00    .00 n/a
                    + 03:FR8B1        .25      .021 No_date   12:05   35.30 n/a
                    + 04:FR8A2       1.58      .119 No_date   12:10   38.30 n/a
     [DI= 1.00] SUM=  01:aN2         1.83      .140 No_date   12:10   36.18 n/a
* ************
* Total flow at node N8
* (Note that EX2 will be sheet draining to proposed channel)
225:0050---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
   ADD HYD            01:exN           .00      .000 No_date   12:00    .00 n/a
                    + 03:PrEX1       26.77    2.410 No_date   12:19   45.71 n/a
                    + 04:EX3          1.80      .144 No_date   12:10   56.53 n/a
                    + 05:C3           .24      .018 No_date   12:00   45.13 n/a
     [DI= 1.00] SUM=  01:aN3         28.98    2.689 No_date   12:18   60.48 n/a
* Typical Section Based on proposed channel provided by AEL
* 4:1 Bank slopes, Long Slope = 0.40%, Manning's n is 0.03
* Route 2YR draining at N8 to d/s node N-EX2
225:0051---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
   ROUTE CHANNEL    -> 02:aN3        28.98    3.065 No_date   12:32   50.48 n/a
     [ROC  1.00] out<- 01:aN4        28.98    3.422 No_date   12:16   50.48 n/a
     [I/S/n=  324./ .400/.030]
     [Vmax= 1.162:Dmax=  .951]
* Total flow at node N-EX2
225:0052---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
   ADD HYD            02:aN4         28.98    3.422 No_date   12:16   50.48 n/a
                    + 03:FR10         1.87      .143 No_date   12:11   38.30 n/a
     [DI= 1.00] SUM=  01:NEX2        30.85    3.553 No_date   12:15   50.08 n/a
* Route Node N-EX2 to Node N1
* Typical Section based on Shields MD Yee Ditch (1) banks
* provided by Alre.
* Manning's n is Channel not maintained, light brush on banks
* Slope - 0.05% as per plan provided by Alrec.
225:0053---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
   ROUTE CHANNEL    -> 02:NEX2       30.85    3.553 No_date   12:15   50.08 n/a
     [RFI= 1.00] out<- 01:aN1XC      30.85    3.085 No_date   12:31   50.08 n/a
     [I/S/n=  253./ .050/.035]
     [Vmax=  .354:Dmax= 1.751]
*****************************************************************************
* Residential Development - Phase 1 and 2
*****************************************************************************
* Total flow at node N-FR1
225:0054---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
   ADD HYD            03:FR1           4.20     .460 No_date   12:05   35.55 n/a
                    + 03:FR1A         .26      .022 No_date   12:01   44.24 n/a
     [DI= 1.00] SUM=  01:aN1         4.50     .426 No_date   12:05   36.95 n/a
* Volume to ponding area in cft
* Q=0.525 m3/s required as per sch 130;s Existing conditions
* Culvert from Inlet 1
* Assuming outlet culvert is 600 mm. slope - 1.1., HDPE smooth walls
* Manning's n = 0.012, inlet control nomograph
* Tyrwhitt head = 1.0m, Q=0.610
225:0055                 ID:NHYD       AREA    QPEAK TpeakDate hh:mm    R.V.-R.C.-
     COMPUTE DUALSYS     01:aN1         4.50     .426 No_date   12:05   36.95 n/a
       Major System /    02:NPSIN1       .00      .000 No_date    0:00     .00 n/a
       Minor System \    03:NPSIN2      4.50     .426 No_date   12:05   36.95 n/a
     [MajSysCap= .3000ac-ft, TotOutVol=-.3000ac-ft, k-ovf=    0, TotDurOvf      0.0hrs]
* Input to inlet 1 pipe
225:0056---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
   ADD HYD            02:aIn1          .56      .050 No_date   12:02   44.24 n/a
                    - 03:APR1BL      4.50     .426 No_date   12:05   36.95 n/a
     [DI= 1.00] SUM=  01:In1         5.05     .475 No_date   12:05   37.75 n/a
* Pipe from inlet 1 - Route to pond
* HDPE smooth wall pipe Manning's n = 0.012
225:0057---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
   ROUTE PIPE       -> 02:in1        5.05     .475 No_date   12:05   37.75 n/a
     [ROC  1.00] out<- 01:Pin1       5.05     .475 No_date   12:05   37.75 n/a
     [I/S/n=  65./1.000/.012]
     [Vmax= 3.065:Dmax=  .193]
     [Dia=  .600:Dused=  .600]
* Culvert from Inlet 2
* HDPE smooth wall pipe Manning's n = 0.012
225:0058---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
   ROUTE PIPE       -> 02:FR2A       1.07     .133 No_date   12:04   44.24 n/a
     [ROC  1.00] out<- 01:CIn2       1.57     .133 No_date   12:04   34.21 n/a
     [I/S/n=  11./ .400/.012]
     [Vmax= 1.325:Dmax=  .254]
     [Dia=  .500:Dused=  .500]
```

```
 # input to inlet 2 pipe
 225:0059----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ADD HYD            02:FR2B      1.17     .103 No_date   12:04   44.24  n/a
                       + 03:C1n2      1.57     .133 No_date   12:04   44.37  n/a
      [D2  1.00]  SUM=  01:In2       2.74     .236 No_date   12:04   44.31  n/a
 # Pipe from inlet 2 - Route to pond
 # HDPE smooth wall pipe Manning's n = 0.012
 225:0060----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ROUTE PIPE       -> 02:In2       2.74     .236 No_date   12:04   44.31  n/a
   *  [RST= 1.00] outs=  01:In2       2.74     .232 No_date   12:04   44.31  n/a
        [L/S/n=   75./ .200/.012]
        [Vmax= 1.1[1:Dmax=  .45]
        [Din=  .500:Dused=  .500]
 # Culvert from Inlet 3
 # HDPE smooth wall pipe Manning's n = 0.012
 225:0061----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ROUTE PIPE       -> 02:FR1A      .45     .041 No_date   12:02   44.24  n/a
        [RST= 1.00] outs=  01:Cln3      .45     .041 No_date   12:02   44.24  n/a
        [L/S/n=   12./ .400/.012]
        [Vmax=  .562:Dmax=  .135]
        [Din=  .500:Dused=  .500]
 # Input to inlet 3 pipe
 225:0062----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ADD HYD            02:FR1B      .52     .047 No_date   12:02   44.24  n/a
                       + 03:C1n3      .45     .041 No_date   12:02   44.24  n/a
      [D3  1.00]  SUM=  01:In3       .97     .088 No_date   12:02   44.24  n/a
 # Pipe from inlet 3 - Route to pond
 # HDPE smooth wall pipe Manning's n = 0.012
 225:0063----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ROUTE PIPE       -> 02:In3       .97     .088 No_date   12:02   44.24  n/a
        [RST= 1.00] outs=  01:In3       .97     .087 No_date   12:03   44.24  n/a
        [L/S/n=   75./ .200/.012]
        [Vmax=  .825:Dmax=  .215]
        [Din=  .500:Dused=  .500]
 # Culvert from inlet 4
 # HDPE smooth wall pipe Manning's n = 0.012
 225:0064----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ROUTE PIPE       -> 02:FR1A      .71     .064 No_date   12:02   44.24  n/a
        [RST= 1.00] outs=  01:Cln4      .71     .064 No_date   12:02   44.24  n/a
        [L/S/n=   13./ .400/.012]
        [Vmax= 1.089:Dmax=  .165]
        [Din=  .500:Dused=  .500]
 # Input to inlet 4 pipe
 225:0065----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ADD HYD            02:FR1B      .65     .059 No_date   12:02   44.24  n/a
                       + 03:C1-4      .71     .064 No_date   12:03   44.24  n/a
      [D4  1.00]  SUM=  01:In4       1.36     .123 No_date   12:03   44.24  n/a
 # Pipe from inlet 4 (ULTIMATE CONDITIONS) - Route to pond
 # HDPE smooth wall pipe Manning's n = 0.012
 225:0066----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ROUTE PIPE       -> 02:In4       1.36     .123 No_date   12:03   44.24  n/a
        [RST= 1.00] outs=  01:Pln4      1.36     .123 No_date   12:03   44.24  n/a
        [L/S/n=   65./1.000/.012]
        [Vmax= 2.038:Dmax=  .155]
        [Din=  .500:Dused=  .500]
 # Culvert from inlet 5
 # HDPE smooth wall pipe Manning's n = 0.012
 225:0067----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ROUTE PIPE       -> 02:FR5A      .66     .060 No_date   12:02   44.24  n/a
        [RST= 1.00] outs=  01:Cln5      .66     .060 No_date   12:02   44.24  n/a
        [L/S/n=   13./ .400/.012]
        [Vmax= 1.069:Dmax=  .163]
        [Din=  .500:Dused=  .500]
 # Input to inlet 5 pipe
 225:0068----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ADD HYD            02:FR5B      .46     .042 No_date   12:02   44.24  n/a
                       + 03:C1n5      .66     .060 No_date   12:02   44.24  n/a
      [D5  1.00]  SUM   01:In5       1.12     .102 No_date   12:02   44.24  n/a
 # Pipe from inlet 5 - Route to pond
 # HDPE smooth wall pipe Manning's n = 0.012
 225:0069----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ROUTE PIPE       -> 02:In5       1.12     .102 No_date   12:02   44.24  n/a
        [RST= 1.00] outs=  01:Pln5      1.12     .102 No_date   12:02   44.24  n/a
        [L/S/n=   72./1.000/.012]
        [Vmax= 2.038:Dmax=  .150]
        [Din=  .500:Dused=  .500]
 # Culvert from inlet 6
 # HDPE smooth wall pipe Manning's n = 0.012
 225:0070----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ROUTE PIPE       -> 02:FR6A      1.03     .095 No_date   12:04   44.24  n/a
        [RST= 1.00] outs=  01:Cln6      1.03     .095 No_date   12:04   44.24  n/a
        [L/S/n=   13./ .400/.012]
        [Vmax= 1.365:Dmax=  .245]
        [Din=  .500:Dused=  .500]
 # Input to inlet 6 pipe
 225:0071----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ADD HYD            02:FR6B      .93     .082 No_date   12:03   44.24  n/a
                       + 03:C1n6      1.43     .125 No_date   12:04   44.24  n/a
      [D6  1.00]  SUM=  01:In6       2.36     .207 No_date   12:04   44.24  n/a
 # Pipe from inlet 6 - Route to pond
 # HDPE smooth wall pipe Manning's n = 0.012
 225:0072----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ROUTE PIPE       -> 02:In6       2.36     .207 No_date   12:04   44.24  n/a
        [RST= 1.00] outs=  01:Pln6      2.36     .206 No_date   12:04   44.24  n/a
        [L/S/n=   75./ .300/.012]
        [Vmax= 1.295:Dmax=  .380]
        [Din=  .500:Dused=  .500]
 # VOLUME TO BOND ULTIMATE RESIDENTIAL
 225:0073----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ADD HYD            02:Pln_        5.05     .435 No_date   12:05   47.79  n/a
                       + 03:Pln2        2.74     .232 No_date   12:04   44.38  n/a
                       + 04:Pln3         .97     .087 No_date   12:03   44.24  n/a
                       + 05:Pln4        1.36     .123 No_date   12:03   44.24  n/a
                       + 06:Pln5        1.12     .102 No_date   12:03   44.24  n/a
                       + 07:Pln6        2.36     .206 No_date   12:04   44.24  n/a
                       + 08:Pln         5.04     .650 No_date   12:03   86.82  n/a
      [DT= 1.00]  SUM=  01:UNdin      18.63    1.874 No_date   12:04   48.39  n/a
 #  Pond outflow for ultimate conditions using weir .6; .6; 3.0
 225:0074----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ROUTE RESERVOIR -> 02:PONDin    18.63    1.874 No_date   12:05   46.55  n/a
        [EOT  1.00] outs=  01:Pout     10.67     .737 No_date    0:00    .00  n/a
              overflow <   03:ovr)      .00     .000 No_date    0:00    .00  n/a
      (MxStoMeas=.5320F-00, TerOvrVol=.000OF100, H-Ovr=    0, TotDurOvr=    0.0:00)
 # Simulating 3C8 100 yr conditions with submergence of outflow weir
 # updated for weir .6; .6; 3.0
 #ROUTE RESERVOIR     NHYDname=["PNout"] ,NHYDin=["PONDin"] ,
 #                    RST=[1](min),
 #                                TABLE of | OUTFLOW-STORAGE | values
 #                                         (cms) - (ha-m)
 #                                        [   0.0 ,   0.0 ]
 #                                         0.08000 , 1.1209
 #                                         0.20    , 1.6110
 #                                         0.45    , 2.8195
 #                                         [   -1  ,   -1  ]  (max twenty pts)
 #                               NHYDoutf=["Pout"] .
 # Route pond output through first set of pipes
 # 2 x 600 pipes simulated with 1 pipe of equivalent capacity (1750 cms n=n)
 # HDPE smooth wall pipe Manning's n = 0.012
 225:0075----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ROUTE PIPE       -> 02:PONout    18.63     .137 No_date   14:06   46.39  n/a
        [RST= 1.00] outs=  01:Pout1     18.63     .137 No_date   14:06   46.39  n/a
        [L/S/n=   75./ .200/.012]
        [Vmax= 1.834:Dmax=  .753]
        [Din=  .780:Dused=  .780]
 # Flow c/s of outlet culverts
 225:0076----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ADD HYD            02:FR7B1       .36     .032 No_date   12:00   38.35  n/a
                       + 03:FR7B2       .22     .020 No_date   12:00   38.35  n/a
                       + 01:Pout1     18.63     .137 No_date   14:06   46.39  n/a
      [DT= 1.00]  SUM   01:Pout      19.21     .141 No_date   14:00   46.21  n/a
 # Route outflow through set of culverts
 # 2 x 600 culverts simulated with 1 culvert of equivalent capacity (1780 cms n=n
 # HDPE smooth wall pipe Manning's n = 0.012
 225:0077----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ROUTE PIPE       -> 02:Pout      19.21     .141 No_date   14:00   46.21  n/a
        [RST= 1.00] outs=  01:cout      19.21     .141 No_date   13:58   46.21  n/a
        [L/S/n=   13./ .400/.012]
        [Vmax= 1.368:Dmax=  .215]
        [Din=  .780:Dused=  .780]
 # Flow c/s of second set of outflow pipes
 225:0078----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ADD HYD            02:tk7b1       .19     .035 No_date   12:08   40.35  n/a
                       + 03:tk7b2       .17     .015 No_date   12:08   40.35  n/a
                       + 04:cout      19.21     .141 No_date   13:58   46.21  n/a
      [DT= 1.00]  SUM   01:Pout2     19.57     .160 No_date   13:1[   46.04  n/a
 # Route outflow through second set of pipes
 # 2 x 600 pipes simulated with 1 pipe of equivalent capacity (1780 cms n=n
 # HDPE smooth wall pipe Manning's n = 0.012
 225:0079----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ROUTE PIPE       -> 02:Pout2     19.57     .160 No_date   12:12   46.04  n/a
        [EOT  1.00] outs=  01:Poutf     19.57     .160 No_date   12:12   46.04  n/a
        [L/S/n=   65./ .100/.012]
        [Vmax= 1.054:Dmax=  .175]
        [Din=  .780:Dused=  .780]
 # Total flow at node 01 (Shield MD Along Darwin Hart Rd)
 225:0080----------ID:NHYD-------AREA    QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
```

```
ADD HYD          02:RNEX2    57.65    2.969 No_date   12:21   50.0s  n/a
                +  03:Route    19.77     .160 No_date   12:12   46.04  n/a
                +  04:EX7        .35     .036 No_date   12:03   46.13  n/a
                +  05:FR7D       .36     .022 No_date   12:08   46.35  n/a
                +  06:FR11       .62     .050 No_date   12:10   48.30  n/a
     [DT= 1.00]  SUM=  01:hl    78.93    3.210 No_date   12:21   48.92  n/a
# ROUTE N1 to N3
# Typical Section Based on Shields MD Vee Ditch 3:1 Banks
# provided by Atrel
# Manning's n is Channel not maintained, light brush on banks
# Slope = 0.05% as per plan provided by Atrel.
 225:0081----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ROUTE CHANNEL   -> 02:N1      78.93    3.210 No_date   12:21   48.92  n/a
   [RT= 1.00] sub-  01:RN1       78.93    3.210 No_date   12:21   48.92  n/a
     [L/S/n= 349.2 .050/.035]
     [Vmax= .55:Tmax= 1.06]
# VOLUME from residential area at N1 (metric
 225:0082----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ADD HYD          02:RN1      78.93    3.210 No_date   12:21   48.92  n/a
                   +  03:FR8       1.38     .107 No_date   12:11   38.30  n/a
     [J= 1.00]  SUM=  01:N1     80.31    3.279 No_date   12:10   48.31  n/a
# Added VOLUME from external area contributing to N1
 225:0083----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ADD HYD          02:RN1      80.31    3.279 No_date   12:10   48.31  n/a
                   +  03:ex1        2.73     .218 No_date   12:10   50.21  n/a
                   +  04:ex5         .52     .056 No_date   12:05   54.75  n/a
                   +  07:EX6         .51     .043 No_date   12:04   44.61  n/a
                   +  09:EXC3        .22     .030 No_date   12:06   62.32  n/a
     [DT= 1.00]  SUM=  01:N3    84.29    3.626 No_date   12:10   47.99  n/a
# ROUTE N1 to N3(2)
# Typical Section Based on Shields MD Vee Ditch 3:1 Banks
# provided by Atrel
# Manning's n is Channel not maintained, light brush on banks
# Slope = 0.05% as per plan provided by Atrel.
 225:0084----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ROUTE CHANNEL   -> 02:N3      83.91    3.583 No_date   12:10   48.55  n/a
   [RT= 1.00] sub-  01:RN2       83.91    3.583 No_date   12:10   48.55  n/a
     [L/S/n= 415.7 .050/.035]
     [Vmax= .572:Tmax= 1.81]
# Flow at Stantec model HCR128 for comparison
# Routed N3 plus EX3
 225:0085----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ADD HYD          02:RN3      83.91    3.583 No_date   12:10   48.55  n/a
                   +  03:EX7       21.73     .787 No_date   12:08   36.56  n/a
     [DT= 1.00]  SUM=  01:HCR128  105.63    4.367 No_date   12:09   46.18  n/a
# AREA CHECK
#
 225:0086----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ADD HYD          02:ex1      24.62    2.388 No_date   12:08   42.67  n/a
                   +  03:EX2        9.89     .384 No_date   12:07   36.04  n/a
                   +  04:EX3       21.33     .767 No_date   12:08   36.04  n/a
                   +  05:EX4         .53     .044 No_date   12:07   47.06  n/a
                   +  06:EX5         .52     .056 No_date   12:05   54.78  n/a
                   +  07:EX6         .51     .043 No_date   12:04   44.61  n/a
                   +  08:EX7         .39     .038 No_date   12:05   46.15  n/a
                   +  09:FR1A        .24     .023 No_date   12:01   46.24  n/a
                   +  10:FR1B        .15     .015 No_date   12:01   46.24  n/a
     [DT= 1.00]  SUM=  01:Tot1    58.62    5.197 No_date   12:09   39.66  n/a
 225:0087----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ADD HYD          02:Tot1     58.62    5.197 No_date   12:09   39.66  n/a
                   +  03:FR1A        .27     .133 No_date   12:04   46.24  n/a
                   +  04:FR2B       2.17     .103 No_date   12:04   46.24  n/a
                   +  05:FR3B        .45     .041 No_date   12:02   46.24  n/a
                   +  06:FR3D        .52     .047 No_date   12:02   46.24  n/a
                   +  07:FR4A        .71     .064 No_date   12:02   46.24  n/a
                   +  08:FR4B        .65     .059 No_date   12:02   46.24  n/a
                   +  09:FR5A        .66     .059 No_date   12:02   46.24  n/a
                   +  10:FR5B        .46     .042 No_date   12:02   46.24  n/a
     [DT= 1.00]  SUM=  01:Tot2    64.71    5.710 No_date   12:09   40.10  n/a
 225:0088----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ADD HYD          02:Tot2     64.71    5.710 No_date   12:09   40.10  n/a
                   +  03:FR6A       1.43     .125 No_date   12:04   44.24  n/a
                   +  04:FR6B        .83     .072 No_date   12:03   44.24  n/a
                   +  05:FR7D       1.75     .112 No_date   12:08   40.35  n/a
                   +  06:FR7D1       .36     .022 No_date   12:08   40.35  n/a
                   +  07:FR7D2       .27     .020 No_date   12:08   40.35  n/a
                   +  08:FR7D3       .39     .035 No_date   12:08   40.35  n/a
                   +  09:EX7D2       .17     .015 No_date   12:08   40.35  n/a
                   +  10:FR7D        .30     .027 No_date   12:08   40.35  n/a
     [DT= 1.00]  SUM=  01:Tot3    69.56    6.154 No_date   12:09   40.25  n/a
 225:0089----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ADD HYD          02:Tot2     69.86    4.151 No_date   12:08   40.25  n/a
                   +  03:FR8        1.38     .137 No_date   12:11   38.30  n/a
                   +  04:FR9A       7.10     .087 No_date   12:10   38.30  n/a
                   +  05:FR9B        .95     .097 No_date   12:08   38.30  n/a
                   +  06:FR9B2       .60     .073 No_date   12:10   38.30  n/a
                   +  07:FR10       1.87     .143 No_date   12:11   38.46  n/a
                   +  08:FR11        .62     .050 No_date   12:10   38.30  n/a
                   +  09:PK         1.26     .105 No_date   12:05   36.54  n/a
                   +  10:PK2        5.87     .660 No_date   12:03   58.62  n/a
     [DT= 1.00]  SUM=  01:Tot4    85.91    5.503 No_date   12:07   41.00  n/a
 225:0090----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ADD HYD          02:Tot4     85.91    5.503 No_date   12:07   41.00  n/a
                   +  03:EC1         8.40    1.679 No_date   12:00   60.50  n/a
                   +  04:EC2         6.44    1.484 No_date   12:00   74.10  n/a
                   +  05:EC3         .24     .070 No_date   12:00   85.13  n/a
                   +  06:EXC1       1.10     .140 No_date   12:00   91.38  n/a
                   +  07:EXC2       1.87     .156 No_date   12:00   66.19  n/a
                   +  08:EXC3        .22     .040 No_date   12:00   82.43  n/a
                   +  09:DA         1.87     .341 No_date   12:00   70.46  n/a
     [DT= 1.00]  SUM=  01:Tot5   101.21    6.610 No_date   12:01   46.17  n/a
#*********************************************************************
# Simulations with 4 hour Chicago from City of Ottawa
# SCS 24 hours type 2, from City of Ottawa
  ** END OF RUN : 249
#
#*********************************************************************


 RUN:COMMAND#
 250:0001----------------------------------------------------------------
      START
       [TBASC =     .00 hrs on        0]
       [METOUT    2     (1-Imperial, 2-metric output)]
       [NSTORM    1 ]
       [NRUN    = 250]
#*********************************************************************
#  SWMHYMO Ver:5.02/Jan 2001 <RSTAN> / INPUT DATA FILE
#*********************************************************************
#  Project Name: [Greely Village Center]    Project Number: [07-07]
#  Date        : 04-05-2008
#  Modeller    : [JNR]
#  Company     : JFSAinc.
#  License #   :  2047402
#*********************************************************************
#
# SWMHYMO model of the Greely Village Center - Residential Area - Phase 2
# Proposed Flowrate conditions  OPTION B
# Filename stands for: Greely, Commercial , Proposed
#*********************************************************************
 250:0002----------------------------------------------------------------
      READ STORM
       Filename  = storm.601
       Comment   = 50 years SCS Type 2 Storm 24 Hours step 10 min. City of Ottawa
       [SDT=0.00:SDUR=  24.00:PTOT=  56.53]
#*********************************************************************
# Existing flow - McKay Branch of Shield Creek - Areas
# Area d/s of proposed development (residential)
# CN=75, slope = 0.8, Tp=0.16, XIMP=0, TIMP=15, see SC002 as per Stantec
# Area partially adjusted based on Atrel drawings. Tp adjusted accordingly.
#*********************************************************************
# d/s of Bank St.as per Atrel - with modified boundaries and Tp.
 250:0003----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     EXSTGE RANHYD    01:EX1      38.62    3.812 No_date   12:07   30.25  .521
       [CN= 75.0: N= 3.00]
       [Tp=  .23:Tl= 1.00]
#*********************************************************************
# Existing flow - external areas d/s of Bank St.
# CN*=59, as per Stantec see SC003.
# Area partially adjusted based on Atrel drawings.
#*********************************************************************
# Areas External to development
 250:0004----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     EXSTGE RANHYD    01:EX2       9.89     .454 No_date   12:17   23.18  .447
       [CN= 59.0: N= 3.00]
       [Tp=  .67:Tl= 1.00]
 250:0005----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     DESIGN RANHYD    01:EX3      21.30     .838 No_date   12:48   43.18  .447
       [CN= 69.0: N= 3.00]
       [Tp=  .63:Tl= 1.00]
# Slope, Timp, Area from Atrel drawing
# CN from Stantec (SC001)
# Ximp = Timp = 10%
```

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07969> 256:0018----------I1:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
07970>      CALIB STANDHYD     01:EX4          .58     .054 No date   12:07   49.96 .519
07971>        [XIMP=.11:TIMP=.22]
07972>        [LOSS= 2 :CN= 69.0]
07973>        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
07974>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  58.:MNI=.045:SCI=   .0]
07975> # Road and road side ditch along projected residential development Parkway Rd
07976> # Tlag   Xlag   0.22 hr /0.52 hr   0.42
07977> # CN*=69, as per Stantec sec SC001.
07978> # Slope is estimated at 1%
07979> # LGI based on centroid of area due to elongated shape   600m/2 = 300
07980> 256:0019----------I2:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
07981>      CALIB STANDHYD     01:EX5          .57     .065 No date   12:05   62.56 .648
07982>        [XIMP=.40:TIMP=.40]
07983>        [LOSS= 2 :CN= 69.0]
07984>        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
07985>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI= 300.:MNI=.045:SCI=   .0]
07986> # Road and road side ditch along projected residential development SalesBarn Rd
07987> # Tlag = Xlag = 0.1 hr /0.31 hr = 0.20
07988> # CN*=69, as per Stantec sec SC001.
07989> # Slope is estimated at 1%
07990> # LGI based on centroid of area due to elongated shape = 354m/2 = 177
07991> 256:0020----------I3:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
07992>      CALIB STANDHYD     01:EX6          .51     .051 No date   12:04   51.76 .536
07993>        [XIMP=.20:TIMP=.20]
07994>        [LOSS= 2 :CN= 69.0]
07995>        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
07996>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI= 177.:MNI=.045:SCI=   .0]
07997> # Road and road side ditch along projected residential development SalesBarn Rd
07998> # Tlag = Xlag = 0.09 hr /0.39 hr = 0.23
07999> # CN*=69, as per Stantec sec SC001.
08000> # Slope is estimated at 1%
08001> # LGI based on centroid of area due to elongated shape = 275m/2 = 137.5
08002> 256:0009----------I4:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
08003>      CALIB STANDHYD     01:EX7          .59     .063 No date   12:03   53.38 .553
08004>        [XIMP=.09:TIMP=.09]
08005>        [LOSS= 2 :CN= 69.0]
08006>        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
08007>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI= 137.:MNI=.045:SCI=   .0]
08008> #*******************************************************************************
08009> # PROPOSED COMMERCIAL DEVELOPMENT
08010> #*******************************************************************************
08011> # Cn = 79 as per full grass cover with C soil type for Lon xxii; CN*=2
08012> # XIMP & TIMP to be conservative
08013> #*******************************************************************************
08014> 256:0010----------I1:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
08015>      DESIGN STANDHYD    01:C1           5.30    1.861 No date   12:09   77.12 .799
08016>        [XIMP=.83:TIMP=.83]
08017>        [SLP=1.00:DT= 1.00]
08018>        [LOSS= 2 :CN= 71.0]
08019> 256:0011----------I1:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
08020>      DESIGN STANDHYD    01:C2           8.14    1.668 No date   12:09   45.10 .387
08021>        [XIMP=.79:TIMP=.79]
08022>        [SLP=1.00:DT= 1.00]
08023>        [LOSS= 2 :CN= 71.0]
08024> 256:0012----------I1:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
08025>      DESIGN STANDHYD    01:C3           .24     .078 No date   12:09   84.72 .981
08026>        [XIMP=.98:TIMP=.98]
08027>        [SLP=1.00:DT= 1.00]
08028>        [LOSS= 2 :CN= 71.0]
08029> #  Imp = Imp ha/total area = 0.30/1.10 ha = .27
08030> 256:0013----------I1:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
08031>      DESIGN STANDHYD    01:EX01         1.10     .155 No date   12:09   59.01 .541
08032>        [XIMP=.27:TIMP=.27]
08033>        [SLP=1.00:DT= 1.00]
08034>        [LOSS= 2 :CN= 71.0]
08035> #  Imp = Imp ha/total area = 0.35/1.07 ha = .35
08036> 256:0014----------I1:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
08037>      DESIGN STANDHYD    01:EX02         1.07     .181 No date   12:09   69.03 .653
08038>        [XIMP=.35:TIMP=.35]
08039>        [SLP=1.00:DT= 1.00]
08040>        [LOSS= 2 :CN= 71.0]
08041> #  Imp = Imp ha/total area = 0.11/0.20ha = .50
08042> 256:0015----------I1:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
08043>      DESIGN STANDHYD    01:EX03         .22     .046 No date   12:09   78.54 .743
08044>        [XIMP=.50:TIMP=.50]
08045>        [SLP=1.00:DT= 1.00]
08046>        [LOSS= 2 :CN= 71.0]
08047> #*******************************************************************************
08048> # Commercial pond (PC)
08049> # slope estimated at 1% based on elevations around pond.
08050> # Timp and Ximp based on total pond area
08051> # ximp = A pond/A tot (1.04/1.87)
08052> 256:0016----------I1:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
08053>      DESIGN STANDHYD    01:PC           1.87     .186 No date   12:09   79.13 .820
08054>        [XIMP=.67:TIMP=.67]
08055>        [SLP=1.00:DT= 1.00]
08056>        [LOSS= 2 :CN= 71.0]
08057> ##########################################################################
08058> #*******************************************************************************
08059> # PROPOSED RESIDENTIAL SUBWATERSHEDS - Residential Area Phase 1 and 2
08060> #*******************************************************************************
08061> # CN*=69, as per Stantec sec SC001.
08062> # Tp estimated with Upland Method.
08063> 256:0017----------I1:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
08064>      DESIGN NASHYD      01:PR1          4.26     .480 No date   12:08   48.18 .487
08065>        [CN= 69.0] N= 3.00]
08066>        [Tp=  .18:DT= 1.00]
08067> #*******************************************************************************
08068> # AREAS GOING TO RESIDENTIAL POND (PD1)
08069> #*******************************************************************************
08070> #
08071> 256:0018----------I1:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
08072>      CALIB STANDHYD     01:PR1A         .74     .078 No date   12:01   51.62 .585
08073>        [XIMP=.11:TIMP=.21]
08074>        [LOSS= 2 :CN= 71.0]
08075>        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
08076>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  40.:MNI=.045:SCI=   .0]
08077> 256:0019----------I1:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
08078>      CALIB STANDHYD     01:PR1B         .52     .061 No date   12:03   51.62 .585
08079>        [XIMP=.11:TIMP=.21]
08080>        [LOSS= 2 :CN= 71.0]
08081>        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
08082>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  40.:MNI=.045:SCI=   .0]
08083> 256:0020----------I1:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
08084>      CALIB STANDHYD     01:PR2A         1.53     .180 No date   12:04   51.62 .585
08085>        [XIMP=.11:TIMP=.21]
08086>        [LOSS= 2 :CN= 71.0]
08087>        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
08088>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  40.:MNI=.045:SCI=   .0]
08089> 256:0021----------I1:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
08090>      CALIB STANDHYD     01:PR1B         1.17     .138 No date   12:04   51.62 .585
08091>        [XIMP=.11:TIMP=.21]
08092>        [LOSS= 2 :CN= 71.0]
08093>        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
08094>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  40.:MNI=.045:SCI=   .0]
08095> 256:0022----------I1:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
08096>      CALIB STANDHYD     01:PR2A         .45     .050 No date   12:07   51.62 .585
08097>        [XIMP=.11:TIMP=.21]
08098>        [LOSS= 2 :CN= 71.0]
08099>        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
08100>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  40.:MNI=.045:SCI=   .0]
08101> 256:0023----------I1:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
08102>      CALIB STANDHYD     01:PR2B         .52     .058 No date   12:02   51.62 .585
08103>        [XIMP=.11:TIMP=.21]
08104>        [LOSS= 2 :CN= 71.0]
08105>        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
08106>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  40.:MNI=.045:SCI=   .0]
08107> 256:0024----------I1:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
08108>      CALIB STANDHYD     01:PR3A         .71     .078 No date   12:03   51.62 .585
08109>        [XIMP=.11:TIMP=.21]
08110>        [LOSS= 2 :CN= 71.0]
08111>        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
08112>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  40.:MNI=.045:SCI=   .0]
08113> 256:0025----------I1:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
08114>      CALIB STANDHYD     01:PR4B         .60     .072 No date   12:03   51.62 .585
08115>        [XIMP=.11:TIMP=.21]
08116>        [LOSS= 2 :CN= 71.0]
08117>        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
08118>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  40.:MNI=.045:SCI=   .0]
08119> 256:0026----------I1:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
08120>      CALIB STANDHYD     01:PR5A         .66     .077 No date   12:03   51.62 .585
08121>        [XIMP=.11:TIMP=.21]
08122>        [LOSS= 2 :CN= 71.0]
08123>        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
08124>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  40.:MNI=.045:SCI=   .0]
08125> 256:0027----------I1:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
08126>      CALIB STANDHYD     01:PR5B         .46     .052 No date   12:02   51.62 .585
08127>        [XIMP=.11:TIMP=.21]
08128>        [LOSS= 2 :CN= 71.0]
08129>        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
08130>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  40.:MNI=.045:SCI=   .0]
08131> 256:0028----------I1:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
08132>      CALIB STANDHYD     01:PR6A         1.43     .163 No date   12:04   51.62 .585
08133>        [XIMP=.11:TIMP=.21]
08134>        [LOSS= 2 :CN= 71.0]
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08114>       [Pervious     area: TAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
08115>       [Impervious   area: TAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
08116> 250:0028---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
08117>    CALIB STANDHYD     01:FR60          .93     .096 No_date   12:03   51.62 .515
08118>       [XIMP=.11:TIMP=.21]
08119>       [Loss= 2 :CN= 71.0]
08120>       [Pervious     area: TAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
08121>       [Impervious   area: TAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
08122> * slope estimated at 2  based on backyard swales.
08123> * Tlag and Xlag based on total pond area
08124> * xlag = A pond/A tot
08125> * Tlag = weighted average of pond and backyards
08126> 250:0038---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
08127>    CALIB STANDHYD     01:FR50          .80     .773 No_date   12:02   66.75 .691
08128>       [XIMP=.44:TIMP=.47]
08129>       [Loss= 2 :CN= 71.0]
08130>       [Pervious     area: TAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
08131>       [Impervious   area: TAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
08132> ********************************************************************************
08133> * UNCONTROLLED AREAS
08134> ********************************************************************************
08135> *
08136> 250:0033---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
08137>    CALIB STANDHYD     01:FR7A          1.35     .118 No_date   12:09   47.53 .492
08138>       [XIMP=.02:TIMP=.14]
08139>       [Loss= 2 :CN= 71.0]
08140>       [Pervious     area: TAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
08141>       [Impervious   area: TAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
08142> 250:0034---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
08143>    CALIB STANDHYD     01:FR7B1         .77     .068 No_date   12:07   47.53 .492
08144>       [XIMP=.02:TIMP=.14]
08145>       [Loss= 2 :CN= 71.0]
08146>       [Pervious     area: TAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
08147>       [Impervious   area: TAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
08148> 250:0035---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
08149>    CALIB STANDHYD     01:FR7B2         .39     .034 No_date   12:07   47.53 .492
08150>       [XIMP=.02:TIMP=.14]
08151>       [Loss= 2 :CN= 71.0]
08152>       [Pervious     area: TAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
08153>       [Impervious   area: TAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
08154> 250:0036---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
08155>    CALIB STANDHYD     01:FR7C1         .39     .034 No_date   12:07   47.53 .492
08156>       [XIMP=.02:TIMP=.14]
08157>       [Loss= 2 :CN= 71.0]
08158>       [Pervious     area: TAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
08159>       [Impervious   area: TAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
08160> 250:0037---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
08161>    CALIB STANDHYD     01:FR7C2         .77     .068 No_date   12:07   47.53 .492
08162>       [XIMP=.02:TIMP=.14]
08163>       [Loss= 2 :CN= 71.0]
08164>       [Pervious     area: TAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
08165>       [Impervious   area: TAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
08166> 250:0031---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
08167>    CALIB STANDHYD     01:FR7D          .50     .044 No_date   12:07   47.53 .492
08168>       [XIMP=.02:TIMP=.14]
08169>       [Loss= 2 :CN= 71.0]
08170>       [Pervious     area: TAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
08171>       [Impervious   area: TAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
08172> 250:0032---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
08173>    CALIB STANDHYD     01:FR8A          .13     .107 No_date   12:09   45.28 .469
08174>       [XIMP=.01:TIMP=.07]
08175>       [Loss= 2 :CN= 71.0]
08176>       [Pervious     area: TAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
08177>       [Impervious   area: TAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
08178> 250:0039---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
08179>    CALIB STANDHYD     01:FR9B1         .35     .028 No_date   12:07   45.28 .469
08180>       [XIMP=.01:TIMP=.07]
08181>       [Loss= 2 :CN= 71.0]
08182>       [Pervious     area: TAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
08183>       [Impervious   area: TAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
08184> 250:0040---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
08185>    CALIB STANDHYD     01:FR9A          .13     .107 No_date   12:09   45.28 .469
08186>       [XIMP=.01:TIMP=.07]
08187>       [Loss= 2 :CN= 71.0]
08188>       [Pervious     area: TAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
08189>       [Impervious   area: TAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
08190> 250:0041---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
08191>    CALIB STANDHYD     01:FR9B2         .35     .028 No_date   12:07   45.28 .469
08192>       [XIMP=.01:TIMP=.07]
08193>       [Loss= 2 :CN= 71.0]
08194>       [Pervious     area: TAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
08195>       [Impervious   area: TAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
08196> 250:0042---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
08197>    CALIB STANDHYD     01:FR9C1         .39     .034 No_date   12:07   45.28 .469
08198>       [XIMP=.01:TIMP=.07]
08199>       [Loss= 2 :CN= 71.0]
08200>       [Pervious     area: TAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
08201>       [Impervious   area: TAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
08202> 250:0043---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
08203>    CALIB STANDHYD     01:FR9C2         .77     .068 No_date   12:07   45.28 .469
08204>       [XIMP=.01:TIMP=.07]
08205>       [Loss= 2 :CN= 71.0]
08206>       [Pervious     area: TAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
08207>       [Impervious   area: TAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
08208> 250:0044---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
08209>    CALIB STANDHYD     01:FR9D          .50     .044 No_date   12:07   45.28 .469
08210>       [XIMP=.01:TIMP=.07]
08211>       [Loss= 2 :CN= 71.0]
08212>       [Pervious     area: TAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
08213>       [Impervious   area: TAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
08214> 250:0045---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
08215>    CALIB STANDHYD     01:FR9E1         .77     .068 No_date   12:07   45.28 .469
08216>       [XIMP=.01:TIMP=.07]
08217>       [Loss= 2 :CN= 71.0]
08218>       [Pervious     area: TAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
08219>       [Impervious   area: TAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
08220> 250:0046---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
08221>    CALIB STANDHYD     01:FR9E2         .39     .034 No_date   12:07   45.28 .469
08222>       [XIMP=.01:TIMP=.07]
08223>       [Loss= 2 :CN= 71.0]
08224>       [Pervious     area: TAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
08225>       [Impervious   area: TAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
08226> 250:0047---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
08227>    CALIB STANDHYD     01:FR9F1         .77     .068 No_date   12:07   45.28 .469
08228>       [XIMP=.01:TIMP=.07]
08229>       [Loss= 2 :CN= 71.0]
08230>       [Pervious     area: TAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
08231>       [Impervious   area: TAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
08232> 250:0048---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
08233>    CALIB STANDHYD     01:FR9F2         .39     .034 No_date   12:07   45.28 .469
08234>       [XIMP=.01:TIMP=.07]
08235>       [Loss= 2 :CN= 71.0]
08236>       [Pervious     area: TAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
08237>       [Impervious   area: TAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
08238> 250:0049---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
08239>    CALIB STANDHYD     01:FR10          .77     .068 No_date   12:07   45.28 .469
08240>       [XIMP=.01:TIMP=.07]
08241>       [Loss= 2 :CN= 71.0]
08242>       [Pervious     area: TAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
08243>       [Impervious   area: TAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
08244> ********************************************************************************
08245> * EXISTING ROW - Upstream of Proposed Development.
08246> ********************************************************************************
08247> * Total flow at node B-EX1
08248> 250:0043---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
08249>    ADD HYD            02:EX1          26.02    2.812 No_date   12:01   50.15 n/a
08250>                     + 03:EX2           1.10     .105 No_date   12:03   59.01 n/a
08251>                     + 04:EX3           1.57     .131 No_date   12:03   63.38 n/a
08252>       [IT= 1.00]  SUM= 01:NEX1        28.79    3.039 No_date   12:07   51.12 n/a
08253> * Typical Section Based on proposed channel provided by AEL
08254> * 4:1 bank slopes, Long Slope = 0.85%, Manning's n is 0.03
08255> * Route Node B-EX1 to B/S node B0
08256> 250:0044---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
08257>    ROUTE CHANNEL      -> 01:NEX1      28.79    3.039 No_date   12:07   51.12 n/a
08258>       [MS= 1.00] outc= 01:NEX1        28.79    3.022 No_date   12:10   51.12 n/a
08259>       [V/S/n= 212./ .650/.030]
08260>       [Vmax= 1.499:Lmax=  .590]
08261> ********************************************************************************
08262> * TOTAL INFLOW TO COMMERCIAL POND PDc
08263> ********************************************************************************
08264> 250:0045---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
08265>    ADD HYD            02:EX4           .50     .054 No_date   12:02   46.98 n/a
08266>                     + 03:CD            8.40    1.647 No_date   12:00   77.12 n/a
08267>                     + 04:CD            8.34    1.668 No_date   12:00   80.16 n/a
08268>                     + 05:PDc           1.57     .388 No_date   12:00   79.15 n/a
08269>       [IT= 1.00]  SUM= 01:PDcIn       18.71    3.852 No_date   12:00   79.55 n/a
08270> 250:0046---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
08271>    ROUTE RESERVOIR -> 02:PDcIn        18.71    3.852 No_date   12:00   79.55 n/a
08272>       [MS= 1.00] outc= 01:PDCout      18.71    1.009 No_date   12:15   79.04 n/a
08273>              overflow <- 03:OvrD        .00     .000 No_date   0:00     .00 n/a
08274>       [MaxStoSpcd .6111E+00, TotCumVol= .3603E+03, K-Cvr=    0, TriDirVol=    0.hrs]
08275> * Total flow at outlet of commercial pond
08276> 250:0057---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
08277>    ADD HYD            02:PDCout       18.71    1.009 No_date   12:15   79.04 n/a
08278>                     + 03:EX9A          1.10     .107 No_date   12:09   45.28 n/a
08279>       [IT= 1.00]  SUM= 01:OPDc        17.81    1.108 No_date   12:10   77.43 n/a
08280> * Route pond outflow at pipe d/s of node E0
08281> * Typical Section Based on proposed channel provided by AEL
08282> * 0:1 bank slopes, Long Slope = 0.25%, Manning's n is 0.02
08283> 250:0048---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
08284>    ROUTE CHANNEL      -> 02:OPDc        17.81    1.108 No_date   12:10   77.43 n/a
08285>       [MS= 1.00] outc= 01:POPDc       17.81    1.064 No_date   12:18   77.43 n/a
08286>       [V/S/n= 166./ .250/.030]
08287>       [Vmax= .695:Lmax=  .58]
08288> * Total channel flow at pipe d/s of node B0
08289> 250:0049---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
08290>    ADD HYD            02:POPDc        17.81    1.071 No_date   12:23   77.43 n/a
08291>                     + 03:FR9B1         .35     .028 No_date   12:07   45.28 n/a
08292>                     + 04:FR9B2         .39     .034 No_date   12:07   45.28 n/a
08293>       [IT= 1.00]  SUM= 01:seB0        19.06    1.111 No_date   12:26   75.82 n/a
08294> * ************
08295> * Total flow at node E0
08296> * (Note that EX2 will be about draining to proposed channel)
08297> 250:0050---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
08298>    ADD HYD            02:usE0         19.06    1.111 No_date   12:26   75.82 n/a
08299>                     + 03:EDEX1        26.79    2.922 No_date   12:11   51.12 n/a
08300>                     + 04:EX2           9.89     .455 No_date   12:37   43.28 n/a
08301>                     + 05:CD            .04     .008 No_date   12:00   94.72 n/a
08302>       [IT= 1.00]  SUM= 01:E0          55.98    4.263 No_date   12:12   58.14 n/a
08303> * Typical Section Based on proposed channel provided by AEL
08304> * 4:1 bank slopes, Long Slope = 0.45%, Manning's n is 0.03
08305> * Route SW Ditching at B0 to B/S node B-EX2
08306> 250:0051---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
08307>    ROUTE CHANNEL      -> 01:NB0       55.98    4.263 No_date   12:12   58.14 n/a
08308>       [VS= 1.00] outc= 01:NB0         55.98    4.098 No_date   12:15   58.14 n/a
08309>       [V/S/n= 234./ .400/.030]
08310>       [Vmax= 1.233:Lmax=  .813]
08311> * Total flow at node B-EX2
08312> 250:0052---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
08313>    ADD HYD            02:NB0          55.98    4.098 No_date   12:15   58.14 n/a
08314>                     + 03:EX10          1.87     .176 No_date   12:10   45.28 n/a
08315>       [IT= 1.00]  SUM= 01:NEX2        57.85    4.256 No_date   12:15   57.75 n/a
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08300> # Route Name N:XX2 to Node N1
08301> # Typical Section based on Shields MD Voo Ditch 3:1 banks
08302> # provided by Akel
08303> # Manning's n is Channel not maintained, light brush on banks
08304> # Slope = 0.05% as per plan provided by Akel.
08306> 250:0057---------------ID:N1YD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
08307>      ROUTE CHANNEL    -> 02:N5W2        57.88     4.256 No_date   12:15   57.73  n/a
08308>   +  [RET= 1.00] out<- 01:RNEW2       57.88     3.448 No_date   12:22   57.73  n/a
08309>      [L/S/n=  2*1./ .050/.035]
08310>      [Vmax= .350:Dmax= 1.851]
08311> +-------------------------------------------------------------------------------
08312> # Residential Development - Phase 1 And 2
08313> +-------------------------------------------------------------------------------
08314> # Total flow at node N-PK
08315> 250:0054---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
08316>      ADD HYD          02:PK          4.98      .486 No_date   12:05   43.18  n/a
08317>                     + 03:FR1A        .24       .028 No_date   12:01   51.62  n/a
08318>      [DT= 1.00]  SUM= 01:NPK1        4.92      .508 No_date   12:05   43.69  n/a
08319> # Vs une to ponding area in PK1
08320> # Qe=.566 ac/s (applies as per SCS 100yr Existing conditions
08321> # Culvert from Inlet 1
08322> # Assuming outlet culvert is 600 mm, Slope = .2%, HDPE smooth walls
08323> # Manning's n = 0.012, inlet control nomograph
08324> # Hydraulic head = 0.0m, Qe=.510
08325> 250:0055---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
08326>      COMPUTE UNALEYD  01:SUB1          4.05      .508 No_date   12:05   45.03  n/a
08327>          Major System /  02:SW2INT      .00       .000 No_date   00:00    .00  n/a
08328>          Minor System \  03:NPK1Hn      1.50      .566 No_date   12:05   45.03  n/a
08329>          [S]System: .0060E-00, Orifice*Vol=.3802E-00, R-Curve=    0, TailwaterDe=    0.0cms
08330> # Input to Inlet 1 pipe
08331> 250:0051---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
08332>      ADD HYD          02:FR1E          .05       .061 No_date   12:05   51.67  n/a
08333>                     + 03:NPK1Hn        1.50      .506 No_date   12:05   43.64  n/a
08334>      [DT= 1.00]  SUM  01:In1           5.05      .566 No_date   12:05   44.50  n/a
08335> # Pipe from Inlet 1 - Route to pond
08336> # HDPE smooth wall pipe Manning's n = 0.012
08337> 250:0052---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
08338>      ROUTE PIPE       -> 02:In1         5.05      .566 No_date   12:05   44.50  n/a
08339>      [RET= 1.00] out<- 01:Pin1          5.05      .566 No_date   12:05   44.50  n/a
08340>      [L/S/n=  65./1.600/.012]
08341>      [Vmax= 3.191:Dmax=  .360]
08342>      [Din=  .600:Dused=  .600]
08343> # Culvert from Inlet 2
08344> # HDPE smooth wall pipe Manning's n = 0.012
08345> 250:0058---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
08346>      ROUTE PIPE       -> 02:FR2A        1.57      .168 No_date   12:04   51.62  n/a
08347>      [RET= 1.00] out<- 01:Cin2          1.57      .168 No_date   12:04   51.62  n/a
08348>      [L/S/n=  13./ .400/.012]
08349>      [Vmax= .402:Dmax=  .293]
08350>      [Din=  .500:Dused=  .500]
08351> # Input to Inlet 2 pipe
08352> 250:0059---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
08353>      ADD HYD          02:FR2E          1.17      .126 No_date   12:04   51.62  n/a
08354>                     + 03:CIn2          .57       .168 No_date   12:04   51.76  n/a
08355>      [DT= 1.00]  SUM  01:In2           1.74      .294 No_date   12:04   51.70  n/a
08356> # Pipe from Inlet 2 - Route to pond
08357> # HDPE smooth wall pipe Manning's n = 0.012
08358> 250:0060---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
08359>      ROUTE PIPE       -> 02:In2         1.74      .294 No_date   12:04   51.70  n/a
08360>   +  [RET= 1.00] out<- 01:Pin2          1.74      .260 No_date   12:04   51.70  n/a
08361>      [L/S/n=  75./ .300/.012]
08362>      [Vmax= 1.178:Dmax=  .469]
08363>      [Din=  .500:Dused=  .598]
08364> # Culvert from Inlet 3
08365> # HDPE smooth wall pipe Manning's n = 0.012
08366> 250:0061---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
08367>      ROUTE PIPE       -> 02:FR3A        .45       .030 No_date   12:02   51.62  n/a
08368>      [RET= 1.00] out<- 01:Cin3          .45       .030 No_date   12:03   51.62  n/a
08369>      [L/S/n=  5./ .400/.012]
08370>      [Vmax= 1.017:Dmax=  .149]
08371>      [Din=  .150:Dused=  .150]
08372> # Input to Inlet 3 pipe
08373> 250:0062---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
08374>      ADD HYD          02:FR3E          .57       .058 No_date   12:02   51.62  n/a
08375>                     + 03:CIn3          .45       .030 No_date   12:02   51.62  n/a
08376>      [DT= 1.00]  SUM  01:In3           .91       .085 No_date   12:02   51.62  n/a
08377> # Pipe from Inlet 3 - Route to pond
08378> # HDPE smooth wall pipe Manning's n = 0.012
08379> 250:0063---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
08380>      ROUTE PIPE       -> 02:In2         .57       .169 No_date   12:01   51.62  n/a
08381>      [RET= 1.00] out<- 01:Pin3          .57       .140 No_date   12:02   51.62  n/a
08382>      [L/S/n=  75./ .200/.012]
08383>      [Vmax= .971:Dmax=  .277]
08384>      [Din=  .500:Dused=  .336]
08385> # Culvert from Inlet 4
08386> # HDPE smooth wall pipe Manning's n = 0.012
08387> 250:0064---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
08388>      ROUTE PIPE       -> 02:FR4A        .27       .017 No_date   12:03   51.62  n/a
08389>      [RET= 1.00] out<- 01:Cin4          .27       .017 No_date   12:03   51.62  n/a
08390>      [L/S/n=  13./ .400/.012]
08391>      [Vmax= 1.150:Dmax=  .180]
08392>      [Din=  .300:Dused=  .300]
08393> # Input to Inlet 4 pipe
08394> 250:0065---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
08395>      ADD HYD          02:FR4E          .65       .072 No_date   12:03   51.62  n/a
08396>                     + 03:CIn4          .71       .079 No_date   12:03   51.62  n/a
08397>      [DT= 1.00]  SUM= 01:In4           1.36      .151 No_date   12:03   51.62  n/a
08398> # Pipe from inlet 4 (ULTIMATE CONDITIONS) - Route to pond
08399> # HDPE smooth wall pipe Manning's n = 0.012
08400> 250:0066---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
08401>      ROUTE PIPE       -> 02:In4         1.36      .151 No_date   12:03   51.62  n/a
08402>      [RET= 1.00] out<- 01:Pin4          1.36      .151 No_date   12:03   51.62  n/a
08403>      [L/S/n=  55./1.900/.012]
08404>      [Vmax= 2.427:Dmax=  .176]
08405>      [Din=  .500:Dused=  .500]
08406> # Culvert from inlet 5
08407> # HDPE smooth wall pipe Manning's n = 0.012
08408> 250:0067---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
08409>      ROUTE PIPE       -> 02:FR5A        .66       .073 No_date   12:03   51.62  n/a
08410>      [RET= 1.00] out<- 01:Cin5          .66       .073 No_date   12:03   51.62  n/a
08411>      [L/S/n=  13./ .400/.012]
08412>      [Vmax= 1.133:Dmax=  .192]
08413>      [Din=  .500:Dused=  .500]
08414> # Input to Inlet 5 pipe
08415> 250:0068---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
08416>      ADD HYD          02:FR5E          .46       .052 No_date   12:02   51.62  n/a
08417>                     + 03:CIn5          .66       .073 No_date   12:03   51.62  n/a
08418>      [DT= 1.00]  SUM  01:In5           1.12      .125 No_date   12:03   51.62  n/a
08419> # Pipe from inlet 5 - Route to pond
08420> # HDPE smooth wall pipe Manning's n = 0.012
08421> 250:0069---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
08422>      ROUTE PIPE       -> 02:In5         1.12      .125 No_date   12:03   51.62  n/a
08423>      [RET= 1.00] out<- 01:Pin5          1.12      .125 No_date   12:03   51.62  n/a
08424>      [L/S/n=  75./1.600/.012]
08425>      [Vmax= 2.163:Dmax=  .167]
08426>      [Din=  .200:Dused=  .500]
08427> # Culvert from inlet 6
08428> # HDPE smooth wall pipe Manning's n = 0.012
08429> 250:0070---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
08430>      ROUTE PIPE       -> 02:FR6A        .43       .159 No_date   12:04   51.62  n/a
08431>      [RET= 1.00] out<- 01:Cin6          .43       .159 No_date   12:04   51.62  n/a
08432>      [L/S/n=  13./ .400/.012]
08433>      [Vmax= 1.873:Dmax=  .277]
08434>      [Din=  .300:Dused=  .500]
08435> # Input to Inlet 6 pipe
08436> 250:0071---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
08437>      ADD HYD          02:FR6E          .93       .109 No_date   12:03   51.62  n/a
08438>                     + 03:CIn6          1.43      .153 No_date   12:04   51.62  n/a
08439>      [DT= 1.00]  SUM= 01:In6           2.36      .252 No_date   12:03   51.62  n/a
08440> # Pipe from Inlet 6 - Route to pond
08441> # HDPE smooth wall pipe Manning's n = 0.012
08442> 250:0072---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
08443>      ROUTE PIPE       -> 02:In6         2.36      .252 No_date   12:03   51.62  n/a
08444>   +  [RET= 1.00] out<- 01:Pin6          2.36      .249 No_date   12:05   51.62  n/a
08445>      [L/S/n=  70./ .300/.012]
08446>      [Vmax= 1.339:Dmax=  .425]
08447>      [Din=  .500:Dused=  .327]
08448> # VOLUME TO POND ULTIMATE RESIDENTIAL
08449> 250:0073---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
08450>      ADD HYD          01:Pin1          5.05      .586 No_date   12:05   44.52  n/a
08451>                     + 03:Pin2          2.74      .290 No_date   12:04   51.77  n/a
08452>                     + 04:Pin3           .97      .107 No_date   12:03   51.62  n/a
08453>                     + 05:Pin4          1.36      .151 No_date   12:03   51.62  n/a
08454>                     + 06:Pin5          1.12      .125 No_date   12:03   51.62  n/a
08455>                     + 07:Pin6          2.36      .249 No_date   12:05   51.62  n/a
08456>                     + 08:FD1           5.03      .073 No_date   12:00   60.75  n/a
08457>      [DT= 1.00]  SUM= 01:POND1n        18.63     2.242 No_date   12:04   53.81  n/a
08458> #  Pond outflow for ultimate conditions using wsl .6; .6; 3.0
08459> 250:0074---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
08460>      ROUTE RESERVOIR -> 02:POND1n      18.63     2.242 No_date   12:04   53.81  n/a
08461>      [RET= 1.00] out<- 01:POut1         18.63     .169 No_date   17:51   57.81  n/a
08462>              overflow <- 03:over        .00       .000 No_date   00:00    .00  n/a
08463>      [Storage= 6.1254+03, TailwaterVo =.0000E+00, R-Curve=    0, TailwaterDe=    0.0cms]
08464> # Simulating SCS 100 yr conditions with subsequence of outflow weir
08465> # updated 100 wsl: .6; .6; 3.0
08466> *ROUTE RESERVOIR     3H2Dout ["POut" ,NHYD=n-"POND1n" ,
```

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08467> *                    RDT=1[1](min),
08468> *                         TABLE of [ OUTFLOW-STORAGE ] values
08469> *                                    (cms) - (ha-m)
08470> *                                  [   0.0 ,   0.0 ]
08471> *                                   0.00001 , 1.1209
08472> *                                   0.20  , 1.8110
08473> *                                   0.33  , 2.0195
08474> *                                  [   -1  ,   -1  ]  (max twenty pts)
08475> *                              RHIDOVF ["OVF\"] ,
08476> * Route pond output through first set of pipes
08477> * 2 x 600 pipes simulated with 1 pipe of equivalent capacity [~780 mm dia]
08478> * HDPE smooth wall pipe Manning's n = 0.012
08479> 250:0070----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
08480>     ROUTE PIPE      -> 02:Pout      18.63     .169 No_date   12:51   53.81  n/a
08481>       [RO= 1.00] outc= 01:Pout1     18.63     .169 No_date   12:51   53.81  n/a
08482>       [I/S/n=  72.7 /.200/.012]
08483>       [Vmax= 1.077:Dmax=  .283]
08484>       [Din=  .750:Dused=  .780]
08485> * Flow o/s of outlet culverts
08486> 250:0079----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
08487>     ADD HYD         02:HCTE1      .36     .040 No_date   12:07   47.53  n/a
08488>                   + 03:HCTE2      .12     .024 No_date   12:07   47.53  n/a
08489>                   + 04:Pout1    18.63     .169 No_date   12:51   53.81  n/a
08490>       [RO= 1.00]  SUM=  01:Pout   19.11     .175 No_date   13:49   53.82  n/a
08491> * Route outflow through set of Culverts
08492> * 2 x 600 culverts simulated with 1 culvert of equivalent capacity [~780 mm dia
08493> * HDPE smooth wall pipe Manning's n = 0.012
08494> 250:0077----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
08495>     ROUTE PIPE      -> 02:Pout      19.11     .175 No_date   13:49   53.82  n/a
08496>       [RO= 1.00] outc= 01:Pout      19.11     .175 No_date   13:39   53.82  n/a
08497>       [I/S/n=  71.7 /.400/.012]
08498>       [Vmax= 1.392:Dmax=  .245]
08499>       [Din=  .750:Dused=  .780]
08500> * Flow o/s of second set of outflow pipes
08501> 250:0076----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
08502>     ADD HYD         02:HCTE1      .36     .040 No_date   12:07   47.53  n/a
08503>                   + 03:HCTE2      .12     .024 No_date   12:07   47.53  n/a
08504>                   + 04:Pout1    18.63     .169 No_date   12:51   53.81  n/a
08505>       [RO= 1.00]  SUM=  01:Pout2  18.77     .198 No_date   12:10   53.45  n/a
08506> * Route outflow through second set of pipes
08507> * 2 x 600 pipes simulated with 1 pipe of equivalent capacity [~780 mm dia]
08508> * HDPE smooth wall pipe Manning's n = 0.012
08509> 250:0075----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
08510>     ROUTE PIPE      -> 02:Pout2   18.77     .198 No_date   12:10   53.45  n/a
08511>       [RO= 1.00] outc= 01:RoutE   18.77     .187 No_date   12:11   53.45  n/a
08512>       [I/S/n=  65.7 /.200/.012]
08513>       [Vmax= 1.177:Dmax=  .308]
08514>       [Din=  .750:Dused=  .780]
08515> * Total flow at node N1 (Shields ME along Zales Burn Rd)
08516> 250:0058----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
08517>     ADD HYD         02:NMEA2    57.85    3.449 No_date   12:22   57.73  n/a
08518>                   + 03:RoutE    18.77     .187 No_date   12:11   53.45  n/a
08519>                   + 04:EX7      39        .043 No_date   12:07   47.53  n/a
08520>                   + 05:FP7D     30        .033 No_date   12:07   47.53  n/a
08521>                   + 06:FR11     61        .062 No_date   12:08   47.53  n/a
08522>       [ST= 1.65]  SUM=  01:N1   77.83    3.711 No_date   12:22   56.50  n/a
08523> * ROUTE N1 to N3
08524> * Typical Section based on Shields RD Vee Ditch 3:1 Banks
08525> * provided by Atrel
08526> * Manning's n is Channel not maintained, light brush on banks
08527> * Slope = 0.08  as per plan provided by Atrel.
08528> 250:0056----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
08529>     ROUTE CHANNEL   -> 02:N1       78.83    3.711 No_date   12:22   56.50  n/a
08530>   *   [RO= 1.00] outc= 01:N3       78.83    3.037 No_date   12:39   56.56  n/a
08531>       [I/S/n=  348.7 /.050/.035]
08532>       [Vmax=  .352:Dmax= 1.080]
08533> * VOLUME from residential area at N3 interim
08534> 250:0055----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
08535>     ADD HYD         02:FRDA     1.35     .125 No_date   12:09   47.53  n/a
08536>                   + 03:FR8      1.38     .132 No_date   12:10   45.28  n/a
08537>       [IY= 1.30]  SUM=  01:N31    2.73     .249 No_date   12:09   46.38  n/a
08538> * Added VOLUME from external area contributing to N3
08539> 250:0054----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
08540>     ADD HYD         02:N31      78.83    3.037 No_date   12:39   56.56  n/a
08541>                   + 03:N32      2.73      .249 No_date   12:09   46.38  n/a
08542>                   + 04:EX5      .52       .065 No_date   12:05   47.53  n/a
08543>                   + 05:EX6      .51       .063 No_date   12:05   47.53  n/a
08544>                   + 06:EXC1     .37       .046 No_date   12:00   70.58  n/a
08545>       [D2= 1.00]  SUM=  01:N3     83.01    3.249 No_date   12:36   56.91  n/a
08546> * ROUTE N3 to EC120
08547> * Typical Section based on Shields RD Vee Ditch 3:1 Banks
08548> * provided by Atrel
08549> * Manning's n is Channel not maintained, light brush on banks
08550> * Slope = 0.08  as per plan provided by Atrel.
08551> 250:0052----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
08552>     ROUTE CHANNEL   -> 02:N3       83.01    3.202 No_date   12:39   56.21  n/a
08553>   *   [RO= 1.00] outc= 01:EX3      83.01    2.801 No_date   12:47   56.21  n/a
08554>       [I/S/n=  415.7 /.050/.035]
08555>       [Vmax=  .359:Dmax= 1.693]
08556> * Flow at Stantec node EC8120 for comparison
08557> * Routed 83 plus EX3
08558> 250:0035----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
08559>     ADD HYD         02:PR3      82.91    2.801 No_date   12:47   56.21  n/a
08560>                   - 03:EX3      21.30     .838 No_date   12:46   43.18  n/a
08561>       [IT= 1.00]  SUM=  01:EC8120 104.21    3.639 No_date   12:47   53.04  n/a
08562> * AREA CHECK
08563> *
08564> 250:0086----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
08565>     ADD HYD         02:EX1      24.62    2.812 No_date   12:07   50.26  n/a
08566>                   + 03:EX2      9.88      .455 No_date   12:37   43.18  n/a
08567>                   + 04:EX3     21.30      .838 No_date   12:46   43.18  n/a
08568>                   + 05:EX4      .50       .054 No_date   12:02   49.96  n/a
08569>                   + 06:EX5      .52       .065 No_date   12:05   47.53  n/a
08570>                   + 07:EX6      .51       .063 No_date   12:05   47.53  n/a
08571>                   + 08:EX7      .39       .043 No_date   12:07   47.53  n/a
08572>                   + 09:FR1A     .24       .028 No_date   12:01   51.62  n/a
08573>                   + 10:FR1B     .58       .081 No_date   12:03   51.62  n/a
08574>       [IT= 1.00]  SUM=  01:Pu11   58.52    3.786 No_date   12:09   46.64  n/a
08575> 250:0087----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
08576>     ADD HYD         02:Tot1     58.52    3.786 No_date   12:09   46.64  n/a
08577>                   + 01:PR2S     1.57      .168 No_date   12:04   51.62  n/a
08578>                   + 01:PR3S     1.17      .124 No_date   12:04   51.62  n/a
08579>                   + 05:FR1A      .45      .056 No_date   12:02   51.62  n/a
08580>                   + 06:FR1B      .92      .050 No_date   12:02   51.62  n/a
08581>                   + 07:FR4A      .71      .079 No_date   12:03   51.62  n/a
08582>                   + 08:FR4B      .68      .072 No_date   12:03   51.62  n/a
08583>                   + 09:FR5A      .68      .073 No_date   12:03   51.62  n/a
08584>                   + 10:FR5B      .46      .052 No_date   12:02   51.62  n/a
08585>       [IT= 1.00]  SUM=  01:Tot2   64.77    4.494 No_date   12:08   47.13  n/a
08586> 250:0088----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
08587>     ADD HYD         02:Tot2     64.77    4.494 No_date   12:08   47.13  n/a
08588>                   + 03:FR6A     1.41      .151 No_date   12:04   51.62  n/a
08589>                   + 04:FR6B      .93      .099 No_date   12:04   51.62  n/a
08590>                   + 05:FR7A     1.32      .138 No_date   12:06   47.53  n/a
08591>                   + 06:FR1B1     .76      .080 No_date   12:07   47.53  n/a
08592>                   + 07:FR1B2     .29      .034 No_date   12:07   47.53  n/a
08593>                   + 08:EC1     1.39      .043 No_date   12:07   47.53  n/a
08594>                   + 09:EC2     .17       .019 No_date   12:07   47.53  n/a
08595>                   + 10:FP1D     .30      .033 No_date   12:07   47.53  n/a
08596>       [IT= 1.00]  SUM=  01:Tot3   68.06    4.941 No_date   12:08   47.28  n/a
08597> 250:0089----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
08598>     ADD HYD         02:Tot3     68.06    4.941 No_date   12:08   47.28  n/a
08599>                   + 03:FR8      1.38      .132 No_date   12:10   45.28  n/a
08600>                   + 04:FR9A     1.10      .105 No_date   12:00   45.28  n/a
08601>                   + 05:FR9B1     .25      .026 No_date   12:07   45.28  n/a
08602>                   + 06:FR9B2    1.00      .095 No_date   12:06   45.28  n/a
08603>                   + 07:FR10     1.87      .176 No_date   12:10   45.28  n/a
08604>                   + 08:FR11      .62      .062 No_date   12:05   45.28  n/a
08605>                   + 09:FR1      1.76      .080 No_date   12:05   47.13  n/a
08606>                   + 10:FD1      6.08      .735 No_date   12:00   65.15  n/a
08607>       [D2= 1.00]  SUM=  01:Tot4   85.37    6.844 No_date   12:07   46.68  n/a
08608> 220:0080----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
08609>     ADD HYD         02:Tot4     85.37    6.844 No_date   12:07   46.68  n/a
08610>                   + 03:C1       8.30     1.847 No_date   12:00   77.12  n/a
08611>                   + 04:C2       6.79     1.668 No_date   12:00   80.16  n/a
08612>                   - 05:C3        .26      .078 No_date   12:00   84.72  n/a
08613>                   - 06:FXC      1.18      .185 No_date   12:00   79.01  n/a
08614>                   - 07:FXC2     1.07      .181 No_date   12:00   81.05  n/a
08615>                   - 08:EX13      .22      .046 No_date   12:00   70.58  n/a
08616>                   - 09:C4U      1.07      .386 No_date   12:00   79.13  n/a
08617>       [DT= 1.00]  SUM=  01:Tot5   104.21   10.072 No_date   12:01   55.04  n/a
08618> *************************************************************************
08619> * Simulations with 6 hour Chicago from City of Ottawa
08620> * SCS 24 hours type 2, from City of Ottawa
08621>   ** END OF RUN : 298
08622>
08623> *************************************************************************
08624>
08625>
08626>
08627>
08628>
08629> SUB:CUSTOMJOB
08630> 285:0001----------------------------------------------------------------------
08631>       START
08632>       [TAREA =    .80 hra on       1]
```

```
08633>        [METOUT    2    [1=Imperial, 2=Metric output]]
08634>        [NSTORM=   0 ]
08635>        [NRUN   = 295 ]
08636> r*******************************************************************************
08637> r  SWMHYMO Version 07/Jan 2001 <BETA> / INPUT DATA FILE
08638> r*******************************************************************************
08639> r  Project Name: [Greely Village Center]    Project Number: [GCP-07]
08640> r  Date       : 04-09-2008
08641> r  Modeller   : [JAB]
08642> r  Company    : JFSAinc.
08643> r  License #  :  2647402
08644> r*******************************************************************************
08645> r
08646> # SWMHYMO model of the Greely Village Center - Residential Area - Phase 2
08647> # Proposed Ultimate conditions. OPTION 5
08648> # Filename stands for: Greely, Commercial, Proposed
08649> #*******************************************************************************
08650> 299:0002------------------------------------------------------------------------
08651>      READ STORM
08652>       Filename= storm.001
08653>       Comment= 100 years SCS Type 2 Storm 24 Hours Step 10 min, City of Ott
08654>       [SDT=10.00:SNAP=  24.00:PTCI= 106.73]
08655> r*******************************************************************************
08656> # Existing flow - McEvoy Branch of Shield Creek - Areas
08657> # Area u/s of proposed development (residential)
08658> # CN=75, slope   0.5, Tp=0.76, XINP=5, TIMP=5, see SC002 as per Stantec
08659> # Area partially adjusted based on Atrel drawings. To adjusted accordigly.
08660> #*******************************************************************************
08661> # u/s of Bank St.as per Atrel - with modified boundaries and Cp
08662> 299:0001------------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
08663>      DESIGN NASHYD      01:EX1       24.62     3.274 No_date   12:07   50.3  .598
08664>       [CN= 75.0: N= 3.00]
08665>       [Tp=  .2:UD= 1.00]
08666> #*******************************************************************************
08667> # Existing flow - External areas d/s of Bank St.
08668> # CN=69, as per Stantec see SC001
08669> # Area partially adjusted based on Atrel drawings.
08670> #*******************************************************************************
08671> # Areas External to development
08672> 299:0004------------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
08673>      DESIGN NASHYD      01:EX2        9.89      .551 No_date   12:07   50.4  .408
08674>       [Ch= 99.0: N= 3.00]
08675>       [Tp=  .67:UD= 1.00]
08676> 299:0005------------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
08677>      DESIGN NASHYD      01:EX3       21.80     1.984 No_date   12:07   50.4  .473
08678>       [CN= 80.0: N= 3.00]
08679>       [Tp=  .33:UD= 1.00]
08680> # Slope, Clmn, Area from Atrel Drawing
08681> # Ch from Stantec (2.0:C1)
08682> # XImp = TImp = 10%
08683> 299:0006------------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
08684>      CALIB STANDHYD     01:EX4        .59      .065 No_date   12:03   57.83 .567
08685>       [XIMP=.11:TIMP=.02]
08686>       [LOSS= 2 :CN= 69.0]
08687>       [Pervious     area: IAper= 1.67:SLPP=1.00:TGP=  40.:MNP=.250:SCP=   .0]
08688>       [Impervious   area: IAimp= 1.57:SLPI=1.00:TGI=  40.:MNI=.045:SCI=   .0]
08689> # Road and road side ditch along projected residential development Parkway Rd
08690> # Tlag = Xlag = 0.71 ha /0.52 ha = 0.40
08691> # CN=69, as per Stantec see SC001.
08692> # S.pe is estimated at 1%
08693> # TGI based on centroid of area due to elongated shape = 60m/2 = 30.0
08694> 299:0007------------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
08695>      CALIB STANDHYD     01:EX5        .52      .076 No_date   12:04   70.98 .665
08696>       [XIMP=.40:TIMP= .40]
08697>       [LOSS= 2 :CN= 69.0]
08698>       [Pervious     area: IAper= 4.67:SLPP=1.00:TGP=  40.:MNP=.250:SCP=   .0]
08699>       [Impervious   area: IAimp= 1.57:SLPI=1.00:TGI=  40.:MNI=.045:SCI=   .0]
08700> # Road and road side ditch along projected residential development Galbraith Rd
08701> # Tlag = Xlag = 0.. ha /0.52 ha = 0.20
08702> # CN=69, as per Stantec see SC001
08703> # Slope is estimated at 1%
08704> # TGI based on centroid of area due to elongated shape = 354m/2 = 177
08705> 299:0008------------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
08706>      CALIB STANDHYD     01:EX6        .51      .061 No_date   12:04   59.58 .568
08707>       [XIMP=.20:TIMP=.20]
08708>       [LOSS= 2 :CN= 69.0]
08709>       [Pervious     area: IAper= 4.67:SLPP=1.00:TGP=  40.:MNP=.250:SCP=   .0]
08710>       [Impervious   area: IAimp= 1.57:SLPI=1.00:TGI=  40.:MNI=.045:SCI=   .0]
08711> # Road and road side ditch along projected residential development Kilcoburn Rd
08712> # Tlag = Xlag = 0.68 ha /0.76 ha = 0.89
08713> # CN=69, as per Stantec see SC001.
08714> # S.pe is estimated at 1%
08715> # TGI based on centroid of area due to elongated shape = 275m/2   137.5
08716> 299:0009------------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
08717>      CALIB STANDHYD     01:EX7        .58      .063 No_date   12:04   61.09 .594
08718>       [XIMP=.23:TIMP= .23]
08719>       [LOSS= 2 :CN= 69.0]
08720>       [Pervious     area: IAper= 4.67:SLPP=1.00:TGP=  40.:MNP=.250:SCP=   .0]
08721>       [Impervious   area: IAimp= 1.57:SLPI=1.00:TGI=  40.:MNI=.045:SCI=   .0]
08722> r*******************************************************************************
08723> # PROPOSED COMMERCIAL DEVELOPMENT
08724> r*******************************************************************************
08725> # CN   79 as per Esri grass cover with C soil type for top soil; CN=71
08726> # XIMP   TIMP to be conservative
08727> r*******************************************************************************
08728> 299:0010------------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
08729>      DESIGN STANDHYD    01:C1         8.30     2.096 No_date   12:00   66.32  .909
08730>       [XIMP=.65:TIMP=.83]
08731>       [SLP=1.00:DT=  1.00]
08732>       [LOSS= 2 :CN= 71.0]
08733> 299:0011------------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
08734>      DESIGN STANDHYD    01:C2         6.54     1.867 No_date   12:00   64.61 .868
08735>       [XIMP=.79:TIMP=.79]
08736>       [SLP=1.00:DT=  1.00]
08737>       [LOSS= 2 :CN= 71.0]
08738> 299:0012------------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
08739>      DESIGN STANDHYD    01:C3         .94      .016 No_date   12:00   64.23 .564
08740>       [XIMP=.64:TIMP=.64]
08741>       [SLP=1.00:DT=  .00]
08742>       [LOSS= 2 :CN= 71.0]
08743> # Timp = Imp ha/total area = 0.30/1.13 ha = .27
08744> 299:0013------------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
08745>      DESIGN STANDHYD    01:EXC1       1.10      .193 No_date   12:00   67.28 .600
08746>       [XIMP=.27:TIMP=.27]
08747>       [SLP 1.00 DT  1.00]
08748>       [LOSS= 2 :CN= 71.0]
08749> # Timp = Imp ha/total area = 0.45/1.67 ha = .3
08750> 299:0014------------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
08751>      DESIGN STANDHYD    01:EXC2        .67      .110 No_date   12:00   71.52 .673
08752>       [XIMP=.30:TIMP=.30]
08753>       [SLP=1.00:DT= 1.00]
08754>       [LOSS= 2 :CN= 71.0]
08755> # Timp = Imp ha/total area   0.11/0.22ha   50
08756> 299:0015------------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
08757>      DESIGN STANDHYD    01:EXC3        .22      .053 No_date   12:00   77.46 .734
08758>       [XIMP= 50:TIMP=.50]
08759>       [SLP=1.00:DT= 1.00]
08760>       [LOSS= 2 :CN= 71.0]
08761> r*******************************************************************************
08762> # Commercial pond (POC)
08763> # Slope estimated at 1% based on elevations around pond.
08764> # Timp and Ximp based on total pond area
08765> # ximp = A pond/A tot (1.04/1.67)
08766> 299:0016------------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
08767>      DESIGN STANDHYD    01:POC        1.67      .454 No_date   12:07   48.06 .429
08768>       [XIMP=.67:TIMP=.67]
08769>       [SLP 1.00:DT  1.00]
08770>       [LOSS= 2 :CN= 71.0]
08771> ##############################################################################
08772> r*******************************************************************************
08773> # PROPOSED RESIDENTIAL SUBWATERSHEDS - Residential Area Phase 1 and 2
08774> r*******************************************************************************
08775> # CN=69, as per Stantec see SC001.
08776> # Tp estimated with Sp and Manning.
08777> 299:0017------------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
08778>      DESIGN NASHYD      01:PR1        4.26      .563 No_date   12:05   50.48 .673
08779>       [CN= 60.0: N= 3.00]
08780>       [Tp=  .18:UD= 1.00]
08781> r*******************************************************************************
08782> # AREAS GOING TO RESIDENTIAL POND (POC)
08783> r*******************************************************************************
08784> r
08785> 299:0018------------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
08786>      CALIB STANDHYD     01:C1A         .24      .034 No_date   12:02   59.66 .559
08787>       [XIMP=.11:TIMP=.21]
08788>       [LOSS= 2 :CN= 71.0]
08789>       [Pervious     area: IAper= 0.67:SLPP=1.00:TGP=  40.:MNP=.250:SCP=   .0]
08790>       [Impervious   area: IAimp= 1.57:SLPI=1.00:TGI=  40.:MNI=.045:SCI=   .0]
08791> 299:0019------------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
08792>      CALIB STANDHYD     01:C1B         .56      .079 No_date   12:03   58.88 .558
08793>       [XIMP=.11:TIMP=.21]
08794>       [LOSS= 2 :CN= 71.0]
08795>       [Pervious     area: IAper= 4.67:SLPP=1.00:TGP=  40.:MNP=.250:SCP=   .0]
08796>       [Impervious   area: IAimp= 1.57:SLPI=1.00:TGI=  40.:MNI=.045:SCI=   .0]
08797> 299:0020------------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
08798>      CALIB STANDHYD     01:PR1A        .59      .082 No_date   12:04   59.65 .559
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08795>       [XIMP=.11:TIMP=.21]
08800>       [LOSS= 2 :CN= 71.0]
08801>       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
08802>       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  88.:MNI=.045:SCI=   .0]
08803> 299:0027---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
08804>     CALIB STANDHYD     01:PR1B        .17      .151 No_date   12:03   59.68 .559
08805>       [XIMP=.11:TIMP=.21]
08806>       [LOSS= 2 :CN= 71.0]
08807>       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
08808>       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  88.:MNI=.045:SCI=   .0]
08809> 299:0022---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
08810>     CALIB STANDHYD     01:PR3A        .45      .961 No_date   12:02   59.68 .559
08811>       [XIMP=.11:TIMP=.21]
08812>       [LOSS= 2 :CN= 71.0]
08813>       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
08814>       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  95.:MNI=.045:SCI=   .0]
08815> 299:0021---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
08816>     CALIB STANDHYD     01:PR3B        .02      .071 No_date   12:03   59.68 .559
08817>       [XIMP=.11:TIMP=.21]
08818>       [LOSS= 2 :CN= 71.0]
08819>       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
08820>       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  95.:MNI=.045:SCI=   .0]
08821> 299:0024---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
08822>     CALIB STANDHYD     01:PR4A        .71      .098 No_date   12:03   59.68 .559
08823>       [XIMP=.11:TIMP=.21]
08824>       [LOSS= 2 :CN= 71.0]
08825>       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
08826>       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  88.:MNI=.045:SCI=   .0]
08827> 299:0025---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
08828>     CALIB STANDHYD     01:PR4B        .85      .088 No_date   12:03   59.68 .559
08829>       [XIMP=.11:TIMP=.21]
08830>       [LOSS= 2 :CN= 71.0]
08831>       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
08832>       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  66.:MNI=.045:SCI=   .0]
08833> 299:0026---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
08834>     CALIB STANDHYD     01:PR5A        .36      .050 No_date   12:03   59.68 .559
08835>       [XIMP=.11:TIMP=.21]
08836>       [LOSS= 2 :CN= 71.0]
08837>       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
08838>       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  66.:MNI=.045:SCI=   .0]
08839> 299:0027---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
08840>     CALIB STANDHYD     01:PR5B        .66      .092 No_date   12:02   59.68 .559
08841>       [XIMP=.11:TIMP=.21]
08842>       [LOSS= 2 :CN= 71.0]
08843>       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
08844>       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  56.:MNI=.045:SCI=   .0]
08845> 299:0028---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
08846>     CALIB STANDHYD     01:PR6A        1.43      .187 No_date   12:04   59.68 .559
08847>       [XIMP=.12:TIMP=.21]
08848>       [LOSS= 2 :CN= 71.0]
08849>       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
08850>       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
08851> 299:0029---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
08852>     CALIB STANDHYD     01:PR6B        .93      .121 No_date   12:03   59.68 .559
08853>       [XIMP=.11:TIMP=.21]
08854>       [LOSS= 2 :CN= 71.0]
08855>       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
08856>       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  75.:MNI=.045:SCI=   .0]
08857> * A cpa estimated at '1' based on backyard swales.
08858> * Timp and Ximp based on total pond area
08859> * ximp = A pond/A tot
08860> * Timp - weighted average of pond and backyard.
08861> 299:0030---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
08862>     CALIB STANDHYD     01:PR7A        5.07      .390 No_date   12:02   59.41 .707
08863>       [XIMP=.61:TIMP=.61]
08864>       [LOSS= 2 :CN= 71.0]
08865>       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
08866>       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI= 183.:MNI=.045:SCI=   .0]
08867> *****************************************************************************
08868> * UNCONTROLLED AREAS
08869> *****************************************************************************
08870> *
08871> 299:0031---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
08872>   * CALIB STANDHYD     01:PR8A        1.89      .160 No_date   12:08   59.40 .519
08873>       [XIMP=.01:TIMP=.14]
08874>       [LOSS= 2 :CN= 71.0]
08875>       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
08876>       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  95.:MNI=.045:SCI=   .0]
08877> 299:0032---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
08878>   * CALIB STANDHYD     01:PR9A        .76      .047 No_date   12:08   59.40 .519
08879>       [XIMP=.01:TIMP=.14]
08880>       [LOSS= 2 :CN= 71.0]
08881>       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
08882>       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  95.:MNI=.045:SCI=   .0]
08883> 299:0033---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
08884>   * CALIB STANDHYD     01:PR10A       .09      .018 No_date   12:06   55.60 .519
08885>       [XIMP=.02:TIMP=.14]
08886>       [LOSS= 2 :CN= 71.0]
08887>       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
08888>       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  38.:MNI=.045:SCI=   .0]
08889> 299:0034---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
08890>   * CALIB STANDHYD     01:PR10C1      .39      .021 No_date   12:07   55.40 .519
08891>       [XIMP=.03:TIMP=.14]
08892>       [LOSS= 2 :CN= 71.0]
08893>       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
08894>       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  51.:MNI=.045:SCI=   .0]
08895> 299:0035---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
08896>   * CALIB STANDHYD     01:PR10C2      .17      .023 No_date   12:06   55.40 .519
08897>       [XIMP=.03:TIMP=.14]
08898>       [LOSS= 2 :CN= 71.0]
08899>       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
08900>       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  34.:MNI=.045:SCI=   .0]
08901> 299:0036---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
08902>   * CALIB STANDHYD     01:PR10        .36      .048 No_date   12:06   55.40 .519
08903>       [XIMP=.02:TIMP=.14]
08904>       [LOSS= 2 :CN= 71.0]
08905>       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
08906>       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  45.:MNI=.045:SCI=   .0]
08907> 299:0037---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
08908>   * CALIB STANDHYD     01:PR8         1.38      .161 No_date   12:09   52.92 .495
08909>       [XIMP=.01:TIMP=.07]
08910>       [LOSS= 2 :CN= 71.0]
08911>       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
08912>       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  95.:MNI=.045:SCI=   .0]
08913> 299:0038---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
08914>   * CALIB STANDHYD     01:PR9A        1.10      .131 No_date   12:08   52.92 .495
08915>       [XIMP=.01:TIMP=.07]
08916>       [LOSS= 2 :CN= 71.0]
08917>       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
08918>       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  85.:MNI=.045:SCI=   .0]
08919> 299:0039---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
08920>   * CALIB STANDHYD     01:PR9B1       .25      .032 No_date   12:07   52.92 .495
08921>       [XIMP=.01:TIMP=.07]
08922>       [LOSS= 2 :CN= 71.0]
08923>       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
08924>       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  81.:MNI=.045:SCI=   .0]
08925> 299:0040---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
08926>   * CALIB STANDHYD     01:PR9B2       1.00      .120 No_date   12:08   52.96 .496
08927>       [XIMP=.01:TIMP=.07]
08928>       [LOSS= 2 :CN= 71.0]
08929>       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
08930>       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  82.:MNI=.045:SCI=   .0]
08931> 299:0041---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
08932>   * CALIB STANDHYD     01:PR10        1.81      .218 No_date   12:09   52.95 .496
08933>       [XIMP=.01:TIMP=.07]
08934>       [LOSS= 2 :CN= 71.0]
08935>       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
08936>       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  84.:MNI=.045:SCI=   .0]
08937> 299:0042---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
08938>   * CALIB STANDHYD     01:PR11        .67      .079 No_date   12:08   52.95 .496
08939>       [XIMP=.01:TIMP=.07]
08940>       [LOSS= 2 :CN= 71.0]
08941>       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
08942>       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  84.:MNI=.045:SCI=   .0]
08943> *****************************************************************************
08944> * EX1=Pre Flow - Upstream of Proposed Development
08945> *****************************************************************************
08946> * Total flow at node P-EX1
08947> 299:0043---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
08948>     ADD HYD            02:EX3        21.62     3.271 No_date   12:07   58.31  n/a
08949>                      + 03:EXC1        1.18      .193 No_date   12:06   67.29  n/a
08950>                      + 04:EXC2        1.07      .210 No_date   12:06   71.51  n/a
08951>       [02- 1.00]  SUM=  01:NEX1      23.79     3.501 No_date   12:07   59.21  n/a
08952> * Typical section based on proposed channel provided by AM
08953> * 4:1 bank slopes, Long Slope = 0.85%, Manning's n is 0.03
08954> * Route Node N-EX1 to d/s node N0
08955> 299:0044---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
08956>     ROUTE CHANNEL   --> 02:NEX1      23.79     3.501 No_date   12:07   59.21  n/a
08957>       [QEI= 1.00] outx= 01:NEX1      23.79     3.498 No_date   12:10   59.21  n/a
08958>       [L/Z/n=  312./ .850/.030]
08959>       [Vmax= 1.557;Dmax=  .636]
08960> *****************************************************************************
08961> * TOTAL TRFLOW TO COMMERCIAL POND #0:
08962> *****************************************************************************
08963> 299:0045---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
08964>     ADD HYD            02:EX4         .30      .065 No_date   12:02   57.83  n/a
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08965>                    +  01:C1          8.30    2.086 No_date   12:00   86.24  n/a
08966>                    +  04:C2          6.84    1.867 No_date   12:00   84.81  n/a
08967>                    +  06:PNo         1.67     .434 No_date   12:00   88.46  n/a
08968>       [DT= 1.00]  SUM=  01:PEDin     16.71   4.450 No_date   12:00   85.90  n/a
08969> 299:0059---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
08970>       ROUTE RESERVOIR -> 02:RESin     16.71   4.450 No_date   12:00   85.90  n/a
08971>        [RDT= 1.00] outs= 01:RESout    16.71   1.212 No_date   12:13   85.90  n/a
08972>              overflow <- 03:OVRQ        .00    .000 No_date    0:00    .00  n/a
08973>        [MaxStoDmax=.56e7E-00, CtrOvrVol .0000E+00, N-Ovr=    0, TotOutCv=      0.hrs]
08974> * Total flow at outlet of commercial pond
08975> 299:0047---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
08976>       ADD HYD                 02:PDCont    16.71   1.212 No_date   12:13   86.90  n/a
08977>                             + 03:FR9A      5.05    .131 No_date   12:08   82.95  n/a
08978>       [DT= 1.00]  SUM=  01:ADout    21.81   1.336 No_date   12:13   86.60  n/a
08979> * Route pond outflow at pipe d/s of node N6
08980> * Typical section based on proposed channel provided by ASL
08981> * 4:1 bank slopes, Long Slope = 0.5%, Manning's n is 0.03
08982> 299:0048---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
08983>       ROUTE CHANNEL   -> 02:RDout    17.81   1.336 No_date   12:10   86.68  n/a
08984>        [RDT= 1.00] outs= 01:RdPDo    17.81   1.216 No_date   12:21   86.69  n/a
08985>        [J/S/n=  .260/ .250/.039]
08986>        [Vmax=  .771:Dmax=  .545]
08987> * Total channel flow at pipe d/s of node K1
08988> 299:0049---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
08989>       ADD HYD                 02:RdPDo    17.81   1.216 No_date   12:21   86.69  n/a
08990>                             + 03:FR9A1     .05    .032 No_date   12:07   82.95  n/a
08991>                             + 04:FR9A2    1.00    .170 No_date   12:08   82.95  n/a
08992>       [DT= 1.00]  SUM=  01:outN6     18.86   1.418 No_date   12:19   84.47  n/a
08993> * ------------
08994> * Total flow at node N6
08995> * (Note that FR7 will be shown draining to proposed channel)
08996> 299:0050---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
08997>       ADD HYD                 01:outN6     18.86   1.418 No_date   12:19   84.47  n/a
08998>                             + 03:RNEX1    36.79   3.618 No_date   12:16   83.31  n/a
08999>                             + 04:EX2      54.85    .564 No_date   12:42   86.46  n/a
09000>                             + 05:C5        .94    .086 No_date   12:06  104.87  n/a
09001>       [DT= 1.00]  SUM=  01:ND        55.99   5.037 No_date   12:11   85.46  n/a
09002> * Typical Section based on proposed channel provided by ASL
09003> * 4:1 bank slopes, Long Slope = 0.40%, Manning's n is 0.03
09004> * Route SW draining at N6 to d/s node K-EX2
09005> 299:0051---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
09006>       ROUTE CHANNEL   -> 02:NR        55.99   5.037 No_date   12:11   85.46  n/a
09007>        [RDT= 1.00] outs= 01:RNO       55.99   4.851 No_date   12:15   85.46  n/a
09008>        [J/S/n=  .624/ .400/.030]
09009>        [Vmax= 1.298:Dmax=  .672]
09010> * Total flow at node K-EX2
09011> 299:0052---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
09012>       ADD HYD                 02:RNO         55.99   4.851 No_date   12:15   85.46  n/a
09013>                             + 03:FR10        1.87    .218 No_date   12:09   82.85  n/a
09014>       [DT= 1.00]  SUM=  01:NEX2      57.85   5.037 No_date   12:14   85.03  n/a
09015> * Route Node N-OUT to Node N1
09016> * Typical Section based on Shields Rd Toe Ditch 3:1 banks
09017> * provided by Artel
09018> * Manning's n is Channel not maintained, light brush on banks
09019> * Slope = 0.6% as per plan provided by Artel.
09020> 299:0053---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
09021>       ROUTE CHANNEL   -> 02:NEX2      57.85   5.037 No_date   12:14   86.03  n/a
09022>        [RDT= 1.00] outs= 01:RNEX2     57.85   4.819 No_date   12:21   86.03  n/a
09023>        [J/S/n=  .253/ .006/.035]
09024>        [Vmax=  .540:Dmax= 1.917]
09025> *********************************************************************
09026> * Residential Development - Phase 1 and 2
09027> *********************************************************************
09028> * Total flow at node M-PK1
09029> 299:0054---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
09030>       ADD HYD                 02:PK1         4.00    .584 No_date   12:05   86.48  n/a
09031>                             + 03:FR1A        .24    .034 No_date   12:02   89.68  n/a
09032>       [DT= 1.00]  SUM=  01:APK1      4.56    .595 No_date   12:05   86.97  n/a
09033> * Volume to ponding area in PK1
09034> * Qmax,hsh m3/s required as per SCS 100yr Existing conditions
09035> * Culvert from Inlet 1
09036> * Assuming outlet culvert is 450 mm, slope = 1.0%, HDPE smooth walls
09037> * Manning's n = 0.012, inlet control nomograph
09038> * Hydraulic head = 0.9m, Q=0.61m
09039> 299:0055---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
09040>       COMPUTE DEALLYD    01:NEX1        4.00    .595 No_date   12:05   86.97  n/a
09041>          Major System /  02:NEXIN        .00    .000 No_date    0:00    .00  n/a
09042>          Minor System \  03:NEXINn       4.00    .595 No_date   12:05   86.97  n/a
09043>        [VpSystm=.0000E-00, TotOvrVol=.0000E+00, N-Ovr=    0, TotOutCv=      0.hrs]
09044> * Input to Inlet 1 pipe
09045> 299:0056---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
09046>       ADD HYD                 03:FR1B         .35    .075 No_date   12:03   89.68  n/a
09047>                             + 01:NPKINn      4.56    .595 No_date   12:05   86.97  n/a
09048>       [DT= 1.00]  SUM=  01:In1       5.05    .670 No_date   12:05   87.02  n/a
09049> * Pipe from inlet 1 - Route to pond
09050> * HDPE smooth wall pipe Manning's n = 0.012
09051> 299:0057---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
09052>       ROUTE PIPE      -> 02:In1      5.05    .670 No_date   12:05   87.02  n/a
09053>        [RDT= 1.00] outs= 01:POn       5.05    .638 No_date   12:05   87.02  n/a
09054>        [L/S/n=  55./1.600/.012]
09055>        [Vmax= 3.301:Dmax=  .403]
09056>        [Dia=  .600:Dused=  .600]
09057> * Culvert from Inlet 2
09058> * HDPE smooth wall pipe Manning's n = 0.012
09059> 299:0058---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
09060>       ROUTE PIPE      -> 02:PR2A     1.57    .195 No_date   12:06   89.68  n/a
09061>        [RDT= 1.00] outs= 01:CIn2      1.57    .195 No_date   12:06   89.68  n/a
09062>        [J/S/n=  16./ .430/.012]
09063>        [Vmax= 1.482:Dmax=  .328]
09064>        [Dia=  .500:Dused=  .500]
09065> * Input to Inlet 2 pipe
09066> 299:0059---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
09067>       ADD HYD                 03:FR2B        1.17    .147 No_date   12:03   89.68  n/a
09068>                             + 01:CIn2      1.57    .195 No_date   12:06   89.68  n/a
09069>       [DT= 1.00]  SUM=  01:In2       2.74    .342 No_date   12:04   89.71  n/a
09070> * Flow from Inlet 2 - Route to pond
09071> * HDPE smooth wall pipe Manning's n = 0.012
09072> 299:0060---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
09073>       ROUTE PIPE      -> 02:In2      2.74    .548 No_date   12:04   89.77  n/a
09074>  *    [RDT= 1.00] outs= 01:PIn2      2.74    .342 No_date   12:05   89.77  n/a
09075>        [J/S/n=  72./ .200/.012]
09076>        [Vmax= 1.248:Dmax=  .523]
09077>        [Dia=  .500:Dused=  .467]
09078> * Culvert from Inlet 3
09079> * HDPE smooth wall pipe Manning's n = 0.012
09080> 299:0061---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
09081>       ROUTE PIPE      -> 02:PR3A      .45    .061 No_date   12:02   89.68  n/a
09082>        [RDT= 1.00] outs= 01:CIn3      .45    .061 No_date   12:02   89.68  n/a
09083>        [L/S/n=  13./ .400/.012]
09084>        [Vmax= 1.073:Dmax=  .160]
09085>        [Dia=  .300:Dused=  .300]
09086> * Input to Inlet 3 pipe
09087> 299:0062---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
09088>       ADD HYD                 02:PR3B        .52    .071 No_date   12:02   89.68  n/a
09089>                             + 03:CIn3        .45    .061 No_date   12:02   89.68  n/a
09090>       [DT= 1.00]  SUM=  01:In3       .97    .131 No_date   12:02   89.68  n/a
09091> * Pipe from inlet 3 - Route to pond
09092> * HDPE smooth wall pipe Manning's n = 0.012
09093> 299:0063---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
09094>       ROUTE PIPE      -> 02:In3       .97    .131 No_date   12:02   89.68  n/a
09095>        [RDT= 1.00] outs= 01:PIn3      .97    .129 No_date   12:03   89.68  n/a
09096>        [L/S/n=  75./ .200/.012]
09097>        [Vmax= 1.014:Dmax=  .334]
09098>        [Dia=  .300:Dused=  .300]
09099> * Culvert from Inlet 4
09100> * HDPE smooth wall pipe Manning's n = 0.012
09101> 299:0064---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
09102>       ROUTE PIPE      -> 02:PR4A      .71    .096 No_date   12:03   89.68  n/a
09103>        [RDT= 1.00] outs= 01:CIn4      .71    .096 No_date   12:03   89.68  n/a
09104>        [L/S/n=  13./ .400/.012]
09105>        [Vmax= 1.221:Dmax=  .211]
09106>        [Dia=  .300:Dused=  .300]
09107> * Input to Inlet 4 pipe
09108> 299:0065---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
09109>       ADD HYD                 02:PR4B        .65    .088 No_date   12:03   89.68  n/a
09110>                             + 03:CIn4        .71    .096 No_date   12:03   89.68  n/a
09111>       [DT= 1.00]  SUM=  01:In4       1.36    .183 No_date   12:03   89.68  n/a
09112> * Pipe from Inlet 4 (ULTIMATE CONDITIONS) - Route to pond
09113> * HDPE smooth wall pipe Manning's n = 0.012
09114> 299:0066---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
09115>       ROUTE PIPE      -> 02:In4       1.36    .183 No_date   12:03   89.68  n/a
09116>        [RDT= 1.00] outs= 01:PIn4      1.36    .184 No_date   12:03   89.68  n/a
09117>        [L/S/n=  65./1.900/.012]
09118>        [Vmax= 2.566:Dmax=  .357]
09119>        [Dia=  .300:Dused=  .300]
09120> * Culvert from Inlet 5
09121> * HDPE smooth wall pipe Manning's n = 0.012
09122> 299:0067---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
09123>       ROUTE PIPE      -> 02:PR5A      .66    .090 No_date   12:03   89.68  n/a
09124>        [RDT= 1.00] outs= 01:CIn5      .66    .090 No_date   12:03   89.68  n/a
09125>        [L/S/n=  13./ .400/.012]
09126>        [Vmax= 1.195 Dmax=  .193]
09127>        [Dia=  .300:Dused=  .300]
09128> * Input to Inlet 5 pipe
09129> 299:0068---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
09130>       ADD HYD                 02:PR5B        .46    .062 No_date   12:02   89.68  n/a
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09131>                    |  cs:Cin5          .66     .050 No_date   12:03   59.68  n/a
09132>        [T= 1.00]  SUM=  01:in5         1.12     .151 No_date   12:02   59.68  n/a
09133> # Pipe from inlet 5 - route to pond
09134> # HDPE smooth wall pipe Manning's n = 0.012
09135>  299:0069----------------ID:NHYD-------AREA----QPEAK-Tpeak&Date hh:mm    R.V.-R.C.-
09136>      ROUTE PIPE      -> 02:in5         1.12     .151 No_date   12:02   59.68  n/a
09137>        [RDT= 1.00] out<- 01:pin5       1.12     .151 No_date   12:03   59.68  n/a
09138>        [L/S/n=   75./1.800/.012]
09139>        [Vmax= 2.287:Dmax=  .165]
09140>        [Din=  .500:Dused=  .500]
09141> # Culvert from Inlet 6
09142> # HDPE smooth wall pipe Manning's n = 0.012
09143>  299:0070----------------ID:NHYD-------AREA----QPEAK-Tpeak&Date_hh:mm----R.V.-R.C.-
09144>      ROUTE PIPE      -> 02:PR6A        1.42     .187 No_date   12:04   59.68  n/a
09145>        [RDT= 1.00] out<- 01:in6        1.42     .187 No_date   12:04   59.68  n/a
09146>        [L/S/n=   13./ .400/.012]
09147>        [Vmax= 1.436:Dmax=  .315]
09148>        [Din=  .500:Dused=  .500]
09149> # Input to inlet 6 pipe
09150>  299:0071----------------ID:NHYD-------AREA----QPEAK-Tpeak&Date_hh:mm----R.V.-R.C.-
09151>      ADD HYD         |  02:PR6B          .63     .121 No_date   12:03   59.68  n/a
09152>                      +  03:CIN6        1.42     .187 No_date   12:04   59.68  n/a
09153>        [IT= 1.00]  SUM=  01:in6         2.06     .308 No_date   12:04   59.68  n/a
09154> # Pipe from inlet 6 - Route to pond
09155> # HDPE smooth wall pipe Manning's n = 0.012
09156>  299:0077----------------ID:NHYD-------AREA----QPEAK-Tpeak&Date_hh:mm----R.V.-R.C.-
09157>      ROUTE PIPE      -> 02:in6         2.06     .308 No_date   12:04   59.68  n/a
09158>    *   [RDT= 1.00] out<- 01:PIN6       2.06     .308 No_date   12:04   59.68  n/a
09159>        [L/S/n    70./ .780/.012]
09160>        [Vmax= 1.480:Dmax=  .462]
09161>        [Din=  .750:Dused=  .563]
09162> # VOLUME TO POND ULTIMATE RESIDENTIAL
09163>  299:0003----------------ID:NHYD-------AREA----QPEAK-Tpeak&Date_hh:mm----R.V.-R.C.-
09164>      ADD HYD         |  02:PIN1          5.05     .668 No_date   12:05   59.88  n/a
09165>                      +  03:PIN2          2.98     .395 No_date   12:05   59.88  n/a
09166>                      +  04:PIN3          .97     .129 No_date   12:05   59.68  n/a
09167>                      +  05:PIN4         1.56     .194 No_date   12:04   59.68  n/a
09168>                      +  06:PIN5         1.17     .151 No_date   12:03   59.68  n/a
09169>                      +  07:PIN6         2.06     .304 No_date   12:04   59.68  n/a
09170>                      +  08:POn          5.03     .890 No_date   12:02   75.51  n/a
09171>        [OT= 1.00]  SUM=  01:POND1r      18.83    2.690 No_date   12:03   61.89  n/a
09172> #  Pond routing for ultimate conditions using wolf .6; .6; 3.0
09173>  299:0074----------------ID:NHYD-------AREA----QPEAK-Tpeak&Date_hh:mm----R.V.-R.C.-
09174>      ROUTE RESERVOIR -> 02:rvPOND      18.83    2.656 No_date   12:07   61.89  n/a
09175>        [RDT= 1.00] out<- 01:rPout      18.83     .211 No_date   13:43   61.89  n/a
09176>                 overflow <- 03:ovrO       .00     .000 No_date   00:00    .00  n/a
09177>       [MaxLtUsed=.6971E+00, TotOvfVol=.000E+00, %-Ovf=    0, To_Jur.Cvf=    0.hrs]
09178> # Simulating SCS 100 yr conditions with summergenie of outflow well
09179> # Updated for weir .6; .6; 3.0
09180> $ROUTE RESERVOIR     NHYDout=["rPout"] ,NHYDin=["POND1R"] )
09181> #                     RO/=[1](min),
09182> #                              TABLE of | OUTFLOW-STORAGE | values
09183> #                                       |cms|    |ha m|
09184> #                                     |   0.0 ,   0.0 |
09185> #                                      0.09001 , 1.1209
09186> #                                      0.20  , 1.8110
09187> #                                      0.33  , 2.0195
09188> #                                     |   -1  ,   -1  |  (max twenty pts)
09189> #                            NHYDovf ["ovrO"] ,
09190> # Route pond output through first set of pipes
09191> # 2 x 600 pipes simulated with 1 pipe of equiva ent capacity (=780 mm dia)
09192> # HDPE smooth wall pipe Manning's n = 0.012
09193>  299:0075----------------ID:NHYD-------AREA----QPEAK-Tpeak&Date_hh:mm----R.V.-R.C.-
09194>      ROUTE PIPE      -> 02:rPout       18.83     .211 No_date   13:43   61.89  n/a
09195>        [RDT= 1.00] out<- 01:Pout1      18.83     .211 No_date   13:44   61.89  n/a
09196>        [L/S/n=   75./ .900/.012]
09197>        [Vmax= 1.143:Dmax=  .619]
09198>        [Din=  .780:Dused=  .780]
09199> # Now c/s of outlet culverts
09200>  299:0076----------------ID:NHYD-------AREA----QPEAK-Tpeak&Date_hh:mm----R.V.-R.C.-
09201>      ADD HYD         |  01:PR3A          .58     .047 No_date   12:07   59.43  n/a
09202>                      +  02:PR3B          .22     .030 No_date   12:06   59.43  n/a
09203>                      |  04:Pout1       18.83     .211 No_date   13:44   61.89  n/a
09204>        [OT= 1.00]  SUM=  01:Pout       19.21     .219 No_date   13:37   61.89  n/a
09205> # Route outflow through set of culverts
09206> # 2 x 600 culverts simulated with 1 culvert of equivalent capacity (=780 mm dia
09207> # HDPE smooth wall pipe Manning's n = 0.012
09208>  299:0077----------------ID:NHYD-------AREA----QPEAK-Tpeak&Date_hh:mm----R.V.-R.C.-
09209>      ROUTE PIPE      -> 02:rPout       19.21     .219 No_date   13:37   61.89  n/a
09210>        [RDT= 1.00] out<- 01:Pout       19.21     .219 No_date   13:37   61.89  n/a
09211>        [L/S/n=   13./ .400/.012]
09212>        [Vmax= 1.479:Dmax=  .269]
09213>        [Din=  .780:Dused=  .780]
09214> # Flow s/s of second set of outflow pipes
09215>  299:0078----------------ID:NHYD-------AREA----QPEAK-Tpeak&Date_hh:mm----R.V.-R.C.-
09216>      ADD HYD         |  02:PR3C          .58     .051 No_date   12:07   59.40  n/a
09217>                      +  03:PR3D          .17     .023 No_date   12:06   59.40  n/a
09218>                      +  04:Pout        19.21     .219 No_date   13:37   61.89  n/a
09219>        [OT= 1.00]  SUM=  01:Pout2      19.73     .242 No_date   12:10   61.51  n/a
09220> # Route outflow through second set of pipes
09221> # 2 x 600 pipes simulated with 1 pipe of equivalent capacity (=780 mm dia)
09222> # HDPE smooth wall pipe Manning's n = 0.012
09223>  299:0079----------------ID:NHYD-------AREA----QPEAK-Tpeak&Date_hh:mm----R.V.-R.C.-
09224>      ROUTE PIPE      -> 02:Pout2       19.77     .242 No_date   12:10   61.51  n/a
09225>        [RDT= 1.00] out<- 01:PoutP      19.77     .241 No_date   12:11   61.51  n/a
09226>        [L/S/n=   65./ .200/.012]
09227>        [Vmax= 1.185:Dmax=  .345]
09228>        [Din=  .780:Dused=  .780]
09229> # Total flow at node P1 (Shield MD along Sales Barn Rd)
09230>  299:0080----------------ID:NHYD-------AREA----QPEAK-Tpeak&Date_hh:mm----R.V.-R.C.-
09231>      ADD HYD         |  02:NMX2         87.45    4.032 No_date   12:21   68.03  n/a
09232>                      +  03:Pout2       19.77     .241 No_date   12:11   61.51  n/a
09233>                      +  04:EX7          .39     .021 No_date   12:00   61.28  n/a
09234>                      +  05:ex7a         .30     .040 No_date   12:06   55.40  n/a
09235>                      +  06:PR1C         .62     .035 No_date   12:05   59.95  n/a
09236>        [OT= 1.00]  SUM=  01:N1         90.93    4.355 No_date   12:19   64.19  n/a
09237> # ROUTE N1 to N2
09238> # Typical Section based on Shields MD View Ditch 3:1 banks
09239> # provided by Atrel
09240> # Manning's n is Channel not maintained, light brush on banks
09241> # slope   0.05% as per plan provided by Atrel.
09242>  299:0081----------------ID:NHYD-------AREA----QPEAK-Tpeak&Date_hh:mm    R.V. R.C.
09243>      ROUTE CHANNEL   -> 02:N1          78.93    4.355 No_date   12:19   64.73  n/a
09244>    *   [RDT= 1.00] out<- 01:CH1        78.93    3.495 No_date   12:33   64.73  n/a
09245>        [L/S/n=  348./ .050/.035]
09246>        [Vmax=  .350:Dmax= 1.861]
09247> # VOLUME from residential area at N3 interim
09248>  299:0082----------------ID:NHYD-------AREA----QPEAK-Tpeak&Date_hh:mm----R.V.-R.C.-
09249>      ADD HYD         |  02:PR7A          1.77     .160 No_date   12:08   55.40  n/a
09250>                      +  03:PR8         1.38     .161 No_date   12:09   52.95  n/a
09251>        [DT= 1.00]  SUM=  01:N3i         3.15     .178 No_date   12:08   54.15  n/a
09252> # Added VOLUME from external area contributing to N3
09253>  299:0083----------------ID:NHYD-------AREA----QPEAK-Tpeak&Date_hh:mm----R.V.-R.C.-
09254>      ADD HYD         |  03:N3          78.93    3.495 No_date   12:33   64.73  n/a
09255>                      |  04:N3i          3.15     .328 No_date   12:08   54.16  n/a
09256>                      |  04:EX5          .82     .079 No_date   12:04   70.98  n/a
09257>                      +  05:EX6          .21     .061 No_date   12:04   55.58  n/a
09258>                      +  06:EX03         .22     .051 No_date   12:00   70.46  n/a
09259>        [OT= 1.00]  SUM=  01:N3         81.93    3.669 No_date   12:33   64.43  n/a
09260> # ROUTE N3 to EX120
09261> # Typical Section based on Shields MD View Ditch 3:1 Banks
09262> # provided by Atrel
09263> # Manning's n is Channel not maintained, light brush on banks
09264> # Slope = 0.05% as per plan provided by Atrel.
09265>  299:0084----------------ID:NHYD-------AREA----QPEAK-Tpeak&Date_hh:mm----R.V.-R.C.-
09266>      ROUTE CHANNEL   -> 02:N3          81.93    3.669 No_date   12:33   64.43  n/a
09267>    *   [RDT= 1.00] out<- 01:N4a        82.91    3.059 No_date   12:46   64.42  n/a
09268>        [L/S/n=  415./ .050/.035]
09269>        [Vmax=  .352:Dmax= 1.777]
09270> # Flow at studio 2000 HCR119 for comparison
09271> # Routed N3 pipe EX3
09272>  299:0085----------------ID:NHYD-------AREA----QPEAK-Tpeak&Date_hh:mm----R.V.-R.C.-
09273>      ADD HYD         |  01:EX3          82.91    3.059 No_date   12:46   64.42  n/a
09274>                      |  03:EX4          91.36     .984 No_date   12:47   60.48  n/a
09275>        [DT= 1.00]  SUM=  01:HCR119     104.21    4.079 No_date   12:44   61.58  n/a
09276> # AREA CHECK
09277> #
09278>  299:0086----------------ID:NHYD-------AREA----QPEAK-Tpeak&Date_hh:mm----R.V.-R.C.-
09279>      ADD HYD         |  02:EX1          24.62    1.071 No_date   12:07   58.31  n/a
09280>                      +  03:EX2          5.89     .634 No_date   12:12   50.48  n/a
09281>                      |  04:EX3         91.36     .984 No_date   12:47   60.48  n/a
09282>                      |  05:EX4          .80     .065 No_date   12:02   57.83  n/a
09283>                      +  06:EX5          .82     .079 No_date   12:04   70.98  n/a
09284>                      +  07:EX6          .21     .061 No_date   12:04   55.58  n/a
09285>                      +  08:EX7          .39     .051 No_date   12:00   61.27  n/a
09286>                      +  09:PR1A         .26     .010 No_date   12:00   50.00  n/a
09287>                      +  10:PR1B         .55     .075 No_date   12:03   59.68  n/a
09288>        [OT= 1.00]  SUM=  01:Tot1       58.52    4.367 No_date   12:08   54.39  n/a
09289>  299:0087----------------ID:NHYD-------AREA----QPEAK-Tpeak&Date_hh:mm----R.V.-R.C.-
09290>      ADD HYD         |  02:Tot1         58.52    4.367 No_date   12:08   54.39  n/a
09291>                      -  03:PR2A         1.57     .159 No_date   12:05   59.68  n/a
09292>                      -  04:PR2B         1.17     .151 No_date   12:03   59.68  n/a
09293>                      |  05:PR3A          .58     .061 No_date   12:02   59.68  n/a
09294>                      |  06:PR3B          .22     .071 No_date   12:03   59.68  n/a
09295>                      -  07:PR4A          .71     .096 No_date   12:03   59.68  n/a
09296>                      +  08:PR4B          .65     .020 No_date   12:03   59.68  n/a
```

