Stormwater Management and Servicing Report

400 Coventry Road
Ottawa, Ontario

Prepared for:

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1 Introduction and Site Description

LRL Associates Ltd. (LRL) was retained by 400 Coventry Investments Inc. to prepare a Stormwater Management and Servicing Report for the ultimate development of a proposed phased multi storey, mixed use building complex consisting of seven (7) residential towers with commercial space allocated throughout the development. This is a re-development of the existing parcel of land located at the corner of Coventry Road and Belfast Road, with a municipal address of 400 Coventry Road within the City of Ottawa.

The subject site is within the Rideau-Rockcliffe Ward, located on the south side of Coventry Road, and has an approximate area of **1.99 ha**. Under the City of Ottawa Zoning by-law, the property is currently zoned as GM6 H(34) for the northern half, and GM6 H(90) for the southern half of the property. Within the General Mixed Use Zone a variety of residential, non-residential and a mixed use development is permitted, while commercial uses are limited to smaller scales as compared to Traditional Mainstreets. A height restriction limits building heights to 34 meters in the northern portion of the property and 90 meters in the south. The land is currently used as an office building and fenced in storage yard for the business operations of Enbridge Gas distribution, consisting mainly of a building in the North East corner, a large paved area and landscaping. The subject site can be seen below in Figure 1.

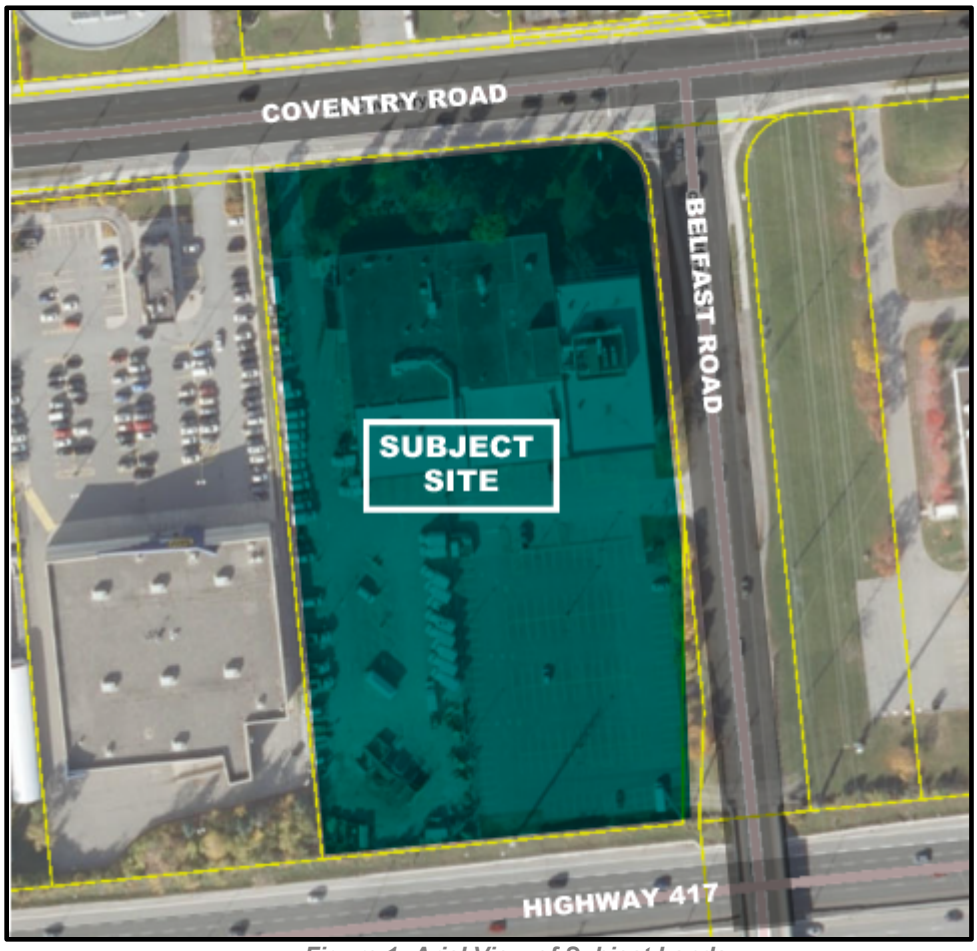

Figure 1: Arial View of Subject Lands

This Stormwater Management and Servicing Report has been completed to outline the servicing design of the re-development of this parcel to consist of seven (7) high rise residential towers ranging from twenty (20) to thirty (30) storeys in height with commercial uses along Coventry Road, on site amenity spaces in between towers, as well as a public park and a new east-west public road. The site will be landscaped with soft and hardscaped surfaces with vehicle access above grade limited to the new public road, and a drive-aisle in between the buildings in the southern block.

The servicing and stormwater management design summarized in this report has been completed to support the Site Plan Control application for the subject development. Pending further advancement of the architectural site plan and development details, coordination with the City of Ottawa for details related to the municipal roadway and parkland, details of the design may require further refinement.

2 PREVIOUS STUDIES FOR DEVELOPMENT

Historically, the City of Ottawa has completed plans and reports in relation to Transit Oriented Development (TOD) which includes the location of the subject land. The high-level analysis reviewed existing infrastructure capacities. This parcel of land falls within the 800m study area of the Tremblay Transit Oriented Development Plan.

Below is a brief summary of the notable conclusions gathered from the *Transit-Oriented Development (TOD) Plans- Lees, Hurdman, Tremblay, St. Laurent, Cyrville and Blair*, and the *LRT Transit Oriented Development Study Areas Servicing Overview Report (2012) r*elating to the civil servicing and surrounding infrastructure for the site located at 400 Coventry Road;

- Sanitary:
    - The area north of the Highway discharges to the Rideau River Collector on North River Road just north of the RCMP facility and generally follows the Coventry Road corridor.
    - In a full buildout situation for the Tremblay/Train TOD area, surcharging of the Coventry corridor would exist.
- Water:
    - Recent upgrades completed for the watermain along Coventry (completed in 2014/2015) were noted to be used to service the lands north of the highway for future growth. Additionally, there are several looped pipe systems in this area which are intended to provide redundancy; however, this is to be confirmed during detailed design.
    - The existing and new feeder mains are all fed from a strong reliable source (Hurdman Bridge Pump Station) and are expected to be adequate to provide all peak domestic demands and fire flows to the TOD study areas.

- Storm:
    - The existing trunk storm sewers are of sufficient capacity to convey flows at the TOD build-out level.
    - Stormwater management will occur on the site of proposed development projects to provide 100 year level-of-service by containing storage volume on-site. Current City stormwater management criteria for redevelopment are sufficient and should continue to be implemented.
    - Weeping tile and roof tops will be directed to a storm sewer during redevelopment
- Transportation and ROW Upgrades:
    - The corner of Belfast and Coventry has been identified as a future Key Pedestrian Crossing within the Study. Both Coventry and Belfast have been highlighted to be critical to the planning of a bicycle network as well.
    - As part of the planning of future street network, this site has bene identified to benefit from a future public Road, private road or Multi-use pathway intersecting the site in half in the north south direction, with the road running East-West. This is to be considered during planning and design while finalizing the site plan.
    - East of the development falls within the St. Laurent Street Network TOD Plan Area which outlines potential future roadway realignment and widening along Coventry.
- Hydro:
    - Circuit capacity will have to be increased by either upgrading existing lines or adding new lines, especially within the Lees, Hurdman, and Tremblay areas to support he City's vision of ultimate build out. and to a lesser extent, the St. Laurent and Blair areas.

3 Regulatory Approvals

An MECP Environmental Compliance Approval is expected to be required for the proposed extension of municipal sanitary and storm sewer extending to the subject site.

In addition to the Site Plan Control Application, a Official Plan Amendment and Zoning By-Law amendment application is underway.

4 Existing Site and Available Services

The site is consisting of an office building, asphalt parking lot and storage yard for the current building operations, as well as a landscaped buffer surrounding the exterior of the parcel.

Sewer and watermain mapping, along with as-built information collected from the City of Ottawa indicate the following existing infrastructure located within the adjacent Coventry Road right-of-way:

- 1350mmØ CONC Storm Sewer running across Coventry Road
- 300mmØ PVC Sanitary Sewer
- 914mmØ CONC Watermain (Feeder main)
- 300mmØ PVC Watermain

No service mains are located adjacent to the subject property on Belfast Road at this time.

Appendix B contains Coventry Road Profile drawings for reference.

4.1 Vibration and Settlement Monitoring

Given the proximity of the expected excavation for the proposed development to the existing 900mm feeder main, it is recommended that there is vibration monitoring carried out along the northern property line during construction. Further details on the Vibration Monitoring and Control Plan (VMCP) will be further expanded on by the Geotechnical Engineer prior once expected parking garage elevations are finalized.

5 PROPOSED DEVELOPMENT

The proposed development includes seven (7) multi-storey residential buildings with underground parking with vehicular access from Belfast Road. The proposed buildings transition down from thirty (30) storeys at the south portion (bordered by Highway 417) to twenty (20) storeys as the site transitions to the Coventry Road corridor.

Tables 1 and 2 below, provide a breakdown of the unit types and the commercial and amenity areas within buildings A to E.

Table 1 – Residential Unit Breakdown

Building	Unit Types				Total
	Bachelor	1 Bedroom	2 Bedroom	3 Bedroom	
A + B + C1 + C2	129	532	282	115	1058
D	63	50	71	15	199
E1 + E2	93	274	110	34	511
Total	**285**	**856**	**463**	**164**	**1 768**

Table 2 – Commercial/ Amenity Areas

Building	Commercial Space (m^2)	Amenity Space (m^2)
A	0	545
B + C1 + C2	0	1200
D	0	430
E1 + E2	1 518	434
Total	**1 518**	**2 609**

It was determined that a population of approximately 3 078 people would be associated with the 1,768 residential units proposed within the development.

Refer to **Appendix A** for an overview of the Site Plan prepared by NEUF Architects and the unit statistics.

6 WATER SUPPLY AND FIRE PROTECTION

6.1 Existing Water Supply Services and Fire Hydrant Coverage

The subject property lies within the City of Ottawa 1E water distribution network pressure zone of the central water distribution system.
There is an existing 914 mm feeder main within Coventry Road as well as a 300 mm watermain which exists within the Coventry Road ROW currently servicing the site. As concluded from previous studies completed for the area, the existing feeder mains are all fed from a reliable source and are expected to be adequate to provide peak domestic demands and fire flows.

There are currently five (5) existing fire hydrants within proximity of the subject property. Refer to ***Appendix D*** for the water pressure zone and location of fire hydrants.

6.2 Water supply Servicing Design

Given the ultimate build out scenario of the development, a 200mm diameter PVC DR-18 watermain extension is proposed to loop a connection from Coventry Road , south on Belfast Road through the development, connecting back to Coventry, separated by a valve. Additionally, a fire hydrant has been proposed on site to provide coverage to the Phase 2 development. Refer to **Appendix H**, drawing C401 for servicing details.

There have been two 150mm service laterals proposed for the overall development: one 150mm diameter PVC DR-18 connection servicing the north portion of the site, and a separate 150mm connection for the southern half of the development (referred to as Phase 2)

Table 3, included below, summarizes the City of Ottawa Design Guidelines design parameters in the preparation of the water demand estimate.

Table 3: City of Ottawa Design Guidelines- Water Design Parameters

Design Parameter	Value
Residential Bachelor / 1 Bedroom Apartment	1.4 P/unit
Residential 2 Bedroom Apartment	2.1 P/unit
Residential 3 Bedroom Apartment	3.1 P/unit6
Commercial Average Daily Demand	2.8 L/m^2/d
Average Daily Demand	280 L/d/per
Minimum Depth of Cover	2.4 m from top of watermain to finished grade
Desired operating pressure range during normal operating conditions	350 kPa and 480 kPa

During normal operating conditions pressure must not drop below	275 kPa
During normal operating conditions pressure shall not exceed	552 kPa
During fire flow operating conditions pressure must not drop below	140 kPa
**Table updated to reflect technical Bulletin ISDTB-2018-02*	

6.3 Residential Water Demands

Anticipated population demands have been interpreted from the Statistics table provided by Neuf Architects. The proposed development is anticipated to include 1,768 residential units, which translates to a population of **3 078** people. Table 4 below summarizes the proposed population count as interpreted using Table 4.1 of the *City of Ottawa Water Distribution Design Guidelines*.

Table 4: Development Residential Population Estimate

Domestic Demand			
Unit Type	**Persons Per Unit**	**Number of Units**	**Population**
Bachelor	1.4	285	399
1 Bedroom	1.4	856	1198.4
2 Bedroom	2.1	463	972.3
3 Bedroom	3.1	164	508.4
Total		**1768**	**3078.1**

The required water supply requirements for the residential units in the proposed development have been calculated using the following formula:

Where: $Q = (q \times P \times M)$

q = average water consumption (L/capita/day)
P = design population (capita)
M = Peak factor

With reference to *Table 4.2 of the City of Ottawa Water Distribution Design Guidelines*, using an average water consumption rate of 280 L/c/d, a calculated Maximum Daily Demand Factor and Maximum Hour Demand Factor of 2.5 and 2.2, respectively, anticipated demands were calculated as follows:

- Average daily domestic water demand is **9.36** L/s,
- Maximum daily demand is **23.40** L/s, and
- Maximum hourly demand is **20.59** L/s.

6.4 Commercial Water Demands

As seen in Table 2 a portion of the floor area will be dedicated to commercial/retail space. As per floor plans provided by Neuf Architects of the proposed buildings, one of the towers fronting Coventry Road will have a retail space of **1700 m^2**.

The required water supply for the commercial spaces within the proposed development have been calculated using the following formula:

Where: $Q = (q \times A \times M)$

q = average water consumption (L/m^2/day)
A = commercial area (m^2)
M = Peak factor

With reference to Table 4.2 of the *City of Ottawa Water Distribution Design Guidelines* and *technical bulletin ISTB-18-02*, using an average water consumption rate of 2.8 L/m^2/d, a calculated Maximum Daily Demand Factor and Maximum Hour Demand Factor of 1.5 and 1.8, respectively, anticipated commercial demands were calculated as follows:

- Average daily domestic water demand is **0.06** L/s,
- Maximum daily demand is **0.08** L/s, and
- Maximum hourly demand is **0.10** L/s.

6.5 Total Water Demands

Based on calculated residential and commercial demands for the concept development, the total anticipated water demands are as follows;

- Average daily domestic water demand is **10.03** L/s,
- Maximum daily demand is **25.02** L/s, and
- Maximum hourly demand is **22.04** L/s.

For greater detail on Water Demand Calculations, please refer to ***Appendix C***.

At the time of the preparation of this report, floor plans and architectural design details of the of the buildings have not been finalized. Upon completion and progression of the detailed design, alteration to the water servicing may be required. At that time, it will be necessary to contact the City of Ottawa to obtain boundary conditions associated with the estimated water demand. This will be used to develop a hydraulic model for the site and confirm the available pressure for the water supply.

Once boundary conditions are received from the City of Ottawa, pressures available for average daily demands, maximum daily + maximum fire flow, as well as peak hour will need to be confirmed. Review will take place to ensure the scenarios noted above meet the required pressure range stated in Table 3 as per City of Ottawa Design Guidelines.

6.6 Fire Protection

The estimated flow will be calculated once the site layout is finalized, and floor plans are confirmed as the detailed architectural design progresses. Recognizing that the towers are in close proximity to each other, the overall floor area used to calculate fire protection will be critical. These will be calculated in accordance with ISTB-2018-02. Critical details to consider when calculating the fire flow demands will include:

- Type of construction
- Building Separation
- Occupancy type
- Sprinkler Protection
- Floor Area

There are at least five (5) existing fire hydrants in close proximity to the contemplated buildings that are available to provide a maximum fire flow of **21,765 L/min**. Refer to ***Appendix D*** for fire hydrant locations.
Table 5 below summarizes the aggregate fire flow of the contributing hydrants in close proximity to the proposed development based on Table 18.5.4.3 of *ISTB-2018-02*.

Table 5: Fire Protection Hydrant Summary Table

	Max. Fire Flow Demand (L/min)	Fire Hydrants(s) within 75m	Fire Hydrant(s) within 150m	Fire Hydrant(s) within 300m	Available Combined Fire Flow (L/min)
Contemplated Development	To be determined during detailed design	2	2	1	(2 x 5678) + (2 x 3785) + (1 x 2839) = 21,765

The total available fire flow from contributing hydrants is equal to **21,765 L/min.** A certified fire protection system specialist will need to be employed to design the building's fire suppression system and confirm the actual fire flow demand.

7 SANITARY SERVICE

7.1 Proposed Connection and Demands

There is an existing 300mm municipal sanitary sewer located on Coventry Road. It is anticipated that the development will connect the proposed 250mm diameter PVC DR-35 sanitary sewer into the existing 300mm PVC sanitary main in Coventry.

The sanitary sewer proposed will offer 3 separate connections for the development.

- 200mm diameter PVC DR-35 connection from Phase 1 (Towers E1, E2 and D)
- Connection opportunity to the City owned parkland.
- 200mm diameter PVC DR-35 connection from Phase 2(Towers A, B, C1 and C2)

The total anticipated post development total flow was calculated to be is **30.13 L/s** as a result of the proposed residential population, commercial use and a small portion of infiltration.

The parameters used to calculate the anticipated sanitary flows are:

- residential average population per unit of
  - 1.4 person for single units
  - 2.1 persons for two-bedroom units
  - 3.1 persons for three-bedroom units
- a residential daily demand of 280 L/p/day
- a residential peaking factor of 2.9
- a total infiltration rate of 0.33 L/s/ha

Refer to ***Appendix E*** for further information on the calculated sanitary flows.

7.2 Downstream Infrastructure Capacities

Based on correspondence between the City of Ottawa's Asset Management department during recent OPA and ZBLA applications, it was confirmed that the sanitary infrastructure in Coventry Road has availability for additional capacity in the range of the expected sanitary effluent (previously corresponded as 28.49L/s)

However, it was noted that this capacity will only be allocated to the subject development once detailed design and site plan application is received. As noted in the TOD studies in the past, it is recognized that in a full buildout situation for the Tremblay/Train TOD area, surcharging of the Coventry corridor would exist. Therefore, the available capacity is not guaranteed shall much redevelopment take place on a similar timeline.

Refer to ***Appendix G*** for correspondence and confirmation e-mail for the available capacity along Coventry Road.

8 STORMWATER MANAGEMENT

8.1 Existing Conditions and Stormwater Infrastructure

Stormwater runoff from the subject property is tributary to the City of Ottawa sewer system as such, approvals for the proposed development within this area are under the approval authority of the City of Ottawa.

In pre-development conditions, stormwater runoff from subject site would generally flows away from the existing building, towards Coventry, with a small portion flowing overland south towards the highway 417 corridor.

There is an existing 1350mm municipal storm sewer located on Coventry Road.

The site sits at a lower elevation than Belfast Road, and the profile of Coventry reduces in elevation as it proceeds west. During this review, it is not confirmed if existing stormwater management exists on the site; however, it is assumed that any collection and conveyance of stormwater in the underground sewers on site is directed to Coventry Road storm sewers.

8.2 Design Criteria

The stormwater management criteria for this development are based on general understanding of City of Ottawa design requirements, the City of Ottawa Sewer Design Guidelines including City of Ottawa Stormwater Management Design Guidelines, 2012 (City standards), as well as the Ministry of the Environment's Stormwater Planning and Design Manual, 2003 (SWMPD Manual).

The stormwater management will need to meet the following stormwater design criteria;

- Meet an allowable release rate based on the pre-development Rational Method Coefficient or a maximum of 0.50, employing the City of Ottawa IDF parameters for a 2-year storm with a calculated time of concentration equal to or greater than 10 minutes;
- Attenuate all storms up to and including the City of Ottawa 100-year storm event on site;
- It is assumed that no quality control is required for runoff given that the flow enters into the city sewers, and a large portion of the site is considered clean runoff collected on the proposed rooftops.

It was determined that the allowable release rate for the subject site would be **212.64 L/s** for all storms up to and including the 100-year storm event. Refer to ***Appendix F*** for all storm calculations.

8.1 Method of Analysis

The Modified Rational Method has been used to calculate the runoff rate from the site to quantify the detention storage required for quantity control of the development. Refer to ***Appendix F*** for storage calculations.

8.2 Proposed Stormwater Management System

The proposed stormwater management quantity control for this development will be accomplished through the use of two underground cisterns with a controlled release rate located in the parking garage of both the northern portion of the development (Phase 1) and the southern extend (Phase 2).

The proposed site storm sewer and stormwater management system are shown on drawings C401 and C601 found in **Appendix H**. The detailed calculations, including the design sheet, can be found in ***Appendix F***.

The proposed site development has been analyzed and post development watersheds have been allocated.

