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Site Servicing Report

2983 Navan Road – Block 16 Gas Station, Commercial Building, Drive-Thru Restaurant & Car Wash

Site Servicing Report
2983 Navan Road – Block 16
Gas Station, Commercial Building, Drive-Thru Restaurant & Car Wash

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1.0 INTRODUCTION

1.1 General

In 2023, J.L. Richards & Associates Limited (JLR) was retained by 12714001 Canada Inc. (the Owner) to prepare the detailed design of municipal infrastructure for Site Plan Approval (SPA) of their parcel located at 2983 Navan Road. The mixed-use site known as “Block 16 - Gas Station, Commercial Building, Drive-Thru Restaurant and Car Wash” will be referred to herein as Block 16. This Site Servicing Report (SSR) presents the servicing constraints and strategies for water, wastewater, stormwater servicing, and stormwater management in accordance with the City of Ottawa Design Guidelines, the associated technical bulletins and relevant design excerpts. This SSR also includes strategies for implementing erosion and sedimentation control measures throughout the construction phase of the project.

1.2 Site Description

The Block 16 is located within the City of Ottawa’s Official Plan boundary and consists of a 0.77 ha parcel bounded by Navan Road to the south and existing residential properties to the east, the proposed East Ridge Orleans Subdivision and Future Mixed-Use Block 15 to the north, and Brian Coburn Boulevard to the west. The legal description of the subject property can be found in the Draft Plan of Subdivision attached to Appendix A.

A topographical survey was completed by Stantec Inc. in August 2023 (Appendix A). The survey indicates that the existing ground surface generally slopes downwards in a southeasterly direction towards Navan Road.

1.3 Proposed Development

The proposed commercial development will consist of a gas station including a car wash, a commercial retail space along with a Drive-Thru Restaurant. The Concept Plan for the Block 16 is attached to Appendix A.

1.4 Proposed Connections to Existing Infrastructure

The proposed site plan will be serviced via the future East Ridge Orleans Subdivision and via existing infrastructure on Navan Road as follows and as shown on the servicing drawings:

Watermain

- Connection to the proposed existing 204 mm diameter watermain along Navan Road

Sanitary

- Connection to the future East Ridge Orleans Subdivision. A 200mm sanitary sewer stub will be dropped to service Block 16 as part of this future subdivision.

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Storm

- Connection to the future East Ridge Orleans Subdivision. A 525 mm storm sewer stub will be dropped to service Block 16 as part of this future subdivision.

1.5 Consultation and Permits

An initial pre-consultation meeting was held on July 6, 2022, followed by a Phase 2 Pre-consultation help on September 13, 2023, each to discuss the proposed site plan, the planning approval process requirements, provide clarifications on design criteria, and high level discussion on servicing constraints. A copy of the pre-consultation meeting notes and the site servicing checklist has been provided in Appendix B.

2.0 WATER SERVICING

2.1 Water Supply Design Criteria

A Hydraulic Network Analysis (HNA) was completed as part of the detailed design for the East Ridge Orleans subdivision to confirm that the proposed watermains could provide adequate supply while complying with both the Ottawa Design Guidelines for Water Distribution (July 2010) and Technical Bulletins ISDTB-2014-02, ISTB-2018-02 and ISTB-2021-03. These documents are herein referred to as the Design Guidelines and TB-2014-02, TB-2018-02, and TB-2021-03, respectively.

The HNA completed as part of the East Ridge Orleans Subdivision design included water demands for the Commercial Site Plan (Block 16). The HNA has since been updated to reflect the proposed water service lateral for Block 16 but is based on the same demands and the boundary conditions used in the original East Ridge Orleans Subdivision HNA (refer to Appendix C for a copy of City correspondence for boundary conditions).

Section 4.2.2 of the Design Guidelines states the following criteria for development additions to the public water distribution system:

- Under maximum hourly demand conditions (peak hour), the residual pressures shall not be less than 276 kPa (40 psi);
- During periods of maximum day and fire flow demand, the residual pressure at any point in the distribution system shall not be less than 140 kPa (20 psi);
- In accordance with the Ontario Building Code (OBC) in areas that may be occupied, the static pressure at any fixture shall not exceed 552 kPa (80 psi);
- The maximum pressure at any point in the distribution system in unoccupied areas shall not exceed 689 kPa (100 psi); and
- Feeder mains, which have been provided primarily for the purpose of redundancy, shall meet, at a minimum, the basic day plus fire flow demand.

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2.2 Domestic Water Demands

The estimated commercial water demands presented in this section are based on the site layout proposed in the Site Plan (Appendix A). A plug flow of 3.60 L/s was added to each demand scenario to consider the demands required for the car wash (refer to Appendix D for a confirmation letter from the mechanical engineer). Table 1 summarizes the water demands projected for this site.

Table 1: Water Demands

Demand Scenario	Commercial Water Consumption or Peaking Factor	Commercial Water Demands (L/s)	Car Wash Demands (L/s)	Total Demands (L/s)
Average Day Demand	28,000 L/ha/d	0.25	3.60 L/s	3.85
Maximum Day Demand	1.5 x Avg Day	0.37	3.60 L/s	3.97
Peak Hour Demand	1.8 x Max Day	0.67	3.60 L/s	4.27

2.3 Fire Flow Requirements

The City has specified that the Fire Underwriters Survey (FUS) method shall be used for any public or private site where new fire hydrants are being designed. Specifically, the required fire flow (RFF) for each structure was calculated in accordance with TB-2018-02.

The required fire flow for the Commercial Site Plan (Block 16) was calculated to be 83 L/s. Refer to Appendix C for the detailed RFF calculations for the critical fire area.

2.4 Proposed Water Servicing, Boundary Conditions and Water Model

2.4.1 Proposed Water Servicing

Water will be supplied to the Commercial Site Plan (Block 16) by a 150 mm diameter water service that will connect to the existing 305 mm watermain on Navan Road, located east of the intersection between Navan Road and Brian Coburn Blvd. Fire protection will be provided by a new proposed hydrant within the site. As shown in the servicing plan, the car wash is serviced directly by the gas station. Design of the service will be verified by Owner's mechanical engineer however, as noted in Section 2.2, the demand from the car wash has been included in this HNA.

Watermain roughness coefficients were determined using friction factors presented in Section 4.2.12 of the Design Guidelines and the internal pipe diameters were modelled based on Section 4.3.5 of the design Guidelines.

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2.4.2 Boundary Conditions

Hydraulic boundary conditions were provided by the City at the proposed connection location listed in Section 2.4.1 above. Table 2 summarizes the hydraulic boundary conditions received by the City (refer to Appendix C for a copy of the City correspondence). The boundary condition for maximum day plus fire flow corresponds to a required fire flow of 100 L/s. It is noted that the fire flow demand for the City boundary condition is more conservative than the calculated fire flow requirement of 5000 L/min (83 L/s).

Table 2: Hydraulic Boundary Conditions

Demand Scenarios	Connection 3 Head (m)
Maximum HGL	130.7
Peak Hour	126.8
Max Day plus Fire Flow 6,000 L/min (100.00 L/s)	127.3

2.4.3 Water Model

A hydraulic water model within the WaterCAD® software platform was used to carry out the HNA (refer to the overall schematics presented in Appendix C). The water demands from Table 1 and the boundary conditions from Table 2 were input into the model for each demand scenario. Table 3 summarizes the watermain diameters and roughness coefficients used in the model, based on Sections 4.2.12 and 4.3.5 of the Design Guidelines.

Table 3: Watermain Internal Diameters and C-Factors

Nominal Diameter	Inside Diameter	C-Factor
150 mm	155 mm	100
200 mm	204 mm	110
300 mm	297 mm	120

2.5 Simulation Results

The HNA was carried out under steady-state peak hour, maximum day plus fire flow, and maximum pressure conditions to confirm that the proposed water servicing can meet the design criteria outlined in Section 2.1.

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2.5.1 Peak Hour

The simulation results found the minimum pressure at the site during the peak hour condition to be 399 kPa (57.9psi) (refer to Appendix C), which exceeds the minimum pressure criterion of 276 kPa (40 psi) per the Design Guidelines.

2.5.2 Maximum Day Plus Fire Flow

Fire water supply will be provided by a proposed hydrant off the 150 mm diameter water service for Block 16. Hydrant spacing was carried out in accordance with the Design Guidelines.

To ensure adequate fire protection, the maximum day demand shown in Table 1 was analyzed simultaneously with the fire flow requirements. The fire flow simulation was carried out by allowing WaterCAD® to calculate the maximum fire flow that can be drawn from the hydrant without allowing any part of the system to experience pressures less than 140 kPa (20 psi). Using the 6,000 L/min (100 L/s) boundary condition provided by the City (refer to Table 2), the system is expected to deliver a minimum of 6,000 L/min (100 L/s) within the site. Per Appendix I of TB-2018-02, adequate water supply can be provided by the hydrant to the proposed site.

2.5.3 Maximum Pressure

Based on a zero (0 L/s) demand condition, the simulation results found the maximum pressure at the site to be 437 kPa (63.4). This value is below the maximum pressure constraint of 552 kPa (80 psi), therefore pressure reducing valves (PRVs) are not anticipated to be required.

2.6 Summary and Conclusions

Based on the water simulation results, the proposed development can be serviced by the proposed 150 mm water service lateral connected to the 305 mm diameter watermain on Navan Road. Furthermore, adequate fire water supply can be achieved with the proposed hydrant off the 150 mm water lateral servicing Block 16.

3.0 WASTEWATER SERVICING

3.1 Design Criteria

The sanitary sewer system within the Block 16 is designed in accordance with the Ottawa Sewer Design Guidelines and subsequent technical bulletins. The design parameters are applied under two scenarios as per ISTB Technical Bulletin 2018-01. The key design parameters have been summarized in Table 4.

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Table 4: Wastewater Key Design Parameters

Design Parameter	Design Value
Commercial Average Flow	28,000 L/gross ha/Day
Residential Average Flow	280 L/Cap/Day
Residential Peaking Factor	Harmon's Formula
Commercial Peaking Factor	1.5
Harmon's Correction Factor (K)	0.8
Infiltration Allowance	0.33 L/s/ha
Manning's Roughness Coefficient (n)	0.013
Allowable Slopes	Varies (Refer to Section 6.1.2.2 of ODSG)
Allowable Velocities	0.6 m/s – 3.0 m/s
Allowable Freeboard	-

3.2 Proposed Sanitary Servicing and Design Flows

Wastewater generated from the Block 16 will be conveyed via a proposed 200 mm diameter sanitary sewer system. Wastewater will then discharge into the East Ridge Orleans Subdivision via a 200mm sanitary sewer stub proposed as part of the subdivision as shown on the Servicing Plan.

Wastewater flows from the proposed development are presented in the Block 16 Sanitary Design Sheet (refer to Appendix D). Based on the design criteria presented in Table 3-1 the total design peak flow of 4.23 L/s is calculated for the development which is based on the site area of 0.77ha. Table 5 summarizes the results from the sanitary design sheet.

Table 5: Sanitary Design Flow Summary

Commercial Type	Site Area	Average Flow	Com. Peak Flow	Infilt. Flow	Total Flow
Commercial Flows	0.77 ha	28,000 L/gross ha/Day	0.374 L/s	0.254 L/s	0.628 L/s
Car Wash Flows	-	-	-	-	3.6 L/s
Total Wastewater Flows – Block 16					4.23 L/s

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The flows from Block 16 (4.23 L/s) were incorporated in the detailed design of the sanitary sewer within the future East Ridge Orleans Subdivision thus there is sufficient downstream capacity. It is proposed to adopt the sanitary servicing strategy described in this section.

3.3 Summary and Conclusions

Wastewater servicing for Block 16 will be designed in accordance with the City of Ottawa Sewer Design Guidelines, the associated technical bulletins, and various background documents as highlighted throughout this section. Wastewater generated from the Block 16 will be conveyed via a proposed 200 mm diameter sanitary sewer outletting to the East Ridge Orleans Subdivision to the north of the site. It is recommended that this wastewater servicing plan be implemented to provide adequate sanitary servicing for the proposed development.

4.0 STORM SERVICING AND STORMWATER MANAGEMENT

4.1 Design Criteria

Storm and stormwater management servicing for the Gas Bar Site Plan (Block 16) was developed in accordance with the City of Ottawa 2012 Sewer Design Guidelines (OSDG) and the more recent Technical Bulletin PIEDTB-2016-01 (September 6, 2016). These two documents are herein referred to as the Design Guidelines in this section. A summary of the key storm and stormwater management criteria follows:

- Control minor system flows to the allowable release rates of 68 L/s as identified in Table 5-4 Site Servicing Report 2983, 3053 and 3079 Navan Road & 2690 Pagé Road, Ottawa, Ontario (JLR 2024);
- The runoff coefficients (C-factors) to be calculated based on the ratio of pervious and impervious surfaces depicted on proposed site plans;
- Minimum roadway slope of 0.1% from crest-to-crest for overland flow route;
- Maximum parking ponding depth of 350 mm (static and dynamic) as per the Design Guidelines and maximum depth of surface flow to be 300 mm;
- Minimum vertical clearance of 0.15 m between the spill elevation on the street and the finished grade;
- Major system flows, up to and including the 1:100-year design storm event, are contained within the site.
- Quality control will be accommodated by Pond #3 to meet an MECP Enhanced Level of Protection (80% TSS removal) as identified in Site Servicing Report 2983, 3053 and 3079 Navan Road & 2690 Pagé Road, Ottawa, Ontario (JLR 2024).
- Ponding in landscaped areas to enhance groundwater recharge in accordance with the City of Ottawa Urban Design Guidelines for Gas Stations, Guideline 30.
- Provide measures to ensure that site preparation and construction is in accordance with the current Best Management Practices for Erosion and Sediment Control.

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4.2 Proposed Stormwater Management Approach

In order to achieve the allowable release rates, the stormwater management of the site will include:

- Surface storage within the site in greater than a 1:2-year event with captured flows conveyed to the minor system;
- Controlled release of the flows captured in the minor system for the entire site using Inlet Control Devices (ICDs).
- Flows stored in oversized storage pipes underground. Flows will accumulate in the storage pipes and be released from the site via an OGS and orifice control into the minor system on Paleo Drive.

4.3 Proposed Minor System Servicing

Internal to the gas station site, two minor system sewer runs will be provided on either side of the main building structure. Both of these sewer runs will be oversized and will connect into a single manhole upstream of the connection upstream of the easement stub, upstream of Paleo Drive. The connection manhole will have a 129mm diameter orifice plate on the downstream outlet sewer to control to the allowable release rate, 68 L/s, as defined in the Site Servicing Report 2983, 3053 and 3079 Navan Road & 2690 Pagé Road, Ottawa, Ontario (JLR 2024). The upsized storm sewers will be 525mm diameter.

Downstream of the orifice an Stormceptor EFO4 model, or equivalent, will provide 80% TSS removal as well as capture of oils and spills.

The runoff coefficient is based on the ratio of impervious surfaces and areas. A design sheet for sizing of the sewers to confirm capacity for the 1:2-year rational method flow is provided in Appendix E.

The gas station roof structure is uncontrolled and drains directly to the minor system.

There are no basements and therefore no HGL constraints in the system.

4.4 Stormwater Management Modelling Approach

4.4.1 Dual Drainage Model

The analysis of both major and minor drainage systems was carried out to demonstrate their compliance with respect to the design criteria described in Section 4.6. The performance of the major overland system and minor storm sewer system was analyzed with PCSWMM. This software is a dynamic model which allows both hydrologic and hydraulic components to be simulated in the same platform and also allows the simulation of the interaction between the major and minor systems. The PCSWMM software platform was used to:

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- Generate the surface runoff hydrograph for each sub-area under various recurrences.
- Subdivide each inflow hydrograph into its minor and major system components based on the proposed inlet capture rates and roadway sag storage.
- Assess cascading, if any, and carry out dynamic routing of storm flows to determine flow depths along the roadways. As previously stated, the maximum major overland flow depths within the parking lot areas are to be limited to 350 mm or less, as per Technical Bulletin PIEDTB-2016-01.

PCSWMM was set-up to evaluate the proposed servicing as detailed on Drawing C01 and C02. Subcatchments were delineated for the structure roof areas, parking lot low points and landscaped low points. Model schematics are prepared in Appendix F.

4.4.2 Boundary Conditions

Boundary conditions are taken from the downstream subdivision model issued as part of the Site Servicing Report 2983, 3053 and 3079 Navan Road & 2690 Pagé Road, Ottawa, Ontario (JLR 2024).

The downstream 1:2-year Chicago, 1:100-year Chicago and 1:100-year 24-hour SCS Storm Distribution HGLs at the connection to the Subdivision at MH518A are identified as 81.20 m, 81.28 m and 81.27 m respectively. The boundary conditions in the model were set at their respective elevations as a constant during the storm simulations.

4.4.3 Ditch Drainage

The ditch drainage system surrounding the site currently contains a single 375mm diameter culvert at the proposed site access on Navan Road. Due to access requirements the culvert will have to be extended. Since the culvert is not to current Ottawa City design standards for the minimum driveway culvert, it is proposed to replace the undersized culvert with a new 600mm diameter culvert.

The outlet of the proposed access culvert will be such that a 1% grade on the existing ditch will be maintained to the downstream conveyance culvert under Navan Road. The Navan Road culvert inlet is lower than the proposed culvert outlet to facilitate conveyance of the stormwater and mitigate potential ponding in this ditch section.

4.5 Modelling Parameters

4.5.1 Hydrological Modelling Parameters

The following parameters were used in the hydrologic component of PCSWMM:

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- **Areas and Imperviousness:** Catchment ID and drainage areas used by PCSWMM match those shown on either Drawing DST or Figure E-1 (Appendix E1). Sealed and roof areas are set at 100% impervious and other grassed or landscaped areas are pervious.
- **Catchment Width:** The catchment width is estimated at the width of overland sheet flow based on the grading of the catchment and slope direction.
- **Manning's Roughness Coefficient:** Manning's Roughness Coefficients of 0.013 and 0.25 were used for the impervious and pervious surfaces, respectively.
- **Horton Infiltration parameters:** City of Ottawa OSDG Horton Infiltration Parameters have been used in the modelling.
- **Initial Abstraction:** Initial abstraction of 4.67 mm and 1.57 mm was used for the pervious and impervious surfaces respectively, consistent with the OSDG.

4.5.2 Simulation of Storm Distributions

To assess peak flow rates and peak volume storage requirements the 3-hour Chicago storm has been simulated for the site for the 1:2-year event and 1:100-year event and the 24-hour SCS storms for the 1:100-year event.

4.6 Simulation Results

4.6.1 Low Point Ponding Analysis

Ponding depths in the low points in the parking area and landscaped areas are shown in Table 6.

Table 6: Catchbasin Ponding Depths

Low Point ID	Top of Grate (m)	Maximum Static Depth (mm)	3-hour Chicago 1:2 year Depth (mm)	3-hour Chicago 1:100 year Depth (mm)	24-hour SCS 1:100 year Depth (mm)
1	85.25	190/300	-	250	220
2A	85.35	250	-	-	-
2B	85.40	220	-	-	-
3	85.35	300	-	60	30
4	84.75	150	-	90	-
5	85.35	150	-	90	70

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Low Point ID	Top of Grate (m)	Maximum Static Depth (mm)	3-hour Chicago 1:2 year Depth (mm)	3-hour Chicago 1:100 year Depth (mm)	24-hour SCS 1:100 year Depth (mm)
6	85.37	80	-	100	90
7	84.55	300	-	290	170
8	85.04	270	-	290	260
9	84.80	300	-	230	140
10	85.18	240	-	140	90
11	85.12	260	-	210	180
12	85.45	150	-	90	70
13	85.50	150	-	160	140

The simulation results compiled in Table 6 shows that:

- No ponding nor dynamic flow will occur in the 1:2-year event;
- Maximum ponding depth of 390 mm during the 1:100-year event; and,
- There is no spill from the site in the 1:100-year event.

4.6.2 Site Release Rate

Table 7 below shows the release rates from the site via the 129mm diameter orifice plate. All release rates meet the 68 L/s allowable release rate.

Table 7: Release Rates

	3-hour Chicago 1:2 year Release Rate (L/s)	3-hour Chicago 1:100 year Release Rate (L/s)	24-hour SCS 1:100 year Release Rate (L/s)
Flow at MH 514	48	68	67

4.7 Water Quality

An OGS unit is proposed for the site to provide site specific water quality to 80% TSS removal and capture of oils and spills. The sizing details for the unit are contained in Appendix F. The unit sized for the site is an Stormceptor EFO4, or equivalent.

4.8 Summary and Conclusions

The stormwater servicing achieves a release rate from the site to the minor system limited to the allowable release rate and contains up to the 1:100 year on site.

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5.0 Erosion and Sediment Control

Erosion and sediment control measures, as outlined in the Ontario Ministry of Natural Resources (MNR) Guidelines on Erosion and Sediment Control for Urban Construction Sites, will be implemented to trap sediment on site. The following erosion and sediment control measures can be implemented during construction as shown on the Erosion and Sediment Control Plan (Drawing ESC):

- Supply and installation of a silt fence barrier, as per OPSD 219.110.
- Supply and installation of siltsack or sentinel CB inserts between the frame and cover of catch basins and maintenance holes adjacent to the project area during construction, to prevent sediment from entering the sewer system.
- Stockpiling of material during construction is to be located along flat areas away from drainage paths. For material placed on sloped areas, stockpiles are to be enclosed with a silt fence to protect watercourses.
- All catch basins are to be equipped with sumps, inspected frequently, and cleaned as required.
- Temporary ICDs are to be placed blocking part of the sewer pipe in the connecting storm maintenance holes to eliminate construction debris from entering the existing storm sewer system. The ICDs are to be removed after the proposed storm sewers have been fully cleaned.
- A mud mat is to be built at each of the site entranceways to prevent the transport of sediment onto paved surfaces. The mud mat shall be:
 - Minimum of 20 m in length for the full width of the entrance way (10 m wide minimum).
 - Minimum of 400 mm thick underlain with a geotextile (or graded aggregate filter); and
 - Constructed with 50 mm diameter clear stone for the first 10 m (extending from the paved street) and the remainder of the length with 150 mm diameter clear stone.

The proposed removal and reinstatement measures as well as the erosion control measures shall conform to the following documents:

- “Guidelines on Erosion and Sediment Control for Urban Construction Sites” published by Ontario Ministries of Natural Resources, Environment, Municipal Affairs, and Transportation & Communication, Association of Construction Authorities of Ontario and Urban Development Institute, Ontario, May 1987.
- “MTO Drainage Manual”, Chapter F: “Erosion of Materials and Sediment Control”, Ministry of Transportation & Communications, 1985.
- “Erosion and Sediment Control” Training Manual by Ministry of Environment, Spring 1998.
- Applicable Regulations and Guidelines of the Ministry of Natural Resources.

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6.0 CONCLUSIONS

Block 16 will be serviced as follows:

- Water servicing will be provided by connection to the proposed watermain along the Navan Road.
- Wastewater servicing will be provided by a connection to the future East Ridge Orleans Subdivision
- Storm servicing will be provided by a connection to the future East Ridge Orleans Subdivision
- Flows exceeding the allowable peak flow for Block 16, will be held on-site, using a combination of both, above ground and underground storage.

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This report has been prepared by J.L. Richards & Associates Limited for 12714001 CANADA INC.'s exclusive use. Its discussions and conclusions are summary in nature and cannot properly be used, interpreted or extended to other purposes without a detailed understanding and discussions with the client as to its mandated purpose, scope and limitations. This report is based on information, drawings, data, or reports provided by the named client, its agents, and certain other suppliers or third parties, as applicable, and relies upon the accuracy and completeness of such information. Any inaccuracy or omissions in information provided, or changes to applications, designs, or materials may have a significant impact on the accuracy, reliability, findings, or conclusions of this report.

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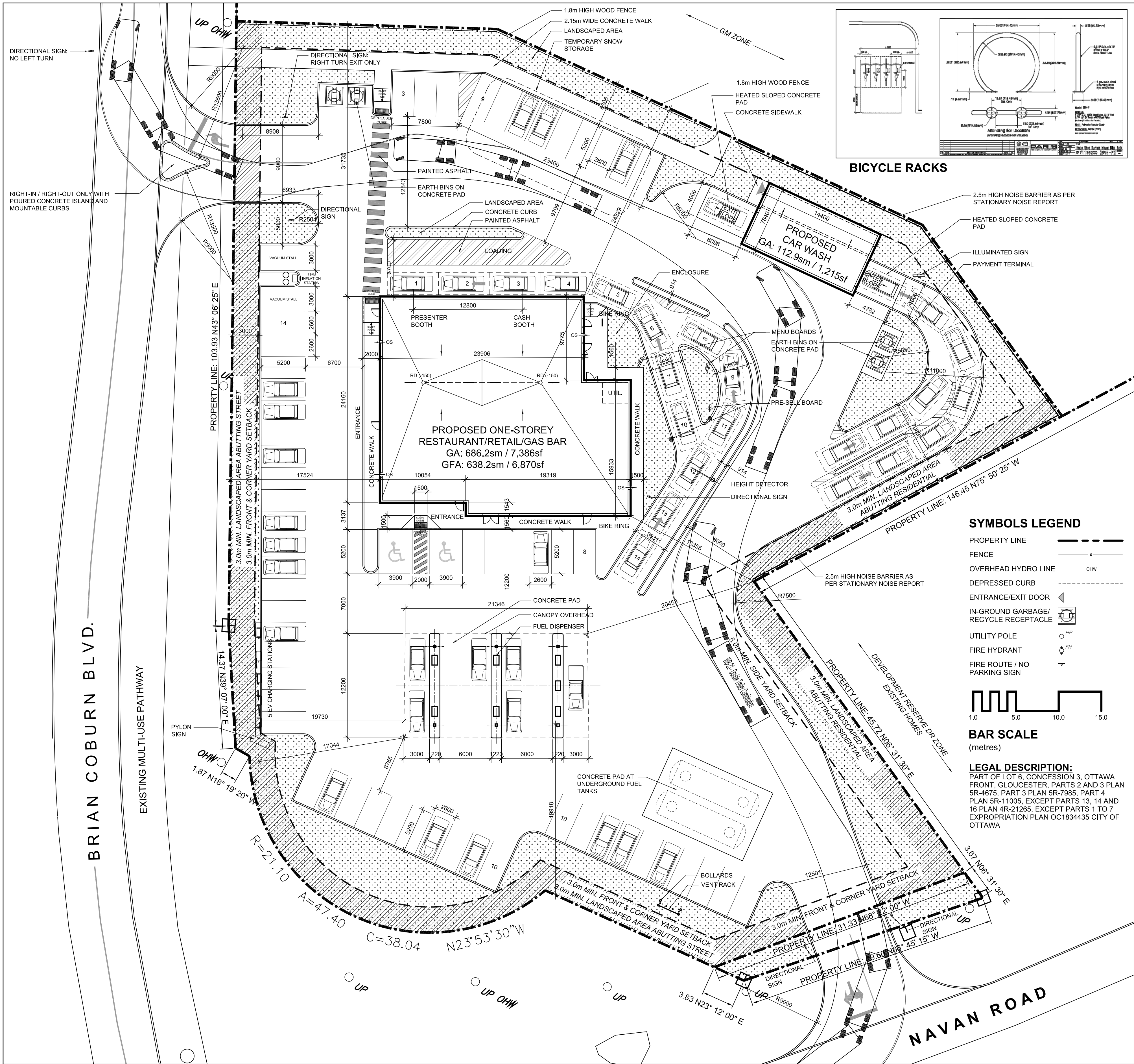
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Appendix A

Concept Plan, Draft Plan of
Subdivision and Topographical
Survey



03 SITE PLAN
SP-A01 SCALE: 1:250

SITE INFORMATION

SITE AREA: 7,717sm / 1.93 acres

NOTE THAT PROPERTY BOUNDARY INFORMATION HAS BEEN TAKEN FROM SURVEY PREPARED BY STANTEC, DATED 12 OCTOBER 2023.

BUILDING DATA:

AREA CALCULATIONS:

Gross Area (by Ontario Building Code definition):
The total area of all floors above grade measured between the outside surfaces of exterior walls is:

Retail Building: 686.2sm / 7,386sf
Carwash Building: 112.9sm / 1,215sf
Total Gross Area: 799.1sm / 8,600sf

Gross Floor Area (City of Ottawa Zoning Bylaw definition for the purpose of determining maximum building area and parking requirements): The total floor area measured from the interior of outside walls excluding mechanical/electrical service rooms, stairwells, elevator shafts, parking/loading facilities, washrooms and storage areas:

GFA (Restaurant/Retail Bldg): 602sm / 6,480sf

ZONING

DESIGNATION: GM[2546] H(14.5)
General Mixed use, Exception 2546

PERMITTED NON RESIDENTIAL USES:

- Section 187: Convenience Store
Drive-through Facility
Restaurant
Retail Store
Car Wash
Gas Bar
- Exception 2546:

MINIMUM SETBACKS:

Table 187(c): Front & Corner Yard: 3.0m
Table 187(d): Interior Side Yard: 5.0m (abutting res. zone)
Table 187(e.ii): Rear Side Yard: 7.5m (abutting res. bldg)

BUILDING HEIGHT:

Exception 2546 14.5m maximum permitted
5.5m proposed

FSI:

Table 187(g): 2.0 times coverage (15,000sm) maximum permitted
0.1 times coverage (799.1sm) proposed

MINIMUM WIDTH OF LANDSCAPED AREA:

Table 187(h.i): Abutting a Street: 3.0m
Table 187(h.ii): Abutting a Res.Zone: 3.0m

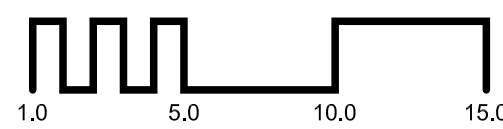
PARKING:

Table 101: Convenience Store: 3.4 cars per 100sm of GFA
Fast-Food Restaurant: 10 cars per 100sm of GFA
9 for Convenience Store (266sm/100x3.4)
34 for Restaurant (336sm/100x10)
Required: 61 cars (not incl. fuel dispensers & drive-through)
Provided:

BICYCLE RACKS

SYMBOLS LEGEND

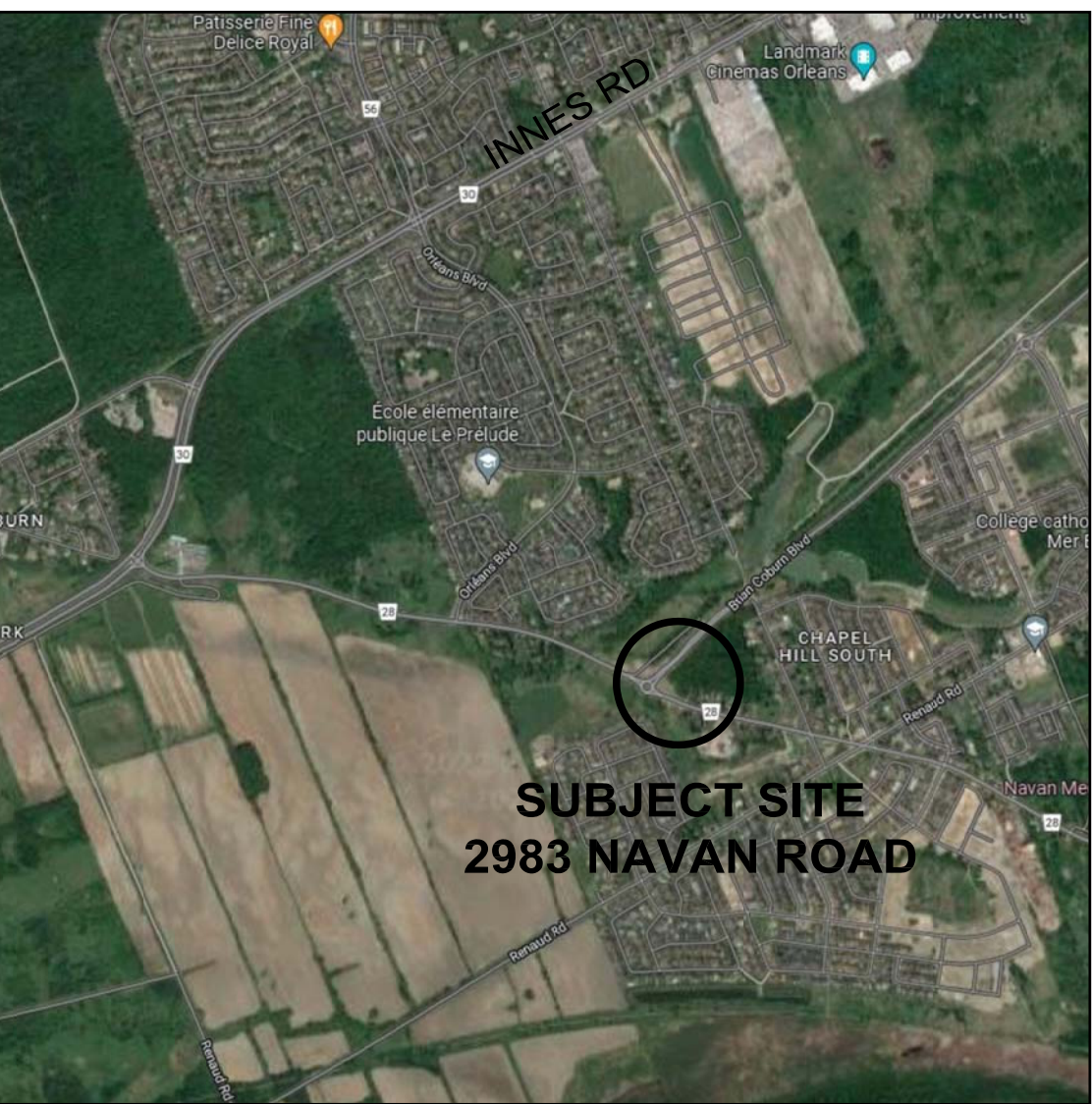
- PROPERTY LINE
FENCE
OVERHEAD HYDRO LINE
DEPRESSED CURB
ENTRANCE/EXIT DOOR
IN-GROUND GARBAGE/ RECYCLE RECEPTACLE
UTILITY POLE
FIRE HYDRANT
FIRE ROUTE / NO PARKING SIGN



BAR SCALE
(metres)

LEGAL DESCRIPTION:
PART OF LOT 6, CONCESSION 3, OTTAWA FRONT, GLOUCESTER, PARTS 2 AND 3 PLAN 5R-4675, PART 3 PLAN 5R-7985, PART 4 PLAN 5R-11005, EXCEPT PARTS 13, 14 AND 16 PLAN 4R-21265, EXCEPT PARTS 1 TO 7 EXPROPRIATION PLAN OC1834435 CITY OF OTTAWA

02 SITE & BUILDING DATA and ZONING REVIEW
SP-A01 SCALE: NTS



01 LOCATION PLAN
SP-A01 SCALE: NTS

OWNER:

1274001 CANADA INC.
100-768 Boulevard St Joseph
Gatineau, QC J8Y 4B8

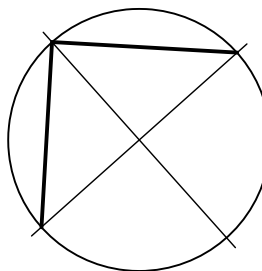
PLANNING, CIVIL &

TRAFFIC CONSULTANT:
J.L.RICHARDS & ASSOCIATES LTD.
1000-343 Preston Street
Ottawa, ON K1H 1N4

LANDSCAPE ARCHITECT:

JAMES B. LENNOX & ASSOCIATES INC.
3332 Carling Avenue
Ottawa, ON K2H 5A8

North



Revisions

No.	By	Description	Date
08	IW	SITE PLAN APPLICATION	08 DEC 2023
09	IW	REVISED FOR SPA	01 MAR 2024
10	IW	REVISED FOR SPA	14 AUG 2024

Project

NEW RESTAURANT,
CONVENIENCE STORE &
GAS BAR

2130 BRIAN COBURN BLVD.

Drawing

SITE PLAN

Scale Stamp

AS SHOWN

Drawn

AK / KE

Checked



Project No. Drawing No.

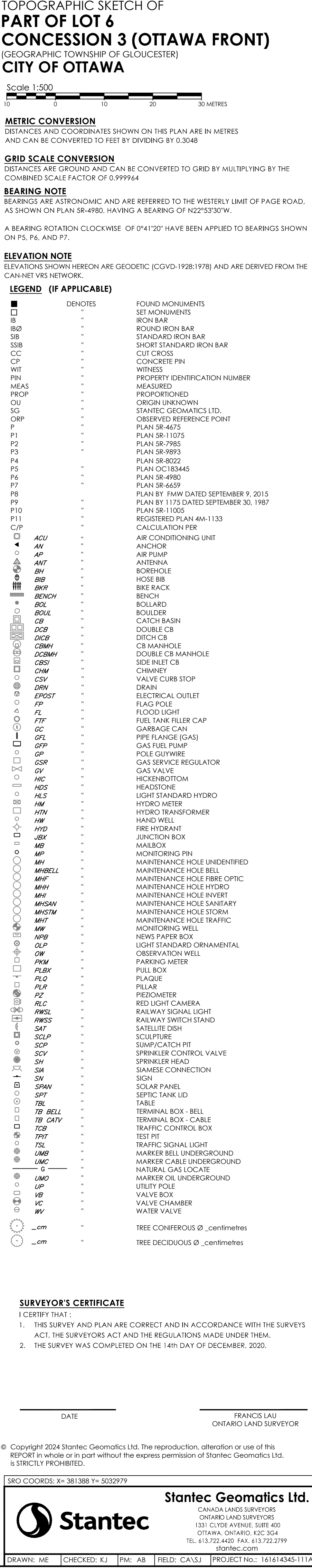
22-127

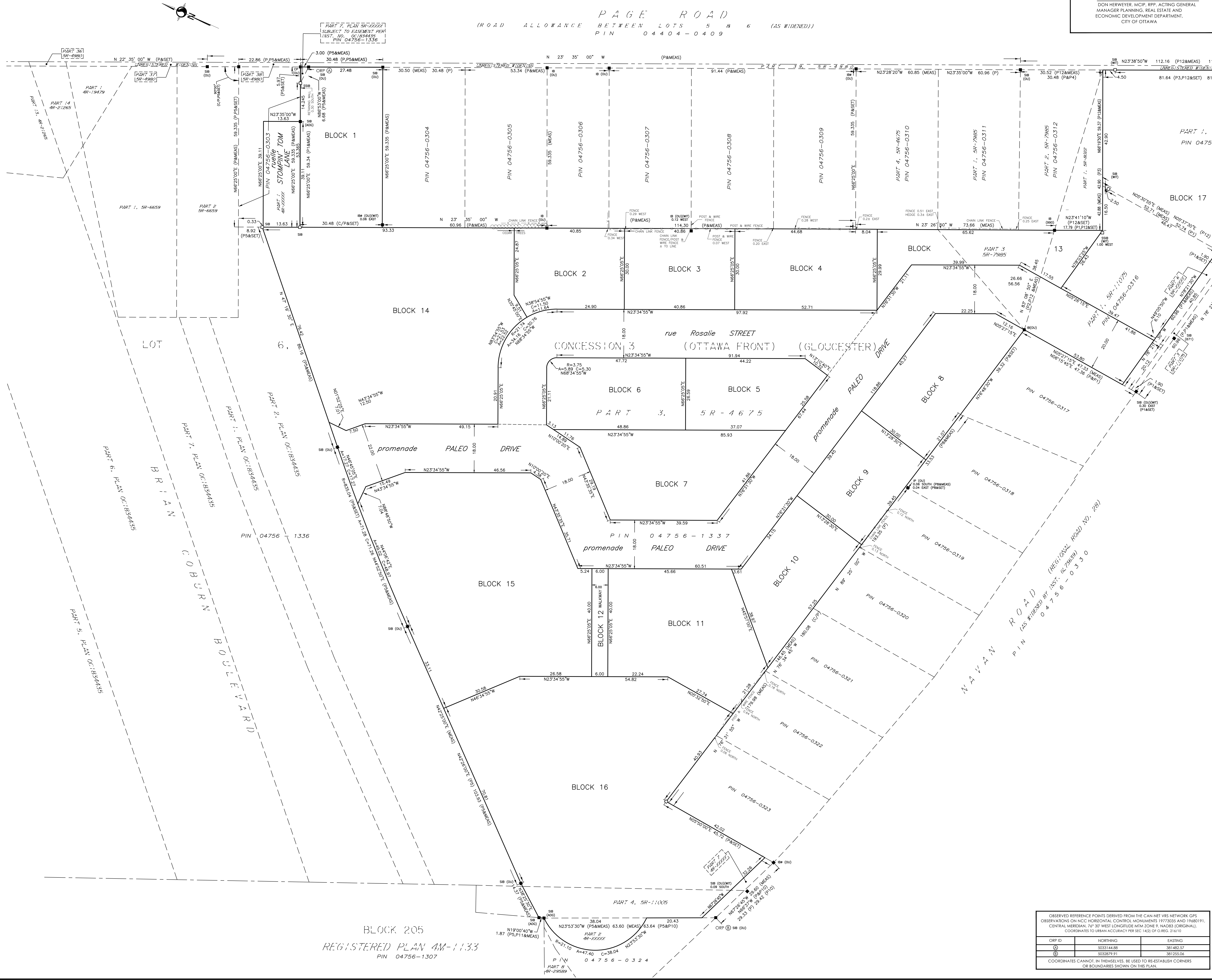
Date

12 MAY 2022

SP-A01

PLAN NO.





APPROVED UNDER SECTION 51 OF THE PLANNING ACT BY THE
CITY OF OTTAWA THIS ____ DAY OF _____, 20____.

DON HERWEYER, MCIP, RPP, ACTING GENERAL
MANAGER PLANNING, REAL ESTATE AND
ECONOMIC DEVELOPMENT DEPARTMENT,
CITY OF OTTAWA

PLAN 4M-

I HEREBY CERTIFY THAT THIS PLAN 4M-_____ IS REGISTERED IN THE
LAND REGISTRY OFFICE FOR THE LAND TITLES DIVISION OF
OTTAWA-CARLETON (No.4) AT _____ O'CLOCK ON THE _____ DAY OF
_____, 2023 AND ENTERED IN THE REGISTER FOR P.L.N.'s
04756-0303, 04756-0315, 04756-0316 & 04756-1337, AND THE REQUIRED
CONSENTS ARE REGISTERED AS PLAN DOCUMENT NUMBER
OC-_____.

REPRESENTATIVE FOR LAND REGISTRAR

THIS PLAN COMPRISES OF ALL OF PINS 04756-0303, 04756-0315, 04756-0316 & 04756-1337.

DRAFT PLAN OF SUBDIVISION OF
**PART OF LOT 6
CONCESSION 3 (OTTAWA FRONT)**
(GEOGRAPHIC TOWNSHIP OF GLOUCESTER)
CITY OF OTTAWA

Scale 1:500
0 5 10 20 30 METRES

METRIC CONVERSION
DISTANCES AND COORDINATES SHOWN ON THIS PLAN ARE IN METRES
AND CAN BE CONVERTED TO FEET BY DIVIDING BY 0.3048

GRID SCALE CONVERSION
DISTANCES ARE GROUND AND CAN BE CONVERTED TO GRID BY MULTIPLYING
BY THE COMBINED SCALE FACTOR OF 0.999994

BEARING NOTE
BEARINGS ARE GRID, DERIVED FROM CAN-NET VRS NETWORK GPS OBSERVATIONS
ON NCC-HORIZONTAL CONTROL MONUMENTS 1977035 AND 19480191, CENTRAL
MERIDIAN, 74° 30' WEST LONGITUDE WITH ZONE 9, NAD83 (ORIGINAL).
FOR BEARING COMPARISONS, BEARINGS ON PLANS P. P1, P2 & P3 HAVE BEEN
ROTATED 0°41'30" COUNTERCLOCKWISE.

LEGEND

DENOTES	FOUND MONUMENTS
■	SET MONUMENTS (SB)
□	UNLESS OTHERWISE NOTED
IB	IRON BAR
IBD	ROUND IRON BAR
SB	STANDARD IRON BAR
SSB	SHORT STANDARD IRON BAR
CC	CUT CROSS
CP	CONCRETE PIN
WIT	WITNESS
PN	MEASURED
MEAS	PROPERTY IDENTIFICATION NUMBER
PROP	PROPORTIONED
OU	ORIGIN UNKNOWN
SG	STANTEC GEOMATICS LTD.
ORP	OBSERVED REFERENCE POINT
P	PLAN SR-4475
P1	PLAN SR-11075
P2	PLAN SR-7995
P3	PLAN SR-9893
P4	PLAN SR-8022
P5	PLAN OC-183445
P6	PLAN SR-4900
P7	PLAN SR-6659
P8	PLAN BY FRM DATED SEPTEMBER 9, 2015
P9	PLAN BY 1175 DATED SEPTEMBER 30, 1987
P10	PLAN SR-11065
P11	REGISTERED PLAN 4M-1133
P12	PLAN BY 1465 DATED DECEMBER 10, 2020
C/P	CALCULATION FOR

NOTES

1. ALL PLANTED MONUMENTS SHOWN HEREON ARE IRON BARS (IB) UNLESS OTHERWISE NOTED.

OWNER'S CERTIFICATE

ALL OF PINS 04756-0303, 04756-0315, 04756-0316 & 04756-1337.
THIS IS TO CERTIFY THAT:

1. BLOCKS 1 TO 11, BOTH INCLUSIVE, BLOCKS 13 TO 17, BOTH INCLUSIVE, THE STREETS,
NAMESLY PROMENADE PALEO DRIVE, rue Rosalie STREET AND rue Stompin' TOM
LANE AND LANE, NAMESLY BLOCK 12, HAVE BEEN LAID OUT IN ACCORDANCE WITH
OUR INSTRUCTIONS.

2. THE STREETS ARE DEDICATED TO CITY OF OTTAWA AS PUBLIC HIGHWAYS.

DATE _____ *PRESIDENT
ONTARIO LIMITED
I HAVE THE AUTHORITY TO BIND THE CORPORATION

SURVEYOR'S CERTIFICATE

I CERTIFY THAT:

1. THIS SURVEY AND PLAN ARE CORRECT AND IN ACCORDANCE WITH THE SURVEYS ACT,
THE SURVEYORS ACT AND THE LAND TITLES ACT AND THE REGULATIONS MADE UNDER
THEM.

2. THE SURVEY WAS COMPLETED ON THE ____-th DAY OF _____, 2023.

OBSERVED REFERENCE POINTS DERIVED FROM THE CAN-NET VRS NETWORK GPS OBSERVATIONS ON NCC-HORIZONTAL CONTROL MONUMENTS 1977035 AND 19480191, CENTRAL MERIDIAN, 74° 30' WEST LONGITUDE WITH ZONE 9, NAD83 (ORIGINAL). COORDINATES TO UTM ACCURACY PER SEC 1401 OF OREG 216/10			
ORP ID	NORTHING	EASTING	
①	933144.88	381482.57	
②	933287.91	381255.06	
COORDINATES CANNOT, IN THEMSELVES, BE USED TO RE-ESTABLISH CORNERS OR BOUNDARIES SHOWN ON THIS PLAN.			

DATE _____

FRANÇOIS LAU
ONARIO LAND SURVEYOR

Stantec Geomatics Ltd.
CANADA LAND SURVEYORS
ONARIO LAND SURVEYORS
1331 CLOVE AVENUE, SUITE 300
OTTAWA, ONTARIO, K1C 3Z4
TEL: 416-752-4400 FAX: 416-722-2799
stantec.com

DRAWN: ME/MTM CHECKED: _____ PK: _____ FIELD: ES/LG PROJECT NO.: 161614345-132

Site Servicing Report
2983 Navan Road – Block 16
Gas Station, Commercial Building, Drive-Thru Restaurant & Car Wash

Appendix B

Pre Consultation Meeting Notes
and Site Servicing Report
Checklist

Carmine Zayoun
12714001 Canada Inc (Zayoun Group)
Via email: carmine@zayoungroup.com

**Subject: Pre-Consultation: Meeting Feedback
Proposed Site Plan Application – 2983 Navan Road ‘
Gas Station and Commercial Building – PC2023-0227**

Please find below information regarding next steps as well as consolidated comments from the above-noted pre-consultation meeting held on September 13, 2023.

Pre-Consultation Preliminary Assessment

1 ☐	2 ☐	3 ☐	4 ☒	5 ☐
----------------------------	----------------------------	----------------------------	---------------------------------------	----------------------------

One (1) indicates that considerable major revisions are required while five (5) suggests that the proposal appears to meet the City’s key land use policies and guidelines. This assessment is purely advisory and does not consider technical aspects of the proposal or in any way guarantee application approval.