```
                    +  69:FB5A        .66      .050 No_date   12:05   59.68  c/a
                    +  10:FB5B        .16      .060 No_date   12:07   59.68  c/a
      [DT= 1.00]  SUM=  01:Tot2      61.71     5.161 No_date   12:08   94.81  c/a
 299:0088---------------ID:NHYD--------AREA-----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
    ADD HYD                02:Tot2      61.71     5.161 No_date   12:08   94.81  c/a
                    -  03:FB5A        1.43      .187 No_date   12:04   59.68  c/a
                    -  04:FB5B         .92      .121 No_date   12:03   59.68  c/a
                    -  05:FB7A        1.35      .160 No_date   12:08   55.40  c/a
                    -  06:FB7B1        .36      .027 No_date   12:07   55.40  c/a
                    -  07:FB7B2        .23      .038 No_date   12:06   55.40  c/a
                    -  08:FB7C1        .39      .051 No_date   12:07   55.40  c/a
                    -  09:FB7C2        .17      .024 No_date   12:06   55.40  c/a
                    -  10:FB7D         .36      .048 No_date   12:06   55.40  c/a
      [DT= 1.00]  SUM=  01:Tot3      65.89     5.811 No_date   12:08   55.03  c/a
 299:0089---------------ID:NHYD--------AREA-----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
    ADD HYD                03:Tot3      65.89     5.811 No_date   12:08   55.03  c/a
                    +  01:FB8         1.38      .161 No_date   12:09   52.95  c/a
                    +  04:FB9A        1.10      .131 No_date   12:08   51.05  c/a
                    +  05:FB9B1        .25      .032 No_date   12:07   51.05  c/a
                    +  08:FB9B2       1.00      .120 No_date   12:08   51.05  c/a
                    +  07:FB10        1.87      .215 No_date   12:09   52.95  c/a
                    +  03:FB11         .62      .075 No_date   12:08   52.95  c/a
                    +  09:PB2         4.26      .563 No_date   12:05   53.48  c/a
                    +  10:FB12        5.05      .680 No_date   12:06   55.51  c/a
      [DT= 1.00]  SUM=  01:Tot4      85.37     7.814 No_date   12:08   55.53  c/a
 299:0090---------------ID:NHYD--------AREA-----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
    ADD HYD                04:Tot4      85.37     7.814 No_date   12:08   55.53  c/a
                    +  03:C1          8.30     2.986 No_date   12:03   86.34  c/a
                    +  04:C2          6.34     1.867 No_date   12:03   94.87  c/a
                    +  05:C3           .74      .306 No_date   12:03  104.87  c/a
                    +  06:EXC1        1.30      .193 No_date   12:09   67.28  c/a
                    +  07:EXC2        1.07      .210 No_date   12:09   71.52  c/a
                    +  08:EXC4         .22      .053 No_date   12:09   79.46  c/a
                    +  09:FB6         1.37      .436 No_date   12:08   88.95  c/a
      [DT= 1.00]  SUM=  01:Tot5     106.71    11.267 No_date   12:11   61.53  c/a
*****************************************************************************
* Simulations with 4 hour Chicago from City of Ottawa
* SCS 24 hours Type 2, from City of Ottawa
* Simulations with July 1, 1979 Historical Event, City of Ottawa
  ** END OF RUN : 300
*****************************************************************************
*
*
*
*
*
 RUN:CONDUNOF
 301:0001---------------------------------------------------------------------
      START
       TZERO =    .00 hrs on        0]
       METOUT=    2     [1 Imperial, 2 metric output]
       NSTORM=    1 ]
       NRUN  =  300 ]
*****************************************************************************
*  SWMHYMO Version 3.01 (Jan 2001 CHOTAN) / INPUT DATA FILE
*****************************************************************************
*  Project Name: [Greely Village Centre]    Project Number: [07-07]
*  Date        : 04-09-2008
*  Modeller    : [JRE]
*  Company     : JFSAinc
*  License #   : 2540160
*****************************************************************************
*
* SWMHYMO model of the Greely Village Center - Residential Area - Phase 2
* Proposed Ultimate Conditions - OPTION B
* Filename stands for: Greely, Commercial, Proposed
*****************************************************************************
 301:0002---------------------------------------------------------------------
      READ STORM
       Filename = storm.00
       Comment  = July 1st, 1979 storm (3H) - Ottawa International Airport Area
       [SCS= 5.00:STORM=   1.00:PIUS= 83.95]
*****************************************************************************
* Existing flow - Mahvey stands of shield Creek - Areas
* Area s/s of proposed development (residential)
* CN=+89, slope = 0.8, Tp 0.16, XIMP=%, TIMP=%, new SCS0. as per Stantec
* Area partially adjusted based on Atrel drawings. Tp adjusted accordingly.
*****************************************************************************
* s/s of Bank St.as per Atrel - with modified boundaries and Tp.
 301:0003---------------ID:NHYD--------AREA-----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
    DESIGN HASHYD      01:EX1        94.69     5.006 No_date    1:44   40.71 .485
      [CN= 75.0: N= 3.00]
      [Ia=  .23:SI=  1.00]
*****************************************************************************
* Existing flow - External areas s/s of Bank St.
* CN= 68, as per Stantec see SCH01.
* Area partially adjusted based on Atrel drawings.
*****************************************************************************
* Areas External to development
 301:0004---------------ID:NHYD--------AREA-----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
    DESIGN HASHYD      01:EX2         9.89      .807 No_date    2:13   34.61 .412
      [CN= 69.0: N= 3.00]
      [Ia=  .67:SI=  1.00]
 301:0005---------------ID:NHYD--------AREA-----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
    DESIGN HASHYD      01:EX3        21.30     1.116 No_date    2:27   34.61 .412
      [CN= 69.0: N= 3.00]
      [Ia=  .67:SI=  1.00]
* Slope, Tchp, Area from Atrel Drawing
* CN from Stantec (SCH01)
* Ximp = Timp = 1.0
 301:0006---------------ID:NHYD--------AREA-----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
    CALIB STANDHYD     01:EX4         .50      .038 No_date    1:41   40.64 .484
      [XIMP=.11:TIMP=.22]
      [LOSS= 2 :CN= 69.0]
      [Pervious    area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
      [Impervious  area: IAimp= 1.57:SLPI=1.00:LGI=  50.:MNI=.013:SCI=   .0]
* Road and road side ditch along projected residential development Parkway Rd
* Tchp = Ximp = 0.31 ha /0.52 ha = 0.60
* CN=+89, as per Stantec see SCH01.
* Slope is estimated at 1%
* LGI based on centroid of area due to elongated shape - 600m/2 = 300
 301:0007---------------ID:NHYD--------AREA-----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
    CALIB STANDHYD     01:EX5         .52      .040 No_date    1:41   52.08 .625
      [XIMP=.10:TIMP=.40]
      [LOSS= 2 :CN= 69.0]
      [Pervious    area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
      [Impervious  area: IAimp= 1.57:SLPI=1.00:LGI= 300.:MNI=.045:SCI=   .0]
* Road and road side ditch along projected residential development SalesBarn Rd
* Tchp = Ximp = 0.1 ha /0.5 ha = 0.20
* CN=+89, as per Stantec see SCH01.
* Slope is estimated at 1%
* LGI based on centroid of area due to elongated shape - 354m/2 = 177
 301:0008---------------ID:NHYD--------AREA-----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
    CALIB STANDHYD     01:EX6         .51      .035 No_date    1:13   32.50 .500
      [XIMP= .20:TIMP= .20]
      [LOSS= 2 :CN= 69.0]
      [Pervious    area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
      [Impervious  area: IAimp= 1.57:SLPI=1.00:LGI= 177.:MNI=.045:SCI=   .0]
* Road and road side ditch along projected residential development SalesBarn Rd
* Tchp = Ximp = 0.05 ha /0.5 ha = 0.10
* CN=+89, as per Stantec see SCH01.
* Slope is estimated at 1%
* LGI based on centroid of area due to elongated shape - 275m/2 = 137.5
 301:0009---------------ID:NHYD--------AREA-----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
    CALIB STANDHYD     01:EX7         .38      .026 No_date    1:41   45.08 .500
      [XIMP=.27:TIMP=.27]
      [LOSS= 2 :CN= 69.0]
      [Pervious    area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
      [Impervious  area: IAimp= 1.57:SLPI=1.00:LGI= 137.:MNI=.045:SCI=   .0]
*****************************************************************************
* PROPOSED COMMERCIAL DEVELOPMENT
*****************************************************************************
* CN   75 as per fair grass cover with C soil type for sog as 1; CN=?
* XIMP = TIMP to be conservative
*****************************************************************************
 301:0010---------------ID:NHYD--------AREA-----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
    DESIGN STANDHYD    01:C1          0.36     1.686 No_date    1:11   65.91 .780
      [XIMP= .67:TIMP=.67]
      [SLP=1.00:LT= 1.00]
      [LOSS= 2 :CN= 71.0]
 301:0011---------------ID:NHYD--------AREA-----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
    DESIGN STANDHYD    02:C2          6.34     1.513 No_date    1:50   77.39 .971
      [XIMP=.79:TIMP=.79]
      [SLP=1.00:LT= 1.00]
      [LOSS= 2 :CN= 71.0]
 301:0012---------------ID:NHYD--------AREA-----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
    DESIGN STANDHYD    03:C3          .74      .010 No_date    1:30   82.26 .979
      [XIMP=.98:TIMP=.98]
      [SLP=1.00:LT= 1.00]
      [LOSS= 2 :CN= 71.0]
* Imp = Imp ha/Total area - 0.30/1.10 ha = .27
 301:0013---------------ID:NHYD--------AREA-----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
    DESIGN STANDHYD    04:EXC1        1.30      .149 No_date    1:30   49.13 .585
      [XIMP=.27:TIMP=.27]
      [SLP=1.00:LT= 1.00]
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[LOSS= 2 :CN= 71.0]
# Ximp = Imp ha/total area = 0.35/1.07 ha  .33
 10:0014---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V. R.C.-
     DESIGN STANDHYD     01:EXC2        1.07     .104 No data     1:39   52.86 .829
      [XIMP=.33:TIMP=.33]
      [SLP=1.00:DC= 1.00]
      [LOSS= 2 :CN= 71.0]
# Ximp = Imp ha/total area = 0.11/0.32ha = .33
 301:0015---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
     DESIGN STANDHYD     01:EXC3         .22     .041 No data     1:30   58.86 .713
      [XIMP=.90:TIMP=.90]
      [SLP=1.00:DC= 1.00]
      [LOSS= 2 :CN= 71.0]
#*************************************************************************
# Commercial pond (PDC)
# slope estimated at 1% based on elevations around pond.
# Timp and Ximp based on total pond area
# ximp = A pond/A tot (1.04/1.07)
 301:0016---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
     DESIGN STANDHYD     01:PDC         1.07     .147 No data     1:30   67.79 .807
      [XIMP= .97:TIMP=.97]
      [SLP=1.00:DC= 1.00]
      [LOSS= 2 :CN= 71.0]
**************************************************************************
#-------------------------------------------------------------------------
# PROPOSED RESIDENTIAL SUBWATERSHEDS - Residential Area Phase 1 and 2
#-------------------------------------------------------------------------
# CN*-88, as per Stantec see SCS01.
# Tp estimated with Uplard Method.
 301:0017---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
     DESIGN STANDHYD     01:PR1         5.06     .498 No data     1:42   34.81 .412
      [CN= 65.0: N= 5.00]
      [Tp=  .10:DT= 1.00]
      [LOSS= 2 :CN= 71.0]
#-------------------------------------------------------------------------
# AREAS GOING TO RESIDENTIAL POND (PD1)
#-------------------------------------------------------------------------
#
 301:0018---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
     CALIB STANDHYD      01:PR1A         .74     .109 No data     1:41   42.07 .501
      [XIMP=.17:TIMP=.20]
      [LOSS= 2 :CN= 71.0]
      [Pervious     area: IApe= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
      [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  30.:MNI=.045:SCI=   .0]
 301:0019---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
     CALIB STANDHYD      01:PR1B         .66     .067 No data     1:41   42.07 .501
      [XIMP=.11:TIMP=.20]
      [LOSS= 2 :CN= 71.0]
      [Pervious     area: IApe= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
      [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  30.:MNI=.045:SCI=   .0]
 301:0020---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
     CALIB STANDHYD      01:PR2A         1.67     .183 No data     1:42   42.07 .501
      [XIMP=.11:TIMP=.21]
      [LOSS= 2 :CN= 71.0]
      [Pervious     area: IApe= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
      [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  30.:MNI=.045:SCI=   .0]
 301:0021---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
     CALIB STANDHYD      01:PR2B         1.17     .131 No data     1:42   42.07 .501
      [XIMP=.11:TIMP=.21]
      [LOSS= 2 :CN= 71.0]
      [Pervious     area: IApe= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
      [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  30.:MNI=.045:SCI=   .0]
 301:0022---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
     CALIB STANDHYD      01:PR3A         .45     .050 No data     1:41   42.07 .501
      [XIMP=.11:TIMP=.21]
      [LOSS= 2 :CN= 71.0]
      [Pervious     area: IApe= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
      [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  30.:MNI=.045:SCI=   .0]
 301:0023---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
     CALIB STANDHYD      01:PR3B         .52     .063 No data     1:41   42.07 .501
      [XIMP=.11:TIMP=.20]
      [LOSS= 2 :CN= 71.0]
      [Pervious     area: IApe= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
      [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  30.:MNI=.045:SCI=   .0]
 301:0024---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
     CALIB STANDHYD      01:PR4A         .71     .086 No data     1:42   42.07 .501
      [XIMP=.11:TIMP=.20]
      [LOSS= 2 :CN= 71.0]
      [Pervious     area: IApe= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
      [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  30.:MNI=.045:SCI=   .0]
 301:0025---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
     CALIB STANDHYD      01:PR4B         .65     .078 No data     1:41   42.07 .501
      [XIMP=.11:TIMP=.21]
      [LOSS= 2 :CN= 71.0]
      [Pervious     area: IApe= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
      [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  30.:MNI=.045:SCI=   .0]
 301:0026---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
     CALIB STANDHYD      01:PR5A         .64     .076 No data     1:41   42.07 .501
      [XIMP=.11:TIMP=.21]
      [LOSS= 2 :CN= 71.0]
      [Pervious     area: IApe= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
      [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  30.:MNI=.045:SCI=   .0]
 301:0027---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
     CALIB STANDHYD      01:PR5B         .48     .055 No data     1:41   42.07 .501
      [XIMP=.11:TIMP=.21]
      [LOSS= 2 :CN= 71.0]
      [Pervious     area: IApe= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
      [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  30.:MNI=.045:SCI=   .0]
 301:0028---------------ID:NHYD-------AREA----QPEAR-TpeakDate hh:mm----R.V.-R.C.-
     CALIB STANDHYD      01:PR6A         .43     .104 No data     1:40   42.07 .501
      [XIMP= 1.:TIMP=.21]
      [LOSS= 2 :CN= 71.0]
      [Pervious     area: IApe= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
      [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  30.:MNI=.045:SCI=   .0]
 301:0029---------------ID:NHYD-------AREA----QPEAR-TpeakDate hh:mm----R.V.-R.C.-
     CALIB STANDHYD      01:PR6B         .98     .111 No data     1:42   42.07 .501
      [XIMP=.11:TIMP=.21]
      [LOSS= 2 :CN= 71.0]
      [Pervious     area: IApe= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
      [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  30.:MNI=.045:SCI=   .0]
# slope estimated at 2% based on backyard swales.
# Timp and Ximp based on total pond area
# ximp = A pond/A tot
# Timp - weighted average of pond and backyards
 301:0030---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
     CALIB STANDHYD      01:PD2          5.03     .751 No data     1:37   56.97 .665
      [XIMP=.40:TIMP=.47]
      [LOSS= 2 :CN= 71.0]
      [Pervious     area: IApe= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
      [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  30.:MNI=.045:SCI=   .0]
**************************************************************************
# UNCONTROLLED AREAS
#*************************************************************************
#
 301:0031---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
  *  CALIB STANDHYD      01:PR7A         1.45     .196 No data     1:44   38.24 .455
      [XIMP=.02:TIMP=.14]
      [LOSS= 2 :CN= 71.0]
      [Pervious     area: IApe= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
      [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  95.:MNI=.045:SCI=   .0]
 301:0032---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
  *  CALIB STANDHYD      01:PR7B         .38     .042 No data     1:42   38.24 .455
      [XIMP=.02:TIMP=.14]
      [LOSS= 2 :CN= 71.0]
      [Pervious     area: IApe= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
      [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  95.:MNI=.045:SCI=   .0]
 301:0033---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
  *  CALIB STANDHYD      01:PR8A         .22     .026 No data     1:42   38.24 .455
      [XIMP=.02:TIMP=.14]
      [LOSS= 2 :CN= 71.0]
      [Pervious     area: IApe= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
      [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  30.:MNI=.045:SCI=   .0]
 301:0034---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
  *  CALIB STANDHYD      01:PR2C         .39     .045 No data     1:42   38.24 .455
      [XIMP=.02:TIMP=.14]
      [LOSS= 2 :CN= 71.0]
      [Pervious     area: IApe= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
      [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  30.:MNI=.045:SCI=   .0]
 301:0035---------------ID:NHYD-------AREA----QPEAR-TpeakDate hh:mm----R.V.-R.C.-
  *  CALIB STANDHYD      01:PR7C         .17     .020 No data     1:42   38.24 .455
      [XIMP=.02:TIMP=.14]
      [LOSS= 2 :CN= 71.0]
      [Pervious     area: IApe= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
      [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  30.:MNI=.045:SCI=   .0]
 301:0036---------------ID:NHYD-------AREA----QPEAR-TpeakDate hh:mm----R.V.-R.C.-
  *  CALIB STANDHYD      01:PR7D         .30     .035 No data     1:42   38.24 .455
      [XIMP=.02:TIMP=.14]
      [LOSS= 2 :CN= 71.0]
      [Pervious     area: IApe= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
      [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  30.:MNI=.045:SCI=   .0]
 301:0037---------------ID:NHYD-------AREA----QPEAR-TpeakDate hh:mm----R.V.-R.C.-
  *  CALIB STANDHYD      01:PR8          1.35     .164 No data     1:35   38.24 .455
      [XIMP=.02:TIMP=.97]
      [LOSS= 2 :CN= 71.0]
      [Pervious     area: IApe= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
      [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  96.:MNI=.045:SCI=   .0]
 301:0038---------------ID:NHYD-------AREA----QPEAR-TpeakDate hh:mm----R.V.-R.C.-
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09629>   *  CALIB STANDHYD     01:FR9A        1.10      .116 No date    1:45   36.25 .432
09630>        [XIMP=.01:TIMP=.01]
09631>        [LOSS= 2 :CN= 71.0]
09632>        [Pervious     area: IAper= 4.67:SLPP=1.00:LCP=  40.:NHP= .250:SCP=    .0]
09633>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LCI=  82.:NHI= .015:SCI=    .0]
09634> 301:0040---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
09635>   *  CALIB STANDHYD     01:FR9S1       .25      .028 No date    1:43   36.25 .432
09636>        [XIMP=.01:TIMP=.01]
09637>        [LOSS= 2 :CN= 71.0]
09638>        [Pervious     area: IAper= 4.67:SLPP=1.00:LCP=  40.:NHP= .250:SCP=    .0]
09639>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LCI=  82.:NHI= .015:SCI=    .0]
09640> 301:0041---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
09641>   *  CALIB STANDHYD     01:FR10        1.80      .199 No date    1:45   36.25 .432
09642>        [XIMP=.01:TIMP=.01]
09643>        [LOSS= 2 :CN= 71.0]
09644>        [Pervious     area: IAper= 4.67:SLPP=1.00:LCP=  40.:NHP= .250:SCP=    .0]
09645>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LCI=  82.:NHI= .015:SCI=    .0]
09646> 301:0042---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
09647>   *  CALIB STANDHYD     01:FR11         .62      .067 No date    1:44   36.25 .432
09648>        [XIMP=.01:TIMP=.01]
09649>        [LOSS= 2 :CN= 71.0]
09650>        [Pervious     area: IAper= 4.67:SLPP= 1.00:LCP=  40.:NHP= .250:SCP=    .0]
09651>        [Impervious   area: IAimp= 1.57:SLPI= 1.00:LCI=  82.:NHI= .015:SCI=    .0]
09652> #*******************************************************************************
09653> # EXISTING flow - Upstream of Proposed Development
09654> #*******************************************************************************
09655> # Total flow at node N-EX1
09656> 301:0043---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
09657>      ADD HYD            02:EX1        24.62     3.098 No date    1:46   48.71  n/a
09658>                       + 03:EX01        1.10      .118 No date    1:30   47.17  n/a
09659>                       + 04:EX02        1.07      .103 No date    1:30   47.06  n/a
09660>      [DT= 1.00]  SUM   01:NEX1        26.79     3.319 No date    1:45   48.61  n/a
09661> # Typical section based on proposed channel provided by AEL
09662> # 4:1 bank slopes, Long Slope = 0.8%, Manning's n = 0.03
09663> # Route Node N-EX1 to N/A node N0
09664> 301:0010---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
09665>      ROUTE CHANNEL   -> 02:NX0        26.79     3.262 No date    1:43   48.54  n/a
09666>       [RT= 1.00  n= 0.: 01:NEX1       26.79     3.292 No date    1:46   48.54  n/a
09667>       [L/S/n=  512./ .850/.030]
09668>       [Vmax= 1.617:Dmax=  .622]
09669> #*******************************************************************************
09670> # TOTAL INFLOW TO COMMERCIAL POND 20c
09671> #*******************************************************************************
09672> 301:0045---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
09673>      ADD HYD            03:EX4         .50      .058 No date    1:41   40.84  n/a
09674>                       + 01:C1         8.30     1.888 No date    1:31   65.93  n/a
09675>                       + 04:C2         6.84     1.012 No date    1:30   73.28  n/a
09676>                       + 05:C2c        1.57      .197 No date    1:30   67.39  n/a
09677>      [DT= 1.00]  SUM   01:EXCin      17.21     3.066 No date    1:33   65.18  n/a
09678> 301:0046---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
09679>      ROUTE RESERVOIR -> 02:EXCin      16.71     3.065 No date    1:31   65.18  n/a
09680>       [HOT= 1.00] outs= 01:EXCout     16.71     1.356 No date    2:01   58.18  n/a
09681>             ovrflow <- 03:Ovr0         .00      .000 No date    0:00    .00  n/a
09682>      [MaxStorage= 7238E+00, TotOverVol=.0000E+00, N-Over=    0, TotDurOv=    0.hrs]
09683> # Total flow at outlet of commercial pond
09684> 301:0047---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
09685>      ADD HYD            02:EXCout      16.71     1.356 No date    2:01   58.18  n/a
09686>                       + 03:EX9A         1.19      .116 No date    1:45   36.25  n/a
09687>      [DT= 1.00   SUM=  01:Out0a       17.91     1.448 No date    1:58   56.20  n/a
09688> # Route pond outflow at pipe d/s of node N0
09689> # Typical section based on proposed channel provided by AEL
09690> # All bank slopes, Long Slope = 0.25%, Manning's n is 0.03
09691> 301:0048---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
09692>      ROUTE CHANNEL   -> 02:XPDc       17.91     1.448 No date    1:58   56.20  n/a
09693>       [RT= 1.00] outs= 01:RDEDc       17.91     1.447 No date    2:04   56.20  n/a
09694>       [L/S/n=  3960./  250/.030]
09695>       [Vmax=  .797:Dmax=  .510]
09696> # Total channel flow at pipe d/s of node N0
09697> 301:0049---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
09698>      ADD HYD            02:RdPnd       17.81     1.417 No date    2:04   56.20  n/a
09699>                       + 03:POND1        .20      .028 No date    1:43   36.25  n/a
09700>                       + 04:PP982       1.90      .196 No date    1:45   36.75  n/a
09701>      [DT= 1.00]  SUM=  01:Out0         19.9      1.614 No date    2:02   54.24  n/a
09702> # ------------
09703> # Total flow at node N0
09704> # (Note that EX2 will be sheet draining to proposed channel)
09705> 301:0050---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
09706>      ADD HYD            02:ex80        15.06     1.514 No date    2:02   64.21  n/a
09707>                       + 03:REXT        24.09     3.087 No date    1:46   47.51  n/a
09708>                       + 04:EX2         9.89      .680 No date    2:13   34.61  n/a
09709>                       + 05:C3          .24       .020 No date    1:30   82.25  n/a
09710>      [DT= 1.00]  SUM=  01:N0          49.28     5.301 No date    1:45   48.27  n/a
09711> # Typical Section based on proposed channel provided by AEL
09712> # All bank slopes, Long Slope = 0.64%, Manning's n is 0.03
09713> # Route SW draining at N0 to LS d/s node N-EX2
09714> 301:0051---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
09715>      ROUTE CHANNEL   -> 02:N0         49.28     5.108 No date    1:45   48.22  n/a
09716>       [RT= 1.00] outs= 01:NX2         50.98     5.011 No date    1:53   48.22  n/a
09717>       [L/S/n=  324./ .640/.030]
09718>       [Vmax= 1.293:Dmax=  .877]
09719> # Total flow at node N-EX2
09720> 301:0052---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
09721>      ADD HYD            02:NX0         49.28     5.011 No date    1:45   48.22  n/a
09722>                       + 03:EX4A         1.47      .193 No date    1:46   38.25  n/a
09723>      [DT= 1.00]  SUM=  01:NEX2        57.85     5.193 No date    1:53   47.83  n/a
09724> # Route Node N-EX2 to Node N1
09725> # Typical Section based on Shields HE Veg Ditch 3:1 banks
09726> # provided by Arrel
09727> # Manning's n is Channel, cut/trimmed, light brush on banks
09728> # Slope = 0.8% as per plan provided by Arrel.
09729> 301:0053---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
09730>      ROUTE CHANNEL   -> 02:NEX2       57.85     5.193 No date    1:53   47.83  n/a
09731>       [RT= 1.00] outs= 01:RNEX2       57.85     4.987 No date    2:01   47.83  n/a
09732>       [L/S/n=  253./ .050/.035]
09733>       [Vmax= .349:Dmax= 1.063]
09734> #*******************************************************************************
09735> # Residential Development - Phase 1 and 2
09736> #*******************************************************************************
09737> # Total flow at node N-PR1
09738> 301:0054---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
09739>      ADD HYD            01:PR1          .24       .198 No date    1:42   54.67  n/a
09740>                       + 01:TRIA         .04       .029 No date    1:41   42.07  n/a
09741>      [DT= 1.00]  SUM=  01:NPR1         4.50      .537 No date    1:49   35.0   n/a
09742> # Volume to ponding area in PR1
09743> # Q=0.585 m3/s required as per SCH 100yr Existing conditions
09744> # Culvert from Inlet 1
09745> # Assuming outlet culvert is 600 mm, slope = 1.2%, HDPE smooth walls
09746> # Manning's n = 0.012, Inlet control numerical
09747> # Hydraulic Head = 0.5m, Q=0.610
09748> 301:0055---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
09749>      COMPUTE DUALHYD    01:NEX1         4.50      .527 No date    1:42   35.01  n/a
09750>        Major System /   02:NPX1Mj        .00       .000 No date    0:00    .00  n/a
09751>        Minor System \   03:NPX1Mn        4.50      .527 No date    1:42   35.07  n/a
09752>       [MjSysStor=.0000E+00, TotOverVol=.0000E+00, N-Over=    0, TotDurOv=    0.hrs]
09753> # Input to Inlet 1 pipe
09754> 301:0056---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
09755>      ADD HYD            02:PR1E          .00       .067 No date    1:41   42.07  n/a
09756>                       + 03:N2SIMn       4.50      .527 No date    1:42   35.01  n/a
09757>      [DT= 1.00]  SUM=  01:In1          5.05      .585 No date    1:42   35.98  n/a
09758> # Pipe from Inlet 1 - Route to pond
09759> # HDPE smooth wall pipe Manning's n = 0.012
09760> 301:0057---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
09761>      ROUTE PIPE      -> 02:In1        5.05      .585 No date    1:42   35.98  n/a
09762>       [RT= 1.00] outs= 01:Pin1        5.05      .580 No date    1:47   35.98  n/a
09763>       [L/S/n=  95./1.600/.012]
09764>       [Vmax= 3.225:Dmax=  .432]
09765>       [Dia=  .800:Dused=  .600]
09766> # Culvert from Inlet 2
09767> # HDPE smooth wall pipe Manning's n = 0.012
09768> 301:0058---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
09769>      ROUTE PIPE      -> 01:PR2A       1.17      .134 No date    1:42   42.07  n/a
09770>       [RT= 1.00] outs= 01:CIn2        1.17      .134 No date    1:47   42.07  n/a
09771>       [L/S/n=  13./ .400/.012]
09772>       [Vmax= 1.479:Dmax=  .310]
09773>       [Dia=  .500:Dused=  .300]
09774> # Input to Inlet 2 pipe
09775> 301:0059---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
09776>      ADD HYD            02:PR2E         1.17      .137 No date    1:42   42.07  n/a
09777>                       + 03:CIn2         1.57      .183 No date    1:42   42.76  n/a
09778>      [DT= 1.00]  SUM   01:In2          2.74      .321 No date    1:42   42.46  n/a
09779> # Pipe from Inlet 2 - Route to pond
09780> # HDPE smooth wall pipe Manning's n = 0.012
09781> 301:0060---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
09782>      ROUTE PIPE      -> 02:In2        2.74      .321 No date    1:42   42.46  n/a
09783>       [RT= 1.00] outs= 01:Pin2        2.74      .318 No date    1:42   42.46  n/a
09784>       [L/S/n=  75./ .200/.012]
09785>       [Vmax= 1.223:Dmax=  .567]
09786>       [Dia=  .300:Dused=  .617]
09787> # Culvert from Inlet 3
09788> # HDPE smooth wall pipe Manning's n = 0.012
```

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05765>  101:0061----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
05766>       ROUTE PIPE      -> 02:PIP4          .45     .086 No_date    1:41   42.07  n/a
05767>         [RDT= 1.00] outc= 01:Cin4          .45     .089 No_date    1:41   42.07  n/a
05768>         [I/R/n=   13./ .400/.012]
05769>         [Vmax= 1.045:Dmax=  .188]
05770>         [Dia=  .500:Dused=  .500]
05771> # Input to inlet 3 pipe
05772>  10.:0062----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
05773>       ADD HYD           02:FROB          .52     .103 No_date    1:41   42.07  n/a
05774>                       + 01:Cin3          .45     .086 No_date    1:41   42.07  n/a
05775>         [02  1.00]  SUM=  01:T=3          .97     .118 No_date    1:41   42.07  n/a
05776> # Pipe from inlet 3 - Route to pond
05777> # HDPE smooth wall pipe Manning's n = 0.012
05778>  301:0063----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
05779>       ROUTE PIPE      -> 02:Lin3          .97     .118 No_date    1:41   42.07  n/a
05780>         [RDT= 1.00] outc= 01:Pin3          .97     .119 No_date    1:41   42.07  n/a
05781>         [L/S/n=   75./ .200/.012]
05782>         [Vmax=  .891:Dmax=  .292]
05783>         [Dia=  .500:Dused=  .500]
05784> # Culvert from inlet 4
05785> # HDPE smooth wall pipe Manning's n = 0.012
05786>  301:0064----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
05787>       ROUTE PIPE      -> 02:Cin4          .71     .082 No_date    1:42   42.07  n/a
05788>         [RDT= 1.00] outc= 01:Pin4          .71     .082 No_date    1:42   42.07  n/a
05789>         [L/S/n=   13./ .400/.012]
05790>         [Vmax= 1.177:Dmax=  .187]
05791>         [Dia=  .500:Dused=  .500]
05792> # Input to inlet 4 pipe
05793>  301:0065----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
05794>       ADD HYD           02:FR4B          .65     .078 No_date    1:41   42.07  n/a
05795>                       + 01:Cin4          .71     .082 No_date    1:42   42.07  n/a
05796>         [01= 1.00]  SUM=  01:Cin4         1.36     .160 No_date    1:42   42.07  n/a
05797> # Pipe from inlet 4 (OUTFALL CONDITIONS) - Route to pond
05798> # HDPE smooth wall pipe Manning's n = 0.012
05799>  301:0066----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
05800>       ROUTE PIPE      -> 02:Pin4          1.36     .161 No_date    1:42   42.07  n/a
05801>         [RDT= 1.00] outc= 01:Pin4          1.36     .163 No_date    1:42   42.07  n/a
05802>         [L/S/n=   65./1.900/.012]
05803>         [Vmax= 2.484:Dmax=  .186]
05804>         [Dia=  .500:Dused=  .500]
05805> # Culvert from inlet 5
05806> # HDPE smooth wall pipe Manning's n = 0.012
05807>  301:0067----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
05808>       ROUTE PIPE      -> 02:FR5A          .66     .078 No_date    1:41   42.07  n/a
05809>         [RDT= 1.00] outc= 01:Cin5          .66     .079 No_date    1:42   42.07  n/a
05810>         [L/S/n=   13./ .400/.012]
05811>         [Vmax= 1.156:Dmax=  .189]
05812>         [Dia=  .500:Dused=  .500]
05813> # Input to inlet 5 pipe
05814>  301:0068----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
05815>       ADD HYD           02:FR5B          .46     .056 No_date    1:41   42.07  n/a
05816>                       + 01:Cin5          .66     .079 No_date    1:42   42.07  n/a
05817>         [02= 1.00]  SUM=  01:Lin5         1.12     .135 No_date    1:41   42.07  n/a
05818> # Pipe from inlet 5 - Route to pond
05819> # HDPE smooth wall pipe Manning's n = 0.012
05820>  301:0069----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
05821>       ROUTE PIPE      -> 02:Lin5          1.12     .135 No_date    1:41   42.07  n/a
05822>         [RDT= 1.00] outc= 01:Pin5          1.12     .135 No_date    1:42   42.07  n/a
05823>         [L/S/n=   75./1.400/.012]
05824>         [Vmax= 2.210:Dmax=  .274]
05825>         [Dia=  .500:Dused=  .500]
05826> # Culvert from inlet 6
05827> # HDPE smooth wall pipe Manning's n = 0.012
05828>  301:0070----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
05829>       ROUTE PIPE      -> 02:FR6A          .43     .167 No_date    1:42   42.07  n/a
05830>         [RDT= 1.00] outc= 01:Cin6         1.43     .167 No_date    1:42   42.07  n/a
05831>         [L/S/n=   13./ .400/.012]
05832>         [Vmax= 1.401:Dmax=  .282]
05833>         [Dia=  .500:Dused=  .500]
05834> # Input to inlet 6 pipe
05835>  301:0071----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
05836>       ADD HYD           02:FR6B          .53     .111 No_date    1:41   42.07  n/a
05837>                       + 01:Cin6          .43     .167 No_date    1:42   42.07  n/a
05838>         [02= 1.00]  SUM=  01:Lin6         2.36     .278 No_date    1:42   42.07  n/a
05839> # Pipe from inlet 6 - Route to pond
05840> # HDPE smooth wall pipe Manning's n = 0.012
05841>  301:0072----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
05842>       ROUTE PIPE      -> 02:Lin6          2.36     .278 No_date    1:42   42.07  n/a
05843>         [RDT= 1.00] outc= 01:Pin6          2.36     .277 No_date    1:42   42.07  n/a
05844>         [L/S/n=   75./ .300/.012]
05845>         [Vmax= 1.373:Dmax=  .415]
05846>         [Dia=  .500:Dused=  .500]
05847> # VOLUME TO POND WITHOUT TREATMENTAL

05871>  101:0072----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
05872>       ADD HYD           02:Pin1          5.00     .594 No_date    1:42   36.05  n/a
05873>                       + 03:Pin2          2.74     .318 No_date    1:42   42.76  n/a
05874>                       + 01:Pin3           .97     .119 No_date    1:42   42.07  n/a
05875>                       + 05:Pin5          1.36     .163 No_date    1:42   42.07  n/a
05876>                       + 06:Pin6          1.12     .135 No_date    1:42   42.07  n/a
05877>                       + 07:Pin4          2.36     .277 No_date    1:42   42.07  n/a
05878>                       + 08:EX          15.00    1.755 No_date    1:42   56.21  n/a
05879>         [I1= 1.00]  SUM=  01:COMBIN    18.63    2.335 No_date    1:42   44.36  n/a
05880> #  Pond outflow for ultimate conditions using weir .6, .6; 3.0
05881>  301:0074----------ID:RHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
05882>       ROUTE RESERVOIR -> 02:POND1in    18.63    2.335 No_date    1:42   44.36  n/a
05883>         [RO=  1.00] out= 01:POut        18.63    .218 No_date    2:48   44.32  n/a
05884>                 overflow <= 03:Overq      .00    .000 No_date    0:00    .00  n/a
05885>       (MaxStorage=.70ac-ft, InitVol=0.000cf:00, H-Init=    .0, Tothr-Out=    0.xxx)
05886> # Simulating 025 100 yr conditions with submergence of outflow weir
05887> # updated for weir .6; .6; 3.0
05888> #ROUTE RESERVOIR     RHYDout-["POut"] ,RHYDin-["POND1in"] ,
05889> #                    RUI-[1]/min),
05890> #                          TABLE OF ( OUTFLOW-STORAGE ) VALUES
05891> #                                    (cms) - (ha-m)
05892> #                                  [   0.0 ,   0.0 ]
05893> #                                   0.00001 , 1.1259
05894> #                                   0.28  , 1.8138
05895> #                                   0.85  , 2.3108
05896> #                                   [---  ,  --  ]   (max twenty pts)
05897> #                          NHYDovf=("OvrQ") ,
05898> # Route pond output through first set of pipes
05899> # 2 x 600 pipes simulated with 1 pipe of equivalent capacity (~750 mm dia)
05900> # HDPE smooth wall pipe Manning's n = 0.012
05901>  301:0075----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
05902>       ROUTE PIPE      -> 02:POut          18.63     .218 No_date    2:48   44.35  n/a
05903>         [RDT= 1.00] outc= 01:Pout1        18.63     .218 No_date    2:48   44.35  n/a
05904>         [L/S/n=   75./ .300/.012]
05905>         [Vmax= 1.153:Dmax=  .325]
05906>         [Dia=  .750:Dused=  .750]
05907> # Flow u/s of outlet culverts
05908>  101:0076----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
05909>       ADD HYD           01:POut1          18.63     .218 No_date    2:48   44.35  n/a
05910>                       + 02:POut2          1.98     .023 No_date    2:48   46.05  n/a
05911>         [I1= 1.00]  SUM=  01:Pout          20.61     .241 No_date    2:48   44.53  n/a
05912> # Route outflow through set of culverts
05913> # 2 x 600 culverts simulated with 1 culvert of equivalent capacity (~750 mm dia)
05914> # HDPE smooth wall pipe Manning's n = 0.012
05915>  301:0077----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
05916>       ROUTE PIPE      -> 02:Out           19.21     .225 No_date    2:36   44.17  n/a
05917>         [RDT= 1.00] outc= 01:Out          19.21     .225 No_date    2:36   44.17  n/a
05918>         [L/S/n=   13./ .400/.012]
05919>         [Vmax= 1.494:Dmax=  .274]
05920>         [Dia=  .750:Dused=  .750]
05921> # Flow u/s of second set of outflow pipes
05922>  10.:0078----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
05923>       ADD HYD           02:FROC1          .39     .046 No_date    1:42   38.24  n/a
05924>                       + 03:FROC2          .17     .020 No_date    1:42   38.24  n/a
05925>                       + 04:Out           19.21     .225 No_date    2:36   44.17  n/a
05926>         [02= 1.00]  SUM=  01:Pout2        19.77     .251 No_date    2:07   44.00  n/a
05927> # Route outflow through second set of pipes
05928> # 2 x 600 pipes simulated with 1 pipe of equivalent capacity (~750 mm dia)
05929> # HDPE smooth wall pipe Manning's n = 0.012
05930>  301:0079----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
05931>       ROUTE PIPE      -> 02:Pout2         19.77     .251 No_date    2:07   44.00  n/a
05932>         [RDT= 1.00] outc= 01:Pout2        19.77     .251 No_date    2:07   44.00  n/a
05933>         [L/S/n=   65./ .200/.012]
05934>         [Vmax= 1.156:Dmax=  .357]
05935>         [Dia=  .750:Dused=  .750]
05936> # Total flow at node 01 (Vehicle RD along Weld Cnty 49)
05937>  301:0080----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
05938>       ADD HYD           02:EUREK2         37.95    4.587 No_date    2:01   47.93  n/a
05939>                       + 03:POut2          19.77     .251 No_date    2:07   44.00  n/a
05940>                       + 04:EX7            1.59     .046 No_date    1:41   44.08  n/a
05941>                       + 05:FR7A           1.98     .025 No_date    1:42   38.24  n/a
05942>                       + 06:FR7B           1.82     .022 No_date    1:42   38.24  n/a
05943>         [I1= 1.00]  SUM=  01:N1           78.93    4.739 No_date    2:01   46.72  n/a
05944> # ROUTE N1 to N3
05945> # Typical Section based on Suhrlds RD Ver Ditch 3:1 banks
05946> # provided by Atrel
05947> # Manning's n is channel not maintained, light brush on banks
05948> # Slope = 0.05% as per plan provided by Atrel
05949>  301:0081----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
05950>       ROUTE CHANNEL   -> 02:N3            78.93    4.739 No_date    2:01   46.72  n/a
05951>         [RDT= 1.00] outc= 01:N3           78.93    5.938 No_date    2:10   46.72  n/a
05952>         [L/S/n=  549./ .050/.035]
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09961>          (Vmax=  .345:Dmax= 1.808)
09962> * VOLUME from residential area at N3 interim
09963>  101:0052----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
09964>       ADD HYD                02:FR7A      1.35      .150 No date    1:44   39.30  n/a
09965>                            + 03:FR8      1.38      .145 No date    1:45   36.75  n/a
09966>          [IT= 1.00]  SUM=   03:N3       2.73      .294 No date    1:45   47.24  n/a
09967> * Added VOLUME from external area contributing to N3
09968>  101:0053----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
09969>       ADD HYD                02:N1      78.63     3.938 No date    2:10   46.72  n/a
09970>                            + 03:N31      2.73      .294 No date    1:45   47.24  n/a
09971>                            + 04:EX6      .62       .088 No date    1:41   52.68  n/a
09972>                            + 05:EX5      .61       .085 No date    1:43   42.50  n/a
09973>                            + 06:EXC3     .22       .041 No date    1:30   59.86  n/a
09974>          [IT= 1.00]  SUM=   01:N3       82.91     4.195 No date    2:10   46.46  n/a
09975> * ROUTE N3 to N21a
09976> * Typical Section based on Sta 0+ N3 Swe Ditch to1 banks
09977> * provided by Atrel
09978> * Manning's n is Channel not maintained, light brush on banks
09979> * Slope = 0.05  as per plan provided by Atrel.
09980>  101:0054----------------IC:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
09981>       ROUTE CHANNEL    -> 02:N3       82.91     4.195 No date    2:10   46.46  n/a
09982>    *    [RDT= 1.00] Qdt=  01:RN3      87.01     4.455 No date    2:15   46.46  n/a
09983>          [I/S/n=  .015/ .050/.035]
09984>          [Vmax=  .750:Dmax= 1.842]
09985> * Flow at Stantec node NCR126 for comparison
09986> * Routed N3 plus EX3
09987>  101:0055----------------IC:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
09988>       ADD HYD                02:RN3     82.91     3.455 No date    2:18   46.06  n/a
09989>                            + 03:EX3     21.30     1.118 No date    2:25   54.61  n/a
09990>          [DC  1.00]  SUM=   01:NCR126  104.21     4.566 No date    2:15   48.84  n/a
09991> * AREA CHECK
09992> *
09993>  301:0056----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
09994>       ADD HYD                02:EX1     14.82     1.098 No date    1:44   46.71  n/a
09995>                            + 03:EX2      9.69      .607 No date    2:18   54.61  n/a
09996>                            + 04:EX3     21.30     1.118 No date    2:23   54.61  n/a
09997>                            + 05:EX4      .50       .058 No date    1:41   46.64  n/a
09998>                            + 06:EX5      .52       .069 No date    1:41   52.48  n/a
09999>                            + 07:EX6      .51       .055 No date    1:41   42.50  n/a
10000>                            + 08:EX7      .49       .064 No date    1:41   44.80  n/a
10001>                            + 09:FR1A     .94       .082 No date    1:41   42.07  n/a
10002>                            + 10:FR1B     .58       .067 No date    1:41   42.07  n/a
10003>          [IT= 1.00]  SUM=   01:Tot1     58.52     4.393 No date    1:47   37.62  n/a
10004>  301:0057----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
10005>       ADD HYD                02:Tot1    58.52     4.393 No date    1:47   37.62  n/a
10006>                            + 03:FR2A     1.57      .181 No date    1:42   42.07  n/a
10007>                            + 04:FR2B     1.17      .135 No date    1:42   42.07  n/a
10008>                            + 05:FR3A      .46       .053 No date    1:41   42.07  n/a
10009>                            + 06:FR3B      .52       .060 No date    1:41   42.07  n/a
10010>                            + 07:FR4A      .71       .082 No date    1:42   42.07  n/a
10011>                            + 08:FR4B      .65       .075 No date    1:41   42.07  n/a
10012>                            + 09:FR5A      .66       .076 No date    1:41   42.07  n/a
10013>                            + 10:FR5B      .46       .053 No date    1:41   42.07  n/a
10014>          [IT= 1.00]  SUM=   01:Tot2     64.71     5.088 No date    1:45   35.04  n/a
10015>  301:0058----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
10016>       ADD HYD                02:Tot2    64.71     5.088 No date    1:45   35.04  n/a
10017>                            + 03:FR6A     1.43      .167 No date    1:42   42.07  n/a
10018>                            + 04:FR6B      .93      .111 No date    1:42   42.07  n/a
10019>                            + 05:FR7A     1.35      .152 No date    1:44   38.24  n/a
10020>                            + 06:FF7B1     .36      .042 No date    1:42   38.24  n/a
10021>                            + 07:FF7B2     .22      .026 No date    1:42   38.24  n/a
10022>                            + 08:FF7C1     .79      .085 No date    1:43   35.74  n/a
10023>                            + 09:FF7C2     .17      .020 No date    1:43   35.74  n/a
10024>                            + 10:FF7D      .43      .045 No date    1:43   35.74  n/a
10025>          [IT= 1.00]  SUM=   01:Tot3     69.86     5.670 No date    1:45   35.19  n/a
10026>  301:0059----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
10027>       ADD HYD                02:Tot3    69.86     5.670 No date    1:45   35.19  n/a
10028>                            + 03:FF8      1.38      .145 No date    1:45   36.75  n/a
10029>                            + 04:FF8A     1.10      .116 No date    1:45   36.75  n/a
10030>                            + 05:FF8B1     .25      .070 No date    1:45   36.75  n/a
10031>                            + 06:FF8B2    1.08      .106 No date    1:45   36.75  n/a
10032>                            + 07:FR10     1.57      .193 No date    1:46   36.35  n/a
10033>                            + 08:FR11      .82      .087 No date    1:44   36.22  n/a
10034>                            + 09:FR1      4.26      .498 No date    1:42   54.61  n/a
10035>                            + 10:FR2      5.03      .751 No date    1:37   56.25  n/a
10036>          [IT= 1.00]  SUM=   01:Tot4     85.57     7.919 No date    1:44   38.93  n/a
10037>  301:0060----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
10038>       ADD HYD                02:Tot4    85.57     7.919 No date    1:44   38.93  n/a
10039>                            + 03:C2       5.56      .656 No date    1:31   60.93  n/a
10040>                            + 04:C3       6.54      .912 No date    1:30   73.39  n/a
10041>                            + 05:C4        .24      .070 No date    1:30   82.25  n/a
10042>                            + 06:EX11     1.10      .168 No date    1:30   69.75  n/a
10043>                            + 07:EX12     1.07      .161 No date    1:30   67.86  n/a
10044>                            + 08:EXC1      .22      .041 No date    1:30   59.86  n/a
10045>                            + 09:FR9      1.57      .347 No date    1:30   67.78  n/a
10046>          [DT= 1.00]  SUM=   01:Tot5     106.31    10.501 No date    1:41   41.01  n/a
10047> *********************************************************************************
10048> * Simulations with 4 hour Chicago from City of Ottawa
10049> * SCS 24 hours Type 2, from City of Ottawa
10050> * Simulations with July 1, 1979 Historical Event, City of Ottawa
10051>  101:0062----------------------------------------------------------------------
10052>       File2h
10053> ----------------------------------------------------------------------
10054> **********************************************************************
10055>      WARNINGS / ERRORS / NOTES
10056>      -------------------------
10057> C01:0063 CALIB STANDHY1
10058>       *** WARNING: For areas with impervious ratios below
10059>                    20%, this routine may not be applicable.
10060> C01:0064 CALIB STANDHY2
10061>       *** WARNING: For areas with impervious ratios below
10062>                    20%, this routine may not be applicable.
10063> C01:0065 CALIB STANDHY3
10064>       *** WARNING: For areas with impervious ratios below
10065>                    20%, this routine may not be applicable.
10066> C01:0066 CALIB STANDHY4
10067>       *** WARNING: For areas with impervious ratios below
10068>                    20%, this routine may not be applicable.
10069> C01:0067 CALIB STANDHY5
10070>       *** WARNING: For areas with impervious ratios below
10071>                    20%, this routine may not be applicable.
10072> C01:0068 CALIB STANDHY6
10073>       *** WARNING: For areas with impervious ratios below
10074>                    20%, this routine may not be applicable.
10075> C01:0069 CALIB STANDHY7
10076>       *** WARNING: For areas with impervious ratios below
10077>                    20%, this routine may not be applicable.
10078> 201:0038 CALIB STANDHY8
10079>       *** WARNING: For areas with impervious ratios below
10080>                    20%, this routine may not be applicable.
10081> 001:0039 CALIB STANDHY9
10082>       *** WARNING: For areas with impervious ratios below
10083>                    20%, this routine may not be applicable.
10084> 001:0040 CALIB STANDHY10
10085>       *** WARNING: For areas with impervious ratios below
10086>                    20%, this routine may not be applicable.
10087> 001:0041 CALIB STANDHY11
10088>       *** WARNING: For areas with impervious ratios below
10089>                    20%, this routine may not be applicable.
10090> 001:0042 CALIB STANDHY12
10091>       *** WARNING: For areas with impervious ratios below
10092>                    20%, this routine may not be applicable.
10093> 002:0031 CALIB STANDHY1
10094>       *** WARNING: For areas with impervious ratios below
10095>                    20%, this routine may not be applicable.
10096> 002:0032 CALIB STANDHY2
10097>       *** WARNING: For areas with impervious ratios below
10098>                    20%, this routine may not be applicable.
10099> 002:0033 CALIB STANDHY3
10100>       *** WARNING: For areas with impervious ratios below
10101>                    20%, this routine may not be applicable.
10102> 002:0034 CALIB STANDHY4
10103>       *** WARNING: For areas with impervious ratios below
10104>                    20%, this routine may not be applicable.
10105> 002:0035 CALIB STANDHY5
10106>       *** WARNING: For areas with impervious ratios below
10107>                    20%, this routine may not be applicable.
10108> 002:0036 CALIB STANDHY6
10109>       *** WARNING: For areas with impervious ratios below
10110>                    20%, this routine may not be applicable.
10111> 002:0037 CALIB STANDHY7
10112>       *** WARNING: For areas with impervious ratios below
10113>                    20%, this routine may not be applicable.
10114> C02:0038 CALIB STANDHY8
10115>       *** WARNING: For areas with impervious ratios below
10116>                    20%, this routine may not be applicable.
10117> 002:0039 CALIB STANDHY9
10118>       *** WARNING: For areas with impervious ratios below
10119>                    20%, this routine may not be applicable.
10120> 002:0040 CALIB STANDHY10
10121>       *** WARNING: For areas with impervious ratios below
10122>                    20%, this routine may not be applicable.
10123> 002:0041 CALIB STANDHY11
10124>       *** WARNING: For areas with impervious ratios below
10125>                    20%, this routine may not be applicable.
10126> 002:0042 CALIB STANDHY12
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*** WARNING: For areas with impervious ratios below
             20%, this routine may not be applicable.
025:0031 CALIB STANDHYD
*** WARNING: For areas with impervious ratios below
             20%, this routine may not be applicable.
025:0032 CALIB STANDHYD
*** WARNING: For areas with impervious ratios below
             20%, this routine may not be applicable.
025:0033 CALIB STANDHYD
*** WARNING: For areas with impervious ratios below
             20%, this routine may not be applicable.
025:0034 CALIB STANDHYD
*** WARNING: For areas with impervious ratios below
             20%, this routine may not be applicable.
025:0035 CALIB STANDHYD
*** WARNING: For areas with impervious ratios below
             20%, this routine may not be applicable.
025:0036 CALIB STANDHYD
*** WARNING: For areas with impervious ratios below
             20%, this routine may not be applicable.
025:0037 CALIB STANDHYD
*** WARNING: For areas with impervious ratios below
             20%, this routine may not be applicable.
025:0038 CALIB STANDHYD
*** WARNING: For areas with impervious ratios below
             20%, this routine may not be applicable.
025:0039 CALIB STANDHYD
*** WARNING: For areas with impervious ratios below
             20%, this routine may not be applicable.
025:0040 CALIB STANDHYD
*** WARNING: For areas with impervious ratios below
             20%, this routine may not be applicable.
025:0041 CALIB STANDHYD
*** WARNING: For areas with impervious ratios below
             20%, this routine may not be applicable.
025:0042 CALIB STANDHYD
*** WARNING: For areas with impervious ratios below
             20%, this routine may not be applicable.
050:0031 CALIB STANDHYD
*** WARNING: For areas with impervious ratios below
             20%, this routine may not be applicable.
050:0032 CALIB STANDHYD
*** WARNING: For areas with impervious ratios below
             20%, this routine may not be applicable.
050:0033 CALIB STANDHYD
*** WARNING: For areas with impervious ratios below
             20%, this routine may not be applicable.
050:0034 CALIB STANDHYD
*** WARNING: For areas with impervious ratios below
             20%, this routine may not be applicable.
050:0035 CALIB STANDHYD
*** WARNING: For areas with impervious ratios below
             20%, this routine may not be applicable.
050:0036 CALIB STANDHYD
*** WARNING: For areas with impervious ratios below
             20%, this routine may not be applicable.
050:0037 CALIB STANDHYD
*** WARNING: For areas with impervious ratios below
             20%, this routine may not be applicable.
050:0038 CALIB STANDHYD
*** WARNING: For areas with impervious ratios below
             20%, this routine may not be applicable.
050:0039 CALIB STANDHYD
*** WARNING: For areas with impervious ratios below
             20%, this routine may not be applicable.
050:0040 CALIB STANDHYD
*** WARNING: For areas with impervious ratios below
             20%, this routine may not be applicable.
050:0041 CALIB STANDHYD
*** WARNING: For areas with impervious ratios below
             20%, this routine may not be applicable.
050:0042 CALIB STANDHYD
*** WARNING: For areas with impervious ratios below
             20%, this routine may not be applicable.
050:0060 ROUTE PIPE
*** WARNING: New pipe size used for routing.
100:0031 CALIB STANDHYD
*** WARNING: For areas with impervious ratios below
             20%, this routine may not be applicable.
100:0032 CALIB STANDHYD
*** WARNING: For areas with impervious ratios below
             20%, this routine may not be applicable.
100:0033 CALIB STANDHYD
*** WARNING: For areas with impervious ratios below
             20%, this routine may not be applicable.
100:0034 CALIB STANDHYD
*** WARNING: For areas with impervious ratios below
             20%, this routine may not be applicable.
100:0035 CALIB STANDHYD
*** WARNING: For areas with impervious ratios below
             20%, this routine may not be applicable.
100:0036 CALIB STANDHYD
*** WARNING: For areas with impervious ratios below
             20%, this routine may not be applicable.
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10253>  100:0041 CALIB STANDHYD
10254>       *** WARNING: For areas with impervious ratios below
10255>                    20%, this routine may not be applicable.
10256>  100:0038 CALIB STANDHYD
10257>       *** WARNING: For areas with impervious ratios below
10258>                    20%, this routine may not be applicable.
10259>  100:0039 CALIB STANDHYD
10260>       *** WARNING: For areas with impervious ratios below
10261>                    20%, this routine may not be applicable.
10262>  100:0040 CALIB STANDHYD
10263>       *** WARNING: For areas with impervious ratios below
10264>                    20%, this routine may not be applicable.
10265>  100:0041 CALIB STANDHYD
10266>       *** WARNING: For areas with impervious ratios below
10267>                    20%, this routine may not be applicable.
10268>  100:0042 CALIB STANDHYD
10269>       *** WARNING: For areas with impervious ratios below
10270>                    20%, this routine may not be applicable.
10271>  100:0046 ROUTE PIPE     ->
10272>       *** WARNING: Pipe size used for routing.
10273>  100:0047 ROUTE PIPE     ->
10274>       *** WARNING: Pipe size used for routing.
10275>  200:0041 CALIB STANDHYD
10276>       *** WARNING: For areas with impervious ratios below
10277>                    20%, this routine may not be applicable.
10278>  202:0032 CALIB STANDHYD
10279>       *** WARNING: For areas with impervious ratios below
10280>                    20%, this routine may not be applicable.
10281>  202:0033 CALIB STANDHYD
10282>       *** WARNING: For areas with impervious ratios below
10283>                    20%, this routine may not be applicable.
10284>  202:0034 CALIB STANDHYD
10285>       *** WARNING: For areas with impervious ratios below
10286>                    20%, this routine may not be applicable.
10287>  202:0035 CALIB STANDHYD
10288>       *** WARNING: For areas with impervious ratios below
10289>                    20%, this routine may not be applicable.
10290>  202:0036 CALIB STANDHYD
10291>       *** WARNING: For areas with impervious ratios below
10292>                    20%, this routine may not be applicable.
10293>  202:0037 CALIB STANDHYD
10294>       *** WARNING: For areas with impervious ratios below
10295>                    20%, this routine may not be applicable.
10296>  202:0038 CALIB STANDHYD
10297>       *** WARNING: For areas with impervious ratios below
10298>                    20%, this routine may not be applicable.
10299>  202:0039 CALIB STANDHYD
10300>       *** WARNING: For areas with impervious ratios below
10301>                    20%, this routine may not be applicable.
10302>  202:0040 CALIB STANDHYD
10303>       *** WARNING: For areas with impervious ratios below
10304>                    20%, this routine may not be applicable.
10305>  202:0041 CALIB STANDHYD
10306>       *** WARNING: For areas with impervious ratios below
10307>                    20%, this routine may not be applicable.
10308>  202:0042 CALIB STANDHYD
10309>       *** WARNING: For areas with impervious ratios below
10310>                    20%, this routine may not be applicable.
10311>  205:0031 CALIB STANDHYD
10312>       *** WARNING: For areas with impervious ratios below
10313>                    20%, this routine may not be applicable.
10314>  205:0032 CALIB STANDHYD
10315>       *** WARNING: For areas with impervious ratios below
10316>                    20%, this routine may not be applicable.
10317>  205:0033 CALIB STANDHYD
10318>       *** WARNING: For areas with impervious ratios below
10319>                    20%, this routine may not be applicable.
10320>  205:0034 CALIB STANDHYD
10321>       *** WARNING: For areas with impervious ratios below
10322>                    20%, this routine may not be applicable.
10323>  205:0035 CALIB STANDHYD
10324>       *** WARNING: For areas with impervious ratios below
10325>                    20%, this routine may not be applicable.
10326>  205:0036 CALIB STANDHYD
10327>       *** WARNING: For areas with impervious ratios below
10328>                    20%, this routine may not be applicable.
10329>  205:0037 CALIB STANDHYD
10330>       *** WARNING: For areas with impervious ratios below
10331>                    20%, this routine may not be applicable.
10332>  205:0038 CALIB STANDHYD
10333>       *** WARNING: For areas with impervious ratios below
10334>                    20%, this routine may not be applicable.
10335>  205:0039 CALIB STANDHYD
10336>       *** WARNING: For areas with impervious ratios below
10337>                    20%, this routine may not be applicable.
10338>  205:0040 CALIB STANDHYD
10339>       *** WARNING: For areas with impervious ratios below
10340>                    20%, this routine may not be applicable.
10341>  205:0041 CALIB STANDHYD
10342>       *** WARNING: For areas with impervious ratios below
10343>                    20%, this routine may not be applicable.
10344>  205:0042 CALIB STANDHYD
10345>       *** WARNING: For areas with impervious ratios below
10346>                    20%, this routine may not be applicable.
10347>  206:0031 CALIB STANDHYD
10348>       *** WARNING: For areas with impervious ratios below
10349>                    20%, this routine may not be applicable.
10350>  206:0032 CALIB STANDHYD
10351>       *** WARNING: For areas with impervious ratios below
10352>                    20%, this routine may not be applicable.
10353>  206:0033 CALIB STANDHYD
10354>       *** WARNING: For areas with impervious ratios below
10355>                    20%, this routine may not be applicable.
10356>  206:0034 CALIB STANDHYD
10357>       *** WARNING: For areas with impervious ratios below
10358>                    20%, this routine may not be applicable.
10359>  206:0035 CALIB STANDHYD
10360>       *** WARNING: For areas with impervious ratios below
10361>                    20%, this routine may not be applicable.
10362>  206:0036 CALIB STANDHYD
10363>       *** WARNING: For areas with impervious ratios below
10364>                    20%, this routine may not be applicable.
10365>  206:0037 CALIB STANDHYD
10366>       *** WARNING: For areas with impervious ratios below
10367>                    20%, this routine may not be applicable.
10368>  206:0038 CALIB STANDHYD
10369>       *** WARNING: For areas with impervious ratios below
10370>                    20%, this routine may not be applicable.
10371>  206:0039 CALIB STANDHYD
10372>       *** WARNING: For areas with impervious ratios below
10373>                    20%, this routine may not be applicable.
10374>  206:0040 CALIB STANDHYD
10375>       *** WARNING: For areas with impervious ratios below
10376>                    20%, this routine may not be applicable.
10377>  206:0041 CALIB STANDHYD
10378>       *** WARNING: For areas with impervious ratios below
10379>                    20%, this routine may not be applicable.
10380>  206:0042 CALIB STANDHYD
10381>       *** WARNING: For areas with impervious ratios below
10382>                    20%, this routine may not be applicable.
10383>  208:0031 CALIB STANDHYD
10384>       *** WARNING: For areas with impervious ratios below
10385>                    20%, this routine may not be applicable.
10386>  208:0032 CALIB STANDHYD
10387>       *** WARNING: For areas with impervious ratios below
10388>                    20%, this routine may not be applicable.
10389>  208:0033 CALIB STANDHYD
10390>       *** WARNING: For areas with impervious ratios below
10391>                    20%, this routine may not be applicable.
10392>  208:0034 CALIB STANDHYD
10393>       *** WARNING: For areas with impervious ratios below
10394>                    20%, this routine may not be applicable.
10395>  208:0035 CALIB STANDHYD
10396>       *** WARNING: For areas with impervious ratios below
10397>                    20%, this routine may not be applicable.
10398>  208:0036 CALIB STANDHYD
10399>       *** WARNING: For areas with impervious ratios below
10400>                    20%, this routine may not be applicable.
10401>  210:0031 CALIB STANDHYD
10402>       *** WARNING: For areas with impervious ratios below
10403>                    20%, this routine may not be applicable.
10404>  210:0032 CALIB STANDHYD
10405>       *** WARNING: For areas with impervious ratios below
10406>                    20%, this routine may not be applicable.
10407>  210:0033 CALIB STANDHYD
10408>       *** WARNING: For areas with impervious ratios below
10409>                    20%, this routine may not be applicable.
10410>  210:0034 CALIB STANDHYD
10411>       *** WARNING: For areas with impervious ratios below
10412>                    20%, this routine may not be applicable.
10413>  210:0035 CALIB STANDHYD
10414>       *** WARNING: For areas with impervious ratios below
10415>                    20%, this routine may not be applicable.
10416>  210:0036 CALIB STANDHYD
10417>       *** WARNING: For areas with impervious ratios below
10418>                    20%, this routine may not be applicable.
10419>  210:0037 CALIB STANDHYD
10420>       *** WARNING: For areas with impervious ratios below
10421>                    20%, this routine may not be applicable.
10422>  210:0038 CALIB STANDHYD
10423>       *** WARNING: For areas with impervious ratios below
10424>                    20%, this routine may not be applicable.
10425>  210:0039 CALIB STANDHYD
10426>       *** WARNING: For areas with impervious ratios below
10427>                    20%, this routine may not be applicable.
10428>  210:0040 CALIB STANDHYD
10429>       *** WARNING: For areas with impervious ratios below
10430>                    20%, this routine may not be applicable.
10431>  210:0041 CALIB STANDHYD
10432>       *** WARNING: For areas with impervious ratios below
10433>                    20%, this routine may not be applicable.
10434>  210:0042 CALIB STANDHYD
10435>       *** WARNING: For areas with impervious ratios below
10436>                    20%, this routine may not be applicable.
10437>  220:0031 CALIB STANDHYD
10438>       *** WARNING: For areas with impervious ratios below
10439>                    20%, this routine may not be applicable.
10440>  220:0032 CALIB STANDHYD
10441>       *** WARNING: For areas with impervious ratios below
10442>                    20%, this routine may not be applicable.
10443>  220:0033 CALIB STANDHYD
10444>       *** WARNING: For areas with impervious ratios below
10445>                    20%, this routine may not be applicable.
10446>  220:0034 CALIB STANDHYD
10447>       *** WARNING: For areas with impervious ratios below
10448>                    20%, this routine may not be applicable.
10449>  220:0035 CALIB STANDHYD
10450>       *** WARNING: For areas with impervious ratios below
10451>                    20%, this routine may not be applicable.
10452>  220:0036 CALIB STANDHYD
10453>       *** WARNING: For areas with impervious ratios below
10454>                    20%, this routine may not be applicable.
10455>  220:0037 CALIB STANDHYD
10456>       *** WARNING: For areas with impervious ratios below
10457>                    20%, this routine may not be applicable.
10458>  220:0038 CALIB STANDHYD
10459>       *** WARNING: For areas with impervious ratios below
10460>                    20%, this routine may not be applicable.
10461>  220:0039 CALIB STANDHYD
10462>       *** WARNING: For areas with impervious ratios below
10463>                    20%, this routine may not be applicable.
10464>  220:0040 CALIB STANDHYD
10465>       *** WARNING: For areas with impervious ratios below
10466>                    20%, this routine may not be applicable.
10467>  220:0041 CALIB STANDHYD
10468>       *** WARNING: For areas with impervious ratios below
10469>                    20%, this routine may not be applicable.
10470>  220:0042 CALIB STANDHYD
10471>       *** WARNING: For areas with impervious ratios below
10472>                    20%, this routine may not be applicable.
10473>  225:0031 CALIB STANDHYD
10474>       *** WARNING: For areas with impervious ratios below
10475>                    20%, this routine may not be applicable.
10476>  225:0032 CALIB STANDHYD
10477>       *** WARNING: For areas with impervious ratios below
10478>                    20%, this routine may not be applicable.
10479>  225:0033 CALIB STANDHYD
10480>       *** WARNING: For areas with impervious ratios below
10481>                    20%, this routine may not be applicable.
10482>  225:0034 CALIB STANDHYD
10483>       *** WARNING: For areas with impervious ratios below
10484>                    20%, this routine may not be applicable.
10485>  225:0035 CALIB STANDHYD
10486>       *** WARNING: For areas with impervious ratios below
10487>                    20%, this routine may not be applicable.
10488>  225:0036 CALIB STANDHYD
10489>       *** WARNING: For areas with impervious ratios below
10490>                    20%, this routine may not be applicable.
10491>  225:0037 CALIB STANDHYD
10492>       *** WARNING: For areas with impervious ratios below
10493>                    20%, this routine may not be applicable.
10494>  225:0038 CALIB STANDHYD
10495>       *** WARNING: For areas with impervious ratios below
10496>                    20%, this routine may not be applicable.
10497>  225:0039 CALIB STANDHYD
10498>       *** WARNING: For areas with impervious ratios below
10499>                    20%, this routine may not be applicable.
10500>  225:0040 CALIB STANDHYD
10501>       *** WARNING: For areas with impervious ratios below
10502>                    20%, this routine may not be applicable.
10503>  225:0041 CALIB STANDHYD
10504>       *** WARNING: For areas with impervious ratios below
10505>                    20%, this routine may not be applicable.
10506>  225:0042 CALIB STANDHYD
10507>       *** WARNING: For areas with impervious ratios below
10508>                    20%, this routine may not be applicable.
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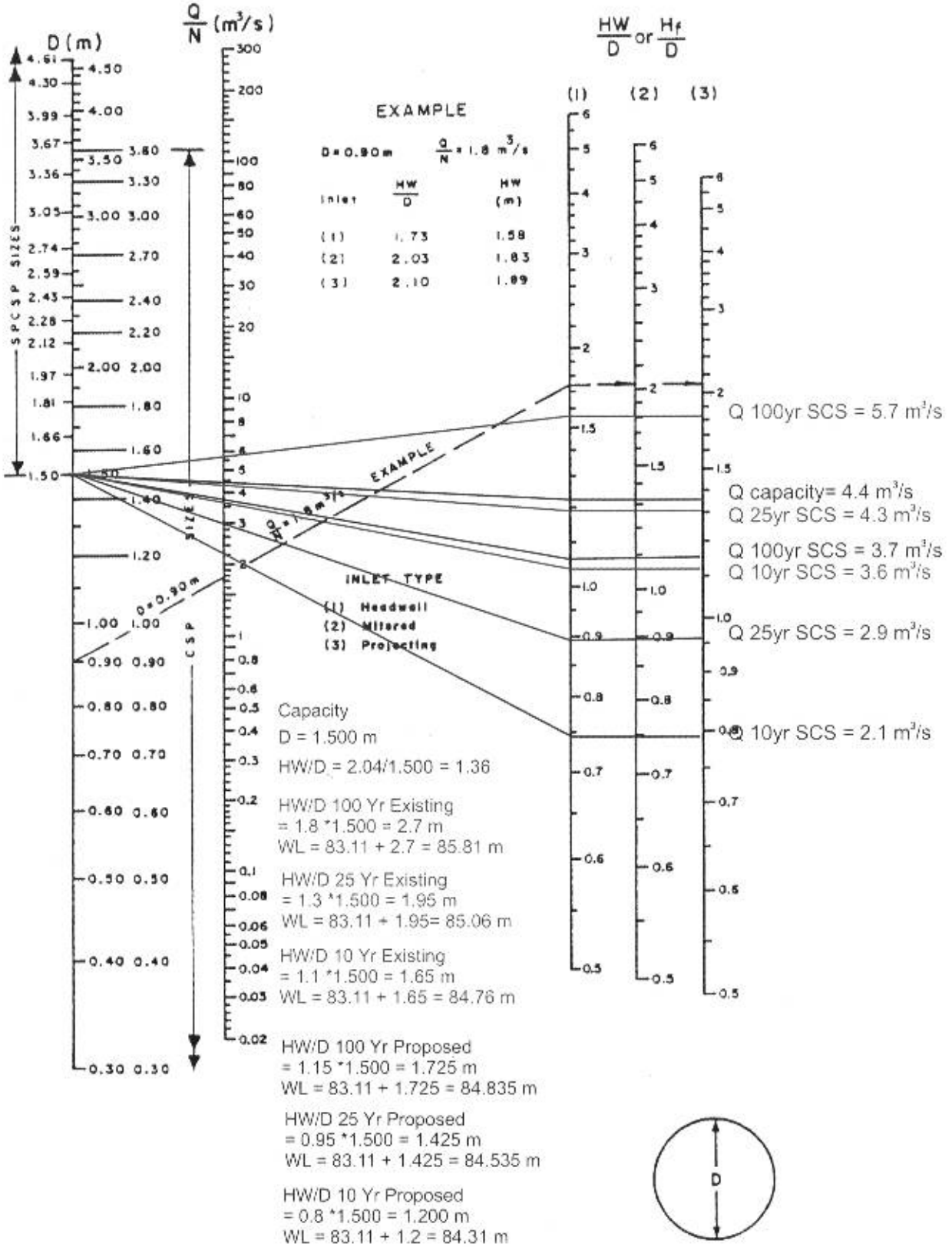
10459>  220:0069 ROUTE PIPE      ->
10460>       *** WARNING: New pipe size used for routing.
10461>  250:0031 CALIB STANDHYD
10462>       *** WARNING: For areas with impervious ratios below
10463>                    20%, this routine may not be applicable.
10464>  250:0032 CALIB STANDHYD
10465>       *** WARNING: For areas with impervious ratios below
10466>                    20%, this routine may not be applicable.
10467>  250:0033 CALIB STANDHYD
10468>       *** WARNING: For areas with impervious ratios below
10469>                    20%, this routine may not be applicable.
10470>  250:0034 CALIB STANDHYD
10471>       *** WARNING: For areas with impervious ratios below
10472>                    20%, this routine may not be applicable.
10473>  250:0035 CALIB STANDHYD
10474>       *** WARNING: For areas with impervious ratios below
10475>                    20%, this routine may not be applicable.
10476>  250:0036 CALIB STANDHYD
10477>       *** WARNING: For areas with impervious ratios below
10478>                    20%, this routine may not be applicable.
10479>  250:0037 CALIB STANDHYD
10480>       *** WARNING: For areas with impervious ratios below
10481>                    20%, this routine may not be applicable.
10482>  250:0038 CALIB STANDHYD
10483>       *** WARNING: For areas with impervious ratios below
10484>                    20%, this routine may not be applicable.
10485>  250:0039 CALIB STANDHYD
10486>       *** WARNING: For areas with impervious ratios below
10487>                    20%, this routine may not be applicable.
10488>  250:0040 CALIB STANDHYD
10489>       *** WARNING: For areas with impervious ratios below
10490>                    20%, this routine may not be applicable.
10491>  250:0041 CALIB STANDHYD
10492>       *** WARNING: For areas with impervious ratios below
10493>                    20%, this routine may not be applicable.
10494>  250:0042 CALIB STANDHYD
10495>       *** WARNING: For areas with impervious ratios below
10496>                    20%, this routine may not be applicable.
10497>  250:0060 ROUTE PIPE      ->
10498>       *** WARNING: New pipe size used for routing.
10499>  250:0027 ROUTE PIPE      ->
10500>       *** WARNING: New pipe size used for routing.
10501>  299:0031 CALIB STANDHYD
10502>       *** WARNING: For areas with impervious ratios below
10503>                    20%, this routine may not be applicable.
10504>  299:0032 CALIB STANDHYD
10505>       *** WARNING: For areas with impervious ratios below
10506>                    20%, this routine may not be applicable.
10507>  299:0033 CALIB STANDHYD
10508>       *** WARNING: For areas with impervious ratios below
10509>                    20%, this routine may not be applicable.
10510>  299:0034 CALIB STANDHYD
10511>       *** WARNING: For areas with impervious ratios below
10512>                    20%, this routine may not be applicable.
10513>  299:0035 CALIB STANDHYD
10514>       *** WARNING: For areas with impervious ratios below
10515>                    20%, this routine may not be applicable.
10516>  299:0036 CALIB STANDHYD
10517>       *** WARNING: For areas with impervious ratios below
10518>                    20%, this routine may not be applicable.
10519>  299:0037 CALIB STANDHYD
10520>       *** WARNING: For areas with impervious ratios below
10521>                    20%, this routine may not be applicable.
10522>  299:0038 CALIB STANDHYD
10523>       *** WARNING: For areas with impervious ratios below
10524>                    20%, this routine may not be applicable.
10525>  299:0039 CALIB STANDHYD
10526>       *** WARNING: For areas with impervious ratios below
10527>                    20%, this routine may not be applicable.
10528>  299:0040 CALIB STANDHYD
10529>       *** WARNING: For areas with impervious ratios below
10530>                    20%, this routine may not be applicable.
10531>  299:0041 CALIB STANDHYD
10532>       *** WARNING: For areas with impervious ratios below
10533>                    20%, this routine may not be applicable.
10534>  299:0042 CALIB STANDHYD
10535>       *** WARNING: For areas with impervious ratios below
10536>                    20%, this routine may not be applicable.
10537>  299:0060 ROUTE PIPE      ->
10538>       *** WARNING: New pipe size used for routing.
10539>  299:0072 ROUTE PIPE      ->
10540>       *** WARNING: New pipe size used for routing.
10541>  301:0031 CALIB STANDHYD
10542>       *** WARNING: For areas with impervious ratios below
10543>                    20%, this routine may not be applicable.
10544>  301:0032 CALIB STANDHYD
10545>       *** WARNING: For areas with impervious ratios below
10546>                    20%, this routine may not be applicable.
10547>  301:0033 CALIB STANDHYD
10548>       *** WARNING: For areas with impervious ratios below
10549>                    20%, this routine may not be applicable.
10550>  301:0034 CALIB STANDHYD
10551>       *** WARNING: For areas with impervious ratios below
10552>                    20%, this routine may not be applicable.
10553>  301:0035 CALIB STANDHYD
10554>       *** WARNING: For areas with impervious ratios below
10555>                    20%, this routine may not be applicable.
10556>  301:0036 CALIB STANDHYD
10557>       *** WARNING: For areas with impervious ratios below
10558>                    20%, this routine may not be applicable.
10559>  301:0037 CALIB STANDHYD
10560>       *** WARNING: For areas with impervious ratios below
10561>                    20%, this routine may not be applicable.
10562>  301:0038 CALIB STANDHYD
10563>       *** WARNING: For areas with impervious ratios below
10564>                    20%, this routine may not be applicable.
10565>  301:0039 CALIB STANDHYD
10566>       *** WARNING: For areas with impervious ratios below
10567>                    20%, this routine may not be applicable.
10568>  301:0040 CALIB STANDHYD
10569>       *** WARNING: For areas with impervious ratios below
10570>                    20%, this routine may not be applicable.
10571>  301:0041 CALIB STANDHYD
10572>       *** WARNING: For areas with impervious ratios below
10573>                    20%, this routine may not be applicable.
10574>  301:0042 CALIB STANDHYD
10575>       *** WARNING: For areas with impervious ratios below
10576>                    20%, this routine may not be applicable.
10577>  301:0060 ROUTE PIPE      ->
10578>       *** WARNING: New pipe size used for routing.
10579>  301:0072 ROUTE PIPE      ->
10580>       *** WARNING: New pipe size used for routing.
10581>   simulation ended on 2008-12-19     at 8:47:7
10582> ------------------------------------------------------------------------
10583>
10584>
```

Appendix E

MTO Nomographs
for Existing Culvert
and Proposed Culverts

Culvert capacity at node N3

CHART D5 - 1G

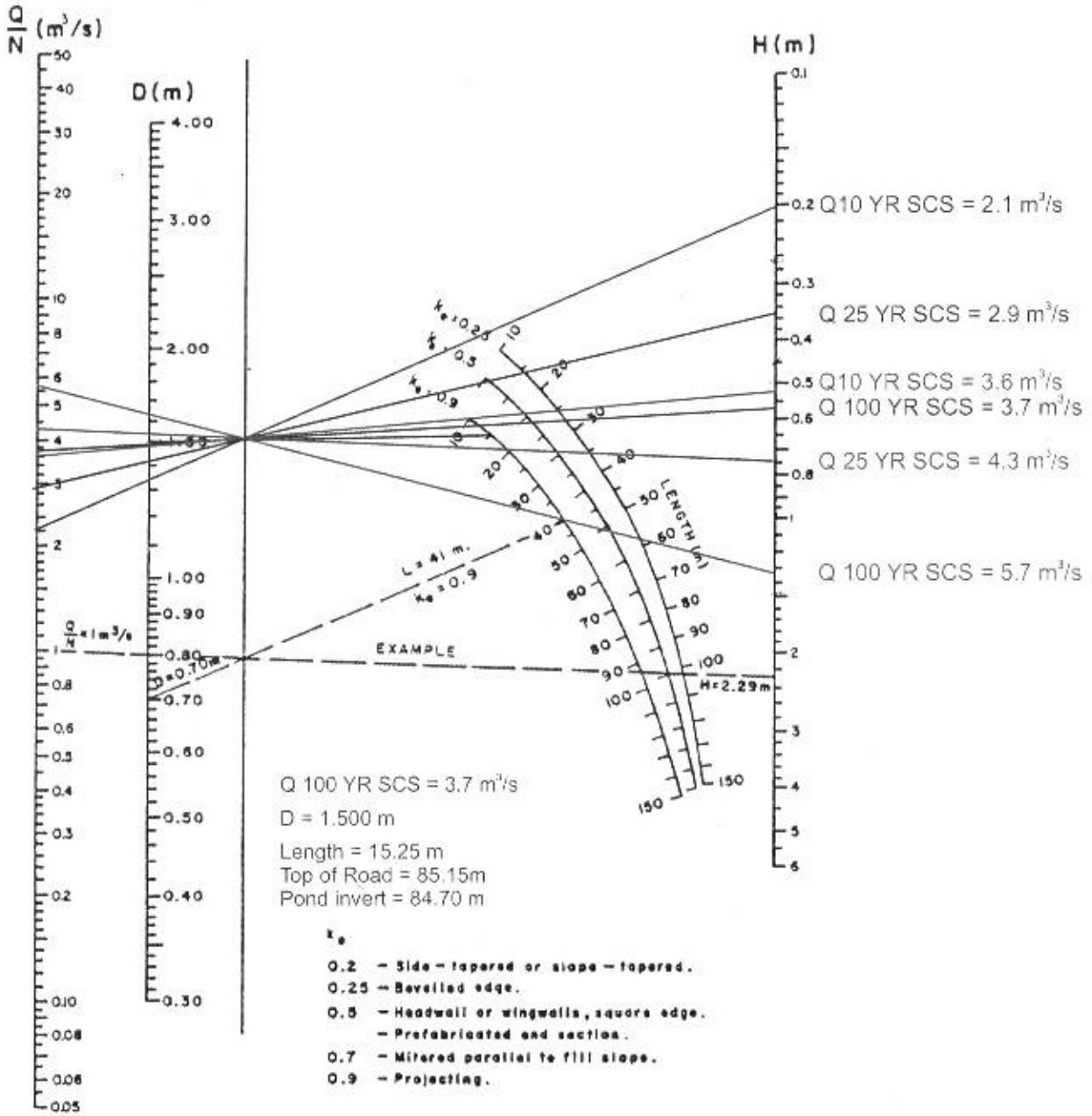


FHA 83 01
METRIC FHA 74 06 (51)

INLET CONTROL
CSP & SPCSP CULVERT

Culvert capacity at Parkway Rd culvert (node N3)

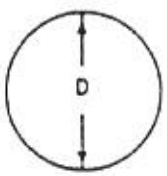
CHART D5 - 2C



Assuming
Channel WL downstream = 100 YR WL at Shield CK as per STANTEC = 84.30 m
Channel WL downstream = 25 YR WL at Shield CK as per STANTEC = 84.80 m
d/s channel invert = 82.89 m

Proposed:
WL 100 Q = 100 YR WL d/s + H m
WL + H = 84.30 m + 0.57 = 84.87 < 85.15 m
WL 25 Q = 25 YR Q + H m
WL + H = 84.30 m + 0.35 = 84.65 < 85.15 m OR 84.80 + 0.35 = 85.15 m
WL 10 Q = u/s 10 YR Q + H m
WL + H = 84.30 m + 0.20 = 84.50 < 85.15 m

Existing:
WL 100 Q = 100 YR WL d/s + H m
WL + H = 84.30 m + 1.35 = 85.65 > 85.15 m
WL 25 Q = 25 YR Q + H m
WL + H = 84.30 m + 0.75 = 85.05 < 85.15 m
WL 10 Q = u/s 10 YR Q + H m
WL + H = 84.30 m + 0.52 = 84.82 < 85.15 m



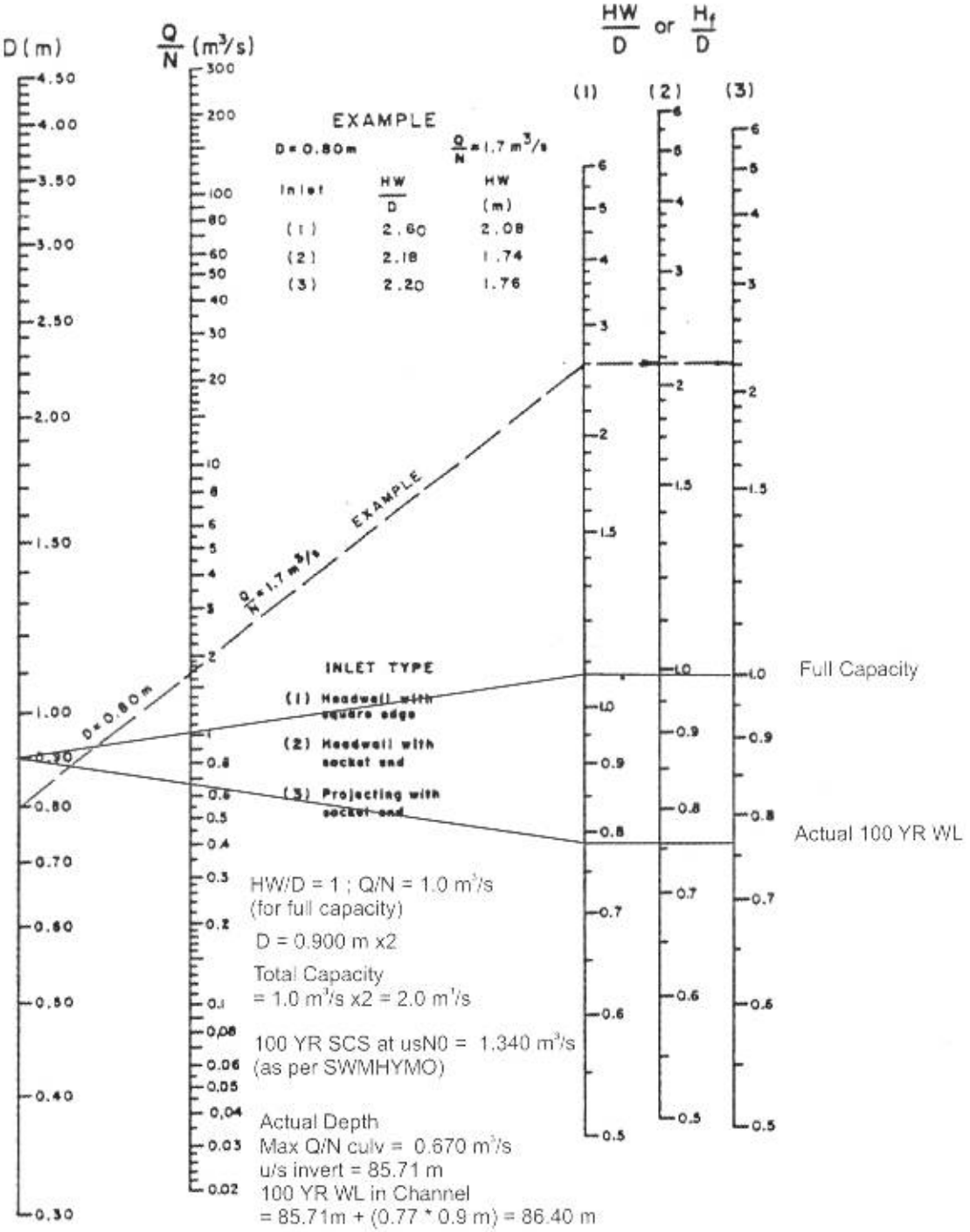
OUTLET CONTROL
CORRUGATED STEEL PIPE
FLOWING FULL
n = 0.024

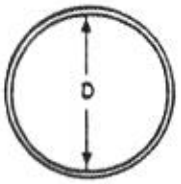
FHA 63 01
METRIC FHA 74 06 (51)

P 647-08
Dec 19, 2008

Culvert capacity upstream of Node N0

CHART D5 - 1E



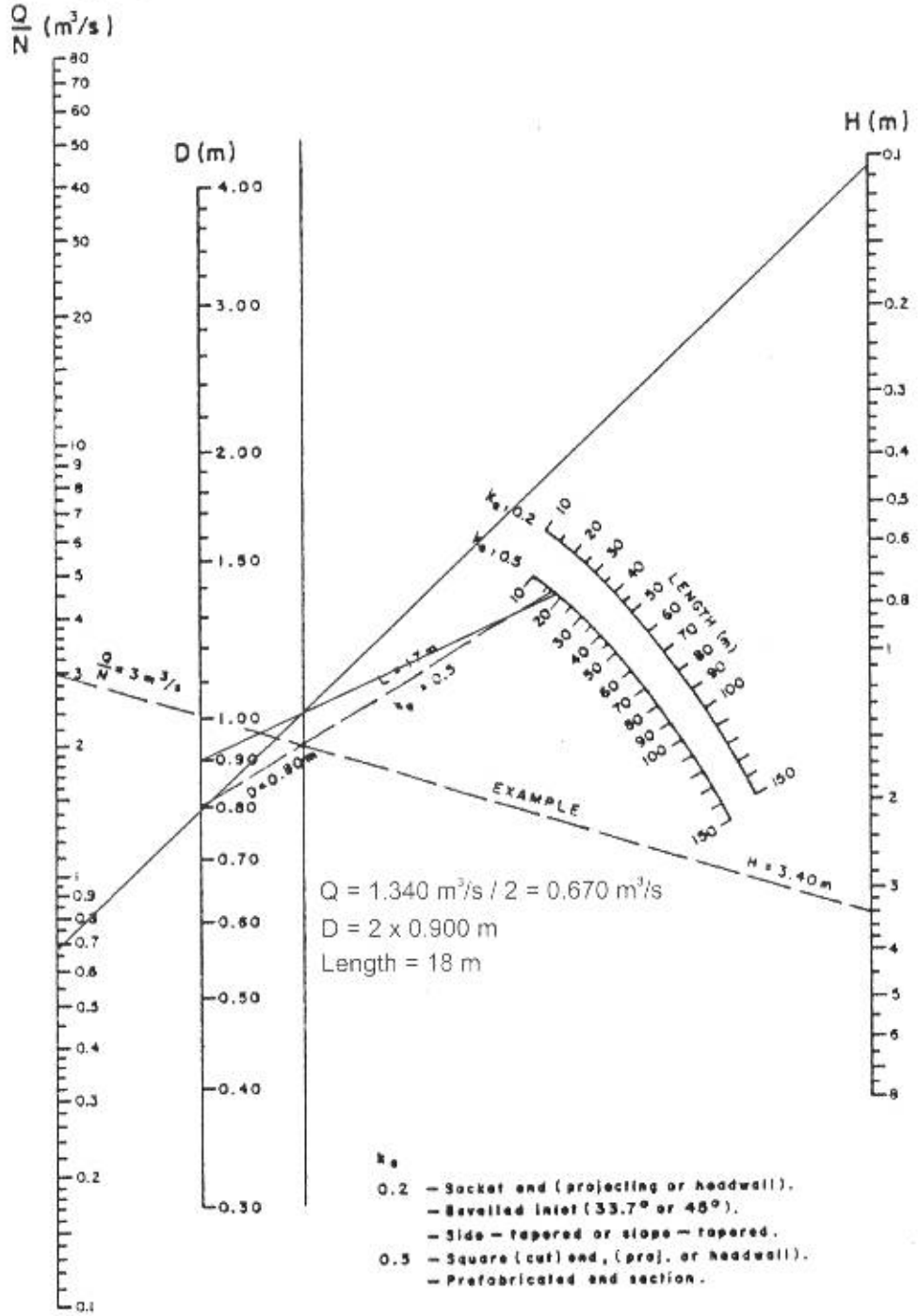


FHA 64 05
METRIC FHA 74 06 (5I)

INLET CONTROL
CONCRETE PIPE CULVERT
HDPE

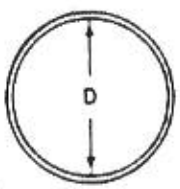
Culvert capacity upstream of node N0

CHART D5 - 2B



Q = 1.340 m³/s / 2 = 0.670 m³/s
D = 2 x 0.900 m
Length = 18 m

Assuming
Channel WL downstream = pipe obvert:

