SERVICING & STORMWATER MANAGEMENT REPORT
254 LAKE AVENUE WEST

Project No.: CCO-22-1448

City File No.:

Escape Homes Consulting
115 Blackberry Way
Dunrobin, ON
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February 20, 2025

McINTOSH PERRY

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1.0 PROJECT DESCRIPTION

1.1 Purpose

McIntosh Perry (MP) has been retained by Escape Homes to prepare this Servicing and Stormwater Management Report in support of the Site Plan Control process for the proposed residential development, located at 254 Lake Avenue West in the Town of Carleton Place.

The main purpose of this report is to present a servicing and stormwater management design for the development in accordance with the recommendations and guidelines provided by the City of Ottawa (City), the Mississippi Valley Conservation Authority (MVCA), and the Ministry of the Environment, Conservation and Parks (MECP). This report will address the water, sanitary and storm sewer servicing for the development, ensuring that existing and available services will adequately service the proposed development.

This report should be read in conjunction with the following drawings:

- CCO-22-1448, C101 – Lot Grading and Drainage Plan
- CCO-22-1448, C102 – Servicing Plan
- CCO-22-1448, C103 – Sediment and Erosion Control Plan
- CCO-22-1448, PRE – Pre-Development Drainage Area Plan (*Appendix 'E'*)
- CCO-22-1448, POST – Post-Development Drainage Area Plan (*Appendix 'F'*)

1.2 Site Description

The property is located at 254 Lake Avenue West within the Town of Carleton Place. It is described as Part of Lots 12 and 13, Concession 11, Geographic Township of Beckwith, and in the County of Lanark. The land in question covers approximately *0.49 ha* and is located south-west of the Mississippi Road and Lake Avenue West intersection. Development is proposed over the full *0.49 ha* of the site. See Site Location Plan in *Appendix A* and topographic survey in *Appendix B* for more details.

1.3 Proposed Development and Statistics

The proposed development consists of four *197.6 m^2* residential quadplex units, two *135.4 m^2* two-storey detached residences, and a *282.5 m^2* two storey semi-detached residence. New parking and drive aisles will be provided with access from Lake Avenue West. This project will also include the partial urbanization of Lake Avenue West along the frontage of the development with the installation of a monolithic curb and sidewalk between Mississippi Road and the western limits of the project. Refer to *Site Plan* prepared by Stantec Consulting Ltd and included in *Appendix B* for further details.

1.4 Existing Conditions and Infrastructures

The existing site is currently developed with a two-storey detached dwelling and includes an asphalt driveway. The existing building is proposed to be demolished and the *0.49 ha* site being subdivided into 7 parcels of land to support the seven dwelling structures identified in Section 1.3.

Sewer and watermain mapping collected from the Town of Carleton Place indicate that the following services exist across the property frontages within the adjacent municipal rights-of-way(s):

- Water Servicing
  - Based on Town of Carleton Place as-builts prepared by Stantec Consulting (Project No. 160401129), a 300 mm diameter watermain was installed along Lake Avenue West to support the Bodnar Lands subdivision.
  - In addition, two municipal fire hydrants have been installed along Lake Avenue West to support the Bodnar Lands subdivision.

- Wastewater Servicing
  - Based on coordination with Town staff, a 200 mm diameter sanitary stub is proposed to be installed within Lyndhurst Street and will be available to service the development. Refer to Town drawing LYNDHURST -2022 drawing PW2-2022-8 for further details.

- Stormwater Servicing
  - A catchbasin system exists within Lake Avenue West. Based on coordination with Town staff, this storm sewer system often surcharges and overflows into the park.
  - The site currently directs stormwater overland towards the shallow roadside ditch along the south side of Lake Avenue.

2.0 BACKROUND STUDIES

2.1 Background Reports / Reference Information

As-built drawings of existing services, provided by the Town of Carleton Place, within the vicinity of the proposed site were reviewed in order to identify infrastructure available to service the proposed development.

A topographic survey (17446-21) of the site was completed by Annis, O'Sullivan, Vollebekk Ltd and dated June 30th, 2021.

The Site Plan (L100) was prepared by Stantec Consulting Ltd and dated January 27th, 2023 (*Site Plan*).

2.2 Applicable Guidelines and Standards

City of Ottawa:

- Ottawa Sewer Design Guidelines, City of Ottawa, SDG002, October 2012. (*Ottawa Sewer Guidelines*)
  - Technical Bulletin ISTB-2014-01 City of Ottawa, February 2014. *(ISTB-2014-01)*
  - Technical Bulletin PIEDTB-2016-01 City of Ottawa, September 2016. *(PIEDTB-2016-01)*
  - Technical Bulletin ISTB-2018-01 City of Ottawa, January 2018. *(ISTB-2018-01)*
  - Technical Bulletin ISTB-2018-03 City of Ottawa, March 2018. *(ISTB-2018-03)*
  - Technical Bulletin ISTB-2019-01 City of Ottawa, January 2019. *(ISTB-2019-01)*
  - Technical Bulletin ISTB-2019-02 City of Ottawa, February 2019. *(ISTB-2019-02)*
- Ottawa Design Guidelines – Water Distribution City of Ottawa, July 2010. (*Ottawa Water Guidelines*)
  - Technical Bulletin ISD-2010-2 City of Ottawa, December 15, 2010. *(ISD-2010-2)*
  - Technical Bulletin ISDTB-2014-02 City of Ottawa, May 2014. (ISDTB-2014-02)
  - Technical Bulletin ISTB-2018-02 City of Ottawa, March 2018. *(ISTB-2018-02)*

Ministry of Environment, Conservation and Parks:

- Stormwater Planning and Design Manual, Ministry of the Environment, March 2003. *(MECP Stormwater Design Manual)*
- Design Guidelines for Sewage Works, Ministry of the Environment, 2008. (*MECP Sewer Design Guidelines*)

3.0 WATERMAIN

3.1 Existing Watermain

There is an existing 300 mm diameter watermain within Lake Avenue West available to service the proposed development. As noted in Section 1.4, there are two fire hydrants fronting the site and installed to service the Bodnar Lands subdivision.

3.2 Proposed Watermain

A new 38 mm diameter water service is proposed to be connected to the existing 300 mm watermain within Lake Avenue West for each of the proposed quadplex buildings. A 19 mm diameter water service is proposed for the detached and semi-detached homes from the Lake Avenue West watermain. Each water service contains a water valve located at the property line. The water services have been designed to have a minimum of 1.8 m of cover. Refer to drawing *C102* for a detailed servicing layout.

The Fire Underwriters Survey 1999 (FUS) method was utilized to estimate the required fire flow for the site. Fire flow requirements were calculated per City of Ottawa Technical Bulletin *ISTB-2018-02*. The following parameters were assumed.

- Type of construction – Wood Frame Construction
- Occupancy Type – Limited Combustibility
- Sprinkler Protection – No Sprinkler System

Table 1, below, summarizes the proposed fire flow demands based on the FUS method.

Table 1: Fire Flow Demands

Building	Fire Flow Demand (L/min)	Fire Flow Demand (L/s)
Detached Home (Lot 1 - western)	6,000	100
Quadplex (Lot 2)	8,000	133.33
Quadplex (Lot 3)	8,000	133.33
Quadplex (Lot 4)	8,000	133.33
Quadplex (Lot 5)	8,000	133.33
Semi-Detached Home (Lot 6)	10,000	166.67
Detached Home (Lot 7 – eastern)	8,000	133.33

The water demands for the proposed buildings have been calculated to adhere to the *Ottawa Design Guidelines – Water Distribution* manual and can be found in *Appendix 'C'*. The criteria and corresponding results have been summarized in *Table 2*, below:

Table 2: Water Demands

Design Parameter	Value
Site Area	0.49 ha
Detached Homes	3.4 persons/unit
Semi-detached Homes	2.7 persons/unit
Average Apartment (Quadplex)	1.8 persons/unit
Residential Peaking Factor (Day)	9.5 x avg. day
Residential Peaking Factor (Hour)	14.3 x avg. day
Average Day Demand	0.13 L/s
Maximum Daily Demand	1.26 L/s
Peak Hourly Demand	1.90 L/s

To confirm the adequacy of fire flow to protect the proposed development, public fire hydrants within 150 m of the site were accounted for per City of Ottawa Technical Bulletin *ISTB 2018-02 Appendix I*. Results can be seen in *Table 3*, below. To remain conservative, the existing hydrant fronting the Bodnar Subdivision entrance was not accounted for as the class rating could not be confirmed. Class ratings for the remaining hydrants were determined based on visual inspection of the colored discs.

Table 3: Fire Protection Confirmation

Buildings	Fire Flow Demand (L/min.)	Fire Hydrant(s) within 75m - (Class A-A = 5,700 L/min) (Class B = 1,900 L/min)	Fire Hydrant(s) within 150m - (Class A-A = 3,800 L/min) (Class B = 1,500 L/min)	Combined Fire Flow (L/min.)
Lot 1-3	8,000 L/min (max)	1 public (unknown) 1 public (Class A-A)	1 public (Class A-A)	9,500
Lot 4-5	8,000 L/min (max)	2 public (Class A-A)	-	11,400
Lot 6-7	10,000 L/min (max)	1 public (Class A-A)	1 public (Class A-A) 1 public (Class B)	11,000

Based on *Table 3*, above, there is enough hydrant coverage to support the calculated fire flow demand of 8,000 – 10,000 L/min. Therefore, additional private hydrants are not anticipated to be required.

The Town provided the static HGL and pressures for the municipal watermain within Lake Avenue West. The results have been summarized in *Table 4,* below. Based on the modelling results, the municipal watermain has sufficient pressures during normal operating scenarios to support development. Refer to *Appendix C* for pressure results provided by Stantec.

Table 4: Watermain Pressures

Scenario	Static HGL at Nearest Junction (m)	Pressure (psi)	Pressure (kPa)
Average Day Demand	184.5	66	437
Peak Hour Demand	182.4	63	458

4.0 SANITARY DESIGN

4.1 Existing Sanitary Sewers

There is an existing 200 mm diameter sanitary sewer located within Lyndhurst Street available to service the development. As noted in Section 1.4, a 200 mm diameter sanitary sewer replacement and extension is proposed. A 200 mm diameter sanitary stub will be available in the boulevard north of Lyndhurst Street to accommodate sanitary servicing from the proposed development.

4.2 Proposed Sanitary Sewer

135 mm diameter sanitary services are proposed to provide servicing to each building. The sanitary services will connect to a new 200 mm diameter gravity sanitary sewer located within the site along the north property line and east side of the lot. The proposed sanitary sewer will lead to a E/One W-series pump station (or equivalent product) at the southeast corner of the site. From the pump station, a 32 mm diameter sanitary forcemain will then discharge to the 200 mm diameter sanitary stub located under the north boulevard of Lyndhurst Street (forcemain and pump station design by others). Refer to drawing C102 for a detailed sanitary sewer layout and drawing C104 for a schematic layout of the forcemain and Lyndhurst Street connection.

Table 5, below, summarizes the wastewater design criteria identified by the *Ottawa Sewer Guidelines*.

Table 5: Sanitary Design Criteria

Design Parameter	Value
Average Apartment	1.8 persons/unit
Detached Homes	3.4 persons/unit
Semi-detached Homes	2.7 persons/unit
Average Daily Demand	280 L/day/person
Residential Peaking Factor	3.67
Extraneous Flow Allowances	0.33 L/s/ha

Table 6, below, summarizes the estimated wastewater flow from the proposed development. Refer to *Appendix D* for detailed calculations.

Table 6: Summary of Estimated Sanitary Flow

Design Parameter	Total Flow (L/S)
Total Estimated Average Dry Weather Flow	0.16
Total Estimated Peak Dry Weather Flow	0.51
Total Estimated Peak Wet Weather Flow	0.65

The full flowing capacity of a 200 mm sanitary service at a 0.50% slope is estimated to be *24.19 L/s*. Per *Table 6*, above, a peak wet weather flow of *0.65 L/s* will be conveyed within the 200 mm diameter service, therefore the proposed system is sufficient sized for the development. See *Sanitary Sewer Design Sheet* in *Appendix D* of this report for more details.

5.0 STORM SEWER DESIGN

5.1 Existing Storm Sewers

There is an existing catchbasin system along Lake Avenue which services Mississippi Road and areas of Lake Avenue West to the east of the development site. Based on coordination with Town staff, this storm sewer system often surcharges and overflows into the park. In addition, a shallow roadside ditch exists north of the site and along the south side of Lake Avenue. Site drainage currently infiltrates and flows overland towards the roadside ditch at the north-west corner of the site.

5.2 Proposed Storm Sewers

The roadside ditch along the south side of Lake Avenue is proposed to be extended approximately 15 metres to the east and regraded to allow for drainage of the ROW and driveway areas of Lots F and G. The revised ditch will include landscaping catch basins and a 300 mm diameter subdrain system. As a sidewalk has been included along the property frontage, curb inlet catch basins are proposed to convey road runoff towards the municipal ditch.

Drainage from the proposed development will be directed to a new perimeter drain system which will contain a layer of riverside at the surface and a subdrain beneath surrounded in a clear stone trench. The subdrain system will promote drainage of the perimeter drain in shallow graded areas and during snow melt periods. In a large storm event, water will back up within the subdrain through the downstream landscape catchbasin, directing stormwater through the surface swale system towards the roadside ditch.

In order to control stormwater to pre-development conditions, two depressed stormwater areas are required. Stormwater will be controlled by the culvert outlets sending stormwater towards the Lake Ave roadside ditch.

It is anticipated that buildings will be slab on grade. As the municipal ditch is known to surcharge, it is expected that foundation drainage, if required, will be provided by a sump pump which will outlet to surface in the rear yard and then surface drain towards the proposed perimeter swale system.

Runoff collected on the roofs of the proposed quadplexes will be stored and controlled internally using one roof drain per rooftop. The roof drain(s) will be used to limit the flow from the roof to the specified allowable release rate. For calculation purposes a Watts Accutrol roof drain was used estimate a reasonable roof flow. Other products maybe specified at detailed building design so long as release rates and storage volumes are respected.

See CCO-22-1448 - *POST* and *Storm Sewer Design Sheet* in *Appendix 'F'* of this report for more details. The Stormwater Management design for the subject property will be outlined in Section 6.0.

6.0 PROPOSED STORMWATER MANAGEMENT

6.1 Design Criteria and Methodology

Stormwater management for the proposed site will be maintained through positive drainage away from the proposed buildings and towards the rear yard stormwater storage areas and drainage swale, and ultimately towards the re-defined roadside ditch along the south side of Lake Avenue West. On-site swales will capture runoff from the roof (Lot 1, 6-7), parking lot, and landscaped areas. Depressed stormwater areas are proposed to restrict stormwater and provide the necessary storage to meet pre-development flow rates. The site has been designed such that the site will overtop the top of slope of the depressed stormwater area an emergency situation prior to backing up towards the building. Stormwater collected on the rooftops of the quadplexes will be controlled before discharging to the roadside ditch via surface drainage. The quantitative and qualitative properties of the storm runoff for both the pre & post development flows are further detailed below.

In summary, the following design criteria have been employed in developing the stormwater management design for the site as directed by the Town:

Quantity Control

- Post-development flow 5- and 100-year flow is to be restricted to match the 5- and 100-year pre-development flow.

6.2 Runoff Calculations

Runoff calculations presented in this report are derived using the Rational Method, given as:

$$Q = 2.78CIA \text{ (L/s)}$$

Where C = Runoff coefficient
I = Rainfall intensity in mm/hr (City of Ottawa IDF curves)
A = Drainage area in hectares

It is recognized that the Rational Method tends to overestimate runoff rates. As a result, the conservative calculation of runoff ensures that any SWM facility sized using this method is expected to function as intended.

The following coefficients were used to develop an average C for each area:

Roofs/Concrete/Asphalt	0.90
Gravel	0.60
Undeveloped and Grass	0.20

As per the *City of Ottawa - Sewer Design Guidelines*, the 5-year balanced 'C' value must be increased by 25% for a 100-year storm event to a maximum of 1.0.

6.3 Pre-Development Drainage

The existing site drainage limits are demonstrated on the Pre-Development Drainage Area Plan. A summary of the Pre-Development Runoff Calculations can be found below.

Table 7: Pre-Development Runoff Summary

Drainage Area	Area (ha)	Runoff Coefficient (5-Year)	Runoff Coefficient (100-Year)	5-year Peak Flow (L/s)	100-year Peak Flow (L/s)
A1	0.49	0.34	0.40	48.24	97.31
X1	0.13	0.49	0.57	18.37	36.71
Total	0.62			66.60	134.02

Area A1 represents the limits of the property and will be used to establish the allowable release rate. Area X1 represents the external drainage from Lake Avenue that will be collected within the revised municipal ditch.

See CCO-22-1448 - *PRE* in *Appendix E* and *Appendix G* for calculations.

6.4 Post-Development Drainage

To meet the stormwater objectives the development will contain rooftop and surface storage controls.

The proposed site drainage limits are demonstrated on the Post-Development Drainage Area Plan. See CCO-22-1448 - *POST* in *Appendix F* of this report for more details. A summary of the Post-Development Runoff Calculations can be found below. See *Appendix G* for detailed calculations.

Table 8: Post-Development Runoff Summary

Drainage Area	Area (ha)	Runoff Coefficient (5-Year)	Runoff Coefficient (100-Year)	Unrestricted 5-year Peak Flow (L/s)	Unrestricted 100-year Peak Flow (L/s)
B1	0.02	0.90	1.00	5.15	9.81
B2	0.02	0.90	1.00	5.15	9.81
B3	0.02	0.90	1.00	5.15	9.81
B4	0.02	0.90	1.00	5.15	9.81
B5	0.11	0.53	0.60	16.59	32.38
B6	0.08	0.55	0.63	12.51	24.36
B7	0.04	0.53	0.61	6.78	13.22
B8	0.04	0.20	0.25	2.11	4.52
B9	0.03	0.20	0.25	1.47	3.14

B10	0.12	0.52	0.60	17.96	35.07
X1	0.13	0.53	0.61	19.86	39.17
Total	0.62			97.87	191.09

6.5 Quantity Control

After discussing the stormwater management criteria for the site with Town staff, the total post-development runoff for this site has been restricted to match the 5- and 100-year pre-development flow rates. These values result in the following allowable release rates for the development.

Table 9: Allowable Release Rate Summary

Drainage Area	Area (ha)	Runoff Coefficient 5-Year	Runoff Coefficient 100-Year	Required Restricted Flow *5-Year* (L/s)	Required Restricted Flow 100-Year (L/s)
A1	0.49	0.34	0.40	48.24	97.31

Reducing site flows will be achieved using a flow restriction on rooftops and within the depressed stormwater area, creating the need for onsite storage. The restricted flow and post-development storage requirements are summarized in *Table 10*, below.

Table 10: Post-Development Restricted Runoff Summary

Drainage Area	Post Development Restricted Flow (L/s)		Post Development Storage Requirement (m^3)	
	5-Year	100-Year	5-Year	100-Year
B1	0.42	0.72	4.3	8.5
B2	0.42	0.72	4.3	8.5
B3	0.42	0.72	4.3	8.5
B4	0.42	0.72	4.3	8.5
B5	16.59	32.38	-	-
B6	4.67	7.53	4.7	10.6
B7	2.95	5.11	2.3	4.9
B8	2.11	4.52	-	-
B9	1.47	3.14	-	-
B10	17.96	35.07	-	-
Total	47.43	90.63	24.4	49.3

Runoff for area *B1-B4* will be stored on the roofs of the proposed quadplex buildings and restricted using one Watts Accutrol roof drain (or equivalent product) per building to a maximum release rate of *0.72 L/s* and will provide up to *8.5* m^3 of storage.

Runoff from area *B5* is proposed to be unrestricted and will be compensated for by areas with flow attenuation.

Runoff for area *B6* will be controlled by a depressed storage area with a 100 mm outlet culvert. The storage area is proposed to contain up to *10.6* m^3 of surface storage up to a maximum release rate of *7.53 L/s*. Stormwater will be collected by the perimeter swale system and conveyed to the redefined roadside ditch.

Runoff for area *B7* will be controlled by a depressed storage area with a 100 mm outlet culvert. The storage area is proposed to contain up to *4.9* m^3 of surface storage up to a maximum release rate of *5.11 L/s*. Stormwater will be collected by the perimeter swale system and conveyed to the redefined roadside ditch.

Runoff for areas *B8* and *B9* will be unrestricted and directed towards the perimeter swale system. Runoff for area *B10* will be unrestricted and directed towards the revised municipal ditch.

Runoff from area *X1* will be unrestricted external drainage from the right-of way directed towards the municipal ditch. Runoff from this area has not been counted towards the allowable release rate, however it has been accounted for in subdrain sizing for the revised municipal ditch.

Foundation drainage, if required, is expected to outlet to surface in the rear yard and surface drain towards the perimeter swale system. Foundation drainage requirements will be confirmed when further details on the building designs are available.

6.6 Quality Control

The development of this lot will employ Best Management Practices (BMP's) wherever possible. The intent of implementing stormwater BMP's is to ensure that water quality and quantity concerns are addressed at all stages of development. Lot level BMP's typically include temporary retention of the parking lot runoff, minimizing ground slopes and maximizing landscaped areas.

A treatment train approach is proposed to provide quality control for the site. Collected runoff will be directed towards depressed surface storage areas and a perimeter swale located along the property line.

Runoff from the parking lot and drive aisles will be directed towards two depressed surface storage areas that will have TSS removal efficiency most comparable to a dry pond. From Section 3.2.2. of the MECP Stormwater Management Planning and Design Manual, a base level of water quality was estimated using the tributary area, imperviousness, and the proposed retention volume. Based on Table 3.2 of the manual, both depressed surface storage areas provide a sufficient volume of stormwater storage to achieve a long-term suspended solids removal of 60%. Suspended solids removal within the depressed surface storage area will occur through settlement of suspended solids and filtration through the vegetated medium.

Runoff leaving the depressed surface storage area as well as uncontrolled runoff will be directed to a perimeter swale located along the property line. The swale will contain a layer of riverside stone at the surface, and a 250

mm diameter subdrain with clear stone surround below surface. The clear stone will be surrounded by a non-woven geotextile to provide separation from native soils. The swale has been designed with minimal slope to target a runoff velocity of ≤ 0.5 m/s as per the MECP Stormwater Management Planning and Design Manual. Reducing runoff velocity will allow an extended opportunity for infiltration as well as filtration of suspended solids. Stormwater storage capacity within the clear stone void space will also reduce runoff velocity, provide an opportunity for infiltration, and provide temporary storage in the event that the municipal ditch outlet surcharges. The subdrain pipe, wrapped in a soil-tight drainage filter stock, will collect clean runoff within the clear stone and direct it to the municipal ditch along Lake Avenue West.

It is recommended that the depressed surface storage area and perimeter swale be inspected and maintained regularly, as these areas are designed to facilitate sedimentation and filtration prior to runoff leaving the site.

Inspection of the depressed surface storage area will consist of monitoring sediment building, and visual inspection of drainage patterns following storm events. The surface storage area has been designed for sheet flow of stormwater runoff, so if channelized flow is observed or a channel is beginning to form, it is likely that surface erosion or sediment buildup has occurred. This can be addressed by removing sediment, regrading based on the approved Grading & Drainage plan, and reestablishing vegetation as required.

Inspection of the drainage conveyance swale will consist of monitoring sediment building, and visual inspection of drainage patterns following storm events. Should channelized drainage be observed outside of the main channel, or if no flow is seen leaving the subdrain, this may indicate sediment buildup within the riverside stone. This can be rectified by removing sediment within the riverside stone, or in a worst-case scenario, removing and replacing the riverside stone down to the depth of the geotextile and clear stone.

7.0 EROSION AND SEDIMENT CONTROL

7.1 Temporary Measures

Before construction begins, temporary silt fence, straw bale or rock flow check dams will be installed at all natural runoff outlets from the property. It is crucial that these controls be maintained throughout construction and inspection of sediment and erosion control will be facilitated by the Contractor or Contract Administration staff throughout the construction period.

Silt fences will be installed where shown on the final engineering plans, specifically along the downstream property limits. The Contractor, at their discretion or at the instruction of the City, Conservation Authority or the Contract Administrator shall increase the quantity of sediment and erosion controls on-site to ensure that the site is operating as intended and no additional sediment finds its way off site. The rock flow, straw bale & silt fence check dams and barriers shall be inspected weekly and after rainfall events. Care shall be taken to properly remove sediment from the fences and check dams as required. Fibre roll barriers are to be installed at all existing curb inlet catchbasins and filter fabric is to be placed under the grates of all existing catchbasins and manholes along the frontage of the site and any new structures immediately upon installation. The measures for the existing/proposed structures is to be removed only after all areas have been paved. Care shall be taken at the removal stage to ensure that any silt that has accumulated is properly handled and disposed of. Removal of silt fences without prior removal of the sediments shall not be permitted.

Although not anticipated, work through winter months shall be closely monitored for erosion along sloped areas. Should erosion be noted, the Contractor shall be alerted and shall take all necessary steps to rectify the situation. Should the Contractor's efforts fail at remediating the eroded areas, the Contractor shall contact the City and/or Conservation Authority to review the site conditions and determine the appropriate course of action. As the ground begins to thaw, the Contractor shall place silt fencing at all required locations as soon as ground conditions warrant. Please see the *Site Grading, Drainage and Sediment & Erosion Control Plan* for additional details regarding the temporary measures to be installed and their appropriate OPSD references.

7.2 Permanent Measures

It is expected that the Contractor will promptly ensure that all disturbed areas receive topsoil and seed/sod and that grass be established as soon as possible. Any areas of excess fill shall be removed or levelled as soon as possible and must be located a sufficient distance from any watercourse to ensure that no sediment is washed out into the watercourse. As the vegetation growth within the site provides a key component to the control of sediment for the site, it must be properly maintained once established. Once the construction is complete, it will be up to the landowner to maintain the vegetation and ensure that the vegetation is not overgrown or impeded by foreign objects.