Next Steps

1. A review of the proposal and materials submitted for the above-noted pre-consultation has been undertaken. Please proceed to complete a Phase 2 / Phase 3 Pre-consultation Application Form and submit it together with the necessary studies and/or plans to planningcirculations@ottawa.ca.
2. In your subsequent pre-consultation submission, please ensure that all comments or issues detailed herein are addressed. A detailed cover letter stating how each issue has been addressed must be included with the submission materials. Please coordinate the numbering of your responses within the cover letter with the comment number(s) herein.
3. Please note, if your development proposal changes significantly in scope, design, or density before the Phase 3 pre-consultation, you may be required to complete or repeat the Phase 2 pre-consultation process.

Supporting Information and Material Requirements

1. The attached **Study and Plan Identification List** outlines the information and material that has been identified, during this phase of pre-consultation, as either required (R) or advised (A) as part of a future complete application submission.
 - a. The required plans and studies must meet the City’s Terms of Reference (ToR) and/or Guidelines, as available on Ottawa.ca. These ToR and Guidelines outline

the specific requirements that must be met for each plan or study to be deemed adequate.

Consultation with Technical Agencies

1. You are encouraged to consult with technical agencies early in the development process and throughout the development of your project concept. A list of technical agencies and their contact information is enclosed.

Planning

Comments:

1. In the Official Plan the subject site is designated as Neighbourhood is modified with the Evolving Neighbourhood overlay. Brian Coburn Boulevard is also designated as a Minor Corridor. The property is further identified as Low-density residential in the EUC – Phases 1 Community Design Plans (CDP). The subject lands are currently zoned GM[2546]H(14.5) General Mixed-Use, Exception.

2. Committee of Adjustment

No variances have been identified at this point. Staff will set up a meeting with a Committee of Adjustment Plan if any required.

3. Design guidelines

[Urban Design Guidelines for Drive-Through Facilities](#)

[Urban Design Guidelines for Gas Stations](#)

4. Landscape requirements

Landscape buffers will need to comply with Section 110 of the Zoning By-law and are consistent with the design guidelines.

The turning radius encroached into the landscape buffers on the demonstration plan. Ensure all landscaping is protected by barrier curbs

5. Parking requirements

Parking should comply with Sections 100, 101, 106, 109 and 111

Vehicle and bicycle parking should be situated with easily access while minimizing pavement. There seems to be a lot of pavement in front of this building.

6. Easements

Are there service easements required over the pedestrian walkway connecting this property with the subdivision?

7. Confirm that the location of the Car Wash will not become a noise problem for future residents of the townhouses behind it. Noise study will need to identify any issues and provide remediation measures.
8. Provide locations of signage and ensure that space is made available for tree planting

Urban Design

9. Relevant guidelines – The City's Urban Design Guidelines for Gas Stations and Urban Design Guidelines for Drive-Through Facilities are both applicable to this site. The applicant should ensure their submission meets the direction of these guidelines.
10. Design Brief - A Design Brief is required. Please refer to the attached Terms of Reference for details.
11. Public realm – Please refer to the attached PDF for Urban Design comments related to the location of sidewalks, walkways and pedestrian movements on the site
12. Landscaping - Extensive tree and shrub planting is need on this site, in particular to soften the interface with the existing and future residential and to enhance the ROW.

Feel free to contact the Urban Design Planner, Christopher Moise, at Christopher.Moise@ottawa.ca , for follow-up questions

Engineering

Comments:

13. General Comments:

- a. Review of the Phase 3 submission for this application will not occur until the detailed design of the subdivision that it is within (D07-16-21-0027) is approved.
- b. At the stage of site plan approval, a condition will be imposed detailing that a commence work notification will not be issued until the subdivision's infrastructure is in-service.

14. Engineering Studies:

- a. All engineering studies (detailed in the Study and Plan Identification List form) are to follow the to be approved draft plan of subdivision D07-16-21-0027.

- b. An interceptor pit is required with the provision of the car wash.
15. An MECP Environmental Compliance Approval **Industrial Sewage Works** will be required for the proposed development. Please contact the Ministry of the Environment, Conservation and Parks, Ottawa District Office to arrange a pre-submission consultation:

b. Emily Diamond at (613) 521-3450, ext. 238 or
Emily.Diamond@ontario.ca

Note: this site does not meet the City's requirements for ToR. To have the ECA application reviewed under ToR, a request will need to be sent to Charles Warnock (charles.warnock@ottawa.ca).

Feel free to contact Reed Adams (reed.adams@ottawa.ca), Infrastructure Project Manager, for follow-up questions.

Noise

Comments:

16. A stationary noise report for the car wash is required because of the adjacent residential.

Feel free to contact the Senior Transportation Engineer, Mike Giampa, at Mike.Giampa@ottawa.ca , for follow-up questions.

Transportation

Comments:

17. A full TIA is not required as this site is covered under the recent subdivision TIA.
18. A memo including the pertinent subdivision trips is sufficient.
19. The right of way protection on Brian Coburn and Navan Roads is 40m and 37.5m, respectively

Feel free to contact the Senior Transportation Engineer, Mike Giampa, at Mike.Giampa@ottawa.ca , for follow-up questions

Planning Forestry

Comments:

20. A Tree Conservation Report and Landscape Plan must be submitted with both SPC applications

21. A permit is required prior to any tree removal on site. The tree permit will be released upon site plan approval. Please contact the File Lead or the Planning Forester, Hayley Murray (hayley.murray@ottawa.ca) for information on obtaining the tree permit.
22. If marine clay soils are present, setbacks on City properties must adhere to the 2017 SMC guidelines (attached). The Geotechnical report must address the implications of these soils, if present, on tree planting in relation to private land.
23. If underground parking is planned, a design must be provided for the site to support tree planting
24. We expect a very strong landscape plan to re-establish canopy cover across the properties. Tree planting and protecting existing urban forest canopy is imperative to reach the City's target of 40% canopy cover.

Feel free to contact Hayley Murray, Planning Forester, for follow-up questions.

Parkland

Comments:

25. Parkland contributions were made through the Subdivision process.

Feel free to contact Jessica Button, Parks Planner, for follow-up questions.

Conservation Authority

Comments:

26. The Rideau Valley Conservation authority will be commenting on this application

Feel free to contact RVCA, for follow-up questions.

Other

27. The High Performance Development Standard (HPDS) is a collection of voluntary and required standards that raise the performance of new building projects to achieve sustainable and resilient design. The HPDS was passed by Council on April 13, 2022.
 - a. At this time, the HPDS is not in effect and Council has referred the 2023 HPDS Update Report back to staff with direction to bring forward an updated report to Committee with recommendations for revised phasing timelines, resource requirements and associated amendments to the Site Plan Control By-law by no later than Q1 2024.



- b. Please refer to the HPDS information attached and ottawa.ca/HPDS for more information.

Submission Requirements and Fees

1. Outlines the application type/subtype required and the associated fees
 - a. Additional information regarding fees related to planning applications can be found [here](#).
2. The attached **Study and Plan Identification List** outlines the information and material that has been identified as either required (R) or advised (A) as part of a future complete application submission.
 - a. The required plans and studies must meet the City's Terms of Reference (ToR) and/or Guidelines, as available on Ottawa.ca. These ToR and Guidelines outline the specific requirements that must be met for each plan or study to be deemed adequate.
3. All of the above comments or issues should be addressed to ensure the effectiveness of the application submission review.

Should there be any questions, please do not hesitate to contact myself or the contact identified for the above areas / disciplines.

Yours Truly,
Steve Belan

cc.

Tim Chadder
Raad Akrawi
Madelen Fellows
Karla Ferrey
Tatyana Roumie
Christopher Moise
Adam Reed
Mike Giampa
Haley Murray
Jessica Button

12714001 Canada Inc – Block 16 – Gas Bar, Commercial Building/Drive-Through Restaurant and Car Wash

2983 Navan Road

SITE SERVICING REPORT CHECKLIST

REFERENCED STUDIES AND REPORTS	REFERENCE
Site Servicing Report for 12714001 Canada Inc, Block 16 – Gas Bar, Commercial Building/Drive-Through Restaurant and Car Wash, 2983 Navan Road Road (J.L. Richards & Associates Limited, December 8, 2023)	Site Servicing Report

4.1	GENERAL CONTENT	REFERENCE
☐	Executive Summary (for larger reports only).	N/A
☒	Date and revision number of the report.	Site Servicing Report
☒	Location map and plan showing municipal address, boundary, and layout of proposed development.	Site Servicing Report (Appendix A) All Drawings
☒	Plan showing the site and location of all existing services.	Servicing Plan
☒	Development statistics, land use, density, adherence to zoning and official plan, and reference to applicable subwatershed and watershed plans that provide context to which individual developments must adhere.	Site Servicing Report
☒	Summary of Pre-consultation Meetings with City and other approval agencies.	Site Servicing Report (Appendix 'A')
☒	Reference and confirm conformance to higher level studies and reports (Master Servicing Studies, Environmental Assessments, Community Design Plans), or in the case where it is not in conformance, the proponent must provide justification and develop a defensible design criteria.	Reference made to Stantec 2005 EUC ISSU
☒	Statement of objectives and servicing criteria.	Site Servicing Report
☒	Identification of existing and proposed infrastructure available in the immediate area.	Site Servicing Report Servicing Plan
☐	Identification of Environmentally Significant Areas, watercourses and Municipal Drains potentially impacted by the proposed development (Reference can be made to the Natural Heritage Studies, if available).	N/A

☒	Concept level master grading plan to confirm existing and proposed grades in the development. This is required to confirm the feasibility of proposed stormwater management and drainage, soil removal and fill constraints, and potential impacts to neighbouring properties. This is also required to confirm that the proposed grading will not impede existing major system flow paths.	Grading Plan
☐	Identification of potential impacts of proposed piped services on private services (such as wells and septic fields on adjacent lands) and mitigation required to address potential impacts.	N/A
☐	Proposed phasing of the development, if applicable.	N/A
☒	Reference to geotechnical studies and recommendations concerning servicing.	Site Servicing Report and Drawings
☒	All preliminary and formal site plan submissions should have the following information: ▪ Metric scale ▪ North arrow (including construction North) ▪ Key plan ▪ Name and contact information of applicant and property owner ▪ Property limits, including bearings and dimensions ▪ Existing and proposed structures and parking areas ▪ Easements, road widening and rights-of-way ▪ Adjacent street names	All Drawings

4.2	SITE SERVICING REPORT: WATER	REFERENCE
☐	Confirm consistency with Master Servicing Study, if available.	N/A
☒	Availability of public infrastructure to service proposed development.	Site Servicing Report (Section 2.0) Servicing Plan
☒	Identification of system constraints.	Site Servicing Report (Section 2.0) Servicing Plan
☒	Identify boundary conditions.	Site Servicing Report (Section 2.0)
☒	Confirmation of adequate domestic supply and pressure.	Site Servicing Report (Section 2.0)
☒	Confirmation of adequate fire flow protection and confirmation that fire flow is calculated as per the Fire Underwriter's Survey. Output should show available fire flow at locations throughout the development.	Site Servicing Report (Section 2.0)
☒	Provide a check of high pressures. If pressure is found to be high, an assessment is required to confirm the application of pressure reducing valves.	Site Servicing Report (Section 2.0)

☐	Definition of phasing constraints. Hydraulic modelling is required to confirm servicing for all defined phases of the project, including the ultimate design.	N/A
☒	Address reliability requirements, such as appropriate location of shutoff valves.	Site Servicing Report (Section 2.0)
☐	Check on the necessity of a pressure zone boundary modification.	N/A
☒	Reference to water supply analysis to show that major infrastructure can deliver sufficient water for the proposed land use. This includes data that shows that the expected demands under average day, peak hour and fire flow conditions provide water within the required pressure range.	Site Servicing Report (Section 2.0)
☒	Description of the proposed water distribution network, including locations of proposed connections to the existing system, provisions for necessary looping, and appurtenances (valves, pressure reducing valves, valve chambers, and fire hydrants), including special metering provisions.	Site Servicing Report (Section 2.0) Servicing Plan
☐	Description of off-site required feeder mains, booster pumping stations, and other water infrastructure that will be ultimately required to service proposed development, including financing, interim facilities, and timing of implementation.	N/A
☒	Confirmation that water demands are calculated based on the City of Ottawa Design Guidelines.	Site Servicing Report (Section 2.0)
☒	Provision of a model schematic showing the boundary conditions locations, streets, parcels, and building locations for reference.	Site Servicing Report (Section 2.0)

4.3	SITE SERVICING REPORT: WASTEWATER	REFERENCE
☒	Summary of proposed design criteria (Note: Wet weather flow criteria should not deviate from the City of Ottawa Sewer Design Guidelines. Monitored flow data from relatively new infrastructure cannot be used to justify capacity requirements for proposed infrastructure).	Site Servicing Report (Section 3.0,
☐	Confirm consistency with Master Servicing Study and/or justifications for deviations.	Stantec 2005 EUC ISSU
☐	Consideration of local conditions that may contribute to extraneous flows that are higher than the recommended flows in the Guidelines. This includes groundwater and soil conditions, and age and condition of sewers.	N/A
☒	Description of existing sanitary sewer available for discharge of wastewater from proposed development.	Site Servicing Report (Section 3.0) Servicing Plan

☒	Verify available capacity in downstream sanitary sewer and/or identification of upgrades necessary to service the proposed development. (Reference can be made to previously completed Master Servicing Study if applicable.)	Site Servicing Report (Section 3.0)
☒	Calculations related to dry weather and wet weather flow rates from the development in standard MOE sanitary sewer design table (Appendix 'C') format.	Site Servicing Report (Section 3.0)
☒	Description of proposed sewer network, including sewers, pumping stations and forcemains.	Site Servicing Report (Section 3.0) Servicing Plan
☐	Discussion of previously identified environmental constraints and impact on servicing (environmental constraints are related to limitations imposed on the development in order to preserve the physical condition of watercourses, vegetation, soil cover, as well as protecting against water quantity and quality).	N/A
☐	Pumping stations: impacts of proposed development on existing pumping stations or requirements for new pumping station to service development.	N/A
☐	Forcemain capacity in terms of operational redundancy, surge pressure and maximum flow velocity.	N/A
☐	Identification and implementation of the emergency overflow from sanitary pumping stations in relation to the hydraulic grade line to protect against basement flooding.	N/A
☐	Special considerations, such as contamination, corrosive environment, etc.	N/A

4.4	SITE SERVICING REPORT: STORMWATER	REFERENCE
☒	Description of drainage outlets and downstream constraints, including legality of outlets (i.e., municipal drain, right-of-way, watercourse, or private property).	Site Servicing Report (Section 4.0)
☒	Analysis of available capacity in existing public infrastructure.	Site Servicing Report (Section 4.0)
☒	A drawing showing the subject lands, its surroundings, the receiving watercourse, existing drainage patterns, and proposed drainage pattern.	Servicing, Grading and Drainage Plans
☒	Water quantity control objective (e.g. controlling post-development peak flows to pre-development level for storm events ranging from the 2 or 5 year event (dependent on the receiving sewer design) to 100 year return period); if other objectives are being applied, a rationale must be included with reference to hydrologic analyses of the potentially affected subwatersheds, taking into account long-term cumulative effects.	Site Servicing Report (Section 4.0)

☒	Water Quality control objective (basic, normal or enhanced level of protection based on the sensitivities of the receiving watercourse) and storage requirements.	Site Servicing Report (Section 4.0)
☒	Description of the stormwater management concept with facility locations and descriptions with references and supporting information.	Site Servicing Report (Section 4.0) Servicing, Grading and Drainage Plans
☐	Setback from private sewage disposal systems.	N/A
☐	Watercourse and hazard lands setbacks.	N/A
☒	Record of pre-consultation with the Ontario Ministry of Environment and the Conservation Authority that has jurisdiction on the affected watershed.	Site Servicing Report (Appendix 'A')
☐	Confirm consistency with subwatershed and Master Servicing Study, if applicable study exists.	Stantec 2005 EUC ISSU
☒	Storage requirements (complete with calculations) and conveyance capacity for minor events (1:2 year return period) and major events (1:100 year return period).	Site Servicing Report (Section 4.0)
☐	Identification of watercourses within the proposed development and how watercourses will be protected, or, if necessary, altered by the proposed development with applicable approvals.	N/A
☒	Calculate pre- and post-development peak flow rates, including a description of existing site conditions and proposed impervious areas and drainage catchments in comparison to existing conditions.	Site Servicing Report (Section 4.0)
☒	Any proposed diversion of drainage catchment areas from one outlet to another.	Site Servicing Report (Section 4.0)
☒	Proposed minor and major systems, including locations and sizes of stormwater trunk sewers, and stormwater management facilities.	Servicing, Grading and Drainage Plans
☐	If quantity control is not proposed, demonstration that downstream system has adequate capacity for the post-development flows up to and including the 100-year return period storm event.	Quantity control proposed per Site Servicing Report (Section 4.0)
☐	Identification of potential impacts to receiving watercourses.	N/A
☐	Identification of municipal drains and related approval requirements.	N/A
☒	Description of how the conveyance and storage capacity will be achieved for the development.	Site Servicing Report (Section 4.0)

☒	100 year flood levels and major flow routing to protect proposed development from flooding for establishing minimum building elevations (MBE) and overall grading.	Site Servicing Report (Section 4.0) Servicing, Grading and Drainage Plans
☒	Inclusion of hydraulic analysis, including hydraulic grade line elevations.	Site Servicing Report (Section 4.0)
☒	Description of approach to erosion and sediment control during construction for the protection of receiving watercourse or drainage corridors.	Site Servicing Report (Section 5.0) Servicing Plan
☐	Identification of floodplains – proponent to obtain relevant floodplain information from the appropriate Conservation Authority. The proponent may be required to delineate floodplain elevations to the satisfaction of the Conservation Authority if such information is not available or if information does not match current conditions.	N/A
☐	Identification of fill constraints related to floodplain and geotechnical investigation.	N/A

4.5	APPROVAL AND PERMIT REQUIREMENTS	REFERENCE
The Site Servicing Report shall provide a list of applicable permits and regulatory approvals necessary for the proposed development, as well as the relevant issues affecting such approval. The approval and permitting shall include but not be limited to the following:		
☐	Conservation Authority as the designated approval agency for modification of floodplain, potential impact on fish habitat, proposed works in or adjacent to a watercourse, cut/fill permits and Approval under Lakes and Rivers Improvement Act. The Conservation Authority is not the approval authority for the Lakes and Rivers Improvement Act. Where there are Conservation Authority regulations in place, approval under the Lakes and Rivers Improvement Act is not required, except in cases of dams, as defined in the Act.	N/A
☐	Application for Environmental Compliance Approval (ECA) under the Ontario Water Resources Act.	As part of future submission
☐	Changes to Municipal Drains.	N/A
☐	Other permits (National Capital Commission, Parks Canada, Public Works and Government Services Canada, Ministry of Transportation, etc.).	N/A

4.6	CONCLUSION CHECKLIST	REFERENCE
☒	Clearly stated conclusions and recommendations.	Site Servicing Report
☒	Comments received from review agencies, including the City of Ottawa and information on how the comments were addressed. Final sign-off from the responsible reviewing agency.	Not yet applicable

☒	All draft and final reports shall be signed and stamped by a Professional Engineer registered in Ontario.	Site Servicing Report All Drawings

Site Servicing Report
2983 Navan Road – Block 16
Gas Station, Commercial Building, Drive-Thru Restaurant & Car Wash

Appendix C

Water Servicing

WATERMAIN DEMAND CALCULATION SHEET

PROJECT : NAVAN ROAD DEVELOPMENT PROJECT - GAS BAR
LOCATION : CITY OF OTTAWA
DEVELOPER : 12714001 Canada Inc.

NODE	RESIDENTIAL			NON-RESIDENTIAL	AVERAGE DAILY DEMAND (l/s)				MAXIMUM DAILY DEMAND (l/s)				PEAK HOUR DEMAND (l/s)			
	UNITS		POP'N	COMM (ha.)	Res.	Non-res.	Plug flow	Total	Res.	Non-res.	Plug flow	Total	Res.	Non-res.	Plug flow	Total
	Townhouses (TH)	Condo Units (CU)														
J-14	0	0	0	0.77	0.00	0.25	3.60	3.85	0.00	0.37	3.60	3.97	0.00	0.67	3.60	4.27
TOTALS	0	0	0	0.77	0.00	0.25	3.60	3.85	0.00	0.37	3.60	3.97	0.00	0.67	3.60	4.27

ASSUMPTIONS			
RESIDENTIAL DENSITIES		AVG. DAILY DEMAND	MAX. HOURLY DEMAND
- Townhouse (TH)	2.7 p / p / u	- Residential280 l / cap / day	- Residential1,540 l / cap / day
		- Institutional28,000 l / ha / day	- Institutional75,600 l / ha / day
- Condo Units (CU)	1.8 p / p / u	- Commercial28,000 l / ha / day	- Commercial75,600 l / ha / day
	p / p / u	MAX. DAILY DEMAND	
	p / p / u	- Residential700 l / cap / day	
		- Institutional42,000 l / ha / day	
		- Commercial42,000 l / ha / day	

FUS Fire Flow Calculations
NAVAN ROAD DEVELOPMENT PROJECT - Commercial Building
(JLR 29899-002)

Step	Parameter	Value	Note
A	Type of Construction	Non-combustible	
	Coefficient (C)	0.8	
B	Ground Floor Area	686 m ²	Commercial area consisting of a Gas Retail and Drive Thru
C	Height in storeys	1 storeys	Basements are excluded.
	Total Floor Area	686 m ²	
D	Fire Flow Formula	F=220C√A	
	Fire Flow	4610 L/min	
	Rounded Fire Flow	5000 L/min	Flow rounded to nearest 1000 L/min.
E	Occupancy Class	Combustible	
	Occupancy Charge	0%	
	Occupancy Increase or Decrease	0	
	Fire Flow	5000 L/min	No rounding applied.
F	Sprinkler Protection	None	
	Sprinkler Credit	0%	
	Decrease for Sprinkler	0 L/min	
G	<i>North Side Exposure</i>		
	Exposing Wall:	Non-combustible	Gas Retail/Drive Thru 4 Storey Condo Unit
	Exposed Wall:	Wood Frame	
	Length of Exposed Wall:	32.2 m	
	Height of Exposed Wall:	4 storeys	
	Length-Height Factor	128.6 m-storeys	
	Separation Distance	38.96 m	
	North Side Exposure Charge	5%	
	<i>East Side Exposure</i>		
	Exposing Wall:	Non-combustible	Gas Retail/Drive Thru
	Exposed Wall:	Wood Frame	
	Length of Exposed Wall:	0.0 m	
	Height of Exposed Wall:	0 storeys	
	Length-Height Factor	0.0 m-storeys	
	Separation Distance	46 m	
	East Side Exposure Charge	0%	
	<i>South Side Exposure</i>		
	Exposing Wall:	Non-combustible	Over 45 m to next structure
	Exposed Wall:	Wood Frame	
	Length of Exposed Wall:	0.0 m	
	Height of Exposed Wall:	0 storeys	
	Length-Height Factor	0.0 m-storeys	
	Separation Distance	46 m	
	South Side Exposure Charge	0%	
	<i>West Side Exposure</i>		
	Exposing Wall:	Non-combustible	Gas Retail/Drive Thru
	Exposed Wall:	Wood Frame	
	Length of Exposed Wall:	0.0 m	
	Height of Exposed Wall:	0 storeys	
	Length-Height Factor	0.0 m-storeys	
	Separation Distance	46 m	
	West Side Exposure Charge	0%	Over 200 m to next structure
	Total Exposure Charge	5%	The total exposure charge is below the maximum value of 75%.
	Increase for Exposures	250 L/min	
H	Fire Flow	5250 L/min	
	Rounded Fire Flow	5000 L/min	Flow rounded to nearest 1000 L/min.
City Cap (RFF)	Required Fire Flow	5000 L/min	
		83 L/s	

Fire Underwriters Survey (FUS) Fire Flow Calculations

In accordance with City of Ottawa Technical Bulletin ISTB-2018-02 dated March 21, 2018

FUS Fire Flow Calculations

NAVAN ROAD DEVELOPMENT PROJECT - Commercial Building (JLR 29899-002)

Step	Parameter	Value	Note
A	Type of Construction	Non-combustible	
	Coefficient (C)	0.8	
B	Ground Floor Area	107 m ²	Commercial Buildign - Car Wash
C	Height in storeys	1 storeys	Basements are excluded.
	Total Floor Area	107 m ²	
D	Fire Flow Formula	F=220C√A	
	Fire Flow	1821 L/min	
	Rounded Fire Flow	2000 L/min	Flow rounded to nearest 1000 L/min.
E	Occupancy Class	Combustible	
	Occupancy Charge	0%	
	Occupancy Increase or Decrease	0	
	Fire Flow	2000 L/min	No rounding applied.
F	Sprinkler Protection	None	
	Sprinkler Credit	0%	
	Decrease for Sprinkler	0 L/min	
G	<i>North Side Exposure</i>		
	Exposing Wall:	Non-combustible	Car Wash
	Exposed Wall:	Wood Frame	Townhomes
	Length of Exposed Wall:	14.4 m	
	Height of Exposed Wall:	2 storeys	
	Length-Height Factor	28.9 m-storeys	
	Separation Distance	18.81 m	
	North Side Exposure Charge	12%	
	<i>East Side Exposure</i>		
	Exposing Wall:	Non-combustible	Car Wash
	Exposed Wall:	Wood Frame	
	Length of Exposed Wall:	0.0 m	
	Height of Exposed Wall:	0 storeys	
	Length-Height Factor	0.0 m-storeys	
	Separation Distance	46 m	
	East Side Exposure Charge	0%	
	<i>South Side Exposure</i>		
	Exposing Wall:	Non-combustible	Car Wash
	Exposed Wall:	Non-combustible	Gas Retail/Drive Thru
	Length of Exposed Wall:	5.4 m	
	Height of Exposed Wall:	0 storeys	
	Length-Height Factor	0.0 m-storeys	
	Separation Distance	32.22 m	Over 45 m to next structure
	South Side Exposure Charge	5%	
	<i>West Side Exposure</i>		
	Exposing Wall:	Non-combustible	Gas Retail/Drive Thru
	Exposed Wall:	Wood Frame	
	Length of Exposed Wall:	0.0 m	
	Height of Exposed Wall:	0 storeys	
	Length-Height Factor	0.0 m-storeys	
	Separation Distance	46 m	Over 200 m to next structure
	West Side Exposure Charge	0%	
	Total Exposure Charge	17%	The total exposure charge is below the maximum value of 75%.
	Increase for Exposures	340 L/min	
H	Fire Flow	2340 L/min	
	Rounded Fire Flow	2000 L/min	Flow rounded to nearest 1000 L/min.
City Cap	Required Fire Flow (RFF)	2000 L/min	
		33 L/s	

Fire Underwriters Survey (FUS) Fire Flow Calculations

In accordance with City of Ottawa Technical Bulletin ITB-2018-02 dated March 21, 2018

William Rugamba

From: William Rugamba
Sent: July 15, 2024 4:00 PM
To: William Rugamba
Subject: FW: Navan Subdivision - Boundary Condition Request
Attachments: NavanSubdivision_Boundary Condition(4july2024).docx

William Rugamba, M.Eng., B.A.Sc., EIT
Civil Engineering Graduate
Ottawa, ON
Work: [343-804-4374](tel:343-804-4374)

From: Polyak, Alex <alex.polyak@ottawa.ca>
Sent: Monday, July 15, 2024 10:12 AM
To: Mahad Musse <mmusse@jlrichards.ca>
Cc: Karla Ferrey <kferrey@jlrichards.ca>; Raad Akrawi <rakrawi@groupeheafey.com>; Carmine Zayoun <carmine@zayoungroup.com>; Armstrong, Justin <justin.armstrong@ottawa.ca>; Tatyana Roumie <troumie@jlrichards.ca>
Subject: RE: Navan Subdivision - Boundary Condition Request

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Good morning Mahad,

Please find the boundary conditions attached.

Regards,

Oleksandr (Alex) Polyak, B.Eng., C.E.T., P.Eng. 

Project Manager, Infrastructure Approvals, Development Review East Branch | Gestionnaire de projet, Direction de l'examen des projets d'aménagement – Est.
Planning, Development and Building Services Department (PDBS) | Direction générale des services de la planification, de l'aménagement et du bâtiment (DGSPAB)

City of Ottawa | Ville d'Ottawa
110 Laurier Ave., 4th Fl East, Ottawa ON K1P 1J1
Email: alex.polyak@ottawa.ca
Cell : 613-857-4380
www.Ottawa.ca



From: Mahad Musse <mmusse@jlrichards.ca>

Sent: July 12, 2024 1:31 PM

To: Polyak, Alex <alex.polyak@ottawa.ca>

Cc: Karla Ferrey <kferrey@jlrichards.ca>; Raad Akrawi <rakrawi@groupeheafey.com>; Carmine Zayoun <carmine@zayoungroup.com>; Armstrong, Justin <justin.armstrong@ottawa.ca>; Tatyana Roumie <troumie@jlrichards.ca>

Subject: RE: Navan Subdivision - Boundary Condition Request

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Hi Alex,

Just wondering if you have a status update for the boundary conditions for Navan.

Thanks
Mahad



Mahad Musse, B.Eng., EIT
Civil Engineering Graduate

1000-343 Preston Street
Ottawa, ON, K1S 1N4

Work: [343-633-1501](tel:343-633-1501)
mmusse@jlrichards.ca

From: Mahad Musse <mmusse@jlrichards.ca>

Sent: Wednesday, July 3, 2024 11:02 AM

To: Polyak, Alex <alex.polyak@ottawa.ca>

Cc: Karla Ferrey <kferrey@jlrichards.ca>; Raad Akrawi <rakrawi@groupeheafey.com>; Carmine Zayoun <carmine@zayoungroup.com>; Armstrong, Justin <justin.armstrong@ottawa.ca>; Tatyana Roumie <troumie@jlrichards.ca>

Subject: RE: Navan Subdivision - Boundary Condition Request

Good morning Alex,

As we discussed last week our Client is looking into the option of converting the row townhouse units into duplex units (townhouse units with apartments in the basement). As a result, this will increase the total demand on the site and we will therefore require new water boundary conditions. We'd like to note that the footprint of the blocks will not change and neither will their layout or any of the offsets.

As a summary:

- Domestic demands were calculated based on a daily consumption rate of 280 L/cap/day with peaking factors consistent with City of Ottawa Guidelines
- Required Fire Flow (RFF) was calculated in accordance to the Fire Underwriters Survey (FUS) Water Supply for Public Fire Protection and the City of Ottawa FUS protocol (Bulletin ISDTB-2014-02 & Bulletin ISDTB-2018-02), which considers material, expose distance & height. We have attached the calculation spreadsheet and the figure.

We request boundary conditions under high pressure, peak hour, and maximum day + fire flow conditions (for each of the below fire flows). Domestic demand and fire flow calculations are attached. Please provide the boundary conditions at the proposed connection locations as shown in the attached figure.

Average Day Demand: 6.74 L/s

Maximum Day Demand: 10.53 L/s

Peak Hour Demand: 18.17 L/s

Required Fire Flow (per FUS): 6,000 L/min (100 L/s)

Required Fire Flow (per FUS): 10,000 L/min (167 L/s)

Required Fire Flow (per FUS): 14,000 L/min (233 L/s)

Required Fire Flow (per FUS): 15,000 L/min (250 L/s)

For your reference, the previous boundary condition received from the City is attached and below is the email chain.

If you have any questions or comments please let us know.

Thanks
Mahad



Mahad Musse, B.Eng., EIT
Civil Engineering Graduate

1000-343 Preston Street
Ottawa, ON, K1S 1N4

Work: [343-633-1501](tel:343-633-1501)
mmusse@jlrichards.ca

From: Polyak, Alex <alex.polyak@ottawa.ca>

Sent: Thursday, August 17, 2023 3:01 PM

To: William Rugamba <wrugamba@jlrichards.ca>

Cc: Karla Ferrey <kferrey@jlrichards.ca>; Raad Akrawi <rakrawi@groupeheafey.com>; Carmine Zayoun <carmine@zayoungroup.com>; Shahira Jalal <sjalal@jlrichards.ca>

Subject: RE: Navan Subdivision - Boundary Condition Request

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Hello William,

Sorry that I missed your call, I was in a meeting. The boundary conditions are attached.

Regards,

Oleksandr (Alex) Polyak, B.Eng., P.Eng

Project Manager, Infrastructure Approvals, Development Review East Branch | Gestionnaire de projet, Direction de l'examen des projets d'aménagement – Est.
Planning, Real Estate and Economic Development Department | Direction générale de la planification, des biens immobiliers et du développement économique

City of Ottawa | Ville d'Ottawa
110 Laurier Ave., 4th Fl East, Ottawa ON K1P 1J1
Email: alex.polyak@ottawa.ca
Cell : 613-857-4380
www.Ottawa.ca



From: William Rugamba <wrugamba@jlrichards.ca>

Sent: August 15, 2023 9:26 AM

To: Polyak, Alex <alex.polyak@ottawa.ca>

Cc: Karla Ferrey <kferrey@jlrichards.ca>; Raad Akrawi <rakrawi@groupeheafey.com>; Carmine Zayoun <carmine@zayoungroup.com>; Shahira Jalal <sjalal@jlrichards.ca>

Subject: RE: Navan Subdivision - Boundary Condition Request

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Good morning Alex,

Just wanted to follow up on the status of this boundary request. Please let me know if you need anything else from us.

Thanks,
William

William Rugamba, M.Eng.
Civil Engineering Intern

J.L. Richards & Associates Limited
1000-343 Preston Street, Ottawa, ON K1S 1N4
Direct: 343-804-4374



From: Tatyana Roumie
Sent: Tuesday, July 25, 2023 3:53 PM
To: 'alex.polyak@ottawa.ca' <alex.polyak@ottawa.ca>
Cc: Karla Ferrey <kferrey@jlrichards.ca>; Raad Akrawi <rakrawi@groupeheafey.com>; carmine@zayoungroup.com; Shahira Jalal <sjalal@jlrichards.ca>
Subject: Navan Subdivision - Boundary Condition Request

Hello Alex.

To support our upcoming detailed design for the site, we are requesting updated boundary conditions for the 3079 Navan Road Development.

As a brief history, we received boundary conditions from the City in July 2021 (attached, but with incorrect connection locations) and again in April 2022 (also attached) in support of the functional servicing design. We understand from the April 2022 boundary conditions that the maximum available fire flow for the site is 250 L/s.

We are currently requesting updated boundary conditions for this site as we are commencing the detailed servicing design and this request will accommodate the recent site plan changes and proposed connection points. This request is also applicable to the upcoming site plan designs which will be submitted as separate applications.

We request boundary conditions under high pressure, peak hour, and maximum day + fire flow conditions (for each of the below fire flows). Domestic demand and fire flow calculations are attached. Please provide the boundary conditions at the proposed connection locations as shown in the attached figure.

Average Day Demand: 6.44 L/s
Maximum Day Demand: 9.77 L/s
Peak Hour Demand: 16.50 L/s
Required Fire Flow (per FUS): 6,000 L/min (100 L/s)
Required Fire Flow (per FUS): 10,000 L/min (167 L/s)
Required Fire Flow (per FUS): 14,000 L/min (233 L/s)
Required Fire Flow (per FUS): 15,000 L/min (250 L/s)

Thanks,
Tatyana

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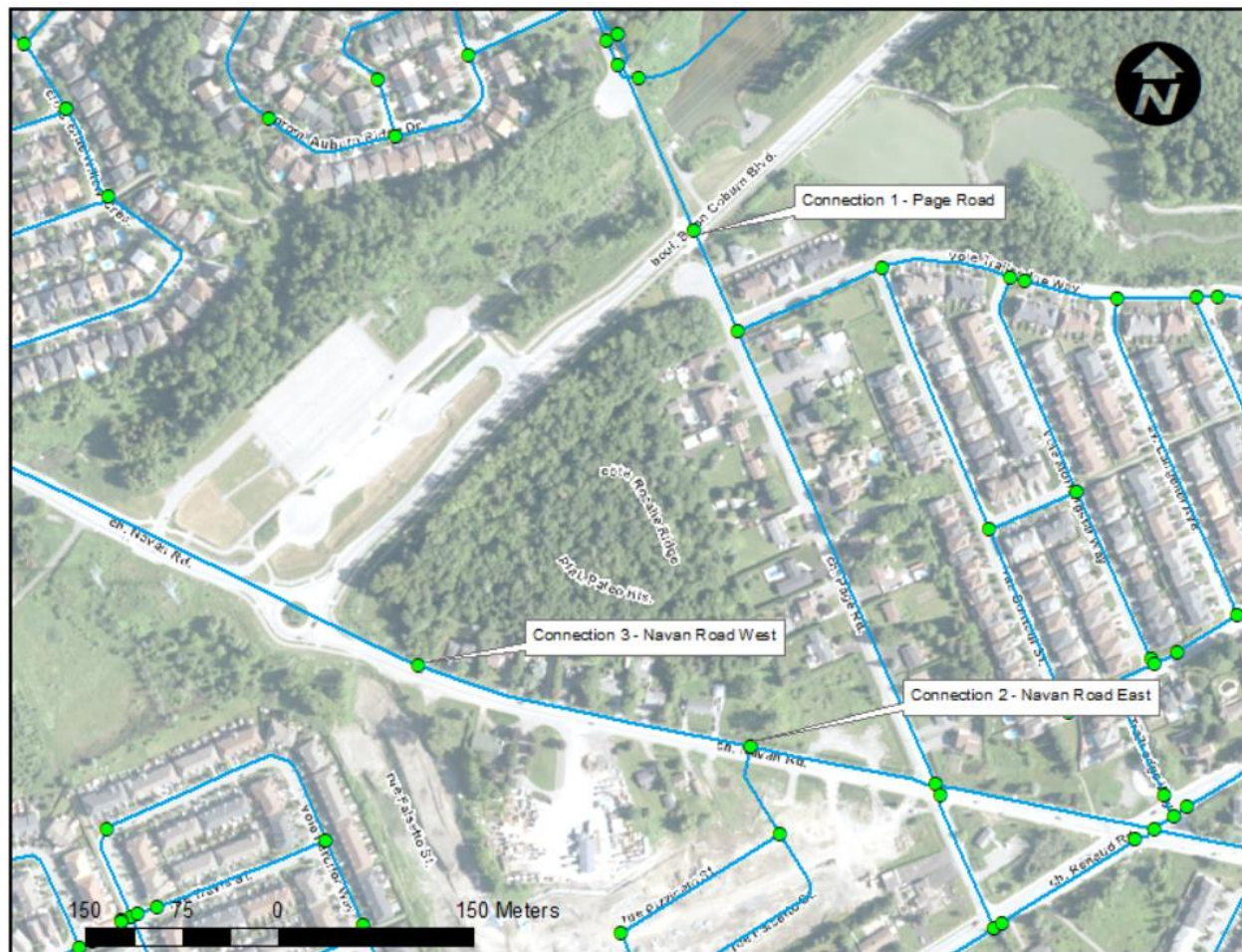
'

Boundary Conditions Navan Subdivision

Provided Information

Scenario	Demand	
	L/min	L/s
Average Daily Demand	404	6.74
Maximum Daily Demand	632	10.53
Peak Hour	1,090	18.17
Fire Flow Demand #1	6,000	100.00
Fire Flow Demand #2	10,000	166.67
Fire Flow Demand #3	14,000	233.33
Fire Flow Demand #4	15,000	250.00

Location



Results

Connection 1 - Page Road

Demand Scenario	Head (m)	Pressure¹ (psi)
Maximum HGL	130.7	64.0
Peak Hour	127.0	58.6
Max Day plus Fire Flow #1	128.2	60.4
Max Day plus Fire Flow #2	126.8	58.3
Max Day plus Fire Flow #3	124.9	55.7
Max Day plus Fire Flow #4	124.4	55.0

¹ Ground Elevation = 85.7 m

Connection 2 - Navan Road East

Demand Scenario	Head (m)	Pressure¹ (psi)
Maximum HGL	130.7	71.4
Peak Hour	126.8	65.9
Max Day plus Fire Flow #1	127.7	67.1
Max Day plus Fire Flow #2	125.5	64.1
Max Day plus Fire Flow #3	122.7	60.1
Max Day plus Fire Flow #4	121.9	58.9

¹ Ground Elevation = 80.5 m

Connection 3 - Navan Road West

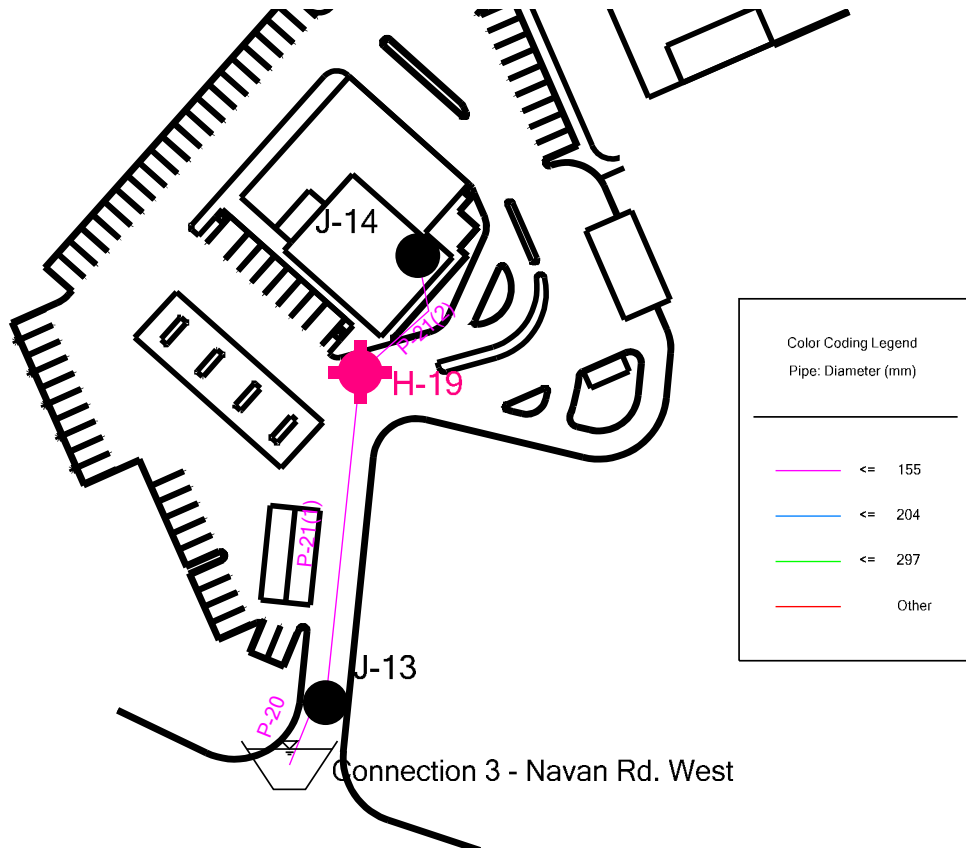
Demand Scenario	Head (m)	Pressure¹ (psi)
Maximum HGL	130.7	69.3
Peak Hour	126.8	63.8
Max Day plus Fire Flow #1	127.3	64.5
Max Day plus Fire Flow #2	124.6	60.6
Max Day plus Fire Flow #3	120.9	55.3
Max Day plus Fire Flow #4	119.8	53.8

¹ Ground Elevation = 81.9 m

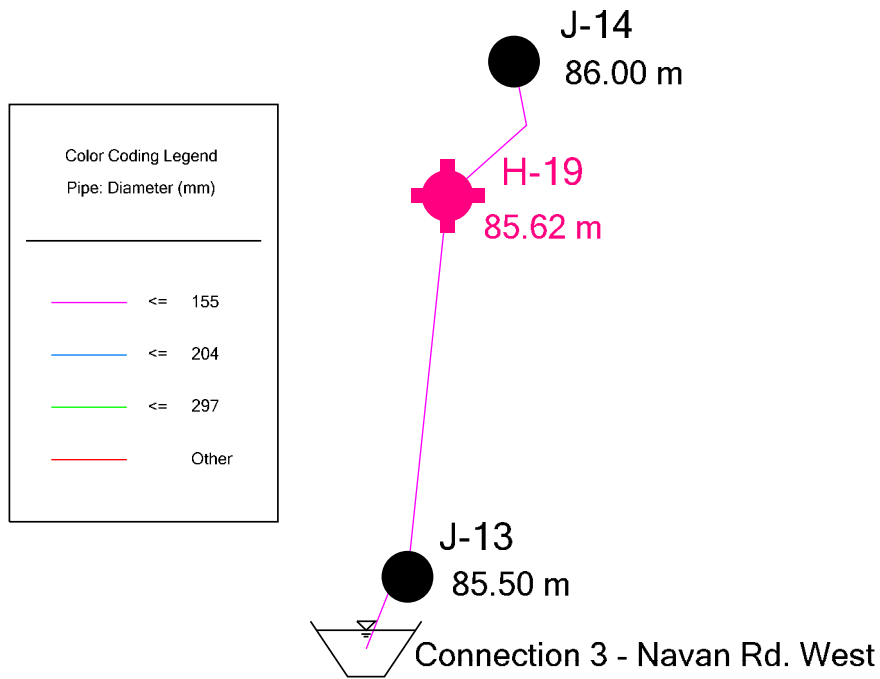
Disclaimer

The boundary condition information is based on current operation of the city water distribution system. The computer model simulation is based on the best information available at the time. The operation of the water distribution system can change on a regular basis, resulting in a variation in boundary conditions. The physical properties of watermains deteriorate over time, as such must be assumed in the absence of actual field test data. The variation in physical watermain properties can therefore alter the results of the computer model simulation. Fire Flow analysis is a reflection of available flow in the watermain; there may be additional restrictions that occur between the watermain and the hydrant that the model cannot take into account.