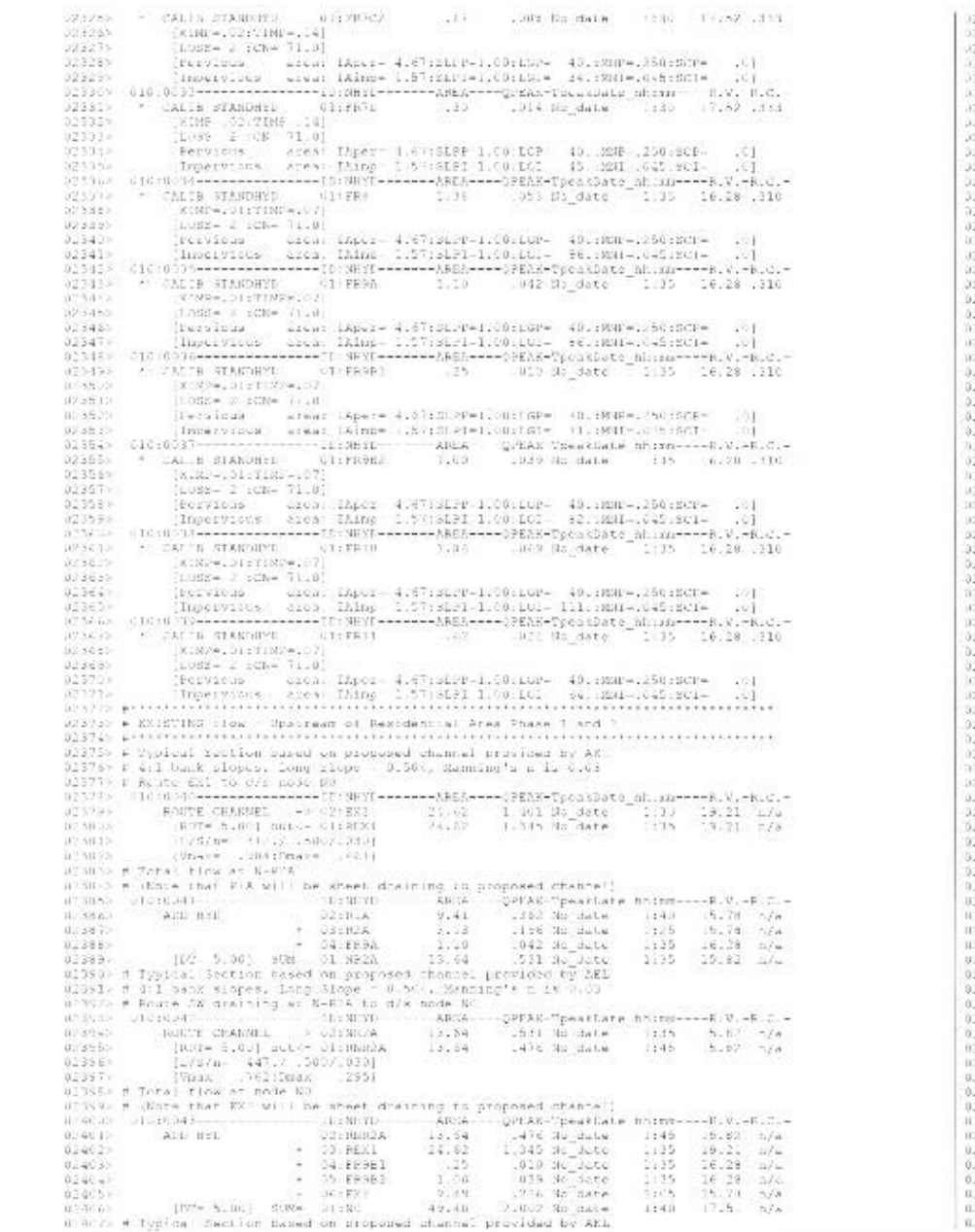


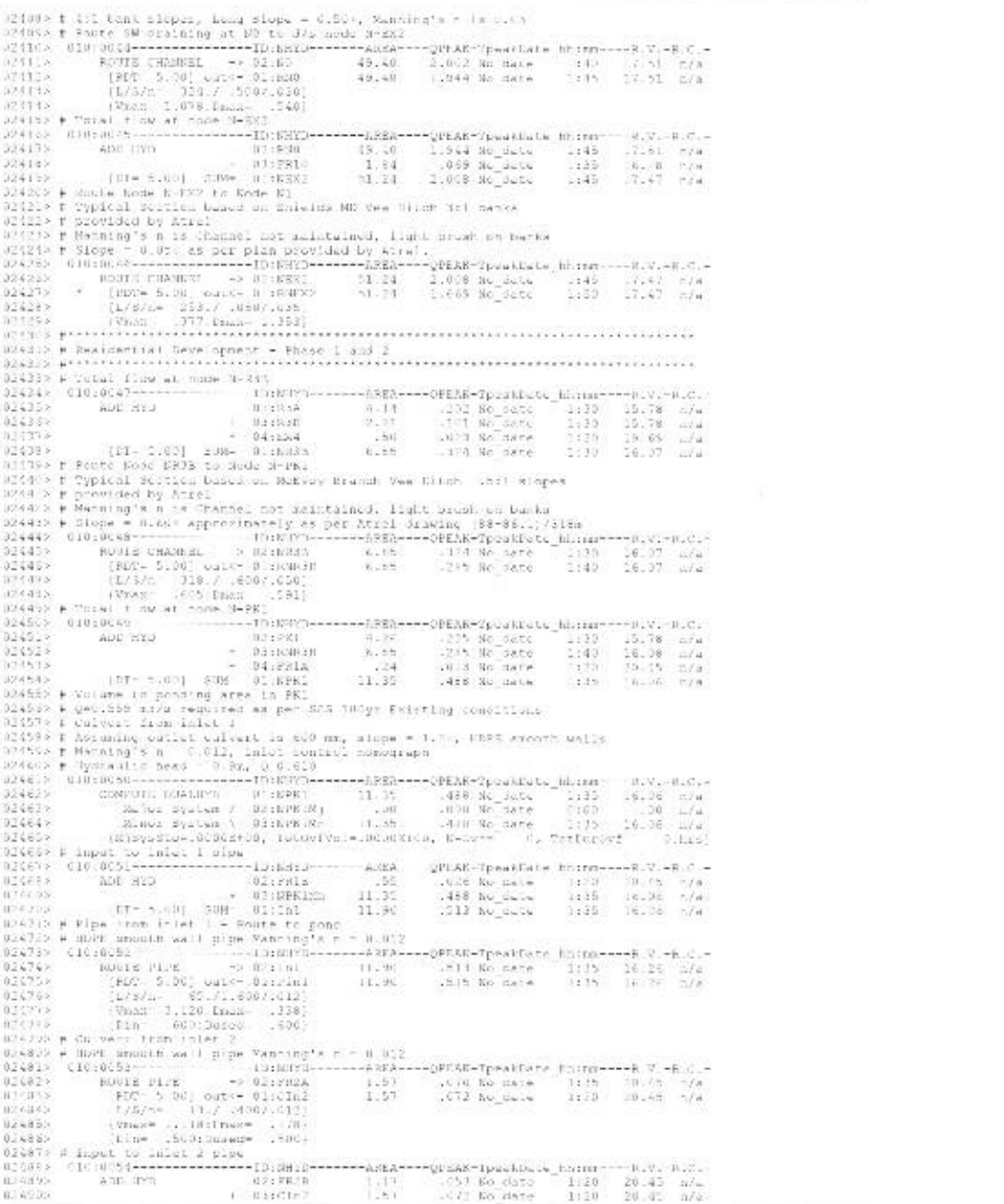
Max WL to permanent pool u/s = 87.15 m
H = 0.105 m
WL d/s 100 Q = d/s channel inv + d/s 100 yr WL + H m
WL d/s + H = 85.65 m + 0.872 + 0.105 = 86.63 < 87.15 m

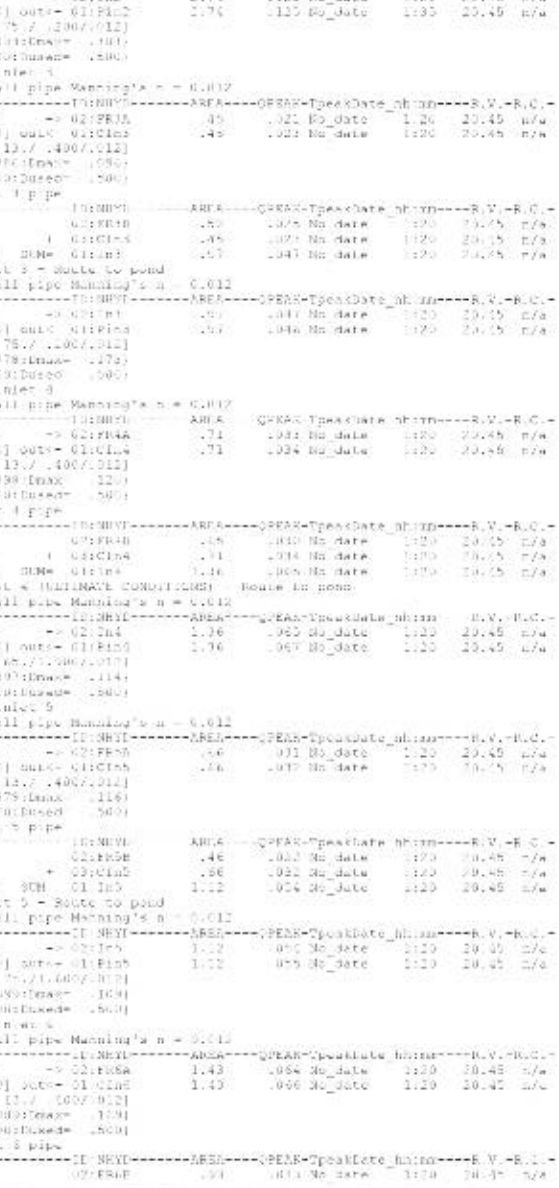
OUTLET CONTROL
CONCRETE PIPE CULVERT
FLOWING FULL
n = 0.012 = n HDPE

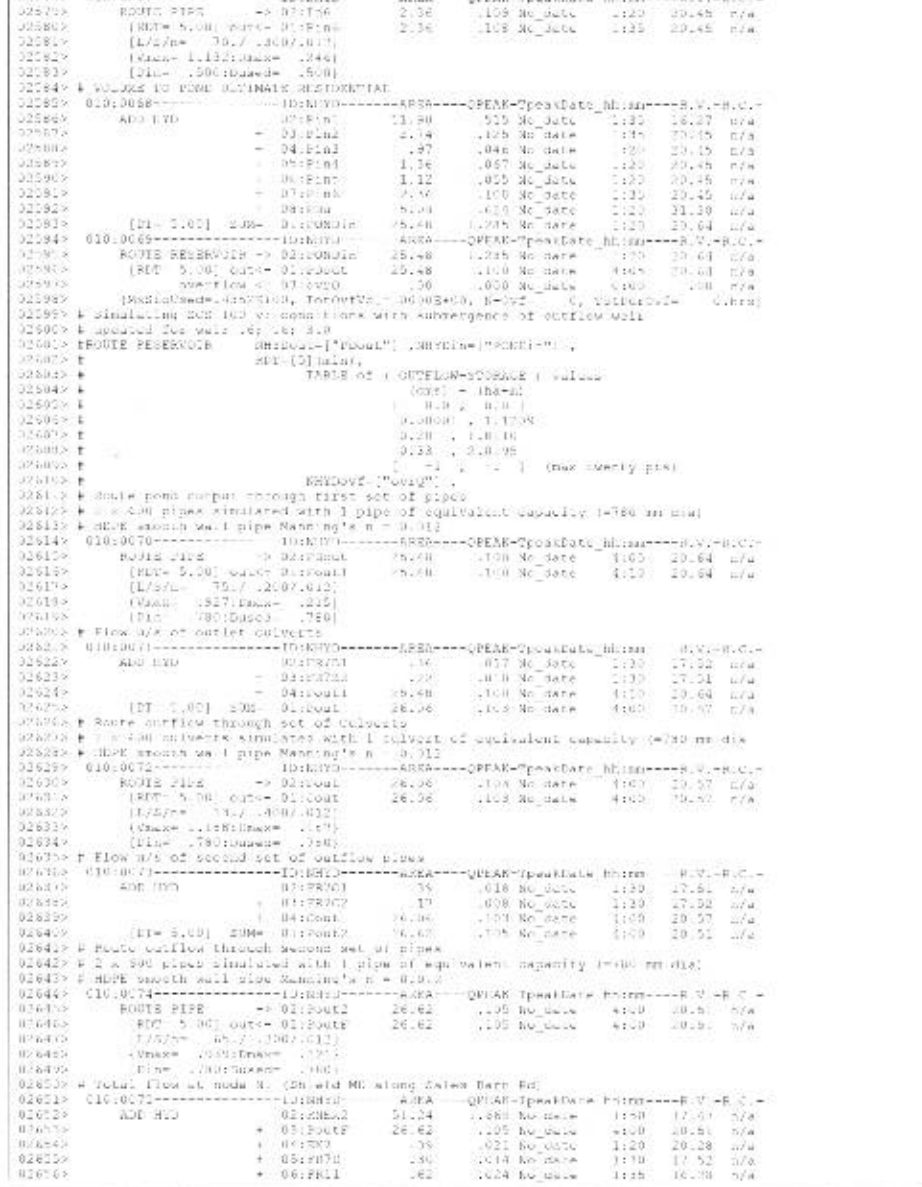
FHA 6301
METRIC FHA 7406 (51)

```
01993>       [I/S/=  .349:/  .060/.035
01994>       (Vmax=  .345:Dmax=  1.50)
01995> * VOLUME from residential area at N3 interim
01996>  005:0077----------------ID:NHYD--------AREA-----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
01997>       ADD HYD            02:PRVA        2.05       .340 No_date    1:35   13.28  n/a
01998>                        + 03:PRU         1.38       .075 No_date    1:30   12.34  n/a
01999>       [ID= 5.00]  SUM=  01:N3          3.43       .414 No_date    1:30   12.96  n/a
02000> * Added VOLUME from external area contributing to N3
02001>  005:0078----------------ID:NHYD--------AREA-----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
02002>       ADD HYD            02:xN.         75.17     1.039 No_date    2:05   14.17  n/a
02003>                        + 03:N3I         2.73       .024 No_date    1:40   12.46  n/a
02004>                        + 04:EX5          .82       .046 No_date    1:25   11.81  n/a
02005>                        + 05:EX6          .51       .011 No_date    1:20   10.99  n/a
02006>       [IT  5.00]  SUM   01:N3          82.63     1.117 No_date    2:05   14.17  n/a
02007> * ROUTE N3 to NC12:
02008> * Typical Section based on Shields MD Voc Ditch 3:1 banks
02009> * provided by Attn.
02010> * Manning's n is Channel not maintained, light brush on banks
02011> * Slope = 0.05  as per plan provided by Attn.
02012>  005:0079----------------ID:NHYD--------AREA-----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
02013>       ROUTE CHANNEL   -> 02:N3          82.63     1.117 No_date    2:05   14.17  n/a
02014>         ROC  5.00) outs- 01:NC3         82.63     .885 No_date    2:15   14.17  n/a
02015>         [I/S/=  .415:/  .056/.035]
02016>         (Vmax=  .452:Dmax=  1.027)
02017> * Flow at Station node NC3(B for comparison
02018> * routed N3 plus EX3
02019>  005:0080----------------ID:NHYD--------AREA-----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
02020>       ADD HYD            02:EN3         82.63      .885 No_date    2:15   14.17  n/a
02021>                        + 03:EX2         21.30      .111 No_date    2:20   12.08  n/a
02022>       [IT= 5.00]  SUM=  01:NC3TRIB      104.23     1.201 No_date    2:15   13.91  n/a
02023> * AREA CHECK
02024> *
02025>  005:0c1----------------ID:NHYD--------AREA-----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
02026>       ADD HYD            02:EX.         24.62     1.461 No_date    1:30   10.36  n/a
02027>                        + 03:EX2          9.89       .171 No_date    2:10   12.08  n/a
02028>                        + 04:EX3         21.30       .316 No_date    2:20   12.08  n/a
02029>                        + 05:EX4          .23       .019 No_date    1:20   10.44  n/a
02030>                        + 06:EX5          .52       .046 No_date    1:20   11.81  n/a
02031>                        + 07:EX6          .51       .011 No_date    1:20   10.99  n/a
02032>                        + 08:EX7          .79       .017 No_date    1:20   10.98  n/a
02033>                        + 09:FP1A         .22       .009 No_date    1:20   10.05  n/a
02034>                        + 10:FP1B         .59       .027 No_date    1:20   10.05  n/a
02035>       [IT= 5.00]  SUM=  01:Tot1        58.67     1.461 No_date    1:30   10.37  n/a
02036>  005:0c2----------------ID:NHYD--------AREA-----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
02037>       ADD HYD            02:Tot1        58.67     1.461 No_date    1:30   10.37  n/a
02038>                        + 01:FP2A         1.57       .056 No_date    1:20   10.05  n/a
02039>                        + 02:FP2B         1.17       .042 No_date    1:20   10.05  n/a
02040>                        + 03:FP3B          .33       .017 No_date    1:20   10.05  n/a
02041>                        + 04:FP3A          .57       .020 No_date    1:20   10.05  n/a
02042>                        + 05:FP4A          .71       .026 No_date    1:20   10.05  n/a
02043>                        + 06:FP4B          .65       .024 No_date    1:20   10.05  n/a
02044>                        + 07:FP5A          .68       .025 No_date    1:20   10.05  n/a
02045>                        + 08:FP5B          .46       .017 No_date    1:20   10.05  n/a
02046>       [IT= 5.00]  SUM=  01:Tot2        64.71     1.570 No_date    1:30   10.72  n/a
02047>  005:0c3----------------ID:NHYD--------AREA-----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
02048>       ADD HYD            01:Tot2        64.71     1.570 No_date    1:30   10.72  n/a
02049>                        + 02:FP6A         1.43       .05  No_date    1:20   10.05  n/a
02050>                        + 03:FP6B          .93       .034 No_date    1:20   10.05  n/a
02051>                        + 04:FP7A         1.35       .040 No_date    1:25   11.25  n/a
02052>                        + 05:FP7B1         .36       .011 No_date    1:35   13.38  n/a
02053>                        + 06:FP7B2         .21       .007 No_date    1:30   13.38  n/a
02054>                        + 07:FP7C1         .33       .011 No_date    1:35   13.38  n/a
02055>                        + 08:FP7C2         .19       .005 No_date    1:35   13.38  n/a
02056>                        + 10:FP7D          .86       .030 No_date    1:35   13.38  n/a
02057>       [01= 5.00]  SUM=  01:Tot3        69.86     1.736 No_date    1:35   13.30  n/a
02058>  005:0c4----------------ID:NHYD--------AREA-----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
02059>       ADD HYD            02:Tot3        69.86     1.736 No_date    1:35   13.30  n/a
02060>                        + 01:FP8          1.38       .035 No_date    1:40   12.24  n/a
02061>                        + 03:FP9A         1.10       .028 No_date    1:35   12.24  n/a
02062>                        + 04:FP9B1         .25       .007 No_date    1:35   12.24  n/a
02063>                        + 05:FP9B2        1.80       .027 No_date    1:35   12.24  n/a
02064>                        + 06:FP10          .84       .026 No_date    1:00   12.24  n/a
02065>                        + 07:FP11          .63       .011 No_date    1:35   12.15  n/a
02066>                        + 09:EX.          4.08       .176 No_date    1:30   13.00  n/a
02067>                        + 10:EX.          5.03       .466 No_date    1:05   25.87  n/a
02068>       [IT  5.00]  SUM   01:Tot4        80.34     2.332 No_date    1:35   14.30  n/a
02069>  005:0c5----------------ID:NHYD--------AREA-----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
02070>       ADD HYD            02:Tot4        80.34     2.332 No_date    1:35   14.30  n/a
02071>                        + 03:EX1A         8.41       .274 No_date    1:40   12.08  n/a
02072>                        + 04:EX.          3.13       .197 No_date    1:30   12.08  n/a
02073>                        + 05:EX4          4.14       .15  No_date    1:30   12.08  n/a
02074>                        + 06:EX8          2.21       .075 No_date    1:30   12.08  n/a
02075>       [01  5.00]  SUM   01:Tot5       104.23     2.924 No_date    1:35   13.50  n/a
02076> *********************************************************************
02077> * Simulations with 4 hour Chicago from City of Ottawa
02078> *  ** END OF RUN :  5
02079> *
02080> *********************************************************************
02081>
02082>
02083>
02084>
02085>
02086>  ROR:C560XANDF
02087>  010:0001----------------------------------------------------------------
02088>       START
02089>        [TZERO =    .00 hrs on        0
02090>        [METOUT=   2     (1=Imperial, 2=metric output)
02091>        [NSTORM=   1 ]
02092>        [NHOUR =  10 ]
02093> *********************************************************************
02094> *  SWMM5/V5 Verth.02/Jan 2005 <SEIA> / IBPCO DATA FILE
02095> *********************************************************************
02096> *  Project Name: [Greely Village Center]    Project Number: [847-01]
02097> *  Date        : 04 09 2008
02098> *  Modeller    : [JMS]
02099> *  Company     : JFSAinc.
02100> *  License #   : 2047402
02101> *********************************************************************
02102> *
02103> * SAMARIYXX model of the Greely Village Center - Residential Area - Phase 2
02104> * Proposed Ultimate conditions. OPTION F
02105> * Filename stands for: SAMarize - Greely, Residential, Phase 2, Ultimate V2 with
02106> *
02107> *  December 15, 2008
02108> *  "a" at the end of filename: Added July 1st 1979 event.
02109> *********************************************************************
02110>  010:0002----------------------------------------------------------------
02111>       READ STORM
02112>        Filename = storm.001
02113>        Comment  = 10 years Chicago Storm 4 hours step 10 min, City of Ottawa
02114>        [SDT 10/30/SDOR    4.00:2000=  33.96]
02115> *********************************************************************
02116> * Existing flow - McEvoy Branch of Shield Creek - Areas
02117> * Area d/s of proposed development (residential)
02118> * CN*=75, Xinp = 0.0, Tp=0.16, XIMP 0, TIMP=15, per SC001 as per Stantec
02119> * Area partially adjusted based on Attel drawings.
02120> *********************************************************************
02121> * d/s of Bank st.as per Attel - with non-flow boundaries and Tp.
02122>  010:0003----------------ID:NHYD--------AREA-----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
02123>       DESIGN SHSHYD      01:EX1         24.62     1.461 No_date    1:30   10.21  .365
02124>        [CN= 75.0: N=  3.00]
02125>        [Tp=  .25:DT= 5.00]
02126> *********************************************************************
02127> * Existing flow - External areas d/s of Bank st.
02128> * CN* 68, as per Stantec dwg SC001.
02129> * Area partially adjusted based on Attel drawings.
02130> *********************************************************************
02131> * Areas External to development
02132>  0.0:0004----------------ID:NHYD--------AREA-----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
02133>       DESIGN MACHYD      01:EX2          9.89       .226 No_date    2:05   15.78  .358
02134>        [CN= 68.0: N= 3.00]
02135>        [Tp=  .67:DT= 5.00]
02136>  0.0:0005----------------ID:NHYD--------AREA-----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
02137>       DESIGN MACHYD      01:EX3         21.30       .419 No_date    2:20   15.78  .358
02138>        [CN= 68.0: N= 3.00]
02139>        [Tp=  .81:DT= 5.00]
02140> * Slope, Tlag, Area from Attel drawing
02141> * C4 from Stantec (SC001)
02142> * Xinp  Tinp = 10
02143>  0.0:0006----------------ID:NHYD--------AREA-----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
02144>  *  CALIB STANDHYD     01:EX4          .50       .023 No_date    1:30   10.59  .305
02145>       [XIMP  13:TIMP  22]
02146>       [IAMS= 2 :CN= 68.0]
02147>       [Pervious     area: [Aper= 1.67:SLPP 1.00:LOP=  40.:RAR=.250:SCP=   .0]
02148>       [Impervious   area: [Aimp= 0.83:SLPI 1.00:LOI=  20.:RAR=.040:SCI=   .0]
02149> * Road and road side ditch along proposed residential development Bellway ad
02150> * Tinp = XIMP - 0.21 ha /0.57 ha = 0.40
02151> * CN* 68, as per Stantec dwg SC001.
02152> * Slope is estimated at 1%
02153> * Xinp = Tinp = 10
02154>  0.0:0007----------------ID:NHYD--------AREA-----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
02155>  *  CALIB STANDHYD     01:EX5          .52       .035 No_date    1:20   28.87  .504
02156>       [AIMP=.30:TIMP=.40]
02157>       [IAMS= 2 :CN= 68.0]
02158>       [Pervious     area: [Aper= 0.97:SLPP 1.00:LOP=  40.:RAR=.250:SCP=   .0]
```





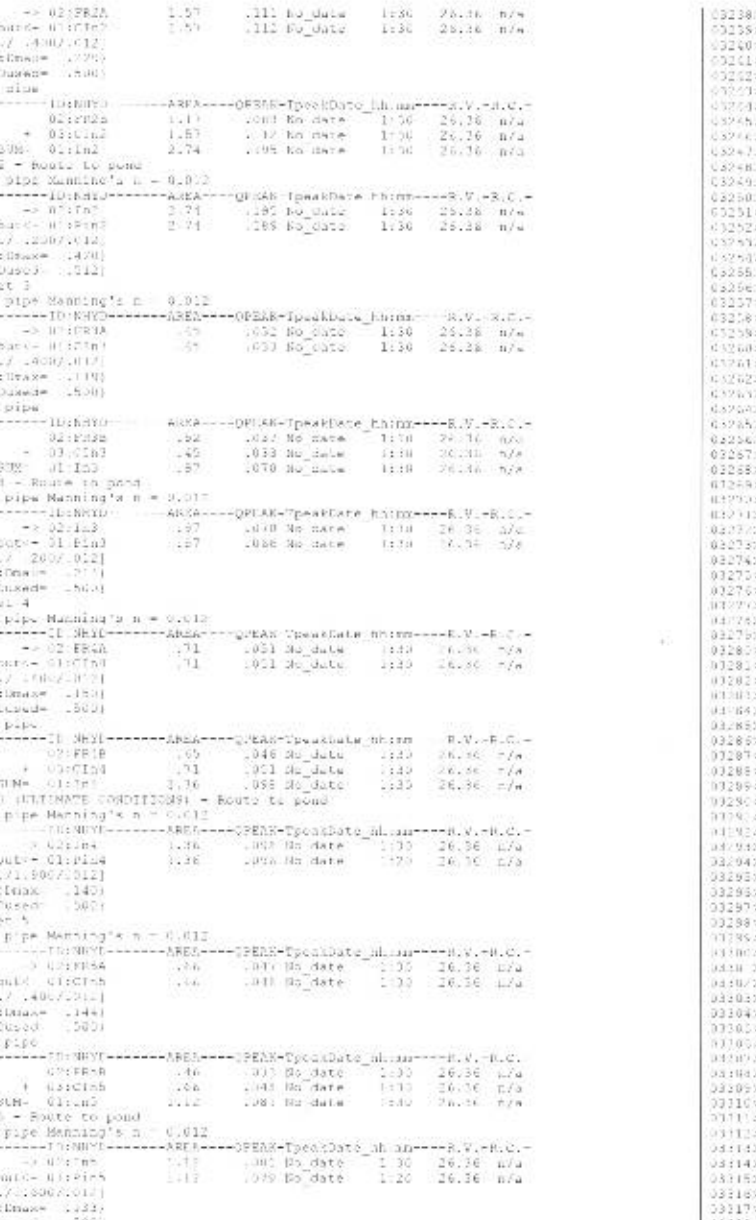




```
02655>       [QT= 5.00]  SUM=  01:EX1        79.17    1.795 No Date    1:50   15.49  n/a
02656> * ROUTE N. to N3
02659> * Typical Gem for Baked or Shiplox MD Veg Ditch 3:1 Banks
02660> * provided by Attel
02661> * Manning's n is Channe  not maintained, light brush on banks
02662> * Slope = 0.005  as per plan provided by Attel.
02663>  01:0:0N1A----------------ID:NHYD--------AREA    QPEAK  TpeakDate hh:mm    R.V.  R.C.
02664>       ROUTE CHANNEL    >  02:RA1        79.17    1.795 No Date    1:50   15.49  n/a
02667>        [RC= 5.00] out:=  01:RA          79.17    1.415 No Date    2:00   15.49  n/a
02668>        [L/S/n=  340./ .050/.035]
02669>        [Vmax=  .268:Emax= 1.292]
02670> * VOLUME from residential area at 3D intersection
02671>  01:0:0N2----------------ID:NHYD--------AREA    QPEAK  TpeakDate hh:mm    R.V.  R.C.
02672>       ADD HYD          >  02:FR/A        1.49     .058 No date     1:35   17.62  n/a
02673>                         +  03:FR5        1.42     .052 No date     1:30   16.28  n/a
02674>        [QT= 5.00]  SUM=  01:RA1          2.91     .109 No date     1:35   16.89  n/a
02675> * Added Volume from external area contributing to N3
02676>  01:0:0N3----------------ID:NHYD--------AREA    QPEAK  TpeakDate hh:mm    R.V.  R.C.
02677>       ADD HYD          >  02:RA1        79.17    1.415 No date     2:00   15.49  n/a
02678>                         +  03:RA3         2.73     .103 No date     1:45   16.89  n/a
02679>                         +  04:EX5         .82     .055 No date     1:20   26.57  n/a
02680>                         +  05:EX6         .61     .021 No date     1:20   19.17  n/a
02681>        [QT= 5.00]  SUM=  01:N3   82.93    1.522 No date     1:55   18.50  n/a
02682> * ROUTE N3 to N128
02683> * Typical Section based on Shields 4:1 Vee Ditch 3:1 Banks
02684> * provided by Attel
02685> * Manning's n is Channel not maintained, light brush on banks
02686> * Slope = 0.005  as per plan provided by Attel
02687>  01:0:0N3----------------ID:NHYD--------AREA    QPEAK  TpeakDate hh:mm    R.V.  R.C.
02688>       ROUTE CHANNEL    >  02:N3         82.93    1.522 No Date    1:55   18.50  n/a
02689>        R/V= 5.00] out:=  01:N3          82.93    1.293 No Date    2:10   18.50  n/a
02690>        [L/S/n=  415./ .050/.035]
02691>        [Vmax=  .350:Emax= 1.212]
02692> * Flow at Stantec node NCR128 for comparison
02693> * Routed N3 plus EX)
02694>  01:0:0N4----------------ID:NHYD--------AREA    QPEAK  TpeakDate hh:mm    R.V.  R.C.
02695>       ADD HYD          >  02:RN3        82.93    1.779 No date     1:55   18.50  n/a
02696>                         +  03:EX3        21.30     .468 No date     2:00   15.78  n/a
02697>        [QC= 5.00]  SUM=  01:Jct128  104.23    1.617 No date     2:15   17.94  n/a
02698> * AREA CHECK
02699> *
02700>  01:0:0N5----------------ID:NHYD--------AREA    QPEAK  TpeakDate hh:mm    R.V.  R.C.
02701>       ADD HYD          >  02:EX1        24.82    1.401 No date     1:20    .9.21  n/a
02702>                         +  03:EX2         9.88     .226 No date     2:05   15.78  n/a
02703>                         +  04:EX3        21.30     .519 No date     2:00   15.78  n/a
02704>                         +  05:EX4         .39     .073 No date     1:50    9.65  n/a
02705>                         +  06:EX5         .82     .055 No date     1:20   26.57  n/a
02706>                         +  07:EX6         .61     .021 No date     1:20    9.17  n/a
02707>                         +  08:EX7         .19     .007 No date     1:20   20.78  n/a
02708>                         +  09:FR1A        .14     .013 No date     1:20   30.95  n/a
02709>                         +  10:FR1B        .55     .076 No date     1:20   30.45  n/a
02710>        [QT= 5.00]  SUM=  01:Jct1        51.53    1.804 No date     1:35    7.47  n/a
02711>  01:0:0N6----------------ID:NHYD--------AREA    QPEAK  TpeakDate hh:mm    R.V.  R.C.
02712>       ADD HYD          >  02:Jct1       58.52    1.804 No date     1:35   17.47  n/a
02713>                         +  03:FR2A        1.37     .079 No date     1:35   20.42  n/a
02714>                         +  04:FR2B        1.37     .053 No date     1:20   20.45  n/a
02715>                         +  05:FR3A         .15     .021 No date     1:20   20.45  n/a
02716>                         +  06:FR3B         .52     .035 No date     1:20   20.45  n/a
02717>                         +  07:FR4A         .71     .053 No date     1:20   20.45  n/a
02718>                         +  08:FR4B         .65     .038 No date     1:20   20.45  n/a
02719>                         +  09:FR5A         .66     .031 No date     1:20   20.45  n/a
02720>                         +  10:FR5B         .06     .022 No date     1:20   20.45  n/a
02721>        [QT= 5.00]  SUM=  01:Jct2        64.71    2.042 No date     1:35   17.73  n/a
02722>  01:0:0N7----------------ID:NHYD--------AREA    QPEAK  TpeakDate hh:mm    R.V.  R.C.
02723>       ADD HYD          >  02:Jct2       64.71    2.042 No date     1:35   17.73  n/a
02724>                         +  03:FR6A        1.42     .084 No date     1:20   20.45  n/a
02725>                         +  04:FR6B         .93     .043 No date     1:20   20.45  n/a
02726>                         +  05:FR7A        1.35     .056 No date     1:35   17.52  n/a
02727>                         +  06:FR7B1        .26     .017 No date     1:50   17.52  n/a
02728>                         +  07:FR7B2        .39     .018 No date     1:50   17.51  n/a
02729>                         +  08:FR/C1        .39     .018 No date     1:50   17.51  n/a
02730>                         +  09:FR7C2        .17     .008 No date     1:50   17.52  n/a
02731>                         +  10:FR7D         .36     .014 No date     1:50   17.52  n/a
02732>        [QT= 5.00]  SUM=  01:Jct3        68.86    2.307 No date     1:35   17.81  n/a
02733>  0.0:0:0N8----------------ID:NHYD--------AREA    QPEAK  TpeakDate hh:mm    R.V.  R.C.
02734>       ADD HYD          >  02:Jct3       68.86    2.307 No date     1:35   17.81  n/a
02735>                         +  01:FR8         1.73     .057 No date     1:35   16.78  n/a
02736>                         +  01:FR9A        1.10     .038 No date     1:35   16.78  n/a
02737>                         +  05:FR9B        .05     .001 No date     1:35   16.78  n/a
02738>                         +  06:FR9C        1.80     .062 No date     1:35   16.78  n/a
02739>                         +  07:FR10        1.84     .063 No date     1:35   16.78  n/a
02740>                         +  08:FR11        .62     .024 No date     1:30   16.28  n/a
02741>                         +  09:FR.         4.26     .221 No date     1:30   15.78  n/a
02742>                         +  10:FR2         .62     .021 No date     1:30   31.33  n/a
02743>       [QC= 5.00]  SUM=  01:Jct4        80.34    3.045 No date     1:35   18.42  n/a
02744>  0.0:0:0N9----------------ID:NHYD--------AREA    QPEAK  TpeakDate hh:mm    R.V.  R.C.
02745>       ADD HYD          >  02:Jct4       80.34    3.045 No date     1:35   18.42  n/a
02746>                         +  03:RA1A        2.41     .167 No date     1:30   15.78  n/a
02747>                         +  04:RA2A        1.35     .156 No date     1:25   15.78  n/a
02748>                         +  05:RA1A        1.76     .060 No date     1:30   15.78  n/a
02749>                         +  06:FR10        2.71     .181 No date     1:30   17.78  n/a
02750>       [QT= 5.00]  SUM=  01:Tot5        189.03   6.610 No date     1:35   17.84  n/a
02751> *************************************************************************
02752> * simulations with 4 hour Chicago from City of Ottawa
02753>   ** END OF RUN :  24
02754> -------------------------------------------------------------------------
02755>
02756>
02757>
02758>
02759>
02760>  RUN:CONVERT#
02761>  01:0:0N10----------------------------------------------------------------
02762>       START
02763>        [TZERO =    .00 hrs on      0
02764>        [METOUT=   2    (1=Imperial, 2=metric output)]
02765>        [NSTORM=   1 ]
02766>        [NRUN  =   10 ]
02767> *************************************************************************
02768> *  SWMHYMO Ver:5.02/Jan 2001 <sEIA> / INPUT DATA FILE
02769> *************************************************************************
02770> *  Project Name: [Greely Village Center]    Project Number: [647-07]
02771> *  Date        : 04-03-2003
02772> *  Modeller    : [JAC]
02773> *  Company     : JFSAinc.
02774> *  License #   :  2047402
02775> *************************************************************************
02776> *
02777> * SWMHYMO model of the Greely Village Center - Residential Area - Phase 2
02778> * Proposed Ultimate conditions. OPTION B
02779> * Filename stands for: GRP2u2a - Greely, Residential , Phase 2, Ultimate V2 Well
02780> *
02781> *  December 17, 2008
02782> *  "a" at the end of filename added July 1st 2009 Excel
02783> *************************************************************************
02784>  01:0:0N11----------------------------------------------------------------
02785>       READ STORM
02786>        Filename:   storm.001
02787>        Comment:    25 years Chicago Storm 4 hours step 10 min, City of Ottawa
02788>        [SDT=10.00:SDUR=    4.00:PTOT=   61.77]
02789> *************************************************************************
02790> * Existing Flow - N-Every Branch of Shield Creek - Areas
02791> * Area n/a of proposed development (residential)
02792> * CN=98, A=Ape = 0.4, Tp=0.16, XTMP=0, TIME 17, see SC003 as per Stantec
02793> * Area partially adjusted based on Attel drawings.
02794> *************************************************************************
02795> * n/a of runs 91.xx per Attel - with modified boundaries and Tp.
02796>  01:0:0N1----------------ID:NHYD--------AREA    QPEAK  TpeakDate hh:mm    R.V.  R.C.
02797>       DB9160 BASEYD      01:EX1        24.82    1.867 No date     1:30   25.05  .683
02798>        [CN= 75.0  N= 5.00]
02799>        [Ia=  .23 IT=  5.00]
02800> *************************************************************************
02801> * Existing Flow - External areas n/a at Bank St.
02802> * CN=69, as per Stantec see SC003.
02803> * Area partially adjusted based on Attel Drawing.
02804> *************************************************************************
02805> * Areas External  to development
02806>  01:0:0N4----------------ID:NHYD--------AREA    QPEAK  TpeakDate hh:mm    R.V.  R.C.
02807>       DEZ.DB BASEYD      01:EX2        9.88     .380 No date     2:05   20.81  .511
02808>        [CN= 69.0  N= 5.00]
02809>        [Ia=  .67 IT=  5.00]
02810>  01:0:0N5----------------ID:NHYD--------AREA    QPEAK  TpeakDate hh:mm    R.V.  R.C.
02811>       DEZ.DB BASEYD      01:EX3        21.30    .553 No date     2:00   20.81  .511
02812>        [CN= 69.0  N= 5.00]
02813>        [Ia=  .8]:IT= 5.00]
02814> * Slope, Ilmp, Area from Attel Drawing
02815> * CN from Stantec (SC003)
02816> * Ximp = Timp = 10
02817>  01:0:0N6----------------ID:NHYD--------AREA    QPEAK  TpeakDate hh:mm    R.V.  R.C.
02818>  *  CALIB STANDHYD     20:EX6          .58     .010 No date     1:30   25.10  .411
02819>       [XIMP=.10:TIMP=.20]
02820>       [Lcode= 2 :CN= 69.0]
02821>       [Pervious     area: Aperv= 4.57:S.PP=1.00:LGP=  40.:NMP=.250:SCP=   .0]
02822>       [Impervious   area: Aimp= 1.57:S.PI=1.00:LGI=  98.:NMI=.040:SCI=   .0]
02823> * Road and road side ditch along projected residential development Parkway #2
```

```
* Tinp = Xinp = 0.21 hs /0.57 hs = 0.40
* CN*=89, as per Stantec sec 3.0001.
* Slope is estimated at 1
* Xinp = Tinp = 10:
025:0037----------------ID:NH1D--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
  * CALIB STANDHYD     01:EX2          .52      .070 No_date     1:20   33.07 .639
       [XIMP=.39:TIMP=.49]
       [LOSS= 2 :CN= 69.0]
       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
* Road and road side ditch along projected residential development SalesBarn Rd
* Tinp = Xinp = 0.01 hs /0.51 hs = 0.02
* CN* 89, as per Stantec sec 3.0001
* Slope is estimated at 1
* Xinp = Tinp = 10:
025:0038----------------ID:NH1E--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
  * CALIB STANDHYD     01:EX3          .01      .004 No_date     1:10   24.80 .488
       [XIMP=.10:TIMP=.20]
       [LOSS= 2 :CN= 69.0]
       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
* Road and road side ditch along projected residential development SalesBarn Rd
* Tinp = Xinp = 0.09 hs /0.29 hs = 0.32
* CN*=89, as per Stantec sec 3.0001.
* Slope is estimated at 2
* Xinp  Tinp = 10
025:0039----------------ID:NH2D--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
  * CALIB STANDHYD     01:EX4          .19      .074 No_date     1:20   26.34 .488
       [XIMP=.13:TIMP=.23]
       [LOSS= 2 :CN= 69.0]
       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
* Areas to be occupied by commercial development
* CN* 89, as per Stantec sec 3.0001.
* Slope is estimated at 2
025:0040----------------ID:NH2E--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
    DESIGN MANHOLE       01:MH4A         9.41     .3436 No_date     1:40   28.83 .337
       [CN= 69.0: N= 3.00]
       [Ia=  .13:DT= 5.00]
025:0041----------------ID:NH2F--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
  * DESIGN MANHOLE       01:MH3A         5.13     .2284 No_date     1:25   28.83 .337
       [CN= 69.0: N= 3.00]
       [Ia=  .13:DT= 5.00]
025:0042----------------ID:NH2G--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
    DESIGN MANHOLE       01:MH2A         5.21     .1936 No_date     1:30   28.83 .337
       [CN= 69.0: N= 3.00]
       [Ia=  .13:DT= 5.00]
**************************************************************************
*************************************************************************
* UNCONTROLLED RESIDENTIAL SUBWATERSHEDS - Residential Area Phase 1 and 2
*************************************************************************
* CN* 89, as per Stantec sec 3.001.
* Tp estimated with Uplans Method.
025:0043----------------ID:NH3D--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
    DESIGN MANHOLE       01:MH1          4.26     .1704 No_date     1:30   28.83 .337
       [CN= 69.0: N= 3.00]
       [Ia=  .13:DT= 5.00]
*************************************************************************
* AREAS GOING TO POND
*************************************************************************
*
025:0025----------------ID:KHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
  * CALIB STANDHYD     01:PR1A         .94      .013 No_date     1:10   26.36 .427
       [XIMP=.11:TIMP=.21]
       [LOSS= 2 :CN= 71.0]
       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
025:0026----------------ID:NH3E--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
  * CALIB STANDHYD     01:PR1B         .50      .006 No_date     1:30   26.36 .427
       [XIMP=.11:TIMP=.21]
       [LOSS= 2 :CN= 71.0]
       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
025:0027----------------ID:NH3F--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
  * CALIB STANDHYD     01:PR2A         .57      .111 No_date     1:30   26.36 .427
       [XIMP=.11:TIMP=.21]
       [LOSS= 2 :CN= 71.0]
       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
025:0028----------------ID:NH3G--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
  * CALIB STANDHYD     01:PR2B         .55      .008 No_date     1:30   26.36 .427
       [XIMP=.11:TIMP=.21]
       [LOSS= 2 :CN= 71.0]
       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
025:0029----------------ID:NH3H--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
  * CALIB STANDHYD     01:PR3A         .57      .111 No_date     1:30   26.36 .427
       [XIMP=.11:TIMP=.21]
       [LOSS= 2 :CN= 71.0]
       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
025:0030----------------ID:NH3I--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
  * CALIB STANDHYD     01:PR3B         .55      .008 No_date     1:30   26.36 .427
       [XIMP=.11:TIMP=.21]
       [LOSS= 2 :CN= 71.0]
       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
025:0031----------------ID:NH4D--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
  * CALIB STANDHYD     01:PR4A         .71      .051 No_date     1:30   26.36 .427
       [XIMP=.11:TIMP=.21]
       [LOSS= 2 :CN= 71.0]
       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
025:0032----------------ID:NH4E--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
  * CALIB STANDHYD     01:PR4B         .65      .047 No_date     1:30   26.36 .427
       [XIMP=.11:TIMP=.21]
       [LOSS= 2 :CN= 71.0]
       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
025:0033----------------ID:NH4F--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
  * CALIB STANDHYD     01:PR5A         .66      .047 No_date     1:30   26.36 .427
       [XIMP=.11:TIMP=.21]
       [LOSS= 2 :CN= 71.0]
       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
025:0034----------------ID:NH4G--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
  * CALIB STANDHYD     01:PR5B         .66      .048 No_date     1:30   26.36 .427
       [XIMP=.11:TIMP=.21]
       [LOSS= 2 :CN= 71.0]
       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
025:0035----------------ID:NH4H--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
  * CALIB STANDHYD     01:PR6A         .41      .030 No_date     1:30   26.36 .427
       [XIMP=.11:TIMP=.21]
       [LOSS= 2 :CN= 71.0]
       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
025:0036----------------ID:NH4I--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
  * CALIB STANDHYD     01:PR6B         .91      .066 No_date     1:30   26.36 .427
       [XIMP=.11:TIMP=.21]
       [LOSS= 2 :CN= 71.0]
       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
* Slope estimated at 2% based on backyard swales.
* Tinp and Xinp based on total pond area.
* Xinp = % pond/A tot
* Tinp = weighted average of pond and drainage
025:0040----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
    CALIB STANDHYD     01:PD1          5.81     .1772 No_date     1:20   28.33 .622
       [XIMP=.44:TIMP=.47]
       [LOSS= 2 :CN= 71.0]
       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
*************************************************************************
* UNCONTROLLED AREAS
*************************************************************************
*
025:0041----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
  * CALIB STANDHYD     01:PR1A         .19      .006 No_date     1:30   21.12 .376
       [XIMP=.03:TIMP=.14]
       [LOSS= 2 :CN= 71.0]
       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  95.:MNI=.045:SCI=   .0]
025:0042----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
  * CALIB STANDHYD     01:PR1B         .16      .005 No_date     1:30   21.12 .376
       [XIMP=.03:TIMP=.14]
       [LOSS= 2 :CN= 71.0]
       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  95.:MNI=.045:SCI=   .0]
025:0043----------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
  * CALIB STANDHYD     01:PR2A         .22      .0.5 No_date     1:30   21.12 .376
       [XIMP=.03:TIMP=.14]
       [LOSS= 2 :CN= 71.0]
```

```
[Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
[Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.015:SCI=   .0]
025:0033--------------ID:NHYD-------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
 * CALIB STANDHYD    01:PR3C1        .50      .076 No date    1:30   21.65 .154
[XIMP=.02:TIMP=.14]
[LOSS= 2 :CN= 71.0]
[Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
[Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.015:SCI=   .0]
025:0034--------------ID:NHYD-------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
 * CALIB STANDHYD    01:PR3D         .33      .050 No date    1:30   21.65 .154
[XIMP=.02:TIMP=.14]
[LOSS= 2 :CN= 71.0]
[Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
[Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.015:SCI=   .0]
025:0035--------------ID:NHYD-------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
 * CALIB STANDHYD    01:PR3E         .33      .050 No date    1:30   21.65 .154
[XIMP=.02:TIMP=.14]
[LOSS= 2 :CN= 71.0]
[Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
[Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.015:SCI=   .0]
025:0036--------------ID:NHYD-------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
 * CALIB STANDHYD    01:PR3F         .33      .050 No date    1:30   21.65 .154
[XIMP=.02:TIMP=.14]
[LOSS= 2 :CN= 71.0]
[Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
[Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.015:SCI=   .0]
025:0037--------------ID:NHYD-------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
 * CALIB STANDHYD    01:PR3G         .33      .050 No date    1:30   21.65 .154
[XIMP=.02:TIMP=.14]
[LOSS= 2 :CN= 71.0]
[Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
[Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.015:SCI=   .0]
025:0038--------------ID:NHYD-------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
 * CALIB STANDHYD    01:PR3H         .33      .050 No date    1:30   21.65 .154
[XIMP=.02:TIMP=.14]
[LOSS= 2 :CN= 71.0]
[Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
[Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.015:SCI=   .0]
025:0039--------------ID:NHYD-------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
 * CALIB STANDHYD    01:PR3I         .33      .050 No date    1:30   21.65 .154
[XIMP=.02:TIMP=.14]
[LOSS= 2 :CN= 71.0]
[Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
[Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.015:SCI=   .0]
025:0040--------------ID:NHYD-------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
 * CALIB STANDHYD    01:PR3J         .33      .050 No date    1:30   21.65 .154
[XIMP=.02:TIMP=.14]
[LOSS= 2 :CN= 71.0]
[Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
[Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.015:SCI=   .0]
025:0041--------------ID:NHYD-------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
 * CALIB STANDHYD    01:PR3K         .33      .050 No date    1:30   21.65 .154
[XIMP=.02:TIMP=.14]
[LOSS= 2 :CN= 71.0]
[Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
[Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.015:SCI=   .0]
025:0042--------------ID:NHYD-------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
 * CALIB STANDHYD    01:PR3L         .33      .050 No date    1:30   21.65 .154
[XIMP=.02:TIMP=.14]
[LOSS= 2 :CN= 71.0]
[Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
[Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.015:SCI=   .0]
025:0043--------------ID:NHYD-------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
 * CALIB STANDHYD    01:PR3M         .33      .050 No date    1:30   21.65 .154
[XIMP=.02:TIMP=.14]
[LOSS= 2 :CN= 71.0]
[Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
[Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.015:SCI=   .0]
025:0044--------------ID:NHYD-------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
 * CALIB STANDHYD    01:PR3N         .33      .050 No date    1:30   21.65 .154
[XIMP=.02:TIMP=.14]
[LOSS= 2 :CN= 71.0]
[Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
[Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.015:SCI=   .0]
025:0045--------------ID:NHYD-------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
 * CALIB STANDHYD    01:PR3O         .33      .050 No date    1:30   21.65 .154
[XIMP=.02:TIMP=.14]
[LOSS= 2 :CN= 71.0]
[Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
[Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.015:SCI=   .0]
025:0046--------------ID:NHYD-------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
 * CALIB STANDHYD    01:PR3P         .33      .050 No date    1:30   21.65 .154
[XIMP=.02:TIMP=.14]
[LOSS= 2 :CN= 71.0]
[Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
[Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.015:SCI=   .0]
025:0047--------------ID:NHYD-------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
 * CALIB STANDHYD    01:PR3Q         .33      .050 No date    1:30   21.65 .154
[XIMP=.02:TIMP=.14]
[LOSS= 2 :CN= 71.0]
[Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
[Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.015:SCI=   .0]
025:0048--------------ID:NHYD-------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
 * CALIB STANDHYD    01:PR3R         .33      .050 No date    1:30   21.65 .154
[XIMP=.02:TIMP=.14]
[LOSS= 2 :CN= 71.0]
[Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
[Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.015:SCI=   .0]
025:0049--------------ID:NHYD-------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
 * CALIB STANDHYD    01:PR3S         .33      .050 No date    1:30   21.65 .154
[XIMP=.02:TIMP=.14]
[LOSS= 2 :CN= 71.0]
[Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
[Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.015:SCI=   .0]
025:0050--------------ID:NHYD-------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
 * CALIB STANDHYD    01:PR3T         .33      .050 No date    1:30   21.65 .154
[XIMP=.02:TIMP=.14]
[LOSS= 2 :CN= 71.0]
[Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
[Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.015:SCI=   .0]
025:0051--------------ID:NHYD-------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
 * CALIB STANDHYD    01:PR3U         .33      .050 No date    1:30   21.65 .154
[XIMP=.02:TIMP=.14]
[LOSS= 2 :CN= 71.0]
[Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
[Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.015:SCI=   .0]
025:0052--------------ID:NHYD-------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
 * CALIB STANDHYD    01:PR3V         .33      .050 No date    1:30   21.65 .154
[XIMP=.02:TIMP=.14]
[LOSS= 2 :CN= 71.0]
[Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
[Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.015:SCI=   .0]
025:0053--------------ID:NHYD-------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
 * CALIB STANDHYD    01:PR3W         .33      .050 No date    1:30   21.65 .154
[XIMP=.02:TIMP=.14]
[LOSS= 2 :CN= 71.0]
[Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
[Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.015:SCI=   .0]
025:0054--------------ID:NHYD-------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
 * CALIB STANDHYD    01:PR3X         .33      .050 No date    1:30   21.65 .154
[XIMP=.02:TIMP=.14]
[LOSS= 2 :CN= 71.0]
[Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
[Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.015:SCI=   .0]
025:0055--------------ID:NHYD-------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
 * CALIB STANDHYD    01:PR3Y         .33      .050 No date    1:30   21.65 .154
[XIMP=.02:TIMP=.14]
[LOSS= 2 :CN= 71.0]
[Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
[Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.015:SCI=   .0]
025:0056--------------ID:NHYD-------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
 * CALIB STANDHYD    01:PR3Z         .33      .050 No date    1:30   21.65 .154
[XIMP=.02:TIMP=.14]
[LOSS= 2 :CN= 71.0]
[Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
[Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.015:SCI=   .0]
025:0057--------------ID:NHYD-------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
 * CALIB STANDHYD    01:PR3AA        .33      .050 No date    1:30   21.65 .154
[XIMP=.02:TIMP=.14]
[LOSS= 2 :CN= 71.0]
[Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
[Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.015:SCI=   .0]
025:0058--------------ID:NHYD-------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
 * CALIB STANDHYD    01:PR3AB        .33      .050 No date    1:30   21.65 .154
[XIMP=.02:TIMP=.14]
[LOSS= 2 :CN= 71.0]
[Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
[Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.015:SCI=   .0]
025:0059--------------ID:NHYD-------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
 * CALIB STANDHYD    01:PR3AC        .33      .050 No date    1:30   21.65 .154
[XIMP=.02:TIMP=.14]
[LOSS= 2 :CN= 71.0]
[Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
[Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.015:SCI=   .0]
025:0060--------------ID:NHYD-------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
 * CALIB STANDHYD    01:PR3AD        .33      .050 No date    1:30   21.65 .154
[XIMP=.02:TIMP=.14]
[LOSS= 2 :CN= 71.0]
[Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
[Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.015:SCI=   .0]
025:0061--------------ID:NHYD-------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
 * CALIB STANDHYD    01:PR3AE        .33      .050 No date    1:30   21.65 .154
[XIMP=.02:TIMP=.14]
[LOSS= 2 :CN= 71.0]
[Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
[Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.015:SCI=   .0]
025:0062--------------ID:NHYD-------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
 * CALIB STANDHYD    01:PR3AF        .33      .050 No date    1:30   21.65 .154
[XIMP=.02:TIMP=.14]
[LOSS= 2 :CN= 71.0]
[Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
[Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.015:SCI=   .0]
025:0063--------------ID:NHYD-------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
 * CALIB STANDHYD    01:PR3AG        .33      .050 No date    1:30   21.65 .154
[XIMP=.02:TIMP=.14]
[LOSS= 2 :CN= 71.0]
[Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
[Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.015:SCI=   .0]
025:0064--------------ID:NHYD-------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
 * CALIB STANDHYD    01:PR3AH        .33      .050 No date    1:30   21.65 .154
[XIMP=.02:TIMP=.14]
[LOSS= 2 :CN= 71.0]
[Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
[Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.015:SCI=   .0]
025:0065--------------ID:NHYD-------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
 * CALIB STANDHYD    01:PR3AI        .33      .050 No date    1:30   21.65 .154
[XIMP=.02:TIMP=.14]
[LOSS= 2 :CN= 71.0]
[Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
[Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.015:SCI=   .0]
025:0066--------------ID:NHYD-------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
 * CALIB STANDHYD    01:PR3AJ        .33      .050 No date    1:30   21.65 .154
[XIMP=.02:TIMP=.14]
[LOSS= 2 :CN= 71.0]
[Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
[Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.015:SCI=   .0]
025:0067--------------ID:NHYD-------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
 * CALIB STANDHYD    01:PR3AK        .33      .050 No date    1:30   21.65 .154
[XIMP=.02:TIMP=.14]
[LOSS= 2 :CN= 71.0]
[Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
[Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.015:SCI=   .0]
025:0068--------------ID:NHYD-------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
 * CALIB STANDHYD    01:PR3AL        .33      .050 No date    1:30   21.65 .154
[XIMP=.02:TIMP=.14]
[LOSS= 2 :CN= 71.0]
[Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
[Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.015:SCI=   .0]
025:0069--------------ID:NHYD-------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
 * CALIB STANDHYD    01:PR3AM        .33      .050 No date    1:30   21.65 .154
[XIMP=.02:TIMP=.14]
[LOSS= 2 :CN= 71.0]
[Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
[Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.015:SCI=   .0]
025:0070--------------ID:NHYD-------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
 * CALIB STANDHYD    01:PR3AN        .33      .050 No date    1:30   21.65 .154
[XIMP=.02:TIMP=.14]
[LOSS= 2 :CN= 71.0]
[Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
[Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.015:SCI=   .0]
025:0071--------------ID:NHYD-------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
 * CALIB STANDHYD    01:PR3AO        .33      .050 No date    1:30   21.65 .154
[XIMP=.02:TIMP=.14]
[LOSS= 2 :CN= 71.0]
[Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
[Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.015:SCI=   .0]
025:0072--------------ID:NHYD-------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
 * CALIB STANDHYD    01:PR3AP        .33      .050 No date    1:30   21.65 .154
[XIMP=.02:TIMP=.14]
[LOSS= 2 :CN= 71.0]
[Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
[Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.015:SCI=   .0]
025:0073--------------ID:NHYD-------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
 * CALIB STANDHYD    01:PR3AQ        .33      .050 No date    1:30   21.65 .154
[XIMP=.02:TIMP=.14]
[LOSS= 2 :CN= 71.0]
[Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
[Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.015:SCI=   .0]
025:0074--------------ID:NHYD-------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
 * CALIB STANDHYD    01:PR3AR        .33      .050 No date    1:30   21.65 .154
[XIMP=.02:TIMP=.14]
[LOSS= 2 :CN= 71.0]
[Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
[Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.015:SCI=   .0]
025:0075--------------ID:NHYD-------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
 * CALIB STANDHYD    01:PR3AS        .33      .050 No date    1:30   21.65 .154
[XIMP=.02:TIMP=.14]
[LOSS= 2 :CN= 71.0]
[Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
[Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.015:SCI=   .0]
025:0076--------------ID:NHYD-------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
 * CALIB STANDHYD    01:PR3AT        .33      .050 No date    1:30   21.65 .154
[XIMP=.02:TIMP=.14]
[LOSS= 2 :CN= 71.0]
[Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
[Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.015:SCI=   .0]
025:0077--------------ID:NHYD-------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
 * CALIB STANDHYD    01:PR3AU        .33      .050 No date    1:30   21.65 .154
[XIMP=.02:TIMP=.14]
[LOSS= 2 :CN= 71.0]
[Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
[Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.015:SCI=   .0]
025:0078--------------ID:NHYD-------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
 * CALIB STANDHYD    01:PR3AV        .33      .050 No date    1:30   21.65 .154
[XIMP=.02:TIMP=.14]
[LOSS= 2 :CN= 71.0]
[Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
[Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.015:SCI=   .0]
025:0079--------------ID:NHYD-------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
 * CALIB STANDHYD    01:PR3AW        .33      .050 No date    1:30   21.65 .154
[XIMP=.02:TIMP=.14]
[LOSS= 2 :CN= 71.0]
[Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
[Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.015:SCI=   .0]
025:0080--------------ID:NHYD-------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
 * CALIB STANDHYD    01:PR3AX        .33      .050 No date    1:30   21.65 .154
[XIMP=.02:TIMP=.14]
[LOSS= 2 :CN= 71.0]
[Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
[Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.015:SCI=   .0]
025:0081--------------ID:NHYD-------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
 * CALIB STANDHYD    01:PR3AY        .33      .050 No date    1:30   21.65 .154
[XIMP=.02:TIMP=.14]
[LOSS= 2 :CN= 71.0]
[Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
[Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.015:SCI=   .0]
025:0082--------------ID:NHYD-------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
 * CALIB STANDHYD    01:PR3AZ        .33      .050 No date    1:30   21.65 .154
[XIMP=.02:TIMP=.14]
[LOSS= 2 :CN= 71.0]
[Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
[Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.015:SCI=   .0]
025:0083--------------ID:NHYD-------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
 * CALIB STANDHYD    01:PR3BA        .33      .050 No date    1:30   21.65 .154
[XIMP=.02:TIMP=.14]
[LOSS= 2 :CN= 71.0]
[Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
[Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.015:SCI=   .0]
025:0084--------------ID:NHYD-------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
 * CALIB STANDHYD    01:PR3BB        .33      .050 No date    1:30   21.65 .154
[XIMP=.02:TIMP=.14]
[LOSS= 2 :CN= 71.0]
[Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
[Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.015:SCI=   .0]
025:0085--------------ID:NHYD-------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
 * CALIB STANDHYD    01:PR3BC        .33      .050 No date    1:30   21.65 .154
[XIMP=.02:TIMP=.14]
[LOSS= 2 :CN= 71.0]
[Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
[Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.015:SCI=   .0]
025:0086--------------ID:NHYD-------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
 * CALIB STANDHYD    01:PR3BD        .33      .050 No date    1:30   21.65 .154
[XIMP=.02:TIMP=.14]
[LOSS= 2 :CN= 71.0]
[Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
[Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.015:SCI=   .0]
025:0087--------------ID:NHYD-------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
 * CALIB STANDHYD    01:PR3BE        .33      .050 No date    1:30   21.65 .154
[XIMP=.02:TIMP=.14]
[LOSS= 2 :CN= 71.0]
[Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
[Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.015:SCI=   .0]
025:0088--------------ID:NHYD-------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
 * CALIB STANDHYD    01:PR3BF        .33      .050 No date    1:30   21.65 .154
[XIMP=.02:TIMP=.14]
[LOSS= 2 :CN= 71.0]
[Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
[Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.015:SCI=   .0]
025:0089--------------ID:NHYD-------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
 * CALIB STANDHYD    01:PR3BG        .33      .050 No date    1:30   21.65 .154
[XIMP=.02:TIMP=.14]
[LOSS= 2 :CN= 71.0]
[Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
[Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.015:SCI=   .0]
025:0090--------------ID:NHYD-------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
 * CALIB STANDHYD    01:PR3BH        .33      .050 No date    1:30   21.65 .154
[XIMP=.02:TIMP=.14]
[LOSS= 2 :CN= 71.0]
[Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
[Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.015:SCI=   .0]
025:0091--------------ID:NHYD-------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
 * CALIB STANDHYD    01:PR3BI        .33      .050 No date    1:30   21.65 .154
[XIMP=.02:TIMP=.14]
[LOSS= 2 :CN= 71.0]
[Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
[Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.015:SCI=   .0]
025:0092--------------ID:NHYD-------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
 * CALIB STANDHYD    01:PR3BJ        .33      .050 No date    1:30   21.65 .154
[XIMP=.02:TIMP=.14]
[LOSS= 2 :CN= 71.0]
[Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
[Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.015:SCI=   .0]
025:0093--------------ID:NHYD-------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
 * CALIB STANDHYD    01:PR3BK        .33      .050 No date    1:30   21.65 .154
[XIMP=.02:TIMP=.14]
[LOSS= 2 :CN= 71.0]
[Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
[Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.015:SCI=   .0]
025:0094--------------ID:NHYD-------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
 * CALIB STANDHYD    01:PR3BL        .33      .050 No date    1:30   21.65 .154
[XIMP=.02:TIMP=.14]
[LOSS= 2 :CN= 71.0]
[Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
[Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.015:SCI=   .0]
025:0095--------------ID:NHYD-------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
 * CALIB STANDHYD    01:PR3BM        .33      .050 No date    1:30   21.65 .154
[XIMP=.02:TIMP=.14]
[LOSS= 2 :CN= 71.0]
[Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
[Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.015:SCI=   .0]
025:0096--------------ID:NHYD-------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
 * CALIB STANDHYD    01:PR3BN        .33      .050 No date    1:30   21.65 .154
[XIMP=.02:TIMP=.14]
[LOSS= 2 :CN= 71.0]
[Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
[Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.015:SCI=   .0]
025:0097--------------ID:NHYD-------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
 * CALIB STANDHYD    01:PR3BO        .33      .050 No date    1:30   21.65 .154
[XIMP=.02:TIMP=.14]
[LOSS= 2 :CN= 71.0]
[Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
[Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.015:SCI=   .0]
025:0098--------------ID:NHYD-------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
 * CALIB STANDHYD    01:PR3BP        .33      .050 No date    1:30   21.65 .154
[XIMP=.02:TIMP=.14]
[LOSS= 2 :CN= 71.0]
[Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
[Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.015:SCI=   .0]
025:0099--------------ID:NHYD-------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
 * CALIB STANDHYD    01:PR3BQ        .33      .050 No date    1:30   21.65 .154
[XIMP=.02:TIMP=.14]
[LOSS= 2 :CN= 71.0]
[Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
[Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.015:SCI=   .0]
025:0100--------------ID:NHYD-------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
 * CALIB STANDHYD    01:PR3BR        .33      .050 No date    1:30   21.65 .154
[XIMP=.02:TIMP=.14]
[LOSS= 2 :CN= 71.0]
[Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
[Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.015:SCI=   .0]
025:0101--------------ID:NHYD-------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
 * CALIB STANDHYD    01:PR3BS        .33      .050 No date    1:30   21.65 .154
[XIMP=.02:TIMP=.14]
[LOSS= 2 :CN= 71.0]
[Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
[Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.015:SCI=   .0]
025:0102--------------ID:NHYD-------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
 * CALIB STANDHYD    01:PR3BT        .33      .050 No date    1:30   21.65 .154
[XIMP=.02:TIMP=.14]
```





```
 03321>       [Vmax= 1.02; Imax=  .2265]
 03322>       [Qin=  .780; Qout=  .780]
 03323> * Total flow at Node N1 (Shield MD along Bolo Barn Rd)
 03324>  025:0075----------ID:NHYD-------AREA----QPEAK-TpeakDate_Lagma----R.V.-R.C.-
 03325>      AED HYD            02:BAEA3     31.24    2.298 No_date     1:45   22.03  n/a
 03326>                       + 03:SouthE    26.62     .150 No_date     5:50   26.35  n/a
 03327>                       + 04:EA7        .39     .029 No_date     1:20   26.04  n/a
 03328>                       + 05:FR1D       .70     .020 No_date     1:50   23.12  n/a
 03329>                       + 06:FR11       .62     .037 No_date     1:50   21.65  n/a
 03330>       [It= 5.00]  SUM= 0 :N1         79.17    5.177 No_date     1:05   24.09  n/a
 03331> * ROUTE N  to N1
 03332> * Typical Section based on Shields MD Vee Ditch 3:1 banks
 03333> * provided by Afrel
 03334> * Manning's n is Channel not maintained, light grass on banks
 03335> * slope   0.05  as per plan provided by Afrel.
 03336>  025:0076----------ID:NHYD-------AREA----QPEAK-TpeakDate_Lagma----R.V.-R.C.-
 03337>      ROUTE CHANNEL   -> 02:N1         79.17    2.477 No_date     1:45   24.09  n/a
 03338>  *   [dT= 5.00] Qout= 01:N2I        79.17     .057 No_date     1:55   24.09  n/a
 03339>       [L/Z/n=  849.7 / .050/ .035]
 03340>       [Vmax=  .395; Imax=  1.469]
 03341> * VOLUME from residential area at N3 inverts
 03342>  025:0077----------ID:NHYD-------AREA----QPEAK-TpeakDate_Lagma----R.V.-R.C.-
 03343>      AED HYD            02:FR7A      1.31     .086 No_date     1:50   22.12  n/a
 03344>                       + 01:FR8        1.38     .079 No_date     1:35   21.65  n/a
 03345>       [dT= 5.00]  SUM= 0 :N3I        2.69     .158 No_date     1:35   22.05  n/a
 03346> * Added VOLUME from external area contributing to N3
 03347>  025:0078----------ID:NHYD-------AREA----QPEAK-TpeakDate_Lagma----R.V.-R.C.-
 03348>      ADD HYD            02:N3I      79.17    1.652 No_date     1:55   24.09  n/a
 03349>                       + 01:N3I       2.73     .158 No_date     1:35   22.05  n/a
 03350>                       + 04:EA5        .52     .070 No_date     1:30   26.07  n/a
 03351>                       + 05:EA6        .51     .034 No_date     1:50   24.80  n/a
 03352>       [dT= 5.00]  SUM= 01:N3      82.83    1.862 No_date     1:55   24.09  n/a
 03353> * ROUTE N3 to N3120
 03354> * Typical Section based on Shields MD Vee Ditch 3:1 banks
 03355> * provided by Afrel
 03356> * Manning's n is Channel not maintained, light grass on banks
 03357> * Slope = 0.05  as per plan provided by Afrel.
 03358>  025:0079----------ID:NHYD-------AREA----QPEAK-TpeakDate_Lagma----R.V.-R.C.-
 03359>      ROUTE CHANNEL   -> 02:N3      82.83    1.862 No_date     1:55   24.09  n/a
 03360>       [dT= 5.00] Qout= 01:N3D      82.83    1.791 No_date     2:15   24.09  n/a
 03361>       [L/Z/n=  915 / .050/ .035]
 03362>       [Vmax=  .393; Imax= 1.374]
 03363> * Flow at Stanton node NCR174 for comparison
 03364> * Routed No plus EA5
 03365>  025:0080----------ID:NHYD-------AREA----QPEAK-TpeakDate_Lagma----R.V.-R.C.-
 03366>      AED HYD            02:N3D      82.83    1.791 No_date     2:15   24.09  n/a
 03367>                       + 03:EA5       21.36     .558 No_date     2:20   26.86  n/a
 03368>       [dT= 5.00]  SUM= 01:NCR129   104.19    2.257 No_date     2:15   23.42  n/a
 03369> * AREA CHECK
 03370> *
 03371>  025:0081----------ID:NHYD-------AREA----QPEAK-TpeakDate_Lagma----R.V.-R.C.-
 03372>      ADD HYD            02:EA1      24.62     .867 No_date     1:50   25.06  n/a
 03373>                       + 03:EA2       8.69     .332 No_date     2:05   26.83  n/a
 03374>                       + 04:EA3      21.36     .558 No_date     2:20   26.83  n/a
 03375>                       + 05:FR4        .56     .034 No_date     1:50   25.42  n/a
 03376>                       + 06:FR5        .62     .038 No_date     1:50   23.07  n/a
 03377>                       + 07:EA6        .51     .034 No_date     1:50   24.80  n/a
 03378>                       + 08:EA7        .39     .029 No_date     1:20   26.04  n/a
 03379>                       + 09:FR1A       .24     .017 No_date     1:50   26.26  n/a
 03380>                       + 10:FR1b       .55     .035 No_date     1:50   26.26  n/a
 03381>       [dT= 5.00]  SUM= 01:Tot1      58.52    1.407 No_date     1:50   22.93  n/a
 03382>  025:0082----------ID:NHYD-------AREA----QPEAK-TpeakDate_Lagma----R.V.-R.C.-
 03383>      ADD HYD            02:Tot1      58.52    1.407 No_date     1:50   22.93  n/a
 03384>                       + 03:FR7A       1.59     .111 No_date     1:50   26.26  n/a
 03385>                       + 04:FR7b       1.13     .061 No_date     1:50   25.16  n/a
 03386>                       + 05:FR3A       .46      .032 No_date     1:50   26.26  n/a
 03387>                       + 06:FR3a       .52      .037 No_date     1:50   26.26  n/a
 03388>                       + 07:FR4A       .71      .051 No_date     1:50   26.26  n/a
 03389>                       + 08:FR4a       .65      .046 No_date     1:50   26.26  n/a
 03390>                       + 09:FR5A       .68      .047 No_date     1:50   26.26  n/a
 03391>                       + 10:FR5a       .44      .033 No_date     1:50   26.26  n/a
 03392>       [dT= 5.00]  SUM= 01:Tot2      65.71    1.793 No_date     1:55   23.23  n/a
 03393>  025:0083----------ID:NHYD-------AREA----QPEAK-TpeakDate_Lagma----R.V.-R.C.-
 03394>      ADD HYD            01:Tot2      65.71    1.793 No_date     1:55   23.23  n/a
 03395>                       + 02:FR6A       1.46     .110 No_date     1:50   26.26  n/a
 03396>                       + 04:FR6a       .93      .066 No_date     1:50   26.26  n/a
 03397>                       + 05:FR7A       1.35     .086 No_date     1:50   26.12  n/a
 03398>                       + 06:FR7b1      .36      .024 No_date     1:50   23.12  n/a
 03399>                       + 07:FR7b2      .22      .015 No_date     1:50   23.12  n/a
 03400>                       + 03:FR7c       .19      .009 No_date     1:50   21.72  n/a
 03401>                       + 09:FR7CX      .17      .010 No_date     1:50   20.83  n/a
 03402>                       + 10:FR7D       .30      .020 No_date     1:50   23.12  n/a
 03403>       [dT= 5.00]  SUM= 01:Tot3      69.84    1.936 No_date     1:50   23.33  n/a
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 03800>  025:0084----------ID:NHYD-------AREA----QPEAK-TpeakDate_Lagma----R.V.-R.C.-
 03801>      ADD HYD            02:Tot3      69.84    1.936 No_date     1:50   23.33  n/a
 03802>                       + 03:FR8        1.25     .079 No_date     1:35   21.65  n/a
 03803>                       + 04:FR3A       1.10     .065 No_date     1:50   21.65  n/a
 03804>                       + 05:FR3B1       .25     .015 No_date     1:50   21.65  n/a
 03805>                       + 06:FR3B2      1.00     .059 No_date     1:50   21.65  n/a
 03806>                       + 07:FR10       1.84     .101 No_date     1:35   21.65  n/a
 03807>                       + 08:FR11        .62     .037 No_date     1:50   21.65  n/a
 03808>                       + 09:FR1        4.26     .303 No_date     1:50   26.81  n/a
 03809>                       + 10:FR9        9.05     .776 No_date     1:20   28.43  n/a
 03810>       [dT= 5.00]  SUM= 01:Tot4      95.31    6.263 No_date     1:50   23.53  n/a
 03811>  025:0085----------ID:NHYD-------AREA----QPEAK-TpeakDate_Lagma----R.V.-R.C.-
 03812>      ADD HYD            02:Tot4      95.31    6.263 No_date     1:50   23.53  n/a
 03813>                       + 03:FR1A       3.41     .180 No_date     1:50   26.83  n/a
 03814>                       + 04:FR2A       3.15     .164 No_date     1:25   26.83  n/a
 03815>                       + 05:FR3A       4.14     .227 No_date     1:50   26.81  n/a
 03816>                       + 06:FR3B       7.21     .330 No_date     1:50   26.83  n/a
 03817>       [dT= 5.00]  SUM= 01:Tot5     104.23    6.329 No_date     1:50   23.43  n/a
 03818> *****************************************************************************
 03819> * Simulations with 4 hour Chicago from City of Ottawa
 03820> * END OF RUN :  49
 03821>
 03822> *****************************************************************************
 03823>
 03824>
 03825>
 03826>
 03827>
 03828>  RUN:VOMMAND4
 03829>  050:0001----------------------------------------------------------------------
 03830>      START
 03831>       [TFAC=      .65 Hrs or      ]
 03832>       [METOUT=   2     (1 imperial, 2 metric output)]
 03833>       [NSTORM=   1 ]
 03834>       [NRUN  =  50 ]
 03835> *****************************************************************************
 03836> *  SWMHYMO Version 2007 <BETA> / INPUT DATA FILE
 03837> *****************************************************************************
 03838> *  Project Name: Greely Village Center      Project Number: [647-07]
 03839> *  Date        : 04-09-2008
 03840> *  Modeller    : [JHF]
 03841> *  Company     : JFSAinc.
 03842> *  License #   : 2507102
 03843> *****************************************************************************
 03844> *
 03845> * SWMHYMO model of the Greely Village Center - Residential Area - Phase 2
 03846> * Proposed Ultimate conditions. Version 2
 03847> * Filename stands for: GRP2u2a - Greely, Residential, Phase 2, ultimate v2 with
 03848> *
 03849> *  December 15, 2008
 03850> *  "a" at the end of filename= Added July 1st 1979 Event
 03851> *****************************************************************************
 03852>  050:0002----------------------------------------------------------------------
 03853>      READ STORM
 03854>       [Filename = start.mm]
 03855>       Comment  = 50 years Chicago Storm 4 Hours Areg 1H min, City of Ottawa
 03856>       [SDT=10.00:SDUR=  4.00:PTOT=  68.73]
 03857> *****************************************************************************
 03858> * Existing flow - McEvoy Branch of Shield Creek - Areas
 03859> * Area c/s of proposed development (residential)
 03860> * CN*=0, Xlags = 0.0, Tp=0.16, XIMP= 5, TIMP=15, Sbc= 0.002 as per Standard
 03861> * Area partially adjusted based on Afrel drawings.
 03862> *****************************************************************************
 03863> * c/s of Bank St.as per Afrel - with modified boundaries and Tp.
 03864>  050:0003----------ID:NHYD-------AREA----QPEAK-TpeakDate_Lagma----R.V.-R.C.-
 03865>      DESIGN MASHYD      01:EX1       24.62    3.144 No_date     1:50   25.75  .535
 03866>       [CN= 75.0 :R=  5.00]
 03867>       [Tp=  .23:ET= 5.00]
 03868> *****************************************************************************
 03869> * Existing flow - External Areas c/s of Bank St.
 03870> * CN*=80, as per Standard see SCCDG.
 03871> * Area partially adjusted based on Afrel drawings.
 03872> *****************************************************************************
 03873> * Areas External to Development
 03874>  050:0004----------ID:NHYD-------AREA----QPEAK-TpeakDate_Lagma----R.V.-R.C.-
 03875>      DESIGN MASHYD      01:EX2       9.89     .364 No_date     2:05   24.67  .563
 03876>       [CN= 80.0 :R=  5.00]
 03877>       [Tp=  .6:ET= 5.00]
 03878>  050:0005----------ID:NHYD-------AREA----QPEAK-TpeakDate_Lagma----R.V.-R.C.-
 03879>      DESIGN MASHYD      01:EX3       21.49     .671 No_date     2:20   24.67  .563
 03880>       [CN= 80.0 :R=  5.00]
 03881>       [Tp=  .6:ET= 5.00]
 03882> * Slope, Slag, Area from Afrel drawing
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03387> * CN from Starter (SCS01)
03388> * Ximp = Timp = 98
03389> 050:0030----------------ID:NHYD--------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
03390>    * CALIB STANDHYD     01:EX4          .63      .041 No date    1:30   29.02 .456
03391>        [XIMP=.11:TIMP=.22]
03392>        [Loss= 2 :CN= 69.0]
03393>        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
03394>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.015:SCI=   .0]
03395> * Road and road side ditch along projected residential development Parkway Rd
03396> * Timp = Ximp = 0.31 ha /0.52 ha = 0.60
03397> * CN=69, as per Starter sec SCS01.
03398> * Slope is estimated at 1%
03399> * Ximp = Timp = 98
03400> 050:0040----------------ID:NHYD--------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
03401>    * CALIB STANDHYD     01:EX5          .52      .087 No date    1:26   31.19 .656
03402>        [XIMP=.19:TIMP=.40]
03403>        [Loss= 2 :CN= 69.0]
03404>        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
03405>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.015:SCI=   .0]
03406> * Road and road side ditch along projected residential development Sales/Barr Rd
03407> * Timp = Ximp = 0.01 ha /0.03 ha = 0.36
03408> * CN=69, as per Starter sec SCS01.
03409> * Slope is estimated at 1%
03410> * Ximp = Timp = 98
03411> 050:0050----------------ID:NHYD--------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
03412>    * CALIB STANDHYD     01:EX6          .51      .047 No date    1:30   29.92 .427
03413>        [XIMP=.10:TIMP=.20]
03414>        [Loss= 2 :CN= 69.0]
03415>        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
03416>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.015:SCI=   .0]
03417> * Road and road side ditch along projected residential development Sales/Barr Rd
03418> * Timp = Ximp = 0.00 ha /0.19 ha = 0.01
03419> * CN=69, as per Starter sec SCS01.
03420> * Slope is estimated at 1%
03421> * Ximp = Timp = 98
03422> 050:0060----------------ID:NHYD--------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
03423>    * CALIB STANDHYD     01:EX7          .38      .034 No date    1:20   30.65 .446
03424>        [XIMP=.13:TIMP=.27]
03425>        [Loss= 2 :CN= 69.0]
03426>        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
03427>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.015:SCI=   .0]
03428> * Areas to be occupied by commercial development
03429> * CN=89, as per Starter sec SCS01.
03430> 050:0070----------------ID:NHYD--------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
03431>    DESIGN HASHYD        01:HA           9.41     .526 No date    1:40   24.92 .363
03432>        [CN= 69.0:Ia= 5.00]
03433>        [Ia= .31:SI= 5.00]
03434> 050:0080----------------ID:NHYD--------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
03435>    * [DESIGN HASHYD      01:HA           5.79     .329 No date    1:25   20.92 .363
03436>        [CN= 69.0:Ia= 5.00]
03437>        [Ia= .31:SI= 5.00]
03438> 050:0090----------------ID:NHYD--------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
03439>    DESIGN HASHYD        01:HA           5.14     .329 No date    1:40   24.92 .363
03440>        [CN= 69.0:Ia= 5.00]
03441>        [Ia= .31:SI= 5.00]
03442> 050:0100----------------ID:NHYD--------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
03443>    DESIGN HASHYD        01:HA           9.71     .565 No date    1:30   24.92 .363
03444>        [CN= 69.0:Ia= 5.00]
03445>        [Ia= .31:SI= 5.00]
03446> ********************************************************************************
03447> *******************************************************************************
03448> * EXPOSED RESIDENTIAL STORMWATER/MELT - Residential Area Phase 1 and 2
03449> *******************************************************************************
03450> * CN= 65, as per Starter sec SCS01.
03451> * Tp estimated with Upland Method.
03452> 050:0110----------------ID:NHYD--------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
03453>    DESIGN HASHYD        01:HA           4.26     .385 No date    1:20   24.92 .363
03454>        [CN= 69.0:Ia= 5.00]
03455>        [Ia= .18:SI= 5.00]
03456> *******************************************************************************
03457> * AREAS GOING TO POND
03458> *******************************************************************************
03459> *
03460> 050:0120----------------ID:NHYD--------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
03461>    * CALIB STANDHYD     01:HA1A         .14      .021 No date    1:30   31.08 .402
03462>        [XIMP=.12:TIMP=.24]
03463>        [Loss= 2 :CN= 71.0]
03464>        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
03465>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.015:SCI=   .0]
03466> 050:0130----------------ID:NHYD--------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
03467>    * CALIB STANDHYD     01:HA1B         .50      .049 No date    1:30   31.08 .402
03468>        [XIMP=.12:TIMP=.25]
03469>        [Loss= 2 :CN= 71.0]
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03470>        [Previous     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
03471>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.015:SCI=   .0]
03472> 050:0017----------------ID:NHYD--------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
03473>    * CALIB STANDHYD     01:FR2A         1.57      .127 No date    1:30   31.08 .457
03474>        [XIMP=.11:TIMP=.22]
03475>        [Loss= 2 :CN= 71.0]
03476>        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
03477>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.015:SCI=   .0]
03478> 050:0018----------------ID:NHYD--------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
03479>    * CALIB STANDHYD     01:FR2B         1.17      .162 No date    1:30   31.08 .457
03480>        [XIMP=.11:TIMP=.21]
03481>        [Loss= 2 :CN= 71.0]
03482>        [Previous     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
03483>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.015:SCI=   .0]
03484> 050:0019----------------ID:NHYD--------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
03485>    * CALIB STANDHYD     01:FR3A         .45      .060 No date    1:30   31.08 .402
03486>        [XIMP=.11:TIMP=.23]
03487>        [Loss= 2 :CN= 71.0]
03488>        [Previous     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
03489>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.015:SCI=   .0]
03490> 050:0020----------------ID:NHYD--------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
03491>    * CALIB STANDHYD     01:FR3B         .52      .046 No date    1:30   31.08 .457
03492>        [XIMP=.11:TIMP=.21]
03493>        [Loss= 2 :CN= 71.0]
03494>        [Previous     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
03495>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.015:SCI=   .0]
03496> 050:0021----------------ID:NHYD--------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
03497>    * CALIB STANDHYD     01:FR4A         .71      .062 No date    1:30   31.08 .457
03498>        [XIMP=.11:TIMP=.22]
03499>        [Loss= 2 :CN= 71.0]
03500>        [Previous     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
03501>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.015:SCI=   .0]
03502> 050:0022----------------ID:NHYD--------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
03503>    * CALIB STANDHYD     01:FR4B         .65      .057 No date    1:30   31.08 .457
03504>        [XIMP=.11:TIMP=.21]
03505>        [Loss= 2 :CN= 71.0]
03506>        [Previous     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
03507>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.015:SCI=   .0]
03508> 050:0023----------------ID:NHYD--------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
03509>    * CALIB STANDHYD     01:FR5A         .66      .058 No date    1:30   31.08 .457
03510>        [XIMP=.11:TIMP=.21]
03511>        [Loss= 2 :CN= 71.0]
03512>        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
03513>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.015:SCI=   .0]
03514> 050:0024----------------ID:NHYD--------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
03515>    * CALIB STANDHYD     01:FR5B         .66      .058 No date    1:30   31.08 .457
03516>        [XIMP=.11:TIMP=.21]
03517>        [Loss= 2 :CN= 71.0]
03518>        [Previous     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
03519>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.015:SCI=   .0]
03520> 050:0025----------------ID:NHYD--------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
03521>    * CALIB STANDHYD     01:FR6A         1.43      .125 No date    1:30   31.08 .457
03522>        [XIMP=.11:TIMP=.21]
03523>        [Loss= 2 :CN= 71.0]
03524>        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
03525>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.015:SCI=   .0]
03526> 050:0026----------------ID:NHYD--------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
03527>    * CALIB STANDHYD     01:FR6B         .93      .082 No date    1:30   31.08 .457
03528>        [XIMP=.11:TIMP=.21]
03529>        [Loss= 2 :CN= 71.0]
03530>        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
03531>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.015:SCI=   .0]
03532> * slope estimated at 2% based on backyard swales.
03533> * Timp and Ximp based on total pond area.
03534> * ximp = % pond/A tot
03535> * Timp = weighted average of pond and backyards
03536> 050:0027----------------ID:NHYD--------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
03537>    CALIB STANDHYD       01:POL          5.03     .687 No date    1:30   43.86 .633
03538>        [XIMP=.44:TIMP=.47]
03539>        [Loss= 2 :CN= 71.0]
03540>        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
03541>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.015:SCI=   .0]
03542> *******************************************************************************
03543> * UNCONTROLLED AREAS
03544> *******************************************************************************
03545> *
03546> 050:0028----------------ID:NHYD--------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
03547>    * CALIB STANDHYD     01:FR7A         1.35      .109 No date    1:30   27.64 .402
03548>        [XIVS=.30:TIMP=.14]
03549>        [Loss= 2 :CN= 71.0]
03550>        [Previous     area: IAper= 4.67:SLPP=..00:LGP=  40.:MNP=.250:SCP=   .0]
03551>        [Impervious   area: IAimp= 1.57:SLPI=..00:LGI=  98.:MNI=.015:SCI=   .0]
03552> 050:0029----------------ID:NHYD--------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
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* CALIB STANDHYD     01:EXTB1       .36      .039 No_Date     1:30   27.64 .402
      [XIMP=.02:TIMP= .14]
      [LOSS= 2 :CN= 77.0]
      [Previous     area: IApv= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
      [Impervious   area: IAmp= 1.57:SLPI=1.00:LGI=  96.:MNI=.045:SCI=   .0]
* CALIB STANDHYD     01:EXTB2       .37      .039 No_Date     1:30   27.64 .402
      [XIMP=.02:TIMP= .14]
      [LOSS= 2 :CN= 77.0]
      [Previous     area: IApv= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
      [Impervious   area: IAmp= 1.57:SLPI=1.00:LGI=  96.:MNI=.045:SCI=   .0]
* CALIB STANDHYD     01:EXTC1       .38      .039 No_Date     1:30   27.64 .402
      [XIMP=.02:TIMP= .14]
      [LOSS= 2 :CN= 77.0]
      [Previous     area: IApv= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
      [Impervious   area: IAmp= 1.57:SLPI=1.00:LGI=  96.:MNI=.045:SCI=   .0]
* CALIB STANDHYD     01:EXTC2       .37      .039 No_Date     1:30   27.64 .402
      [XIMP=.02:TIMP= .14]
      [LOSS= 2 :CN= 77.0]
      [Previous     area: IApv= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
      [Impervious   area: IAmp= 1.57:SLPI=1.00:LGI=  96.:MNI=.045:SCI=   .0]
* CALIB STANDHYD     01:EXTD        .38      .039 No_Date     1:30   27.64 .402
      [XIMP=.02:TIMP= .14]
      [LOSS= 2 :CN= 77.0]
      [Previous     area: IApv= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
      [Impervious   area: IAmp= 1.57:SLPI=1.00:LGI=  96.:MNI=.045:SCI=   .0]
* CALIB STANDHYD     01:EXTE1       .36      .039 No_Date     1:30   27.64 .402
      [XIMP=.02:TIMP= .14]
      [LOSS= 2 :CN= 77.0]
      [Previous     area: IApv= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
      [Impervious   area: IAmp= 1.57:SLPI=1.00:LGI=  96.:MNI=.045:SCI=   .0]
* CALIB STANDHYD     01:EXTE2       .37      .039 No_Date     1:30   27.64 .402
      [XIMP=.02:TIMP= .14]
      [LOSS= 2 :CN= 77.0]
      [Previous     area: IApv= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
      [Impervious   area: IAmp= 1.57:SLPI=1.00:LGI=  96.:MNI=.045:SCI=   .0]
* CALIB STANDHYD     01:EXTF1       .38      .039 No_Date     1:30   27.64 .402
      [XIMP=.02:TIMP= .14]
      [LOSS= 2 :CN= 77.0]
      [Previous     area: IApv= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
      [Impervious   area: IAmp= 1.57:SLPI=1.00:LGI=  96.:MNI=.045:SCI=   .0]
* CALIB STANDHYD     01:EXTF2       .37      .039 No_Date     1:30   27.64 .402
      [XIMP=.02:TIMP= .14]
      [LOSS= 2 :CN= 77.0]
      [Previous     area: IApv= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
      [Impervious   area: IAmp= 1.57:SLPI=1.00:LGI=  96.:MNI=.045:SCI=   .0]
* CALIB STANDHYD     01:EXTG1       .36      .039 No_Date     1:30   27.64 .402
      [XIMP=.02:TIMP= .14]
      [LOSS= 2 :CN= 77.0]
      [Previous     area: IApv= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
      [Impervious   area: IAmp= 1.57:SLPI=1.00:LGI=  96.:MNI=.045:SCI=   .0]
* CALIB STANDHYD     01:EXTG2       .37      .039 No_Date     1:30   27.64 .402
      [XIMP=.02:TIMP= .14]
      [LOSS= 2 :CN= 77.0]
      [Previous     area: IApv= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
      [Impervious   area: IAmp= 1.57:SLPI=1.00:LGI=  96.:MNI=.045:SCI=   .0]
* CALIB STANDHYD     01:EXTH1       .38      .039 No_Date     1:30   27.64 .402
      [XIMP=.02:TIMP= .14]
      [LOSS= 2 :CN= 77.0]
      [Previous     area: IApv= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
      [Impervious   area: IAmp= 1.57:SLPI=1.00:LGI=  96.:MNI=.045:SCI=   .0]
*****************************************************************************
* EXISTING Flow - Upstream or Residential Area Phase 1 and 2
*****************************************************************************
* Typical Section based on proposed channel provided by AEL
* 4:1 bank slopes, Long Slope = 0.50%, Manning's n is 0.03
* Route EA1 to D/S node N6
ADD HYD            02:EA1A       9.41      .585 No_date     1:40   24.92  n/a
                 + 03:N2A        3.13      .315 No_date     1:20   24.92  n/a
                 + 01:FP5A       1.10      .082 No_date     1:30   25.03  n/a
   [DI  5.00]  SUM= 01:NR1A     13.64     1.073 No_date     1:40   25.01  n/a
* Total flow at N-RYA
* (Note that RIA will be sheet draining to proposed channel)
ADD HYD            02:RIA        9.41      .585 No_date     1:40   24.92  n/a
                 + 03:N2A        3.13      .315 No_date     1:20   24.92  n/a
                 + 01:FP5A       1.10      .082 No_date     1:30   25.03  n/a
   [DI  5.00]  SUM= 01:NR1A     13.64     1.073 No_date     1:40   25.01  n/a
*****************************************************************************
* Typical Section based on proposed channel provided by AEL
* 4:1 bank slopes, Long S ope = 0.50%, Manning's n is 0.03
* Route DA draining at N-RXA to d/s node N6
ADD HYD            02:RXA       11.64      .670 No_date     1:50   25.01  n/a
                 + 01:EXT1       1.62     1.275 No_date     1:30   29.75  n/a
                 + 04:EXT2       .75      .020 No_date     1:30   26.00  n/a
                 + 05:EXT3       1.00      .075 No_date     1:30   26.00  n/a
                 + 06:EX2        9.82      .768 No_date     9:35   24.92  n/a
   [IT  5.00]  SUM= 01:N6       49.40     3.983 No_date     1:30   27.38  n/a
* Typical Section based on proposed channel provided by AEL
* 4:1 bank slopes, Long S ope = 0.50%, Manning's n is 0.03
* Route DA draining at N6 to d/s node N-EX2
ADD HYD            02:N6        49.40     3.983 No_date     1:30   27.38  n/a
                 + 01:EX2       49.40     3.983 No_date     1:30   27.38  n/a
   [EX2  5.00] Out<- 01:EX6     49.40     3.983 No_date     1:30   27.38  n/a
      [2/3/n=  324./ .200/.030]
      [Vmax=  3.219 Tmax=  .060]
* Total flow at node N-EX2
ADD HYD            02:EX6       49.40     3.983 No_date     1:30   27.38  n/a
   [EX  5.00]  SUM= 01:NEX2     51.24     4.105 No_date     1:40   27.33  n/a
* Route Node N-EX6 to Node N1
* Typical Section based on Colelda RD Ves Ditch 1:1 banks
* provided by Attcl
* Manning's n is channel not maintained, light brush on banks
* Slope = 0.40% as per plan provided by Attcl.
ADD HYD            02:NEX2      51.24     4.105 No_date     1:40   27.33  n/a
   [EX= 5.00] Out<- 01:EX62     51.24     4.029 No_date     1:50   27.53  n/a
      [2/3/n=  253./ .050/.035]
      [Vmax=  .357 Tmax= 1.711]
*****************************************************************************
* Residential Development - Phase 1 and 2
*****************************************************************************
* Total flow at node N-PA5
ADD HYD            02:PA5        4.14      .326 No_date     1:30   24.97  n/a
                 + 03:N3E        2.21      .160 No_date     1:30   24.92  n/a
                 + 04:EX4         .50      .037 No_date     1:30   29.97  n/a
   [IT= 5.00]  SUM= 01:NR1B      6.85      .524 No_date     1:30   25.28  n/a
* Route Node NR1B to Node N-PK1
* Typical Section based on Mahony Branch Ves Ditch 1.5:1 s pes
* provided by Attcl
* Manning's n is channel not maintained, light brush on banks
* Slope = 0.60% approximately as per Attcl drawing (Rs-86.1)/A tt
ROUTE CHANNEL   -> 02:NR1B      6.85      .524 No_date     1:30   25.28  n/a
   [EX= 5.00] Out<- 01:NR3E     6.85      .473 No_date     1:40   25.28  n/a
      [2/3/n=  318./ .040/.050]
      [Vmax=  .896 Tmax=  .118]
* Total flow at node N-PK1
ADD HYD            02:PK1        4.29      .368 No_date     1:30   24.97  n/a
                 + 03:RNR3E      6.80      .472 No_date     1:40   25.30  n/a
                 + 04:PR5A        .24      .021 No_date     1:30   31.08  n/a
   [IT= 5.00]  SUM= 01:4PK1      17.33     1.414 No_date     1:35   25.28  n/a
* Volume to ponding area in PK1
* 2.0.555 m3/s required as per SCS 100yr existing conditions
* Culvert from Inlet 1
* Assuming outlet culvert is 900 mm, slope = 1.2 , HDPE smooth walls
* Manning's n = 0.013, inlet control nomograph
* Hydraulic head = 0.9m, n=0.910
COMPUTE PEAKFLOW   01:EX61       1.29      .114 No data     1:30   25.03  n/a
   Major System /  02:NEX1HT      .00      .000 No_data     0:00    .00  n/a
   Minor System \  03:NEX1Ma     11.35      .610 No_data     1:30   25.28  n/a
   [M]Hydrtme=.19 (Full), TotVolVol=.08000.0, M-Out=    0, TotDurOvf     0.hrs]
* Input to Inlet 1 pipe
ADD HYD            02:NEX1B      .55      .049 No_date     1:30   31.08  n/a
   [EX= 5.00]  SUM= 01:1L1      11.90      .659 No_date     1:30   25.58  n/a
* Pipe from Inlet 1 - Route to pond
* HDPE smooth wall pipe Manning's n = 0.012
```

