

NOVEMBER 18, 2024
PROJECT NO. 2022-185

LOT 31 CLARK STREET
FUNCTIONAL SERVICING & STORMWATER
MANAGEMENT REPORT

TOWN OF THE BLUE MOUNTAINS



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Table of Contents

Introduction	1
Existing Site Conditions	1
Geotechnical Information	2
Existing Sanitary Sewer	3
Existing Watermain	3
Floodplain Analysis	3
Existing Stormwater Infrastructure	3
Existing Condition Stormwater Modelling	4
Proposed Site Design	7
Sanitary Flows & Sewer Design	8
Sanitary System Assessment	9
Water Servicing	12
Utilities	13
Stormwater Approval Criteria	13
Stormwater Modelling - Proposed Development	14
Stormwater Quantity Control	15
Stormwater Quality Controls	17
Erosion and Sediment Controls	17
Conclusions	18

Drawings

- Cover Sheet
- Drawing C1 – Existing Conditions and Removal Plan
- Drawing C2-C4 – Grading and Servicing Plans
- Drawing C5 – Post Development Drainage Area Plan
- Drawing C6 – Stormwater Management Facility Plan
- Drawing C7 – Stormwater Management Facility Profile
- Drawing C8-C10 – Erosion and Sediment Control Plans
- Drawing C11-C13 – Plan and Profile
- Drawing C14 – External Erosion and Sediment Control Plan
- Drawing C15 – C18 - Standard Details

Appendices

- Appendix A – Legal & Site Plan
- Appendix B - As Constructed Drawings
- Appendix C – Tree Preservation Plan
- Appendix D – Geotechnical Information
- Appendix E – Existing Condition Stormwater
- Appendix F – Post-Development Stormwater
- Appendix G – Water Demand
- Appendix H – Landscape Plan
- Appendix I – Sanitary Design

Introduction

CAPES Engineering Ltd. has been retained by Pantone Capital Inc. to prepare a functional servicing and stormwater management report in support of a Site Plan Agreement for the 3.74 ha site located at the intersection of Highway 26, Grey Rd 2 and Clark Street in the Town of The Blue Mountains.

The 3.74 ha site is currently vacant land partially covered in trees and open field space. There is an Environmental Protection Area along a portion of the west and south part of the site and through a swath in the middle of the site. The EP zone through the central part of the site splits the property roughly into north and south sections. It is proposed to construct a two storey, 1,300 .64 sq. m (footprint) industrial building including 37.2 sq. m office space (Building A) in the southern part of the site. In addition, it is proposed to construct 5 single story self-storage buildings (Buildings B-G) on the southern part of the site north of Building A along with internal access road and parking.

The northern part of the site will be developed with a 1 story, 1,704.19 sq. m Industrial building with separate parking from the south part of the site. The north and south parts of the site will connect using a roadway through the EP area.

The proposed stormwater infrastructure for the site will require Ministry of the Environment, Climate and Parks (MECP) approval as it is to service an industrial use. Approvals are also required from the Town of The Blue Mountains (Town) in the form of a Site Plan Agreement as well as the Grey Sauble Conservation Authority (GSCA) for the proposed works within their regulated area. A permit will also be required from the Ministry of Transportation (MTO) due to the proximity to the Highway 26 corridor and proposed infrastructure requirements. We also expect Grey County to provide comment on the proposed works due to the proximity of the site to Grey Rd. 2.

The following report is intended to discuss the servicing requirements for the site and to demonstrate the viability of the project in support of the Site Plan Application.

Existing Site Conditions

The existing 3.74 ha site, located at the intersection of Highway 26, Grey Rd. 2 and Clark Street in the Town of The Blue Mountains, is legally described as Con. 8 and 9 Pt Lot 31 Pt RD ALLOW RP 16R3512 Part 1 and RP 16R4224 Parts 2 and 3. Please refer to the Legal Plan for the site in **Appendix A**.

The roughly triangular shaped site is bound by Highway 26 to the north-east, by the Town owned sewage lagoons and an industrial subdivision to the west and Clark Street and Grey Rd. 2 to the south. The site is currently vacant with a driveway entrance off Clark Street and gravel driveway.

The site is partially regulated by the GSCA for what was believed to be a watercourse that travelled from west to east across the midpoint of the site as well as along the northern ditch of Clark Street and the along the western edge of the site.

The GSCA requested an EIS be prepared for the site. Roots Environmental was retained to complete an initial due diligence environmental investigation in 2021 with the full EIS completed Dec. 2022. We understand that Species-At-Risk (SAR) were previously identified on the site by the MNRF but none were found on the site by Roots and suitable habitat for those species were also not present on site and it was determined that the SAR occurrences may have been within 1 km of the site and not on the site itself. A

watercourse was confirmed to flow south along the western boundary of the site to the north ditch on Clark Street and then north-east through the site to Highway 26. A second watercourse was identified on GSCA mapping through the middle of the site but was not found during subsequent visits. The EIS recommends a 10 m buffer from the watercourse along the western and eastern parts of the site. For more information, please refer to the full EIS submitted separately.

The site generally slopes from west to east at an average of 4.4% in the northern part of the site and 1% in the southern part of the site. There are several mounds of earth/fill/topsoil in the middle of the site which affect the overall drainage patterns locally but overall, all flow reaches the western ditch of Highway 26 and then flows under Highway 26 via a 1.52 m x 2.44 m concrete box culvert.

Clark Street along the south edge of the site is a 20.12 m road allowance Municipally controlled two lane road with an asphalt surface, open ditches and a hydro pole line on the north side of the street. It is understood through information provided by the Town that the intersection of Grey Rd. 2 and Clark Street may be closed in the future, however, there has been no timeline provided or confirmation that this will occur.

Grey Rd. 2 along the south-east edge of the site is also a two-lane road with open ditches but it is controlled by Grey County. The County has identified the need for a potential road widening along the frontage of the site to allow for a full 30.48 m road allowance, however we believe based on the legal plan information available that the road allowance is already at 30.48 m (See **Appendix A**). In addition, they have requested a 15.24 m daylight triangle at the intersection of Grey Rd. 2 and Clark Street.

Highway 26 along the north-east part of the site is currently a 2 lane road with a right hand turning lane for southbound traffic turning onto Grey Rd. 2. The highway has open ditches on both sides of the road. A hydro transmission line crosses through the development site in an easement and extends to the south edge of the highway. This portion of the Highway is controlled by the MTO and is currently being studied (by the MTO) for an expansion.

Geotechnical Information

A scoped geotechnical investigation was completed on the site by GEI Inc. in March and April 2022. GEI completed 4 test pits on the site and determined that there was a variety of soils on the site including topsoil, gravel, boulders, fill and that the native soil is a sandy silt glacial till at approximately 2 m deep.

The dominant estimated infiltration rate for the existing condition north and eastern part of the site would be determined by the slowest infiltration within 1.2 m of the existing surface. In this case the sandy silt or silty sand have almost identical infiltration rates and would dominate with infiltration rate values of approximately 29.9 to 31.4 mm/hr or a saturated hydraulic conductivity (Ksat) of 0.68 mm/hr to 0.86 mm/hr.

The report notes that infiltration-based LID/SWM features are not recommended for the site.

Groundwater was encountered at between 0.18 m deep to 1.42 m deep with elevations ranging from 183.01 to 186.30. In general, the report notes that groundwater could be expected at approximately 0.9 m deep in the northern part of the site, 1.4 m deep in the central part of the site and 0.2 m deep in the southern part of the site.

The geotechnical report has been included in **Appendix D** of this report and has also been submitted separately.

Existing Sanitary Sewer

There is no existing sanitary service line to site nor is there a sanitary sewer on Clark Street or on Grey Rd. 2 however there is a gravity sanitary sewer line located on the south side of Highway 26 (See **Drawing 041863-PP3 in Appendix B**). The existing sanitary sewer is a 250 mm dia. PVC pipe at a slope to the south of 0.35%. The sanitary sewer drains south(east) to the Lake Shore Sewage Lift Station which then pumps the sewage back north-west through a 250 mm dia. forcemain.

Existing Watermain

There is no existing water service extending to the site nor is there a watermain on Clark Street. There is an existing 250 mm dia. watermain on Grey Rd. 2 which extends to the intersection with Clark Street and then increases in size to a 300 mm dia. and extends east to Highway 26. A 300 mm dia. tee connection has been provided at the intersection of Grey Rd. 2 and Clark Street for potential connection and extension of the watermain west on Clark Street.

Please refer to **Appendix B** for the relevant as-constructed drawings.

Floodplain Analysis

The GSCA requested that a floodplain analysis be completed for the site as the on-going Town wide Master Drainage Study identified a flood spill across the site. A floodplain analysis was completed by our office and submitted under separate cover directly to the GSCA. The report found that there is in fact a spill across the site from the west to the east roughly in line with the GSCA regulated area. The flow that does not spill east across the site is conveyed south in the western limb of the watercourse to Clark Street. At Clark Street the flow is split with some flow going south under Clark via the existing culvert and the remainder continuing east in the north ditch of Clark Street. The flow is then redirected back north through the property in the watercourse identified in the EIS to discharge to the concrete box culvert at Hwy. 26.

The recommendations of the floodplain report were to install a culvert along the north part of the site along with localized berming to redirect the spill flow north around the proposed northern industrial building. In addition, it was recommended that a new box culvert be installed at the driveway entrance to convey the flow and provide safe access and egress to the site. These recommendations will be incorporated into the design presented here and discussed further below.

Existing Stormwater Infrastructure

There are currently no existing stormwater controls on the site.

An existing watercourse is identified running from west to east through the site from the adjacent industrial vacant parcel to the west, however no discernable channel is identifiable from the topographic survey or by the environmental consultant. The channel appears to flow south along the west edge of the site (roughly following the property line) to Clark Street.

There are open ditches on the north side of Clark Street which convey the watercourse flow and drain east to the west side of Grey Rd. 2. The Grey Rd. 2 ditch flows north, and a channel splits off from the ditch and extends north-west through the eastern part of the site within the hydro easement. We

believe this channel is likely part of the edge of the original road trajectory (turn off from Hwy 26). The west ditch on Grey Rd. 2 continues north to connect to the ditch on the south side of Highway 26.

The ditch on the south side of Hwy. 26 continues north-west for approximately 128 m where the split channel which extends through the site reconnects. The combined flow goes under Hwy. 26 at this point in a 2.75 m x 1.8 m high box culvert. Flow continues back south-east in the ditch on the north side of Hwy. 26, before flowing north under the Georgian Trail towards Lake Shore Road.

The existing driveway to the site off Clark Street currently has a 500 mm dia. culvert installed.

Existing Condition Stormwater Modelling

We have utilized PCSWMM 2023 modelling software (Version 7.6.3675, SWMM version 5.0.013-5.2.4) to undertake the analysis of the existing site condition.

The contributing drainage area for the site was determined using a combination of aerial imagery from Grey County Mapping (<https://geo.grey.ca>), topographic survey of the site completed in late 2021 and early 2022 and several site visits conducted in 2022.

Based on the available information there is only a very small external drainage area along the north-west edge of the site which could contribute flow onto the site. This area consists of the pervious (trees and long grasses) area bank of the sewage lagoon and is approximately 0.3 ha in size. Flow from this external area appears (from the topo and site visit) that it would likely be contained at the property line between the two sites and would generally flow north to highway 26. External runoff from further south is collected and contained in the watercourse channel which extends along the west side of the site. The watercourse is fully within the property limits of the site for the majority of the western property line. The watercourse channel is generally 0.6 m to 1.0 m deep, 2 m wide at the bottom, and 7 m wide at the top. The channel is grass lined for the entire length. We have not included this feature in the model as it is not intended to utilize the channel for stormwater controls and none of the existing site currently discharges runoff to the feature.

Rainfall data was obtained from the updated Town Engineering Standards which refer to the “MTO Look Up Curve” and have adjusted the rainfall by 10% to account for Climate Change. We have tested the site for the 2-100 storm event for the 4-hour Chicago Storm and the 24 hr SCS Type II Storm as required by the Town standards. We have also analysed the 4 hr 25 mm Chicago storm (quality control storm) and the Regional (Timmins) storms.

The total on-site drainage area has been determined to be 3.74 ha in size and flows primarily by overland sheet flow to the east/south-east to the Clark Street/Grey Rd. 2 and the Hwy 26 ditch system with no defined drainage course or specific outlet point. For the purposes of this model, we have assumed two existing condition catchments for the site. We have excluded the small external drainage area as we believe it will have no impact on the design or the site stormwater and will likely bypass the site.

Subcatchment A1 – 0.6543 ha – This area is located on the west and south sides of the site and generally drains south to Clark Street. The subcatchment is 100% pervious and we have assigned a pervious n value of 0.32 and a depression storage of 8.5 to reflect the mix of long grasses and trees. The flow length was set to 10 m and a slope of 2%.

Subcatchment A2 – 3.0583 ha – This area is the majority of the site and generally drains overland to Hwy 26/Grey Rd. The subcatchment is 100% pervious, with a flow length of 100 m a slope of 2.5% and an n value of 0.32 and depression storage of 8.5 to reflect the long grasses and trees.

Please refer to **Appendix E** for the pre-development catchment plan.

Based on the infiltration analysis from the 2022 Geotechnical Report for the native site soils and using the USDA Natural Resources Conservation Service Soil Texture Calculator the least transmissive dominant soil on site is classified as a “silt loam”

(https://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/survey/?cid=nrcs142p2_054167)

Silt Loam with such a low K_{sat} (average of 0.77 mm/hr) will have limited infiltration capacity in the pre-development condition.

We have selected the Green Ampt Method of infiltration for the majority of the surface soils for a silt Loam as per the geotechnical information provided. The estimated K_{sat} for the site based on the April 2022 report completed by GEI is 0.77 mm/hr. The remaining Green Ampt infiltration parameters for Suction Head and Initial Soil Deficit have been selected as per Rawls (1983) for a silt loam.

$K_s = 0.77 \text{ mm/hr}$ (Silt loam) – As per 2022 Geotechnical Report

Suction Head = 169.926 mm (Silt Loam as per Rawls 1983)

Initial Deficit (fraction) = 0.217 (Silt Loam as per Rawls 1983)

Additional PCSWMM model input parameters for the Manning’s roughness coefficient (n) and depression storage were determined from the US EPA TR-55 Report (1986) and from UNESCO Manual on Urban Drainage (1987).

Table 5.9: Manning Roughness Coefficients - Overland Flow

Cover	n
Impervious areas	0.013
Woods	
with light underbrush	0.4
with dense underbrush	0.8
Lawns	
Short grass	0.15
Dense grass	0.24
Agriculture Land	0.050-0.170

Ref: Adapted from Soil Conservation Service, Urban Hydrology for Small Watersheds, U.S. Dept. of Agriculture, Soil Conservation Service, Engineering Division, Technical Release 55, June 1986

10.2 Initial Abstraction/Depression Storage

Table 10.2: Initial abstraction/depression storage

Cover	Depth (mm)
Woods	10
Pasture/Meadow	8
Cultivated	7
Lawns	5
Wetland	12/16
Impervious areas	2

Ref: UNESCO, Manual on Drainage in Urbanized Areas, 1987.

Please refer to **Table 1** below for a summary of the pre-development peak runoff.

Table 1 – Pre-Development Modelling Results

Storm Event	Peak Flow To Clark Street (A1) (m ³ /s)	Peak Flow To HWY 26 (A2) (m ³ /s)	Total Peak Flow Offsite (m ³ /s)
24 Hr SCS Type II			
2-year	0.10	0.13	0.23
5-year	0.15	0.25	0.40
10-year	0.19	0.35	0.54
25-year	0.23	0.48	0.71
50-year	0.26	0.59	0.85
100-year	0.29	0.69	0.98
4 Hr Chicago			
2-year	0.03	0.04	0.07
5-year	0.08	0.10	0.18
10-year	0.14	0.14	0.28
25-year	0.21	0.21	0.42
50-year	0.26	0.27	0.53
100-year	0.32	0.33	0.65
25 mm	0.00	0.00	0.00
Timmins	0.08	0.33	0.41

The 24 Hr SCS Storm produces the highest peak flow and volume from the site. Please refer to **Appendix E** for a summary of the results for the 100-year SCS storm. Additional storm results or the full digital model can be provided upon request.

Proposed Site Design

It is proposed to construct a new two-way, 6.0 m wide, asphalt entrance extending north from Clark Street at the southwest corner of the site. It is proposed to construct a two storey, 1300.64 sq. m (footprint) industrial building (Building A). with a gross floor area of 2,601.28 m² including 37.2 sq. m office space on the south part of the site. In addition, it is proposed to construct 5 single story self-storage buildings (on the southern part of the site (Building B = 454.26 m², Building C = 681.36 m², Building D = 763.50 m², Building E = 1,053.72 m², Building F = 763.50 m² and Building G = 530.28 m²) along with 6 m wide internal access road, 9.0 m wide emergency access route and 37 parking spaces including 4 accessible spaces plus 2 loading spaces.

The northern part of the site will be developed with a 1 story, 1,704.19 sq. m Industrial building (Building H) with separate parking from the south part of the site. A total of 36 parking spaces including two barrier free spaces will be provided on the north half of the site. Two loading spaces will also be provided on the north part of the site.

The north and south parts of the site will connect using a 6.0 m wide roadway through the EP area.

Please refer to the Site Plan prepared by IPS consulting included in **Appendix A** for the proposed site layout.

JDB Associates Ltd. has prepared a tree preservation plan which identifies the areas on the site to be disturbed (See **Appendix C**) including a 10 m buffer from the watercourse along the north-east, south and western parts of the site

The MTO has requested a 24 m setback from the edge of the Hwy 26 corridor for all structures, substantial grading and stormwater management infrastructure. The site plan shows all substantial site works setback at least 24 m, however as the overall drainage pattern for the site is from west to east towards Highway 26 there is a requirement to discharge stormwater into and through the 24 m setback.

The County has requested a 15 m x 15 m sight triangle at the corner of Grey 2 and Clark Street, a 30.48 m ROW and a widening along Grey Rd. 2 to achieve it, however it appears based on the information we have available that the Grey Rd. 2 ROW is already at 30.48 m and no widening is required. The sight triangle has been provided on the plan.

The site requires a new sanitary sewer connection as the zoning does not allow for an on-site septic system. In addition, the site will also require a new watermain connection for both domestic and fire flow demand.

Stormwater will be conveyed via primarily storm sewer to a centralized stormwater management facility located on the south side of the EP lands in the middle area of the site.

As per the recommendations of the Floodplain Report a culvert is proposed along the northern part of the site redirect the flood spill north around the industrial building. The culvert is proposed to be a 2130 mm x 860 mm CSP Arch (open bottom). This pipe has the equivalent capacity as the floodplain report recommended box culvert but requires less cover than the box culvert and allows for the parking area to extend further north. The capacity of the arch culvert has been run through PCSWMM to demonstrate the capacity and the Hydraulic Gradeline Analysis provided in **Appendix F**.

Sanitary Flows & Sewer Design

The proposed three storey commercial building on the south half of the site and the one-story industrial building on the north half of the site will require a new sanitary sewer connection to the Municipal sanitary sewer system. The zoning for the site does not allow for an on-site septic system. The remaining self storage buildings on the south half of the site will not require a sewage (or water connection).

The entire site is within the M1 (general employment) zone which allows for both industrial and commercial uses as proposed. As the north side of the site is to have an industrial use building and the south is to have both industrial and commercial buildings, we have assumed for the purposes of the design that the entire site will be considered industrial. Neither the tree preservation zones or the area within the 24 m MTO setback will be included in the calculations as they can not be developed, but all other open space, SWMF, roads and parking have been included in the calculations.

The total proposed sewage for an industrial zone is calculated as per the Town of the Blue Mountains Engineering Standards (2009).

- Light Industrial Use – 20,000 L/ha/day (average flow)
- Peak Extraneous Flow = 0.28 L/s/ha

The peak flow for industrial site can be determined by applying a peak factor as per the recommendations of the MECP Design Guidelines for Sewage Works (2008) which indicates that peak sewage flow factors should be industry specific and similar to the water demand peaks. In this case the specific industry is not known, but the Town recommended peaking factor for water demand is 2.0 for the max day or 4.5 for peak hourly. In absence of site-specific industry usage, we have assumed the peak factor be 4.5.

The industrial area including the SWMF and the access road on the site is equal to 2.23 ha and would therefore generate 44,600 L/day of sewage. It is assumed that the sewage generated by the industrial part of the site would occur over a 10 hr workday which would translate into a flow of 4,460 L/hr. Applying the max peak factor of 4.5 would equate to a peak flow of 20,070 L/hr or 5.58 L/s. With an additional 0.62 L/s for peak extraneous flow. This would equal 6.20 L/s peak sewage flow for the site.

The Town minimum sanitary connection size for industrial sites is 200 mm. We propose to use a 200 mm dia. sanitary connection for both the industrial buildings (none of the self storage buildings require a sanitary or water connection) with a 200 mm dia. sanitary sewer line extending south and then east through the site to Grey Rd. 2. The sanitary system will need to extend from Grey Rd. 2 to the south side of Highway 26 and then south-east approximately 123 m to the existing Manhole which has an invert of 181.00. Please refer to the as-built information in **Appendix B** for the existing sanitary manhole and to the details on **Drawings C12 & C13** for the proposed sanitary sewer and to **Appendix I** for the sanitary sewer design sheet.

The Town has also requested that a sanitary sewer pipe be extended south on Grey Road 2 to the intersection of Clark Street to allow for a future connection for external lands. We have assumed a pipe size of 200 mm at 0.5% for the additional pipe connection based on the Town minimum standards and the assessment of the anticipated peak flows from the external lands of 1.47 L/s (see assessment below).