- WS-01 (0.707 ha), which consists of pavers and grass cover and building rooftop in Phase 1, will be collected visa roof drains or surface area drains directed to the cistern located in the parking garage.
- WS-02 (0.928ha), which consists of pavers and grass cover, rear landscaping buffer and building rooftop in Phase 2, will be collected visa roof drains or surface area drains directed to the cistern located in the parking garage.
- WS-03 (0.069ha), which consists pavers and landscaping fronting Coventry Road, uncontrolled flowing overland to the ROW.
- WS-04 (0.025ha), which consists of landscaping and hardscape leaving overland uncontrolled towards Belfast Road.
- WS-05 (0.055ha), consisting of a landscape buffer around the southern and eastern edge of the site utilized as a location to alter the grading and tie into the existing elevation sat the property line. Flow will leave uncontrolled overland.
- WS-06 (0.165ha), which consists of roadway and small landscaping areas, entering the proposed CB's within the roadway, with no controls in place.
- WS-07 (0.045ha), which consists of roadway and small landscaping areas, leaving the site uncontrolled to the west.

Table 6 below summarizes the post development drainage areas. Calculations can be seen in **Appendix F.**

Table 6: Post Development Watershed Summary

Watershed	Total Area (ha)	Combined C
WS-01 CONTROLLED	0.707	0.63
WS-02 CONTROLLED	0.928	0.61
WS-03 UN-CONTROLLED COVENTRY	0.069	0.72
WS-04 UNCONTROLLED - BELFAST ROAD	0.025	0.48
WS-05 UNCONTROLLED	0.055	0.21
WS-06 UNCONTROLLED ROAD TO STM MH	0.165	0.84
WS-07 UNCONTROLLED	0.044	0.86
Total	**1.992**	**0.63**

8.2.1 Allowable Release Rate

The allowable release rate in post development conditions was calculated based on the design criteria outlined above in section 8.2. Based on stormwater objectives for the subject site, the allowable release rate for the proposed development is 212.64 L/s for all storms up to and including the 100-year storms.(Refer to **Appendix F** for calculations)

8.2.2 Stormwater Storage and Collection

To meet the stormwater objectives, the development will contain a combination of roof top collection and area drain collection where possible, which will be directed and conveyed to underground cisterns in the parking garages. The cisterns have been sized to provide the storage requirements.

Of the allowable 212.64 L/s of flow, due to grading constraints as well as the roadway running through the central area of the site, 154.99 L/s of flow is expected to be lost uncontrolled. Therefore each phase has been assigned a controlled release rate of 28.83 L/s.

8.2.2.1 Phase 1 – North Towers (WS-01)

WS-01 will be directed to the underground cistern. Flows from the cistern will be controlled to a release rate of 28.83 L/s and a minimum cistern storage volume of 208.94 m^3 of storage will be required. Internal plumbing and detailed mechanical design will be required to ensure all pipes convey to the cistern location, and the pump in the cistern accommodated the allowable release rate with the variable head.

8.2.2.2 Phase 2 – South Towers (WS-02)

Similar to above, WS-02 will be directed to the underground cistern located in phase 2. Flows from the cistern will also be controlled to a release rate of 28.83 L/s and the cistern will have a minimum volume of 291.32m^3 .

Table 7 below summarizes the release rates and storage volumes required to meet the allowable release rate of **212.64 L/s** for the 100-year storm event.

Table 7: Stormwater Release Rate and Storage Volume Summary (100 Year)

Summary of Release Rates and Storage Volumes		
Catchment Areas	**100-Year Release Rate (L/s)**	**100-Year Required Storage (m^3)**
WS-01(Phase 1)	28.83	208.94
WS-02 (Phase 2)	28.83	291.32
WS-03, WS-04, WS-05 (Exterior Uncontrolled)	45.62	-
WS-06, WS-07 (ROW Uncontrolled)	103.74	-
Total	**207.02**	**500.26**

It has been determined that a minimum of **500.26 m³** of storage will be required on site to attenuate flow to the established release rate of **216.64 L/s** in the 100-year storm; storage calculations are contained within ***Appendix F.***

9 GRADING

Site grading has been completed with considerations given to the current architectural building package. However, as details such as door locations, and connectivity to the surrounding roadways are further refined, the grading will required a detailed review and potential alterations.

10 EROSION AND SEDIMENT CONTROL

During construction, erosion and sediment controls will be provided primarily via a sediment control fence to be erected along the perimeter of the site where runoff has the potential of leaving the site. Inlet sediment control devices are also to be provided in any catch basin and/or manholes on and around the site that may be impacted by the site construction. Construction and maintenance requirements for erosion and sediment controls are to comply with Ontario Provincial Standard Specification OPSS 577.

Best management practices (BMPs) shall be undertaken during the construction phase. These BMPs aim to minimize soil erosion, sedimentation, and other negative impacts on water quality and natural habitats. Some examples of BMPs for erosion and sediment control are;

- Controlling mud tracking: By means of installing, maintaining, and using stabilized construction entrances and exits at all access locations. Mud matts shall be maintained and cleaned on a regular basis.
- Inlet sediment control devices: To prevent surface erosion from entering any storm sewer system during construction, filter bags will be placed under grates of nearby catchbasins and structures.
- Install silt fences: Silt fences are permeable barriers made of geotextile fabric that are used to trap sediment and prevent it from entering nearby waterways.
- Implement erosion control blankets: Erosion control blankets are made of biodegradable materials such as straw or coconut fiber and can be used to protect soil from erosion and promote vegetation growth.
- Manage construction activities: Proper management of construction activities is essential to minimize soil disturbance and sedimentation. This may include controlling runoff from disturbed areas, using proper excavation techniques, and minimizing the amount of time that soil is exposed.
- Implement good housekeeping practices: This includes properly managing and disposing of waste materials, regularly maintaining equipment to prevent leaks and spills, and keeping work areas clean and free of debris.

It's important to note that the specific BMPs used for erosion and sediment control may vary depending on the site conditions and project requirements. Therefore, it's important to ensure that the appropriate BMPs are selected and implemented for this site.

Refer to drawing C101 in ***Appendix H*** for erosion and sediment control details.

11 CONCLUSION

This evaluation is limited to the servicing and stormwater management design described within this document coordinated with the available architectural plans at the time of preparation of the report to support an application for Site Plan Control. As the architectural building design advances, and the City of Ottawa provides feedback on items such as servicing easements, connection to municipal ROW's and overall site layout, it is anticipated that there will be design updates.

Based on the Site Plan prepared by Neuf Architects included to ***Appendix A***, the following conclusions, in relation to the serviceability of the site, can be made:

- **Water**:
  - The proposed development is anticipated to be serviced via an internal 200mm looped watermain connection to the existing 300mm watermain within Coventry Rd.
  - Domestic demands from the proposed re-development are expected to be **10.03 L/s** for the Average daily demand, **25.02 L/s** for the maximum daily and **22.04 L/s** for maximum hourly.
  - The maximum required fire flow will need to be calculated as the architectural design progresses using the FUS method.
  - There are at least five (5) existing fire hydrants available to service the proposed development. They will provide a combined fire flow of **21,765 L/min** to the site.
  - It is recommended that a hydraulic model is carried out to confirm fire flow, demands and input boundary conditions provided by the City of Ottawa for the next detailed submission prior to approval and development.
- **Sanitary**:
  - The post development total sanitary effluent was calculated to be is **30.13 L/s** considering proposed residential & commercial population and a small portion of infiltration.
  - A Sanitary sewer is proposed in a servicing easement through the neighbouring property, providing a connection to each phase of the proposed development.
  - The City has confirmed that the receiving sewer can accommodate the expected demands; however, it is on a "first come basis" for the contributing area. It will only be confirmed once a Site Plan Application is received.
- **Stormwater**:
  - Site stormwater runoff will need to be controlled to a pre-development release rate of approximately **212.64 L/s** and accommodate **500.26 m^3** of stormwater storage during the 100-year storm event.

- The subject site is anticipated to outlet into the existing 1350mm municipal storm sewer located on Coventry rd.

Prepared by:

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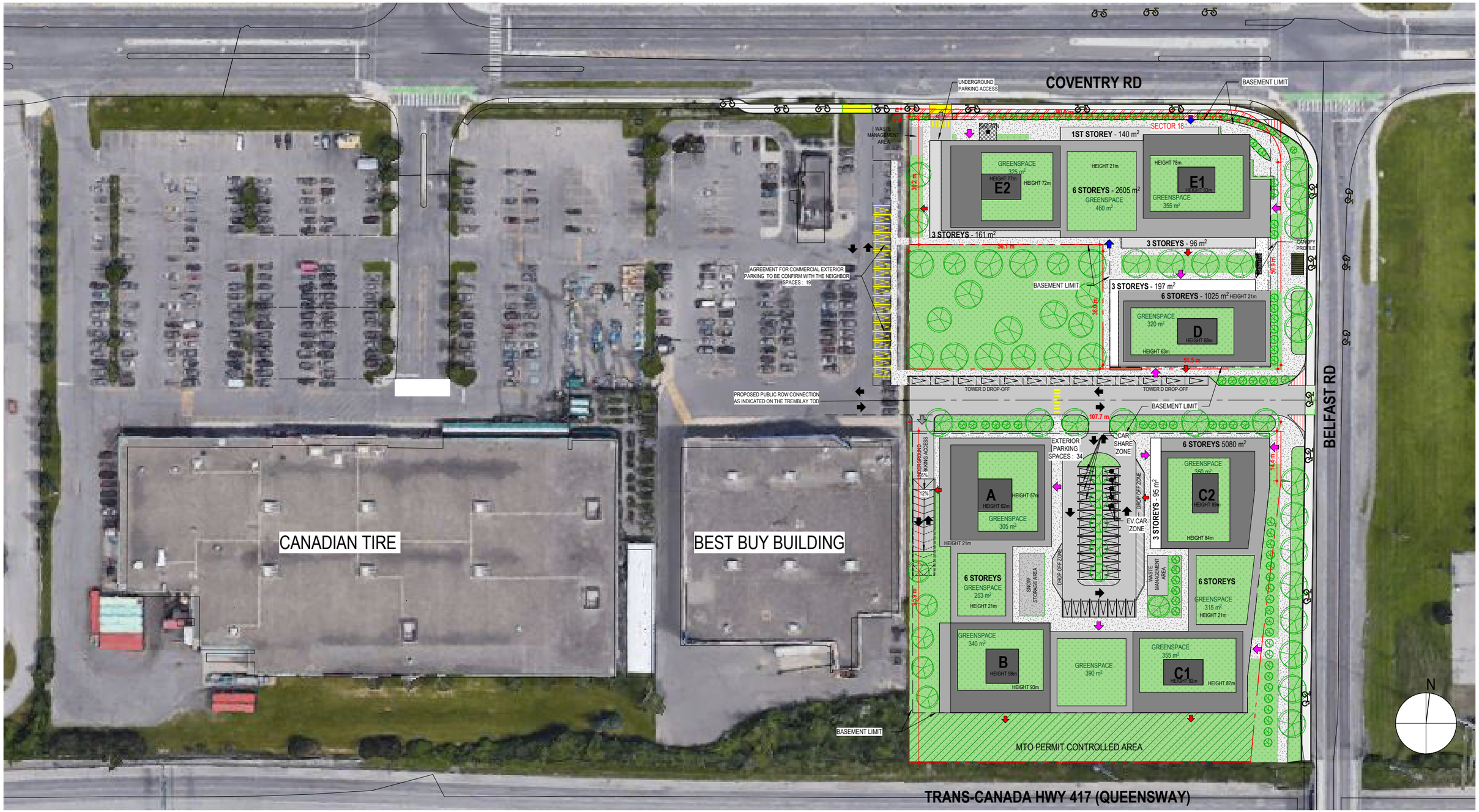
APPENDIX A

Architectural Site Plan and Building Statistics

BLOCK PLAN


COVENTRY RD
BELFAST RD
TRANS-CANADA HWY 417 (QUEENSWAY)
CANADIAN TIRE
BEST BUY BUILDING
UNDERGROUND PARKING ACCESS
BASEMENT LIMIT
WASTE MANAGEMENT AREA
SECTOR 18
1ST STOREY - 140 m²
GREENSPACE 320 m²
HEIGHT 77m
E2
HEIGHT 72m
HEIGHT 21m
6 STOREYS - 2605 m²
GREENSPACE 460 m²
HEIGHT 78m
E1
HEIGHT 83m
GREENSPACE 355 m²
3 STOREYS - 161 m²
3 STOREYS - 96 m²
CANOPY PROFILE
AGREEMENT FOR COMMERCIAL EXTERIOR PARKING TO BE CONFIRM WITH THE NEIGHBOR SPACES : 19
BASEMENT LIMIT
3 STOREYS - 197 m²
6 STOREYS - 1025 m² HEIGHT 21m
GREENSPACE 320 m²
D
HEIGHT 68m
HEIGHT 63m
PROPOSED PUBLIC ROW CONNECTION AS INDICATED ON THE TREMBLAY TOD
TOWER D DROP-OFF
TOWER D DROP-OFF
BASEMENT LIMIT
107.7 m
UNDERGROUND PARKING ACCESS
12%
EXTERIOR PARKING SPACES : 34
CAR SHARE ZONE
EV CAR ZONE
DROP-OFF ZONE
6 STOREYS 5080 m²
3 STOREYS - 95 m²
GREENSPACE 350 m²
C2
HEIGHT 89m
HEIGHT 84m
A
HEIGHT 62m
HEIGHT 57m
GREENSPACE 305 m²
HEIGHT 21m
6 STOREYS
GREENSPACE 253 m²
HEIGHT 21m
SNOW STORAGE AREA
DROP-OFF ZONE
WASTE MANAGEMENT AREA
6 STOREYS
GREENSPACE 315 m²
HEIGHT 21m
GREENSPACE 340 m²
B
HEIGHT 98m
HEIGHT 93m
GREENSPACE 390 m²
GREENSPACE 355 m²
C1
HEIGHT 92m
HEIGHT 87m
BASEMENT LIMIT
MTO PERMIT CONTROLLED AREA
N

STATISTICS

12934 | DEVELOPMENT CONVENTRY Rd. (2023-05-30)
PRELIMINARY STATISTIC OF UNIT MIX

BLOCK (1) - SOUTH SIDE - LOT 1
TOWER A, B, C1 and C2.

PRELIMINARY STATISTIC OF UNIT MIX

UNIT TYPE	BACHELOR	1CH.	1CH. DEN	2CH.	2CH. DEN	3CH.	TOTAL
TOTAL	129	482	50	250	32	115	1 058
POURCENTAGE	12%	46%	5%	24%	3%	11%	100%
NUMBER OF PEOPLE RES.	258	964	100	1000	128	690	3140

BLOCK (2) - NORTH SIDE - LOT 2
TOWER D

PRELIMINARY STATISTIC OF UNIT MIX

UNIT TYPE	BACHELOR	1CH.	1CH. DEN	2CH.	2CH. DEN	3CH.	TOTAL
TOTAL	63	21	29	61	10	15	199
POURCENTAGE	32%	11%	15%	31%	5%	8%	100%
NUMBER OF PEOPLE RES.	126	42	58	244	40	90	600

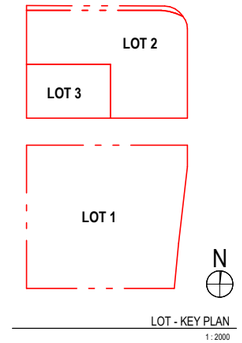
BLOCK (3) - NORTH SIDE - LOT 2
TOWER E1 AND E2

PRELIMINARY STATISTIC

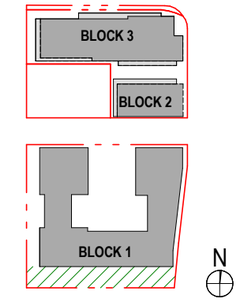
UNIT TYPE	BACHELOR	1CH.	1CH. DEN	2CH.	2CH. DEN	3CH.	TOWN HOUSE	TOTAL
TOTAL	93	224	50	110	0	26	8	511
POURCENTAGE	18%	44%	10%	22%	0%	5%	2%	100%
NUMBER OF PEOPLE RES.	186	448	100	440	0	156	48	1330
COMMERCIAL AREA (M2)	1518							1 518
NUMBER OF PEOPLE COM.	410							410

SUMMARY OF THE PROJECT - PRELIMINARY STATISTIC OF UNIT MIX

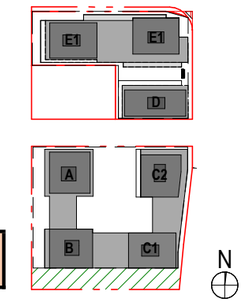
UNIT TYPE	BACHELOR	1CH.	1CH. DEN	2CH.	2CH. DEN	3CH.	TOWN HOUSE	TOTAL	
TOTAL	285	727	129	421	42	156	8	1 768	
POURCENTAGE	16%	41%	7%	24%	2%	9%	0%	100%	
NUMBER OF PEOPLE RES.	570	1454	258	1684	168	936	48	5070	5 480
NUMBER OF PEOPLE COM.	410							410	



LOT - KEY PLAN
1 : 2000



BLOCKS - KEY PLAN
1 : 2000



TOWERS KEY PLAN
1 : 2000

8 - Statistics

APPENDIX B

Coventry Road Profiles

ORLEANS WATERMAIN LINK - WEST

GRADING & DRAINAGE
STA. 10+250 TO STA. 10+400

W. Newell, P.Eng.	B. Kenny, P. Eng.
General Manager	*Project Manager*
Infrastructure Services Department	*Design & Construction - Municipal East*

Robinson Consultants

AS-BUILT

RECORD INFORMATION PROVIDED BY CITY OF OTTAWA

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Ottawa

Contract No.	Dwg. No.
ISD12-3028	PP6

Sheet of

Asset No.

Asset Group

Des.	Chk'd.
I.M.	P.L.
Dwn.	Chk'd.
I.M.	P.L.
Utility Circ. No.	Index No.
Const. Inspector	

Scale: HORIZONTAL 0m 2.5 5 10 — VERTICAL 0m 1 2

NOTE: The location of utilities is approximate only, the exact location should be determined by consulting the municipal authorities and utility companies concerned. The contractor shall prove the location of utilities and shall be responsible for adequate protection from damage.

REVISIONS

No.	Description	By	Date (dd/mm/yy)
1	ISSUED FOR PRELIMINARY CIRCULATION	G.B.	28.02.13
2	ISSUED FOR TENDER	G.B.	30.05.13
3	ISSUED FOR CONSTRUCTION	P.C.	20.05.14
4	ISSUED FOR CHANGE ORDER	P.L.	09.07.14
5	*AS BUILT*	*P.L.*	*29.04.16*

FOR CONTINUATION SEE DWG. PP5
MATCHLINE STA. 10+250

MATCHLINE STA. 10+400
FOR CONTINUATION SEE DWG. PP7

COVENTRY ROAD

10+250 10+300 10+350 10+400

BELFAST ROAD

CICB35 CICB36 CICB37 DCICB38 DCICB39 DCICB40 CICB41

SA209 SA209A SA210

PROPOSED 300mm Ø SANITARY

PROPOSED 300mmØ WATERMAIN

PROPOSED 300mmØ SANITARY

PROPOSED 914mmØ WATERMAIN (SEE DWG. WM11 FOR DETAILS)

PROP. 152mmØ WATERMAIN

PROP. 152mmØ WATERMAIN

VALVE & VALVE CHAMBER PER W3

HYDRANT, VALVE & VALVE BOX PER W19

CONNECTION TO EXIST. 152mmWM BY CITY FORCES

CONNECTION TO EXIST. 103mmWM BY CITY FORCES

K= 60.0
LVC= 78.00

PVI STA = 10+280.00
PVI ELEV = 65.612

EVCS = 10+310.00
EVCE = 65.77

PROFILE CONTROL

ORIGINAL GROUND

BOTTOM OF GRANULARS

TOP OF 300 WM (ASBUILT)

300 SANITARY SEWER (ASBUILT)

300mm VALVE & VALVE CHAMBER

300mm x 150mm TEE

150mm HYDRANT TEE

300mm x 103mm TEE

0.40%

2.4m MIN. (TYP.)