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 03819>  JA5:C0n2---------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
 03820>       ROUTE PIPE      -> 02:Pi1          1.98      .655 No_date    1:30   25.59  n/a
 03821>         [RDI= 5.00] out<- 01:Pin          1.98      .643 No_date    1:30   25.59  n/a
 03822>         [L/S/n=   65.7/1.600/.012]
 03823>         [Vmax= 3.252:tmax=  .430]
 03824>         [Din=  .600:Dused=  .600]
 03825> # Culvert from Inlet 2
 03826> # HDPE smooth wall pipe Manning's n = 0.012
 03827>  JA5:C0f2---------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
 03828>       ROUTE PIPE      -> 02:FR2A         1.57      .157 No_date    1:30   31.08  n/a
 03829>         [RDI= 5.00] out<- 01:Cln2        1.57      .238 No_date    1:30   31.08  n/a
 03830>         [L/S/n=   65.7 /.400/.012]
 03831>         [Vmax= 1.335:tmax=  .296]
 03832>         [Din=  .550:Dused=  .550]
 03833> # Input to Inlet 3 pipe
 03834>  JA5:C0f4---------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
 03835>       ADD HYD         -> 02:FR3A         1.17      .109 No_date    1:30   31.08  n/a
 03836>                        + 03:Cln2         1.57      .138 No_date    1:30   31.08  n/a
 03837>         [D2  5.00]  SUM   01:In2          2.74      .240 No_date    1:30   31.08  n/a
 03838> # Pipe from Inlet 2 - Route to pond
 03839> # HDPE smooth wall pipe Manning's n = 0.012
 03840>  JA5:C0f6---------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
 03841>       ROUTE PIPE      -> 02:In2          2.74      .240 No_date    1:30   31.08  n/a
 03842>  *      [RDI  5.00] out<- 01:Pin2        2.74      .233 No_date    1:30   31.08  n/a
 03843>         [L/S/n    75.7 /.200/.012]
 03844>         [Vmax= 1.110:tmax=  .454]
 03845>         [Din=  .550:Dused=  .550]
 03846> # Culvert from Inlet 3
 03847> # HDPE smooth wall pipe Manning's n = 0.012
 03848>  JA5:C0f8---------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
 03849>       ROUTE PIPE      -> 02:FR3A          .75      .070 No_date    1:30   31.08  n/a
 03850>         [RDI= 5.00] out<- 01:Cln3         .45      .070 No_date    1:30   31.08  n/a
 03851>         [L/S/n=   65.7 /.400/.012]
 03852>         [Vmax=  .995:tmax=  .183]
 03853>         [Din=  .450:Dused=  .450]
 03854> # Input to Inlet 4 pipe
 03855>  JA5:C0f7---------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
 03856>       ADD HYD         -> 02:FR4A          .52      .046 No_date    1:30   31.08  n/a
 03857>                        + 03:Cln3          .45      .040 No_date    1:30   31.08  n/a
 03858>         [D2  5.00]  SUM   01:In3          .97      .086 No_date    1:30   31.08  n/a
 03859> # Pipe from Inlet 3 - Route to pond
 03860> # HDPE smooth wall pipe Manning's n = 0.012
 03861>  JA5:C0f9---------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
 03862>       ROUTE PIPE      -> 02:In3          .97      .086 No_date    1:30   31.08  n/a
 03863>         [RDI= 5.00] out<- 01:Pin3        .97      .083 No_date    1:30   31.08  n/a
 03864>         [L/S/n    75.7 /.200/.012]
 03865>         [Vmax=  .814:tmax=  .241]
 03866>         [Din=  .450:Dused=  .450]
 03867> # Culvert from Inlet 4
 03868> # HDPE smooth wall pipe Manning's n = 0.012
 03869>  JA5:C0fA---------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
 03870>       ROUTE PIPE      -> 02:FR4A          .71      .063 No_date    1:30   31.08  n/a
 03871>         [RDI= 5.00] out<- 01:Cln4        .71      .063 No_date    1:30   31.08  n/a
 03872>         [L/S/n=   75.7 /.400/.012]
 03873>         [Vmax= 1.001:tmax=  .311]
 03874>         [Din=  .450:Dused=  .450]
 03875> # Input to Inlet 5 pipe
 03876>  JA5:C0fC---------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
 03877>       ADD HYD         -> 02:FR5A          .65      .057 No_date    1:30   31.08  n/a
 03878>                        + 03:Cln4          .71      .063 No_date    1:30   31.08  n/a
 03879>         [D2  5.00]  SUM   01:In4          1.36      .120 No_date    1:30   31.08  n/a
 03880> # Pipe from Inlet 4 (ELIMINATE CONDITION) - Route to pond
 03881> # HDPE smooth wall pipe Manning's n = 0.012
 03882>  JA5:C0fE---------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
 03883>       ROUTE PIPE      -> 02:In4          1.36      .120 No_date    1:30   31.08  n/a
 03884>         [RDI= 5.00] out<- 01:Pin4        1.36      .113 No_date    1:30   31.08  n/a
 03885>         [L/S/n=   65.7/1.600/.012]
 03886>         [Vmax= 2.284:tmax=  .157]
 03887>         [Din=  .550:Dused=  .550]
 03888> # Culvert from Inlet 5
 03889> # HDPE smooth wall pipe Manning's n = 0.012
 03890>  JA5:C0g0---------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
 03891>       ROUTE PIPE      -> 02:FR5A          .06      .005 No_date    1:30   31.08  n/a
 03892>         [RDI= 5.00] out<- 01:Cln5        1.66      .069 No_date    1:30   31.08  n/a
 03893>         [L/S/n=   13.7 /.400/.012]
 03894>         [Vmax= 1.062:tmax=  .181]
 03895>         [Din=  .500:Dused=  .500]
 03896> # Input to Inlet 6 pipe
 03897>  JA5:C0g2---------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
 03898>       ADD HYD         -> 02:FR6A          .46      .041 No_date    1:30   31.08  n/a
 03899>                        + 03:Cln5          .06      .009 No_date    1:30   31.08  n/a
 03900>         [D2  5.00]  SUM   01:In5          1.52      .109 No_date    1:30   31.08  n/a
 03901> # Pipe from Inlet 5 - Route to pond
 03902> # HDPE smooth wall pipe Manning's n = 0.012
 03903>  JA5:C0g4---------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
 03904>       ROUTE PIPE      -> 02:In6          1.52      .109 No_date    1:30   31.08  n/a
 03905>         [RDI= 5.00] out<- 01:Pin6        1.52      .098 No_date    1:30   31.08  n/a
 03906>         [L/S/n=   75.7/1.600/.012]
 03907>         [Vmax=  2.022:tmax=  .142]
 03908>         [Din=  .500:Dused=  .500]
 03909> # Culvert from Inlet 6
 03910> # HDPE smooth wall pipe Manning's n = 0.012
 03911>  JA5:C0g6---------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
 03912>       ROUTE PIPE      -> 02:FR6A          1.41      .125 No_date    1:30   31.08  n/a
 03913>         [RDI= 5.00] out<- 01:Cln6        1.41      .125 No_date    1:30   31.08  n/a
 03914>         [L/S/n=   13.7 /.400/.012]
 03915>         [Vmax= 1.584:tmax=  .244]
 03916>         [Din=  .500:Dused=  .500]
 03917> # Input to Inlet 8 pipe
 03918>  JA5:C0g8---------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
 03919>       ADD HYD         -> 02:FR8A          .01      .001 No_date    1:30   31.08  n/a
 03920>                        + 03:Cln6          .41      .036 No_date    1:30   31.08  n/a
 03921>         [D2  5.00]  SUM   01:In8          2.35      .198 No_date    1:30   31.08  n/a
 03922> # Pipe from Inlet 8 - Route to pond
 03923> # HDPE smooth wall pipe Manning's n = 0.012
 03924>  JA5:C0gA---------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
 03925>       ROUTE PIPE      -> 02:In8          2.35      .198 No_date    1:30   31.08  n/a
 03926>         [RDI= 5.00] out<- 01:Pin8        2.35      .198 No_date    1:30   31.08  n/a
 03927>         [L/S/n=   75.7 /.200/.012]
 03928>         [Vmax= 1.495:tmax=  .408]
 03929>         [Din=  .550:Dused=  .550]
 03930> # VOLUME TO POND ULTIMATE RESIDENTIAL
 03931>  C50:C0gC---------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
 03932>       ADD HYD         -> 02:Pin1        11.96      .684 No_date    1:30   25.57  n/a
 03933>                        + 03:Pin2         2.74      .263 No_date    1:30   31.08  n/a
 03934>                        + 04:Pin3          .97      .083 No_date    1:30   31.08  n/a
 03935>                        + 05:Pin5         1.36      .118 No_date    1:30   31.08  n/a
 03936>                        + 06:Pin6         1.52      .096 No_date    1:30   31.08  n/a
 03937>                        + 07:Pin8         2.35      .201 No_date    1:30   31.08  n/a
 03938>                        + 08:FR9A         5.03      .887 No_date    1:30   45.86  n/a
 03939>         [DI= 5.00]  SUM=  01:POND1+      25.08     2.017 No_data    1:20   31.00  n/a
 03940>  C50:C0hD---------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
 03941>       ROUTE RESERVOIR -> 02:POND1+      25.08     2.017 No_data    1:20   31.00  n/a
 03942>         [RDC  5.00] out<- 01:Pout1      25.48     1.979 No_data    1:30   31.02  n/a
 03943>                 Overflow <- 03:Overq       .00      .038 No_data    0:00    .00  n/a
 03944>       [Hs=0.0ac=0.  .0328E+00, Pulovfvol=.0000E+00, h-Over=     0, CenterOvf     0.00ac]
 03945> # Sims ering SCS 100 yr conditions with assessment of outflow weir
 03946> # updated for weir .0, .4, 1.0
 03947> ROUTE RESERVOIR     ID:Pout=["Pout"] ,NHYD=n ["POND1a"] ,
 03948>                      RDC= b [cont],
 03949>                           TABLE OF ( OUTFLOW-STORAGE ) values
 03950>                                      (cms)    (ha m)
 03951>                                    [   0.0 ,   0.0 ]
 03952>                                     0.0090 ,  1.120
 03953>                                     0.20   ,  2.9110
 03954>                                     0.43   ,  3.0355
 03955>                                    [   .01 ,   .1  ]  [max twenty pts]
 03956>                           ORIDuvf-["Duvf"] ,
 03957> # Route pond outgnt through first set of pipes
 03958> # 2 x 900 pipes simulated with 1 pipe of equivalent capacity (~780 mm dia)
 03959> # HDPE smooth wall pipe Manning's n = 0.012
 03960>  C50:C0j0---------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
 03961>       ROUTE PIPE      -> 02:Pout1       25.48     1.979 No_date    1:30   31.02  n/a
 03962>         [RDC  5.00] out<- 01:Cout1      25.48     1.979 No_date    1:30   31.02  n/a
 03963>         [L/S/n=   75.7 /.200/.012]
 03964>         [Vmax= 1.691:tmax=  .282]
 03965>         [Din=  .900:Dused=  .780]
 03966> # Flow w/s of outlet culverts
 03967>  C50:C0j2---------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
 03968>       ADD HYD         -> 02:FR5A          .46      .036 No_date    1:30   27.64  n/a
 03969>                        + 03:FR6A2         .22      .019 No_date    1:30   27.64  n/a
 03970>                        + 04:Cout1       25.48     1.979 No_date    1:30   31.02  n/a
 03971>         [T= 5.00]  SUM   01:Cout        26.06     2.033 No_date    1:30   30.94  n/a
 03972> # Route outflow through set of culverts
 03973> # 2 x 600 culverts simulated with 1 culvert of equivalent capacity (~730 mm dia
 03974> # HDPE smooth wall pipe Manning's n = 0.012
 03975>  C50:C0j4---------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
 03976>       ROUTE PIPE      -> 02:Cout        26.06     2.033 No_date    1:30   30.94  n/a
 03977>         [RDC  5.00] out<- 01:Cout        26.06     2.033 No_date    1:30   30.94  n/a
 03978>         [L/S/n    13.7 /.400/.012]
 03979>         [Vmax= .414:tmax=  .776]
 03980>         [Din=  .780:Dused=  .600]
 03981> # Flow w/s of second set of outlow pipes
 03982>  C50:C0j6---------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
 03983>       ADD HYD         -> 02:FR7C1        .35      .033 No_date    1:30   27.64  n/a
 03984>                        + 03:FR7C2         .17      .015 No_date    1:30   27.64  n/a
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                        +  01:Cout      26.66      .193 No_date    3:55   30.94  n/a
       ET= 5.00   SUM=  01:PeakT     26.62      .187 No_date    3:45   30.87  n/a
* Rate curlow through second set of pipes
* 2 x 1400 pipes simulated with 1 pipe of equivalent capacity (780 as dia)
* HDPE smooth wall pipe Manning's n   0.012
 050:0074---------------ID:NHYT--------AREA----QPEAK-TpeakDate_hh:mn----R.V.-R.C.-
     ROUTE PIPE      -> 02:PeakT     26.62      .187 No_date    3:45   30.87  n/a
       |ROT  5.00| outs= 01:PeakF     26.62      .187 No_date    3:45   30.87  n/a
        |.5/s=   45./  .780/.012|
        |Vmax=  1.10|tmax=  .09(0)
        |L.s=  .7s0|tmax=  .19(0)
* Total flow at Node N1 (Shield NO along Gates Barn Rd)
 050:0075---------------ID:NHYT--------AREA----QPEAK-TpeakDate_hh:mn----R.V.-R.C.-
     ADD HYD            02:RdsX2    51.24     2.908 No date    :50   27.51  n/a
                      + 03:PeakP     26.62      .187 No_date    3:45   30.87  n/a
                      + 04:EX7        .39      .034 No_date    1:30   26.65  n/a
                      + 05:FF1D       .19      .020 No_date    1:30   27.64  n/a
                      + 06:FR11       .62      .047 No_date    1:30   28.00  n/a
       ET= 5.00   SUM=  07:N1      79.17     3.135 No_date    1:50   28.52  n/a
* ROUTE N1 to N1
* Typical Section based on Shields Dr Vee Ditch 3:1 banks
* provided by Ariel
* Manning's n is channel not maintained, light brush or banks
* Slope   0.03  as per plan provided by Ariel.
 050:0077---------------ID:NHYT--------AREA----QPEAK-TpeakDate_hh:mn----R.V.-R.C.-
     ROUTE CHANNEL   -> 02:N1        79.17     3.135 No_date    1:50   28.52  n/a
       |  ROT= 5.00| outs= 01:RN1     79.17     2.610 No_date    1:55   28.53  n/a
        |.5/s=  340./ .050/.035|
        |Vmax=  .19|tmax= 1.60|
* VOLUME from residential area at N3 interim
 050:0078---------------ID:NHYT--------AREA----QPEAK-TpeakDate_hh:mn----R.V.-R.C.-
     ADD HYD            02:RN1      79.17     2.610 No_date    1:55   29.53  n/a
                      + 03:FF8        1.38      .102 No_date    1:30   26.00  n/a
                      + 04:FF9        1.33      .211 No_date    1:30   28.81  n/a
       ET= 5.00   SUM=  01:N3      81.88     2.923 No_date    1:55   29.54  n/a
* Adjust VOLUME from external area contributing to N3
 050:0079---------------ID:NHYT--------AREA----QPEAK-TpeakDate_hh:mn----R.V.-R.C.-
     ADD HYD            02:RN1      79.17     2.610 No_date    1:55   29.53  n/a
                      + 03:EX5        1.71      .121 No_date    1:30   28.41  n/a
                      + 04:EX6         .52      .081 No_date    1:25   26.19  n/a
                      + 05:EX8         .51      .047 No_date    1:30   25.32  n/a
       ET= 5.00   SUM=  01:N3      82.81     2.870 No_date    1:55   29.54  n/a
* ROUTE N3 to N12B
* Typical Section based on Shields Dr Vee Ditch 3:1 banks
* provided by Ariel
* Manning's n is Channel not maintained, light brush on banks
* Slope = 0.05  as per plan provided by Ariel.
 050:007A---------------ID:NHYT--------AREA----QPEAK-TpeakDate_hh:mn----R.V.-R.C.-
     ROUTE CHANNEL   -> 02:N3        82.83     2.770 No_date    1:55   29.54  n/a
       |ROT= 5.00| outs= 01:RN3     82.83     2.282 No_date    2:05   29.24  n/a
        |L/s=  415./ .050/.035|
        |Vmax=  .15|tmax= 1.27|
* Flow at Shirley node "N12B" for comparison
* Marked N3 plan FF8
 050:0080---------------ID:NHYT--------AREA----QPEAK-TpeakDate_hh:mn----R.V.-R.C.-
     ADD HYD            02:RN3      82.83     2.282 No_date    2:05   29.24  n/a
                      + 03:EX3        21.80      .871 No_date    2:20   27.40  n/a
       ET= 5.00   SUM=  01:PCB12B   104.23     2.922 No_date    2:05   27.40  n/a
* AREA CHECK
*
 050:0081---------------ID:NHYT--------AREA----QPEAK-TpeakDate_hh:mn----R.V.-R.C.-
     ADD HYD            02:EX1      24.62     2.242 No_date    1:50   29.05  n/a
                      + 03:EX2        5.89      .364 No_date    2:05   24.02  n/a
                      + 04:EX3       21.80      .871 No_date    2:20   24.92  n/a
                      + 05:EX4         .50      .037 No_date    1:50   25.67  n/a
                      + 06:EX5         .52      .037 No_date    1:20   28.19  n/a
                      + 07:EX6         .51      .042 No_date    1:50   29.12  n/a
                      + 08:EX7         .38      .024 No_date    1:50   30.05  n/a
                      + 09:FF1A        .24      .021 No_date    1:30   31.05  n/a
                      + 10:FF1B        .20      .049 No_date    1:30   31.05  n/a
       ET= 5.00   SUM=  01:To1     58.51     2.883 No_date    1:50   27.28  n/a
 050:0082---------------ID:NHYT--------AREA----QPEAK-TpeakDate_hh:mn----R.V.-R.C.-
     ADD HYD            01:To1      58.51     2.883 No_date    1:50   27.28  n/a
                      + 02:FF2A        1.53      .133 No_date    1:30   31.05  n/a
                      + 04:FF2C        1.11      .087 No_date    1:30   31.05  n/a
                      + 05:FF3A         .45      .040 No_date    1:30   31.05  n/a
                      + 06:FF3b         .52      .048 No_date    1:30   31.05  n/a
                      + 07:FF4A         .71      .062 No_date    1:30   31.05  n/a
                      + 08:FF4b         .63      .057 No_date    1:30   31.05  n/a
                      + 09:FF5A         .66      .058 No_date    1:30   31.05  n/a
                      + 10:FF5b         .66      .061 No_date    1:30   31.05  n/a
       ET= 5.00   SUM=  01:To2     64.71     3.374 No_date    1:50   27.64  n/a
 050:0083---------------ID:NHYT--------AREA----QPEAK-TpeakDate_hh:mn----R.V.-R.C.-
     ADD HYD            02:To2      64.71     3.374 No_date    1:50   27.64  n/a
                      + 03:RdA        1.44      .125 No_date    1:30   31.08  n/a
                      + 04:FREa        .93      .087 No_date    1:30   31.08  n/a
                      + 05:FR7A        1.65      .139 No_date    1:30   27.64  n/a
                      + 06:FR7b1       .56      .038 No_date    1:30   27.64  n/a
                      + 07:FR7b2       .20      .014 No_date    1:30   27.64  n/a
                      + 08:FR7c1       .59      .054 No_date    1:30   27.64  n/a
                      + 09:FR7C2       .17      .015 No_date    1:30   27.64  n/a
                      + 10:FR7D        .56      .025 No_date    1:30   27.64  n/a
       [It= 5.00]  SUM=  01:To3     69.86     3.810 No_date    1:50   27.76  n/a
 050:0084---------------ID:NHYT--------AREA----QPEAK-TpeakDate_hh:mn----R.V.-R.C.-
     ADD HYD            02:To3      69.86     3.810 No_date    1:50   27.76  n/a
                      + 03:rH8        1.58      .102 No_date    1:30   26.08  n/a
                      + 04:rH9A       1.10      .087 No_date    1:30   26.08  n/a
                      + 05:FR9A1       .25      .020 No_date    1:30   26.08  n/a
                      + 06:FR9A2      1.00      .075 No_date    1:30   26.08  n/a
                      + 07:FR1C       1.84      .134 No_date    1:30   26.08  n/a
                      + 08:FR1        .62      .047 No_date    1:30   26.08  n/a
                      + 09:rK1        4.27      .305 No_date    1:30   26.97  n/a
                      + 10:rDa        5.33      .387 No_date    1:30   43.28  n/a
       [It= 5.00]  SUM=  01:To4     95.84     5.201 No_date    1:50   28.43  n/a
 050:0085---------------ID:NHYT--------AREA----QPEAK-TpeakDate_hh:mn----R.V.-R.C.-
     ADD HYD            02:To4      95.84     5.201 No_date    1:50   28.43  n/a
                      + 03:B1A        8.41      .526 No_date    1:40   30.92  n/a
                      + 04:FRA        5.13      .329 No_date    1:35   30.92  n/a
                      + 05:FR8        5.14      .329 No_date    1:40   30.92  n/a
                      + 06:FR9        3.21      .185 No_date    1:40   30.92  n/a
       [It= 5.00]  SUM=  01:To5    109.23     6.481 No_date    1:50   27.38  n/a
*************************************************************************
* Simulations with a Euro Chinook from City of Ottawa
**  END OF RUN  : 98
*************************************************************************
RUN:C:\MRA\MD4
100:0001---------------------------------------------------------------
     START
      |TZERO      .00 hrs on        0|
      |METOUT=   2     (1=Imperial, 2=metric output)|
      |NSTORM=   1|
      |NRUN   = 100|
*************************************************************************
*  SWMM-MD Ver:5.00/Jan 08|1 <RSTA> / INPUT DATA File
*************************************************************************
*  Project Name: Greely Village Center]    Project Number: [447-01]
*  Date        : 04-09-2008
*  Modeller    : [JRE]
*  Company     : JFSAinc.
*  License #   : 2047602
*************************************************************************
*
* SWMM-MD model of the Greely Village Center - Residential Area   Phase 2
* Proposed Ultimate conditions, 2PYEAR 8
* Filename stands for: MD4.mra   Greely, Residential, Phase 2, ultimate v2 weir
*
*  December 05, 2008
*  "a" at the end of filename: Added July 1st 1979 Event
*************************************************************************
 100:0002---------------------------------------------------------------
     READ STORM
      Filename = Storm.001
      Comment  = 100 years Chicago Storm 4 hours dtmp 10 min, City of Ottawa
      |Ser=10.0|SCF=  3.00|SDUR   76.00|
*************************************************************************
* Existing Flow - McEvoy Branch at Shields Creek - Areas
* Area C/s of proposed development (residential)
* CN*=79, slope   0.8, Ip-0.18, XIMP=45, TIMP=45, Area SCHU as per Stantec
* Area partially adjusted based on Ariel drawings.
*************************************************************************
* c/s at Bank St.as per Ariel - with modified boundaries and To.
 100:0003---------------ID:NHYT--------AREA----QPEAK-TpeakDate_hh:mn----R.V.-R.C.-
     JEDIUH NAE:EX1      01:EX1      24.62     2.651 No_date    1:30   34.8?  .4x9
       |CN= 79.0| N= 3.00|
       |Ia=   .23|RC=  5.00|
*************************************************************************
* Existing Flow - External areas c/s at Bank St.
* CN*=60, as per Stantec sce SLC01.
* Area partially adjusted based on Ariel drawings.
*************************************************************************
* Areas External to development
```

```
04152> 100:0034---------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
04153>      DESIGN NASHYD      01:ex0          0.83      .243 No date    12:05   29.43 .387
04154>        [Ch= 89.0: N= 3.00]
04155>        [Tp=  .07:DT= 5.00]
04156> 100:0035---------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
04157>      DESIGN NASHYD      01:EX3          21.80     .495 No date    12:05   29.43 .387
04158>        [Ch= 89.0: N= 3.00]
04159>        [Tp=  .85:DT= 5.00]
04160> * Slope, Tlag, Area from Atrel Drawing
04161> * CN from Stantec (SC001)
04162> * Xlag   Tlag = 10
04163> 100:0036---------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
04164>  * CALIB STANDHYD     01:EX4          .50      .091 No_date    1:30   34.05 .468
04165>        [XIMP=.1:TIMP=.21]
04166>        [LOSS= 2 :CN= 89.0]
04167>        [Previous     area: IAper= 4.67:SLPP=1.00:LGP=  40..XMP=.250:SCP=   .0]
04168>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98..XMI=.045:SCI=   .0]
04169> * Road and road side ditch along projected residential development Parkway Rd
04170> * Tlag = Xlag = 0.21 hr /0.67 hr = 0.30
04171> * CN*=89, as per Stantec dwg SC001.
04172> * Slope is estimated at 1%
04173> * Xlag = Tlag = 10
04174> 100:0037---------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
04175>  * CALIB STANDHYD     01:EX5          .52      .092 No_date    1:30   43.79 .615
04176>        [XIMP=.10:TIMP=.43]
04177>        [LOSS= 2 :CN= 89.0]
04178>        [Previous     area: IAper= 4.67:SLPP=1.00:LGP=  40..XMP=.250:SCP=   .0]
04179>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98..XMI=.045:SCI=   .0]
04180> * Road and road side ditch along projected residential development Subsearm Rd
04181> * Tlag = Xlag = 0.01 hr /0.51 hr = 0.20
04182> * CN*=89, as per Stantec dwg SC001.
04183> * Slope is estimated at 1%
04184> * Xlag = Tlag = 10
04185> 100:0038---------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
04186>  * CALIB STANDHYD     01:EX6          .51      .091 No_date    1:30   34.29 .451
04187>        [XIMP=.10:TIMP=.21]
04188>        [LOSS= 2 :CN= 89.0]
04189>        [Previous     area: IAper= 4.67:SLPP=1.00:LGP=  40..XMP=.250:SCP=   .0]
04190>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98..XMI=.045:SCI=   .0]
04191> * Road and road side ditch along projected residential development Subsearm Rd
04192> * Tlag = Xlag = 0.04 hr /0.39 hr = 0.23
04193> * CN*=89, as per Stantec dwg SC001.
04194> * Slope is estimated at 1%
04195> * Xlag = Tlag = 10
04196> 100:0039---------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
04197>  * CALIB STANDHYD     01:EX7          .38      .068 No_date    1:30   35.61 .469
04198>        [XIMP=.10:TIMP=.27]
04199>        [LOSS= 2 :CN= 89.0]
04200>        [Previous     area: IAper= 4.67:SLPP=1.00:LGP=  40..XMP=.250:SCP=   .0]
04201>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98..XMI=.045:SCI=   .0]
04202> * Areas to be occupied by Commercial development
04203> * CN*=89, as per Stantec dwg SC001.
04204> 100:0040---------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
04205>      DESIGN NASHYD      01:EX8          8.01      .596 No_date    1:40   29.43 .387
04206>        [Ch= 89.0: N= 3.00]
04207>        [Tp=  .13:DT= 5.00]
04208> 100:0041---------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
04209>      DESIGN NASHYD      01:EX9          5.13      .382 No_date    1:35   29.43 .387
04210>        [Ch= 89.0: N= 3.00]
04211>        [Tp=  .13:DT= 5.00]
04212> 100:0042---------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
04213>      DESIGN NASHYD      01:EXA          4.14      .291 No_date    1:30   29.43 .387
04214>        [Ch= 89.0: N= 3.00]
04215>        [Tp=  .13:DT= 5.00]
04216> 100:0043---------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
04217>      DESIGN NASHYD      01:EXB          3.29      .245 No_date    1:30   29.43 .387
04218>        [Ch= 89.0: N= 3.00]
04219>        [Tp=  .22:DT= 5.00]
04220> +++++++
```