Using Mannings equation the capacity of a 200 mm dia. line at the minimum allowable slope of 0.5% is equal to 20 L/s, well in excess of the sewage generated from the proposed buildings.

The new proposed sanitary sewer will require an ECA from the MECP as well as approval from the Town, County and MTO.

Sanitary System Assessment

The Town has also requested that we completed a review of the existing sanitary sewer and treatment plant capacity.

We have reviewed the following 3 relevant recent sanitary system reports provided by the Town of the Blue Mountains, prepared by Cole Engineering Group Ltd., March 9, 2020 as they relate to the subject site Lot 31 Clark Street, Thornbury ON (Town of the Blue Mountains):

- Town-wide sanitary collection system model and needs assessment project, model calibration report
- Town-wide sanitary collection system model and needs assessment project, system deficiencies report
- Town-wide sanitary collection system model and needs assessment project, system assessment report

Further, a review of the following supplemental reports was also undertaken in conjunction with those noted above for additional context in terms of land use and measured flow data:

- Inflow and infiltration study, Craighleith and Thornbury Wastewater service areas, Town of the Blue Mountains (Cole Engineering Group Ltd, September 2014)
- Town of the Blue Mountains Staff Report, Operations – Water & Wastewater Service, 2020 year end water & wastewater capacity Assessment (June 21, 2021)
- Functional Servicing Report, Cedar Run Wakeboard Cable Park (Tatham Engineering, April 2, 2020)
- Town of the Blue Mountains DRAFT Water and Wastewater Capacity Assessment 2023 Year End Report

Background

As generally noted within the staff report listed above, the Thornbury WWTP has a firm ADF capacity of 3,580 m³/day or 4,091 units based on 0.875 m³/unit/day. A total flow of 3,214 m³/day (3,673 units) is currently connected or allocated based on a 5 year rolling ADF. There are 3,673 units allocated and 203 reserved. Using planning projections the current uncommitted reserve capacity based on built capacity is 215 units however not all units are physically connected. There are 477 units (203 reserved + 247 that can connect) which are not physically connected.

We understand that phased expansions are planned for the existing facility and will be occurring back to back to increase overall capacity of the plant.

It is proposed that the subject site at Lot 31 Clark Street be utilized as a mix of commercial and light industrial, and would require an extension of gravity sanitary sewer extending easterly approximately 70m on Grey Road 2, and southerly approximately 100 m south on Highway 26 to connect to the existing

sanitary manhole within the Highway 26 boulevard (labelled as MH1 on the Skelton Brumwell as-constructed Plan and Profile, Highway 26 STA 16+900 – 17+200). The existing sanitary sewer from this point drains via gravity southerly to the Sewage Pumping Station located at 129 Lakeshore Road E. known as the 'Lakeshore SPS' or 'Lake Shore Sewage Lift Station' herein. From this lift station, flows are directed via existing forcemain to the Thornbury WWTP.

Cole Engineering Group Ltd. identified several deficiencies of sanitary sewer size immediately upstream of the Lakeshore SPS; 83 m of existing 250 mm dia. Sanitary sewer that were exceeding 95% of their full flow capacity when accounting for all existing and future allocations within the study areas. It is recommended within Cole's report that this length of sewer be upsized to 450 mm diameter to accommodate all existing and future flows within the planned service area. It should be noted herein that the Skelton Brumwell as constructed plans identify these lengths of sewer as being 450 mm dia. as built; as such, the size of these sewers should be field verified to reconcile this discrepancy. We believe that COLE's reporting may have these sewers listed as 250 mm dia. in error.

Cole Engineering Group Ltd. further did not make any recommendations for improvements at the Lakeshore SPS; please refer to table 4.2 within their needs assessment report for a summary of recommended projects and pump station performance. The firm capacity of the Lakeshore SPS was noted as 82 L/s with a peak modelled flow of 81.4 L/s entering the SPS cumulative of all flow allocations; a station capacity of 164 L/s and a peak modelled flow in the existing forcemain of 43.1 L/s with an estimated capacity of 147 L/s. It should be noted that levels within the SPS may need to be adjusted as flows increase with development.

Post Development Sanitary Conditions

Significantly, the subject site (Lot 31 Clark) has not been investigated to date in any of the above reports as existing or future allocation for development; residential or employment lands (see figure 4.1, Cole Engineering Ltd. system assessment report for areas considered).

As per the updated sanitary sewer design sheet prepared by Capes Engineering Ltd., (See **Appendix I**) the subject site contributes a total peak flow of 6.20 L/s to the existing sanitary sewer, and Lakeshore pumping station. This flow herein has been considered additional to the flows calibrated by Cole Engineering Group Ltd. within their various reports. Average Daily flow for the industrial site use, plus extraneous flow is calculated to be 1.75 L/s for a total of 63 m³/day ADF (using a 10hr day of operation).

As outlined, the subject site would require the following in terms of facility capacity:

- Peak flows increased by 6.20 L/s entering the Lakeshore SPS, for a total of 87.60 L/s peak flow with all future development considerations as modelled by COLE.
- Allocation for 63 m³/day (equivalent to 72 units) ADF within the Thornbury WWTP would be required to facilitate this development as light industrial land usage, as proposed.

Existing Sanitary Sewer Analysis

Refer to revised Sanitary Sewer Design Sheet as prepared by Capes Engineering Ltd. outlining flow implications for the existing sanitary sewer located between the subject site and the Lakeshore SPS. It should be noted that there were no Subcatchment areas modelled by Cole Engineering Group Ltd. for

this length of existing sewer, however an account was made for the future development lands identified at the south westerly corner of the Clark St. and Grey Road 2 intersection as shown on figure 4.2 of the COLE Needs Assessment Report. These lands are currently zoned generally as recreation and hazard lands, and public utilities, and the COLE reports has made a flow assumption for this area of 450 L/c/day with 0.28 L/s/ha for infiltration as an assumed residential development. Upon our review, it could not be reconciled from COLE's reporting the total assumed flow implication from this site, or how this site impacted their modelled flows.

Per the Town of the Blue Mountains Official Plan, this land is subject to Special Site Policies section B3.2.6.1 with a land use possibility as a commercial recreational facility, resort unit complex and commercial space, with dictated constraints. Since this date, a site plan application has been made for an alternative site plan arrangement consisting of a watersports park. Preliminary sanitary flow data available from the Tatham Engineering Functional Servicing Report indicates a daily flow of 6000 L/day (0.07 L/s) to be serviced in the interim with on-site sanitary, with future connection to the existing sanitary sewer on Highway 26. This flow was determined based on the Ontario Building Code, and does not include any extraneous flow associated with the subject land area.

It has been assumed herein for analysis purposes that a maximum extraneous flow of 1.40 L/s would be applicable to this subject land, based on the 0.28L/s/ha for a 5 ha area associated with the proposed commercial plaza and pro shop, as well as the length of sanitary sewer located between the site and the existing sanitary manhole on Highway 26 (MH1 as labelled on Skelton Brumwell As Constructed plans).

Additionally, the Inflow and Infiltration study prepared by COLE, dated September 2014, the FM07-Lakeshore SPS received a measured peak infiltration and inflow of 8.0 L/s; in the revised sanitary sewer design sheet, this flow has been applied at the upstream end of the Lakeshore Road E. sanitary sewer as a conservative wet weather flow, as it is believed that all flows measured at the Lakeshore SPS during this study were contributed from the Georgian Bay Club and Camperdown Road developments, which are located on a separate branch of gravity sanitary. In COLE's calibration report, the measured peak flow on FM04 was found to be 5.4 L/s in their model validation of the same location.

Sanitary Analysis Conclusion & Recommendations

Based on our assumptions and review of the articles provided, we offer the following summary of post-development sanitary flows contributing to the Lakeshore SPS:

- Total Peak Flow from Lot 31 Clark St., Post-Development = 6.20L/s
As outlined, the subject site Lot 31 Clark St. would require the following in terms of facility capacity:
- Peak flows increased by 6.20 L/s entering the Lakeshore SPS, for a total of 87.60L/s peak flow with all future development considerations as modelled by COLE.
- Allocation for 63 m³/day ADF within the Thornbury WWTP would be required to facilitate this development as light industrial land usage, as proposed.

Based on the assumptions herein, the existing sanitary sewer located along Highway 26 between the subject site and the Lakeshore SPS is adequately sized to handle the proposed peak inflows, as is the existing Lakeshore SPS and the existing forcemain. We also believe there is still adequate capacity in the

WWTP to accommodate this development. Please refer to the revised sanitary sewer design sheet appended to this report, prepared by Capes Engineering Ltd.

We would recommend that Town of the Blue Mountains operations staff independently verify the size of the existing sanitary sewer located on Lakeshore Road E. to reconcile the discrepancy between COLE's reporting and the Skelton Brumwell as constructed plans.

We would further recommend that the Town of the Blue Mountains commission COLE to update their needs assessment to include the subject site lands as presented herein, and update the assumed flows from the Cedar Run Wakeboard Cable Park lands to better represent the most recent post-development land use and associated flows. As stated herein, the assumed flows for these lands from COLE's reporting could not be reconciled for their implications on total modelled flows at the Lakeshore SPS.

Water Servicing

It is currently unknown what the internal configuration of the two-story commercial building or the one-story industrial building will be, including the number of washrooms and other water using fixtures. The self storage buildings will not have a water connection and will therefore not be included in the domestic water demand calculations.

The Town of the Blue Mountains Engineering Standards do not have standard flows or demands for commercial or industrial uses and therefore they must be determined on an individual basis.

It is proposed that these industrial buildings will be "light" industrial and will likely not have a water intensive manufacturing use. This report assumes a passive industrial use (such as warehousing) with the majority of sewage flows generated by the staff/public. As per Section 7.4.10.5 of the Ontario Building Code we have assumed that the industrial buildings will each have less than 260 fixture units and therefore the average daily load will be equal to 2,360 L per building.

The domestic water demand has been calculated and included in **Appendix G**. The total peak hourly demand for the site is 0.59 L/s.

We recommend a 50 mm dia. domestic water service connection to each of the industrial buildings.

There is an existing fire hydrant near the SW corner of the intersection of Clark Street and Grey Rd. 2 however the distance from this hydrant to the southern most building entrance is approximately 90 m which is close the maximum allowable under OBC for distance from a hydrant. It is proposed that an additional 6 fire hydrants will be added to the site to ensure sufficient coverage for all of the proposed buildings.

A minimum 9.0 m wide emergency access route will be provided for the self storage buildings with a 6.0 m emergency access route to the industrial building.

The total fire flow demand based on the OBC method (OFM-TG-03-1999 Fire Protection Water Supply Guideline for Part 3 in the Ontario Building Code) is 150 L/s and the combined domestic and fire flow is 150.59 L/s. Under the Fire Underwriters Survey (FUS) method the fire flows are significantly higher due to the requirement to increase the flows based on the separation charge for the self storage buildings. The FUS method generates a peak fire flow and domestic demand of 413.33 L/s. We believe that the

OBC method is more realistic for the fire flow requirements for the site, however we have included both methods in **Appendix G**.

As per Town standards it is proposed to install a 200 mm dia. watermain on the site. The watermain will connect to the existing stub at the south-west corner of the intersection of Clark Street and Grey Rd. 2.

Please refer to **Drawings C2, C3 and C11** for details of the proposed water servicing and to **Appendix G** for the water demand calculations.

The Town Water Treatment Plant (WTP) has a firm capacity of 15,140 m³/day and receives up to 1,250 m³/day from the Town of Collingwood. The total firm capacity is therefore 16,390 m³/day or 16,006 units based on the 5 year rolling MDD of 1.024 m³/day.

A total of 11,134 m³/day (10,873 units) is currently connected or allocated leaving a total flow of 2,641 m³/day (2,579 units) in reserve. Of the total 16,006 units of water supply available there are currently 13,452 units allocated and reserved leaving a total of 2,554 units available.

We believe that there is sufficient capacity in the WTP to accommodate the proposed development.

Utilities

Hydro is provided on Clark Street from an overhead pole line on the north side of the road and a transmission line extends through the site in an easement which will remain.

A new electrical connection will need to be coordinated with Hydro One (HONI) and extended to the new buildings. Telecommunications and natural gas connection (if required) will be coordinated at the same time as the hydro connection, and it is proposed that the coordinated design would be completed by others.

Utility coordination, Street lighting design for the parking and entrance locations and photometrics will be prepared by others and submitted under separate cover in a future submission.

Stormwater Approval Criteria

The stormwater management for the site must conform to the Town of Blue Mountains Engineering Standards (2023) as well as the GSCA Policies for the Administration of the Development, Interference with Wetlands and Alterations to Shorelines and Watercourses Regulation (2010).

The following are the criteria the site must achieve:

- Post Development peak runoff must match pre-development peak runoff for the 2-100 year storm events
- Safe Conveyance of the Regulatory (Timmins/100 Year) storm
- Enhanced level of quality control as defined by the MECP (80% TSS Removal)

Stormwater Modelling - Proposed Development

It is proposed to implement a multistage approach to stormwater management. A series of catchbasins will collect runoff from the site and will discharge through two Oil Grit Separators (OGS) units into a dry pond stormwater management facility (SWMF). The overflow from the SWMF will discharge to the existing on-site water channel along the east side of the site. The SWMF will discharge via an outlet structure consisting of a small diameter orifice (75 mm) with a trapezoidal weir (0.40 m opening) set above that to control less frequent events.

Using the proposed site plan (**Appendix A**) we have measured the overall imperviousness of the site and found it increases from 0.0% (pre-development) to 45.5% (proposed condition).

As with the existing condition model we have assumed the majority of the surface soils will be the Silt Loam as per the geotechnical information provided.

$K_s = 0.77 \text{ mm/hr}$ (Silt loam) – As per 2022 Geotechnical Report

Suction Head = 169.926 mm (Silt Loam as per Rawls 1983)

Initial Deficit (fraction) = 0.217 (Silt Loam as per Rawls 1983)

We have separated the post development model into 21 internal sub-catchments

Subcatchment A1 is 0.53 ha in size and 98.5% pervious and consists of the watercourse and partially treed buffer along the west edge of the site. This area will have some grading completed to contain the flood waters from the west but otherwise will not be developed, and runoff will be allowed to sheet flow untreated to the watercourse draining to the Clark Street ditch. We have used a pervious n value of 0.32 and depression storage value of 8.5 mm to reflect the vegetated and partially forested nature of the subcatchment. The 1.5% of impervious area consists of asphalt at the entrance from Clark Street which can not be drained into the storm sewer network.

Subcatchment A2 is 1.33 ha in size and 96% pervious and consists of the watercourse and partially treed buffer along the east edge of the site. This majority of this area will not be developed, and runoff will be allowed to sheet flow untreated to the watercourse draining to the Hwy 26 ditch. We have used a pervious n value of 0.40 and depression storage value of 10 mm to reflect the vegetated and primarily forested nature of the subcatchment. The 4.0% of impervious area consists of roof area for one of the self storage buildings (Building G).

Subcatchments A3-A20 and A22-27 are a combined 1.67 ha and represent the roof areas of all the buildings, parking areas, driving lanes. The runoff will be collected in catchbasins and directed through two OGS units into the SWMF which in turn will discharge to the on-site watercourse. These subcatchments are generally 95-100% impervious, with the exception of A20 (75% impervious) which contains a grassed swale which connects to the SWMF and A23 (80% impervious) which contains a small amount of landscaped grass area.

Subcatchment A21 is 0.175 ha in size and 18% impervious. It represents the dry SWMF including the gravel access roadway and portion of the parking area and driving lane which will discharge runoff overland directly into the SWMF.

We have assumed a Manning's n of 0.24 and depression storage of 7 mm representing dense grass with additional plantings (wildflowers, low shrubs etc.) for pervious areas that are not forested (or as noted above) within the site.

Stormwater Quantity Control

We have utilized three storage nodes in PCSWMM to represent the surface storage within the SWMF.

The SWMF will have a 173 sq. m bottom area and 1083 sq. m top area, flat bottom and internal 5:1 side slopes to a maximum depth of 1.9 m. Treated inflow through the two OGS units and grassed swale will enter at the north and south ends of the facility. Discharge from the SWMF will be through a 75 mm dia. pipe at the east end of the pond with a trapezoidal weir set above that for less frequent storm events. The bottom elevation will be 184.00 with a 0.5 m deep micropool to improve stormwater discharge quality. The top elevation of the pond will be 185.90 but the maximum water surface will only reach 185.50 in the 100 year storm event allowing for 0.40 m of freeboard. The total volume stored in this facility in the 100 year event is 798 m³ and the total available volume is 1183 m³. A 6 m wide emergency overflow spillway has been provided at elevation 185.55, however this will only discharge water if the outlet structure becomes clogged.

Due to the high groundwater in the area the pond will be lined with clay to prevent inflow into the facility. Please refer to **Drawing C6** for additional details.

The oil grit separator on the south side of the pond is proposed to be a CDS Unit PMSU 2025_5 (or approved equivalent) with a treatment flow rate of 45 L/s. The OGS unit on the north side of the pond will be a CDS PMSU 2015_4 with a treatment flow rate of 20 L/s. Please refer to the sizing information provided in **Appendix F**.

The internal storm sewer system has been designed to convey the 5 year storm event without surcharge, however the system has the capacity to also convey the 100 year storm event without overflow. Any excess flow will be conveyed on the surface in the reverse crown asphalt roadway, however the proposed inlets are all designed as double catchbasins to ensure proper function even when 50% clogged and to ensure no surface ponding between the buildings. Grading has been designed to ensure no greater than 0.20 m ponding in the event of fully clogged inlets.

Please refer to **Table 2** for a summary of the Post Development Peak Flows and to **Appendix F** for the Post Development catchment plan, 100-year and 5-year 4 hr Chicago storm PCSWMM output results, Hydraulic Grade Line (HGL) Analysis and additional details for the post development model. Please also refer to **Appendix H** for the landscape plan for the site which includes landscaping details for the SWMF.

Table 2 – Post Development Modelling Results

Storm Event	Existing Peak Flow (m ³ /s)	Peak Flow To Clark Street (Bypasses SWMF) (m ³ /s)	Peak Flow To Hwy 26 (m ³ /s)	Total Peak Flow Offsite (m ³ /s)
24 Hr SCS Type II				
2-year	0.23	0.07	0.14	0.21
5-year	0.40	0.11	0.27	0.38
10-year	0.54	0.14	0.37	0.51
25-year	0.71	0.18	0.50	0.68
50-year	0.85	0.20	0.60	0.80
100-year	0.98	0.22	0.69	0.91
4 Hr Chicago				
2-year	0.07	0.02	0.05	0.07
5-year	0.18	0.05	0.11	0.16
10-year	0.28	0.09	0.16	0.25
25-year	0.42	0.14	0.24	0.38
50-year	0.53	0.18	0.30	0.48
100-year	0.65	0.23	0.36	0.59
25 mm	0.00	0.00	0.01	0.01
Timmins	0.41	0.06	0.36	0.42

Note: All values rounded to 2 decimal places.

All of the storms (with the exception of the 25 mm and Timmins events which are not required to be attenuated) are attenuated to below pre-development levels by the implementation of the SWMF.

The overland flow routes for the site are typically between the buildings in the reverse crown access roadways, but also within a swale on the east side of the access road to the industrial building. The peak flow to the SWMF during the 100-year event is 0.19 (from the north) 0.52 (from the south) and 0.10 m³/s from the swale. The maximum capacity (using Manning's Open Channel Flow equation) of each of the reverse crown routes is 0.13 m³/s (6 m wide, 2% crossfall, n = 0.013, slope of 1%). As the flow is distributed over 4 surface routes plus the pipe conveyance for the south flow there is sufficient conveyance volume for the peak flow. The flow from the north is potentially much wider at 32 m and a capacity of at least 1.15 cms. The swale has a maximum capacity of 2.25 cms and will flow only 52% full.

Stormwater Quality Controls

The Town of the Blue Mountains, GSCA and MECP quality control criteria require the long-term removal of 80% total suspended solids (TSS). In practice the TSS removal is calculated based on a 4 hr Chicago Distribution 25 mm storm event.

We have provided a copy of the SWMF drawdown curve in **Appendix F** which demonstrates the pond discharges the stored volume over approximately 21 hrs which is a function of the size of the discharge orifice which is already at a minimum of 75 mm. Ideally the pond would hold the stored volume for 24 hrs but 12 hrs is considered the minimum when the orifice is at the minimum.

We propose to also implement two CDS (or approved equivalent) OGS style pre-treatment units upstream of the dry SWMF which will remove additional TSS and generally improve the runoff quality. Please refer to **Appendix F** for the OGS sizing information.

Based on the 2003 MECP Stormwater Design Manual, typical dry SWMF can achieve average TSS removal efficiencies of 60% but can be improved by adding a micro pool and by vegetating the facility with long grasses which we have done in this case. We believe that the facility would achieve a minimum TSS removal efficiency of 70% while the two CDS units can achieve 82.9% and 84% TSS removal.

Based on the design we have provided we have therefore assumed a 95% TSS removal efficiency for the system.

A total of 53% of the site is not routed through any on-site stormwater controls, however these areas are not being developed or do not require SWM quality control (roof runoff, forested areas). A total of 40% of the site receives 95% TSS removal by going through both an OGS unit and the SWMF. The remaining 6.7% receives 70% removal by only being routed through the SWMF and not through the OGS units. The weighted removal rate for the site is therefore 91.4%.

We believe that with the implementation of the SWM facility and OGS units that the site will provide the required quality control.

Erosion and Sediment Controls

We recommend that heavy duty silt fence as per OPSD 219.130 be installed along the perimeter of the site to prevent sediment transport during construction. These controls should remain in place and be maintained until the vegetation is re-established on the site.