8.0 SUMMARY

- Two new detached home, one semi-detached home, and four quadplexes are proposed to be constructed at 254 Lake Avenue West.
- A new water service is proposed to service each building from the existing 300 mm diameter watermain within Lake Avenue West.
- A new 200 mm internal sanitary sewer and pump station is proposed to service the buildings. Each new building will be serviced by a 135 mm sanitary service.
- Sanitary flows will be directed from the on-site pump station to the existing 200 mm diameter sanitary sewer stub located in the boulevard north of Lyndhurst Street.
- The Lake Avenue West roadside ditch is proposed to be modified to support a stormwater management system at 254 Lake Avenue West and the introduction of a municipal sidewalk along the frontage. Stormwater management controls are proposed to be provided via surface storage and rooftop storage.

9.0 RECOMMENDATION

Based on the information presented in this report, we recommend that Town of Carleton Place approve this Servicing and Stormwater Management Report in support of the proposed development at 254 Lake Avenue West.

This report is respectfully being submitted for approval.

Regards,

McIntosh Perry Consulting Engineers Ltd.

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10.0 STATEMENT OF LIMITATIONS

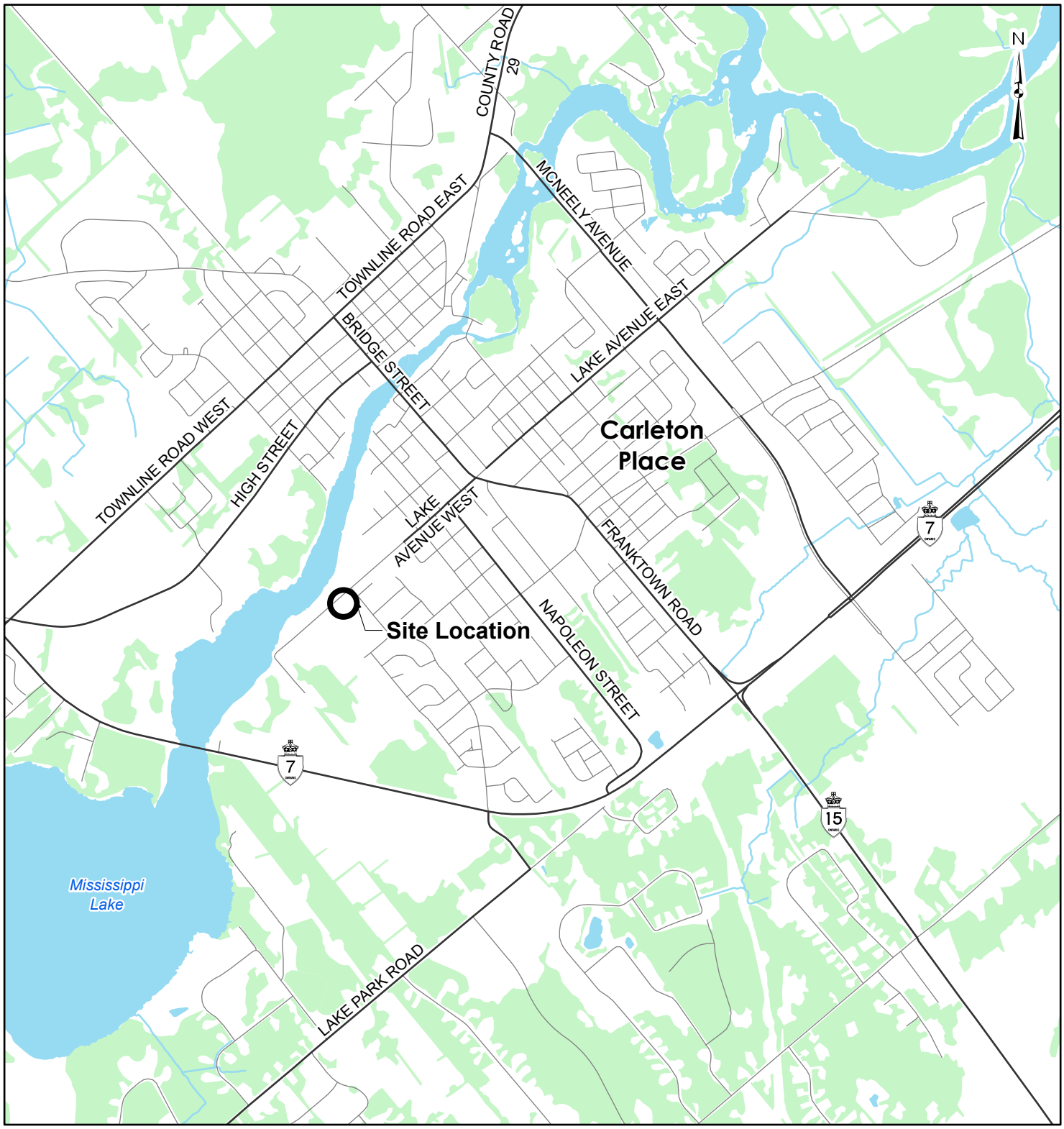
This report was produced for the exclusive use of Escape Homes. The purpose of the report is to assess the existing stormwater management system and provide recommendations and designs for the post-construction scenario that are in compliance with the guidelines and standards from the Ministry of the Environment, Conservation and Parks, City of Ottawa and local approval agencies. McIntosh Perry reviewed the site information and background documents listed in Section 2.0 of this report. While the previous data was reviewed by McIntosh Perry and site visits were performed, no field verification/measures of any information were conducted.

Any use of this review by a third party, or any reliance on decisions made based on it, without a reliance report is the responsibility of such third parties. McIntosh Perry accepts no responsibility for damages, if any, suffered by any third party as a result of decisions or actions made based on this review.

The findings, conclusions and/or recommendations of this report are only valid as of the date of this report. No assurance is made regarding any changes in conditions subsequent to this date. If additional information is discovered or becomes available at a future date, McIntosh Perry should be requested to re-evaluate the conclusions presented in this report, and provide amendments, if required.

APPENDIX A
KEY PLAN

McINTOSH PERRY



LEGEND

- Site Location
- Local Road
- Major Road
- Watercourse
- Waterbody
- Wooded Area

500 250 0 500

Scale 1:25,000 Metres

REFERENCE

GIS data provided by the Ontario Ministry of Northern Development, Mines, Natural Resources and Forestry, 2022.

CLIENT: ESCAPE HOMES

PROJECT: 254 LAKE AVE, CARLETON PLACE

TITLE: SITE LOCATION PLAN

McINTOSH PERRY
115 Walgreen Road, RR3, Carp, ON K0A1L0
Tel: 613-836-2184 Fax: 613-836-3742
www.mcintoshperry.com

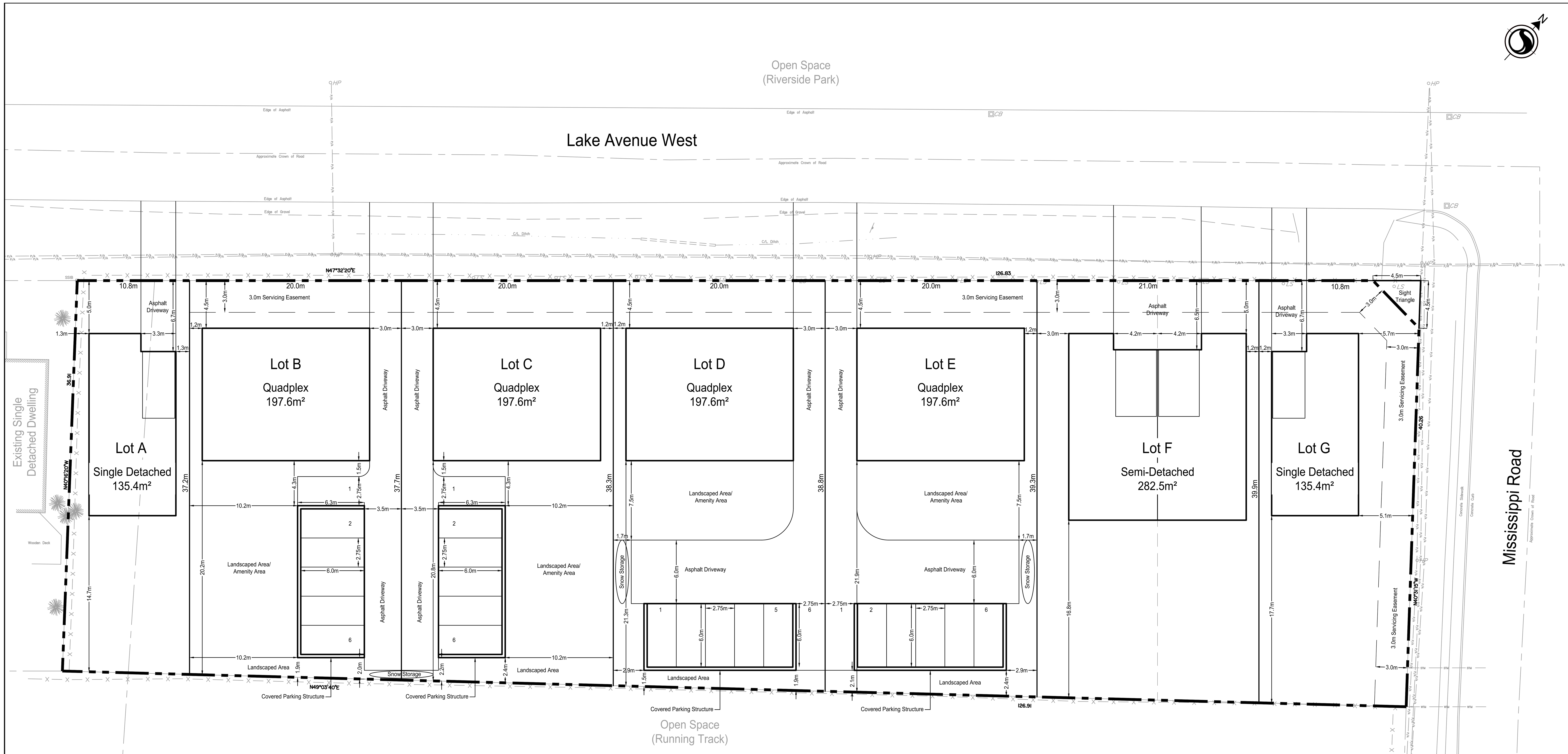
PROJECT NO:	CCO-22-1448
Date	Mar., 24, 2022
GIS	SK
Checked By	AG

FIGURE: 1

C:\Users\s.klassen\McIntosh Perry\GIS - Documents\Projects\2022\CCO\CCO-22-1448 EscapeHomes\aprx\Key Maps\Land Development\CCO-22-1448 KeyMap.aprx

APPENDIX B
BACKGROUND DOCUMENTS

McINTOSH PERRY



Stantec

Stantec Consulting Ltd.
100-300 Hagey Boulevard
Waterloo ON N2L 0A4
Tel: (519) 579-4410
www.stantec.com

Key Map NTS.

Legal Description

Part of Lots 12 and 13,
Concession 11,
Town of Carleton Place,
County of Lanark

Details of Development

SITE DETAILS	REQUIRED	LOT A - PROVIDED	LOT G - PROVIDED
ZONING	RESIDENTIAL DISTRICT - SINGLE DETACHED DWELLING		
MINIMUM LOT AREA	NIL	418.6m²	574.2m²
MAXIMUM LOT COVERAGE	60.0%	32.3%	23.5%
MINIMUM LOT FRONTAGE	10.6m	10.8m	15.1m
FRONT YARD BUILD WITHIN AREA	MINIMUM = 4.5m MAXIMUM = 7.5m	5.0m	5.0m
EXTERIOR SIDE YARD BUILD WITHIN AREA	MINIMUM = 4.5m MAXIMUM = 7.5m	N/A	5.1m
MINIMUM INTERIOR SIDE YARD	1.2m	1.3m & 1.3m	1.2m
MINIMUM REAR YARD DEPTH	7.5m	14.7m	17.7m
MINIMUM USABLE LANDSCAPED OPEN SPACE IN THE REAR YARD	50.0m²	173.9m²	253.8m²
MAXIMUM BUILDING HEIGHT	11.0m	<11.0m	<11.0m
MINIMUM DWELLING UNIT AREA	92.9m²	135.4m²	135.4m²
NO ENCROACHMENT AREA FROM FRONT OR EXTERIOR SIDE LOT LINE	2.5m	2.5m	2.5m
PARKING SPACE	2 SPACES	2 SPACES	2 SPACES
MAXIMUM GARAGE WIDTH	50.0% OF LOT FRONTAGE	27.8%	21.8%
MINIMUM MAIN GARAGE FOUNDATION SETBACK	6.0m	6.7m	6.7m

Parking Calculation

SINGLE DETACHED DWELLING:
2 SPACES PER UNIT
1 UNIT x 2 SPACES = 2 SPACES

Details of Development

SITE DETAILS	REQUIRED	LOT B - PROVIDED	LOT C - PROVIDED	LOT D - PROVIDED	LOT E - PROVIDED
ZONING	RESIDENTIAL DISTRICT - QUADPLEX				
MINIMUM LOT AREA	NIL	749.2m²	759.8m²	770.5m²	781.1m²
MAXIMUM LOT COVERAGE	60.0%	26.4%	26.0%	25.6%	25.3%
MINIMUM LOT FRONTAGE	15.0m	20.0m	20.0m	20.0m	20.0m
FRONT YARD BUILD WITHIN AREA	MINIMUM = 4.5m MAXIMUM = 7.5m	4.5m	4.5m	4.5m	4.5m
EXTERIOR SIDE YARD BUILD WITHIN AREA	MINIMUM = 4.5m MAXIMUM = 7.5m	N/A	N/A	N/A	N/A
MINIMUM INTERIOR SIDE YARD	1.2m	1.2m & 3.0m	1.2m & 3.0m	1.2m & 3.0m	1.2m & 3.0m
MINIMUM REAR YARD DEPTH	9.0m	20.2m	20.8m	21.3m	21.9m
MINIMUM USABLE LANDSCAPED OPEN SPACE IN THE REAR YARD	30.0m²	107.9m²	107.9m²	125.5m²	125.5m²
MAXIMUM BUILDING HEIGHT	14.0m	<14.0m	<14.0m	<14.0m	<14.0m
NO ENCROACHMENT AREA FROM FRONT OR EXTERIOR SIDE LOT LINE	2.5m	2.5m	2.5m	2.5m	2.5m
PARKING SPACE	6 SPACES	6 SPACES	6 SPACES	6 SPACES	6 SPACES
VISITOR PARKING SPACE	1 SPACES	1 SPACES	1 SPACES	1 SPACES	1 SPACES

Parking Calculation

QUADPLEX:
1.25 SPACES PER UNIT
4 UNITS x 1.25 SPACES = 5 SPACES

VISITOR PARKING:
0.25 SPACE PER UNIT
4 UNITS x 0.25 SPACES = 1 SPACE

Details of Development

SITE DETAILS	REQUIRED	LOT F - PROVIDED
ZONING	RESIDENTIAL DISTRICT - SEMI-DETACHED	
MINIMUM LOT AREA	NIL	829.7m²
MAXIMUM LOT COVERAGE	60.0%	34.0%
MINIMUM LOT FRONTAGE	15.0m (7.5m/UNIT)	21.0m
FRONT YARD BUILD WITHIN AREA	MINIMUM = 4.5m MAXIMUM = 7.5m	5.0m
EXTERIOR SIDE YARD BUILD WITHIN AREA	MINIMUM = 4.5m MAXIMUM = 7.5m	N/A
MINIMUM INTERIOR SIDE YARD	1.2m	3.0m & 1.2m
MINIMUM REAR YARD DEPTH	7.5m	16.8m
MINIMUM USABLE LANDSCAPED OPEN SPACE IN THE REAR YARD	40.0m²	355.6m²
MAXIMUM BUILDING HEIGHT	11.0m	<11.0m
MINIMUM DWELLING UNIT AREA	92.9m²	282.5m²
NO ENCROACHMENT AREA FROM FRONT OR EXTERIOR SIDE LOT LINE	2.5m	2.5m
PARKING SPACE	2 SPACES	2 SPACES
MAXIMUM GARAGE WIDTH		40.0%
MINIMUM MAIN GARAGE FOUNDATION SETBACK		6.5m

Parking Calculation

SINGLE DETACHED DWELLING:
2 SPACES PER UNIT
1 UNIT x 2 SPACES = 2 SPACES

Revision		By	Appd	YYYY.MM.DD
2.	REVISED AS PER CLIENT COMMENTS	JJ	EB	2023.01.27
1.	REVISED AS PER CLIENT COMMENTS	JJ	EB	2022.09.19
	ISSUED FOR CLIENT REVIEW	JJ	EB	2022.08.30

File Name: 160410347_R-SP	Dwn.	Dsgn.	Chkd.	YYYY.MM.DD
	JJ	JJ	EB	2022.08.29

Permit-Seal

Client/Project

ESCAPE HOMES

254 LAKE AVENUE WEST

CARLETON PLACE, ON

Title

SITE PLAN

Project No. 160410347

Scale 1:200

Revision 2

Sheet 1 of 1

Drawing No. SP-1

ORIGINAL SHEET - ARCH D

SURVEYOR'S REAL PROPERTY REPORT

PART 1 Plan of

PART OF LOTS 12 and 13 CONCESSION 11 Geographic Township of Beckwith TOWN OF CARLETON PLACE COUNTY OF LANARK

Surveyed by Annis, O'Sullivan, Vollebekk Ltd.

Scale 1 : 150

6 4.5 3.0 1.5 0 3 6 Metres

Metric

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

Notes & Legend

Symbol	Denotes	
—□—	"	Survey Monument Planted
—■—	"	Survey Monument Found
SIB	"	Standard Iron Bar
SSIB	"	Short Standard Iron Bar
IB	"	Iron Bar
CC	"	Cut Cross
CP	"	Concrete Pin
(WIT)	"	Witness
Meas.	"	Measured
(AOG)	"	Annis, O'Sullivan, Vollebekk Ltd.
(P1)	"	Plan 27R-10703
(P2)	"	Plan 26R-591
(P3)	"	Plan 27R-11133
(P4)	"	(1326) Plan November 24, 1983
(P5)	"	Plan 26R-1227
O UP	"	Utility Pole
—— OHW ——	"	Overhead Wires
Inv.	"	Invert
T/G	"	Top of Grate
T/P	"	Top of Pipe
□CB	"	Catch Basin
GM	"	Gas Meter
△ S	"	Sign
MF	"	Metal Fence
CLF	"	Chain Link Fence
SRW	"	Stone Retaining Wall
WRW	"	Wooden Retaining Wall
CRW	"	Concrete Retaining Wall
AC	"	Air Conditioner
+65.00	"	Location of Elevations
+65.00*	"	Top of Wall / Curb Elevations
C/L	"	Centreline
CSP	"	Corrugated Steel Pipe
CPP	"	Corrugated Plastic Pipe
O LS	"	Light Standard
	"	Deciduous Tree
	"	Coniferous Tree
Elev.	"	Elevation
Ø	"	Diameter
O MH-S	"	Maintenance Hole (Sanitary)

Surveyor's Certificate

I CERTIFY THAT :

1. This survey and plan are correct and in accordance with the Surveys Act, the Surveyors Act and the Land Titles Act and the regulations made under them.
2. The survey was completed on the 8th day of June, 2021.

JUNE 30, 2021
Date

A. J. Broxham
Andrew J. Broxham
Ontario Land Surveyor

PART 2
THIS PLAN MUST BE READ IN CONJUNCTION WITH SURVEY REPORT DATED: JUNE 30, 2021

ANNIS, O'SULLIVAN, VOLLEBEKK LTD. grants to Escape Homes Consulting ("The Client"), their solicitors, mortgagees, and other related parties, permission to use original, signed, sealed copies of the Surveyor's Real Property Report in transactions involving The Client.

Bearings are grid, derived from the southerly limit of Lake Avenue West shown to be N47°32'20"E on Plan 27R-10703 and are referenced to MTM Zone 9 (76°30' West Longitude) NAD-83 (CSRS)(2010).

For bearing comparisons, a rotation of 1°04'15" counter-clockwise was applied to bearings on plan P3, 0°23'20" counter-clockwise was applied to bearings on plans P4, P5.

ASSOCIATION OF ONTARIO LAND SURVEYORS
PLAN SUBMISSION FORM
V-13590
THIS PLAN IS NOT VALID UNLESS IT IS AN EMBOSSED ORIGINAL COPY ISSUED BY THE SURVEYOR In accordance with Regulation 1026, Section 29 (3).

ELEVATION NOTES

1. Elevations shown are geodetic and are referred to the top of fire hydrant spindle in front of 218 Lyndhurst Street shown to have an elevation of 141.94 metres (CGVD28 geodetic datum) on plan by Callon Dietz dated December 17, 2020 .
2. It is the responsibility of the user of this information to verify that the job benchmark has not been altered or disturbed and that it's relative elevation and description agrees with the information shown on this drawing.

UTILITY NOTES

1. This drawing cannot be accepted as acknowledging all of the utilities and it will be the responsibility of the user to contact the respective utility authorities for confirmation.
2. Only visible surface utilities were located.
3. A field location of underground plant by the pertinent utility authority is mandatory before any work involving breaking ground, probing, excavating etc.

ANNIS, O'SULLIVAN, VOLLEBEKK LTD.
14 Concourse Gate, Suite 500
Nepean, Ont. K2E 7S6
Phone: (613) 727-0850 / Fax: (613) 727-1079
Email: Nepean@aovltd.com
Ontario Land Surveyors

Job No. 17446-21 EHC PtLt 12 C 11 BE T F2 | ig

APPENDIX C
WATERMAIN CALCULATIONS

McINTOSH PERRY

McINTOSH PERRY

CO-22-1448 - 254 Lake Avenue West - Water Demands

Project:	254 Lake Avenue West
Project No.:	CO-22-1448
Designed By:	FV
Checked By:	AG
Date:	January 30, 2025
Site Area:	0.49 gross ha

Residential	NUMBER OF UNITS		UNIT RATE	
Single Family	2	homes	3.4	persons/unit
Semi-detached	2	homes	2.7	persons/unit
Average Apartment	16	units	1.8	persons/unit
Total Population	41	persons		

AVERAGE DAILY DEMAND

DEMAND TYPE	AMOUNT	UNITS
Residential	280	L/c/d
Industrial - Light	35,000	L/gross ha/d
Industrial - Heavy	55,000	L/gross ha/d
Shopping Centres	2,500	L/(1000m² /d
Hospital	900	L/(bed/day)
Schools	70	L/(Student/d)
Trailer Park with no Hook-Ups	340	L/(space/d)
Trailer Park with Hook-Ups	800	L/(space/d)
Campgrounds	225	L/(campsite/d)
Mobile Home Parks	1,000	L/(Space/d)
Motels	150	L/(bed-space/d)
Hotels	225	L/(bed-space/d)
Tourist Commercial	28,000	L/gross ha/d
Other Commercial	28,000	L/gross ha/d

AVERAGE DAILY DEMAND	Residential	0.13	L/s
	Commerical/Industrial/ Institutional	0.00	L/s

MAXIMUM DAILY DEMAND

DEMAND TYPE	AMOUNT		UNITS
Residential	9.5	x avg. day	L/c/d
Industrial	1.5	x avg. day	L/gross ha/d
Commercial	1.5	x avg. day	L/gross ha/d
Institutional	1.5	x avg. day	L/gross ha/d

MAXIMUM DAILY DEMAND	Residential	1.26	L/s
	Commerical/Industrial/ Institutional	0.00	L/s

MAXIMUM HOUR DEMAND

DEMAND TYPE	AMOUNT		UNITS
Residential	14.3	x avg. day	L/c/d
Industrial	1.8	x max. day	L/gross ha/d
Commercial	1.8	x max. day	L/gross ha/d
Institutional	1.8	x max. day	L/gross ha/d

MAXIMUM HOUR DEMAND	Residential	1.90	L/s
	Commerical/Industrial/ Institutional	0.00	L/s

WATER DEMAND DESIGN FLOWS PER UNIT COUNT
CITY OF OTTAWA - WATER DISTRIBUTION GUIDELINES, JULY 2010

AVERAGE DAILY DEMAND	0.13	L/s
MAXIMUM DAILY DEMAND	1.26	L/s
MAXIMUM HOUR DEMAND	1.90	L/s

McINTOSH PERRY

CO-22-1448 - 254 Lake Avenue West - Detached Lot A - Fire Underwriters Survey

Project:	254 Lake Avenue West - Detached Lot A
Project No.:	CO-22-1448
Designed By:	FV
Checked By:	AG
Date:	January 30, 2025

From the Fire Underwriters Survey (1999)

From Part II – Guide for Determination of Required Fire Flow Copyright I.S.O.:
Updated per City of Ottawa Technical Bulletin ISTB-2018-02

A. BASE REQUIREMENT (Rounded to the nearest 1000 L/min)

F = 220 x C x √A Where: F = Required fire flow in liters per minute
C = Coefficient related to the type of construction.
A = The total floor area in square meters (including all storey's, but excluding basements at least 50 percent below grade) in the building being considered.