```
04317> *-----------------------------------------------------------------------
04318> *
04319>  100:0028--------------ID:RH1------AREA----QPEAK-TpeakDate hrmn----R.V.-R.C.-
04320>    * CALIB STANDHYD     01:PR7A        1.30      .194 No date    1:30   32.5s .409
04321>        [XIMP=.02:TIMP=.15]
04322>        [LOSS= 2 :CN= 71.0]
04323>        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
04324>        [Impervious   area: IAimp  1.57:SLPI 1.00:LGI=  85.:MNI=.045:SCI=   .0]
04325>  100:0029--------------ID:RH2------AREA----QPEAK-TpeakDate hrmn----R.V.-R.C.
04326>    * CALIB STANDHYD     01:PR7B1       .96      .097 No date    1:30   32.5s .409
04327>        [XIMP=.02:TIMP=.15]
04328>        [LOSS= 2 :CN= 71.0]
04329>        [Pervious     area: IApar= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
04330>        [Impervious   area: IAimp  1.57:SLPI=1.00:LGI=  85.:MNI=.045:SCI=   .0]
04331>  100:0030--------------ID:RH3------AREA----QPEAK-TpeakDate hrmn----R.V.-R.C.
04332>    * CALIB STANDHYD     01:PR7B2       .52      .055 No date    1:30   32.5s .409
04333>        [XIMP=.02:TIMP=.11]
04334>        [LOSS= 2 :CN= 71.0]
04335>        [Pervious     area: IApar= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
04336>        [Impervious   area: IAimp  1.57:SLPI=1.00:LGI=  85.:MNI=.045:SCI=   .0]
04337>  100:0031--------------ID:RH4------AREA----QPEAK-TpeakDate hrmn----R.V.-R.C.-
04338>    * CALIB STANDHYD     01:PR7C1       .39      .040 No date    1:30   32.5s .409
04339>        [XIMP=.02:TIMP=.11]
04340>        [LOSS= 2 :CN= 71.0]
04341>        [Pervious     area: IApar= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
04342>        [Impervious   area: IAimp  1.57:SLPI=1.00:LGI=  85.:MNI=.045:SCI=   .0]
04343>  100:0032--------------ID:RH5------AREA----QPEAK-TpeakDate hrmn----R.V.-R.C.-
04344>    * CALIB STANDHYD     01:PR7C2       .17      .016 No date    1:30   32.5s .409
04345>        [XIMP=.02:TIMP=.14]
04346>        [LOSS= 2 :CN= 71.0]
04347>        [Pervious     area: IApar= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
04348>        [Impervious   area: IAimp  1.57:SLPI=1.00:LGI=  85.:MNI=.045:SCI=   .0]
04349>  100:0033--------------ID:RH6------AREA----QPEAK-TpeakDate hrmn----R.V.-R.C.-
04350>    * CALIB STANDHYD     01:PR7D        .56      .053 No date    1:30   32.5s .409
04351>        [XIMP=.02:TIMP=.14]
04352>        [LOSS= 2 :CN= 71.0]
04353>        [Pervious     area: IApar= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
04354>        [Impervious   area: IAimp  1.57:SLPI 1.00:LGI=  85.:MNI=.045:SCI=   .0]
04355>  100:0034--------------ID:RH10-------AREA----QPEAK-TpeakDate hrmn----R.V.-R.C.-
04356>    * CALIB STANDHYD     01:PR8         1.30      .206 No date    1:30   32.5s .409
04357>        [XIMP=.01:TIMP=.01]
04358>        [LOSS= 2 :CN= 71.0]
04359>        [Pervious     area: IApar= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
04360>        [Impervious   area: IAimp  1.57:SLPI=1.00:LGI=  85.:MNI=.045:SCI=   .0]
04361>  100:0035--------------ID:RH11-------AREA----QPEAK-TpeakDate hrmn----R.V.-R.C.-
04362>    * CALIB STANDHYD     01:PR9A        1.10      .192 No date    1:30   32.5s .409
04363>        [XIMP=.01:TIMP=.07]
04364>        [LOSS= 2 :CN= 71.0]
04365>        [Pervious     area: IApar= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
04366>        [Impervious   area: IAimp  1.57:SLPI=1.00:LGI=  85.:MNI=.045:SCI=   .0]
04367>  100:0036--------------ID:RH12-------AREA----QPEAK-TpeakDate hrmn----R.V.-R.C.-
04368>    * CALIB STANDHYD     01:PR9B        1.00      .184 No date    1:30   32.5s .409
04369>        [XIMP=.01:TIMP=.07]
04370>        [LOSS= 2 :CN= 71.0]
04371>        [Pervious     area: IApar= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
04372>        [Impervious   area: IAimp  1.57:SLPI=1.00:LGI=  85.:MNI=.045:SCI=   .0]
04373>  100:0037--------------ID:RH13-------AREA----QPEAK-TpeakDate hrmn----R.V.-R.C.-
04374>    * CALIB STANDHYD     01:PR9B2       1.00      .093 No date    1:30   32.5s .409
04375>        [XIMP=.01:TIMP=.07]
04376>        [LOSS= 2 :CN= 71.0]
04377>        [Pervious     area: IApar= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
04378>        [Impervious   area: IAimp  1.57:SLPI=1.00:LGI=  85.:MNI=.045:SCI=   .0]
04379>  100:0038--------------ID:RH14-------AREA----QPEAK-TpeakDate hrmn----R.V.-R.C.-
04380>    * CALIB STANDHYD     01:PR10        1.84      .166 No date    1:30   32.5s .409
04381>        [XIMP=.01:TIMP=.07]
04382>        [LOSS= 2 :CN= 71.0]
04383>        [Pervious     area: IApar= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
04384>        [Impervious   area: IAimp  1.57:SLPI=1.00:LGI=  85.:MNI=.045:SCI=   .0]
04385>  100:0039--------------ID:RH15-------AREA----QPEAK-TpeakDate hrmn----R.V.-R.C.-
04386>    * CALIB STANDHYD     01:PR11        .62      .055 No date    1:30   32.5s .409
04387>        [XIMP=.01:TIMP=.07]
04388>        [LOSS= 2 :CN= 71.0]
04389>        [Pervious     area: IApar= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
04390>        [Impervious   area: IAimp  1.57:SLPI=1.00:LGI=  85.:MNI=.045:SCI=   .0]
04391> *-----------------------------------------------------------------------
04392> * EXISTING flow - Upstream of Residential Area Phase 1 and 2
04393> *-----------------------------------------------------------------------
04394> * Typical Section based on proposed channel provided by AEL
04395> * 4:1 bank slopes, long slope = 0.50%, Manning's n is 0.03
04396> * Route EX1 to S/x node N1
04397>  100:0040--------------ID:RH16-------AREA----QPEAK-TpeakDate hrmn----R.V.-R.C.-
04398>      ROUTE CHANNEL    -> 01:EX1        34.67      3.567 No date    1:35   34.87  n/a
04399>        [RT= 5.00  SCH=  01:REX1       34.67      3.564 No date    1:35   34.87  n/a
04400>        [L/S/n=  51./ .500/.030]
04401>        [Vmax= 1.15:Qmax=  16.0]
04402> * Total flow at R-RCA
04403> * (Note that RCA will be about draining to proposed channel)
04404>  100:0041--------------ID:NHYD-------AREA----QPEAK-TpeakDate_hrmn----R.V.-R.C.-
04405>      ADD HYD            02:RCA         9.41      .681 No date    1:30   29.43  n/a
04406>                       + 03:N2A         3.15      .380 No date    1:25   29.43  n/a
04407>                       + 04:RX8A        1.38      .167 No date    1:30   30.77  n/a
04408>      [VT= 5.00]  SUM=  01:NRCA        13.94     1.014 No date    1:30   29.53  n/a
04409> * Typical section based on proposed channel provided by AEL
04410> * 4:1 bank slopes, long slope = 0.50%, Manning's n is 0.03
04411> * Route SW draining at R-RCA to S/x node N6
04412>  100:0042--------------ID:NHYD-------AREA----QPEAK-TpeakDate_hrmn----R.V.-R.C.-
04413>      ROUTE CHANNEL    -> 02:NRCA       13.94     1.349 No date    1:30   29.53  n/a
04414>      [RT= 5.00] outs= 01:NRCA         13.94      .963 No date    1:40   29.53  n/a
04415>      [L/S/n=  147./ .500/.030]
04416>      [Vmax=  .912:Qmax=  .405]
04417> * Total flow at node E3
04418> * (Note that EX2 will be about draining to proposed channel)
04419>  100:0043--------------ID:NHYD-------AREA----QPEAK-TpeakDate_hrmn----R.V.-R.C.-
04420>      ADD HYD            02:RX8A       13.57      .967 No date    1:40   29.53  n/a
04421>                       + 03:PEA1       24.60     2.584 No date    1:35   34.87  n/a
04422>                       + 04:RSE1        .25      .024 No date    1:30   30.77  n/a
04423>                       + 05:RSE2       1.60      .164 No date    1:30   30.77  n/a
04424>                       + 06:EX2        5.89      .432 No date    2:05   28.11  n/a
04425>      [VT= 5.00]  SUM=  01:N6          69.40     5.858 No date    1:35   32.20  n/a
04426> * Typical Section based on proposed channel provided by AEL
04427> * 4:1 bank slopes, long slope = 0.50%, Manning's n is 0.03
04428> * Route SW dividing at N6 to S/x node N EX2
04429>  100:0044--------------ID:NHYD-------AREA----QPEAK-TpeakDate_hrmn----R.V.-R.C.-
04430>      ROUTE CHANNEL    -> 02:N6         69.40     5.858 No date    1:35   32.20  n/a
04431>        [RT= 5.00] outs= 01:REX2       69.40     5.858 No date    1:40   32.20  n/a
04432>        [L/S/n=  374./ .500/.030]
04433>        [Vmax= 1.374:Qmax=  .716]
04434> * Total flow at node E-EX2
04435>  100:0045--------------ID:NHYD-------AREA----QPEAK-TpeakDate_hrmn----R.V.-R.C.-
04436>      ADD HYD            02:RN2         48.40     5.141 No date    1:30   32.20  n/a
04437>                       + 03:PEL2        1.84      .161 No date    1:30   30.77  n/a
04438>      [VT= 5.00]  SUM=  01:NEX2        50.24     5.290 No date    1:30   32.13  n/a
04439> * Route Node N-EX2 to Node NL
04440> * Typical Section based on Shields EJ Vee Ditch 3:  Banks
04441> * provided by Atrel
04442> * Manning's n is Channel not maintained, light brush on banks
04443> * Slope = 0.65% as per plan provided by Atrel
04444>  100:0046--------------ID:NHYD-------AREA----QPEAK-TpeakDate_hrmn----R.V.-R.C.-
04445>      ROUTE CHANNEL    -> 02:NEX2       50.24     5.290 No date    1:30   32.13  n/a
04446>    * [RT= 5.00] outs= 01:RNX2         50.24     5.290 No date    1:55   32.13  n/a
04447>        [L/S/n=  253./ .050/.032]
04448>        [Vmax=  .75:Qmax=  1.812]
04449> *-----------------------------------------------------------------------
04450> * Residential Development - Phase 1 and 2
04451> *-----------------------------------------------------------------------
04452> * Total flow at node N-N3E
04453>  100:0047--------------ID:NHYD-------AREA----QPEAK-TpeakDate_hrmn----R.V.-R.C.-
04454>      ADD HYD            03:RN3         4.14      .382 No date    1:30   29.42  n/a
04455>                       + 03:RN5         2.71      .194 No date    1:30   29.42  n/a
04456>                       + 04:EX4          .90       .08 No date    1:30   34.87  n/a
04457>      [VT= 5.00]  SUM=  01:NR3E        6.85       .656 No date    1:30   29.87  n/a
04458> * Route Node NR3E to Node N-EX1
04459> * Typical Section based on McCuny Branch Vee Ditch 1.5:1 slopes
04460> * provided by Atrel
04461> * Manning's n is Channel not maintained, light brush on banks
04462> * Slope = 0.80% approximately as per Atrel drawing (N-16.1)/1"=
04463>  100:0048--------------ID:NHYD-------AREA----QPEAK-TpeakDate_hrmn----R.V.-R.C.-
04464>      ROUTE CHANNEL    -> 02:NR3E       6.85       .656 No date    1:30   29.87  n/a
04465>        [RT= 5.00] outs= 01:RNR3E      6.85       .065 No date    1:55   29.87  n/a
04466>        [L/S/n=  113./ .080/.050]
04467>        [Vmax=  .67:Qmax=  .674]
04468> * Total flow at node N-EX1
04469>  100:0049--------------ID:NHYD-------AREA----QPEAK-TpeakDate_hrmn----R.V.-R.C.-
04470>      ADD HYD            02:PR1         4.06      .431 No date    1:30   29.43  n/a
04471>                       + 03:PR35B       6.85      .867 No date    1:35   29.87  n/a
04472>                       + 04:ERIA         .24      .025 No date    1:30   30.77  n/a
04473>      [VT= 5.00]  SUM=  01:NEX1        11.35     1.323 No date    1:35   29.81  n/a
04474> * Volume to ponding area in PR1
04475> * Q=0.666 m3/s required as per ACD 100yr Existing conditions
04476> * Culvert Iver in.ex 1
04477> * Assuming outlet culvert is 800 mm, slope = .7%, HDPE smooth walls
04478> * Manning's n = 0.012, Inlet control nomograph
04479> * Pyraulic head = 0.5m, Q 0.61C
04480>  100:0050--------------ID:NHYD-------AREA----QPEAK-TpeakDate_hrmn----R.V.-R.C.-
04481>      COMPUTE DUALHYD    01:NEX1        11.35     1.323 No date    1:35   29.81  n/a
04482>        Major System /   02:NEXlM1       .00       .000 No date    0:00    .00   n/a
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04481>          Minor System \  0::NPX1Mn    11.35      .610 No_Date    1:20   30.03  n/a
04484>       (AjsysSio=.4267E+03, TotOvfVol .0000E+00, N-Ovf      0, TotDurOvf      0.hrs)
04485> # Input to Inlet 1 pipe
04486> 100:0051<---------------ID:NHYD--------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
04487>       ADD HYD            02:FR1B       .55       .059 No date    1:40   36.21  n/a
04488>                        + 03:NPX1Mn    11.35      .610 No_date    1:25   30.66  n/a
04489>         [II  5.00]  SUM=  01:In1      11.90      .669 No_date    1:40   30.79  n/a
04490> # Pipe from inlet 1 - Route to pond
04491> # HDPE smooth wall pipe Manning's n = 0.012
04492> 100:0052<---------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
04493>       ROUTE PIPE       -> 02:In1      11.90      .669 No_date    1:40   30.79  n/a
04494>         [RDT= 5.00] out<- 01:Pin1     11.90      .669 No_date    1:35   30.79  n/a
04495>         [I/S/n=  75./1.600/.012]
04496>         [Vmax= 5.081:Qmax=  .804]
04497>         [Din=  .600:Dused=  .600]
04498> # Culvert from Inlet 2
04499> # HDPE smooth wall pipe Manning's n = 0.012
04500> 100:0053<---------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
04501>       ROUTE PIPE       -> 02:FR2A     1.57       .166 No_date    1:30   36.21  n/a
04502>         [RDT= 5.00] out<- 01:CIn2     1.57       .166 No_date    1:30   36.21  n/a
04503>         [I/S/n=  75./ .600/.012]
04504>         [Vmax= 3.391:Qmax=  .804]
04505>         [Din=  .600:Dused=  .600]
04506> # Input to Inlet 2 pipe
04507> 100:0054<---------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
04508>       ADD HYD            02:FR2B       1.17       .125 No_date    1:30   36.21  n/a
04509>                        + 03:CIn2       1.57       .166 No_date    1:30   36.21  n/a
04510>         [DT= 5.00]  SUM=  01:In2      2.74       .290 No_date    1:30   36.21  n/a
04511> # Pipe from Inlet 2 - Route to pond
04512> # HDPE smooth wall pipe Manning's n = 0.012
04513> 100:0055<---------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
04514>       ROUTE PIPE       -> 02:In2      2.74       .290 No_date    1:30   36.21  n/a
04515>   *     [RDT= 5.00] out<- 01:Pin2     2.74       .282 No_date    1:30   36.21  n/a
04516>         [I/S/n=  75./ .200/.012]
04517>         [Vmax= 3.193:Qmax=  .448]
04518>         [Din=  .500:Dused=  .504]
04519> # Culvert from Inlet 3
04520> # HDPE smooth wall pipe Manning's n = 0.012
04521> 100:0056<---------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
04522>       ROUTE PIPE       -> 02:FR3A       .65       .068 No_date    1:30   36.21  n/a
04523>         [RDT= 5.00] out<- 01:CIn3       .65       .068 No_date    1:30   36.21  n/a
04524>         [I/S/n=  15./ .400/.012]
04525>         [Vmax= 1.805:Qmax=  .146]
04526>         [Din=  .500:Dused=  .530]
04527> # Input to Inlet 3 pipe
04528> 100:0057<---------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
04529>       ADD HYD            02:FR3B       .52       .056 No_date    1:30   36.21  n/a
04530>                        + 03:CIn3       .65       .068 No_date    1:30   36.21  n/a
04531>         [DT= 5.00]  SUM=  01:In3      1.17       .125 No_date    1:30   36.21  n/a
04532> # Pipe from Inlet 3 - Route to pond
04533> # HDPE smooth wall pipe Manning's n = 0.012
04534> 100:0058<---------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
04535>       ROUTE PIPE       -> 02:In3      1.17       .125 No_date    1:30   36.21  n/a
04536>         [RDT= 5.00] out<- 01:Pin3     1.17       .125 No_date    1:30   36.21  n/a
04537>         [I/S/n=  75./ .200/.012]
04538>         [Vmax= 1.562:Qmax=  .271]
04539>         [Din=  .500:Dused=  .500]
04540> # Culvert from Inlet 4
04541> # HDPE smooth wall pipe Manning's n = 0.012
04542> 100:0059<---------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
04543>       ROUTE PIPE       -> 02:FR4A       .71       .076 No_date    1:30   36.21  n/a
04544>         [RDT= 5.00] out<- 01:CIn4       .71       .077 No_date    1:30   36.21  n/a
04545>         [I/S/n=  12./ .400/.012]
04546>         [Vmax= 1.144:Qmax=  .185]
04547>         [Din=  .550:Dused=  .560]
04548> # Input to Inlet 4 pipe
04549> 100:0060<---------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
04550>       ADD HYD            02:FR4B       .65       .068 No_date    1:30   36.21  n/a
04551>                        + 03:CIn4       .71       .077 No_date    1:30   36.21  n/a
04552>         [DT= 5.00]  SUM=  01:In4      1.36       .146 No_date    1:30   36.21  n/a
04553> # Pipe from Inlet 4 (ULTIMATE CONDITIONS) - Route to pond
04554> # HDPE smooth wall pipe Manning's n = 0.012
04555> 100:0061<---------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
04556>       ROUTE PIPE       -> 02:In4      1.36       .146 No_date    1:30   36.21  n/a
04557>         [RDT= 5.00] out<- 01:Pin4     1.36       .146 No_date    1:30   36.21  n/a
04558>         [I/S/n=  60./1.900/.012]
04559>         [Vmax= 3.402:Qmax=  .173]
04560>         [Din=  .390:Dused=  .500]
04561> # Culvert from Inlet 5
04562> # HDPE smooth wall pipe Manning's n = 0.012
04563> 100:0062<---------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
04564>       ROUTE PIPE       -> 02:FR5A       .66       .070 No_date    1:30   36.21  n/a
04565>         [RDT= 5.00] out<- 01:CIn5       .66       .071 No_date    1:30   36.21  n/a
04566>         [I/S/n=  13./ .600/.012]
04567>         [Vmax= 1.119:Qmax=  .176]
04568>         [Din=  .500:Dused=  .500]
04569> # Input to Inlet 5 pipe
04570> 100:0063<---------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
04571>       ADD HYD            02:FR5B       .46       .049 No_date    1:30   36.21  n/a
04572>                        + 03:CIn5       .66       .071 No_date    1:30   36.21  n/a
04573>         [DT= 5.00]  SUM=  01:In5      1.12       .121 No_date    1:30   36.21  n/a
04574> # Pipe from Inlet 5 - Route to pond
04575> # HDPE smooth wall pipe Manning's n = 0.012
04576> 100:0064<---------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
04577>       ROUTE PIPE       -> 02:In5      1.12       .121 No_date    1:30   36.21  n/a
04578>         [RDT= 5.00] out<- 01:Pin5     1.12       .117 No_date    1:30   36.21  n/a
04579>         [I/S/n=  75./1.600/.012]
04580>         [Vmax= 2.143:Qmax=  .264]
04581>         [Din=  .500:Dused=  .500]
04582> # Culvert from Inlet 6
04583> # HDPE smooth wall pipe Manning's n = 0.012
04584> 100:0065<---------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
04585>       ROUTE PIPE       -> 02:FR6A       1.43       .156 No_date    1:30   36.21  n/a
04586>         [RDT= 5.00] out<- 01:CIn6     1.43       .152 No_date    1:30   36.21  n/a
04587>         [I/S/n=  13./ .430/.012]
04588>         [Vmax= 2.186:Qmax=  .274]
04589>         [Din=  .500:Dused=  .500]
04590> # Input to Inlet 6 pipe
04591> 100:0066<---------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
04592>       ADD HYD            02:FR6B       .93       .099 No_date    1:30   36.21  n/a
04593>                        + 03:CIn6       1.43       .152 No_date    1:30   36.21  n/a
04594>         [DT= 5.00]  SUM=  01:In6      2.36       .251 No_date    1:30   36.21  n/a
04595> # Pipe from Inlet 6 - Route to pond
04596> # HDPE smooth wall pipe Manning's n = 0.012
04597> 100:0067<---------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
04598>       ROUTE PIPE       -> 02:In6      2.36       .251 No_date    1:30   36.21  n/a
04599>   *     [RDT= 5.00] out<- 01:Pin6     2.36       .244 No_date    1:30   36.21  n/a
04600>         [I/S/n=  70./ .190/.012]
04601>         [Vmax= 1.337:Qmax=  .428]
04602>         [Din=  .500:Dused=  .521]
04603> # VOLUME TO POND ULTIMATE RESIDENTIAL
04604> 100:0068<---------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
04605>       ADD HYD            02:Pi~1      11.60       .673 No_date    1:25   36.80  n/a
04606>                        + 03:Pi~2       2.74       .282 No_date    1:30   36.22  n/a
04607>                        + 04:Pin3       .97       .100 No_date    1:30   36.21  n/a
04608>                        + 05:Pin4      1.36       .144 No_date    1:30   36.21  n/a
04609>                        + 06:Pi~5      1.12       .117 No_date    1:30   36.21  n/a
04610>                        + 07:Pin6      2.36       .244 No_date    1:30   36.22  n/a
04611>                        + 08:PDo       5.03     1.036 No_date    1:20   49.65  n/a
04612>         [DT= 5.00]  SUM=  01:POUDin   25.48     2.582 No_date    1:20   36.34  n/a
04613> 100:0069<---------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
04614>       ROUTE RESERVOIR -> 02:POUDin   25.48     2.582 No_date    1:20   36.34  n/a
04615>         [RRT= 5.00] out<- 01:POout    25.48      231 No_date    3:30   36.34  n/a
04616>                  overflow -> 03:ovrQ     .00      .00 No_date    0:00    .00  n/a
04617>       (AsStoAsum=.7345E+03, TotVolVol=.0000E+00, N-Ovf=      0, TotDurOvf=      0.hrs)
04618> # Simulating SCS 100 yr conditions with submergence or outflow weir
04619> # Updated for wall .6: .6: 3.0
04620> $ROUTE RESERVOIR     RHiJout-["POut"] ,RHstin-["<Stin"] ,
04621> !                    RDI [3]Valv,
04622> !                          TABLE of ( OUTFLOW-STORAGE ) values
04623> !                                    (cfs) - (ac-ft)
04624> !                                     0.0 ,  0.0 )
04625> !                                    0.0000 , 1.1200
04626> !                                    0.20 , 1.8810
04627> !                                    0.33 , 2.0190
04628> !                                    -1 ,  -1  ]  (max twenty pts)
04629> !                          RHYDovf="Ovrg" ,
04630> # Route pond output through first set of pipes
04631> # 2 x 800 pipes simulated with 1 pipe of equivalent capacity (=780 sm dia)
04632> # HDPE smooth wall pipe Manning's n = 0.012
04633> 100:0070<---------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
04634>       ROUTE PIPE       -> 02:POout   25.48      .231 No_date    3:40   36.34  n/a
04635>         [RDT= 5.00] out<- 01:Pout1    25.48      .230 No_date    3:45   36.34  n/a
04636>         [I/S/n=  65./ .200/.012]
04637>         (Vmax= 11.71:Qmax=  .356]
04638>         [Din=  .780:Dused=  .780]
04639> # Flow u/s of outlet culverts
04640> 100:0071<---------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
04641>       ADD HYD            02:FR7B       .36       .037 No_date    1:30   32.58  n/a
04642>                        + 03:FR7B2      .22       .025 No_date    1:25   32.58  n/a
04643>                        + 04:Pout1    25.48      .230 No_date    3:45   36.34  n/a
04644>         [DT= 5.00]  SUM=  01:Pout     26.06      .236 No_date    3:35   36.26  n/a
04645> # Route outflow through set of culverts
04646> # 2 x 800 culverts simulated with 1 culvert of equivalent capacity (=780 sm dia
04647> # HDPE smooth wall pipe Manning's n = 0.012
04648> 100:0072<---------------ID:NHYD--------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
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046499>       ROUTE PIPE      -> 02:Pout      26.06      .216 No date     1:15   36.21  n/a
046500>         [RDT= 1.00] outs= 01:Out1      26.06      .216 No date     1:15   36.21  n/a
046501>         [L/S/m=   15.7 (.000/.012)
046502>         [Vmax=  1.515:Dmax=   .281]
046503>         [Din=  .780:Dused=  .780]
046504> # Flow c/s of second set of outflow pipes
046505>  100:0073---------------10:NHYD-------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
046506>       ADD HYD           02:FRTC1       .38      .040 No date     1:10   32.58  n/a
046507>                       + 03:FRTC2       .17      .019 No date     1:25   32.58  n/a
046508>                       = 04:Comb       26.06      .216 No date     1:15   36.21  n/a
046509>         [DT= 5.00]  SUM= 01:Pout2     26.62      .241 No date     1:25   36.18  n/a
046510> # Route outflow through second set of pipes
046511> # 2 x 600 pipes simulated with 1 pipe of equivalent capacity (=780 mm dia)
046512> # Mohr Smooth wall pipe Manning's n = 0.012
046513>  100:0074---------------10:NHYD-------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
046514>       ROUTE PIPE      -> 02:Pout2     26.62      .241 No date     1:25   36.18  n/a
046515>         [RDT= 2.00] outs= 01:Pout      26.62      .241 No date     1:30   36.18  n/a
046516>         [L/S/m=   45.2 (.000/.012)
046517>         [Vmax= 1.184:Dmax=  .314]
046518>         [Din=  .780:Dused=  .780]
046519> # Total flow at node N1 (Shields N2 along Sales Farm Rd)
046520>  100:0075---------------10:NHYD-------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
046521>       ADD HYD           02:RMEX2       51.24     3.226 No date     1:05   32.15  n/a
046522>                       + 03:Pout2       26.62      .241 No date     1:30   36.18  n/a
046523>                       + 04:EX7         1.39      .040 No date     1:10   26.60  n/a
046524>                       + 05:FRTD        1.10      .031 No date     1:10   32.58  n/a
046525>                       + 06:FR11        2.62      .059 No date     1:10   30.77  n/a
046526>         [DT= 5.00]  SUM= 01:N1        79.17     3.305 No date     1:05   33.51  n/a
046527> # ROUTE N1 to N3
046528> # Typical Section based on Shields N2 Vee Ditch 3:1 banks
046529> # provided by Atrel
046530> # Manning's n is Channel not maintained, light brush on banks
046531> # slope = 0.05% as per plan provided by Atrel.
046532>  100:0076---------------10:NHYD-------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
046533>       ROUTE CHANNEL   -> 02:N1        79.17     3.305 No date     1:05   33.51  n/a
046534>         [RDT= 5.00] outs= 01:RN1       79.17     3.056 No date     1:05   33.51  n/a
046535>         [L/S/m=  245.7 (.050/.035)
046536>         [Vmax=  .350:Dmax=  1.738]
046537> # VOLUME from Residential Area at N3 Intersln
046538>  100:0077---------------10:NHYD-------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
046539>       ADD HYD           03:FR3A        1.35      .134 No date     1:30   32.58  n/a
046540>                       + 04:FR3         1.10      .176 No date     1:30   30.77  n/a
046541>         [DT= 5.00]  SUM= 01:N3         2.45      .260 No date     1:30   31.67  n/a
046542> # Added volume from external area contributing to N3
046543>  100:0078---------------10:NHYD-------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
046544>       ADD HYD           02:RN1        79.17     2.896 No date     2:00   33.51  n/a
046545>                       + 03:N3          2.45      .260 No date     1:30   31.67  n/a
046546>                       + 04:EX5         .92       .082 No date     1:20   43.70  n/a
046547>                       + 05:EX6         .51       .081 No date     1:30   36.25  n/a
046548>         [DT= 5.00]  SUM= 01:N3        82.05     3.081 No date     2:00   33.57  n/a
046549> # ROUTE N3 to N12a
046550> # Typical Section based on Shields N2 Vee Ditch 3:1 banks
046551> # provided by Atrel
046552> # Manning's n is Channel not maintained, light brush on banks
046553> # Slope = 0.05% as per plan provided by Atrel
046554>  100:0079---------------10:NHYD-------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
046555>       ROUTE CHANNEL   -> 02:N3        82.05     3.081 No date     2:00   33.52  n/a
046556>         [RDT= 5.00] outs= 01:RN3       82.05     2.909 No date     2:05   33.52  n/a
046557>         [L/S/m=  415.7 (.050/.035)
046558>         [Vmax=  .363:Dmax=  1.860]
046559> # Flow at Stantec node NC4128 for comparison
046560> # Routed N3 plus EX7
046561>  100:0080---------------10:NHYD-------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
046562>       ADD HYD           02:RN7        82.93     2.964 No date     2:05   33.52  n/a
046563>                       + 03:EX7         1.39      .095 No date     2:10   29.43  n/a
046564>         [DT= 5.00]  SUM= 01:NC4128    84.32     3.057 No date     2:10   32.68  n/a
046565> #
046566> # AREA CHECK
046567> #
046568>  100:0081---------------10:NHYD-------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
046569>       ADD HYD           02:EX1        24.62     2.681 No date     1:30   36.37  n/a
046570>                       + 03:EX2         5.89      .428 No date     2:05   29.43  n/a
046571>                       + 04:EX3        21.30      .795 No date     2:20   29.43  n/a
046572>                       + 05:EX4         .59       .051 No date     1:30   34.95  n/a
046573>                       + 06:EX5         .92       .082 No date     1:20   43.70  n/a
046574>                       + 07:EX6         .51       .081 No date     1:30   36.25  n/a
046575>                       + 08:EX7         .39       .040 No date     1:10   26.60  n/a
046576>                       + 09:FR1A        .24       .026 No date     1:30   36.21  n/a
046577>                       + 10:FR1B        .55       .059 No date     1:30   36.21  n/a
046578>         [DT= 5.00]  SUM= 01:Cat1      54.92     3.022 No date     1:35   32.37  n/a
046579>  100:0082---------------10:NHYD-------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
046580>       ADD HYD           02:Cat1       54.92     3.022 No date     1:35   32.37  n/a
046581>                       + 03:FR2A        1.07      .165 No date     1:30   36.21  n/a
046582>                       + 04:FR2B        1.17      .126 No date     1:30   36.21  n/a
046583>                       + 05:FR3A        .07       .010 No date     1:30   36.21  n/a
046584>                       + 06:FR3         .10       .016 No date     1:30   36.21  n/a
046585>                       + 07:FR4A        .13       .020 No date     1:30   36.21  n/a
046586>                       + 08:FR4B        .69       .106 No date     1:30   36.21  n/a
046587>                       + 09:FR5A        .48       .074 No date     1:30   36.21  n/a
046588>         [DT= 5.00]  SUM= 01:Tot2      64.71     4.015 No date     1:30   32.65  n/a
046589>  100:0083---------------10:NHYD-------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
046590>       ADD HYD           02:Tot2       64.71     4.015 No date     1:30   32.65  n/a
046591>                       + 03:FR6A        1.43      .156 No date     1:30   36.21  n/a
046592>                       + 04:FR6B        .93       .099 No date     1:30   36.21  n/a
046593>                       + 05:FR7A        1.30      .134 No date     1:30   32.58  n/a
046594>                       + 06:FR7B1       .36       .037 No date     1:30   32.58  n/a
046595>                       + 07:FR7C1       .21       .025 No date     1:25   32.58  n/a
046596>                       + 08:FR7C2       .17       .019 No date     1:25   32.58  n/a
046597>                       + 09:FR7D        .36       .041 No date     1:30   32.58  n/a
046598>         [DT= 5.00]  SUM= 01:Tot3      69.86     4.547 No date     1:30   32.65  n/a
046599>  100:0084---------------10:NHYD-------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
046600>       ADD HYD           02:Tot3       69.86     4.547 No date     1:30   32.65  n/a
046601>                       + 03:FR8         1.30      .126 No date     1:30   30.77  n/a
046602>                       + 04:FR8A        1.10      .152 No date     1:30   30.77  n/a
046603>                       + 05:FR9A1       .25       .024 No date     1:30   30.77  n/a
046604>                       + 06:FR9A2       1.30      .093 No date     1:30   30.77  n/a
046605>                       + 07:FR10        1.84      .166 No date     1:30   30.77  n/a
046606>                       + 08:FR11        .62       .059 No date     1:30   30.77  n/a
046607>                       + 09:FR1         4.26      .454 No date     1:30   29.43  n/a
046608>                       + 10:FR0         5.03      1.036 No date     1:30   45.65  n/a
046609>         [DT= 5.00]  SUM= 01:Tot4      85.34     6.237 No date     1:30   33.57  n/a
046610>  100:0085---------------10:NHYD-------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
046611>       ADD HYD           02:Tot4       85.34     6.237 No date     1:30   33.57  n/a
046612>                       + 03:RIA         9.01      .696 No date     1:40   29.43  n/a
046613>                       + 04:RXA         5.33      .388 No date     1:25   28.43  n/a
046614>                       + 05:RBA         4.14      .301 No date     1:30   28.43  n/a
046615>                       + 06:RBB         2.21      .196 No date     1:30   29.62  n/a
046616>         [DT= 5.00]  SUM= 01:Tot5     106.23     7.772 No date     1:40   32.68  n/a
046617> +**********************************************************************
046618> | Simulation with 4 hour Chicago from City of Ottawa
046619> | 2yr 24 hours type 2, from City of Ottawa
046620> |  ** END OF PCH : 201
046621> +**********************************************************************
046622>
046623>
046624>
046625>
046626>
046627> RUN:CONVRUN
046628>  200:0000---------------------------------------------------------------------
046629>       START
046630>         [TZERO =    .00 hrs on        0]
046631>         [METOUT=   2     (1=Imperial, 2=Metric output)]
046632>         [NSTORM=   1 ]
046633>         [NRUN  =  202 ]
046634> +**********************************************************************
046635> |  SWMHYMO Version 07/Jan 2001 <BETA> / INPUT DATA FILE
046636> +**********************************************************************
046637> |  Project Name: [Greely Village Center]    Project Number: [847-07]
046638> |  Date        : 04-03-2008
046639> |  Modeller    : [JDB]
046640> |  Company     : JFSAinc.
046641> |  License #   : 2547402
046642> +**********************************************************************
046643> |
046644> | SWMHYMO model of the Greely Village Center - Residential Area - Phase 2
046645> | Proposed Ultimate conditions: OPTION B
046646> | Filename strings for GRP2u2a - Greely, Residential, Phase 2, Ultimate w/ Weir
046647> |
046648> |  December 15, 2008
046649> |  "u" at the end of filename= Added July 1st 1975 Event
046650> +**********************************************************************
046651>  200:0002---------------------------------------------------------------------
046652>       READ STORM
046653>         Filename = storm.00
046654>         Comment  = 2 years 2CE Type 2 Storm 24 Hours step 10 min, City of Ottaw
046655>         [SDT 10.00:SDUR=  24.00:STOT=  48.46]
046656> +**********************************************************************
046657> | Existing flow - McEvoy Branch of Shield Creek - Areas
046658> | Area a/s of proposed development (residential)
046659> | Ch*=75, slope = 0.8, Tmp=0.16, XIMP=0, TIMP=15, see SC002 as per Stantec
046660> | Area partially adjusted based on Atrel drawings.
046661> +**********************************************************************
046662> | a/s or Tank Areas per Atrel - with modified boundaries and Tc.
```

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048015>  202:0003---------------ID:NHYD-------AREA----QPEAK TpeakDate hhmm----R.V.-R.C.-
048016>       DESIGN HASHYD      01:EX1        24.82      .621 No_date   12:05   16.75 .348
048017>         [CN= 74.0: N= 6.00]
048018>         [Ia=  .24:DT= 5.00]
048019> +-------------------------------------------------------------------------
048020> # Existing flow - External areas d/s of Bank St.
048021> # CN*ed, as per Stantec sce 9C001.
048022> # Area partially adjusted based on Arrel drawings.
048023> #-------------------------------------------------------------------------
048024> # Areas External to development
048025>  202:0004---------------ID:NHYD-------AREA----QPEAK TpeakDate hhmm----R.V.-R.C.-
048026>       DESIGN HASHYD      01:EX2        9.80      .180 No_date   12:05   11.39 .242
048027>         [CN= 68.0: N= 7.00]
048028>         [Ia=  .57:DT= 5.00]
048029>  202:0005---------------ID:NHYD-------AREA----QPEAK TpeakDate hhmm----R.V.-R.C.-
048030>       DESIGN HASHYD      01:EX3        21.30      .258 No_date   12:40   15.69 .282
048031>         [CN= 69.0: N= 6.00]
048032>         [Ia=  .85:DT= 5.00]
048033> # Slope, Ylag, Area from Arrel Drawing
048034> # CN from Stantec (9C001)
048035> # Xlag   Ylag = 10%
048036>  202:0006---------------ID:NHYD-------AREA----QPEAK TpeakDate hhmm----R.V.-R.C.-
048037>    * CALIB STANDHYD      01:EX4         .50      .014 No_date   12:00   17.28 .357
048038>         [XIMP=.11:TIMP=.22]
048039>         [LOSS= 2 :CN= 68.0]
048040>         [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
048041>         [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  56.:MNI=.045:SCI=   .0]
048042> # Road and road side ditch along projected residential development Parkway Rd
048043> # Ylag = Xlag = 0.21 ha /0.57 ha = 0.40
048044> # CN*=69, as per Stantec sce 9C001.
048045> # Slope is estimated at 2%
048046> # Xlag   Ylag = 10%
048047>  202:0007---------------ID:NHYD-------AREA----QPEAK TpeakDate hhmm----R.V.-R.C.-
048048>    * CALIB STANDHYD      01:EX5         .62      .018 No_date   12:00   28.76 .491
048049>         [XIMP=.00:TIMP=.00]
048050>         [LOSS= 2 :CN= 69.0]
048051>         [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
048052>         [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  56.:MNI=.045:SCI=   .0]
048053> # Road and road side ditch along projected residential development Silverbarn Rd
048054> # Ylag = Xlag = 0.01 ha /0.51 ha =  0.20
048055> # CN*=69, as per Stantec sce 9C001.
048056> # Slope is estimated at 1%
048057> # Xlag   Ylag = 10%
048058>  202:0008---------------ID:NHYD-------AREA----QPEAK TpeakDate hhmm----R.V.-R.C.-
048059>    * CALIB STANDHYD      01:EX6         .51      .013 No_date   12:00   16.81 .347
048060>         [XIMP=.10:TIMP=.20]
048061>         [LOSS= 2 :CN= 69.0]
048062>         [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
048063>         [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  56.:MNI=.045:SCI=   .0]
048064> # Road and road side ditch along projected residential development Silverbarn Rd
048065> # Ylag = Xlag = 0.09 ha /0.39 ha = 0.23
048066> # CN*=69, as per Stantec sce 9C001.
048067> # Slope is estimated at 1%
048068> # Xlag = Ylag = 10%
048069>  202:0009---------------ID:NHYD-------AREA----QPEAK TpeakDate hhmm----R.V.-R.C.-
048070>    * CALIB STANDHYD      01:EX7         .39      .010 No_date   12:00   11.96 .348
048071>         [XIMP=.10:TIMP=.25]
048072>         [LOSS= 2 :CN= 69.0]
048073>         [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
048074>         [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  56.:MNI=.045:SCI=   .0]
048075> # Areas to be occupied by commercial development
048076> # CN* 69, as per Stantec sce 9C001.
048077>  202:0010---------------ID:NHYD-------AREA----QPEAK TpeakDate hhmm----R.V.-R.C.-
048078>       DESIGN HASHYD      01:EX8         1.41      .241 No_date   12:10   15.89 .282
048079>         [CN= 68.0: N= 7.00]
048080>         [Ia=  .57:DT= 5.00]
048081>  202:0011---------------ID:NHYD-------AREA----QPEAK TpeakDate hhmm----R.V.-R.C.-
048082>    * DESIGN HASHYD      01:EX9         3.13      .133 No_date   12:00   19.69 .282
048083>         [CN= 69.0: N= 3.00]
048084>         [Ia=  .13:DT= 5.00]
048085>  202:0012---------------ID:NHYD-------AREA----QPEAK TpeakDate hhmm----R.V.-R.C.-
048086>       DESIGN HASHYD      01:EX10        5.10      .115 No_date   12:05    9.69 .282
048087>         [CN= 68.0: N= 5.00]
048088>         [Ia=  .21:DT= 5.00]
048089>  202:0013---------------ID:NHYD-------AREA----QPEAK TpeakDate hhmm----R.V.-R.C.-
048090>       DESIGN HASHYD      01:EX11        2.21      .057 No_date   12:05   13.69 .282
048091>         [CN= 68.0: N= 3.00]
048092>         [Ia=  .23:DT= 5.00]
048093> #*************************************************************************
048094> #-------------------------------------------------------------------------
048095> # PROPOSED RESIDENTIAL SUBWATERSHEDS  (Residential Area Phase 1 and 2
048096> #-------------------------------------------------------------------------
048097> # CN*=69, as per Stantec sce 9C001.
048098> # Tp estimated with Uplnd Method.
048099>  202:0014---------------ID:NHYD-------AREA----QPEAK TpeakDate hhmm----R.V.-R.C.-
049000>       DESIGN RESHYD      01:PR1         4.25      .147 No_date   12:05   13.69 .282
049001>         [CN= 68.0: N= 5.00]
049002>         [Tp=  .38:DT= 5.00]
049003> +-------------------------------------------------------------------------
049004> # AREAS GOING TO POND
049005> #-------------------------------------------------------------------------
049006> #
049007>  202:00.5---------------ID:NHYD-------AREA----QPEAK TpeakDate hhmm----R.V.-R.C.-
049008>    * CALIB STANDHYD      01:PR1A        .24      .006 No_date   12:00   17.97 .371
049009>         [XIMP=.11:TIMP=.21]
049010>         [LOSS= 2 :CN= 71.0]
049011>         [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
049012>         [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  40.:MNI=.045:SCI=   .0]
049013>  202:0016---------------ID:NHYD-------AREA----QPEAK TpeakDate hhmm----R.V.-R.C.-
049014>    * CALIB STANDHYD      01:PR1B        .55      .016 No_date   12:00   17.97 .371
049015>         [XIMP=.11:TIMP=.21]
049016>         [LOSS= 2 :CN= 71.0]
049017>         [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
049018>         [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  40.:MNI=.045:SCI=   .0]
049019>  202:0017---------------ID:NHYD-------AREA----QPEAK TpeakDate hhmm----R.V.-R.C.-
049020>       CALIB STANDHYD      01:PR2A        1.57      .042 No_date   12:00   17.97 .371
049021>         [XIMP=.11:TIMP=.21]
049022>         [LOSS= 2 :CN= 71.0]
049023>         [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
049024>         [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  40.:MNI=.045:SCI=   .0]
049025>  202:0018---------------ID:NHYD-------AREA----QPEAK TpeakDate hhmm----R.V.-R.C.-
049026>       CALIB STANDHYD      01:PR2B        1.17      .032 No_date   12:00   17.97 .371
049027>         [XIMP=.11:TIMP=.21]
049028>         [LOSS= 2 :CN= 71.0]
049029>         [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
049030>         [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  40.:MNI=.045:SCI=   .0]
049031>  202:0019---------------ID:NHYD-------AREA----QPEAK TpeakDate hhmm----R.V.-R.C.-
049032>    * CALIB STANDHYD      01:PR3A        .65      .018 No_date   12:00   17.97 .371
049033>         [XIMP=.11:TIMP=.21]
049034>         [LOSS= 2 :CN= 71.0]
049035>         [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
049036>         [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  40.:MNI=.045:SCI=   .0]
049037>  202:0020---------------ID:NHYD-------AREA----QPEAK TpeakDate hhmm----R.V.-R.C.-
049038>    * CALIB STANDHYD      01:PR3B        .52      .015 No_date   12:00   17.97 .371
049039>         [XIMP=.11:TIMP=.21]
049040>         [LOSS= 2 :CN= 71.0]
049041>         [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
049042>         [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  40.:MNI=.045:SCI=   .0]
049043>  202:0021---------------ID:NHYD-------AREA----QPEAK TpeakDate hhmm----R.V.-R.C.-
049044>       CALIB STANDHYD      01:PR4A        .71      .020 No_date   12:00   17.97 .371
049045>         [XIMP=.11:TIMP=.21]
049046>         [LOSS= 2 :CN= 71.0]
049047>         [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
049048>         [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  40.:MNI=.045:SCI=   .0]
049049>  202:0022---------------ID:NHYD-------AREA----QPEAK TpeakDate hhmm----R.V.-R.C.-
049050>       CALIB STANDHYD      01:PR4B        .69      .019 No_date   12:00   17.97 .371
049051>         [XIMP=.11:TIMP=.21]
049052>         [LOSS= 2 :CN= 71.0]
049053>         [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
049054>         [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  40.:MNI=.045:SCI=   .0]
049055>  202:0023---------------ID:NHYD-------AREA----QPEAK TpeakDate hhmm----R.V.-R.C.-
049056>       CALIB STANDHYD      01:PR5A        .66      .018 No_date   12:00   17.97 .371
049057>         [XIMP=.11:TIMP=.21]
049058>         [LOSS= 2 :CN= 71.0]
049059>         [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
049060>         [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  56.:MNI=.045:SCI=   .0]
049061>  202:0024---------------ID:NHYD-------AREA----QPEAK TpeakDate hhmm----R.V.-R.C.-
049062>    * CALIB STANDHYD      01:PR5B        .46      .013 No_date   12:00   17.97 .371
049063>         [XIMP=.11:TIMP=.21]
049064>         [LOSS= 2 :CN= 71.0]
049065>         [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
049066>         [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  56.:MNI=.045:SCI=   .0]
049067>  202:0025---------------ID:NHYD-------AREA----QPEAK TpeakDate hhmm----R.V.-R.C.-
049068>       CALIB STANDHYD      01:PR6A        1.41      .039 No_date   12:00   17.97 .371
049069>         [XIMP=.11:TIMP=.21]
049070>         [LOSS= 2 :CN= 71.0]
049071>         [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
049072>         [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  88.:MNI=.045:SCI=   .0]
049073>  202:0026---------------ID:NHYD-------AREA----QPEAK TpeakDate hhmm----R.V.-R.C.-
049074>       CALIB STANDHYD      01:PR6B        .91      .025 No_date   12:00   17.97 .371
049075>         [XIMP=.11:TIMP=.21]
049076>         [LOSS= 2 :CN= 71.0]
049077>         [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
049078>         [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  78.:MNI=.045:SCI=   .0]
049079> # Slope estimated at 2% based on backyard swales.
049080> # Tlag and Xlag based on total pond area.
```

```
04981> ! Imp = % pond/% tot
04982> ! Timp = weighted average of pond and backyards
04983> 202:0J0/----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
04984>      CALIB STANDHYD     J1:POJ         5.03      .294 No_date   12:00   20.20 .587
04985>        [XIMP=.44:TIMP=.67]
04986>        [LOSS= 2 :CN= 71.0]
04987>        [Pervious      area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
04988>        [Impervious    area: IAimp= 1.57:SLPI=1.00:LGI=  183.:MNI=.045:SCI=   .0]
04989> !*************************************************************************
04990> ! CONTROLLED AREAS
04991> !*************************************************************************
04992> !
04993> 202:0J/B----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
04994>   * CALIB STANDHYD     01:FR1A        1.95      .691 No date   12:15   15.15 .535
04995>        [XIMP=.02:TIMP=.14]
04996>        [LOSS= 2 :CN= 71.0]
04997>        [Pervious      area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
04998>        [Impervious    area: IAimp= 1.57:SLPI=1.00:LGI=  183.:MNI=.045:SCI=   .0]
04999> 202:0B24----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05000>   * CALIB STANDHYD     01:FR3A        .38      .095 No_date   12:10   15.18 .333
05001>        [XIMP=.02:TIMP=.14]
05002>        [LOSS= 2 :CN= 71.0]
05003>        [Pervious      area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
05004>        [Impervious    area: IAimp= 1.57:SLPI=1.00:LGI=  183.:MNI=.045:SCI=   .0]
05005> 202:0B30----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05006>   * CALIB STANDHYD     01:FR4A        .22      .068 No_date   12:10   15.18 .333
05007>        [XIMP=.02:TIMP=.14]
05008>        [LOSS= 2 :CN= 71.0]
05009>        [Pervious      area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
05010>        [Impervious    area: IAimp= 1.57:SLPI=1.00:LGI=  183.:MNI=.045:SCI=   .0]
05011> 202:0D32----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05012>   * CALIB STANDHYD     01:FR4C        .49      .138 No_date   12:10   15.18 .333
05013>        [XIMP=.02:TIMP=.14]
05014>        [LOSS= 2 :CN= 71.0]
05015>        [Pervious      area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
05016>        [Impervious    area: IAimp= 1.57:SLPI=1.00:LGI=  183.:MNI=.045:SCI=   .0]
05017> 202:0D32----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05018>   * CALIB STANDHYD     01:FR3D        .17      .064 No_date   12:10   15.18 .333
05019>        [XIMP=.02:TIMP=.14]
05020>        [LOSS= 2 :CN= 71.0]
05021>        [Pervious      area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
05022>        [Impervious    area: IAimp= 1.57:SLPI=1.00:LGI=  183.:MNI=.045:SCI=   .0]
05023> 202:0D33----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05024>   * CALIB STANDHYD     01:FR3D        .50      .038 No_date   12:10   15.18 .333
05025>        [XIMP=.02:TIMP=.14]
05026>        [LOSS= 2 :CN= 71.0]
05027>        [Pervious      area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
05028>        [Impervious    area: IAimp= 1.57:SLPI=1.00:LGI=  183.:MNI=.045:SCI=   .0]
05029> 202:0D34----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05030>   * CALIB STANDHYD     01:FR5         1.38      .525 No_date   12:20   14.05 .250
05031>        [XIMP=.01:TIMP=.04]
05032>        [LOSS= 2 :CN= 71.0]
05033>        [Pervious      area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
05034>        [Impervious    area: IAimp= 1.57:SLPI=1.00:LGI=  183.:MNI=.045:SCI=   .0]
05035> 202:0D35----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05036>   * CALIB STANDHYD     01:FR5A        .10      .023 No_date   12:20   14.05 .250
05037>        [XIMP=.01:TIMP=.04]
05038>        [LOSS= 2 :CN= 71.0]
05039>        [Pervious      area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
05040>        [Impervious    area: IAimp= 1.57:SLPI=1.00:LGI=  183.:MNI=.045:SCI=   .0]
05041> 202:0D36----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05042>   * CALIB STANDHYD     01:FR5B        .25      .085 No_date   12:15   14.05 .250
05043>        [XIMP=.01:TIMP=.07]
05044>        [LOSS= 2 :CN= 71.0]
05045>        [Pervious      area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
05046>        [Impervious    area: IAimp= 1.57:SLPI=1.00:LGI=  183.:MNI=.045:SCI=   .0]
05047> 202:0D37----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05048>   * CALIB STANDHYD     01:FR5B2       1.60      .603 No_date   12:20   14.05 .250
05049>        [XIMP=.01:TIMP=.07]
05050>        [LOSS= 2 :CN= 71.0]
05051>        [Pervious      area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
05052>        [Impervious    area: IAimp= 1.57:SLPI=1.00:LGI=  183.:MNI=.045:SCI=   .0]
05053> 202:0D38----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05054>   * CALIB STANDHYD     01:FR1C        1.84      .638 No_date   12:20   14.05 .250
05055>        [XIMP=.0.:TIMP=.07]
05056>        [LOSS= 2 :CN= 71.0]
05057>        [Pervious      area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
05058>        [Impervious    area: IAimp= 1.57:SLPI=1.00:LGI=  183.:MNI=.045:SCI=   .0]
05059> 202:0D39----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05060>   * CALIB STANDHYD     01:FR1         .82      .013 No_date   12:15   14.05 .250
05061>        [XIMP=.0.:TIMP=.07]
05062>        [LOSS= 2 :CN= 71.0]
05063>        [Pervious      area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
05064>        [Impervious    area: IAimp= 1.57:SLPI=1.00:LGI=  183.:MNI=.045:SCI=   .0]
05065> !*************************************************************************
05066> ! EXISTING flow - Upstream of Residential Area Phase  and 2
05067> !*************************************************************************
05068> # Typical Section based on proposed channel provided by ATL
05069> # 4:1 bank slopes, Long Slope = 0.50%, Manning's n is 0.02
05070> # Route EX1 to D/S node B3
05071> 202:0040----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05072>      ROUTE CHANNEL   -> 02:EX1        24.62      .921 No_date   12:05   14.75  n/a
05073>        [RDT= 5.00] outs= 01:REX1       24.62      .857 No_date   12:10   14.75  n/a
05074>        [I/O/A   312./ .500/.300]
05075>        [Vmax=  .582:Dmax=  .382]
05076> ! Total flow at N-RZA
05077> ! (Note that RZA will be about draining to proposed channel)
05078> 202:0041----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05079>      ADD HYD            02:RZA         9.41      .291 No_date   12:10   13.68  n/a
05080>                       + 03:RZA         3.23      .133 No_date   12:00   11.68  n/a
05081>                       = 04:FRZA       12.64      .923 No_date   12:20   14.65  n/a
05082>        [DT= 5.00] SUM=  01:NRZA       13.64      .945 No_date   12:05   13.72  n/a
05083> ! Typical Section based on proposed channel provided by ATL
05084> ! 4:1 bank slopes, Long Slope = 0.50%, Manning's n is 0.03
05085> ! Route SW draining at N-RZA to d/s node N2
05086> 202:0042----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05087>      ROUTE CHANNEL   -> 02:NRZA       13.64      .945 No_date   12:05   13.72  n/a
05088>        [RDT= 5.00] outs= 01:NRZA       13.64      .891 No_date   12:10   13.72  n/a
05089>        [L/S/n   447./ .500/.030]
05090>        [Vmax   .678:Dmax=  .240]
05091> ! Total flow at node N2
05092> ! (Note that EX2 will be about draining to proposed channel)
05093> 202:0043----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05094>      ADD HYD            02:NCN2A       13.64      .291 No_date   12:10   13.72  n/a
05095>                       + 03:REX1       24.62      .857 No_date   12:10   14.75  n/a
05096>                       + 04:FRES1        .25      .005 No_date   12:15   14.05  n/a
05097>                       + 05:FRES2       1.90      .021 No_date   12:20   14.05  n/a
05098>                       + 06:EX2         5.65      .110 No_date   12:15   13.68  n/a
05099>        [DT= 5.00] SUM=  01:N2          5.65      .256 No_date   12:10   15.23  n/a
05100> # Typical Section based on proposed channel provided by ATL
05101> # 4:1 bank slopes, Long Slope = 0.50%, Manning's n is 0.03
05102> # Route SW draining at N2 to d/s node N-EX2
05103> 202:0044----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05104>      ROUTE CHANNEL   -> 03:N2         49.40     1.296 No_date   12:10   15.23  n/a
05105>        [RDT= 5.00] outs= 01:RN2        49.40     1.236 No_date   12:15   15.23  n/a
05106>        [I/S/n=  874./ .500/.040]
05107>        [Vmax=  .956:Dmax=  .435]
05108> # Total flow at node N-EX2
05109> 202:0045----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05110>      ADD HYD            02:RN2         49.40     1.236 No_date   12:15   15.23  n/a
05111>                       + 03:FR10         1.84      .038 No_date   12:20   14.05  n/a
05112>        [DT= 5.00] SUM=  01:NEX2        51.24     1.237 No_date   12:15   15.19  n/a
05113> ! Route Node N-EX2 to Node N1
05114> ! Typical Section based on Shields MD Vee Ditch 1:1 banks
05115> ! provided by Atzel
05116> ! Manning's n is Channel not maintained, light brush on banks
05117> ! Slope = 0.0% as per plan provided by Atzel.
05118> 202:0046----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05119>      ROUTE CHANNEL   -> 02:NEA2       51.24     1.237 No_date   12:15   15.19  n/a
05120>   * [RDT= 5.00] outs= 01:NEX2        51.24     1.309 No_date   12:20   15.19  n/a
05121>        [L/S/n=  253./ .050/.035]
05122>        [Vmax=  .339:Dmax= 1.17]
05123> !*************************************************************************
05124> ! Residential Development - Phase 1 and 2
05125> !*************************************************************************
05126> ! Total flow at Node N-B3E
05127> 202:0047----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05128>      ADD HYD            02:FR3A         6.14      .191 No_date   12:05   13.68  n/a
05129>                       + 03:FR3B         6.81      .267 No_date   12:05   13.68  n/a
05130>                       + 04:EX4          .50       .014 No_date   12:00   7.29   n/a
05131>        [01= 5.00] SUM=  01:NB3E        6.85      .210 No_date   12:05   13.95  n/a
05132> ! Route Node NB3E to Node N-PR1
05133> ! Typical Section based on McEvoy Branch Vee Ditch 1:1 x open
05134> ! provided by Atzel
05135> ! Manning's n is Channel not maintained, light brush on banks
05136> ! Slope = 0.60% approximately as per Atzel drawing (88-88.1)/15.
05137> 202:0048----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05138>      ROUTE CHANNEL   -> 02:NB3E       6.85      .210 No_date   12:05   13.95  n/a
05139>        [RDT= 5.00] outs= 01:PNB3E      6.85      .173 No_date   12:10   13.95  n/a
05140>        [L/S/n=  318./ .600/.050]
05141>        [Vmax   .503:Dmax=  .502]
05142> ! Total flow at node N-PR1
05143> 202:0049----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05144>      ADD HYD            02:PR          6.98      .147 No_date   12:05   13.82  n/a
05145>                       + 03:PNB3E       6.85      .173 No_date   12:10   13.86  n/a
05146>                       + 04:FR1A         .25      .007 No_date   12:00   13.82  n/a
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05127>       (DT= 5.00)  SUM=  01:RPK1        11.35      .303 No date   12:05   13.94  n/a
05128> * Volume to ponding area (m^3)
05129> * Q=0.755 m^3/s required as per MCE 163yr existing conditions
05130> * Culvert from Inlet 1
05131> * Assuming outlet culvert is 600 mm, slope = 1.2 , HDPE smooth walls
05132> * Manning's n = 0.012, Inlet control massdrain
05133> * Hydraulic head = 0.9m, Q=0.910
 202:0050----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
      COMPUTE DUALHYD    01:MDS1       11.35      .303 No date   12:05   13.94  n/a
        Major System /   02:MDS1MJ       .00      .000 No date    0:00     .00  n/a
        Minor System \   03:MDS1Mn     11.35      .303 No date   12:05   13.94  n/a
      (X)SysSto=-.0003E-00, Outs=Svol=.0003E-00, N-Ovf=     0, TotDurOvf=     0.hrs)
05139> * Input to Inlet 1 pipe
 202:0051----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
      ADD HYD            02:PR1M         .55      .8.6 No date   12:05   .7.97  n/a
                       + 03:MDS1Mn     11.35      .303 No date   12:05   13.94  n/a
      [DT= 5.00]  SUM=  01:IN1        11.90      .316 No date   12:05   14.13  n/a
05146> * Pipe from inlet 1 - Route to pond
05147> * HDPE smooth wall pipe Manning's n = 0.012
 202:0053----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
      ROUTE PIPE       => 02:1n1       11.90      .316 No date   12:05   14.13  n/a
      [RDT= 5.00] outv= 01:Pln1        11.90      .317 No date   12:05   14.13  n/a
      [L/S/n=   65/21.000/.012]
      [Vmax= 2.703:Tmax=  .054]
      [Dia=  .600:Dused=  .600]
05157> * Culvert from Inlet 2
05158> * HDPE smooth wall pipe Manning's n = 0.012
 202:0055----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
      ROUTE PIPE       => 02:P02A        1.57      .042 No date   12:00   17.97  n/a
      [RDT= 5.00] outv= 01:Cln2         1.57      .043 No date   12:00   17.97  n/a
      [L/S/n=   13./ .400/.012]
      [Vmax= .969:Tmax=  .137]
      [Dia=  .200:Dused=  .500]
05168> # Input to Inlet 2 pipe
 202:0056----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
      ADD HYD            02:PR2B         1.37      .032 No date   12:00   17.90  n/a
                       + 03:CTn2         1.67      .043 No date   12:00   17.96  n/a
      [DT= 5.00]  SUM=  01:In2          2.74      .075 No date   12:00   17.98  n/a
05175> * Pipe from inlet 2 - Route to pond
05176> * HDPE smooth wall pipe Manning's n = 0.012
 202:0058----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
      ROUTE PIPE       => 02:In2         2.74      .075 No date   12:00   17.98  n/a
      [RDT= 5.00] outv= 01:Pln2         2.74      .072 No date   12:00   17.98  n/a
      [L/S/n=   75./ .200/.012]
      [Vmax= .836:Tmax=  .074]
      [Dia=  .500:Dused=  .500]
05185> # Culvert from Inlet 3
05186> * HDPE smooth wall pipe Manning's n = 0.012
 202:0059----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
      ROUTE PIPE       => 02:P03A         .48      .014 No date   12:00   17.91  n/a
      [RDT= 5.00] outv= 01:Cln3          .48      .014 No date   12:00   17.91  n/a
      [L/S/n=   13./ .400/.012]
      [Vmax= .676:Tmax=  .075]
      [Dia=  .300:Dused=  .300]
05194> # Input to Inlet 3 pipe
 202:0060----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
      ADD HYD            02:PR3B         .52      .015 No date   12:00   17.87  n/a
                       + 03:CTn3         .48      .013 No date   12:00   17.91  n/a
      [DT= 5.00]  SUM=  01:In3          .99      .028 No date   12:00   17.89  n/a
05203> * Pipe from inlet 3 - Route to pond
05204> * HDPE smooth wall pipe Manning's n = 0.012
 202:0062----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
      ROUTE PIPE       => 02:In3         .97      .028 No date   12:00   17.97  n/a
      [RDT= 5.00] outv= 01:Pln3          .97      .026 No date   12:00   17.97  n/a
      [L/S/n=   75./ .200/.012]
      [Vmax= .673:Tmax=  .037]
      [Dia=  .500:Dused=  .500]
05213> * Culvert from Inlet 4
05214> * HDPE smooth wall pipe Manning's n = 0.012
 202:0064----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
      ROUTE PIPE       => 02:PR4A         .71      .020 No date   12:00   17.97  n/a
      [RDT= 5.00] outv= 01:Cln4          .71      .020 No date   12:00   17.97  n/a
      [L/S/n=   13./ .400/.012]
      [Vmax= .708:Tmax=  .051]
      [Dia=  .300:Dused=  .300]
05222> * Input to Inlet 4 pipe
 202:0065----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
      ADD HYD            02:PR4B         .65      .018 No date   12:00   17.97  n/a
                       + 03:CTn4         .71      .020 No date   12:00   17.97  n/a
      [DT= 5.00]  SUM=  01:In4          1.36      .039 No date   12:00   17.97  n/a
05231> # Pipe from Inlet 3 (ULTIMATE CONDITIONS) - Route to pond
05232> * HDPE smooth wall pipe Manning's n = 0.012
 202:0067----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
      ROUTE PIPE       => 02:In4         1.36      .039 No date   12:00   17.97  n/a
      [RDT= 5.00] outv= 01:Pln4          1.36      .038 No date   12:00   17.97  n/a
      [L/S/n=   65./1.900/.012]
      [Vmax= 1.618:Tmax=  .088]
      [Dia=  .500:Dused=  .500]
05241> * Culvert from Inlet 5
05242> * HDPE smooth wall pipe Manning's n = 0.012
 202:0068----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
      ROUTE PIPE       => 02:P05A         .66      .019 No date   12:00   17.97  n/a
      [RDT= 5.00] outv= 01:Cln5          .66      .019 No date   12:00   17.97  n/a
      [L/S/n=   13./ .400/.012]
      [Vmax=  .733:Tmax=  .030]
      [Dia=  .300:Dused=  .300]
05250> # Input to Inlet 5 pipe
 202:0069----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
      ADD HYD            02:PR5A         .46      .013 No date   12:00   17.97  n/a
                       + 03:CTn5         .66      .019 No date   12:00   17.97  n/a
      [DT= 5.00]  SUM=  01:In5          1.12      .032 No date   12:00   17.97  n/a
05259> * Pipe from Inlet 5 - Route to pond
05260> * HDPE smooth wall pipe Manning's n = 0.012
 202:0071----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
      ROUTE PIPE       => 02:In5         1.12      .032 No date   12:00   17.97  n/a
      [RDT= 5.00] outv= 01:Pln5          1.12      .032 No date   12:00   17.97  n/a
      [L/S/n=   75./1.600/.012]
      [Vmax= 2.168:Tmax=  .084]
      [Dia=  .500:Dused=  .500]
05270> # Culvert from Inlet 6
05271> * HDPE smooth wall pipe Manning's n = 0.012
 202:0073----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
      ROUTE PIPE       => 02:P06A         1.40      .038 No date   12:00   17.97  n/a
      [RDT= 5.00] outv= 01:Cln6          1.40      .038 No date   12:00   17.97  n/a
      [L/S/n=   13./ .400/.012]
      [Vmax= .847:Tmax=  .051]
      [Dia=  .500:Dused=  .500]
05279> # Input to Inlet 6 pipe
 202:0074----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
      ADD HYD            02:PR6B         .93      .026 No date   12:00   17.97  n/a
                       + 03:CTn6         1.47      .039 No date   12:00   17.97  n/a
      [DT= 5.00]  SUM=  01:In6          2.36      .065 No date   12:00   17.97  n/a
05288> # Pipe from Inlet 6 - Route to pond
05289> * HDPE smooth wall pipe Manning's n = 0.012
 202:0076----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
      ROUTE PIPE       => 02:In6         2.36      .063 No date   12:00   17.97  n/a
      [RDT= 5.00] outv= 01:Pln6          2.36      .063 No date   12:00   17.97  n/a
      [L/S/n=   70./ .300/.012]
      [Vmax= .981:Tmax=  .060]
      [Dia=  .600:Dused=  .600]
05307> # VOLUME TO POND ULTIMATE RESIDENTIAL
 202:0078----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
      ADD HYD            02:Pln1        11.90      .317 No date   12:05   14.13  n/a
                       + 03:Pln2         2.74      .071 No date   12:00   17.98  n/a
                       + 04:Pln3          .97      .025 No date   12:00   17.97  n/a
                       + 05:Pln4         1.36      .034 No date   12:00   17.97  n/a
                       + 06:Pln5         1.12      .032 No date   12:00   17.97  n/a
                       + 07:Pln6         2.36      .063 No date   12:00   17.97  n/a
                       + 08:PDu          3.63      .094 No date   12:00   28.28  n/a
      [DT= 5.00]  SUM=  01:PONDin      25.48      .817 No date   12:05   18.21  n/a
 202:0080----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
      ROUTE RESERVOIR  => 02:PONDin     25.48      .817 No date   12:05   18.21  n/a
      [RDT= 5.00] outv= 01:PDout        25.48      .056 No date   16:00   18.21  n/a
            overflow <= o1over2          .00      .000 No date    0:00     .00  n/a
      (MaxOutQ=.29GE+00, Outs=Svol=.0003E-00, N-Ovf=     0, TotDurOvf=     0.hrs)
05282> * Simulating SCS 100 yr conditions with subsequence of outflow wait
05283> * updated for wait  6, .6, 5.0
05284> $ROUTE RESERVOIR     RHYDout["PDout"],RHYDin["PONDin"],
05285> $                    RDT=[5](min),
05286> $                         TABLE OF | OUTFLOW-STORAGE | VALUES
05287> $                                  (cms) - (ha-m)
05288> $                                |   0.0 ,   0.0
05289> $                                  0.00001 , 1.1209
05290> $                                  0.20  , 1.8110
05291> $                                  0.33  , 2.0190
05292> $                                [   -0 ,   -1 ]  (max twenty pts)
05293> $                         RHYDover="Over0",
05294> * Route pond output through first set of 8 mms
05295> * 2 x 600 pipes simulated with 1 pipe of equivalent capacity (=780 mm dia)
05296> * HDPE smooth wall pipe Manning's n = 0.012
 202:0081----------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
      ROUTE PIPE       => 02:POout       25.48      .056 No date   16:00   18.21  n/a
      [RDT= 5.00] outv= 01:POut1        25.48      .056 No date   16:00   18.21  n/a
      [L/S/n=   75./ .200/.012]
      [Vmax= .782:Tmax=  .180]
      [Dia=  .780:Dused=  .780]
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05311> * Flow u/s of outlet culverts
05312>  202:9G71---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05313>       ADD HYD                02:FR7B1      .36     .008 No date   12:10   10.18  n/a
05314>                            + 03:FR7B2      .22     .006 No date   12:10   10.18  n/a
05315>                            + 04:Pond1     25.48     .056 No date   16:00   18.21  n/a
05316>         [ID= 5.00]  SUM=  01:Out1     25.88     .057 No date   16:00   18.14  n/a
05317> * Route outflow through set of culverts
05318> * 2 x 600 culverts simulated with 1 culvert of equivalent capacity (=780 mm dia
05319> * MAPE smooth wall pipe Manning's n = 0.012
05320>  202:9G72---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05321>       ROUTE PIPE       -> 02:Out1     26.08     .057 No date   16:00   18.14  n/a
05322>         [ALC= 5.00] out<- 01:Out      26.08     .057 No date   16:00   18.14  n/a
05323>         [L/S/n=   18./ .400/.012]
05324>         (Vmax= .594:Emax=  .030)
05325>         (Dia=  .780:Quse=  .780)
05326> * Flow u/s of second set of cuff sw pipes
05327>  202:9G73---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05328>       ADD HYD                03:FR7C1      .39     .010 No date   12:10   15.28  n/a
05329>                            + 04:FR7C2      .11     .004 No date   12:10   15.28  n/a
05330>                            + 04:Out1     26.08     .057 No date   16:00   18.14  n/a
05331>         [ID= 5.00]  SUM=  01:Out2     26.62     .061 No date   12:15   18.06  n/a
05332> * Route outflow through second set of pipes
05333> * 2 x 600 pipes simulated with 1 pipe of equivalent capacity (=780 mm dia)
05334> * MAPE smooth wall pipe Manning's n = 0.012
05335>  202:9G74---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05336>       ROUTE PIPE       -> 02:Out2     26.62     .061 No date   12:15   18.06  n/a
05337>         [RFC= 5.00] out<- 01:Out      26.62     .060 No date   12:20   18.06  n/a
05338>         [L/S/n=   65./ .200/.012]
05339>         (Vmax= .802:Emax=  .163)
05340>         (Dia=  .780:Quse=  .780)
05341> * Total flow at node N1 (Shield MD along Sales Barn Rd)
05342>  202:9G75---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05343>       ADD HYD                02:NNOD7      51.24    1.008 No date   17:20   15.19  n/a
05344>                          + 03:Out1F     26.62     .060 No date   12:20   18.06  n/a
05345>                          + 04:EX7       .35     .012 No date   12:30   13.86  n/a
05346>                          + 05:FR7D      .30     .008 No date   12:10   15.3   n/a
05347>                          + 06:FR11      .62     .013 No date   12:15   14.65  n/a
05348>         [ST= 5.00]  SUM=  01:N1       78.13    1.096 No date   12:20   16.17  n/a
05349> * ROUTE N1 to N3
05350> * Typical Section based on Shields MD Vee Ditch 3:1 Banks
05351> * provided by Atrel
05352> * Manning's n is Channel not maintained, light brush on banks
05353> * Slope = 0.0% as per plan provided by Atrel
05354>  202:9G76---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05355>       ROUTE CHANNEL    -> 02:N1       78.13    1.096 No date   12:20   16.17  n/a
05356>         [RFC= 5.00] out<- 01:N2       78.17     .958 No date   12:30   16.17  n/a
05357>         [L/S/n=  349./ .050/.035]
05358>         (Vmax=  .391:Emax=  1.063)
05359> * VOLUME from residential area at N3 interim
05360>  202:9G77---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05361>       ADD HYD                03:FR7A       1.15     .031 No date   12:10   10.18  n/a
05362>                            + 04:FR8       1.42     .029 No date   12:50   17.05  n/a
05363>         [ID= 5.00]  SUM=  01:N3S       2.72     .060 No date   12:15   14.61  n/a
05364> * Added VOLUME from external area contributing to N3
05365>  202:9G78---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05366>       ADD HYD                02:N1       78.17     .958 No date   12:30   16.17  n/a
05367>                            + 03:N3S       2.72     .060 No date   12:15   14.61  n/a
05368>                            + 04:EX5       .52     .020 No date   12:30   21.59  n/a
05369>                            + 05:EX6       .51     .013 No date   12:30   16.81  n/a
05370>         [ST= 5.00]  SUM=  01:N3       82.93     .920 No date   12:30   16.17  n/a
05371> * ROUTE N3 to NCR130
05372> * Typical Section based on Shields MD Vee Ditch 3:1 Banks
05373> * provided by Atrel
05374> * Manning's n is Channel not maintained, light brush on banks
05375> * Slope = 0.0% as per plan provided by Atrel
05376>  202:9G79---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05377>       ROUTE CHANNEL    -> 02:N3       82.93     .920 No date   12:30   16.17  n/a
05378>         [RFC= 5.00] out<- 01:EN3      82.93     .722 No date   12:40   16.17  n/a
05379>         [L/S/n=  415./ .050/.035]
05380>         (Vmax=  .710:Emax=  .992)
05381> * Flow at Stacked node NCR130 for comparison
05382> * Route EX plus FX4
05383>  209:NCE2---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05384>       ADD HYD                02:EN3        82.93     .722 No date   12:40   16.17  n/a
05385>                          + 03:EX2        21.30     .158 No date   12:40   13.59  n/a
05386>         [ID= 5.00]  SUM=  01:NCR130   104.23     .878 No date   12:40   15.56  n/a
05387> * AREA CHECK
05388> *
05389>  202:9G80---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05390>       ADD HYD                01:EX1        94.63     .707 No date   12:05   16.15  n/a
05391>                          + 03:EX2        9.89     .146 No date   12:35   13.59  n/a
05392>                          + 04:EX3        21.30     .158 No date   12:40   13.59  n/a
05393>                          + 05:EX4         .51     .011 No date   12:30   17.28  n/a
05394>                          + 06:EX5         .52     .024 No date   12:00   23.79  n/a
05395>                          + 07:EX6         .51     .013 No date   12:30   16.81  n/a
05396>                          + 08:EX7         .35     .012 No date   12:30   13.86  n/a
05397>                          + 09:FR1A        .24     .006 No date   12:00   17.97  n/a
05398>                          + 10:FR1B        .55     .016 No date   12:00   17.97  n/a
05399>         [ST= 5.00]  SUM=  01:Tot1      98.52    1.172 No date   12:05   15.11  n/a
05400>  202:9G81---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05401>       ADD HYD                02:Tot1       98.52    1.172 No date   12:05   15.11  n/a
05402>                          + 03:FR2A        1.57     .042 No date   12:00   17.97  n/a
05403>                          + 04:FR2B        1.17     .032 No date   12:00   17.97  n/a
05404>                          + 05:FR3A        .45     .015 No date   12:00   17.97  n/a
05405>                          + 06:EX3B        .69     .015 No date   12:00   17.97  n/a
05406>                          + 07:FR4A        .71     .020 No date   12:00   17.97  n/a
05407>                          + 08:FR4B        .65     .018 No date   12:00   17.97  n/a
05408>                          + 09:FR5A        .68     .019 No date   12:00   17.97  n/a
05409>                          + 10:FR5B        .46     .013 No date   12:00   17.97  n/a
05410>         [ST= 5.00]  SUM=  01:Tot2      64.71    1.315 No date   12:05   15.11  n/a
05411>  202:9G82---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05412>       ADD HYD                02:Tot2       64.71    1.315 No date   12:05   15.47  n/a
05413>                          + 04:FR6A        1.45     .039 No date   12:00   17.97  n/a
05414>                          + 04:FR6B        .93     .026 No date   12:00   17.97  n/a
05415>                          + 05:EX7A        1.15     .031 No date   12:15   15.18  n/a
05416>                          + 06:EX7B        .36     .009 No date   12:10   15.18  n/a
05417>                          + 07:EX7E1       .22     .006 No date   12:10   15.18  n/a
05418>                          + 08:EX7C1       .59     .015 No date   12:10   15.18  n/a
05419>                          + 09:FR7C2       .17     .004 No date   12:10   15.18  n/a
05420>                          + 10:FR7D        .30     .008 No date   12:10   15.18  n/a
05421>         [ST= 5.00]  SUM=  01:Tot3      69.86    1.427 No date   12:05   15.55  n/a
05422>  202:9G83---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05423>       ADD HYD                02:Tot3       69.86    1.427 No date   12:05   15.55  n/a
05424>                          + 03:FR8         1.38     .029 No date   12:50   14.65  n/a
05425>                          + 04:FR9A        1.19     .025 No date   12:20   14.65  n/a
05426>                          + 05:FR9B        .25     .005 No date   12:15   14.65  n/a
05427>                          + 06:FR9C        1.09     .021 No date   12:20   14.65  n/a
05428>                          + 07:FR10        1.48     .031 No date   12:20   14.65  n/a
05429>                          + 08:FR11        .62     .013 No date   12:15   14.65  n/a
05430>                          + 09:FR1         4.28     .147 No date   12:05   17.68  n/a
05431>                          + 10:FR2         3.03     .294 No date   12:00   28.76  n/a
05432>         [OT= 5.00]  SUM=  01:Tot4      80.34    1.959 No date   12:05   16.09  n/a
05433>  202:9G84---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05434>       ADD HYD                02:Tot4       80.34    1.959 No date   12:05   16.09  n/a
05435>                          + 03:FR3         8.41     .231 No date   12:10   13.69  n/a
05436>                          + 04:FR4         3.13     .133 No date   12:30   13.69  n/a
05437>                          + 05:FR5         1.16     .133 No date   12:00   13.69  n/a
05438>                          + 06:FR15        2.21     .067 No date   12:00   13.69  n/a
05439>         [OT= 5.00]  SUM=  01:Tot5      104.33    2.686 No date   12:05   15.66  n/a
05440> *******************************************************************************
05441> * Simulations with 4 hour chicago from City of Ottawa
05442> * SCS 24 hours type 2, from City of Ottawa
05443>   ** END OF RUN : 200
05444> *******************************************************************************
05445>
05446>
05447>
05448>
05449>
05450>
05451> $CD:\OTHYDS\*.*
05452>  99:0000]---------------------------------------------------------------------
05453>       START
05454>         [TZERO =     .00 Storm        0]
05455>         [METOUT=   2    (1=Imperial, 2=metric output)]
05456>         [NSTORM=   1 ]
05457>         [NRUN  =  205 ]
05458> *******************************************************************************
05459> *  SWMHYMO Ver:5.02/Jan 2001 <RESIA> / JN/UI DATA FILE
05460> *******************************************************************************
05461> *  Project Name: [Greely Village Center]    Project Number: [647-07]
05462> *  Date        : 04-09-2008
05463> *  Modeller    : [JDF]
05464> *  Company     : JFSAinc.
05465> *  License #   : 2547402
05466> *******************************************************************************
05467> *
05468> * SWMHYMO model of the Greely Village Center - Residential Area - Phase 2
05469> * Proposed Ultimate conditions, OPTION B
05470> * Filename stands for: GRP-u2a - Greely, Residential, Phase 2, ultimate v2 wsir
05471> *
05472> *  December 15, 2008
05473> *  "a" at the end of filename- Added July 1v. 1979 Event
05474> *******************************************************************************
05475>  205:0002---------------------------------------------------------------------
05476>       READ STORM
```

```
054779>       Filename = storm.dat
054780>       Comment  = 5 years SCS Type II Storm 24 hours step .5 min, City of Ottawa
054781>       [SCS 10.00:SCFR=  70.00:SPCN=  66.11]
054782> *****************************************************************************
054783> * Existing flow - Railway Branch of Shield Creek - Areas
054784> * Area c/s of proposed development (residential)
054785> * CN*=78, slope = 0.8, Ip=3.16, XIMP 0, TIMP 15, sec SC002 as per Stantec
054786> * Area partially adjusted based on Airel drawings.
054787> *****************************************************************************
054788> * c/s of bank st.us per Airel - with modified boundaries and Tp.
054789> 205:0003---------------ID:NHYD-------AREA----QPEAK-TpeakDate hhmm----R.V.-R.C.-
054790>       DESIGN NASHYD      01:EX1        74.67     .488 No date   12:05   26.61 .645
054791>       [CN= 78.0: N= 3.00]
054792>       [Ia=  .25:SP=  5.00]
054793> *****************************************************************************
054794> * Existing flow - External areas c/s of Bank St.
054795> * CN*=69, as per Stantec see SC001.
054796> * Area partially adjusted based on Airel drawings.
054797> *****************************************************************************
054798> * Areas External to development
054799> 205:0004---------------ID:NHYD-------AREA----QPEAK-TpeakDate hhmm----R.V.-R.C.-
054800>       DESIGN NASHYD      01:EX2        9.89     .230 No date   12:30   22.18 .346
054801>       [CN= 69.0: N= 3.00]
054802>       [Ia=  .37:SP=  5.00]
054803> 205:0005---------------ID:NHYD-------AREA----QPEAK-TpeakDate hhmm----R.V.-R.C.-
054804>       DESIGN NASHYD      01:EX3        31.10     .727 No date   12:45   25.10 .397
054805>       [CN= 69.0: N= 3.00]
054806>       [Ia=  .37:SP=  5.00]
054807> * Slope, Tlng, Area from Airel Drawing
054808> * CN from Stantec (SC001)
054809> * Ximp = Timp = 10%
054810> 205:0006---------------ID:NHYD-------AREA----QPEAK-TpeakDate hhmm----R.V.-R.C.-
054811>   * CALIB STANDHYD      01:EX4         .50     .024 No date   12:00   26.91 .428
054812>       [XIMP=.11:TIMP=.21]
054813>       [LOSS= 2 :CN= 69.0]
054814>       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
054815>       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  56.:MNI=.045:SCI=   .0]
054816> * Road and road side ditch along projected residential development Parkway Rd
054817> * Tlng  Xlng   0.21 ha /0.57 ha   0.36
054818> * CN*=69, as per Stantec see SC001.
054819> * Slope is estimated at 1%
054820> * Ximp = Timp = 10%
054821> 205:0007---------------ID:NHYD-------AREA----QPEAK-TpeakDate hhmm----R.V.-R.C.-
054822>   * CALIB STANDHYD      01:EX5         .52     .013 No date   12:00   26.77 .427
054823>       [XIMP=.10:TIMP=.20]
054824>       [LOSS= 2 :CN= 69.0]
054825>       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
054826>       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  59.:MNI=.045:SCI=   .0]
054827> * Road and road side ditch along projected residential development Parkway Rd
054828> * Tlng = Xlng = 0.0 ha /0.5 ha = 0.00
054829> * CN*=69, as per Stantec see SC001.
054830> * Slope is estimated at 1%
054831> * Ximp = Timp = 10%
054832> 205:0008---------------ID:NHYD-------AREA----QPEAK-TpeakDate hhmm----R.V.-R.C.-
054833>   * CALIB STANDHYD      01:EX6         .51     .024 No date   12:00   26.90 .430
054834>       [XIMP=.10:TIMP=.20]
054835>       [LOSS= 2 :CN= 69.0]
054836>       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
054837>       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  58.:MNI=.045:SCI=   .0]
054838> * Road and road side ditch along projected residential development Parkway Rd
054839> * Tlng = Xlng = 0.09 ha /0.29 ha = 0.32
054840> * CN*=69, as per Stantec see SC001.
054841> * Slope is estimated at 1%
054842> * Ximp = Timp = 10%
054843> 205:0009---------------ID:NHYD-------AREA----QPEAK-TpeakDate hhmm----R.V.-R.C.-
054844>   * CALIB STANDHYD      01:EX7         .37     .026 No date   12:00   27.37 .430
054845>       [XIMP=.11:TIMP=.21]
054846>       [LOSS= 2 :CN= 69.0]
054847>       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
054848>       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  56.:MNI=.045:SCI=   .0]
054849> * Areas to be occupied by commercial development.
054850> * CN*=69, as per Stantec see SC001.
054851> 205:0010---------------ID:NHYD-------AREA----QPEAK-TpeakDate hhmm----R.V.-R.C.-
054852>       DESIGN NASHYD      01:EX8A       5.41     .379 No date   12:10   22.16 .366
054853>       [CN= 69.0: N= 3.00]
054854>       [Ia=  .31:SP=  5.00]
054855> 205:0011---------------ID:NHYD-------AREA----QPEAK-TpeakDate hhmm----R.V.-R.C.-
054856>   * DESIGN NASHYD      01:EX8        7.15     .501 No date   12:05   22.18 .366
054857>       [CN= 69.0: N= 3.00]
054858>       [Ia=  .13:SP=  5.00]
054859> 205:0012---------------ID:NHYD-------AREA----QPEAK-TpeakDate hhmm----R.V.-R.C.-
054860>       DESIGN NASHYD      01:EX9A       4.14     .217 No date   12:05   22.18 .366
054861>       [CN= 69.0: N= 3.00]
054862>       [Ia=  .21:SP=  5.00]
054863> 205:0013---------------ID:NHYD-------AREA----QPEAK-TpeakDate hhmm----R.V.-R.C.-
054864>       DESIGN NASHYD      01:EX9        2.21     .109 No date   12:05   22.18 .366
054865>       [CN= 69.0: N= 3.00]
054866>       [Ia=  .23:SP=  5.00]
054867> ******************************************************************************
054868> * PROPOSED RESIDENTIAL SUBWATERSHEDS - Residential Area Phase 1 and 2
054869> *****************************************************************************
054870> * CN*=69, as per Stantec see SC001.
054871> * Ip estimated with Ip and Manned.
054872> 205:0014---------------ID:NHYD-------AREA----QPEAK-TpeakDate hhmm----R.V.-R.C.-
054873>       DESIGN NASHYD      01:PA1        4.29     .241 No date   12:05   22.18 .366
054874>       [CN= 69.0: N= 3.00]
054875>       [Ia=  .18:SP=  5.00]
054876> *****************************************************************************
054877> * AREAS GOING TO POND
054878> *****************************************************************************
054879> *
054880> 205:0015---------------ID:NHYD-------AREA----QPEAK-TpeakDate hhmm----R.V.-R.C.-
054881>   * CALIB STANDHYD      01:PA1A        .24     .014 No date   12:00   27.62 .436
054882>       [XIMP=.11:TIMP=.21]
054883>       [LOSS= 2 :CN= 71.0]
054884>       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
054885>       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  88.:MNI=.045:SCI=   .0]
054886> 205:0016---------------ID:NHYD-------AREA----QPEAK-TpeakDate hhmm----R.V.-R.C.-
054887>   * CALIB STANDHYD      01:PA1B        .55     .035 No date   12:00   27.62 .436
054888>       [XIMP=.11:TIMP=.21]
054889>       [LOSS= 2 :CN= 71.0]
054890>       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
054891>       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  91.:MNI=.045:SCI=   .0]
054892> 205:0017---------------ID:NHYD-------AREA----QPEAK-TpeakDate hhmm----R.V.-R.C.-
054893>       CALIB STANDHYD      01:PA2A       1.37     .075 No date   12:00   27.62 .436
054894>       [XIMP=.11:TIMP=.21]
054895>       [LOSS= 2 :CN= 71.0]
054896>       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
054897>       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  88.:MNI=.045:SCI=   .0]
054898> 205:0018---------------ID:NHYD-------AREA----QPEAK-TpeakDate hhmm----R.V.-R.C.-
054899>       CALIB STANDHYD      01:PA2B       1.17     .057 No date   12:00   27.62 .436
054900>       [XIMP=.11:TIMP=.21]
054901>       [LOSS= 2 :CN= 71.0]
054902>       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
054903>       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  88.:MNI=.045:SCI=   .0]
054904> 205:0019---------------ID:NHYD-------AREA----QPEAK-TpeakDate hhmm----R.V.-R.C.-
054905>   * CALIB STANDHYD      01:PA3A        .05     .003 No date   12:00   27.62 .436
054906>       [XIMP=.11:TIMP=.21]
054907>       [LOSS= 2 :CN= 71.0]
054908>       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
054909>       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  56.:MNI=.045:SCI=   .0]
054910> 205:0020---------------ID:NHYD-------AREA----QPEAK-TpeakDate hhmm----R.V.-R.C.-
054911>   * CALIB STANDHYD      01:PA3B        .52     .026 No date   12:00   27.90 .440
054912>       [XIMP=.11:TIMP=.21]
054913>       [LOSS= 2 :CN= 71.0]
054914>       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
054915>       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  56.:MNI=.045:SCI=   .0]
054916> 205:0021---------------ID:NHYD-------AREA----QPEAK-TpeakDate hhmm----R.V.-R.C.-
054917>   * CALIB STANDHYD      01:PA4A        .71     .045 No date   12:00   27.87 .435
054918>       [XIMP=.11:TIMP=.21]
054919>       [LOSS= 2 :CN= 71.0]
054920>       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
054921>       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  88.:MNI=.045:SCI=   .0]
054922> 205:0022---------------ID:NHYD-------AREA----QPEAK-TpeakDate hhmm----R.V.-R.C.-
054923>   * CALIB STANDHYD      01:PA4B        .56     .031 No date   12:00   27.87 .436
054924>       [XIMP=.11:TIMP=.21]
054925>       [LOSS= 2 :CN= 71.0]
054926>       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
054927>       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  88.:MNI=.045:SCI=   .0]
054928> 205:0023---------------ID:NHYD-------AREA----QPEAK-TpeakDate hhmm----R.V.-R.C.-
054929>   * CALIB STANDHYD      01:PA5A        .56     .031 No date   12:00   27.87 .436
054930>       [XIMP=.11:TIMP=.21]
054931>       [LOSS= 2 :CN= 71.0]
054932>       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
054933>       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  88.:MNI=.045:SCI=   .0]
054934> 205:0024---------------ID:NHYD-------AREA----QPEAK-TpeakDate hhmm----R.V.-R.C.-
054935>   * CALIB STANDHYD      01:PA5B        .46     .023 No date   12:00   27.87 .436
054936>       [XIMP=.11:TIMP=.21]
054937>       [LOSS= 2 :CN= 71.0]
054938>       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
054939>       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  88.:MNI=.045:SCI=   .0]
054940> 205:0025---------------ID:NHYD-------AREA----QPEAK-TpeakDate hhmm----R.V.-R.C.-
054941>       CALIB STANDHYD      01:PA6A       1.03     .068 No date   12:00   27.82 .434
054942>       [XIMP=.11:TIMP=.21]
054943>       [LOSS= 2 :CN= 71.0]
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[Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
[Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
205:0082----------ID:KHYD-------AREA----OPSAK-TpeakDate_hh:mm----R.V.-R.C.-
   CALIB STANDHYD    01:PR6A        .94     .040 No date   17:00   77.57 .616
     [XIMP=.11:TIMP=.21]
     [LOSS= 2 :CN= 71.0]
     [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
     [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  75.:MNI=.045:SCI=   .0]
¶ slope estimated at 2  based on backyard gradient.
¶ Ximp and Aimp based on total pond area
¶ Aimp   A pond/A tot
¶ Timp = weighted average of pond and backyards
205:0083----------ID:KHYD-------AREA----OPSAK-TpeakDate_hh:mm----R.V.-R.C.-
   CALIB STANDHYD    01:PR5A        0.02     .027 No date   17:00   40.15 .078
     [XIMP=.44:TIMP=.47]
     [LOSS= 2 :CN= 72.0]
     [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
     [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI= 183.:MNI=.045:SCI=   .0]
¶*****************************************************************************
¶ CONTROLLED AREAS
¶*****************************************************************************
*
205:0087----------ID:KHYD-------AREA----OPSAK-TpeakDate_hh:mm----R.V.-R.C.-
   CALIB STANDHYD    01:PR7A        1.30     .055 No date   12:10   24.81 .384
     [XIMP=.02:TIMP=.14]
     [LOSS= 2 :CN= 71.0]
     [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
     [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
205:0088----------ID:KHYD-------AREA----OPSAK-TpeakDate_hh:mm----R.V.-R.C.-
   CALIB STANDHYD    01:PR7S1       .36     .016 No date   17:10   24.61 .580
     [XIMP=.02:TIMP=.14]
     [LOSS= 2 :CN= 71.0]
     [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
     [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
205:0089----------ID:KHYD-------AREA----OPSAK-TpeakDate_hh:mm----R.V.-R.C.-
   CALIB STANDHYD    01:PR7S2       .22     .011 No_date   12:05   24.61 .384
     [XIMP=.02:TIMP=.14]
     [LOSS= 2 :CN= 71.0]
     [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
     [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
205:0091----------ID:KHYD-------AREA----OPSAK-TpeakDate_hh:mm----R.V.-R.C.-
   CALIB STANDHYD    01:PR7C1       .39     .018 No_date   12:10   24.61 .384
     [XIMP=.02:TIMP=.14]
     [LOSS= 2 :CN= 71.0]
     [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
     [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
205:0092----------ID:KHYD-------AREA----OPSAK-TpeakDate_hh:mm----R.V.-R.C.-
   CALIB STANDHYD    01:PR7C2       .17     .008 No_date   12:05   24.61 .384
     [XIMP=.02:TIMP=.14]
     [LOSS= 2 :CN= 71.0]
     [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
     [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
205:0093----------ID:KHYD-------AREA----OPSAK-TpeakDate_hh:mm----R.V.-R.C.-
   CALIB STANDHYD    01:PR7D        .58     .025 No_date   12:05   24.61 .384
     [XIMP=.02:TIMP=.14]
     [LOSS= 2 :CN= 71.0]
     [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
     [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
205:0094----------ID:KHYD-------AREA----OPSAK-TpeakDate_hh:mm----R.V.-R.C.-
   CALIB STANDHYD    01:PR8         1.58     .656 No_date   12:10   23.09 .360
     [XIMP=.01:TIMP=.07]
     [LOSS= 2 :CN= 71.0]
     [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
     [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
205:0095----------ID:KHYD-------AREA----OPSAK-TpeakDate_hh:mm----R.V.-R.C.-
   CALIB STANDHYD    01:PR9A        1.10     .045 No_date   12:10   23.09 .360
     [XIMP=.01:TIMP=.07]
     [LOSS= 2 :CN= 71.0]
     [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
     [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
205:0096----------ID:KHYD-------AREA----OPSAK-TpeakDate_hh:mm----R.V.-R.C.-
   CALIB STANDHYD    01:PR9S1       .25     .011 No_date   12:10   23.09 .360
     [XIMP=.01:TIMP=.07]
     [LOSS= 2 :CN= 71.0]
     [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
     [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
205:0097----------ID:KHYD-------AREA----OPSAK-TpeakDate_hh:mm----R.V.-R.C.-
   CALIB STANDHYD    01:PR9S2       1.00     .041 No_date   12:10   23.09 .350
     [XIMP=.01:TIMP=.07]
     [LOSS= 2 :CN= 71.0]
     [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
     [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
205:0098----------ID:KHYD-------AREA----OPSAK-TpeakDate_hh:mm----R.V.-R.C.-
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   * CALIB STANDHYD    01:PR10        1.06     .074 No_date   12:10   23.09 .360
     [XIMP=.01:TIMP=.07]
     [LOSS= 2 :CN= 71.0]
     [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
     [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI= 111.:MNI=.045:SCI=   .0]
205:0099----------ID:KHYD-------AREA----OPSAK-TpeakDate_hh:mm----R.V.-R.C.-
   * CALIB STANDHYD    01:PR11        .60     .025 No_date   12:10   23.09 .360
     [XIMP=.01:TIMP=.07]
     [LOSS= 2 :CN= 71.0]
     [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
     [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  64.:MNI=.045:SCI=   .0]
¶*****************************************************************************
¶ EXISTING flow - Upstream of Residential Area Phase 1 and 2
¶*****************************************************************************
¶ Typical Section based on proposed channel provided by AEL
¶ 4:1 bank slopes, Long Slope = 0.58%, Manning's n is 0.03
¶ Route EX1 to d/s node R3
205:0040----------ID:NHYD-------AREA----OPSAK-TpeakDate_hh:mm----R.V.-R.C.-
   ROUTE CHANNEL   -> 02:EX1       24.62    1.486 No date   12:10   20.43  n/a
     [EOT= 5.00] outs= 01:PEX1      24.62    1.387 No_date   12:10   20.43  n/a
     [I/O/n=  .333/ .500/.030]
     [Vmax=  .999:Xmax=  .47%]
¶ Total flow at N-R3A
¶ (Note that R3A will be sheet draining to proposed channel)
205:0041----------ID:NHYD-------AREA----OPSAK-TpeakDate_hh:mm----R.V.-R.C.-
   ADD HYD         02:R3A         5.41     .375 No_date   12:10   22.13  n/a
                +  03:R2A         3.13     .218 No_date   12:00   20.78  n/a
                +  06:FR5S        1.10     .042 No_date   12:10   23.09  n/a
     [DT= 5.00]  SUM= 03:NR3A     13.61     .277 No_date   12:05   22.25  n/a
¶ Typical Section based on proposed channel provided by AEL
¶ 4:1 bank slopes, Long Slope = 0.58%, Manning's n is 0.03
¶ Route SW draining at N-R2A to d/s node NB
205:0042----------ID:NHYD-------AREA----OPSAK-TpeakDate_hh:mm----R.V.-R.C.-
   ROUTE CHANNEL   -> 02:NR2A      12.64     .497 No date   12:15   22.25  n/a
     [EOT= 5.00] outs= 01:NR2A      12.64     .498 No date   12:15   22.25  n/a
     [I/O/n=  .497/ .500/.030]
     [Vmax=  .781:Xmax=  .308]
¶ Total flow at node NC
¶ (Note that XXX will be sheet draining to proposed channel)
205:0043----------ID:NHYD-------AREA----OPSAK-TpeakDate_hh:mm----R.V.-R.C.-
   ADD HYD         02:NR2A      12.64     .498 No_date   12:15   22.25  n/a
                +  03:REX1      24.62    1.387 No_date   12:10   20.43  n/a
                +  04:FR5E1       .28     .011 No_date   12:10   23.09  n/a
                +  05:FR5E2      1.60     .064 No_date   12:10   23.09  n/a
                +  06:EX2         9.88     .230 No_date   12:05   22.13  n/a
     [DT= 5.00]  SUM= 01:NC      49.40    2.049 No_date   12:10   24.43  n/a
¶ Typical Section based on proposed channel provided by AEL
¶ 4:1 bank slopes, Long Slope = 0.58%, Manning's n is 0.03
¶ Route SW draining at NC to d/s node E-EX2
205:0044----------ID:NHYD-------AREA----OPSAK-TpeakDate_hh:mm----R.V.-R.C.-
   ROUTE CHANNEL   -> 02:NC        49.40    2.049 No_date   12:10   24.43  n/a
     [EOT= 5.00] outs= 01:NC        49.40    2.024 No_date   12:15   24.43  n/a
     [I/O/n=  .324/ .500/.030]
     [Vmax= 1.096:Xmax=  .552]
¶ Total flow at node N-EX2
205:0045----------ID:NHYD-------AREA----OPSAK-TpeakDate_hh:mm----R.V.-R.C.-
   ADD HYD         01:NC        49.40    2.024 No_date   12:15   24.43  n/a
                +  05:FR5B        .84     .034 No_date   12:10   23.09  n/a
     [DT= 5.00]  SUM= 01:NEX2     50.24    2.058 No_date   12:15   24.38  n/a
¶ Route Node N-EX2 to Node N
¶ Typical Section based on Schields RD Ww Ditch 3:1 banks
¶ provided by Arzel
¶ Manning's n is Channel not maintained, light brush on banks
¶ Slope = 0.6% as per plan provided by Arzel
205:0046----------ID:NHYD-------AREA----OPSAK-TpeakDate_hh:mm----R.V.-R.C.-
   ROUTE CHANNEL   -> 02:NEX2      50.24    2.058 No_date   12:15   24.38  n/a
   *   [EOT= 5.00] outs= 01:NEX2     50.24    1.980 No_date   12:20   24.38  n/a
     [I/O/n=  .253/ .050/.035]
     [Vmax=  .381:Xmax= 1.376]
¶*****************************************************************************
¶ Residential Development - Phase 1 and 2
¶*****************************************************************************
¶ Total flow at node N-R1B
205:0047----------ID:NHYD-------AREA----OPSAK-TpeakDate_hh:mm----R.V.-R.C.-
   ADD HYD         02:R3A         4.14     .287 No_date   12:05   22.13  n/a
                +  03:FR5        2.21     .109 No_date   12:05   22.13  n/a
                +  04:EX4         .20     .024 No_date   12:00   20.91  n/a
     [DT= 5.00]  SUM= 01:NR1B     6.55     .347 No_date   12:05   22.02  n/a
¶ Route Node NR1B to Node N-EX1
¶ Typical Section based on Norvoy Branch Ww Ditch 1.5:1 slopes
¶ provided by Arzel
¶ Manning's n is Channel not maintained, light brush on banks
¶ Slope = 0.80% approximately as per Arzel drawing (30-66.1)/110m
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05811>  205:0048----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05812>       ROUTE CHANNEL   -> 02:R38a       6.85      .347 No_date   12:05   22.52  n/a
05813>         [RT= 5.00] out<- 01:R38B       6.85      .298 No_date   12:10   22.52  n/a
05814>         [L/S/n=   318./ .600/.050]
05815>         [Vmax=  .617:Dmax=  .497]
05816> # Total flow at node N-PK
05817>  205:0049----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05818>       ADD HYD         02:R1      4.26      .241 No_date   12:05   22.18  n/a
05819>                     + 03:R38B      6.85      .298 No_date   12:10   22.53  n/a
05820>                     + 04:R41A       .24      .014 No_date   12:00   27.92  n/a
05821>         [ST= 5.00]  SUM=  01:NPK   11.35      .515 No_date   12:05   22.51  n/a
05822> # Volume in ponding area (N-PK)
05823> # Qmax=xxx m/s required as per SCS 100yr existing conditions
05824> # Culvert from inlet 1
05825> # Assuming outlet culvert is 600 mm, slope = 1.2 %, HDPE smooth wall &
05826> # Manning's n = 0.012, in at control manner/sub
05827> # Hydraulic head = 0.9m, Q=0.816
05828>  205:0050----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05829>       COMBINE DUALHYD   01:NPK1    11.35      .515 No_date   12:05   22.51  n/a
05830>           Major System /  02:NEX1M1     .00      .000 No_date    0:00    .00  n/a
05831>           Minor System \  03:NEX1Mn   11.35      .515 No_date   12:05   22.51  n/a
05832>        (MajSysStr=-0.000cfs, MajSysVol=-0.000ac-ft; MinSysStr=    0, TotalStrSys=    0.0cfs)
05833> # Input to inlet 1 pipe
05834>  205:0051----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05835>       ADD HYD         02:PRE1       .20      .025 No_date   12:00   27.92  n/a
05836>                     + 03:NEX1Mn   11.35      .515 No_date   12:05   22.51  n/a
05837>         [IT= 5.00]  SUM=  01:In1   11.55      .539 No_date   12:05   22.76  n/a
05838> # Pipe from inlet 1 - Route to pond
05839> # HDPE smooth wall pipe Manning's n = 0.012
05840>  205:0052----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05841>       ROUTE PIPE      -> 02:in1      11.55      .539 No_date   12:05   22.76  n/a
05842>         [RDT= 5.00] out<- 01:Pin1    11.55      .540 No_date   12:05   22.76  n/a
05843>         [L/S/n=   62./1.600/.012]
05844>         [Vmax=  5.159:Dmax=  .549]
05845>         [Dim=  .600:Dused=  .600]
05846> # Culvert from inlet 2
05847> # HDPE smooth wall  pipe Manning's n = 0.012
05848>  205:0053----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05849>       ROUTE PIPE      -> 02:R2A      1.57      .075 No_date   12:00   27.92  n/a
05850>         [RDT= 5.00] out<- 01:Cin2    1.57      .076 No_date   12:00   27.92  n/a
05851>         [L/S/n=   13./ .400/.012]
05852>         [Vmax= 1.143:Dmax=  .195]
05853>         [Dim=  .500:Dused=  .500]
05854> # Input to inlet 3 pipe
05855>  205:0054----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05856>       ADD HYD         02:R2B      1.17      .057 No_date   12:00   27.92  n/a
05857>                     + 03:Cin2     1.57      .076 No_date   12:00   27.92  n/a
05858>         [ST= 5.00]  SUM=  01:In2    2.74      .133 No_date   12:00   27.92  n/a
05859> # Pipe from inlet 2 - Route to pond
05860> # HDPE smooth wall pipe Manning's n = 0.012
05861>  205:0055----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05862>       ROUTE PIPE      -> 02:In2      2.74      .133 No_date   12:00   27.92  n/a
05863>         [RDT= 5.00] out<- 01:Pin2    2.74      .133 No_date   12:05   22.81  n/a
05864>         [L/S/n=   75./ .200/.012]
05865>         [Vmax= 1.826:Dmax=  .376]
05866>         [Dim=  .500:Dused=  .500]
05867> # Culvert from inlet 3
05868> # HDPE smooth wall pipe Manning's n = 0.012
05869>  205:0056----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05870>       ROUTE PIPE      -> 02:PRA3      .45      .022 No_date   12:00   27.92  n/a
05871>         [RDT= 5.00] out<- 01:Cin3     .45      .023 No_date   12:00   27.92  n/a
05872>         [L/S/n=   13./ .400/.012]
05873>         [Vmax=  .804:Dmax=  .190]
05874>         [Dim=  .500:Dused=  .500]
05875> # Input to inlet 3 pipe
05876>  205:0057----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05877>       ADD HYD         02:PRA3       .45      .022 No_date   12:00   27.92  n/a
05878>                     + 03:Cin3      1.17      .057 No_date   12:00   27.92  n/a
05879>         [IT= 5.00]  SUM=  01:In3    1.62      .079 No_date   12:00   27.92  n/a
05880> # Pipe from inlet 3 - Route to pond
05881> # HDPE smooth wall pipe Manning's n = 0.012
05882>  205:0058----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05883>       ROUTE PIPE      -> 02:In3      1.62      .079 No_date   12:00   27.92  n/a
05884>         [RDT= 5.00] out<- 01:Pin3    1.62      .079 No_date   12:05   22.76  n/a
05885>         [L/S/n=   75./ .200/.012]
05886>         [Vmax=  .785:Dmax=  .177]
05887>         [Dim=  .500:Dused=  .500]
05888> # Culvert from inlet 4
05889> # HDPE smooth wall  pipe Manning's n = 0.012
05890>  205:0059----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05891>       ROUTE PIPE      -> 02:PRA4      .71      .035 No_date   12:00   27.92  n/a
05892>         [RDT= 5.00] out<- 01:Cin4     .71      .036 No_date   12:00   27.92  n/a
05893>         [L/S/n=   13./ .400/.012]
05894>         [Vmax=  .917:Dmax=  .124]
05895>         [Dim=  .500:Dused=  .500]
05896> # Input to inlet 4 pipe
05897>  205:0060----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05898>       ADD HYD         02:PR4B       .65      .032 No_date   12:00   27.92  n/a
05899>                     + 03:Cin4      .71      .036 No_date   12:00   27.92  n/a
05900>         [ST= 5.00]  SUM=  01:In4    1.36      .068 No_date   12:00   27.92  n/a
05901> # Pipe from Inlet 4 (ULTIMATE CONDITIONS) - Route to pond
05902> # HDPE smooth wall pipe Manning's n = 0.012
05903>  205:0061----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05904>       ROUTE PIPE      -> 02:In4      1.36      .068 No_date   12:00   27.92  n/a
05905>         [RDT= 5.00] out<- 01:Pin4    1.36      .067 No_date   12:00   27.92  n/a
05906>         [L/S/n=   65./1.900/.012]
05907>         [Vmax= 1.925:Dmax=  .317]
05908>         [Dim=  .500:Dused=  .500]
05909> # Culvert from inlet 5
05910> # HDPE smooth wall pipe Manning's n = 0.012
05911>  205:0062----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05912>       ROUTE PIPE      -> 02:PR5A      .66      .033 No_date   12:00   27.92  n/a
05913>         [RDT= 5.00] out<- 01:Cin5     .66      .033 No_date   12:00   27.92  n/a
05914>         [L/S/n=   75./ .800/.012]
05915>         [Vmax=  .874:Dmax=  .178]
05916>         [Dim=  .500:Dused=  .500]
05917> # Input to inlet 5 pipe
05918>  205:0063----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05919>       ADD HYD         02:PR5B       .46      .023 No_date   12:00   27.92  n/a
05920>                     + 03:Cin5      .66      .033 No_date   12:00   27.92  n/a
05921>         [IT= 5.00]  SUM=  01:In5    1.12      .057 No_date   12:00   27.92  n/a
05922> # Pipe from inlet 5 - Route to pond
05923> # HDPE smooth wall pipe Manning's n = 0.012
05924>  205:0064----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05925>       ROUTE PIPE      -> 02:in5      1.12      .057 No_date   12:00   27.92  n/a
05926>         [RDT= 5.00] out<- 01:Pin5    1.12      .055 No_date   12:00   27.92  n/a
05927>         [L/S/n=   75./1.600/.012]
05928>         [Vmax= 1.938:Dmax=  .311]
05929>         [Dim=  .500:Dused=  .500]
05930> # Culvert from inlet 6
05931> # HDPE smooth wall pipe Manning's n = 0.012
05932>  205:0065----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05933>       ROUTE PIPE      -> 02:PR6A      1.43      .069 No_date   12:00   27.92  n/a
05934>         [RDT= 5.00] out<- 01:Cin6     1.43      .069 No_date   12:00   27.92  n/a
05935>         [L/S/n=   13./ .400/.012]
05936>         [Vmax= 1.232:Dmax=  .278]
05937>         [Dim=  .500:Dused=  .500]
05938> # Input to inlet 6 pipe
05939>  205:0066----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05940>       ADD HYD         02:PR6B       .93      .046 No_date   12:00   27.92  n/a
05941>                     + 03:Cin6      1.43      .069 No_date   12:00   27.92  n/a
05942>         [IT= 5.00]  SUM=  01:In6    2.36      .115 No_date   12:00   27.92  n/a
05943> # Pipe from Inlet 6 - Route to pond
05944> # HDPE smooth wall pipe Manning's n = 0.012
05945>  205:0067----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05946>       ROUTE PIPE      -> 02:In6      2.36      .115 No_date   12:00   27.92  n/a
05947>         [RDT= 5.00] out<- 01:Pin6    2.36      .113 No_date   12:00   27.92  n/a
05948>         [L/S/n=   75./1.900/.012]
05949>         [Vmax= 1.148:Dmax=  .254]
05950>         [Dim=  .500:Dused=  .500]
05951> # ROUTING TO POND ULTIMATE RESIDENTIAL
05952>  205:0068----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05953>       ADD HYD         02:Pin1      1.60      .540 No_date   12:05   22.51  n/a
05954>                     + 03:Pin2      2.74      .127 No_date   12:05   22.98  n/a
05955>                     + 04:Pin3       .97      .047 No_date   12:00   27.92  n/a
05956>                     + 05:Pin4      1.36      .067 No_date   12:00   27.92  n/a
05957>                     + 06:Pin5      1.12      .055 No_date   12:00   27.92  n/a
05958>                     + 07:Pin6      2.36      .111 No_date   12:00   27.92  n/a
05959>                     + 08:PDu       5.03      .427 No_date   12:00   46.15  n/a
05960>         [UH= 5.00]  SUM=  01:POND1A   25.48     1.357 No_date   12:05   27.93  n/a
05961>  205:0069----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
05962>       ROUTE RESERVOIR -> 02:POND1A    25.48     1.357 No_date   12:05   27.93  n/a
05963>         [RDT= 5.00] out<- 01:POut      25.48      101 No_date   14:20   27.93  n/a
05964>                 overflow <- 03:over0       .00      .000 No_date    0:00     .00  n/a
05965>        (MaxStrXeed=-0.1cfs, TotOutVol=-0.000ac-ft; N-Over=    0, TotStrOver=    0.0cfs)
05966> # Simulating SCS 100 yr conditions with submergence at outf ow weir
05967> # upweird for weir .6; .6; 3.0
05968> *ROUTE RESERVOIR    NHYDout=["POUT"] ,NHYDin=["POND1A"] ,
05969>                     RDV=[5]10.0,
05970>                           TABLE OF ( OUTFLOW-STORAGE ) values
05971>                                    (cms) - (ha-m)
05972>                                    |   0.0 ,   0.0 |
05973>                                   0.00.00 , 1.1.05
05974>                                   0.20  , 1.8110
05975>                                   0.33  , 2.0195
05976>                                   |   -1  ,  -1   |  [max twenty pts]
```

```
 ADD HYD                 02:EX3        80.93     1.289 No_date   12:45   25.54   n/a
                       + 03:EX3        21.30      .422 No_date   12:45   22.18   n/a
     [DT= 5.00]  SUM=  01:EX3128      104.23     1.711 No_date   12:45   24.85   n/a
# AREA CHECK
#
 205:0080----------------ID:NHYD-------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
     ADD HYD             02:EX1        24.62     1.486 No_date   12:05   26.61   n/a
                       + 03:EX2         5.88      .230 No_date   12:35   22.18   n/a
                       + 04:EX3        21.30      .422 No_date   12:45   22.18   n/a
                       + 05:EX4          .50      .024 No_date   12:00   27.92   n/a
                       + 06:EX5          .52      .042 No_date   12:00   44.77   n/a
                       + 07:EX6          .51      .024 No_date   12:00   26.50   n/a
                       + 08:EX7          .79      .020 No_date   12:00   27.92   n/a
                       + 09:FR1A         .24      .014 No_date   12:00   27.92   n/a
                       + 10:FR1B         .03      .008 No_date   12:00   27.92   n/a
     [DT= 5.00]  SUM=  01:Tot1        58.52     1.913 No_date   12:05   24.35   n/a
 205:0083----------------ID:NHYD-------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
     ADD HYD             02:Tot1       58.52     1.913 No_date   12:05   24.35   n/a
                       + 03:FR2A         1.50      .070 No_date   12:00   27.92   n/a
                       + 04:FR2B         1.10      .057 No_date   12:00   27.92   n/a
                       + 05:FR3A          .45      .021 No_date   12:00   27.92   n/a
                       + 06:FR3B          .52      .026 No_date   12:00   27.92   n/a
                       + 07:FR4A          .71      .035 No_date   12:00   27.92   n/a
                       + 08:FR4B          .60      .032 No_date   12:00   27.92   n/a
                       + 09:FR5A          .66      .033 No_date   12:00   27.92   n/a
                       + 10:FR5B          .46      .023 No_date   12:00   27.92   n/a
     [DT= 5.00]  SUM=  01:Tot2        64.71     2.187 No_date   12:05   24.69   n/a
 205:0084----------------ID:NHYD-------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
     ADD HYD             02:Tot2       64.71     2.187 No_date   12:05   24.69   n/a
                       + 03:FR6A         1.40      .069 No_date   12:00   27.92   n/a
                       + 04:FR6B          .93      .044 No_date   12:00   27.92   n/a
                       + 05:FR7A         1.30      .059 No_date   12:00   30.61   n/a
                       + 06:FR7B1         .35      .016 No_date   12:00   30.61   n/a
                       + 07:FR7B2         .22      .011 No_date   12:05   24.61   n/a
                       + 08:FR7C1         .35      .018 No_date   12:00   24.61   n/a
                       + 09:FR7C2         .13      .008 No_date   12:05   24.61   n/a
                       + 10:FR7D          .50      .035 No_date   12:05   24.61   n/a
     [DT= 5.00]  SUM=  01:Tot3        69.86     2.410 No_date   12:10   26.75   n/a
 205:0085----------------ID:NHYD-------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
     ADD HYD             01:Tot3       69.86     2.410 No_date   12:10   26.75   n/a
                       + 03:FR8          1.30      .056 No_date   12:10   23.09   n/a
                       + 04:FR9A         1.10      .045 No_date   12:10   23.09   n/a
                       - 05:FR9A1         .35      .017 No_date   12:10   23.09   n/a
                       - 06:FR9A2        1.00      .041 No_date   12:10   23.09   n/a
                       - 07:FR10         1.84      .074 No_date   12:10   23.09   n/a
                       - 08:FR11          .62      .026 No_date   12:10   23.09   n/a
                       - 09:FR12         5.26      .241 No_date   12:05   23.10   n/a
                       - 10:FR13         5.39      .227 No_date   12:00   40.15   n/a
     [DT= 5.00]  SUM=  01:Tot4        85.34     3.293 No_date   12:00   25.45   n/a
 205:0015----------------ID:NHYD-------AREA----QPEAK-TpeakDate hr:mn----R.V.-R.C.-
     ADD HYD             02:Tot4       85.34     3.293 No_date   12:05   25.45   n/a
                       - 03:R2A          9.41      .379 No_date   12:10   22.18   n/a
                       - 04:R2A          5.13      .218 No_date   12:00   22.18   n/a
                       - 05:R3A          4.14      .217 No_date   12:05   23.10   n/a
                       - 06:R3B          2.21      .109 No_date   12:05   23.10   n/a
     [DT= 5.00]  SUM=  01:Tot5       104.23     4.156 No_date   12:05   24.85   n/a
*****************************************************************************
* Simulations with 6 hour Chicago from City of Ottawa
* SCS 24 hours type 2, from City of Ottawa
*  ** END OF RUN : 205
*
*****************************************************************************
*
*
*
*
*
*
RUN:COMMAND*
210:0091----------------------------------------------------------------------
     START                 [TZERO =     .00 hrs on        0]
                           [METOUT=    2    (1-Imperial, 2-Metric output)]
                           [NSTORM=    1 ]
                           [NRUN  = 210 ]
*****************************************************************************
* SWMHYMO Ver:5.02/Jan 2001 <DATA> / INPUT DATA FILE
*****************************************************************************
* Project Name: [Greely Village Center]    Project Number: [07-07]
* Date        : 04-08-2008
* Modeller    : [JMP]
* Company     : JFSA-inc.
* License #   : 2547402
*****************************************************************************
```

```
* 
* SWMM/HYMO model of the Greely Village Center - Residential Area - Phase 2
* Proposed Ultimate conditions. OPTION E
* Filename xtends for: GRP2u2a - Greely, Residential, Phase 2, Ultimate v2 weir
* 
*  December 15, 2008
*  "a" at the end of filename= Added July 1yr 1979 Event
*********************************************************************************
*********************************************************************************
   210:0002 ------------------------------------------------------------------------
        REAL STORM
         Filename = storm.601
         Comment  = 10 years SCS Type I Storm 24 Hours step 10 min, City of Ottawa
         [SLI-10.00.SCS6   24.00:PTOT   70.55]
*********************************************************************************
* Existing flow - McKenny Branch of Shield Creek - Areas
* Area c/s of proposed development (residential)
* CN*=?, xlope = 0.8, Yu=0.16, XIMP=5, YIMP=10, Sec 3C002 as per Stantec
* Area partially adjusted based on Airel drawings.
*********************************************************************************
* c/s of Bank St as per Airel - with modified boundaries and Tp.
  210:0003---------------ID:NHYD-------AREA    QPEAK-TpeakDate hh:mm----R.V.-R.C.-
       DESIGN NASHYD      01:EX1       24.62     1.884 No_date   12:00   33.69 .453
         [CN= 65.0: N= 3.00]
         [Tp=  .21:DT= 5.00]
*********************************************************************************
* Existing flow - External areas c/s of Bank St.
* CN*=68, as per Stantec see SC001.
* Area partially adjusted based on Airel drawings.
*********************************************************************************
* Areas External to development
  210:0004---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
       DESIGN NASHYD      01:EX2        5.09      .258 No_date   12:10   28.39 .387
         [CN= 69.0: N= 3.00]
         [Tp=  .17:DT= 5.00]
  210:0005---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
       DESIGN NASHYD      01:EX3       71.30     .546 No_date   12:45   28.36 .382
         [CN= 65.0: N= 3.00]
         [Tp=  .69:DT= 5.00]
* Slope, Timp, Area (for Airel Scaling
* CN from Stantec (2C003)
* Ximp = Timp = 10%
  210:0006---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
   *  CALIB STANDHYD     01:EX4        .50      .015 No_date   12:00   35.87 .455
         [XIMP  .1:TIMP= .2]
         [LOSS= 2 :CN= 69.0]
         [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
         [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  58.:MNI=.045:SCI=   .0]
* Road and road side ditch along projected residential development Parkway Rd
* Timp = Ximp = 0.21 ha /0.57 ha =  0.40
* CN*=65, as per Stantec see SC001.
* Slope is estimated at 1%
* Ximp = Timp = 10%
  210:0007---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
   *  CALIB STANDHYD     01:EX5        .52      .056 No_date   12:00   37.47 .471
         [XIMP=.40:TIMP=.40]
         [Loss= 2 :CN= 69.0]
         [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
         [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  58.:MNI=.045:SCI=   .0]
* Road and road side ditch along projected residential development Sales Barn Rd
* Timp = Ximp = 0.61 ha /0.81 ha = 0.20
* CN*=?, as per Stantec see SC001.
* Slope is estimated at 1%
* Ximp = Timp = 10%
  210:0008---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
   *  CALIB STANDHYD     01:EX6        .52      .035 No_date   12:00   31.12 .415
         [XIMP=.10:TIMP=.20]
         [Loss= 2 :CN= 68.0]
         [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
         [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  58.:MNI=.045:SCI=   .0]
* Road and road side ditch along projected residential development Sales Barn Rd
* Timp = Ximp = 0.00 ha /0.29 ha = 0.23
* CN*=68, as per Stantec see SC001.
* Slope is estimated at 1%
* Ximp = Timp = 10%
  210:0009---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
   *  CALIB STANDHYD     01:EX7        .29      .029 No_date   12:00   34.52 .461
         [XIMP  .1:TIMP=.23]
         [Loss= 2 :CN= 69.0]
         [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
         [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  58.:MNI=.045:SCI=   .0]
* Areas to be occupied by commercial development
* CN*=69, as per Stantec see SC001.
  210:0010---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
       DESIGN NASHYD      01:EX8        9.41      .459 No_date   12:10   28.29 .382
         [CN= 69.0: N= 3.00]
         [Tp=  .41:DT= 5.00]
  210:0011---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
   *  DESIGN NASHYD      01:EX9        4.13      .268 No_date   12:10   28.30 .382
         [CN= 69.0: N= 3.00]
         [Tp=  .27:DT= 5.00]
  210:0012---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
       DESIGN NASHYD      01:EX10       4.14      .270 No_date   12:05   28.30 .382
         [CN= 69.0: N= 3.00]
         [Tp=  .21:DT= 5.00]
  210:0013---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
       DESIGN NASHYD      01:EX11       2.21      .142 No_date   12:05   28.30 .382
         [CN= 65.0: N= 3.00]
         [Tp=  .23:DT= 5.00]
*********************************************************************************
*********************************************************************************
* PROPOSED RESIDENTIAL SUBWATERSHEDS   Residential Area Phase 1 and 2
*********************************************************************************
* CN*=69, as per Stantec see SC001.
* Tp calculated with Upland Method.
  210:0014---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
       DESIGN NASHYD      01:PH1        1.26      .069 No_date   12:05   28.39 .382
         [CN= 69.0: N= 3.00]
         [Tp=  .18:DT= 5.00]
*********************************************************************************
* AREAS GOING TO POND
*********************************************************************************
*
  210:0015---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
   *  CALIB STANDHYD     01:PH1A       1.26      .070 No_date   12:00   35.04 .471
         [XIMP=.11:TIMP=.21]
         [LOSS= 2 :CN= 71.0]
         [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
         [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  66.:MNI=.045:SCI=   .0]
  210:0016---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
   *  CALIB STANDHYD     01:PH1B       .55      .030 No_date   12:00   35.04 .471
         [XIMP=.11:TIMP=.21]
         [LOSS= 2 :CN= 71.0]
         [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
         [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  66.:MNI=.045:SCI=   .0]
  210:0017---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
   *  CALIB STANDHYD     01:PH2A       1.57      .092 No_date   12:00   35.04 .471
         [XIMP=.11:TIMP=.21]
         [LOSS= 2 :CN= 71.0]
         [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
         [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  66.:MNI=.045:SCI=   .0]
  210:0018---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
   *  CALIB STANDHYD     01:PH2B       1.17      .063 No_date   12:00   35.04 .471