Some of the existing trees will need to be removed throughout the site in order to facilitate the construction of the buildings, parking areas and SWMF. The removal of trees should be minimized where possible, and the proposed silt fencing should be in place prior to the removal of the trees. A tree preservation plan has been prepared (by others) has been included in **Appendix C**. Please refer to the Tree Preservation Plan with respect to any vegetation removal on the site.

Temporary ESC controls are proposed in places within the 10 m watercourse setback and as per the EIS recommendations the disturbance in these areas is to be minimised and the area restored following construction.

A mud mat is proposed for the site as per Town Standards and should be installed prior to the removal of trees on the site. Please refer to **Drawings C8-C10** for the internal ESC controls and to **C14** for the external ESC controls.

Conclusions

The 3.74 ha site is currently vacant land partially covered in trees and open field space. There is an Environmental Protection Area along a portion of the west and south part of the site and through a swath in the middle of the site. The EP zone through the central part of the site splits the property roughly into north and south sections. It is proposed to construct a two storey, 1,300 .64 sq. m (footprint) industrial building including 37.2 sq. m office space in the south part of the site. In addition, it is proposed to construct 5 single story self-storage buildings on the southern part of the site along with internal access road and parking.

The northern part of the site will be developed with a 1 story, 1,704.19 sq. m Industrial building with separate parking from the south part of the site. The north and south parts of the site will connect using a roadway through the EP area.

The proposed stormwater infrastructure for the site will require Ministry of the Environment, Climate and Parks (MECP) approval as it is to service an industrial use. Approvals are also required from the Town of The Blue Mountains (Town) in the form of a Site Plan Agreement as well as the Grey Sauble Conservation Authority (GSCA) for the proposed works within their regulated area. A permit will also be required from the Ministry of Transportation (MTO) due to the proximity to the Highway 26 corridor and proposed infrastructure requirements. We also expect Grey County to provide comment on the proposed works due to the proximity of the site to Grey Rd. 2.

The site will be serviced with a Municipal watermain connection for both potable water to both industrial buildings while an additional 6 on-site fire hydrants will be provided to ensure adequate fire fighting coverage.

Sewage will be discharged to a gravity sanitary sewer which will be constructed along the south side of Highway 26 which will require approval from the County, MTO and an ECA from the MECP.

Stormwater management will be implemented in the form of a centralized enhanced dry pond with clay liner to prevent groundwater from entering the facility. Pre-treatment will be provided by two OGS units. Discharge from the SWMF to the onsite watercourse and subsequently the Hwy 26 ditch system will be controlled using a small diameter orifice and concrete weir combination set in an outlet structure manhole.

This report is intended to provide support for the proposed Site Plan Agreement and demonstrate that the site is feasible from an engineering point of view. We believe that this report demonstrates the site can be constructed to meet all of the relevant Town of the Blue Mountains, GSCA, County, MTO and MECP guidelines and criteria.

Report Prepared By:



Clayton Capes, MSc. P.Eng.

CAPES Engineering Ltd.



Drawings

Cover Sheet

Drawing C1 – Existing Conditions and Removal Plan

Drawing C2-C4 – Grading and Servicing Plans

Drawing C5 – Post Development Drainage Area Plan

Drawing C6 – Stormwater Management Facility Plan

Drawing C7 – Stormwater Management Facility Profile

Drawing C8-C10 – Erosion and Sediment Control Plans

Drawing C11-C13 – Plan and Profile

Drawing C14 – External Erosion and Sediment Control Plan

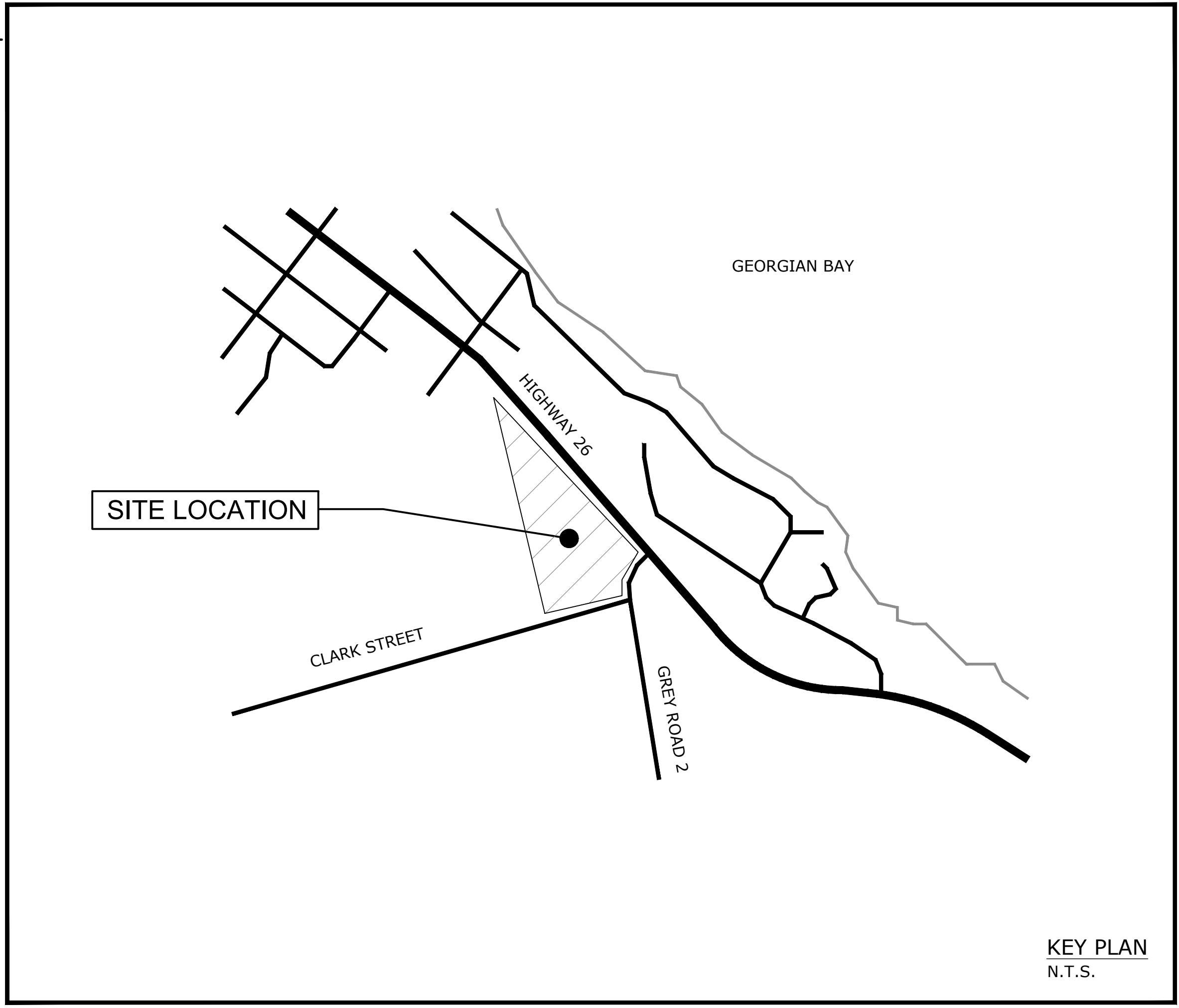
Drawing C15 – C18 - Standard Details

PANTONE CAPITAL INC.

Lot 31 Clark St. Site Plan

DRAWING INDEX

C1	EXISTING CONDITIONS AND REMOVAL PLAN		
C2	GRADING AND SERVICING PLAN (1 OF 3)		
C3	GRADING AND SERVICING PLAN (2 OF 3)		
C4	GRADING AND SERVICING PLAN (3 OF 3)		
C5	POST DEVELOPMENT DRAINAGE AREA PLAN		
C6	STORMWATER MANAGEMENT FACILITY PLAN		
C7	STORMWATER MANAGEMENT FACILITY PROFILE		
C8	EROSION AND SEDIMENT CONTROL PLAN (1 OF 3)		
C9	EROSION AND SEDIMENT CONTROL PLAN (2 OF 3)		
C10	EROSION AND SEDIMENT CONTROL PLAN (3 OF 3)		
C11	PLAN AND PROFILE	CLARK STREET	STA 0+000 to STA 0+154
C12	PLAN AND PROFILE	GREY ROAD 2	STA 0+000 to STA 0+172
C13	PLAN AND PROFILE	HIGHWAY 26	STA 0+000 to STA 0+136
C14	EXTERNAL EROSION AND SEDIMENT CONTROL PLAN		
C15	STANDARD DETAILS		
C16	STANDARD DETAILS		
C17	STANDARD DETAILS		
C18	STANDARD DETAILS		

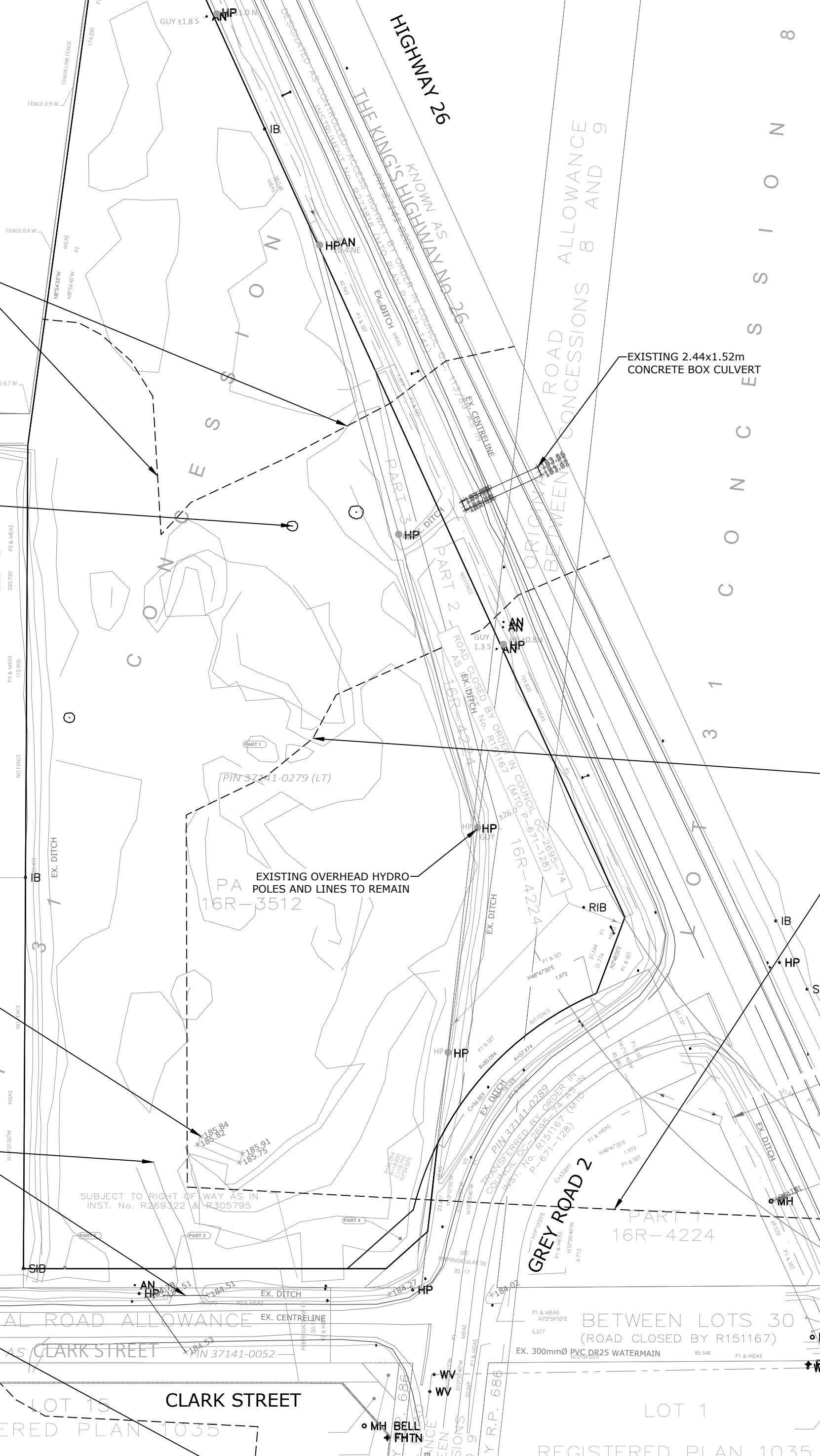
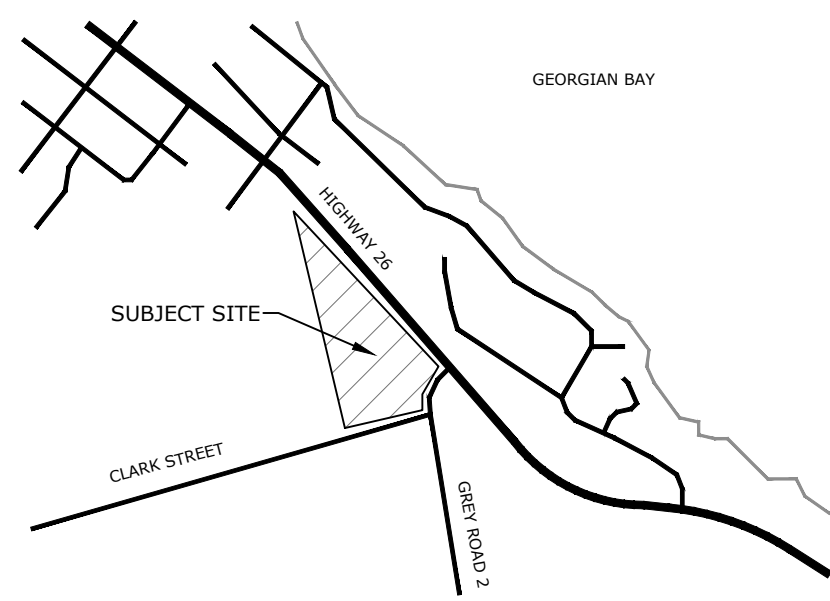


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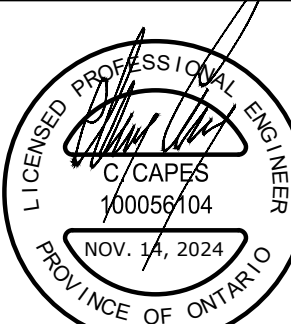




No	Revision	Date
1	ISSUED FOR APPROVALS	22/12/08
2	REVISED FOR APPROVALS	23/12/07
3	REVISED FOR APPROVALS	24/06/28
4	REVISED FOR APPROVALS	24/11/14

BENCHMARK: NAIL IN HYDRO POLE AT SOUTH END OF SUBJECT SITE, ELEVATION 185.392

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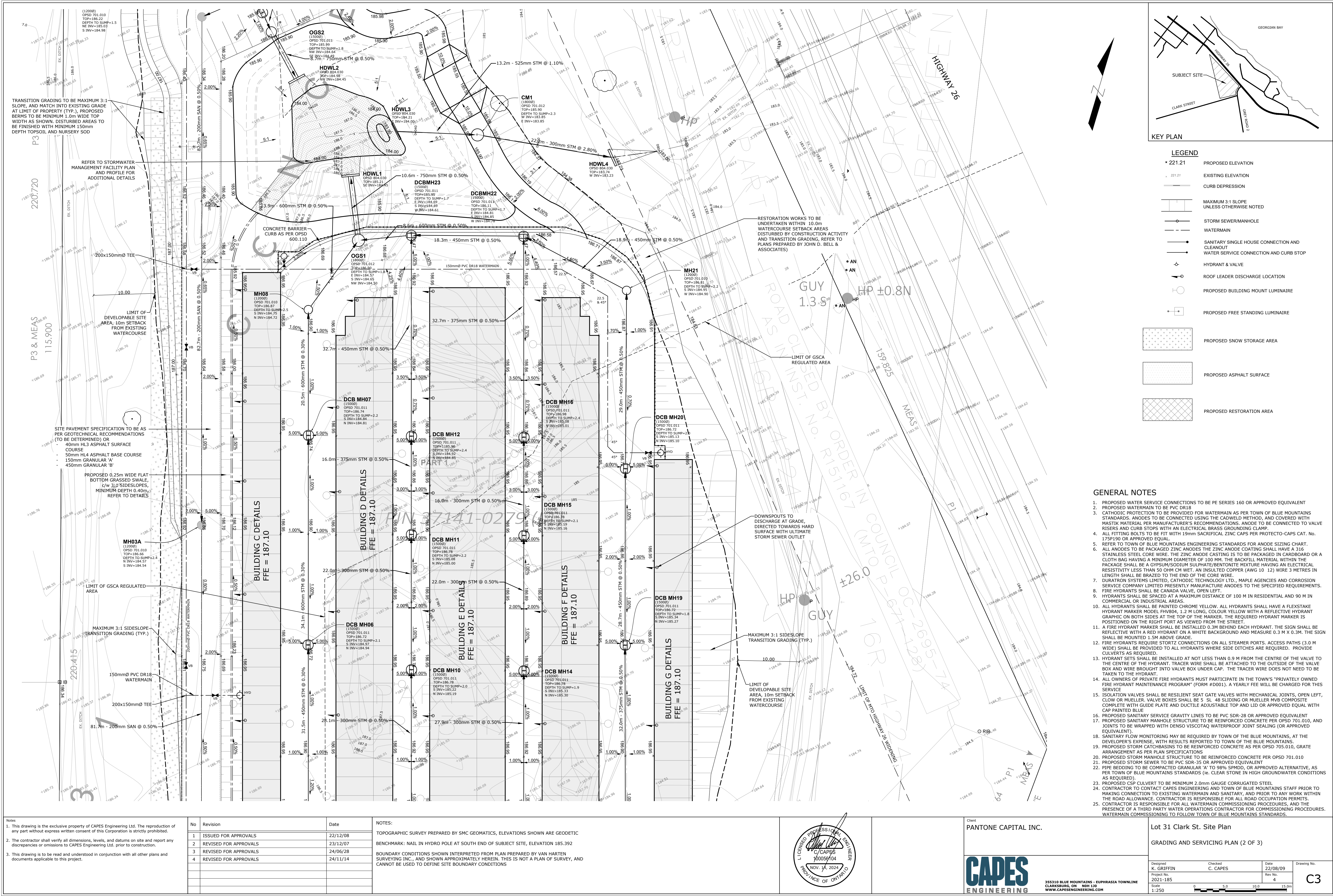
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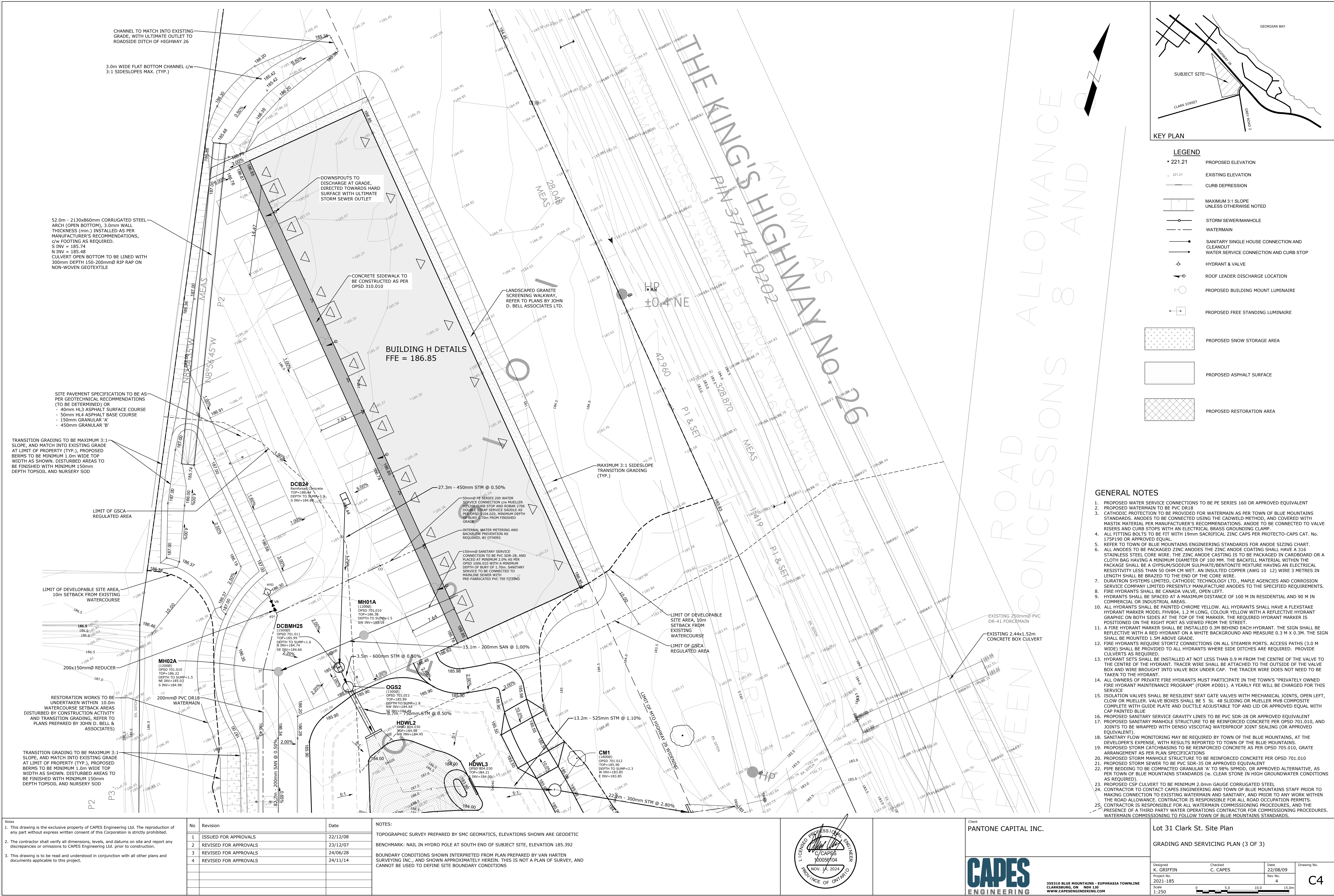
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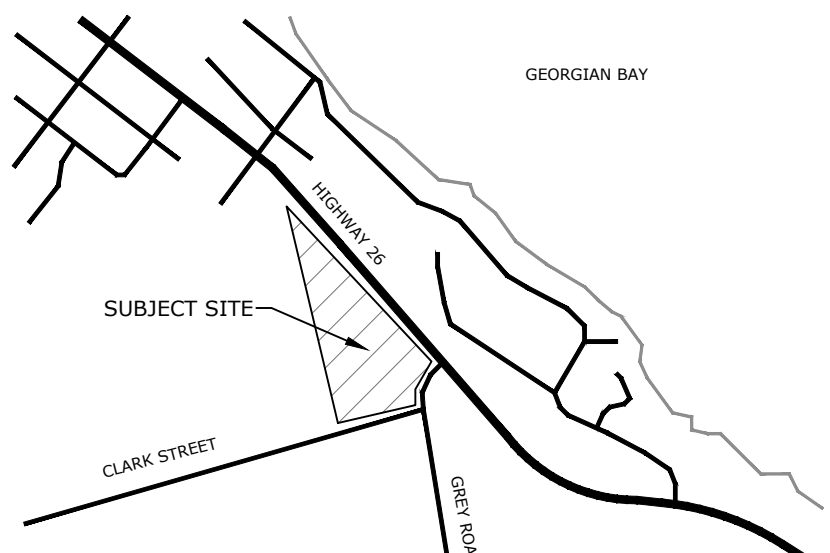
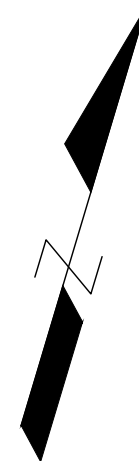
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Project No. 2021-185		Rev No. 4	
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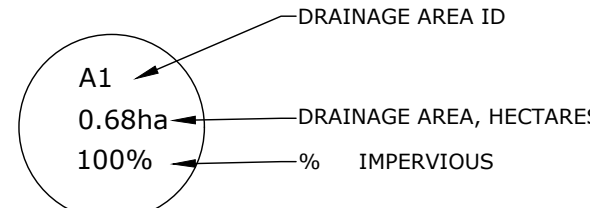