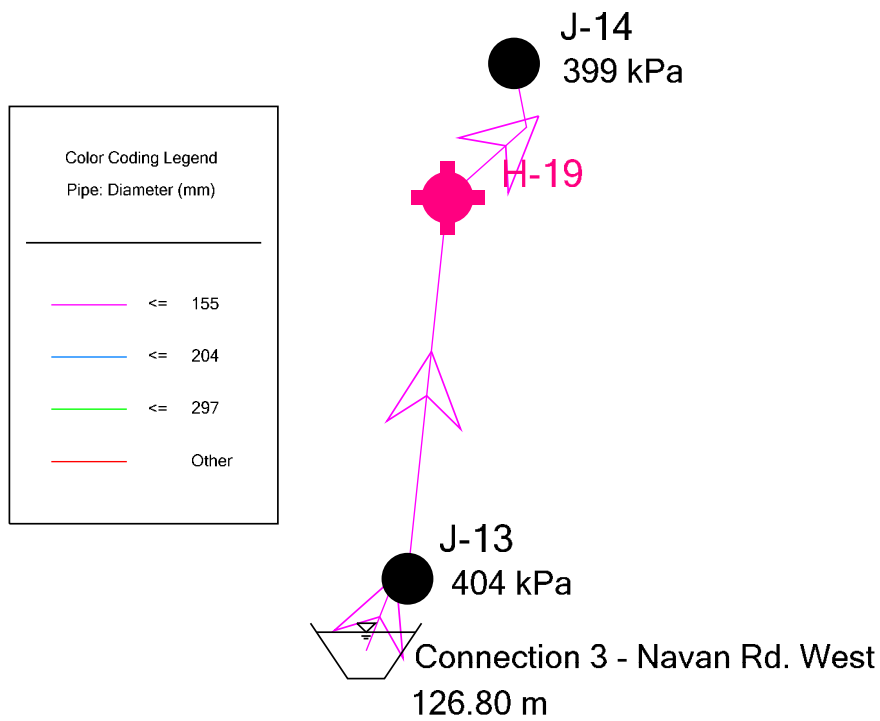
Gas Bar, Commercial Building, and Car Wash (Block 16) **Model Schematic**



Gas Bar, Commercial Building, and Car Wash (Block 16)
Model Schematic
Elevation Model



Gas Bar, Commercial Building, and Car Wash (Block 16) Peak Hour Demand



Gas Bar, Commercial Building, and Car Wash (Block 16)

Peak Hour Demand

Junction Table

Label	Elevation (m)	Demand (L/s)	Hydraulic Grade (m)	Pressure (kPa)
J-14	86.00	4.27	126.74	399
J-13	85.50	0.00	126.79	404

Gas Bar, Commercial Building, and Car Wash (Block 16)

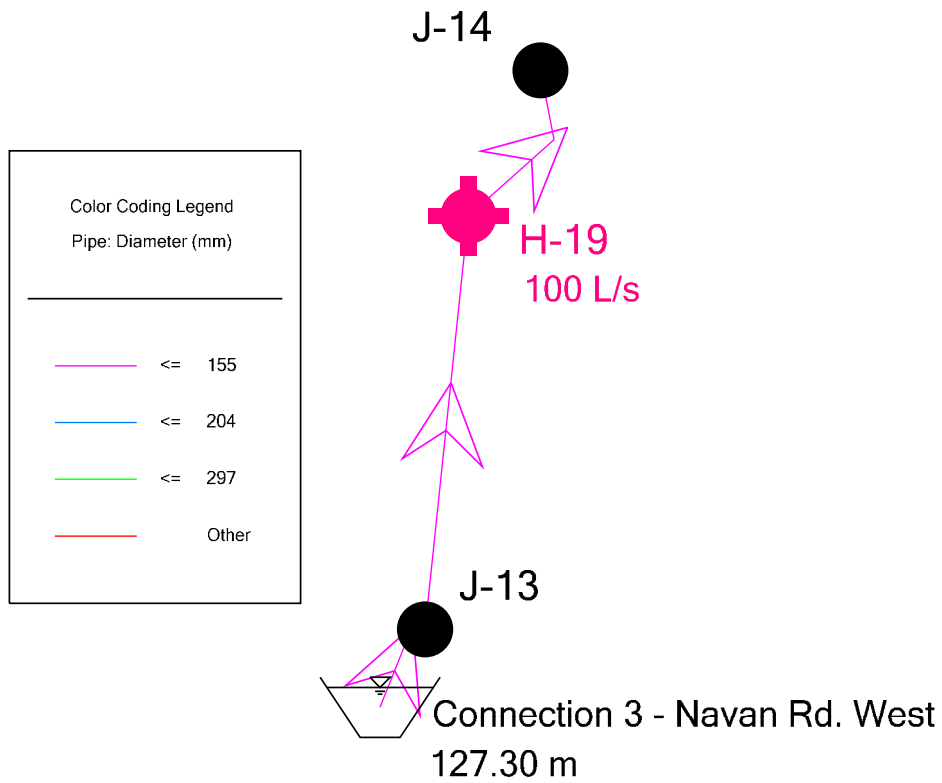
Peak Hour Demand

Pipe Table

ID	Label	Length (Scaled) (m)	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)
61	P-20	11	155	PVC	100.0	4.27	0.23
175	P-21(1)	49	155	PVC	100.0	4.27	0.23
176	P-21(2)	22	155	PVC	100.0	4.27	0.23

Gas Bar, Commercial Building, and Car Wash (Block 16)

Max Day + Fire Flow Requirement



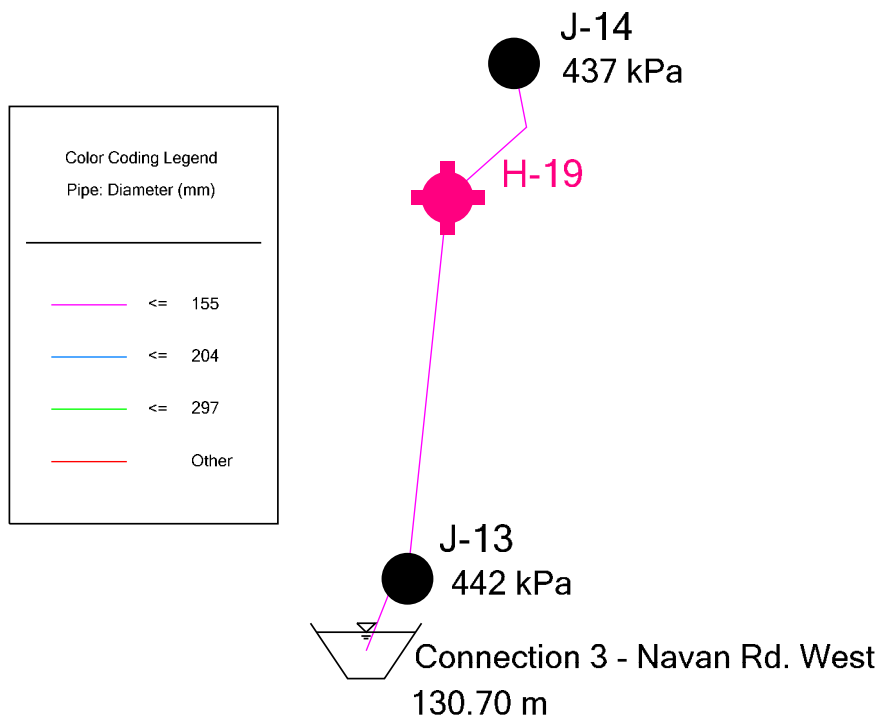
Gas Bar, Commercial Building, and Car Wash (Block 16)

Max Day + Fire Flow Requirement

Label	Satisfies Fire Flow Constraints?	Fire Flow (Available) (L/s)	Flow (Total Available) (L/s)	Pressure (Residual Lower Limit) (kPa)	Pressure (Calculated Residual) (kPa)	Pressure (Calculated System Lower Limit) (kPa)	Junction w/ Minimum Pressure (System)
H-19	True	100	100	140	224	238	J-14

Gas Bar, Commercial Building, and Car Wash (Block 16)

Maximum Pressure Analysis



Gas Bar, Commercial Building, and Car Wash (Block 16)

Maximum Pressure Analysis

Junction Table

Label	Elevation (m)	Demand (L/s)	Hydraulic Grade (m)	Pressure (kPa)
J-14	86.00	0	130.70	437
J-13	85.50	0	130.70	442

Gas Bar, Commercial Building, and Car Wash (Block 16)

Maximum Pressure Analysis

Pipe Table

ID	Label	Length (Scaled) (m)	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)
61	P-20	11	155	PVC	100.0	0	0.00
175	P-21(1)	49	155	PVC	100.0	0	0.00
176	P-21(2)	22	155	PVC	100.0	0	0.00

Site Servicing Report
2983 Navan Road – Block 16
Gas Station, Commercial Building, Drive-Thru Restaurant & Car Wash

Appendix D

Sanitary Design Sheet

Street Name	MH No.		Residential								Commercial/Institutional					Infiltration			Peak Design Flow L/s	Pipe Data								Upstream Geometry				Downstream Geometry					
	From	To	Multiples	Apartments	Area (ha)	Pop.	Cum. Pop.	Cum. Area (ha)	Peaking Factor	Residential Flow (L/s)	Area (ha)	Cum. Area (ha)	Peaking Factor	Inst. Flow (L/s)	Plug Flow (L/s)	Area (ha)	Cum. Area (ha)	Peak Extr. Flow L/s		Dia	Type	Actual Diameter	Slope	Q Full (L/s)	V Full	Length	Residual Capacity	% Full	TG From	Obvert	Invert	Cover	TG TO	Drop	Obvert	Invert	Cover
GAS STATION	GAS BAR	22			0.00	0	0	0.00	3.80	0.00	0.77	0.77	1.50	0.37		0.77	0.77	0.25	0.63	200	Circular	203.20	1.00%	34.22	1.06	27.26	33.59	2%	86.000	83.369	83.165	2.631	85.590	0.510	83.096	82.893	2.494
GAS STATION	CAR WASH	22			0.00	0	0	0.00	3.80	0.00		0.00	1.50	0.00	3.60	0.00	0.00	0.00	3.60	200	Circular	203.20	1.00%	34.22	1.06	5.91	30.62	11%	85.770	82.705	82.502	3.065	85.590	0.060	82.646	82.443	2.944
GAS STATION TO EXISTING STUB	22	STUB 16			0.00	0	0	0.00	3.80	0.00		0.77	1.50	0.37	3.60	0.00	0.77	0.25	4.23	200	Circular	203.20	0.65%	27.59	0.85	2.02	23.36	15%	85.590	82.586	82.383	3.004	85.350		82.573	82.370	2.777
EXISTING STUB TO PALEO DRIVE	STUB 16	21			0.04	0	0	0.04	3.80	0.00		0.77	1.50	0.37	3.60	0.04	0.81	0.27	4.24	200	Circular	203.20	0.65%	27.59	0.85	38.75	23.34	15%	85.350	82.573	82.370	2.777	85.041		82.321	82.118	2.720

Design Parameters	
Single Family Population	3.4 Cap/Unit
Semi-Detached/Townhouse Population	2.7 Cap/Unit
Apartments Population	1.8 Cap/Unit
Residential Flows	280 L/Cap/Day
Infiltration Flows	0.33 L/s/ha
Correction Factor	0.8
Commercial Peak Factor	1.5
Institutional/Commercial Average Flow	28000 L/gross ha/d
Manning Coefficient	0.013

Sanitary Inv Ex MH 13 Page Rd	81.13
Sanitary Inv Ex MH 14 Page Rd	81.83
Sanitary Inv at Ex MH 10 Page @ Navan	78.620



Friday, August 16, 2024

J. L. Richards
1000-343 Preston St.
Ottawa, Ontario, K1S 1N4

Attn: W. Rugamba

Re: 2983 Navan Road, Ontario - Gas Bar-Commercial-QM&E Project # 23-047
Confirmations

Dear William,

This letter serves as confirmation of items you sent by e-mail August 12, 2024.

1. Maximum domestic water flow rate is 57 gpm (3.60 L/s).
2. That quantity was arrived at by referring to data provided by the client's car wash specialist.
3. The design of the oil interceptor has been completed, it will be located entirely withing the walls of the car wash building.

Please do not hesitate to contact us should you have any questions or comments.

Yours truly,

A handwritten signature in black ink, appearing to read 'CW Clark'.

C. W. Clark, P.Eng
QM&E Engineering
CC: by you to whom it may concern

Site Servicing Report
2983 Navan Road – Block 16
Gas Station, Commercial Building, Drive-Thru Restaurant & Car Wash

Appendix E

Storm Design Sheet

JLR NO. 29899-002 (NAVAN BLOCK 14)																																					
PIPE REACH						Peak Flow Estimation										Sewer Data								Upstream Geometry				Downstream Geometry					Self Cleansing Velocities				
LOCATION	From MH	To MH	C-Factor (1:2)		Total Area (ha)	Cum. Total Area (ha)	Inlet Time (min.)	In Pipe Flow Time (min)	Total Time	1:2 Year Storm (RATIONAL METHOD)				Plug Flows MH518 (L/s)	Total Peak Flow ⁽⁶⁾ (L/s)	Type	Nominal Dia. (mm)	Actual Dia. (mm)	Slope	Length (m)	Q Full (L/s)	V Full (m/s)	Residual Capacity ⁽⁸⁾ (L/s)	% Full	TG From	Obvert	Invert	Cover	TG To	Drop	Obvert	Invert	Cover	Q/Qf Ratio	Flow Depth (mm)	Actual Velocity ⁽⁷⁾ (m/s)	Flow Depth to Dia. Ratio (d/D)
			0.20	0.90						2.78AR	Cum. 2.78AR	1:2 Year Intensity (mm/hr)	1:2 Year Peak Flow (L/s)																								
GAS STATION	MH520	MH519	0.055	0.265	0.32	0.32	10.00	0.75	10.75	0.69	0.69	76.81	53.33	53.33	CONCRETE	525	533.40	0.40%	57.15	284.46	1.27	231.14	19%	85.374	83.320	82.787	2.05	85.709	0.060	83.090	82.557	2.62	0.19	156.29	0.98	0.29	
GAS STATION	MH519	MH518			0.00	0.32	10.75	0.38	11.12	0.00	0.69	74.05	51.41	51.41	CONCRETE	525	533.40	0.50%	31.97	317.25	1.42	265.84	16%	85.709	83.030	82.497	2.68	85.468	1.052	82.871	82.337	2.60	0.16	145.08	1.04	0.27	
GAS STATION	MH522	MH521	0.066	0.168	0.23	0.23	10.00	0.53	10.53	0.46	0.46	76.81	35.15	35.15	CONCRETE	525	533.40	0.50%	45.09	317.25	1.42	282.10	11%	85.505	83.016	82.482	2.49	85.630		82.790	82.257	2.84	0.11	119.48	0.93	0.22	
GAS STATION	MH521	MH518	0.030	0.149	0.18	0.41	10.53	0.38	10.91	0.39	0.85	74.83	63.33	63.33	CONCRETE	525	533.40	0.35%	27.21	265.81	1.19	202.48	24%	85.630	82.790	82.257	2.84	85.468	0.876	82.695	82.161	2.77	0.24	177.09	0.98	0.33	
GAS STATION	MH518	MH518A	0.021	0.016	0.04	0.77	11.12	0.29	11.41	0.05	1.59	72.74	115.83	66.14	66.14	CONCRETE	450	457.20	0.25%	15.62	148.72	0.91	32.89	78%	85.468	81.819	81.361	3.65	85.591	0.300	81.780	81.322	3.81	0.44	213.51	0.88	0.47
EAST ORLEANS RIDGE SUBDIVISION	EXST MH518A	EXST MH514 ⁽⁸⁾	Refer to Note 8			1.07	11.41	0.83	12.24	2.29	2.29	71.78	164.59	Refer to Note 8		CONCRETE	825	533.40	0.25%	50.21	224.33	1.00	99.74	73%	85.400	81.480	80.946	3.92	84.620		81.354	80.821	3.27		Refer to Note 8		

Design Parameters (Per OSDG)	
Manning's Coefficient =	0.013
1:2 Year Intensity =	732.951 / (Tc + 6.199)^0.810

Note: Tc is the time of concentration in minutes

Drainage Areas Breakdown	
Total Site Area:	0.77 ha
Controlled Area Within Site Property Line:	0.77 ha -->
Existing Navan Rd Rear-Yard Area Captured Within Site:	0.05 ha
Block 15 Rear-Yard area captured in 518A -514:	0.07 ha
Subdivision Block 11 Rear-Yard Area in 518A-514:	0.14
Existing Navan Rd Rear-Yard Area Captured in 518A-514:	0.04
Total Captured Areas:	1.07
Uncontrolled Area - Outlet to Subdivision:	0.00 ha -->

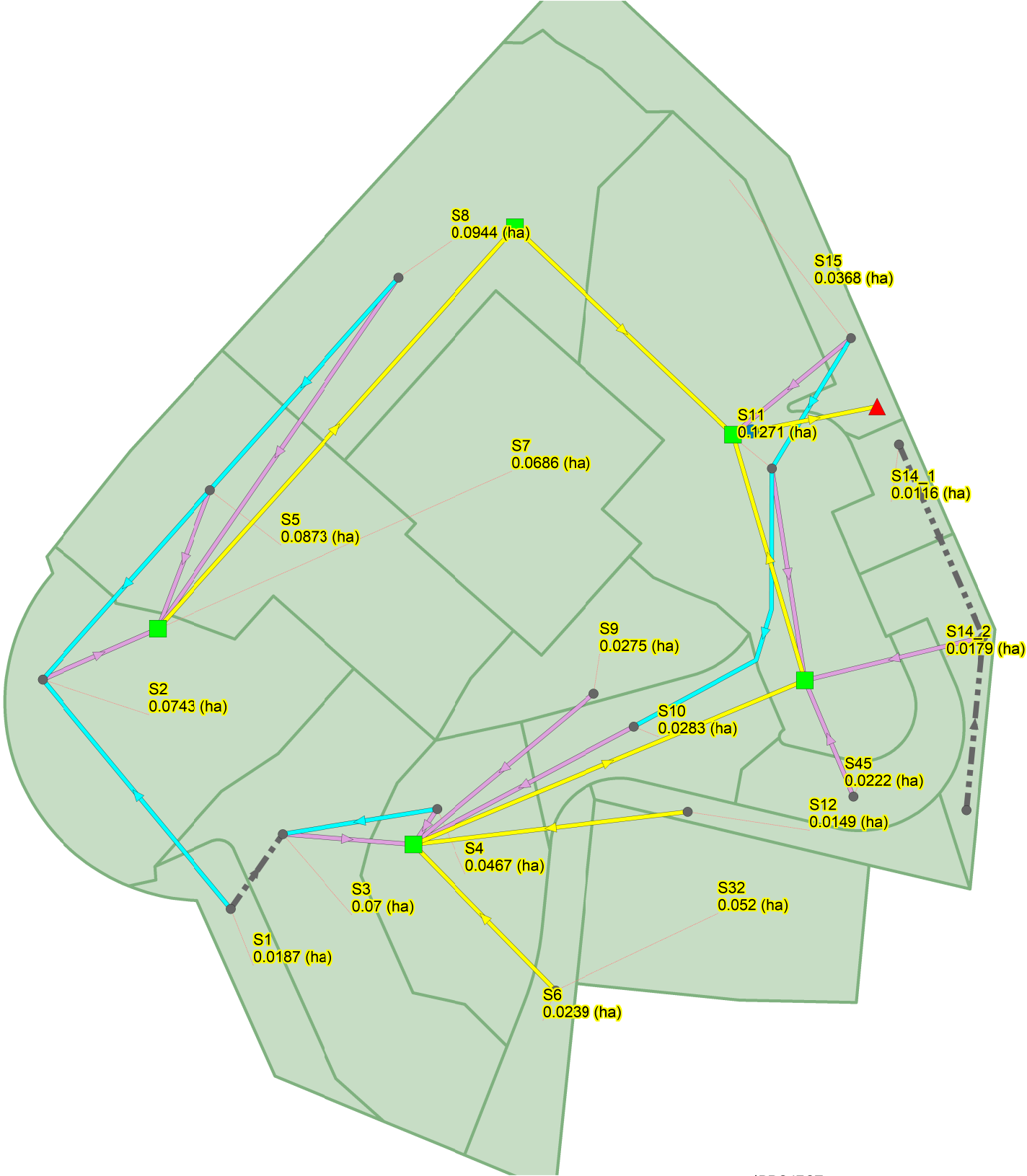
Notes on Plug Flows	
(1) Orifice Flow Rate from Block 16	

Notes on Peak Flow and Pipe Sizing	
(5) Peak flows are lower than the allowable release rate for Block 16 (68 L/s)	
(6) Pipes are conservatively sized for 1:2 Year Peak Flow Rate	
(7) Actual Velocities based on actual peak flows from Note 5	
(8) Details from Existing Sewers Downstream of EXST MH518A (referred to as STUB 16) can be found within East Orleans Ridge Subdivision Design Sheet. This line is only used to carry over the downstream values for time of concentration and 1:2 year peak flow	

Site Servicing Report
2983 Navan Road – Block 16
Gas Station, Commercial Building, Drive-Thru Restaurant & Car Wash

Appendix F

Stormwater Management



Legend

▲ Outfalls

Storages

- Manholes
- Catch Basin

Water Channels

- Storm Sewers
- Storm Sewers
- Weirs



20 m

PROJECT:

2983 Navan Road - Block 16
Ottawa, ON

DRAWING:

OVERALL SYSTEM MODEL SCHEMATIC



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DESIGN: ML

JLR NO.: 29899-002

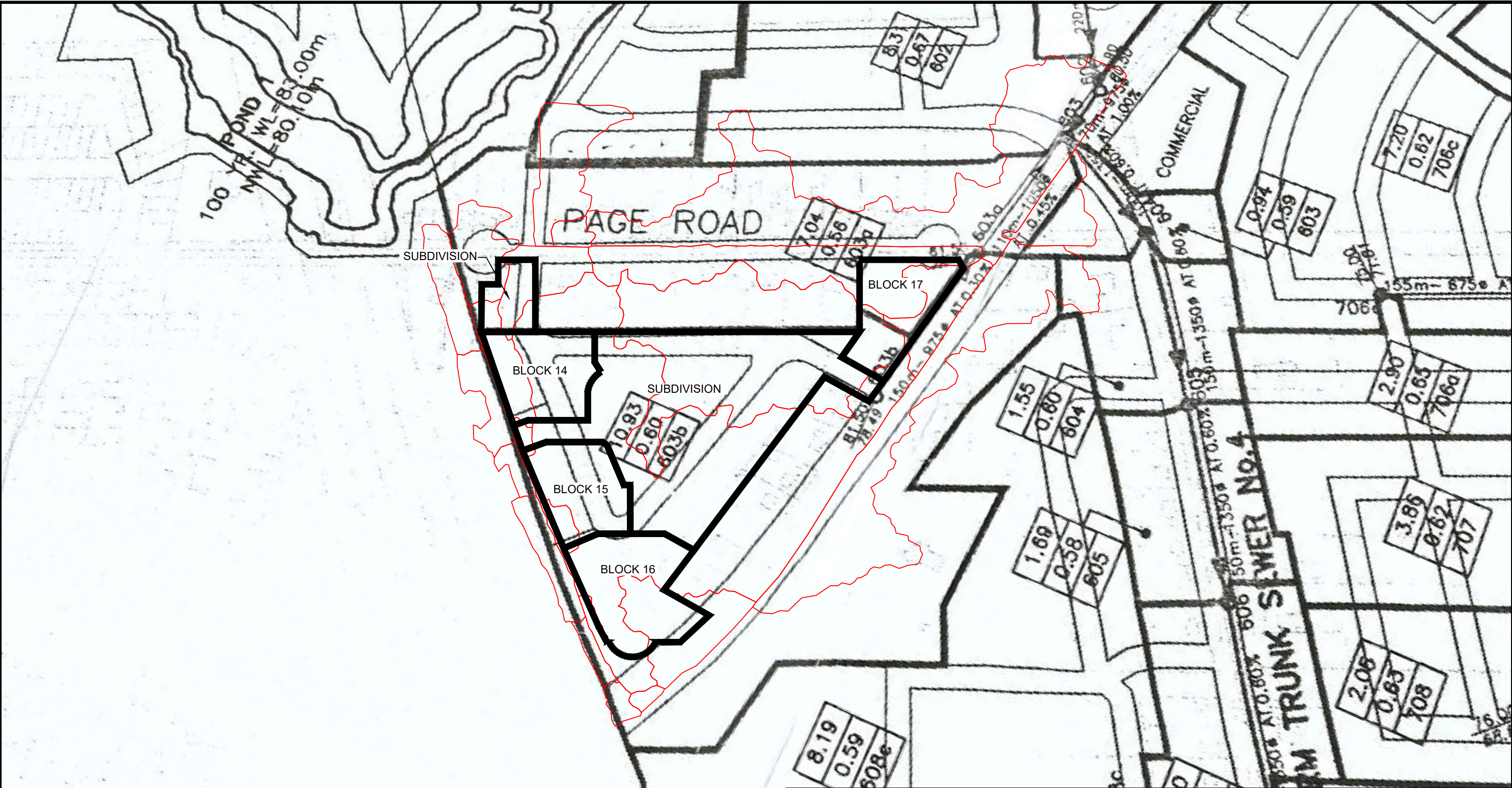
DRAWN: ML

DRAWING NO.:

CHECKED:

Figure 3

File Location: P:\29000\29899-002 - Navan Subdivision\05-Production\01-Civil\29899-002 C PRE-DST.dwg



LEGEND:

- PRE-DEVELOPMENT DRAINAGE AREAS
- NAVAN SITE PLAN AND SUBDIVISION BOUNDARY

NOTE:
UNDERLYING CATCHMENT DELINEATION FROM GLOUCESTER EUC INFRASTRUCTURE
SERVICING UPDATE 2005 WHICH INFORMED THE ALLOWABLE RELEASE RATES FROM
THE SITE AND NO PRE-DEVELOPMENT MODELLING WAS REQUIRED

PROJECT: 2983, 3053 AND 3079 NAVAN RD & 2690 PAGE RD

DRAWING: PRE-DEVELOPMENT DRAINAGE PLAN



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DESIGN:	BP
DRAWN:	KC
CHECKED:	BP
JLR #:	29899-002

DRAWING #:
FIGURE

PLOT DATE: July 26, 2024 2:27:18 PM

Post-Development 3-hour Chicago 1:2 year Event

[TITLE] ;;Project Title/Notes										521_ (P-Stm) 81.957 3.673 0 FUNCTIONAL 0 0 1.13 0									
[OPTIONS] ;;Option Value FLOW UNITS LFS INFILTRATION HORTON FLOW ROUTING DYNWAVE LINK OFFSETS ELEVATION MIN SLOPE 0 ALLOW PONDING NO SKIP STEADY_STATE NO										;Cylindrical Structure Slab Top Circular Frame SI 522_ (P-Stm) 82.182 3.323 0 FUNCTIONAL 0 0 1.13 0									
START DATE 01/01/2000 START TIME 00:00:00 REPORT START DATE 01/01/2000 REPORT START TIME 00:00:00 END DATE 01/01/2000 END TIME 06:00:00 SWEEP START 01/01 SWEEP END 12/31 DRY DAYS 0 REPORT STEP 00:01:00 WET STEP 00:01:00 DRY STEP 00:01:00 ROUTING STEP 1 RULE STEP 00:00:00										;85.18000000001676 CB200 83.18 2.3 0 TABULAR CB200 0 ;85.50000000001435 CB201 83.09 2.66 0 TABULAR CB201 0 ;85.36 CB202 82.76 2.9 0 TABULAR CB202 0 ;85.35000000000931 CB203 82.75 2.9 0 TABULAR CB203 0 ;85.3500080822731 CB204 82.75 2.75 0 TABULAR CB204 0 ;85.4500080823662 CB205 82.85 2.75 0 TABULAR CB205 0 ;85.48 CB206 82.77 2.73 0 TABULAR CB206 0 ;85.05 CB207 83.15 2.23 0 TABULAR CB207 0 ;84.9000080821652 CB208 83.3 2.04 0 TABULAR CB208 0 ;84.8 CB209 83.2 1.9 0 TABULAR CB209 0 ;85.25 CB210B 82.65 2.9 0 TABULAR CB210B 0 ;85.35 CB211 83.7 1.9 0 TABULAR CB211 0 ;85.4 CB212 83.2 2.42 0 TABULAR CB212 0 ;85.5000000000554 CB212A 83.62 2 0 TABULAR CB212A 0 ;84.75 CB213 83.15 1.75 0 TABULAR CB213 0 ;84.55 CB214 82.95 1.9 0 TABULAR CB214 0									
[EVAPORATION] ;;Data Source Parameters CONSTANT 0.0 DRY_ONLY NO										[CONDUITS] ;;Name From Node To Node Length Roughness InOffset OutOffset InitFlow MaxFlow ;C2 CB208 CB207 9.666 0.013 83.3 83.2 ;C4 CB212A CB212 18.475 0.013 83.62 83.25 ;CB211 CB212 22.346 0.013 83.7 83.25 ;CB213 522_ (P-Stm) 8.11 0.013 83.15 82.657 ;CB214 522_ (P-Stm) 21.65 0.013 82.95 82.73 ;PVC Pipes Pipe_-_ (104)_ (P-Stm)_2 518_Orifice 518A_ (P-Stm) 15.623 0.013 81.361 81.322 ;PVC Pipes Pipe_-_ (110)_ (P-Stm) 521_ (P-Stm) 518_ (P-Stm) 27.209 0.013 82.257 82.161 ;PVC Pipes Pipe_-_ (111)_ (P-Stm) 522_ (P-Stm) 521_ (P-Stm) 45.094 0.013 82.482 82.257 ;Concrete Pipes 100-D Pipe_-_ (71)_ (P-Stm) 520_ (P-Stm) 519_ (P-Stm) 57.146 0.013 82.787 82.557 ;Concrete Pipes 100-D Pipe_-_ (72)_ (P-Stm) 519_ (P-Stm) 518_ (P-Stm) 31.967 0.013 82.497 82.337									
[SUBCATCHMENTS] ;;Name Rain Gage Outlet Area %Imperv Width %Slope CurbLen SnowPack S1 3CHI002 CB208 0.0187 0.062 29.61 2.2 0 S10 3CHI002 CB204 0.0283 99.992 55.32 2.2 0 S11 3CHI002 CB202 0.1271 86.538 65.66 2.2 0 S12 3CHI002 CB213 0.0149 0.249 6.44 2.2 0 S14_1 3CHI002 CB211 0.0116 52.747 22.78 2.2 0 S14_2 3CHI002 CB212 0.0179 31.755 58.12 2.2 0 S15 3CHI002 CB210B 0.0368 26.053 108.74 2.2 0 S2 3CHI002 CB209 0.0743 63.632 33.61 2.2 0 S3 3CHI002 CB207 0.07 96.579 45.79 2.2 0 S32 3CHI002 CB214 0.052 14.28 29.7 2.2 0 S4 3CHI002 CB206 0.0467 99.946 24.67 2.2 0 S45 3CHI002 CB203 0.0222 99.962 14.32 2.2 0 S5 3CHI002 CB200 0.0873 89.949 82.96 2.2 0 S6 3CHI002 CB214 0.0239 0.002 40.3 2.2 0 S7 3CHI002 520_ (P-Stm) 0.0686 100 25.95 2.2 0 S8 3CHI002 CB201 0.0944 79.932 35.06 2.2 0 S9 3CHI002 CB205 0.0275 76.485 19.08 2.2 0										[ORIFICES] ;;Name From Node To Node Type Offset Qcoeff Gated CloseTime OR1 518_ (P-Stm) 518_Orifice SIDE 81.361 0.65 NO									
[SUBAREAS] ;;Subcatchment N-Imperv N-Perv S-Imperv S-Perv PctZero RouteTo PctRouted S1 0.013 0.25 1.57 4.67 0 OUTLET S10 0.013 0.25 1.57 4.67 0 OUTLET S11 0.013 0.25 1.57 4.67 0 OUTLET S12 0.013 0.25 1.57 4.67 0 OUTLET S14_1 0.013 0.25 1.57 4.67 0 PERVIOUS 100 S14_2 0.013 0.25 1.57 4.67 0 PERVIOUS 100 S15 0.013 0.25 1.57 4.67 0 PERVIOUS 100 S2 0.013 0.25 1.57 4.67 0 OUTLET S3 0.013 0.25 1.57 4.67 0 OUTLET S32 0.013 0.25 1.57 4.67 0 PERVIOUS 80 S4 0.013 0.25 1.57 4.67 0 OUTLET S45 0.013 0.25 1.57 4.67 0 IMPERVIOUS 100 S5 0.013 0.25 1.57 4.67 0 IMPERVIOUS 100 S6 0.013 0.25 1.57 4.67 0 OUTLET S7 0.013 0.25 1.57 4.67 0 OUTLET S8 0.013 0.25 1.57 4.67 0 IMPERVIOUS 100 S9 0.013 0.25 1.57 4.67 0 OUTLET										[WEIRS] ;;Name EndCoeff From Node To Node Type CrestHt Qcoeff Gated EndCon SurchARGE RoadWidth RoadSurf Coeff. Curve W1 0 CB208 CB209 TRANSVERSE 85.31 1.84 NO W3 0 CB210B CB202 TRANSVERSE 85.45 1.84 NO W4 0 CB202 CB204 TRANSVERSE 85.55 1.84 NO W5 0 CB206 CB207 TRANSVERSE 85.45 1.84 NO W6 0 CB201 CB200 TRANSVERSE 85.65 1.84 NO W7 0 CB200 CB209 TRANSVERSE 85.42 1.84 NO									
[INFILTRATION] ;;Subcatchment Param1 Param2 Param3 Param4 Param5 S1 76.2 13.2 4.14 7 0 S10 76.2 13.2 4.14 7 0 S11 76.2 13.2 4.14 7 0 S12 76.2 13.2 4.14 7 0 S14_1 76.2 13.2 4.14 7 0 S14_2 76.2 13.2 4.14 7 0 S15 76.2 13.2 4.14 7 0 S2 76.2 13.2 4.14 7 0 S3 76.2 13.2 4.14 7 0 S32 76.2 13.2 4.14 7 0 S4 76.2 13.2 4.14 7 0 S45 76.2 13.2 4.14 7 0 S5 76.2 13.2 4.14 7 0 S6 76.2 13.2 4.14 7 0 S7 76.2 13.2 4.14 7 0 S8 76.2 13.2 4.14 7 0 S9 76.2 13.2 4.14 7 0										[OUTLETS] ;;Name Qexpon Gated From Node To Node Offset Type QTable/Qcoeff CB200 CB200 520_ (P-Stm) 83.18 TABULAR/HEAD IPEX_Type_A ;Critical CB201 CB201 520_ (P-Stm) 83.09 TABULAR/HEAD Vortex_ICD_105 ;Critical CB202 CB202 521_ (P-Stm) 82.76 TABULAR/HEAD IPEX_Type_A NO CB203 CB203 521_ (P-Stm) 82.75 TABULAR/HEAD Vortex_ICD_70 NO CB204 CB204 522_ (P-Stm) 82.75 TABULAR/HEAD Vortex_ICD_65 NO CB205 CB205 522_ (P-Stm) 82.85 TABULAR/HEAD Vortex_ICD_65 NO CB206 CB206 522_ (P-Stm) 82.77 TABULAR/HEAD Vortex_ICD_70 NO CB207 CB207 522_ (P-Stm) 83.15 TABULAR/HEAD Vortex_ICD_95 NO CB209 CB209 520_ (P-Stm) 83.2 TABULAR/HEAD IPEX_Type_A NO CB210B CB210B 518_ (P-Stm) 82.65 TABULAR/HEAD Vortex_ICD_65 NO CB212 CB212 521_ (P-Stm) 83.2 TABULAR/HEAD Vortex_ICD_100 NO									
[JUNCTIONS] ;;Name Elevation MaxDepth InitDepth SurDepth Aponded 518_Orifice 81.361 4.106 0 0 0										[XSECTIONS] ;;Link Culvert Shape Geom1 Geom2 Geom3 Geom4 Barrels									
[OUTFALLS] ;;Name Elevation Type Stage Data Gated Route To ;Cylindrical Structure Slab Top Circular Frame SI 518A_ (P-Stm) 80.646 FIXED 81.2 NO																			
[STORAGE] ;;Name Elev. MaxDepth InitDepth Shape Curve Name/Params SurDepth Evap Psi Ksat IMD ;Cylindrical Structure Slab Top Circular Frame SI 518_ (P-Stm) 81.061 4.406 0.139 FUNCTIONAL 0 0 1.13 0 ;Cylindrical Structure Slab Top Circular Frame SI 519_ (P-Stm) 82.197 3.512 0 FUNCTIONAL 0 0 1.13 0 ;Cylindrical Structure Slab Top Circular Frame SI 520_ (P-Stm) 82.487 2.888 0 FUNCTIONAL 0 0 1.13 0 ;Cylindrical Structure Slab Top Circular Frame SI																			

										Vortex ICD 100			1.6	11.3	
										Vortex_ICD_100			1.8	12.8	
C2	CIRCULAR	0.2	0	0	0	0	1	Vortex_ICD_100			2	12.6			
C4	CIRCULAR	0.25	0	0	0	0	1	Vortex_ICD_100			2.5	14.1			
C5	CIRCULAR	0.25	0	0	0	0	1	Vortex_ICD_100			3	15.5			
CB213	CIRCULAR	0.2	0	0	0	0	1								
CB214	CIRCULAR	0.2	0	0	0	0	1								
Pipe -- (104) -- (P-Stm) 2	CIRCULAR	0.45	0	0	0	0	1	;Tempest Rating			Curve for Vortex ICD 105, No grate allowance				
Pipe -- (110) -- (P-Stm)	CIRCULAR	0.525	0	0	0	0	1	Vortex_ICD_105			Rating	0.1	3.0		
Pipe -- (111) -- (P-Stm)	CIRCULAR	0.525	0	0	0	0	1	Vortex_ICD_105			0.2	4.4			
Pipe -- (71) -- (P-Stm)	CIRCULAR	0.525	0	0	0	0	1	Vortex_ICD_105			0.3	5.4			
Pipe -- (72) -- (P-Stm)	CIRCULAR	0.525	0	0	0	0	1	Vortex_ICD_105			0.4	6.4			
ORI	CIRCULAR	0.129	0	0	0	0	1	Vortex_ICD_105			0.5	6.9			
W1	RECT_OPEN	0.03	1.5	0	0	0		Vortex_ICD_105			0.6	7.6			
W3	RECT_OPEN	0.1	1.34	0	0	0		Vortex_ICD_105			0.7	8.2			
W4	RECT_OPEN	0.11	4.9	0	0	0		Vortex_ICD_105			0.8	8.8			
W5	RECT_OPEN	0.05	4.725	0	0	0		Vortex_ICD_105			0.9	9.3			
W6	RECT_OPEN	0.1	6	0	0	0		Vortex_ICD_105			1	9.8			
W7	RECT_OPEN	0.06	10.5	0	0	0		Vortex_ICD_105			1.2	10.7			
										Vortex_ICD_105			1.4	12.6	
										Vortex_ICD_105			1.6	14.1	
										Vortex_ICD_105			1.8	15.5	
										Vortex_ICD_105			2	17	
										Vortex_ICD_105			2.5	19	
										Vortex_ICD_105			3	21	
[LOSSES]															
;;Link	Kentry	Kexit	Kavg	Flap	Gate	Seepage									
										Vortex_ICD 40, No grate allowance					
										Vortex_ICD_40			Rating	0.1	0.4
										Vortex_ICD_40			0.2	0.6	
										Vortex_ICD_40			0.3	0.7	
										Vortex_ICD_40			0.4	0.9	
										Vortex_ICD_40			0.5	1	
										Vortex_ICD_40			0.6	1.1	
										Vortex_ICD_40			0.7	1.2	
										Vortex_ICD_40			0.8	1.3	
										Vortex_ICD_40			0.9	1.4	
										Vortex_ICD_40			1	1.5	
										Vortex_ICD_40			1.2	1.6	
										Vortex_ICD_40			1.4	1.7	
										Vortex_ICD_40			1.6	1.8	
										Vortex_ICD_40			1.8	1.9	
										Vortex_ICD_40			2	2.2	
										Vortex_ICD_40			2.5	2.4	
										Vortex_ICD_40			3	2.6	
										Vortex_ICD 45, No grate allowance					
										Vortex_ICD_45			Rating	0.1	0.6
										Vortex_ICD_45			0.2	0.8	
										Vortex_ICD_45			0.3	1	
										Vortex_ICD_45			0.4	1.1	
										Vortex_ICD_45			0.5	1.3	
										Vortex_ICD_45			0.6	1.4	
										Vortex_ICD_45			0.7	1.5	
										Vortex_ICD_45			0.8	1.6	
										Vortex_ICD_45			0.9	1.7	
										Vortex_ICD_45			1	1.8	
										Vortex_ICD_45			1.2	2	
										Vortex_ICD_45			1.4	2.1	
										Vortex_ICD_45			1.6	2.3	
										Vortex_ICD_45			1.8	2.4	
										Vortex_ICD_45			2	2.6	
										Vortex_ICD_45			2.5	2.9	
										Vortex_ICD_45			3	3.1	
										Vortex_ICD 50, No grate allowance					
										Vortex_ICD_50			Rating	0.1	0.7
										Vortex_ICD_50			0.2	1	
										Vortex_ICD_50			0.3	1.2	
										Vortex_ICD_50			0.4	1.4	
										Vortex_ICD_50			0.5	1.6	
										Vortex_ICD_50			0.6	1.8	
										Vortex_ICD_50			0.7	1.9	
										Vortex_ICD_50			0.8	2.1	
										Vortex_ICD_50			0.9	2.2	
										Vortex_ICD_50			1	2.3	
										Vortex_ICD_50			1.2	2.5	
										Vortex_ICD_50			1.4	2.7	
										Vortex_ICD_50			1.6	2.9	
										Vortex_ICD_50			1.8	3	
										Vortex_ICD_50			2	3.2	
										Vortex_ICD_50			2.5	3.6	
										Vortex_ICD_50			3	3.9	
										Vortex_ICD 55, No grate allowance					
										Vortex_ICD_55			Rating	0.1	0.9
										Vortex_ICD_55			0.2	1.2	
										Vortex_ICD_55			0.3	1.5	
										Vortex_ICD_55			0.4	1.7	
										Vortex_ICD_55			0.5	1.9	
										Vortex_ICD_55			0.6	2.1	
										Vortex_ICD_55			0.7	2.3	
										Vortex_ICD_55			0.8	2.4	
										Vortex_ICD_55			0.9	2.6	
										Vortex_ICD_55			1	2.7	
										Vortex_ICD_55			1.2	3	
										Vortex_ICD_55			1.4	3.2	
										Vortex_ICD_55			1.6	3.4	
										Vortex_ICD_55			1.8	3.6	
										Vortex_ICD_55			2	3.8	
										Vortex_ICD_55			2.5	4.3	
										Vortex_ICD_55			3	4.7	
										Vortex_ICD 60, No grate allowance					
										Vortex_ICD_60			Rating	0.1	1.1
										Vortex_ICD_60			0.2	1.5	
										Vortex_ICD_60			0.3	1.8	
										Vortex_ICD_60			0.4	2.1	
										Vortex_ICD_60			0.5	2.3	
										Vortex_ICD_60			0.6	2.5	
										Vortex_ICD_60			0.7	2.7	
										Vortex_ICD_60			0.8	2.9	
										Vortex_ICD_60			0.9	3.1	
										Vortex_ICD_60			1	3.2	
										Vortex_ICD_60			1.2	3.6	
										Vortex_ICD_60			1.4	3.8	
										Vortex_ICD_60			1.6	4.1	
										Vortex_ICD_60			1.8	4.3	
										Vortex_ICD_60			2	4.6	
										Vortex_ICD_60			2.5	5.7	
										Vortex_ICD_60			3	5.6	
										Vortex_ICD 65, No grate allowance					
										Vortex_ICD_65			Rating	0.1	1.2
										Vortex_ICD_65			0.2	1.6	
										Vortex_ICD_65			0.3	2	
										Vortex_ICD_65			0.4	2.3	
										Vortex_ICD_65			0.5	2.5	
										Vortex_ICD_65			0.6	2.8	
										Vortex_ICD_65			0.7	3	
										Vortex_ICD_65			0.8	3.2	
										Vortex_ICD_65			0.9	3.4	
										Vortex_ICD_65			1	3.6	
										Vortex_ICD_65			1.2	4	
										Vortex_ICD_65			1.4	4.3	
										Vortex_ICD_65			1.6	4.6	
										Vortex_ICD_65			1.8	4.9	
										Vortex_ICD_65			2	5.1	
										Vortex_ICD_65			2.5	7	
										Vortex_ICD_65			3	6.3	
										Vortex_ICD 70, No grate allowance					
										Vortex_ICD_70			Rating	0.1	1.3

Vortex_ICD_70	0.2	1.9
Vortex_ICD_70	0.3	2.3
Vortex_ICD_70	0.4	2.7
Vortex_ICD_70	0.5	3.0
Vortex_ICD_70	0.6	3.3
Vortex_ICD_70	0.7	3.6
Vortex_ICD_70	0.8	3.8
Vortex_ICD_70	0.9	4.1
Vortex_ICD_70	1	4.3
Vortex_ICD_70	1.2	4.7
Vortex_ICD_70	1.4	5.1
Vortex_ICD_70	1.6	5.5
Vortex_ICD_70	1.8	5.8
Vortex_ICD_70	2	6.1
Vortex_ICD_70	2.5	6.8
Vortex_ICD_70	3	7.5

;Tempest Rating Curve for Vortex ICD 75, No grate allowance		
Vortex_ICD_75	Rating	0
Vortex_ICD_75	0.1	1.6
Vortex_ICD_75	0.2	2.2
Vortex_ICD_75	0.3	2.7
Vortex_ICD_75	0.4	3.2
Vortex_ICD_75	0.5	3.5
Vortex_ICD_75	0.6	3.9
Vortex_ICD_75	0.7	4.2
Vortex_ICD_75	0.8	4.5
Vortex_ICD_75	0.9	4.8
Vortex_ICD_75	1	5
Vortex_ICD_75	1.2	5.5
Vortex_ICD_75	1.4	5.9
Vortex_ICD_75	1.6	6.3
Vortex_ICD_75	1.8	6.7
Vortex_ICD_75	2	7.1
Vortex_ICD_75	2.5	7.9
Vortex_ICD_75	3	8.7

;Tempest Rating Curve for Vortex ICD 80, No grate allowance		
Vortex_ICD_80	Rating	0
Vortex_ICD_80	0.1	1.8
Vortex_ICD_80	0.2	2.6
Vortex_ICD_80	0.3	3.1
Vortex_ICD_80	0.4	3.6
Vortex_ICD_80	0.5	4
Vortex_ICD_80	0.6	4.4
Vortex_ICD_80	0.7	4.8
Vortex_ICD_80	0.8	5.1
Vortex_ICD_80	0.9	5.4
Vortex_ICD_80	1	5.7
Vortex_ICD_80	1.2	6.3
Vortex_ICD_80	1.4	6.8
Vortex_ICD_80	1.6	7.2
Vortex_ICD_80	1.8	7.7
Vortex_ICD_80	2	8.1
Vortex_ICD_80	2.5	9
Vortex_ICD_80	3	9.9

;Tempest Rating Curve for Vortex ICD 85, No grate allowance		
Vortex_ICD_85	Rating	0
Vortex_ICD_85	0.1	2
Vortex_ICD_85	0.2	2.9
Vortex_ICD_85	0.3	3.5
Vortex_ICD_85	0.4	4.1
Vortex_ICD_85	0.5	4.5
Vortex_ICD_85	0.6	5
Vortex_ICD_85	0.7	5.4
Vortex_ICD_85	0.8	5.7
Vortex_ICD_85	0.9	6.1
Vortex_ICD_85	1	6.4
Vortex_ICD_85	1.2	7
Vortex_ICD_85	1.4	7.6
Vortex_ICD_85	1.6	8.1
Vortex_ICD_85	1.8	8.6
Vortex_ICD_85	2	9.1
Vortex_ICD_85	2.5	10.1
Vortex_ICD_85	3	11.1

;Tempest Rating Curve for Vortex ICD 90, No grate allowance		
Vortex_ICD_90	Rating	0
Vortex_ICD_90	0.1	2.2
Vortex_ICD_90	0.2	3.2
Vortex_ICD_90	0.3	3.9
Vortex_ICD_90	0.4	4.5
Vortex_ICD_90	0.5	5.1
Vortex_ICD_90	0.6	5.5
Vortex_ICD_90	0.7	6
Vortex_ICD_90	0.8	6.4
Vortex_ICD_90	0.9	6.8
Vortex_ICD_90	1	7.2
Vortex_ICD_90	1.2	7.9
Vortex_ICD_90	1.4	8.5
Vortex_ICD_90	1.6	9.1
Vortex_ICD_90	1.8	9.6
Vortex_ICD_90	2	10.2
Vortex_ICD_90	2.5	11.4
Vortex_ICD_90	3	12.5

;Tempest Rating Curve for Vortex ICD 95, No grate allowance		
Vortex_ICD_95	Rating	0
Vortex_ICD_95	0.1	2.6
Vortex_ICD_95	0.2	3.6
Vortex_ICD_95	0.3	4.4
Vortex_ICD_95	0.4	5.1
Vortex_ICD_95	0.5	5.7
Vortex_ICD_95	0.6	6.2
Vortex_ICD_95	0.7	6.7
Vortex_ICD_95	0.8	7.1
Vortex_ICD_95	0.9	7.6
Vortex_ICD_95	1	8
Vortex_ICD_95	1.2	8.7
Vortex_ICD_95	1.4	9.4
Vortex_ICD_95	1.6	10.1
Vortex_ICD_95	1.8	10.7
Vortex_ICD_95	2	11.3
Vortex_ICD_95	2.5	12.6
Vortex_ICD_95	3	13.8

CB200	Storage	0	0.36
CB200		2	0.36
CB200		2.24	217.85
CB200		2.3	217.85
CB201	Storage	0	0.36
CB201		2.41	0.36
CB201		2.56	176.22
CB201		2.66	176.22
CB202	Storage	0	0.36
CB202		2.6	0.36
CB202		2.79	263.51
CB202		2.9	263.51
CB203	Storage	0	0.36
CB203		2.6	0.36
CB203		2.9	178.09
CB204	Storage	0	0.36
CB204		2.6	0.36
CB204		2.75	146.08
CB205	Storage	0	0.36
CB205		2.6	0.36
CB205		2.75	79.14
CB206	Storage	0	0.36
CB206		2.6	0.36
CB206		2.68	51
CB206		2.73	51

CB207	Storage	0	0.36
CB207		1.97	0.36
CB207		2.23	143.01
CB208	Storage	0	0.073
CB208		1.74	0.073
CB208		2.01	67.88
CB208		2.04	67.88
CB209	Storage	0	0.073
CB209		1.6	0.073
CB209		1.9	79.07
CB210B	Storage	0	0.073
CB210B		2.6	0.073
CB210B		2.9	70.98
CB211	Storage	0	0.073
CB211		1.65	0.073
CB211		1.9	21.99
CB212	Storage	0	0.36
CB212		2.2	0.36
CB212		2.42	55.12
CB212A	Storage	0	0.073
CB212A		2	0.073
CB213	Storage	0	0.073
CB213		1.6	0.073
CB213		1.75	9.05
CB214	Storage	0	0.073
CB214		1.6	0.073
CB214		1.9	34.75