         [XIMP=.11:TIMP=.21]
         [LOSS= 2 :CN= 71.0]
         [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
         [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  66.:MNI=.045:SCI=   .0]
  210:0019---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
   *  CALIB STANDHYD     01:PH3A       1.45      .085 No_date   12:00   35.04 .471
         [XIMP=.11:TIMP=.21]
         [Loss= 2 :CN= 71.0]
         [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
         [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  66.:MNI=.045:SCI=   .0]
  210:0020---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
   *  CALIB STANDHYD     01:PH3B       .57      .035 No_date   12:00   35.04 .471
         [XIMP=.11:TIMP=.21]
         [LOSS= 2 :CN= 71.0]
         [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
         [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  66.:MNI=.045:SCI=   .0]
  210:0021---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
   *  CALIB STANDHYD     01:PH4A       .71      .052 No_date   12:00   35.04 .471
         [XIMP  .1:TIMP=.21]
         [LOSS= 2 :CN= 71.0]
         [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
         [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  66.:MNI=.045:SCI=   .0]
  210:0022---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
   *  CALIB STANDHYD     01:PH5B       .65      .047 No_date   12:00   35.04 .471
         [XIMP  .1:TIMP=.21]
         [LOSS= 2 :CN= 71.0]
         [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
         [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  66.:MNI=.045:SCI=   .0]
  210:0023---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
   *  CALIB STANDHYD     01:PH5A       .66      .048 No_date   12:00   35.04 .471
         [XIMP  .1:TIMP=.21]
         [LOSS= 2 :CN= 71.0]
         [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
         [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  66.:MNI=.045:SCI=   .0]
```

```
06389>  Z10:0024---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
06390>    * CALIB STANDHYD     01:FR5B         .48      .034 No data   12:00   30.01 .471
06391>        [XIMP=.11:TIMP=.21]
06392>        [LOSS= 2 :CN= 71.0]
06393>        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
06394>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
06395>  Z10:0025---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
06396>    * CALIB STANDHYD     01:FR6B         .80      .067 No data   12:00   30.01 .671
06397>        [XIMP=.17:TIMP=.25]
06398>        [LOSS= 2 :CN= 71.0]
06399>        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
06400>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
06401>  Z10:0026---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
06402>    * CALIB STANDHYD     01:FR6B         .80      .067 No data   12:00   30.01 .671
06403>        [XIMP=.17:TIMP=.25]
06404>        [LOSS= 2 :CN= 71.0]
06405>        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
06406>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
06407> # Slope estimated at 2% based on backyard swales.
06408> # Timp and Ximp based on total pond area
06409> # ximp = A pond/A tot
06410> # Timp = weighted average of pond and backyards
06411>  Z10:0027---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
06412>    * CALIB STANDHYD     01:FR5A         5.03     .938 No data   12:00   30.52 .650
06413>        [XIMP=.44:TIMP=.47]
06414>        [LOSS= 2 :CN= 71.0]
06415>        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
06416>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
06417> *****************************************************************************
06418> # UNCONTROLLED AREAS
06419> *****************************************************************************
06420> *
06421>  Z10:0024---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
06422>    * CALIB STANDHYD     01:FR7A         1.35     .197 No data   12:10   31.44 .423
06423>        [XIMP=.02:TIMP=.16]
06424>        [LOSS= 2 :CN= 71.0]
06425>        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
06426>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
06427>  Z10:0025---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
06428>    * CALIB STANDHYD     01:FR7bl        .88      .129 No data   12:05   31.44 .423
06429>        [XIMP=.02:TIMP=.16]
06430>        [LOSS= 2 :CN= 71.0]
06431>        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
06432>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
06433>  Z10:0026---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
06434>    * CALIB STANDHYD     01:FR7CP        .22      .035 No data   12:05   31.44 .423
06435>        [XIMP=.02:TIMP=.14]
06436>        [LOSS= 2 :CN= 71.0]
06437>        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
06438>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
06439>  Z10:0027---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
06440>    * CALIB STANDHYD     01:FR7C1        .39      .062 No data   12:05   31.44 .423
06441>        [XIMP=.02:TIMP=.14]
06442>        [LOSS= 2 :CN= 71.0]
06443>        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
06444>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
06445>  Z10:0028---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
06446>    * CALIB STANDHYD     01:FR7C2        .17      .027 No data   12:05   31.44 .423
06447>        [XIMP=.02:TIMP=.14]
06448>        [LOSS= 2 :CN= 71.0]
06449>        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
06450>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
06451>  Z10:0029---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
06452>    * CALIB STANDHYD     01:FR7D         .20      .032 No data   12:05   31.44 .423
06453>        [XIMP=.02:TIMP=.14]
06454>        [LOSS= 2 :CN= 71.0]
06455>        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
06456>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
06457>  Z10:0030---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
06458>    * CALIB STANDHYD     01:FR8          .08      .013 No data   12:05   31.44 .423
06459>        [XIMP=.02:TIMP=.14]
06460>        [LOSS= 2 :CN= 71.0]
06461>        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
06462>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
06463>  Z10:0031---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
06464>    * CALIB STANDHYD     01:FR9A         .10      .016 No data   12:10   29.67 .299
06465>        [XIMP=.01:TIMP=.07]
06466>        [LOSS= 2 :CN= 71.0]
06467>        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
06468>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
06469>  Z10:0032---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
06470>    * CALIB STANDHYD     01:FR9B         .10      .016 No data   12:10   29.67 .299
06471>        [XIMP=.01:TIMP=.07]
06472>        [LOSS= 2 :CN= 71.0]
06473>        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
06474>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
06475>  Z10:0033---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
06476>    * CALIB STANDHYD     01:FR9C         .10      .016 No data   12:10   29.67 .299
06477>        [XIMP=.01:TIMP=.07]
06478>        [LOSS= 2 :CN= 71.0]
06479>        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
06480>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
06481>  Z10:0034---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
06482>    * CALIB STANDHYD     01:FR8          .08      .013 No data   12:10   29.67 .299
06483>        [XIMP=.01:TIMP=.07]
06484>        [LOSS= 2 :CN= 71.0]
06485>        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
06486>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
06487>  Z10:0035---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
06488>    * CALIB STANDHYD     01:FR9A         .10      .061 No data   12:10   29.67 .299
06489>        [XIMP=.01:TIMP=.07]
06490>        [LOSS= 2 :CN= 71.0]
06491>        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
06492>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
06493>  Z10:0036---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
06494>    * CALIB STANDHYD     01:FR9B         .05      .016 No data   12:00   29.67 .299
06495>        [XIMP=.01:TIMP=.07]
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06392>        [LOSS= 2 :CN= 71.0]
06393>        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
06394>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
06395>  Z10:0037---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
06396>    * CALIB STANDHYD     01:FR9D         1.60     .255 No data   12:10   29.67 .299
06397>        [XIMP=.01:TIMP=.07]
06398>        [LOSS= 2 :CN= 71.0]
06399>        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
06400>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
06401>  Z10:0038---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
06402>    * CALIB STANDHYD     01:FR10         1.84     .186 No data   12:10   29.67 .299
06403>        [XIMP=.01:TIMP=.07]
06404>        [LOSS= 2 :CN= 71.0]
06405>        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
06406>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
06407>  Z10:0039---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
06408>    * CALIB STANDHYD     01:FR11         .63      .087 No data   12:05   29.67 .299
06409>        [XIMP=.01:TIMP=.07]
06410>        [LOSS= 2 :CN= 71.0]
06411>        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
06412>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
06413> ********************************************************************************
06414> * EXISTING flow - Upstream or Residential Area Phase 1 and 2
06415> ********************************************************************************
06416> # Typical Section based on proposed channel provided by AEL
06417> # 4:1 bank slopes, Long Slope = 0.50%, Manning's n is 0.03
06418> # Route EX1 to d/s node NC
06419>  Z10:0040---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
06420>      ROUTE CHANNEL     -> 00:EX1        24.62    1.824 No data   12:05   33.69  n/a
06421>        [PDT  5.00] outc= 01:NCX        35.62    1.788 No data   12:10   33.68  n/a
06422>        [L/s/n=  312./ .050/.030]
06423>        [Vmax= 1.867 Dmax=  .526]
06424> # Total flow at N-RCA
06425> # (Note that R.A at 1 ha apart draining to proposed channel)
06426>  Z10:0041---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
06427>      ADD HYD           02:RLA          9.11     .089 No data   12:10   33.39  n/a
06428>                      + 03:NZA          3.73     .280 No data   12:00   34.10  n/a
06429>                      + 04:EBRA         1.10     .067 No data   12:10   26.67  n/a
06430>        [CN= 5.00]  STN= 01:NRZA       13.94     .146 No data   12:00   28.49  n/a
06431> # Typical Section based on proposed channel provided by AEL
06432> # 4:1 bank slopes, Long Slope = 0.50%, Manning's n is 0.03
06433> # Route ZA draining at N-RZA to d/s node NC
06434>  Z10:0042---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
06435>      ROUTE CHANNEL     -> 02:NRZA      13.64     .746 No data   12:05   28.49  n/a
06436>        [RDT= 5.00] outc= 01:RNRVA      13.64     .551 No data   12:15   28.49  n/a
06437>        [L/s/n=  167./ .050/.030]
06438>        [Vmax=  .894 Dmax=  .348]
06439> # Total flow at node NC
06440> # (Note that XX' will be short training to proposed channel)
06441>  Z10:0043---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
06442>      ADD HYD           03:RNR2A        13.64     .551 No data   12:15   28.49  n/a
06443>                      + 01:EX1          24.62    1.788 No data   12:10   33.69  n/a
06444>                      + 04:FR9BT          25     .016 No data   12:05   29.67  n/a
06445>                      + 05:FR9B2        1.00     .056 No data   12:10   29.67  n/a
06446>                      + 06:EX2          9.89     .296 No data   12:35   30.58  n/a
06447>        [CN= 5.00]  STN= 01:ND          49.40    2.709 No data   12:10   31.09  n/a
06448> # Typical Section based on proposed channel provided by AEL
06449> # 4:1 bank slopes, Long Slope = 0.50%, Manning's n is 0.03
06450> # Route EX draining at ND to d/s node N-EX2
06451>  Z10:0044---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
06452>      ROUTE CHANNEL     -> 02:ND        49.40    2.709 No data   12:10   31.09  n/a
06453>        [PDT= 5.00] outc= 01:RND        49.40    2.624 No data   12:15   31.09  n/a
06454>        [L/s/n=  324./ .050/.030]
06455>        [Vmax=  1.164 Dmax=  .615]
06456> # Total flow at node N-EX2
06457>  Z10:0045---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
06458>      ADD HYD           02:EX0          49.40    2.624 No data   12:15   31.09  n/a
06459>                      + 03:FR10          1.84     .108 No data   12:10   29.67  n/a
06460>        [CN= 5.00]  STN= 01:NEX2        51.24    2.721 No data   12:15   31.04  n/a
06461> # Route Node N-EX2 to Node N1
06462> # Typical Section based on Deleuw MC Vee Ditch 0:1 banks
06463> # provided by Atrel
06464> # Manning's n is Channel not maintained, light brush on banks
06465> # Slope = 0.5% as per plan provided by Atrel.
06466>  Z10:0046---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
06467>      ROUTE CHANNEL     -> 00:NEX2      51.24    2.721 No data   12:15   31.04  n/a
06468>    * [RDT= 5.00] outc= 01:RNEX2       51.24    2.301 No data   12:20   31.04  n/a
06469>        [L/s/n=  253./ .050/.045]
06470>        [Vmax=  .582 Dmax= 1.555]
06471> ********************************************************************************
06472> # Residential Development - Phase 1 and 2
06473> ********************************************************************************
06474> # Total flow at node N-NZE
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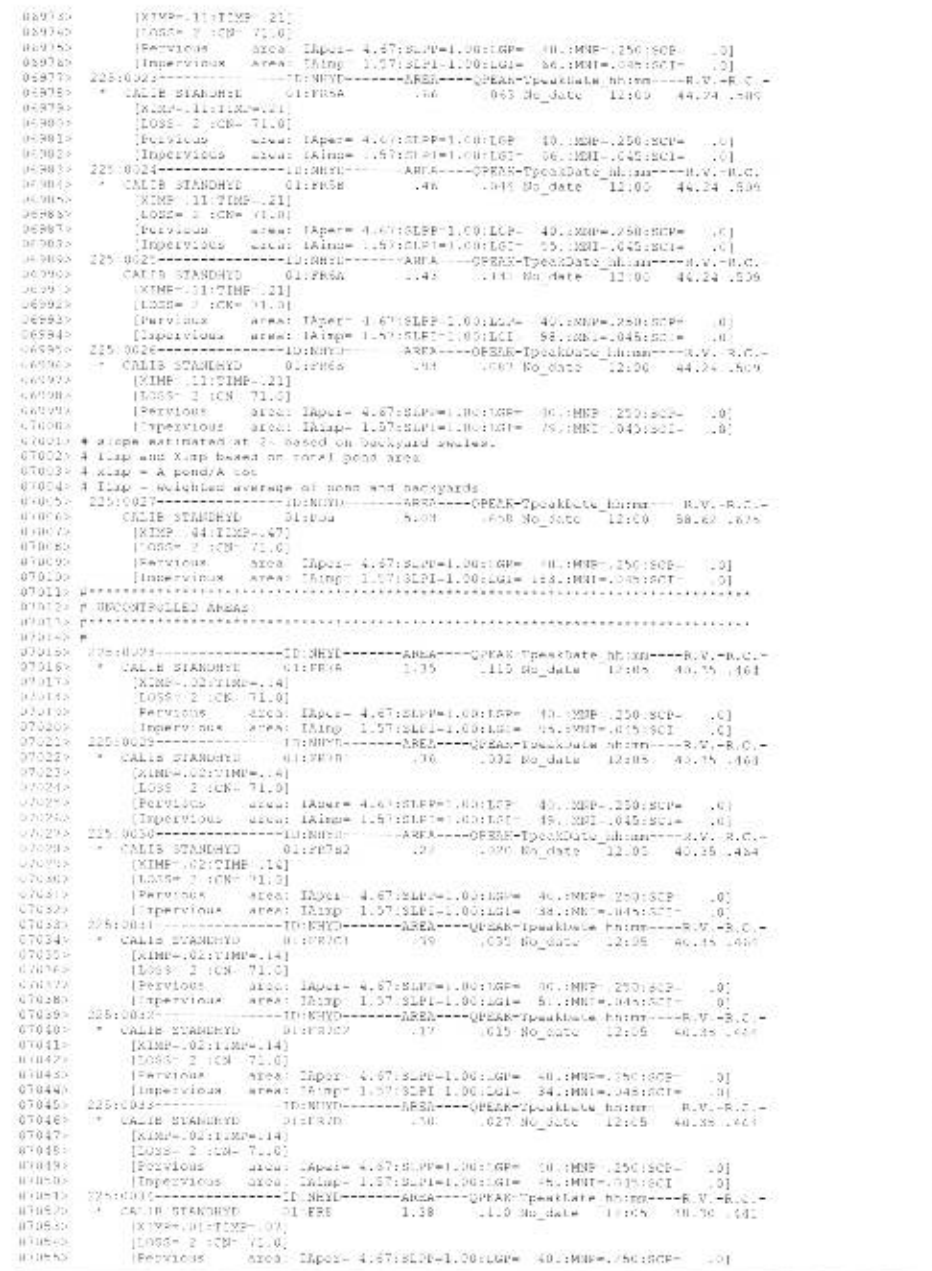
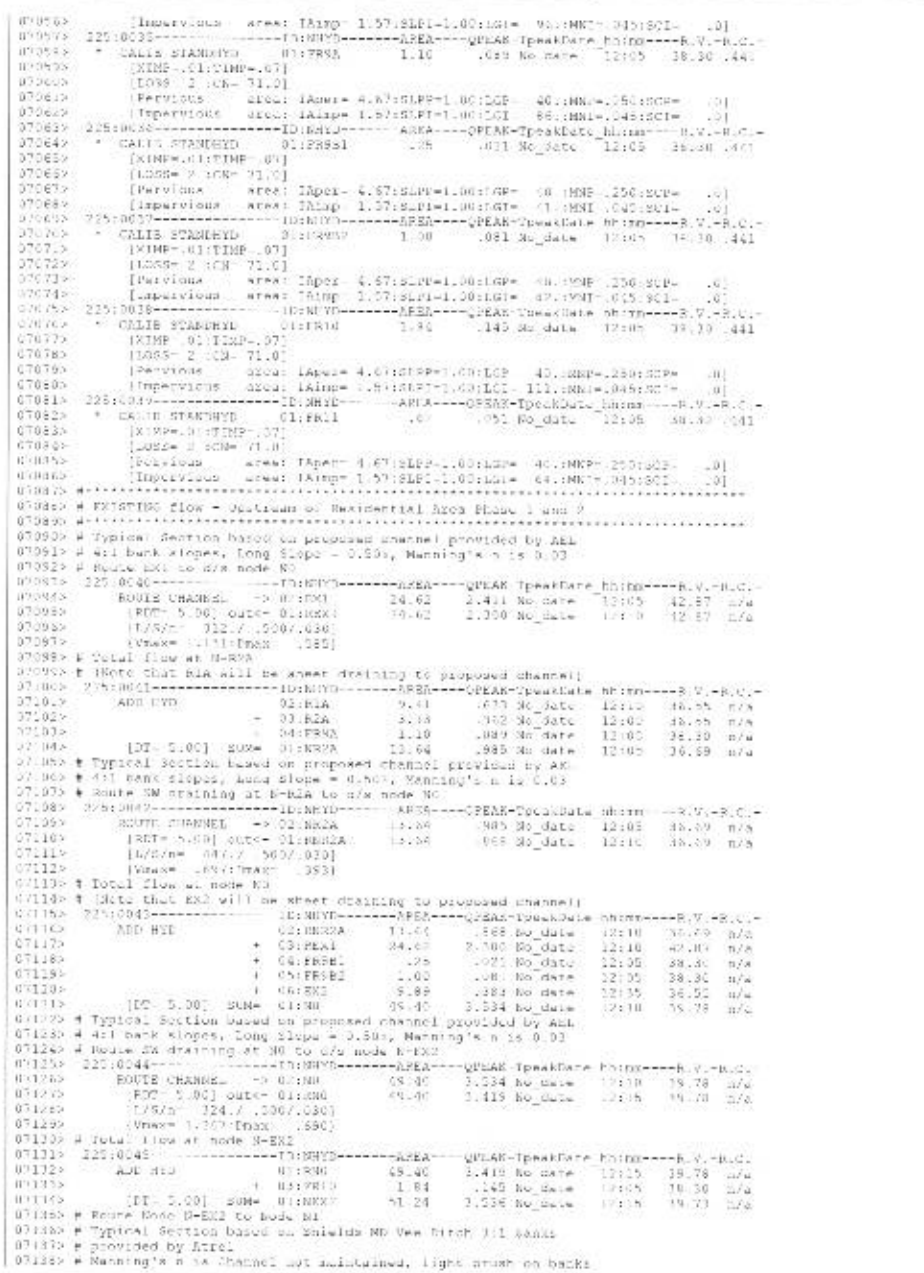
 210:6047----------ID:NEYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
      ADD HYD              02:R4A          .14     .070 No date   12:05   28.38  n/a
                         + 03:R4B          .21     .141 No date   12:05   28.38  n/a
                         = 04:PX4          .50     .035 No date   12:00   33.81  n/a
      [JX= 5.00]  SUM=  01:KR3A          6.85     .452 No date   12:05   28.78  n/a
# Route Node KR3A to Node N-PK
# Typical Section based on McEvoy Branch Vee Ditch 1.5:1 slopes
# provided by Arrel
# Manning's n is Channel not maintained, light brush on Banks
# Slope = 0.60' approximately as per Arrel Drawing (85-86.1)/310ft
 210:6048----------ID:BM1D-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
      ROUTE CHANNEL    -> 02:BR3B          6.85     .457 No date   12:05   28.18  n/a
       [RDT= 5.00] out<- 01:BR3A          6.85     .394 No date   12:10   28.18  n/a
       [L/S/n=  310./ .030/.050]
       [Vmax=  .65:Tmax=  .826]
# Total flow at node N-PK1
 210:6049----------ID:NB1D-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
      ADD HYD              02:PK1          1.26     .509 No date   12:05   25.59  n/a
                         + 03:BNR3B        6.85     .394 No date   12:05   28.18  n/a
                         = 04:PR1A         .24      .015 No date   12:00   35.04  n/a
      [IT= 5.00]  SUM=  01:NPK1          11.35     .677 No date   12:05   28.77  n/a
# Volume to ponding area in PK1
# Q 0.555 m3/s required as per SCS 100yr Existing conditions
# Culvert from inlet 1
# Assuming corlar culvert (x 600 mm, slope = 1.2%, HDPE smooth walls
# Manning's n = 0.012, Inlet control nomograph
# Hydraulic Head = 0.8m, Q=0.615
 210:6050----------ID:NR1D-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
      COMPUTE LOAD(S)  01:NPK1          11.35     .677 No date   12:05   28.77  n/a
        Major System =  02:KPK1M3        .00      .000 No date    0:00    .00  n/a
        Minor System =  03:KPK1M3      11.35      .438 No date   12:05   28.80  n/a
      [MSysSto= 3560$102, TotOutVo =.000X100, % Cv=     0, TotDelOvF=     0.0121
# Input to Inlet 1 pipe
 210:6051----------ID:RM1D-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
      ADD HYD              02:PM1A         .00      .000 No date   12:00   35.04  n/a
                         + 03:KPK1M3      11.35     .438 No date   12:05   28.80  n/a
      [JX= 5.00]  SUM=  01:IN1           11.35     .447 No date   12:05   28.17  n/a
# Pipe from inlet 1 - Route to pond
# HDPE smooth wall pipe Manning's n = 0.012
 210:6052----------ID:BM1D-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
      ROUTE PIPE       -> 02:IN1          11.80     .464 No date   12:05   28.17  n/a
       [RDT= 5.00] out<- 01:PM1          11.80     .454 No date   12:05   28.17  n/a
       [L/S/n=  65./1.400/.012]
       [Vmax= 1.781:Tmax=  .194]
       [Dim=  .800:Dused=  .800]
# Culvert from Inlet 2
# HDPE smooth wall pipe Manning's n = 0.012
 210:6053----------ID:NR2D-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
      ROUTE PIPE       -> 02:PR2A         .51      .197 No date   12:00   35.04  n/a
       [RDT= 5.00] out<- 01:CT-2         .51      .197 No date   12:00   35.04  n/a
       [L/S/n=  13./ .100/.012]
       [Vmax= 1.720:Tmax=  .021]
       [Dim=  .500:Dused=  .500]
# Input to Inlet 2 pipe
 210:6054----------ID:NR2D-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
      ADD HYD              02:PR2B         1.17     .805 No date   12:00   35.04  n/a
                         + 03:CIn2         1.57     .807 No date   12:00   35.04  n/a
      [JX= 5.00]  SUM=  01:In2           2.74     .158 No date   12:00   35.04  n/a
# Pipe from Inlet 2 - Route to pond
# HDPE smooth wall pipe Manning's n = 0.012
 210:6055----------ID:NR2D-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
      ROUTE PIPE       -> 02:In2          2.74     .170 No date   12:00   35.04  n/a
       [RDT= 5.00] out<- 01:PM2          2.74     .166 No date   12:05   35.04  n/a
       [L/S/n=  75./ .200/.012]
       [Vmax= 1.808:Tmax=  .092]
       [Dim=  .500:Dused=  .500]
# Culvert from Inlet 3
# HDPE smooth wall pipe Manning's n = 0.012
 210:6056----------ID:NR3D-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
      ROUTE PIPE       -> 02:PR3A         .45      .033 No date   12:00   35.04  n/a
       [RDT= 5.00] out<- 01:CIn3         .45      .031 No date   12:00   35.04  n/a
       [L/S/n=  13./ .400/.012]
       [Vmax=  .899:Tmax=  .120]
       [Dim=  .500:Dused=  .500]
# Input to Inlet 3 pipe
 210:6057----------ID:NR3D-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
      ADD HYD              02:PR3B         .52      .036 No date   12:00   35.04  n/a
                         + 03:CIn3         .45      .031 No date   12:00   35.04  n/a
      [JX= 5.00]  SUM=  01:In3           .97      .072 No date   12:00   35.04  n/a
# Pipe from Inlet 3 - Route to pond
# HDPE smooth wall pipe Manning's n = 0.012
 210:6058----------ID:NR3D-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
      ROUTE PIPE       -> 02:In3          .97      .069 No date   12:00   35.04  n/a
       [RDT= 5.00] out<- 01:PM3          .97      .069 No date   12:00   35.04  n/a
       [L/S/n=  65./1.400/.012]
       [Vmax= 1.474:Tmax=  .201]
       [Dim=  .500:Dused=  .500]
# Culvert from Inlet 4
# HDPE smooth wall pipe Manning's n = 0.012
 210:6059----------ID:NR4D-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
      ROUTE PIPE       -> 02:PR4A         .71      .052 No date   12:00   35.04  n/a
       [RDT= 5.00] out<- 01:CIn4         .71      .052 No date   12:00   35.04  n/a
       [L/S/n=  13./ .400/.012]
       [Vmax= 1.024:Tmax=  .151]
       [Dim=  .500:Dused=  .500]
# Input to Inlet 4 pipe
 210:6060----------ID:NR4D-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
      ADD HYD              02:PR4B         .66      .047 No date   12:00   35.04  n/a
                         + 03:CIn4         .71      .052 No date   12:00   35.04  n/a
      [IT= 5.00]  SUM=  01:In4           1.36     .099 No date   12:00   35.04  n/a
# Pipe from Inlet 4 (ULTIMATE CONDITIONS) - Route to pond
# HDPE smooth wall pipe Manning's n = 0.012
 210:6061----------ID:NR4D-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
      ROUTE PIPE       -> 02:In4          1.36     .099 No date   12:00   35.04  n/a
       [RDT= 5.00] out<- 01:PM4          1.36     .099 No date   12:00   35.04  n/a
       [L/S/n=  65./1.400/.012]
       [Vmax= 2.152:Tmax=  .142]
       [Dim=  .600:Dused=  .600]
# Culvert from Inlet 5
# HDPE smooth wall pipe Manning's n = 0.012
 210:6062----------ID:BM1D-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
      ROUTE PIPE       -> 02:PR5A         .66      .048 No date   12:00   35.04  n/a
       [RDT= 5.00] out<- 01:CIn5         .66      .048 No date   12:00   35.04  n/a
       [L/S/n=  13./ .400/.012]
       [Vmax= 1.087:Tmax=  .145]
       [Dim=  .500:Dused=  .500]
# Input to Inlet 5 pipe
 210:6063----------ID:BM1D-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
      ADD HYD              02:PR5B         .46      .034 No date   12:00   35.04  n/a
                         + 03:CIn5         .66      .048 No date   12:00   35.04  n/a
      [IT= 5.00]  SUM=  01:In5           1.12     .083 No date   12:00   35.04  n/a
# Pipe from Inlet 5 - Route to pond
# HDPE smooth wall pipe Manning's n = 0.012
 210:6064----------ID:NR5D-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
      ROUTE PIPE       -> 02:In5          1.12     .083 No date   12:00   35.04  n/a
       [RDT= 5.00] out<- 01:PM5          1.12     .081 No date   12:00   35.04  n/a
       [L/S/n=  75./1.400/.012]
       [Vmax= 1.925:Tmax=  .135]
       [Dim=  .500:Dused=  .500]
# Culvert from Inlet 6
# HDPE smooth wall pipe Manning's n = 0.012
 210:6065----------ID:NEYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
      ROUTE PIPE       -> 02:ERAA         1.43     .088 No date   12:00   35.04  n/a
       [RDT= 5.00] out<- 01:ETn6         1.43     .089 No date   12:00   35.04  n/a
       [L/S/n=  65./ .400/.012]
       [Vmax= 1.731:Tmax=  .201]
       [Dim=  .600:Dused=  .600]
# Input to Inlet 6 pipe
 210:6066----------ID:BM1D-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
      ADD HYD              02:ERBB         .91      .067 No date   12:00   35.04  n/a
                         + 03:CIn6         1.43     .089 No date   12:00   35.04  n/a
      [IT= 5.00]  SUM=  01:In6           2.34     .156 No date   12:00   35.04  n/a
# Pipe from Inlet 6 - Route to pond
# HDPE smooth wall pipe Manning's n = 0.012
 210:6067----------ID:BM1D-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
      ROUTE PIPE       -> 02:In6          2.34     .154 No date   12:00   35.04  n/a
       [RDT= 5.00] out<- 01:PM6          2.34     .151 No date   12:00   35.04  n/a
       [L/S/n=  70./ .100/.017]
       [Vmax= 1.733:Tmax=  .081]
       [Dim=  .600:Dused=  .600]
# VOLUME TO POND ULTIMATE RESIDENTIAL
 210:6068----------ID:NEYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
      ADD HYD              02:PIA1         11.69     .651 No date   12:05   30.18  n/a
                         + 03:PIA2         2.70      .166 No date   12:05   35.04  n/a
                         + 04:PIA4         .71       .049 No date   12:05   35.04  n/a
                         + 05:PIA6         1.36      .099 No date   12:00   35.04  n/a
                         + 06:PIA5         1.12      .081 No date   12:00   35.04  n/a
                         + 07:PIA8         2.34      .151 No date   12:00   35.04  n/a
                         = 08:POU          5.03      .576 No date   13:00   41.37  n/a
      [PI= 2.00]  SUM=  01:PONDIC        25.98     1.717 No date   12:05   34.92  n/a
 210:6069----------ID:NEYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
      ROUTE RESERVOIR -> 02:PONTH        25.98     1.717 No date   12:05   34.92  n/a
       [EOT= 5.00] out<- 01:POUA         25.98     1.140 No date   14:10   34.92  n/a
            overflow <= 03:overq          .00      .000 No date    0:00     .00  n/a
      [MaxStoUsed=.9408E+00, TotOutVol .8008E+00, %-Cv=     0, TotDelOvF=     0.000;
# Simulating 24H 100 yr conditions with summerstorm 4H outflow max
```

```
06641> # updated for wall .6; .6; 3.0
06642> #ROUTE RESERVOIR     RHYDout ["POut"] ,RHYDin ["POutIn"] ,
06643> #                    RDT [5]min),
06644> #                         TABLE of ( OUTFLOW-STORAGE ) values
06645> #                                  (cms) - (ha-m)
06646> #                                  (   0.0 ,   0.0 )
06647> #                                  0.0008] , 1.1295
06648> #                                  0.38  , 1.8810
06649> #                                  0.53  , 2.8194
06650> #                                  (   -1 ,   -1 )  [max twenty pts]
06651> #                         RHYDstr "outQ" ,
06652> # Route pond output through first set of pipes
06653> # 2 x 600 pipes simulated with 1 pipe of equivalent capacity (=780 mm dia)
06654> # HDPE smooth wall pipe Manning's n   0.012
 210:0070----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ROUTE PIPE      -> 02:POut1      25.08      .140 No date   14:10   34.92  n/a
      [RDT= 5.00] ours<- 01:Pout       25.08      .140 No date   14:10   34.92  n/a
      [1/s/m=   35./ .200/.612]
      [Vmax= 1.020:Dmax=  .256]
      [dim=  .780:Dused=  .780]
06661> # Flow o/s of outlet culverts
 210:0071----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ADD HYD           02:FR2Ot1        .36      .024 No date   12:05   31.46  n/a
                     - 03:SD762         .22      .016 No date   12:05   31.46  n/a
                     = 04:POut1       25.48      .140 No date   14:10   34.92  n/a
      [DT= 5.00]  SUM=  01:POut       26.06      .143 No date   14:05   34.85  n/a
06667> # Route outflow through set of Culverts
06668> # 2 x 600 culverts simulated with 1 culvert of equivalent capacity (=780 mm dia
06669> # HDPE smooth wall pipe Manning's n = 0.012
 210:0072----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ROUTE PIPE      -> 02:POut       26.06      .143 No date   14:05   34.85  n/a
      [RDT= 5.00] ours<- 01:Pout       26.06      .143 No date   14:05   34.85  n/a
      [1/s/m=   35./ .400/.612]
      [Vmax= 1.314:Dmax=  .216]
      [dim=  .780:Dused=  .780]
06676> # Flow o/s of second set of outflow pipes
 210:0073----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ADD HYD           01:FR7Ot1        .58      .026 No date   12:05   31.46  n/a
                     + 03:FR7Ot2        .37      .017 No date   12:05   31.46  n/a
                     = 04:POut2       26.06      .143 No date   14:05   34.85  n/a
      [DT= 5.00]  SUM=  01:POut2      26.62      .147 No date   13:55   34.77  n/a
06683> # Route outflow through second set of pipes
06684> # 2 x 600 pipes simulated with 1 pipe of equivalent capacity (=780 mm dia)
06685> # HDPE smooth wall pipe Manning's n = 0.012
 210:0074----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ROUTE PIPE      -> 02:POut2      26.62      .147 No date   13:55   34.77  n/a
      [RDT= 5.00] ours<- 01:POutF      26.62      .147 No date   13:55   34.77  n/a
      [1/s/m=   35./ .200/.612]
      [Vmax= 1.020:Dmax=  .262]
      [dim=  .780:Dused=  .780]
06692> # Total flow at node N1 (shield NE along sales Barn Rd)
 210:0075----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ADD HYD           03:RNDX2         51.94     3.340 No date   12:20   31.64  n/a
                     + 02:POut2       26.62      .147 No date   13:55   34.77  n/a
                     + 04:EX7         1.38       .029 No date   12:00   34.52  n/a
                     + 05:FR7D        .30        .020 No date   12:05   31.46  n/a
                     + 06:FR11        .62        .037 No date   12:05   29.67  n/a
      [DT= 5.00]  SUM=  01:N1         79.17     3.581 No date   12:20   32.31  n/a
06698> # ROUTE N3 to N1
06699> # Typical Section based on Shields RD Yee Ditch 1: banks
06700> # provided by Aire
06701> # Manning's n is Channel not maintained, light brush on banks
06702> # Slope = 0.8% as per plan provided by Airel.
 210:0076----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ROUTE CHANNEL   -> 02:N1         79.17     1.970 No date   12:25   32.31  n/a
   * [RDT= 5.00] ours<- 01:SN1        79.17     1.970 No date   12:25   32.31  n/a
      [1/s/m=  349./ .050/.030]
      [Vmax=  .394:Dmax= 1.171]
06709> # VOLUME from residential area at N3 interim
 210:0077----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ADD HYD           02:YOA           .35      .020 No date   12:10   31.46  n/a
                     + 03:FR8         1.38       .078 No date   12:10   29.67  n/a
      [DT= 5.00]  SUM=  01:SN3         2.73      .150 No date   12:10   30.50  n/a
06714> # Added VOLUME from external area contributing to N3
 210:0078----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ADD HYD           03:RN3           77.17     1.970 No date   12:25   32.31  n/a
                     + 01:SN3         2.73       .155 No date   12:10   30.50  n/a
                     + 04:EX5         .82        .068 No date   12:00   42.44  n/a
                     + 05:EX6         .01        .005 No date   12:00   35.12  n/a
      [DT= 5.00]  SUM=  01:N3         82.53     2.111 No date   12:25   32.32  n/a
06721> # ROUTE N3 to RC12A
06722> # Typical Section based on Shields RD Yee Ditch 3:1 banks
06723> # provided by Airel
06724> # Manning's n is Channel not maintained, light brush on banks
06725> # Slope = 0.8% as per plan provided by Airel.
 210:0079----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ROUTE CHANNEL   -> 02:N3         82.53     2.111 No date   12:25   32.32  n/a
      [RDT= 5.00] ours<- 01:SN3        82.53     2.111 No date   12:25   32.32  n/a
      [1/s/m=  415./ .050/.035]
      [Vmax=  .385:Dmax= 1.375]
06733> # Flow at Studley node N-2RA for comparison
06734> # Routed N3 plus EX3
 210:0080----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ADD HYD           02:SN3           82.53     1.742 No date   12:40   32.32  n/a
                     + 03:EX3         21.30       .544 No date   12:45   28.39  n/a
      [DT= 5.00]  SUM=  01:NODE126    104.23     2.280 No date   12:40   31.51  n/a
06737> # AKKA CHECK
06738> #
 210:0081----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ADD HYD           03:RX1           74.62     1.481 No date   12:05   33.69  n/a
                     + 03:EX2         9.89       .296 No date   12:05   28.39  n/a
                     + 04:EX3         21.30      .544 No date   12:05   28.39  n/a
                     + 05:EX4          .50       .035 No date   12:00   34.8   n/a
                     + 06:EX5          .82       .056 No date   12:00   42.44  n/a
                     + 07:EX8          .51       .035 No date   12:00   33.12  n/a
                     + 08:EX7         1.38       .078 No date   12:00   34.52  n/a
                     + 09:FR1A         .24       .018 No date   12:00   35.81  n/a
                     + 10:FR2E         .22       .040 No date   12:00   35.04  n/a
      [DT= 5.00]  SUM=  01:Ot1        98.52     2.468 No date   12:05   30.55  n/a
 210:0082----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ADD HYD           03:Ot1           98.52     2.468 No date   12:05   30.55  n/a
                     + 01:FR1A         1.57       .087 No date   12:00   35.04  n/a
                     + 04:FR2E         1.17       .078 No date   12:00   35.81  n/a
                     + 05:FR3A         .45        .031 No date   12:00   35.04  n/a
                     + 06:FR3E         .52        .038 No date   12:00   35.04  n/a
                     + 07:FR4A         .71        .052 No date   12:00   35.04  n/a
                     + 08:FR4E         .65        .047 No date   12:00   35.04  n/a
                     + 09:FR2A         .68        .046 No date   12:00   35.04  n/a
                     + 10:FR2E         .46        .034 No date   12:00   35.04  n/a
      [DT= 5.00]  SUM=  01:Ot2        64.71     2.858 No date   12:05   31.35  n/a
 210:0083----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ADD HYD           03:Ot2           64.71     2.858 No date   12:00   31.35  n/a
                     + 01:FR3A         .45        .031 No date   12:00   35.04  n/a
                     + 04:FR3E         .52        .040 No date   12:00   35.04  n/a
                     + 05:FR7A         .35        .027 No date   12:10   31.41  n/a
                     + 06:FR7E1        .35        .026 No date   12:05   31.46  n/a
                     + 07:FR7E2        .22        .016 No date   12:05   31.46  n/a
                     + 08:FR7C1        .39        .028 No date   12:05   31.46  n/a
                     + 09:FR4C         .17        .011 No date   12:05   31.46  n/a
                     + 10:FR4E         .10        .020 No date   12:00   31.46  n/a
      [DT= 5.00]  SUM=  01:Ot3        67.86     3.170 No date   12:05   31.48  n/a
 210:0084----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ADD HYD           02:Ot3           66.86     3.170 No date   12:05   31.48  n/a
                     + 03:FR5         1.38       .079 No date   12:10   29.67  n/a
                     + 04:FR6A        1.10       .061 No date   12:10   29.67  n/a
                     + 05:FR6E1       .69        .038 No date   12:05   29.67  n/a
                     + 06:FR6E2       1.09       .059 No date   12:10   29.67  n/a
                     + 07:FR10        1.86       .100 No date   12:10   29.67  n/a
                     + 08:FR11        .62        .037 No date   12:05   29.67  n/a
                     + 09:FR9         1.26       .069 No date   12:05   29.39  n/a
                     + 10:FR8         5.65       .316 No date   12:00   48.32  n/a
      [DT= 5.00]  SUM=  01:Ot4        86.34     4.820 No date   12:05   31.19  n/a
 210:0085----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ADD HYD           02:Ot4           86.34     4.820 No date   12:05   31.19  n/a
                     - 03:R1A         9.41       .489 No date   12:10   28.39  n/a
                     - 04:R2A         3.13       .280 No date   12:05   28.39  n/a
                     - 05:R3A         3.13       .279 No date   12:05   28.39  n/a
                     - 06:R1B         2.21       .141 No date   12:05   28.39  n/a
      [DT= 5.00]  SUM=  01:Ot5        68.36     4.032 No date   12:05   31.19  n/a
06780> *-------------------------------------------------------------------------
06781> # Simulations with 4 hour Chicago from City of Ottawa
06782> # 90% 24 hours type 2, from City of Ottawa
06783>   ** END OF RUN : 224
06784>
06785> '-------------------------------------------------------------------------
06786>
06787>
06788>
06789>
06790>
06791>
06792> RUN:COMMAND#
06793> 205:0001----------------------------------------------------------------------
06794>     START             [ZERO      .00 hrs on       0]
06795>                       [METOUT=   2     (1=imperial, 2=metric output)]
06796>                       [NSTORM=   0 ]
```

```
[NMUN  = 225 ]
*****************************************************************************
*  SWMHYMO Ver:5.02/Jan 2001 <alt A> / INPUT DATA FILE
*****************************************************************************
*  Project Name: [Greely Village Center]     Project Number: [647-07]
*  Date        : 04-09-2008
*  Modeller    : [JDE]
*  Company     : JFSAinc.
*  License #   : 2547402
*****************************************************************************
*
* SWMHYMO model of the Greely Village Center - Residential Area - Phase 2
* Proposed Ultimate conditions. OPTION B
* Filename stands for:: GRP2u2a - Greely, Residential, Phase 2, ultimate w/ weir
*
*  December 05, 2008
*  "a" at the end of filename added only for 999 runs.
*****************************************************************************
225:0002----------------------------------------------------------------------
    REAL STORM
     Filename = storm.001
     Comment    25 years SCS Type 2 storm 24 hours step 10 min, City of Ottawa
     [SDI=10.00:SCS#=  24.00:PTOT=  86.65]
*****************************************************************************
* Existing flow - McEvoy Branch of Shield Creek - Areas
* Area c/a of proposed development [residential]
* CN*=75, alpha = 0.8, Ia=0.1e, XIA=5, TIME=15, see SC002 as per Stantec
* Area partially adjusted based on Atrel drawings.
*****************************************************************************
* c/a of Bank St.as per Area  = with modified boundaries and Tp.
225:0003----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
    DESIGN HASHYD      01:EX1        24.62     2.411 No_date   12:05   67.80 .763
     [CN= 72.0: N= 3.00]
     [Ia=  .21:MF= 5.00]
*****************************************************************************
* Existing flow - External areas d/s of Bank St.
* CN*=67, as per Stantec Dwg SC001.
* Area partially adjusted based on Atrel drawings.
*****************************************************************************
* Areas External to development
225:0004----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
    DESIGN HASHYD      01:EX2        9.68      .383 No_date   12:35   36.52 .421
     [CN= 69.0: N= 3.00]
     [Ia=  .41:MF= 5.00]
225:0005----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
    DESIGN HASHYD      01:EX3       71.58      .705 No_date   12:45   36.55 .121
     [CN= 69.0: N= 3.00]
     [Ia=  .81:MF= 5.00]
* Slope, Tlsp, Area from Atrel Drawing
* CN from Stantec (SC001)
* Xlsp = Tlsp = 10
225:0006----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
  * CALIB STANDHYD     01:EX3         .50      .046 No_date   12:00   42.79 .492
     [XIMP=.11:TIMP=.21]
     [LOSS= 2 :CN= 69.0]
     [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
     [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  58.:MNI=.045:SCI=   .0]
* Road and road side ditch along projected residential development Parkway Rd
* T:xp = Xlsp = 0.21 ha /0.57 ha = 0.10
* CN*=67, as per Stantec Dwg SC001.
* Slope is estimated at 1%
* Xlsp = Tlsp = .2s
225:0007----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
  * CALIB STANDHYD     01:EX5         .52      .070 No_date   12:00   52.21 .601
     [XIMP=.10:TIMP=.30]
     [LOSS= 2 :CN= 69.0]
     [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
     [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  58.:MNI=.045:SCI=   .0]
* Road and road side ditch along projected residential development Aalexfarm Rd
* Tlsp = Xlsp = 0.01 ha /0.51 ha = 0.20
* CN*=69, as per Stantec Dwg SC001.
* Slope is estimated at 1%
* Xlsp = Tlsp = 10
225:0008----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
  * CALIB STANDHYD     01:EX6         .52      .047 No_date   12:00   41.98 .493
     [XIMP=.10:TIMP=.20]
     [LOSS= 2 :CN= 69.0]
     [Pervious     area: IAper= 4.67:SLPP=.80:LGP=  40.:MNP=.250:SCP=   .0]
     [Impervious   area: IAimp= 1.57:SLPI=.80:LGI=  58.:MNI=.045:SCI=   .0]
* Road and road side ditch along projected residential development Aalexfarm Rd
* Tlsp  Xlsp  0.09 ha /0.79 ha = 0.27
* CN*=69, as per Stantec Dwg SC001.
* Slope is estimated at 1%
* Xlsp  Tlsp = 10
225:0009----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
  * CALIB STANDHYD     01:EX7         .39      .035 No_date   12:00   31.53 .501
     [XIMP=.11:TIMP=.23]
     [LOSS= 2 :CN= 69.0]
     [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
     [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  58.:MNI=.045:SCI=   .0]
* Areas to be occupied by commercial development
* CN* 69, as per Stantec Dwg SC001.
225:0010----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
    DESIGN HASHYD      01:A1A         3.41      .631 No_date   12:10   38.55 .421
     [CN= 69.0: N= 3.00]
     [Ia=  .51:MF= 5.00]
225:0011----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
  * DESIGN HASHYD      01:A2A         4.15      .762 No_date   12:00   36.55 .421
     [CN= 69.0: N= 3.00]
     [Ia=  .13:MF= 5.00]
225:0012----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
    DESIGN HASHYD      01:A3A         4.14      .767 No_date   12:05   36.50 .421
     [CN= 69.0: N= 3.00]
     [Ia=  .21:MF= 5.00]
225:0013----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
    DESIGN HASHYD      01:A3B         2.21      .382 No_date   12:05   36.50 .421
     [CN= 69.0: N= 3.00]
     [Ia=  .23:MF= 5.00]
*****************************************************************************
* PROPOSED RESIDENTIAL SUBWATERSHEDS - Residential Area Phase   and 2
*****************************************************************************
* CN*=69, as per Stantec see SC001
* Tp estimated with Up and Method.
225:0014----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
    DESIGN HASHYD      01:PR1         4.26      .680 No_date   12:05   36.50 .421
     [CN= 69.0: N= 3.00]
     [Ia=  .18:MF= 5.00]
*****************************************************************************
* Areas OUTGO TO POND
*****************************************************************************
*
225:0015----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
  * CALIB STANDHYD     01:PR1A        .24      .038 No_date   12:00   36.24 .509
     [XIMP=.11:TIMP=.21]
     [LOSS= 2 :CN= 71.0]
     [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
     [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  40.:MNI=.045:SCI=   .0]
225:0016----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
  * CALIB STANDHYD     01:PR1B        .55      .092 No_date   12:00   44.24 .509
     [XIMP=.11:TIMP=.21]
     [LOSS= 2 :CN= 71.0]
     [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
     [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  40.:MNI=.045:SCI=   .0]
225:0017----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
  * CALIB STANDHYD     01:PR2A        1.57      .263 No_date   12:00   44.24 .509
     [XIMP=.11:TIMP=.21]
     [LOSS= 2 :CN= 71.0]
     [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
     [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  40.:MNI=.045:SCI=   .0]
225:0018----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
  * CALIB STANDHYD     01:PR2B        1.17      .198 No_date   12:00   44.24 .509
     [XIMP=.11:TIMP=.21]
     [LOSS= 2 :CN= 71.0]
     [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
     [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  58.:MNI=.045:SCI=   .0]
225:0019----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
  * CALIB STANDHYD     01:PR3B         .52      .086 No_date   12:00   44.24 .509
     [XIMP=.11:TIMP=.21]
     [LOSS= 2 :CN= 71.0]
225:0020----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
  * CALIB STANDHYD     01:PR4A        .71      .120 No_date   12:00   44.24 .509
     [XIMP=.11:TIMP=.21]
     [LOSS= 2 :CN= 71.0]
     [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
     [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  58.:MNI=.045:SCI=   .0]
225:0021----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
  * CALIB STANDHYD     01:PR4B        .71      .120 No_date   12:00   44.24 .509
     [XIMP=.11:TIMP=.21]
     [LOSS= 2 :CN= 71.0]
     [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
     [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  58.:MNI=.045:SCI=   .0]
225:0022----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
  * CALIB STANDHYD     01:PR4B        .62      .062 No_date   12:00   44.24 .509
```





```
07139> # Slope = 0.6% As per plan provided by Atzel.
07140> 225:0.04----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
07141>      ROUTE CHANNEL    -> 02:NHX2       51.24     1.516 No_date   12:15    38.73  n/a
07142>    + [Rte= 5.00] out<- 01:RNEX2       51.24     2.945 No_date   12:15    38.73  n/a
07143>      [L/S/n= 251:/ .050/.045]
07144>      [Vmax= .354:Dmax= 1.753]
07145> #*******************************************************************************
07146> # Residential Development - Phase 1 and 2
07147> #*******************************************************************************
07148> # Total flow at node N-FX1
07149> 225:0.04----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
07150>      ADD HYD          02:N3A         4.16     .987 No_date   12:05    36.55  n/a
07151>                     + 03:N3B         2.71     .642 No_date   12:05    36.55  n/a
07152>                     + 04:RX2        51.24    2.945 No_date   12:05    37.30  n/a
07153>    [TT= 5.00]  SUM=  01:NFX1        58.11    4.574 No_date   12:05    37.30  n/a
07154> # Route Name NB1R to Node N-FX1
07155> # Typical Section based on McKinny Branch Vee Ditch 1.5:1 slopes
07156> # provided by Atzel
07157> # Manning's n is Channel not maintained, light brush or banks
07158> # Slope = 0.6% approximately as per Atzel drawing (c8-b6.1)/10m
07159> 225:0048----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
07160>      ROUTE CHANNEL    -> 02:NB3B         6.85     .586 No_date   12:05    37.30  n/a
07161>    [RTT= 5.00] out<- 01:RNB3B         6.85     .518 No_date   12:10    37.30  n/a
07162>      [/S/n= 110:/ .080/.050]
07163>      [Vmax= .580:Dmax= .142]
07164> # Total flow at node N-FX1
07165> 225:0049----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
07166>      ADD HYD          02:FX1         4.26     .905 No_date   12:05    36.55  n/a
07167>                     + 03:RNB3B       6.85     .518 No_date   12:10    37.30  n/a
07168>                     + 04:RFX1        1.05     .221 No_date   12:00    46.24  n/a
07169>    [TT= 5.00]  SUM=  01:NFX1        12.16    1.644 No_date   12:05    37.31  n/a
07170> # Volume to ponding area in FX1
07171> # Q=0.592 m3/s required as per SCS 100yr Existing conditions
07172> # Culvert from Inlet 1
07173> # Assuming Outlet culvert is 600 mm, slope = 1.2%, HDPE smooth walls
07174> # Manning's n = 0.012, Inlet control nomograph
07175> # Hydraulic head = 0.9m, Q=0.616
07176> 225:0.5c----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
07177>      CONFLUX (BALHYD    01:NFX1        17.15    1.644 No_date   12:00    37.31  n/a
07178>         Major System /  02:NFX1M        .00      .000 No_date    0:00      .00  n/a
07179>         Minor System \  03:NFX1Mn     11.35     .610 No_date   12:00    37.19  n/a
07180>      (R)Systo-.2e70E+03, VstOvfVol=.0000E+00, R-Ovf=    0, TotTunCvr=     C.hrs)
07181> # Input to Inlet 1 pipe
07182> 225:0051----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
07183>      ADD HYD          02:FR1E         .05      .052 No_date   12:00    46.24  n/a
07184>                     + 03:NFX1Mn     11.35     .610 No_date   12:00    37.19  n/a
07185>    [TT= 5.00]  SUM=  01:In1         11.40     .662 No_date   12:00    37.51  n/a
07186> # Pipe from inlet 1 - Route to pond
07187> # HDPE smooth wall pipe Manning's n = 0.012
07188> 225:0.5c----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
07189>      ROUTE PIPE       -> 02:In1        11.40     .667 No_date   12:00    37.51  n/a
07190>    [RTT= 5.00] out<- 01:Pin1          11.40     .665 No_date   12:00    37.52  n/a
07191>      [L/S/n=  67:/1.000/.012]
07192>      [Vmax= 1.790:Dmax= .601]
07193>      [Dia=  .600:Dused=  .600]
07194> # Culvert from Inlet 2
07195> # HDPE smooth wall pipe Manning's n = 0.012
07196> 225:0051----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
07197>      ROUTE PIPE       -> 02:FR2A         1.57     .143 No_date   12:00    46.24  n/a
07198>    [RTT= 5.00] out<- 01:C1-2            1.57     .111 No_date   12:00    46.24  n/a
07199>      [L/S/n=  14:/ .400/.012]
07200>      [Vmax= 1.351:Dmax=  .268]
07201>      [Dia=  .300:Dused=  .300]
07202> # Input to Inlet 2 pipe
07203> 225:0054----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
07204>      ADD HYD          02:FR2E         1.17     .108 No_date   12:00    46.24  n/a
07205>                     + 03:C1-2         1.57     .144 No_date   12:00    46.24  n/a
07206>    [TT= 5.00]  SUM=  01:In2           2.74     .252 No_date   12:00    46.24  n/a
07207> # Pipe from Inlet 2 - Route to pond
07208> # HDPE smooth wall pipe Manning's n = 0.012
07209> 225:0c5----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
07210>      ROUTE PIPE       -> 02:In2        2.74     .252 No_date   12:00    46.24  n/a
07211>    [RTT= 5.00] out<- 01:Pin2          2.74     .249 No_date   12:00    46.24  n/a
07212>      [L/S/n=  75:/ .1000/.012]
07213>      [Vmax= 1.500:Dmax=  .462]
07214>      [Dia=  .500:Dused=  .500]
07215> # Culvert from Inlet 3
07216> # HDPE smooth wall pipe Manning's n = 0.012
07217> 225:0c5----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
07218>      ROUTE PIPE       -> 02:FR3A         .45      .041 No_date   12:00    46.24  n/a
07219>    [RTT= 5.00] out<- 01:C1-3            .45      .041 No_date   12:00    46.24  n/a
07220>      [L/S/n=  14:/ .400/.012]
07221>      [Vmax= .673:Dmax=  .138]
07222>      [Dia=  .300:Dused=  .300]
07223> # Input to Inlet 3 pipe
07224> 225:0c57----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
07225>      ADD HYD          02:FR3E         .52      .050 No_date   12:00    46.24  n/a
07226>                     + 03:C1n3         .45      .044 No_date   12:00    46.24  n/a
07227>    [TT= 5.00]  SUM=  01:In3           .97      .092 No_date   12:00    46.24  n/a
07228> # Pipe from Inlet 3 - Route to pond
07229> # HDPE smooth wall pipe Manning's n = 0.012
07230> 225:0c5----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
07231>      ROUTE PIPE       -> 02:In3         .97      .091 No_date   12:00    46.24  n/a
07232>    [RTT= 5.00] out<- 01:Pin3           .97      .090 No_date   12:05    46.24  n/a
07233>      [L/S/n=  75:/ .1000/.012]
07234>      [Vmax= .953:Dmax=  .253]
07235>      [Dia=  .500:Dused=  .500]
07236> # Culvert from Inlet 4
07237> # HDPE smooth wall pipe Manning's n = 0.012
07238> 225:0c5----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
07239>      ROUTE PIPE       -> 02:FR4A         .71      .067 No_date   12:00    46.24  n/a
07240>    [RTT= 5.00] out<- 01:C1n4            .71      .066 No_date   12:00    46.24  n/a
07241>      [L/S/n=  18:/ .400/.012]
07242>      [Vmax= .773:Dmax=  .173]
07243>      [Dia=  .300:Dused=  .300]
07244> # Input to Inlet 4 pipe
07245> 225:0c68----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
07246>      ADD HYD          02:FR4E         .65      .062 No_date   12:00    46.24  n/a
07247>                     + 03:C1n4         .71      .066 No_date   12:00    46.24  n/a
07248>    [TT= 5.00]  SUM=  01:In4           1.36     .128 No_date   12:00    46.24  n/a
07249> # Pipe from Inlet 4 (ULTIMATE CONDITIONS) - Route to pond
07250> # HDPE smooth wall pipe Manning's n = 0.012
07251> 225:0c61----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
07252>      ROUTE PIPE       -> 02:In4         1.36     .129 No_date   12:00    46.24  n/a
07253>    [RTT= 5.00] out<- 01:Pin4           1.36     .129 No_date   12:00    46.24  n/a
07254>      [L/S/n=  36:/1.900/.012]
07255>      [Vmax= 2.825:Dmax=  .167]
07256>      [Dia=  .300:Dused=  .300]
07257> # Culvert from Inlet 5
07258> # HDPE smooth wall pipe Manning's n = 0.012
07259> 225:0c67----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
07260>      ROUTE PIPE       -> 02:FR5A         .56      .053 No_date   12:00    46.24  n/a
07261>    [RTT= 5.00] out<- 01:C1n5            .56      .053 No_date   12:00    46.24  n/a
07262>      [L/S/n=   5:/ .400/.012]
07263>      [Vmax= 1.081:Dmax=  .167]
07264>      [Dia=  .300:Dused=  .300]
07265> # Input to Inlet 5 pipe
07266> 225:0063----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
07267>      ADD HYD          02:FR5E         .16      .015 No_date   12:00    46.24  n/a
07268>                     + 03:C1n5         .56      .053 No_date   12:00    46.24  n/a
07269>    [TT= 5.00]  SUM=  01:In5           1.12     .107 No_date   12:00    46.24  n/a
07270> # Pipe from Inlet 5 - Route to pond
07271> # HDPE smooth wall pipe Manning's n = 0.012
07272> 225:0064----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
07273>      ROUTE PIPE       -> 02:In5         1.12     .107 No_date   12:00    46.24  n/a
07274>    [RTT= 5.00] out<- 01:Pin5           1.12     .106 No_date   12:00    46.24  n/a
07275>      [L/S/n=  75:/1.800/.012]
07276>      [Vmax= 2.803:Dmax=  .150]
07277>      [Dia=  .300:Dused=  .300]
07278> # Culvert from Inlet 6
07279> # HDPE smooth wall pipe Manning's n = 0.012
07280> 225:0065----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
07281>      ROUTE PIPE       -> 02:FR6A         1.43     .131 No_date   12:00    46.24  n/a
07282>    [RTT= 5.00] out<- 01:C1n6            1.43     .132 No_date   12:00    46.24  n/a
07283>      [L/S/n=   5:/ .400/.012]
07284>      [Vmax= 1.389:Dmax=  .250]
07285>      [Dia=  .300:Dused=  .300]
07286> # Input to Inlet 6 pipe
07287> 225:0066----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
07288>      ADD HYD          02:FR6E         .93      .087 No_date   12:00    46.24  n/a
07289>                     + 03:C1n6         1.43     .132 No_date   12:00    46.24  n/a
07290>    [TT= 5.00]  SUM=  01:In6           2.36     .219 No_date   12:00    46.24  n/a
07291> # Pipe from Inlet 6 - Route to pond
07292> # HDPE smooth wall pipe Manning's n = 0.012
07293> 225:0067----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
07294>      ROUTE PIPE       -> 02:In6         2.36     .219 No_date   12:00    46.24  n/a
07295>    [RTT= 5.00] out<- 01:Pin6           2.36     .218 No_date   12:00    46.24  n/a
07296>      [L/S/n=  70:/ .900/.012]
07297>      [Vmax= 1.901:Dmax=  .394]
07298>      [Dia=  .500:Dused=  .500]
07299> # VOLUMES TO POND ULTIMATE RESIDENTIAL
07300> 225:0068----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
07301>      ADD HYD          02:Pin1        11.90     .995 No_date   12:00    37.54  n/a
07302>                     + 03:Pin2         2.74     .246 No_date   12:00    46.24  n/a
07303>                     + 04:Pin3          .97     .090 No_date   12:00    46.24  n/a
07304>                     + 05:Pin4         1.36     .129 No_date   12:00    46.24  n/a
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                    +  06:Pic5       1.12      .106 No_date   12:00   44.24  n/a
                    |  01:Pic6       2.16      .714 No_date   12:05   41.24  n/a
                    |  05:Pic       8.83      .656 No_date   12:00   38.62  n/a
      [1h= 5.00]  SUM=  01:PCHdln    25.48     2.104 No_date   12:00   43.95  n/a
 225.0069---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ROUTE RESERVOIR => 02:POUDln     25.48     2.104 No_date   12:00   43.95  n/a
       [RDT= 5.00] out<- 01:POut      25.48      .197 No_date   13:55   43.95  n/a
              overflow <- 01:over0      .00      .000 No_date   00:00    .00  n/a
     [MxStrSeed=.672-E+00, TotOvrVol=.000E-00, M-Ovf    0, TotDurOvf=    0.hrs]
# Simulating SCS 100 yr conditions with submergence of outflow weir
# updated for weir .6; .4; 2.6
ROUTE RESERVOIR     NHYDout="POUT" ,RHYDir="POND1" ,
                    RDT=[5](min),
                          TABLE of | OUTFLOW-STORAGE | values
                                   (CMS) - (Ha-M)
                                  |   0.0 ,   0.0 |
                                   0.00001 , 1.1209
                                   0.20  , 1.6110
                                   0.35  , 2.0195
                                  |   -1  ,   -1  |    (max twenty pts)
                          RHYDout="over0" ,
# Route pond outlet through first set of pipes
# 2 x 600 pipes simulated with 1 pipe of equivalent capacity [=780 mm dia]
# HDPE smooth wall pipe Manning's n = 0.012
 225:0070---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ROUTE PIPE      => 02:POut       25.48      .197 No_date   13:55   43.95  n/a
       [RDT= 5.00] out<- 01:Pout      25.48      .197 No_date   13:55   43.95  n/a
       [L/s/m=   76./ .1807/.012]
       (Vmax= 1.120:Dmax=  .240)
       [Din=  .780:Dused=  .780)
# Flow s/s of outlet culverts
 225:0071---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ADD HYD             02:FP1B       .36      .032 No_date   12:05   40.35  n/a
                    |  01:FP1D       .22      .020 No_date   12:05   40.35  n/a
                    |  04:Pout      25.48      .197 No_date   13:55   43.95  n/a
      [1h= 5.00]  SUM=  01:Pout      25.84      .201 No_date   13:40   43.97  n/a
# Route outflow through set of culverts
# 2 x 600 culverts simulated with 1 culvert of equivalent capacity (=780 mm dia
# HDPE smooth wall pipe Manning's n = 0.012
 225:0072---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ROUTE PIPE      => 02:Pout       25.84      .201 No_date   13:40   43.97  n/a
       [RDT= 5.00] out<- 01:Cout      25.84      .201 No_date   13:55   43.97  n/a
       [L/s/m=   13./ .1400/.012]
       (Vmax= 1.498:Dmax=  .258)
       [Din=  .780:Dused=  .780)
# Flow s/s of second set of outflow pipes
 225:0073---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ADD HYD             03:FP1C       .39      .035 No_date   12:05   40.35  n/a
                    |  01:FP1C2      .17      .015 No_date   12:05   40.35  n/a
                    |  04:Cout      25.84      .201 No_date   13:55   43.97  n/a
      [1h= 5.00]  SUM=  01:Pout2     26.40      .206 No_date   13:40   43.79  n/a
# Route outflow through second set of pipes
# 2 x 600 pipes simulated with 1 pipe of equivalent capacity [=780 mm dia]
# HDPE Smooth wall pipe Manning's n = 0.012
 225:0074---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ROUTE PIPE      => 02:Pout2      26.40      .206 No_date   13:40   43.79  n/a
       [RDT= 5.00] out<- 01:POUT      26.40      .206 No_date   13:40   43.79  n/a
       [L/s/m=   65./ .1807/.012]
       (Vmax= 1.341:Dmax=  .315)
       [Din=  .780:Dused=  .780)
# Total flow at node N1 [Shield Mdw along Sutaa Barn Rd]
 225:0075---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ADD HYD             02:RESA2     51.20     2.995 No_date   12:25   39.73  n/a
                    |  03:POUT2     26.80      .206 No_date   13:40   43.79  n/a
                    |  04:EX5       1.30      .081 No_date   12:00   43.51  n/a
                    +  05:FP7L       .39      .027 No_date   12:05   40.35  n/a
                    +  06:FP11       .82      .051 No_date   12:05   38.38  n/a
      [1T= 5.00]  SUM=  01:N1       79.27     3.217 No_date   12:25   41.11  n/a
# ROUTE N1 to N2
# Typical Section based on Shields MD Vee Ditch 3:1 banks
# provided by Arrel
# Manning's n is Channel not maintained, light brush on banks
# Slope = 0.05  as per plan provided by Arrel.
 225:0076---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ROUTE CHANNEL   => 02:N1         79.27     3.217 No_date   12:25   41.11  n/a
   -   [RDT= 5.00] out<- 01:EN1       79.27     2.722 No_date   12:30   41.11  n/a
       [L/s/m=  349./ .050/.035]
       (Vmax=  .756:Dmax= 1.695)
# VOLUME from residential area at N1 interim
 225:0077---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ADD HYD             02:FP1A       1.35      .110 No_date   12:05   40.35  n/a
                    +  03:FP8        1.38      .110 No_date   12:00   38.30  n/a
      [1T= 5.00]  SUM=  01:N2I       2.73      .229 No_date   12:05   39.31  n/a
# Added VOLUME from external area contributing to N3
 225:0078---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ADD HYD             02:N3I       79.27     2.722 No_date   12:30   41.11  n/a
                    +  03:EX1       24.62     2.411 No_date   12:05   49.47  n/a
                    +  04:EX2        9.89      .383 No_date   12:45   36.55  n/a
                    +  05:EX3       21.30      .705 No_date   12:45   36.55  n/a
                    +  06:EX4        .58      .016 No_date   12:00   42.76  n/a
                    +  08:EX5        .52      .010 No_date   12:00   52.21  n/a
                    +  07:EX6        .91      .045 No_date   12:00   41.96  n/a
                    +  09:EX7        .29      .015 No_date   12:00   43.51  n/a
                    +  10:FP1B       .24      .023 No_date   12:00   44.26  n/a
                    +  11:FP1E       .55      .022 No_date   12:00   44.26  n/a
      [2T= 5.00]  SUM=  01:Tot1     58.52     3.177 No_date   12:05   39.80  n/a
 225:0080---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ADD HYD             02:Tot1      58.52     3.177 No_date   12:05   39.80  n/a
                    +  03:FP2A       1.07      .143 No_date   12:00   44.26  n/a
                    +  04:FP2B       1.37      .108 No_date   12:00   44.26  n/a
                    +  05:FP3A        .65      .043 No_date   12:00   44.26  n/a
                    +  06:FP3B        .92      .059 No_date   12:00   44.26  n/a
                    +  07:FP4A        .71      .067 No_date   12:00   44.26  n/a
                    +  08:FP4B        .65      .062 No_date   12:00   44.26  n/a
                    +  09:FP5A        .86      .065 No_date   12:00   44.26  n/a
                    +  10:FP5B        .68      .044 No_date   12:00   44.26  n/a
      [3T= 5.00]  SUM=  01:Tot2     64.71     3.726 No_date   12:05   40.04  n/a
 225:0083---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ADD HYD             02:Tot2      64.71     3.726 No_date   12:05   40.04  n/a
                    +  03:FP6A       1.03      .131 No_date   12:00   44.26  n/a
                    +  04:FP6B        .93      .087 No_date   12:00   44.26  n/a
                    +  05:FP7A       1.35      .175 No_date   12:00   40.35  n/a
                    +  06:FP7B1      1.16      .102 No_date   12:00   40.35  n/a
                    +  07:FP7B2       .22      .009 No_date   12:00   40.35  n/a
                    +  08:FP7C1       .29      .035 No_date   12:00   40.35  n/a
                    +  09:FP7C2       .27      .015 No_date   12:00   40.35  n/a
                    +  10:FP7D        .39      .027 No_date   12:00   40.35  n/a
      [3T= 5.00]  SUM=  01:Tot3     69.36     4.175 No_date   12:00   40.20  n/a
 225:0084---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ADD HYD             02:Tot3      69.36     4.175 No_date   12:00   40.20  n/a
                    +  03:FP8        1.38      .110 No_date   12:00   38.30  n/a
                    +  04:FP9A       1.10      .089 No_date   12:05   38.30  n/a
                    +  05:FP9B1       .25      .021 No_date   12:00   38.30  n/a
                    +  06:FP9B2      1.00      .081 No_date   12:05   38.30  n/a
                    +  07:FP10       1.64      .145 No_date   12:05   38.30  n/a
                    +  08:FP11        .82      .051 No_date   12:05   38.38  n/a
                    +  09:EX1        4.26      .410 No_date   12:00   36.55  n/a
                    +  10:EX8        5.03      .658 No_date   12:00   55.67  n/a
      [4T= 5.00]  SUM=  01:Tot4     85.34     5.738 No_date   12:05   40.06  n/a
 225:0085---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ADD HYD             02:Tot4      85.34     5.738 No_date   12:05   40.06  n/a
                    +  03:EX1A       9.41      .633 No_date   12:10   36.55  n/a
                    +  04:EX2A       3.13      .332 No_date   12:00   36.55  n/a
                    +  05:EX3A       4.14      .382 No_date   12:05   36.55  n/a
                    +  06:EX8        2.21      .182 No_date   12:05   36.55  n/a
      [5T= 5.00]  SUM=  01:Tot5     106.23     7.138 No_date   12:05   40.16  n/a
# Simulation with 4 hour Chicago from City of Ottawa
# SCS 24 hours type 2, from City of Ottawa
** END OF RUN : 249
```

```
 RUN:COMMAND#
 250:0001----------------------------------------------------------------------
      START
       [TZERO =    .00 hrs on        0]
       [METOUT=   2    (1=Imperial, 2=metric output)]
       [NSTORM=   1 ]
       [NRUN  = 250 ]
*******************************************************************************
*  SWMHYMO Ver:5.02/Jan 2001 <SEIA> / IDBOT DATA FILE
*******************************************************************************
*  Project Name: [Greely Village Center     Project Number: [647-07]
*  Date        : 04-09-2008
*  Modeller    : [JDT]
*  Company     : JFSAinc.
*  License #   :  2547402
*******************************************************************************
*
* SWMHYMO model of the Greely Village Center   Residential Area - Phase 2
* Proposed Ultimate conditions. OPTION B
* Filename stanza for: GRP2u2a   Greely, Residential, Phase 2, Ultimate v2 with
*
*  December 16, 2008
*  "A" at the end of filename= Added July 1st 1979 Event
*******************************************************************************
 250:0002----------------------------------------------------------------------
      READ STORM
       Filename = stm10.001
       Comment  = 10 years SCS Type I Start 24 Hours even 10 min, City of Ottawa
       [SDT 10.00:SDUR=  24.00:SPCT=  0.56]
*******************************************************************************
* Existing flow - McEvoy Branch of Shield Creek - Areas
* Area c/a of proposed development (residential)
* CN*=73, slope = 0.6, Tp = 0.16, XIMP=0, TIMP=1%, see SC001 as per Stantec
* Area partially adjusted based on Arcel drawings.
*******************************************************************************
* c/s of Bank St.as per Arce  - with modified boundaries and Tp.
 250:0003----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      DESIGN NASHYD      01:EX1        24.82     2.833 No_date   12:05   50.20 .521
       [CN= 76.0: N= 3.00]
       [Tp=  .21:Ur= 5.00]
*******************************************************************************
* Existing flow - External areas c/s of Bank St.
* CN*=69, as per Stantec see SC001.
* Area partially adjusted based on Arcel drawings.
*******************************************************************************
* Areas External to development
 250:0004----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      DESIGN NASHYD      01:EX2         9.89     .454 No_date   12:05   43.18 .447
       [CN= 69.0: N= 3.00]
       [Tp=  .57:Ur= 5.00]
 250:0005----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      DESIGN NASHYD      01:EX3        21.33     .836 No_date   12:05   45.18 .447
       [CN= 69.0: N= 3.00]
       [Tp=  .83:Ur= 5.00]
* slope, Ximp, Area from Arcel Drawing
* CN from Stantec (SC001)
* Ximp = Timp = 10%
 250:0006----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
   * CALIB STANDHYD      01:EX4         1.50     .029 No_date   12:00   48.96 .719
       [XIMP=.11:TIMP=.21]
       [Loss= 2 :CN= 69.0]
       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  59.:MNI=.045:SCI=   .0]
* Road and road side ditch along projected residential development Parkway Rd
* Timp = Ximp = 0.21 ha /0.51 ha = 0.40
* CN*=69, as per Stantec see SC001.
* Slope is estimated at 1%
* Ximp = Timp = .0%
 250:0007----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
   * CALIB STANDHYD      01:EX5         1.57     .031 No_date   12:00   59.97 .821
       [XIMP=.00:TIMP=.40]
       [Loss= 2 :CN= 69.0]
       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  59.:MNI=.045:SCI=   .0]
* Road and road side ditch along projected residential developpent SalesBarn Rd
* Timp = Ximp = 0.01 ha /0.51 ha =  0.02
* CN*=69, as per Stantec see SC001.
* Slope is estimated at 1%
* Ximp = Timp = 10%
 250:0008----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
   * CALIB STANDHYD      01:EX6          .51     .054 No_date   12:00   48.12 .509
       [XIMP=.10:TIMP=.20]
       [Loss= 2 :CN= 69.0]
       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  59.:MNI=.045:SCI=   .0]
* Road and road side ditch along projected residential development SalesBarn Rd
* Timp = Ximp = 0.05 ha /0.51 ha = 0.09
* CN*=69, as per Stantec see SC001.
* Slope is estimated at 1%
* Ximp = Timp = 10%
 250:0009----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
   * CALIB STANDHYD      01:EX7          .19     .045 No_date   12:00   50.35 .536
       [XIMP=.13:TIMP=.23]
       [Loss= 2 :CN= 69.0]
       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  59.:MNI=.045:SCI=   .0]
* Areas to be occupied by commercial development
* CN*=69, as per Stantec see SC001.
 250:0010----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      DESIGN NASHYD      01:RLA         8.41     .721 No_date   12:10   43.18 .447
       [CN= 69.0: N= 3.00]
       [Tp=  .31:UT= 5.00]
 250:0011----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
   * DESIGN NASHYD      01:RLA         3.13     .269 No_date   12:05   43.18 .447
       [CN= 69.0: N= 3.00]
       [Tp=  .13:UT= 5.00]
 250:0012----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      DESIGN NASHYD      01:RLA         4.14     .409 No_date   12:05   43.18 .447
       [CN= 69.0: N= 3.00]
       [Tp=  .21:UT= 5.00]
 250:0013----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      DESIGN NASHYD      01:RSE         2.21     .216 No_date   12:05   43.18 .447
       [CN= 69.0: N= 3.00]
       [Tp=  .17:UT= 5.00]
**************************************************************
*******************************************************************************
* PROPOSED RESIDENTIAL SUBWATERSHEDS - Residential Area Phase 1 and 2
*******************************************************************************
* CN* 69, as per Stantec see SC001
* Tp estimated with Bgland Method.
 250:0014----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      DESIGN NASHYD      01:PR          4.75     .421 No_date   12:05   43.18 .447
       [CN= 69.0: N= 3.00]
       [Ia=  .18:Ur= 5.00]
*******************************************************************************
* AREAS GOING TO POND
*******************************************************************************
*
 250:0015----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
   * CALIB STANDHYD      01:ER1A         .26     .029 No_date   12:00   51.82 .535
       [XIMP=.11:TIMP=.21]
       [Loss= 2 :CN= 71.0]
       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  40.:MNI=.045:SCI=   .0]
 250:0016----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
   * CALIB STANDHYD      01:ER1B         .30     .052 No_date   12:00   51.82 .535
       [XIMP=.11:TIMP=.21]
       [Loss= 2 :CN= 71.0]
       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  40.:MNI=.045:SCI=   .0]
 250:0017----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      CALIB STANDHYD      01:R2A          .67     .170 No_date   12:00   51.82 .535
       [XIMP=.11:TIMP=.21]
       [Loss= 2 :CN= 71.0]
       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  40.:MNI=.045:SCI=   .0]
 250:0018----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
   * CALIB STANDHYD      01:FR2A         1.13     .279 No_date   12:00   51.82 .535
       [XIMP=.11:TIMP=.21]
       [Loss= 2 :CN= 71.0]
       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  40.:MNI=.045:SCI=   .0]
 250:0019----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
   * CALIB STANDHYD      01:FR1A         .45     .081 No_date   12:00   51.82 .535
       [XIMP=.11:TIMP=.21]
       [Loss= 2 :CN= 71.0]
       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  59.:MNI=.045:SCI=   .0]
 250:0020----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
   * CALIB STANDHYD      01:FR3B         .52     .089 No_date   12:00   51.82 .535
       [XIMP=.11:TIMP=.21]
       [Loss= 2 :CN= 71.0]
```

```
[Pervious      area: IAper= 4.67:SLPP=1.00:LGP=  40.:NNP=.250:SCP=   .0
[Impervious    area: IAimp= 1.57:SLPI=1.00:LGI=  55.:NNI=.045:SCI=   .0
250:0021---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
 * CALIB STANDHYD     01:FR4A         .71      .080 No_date   12:00   51.62 .535
[XIMP=.11:TIMP=.21]
[LOSS= 2 :CN= 71.0]
[Pervious      area: IAper= 4.67:SLPP=1.00:LGP=  40.:NNP=.250:SCP=   .0
[Impervious    area: IAimp= 1.57:SLPI=1.00:LGI=  69.:NNI=.045:SCI=   .0
250:0022---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
 * CALIB STANDHYD     01:FR4B         .60      .079 No_date   12:00   51.62 .535
[XIMP=.11:TIMP=.21]
[LOSS= 2 :CN= 71.0]
[Pervious      area: IAper= 4.67:SLPP=1.00:LGP=  40.:NNP=.250:SCP=   .0
[Impervious    area: IAimp= 1.57:SLPI=1.00:LGI=  69.:NNI=.045:SCI=   .0
250:0023---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
 * CALIB STANDHYD     01:FR5A         .68      .074 No_date   12:00   51.62 .535
[XIMP=.11:TIMP=.21]
[LOSS= 2 :CN= 71.0]
[Pervious      area: IAper= 4.67:SLPP=1.00:LGP=  40.:NNP=.250:SCP=   .0
[Impervious    area: IAimp= 1.57:SLPI=1.00:LGI=  69.:NNI=.045:SCI=   .0
250:0024---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
 * CALIB STANDHYD     01:FR5B         .66      .072 No_date   12:00   51.62 .535
[XIMP=.11:TIMP=.21]
[LOSS= 2 :CN= 71.0]
[Pervious      area: IAper= 4.67:SLPP=1.00:LGP=  40.:NNP=.250:SCP=   .0
[Impervious    area: IAimp= 1.57:SLPI=1.00:LGI=  69.:NNI=.045:SCI=   .0
250:0025---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
 * CALIB STANDHYD     01:FR6A         1.01      .156 No_date   12:00   51.62 .535
[XIMP=.11:TIMP=.21]
[LOSS= 2 :CN= 71.0]
[Pervious      area: IAper= 4.67:SLPP=1.00:LGP=  40.:NNP=.250:SCP=   .0
[Impervious    area: IAimp= 1.57:SLPI=1.00:LGI=  98.:NNI=.045:SCI=   .0
250:0026---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
 * CALIB STANDHYD     01:FR6B         .87      .103 No_date   12:00   51.62 .535
[XIMP=.11:TIMP=.21]
[LOSS= 2 :CN= 71.0]
[Pervious      area: IAper= 4.67:SLPP=1.00:LGP=  40.:NNP=.250:SCP=   .0
[Impervious    area: IAimp= 1.57:SLPI=1.00:LGI=  78.:NNI=.045:SCI=   .0
# slope estimated at 3% based on backyard swales.
# Timp and Ximp based on total pond area
# ximp = A pond/A tot
# timp = weighted average of pond and backyards
250:0027---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
 CALIB STANDHYD     02:FP6          5.03      .808 No_date   12:00   68.75 .691
[XIMP=.41:TIMP=.47]
[LOSS= 2 :CN= 71.0]
[Pervious      area: IAper= 4.67:SLPP=1.00:LGP=  40.:NNP=.250:SCP=   .0
[Impervious    area: IAimp= 1.57:SLPI=1.00:LGI=  78.:NNI=.045:SCI=   .0
*****************************************************************************
* UNCONTROLLED AREAS
*****************************************************************************
*
250:0028---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
 * CALIB STANDHYD     01:FR1A         .35      .106 No_date   12:05   47.53 .492
[XIMP=.02:TIMP=.14]
[LOSS= 2 :CN= 71.0]
[Pervious      area: IAper= 4.67:SLPP=1.00:LGP=  40.:NNP=.250:SCP=   .0
[Impervious    area: IAimp= 1.57:SLPI=1.00:LGI=  55.:NNI=.045:SCI=   .0
250:0029---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
 * CALIB STANDHYD     01:FR1B         .76      .229 No_date   12:05   47.53 .492
[XIMP=.02:TIMP=.14]
[LOSS= 2 :CN= 71.0]
[Pervious      area: IAper= 4.67:SLPP=1.00:LGP=  40.:NNP=.250:SCP=   .0
[Impervious    area: IAimp= 1.57:SLPI=1.00:LGI=  69.:NNI=.045:SCI=   .0
250:0030---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
 * CALIB STANDHYD     01:FP1B         .22      .021 No_date   12:05   47.53 .492
[XIMP=.02:TIMP=.14]
[LOSS= 2 :CN= 71.0]
[Pervious      area: IAper= 4.67:SLPP=1.00:LGP=  40.:NNP=.250:SCP=   .0
[Impervious    area: IAimp= 1.57:SLPI=1.00:LGI=  69.:NNI=.045:SCI=   .0
250:0031---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
 * CALIB STANDHYD     01:FP1C         .38      .042 No_date   12:05   47.53 .492
[XIMP=.02:TIMP=.14]
[LOSS= 2 :CN= 71.0]
[Pervious      area: IAper= 4.67:SLPP=1.00:LGP=  40.:NNP=.250:SCP=   .0
[Impervious    area: IAimp= 1.57:SLPI=1.00:LGI=  69.:NNI=.045:SCI=   .0
250:0032---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
 * CALIB STANDHYD     01:FR2A         .17      .018 No_date   12:05   47.53 .492
[XIMP=.02:TIMP=.14]
[LOSS= 2 :CN= 71.0]
[Pervious      area: IAper= 4.67:SLPP=1.00:LGP=  40.:NNP=.250:SCP=   .0
[Impervious    area: IAimp= 1.57:SLPI=1.00:LGI=  69.:NNI=.045:SCI=   .0
250:0033---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
 * CALIB STANDHYD     01:FR2B         .30      .033 No_date   12:05   47.53 .492
[XIMP=.02:TIMP=.14]
[LOSS= 2 :CN= 71.0]
[Pervious      area: IAper= 4.67:SLPP=1.00:LGP=  40.:NNP=.250:SCP=   .0
[Impervious    area: IAimp= 1.57:SLPI=1.00:LGI=  69.:NNI=.045:SCI=   .0
250:0034---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
 * CALIB STANDHYD     01:FR3          .45      .134 No_date   12:05   51.23 .569
[XIMP=.01:TIMP=.07]
[LOSS= 2 :CN= 71.0]
[Pervious      area: IAper= 4.67:SLPP=1.00:LGP=  40.:NNP=.250:SCP=   .0
[Impervious    area: IAimp= 1.57:SLPI=1.00:LGI=  55.:NNI=.045:SCI=   .0
250:0035---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
 * CALIB STANDHYD     01:FR5A         1.10      .108 No_date   12:05   51.24 .569
[XIMP=.01:TIMP=.07]
[LOSS= 2 :CN= 71.0]
[Pervious      area: IApr= 4.67:SLPP=1.00:LGP=  40.:NNP=.250:SCP=   .0
[Impervious    area: IAimp= 1.57:SLPI=1.00:LGI=  86.:NNI=.045:SCI=   .0
250:0036---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
 * CALIB STANDHYD     01:FR5B1        .69      .078 No_date   12:05   51.24 .569
[XIMP=.01:TIMP=.07]
[LOSS= 2 :CN= 71.0]
[Pervious      area: IApr= 4.67:SLPP=1.00:LGP=  40.:NNP=.250:SCP=   .0
[Impervious    area: IAimp= .67:SLPI=1.00:LGI=  41.:NNI=.045:SCI=   .0
250:0037---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
 * CALIB STANDHYD     01:FR5B2        .69      .080 No_date   12:05   51.24 .569
[XIMP=.01:TIMP=.07]
[LOSS= 2 :CN= 71.0]
[Pervious      area: IApr= 4.67:SLPP=1.00:LGP=  40.:NNP=.250:SCP=   .0
[Impervious    area: IAimp= .67:SLPI=1.00:LGI=  82.:NNI=.045:SCI=   .0
250:0038---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
 * CALIB STANDHYD     01:FR10         .84      .127 No_date   12:05   51.23 .569
[XIMP=.01:TIMP=.07]
[LOSS= 2 :CN= 71.0]
[Pervious      area: IApr= 4.67:SLPP=1.00:LGP=  40.:NNP=.250:SCP=   .0
[Impervious    area: IAimp= 1.57:SLPI=1.00:LGI= 121.:NNI=.045:SCI=   .0
250:0039---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
 * CALIB STANDHYD     01:FR11         .62      .062 No_date   12:00   40.28 .469
[XIMP=.01:TIMP=.07]
[LOSS= 2 :CN= 71.0]
[Pervious      area: IApr= 4.67:SLPP=1.00:LGP=  40.:NNP=.250:SCP=   .0
[Impervious    area: IAimp= 1.57:SLPI=1.00:LGI=  84.:NNI=.045:SCI=   .0
+-----------------------------------------------------------------------------+
# EXISTING Flow - Upstream of Residential Area Phase 1 and 2
+-----------------------------------------------------------------------------+
# Typical Section based on proposed channel provided by AEL
# 4:1 bank slopes, Long Slope = 0.50%, Manning's n is 0.03
# Route EX1 to d/s node N8
250:0040---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
    ROUTE CHANNEL    -> 02:EX1        24.62     2.833 No_date   12:05   50.25 n/a
    [RET= 5.00] outs= 01:FEX1         24.62     2.709 No_date   12:10   50.25 n/a
    [L/S/n= 512./ 500./.030]
    [Vmax= 1.73:Tmax= .616]
# Total flow at E R/A
# [Note that R1A will be sheet draining to proposed channel]
250:0041---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
    ADD HYD             02:R1A         5.41      .751 No_date   12:10   43.34 n/a
                      + 03:E2A         3.13      .429 No_date   12:00   41.28 n/a
                      = 04:FR3A        8.54     1.180 No_date   12:05   42.58 n/a
    [n= 5.00]  SUM=   01:ER2A          1.50     1.191 No_date   12:05   43.34 n/a
# Typical Section based on proposed channel provided by AEL
# 4:1 bank slopes, Long slope = 0.50%, Manning's n is 0.03
# Route SW draining at E-R2A to d/s node N2
250:0042---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
    ROUTE CHANNEL    -> 02:ER2A          1.50     1.191 No_date   12:05   43.34 n/a
    [RET= 5.00] outs= 01:ENR2A           1.50     1.042 No_date   12:10   43.34 n/a
    [L/S/n= 447./ .500/.030]
    [Vmax= .940:Tmax= .426]
# Total flow at node N8
# [Note that EX2 will be sheet draining to proposed channel]
250:0043---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
    ADD HYD             02:ENR2A       13.64     1.042 No_date   12:10   43.34 n/a
                      + 01:RX1         54.62     7.709 No_date   12:10   50.25 n/a
                      + 04:FR3A1         .75      .076 No_date   12:05   45.28 n/a
                      = 05:rd9s2       69.00     8.809 No_date   12:05   45.98 n/a
    [RT= 5.00]  SUM   01:N2          49.40     4.189 No_date   12:10   46.80 n/a
# Typical Section based on proposed channel provided by AEL
# 4:1 bank slopes, Long Slope = 0.50%, Manning's n is 0.03
# Route SW draining at N8 to d/s node N-RA2
250:0044---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
    ROUTE CHANNEL    -> 02:N2         49.40     4.189 No_date   12:10   46.80 n/a
    [RT= 5.00] outs= 01:RN8          49.40     4.052 No_date   12:15   46.80 n/a
    [L/S/n= 324./ .500/.030]
```

```
[Vmax= 1.301:Dmax= .751]
* Total flow at node N-EX1
 250:0015----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ADD HYD           02:RNd       49.80     4.047 No data    17:15   66.80  n/a
                     + 04:CH10       1.84      .177 No data    17:05   64.28  n/a
     [2= 5.00]  SUM=  01:EX1       51.24     4.191 No data    12:15   48.75  n/a
* Route Node N-EX1 to Node B1
* Typical Section based on Sublide ND Veg Ditch 3:1 Banks
* provided by Atrel
* Manning's n is Channel not maintained, light brush on banks
* Slope = 0.05: as per plan provided by Atrel.
 250:0016----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ROUTE CHANNEL   -> 02:EX1       51.24     4.191 No data    12:15   48.75  n/a
   * [RET= 5.00] out<- 01:EX1A2     51.24     3.946 No data    12:20   48.79  n/a
     [L/S/n=  253./ .050/.035]
     [Vmax= .350:Dmax= 1.002]
*****************************************************************************
* Residential Development - Phase 1 and 2
*****************************************************************************
* Total flow at node N-B3B
 250:0047----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ADD HYD           02:B3A        1.14      .129 No data    12:05   43.18  n/a
                     + 03:B3B        5.27      .594 No data    12:05   43.18  n/a
                     + 04:CH4        .56       .055 No data    12:00   49.56  n/a
     [3= 5.00]  SUM=  01:EX3A       6.85      .695 No data    12:05   43.17  n/a
* Route Node EX3A to Node N-PK1
* Typical section based on McEvoy Branch Veg Ditch 3.5:1 slopes
* provided by Atrel
* Manning's n is Channel not maintained, light brush on banks
* Slope = 0.60: approximately as per Atrel drawing (68-66.1)/310m
 250:0048----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ROUTE CHANNEL   -> 02:EX3A      6.85      .695 No data    12:05   43.17  n/a
   * [RET= 5.00] out<- 01:EX3B      6.80      .620 No data    12:10   42.67  n/a
     [L/S/n=  310./ .050/.035]
     [Vmax= .715:Dmax= .785]
* Total flow at node N-PK1
 250:0049----------ID:NHYD-------AREA    QPEAK TpeakDate hh:mm----R.V.-R.C.-
     ADD HYD           02:EX1        4.26      .472 No data    12:05   43.18  n/a
                     + 03:EX3B       6.80      .620 No data    12:10   42.67  n/a
                     + 04:PR1A        .24      .028 No data    12:00   51.82  n/a
     [3= 5.00]  SUM=  01:PK1       11.30     1.063 No data    12:05   43.66  n/a
* Volume in ponding area (n PK)
* Q=0.85b m3/s required as per SCS 100yr Existing conditions
* Culvert from Inlet 1
* Assuming outlet culvert is 600 mm, slope = 1.2%, HDPE smooth walls
* Manning's n = 0.012, Inlet control nomograph
* Hydraulic Head - 0.8m, Q=0.610
 250:0050----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm    R.V.  R.C.
     CHBUTE FORLHYD    01:EPE1      11.30     1.063 No data    12:05   43.68  n/a
       Major System /  02:EPE1Mj      .00      .000 No data     0:00    .00  n/a
       Minor System \  03:EPE1Mn    11.30      .610 No data    12:00   44.14  n/a
     (MajSysFlow=0.000m3/s, TotOutFlo=0.000m3/s, M=Cstm    0, TotOutVol      0.0hrs)
* Input to Inlet 1 pipe
 250:0051----------ID:NHYD-------AREA    QPEAK TpeakDate hh:mm----R.V.-R.C.-
     ADD HYD           02:PR1A       .24      .028 No data    12:00   51.82  n/a
                     + 03:EPE1Mn    11.30      .610 No data    12:00   44.14  n/a
     [3= 5.00]  SUM=  01:In1        11.54      .672 No data    12:00   44.48  n/a
* Pipe from Inlet 1 - Route to pond
* HDPE smooth wall pipe Manning's n = 0.012
 250:0052----------ID:NHYD-------AREA    QPEAK TpeakDate hh:mm----R.V.-R.C.-
     ROUTE PIPE      -> 02:In1      11.54      .672 No data    12:00   44.48  n/a
     [RET= 5.00] out<- 01:In1       11.54      .588 No data    12:20   44.48  n/a
     [L/S/n=  85./1.630/.012]
     [Vmax= 3.306:Dmax= .436]
     [Din=  .600:Dused=  .600]
* Culvert from Inlet 2
* HDPE smooth wall pipe Manning's n = 0.012
 250:0053----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm    R.V.  R.C.
     ROUTE PIPE      -> 02:PR2A       1.57      .170 No data    12:00   51.82  n/a
     [RET= 5.00] out<- 01:CH2         1.57      .171 No data    12:00   51.82  n/a
     [L/S/n=  13./ .400/.012]
     [Vmax= 1.401:Dmax= .396]
     [Din=  .300:Dused=  .300]
* Input to Inlet 2 pipe
 250:0054----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ADD HYD           02:PR2A       .13      .170 No data    12:00   51.82  n/a
                     + 03:CH2        1.61      .17  No data    12:00   51.82  n/a
     [2= 5.00]  SUM=  01:In2        2.74      .300 No data    12:00   51.82  n/a
* Pipe from Inlet 2 - Route to pond
* HDPE smooth wall pipe Manning's n = 0.012
 250:0055----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ROUTE PIPE      -> 02:In2        2.74      .300 No data    12:00   51.82  n/a
   * [RET= 5.00] out<- 01:Pin2        2.74      .293 No data    12:05   51.82  n/a
     [L/S/n=  85./1.630/.012]
     [Vmax= 1.301:Dmax= .751]
* Total flow at node N-EX2
 250:0015----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ADD HYD           02:RNd       49.80     4.047 No data    17:15   66.80  n/a
                     + 04:CH10       1.84      .177 No data    17:05   64.28  n/a
     [2= 5.00]  SUM=  01:EX2       51.24     4.191 No data    12:15   48.75  n/a
* Route Node N-EX2 to Node B1
* Typical Section based on Sublide ND Veg Ditch 3:1 Banks
* provided by Atrel
* Manning's n is Channel not maintained, light brush on banks
* Slope = 0.05: as per plan provided by Atrel.
 250:0016----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ROUTE CHANNEL   -> 02:EX2       51.24     4.191 No data    12:15   48.75  n/a
   * [RET= 5.00] out<- 01:EX2A2     51.24     3.946 No data    12:20   48.79  n/a
     [L/S/n=  253./ .050/.035]
     [Vmax= .350:Dmax= 1.002]
*****************************************************************************
* Residential Development - Phase 1 and 2
*****************************************************************************
* Total flow at node N-B3B
 250:0047----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ADD HYD           02:B3A        1.14      .129 No data    12:05   43.18  n/a
                     + 03:B3B        5.27      .594 No data    12:05   43.18  n/a
                     + 04:CH4         .56      .055 No data    12:00   49.56  n/a
     [3= 5.00]  SUM=  01:EX3A       6.85      .695 No data    12:05   43.17  n/a
* Route Node EX3A to Node N-PK1
* Typical section based on McEvoy Branch Veg Ditch 3.5:1 slopes
* provided by Atrel
* Manning's n is Channel not maintained, light brush on banks
* Slope = 0.60: approximately as per Atrel drawing (68-66.1)/310m
 250:0048----------ID:NHYD-------AREA    QPEAK TpeakDate hh:mm----R.V.-R.C.-
     ROUTE CHANNEL   -> 02:EX3A      6.85      .695 No data    12:05   43.17  n/a
   * [RET= 5.00] out<- 01:EX3B      6.80      .620 No data    12:10   42.67  n/a
     [L/S/n=  310./ .050/.035]
     [Vmax= .715:Dmax= .785]
* Total flow at node N-PK1
 250:0049----------ID:NHYD-------AREA    QPEAK TpeakDate hh:mm----R.V.-R.C.-
     ADD HYD           02:EX1        4.26      .472 No data    12:05   43.18  n/a
                     + 03:EX3B       6.80      .620 No data    12:10   42.67  n/a
                     + 04:PR1A        .24      .028 No data    12:00   51.82  n/a
     [3= 5.00]  SUM=  01:PK1        11.30     1.063 No data    12:05   43.66  n/a
* Volume in ponding area (n PK)
* Q=0.85b m3/s required as per SCS 100yr Existing conditions
* Culvert from Inlet 1
* Assuming outlet culvert is 600 mm, slope = 1.2%, HDPE smooth walls
* Manning's n = 0.012, Inlet control nomograph
* Hydraulic Head - 0.8m, Q=0.610
 250:0050----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm    R.V.  R.C.
     CHBUTE FORLHYD    01:EPE1      11.30     1.063 No data    12:05   43.68  n/a
       Major System /  02:EPE1Mj      .00      .000 No data     0:00    .00  n/a
       Minor System \  03:EPE1Mn    11.30      .610 No data    12:00   44.14  n/a
     (MajSysFlow=0.000m3/s, TotOutFlo=0.000m3/s, M=Cstm    0, TotOutVol      0.0hrs)
* Input to Inlet 1 pipe
 250:0051----------ID:NHYD-------AREA    QPEAK TpeakDate hh:mm----R.V.-R.C.-
     ADD HYD           02:PR1A       .24      .028 No data    12:00   51.82  n/a
                     + 03:EPE1Mn    11.30      .610 No data    12:00   44.14  n/a
     [3= 5.00]  SUM=  01:In1        11.54      .672 No data    12:00   44.48  n/a
* Pipe from Inlet 1 - Route to pond
* HDPE smooth wall pipe Manning's n = 0.012
 250:0052----------ID:NHYD-------AREA    QPEAK TpeakDate hh:mm----R.V.-R.C.-
     ROUTE PIPE      -> 02:In1      11.54      .672 No data    12:00   44.48  n/a
     [RET= 5.00] out<- 01:In1       11.54      .588 No data    12:20   44.48  n/a
     [L/S/n=  85./1.630/.012]
     [Vmax= 3.306:Dmax= .436]
     [Din=  .600:Dused=  .600]
* Culvert from Inlet 2
* HDPE smooth wall pipe Manning's n = 0.012
 250:0053----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm    R.V.  R.C.
     ROUTE PIPE      -> 02:PR2A       1.57      .170 No data    12:00   51.82  n/a
     [RET= 5.00] out<- 01:CH2         1.57      .171 No data    12:00   51.82  n/a
     [L/S/n=  13./ .400/.012]
     [Vmax= 1.401:Dmax= .396]
     [Din=  .300:Dused=  .300]
* Input to Inlet 2 pipe
 250:0054----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ADD HYD           02:PR2A       .13      .170 No data    12:00   51.82  n/a
                     + 03:CH2        1.61      .17  No data    12:00   51.82  n/a
     [2= 5.00]  SUM=  01:In2        2.74      .300 No data    12:00   51.82  n/a
* Pipe from Inlet 2 - Route to pond
* HDPE smooth wall pipe Manning's n = 0.012
 250:0055----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ROUTE PIPE      -> 02:In2        2.74      .300 No data    12:00   51.82  n/a
   * [RET= 5.00] out<- 01:Pin2        2.74      .293 No data    12:05   51.82  n/a
     [L/S/n=  85./1.630/.012]
     [Vmax= 1.301:Dmax= .751]
* Total flow at node N-EX3
 250:0015----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ADD HYD           02:RNd       49.80     4.047 No data    17:15   66.80  n/a
                     + 04:CH10       1.84      .177 No data    17:05   64.28  n/a
     [2= 5.00]  SUM=  01:EX3       51.24     4.191 No data    12:15   48.75  n/a
* Route Node N-EX3 to Node B1
* Typical Section based on Sublide ND Veg Ditch 3:1 Banks
* provided by Atrel
* Manning's n is Channel not maintained, light brush on banks
* Slope = 0.05: as per plan provided by Atrel.
 250:0016----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ROUTE CHANNEL   -> 02:EX3       51.24     4.191 No data    12:15   48.75  n/a
   * [RET= 5.00] out<- 01:EX3A2     51.24     3.946 No data    12:20   48.79  n/a
     [L/S/n=  253./ .050/.035]
     [Vmax= .350:Dmax= 1.002]
*****************************************************************************
* Residential Development - Phase 1 and 2
*****************************************************************************
* Total flow at node N-B3B
 250:0047----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ADD HYD           02:B3A        1.14      .129 No data    12:05   43.18  n/a
                     + 03:B3B        5.27      .594 No data    12:05   43.18  n/a
                     + 04:CH4         .56      .055 No data    12:00   49.56  n/a
     [3= 5.00]  SUM=  01:EX3A       6.85      .695 No data    12:05   43.17  n/a
* Route Node EX3A to Node N-PK1
* Typical section based on McEvoy Branch Veg Ditch 3.5:1 slopes
* provided by Atrel
* Manning's n is Channel not maintained, light brush on banks
* Slope = 0.60: approximately as per Atrel drawing (68-66.1)/310m
 250:0048----------ID:NHYD-------AREA    QPEAK TpeakDate hh:mm----R.V.-R.C.-
     ROUTE CHANNEL   -> 02:EX3A      6.85      .695 No data    12:05   43.17  n/a
   * [RET= 5.00] out<- 01:EX3B      6.80      .620 No data    12:10   42.67  n/a
     [L/S/n=  310./ .050/.035]
     [Vmax= .715:Dmax= .785]
* Total flow at node N-PK1
 250:0049----------ID:NHYD-------AREA    QPEAK TpeakDate hh:mm----R.V.-R.C.-
     ADD HYD           02:EX1        4.26      .472 No data    12:05   43.18  n/a
                     + 03:EX3B       6.80      .620 No data    12:10   42.67  n/a
                     + 04:PR1A        .24      .028 No data    12:00   51.82  n/a
     [3= 5.00]  SUM=  01:PK1        11.30     1.063 No data    12:05   43.66  n/a
* Volume in ponding area (n PK)
* Q=0.85b m3/s required as per SCS 100yr Existing conditions
* Culvert from Inlet 1
* Assuming outlet culvert is 600 mm, slope = 1.2%, HDPE smooth walls
* Manning's n = 0.012, Inlet control nomograph
* Hydraulic Head - 0.8m, Q=0.610
 250:0050----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm    R.V.  R.C.
     CHBUTE FORLHYD    01:EPE1      11.30     1.063 No data    12:05   43.68  n/a
       Major System /  02:EPE1Mj      .00      .000 No data     0:00    .00  n/a
       Minor System \  03:EPE1Mn    11.30      .610 No data    12:00   44.14  n/a
     (MajSysFlow=0.000m3/s, TotOutFlo=0.000m3/s, M=Cstm    0, TotOutVol      0.0hrs)
* Input to Inlet 1 pipe
 250:0051----------ID:NHYD-------AREA    QPEAK TpeakDate hh:mm----R.V.-R.C.-
     ADD HYD           02:PR1A       .24      .028 No data    12:00   51.82  n/a
                     + 03:EPE1Mn    11.30      .610 No data    12:00   44.14  n/a
     [3= 5.00]  SUM=  01:In1        11.54      .672 No data    12:00   44.48  n/a
* Pipe from Inlet 1 - Route to pond
* HDPE smooth wall pipe Manning's n = 0.012
 250:0052----------ID:NHYD-------AREA    QPEAK TpeakDate hh:mm----R.V.-R.C.-
     ROUTE PIPE      -> 02:In1      11.54      .672 No data    12:00   44.48  n/a
     [RET= 5.00] out<- 01:In1       11.54      .588 No data    12:20   44.48  n/a
     [L/S/n=  85./1.630/.012]
     [Vmax= 3.306:Dmax= .436]
     [Din=  .600:Dused=  .600]
* Culvert from Inlet 2
* HDPE smooth wall pipe Manning's n = 0.012
 250:0053----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm    R.V.  R.C.
     ROUTE PIPE      -> 02:PR2A       1.57      .170 No data    12:00   51.82  n/a
     [RET= 5.00] out<- 01:CH2         1.57      .171 No data    12:00   51.82  n/a
     [L/S/n=  13./ .400/.012]
     [Vmax= 1.401:Dmax= .396]
     [Din=  .300:Dused=  .300]
* Input to Inlet 2 pipe
 250:0054----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ADD HYD           02:PR2A       .13      .170 No data    12:00   51.82  n/a
                     + 03:CH2        1.61      .17  No data    12:00   51.82  n/a
     [2= 5.00]  SUM=  01:In2        2.74      .300 No data    12:00   51.82  n/a
* Pipe from Inlet 2 - Route to pond
* HDPE smooth wall pipe Manning's n = 0.012
 250:0055----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ROUTE PIPE      -> 02:In2        2.74      .300 No data    12:00   51.82  n/a
   * [RET= 5.00] out<- 01:Pin2        2.74      .293 No data    12:05   51.82  n/a
     [L/S/n=  85./1.630/.012]
     [Vmax= 1.301:Dmax= .751]
* Total flow at node N-EX4
 250:0015----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ADD HYD           02:RNd       49.80     4.047 No data    17:15   66.80  n/a
                     + 04:CH10       1.84      .177 No data    17:05   64.28  n/a
     [2= 5.00]  SUM=  01:EX4       51.24     4.191 No data    12:15   48.75  n/a
* Route Node N-EX4 to Node B1
* Typical Section based on Sublide ND Veg Ditch 3:1 Banks
* provided by Atrel
* Manning's n is Channel not maintained, light brush on banks
* Slope = 0.05: as per plan provided by Atrel.
 250:0016----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ROUTE CHANNEL   -> 02:EX4       51.24     4.191 No data    12:15   48.75  n/a
   * [RET= 5.00] out<- 01:EX4A2     51.24     3.946 No data    12:20   48.79  n/a
     [L/S/n=  253./ .050/.035]
     [Vmax= .350:Dmax= 1.002]
*****************************************************************************
* Residential Development - Phase 1 and 2
*****************************************************************************
* Total flow at node N-B3B
 250:0047----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ADD HYD           02:B3A        1.14      .129 No data    12:05   43.18  n/a
                     + 03:B3B        5.27      .594 No data    12:05   43.18  n/a
                     + 04:CH4         .56      .055 No data    12:00   49.56  n/a
     [3= 5.00]  SUM=  01:EX3A       6.85      .695 No data    12:05   43.17  n/a
* Route Node EX3A to Node N-PK1
* Typical section based on McEvoy Branch Veg Ditch 3.5:1 slopes
* provided by Atrel
* Manning's n is Channel not maintained, light brush on banks
* Slope = 0.60: approximately as per Atrel drawing (68-66.1)/310m
 250:0048----------ID:NHYD-------AREA    QPEAK TpeakDate hh:mm----R.V.-R.C.-
     ROUTE CHANNEL   -> 02:EX3A      6.85      .695 No data    12:05   43.17  n/a
   * [RET= 5.00] out<- 01:EX3B      6.80      .620 No data    12:10   42.67  n/a
     [L/S/n=  310./ .050/.035]
     [Vmax= .715:Dmax= .785]
* Total flow at node N-PK1
 250:0049----------ID:NHYD-------AREA    QPEAK TpeakDate hh:mm----R.V.-R.C.-
     ADD HYD           02:EX1        4.26      .472 No data    12:05   43.18  n/a
                     + 03:EX3B       6.80      .620 No data    12:10   42.67  n/a
                     + 04:PR1A        .24      .028 No data    12:00   51.82  n/a
     [3= 5.00]  SUM=  01:PK1        11.30     1.063 No data    12:05   43.66  n/a
* Volume in ponding area (n PK)
* Q=0.85b m3/s required as per SCS 100yr Existing conditions
* Culvert from Inlet 1
* Assuming outlet culvert is 600 mm, slope = 1.2%, HDPE smooth walls
* Manning's n = 0.012, Inlet control nomograph
* Hydraulic Head - 0.8m, Q=0.610
 250:0050----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm    R.V.  R.C.
     CHBUTE FORLHYD    01:EPE1      11.30     1.063 No data    12:05   43.68  n/a
       Major System /  02:EPE1Mj      .00      .000 No data     0:00    .00  n/a
       Minor System \  03:EPE1Mn    11.30      .610 No data    12:00   44.14  n/a
     (MajSysFlow=0.000m3/s, TotOutFlo=0.000m3/s, M=Cstm    0, TotOutVol      0.0hrs)
* Input to Inlet 1 pipe
 250:0051----------ID:NHYD-------AREA    QPEAK TpeakDate hh:mm----R.V.-R.C.-
     ADD HYD           02:PR1A       .24      .028 No data    12:00   51.82  n/a
                     + 03:EPE1Mn    11.30      .610 No data    12:00   44.14  n/a
     [3= 5.00]  SUM=  01:In1        11.54      .672 No data    12:00   44.48  n/a
* Pipe from Inlet 1 - Route to pond
* HDPE smooth wall pipe Manning's n = 0.012
 250:0052----------ID:NHYD-------AREA    QPEAK TpeakDate hh:mm----R.V.-R.C.-
     ROUTE PIPE      -> 02:In1      11.54      .672 No data    12:00   44.48  n/a
     [RET= 5.00] out<- 01:In1       11.54      .588 No data    12:20   44.48  n/a
     [L/S/n=  85./1.630/.012]
     [Vmax= 3.306:Dmax= .436]
     [Din=  .600:Dused=  .600]
* Culvert from Inlet 2
* HDPE smooth wall pipe Manning's n = 0.012
 250:0053----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm    R.V.  R.C.
     ROUTE PIPE      -> 02:PR2A       1.57      .170 No data    12:00   51.82  n/a
     [RET= 5.00] out<- 01:CH2         1.57      .171 No data    12:00   51.82  n/a
     [L/S/n=  13./ .400/.012]
     [Vmax= 1.401:Dmax= .396]
     [Din=  .300:Dused=  .300]
* Input to Inlet 2 pipe
 250:0054----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ADD HYD           02:PR2A       .13      .170 No data    12:00   51.82  n/a
                     + 03:CH2        1.61      .17  No data    12:00   51.82  n/a
     [2= 5.00]  SUM=  01:In2        2.74      .300 No data    12:00   51.82  n/a
* Pipe from Inlet 2 - Route to pond
* HDPE smooth wall pipe Manning's n = 0.012
 250:0055----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ROUTE PIPE      -> 02:In2        2.74      .300 No data    12:00   51.82  n/a
   * [RET= 5.00] out<- 01:Pin2        2.74      .293 No data    12:05   51.82  n/a
     [L/S/n=  85./1.630/.012]
     [Vmax= 1.301:Dmax= .751]
* Total flow at node N-EX5
 250:0015----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ADD HYD           02:RNd       49.80     4.047 No data    17:15   66.80  n/a
                     + 04:CH10       1.84      .177 No data    17:05   64.28  n/a
     [2= 5.00]  SUM=  01:EX5       51.24     4.191 No data    12:15   48.75  n/a
* Route Node N-EX5 to Node B1
* Typical Section based on Sublide ND Veg Ditch 3:1 Banks
* provided by Atrel
* Manning's n is Channel not maintained, light brush on banks
* Slope = 0.05: as per plan provided by Atrel.
 250:0016----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ROUTE CHANNEL   -> 02:EX5       51.24     4.191 No data    12:15   48.75  n/a
   * [RET= 5.00] out<- 01:EX5A2     51.24     3.946 No data    12:20   48.79  n/a
     [L/S/n=  253./ .050/.035]
     [Vmax= .350:Dmax= 1.002]
*****************************************************************************
* Residential Development - Phase 1 and 2
*****************************************************************************
* Total flow at node N-B3B
 250:0047----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ADD HYD           02:B3A        1.14      .129 No data    12:05   43.18  n/a
                     + 03:B3B        5.27      .594 No data    12:05   43.18  n/a
                     + 04:CH4         .56      .055 No data    12:00   49.56  n/a
     [3= 5.00]  SUM=  01:EX3A       6.85      .695 No data    12:05   43.17  n/a
* Route Node EX3A to Node N-PK1
* Typical section based on McEvoy Branch Veg Ditch 3.5:1 slopes
* provided by Atrel
* Manning's n is Channel not maintained, light brush on banks
* Slope = 0.60: approximately as per Atrel drawing (68-66.1)/310m
 250:0048----------ID:NHYD-------AREA    QPEAK TpeakDate hh:mm----R.V.-R.C.-
     ROUTE CHANNEL   -> 02:EX3A      6.85      .695 No data    12:05   43.17  n/a
   * [RET= 5.00] out<- 01:EX3B      6.80      .620 No data    12:10   42.67  n/a
     [L/S/n=  310./ .050/.035]
     [Vmax= .715:Dmax= .785]
* Total flow at node N-PK1
 250:0049----------ID:NHYD-------AREA    QPEAK TpeakDate hh:mm----R.V.-R.C.-
     ADD HYD           02:EX1        4.26      .472 No data    12:05   43.18  n/a
                     + 03:EX3B       6.80      .620 No data    12:10   42.67  n/a
                     + 04:PR1A        .24      .028 No data    12:00   51.82  n/a
     [3= 5.00]  SUM=  01:PK1        11.30     1.063 No data    12:05   43.66  n/a
* Volume in ponding area (n PK)
* Q=0.85b m3/s required as per SCS 100yr Existing conditions
* Culvert from Inlet 1
* Assuming outlet culvert is 600 mm, slope = 1.2%, HDPE smooth walls
* Manning's n = 0.012, Inlet control nomograph
* Hydraulic Head - 0.8m, Q=0.610
 250:0050----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm    R.V.  R.C.
     CHBUTE FORLHYD    01:EPE1      11.30     1.063 No data    12:05   43.68  n/a
       Major System /  02:EPE1Mj      .00      .000 No data     0:00    .00  n/a
       Minor System \  03:EPE1Mn    11.30      .610 No data    12:00   44.14  n/a
     (MajSysFlow=0.000m3/s, TotOutFlo=0.000m3/s, M=Cstm    0, TotOutVol      0.0hrs)
* Input to Inlet 1 pipe
 250:0051----------ID:NHYD-------AREA    QPEAK TpeakDate hh:mm----R.V.-R.C.-
     ADD HYD           02:PR1A       .24      .028 No data    12:00   51.82  n/a
                     + 03:EPE1Mn    11.30      .610 No data    12:00   44.14  n/a
     [3= 5.00]  SUM=  01:In1        11.54      .672 No data    12:00   44.48  n/a
* Pipe from Inlet 1 - Route to pond
* HDPE smooth wall pipe Manning's n = 0.012
 250:0052----------ID:NHYD-------AREA    QPEAK TpeakDate hh:mm----R.V.-R.C.-
     ROUTE PIPE      -> 02:In1      11.54      .672 No data    12:00   44.48  n/a
     [RET= 5.00] out<- 01:In1       11.54      .588 No data    12:20   44.48  n/a
     [L/S/n=  85./1.630/.012]
     [Vmax= 3.306:Dmax= .436]
     [Din=  .600:Dused=  .600]
* Culvert from Inlet 2
* HDPE smooth wall pipe Manning's n = 0.012
 250:0053----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm    R.V.  R.C.
     ROUTE PIPE      -> 02:PR2A       1.57      .170 No data    12:00   51.82  n/a
     [RET= 5.00] out<- 01:CH2         1.57      .171 No data    12:00   51.82  n/a
     [L/S/n=  13./ .400/.012]
     [Vmax= 1.401:Dmax= .396]
     [Din=  .300:Dused=  .300]
* Input to Inlet 2 pipe
 250:0054----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ADD HYD           02:PR2A       .13      .170 No data    12:00   51.82  n/a
                     + 03:CH2        1.61      .17  No data    12:00   51.82  n/a
     [2= 5.00]  SUM=  01:In2        2.74      .300 No data    12:00   51.82  n/a
* Pipe from Inlet 2 - Route to pond
* HDPE smooth wall pipe Manning's n = 0.012
 250:0055----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ROUTE PIPE      -> 02:In2        2.74      .300 No data    12:00   51.82  n/a
   * [RET= 5.00] out<- 01:Pin2        2.74      .293 No data    12:05   51.82  n/a
     [L/S/n=  85./1.630/.012]
     [Vmax= 1.301:Dmax= .751]
* Total flow at node N-EX6
 250:0015----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ADD HYD           02:RNd       49.80     4.047 No data    17:15   66.80  n/a
                     + 04:CH10       1.84      .177 No data    17:05   64.28  n/a
     [2= 5.00]  SUM=  01:EX6       51.24     4.191 No data    12:15   48.75  n/a
* Route Node N-EX6 to Node B1
* Typical Section based on Sublide ND Veg Ditch 3:1 Banks
* provided by Atrel
* Manning's n is Channel not maintained, light brush on banks
* Slope = 0.05: as per plan provided by Atrel.
 250:0016----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ROUTE CHANNEL   -> 02:EX6       51.24     4.191 No data    12:15   48.75  n/a
   * [RET= 5.00] out<- 01:EX6A2     51.24     3.946 No data    12:20   48.79  n/a
     [L/S/n=  253./ .050/.035]
     [Vmax= .350:Dmax= 1.002]
*****************************************************************************
* Residential Development - Phase 1 and 2
*****************************************************************************
* Total flow at node N-B3B
 250:0047----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ADD HYD           02:B3A        1.14      .129 No data    12:05   43.18  n/a
                     + 03:B3B        5.27      .594 No data    12:05   43.18  n/a
                     + 04:CH4         .56      .055 No data    12:00   49.56  n/a
     [3= 5.00]  SUM=  01:EX3A       6.85      .695 No data    12:05   43.17  n/a
* Route Node EX3A to Node N-PK1
* Typical section based on McEvoy Branch Veg Ditch 3.5:1 slopes
* provided by Atrel
* Manning's n is Channel not maintained, light brush on banks
* Slope = 0.60: approximately as per Atrel drawing (68-66.1)/310m
 250:0048----------ID:NHYD-------AREA    QPEAK TpeakDate hh:mm----R.V.-R.C.-
     ROUTE CHANNEL   -> 02:EX3A      6.85      .695 No data    12:05   43.17  n/a
   * [RET= 5.00] out<- 01:EX3B      6.80      .620 No data    12:10   42.67  n/a
     [L/S/n=  310./ .050/.035]
     [Vmax= .715:Dmax= .785]
* Total flow at node N-PK1
 250:0049----------ID:NHYD-------AREA    QPEAK TpeakDate hh:mm----R.V.-R.C.-
     ADD HYD           02:EX1        4.26      .472 No data    12:05   43.18  n/a
                     + 03:EX3B       6.80      .620 No data    12:10   42.67  n/a
                     + 04:PR1A        .24      .028 No data    12:00   51.82  n/a
     [3= 5.00]  SUM=  01:PK1        11.30     1.063 No data    12:05   43.66  n/a
* Volume in ponding area (n PK)
* Q=0.85b m3/s required as per SCS 100yr Existing conditions
* Culvert from Inlet 1
* Assuming outlet culvert is 600 mm, slope = 1.2%, HDPE smooth walls
* Manning's n = 0.012, Inlet control nomograph
* Hydraulic Head - 0.8m, Q=0.610
 250:0050----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm    R.V.  R.C.
     CHBUTE FORLHYD    01:EPE1      11.30     1.063 No data    12:05   43.68  n/a
       Major System /  02:EPE1Mj      .00      .000 No data     0:00    .00  n/a
       Minor System \  03:EPE1Mn    11.30      .610 No data    12:00   44.14  n/a
     (MajSysFlow=0.000m3/s, TotOutFlo=0.000m3/s, M=Cstm    0, TotOutVol      0.0hrs)
* Input to Inlet 1 pipe
 250:0051----------ID:NHYD-------AREA    QPEAK TpeakDate hh:mm----R.V.-R.C.-
     ADD HYD           02:PR1A       .24      .028 No data    12:00   51.82  n/a
                     + 03:EPE1Mn    11.30      .610 No data    12:00   44.14  n/a
     [3= 5.00]  SUM=  01:In1        11.54      .672 No data    12:00   44.48  n/a
* Pipe from Inlet 1 - Route to pond
* HDPE smooth wall pipe Manning's n = 0.012
 250:0052----------ID:NHYD-------AREA    QPEAK TpeakDate hh:mm----R.V.-R.C.-
     ROUTE PIPE      -> 02:In1      11.54      .672 No data    12:00   44.48  n/a
     [RET= 5.00] out<- 01:In1       11.54      .588 No data    12:20   44.48  n/a
     [L/S/n=  85./1.630/.012]
     [Vmax= 3.306:Dmax= .436]
     [Din=  .600:Dused=  .600]
* Culvert from Inlet 2
* HDPE smooth wall pipe Manning's n = 0.012
 250:0053----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm    R.V.  R.C.
     ROUTE PIPE      -> 02:PR2A       1.57      .170 No data    12:00   51.82  n/a
     [RET= 5.00] out<- 01:CH2         1.57      .171 No data    12:00   51.82  n/a
     [L/S/n=  13./ .400/.012]
     [Vmax= 1.401:Dmax= .396]
     [Din=  .300:Dused=  .300]
* Input to Inlet 2 pipe
 250:0054----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ADD HYD           02:PR2A       .13      .170 No data    12:00   51.82  n/a
                     + 03:CH2        1.61      .17  No data    12:00   51.82  n/a
     [2= 5.00]  SUM=  01:In2        2.74      .300 No data    12:00   51.82  n/a
* Pipe from Inlet 2 - Route to pond
* HDPE smooth wall pipe Manning's n = 0.012
 250:0055----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     ROUTE PIPE      -> 02:In2        2.74      .300 No data    12:00   51.82  n/a
   * [RET= 5.00] out<- 01:Pin2        2.74      .293 No data    12:05   51.82  n/a
     [L/S/n=  85./1.630/.012]
     [Vmax= 1.301:Dmax= .751]
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*    [MAX= 5.00] outs= 01:Pin6        7.16     .284 No date   12:05   51.62  n/a
      [L/S/m-   70./ .300/.012]
      (Vmax= 1.350:Dmax=  .634)
      [Din=  .500:Dused=  .529]
* VOLUME TO POND CLIMATE RESIDENTIAL
 250:0068--------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
    ADD HYD           02:Pin1        11.00     .485 No date   12:05   46.49  n/a
                    + 03:Pin2         2.74     .269 No date   12:05   51.62  n/a
                    + 04:Pin3          .67     .107 No date   12:05   51.62  n/a
                    + 05:Pin4         1.36     .133 No date   12:00   51.62  n/a
                    + 06:Pin5         1.12     .126 No date   12:00   51.62  n/a
                    + 07:Pin6         2.36     .255 No date   12:05   51.62  n/a
                    + 08:POu          5.03     .808 No date   12:00   66.35  n/a
      [U= 5.00]  SUM=  01:PONDin     25.08    3.427 No date   12:00   51.27  n/a
 250:0069--------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
    ROUTE RESERVOIR => 01:PONDin     25.48    3.427 No date   12:00   51.27  n/a
     [RDT= 5.00] out= 02:POut         25.48     .266 No date   13:40   51.27  n/a
           overflow <- 03:ovrQ         .00     .000 No date    0:00    .00  n/a
     [MAX=0.0=d-.7751E+00, IotOutVol= 0.00E+00, B-Date=    0, TotDurOut=    0.hrs]
* Simulating SCS 100 yr conditions with submergence at outflow weir
* Updated for weir (4) .6 d.s
$ROUTE RESERVOIR     NHYDout=["POut"] ,NHYDin=["PONDin"] ,
$                    RDT= 5[min],
$                          TABLE OF | OUTFLOW-STORAGE | values
$                                   |COL1 = (hy-m)
$                                   |   0.0 ,  0.0 |
$                                   |0.8080| ,  1.209
$                                   |0.20  | ,  1.21 |
$                                   |0.35  | ,  2.0195
$                                   |   -1 ,   -1  |   (max twenty pts)
$                          NHYDout=["ovrQ"] ,
* Route pond output through first set of pipes
* 2 x 600 pipes simulated with 3 pipe of equivalent capacity (=780 mm dia)
* HDPE smooth wall pipe Manning's n = 0.012
 250:0070--------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
    ROUTE PIPE       => 02:POout      25.48     .266 No date   13:40   51.27  n/a
     [RDT= 5.00] outs= 01:POut1       25.48     .266 No date   13:35   51.27  n/a
      [L/S/m-   70./ .300/.012]
      (Vmax= 1.216:Dmax=  .593)
      [Din=  .780:Dused=  .780]
* Flow c/s of outlet culverts
 250:0071--------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
    ADD HYD           02:rd7b1          .36     .039 No date   12:05   47.53  n/a
                    + 03:RR7B2          .22     .024 No date   12:05   47.53  n/a
                    = 04:Pout1        25.08     .266 No date   13:35   51.27  n/a
      [U= 5.00]  SUM=  01:Pout        26.00     .272 No date   13:35   51.19  n/a
* Route outflow through set of culverts
* 2 x 600 culverts simulated with 1 culvert of equivalent capacity (=780 mm dia
* HDPE smooth wall pipe Manning's n = 0.012
 250:0072--------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
    ROUTE PIPE       => 02:Pout       26.00     .272 No date   13:35   51.19  n/a
     [RDT= 5.00] outs= 01:Pout        26.00     .272 No date   13:35   51.19  n/a
      [L/S/m-   70./ .300/.012]
      (Vmax= 1.576:Dmax=  .784)
      [Din=  .780:Dused=  .780]
* Flow c/s of second set of culvert pipes
 250:0073--------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
    ADD HYD           02:rd7c1          .39     .042 No date   12:05   47.53  n/a
                    + 03:rd7c2          .17     .018 No date   12:05   47.53  n/a
                    = 04:Pout2        26.00     .272 No date   13:35   51.19  n/a
      [U= 5.00]  SUM=  01:Pout2       26.00     .272 No date   13:35   51.11  n/a
* Route outflow through second set of pipes
* 2 x 600 pipes simulated with 1 pipe of equivalent capacity (=780 mm dia)
* HDPE smooth wall pipe Manning's n = 0.012
 250:0074--------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
    ROUTE PIPE       => 02:Pout2      26.62     .278 No date   13:35   51.11  n/a
     [RDT= 5.00] outs= 01:PoutF       26.62     .278 No date   13:35   51.11  n/a
      [L/S/m-   62./ .260/.012]
      [Vmax= 1.230:Dmax=  .577]
      [Din=  .780:Dused=  .780]
* Total flow at node N1 (Behind MD along Soles Barn Rd)
 250:0075--------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
    ADD HYD           02:RdEX2         51.24    1.376 No date   12:10   46.75  n/a
                    + 03:PoutF         26.62     .278 No date   13:35   51.11  n/a
                    = 04:EX7           77.87     .648 No date   12:00   50.75  n/a
                    + 05:rd7D1          .50     .033 No date   12:05   47.53  n/a
                    + 06:rd7D2          .62     .042 No date   12:05   47.53  n/a
      [U= 5.00]  SUM=  01:N1          78.17    3.693 No date   12:00   48.73  n/a
* ROUTE N1 to N2
* Typical Section based on Shields MD Vee Ditch 3:1 Banks
* provided by Atzel
* Manning's n is Channel not maintained, light brush on banks
* Slope = 0.02: as per plan provided by Atzel.

 250:0076--------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
    ROUTE CHANNEL    => 02:N2         79.17    3.693 No date   12:00   48.73  n/a
     [RDT= 5.00] outs= 01:N2          79.17    3.693 No date   12:00   48.73  n/a
      [L/S/m=  49%./ .980/.035]
      (Vmax=  .953:Dmax= 1.767)
* VOLUME from residential area at N1 (Behind
 250:0077--------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
    ADD HYD           03:rd7A          1.95     .198 No date   12:05   47.53  n/a
                    + 03:rd7B          1.38     .134 No date   12:05   47.53  n/a
                    = 04:N3x2          3.33     .274 No date   12:05   47.53  n/a
      [TT= 5.00]  SUM=  01:N3x2        3.33     .274 No date   12:05   47.53  n/a
* Added VOLUME from external area contributing to N3
 250:0078--------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
    ADD HYD           02:rd3          78.17    3.693 No date   12:00   48.73  n/a
                    + 03:rd3          2.75     .274 No date   12:05   47.53  n/a
                    + 04:EX5           .52     .081 No date   12:00   50.75  n/a
                    + 05:EX6           .51     .054 No date   12:00   49.13  n/a
      [U= 5.00]  SUM=  01:N3         82.95    3.763 No date   12:00   48.75  n/a
* ROUTE N3 to RC128
* Typical Section based on Shields MD Vee Ditch 3:1 Banks
* provided by Atzel
* Manning's n is Channel not maintained, light brush on banks
* Slope = 0.02: as per plan provided by Atzel.
 250:0079--------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
    ROUTE CHANNEL    => 02:N3         82.95    3.763 No date   12:00   48.75  n/a
     [RDT= 5.00] outs= 01:RN3         82.95    3.763 No date   12:00   48.75  n/a
      [L/S/m=  415./ .850/.035]
      (Vmax=  .829:Dmax= 1.687)
* Flow c/s at site POR128 for comparison
* Routed N3 plus EX3
 250:0080--------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
    ADD HYD           02:EX3           82.80    3.742 No date   12:00   48.75  n/a
                    + 03:EX7           73.58     .836 No date   12:45   45.38  n/a
      [DT= 5.00]  SUM=  01:RC8128     156.23    3.536 No date   12:50   47.21  n/a
* AREA CHECK
*
 250:0081--------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
    ADD HYD           01:EX1           24.62    2.833 No date   12:05   50.25  n/a
                    + 03:EX2           9.89     .454 No date   12:35   43.18  n/a
                    + 04:EX3          21.30     .836 No date   12:45   43.18  n/a
                    + 05:EX4            .50     .035 No date   12:00   49.96  n/a
                    + 06:EX5            .52     .081 No date   12:00   50.75  n/a
                    + 07:EX6            .51     .054 No date   12:00   49.13  n/a
                    + 08:EX7            .30     .046 No date   12:00   50.75  n/a
                    + 09:PR1A           .24     .028 No date   12:00   51.62  n/a
                    + 10:PR1B           .55     .062 No date   12:00   51.62  n/a
      [U= 5.00]  SUM=  01:Out1        58.52    3.749 No date   12:05   46.58  n/a
 250:0082--------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
    ADD HYD           02:Out1          58.52    3.749 No date   12:05   46.58  n/a
                    + 03:PR1A           .24     .028 No date   12:00   51.62  n/a
                    + 04:PR2B          1.17     .129 No date   12:00   51.62  n/a
                    + 05:PR3A           .45     .051 No date   12:00   51.62  n/a
                    + 06:PR3B           .52     .059 No date   12:00   51.62  n/a
                    + 07:PR4A           .31     .035 No date   12:00   51.62  n/a
                    + 08:PR4B           .65     .074 No date   12:00   51.62  n/a
                    + 09:PR5A           .56     .064 No date   12:00   51.62  n/a
                    + 10:PR5B           .46     .052 No date   12:00   51.62  n/a
      [U= 5.00]  SUM=  01:Out2        64.71    4.404 No date   12:05   47.06  n/a
 250:0083--------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
    ADD HYD           02:Out2          64.71    4.404 No date   12:05   47.06  n/a
                    - 03:PR6A           1.47     .156 No date   12:05   51.62  n/a
                    - 04:PR6B            .91     .104 No date   12:05   51.62  n/a
                    + 05:PR7A           1.35     .148 No date   12:05   47.53  n/a
                    + 06:PR7B1          .36     .039 No date   12:05   47.53  n/a
                    + 07:PR7B2          .22     .024 No date   12:05   47.53  n/a
                    + 08:PR7C1          .39     .042 No date   12:05   47.53  n/a
                    + 09:PR7C2          .17     .018 No date   12:05   47.53  n/a
                    + 10:PR7D           .50     .033 No date   12:05   47.53  n/a
      [U= 5.00]  SUM=  01:Out3        63.84    4.549 No date   12:05   47.23  n/a
 250:0084--------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
    ADD HYD           03:Out3          63.84    4.549 No date   12:05   47.23  n/a
                    + 03:PR8           1.38     .134 No date   12:05   45.28  n/a
                    + 04:PR9A          1.10     .108 No date   12:05   45.28  n/a
                    + 05:PR9B1          .25     .025 No date   12:05   45.28  n/a
                    + 06:PR9B2          .60     .059 No date   12:05   45.28  n/a
                    + 07:PR10           .84     .127 No date   12:05   48.28  n/a
                    + 08:PR11           .62     .062 No date   12:05   47.28  n/a
                    + 09:PR2           4.26     .473 No date   12:05   43.18  n/a
                    + 10:PR3           5.05     .687 No date   12:00   44.74  n/a
      [U= 5.00]  SUM=  01:Out4        84.10    6.806 No date   12:05   46.04  n/a
 250:0085--------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
    ADD HYD           03:Out4          84.10    6.806 No date   12:05   46.04  n/a
                    + 03:R1A           9.41     .751 No date   12:10   43.18  n/a
                    + 04:R2A           3.13     .429 No date   12:00   43.18  n/a
```