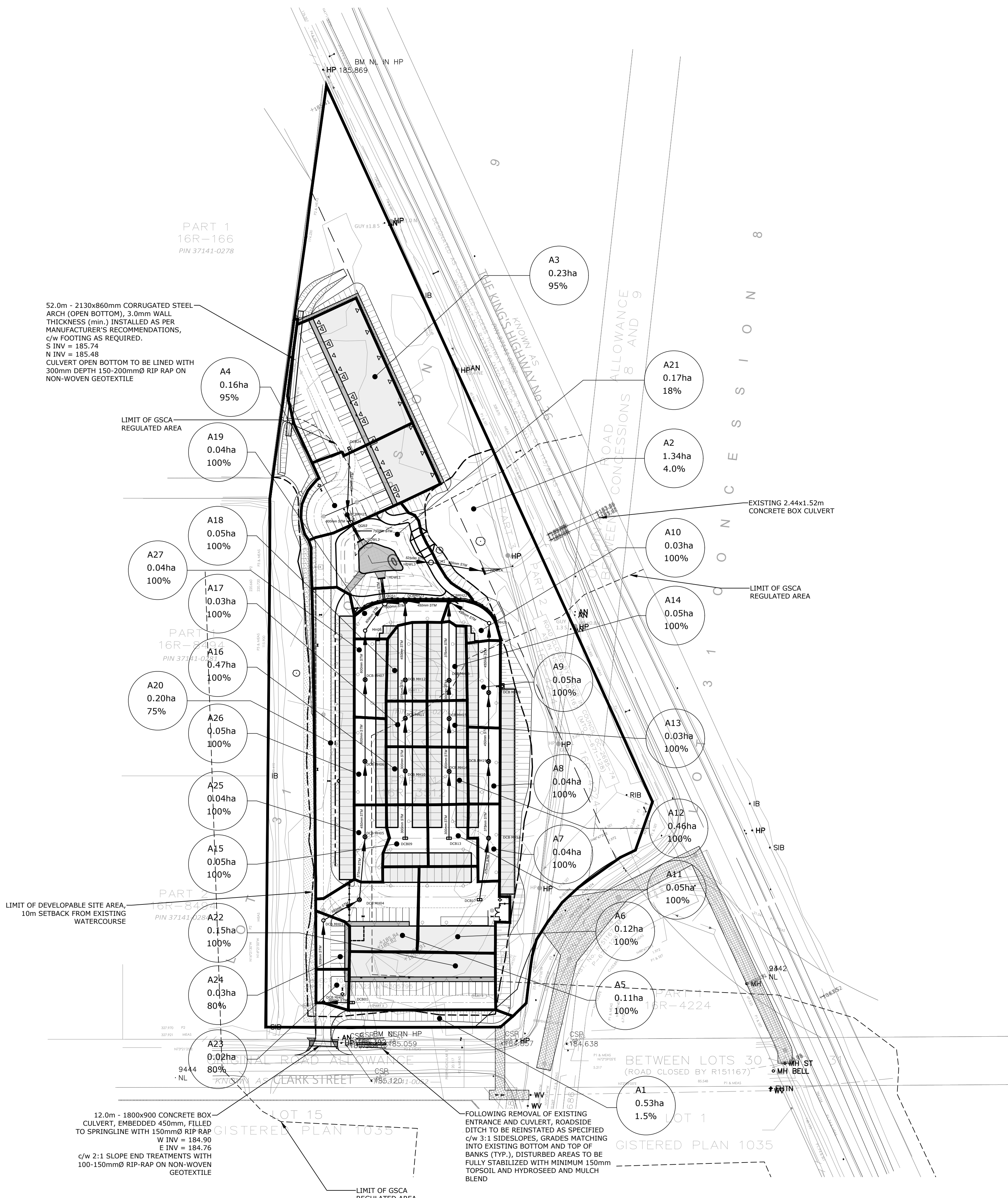


KEY PLAN

LEGEND



— DRAINAGE AREA BOUNDARY



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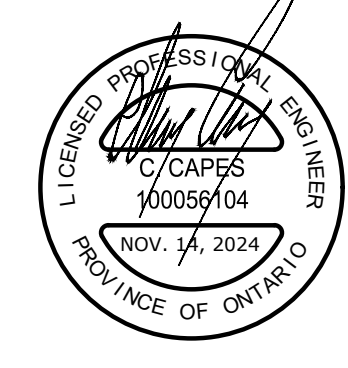
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NOTES:

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BENCHMARK: NAIL IN HYDRO POLE AT SOUTH END OF SUBJECT SITE, ELEVATION 185.392

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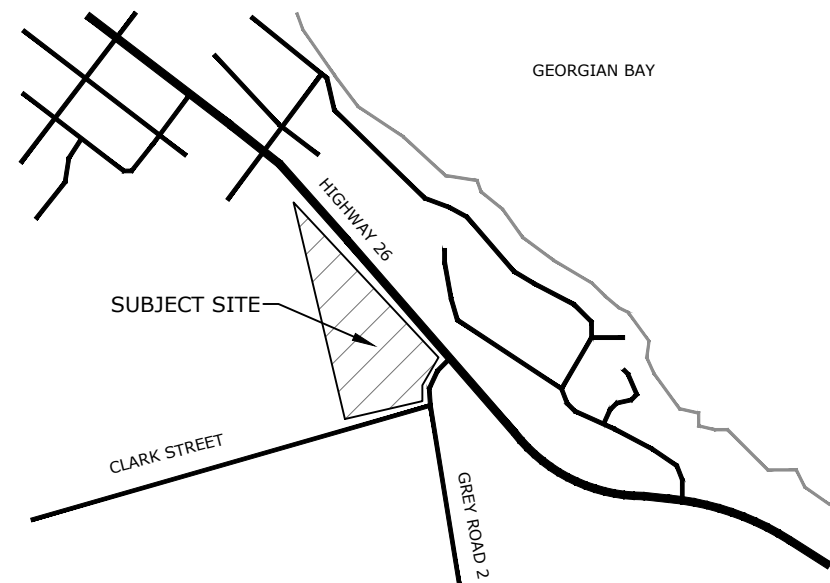
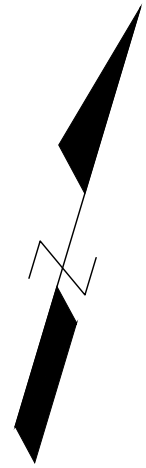


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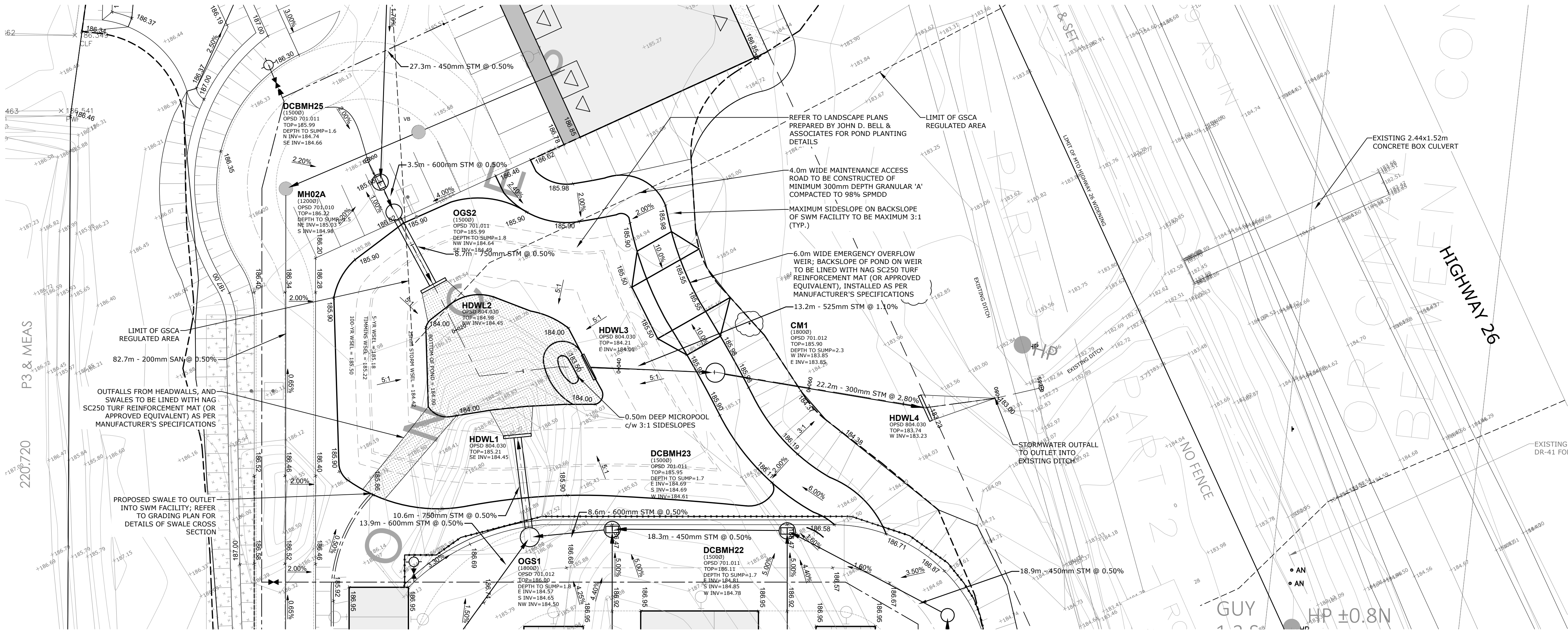
Lot 31 Clark St. Site Plan		
POST DEVELOPMENT DRAINAGE AREA PLAN		
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Project No. 2021-185	Rev. No. 4	Drawing No. C5
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KEY PLAN

LEGEND

- 221.21 PROPOSED ELEVATION
- 221.21 EXISTING ELEVATION
- CURB DEPRESSION
- MAXIMUM 3:1 SLOPE UNLESS OTHERWISE NOTED
- STORM SEWER/MANHOLE
- WATERMAIN
- SANITARY SINGLE HOUSE CONNECTION AND CLEANOUT
- WATER SERVICE CONNECTION AND CURB STOP
- HYDRANT & VALVE



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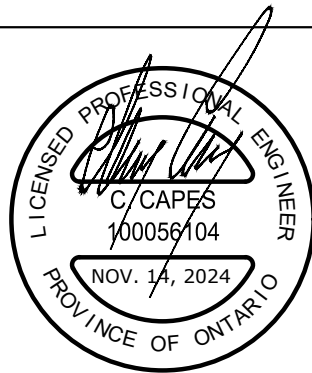
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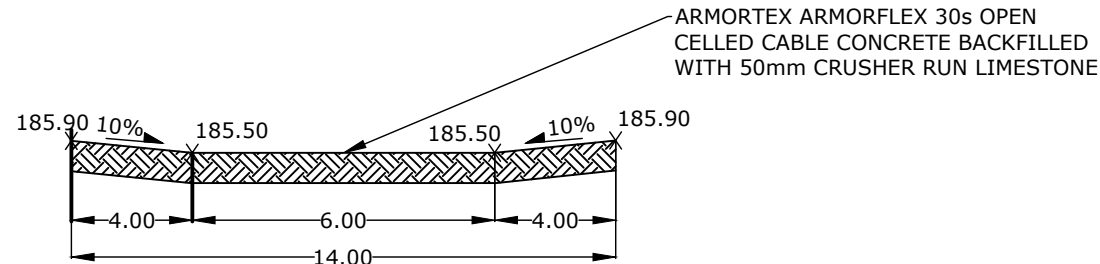


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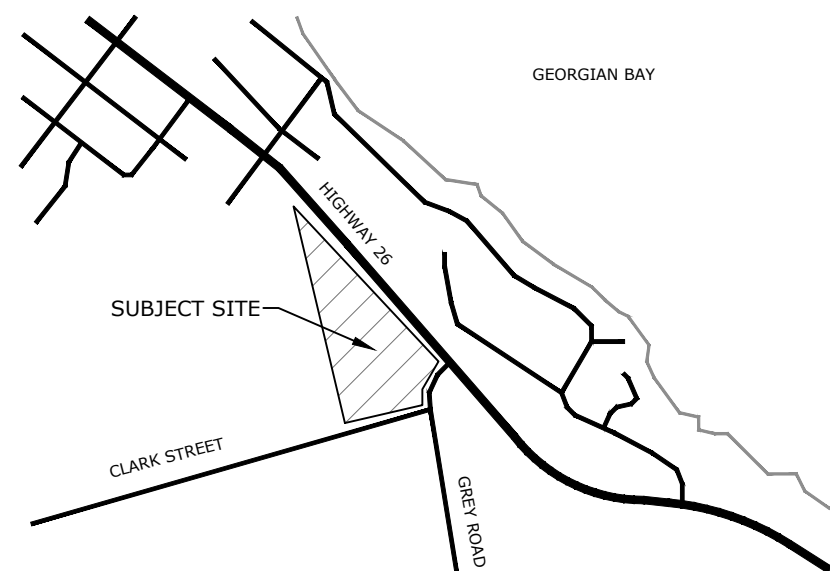
Lot 31 Clark St. Site Plan
STORMWATER MANAGEMENT FACILITY PLAN

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Project No. 2021-185	Rev No. 4		
Scale 1:250	0 5.0 10.0 15.0m		

C6



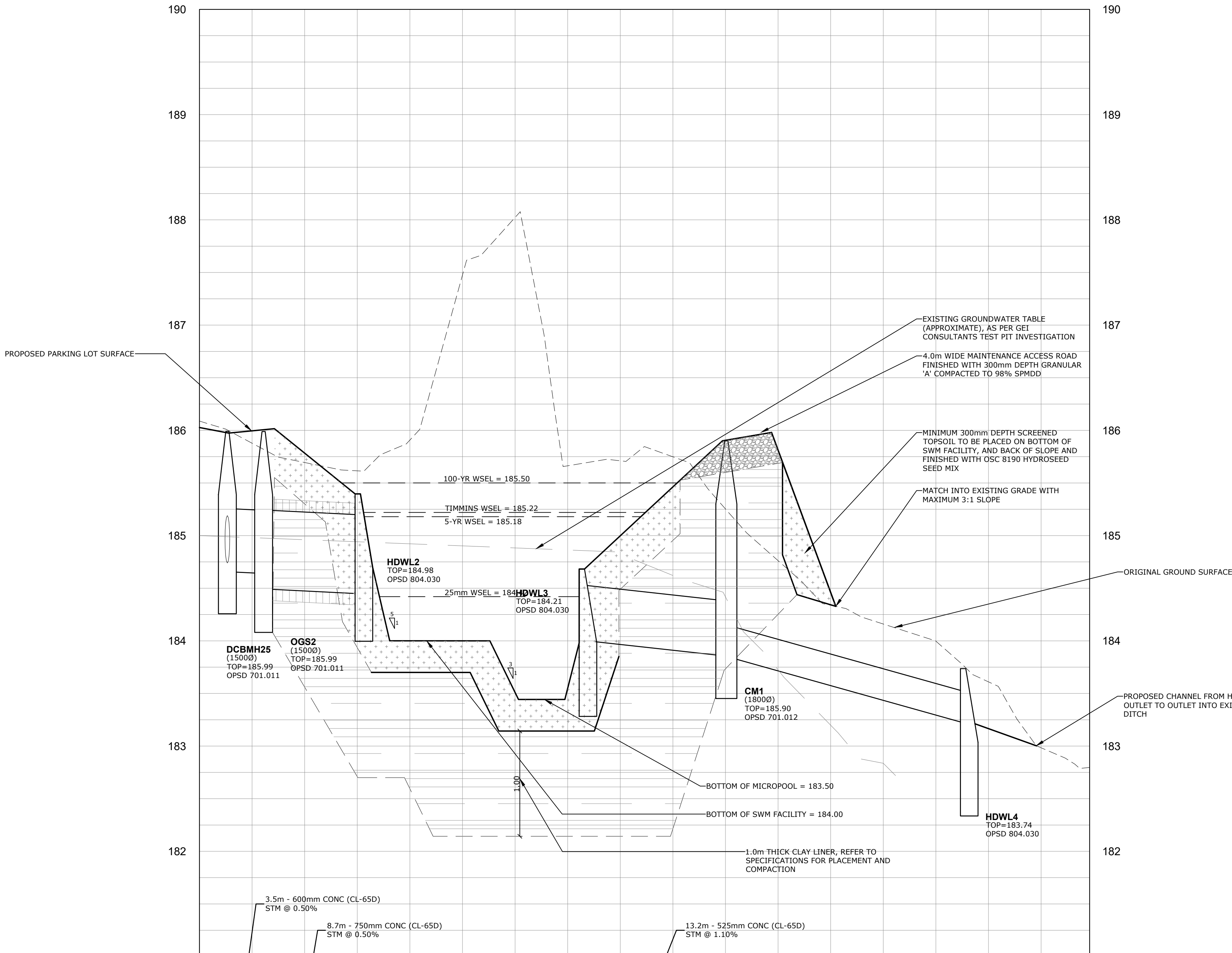
EMERGENCY SPILLWAY WEIR



KEY PLAN

LEGEND

- PROPOSED ELEVATION
- EXISTING ELEVATION
- CURB DEPRESSION
- MAXIMUM 3:1 SLOPE UNLESS OTHERWISE NOTED
- STORM SEWER/MANHOLE
- WATERMAIN
- SANITARY SINGLE HOUSE CONNECTION AND CLEANOUT
- WATER SERVICE CONNECTION AND CURB STOP
- HYDRANT & VALVE



IMPORTED CLAY LINER DESIGN NOTES

- MATERIAL USED FOR POND LINER TO HAVE BULK PERMEABILITY ON THE ORDER OF 10-9 m/s OR LOWER
- GRAIN SIZE DISTRIBUTION OF THE CLAY LINER MUST CONFORM TO:
 - NO PARTICLE GREATER THAN 100mm DIMENSION
 - NOT GREATER THAN 15% OF THE MATERIAL LARGER THE 4.75mm (No. 4) SIEVE
 - MINIMUM 35% OF THE MATERIAL FINER THAN 0.075mm (ie. PASSING No. 200 SIEVE)
 - MINIMUM 15% FINER THAN 0.002mm (CLAY SIZE)
 - NOT GREATER THAN 5% ORGANIC CONTENT, NO VISIBLE ROOTS OR TOPSOIL
- LINER MATERIAL TO BE PLACED AT WATER CONTENT 2 TO 3 PERCENT WET OF THE OPTIMUM MOISTURE CONTENT
- LINER TO BE CONSTRUCTED IN LIFTS NOT EXCEEDING 150mm THICK, AND BE COMPACTED TO A MINIMUM 95% SPMD UNDER FULL TIME INSPECTION OF A GEOTECHNICAL ENGINEER.