Construction Type Wood Frame

C 1.5 A 270.8 m^2

Caluclated Fire Flow	5,430.5 L/min
	5,000.0 L/min

B. REDUCTION FOR OCCUPANCY TYPE (No Rounding)

From note 2, Page 18 of the Fire Underwriter Survey:

Limited Combustible -15%

Fire Flow	4,250.0 L/min

C. REDUCTION FOR SPRINKLER TYPE (No Rounding)

Non-Sprinklered 0%

Reduction	0.0 L/min

D. INCREASE FOR EXPOSURE (No Rounding)

	Separation Distance (m)	Cons.of Exposed Wall	Length Exposed Adjacent Wall (m)	Height (Stories)	Length-Height Factor	
Exposure 1	>45	Non-Combustible	N/A	N/A	-	0%
Exposure 2	0 to 3	Wood frame	12.5	2	25.0	22%
Exposure 3	>45	Non-Combustible	N/A	N/A	-	0%
Exposure 4	3.1 to 10	Wood frame	14.49	2	29.0	17%
					% Increase*	39%

Increase*	1,657.5 L/min

E. Total Fire Flow (Rounded to the Nearest 1000 L/min)

Fire Flow	5,907.5 L/min
Fire Flow Required**	6,000.0 L/min

*In accordance with Part II, Section 4, the Increase for separation distance is not to exceed 75%
**In accordance with Section 4 the Fire flow is not to exceed 45,000 L/min or be less than 2,000 L/min

McINTOSH PERRY

CO-22-1448 - 254 Lake Avenue West - Quadplex Lot B - Fire Underwriters Survey

Project:	254 Lake Avenue West - Quadplex Lot B
Project No.:	CO-22-1448
Designed By:	FV
Checked By:	AG
Date:	January 30, 2025

From the Fire Underwriters Survey (1999)

From Part II – Guide for Determination of Required Fire Flow Copyright I.S.O.:
Updated per City of Ottawa Technical Bulletin ISTB-2018-02

A. BASE REQUIREMENT (Rounded to the nearest 1000 L/min)

F = 220 x C x √A Where: F = Required fire flow in liters per minute
C = Coefficient related to the type of construction.
A = The total floor area in square meters (including all storey's, but excluding basements at least 50 percent below grade) in the building being considered.

Construction Type Wood Frame

C 1.5 A 395.2 m^2

Caluclated Fire Flow	6,560.3 L/min
	7,000.0 L/min

B. REDUCTION FOR OCCUPANCY TYPE (No Rounding)

From note 2, Page 18 of the Fire Underwriter Survey:

Limited Combustible -15%

Fire Flow	5,950.0 L/min

C. REDUCTION FOR SPRINKLER TYPE (No Rounding)

Non-Sprinklered 0%

Reduction	0.0 L/min

D. INCREASE FOR EXPOSURE (No Rounding)

	Separation Distance (m)	Cons.of Exposed Wall	Length Exposed Adjacent Wall (m)	Height (Stories)	Length-Height Factor	
Exposure 1	>45	Non-Combustible	N/A	N/A	-	0%
Exposure 2	3.1 to 10	Wood frame	12.5	2	25.0	17%
Exposure 3	>45	Non-Combustible	N/A	N/A	-	0%
Exposure 4	0 to 3	Wood frame	15.5	2	31.0	23%
					% Increase*	40%

Increase*	2,380.0 L/min

E. Total Fire Flow (Rounded to the Nearest 1000 L/min)

Fire Flow	8,330.0 L/min
Fire Flow Required**	8,000.0 L/min

*In accordance with Part II, Section 4, the Increase for separation distance is not to exceed 75%
**In accordance with Section 4 the Fire flow is not to exceed 45,000 L/min or be less than 2,000 L/min

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McINTOSH PERRY

CO-22-1448 - 254 Lake Avenue West - Quadplex Lot C - Fire Underwriters Survey

Project:	254 Lake Avenue West - Quadplex Lot C
Project No.:	CO-22-1448
Designed By:	FV
Checked By:	AG
Date:	January 30, 2025

From the Fire Underwriters Survey (1999)

From Part II – Guide for Determination of Required Fire Flow Copyright I.S.O.:
Updated per City of Ottawa Technical Bulletin ISTB-2018-02

A. BASE REQUIREMENT (Rounded to the nearest 1000 L/min)

F = 220 x C x √A Where: F = Required fire flow in liters per minute
C = Coefficient related to the type of construction.
A = The total floor area in square meters (including all storey's, but excluding basements at least 50 percent below grade) in the building being considered.

Construction Type Wood Frame

C 1.5 A 395.2 m^2

Caluclated Fire Flow	6,560.3 L/min
	7,000.0 L/min

B. REDUCTION FOR OCCUPANCY TYPE (No Rounding)

From note 2, Page 18 of the Fire Underwriter Survey:

Limited Combustible -15%

Fire Flow	5,950.0 L/min

C. REDUCTION FOR SPRINKLER TYPE (No Rounding)

Non-Sprinklered 0%

Reduction	0.0 L/min

D. INCREASE FOR EXPOSURE (No Rounding)

	Separation Distance (m)	Cons.of Exposed Wall	Length Exposed Adjacent Wall (m)	Height (Stories)	Length-Height Factor	
Exposure 1	>45	Non-Combustible	N/A	N/A	-	0%
Exposure 2	0 to 3	Wood frame	12.5	2	25.0	22%
Exposure 3	>45	Non-Combustible	N/A	N/A	-	0%
Exposure 4	3.1 to 10	Wood frame	12.5	2	25.0	17%
					% Increase*	39%

Increase*	2,320.5 L/min

E. Total Fire Flow (Rounded to the Nearest 1000 L/min)

Fire Flow	8,270.5 L/min
Fire Flow Required**	8,000.0 L/min

*In accordance with Part II, Section 4, the Increase for separation distance is not to exceed 75%
**In accordance with Section 4 the Fire flow is not to exceed 45,000 L/min or be less than 2,000 L/min

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McINTOSH PERRY

CO-22-1448 - 254 Lake Avenue West - Quadplex Lot D - Fire Underwriters Survey

Project:	254 Lake Avenue West - Quadplex Lot D
Project No.:	CO-22-1448
Designed By:	FV
Checked By:	AG
Date:	January 30, 2025

From the Fire Underwriters Survey (1999)

From Part II – Guide for Determination of Required Fire Flow Copyright I.S.O.:
Updated per City of Ottawa Technical Bulletin ISTB-2018-02

A. BASE REQUIREMENT (Rounded to the nearest 1000 L/min)

F = 220 x C x √A Where: F = Required fire flow in liters per minute
C = Coefficient related to the type of construction.
A = The total floor area in square meters (including all storey's, but excluding basements at least 50 percent below grade) in the building being considered.

Construction Type Wood Frame

C 1.5 A 395.2 m^2

Caluclated Fire Flow	6,560.3 L/min
	7,000.0 L/min

B. REDUCTION FOR OCCUPANCY TYPE (No Rounding)

From note 2, Page 18 of the Fire Underwriter Survey:

Limited Combustible -15%

Fire Flow	5,950.0 L/min

C. REDUCTION FOR SPRINKLER TYPE (No Rounding)

Non-Sprinklered 0%

Reduction	0.0 L/min

D. INCREASE FOR EXPOSURE (No Rounding)

	Separation Distance (m)	Cons.of Exposed Wall	Length Exposed Adjacent Wall (m)	Height (Stories)	Length-Height Factor	
Exposure 1	>45	Non-Combustible	N/A	N/A	-	0%
Exposure 2	3.1 to 10	Wood frame	12.5	2	25.0	17%
Exposure 3	>45	Non-Combustible	N/A	N/A	-	0%
Exposure 4	0 to 3	Wood frame	12.5	2	25.0	22%
					% Increase*	39%

Increase*	2,320.5 L/min

E. Total Fire Flow (Rounded to the Nearest 1000 L/min)

Fire Flow	8,270.5 L/min
Fire Flow Required**	8,000.0 L/min

*In accordance with Part II, Section 4, the Increase for separation distance is not to exceed 75%
**In accordance with Section 4 the Fire flow is not to exceed 45,000 L/min or be less than 2,000 L/min

McINTOSH PERRY

CO-22-1448 - 254 Lake Avenue West - Quadplex Lot E - Fire Underwriters Survey

Project:	254 Lake Avenue West - Quadplex Lot E
Project No.:	CO-22-1448
Designed By:	FV
Checked By:	AG
Date:	January 30, 2025

From the Fire Underwriters Survey (1999)

From Part II – Guide for Determination of Required Fire Flow Copyright I.S.O.:
Updated per City of Ottawa Technical Bulletin ISTB-2018-02

A. BASE REQUIREMENT (Rounded to the nearest 1000 L/min)

F = 220 x C x √A Where: F = Required fire flow in liters per minute
C = Coefficient related to the type of construction.
A = The total floor area in square meters (including all storey's, but excluding basements at least 50 percent below grade) in the building being considered.

Construction Type Wood Frame

C 1.5 A 395.2 m^2

Caluclated Fire Flow	6,560.3 L/min
	7,000.0 L/min

B. REDUCTION FOR OCCUPANCY TYPE (No Rounding)

From note 2, Page 18 of the Fire Underwriter Survey:

Limited Combustible -15%

Fire Flow	5,950.0 L/min

C. REDUCTION FOR SPRINKLER TYPE (No Rounding)

Non-Sprinklered 0%

Reduction	0.0 L/min

D. INCREASE FOR EXPOSURE (No Rounding)

	Separation Distance (m)	Cons.of Exposed Wall	Length Exposed Adjacent Wall (m)	Height (Stories)	Length-Height Factor	
Exposure 1	>45	Non-Combustible	N/A	N/A	-	0%
Exposure 2	0 to 3	Wood frame	17.63	2	35.3	23%
Exposure 3	>45	Non-Combustible	N/A	N/A	-	0%
Exposure 4	3.1 to 10	Wood frame	12.5	2	25.0	17%
					% Increase*	40%

Increase*	2,380.0 L/min

E. Total Fire Flow (Rounded to the Nearest 1000 L/min)

Fire Flow	8,330.0 L/min
Fire Flow Required**	8,000.0 L/min

*In accordance with Part II, Section 4, the Increase for separation distance is not to exceed 75%
**In accordance with Section 4 the Fire flow is not to exceed 45,000 L/min or be less than 2,000 L/min

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McINTOSH PERRY

CO-22-1448 - 254 Lake Avenue West - Semi-Detached Lot F - Fire Underwriters Survey

Project:	254 Lake Avenue West - Semi-Detached Lot F
Project No.:	CO-22-1448
Designed By:	FV
Checked By:	AG
Date:	January 30, 2025

From the Fire Underwriters Survey (1999)

From Part II – Guide for Determination of Required Fire Flow Copyright I.S.O.:
Updated per City of Ottawa Technical Bulletin ISTB-2018-02

A. BASE REQUIREMENT (Rounded to the nearest 1000 L/min)

F = 220 x C x √A Where: F = Required fire flow in liters per minute
C = Coefficient related to the type of construction.
A = The total floor area in square meters (including all storey's, but excluding basements at least 50 percent below grade) in the building being considered.

Construction Type Wood Frame

C 1.5 A 565.0 m^2

Caluclated Fire Flow	7,844.0 L/min
	8,000.0 L/min

B. REDUCTION FOR OCCUPANCY TYPE (No Rounding)

From note 2, Page 18 of the Fire Underwriter Survey:

Limited Combustible -15%

Fire Flow	6,800.0 L/min

C. REDUCTION FOR SPRINKLER TYPE (No Rounding)

Non-Sprinklered 0%

Reduction	0.0 L/min

D. INCREASE FOR EXPOSURE (No Rounding)

	Separation Distance (m)	Cons.of Exposed Wall	Length Exposed Adjacent Wall (m)	Height (Stories)	Length-Height Factor	
Exposure 1	>45	Non-Combustible	N/A	N/A	-	0%
Exposure 2	0 to 3	Wood frame	15.5	2	31.0	23%
Exposure 3	>45	Non-Combustible	N/A	N/A	-	0%
Exposure 4	3.1 to 10	Wood frame	12.5	2	25.0	17%
					% Increase*	40%

Increase*	2,720.0 L/min

E. Total Fire Flow (Rounded to the Nearest 1000 L/min)

Fire Flow	9,520.0 L/min
Fire Flow Required**	10,000.0 L/min

*In accordance with Part II, Section 4, the Increase for separation distance is not to exceed 75%
**In accordance with Section 4 the Fire flow is not to exceed 45,000 L/min or be less than 2,000 L/min

115 Walgreen Road, R.R.3. Carp, ON K0A 1L0 | T. 613-836-2184 | F. 613-836-3742
info@mcintoshperry.com | www.mcintoshperry.com

McINTOSH PERRY

CO-22-1448 - 254 Lake Avenue West - Single Detached Lot G - Fire Underwriters Survey

Project:	254 Lake Avenue West - Single Detached Lot G
Project No.:	CO-22-1448
Designed By:	FV
Checked By:	AG
Date:	January 30, 2025

From the Fire Underwriters Survey (1999)

From Part II – Guide for Determination of Required Fire Flow Copyright I.S.O.:
Updated per City of Ottawa Technical Bulletin ISTB-2018-02

A. BASE REQUIREMENT (Rounded to the nearest 1000 L/min)

F = 220 x C x √A Where:

F = Required fire flow in liters per minute
C = Coefficient related to the type of construction.
A = The total floor area in square meters (including all storey's, but excluding basements at least 50 percent below grade) in the building being considered.

Construction Type Wood Frame

C 1.5 A 565.0 m^2

Caluclated Fire Flow	7,844.0 L/min
	8,000.0 L/min

B. REDUCTION FOR OCCUPANCY TYPE (No Rounding)

From note 2, Page 18 of the Fire Underwriter Survey:

Limited Combustible -15%

Fire Flow	6,800.0 L/min

C. REDUCTION FOR SPRINKLER TYPE (No Rounding)

Non-Sprinklered 0%

Reduction	0.0 L/min

D. INCREASE FOR EXPOSURE (No Rounding)

	Separation Distance (m)	Cons.of Exposed Wall	Length Exposed Adjacent Wall (m)	Height (Stories)	Length-Height Factor	
Exposure 1	>45	Non-Combustible	N/A	N/A	-	0%
Exposure 2	>45	Non-Combustible	N/A	N/A	-	0%
Exposure 3	>45	Non-Combustible	N/A	N/A	-	0%
Exposure 4	0 to 3	Wood frame	17.63	2	35.3	23%
					% Increase*	23%

Increase*	1,564.0 L/min

E. Total Fire Flow (Rounded to the Nearest 1000 L/min)

Fire Flow	8,364.0 L/min
Fire Flow Required**	8,000.0 L/min

*In accordance with Part II, Section 4, the Increase for separation distance is not to exceed 75%
**In accordance with Section 4 the Fire flow is not to exceed 45,000 L/min or be less than 2,000 L/min

Alison Gosling

From: Guy Bourgon <gbourgon@carletonplace.ca>
Sent: November 18, 2021 4:02 PM
To: Alison Gosling
Cc: Niki Dwyer
Subject: FW: 22-1488 - 254 Lake Avenue

Follow Up Flag: Follow up
Flag Status: Completed

Hi Alison,

Please see below requested information relating to 254 Lake Avenue West.

Regards,

Guy

From: Razafimaharo, Christene <Christene.Razafimaharo@stantec.com>
Sent: November 18, 2021 3:59 PM
To: Guy Bourgon <gbourgon@carletonplace.ca>
Cc: Alemany, Kevin <kevin.alemany@stantec.com>; Niki Dwyer <ndwyer@carletonplace.ca>
Subject: RE: 22-1488 - 254 Lake Avenue

Good afternoon Guy,

We have reviewed the model & pressures as requested.

The pressures at 254 Lake Ave W range from 63 psi to 66 psi. The static hydraulic grade lines (HGLs) were obtained from the Town's model for peak hour demand (PHD) conditions (minimum HGL) and average day demand (ADD) conditions (maximum HGL). The ground elevation at the site is approximately 137.8 m, based on the Town's LIDAR digital elevation model.

Property:	254 Lake Ave				
Demand Condition	**Static HGL @ nearest Model Junction (m)**	**Ground Elevation at site (m)**	**Pressure (m)**	**Pressure (kPa)**	**Pressure (psi)**
PHD (Min HGL)	182.4	137.8	44.6	437	63
ADD (Max HGL)	184.5		46.7	458	66
HGL extracted from model on:	11/18/2021				
Ground obtained from Town LIDAR on:	11/18/2021				

Please let us know if you have any questions,

Best regards,

Christène

Christène Razafimaharo M.Sc., EIT
Water Resources Engineering Intern

Mobile: 343 996-7086
Christene.Razafimaharo@stantec.com

From: Alison Gosling <a.gosling@mcintoshperry.com>
Sent: November 17, 2021 1:48 PM
To: Niki Dwyer <ndwyer@carletonplace.ca>
Subject: 22-1488 - 254 Lake Avenue

Good afternoon,

Touching base with you regarding the development at 254 Lake Avenue.

One of our inquiries is in relation to the water pressure near the site. Can this be provided via a model or provided by a report?

Please let me know if you have any questions.

Thank you,

Alison Gosling, P.Eng.
Project Engineer, Land Development
115 Walgreen Road, Carp, ON, K0A 1L0
T. 613.714.4629
a.gosling@mcintoshperry.com | www.mcintoshperry.com

McINTOSH PERRY

Turning Possibilities Into Reality

APPENDIX D
SANITARY CALCULATIONS

McINTOSH PERRY

McINTOSH PERRY

CO-22-1448 - 254 Lake Avenue West - Sanitary Demands

Project:	254 Lake Avenue West
Project No.:	CO-22-1448
Designed By:	FV
Checked By:	AG
Date:	Jan-25

Site Area	0.49		Gross ha
Single Family	2	3.40	Persons per unit
Semi-detached and duplex	2	2.70	Persons per unit
Average Apartment	16	1.80	Persons per unit
Total Population	41	Persons	

DESIGN PARAMETERS

Institutional/Commercial Peaking Factc	1.5	
Residential Peaking Factor	3.67	* *Using Harmon Formula* = 1+(14/(4+P^0.5))*0.8 *where P = population in thousands, Harmon's Correction Factor = 0.8*
Mannings coefficient (n)	0.013	
Demand (per capita)	280	L/day
Infiltration allowance	0.33	L/s/Ha

EXTRANEOUS FLOW ALLOWANCES

Infiltration / Inflow	Flow (L/s)
Dry	0.02
Wet	0.14
Total	0.16

AVERAGE DAILY DEMAND

DEMAND TYPE	AMOUNT	UNITS	POPULATION / AREA	Flow (L/s)
Residential	280	L/c/d	41	0.13
Industrial - Light**	35,000	L/gross ha/d		0
Industrial - Heavy**	55,000	L/gross ha/d		0
Commercial / Amenity	2,800	L/(1000m² /d)		0.00
Hospital	900	L/(bed/day)		0
Schools	70	L/(Student/d)		0
Trailer Parks no Hook-Ups	340	L/(space/d)		0
Trailer Park with Hook-Ups	800	L/(space/d)		0
Campgrounds	225	L/(campsite/d)		0
Mobile Home Parks	1,000	L/(Space/d)		0
Motels	150	L/(bed-space/d)		0
Hotels	225	L/(bed-space/d)		0
Office	75	L/7.0m^2/d		0
Tourist Commercial	28,000	L/gross ha/d		0
Other Commercial	28,000	L/gross ha/d		0

AVERAGE RESIDENTIAL FLOW	0.13	L/s
PEAK RESIDENTIAL FLOW	0.49	L/s
AVERAGE ICI FLOW	0.00	L/s
PEAK INSTITUTIONAL/COMMERCIAL FLOW	0.00	L/s
PEAK INDUSTRIAL FLOW	0.00	L/s
TOTAL PEAK ICI FLOW	0.00	L/s

TOTAL SANITARY DEMAND

TOTAL ESTIMATED AVERAGE DRY WEATHER FLOW	0.16	L/s
TOTAL ESTIMATED PEAK DRY WEATHER FLOW	0.51	L/s
TOTAL ESTIMATED PEAK WET WEATHER FLOW	0.65	L/s

SANITARY SEWER DESIGN SHEET

PROJECT: CCO-22-1448
LOCATION: 254 Lake Avenue West
CLIENT: Escape Homes

McINTOSH PERRY

LOCATION				RESIDENTIAL									ICI AREAS							INFILTRATION ALLOWANCE			FLOW	SEWER DATA						
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
STREET	AREA ID	FROM MH	TO MH	UNIT TYPES				AREA (ha)	POPULATION		PEAK FACTOR	PEAK FLOW (L/s)	AREA (ha)						PEAK FLOW (L/s)	AREA (ha)		FLOW (L/s)	DESIGN FLOW (L/s)	CAPACITY (L/s)	LENGTH (m)	DIA (mm)	SLOPE (%)	VELOCITY (full) (m/s)	AVAILABLE CAPACITY	
				SF	SD	TH	APT		IND	CUM			INSTITUTIONAL		COMMERCIAL		INDUSTRIAL			IND	CUM								L/s	(%)
													IND	CUM	IND	CUM	IND	CUM											
Lake Avenue West		MH1A	MH2A	1			8	0.49	17.8	17.8	3.71	0.21		0.00		0.00		0.00	0.00	0.49	0.49	0.16	0.38	24.19	50.00	200	0.50	0.746	23.82	98.45
		MH2A	MH3A		2		8		19.8	37.6	3.67	0.45		0.00		0.00		0.00	0.00	0.00	0.49	0.16	0.61	24.19	58.81	200	0.50	0.746	23.59	97.48
		MH3A	MH4A	1					3.4	41.0	3.67	0.49		0.00		0.00		0.00	0.00	0.00	0.49	0.16	0.65	24.19	5.81	200	0.50	0.746	23.55	97.32
		MH4A	Pump Station						0.0	41.0	3.67	0.49		0.00		0.00		0.00	0.00	0.00	0.49	0.16	0.65	24.19	22.75	200	0.50	0.746	23.55	97.32

Design Parameters:

Residential

SF	3.4	p/p/u
TH/SD	2.7	p/p/u
APT	1.8	p/p/u
Other	60	p/p/Ha

ICI Areas

			Peak Factor
INST	28,000	L/Ha/day	1.5
COM	28,000	L/Ha/day	1.5
IND	35,000	L/Ha/day	MOE Chart

Notes:
1. Mannings coefficient (n) = 0.013
2. Demand (per capita): 280 L/day
3. Infiltration allowance: 0.33 L/s/Ha
4. Residential Peaking Factor:
Harmon Formula = 1+(14/(4+P^0.5)*0.8)
where P = population in thousands

Designed: FV

Checked: AG

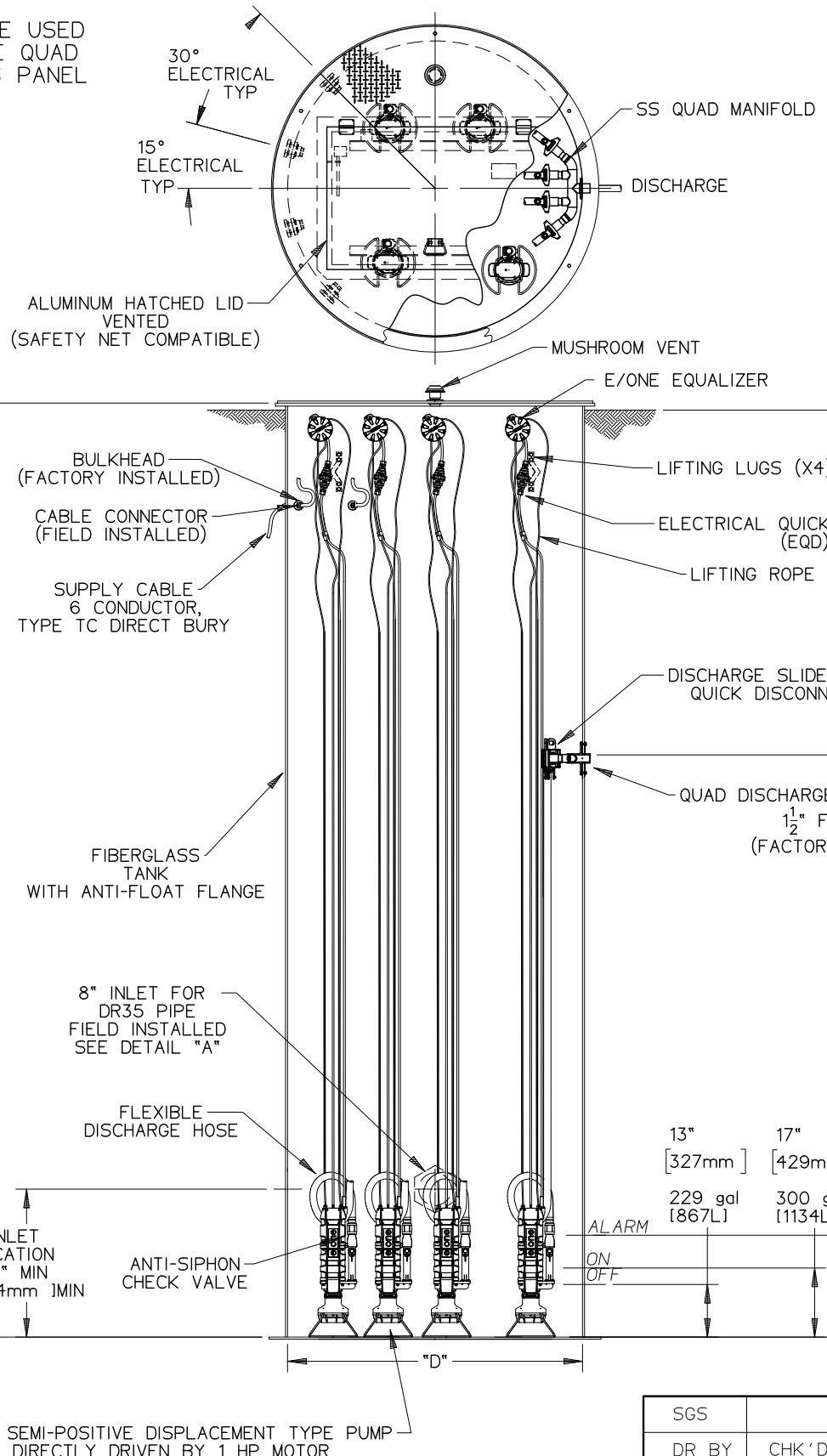
Project No.: CCO-22-1448

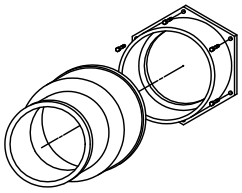
No.	Revision	Date
1.	Issued for Review	2022-03-22
2	Issued for Review	2025-01-29