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                        +  CA:R3A        4.14     .629 Ro_date   12:05   45.18  n/a
                        +  CA:R3A        2.21     .216 Ro_date   12:05   45.18  n/a
      [IT= 5.00]  SUM=  CA:Sub5     104.23    8.012 Ro_date   12:05   47.16  n/a
#*******************************************************************************
# Simulations with 4 hour Chicago from City of Ottawa
# SCS 24 hours Type 2, from City of Ottawa
   ** END OF RUN : 288
#
#*******************************************************************************
#
#
#
#
#
  RUN:COMMAND#
  288:0001-------------------------------------------------------------------------
      START
       [YZERO =    .00 hrs on       0]
       [METOUT=   2    [1=Imperial, 2=Metric output]]
       [NSTORM=   1 ]
       [NRUN    288 ]
#*******************************************************************************
#  SWMHYMO Ver:5.02/Jan 2001 <BE/AA> / INPUT DATA FILE
#*******************************************************************************
#  Project Name: [Greely Village Center]    Project Number: [647-07]
#  Date        : 06-05-2008
#  Modeller    : [MF]
#  Company     : [JFSAinc.
#  License #   : 2567602
#*******************************************************************************
#
# SWMHYMO model of the Greely Village Center - Residential Area - Phase 2
# Proposed Ultimate conditions. OPTION B
# Filename stands for: GRP2u2a = Greely, Residential , Phase 2, ultimate v2 wall
#
#  December 15, 2008
#  "a" at the end of filename  Added July 1st 1999 Kwan
#*******************************************************************************
 299:0002-------------------------------------------------------------------------
      READ STORM
       Filename =  storm.001
       Comment  =  100 years SCS Type 2 Storm 24 hours Stop 10 min. City of Ott
       [SDT 10.00:SDUR=  24.00:PTOT= 100.7]
#*******************************************************************************
# Existing flow - Medway Branch of Shirtz Creek - Areas
# Area a/s of proposed development (residential)
# CN*=85, alpha = 3.6, Ip=0.16, XIMP=5, TIMP=5, see SC001 as per Stantec
# Area partially adjusted based on Arial drawings.
#*******************************************************************************
# a/s of Bank Sts per Arial - with modified boundaries and Tp.
 299:0003-------------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      DESIGN HASHYD     01:EX1       24.82    3.398 No_date   12:05   50.43 .545
       [CN= 85.0: N= 3.00]
       [Ia=  .23:SC=  5.00]
#*******************************************************************************
# Existing flow - External areas d/s of Bank St.
# CN* 69, as per Stantec see SC001.
# Area partially adjusted based on Ariel drawings.
#*******************************************************************************
# Areas External to Development
 299:0004-------------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      DESIGN HASHYD     01:EX2        9.89     .534 No_date   12:05   50.43 .475
       [CN= 69.0: N= 3.00]
       [Ia=  .67:SC=  5.00]
 299:0005-------------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      DESIGN HASHYD     01:EX3       21.30     .982 No_date   12:05   50.43 .474
       [CN= 69.0: N= 3.00]
       [Ia=  .53:SC=  5.00]
# Slope, Timp, Area from Arial Scaling
# CN from Stantec (SC001)
# Ximp = Timp = 10%
 299:0006-------------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
   * CALIB STANDHYD     01:EX4        .58     .055 No_date   12:00   57.83 .547
       [XIMP= 11:TIMP=.27]
       [Iabs= 2 :CN= 69.0]
       [Pervious    area: [Aper= 0.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
       [Impervious  area: [AImp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
# Road and road side ditch along progressed residential development Parkway Rd
# Timp = Ximp = 0.21 Ha /0.57 Ha = 0.40
# CN*=69, as per Stantec see SC001.
# Slope is estimated at 1%
# Ximp = Timp = 10%
 299:0007-------------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
   * CALIB STANDHYD     01:EX5        .50     .069 No_date   12:00   56.96 .541
       [XIMP= 11:TIMP=.27]
       [Iabs= 2 :CN= 69.0]
       [Pervious    area: [Aper= 0.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
       [Impervious  area: [AImp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
# Road and road side ditch along projected residential development SalesBarn Rd
# Timp = Ximp = 0.09 Ha /0.39 Ha = 0.23
# CN*=69, as per Stantec see SC001.
# Slope is estimated at 1%
# Ximp = Timp = 10%
 299:0008-------------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
   * CALIB STANDHYD     01:EX6        .39     .053 No_date   12:00   56.65 .550
       [XIMP= 11:TIMP=.27]
       [Iabs= 2 :CN= 69.0]
       [Pervious    area: [Aper= 0.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
       [Impervious  area: [AImp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
# Areas to be occupied by commercial development
# CN* 69, as per Stantec see SC001.
 299:0010-------------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      DESIGN HASHYD     01:SA1        5.41     .982 No_date   12:10   50.60 .473
       [CN= 69.0: N=  3.00]
       [Ia=  .23:SC=  5.00]
 299:0011-------------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      DESIGN HASHYD     01:SA2        3.13     .303 No_date   12:30   50.49 .473
       [CN= 61.0: N= 3.00]
       [Ia=  .13:SC=  5.00]
 299:0012-------------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      DESIGN HASHYD     01:SA3        4.14     .903 No_date   12:05   50.49 .473
       [CN= 69.0: N= 3.00]
       [Ia=  .23:SC=  5.00]
 299:0013-------------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      DESIGN HASHYD     01:SA4        2.21     .067 No_date   12:05   50.49 .473
       [CN= 69.0: N= 3.00]
       [Ia=  .23:SC=  5.00]
#*******************************************************************************
#
# PROPOSED RESIDENTIAL SUBWATERSHEDs - Residential Area Phase 1 and 2
#
#*******************************************************************************
# CN*=69, as per Stantec see SC001.
# Tp estimated with Upland Method.
 299:0014-------------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      DESIGN HASHYD     01:PR1        4.26     .655 No_date   12:05   50.68 .473
       [CN= 69.0: N= 3.00]
       [Ia=  .18:SC=  5.00]
#*******************************************************************************
# AREAs GOING TO POND
#*******************************************************************************
#
 299:0015-------------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
   * CALIB STANDHYD     01:PR1A       1.26     .249 No_date   12:00   50.68 .569
       [XIMP= 11:TIMP=.21]
       [Iabs= 2 :CN= 71.0]
       [Pervious    area: [Aper= 0.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
       [Impervious  area: [AImp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
 299:0016-------------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
   * CALIB STANDHYD     01:PR1B       1.58     .373 No_date   12:00   59.68 .559
       [XIMP= 11:TIMP=.21]
       [Iabs= 2 :CN= 71.0]
       [Pervious    area: [Aper= 0.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
       [Impervious  area: [AImp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
 299:0017-------------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
   * CALIB STANDHYD     01:PR2A       1.57     .291 No_date   12:00   59.68 .559
       [XIMP= 11:TIMP=.21]
       [Iabs= 2 :CN= 71.0]
       [Pervious    area: [Aper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
       [Impervious  area: [AImp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
 299:0018-------------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
   * CALIB STANDHYD     01:PR2B       1.13     .192 No_date   12:00   59.68 .559
       [XIMP= 11:TIMP=.21]
       [Iabs= 2 :CN= 71.0]
       [Pervious    area: [Aper=  4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
       [Impervious  area: [AImp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
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08340> 299:00.9----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
08341>   * CALIB STANDHYD     01:FR3A         .45      .661 No_Date   12:00   58.68 .559
08342>       [XIMP=.11:TIMP=.21]
08343>       [LOSS= 2 :CN= 71.0]
08344>       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
08345>       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
08346> 299:0020----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
08347>   * CALIB STANDHYD     01:FR1S         .57      .826 No_Date   12:00   58.68 .559
08348>       [XIMP=.11:TIMP=.21]
08349>       [LOSS= 2 :CN= 71.0]
08350>       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
08351>       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
08352> 299:0021----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
08353>   * CALIB STANDHYD     01:FR4A         .71      .994 No_Date   12:00   59.36 .559
08354>       [XIMP=.11:TIMP=.21]
08355>       [LOSS= 2 :CN= 71.0]
08356>       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
08357>       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
08358> 299:0022----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
08359>   * CALIB STANDHYD     01:FR1B         .65      .886 No_Date   12:00   58.68 .559
08360>       [XIMP=.11:TIMP=.21]
08361>       [LOSS= 2 :CN= 71.0]
08362>       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
08363>       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
08364> 299:0023----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
08365>   * CALIB STANDHYD     01:FR5B         .16      .662 No_Date   12:00   58.68 .559
08366>       [XIMP=.11:TIMP=.21]
08367>       [LOSS= 2 :CN= 71.0]
08368>       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
08369>       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
08370> 299:0025----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
08371>   * CALIB STANDHYD     01:FR6A         1.47     1.191 No_Date   12:00   58.68 .559
08372>       [XIMP=.11:TIMP=.21]
08373>       [LOSS= 2 :CN= 71.0]
08374>       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
08375>       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
08376> 299:0026----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
08377>   * CALIB STANDHYD     01:FR6B         .29      .237 No_Date   12:00   58.68 .559
08378>       [XIMP=.11:TIMP=.21]
08379>       [LOSS= 2 :CN= 71.0]
08380>       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
08381>       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
08382> # slope estimated at 2% based on backyard swales.
08383> # Iimp and Ximp based on total pond area
08384> # ximp = A pond/A tot
08385> # Iimp = weighted average of pond and backyards
08386>  299:0027----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
08387>     CALIB STANDHYD     01:FR7a         5.04     7.066 No_Date   12:00   75.51 .701
08388>       [XIMP=.41:TIMP=.47]
08389>       [LOSS= 2 :CN= 71.0]
08390>       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
08391>       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI= 183.:MNI=.045:SCI=   .0]
08392> *****************************************************************************
08393> * UNCONTROLLED AREAS
08394> *****************************************************************************
08395> *
08396>  299:00.8----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
08397>   * CALIB STANDHYD     01:FR7A         1.35      .187 No_Date   12:05   50.40 .519
08398>       [XIMP=.02:TIMP=.14]
08399>       [LOSS= 2 :CN= 71.0]
08400>       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  30.:MNP=.250:SCP=   .0]
08401>       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
08402> 299:0029----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
08403>   * CALIB STANDHYD     01:FR7B1        .36      .051 No_Date   12:00   50.40 .519
08404>       [XIMP=.02:TIMP=.14]
08405>       [LOSS= 2 :CN= 71.0]
08406>       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  30.:MNP=.250:SCP=   .0]
08407>       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
08408> 299:0030----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
08409>   * CALIB STANDHYD     01:FR7B2        .22      .031 No_Date   12:00   50.40 .519
08410>       [XIMP=.02:TIMP=.14]
08411>       [LOSS= 2 :CN= 71.0]
08412>       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  30.:MNP=.250:SCP=   .0]
08413>       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
08414> 299:0031----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
08415>   * CALIB STANDHYD     01:FR7C1        .17      .023 No_Date   12:00   50.40 .519
08416>       [XIMP=.02:TIMP=.14]
08417>       [LOSS= 2 :CN= 71.0]
08418>       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  30.:MNP=.250:SCP=   .0]
08419>       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
08420> 299:0032----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
08421>   * CALIB STANDHYD     01:FR7D         .10      .043 No_Date   12:00   50.40 .519
08422>       [XIMP=.02:TIMP=.14]
08423>       [LOSS= 2 :CN= 71.0]
08424>       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  30.:MNP=.250:SCP=   .0]
08425>       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
08426> 299:0034----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
08427>   * CALIB STANDHYD     01:FR8          1.18      .162 No_Date   12:05   52.95 .496
08428>       [XIMP=.01:TIMP=.07]
08429>       [LOSS= 2 :CN= 71.0]
08430>       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
08431>       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  96.:MNI=.045:SCI=   .0]
08432> 299:0035----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
08433>   * CALIB STANDHYD     01:FR8A         1.10      .139 No_Date   12:05   52.95 .496
08434>       [XIMP=.01:TIMP=.07]
08435>       [LOSS= 2 :CN= 71.0]
08436>       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
08437>       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
08438> 299:0036----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
08439>   * CALIB STANDHYD     01:FR8B         .05      .021 No_Date   12:05   52.95 .496
08440>       [XIMP=.01:TIMP=.07]
08441>       [LOSS= 2 :CN= 71.0]
08442>       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
08443>       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
08444> 299:0037----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
08445>   * CALIB STANDHYD     01:FR9A         1.84      .914 No_Date   12:05   52.95 .496
08446>       [XIMP=.01:TIMP=.07]
08447>       [LOSS= 2 :CN= 71.0]
08448>       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
08449>       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
08450> 299:0038----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
08451>   * CALIB STANDHYD     01:FR9B         .62      .276 No_Date   12:05   52.95 .496
08452>       [XIMP=.01:TIMP=.07]
08453>       [LOSS= 2 :CN= 71.0]
08454>       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
08455>       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
08456> *****************************************************************************
08457> * EXISTING flow - Upstream of Residential Area Phase 1 and 2
08458> *****************************************************************************
08459> # Typical Section based on proposed channel provided by ASL
08460> # 4:1 bank slopes, Long Slope = 0.50%, Manning's n is 0.03
08461> # Route EX1 to U/s node B3
08462>  299:0040----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
08463>     ROUTE CHANNEL   -> 02:EX1        24.62     3.288 No_Date   12:05   50.31 n/a
08464>       [RDT= 5.00] surf= 01:RFX1       24.62     3.159 No_Date   12:10   50.31 n/a
08465>       [L/S/n=  312./ .500/.030]
08466>       [Vmax= 1.224:Emax=  .670]
08467> # Total flow at N-R2A
08468> # (Note that R1A will be sheet draining to proposed channel)
08469>  299:0041----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
08470>     ADD HYD         03:R1A          6.41      .887 No_Date   12:10   50.43 n/a
08471>                   + 05:R2A          4.15      .583 No_Date   12:00   50.43 n/a
08472>                   + 04:NR2A        13.64     1.879 No_Date   12:05   50.95 n/a
08473>       [V= 5.00]  SUM= 01:NR2A       13.64     1.879 No_Date   12:05   50.88 n/a
08474> # Typical section based on proposed channel provided by ASL
08475> # 4:1 bank slopes, Long Slope = 0.50%, Manning's n is 0.03
08476> # Route SW draining at N-R2A to U/s node B6
08477>  299:0042----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
08478>     ROUTE CHANNEL   -> 02:NR2A       13.64     1.879 No_Date   12:05   50.88 n/a
08479>       [RDT= 5.00] surf= 01:RNR2A      13.64     1.747 No_Date   12:10   50.88 n/a
08480>       [L/S/n=  447./ .500/.030]
08481>       [Vmax= .999:Emax=  .458]
08482> # Total flow at node B6
08483> # (Note that EX2 will be sheet draining to proposed channel)
08484>  299:0043----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
08485>     ADD HYD         03:RNR2A        13.64     1.747 No_Date   12:10   50.88 n/a
08486>                   + 04:rx6s1        .25       .031 No_Date   12:00   52.95 n/a
08487>       [Loss= 2 :CN= 71.0]
08488>       [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
08489>       [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
```

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                    +  05:DP2SU2        1.00      .119 No data    12:05   52.95  n/a
                    +  06:EX2           9.69      .534 No data     7:35   50.49  n/a
      [JI= 5.00]  SUM=  01:EX3         49.40     4.015 No data     7:10   54.50  n/a
# Typical Section based on proposed channel provided by AEL
# 4:1 bank slopes, Long Slope = 0.50%, Manning's n is 0.03
# Route SW draining at 50 to 2/a node N-EX2
 259:0044----------------ID:BHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ROUTE CHANNEL   -> 02:EX2         49.40     4.015 No data    12:10   54.50  n/a
      [RT= 5.00] out<- 01:EX3         49.40     4.752 No data    12:15   54.50  n/a
      [L/S/n=  324./ .500/.030]
      [Vmax= 1.355]Dmax=  .79]
# Total flow at node N-EX2
 259:0045----------------ID:BHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ADD HYD         02:EX3         49.40     4.752 No data    12:15   54.50  n/a
                    +  03:PM10         1.84      .214 No data     7:05   52.95  n/a
      [SI= 5.00]  SUM=  01:EX2         51.24     4.916 No data    12:15   54.45  n/a
# Route Node N-EX2 to Node N1
# Typical Section based on Salcido ND Veg Ditch 3:1 banks
# provided by Airel
# Manning's n is Channel not maintained, light grass on banks
# Slope = 0.5% as per plan provided by Airel.
 259:0046----------------ID:BHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ROUTE CHANNEL   -> 02:EX2         51.24     4.916 No data    12:15   54.45  n/a
   +  [RT= 5.00] out<- 01:ENEX2        51.24     5.923 No data    12:20   54.45  n/a
      [L/S/n=  753./ .050/.035]
      [Vmax=  .349]Dmax=  .925]
#*****************************************************************************
# Meadowridge Development - Phase 1 and 2
#*****************************************************************************
# Total flow at node N-PK
 259:0047----------------ID:BHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ADD HYD         02:EX3         51.24     4.916 No data    12:15   54.45  n/a
                    +  03:EX3E         2.21      .254 No data    12:05   56.42  n/a
                    +  04:EX4           .56      .065 No data    12:00   57.83  n/a
      [SI= 5.00]  SUM=  01:EX1S        6.85      .817 No data    12:05   51.02  n/a
# Route Node N-EX1 to Node N-PK
# Typical Section based on McEvoy Branch Vee Ditch 1.5:1 slopes
# provided by Airel
# Manning's n is Channel not maintained, light grass on banks
# Slope = 0.60% approximately as per Airel drawing (85-86.1)/4 Rn
 259:0048----------------ID:BHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ROUTE CHANNEL   -> 02:EX1S         6.85      .817 No data    12:05   51.02  n/a
      [RT= 5.00] out<- 01:EXEXE        6.85      .734 No data    12:10   51.03  n/a
      [L/S/n=  310./ .030/.056]
      [Vmax=  .76]Dmax=  .867]
# Total flow at node N-PK
 259:0049----------------ID:BHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ADD HYD         02:EX1         4.26      .595 No data    12:05   56.42  n/a
                    +  03:EXE3E        6.85      .734 No data    12:10   51.03  n/a
                    +  04:PP1A          .24      .035 No data    12:00   58.66  n/a
      [SI= 5.00]  SUM=  01:EPE1       11.35     1.364 No data    12:05   51.01  n/a
# Volume in pond.ng area in PK1
# Q=0.035 m3/s required as per SCP 103/1 Existing conditions
# Culvert from Inlet 1
# Assuming outlet culvert is 600 mm, slope = 1.2%, HDPE smooth walls
# Manning's n  0.012, inlet control nomograph
# Pygraul'c head = 0.9m, Q=0.610
 259:0050----------------ID:BHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      COMPUTE DIAGRAPH    01:EPE1       11.35     1.760 No data    12:05   51.01  n/a
        Water System /  02:EPE1R1        .00      .000 No data     0:00    .00  n/a
        Mixed System \  03:EPE1Rn       11.35      .810 No data    12:05   51.01  n/a
      (N)SvsSto=-.7708E+03, ToUsVfol=.0000E+00, M-Def=    0, ToDurOvf=    0.hrs)
# Input to Inlet 1 pipe
 259:0051----------------ID:BHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ADD HYD         02:PR1B          .50      .077 No data    12:00   58.66  n/a
                    +  01:EPE1Rn      11.35      .810 No data    12:00   51.01  n/a
      [SI= 5.00]  SUM=  01:In1        11.85      .887 No data    12:00   51.69  n/a
# Pipe from Inlet 1 - Route to pond
# HDPE smooth wall pipe Manning's n = 0.012
 259:0052----------------ID:BHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ROUTE PIPE      -> 02:In1         11.85      .883 No data    12:00   51.69  n/a
      [RT= 5.00] out<- 01:Pin1        11.85      .681 No data    12:00   51.70  n/a
      [L/S/n=  65./1.600/.012]
      [Vmax= 5.01]/Dmax=  .41]
      [Qin=  .600]Dused=  .500]
# Culvert from Inlet 2
# HDPE smooth wall pipe Manning's n  0.012
 259:0053----------------ID:BHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ROUTE PIPE      -> 02:YR2A         .51      .038 No data    12:00   59.38  n/a
      [RT= 5.00] out<- 01:Cln2         11.97      .282 No data    12:00   59.38  n/a
      [L/S/n=  13./ .400/.012]
      [Vmax= 1.456]Dmax=  .331]
      [Qin=  .500]Dused=  .500]
# Input to Inlet 2 pipe
 259:0054----------------ID:BHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ADD HYD         02:PR2B          .17      .152 No data    12:00   59.66  n/a
                    +  03:Cln2         11.97      .282 No data    12:00   59.66  n/a
      [SI= 5.00]  SUM=  01:In2        12.14      .384 No data    12:00   59.66  n/a
# Pipe from Inlet 2 - Route to pond
# HDPE smooth wall pipe Manning's n = 0.012
 259:0055----------------ID:BHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ROUTE PIPE      -> 02:In2         12.14      .384 No data    12:05   59.66  n/a
   +  [RT= 5.00] out<- 01:Pin2         12.14      .347 No data    12:05   59.66  n/a
      [L/S/n=  25./ .200/.012]
      [Vmax= 1.953]Dmax=  .526]
      [Qin=  .600]Dused=  .600]
# Culvert from Inlet 3
# HDPE smooth wall pipe Manning's n = 0.012
 259:0056----------------ID:BHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ADD HYD         02:PR3B          .52      .070 No data    12:00   59.66  n/a
                    +  03:Cln3          .45      .061 No data    12:00   59.66  n/a
      [SI= 5.00]  SUM=  01:In3          .97      .131 No data    12:00   59.66  n/a
# Pipe from Inlet 3 - Route to pond
# HDPE smooth wall pipe Manning's n = 0.012
 259:0057----------------ID:BHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ROUTE PIPE      -> 02:In3          .97      .131 No data    12:00   59.66  n/a
      [RT= 5.00] out<- 01:Pin3          .97      .129 No data    12:05   59.66  n/a
      [L/S/n=  75./ .200/.012]
      [Vmax= 1.013]Dmax=  .312]
      [Qin=  .500]Dused=  .500]
# Culvert from Inlet 4
# HDPE smooth wall pipe Manning's n = 0.012
 259:0058----------------ID:BHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ROUTE PIPE      -> 02:PR4A          .03      .041 No data    12:00   59.66  n/a
      [RT= 5.00] out<- 01:CT-4          .03      .080 No data    12:00   59.66  n/a
      [L/S/n=  13./ .400/.012]
      [Vmax= 1.213]Dmax=  .208]
      [Qin=  .500]Dused=  .500]
# Input to Inlet 4 pipe
 259:0059----------------ID:BHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ADD HYD         02:PR4B          .65      .086 No data    12:00   59.66  n/a
                    +  03:Cln4          .71      .095 No data    12:00   59.66  n/a
      [SI= 5.00]  SUM=  01:In4         1.36      .181 No data    12:00   59.66  n/a
# Pipe from Inlet 3 (ULTIMATE CONDITIONS) - Route to pond
# HDPE smooth wall pipe Manning's n = 0.012
 259:0060----------------ID:BHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ROUTE PIPE      -> 02:In4          .46      .181 No data    12:00   59.66  n/a
      [RT= 5.00] out<- 01:Pin4          .46      .180 No data    12:00   59.66  n/a
      [L/S/n=  65./1.900/.012]
      [Vmax= 2.552]Dmax=  .195]
      [Qin=  .500]Dused=  .500]
# Culvert from Inlet 5
# HDPE smooth wall pipe Manning's n = 0.012
 259:0061----------------ID:BHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ROUTE PIPE      -> 02:PR5A          .66      .083 No data    12:00   59.66  n/a
      [RT= 5.00] out<- 01:Cln5          .66      .083 No data    12:00   59.66  n/a
      [L/S/n=  13./ .400/.012]
      [Vmax= 1.108]Dmax=  .200]
      [Qin=  .500]Dused=  .500]
# Input to Inlet 5 pipe
 259:0062----------------ID:BHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ADD HYD         02:PR5B          .46      .062 No data    12:00   59.66  n/a
                    +  03:Cln5          .66      .085 No data    12:00   59.66  n/a
      [SI= 5.00]  SUM=  01:In5         1.12      .150 No data    12:00   59.66  n/a
# Pipe from Inlet 5 - Route to pond
# HDPE smooth wall pipe Manning's n = 0.012
 259:0063----------------ID:BHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ROUTE PIPE      -> 02:In5          1.12      .150 No data    12:00   59.66  n/a
      [RT= 5.00] out<- 01:Pin5          1.12      .149 No data    12:00   59.66  n/a
      [L/S/n=  75./1.600/.012]
      [Vmax= 2.20]Dmax=  .184]
      [Qin=  .500]Dused=  .500]
# Culvert from Inlet 6
# HDPE smooth wall pipe Manning's n = 0.012
 259:0065----------------ID:BHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
      ROUTE PIPE      -> 02:PR6A          1.43      .184 No data    12:00   59.66  n/a
      [RT= 5.00] out<- 01:Cln6          1.43      .185 No data    12:00   59.66  n/a
      [L/S/n=  13./ .400/.012]
      [Vmax= 1.439]Dmax=  .231]
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08633>        Din= .500:Dmax= .500:
08634> * input to in.wal 6 pipe
08635> 299:0065----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mn----R.V.-R.C.-
08636>     ADD HYD            02:FR6P       .95      .127 No date   12:00   59.68  n/a
08637>                      + 03:CIn6       1.41     .185 No date   12:00   59.68  n/a
08638>      [CC= 5.00]  SUM=  01:In6        2.36     .307 No date   12:00   59.68  n/a
08639> # Pipe from inlet 6 - Route to pond
08640> # HDPE smooth wall pipe Manning's n = 0.012
08641> 299:0066----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mn----R.V.-R.C.-
08642>     ROUTE PIPE      -> 02:In6        2.36     .307 No date   12:00   59.68  n/a
08643> *    [RT= 5.00] out<- 01:Pin6        2.36     .302 No date   12:05   59.68  n/a
08644>      [L/S/n=  70./ .500/.012]
08645>      [Vmax= 1.401:Tmax=  .482]
08646>      [Din=  .500:Dused=  .500]
08647> # VOLUME TO POND ULTIMATE RESIDENTIAL
08648> 299:0068----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mn----R.V.-R.C.-
08649>     ADD HYD            02:Pin1      11.90     .691 No_date   12:00   51.70  n/a
08650>                      + 03:Pin2       9.04     .467 No date   12:05   50.83  n/a
08651>                      + 04:Pin3        .97     .127 No date   12:05   50.83  n/a
08652>                      + 05:Pin4       1.36     .178 No date   12:00   59.68  n/a
08653>                      + 06:Pin5       1.12     .149 No_date   12:00   59.68  n/a
08654>                      + 07:Pin6       2.36     .302 No_date   12:05   59.68  n/a
08655>                      + 08:POu        5.02     .596 No_date   12:00   72.51  n/a
08656>      [Qi= 5.00]  SUM=  01:UNDOUt    25.48    2.757 No_date   12:00   59.05  n/a
08657> 299:0069----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mn----R.V.-R.C.-
08658>     ROUTE RESERVOIR -> 02:POROUt    25.48    1.757 No date   12:00   50.05  n/a
08659>      [RT= 5.00] out<- 01:POout      25.48     .367 No date   12:15   50.05  n/a
08660>                       overtop <- 01:overQ        .00     .000 No date   0:00    .00  n/a
08661>      [MaxStwage=.8804E+00, InOvVol=.0000E+00, M-OvI=    0, InOutOvV=    0.hrs]
08662> # Simulating 2C5 100 yr conditions with submergence of outflow weir
08663> # Updated for Weir .6: .6: 3.0
08664> $ROUTE RESERVOIR     NHYDout=["POROUt"] ,NHYDin=["P2NDin"] ,
08665> $                    RT=[5](min),
08666> $                          TABLE of ( OUTFLOW-STORAGE ) values
08667> $                                    [CQS1 = (SA-M)
08668> $                                     ( 0.0 ,  0.0 )
08669> $                                    0.0C3C1 , 1.1209
08670> $                                    0.20  , 1.811.0
08671> $                                    0.33  , 2.0195
08672> $                                    [      1 ,   1 ]  (max twenty pts)
08673> $                          RESinvol=["overQ"] ,
08674> # Route pond output through first set of pipes
08675> # 2 x 60C pipes simulated with 1 pipe of equivalent capacity (-780 mm dia)
08676> # HDPE smooth wall pipe Manning's n   0.012
08677> 299:0070----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mn----R.V.-R.C.-
08678>     ROUTE PIPE      -> 02:POout      25.48     .581 No date   12:15   59.08  n/a
08679>      [RT= 5.00] out<- 01:Pout2      25.48     .581 No date   12:20   59.08  n/a
08680>      [L/S/n=  75./ .780/.012]
08681>      (Vmax= 1.830:Tmax=  .454)
08682>      [Din=  .780:Dused=  .780]
08683> # Flow u/s of outlet culverts
08684> 299:0071----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mn----R.V.-R.C.-
08685>     ADD HYD            02:FR7B1      .36      .051 No_date   12:00   55.10  n/a
08686>                      + 03:FR7B2      .22      .032 No date   12:00   55.08  n/a
08687>                      + 04:Pout1     25.48     .581 No date   12:20   59.08  n/a
08688>      [CC= 5.00]  SUM=  01:Pout       26.06     .595 No_date   12:20   59.08  n/a
08689> # Route outflow through set of Culverts
08690> # 2 x 600 culverts simulated with 1 culvert of equivalent capacity (-780 mm dia)
08691> # HDPE smooth wall pipe Manning's n   0.012
08692> 299:0072----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mn----R.V.-R.C.-
08693>     ROUTE PIPE      -> 02:Pout       26.06     .595 No date   12:20   59.08  n/a
08694>      [RT= 5.00] out<- 01:Cout       26.06     .595 No date   12:20   59.08  n/a
08695>      [L/S/n=  75./ .780/.012]
08696>      (Vmax= 1.741:Tmax=  .474)
08697>      [Din=  .780:Dused=  .780]
08698> # Flow u/s of second set of outflow pipes
08699> 299:0073----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mn----R.V.-R.C.-
08700>     ADD HYD            02:FR7C1      .36      .048 No date   12:05   55.40  n/a
08701>                      + 03:FR7C2      .22      .035 No date   12:00   55.40  n/a
08702>                      + 04:Cout      26.06     .595 No date   12:20   59.08  n/a
08703>      [CC= 5.00]  SUM=  01:Pout2      26.62     .630 No_date   12:20   58.92  n/a
08704> # Route outflow through second set of pipes
08705> # 2 x 600 pipes simulated with 1 pipe of equivalent capacity (-780 mm dia)
08706> # HDPE smooth wall pipe Manning's n   0.012
08707> 299:0074----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mn----R.V.-R.C.-
08708>     ROUTE PIPE      -> 02:Pout2      26.62     .102 No date   12:20   58.92  n/a
08709>      [RT= 5.00] out<- 01:POutP      26.62     .101 No_date   12:20   51.99  n/a
08710>      [L/S/n=  65./ .250/.012]
08711>      (Vmax= 1.949:Tmax=  .168)
08712>      [Din=  .780:Dused=  .780]
08713> # Total flow at node N1 (Shield MH along Sales Barn Rd)
08714> 299:0075----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mn----R.V.-R.C.-
08715>     ADD HYD            03:RNFN2      51.24     3.925 No date   12:20   54.45  n/a
08716>                      + 03:PoutE      26.62     .803 No_date   12:20   58.92  n/a
08717>                      + 04:EX7        .38       .053 No_date   12:00   55.65  n/a
08718>                      + 05:FR7P       .38       .044 No_date   12:00   55.08  n/a
08719>                      + 06:FR11       .62       .075 No_date   12:05   52.95  n/a
08720>      [I= 5.00]  SUM=  01:N1         79.17    4.254 No_date   12:20   56.96  n/a
08721> # Route N1 to N3
08722> # Typical Section based on Shields MH Vee Ditch 3:1 Banks
08723> # provided by Ariel
08724> # Manning's n is Channel not maintained, light brush on banks
08725> # Slope = 0.05% as per plan provided by Ariel.
08726> 299:0076----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mn----R.V.-R.C.-
08727>     ROUTE CHANNEL   -> 02:N1         79.17    4.254 No_date   12:20   56.96  n/a
08728> *    [RT= 5.00] out<- 01:N2         79.17    3.440 No_date   12:35   56.96  n/a
08729>      [L/S/n=  305./ .060/.035]
08730>      (Vmax=  .356:Tmax= 1.851)
08731> # VOLUME from residential area at N3 interim
08732> 299:0077----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mn----R.V.-R.C.-
08733>     ADD HYD            01:FR7A       1.45      .183 No_date   12:05   55.40  n/a
08734>                      + 02:FR8        1.48      .192 No_date   12:05   52.95  n/a
08735>      [CC= 5.00]  SUM=  01:N3         2.93      .375 No_date   12:05   54.13  n/a
08736> # Added VOLUME from external area contributing to N3
08737> 299:0078----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mn----R.V.-R.C.-
08738>     ADD HYD            02:FR1         79.17    3.440 No_date   12:35   56.96  n/a
08739>                      + 03:EX5        3.73      .329 No_date   12:05   54.16  n/a
08740>                      + 04:EX6         .52      .083 No_date   12:00   68.38  n/a
08741>                      + 05:EX8         .51      .064 No_date   12:00   56.54  n/a
08742>      [CC= 5.00]  SUM=  01:N3         87.05    3.993 No_date   12:35   56.49  n/a
08743> # ROUTE N3 to NC128
08744> # Typical Section based on Shields MH Vee Ditch 3:1 Banks
08745> # provided by Ariel
08746> # Manning's n is Channel not maintained, light brush on banks
08747> # Slope = 0.05% as per plan provided by Ariel.
08748> 299:0079----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mn----R.V.-R.C.-
08749>     ROUTE CHANNEL   -> 02:N3         87.05    3.993 No_date   12:35   56.49  n/a
08750> *    [RT= 5.00] out<- 01:NC1        87.05    3.920 No_date   12:40   56.49  n/a
08751>      [L/S/n=  415./ .060/.035]
08752>      [Vmax=  .356:Tmax= 1.761]
08753> # Flow at Junction Node NCH.28 for comparison
08754> # Routed N3 plus NX3
08755> 299:0080----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mn----R.V.-R.C.-
08756>     ADD HYD            02:NB3         87.05    3.920 No_date   12:40   56.49  n/a
08757>                      + 03:EX3        21.20     .982 No_date   12:45   50.45  n/a
08758>      [CC= 5.00]  SUM=  01:NC8128    104.23    3.995 No_date   12:40   54.84  n/a
08759> * AREA CHECK
08760> *
08761> 299:0081----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mn----R.V.-R.C.-
08762>     ADD HYD            02:EX1         84.52    3.806 No_date   12:05   53.01  n/a
08763>                      + 03:EX2         9.69      .514 No_date   12:35   50.10  n/a
08764>                      + 04:EX3        21.20      .982 No_date   12:45   50.45  n/a
08765>                      + 05:EX4         .50      .055 No_date   12:00   51.65  n/a
08766>                      + 06:EX5         .52      .083 No_date   12:00   68.38  n/a
08767>                      + 07:EX6         .51      .064 No_date   12:00   56.54  n/a
08768>                      + 08:EX7         .38      .053 No_date   12:00   55.65  n/a
08769>                      + 09:FR1A        .28      .039 No_date   12:00   59.68  n/a
08770>                      + 10:FR1B        .55      .013 No_date   12:00   59.68  n/a
08771>      [I= 5.00]  SUM=  01:NC81       86.52    4.384 No_date   12:05   54.24  n/a
08772> 299:0082----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mn----R.V.-R.C.-
08773>     ADD HYD            03:To1         90.52    4.384 No_date   12:05   54.24  n/a
08774>                      + 01:FR2A        1.52      .201 No_date   12:00   59.68  n/a
08775>                      + 04:FR2B        1.17      .152 No_date   12:00   59.68  n/a
08776>                      + 05:FR3A         .45      .081 No_date   12:00   59.68  n/a
08777>                      + 06:FR3B         .52      .070 No_date   12:00   59.68  n/a
08778>                      + 07:FR4A         .71      .094 No_date   12:00   59.68  n/a
08779>                      + 08:FR4B         .60      .086 No_date   12:00   59.68  n/a
08780>                      + 09:FR5A         .68      .088 No_date   12:00   59.68  n/a
08781>                      + 10:FR5B         .46      .060 No_date   12:00   59.68  n/a
08782>      [T= 5.00]  SUM=  01:To2        96.71    4.761 No_date   12:05   54.75  n/a
08783> 299:0083----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mn----R.V.-R.C.-
08784>     ADD HYD            02:To12        64.71    4.761 No_date   12:05   54.75  n/a
08785>                      + 03:FR6A        1.43      .184 No_date   12:00   59.68  n/a
08786>                      + 04:FR6B         .93      .122 No_date   12:00   59.68  n/a
08787>                      + 05:FR7A        1.30      .167 No_date   12:05   55.40  n/a
08788>                      + 06:FR7B1        .36      .051 No_date   12:00   55.10  n/a
08789>                      + 07:FR7B2        .22      .032 No_date   12:00   55.40  n/a
08790>                      + 08:FR7C         .49      .066 No_date   12:05   55.40  n/a
08791>                      + 09:FR7C2        .17      .025 No_date   12:00   55.40  n/a
08792>                      + 10:FR7D         .49      .043 No_date   12:00   58.40  n/a
08793>      [J= 5.00]  SUM=  01:To3        69.86    5.422 No_date   12:05   54.95  n/a
08794> 299:0084----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mn----R.V.-R.C.-
08795>     ADD HYD            02:To7         69.86    5.422 No_date   12:05   54.95  n/a
08796>                      + 03:FR8        1.48      .192 No_date   12:05   52.95  n/a
08797>                      + 04:ES8A       1.10      .130 No_date   12:40   52.95  n/a
08798>                      + 05:FR9B1       .35      .011 No_date   12:05   57.95  n/a
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                    +  06:PPS2       1.00      .219 No_date    12:05   52.95  n/a
                    +  07:PR10       1.80      .217 No_date    12:05   52.95  n/a
                    +  08:PR11        .63      .075 No_date    12:05   52.95  n/a
                    +  09:PR1        4.28      .955 No_date    12:05   52.48  n/a
                    +  10:PR2        5.02     1.968 No_date    12:00   78.31  n/a
       ET= 5.00  SUM=  01:Tot4      85.34     7.810 No_date    12:05   52.79  n/a
 ***0.025----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
    ADD HYD          02:Tot4      85.34     7.810 No_date    12:05   52.79  n/a
                    +  03:x1A         5.41      .882 No_date    12:10   52.48  n/a
                    +  04:R2A         3.15      .503 No_date    12:00   52.48  n/a
                    +  05:R2A         4.11      .567 No_date    12:05   52.10  n/a
                    +  06:R3S         7.21     1.754 No_date    12:05   52.48  n/a
       ET= 5.00  SUM=  01:Tot5     104.23     9.516 No_date    12:05   54.53  n/a
*********************************************************************
* Simulations with 4 hour Chicago from City of Ottawa
* also 24 hours type 2, from City of Ottawa
* simulations with July 1, 1979 Historical Event, City of Ottawa
** END OF RUN : 300
*********************************************************************
*********************************************************************
*********************************************************************
*********************************************************************
*********************************************************************
*********************************************************************
 RUN:COMMAND4
 301:0001-----------------------------------------------------------------------
     START                    [TSTR=     .00 hrs on        0]
     [METOUT=   2     (1=imperial, 2=metric output)]
     [ESTORM=   1 ]
     [NRUN  = 301 ]
*********************************************************************
*  SWMHYMO Ver:5.02/Jan 2001 <BETA> / INPUT DATA FILE
*********************************************************************
*  Project Name: (Greely Village Center)    Project Number: (647 07)
*  Date        : (4:02:2008
*  Modeller    : (JSB)
*  Company     : JFSAinc.
*  License #   : 2547402
*********************************************************************
*
* SWMHYMO model of the Greely Village Center - Residential Area - Phase 2
* Proposed Ultimate conditions. DPI:2M 2
* Filename stands for: GRP2u2a = Greely, Residential, Phase 2, ultimate v2 with
*
*  December 15, 2008
*  "a" at the end of filename added July 1st 2009 Ryan
*********************************************************************
 301:0002-----------------------------------------------------------------------
     READ STORM
       Filename = xiarm.00.
       Comment  = July 1st, 1979 Storm (SH) - Ottawa International Airport Stn
       [SDT= 5.00:SDUR=   2.00:PIDT=  60.00]
*********************************************************************
* Existing flow - McEnoy Branch of Shirley Creek - Areas
* Area s/s of proposed development (residential)
* CN*=75, xImp = 0.0, Tp=0.1h, XIMP=5, TIMP=5, see SC001 as per Stantec
* Area partially adjusted based on Atrel drawings.
*********************************************************************
* s/s of Bank St.as per Atrel - with modified boundaries and to.
 10:0001-----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     [XIMP=.18:TIMP=  .20]
     [LOSS=  2 :CN= 69.0]
     [Pervious     area: [Aper= 4.87:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
     [Impervious   area: [Aimp= 1.57:SLPI=1.00:LGI=  50.:MNI=.045:SCI=   .0]
* Road and road side ditch along projected residential development Parkway Rd
* Timp = Ximp = 0.21 ha /0.57 ha = 0.40
* CN*=89, as per Stantec see SC001.
* Slope is estimated at 1%
* Ximp - Timp = 10%
 301:0003----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
   * CALIB STANDHYD    01:EX5         .50      .059 No_date    1:40   10.64 .484
     [XIMP=.40:TIMP=.40]
     [LOSS=  2 :CN= 69.0]
     [Pervious     area: [Aper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
     [Impervious   area: [Aimp= 1.57:SLPI=1.00:LGI=  50.:MNI=.045:SCI=   .0]
* Road and road side ditch along projected residential development Salesbarn Rd
* Timp = Ximp = 0.09 ha /0.39 ha = 0.23
* CN*=89, as per Stantec see SC001.
* Slope is estimated at 1%
* Ximp - Timp = 10%
 301:0004----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
   * CALIB STANDHYD    01:EX7         .39      .047 No_date    1:40   11.39 .492
     [XIMP=.23:TIMP=.25]
     [LOSS=  2 :CN= 69.0]
     [Pervious     area: [Aper= 4.61:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
     [Impervious   area: [Aimp= 1.57:SLPI=1.00:LGI=  50.:MNI=.045:SCI=   .0]
* Areas to be occupied by commercial development.
* CN*=69, as per Stantec see SC001
 301:0010----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     DESIGN NASHYD      01:R1A         0.41      .048 No_date    1:50   34.61 .412
     [CN= 69.0: N= 3.00]
     [Tp=  .31:DT= 5.00]
 301:0011----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
   * DESIGN NASHYD      01:R2A         3.12      .364 No_date    1:35   34.61 .412
     [CN= 69.0: N= 3.00]
     [Tp=  .33:DT= 5.00]
 301:00------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     DESIGN NASHYD      01:R3A         4.14      .483 No_date    1:40   34.61 .412
     [CN= 69.0: N= 3.00]
     [Tp=  .21:DT= 5.00]
 301:0013----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     DESIGN NASHYD      01:R3B         2.21      .259 No_date    1:40   34.61 .412
     [CN= 69.0: N= 3.00]
     [Tp=  .23:DT= 5.00]
**********************************************************************
*----------------------------------------------------------------------
* PROPOSED RESIDENTIAL SUBWATERSHED - Residential Area Phase 1 and 2
*----------------------------------------------------------------------
* CN*=69, as per Stantec see SC001.
* Tp estimated with Uplnd Method
 301:0014----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     DESIGN NASHYD      01:PR1         4.98      .582 No_date    1:40   34.61 .412
     [CN= 69.0: N= 3.00]
     [Tp=  .68:DT= 5.00]
*----------------------------------------------------------------------
* AREAS GOING TO POND
*----------------------------------------------------------------------
*
 301:0015----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
   * CALIB STANDHYD    01:PR1A         .24      .030 No_date    1:40   42.97 .502
     [XIMP=.21:TIMP=.21]
     [LOSS=  2 :CN= 71.0]
     [Pervious     area: [Aper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
     [Impervious   area: [Aimp= 1.57:SLPI=1.00:LGI=  50.:MNI=.045:SCI=   .0]
 10:0016----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
   * CALIB STANDHYD    01:PR1B         .68      .088 No_date    1:40   42.97 .502
     [XIMP=.11:TIMP=.21]
     [LOSS=  2 :CN= 71.0]
     [Pervious     area: [Aper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
     [Impervious   area: [Aimp= 1.57:SLPI=1.00:LGI=  50.:MNI=.045:SCI=   .0]
 10:0017----------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
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08965>      CALIB STANDHYD     01:FR2A        1.57      .189 Ds_date    1.40   42.07 .501
08966>        [XIMP=.1:TIMP=.1]
08967>        [LOSS= 2 :CN= 71.0]
08968>        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
08969>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
08970> 301:0018--------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mn----R.V.-R.C.-
08971>  * CALIB STANDHYD     01:FR2B        1.17      .112 Ds_date    1.40   42.07 .501
08972>        [XIMP=.11:TIMP=.21]
08973>        [LOSS= 2 :CN= 71.0]
08974>        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
08975>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
08976> 301:0019--------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mn----R.V.-R.C.-
08977>  * CALIB STANDHYD     01:FR3A         .45      .054 No_date    1:40   42.07 .501
08978>        [XIMP=.11:TIMP=.21]
08979>        [LOSS= 2 :CN= 71.0]
08980>        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
08981>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
08982> 301:0020--------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mn----R.V.-R.C.-
08983>  * CALIB STANDHYD     01:FR3B         .52      .064 No_date    1:40   42.07 .501
08984>        [XIMP=.11:TIMP=.21]
08985>        [LOSS= 2 :CN= 71.0]
08986>        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
08987>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
08988> 301:0021--------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mn----R.V.-R.C.-
08989>  * CALIB STANDHYD     01:FR4A         .71      .087 No_date    1:40   42.07 .501
08990>        [XIMP=.11:TIMP=.21]
08991>        [LOSS= 2 :CN= 71.0]
08992>        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
08993>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
08994> 301:0022--------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mn----R.V.-R.C.-
08995>  * CALIB STANDHYD     01:FR4B         .65      .080 Ds_date    1:40   42.07 .501
08996>        [XIMP=.11:TIMP=.21]
08997>        [LOSS= 2 :CN= 71.0]
08998>        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
08999>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
09000> 301:0023--------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mn----R.V.-R.C.-
09001>  * CALIB STANDHYD     01:FR5A         .56      .081 Ds_date    1:40   42.07 .501
09002>        [XIMP=.11:TIMP=.21]
09003>        [LOSS= 2 :CN= 71.0]
09004>        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
09005>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
09006> 301:0024--------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mn----R.V.-R.C.-
09007>  * CALIB STANDHYD     01:FR5B         .46      .057 No_date    1:40   42.07 .501
09008>        [XIMP=.11:TIMP=.21]
09009>        [LOSS= 2 :CN= 71.0]
09010>        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
09011>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
09012> 301:0025--------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mn----R.V.-R.C.-
09013>      CALIB STANDHYD     01:FR6A         1.43      .178 No_date    1:40   42.07 .501
09014>        [XIMP=.11:TIMP=.21]
09015>        [LOSS= 2 :CN= 71.0]
09016>        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
09017>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
09018> 301:0026--------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mn----R.V.-R.C.-
09019>  * CALIB STANDHYD     01:FR6B         .91      .113 No_date    1:40   42.07 .501
09020>        [XIMP=.11:TIMP=.21]
09021>        [LOSS= 2 :CN= 71.0]
09022>        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
09023>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
09024> # slope estimator at 2% based on backyard swales.
09025> # Iimp and Ximp based on total pond area
09026> # ximp = % pond/A for
09027> # Timp = weighted average of pond and backyards
09028> 301:0027--------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mn----R.V.-R.C.-
09029>      CALIB STANDHYD     01:FR7A         5.08      .728 No_date    1:15   36.97 .469
09030>        [XIMP=.44:TIMP=.47]
09031>        [LOSS= 2 :CN= 71.0]
09032>        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
09033>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
09034> #*******************************************************************
09035> # UNCONTROLLED AREAS
09036> #*******************************************************************
09037> #
09038> 301:0028--------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mn----R.V.-R.C.-
09039>  * CALIB STANDHYD     01:FR7A         1.30      .152 No_date    1:40   38.24 .455
09040>        [XIMP=.02:TIMP=.14]
09041>        [LOSS= 2 :CN= 71.0]
09042>        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
09043>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
09044> 301:0029--------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mn----R.V.-R.C.-
09045>  * CALIB STANDHYD     01:FR7B1        .36      .042 No_date    1:40   38.21 .455
09046>        [XIMP=.02:TIMP=.14]
09047>        [LOSS= 2 :CN= 71.0]
09048>        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
09049>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
09050> 301:0030--------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mn----R.V.-R.C.-
09051>  * CALIB STANDHYD     01:FR7A2        .09      .010 No_date    1:40   38.24 .455
09052>        [XIMP=.02:TIMP=.14]
09053>        [LOSS= 2 :CN= 71.0]
09054>        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
09055>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
09056> 301:0031--------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mn----R.V.-R.C.-
09057>  * CALIB STANDHYD     01:FR7C1        .39      .046 No_date    1:40   38.24 .455
09058>        [XIMP=.02:TIMP=.14]
09059>        [LOSS= 2 :CN= 71.0]
09060>        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
09061>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
09062> 301:0032--------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mn----R.V.-R.C.-
09063>  * CALIB STANDHYD     01:FR7C2        .17      .020 No_date    1:40   38.24 .455
09064>        [XIMP=.02:TIMP=.14]
09065>        [LOSS= 2 :CN= 71.0]
09066>        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
09067>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
09068> 301:0033--------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mn----R.V.-R.C.-
09069>  * CALIB STANDHYD     01:FR7D         .58      .075 No_date    1:40   38.24 .455
09070>        [XIMP=.02:TIMP=.14]
09071>        [LOSS= 2 :CN= 71.0]
09072>        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
09073>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
09074> 301:0034--------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mn----R.V.-R.C.-
09075>  * CALIB STANDHYD     01:FR8          1.58      .146 No_date    1:40   38.26 .462
09076>        [XIMP=.01:TIMP=.07]
09077>        [LOSS= 2 :CN= 71.0]
09078>        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
09079>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
09080> 301:0035--------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mn----R.V.-R.C.-
09081>  * CALIB STANDHYD     01:FR9A         1.10      .117 No_date    1:40   38.25 .462
09082>        [XIMP=.01:TIMP=.07]
09083>        [LOSS= 2 :CN= 71.0]
09084>        [Pervious     area: IApervi= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
09085>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
09086> 301:0036--------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mn----R.V.-R.C.-
09087>  * CALIB STANDHYD     01:FR9B1        .75      .078 No_date    1:40   38.25 .462
09088>        [XIMP=.01:TIMP=.07]
09089>        [LOSS= 2 :CN= 71.0]
09090>        [Pervious     area: IApervi= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
09091>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
09092> 301:0037--------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mn----R.V.-R.C.-
09093>  * CALIB STANDHYD     01:FR9B2        1.00      .107 No_date    1:40   38.26 .462
09094>        [XIMP=.01:TIMP=.07]
09095>        [LOSS= 2 :CN= 71.0]
09096>        [Pervious     area: IApervi= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
09097>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
09098> 301:0038--------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mn----R.V.-R.C.-
09099>  * CALIB STANDHYD     01:FR10         1.84      .197 No_date    1:40   38.25 .462
09100>        [XIMP=.01:TIMP=.07]
09101>        [LOSS= 2 :CN= 71.0]
09102>        [Pervious     area: IApervi= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
09103>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
09104> 301:0039--------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mn----R.V.-R.C.-
09105>  * CALIB STANDHYD     01:FR11         .62      .067 No_date    1:40   38.25 .462
09106>        [XIMP=.01:TIMP=.07]
09107>        [LOSS= 2 :CN= 71.0]
09108>        [Pervious     area: IApervi= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
09109>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  98.:MNI=.045:SCI=   .0]
09110> #*******************************************************************
09111> # EXISTING flow - Upstream of Residential Area Phase 1 and 2
09112> #*******************************************************************
09113> # Typical Section based on proposed channel provided by AEL
09114> # 4:1 bank slopes, Long Slope = 0.50%, Manning's n is 0.03
09115> # Route 2A2 to d/s node N2
09116> 301:0040--------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mn----R.V.-R.C.-
09117>      ROUTE CHANNEL   -> 02:EX1        24.62     3.079 No_date    1:40   38.2   n/a
09118>        [EQC  5.00] out= 01:EX1        24.62     3.037 No_date    1:45   38.2   n/a
09119>        [Sfbx=  112.2 ,Sbc/Sbc]
09120>        [Vmax= 1.701:Tmax=  .050]
09121> # Total Flow at N-N2A
09122> # (Note that N1A will be sheet draining to proposed channel)
09123> 301:0041--------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mn----R.V.-R.C.-
09124>      ADD HYD            02:N1A         9.41      .881 No_date    1:50   34.61  n/a
09125>                       + 03:N2A         5.15      .391 No_date    1:35   34.81  n/a
09126>                       = 04:FR2A       14.57     1.272 No_date    1:40   34.70  n/a
09127>        [Qx= 5.00]  SUM= 01:N2LA       14.84     1.320 No_date    1:40   34.70  n/a
09128> # Typical Section based on proposed channel provided by AEL
09129> # 4:1 bank slopes, Long Slope = 0.50%, Manning's n is 0.03
09130> # Route SW draining at N-N2A to d/s node N0
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09131> 001:0012----------------ID:KHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
09132>      ROUTE CHANNEL    -> 02:KR2A        13.64     1.320 No_date    1:40    34.74  n/a
09133>        [RDT= 5.00] out<- 01:KNK2A       13.64     1.251 No_date    1:50    34.74  n/a
09134>        [L/S/n=  441./ .500/.030]
09135>        [Vmax=  .988:Dmax=  .449]
09136> # Total flow at node 2R
09137> #  Note that EX2 will be about draining to proposed channel
09138> 001:0043----------------ID:KHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
09139>      ADD HYD            02:KNK2A       13.64     1.251 No_date    1:50    34.74  n/a
09140>                       + 03:KEX1        26.62     3.037 No_date    1:45    46.71  n/a
09141>                       + 04:EP3B1        .20      .028 No_date    1:40    36.26  n/a
09142>                       + 05:EP3B2       1.90      .107 No_date    1:40    36.35  n/a
09143>                       + 06:EX2         9.89      .636 No_date    1:10    54.61  n/a
09144>        [DT= 5.00]  SUM= 01:KO          49.40     4.817 No_date    1:45    37.73  n/a
09145> # Typical Section based on proposed channel provided by AEL
09146> # 4:1 bank slopes, long slope = 0.50%, Manning's n = 0.03
09147> # Route SW draining at KO to d/s node N-EX2
09148> 001:0044----------------ID:KHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
09149>      ROUTE CHANNEL    -> 02:KO          49.40     4.812 No_date    1:45    37.73  n/a
09150>        [RDT= 5.00] out<- 01:KO0         49.40     4.776 No_date    1:50    37.73  n/a
09151>        [L/S/n=  320./ .500/.030]
09152>        [Vmax= 1.340:Dmax=  .736]
09153> # Total flow at node N-EX2
09154> 001:0045----------------ID:KHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
09155>      ADD HYD            02:KO0           49.40     4.776 No_date    1:50    37.73  n/a
09156>                       + 03:EP1C         1.84      .193 No_date    1:40    36.75  n/a
09157>        [DT= 5.00]  SUM= 01:KEX2         51.24     4.957 No_date    1:50    37.67  n/a
09158> # Route Node N-EX2 to Node P1
09159> # Typical Section based on Stantec MD Vee Ditch 3:1 cases
09160> # provided by Atrel
09161> # Manning's n is Channel not maintained, light brush on banks
09162> # Slope   0.35% as per plan provided by Atrel.
09163> 001:0046----------------ID:KHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
09164>      ROUTE CHANNEL    -> 02:KEX2        51.24     4.957 No_date    1:50    37.67  n/a
09165>  *     [RDT= 5.00] out<- 01:KNPX2       51.24     4.111 No_date    1:55    37.67  n/a
09166>        [L/S/n=  251./ .060/.035]
09167>        [Vmax=  .349:Dmax= 1.929]
09168> $*************************************************************************
09169> # Residential Development - Phase 1 and 2
09170> $*************************************************************************
09171> # Total flow at node N-P3B
09172> 001:0047----------------ID:KHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
09173>      ADD HYD            02:P3B           4.14      .460 No_date    1:40    34.61  n/a
09174>                       + 03:EP1B         2.21      .235 No_date    1:40    34.61  n/a
09175>                       + 04:EX4          .50       .059 No_date    1:40    40.64  n/a
09176>        [DT= 5.00]  SUM= 01:KP3B         6.85      .754 No_date    1:40    35.85  n/a
09177> # Route Node N-P3B to Node N-PK1
09178> # Typical Section based on McElroy Branch Vee Ditch 1.5:1 slopes
09179> # provided by Atrel
09180> # Manning's n is Channel not maintained, light brush on banks
09181> # Slope = 0.60% approximately as per Atrel drawing 188-86.1/31sa
09182> 001:0048----------------ID:KHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
09183>      ROUTE CHANNEL    -> 02:KP3B        6.85      .754 No_date    1:40    35.85  n/a
09184>        [RDT= 5.00] out<- 01:KNPX1       6.85      .706 No_date    1:45    35.85  n/a
09185>        [L/S/n=  318./ .060/.050]
09186>        [Vmax=  .751:Dmax=  .814]
09187> # Total flow at node N-PK1
09188> 001:0049----------------ID:KHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
09189>      ADD HYD            02:PX1           4.76      .500 No_date    1:40    34.61  n/a
09190>                       + 03:KNPX1        6.85      .706 No_date    1:45    35.86  n/a
09191>                       + 04:EP1A         .24       .030 No_date    1:40    42.07  n/a
09192>        [DT= 5.00]  SUM= 01:KPK1         11.85     1.196 No_date    1:45    36.84  n/a
09193> # Volume to ponding area in PK1
09194> # 0.0 535 m3/s required as per SCS 100yr Existing conditions
09195> # Culvert from inlet 1
09196> # Assuming out at culvert is 600 mm, slope = 1.2%, HDPE smooth walls
09197> # Manning's n = 0.012, inlet control nomograph
09198> # Dynamic head = 0.37, Q=0.670
09199> 001:0050----------------ID:KHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
09200>      COMPUTE DUALHYD   02:KPK1          11.85     1.196 No_date    1:45    36.84  n/a
09201>         Major System /  03:KPK1R1        .00       .000 No_date    0:00    0.00  n/a
09202>         Minor System \  03:KPK1R2       11.85      .510 No_date    1:50    35.19  n/a
09203>        [MJVolVol=.9425E+03, MnVolVol=.0000E+00, MJ-DvF=    0, MnToDvF=    0.n/a]
09204> # Input to Inlet 1 pipe
09205> 001:0051----------------ID:KHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
09206>      ADD HYD            01:PR1S          .55       .060 No_date    1:50    42.07  n/a
09207>                       + 02:KPK1V5       11.30     1.010 No_date    1:50    36.79  n/a
09208>        [DT= 5.00]  SUM= 01:In1          11.90     1.070 No_date    1:50    36.46  n/a
09209> # Pipe from Inlet 1 - Route to pond
09210> # HDPE smooth wall pipe Manning's n = 0.012
09211> 001:0052----------------ID:KHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
09212>      ROUTE PIPE       -> 02:In1         11.90     1.070 No_date    1:50    36.46  n/a
09213>        [RDT= 5.00] out<- 01:Pin1        11.90     1.064 No_date    1:50    36.47  n/a
09214>        [L/S/n=  67./ .500/.012]
09215>        [Vmax= 5.51:Dmax=  .683]
09216>        [D:n=  .600:Dused=  .600]
09217> # Culvert from Inlet 2
09218> # HDPE smooth wall pipe Manning's n = 0.012
09219> 001:0053----------------ID:KHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
09220>      ROUTE PIPE       -> 02:PR2A        1.50      .189 No_date    1:50    42.07  n/a
09221>        [RDT= 5.00] out<- 01:CIn2        1.87      .184 No_date    1:50    42.07  n/a
09222>        [L/S/n=  13./ .100/.012]
09223>        [Vmax= 1.498:Dmax=  .317]
09224>        [D:n=  .500:Dused=  .500]
09225> # Input to Inlet 2 pipe
09226> 001:0054----------------ID:KHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
09227>      ADD HYD            03:PR2B          1.17      .142 No_date    1:40    42.07  n/a
09228>                       + 04:CIn2         1.87      .184 No_date    1:40    42.07  n/a
09229>        [DT= 5.00]  SUM= 01:In2          2.74      .326 No_date    1:40    42.07  n/a
09230> # Pipe from Inlet 2 - Route to pond
09231> # HDPE smooth wall pipe Manning's n = 0.012
09232> 001:0055----------------ID:KHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
09233>      ROUTE PIPE       -> 02:In2         2.74      .326 No_date    1:40    42.07  n/a
09234>  *     [RDT= 5.00] out<- 01:Pin2        2.74      .325 No_date    1:40    42.07  n/a
09235>        [L/S/n=  75./ .200/.012]
09236>        [Vmax= 1.636:Dmax=  .511]
09237>        [D:n=  .500:Dused=  .525]
09238> # Culvert from Inlet 3
09239> # HDPE smooth wall pipe Manning's n = 0.012
09240> 001:0056----------------ID:KHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
09241>      ROUTE PIPE       -> 02:PR3A        .45       .055 No_date    1:50    42.07  n/a
09242>        [RDT= 5.00] out<- 01:CIn3        .45       .055 No_date    1:50    42.07  n/a
09243>        [L/S/n=  13./ .100/.012]
09244>        [Vmax= 1.056:Dmax=  .153]
09245>        [D:n=  .200:Dused=  .300]
09246> # Input to Inlet 3 pipe
09247> 001:0057----------------ID:KHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
09248>      ADD HYD            02:PR3B          .52       .064 No_date    1:40    42.07  n/a
09249>                       + 03:CIn3         .45       .055 No_date    1:40    42.07  n/a
09250>        [DT= 5.00]  SUM= 01:In3          .97       .119 No_date    1:40    42.07  n/a
09251> # Pipe from Inlet 3 - Route to pond
09252> # HDPE smooth wall pipe Manning's n = 0.012
09253> 001:0058----------------ID:KHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
09254>      ROUTE PIPE       -> 02:In3         .97       .119 No_date    1:40    42.07  n/a
09255>        [RDT= 5.00] out<- 01:Pin3        .97       .119 No_date    1:40    42.07  n/a
09256>        [L/S/n=  75./ .200/.012]
09257>        [Vmax=  .993:Dmax=  .284]
09258>        [D:n=  .500:Dused=  .500]
09259> # Culvert from Inlet 4
09260> # HDPE smooth wall pipe Manning's n = 0.012
09261> 001:0059----------------ID:KHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
09262>      ROUTE PIPE       -> 02:PR4A        .72       .087 No_date    1:40    42.07  n/a
09263>        [RDT= 5.00] out<- 01:CIn4        .72       .087 No_date    1:40    42.07  n/a
09264>        [L/S/n=  13./ .100/.012]
09265>        [Vmax= 1.183:Dmax=  .159]
09266>        [D:n=  .300:Dused=  .300]
09267> # Input to Inlet 4 pipe
09268> 001:0060----------------ID:KHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
09269>      ADD HYD            02:PR4B          .65       .080 No_date    1:40    42.07  n/a
09270>                       + 03:CIn4         .72       .087 No_date    1:40    42.07  n/a
09271>        [DT= 5.00]  SUM= 01:In4          1.36      .166 No_date    1:40    42.07  n/a
09272> # Pipe from Inlet 4 (ULTIMATE CONDITIONS) - Route to pond
09273> # HDPE smooth wall pipe Manning's n = 0.012
09274> 001:0061----------------ID:KHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
09275>      ROUTE PIPE       -> 02:In4         1.36      .166 No_date    1:40    42.07  n/a
09276>        [RDT= 5.00] out<- 01:Pin4        1.36      .165 No_date    1:40    42.07  n/a
09277>        [L/S/n=  65./1.000/.012]
09278>        [Vmax= .491:Dmax=  .186]
09279>        [D:n=  .500:Dused=  .500]
09280> # Culvert from Inlet 5
09281> # HDPE smooth wall pipe Manning's n = 0.012
09282> 001:0062----------------ID:KHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
09283>      ROUTE PIPE       -> 02:PR5A        .68       .083 No_date    1:40    42.07  n/a
09284>        [RDT= 5.00] out<- 01:CIn5        .68       .083 No_date    1:40    42.07  n/a
09285>        [L/S/n=  13./ .100/.012]
09286>        [Vmax= 1.161:Dmax=  .152]
09287>        [D:n=  .300:Dused=  .300]
09288> # Input to Inlet 5 pipe
09289> 001:0063----------------ID:KHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
09290>      ADD HYD            02:PR5B          .46       .057 No_date    1:40    42.07  n/a
09291>                       + 03:CIn5         .68       .083 No_date    1:40    42.07  n/a
09292>        [DT= 5.00]  SUM= 01:In5          1.12      .137 No_date    1:40    42.07  n/a
09293> # Pipe from Inlet 5 - Route to pond
09294> # HDPE smooth wall pipe Manning's n = 0.012
09295> 001:0064----------------ID:KHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
09296>      ROUTE PIPE       -> 02:In5         1.12      .137 No_date    1:40    42.07  n/a
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[RCC  5.00] outs= 01:Pin5        1.12     .136 No_date    1:40   42.07  n/a
   [L/S/n    75./1.500/.012]
   (Vmax= 2.222:Dmax=  .176)
   [Tim=  .500:Dmax=  .500]
* Culvert from Inlet 6
* HDPE smooth wall pipe Manning's n = 0.012
 201:0065----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
     ROUTE PIPE      -> 02:PR5A        1.43     .171 No_date    1:40   42.07  n/a
   [RCC= 5.00] outs= 01:Cin6
   [L/S/n    13./ .100/.012]
   (Vmax= 1.410:Dmax=  .298)
   [Tim=  .500:Dmax=  .500]
* Input to Inlet 6 pipe
 201:0066----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
     ADD HYD         02:PR6A        .93     .111 No_date    1:40   42.07  n/a
                   + 03:Cin6        1.43     .171 No_date    1:40   42.07  n/a
   [II= 5.00]  SUM=  01:In6         2.36     .282 No_date    1:40   42.07  n/a
* Pipe from Inlet 6 - Route to pond
* HDPE smooth wall pipe Manning's n = 0.012
 201:0067----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
     ROUTE PIPE      -> 02:In6         2.36     .282 No_date    1:40   42.07  n/a
   [RCC= 5.00] outs= 01:Cin6
   [L/S/n    70./ .100/.012]
   (Vmax= 1.381:Dmax=  .446)
   [Tim=  .500:Dmax=  .545]
* VOLUME TO POND CLIMATE RESIDENTIAL
 201:0068----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
     ADD HYD         02:PR1A       11.80     .684 No_date    1:40   38.47  n/a
                   + 03:PR1B        2.74     .322 No_date    1:40   42.07  n/a
                   + 04:Pin5         .51     .118 No_date    1:40   42.07  n/a
                   + 05:Pin6        1.36     .265 No_date    1:40   42.07  n/a
                   + 06:Pin5        1.13     .176 No_date    1:40   42.07  n/a
                   + 07:Pin6        2.36     .282 No_date    1:40   42.07  n/a
                   + 08:PRL         5.03     .760 No_date    1:35   34.71  n/a
   [II= 5.00]  SUM=  01:POND1a     25.48    2.457 No_date    1:40   40.26  n/a
 201:0069----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
     ROUTE RESERVOIR -> 02:POND1a     25.48    2.457 No_date    1:40   40.26  n/a
   [RCC= 5.00] outs= 01:POout       25.48     .420 No_date    3:00   42.25  n/a
                 overflow -> 02:ovrQ          .00     .000 No_date    0:00     .00  n/a
   (MaxIndead=0.0e5Er00, TrialVol=.0000E-00, M-Ovf=    0, TotTarVol=     0.0ac)
* Simulating 2Cr 100 yr conditions with submergence of outflow weir
* Updated for weir .6( .6( 3.0
$ROUTE RESERVOIR     RHYDout ["POout"] ,RHYDin ["POND1a"] ;
*                    RCC=  5.00;
*                          TABLE of | OUTFLOW-STORAGE | values
*                                     (cms)    (ha-m)
*                                   [   0.0  ,   0.0  ]
*                                    0.03001 , 1.1209
*                                    0.20    , 1.5110
*                                    0.33    , 2.0195
*                                   [   -1   ,   -1   ]  (max twenty pts)
*                          RHYDout ["ovrQ"] ;
* Route pond output through first set of pipes
* 2 x 600 pipes simulated with 1 pipe of equivalent capacity (~750 mm dia
* HDPE smooth wall pipe Manning's n = 0.012
 201:0070----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
     ROUTE PIPE      -> 02:POout      25.48     .420 No_date    3:00   42.25  n/a
   [RCC= 5.00] outs= 01:Pout1       25.48     .420 No_date    3:00   42.25  n/a
   [L/S/n    75./ .100/.012]
   (Vmax= 1.354:Dmax=  .481)
   [Tim=  .750:Dmax=  .780]
* Flow d/s of outlet culverts
 201:0071----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
     ADD HYD         02:PR7B1        .36     .042 No_date    1:40   38.24  n/a
                   + 03:PR7B2        .22     .026 No_date    1:40   38.24  n/a
                   + 04:Pout1      25.48     .420 No_date    3:00   42.25  n/a
   [II= 5.00]  SUM=  01:Pout        26.06     .472 No_date    3:00   42.16  n/a
* Route outflow through set of culverts
* 2 x 300 culverts simulated with 1 culvert of equivalent capacity (~780 mm dia
* HDPE smooth wall pipe Manning's n = 0.012
 201:0072----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
     ROUTE PIPE      -> 02:Pout       26.06     .425 No_date    3:00   42.16  n/a
   [RCC= 5.00] outs= 01:Cout
   [L/S/n    10./ .100/.012]
   (Vmax= 1.471:Dmax=  .591)
   [Tim=  .750:Dmax=  .780]
* Flow d/s of second set of outflow pipes
 201:0073----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
     ADD HYD         03:PR7C1        .39     .046 No_date    1:40   38.24  n/a
                   + 03:PR7C2        .17     .020 No_date    1:40   38.24  n/a
                   + 04:Cout       26.06     .425 No_date    3:00   42.16  n/a
   [II= 5.00]  SUM=  01:Pout2       26.62     .430 No_date    3:00   42.07  n/a
* Route outflow through second set of pipes
* 2 x 450 pipes simulated with 1 pipe of equivalent capacity (~780 mm dia)
* HDPE smooth wall pipe Manning's n = 0.012
 201:0074----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
     ROUTE PIPE      -> 02:Pout2      26.62     .430 No_date    3:00   42.07  n/a
   [RCC= 5.00] outs= 01:PoutF       26.62     .430 No_date    3:00   42.07  n/a
   [L/S/n    55./ .100/.012]
   (Vmax= 1.384:Dmax=  .469)
   [Tim=  .750:Dmax=  .750]
* Total flow at node N1 (Shield Rd along Kalex Farm Rd)
 101:0075----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
     ADD HYD         02:EXEX2        21.24    4.111 No_date    1:55   31.07  n/a
                   + 03:PoutF       26.62     .430 No_date    3:00   42.07  n/a
                   + 04:FX7         1.38     .047 No_date    1:40   41.49  n/a
                   + 05:ex7D         .38     .015 No_date    1:40   38.24  n/a
                   + 06:ex11         .82     .027 No_date    1:40   36.25  n/a
   [TT= 5.00]  SUM=  01:N1          79.17    4.469 No_date    1:55   39.16  n/a
* ROUTE N1 to N3
* Typical Section based on Shields MD Vee Ditch 3:1 banks
* provided by Atrel
* Manning's n is Channel not maintained, light brush on banks
* Slope = 0.05% as per plan provided by Atrel
 201:0076----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
     ROUTE CHANNEL   -> 02:N1         79.17    4.469 No_date    1:55   39.16  n/a
   [PRT= 5.00] outs= 01:PR1         79.17    4.765 No_date    2:10   39.16  n/a
   [L/S/n    349./ .050/.025]
   (Vmax=  .519:Dmax= 1.881)
* VOLUME from residential area at N3 Interim
 301:0077----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
     ADD HYD         02:PR7A         1.35     .122 No_date    1:40   38.24  n/a
                   + 03:PR8         1.38     .146 No_date    1:40   38.25  n/a
   [TT= 5.00]  SUM=  01:N3          2.73     .298 No_date    1:40   37.94  n/a
* Added VOLUME from external area contributing to N3
 301:0078----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
     ADD HYD         02:PR1          79.17    4.765 No_date    2:10   39.16  n/a
                   + 03:N3          2.73     .298 No_date    1:40   37.94  n/a
                   + 04:EX5          .32     .073 No_date    1:35   40.01  n/a
                   + 05:EX6          .21     .052 No_date    1:40   40.89  n/a
   [TT= 5.00]  SUM=  01:N3          82.97    5.563 No_date    2:10   39.17  n/a
* ROUTE N3 to N2.2B
* Typical Section based on Shields MD Vee Ditch 3:1 banks
* provided by Atrel
* Manning's n is Channel not maintained, light brush on banks
* Slope = 0.05% as per plan provided by Atrel.
 201:0079----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V. R.C.-
     ROUTE CHANNEL   -> 02:N3         82.97    5.563 No_date    2:10   39.17  n/a
   [PRT= 5.00] outs= 01:PR3         82.98    5.929 No_date    2:20   39.17  n/a
   [L/S/n    415./ .050/.035]
   (Vmax=  .951:Dmax= 1.823)
* Flow at Station node NOR125 for comparison
* Routed N3 plus EX5
 201:0080----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
     ADD HYD         02:PR3          82.98    5.929 No_date    2:20   39.17  n/a
                   + 03:FX3          21.30    1.116 No_date    2:20   34.51  n/a
   [TT= 5.00]  SUM=  01:NCH.2B     104.28    6.917 No_date    2:20   38.24  n/a
* AREA CHECK
*
 301:0081----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
     ADD HYD         02:FX1          20.62    1.079 No_date    1:40   42.71  n/a
                   + 03:FX2          9.39     .606 No_date    2:10   34.81  n/a
                   + 04:EX4         31.10    1.116 No_date    2:20   34.51  n/a
                   + 05:EX6          .50     .059 No_date    1:40   40.00  n/a
                   + 06:EX5          .32     .073 No_date    1:35   40.01  n/a
                   + 07:EX6          .21     .052 No_date    1:40   40.89  n/a
                   + 08:FX7          .39     .047 No_date    1:40   41.39  n/a
                   + 09:ex1A         .08     .010 No_date    1:40   42.07  n/a
                   + 10:ex1B         .55     .066 No_date    1:40   42.07  n/a
   [TT= 5.00]  SUM=  01:Tot1        83.82    4.896 No_date    1:45   35.55  n/a
 301:0082----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
     ADD HYD         02:Tot1         83.82    4.896 No_date    1:45   35.55  n/a
                   + 03:FR7A         1.57     .189 No_date    1:40   42.07  n/a
                   + 04:FR7B         1.17     .142 No_date    1:40   42.07  n/a
                   + 05:ex3A         .45     .056 No_date    1:40   42.07  n/a
                   + 06:ex3B         .52     .064 No_date    1:40   42.07  n/a
                   + 07:FR8A         .71     .087 No_date    1:40   42.07  n/a
                   + 08:FR8B         .65     .080 No_date    1:40   42.07  n/a
                   + 09:FR5A         .66     .081 No_date    1:40   42.07  n/a
                   + 10:FR5B         .46     .057 No_date    1:40   42.07  n/a
   [TT= 5.00]  SUM=  01:Tot2        88.71    5.835 No_date    1:45   37.98  n/a
 101:0083----------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mm----R.V.-R.C.-
     ADD HYD         02:Tot2         88.71    5.835 No_date    1:45   37.98  n/a
                   + 03:ex6A         1.44     .172 No_date    1:40   42.07  n/a
                   + 04:FR6B         .93     .113 No_date    1:40   42.07  n/a
                   + 05:FR7A         1.35     .152 No_date    1:40   38.24  n/a
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                    +  06:FP7B1        .36      .042 No date    1:40    18.28  n/a
                    +  07:FP7B2        .29      .076 No date    1:40    18.28  n/a
                    +  08:FP7C1        .19      .046 No date    1:40    18.28  n/a
                    +  09:FP7C2        .17      .020 No date    1:40    18.28  n/a
                    +  10:FP7D         .10      .015 No date    1:40    18.28  n/a
      [DT= 5.00   SUM=  01:Tot1      69.86     5.659 No date    1:45    18.13  n/a
201:0001----------10:NDYD-------AREA----QPEAK-Tpeakmin hr:mn----R.V.-R.C.-
    ADD HYD         02:Tot2      69.86     5.659 No date    1:45    18.13  n/a
                    +  03:FR5          1.38      .146 No date    1:40    36.25  n/a
                    +  04:FR9A         1.10      .117 No date    1:40    36.25  n/a
                    +  05:FR9B1         .25      .028 No date    1:40    36.25  n/a
                    +  06:FR9B2        1.00      .107 No date    1:40    36.25  n/a
                    -  07:RU10         1.84      .193 No date    1:40    36.25  n/a
                    -  08:EP11          .62      .067 No date    1:40    36.25  n/a
                    -  09:EX1          4.26      .500 No date    1:10    34.61  n/a
                    -  10:EX2          5.01      .588 No date    1:05    34.51  n/a
      [DT= 5.00]  SUM=  01:Tot1      85.34     7.556 No date    1:40    18.80  n/a
301:0005----------10:NDYD-------AREA----QPEAK-Tpeakmin hr:mn----R.V.-R.C.-
    ADD HYD         02:Tot2      85.34     7.556 No date    1:40    18.80  n/a
                    -  03:RU2A         8.41      .881 No date    1:20    34.61  n/a
                    -  04:RU2B         3.13      .384 No date    1:35    34.61  n/a
                    -  05:EX3A         3.14      .460 No date    1:00    34.43  n/a
                    -  06:EX3B         2.27      .335 No date    1:00    34.43  n/a
      [DT= 5.00]  SUM=  01:Tot1     104.29     9.464 No date    1:40    18.11  n/a
*****************************************************************************
* Simulations with 6 hour Chicago from City of Ottawa
* 6hr 24 hours type 2, from City of Ottawa
* Simulations with July 1, 1979 Historical Event, City of Ottawa
301:0002
     File:
-----------------------------------------------------------------------------
*****************************************************************************
     WARNINGS / ERRORS / NOTES
     -------------------------
001:0036 CALIB STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
001:0037 CALIB STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
001:0038 CALIB STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
001:0039 CALIB STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
001:0011 DESIGN HASHYD
     *** WARNING: Time step is too large for value of Tp.
                  R.V. may be ok.  Peak flow could be off.
001:0015 CALIB STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
001:0019 CALIB STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
001:0020 CALIB STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
001:0024 CALIB STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
001:0028 CALIB STANDHYD
     *** WARNING: For areas with impervious ratios below
                  20%, this routine may not be applicable.
001:0029 CALIB STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
     *** WARNING: For areas with impervious ratios below
                  20%, this routine may not be applicable.
001:0030 CALIB STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
     *** WARNING: For areas with impervious ratios below
                  20%, this routine may not be applicable.
001:0031 CALIB STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
     *** WARNING: For areas with impervious ratios below
                  20%, this routine may not be applicable.
001:0032 CALIB STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
     *** WARNING: For areas with impervious ratios below
                  20%, this routine may not be applicable.
001:0033 CALIB STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
     *** WARNING: For areas with impervious ratios below
                  20%, this routine may not be applicable.
001:0034 CALIB STANDHYD
     *** WARNING: For areas with impervious ratios below
                  20%, this routine may not be applicable.
001:0035 CALIB STANDHYD
     *** WARNING: For areas with impervious ratios below
                  20%, this routine may not be applicable.
001:0036 CALIB STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
     *** WARNING: For areas with impervious ratios below
                  20%, this routine may not be applicable.
001:0037 CALIB STANDHYD
     *** WARNING: For areas with impervious ratios below
                  20%, this routine may not be applicable.
001:0038 CALIB STANDHYD
     *** WARNING: For areas with impervious ratios below
                  20%, this routine may not be applicable.
001:0039 CALIB STANDHYD
     *** WARNING: For areas with impervious ratios below
                  20%, this routine may not be applicable.
002:0007 CALIB STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
002:0008 CALIB STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
002:0009 CALIB STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
002:0011 DESIGN HASHYD
     *** WARNING: Time step is too large for value of Tp.
                  R.V. may be ok.  Peak flow could be off.
002:0015 CALIB STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
002:0016 CALIB STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
002:0019 CALIB STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
002:0020 CALIB STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
002:0022 CALIB STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
002:0023 CALIB STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
002:0024 CALIB STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
002:0028 CALIB STANDHYD
     *** WARNING: For areas with impervious ratios below
                  20%, this routine may not be applicable.
002:0029 CALIB STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
     *** WARNING: For areas with impervious ratios below
                  20%, this routine may not be applicable.
002:0030 CALIB STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
     *** WARNING: For areas with impervious ratios below
                  20%, this routine may not be applicable.
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 09629>  002:0032 CALIB STANDHYD
 09630>       *** WARNING: Storage Coefficient is smaller than DT!
 09631>                    Use a smaller DT or a larger area.
 09632>       *** WARNING: For areas with impervious ratios below
 09633>                    20%, this routine may not be applicable.
 09634>  002:0033 CALIB STANDHYD
 09635>       *** WARNING: Storage Coefficient is smaller than DT!
 09636>                    Use a smaller DT or a larger area.
 09637>       *** WARNING: For areas with impervious ratios below
 09638>                    20%, this routine may not be applicable.
 09639>  002:0034 CALIB STANDHYD
 09640>       *** WARNING: For areas with impervious ratios below
 09641>                    20%, this routine may not be applicable.
 09642>  002:0035 CALIB STANDHYD
 09643>       *** WARNING: For areas with impervious ratios below
 09644>                    20%, this routine may not be applicable.
 09645>  002:0036 CALIB STANDHYD
 09646>       *** WARNING: Storage Coefficient is smaller than DT!
 09647>                    Use a smaller DT or a larger area.
 09648>       *** WARNING: For areas with impervious ratios below
 09649>                    20%, this routine may not be applicable.
 09650>  002:0037 CALIB STANDHYD
 09651>       *** WARNING: For areas with impervious ratios below
 09652>                    20%, this routine may not be applicable.
 09653>  002:0038 CALIB STANDHYD
 09654>       *** WARNING: For areas with impervious ratios below
 09655>                    20%, this routine may not be applicable.
 09656>  001:0039 CALIB STANDHYD
 09657>       *** WARNING: Storage Coefficient is smaller than DT!
 09658>                    Use a smaller DT or a larger area.
 09659>       *** WARNING: For areas with impervious ratios below
 09660>                    20%, this routine may not be applicable.
 09661>  005:0040 CALIB STANDHYD
 09662>       *** WARNING: Storage Coefficient is smaller than DT!
 09663>                    Use a smaller DT or a larger area.
 09664>  001:0007 CALIB STANDHYD
 09665>       *** WARNING: Storage Coefficient is smaller than DT!
 09666>                    Use a smaller DT or a larger area.
 09667>  005:0041 CALIB STANDHYD
 09668>       *** WARNING: Storage Coefficient is smaller than DT!
 09669>                    Use a smaller DT or a larger area.
 09670>  001:0009 CALIB STANDHYD
 09671>       *** WARNING: Storage Coefficient is smaller than DT!
 09672>                    Use a smaller DT or a larger area.
 09673>  005 0011 DESIGN HASHYD
 09674>       *** WARNING: Time step is too large for value of TP.
 09675>                    R.V. may be ok.  Peak flow could be off.
 09676>  005:0010 CALIB STANDHYD
 09677>       *** WARNING: Storage Coefficient is smaller than DT!
 09678>                    Use a smaller DT or a larger area.
 09679>  005:0018 CALIB STANDHYD
 09680>       *** WARNING: Storage Coefficient is smaller than DT!
 09681>                    Use a smaller DT or a larger area.
 09682>  005:0019 CALIB STANDHYD
 09683>       *** WARNING: Storage Coefficient is smaller than DT!
 09684>                    Use a smaller DT or a larger area.
 09685>  005:0019 CALIB STANDHYD
 09686>       *** WARNING: Storage Coefficient is smaller than DT!
 09687>                    Use a smaller DT or a larger area.
 09688>  005:0020 CALIB STANDHYD
 09689>       *** WARNING: Storage Coefficient is smaller than DT!
 09690>                    Use a smaller DT or a larger area.
 09691>  005:0021 CALIB STANDHYD
 09692>       *** WARNING: Storage Coefficient is smaller than DT!
 09693>                    Use a smaller DT or a larger area.
 09694>  005:0022 CALIB STANDHYD
 09695>       *** WARNING: Storage Coefficient is smaller than DT!
 09696>                    Use a smaller DT or a larger area.
 09697>  005:0023 CALIB STANDHYD
 09698>       *** WARNING: Storage Coefficient is smaller than DT!
 09699>                    Use a smaller DT or a larger area.
 09700>  005:0024 CALIB STANDHYD
 09701>       *** WARNING: Storage Coefficient is smaller than DT!
 09702>                    Use a smaller DT or a larger area.
 09703>  005:0026 CALIB STANDHYD
 09704>       *** WARNING: Storage Coefficient is smaller than DT!
 09705>                    Use a smaller DT or a larger area.
 09706>  005 0028 CALIB STANDHYD
 09707>       *** WARNING: For areas with impervious ratios below
 09708>                    20%, this routine may not be applicable.
 09709>  005:0029 CALIB STANDHYD
 09710>       *** WARNING: Storage Coefficient is smaller than DT!
 09711>                    Use a smaller DT or a larger area.
 09712>       *** WARNING: For areas with impervious ratios below
 09713>                    20%, this routine may not be applicable.
 09714>  005:0030 CALIB STANDHYD
 09715>       *** WARNING: Storage Coefficient is smaller than DT!
 09716>                    Use a smaller DT or a larger area.
 09717>       *** WARNING: For areas with impervious ratios below
 09718>                    20%, this routine may not be applicable.
 09719>  005:0031 CALIB STANDHYD
 09720>       *** WARNING: Storage Coefficient is smaller than DT!
 09721>                    Use a smaller DT or a larger area.
 09722>       *** WARNING: For areas with impervious ratios below
 09723>                    20%, this routine may not be applicable.
 09724>  005:0032 CALIB STANDHYD
 09725>       *** WARNING: Storage Coefficient is smaller than DT!
 09726>                    Use a smaller DT or a larger area.
 09727>       *** WARNING: For areas with impervious ratios below
 09728>                    20%, this routine may not be applicable.
 09729>  005:0033 CALIB STANDHYD
 09730>       *** WARNING: Storage Coefficient is smaller than DT!
 09731>                    Use a smaller DT or a larger area.
 09732>       *** WARNING: For areas with impervious ratios below
 09733>                    20%, this routine may not be applicable.
 09734>  005:0034 CALIB STANDHYD
 09735>       *** WARNING: For areas with impervious ratios below
 09736>                    20%, this routine may not be applicable.
 09737>  005:0035 CALIB STANDHYD
 09738>       *** WARNING: Storage Coefficient is smaller than DT!
 09739>                    Use a smaller DT or a larger area.
 09740>       *** WARNING: For areas with impervious ratios below
 09741>                    20%, this routine may not be applicable.
 09742>  005:0036 CALIB STANDHYD
 09743>       *** WARNING: Storage Coefficient is smaller than DT!
 09744>                    Use a smaller DT or a larger area.
 09745>       *** WARNING: For areas with impervious ratios below
 09746>                    20%, this routine may not be applicable.
 09747>  005:0037 CALIB STANDHYD
 09748>       *** WARNING: Storage Coefficient is smaller than DT!
 09749>                    Use a smaller DT or a larger area.
 09750>       *** WARNING: For areas with impervious ratios below
 09751>                    20%, this routine may not be applicable.
 09752>  005:0038 CALIB STANDHYD
 09753>       *** WARNING: For areas with impervious ratios below
 09754>                    20%, this routine may not be applicable.
 09755>  005:0039 CALIB STANDHYD
 09756>       *** WARNING: Storage Coefficient is smaller than DT!
 09757>                    Use a smaller DT or a larger area.
 09758>       *** WARNING: For areas with impervious ratios below
 09759>                    20%, this routine may not be applicable.
 09760>  010:0026 CALIB STANDHYD
 09761>       *** WARNING: Storage Coefficient is smaller than DT!
 09762>                    Use a smaller DT or a larger area.
 09763>  010:0027 CALIB STANDHYD
 09764>       *** WARNING: Storage Coefficient is smaller than DT!
 09765>                    Use a smaller DT or a larger area.
 09766>  010:0028 CALIB STANDHYD
 09767>       *** WARNING: Storage Coefficient is smaller than DT!
 09768>                    Use a smaller DT or a larger area.
 09769>  010:0029 CALIB STANDHYD
 09770>       *** WARNING: Storage Coefficient is smaller than DT!
 09771>                    Use a smaller DT or a larger area.
 09772>  010:0011 DESIGN HASHYD
 09773>       *** WARNING: Time step is too large for value of TP.
 09774>                    R.V. may be ok.  Peak flow could be off.
 09775>  010:0015 CALIB STANDHYD
 09776>       *** WARNING: Storage Coefficient is smaller than DT!
 09777>                    Use a smaller DT or a larger area.
 09778>  010:0016 CALIB STANDHYD
 09779>       *** WARNING: Storage Coefficient is smaller than DT!
 09780>                    Use a smaller DT or a larger area.
 09781>  010:0018 CALIB STANDHYD
 09782>       *** WARNING: Storage Coefficient is smaller than DT!
 09783>                    Use a smaller DT or a larger area.
 09784>  010:0019 CALIB STANDHYD
 09785>       *** WARNING: Storage Coefficient is smaller than DT!
 09786>                    Use a smaller DT or a larger area.
 09787>  010:0020 CALIB STANDHYD
 09788>       *** WARNING: Storage Coefficient is smaller than DT!
 09789>                    Use a smaller DT or a larger area.
 09790>  010:0021 CALIB STANDHYD
 09791>       *** WARNING: Storage Coefficient is smaller than DT!
 09792>                    Use a smaller DT or a larger area.
 09793>  010:0022 CALIB STANDHYD
 09794>       *** WARNING: Storage Coefficient is smaller than DT!
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                    Use a smaller DT or a larger area.
  010:0028 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                   Use a smaller DT or a larger area.
  010:0024 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                   Use a smaller DT or a larger area.
  010:0029 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                   Use a smaller DT or a larger area.
  010:0026 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                   Use a smaller DT or a larger area.
  010:0031 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                   Use a smaller DT or a larger area.
      *** WARNING: For areas with impervious ratios below
                   20%, this routine may not be applicable.
  010:0039 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                   Use a smaller DT or a larger area.
      *** WARNING: For areas with impervious ratios below
                   20%, this routine may not be applicable.
  013:0030 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                   Use a smaller DT or a larger area.
      *** WARNING: For areas with impervious ratios below
                   20%, this routine may not be applicable.
  011:0037 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                   Use a smaller DT or a larger area.
      *** WARNING: For areas with impervious ratios below
                   20%, this routine may not be applicable.
  009:0032 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                   Use a smaller DT or a larger area.
      *** WARNING: For areas with impervious ratios below
                   20%, this routine may not be applicable.
  010:0034 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                   Use a smaller DT or a larger area.
      *** WARNING: For areas with impervious ratios below
                   20%, this routine may not be applicable.
  010:0035 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                   Use a smaller DT or a larger area.
      *** WARNING: For areas with impervious ratios below
                   20%, this routine may not be applicable.
  010:0038 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                   Use a smaller DT or a larger area.
      *** WARNING: For areas with impervious ratios below
                   20%, this routine may not be applicable.
  010:0037 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                   Use a smaller DT or a larger area.
      *** WARNING: For areas with impervious ratios below
                   20%, this routine may not be applicable.
  025:0036 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                   Use a smaller DT or a larger area.
  008:0037 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                   Use a smaller DT or a larger area.
  025.0008 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                   Use a smaller DT or a larger area.
  025.0009 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                   Use a smaller DT or a larger area.
  025:0011 DESIGN WARNING
      *** WARNING: Time step is too large for value of TP.
                   S.V. may be ok.  Peak flow could be off.
  025:0015 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                   Use a smaller DT or a larger area.
  025:0016 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                   Use a smaller DT or a larger area.
  025:0013 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                   Use a smaller DT or a larger area.
  025:0018 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                   Use a smaller DT or a larger area.
  025:0019 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                   Use a smaller DT or a larger area.
  025:0020 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                   Use a smaller DT or a larger area.
  025:0021 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                   Use a smaller DT or a larger area.
  025:0022 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                   Use a smaller DT or a larger area.
  025:0023 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                   Use a smaller DT or a larger area.
  025:0024 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                   Use a smaller DT or a larger area.
  025:0025 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                   Use a smaller DT or a larger area.
  025:0026 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                   Use a smaller DT or a larger area.
  025:0028 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                   Use a smaller DT or a larger area.
      *** WARNING: For areas with impervious ratios below
                   20%, this routine may not be applicable.
  025:0029 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                   Use a smaller DT or a larger area.
      *** WARNING: For areas with impervious ratios below
                   20%, this routine may not be applicable.
  025:0030 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                   Use a smaller DT or a larger area.
      *** WARNING: For areas with impervious ratios below
                   20%, this routine may not be applicable.
  025:0031 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                   Use a smaller DT or a larger area.
      *** WARNING: For areas with impervious ratios below
                   20%, this routine may not be applicable.
  025:0032 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                   Use a smaller DT or a larger area.
      *** WARNING: For areas with impervious ratios below
                   20%, this routine may not be applicable.
  025:0033 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                   Use a smaller DT or a larger area.
      *** WARNING: For areas with impervious ratios below
                   20%, this routine may not be applicable.
  025:0034 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                   Use a smaller DT or a larger area.
      *** WARNING: For areas with impervious ratios below
                   20%, this routine may not be applicable.
  025:0035 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                   Use a smaller DT or a larger area.
      *** WARNING: For areas with impervious ratios below
                   20%, this routine may not be applicable.
  025:0036 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                   Use a smaller DT or a larger area.
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                    20%, this routine may not be applicable.
025:0037 CALLS STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
     *** WARNING: For areas with impervious ratios below
                  20%, this routine may not be applicable.
025:0038 CALLS STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
     *** WARNING: For areas with impervious ratios below
                  20%, this routine may not be applicable.
025:0039 CALLS STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
     *** WARNING: For areas with impervious ratios below
                  20%, this routine may not be applicable.
025:0055 ROUTE PIPE      ->
     *** WARNING: New pipe size used for routing.
050:0006 CALLS STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
050:0007 CALLS STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
050:0008 CALLS STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
050:0011 DESIGN BASNYD
     *** WARNING: Time step is too large for value of TP.
                  R.V. may be ok.  Peak flow could be off.
050:0015 CALLS STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
050:0016 CALLS STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
050:0017 CALLS STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
050:0018 CALLS STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
050:0019 CALLS STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
050:0020 CALLS STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
050:0021 CALLS STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
050:0022 CALLS STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
050:0023 CALLS STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
050:0024 CALLS STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
050:0025 CALLS STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
050:0026 CALLS STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
050:0028 CALLS STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
     *** WARNING: For areas with impervious ratios below
                  20%, this routine may not be applicable.
050:0029 CALLS STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
     *** WARNING: For areas with impervious ratios below
                  20%, this routine may not be applicable.
050:0030 CALLS STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
     *** WARNING: For areas with impervious ratios below
                  20%, this routine may not be applicable.
050:0031 CALLS STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
     *** WARNING: For areas with impervious ratios below
                  20%, this routine may not be applicable.
050:0032 CALLS STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
     *** WARNING: For areas with impervious ratios below
                  20%, this routine may not be applicable.
050:0033 CALLS STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
     *** WARNING: For areas with impervious ratios below
                  20%, this routine may not be applicable.
050:0034 CALLS STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
     *** WARNING: For areas with impervious ratios below
                  20%, this routine may not be applicable.
050:0035 CALLS STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
     *** WARNING: For areas with impervious ratios below
                  20%, this routine may not be applicable.
050:0036 CALLS STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
     *** WARNING: For areas with impervious ratios below
                  20%, this routine may not be applicable.
050:0037 CALLS STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
     *** WARNING: For areas with impervious ratios below
                  20%, this routine may not be applicable.
050:0038 CALLS STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
     *** WARNING: For areas with impervious ratios below
                  20%, this routine may not be applicable.
050:0039 CALLS STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
     *** WARNING: For areas with impervious ratios below
                  20%, this routine may not be applicable.
050:0055 ROUTE PIPE      ->
     *** WARNING: New pipe size used for routing.
100:0006 CALLS STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
100:0007 CALLS STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
100:0008 CALLS STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
100:0009 CALLS STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
100:0011 DESIGN BASNYD
     *** WARNING: Time step is too large for value of TP.
                  R.V. may be ok.  Peak flow could be off.
100:0015 CALLS STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
100:0016 CALLS STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
100:0017 CALLS STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
100:0018 CALLS STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
100:0019 CALLS STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
100:0021 CALLS STANDHYD
     *** WARNING: Storage Coefficient is smaller than DT!
                  Use a smaller DT or a larger area.
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                    Use a smaller DT or a larger area.
 100:0022 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                    Use a smaller DT or a larger area.
 100:0023 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                    Use a smaller DT or a larger area.
 100:0024 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                    Use a smaller DT or a larger area.
 100:0025 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                    Use a smaller DT or a larger area.
 100:0026 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                    Use a smaller DT or a larger area.
 100:0027 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                    Use a smaller DT or a larger area.
      *** WARNING: For areas with impervious ratios below
                    20%, this routine may not be applicable.
 100:0028 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                    Use a smaller DT or a larger area.
      *** WARNING: For areas with impervious ratios below
                    20%, this routine may not be applicable.
 100:0029 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                    Use a smaller DT or a larger area.
      *** WARNING: For areas with impervious ratios below
                    20%, this routine may not be applicable.
 100:0030 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                    Use a smaller DT or a larger area.
      *** WARNING: For areas with impervious ratios below
                    20%, this routine may not be applicable.
 100:0031 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                    Use a smaller DT or a larger area.
      *** WARNING: For areas with impervious ratios below
                    20%, this routine may not be applicable.
 100:0032 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                    Use a smaller DT or a larger area.
      *** WARNING: For areas with impervious ratios below
                    20%, this routine may not be applicable.
 100:0033 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                    Use a smaller DT or a larger area.
      *** WARNING: For areas with impervious ratios below
                    20%, this routine may not be applicable.
 100:0034 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                    Use a smaller DT or a larger area.
      *** WARNING: For areas with impervious ratios below
                    20%, this routine may not be applicable.
 100:0035 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                    Use a smaller DT or a larger area.
      *** WARNING: For areas with impervious ratios below
                    20%, this routine may not be applicable.
 100:0036 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                    Use a smaller DT or a larger area.
      *** WARNING: For areas with impervious ratios below
                    20%, this routine may not be applicable.
 100:0037 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                    Use a smaller DT or a larger area.
      *** WARNING: For areas with impervious ratios below
                    20%, this routine may not be applicable.
 100:0038 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                    Use a smaller DT or a larger area.
      *** WARNING: For areas with impervious ratios below
                    20%, this routine may not be applicable.
 100:0039 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                    Use a smaller DT or a larger area.
      *** WARNING: For areas with impervious ratios below
                    20%, this routine may not be applicable.
 100:0055 ROUTE PIPE     ->
      *** WARNING: New pipe size used for routing.
 100:0057 ROUTE PIPE     ->
      *** WARNING: New pipe size used for routing.
 202:0036 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                    Use a smaller DT or a larger area.
 202:0037 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                    Use a smaller DT or a larger area.
      *** WARNING: For areas with impervious ratios below
                    20%, this routine may not be applicable.
 202:0038 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                    Use a smaller DT or a larger area.
      *** WARNING: For areas with impervious ratios below
                    20%, this routine may not be applicable.
 202:0039 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                    Use a smaller DT or a larger area.
      *** WARNING: For areas with impervious ratios below
                    20%, this routine may not be applicable.
 202:0040 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                    Use a smaller DT or a larger area.
      *** WARNING: For areas with impervious ratios below
                    20%, this routine may not be applicable.
 202:0041 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                    Use a smaller DT or a larger area.
      *** WARNING: For areas with impervious ratios below
                    20%, this routine may not be applicable.
 202:0042 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                    Use a smaller DT or a larger area.
      *** WARNING: For areas with impervious ratios below
                    20%, this routine may not be applicable.
 202:0043 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                    Use a smaller DT or a larger area.
      *** WARNING: For areas with impervious ratios below
                    20%, this routine may not be applicable.
 202:0044 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                    Use a smaller DT or a larger area.
      *** WARNING: For areas with impervious ratios below
                    20%, this routine may not be applicable.
 202:0045 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                    Use a smaller DT or a larger area.
      *** WARNING: For areas with impervious ratios below
                    20%, this routine may not be applicable.
 202:0046 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                    Use a smaller DT or a larger area.
      *** WARNING: For areas with impervious ratios below
                    20%, this routine may not be applicable.
 202:0047 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                    Use a smaller DT or a larger area.
      *** WARNING: For areas with impervious ratios below
                    20%, this routine may not be applicable.
 202:0048 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                    Use a smaller DT or a larger area.
      *** WARNING: For areas with impervious ratios below
                    20%, this routine may not be applicable.
 202:0049 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                    Use a smaller DT or a larger area.
      *** WARNING: For areas with impervious ratios below
                    20%, this routine may not be applicable.
 202:0050 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                    Use a smaller DT or a larger area.
      *** WARNING: For areas with impervious ratios below
                    20%, this routine may not be applicable.
 202:0051 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                    Use a smaller DT or a larger area.
      *** WARNING: For areas with impervious ratios below
                    20%, this routine may not be applicable.
 202:0052 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                    Use a smaller DT or a larger area.
      *** WARNING: For areas with impervious ratios below
                    20%, this routine may not be applicable.
 202:0053 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                    Use a smaller DT or a larger area.
      *** WARNING: For areas with impervious ratios below
                    20%, this routine may not be applicable.
 202:0054 CALIB STANDHYD
      *** WARNING: For areas with impervious ratios below
                    20%, this routine may not be applicable.
 202:0055 CALIB STANDHYD
      *** WARNING: For areas with impervious ratios below
                    20%, this routine may not be applicable.
 202:0056 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                    Use a smaller DT or a larger area.
      *** WARNING: For areas with impervious ratios below
                    20%, this routine may not be applicable.
 202:0057 CALIB STANDHYD
      *** WARNING: For areas with impervious ratios below
                    20%, this routine may not be applicable.
 202:0058 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                    Use a smaller DT or a larger area.
      *** WARNING: For areas with impervious ratios below
                    20%, this routine may not be applicable.
 202:0059 CALIB STANDHYD
      *** WARNING: For areas with impervious ratios below
                    20%, this routine may not be applicable.
 205:0006 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                    Use a smaller DT or a larger area.
 205:0007 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                    Use a smaller DT or a larger area.
 205:0008 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
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                    Use a smaller DT or a larger area.
 205:0035 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                    Use a smaller DT or a larger area.
 205:0037 DWSIGN HASHYD
      *** WARNING: Time step is too large for value of TP.
                    R.V. may be ok.  Peak flow could be off.
 205:0040 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                    Use a smaller DT or a larger area.
 205:0018 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                    Use a smaller DT or a larger area.
 205:0019 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                    Use a smaller DT or a larger area.
 205:0020 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                    Use a smaller DT or a larger area.
 205:0021 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                    Use a smaller DT or a larger area.
 205:0027 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                    Use a smaller DT or a larger area.
 205:0023 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                    Use a smaller DT or a larger area.
 205:0024 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                    Use a smaller DT or a larger area.
 205:0028 CALIB STANDHYD
      *** WARNING: For areas with impervious ratios below
                    20%, this routine may not be applicable.
 205:0029 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                    Use a smaller DT or a larger area.
      *** WARNING: For areas with impervious ratios below
                    20%, this routine may not be applicable.
 205:0030 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                    Use a smaller DT or a larger area.
      *** WARNING: For areas with impervious ratios below
                    20%, this routine may not be applicable.
 205:0031 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                    Use a smaller DT or a larger area.
      *** WARNING: For areas with impervious ratios below
                    20%, this routine may not be applicable.
 205:0032 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                    Use a smaller DT or a larger area.
      *** WARNING: For areas with impervious ratios below
                    20%, this routine may not be applicable.
 205:0033 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                    Use a smaller DT or a larger area.
      *** WARNING: For areas with impervious ratios below
                    20%, this routine may not be applicable.
 205:0034 CALIB STANDHYD
      *** WARNING: For areas with impervious ratios below
                    20%, this routine may not be applicable.
 205:0035 CALIB STANDHYD
      *** WARNING: For areas with impervious ratios below
                    20%, this routine may not be applicable.
 205:0036 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                    Use a smaller DT or a larger area.
      *** WARNING: For areas with impervious ratios below
                    20%, this routine may not be applicable.
 205:0041 CALIB STANDHYD
      *** WARNING: For areas with impervious ratios below
                    20%, this routine may not be applicable.
 205:0038 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                    Use a smaller DT or a larger area.
      *** WARNING: For areas with impervious ratios below
                    20%, this routine may not be applicable.
 205:0039 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                    Use a smaller DT or a larger area.
      *** WARNING: For areas with impervious ratios below
                    20%, this routine may not be applicable.
 210:0006 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                    Use a smaller DT or a larger area.
 210:0007 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                    Use a smaller DT or a larger area.
 210:0038 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                    Use a smaller DT or a larger area.
 210:0009 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                    Use a smaller DT or a larger area.
 210:0011 DESIGN HASHYD
      *** WARNING: Time step is too large for value of TP.
                    R.V. may be ok.  Peak flow could be off.
 210:0012 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                    Use a smaller DT or a larger area.
 210:0010 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                    Use a smaller DT or a larger area.
 210:0019 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                    Use a smaller DT or a larger area.
 210:0020 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                    Use a smaller DT or a larger area.
 210:0021 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                    Use a smaller DT or a larger area.
 210:0022 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                    Use a smaller DT or a larger area.
 210:0027 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                    Use a smaller DT or a larger area.
 210:0024 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                    Use a smaller DT or a larger area.
 210:0026 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                    Use a smaller DT or a larger area.
 210:0028 CALIB STANDHYD
      *** WARNING: For areas with impervious ratios below
                    20%, this routine may not be applicable.
 210:0029 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                    Use a smaller DT or a larger area.
      *** WARNING: For areas with impervious ratios below
                    20%, this routine may not be applicable.
 210:0030 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                    Use a smaller DT or a larger area.
      *** WARNING: For areas with impervious ratios below
                    20%, this routine may not be applicable.
 210:0031 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                    Use a smaller DT or a larger area.
      *** WARNING: For areas with impervious ratios below
                    20%, this routine may not be applicable.
 210:0032 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                    Use a smaller DT or a larger area.
      *** WARNING: For areas with impervious ratios below
                    20%, this routine may not be applicable.
 210:0033 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                    Use a smaller DT or a larger area.
      *** WARNING: For areas with impervious ratios below
                    20%, this routine may not be applicable.
 210:0034 CALIB STANDHYD
      *** WARNING: For areas with impervious ratios below
                    20%, this routine may not be applicable.
 210:0035 CALIB STANDHYD
      *** WARNING: For areas with impervious ratios below
                    20%, this routine may not be applicable.
 210:0036 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                    Use a smaller DT or a larger area.
      *** WARNING: For areas with impervious ratios below
                    20%, this routine may not be applicable.
 210:0037 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                    Use a smaller DT or a larger area.
      *** WARNING: For areas with impervious ratios below
```