1350 STM

305 WM

250 SAN

PROPOSED 300mmØ PVC DR18 CL150 WATERMAIN

65.095	65.431	65.662	65.792	65.892	65.992	66.092	PROPOSED ℄ PROFILE
62.763	63.022	63.088	63.090	63.102	63.070	63.183	63.207	63.300	63.311	63.383	63.400	63.462	63.541	PROPOSED TOP OF WATERMAIN
														PROPOSED STORM SEWER INVERT
300mmØ PVC SDR 35 SANITARY SEWER				*61.420*	*61.570*	*300mmØ PVC SDR 35 SANITARY SEWER*				*61.680*	*64.568* *64.568*		PROPOSED SANITARY SEWER INVERT
10+250	10+265.1	10+275 10+275.8	10+279.8	10+282.4	10+300	10+305.2	10+325	10+327.5	10+350	10+355.5	10+375	10+400	STATION

~~72.5m~~ - 300mmØ PVC SDR 35 SANITARY SEWER @ ~~0.40%~~

~~72.3m~~ - 300mmØ PVC SDR35 SANITARY SEWER @ ~~0.40%~~

SEWER SCHEDULES NOT AS-BUILT

STORM SEWER MH DATA

No.	Station	Offset (m)	Type		Elevations		Grate to Invert
			Structure	Cover	Grate	Low Inv.	
ST109	10+258.93	7.06 L	2440X2440	S24.1/S25	65.25	62.26	2.99

SANITARY SEWER MH DATA

No.	Station	Offset (m)	Type		Elevations		Grate to Invert
			Structure	Cover	Grate	Low Inv.	
SA209	10+276.87	3.00 L	701.010	S24/S25	65.40	61.15	4.25
SA209A	10+278.87	1.00 L	701.010	S24/S25	65.46	61.23	4.23
SA210	10+351.37	1.06 L	701.010	S24/S25	65.75	61.57	4.18

CATCH BASIN DATA

No.	Station	Offset (m)	Type		Elevations		Grate to Invert
			Structure	Grate	Grate	Low Inv.	
CICB35	10+251.38	22.16 R	705.010	S22 / S23	65.35	63.50	1.85
CICB36	10+279.00	10.55 R	705.010	S22 / S23	65.48	63.93	1.55
CICB37	10+265.06	12.45 L	705.010	S22 / S23	65.43	63.88	1.55
DCICB38	10+311.00	9.00 L	705.020	S22 / S23 (2)	65.58	63.98	1.60
DCICB39	10+316.21	8.89 R	705.020	S22 / S23 (2)	65.86	64.26	1.60
DCICB40	10+361.50	8.00 R	705.020	S22 / S23 (2)	65.80	64.20	1.60
CICB41	10+367.00	8.30 L	705.010	S22 / S23	65.82	64.27	1.55

CATCH BASIN LEAD DATA

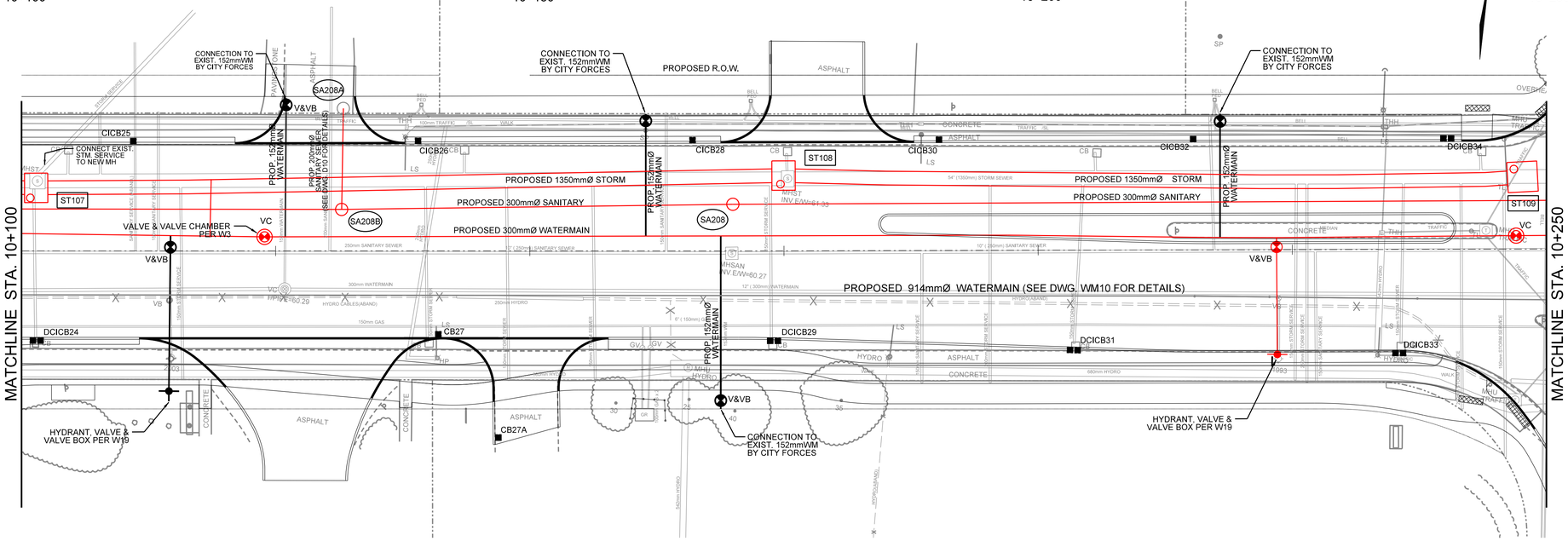
Structure to Structure	Dia.	Type	Length	Invert Elevations		ICD Ctrl. Device Type
				Upstream	Downstream	
CICB35 TO MAIN	200mm	PVC	28.7	63.50	63.21	1
CICB36 TO MAIN	200mm	PVC	17.3	63.93	63.76	1
CICB37 TO MAIN	200mm	PVC	5.2	63.88	63.83	1
DCICB38 TO MAIN	250mm	PVC	1.2	63.98	63.97	2
DCICB39 TO MAIN	250mm	PVC	15.0	64.26	64.11	2
DCICB40 TO MAIN	250mm	PVC	14.4	64.20	64.06	2
CICB41 TO MAIN	200mm	PVC	1.3	64.27	64.26	1

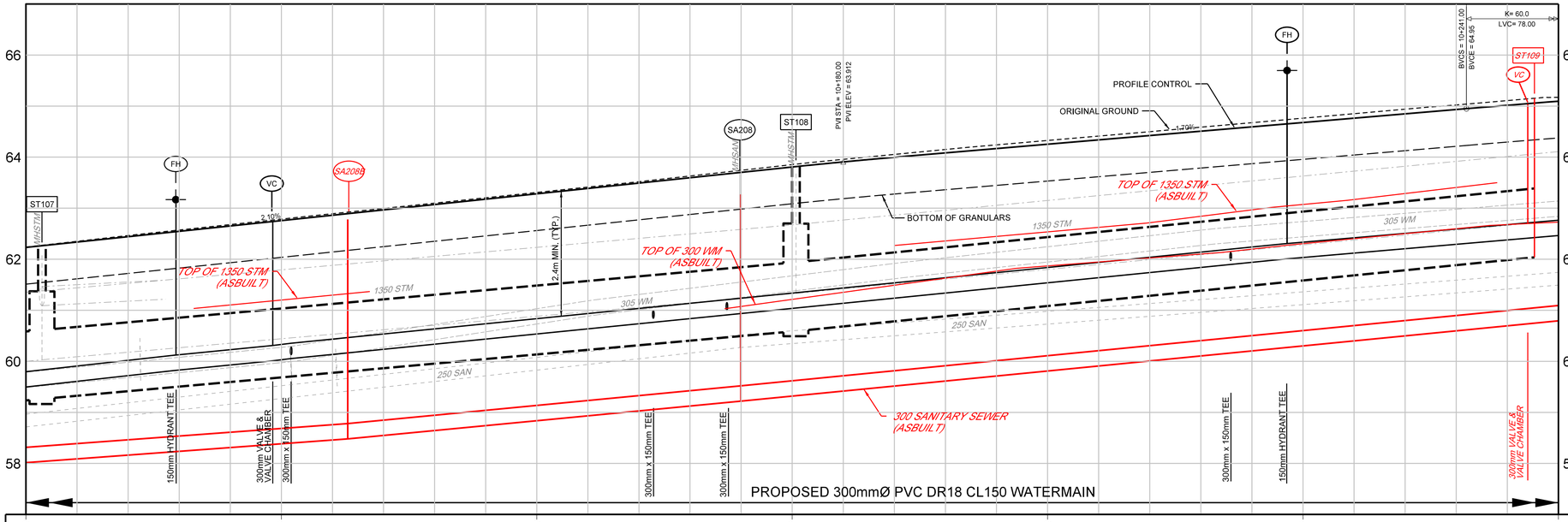
COVENTRY ROAD

FOR CONTINUATION SEE DWG. PP4
MATCHLINE STA. 10+100

MATCHLINE STA. 10+250
FOR CONTINUATION SEE DWG. PP6

10+100 | 10+150 | 10+200 | 10+250





62.232	62.757	63.282	63.807	64.252	64.677	65.095	PROPOSED ℄ PROFILE
59.797	60.120	60.310 60.331 60.355	60.836	61.063	61.211	61.336	61.838	62.198	62.300	62.334	62.660	62.763	PROPOSED TOP OF WATERMAIN
59.120 59.283 59.293	~~74.0m~~ - 1350mmØ CL 100-D STORM SEWER ~~@ 1.80%~~					59.591 59.601	~~84.0m~~ - 1350mmØ CL 140-D STORM SEWER ~~@ 2.00%~~						PROPOSED STORM SEWER INVERT
300mmØ PVC SDR 35 SANITARY SEWER			58.480 58.633 58.643 58.656	300mmØ PVC SDR 35 SANITARY SEWER		59.220 59.244 59.357	300mmØ PVC SDR 35 SANITARY SEWER						PROPOSED SANITARY SEWER INVERT
10+100	10+114.5	10+124.2 10+125 10+126.0	10+150	10+161.4	10+168.8	10+175	10+200	10+217.9	10+223.0	10+225		10+250	STATION

ORLEANS WATERMAIN
LINK - WEST

GRADING & DRAINAGE
STA. 10+100 TO STA. 10+250

W. Newell, P.Eng.	B. Kenny, P. Eng.
General Manager, Infrastructure Services Department	Project Manager, Design & Construction - Municipal East

Robinson Consultants

AS-BUILT

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Ottawa

Contract No.	Dwg. No.
ISD12-3028	PP5

Sheet of

Asset No.

Asset Group

Des.	Chk'd.
I.M.	P.L.
Dwn.	Chk'd.
I.M.	P.L.

Utility Circ. No. | Index No.

Const. Inspector

Scale:
HORIZONTAL 0m 2.5 5 10
VERTICAL 0m 1 2

NOTE: The location of utilities is approximate only, the exact location should be determined by consulting the municipal authorities and utility companies concerned. The contractor shall prove the location of utilities and shall be responsible for adequate protection from damage.

REVISIONS

No.	Description	By	Date (dd/mm/yy)
1	ISSUED FOR PRELIMINARY CIRCULATION	G.B.	28.02.13
2	ISSUED FOR TENDER	G.B.	30.05.13
3	ISSUED FOR ADDENDUM	G.B.	12.07.13
4	ISSUED FOR CONSTRUCTION	P.C.	20.05.14
5	ISSUED FOR CHANGE ORDER	P.L.	09.07.14
6	AS BUILT	P.L.	29.04.16

SEWER SCHEDULES NOT AS-BUILT

STORM SEWER MH DATA

No.	Station	Offset (m)	Type		Elevations		Grate to Invert
			Structure	Cover	Grate	Low Inv.	
ST107	10+101.88	6.88 L	2440X2440	S24.1/S25	62.14	59.26	2.88
ST108	10+175.43	7.07 L	2440X2440	S24.1/S25	63.72	60.59	3.13

SANITARY SEWER MH DATA

No.	Station	Offset (m)	Type		Elevations		Grate to Invert
			Structure	Cover	Grate	Low Inv.	
SA208A	10+130.42	14.54 L	701.010	S24/S25	63.73	58.78	4.95
SA208	10+169.87	3.23 L	701.010	S24/S25	63.64	59.24	4.40
SA208B	10+130.44	3.15 L	701.010	S24/S25	62.81	58.54	4.27

CATCH BASIN DATA

No.	Station	Offset (m)	Type		Elevations		Grate to Invert
			Structure	Grate	Grate	Low Inv.	
DCICB24	10+101.50	8.50 R	705.020	S22 / S23 (2)	62.24	60.34	1.90
CICB25	10+111.00	10.50 L	705.010	S22 / S23	62.40	60.55	1.85
CICB26	10+139.00	10.53 L	705.010	S22 / S23	63.00	61.15	1.85
CB27	10+141.00	8.50 R	705.010	S19	62.92	61.22	1.70
CB27A	10+146.90	18.35 R	705.010	S19	63.10	61.40	1.70
CICB28	10+166.00	10.50 L	705.010	S22 / S23	63.56	61.71	1.85
DCICB29	10+174.00	8.54 R	705.020	S22 / S23 (2)	63.77	61.87	1.90
CICB30	10+190.28	10.60 L	705.010	S22 / S23	64.17	62.32	1.85
DCICB31	10+203.50	9.52 R	705.020	S22 / S23 (2)	64.37	62.47	1.90
CICB32	10+215.28	10.60 L	705.010	S22 / S23	64.68	62.83	1.85
DGICB33	10+235.50	9.90 R	705.020	S22 / S23 (2)	65.02	63.12	1.90
DCICB34	10+240.28	10.60 L	705.020	S22 / S23 (2)	65.16	63.26	1.90

CATCH BASIN LEAD DATA

Structure to Structure	Dia.	Type	Length	Invert Elevations		ICD Ctrl. Device Type
				Upstream	Downstream	
DCICB24 TO MAIN	250mm	PVC	14.5	60.34	60.20	2
CICB25 TO MAIN	200mm	PVC	5.2	60.51	60.46	1
CICB26 TO MAIN	200mm	PVC	5.2	61.10	61.05	1
CB27 TO MAIN	200mm	PVC	14.5	61.22	61.08	1
CB27A TO MAIN	200mm	PVC	24.7	-1.70	-1.95	1
CICB28 TO MAIN	200mm	PVC	5.2	61.67	61.62	1
DCICB29 TO MAIN	250mm	PVC	15.2	61.87	61.72	2
CICB30 TO MAIN	200mm	PVC	5.2	62.28	62.23	1
DCICB31 TO MAIN	250mm	PVC	15.9	62.47	62.31	2
CICB32 TO MAIN	200mm	PVC	5.2	62.79	62.74	1
DCICB33 TO MAIN	250mm	PVC	16.3	63.12	62.96	2
DCICB34 TO MAIN	250mm	PVC	5.2	63.22	63.17	2

APPENDIX C

Water Demand Calculations

Water Supply Calculations

LRL File No.	220200
Project	400 Coventry Road
Date	June 8, 2022
Prepared by	Tamara Harb

OVERALL DEVELOPMENT (Phase 1 &2)

Water Demand based on the City of Ottawa Design Guidelines-Water Distribution, 2010

Domestic Demand			
Unit Type	**Persons Per Unit**	**Number of Units**	**Population**
Bachelor	1.4	285	399
1 Bedroom	1.4	856	1198.4
2 Bedroom	2.1	463	972.3
3 Bedroom	3.1	164	508.4
	Total	**1768**	**3078.1**

Average Water Consumption Rate	280	L/c/d		
Average Day Demand	**861,868**	**L/d**	**9.98**	**L/s**
Maximum Day Factor	2.5	(Design Guidelines-Water Distribution Table 4.2)		
Maximum Daily Demand	**2,154,670**	**L/d**	**24.94**	**L/s**
Peak Hour Factor	2.2	(Design Guidelines-Water Distribution Table 4.2)		
Maximum Hour Demand	**1,896,110**	**L/d**	**21.95**	**L/s**

Institutional / Commercial / Industrial Demand				
Property Type	**Unit Rate**		**Units (m^2)**	**Demand (L/d)**
Commercial - Retail	2.8	L/m^2/d	1700.0	4760.0

Average Day Demand	**4,760**	**L/d**	**0.06**	**L/s**
Maximum Day Factor	1.5	(Design Guidelines-Water Distribution Table 4.2)		
Maximum Daily Demand	**7,140**	**L/d**	**0.08**	**L/s**
Peak Hour Factor	1.8	(Design Guidelines-Water Distribution Table 4.2)		
Maximum Hour Demand	**8,568**	**L/d**	**0.10**	**L/s**

TOTAL DEMAND				
Average Day Demand	**866,628**	**L/d**	**10.03**	**L/s**
Maximum Daily Demand	**2,161,810**	**L/d**	**25.02**	**L/s**
Maximum Hour Demand	**1,904,678**	**L/d**	**22.04**	**L/s**

Water Service Pipe Sizing

Q = VA

Where: V = velocity
A = area of pipe
Q = flow rate

Assuming a maximum velocity of 1.8m/s, the diameter of pipe is calculated as:

Minimum pipe diameter (d) =	$(4Q/\pi V)^{1/2}$		
=	0.133	m	
=	133	mm	
Proposed pipe diameter (d) =	**150**	mm	
=	**6**	Inches	

Water Supply Calculations

LRL File No.	220200
Project	400 Coventry Road
Date	June 8, 2022
Prepared by	Tamara Harb

PHASE 1

Water Demand based on the City of Ottawa Design Guidelines-Water Distribution, 2010

Domestic Demand			
Unit Type	**Persons Per Unit**	**Number of Units**	**Population**
Bachelor	1.4	156	218.4
1 Bedroom	1.4	324	453.6
2 Bedroom	2.1	181	380.1
3 Bedroom	3.1	49	151.9
	Total	**710**	**1204.0**

Average Water Consumption Rate	280	L/c/d		
Average Day Demand	**337,120**	**L/d**	**3.90**	**L/s**
Maximum Day Factor	2.5	(Design Guidelines-Water Distribution Table 4.2)		
Maximum Daily Demand	**842,800**	**L/d**	**9.75**	**L/s**
Peak Hour Factor	2.2	(Design Guidelines-Water Distribution Table 4.2)		
Maximum Hour Demand	**741,664**	**L/d**	**8.58**	**L/s**

Institutional / Commercial / Industrial Demand				
Property Type	**Unit Rate**		**Units (m^2)**	**Demand (L/d)**
Commercial - Retail	2.8	L/m^2/d	1700.0	4760.0

Average Day Demand	**4,760**	**L/d**	**0.06**	**L/s**
Maximum Day Factor	1.5	(Design Guidelines-Water Distribution Table 4.2)		
Maximum Daily Demand	**7,140**	**L/d**	**0.08**	**L/s**
Peak Hour Factor	1.8	(Design Guidelines-Water Distribution Table 4.2)		
Maximum Hour Demand	**8,568**	**L/d**	**0.10**	**L/s**

TOTAL DEMAND				
Average Day Demand	**341,880**	**L/d**	**3.96**	**L/s**
Maximum Daily Demand	**849,940**	**L/d**	**9.84**	**L/s**
Maximum Hour Demand	**750,232**	**L/d**	**8.68**	**L/s**

Water Service Pipe Sizing

Q = VA

Where: V = velocity
A = area of pipe
Q = flow rate

Assuming a maximum velocity of 1.8m/s, the diameter of pipe is calculated as:

Minimum pipe diameter (d) =	$(4Q/\pi V)^{1/2}$	
=	0.083	m
=	83	mm
Proposed pipe diameter (d) =	**150**	mm
=	**6**	Inches

Water Supply Calculations

LRL File No.	220200
Project	400 Coventry Road
Date	June 8, 2022
Prepared by	Tamara Harb

PHASE 2

Water Demand based on the City of Ottawa Design Guidelines-Water Distribution, 2010

Domestic Demand			
Unit Type	**Persons Per Unit**	**Number of Units**	**Population**
Bachelor	1.4	129	180.6
1 Bedroom	1.4	532	744.8
2 Bedroom	2.1	282	592.2
3 Bedroom	3.1	115	356.5
	Total	**1058**	**1874.1**

Average Water Consumption Rate	280	L/c/d			
Average Day Demand	**524,748**	**L/d**	**6.07**	**L/s**	
Maximum Day Factor	2.5		(Design Guidelines-Water Distribution Table 4.2)		
Maximum Daily Demand	**1,311,870**	**L/d**	**15.18**	**L/s**	
Peak Hour Factor	2.2		(Design Guidelines-Water Distribution Table 4.2)		
Maximum Hour Demand	**1,154,446**	**L/d**	**13.36**	**L/s**	

Institutional / Commercial / Industrial Demand				
Property Type	**Unit Rate**		**Units (m^2)**	**Demand (L/d)**
Commercial - Retail	2.8	L/m^2/d	1700.0	4760.0

Average Day Demand	**4,760**	**L/d**	**0.06**	**L/s**	
Maximum Day Factor	1.5		(Design Guidelines-Water Distribution Table 4.2)		
Maximum Daily Demand	**7,140**	**L/d**	**0.08**	**L/s**	
Peak Hour Factor	1.8		(Design Guidelines-Water Distribution Table 4.2)		
Maximum Hour Demand	**8,568**	**L/d**	**0.10**	**L/s**	

TOTAL DEMAND				
Average Day Demand	**529,508**	**L/d**	**6.13**	**L/s**
Maximum Daily Demand	**1,319,010**	**L/d**	**15.27**	**L/s**
Maximum Hour Demand	**1,163,014**	**L/d**	**13.46**	**L/s**