Sheet No:
1 of 1

STATION TO BE USED WITH AN E/ONE QUAD PROTECT PLUS PANEL

W SERIES, QUAD 72" x 228" QUAD MANIFOLD HATCHED LID MUSHROOM VENT LIFTING LUGS





8" CAST IRON CAULKING HUB INLET TO BE FILED INSTALLED

SGS		02/13/25	3	.034
DR BY	CHK'D	DATE	ISSUE	SCALE

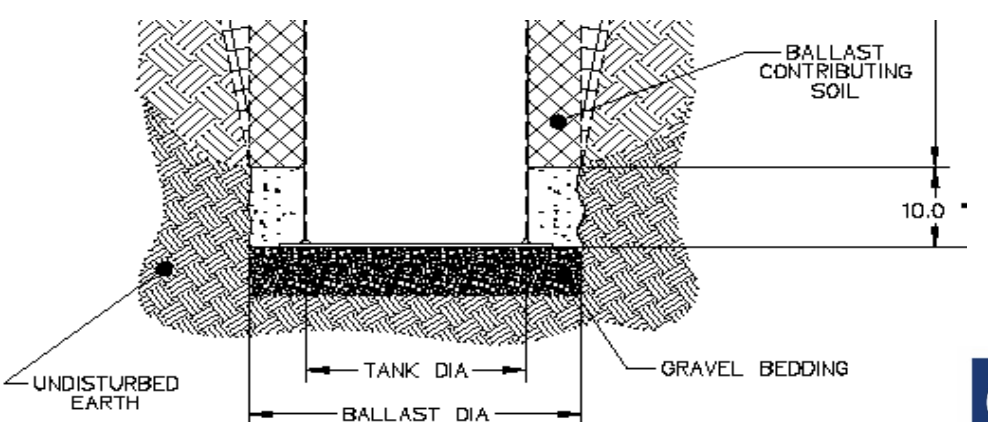
SEWER SYSTEMS

W SERIES, QUAD 72" x 228" QUAD MAN, HATCHED LID, MV, LL

ESD 21-0007

STATION	TANK	ANTI FLOAT	LID	STATION WEIGHT	STATION VOLUME (cubic feet)	NET BUOYANT FORCE (pounds)	NET BALLAST FORCE (pounds)	CONCRETE DIAMETER (inches) (ballast 10" thick)	CONCRETE VOLUME (cubic feet)	CONCRETE WEIGHT (pounds)
72 x 60	250	0	175	425	141.37	8396	8721	98	20.1	3013.3
72 x 66	275	0	175	450	155.50	9253	9564	98	20.1	3013.3
72 x 72	300	0	175	475	169.64	10111	10408	98	20.1	3013.3
72 x 78	406	0	175	581	183.78	10887	11252	98	20.1	3013.3
72 x 84	437	0	175	612	197.91	11738	12096	98	20.1	3013.3
72 x 90	468	0	175	643	212.05	12589	12939	98	20.1	3013.3
72 x 96	500	0	175	675	226.19	13439	13783	98	20.1	3013.3
72 x 102	637	0	175	812	240.32	14184	14627	98	20.1	3013.3
72 x 108	674	0	175	849	254.46	15029	15470	98	20.1	3013.3
72 x 114	712	0	175	887	268.60	15874	16314	98	20.1	3013.3
72 x 120	749	0	175	924	282.74	16719	17158	98	20.1	3013.3
72 x 126	787	390	175	1352	296.87	17173	18002	98	20.1	3013.3
72 x 132	961	390	175	1526	311.01	17881	18845	98	20.1	3013.3
72 x 138	1005	390	175	1570	325.15	18719	19689	98	20.1	3013.3
72 x 144	1049	390	175	1614	339.28	19557	20533	98	20.1	3013.3
72 x 150	1092	390	175	1657	353.42	20396	21377	98	20.1	3013.3
72 x 156	1136	390	175	1701	367.56	21234	22220	98	20.1	3013.3
72 x 162	1348	390	175	1913	381.69	21905	23064	98	20.1	3013.3
72 x 168	1398	390	175	1963	395.83	22737	23908	98	20.1	3013.3
72 x 174	1448	390	175	2013	409.97	23569	24752	98	20.1	3013.3
72 x 180	1498	390	175	2063	424.10	24401	25595	98	20.1	3013.3
72 x 186	1548	390	175	2113	438.24	25233	26439	98	20.1	3013.3
72 x 192	1798	390	175	2363	452.38	25865	27283	98	20.1	3013.3
72 x 198	1854	390	175	2419	466.51	26691	28126	98	20.1	3013.3
72 x 204	1910	390	175	2475	480.65	27518	28970	98	20.1	3013.3
72 x 210	1966	390	175	2531	494.79	28344	29814	98	20.1	3013.3
72 x 216	2022	390	175	2587	508.92	29170	30658	98	20.1	3013.3
72 x 222	2078	390	175	2643	523.06	29996	31501	98	20.1	3013.3
72 x 228	2372	390	175	2937	537.20	30584	32345	98	20.1	3013.3
72 x 234	2434	390	175	2999	551.33	31404	33189	98	20.1	3013.3
72 x 240	2496	390	175	3061	565.47	32224	34033	98	20.1	3013.3

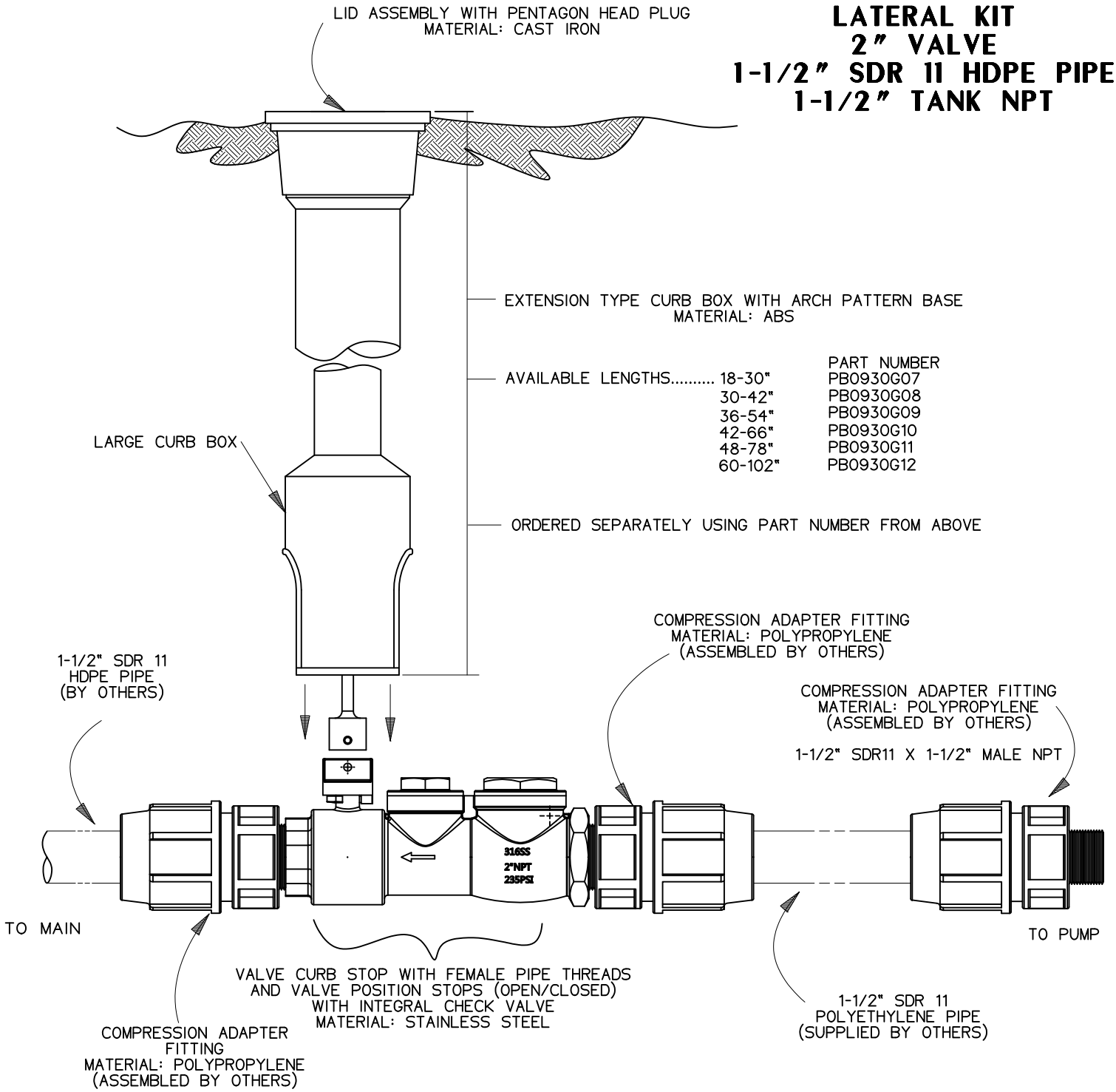
**GROUND WATER AT GRADE, NO PUMP(S) INSTALLED*



BALLAST FOR 72" DIAMETER FIBERGLASS TANKS

SEWER SYSTEMS

STAINLESS STEEL LATERAL KIT 2" VALVE 1-1/2" SDR 11 HDPE PIPE 1-1/2" TANK NPT



NOTES:

1. SS CURB STOP/CHECK VALVE AND FITTINGS ARE PROVIDED SEPARATELY, TO BE ASSEMBLED BY OTHERS
2. TO ASSEMBLE, APPLY A DOUBLE LAYER OF TEFLON TAPE, AND A LAYER OF PIPE DOPE (SUPPLIED BY OTHERS) TO THE THREADS ON THE PLASTIC FITTINGS AND INSTALL PER THE MANUFACTURER'S INSTRUCTIONS
   *FOR SS FITTING INTO SS THREAD, USE EITHER PIPE DOPE OR TEFLON TAPE, NOT BOTH
3. ASSEMBLY IS TO BE PRESSURE TESTED (BY OTHERS)
4. ASSEMBLY IS TO BE USED WITH SDR11 HDPE PIPE
5. TO ORDER SS LATERAL KIT, USE PART NUMBER NC0517G03
6. CURB BOX IS TO BE ORDERED SEPARATELY, SEE ABOVE

KIT PARTS ARE NOT ASSEMBLED

SGS	NS	07/23/19	-	3/16
DR BY	CHK'D	DATE	ISSUE	SCALE

SEWER SYSTEMS

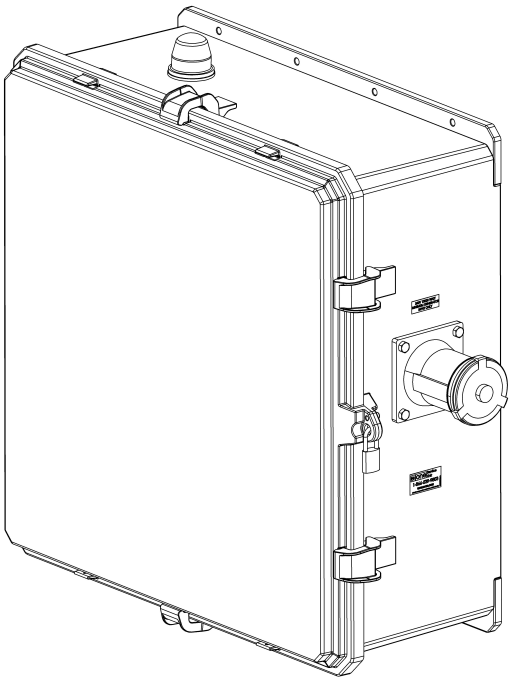
STAINLESS STEEL LATERAL KIT
2" VALVE, 1-1/2" SDR 11, 1-1/2" TANK NPT

NA0330P09

E/ONE EXTREME SERIES

E/One Sentry™

Alarm Panel — Quad Protect Plus Package



Description

The E/One Quad Protect Plus panels are custom designed for use with Environment One Quad grinder pump stations. They can be configured to meet the needs of your application, from basic alarm indication to advanced warning of pending service requirements.

The E/One Quad Protect Plus panels are supplied with audible and visual high level alarms. They are easily installed in accordance with relevant national and local codes. Standard panels are approved by UL to ensure high quality and safety.

The panel features a corrosion-proof, NEMA 4X-rated, thermoplastic enclosure. A padlock is provided to prevent unauthorized entry (safety front).

Features

Includes most features of the basic configuration of the E/One Sentry Duplex panels, including circuit breakers, 240 VAC service, terminal blocks, ground lugs, audible alarm with manual silence, manual run feature, run indicator, conformal-coated board and overload protection.

Includes all features of the E/One Sentry Simplex Protect package, including a Trouble indication that shuts down the pumps temporarily in the event of an unacceptable operating condition (brownout, system over-pressure, run-dry), as well as:

Predictive status display module

Pre-alarm indication for major operating parameters

Alarm indications for major operating parameters

Hour meter, cycle counter and alarm delay

LCD display and user-friendly interface

Contact group — dry contacts and Remote Sentry contacts

Programmable User Settings

Generator Receptacle w/ Auto Transfer

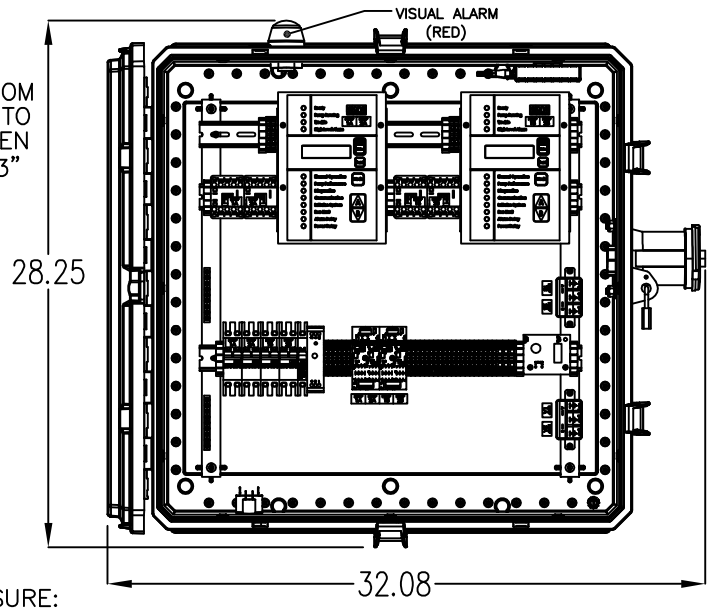
Optional Sentry Advisor - Cellular Monitoring System

Please consult factory for special applications.

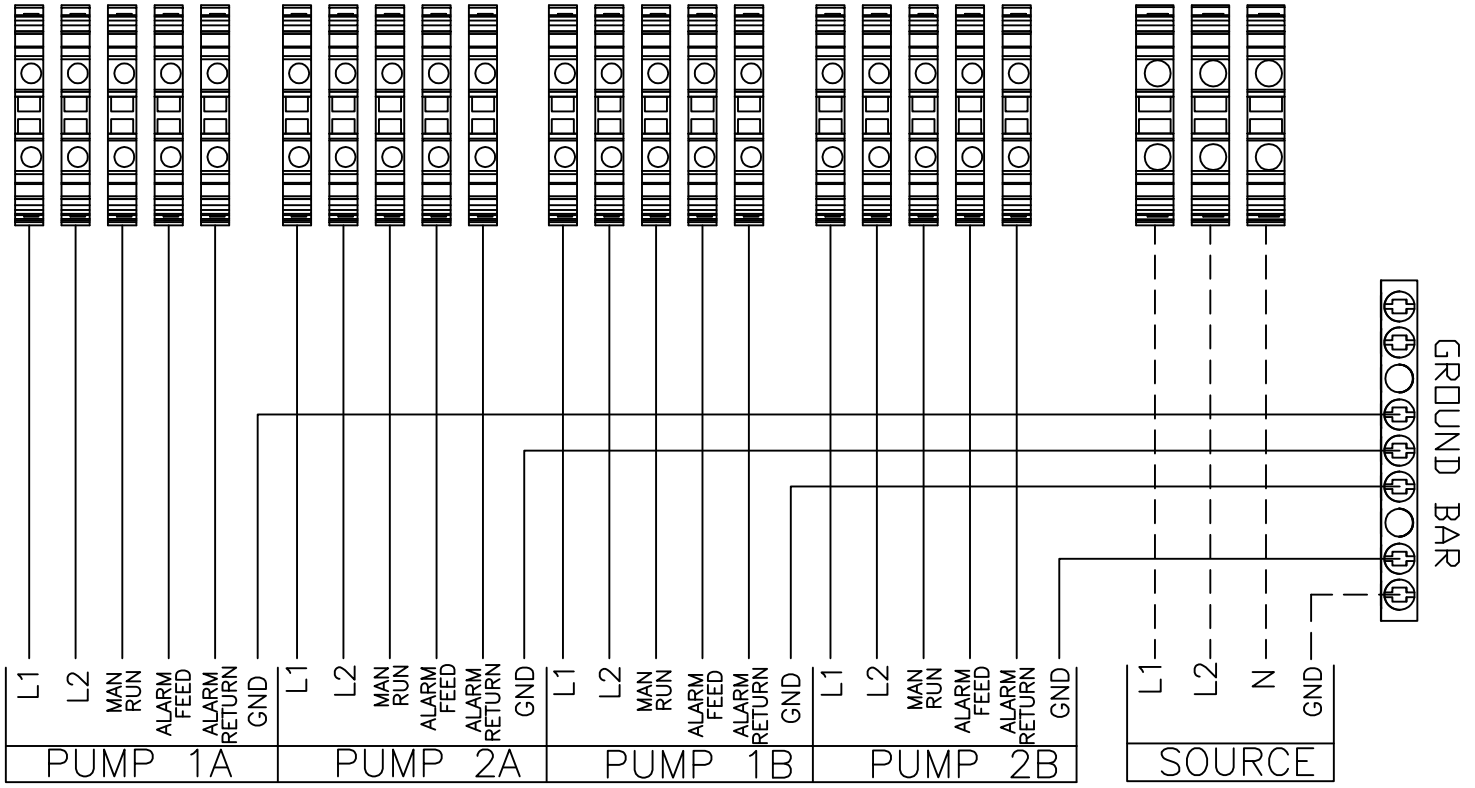
SENTRY PROTECT PLUS QUAD

EXTERNAL VISUAL & AUDIBLE ALARM
REMOTE SENTRY DRY CONTACTS FOR OPTIONAL POWER LOSS HIGH LEVEL ALARM (POWER LOSS ALARM FOR WIRELESS)
MANUAL ALARM SILENCE
MANUAL RUN
STATUS LED'S: NORMAL, PUMP RUNNING, HIGH LEVEL
TROUBLE INDICATIONS: RUN DRY, OVERPRESSURE, BROWNOUT, VOLTAGE, EXTENDED RUN TIME
DRY CONTACTS
CONFORMAL COATED CIRCUIT BOARD (BOTH SIDES)
PADLOCK
PREDICTIVE ALARMS
REAL TIME PUMP PERFORMANCE
ADJUSTABLE ALARM DELAY
ADJUSTABLE RUN TIME DELAY
HOUR/CYCLE COUNTER
NEMA 4X ENCLOSURE ASSEMBLY
GENERATOR RECEPTACLE W/ AUTO TRANSFER
OPTIONAL SENTRY ADVISOR

DIMENSION FROM BACK PANEL TO FRONT OF OPEN DOOR = 37.13"



ENCLOSURE:
CORROSION PROOF THERMOPLASTIC POLYCARBONATE APPROVED BY UL FOR ELECTRICAL CONTROL ENCLOSURE



NOTES:

1. ONLY EXTERNAL PUMP AND POWER CONNECTIONS SHOWN.
2. REFER TO PACKET FOR FULL WIRE DETAIL.

A DEDICATED 50A CIRCUIT BREAKER IS REQUIRED

OLD / NEW WIRE COLOR MAP

PIN	FUNCTION	2000S	EXTREME
1	MANUAL RUN	RED	BROWN
2	L1	BLACK	RED
3	L2	WHITE	BLACK
4	GND	GREEN	GRN/YEL
5	ALARM FEED	ORANGE	YELLOW
6	ALARM RETURN	BLUE	BLUE

LEGEND

——— FROM CORE
— — SUPPLY CABLE

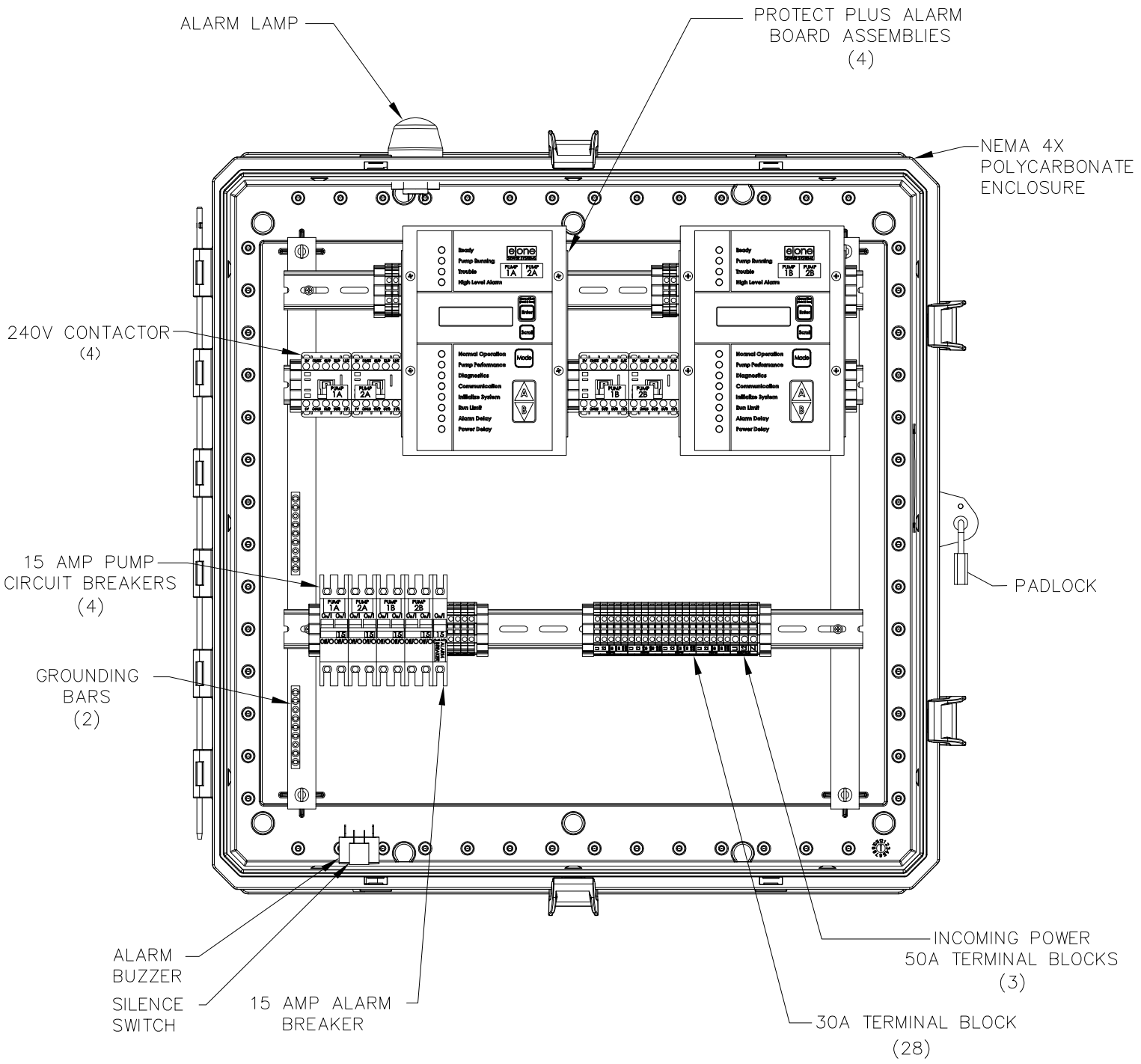
CONTROL CABLE:
TYPE TC: DIRECT BURIAL, SIX CONDUCTOR

NKS	07/12/17	SGS	–	N/A
DR BY	DATE	CHK'D	ISSUE	SCALE

eone SEWER SYSTEMS

SENTRY PROTECT PLUS PANEL, QUAD
240V 60Hz DOUBLE POLE POWER

NA0632P02



MODEL QUAD PROTECT PLUS
PART NUMBER NC0412G04

PIN	FUNCTION	2000S	EXTREME
1	MANUAL RUN	RED	BROWN
2	L1	BLACK	RED
3	L2	WHITE	BLACK
4	GND	GREEN	GRN/YEL
5	ALARM FEED	ORANGE	YELLOW
6	ALARM RETURN	BLUE	BLUE