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10459>                    20%, this routine may not be applicable.
10460> 210:0038 CALIB STANDHYD
10461>       *** WARNING: For areas with impervious ratios below
10462>                    20%, this routine may not be applicable.
10463> 210:0039 CALIB STANDHYD
10464>       *** WARNING: Storage Coefficient is smaller than DT!
10465>                    Use a smaller DT or a larger area.
10466>       *** WARNING: For areas with impervious ratios below
10467>                    20%, this routine may not be applicable.
10468> 225:0006 CALIB STANDHYD
10469>       *** WARNING: Storage Coefficient is smaller than DT!
10470>                    Use a smaller DT or a larger area.
10471> 225:0007 CALIB STANDHYD
10472>       *** WARNING: Storage Coefficient is smaller than DT!
10473>                    Use a smaller DT or a larger area.
10474> 225:0008 CALIB STANDHYD
10475>       *** WARNING: Storage Coefficient is smaller than DT!
10476>                    Use a smaller DT or a larger area.
10477> 225:0009 CALIB STANDHYD
10478>       *** WARNING: Storage Coefficient is smaller than DT!
10479>                    Use a smaller DT or a larger area.
10480> 225:0011 DESIGN NASHYD
10481>       *** WARNING: Time step is too large for value of TP.
10482>                    R.V. may be ok.  Peak flow could be off.
10483> 225:0015 CALIB STANDHYD
10484>       *** WARNING: Storage Coefficient is smaller than DT!
10485>                    Use a smaller DT or a larger area.
10486> 225:0016 CALIB STANDHYD
10487>       *** WARNING: Storage Coefficient is smaller than DT!
10488>                    Use a smaller DT or a larger area.
10489> 225:0018 CALIB STANDHYD
10490>       *** WARNING: Storage Coefficient is smaller than DT!
10491>                    Use a smaller DT or a larger area.
10492> 225:0019 CALIB STANDHYD
10493>       *** WARNING: Storage Coefficient is smaller than DT!
10494>                    Use a smaller DT or a larger area.
10495> 225:0020 CALIB STANDHYD
10496>       *** WARNING: Storage Coefficient is smaller than DT!
10497>                    Use a smaller DT or a larger area.
10498> 225:0021 CALIB STANDHYD
10499>       *** WARNING: Storage Coefficient is smaller than DT!
10500>                    Use a smaller DT or a larger area.
10501> 225:0022 CALIB STANDHYD
10502>       *** WARNING: Storage Coefficient is smaller than DT!
10503>                    Use a smaller DT or a larger area.
10504> 225:0023 CALIB STANDHYD
10505>       *** WARNING: Storage Coefficient is smaller than DT!
10506>                    Use a smaller DT or a larger area.
10507> 225:0024 CALIB STANDHYD
10508>       *** WARNING: Storage Coefficient is smaller than DT!
10509>                    Use a smaller DT or a larger area.
10510> 225:0026 CALIB STANDHYD
10511>       *** WARNING: Storage Coefficient is smaller than DT!
10512>                    Use a smaller DT or a larger area.
10513> 225:0028 CALIB STANDHYD
10514>       *** WARNING: For areas with impervious ratios below
10515>                    20%, this routine may not be applicable.
10516> 225:0029 CALIB STANDHYD
10517>       *** WARNING: Storage Coefficient is smaller than DT!
10518>                    Use a smaller DT or a larger area.
10519>       *** WARNING: For areas with impervious ratios below
10520>                    20%, this routine may not be applicable.
10521> 225:0030 CALIB STANDHYD
10522>       *** WARNING: Storage Coefficient is smaller than DT!
10523>                    Use a smaller DT or a larger area.
10524>       *** WARNING: For areas with impervious ratios below
10525>                    20%, this routine may not be applicable.
10526> 225:0031 CALIB STANDHYD
10527>       *** WARNING: Storage Coefficient is smaller than DT!
10528>                    Use a smaller DT or a larger area.
10529>       *** WARNING: For areas with impervious ratios below
10530>                    20%, this routine may not be applicable.
10531> 225:0032 CALIB STANDHYD
10532>       *** WARNING: Storage Coefficient is smaller than DT!
10533>                    Use a smaller DT or a larger area.
10534>       *** WARNING: For areas with impervious ratios below
10535>                    20%, this routine may not be applicable.
10536> 225:0033 CALIB STANDHYD
10537>       *** WARNING: Storage Coefficient is smaller than DT!
10538>                    Use a smaller DT or a larger area.
10539>       *** WARNING: For areas with impervious ratios below
10540>                    20%, this routine may not be applicable.
10541> 225:0034 CALIB STANDHYD
10542>       *** WARNING: For areas with impervious ratios below
10543>                    20%, this routine may not be applicable.
10544> 225:0035 CALIB STANDHYD
10545>       *** WARNING: Storage Coefficient is smaller than DT!
10546>                    Use a smaller DT or a larger area.
10547>       *** WARNING: For areas with impervious ratios below
10548>                    20%, this routine may not be applicable.
10549> 225:0036 CALIB STANDHYD
10550>       *** WARNING: Storage Coefficient is smaller than DT!
10551>                    Use a smaller DT or a larger area.
10552>       *** WARNING: For areas with impervious ratios below
10553>                    20%, this routine may not be applicable.
10554> 225:0037 CALIB STANDHYD
10555>       *** WARNING: Storage Coefficient is smaller than DT!
10556>                    Use a smaller DT or a larger area.
10557>       *** WARNING: For areas with impervious ratios below
10558>                    20%, this routine may not be applicable.
10559> 225:0038 CALIB STANDHYD
10560>       *** WARNING: For areas with impervious ratios below
10561>                    20%, this routine may not be applicable.
10562> 225:0039 CALIB STANDHYD
10563>       *** WARNING: Storage Coefficient is smaller than DT!
10564>                    Use a smaller DT or a larger area.
10565>       *** WARNING: For areas with impervious ratios below
10566>                    20%, this routine may not be applicable.
10567> 225:0055 ROUTE PIPE     ->
10568>       *** WARNING: Pipe size used for routing.
10569> 250:0006 CALIB STANDHYD
10570>       *** WARNING: Storage Coefficient is smaller than DT!
10571>                    Use a smaller DT or a larger area.
10572> 250:0007 CALIB STANDHYD
10573>       *** WARNING: Storage Coefficient is smaller than DT!
10574>                    Use a smaller DT or a larger area.
10575> 250:0008 CALIB STANDHYD
10576>       *** WARNING: Storage Coefficient is smaller than DT!
10577>                    Use a smaller DT or a larger area.
10578> 250:0009 CALIB STANDHYD
10579>       *** WARNING: Storage Coefficient is smaller than DT!
10580>                    Use a smaller DT or a larger area.
10581> 250:0011 DESIGN NASHYD
10582>       *** WARNING: Time step is too large for value of TP.
10583>                    R.V. may be ok.  Peak flow could be off.
10584> 250:0015 CALIB STANDHYD
10585>       *** WARNING: Storage Coefficient is smaller than DT!
10586>                    Use a smaller DT or a larger area.
10587> 250:0016 CALIB STANDHYD
10588>       *** WARNING: Storage Coefficient is smaller than DT!
10589>                    Use a smaller DT or a larger area.
10590> 250:0018 CALIB STANDHYD
10591>       *** WARNING: Storage Coefficient is smaller than DT!
10592>                    Use a smaller DT or a larger area.
10593> 250:0019 CALIB STANDHYD
10594>       *** WARNING: Storage Coefficient is smaller than DT!
10595>                    Use a smaller DT or a larger area.
10596> 250:0020 CALIB STANDHYD
10597>       *** WARNING: Storage Coefficient is smaller than DT!
10598>                    Use a smaller DT or a larger area.
10599> 250:0021 CALIB STANDHYD
10600>       *** WARNING: Storage Coefficient is smaller than DT!
10601>                    Use a smaller DT or a larger area.
10602> 250:0022 CALIB STANDHYD
10603>       *** WARNING: Storage Coefficient is smaller than DT!
10604>                    Use a smaller DT or a larger area.
10605> 250:0023 CALIB STANDHYD
10606>       *** WARNING: Storage Coefficient is smaller than DT!
10607>                    Use a smaller DT or a larger area.
10608> 250:0024 CALIB STANDHYD
10609>       *** WARNING: Storage Coefficient is smaller than DT!
10610>                    Use a smaller DT or a larger area.
10611> 250:0025 CALIB STANDHYD
10612>       *** WARNING: Storage Coefficient is smaller than DT!
10613>                    Use a smaller DT or a larger area.
10614> 250:0026 CALIB STANDHYD
10615>       *** WARNING: Storage Coefficient is smaller than DT!
10616>                    Use a smaller DT or a larger area.
10617> 250:0028 CALIB STANDHYD
10618>       *** WARNING: Storage Coefficient is smaller than DT!
10619>                    Use a smaller DT or a larger area.
10620>       *** WARNING: For areas with impervious ratios below
10621>                    20%, this routine may not be applicable.
10622> 250:0029 CALIB STANDHYD
10623>       *** WARNING: Storage Coefficient is smaller than DT!
10624>                    Use a smaller DT or a larger area.
```

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      *** WARNING: For areas with impervious ratios below
                   20%, this routine may not be applicable.
 250:0028 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                   Use a smaller DT or a larger area.
      *** WARNING: For areas with impervious ratios below
                   20%, this routine may not be applicable.
 250:0031 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                   Use a smaller DT or a larger area.
      *** WARNING: For areas with impervious ratios below
                   20%, this routine may not be applicable.
 250:0032 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                   Use a smaller DT or a larger area.
      *** WARNING: For areas with impervious ratios below
                   20%, this routine may not be applicable.
 250:0033 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                   Use a smaller DT or a larger area.
      *** WARNING: For areas with impervious ratios below
                   20%, this routine may not be applicable.
 250:0034 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                   Use a smaller DT or a larger area.
      *** WARNING: For areas with impervious ratios below
                   20%, this routine may not be applicable.
 250:0035 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                   Use a smaller DT or a larger area.
      *** WARNING: For areas with impervious ratios below
                   20%, this routine may not be applicable.
 250:0036 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                   Use a smaller DT or a larger area.
      *** WARNING: For areas with impervious ratios below
                   20%, this routine may not be applicable.
 250:0037 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                   Use a smaller DT or a larger area.
      *** WARNING: For areas with impervious ratios below
                   20%, this routine may not be applicable.
 250:0038 CALIB STANDHYD
      *** WARNING: For areas with impervious ratios below
                   20%, this routine may not be applicable.
 250:0039 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                   Use a smaller DT or a larger area.
      *** WARNING: For areas with impervious ratios below
                   20%, this routine may not be applicable.
 250:0040 ROUTE PIPE     =>
      *** WARNING: Pipe size used for routing.
 250:0067 ROUTE PIPE     =>
      *** WARNING: Pipe size used for routing.
 299:0066 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                   Use a smaller DT or a larger area.
 299:0067 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                   Use a smaller DT or a larger area.
 299:0068 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                   Use a smaller DT or a larger area.
 299:0069 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                   Use a smaller DT or a larger area.
 299:0011 DESIGN NASHYD
      *** WARNING: Time step is too large for value of TP.
                   R.V. may be in.  Peak flow could be off.
 299:0015 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                   Use a smaller DT or a larger area.
 299:0016 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                   Use a smaller DT or a larger area.
 299:0017 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                   Use a smaller DT or a larger area.
 299:0018 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                   Use a smaller DT or a larger area.
 299:0019 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                   Use a smaller DT or a larger area.
 299:0020 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                   Use a smaller DT or a larger area.
 299:0021 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                   Use a smaller DT or a larger area.
 299:0022 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                   Use a smaller DT or a larger area.
 299:0023 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                   Use a smaller DT or a larger area.
 299:0024 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                   Use a smaller DT or a larger area.
 299:0025 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                   Use a smaller DT or a larger area.
 299:0026 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                   Use a smaller DT or a larger area.
 299:0027 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                   Use a smaller DT or a larger area.
      *** WARNING: For areas with impervious ratios below
                   20%, this routine may not be applicable.
 299:0029 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                   Use a smaller DT or a larger area.
      *** WARNING: For areas with impervious ratios below
                   20%, this routine may not be applicable.
 299:0030 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                   Use a smaller DT or a larger area.
      *** WARNING: For areas with impervious ratios below
                   20%, this routine may not be applicable.
 299:0031 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                   Use a smaller DT or a larger area.
      *** WARNING: For areas with impervious ratios below
                   20%, this routine may not be applicable.
 299:0032 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                   Use a smaller DT or a larger area.
      *** WARNING: For areas with impervious ratios below
                   20%, this routine may not be applicable.
 299:0033 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                   Use a smaller DT or a larger area.
      *** WARNING: For areas with impervious ratios below
                   20%, this routine may not be applicable.
 299:0034 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                   Use a smaller DT or a larger area.
      *** WARNING: For areas with impervious ratios below
                   20%, this routine may not be applicable.
 299:0035 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                   Use a smaller DT or a larger area.
      *** WARNING: For areas with impervious ratios below
                   20%, this routine may not be applicable.
 299:0037 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                   Use a smaller DT or a larger area.
      *** WARNING: For areas with impervious ratios below
                   20%, this routine may not be applicable.
 299:0038 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                   Use a smaller DT or a larger area.
      *** WARNING: For areas with impervious ratios below
                   20%, this routine may not be applicable.
 299:0039 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                   Use a smaller DT or a larger area.
      *** WARNING: For areas with impervious ratios below
                   20%, this routine may not be applicable.
 299:0055 ROUTE PIPE     =>
      *** WARNING: Pipe size used for routing.
 299:0067 ROUTE PIPE     =>
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      *** WARNING: New pipe size used for routing.
301:0008 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                   Use a smaller DT or a larger area.
301:0007 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                   Use a smaller DT or a larger area.
301:0008 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                   Use a smaller DT or a larger area.
301:0009 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                   Use a smaller DT or a larger area.
301:0011 DESIGN NASHYD
      *** WARNING: Time steps is too large for value of IA.
                   R.V. may be ok.  Peak flow could be off.
301:0015 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                   Use a smaller DT or a larger area.
301:0016 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                   Use a smaller DT or a larger area.
301:0018 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                   Use a smaller DT or a larger area.
301:0019 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                   Use a smaller DT or a larger area.
301:0020 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                   Use a smaller DT or a larger area.
301:0021 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                   Use a smaller DT or a larger area.
301:0022 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                   Use a smaller DT or a larger area.
301:0023 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                   Use a smaller DT or a larger area.
301:0024 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                   Use a smaller DT or a larger area.
301:0025 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                   Use a smaller DT or a larger area.
301:0026 CALIB STANDHYD
      *** WARNING: For areas with impervious ratios below
                   20%, this routine may not be applicable.
301:0035 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                   Use a smaller DT or a larger area.
      *** WARNING: For areas with impervious ratios below
                   20%, this routine may not be applicable.
301:0036 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                   Use a smaller DT or a larger area.
      *** WARNING: For areas with impervious ratios below
                   20%, this routine may not be applicable.
301:0032 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                   Use a smaller DT or a larger area.
      *** WARNING: For areas with impervious ratios below
                   20%, this routine may not be applicable.
301:0033 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                   Use a smaller DT or a larger area.
      *** WARNING: For areas with impervious ratios below
                   20%, this routine may not be applicable.
301:0034 CALIB STANDHYD
      *** WARNING: For areas with impervious ratios below
                   20%, this routine may not be applicable.
301:0035 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                   Use a smaller DT or a larger area.
      *** WARNING: For areas with impervious ratios below
                   20%, this routine may not be applicable.
301:0036 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                   Use a smaller DT or a larger area.
      *** WARNING: For areas with impervious ratios below
                   20%, this routine may not be applicable.
301:0037 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                   Use a smaller DT or a larger area.
      *** WARNING: For areas with impervious ratios below
                   20%, this routine may not be applicable.
301:0038 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                   Use a smaller DT or a larger area.
      *** WARNING: For areas with impervious ratios below
                   20%, this routine may not be applicable.
301:0039 CALIB STANDHYD
      *** WARNING: Storage Coefficient is smaller than DT!
                   Use a smaller DT or a larger area.
      *** WARNING: For areas with impervious ratios below
                   20%, this routine may not be applicable.
301:0053 ROUTE PIPE     ->
      *** WARNING: New pipe size used for routing.
301:0067 ROUTE PIPE     ->
      *** WARNING: New pipe size used for routing.
  Simulation ended on 2008-12-17     at 09:50:06
```

```
0:0001> 2.0    Metric units / SI numbers OFF
0:0002> *+++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
0:0003> *+  XMHYMO Ver:5.02/Jun 2001 <BETA> / INPUT DATA FILE                    +
0:0004> *+++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
0:0005> *+  Project Name: [Greely Village Center]     Project Number: [647-07]  +
0:0006> *+  Date        : 01-09-2008                                             +
0:0007> *+  Modeller    : [CHF]                                                  +
0:0008> *+  Company     : JFSAinc.                                               +
0:0009> *+  Licence #   :  2547402                                              +
0:0010> *+++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
0:0011> *#
0:0012> *# XMHYMO model of the Greely Village Center - Residential Area - Phase 2
0:0013> *# Proposed Ultimate conditions. OPTION B
0:0014> *# Filename stands for: Greely, Commercial, Proposed
0:0015> *#   x based on GRP7x3 - Greely, Residential, Phase 7, Ultimate v2 weir 3
0:0016> *#
0:0017> *#                  THE COMMERCIAL POND WEIR IS: 0.45; 1.5; 3.0
0:0018> *#
0:0019> *#                          THIS MODEL USES CALIB STANDHYD
0:0020> *#           THE RESIDENTIAL POND IS CALIBRATED FOR ULTIMATE CONDITIONS
0:0021> *#                      THE RESIDENTIAL WEIR IS .6; .6; 3.0
0:0022> *#                       RUN TECHNOSS JULY 1, 1979 STORM.
0:0023> *#
0:0024> *#  EXISTING CONDITIONS ASSUMPTIONS:
0:0025> *#  CN*, R.XP, YIMP,
0:0026> *#  as per Stantec Report: Oct. 2002: Greely Shield Creek, Stormwater
0:0027> *#  and drainage study.
0:0028> *#  and as per Area  drawing: Greely Village Area.dwg
0:0029> *#  as specified per subwatershed
0:0030> *#  Tp calculated using the Upland Method as per Stantec. [Tp = Tc * 2/3]
0:0031> *#    Imp calculated as per weighted average of Ash's C coefficient or max otherwise noted
0:0032> *#  Developped Areas: CN* 71, as per soil type C and Open Spaces
0:0033> *#  with Fair grass cover (CN*79).
0:0034> *#  Predominant slope within area as per Atrel drawing.
0:0035> *#  Ximp = Timp - 10% to account for backyards unless otherwise noted.
0:0036> *#  Initial Abstraction (Ia) set to 0.2 mm for pervious surfaces, as per City standards
0:0037> *#  Initial Abstraction (Ia) set to 1.5) mm for impervious surfaces, as per City standards
0:0038> *#  Average lot lengths (LPI) from typical lot based on average lot size (10 m).
0:0039> *#  Average impervious lengths (LGI in STANDHYD based on A=1.5 LGI^2).
0:0040> *#  Average pervious slope (SLOP = 1% as default)
0:0041> *#  Average impervious slope (SLPI: 1% as default)
0:0042> *#  Average pervious roughness (XNP= 0.25 as default).
0:0043> *#  Average impervious roughness (XNI= 0.045 = weighted average of 0.013 for
0:0044> *#    roads x-length of 5.5m and 0.050 for ditch length over average lot width
0:0045> *#    of 35 m.)
0:0046> *#
0:0047> *+++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
0:0048> START              TZERO=[0.0],   METOUT=[2],   NSTORM=[1],   IRECD=[1]
0:0049> *                   ["%H2SMBA.STM"] <-plotm filename, one per line for ESTORM site
0:0050> *-------------------|-------------------------------------------------
0:0051> READ STORM         STORM_FILENAME ["Stmx_001"]
0:0052> *-------------------|-------------------------------------------------
0:0053> *+++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
0:0054> *# Existing flow - Mahoney Branch of Shield Creek - Areas
0:0055> *# Area 2/3 of proposed development (residential)
0:0056> *# CN*=75, slope = 0.8, Tp 0.16, XIMP 5, TIMP 15, see s1002 as per Stantec
0:0057> *# Area partially adjusted based on Atrel drawings. Tp adjusted accordingly.
0:0058> *+++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
0:0059> *# 2/3 of Bank St.as per Atrel - with modified boundaries and Tp.
0:0060> DESIGN BASEHYD     NHYD=["EX1"], DT=[1]min, AREA=[24.82]ha,
0:0061>                    IMP=[0]ratio, CN/C=[75], Tp=[0.23]hrs,
0:0062>                    RAINFALL=[ ,  ,  ,  ,  ,  ]mm/hr, END=-1
0:0063> *-------------------|-------------------------------------------------
0:0064> *+++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
0:0065> *# Existing flow - External areas 2/3 of Bank St.
0:0066> *# CN*=69, as per Stantec see s1001.
0:0067> *# Area partially adjusted based on Atrel drawings.
0:0068> *+++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
0:0069> *# Areas External to development
0:0070> *# Part of EX3 is to be developped in Phase 7 as area is smaller
0:0071> DESIGN BASEHYD     NHYD=["EX2"], DT=[1]min, AREA=[9.49]ha,
0:0072>                    IMP=[0]ratio, CN/C=[69], Tp=[0.67]hrs,
0:0073>                    RAINFALL=[ ,  ,  ,  ,  ,  ]mm/hr, END=-1
0:0074> *-------------------|-------------------------------------------------
0:0075> DESIGN BASEHYD     NHYD ["EX3"], DT [1]min, AREA [21.36]ha,
0:0076>                    IMP=[0]ratio, CN/C=[69], TP=[0.33]hrs,
0:0077>                    RAINFALL=[ ,  ,  ,  ,  ,  ]mm/hr, END =1
0:0078> *-------------------|-------------------------------------------------
0:0079> *# Slope, Timp, Area from Atrel Drawing
0:0080> *# CN from Stantec (SC001)
0:0081> *# Ximp = Timp - 10
0:0082> CALIB STANDHYD     NHYD=["EX4"], DT=[1]min], AREA=[0.5]ha],
0:0083>                    XIMP=[0.11], TIMP=[0.20], DWF=[]cms, LOSS= 2],
0:0084>                    SCS curve number CN [69],
0:0085>                    Pervious   surfaces: [Aper-[1.67]ha], SLP2-[1]%],
0:0086>                                         LGP=[40]m], MNP=[0.25], SCP=[0]min],
0:0087>                    Impervious surfaces: [Aimp=[1.5]ha], SLPI=[1]%],
0:0088>                                         LGI=[57.7]m], MNI=[0.045], SCI-[0]min],
0:0089>                    RAINFALL=[ ,  ,  ,  ,  ,  ]mm/hr] ,  END=-1
0:0090> *-------------------|-------------------------------------------------
0:0091> *# Road and road side ditch along projected Residential Development Parkway Rd
0:0092> *# Timp = Ximp = 0.21 ha /0.52 ha = 0.40
0:0093> *# CN*=69, as per Stantec see s1001.
0:0094> *# Slope is estimated at 1%
0:0095> *# LGI based on centroid of area due to elongated shape = 800m/2 = 190
0:0096> CALIB STANDHYD     NHYD ["EX5"], DT=[1]min], AREA=[0.52]ha],
0:0097>                    XIMP=[0.40], TIMP=[0.40], DWF=[0]cms, LOSS=[2],
0:0098>                    SCS curve number CN [69],
0:0099>                    Pervious   surfaces: [Aper-[1.67]ha], SLP2-[1]%],
0:0100>                                         LGP=[40]m], MNP=[0.25], SCP=[0]min],
0:0101>                    Impervious surfaces: [Aimp=[1.5]ha], SLPI-[1]%],
0:0102>                                         LGI=[190]m], MNI-[0.045], SCI-[0]min],
0:0103>                    RAINFALL=[ ,  ,  ,  ,  ]mm/hr] ,  END=-1
0:0104> *-------------------|-------------------------------------------------
0:0105> *# Road and road side ditch along projected Residential Development Salesbarn Rd
0:0106> *# Timp = Ximp = 0.1 ha /0.51 ha = 0.20
0:0107> *# CN*=69, as per Stantec see s1001.
0:0108> *# slope is estimated at 1%
0:0109> *# LGI based on centroid of area due to elongated shape = 350m/2 = 175
0:0110> CALIB STANDHYD     NHYD ["EX6"], DT=[1]min], AREA=[0.51]ha],
0:0111>                    XIMP=[0.20], TIMP=[0.20], DWF=[0]cms, LOSS= 2,
0:0112>                    SCS curve number CN [69],
0:0113>                    Pervious   surfaces: [Aper-[1.67]ha], SLP2-[1]%],
0:0114>                                         LGP=[40]m], MNP=[0.25], SCP=[0]min],
0:0115>                    Impervious surfaces: [Aimp=[1.5]ha], SLPI-[1]%],
0:0116>                                         LGI=[175]m], MNI=[0.045], SCI-[0]min],
0:0117>                    RAINFALL=[ ,  ,  ,  ,  ]mm/hr] ,  END=-1
0:0118> *-------------------|-------------------------------------------------
0:0119> *# Road and road side ditch along projected Residential Development Salesbarn Rd
0:0120> *# Timp = Ximp = 0.00 ha /0.38 ha = 0.00
0:0121> *# CN*=69, as per Stantec see s1001.
0:0122> *# Slope is estimated at 1%
0:0123> *# LGI based on centroid of area due to elongated shape = 275m/2 = 137.5
0:0124> CALIB STANDHYD     NHYD=["EX7"], DT=[1]min], AREA=[0.38]ha],
0:0125>                    XIMP=[0.00], TIMP=[0.00], DWF=[0]cms, LOSS=[2],
0:0126>                    SCS curve number CN=[69],
0:0127>                    Pervious   surfaces: [Aper-[4.67]ha], SLP2=[1]%],
0:0128>                                         LGP-[40]m], MNP=[0.25], SCP= 0 min],
0:0129>                    Impervious surfaces: [Simp [1.5]ha], SLPI-[1]%],
0:0130>                                         LGI [137]m], MNI-[0.045], SCI=[0]min],
0:0131>                    RAINFALL=[ ,  ,  ,  ,  ]mm/hr] ,  END =1
0:0132> *-------------------|-------------------------------------------------
0:0133> *+++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
0:0134> *# PROPOSED COMMERCIAL DEVELOPMENT
0:0135> *+++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
0:0136> *# CN = 79 as per fair grass cover with C soil type for top soil: CN*=71
0:0137> *# XIMP = 1.8% to be conservative
0:0138> *+++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
0:0139> DESIGN STANDHYD    NHYD=["C1"], DT=[1]min, AREA=[8.36]ha],
0:0140>                    XIMP=[0.63], TIMP [0.63], DWF=[0]cms, LOSS=[2], CN=[71],
0:0141>                    SLOPE=[1]%], RAINFALL=[ ,  ,  ,  ,  ]mm/hr], SHAPE=1
0:0142> *-------------------|-------------------------------------------------
0:0143> DESIGN STANDHYD    NHYD=["C2"], DT=[1]min, AREA=[6.34]ha],
0:0144>                    XIMP [0.79], TIMP=[0.79], DWF=[0]cms, LOSS= 2], CN=[71],
0:0145>                    SLOPE=[1]%], RAINFALL=[ ,  ,  ,  ,  ]mm/hr], SHAPE=1
0:0146> *-------------------|-------------------------------------------------
0:0147> *: Proposed channel, uncontrolled area
0:0148> DESIGN STANDHYD    NHYD= "C3"], DT [1]min, AREA [0.24]ha],
0:0149>                    XIMP= 0.90], TIMP=[0.65], DWF [0]cms), LOSS-[2], CN-[74],
0:0150>                    SLOPE=[1]%], RAINFALL=[ ,  ,  ,  ,  ]mm/hr], SHAPE=1
0:0151> *-------------------|-------------------------------------------------
0:0152> *# Timp = Imp ha/total area = 0.58/1.10 ha = .57
0:0153> DESIGN STANDHYD    NHYD=["EXC1"], DT=[1]min, AREA=[1.10]ha],
0:0154>                    XIMP=[.27], TIMP=[.27], DWF=[0]cms, LOSS=[2], CN=[71],
0:0155>                    SLOPE [1]%], RAINFALL=[ ,  ,  ,  ,  ]mm/hr], END=-1
0:0156> *-------------------|-------------------------------------------------
0:0157> *# Timp = Imp ha/total area = 0.35/1.07 ha =  35
0:0158> DESIGN STANDHYD    NHYD=["EXC2"], DT=[1]min, AREA [1.07]ha],
0:0159>                    XIMP=[.35], TIMP=[.35 , DWF= 0]cms], LOSS [2], CN [71],
0:0160>                    SLOPE=[1]%], RAINFALL=[ ,  ,  ,  ,  ]mm/hr], END =1
0:0161> *-------------------|-------------------------------------------------
0:0162> *# Timp = Imp ha/total area = 0.11/0.22ha = .50
0:0163> DESIGN STANDHYD    NHYD=["EXC3"], DT [1]min, AREA=[0.22]ha],
0:0164>                    XIMP=[.50], TIMP=[.50 , DWF=.0]cms], LOSS=[2], CN=[71],
0:0165>                    SLOPE=[1]%], RAINFALL=[ ,  ,  ,  ,  ]mm/hr], END=-1
0:0166> *-------------------|-------------------------------------------------
```

```
*#*****************************************************************************
*# Commercial pond (CNB)
*# slope estimated at 1  based on elevations around pond.
*# Timp and Ximp based on total  pond area
*# ximp = A pond/A tot [1.04/1.57]
DESIGN STANDARD3     hrtz-["CNB"], DT-[1]min, AREA-[1.57](ha),
                     XIMP-[0.67], TIMP-[0.67], DWF-[0](cms), LOSS=[2], CN=[71] ,
                     SLOPE-[1]%), RAINFALL-[ , , , , ](mm/hr), END=-1
*-------------------|-----------------------------------------------------------|
*#*****************************************************************************
*#*****************************************************************************
*# PROPOSED RESIDENTIAL SUBWATERSHEDS - Residential Area Phase 1 and 2
*#*****************************************************************************
*# CN=69, as per Stantec see SCC01.
*# Tp estimated with Up and Method.
DESIGN HASHED        hdyd-["1 KI"], DT-[]min, AREA-[0.26](ha),
                     DWF-[0](cms), LOSS-[69], Tp-[0.18 hrs,
                     RAINFALL-[ , , , , ](mm/hr), END=-1
*-------------------|-----------------------------------------------------------|
*#*****************************************************************************
*# AREAS GOING TO RESIDENTIAL POND (CNA)
*#*****************************************************************************
*#
CALIB STANDHYD       NHYD-["FR1A"], DT-[1](min), AREA-[0.24](ha),
                     XIMP-[0.11], TIMP-[0.21], DWF-[0](cms), LOSS-[2],
                     SCS curve number CN-[71],
                     Pervious   surfaces: IAper-[4.67](mm), SLPP-[1](%),
                                          LGP-[40](m), MNP-[0.25], SCP-[0](min),
                     Impervious surfaces: IAimp-[1.57](mm), SLPI-[1](%),
                                          LGI-[49.0](m), MNI-[0.045], SCI-[0](min),
                     RAINFALL-[ , , , , ](mm/hr) , END=-1
*-------------------|-----------------------------------------------------------|
CALIB STANDHYD       NHYD-["FR1B"], DT-[1](min), AREA-[0.55](Ha),
                     XIMP-[0.11], TIMP-[0.21], DWF-[0](cms), LOSS-[2],
                     SCS curve number CN-[71],
                     Pervious   surfaces: IAper-[4.67](mm), SLPP-[1](%),
                                          LGP-[40](m), MNP-[0.25], SCP-[0](min),
                     Impervious surfaces: IAimp-[1.57](mm), SLPI-[1](%),
                                          LGI-[69.6](m), MNI-[0.045], SCI-[0](min),
                     RAINFALL-[ , , , , ](mm/hr) , END=-1
*-------------------|-----------------------------------------------------------|
CALIB STANDHYD       NHYD-["FR2A"], DT-[1](min), AREA-[1.57](ha),
                     XIMP-[0.11], TIMP-[0.21], DWF-[0](cms), LOSS-[2],
                     SCS curve number CN-[71],
                     Pervious   surfaces: IAper-[4.67](mm), SLPP-[1](%),
                                          LGP-[40](m), MNP-[0.25], SCP-[0](min),
                     Impervious surfaces: IAimp-[1.57](mm), SLPI-[1](%),
                                          LGI-[102.9](m), MNI-[0.045], SCI-[0](min),
                     RAINFALL-[ , , , , ](mm/hr) , END=-1
*-------------------|-----------------------------------------------------------|
CALIB STANDHYD       NHYD-["FR3A"], DT-[1](min), AREA-[1.17](ha),
                     XIMP-[0.11], TIMP-[0.21], DWF-[0](cms), LOSS-[2],
                     SCS curve number CN-[71],
                     Pervious   surfaces: IAper-[4.67](mm), SLPP-[1](%),
                                          LGP-[40](m), MNP-[0.25], SCP-[0](min),
                     Impervious surfaces: IAimp-[1.57](mm), SLPI-[1](%),
                                          LGI-[85.5](m), MNI-[0.045], SCI-[0](min),
                     RAINFALL-[ , , , , ](mm/hr) , END=-1
*-------------------|-----------------------------------------------------------|
CALIB STANDHYD       NHYD-["FR3B"], DT-[1](min), AREA-[0.45](ha),
                     XIMP-[0.11], TIMP-[0.21], DWF-[0](cms), LOSS-[2],
                     SCS curve number CN-[71],
                     Pervious   surfaces: IAper-[4.67](mm), SLPP-[1](%),
                                          LGP-[40](m), MNP-[0.25], SCP-[0](min),
                     Impervious surfaces: IAimp-[1.57](mm), SLPI-[1](%),
                                          LGI-[54.8](m), MNI-[0.045], SCI-[0](min),
                     RAINFALL-[ , , , , ](mm/hr) , END=-1
*-------------------|-----------------------------------------------------------|
CALIB STANDHYD       NHYD-["FR4A"], DT-[1](min), AREA-[0.52](ha),
                     XIMP-[0.11], TIMP-[0.21], DWF-[0](cms), LOSS-[2],
                     SCS curve number CN-[71],
                     Pervious   surfaces: IAper-[4.67](mm), SLPP-[1](%),
                                          LGP-[40](m), MNP-[0.25], SCP-[0](min),
                     Impervious surfaces: IAimp-[1.57](mm), SLPI-[1](%),
                                          LGI-[56.8](m), MNI-[0.045], SCI-[0](min),
                     RAINFALL-[ , , , , ](mm/hr) , END=-1
*-------------------|-----------------------------------------------------------|
CALIB STANDHYD       NHYD-["FR4B"], DT-[1](min), AREA-[0.71](ha),
                     XIMP-[0.11], TIMP-[0.21], DWF-[0](cms), LOSS-[2],
                     SCS curve number CN-[71],
                     Pervious   surfaces: IAper-[4.67](mm), SLPP-[1](%),
                                          LGP-[40](m), MNP-[0.25], SCP-[0](min),
                     Impervious surfaces: IAimp-[1.57](mm), SLPI-[1](%),
                                          LGI-[68.8](m), MNI-[0.045], SCI-[0](min),
                     RAINFALL-[ , , , , ](mm/hr) , END=-1
*-------------------|-----------------------------------------------------------|
CALIB STANDHYD       NHYD-["FR5A"], DT-[1](min), AREA-[0.66](ha),
                     XIMP-[0.11], TIMP-[0.21], DWF-[0](cms), LOSS-[2],
                     SCS curve number CN-[71],
                     Pervious   surfaces: IAper-[4.67](mm), SLPP-[1](%),
                                          LGP-[40](m), MNP-[0.25], SCP-[0](min),
                     Impervious surfaces: IAimp-[1.57](mm), SLPI-[1](%),
                                          LGI-[66.8](m), MNI-[0.045], SCI-[0](min),
                     RAINFALL-[ , , , , ](mm/hr) , END=-1
*-------------------|-----------------------------------------------------------|
CALIB STANDHYD       NHYD-["FR5B"], DT-[1](min), AREA-[0.48](ha),
                     XIMP-[0.11], TIMP-[0.21], DWF-[0](cms), LOSS-[2],
                     SCS curve number CN-[71],
                     Pervious   surfaces: IAper-[4.67](mm), SLPP-[1](%),
                                          LGP-[40](m), MNP-[0.25], SCP-[0](min),
                     Impervious surfaces: IAimp-[1.57](mm), SLPI-[1](%),
                                          LGI-[55.4](m), MNI-[0.045], SCI-[0](min),
                     RAINFALL-[ , , , , ](mm/hr) , END=-1
*-------------------|-----------------------------------------------------------|
CALIB STANDHYD       NHYD-["FR6A"], DT-[1](min), AREA-[1.42](ha),
                     XIMP-[0.11], TIMP-[0.21], DWF-[0](cms), LOSS-[2],
                     SCS curve number CN-[71],
                     Pervious   surfaces: IAper-[4.67](mm), SLPP-[1](%),
                                          LGP-[40](m), MNP-[0.25], SCP-[0](min),
                     Impervious surfaces: IAimp-[1.57](mm), SLPI-[1](%),
                                          LGI-[88.0](m), MNI-[0.045], SCI-[0](min),
                     RAINFALL-[ , , , , ](mm/hr) , END=-1
*-------------------|-----------------------------------------------------------|
CALIB STANDHYD       NHYD-["FR6B"], DT-[1](min), AREA-[0.97](ha),
                     XIMP-[0.11], TIMP-[0.21], DWF-[0](cms), LOSS-[2],
                     SCS curve number CN-[71],
                     Pervious   surfaces: IAper-[4.67](mm), SLPP-[1](%),
                                          LGP-[40](m), MNP-[0.25], SCP-[0](min),
                     Impervious surfaces: IAimp-[1.57](mm), SLPI-[1](%),
                                          LGI-[78.7](m), MNI-[0.045], SCI-[0](min),
                     RAINFALL-[ , , , , ](mm/hr) , END=-1
*-------------------|-----------------------------------------------------------|
*# slope estimated at 2% based on backyard swm ex.
*# Timp and Ximp based on total pond area
*# ximp = A pond/A tot
*# timp = weighted average of pond and backyards
CALIB STANDHYD       NHYD-["PD1"], DT-[1](min), AREA-[3.63](ha),
                     XIMP-[0.84], TIMP-[0.47], DWF-[0](cms), LOSS-[2],
                     SCS curve number CN-[71],
                     Pervious   surfaces: IAper-[4.67](mm), SLPP-[1](%),
                                          LGP-[40](m), MNP-[0.25], SCP-[0](min),
                     Impervious surfaces: IAimp-[1.57](mm), SLPI-[1](%),
                                          LGI-[83.1](m), MNI-[0.045], SCI-[0](min),
                     RAINFALL-[ , , , , ](mm/hr) , END=-1
*-------------------|-----------------------------------------------------------|
*#*****************************************************************************
*# UNCONTROLLED AREAS
*#*****************************************************************************
*4
CALIB STANDHYD       NHYD-["UR1A"], DT-[1](min), AREA-[1.35](ha),
                     XIMP-[0.02], TIMP-[0.16], DWF-[0](cms), LOSS-[2],
                     SCS curve number CN-[71],
                     Pervious   surfaces: IAper-[4.67](mm), SLPP-[1](%),
                                          LGP-[40](m), MNP-[0.25], SCP-[0](min),
                     Impervious surfaces: IAimp-[1.57](mm), SLPI-[1](%),
                                          LGI-[93.9](m), MNI-[0.045], SCI-[0](min),
                     RAINFALL-[ , , , , ](mm/hr) , END=-1
*-------------------|-----------------------------------------------------------|
CALIB STANDHYD       NHYD-["UR2A1"], DT-[1](min), AREA-[0.35](ha),
                     XIMP-[0.02], TIMP-[0.16], DWF-[0](cms), LOSS-[2],
                     SCS curve number CN-[71],
                     Pervious   surfaces: IAper-[4.67](mm), SLPP-[1](%),
                                          LGP-[40](m), MNP-[0.25], SCP-[0](min),
                     Impervious surfaces: IAimp-[1.57](mm), SLPI-[1](%),
                                          LGI- 49.0](m), MNI-[0.045], SCI-[0](min),
                     RAINFALL-[ , , , , ](mm/hr) , END=-1
*-------------------|-----------------------------------------------------------|
```

```
00332> CALIB STANDHYD     AREA=[0.32](ha),
00333>                    IMP= [0.02], TIMP=[0.10], DWF=[0](cms), LOSS=[2],
00334>                    SCS curve number CN=[71],
00335>                    Pervious   surfaces: IAper=[4.67](mm), SLPP=[1](%),
00336>                                         LGP=[40](m), MNP=[0.25], SCP=[0](min),
00337>                    Impervious surfaces: IAimp=[1.57](mm), SLPI=[1](%),
00338>                                         LGI=[38.3](m), MNI=[0.045], SCI=[0](min),
00339>                    RAINFALL=[ ,  ,  ,  ,  ](mm/hr) ,  END= .
00340> *|-----------------|-------------------------------------------------------|
00341> CALIB STANDHYD     AREA=[0.39](ha),
00342>                    IMP= [0.02], TIMP=[0.14], DWF=[0](cms), LOSS=[2],
00343>                    SCS curve number CN=[71],
00344>                    Pervious   surfaces: IAper=[4.67](mm), SLPP=[1](%),
00345>                                         LGP=[30](m), MNP=[0.25], SCP=[0](min),
00346>                    Impervious surfaces: IAimp [1.57](mm), SLPI=[1](%),
00347>                                         LGI=[5.6](m), MNI=[0.045], SCI=[0 (min],
00348>                    RAINFALL=[ ,  ,  ,  ,  ](mm/hr) ,  END=-1
00349> *|-----------------|-------------------------------------------------------|
00350> CALIB STANDHYD     AREA=[0.47](ha),
00351>                    IMP= [0.02], TIMP=[0.14], DWF=[0](cms), LOSS=[2],
00352>                    SCS curve number CN=[71],
00353>                    Pervious   surfaces: IAper=[4.67](mm), SLPP=[1](%),
00354>                                         LGP=[40](m), MNP=[0.25], SCP=[0](min),
00355>                    Impervious surfaces: IAimp=[1.57](mm), SLPI=[1](%),
00356>                                         LGI=[32.7](m), MNI=[0.045], SCI=[0](min),
00357>                    RAINFALL=[ ,  ,  ,  ,  ](mm/hr) ,  END=-1
00358> *|-----------------|-------------------------------------------------------|
00359> CALIB STANDHYD     AREA=[0.38](ha),
00360>                    IMP= [0.02], TIMP=[0.14], DWF=[0](cms), LOSS=[2],
00361>                    SCS curve number CN=[71],
00362>                    Pervious   surfaces: IAper=[4.67](mm), SLPP=[1](%),
00363>                                         LGP=[40](m), MNP=[0.25], SCP=[0](min),
00364>                    Impervious surfaces: IAimp=[1.57](mm), SLPI=[1](%),
00365>                                         LGI=[44.7](m), MNI=[0.045], SCI=[0](min),
00366>                    RAINFALL=[ ,  ,  ,  ,  ](mm/hr) ,  END=-1
00367> *|-----------------|-------------------------------------------------------|
00368> CALIB STANDHYD     AREA=[1.38](ha),
00369>                    IMP= [0.01], TIMP=[0.07], DWF=[0](cms), LOSS=[2],
00370>                    SCS curve number CN=[71],
00371>                    Pervious   surfaces: IAper=[4.67](mm), SLPP=[1](%),
00372>                                         LGP=[40](m), MNP=[0.25], SCP=[0](min),
00373>                    Impervious surfaces: IAimp=[1.57](mm), SLPI=[1](%),
00374>                                         LGI=[89.9](m), MNI=[0.045], SCI=[0](min),
00375>                    RAINFALL=[ ,  ,  ,  ,  ](mm/hr) ,  END=-1
00376> *|-----------------|-------------------------------------------------------|
00377> CALIB STANDHYD     AREA=[1.16](ha),
00378>                    IMP= [0.01] , TIMP=[0.07], DWF=[0](cms), LOSS=[2] ,
00379>                    SCS curve number CN=[71],
00380>                    Pervious   surfaces: IAper=[4.67](mm), SLPP [1](%),
00381>                                         LGP [40](m), MNP [0.25], SCP [0](min),
00382>                    Impervious surfaces: IAimp [1.57](mm), SLPI [1](%),
00383>                                         LGI=[85.6](m), MNI [0.045], SCI=[0](min),
00384>                    RAINFALL=[ ,  ,  ,  ,  ](mm/hr) ,  END=-1
00385> *|-----------------|-------------------------------------------------------|
00386> CALIB STANDHYD     AREA=[2.25](ha),
00387>                    IMP= [0.01], TIMP=[0.07], DWF=[0](cms), LOSS=[2],
00388>                    SCS curve number CN=[71],
00389>                    Pervious   surfaces: IAper=[4.67](mm), SLPP=[1](%),
00390>                                         LGP=[40](m), MNP=[0.25], SCP=[0](min),
00391>                    Impervious surfaces: IAimp [1.57](mm), SLPI [1](%),
00392>                                         LGI [90.8](m), MNI [0.045], SCI=[0](min),
00393>                    RAINFALL=[ ,  ,  ,  ,  ](mm/hr) ,  END=-1
00394> *|-----------------|-------------------------------------------------------|
00395> CALIB STANDHYD     AREA=[1.38](ha),
00396>                    IMP= [0.01], TIMP=[0.07], DWF=[0](cms), LOSS=[2],
00397>                    SCS curve number CN=[71],
00398>                    Pervious   surfaces: IAper=[4.67](mm), SLPP=[1](%),
00399>                                         LGP=[40](m), MNP=[0.25], SCP=[0](min),
00400>                    Impervious surfaces: IAimp=[1.57](mm), SLPI=[1](%),
00401>                                         LGI=[81.6](m), MNI=[0.045], SCI=[0 (min],
00402>                    RAINFALL=[ ,  ,  ,  ,  ](mm/hr) ,  END=-1
00403> *|-----------------|-------------------------------------------------------|
00404> *| Area modified as per boundary on ALL CAD dwg for proposed commercial Devel.
00405> *| [was 1.54 ha]
00406> CALIB STANDHYD     AREA=[1.37](ha),
00407>                    IMP= [0.01], TIMP=[0.07], DWF=[0](cms), LOSS=[2],
00408>                    SCS curve number CN=[71],
00409>                    Pervious   surfaces: IAper=[4.67](mm), SLPP=[1](%),
00410>                                         LGP=[40](m), MNP [0.25], SCP [0](min),
00411>                    Impervious surfaces: IAimp=[1.57](mm), SLPI=[1](%),
00412>                                         LGI=[ 38.8 (m), MNI=[0.045], SCI=[0](min),
00413>                    RAINFALL=[ ,  ,  ,  ,  ](mm/hr) ,  END=-1
00414> *|-----------------|-------------------------------------------------------|
00415> CALIB STANDHYD     AREA=[0.62](ha),
00416>                    IMP= [0.01], TIMP=[0.07], DWF=[0](cms), LOSS=[2],
00417>                    SCS curve number CN=[71],
00418>                    Pervious   surfaces: IAper=[4.67](mm), SLPP=[1](%),
00419>                                         LGP= 40](m), MNP=[0.25], SCP=[0](min),
00420>                    Impervious surfaces: IAimp=[1.57](mm), SLPI=[1](%),
00421>                                         LGI=[64.3](m), MNI=[0.045], SCI=[0](min),
00422>                    RAINFALL=[ ,  ,  ,  ,  ](mm/hr) ,  END=-1
00423> *|-----------------|-------------------------------------------------------|
00424> *|*****************************************************************************
00425> *|* EXISTING Flow - Upstream of Proposed Development
00426> *|*****************************************************************************
00427> *| Total flow at node N-EX1
00428> ADD HYD             HYDname="NEX1", HYDs to add=["EX1"+"EXC1"+"EXC2"]
00429> *|-----------------|-------------------------------------------------------|
00430> *| Typical  Section based on proposed channel provided by AGI
00431> *| 4:1 bank slopes, Long Slope = 0.05%, Manning's n is 0.07
00432> *| Route Node N-EX1 to D/S node N0
00433> ROUTE CHANNEL       RHYDout=["NEX1"] ,RHYDin=["NEX1"] ,
00434>                    RDT [1](min),
00435>                    CHLNTH=[317](m),  CRSTOPS=[0.25](-),
00436>                                        FPSLOPE=[0.05](-),
00437>                    SECNUM=[1],       NSEG=[1]
00438>                    | SECNUMBER, SEGDIST (m)-[0.03,10.0] NSEG times
00439>                    | DISTANCE (m), ELEVATION (m)-[0,     101.13]
00440>                                                  [ 4.5,  100.60]
00441>                                                  [ 5.5,  100.60]
00442>                                                  [ 10.0, 101.13]
00443> *|-----------------|-------------------------------------------------------|
00444> *|*****************************************************************************
00445> *| TOTAL INFLOW TO COMMERCIAL POND PDC
00446> *|*****************************************************************************
00447> ADD HYD             RHYDsum=["PDCin"], RHYDs to add=["EX1"+"C1"+"C2"+"PDC"]
00448> *|-----------------|-------------------------------------------------------|
00449> ROUTE RESERVOIR     RHYDout ["PDCout"] ,RHYDin=["PDCin"] ,
00450>                    RDT [1](min),
00451>                         TABLE of ( OUTFLOW-STORAGE ) values
00452>                                  (cms) - (ha-m)
00453>                                  (   0.0 ,  0.0 )
00454>  0.0084   0.0651
00455>  0.0121   0.0658
00456>  0.0233   0.1046
00457>  0.0541   0.1575
00458>  0.1056   0.2108
00459>  0.1812   0.2668
00460>  0.2648   0.3165
00461>  0.3257   0.3729
00462>  0.4392   0.4278
00463>  0.5810   0.4930
00464>  0.7574   0.5356
00465>  0.9438   0.5905
00466>  1.1556   0.6509
00467>  1.3830   0.6822
00468>  1.2946   0.7076
00469>  1.5118   0.7847
00470>  2.5411   0.9382
00471>
00472>                                  |   -1  ,  -1  |  (max twenty pts)
00473>                              RHYDout ["OUT0"] ,
00474> *|-----------------|-------------------------------------------------------|
00475> *| Total flow at outlet of commercial pond
00476> ADD HYD             HYDname "OPDC" , HYDs to Add=["PDCout"+"PROA"]
00477> *|-----------------|-------------------------------------------------------|
00478> *| Route pond outflow at pipe u/s of node N0
00479> *| Typical  Section based on proposed channel provided by AGI
00480> *| 4:1 bank slopes, Long Slope = 0.25%, Manning's n is 0.03
00481> ROUTE CHANNEL       RHYDout ["R3PDC"] ,RHYDin ["OPDC"] ,
00482>                    RDT [1](min),
00483>                    CHLNTH=[153](m),  CRSTOPS=[0.25 (-),
00484>                                        FPSLOPE=[0.25](-),
00485>                     SECNUM=[01],      NSEG=[1]
00486>                    | SECNUMBER, SEGDIST (m)-[0.03,10.0] NSEG times
00487>                    | DISTANCE (m), ELEVATION (m)-[0,     101.13]
00488>                                                  [ 4.5,  100.60]
00489>                                                  [ 5.5,  100.60]
00490>                                                  [ 10.0, 101.13]
00491> *|-----------------|-------------------------------------------------------|
00492> *| Total channel flow at pipe u/s of node N0
00493> ADD HYD             RHYDsum=["N0"], RHYDs to add=["R3PDC"+"PROA"+"PROB2"]
00494> *|-----------------|-------------------------------------------------------|
00495> *|* ------------
00496> *| Total flow at node N0
00497> *| (Note that EX2 will be sheet draining to proposed channel)
00498> ADD HYD             RHYDsum=["N0"], RHYDs to Add=["N0"+"RCEX1"+"EX2"+"C1"]
```

```
*------------------ ------------------------------------------------------------
*# Typical Section based on proposed channel provided by AEL
*# 4:1 bank slopes, long R ope = 0.08, Manning's n is 0.03
*# Route SW drawings at 30 Lo c/x mode N=EX2
ROUTE CHANNEL       NHYDout="EX30"] ,NHYDin="EX2" ,
                    RDT=[1](min),
                    CHLGTH=[224](m),  CHSLOPE=[0.48](%),
                                      FPSLOPE=[0.40](%),
                     SECNUM [01],       NSEC [1]
                    ( SECBOUGH, SECDIST (m)) [0.03,20.0] NSEC times
                    ( DISTANCE (m), ELEVATION (m)  [0,     101.13]
                                                   [ 5.5,  100.00]
                                                   [ 5.5,  100.00]
                                                   [ 10.0, 101.13]
*------------------ ------------------------------------------------------------
*# Catal flow at node N-EX2
ADD HYD             NHYDsum="EX2T", NHYDs to add="EX30"+"ER10"]
*------------------ ------------------------------------------------------------
*# Route node N-EX2 to node N1
*# Typical Section based on Shields MD Vee Ditch 3:1 banks
*# provided by Atre
*# Manning's n is Channel not maintained, light brush on banks
*# Slope = 0.05  as per plan provided by Atrel
ROUTE CHANNEL       NHYDout="EX2T"] ,NHYDin="EX2" ,
                    RDT=[1](min),
                   CHLGTH=[233](m),  CHSLOPE=[0.05](%),
                                     FPSLOPE=[0.05](%),
                     SECNUM [01],       NSEC=[3]
                    ( SECBOUGH, SECDIST (m))=[0.05,5.0 -5.05,0.0 0.05,51.0] KSEG times
                    ( DISTANCE (m), ELEVATION (m)  [0,     85.53]
                                                   [ 6.0, 83.53]
                                                   [6.30, 83.43]
                                                   [8.80, 83.53]
                                                   [10.50, 84.93]
                                                   [12.40, 85.00]
                                                   [51.80, 85.50]
*------------------ ------------------------------------------------------------
*+++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
*# Residential Development - Phase 1 and 2
*+++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
*------------------ ------------------------------------------------------------
*# Total flow at node N-PK1
ADD HYD             NHYDsum ["PPK1"], NHYDs to add ["PX1"+"PK1A"]
*------------------ ------------------------------------------------------------

*# Volume to ponding area in PK1
*# Q=0.555 m3/s required as per SCS 100yr Existing conditions
*# Culvert from Inlet 1
*# Assuming outlet culvert is 600 mm, slope = 1.0 , HDPE smooth walls
*# Manning's n = 0.012, inlet control monograph
*# Hydraulic head   0.8m, Q 0.610
COMPUTE NORMFVD     NHYDnam["NPK1"], CIRLET [0.610](cms), DIRLET [1],
                    MajNHYD=["KPRING"]
                    MinNHYD=["KPRINe"]
                    CMLNHYD=[99999 (cs/m)
*------------------ ------------------------------------------------------------
*# Input to Inlet 1 pipe
ADD HYD             NHYDsum=["In1"], NHYDs to add=["PR1B"+"NPK1Hn"]
*------------------ ------------------------------------------------------------
*# Pipe from Inlet 1 - Route to pond
*# HDPE Smooth wall pipe Manning's n = 0.012
ROUTE PIPE          PTYPE [1]circ, NHYDout=["Pin1"] ,RNUMBER=[1],
                    PDIAM [600](mm), PLNGTH [65](m),
                    PROUGH=[0.012], PSLOPE=[0.616](m/m), NHYDin ["In1"] ,
                    RDT= 1 (min)
*------------------ ------------------------------------------------------------
*# Culvert from Inlet 2
*# HDPE smooth wall pipe Manning's n = 0.012
ROUTE PIPE          PTYPE= 1(circ, NHYDsum=["Cin2"] ,RNUMBER=[1],
                    PDIAM=[600](mm), PLNGTH=[12.5](m),
                    PROUGH=[0.012], PSLOPE=[0.604](m/m), NHYDin=["PR2A"] ,
                    RDT=[1](min)
*------------------ ------------------------------------------------------------
*# Input to Inlet 2 pipe
ADD HYD             NHYDsum ["In2"], NHYDs to add=["PR2B"+"CIn2"]
*------------------ ------------------------------------------------------------
*# Pipe from Inlet 2 - Route to pond
*# HDPE smooth wa l pipe Manning's n = 0.012
ROUTE PIPE          PTYPE= 1(circ, NHYDsum=["Pin2"] ,RNUMBER=[1],
                    PDIAM=[600](mm), PLNGTH=[75](m),
                    PROUGH [0.012], PSLOPE [0.002](m/m), NHYDin=["In2"] ,
                    RDT=.1 (min]
*------------------ ------------------------------------------------------------
*# Culvert from Inlet 3
*# HDPE smooth wall pipe Manning's n = 0.012
ROUTE PIPE          PTYPE=[1]circ, NHYDout=["Cin3"] ,RNUMBER=[1],
                    PDIAM=[600](mm), PLNGTH [12.5](m),
                    PROUGH=[0.012], PSLOPE=[0.004](m/m), NHYDin=["PR3A"] ,
                    RDT=[1](min)
*------------------ ------------------------------------------------------------
*# Input to Inlet 3 pipe
ADD HYD             NHYDsum=["In3"], NHYDs to add=["PR3B"+"CIn3"]
*------------------ ------------------------------------------------------------
*# Pipe from Inlet 3 - Route to pond
*# HDPE smooth wall pipe Manning's n = 0.012
ROUTE PIPE          PTYPE=[1]circ, NHYDout=["Pin3"] ,RNUMBER=[1],
                    PDIAM=[600](mm), PLNGTH [75](m),
                    PROUGH=[0.012], PSLOPE=[0.002](m/m), NHYDin=["In3"] ,
                    RDT=[1](min)
*------------------ ------------------------------------------------------------
*# Culvert from Inlet 4
*# HDPE smooth wall pipe Manning's n = 0.012
ROUTE PIPE          PTYPE=[1]circ, NHYDout=["Cin4"] ,RNUMBER=[1],
                    PDIAM=[600](mm), PLNGTH=[ 5.5](m),
                    PROUGH=[0.012], PSLOPE=[0.004](m/m), NHYDin=["PR4A"] ,
                    RDT [1](min)
*------------------ ------------------------------------------------------------
*# Input to Inlet 4 pipe
ADD HYD             NHYDsum=["In4"], NHYDs to add ["PR4B"+"CIn4"]
*------------------ ------------------------------------------------------------
*# Pipe from Inlet 4 (ULTIMATE CONDITIONS) - Route to pond
*# HDPE smooth wall pipe Manning's n = 0.012
ROUTE PIPE          PTYPE [1]circ, NHYDout=["Pin4"] ,RNUMBER=[ 1],
                    PDIAM=[600](mm), PLNGTH=[65](m),
                    PROUGH=[0.012], PSLOPE=[0.015](m/m), NHYDin=["In4"] ,
                    RDT=[1](min)
*------------------ ------------------------------------------------------------
*# Culvert from Inlet 7
*# HDPE smooth wall pipe Manning's n = 0.012
ROUTE PIPE          PTYPE [1]circ, NHYDout=["Cin7"] ,RNUMBER=[ 1],
                    PDIAM=[600](mm), PLNGTH [12.5](m),
                    PROUGH= 0.012], PSLOPE [0.004](m/m), NHYDin=["PR5A"] ,
                    RDT=[1](min)
*------------------ ------------------------------------------------------------
*# Input to Inlet 5 pipe
ADD HYD             NHYDsum=["In5"], NHYDs to add=["PR5B"+"CIn5"]
*------------------ ------------------------------------------------------------
*# Pipe from Inlet 5 - Route to pond
*# HDPE smooth wal  pipe Manning's n = 0.012
ROUTE PIPE          PTYPE=[1]circ, NHYDout ["Pin5"] ,RNUMBER=[1],
                    PDIAM=[600](mm), PLNGTH= 75](m),
                    PROUGH=[0.012], PSLOPE=[0.616](m/m), NHYDin ["In5"] ,
                    RDT-[1](min)
*------------------ ------------------------------------------------------------
*# Culvert from Inlet 6
*# HDPE smooth wal  pipe Manning's n = 0.012
ROUTE PIPE          PTYPE=[1]circ, NHYDout ["Cin6"] ,RNUMBER=[1],
                    PDIAM=[600](mm), PLNGTH= 12.5](m),
                    PROUGH=[0.012], PSLOPE=[0.004](m/m), NHYDin ["PR6A"] ,
                    RDT [1](min)
*------------------ ------------------------------------------------------------
*# Input to Inlet 5 pipe
ADD HYD             NHYDsum=["In6"], NHYDs to add=["PR6B"+"CIn6"]
*------------------ ------------------------------------------------------------
*# Pipe from Inlet 6 - Route to pond
*# HDPE smooth wall pipe Manning's n = 0.012
ROUTE PIPE          PTYPE=[1]circ, NHYDout ["Pin6"] ,RNUMBER=[1],
                    PDIAM=[600](mm), PLNGTH [70](m),
                    PROUGH=[0.012], PSLOPE=[0.002](m/m), NHYDin=["In6"] ,
                    RDT=[1](min)
*------------------ ------------------------------------------------------------
*# VOLUME TO POND ULTIMATE CONDITIONS
ADD HYD             NHYDsum=["PONDin"], NHYDs to add="P5-n1"+"P5-n2"+"Pin3"
                                  -"Cin4"-"Cin5"-"Pin6"-"Pin7"
*------------------ ------------------------------------------------------------
*#  Pond outflow for ultimate conditions using weir .5; cr 3.0
*#  Not modified from ultimate conditions' model
ROUTE RESERVOIR     NHYDout ["POout"] ,NHYDin=["PONDin"] ,
                    RDT=[1](min),
                         TABLE of ( OUTFLOW-STORAGE ) values
                                    (cms) - (ha-m)
                                  [  0.0 , 0.0
                                  0.0114 0.0790
                                  0.0165 0.1019
                                  0.0315 0.1592
                                  0.0433 0.2498
```

```
                                        0.0839 0.3232
                                        0.0902 0.4069
                                        0.1208 0.4915
                                        0.1551 0.5781
                                        0.1925 0.6655
                                        0.2343 0.7541
                                        0.2809 0.8440
                                        0.3288 0.9351
                                        0.3788 1.0219
                                        0.4299 1.1119
                                        0.4834 1.2019
                                        0.5734 1.2907
                                        2.0021 1.7085
                                        2.8489 2.0195
                                        |    -|   ,   -|    (max twenty pts)
                          RHYdata="over" ,
*\-----------------|-------------------------------------------------------------|
*# Simulating 2C8 100 yr conditions with submergence of outflow pi
*# updated for weir :6, .6, 3.0
*# and elevations) 2C8100 YR in channel = 85.35
*#                          POND WL = 85.70
*#                      TOP of POND WL = 85.80
*#ROUTE RESERVOIR      RHYDout="PPout" ,RHYDin="PONDin" ,
*#                     RET=[]{min},
*#                          TABLE of ( OUTFLOW-STORAGE ) values
*#                                   (cms)  - (ha-m)
*#                                 [   0.0 ,   0.0 ]
*#                                  0.0800 , 1.1209
*#                                  0.20   , 1.8.10
*#                                  0.33   , 2.0.95
*#                                  |   -|   ,   -|   (max twenty pts)
*#                          RHYdown= "over0" ,
*\-----------------|-------------------------------------------------------------|
*# Route pond output through first set of pipes
*# 2 x 600 pipes simulated with 1 pipe of equivalent capacity (=780 mm dia)
*#  Does not take into account hydraulic head caused by Shield Mb backwater
*# HDPE smooth wall pipe Manning's n = 0.012
ROUTE PIPE            PTYPE [1]circ, RHYDout-["Pout1"] ,RNUMBER=[1],
                      PDIAM=[780]{mm}, PLNGTH-[75]{m},
                      PROUGH= 0.012], PSLOPE=[0.002]{m/m}, RHYDin ["Pout"] ,
                      RET=[1]{min}
*\-----------------|-------------------------------------------------------------|
*# Flow c/s of outlet culverts
ADD HYD               RHYDsum-["Pout"], RHYDs to add-["PRTe1"-"PRT02"+"Pout1"]
*\-----------------|-------------------------------------------------------------|
*# Route outflow through set of culverts
*# 2 x 600 culverts simulated with 1 culvert of equivalent capacity (=780 mm dia)
*# HDPE smooth wall pipe Manning's n = 0.012
ROUTE PIPE            PTYPE-[1]circ, RHYDout="Cout" ,RNUMBER=[1],
                      PDIAM=[780]{mm}, PLNGTH-[12.5]{m},
                      PROUGH-[0.012], PSLOPE=[0.004]{m/m}, RHYDin "Pout" ,
                      RET=[2]{min}
*\-----------------|-------------------------------------------------------------|
*# Flow c/s of second set of outflow pipes
ADD HYD               RHYDsum-["Pout2"], RHYDs to add-["PRTC1"+"PRTC2"+"Cout"]
*\-----------------|-------------------------------------------------------------|
*# Route outflow through second set of pipes
*# 2 x 600 pipes simulated with 1 pipe of equivalent capacity (=780 mm dia)
*# HDPE smooth wall pipe Manning's n = 0.012
ROUTE PIPE            PTYPE-[1]circ, RHYDout="Pout" ,RNUMBER=[1],
                      PDIAM-[780]{mm}, PLNGTH-[65]{m},
                      PROUGH-[0.012], PSLOPE-[0.002]{m/m}, RHYdin="Pout2" ,
                      RET [2]{min}
*\-----------------|-------------------------------------------------------------|
*# Total flow at node N1 (Stein VY along Bales Farm Rd
ADD HYD               RHYsum="N1", RHYDs to add="PRET" "Pout2"+"EX7"
                                          +"ex7D"+"ex1."
*\-----------------|-------------------------------------------------------------|
*# ROUTE N1 to N3
*# Typical Section based on Sheets MB Vee Ditch 1:1 banks
*# provided by Atrel
*# Manning's n is Channel not maintained, light brush on banks
*# Slope   0.05% as per plan provided by Atrel.
ROUTE CHANNEL         RHYDout-["RE2"] ,RHYDin ["N1"] ,
                      RET=[]{min},
                     CHLNTH-[105]{m},  CHSLOPE=[0.05]{%},
                                          FPSLOPE=[0.05]{%},
                       SECNUM-[1],        NSEG-[3]
                     ( SEGBOUGH, SECDIST (m))-[0.05,6.0 =0.015,6.6 0.05,51.80) NSEC tinos
                     ( DISTANCE (m), ELEVATION (m))-[0,    85.53]
                                                   [6.0, 83.53]
                                                   [6.30, 83.43]
                                                   [6.60, 83.33]
                                                   [10.50, 84.93]
                                                   [12.90, 85.06]
                                                   [51.80, 85.80]
*\-----------------|-------------------------------------------------------------|
*# Flow at Starter node N7R18 for comparison
*# Routed N1 p ux EX1
ADD HYD               RHYDsum-["EXE1"0"], RHYDs to add ["RE3"-"EX2"]
*\-----------------|-------------------------------------------------------------|
*# AREA CHECK
*#
ADD HYD               RHYDsum-["To1"], RHYDs to add=["EX1"+"EX2"+"EX3"+"EX4"
                                          +"EX5"+"EX6" "OX7"+"ER1A"+"ER1B"]
ADD HYD               RHYDsum- ["To2"], RHYDs to add-["To1."+"ER2A"+"ER3B"+"ER3A"
                                          -"PR3B"-"PR4A"-"PR4B"-"PR5A"-"PR5B"]
ADD HYD               RHYDsum-"To3"], RHYDs to add ["To2"+"ER6A"+"ER6B"+"ER7A"
                                    "PR8A"+"ER8B"+"PR7C1"+"PR7C2"+"ER7D"]
ADD HYD               RHYDsum-["To.4"], RHYDs to add=["To3"+"PR8"-"PR9A"-"PP9B1"
                                    -"PR9a2"+"PR10"+"PR11"+"PR1" "Pout"]
ADD HYD               RHYDsum ["To5"], RHYDs to add=["To4"+"EC1"+"EC2"+"EC3"
                                    +"EXC1"+"EXC2"+"EXC3"+"PLx"]
*\-----------------|-------------------------------------------------------------|
*|*****************|*************************************************************
*\-----------------|-------------------------------------------------------------|
*# simulations with 4 hour Chicago from City of Ottawa
START                 TZERO-[0.0], NRUNOUT=[2], NSTORM=[1],  NRUN-[1]
*\                    ["CH4h002a.stm"] <--storm filename, one per line for NSTORM time
*\-------------------|-------------------------------------------------------------|
START                 TZERO-[0.0], NRUNOUT-[2], NSTORM-[1],  NRUN-[5]
*\                    ["CH4h005a.stm"] <--storm filename, one per line for NSTORM time
*\-------------------|-------------------------------------------------------------|
START                 TZERO-[0.0], NRUNOUT-[2], NSTORM-[1],  NRUN-[10]
*\                    ["CH4h010a.stm"] <--storm filename, one per line for NSTORM time
*\-------------------|-------------------------------------------------------------|
START                 TZERO-[0.0], NRUNOUT-[2], NSTORM-[1],  NRUN-[25]
*\                    ["CH4h025a.stm"] <--storm filename, one per line for NSTORM time
*\-------------------|-------------------------------------------------------------|
START                 TZERO-[0.0], NRUNOUT-[2], NSTORM-[1],  NRUN-[50]
*\                    ["CH4h050a.stm"] <--storm filename, one per line for NSTORM time
*\-------------------|-------------------------------------------------------------|
START                 TZERO-[0.0], NRUNOUT-[2], NSTORM-[1],  NRUN-[100]
*\                    ["CH4h100a.stm"] <--storm filename, one per line for NSTORM time
*\-------------------|-------------------------------------------------------------|
*# SCS 24 hours type I, from City of Ottawa
START                 TZERO-[0.0], NRUNOUT-[2], NSTORM-[1],  NRUN-[10]
*\                    ["SC240C2a.stm"] <--storm filename, one per line for NSTORM time
*\-------------------|-------------------------------------------------------------|
START                 TZERO-[0.0], NRUNOUT-[2], NSTORM-[1],  NRUN-[20]
*\                    ["SC240c5a.stm"] <--storm filename, one per line for NSTORM time
*\-------------------|-------------------------------------------------------------|
START                 TZERO-[0.0], NRUNOUT-[2], NSTORM-[1],  NRUN-[10]
*\                    ["SC240.0a.stm"] <--storm filename, one per line for NSTORM time
*\-------------------|-------------------------------------------------------------|
START                 TZERO-[0.0], NRUNOUT-[2], NSTORM-[1],  NRUN-[25]
*\                    ["SC24025a.stm"] <--storm filename, one per line for NSTORM time
*\-------------------|-------------------------------------------------------------|
START                 TZERO-[0.0], NRUNOUT-[2], NSTORM-[1],  NRUN-[50]
*\                    ["SC24050a.stm"] <--storm filename, one per line for NSTORM time
```

```
*-----------------|-------------------------------------------------------------|
START               TIEPO [0.0],  METOUT [2],  NSTORM [1],  NMON-[296]
*                    ["9CI6130x.stm"] <--storm filename, one per line for METCOM line
*-----------------|-------------------------------------------------------------|
*1 Simulations with July 1, 1979 Historical Event, City of Ottawa
START               TIEPO [0.0],  METOUT [2],  NSTORM [1],  NMO        M-[301]
*                    ["1979070107.STM"] <--storm filename, one per line for METCOM line
*-----------------|-------------------------------------------------------------|
FINISH
```

```
00001>
00002>
00003>  SSSSS  A   M   M   H   H   Y   Y   M   M   OOO        999    999  =========
00004>  S     A A  MM MM   H   H    Y Y    MM MM  O   O      9   9  9   9
00005>  SSSSS  AAA  M M M   HHHHH     Y     M M M  O   O  ##  9   9  9   9  Ver5 Beta
00006>      S  A A  M   M   H   H     Y     M   M  O   O      9999   9999  Sept 2000
00007>  SSSSS  A A  M   M   H   H     Y     M   M   OOO           9      9  ---------
00008>                                                          9   9  9   9
00009>       StormWater Management Hydrologic Model             999    999  =========
00010>
00011>  ************************************************************************
00012>  ************************** SWMHYMO Ver/5 Beta ***************************
00013>  *******  A Single event and continuous hydrologic simulation model  ********
00014>  *******     based on the principles of HYMO and its successors      ********
00015>  *******               OTTHYMO-83 and OTTHYMO-89.                    ********
00016>  ************************************************************************
00017>  ******* Distributed by:  J.F. Sabourin and Associates Inc.           ********
00018>  *******                  Ottawa, Ontario: (613) 727-5189            ********
00019>  *******                  Pakenham, Quebec: (613) 256-6456           ********
00020>  *******                  E-Mail: Anonymous@jfsa.Com                 ********
00021>  ************************************************************************
00022>
00023>  +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
00024>  +++++++ Licensed user: JFSAinc.                                      -++++++
00025>  +++++++                  at Any City          SERIAL#:Z5A7402       -++++++
00026>  +++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++
00027>
00028>  ************************************************************************
00029>  ********              ****** PROGRAM ARRAY DIMENSIONS ******            ********
00030>  ********              Maximum value for ID numbers  :    10            ********
00031>  ********              Max. number of rainfall points:  52560           ********
00032>  ********              Max. number of flow points    :  52560           ********
00033>  ************************************************************************
00034>
00035>  *** DESCRIPTION SUMMARY TABLE HEADERS (units dependent on METOUT (1= ENGLISH) ***
00036>  ***------------------------------------------------------------------------***
00037>  ***    ID:  Hydrograph IDentification numbers, (1-10).                   ***
00038>  ***  (NHYD) Hydrograph reference numbers, (6 digits or characters).      ***
00039>  ***  AREA:  Drainage area associated with hydrograph, (ha.) or (ac.).    ***
00040>  *** QPEAK:  Peak flow of simulated hydrograph, (m**3/s) or (cms).        ***
00041>  *** TpeakDate hr:mn is the date and time of the peak flow.               ***
00042>  ***  R.V.:  Runoff Volume of simulated hydrograph, (m) or (mm).         ***
00043>  ***  R.C.:  Runoff Coefficient of simulated hydrograph, (ratio).        ***
00044>  ***    *:  See WARNING or NOTE message printed at end of run.           ***
00045>  ***   **:  See ERROR message printed at end of run.                     ***
00046>  ************************************************************************
00047>  ************************************************************************
00048>
00049>  ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
00050>
00051>  ************************************************************************
00052>
00053>  ********************   S U M M A R Y   O U T P U T   ********************
00054>  ************************************************************************
00055>  *       DATE: 2008-12-19     TIME: 08:54:07     RUN COUNTER: 001408      *
00056>  ************************************************************************
00057>  * Input  filename: Z:\FSC\1647-07\Design\SWMHYMO\COMMERC~1\GCP.dat        *
00058>  * Output filename: Z:\FSC\1647-07\Design\SWMHYMO\COMMERC~1\GCP.out        *
00059>  * Summary filename: Z:\FSC\1647-07\Design\SWMHYMO\COMMERC~1\GCP.sum       *
00060>  * User comment:                                                          *
00061>  * 1:                                                                     *
00062>  * 2:                                                                     *
00063>  * 3:                                                                     *
00064>  ************************************************************************
00065>
00066>
00067>  ************************************************************************
00068>  *  SWMHYMO Ver:5.02(Jan 2001 <BETA> / INPUT DATA FILE                  *
00069>  ************************************************************************
00070>  *  Project Name: (Greely Village Center)    Project Number: (1647-07)   *
00071>  *  Date        : 04-09-2008                                            *
00072>  *  Modeller    : (JEF)                                                 *
00073>  *  Company     : JFSAinc.                                              *
00074>  *  License #   : 2547402                                               *
00075>  ************************************************************************
00076>  *
00077>  * SWMHYMO model of the Greely Village Center - Residential Area - Phase 2
00078>  * Proposed Ultimate conditions. OPTION B
00079>  * filename stands for: Greely, Commercial, Proposed
00080>  ************************************************************************
00081>  START:COMMENCE
00082>  TIME:0.001  ------------------------------------------------------------
00083>       START
00084>       [TZERO =    .00 hrs on        0]
00085>       [METOUT    2   (1-Imperial, 2-Metric output)]
00086>       [NSTORM    1 ]
00087>       [NRUN  =   1 ]
00088>  001:0010------------------------------------------------------------------
00089>      READ STORM
00090>       Filename = Storm.001
00091>       Comment  = 25 mm 4 Hours step 10 min, City of Ottawa
00092>       [PTOT 10.00:RTCR    4.00:RTDT=  25.00]
00093>  *************************************************************************
00094>  * Existing flow - McEvoy Branch of Shirle Creek - Areas
00095>  * Area n/s at proposed development (residential)
00096>  * CN(=?), Slope = 0.8, Tp 0.16, XIMP=0, TIMP=15, use 0.002 as per Stantec
00097>  * Area partially adjusted based on Attrel drawings. Tp adjusted accordingly.
00098>  *************************************************************************
00099>  * c/s of Bank St.as per Area = with modified boundaries and Tp.
00100>  001:0003---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mn----R.V.-R.C.-
00101>       DESIGN HYDRO        01:EX1        76.00      .549 MO_Date    1:00    5.11 .204
00102>       [CN= 79.0: A= 3.90]
00103>       [Tp=  .23:DC= 1.90]
00104>  *************************************************************************
00105>  * Existing flow - External areas c/s of Bank St.
00106>  * CN(=69), as per Stantec see SC001.
00107>  * Area partially adjusted based on Attrel drawings.
00108>  *************************************************************************
00109>  * Areas External to development.
00110>  001:0004---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mn----R.V.-R.C.-
00111>       DESIGN HYDRO        01:EX2        5.89      .055 MO_Date    7:10    1.01 .181
00112>       [CN= 69.0: A=  3.90]
00113>       [Tp=  .23:DC= 1.90]
00114>  001:0005---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mn----R.V.-R.C.-
00115>       DESIGN HYDRO        01:EX3       21.30      .163 MO_Date    7:25    1.01 .181
00116>       [CN= 69.0: A= 3.90]
00117>       [Tp=  .83:DC= 1.90]
00118>  * Slope, Tlag, Area from Attrel Drawing
00119>  * CN from Stantec (SC001)
00120>  * Ximp = Timp = 70
00121>  001:0006---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mn----R.V.-R.C.-
00122>       CALIB STANDHYD      01:EX4         .58       .006 MO_Date    1:21    0.78 .252
00123>       [AIMP=.11:TIMP=.22]
00124>       [Lose= 2 :CN= 69.0]
00125>       [Pervious     area: 1Aper= 4.57:SLPP=1.00:IGP=  10.:MNP=.250:SCP=   .0]
00126>       [Impervious   area: 1Aimp= 1.57:SLPI=1.00:IGI=  10.:MNI=.035:SCI=   .0]
00127>  * Road and road side ditch along projected residential development Parkway Rd
00128>  * Timp = Ximp = 0.21 ha /0.51 ha = 0.40
00129>  * CN(=69), as per Stantec see SC001.
00130>  * Slope is estimated at 1%
00131>  * LGI based on centroid of area due to elongated shape = 600m/2 = 300
00132>  001:0007---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mn----R.V.-R.C.-
00133>       CALIB STANDHYD      01:EX5         .52       .007 MO_Date    7:10    1.17 .408
00134>       [XIMP=.40:TIMP=.40]
00135>       [Lose= 2 :CN= 69.0]
00136>       [Pervious     area: 1Aper= 1.07:SLPP=1.00:IGP=  10.:MNP=.250:SCP=   .0]
00137>       [Impervious   area: 1Aimp= 1.57:SLPI=1.00:IGI=  10.:MNI=.035:SCI=   .0]
00138>  * Road and road side ditch along projected residential development Parkway Rd
00139>  * Timp = Ximp = 0.1 ha /0.51 ha = 0.20
00140>  * CN(=69, as per Stantec see SC001.
00141>  * Slope is estimated at 1%
00142>  * LGI based on centroid of area due to elongated shape = 351m/2 = 177
00143>  001:0008---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mn----R.V.-R.C.-
00144>       CALIB STANDHYD      01:EX6         .51       .010 MO_Date    7:00    1.75 .716
00145>       [XIMP=.20:TIMP=.20]
00146>       [Lose= 2 :CN= 69.0]
00147>       [Pervious     area: 1Aper= 1.07:SLPP=1.00:IGP=  10.:MNP=.250:SCP=   .0]
00148>       [Impervious   area: 1Aimp= 1.57:SLPI=1.00:IGI=  177.:MNI=.035:SCI=   .0]
00149>  * Road and road side ditch along projected residential development Gatewater Rd
00150>  * Timp = Ximp = 0.09 ha /0.39 ha = 0.23
00151>  * CN= 69, as per Stantec see SC001.
00152>  * Slope is estimated at 1%
00153>  * LGI based on centroid of area due to elongated shape = 275m/2 = 137.5
00154>  001:0009---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mn----R.V.-R.C.-
00155>       CALIB STANDHYD      01:EX7         .39       .010 MO_Date    2:26    7.76 .310
00156>       [XIMP=.27:TIMP=.27]
00157>       [Lose= 2 :CN= 69.0]
00158>       [Pervious     area: 1Aper= 0.67:SLPP=1.00:IGP=  10.:MNP=.250:SCP=   .0]
00159>       [Impervious   area: 1Aimp= 1.57:SLPI=1.00:IGI=  137.:MNI=.035:SCI=   .0]
00160>  *************************************************************************
00161>  * PROPOSED COMMERCIAL DEVELOPMENT
00162>  *************************************************************************
00163>  * CN  = 75 as per fair grass cover with C soil type for top soil; CN*=71
00164>  * XIMP = TIMP to be conservative
00165>  *************************************************************************
00166>  C01:0010---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mn----R.V.-R.C.-
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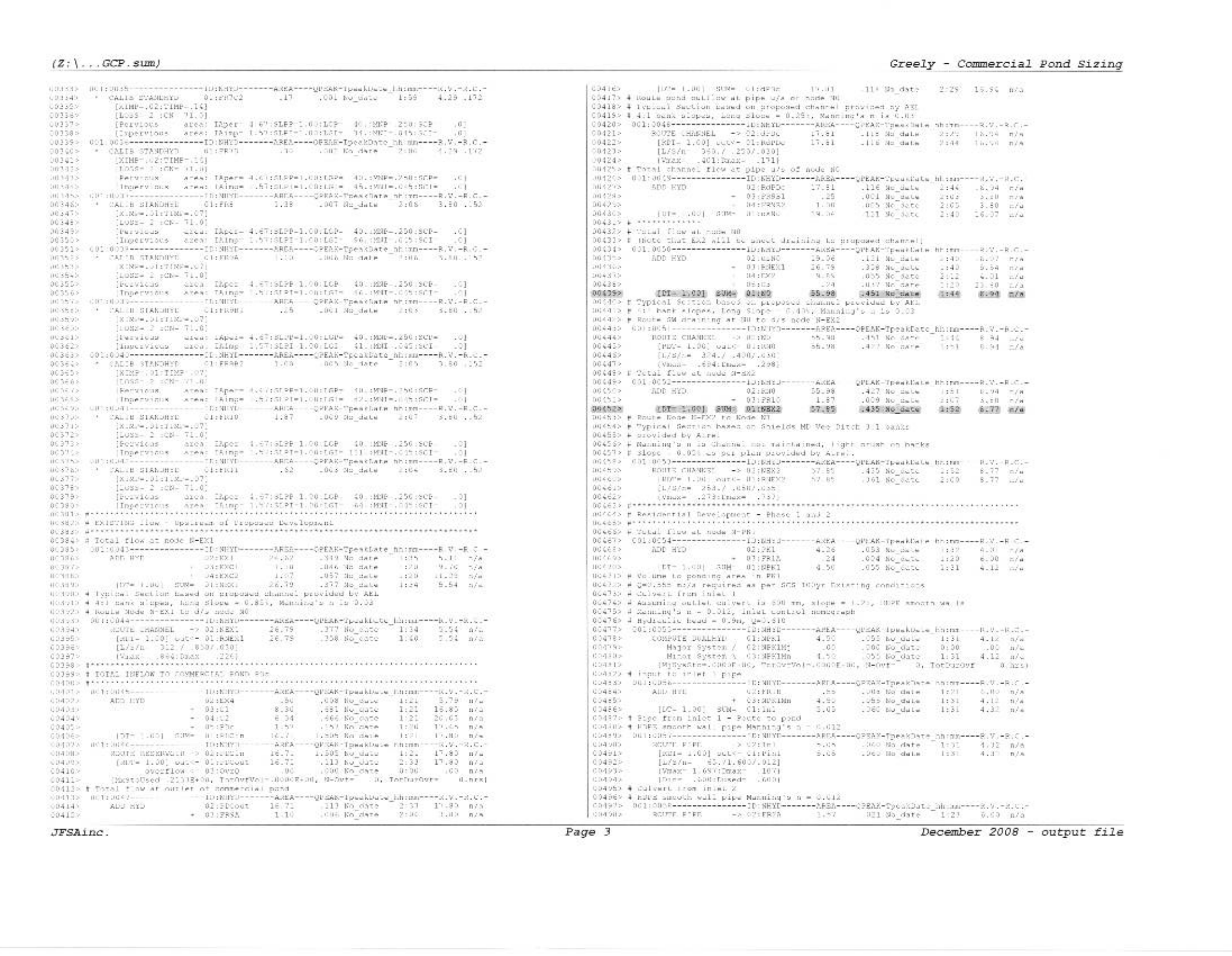
00166>       DESIGN STANDHYD     01:C1          8.30     .68  No data    1:7    16.35  .670
00167>        [XIMP=.83:TIMP=.83]
00168>        [SLP=2.00:DI=  1.00]
00169>        [Loss= 2 :CN=  71.0]
00170> 001:0011---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mn----R.V.-R.C.-
00171>       DESIGN STANDHYD     01:C2          6.34     .666 No data    1:21   20.05 .801
00172>        [XIMP=.79:TIMP=.79]
00173>        [SLP=1.00:DI=  1.00]
00174>        [Loss= 2 :CN=  71.0]
00175> 001:0012---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mn----R.V.-R.C.-
00176>       DESIGN STANDHYD     01:C3           .24     .083 No data    1:20    2.50 .552
00177>        [XIMP=.98:TIMP=.98]
00178>        [SLP=1.00:DI=  1.00]
00179>        [Loss= 2 :CN=  71.0]
00180> * Imp = Imp ha/Tota. area = 0.79/1.10 ha = .27
00181> 001:0013---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mn----R.V.-R.C.-
00182>       DESIGN STANDHYD     01:EXC1         .10     .036 No data    1:20    0.40 .358
00183>        [XIMP=.27:TIMP=.27]
00184>        [SLP=1.00:DI=  1.00]
00185>        [Loss= 2 :CN=  71.0]
00186> * Imp = Imp ha/total area =  0.35/1.07 ha =  .33
00187> 001:0014---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mn----R.V.-R.C.-
00188>       DESIGN STANDHYD     01:EXC2         1.07     .357 No data    1:20   11.29 .452
00189>        [XIMP=.35:TIMP=.35]
00190>        [SLP=1.00:DI=  1.00]
00191>        [Loss= 2 :CN=  71.0]
00192> * Imp = Imp ha/total area = 0.71/0.97ha = .50
00193> 001:0015---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mn----R.V.-R.C.-
00194>       DESIGN STANDHYD     01:EXC3          .93     .311 No data    1:20   10.27 .571
00195>        [XIMP=.50:TIMP=.50]
00196>        [SLP=1.00:DI=  1.00]
00197>        [Loss= 2 :CN=  71.0]
00198> *------------------------------------------------------------------------
00199> * Commercial pond (Pond
00200> * slope estimated at 1% based on elevations around pond.
00201> * Timp and Ximp based on total pond area.
00202> * Ximp   A pond/A tot  1.04/1.57)
00203> 001:0016---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mn----R.V.-R.C.-
00204>       DESIGN STANDHYD     01:Pnd          1.57     .157 No data    1:20   17.65 .706
00205>        [XIMP=.67:TIMP=.67]
00206>        [SLP=1.00:DI=  1.00]
00207>        [Loss= 2 :CN=  71.0]
00208> ##########################################################################
00209> *------------------------------------------------------------------------
00210> * PROPOSED RESIDENTIAL SUBWATERSHEDS - Residential Area Phase 1 and 2
00211> *------------------------------------------------------------------------
00212> * CN=80, as per Greeley (see SCS01).
00213> * Tp estimated with Upland Method.
00214> 001:0017---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mn----R.V.-R.C.-
00215>       DESIGN NASHYD       01:PR1          4.26     .057 No data    1:31    1.01 .161
00216>        CN= 80.0: R= 1.00
00217>        Tp=  .10:DT=  1.00
00218> *------------------------------------------------------------------------
00219> * AREAS GOING TO RESIDENTIAL POND (POn)
00220> *------------------------------------------------------------------------
00221> *
00222> 001:0018---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mn----R.V.-R.C.-
00223>       CALIB STANDHYD      01:PR1A         .21     .081 No data    1:20    0.60 .240
00224>        [XIMP=.11:TIMP=.21]
00225>        [Loss= 2 :CN=  71.0]
00226>        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
00227>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  40.:MNI=.045:SCI=   .0]
00228> 001:0019---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mn----R.V.-R.C.-
00229>       CALIB STANDHYD      01:PR1A         .53     .202 No data    1:21    6.00 .240
00230>        [XIMP=.  1:TIMP=.21]
00231>        [Loss= 2 :CN=  71.0]
00232>        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
00233>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  61.:MNI=.045:SCI=   .0]
00234> 001:0020---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mn----R.V.-R.C.-
00235>       CALIB STANDHYD      01:PR1B         1.57     .021 No data    1:23    6.00 .240
00236>        [XIMP=.11:TIMP=.21]
00237>        [Loss= 2 :CN=  71.0]
00238>        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
00239>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  102.:MNI=.045:SCI=   .0]
00240> 001:0021---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mn----R.V.-R.C.-
00241>       CALIB STANDHYD      01:PR2B         1.17     .310 No data    1:22    6.00 .240
00242>        [XIMP=.11:TIMP=.21]
00243>        [Loss= 2 :CN=  71.0]
00244>        [Pervious     area: IAper= 4.67:SLPP 1.00:LGP=  40. :MNP .250 :SCP    .0]
00245>        [Impervious   area: IAimp= 1.57:SLPI 1.00:LGI=  88. :MNI .045 :SCI    .0]
00246> 001:0022---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mn----R.V.-R.C.-
00247>       CALIB STANDHYD      01:PR3A         .45     .087 No data    1:21    6.00 .240
00248>        [XIMP=.11:TIMP=.21]
00249>        [Loss= 2 :CN=  71.0]
00250>        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
00251>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  55.:MNI=.045:SCI=   .0]
00252> 001:0023---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mn----R.V.-R.C.-
00253>       CALIB STANDHYD      01:PR3B         .52     .088 No data    1:21    6.00 .240
00254>        [XIMP=.11:TIMP=.21]
00255>        [Loss= 2 :CN=  71.0]
00256>        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
00257>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  59.:MNI=.045:SCI=   .0]
00258> 001:0024---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mn----R.V.-R.C.-
00259>       CALIB STANDHYD      01:PR4A         .71     .010 No data    1:21    6.00 .240
00260>        [XIMP=.11:TIMP=.7.]
00261>        [Loss= 2 :CN=  71.0]
00262>        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
00263>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  88.:MNI=.045:SCI=   .0]
00264> 001:0025---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mn----R.V.-R.C.-
00265>       CALIB STANDHYD      01:PR5B         .65     .010 No data    1:21    6.00 .240
00266>        [XIMP=.11:TIMP=.21]
00267>        [Loss= 2 :CN=  71.0]
00268>        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
00269>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  88.:MNI=.045:SCI=   .0]
00270> 001:0027---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mn----R.V.-R.C.-
00271>       CALIB STANDHYD      01:PR5A         .56     .008 No data    1:21    6.00 .240
00272>        [XIMP=.11:TIMP=.21]
00273>        [Loss= 2 :CN=  71.0]
00274>        [Pervious     area: IAper= 4.67:SLPP 1.00:LGP=  40.:MNP=.250:SCP=   .0]
00275>        [Impervious   area: IAimp= 1.57:SLPI 1.00:LGI=  88.:MNI=.045:SCI=   .0]
00276> 001:0026---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mn----R.V.-R.C.-
00277>       CALIB STANDHYD      01:PR6B         .46     .007 No data    1:21    6.00 .240
00278>        [XIMP=.11:TIMP=.21]
00279>        [Loss= 2 :CN=  71.0]
00280>        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
00281>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  88.:MNI=.045:SCI=   .0]
00282> 001:0028---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mn----R.V.-R.C.-
00283>       CALIB STANDHYD      01:PR6A         1.43     .019 No data    1:23    6.00 .240
00284>        [XIMP=.11:TIMP=.21]
00285>        [Loss= 2 :CN=  71.0]
00286>        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
00287>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  88.:MNI=.045:SCI=   .0]
00288> 001:0029---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mn----R.V.-R.C.-
00289>       CALIB STANDHYD      01:PR6B         .93     .013 No data    1:22    6.00 .240
00290>        [XIMP=.11:TIMP=.21]
00291>        [Loss= 2 :CN=  71.0]
00292>        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
00293>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  88.:MNI=.045:SCI=   .0]
00294> * Ximp estimates at 1% based on backyard swales.
00295> * Timp and Ximp based on total pond area
00296> * Ximp = A pond/A tot
00297> * Timp = weighted average of pond and backyards
00298> 001:0030---------------ID:NHYD-------AREA----QPEAK-TpeakDate hh:mn----R.V.-R.C.-
00299>       CALIB STANDHYD      01:Pnd          5.00     .219 No data    1:20   12.31 .492
00300>        [XIMP=.44:TIMP=.47]
00301>        [Loss= 2 :CN=  71.0]
00302>        [Pervious     area: IAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
00303>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI= 183.:MNI=.045:SCI=   .0]
00304> *------------------------------------------------------------------------
00305> * UNCONTROLLED AREAS
00306> *------------------------------------------------------------------------
00307> *
00308> 001:0031---------------ID:NHYD       AREA----QPEAK-TpeakDate hh:mn----R.V.-R.C.-
00309>  *  CALIB STANDHYD      01:PR7A         1.35     .005 No data    2:01    4.29 .172
00310>        [XIMP=.01:TIMP=.14]
00311>        [Loss= 2 :CN=  71.0]
00312>        [Pervious     area: IApe= 4.67:SLPP=1.00:LGP=  40.:MNP .250:SCP=   .0]
00313>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  95.:MNI .045:SCI=   .0]
00314> 001:0032---------------ID:NHYD       AREA----QPEAK-TpeakDate hh:mn----R.V.-R.C.-
00315>  *  CALIB STANDHYD      01:PR7B1        .36     .001 No data    2:00    4.29 .172
00316>        [XIMP=.01:TIMP=.14]
00317>        [Loss= 2 :CN=  71.0]
00318>        [Pervious     area: IApe= 4.67:SLPP=1.00:LGP=  40.:MNP .250:SCP=   .0]
00319>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  49.:MNI=.045:SCI=   .0]
00320> 001:0033---------------ID:NHYD       AREA----QPEAK-TpeakDate hh:mn----R.V.-R.C.-
00321>  *  CALIB STANDHYD      01:PR7B2        .22     .001 No data    1:58    4.29 .172
00322>        [XIMP=.01:TIMP=.14]
00323>        [Loss= 2 :CN=  71.0]
00324>        [Pervious     area: IApe= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=   .0]
00325>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  40.:MNI=.045:SCI=   .0]
00326> 001:0034---------------ID:NHYD       AREA----QPEAK-TpeakDate hh:mn----R.V.-R.C.-
00327>  *  CALIB STANDHYD      01:PR7C1        .29     .002 No data    2:00    4.29 .172
00328>        [XIMP=.02:TIMP=.14]
00329>        [Loss= 2 :CN=  71.0]
00330>        [Pervious     area: IApe= 4.67:SLPP=1.00:LGP=  40.:MNP .250:SCP=   .0]
00331>        [Impervious   area: IAimp= 1.57:SLPI=1.00:LGI=  51.:MNI=.045:SCI=   .0]
00332>
```



```
00488>       [RAI= 1.00] out<- 01:Cin2       1.57     .021 No_date    1:23    6.00  n/a
00489>       [I/S/n=   13./ .400/.012]
00490>       [Vmax=  .080:Dmax=  .055]
00491>       [Din=  .500:Dused=  .500]
00492> # Input to inlet 2 pipe
00493> 001:C059----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
00494>     ADD HYD             02:FR2B       1.17     .016 No_date    1:22    6.00  n/a
00495>                       + 03:Cin2       1.57     .025 No_date   10:25    6.10  n/a
00496>       [PT= 1.00]  SUM=  01:In2        2.74     .037 No_date    1:23    6.06  n/a
00497> # Pipe from inlet 2 - Route to pond
00498> # HDPE smooth wall pipe Manning's n = 0.012
00499> 001:C060----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
00500>     ROUTE PIPE      -> 02:In2         2.74     .037 No_date    1:23    6.06  n/a
00501>       [RDT= 1.00] out<- 01:Pin2       2.74     .036 No_date    1:24    6.06  n/a
00502>       [I/S/n=   75./ .2000/.012]
00503>       [Vmax=  .728:Dmax=  .152]
00504>       [Din=  .500:Dused=  .500]
00505> # Culvert from inlet 3
00506> # HDPE smooth wall pipe Manning's n = 0.012
00507> 001:C061----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
00508>     ROUTE PIPE      -> 02:FR3A        .45     .007 No_date    1:21    6.00  n/a
00509>       [RDT= 1.00] out<- 01:Cin3       .45     .007 No_date    1:21    6.00  n/a
00510>       [I/S/n=   13./ .400/.0.2]
00511>       [Vmax=  .559:Dmax=  .095]
00512>       [Din=  .500:Dused=  .500]
00513> # Input to inlet 3 pipe
00514> 001:C062----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
00515>     ADD HYD             02:FR3B        .52     .008 No_date    1:21    6.00  n/a
00516>                       + 03:Cin3        .45     .007 No_date    1:21    6.00  n/a
00517>       [PT= 1.00]  SUM=  01:In3         .97     .015 No_date    1:21    6.00  n/a
00518> # Pipe from inlet 3 - Route to pond
00519> # HDPE smooth wall pipe Manning's n = 0.012
00520> 001:C063----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
00521>     ROUTE PIPE      -> 02:In3         .97     .015 No_date    1:21    6.00  n/a
00522>       [RDT= 1.00] out<- 01:Pin3       .97     .014 No_date    1:23    6.00  n/a
00523>       [I/S/n=   75./ .2000/.0.2]
00524>       [Vmax=  .000:Dmax=  .095]
00525>       [Din=  .500:Dused=  .500]
00526> # Culvert from inlet 4
00527> # HDPE smooth wall pipe Manning's n = 0.012
00528> 001:C064----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
00529>     ROUTE PIPE      -> 02:FR4A        .01     .000 No_date    1:21    6.00  n/a
00530>       [RDT= 1.00] out<- 01:Cin4       .01     .000 No_date    1:22    6.00  n/a
00531>       [I/S/n=   13./ .400/.0.2]
00532>       [Vmax=  .000:Dmax=  .047]
00533>       [Din=  .500:Dused=  .500]
00534> # Input to inlet 4 pipe
00535> 001:C065----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
00536>     ADD HYD             02:FR4B        .65     .010 No_date    1:21    6.00  n/a
00537>                       + 03:Cin4        .71     .010 No_date    1:22    6.00  n/a
00538>       [PT= 1.00]  SUM=  01:In4         1.36     .020 No_date    1:21    6.00  n/a
00539> # Pipe from inlet 4 (ULTIMATE CONDITIONS) - Route to pond
00540> # HDPE smooth wall pipe Manning's n = 0.012
00541> 001:C066----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
00542>     ROUTE PIPE      -> 02:In4         1.36     .020 No_date    1:21    6.00  n/a
00543>       [RDT= 1.00] out<- 01:Pin4       1.36     .020 No_date    1:22    6.00  n/a
00544>       [I/S/n=   65./1.900/.0.2]
00545>       [Vmax= 1.265:Dmax=  .095]
00546>       [Din=  .500:Dused=  .500]
00547> # Culvert from inlet 5
00548> # HDPE smooth wall pipe Manning's n = 0.012
00549> 001:C067----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
00550>     ROUTE PIPE      -> 02:FR5A        .66     .010 No_date    1:21    6.00  n/a
00551>       [RDT= 1.00] out<- 01:Cin5       .66     .010 No_date    1:22    6.00  n/a
00552>       [I/S/n=   13./ .400/.0.2]
00553>       [Vmax=  .810:Dmax=  .095]
00554>       [Din=  .500:Dused=  .500]
00555> # Input to inlet 5 pipe
00556> 001:C068----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
00557>     ADD HYD             02:FR5B        .46     .007 No_date    1:21    6.00  n/a
00558>                       + 03:Cin5        .66     .010 No_date    1:22    6.00  n/a
00559>       [PT= 1.00]  SUM=  01:In5         1.12     .017 No_date    1:21    6.00  n/a
00560> # Pipe from inlet 5 - Route to pond
00561> # HDPE smooth wall pipe Manning's n = 0.012
00562> 001:C069----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
00563>     ROUTE PIPE      -> 02:In5         1.12     .017 No_date    1:21    6.00  n/a
00564>       [RDT= 1.00] out<- 01:Pin5       1.12     .017 No_date    1:22    6.00  n/a
00565>       [I/S/n=   75./1.600/.012]
00566>       [Vmax= 1.139:Dmax=  .080]
00567>       [Din=  .500:Dused=  .500]
00568> # Culvert from inlet 6
00569> # HDPE smooth wall pipe Manning's n = 0.012
00570> 001:C070----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
00571>     ROUTE PIPE      -> 02:FR6A        1.43     .019 No_date    1:23    6.00  n/a
00572>       [RDT= 1.00] out<- 01:Cin6       1.43     .019 No_date    1:23    6.00  n/a
00573>       [I/S/n=   13./ .400/.012]
00574>       [Vmax=  .780:Dmax=  .091]
00575>       [Din=  .500:Dused=  .500]
00576> # Input to inlet 6 pipe
00577> 001:C071----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
00578>     ADD HYD             02:FR6B        .53     .013 No_date    1:22    6.00  n/a
00579>                       + 03:Cin6        1.43     .019 No_date    1:23    6.00  n/a
00580>       [PT= 1.00]  SUM=  01:In6         1.96     .032 No_date    1:23    6.00  n/a
00581> # Pipe from inlet 6 - Route to pond
00582> # HDPE smooth wall pipe Manning's n = 0.012
00583> 001:C072----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
00584>     ROUTE PIPE      -> 02:In6         2.36     .032 No_date    1:23    6.00  n/a
00585>       [RDT= 1.00] out<- 01:Pin6       2.36     .032 No_date    1:24    6.00  n/a
00586>       [I/S/n=   75./ .1000/.012]
00587>       [Vmax=  .000:Dmax=  .228]
00588>       [Din=  .500:Dused=  .500]
00589> # VOLUME TO POND ULTIMATE RUNIMENTAL
00590> 001:0073----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
00591>     ADD HYD             02:Pin1        5.05     .066 No_date    1:31    4.35  n/a
00592>                       + 03:Pin2        2.74     .036 No_date    1:23    6.11  n/a
00593>                       + 04:Pin3         .97     .014 No_date    1:23    6.00  n/a
00594>                       + 05:Pin4        1.38     .020 No_date    1:37    7.00  n/a
00595>                       + 06:Pin5        1.12     .017 No_date    1:37    6.00  n/a
00596>                       + 07:Pin6        2.36     .032 No_date    1:24    6.00  n/a
00597>                       + 08:Pin         5.03     .219 No_date    1:26   12.51  n/a
00598>       [IT= 1.00]  SUM=  01:POND1n      18.63     .395 No_date    1:25    7.28  n/a
00599> #  Pond outflow for ultimate conditions using weir .6, 6; 3.0
00600> 001:0074----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
00601>     ROUTE RESERVOIR -> 02:vOut1n      18.63     .395 No_date    1:25    7.28  n/a
00602>       [RO= 1.00] out<- 01:POut1       18.63     .020 No_date    4:22    7.28  n/a
00603>            overflow <- 01:ovr0            0     .000 No_date    0:00    .00  n/a
00604>       [MaxStoVol=.1148E+08, TotalVol=.8008E+08, E-Out=    0, TotErrOvf=    0.1e+0
00605> # Simulate 2c2 100 yr conditions with maintenance of outflow weir
00606> # updated for weir .6; .6; 3.0
00607> ROUTE RESERVOIR     -NHYDout-["pOut1"] ,NHYD:n=["POND1n"] ,
00608> #                    ROT-,1(min),
00609> #                          TABLE of [ OUTFLOW-STORAGE ] values
00610> #                                    ifNS) - (ha-m)
00611> #                                   [   0.0 ,   0.0 ]
00612> #                                    0.00301 , 0.1205
00613> #                                    0.20  , 1.8110
00614> #                                    0.33  , 3.6155
00615> #                                   [   -1  ,   -1  ]  (max twenty pts)
00616> #                          NHYDovr=["ovr0"] ,
00617> # Route pond output through first set of pipes
00618> # 2 x 600 pipes simulated with 1 pipe of equivalent capacity (=780 mm dia)
00619> # HDPE smooth wall pipe Manning's n   0.012
00620> 001:0075----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
00621>     ROUTE PIPE      -> 02:POut1     18.63     .020 No_date    4:22    7.28  n/a
00622>       [RO= 1.00] out<- 01:vOut1     18.63     .020 No_date    4:22    7.28  n/a
00623>       [I/S/n=   75./ .1200/.012]
00624>       [Vmax=  .760:Dmax=  .092]
00625>       [Din=  .780:Dused=  .780]
00626> # Flow u/s of outlet culverts
00627> 001:0076----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
00628>     ADD HYD             02:rOut1        .56     .007 No_date    1:00    4.25  n/a
00629>                       + 03:rR7b2        .22     .001 No_date    1:59    4.79  n/a
00630>                       + 04:Pout1      18.63     .020 No_date    4:24    7.28  n/a
00631>       [IT= 1.00]  SUM=  01:Pout       19.21     .021 No_date    4:24    7.19  n/a
00632> # Route outflow through set of culverts
00633> # 2 x 900 culverts simulated with 1 culvert of equiva ent capacity (=780 mm dia
00634> # HDPE smooth wall pipe Manning's n = 0.012
00635> 001:0077----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
00636>     ROUTE PIPE      -> 02:Pout      19.21     .021 No_date    4:14    7.19  n/a
00637>       [RO= 1.00] out<- 01:Cout      19.21     .021 No_date    4:14    7.19  n/a
00638>       [I/S/n=   75./ .1200/.012]
00639>       [Vmax=  .760:Dmax=  .084]
00640>       [Din=  .780:Dused=  .780]
00641> # Flow u/s of second set of outflow pipes
00642> 001:0078----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
00643>     ADD HYD             03:rR7c1        .49     .007 No_date    2:00    4.29  n/a
00644>                       + 03:rR7c2        .17     .001 No_date    1:59    4.79  n/a
00645>                       + 04:Cout       19.21     .021 No_date    4:14    7.19  n/a
00646>       [PT= 1.00]  SUM=  01:Pout2      19.77     .022 No_date    4:03    7.19  n/a
00647> # Route outflow through second set of pipes
00648> # 2 x 600 pipes simultaneously with 1 pipe of equivalent capacity (=780 mm dia)
00649> # HDPE smooth wall pipe Manning's n = 0.012
00650> 001:0079----------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
00651>     ROUTE PIPE      -> 02:Pout2     19.77     .022 No_date    4:03    7.19  n/a
00652>       [RO= 1.00] out<- 01:PoutF     19.77     .022 No_date    4:07    7.19  n/a
00653>       [I/S/n=   65./ .1000/.012]
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00665>       [Vmax=  .5/1/Tmax=  .809]
00666>       [D:m=  .750:Lxsd=  .750]
00667> # Total flow at node N1 (Shields WD along Salex Barn Rd)
00668>  001:0080---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
00669>     ADD HYD              02:HME02     57.05     .581 No data    2:00    8.77  n/a
00670>                        + 03:route     19.77     .822 No date    4:07    7.10  n/a
00671>                        - 04:EX7        .39     .010 No date    1:24    7.76  n/a
00672>                        - 05:rc7D       .36     .002 No_date    2:08    4.29  n/a
00673>                        - 06:FP11       .62     .003 No_date    2:04    4.80  n/a
00674>       [DT= 1.00]  SUM=  01:N1       78.93     .385 No_date    2:00    8.29  n/a
00675> # ROUTE N1 to N3
00676> # Typical Section based on Shields MD Vcc Ditch 3.1 cents
00677> # provided by Atrel
00678> # Manning's n is Channel not maintained, light brush on banks
00679> # Slope - 0.05% as per plan provided by Atrel.
00680>  001:0081---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
00681>     ROUTE CHANNEL    -> 02:N2         78.93     .385 No_date    2:00    8.29  n/a
00682>       [RLT= 1.00] SUM=  01:RN1        78.93     .385 No_date    2:07    8.29  n/a
00683>       [L/S/m=  549./ .050/.035]
00684>       [Vmax=  .256:Dmax=  .730]
00685> # VOLUME from residential area at N3 intersx
00686>  001:0082---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
00687>     ADD HYD              02:RN2         1.55     .008 No_date    2:03    4.29  n/a
00688>                        - 03:FP8         1.38     .007 No_date    2:06    3.80  n/a
00689>       [DT= 1.00]  SUM=  01:N3          2.73     .015 No_date    2:04    4.04  n/a
00690> # Added VOLUME from external area contributing to N3
00691>  001:0083---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
00692>     ADD HYD              02:RN3         78.93     .420 No_date    2:07    8.29  n/a
00693>                        + 03:N3          2.73     .015 No_date    2:04    4.04  n/a
00694>                        - 04:EX5          .52     .017 No_date    1:18   11.72  n/a
00695>                        - 05:EX6          .51     .010 No_date    1:26    7.16  n/a
00696>                        - 06:EXC3         .22     .017 No_date    1:20   14.27  n/a
00697>       [DT= 1.00]  SUM=  01:N3         82.91     .341 No_date    2:25    8.18  n/a
00698> # ROUTE N3 to N128
00699> # Typical Section based on Shields MD Vcc Ditch 3.1 cents
00700> # provided by Atrel
00701> # Manning's n is Channel not maintained, light brush on banks
00702> # Slope - 0.05% as per plan provided by Atrel.
00703>  001:0084---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
00704>     ROUTE CHANNEL    -> 02:N7         82.91     .341 No_date    2:25    8.18  n/a
00705>       [RLT= 1.00] SUM=  01:RN1        82.91     .295 No_date    2:08    8.18  n/a
00706>       [L/S/m=  474./ .050/.035]
00707>       [Vmax=  .250:Dmax=  .666]
00708> # Flow at Station node NCR128 for comparison
00709> # Routed N3 plus EX3
00710>  001:0085---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
00711>     ADD HYD              02:RN3         82.91     .295 No_date    2:08    8.18  n/a
00712>                        + 03:EX3         21.30     .133 No_date    2:05    4.81  n/a
00713>       [DT= 1.00]  SUM=  01:NCR128     104.21     .182 No_date    2:06    7.31  n/a
00714> # AREA CHECK
00715> #
00716>  001:0086---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
00717>     ADD HYD              02:EX1         24.62     .149 No_date    1:45    5.11  n/a
00718>                        + 03:EX2          9.89     .055 No_date    2:12    4.81  n/a
00719>                        + 04:EX3         21.30     .133 No_date    2:05    4.81  n/a
00720>                        + 05:EX4          .50     .008 No_date    1:21    5.79  n/a
00721>                        + 06:EX5          .52     .017 No_date    1:50   11.22  n/a
00722>                        + 07:EX6          .51     .010 No_date    1:26    7.15  n/a
00723>                        + 08:EX7          .39     .010 No_date    1:24    7.76  n/a
00724>                        + 09:FP1A         .24     .004 No_date    1:20    6.00  n/a
00725>                        + 10:FP1B         .55     .008 No_date    1:21    6.00  n/a
00726>       [DT= 1.00]  SUM=  01:ALL        58.52     .448 No_date    1:37    4.83  n/a
00727>  001:0087---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
00728>     ADD HYD              02:EX1         58.52     .448 No_date    1:37    4.83  n/a
00729>                        + 03:FP2A         1.57     .021 No_date    1:23    6.00  n/a
00730>                        + 04:FP2B         1.13     .016 No_date    1:23    6.00  n/a
00731>                        + 05:FP4A          .45     .007 No_date    1:21    6.00  n/a
00732>                        + 06:FP3B          .52     .008 No_date    1:21    6.00  n/a
00733>                        + 07:FP4A          .72     .010 No_date    1:21    6.00  n/a
00734>                        + 08:FP4B          .60     .010 No_date    1:21    6.00  n/a
00735>                        + 09:FP5A          .60     .010 No_date    1:21    6.00  n/a
00736>                        + 10:FP5B          .48     .008 No_date    1:21    6.00  n/a
00737>       [DT= 1.00]  SUM=  01:ALL        64.71     .493 No_date    1:36    4.76  n/a
00738>  001:0088---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
00739>     ADD HYD              02:EX2         64.71     .493 No_date    1:36    4.76  n/a
00740>                        + 03:FP6A         1.47     .019 No_date    1:23    6.00  n/a
00741>                        + 04:FP6B          .91     .013 No_date    1:22    6.00  n/a
00742>                        + 05:FP7A         1.35     .009 No_date    2:01    4.29  n/a
00743>                        + 06:FP7B1         .38     .002 No_date    2:00    4.29  n/a
00744>                        + 07:FP7B2         .22     .001 No_date    1:59    4.29  n/a
00745>                        + 08:FP7C1         .39     .002 No_date    2:00    4.29  n/a
00746>                        + 09:FP7C2         .17     .001 No_date    1:59    4.29  n/a
00747>                        + 10:FP8B          .40     .002 No_date    2:00    4.29  n/a
00748>       [DT= 1.00]  SUM=  01:EX3        104.21     .182 No_date    2:06    7.31  n/a
00749>  001:0089---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
00750>     ADD HYD              02:Out3        69.85     .521 No_date    1:35    4.73  n/a
00751>                        + 03:FP3         1.38     .007 No_date    2:06    3.80  n/a
00752>                        + 04:FP5A        1.10     .006 No_date    2:06    3.80  n/a
00753>                        + 05:FP5B1        .20     .001 No_date    2:03    3.80  n/a
00754>                        + 06:FP5B2       1.00     .005 No_date    2:05    3.80  n/a
00755>                        + 07:FP10        1.87     .009 No_date    2:07    3.80  n/a
00756>                        + 08:FP11         .62     .003 No_date    2:04    3.80  n/a
00757>                        + 09:PNT         3.56     .053 No_date    1:32    4.01  n/a
00758>                        + 10:POC         5.03     .218 No_date    1:26   12.31  n/a
00759>       [DT= 1.00]  SUM=  01:Out3       94.57     .860 No_date    1:31    5.12  n/a
00760>  001:0090---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
00761>     ADD HYD              02:Out4        82.37     .780 No_date    1:31    5.12  n/a
00762>                        + 03:C1          8.30     .688 No_date    1:21   16.85  n/a
00763>                        + 04:C2          6.71     .666 No_date    1:21   20.02  n/a
00764>                        + 05:C3           .24     .037 No_date    1:20   23.80  n/a
00765>                        + 06:EXC1         .10     .040 No_date    1:20   31.70  n/a
00766>                        + 07:EXC2         .03     .015 No_date    1:20   37.29  n/a
00767>                        + 08:EXC3         .22     .017 No_date    1:20   14.27  n/a
00768>                        + 09:EPC          .07     .157 No_date    1:20   43.65  n/a
00769>       [DT= 1.00]  SUM=  01:Out5      104.21     2.208 No_date    1:21    7.37  n/a
00770> #*********************************************************************
00771> # Simulations with 4 hour Chicago from City of Ottawa
00772>   ** END OF RUN :  1
00773>
00774> *********************************************************************
00775>
00776>
00777>
00778>
00779>
00780>  RUN:COMMAND*
00781>  000:0001---------------------------------------------------------------
00782>       START
00783>         [TAREA =    .00 Hrs on      0]
00784>         [METOUT=   2    (1=Imperial, 2=metric output)]
00785>         [NSTORM=   1 ]
00786>         [NRUN  =   1 ]
00787> #*********************************************************************
00788> #  SWMHYMO Ver:5.02/Jan 2001 <BUTTA> / INPUT DATA FILE
00789> #*********************************************************************
00790> #  Project Name  :Greely Village Center    Project Number: (647.07)
00791> #  Date         : 00-05-2008
00792> #  Modeller     : MPE
00793> #  Company      : JFSAinc.
00794> #  License #    : 2547402
00795> #*********************************************************************
00796> #
00797> # SWMHYMO model of the Greely Village Center - Residential Area - Phase 1
00798> # Proposed Ultimate conditions. 2YR10M H
00799> # Filename stands for: Greely, Commercial, Proposed
00800> #*********************************************************************
00801>  002:0002---------------------------------------------------------------
00802>       READ STORM
00803>         Filename = storm.DCI
00804>         Comment  = 2 years Chicago Storm 4 hours step 10 min, City of Ottawa
00805>         [ptsf= 10.00:ptCN=   4.00:PTIM=  35.8%]
00806> #*********************************************************************
00807> # Existing flow - McEvoy Branch of Shields Creek - Areas
00808> # Area c/s of proposed development (residential)
00809> # CN*=85, slope = 0.8, Tp=0.6h, XTIM=%, TTMP=%, see SCS02 as per Stantec
00810> # Area partially adjusted based on Atrel drawings. Tp adjusted accordingly.
00811> #*********************************************************************
00812> # c/s of Bank St.as per Atrel - with modified boundaries and Tp.
00813>  002:0003---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
00814>       DESIGN RAINFALL      01:EX1         24.62     .627 No_date    1:35    8.98 .254
00815>         [CN= 74.0: N= 3.0]
00816>         [Tp=  .67:DT= 1.00]
00817> #*********************************************************************
00818> # Existing flow - External areas c/s of Bank St.
00819> # CN* 85, as per Stantec dec 82002.
00820> # Area partially adjusted based on Atrel drawings.
00821> #*********************************************************************
00822> # Areas External to development
00823>  002:0004---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
00824>       DESIGN RAINFALL      01:EX2         9.89     .160 No_date    1:31    4.16 .211
00825>         [CN= 69.0: N= 3.0]
00826>         [Tp=  .67:DT= 1.00]
00827>  002:0005---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
00828>       DESIGN RAINFALL      01:EX3         21.30     .186 No_date    1:24    7.26 .211
00829>         [CN= 69.0: N= 3.0]
00830>         [Tp=  .83:DT= 1.00]
```

```
# Slope, Timp, Area from Atrel Drawing
# CN from Stantec (SC001)
# Ximp = Timp - 10
 002:0008---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     CALIB STANDHYD    01:EX3          .58     .611 No_date    1:21    9.64 .285
       [XIMP=.11:TIMP=.22]
       [Loss= 2 :CN= 69.0]
       |Pervious     area: TAper= 1.67:SLPP=1.00:LGP=  30.:MNP=.250:SCP=    .0|
       |Impervious   area: TAimp= 1.57:SLPI=1.00:LGI=  50.:MNI=.045:SCI=    .0|
# Road and road side ditch along projected residential development Parkway Rd
# Timp = Ximp = 0.21 ha /0.58 ha = 0.40
# CN*=69, as per Stantec doc SC001.
# Slope is estimated at 1%
# LGI based on centroid of area due to elongated shape   600m/2 =  300
 002:0007---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     CALIB STANDHYD    01:EX5          .52     .625 No_date    1:28   16.50 .487
       [XIMP=.40:TIMP=.60]
       [Loss= 2 :CN= 69.0]
       |Pervious     area: TAper= 1.67:SLPP=1.00:LGP=  30.:MNP=.250:SCP=    .0|
       |Impervious   area: TAimp= 1.57:SLPI=1.00:LGI= 177.:MNI=.045:SCI=    .0|
# Road and road side ditch along projected residential development SalesBarn Rd
# Timp = Ximp = 0.1 ha /0.51 ha = 0.20
# CN*=69, as per Stantec doc SC001.
# Slope is estimated at 1%
# LGI based on centroid of area due to elongated shape = 354m/2 = 177
 002:0006---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     CALIB STANDHYD    01:EX6          .51     .615 No_date    1:24   11.23 .331
       [XIMP=.20:TIMP=.20]
       [Loss= 2 :CN= 69.0]
       |Pervious     area: TAper= 1.67:SLPP=1.00:LGP=  30.:MNP=.250:SCP=    .0|
       |Impervious   area: TAimp= 1.57:SLPI=1.00:LGI= 177.:MNI=.045:SCI=    .0|
# Road and road side ditch along projected residential development SalesBarn Rd
# Timp = Ximp = 0.07 ha /0.35 ha = 0.20
# CN*=69, as per Stantec doc SC001.
# Slope is estimated at 1%
# LGI based on centroid of area due to elongated shape = 205m/2 = 102.5
 002:0009---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     CALIB STANDHYD    01:EX7          .39     .614 No_date    1:23   12.02 .365
       [XIMP=.23:TIMP=.23]
       [Loss= 2 :CN= 69.0]
       |Pervious     area: TAper= 1.67:SLPP=1.00:LGP=  30.:MNP=.250:SCP=    .0|
       |Impervious   area: TAimp= 1.57:SLPI=1.00:LGI= 157.:MNI=.045:SCI=    .0|
#*******************************************************************************
# PROPOSED COMMERCIAL DEVELOPMENT
#*******************************************************************************
# CN = 79 as per full grass cover with C soil type for low soil; CN*=71
# Ximp   Timp to be conservative
#*******************************************************************************
 002:0010---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     DESIGN STANDHYD    01:EX1          8.38     .989 No_date    1:21   59.76 .669
       [XIMP=.62:TIMP=.75]
       [SLP=1.00:DC= 1.00]
       [Loss= 2 :CN= 71.0]
 002:0011---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     DESIGN STANDHYD    01:EX2          6.34     .983 No_date    1:20   27.75 .518
       [XIMP=.72:TIMP=.75]
       [SLP=1.00:DC= 1.00]
       [Loss= 2 :CN= 71.0]
 002:0012---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     DESIGN STANDHYD    01:03           .24     .690 No_date    1:20   32.58 .981
       [XIMP= .98:TIMP= .98]
       [SLP=1.00:DC= 1.00]
       [Loss= 2 :CN= 71.0]
# Imp ha/total area = 0.30/1.10 ha = .27
 002:0013---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     DESIGN STANDHYD    01:EX3          1.16     .864 No_date    1:20   14.58 .469
       [XIMP=.25:TIMP=.27]
       [SLP=1.00:DC= 1.00]
       [Loss= 2 :CN= 71.0]
# Imp - Imp ha/total area   0.30/1.07 ha   .28
 002:0014---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     DESIGN STANDHYD    01:EX4          1.00     .858 No_date    1:20   14.59 .469
       [XIMP=.15:TIMP=.15]
       [SLP=1.00:DC= 1.00]
       [Loss= 2 :CN= 71.0]
# Imp - Imp ha/total area = 0.11/0.32ha =  .34
 002:0015---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     DESIGN STANDHYD    01:EX5          .23     .624 No_date    1:20   20.49 .602
       [XIMP= .50:TIMP=.50]
       [SLP=1.00:DC= 1.00]
       [Loss= 2 :CN= 71.0]
#*******************************************************************************
# Commercial pond (POn)
# Slope estimated at 1% based on elevations around pond.
# Timp and Ximp based on total pond area
# Ximp = A pond/A tot (1.04/1.57)
 002:0016---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     DESIGN STANDHYD    01:POn          1.57     .219 No_date    1:20   24.71 .720
       [X.XX=.67:TIMP=.67]
       [SLP=1.00:DC= 1.00]
       [Loss= 2 :CN= 71.0]
#*******************************************************************************
#*******************************************************************************
# PROPOSED RESIDENTIAL SUBWATERSHEDS - Residential Area Phase 1 and 2
#*******************************************************************************
# CN* 69, as per Stantec doc SC001.
# Tp estimated with Up and Method.
 002:0017---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     DESIGN NASHYD      01:PR1          4.26     .087 No_date    1:31    7.15 .171
       [CN= 69.0- N= 3.00]
       [Tp= .18:DT= 1.00]
#*******************************************************************************
# AREAS GOING TO RESIDENTIAL POND (POn)
#*******************************************************************************
#
 002:0018---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     CALIB STANDHYD     01:PR1A          .24     .095 No_date    1:20   10.80 .296
       [XIMP=.11:TIMP=.37]
       [Loss= 2 :CN= 71.0]
       |Pervious     area: TAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=    .0|
       |Impervious   area: TAimp= 1.57:SLPI=1.00:LGI=  40.:MNI=.045:SCI=    .0|
 002:0019---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     CALIB STANDHYD     01:PR1B          .50     .012 No_date    1:21   10.00 .296
       [XIMP=.11:TIMP=.37]
       [Loss= 2 :CN= 71.0]
       |Pervious     area: TAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=    .0|
       |Impervious   area: TAimp= 1.57:SLPI=1.00:LGI=  40.:MNI=.045:SCI=    .0|
 002:0020---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     CALIB STANDHYD     01:PR2A          1.57     .097 No_date    1:27   10.00 .296
       [XIMP=.11:TIMP=.21]
       [Loss= 2 :CN= 71.0]
       |Pervious     area: TAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=    .0|
       |Impervious   area: TAimp= 1.57:SLPI=1.00:LGI= 102.:MNI=.045:SCI=    .0|
 002:0021---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     CALIB STANDHYD     01:PR2B          1.57     .024 No_date    1:22   10.00 .296
       [X.XX=.11:TIMP=.21]
       [Loss= 2 :CN= 71.0]
       |Pervious     area: TAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=    .0|
       |Impervious   area: TAimp= 1.57:SLPI=1.00:LGI=  88.:MNI=.045:SCI=    .0|
 002:0022---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     CALIB STANDHYD     01:PR3A          .47     .010 No_date    1:21   10.00 .296
       [X.XX=.11:TIMP=.21]
       [Loss= 2 :CN= 71.0]
       |Pervious     area: TAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=    .0|
       |Impervious   area: TAimp= 1.57:SLPI=1.00:LGI=  52.:MNI=.045:SCI=    .0|
 002:0023---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     CALIB STANDHYD     01:PR3B          .57     .012 No_date    1:21   10.00 .296
       [X.XX=.11:TIMP=.21]
       [Loss= 2 :CN= 71.0]
       |Pervious     area: TAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=    .0|
       |Impervious   area: TAimp= 1.57:SLPI=1.00:LGI=  59.:MNI=.045:SCI=    .0|
 002:0024---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     CALIB STANDHYD     01:PR4A          .71     .015 No_date    1:22   10.00 .296
       [X.XX=.11:TIMP=.21]
       [Loss= 2 :CN= 71.0]
       |Pervious     area: TAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=    .0|
       |Impervious   area: TAimp= 1.57:SLPI=1.00:LGI=  62.:MNI=.045:SCI=    .0|
 002:0025---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     CALIB STANDHYD     01:PR4B          .65     .014 No_date    1:22   10.00 .296
       [XIMP= .11:TIMP= .21]
       [Loss= 2 :CN= 71.0]
       |Pervious     area: TAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=    .0|
       |Impervious   area: TAimp= 1.57:SLPI=1.00:LGI=  66.:MNI=.045:SCI=    .0|
 002:0026---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     CALIB STANDHYD     01:PR5A          .68     .014 No_date    1:20   10.00 .296
       [XIMP= .11:TIMP= .21]
       [Loss= 2 :CN= 71.0]
       |Pervious     area: TAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=    .0|
       |Impervious   area: TAimp= 1.57:SLPI=1.00:LGI=  66.:MNI=.045:SCI=    .0|
 002:0027---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
     CALIB STANDHYD     01:PR5B          .48     .010 No_date    1:21   10.00 .296
       [XIMP= .11:TIMP= .21]
       [Loss= 2 :CN= 71.0]
       |Pervious     area: TAper= 4.67:SLPP=1.00:LGP=  40.:MNP=.250:SCP=    .0|
       |Impervious   area: TAimp= 1.57:SLPI=1.00:LGI=  55.:MNI=.045:SCI=    .0|
 002:0028---------------ID:NHYD-------AREA----QPEAK-TpeakDate_hh:mm----R.V.-R.C.-
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