PROPOSED STORM	N 184.74 SE 184.66 NW 184.64 SE 184.49 NW 184.45	22.2m - 300mm PVC (SDR-35) STM @ 2.80%				W 183.23	PROPOSED STORM
PROPOSED SANITARY							PROPOSED SANITARY
EXIST\PROP CENTERLINE ELEVATION	186.088	185.908	185.711	184.338	182.984	182.797	EXIST\PROP CENTERLINE ELEVATION
CHAINAGE	0+000	0+020	0+040	0+060	0+080	0+084.45	CHAINAGE

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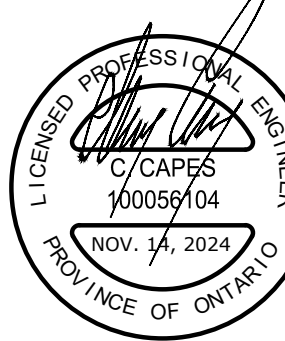
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1	ISSUED FOR APPROVALS	22/12/08
2	REVISED FOR APPROVALS	23/12/07
3	REVISED FOR APPROVALS	24/06/28
4	REVISED FOR APPROVALS	24/11/14

NOTES:

TOPOGRAPHIC SURVEY PREPARED BY SMC GEOMATICS, ELEVATIONS SHOWN ARE GEODETIC

BENCHMARK: NAIL IN HYDRO POLE AT SOUTH END OF SUBJECT SITE, ELEVATION 185.392

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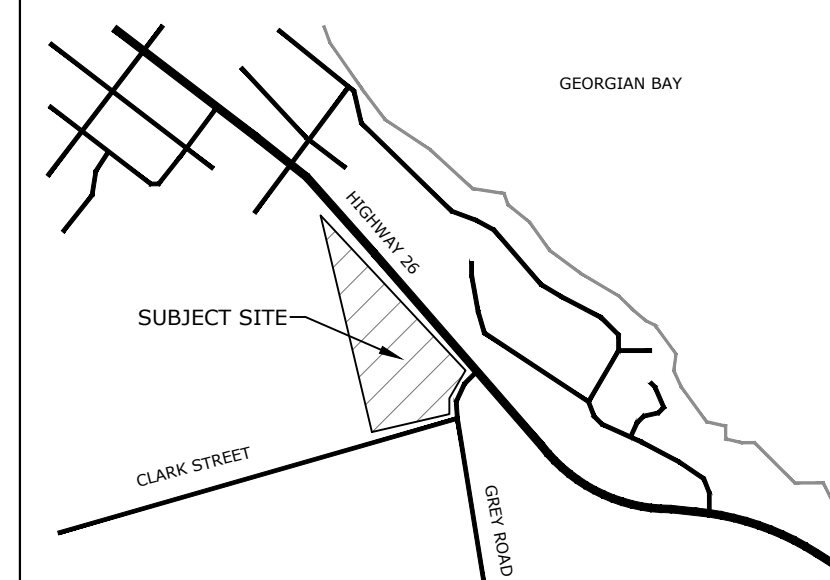
Client
PANTONE CAPITAL INC.

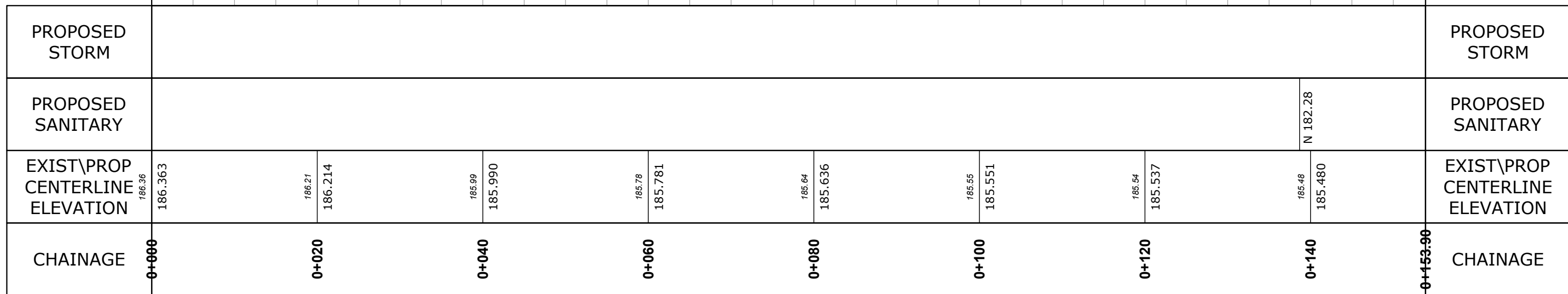
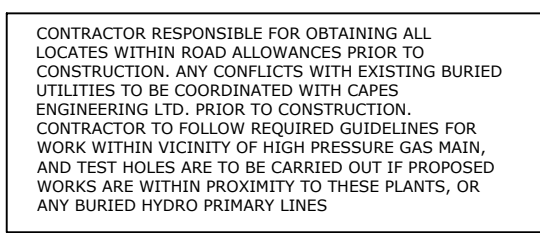
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Lot 31 Clark St. Site Plan
STORMWATER MANAGEMENT FACILITY PROFILE

Designed K. GRIFFIN	Checked C. CAPES	Date 22/08/09	Drawing No. C7
Project No. 2021-185	Rev No. 4		
Scale H 1:250 V 1:25			



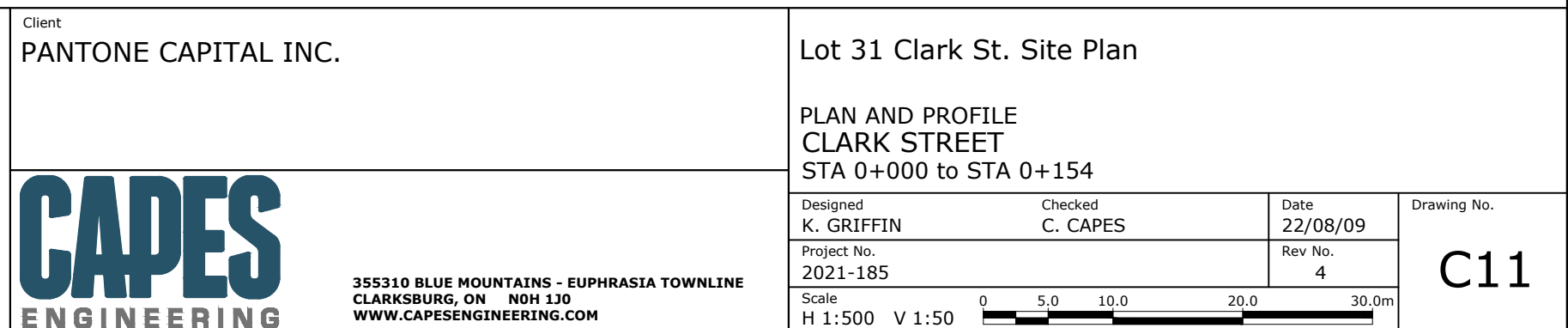


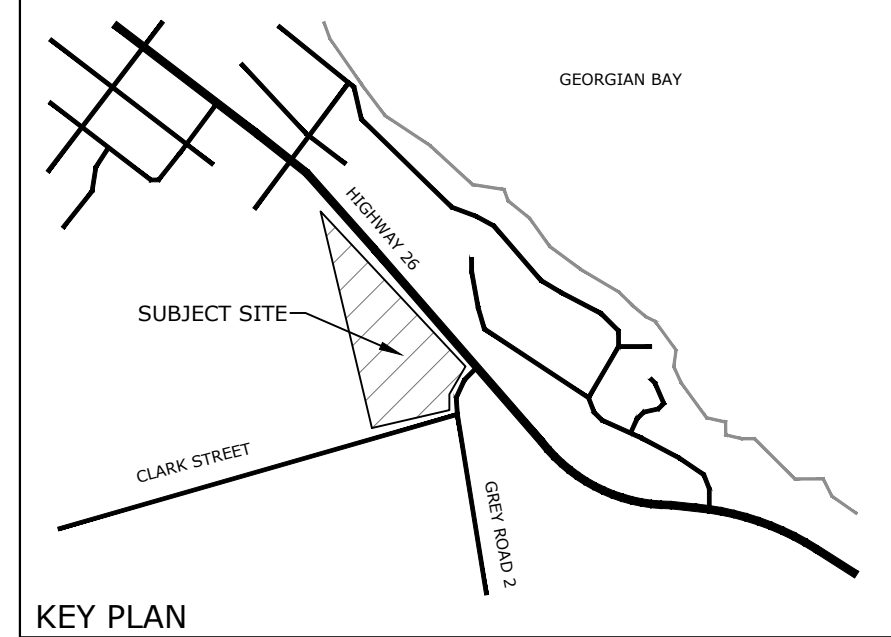
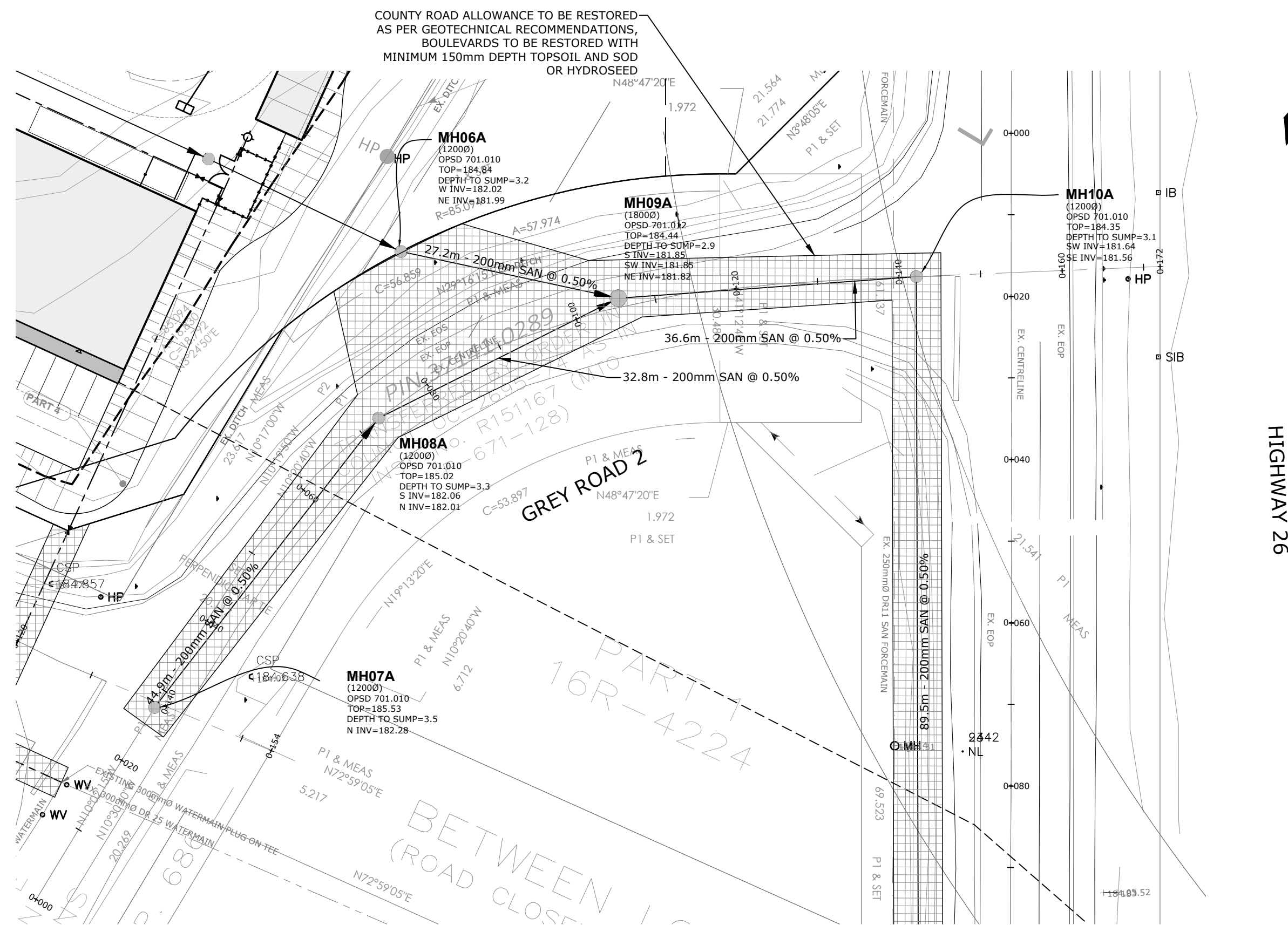
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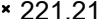
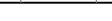
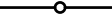
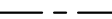
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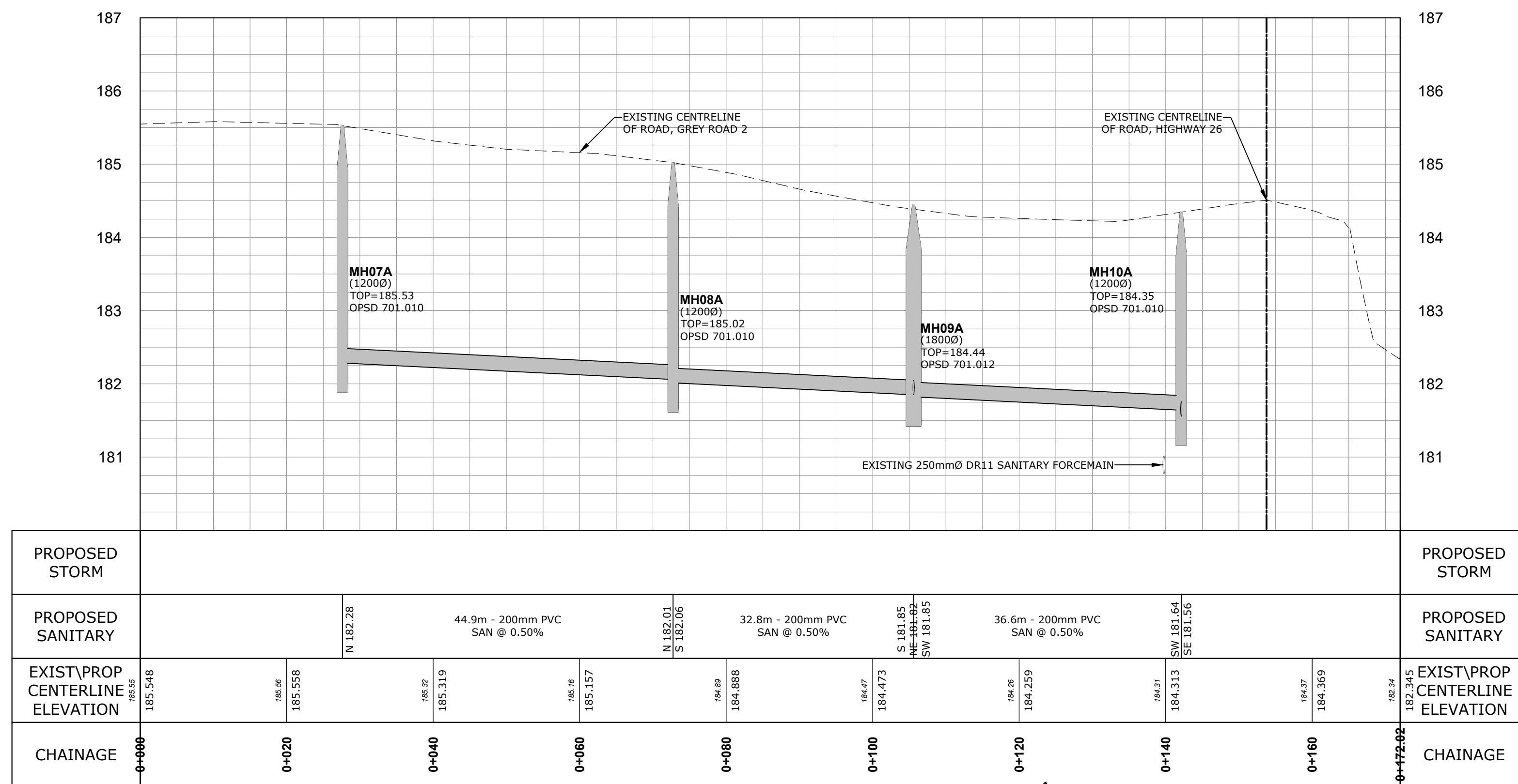




- | LEGEND | |
|---|--|
|  | PROPOSED ELEVATION |
|  | EXISTING ELEVATION |
|  | CURB DEPRESSION |
|  | MAXIMUM 3:1 SLOPE
UNLESS OTHERWISE NOTED |
|  | STORM SEWER/MANHOLE |
|  | WATERMAIN |
|  | SANITARY SINGLE HOUSE CONNECTION
AND CLEANOUT |
|  | WATER SERVICE CONNECTION AND CURB STOP |
|  | HYDRANT & VALVE |

GENERAL NOTES

1. PROPOSED WATER SERVICE CONNECTIONS TO BE PER SERIES 160 OR APPROVED EQUIVALENT
2. PROPOSED WATERMAIN TO BE PVC DR18
3. CATHODIC PROTECTION TO BE PROVIDED FOR WATERMAIN AS PER TOWN OF BLUE MOUNTAINS STANDARDS. ANODES TO BE CONNECTED USING THE CAWDELL METHOD, AND COVERED WITH MAXIMUM MATERIAL PER MANUFACTURER'S RECOMMENDATIONS. ANODE TO BE CONNECTED TO VALVE RISERS AND CURB STOPS WITH AN ELECTRICAL BRASS GROUND CLAMP.
4. ALL FITTING BOLTS TO BE F17519mm SCAFFOLD CLASS CAPS PER PROTECTO-CAPS CAT. NO. WTP19190 OR APPROVED EQUAL.
5. HEAD OF TOWN OF BLUE MOUNTAINS ENGINEERING STANDARDS FOR ANODE SIZING CHART.
6. ALL ANODES TO BE PACKAGED ZINC ANODES THE ZINC ANODE COATING SHALL HAVE A MINIMUM THICKNESS OF 1MM. THE ZINC ANODE CASTING IS TO BE PACKAGED IN CARDBOARD OR A CLOTH BAG HAVING A MINIMUM DIAMETER OF 100 MM. THE BACKFILL MATERIAL WITHIN THE PACKAGE SHALL BE A GYPSUM/SODIUM SULPHATE/BENTONITE MIXTURE HAVING AN ELECTROLYTIC RESISTIVITY NOT EXCEEDING THAT OF PURE COPPER (AWG 10 / 12) WIRE 3 METRES IN LENGTH SHALL BE BRAZED TO THE END OF THE CORE WIRE.
7. DRAINAGE SYSTEMS LIMITED, CATHODIC TECHNOLOGY LTD., MAPLE AGENCIES AND CORROSION SERVICE COMPANY LIMITED PRESENTLY MANUFACTURE ANODES TO THE SPECIFIED REQUIREMENTS.
8. FIRE HYDRANTS SHALL BE CANADA VALVE, OPEN LEAF.
9. HYDRANTS SHALL BE SPACED AT A MINIMUM DISTANCE OF 100 M IN RESIDENTIAL AND 90 M IN COMMERCIAL OR INDUSTRIAL AREAS.
10. ALL HYDRANTS SHALL BE PAINTED CHROME YELLOW. ALL HYDRANTS SHALL HAVE A CRACKSTAKE HYDRANT MARKER. THE CRACKSTAKE MARKER SHALL BE GREEN/YELLOW WITH A REFLECTIVE HYDRANT GRAPHIC ON BOTH SIDES AT THE TOP OF THE MARKER. THE REQUIRED HYDRANT MARKER IS POSITIONED ON THE RIGHT PORT AS VIEWED FROM THE STREET.
11. ALL HYDRANT MARKER SHALL BE LOCATED 0.3M BELOW EACH HYDRANT. THE SIGN SHALL BE REFLECTIVE WITH A RED HYDRANT ON A WHITE BACKGROUND AND MEASURE 0.3 X M X 0.3M. THE SIGN SHALL BE LOCATED 1.5M ABOVE GROUND LEVEL.
12. FIRE HYDRANTS REQUIRE STRUT CONNECTIONS ON ALL STEAMER PORTS. ACCESS PATHS (3.0 M WIDE) SHALL BE PROVIDED TO ALL HYDRANTS WHERE SIDE DITCHES ARE REQUIRED. PROVIDE CULTIVETS AS REQUIRED.
13. TRACER WIRE SETS SHALL BE INSTALLED 1.5M ABOVE GROUND, 3.0 M FROM THE CENTRE OF THE VALVE TO THE CENTRE OF THE HYDRANT. TRACER WIRE SHALL BE ATTACHED TO THE OUTSIDE OF THE VALVE BOX AND WIRE ATTACHED INTO VALVE BOX UNDER CAP. THE TRACER WIRE DOES NOT NEED TO BE TAKEN TO THE HYDRANT.
14. ALL OWNERS OF PRIVATE FIRE HYDRANTS MUST PARTICIPATE IN THE TOWNS' "PRIVATELY OWNED FIRE HYDRANT MAINTENANCE PROGRAM" (FORM B-1), A YEARLY FEEL GOOD CHECK UP BY THE TOWN OF BLUE MOUNTAINS.
15. ISOLATION VALVES SHALL BE RESILIENT SEAT GATE VALVES WITH MECHANICAL JOINTS, OPEN LEFT, CLOW OR LUELLER. VALVE BOXES SHALL BE USED FOR SLIDING RISE AND FALL TYPE VALVES. VALVES WITH GUIDE PLATE AND DUCTILE ADJUSTABLE TOP AND Lid OR APPROVED EQUAL WILL BE PAINTED BLUE
16. PROPOSED SANITARY SERVICE GRAVITY LINES TO BE PVC SDR-28 OR APPROVED EQUIVALENT
17. PROPOSED SANITARY MANHOLE STRUCTURE TO BE REINFORCED CONCRETE PER OPSD 701.010, AND JOINTS TO BE WRAPPED WITH DENSO VISCOQUAT 100% JOINT SEALANT TO BE APPLIED TO THE INSIDE OF THE JOINTS.
18. PROPOSED STORM CATCHBASINS TO BE REINFORCED CONCRETE AS PER OPSD 705.010, GRATE ARRANGEMENT AS PER PLAN SPECIFICATIONS
19. PROPOSED STORM MANHOLE STRUCTURE TO BE REINFORCED CONCRETE PER OPSD 701.010
20. PROPOSED STORM SEWER TO BE PVC SDR-35 OR APPROVED EQUIVALENT
21. PIPE BEDDING TO BE COMPACTED GRANULAR A₁ TO 98% SPMD, OR GRANULAR ALTERNATIVE TO BE APPROVED BY TOWN OF BLUE MOUNTAINS (IE CLEAR STONE IN HIGH GROUNDWATER CONDITIONS AS REQUIRED).
22. PROPOSED CSP CULVERT TO BE MINIMUM 2.0mm GAUGE CORRUGATED STEEL
23. CONTRACTOR TO CONTACT CPACS ENGINEERING AND TOWN OF BLUE MOUNTAINS STAFF PRIOR TO MAKING CONNECTION TO EXISTING WATERMAIN AND SANITARY, AND PRIOR TO ANY WORK WITHIN THE ROAD ALLOWANCE. CONTRACTOR IS RESPONSIBLE FOR ALL ROAD OCCUPATION PERMITS.
24. CONTRACTOR IS RESPONSIBLE FOR ALL WATERMAIN COMMISSIONING PROCEDURES, AND THE PRESENCE OF A THIRD PARTY WATER OPERATIONS CONTRACTOR FOR COMMISSIONING PURPOSES. CONTRACTOR TO BE RESPONSIBLE FOR COMMISSIONING TO FOLLOW TOWN OF BLUE MOUNTAINS STANDARDS.