[TIMESERIES]				
;Name		Date	Time	Value
;-----				
;Rainfall (mm/hr)				
3CHI002	01/01/2000	00:00:00	2.491	
3CHI002	01/01/2000	00:10:00	2.966	
3CHI002	01/01/2000	00:20:00	3.696	
3CHI002	01/01/2000	00:30:00	4.976	
3CHI002	01/01/2000	00:40:00	7.828	
3CHI002	01/01/2000	00:50:00	19.966	
3CHI002	01/01/2000	01:00:00	76.805	
3CHI002	01/01/2000	01:10:00	22.777	
3CHI002	01/01/2000	01:20:00	11.852	
3CHI002	01/01/2000	01:30:00	8.025	
3CHI002	01/01/2000	01:40:00	6.096	
3CHI002	01/01/2000	01:50:00	4.938	
3CHI002	01/01/2000	02:00:00	4.165	
3CHI002	01/01/2000	02:10:00	3.613	
3CHI002	01/01/2000	02:20:00	3.197	
3CHI002	01/01/2000	02:30:00	2.873	
3CHI002	01/01/2000	02:40:00	2.613	
3CHI002	01/01/2000	02:50:00	2.4	
3CHI002	01/01/2000	03:00:00	0	

;Rainfall (mm/hr)				
3CHI100	01/01/2000	00:00:00	5.339	
3CHI100	01/01/2000	00:10:00	6.376	
3CHI100	01/01/2000	00:20:00	7.977	
3CHI100	01/01/2000	00:30:00	10.797	
3CHI100	01/01/2000	00:40:00	17.136	
3CHI100	01/01/2000	00:50:00	45.128	
3CHI100	01/01/2000	01:00:00	178.107	
3CHI100	01/01/2000	01:10:00	51.056	
3CHI100	01/01/2000	01:20:00	26.163	
3CHI100	01/01/2000	01:30:00	17.571	
3CHI100	01/01/2000	01:40:00	13.277	
3CHI100	01/01/2000	01:50:00	10.712	
3CHI100	01/01/2000	02:00:00	9.008	
3CHI100	01/01/2000	02:10:00	7.793	
3CHI100	01/01/2000	02:20:00	6.883	
3CHI100	01/01/2000	02:30:00	6.174	
3CHI100	01/01/2000	02:40:00	5.607	
3CHI100	01/01/2000	02:50:00	5.142	
3CHI100	01/01/2000	03:00:00	0	

[REPORT]	
;Reporting Options	
INPUT	YES
CONTROLS	NO
SUBCATCHMENTS	ALL
NODES	ALL
LINKS	ALL

[TAGS]			
Node	518 Orifice	RY	Manhole
Node	CB200	RY	Manhole
Node	CB201	RY	Manhole
Node	CB202	RY	Manhole
Node	CB203	RY	Manhole
Node	CB204	RY	Manhole
Node	CB205	RY	Manhole
Node	CB206	RY	Manhole
Node	CB207	RY	Manhole
Node	CB208	RY	Manhole
Node	CB209	RY	Manhole
Node	CB210B	RY	Manhole
Node	CB211	RY	Manhole
Node	CB212	RY	Manhole
Node	CB212A	RY	Manhole
Node	CB213	RY	Manhole
Node	CB214	RY	Manhole
Link	C2	RY	Sewer
Link	C4	RY	Sewer
Link	C5	RY	Sewer

[MAP]				
DIMENSIONS	381219.0294	5032865.6782	381334.8286	5033009.9278
UNITS	Meters			

[COORDINATES]		
;Node		
;-----		
518 Orifice	381303.7	5032953.188
518A (P-Stm)	381317.029	5032955.797
518 (P-Stm)	381301.695	5032952.807
519 (P-Stm)	381278.558	5032974.866
520 (P-Stm)	381240.562	5032932.182
521 (P-Stm)	381309.324	5032926.69
522 (P-Stm)	381267.739	5032909.252
CB200	381246.119	5032946.933
CB201	381266.142	5032969.504
CB202	381305.816	5032949.229
CB203	381314.519	5032914.342
CB204	381291.187	5032921.779
CB205	381286.939	5032925.282
CB206	381270.233	5032913.017
CB207	381253.811	5032910.356
CB208	381248.314	5032902.406
CB209	381228.288	5032926.78
CB210B	381314.246	5032963.095
CB211	381319.351	5032951.771
CB212	381328.283	5032931.288
CB212A	381326.507	5032912.9
CB213	381296.875	5032912.718
CB214	381282.831	5032893.727

[VERTICES]		
;Link		
;-----		
W4	381305.808	5032934.267
W4	381304.151	5032928.843

[POLYGONS]

::Subcatchment	X-Coord	Y-Coord			
S1	381237.464	5032904.825	S10	381286.622	5032915.635
S1	381240.329	5032905.467	S10	381286.391	5032915.525
S1	381240.224	5032906.884	S10	381286.163	5032915.407
S1	381246.264	5032909.575	S10	381285.94	5032915.281
S1	381246.323	5032909.6	S10	381285.722	5032915.148
S1	381246.383	5032909.624	S10	381285.508	5032915.007
S1	381246.444	5032909.645	S10	381285.3	5032914.859
S1	381246.506	5032909.663	S10	381285.096	5032914.703
S1	381246.568	5032909.68	S10	381284.899	5032914.541
S1	381246.631	5032909.695	S10	381284.707	5032914.371
S1	381246.695	5032909.707	S10	381284.521	5032914.195
S1	381246.758	5032909.717	S10	381284.341	5032914.013
S1	381246.823	5032909.725	S10	381284.168	5032913.825
S1	381246.887	5032909.731	S10	381284.001	5032913.63
S1	381246.951	5032909.734	S10	381283.841	5032913.43
S1	381247.016	5032909.735	S10	381283.689	5032913.225
S1	381247.08	5032909.734	S10	381283.543	5032913.014
S1	381247.145	5032909.731	S10	381283.405	5032912.799
S1	381247.209	5032909.725	S10	381283.275	5032912.578
S1	381247.273	5032909.717	S10	381283.152	5032912.354
S1	381247.337	5032909.707	S10	381283.037	5032912.125
S1	381247.401	5032909.695	S10	381282.93	5032911.892
S1	381247.463	5032909.681	S10	381282.832	5032911.656
S1	381247.526	5032909.664	S10	381282.742	5032911.416
S1	381247.588	5032909.645	S10	381282.66	5032911.174
S1	381247.649	5032909.624	S10	381282.586	5032910.929
S1	381247.709	5032909.601	S10	381282.521	5032910.681
S1	381247.768	5032909.576	S10	381282.465	5032910.431
S1	381247.827	5032909.548	S10	381282.418	5032910.18
S1	381247.885	5032909.519	S10	381282.379	5032909.927
S1	381247.941	5032909.488	S10	381282.349	5032909.672
S1	381247.996	5032909.455	S10	381282.247	5032908.62
S1	381248.051	5032909.419	S11	381287.493	5032979.07
S1	381248.103	5032909.382	S11	381291.608	5032983.199
S1	381248.155	5032909.344	S11	381295.304	5032987.144
S1	381248.205	5032909.303	S11	381303.014	5032979.889
S1	381248.254	5032909.261	S11	381312.567	5032958.198
S1	381248.301	5032909.217	S11	381307.857	5032956.13
S1	381248.347	5032909.171	S11	381307.843	5032956.124
S1	381248.391	5032909.124	S11	381307.829	5032956.117
S1	381248.433	5032909.075	S11	381307.815	5032956.111
S1	381248.474	5032909.025	S11	381307.801	5032956.103
S1	381248.513	5032908.973	S11	381307.788	5032956.095
S1	381248.55	5032908.92	S11	381307.774	5032956.087
S1	381248.585	5032908.866	S11	381307.762	5032956.078
S1	381248.618	5032908.811	S11	381307.749	5032956.069
S1	381248.65	5032908.754	S11	381307.737	5032956.06
S1	381248.679	5032908.697	S11	381307.725	5032956.05
S1	381248.706	5032908.638	S11	381307.713	5032956.039
S1	381259.547	5032884.338	S11	381307.702	5032956.028
S1	381264.625	5032879.785	S11	381307.691	5032956.017
S1	381253.013	5032884.608	S11	381307.681	5032956.006
S1	381244.74	5032903.289	S11	381307.671	5032955.994
S1	381244.061	5032903.318	S11	381307.662	5032955.981
S1	381243.383	5032903.37	S11	381307.653	5032955.969
S1	381242.707	5032903.444	S11	381307.644	5032955.956
S1	381242.035	5032903.54	S11	381307.636	5032955.943
S1	381241.365	5032903.658	S11	381307.629	5032955.929
S1	381240.7	5032903.799	S11	381307.621	5032955.915
S1	381240.04	5032903.961	S11	381307.614	5032955.901
S1	381239.386	5032904.145	S11	381307.602	5032955.887
S1	381238.738	5032904.35	S11	381307.596	5032955.873
S1	381238.097	5032904.577	S11	381307.592	5032955.858
S10	381237.464	5032904.825	S11	381307.592	5032955.843
S10	381282.247	5032908.62	S11	381307.587	5032955.828
S10	381279.22	5032922.275	S11	381307.584	5032955.813
S10	381287.174	5032924.398	S11	381307.58	5032955.798
S10	381297.866	5032927.382	S11	381307.578	5032955.783
S10	381298.206	5032927.496	S11	381307.576	5032955.767
S10	381298.542	5032927.621	S11	381307.574	5032955.752
S10	381298.873	5032927.758	S11	381307.573	5032955.737
S10	381299.199	5032927.907	S11	381307.572	5032955.721
S10	381299.52	5032928.067	S11	381307.572	5032955.705
S10	381299.835	5032928.238	S11	381307.573	5032955.69
S10	381300.144	5032928.42	S11	381307.574	5032955.674
S10	381300.446	5032928.612	S11	381307.576	5032955.659
S10	381300.742	5032928.815	S11	381307.578	5032955.644
S10	381301.03	5032929.029	S11	381307.581	5032955.628
S10	381301.31	5032929.252	S11	381307.584	5032955.613
S10	381301.583	5032929.485	S11	381307.588	5032955.598
S10	381301.847	5032929.727	S11	381307.592	5032955.583
S10	381302.103	5032929.979	S11	381307.597	5032955.568
S10	381302.349	5032930.239	S11	381307.602	5032955.554
S10	381302.586	5032930.508	S11	381307.608	5032955.539
S10	381302.814	5032930.785	S11	381307.614	5032955.525
S10	381303.032	5032931.069	S11	381307.621	5032955.511
S10	381303.24	5032931.362	S11	381307.628	5032955.497
S10	381303.437	5032931.661	S11	381307.636	5032955.484
S10	381304.434	5032927.758	S11	381307.644	5032955.471
S10	381307.137	5032921.453	S11	381307.653	5032955.458
S10	381307.111	5032921.441	S11	381307.662	5032955.445
S10	381307.084	5032921.427	S11	381307.672	5032955.433
S10	381307.058	5032921.413	S11	381307.682	5032955.421
S10	381307.033	5032921.398	S11	381307.692	5032955.41
S10	381307.008	5032921.382	S11	381307.703	5032955.398
S10	381306.984	5032921.366	S11	381307.714	5032955.388
S10	381306.96	5032921.348	S11	381307.726	5032955.377
S10	381306.937	5032921.33	S11	381307.738	5032955.367
S10	381306.915	5032921.311	S11	381307.75	5032955.358
S10	381306.893	5032921.291	S11	381307.762	5032955.348
S10	381306.872	5032921.27	S11	381307.775	5032955.34
S10	381306.852	5032921.249	S11	381307.788	5032955.331
S10	381306.833	5032921.227	S11	381307.802	5032955.324
S10	381306.814	5032921.204	S11	381307.816	5032955.316
S10	381306.796	5032921.181	S11	381307.83	5032955.309
S10	381306.779	5032921.157	S11	381307.844	5032955.303
S10	381306.763	5032921.132	S11	381307.858	5032955.297
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S10	381306.73	5032921.082	S11	381307.888	5032955.287
S10	381306.719	5032921.056	S11	381307.902	5032955.283
S10	381306.706	5032921.029	S11	381307.918	5032955.279
S10	381306.695	5032921.002	S11	381307.933	5032955.276
S10	381306.684	5032920.975	S11	381307.948	5032955.271
S10	381306.674	5032920.947	S11	381307.963	5032955.269
S10	381306.665	5032920.919	S11	381307.979	5032955.268
S10	381306.657	5032920.891	S11	381308.01	5032955.268
S10	381306.65	5032920.862	S11	381308.025	5032955.267
S10	381306.644	5032920.833	S11	381308.041	5032955.266
S10	381306.639	5032920.804	S11	381308.056	5032955.269
S10	381306.635	5032920.775	S11	381308.072	5032955.271
S10	381306.632	5032920.746	S11	381308.087	5032955.273
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S10	381306.63	5032920.628	S11	381308.933	5032955.31
S10	381306.632	5032920.599	S11	381309.144	5032955.301
S10	381302.601	5032917.181	S11	381309.355	5032955.284
S10	381291.376	5032913.56	S11	381309.566	5032955.261
S10	381291.126	5032916.147	S11	381309.775	5032955.23
S10	381290.874	5032916.193	S11	381309.983	5032955.192
S10	381290.621	5032916.231	S11	381310.19	5032955.147
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S10	381289.6	5032916.294	S11	381310.8	5032954.969
S10	381289.344	5032916.287	S11	381310.998	5032954.896
S10	381289.088	5032916.271	S11	381311.194	5032954.817
S10	381288.833	5032916.247	S11	381311.388	5032954.73
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S10	381288.327	5032916.171	S11	381311.764	5032954.537
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S10	381287.827	5032916.061	S11	381312.127	5032954.319
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S10	381287.336	5032915.916	S11	381312.474	5032954.076
S10	381287.095	5032915.831	S11	381312.641	5032953.946
S10	381286.857	5032915.737	S11	381312.803	5032953.81
			S11	381312.961	5032953.669
			S11	381313.114	5032953.522
			S11	381313.261	5032953.371

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S11	381313.54	5032953.052	S11	381307.033	5032921.398
S11	381313.671	5032952.886	S11	381307.058	5032921.413
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S11	381313.916	5032952.54	S11	381307.111	5032921.441
S11	381314.029	5032952.362	S11	381307.137	5032921.453
S11	381314.136	5032952.179	S11	381304.434	5032927.758
S11	381314.237	5032951.993	S11	381303.437	5032931.661
S11	381314.331	5032951.803	S11	381299.932	5032934.777
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S11	381312.262	5032944.556	S11	381291.953	5032941.245
S11	381315.128	5032937.954	S11	381287.876	5032944.882
S11	381317.996	5032931.347	S11	381294.345	5032952.211
S11	381318.388	5032931.518	S11	381285.292	5032960.286
S11	381320.605	5032926.434	S11	381286.244	5032968.414
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S11	381320.763	5032926.062	S11	381287.493	5032979.07
S11	381320.832	5032925.872	S12	381323.653	5032914.693
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S11	381320.951	5032925.486	S12	381316.177	5032907.046
S11	381321.001	5032925.29	S12	381287.051	5032914.024
S11	381321.043	5032925.092	S12	381286.59	5032915.621
S11	381321.079	5032924.893	S12	381286.826	5032915.724
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S11	381321.154	5032923.887	S12	381288.053	5032916.115
S11	381321.149	5032923.685	S12	381288.306	5032916.167
S11	381321.136	5032923.483	S12	381288.56	5032916.211
S11	381321.116	5032923.282	S12	381288.815	5032916.245
S11	381321.089	5032923.082	S12	381289.072	5032916.27
S11	381321.056	5032922.882	S12	381289.329	5032916.286
S11	381321.016	5032922.684	S12	381289.587	5032916.293
S11	381320.968	5032922.488	S12	381289.845	5032916.295
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S11	381320.787	5032921.909	S12	381290.615	5032916.232
S11	381320.713	5032921.721	S12	381290.87	5032916.194
S11	381320.633	5032921.536	S12	381291.124	5032916.147
S11	381320.546	5032921.353	S12	381291.376	5032916.092
S11	381320.453	5032921.174	S12	381301.944	5032913.56
S11	381320.354	5032920.997	S12	381312.521	5032911.026
S11	381320.249	5032920.825	S12	381312.897	5032910.942
S11	381320.138	5032920.656	S12	381313.277	5032910.872
S11	381320.022	5032920.491	S12	381313.658	5032910.815
S11	381319.899	5032920.33	S12	381314.041	5032910.771
S11	381319.772	5032920.173	S12	381314.426	5032910.74
S11	381319.639	5032920.021	S12	381314.811	5032910.723
S11	381319.5	5032919.873	S12	381315.196	5032910.719
S11	381319.357	5032919.731	S12	381315.582	5032910.728
S11	381319.209	5032919.593	S12	381315.967	5032910.751
S11	381319.056	5032919.461	S12	381316.351	5032910.787
S11	381318.899	5032919.334	S12	381316.733	5032910.836
S11	381318.738	5032919.212	S12	381317.114	5032910.899
S11	381318.572	5032919.096	S12	381317.492	5032910.974
S11	381318.403	5032918.986	S12	381317.867	5032911.063
S11	381318.23	5032918.882	S12	381318.239	5032911.164
S11	381318.063	5032918.784	S12	381318.608	5032911.279
S11	381317.873	5032918.692	S12	381318.972	5032911.406
S11	381317.69	5032918.606	S12	381319.331	5032911.545
S11	381317.504	5032918.526	S12	381319.686	5032911.697
S11	381317.316	5032918.454	S12	381320.035	5032911.861
S11	381317.125	5032918.387	S12	381320.378	5032911.037
S11	381316.932	5032918.327	S12	381320.715	5032912.225
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S11	381316.54	5032918.228	S12	381321.368	5032912.635
S11	381316.342	5032918.188	S12	381321.684	5032912.858
S11	381316.142	5032918.156	S12	381321.992	5032913.089
S11	381315.942	5032918.13	S12	381322.291	5032913.332
S11	381315.741	5032918.111	S12	381322.587	5032913.585
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S11	381314.731	5032918.121	S14_1	381325.114	5032944.291
S11	381314.531	5032918.144	S14_1	381325.119	5032942.291
S11	381314.331	5032918.174	S14_1	381315.128	5032937.954
S11	381314.132	5032918.21	S14_1	381312.262	5032944.556
S11	381313.935	5032918.254	S14_1	381316.645	5032946.455
S11	381307.281	5032919.848	S14_1	381316.055	5032947.841
S11	381307.252	5032919.855	S14_1	381314.418	5032951.61
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S11	381307.196	5032919.873	S14_2	381314.236	5032951.99
S11	381307.169	5032919.883	S14_2	381314.136	5032952.179
S11	381307.142	5032919.895	S14_2	381314.029	5032952.362
S11	381307.115	5032919.907	S14_2	381313.915	5032952.541
S11	381307.088	5032919.92	S14_2	381313.796	5032952.715
S11	381307.062	5032919.934	S14_2	381313.67	5032952.887
S11	381307.037	5032919.949	S14_2	381313.539	5032953.053
S11	381307.012	5032919.964	S14_2	381315.106	5032952.425
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S11	381306.964	5032919.998	S14_2	381325.118	5032942.295
S11	381306.941	5032920.017	S14_2	381315.128	5032937.954
S11	381306.919	5032920.036	S14_2	381325.119	5032942.291
S11	381306.897	5032920.055	S14_2	381329.565	5032932.118
S11	381306.876	5032920.076	S14_2	381326.899	5032904.508
S11	381306.855	5032920.097	S14_2	381323.653	5032914.693
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S11	381306.765	5032920.213	S14_2	381324.763	5032916.27
S11	381306.75	5032920.238	S14_2	381324.951	5032916.607
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S11	381306.708	5032920.316	S14_2	381325.443	5032917.655
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S11	381306.651	5032920.483	S14_2	381326.089	5032919.876
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S11	381306.635	5032920.57	S14_2	381326.236	5032921.024
S11	381306.632	5032920.599	S14_2	381326.258	5032921.41
S11	381306.63	5032920.628	S14_2	381326.267	5032921.796
S11	381306.629	5032920.658	S14_2	381326.262	5032922.182
S11	381306.629	5032920.687	S14_2	381326.244	5032922.567
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S11	381306.635	5032920.775	S14_2	381326.11	5032923.717
S11	381306.639	5032920.804	S14_2	381326.039	5032924.097
S11	381306.644	5032920.833	S14_2	381325.955	5032924.474
S11	381306.65	5032920.862	S14_2	381325.857	5032924.847
S11	381306.657	5032920.891	S14_2	381325.747	5032925.217
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S11	381306.674	5032920.947	S14_2	381325.488	5032925.947
S11	381306.684	5032920.975	S14_2	381325.34	5032926.301
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S11	381306.733	5032921.082	S15	381285.409	5033003.364
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S11	381306.779	5032921.157	S15	381319.796	5032954.473
S11	381306.796	5032921.181	S15	381315.106	5032952.425
S11	381306.814	5032921.204	S15	381313.539	5032953.053
S11	381306.833	5032921.227	S15	381313.403	5032953.214
S11	381306.852	5032921.249	S15	381313.26	5032953.371
S11	381306.872	5032921.27	S15	381313.113	5032953.523
S11	381306.893	5032921.291	S15	381312.96	5032953.67
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S15	381312.127	5032954.319	S2	381236.796	5032905.109
S15	381311.947	5032954.432	S2	381236.138	5032905.416
S15	381311.764	5032954.538	S2	381235.492	5032905.745
S15	381311.577	5032954.637	S2	381234.957	5032906.097
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S15	381311.194	5032954.817	S2	381233.625	5032906.864
S15	381310.998	5032954.897	S2	381233.029	5032907.279
S15	381310.799	5032954.97	S2	381232.448	5032907.714
S15	381310.598	5032955.036	S2	381231.883	5032908.169
S15	381310.395	5032955.095	S2	381231.333	5032908.643
S15	381310.19	5032955.147	S2	381230.801	5032909.136
S15	381309.983	5032955.192	S2	381230.285	5032909.647
S15	381309.775	5032955.23	S2	381229.787	5032910.175
S15	381309.565	5032955.261	S2	381229.308	5032910.72
S15	381309.355	5032955.284	S2	381228.848	5032911.281
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S15	381308.933	5032955.31	S2	381227.986	5032912.449
S15	381308.721	5032955.311	S2	381227.586	5032913.055
S15	381308.509	5032955.306	S2	381227.207	5032913.674
S15	381308.298	5032955.293	S2	381226.85	5032914.306
S15	381308.087	5032955.273	S2	381226.515	5032914.949
S15	381308.072	5032955.271	S2	381226.201	5032915.604
S15	381308.056	5032955.269	S2	381225.911	5032916.269
S15	381308.041	5032955.268	S2	381225.644	5032916.944
S15	381308.025	5032955.267	S2	381225.399	5032917.627
S15	381308.01	5032955.268	S2	381225.179	5032918.319
S15	381307.994	5032955.268	S2	381224.983	5032919.018
S15	381307.979	5032955.269	S2	381224.81	5032919.723
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S15	381307.933	5032955.276	S2	381224.44	5032921.867
S15	381307.918	5032955.279	S2	381224.366	5032922.589
S15	381307.902	5032955.283	S2	381224.317	5032923.311
S15	381307.888	5032955.287	S2	381224.293	5032924.039
S15	381307.873	5032955.292	S2	381224.294	5032924.765
S15	381307.858	5032955.297	S2	381224.319	5032925.49
S15	381307.844	5032955.303	S2	381224.37	5032926.214
S15	381307.83	5032955.309	S2	381224.445	5032926.936
S15	381307.816	5032955.316	S2	381224.546	5032927.655
S15	381307.802	5032955.324	S2	381224.671	5032928.369
S15	381307.788	5032955.331	S2	381224.82	5032929.08
S15	381307.775	5032955.34	S2	381224.994	5032929.784
S15	381307.762	5032955.348	S2	381225.192	5032930.483
S15	381307.75	5032955.358	S2	381225.414	5032931.174
S15	381307.738	5032955.367	S2	381225.659	5032931.857
S15	381307.726	5032955.377	S2	381225.928	5032932.531
S15	381307.714	5032955.388	S2	381226.22	5032933.195
S15	381307.703	5032955.398	S2	381226.535	5032933.849
S15	381307.692	5032955.41	S2	381226.871	5032934.492
S15	381307.682	5032955.421	S2	381227.23	5032935.123
S15	381307.672	5032955.433	S2	381227.61	5032935.741
S15	381307.662	5032955.445	S2	381228.012	5032936.346
S15	381307.653	5032955.458	S2	381228.434	5032936.937
S15	381307.644	5032955.471	S2	381228.875	5032937.512
S15	381307.636	5032955.484	S2	381229.337	5032938.073
S15	381307.628	5032955.497	S2	381228.728	5032939.841
S15	381307.621	5032955.511	S2	381229.574	5032940.308
S15	381307.614	5032955.525	S3	381247.333	5032941.893
S15	381307.608	5032955.539	S3	381253.342	5032918.873
S15	381307.602	5032955.554	S3	381261.463	5032927.977
S15	381307.597	5032955.568	S3	381270.066	5032920.314
S15	381307.592	5032955.583	S3	381266.009	5032915.759
S15	381307.588	5032955.598	S3	381263.137	5032909.615
S15	381307.584	5032955.613	S3	381262.174	5032905.929
S15	381307.581	5032955.628	S3	381267.671	5032893.471
S15	381307.578	5032955.644	S3	381273.26	5032899.25
S15	381307.576	5032955.659	S3	381277.713	5032887.77
S15	381307.574	5032955.674	S3	381273.216	5032876.217
S15	381307.573	5032955.69	S3	381264.625	5032879.785
S15	381307.572	5032955.705	S3	381259.547	5032888.338
S15	381307.572	5032955.721	S3	381248.706	5032908.638
S15	381307.573	5032955.737	S3	381248.679	5032908.697
S15	381307.574	5032955.752	S3	381248.65	5032908.754
S15	381307.576	5032955.767	S3	381248.618	5032909.81
S15	381307.578	5032955.783	S3	381248.585	5032908.866
S15	381307.58	5032955.798	S3	381248.55	5032908.92
S15	381307.584	5032955.813	S3	381248.513	5032908.973
S15	381307.587	5032955.828	S3	381248.474	5032909.026
S15	381307.592	5032955.843	S3	381248.433	5032909.075
S15	381307.596	5032955.858	S3	381248.391	5032909.124
S15	381307.602	5032955.873	S3	381248.347	5032909.171
S15	381307.608	5032955.887	S3	381248.301	5032909.218
S15	381307.614	5032955.901	S3	381248.254	5032909.261
S15	381307.621	5032955.915	S3	381248.205	5032909.303
S15	381307.628	5032955.929	S3	381248.155	5032909.344
S15	381307.636	5032955.943	S3	381248.104	5032909.382
S15	381307.644	5032955.956	S3	381248.051	5032909.42
S15	381307.653	5032955.969	S3	381247.996	5032909.455
S15	381307.662	5032955.981	S3	381247.941	5032909.488
S15	381307.671	5032955.994	S3	381247.885	5032909.519
S15	381307.681	5032956.006	S3	381247.827	5032909.549
S15	381307.691	5032956.017	S3	381247.769	5032909.576
S15	381307.702	5032956.028	S3	381247.709	5032909.601
S15	381307.713	5032956.039	S3	381247.649	5032909.624
S15	381307.725	5032956.05	S3	381247.588	5032909.645
S15	381307.737	5032956.06	S3	381247.526	5032909.664
S15	381307.749	5032956.069	S3	381247.464	5032909.681
S15	381307.762	5032956.078	S3	381247.401	5032909.695
S15	381307.774	5032956.087	S3	381247.337	5032909.707
S15	381307.788	5032956.095	S3	381247.273	5032909.718
S15	381307.801	5032956.103	S3	381247.209	5032909.725
S15	381307.815	5032956.111	S3	381247.145	5032909.731
S15	381307.829	5032956.117	S3	381247.081	5032909.734
S15	381307.843	5032956.124	S3	381247.016	5032909.735
S15	381307.857	5032956.13	S3	381246.951	5032909.734
S15	381312.567	5032958.198	S3	381246.887	5032909.731
S15	381303.014	5032979.889	S3	381246.823	5032909.725
S15	381295.304	5032987.144	S3	381246.758	5032909.717
S15	381292.551	5032987.117	S3	381246.695	5032909.707
S15	381287.784	5032991.636	S3	381246.631	5032909.695
S15	381282.905	5032994.561	S3	381246.568	5032909.68
S15	381281.494	5032995.818	S3	381246.506	5032909.664
S15	381279.321	5032994.458	S3	381246.444	5032909.645
S15	381277.296	5032994.483	S3	381246.383	5032909.624
S15	381285.409	5033003.364	S3	381246.323	5032909.6
S2	381229.574	5032940.908	S3	381246.264	5032909.575
S2	381231.494	5032939.439	S3	381240.224	5032906.884
S2	381235.664	5032935.737	S3	381247.333	5032914.893
S2	381235.698	5032935.707	S32	381316.177	5032907.046
S2	381235.73	5032935.676	S32	381314.837	5032892.442
S2	381235.761	5032935.643	S32	381302.448	5032892.682
S2	381235.791	5032935.61	S32	381285.059	5032894.459
S2	381235.82	5032935.576	S32	381287.051	5032914.024
S2	381235.847	5032935.54	S32	381316.177	5032907.046
S2	381235.874	5032935.504	S4	381277.713	5032887.77
S2	381235.899	5032935.467	S4	381273.26	5032892.25
S2	381235.923	5032935.429	S4	381267.671	5032893.471
S2	381235.945	5032935.39	S4	381262.174	5032905.929
S2	381235.966	5032935.35	S4	381263.137	5032909.615
S2	381235.986	5032935.31	S4	381266.009	5032915.759
S2	381236.004	5032935.269	S4	381270.066	5032920.314
S2	381236.021	5032935.227	S4	381279.22	5032922.275
S2	381236.036	5032935.185	S4	381282.247	5032908.62
S2	381236.05	5032935.142	S4	381281.421	5032900.349
S2	381236.063	5032935.099	S4	381281.302	5032899.332
S2	381236.074	5032935.056	S4	381281.148	5032898.318
S2	381236.083	5032935.012	S4	381280.961	5032897.311
S2	381236.091	5032934.968	S4	381280.739	5032896.311
S2	381236.097	5032934.923	S4	381280.483	5032895.319
S2	381236.102	5032934.879	S4	381280.194	5032894.336
S2	381241.879	5032933.622	S4	381279.871	5032893.363
S2	381248.763	5032931.065	S4	381279.516	5032892.402
S2	381252.847	5032935.651	S4	381277.713	5032887.77
S2	381261.463	5032927.977	S45	381318.388	5032931.518
S2	381253.342	5032918.873	S45	381322.339	5032933.237
S2	381247.333	5032914.893	S45	381325.34	5032926.301
S2	381240.224	5032906.884	S45	381325.488	5032925.945
S2	381240.329	5032905.467	S45	381325.624	5032925.583
S2	381237.464	5032904.825	S45	381325.747	5032925.217

S45	381325.857	5032924.847	S45	381321.116	5032923.282
S45	381325.955	5032924.474	S45	381321.136	5032923.483
S45	381326.039	5032924.097	S45	381321.149	5032923.685
S45	381326.11	5032923.717	S45	381321.154	5032923.887
S45	381326.168	5032923.336	S45	381321.153	5032924.089
S45	381326.213	5032922.952	S45	381321.145	5032924.291
S45	381326.244	5032922.567	S45	381321.13	5032924.492
S45	381326.262	5032922.182	S45	381321.108	5032924.693
S45	381326.267	5032921.796	S45	381321.079	5032924.893
S45	381326.258	5032921.41	S45	381321.043	5032925.092
S45	381326.236	5032921.024	S45	381321.001	5032925.29
S45	381326.2	5032920.64	S45	381320.951	5032925.486
S45	381326.152	5032920.257	S45	381320.895	5032925.68
S45	381326.089	5032919.876	S45	381320.832	5032925.872
S45	381326.014	5032919.497	S45	381320.763	5032926.062
S45	381325.926	5032919.121	S45	381320.687	5032926.249
S45	381325.824	5032918.749	S45	381320.605	5032926.434
S45	381325.71	5032918.38	S45	381318.388	5032931.518
S45	381325.583	5032918.015	S5	381273.896	5032926.903
S45	381325.443	5032917.655	S5	381270.066	5032920.314
S45	381325.291	5032917.3	S5	381260.944	5032928.409
S45	381325.127	5032916.951	S5	381252.847	5032935.651
S45	381324.951	5032916.607	S5	381248.763	5032931.065
S45	381324.763	5032916.27	S5	381241.879	5032933.622
S45	381324.563	5032915.94	S5	381236.102	5032934.879
S45	381324.352	5032915.617	S5	381236.097	5032934.923
S45	381324.13	5032915.301	S5	381236.091	5032934.968
S45	381323.897	5032914.993	S5	381236.083	5032935.012
S45	381323.653	5032914.693	S5	381236.074	5032935.058
S45	381323.4	5032914.402	S5	381236.063	5032935.099
S45	381323.137	5032914.121	S5	381236.05	5032935.142
S45	381322.864	5032913.848	S5	381236.036	5032935.185
S45	381322.582	5032913.585	S5	381236.021	5032935.227
S45	381322.291	5032913.332	S5	381236.004	5032935.269
S45	381321.992	5032913.089	S5	381235.986	5032935.31
S45	381321.684	5032912.856	S5	381235.966	5032935.35
S45	381321.368	5032912.635	S5	381235.945	5032935.39
S45	381321.045	5032912.424	S5	381235.923	5032935.429
S45	381320.715	5032912.225	S5	381235.899	5032935.467
S45	381320.378	5032912.037	S5	381235.874	5032935.504
S45	381320.035	5032911.861	S5	381235.847	5032935.54
S45	381319.686	5032911.697	S5	381235.82	5032935.576
S45	381319.331	5032911.545	S5	381235.791	5032935.61
S45	381318.972	5032911.406	S5	381235.761	5032935.643
S45	381318.608	5032911.279	S5	381235.73	5032935.676
S45	381318.239	5032911.164	S5	381235.698	5032935.707
S45	381317.867	5032911.063	S5	381235.664	5032935.737
S45	381317.492	5032910.974	S5	381231.494	5032939.439
S45	381317.114	5032910.899	S5	381229.574	5032940.908
S45	381316.733	5032910.836	S5	381237.652	5032951.091
S45	381316.351	5032910.787	S5	381247.43	5032961.793
S45	381315.967	5032910.751	S5	381253.986	5032955.803
S45	381315.582	5032910.728	S5	381260.454	5032950.066
S45	381315.196	5032910.719	S5	381267.957	5032943.374
S45	381314.811	5032910.723	S5	381266.93	5032942.221
S45	381314.426	5032910.74	S5	381278.399	5032931.986
S45	381314.041	5032910.771	S5	381277.469	5032930.913
S45	381313.658	5032910.815	S5	381273.896	5032926.903
S45	381313.277	5032910.872	S6	381286.59	5032915.621
S45	381312.897	5032910.942	S6	381287.051	5032914.024
S45	381312.521	5032911.026	S6	381283.538	5032879.502
S45	381301.944	5032911.56	S6	381282.807	5032876.236
S45	381302.601	5032917.181	S6	381273.216	5032876.217
S45	381306.632	5032920.599	S6	381277.713	5032887.77
S45	381306.635	5032920.57	S6	381279.516	5032892.402
S45	381306.64	5032920.54	S6	381279.871	5032893.363
S45	381306.645	5032920.511	S6	381280.194	5032894.336
S45	381306.651	5032920.483	S6	381280.483	5032895.319
S45	381306.658	5032920.454	S6	381280.739	5032896.311
S45	381306.666	5032920.426	S6	381280.961	5032899.311
S45	381306.675	5032920.398	S6	381281.148	5032898.318
S45	381306.685	5032920.37	S6	381281.302	5032899.332
S45	381306.696	5032920.343	S6	381281.421	5032900.349
S45	381306.708	5032920.316	S6	381282.247	5032901.62
S45	381306.721	5032920.29	S6	381282.349	5032909.672
S45	381306.735	5032920.264	S6	381282.379	5032909.926
S45	381306.75	5032920.238	S6	381282.417	5032910.177
S45	381306.765	5032920.213	S6	381282.465	5032910.428
S45	381306.782	5032920.189	S6	381282.52	5032910.677
S45	381306.799	5032920.165	S6	381282.585	5032910.923
S45	381306.817	5032920.142	S6	381282.658	5032911.167
S45	381306.836	5032920.119	S6	381282.739	5032911.407
S45	381306.855	5032920.097	S6	381282.828	5032911.647
S45	381306.876	5032920.076	S6	381282.926	5032911.883
S45	381306.897	5032920.055	S6	381283.032	5032912.114
S45	381306.919	5032920.036	S6	381283.146	5032912.342
S45	381306.941	5032920.017	S6	381283.268	5032912.566
S45	381306.964	5032919.998	S6	381283.397	5032912.786
S45	381306.988	5032919.981	S6	381283.534	5032913.001
S45	381307.012	5032919.964	S6	381283.679	5032913.211
S45	381307.037	5032919.949	S6	381283.83	5032913.416
S45	381307.062	5032919.934	S6	381283.989	5032913.615
S45	381307.088	5032919.92	S6	381284.154	5032913.809
S45	381307.115	5032919.907	S6	381284.326	5032913.997
S45	381307.142	5032919.895	S6	381284.504	5032914.179
S45	381307.169	5032919.883	S6	381284.689	5032914.355
S45	381307.196	5032919.873	S6	381284.879	5032914.524
S45	381307.224	5032919.864	S6	381285.076	5032914.687
S45	381307.252	5032919.855	S6	381285.278	5032914.842
S45	381307.281	5032919.848	S6	381285.485	5032914.991
S45	381313.935	5032918.254	S6	381285.697	5032915.132
S45	381314.132	5032918.21	S6	381285.914	5032915.266
S45	381314.331	5032918.174	S6	381286.135	5032915.392
S45	381314.531	5032918.144	S6	381286.361	5032915.51
S45	381314.731	5032918.121	S6	381286.59	5032915.621
S45	381314.933	5032918.105	S6	381260.454	5032950.066
S45	381315.135	5032918.096	S7	381276.524	5032968.107
S45	381315.337	5032918.094	S7	381294.345	5032952.211
S45	381315.539	5032918.099	S7	381287.876	5032944.882
S45	381315.741	5032918.111	S7	381291.953	5032941.245
S45	381315.942	5032918.13	S7	381283.347	5032929.353
S45	381316.142	5032918.156	S7	381266.93	5032942.221
S45	381316.342	5032918.188	S7	381267.957	5032943.374
S45	381316.54	5032918.228	S7	381260.454	5032950.066
S45	381316.737	5032918.274	S8	381260.454	5032950.066
S45	381316.932	5032918.327	S8	381253.986	5032955.803
S45	381317.125	5032918.387	S8	381247.43	5032961.793
S45	381317.316	5032918.454	S8	381277.296	5032994.483
S45	381317.504	5032918.526	S8	381279.321	5032994.458
S45	381317.69	5032918.606	S8	381281.494	5032995.818
S45	381317.873	5032918.692	S8	381282.905	5032994.561
S45	381318.053	5032918.784	S8	381287.784	5032991.636
S45	381318.23	5032918.882	S8	381292.551	5032987.117
S45	381318.403	5032918.986	S8	381295.304	5032987.144
S45	381318.572	5032919.096	S8	381291.608	5032983.199
S45	381318.738	5032919.212	S8	381287.493	5032979.07
S45	381318.899	5032919.334	S8	381285.292	5032960.286
S45	381319.056	5032919.461	S8	381276.524	5032968.107
S45	381319.209	5032919.593	S8	381260.454	5032950.066
S45	381319.357	5032919.731	S9	381290.74	5032939.886
S45	381319.5	5032919.873	S9	381293.269	5032937.63
S45	381319.639	5032920.021	S9	381296.614	5032936.126
S45	381319.772	5032920.173	S9	381299.932	5032934.777
S45	381319.899	5032920.33	S9	381303.437	5032931.661
S45	381320.022	5032920.491	S9	381303.24	5032931.362
S45	381320.138	5032920.656	S9	381303.032	5032931.069
S45	381320.249	5032920.825	S9	381302.814	5032930.785
S45	381320.354	5032920.997	S9	381302.586	5032930.508
S45	381320.453	5032921.174	S9	381302.349	5032930.239
S45	381320.546	5032921.353	S9	381302.103	5032929.979
S45	381320.633	5032921.536	S9	381301.847	5032929.727
S45	381320.713	5032921.721	S9	381301.583	5032929.485
S45	381320.787	5032921.909	S9	381301.31	5032929.252
S45	381320.854	5032922.1	S9	381301.03	5032929.029
S45	381320.914	5032922.293	S9	381300.742	5032928.815
S45	381320.968	5032922.488	S9	381300.446	5032928.612
S45	381321.016	5032922.684	S9	381300.144	5032928.42
S45	381321.056	5032922.882	S9	381299.835	5032928.238
S45	381321.089	5032923.082	S9	381299.52	5032928.067

S9	381299.199	5032927.907
S9	381298.873	5032927.758
S9	381298.542	5032927.621
S9	381298.206	5032927.496
S9	381297.866	5032927.382
S9	381287.164	5032924.395
S9	381279.22	5032922.275
S9	381270.066	5032920.314
S9	381273.896	5032926.903
S9	381277.469	5032930.913
S9	381278.399	5032931.986
S9	381281.347	5032929.355
S9	381290.74	5032939.886

;;Storage Node X-Coord Y-Coord
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[SYMBOLS]
;;Gage X-Coord Y-Coord
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EPA STORM WATER MANAGEMENT MODEL - VERSION 5.2 (Build 5.2.4)

Element Count

Number of rain gages 2
Number of subcatchments ... 17
Number of nodes 23
Number of links 28
Number of pollutants 0
Number of land uses 0

Raingage Summary

Name	Data Source	Data Type	Recording Interval
3CHI002	3CHI002	INTENSITY	10 min.
3CHI100	3CHI100	INTENSITY	10 min.

Subcatchment Summary

Name	Area	Width	%Imperv	%Slope	Rain Gage	Outlet
S1	0.02	29.61	0.06	2.2000	3CHI002	CB208
S10	0.03	55.32	99.99	2.2000	3CHI002	CB204
S11	0.13	65.66	86.54	2.2000	3CHI002	CB202
S12	0.01	6.44	0.25	2.2000	3CHI002	CB213
S14_1	0.01	22.78	52.75	2.2000	3CHI002	CB211
S14_2	0.02	58.12	31.75	2.2000	3CHI002	CB212
S15	0.04	108.74	26.05	2.2000	3CHI002	CB210B
S2	0.07	39.61	63.63	2.2000	3CHI002	CB209
S3	0.07	45.79	96.58	2.2000	3CHI002	CB207
S32	0.05	29.70	14.28	2.2000	3CHI002	CB214
S4	0.05	24.67	99.95	2.2000	3CHI002	CB206
S45	0.02	14.32	99.95	2.2000	3CHI002	CB203
S5	0.09	82.96	89.95	2.2000	3CHI002	CB200
S6	0.02	40.30	0.00	2.2000	3CHI002	CB214
S7	0.07	25.95	100.00	2.2000	3CHI002	520_ (P- Stm)
S8	0.09	35.06	79.93	2.2000	3CHI002	CB201
S9	0.03	19.08	76.48	2.2000	3CHI002	CB205

Node Summary

Name	Type	Invert Elev.	Max. Depth	Ponded Area	External Inflow
518 Orifice	JUNCTION	81.36	4.11	0.0	
518A_ (P-Stm)	OUTFALL	80.65	1.13	0.0	
518_ (P-Stm)	STORAGE	81.06	4.41	0.0	
519_ (P-Stm)	STORAGE	82.20	3.51	0.0	
520_ (P-Stm)	STORAGE	82.49	2.89	0.0	
521_ (P-Stm)	STORAGE	81.96	3.67	0.0	
522_ (P-Stm)	STORAGE	82.18	3.32	0.0	
CB200	STORAGE	83.18	2.30	0.0	
CB201	STORAGE	83.09	2.66	0.0	
CB202	STORAGE	82.76	2.90	0.0	
CB203	STORAGE	82.75	2.90	0.0	
CB204	STORAGE	82.75	2.75	0.0	
CB205	STORAGE	82.85	2.75	0.0	
CB206	STORAGE	82.77	2.73	0.0	
CB207	STORAGE	83.15	2.23	0.0	
CB208	STORAGE	83.30	2.04	0.0	
CB209	STORAGE	83.20	1.90	0.0	
CB210B	STORAGE	82.65	2.90	0.0	
CB211	STORAGE	83.70	1.90	0.0	
CB212	STORAGE	83.20	2.42	0.0	
CB212A	STORAGE	83.62	2.00	0.0	
CB213	STORAGE	83.15	1.75	0.0	
CB214	STORAGE	82.95	1.90	0.0	

Link Summary

Name	From Node	To Node	Type	Length	%Slope
Roughness					
-					
C2	CB208	CB207	CONDUIT	9.7	1.0346
0.0130	CB212A	CB212	CONDUIT	18.5	2.0031
C4	CB211	CB212	CONDUIT	22.3	2.0142
0.0130	CB213	522_ (P-Stm)	CONDUIT	8.1	6.0902
0.0130	CB214	522_ (P-Stm)	CONDUIT	21.6	1.0162
0.0130	Pipe_-_ (104)_ (P-Stm)_2	518 Orifice	CONDUIT	15.6	0.2496
0.0130	Pipe_-_ (110)_ (P-Stm)	521_ (P-Stm)	CONDUIT	27.2	0.3528
0.0130	Pipe_-_ (111)_ (P-Stm)	521_ (P-Stm)	CONDUIT	45.1	0.4990
0.0130	Pipe_-_ (71)_ (P-Stm)	519_ (P-Stm)	CONDUIT	57.1	0.4025
0.0130	Pipe_-_ (72)_ (P-Stm)	518_ (P-Stm)	CONDUIT	32.0	0.5005
0.0130	OR1	518 Orifice	ORIFICE		
W1	CB208	CB209	WEIR		
W3	CB210B	CB202	WEIR		
W4	CB202	CB204	WEIR		
W5	CB206	CB207	WEIR		
W6	CB201	CB200	WEIR		
W7	CB200	CB209	WEIR		
CB200	CB200	520_ (P-Stm)	OUTLET		
CB201	CB201	520_ (P-Stm)	OUTLET		
CB202	CB202	521_ (P-Stm)	OUTLET		
CB203	CB203	521_ (P-Stm)	OUTLET		
CB204	CB204	522_ (P-Stm)	OUTLET		
CB205	CB205	522_ (P-Stm)	OUTLET		
CB206	CB206	522_ (P-Stm)	OUTLET		
CB207	CB207	522_ (P-Stm)	OUTLET		
CB209	CB209	520_ (P-Stm)	OUTLET		
CB210B	CB210B	518_ (P-Stm)	OUTLET		
CB212	CB212	521_ (P-Stm)	OUTLET		

Cross Section Summary

Conduit	Shape	Full Depth	Full Area	Hyd. Rad.	Max. Width	No. of Barrels	Full Flow
C2	CIRCULAR	0.20	0.03	0.05	0.20	1	33.36
C4	CIRCULAR	0.25	0.05	0.06	0.25	1	84.17
C5	CIRCULAR	0.25	0.05	0.06	0.25	1	84.40
CB213	CIRCULAR	0.20	0.03	0.05	0.20	1	80.95
CB214	CIRCULAR	0.20	0.03	0.05	0.20	1	33.07
Pipe_-_ (104)_ (P-Stm)_2	CIRCULAR	0.45	0.16	0.11	0.45	1	142.46
Pipe_-_ (110)_ (P-Stm)	CIRCULAR	0.53	0.22	0.13	0.53	1	255.47
Pipe_-_ (111)_ (P-Stm)	CIRCULAR	0.53	0.22	0.13	0.53	1	303.80
Pipe_-_ (71)_ (P-Stm)	CIRCULAR	0.53	0.22	0.13	0.53	1	272.85
Pipe_-_ (72)_ (P-Stm)	CIRCULAR	0.53	0.22	0.13	0.53	1	304.28

Analysis Options								

Flow Units LPS								
Process Models:								
Rainfall/Runoff YES								
RDII NO								
Snowmelt NO								
Groundwater NO								
Flow Routing YES								
Ponding Allowed NO								
Water Quality NO								
Infiltration Method HORTON								
Flow Routing Method DYNWAVE								
Surcharge Method EXTRAN								
Starting Date 01/01/2000 00:00:00								
Ending Date 01/01/2000 06:00:00								
Antecedent Dry Days 0.0								
Report Time Step 00:01:00								
Wet Time Step 00:01:00								
Dry Time Step 00:01:00								
Routing Time Step 1.00 sec								
Variable Time Step YES								
Maximum Trials 8								
Number of Threads 1								
Head Tolerance 0.001500 m								

Volume								
Depth								

Runoff Quantity Continuity	hectare-m	mm						

Total Precipitation	0.026	31.880						
Evaporation Loss	0.000	0.177						
Infiltration Loss	0.008	9.225						
Surface Runoff	0.018	21.549						
Final Storage	0.001	1.137						
Continuity Error (%)	-0.098							

Volume								
Volume								

Flow Routing Continuity	hectare-m	10^6 ltr						

Dry Weather Inflow	0.000	0.000						
Wet Weather Inflow	0.018	0.177						
Groundwater Inflow	0.000	0.000						
RDII Inflow	0.000	0.000						
External Inflow	0.000	0.000						
External Outflow	0.018	0.176						
Flooding Loss	0.000	0.000						
Evaporation Loss	0.000	0.000						
Exfiltration Loss	0.000	0.000						
Initial Stored Volume	0.000	0.000						
Final Stored Volume	0.000	0.002						
Continuity Error (%)	0.000							

Highest Continuity Errors								

Node 520_(P-Stm) (1.35%)								

Time-Step Critical Elements								

None								

Highest Flow Instability Indexes								

All links are stable.								