Water Service Pipe Sizing

Q = VA

Where: V = velocity
A = area of pipe
Q = flow rate

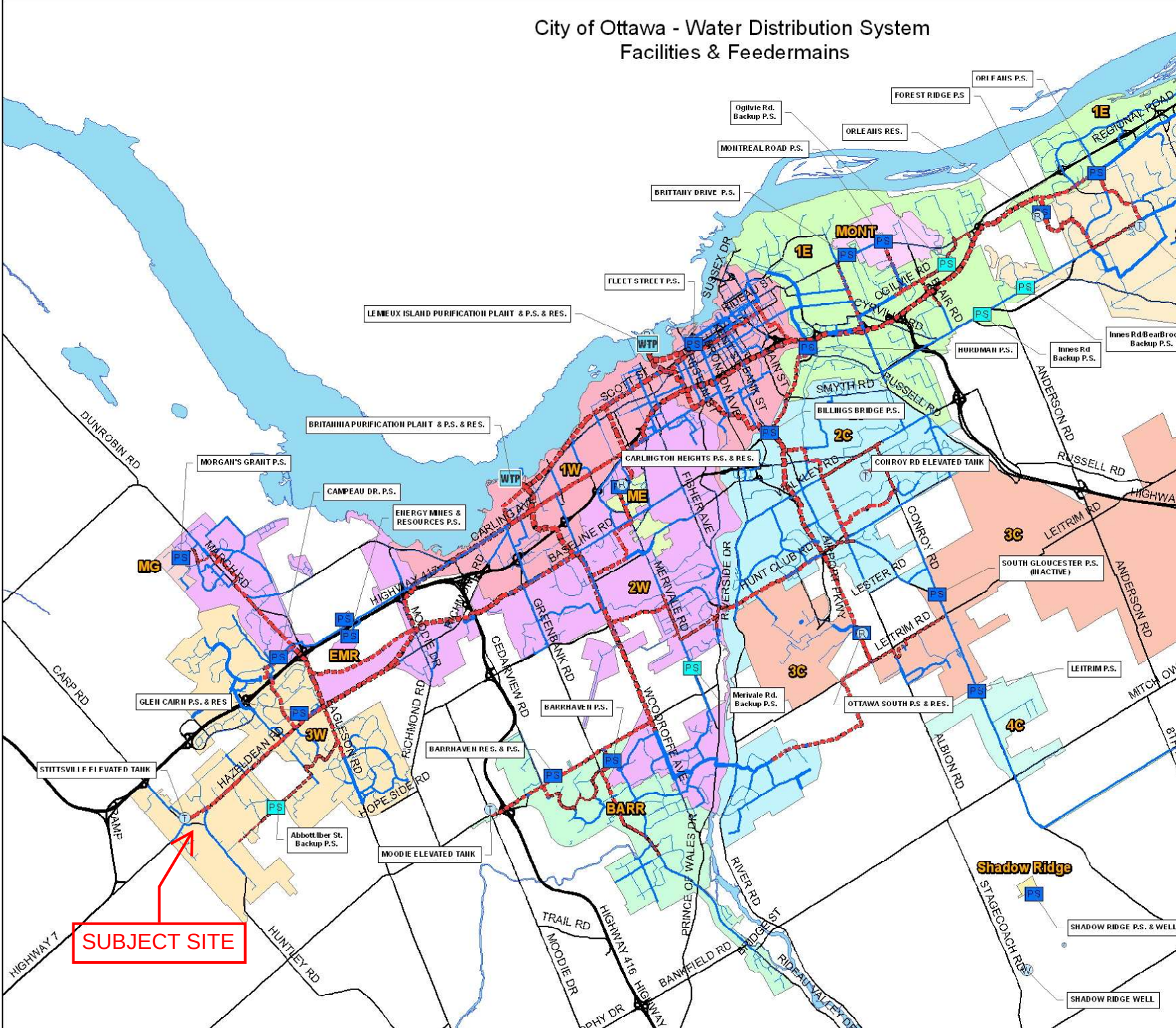
Assuming a maximum velocity of 1.8m/s, the diameter of pipe is calculated as:

Minimum pipe diameter (d) =	$(4Q/\pi V)^{1/2}$	
=	0.104	m
=	104	mm
Proposed pipe diameter (d) =	**150**	mm
=	**6**	Inches

APPENDIX D

Fire Hydrant Coverage and Pressure Map


LEGEND:
SUBJECT PROPERTY
EXISTING FIRE HYDRANTS (75m)
EXISTING FIRE HYDRANTS (150m)
EXISTING FIRE HYDRANTS (300m)
COVENTRY ROAD
BELFAST ROAD
HIGHWAY 417 WEST
HIGHWAY 417 EAST


City of Ottawa - Water Distribution System
Facilities & Feedermains
ORLEANS P.S.
FOREST RIDGE P.S
Ogilvie Rd. Backup P.S.
ORLEANS RES.
MONTREAL ROAD P.S.
BRITTANY DRIVE P.S.
FLEET STREET P.S.
LEMIEUX ISLAND PURIFICATION PLANT & P.S. & RES.
BRITANNIA PURIFICATION PLANT & P.S. & RES.
MORGAN'S GRANT P.S.
CAMPEAU DR. P.S.
ENERGY MINES & RESOURCES P.S.
CARLINGTON HEIGHTS P.S. & RES.
BILLINGS BRIDGE P.S.
CONROY RD ELEVATED TANK
SOUTH GLOUCESTER P.S. (INACTIVE)
HURDMAN P.S.
Innes Rd Backup P.S.
Merivale Rd. Backup P.S.
OTTAWA SOUTH P.S & RES.
LEITRIM P.S.
GLEN CAIRN P.S. & RES
BARRHAVEN P.S.
BARRHAVEN RES. & P.S.
STITTSVILLE ELEVATED TANK
Abbottlber St. Backup P.S.
MOODIE ELEVATED TANK
Shadow Ridge
SHADOW RIDGE P.S. & WELL
SHADOW RIDGE WELL
1E
1W
2W
2C
3C
3W
4C
MONT
ME
MG
EMR
BARR
WTP
REGIONAL ROAD
SUSSEX DR
OGILVIE RD
INNES RD
MAIN ST
BANK ST
SCOTT ST
RUSSELL RD
SMYTH RD
ANDERSON RD
DUNROBIN RD
MARCH RD
CARLING AVE
BASELINE RD
FISHER AVE
WALKLEY RD
HUNT CLUB RD
AIRPORT PKWY
CONROY RD
LESTER RD
LEITRIM RD
RIVERSIDE DR
MERIVALE RD
GREENBANK RD
CEDARVIEW RD
WOODROFFE AVE
RICHMOND RD
MOODIE DR
HIGHWAY 417
CARP RD
HAZELDEAN RD
EAGLESON RD
HOPE SIDE RD
ALBION RD
PRINCE OF WALES DR
RIVER RD
BANKFIELD RD
TRAIL RD
HIGHWAY 416
STAGECOACH RD
RAMP
HIGHWAY 7
HUNTLEY RD
SUBJECT SITE

APPENDIX E

Sanitary Flow Calculations

LRL File No. 220200
Project: Mixed-Use Development/High Density Residential
Location: 400 Coventry Road
Date: June 08,2023

Sanitary Design Parameters

Average Daily Flow = 280 L/p/day
Commercial & Institutional Flow = 28000 L/ha/day
Light Industrial Flow = 35000 L/ha/day
Heavy Industrial Flow = 55000 L/ha/day
Maximum Residential Peak Factor = 4.0
Commercial & Institutional Peak Factor = 1.00
Industrial Peak Factor = as per Appendix 4-B = 7
Extraneous Flow = 0.33L/s/gross ha

Pipe Design Parameters

Minimum Velocity = 0.60 m/s
Manning's n = 0.013

LOCATION			RESIDENTIAL AREA AND POPULATION						COMMERCIAL		INDUSTRIAL			INSTITUTIONAL		C+I+I	INFILTRATION			TOTAL FLOW (l/s)	PIPE					
STREET	FROM	TO	AREA (Ha)	POP.	CUMMULATIVE AREA (Ha)	CUMMULATIVE POP.	PEAK FACT.	PEAK FLOW (l/s)	AREA (Ha)	ACCU. AREA (Ha)	AREA (Ha)	ACCU. AREA (Ha)	PEAK FACT.	AREA (Ha)	ACCU. AREA (Ha)	PEAK FLOW (l/s)	TOTAL AREA (Ha)	ACCU. AREA (Ha)	INFILT. FLOW (l/s)		LENGTH (m)	DIA. (mm)	SLOPE (%)	MATERIAL	CAP. (FULL) (l/s)	VEL. (FULL) (m/s)
Coventry Road	Bldg	*EX. 300mm PVC SAN SEWER*	**1.990**	**3078.1**	1.99	3078.1	2.9	29.39	0.170	**0.170**	0.00	0.00	7.0	0.0	0.0	0.08	1.990	1.990	0.66	30.13	17.1	250	1.00%	PVC	59.47	1.21

NOTES	
	Populations have been estimated based on concept plan
	Areas of commercial space have been estimated based on concept plan

Designed: TH	PROJECT: Mixed-Use Development/High Density Residential		
Checked: V.J.	LOCATION: 400 Coventry Road		
Dwg. Reference: C.401	File Ref.: 220200	Date: 2022-10-19	Sheet No. 1 of 1

APPENDIX F

Stormwater Management Design Calculations

LRL Associates Ltd.
Storm Watershed Summary

LRL File No.	210682
Project:	Site Plan Control Design
Location:	400 Coventry Road
Date:	June 8, 2023
Designed:	Tamara Harb
Drawing Reference:	C701/C702

Pre-Development Catchments

WATERSHED	C = 0.2	C=0.7	C = 0.90	Total Area (m^2)	Total Area (ha)	Combined C
EWS-01	0.0	0.0	19918.0	19918.0	1.992	0.90
TOTAL	**0.0**	**0.0**	**19918.0**	**19918.0**	**1.992**	**0.90**

Post-Development Catchments

WATERSHED	C = 0.20	C = 0.70	C = 0.90	Total Area (m^2)	Total Area (ha)	Combined C
WS-01 CONTROLLED	2763.05	0.00	4304.18	7067.23	0.707	0.63
WS-02 CONTROLLED	3858.08	0.00	5420.90	9278.98	0.928	0.61
WS-03 UN-CONTROLLED COVENTRY	172.82	0.00	516.49	689.31	0.069	0.72
WS-04 UNCONTROLLED - BELFAST ROAD	146.43	0.00	99.14	245.57	0.025	0.48
WS-05 UNCONTROLLED	536.60	0.00	10.86	547.46	0.055	0.21
WS-06 UNCONTROLLED ROAD TO STM MH	142.77	0.00	1511.02	1653.79	0.165	0.84
WS-07 UNCONTROLLED	26.12	0.00	409.49	435.61	0.044	0.86
TOTAL	**7645.9**	**0.0**	**12272.1**	**19918.0**	**1.992**	**0.63**

LRL File No.	210682
Project:	Site Plan Control Design
Location:	400 Coventry Road
Date:	June 8, 2023
Designed:	Tamara Harb
Drawing Ref.:	C601

Stormwater Management Design Sheet

Runoff Equation

Q = 2.78CIA (L/s)
C = Runoff coefficient
I = Rainfall intensity (mm/hr) = $A / (Td + C)^B$
A = Area (ha)
T_c = Time of concentration (min)

Pre-development Stormwater Management - 2 Year Storm

2 year storm

I2 = 732.95 / (Td + 6.199)$^{0.81}$ **a = 732.951** **b = 0.810** **C = 6.199**

C =	0.50	max of 0.5 as per City of Ottawa
I =	76.8	mm/hr
Tc =	10	min
Total Area =	1.992	ha

Allowable Release Rate= 212.64 L/s

Post-development Stormwater Management

					$\sum R_{2\&5}$	$\sum R_{100}$
		Area	ha	**∑R=**		
Controlled	WS-01 CONTROLLED	0.707	ha	R=	0.63	0.78
	WS-02 CONTROLLED	0.928	ha	R=	0.61	0.76
	Total Controlled	**1.635**	**ha**	**∑R=**	**0.62**	**0.77**
UnControlled	WS-03 UN-CONTROLLED COVENTRY	0.069	ha	R=	**0.72**	0.91
	WS-04 UNCONTROLLED - BELFAST ROAD	0.025	ha	R=	**0.48**	0.60
	WS-05 UNCONTROLLED	0.055	ha	R=	**0.21**	0.27
	WS-06 UNCONTROLLED ROAD TO STM MH	0.165	ha	R=	**0.84**	1.00
	WS-07 UNCONTROLLED	0.044	ha	R=	**0.86**	1.00
	Total UnControlled	**0.357**	**ha**	**∑R=**	**0.70**	**0.87**

LRL File No.	210682
Project:	Site Plan Control Design
Location:	400 Coventry Road
Date:	June 8, 2023
Designed:	Tamara Harb
Drawing Ref.:	C601

Stormwater Management Design Sheet

Total	**1.99**	**ha**	**∑R=**	0.631	**0.79**

Post-development Stormwater Management (Uncontrolled Catchments)

100 Year Storm Event:

$I_{100} = 1735.688 / (Td + 6.014)^{0.820}$ **a = 1735.688** **b = 0.820** **C = 6.014**

Time (min)	Intensity (mm/hr)	Uncontrolled Runoff (L/s)	Controlled Release Rate Constant (L/s)	Total Release Rate (L/s)
10	178.6	154.99	0.00	154.99

Post-development Stormwater Management (WS-01)

100 Year Storm Event:

$I_{100} = 1735.688 / (Td + 6.014)^{0.820}$ **a = 1735.688** **b = 0.820** **C = 6.014**

		Storage Required				
Time (min)	Intensity (mm/hr)	Controlled Runoff (L/s)	Storage Volume (m^3)	Controlled Release Rate Constant (L/s)	Uncontrolled Runoff (L/s)	Total Release Rate (L/s)
10	178.6	274.65	147.50	28.83	0.00	28.83
15	142.9	219.79	171.87	28.83	0.00	28.83
20	120.0	184.50	186.81	28.83	0.00	28.83
25	103.8	159.73	196.36	28.83	0.00	28.83
30	91.9	141.31	202.47	28.83	0.00	28.83
35	82.6	127.02	206.20	28.83	0.00	28.83
40	75.1	115.59	208.22	28.83	0.00	28.83
45	69.1	106.21	208.94	28.83	0.00	28.83
50	64.0	98.37	208.63	28.83	0.00	28.83
60	55.9	85.98	205.73	28.83	0.00	28.83
70	49.8	76.58	200.58	28.83	0.00	28.83
80	45.0	69.20	193.81	28.83	0.00	28.83
90	41.1	63.24	185.80	28.83	0.00	28.83
100	37.9	58.30	176.84	28.83	0.00	28.83
110	35.2	54.15	167.11	28.83	0.00	28.83
120	32.9	50.60	156.75	28.83	0.00	28.83

Total Storage Required = 208.94 m^3
Available Cistern Storage = 210.00 m^3

All controlled areas will be directed to the underground cistern either through roof drains, area drains or landscape CB's. Where the cistern will control the flows to 28.83L/s

Post-development Stormwater Management (WS-03, WS-04 AND WS-05 CISTERN)

100 Year Storm Event:

$I_{100} = 1735.688 / (Td + 6.014)^{0.820}$ **a = 1735.688** **b = 0.820** **C = 6.014**

		Storage Required				
Time (min)	Intensity (mm/hr)	Controlled Runoff (L/s)	Storage Volume (m^3)	Controlled Release Rate Constant (L/s)	Uncontrolled Runoff (L/s)	Total Release Rate (L/s)
10	178.6	350.60	193.07	28.83	0.00	28.83
15	142.9	280.58	226.57	28.83	0.00	28.83
20	120.0	235.53	248.04	28.83	0.00	28.83
25	103.8	203.91	262.62	28.83	0.00	28.83
30	91.9	180.39	272.80	28.83	0.00	28.83
35	82.6	162.14	279.97	28.83	0.00	28.83
40	75.1	147.55	284.93	28.83	0.00	28.83
45	69.1	135.58	288.24	28.83	0.00	28.83
50	64.0	125.58	290.24	28.83	0.00	28.83
60	55.9	109.75	291.32	28.83	0.00	28.83
70	49.8	97.76	289.53	28.83	0.00	28.83
80	45.0	88.34	285.66	28.83	0.00	28.83
90	41.1	80.72	280.23	28.83	0.00	28.83
100	37.9	74.42	273.58	28.83	0.00	28.83
110	35.2	69.12	265.94	28.83	0.00	28.83
120	32.9	64.59	257.49	28.83	0.00	28.83

Total Storage Required = 291.32 m^3
Available Cistern Storage = 295.00 m^3

All controlled areas will be directed to the underground cistern either through roof drains, area drains or landscape CB's. Where the cistern will control the flows to 28.83L/s

SUMMARY OF RELEASE RATES AND STORAGE VOLUMES

CATCHMENT AREAS	DRAINAGE AREAS (ha)	100-YEAR RELEASE RATE	100-YEAR REQUIRED STORAGE (m3)	TOTAL AVAILABLE STORAGE (m3)
CONTROLLED (WS-01 & WS-02)	1.635	212.64	500.26	505.00
UNCONTROLLED (WS-03 TO WS-06)	0.357			
TOTAL	**1.992**	**212.64**	**500.26**	**505.00**

LRL Associates Ltd.

Storm Design Sheet

LRL File No.	210682
Project:	Site Plan Control Design
Location:	400 Coventry Road
Date:	April 10, 2023
Designed:	Tamara Harb
Drawing Reference:	C.401

Storm Design Parameters

Rational Method Q = 2.78CIA

Q = Peak flow in litres per second (L/s)
A = Drainage area in hectares (ha)
C = Runoff coefficient
I = Rainfall intensity (mm/hr)

Runoff Coefficient (C)

Grass	0.20
Gravel	0.70
Asphalt / rooftop	0.90

Ottawa Macdonald-Cartier International Airport IDF curve equation (10 year event, intensity in mm/hr)

I100 = 1735.688 / (Td + 6.014)0.820

Min. velocity = 0.80 m/s
Manning's "n" = 0.013

LOCATION			AREA (ha)			FLOW						STORM SEWER							
Watershed	From	To	C = 0.20	C = 0.70	C = 0.90	Indiv. 2.78AC	Accum. 2.78AC	Time of Conc. (min.)	Rainfall Intensity (mm/hr)	Peak Flow Q (L/s)	Controlled Flow Q (L/s)	Pipe Diameter (mm)	Type	Slope (%)	Length (m)	Capacity Full (L/s)	Velocity Full (m/s)	Time of Flow (min.)	Ratio (Q/Q_{FULL})
WS-03 to WS-05 (Directed to Underground Cistern)	BUIDLING	EX 525mm dia. STM Sewer in Borthwick Ave.	n/a	n/a	n/a	n/a	n/a	10.00	178.6	n/a	28.83	200	PVC	1.50%	5.6	40.2	1.28	0.07	0.72
WS-06	CB	MH	0.071	0.000	0.756	1.930	1.930	10.00	50.6	48.84		250	PVC	1.00%	5.6	59.5	1.21	0.08	0.82
	MH	MH05	0.000	0.000	0.000	0.000	1.930	10.08	50.4	97.21		375	PVC	0.50%	17.7	124.0	1.12	0.26	0.78
	MH05	MH07	0.000	0.000	0.000	0.000	1.930	10.34	49.6	124.48		450	PVC	0.30%	17.7	156.2	0.98	0.30	0.80
	MH07	CONNECTION	0.000	0.000	0.000	0.000	1.930	10.64	48.7	151.58		525	PVC	0.25%	17.7	215.0	0.99	0.30	0.70

APPENDIX G

City Correspondence - Sanitary Capacity Confirmation

Virginia Johnson

From: Jhamb, Nishant <nishant.jhamb@ottawa.ca>
Sent: April 14, 2022 3:05 PM
To: Virginia Johnson
Cc: Renaud, Jean-Charles
Subject: RE: 400 Coventry Road- Engineering Contact

Hello Virginia,

The Sanitary infrastructure in Coventry Road has the required 28.82L/s capacity. Again, this is on a first come first serve basis, so we will only confirm capacity once a site plan application is submitted.

Thanks
Nishant

From: Virginia Johnson <vjohnson@lrl.ca>
Sent: April 13, 2022 12:52 PM
To: Jhamb, Nishant <nishant.jhamb@ottawa.ca>
Cc: Renaud, Jean-Charles <Jean-Charles.Renaud@ottawa.ca>
Subject: RE: 400 Coventry Road- Engineering Contact

Hello,

Thank you for sending through the history on this file as well.

For the proposed demands, the client is looking at fairly high density, with a portion of commercial space as well.

I have calculated a total flow equal to:
Residential (based on population of 2920) + 0.28 ha commercial space + 1.99 hs land for infiltration**= 28.82 L/s.**

Looking forward to your comments back on the viability of this.

Thank you,

Virginia Johnson, P. Eng.
Partner
Civil Engineering Department Lead

LRL Engineering
5430 Canotek Road
Ottawa, Ontario K1J 9G2
C (613) 915-9503
T (613) 842-3434 or (877) 632-5664 ext 223
F (613) 842-4338
E vjohnson@lrl.ca
W www.lrl.ca

Please note, I will be stepping away from the office at the end of April to welcome a baby into this world! I will continue to offer ongoing support and have contact with our team here at LRL to ensure a smooth transition and continuity for all our ongoing projects and communication.

From: Jhamb, Nishant <nishant.jhamb@ottawa.ca>
Sent: April 13, 2022 12:03 PM
To: Virginia Johnson <vjohnson@lrl.ca>
Cc: Renaud, Jean-Charles <Jean-Charles.Renaud@ottawa.ca>
Subject: RE: 400 Coventry Road- Engineering Contact

Hello Virginia,

I checked with the Asset management group, we will need to see the proposed sanitary demand to comment if the demands can be met or no.
Also please note that we cannot guarantee the availability unless we receive the Site plan control application. Please refer the attached email that was sent earlier to Fotenn.

In terms of Water service connection, yes, Service connection will be to the 300mm watermain.
Please let me know if there are any further questions.