LR28268

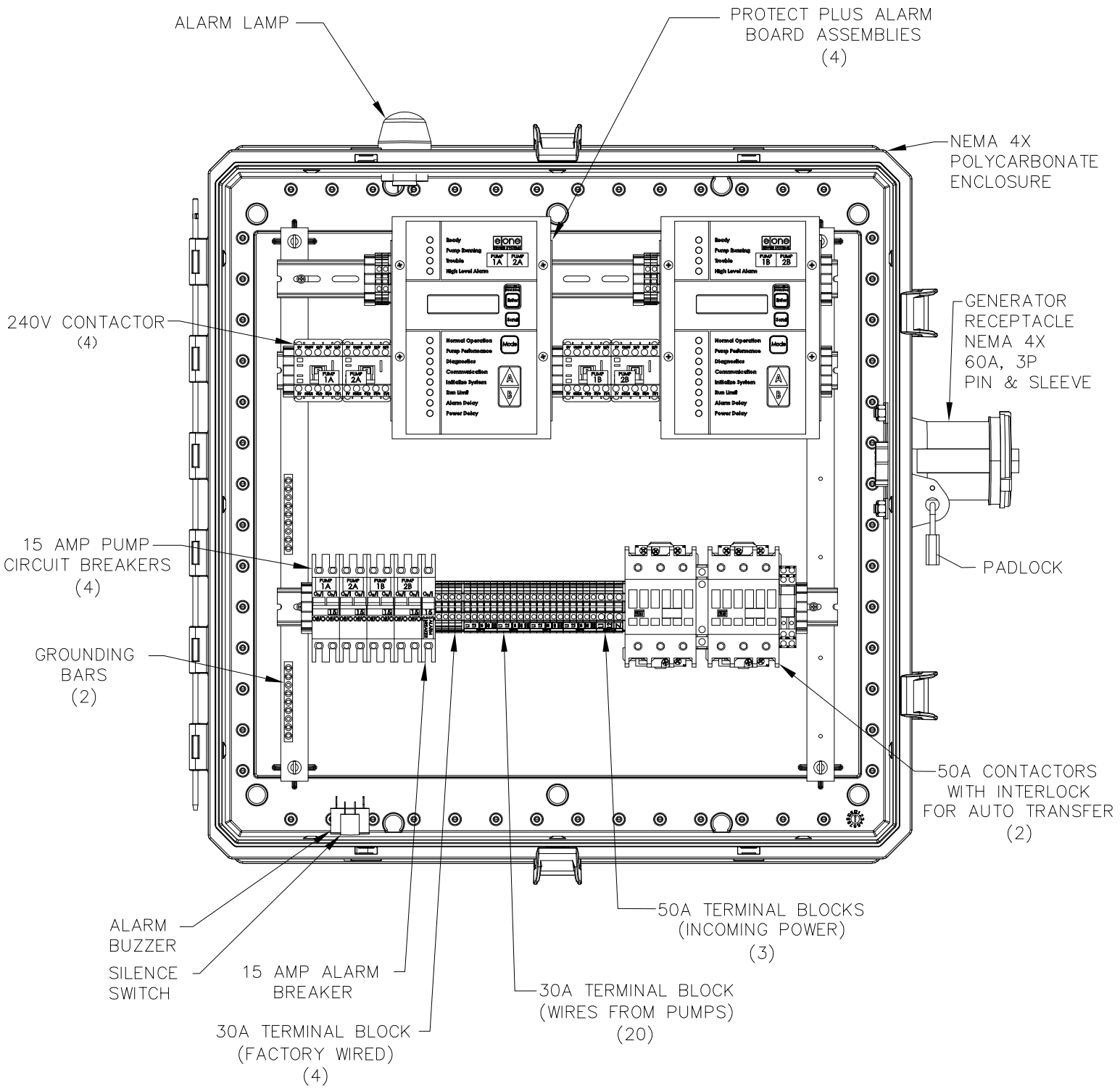
LISTED 506D

NKS	SGS	10-19-17	–	N/A
DR BY	CHK'D	DATE	ISSUE	SCALE

SEWER SYSTEMS

QUAD PROTECT PLUS PANEL
240V 60Hz DOUBLE POLE POWER
WIRED LEVEL CONTROL

NA0632P06



MODEL QUAD PROTECT PLUS
PART NUMBER NC0412G05 (–CSA)

PIN	FUNCTION	2000S	EXTREME
1	MANUAL RUN	RED	BROWN
2	L1	BLACK	RED
3	L2	WHITE	BLACK
4	GND	GREEN	GRN/YEL
5	ALARM FEED	ORANGE	YELLOW
6	ALARM RETURN	BLUE	BLUE

LR28268

LISTED 506D

NKS	SGS	01–15–18	–	N/A
DR BY	CHK'D	DATE	ISSUE	SCALE

SEWER SYSTEMS

QUAD PROTECT PLUS PANEL W/ GEN
240V 60Hz DOUBLE POLE POWER
WIRED LEVEL CONTROL

NA0632P07

APPENDIX E
PRE-DEVELOPMENT DRAINAGE PLAN

McINTOSH PERRY

GENERAL NOTES

1. THE ORIGINAL TOPOGRAPHY, GROUND ELEVATION AND SURVEY DATA SHOWN ARE SUPPLIED FOR INFORMATION PURPOSES ONLY, AND IMPLY NO GUARANTEE OF ACCURACY. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY ALL INFORMATION SHOWN.
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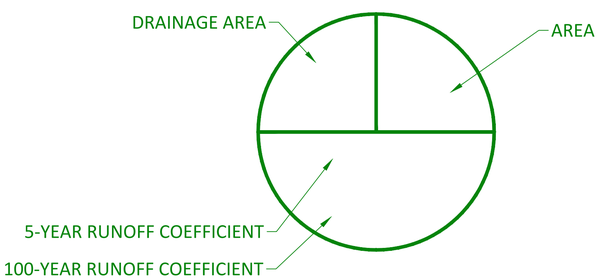

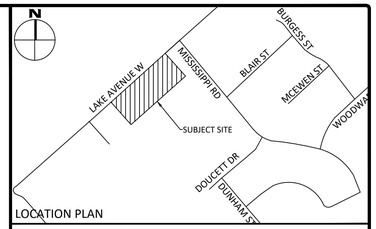

LOCATION PLAN

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No.	Revisions	Date
3	ISSUED FOR REVIEW	JAN. 29, 2025
2	REVISED PER COMMENTS	APR. 03, 2024
1	ISSUED FOR REVIEW	FEB. 08, 2023

Check and verify all dimensions before proceeding with the work — Do not scale drawings

SCALE 1 : 250

0 5 10 15 20 25 Metres

McINTOSH PERRY
115 Walgreen Road, RR3, Carp, ON K0A 1L0
Tel: 613-836-2184 Fax: 613-836-3742
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Stamp:

Client:
ESCAPE HOMES
254 LAKE AVENUE WEST
CARLETON PLACE, ON K7C 1M4

Project:
254 LAKE AVENUE WEST

Drawing Title:
PRE-DEVELOPMENT DRAINAGE PLAN

Scale: 1:250	Project Number: CO-22-1448
Drawn By: FV	
Checked By: AM	Drawing Number: PRE
Designed By: AG	

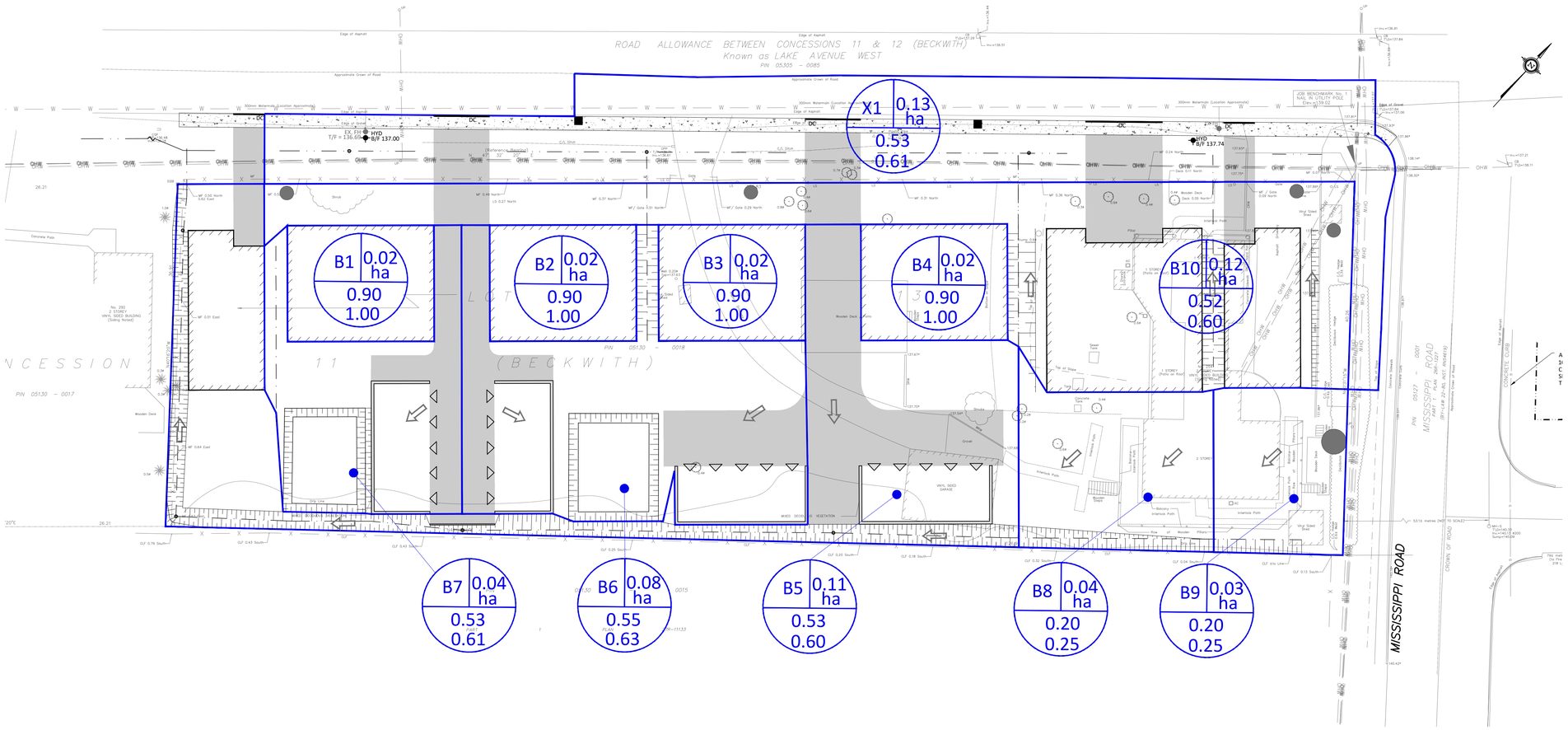
D07-12-XX-XXXX

#XXXXX

FILENAME: I:\Ottawa\01 Project - Proposals\2022 Jobs\CO\CO-22-1448 Escape Fire_SPC_254 Lake Ave, Carleton Place\12 Drawing\CO-22-1448 Presentation.dwg
LAST SAVED: Wednesday, January 29, 2025 LAST SAVED BY: F Valenti
LAST PLOTTED: Wednesday, January 29, 2025 CTB FILE USED: —

APPENDIX F
POST-DEVELOPMENT DRAINAGE PLAN

McINTOSH PERRY



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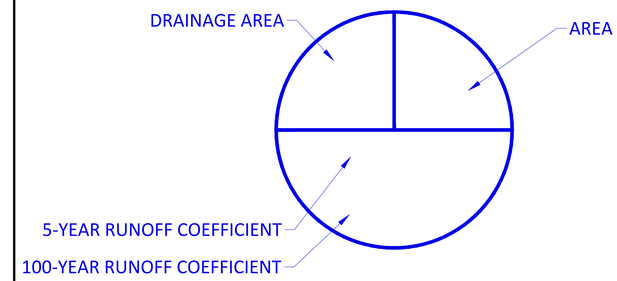

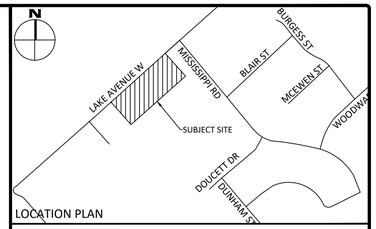

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Project:
254 LAKE AVENUE WEST

Drawing Title:
POST-DEVELOPMENT DRAINAGE PLAN

Scale:	1:250	Project Number:	CO-22-1448
Drawn By:	FV		
Checked By:	AM	Drawing Number:	POST
Designed By:	AG		

D07-12-XX-XXXX
#XXXXX

FILENAME: I:\Ottawa\01 Project - Proposals\2022 Jobs\CO\CO-22-1448 Escape Fire_SPC_254 Lake Ave, Carleton Place\12 - Drawings\CO-22-1448 Presentation.dwg
LAST SAVED: Thursday, February 20, 2025 LAST SAVED BY: F Valenti
LAST PLOTTED: Thursday, February 20, 2025 CTB FILE USED: —

APPENDIX G
STORMWATER MANAGEMENT CALCULATIONS

McINTOSH PERRY

Tc (min)	Intensity (mm/hr)	
	5-Year	100-Year
20	70.3	120.0
10	104.2	178.6

C-Values	
Impervious	0.90
Gravel	0.60
Pervious	0.20

Pre-Development Runoff Coefficient

Drainage Area	Impervious Area (m^2)	Gravel (m^2)	Pervious Area (m^2)	Average C (5-year)	Average C (100-year)
A1	972	17	3,904	0.34	0.40
X1	423	131	872	0.49	0.57

Pre-Development Runoff Calculations

Drainage Area	Area (ha)	C 5-Year	C 100-Year	Tc (min)	Q (L/s)	
					5-Year	100-Year
A1	0.49	0.34	0.40	10	48.24	97.31
X1	0.13	0.49	0.57	10	18.37	36.71
Total	0.62				66.60	134.02

Post-Development Runoff Coefficient

Drainage Area	Impervious Area (m^2)	Gravel (m^2)	Pervious Area (m^2)	Average C (5-year)	Average C (100-year)	
B1	197.60	0	0	0.90	1.00	*Roof 1*
B2	197.60	0	0	0.90	1.00	*Roof 2*
B3	197.60	0	0	0.90	1.00	*Roof 3*
B4	197.60	0	0	0.90	1.00	*Roof 4*
B5	509.30	0	572	0.53	0.60	*Unrestricted*
B6	393.18	0	390	0.55	0.63	*Surface Restricted*
B7	208.58	0	231	0.53	0.61	*Surface Restricted*
B8	0.00	0	364	0.20	0.25	*Unrestricted*
B9	0.00	0	253	0.20	0.25	*Unrestricted*
B10	548.13	0	633	0.52	0.60	*Unrestricted*
X1	543.40	115	637	0.53	0.61	*ROW; Unrestricted*

Post-Development Runoff Calculations

Drainage Area	Area (ha)	C 5-Year	C 100-Year	Tc (min)	Q (L/s)		
					5-Year	100-Year	
B1	0.02	0.90	1.00	10	5.15	9.81	*Restricted - Roof 1*
B2	0.02	0.90	1.00	10	5.15	9.81	*Restricted - Roof 2*
B3	0.02	0.90	1.00	10	5.15	9.81	*Restricted - Roof 3*
B4	0.02	0.90	1.00	10	5.15	9.81	*Restricted - Roof 4*
B5	0.11	0.53	0.60	10	16.59	32.38	*Unrestricted*
B6	0.08	0.55	0.63	10	12.51	24.36	*Surface Restricted*
B7	0.04	0.53	0.61	10	6.78	13.22	*Surface Restricted*
B8	0.04	0.20	0.25	10	2.11	4.52	*Unrestricted*
B9	0.03	0.20	0.25	10	1.47	3.14	*Unrestricted*
B10	0.12	0.52	0.60	10	17.96	35.07	*Unrestricted*
X1	0.13	0.53	0.61	10	19.86	39.17	*ROW; Unrestricted*
Total	0.62				97.87	191.09	

Required Restricted Flow

Drainage Area	Area (ha)	C 5-Year	Tc (min)	Q (L/s) 5-Year	Q (L/s) 100-Year
A1	0.49	0.34	10	48.24	97.31

Post-Development Restricted Runoff Calculations

Drainage Area	Unrestricted Flow (L/S)		Restricted Flow (L/S)		Storage Required (m^3)		Storage Provided (m^3)	
	5-year	100-Year	5-Year	100-Year	5-Year	100-Year	5-Year	100-Year
B1	5.15	9.81	0.42	0.72	4.3	8.5	5.2	8.9
B2	5.15	9.81	0.42	0.72	4.3	8.5	5.2	8.9
B3	5.15	9.81	0.42	0.72	4.3	8.5	5.2	8.9
B4	5.15	9.81	0.42	0.72	4.3	8.5	5.2	8.9
B5	16.59	32.38	16.59	32.38				
B6	12.51	24.36	4.67	7.53	4.7	10.6	4.8	11.8
B7	6.78	13.22	2.95	5.11	2.3	4.9	2.3	5.2
B8	2.11	4.52	2.11	4.52				
B9	1.47	3.14	1.47	3.14				
B10	17.96	35.07	17.96	35.07				
Total (Site)	78.01	151.92	47.43	90.63	24.37	49.34	27.91	52.63
X1	19.86	39.17	19.86	39.17				
Total	97.87	191.09	67.28	129.80	24.37	49.34	27.91	52.63

Storage Requirements for Area B1

5-Year Storm Event

Tc (min)	I (mm/hr)	Runoff (L/s) B1	Allowable Outflow (L/s)	Runoff to be Stored (L/s)	Storage Required (m^3)
10	104.2	5.15	0.42	4.73	2.84
20	70.3	3.48	0.42	3.06	3.67
30	53.9	2.66	0.42	2.24	4.04
40	44.2	2.19	0.42	1.77	4.24
50	37.7	1.86	0.42	1.44	4.33
60	32.9	1.63	0.42	1.21	4.34
70	29.4	1.45	0.42	1.03	4.34
80	26.6	1.32	0.42	0.90	4.30

Maximum Storage Required 5-year =	4.34	m^3

100-Year Storm Event

Tc (min)	I (mm/hr)	Runoff (L/s) B1	Allowable Outflow (L/s)	Runoff to be Stored (L/s)	Storage Required (m^3)
10	178.6	9.81	0.72	9.09	5.45
20	120.0	6.59	0.72	5.87	7.05
30	91.9	5.05	0.72	4.33	7.79
40	75.1	4.13	0.72	3.41	8.17
50	64.0	3.52	0.72	2.80	8.39
60	55.9	3.07	0.72	2.35	8.46
70	49.8	2.74	0.72	2.02	8.47
80	45.0	2.47	0.72	1.75	8.41
90	41.1	2.26	0.72	1.54	8.30
100	37.9	2.08	0.72	1.36	8.17

Maximum Storage Required 100-year =	8.47	m^3

5-Year Storm Event Storage Summary

Roof Storage			
Location	Area*	Depth	Volume (m^3)
Roof	148.35	0.035	5.19

Storage Available (m^3) =	5.19
Storage Required (m^3) =	4.34

100-Year Storm Event Storage Summary

Roof Storage			
Location	Area*	Depth	Volume (m^3)
Roof	148.35	0.060	8.90

Storage Available (m^3) =	8.90
Storage Required (m^3) =	8.47

*Area is 75% of the total roof area

Storage Requirements for Area B2

5-Year Storm Event

Tc (min)	I (mm/hr)	Runoff (L/s) B2	Allowable Outflow (L/s)	Runoff to be Stored (L/s)	Storage Required (m^3)
10	104.2	5.15	0.42	4.73	2.84
20	70.3	3.48	0.42	3.06	3.67
30	53.9	2.66	0.42	2.24	4.04
40	44.2	2.19	0.42	1.77	4.24
50	37.7	1.86	0.42	1.44	4.33
60	32.9	1.63	0.42	1.21	4.34
70	29.4	1.45	0.42	1.03	4.34
80	26.6	1.32	0.42	0.90	4.30

Maximum Storage Required 5-year =	4.34	m^3

100-Year Storm Event

Tc (min)	I (mm/hr)	Runoff (L/s) B2	Allowable Outflow (L/s)	Runoff to be Stored (L/s)	Storage Required (m^3)
10	178.6	9.81	0.72	9.09	5.45
20	120.0	6.59	0.72	5.87	7.05
30	91.9	5.05	0.72	4.33	7.79
40	75.1	4.13	0.72	3.41	8.17
50	64.0	3.52	0.72	2.80	8.39
60	55.9	3.07	0.72	2.35	8.46
70	49.8	2.74	0.72	2.02	8.47
80	45.0	2.47	0.72	1.75	8.41
90	41.1	2.26	0.72	1.54	8.30
100	37.9	2.08	0.72	1.36	8.17

Maximum Storage Required 100-year =	8.47	m^3

5-Year Storm Event Storage Summary

Roof Storage			
Location	Area*	Depth	Volume (m^3)
Roof	148.35	0.035	5.19

Storage Available (m^3) =	5.19
Storage Required (m^3) =	4.34

100-Year Storm Event Storage Summary

Roof Storage			
Location	Area*	Depth	Volume (m^3)
Roof	148.35	0.060	8.90

Storage Available (m^3) =	8.90
Storage Required (m^3) =	8.47

*Area is 75% of the total roof area

Storage Requirements for Area B3

5-Year Storm Event

Tc (min)	I (mm/hr)	Runoff (L/s) B3	Allowable Outflow (L/s)	Runoff to be Stored (L/s)	Storage Required (m^3)
10	104.2	5.15	0.42	4.73	2.84
20	70.3	3.48	0.42	3.06	3.67
30	53.9	2.66	0.42	2.24	4.04
40	44.2	2.19	0.42	1.77	4.24
50	37.7	1.86	0.42	1.44	4.33
60	32.9	1.63	0.42	1.21	4.34
70	29.4	1.45	0.42	1.03	4.34
80	26.6	1.32	0.42	0.90	4.30

Maximum Storage Required 5-year =	4.34	m^3

100-Year Storm Event

Tc (min)	I (mm/hr)	Runoff (L/s) B3	Allowable Outflow (L/s)	Runoff to be Stored (L/s)	Storage Required (m^3)
10	178.6	9.81	0.72	9.09	5.45
20	120.0	6.59	0.72	5.87	7.05
30	91.9	5.05	0.72	4.33	7.79
40	75.1	4.13	0.72	3.41	8.17
50	64.0	3.52	0.72	2.80	8.39
60	55.9	3.07	0.72	2.35	8.46
70	49.8	2.74	0.72	2.02	8.47
80	45.0	2.47	0.72	1.75	8.41
90	41.1	2.26	0.72	1.54	8.30
100	37.9	2.08	0.72	1.36	8.17

Maximum Storage Required 100-year =	8.47	m^3

5-Year Storm Event Storage Summary

Roof Storage			
Location	Area*	Depth	Volume (m^3)
Roof	148.35	0.035	5.19

Storage Available (m^3) =	5.19
Storage Required (m^3) =	4.34

100-Year Storm Event Storage Summary

Roof Storage			
Location	Area*	Depth	Volume (m^3)
Roof	148.35	0.060	8.90

Storage Available (m^3) =	8.90
Storage Required (m^3) =	8.47

*Area is 75% of the total roof area

Storage Requirements for Area B4

5-Year Storm Event

Tc (min)	I (mm/hr)	Runoff (L/s) B4	Allowable Outflow (L/s)	Runoff to be Stored (L/s)	Storage Required (m^3)
10	104.2	5.15	0.42	4.73	2.84
20	70.3	3.48	0.42	3.06	3.67
30	53.9	2.66	0.42	2.24	4.04
40	44.2	2.19	0.42	1.77	4.24
50	37.7	1.86	0.42	1.44	4.33
60	32.9	1.63	0.42	1.21	4.34
70	29.4	1.45	0.42	1.03	4.34
80	26.6	1.32	0.42	0.90	4.30

Maximum Storage Required 5-year =	4.34	m^3

100-Year Storm Event

Tc (min)	I (mm/hr)	Runoff (L/s) B4	Allowable Outflow (L/s)	Runoff to be Stored (L/s)	Storage Required (m^3)
10	178.6	9.81	0.72	9.09	5.45
20	120.0	6.59	0.72	5.87	7.05
30	91.9	5.05	0.72	4.33	7.79
40	75.1	4.13	0.72	3.41	8.17
50	64.0	3.52	0.72	2.80	8.39
60	55.9	3.07	0.72	2.35	8.46
70	49.8	2.74	0.72	2.02	8.47
80	45.0	2.47	0.72	1.75	8.41
90	41.1	2.26	0.72	1.54	8.30
100	37.9	2.08	0.72	1.36	8.17

Maximum Storage Required 100-year =	8.47	m^3

5-Year Storm Event Storage Summary

Roof Storage			
Location	Area*	Depth	Volume (m^3)
Roof	148.35	0.035	5.19

Storage Available (m^3) =	5.19
Storage Required (m^3) =	4.34

100-Year Storm Event Storage Summary

Roof Storage			
Location	Area*	Depth	Volume (m^3)
Roof	148.35	0.060	8.90

Storage Available (m^3) =	8.90
Storage Required (m^3) =	8.47

*Area is 75% of the total roof area

Roof Drain Flow (B1-B4)

Roof Drains Summary		
Type of Control Device	Watts Drainage - Accutrol Weir	
Number of Roof Drains	1	
	5-Year	100-Year
Rooftop Storage (m^3)	5.19	8.90
Storage Depth (mm)	0.035	0.060
Flow (Per Roof Drain) (L/s)	0.42	0.72
Total Flow (L/s)	0.42	0.72

Flow Rate Vs. Build-Up (One Weir)	
Depth (mm)	Flow (L/s)
15	0.18
20	0.24
25	0.30
30	0.36
35	0.42
40	0.48
45	0.54
50	0.60
55	0.66

*Roof Drain model to be Accutrol Weirs, See attached sheets
*Roof Drain Flow information taken from Watts Drainage website

CALCULATING ROOF FLOW EXAMPLES

1 roof drain during a 5 year storm
elevation of water = 25mm
Flow leaving 1 roof drain = (1 x 0.30 L/s) = 0.30 L/s

1 roof drain during a 100 year storm
elevation of water = 50mm
Flow leaving 1 roof drain = (1 x 0.60 L/s) = 0.60 L/s

4 roof drains during a 5 year storm
elevation of water = 25mm
Flow leaving 4 roof drains = (4 x 0.30 L/s) = 1.20 L/s

4 roof drains during a 100 year storm
elevation of water = 50mm
Flow leaving 4 roof drains = (4 x 0.60 L/s) = 2.40 L/s

	Roof Drain Flow		
	Flow (l/s)	Storage Depth (mm)	Drains Flow (l/s)
	0.18	15	0.18
	0.24	20	0.24
	0.30	25	0.30
	0.36	30	0.36
5-Year	0.42	35	0.42
	0.48	40	0.48
	0.54	45	0.54
	0.60	50	0.60
	0.66	55	0.66
100-Year	0.72	60	0.72
	0.78	65	0.78
	0.84	70	0.84
	0.90	75	0.90
	0.96	80	0.96
	1.02	85	1.02
	1.08	90	1.08
	1.14	90	1.14
	1.20	100	1.20
	1.26	105	1.26
	1.32	110	1.32
	1.38	115	1.38
	1.44	120	1.44
	1.50	125	1.50
	1.56	130	1.56
	1.62	135	1.62
	1.68	140	1.68
	1.74	145	1.74
	1.80	150	1.80