Most Frequent Nonconverging Nodes								

Convergence obtained at all time steps.								

Routing Time Step Summary								

Minimum Time Step	:	0.50 sec						
Average Time Step	:	1.00 sec						
Maximum Time Step	:	1.00 sec						
% of Time in Steady State	:	0.00						
Average Iterations per Step	:	2.00						
% of Steps Not Converging	:	0.00						
Time Step Frequencies								
1.000 - 0.871 sec	:	100.00 %						
0.871 - 0.758 sec	:	0.00 %						
0.758 - 0.660 sec	:	0.00 %						
0.660 - 0.574 sec	:	0.00 %						
0.574 - 0.500 sec	:	0.00 %						

Subcatchment Runoff Summary								

Total	Total	Peak	Total	Total	Total	Imperv	Perv	
Runoff	Runoff	Runoff	Runoff	Runon	Evap	Infil	Runoff	Runoff
Subcatchment	Subcatchment	Subcatchment	Coeff	mm	mm	mm	mm	mm
mm	10^6 ltr	LPS	mm					

S1			31.88	0.00	0.00	31.67	0.02	0.20
0.22	0.00	0.20	0.007					
S10			31.88	0.00	0.00	0.00	30.36	0.00
30.36	0.01	6.04	0.952					
S11			31.88	0.00	0.00	4.25	26.26	0.05
26.30	0.03	23.87	0.825					
S12			31.88	0.00	0.00	31.73	0.08	0.07
0.15	0.00	0.05	0.005					
S14_1			31.88	0.00	0.00	20.07	16.01	11.05
11.05	0.00	2.04	0.347					
S14_2			31.88	0.00	0.00	25.36	9.63	6.08
6.08	0.00	2.56	0.191					
S15			31.88	0.00	0.00	26.68	7.90	4.83
4.83	0.00	4.58	0.152					
S2			31.88	0.00	0.00	11.53	19.31	0.06
19.37	0.01	10.31	0.608					
S3			31.88	0.00	0.00	1.07	29.31	0.03
29.33	0.02	14.60	0.920					
S12_2			31.88	0.00	0.00	29.66	4.33	1.14
2.01	0.00	1.28	0.063					
S4			31.88	0.00	0.00	0.02	30.32	0.00
30.32	0.01	9.96	0.951					
S45			31.88	0.00	0.00	0.01	30.33	0.00
30.33	0.01	4.74	0.951					
S5			31.88	0.00	0.00	3.15	27.36	0.06
27.36	0.02	16.83	0.858					
S6			31.88	0.00	0.00	31.68	0.00	0.21
0.21	0.00	0.27	0.007					
S7			31.88	0.00	0.00	0.00	30.33	0.00
30.33	0.02	14.63	0.951					
S8			31.88	0.00	0.00	6.35	24.29	0.05
24.29	0.02	16.12	0.762					
S9			31.88	0.00	0.00	7.43	23.21	0.07
23.28	0.01	4.61	0.730					

Node Depth Summary *****							

Node	Type	Average Depth Meters	Maximum Depth Meters	Maximum HGL Meters	Time of Max Occurrence days hr:min	Reported Max Depth Meters	

518 Orifice	JUNCTION	0.04	0.17	81.53	0 01:18	0.17	
518A (P-Stm)	OUTFALL	0.55	0.55	81.20	0 00:00	0.55	
518 (P-Stm)	STORAGE	0.53	2.08	83.14	0 01:18	2.07	
519 (P-Stm)	STORAGE	0.33	0.94	83.14	0 01:18	0.94	
520 (P-Stm)	STORAGE	0.31	0.66	83.14	0 01:17	0.65	
521 (P-Stm)	STORAGE	0.36	1.18	83.14	0 01:18	1.18	
522 (P-Stm)	STORAGE	0.33	0.96	83.14	0 01:16	0.96	
CB200	STORAGE	0.03	0.85	84.03	0 01:10	0.85	
CB201	STORAGE	0.08	2.15	85.24	0 01:10	2.13	
CB202	STORAGE	0.08	1.69	84.45	0 01:10	1.68	
CB203	STORAGE	0.06	0.87	83.62	0 01:10	0.87	
CB204	STORAGE	0.09	1.49	84.24	0 01:10	1.47	
CB205	STORAGE	0.06	0.95	83.80	0 01:10	0.95	
CB206	STORAGE	0.15	2.52	85.29	0 01:10	2.52	
CB207	STORAGE	0.09	1.71	84.86	0 01:10	1.70	
CB208	STORAGE	0.06	1.56	84.86	0 01:10	1.55	
CB209	STORAGE	0.01	0.32	83.52	0 01:10	0.32	
CB210B	STORAGE	0.04	0.65	83.30	0 01:12	0.65	
CB211	STORAGE	0.00	0.03	83.73	0 01:10	0.03	
CB212	STORAGE	0.00	0.15	83.35	0 01:11	0.15	
CB212A	STORAGE	0.00	0.00	83.62	0 00:00	0.00	
CB213	STORAGE	0.00	0.00	83.15	0 01:11	0.00	
CB214	STORAGE	0.01	0.21	83.16	0 01:16	0.19	

Node Inflow Summary *****							

Flow		Maximum Lateral	Maximum Total	Time of Max Occurrence	Lateral Inflow	Total Inflow	
Balance							
Error		Inflow	Inflow	Occurrence	Volume	Volume	
Node	Type	LPS	LPS	days hr:min	10^6 ltr	10^6 ltr	
Percent							

518 Orifice	JUNCTION	0.00	47.72	0 01:18	0	0.176	
0.005							
518A (P-Stm)	OUTFALL	0.00	47.71	0 01:18	0	0.176	
0.000							
518 (P-Stm)	STORAGE	0.00	88.51	0 01:07	0	0.176	
0.351							
519 (P-Stm)	STORAGE	0.00	55.65	0 01:10	0	0.0806	
0.773							
520 (P-Stm)	STORAGE	14.63	55.82	0 01:10	0.0208	0.082	
1.371							
521 (P-Stm)	STORAGE	0.00	55.36	0 01:11	0	0.0942	
0.174							
522 (P-Stm)	STORAGE	0.00	32.74	0 01:08	0	0.0516	
0.055							
CB200	STORAGE	16.83	16.83	0 01:10	0.0239	0.0239	
0.001							
CB201	STORAGE	16.12	16.12	0 01:10	0.0229	0.0229	
0.000							
CB202	STORAGE	23.87	23.87	0 01:10	0.0334	0.0334	
0.000							
CB203	STORAGE	4.74	4.74	0 01:10	0.00673	0.00673	
0.000							
CB204	STORAGE	6.04	6.04	0 01:10	0.00859	0.00859	
0.000							
CB205	STORAGE	4.61	4.61	0 01:10	0.0064	0.0064	
0.000							
CB206	STORAGE	9.96	9.96	0 01:10	0.0142	0.0142	
0.000							
CB207	STORAGE	14.60	14.60	0 01:10	0.0205	0.0224	
0.005							
CB208	STORAGE	0.20	3.87	0 01:02	4.12e-05	0.00184	
0.083							
CB209	STORAGE	10.31	10.31	0 01:10	0.0144	0.0144	
0.002							
CB210B	STORAGE	4.58	4.58	0 01:10	0.00178	0.00178	
0.002							
CB211	STORAGE	2.04	2.04	0 01:10	0.00128	0.00128	
0.858							
CB212	STORAGE	2.56	4.60	0 01:10	0.00109	0.00236	
0.621							
CB212A	STORAGE	0.00	0.00	0 00:00	0	0	
0.000 ltr							
CB213	STORAGE	0.05	0.05	0 01:10	2.17e-05	2.17e-05	
0.767 ltr							
CB214	STORAGE	1.55	6.24	0 01:11	0.00109	0.00145	
0.221							

Node Surcharge Summary *****							
No nodes were surcharged.							

Node Flooding Summary *****							
No nodes were flooded.							

Storage Volume Summary *****							

Maximum	Average	Avg	Evap	Exfil	Maximum	Max	Time of Max
Outflow	Volume	Pcnt	Pcnt	Pcnt	Volume	Pcnt	Occurrence
Storage Unit	1000 m³	Full	Loss	Loss	1000 m³	Full	days hr:min

518 (P-Stm)	0.001	12.1	0.0	0.0	0.002	47.1	0 01:18
6.06							
519 (P-Stm)	0.000	9.4	0.0	0.0	0.001	26.7	0 01:18
53.27							
520 (P-Stm)	0.000	10.7	0.0	0.0	0.001	22.7	0 01:17
55.65							
521 (P-Stm)	0.000	9.9	0.0	0.0	0.001	32.2	0 01:18
54.08							
522 (P-Stm)	0.000	9.9	0.0	0.0	0.001	28.9	0 01:16
31.44							
CB200	0.000	0.0	0.0	0.0	0.000	0.8	0 01:10
16.70							
CB201	0.000	0.1	0.0	0.0	0.001	2.4	0 01:10
14.37							
CB202	0.000	0.1	0.0	0.0	0.001	1.1	0 01:10
22.61							
CB203	0.000	0.1	0.0	0.0	0.000	1.1	0 01:10
3.67							
CB204	0.000	0.3	0.0	0.0	0.001	4.5	0 01:10
4.15							
CB205	0.000	0.3	0.0	0.0	0.000	5.0	0 01:10
3.35							
CB206	0.000	1.0	0.0	0.0	0.001	16.4	0 01:10
6.54							

CB207	0.000	0.2	0.0	0.0	0.001	3.2	0	01:10
12.36								
CB208	0.000	0.0	0.0	0.0	0.000	1.0	0	01:10
2.54								
CB209	0.000	0.0	0.0	0.0	0.000	0.2	0	01:10
10.17								
CB210B	0.000	0.0	0.0	0.0	0.000	0.4	0	01:12
1.85								
CB211	0.000	0.0	0.0	0.0	0.000	0.1	0	01:10
2.03								
CB212	0.000	0.0	0.0	0.0	0.000	0.8	0	01:11
3.35								
CB212A	0.000	0.0	0.0	0.0	0.000	0.0	0	00:00
0.00								
CB213	0.000	0.0	0.0	0.0	0.000	0.0	0	01:11
0.04								
CB214	0.000	0.0	0.0	0.0	0.000	0.3	0	01:16
6.80								

Outfall Loading Summary

Outfall Node	Flow Freq Pcnt	Avg Flow LFS	Max Flow LFS	Total Volume 10^6 ltr
518A (P-Stm)	62.54	13.00	47.71	0.176
System	62.54	13.00	47.71	0.176

Link Flow Summary

Link	Type	Maximum Flow LFS	Time of Max Occurrence days hr:min	Maximum Veloc m/sec	Max/ Full Flow	Max/ Full Depth
C2	CONDUIT	3.87	0 01:02	0.12	0.12	1.00
C4	CONDUIT	0.00	0 00:00	0.00	0.00	0.19
C5	CONDUIT	2.03	0 01:10	0.67	0.02	0.24
CB213	CONDUIT	0.04	0 01:11	0.06	0.00	0.51
CB214	CONDUIT	6.80	0 01:12	0.34	0.21	1.00
Pipe _ (104) (P-Stm)	2 CONDUIT	47.71	0 01:18	0.95	0.33	0.35
Pipe _ (110) (P-Stm)	CONDUIT	54.08	0 01:07	0.72	0.21	1.00
Pipe _ (111) (P-Stm)	CONDUIT	30.66	0 01:11	0.50	0.10	1.00
Pipe _ (71) (P-Stm)	CONDUIT	55.65	0 01:10	1.00	0.20	0.84
Pipe _ (72) (P-Stm)	CONDUIT	53.27	0 01:06	0.98	0.18	1.00
OR1	ORIFICE	47.72	0 01:18			1.00
W1	WEIR	0.00	0 00:00			0.00
W3	WEIR	0.00	0 00:00			0.00
W4	WEIR	0.00	0 00:00			0.00
W5	WEIR	0.00	0 00:00			0.00
W6	WEIR	0.00	0 00:00			0.00
W7	WEIR	0.00	0 00:00			0.00
CB200	DUMMY	16.70	0 01:10			
CB201	DUMMY	14.37	0 01:10			
CB202	DUMMY	22.61	0 01:08			
CB203	DUMMY	3.67	0 01:08			
CB204	DUMMY	4.15	0 01:10			
CB205	DUMMY	3.35	0 01:10			
CB206	DUMMY	6.54	0 01:10			
CB207	DUMMY	10.42	0 01:10			
CB209	DUMMY	10.17	0 01:10			
CB210B	DUMMY	1.85	0 01:11			
CB212	DUMMY	3.35	0 01:11			

Flow Classification Summary

Conduit	Adjusted /Actual Length	Up Dry	Down Dry	Sub Dry	Sup Crit	Up Crit	Down Crit	Norm Crit	Inlet Ltd	Inlet Ctrl
C2	1.00	0.09	0.00	0.00	0.16	0.00	0.00	0.74	0.06	0.00
C4	1.00	0.97	0.03	0.00	0.00	0.00	0.00	0.00	0.00	0.00
C5	1.00	0.17	0.00	0.00	0.02	0.00	0.00	0.80	0.03	0.00
CB213	1.00	0.09	0.00	0.00	0.10	0.00	0.00	0.81	0.15	0.00
CB214	1.00	0.09	0.00	0.00	0.09	0.00	0.00	0.83	0.04	0.00
Pipe _ (104) (P-Stm)	2 1.00	0.11	0.00	0.00	0.00	0.00	0.00	0.89	0.00	0.00
Pipe _ (110) (P-Stm)	1.00	0.11	0.00	0.00	0.14	0.00	0.00	0.76	0.00	0.00
Pipe _ (111) (P-Stm)	1.00	0.10	0.00	0.00	0.89	0.00	0.00	0.00	0.78	0.00
Pipe _ (71) (P-Stm)	1.00	0.10	0.00	0.00	0.10	0.00	0.00	0.80	0.04	0.00
Pipe _ (72) (P-Stm)	1.00	0.11	0.00	0.00	0.13	0.00	0.00	0.76	0.01	0.00

Conduit Surcharge Summary

Conduit	Both Ends	Hours Full Upstream	Hours Full Dnstream	Hours Above Full Normal Flow	Hours Capacity Limited
C2	0.40	0.40	0.44	0.01	0.01
CB213	0.01	0.01	0.42	0.01	0.01
CB214	0.01	0.01	0.35	0.01	0.01
Pipe _ (110) (P-Stm)	0.49	0.49	0.57	0.01	0.01
Pipe _ (111) (P-Stm)	0.28	0.28	0.49	0.01	0.01
Pipe _ (71) (P-Stm)	0.01	0.01	0.18	0.01	0.01
Pipe _ (72) (P-Stm)	0.26	0.26	0.42	0.01	0.01

Analysis begun on: Wed Jul 16 11:37:27 2025
Analysis ended on: Wed Jul 16 11:37:27 2025
Total elapsed time: < 1 sec

Post-Development 3-hour Chicago 1:100 year Event

[TITLE] ;;Project Title/Notes										520_ (P-Stm)	82.487	2.888	0	FUNCTIONAL	0	0	1.13	0
[OPTIONS] ;;Option Value FLOW UNITS LPS INFILTRATION HORTON FLOW ROUTING DYNWAVE LINK OFFSETS ELEVATION MIN SLOPE 0 ALLOW PONDING NO SKIP STEADY STATE NO										521_ (P-Stm)	81.957	3.673	0	FUNCTIONAL	0	0	1.13	0
START DATE 01/01/2000 START TIME 00:00:00 REPORT START DATE 01/01/2000 REPORT START TIME 00:00:00 END DATE 01/01/2000 END TIME 06:00:00 SWEEP START 01/01 SWEEP END 12/31 DRY DAYS 0 REPORT STEP 00:01:00 WET STEP 00:01:00 DRY STEP 00:01:00 ROUTING STEP 1 RULE STEP 00:00:00										522_ (P-Stm)	82.182	3.323	0	FUNCTIONAL	0	0	1.13	0
INERTIAL DAMPING PARTIAL NORMAL FLOW LIMITED BOTH FORCE MAIN EQUATION H-W VARIABLE STEP 0.75 LENGTHENING STEP 0 MIN SURFACEA 0 MAX TRIALS 8 HEAD TOLERANCE 0.0015 SYS FLOW TOL 5 LAT FLOW TOL 5 MINIMUM STEP 0.5 THREADS 12										85.1800000001676 CB200	83.18	2.3	0	TABULAR	CB200			0
[EVAPORATION] ;;Data Source Parameters ----- CONSTANT 0.0 DRY ONLY NO										85.5000000001435 CB201	83.09	2.66	0	TABULAR	CB201			0
[RAINGAGES] ;;Name Format Interval SCF Source ----- 3CHI100 INTENSITY 0:10 1.0 TIMESERIES 3CHI100										85.36 CB202	82.76	2.9	0	TABULAR	CB202			0
[SUBCATCHMENTS] ;;Name Rain Gage Outlet Area %Imperv Width %Slope CurbLen ----- SnowPack										85.3500000000931 CB203	82.75	2.9	0	TABULAR	CB203			0
S1 3CHI100 CB208 0.0187 0.062 29.61 2.2 0										85.3500080822731 CB204	82.75	2.75	0	TABULAR	CB204			0
S10 3CHI100 CB204 0.0283 99.992 55.32 2.2 0										85.4500080823662 CB205	82.85	2.75	0	TABULAR	CB205			0
S11 3CHI100 CB202 0.1271 86.538 65.66 2.2 0										85.48 CB206	82.77	2.73	0	TABULAR	CB206			0
S12 3CHI100 CB213 0.0149 0.249 6.44 2.2 0										85.05 CB207	83.15	2.23	0	TABULAR	CB207			0
S14 1 3CHI100 CB211 0.0116 52.747 22.78 2.2 0										84.9000080821652 CB208	83.3	2.04	0	TABULAR	CB208			0
S14_2 3CHI100 CB212 0.0179 31.755 58.12 2.2 0										84.8 CB209	83.2	1.9	0	TABULAR	CB209			0
S15 3CHI100 CB210B 0.0368 26.053 108.74 2.2 0										85.25 CB210B	82.65	2.9	0	TABULAR	CB210B			0
S2 3CHI100 CB209 0.0743 63.632 33.61 2.2 0										85.35 CB211	83.7	1.9	0	TABULAR	CB211			0
S3 3CHI100 CB207 0.07 96.579 45.79 2.2 0										85.4 CB212	83.2	2.42	0	TABULAR	CB212			0
S32 3CHI100 CB214 0.052 14.28 29.7 2.2 0										85.5000000000554 CB212A	83.62	2	0	TABULAR	CB212A			0
S4 3CHI100 CB206 0.0467 99.946 24.67 2.2 0										84.75 CB213	83.15	1.75	0	TABULAR	CB213			0
S45 3CHI100 CB203 0.0222 99.962 14.32 2.2 0										84.55 CB214	82.95	1.9	0	TABULAR	CB214			0
S5 3CHI100 CB200 0.0873 89.949 82.96 2.2 0										[CONDUITS] From Node To Node Length Roughness InOffset OutOffset InitFlow MaxFlow ----- C2 0 CB208 CB207 9.666 0.013 83.3 83.2 C4 0 CB212A CB212 18.475 0.013 83.62 83.25 C5 0 CB211 CB212 22.346 0.013 83.7 83.25 CB213 0 CB213 522_ (P-Stm) 8.11 0.013 83.15 82.657 CB214 0 CB214 522_ (P-Stm) 21.65 0.013 82.95 82.73 PVC Pipes Pipe _ (104)_ (P-Stm)_2 518_Orifice 518A_ (P-Stm) 15.623 0.013 81.361 81.322 PVC Pipes Pipe _ (110)_ (P-Stm) 521_ (P-Stm) 518_ (P-Stm) 27.209 0.013 82.257 82.161 PVC Pipes Pipe _ (111)_ (P-Stm) 522_ (P-Stm) 521_ (P-Stm) 45.094 0.013 82.482 82.257 Concrete Pipes 100-D Pipe _ (71)_ (P-Stm) 520_ (P-Stm) 519_ (P-Stm) 57.146 0.013 82.787 82.557 Concrete Pipes 100-D Pipe _ (72)_ (P-Stm) 519_ (P-Stm) 518_ (P-Stm) 31.967 0.013 82.497 82.337								
S6 3CHI100 CB214 0.0239 0.002 40.3 2.2 0										[ORIFICES] From Node To Node Type Offset Qcoeff Gated ----- OR1 518_ (P-Stm) 518_Orifice SIDE 81.361 0.65 NO								
S7 3CHI100 520_ (P-Stm) 0.0686 100 25.95 2.2 0										[WEIRS] Name EndCon EndCoeff From Node To Node Type CrestHt Qcoeff Gated RoadWidth RoadSurf Coeff. Curve ----- W1 0 CB208 CB209 TRANSVERSE 85.31 1.84 NO W3 0 CB210B CB202 TRANSVERSE 85.45 1.84 NO W4 0 CB202 CB204 TRANSVERSE 85.55 1.84 NO W5 0 CB206 CB207 TRANSVERSE 85.45 1.84 NO W6 0 CB201 CB200 TRANSVERSE 85.65 1.84 NO W7 0 CB200 CB209 TRANSVERSE 85.42 1.84 NO								
S8 3CHI100 CB201 0.0944 79.932 35.06 2.2 0										[OUTLETS] Name Qexpon Gated From Node To Node Offset Type QTable/Qcoeff ----- CB200 NO CB200 520_ (P-Stm) 83.18 TABULAR/HEAD IPEX_Type_A CB201 NO CB201 520_ (P-Stm) 83.09 TABULAR/HEAD Vortex_ICD_105 CB202 NO CB202 521_ (P-Stm) 82.76 TABULAR/HEAD IPEX_Type_A CB203 NO CB203 521_ (P-Stm) 82.75 TABULAR/HEAD Vortex_ICD_70 CB204 NO CB204 522_ (P-Stm) 82.75 TABULAR/HEAD Vortex_ICD_65 CB205 NO CB205 522_ (P-Stm) 82.85 TABULAR/HEAD Vortex_ICD_65 CB206 NO CB206 522_ (P-Stm) 82.77 TABULAR/HEAD Vortex_ICD_70 CB207 NO CB207 522_ (P-Stm) 83.15 TABULAR/HEAD Vortex_ICD_95 CB209 NO CB209 520_ (P-Stm) 83.2 TABULAR/HEAD IPEX_Type_A CB210B NO CB210B 518_ (P-Stm) 82.65 TABULAR/HEAD Vortex_ICD_65								
S9 3CHI100 CB205 0.0275 76.485 19.08 2.2 0																		
[SUBAREAS] ;;Subcatchment N-Imperv N-Perv S-Imperv S-Perv PctZero RouteTo PctRouted ----- S1 0.013 0.25 1.57 4.67 0 OUTLET S10 0.013 0.25 1.57 4.67 0 OUTLET S11 0.013 0.25 1.57 4.67 0 OUTLET S12 0.013 0.25 1.57 4.67 0 OUTLET S14 1 0.013 0.25 1.57 4.67 0 PERVIOUS 100 S14_2 0.013 0.25 1.57 4.67 0 PERVIOUS 100 S15 0.013 0.25 1.57 4.67 0 PERVIOUS 100 S2 0.013 0.25 1.57 4.67 0 OUTLET S3 0.013 0.25 1.57 4.67 0 OUTLET S32 0.013 0.25 1.57 4.67 0 PERVIOUS 80 S4 0.013 0.25 1.57 4.67 0 OUTLET S45 0.013 0.25 1.57 4.67 0 IMPERVIOUS 100 S5 0.013 0.25 1.57 4.67 0 IMPERVIOUS 100 S6 0.013 0.25 1.57 4.67 0 OUTLET S7 0.013 0.25 1.57 4.67 0 OUTLET S8 0.013 0.25 1.57 4.67 0 IMPERVIOUS 100 S9 0.013 0.25 1.57 4.67 0 OUTLET																		
[INFILTRATION] Param1 Param2 Param3 Param4 Param5 ----- S1 76.2 13.2 4.14 7 0 S10 76.2 13.2 4.14 7 0 S11 76.2 13.2 4.14 7 0 S12 76.2 13.2 4.14 7 0 S14 1 76.2 13.2 4.14 7 0 S14_2 76.2 13.2 4.14 7 0 S15 76.2 13.2 4.14 7 0 S2 76.2 13.2 4.14 7 0 S3 76.2 13.2 4.14 7 0 S32 76.2 13.2 4.14 7 0 S4 76.2 13.2 4.14 7 0 S45 76.2 13.2 4.14 7 0 S5 76.2 13.2 4.14 7 0 S6 76.2 13.2 4.14 7 0 S7 76.2 13.2 4.14 7 0 S8 76.2 13.2 4.14 7 0 S9 76.2 13.2 4.14 7 0																		
[JUNCTIONS] Name Elevation MaxDepth InitDepth SurDepth Aponded ----- 518_Orifice 81.361 4.106 0 0 0																		
[OUTFALLS] Name Elevation Type Stage Data Gated Route To ----- Cylindrical Structure Slab Top Circular Frame SI 518A_ (P-Stm) 80.646 FIXED 81.28 NO																		
[STORAGE] Name Elev. MaxDepth InitDepth Shape Curve Name/Params SurDepth Fevap Psi Kaat IMD ----- Cylindrical Structure Slab Top Circular Frame SI 518_ (P-Stm) 81.061 4.406 0.139 FUNCTIONAL 0 0 1.13 0																		
Cylindrical Structure Slab Top Circular Frame SI 519_ (P-Stm) 82.197 3.512 0 FUNCTIONAL 0 0 1.13 0																		
Cylindrical Structure Slab Top Circular Frame SI																		

CB212 NO	CB212	521_(P-Stm)	83.2	TABULAR/HEAD	Vortex_ICD_100	Vortex_ICD_100	0.7	7.5
[XSECTIONS]						Vortex_ICD_100	0.8	8
;;Link	Shape	Geom1	Geom2	Geom3	Geom4	Vortex_ICD_100	0.9	8.5
Culvert						Vortex_ICD_100	1	8.9
-----						Vortex_ICD_100	1.2	9.8
C2	CIRCULAR	0.2	0	0	0	Vortex_ICD_100	1.4	10.6
C4	CIRCULAR	0.25	0	0	0	Vortex_ICD_100	1.6	11.3
C5	CIRCULAR	0.25	0	0	0	Vortex_ICD_100	1.8	12
CB213	CIRCULAR	0.2	0	0	0	Vortex_ICD_100	2	12.6
CB214	CIRCULAR	0.2	0	0	0	Vortex_ICD_100	2.5	14.1
Pipe_-(104)_(P-Stm) 2 CIRCULAR 0.45			0	0	0	Vortex_ICD_100	3	15.5
Pipe_-(110)_(P-Stm) CIRCULAR 0.525			0	0	0	;Tempest Rating Curve for Vortex ICD 105, No grate allowance		
Pipe_-(111)_(P-Stm) CIRCULAR 0.525			0	0	0	Vortex_ICD_105	0	0
Pipe_-(71)_(P-Stm) CIRCULAR 0.525			0	0	0	Vortex_ICD_105	0.1	3.1
Pipe_-(72)_(P-Stm) CIRCULAR 0.525			0	0	0	Vortex_ICD_105	0.2	4.4
OR1	CIRCULAR	0.129	0	0	0	Vortex_ICD_105	0.3	5.4
W1	RECT_OPEN	0.03	1.5	0	0	Vortex_ICD_105	0.4	6.2
W3	RECT_OPEN	0.1	1.34	0	0	Vortex_ICD_105	0.5	6.9
W4	RECT_OPEN	0.11	4.9	0	0	Vortex_ICD_105	0.6	7.6
W5	RECT_OPEN	0.05	4.725	0	0	Vortex_ICD_105	0.7	8.2
W6	RECT_OPEN	0.1	6	0	0	Vortex_ICD_105	0.8	8.8
W7	RECT_OPEN	0.06	10.5	0	0	Vortex_ICD_105	0.9	9.3
[LOSSES]						Vortex_ICD_105	1	9.8
;;Link	Kentry	Kexit	Kavg	Flap Gate	Seepage	Vortex_ICD_105	1.2	10.7
-----						Vortex_ICD_105	1.4	11.6
[CURVES]						Vortex_ICD_105	1.6	12.4
;;Name	Type	X-Value	Y-Value			Vortex_ICD_105	1.8	13.1
CB210-OUT85.5	Rating	0	0			Vortex_ICD_105	2.5	15.5
CB210-OUT85.5		85.5	0.04			Vortex_ICD_105	3	17
CB210-OUT85.5		100	0.04			;Tempest Rating Curve for Vortex ICD 40, No grate allowance		
CB210-OUT-85.6	Rating	0	0			Vortex_ICD_40	0	0
CB210-OUT-85.6		85.6	0.08			Vortex_ICD_40	0.1	0.4
CB210-OUT-85.6		100	0.08			Vortex_ICD_40	0.2	0.6
;IPEX Type A ICD Rating Curve						Vortex_ICD_40	0.3	0.7
IPEX Type A	Rating	0	0			Vortex_ICD_40	0.4	0.9
IPEX Type A		0.1	5.7			Vortex_ICD_40	0.5	1
IPEX Type A		0.2	8.1			Vortex_ICD_40	0.6	1
IPEX Type A		0.3	9.9			Vortex_ICD_40	0.7	1.1
IPEX Type A		0.4	11.4			Vortex_ICD_40	0.8	1.2
IPEX Type A		0.5	12.8			Vortex_ICD_40	0.9	1.3
IPEX Type A		0.6	14.6			Vortex_ICD_40	1	1.4
IPEX Type A		0.7	15.1			Vortex_ICD_40	1.2	1.5
IPEX Type A		0.8	16.2			Vortex_ICD_40	1.4	1.6
IPEX Type A		0.9	17.2			Vortex_ICD_40	1.6	1.7
IPEX Type A		1	18.1			Vortex_ICD_40	1.8	1.8
IPEX Type A		1.2	19.8			Vortex_ICD_40	1.9	1.9
IPEX Type A		1.4	21.4			Vortex_ICD_40	2.5	2.2
IPEX Type A		1.6	22.9			Vortex_ICD_40	3	2.4
IPEX Type A		1.8	24.3			;Tempest Rating Curve for Vortex ICD 45, No grate allowance		
IPEX Type A		2	25.6			Vortex_ICD_45	0	0
IPEX Type A		2.5	28.6			Vortex_ICD_45	0.1	0.6
IPEX Type A		3	31.3			Vortex_ICD_45	0.2	0.8
;IPEX Type B ICD Rating Curve						Vortex_ICD_45	0.3	1
IPEX Type B	Rating	0	0			Vortex_ICD_45	0.4	1.1
IPEX Type B		0.1	8.1			Vortex_ICD_45	0.5	1.3
IPEX Type B		0.2	11.5			Vortex_ICD_45	0.6	1.4
IPEX Type B		0.3	14.1			Vortex_ICD_45	0.7	1.5
IPEX Type B		0.4	16.2			Vortex_ICD_45	0.8	1.6
IPEX Type B		0.5	18.2			Vortex_ICD_45	0.9	1.7
IPEX Type B		0.6	19.9			Vortex_ICD_45	1	1.8
IPEX Type B		0.7	21.5			Vortex_ICD_45	1.2	2
IPEX Type B		0.8	23			Vortex_ICD_45	1.4	2.1
IPEX Type B		0.9	24.4			Vortex_ICD_45	1.6	2.3
IPEX Type B		1	25.7			Vortex_ICD_45	1.8	2.4
IPEX Type B		1.2	27.1			Vortex_ICD_45	2	2.6
IPEX Type B		1.4	30.4			Vortex_ICD_45	2.5	2.9
IPEX Type B		1.6	32.5			Vortex_ICD_45	3	3.1
IPEX Type B		1.8	34.4			;Tempest Rating Curve for Vortex ICD 50, No grate allowance		
IPEX Type B		2	36.3			Vortex_ICD_50	0	0
IPEX Type B		2.5	40.6			Vortex_ICD_50	0.1	0.7
IPEX Type B		3	44.5			Vortex_ICD_50	0.2	1
;IPEX Type C ICD Rating Curve						Vortex_ICD_50	0.3	1.2
IPEX Type C	Rating	0	0			Vortex_ICD_50	0.4	1.4
IPEX Type C		0.1	10.6			Vortex_ICD_50	0.5	1.6
IPEX Type C		0.2	15			Vortex_ICD_50	0.6	1.8
IPEX Type C		0.3	18.3			Vortex_ICD_50	0.7	1.9
IPEX Type C		0.4	21.2			Vortex_ICD_50	0.8	2
IPEX Type C		0.5	23.7			Vortex_ICD_50	0.9	2.1
IPEX Type C		0.6	25.9			Vortex_ICD_50	1	2.3
IPEX Type C		0.7	28.7			Vortex_ICD_50	1.2	2.5
IPEX Type C		0.8	29.9			Vortex_ICD_50	1.4	2.7
IPEX Type C		0.9	31.7			Vortex_ICD_50	1.6	2.9
IPEX Type C		1	33.5			Vortex_ICD_50	1.8	3
IPEX Type C		1.2	36.6			Vortex_ICD_50	2	3.2
IPEX Type C		1.4	39.6			Vortex_ICD_50	2.5	3.6
IPEX Type C		1.6	42.3			Vortex_ICD_50	3	3.9
IPEX Type C		1.8	44.9			;Tempest Rating Curve for Vortex ICD 55, No grate allowance		
IPEX Type C		2	47.3			Vortex_ICD_55	0	0
IPEX Type C		2.5	52.9			Vortex_ICD_55	0.1	0.9
IPEX Type C		3	57.9			Vortex_ICD_55	0.2	1.2
;IPEX Type AA ICD Rating Curve						Vortex_ICD_55	0.3	1.5
IPEX Type D	Rating	0	0			Vortex_ICD_55	0.4	1.7
IPEX Type D		0.1	15.4			Vortex_ICD_55	0.5	1.9
IPEX Type D		0.2	21.7			Vortex_ICD_55	0.6	2.1
IPEX Type D		0.3	26.6			Vortex_ICD_55	0.7	2.3
IPEX Type D		0.4	30.7			Vortex_ICD_55	0.8	2.4
IPEX Type D		0.5	34.3			Vortex_ICD_55	0.9	2.6
IPEX Type D		0.6	37.6			Vortex_ICD_55	1	2.7
IPEX Type D		0.7	40.6			Vortex_ICD_55	1.2	3
IPEX Type D		0.8	43.4			Vortex_ICD_55	1.4	3.2
IPEX Type D		0.9	46.1			Vortex_ICD_55	1.6	3.4
IPEX Type D		1	48.5			Vortex_ICD_55	1.8	3.6
IPEX Type D		1.2	53.2			Vortex_ICD_55	2	3.8
IPEX Type D		1.4	57.4			Vortex_ICD_55	2.5	4.3
IPEX Type D		1.6	61.4			Vortex_ICD_55	3	4.7
IPEX Type D		1.8	65.1			;Tempest Rating Curve for Vortex ICD 60, No grate allowance		
IPEX Type D		2	68.7			Vortex_ICD_60	0	0
IPEX Type D		2.5	76.8			Vortex_ICD_60	0.1	1.1
IPEX Type D		3	84.1			Vortex_ICD_60	0.2	1.5
;IPEX Type E ICD Rating Curve						Vortex_ICD_60	0.3	1.8
IPEX Type E	Rating	0	0			Vortex_ICD_60	0.4	2.1
IPEX Type E		0.1	20.5			Vortex_ICD_60	0.5	2.3
IPEX Type E		0.2	28.9			Vortex_ICD_60	0.6	2.5
IPEX Type E		0.3	35.5			Vortex_ICD_60	0.7	2.7
IPEX Type E		0.4	40.9			Vortex_ICD_60	0.8	2.9
IPEX Type E		0.5	45.8			Vortex_ICD_60	0.9	3
IPEX Type E		0.6	50.1			Vortex_ICD_60	1	3.2
IPEX Type E		0.7	54.2			Vortex_ICD_60	1.2	3.6
IPEX Type E		0.8	57.9			Vortex_ICD_60	1.4	3.8
IPEX Type E		0.9	61.4			Vortex_ICD_60	1.6	4.1
IPEX Type E		1	64.7			Vortex_ICD_60	1.8	4.3
IPEX Type E		1.2	70.9			Vortex_ICD_60	2	4.6
IPEX Type E		1.4	76.6			Vortex_ICD_60	2.5	5.1
IPEX Type E		1.6	81.9			;Tempest Rating Curve for Vortex ICD 65, No grate allowance		
IPEX Type E		1.8	86.8			Vortex_ICD_65	0	0
IPEX Type E		2	91.5			Vortex_ICD_65	0.1	1.2
IPEX Type E		2.5	102.3			Vortex_ICD_65	0.2	1.6
IPEX Type E		3	112.1			Vortex_ICD_65	0.3	2
;Tempest Rating Curve for Vortex ICD 100, No grate allowance						Vortex_ICD_65	0.4	2.3
Vortex_ICD_100	Rating	0	2.8			Vortex_ICD_65	0.5	2.5
Vortex_ICD_100		0.1	4			Vortex_ICD_65	0.6	2.8
Vortex_ICD_100		0.2	4.9			Vortex_ICD_65	0.7	3
Vortex_ICD_100		0.3	5.6			Vortex_ICD_65	0.8	3.2
Vortex_ICD_100		0.4	6.3			Vortex_ICD_65	0.9	3.4
Vortex_ICD_100		0.5	6.9			Vortex_ICD_65	1	3.6
Vortex_ICD_100		0.6				Vortex_ICD_65	1.2	4
						Vortex_ICD_65	1.4	4.3
						Vortex_ICD_65	1.6	4.6
						Vortex_ICD_65	1.8	4.9
						Vortex_ICD_65	2	5.1

Vortex ICD 65	2.5	5.7
Vortex ICD 65	3	6.3
;Tempest Rating Curve for Vortex ICD 70, No grate allowance		
Vortex ICD 70	Rating	0
Vortex ICD 70	0.1	1.3
Vortex ICD 70	0.2	1.9
Vortex ICD 70	0.3	2.3
Vortex ICD 70	0.4	3.8
Vortex ICD 70	0.5	3
Vortex ICD 70	0.6	3.3
Vortex ICD 70	0.7	3.6
Vortex ICD 70	0.8	3.8
Vortex ICD 70	0.9	4.1
Vortex ICD 70	1	4.3
Vortex ICD 70	1.2	4.7
Vortex ICD 70	1.4	5.1
Vortex ICD 70	1.6	5.5
Vortex ICD 70	1.8	5.8
Vortex ICD 70	2	6.1
Vortex ICD 70	2.5	6.8
Vortex ICD 70	3	7.5
;Tempest Rating Curve for Vortex ICD 75, No grate allowance		
Vortex ICD 75	Rating	0
Vortex ICD 75	0.1	1.6
Vortex ICD 75	0.2	2.2
Vortex ICD 75	0.3	2.7
Vortex ICD 75	0.4	3.2
Vortex ICD 75	0.5	3.5
Vortex ICD 75	0.6	3.9
Vortex ICD 75	0.7	4.2
Vortex ICD 75	0.8	4.5
Vortex ICD 75	0.9	4.8
Vortex ICD 75	1	5
Vortex ICD 75	1.2	5.5
Vortex ICD 75	1.4	5.9
Vortex ICD 75	1.6	6.3
Vortex ICD 75	1.8	6.7
Vortex ICD 75	2	7.1
Vortex ICD 75	2.5	7.9
Vortex ICD 75	3	8.7
;Tempest Rating Curve for Vortex ICD 80, No grate allowance		
Vortex ICD 80	Rating	0
Vortex ICD 80	0.1	1.8
Vortex ICD 80	0.2	2.6
Vortex ICD 80	0.3	3.1
Vortex ICD 80	0.4	3.6
Vortex ICD 80	0.5	4
Vortex ICD 80	0.6	4.4
Vortex ICD 80	0.7	4.8
Vortex ICD 80	0.8	5.1
Vortex ICD 80	0.9	5.4
Vortex ICD 80	1	5.7
Vortex ICD 80	1.2	6.3
Vortex ICD 80	1.4	6.8
Vortex ICD 80	1.6	7.2
Vortex ICD 80	1.8	7.7
Vortex ICD 80	2	8.1
Vortex ICD 80	2.5	9
Vortex ICD 80	3	9.9
;Tempest Rating Curve for Vortex ICD 85, No grate allowance		
Vortex ICD 85	Rating	0
Vortex ICD 85	0.1	2
Vortex ICD 85	0.2	2.9
Vortex ICD 85	0.3	3.5
Vortex ICD 85	0.4	4.1
Vortex ICD 85	0.5	4.5
Vortex ICD 85	0.6	5
Vortex ICD 85	0.7	5.4
Vortex ICD 85	0.8	5.7
Vortex ICD 85	0.9	6.1
Vortex ICD 85	1	6.4
Vortex ICD 85	1.2	7
Vortex ICD 85	1.4	7.6
Vortex ICD 85	1.6	8.1
Vortex ICD 85	1.8	8.6
Vortex ICD 85	2	9.1
Vortex ICD 85	2.5	10.1
Vortex ICD 85	3	11.1
;Tempest Rating Curve for Vortex ICD 90, No grate allowance		
Vortex ICD 90	Rating	0
Vortex ICD 90	0.1	2.2
Vortex ICD 90	0.2	3.2
Vortex ICD 90	0.3	3.9
Vortex ICD 90	0.4	4.5
Vortex ICD 90	0.5	5.1
Vortex ICD 90	0.6	5.5
Vortex ICD 90	0.7	6
Vortex ICD 90	0.8	6.4
Vortex ICD 90	0.9	6.8
Vortex ICD 90	1	7.2
Vortex ICD 90	1.2	7.9
Vortex ICD 90	1.4	8.5
Vortex ICD 90	1.6	9.1
Vortex ICD 90	1.8	9.6
Vortex ICD 90	2	10.2
Vortex ICD 90	2.5	11.4
Vortex ICD 90	3	12.5
;Tempest Rating Curve for Vortex ICD 95, No grate allowance		
Vortex ICD 95	Rating	0
Vortex ICD 95	0.1	2.6
Vortex ICD 95	0.2	3.6
Vortex ICD 95	0.3	4.4
Vortex ICD 95	0.4	5.1
Vortex ICD 95	0.5	5.7
Vortex ICD 95	0.6	6.2
Vortex ICD 95	0.7	6.7
Vortex ICD 95	0.8	7.1
Vortex ICD 95	0.9	7.6
Vortex ICD 95	1	8
Vortex ICD 95	1.2	8.7
Vortex ICD 95	1.4	9.4
Vortex ICD 95	1.6	10.1
Vortex ICD 95	1.8	10.7
Vortex ICD 95	2	11.3
Vortex ICD 95	2.5	12.6
Vortex ICD 95	3	13.8
CB200	Storage	0
CB200	2	0.36
CB200	2.24	217.85
CB200	2.3	217.85
CB201	Storage	0
CB201	2.41	0.36
CB201	2.56	176.22
CB201	2.66	176.22
CB202	Storage	0
CB202	2	0.36
CB202	2.79	263.51
CB202	2.9	263.51
CB203	Storage	0
CB203	2.6	0.36
CB203	2.9	178.09
CB204	Storage	0
CB204	2.6	0.36
CB204	2.75	146.08
CB205	Storage	0
CB205	2.6	0.36
CB205	2.75	79.14

CB206	Storage	0	0.36
CB206	2.6	0.36	
CB206	2.68	51	
CB206	2.73	51	
CB207	Storage	0	0.36
CB207	1.97	0.36	
CB207	2.23	143.01	
CB208	Storage	0	0.073
CB208	1.74	0.073	
CB208	2.01	67.88	
CB208	2.04	67.88	
CB209	Storage	0	0.073
CB209	1.6	0.073	
CB209	1.9	79.07	
CB210B	Storage	0	0.073
CB210B	2.6	0.073	
CB210B	2.9	70.98	
CB211	Storage	0	0.073
CB211	1.65	0.073	
CB211	1.9	21.99	
CB212	Storage	0	0.36
CB212	2.2	0.36	
CB212	2.42	55.12	
CB212A	Storage	0	0.073
CB212A	2	0.073	
CB213	Storage	0	0.073
CB213	1.6	0.073	
CB213	1.75	9.05	
CB214	Storage	0	0.073
CB214	1.6	0.073	
CB214	1.9	34.75	

[TIMESERIES]			
;Name Date Time Value			
;Rainfall (mm/hr)			
3CHI100	01/01/2000	00:00:00	5.339
3CHI100	01/01/2000	00:10:00	6.376
3CHI100	01/01/2000	00:20:00	7.977
3CHI100	01/01/2000	00:30:00	10.797
3CHI100	01/01/2000	00:40:00	17.136
3CHI100	01/01/2000	00:50:00	45.128
3CHI100	01/01/2000	01:00:00	178.107
3CHI100	01/01/2000	01:10:00	51.056
3CHI100	01/01/2000	01:20:00	26.163
3CHI100	01/01/2000	01:30:00	17.571
3CHI100	01/01/2000	01:40:00	13.277
3CHI100	01/01/2000	01:50:00	10.712
3CHI100	01/01/2000	02:00:00	9.008
3CHI100	01/01/2000	02:10:00	7.793
3CHI100	01/01/2000	02:20:00	6.883
3CHI100	01/01/2000	02:30:00	6.174
3CHI100	01/01/2000	02:40:00	5.607
3CHI100	01/01/2000	02:50:00	5.142
3CHI100	01/01/2000	03:00:00	0

[REPORT]		
;Reporting Options		
INPUT	YES	
CONTROLS	NO	
SUBCATCHMENTS	ALL	
NODES	ALL	
LINKS	ALL	
[TAGS]		
Node	518 Orifice	RY Manhole
Node	CB200	RY Manhole
Node	CB201	RY Manhole
Node	CB202	RY Manhole
Node	CB203	RY Manhole
Node	CB204	RY Manhole
Node	CB205	RY Manhole
Node	CB206	RY Manhole
Node	CB207	RY Manhole
Node	CB208	RY Manhole
Node	CB209	RY Manhole
Node	CB210B	RY Manhole
Node	CB211	RY Manhole
Node	CB212	RY Manhole
Node	CB212A	RY Manhole
Node	CB213	RY Manhole
Node	CB214	RY Manhole
Link	C2	RY Sewer
Link	C4	RY Sewer
Link	C5	RY Sewer

[MAP]				
DIMENSIONS	381219.0294	5032865.6782	381334.8286	5033009.9278
UNITS	Meters			

[COORDINATES]		
;Node X-Coord Y-Coord		
518 Orifice	381303.7	5032953.188
518A (P-Stm)	381317.029	5032955.797
518 (P-Stm)	381301.695	5032952.807
519 (P-Stm)	381278.558	5032974.866
520 (P-Stm)	381240.562	5032932.182
521 (P-Stm)	381309.324	5032926.69
522 (P-Stm)	381267.739	5032909.252
CB200	381246.119	5032946.933
CB201	381266.142	5032969.504
CB202	381305.816	5032949.229
CB203	381314.519	5032914.342
CB204	381291.187	5032921.779
CB205	381286.939	5032925.282
CB206	381270.233	5032913.017
CB207	381253.811	5032910.356
CB208	381248.314	5032902.406
CB209	381228.288	5032926.78
CB210B	381314.246	5032963.095
CB211	381319.351	5032951.771
CB212	381328.283	5032931.288
CB212A	381326.507	5032912.9
CB213	381296.875	5032912.718
CB214	381282.831	5032893.727

[VERTICES]		
;Link X-Coord Y-Coord		
W4	381305.808	5032934.267
W4	381304.151	5032928.843

[POLYGONS]		
;Subcatchment X-Coord Y-Coord		
S1	381237.464	5032904.825
S1	381240.329	5032905.467
S1	381240.224	5032906.884
S1	381246.264	5032909.575
S1	381246.323	5032909.6
S1	381246.383	5032909.624
S1	381246.444	5032909.645
S1	381246.506	5032909.663
S1	381246.568	5032909.68
S1	381246.631	5032909.695
S1	381246.695	5032909.707
S1	381246.758	5032909.717
S1	381246.823	5032909.725