Regards

Nishant Jhamb, P.Eng
Project Manager |Gestionnaire de projet
Planning, Real Estate and Economic Development Department
Development Review - Central Branch
City of Ottawa | Ville d'Ottawa
110 Laurier Avenue West Ottawa, ON | 110, avenue. Laurier Ouest. Ottawa (Ontario) K1P 1J1
613.580.2424 ext./poste 23112, nishant.jhamb@ottawa.ca

From: Virginia Johnson <vjohnson@lrl.ca>
Sent: April 12, 2022 3:53 PM
To: Jhamb, Nishant <nishant.jhamb@ottawa.ca>
Cc: Renaud, Jean-Charles <Jean-Charles.Renaud@ottawa.ca>
Subject: RE: 400 Coventry Road- Engineering Contact

Thank you for getting back to me Nishant.

I am currently completing a high level serviceability review of the property located here to assist a client of ours looking to ultimately redevelop it to high rise residential in the future. This is based off of studies completed by Fotenn to present the highest and best use for the lands based on the current policies and character of the surrounding area including the 2021 Official Plan.

However, can you provide me some insight on the capacity of the existing 300mm (transitioning to a 525mm) sanitary sewer running along Coventry. I will progress with effluent calculations; however, wanted to first get high level feedback on the viability of increasing the demands at this location.

Additionally, based on the profiles we were provided, the Watermain along Coventry (300mm) is also paired with a 900mm. However, I assume the 900mm is a forcemain for supply to the east, and any servicing would come directly from the 300mm in Coventry?

Thank you,

Virginia Johnson, P. Eng.
Partner
Civil Engineering Department Lead
LRL Engineering
5430 Canotek Road
Ottawa, Ontario K1J 9G2
C (613) 915-9503
T (613) 842-3434 or (877) 632-5664 ext 223
F (613) 842-4338
E vjohnson@lrl.ca
W www.lrl.ca

Please note, I will be stepping away from the office at the end of April to welcome a baby into this world! I will continue to offer ongoing support and have contact with our team here at LRL to ensure a smooth transition and continuity for all our ongoing projects and communication.

From: Jhamb, Nishant <nishant.jhamb@ottawa.ca>
Sent: April 12, 2022 3:06 PM
To: Virginia Johnson <vjohnson@lrl.ca>
Cc: Renaud, Jean-Charles <Jean-Charles.Renaud@ottawa.ca>
Subject: RE: 400 Coventry Road- Engineering Contact

Hello Virginia

I will be the infrastructure project manager on this application. Please feel free to reach out.

APPENDIX H
Civil Engineering Design Drawings

COVENTRY REDEVELOPMENT
400 COVENTRY RD, OTTAWA

REVISION 01

KEY PLAN (N.T.S.)

DRAWING INDEX	
TITLE PAGE	
SEDIMENT AND EROSION CONTROL PLAN	C101
DEMOLITION PLAN	C102
SITE DEVELOPMENT PLAN	C201
GRADING AND DRAINAGE PLAN	C301
SERVICING PLAN	C401
STORMWATER MANAGEMENT PLAN	C601
PRE-DEVELOPMENT WATERSHED PLAN	C701
POST-DEVELOPMENT WATERSHED PLAN	C702
CONSTRUCTION DETAIL PLAN	C901

LRL
ENGINEERING | INGÉNIERIE
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www.lrl.ca | (613) 842-3434

COVENTRY REDEVELOPMENT
400 COVENTRY RD, OTTAWA
REV.01 - ISSUED FOR APPROVAL - JUNE 12, 2023
LRL PROJECT no: 20200

LICENSED PROFESSIONAL ENGINEER
V. JOHNSON
100510576
06-12-2023
PROVINCE OF ONTARIO
NOT AUTHENTIC UNLESS SIGNED AND DATED

GENERAL NOTES

1. ALL WORKS MATERIALS SHALL CONFIRM TO THE LAST REVISION OF THE STANDARDS AND SPECIFICATIONS FOR THE CITY OF OTTAWA, ONTARIO PROVINCIAL STANDARD DRAWINGS (OPSD) AND SPECIFICATIONS (OPSS), WHERE APPLICABLE. LOCAL UTILITY STANDARDS AND MINISTRY OF TRANSPORTATION STANDARDS WILL APPLY WHERE REQUIRED.
2. THE CONTRACTORS SHALL CONFIRM THE LOCATION OF ALL EXISTING UTILITIES WITHIN THE SITE AND ADJACENT WORK AREAS. THE CONTRACTORS SHALL BE RESPONSIBLE FOR PROTECTING ALL EXISTING UTILITIES TO THE SATISFACTION OF THE AUTHORITY HAVING JURISDICTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REPAIR OR REPLACEMENT OF ANY SERVICES OR UTILITIES DISTURBED DURING CONSTRUCTION , TO THE SATISFACTION OF THE AUTHORITY HAVING JURISDICTION.
3. ALL DIMENSIONS SHALL BE CHECKED AND VERIFIED IN THE FIELD BY THE CONTRACTOR PRIOR TO THE START OF CONSTRUCTION, ANY DISCREPANCIES SHALL BE REPORTED IMMEDIATELY TO THE ENGINEER. LOST TIME DUE TO FAILURE OF THE CONTRACTORS TO CONFIRM UTILITY LOCATIONS AND NOTIFY ENGINEER OF POSSIBLE CONFLICTS PRIOR TO CONSTRUCTION WILL BE AT CONTRACTORS EXPENSE.
4. ANY AREA BEYOND THE LIMIT OF THE SITE DISTURBED DURING CONSTRUCTION SHALL BE RESTORED TO ORIGINAL CONDITION OR BETTER TO THE SATISFACTION OF THE AUTHORITY HAVING JURISDICTION AT THE CONTRACTOR'S EXPENSE.
   RELOCATING OF EXISTING SERVICES AND/OR UTILITIES SHALL BE AS SHOWN ON THE DRAWINGS OR DETECTED BY THE ENGINEER AT THE EXPENSE OF DEVELOPERS.
5. ALL WORK SHALL BE COMPLETED IN ACCORDANCE WITH THE 'OCCUPATIONAL HEALTH AND SAFETY ACT AND REGULATIONS FOR CONSTRUCTION PROJECTS'. THE GENERAL CONTRACTORS SHALL BE DEEMED TO BE THE 'CONTRACTOR' AS DEFINED IN THE ACT.
6. ALL THE CONSTRUCTION SIGNAGE MUST CONFIRM TO THE MINISTRY OF TRANSPORTATION OF ONTARIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES PER LATEST AMENDMENT.
7. THE CONTRACTOR IS ADVISED THAT WORKS BY OTHERS MAY BE ONGOING DURING THE PERIOD OF THE CONTRACT. THE CONTRACTOR SHALL COORDINATE CONSTRUCTION ACTIVITIES TO PREVENT CONFLICTS.
8. ALL DIMENSIONS ARE IN METRES UNLESS SPECIFIED OTHERWISE.
9. THERE WILL BE NO SUBSTITUTION OF MATERIALS UNLESS PRIOR WRITTEN APPROVAL IS RECEIVED FROM THE ENGINEER.
10. ALL CONSTRUCTION SHALL BE CARRIED OUT IN ACCORDANCE WITH THE RECOMMENDATIONS MADE IN THE GEOTECHNICAL REPORT.
11. FOR DETAILS RELATING TO STORMWATER MANAGEMENT AND ROOF DRAINAGE REFER TO THE SITE SERVICING AND STORMWATER MANAGEMENT REPORT.
12. ALL SEWERS CONSTRUCTED WITH GRADES LESS THAN 1.0% SHALL BE INSTALLED USING LASER ALIGNMENT AND CHECKED WITH LEVEL INSTRUMENT PRIOR TO BACKFILLING.
13. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL PERMITS REQUIRED AND TO BEAR THE COST OF THE SAME.
14. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ADDITIONAL BEDDING, OR ADDITIONAL STRENGTH PIPE IF THE MAXIMUM TRENCH WIDTH AS SPECIFIED BY OPSD IS EXCEEDED.
15. ALL PIPE/CULVERT SECTION SIZES REFER TO INSIDE DIMENSIONS.
16. SHOULD DEEPLY BURIED ARCHAEOLOGICAL REMAINS BE FOUND ON THE PROPERTY DURING CONSTRUCTION ACTIVITIES, THE HERITAGE OPERATIONS UNIT OF THE ONTARIO MINISTRY OF CULTURE MUST BE NOTIFIED IMMEDIATELY.
17. ALL NECESSARY CLEARING AND GRUBBING SHALL BE COMPLETED BY THE CONTRACTOR. REVIEW WITH CONTRACT ADMINISTRATOR AND THE CITY OF OTTAWA PRIOR TO ANY TREE CUTTING/REMOVAL.
18. DRAWINGS SHALL BE READ ON CONJUNCTION WITH ARCHITECTURAL SITE PLAN.
19. THE CONTRACTOR SHALL PROVIDE THE PROJECT ENGINEER ON SET OF AS CONSTRUCTED SITE SERVICING AND GRADING DRAWINGS.
20. BENCHMARKS: IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THAT THE SITE BENCHMARK(S) HAS NOT BEEN ALTERED OR DISTURBED AND THAT ITS RELATIVE ELEVATION AND DESCRIPTION AGREES WITH THE INFORMATION DEPICTED ON THIS PLAN.

EROSION AND SEDIMENT CONTROL NOTES

GENERAL

THE CONTRACTOR SHALL IMPLEMENT BEST MANAGEMENT PRACTICES, TO PROVIDE FOR PROTECTION OF THE AREA DRAINAGE SYSTEM AND THE RECEIVING WATERCOURSE, DURING CONSTRUCTION ACTIVITIES. THE CONTRACTOR ACKNOWLEDGES THAT FAILURE TO IMPLEMENT APPROPRIATE EROSION AND SEDIMENT CONTROL MEASURES MAY BE SUBJECT TO PENALTIES IMPOSED BY ANY APPLICABLE REGULATORY AGENCY.

THE CONTRACTOR ACKNOWLEDGES THAT SURFACE EROSION AND SEDIMENT RUNOFF RESULTING FROM THEIR CONSTRUCTION OPERATIONS HAS POTENTIAL TO CAUSE A DETRIMENTAL IMPACT TO ANY DOWNSTREAM WATERCOURSE OR SEWER, AND THAT ALL CONSTRUCTION OPERATIONS THAT MAY IMPACT UPON WATER QUALITY SHALL BE CARRIED OUT IN MANNER THAT STRICTLY MEETS THE REQUIREMENT OF ALL APPLICABLE LEGISLATION AND REGULATIONS.

AS SUCH, THE CONTRACTOR SHALL BE RESPONSIBLE FOR CARRYING OUT THEIR OPERATIONS, AND SUPPLYING AND INSTALLING ANY APPROPRIATE CONTROL MEASURES, SO AS TO PREVENT SEDIMENT LADEN RUNOFF ENTERING ANY SEWER OR WATERCOURSE WITHIN OR DOWNSTREAM OF THE WORKING AREA.

THE CONTRACTOR ACKNOWLEDGES THAT NO ONE MEASURE IS LIKELY TO BE 100% EFFECTIVELY FOR EROSION PROTECTION AND CONTROLLING SEDIMENT RUNOFF AND DISCHARGES FROM THE SITE. THEREFORE, WHERE NECESSARY THE CONTRACTOR SHALL IMPLEMENT ADDITIONAL MEASURES ARRANGED IN SUCH MANNER AS TO MITIGATE SEDIMENT RELEASE FROM THE CONSTRUCTION OPERATIONS AND ACHIEVE SPECIFIC MAXIMUM PERMITTED CRITERIA WHERE APPLICABLE. SUGGESTED ON-SITE MEASURES MAY INCLUDE, BUT SHALL NOT BE LIMITED TO, THE FOLLOWING METHODS: SEDIMENT PONDS, FILTER BAGS, PUMP FILTERS, SETTLING TANKS, SILT FENCE, STRAW BALES, FILTER CLOTHS, CATCH BASIN FILTERS, CHECK DAMS AND/OR OTHER RECOGNIZED TECHNOLOGIES AND METHOD AVAILABLE AT THE TIME OF CONSTRUCTION. SPECIFIC MEASURES SHALL BE INSTALLED IN ACCORDANCE WITH REQUIREMENTS OF OPSS 577 WHERE APPROPRIATE, OR IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

WHERE, IN THE OPINION OF THE CONTRACT ADMINISTRATOR OR REGULATORY AGENCY, THE INSTALLED CONTROL MEASURES FAIL TO PERFORM ADEQUATELY, THE CONTRACTOR SHALL SUPPLY AND INSTALL ADDITIONAL OR ALTERNATIVE MEASURES AS DIRECTED BY THE CONTRACT ADMINISTRATOR OR REGULATORY AGENCY, AS SUCH, THE CONTRACTOR SHALL HAVE ADDITIONAL CONTROL MATERIALS ON SITE AT ALL TIME WHICH ARE EASILY ACCESSIBLE AND MAY BE IMPLEMENTED BY HIM AT THE MOMENT'S NOTICE.

PRIOR TO COMMENCING WORK, THE CONTRACTOR SHALL SUBMIT TO THE CONTRACT ADMINISTRATOR SIX COPIES OF A DETAILED EROSION AND SEDIMENT CONTROL PLAN (ESCP). THE ESCP WILL CONSIST OF WRITTEN DESCRIPTION AND DETAILED DRAWINGS INDICATING THE ON-SITE ACTIVITIES AND MEASURES TO BE USED TO CONTROL EROSION AND SEDIMENT MOVEMENT FOR EACH STEP OF THE WORK.

CONTRACTOR'S RESPONSIBILITIES

THE CONTRACTOR SHALL ENSURE THAT ALL WORKERS, INCLUDING SUB-CONTRACTOR, IN THE WORKING ARE ARE AWARE OF THE IMPORTANCE OF THE EROSION AND SEDIMENT CONTROL MEASURES AND INFORMED OF THE CONSEQUENCES OF THE FAILURE TO COMPLY WITH THE REQUIREMENTS OF ALL REGULATORY AGENCIES.

THE CONTRACTOR SHALL PERIODICALLY, AND WHEN REQUESTED BY THE CONTRACT ADMINISTRATOR, CLEAN OUT ACCUMULATED SEDIMENT DEPOSITS AS REQUIRED AT THE SEDIMENT CONTROL DEVICES, INCLUDING THOSE DEPOSITS THAT MAY ORIGINATE FROM OUTSIDE THE CONSTRUCTION AREA. ACCUMULATED SEDIMENT SHALL BE REMOVED IN SUCH A MANNER THAT PREVENTS THE DEPOSITION OF THIS MATERIAL INTO THE SEWER WATERCOURSE AND AVOIDS DAMAGE TO CONTROL MEASURES. THE SEDIMENT SHALL BE REMOVED FROM THE SITE AT THE CONTRACTOR'S EXPENSE AND MANAGED IN COMPLIANCE WITH REQUIREMENTS FRO EXCESS EARTH MATERIAL, AS SPECIFIED ELSEWHERE IN THE CONTRACT.

THE CONTRACTOR SHALL IMMEDIATELY REPORT TO THE CONTRACT ADMINISTRATOR ANY ACCIDENTAL DISCHARGES OF SEDIMENT MATERIAL INTO EITHER THE WATERCOURSE OR THE STORM SEWER SYSTEM. FAILURE TO REPORT WILL BE CONSTITUTE A BRACH OF THIS SPECIFICATION AND THE CONTRACTOR MAY ALSO BE SUBJECT TO THE PENALTIES IMPOSED BY THE APPLICABLE REGULATORY AGENCY. APPROPRIATE RESPONSE MEASURES, INCLUDING ANY REPAIRS TO EXISTING CONTROL MEASURES OR THE IMPLEMENTATION OF ADDITIONAL CONTROL MEASURES, SHALL BE CARRIED OUT BY THE CONTRACTOR WITHOUT DELAY.

THE SEDIMENT CONTROL MEASURES SHALL ONLY BE REMOVED WHEN, IN THE OPINION OF THE CONTRACT ADMINISTRATOR, THE MEASURE OR MEASURES, IS NO LONGER REQUIRED. NO CONTROL MEASURE MAY BE PERMANENTLY REMOVED WITHOUT PRIOR AUTHORIZATION FROM THE CONTRACT ADMINISTRATOR. ALL SEDIMENT AND EROSION CONTROL MEASURES SHALL BE REMOVED IN A MANNER THAT AVOIDS THE ENTRY OF ANY EQUIPMENT, OTHER THAN HAND-HELD EQUIPMENT, INTO ANY WATERCOURSE, AND PREVENTS THE RELEASE OF ANY SEDIMENT OR DEBRIS INTO ANY SEWER OR WATERCOURSE WITHIN OR DOWNSTREAM OF THE WORKING AREA. ALL ACCUMULATED SEDIMENT SHALL BE REMOVED FROM THE WORKING AREA AT THE CONTRACTOR'S EXPENSE AND MANAGED IN COMPLIANCE WITH THE REQUIREMENTS FOR EXCESS EARTH MATERIAL

WHERE, IN THE OPINION OF EITHER THE CONTRACT ADMINISTRATOR OR A REGULATORY AGENCY, ANY OF THE TERMS SPECIFIED HEREIN HAVE NOT BEEN COMPLIED WITH OR PERFORMED IN A SUITABLE MANNER, OR TAT ALL, THE CONTRACTOR ADMINISTRATOR OR A REGULATORY AGENCY HAS THE RIGHT TO IMMEDIATELY WITHDRAW ITS PERMISSION TO CONTINUE THE WORK BUT MAY RENEW ITS PERMISSION UPON BEING SATISFIED THAT THE DEFAULTS OR DEFICIENCIES IN THE PERFORMANCE OF THIS SPECIFICATION BY THE CONTRACTOR HAVE BEEN REMEDIED.

SPILL CONTROL NOTES

1. ALL CONSTRUCTION EQUIPMENT SHALL BE RE-FUELED, MAINTAINED, AND STORED NO LESS THAN 30 METRES FROM WATERCOURSE, STEAMS, CREEKS, WOODLOTS, AND ANY ENVIRONMENTALLY SENSITIVE AREAS, OR AS OTHERWISE SPECIFIED.
2. THE CONTRACTOR MUST IMPLEMENT ALL NECESSARY MEASURES IN ORDER TO PREVENT LEAKS, DISCHARGES OR SPILLS OF POLLUTANTS, DELETERIOUS MATERIALS, OR OTHER SUCH MATERIALS OR SUBSTANCES WHICH WOULD OR COULD CAUSE AN ADVERSE IMPACT TO THE NATURAL ENVIRONMENT.
3. IN THE EVENT OF A LEAK, DISCHARGE OR SPILL OF POLLUTANT, DELETERIOUS MATERIAL OR OTHER SUCH MATERIAL OR SUBSTANCE WHICH WOULD OR COULD CAUSE AN ADVERSE IMPACT TO THE NATURAL ENVIRONMENT, THE CONTRACTOR SHALL:
   - 3.1. IMMEDIATELY NOTIFY APPROPRIATE FEDERAL, PROVINCIAL, AND LOCAL GOVERNMENT MINISTRIES, DEPARTMENTS, AGENCIES, AND AUTHORITIES OF THE INCIDENT IN ACCORDANCE WITH ALL CURRENT LAWS, LEGISLATION, ACTS, BY-LAWS, PERMITS, APPROVALS, ETC.
   - 3.2. TAKE IMMEDIATE MEASURES TO CONTAIN THE MATERIAL OR SUBSTANCE, AND TO TAKE SUCH MEASURES TO MITIGATE AGAINST ADVERSE IMPACTS TO THE NATURAL ENVIRONMENT.
   - 3.3. RESTORE THE AFFECTED AREA TO THE ORIGINAL CONDITION OR BETTER TO THE SATISFACTION OF THE AUTHORITIES HAVING JURISDICTION.

MUD MAT NOTES

1. THE GRANULAR MATERIAL WILL REQUIRE PERIODIC REPLACEMENT AS IT BECOMES CONTAMINATED BY VEHICLE TRAFFIC.
2. SEDIMENT SHALL BE CLEANED FROM PUBLIC ROADS AT THE END OF EACH DAY.
3. SEDIMENT SHALL BE REMOVED FROM PUBLIC ROADS BY SHOVELING OR SWEEPING AND DISPOSED OR PROPERLY IN A CONTROLLED SEDIMENT DISPOSAL AREA.