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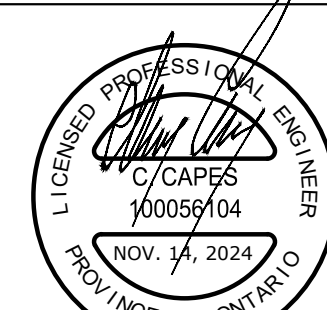
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2	REVISED FOR APPROVALS	23/12/07
3	REVISED FOR APPROVALS	24/06/28
4	REVISED FOR APPROVALS	24/11/14

NOTES:

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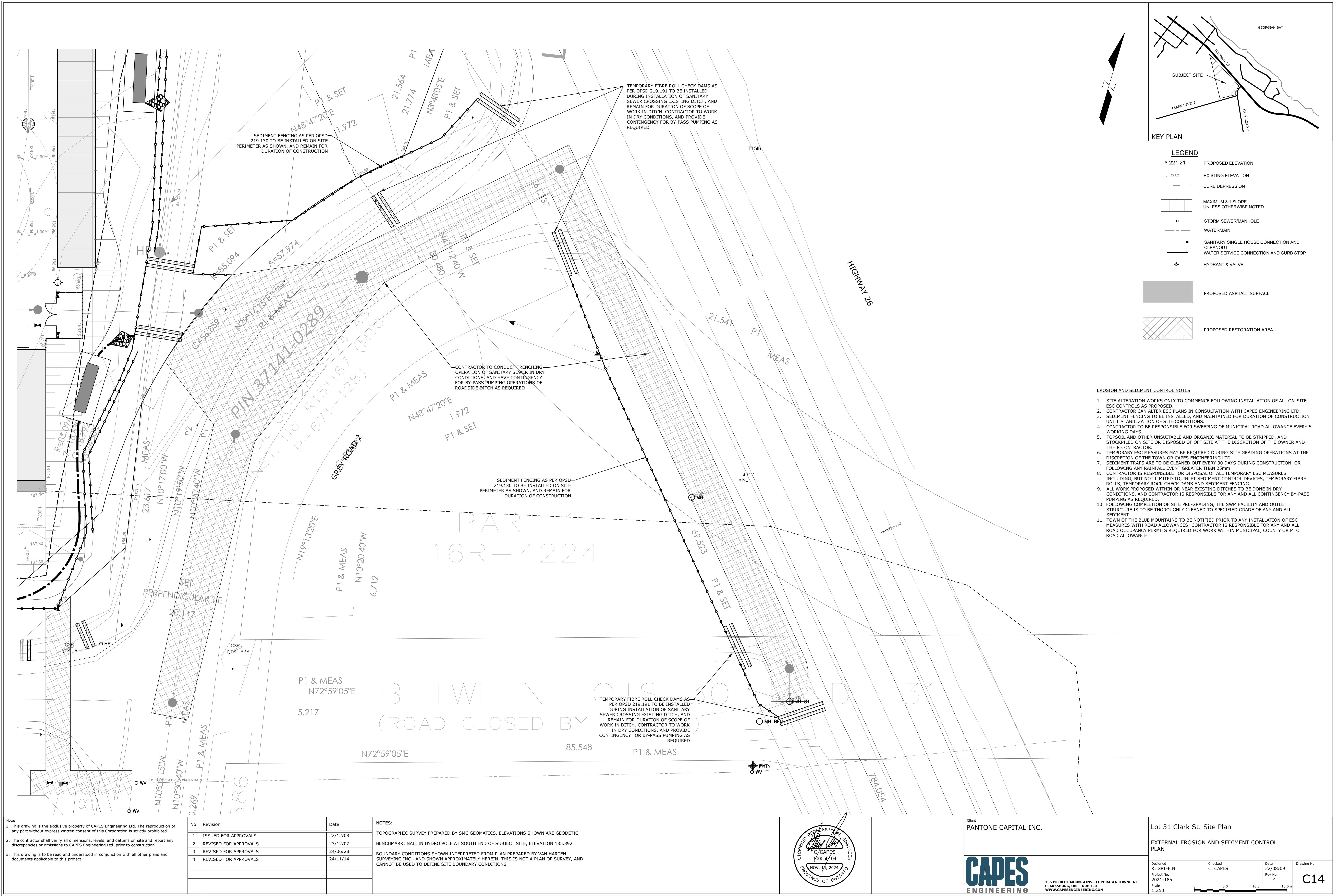
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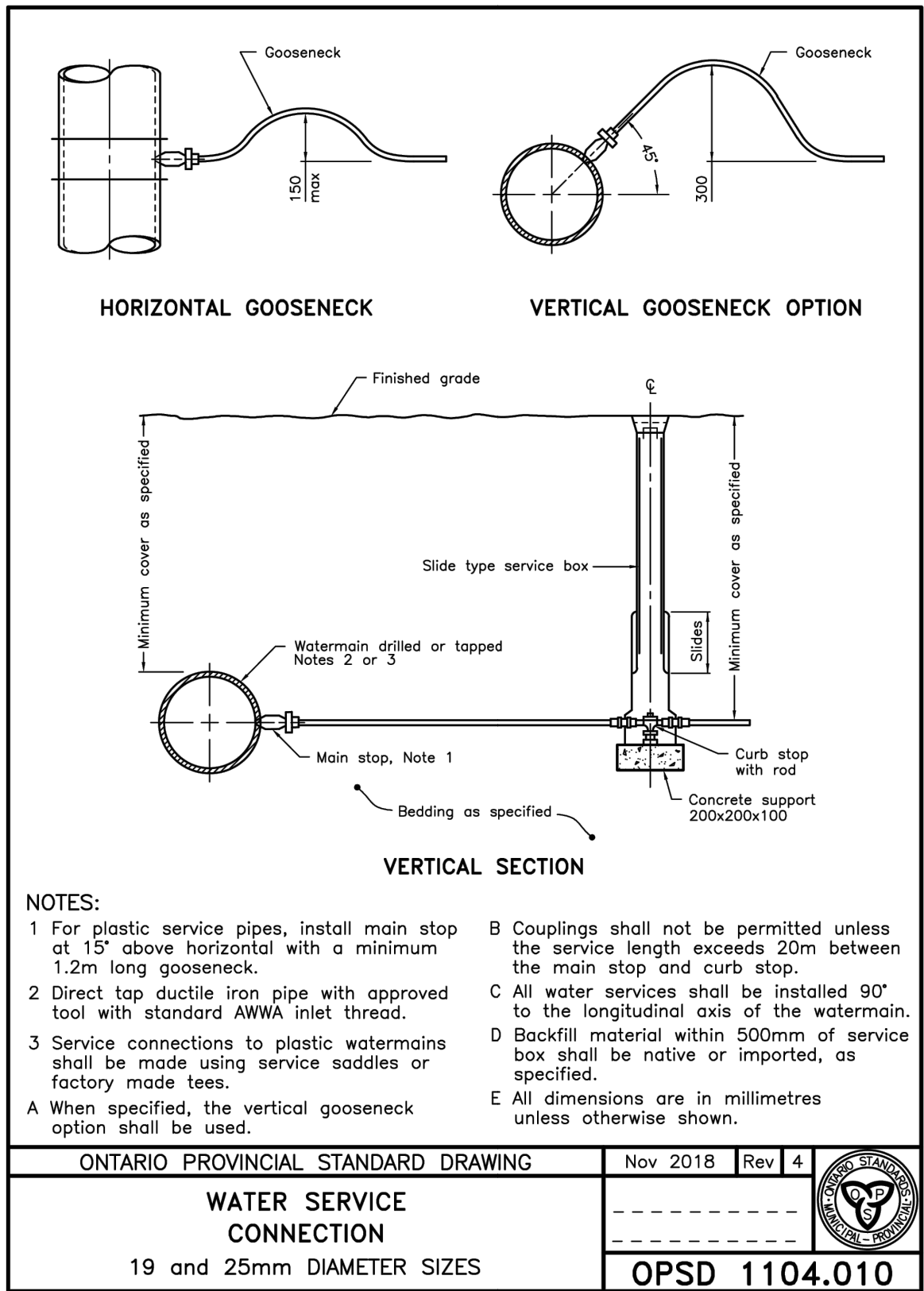
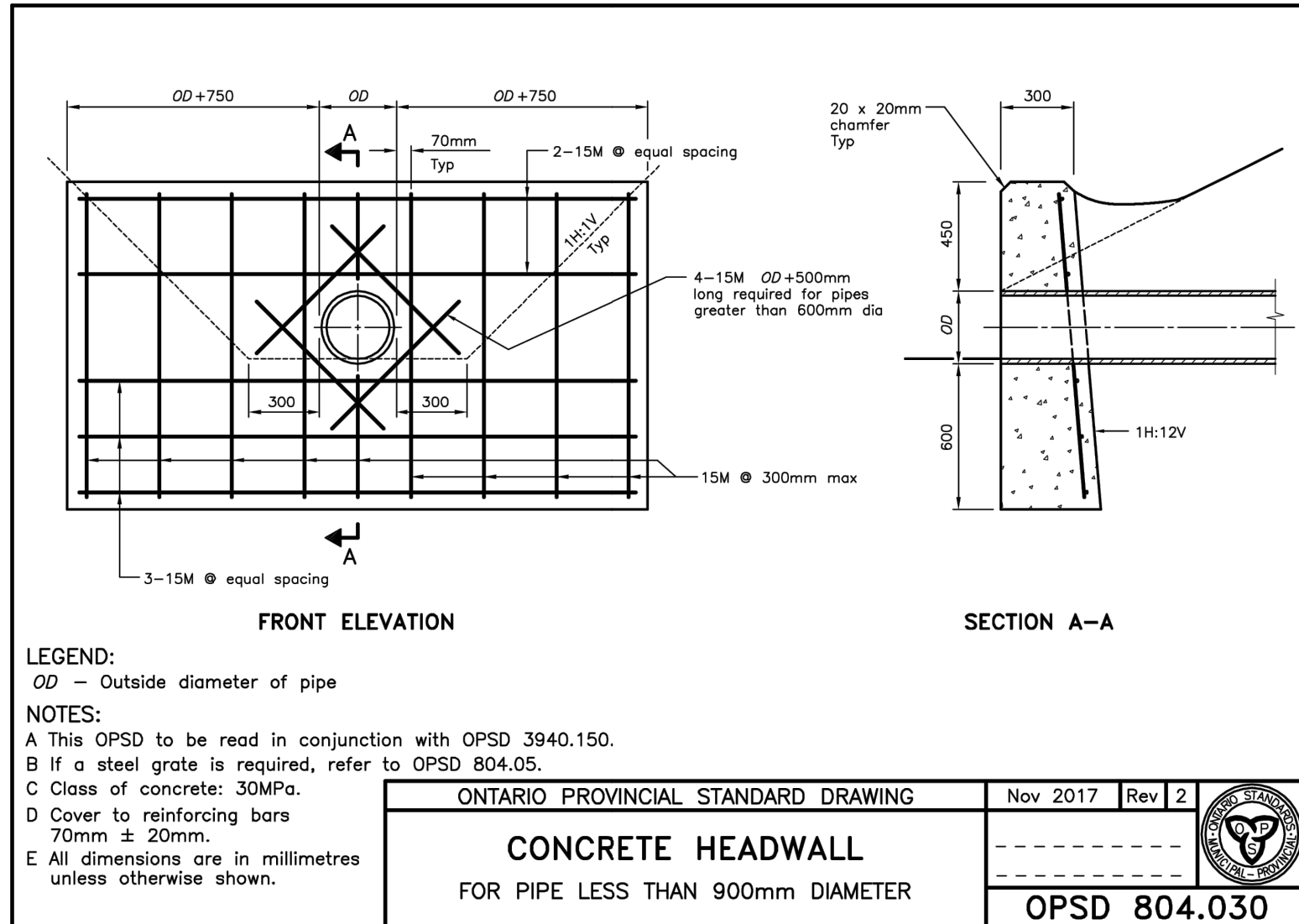
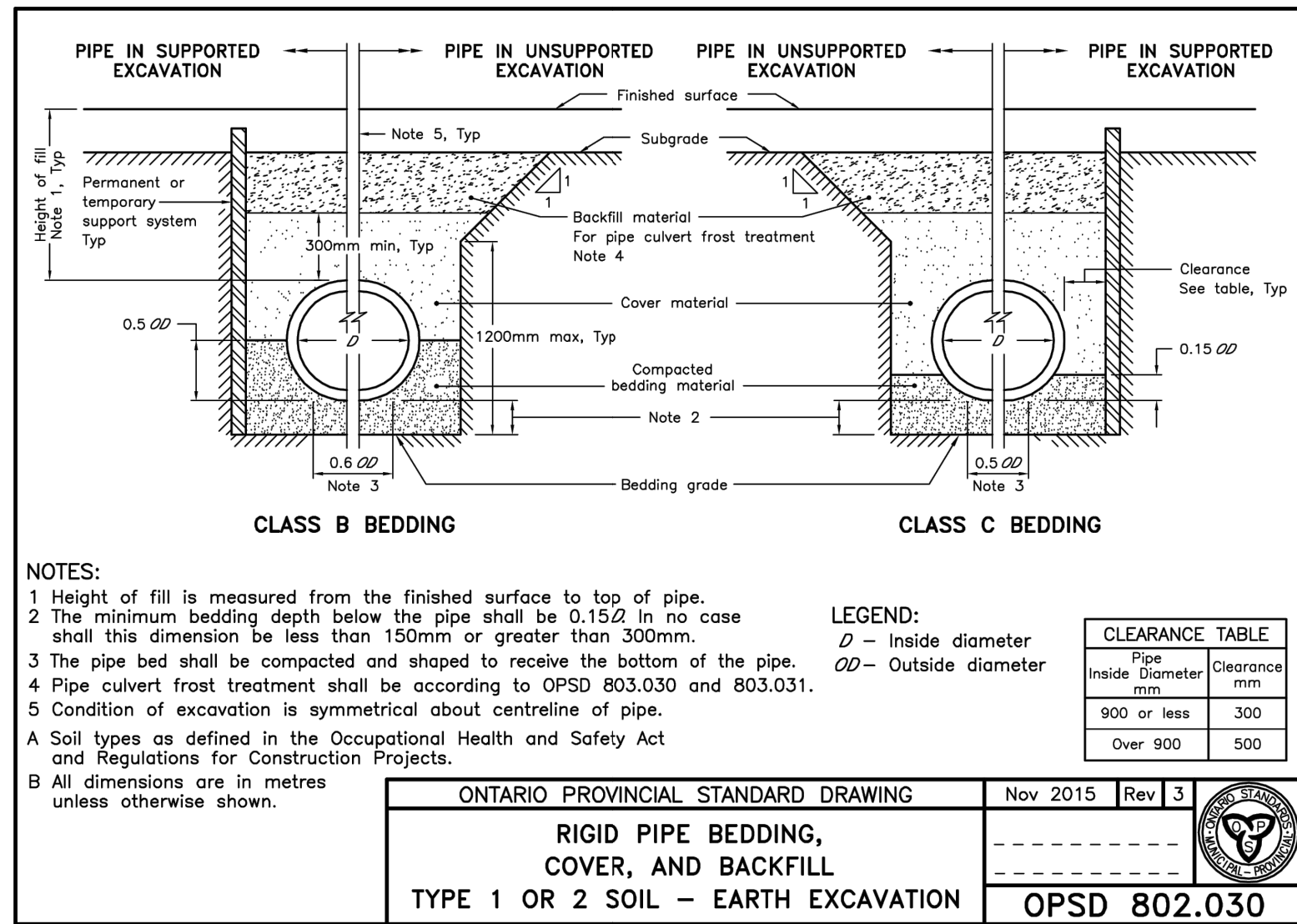
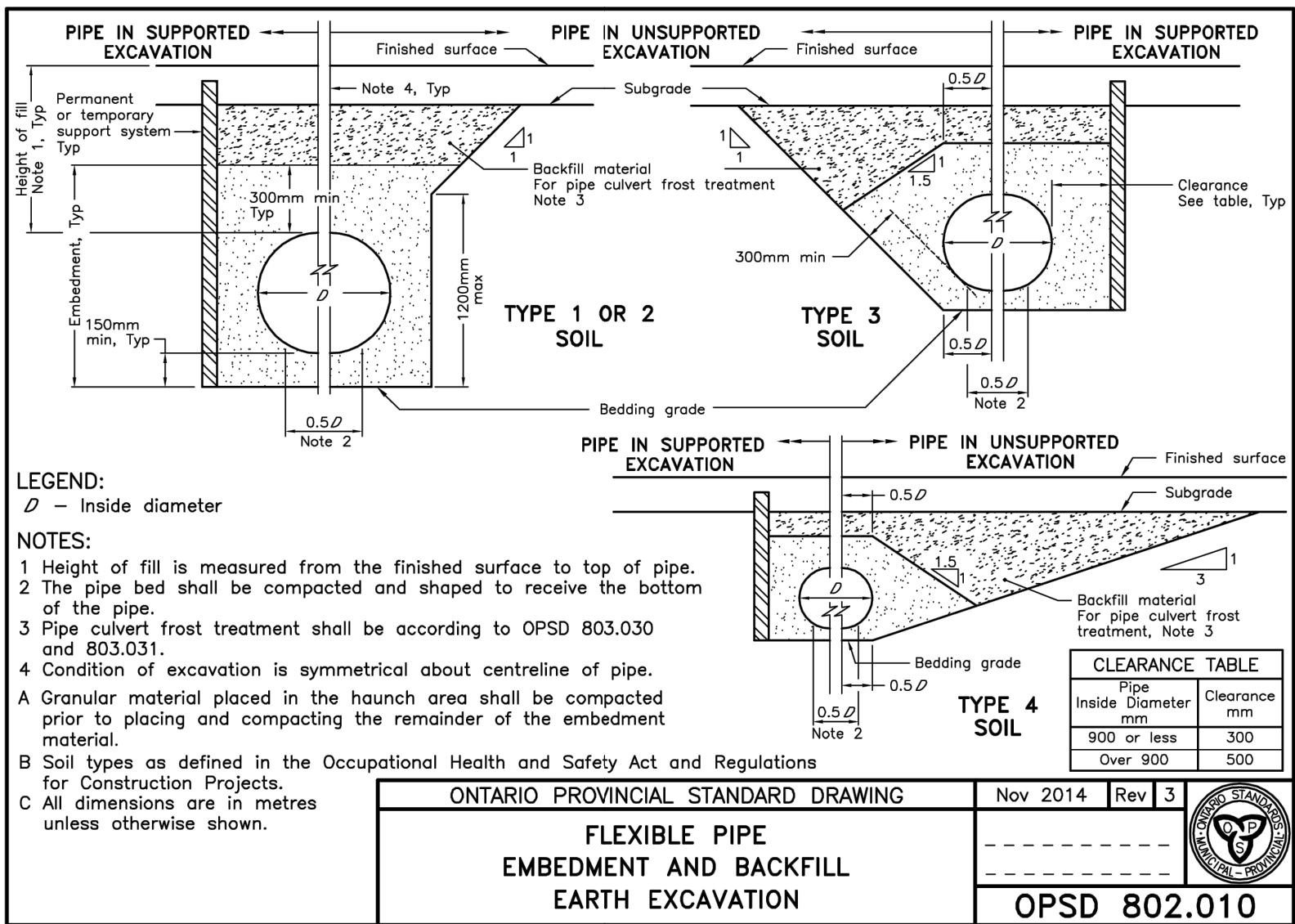
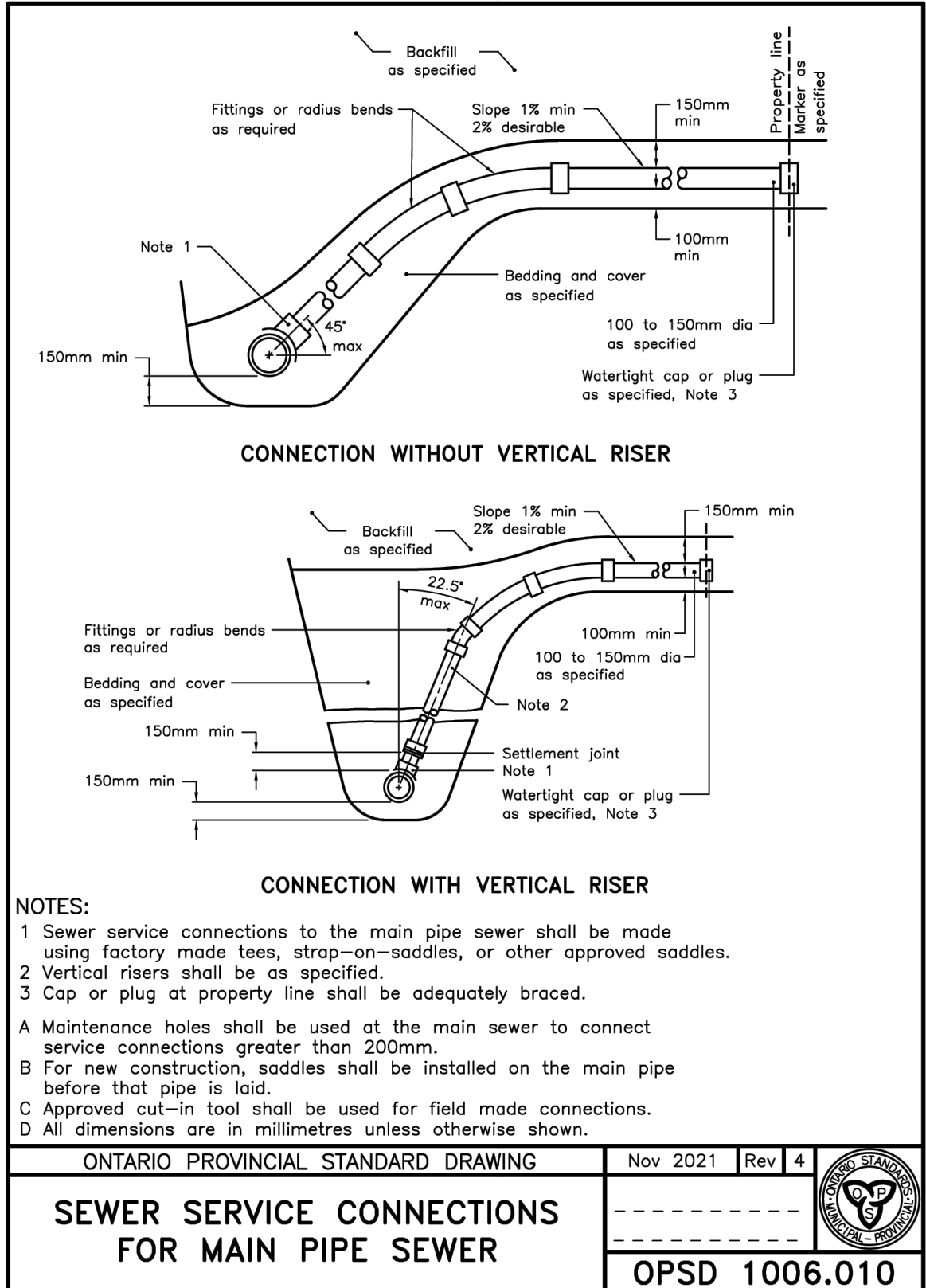
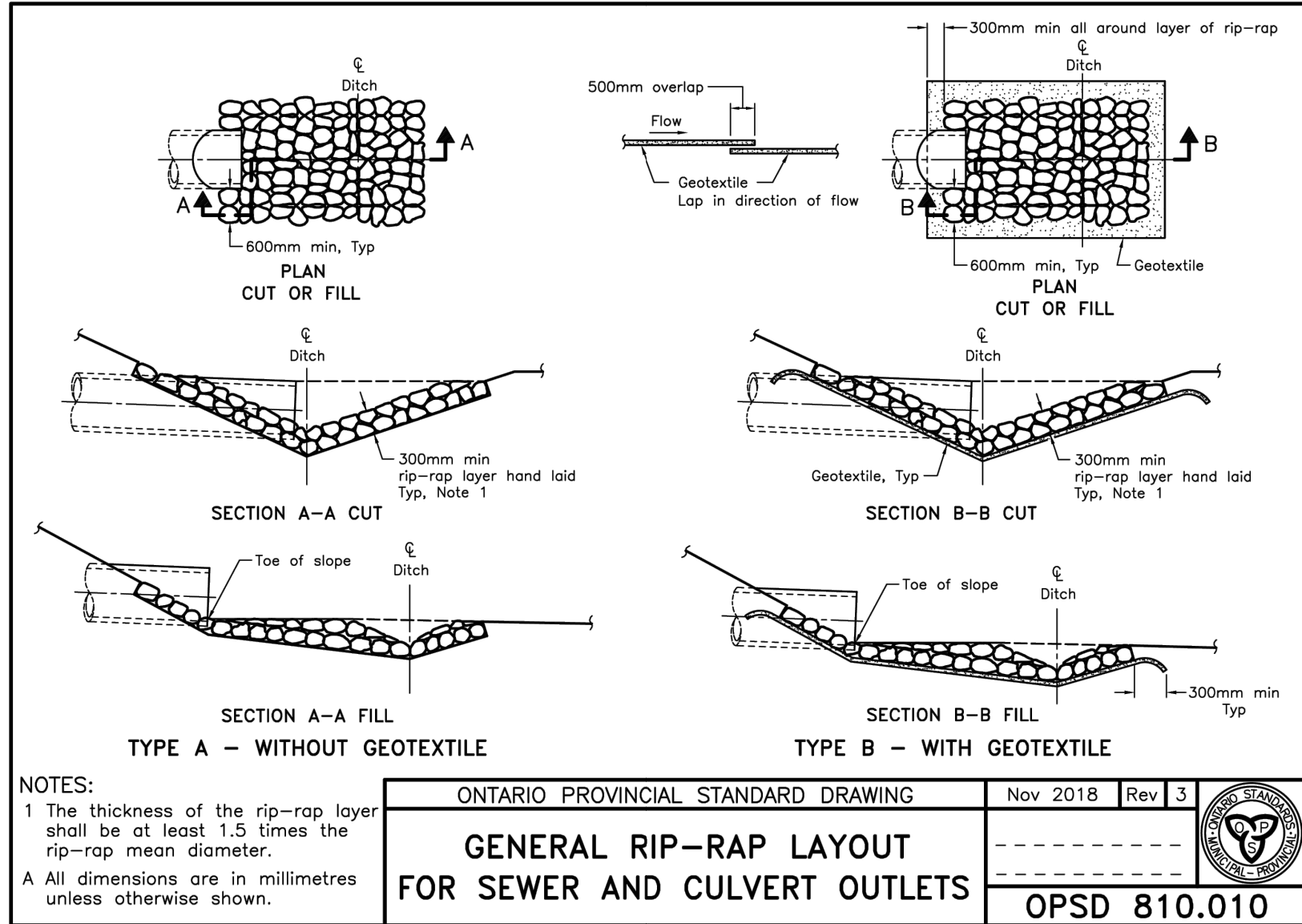
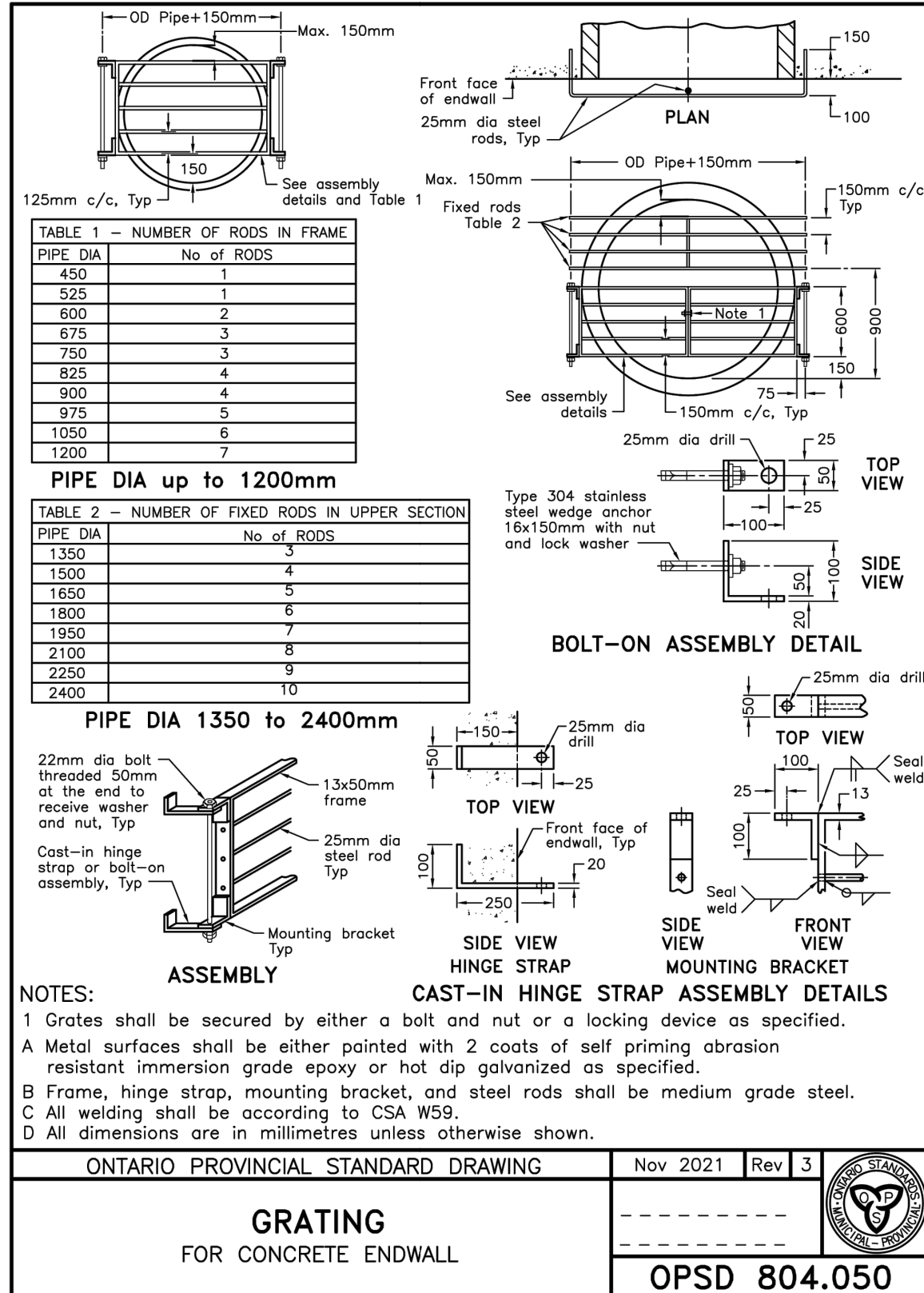
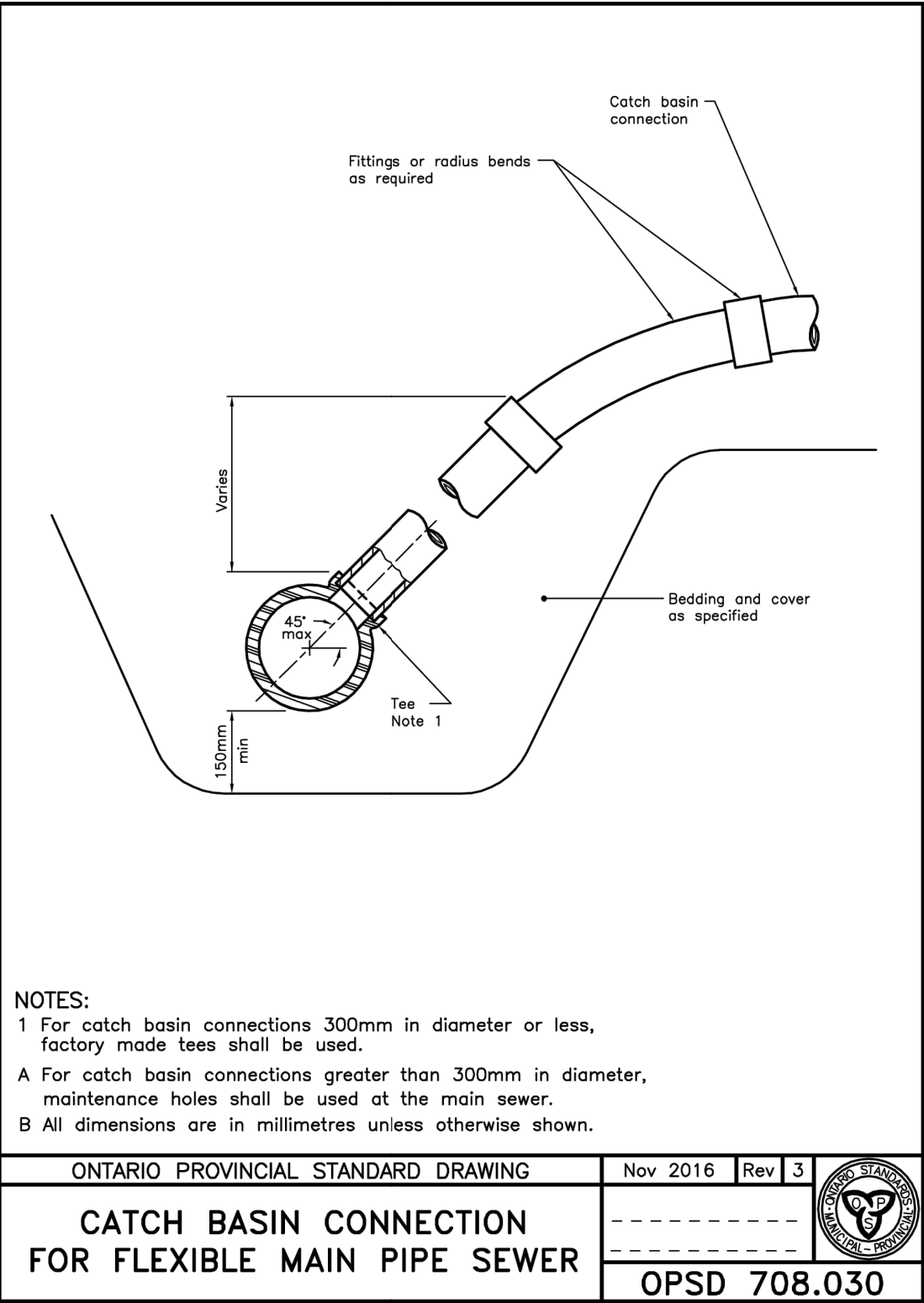
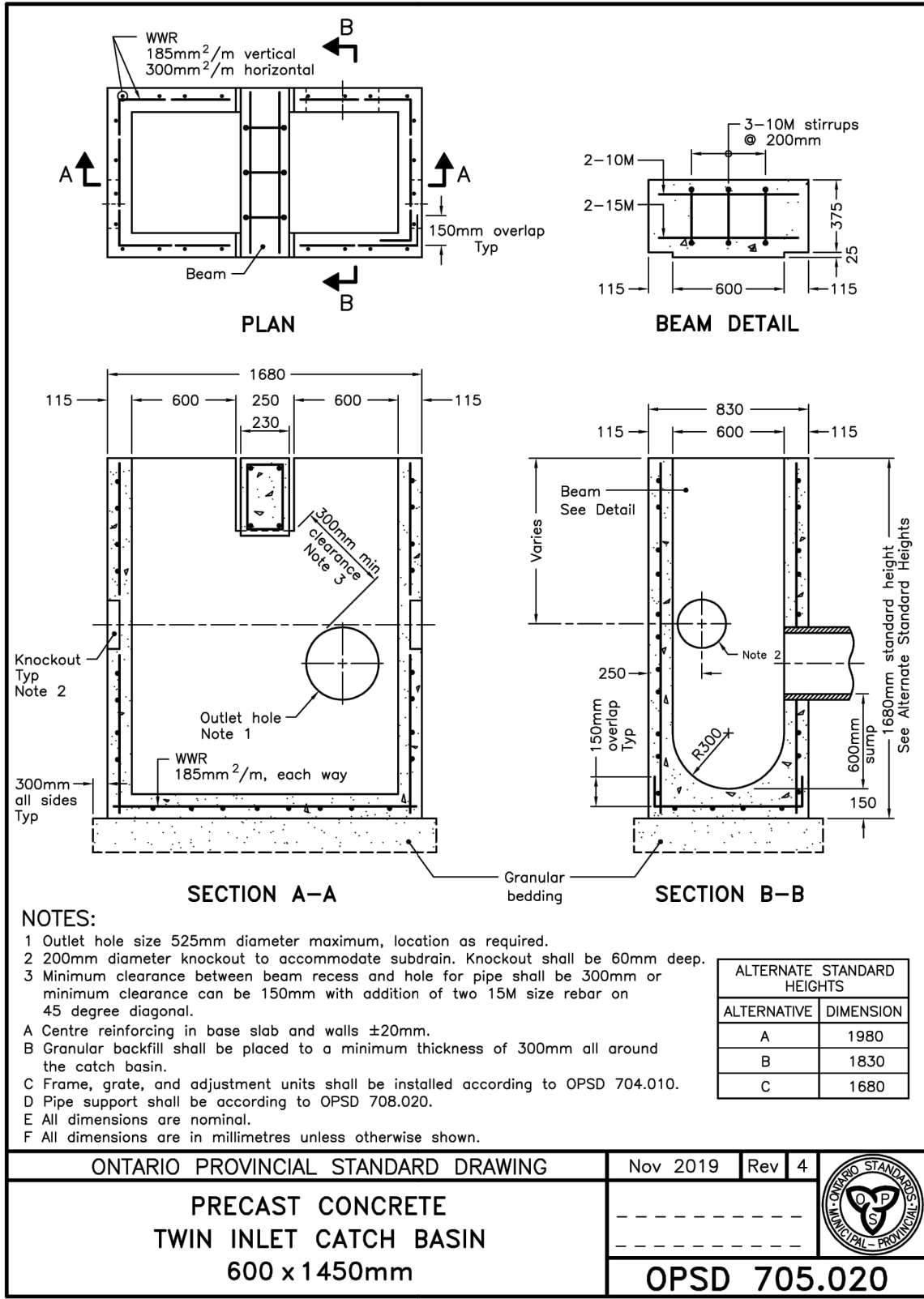
Lot 31 Clark St. Site Plan