S1	381246.887	5032909.731	S10	381283.689	5032913.225
S1	381246.951	5032909.731	S10	381283.543	5032913.014
S1	381247.016	5032909.735	S10	381283.405	5032912.799
S1	381247.08	5032909.734	S10	381283.275	5032912.578
S1	381247.145	5032909.731	S10	381283.152	5032912.354
S1	381247.209	5032909.725	S10	381283.037	5032912.125
S1	381247.273	5032909.717	S10	381282.93	5032911.892
S1	381247.337	5032909.707	S10	381282.832	5032911.656
S1	381247.401	5032909.695	S10	381282.742	5032911.416
S1	381247.463	5032909.681	S10	381282.66	5032911.174
S1	381247.526	5032909.664	S10	381282.586	5032910.929
S1	381247.588	5032909.645	S10	381282.521	5032910.681
S1	381247.649	5032909.624	S10	381282.465	5032910.431
S1	381247.709	5032909.601	S10	381282.418	5032910.18
S1	381247.768	5032909.576	S10	381282.379	5032909.927
S1	381247.827	5032909.548	S10	381282.349	5032909.672
S1	381247.885	5032909.519	S10	381282.247	5032908.62
S1	381247.941	5032909.488	S11	381287.493	5032979.07
S1	381247.996	5032909.455	S11	381291.608	5032983.199
S1	381248.051	5032909.419	S11	381295.304	5032987.144
S1	381248.103	5032909.382	S11	381303.014	5032979.889
S1	381248.155	5032909.344	S11	381312.567	5032958.198
S1	381248.205	5032909.303	S11	381307.857	5032956.13
S1	381248.254	5032909.261	S11	381307.843	5032956.124
S1	381248.301	5032909.217	S11	381307.829	5032956.117
S1	381248.347	5032909.171	S11	381307.815	5032956.111
S1	381248.391	5032909.124	S11	381307.801	5032956.103
S1	381248.433	5032909.075	S11	381307.788	5032956.095
S1	381248.474	5032909.025	S11	381307.774	5032956.087
S1	381248.513	5032908.973	S11	381307.762	5032956.078
S1	381248.55	5032908.92	S11	381307.749	5032956.069
S1	381248.585	5032908.866	S11	381307.737	5032956.06
S1	381248.618	5032908.811	S11	381307.725	5032956.05
S1	381248.65	5032908.754	S11	381307.713	5032956.039
S1	381248.679	5032908.697	S11	381307.702	5032956.028
S1	381248.706	5032908.638	S11	381307.691	5032956.017
S1	381259.547	5032884.338	S11	381307.681	5032956.008
S1	381264.625	5032879.785	S11	381307.671	5032955.994
S1	381253.013	5032884.608	S11	381307.662	5032955.981
S1	381244.74	5032903.289	S11	381307.653	5032955.969
S1	381244.061	5032903.318	S11	381307.644	5032955.958
S1	381243.383	5032903.37	S11	381307.636	5032955.943
S1	381242.707	5032903.444	S11	381307.628	5032955.929
S1	381242.035	5032903.54	S11	381307.621	5032955.915
S1	381241.365	5032903.658	S11	381307.614	5032955.901
S1	381240.7	5032903.799	S11	381307.608	5032955.887
S1	381240.04	5032903.961	S11	381307.602	5032955.873
S1	381239.386	5032904.145	S11	381307.596	5032955.858
S1	381238.738	5032904.35	S11	381307.592	5032955.843
S1	381238.097	5032904.577	S11	381307.587	5032955.828
S1	381237.464	5032904.825	S11	381307.584	5032955.813
S10	381282.247	5032908.62	S11	381307.58	5032955.798
S10	381279.22	5032922.275	S11	381307.578	5032955.783
S10	381287.174	5032924.398	S11	381307.576	5032955.767
S10	381297.866	5032927.382	S11	381307.574	5032955.752
S10	381298.206	5032927.496	S11	381307.573	5032955.737
S10	381298.542	5032927.621	S11	381307.572	5032955.721
S10	381298.873	5032927.758	S11	381307.572	5032955.705
S10	381299.199	5032927.907	S11	381307.573	5032955.69
S10	381299.52	5032928.067	S11	381307.574	5032955.674
S10	381299.835	5032928.238	S11	381307.576	5032955.659
S10	381300.144	5032928.42	S11	381307.578	5032955.644
S10	381300.446	5032928.612	S11	381307.581	5032955.628
S10	381300.742	5032928.815	S11	381307.584	5032955.613
S10	381301.03	5032929.029	S11	381307.588	5032955.598
S10	381301.31	5032929.252	S11	381307.592	5032955.583
S10	381301.583	5032929.485	S11	381307.597	5032955.568
S10	381301.847	5032929.727	S11	381307.602	5032955.554
S10	381302.103	5032929.979	S11	381307.608	5032955.539
S10	381302.349	5032930.239	S11	381307.614	5032955.525
S10	381302.586	5032930.508	S11	381307.621	5032955.511
S10	381302.814	5032930.785	S11	381307.628	5032955.497
S10	381303.032	5032931.069	S11	381307.636	5032955.484
S10	381303.24	5032931.362	S11	381307.644	5032955.471
S10	381303.437	5032931.661	S11	381307.653	5032955.458
S10	381304.434	5032927.758	S11	381307.662	5032955.445
S10	381307.137	5032921.453	S11	381307.672	5032955.433
S10	381307.111	5032921.441	S11	381307.682	5032955.421
S10	381307.084	5032921.427	S11	381307.692	5032955.41
S10	381307.058	5032921.413	S11	381307.703	5032955.398
S10	381307.033	5032921.398	S11	381307.714	5032955.388
S10	381307.008	5032921.382	S11	381307.726	5032955.377
S10	381306.984	5032921.366	S11	381307.738	5032955.367
S10	381306.96	5032921.348	S11	381307.75	5032955.358
S10	381306.937	5032921.33	S11	381307.762	5032955.348
S10	381306.915	5032921.311	S11	381307.775	5032955.34
S10	381306.893	5032921.291	S11	381307.788	5032955.331
S10	381306.872	5032921.27	S11	381307.802	5032955.324
S10	381306.852	5032921.249	S11	381307.816	5032955.316
S10	381306.833	5032921.227	S11	381307.83	5032955.309
S10	381306.814	5032921.204	S11	381307.844	5032955.303
S10	381306.796	5032921.181	S11	381307.858	5032955.297
S10	381306.779	5032921.157	S11	381307.873	5032955.292
S10	381306.763	5032921.132	S11	381307.888	5032955.287
S10	381306.747	5032921.107	S11	381307.902	5032955.283
S10	381306.733	5032921.082	S11	381307.918	5032955.279
S10	381306.719	5032921.056	S11	381307.933	5032955.276
S10	381306.706	5032921.029	S11	381307.948	5032955.273
S10	381306.695	5032921.002	S11	381307.963	5032955.271
S10	381306.684	5032920.975	S11	381307.979	5032955.269
S10	381306.674	5032920.947	S11	381307.994	5032955.268
S10	381306.665	5032920.919	S11	381308.01	5032955.268
S10	381306.657	5032920.891	S11	381308.025	5032955.267
S10	381306.65	5032920.862	S11	381308.041	5032955.268
S10	381306.644	5032920.833	S11	381308.056	5032955.269
S10	381306.639	5032920.804	S11	381308.072	5032955.271
S10	381306.635	5032920.775	S11	381308.087	5032955.273
S10	381306.632	5032920.746	S11	381308.298	5032955.293
S10	381306.63	5032920.716	S11	381308.509	5032955.306
S10	381306.629	5032920.687	S11	381308.721	5032955.311
S10	381306.629	5032920.658	S11	381308.933	5032955.31
S10	381306.63	5032920.628	S11	381309.144	5032955.301
S10	381306.632	5032920.599	S11	381309.355	5032955.284
S10	381302.601	5032917.181	S11	381309.566	5032955.261
S10	381301.944	5032913.56	S11	381309.775	5032955.23
S10	381291.376	5032916.092	S11	381309.983	5032955.192
S10	381291.126	5032916.147	S11	381310.19	5032955.147
S10	381290.874	5032916.193	S11	381310.395	5032955.095
S10	381290.621	5032916.231	S11	381310.599	5032955.032
S10	381290.366	5032916.26	S11	381310.8	5032954.969
S10	381290.111	5032916.28	S11	381310.998	5032954.896
S10	381289.856	5032916.291	S11	381311.194	5032954.817
S10	381289.6	5032916.294	S11	381311.388	5032954.73
S10	381289.344	5032916.287	S11	381311.578	5032954.637
S10	381289.088	5032916.271	S11	381311.764	5032954.537
S10	381288.833	5032916.247	S11	381311.948	5032954.437
S10	381288.58	5032916.214	S11	381312.127	5032954.319
S10	381288.327	5032916.171	S11	381312.303	5032954.201
S10	381288.076	5032916.12	S11	381312.474	5032954.076
S10	381287.827	5032916.061	S11	381312.641	5032953.946
S10	381287.58	5032915.993	S11	381312.803	5032953.81
S10	381287.336	5032915.916	S11	381312.961	5032953.669
S10	381287.095	5032915.831	S11	381313.114	5032953.522
S10	381286.857	5032915.737	S11	381313.261	5032953.371
S10	381286.622	5032915.635	S11	381313.403	5032953.214
S10	381286.391	5032915.525	S11	381313.54	5032953.052
S10	381286.163	5032915.407	S11	381313.671	5032952.886
S10	381285.94	5032915.281	S11	381313.796	5032952.715
S10	381285.722	5032915.148	S11	381313.916	5032952.54
S10	381285.508	5032915.007	S11	381314.029	5032952.362
S10	381285.3	5032914.859	S11	381314.136	5032952.179
S10	381285.096	5032914.703	S11	381314.237	5032951.993
S10	381284.899	5032914.541	S11	381314.331	5032951.803
S10	381284.707	5032914.371	S11	381314.418	5032951.61
S10	381284.521	5032914.195	S11	381316.055	5032947.841
S10	381284.341	5032914.013	S11	381316.645	5032946.459
S10	381284.168	5032913.825	S11	381312.262	5032944.556
S10	381284.001	5032913.63	S11	381315.128	5032937.954
S10	381283.841	5032913.43	S11	381317.996	5032931.347

S11	381318.388	5032931.518	S11	381285.292	5032960.286
S11	381320.605	5032926.434	S11	381286.244	5032968.414
S11	381320.687	5032926.249	S11	381286.461	5032970.262
S11	381320.763	5032926.062	S11	381287.493	5032979.07
S11	381320.832	5032925.872	S12	381323.653	5032914.693
S11	381320.895	5032925.68	S12	381326.899	5032904.508
S11	381320.951	5032925.486	S12	381316.177	5032907.046
S11	381321.001	5032925.29	S12	381287.051	5032914.024
S11	381321.043	5032925.092	S12	381286.59	5032915.621
S11	381321.079	5032924.893	S12	381286.826	5032915.724
S11	381321.108	5032924.693	S12	381287.066	5032915.82
S11	381321.13	5032924.492	S12	381287.309	5032915.907
S11	381321.145	5032924.291	S12	381287.554	5032915.985
S11	381321.153	5032924.089	S12	381287.803	5032916.054
S11	381321.154	5032923.887	S12	381288.053	5032916.115
S11	381321.149	5032923.685	S12	381288.306	5032916.167
S11	381321.136	5032923.483	S12	381288.56	5032916.211
S11	381321.116	5032923.282	S12	381288.815	5032916.245
S11	381321.089	5032923.082	S12	381289.072	5032916.27
S11	381321.056	5032922.882	S12	381289.329	5032916.286
S11	381321.016	5032922.684	S12	381289.587	5032916.293
S11	381320.968	5032922.488	S12	381289.845	5032916.292
S11	381320.914	5032922.293	S12	381290.102	5032916.281
S11	381320.854	5032922.1	S12	381290.359	5032916.261
S11	381320.787	5032921.909	S12	381290.615	5032916.232
S11	381320.713	5032921.721	S12	381290.87	5032916.194
S11	381320.633	5032921.536	S12	381291.124	5032916.147
S11	381320.546	5032921.353	S12	381291.376	5032916.092
S11	381320.453	5032921.174	S12	381301.944	56
S11	381320.354	5032920.997	S12	381312.521	5032911.026
S11	381320.249	5032920.825	S12	381312.897	5032910.942
S11	381320.138	5032920.656	S12	381313.277	5032910.872
S11	381320.022	5032920.491	S12	381313.658	5032910.815
S11	381319.899	5032920.33	S12	381314.041	5032910.771
S11	381319.772	5032920.173	S12	381314.426	5032910.74
S11	381319.639	5032920.021	S12	381314.811	5032910.723
S11	381319.5	5032919.873	S12	381315.196	5032910.719
S11	381319.357	5032919.731	S12	381315.582	5032910.728
S11	381319.209	5032919.593	S12	381315.967	5032910.751
S11	381319.056	5032919.461	S12	381316.351	5032910.787
S11	381318.899	5032919.334	S12	381316.733	5032910.836
S11	381318.738	5032919.212	S12	381317.114	5032910.899
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S11	381318.403	5032918.986	S12	381317.867	5032911.063
S11	381318.23	5032918.862	S12	381318.239	5032911.164
S11	381318.053	5032918.784	S12	381318.608	5032911.279
S11	381317.873	5032918.692	S12	381318.972	5032911.406
S11	381317.69	5032918.606	S12	381319.331	5032911.545
S11	381317.504	5032918.526	S12	381319.686	5032911.691
S11	381317.316	5032918.454	S12	381320.035	5032911.861
S11	381317.125	5032918.387	S12	381320.378	5032912.037
S11	381316.932	5032918.327	S12	381320.715	5032912.225
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S11	381316.54	5032918.228	S12	381321.368	5032912.635
S11	381316.342	5032918.188	S12	381321.684	5032912.856
S11	381316.142	5032918.156	S12	381321.992	5032913.089
S11	381315.942	5032918.13	S12	381322.291	5032913.332
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S11	381315.539	5032918.099	S12	381322.864	5032913.848
S11	381315.337	5032918.094	S12	381323.137	5032914.121
S11	381315.135	5032918.096	S12	381323.4	5032914.402
S11	381314.933	5032918.105	S12	381323.653	5032914.693
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S11	381314.531	5032918.144	S14 1	381325.119	5032942.291
S11	381314.331	5032918.174	S14 1	381315.128	5032937.954
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S11	381313.935	5032918.254	S14 1	381316.645	5032946.459
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S11	381307.252	5032919.855	S14 1	381314.418	5032951.61
S11	381307.224	5032919.864	S14 1	381314.331	5032951.803
S11	381307.196	5032919.873	S14 1	381314.236	5032951.993
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S11	381306.765	5032920.213	S14 2	381324.763	5032916.27
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S11	381306.708	5032920.316	S14 2	381325.443	5032917.655
S11	381306.696	5032920.343	S14 2	381325.583	5032918.015
S11	381306.685	5032920.37	S14 2	381325.71	5032918.38
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S11	381306.666	5032920.426	S14 2	381325.926	5032919.121
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S11	381306.635	5032920.57	S14 2	381326.236	5032921.024
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S11	381306.639	5032920.804	S14 2	381326.139	5032924.097
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S11	381306.657	5032920.891	S14 2	381325.747	5032925.217
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S11	381306.814	5032921.204	S15	381313.539	5032953.053
S11	381306.833	5032921.227	S15	381313.403	5032953.214
S11	381306.852	5032921.249	S15	381313.26	5032953.371
S11	381306.872	5032921.27	S15	381313.113	5032953.523
S11	381306.893	5032921.291	S15	381312.96	5032953.67
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S11	381307.033	5032921.398	S15	381311.947	5032954.432
S11	381307.058	5032921.413	S15	381311.764	5032954.538
S11	381307.084	5032921.427	S15	381311.577	5032954.637
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S11	381307.137	5032921.453	S15	381311.194	5032954.817
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S11	381290.74	5032939.886	S15	381309.983	5032955.192
S11	381291.953	5032941.245	S15	381309.775	5032955.23
S11	381287.876	5032944.882	S15	381309.565	5032955.261
S11	381294.345	5032952.211	S15	381309.355	5032955.284

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S15	381308.509	5032955.306	S2	381227.207	5032913.677
S15	381308.298	5032955.293	S2	381226.85	5032914.306
S15	381308.087	5032955.273	S2	381226.515	5032914.949
S15	381308.072	5032955.271	S2	381226.201	5032915.604
S15	381308.056	5032955.269	S2	381225.911	5032916.269
S15	381308.041	5032955.268	S2	381225.644	5032916.944
S15	381308.025	5032955.267	S2	381225.399	5032917.627
S15	381308.01	5032955.268	S2	381225.179	5032918.319
S15	381307.994	5032955.268	S2	381224.983	5032919.018
S15	381307.979	5032955.269	S2	381224.81	5032919.723
S15	381307.963	5032955.271	S2	381224.662	5032920.433
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S15	381307.902	5032955.283	S2	381224.317	5032923.313
S15	381307.888	5032955.287	S2	381224.293	5032924.039
S15	381307.873	5032955.292	S2	381224.294	5032924.765
S15	381307.858	5032955.297	S2	381224.319	5032925.49
S15	381307.844	5032955.303	S2	381224.37	5032926.214
S15	381307.83	5032955.309	S2	381224.445	5032926.936
S15	381307.816	5032955.316	S2	381224.546	5032927.655
S15	381307.802	5032955.324	S2	381224.671	5032928.369
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S15	381307.738	5032955.367	S2	381225.659	5032931.857
S15	381307.726	5032955.377	S2	381225.928	5032932.531
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S15	381307.682	5032955.421	S2	381227.23	5032935.123
S15	381307.672	5032955.433	S2	381227.61	5032935.741
S15	381307.662	5032955.445	S2	381228.012	5032936.346
S15	381307.653	5032955.458	S2	381228.434	5032936.937
S15	381307.644	5032955.471	S2	381228.875	5032937.512
S15	381307.636	5032955.484	S2	381229.337	5032938.073
S15	381307.628	5032955.497	S2	381228.728	5032939.841
S15	381307.621	5032955.511	S2	381229.574	5032940.908
S15	381307.614	5032955.525	S3	381247.333	5032914.893
S15	381307.608	5032955.539	S3	381253.342	5032918.873
S15	381307.602	5032955.554	S3	381261.463	5032927.977
S15	381307.597	5032955.568	S3	381270.066	5032920.314
S15	381307.592	5032955.583	S3	381266.009	5032915.759
S15	381307.588	5032955.598	S3	381263.137	5032909.615
S15	381307.584	5032955.613	S3	381262.174	5032905.929
S15	381307.581	5032955.628	S3	381267.671	5032893.471
S15	381307.578	5032955.644	S3	381273.26	5032892.25
S15	381307.576	5032955.659	S3	381277.713	5032887.77
S15	381307.574	5032955.674	S3	381273.216	5032876.217
S15	381307.573	5032955.69	S3	381264.625	5032879.785
S15	381307.572	5032955.705	S3	381259.547	5032884.338
S15	381307.572	5032955.721	S3	381248.706	5032908.638
S15	381307.573	5032955.737	S3	381248.679	5032908.697
S15	381307.574	5032955.752	S3	381248.65	5032908.752
S15	381307.576	5032955.767	S3	381248.618	5032908.811
S15	381307.578	5032955.783	S3	381248.585	5032908.866
S15	381307.58	5032955.798	S3	381248.55	5032908.92
S15	381307.584	5032955.813	S3	381248.513	5032908.973
S15	381307.587	5032955.828	S3	381248.474	5032909.025
S15	381307.592	5032955.843	S3	381248.433	5032909.075
S15	381307.596	5032955.858	S3	381248.391	5032909.124
S15	381307.602	5032955.873	S3	381248.347	5032909.173
S15	381307.608	5032955.887	S3	381248.301	5032909.217
S15	381307.614	5032955.901	S3	381248.254	5032909.261
S15	381307.621	5032955.915	S3	381248.205	5032909.303
S15	381307.628	5032955.929	S3	381248.155	5032909.349
S15	381307.636	5032955.943	S3	381248.104	5032909.382
S15	381307.644	5032955.956	S3	381248.051	5032909.42
S15	381307.653	5032955.969	S3	381247.996	5032909.455
S15	381307.662	5032955.981	S3	381247.942	5032909.488
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S15	381307.691	5032956.017	S3	381247.769	5032909.576
S15	381307.702	5032956.028	S3	381247.709	5032909.607
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S15	381307.725	5032956.05	S3	381247.588	5032909.645
S15	381307.737	5032956.06	S3	381247.526	5032909.664
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S15	381307.762	5032956.078	S3	381247.401	5032909.695
S15	381307.774	5032956.087	S3	381247.337	5032909.707
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S15	381307.829	5032956.117	S3	381247.081	5032909.734
S15	381307.843	5032956.124	S3	381247.016	5032909.735
S15	381307.857	5032956.13	S3	381246.951	5032909.734
S15	381312.567	5032958.198	S3	381246.887	5032909.731
S15	381303.014	5032979.889	S3	381246.823	5032909.725
S15	381295.304	5032987.144	S3	381246.758	5032909.717
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S15	381287.784	5032991.636	S3	381246.631	5032909.695
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S15	381281.494	5032995.818	S3	381246.506	5032909.664
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S2	381231.494	5032939.439	S3	381240.224	5032906.888
S2	381235.664	5032935.737	S3	381247.333	5032914.893
S2	381235.698	5032935.707	S32	381316.177	5032907.046
S2	381235.73	5032935.676	S32	381314.837	5032892.442
S2	381235.761	5032935.643	S32	381302.448	5032892.682
S2	381235.791	5032935.61	S32	381285.059	5032899.459
S2	381235.82	5032935.576	S32	381287.051	5032914.024
S2	381235.847	5032935.54	S32	381316.177	5032907.046
S2	381235.874	5032935.504	S4	381277.713	5032887.77
S2	381235.899	5032935.467	S4	381273.26	5032892.25
S2	381235.923	5032935.429	S4	381267.671	5032893.471
S2	381235.945	5032935.39	S4	381262.174	5032905.929
S2	381235.966	5032935.35	S4	381263.137	5032909.615
S2	381235.986	5032935.31	S4	381266.009	5032915.759
S2	381236.004	5032935.269	S4	381270.066	5032920.314
S2	381236.021	5032935.227	S4	381279.22	5032922.275
S2	381236.036	5032935.185	S4	381282.247	5032908.62
S2	381236.05	5032935.142	S4	381281.421	5032909.349
S2	381236.063	5032935.099	S4	381281.302	5032899.332
S2	381236.074	5032935.056	S4	381281.148	5032898.318
S2	381236.083	5032935.012	S4	381280.961	5032897.311
S2	381236.091	5032934.968	S4	381280.739	5032896.311
S2	381236.097	5032934.923	S4	381280.483	5032895.319
S2	381236.102	5032934.879	S4	381280.194	5032894.336
S2	381241.879	5032933.622	S4	381279.871	5032893.363
S2	381248.763	5032931.065	S4	381279.516	5032892.402
S2	381252.847	5032935.651	S4	381277.713	5032887.77
S2	381261.463	5032927.977	S45	381318.388	5032931.518
S2	381253.342	5032918.873	S45	381322.339	5032933.237
S2	381247.333	5032914.893	S45	381325.34	5032929.301
S2	381240.224	5032906.884	S45	381325.488	5032925.945
S2	381240.329	5032905.467	S45	381325.624	5032925.583
S2	381237.464	5032904.825	S45	381325.747	5032925.217
S2	381236.796	5032905.109	S45	381325.857	5032924.847
S2	381236.138	5032905.416	S45	381325.955	5032924.474
S2	381235.492	5032905.745	S45	381326.039	5032924.097
S2	381234.857	5032906.097	S45	381326.11	5032923.717
S2	381234.234	5032906.477	S45	381326.168	5032923.336
S2	381233.625	5032906.864	S45	381326.213	5032922.952
S2	381233.029	5032907.279	S45	381326.244	5032922.567
S2	381232.448	5032907.714	S45	381326.262	5032922.182
S2	381231.883	5032908.169	S45	381326.267	5032921.796
S2	381231.333	5032908.643	S45	381326.258	5032921.41
S2	381230.801	5032909.136	S45	381326.236	5032921.024
S2	381230.285	5032909.647	S45	381326.2	5032920.64
S2	381229.787	5032910.175	S45	381326.152	5032920.257
S2	381229.308	5032910.72	S45	381326.089	5032919.876
S2	381228.848	5032911.281	S45	381326.014	5032919.497

S45	381325.926	5032919.121	S45	381320.687	5032926.249
S45	381325.824	5032918.749	S45	381320.688	5032926.434
S45	381325.71	5032918.38	S45	381318.305	5032931.518
S45	381325.583	5032918.015	S5	381273.896	5032926.903
S45	381325.443	5032917.655	S5	381270.066	5032920.314
S45	381325.291	5032917.3	S5	381260.944	5032928.409
S45	381325.127	5032916.951	S5	381252.847	5032935.651
S45	381324.951	5032916.607	S5	381248.763	5032931.065
S45	381324.763	5032916.27	S5	381241.879	5032933.622
S45	381324.563	5032915.94	S5	381236.102	5032934.879
S45	381324.352	5032915.617	S5	381236.097	5032934.923
S45	381324.13	5032915.301	S5	381236.091	5032934.968
S45	381323.977	5032914.993	S5	381236.083	5032935.012
S45	381323.653	5032914.693	S5	381236.074	5032935.056
S45	381323.4	5032914.402	S5	381236.063	5032935.099
S45	381323.137	5032914.121	S5	381236.05	5032935.142
S45	381322.864	5032913.848	S5	381236.036	5032935.185
S45	381322.582	5032913.585	S5	381236.021	5032935.227
S45	381322.291	5032913.332	S5	381236.004	5032935.269
S45	381321.992	5032913.089	S5	381235.986	5032935.31
S45	381321.684	5032912.856	S5	381235.968	5032935.35
S45	381321.368	5032912.635	S5	381235.945	5032935.39
S45	381321.045	5032912.424	S5	381235.923	5032935.429
S45	381320.715	5032912.225	S5	381235.899	5032935.467
S45	381320.378	5032912.037	S5	381235.874	5032935.504
S45	381320.035	5032911.861	S5	381235.847	5032935.54
S45	381319.686	5032911.697	S5	381235.82	5032935.576
S45	381319.331	5032911.545	S5	381235.791	5032935.61
S45	381318.972	5032911.406	S5	381235.761	5032935.643
S45	381318.608	5032911.279	S5	381235.73	5032935.676
S45	381318.239	5032911.164	S5	381235.698	5032935.707
S45	381317.867	5032911.063	S5	381235.664	5032935.737
S45	381317.492	5032910.974	S5	381231.494	5032939.439
S45	381317.114	5032910.899	S5	381229.574	5032940.908
S45	381316.733	5032910.836	S5	381237.652	5032951.091
S45	381316.351	5032910.787	S5	381247.43	5032961.793
S45	381315.967	5032910.751	S5	381253.986	5032955.801
S45	381315.582	5032910.728	S5	381260.454	5032950.066
S45	381315.196	5032910.719	S5	381267.957	5032943.374
S45	381314.811	5032910.723	S5	381266.93	5032942.221
S45	381314.426	5032910.74	S5	381278.399	5032931.981
S45	381314.041	5032910.771	S5	381277.469	5032930.913
S45	381313.658	5032910.815	S5	381273.896	5032926.903
S45	381313.277	5032910.872	S6	381286.59	5032915.621
S45	381312.897	5032910.942	S6	381287.051	5032914.024
S45	381312.521	5032911.026	S6	381283.538	5032879.508
S45	381301.944	5032913.56	S6	381282.803	5032872.235
S45	381302.601	5032917.181	S6	381273.216	5032876.217
S45	381306.632	5032920.599	S6	381277.713	5032887.77
S45	381306.635	5032920.57	S6	381279.516	5032892.402
S45	381306.64	5032920.54	S6	381279.871	5032893.363
S45	381306.645	5032920.511	S6	381280.194	5032894.336
S45	381306.651	5032920.483	S6	381280.483	5032895.319
S45	381306.658	5032920.454	S6	381280.739	5032896.311
S45	381306.666	5032920.426	S6	381280.961	5032897.311
S45	381306.675	5032920.398	S6	381281.148	5032898.318
S45	381306.685	5032920.37	S6	381281.302	5032899.332
S45	381306.696	5032920.343	S6	381281.421	5032900.349
S45	381306.708	5032920.316	S6	381282.247	5032908.62
S45	381306.721	5032920.29	S6	381282.349	5032909.672
S45	381306.735	5032920.264	S6	381282.379	5032909.926
S45	381306.75	5032920.238	S6	381282.417	5032910.177
S45	381306.765	5032920.213	S6	381282.465	5032910.428
S45	381306.782	5032920.189	S6	381282.52	5032910.677
S45	381306.799	5032920.165	S6	381282.585	5032910.923
S45	381306.817	5032920.142	S6	381282.658	5032911.167
S45	381306.836	5032920.119	S6	381282.739	5032911.409
S45	381306.855	5032920.097	S6	381282.828	5032911.647
S45	381306.876	5032920.076	S6	381282.926	5032911.883
S45	381306.897	5032920.055	S6	381283.032	5032912.115
S45	381306.919	5032920.036	S6	381283.146	5032912.342
S45	381306.941	5032920.017	S6	381283.268	5032912.566
S45	381306.964	5032919.998	S6	381283.397	5032912.786
S45	381306.988	5032919.981	S6	381283.534	5032913.001
S45	381307.012	5032919.964	S6	381283.679	5032913.211
S45	381307.037	5032919.949	S6	381283.83	5032913.416
S45	381307.062	5032919.934	S6	381283.989	5032913.615
S45	381307.088	5032919.92	S6	381284.154	5032913.809
S45	381307.115	5032919.907	S6	381284.326	5032913.997
S45	381307.142	5032919.895	S6	381284.504	5032914.179
S45	381307.169	5032919.883	S6	381284.689	5032914.355
S45	381307.196	5032919.873	S6	381284.879	5032914.528
S45	381307.224	5032919.864	S6	381285.076	5032914.687
S45	381307.252	5032919.855	S6	381285.278	5032914.842
S45	381307.281	5032919.848	S6	381285.485	5032914.991
S45	381313.935	5032918.254	S6	381285.697	5032915.133
S45	381314.132	5032918.21	S6	381285.914	5032915.266
S45	381314.331	5032918.174	S6	381286.135	5032915.392
S45	381314.531	5032918.144	S6	381286.361	5032915.51
S45	381314.731	5032918.121	S6	381286.59	5032915.621
S45	381314.933	5032918.105	S7	381260.454	5032950.066
S45	381315.135	5032918.096	S7	381276.524	5032968.107
S45	381315.337	5032918.094	S7	381294.345	5032952.211
S45	381315.539	5032918.099	S7	381287.876	5032944.881
S45	381315.741	5032918.111	S7	381291.953	5032941.245
S45	381315.942	5032918.13	S7	381281.347	5032929.355
S45	381316.142	5032918.156	S7	381266.93	5032942.221
S45	381316.342	5032918.188	S7	381267.957	5032943.374
S45	381316.54	5032918.228	S7	381260.454	5032950.066
S45	381316.737	5032918.274	S8	381260.454	5032950.066
S45	381316.932	5032918.327	S8	381253.986	5032955.803
S45	381317.125	5032918.387	S8	381247.43	5032961.793
S45	381317.316	5032918.454	S8	381277.296	5032994.483
S45	381317.504	5032918.526	S8	381279.321	5032994.458
S45	381317.69	5032918.606	S8	381281.494	5032995.818
S45	381317.873	5032918.692	S8	381282.905	5032994.568
S45	381318.053	5032918.784	S8	381287.784	5032991.636
S45	381318.23	5032918.882	S8	381292.551	5032987.117
S45	381318.403	5032918.986	S8	381295.304	5032987.144
S45	381318.572	5032919.096	S8	381291.608	5032983.199
S45	381318.738	5032919.212	S8	381287.493	5032979.07
S45	381318.899	5032919.334	S8	381285.292	5032960.286
S45	381319.056	5032919.461	S8	381276.524	5032968.107
S45	381319.209	5032919.593	S8	381260.454	5032950.066
S45	381319.357	5032919.731	S9	381290.74	5032939.886
S45	381319.5	5032919.873	S9	381293.269	5032937.63
S45	381319.639	5032920.021	S9	381296.614	5032936.126
S45	381319.772	5032920.173	S9	381299.932	5032934.777
S45	381319.899	5032920.33	S9	381303.97	5032931.061
S45	381320.022	5032920.491	S9	381303.24	5032931.362
S45	381320.138	5032920.656	S9	381303.032	5032931.069
S45	381320.249	5032920.825	S9	381302.814	5032930.785
S45	381320.354	5032920.997	S9	381302.586	5032930.508
S45	381320.453	5032921.174	S9	381302.349	5032930.239
S45	381320.546	5032921.353	S9	381302.103	5032929.979
S45	381320.633	5032921.536	S9	381301.847	5032929.727
S45	381320.713	5032921.721	S9	381301.583	5032929.485
S45	381320.787	5032921.909	S9	381301.31	5032929.252
S45	381320.854	5032922.1	S9	381301.03	5032929.029
S45	381320.914	5032922.293	S9	381300.742	5032928.815
S45	381320.968	5032922.488	S9	381300.446	5032928.612
S45	381321.016	5032922.684	S9	381300.144	5032928.42
S45	381321.056	5032922.882	S9	381299.835	5032928.238
S45	381321.089	5032923.082	S9	381299.52	5032928.067
S45	381321.116	5032923.282	S9	381299.199	5032927.907
S45	381321.136	5032923.483	S9	381298.873	5032927.758
S45	381321.149	5032923.685	S9	381298.542	5032927.621
S45	381321.154	5032923.887	S9	381298.206	5032927.496
S45	381321.153	5032924.089	S9	381297.866	5032927.382
S45	381321.145	5032924.291	S9	381287.164	5032924.395
S45	381321.13	5032924.492	S9	381279.22	5032922.275
S45	381321.108	5032924.693	S9	381270.066	5032920.314
S45	381321.079	5032924.893	S9	381273.896	5032926.903
S45	381321.043	5032925.092	S9	381277.469	5032930.913
S45	381321.001	5032925.29	S9	381278.399	5032931.986
S45	381320.951	5032925.486	S9	381281.347	5032929.355
S45	381320.895	5032925.68	S9	381290.74	5032939.886
S45	381320.832	5032925.872			
S45	381320.763	5032926.062			

;;Storage Node X-Coord Y-Coord

EPA STORM WATER MANAGEMENT MODEL - VERSION 5.2 (Build 5.2.4)							

Element Count							

Number of rain gages 1							
Number of subcatchments ... 17							
Number of nodes 23							
Number of links 28							
Number of pollutants 0							
Number of land uses 0							

Raingage Summary							

Name	Data Source	Data Type	Recording Interval				
3CHI100	3CHI100	INTENSITY	10 min.				

Subcatchment Summary							

Name	Area	Width	%Imperv	%Slope	Rain Gage	Outlet	

S1	0.02	29.61	0.06	2.2000	3CHI100	CB208	
S10	0.03	55.32	99.99	2.2000	3CHI100	CB204	
S11	0.13	65.66	86.54	2.2000	3CHI100	CB202	
S12	0.01	6.44	0.25	2.2000	3CHI100	CB213	
S14_1	0.01	22.78	52.75	2.2000	3CHI100	CB211	
S14_2	0.02	58.12	31.75	2.2000	3CHI100	CB212	
S15	0.04	108.74	26.05	2.2000	3CHI100	CB210B	
S2	0.07	33.61	63.63	2.2000	3CHI100	CB209	
S3	0.07	45.79	96.58	2.2000	3CHI100	CB207	
S32	0.05	29.70	14.28	2.2000	3CHI100	CB214	
S4	0.05	24.67	99.95	2.2000	3CHI100	CB206	
S45	0.02	14.32	99.96	2.2000	3CHI100	CB203	
S5	0.09	82.96	89.95	2.2000	3CHI100	CB200	
S6	0.02	40.30	0.00	2.2000	3CHI100	CB214	
S7	0.07	25.95	100.00	2.2000	3CHI100	520_(P-Stm)	
S8	0.09	35.06	79.93	2.2000	3CHI100	CB201	
S9	0.03	19.08	76.48	2.2000	3CHI100	CB205	

Node Summary							

Name	Type	Invert Elev.	Max. Depth	Ponded Area	External Inflow		

518 Orifice	JUNCTION	81.36	4.11	0.0			
518A_(P-Stm)	OUTFALL	80.65	1.13	0.0			
518_(P-Stm)	STORAGE	81.06	4.41	0.0			
519_(P-Stm)	STORAGE	82.20	3.51	0.0			
520_(P-Stm)	STORAGE	82.49	2.89	0.0			
521_(P-Stm)	STORAGE	81.96	3.67	0.0			
522_(P-Stm)	STORAGE	82.18	3.32	0.0			
CB200	STORAGE	83.18	2.30	0.0			
CB201	STORAGE	83.09	2.66	0.0			
CB202	STORAGE	82.76	2.90	0.0			
CB203	STORAGE	82.75	2.90	0.0			
CB204	STORAGE	82.75	2.75	0.0			
CB205	STORAGE	82.85	2.75	0.0			
CB206	STORAGE	82.77	2.73	0.0			
CB207	STORAGE	83.15	2.23	0.0			
CB208	STORAGE	83.30	2.04	0.0			
CB209	STORAGE	83.20	1.90	0.0			
CB210B	STORAGE	82.65	2.90	0.0			
CB211	STORAGE	83.70	1.90	0.0			
CB212	STORAGE	83.20	2.42	0.0			
CB212A	STORAGE	83.62	2.00	0.0			
CB213	STORAGE	83.15	1.75	0.0			
CB214	STORAGE	82.95	1.90	0.0			

Link Summary							

Name	From Node	To Node	Type	Length	%Slope		

Roughness							
-							
C2	CB208	CB207	CONDUIT	9.7	1.0346		
0.0130							
C4	CB212A	CB212	CONDUIT	18.5	2.0031		
0.0130							
C5	CB211	CB212	CONDUIT	22.3	2.0142		
0.0130							
CB213	CB213	522_(P-Stm)	CONDUIT	8.1	6.0902		
0.0130							
CB214	CB214	522_(P-Stm)	CONDUIT	21.6	1.0162		
0.0130							
Pipe_ (104)_ (P-Stm)_2 518 Orifice		518A_(P-Stm)	CONDUIT	15.6	0.2496		
0.0130							
Pipe_ (110)_ (P-Stm) 521_(P-Stm)		518_(P-Stm)	CONDUIT	27.2	0.3528		
0.0130							
Pipe_ (111)_ (P-Stm) 522_(P-Stm)		521_(P-Stm)	CONDUIT	45.1	0.4990		
0.0130							
Pipe_ (71)_ (P-Stm) 520_(P-Stm)		519_(P-Stm)	CONDUIT	57.1	0.4025		
0.0130							
Pipe_ (72)_ (P-Stm) 519_(P-Stm)		518_(P-Stm)	CONDUIT	32.0	0.5005		
0.0130							
OR1	518_(P-Stm)	518 Orifice	ORIFICE				
W1	CB208	CB209	WEIR				
W3	CB210B	CB202	WEIR				
W4	CB202	CB204	WEIR				
W5	CB206	CB207	WEIR				
W6	CB201	CB200	WEIR				
W7	CB200	CB209	WEIR				
CB200	CB200	520_(P-Stm)	OUTLET				
CB201	CB201	520_(P-Stm)	OUTLET				
CB202	CB202	521_(P-Stm)	OUTLET				
CB203	CB203	521_(P-Stm)	OUTLET				
CB204	CB204	522_(P-Stm)	OUTLET				
CB205	CB205	522_(P-Stm)	OUTLET				
CB206	CB206	522_(P-Stm)	OUTLET				
CB207	CB207	522_(P-Stm)	OUTLET				
CB209	CB209	520_(P-Stm)	OUTLET				
CB210B	CB210B	518_(P-Stm)	OUTLET				
CB212	CB212	521_(P-Stm)	OUTLET				

Cross Section Summary							

Conduit	Shape	Full Depth	Full Area	Hyd. Rad.	Max. Width	No. of Barrels	Full Flow

C2	CIRCULAR	0.20	0.03	0.05	0.20	1	33.36
C4	CIRCULAR	0.25	0.05	0.06	0.25	1	84.17
C5	CIRCULAR	0.25	0.05	0.06	0.25	1	84.40
CB213	CIRCULAR	0.20	0.03	0.05	0.20	1	80.95
CB214	CIRCULAR	0.20	0.03	0.05	0.20	1	33.07
Pipe_ (104)_ (P-Stm)_2 CIRCULAR		0.45	0.16	0.11	0.45	1	142.46
Pipe_ (110)_ (P-Stm) CIRCULAR		0.53	0.22	0.13	0.53	1	255.47
Pipe_ (111)_ (P-Stm) CIRCULAR		0.53	0.22	0.13	0.53	1	303.80
Pipe_ (71)_ (P-Stm) CIRCULAR		0.53	0.22	0.13	0.53	1	272.85
Pipe_ (72)_ (P-Stm) CIRCULAR		0.53	0.22	0.13	0.53	1	304.28

***** Analysis Options *****										Node		Type		Average Depth Meters		Maximum Depth Meters		Maximum HGL Meters		Time of Max Occurrence days hr:min		Reported Max Depth Meters	
Flow Units LPS																							
Process Models:																							
Rainfall/Runoff YES										518 Orifice		JUNCTION		0.08		0.20		81.56		0 01:35		0.20	
RDII NO										518A (P-Stm)		OUTFALL		0.63		0.63		81.28		0 00:00		0.63	
										518 (P-Stm)		STORAGE		1.24		3.78		84.84		0 01:35		3.78	
Snowmelt NO										519 (P-Stm)		STORAGE		0.79		2.65		84.84		0 01:35		2.65	
Groundwater NO										520 (P-Stm)		STORAGE		0.70		2.68		84.85		0 01:35		2.68	
Flow Routing YES										521 (P-Stm)		STORAGE		0.88		2.89		84.84		0 01:35		2.89	
Ponding Allowed NO										522 (P-Stm)		STORAGE		0.79		2.66		84.84		0 01:35		2.66	
Water Quality NO										CB200		STORAGE		0.41		2.14		85.32		0 01:20		2.14	
Infiltration Method HORTON										CB201		STORAGE		0.55		2.57		85.66		0 01:13		2.57	
Flow Routing Method DYNWAVE										CB202		STORAGE		0.58		2.74		85.50		0 01:20		2.74	
Surcharge Method EXTRAN										CB203		STORAGE		0.52		2.66		85.41		0 01:11		2.66	
Starting Date 01/01/2000 00:00:00										CB204		STORAGE		0.61		2.69		85.44		0 01:20		2.69	
Ending Date 01/01/2000 06:00:00										CB205		STORAGE		0.64		2.69		85.54		0 01:20		2.69	
Antecedent Dry Days 0.0										CB206		STORAGE		0.62		2.70		85.47		0 01:10		2.70	
Report Time Step 00:01:00										CB207		STORAGE		0.60		2.18		85.33		0 01:20		2.18	
Wet Time Step 00:01:00										CB208		STORAGE		0.54		2.03		85.33		0 01:21		2.03	
Dry Time Step 00:01:00										CB209		STORAGE		0.62		2.85		85.03		0 01:26		2.85	
Routing Time Step 1.00 sec										CB210B		STORAGE		0.62		2.85		85.50		0 01:20		2.85	
Variable Time Step YES										CB211		STORAGE		0.19		1.18		84.88		0 01:33		1.18	
Maximum Trials 8										CB212		STORAGE		0.31		1.67		84.87		0 01:34		1.67	
Number of Threads 1										CB212A		STORAGE		0.70		1.26		84.88		0 01:34		1.26	
Head Tolerance 0.001500 m										CB213		STORAGE		0.30		1.69		84.84		0 01:35		1.69	
										CB214		STORAGE		0.36		1.89		84.84		0 01:35		1.89	
*****										*****													
Runoff Quantity Continuity										hectare-m		mm		*****									
*****										-----		-----		*****									
Total Precipitation										0.059		71.708		Node Inflow Summary									
Evaporation										0.000		0.000		*****									
Infiltration Loss										0.010		12.470											
Surface Runoff										0.048		58.201											
Final Storage										0.001		1.137											
Continuity Error (%)										-0.140													

Flow Routing Continuity										hectare-m		10^6 ltr											
*****										-----		-----											
Dry Weather Inflow										0.000		0.000											
Wet Weather Inflow										0.048		0.479											
Groundwater Inflow										0.000		0.000											
RDII Inflow										0.000		0.000											
External Inflow										0.000		0.000											
External Outflow										0.048		0.477											
Flooded Loss										0.000		0.000											
Evaporation Loss										0.000		0.000											
Exfiltration Loss										0.000		0.000											
Initial Stored Volume										0.000		0.000											
Final Stored Volume										0.000		0.002											
Continuity Error (%)										-0.023													

Time-Step Critical Elements																							

None																							

Highest Flow Instability Indexes																							

Link W3 (1)																							

Most Frequent Nonconverging Nodes																							

Node 518A (P-Stm) (0.01%)																							
Node CB200 (0.00%)																							
Node CB202 (0.00%)																							
Node CB206 (0.00%)																							

Routing Time Step Summary																							

Minimum Time Step : 0.50 sec																							
Average Time Step : 1.00 sec																							
Maximum Time Step : 1.00 sec																							
% of Time in Steady State : 0.00																							
Average Iterations per Step : 2.00																							
% of Steps Not Converging : 0.01																							
Time Step Frequencies :																							
1.000 - 0.871 sec : 100.00 %																							
0.871 - 0.758 sec : 0.00 %																							
0.758 - 0.660 sec : 0.00 %																							
0.660 - 0.574 sec : 0.00 %																							
0.574 - 0.500 sec : 0.00 %																							

Subcatchment Runoff Summary																							

Total										Total		Peak		Total		Total		Total		Imperv		Perv	
Runoff										Runoff		Runoff		Runoff		Runoff		Runoff		Runoff		Runoff	
mm										mm		mm		mm		mm		mm		mm		mm	
Subcatchment										10^6 ltr		LPS											
*****										-----		-----		-----		-----		-----		-----		-----	
S1										71.71		0.00		0.00		43.70		0.04		28.05			
28.09										0.392													
S10										71.71		0.00		0.00		0.00		70.24		0.00			
70.24										0.980													
S11										71.71		0.00		0.00		5.84		60.78		3.83			
64.61										0.901													
S12										71.71		0.00		0.00		45.10		0.18		26.46			
26.63										0.371													
S14.1										71.71		0.00		0.00		24.62		37.03		46.38			
46.38										0.647													
S14.2										71.71		0.00		0.00		32.72		22.28		38.63			
38.63										0.539													
S15										71.71		0.00		0.00		34.77		18.28		36.69			
36.69										0.512													
S2										71.71		0.00		0.00		15.96		44.70		10.14			
54.84										0.765													
S3										71.71		0.00		0.00		1.48		67.84		0.99			
68.83										0.960													
S32										71.71		0.00		0.00		39.41		10.03		30.12			
32.13										0.448													
S4										71.71		0.00		0.00		0.02		70.19		0.02			
70.21										0.979													
S45										71.71		0.00		0.00		0.02		70.22		0.01			
70.22										0.979													
S5										71.71		0.00		0.00		4.34		66.08		2.89			
66.08										0.921													
S6										71.71		0.00		0.00		43.69		0.00		28.10			
28.10										0.392													
S7										71.71		0.00		0.00		0.00		70.22		0.00			
70.22										0.979													
S8										71.71		0.00		0.00		8.76		61.78		5.65			
61.78										0.862													
S9										71.71		0.00		0.00		10.22		53.73		6.67			
60.40										0.842													
*****										*****													
Node Depth Summary										*****													
*****										*****													
										</													

CB209	0.001	5.3	0.0	0.0	0.007	58.8	0	01:26
23.12								
CB210B	0.001	8.0	0.0	0.0	0.008	71.8	0	01:20
7.06								
CB211	0.000	0.5	0.0	0.0	0.000	3.0	0	01:33
5.42								
CB212	0.000	1.6	0.0	0.0	0.001	8.7	0	01:34
10.11								
CB212A	0.000	10.2	0.0	0.0	0.000	62.8	0	01:34
1.43								
CB213	0.000	4.3	0.0	0.0	0.000	47.8	0	01:35
5.24								
CB214	0.000	7.8	0.0	0.0	0.005	96.4	0	01:35
24.65								

Outfall Loading Summary

Outfall Node	Flow Freq Pcnt	Avg Flow LFS	Max Flow LFS	Total Volume 10^6 ltr
518A (P-Stm)	67.71	32.61	68.14	0.477
System	67.71	32.61	68.14	0.477