SITE GRADING NOTES

1. PRIOR TO THE COMMENCEMENT OF THE SITE GRADING WORKS, ALL SILTATION CONTROL DEVICES SHALL BE INSTALLED AND OPERATIONAL PER EROSION CONTROL PLAN.
2. ALL GRANULAR AND PAVEMENT FOR ROADS/PARKING AREAS SHALL BE CONSTRUCTED IN ACCORDANCE WITH GEOTECHNICAL ENGINEER'S RECOMMENDATIONS.
3. ALL TOPSOIL AND ORGANIC MATERIAL SHALL BE STRIPPED WITHIN THE ROAD AND PARKING AREAS ALLOWANCE PRIOR TO THE COMMENCEMENT OF CONSTRUCTION.
4. CONCRETE CURB SHALL BE IN ACCORDANCE WITH THE CITY OF OTTAWA STD. SC1.1 PROVISION SHALL BE MADE OR CURB DEPRESSIONS AS INDICATED ON ARCHITECTURAL SITE PLAN. CONCRETE SIDEWALK SHALL BE IN ACCORDANCE WITH CITY OF OTTAWA STD SC1.4. ALL CURBS, CONCRETE ISLANDS, AND SIDEWALKS SHOWN O THIS DRAWING ARE TO BR PRICED IN SITE WORKS PORTION OF THE CONTRACT.
5. PAVEMENT REINSTATEMENT FOR SERVICE AND UTILITY CUTS SHALL BE IN ACCORDANCE WITH THE CITY OF OTTAWA STD. R10 AND OPSD 509.010 AND OPSS 310.
6. GRANULAR 'A' SHALL BE PLACED TO A MINIMUM THICKNESS OF 30MM AROUND ALL STRUCTURES WITHIN THE PAVEMENT AREA.
7. SUB-EXCAVATE SOFT AREAS AND FILL WITH GRANULAR 'B' COMPACTED IN MAXIMUM 30MM LIFTS.
8. ALL WORK ON THE MUNICIPAL RIGHT OF WAY AND EASEMENTS TO BE INSPECTED BY THE MUNICIPALITY PRIOR BACKFILLING.
9. CONTRACTOR TO OBTAIN A ROAD OCCUPANCY PERMIT 48 HOURS PRIOR TO COMMENCING ANY WORK WITHIN THE MUNICIPAL ROAD ALLOWANCE, IF REQUIRED BY THE MUNICIPALITY.
10. ALL PAVEMENT MARKING FEATURES AND SITE SIGNAGE SHALL BE PLACED PER ARCHITECTURAL SITE PLAN. LINE PAINTING AND DIRECTIONAL SYMBOLS SHALL BE APPLIED WITH A MINIMUM OF TWO COATS OF ORGANIC SOLVENT PAINT.
11. REFER TO ARCHITECTURAL SITE PLAN FOR DIMENSIONS AND SITE DETAILS.
12. STEP JOINTS ARE TO BE USED WHERE PROPOSED ASPHALT MEETS EXISTING ASPHALT. ALL JOINTS MUST BE SEALED.
13. SIDEWALKS TO BE 13MM & BEVELED AT 2:1 OR 6MM WITH NO BEVEL REQUIRED BELOW THE FINISHED FLOOR SLAB ELEVATION AT ENTRANCES REQUIRED TO BE BARRIER-FREE, UNLESS OTHERWISE NOTED. ALL IN ACCORDANCE WITH OBC 3.8.1.3 & OTTAWA ACCESSIBILITY DESIGN STANDARDS.
14. WHERE APPLICABLE THE CONTRACTOR IS TO SUBMIT SHOP DRAWINGS TO THE ENGINEER FOR APPROVAL PRIOR TO CONSTRUCTION. SHOP DRAWINGS MUST BE SITE SPECIFIC, SIGNED AND SEALED BY A LICENSED STRUCTURAL ENGINEER. THE CONTRACTOR WILL ALSO BE REQUIRED TO SUPPLY AND GEOTECHNICAL CERTIFICATION OF THE AS-CONSTRUCTED RETAINING WALL TO THE ENGINEER PRIOR TO FINAL ACCEPTANCE.

ROADWORK SPECIFICATIONS

15. ROADWORK TO BE COMPLETED IN ACCORDANCE WITH GEOTECHNICAL REPORT, PREPARED BY LRL ASSOCIATES. DATED JUNE 2023.
16. AL TOPSOIL AND ORGANIC MATERIAL SHALL BE STRIPPED WITHIN THE ROAD ALLOWANCE PRIOR TO THE COMMENCEMENT OF CONSTRUCTION AND STOCK PILLED ON SITE AS DIRECTED BY NATIONAL MUNICIPALITY.
17. THE SUBGRADE SHALL BE CROWNED AND SLOPED AT LEAST 2% AND PROOF ROLLED WITH HEAVY ROLLERS.
18. SUB-EXCAVATE SOFT AREAS AND FILL WITH GRANULAR 'A', TYPE II COMPACTED IN MAXIMUM 300MM LIFTS.
19. ALL GRANULAR FOR ROADS SHALL BE COMPACTED TO MINIMUM OF 100% STANDARD PROCTOR DENSITY MAXIMUM DRY DENSITY (SPMDD).

SANITARY, FOUNDATION DRAIN, STORM SEWER AND WATERMAIN NOTES

GENERAL

1. LASER ALIGNMENT CONTROL TO BE UTILIZED ON ALL SEWER INSTALLATIONS.
2. CLAY SEALS TO BE INSTALLED AS PER CITY STANDARD DRAWING S8. THE SEALS SHOULD BE AT LEAST 1.5M LONG (IN THE TRENCH DIRECTION) AND SHOULD EXTEND FROM TRENCH WALL TO TRENCH WALL. THE SEALS SHOULD EXTEND FROM THE FROST LINE AND FULLY PENETRATE THE BEDDING, SUB-BEDDING, AND COVER MATERIAL. THE BARRIERS SHOULD CONSIST OF RELATIVELY DRY AND COMPATIBLE BROWN SILTY CLAY PLACED IN MAXIMUM 225MM LIFTS AND COMPACTED TO A MINIMUM OF 95% SPMDD. THE CLAY SEALS SHOULD BE PLACED AT THE SITE BOUNDARIES AND AT 60M INTERVALS IN THE SERVICE TRENCHES.
3. SERVICES TO BUILDING TO BE TERMINATED 1.0M FROM THE OUTSIDE FACE OF BUILDING UNLESS OTHERWISE NOTED.
4. ALL MAINTENANCE STRUCTURE AND CATCH BASIN EXCAVATIONS TO BE BACKFILLED WITH GRANULAR MATERIAL COMPACTED TO 98% STANDARD PROCTOR DENSITY. A MINIMUM OF 300MM AROUND STRUCTURES.
5. "MODULOC" OR APPROVED PRE-CAST MAINTENANCE STRUCTURE AND CATCH BASIN ADJUSTERS TO BE USED IN LIEU OF BRICKING. PARGE ADJUSTING UNITS ON THE OUTSIDE ONLY.
6. SAFETY PLATFORMS SHALL BE PER OPSD 404.02.
7. DROP STRUCTURES SHALL BE IN ACCORDANCE WITH OPSD 1003.01, IF APPLICABLE.
8. THE CONTRACTOR IS TO PROVIDE CCTV CAMERA INSPECTIONS OF ALL SEWERS, INCLUDING PICTORIAL REPORT, ONE (1) CD COPY AND TWO (2) VIDEO RECORDING IN A FORMAT ACCEPTABLE TO ENGINEER. ALL SEWER ARE TO BE FLUSHED PRIOR TO CAMERA INSPECTION. ASPHALT WEAR COURSE SHALL NOT BE PLACED UNTIL THE VIDEO INSPECTION OF SEWERS AND NECESSARY REPAIRS HAVE BEEN COMPLETED TO THE SATISFACTION OF THE ENGINEER.
9. CONTRACTOR SHALL PERFORM LEAKAGE TESTING, IN THE PRESENCE OF THE CONSULTANT, FOR SANITARY SEWERS IN ACCORDANCE WITH OPSS 407. CONTRACTOR SHALL PERFORM VIDEO INSPECTION OF ALL SEWERS. A COPY OF THE VIDEO AND INSPECTION REPORT SHALL BE SUBMITTED TO THE CONSULTANT FOR REVIEW AND APPROVAL PRIOR TO PLACEMENT OF WEAR COURSE ASPHALT.

SANITARY

10. ALL SANITARY SEWER INSTALLATION SHALL CONFORM TO THE LATEST REVISIONS OF THE CITY OF OTTAWA AND THE ONTARIO PROVINCIAL STANDARD DRAWINGS (OPSD). AND SPECIFICATIONS (OPSS).
11. ALL SANITARY GRAVITY SEWER SHALL BE PVC SDR 35, IPEX 'RING-TITE' (OR APPROVED EQUIVALENT) PER CSA STANDARD B182.2 OR LATEST AMENDMENT, UNLESS SPECIFIED OTHERWISE.
12. EXISTING MAINTENANCE STRUCTURES TO BE RE-BENCHED WHERE A NEW CONNECTION IS MADE.
13. SANITARY GRAVITY SEWER TRENCH AND BEDDING SHALL BE PER CITY OF OTTAWA STD. S6 AND S7 CLASS 'B' BEDDING, UNLESS SPECIFIED OTHERWISE.
14. SANITARY MAINTENANCE STRUCTURE FRAME AND COVERS SHALL BE PER CITY OF OTTAWA STD. S24 AND S25.
15. SANITARY MAINTENANCE STRUCTURES SHALL BE BENCHED PER OPSD 701.021.
16. 100MM THICK HIGH-DENSITY GRADE 'A' POLYSTYRENE INSULATION TO BE INSTALLED IN ACCORDANCE WITH CITY STD W22 WHERE INDICATED ON DRAWING SSP-1.

STORM

17. ALL REINFORCED CONCRETE STORM SEWER PIPE SHALL BE IN ACCORDANCE WITH CSA A257.2, OR LATEST AMENDMENT. ALL NON-REINFORCED CONCRETE STORM SEWER PIPE SHALL BE IN ACCORDANCE WITH CSA A257.1, OR LATEST AMENDMENT. PIPE SHALL BE JOINED WITH STD. RUBBER GASKETS AS PER CSA A257.3, OR LATEST AMENDMENT.
18. ALL STORM SEWER TRENCH AND BEDDING SHALL BE IN ACCORDANCE WITH THE CITY OF OTTAWA STD. S6 AND S7 CLASS 'B' UNLESS OTHERWISE SPECIFIED. BEDDING AND COVER MATERIAL SHALL BE SPECIFIED BY PROJECT GEOTECHNICAL ENGINEER.
19. ALL PVC STORM SEWERS ARE TO BE SDR 35 APPROVED PER C.S.A. B182.2 OR LATEST AMENDMENT, UNLESS OTHERWISE SPECIFIED.
20. CATCH BASIN SHALL BE IN ACCORDANCE WITH OPSD 705.010.
21. CATCH BASIN LEADS SHALL BE IN 200MM DIA. AT 1% SLOPE (MIN) UNLESS SPECIFIED OTHERWISE.
22. ALL CATCH BASINS SHALL HAVE 600MM SUMPS, UNLESS SPECIFIED OTHERWISE.
23. ALL CATCH BASIN LEAD INVERTS TO BE 1.5M BELOW FINISHED GRADE UNLESS SPECIFIED OTHERWISE.
24. THE STORM SEWER CLASSES HAVE BEEN DESIGNED BASED ON BEDDING CONDITIONS SPECIFIED ABOVE. WHERE THE SPECIFIED TRENCH WIDTH IS EXCEEDED , THE CONTRACTOR IS REQUIRED TO PROVIDE AND SHALL BE RESPONSIBLE FOR EXTRA TEMPORARY AND/OR PERMANENT REPAIRS MADE NECESSARY BY THE WIDENED TRENCH.
25. ALL ROAD AND PARKING LOT CATCH BASINS TO BE INSTALLED WITH ORTHOGONALLY PLACED SUBDRAINS IN ACCORDANCE WITH DETAIL. PERFORATED SUBDRAIN FOR ROAD AND PARKING LOT CATCH BASIN SHALL BE INSTALLED PER CITY STD R1 UNLESS OTHERWISE NOTED.
26. PERFORATED SUBDRAIN FOR REAR YARD AND LANDSCAPING APPLICATIONS SHALL BE INSTALLED PER CITY STD S29, S30 AND S31, WHERE APPLICABLE.
27. RIP-RAP TREATMENT SEWER AND CULVERT OUTLETS PER OPSD 810.010.
28. ALL STORM SEWER/ CULVERTS TO BE INSTALLED WITH FROST TREATMENT PER OPSD 803.031 WHERE APPLICABLE.
29. ALL STORM MANHOLES WITH PIPE LESS THAN 900MM IN DIAMETER SHALL BE CONSTRUCTED WITH A 300MM SUMP AS PER SDG, CLAUSE 6.2.6.

WATERMAIN

30. ALL WATERMAIN INSTALLATION SHALL CONFORM TO THE LATEST REVISIONS OF THE CITY OF OTTAWA AND THE ONTARIO PROVINCIAL STANDARD DRAWINGS (OPSD) AND SPECIFICATIONS (OPSS).
31. ALL PVC WATERMAINS SHALL BE AWWA C-900 CLASS 150, SDR 18 OR APPROVED EQUIVALENT.
32. ALL WATER SERVICES LESS THAN OR EQUAL TO 50MM IN DIAMETER TO BE TYPE 'K' COPPER.
33. WATERMAIN TRENCH AND BEDDING SHALL BE IN ACCORDANCE WITH CITY OF OTTAWA STANDARD W17. UNLESS SPECIFIED OTHERWISE. BEDDING AND COVER MATERIAL SHALL BE SPECIFIED BY THE PROJECT GEOTECHNICAL ENGINEER.
34. ALL PVC WATERMAINS, SHALL BE INSTALLED WITH A 10 GAUGE STRANDED COPPER TWU OR RWU TRACER WIRE IN ACCORDANCE WITH CITY OF OTTAWA STD. W.36.
35. CATHODIC PROTECTION IS REQUIRED ON ALL METALLIC FITTINGS PER CITY OF OTTAWA STD.25.5 AND W25.6.
36. VALVE BOXES SHALL BE INSTALLED PER CITY OF OTTAWA STD W24.
37. WATERMAIN IN FILL AREAS TO BE INSTALLED WITH RESTRAINED JOINTS PER CITY OF OTTAWA STD.25.5 AND W25.6.
38. THRUST BLOCKING OF WATERMAINS TO BE INSTALLED PER CITY OF OTTAWA STD. W25.3 AND W25.4.
39. THE CONTRACTOR SHALL PROVIDE ALL TEMPORARY CAPS, PLUGS, BLOW-OFFS, AND NOZZLES REQUIRED FOR TESTING AND DISINFECTION OF THE WATERMAIN.
40. WATERMAIN CROSSING OVER AND BELOW SEWERS SHALL BE IN ACCORDANCE WITH THE CITY OF OTTAWA STD. W25,2 AND W25, RESPECTIVELY.
41. WATER SERVICES ARE TO BE INSULATED PER CITY STD. W23 WHERE SEPARATION BETWEEN SERVICES AND MAINTENANCE HOLES ARE LESS THAN 2.4M.
42. THE MINIMUM VERTICAL CLEARANCE BETWEEN WATERMAIN AND SEWER/UTILITY IS 0.5M PER MOE GUIDELINES. FOR CROSSING UNDER SEWERS, ADEQUATE STRUCTURAL SUPPORT FOR THE SEWER IS REQUIRED TO PREVENT EXCESSIVE DEFLECTION OF JOINTS AND SETTLING. THE LENGTH OF WATER PIPE SHALL BE CENTERED AT THE POINT OF CROSSING TO ENSURE THAT THE JOINTS WILL BE EQUIDISTANT AND AS FAR AS POSSIBLE FROM THE SEWER.
43. ALL WATERMAINS SHALL HAVE A MINIMUM COVER OR 2.4M, OTHERWISE THERMAL INSULATION IS REQUIRED AS PER STD DWG W22.
44. GENERAL WATER PLANT TO UTILITY CLEARANCE AS PER STD DWG R20.
45. FIRE HYDRANT INSTALLATION AS PER STD DWG W19, ALL BOTTOM OF HYDRANT FLANGE ELEVATIONS TO BE INSTALLED 0.10M ABOVE PROPOSED FINISHED GRADE AT HYDRANT; FIRE HYDRANT LOCATION AS PER STD DWG W18.
46. BUILDING SERVICE TO BE CAPPED 1.0M OFF THE FACE OF THE BUILDING UNLESS OTHERWISE NOTED AND MUST BE RESTRAINED A MINIMUM OF 12M BACK FROM STUB.
47. ALL WATERMAINS SHALL BE HYDROSTATICALLY TESTED IN ACCORDANCE WITH THE CITY OF OTTAWA AND ONTARIO GUIDELINES UNLESS OTHERWISE DIRECTED. PROVISIONS FOR FLUSHING WATER LINE PRIOR TO TESTING, ETC. MUST BE PROVIDED.
48. ALL WATERMAINS SHALL BE BACTERIOLOGICALLY TESTED IN ACCORDANCE WITH THE CITY OF OTTAWA AND ONTARIO GUIDELINES. ALL CHLORINATED WATER TO BE DISCHARGED AND PRETREATED TO ACCEPTABLE LEVELS PRIOR TO DISCHARGE. ALL DISCHARGED WATER MUST BE CONTROLLED AND TREATED SO AS NOT TO ADVERSELY EFFECT ENVIRONMENT. IT IS RESPONSIBILITY OF THE CONTRACTOR TO ENSURE THAT ALL MUNICIPAL AND/OR PROVINCIAL REQUIREMENTS ARE FOLLOWED.
49. ALL WATERMAIN STUBS SHALL BE TERMINATED WITH A PLUG AND 50MM BLOW OFF UNLESS OTHERWISE NOTED.

No.	REVISIONS	BY	DATE
01	ISSUED FOR APPROVAL	V.J.	12 JUNE 2023

LICENSED PROFESSIONAL ENGINEER
V. JOHNSON
100510576
06-12-2023
PROVINCE OF ONTARIO

NOT AUTHENTIC UNLESS SIGNED AND DATED

LRL
ENGINEERING | INGÉNIERIE
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CLIENT
400 COVENTRY INVESTMENTS INC.

DESIGNED BY:	DRAWN BY:	APPROVED BY:
T.H.	T.H.	V.J.

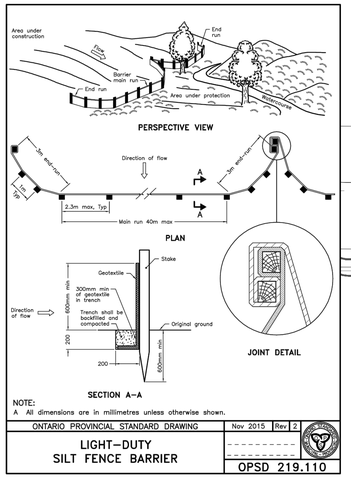
PROJECT
COVENTRY REDEVELOPMENT
400 COVENRTY RD,
OTTAWA, ON

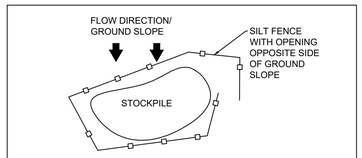
DRAWING TITLE
GENERAL NOTES

PROJECT NO.
220200

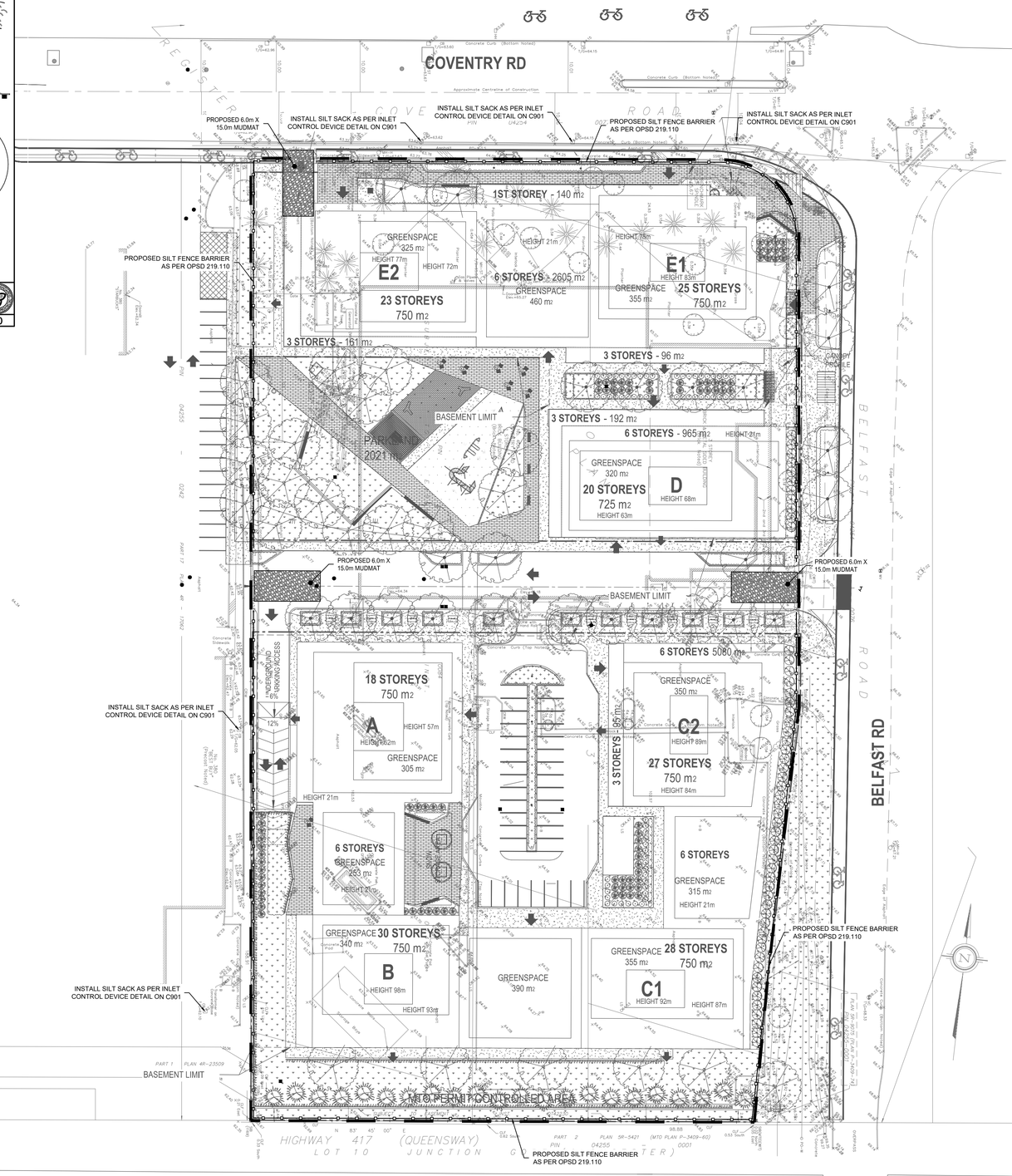
DATE
JUNE 2023

C001





STOCKPILE EROSION PROTECTION
N.T.S.