PLAN AND PROFILE
GREY ROAD 2
STA 0+000 to STA 0+172

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Project No. 2021-185		Rev No. 4	
Scale H 1:500 V 1:50 			

C12





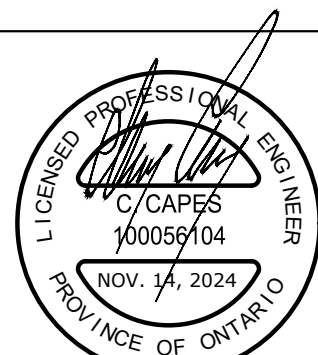
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2	REVISED FOR APPROVALS	23/12/07
3	REVISED FOR APPROVALS	24/06/28
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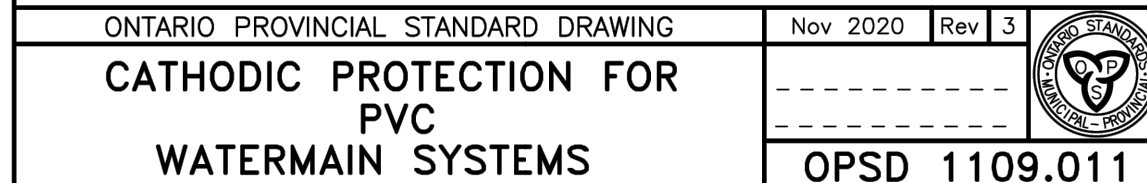
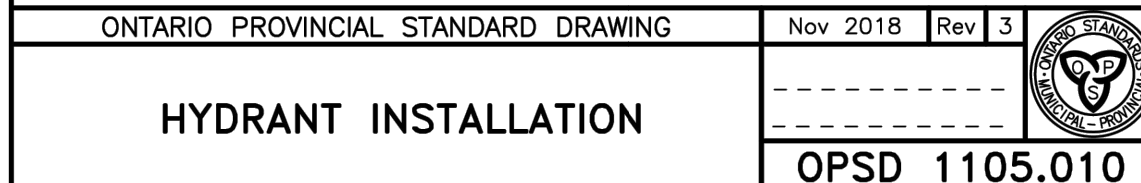
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Lot 31 Clark St. Site Plan

STANDARD DETAILS

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Project No. 2021-185	Rev No. 4		
Scale AS NOTED			

C16



USE VIBRATORS FOR CONSOLIDATION OF CONCRETE.

PROVIDE STEEL CHAIRS OR CONCRETE SPACERS TO MAINTAIN SPECIFIED 60mm COVER TO REINFORCEMENT.

CONCRETE SHALL BE FREE FROM HONEYCOMING, Voids, LOSS OF FINES, VISIBLE FLOW LINES AND COLD JOINTS, CHIPS AND SPALLS. PATCH DEFECTS AND THE HOLES.

CAP ALL REINFORCING WITH CLASS "B" PLUGS U/N. ALL STEEL MUST BE ADEQUATELY LAPPED AND PROTECTED BY AN INERT COATING TO PREVENT CORROSION. PROVIDE FOUR PROTECT FRESH CONCRETE FROM PREMATURE DRYING, SUNSHINE, EXCESSIVELY HOT OR COLD TEMPERATURES AND MECHANICAL INJURY. MAINTAIN AT A RELATIVELY CONSTANT TEMPERATURE FOR 7 DAYS AFTER THE APPLICATION OF THE CEMENT. PROTECT CURING OF THE CONCRETE. REFER TO CSA A23.1 FOR HOT AND COLD WEATHER CONCRETE PRACTICES. PROTECT FRESH CONCRETE FROM COLD TEMPERATURES BELOW 5 DEGREES CELSIUS. PROVIDE INSULATION HEAT TREAT MINIMUM OF 3 DAYS TO MAINTAIN A TEMPERATURE OF GREATER THAN 15 DEGREES CELSIUS.