Link Flow Summary

Link	Type	Maximum Flow LFS	Time of Max Occurrence days hr:min	Maximum Veloc m/sec	Max/ Full Flow	Max/ Full Depth
C2	CONDUIT	20.87	0 01:02	0.66	0.63	1.00
C4	CONDUIT	5.36	0 01:09	0.15	0.06	1.00
C5	CONDUIT	5.42	0 01:06	0.66	0.06	1.00
CB213	CONDUIT	8.17	0 01:06	0.26	0.10	1.00
CB214	CONDUIT	24.65	0 01:09	0.78	0.75	1.00
Pipe _ (104) _ (P-Stm)	2 CONDUIT	68.14	0 01:36	1.06	0.48	0.42
Pipe _ (110) _ (P-Stm)	CONDUIT	65.85	0 01:05	0.73	0.26	1.00
Pipe _ (111) _ (P-Stm)	CONDUIT	43.21	0 01:05	0.49	0.14	1.00
Pipe _ (71) _ (P-Stm)	CONDUIT	94.30	0 01:03	1.06	0.35	1.00
Pipe _ (72) _ (P-Stm)	CONDUIT	66.35	0 01:06	0.89	0.22	1.00
OR1	ORIFICE	68.14	0 01:35			1.00
W1	WEIR	6.57	0 01:21			0.59
W3	WEIR	21.44	0 01:09			0.53
W4	WEIR	0.00	0 00:00			0.00
W5	WEIR	17.77	0 01:10			0.32
W6	WEIR	5.39	0 01:13			0.06
W7	WEIR	0.00	0 00:00			0.00
CB200	DUMMY	26.03	0 01:05			
CB201	DUMMY	15.45	0 01:04			
CB202	DUMMY	29.14	0 01:02			
CB203	DUMMY	5.65	0 01:07			
CB204	DUMMY	5.40	0 01:04			
CB205	DUMMY	5.13	0 01:06			
CB206	DUMMY	6.89	0 01:02			
CB207	DUMMY	11.38	0 01:04			
CB209	DUMMY	23.12	0 01:05			
CB210B	DUMMY	4.98	0 01:06			
CB212	DUMMY	5.93	0 01:05			

Flow Classification Summary

Conduit	Adjusted /Actual Length	----- Dry	Up Dry	Down Dry	Fraction of Sub Crit	Time in Flow Sup Crit	Up Crit	Down Crit	Norm Ltd	Inlet Ctrl
C2	1.00	0.05	0.00	0.00	0.40	0.00	0.00	0.55	0.07	0.00
C4	1.00	0.17	0.01	0.00	0.26	0.00	0.00	0.56	0.03	0.00
C5	1.00	0.13	0.00	0.00	0.27	0.00	0.00	0.57	0.05	0.00
CB213	1.00	0.05	0.00	0.00	0.32	0.00	0.00	0.63	0.57	0.00
CB214	1.00	0.05	0.00	0.00	0.31	0.00	0.00	0.64	0.03	0.00
Pipe _ (104) _ (P-Stm)	2 1.00	0.07	0.00	0.00	0.00	0.00	0.00	0.93	0.00	0.00
Pipe _ (110) _ (P-Stm)	1.00	0.06	0.00	0.00	0.37	0.00	0.00	0.57	0.00	0.00
Pipe _ (111) _ (P-Stm)	1.00	0.06	0.00	0.00	0.94	0.00	0.00	0.00	0.59	0.00
Pipe _ (71) _ (P-Stm)	1.00	0.06	0.00	0.00	0.33	0.00	0.00	0.62	0.03	0.00
Pipe _ (72) _ (P-Stm)	1.00	0.07	0.00	0.00	0.36	0.00	0.00	0.58	0.02	0.00

Conduit Surcharge Summary

Conduit	----- Both Ends	Hours Full Upstream	----- Dnstream	Hours Above Full Normal Flow	Hours Capacity Limited
C2	1.84	1.84	1.88	0.01	0.01
C4	1.23	1.23	1.47	0.01	0.01
C5	1.18	1.18	1.49	0.01	0.01
CB213	1.46	1.46	1.78	0.01	0.01
CB214	1.59	1.59	1.73	0.01	0.01
Pipe _ (110) _ (P-Stm)	1.83	1.83	1.90	0.01	0.01
Pipe _ (111) _ (P-Stm)	1.68	1.68	1.83	0.01	0.01
Pipe _ (71) _ (P-Stm)	1.49	1.49	1.63	0.01	0.01
Pipe _ (72) _ (P-Stm)	1.67	1.67	1.78	0.01	0.01

Analysis begun on: Wed Jul 16 11:42:05 2025
Analysis ended on: Wed Jul 16 11:42:06 2025
Total elapsed time: 00:00:01

Post-Development 24-hour SCS 1:100-year Event

[TITLE] ;;Project Title/Notes									
[OPTIONS] ;;Option Value FLOW UNITS LPS INFILTRATION HORTON FLOW ROUTING DYNWAVE LINK OFFSETS ELEVATION MIN SLOPE 0 ALLOW PONDING NO SKIP STEADY STATE NO									
START DATE 01/01/2000 START TIME 00:00:00 REPORT START DATE 01/01/2000 REPORT START TIME 00:00:00 END DATE 01/02/2000 END TIME 00:00:00 SWEEP START 01/01 SWEEP END 12/31 DRY DAYS 0 REPORT STEP 00:01:00 WET STEP 00:01:00 DRY STEP 00:01:00 ROUTING STEP 1 RULE STEP 00:00:00									
INERTIAL DAMPING PARTIAL NORMAL FLOW LIMITED BOTH FORCE MAIN EQUATION H-W VARIABLE STEP 0.75 LENGTHENING STEP 0 MIN SURFAREA 0 MAX TRIALS 8 HEAD TOLERANCE 0.0015 SYS FLOW TOL 5 LAT FLOW TOL 5 MINIMUM STEP 0.5 THREADS 12									
[EVAPORATION] ;;Data Source Parameters ----- CONSTANT 0.0 DRY ONLY NO									
[RAINGAGES] ;;Name Format Interval SCF Source ----- 24SCS100 INTENSITY 0:15 1.0 TIMESERIES 24SCS100 3CHI100 INTENSITY 0:10 1.0 TIMESERIES 3CHI100									
[SUBCATCHMENTS] ;;Name Rain Gage Outlet Area %Imperv Width %Slope CurbLen ----- SnowPack ----- S1 24SCS100 CB208 0.0187 0.062 29.61 2.2 0 S10 24SCS100 CB204 0.0283 99.992 55.32 2.2 0 S11 24SCS100 CB202 0.1271 86.538 65.66 2.2 0 S12 24SCS100 CB213 0.0149 0.249 6.44 2.2 0 S14_1 24SCS100 CB211 0.0116 52.747 22.78 2.2 0 S14_2 24SCS100 CB212 0.0179 31.755 58.12 2.2 0 S15 24SCS100 CB210B 0.0368 26.053 108.74 2.2 0 S2 24SCS100 CB209 0.0743 63.632 33.61 2.2 0 S3 24SCS100 CB207 0.07 96.579 45.79 2.2 0 S32 24SCS100 CB214 0.052 14.28 29.7 2.2 0 S4 24SCS100 CB206 0.0467 99.946 24.67 2.2 0 S45 24SCS100 CB203 0.0222 99.962 14.32 2.2 0 S5 24SCS100 CB200 0.0873 89.949 82.96 2.2 0 S6 24SCS100 CB214 0.0239 0.002 40.3 2.2 0 S7 24SCS100 520_ (P-Stm) 0.0686 100 25.95 2.2 0 S8 24SCS100 CB201 0.0944 79.932 35.06 2.2 0 S9 24SCS100 CB205 0.0275 76.485 19.08 2.2 0									
[SUBAREAS] ;;Subcatchment N-Imperv N-Perv S-Imperv S-Perv PctZero RouteTo PctRouted ----- S1 0.013 0.25 1.57 4.67 0 OUTLET S10 0.013 0.25 1.57 4.67 0 OUTLET S11 0.013 0.25 1.57 4.67 0 OUTLET S12 0.013 0.25 1.57 4.67 0 OUTLET S14_1 0.013 0.25 1.57 4.67 0 PERVIOUS 100 S14_2 0.013 0.25 1.57 4.67 0 PERVIOUS 100 S15 0.013 0.25 1.57 4.67 0 PERVIOUS 100 S2 0.013 0.25 1.57 4.67 0 OUTLET S3 0.013 0.25 1.57 4.67 0 OUTLET S32 0.013 0.25 1.57 4.67 0 PERVIOUS 80 S4 0.013 0.25 1.57 4.67 0 IMPERVIOUS 100 S45 0.013 0.25 1.57 4.67 0 IMPERVIOUS 100 S5 0.013 0.25 1.57 4.67 0 OUTLET S6 0.013 0.25 1.57 4.67 0 OUTLET S7 0.013 0.25 1.57 4.67 0 IMPERVIOUS 100 S8 0.013 0.25 1.57 4.67 0 IMPERVIOUS 100 S9 0.013 0.25 1.57 4.67 0 OUTLET									
[INFILTRATION] ;;Subcatchment Param1 Param2 Param3 Param4 Param5 ----- S1 76.2 13.2 4.14 7 0 S10 76.2 13.2 4.14 7 0 S11 76.2 13.2 4.14 7 0 S12 76.2 13.2 4.14 7 0 S14_1 76.2 13.2 4.14 7 0 S14_2 76.2 13.2 4.14 7 0 S15 76.2 13.2 4.14 7 0 S2 76.2 13.2 4.14 7 0 S3 76.2 13.2 4.14 7 0 S32 76.2 13.2 4.14 7 0 S4 76.2 13.2 4.14 7 0 S45 76.2 13.2 4.14 7 0 S5 76.2 13.2 4.14 7 0 S6 76.2 13.2 4.14 7 0 S7 76.2 13.2 4.14 7 0 S8 76.2 13.2 4.14 7 0 S9 76.2 13.2 4.14 7 0									
[JUNCTIONS] ;;Name Elevation MaxDepth InitDepth SurDepth Aponded ----- 518_Orifice 81.361 4.106 0 0 0									
[OUTFALLS] ;;Name Elevation Type Stage Data Gated Route To ----- Cylindrical Structure Slab Top Circular Frame SI 518A_ (P-Stm) 80.646 FIXED 81.27 NO									
[STORAGE] ;;Name Elev. MaxDepth InitDepth Shape Curve Name/Params SurDepth Fevap Psi Keat IMD ----- Cylindrical Structure Slab Top Circular Frame SI 518_ (P-Stm) 81.061 4.406 0.139 FUNCTIONAL 0 0 1.13 0 Cylindrical Structure Slab Top Circular Frame SI 519_ (P-Stm) 82.197 3.512 0 FUNCTIONAL 0 0 1.13 0 Cylindrical Structure Slab Top Circular Frame SI									
520_ (P-Stm)	82.487	2.888	0	FUNCTIONAL	0	0	1.13	0	
0									
Cylindrical Structure Slab Top Circular Frame SI									
521_ (P-Stm)	81.957	3.673	0	FUNCTIONAL	0	0	1.13	0	
0									
Cylindrical Structure Slab Top Circular Frame SI									
522_ (P-Stm)	82.182	3.323	0	FUNCTIONAL	0	0	1.13	0	
0									
85.1800000001676									
CB200	83.18	2.3	0	TABULAR	CB200			0	
0									
85.5000000001435									
CB201	83.09	2.66	0	TABULAR	CB201			0	
0									
85.36									
CB202	82.76	2.9	0	TABULAR	CB202			0	
0									
85.3500000000931									
CB203	82.75	2.9	0	TABULAR	CB203			0	
0									
85.3500080822731									
CB204	82.75	2.75	0	TABULAR	CB204			0	
0									
85.4500080823662									
CB205	82.85	2.75	0	TABULAR	CB205			0	
0									
85.48									
CB206	82.77	2.73	0	TABULAR	CB206			0	
0									
85.05									
CB207	83.15	2.23	0	TABULAR	CB207			0	
0									
84.9000080821652									
CB208	83.3	2.04	0	TABULAR	CB208			0	
0									
84.8									
CB209	83.2	1.9	0	TABULAR	CB209			0	
0									
85.25									
CB210B	82.65	2.9	0	TABULAR	CB210B			0	
0									
85.35									
CB211	83.7	1.9	0	TABULAR	CB211			0	
0									
85.4									
CB212	83.2	2.42	0	TABULAR	CB212			0	
0									
85.5000000000554									
CB212A	83.62	2	0	TABULAR	CB212A			0	
0									
84.75									
CB213	83.15	1.75	0	TABULAR	CB213			0	
0									
84.55									
CB214	82.95	1.9	0	TABULAR	CB214			0	
0									
[CONDUITS] From Node To Node Length Roughness InOffset OutOffset InitFlow MaxFlow ----- C2 CB208 CB207 9.666 0.013 83.3 83.2 0 0 C4 CB212A CB212 18.475 0.013 83.62 83.25 0 0 C5 CB211 CB212 22.346 0.013 83.7 83.25 0 0 CB213 CB213 522_ (P-Stm) 8.11 0.013 83.15 82.657 0 0 CB214 CB214 522_ (P-Stm) 21.65 0.013 82.95 82.73 0 0 PVC Pipes Pipe _ (104) (P-Stm) 2 518_Orifice 518A_ (P-Stm) 15.623 0.013 81.361 81.322 0 0 PVC Pipes Pipe _ (110) (P-Stm) 521_ (P-Stm) 518_ (P-Stm) 27.209 0.013 82.257 82.161 0 0 PVC Pipes Pipe _ (111) (P-Stm) 522_ (P-Stm) 521_ (P-Stm) 45.094 0.013 82.482 82.257 0 0 Concrete Pipes 100-D Pipe _ (71) (P-Stm) 520_ (P-Stm) 519_ (P-Stm) 57.146 0.013 82.787 82.557 0 0 Concrete Pipes 100-D Pipe _ (72) (P-Stm) 519_ (P-Stm) 518_ (P-Stm) 31.967 0.013 82.497 82.337 0 0									
[ORIFICES] From Node To Node Type Offset Qcoeff Gated Name CloseTime ----- OR1 518_ (P-Stm) 518_Orifice SIDE 81.361 0.65 NO									
[WEIRS] EndCon EndCoeff From Node SurchARGE RoadWidth RoadSurf Type CrestHt Qcoeff Gated Coeff. Curve ----- W1 0 CB208 CB209 TRANSVERSE 85.31 1.84 NO W3 0 CB210B CB202 TRANSVERSE 85.45 1.84 NO 0 0 NO W4 0 CB202 CB204 TRANSVERSE 85.55 1.84 NO W5 0 CB206 CB207 TRANSVERSE 85.45 1.84 NO W6 0 CB201 NO TRANSVERSE 85.65 1.84 NO W7 0 CB200 NO TRANSVERSE 85.42 1.84 NO 0 0 NO									
[OUTLETS] ;;Name From Node To Node Offset Type QTable/Qcoeff Qexpon Gated ----- CB200 CB200 520_ (P-Stm) 83.18 TABULAR/HEAD IPEX_Type_A NO Critical CB201 CB201 520_ (P-Stm) 83.09 TABULAR/HEAD Vortex_ICD_105 NO Critical CB202 CB202 521_ (P-Stm) 82.76 TABULAR/HEAD IPEX_Type_A NO CB203 CB203 521_ (P-Stm) 82.75 TABULAR/HEAD Vortex_ICD_70 NO CB204 CB204 522_ (P-Stm) 82.75 TABULAR/HEAD Vortex_ICD_65 NO CB205 CB205 522_ (P-Stm) 82.85 TABULAR/HEAD Vortex_ICD_65 NO CB206 CB206 522_ (P-Stm) 82.77 TABULAR/HEAD Vortex_ICD_70 NO CB207 CB207 522_ (P-Stm) 83.15 TABULAR/HEAD Vortex_ICD_95 NO CB209 CB209 520_ (P-Stm) 83.2 TABULAR/HEAD IPEX_Type_A NO CB210B CB210B 518_ (P-Stm) 82.65 TABULAR/HEAD Vortex_ICD_65 NO CB212 CB212 521_ (P-Stm) 83.2 TABULAR/HEAD Vortex_ICD_100 NO									
[XSECTIONS] ;;Link Geom1 Geom2 Geom3 Geom4 Barrels Culvert -----									

C2	CIRCULAR	0.2	0	0	0	1	Vortex ICD 100	2	12.6
C4	CIRCULAR	0.25	0	0	0	1	Vortex ICD 100	2.5	14.1
C5	CIRCULAR	0.25	0	0	0	1	Vortex ICD 100	3	15.5
CB213	CIRCULAR	0.2	0	0	0	1	;Tempest Rating Curve for Vortex ICD 105, No grate allowance		
CB214	CIRCULAR	0.2	0	0	0	1	Vortex ICD 105	0	0
Pipe _ (104) (P-Stm) 2	CIRCULAR	0.45	0	0	0	1	Vortex ICD 105	0.1	3.1
Pipe _ (110) (P-Stm)	CIRCULAR	0.525	0	0	0	1	Vortex ICD 105	0.2	4.4
Pipe _ (111) (P-Stm)	CIRCULAR	0.525	0	0	0	1	Vortex ICD 105	0.3	5.4
Pipe _ (71) (P-Stm)	CIRCULAR	0.525	0	0	0	1	Vortex ICD 105	0.4	6.2
Pipe _ (72) (P-Stm)	CIRCULAR	0.525	0	0	0	1	Vortex ICD 105	0.5	6.9
OR1	CIRCULAR	0.129	0	0	0	0	Vortex ICD 105	0.6	7.6
W1	RECT OPEN	0.03	1.5	0	0	0	Vortex ICD 105	0.7	8.2
W3	RECT OPEN	0.1	1.34	0	0	0	Vortex ICD 105	0.8	8.8
W4	RECT OPEN	0.11	4.9	0	0	0	Vortex ICD 105	0.9	9.3
W5	RECT OPEN	0.05	4.725	0	0	0	Vortex ICD 105	1.2	10.7
W6	RECT OPEN	0.1	6	0	0	0	Vortex ICD 105	1.4	11.6
W7	RECT OPEN	0.06	10.5	0	0	0	Vortex ICD 105	1.6	12.4
[LOSSES]									
;Link									
;Kentry Kexit Kavg Flap Gate Seepage									
[CURVES]									
;Name									
;Type X-Value Y-Value									
CB210-OUT85.5	Rating	0	0	;Tempest Rating Curve for Vortex ICD 40, No grate allowance					
CB210-OUT85.5		85.5	0.04	Vortex ICD 40 Rating 0 0					
CB210-OUT85.5		100	0.04	Vortex ICD 40 0.1 0.4					
				Vortex ICD 40 0.2 0.2					
				Vortex ICD 40 0.3 0.7					
CB210-OUT-85.6	Rating	0	0	Vortex ICD 40 0.4 0.9					
CB210-OUT-85.6		85.6	0.08	Vortex ICD 40 0.5 1					
CB210-OUT-85.6		100	0.08	Vortex ICD 40 0.6 1					
				Vortex ICD 40 0.7 1.2					
				Vortex ICD 40 0.8 1.1					
				Vortex ICD 40 0.9 1.3					
				Vortex ICD 40 1 1.4					
				Vortex ICD 40 1.2 1.5					
				Vortex ICD 40 1.4 1.6					
				Vortex ICD 40 1.6 1.7					
				Vortex ICD 40 1.8 1.8					
				Vortex ICD 40 2 1.9					
				Vortex ICD 40 2.5 2.2					
				Vortex ICD 40 3 2.4					
;IPEX Type A ICD Rating Curve									
IPEX Type A	Rating	0	0	;Tempest Rating Curve for Vortex ICD 45, No grate allowance					
IPEX Type A		0.1	5.7	Vortex ICD 45 Rating 0 0					
IPEX Type A		0.2	8.1	Vortex ICD 45 0.1 0.6					
IPEX Type A		0.3	9.9	Vortex ICD 45 0.2 0.8					
IPEX Type A		0.4	11.4	Vortex ICD 45 0.3 1					
IPEX Type A		0.5	12.8	Vortex ICD 45 0.4 1.1					
IPEX Type A		0.6	14	Vortex ICD 45 0.5 1.3					
IPEX Type A		0.7	15.1	Vortex ICD 45 0.6 1.4					
IPEX Type A		0.8	16.2	Vortex ICD 45 0.7 1.5					
IPEX Type A		0.9	17.2	Vortex ICD 45 0.8 1.6					
IPEX Type A		1	18.1	Vortex ICD 45 0.9 1.7					
IPEX Type A		1.2	19.8	Vortex ICD 45 1 1.8					
IPEX Type A		1.4	21.4	Vortex ICD 45 1.2 2.1					
IPEX Type A		1.6	22.9	Vortex ICD 45 1.4 2.1					
IPEX Type A		1.8	24.3	Vortex ICD 45 1.6 2.3					
IPEX Type A		2	25.6	Vortex ICD 45 1.8 2.4					
IPEX Type A		2.5	28.6	Vortex ICD 45 2 2.6					
IPEX Type A		3	31.3	Vortex ICD 45 2.5 2.9					
				Vortex ICD 45 3 3.1					
;IPEX Type B ICD Rating Curve									
IPEX Type B	Rating	0	0	;Tempest Rating Curve for Vortex ICD 50, No grate allowance					
IPEX Type B		0.1	8.1	Vortex ICD 50 Rating 0 0					
IPEX Type B		0.2	11.5	Vortex ICD 50 0.1 0.7					
IPEX Type B		0.3	14.1	Vortex ICD 50 0.2 1					
IPEX Type B		0.4	16.2	Vortex ICD 50 0.3 1.2					
IPEX Type B		0.5	18.2	Vortex ICD 50 0.4 1.4					
IPEX Type B		0.6	19.9	Vortex ICD 50 0.5 1.6					
IPEX Type B		0.7	21.5	Vortex ICD 50 0.6 1.8					
IPEX Type B		0.8	23	Vortex ICD 50 0.7 1.9					
IPEX Type B		0.9	24.4	Vortex ICD 50 0.8 2					
IPEX Type B		1	25.7	Vortex ICD 50 0.9 2.1					
IPEX Type B		1.2	28.1	Vortex ICD 50 1 2.5					
IPEX Type B		1.4	30.4	Vortex ICD 50 1.2 2.5					
IPEX Type B		1.6	32.5	Vortex ICD 50 1.4 2.7					
IPEX Type B		1.8	34.4	Vortex ICD 50 1.6 2.9					
IPEX Type B		2	36.3	Vortex ICD 50 1.8 3					
IPEX Type B		2.5	40.6	Vortex ICD 50 2 3.2					
IPEX Type B		3	44.5	Vortex ICD 50 2.5 3.6					
				Vortex ICD 50 3 3.9					
;IPEX Type C ICD Rating Curve									
IPEX Type C	Rating	0	0	;Tempest Rating Curve for Vortex ICD 55, No grate allowance					
IPEX Type C		0.1	10.6	Vortex ICD 55 Rating 0 0					
IPEX Type C		0.2	15	Vortex ICD 55 0.1 0.9					
IPEX Type C		0.3	18.3	Vortex ICD 55 0.2 1.2					
IPEX Type C		0.4	21.2	Vortex ICD 55 0.3 1.5					
IPEX Type C		0.5	23.7	Vortex ICD 55 0.4 1.7					
IPEX Type C		0.6	25.9	Vortex ICD 55 0.5 1.9					
IPEX Type C		0.7	28	Vortex ICD 55 0.6 2.1					
IPEX Type C		0.8	29.9	Vortex ICD 55 0.7 2.3					
IPEX Type C		0.9	31.7	Vortex ICD 55 0.8 2.4					
IPEX Type C		1	33.5	Vortex ICD 55 0.9 2.6					
IPEX Type C		1.2	36.6	Vortex ICD 55 1 2.7					
IPEX Type C		1.4	39.6	Vortex ICD 55 1.2 3					
IPEX Type C		1.6	42.3	Vortex ICD 55 1.4 3.2					
IPEX Type C		1.8	44.9	Vortex ICD 55 1.6 3.4					
IPEX Type C		2	47.3	Vortex ICD 55 1.8 3.6					
IPEX Type C		2.5	52.9	Vortex ICD 55 2 3.8					
IPEX Type C		3	57.9	Vortex ICD 55 2.5 4.3					
				Vortex ICD 55 3 4.7					
;IPEX Type AA ICD Rating Curve									
IPEX Type D	Rating	0	0	;Tempest Rating Curve for Vortex ICD 60, No grate allowance					
IPEX Type D		0.1	15.4	Vortex ICD 60 Rating 0 0					
IPEX Type D		0.2	21.7	Vortex ICD 60 0.1 1.1					
IPEX Type D		0.3	26.6	Vortex ICD 60 0.2 1.5					
IPEX Type D		0.4	30.7	Vortex ICD 60 0.3 1.8					
IPEX Type D		0.5	34.3	Vortex ICD 60 0.4 2.1					
IPEX Type D		0.6	37.6	Vortex ICD 60 0.5 2.3					
IPEX Type D		0.7	40.6	Vortex ICD 60 0.6 2.5					
IPEX Type D		0.8	43.4	Vortex ICD 60 0.7 2.7					
IPEX Type D		0.9	46.1	Vortex ICD 60 0.8 2.9					
IPEX Type D		1	48.5	Vortex ICD 60 0.9 3.1					
IPEX Type D		1.2	53.2	Vortex ICD 60 1 3.2					
IPEX Type D		1.4	57.4	Vortex ICD 60 1.2 3.6					
IPEX Type D		1.6	61.4	Vortex ICD 60 1.4 3.8					
IPEX Type D		1.8	65.1	Vortex ICD 60 1.6 4.1					
IPEX Type D		2	68.7	Vortex ICD 60 1.8 4.3					
IPEX Type D		2.5	76.8	Vortex ICD 60 2 4.6					
IPEX Type D		3	84.1	Vortex ICD 60 2.5 5.1					
				Vortex ICD 60 3 5.6					
;IPEX Type E ICD Rating Curve									
IPEX Type E	Rating	0	0	;Tempest Rating Curve for Vortex ICD 65, No grate allowance					
IPEX Type E		0.1	20.5	Vortex ICD 65 Rating 0 0					
IPEX Type E		0.2	28.9	Vortex ICD 65 0.1 1.2					
IPEX Type E		0.3	35.5	Vortex ICD 65 0.2 1.6					
IPEX Type E		0.4	40.9	Vortex ICD 65 0.3 2					
IPEX Type E		0.5	45.8	Vortex ICD 65 0.4 2.3					
IPEX Type E		0.6	50.1	Vortex ICD 65 0.5 2.5					
IPEX Type E		0.7	54.2	Vortex ICD 65 0.6 2.8					
IPEX Type E		0.8	57.9	Vortex ICD 65 0.7 3					
IPEX Type E		0.9	61.4	Vortex ICD 65 0.8 3.2					
IPEX Type E		1	64.7	Vortex ICD 65 0.9 3.4					
IPEX Type E		1.2	70.9	Vortex ICD 65 1 3.6					
IPEX Type E		1.4	76.6	Vortex ICD 65 1.2 4					
IPEX Type E		1.6	81.9	Vortex ICD 65 1.4 4.3					
IPEX Type E		1.8	86.8	Vortex ICD 65 1.6 4.6					
IPEX Type E		2	91.5	Vortex ICD 65 1.8 4.9					
IPEX Type E		2.5	102.3	Vortex ICD 65 2 5.1					
IPEX Type E		3	112.1	Vortex ICD 65 2.5 5.7					
				Vortex ICD 65 3 6.3					
;Tempest Rating Curve for Vortex ICD 100, No grate allowance									
Vortex ICD 100	Rating	0	0	;Tempest Rating Curve for Vortex ICD 70, No grate allowance					
Vortex ICD 100		0.1	2.8	Vortex ICD 70 Rating 0 0					
Vortex ICD 100		0.2	4	Vortex ICD 70 0.1 1.3					
Vortex ICD 100		0.3	4.9	Vortex ICD 70 0.2 1.9					
Vortex ICD 100		0.4	5.6	Vortex ICD 70 0.3 2.3					
Vortex ICD 100		0.5	6.3						
Vortex ICD 100		0.6	6.9						
Vortex ICD 100		0.7	7.5						
Vortex ICD 100		0.8	8						
Vortex ICD 100		0.9	8.5						
Vortex ICD 100		1	8.9						
Vortex ICD 100		1.2	9.8						
Vortex ICD 100		1.4	10.6						
Vortex ICD 100		1.6	11.3						
Vortex ICD 100		1.8	12						

Vortex ICD 70	0.4	2.7	CB207		2.23	143.01
Vortex ICD 70	0.5	3				
Vortex ICD 70	0.6	3.3	CB208	Storage	0	0.073
Vortex ICD 70	0.7	3.6	CB208		1.74	0.073
Vortex ICD 70	0.8	3.8	CB208		2.01	67.88
Vortex ICD 70	0.9	4.1	CB208		2.04	67.88
Vortex ICD 70	1	4.3				
Vortex ICD 70	1.2	4.7	CB209	Storage	0	0.073
Vortex ICD 70	1.4	5.1	CB209		1.6	0.073
Vortex ICD 70	1.6	5.5	CB209		1.9	79.07
Vortex ICD 70	1.8	5.8				
Vortex ICD 70	2	6.1	CB210B	Storage	0	0.073
Vortex ICD 70	2.5	6.8	CB210B		2.6	0.073
Vortex ICD 70	3	7.5	CB210B		2.9	70.98
;Tempest Rating Curve for Vortex ICD 75, No grate allowance						
Vortex ICD 75	Rating	0	CB211	Storage	0	0.073
Vortex ICD 75	0.1	1.6	CB211		1.65	0.073
Vortex ICD 75	0.2	2.2	CB211		1.9	21.99
Vortex ICD 75	0.3	2.7				
Vortex ICD 75	0.4	3.2	CB212	Storage	0	0.36
Vortex ICD 75	0.5	3.5	CB212		2.2	0.36
Vortex ICD 75	0.6	3.9	CB212		2.42	55.12
Vortex ICD 75	0.7	4.2				
Vortex ICD 75	0.8	4.5	CB212A	Storage	0	0.073
Vortex ICD 75	0.9	4.8	CB212A		2	0.073
Vortex ICD 75	1	5				
Vortex ICD 75	1.2	5.5	CB213	Storage	0	0.073
Vortex ICD 75	1.4	5.9	CB213		1.6	0.073
Vortex ICD 75	1.6	6.3	CB213		1.75	9.05
Vortex ICD 75	1.8	6.7				
Vortex ICD 75	2	7.1	CB214	Storage	0	0.073
Vortex ICD 75	2.5	7.9	CB214		1.6	0.073
Vortex ICD 75	3	8.7	CB214		1.9	34.75
;Tempest Rating Curve for Vortex ICD 80, No grate allowance						
Vortex ICD 80	Rating	0	[TIMESERIES]			
Vortex ICD 80	0.1	1.8	;Name Date Time Value			
Vortex ICD 80	0.2	2.6	;Rainfall (mm/hr)			
Vortex ICD 80	0.3	3.1	24SCS100	01/01/2000 00:00:00	1.548	
Vortex ICD 80	0.4	4.6	24SCS100	01/01/2000 00:15:00	1.548	
Vortex ICD 80	0.5	4	24SCS100	01/01/2000 00:30:00	1.548	
Vortex ICD 80	0.6	4.4	24SCS100	01/01/2000 00:45:00	1.548	
Vortex ICD 80	0.7	4.8	24SCS100	01/01/2000 01:00:00	0.7224	
Vortex ICD 80	0.8	5.1	24SCS100	01/01/2000 01:15:00	0.7224	
Vortex ICD 80	0.9	5.4	24SCS100	01/01/2000 01:30:00	0.7224	
Vortex ICD 80	1	5.7	24SCS100	01/01/2000 01:45:00	0.7224	
Vortex ICD 80	1.2	6.3	24SCS100	01/01/2000 02:00:00	1.3416	
Vortex ICD 80	1.4	6.8	24SCS100	01/01/2000 02:15:00	1.3416	
Vortex ICD 80	1.6	7.2	24SCS100	01/01/2000 02:30:00	1.3416	
Vortex ICD 80	1.8	7.7	24SCS100	01/01/2000 02:45:00	1.3416	
Vortex ICD 80	2	8.1	24SCS100	01/01/2000 03:00:00	1.3416	
Vortex ICD 80	2.5	9	24SCS100	01/01/2000 03:15:00	1.3416	
Vortex ICD 80	3	9.9	24SCS100	01/01/2000 03:30:00	1.3416	
;Tempest Rating Curve for Vortex ICD 85, No grate allowance						
Vortex ICD 85	Rating	0	24SCS100	01/01/2000 03:45:00	1.3416	
Vortex ICD 85	0.1	2	24SCS100	01/01/2000 04:00:00	1.7544	
Vortex ICD 85	0.2	2.9	24SCS100	01/01/2000 04:15:00	1.7544	
Vortex ICD 85	0.3	3.5	24SCS100	01/01/2000 04:30:00	1.7544	
Vortex ICD 85	0.4	4	24SCS100	01/01/2000 04:45:00	1.7544	
Vortex ICD 85	0.5	4.5	24SCS100	01/01/2000 05:00:00	1.548	
Vortex ICD 85	0.6	5	24SCS100	01/01/2000 05:15:00	1.548	
Vortex ICD 85	0.7	5.4	24SCS100	01/01/2000 05:30:00	1.548	
Vortex ICD 85	0.8	5.7	24SCS100	01/01/2000 05:45:00	1.548	
Vortex ICD 85	0.9	6.1	24SCS100	01/01/2000 06:00:00	2.064	
Vortex ICD 85	1	6.4	24SCS100	01/01/2000 06:15:00	2.064	
Vortex ICD 85	1.2	7	24SCS100	01/01/2000 06:30:00	2.064	
Vortex ICD 85	1.4	7.6	24SCS100	01/01/2000 06:45:00	2.064	
Vortex ICD 85	1.6	8.1	24SCS100	01/01/2000 07:00:00	2.064	
Vortex ICD 85	1.8	8.6	24SCS100	01/01/2000 07:15:00	2.064	
Vortex ICD 85	2	9.1	24SCS100	01/01/2000 07:30:00	2.064	
Vortex ICD 85	2.5	10.1	24SCS100	01/01/2000 07:45:00	2.064	
Vortex ICD 85	3	11.1	24SCS100	01/01/2000 08:00:00	2.7864	
;Tempest Rating Curve for Vortex ICD 90, No grate allowance						
Vortex ICD 90	Rating	0	24SCS100	01/01/2000 08:15:00	2.7864	
Vortex ICD 90	0.1	2	24SCS100	01/01/2000 08:30:00	2.7864	
Vortex ICD 90	0.2	3.2	24SCS100	01/01/2000 08:45:00	2.7864	
Vortex ICD 90	0.3	3.9	24SCS100	01/01/2000 09:00:00	3.3024	
Vortex ICD 90	0.4	4.5	24SCS100	01/01/2000 09:15:00	3.3024	
Vortex ICD 90	0.5	5.1	24SCS100	01/01/2000 09:30:00	3.7152	
Vortex ICD 90	0.6	5.5	24SCS100	01/01/2000 09:45:00	3.7152	
Vortex ICD 90	0.7	6	24SCS100	01/01/2000 10:00:00	4.7472	
Vortex ICD 90	0.8	6.4	24SCS100	01/01/2000 10:15:00	4.7472	
Vortex ICD 90	0.9	6.8	24SCS100	01/01/2000 10:30:00	4.7472	
Vortex ICD 90	1	7.2	24SCS100	01/01/2000 10:45:00	6.3984	
Vortex ICD 90	1.2	7.9	24SCS100	01/01/2000 11:00:00	6.3984	
Vortex ICD 90	1.4	8.5	24SCS100	01/01/2000 11:15:00	9.9072	
Vortex ICD 90	1.6	9.1	24SCS100	01/01/2000 11:30:00	9.9072	
Vortex ICD 90	1.8	9.6	24SCS100	01/01/2000 11:45:00	42.9312	
Vortex ICD 90	2	10.2	24SCS100	01/01/2000 12:00:00	113.9328	
Vortex ICD 90	2.5	11.4	24SCS100	01/01/2000 12:15:00	14.8608	
Vortex ICD 90	3	12.5	24SCS100	01/01/2000 12:30:00	14.8608	
;Tempest Rating Curve for Vortex ICD 95, No grate allowance						
Vortex ICD 95	Rating	0	24SCS100	01/01/2000 12:45:00	7.6368	
Vortex ICD 95	0.1	3	24SCS100	01/01/2000 13:00:00	7.6368	
Vortex ICD 95	0.2	3.6	24SCS100	01/01/2000 13:15:00	5.5728	
Vortex ICD 95	0.3	4.4	24SCS100	01/01/2000 13:30:00	5.5728	
Vortex ICD 95	0.4	5.1	24SCS100	01/01/2000 13:45:00	4.3344	
Vortex ICD 95	0.5	5.7	24SCS100	01/01/2000 14:00:00	4.3344	
Vortex ICD 95	0.6	6.2	24SCS100	01/01/2000 14:15:00	4.3344	
Vortex ICD 95	0.7	6.7	24SCS100	01/01/2000 14:30:00	3.3024	
Vortex ICD 95	0.8	7.1	24SCS100	01/01/2000 14:45:00	3.3024	
Vortex ICD 95	0.9	7.6	24SCS100	01/01/2000 15:00:00	3.3024	
Vortex ICD 95	1	8	24SCS100	01/01/2000 15:15:00	2.8896	
Vortex ICD 95	1.2	8.7	24SCS100	01/01/2000 15:30:00	2.8896	
Vortex ICD 95	1.4	9.4	24SCS100	01/01/2000 15:45:00	2.8896	
Vortex ICD 95	1.6	10.1	24SCS100	01/01/2000 16:00:00	2.8896	
Vortex ICD 95	1.8	10.7	24SCS100	01/01/2000 16:15:00	2.8896	
Vortex ICD 95	2	11.3	24SCS100	01/01/2000 16:30:00	2.2704	
Vortex ICD 95	2.5	12.6	24SCS100	01/01/2000 16:45:00	2.2704	
Vortex ICD 95	3	13.8	24SCS100	01/01/2000 16:55:00	2.2704	
CB200	Storage	0	0.36	24SCS100	01/01/2000 17:00:00	2.3736
CB200		2	0.36	24SCS100	01/01/2000 17:15:00	2.3736
CB200	2.24	217.85		24SCS100	01/01/2000 17:30:00	2.3736
CB200	2.3	217.85		24SCS100	01/01/2000 17:45:00	2.3736
CB201	Storage	0	0.36	24SCS100	01/01/2000 18:00:00	1.548
CB201		2.41	0.36	24SCS100	01/01/2000 18:15:00	1.548
CB201		2.56	176.22	24SCS100	01/01/2000 18:30:00	1.548
CB201		2.66	176.22	24SCS100	01/01/2000 18:45:00	1.548
CB202	Storage	0	0.36	24SCS100	01/01/2000 19:00:00	1.2384
CB202		2.6	0.36	24SCS100	01/01/2000 19:15:00	1.2384
CB202		2.79	263.51	24SCS100	01/01/2000 19:30:00	1.2384
CB202		2.9	263.51	24SCS100	01/01/2000 19:45:00	1.2384
CB203	Storage	0	0.36	24SCS100	01/01/2000 20:00:00	1.7544
CB203		2.6	0.36	24SCS100	01/01/2000 20:15:00	1.7544
CB203		2.9	178.09	24SCS100	01/01/2000 20:30:00	1.7544
CB204	Storage	0	0.36	24SCS100	01/01/2000 20:45:00	1.7544
CB204		2.6	0.36	24SCS100	01/01/2000 21:00:00	1.7544
CB204		2.75	146.08	24SCS100	01/01/2000 21:15:00	1.7544
CB205	Storage	0	0.36	24SCS100	01/01/2000 21:30:00	1.7544
CB205		2.6	0.36	24SCS100	01/01/2000 21:45:00	1.7544
CB205		2.75	79.14	24SCS100	01/01/2000 22:00:00	1.7544
CB206	Storage	0	0.36	24SCS100	01/01/2000 22:15:00	1.7544
CB206		2.6	0.36	24SCS100	01/01/2000 22:30:00	1.7544
CB206		2.68	51	24SCS100	01/01/2000 22:45:00	1.7544
CB206		2.73	51	24SCS100	01/01/2000 23:00:00	1.7544
CB207	Storage	0	0.36	24SCS100	01/01/2000 23:15:00	1.7544
CB207		1.97	0.36	24SCS100	01/01/2000 23:30:00	1.7544
;Rainfall (mm/hr)						
3CHI100				01/01/2000 00:00:00	5.339	
3CHI100				01/01/2000 00:15:00	6.376	
3CHI100				01/01/2000 00:30:00	7.977	
3CHI100				01/01/2000 00:45:00	10.797	
3CHI100				01/01/2000 01:00:00	17.136	
3CHI100				01/01/2000 01:15:00	45.128	
3CHI100				01/01/2000 01:30:00	178.107	
3CHI100				01/01/2000 01:45:00	51.056	
3CHI100				01/01/2000 02:00:00	26.163	
3CHI100				01/01/2000 02:15:00	17.571	
3CHI100				01/01/2000 02:30:00	13.277	
3CHI100				01/01/2000 02:45:00	10.712	

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3CHI100      01/01/2000 02:00:00  9.008
3CHI100      01/01/2000 02:10:00  7.793
3CHI100      01/01/2000 02:20:00  6.883
3CHI100      01/01/2000 02:30:00  6.174
3CHI100      01/01/2000 02:40:00  5.607
3CHI100      01/01/2000 02:50:00  5.142
3CHI100      01/01/2000 03:00:00  0

[REPORT]
;;Reporting Options
INPUT        YES
CONTROLS     NO
SUBCATCHMENTS ALL
NODES ALL
LINKS ALL

[TAGS]
Node      518 Orifice      RY Manhole
Node      CB200            RY Manhole
Node      CB201            RY Manhole
Node      CB202            RY Manhole
Node      CB203            RY Manhole
Node      CB204            RY Manhole
Node      CB205            RY Manhole
Node      CB206            RY Manhole
Node      CB207            RY Manhole
Node      CB208            RY Manhole
Node      CB209            RY Manhole
Node      CB210B           RY Manhole
Node      CB211            RY Manhole
Node      CB212            RY Manhole
Node      CB212A           RY Manhole
Node      CB213            RY Manhole
Node      CB214            RY Manhole
Link      C2              RY Sewer
Link      C4              RY Sewer
Link      C5              RY Sewer

[MAP]
DIMENSIONS      381219.0294      5032865.6782      381334.8286      5033009.9278
UNITS           Meters

[COORDINATES]
;;Node      X-Coord      Y-Coord
;;-----
518 Orifice      381303.7      5032953.188
518A (P-Stm)     381317.029      5032955.797
518 (P-Stm)      381301.695      5032952.807
519 (P-Stm)      381278.558      5032974.866
520 (P-Stm)      381240.562      5032932.182
521 (P-Stm)      381309.324      5032926.69
522 (P-Stm)      381267.739      5032909.252
CB200            381246.119      5032946.933
CB201            381266.142      5032969.504
CB202            381305.816      5032949.229
CB203            381314.519      5032914.342
CB204            381291.187      5032921.779
CB205            381286.939      5032925.282
CB206            381270.233      5032913.017
CB207            381253.811      5032910.356
CB208            381248.314      5032902.406
CB209            381228.288      5032926.78
CB210B           381314.246      5032963.095
CB211            381319.351      5032951.771
CB212            381328.283      5032931.888
CB212A           381326.507      5032912.9
CB213            381296.875      5032912.718
CB214            381282.831      5032893.727

[VERTICES]
;;Link      X-Coord      Y-Coord
;;-----
W4          381305.808      5032934.267
W4          381304.151      5032928.843

[POLYGONS]
;;Subcatchment X-Coord      Y-Coord
;;-----
S1          381237.464      5032904.825
S1          381240.329      5032905.467
S1          381240.224      5032906.884
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S1          381246.383      5032909.624
S1          381246.444      5032909.681
S1          381246.506      5032909.663
S1          381246.568      5032909.68
S1          381246.631      5032909.695
S1          381246.695      5032909.707
S1          381246.758      5032909.717
S1          381246.823      5032909.725
S1          381246.887      5032909.731
S1          381246.951      5032909.734
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S1          381247.273      5032909.717
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S11	381309.355	5032955.284	S11	381306.65	5032920.862
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S11	381321.153	5032924.089	S12	381287.803	5032916.054
S11	381321.154	5032923.887	S12	381288.053	5032916.115
S11	381321.149	5032923.685	S12	381288.306	5032916.167
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S11	381321.116	5032923.282	S12	381288.815	5032916.245
S11	381321.089	5032923.082	S12	381289.072	5032916.27
S11	381321.056	5032922.882	S12	381289.329	5032916.286
S11	381321.016	5032922.684	S12	381289.587	5032916.293
S11	381320.968	5032922.488	S12	381289.845	5032916.292
S11	381320.914	5032922.293	S12	381290.102	5032916.281
S11	381320.854	5032922.1	S12	381290.359	5032916.261
S11	381320.787	5032921.909	S12	381290.615	5032916.232
S11	381320.713	5032921.721	S12	381290.87	5032916.194
S11	381320.633	5032921.536	S12	381291.124	5032916.147
S11	381320.546	5032921.353	S12	381291.376	5032916.092
S11	381320.453	5032921.174	S12	381301.944	5032913.56
S11	381320.354	5032920.997	S12	381312.521	5032911.026
S11	381320.249	5032920.825	S12	381312.897	5032910.942
S11	381320.138	5032920.656	S12	381313.277	5032910.876
S11	381320.022	5032920.491	S12	381313.658	5032910.815
S11	381319.899	5032920.33	S12	381314.041	5032910.771
S11	381319.772	5032920.173	S12	381314.426	5032910.74
S11	381319.639	5032920.021	S12	381314.811	5032910.723
S11	381319.5	5032919.873	S12	381315.196	5032910.719
S11	381319.357	5032919.731	S12	381315.582	5032910.728
S11	381319.209	5032919.593	S12	381315.967	5032910.751
S11	381319.056	5032919.461	S12	381316.351	5032910.787
S11	381318.899	5032919.334	S12	381316.733	5032910.836
S11	381318.738	5032919.212	S12	381317.114	5032910.899
S11	381318.572	5032919.096	S12	381317.492	5032910.974
S11	381318.403	5032918.986	S12	381317.867	5032911.063
S11	381318.23	5032918.882	S12	381318.239	5032911.164
S11	381318.053	5032918.784	S12	381318.608	5032911.279
S11	381317.873	5032918.692	S12	381318.972	5032911.406
S11	381317.69	5032918.606	S12	381319.331	5032911.545
S11	381317.504	5032918.526	S12	381319.686	5032911.697
S11	381317.316	5032918.454	S12	381320.035	5032911.861
S11	381317.125	5032918.387	S12	381320.378	5032912.037
S11	381316.932	5032918.327	S12	381320.715	5032912.223
S11	381316.737	5032918.274	S12	381321.045	5032912.424
S11	381316.54	5032918.228	S12	381321.368	5032912.635
S11	381316.342	5032918.188	S12	381321.684	5032912.856
S11	381316.142	5032918.156	S12	381321.992	5032913.089
S11	381315.942	5032918.13	S12	381322.291	5032913.332
S11	381315.741	5032918.111	S12	381322.582	5032913.585