LEGEND:

- EXISTING PROPERTY LINE TO REMAIN
- PROPOSED CURB
- PROPOSED DEPRESSED CURB
- PROPOSED TERRACING (3:1 MIN.)
- PROPOSED SILT FENCE AS PER OPSD 219.110
- PROPOSED FENCE
- PROPOSED DOOR ENTRANCE/EXIT
- PROPOSED GRASS AREA (100mm TOP SOIL & SOD)
- PROPOSED CONCRETE FEATURES/SLAB
- PROPOSED HEAVY DUTY ASPHALT
- PROPOSED LIGHT DUTY ASPHALT
- PROPOSED RIP RAP
- ×50.00 PROPOSED ELEVATION
- ×50.00HP PROPOSED HIGH POINT ELEVATION
- ×50.00S PROPOSED SWALE ELEVATION
- ×50.00BC PROPOSED BOTTOM OF CURB / ASPHALT ELEVATION
- ×50.00TC PROPOSED TOP OF CURB ELEVATION
- ×50.00BW PROPOSED EXPOSED BOTTOM OF RETAINING WALL
- ×50.00TW PROPOSED TOP OF RETAINING WALL
- ×50.00EX MATCH INTO EXISTING ELEVATION
- ×70.19 EXISTING ELEVATION
- PROPOSED OVERLAND MAJOR FLOW ROUTE
- SUB SUB PROPOSED 100mmØ PERFORATED SUBDRAIN
- STM STM PROPOSED STORM SEWER
- SAN SAN PROPOSED SANITARY SEWER
- WTR WTR PROPOSED WATERMAIN
- STM STM EXISTING STORM SEWER
- SAN SAN EXISTING SANITARY SEWER
- WTR WTR EXISTING WATERMAIN
- GAS GAS EXISTING GAS LINE
- EXISTING MANHOLE
- EXISTING CATCHBASIN
- PROPOSED CATCHBASIN-MANHOLE/CATCHBASIN
- PROPOSED MANHOLE
- PROPOSED CURB STOP
- PROPOSED PIPE INSULATION
- PROPOSED 100 YEAR HIGH WATER LEVEL
- STORM WATERSHED EXTENT
- WS-XX CONTROLLER AREA RUNOFF — WATERSHED NAME, RUNOFF COEFFICIENT, AREA IN HECTARES

USE AND INTERPRETATION OF DRAWINGS

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No.	REVISIONS	BY	DATE
01	ISSUED FOR APPROVAL	V.J.	12 JUNE 2023

LICENSED PROFESSIONAL ENGINEER
V. JOHNSON
100510576
06-12-2023
PROVINCE OF ONTARIO

NOT AUTHENTIC UNLESS SIGNED AND DATED

LRL
ENGINEERING | INGÉNIERIE
5430 Canotek Road | Ottawa, ON, K1J 9G2
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CLIENT
400 COVENTRY INVESTMENTS INC.

DESIGNED BY:	DRAWN BY:	APPROVED BY:
T.H.	T.H.	V.J.

PROJECT
COVENTRY REDEVELOPMENT
400 COVENRTY RD,
OTTAWA, ON

DRAWING TITLE
EROSION AND SEDIMENT CONTROL PLAN

PROJECT NO.
220200

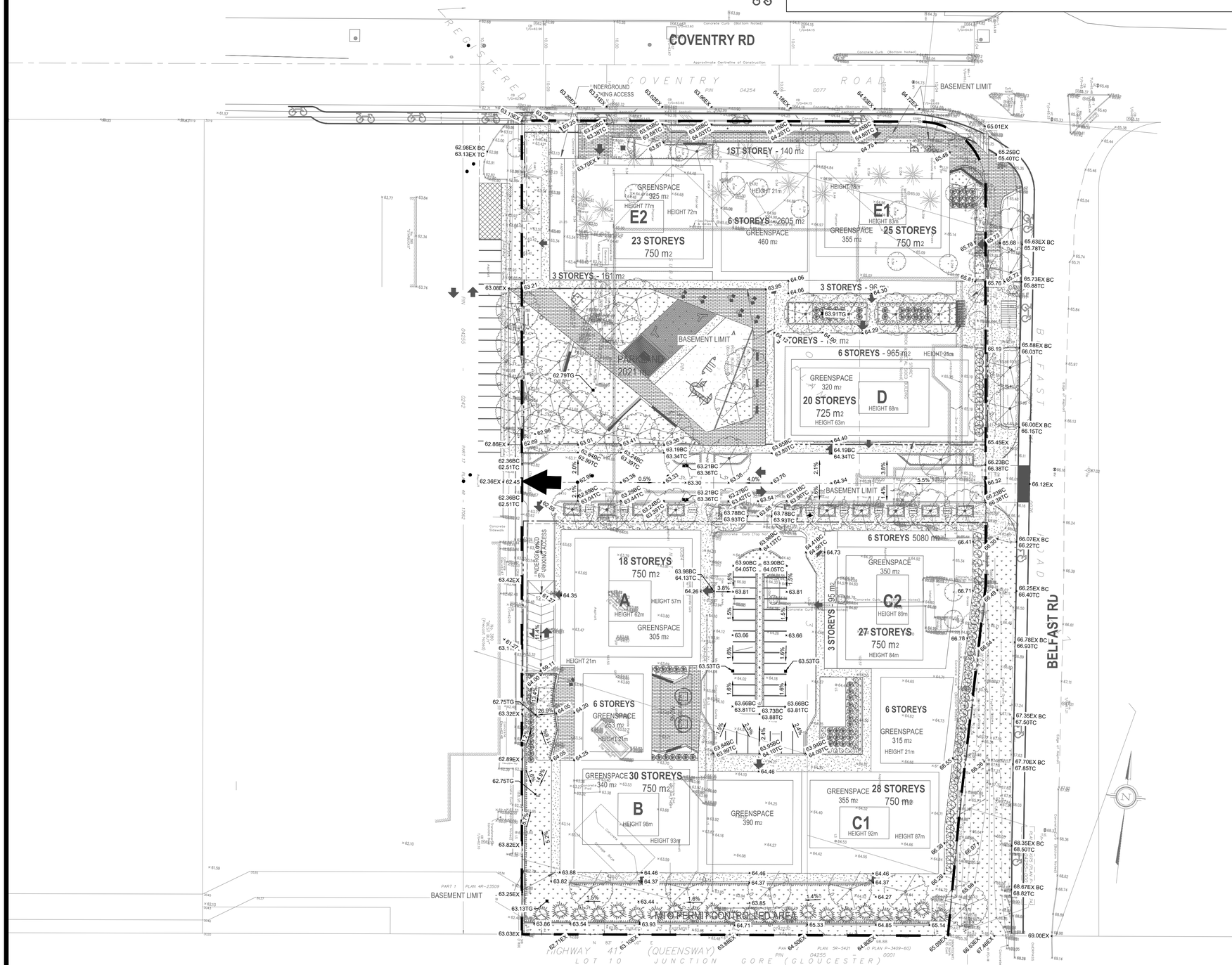
DATE
JUNE 2023

C101

PAVEMENT STRUCTURE

COURSE	MATERIAL	THICKNESS (mm) AUTOMOBILE PARKING	THICKNESS (mm) TRUCK ROUTE (HEAVY TRAFFIC)
SURFACE	HL3 A/C (PG 58-28)	50	40
BINDER	HL8 A/C (PG 58-28)	--	50
BASECOURSE	OPSS GRANULAR "A"	150	150
SUBBASE	OPSS GRANULAR "B" TYPE II	350	450

NOTE:
IN PREPARATION FOR PAVEMENT CONSTRUCTION AT THIS SITE, ANY SURFICIAL OR NEAR SURFACE/SUBGRADE LEVEL TOPSOIL AND ANY SOFT, WET OR DELETERIOUS MATERIALS SHOULD BE REMOVED FROM THE PROPOSED PAVED AREAS. THE EXPOSED SUBGRADE SHOULD BE INSPECTED AND APPROVED BY GEOTECHNICAL PERSONNEL AND ANY SOFT AREAS EVIDENT SHOULD BE SUBEXCAVATED AND REPLACED WITH SUITABLE EARTH BORROW APPROVED BY THE GEOTECHNICAL ENGINEER. THE SUBGRADE SHOULD BE SHAPED AND CROWNED TO PROMOTE DRAINAGE OF THE SITE DRAINAGE STRUCTURES. FOLLOWING APPROVAL OF THE PREPARATION OF THE SUBGRADE, THE PAVEMENT GRANULARS MAY BE PLACED.



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T.H.	T.H.	V.J.

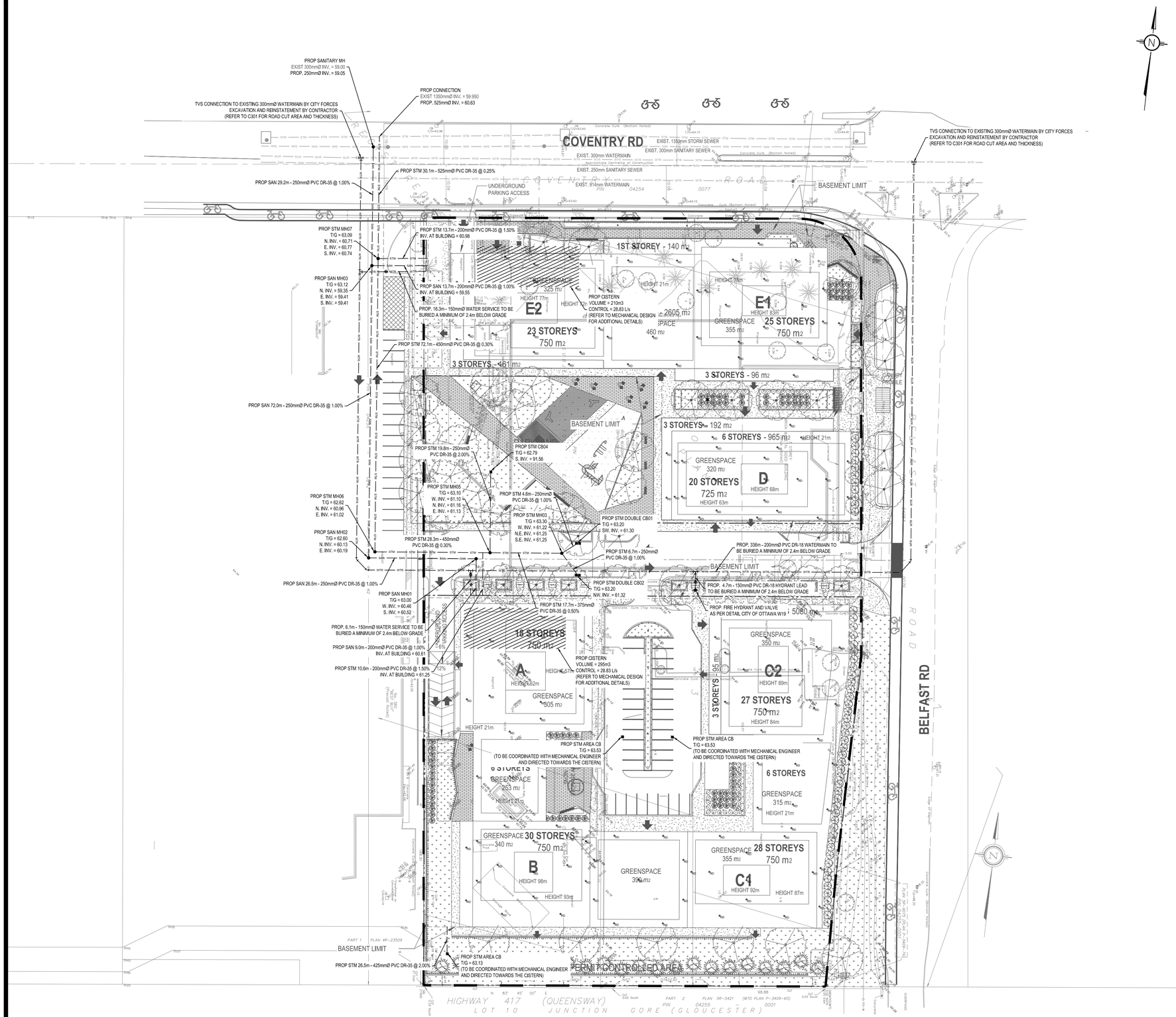
PROJECT
COVENTRY REDEVELOPMENT
400 COVENRTY RD,
OTTAWA, ON

DRAWING TITLE
GRADING AND DRAINAGE PLAN

PROJECT NO.
220200

DATE
JUNE 2023

C301



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DRAWING TITLE
SERVICING PLAN

PROJECT NO.
220200

DATE
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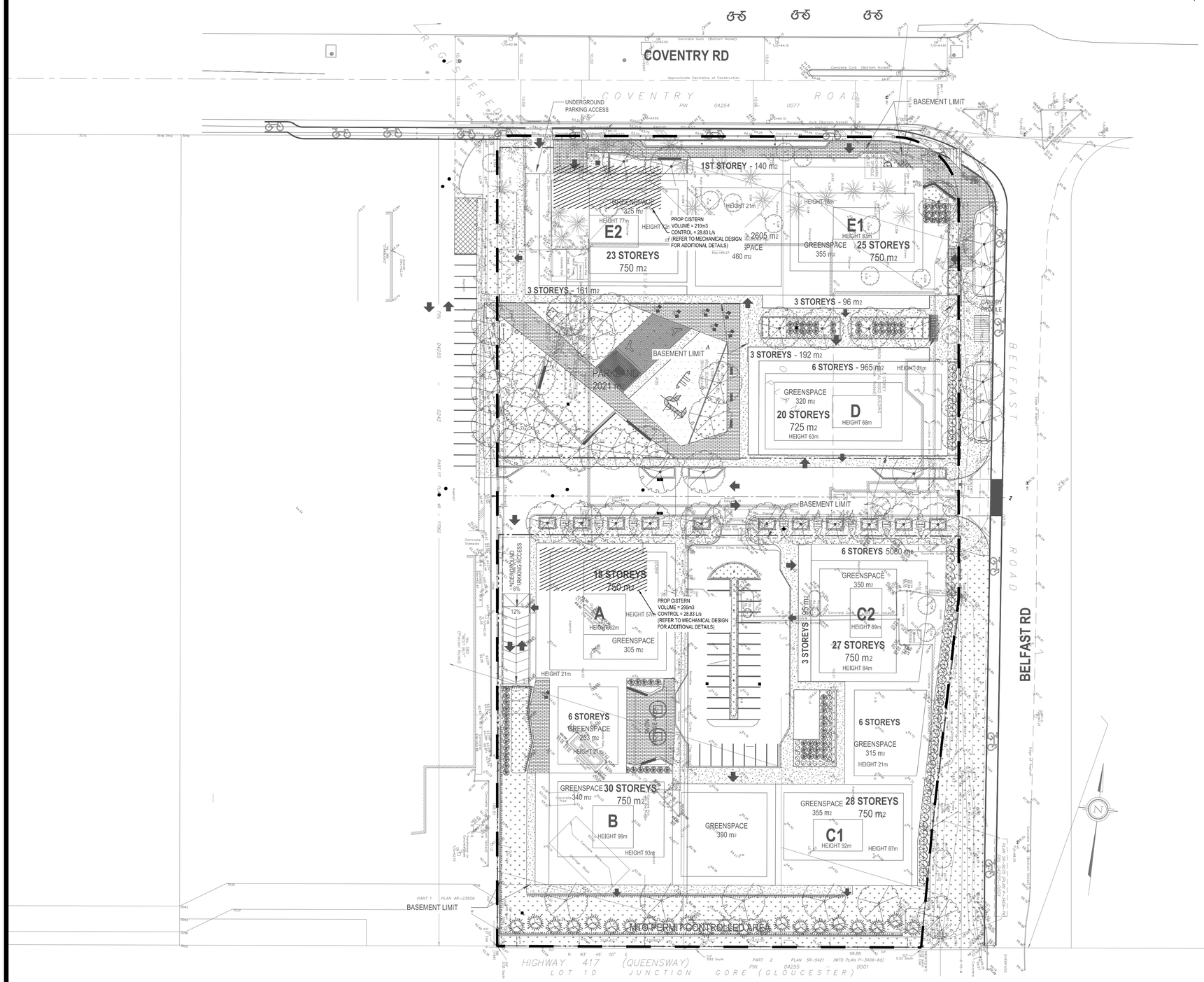
C401



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No.	REVISIONS	BY	DATE
01	ISSUED FOR APPROVAL	V.J.	12 JUNE 2023

LICENSED PROFESSIONAL ENGINEER
V. JOHNSON
100510576
06-12-2023
PROVINCE OF ONTARIO

NOT AUTHENTIC UNLESS SIGNED AND DATED

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CLIENT
400 COVENTRY INVESTMENTS INC.

DESIGNED BY:	DRAWN BY:	APPROVED BY:
T.H.	T.H.	V.J.

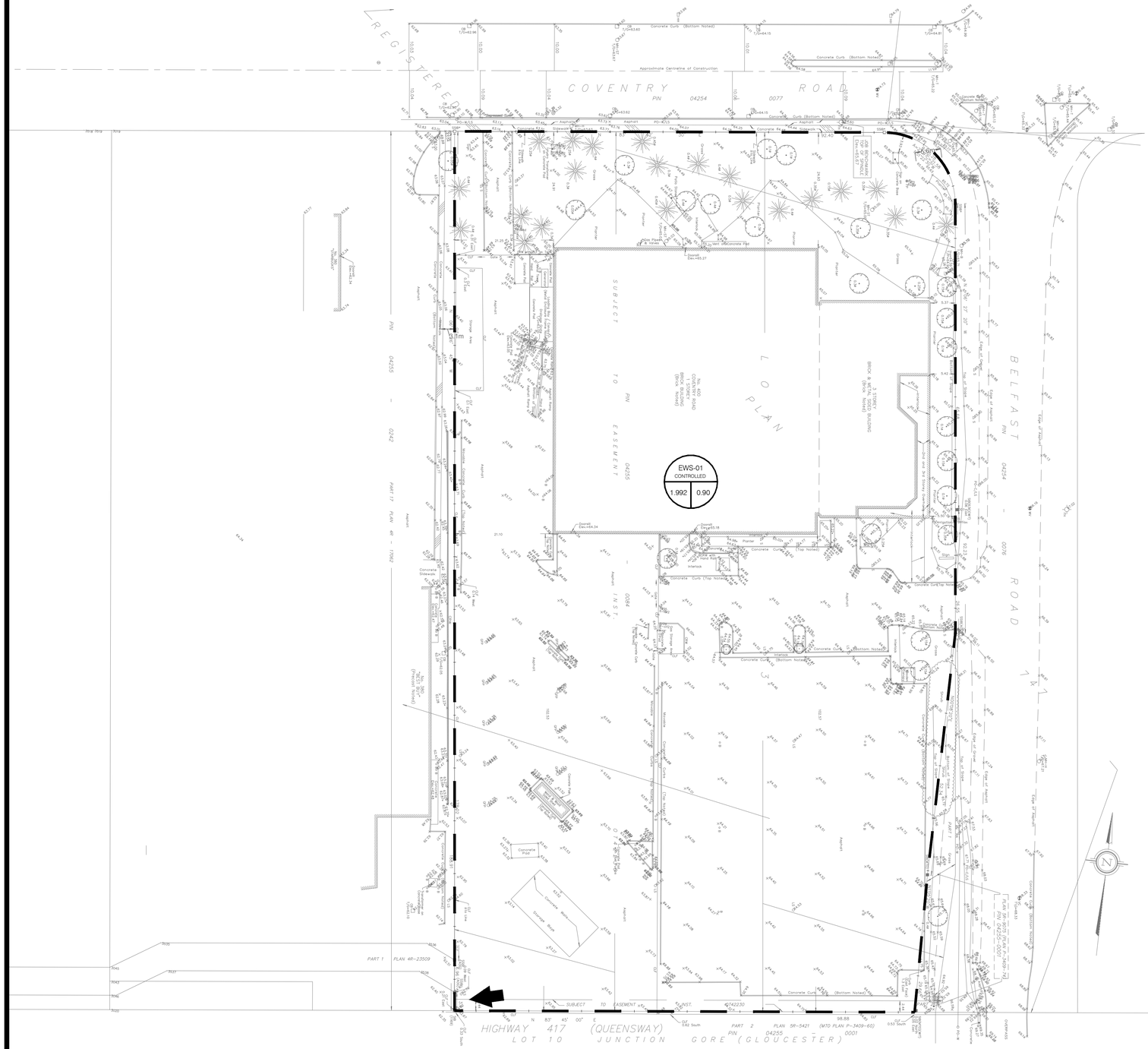
PROJECT
COVENTRY REDEVELOPMENT
400 COVENRTY RD,
OTTAWA, ON

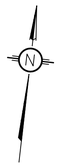
DRAWING TITLE
STORMWATER MANAGEMENT PLAN

PROJECT NO.
220200

DATE
JUNE 2023

C601





LEGEND:

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- PROPOSED DEPRESSED CURB (DC)
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- PROPOSED SILT FENCE AS PER OPSD 219.110
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- PROPOSED PIPE INSULATION
- PROPOSED 100 YEAR HIGH WATER LEVEL
- STORM WATERSHED EXTENT

WS-XX (CONTROLLED) — WATERSHED NAME
AREA | RUNOFF — RUNOFF COEFFICIENT
AREA IN HECTARES

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10m 5 0 10 20m

SCALE: 1:500

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DESIGNED BY:	DRAWN BY:	APPROVED BY:
T.H.	T.H.	V.J.