Note: The flow leaving through a restricted roof drain is based on flow vs. head information

Storage Requirements for Area B6

5-Year Storm Event

Tc (min)	I (mm/hr)	Runoff (L/s) B6	Allowable Outflow (L/s)	Runoff to be Stored (L/s)	Storage Required (m^3)
10	104.2	12.51	4.67	7.84	4.70
20	70.3	8.44	4.67	3.77	4.52
30	53.9	6.47	4.67	1.80	3.24
40	44.2	5.31	4.67	0.64	1.53

Maximum Storage Required 5-year =	4.70	m^3

100-Year Storm Event

Tc (min)	I (mm/hr)	Runoff (L/s) B6	Allowable Outflow (L/s)	Runoff to be Stored (L/s)	Storage Required (m^3)
10	178.6	24.36	7.53	16.83	10.10
20	120.0	16.37	7.53	8.84	10.61
30	91.9	12.54	7.53	5.01	9.01
40	75.1	10.24	7.53	2.71	6.51
					0.00
Maximum Storage Required 100-year =				10.61	m^3

5-Year Storm Event Storage Summary

		Water Elev. (m) =		136.99	
Location	Btm Storage Area	INV. (out)	Depth (m)	Head (m)	Volume (m^3)
Storage Area 1	136.89	136.89	0.10	0.05	4.8

Storage Available (m^3) =	4.8
Storage Required (m^3) =	4.7

100-Year Storm Event Storage Summary

		Water Elev. (m) =		137.07	
Location	Btm Storage Area	INV. (out)	Depth (m)	Head (m)	Volume (m^3)
Storage Area 1	136.89	136.89	0.18	0.13	11.8

Storage Available (m^3) =	11.8
Storage Required (m^3) =	10.6

*Available Storage calculated from AutoCAD

For Orifice Flow, C= 0.60
For Weir Flow, C= 1.84

	Orifice 1
invert elevation	136.89
center of crest elevation	136.94
orifice width / weir length	100 mm
weir height	
orifice area (m^2)	0.008

Elevation Discharge Table - Storm Routing

Elevation	Orifice 1		Orifice 2		Weir 1		Weir 2		Total	
	H [m]	Q [m^3/s]	H [m]	Q [m^3/s]	H [m]	Q [m^3/s]	H [m]	Q [m^3/s]	Q [L/s]	
136.89	x	x							0.00	
136.90	x	x							0.00	
136.91	x	x							0.00	
136.92	x	x							0.00	
136.93	x	x							0.00	
136.94	x	x							0.00	
136.95	0.01	0.00							2.09	
136.96	0.02	0.00							2.95	
136.97	0.03	0.00							3.62	
136.98	0.04	0.00							4.17	
136.99	0.05	0.00							4.67	5-Year
137.00	0.06	0.01							5.11	
137.01	0.07	0.01							5.52	
137.02	0.08	0.01							5.90	
137.03	0.09	0.01							6.26	
137.04	0.10	0.01							6.60	
137.05	0.11	0.01							6.92	
137.06	0.12	0.01							7.23	
137.07	0.13	0.01							7.53	100-Year
137.08	0.14	0.01							7.81	
137.09	0.15	0.01							8.08	
137.10	0.16	0.01							8.35	
137.11	0.17	0.01							8.61	
137.12	0.18	0.01							8.86	
137.13	0.19	0.01							9.10	
137.14	0.20	0.01							9.33	
137.15	0.21	0.01							9.57	
137.16	0.22	0.01							9.79	
137.17	0.23	0.01							10.01	
137.18	0.24	0.01							10.23	
137.19	0.25	0.01							10.44	
137.20	0.26	0.01							10.64	
137.21	0.27	0.01							10.85	
137.22	0.28	0.01							11.05	
137.23	0.29	0.01							11.24	
137.24	0.30	0.01							11.43	
137.25	0.31	0.01							11.62	
137.26	0.32	0.01							11.81	

Notes:
1. For Orifice Flow, User is to Input an Elevation Higher than Crown of Orifice.
2. Orifice Equation: $Q = cA(2gh)^{1/2}$
3. Weir Equation: $Q = CLH^{3/2}$
4. These Computations Do Not Account for Submergence Effects Within the Pond Riser.
5. H for orifice equations is depth of water above the centroide of the orifice.
6. H for weir equations is depth of water above the weir crest.

Storage Requirements for Area B7

5-Year Storm Event

Tc (min)	I (mm/hr)	Runoff (L/s) B7	Allowable Outflow (L/s)	Runoff to be Stored (L/s)	Storage Required (m^3)
10	104.2	6.78	2.95	3.83	2.30
20	70.3	4.57	2.95	1.62	1.95
30	53.9	3.51	2.95	0.56	1.00
40	44.2	2.87	2.95	0.00	0.00

Maximum Storage Required 5-year =	2.30	m^3

100-Year Storm Event

Tc (min)	I (mm/hr)	Runoff (L/s) B7	Allowable Outflow (L/s)	Runoff to be Stored (L/s)	Storage Required (m^3)
10	178.6	13.23	5.11	8.12	4.87
20	120.0	8.89	5.11	3.78	4.53
30	91.9	6.81	5.11	1.70	3.05
40	75.1	5.56	5.11	0.45	1.08
					0.00

Maximum Storage Required 100-year =	4.87	m^3

5-Year Storm Event Storage Summary

		Water Elev. (m) =	136.79		
Location	Btm Storage Area	INV. (out)	Depth (m)	Head (m)	Volume (m^3)
Storage Area 2	136.72	136.72	0.07	0.02	2.3

Storage Available (m^3) =	2.3	*
Storage Required (m^3) =	2.3	

100-Year Storm Event Storage Summary

		Water Elev. (m) =	136.83		
Location	Btm Storage Area	INV. (out)	Depth (m)	Head (m)	Volume (m^3)
Storage Area 2	136.72	136.72	0.11	0.06	5.2

Storage Available (m^3) =	5.2	*
Storage Required (m^3) =	4.9	

*Available Storage calculated from AutoCAD

For Orifice Flow, C= 0.60
For Weir Flow, C= 1.84

	Orifice 1
invert elevation	136.72
center of crest elevation	136.77
orifice width / weir length	100 mm
weir height	
orifice area (m^2)	0.008

Tempest LMF 80 ICD is proposed based on Stormwater Analysis

Elevation Discharge Table - Storm Routing

Elevation	Orifice 1		Orifice 2		Weir 1		Weir 2		Total	
	H [m]	Q [m^3/s]	H [m]	Q [m^3/s]	H [m]	Q [m^3/s]	H [m]	Q [m^3/s]	Q [L/s]	
136.72	x	x							0.00	
136.73	x	x							0.00	
136.74	x	x							0.00	
136.75	x	x							0.00	
136.76	x	x							0.00	
136.77	x	x							0.00	
136.78	0.01	0.00							2.09	
136.79	0.02	0.00							2.95	5-Year
136.80	0.03	0.00							3.62	
136.81	0.04	0.00							4.17	
136.82	0.05	0.00							4.67	
136.83	0.06	0.01							5.11	100-Year
136.84	0.07	0.01							5.52	
136.85	0.08	0.01							5.90	
136.86	0.09	0.01							6.26	
136.87	0.10	0.01							6.60	
136.88	0.11	0.01							6.92	
136.89	0.12	0.01							7.23	
136.90	0.13	0.01							7.53	
136.91	0.14	0.01							7.81	
136.92	0.15	0.01							8.08	
136.93	0.16	0.01							8.35	
136.94	0.17	0.01							8.61	
136.95	0.18	0.01							8.86	
136.96	0.19	0.01							9.10	
136.97	0.20	0.01							9.33	
136.98	0.21	0.01							9.57	
136.99	0.22	0.01							9.79	
137.00	0.23	0.01							10.01	
137.01	0.24	0.01							10.23	
137.02	0.25	0.01							10.44	
137.03	0.26	0.01							10.64	
137.04	0.27	0.01							10.85	
137.05	0.28	0.01							11.05	
137.06	0.29	0.01							11.24	
137.07	0.30	0.01							11.43	
137.08	0.31	0.01							11.62	
137.09	0.32	0.01							11.81	

Notes:
1. For Orifice Flow, User is to Input an Elevation Higher than Crown of Orifice.
2. Orifice Equation: $Q = cA(2gh)^{1/2}$
3. Weir Equation: $Q = CLH^{3/2}$
4. These Computations Do Not Account for Submergence Effects Within the Pond Riser.
5. H for orifice equations is depth of water above the centroide of the orifice.
6. H for weir equations is depth of water above the weir crest.

STORM SEWER DESIGN SHEET

PROJECT: CCO-22-1448; 254 Lake Avenue West
LOCATION: Municipal Drainage Ditch & Rear Yard Swale

McINTOSH PERRY

LOCATION				CONTRIBUTING AREA (ha)							RATIONAL DESIGN FLOW							SEWER DATA												
1	2	3	4	5		6	7	8			9	10	11	12	13	14	15	16	17	18	19	20	21		22		23	24	25
STREET	AREA ID	FROM	TO	C-VALUE	C-VALUE (100-Year)	AREA (ha)	INDIV	CUMUL	INDIV	CUMUL	INLET	TIME	TOTAL	i (5)	i (100)	5yr PEAK	100yr PEAK	CAPACITY	LENGTH	PIPE SIZE (mm)	Ditch Size (mm)			Pipe Slope	Pipe Velocity	Ditch Slope	Ditch Velocity	AVAIL CAP (5yr)	
		MH	MH				AC-5Y	AC-5Y	AC-100Y	AC-100Y	(min)	IN PIPE/DITCH	(min)	(mm/hr)	(mm/hr)	FLOW (L/s)	FLOW (L/s)	(L/s)	(m)	DIA	z (x:1 slope)	H	Width (w)	%	m/s	%	m/s	(L/s)	(%)
Lake Ave West south drainage ditch																													
Lake Ave West																													
	B10+X1	Culvert 1		0.53	0.60	0.25	0.13	0.13	0.15	0.15	10.00	0.12	10.12	104.19	178.56	37.82	74.24	71.33	7.20	300				0.50	0.98			33.52	46.99%
		Culvert 2						0.13		0.15	10.12	0.21	10.33	103.55	177.44	37.58	73.77	71.33	12.28	300				0.50	0.98			33.75	47.31%
		LSCB7	LSCB6					0.13		0.15	10.33	0.74	11.07	102.47	175.58	37.19	73.00	58.82	35.67	300				0.34	0.81			21.63	36.77%
		LSCB6	LSCB5					0.13		0.15	11.07	0.66	11.73	98.86	169.34	35.88	70.40	58.82	32.06	300				0.34	0.81			22.94	39.00%
		LSCB5	Outlet					0.13		0.15	11.73	0.37	12.10	95.85	164.14	34.79	68.24	58.82	17.89	300				0.34	0.81			24.03	40.86%
Internal Drainage Areas - 254 Lake Ave West to Rear Yard Drain																													
254 Lake Ave	B9	SE Corner of Lot G	SE Corner of Lot F	0.20	0.25	0.03	0.01	0.01	0.01	0.01	10.00	0.23	10.23	104.19	178.56	1.47	3.14	111.14	10		3	0.15	2.14			1.90	0.695	109.67	98.68%
	B8	SE Corner of Lot F	SE Corner of Lot E	0.20	0.25	0.04	0.01	0.01	0.01	0.02	10.23	0.55	10.78	103.00	176.50	3.54	7.57	101.99	21		3	0.15	2.14			1.60	0.637	98.45	96.53%
	B5A	SE Corner of Lot E	SE Corner of Lot D	0.53	0.60	0.06	0.03	0.04	0.03	0.05	10.78	0.38	11.16	100.26	171.75	11.96	23.98	165.90	20		3	0.21	1.77			1.90	0.873	153.94	92.79%
	B6		SW Corner of Lot C	0.55	0.63	0.08										4.67	7.53												
	B5B	SE Corner of Lot D	SE Corner of Lot B	0.20	0.25	0.01	0.00	0.04	0.00	0.05	11.16	1.38	12.54	98.45	168.62	16.81	31.94	128.97	37	250	3	0.21	1.77	0.50	0.87	0.50	0.448	112.16	86.96%
	B7		SW Corner of Lot B	0.53	0.61	0.04										2.95	5.11												
	B5c	SE Corner of Lot B	NW Corner Lot A	0.53	0.60	0.04	0.02	0.07	0.03	0.08	12.54	3.27	15.81	92.47	158.28	24.89	46.99	94.52	70	250	3	0.15	1.89	0.50	0.87	0.50	0.357	69.63	73.66%

Definitions:
Q = 2.78CIA, where:
Q = Peak Flow in Litres per Second (L/s)
A = Area in Hectares (ha)
i = Rainfall intensity in millimeters per hour (mm/hr)

Mannings Coefficients:
(npipe) = 0.013
(nchannel) = 0.035

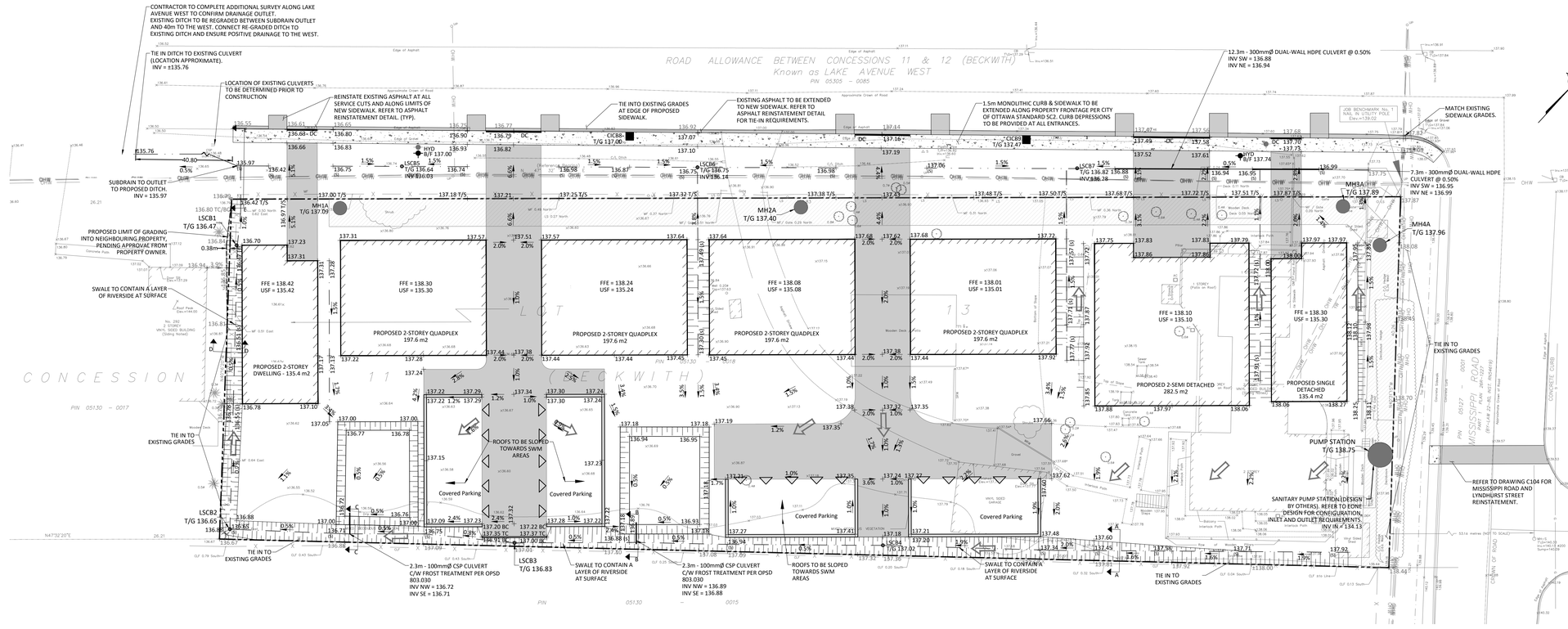
Notes:
1. 5 & 100 Year storm intensity 'I' from City of Ottawa IDF curve equations for 5 and 100 year storm events.
2. Storm flows considered entering realigned ditch include drainage from Lots A through G including controlled release from Lots B and C
3. Ditch designed to convey flows from rear yard of Lot G through to Lot A for surface discharge to south drainage ditch.
4. Roof Areas Controlled by Control Flow Roof Drains and directed to south drainage ditch along Lake Avenue West; Refer to SWM Report for detailed calculations
5. Outlet From Drainage Area B6 and B7 Controlled By Orifice Pipe; Refer to SWM Report for detailed calculations; 100 year discharge B6 - 7.53 L/s; B7 - 5.11 L/s

Designed: A.M.
Checked: F.V.
Project No.: CCO-22-1448

Revision	Date
	Sheet No:
	1 of 1

APPENDIX H
CIVIL DRAWINGS

McINTOSH PERRY



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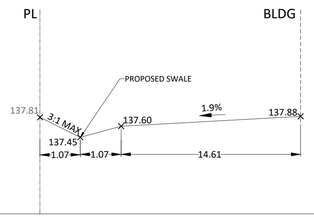

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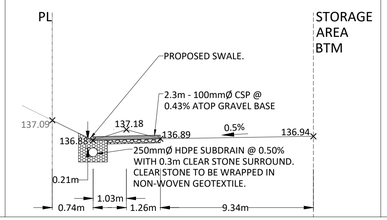

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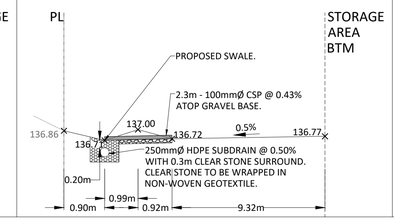

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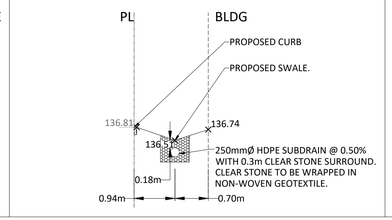

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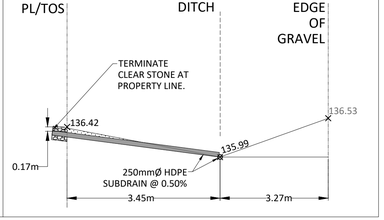
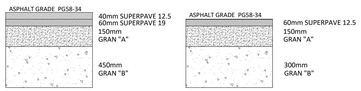


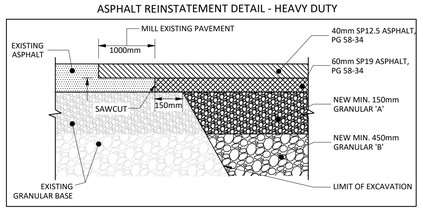
GENERAL NOTES

1. THE ORIGINAL TOPOGRAPHY, GROUND ELEVATION AND SURVEY DATA SHOWN ARE SUPPLIED FOR INFORMATION PURPOSES ONLY, AND IMPLY NO GUARANTEE OF ACCURACY. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY ALL INFORMATION SHOWN.
2. THIS PLAN IS NOT A CADASTRAL SURVEY SHOWING LEGAL PROPERTY BOUNDARIES AND EASEMENTS. THE PROPERTY BOUNDARIES SHOWN HEREON HAVE BEEN DERIVED INFORMATION SUPPLIED BY (OR SHOWN ON) ANNIS, O'SULLIVAN, VOLLEBEKK LTD. DRAWING 17446-21 AND CANNOT BE RELIED UPON TO BE ACCURATE OR COMPLETE. THE PRECISE LOCATION OF THE CURRENT PROPERTY BOUNDARIES AND EASEMENTS CAN ONLY BE DETERMINED BY AN UP-TO-DATE LAND TITLES SEARCH AND A SUBSEQUENT CADASTRAL SURVEY PERFORMED AND CERTIFIED BY AN ONTARIO LAND SURVEYOR.
3. THE CONTRACTOR IS TO OBTAIN AND PAY FOR ALL NECESSARY PERMITS AND APPROVALS FROM THE TOWN BEFORE COMMENCING CONSTRUCTION.
4. THE CONTRACTOR IS RESPONSIBLE FOR ALL LAYOUT.
5. THE CONTRACTOR IS TO DETERMINE THE EXACT LOCATION, SIZE, MATERIAL AND ELEVATION OF ALL EXISTING UTILITIES PRIOR TO COMMENCING CONSTRUCTION. PROTECT AND ASSUME ALL RESPONSIBILITY FOR EXISTING UTILITIES WHETHER OR NOT SHOWN ON THESE DRAWINGS. IF THERE IS ANY DISCREPANCY THE CONTRACTOR IS TO NOTIFY THE ENGINEER PROMPTLY.
6. RESTORE ALL TRENCHES AND SURFACES OF PUBLIC ROAD ALLOWANCES TO CONDITION EQUAL OR BETTER THAN ORIGINAL CONDITION AND TO THE SATISFACTION OF THE TOWN AUTHORITIES.
7. EXCAVATE AND DISPOSE OF ALL EXCESS EXCAVATED MATERIAL, SUCH AS ASPHALT, CURBING AND DEBRIS, OFF SITE AS DIRECTED BY THE ENGINEER AND THE TOWN.
8. TOPSOIL TO BE STRIPPED AND STOCKPILED FOR REHABILITATION. CLEAN FILL TO BE PLACED IN FILL AREAS AND COMPACTED TO 95% STANDARD PROCTOR DENSITY.
9. ALL DISTURBED AREAS TO BE RESTORED TO ORIGINAL CONDITION OR BETTER UNLESS OTHERWISE SPECIFIED.
10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL TRAFFIC CONTROL AND SAFETY MEASURES DURING THE CONSTRUCTION PERIOD, INCLUDING THE SUPPLY, INSTALLATION, AND REMOVAL OF ALL NECESSARY SIGNAGE, DELINEATORS, MARKERS AND BARRIERS.
11. DO NOT ALTER GRADING OF THE SITE WITHOUT PRIOR APPROVAL OF THE ENGINEER/TOWN.
12. ALL ROADWAY, PARKING LOT, AND GRADING WORKS TO BE UNDERTAKEN IN ACCORDANCE WITH TOWN STANDARDS AND SPECIFICATIONS. THE CONTRACTOR IS TO PROVIDE POSITIVE DRAINAGE AWAY FROM THE BUILDING.
13. CONTACT THE TOWN FOR INSPECTION OF ROUGH GRADING OF PARKING LOTS, ROADWAYS AND LANDSCAPED AREAS PRIOR TO PLACEMENT OF ASPHALT AND TOPSOIL. ALL DEFICIENCIES NOTED SHALL BE RECTIFIED TO THE TOWN'S SATISFACTION PRIOR TO PLACEMENT OF ANY ASPHALT, TOPSOIL, SEED & MULCH AND/OR SOD.
14. ALL DIMENSIONS AND INVERTS MUST BE VERIFIED PRIOR TO CONSTRUCTION, IF THERE IS ANY DISCREPANCY THE CONTRACTOR IS TO NOTIFY THE ENGINEER PROMPTLY.
15. ELECTRICAL, GAS, TELEPHONE AND TELEVISION SERVICE LOCATIONS ARE SUBJECT TO THE INDIVIDUAL AGENCY:
    - ELECTRICAL SERVICE - HYDRO ONE,
    - GAS SERVICE - ENBRIDGE,
    - TELEPHONE SERVICE - BELL CANADA,
    - TELEVISION SERVICE - ROGERS.
16. INSTALLATION TO BE IN ACCORDANCE WITH CURRENT CODES AND STANDARDS OF APPROVAL AGENCIES HYDRO ONE, BELL AND THE TOWN.
17. CONTRACTOR TO ENSURE ALL APPLICABLE OPS SPECIFICATIONS ARE FOLLOWED DURING CONSTRUCTION
18. ALL PROPOSED CURB TO BE CONCRETE BARRIER CURB UNLESS OTHERWISE SPECIFIED.



ASPHALT CROSS-SECTIONS PROVIDED AS MINIMUM RECOMMENDATION. REFER TO GEOTECHNICAL REPORT, IF AVAILABLE, FOR SITE SPECIFIC PAVEMENT REQUIREMENTS. MUNICIPAL STAFF TO CONFIRM REQUIRED PAVEMENT CROSS SECTION FOR ROAD REINSTATEMENT OF LAKE AVENUE WEST. ENSURE REINSTATEMENT MEETS OR EXCEEDS EXISTING PAVEMENT STRUCTURE.