S12	381322.864	5032913.848	S15	381307.576	5032955.767
S12	381323.137	5032914.121	S15	381307.578	5032955.788
S12	381323.4	5032914.402	S15	381307.58	5032955.798
S12	381323.653	5032914.693	S15	381307.584	5032955.813
S14_1	381325.118	5032942.295	S15	381307.587	5032955.828
S14_1	381325.119	5032942.291	S15	381307.592	5032955.843
S14_1	381315.128	5032937.954	S15	381307.596	5032955.858
S14_1	381312.262	5032944.556	S15	381307.602	5032955.873
S14_1	381316.645	5032946.459	S15	381307.608	5032955.887
S14_1	381316.055	5032947.841	S15	381307.614	5032955.901
S14_1	381314.418	5032951.61	S15	381307.621	5032955.915
S14_1	381314.331	5032951.803	S15	381307.628	5032955.929
S14_1	381314.236	5032951.993	S15	381307.636	5032955.943
S14_1	381314.136	5032952.179	S15	381307.644	5032955.956
S14_1	381314.029	5032952.362	S15	381307.653	5032955.969
S14_1	381313.915	5032952.541	S15	381307.662	5032955.984
S14_1	381313.796	5032952.716	S15	381307.671	5032955.994
S14_1	381313.67	5032952.887	S15	381307.681	5032956.006
S14_1	381313.539	5032953.053	S15	381307.691	5032956.017
S14_1	381315.106	5032952.425	S15	381307.702	5032956.028
S14_1	381319.796	5032954.473	S15	381307.713	5032956.039
S14_1	381325.118	5032942.295	S15	381307.725	5032956.05
S14_2	381315.128	5032937.954	S15	381307.737	5032956.06
S14_2	381325.119	5032942.291	S15	381307.749	5032956.069
S14_2	381329.565	5032932.118	S15	381307.762	5032956.078
S14_2	381326.899	5032904.508	S15	381307.774	5032956.087
S14_2	381323.653	5032914.693	S15	381307.788	5032956.095
S14_2	381323.897	5032914.993	S15	381307.801	5032956.103
S14_2	381324.13	5032915.301	S15	381307.815	5032956.111
S14_2	381324.352	5032915.617	S15	381307.829	5032956.117
S14_2	381324.563	5032915.94	S15	381307.843	5032956.124
S14_2	381324.763	5032916.27	S15	381307.857	5032956.13
S14_2	381324.951	5032916.607	S15	381312.567	5032958.198
S14_2	381325.127	5032916.951	S15	381303.014	5032979.889
S14_2	381325.291	5032917.3	S15	381295.304	5032987.144
S14_2	381325.443	5032917.655	S15	381292.551	5032987.117
S14_2	381325.583	5032918.015	S15	381287.784	5032991.636
S14_2	381325.71	5032918.38	S15	381282.905	5032994.561
S14_2	381325.824	5032918.749	S15	381281.494	5032995.818
S14_2	381325.926	5032919.121	S15	381279.321	5032994.458
S14_2	381326.014	5032919.497	S15	381277.296	5032994.481
S14_2	381326.089	5032919.876	S15	381285.409	5033003.364
S14_2	381326.152	5032920.257	S2	381229.574	5032940.908
S14_2	381326.2	5032920.64	S2	381231.494	5032939.439
S14_2	381326.236	5032921.024	S2	381235.664	5032935.737
S14_2	381326.258	5032921.41	S2	381235.698	5032935.707
S14_2	381326.267	5032921.796	S2	381235.73	5032935.676
S14_2	381326.262	5032922.182	S2	381235.761	5032935.643
S14_2	381326.244	5032922.567	S2	381235.791	5032935.61
S14_2	381326.213	5032922.952	S2	381235.82	5032935.576
S14_2	381326.168	5032923.336	S2	381235.847	5032935.54
S14_2	381326.11	5032923.717	S2	381235.874	5032935.504
S14_2	381326.039	5032924.097	S2	381235.899	5032935.467
S14_2	381325.955	5032924.474	S2	381235.923	5032935.429
S14_2	381325.857	5032924.847	S2	381235.945	5032935.39
S14_2	381325.747	5032925.217	S2	381235.966	5032935.35
S14_2	381325.624	5032925.583	S2	381235.986	5032935.31
S14_2	381325.488	5032925.945	S2	381236.004	5032935.269
S14_2	381325.34	5032926.301	S2	381236.021	5032935.227
S14_2	381322.339	5032933.237	S2	381236.036	5032935.185
S14_2	381317.996	5032931.347	S2	381236.05	5032935.142
S14_2	381315.128	5032937.954	S2	381236.063	5032935.099
S15	381285.409	5033003.364	S2	381236.074	5032935.056
S15	381285.416	5033003.371	S2	381236.083	5032935.012
S15	381307.633	5032982.361	S2	381236.091	5032934.968
S15	381319.796	5032954.473	S2	381236.097	5032933.927
S15	381315.106	5032952.425	S2	381236.102	5032934.879
S15	381313.539	5032953.053	S2	381241.879	5032933.622
S15	381313.403	5032953.214	S2	381248.763	5032931.065
S15	381313.26	5032953.371	S2	381252.847	5032935.651
S15	381313.113	5032953.523	S2	381261.463	5032927.977
S15	381312.96	5032953.67	S2	381253.342	5032918.873
S15	381312.803	5032953.811	S2	381247.333	5032914.893
S15	381312.64	5032953.947	S2	381240.224	5032908.8847
S15	381312.473	5032954.077	S2	381240.329	5032905.467
S15	381312.302	5032954.201	S2	381237.464	5032904.825
S15	381312.127	5032954.319	S2	381236.796	5032905.109
S15	381311.947	5032954.432	S2	381236.138	5032905.412
S15	381311.764	5032954.538	S2	381235.492	5032905.745
S15	381311.577	5032954.637	S2	381234.857	5032906.097
S15	381311.387	5032954.73	S2	381234.234	5032906.47
S15	381311.194	5032954.817	S2	381233.625	5032906.864
S15	381310.998	5032954.897	S2	381233.029	5032907.279
S15	381310.799	5032954.97	S2	381232.448	5032907.714
S15	381310.598	5032955.036	S2	381231.883	5032908.169
S15	381310.395	5032955.095	S2	381231.333	5032908.645
S15	381310.19	5032955.147	S2	381230.801	5032909.136
S15	381309.983	5032955.192	S2	381230.285	5032909.647
S15	381309.775	5032955.23	S2	381229.787	5032910.175
S15	381309.565	5032955.261	S2	381229.308	5032910.72
S15	381309.355	5032955.284	S2	381228.848	5032911.281
S15	381309.144	5032955.301	S2	381228.407	5032911.858
S15	381308.933	5032955.31	S2	381227.986	5032912.449
S15	381308.721	5032955.311	S2	381227.586	5032913.051
S15	381308.509	5032955.306	S2	381227.207	5032913.674
S15	381308.298	5032955.293	S2	381226.85	5032914.306
S15	381308.087	5032955.273	S2	381226.515	5032914.949
S15	381308.072	5032955.271	S2	381226.201	5032915.601
S15	381308.056	5032955.269	S2	381225.911	5032916.269
S15	381308.041	5032955.268	S2	381225.644	5032916.944
S15	381308.025	5032955.267	S2	381225.399	5032917.627
S15	381308.01	5032955.268	S2	381225.179	5032918.319
S15	381307.994	5032955.268	S2	381224.983	5032919.018
S15	381307.979	5032955.269	S2	381224.81	5032919.723
S15	381307.963	5032955.271	S2	381224.662	5032920.433
S15	381307.948	5032955.273	S2	381224.539	5032921.148
S15	381307.933	5032955.276	S2	381224.44	5032922.861
S15	381307.918	5032955.279	S2	381224.366	5032922.589
S15	381307.902	5032955.283	S2	381224.317	5032923.313
S15	381307.888	5032955.287	S2	381224.293	5032924.039
S15	381307.873	5032955.292	S2	381224.294	5032924.765
S15	381307.858	5032955.297	S2	381224.319	5032925.49
S15	381307.844	5032955.303	S2	381224.37	5032926.214
S15	381307.83	5032955.309	S2	381224.445	5032926.936
S15	381307.816	5032955.316	S2	381224.546	5032927.655
S15	381307.802	5032955.324	S2	381224.671	5032928.369
S15	381307.788	5032955.331	S2	381224.82	5032929.08
S15	381307.775	5032955.34	S2	381224.994	5032929.784
S15	381307.762	5032955.348	S2	381225.192	5032930.483
S15	381307.75	5032955.358	S2	381225.414	5032931.174
S15	381307.738	5032955.367	S2	381225.659	5032931.857
S15	381307.726	5032955.377	S2	381225.928	5032932.531
S15	381307.714	5032955.388	S2	381226.22	5032933.195
S15	381307.703	5032955.398	S2	381226.535	5032933.849
S15	381307.692	5032955.41	S2	381226.871	5032934.492
S15	381307.682	5032955.421	S2	381227.23	5032935.123
S15	381307.672	5032955.433	S2	381227.61	5032935.741
S15	381307.662	5032955.445	S2	381228.012	5032936.346
S15	381307.653	5032955.458	S2	381228.434	5032936.937
S15	381307.644	5032955.471	S2	381228.875	5032937.512
S15	381307.636	5032955.484	S2	381229.337	5032938.073
S15	381307.628	5032955.497	S2	381228.728	5032939.841
S15	381307.621	5032955.511	S2	381229.574	5032940.908
S15	381307.614	5032955.525	S3	381247.333	5032914.893
S15	381307.608	5032955.539	S3	381253.342	5032918.873
S15	381307.602	5032955.554	S3	381261.463	5032927.977
S15	381307.597	5032955.568	S3	381270.066	5032920.314
S15	381307.592	5032955.583	S3	381266.009	5032915.759
S15	381307.588	5032955.598	S3	381263.137	5032909.615
S15	381307.584	5032955.613	S3	381262.174	5032905.929
S15	381307.581	5032955.628	S3	381267.671	5032893.471
S15	381307.578	5032955.644	S3	381273.26	5032892.25
S15	381307.576	5032955.659	S3	381277.713	5032887.77
S15	381307.574	5032955.674	S3	381273.216	5032876.217
S15	381307.573	5032955.69	S3	381264.625	5032879.785
S15	381307.572	5032955.705	S3	381259.547	5032884.338
S15	381307.572	5032955.721	S3	381248.706	5032908.638
S15	381307.573	5032955.737	S3	381248.679	5032908.697
S15	381307.574	5032955.752	S3	381248.65	5032908.754

S3	381248.618	5032908.811	S45	381306.708	5032920.316
S3	381248.585	5032908.866	S45	381306.721	5032920.29
S3	381248.55	5032908.92	S45	381306.735	5032920.264
S3	381248.513	5032908.973	S45	381306.75	5032920.238
S3	381248.474	5032909.025	S45	381306.765	5032920.213
S3	381248.433	5032909.075	S45	381306.782	5032920.189
S3	381248.391	5032909.124	S45	381306.799	5032920.165
S3	381248.347	5032909.171	S45	381306.817	5032920.142
S3	381248.301	5032909.217	S45	381306.836	5032920.119
S3	381248.254	5032909.261	S45	381306.855	5032920.097
S3	381248.205	5032909.303	S45	381306.876	5032920.074
S3	381248.155	5032909.344	S45	381306.897	5032920.055
S3	381248.104	5032909.382	S45	381306.919	5032920.036
S3	381248.051	5032909.42	S45	381306.941	5032920.017
S3	381247.996	5032909.455	S45	381306.964	5032919.998
S3	381247.941	5032909.488	S45	381306.988	5032919.981
S3	381247.885	5032909.519	S45	381307.012	5032919.964
S3	381247.827	5032909.549	S45	381307.037	5032919.949
S3	381247.769	5032909.576	S45	381307.062	5032919.934
S3	381247.709	5032909.601	S45	381307.088	5032919.92
S3	381247.649	5032909.624	S45	381307.115	5032919.907
S3	381247.588	5032909.645	S45	381307.142	5032919.895
S3	381247.526	5032909.664	S45	381307.169	5032919.883
S3	381247.464	5032909.681	S45	381307.196	5032919.873
S3	381247.401	5032909.695	S45	381307.224	5032919.864
S3	381247.337	5032909.707	S45	381307.252	5032919.855
S3	381247.273	5032909.718	S45	381307.281	5032919.848
S3	381247.209	5032909.725	S45	381313.935	5032918.254
S3	381247.145	5032909.731	S45	381314.132	5032918.21
S3	381247.081	5032909.734	S45	381314.331	5032918.174
S3	381247.016	5032909.735	S45	381314.531	5032918.144
S3	381246.951	5032909.734	S45	381314.731	5032918.121
S3	381246.887	5032909.731	S45	381314.933	5032918.105
S3	381246.823	5032909.725	S45	381315.135	5032918.096
S3	381246.758	5032909.717	S45	381315.337	5032918.094
S3	381246.695	5032909.707	S45	381315.539	5032918.099
S3	381246.631	5032909.695	S45	381315.741	5032918.111
S3	381246.568	5032909.68	S45	381315.942	5032918.13
S3	381246.506	5032909.664	S45	381316.142	5032918.156
S3	381246.444	5032909.645	S45	381316.342	5032918.188
S3	381246.383	5032909.624	S45	381316.54	5032918.228
S3	381246.323	5032909.6	S45	381316.737	5032918.274
S3	381246.264	5032909.575	S45	381316.932	5032918.327
S3	381240.224	5032906.884	S45	381317.125	5032918.387
S3	381247.333	5032914.893	S45	381317.316	5032918.454
S32	381316.177	5032907.046	S45	381317.504	5032918.526
S32	381314.837	5032892.442	S45	381317.69	5032918.606
S32	381302.448	5032892.682	S45	381317.873	5032918.692
S32	381285.059	5032894.459	S45	381318.053	5032918.784
S32	381287.051	5032914.024	S45	381318.23	5032918.882
S32	381316.177	5032907.046	S45	381318.403	5032918.986
S4	381277.713	5032887.77	S45	381318.572	5032919.096
S4	381273.26	5032892.25	S45	381318.738	5032919.213
S4	381267.671	5032893.471	S45	381318.899	5032919.334
S4	381262.174	5032905.929	S45	381319.056	5032919.461
S4	381263.137	5032909.615	S45	381319.209	5032919.593
S4	381266.009	5032915.759	S45	381319.357	5032919.731
S4	381270.066	5032920.314	S45	381319.5	5032919.873
S4	381279.22	5032922.275	S45	381319.639	5032920.021
S4	381282.247	5032908.62	S45	381319.772	5032920.173
S4	381281.421	5032900.349	S45	381319.899	5032920.33
S4	381281.302	5032899.332	S45	381320.022	5032920.491
S4	381281.148	5032898.318	S45	381320.138	5032920.656
S4	381280.961	5032897.311	S45	381320.249	5032920.825
S4	381280.739	5032896.311	S45	381320.354	5032920.997
S4	381280.483	5032895.319	S45	381320.456	5032921.174
S4	381280.194	5032894.336	S45	381320.546	5032921.353
S4	381279.871	5032893.363	S45	381320.633	5032921.536
S4	381279.516	5032892.402	S45	381320.713	5032921.721
S4	381277.713	5032887.77	S45	381320.785	5032921.909
S45	381318.388	5032931.518	S45	381320.854	5032922.1
S45	381322.339	5032933.237	S45	381320.914	5032922.293
S45	381325.34	5032926.301	S45	381320.968	5032922.488
S45	381325.488	5032925.945	S45	381321.016	5032922.684
S45	381325.624	5032925.583	S45	381321.056	5032922.882
S45	381325.747	5032925.217	S45	381321.089	5032923.082
S45	381325.857	5032924.847	S45	381321.116	5032923.282
S45	381325.955	5032924.474	S45	381321.136	5032923.483
S45	381326.039	5032924.097	S45	381321.149	5032923.685
S45	381326.11	5032923.717	S45	381321.154	5032923.887
S45	381326.168	5032923.336	S45	381321.153	5032924.089
S45	381326.213	5032922.952	S45	381321.145	5032924.291
S45	381326.244	5032922.567	S45	381321.13	5032924.492
S45	381326.262	5032922.182	S45	381321.108	5032924.693
S45	381326.267	5032921.796	S45	381321.079	5032924.893
S45	381326.258	5032921.41	S45	381321.043	5032925.092
S45	381326.236	5032921.024	S45	381321.001	5032925.29
S45	381326.2	5032920.64	S45	381320.951	5032925.486
S45	381326.152	5032920.257	S45	381320.895	5032925.68
S45	381326.089	5032919.876	S45	381320.832	5032925.872
S45	381326.014	5032919.497	S45	381320.763	5032926.062
S45	381325.926	5032919.121	S45	381320.687	5032926.249
S45	381325.824	5032918.749	S45	381320.605	5032926.434
S45	381325.71	5032918.38	S45	381318.388	5032931.518
S45	381325.583	5032918.015	S5	381273.896	5032926.903
S45	381325.443	5032917.655	S5	381270.066	5032920.314
S45	381325.291	5032917.3	S5	381260.944	5032928.409
S45	381325.127	5032916.951	S5	381252.847	5032935.651
S45	381324.951	5032916.607	S5	381248.763	5032931.065
S45	381324.763	5032916.27	S5	381241.879	5032933.622
S45	381324.563	5032915.94	S5	381236.102	5032934.879
S45	381324.352	5032915.617	S5	381236.097	5032934.927
S45	381324.13	5032915.301	S5	381236.091	5032934.968
S45	381323.897	5032914.993	S5	381236.083	5032935.012
S45	381323.653	5032914.693	S5	381236.074	5032935.056
S45	381323.41	5032914.402	S5	381236.063	5032935.099
S45	381323.137	5032914.121	S5	381236.05	5032935.142
S45	381322.864	5032913.848	S5	381236.036	5032935.185
S45	381322.582	5032913.585	S5	381236.021	5032935.227
S45	381322.291	5032913.332	S5	381236.004	5032935.269
S45	381321.992	5032913.089	S5	381235.986	5032935.31
S45	381321.684	5032912.856	S5	381235.966	5032935.35
S45	381321.368	5032912.635	S5	381235.945	5032935.39
S45	381321.045	5032912.424	S5	381235.923	5032935.429
S45	381320.715	5032912.225	S5	381235.899	5032935.467
S45	381320.378	5032912.037	S5	381235.874	5032935.504
S45	381320.035	5032911.861	S5	381235.847	5032935.54
S45	381319.686	5032911.697	S5	381235.82	5032935.576
S45	381319.331	5032911.545	S5	381235.791	5032935.61
S45	381318.972	5032911.406	S5	381235.761	5032935.643
S45	381318.608	5032911.279	S5	381235.73	5032935.676
S45	381318.239	5032911.164	S5	381235.698	5032935.707
S45	381317.867	5032911.063	S5	381235.664	5032935.737
S45	381317.492	5032910.974	S5	381231.494	5032939.439
S45	381317.114	5032910.899	S5	381229.574	5032940.908
S45	381316.733	5032910.836	S5	381237.652	5032951.091
S45	381316.351	5032910.787	S5	381247.43	5032961.793
S45	381315.967	5032910.751	S5	381253.986	5032955.803
S45	381315.582	5032910.728	S5	381260.454	5032950.066
S45	381315.196	5032910.719	S5	381267.957	5032943.374
S45	381314.811	5032910.723	S5	381266.93	5032944.221
S45	381314.426	5032910.74	S5	381278.399	5032931.986
S45	381314.041	5032910.771	S5	381277.469	5032930.913
S45	381313.658	5032910.815	S5	381273.896	5032926.903
S45	381313.277	5032910.872	S6	381286.59	5032915.621
S45	381312.897	5032910.942	S6	381287.051	5032914.024
S45	381312.521	5032911.026	S6	381283.538	5032879.508
S45	381301.944	5032913.56	S6	381282.803	5032872.235
S45	381302.601	5032917.181	S6	381273.216	5032876.217
S45	381306.632	5032920.599	S6	381277.713	5032887.77
S45	381306.635	5032920.57	S6	381279.516	5032892.402
S45	381306.64	5032920.54	S6	381279.871	5032893.363
S45	381306.645	5032920.511	S6	381280.194	5032894.336
S45	381306.651	5032920.483	S6	381280.483	5032895.319
S45	381306.658	5032920.454	S6	381280.739	5032896.311
S45	381306.666	5032920.426	S6	381280.961	5032897.311
S45	381306.675	5032920.398	S6	381281.148	5032898.318
S45	381306.685	5032920.37	S6	381281.302	5032899.332
S45	381306.696	5032920.343	S6	381281.421	5032900.349

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CB210B	0.000	0.9	0.0	0.0	0.006	56.0	0	12:02
5.18								
CB211	0.000	0.1	0.0	0.0	0.000	2.6	0	12:12
3.47								
CB212	0.000	0.3	0.0	0.0	0.001	8.0	0	12:11
5.76								
CB212A	0.000	1.6	0.0	0.0	0.000	55.6	0	12:11
1.40								
CB213	0.000	0.5	0.0	0.0	0.000	14.3	0	12:09
2.17								
CB214	0.000	0.3	0.0	0.0	0.002	34.3	0	12:09
18.86								

Outfall Loading Summary

Outfall Node	Flow Pcmt	Avg Flow LPS	Max Flow LPS	Total Volume 10^6 ltr
518A (P-Stm)	92.92	8.09	66.82	0.650
System	92.92	8.09	66.82	0.650

Link Flow Summary

Link	Type	Maximum Flow LPS	Time of Max Occurrence days hr:min	Maximum Veloc m/sec	Max/ Full Flow	Max/ Full Depth
C2	CONDUIT	11.94	0 11:48	0.38	0.36	1.00
C4	CONDUIT	5.00	0 11:56	0.12	0.06	1.00
C5	CONDUIT	4.04	0 11:55	0.60	0.05	1.00
CB213	CONDUIT	6.37	0 11:50	0.34	0.08	1.00
CB214	CONDUIT	18.86	0 12:00	0.64	0.57	1.00
Pipe _ (104) (P-Stm)	2 CONDUIT	66.82	0 12:08	1.05	0.47	0.42
Pipe _ (110) (P-Stm)	CONDUIT	60.68	0 11:49	0.73	0.24	1.00
Pipe _ (111) (P-Stm)	CONDUIT	38.40	0 11:49	0.48	0.13	1.00
Pipe _ (71) (P-Stm)	CONDUIT	69.53	0 11:51	0.87	0.25	1.00
Pipe _ (72) (P-Stm)	CONDUIT	46.37	0 11:50	0.89	0.15	1.00
OR1	ORIFICE	66.82	0 12:08			1.00
W1	WEIR	0.00	0 00:00			0.00
W3	WEIR	11.78	0 12:00			0.28
W4	WEIR	0.00	0 00:00			0.00
W5	WEIR	10.33	0 12:00			0.22
W6	WEIR	0.00	0 00:00			0.00
W7	WEIR	0.00	0 00:00			0.00
CB200	DUMMY	24.35	0 11:51			
CB201	DUMMY	15.31	0 11:49			
CB202	DUMMY	27.59	0 11:48			
CB203	DUMMY	4.29	0 11:59			
CB204	DUMMY	4.73	0 11:53			
CB205	DUMMY	4.48	0 11:55			
CB206	DUMMY	6.53	0 11:49			
CB207	DUMMY	11.23	0 11:49			
CB209	DUMMY	18.43	0 11:53			
CB210B	DUMMY	4.66	0 11:53			
CB212	DUMMY	4.74	0 11:50			

Flow Classification Summary

Conduit	Adjusted /Actual Length	--- Dry	Up Dry	Down Dry	Fraction of Crit	Time in Flow Sup	Class Up	Down	Norm Ltd	Inlet Ctrl
C2	1.00	0.06	0.00	0.00	0.09	0.00	0.00	0.85	0.02	0.00
C4	1.00	0.48	0.01	0.00	0.05	0.00	0.00	0.45	0.01	0.00
C5	1.00	0.48	0.00	0.00	0.06	0.00	0.00	0.46	0.02	0.00
CB213	1.00	0.05	0.00	0.00	0.07	0.00	0.00	0.88	0.03	0.00
CB214	1.00	0.04	0.00	0.00	0.07	0.00	0.00	0.89	0.01	0.00
Pipe _ (104) (P-Stm)	2 1.00	0.07	0.00	0.00	0.00	0.00	0.00	0.93	0.00	0.00
Pipe _ (110) (P-Stm)	1.00	0.06	0.00	0.00	0.08	0.00	0.00	0.85	0.00	0.00
Pipe _ (111) (P-Stm)	1.00	0.06	0.00	0.00	0.93	0.00	0.00	0.00	0.86	0.00
Pipe _ (71) (P-Stm)	1.00	0.06	0.00	0.00	0.07	0.00	0.00	0.87	0.01	0.00
Pipe _ (72) (P-Stm)	1.00	0.07	0.00	0.00	0.08	0.00	0.00	0.85	0.01	0.00

Conduit Surcharge Summary

Conduit	----- Both Ends	Hours Full Upstream	----- Dnstream	Hours Above Full Normal Flow	Hours Capacity Limited
C2	1.56	1.56	1.60	0.01	0.01
C4	0.88	0.88	1.13	0.01	0.01
C5	0.83	0.83	1.15	0.01	0.01
CB213	1.16	1.16	1.48	0.01	0.01
CB214	1.28	1.28	1.42	0.01	0.01
Pipe _ (110) (P-Stm)	1.54	1.54	1.64	0.01	0.01
Pipe _ (111) (P-Stm)	1.37	1.37	1.54	0.01	0.01
Pipe _ (71) (P-Stm)	1.18	1.18	1.32	0.01	0.01
Pipe _ (72) (P-Stm)	1.36	1.36	1.47	0.01	0.01

Analysis begun on: Wed Jul 16 11:51:28 2025
Analysis ended on: Wed Jul 16 11:51:29 2025
Total elapsed time: 00:00:01

Stormceptor®EF Sizing Report

Imbrium® Systems

ESTIMATED NET ANNUAL SEDIMENT (TSS) LOAD REDUCTION

08/28/2024

Province:	Ontario	Project Name:	Navan Gas Bar
City:	Ottawa	Project Number:	29899-002
Nearest Rainfall Station:	OTTAWA CDA RCS	Designer Name:	Bobby Pettigrew
Climate Station Id:	6105978	Designer Company:	J.L. Richards & Associates Ltd
Years of Rainfall Data:	20	Designer Email:	bpettigrew@jlrchards.ca
		Designer Phone:	343-804-5381
Site Name:		EOR Name:	
		EOR Company:	
Drainage Area (ha):	0.82	EOR Email:	
% Imperviousness:	73.64	EOR Phone:	

Runoff Coefficient 'c': 0.74

Particle Size Distribution:	Fine
Target TSS Removal (%):	80.0

Required Water Quality Runoff Volume Capture (%):	90.00
Estimated Water Quality Flow Rate (L/s):	19.63
Oil / Fuel Spill Risk Site?	Yes
Upstream Flow Control?	Yes
Upstream Orifice Control Flow Rate to Stormceptor (L/s):	66.00
Peak Conveyance (maximum) Flow Rate (L/s):	66.00
Influent TSS Concentration (mg/L):	200
Estimated Average Annual Sediment Load (kg/yr):	657
Estimated Average Annual Sediment Volume (L/yr):	534

Net Annual Sediment (TSS) Load Reduction Sizing Summary

Stormceptor Model	TSS Removal Provided (%)
EFO4	80
EFO6	90
EFO8	95
EFO10	97
EFO12	99

Recommended Stormceptor EFO Model: **EFO4**
 Estimated Net Annual Sediment (TSS) Load Reduction (%): **80**
 Water Quality Runoff Volume Capture (%): **> 90**

Stormceptor® EF Sizing Report

THIRD-PARTY TESTING AND VERIFICATION

► **Stormceptor® EF and Stormceptor® EFO** are the latest evolutions in the Stormceptor® oil-grit separator (OGS) technology series, and are designed to remove a wide variety of pollutants from stormwater and snowmelt runoff. These technologies have been third-party tested in accordance with the Canadian ETV **Procedure for Laboratory Testing of Oil-Grit Separators** and performance has been third-party verified in accordance with the **ISO 14034 Environmental Technology Verification (ETV)** protocol.

PERFORMANCE

► **Stormceptor® EF and EFO** remove stormwater pollutants through gravity separation and floatation, and feature a patent-pending design that generates positive removal of total suspended solids (TSS) throughout each storm event, including high-intensity storms. Captured pollutants include sediment, free oils, and sediment-bound pollutants such as nutrients, heavy metals, and petroleum hydrocarbons. Stormceptor is sized to remove a high level of TSS from the frequent rainfall events that contribute the vast majority of annual runoff volume and pollutant load. The technology incorporates an internal bypass to convey excessive stormwater flows from high-intensity storms through the device without resuspension and washout (scour) of previously captured pollutants. Proper routine maintenance ensures high pollutant removal performance and protection of downstream waterways.

PARTICLE SIZE DISTRIBUTION (PSD)

► The **Canadian ETV PSD** shown in the table below was used, or in part, for this sizing. This is the identical PSD that is referenced in the Canadian ETV **Procedure for Laboratory Testing of Oil-Grit Separators** for both sediment removal testing and scour testing. The Canadian ETV PSD contains a wide range of particle sizes in the sand and silt fractions, and is considered reasonably representative of the particle size fractions found in typical urban stormwater runoff.

Particle Size (µm)	Percent Less Than	Particle Size Fraction (µm)	Percent
1000	100	500-1000	5
500	95	250-500	5
250	90	150-250	15
150	75	100-150	15
100	60	75-100	10
75	50	50-75	5
50	45	20-50	10
20	35	8-20	15
8	20	5-8	10
5	10	2-5	5
2	5	<2	5

Stormceptor®EF Sizing Report

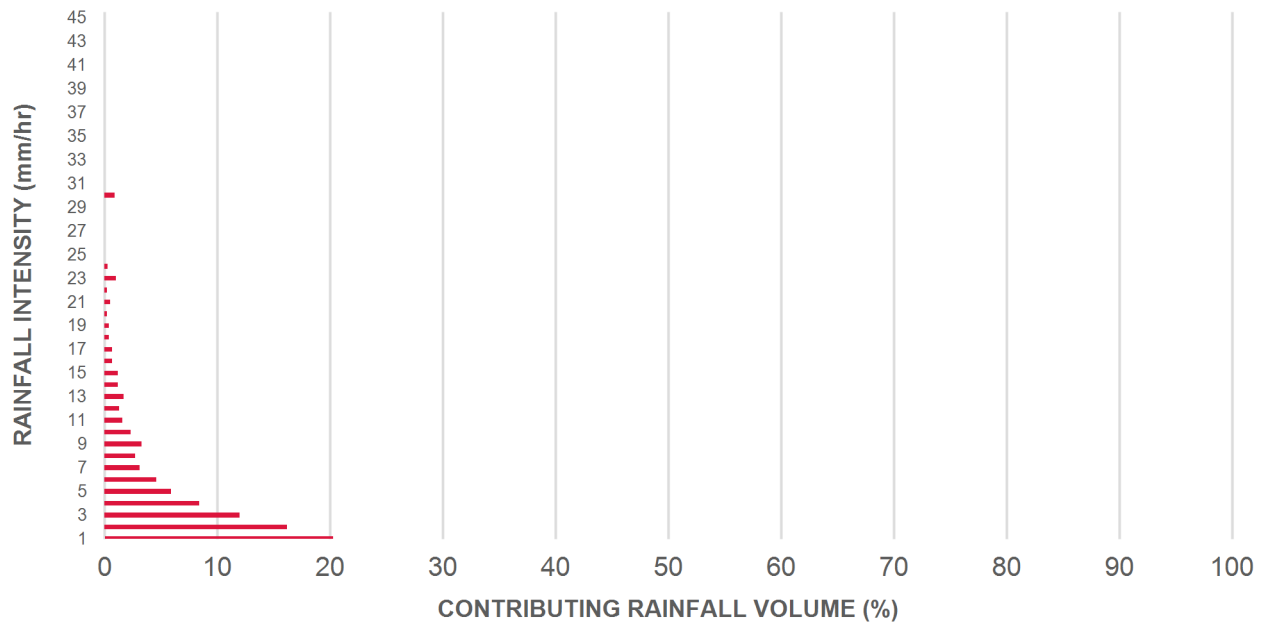
Upstream Flow Controlled Results

Rainfall Intensity (mm / hr)	Percent Rainfall Volume (%)	Cumulative Rainfall Volume (%)	Flow Rate (L/s)	Flow Rate (L/min)	Surface Loading Rate (L/min/m²)	Removal Efficiency (%)	Incremental Removal (%)	Cumulative Removal (%)
0.50	8.6	8.6	0.85	51.0	42.0	100	8.6	8.6
1.00	20.3	29.0	1.69	101.0	85.0	98	20.0	28.6
2.00	16.2	45.2	3.38	203.0	169.0	87	14.1	42.7
3.00	12.0	57.2	5.07	304.0	254.0	81	9.7	52.4
4.00	8.4	65.6	6.76	406.0	338.0	77	6.5	58.9
5.00	5.9	71.6	8.46	507.0	423.0	73	4.3	63.3
6.00	4.6	76.2	10.15	609.0	507.0	69	3.2	66.5
7.00	3.1	79.3	11.84	710.0	592.0	65	2.0	68.5
8.00	2.7	82.0	13.53	812.0	676.0	64	1.8	70.2
9.00	3.3	85.3	15.22	913.0	761.0	63	2.1	72.3
10.00	2.3	87.6	16.91	1015.0	846.0	63	1.4	73.8
11.00	1.6	89.2	18.60	1116.0	930.0	62	1.0	74.8
12.00	1.3	90.5	20.29	1218.0	1015.0	61	0.8	75.6
13.00	1.7	92.2	21.98	1319.0	1099.0	59	1.0	76.6
14.00	1.2	93.5	23.68	1421.0	1184.0	57	0.7	77.3
15.00	1.2	94.6	25.37	1522.0	1268.0	56	0.6	77.9
16.00	0.7	95.3	27.06	1623.0	1353.0	53	0.4	78.3
17.00	0.7	96.1	28.75	1725.0	1437.0	51	0.4	78.7
18.00	0.4	96.5	30.44	1826.0	1522.0	48	0.2	78.9
19.00	0.4	96.9	32.13	1928.0	1607.0	46	0.2	79.1
20.00	0.2	97.1	33.82	2029.0	1691.0	43	0.1	79.2
21.00	0.5	97.5	35.51	2131.0	1776.0	41	0.2	79.4
22.00	0.2	97.8	37.20	2232.0	1860.0	39	0.1	79.4
23.00	1.0	98.8	38.90	2334.0	1945.0	38	0.4	79.8
24.00	0.3	99.1	40.59	2435.0	2029.0	36	0.1	79.9
25.00	0.9	100.0	42.28	2537.0	2114.0	35	0.3	80.3
30.00	0.9	100.9	50.73	3044.0	2537.0	29	0.3	80.5
35.00	-0.9	100.0	59.19	3551.0	2959.0	25	N/A	80.3
40.00	0.0	100.0	66.00	3960.0	3300.0	22	0.0	80.3
45.00	0.0	100.0	66.00	3960.0	3300.0	22	0.0	80.3
Estimated Net Annual Sediment (TSS) Load Reduction =								80 %

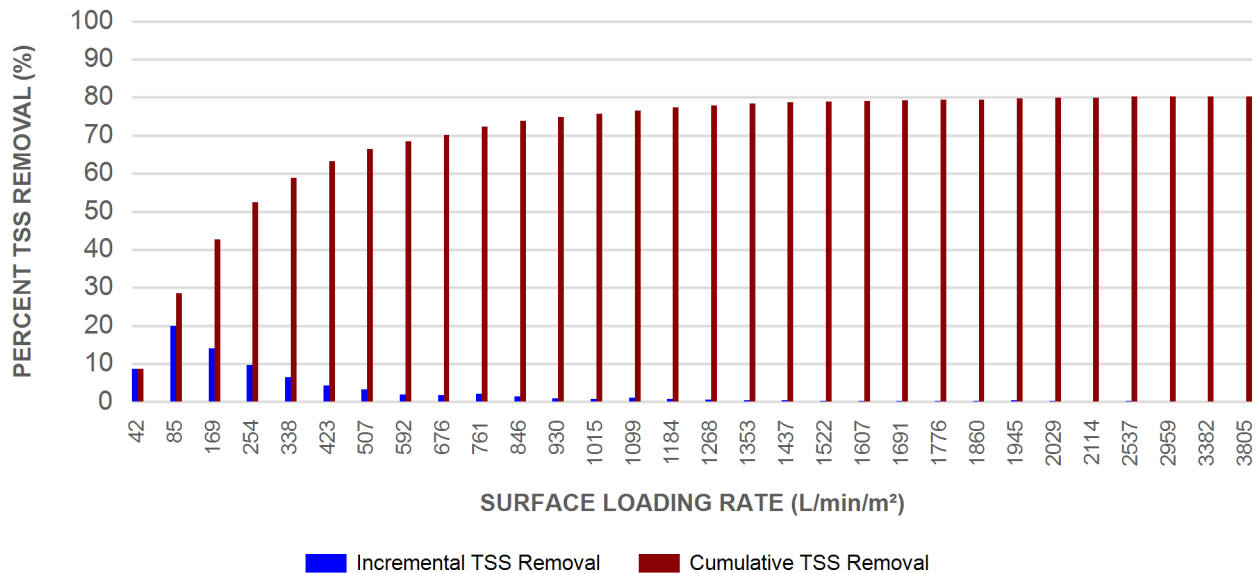
Climate Station ID: 6105978 Years of Rainfall Data: 20

Stormceptor®EF Sizing Report

RAINFALL DATA FROM OTTAWA CDA RCS RAINFALL STATION



INCREMENTAL AND CUMULATIVE TSS REMOVAL FOR THE RECOMMENDED STORMCEPTOR® MODEL



Stormceptor® EF Sizing Report

Maximum Pipe Diameter / Peak Conveyance

Stormceptor EF / EFO	Model Diameter		Min Angle Inlet / Outlet Pipes	Max Inlet Pipe Diameter		Max Outlet Pipe Diameter		Peak Conveyance Flow Rate	
	(m)	(ft)		(mm)	(in)	(mm)	(in)	(L/s)	(cfs)
EF4 / EFO4	1.2	4	90	609	24	609	24	425	15
EF6 / EFO6	1.8	6	90	914	36	914	36	990	35
EF8 / EFO8	2.4	8	90	1219	48	1219	48	1700	60
EF10 / EFO10	3.0	10	90	1828	72	1828	72	2830	100
EF12 / EFO12	3.6	12	90	1828	72	1828	72	2830	100

SCOUR PREVENTION AND ONLINE CONFIGURATION

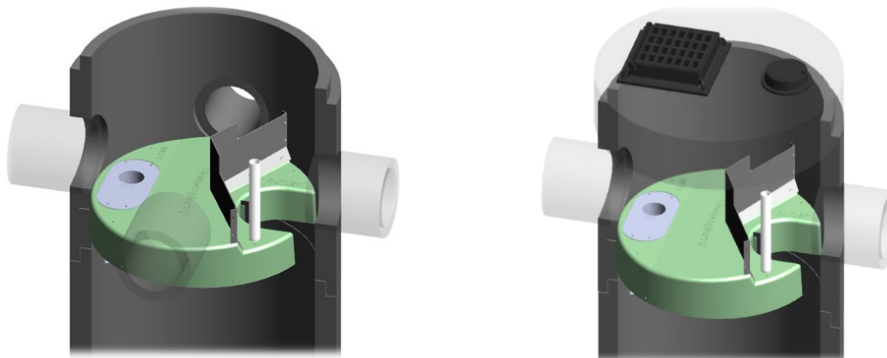
► **Stormceptor® EF and EFO** feature an internal bypass and superior scour prevention technology that have been demonstrated in third-party testing according to the scour testing provisions of the Canadian ETV **Procedure for Laboratory Testing of Oil-Grit Separators**, and the exceptional scour test performance has been third-party verified in accordance with the ISO 14034 ETV protocol. As a result, Stormceptor EF and EFO are approved for online installation, eliminating the need for costly additional bypass structures, piping, and installation expense.

DESIGN FLEXIBILITY

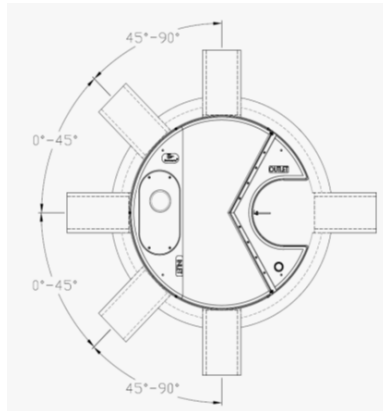
► **Stormceptor® EF and EFO** offers design flexibility in one simplified platform, accepting stormwater flow from a single inlet pipe or multiple inlet pipes, and/or surface runoff through an inlet grate. The device can also serve as a junction structure, accommodate a 90-degree inlet-to-outlet bend angle, and can be modified to ensure performance in submerged conditions.

OIL CAPTURE AND RETENTION

► While Stormceptor® EF will capture and retain oil from dry weather spills and low intensity runoff, **Stormceptor® EFO** has demonstrated superior oil capture and greater than 99% oil retention in third-party testing according to the light liquid re-entrainment testing provisions of the Canadian ETV **Procedure for Laboratory Testing of Oil-Grit Separators**. Stormceptor EFO is recommended for sites where oil capture and retention is a requirement.



Stormceptor® EF Sizing Report



INLET-TO-OUTLET DROP

Elevation differential between inlet and outlet pipe inverts is dictated by the angle at which the inlet pipe(s) enters the unit.

0° - 45° : The inlet pipe is 1-inch (25mm) higher than the outlet pipe.

45° - 90° : The inlet pipe is 2-inches (50mm) higher than the outlet pipe.

HEAD LOSS

The head loss through Stormceptor EF is similar to that of a 60-degree bend structure. The applicable K value for calculating minor losses through the unit is 1.1.

For submerged conditions the applicable K value is 3.0.

Pollutant Capacity

Stormceptor EF / EFO	Model Diameter		Depth (Outlet Pipe Invert to Sump Floor)		Oil Volume		Recommended Sediment Maintenance Depth *		Maximum Sediment Volume *		Maximum Sediment Mass **	
	(m)	(ft)	(m)	(ft)	(L)	(Gal)	(mm)	(in)	(L)	(ft³)	(kg)	(lb)
EF4 / EFO4	1.2	4	1.52	5.0	265	70	203	8	1190	42	1904	5250
EF6 / EFO6	1.8	6	1.93	6.3	610	160	305	12	3470	123	5552	15375
EF8 / EFO8	2.4	8	2.59	8.5	1070	280	610	24	8780	310	14048	38750
EF10 / EFO10	3.0	10	3.25	10.7	1670	440	610	24	17790	628	28464	78500
EF12 / EFO12	3.6	12	3.89	12.8	2475	655	610	24	31220	1103	49952	137875

*Increased sump depth may be added to increase sediment storage capacity

** Average density of wet packed sediment in sump = 1.6 kg/L (100 lb/ft³)

Feature	Benefit	Feature Appeals To
Patent-pending enhanced flow treatment and scour prevention technology	Superior, verified third-party performance	Regulator, Specifying & Design Engineer
Third-party verified light liquid capture and retention for EFO version	Proven performance for fuel/oil hotspot locations	Regulator, Specifying & Design Engineer, Site Owner
Functions as bend, junction or inlet structure	Design flexibility	Specifying & Design Engineer
Minimal drop between inlet and outlet	Site installation ease	Contractor
Large diameter outlet riser for inspection and maintenance	Easy maintenance access from grade	Maintenance Contractor & Site Owner

STANDARD STORMCEPTOR EF/EFO DRAWINGS

For standard details, please visit <http://www.imbriumsystems.com/stormwater-treatment-solutions/stormceptor-ef>

STANDARD STORMCEPTOR EF/EFO SPECIFICATION

For specifications, please visit <http://www.imbriumsystems.com/stormwater-treatment-solutions/stormceptor-ef>

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STANDARD PERFORMANCE SPECIFICATION FOR “OIL GRIT SEPARATOR” (OGS) STORMWATER QUALITY TREATMENT DEVICE

PART 1 – GENERAL

1.1 WORK INCLUDED

This section specifies requirements for selecting, sizing, and designing an underground Oil Grit Separator (OGS) device for stormwater quality treatment, with third-party testing results and a Statement of Verification in accordance with ISO 14034 Environmental Management – Environmental Technology Verification (ETV).

1.2 REFERENCE STANDARDS & PROCEDURES

ISO 14034:2016 Environmental management – Environmental technology verification (ETV)

Canadian Environmental Technology Verification (ETV) Program’s **Procedure for Laboratory Testing of Oil-Grit Separators**

1.3 SUBMITTALS

1.3.1 All submittals, including sizing reports & shop drawings, shall be submitted upon request with each order to the contractor then forwarded to the Engineer of Record for review and acceptance. Shop drawings shall detail all OGS components, elevations, and sequence of construction.

1.3.2 Alternative devices shall have features identical to or greater than the specified device, including: treatment chamber diameter, treatment chamber wet volume, sediment storage volume, and oil storage volume.

1.3.3 Unless directed otherwise by the Engineer of Record, OGS stormwater quality treatment product substitutions or alternatives submitted within ten days prior to project bid shall not be accepted. All alternatives or substitutions submitted shall be signed and sealed by a local registered Professional Engineer, based on the exact same criteria detailed in Section 3, in entirety, subject to review and approval by the Engineer of Record.

PART 2 – PRODUCTS

2.1 OGS POLLUTANT STORAGE

The OGS device shall include a sump for sediment storage, and a protected volume for the capture and storage of petroleum hydrocarbons and buoyant gross pollutants. The minimum sediment & petroleum hydrocarbon storage capacity shall be as follows:

2.1.1	4 ft (1219 mm) Diameter OGS Units:	1.19 m ³ sediment / 265 L oil
	6 ft (1829 mm) Diameter OGS Units:	3.48 m ³ sediment / 609 L oil
	8 ft (2438 mm) Diameter OGS Units:	8.78 m ³ sediment / 1,071 L oil
	10 ft (3048 mm) Diameter OGS Units:	17.78 m ³ sediment / 1,673 L oil
	12 ft (3657 mm) Diameter OGS Units:	31.23 m ³ sediment / 2,476 L oil

PART 3 – PERFORMANCE & DESIGN

3.1 GENERAL

The OGS stormwater quality treatment device shall be verified in accordance with ISO 14034:2016 Environmental management – Environmental technology verification (ETV). The OGS stormwater quality treatment device shall

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remove oil, sediment and gross pollutants from stormwater runoff during frequent wet weather events, and retain these pollutants during less frequent high flow wet weather events below the insert within the OGS for later removal during maintenance. The Manufacturer shall have at least ten (10) years of local experience, history and success in engineering design, manufacturing and production and supply of OGS stormwater quality treatment device systems, acceptable to the Engineer of Record.

3.2 SIZING METHODOLOGY

The OGS device shall be engineered, designed and sized to provide stormwater quality treatment based on treating a minimum of 90 percent of the average annual runoff volume and a minimum removal of an annual average 60% of the sediment (TSS) load based on the Particle Size Distribution (PSD) specified in the sizing report for the specified device. Sizing of the OGS shall be determined by use of a minimum ten (10) years of local historical rainfall data provided by Environment Canada. Sizing shall also be determined by use of the sediment removal performance data derived from the ISO 14034 ETV third-party verified laboratory testing data from testing conducted in accordance with the Canadian ETV protocol Procedure for Laboratory Testing of Oil-Grit Separators, as follows:

3.2.1 Sediment removal efficiency for a given surface loading rate and its associated flow rate shall be based on sediment removal efficiency demonstrated at the seven (7) tested surface loading rates specified in the protocol, ranging 40 L/min/m² to 1400 L/min/m², and as stated in the ISO 14034 ETV Verification Statement for the OGS device.

3.2.2 Sediment removal efficiency for surface loading rates between 40 L/min/m² and 1400 L/min/m² shall be based on linear interpolation of data between consecutive tested surface loading rates.

3.2.3 Sediment removal efficiency for surface loading rates less than the lowest tested surface loading rate of 40 L/min/m² shall be assumed to be identical to the sediment removal efficiency at 40 L/min/m². No extrapolation shall be allowed that results in a sediment removal efficiency that is greater than that demonstrated at 40 L/min/m².

3.2.4 Sediment removal efficiency for surface loading rates greater than the highest tested surface loading rate of 1400 L/min/m² shall assume zero sediment removal for the portion of flow that exceeds 1400 L/min/m², and shall be calculated using a simple proportioning formula, with 1400 L/min/m² in the numerator and the higher surface loading rate in the denominator, and multiplying the resulting fraction times the sediment removal efficiency at 1400 L/min/m².

The OGS device shall also have sufficient annual sediment storage capacity as specified and calculated in Section 2.1.

3.3 CANADIAN ETV or ISO 14034 ETV VERIFICATION OF SCOUR TESTING

The OGS device shall have Canadian ETV or ISO 14034 ETV Verification of third-party scour testing conducted in accordance with the Canadian ETV Program's **Procedure for Laboratory Testing of Oil-Grit Separators**.

3.3.1 To be acceptable for on-line installation, the OGS device must demonstrate an average scour test effluent concentration less than 10 mg/L at each surface loading rate tested, up to and including 2600 L/min/m².

3.4 LIGHT LIQUID RE-ENTRAINMENT SIMULATION TESTING

The OGS device shall have Canadian ETV or ISO 14034 ETV Verification of completed third-party Light Liquid Re-entrainment Simulation Testing in accordance with the Canadian ETV **Program's Procedure for Laboratory Testing of Oil-Grit Separators**, with results reported within the Canadian ETV or ISO 14034 ETV verification. This re-entrainment testing is conducted with the device pre-loaded with low density polyethylene (LDPE) plastic beads as a surrogate for light liquids such as oil and fuel. Testing is conducted on the same OGS unit tested for sediment removal to

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assess whether light liquids captured after a spill are effectively retained at high flow rates.

3.4.1 For an OGS device to be an acceptable stormwater treatment device on a site where vehicular traffic occurs and the potential for an oil or fuel spill exists, the OGS device must have reported verified performance results of greater than 99% cumulative retention of LDPE plastic beads for the five specified surface loading rates (ranging 200 L/min/m² to 2600 L/min/m²) in accordance with the Light Liquid Re-entrainment Simulation Testing within the Canadian ETV Program's **Procedure for Laboratory Testing of Oil-Grit Separators**. However, an OGS device shall not be allowed if the Light Liquid Re-entrainment Simulation Testing was performed with screening components within the OGS device that are effective at retaining the LDPE plastic beads, but would not be expected to retain light liquids such as oil and fuel.



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