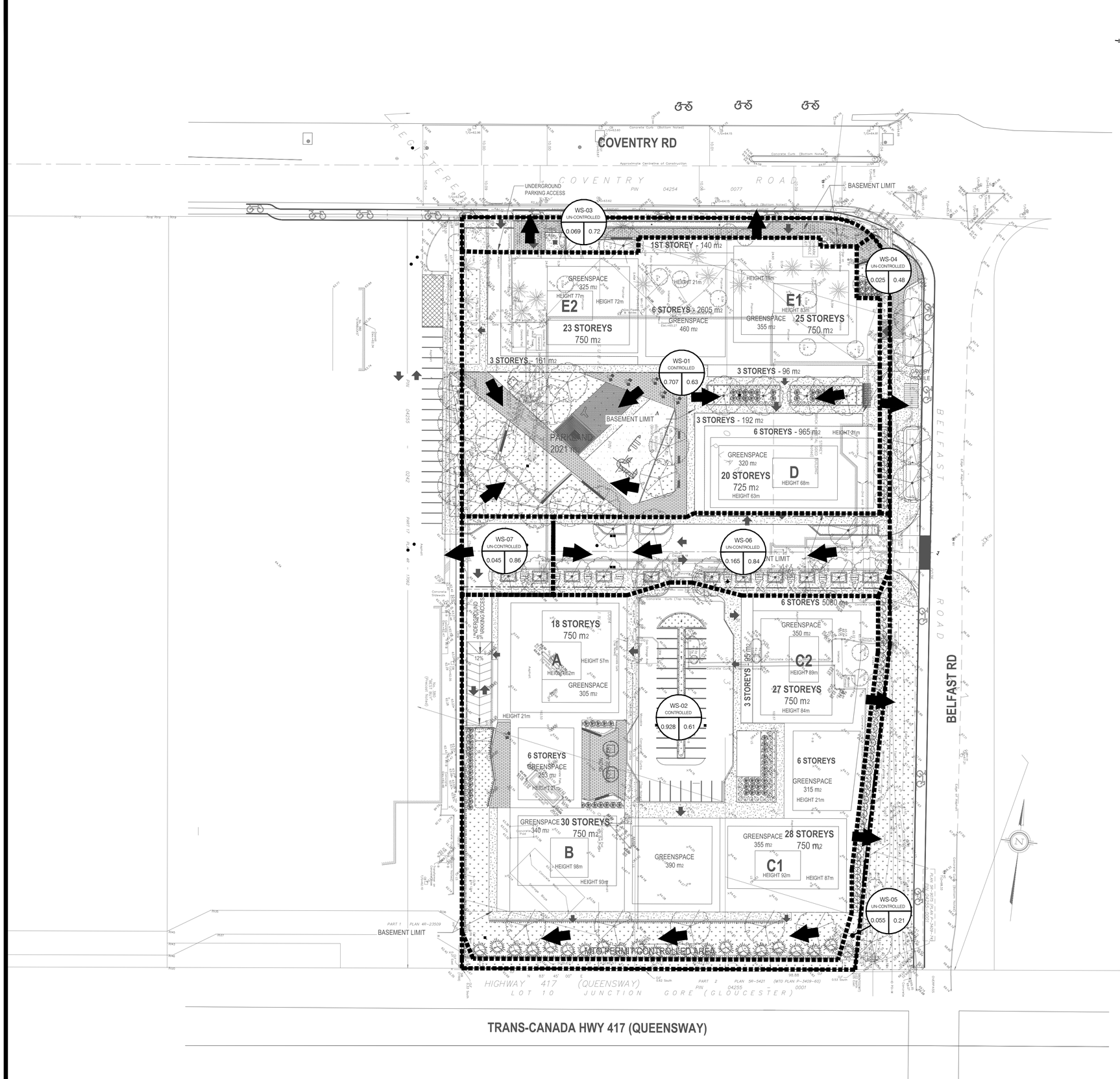
PROJECT
COVENTRY REDEVELOPMENT
400 COVENRTY RD,
OTTAWA, ON

DRAWING TITLE
PRE-DEVELOPMENT
WATERSHED PLAN

PROJECT NO.
220200

DATE
JUNE 2023

C701



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400 COVENRTY RD,
OTTAWA, ON

DRAWING TITLE
POST-DEVELOPMENT
WATERSHED PLAN

PROJECT NO.
220200

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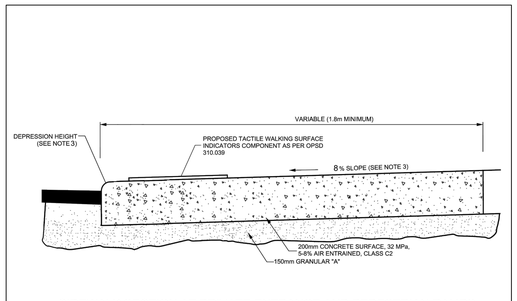
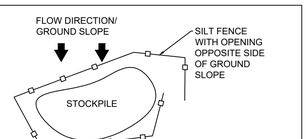
C702



SIDEWALK SECTION AT PRIVATE ENTRANCE AND PEDESTRIAN RAMPS

NOTES:
1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS SHOWN OTHERWISE.
2. FOR CURB RAMPS, SLOPE OF 2% TO 5%, MAXIMUM 8%..
3. DEPRESSION HEIGHT 0 TO 6 mm



STOCKPILE EROSION PROTECTION

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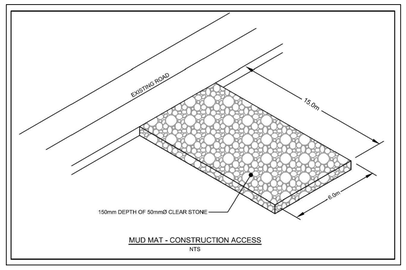

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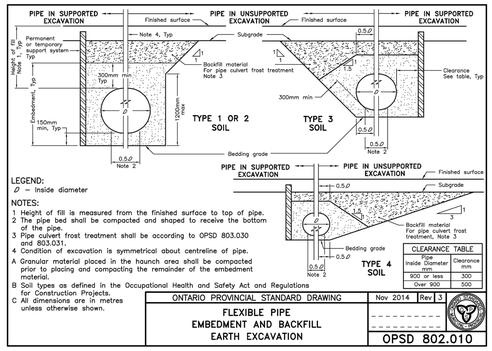
NTS

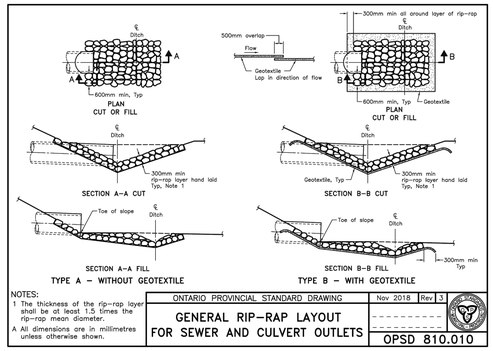


CLEARANCE TABLE	
Pipe Inside Diameter mm	Clearance mm
900 or less	300
Over 900	500

LEGEND:
Ø – Inside diameter

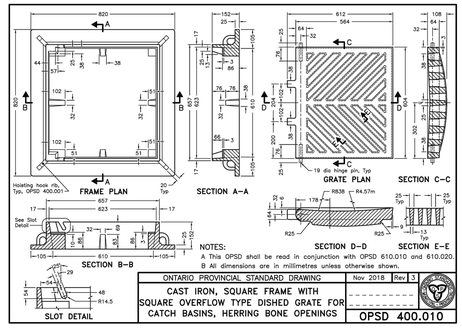
NOTES:
1 Height of fill is measured from the finished surface to top of pipe.
2 The pipe bed shall be compacted and shaped to receive the bottom of the pipe.
3 Pipe culvert frost treatment shall be according to OPSD 803.030 and 803.031.
4 Condition of excavation is symmetrical about centreline of pipe.
A Granular material placed in the haunch area shall be compacted prior to placing and compacting the remainder of the embedment material.
B Soil types as defined in the Occupational Health and Safety Act and Regulations for Construction Projects.
C All dimensions are in metres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2014	Rev 3
FLEXIBLE PIPE EMBEDMENT AND BACKFILL EARTH EXCAVATION		OPSD 802.010



NOTES:
1 The thickness of the rip-rap layer shall be at least 1.5 times the rip-rap mean diameter.
A All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2018	Rev 3
GENERAL RIP–RAP LAYOUT FOR SEWER AND CULVERT OUTLETS		OPSD 810.010



NOTES:
A This OPSD shall be read in conjunction with OPSD 610.010 and 610.020.
B All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2018	Rev 3
CAST IRON, SQUARE FRAME WITH SQUARE OVERFLOW TYPE DISHED GRATE FOR CATCH BASINS, HERRING BONE OPENINGS		OPSD 400.010

NOTE:
A All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2015	Rev 2
LIGHT–DUTY SILT FENCE BARRIER		OPSD 219.110

NOTES:
1 When sidewalk is continuously adjacent, the dropped curb at entrances shall be reduced to 75mm.
2 For slipforming procedure a 5% batter is acceptable.
A Treatment at entrances shall be according to OPSD 351.010.
B Outlet treatment shall be according to the OPSD 610 Series.
C The transition from one curb type to another shall be a minimum length of 3.0m, except in conjunction with guide rail where it shall be according to the OPSD 900 Series.
D All dimensions are in millimetres unless otherwise shown.

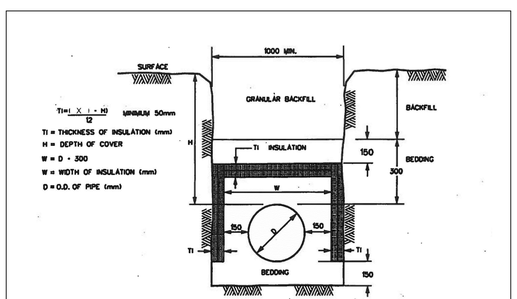
ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2012	Rev 2
CONCRETE BARRIER CURB		OPSD 600.110

NOTES:
1 Sidewalk thickness at residential driveways and adjacent to curb shall be 150mm. At commercial and industrial driveways, the thickness shall be 200mm.
2 Sidewalk width shall be wider when specified.
3 This OPSD shall be read in conjunction with OPSD 310.030, 310.031, 310.032, 310.033 and 310.039.
A All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2015	Rev 2
CONCRETE SIDEWALK		OPSD 310.010

NOTES:
1 The sump is measured from the lowest invert.
A Granular backfill shall be placed to a minimum thickness of 300mm all around the maintenance hole.
B Precast concrete components shall be according to OPSD 701.030, 701.031, or 701.032.
C Structure exceeding 5.0m in depth shall include safety platform according to OPSD 404.020.
D Pipe support according to OPSD 708.020.
E For benching and pipe opening details, see OPSD 701.021.
F For adjustment unit and frame installation, see OPSD 704.010.
G All dimensions are nominal.
H All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2014	Rev 5
PRECAST CONCRETE MAINTENANCE HOLE 1200mm DIAMETER		OPSD 701.010



NOTES:
-FOR STORM INSULATION USE AN X VALUE OF 2000 IN THE ABOVE "TI" EQUATION.
-FOR SANITARY INSULATION USE AN X VALUE OF 2500 IN THE ABOVE "TI" EQUATION.
-FOR WATERMAIN INSULATION USE AN X VALUE OF 2400 IN THE ABOVE "TI" EQUATION.
-INCREMENTS OF INSULATION THICKNESS SHALL BE ADJUSTABLE TO 25mm.
-STAGGER JOINTS OF MULTIPLE SHEETS.
-ALL DIMENSIONS ARE IN MILLIMETERS UNLESS SHOWN OTHERWISE.

TYPICAL STORM AND SANITARYSEWER AND WATERMAIN INSULATION DETAIL

(N.T.S.)

USE AND INTERPRETATION OF DRAWINGS

GENERAL CONDITIONS OF THE CONTRACT FOR CONSTRUCTION ARE PART OF THE CONTRACT DOCUMENTS AND DESCRIBE USE AND INTENT OF THE DRAWING. THE CONTRACT DOCUMENTS INCLUDE NOT ONLY THE DRAWINGS, BUT ALSO THE OWNER-CONTRACTOR AGREEMENTS, CONDITIONS OF THE CONTRACT, THE SPECIFICATIONS, ADDENDA, AND MODIFICATIONS ISSUED AFTER EXECUTION OF THE CONTRACT. THESE CONTRACT DOCUMENTS ARE COMPLEMENTARY, AND WHAT IS REQUIRED BY ANY ONE SHALL BE BINDING AS IF REQUIRED BY ALL. WORK NOT COMPLETELY DELINEATED HEREON SHALL BE CONSTRUCTED OF THE SAME MATERIALS AND DETAILED SIMILARLY AS WORK SHOWN MORE COMPLETELY ELSEWHERE IN THE CONTRACT DOCUMENTS.

BY USE OF THE DRAWINGS FOR CONSTRUCTION OF THE PROJECT, THE OWNER CONFIRMS THAT HE HAS REVIEWED AND APPROVED THE DRAWINGS. THE CONTRACTOR CONFIRMS THAT HE HAS VISITED THE SITE, FAMILIARIZED HIMSELF WITH THE LOCAL CONDITIONS, VERIFIED FIELD DIMENSIONS AND CORRELATED HIS OBSERVATIONS WITH THE REQUIREMENTS OF THE CONTRACT DOCUMENTS.

AS INSTRUMENTS OF SERVICE, ALL DRAWINGS, SPECIFICATIONS, CADD FILES OR OTHER ELECTRONIC MEDIA AND COPIED THERE OF FURNISHED BY THE ENGINEER ARE HIS PROPERTY. THEY ARE TO BE USED ONLY FOR THIS PROJECT AND ARE NOT TO BE USED ON ANY OTHER PROJECT, INCLUDING REPEATS OF THE PROJECT. CHANGES TO THE DRAWINGS MAY ONLY BE MADE BY THE ENGINEER.

UNLESS THE REVISION TITLE IS "ISSUED FOR CONSTRUCTION", THESE DRAWINGS SHALL BE CONSIDERED PRELIMINARY AND SHALL NOT BE USED AS A CONSTRUCTION DOCUMENT.

THESE DRAWINGS ILLUSTRATES THE WORK TO BE DONE. THE ENGINEER IS NOT RESPONSIBLE FOR THE MEANS, METHODS, TECHNIQUES, SEQUENCES, AND PROCEDURES USED TO DO THE WORK, OR THE SAFETY ASPECTS OF CONSTRUCTION, AND NOTHING ON THESE DRAWINGS EXPRESSED OR IMPLIED CHANGES THIS CONDITION. CONTRACTOR SHALL DETERMINE ALL CONDITIONS AT THE SITE AND SHALL BE RESPONSIBLE FOR KNOWING HOW THEY AFFECT THE WORK. SUBMITTAL OF A BID TO PERFORM THIS WORK IS ACKNOWLEDGEMENT OF THE RESPONSIBILITIES, AND THAT THEY HAVE BEEN FULLY CONSIDERED IN PLANNING OF THE WORK, AND THE BID PRICE. NO CLAIMS FOR EXTRA CHANGES DUE TO THESE CONDITIONS WILL BE FORTHCOMING.

UNAUTHORIZED CHANGES:

IN THE EVENT THE CLIENT, THE CLIENT'S CONTRACTORS OR SUBCONTRACTORS, OR ANYONE FOR WHOM THE CLIENT IS LEGALLY LIABLE MAKES OR PERMITS TO BE MADE ANY CHANGES TO ANY REPORTS, PLANS, SPECIFICATIONS OR OTHER CONSTRUCTION DOCUMENTS PREPARED BY LRL ASSOCIATES LTD. (LRL) WITHOUT OBTAINING LRL'S PRIOR WRITTEN CONSENT, THE CLIENT SHALL ASSUME FULL RESPONSIBILITY FOR THE RESULTS OF SUCH CHANGES. THEREFORE THE CLIENT AGREES TO WAIVE ANY CLAIM AGAINST LRL AND TO RELEASE LRL FROM ANY LIABILITY ARISING DIRECTLY OR INDIRECTLY FROM SUCH UNAUTHORIZED CHANGES.

IN ADDITION, THE CLIENT AGREES, TO THE FULLEST EXTENT PERMITTED BY LAW, TO INDEMNIFY AND HOLD HARMLESS LRL FROM ANY DAMAGES, LIABILITIES OR COST, INCLUDING REASONABLE ATTORNEY'S FEES AND COST OF DEFENSE, ARISING FROM SUCH CHANGES.

IN ADDITION, THE CLIENT AGREES TO INCLUDE IN ANY CONTRACTS FOR CONSTRUCTION APPROPRIATE LANGUAGE THAT PROHIBITS THE CONTRACTOR OR ANY SUBCONTRACTORS OF ANY TIER FROM MAKING ANY CHANGES OR MODIFICATIONS TO LRL'S CONSTRUCTION DOCUMENTS WITHOUT THE PRIOR WRITTEN APPROVAL OF LRL AND THAT FURTHER REQUIRES THE CONTRACTOR TO INDEMNIFY BOTH LRL AND THE CLIENT FROM ANY LIABILITY OR COST ARISING FROM SUCH CHANGES MADE WITHOUT SUCH PROPER AUTHORIZATION.

GENERAL NOTES:

EXISTING SERVICES AND UTILITIES SHOWN ON THESE DRAWINGS ARE TAKEN FROM THE BEST AVAILABLE RECORDS, BUT MAY NOT BE COMPLETE OR TO DATE. CONTRACTOR SHALL VERIFY IN FIELD FOR LOCATION AND ELEVATION OF PIPES AND CHECK WITH THE UTILITY COMPANIES BEFORE DIGGING OR PERFORMING WORK.

CONTRACTOR IS ADVISED TO COLLECT INFORMATION ON SOIL CONDITIONS BEFORE START OF CONSTRUCTION.

THE ENGINEER WAIVES ANY AND ALL RESPONSIBILITY AND LIABILITY FOR PROBLEMS WHICH ARISE FROM FAILURE TO FOLLOW THESE PLANS, SPECIFICATIONS AND THE DESIGN INTENT THEY CONVEY, OR FOR PROBLEMS WHICH ARISE FROM OTHERS' FAILURE TO OBTAIN AND/OR FOLLOW THE ENGINEER'S GUIDANCE WITH RESPECT TO ANY ERRORS, OMISSIONS, INCONSISTENCIES AMBIGUITIES OR CONFLICTS WHICH ARE ALLEGED.

CONTRACTOR TO VERIFY ALL DIMENSIONS AND NOTIFY THE ENGINEER OF ANY DISCREPANCIES BEFORE WORK COMMENCES. DO NOT SCALE DRAWINGS.

DETAILS WITHIN THIS DRAWING PACKAGE ARE OF PRELIMINARY NATURE AND MUST BE FURTHER ADVANCED PRIOR TO ISSUANCE OF PERMIT AND CONSTRUCTION.

No.	REVISIONS	BY	DATE
01	ISSUED FOR APPROVAL	V.J.	12 JUNE 2023

LICENSED PROFESSIONAL ENGINEER
V. JOHNSON
100510576
06-12-2023
PROVINCE OF ONTARIO

NOT AUTHENTIC UNLESS SIGNED AND DATED

LRL
ENGINEERING | INGÉNIERIE
5430 Canotek Road | Ottawa, ON, K1J 9G2
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CLIENT
400 COVENTRY INVESTMENTS INC.

DESIGNED BY:	DRAWN BY:	APPROVED BY:
T.H.	T.H.	V.J.

PROJECT
COVENTRY REDEVELOPMENT
400 COVENRTY RD,
OTTAWA, ON

DRAWING TITLE
CONSTRUCTION DETAIL PLAN

PROJECT NO.
220200

DATE
JUNE 2023

C901