ASPHALT REINSTATEMENT DETAIL - HEAVY DUTY



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SCALE 1 : 250
0 5 10 15 20 25 Metres

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Client:
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CARLETON PLACE, ON K7C 1M4

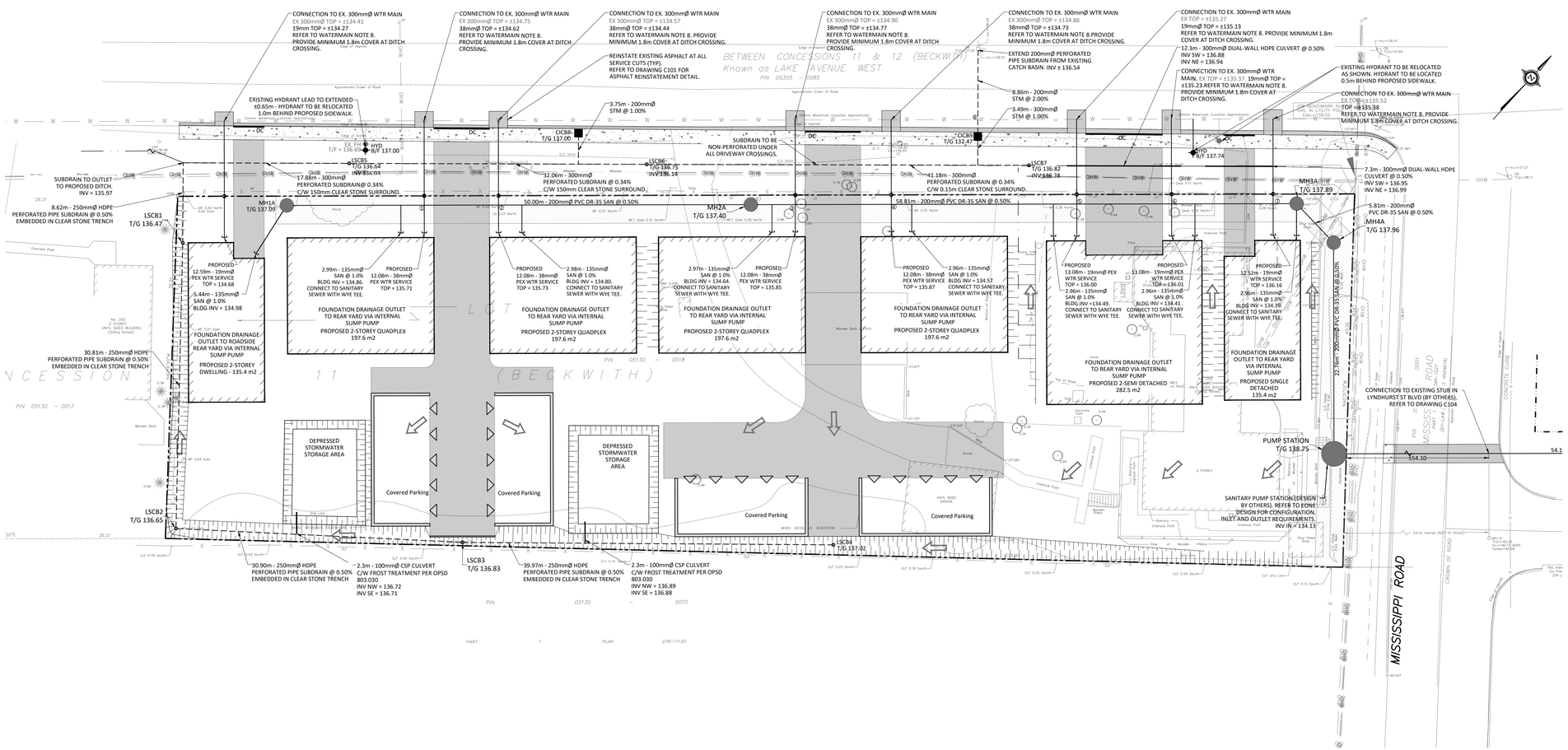
Project:
254 LAKE AVENUE WEST

Drawing Title:
GRADING AND DRAINAGE PLAN

Scale: 1:250	Project Number: CO-22-1448
Drawn By: FV	
Checked By: AM	Drawing Number: C101
Designed By: AG	

D07-12-XX-XXXX
#XXXXX

FILENAME: U:\Ottawa\01 Project - Proposals\2022 Jobs\CO\CO-22-1448 Escape Fire_SPC_254 Lake Ave, Carleton Place\12 - Drawing\CO0-22-1448 Presentation.dwg
LAST SAVED: Thursday, February 20, 2025 - LAST SAVED BY: F.Valenti
LAST PLOTTED: Thursday, February 20, 2025 [TB FILE USED]



LOCATION PLAN

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WATERMAIN NOTES

1. CONSTRUCT ALL WATERMAINS AND APPURTENANCES IN ACCORDANCE WITH OPSD STANDARDS AND SPECIFICATIONS, AS WELL AS TOWN STANDARDS.
2. RESIDENTIAL SERVICE CONNECTIONS TO BE 19-38mm SDR9 PEX (CTS) AND SHALL CONFORM TO ASTM F876.
3. WATERMAINS AND/OR WATER SERVICES ARE TO HAVE A MINIMUM COVER OF 2.4m. OTHERWISE THERMAL INSULATION IS REQUIRED AS PER CITY STANDARDS (IF AVAILABLE) OR OPSD 1109.030.
4. WATERMAINS AND/OR WATER SERVICES SHALL HAVE A MINIMUM COVER OF 1.8m UNDER DITCH CROSSINGS, OTHERWISE THERMAL INSULATION IS TO BE PROVIDED PER OPSD 1109.030
5. IF THE WATERMAIN MUST BE DEFLECTED TO MEET ALIGNMENT, ENSURE THAT THE AMOUNT OF DEFLECTION USED IS EQUAL TO OR LESS THAN THAT WHICH IS RECOMMENDED BY THE MANUFACTURER.
6. THERMAL INSULATION OF WATERMAINS AT OPEN STRUCTURES AS PER TOWN STANDARDS (IF AVAILABLE) OR OPSD 1109.030.
7. VALVES TO BE OPERATED BY TOWN STAFF ONLY.
8. NO CONNECTION TO EXISTING WATER NETWORK SHALL BE COMPLETED UNTIL A WATER PERMIT IS OBTAINED FROM THE TOWN. TOWN TO BE PRESENT FOR WATERMAIN CONNECTION. CONNECTION, EXCAVATION, BACKFILLING AND REINSTATEMENT TO BE COMPLETED BY CONTRACTOR.
9. IT WILL BE THE RESPONSIBILITY OF THE CONTRACTOR TO PERFORM ANY WATERMAIN CONNECTION(S) REQUIRED. THIS SHALL BE COMPLETED IN THE PRESENCE OF A DESIGNATED MUNICIPAL WATER OPERATOR AND THE SELECTED CONTRACTOR SHALL PROVE TO THE SATISFACTION OF THE TOWN THAT THEY ARE COMPETENT TO PERFORM THE WORKS PRIOR TO INITIATING CONSTRUCTION.
10. ALL WATERMAINS SHALL BE EQUIPPED WITH BUTTERFLY AND GATE VALVES AS PER OPSD 1100.011.
11. ALL FIRE HYDRANTS, VALVE AND VALVE BOX HSALL CONFORM TO OPSD 1103.020.
12. CONCRETE THRUST BLOCKS TO CONFORM TO OPSD 1103.010 AND OPSD 1103.020.
13. ALL WATERMAIN TO BE CLASS 150 DR-18 OR APPROVED EQUIVALENT.
14. ALL WATERMAIN TO BE EQUIPPED WITH TRACER WIRE.

SEWER NOTES:

1. CONSTRUCT ALL SEWERS, CATCH BASINS, MANHOLES AND APPURTENANCES IN ACCORDANCE WITH OPSD STANDARDS AND SPECIFICATIONS, AS WELL AS TOWN STANDARDS..
2. SEWER TRENCHING AND BEDDING SHALL CONFORM TO OPSD 802.010 AND 802.013 UNLESS NOTED OTHERWISE.
   - 2.1. BEDDING SHALL BE A MINIMUM 150mm OF GRANULAR "A", COMPACTED TO MINIMUM 95% STANDARD PROCTOR DRY DENSITY. CLEAR STONE BEDDING SHALL NOT BE PERMITTED.
   - 2.2. SUB-BEDDING, IF REQUIRED SHALL CONSIST OF 450mm OF COMPACTED GRANULAR "B" TYPE 1.
   - 2.3. BACKFILL TO AT LEAST 300mm ABOVE TOP OF PIPE WITH GRANULAR "A" OR GRANULAR "B" TYPE 1.
   - 2.4. TO MINIMIZE DIFFERENTIAL FROST HEAVING, TRENCH BACKFILL (FROM PAVEMENT SUBGRADE TO 2.0 METRES BELOW FINISHED GRADE) SHALL MATCH EXISTING SOIL CONDITIONS.
3. SANITARY SEWERS AND CONNECTIONS 150mmØ AND SMALLER TO BE PVC SDR-28.
4. SEWERS AND CONNECTIONS 200mmØ AND LARGER TO BE PVC SDR-35. BEDDING TO BE TYPE "B" EXCEPT AT RISERS, UNLESS NOTED OTHERWISE.
5. INSULATE ALL STORM AND SANITARY SEWERS/SERVICES THAT HAVE LESS THAN 1.5m OF COVER WITH THERMAL INSULATION AS PER OPSD 1109.030.
6. SEWER CONNECTIONS ARE TO BE MADE ABOVE THE SPRINGLINE OF THE SEWERMAIN AS PER CITY OF OTTAWA STANDARD DRAWING S11, S11.1 & S11.2.
7. SUPPLY AND INSTALL ALL PIPING AND APPURTENANCES AS SHOWN AND DETAILED TO WITHIN 1.0m OF BUILDING. ALL ENDS OF SERVICES TO BE PROPERLY CAPPED AND LOCATED WITH 2"x4"X8' LONG MARKER.
8. CONTRACTOR TO TELEVISE (CCTV) ALL PROPOSED SEWERS ON SITE, OUTLET CONNECTION TO THE MAIN AND PIPES 150mmØ OR GREATER PRIOR TO BASE COURSE ASPHALT. UPON COMPLETION OF CONTRACT, THE CONTRACTOR IS RESPONSIBLE TO FLUSH AND CLEAN ALL SEWERS & APPURTENANCES.
9. DYE TESTING IS TO BE COMPLETED ON SANITARY SERVICE TO CONFIRM PROPER CONNECTION TO SANITARY SEWER MAIN.

CROSSING CONFLICT TABLE

LOCATION	DESCRIPTION	SEPARATION
1	38mmØ WTR SERVICE INV 135.52 200mmØ SAN SEWER OBV 135.02	0.50
2	38mmØ WTR SERVICE INV 135.50 200mmØ SAN SEWER OBV 134.98	0.52
3	38mmØ WTR SERVICE INV 135.64 200mmØ SAN SEWER OBV 134.80	0.84
4	38mmØ WTR SERVICE INV 135.70 200mmØ SAN SEWER OBV 134.74	1.04
5	19mmØ WTR SERVICE INV 135.87 200mmØ SAN SEWER OBV 134.64	1.23
6	19mmØ WTR SERVICE INV 135.90 200mmØ SAN SEWER OBV 134.59	1.31
7	19mmØ WTR SERVICE INV 136.07 200mmØ SAN SEWER OBV 134.54	1.53
8	200mmØ SUBDRAIN INV 136.39 300mmØ WTR MAIN OBV 135.16	1.23

STM STRUCTURE TABLE

NAME	RIM ELEV.	INVERT IN	INVERT OUT	DESCRIPTION
CICB8	137.00		SE136.158	COVER: OPSD 401.080 FRAME: OPSD 400.082 STRUC: OPSD 705.010
CICB9	137.47	NW136.363	SE136.305	COVER: OPSD 401.080 FRAME: OPSD 400.082 STRUC: OPSD 705.010
LSCB1	136.47	SE136.040	NW136.040	PER CITY OF OTTAWA STANDARD S30
LSCB2	136.65	NE136.195	NW136.195	PER CITY OF OTTAWA STANDARD S30
LSCB3	136.83	NE136.350	SW136.350	PER CITY OF OTTAWA STANDARD S30
LSCB4	137.02		SW136.550	PER CITY OF OTTAWA STANDARD S31
LSCB5	136.64	NE136.031	SW136.031	PER CITY OF OTTAWA STANDARD S30
LSCB6	136.75	NE136.140	SW136.140	PER CITY OF OTTAWA STANDARD S30
LSCB7	136.82		SW136.280	PER CITY OF OTTAWA STANDARD S31

SAN STRUCTURE TABLE

NAME	RIM ELEV.	INVERT IN	INVERT OUT	DESCRIPTION
EX. MH	140.38	NW138.960		EXISTING SANITARY MH
MH1A	137.09	S134.920	NE134.890	STRUC OPSD 701.010 FRAME OPSD 401.010 COVER OPSD 401.010 TYPE A
MH2A	137.40	SW134.640	NE134.620	STRUC OPSD 701.010 FRAME OPSD 401.010 COVER OPSD 401.010 TYPE A
MH3A	137.89	SW134.326 SE134.360	E134.300	STRUC OPSD 701.010 FRAME OPSD 401.010 COVER OPSD 401.010 TYPE A
MH4A	137.96	W134.271	SE134.240	STRUC OPSD 701.010 FRAME OPSD 401.010 COVER OPSD 401.010 TYPE A
MH5A	140.01	SW139.070	SE139.010	STRUC OPSD 701.010 FRAME OPSD 401.010 COVER OPSD 401.010 TYPE A
PUMP STATION	138.75	NW134.126	NE136.550	EONE DESIGN (BY OTHERS)

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CARLETON PLACE, ON K7C 1M4

Project:
254 LAKE AVENUE WEST

Drawing Title:
SITE SERVICING PLAN

Scale: 1:250	Project Number: CO-22-1448
Drawn By: FV	
Checked By: AM	Drawing Number: C102
Designed By: AG	

D07-12-XX-XXXX

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FILENAME: I:\Ottawa\01 Project - Proposals\2022 Jobs\CCO\CO-22-1448 Escape Fire, SPC_254 Lake Ave, Carleton Place\12 - Drawing\CO-22-1448 Presentation.dwg
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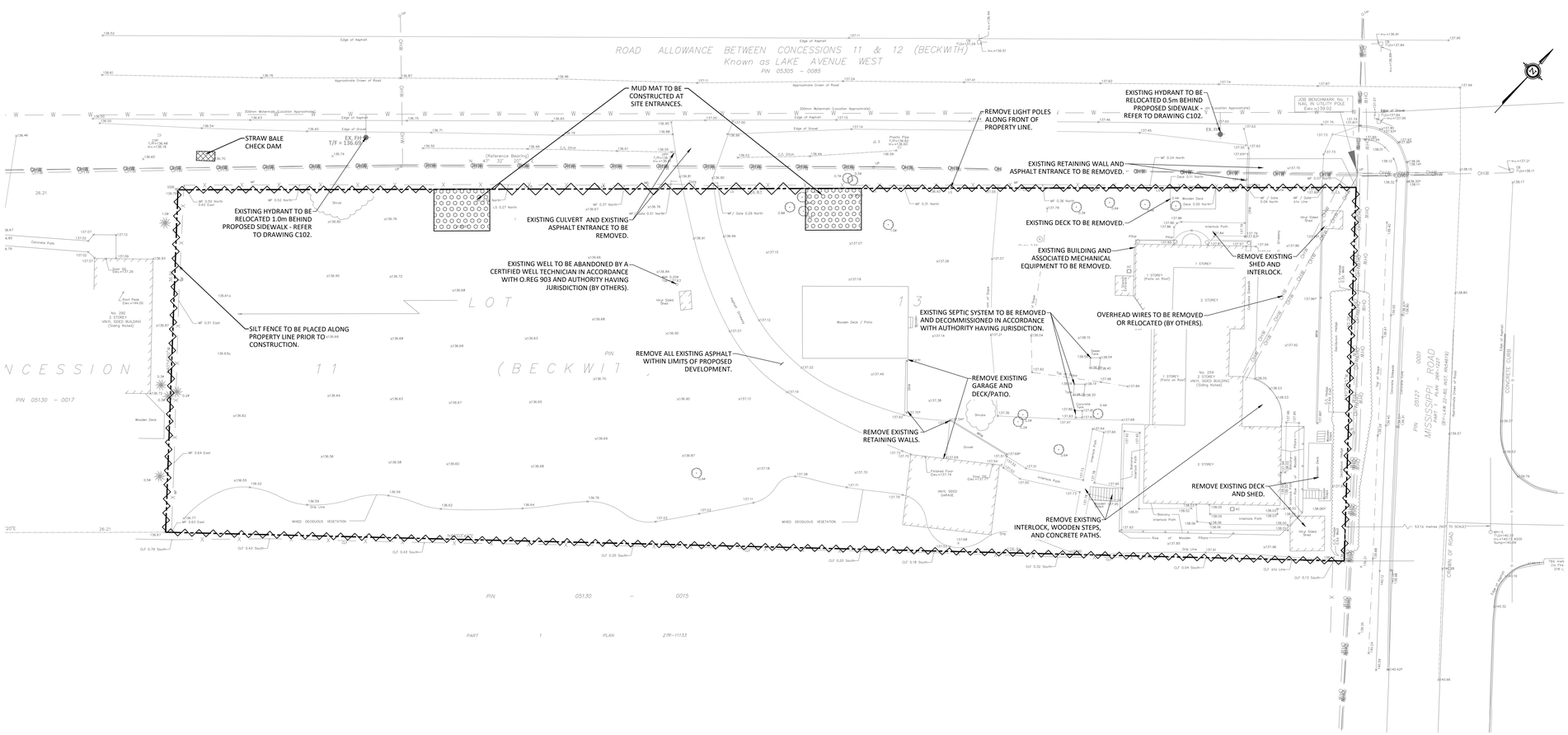

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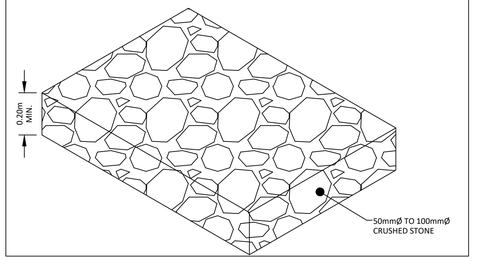
EROSION AND SEDIMENT CONTROL

1. THE CONTRACTOR SHALL IMPLEMENT BEST MANAGEMENT PRACTICES, TO PROVIDE FOR PROTECTION OF THE AREA DRAINAGE SYSTEM AND THE RECEIVING WATERCOURSE, DURING CONSTRUCTION ACTIVITIES. THIS INCLUDES LIMITING THE AMOUNT OF EXPOSED SOIL, TEMPORARY SEDIMENT CONTROL (GEOSOCK INSERTS WITH AN OVERFLOW UNDER GRATE OR COVER) TO BE IMPLEMENTED DURING CONSTRUCTION ON ALL PROPOSED ROAD CATCHBASINS, REARYARD CATCHBASINS AND CATCHBASIN MANHOLES AND OTHER SEDIMENT TRAPS. NO RECYCLED GEOSOCK MATERIAL SHALL BE PERMITTED FOR USE ON SITE. THE CONTRACTOR ACKNOWLEDGES THAT FAILURE TO IMPLEMENT APPROPRIATE EROSION AND SEDIMENT CONTROL MEASURES MAY BE SUBJECT TO PENALTIES IMPOSED BY ANY APPLICABLE REGULATORY AGENCY.
2. AT THE DISCRETION OF THE PROJECT MANAGER OR MUNICIPAL STAFF, ADDITIONAL SILT CONTROL DEVICES SHALL BE INSTALLED AT DESIGNATED LOCATIONS.
3. FOR SILT FENCE BARRIER, USE OPSD 219.110. GEOTEXTILE FOR SILT FENCE AS PER OPSS 1860, TABLE 3.
4. EXCEPT AS PROVIDED IN PARAGRAPHS 4.1., and 4.2. BELOW, STABILIZATION MEASURES SHALL BE INITIATED AS SOON AS FEASIBLE IN PORTIONS OF THE SITE WHERE CONSTRUCTION ACTIVITIES HAVE TEMPORARILY OR PERMANENTLY CEASED, BUT IN NO CASE MORE THAN 14 DAYS AFTER THE CONSTRUCTION ACTIVITY HAS TEMPORARILY OR PERMANENTLY CEASED.
   - 4.1. WHERE THE INITIATION OF STABILIZATION MEASURES BY THE 14TH DAY AFTER CONSTRUCTION ACTIVITY TEMPORARILY OR PERMANENTLY CEASE IS PRECLUDED BY SNOW COVER, STABILIZATION MEASURES SHALL BE INITIATED AS SOON AS FEASIBLE.
   - 4.2. WHERE CONSTRUCTION ACTIVITY WILL RESUME ON A PORTION OF THE SITE WITHIN 21 DAYS FROM WHEN ACTIVITIES CEASED, (E.G. THE TOTAL TIME PERIOD THAT CONSTRUCTION ACTIVITY IS TEMPORARILY CEASED IS LESS THAN 21 DAYS) THEN STABILIZATION MEASURES DO NOT HAVE TO BE INITIATED ON THAT PORTION OF SITE BY THE 14TH DAY AFTER CONSTRUCTION ACTIVITY TEMPORARILY CEASED.
5. SEDIMENT THAT IS ACCUMULATED BY THE TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES SHALL BE REMOVED IN A MANNER THAT AVOIDS ESCAPE OF THE SEDIMENT TO THE DOWNSTREAM SIDE OF THE CONTROL MEASURE AND AVOIDS DAMAGE TO THE CONTROL MEASURE. SEDIMENT SHALL BE REMOVED TO THE LEVEL OF THE GRADE EXISTING AT THE TIME THE CONTROL MEASURE WAS CONSTRUCTED AND BE ACCORDING TO THE FOLLOWING:
   - 5.1. FOR LIGHT-DUTY SEDIMENT BARRIERS, ACCUMULATED SEDIMENT SHALL BE REMOVED ONCE IT REACHES THE LESSER OF THE FOLLOWING:
     - 5.1.1. A DEPTH OF ONE-HALF THE EFFECTIVE HEIGHT OF THE CONTROL MEASURE.
     - 5.1.2. A DEPTH OF 300 MM IMMEDIATELY UPSTREAM OF THE CONTROL MEASURE.
   - 5.2. FOR ALL CONTROL MEASURES, ACCUMULATED SEDIMENT SHALL BE REMOVED AS NECESSARY TO PERFORM MAINTENANCE REPAIRS.
   - 5.3. ACCUMULATED SEDIMENT SHALL BE REMOVED PRIOR TO THE REMOVAL OF THE CONTROL MEASURE.
   - 5.4. ACCUMULATED SEDIMENT IS TO BE REMOVED AND DISPOSED OF AS PER OPSS 180.
6. ALL TEMPORARY EROSION AND SEDIMENT CONTROL MEASURES SHALL BE MONITORED TO ENSURE THEY ARE IN EFFECTIVE WORKING ORDER. THE CONDITION OF THE CONTROL MEASURES SHALL BE MONITORED PRIOR TO ANY FORECAST STORM EVENT AND FOLLOWING A STORM EVENT.
7. DUST CONTROL MEASURES SHOULD BE CONSIDERED PRIOR TO CLEARING AND GRADING. THE USE OF WATER, CALCIUM CHLORIDE FLAKES/SOLUTION OR MAGNESIUM CHLORIDE FLAKES/SOLUTION SHALL BE USED AS DUST SUPPRESSANTS AS PER OPSS 506. THIS IS TO LIMIT WIND EROSION OF SOILS WHICH MAY TRANSPORT SEDIMENTS OFFSITE, WHERE THEY MAY BE WASHED INTO THE RECEIVING WATER BY THE NEXT RAINSTORM.
8. ALL 'GREEN AREAS' TO BE TREATED WITH 150mm TOPSOIL AND SOD AS SOON AS FEASIBLE, AS PER OPSS 570.
9. ALL DISTURBED AREAS TO BE RESTORED TO ORIGINAL CONDITION OR BETTER UNLESS OTHERWISE SPECIFIED.
10. STOCKPILED MATERIAL IS TO BE STORED AWAY FROM POTENTIAL RECEIVERS (E.G. STORM CATCHBASINS, MANHOLES), AND BE SURROUNDED BY EROSION CONTROL MEASURES WHERE MATERIAL IS LEFT IN PLACE IN EXCESS OF 14 DAYS.
11. IF REQUIRED, DEWATERING/SETTLING BASINS SHALL BE CONSTRUCTED AS PER OPSD 219.240 AND LOCATED ON FLAT GRADE UPSTREAM OF OTHER EXISTING MITIGATION MEASURES. WATERCOURSES SHALL NOT BE DIVERTED, OR BLOCKED, AND TEMPORARY WATERCOURSES CROSSINGS SHALL NOT BE CONSTRUCTED OR UTILIZED, UNLESS OTHERWISE SPECIFIED IN THE CONTRACT. IF CLOSURE OF ANY PERMANENT WATER PASSAGE IS NECESSARY, THE CONTRACTOR SHALL RELEASE ANY STRANDED FISH TO THE OPEN PORTION OF THE WATERCOURSE WITHOUT HARM.
12. ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL CONFORM TO OPSS 577
13. WHERE DEWATERING IS REQUIRED, THE DISCHARGED WATER SHALL BE CONTROLLED IN ACCORDANCE WITH OPSS 518.
14. ALL SETTLING/FILTRATION BASINS SHALL BE EQUIPPED WITH TERRAFIX 270R GEOTEXTILE (OR APPROVED EQUIVALENT) AND SHALL BE CLEANED AND REPLACED AS REQUIRED.

MUD MAT DETAIL
N.T.S.



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Project:
254 LAKE AVENUE WEST

Drawing Title:
REMOVALS, EROSION AND SEDIMENT CONTROL PLAN

Scale:	1:250
Drawn By:	FV
Checked By:	AM
Designed By:	AG
Project Number:	CO-22-1448
Drawing Number:	C103

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LAST SAVED: Thursday, February 20, 2025 LAST SAVED BY: F.Valenti
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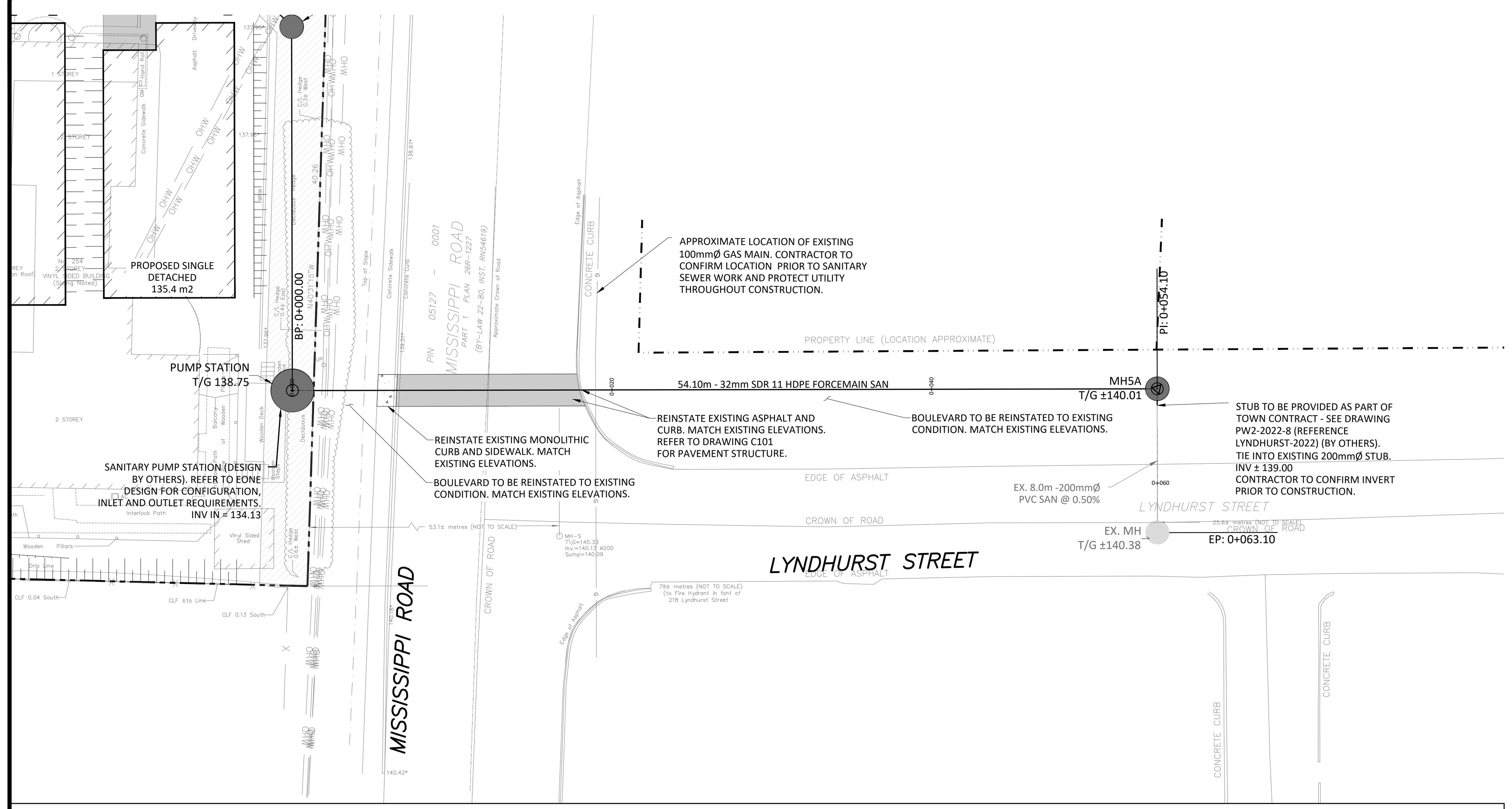
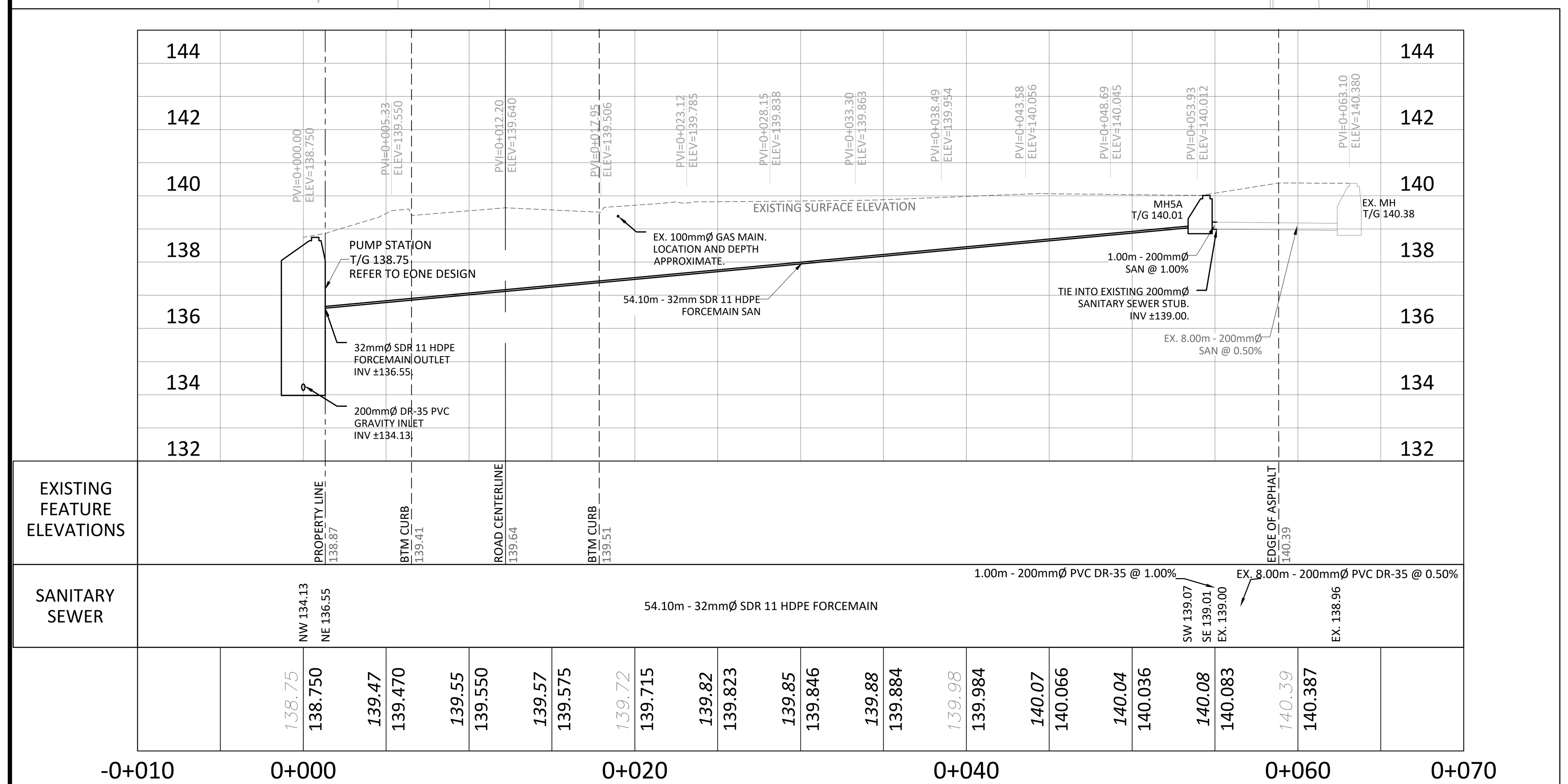
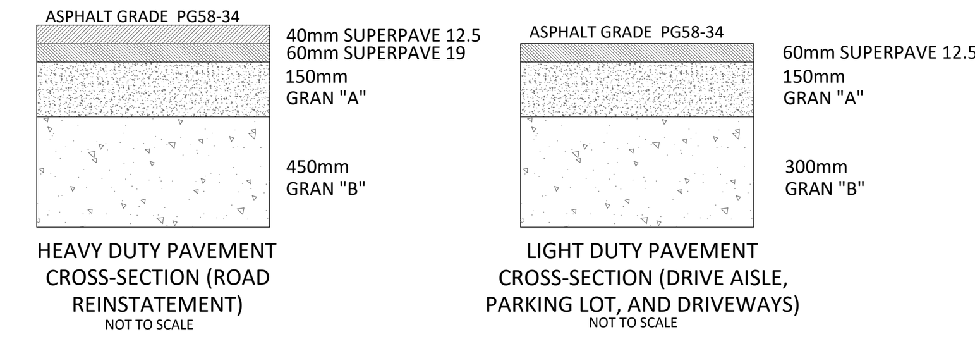
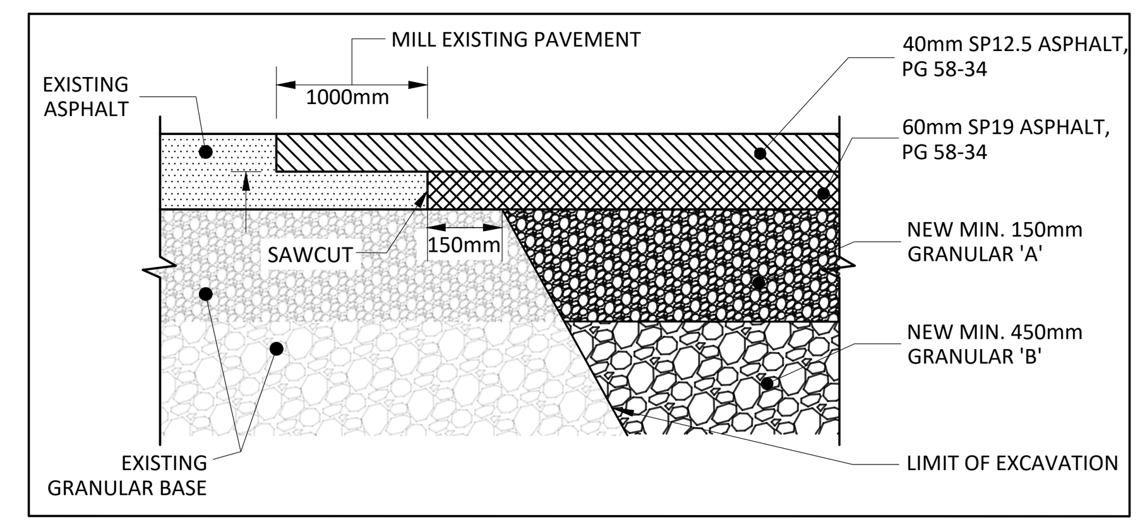






ASPHALT CROSS-SECTIONS PROVIDED AS MINIMUM RECOMMENDATION. REFER TO GEOTECHNICAL REPORT, IF AVAILABLE, FOR SITE SPECIFIC PAVEMENT REQUIREMENTS. MUNICIPAL STAFF TO CONFIRM REQUIRED PAVEMENT CROSS SECTION FOR ROAD REINSTATEMENT OF LAKE AVENUE WEST. ENSURE REINSTATEMENT MEETS OR EXCEEDS EXISTING PAVEMENT STRUCTURE.

ASPHALT REINSTATEMENT DETAIL - HEAVY DUTY



SAN STRUCTURE TABLE

NAME	RIM ELEV.	INVERT IN	INVERT OUT	DESCRIPTION
EX. MH	140.38	NW138.960		EXISTING SANITARY MH
MH5A	140.01	SW139.070	SE139.010	STRUC OPSD 701.010 FRAME OPSD 401.010 COVER OPSD 401.010 TYPE A
PUMP STATION	138.75	NW134.126	NE136.550	EONE DESIGN (BY OTHERS)

GENERAL NOTES

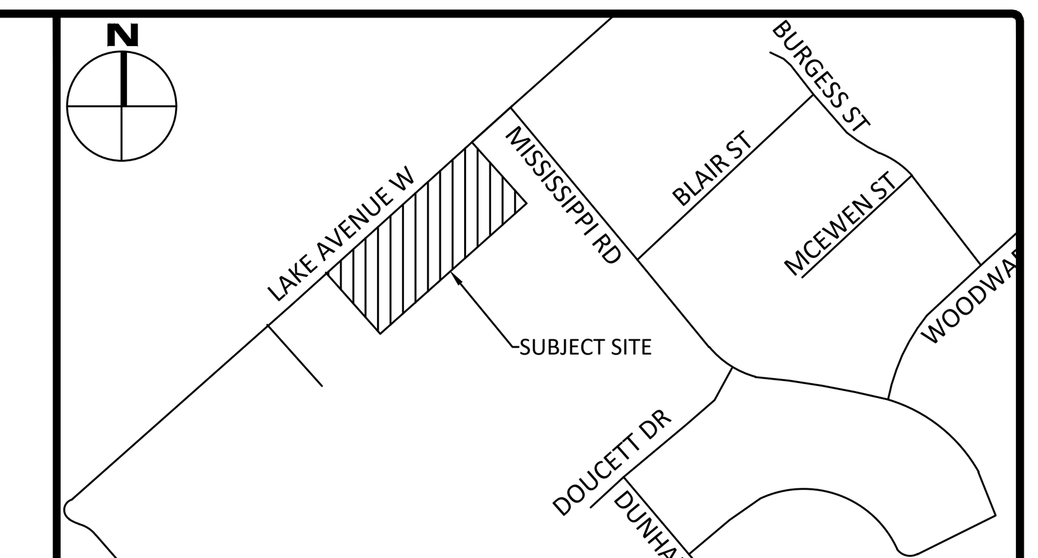
1. THE ORIGINAL TOPOGRAPHY, GROUND ELEVATION AND SURVEY DATA SHOWN ARE SUPPLIED FOR INFORMATION PURPOSES ONLY, AND IMPLY NO GUARANTEE OF ACCURACY. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY ALL INFORMATION SHOWN.
2. THIS PLAN IS NOT A CADASTRAL SURVEY SHOWING LEGAL PROPERTY BOUNDARIES AND EASEMENTS. THE PROPERTY BOUNDARIES SHOWN HEREON HAVE BEEN DERIVED INFORMATION SUPPLIED BY (OR SHOWN ON) ANNIS, O'SULLIVAN, VOLLEBEKK LTD. DRAWING 17446-21 AND CANNOT BE RELIED UPON TO BE ACCURATE OR COMPLETE. THE PRECISE LOCATION OF THE CURRENT PROPERTY BOUNDARIES AND EASEMENTS CAN ONLY BE DETERMINED BY AN UP-TO-DATE LAND TITLES SEARCH AND A SUBSEQUENT CADASTRAL SURVEY PERFORMED AND CERTIFIED BY AN ONTARIO LAND SURVEYOR.
3. THE CONTRACTOR IS TO OBTAIN AND PAY FOR ALL NECESSARY PERMITS AND APPROVALS FROM THE TOWN BEFORE COMMENCING CONSTRUCTION.
4. THE CONTRACTOR IS RESPONSIBLE FOR ALL LAYOUT.
5. THE CONTRACTOR IS TO DETERMINE THE EXACT LOCATION, SIZE, MATERIAL AND ELEVATION OF ALL EXISTING UTILITIES PRIOR TO COMMENCING CONSTRUCTION. PROTECT AND ASSUME ALL RESPONSIBILITY FOR EXISTING UTILITIES WHETHER OR NOT SHOWN ON THESE DRAWINGS. IF THERE IS ANY DISCREPANCY THE CONTRACTOR IS TO NOTIFY THE ENGINEER PROMPTLY.
6. RESTORE ALL TRENCHES AND SURFACES OF PUBLIC ROAD ALLOWANCES TO CONDITION EQUAL OR BETTER THAN ORIGINAL CONDITION AND TO THE SATISFACTION OF THE TOWN AUTHORITIES.
7. EXCAVATE AND DISPOSE OF ALL EXCESS EXCAVATED MATERIAL, SUCH AS ASPHALT, CURBING AND DEBRIS, OFF SITE AS DIRECTED BY THE ENGINEER AND THE TOWN.
8. TOPSOIL TO BE STRIPPED AND STOCKPILED FOR REHABILITATION. CLEAN FILL TO BE PLACED IN FILL AREAS AND COMPACTED TO 95% STANDARD PROCTOR DENSITY.
9. ALL DISTURBED AREAS TO BE RESTORED TO ORIGINAL CONDITION OR BETTER UNLESS OTHERWISE SPECIFIED.
10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL TRAFFIC CONTROL AND SAFETY MEASURES DURING THE CONSTRUCTION PERIOD, INCLUDING THE SUPPLY, INSTALLATION, AND REMOVAL OF ALL NECESSARY SIGNAGE, DELINEATORS, MARKERS AND BARRIERS.
11. DO NOT ALTER GRADING OF THE SITE WITHOUT PRIOR APPROVAL OF THE ENGINEER/TOWN.
12. ALL ROADWAY, PARKING LOT, AND GRADING WORKS TO BE UNDERTAKEN IN ACCORDANCE WITH TOWN STANDARDS AND SPECIFICATIONS. THE CONTRACTOR IS TO PROVIDE POSITIVE DRAINAGE AWAY FROM THE BUILDING.
13. CONTACT THE TOWN FOR INSPECTION OF ROUGH GRADING OF PARKING LOTS, ROADWAYS AND LANDSCAPED AREAS PRIOR TO PLACEMENT OF ASPHALT AND TOPSOIL. ALL DEFICIENCIES NOTED SHALL BE RECTIFIED TO THE TOWN'S SATISFACTION PRIOR TO PLACEMENT OF ANY ASPHALT, TOPSOIL, SEED & MULCH AND/OR SOD.
14. ALL DIMENSIONS AND INVERTS MUST BE VERIFIED PRIOR TO CONSTRUCTION, IF THERE IS ANY DISCREPANCY THE CONTRACTOR IS TO NOTIFY THE ENGINEER PROMPTLY.
15. ELECTRICAL, GAS, TELEPHONE AND TELEVISION SERVICE LOCATIONS ARE SUBJECT TO THE INDIVIDUAL AGENCY:
    - ELECTRICAL SERVICE - HYDRO ONE,
    - GAS SERVICE - ENBRIDGE,
    - TELEPHONE SERVICE - BELL CANADA,
    - TELEVISION SERVICE - ROGERS.
16. INSTALLATION TO BE IN ACCORDANCE WITH CURRENT CODES AND STANDARDS OF APPROVAL AGENCIES HYDRO ONE, BELL AND THE TOWN.
17. CONTRACTOR TO ENSURE ALL APPLICABLE OPS SPECIFICATIONS ARE FOLLOWED DURING CONSTRUCTION
18. ALL PROPOSED CURB TO BE CONCRETE BARRIER CURB UNLESS OTHERWISE SPECIFIED.

WATERMAIN NOTES

1. CONSTRUCT ALL WATERMAINS AND APPURTENANCES IN ACCORDANCE WITH OPSD STANDARDS AND SPECIFICATIONS, AS WELL AS TOWN STANDARDS.
2. RESIDENTIAL SERVICE CONNECTIONS TO BE 19-38mm SDR9 PEX (CTS) AND SHALL CONFORM TO ASTM F876.
3. WATERMAINS AND/OR WATER SERVICES ARE TO HAVE A MINIMUM COVER OF 2.4m. OTHERWISE THERMAL INSULATION IS REQUIRED AS PER CITY STANDARDS (IF AVAILABLE) OR OPSD 1109.030.
4. WATERMAINS AND/OR WATER SERVICES SHALL HAVE A MINIMUM COVER OF 1.8m UNDER DITCH CROSSINGS, OTHERWISE THERMAL INSULATION IS TO BE PROVIDED PER OPSD 1109.030
5. IF THE WATERMAIN MUST BE DEFLECTED TO MEET ALIGNMENT, ENSURE THAT THE AMOUNT OF DEFLECTION USED IS EQUAL TO OR LESS THAN THAT WHICH IS RECOMMENDED BY THE MANUFACTURER.
6. THERMAL INSULATION OF WATERMAINS AT OPEN STRUCTURES AS PER TOWN STANDARDS (IF AVAILABLE) OR OPSD 1109.030.
7. VALVES TO BE OPERATED BY TOWN STAFF ONLY.
8. NO CONNECTION TO EXISTING WATER NETWORK SHALL BE COMPLETED UNTIL A WATER PERMIT IS OBTAINED FROM THE TOWN. TOWN TO BE PRESENT FOR WATERMAIN CONNECTION. CONNECTION, EXCAVATION, BACKFILLING AND REINSTATEMENT TO BE COMPLETED BY CONTRACTOR.
9. IT WILL BE THE RESPONSIBILITY OF THE CONTRACTOR TO PERFORM ANY WATERMAIN CONNECTION(S) REQUIRED. THIS SHALL BE COMPLETED IN THE PRESENCE OF A DESIGNATED MUNICIPAL WATER OPERATOR AND THE SELECTED CONTRACTOR SHALL PROVE TO THE SATISFACTION OF THE TOWN THAT THEY ARE COMPETENT TO PERFORM THE WORKS PRIOR TO INITIATING CONSTRUCTION.
10. ALL WATERMAINS SHALL BE EQUIPPED WITH BUTTERFLY AND GATE VALVES AS PER OPSD 1100.011.
11. ALL FIRE HYDRANTS, VALVE AND VALVE BOX HSALL CONFORM TO OPSD 1103.020.
12. CONCRETE THRUST BLOCKS TO CONFORM TO OPSD 1103.010 AND OPSD 1103.020.
13. ALL WATERMAIN TO BE CLASS 150 DR-18 OR APPROVED EQUIVALENT.
14. ALL WATERMAIN TO BE EQUIPPED WITH TRACER WIRE.

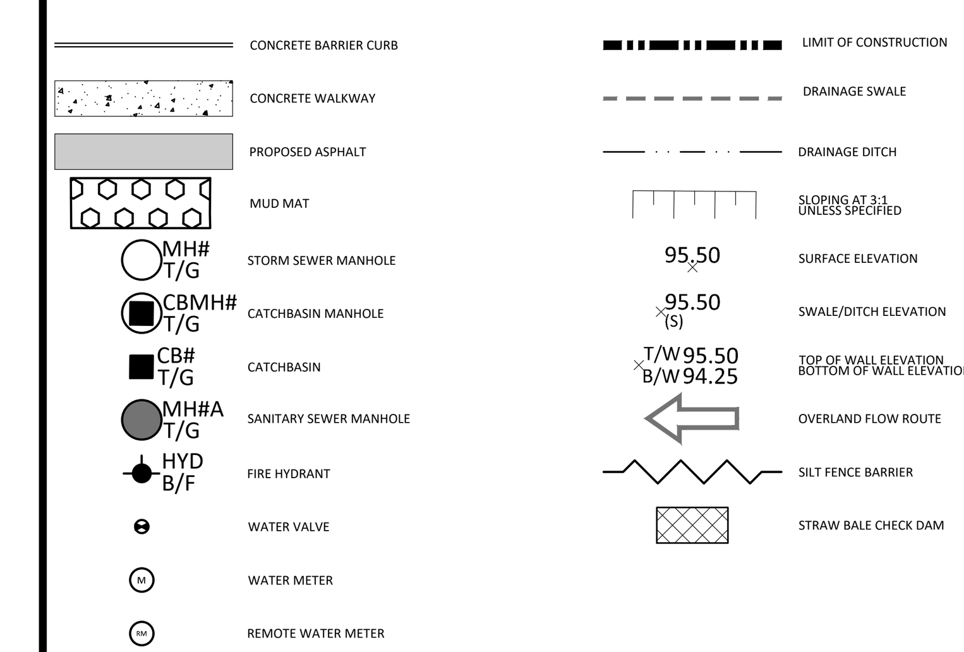
SEWER NOTES:

1. CONSTRUCT ALL SEWERS, CATCH BASINS, MANHOLES AND APPURTENANCES IN ACCORDANCE WITH OPSD STANDARDS AND SPECIFICATIONS, AS WELL AS CITY.
2. SEWER TRENCHING AND BEDDING SHALL CONFORM TO OPSD 802.010 AND 802.013 UNLESS NOTED OTHERWISE.
   - 2.1. BEDDING SHALL BE A MINIMUM 150mm OF GRANULAR "A", COMPACTED TO MINIMUM 95% STANDARD PROCTOR DRY DENSITY. CLEAR STONE BEDDING SHALL NOT BE PERMITTED.
   - 2.2. SUB-BEDDING, IF REQUIRED SHALL CONSIST OF 450mm OF COMPACTED GRANULAR "B" TYPE 1.
   - 2.3. BACKFILL TO AT LEAST 300mm ABOVE TOP OF PIPE WITH GRANULAR "A" OR GRANULAR "B" TYPE 1.
   - 2.4. TO MINIMIZE DIFFERENTIAL FROST HEAVING, TRENCH BACKFILL (FROM PAVEMENT SUBGRADE TO 2.0 METRES BELOW FINISHED GRADE) SHALL MATCH EXISTING SOIL CONDITIONS.
3. SANITARY SEWERS AND CONNECTIONS 150mmØ AND SMALLER TO BE PVC SDR-28.
4. SEWERS AND CONNECTIONS 200mmØ AND LARGER TO BE PVC SDR-35. BEDDING TO BE TYPE "B" EXCEPT AT RISERS, UNLESS NOTED OTHERWISE.
5. INSULATE ALL STORM AND SANITARY SEWERS/SERVICES THAT HAVE LESS THAN 1.5m OF COVER WITH THERMAL INSULATION AS PER OPSD 1109.030.
6. SEWER CONNECTIONS ARE TO BE MADE ABOVE THE SPRINGLINE OF THE SEWERMAIN AS PER CITY OF OTTAWA STANDARD DRAWING S11, S11.1 & S11.2.
7. SUPPLY AND INSTALL ALL PIPING AND APPURTENANCES AS SHOWN AND DETAILED TO WITHIN 1.0m OF BUILDING. ALL ENDS OF SERVICES TO BE PROPERLY CAPPED AND LOCATED WITH 2"x4"X8' LONG MARKER.
8. CONTRACTOR TO TELEVISE (CCTV) ALL PROPOSED SEWERS ON SITE, OUTLET CONNECTION TO THE MAIN AND PIPES 150mmØ OR GREATER PRIOR TO BASE COURSE ASPHALT. UPON COMPLETION OF CONTRACT, THE CONTRACTOR IS RESPONSIBLE TO FLUSH AND CLEAN ALL SEWERS & APPURTENANCES.
9. DYE TESTING IS TO BE COMPLETED ON SANITARY SERVICE TO CONFIRM PROPER CONNECTION TO SANITARY SEWER MAIN.



LOCATION PLAN

LEGEND



FOR REVIEW ONLY
NOT FOR CONSTRUCTION

No.	Revisions	Date
1	ISSUED FOR REVIEW	FEB. 20, 2025

Check and verify all dimensions before proceeding with the work — Do not scale drawings

SCALE 1 : 250 — 0 5 10 15 20 25 Metres

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Project: 254 LAKE AVENUE WEST

Drawing Title: OFFSITE SANITARY PLAN & PROFILE

Scale:	1:250	Project Number:	CO-22-1448
Drawn By:	FV		
Checked By:	AM	Drawing Number:	C104
Designed By:	AM		

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