NOTES:

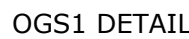
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Project No. 2021-185		Rev No. 4	
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1	ISSUED FOR APPROVALS	22/1
2	REVISED FOR APPROVALS	23/1
3	REVISED FOR APPROVALS	24/0
4	REVISED FOR APPROVALS	24/1

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Project No. 2021-185		Rev No. 4	C1
Scale AS NOTED			

C18 Drawing No. _____

Appendices

Appendix A – Legal & Site Plan
Appendix B - As Constructed Drawings
Appendix C – Tree Preservation Plan
Appendix D – Geotechnical Information
Appendix E – Existing Condition Stormwater
Appendix F – Post-Development Stormwater
Appendix G – Water Demand
Appendix H – Landscape Plans
Appendix I – Sanitary Design

Appendix A – Legal & Site Plan

PLAN OF SURVEY OF
PART OF LOT 31
CONCESSIONS 9 AND 10
AND
PART OF THE ROAD ALLOWANCE
BETWEEN CONCESSIONS 8 AND 9
(GEOGRAPHIC TOWNSHIP OF COLLINGWOOD)
TOWN OF THE BLUE MOUNTAINS
COUNTY OF GREY

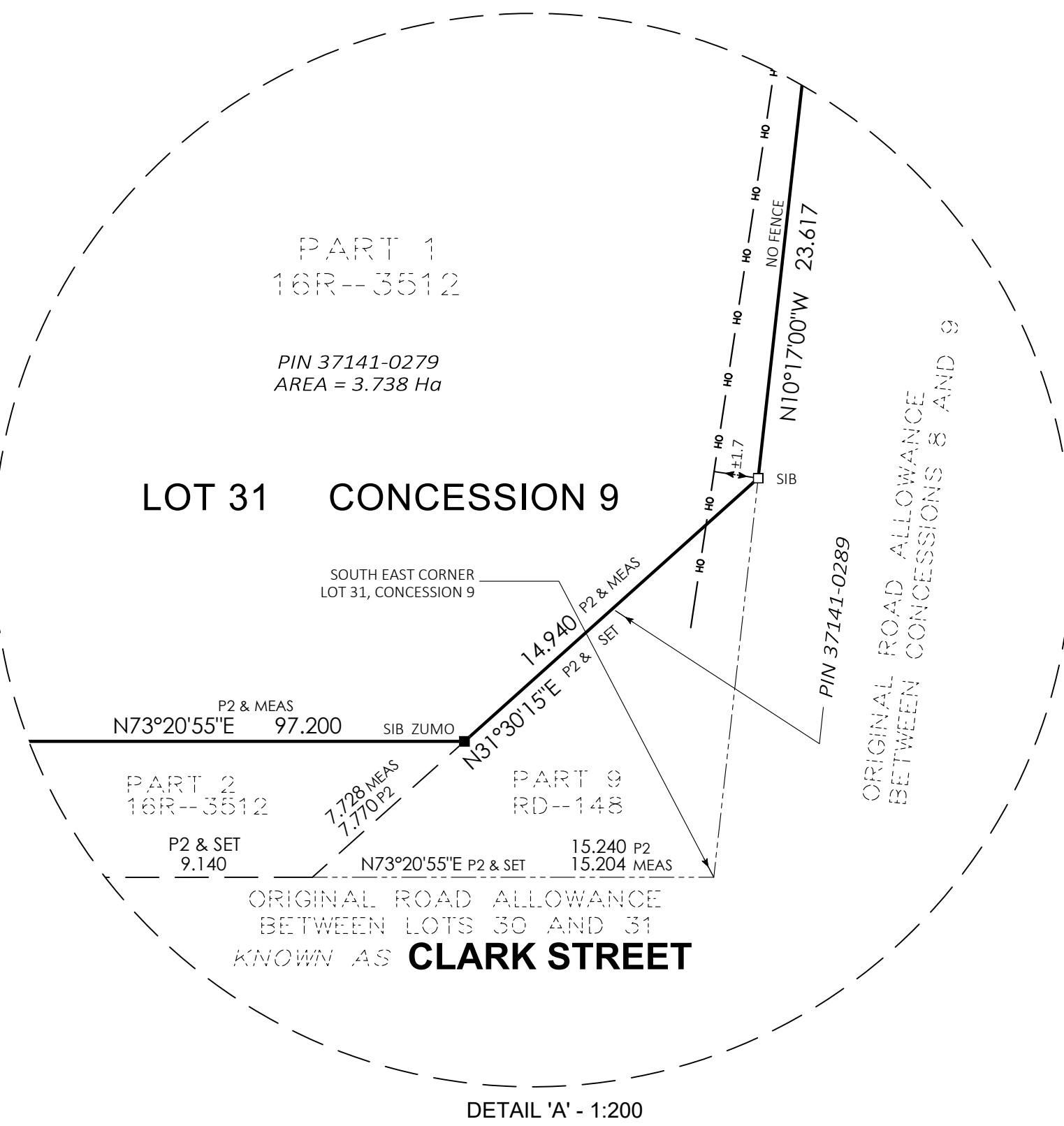
THE INTENDED PLOT SIZE OF THIS PLAN IS 610mm
IN WIDTH BY 915mm IN HEIGHT WHEN PLOTTED AT
A SCALE OF 1:750

SCALE 1 : 750

0 5 10 20 30 40 50 metres
VAN HARTEN SURVEYING INC.

LEGEND:

- DENOTES SURVEY MONUMENT SET
- DENOTES SURVEY MONUMENT FOUND
- SIB DENOTES .025 X .025 X 1.20 STANDARD IRON BAR
- IB DENOTES .015 X .015 X 0.60 IRON BAR
- SSIB DENOTES .025 X .025 X 0.60 SHORT STANDARD IRON BAR
- RP DENOTES .015 DIA. X 0.07 ROUND IRON BAR WITH STAMPED WASHER
- PB DENOTES .025 X .025 X 0.30 PLASTIC BAR
- CC DENOTES CUT CROSS
- WIT DENOTES WITNESS
- OU DENOTES ORIGIN UNKNOWN
- VH DENOTES VAN HARTEN SURVEYING INC., O.L.S.'S
- P1 DENOTES PLAN 16R-4224
- P2 DENOTES PLAN 16R-3512
- P3 DENOTES PLAN 16R-8494
- P4 DENOTES PLAN RD-148 (MTO PLAN P-1671-100)
- R23 DENOTES IVAN DINSMORE LTD., O.L.S.'S
- ZUMO DENOTES ZUBEK, EMO, PATTEN AND THOMSEN LTD. O.L.S.'S
- MTC DENOTES MINISTRY OF TRANSPORTATION AND COMMUNICATIONS
- OH DENOTES OVERHEAD HYDRO LINE



NOTES:

- BEARINGS ARE GRID BEARINGS AND ARE DERIVED FROM GPS OBSERVATIONS AND ARE REFERRED TO THE UTM PROJECTION, ZONE 17, NAD 83-CSR5 (2010) ADJUSTMENT
- DISTANCES SHOWN ON THE PLAN ARE ADJUSTED GROUND DISTANCES AND CAN BE CONVERTED TO UTM GRID DISTANCES BY MULTIPLYING BY AN AVERAGED COMBINED SCALE FACTOR OF .999601.

BEARING COMPARISONS:

FOR THE PURPOSES OF BEARING COMPARISONS, PREVIOUS SURVEYS HAVE BEEN ROTATED TO UTM BEARINGS BY THE ANGLES SHOWN BELOW.

PLAN	ROTATION FOR NORTHEAST BEARINGS
P1	-0°29'55"
P2	-0°29'05"

METRIC:

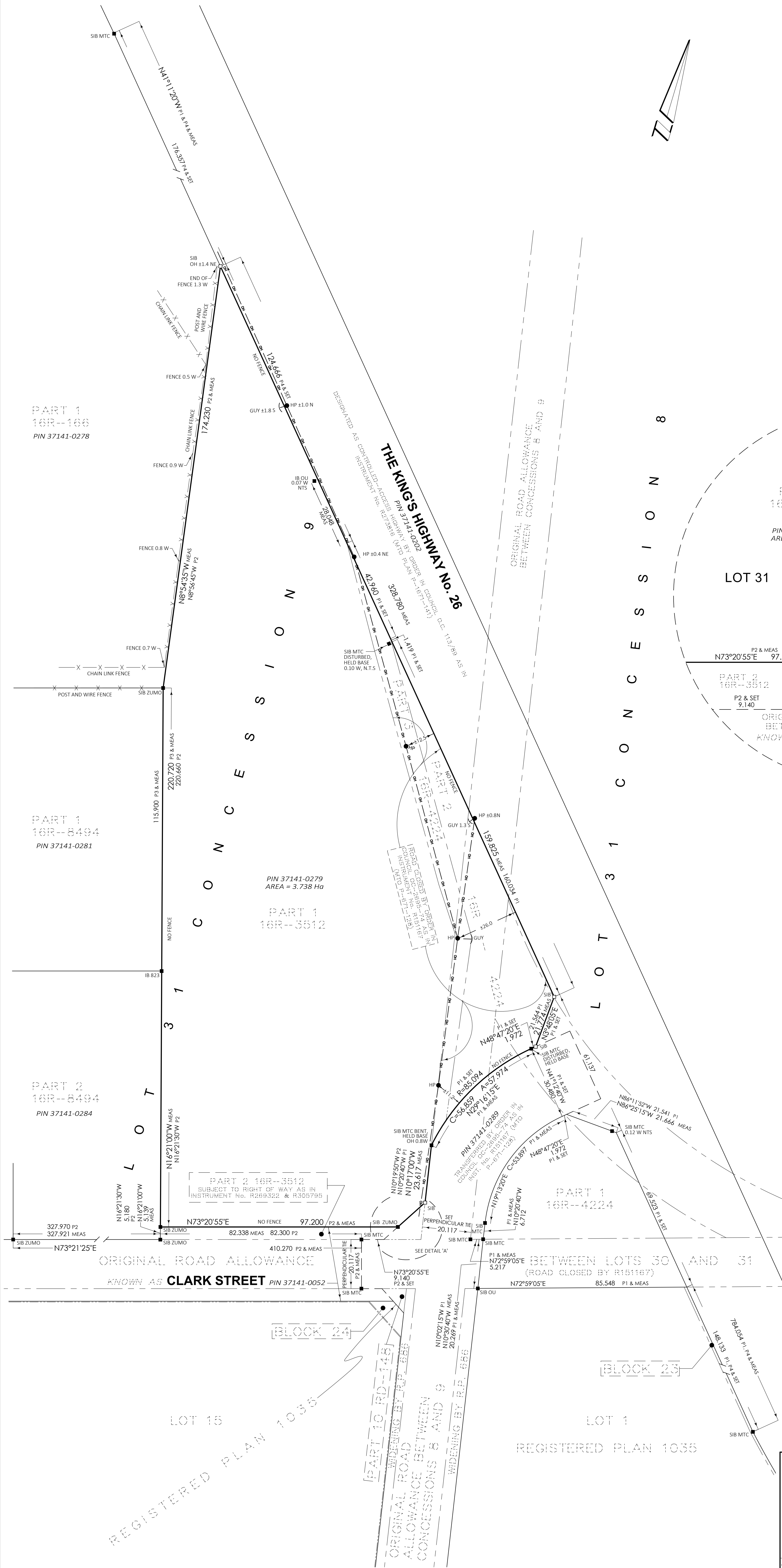
DISTANCES ON THIS PLAN ARE MEASURED IN METRES AND CAN BE CONVERTED TO FEET BY DIVIDING BY 0.3048.

SURVEYOR'S CERTIFICATE

- I CERTIFY THAT:
- THIS SURVEY AND PLAN ARE CORRECT AND IN ACCORDANCE WITH THE SURVEYS ACT, THE SURVEYORS ACT AND THE REGULATIONS MADE UNDER THEM.
 - THIS SURVEY WAS COMPLETED ON THE 2ND OF MAY, 2022

DATE: MAY 10, 2022

MAIT DE JAGER
ONTARIO LAND SURVEYOR



ASSOCIATION OF ONTARIO
LAND SURVEYORS
PLAN SUBMISSION FORM
2189758



THIS PLAN IS NOT VALID
UNLESS IT IS AN UNBROSSSED
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ISSUED BY THE SURVEYOR
In accordance with
Regulation 1026, Section 29(3).

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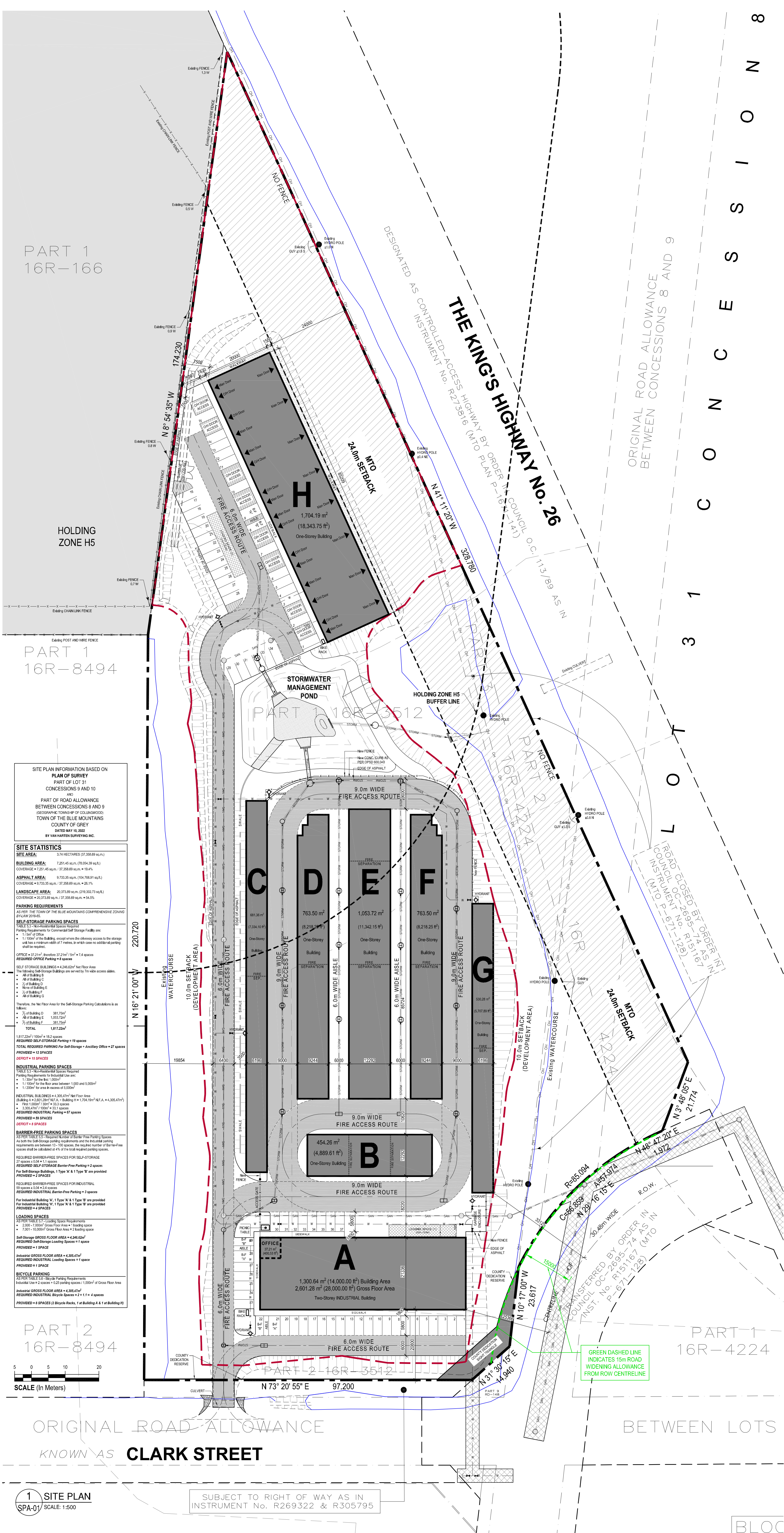
Van Harten
SURVEYING INC.
LAND SURVEYORS AND ENGINEERS

Kitchener/Waterloo Ph: 519-742-8371 Guelph Ph: 519-821-2763 Orangeville Ph: 519-940-4110

www.vanharten.com info@vanharten.com

DRAWN BY: FCF CHECKED BY: MDJ PROJECT No. 30969-22
May 10, 2022 10:03:06 AM
L:\Collingwood Township GREY COUNTY\Con 9\ACAD\POS.LT31.PANTONE(30969-22)
UTM 2010.dwg

NO PERSON MAY COPY, REPRODUCE, DISTRIBUTE OR ALTER THIS PLAN IN WHOLE OR IN PART WITHOUT THE WRITTEN PERMISSION OF VAN HARTEN SURVEYING INC.



GENERAL NOTES

THESE NOTES APPLY TO ALL DRAWINGS.

1

ALL DRAWINGS ARE THE PROPERTY OF THE ARCHITECT. REPRODUCTION OF DRAWINGS WITHOUT PRIOR WRITTEN PERMISSION OF THE ARCHITECT IS PROHIBITED.

2

DO NOT SCALE THE DRAWINGS - USE ONLY NOTED DIMENSIONS

3

CONTRACTOR SHALL CHECK AND VERIFY ALL DIMENSIONS SHOWN ON DRAWINGS AND ON SITE PRIOR TO COMMENCEMENT OF ANY WORK AND REPORT ANY DISCREPANCIES TO THE ARCHITECT.

4

DIMENSIONS SHOWN ON DRAWINGS ARE NOMINAL ONLY AND SHALL BE ADJUSTED TO SUIT ON-SITE CONDITIONS.

5

ALL WORK SHALL BE IN ACCORDANCE WITH THE LATEST REVISED EDITION OF THE ONTARIO BUILDING CODE AND ALL APPLICABLE LAW.

GENERAL NOTES

1.

NO SNOW STORAGE FOR THE SUBJECT LANDS PERMITTED ON MUNICIPAL LANDS.

2.

NO SIGNAGE SHALL BE POSTED IN CONTRAVENTION OF THE TOWN SIGN BY-LAW AND ALL SIGNAGE SHALL COMPLY WITH THE GATEWAY DESIGNATION.

3.

LANDSCAPE SCREENING SHALL CREATE A VISUAL BARRIER BETWEEN HWY 26 AND DEVELOPMENT.

4.

SILT FENCING SHALL BE INSTALLED AT THE LIMIT OF GRADING UNTIL CONSTRUCTION AND LANDSCAPING IS COMPLETED. ANY DISTURBED AREAS WITHIN THE SETBACK SHALL BE RESTORED WITH NATIVE PLANTINGS PER THE LANDSCAPE PLAN COMPLETED FOR THE DEVELOPMENT.

5.

CLEARING OF VEGETATION SHALL NOT OCCUR BETWEEN APRIL 1 - AUGUST 31ST PER ENVIRONMENT CANADA'S GENERAL NESTING PERIODS OF MIGRATORY BIRDS.

BUILDING AREAS

SELF-STORAGE BUILDINGS

BUILDING #1

B

454.26 sq.m.

C

681.36 sq.m.

D

763.50 sq.m.

E

1,053.72 sq.m.

F

763.50 sq.m.

G

530.28 sq.m.

TOTAL

4,246.62 sq.m (45,710.24 sq.ft.)

INDUSTRIAL BUILDINGS

BUILDING #2

A

1,300.64 sq.m. (14,000.00 sq.ft.)

BUILDING #3

H

1,704.19 sq.m. (18,343.75 sq.ft.)

TOTAL

3,004.83 sq.m (32,343.75 sq.ft.)

TOTAL BUILDING AREA = 7,251.45 sq.m.

GROSS FLOOR AREAS

SELF STORAGE BUILDINGS

SAME AS BUILDING AREA FOR BUILDING #1 (GROUP OF BUILDINGS B-G)

TOTAL

4,246.62 sq.m (45,710.24 sq.ft.)

INDUSTRIAL BUILDINGS

BUILDING #2

A

2,601.28 sq.m. (28,000.00 sq.ft.)

BUILDING #3

H

1,704.19 sq.m. (18,343.75 sq.ft.)

TOTAL

4,305.47 sq.m (46,343.75 sq.ft.)

TOTAL GROSS FLOOR AREA = 8,552.09 sq.m.

LEGEND

PROPERTY LINE

DEVELOPMENT AREA

WATER COURSE

HOLDING ZONE & BUFFER LINE

11

2024 11 13

ISSUED FOR SPA FOURTH SUBMISSION

10

2024 07 11

ISSUED FOR SPA THIRD SUBMISSION

9

2024 06 21

ISSUED TO CONSULTANTS (REV-09)

8

2023 12 21

ISSUED FOR SPA SECOND SUBMISSION

7

2023 11 17

ISSUED TO CONSULTANTS (REV-08)

6

2023 11 13

ISSUED TO CLIENT FOR REVIEW

5

2023 02 06

ISSUED TO CLIENT FOR REVIEW

4

2022 12 16

ISSUED FOR SPA FIRST SUBMISSION

3

2022 09 16

ISSUED FOR REVIEW

2

2022 07 14

ISSUED TO CONSULTANTS

1

2022 07 11

ISSUED FOR REVIEW

NO.

DATE

ITEM

REVISIONS

JMA

Jessica MacDonald Architect Inc.

+1 705-325-0761

jessica@jmarshitect.ca

25 Mississauga St. E. UPPER

Unit #3, Orillia, ON | L3V 1V4

TITLE

SITE PLAN & SITE STATISTICS

NEW CONSTRUCTION OF:

THORNBURY SELF-STORAGE

Lot 31 Clark Street

Town of Blue Mountain, Ontario

DRAWN/CHECKED

JM

DATE

DECEMBER 22, 2023

CAD FILE

spa-01_proposed site plan_221123.dwg

ISSUED FOR

SITE PLAN APPROVAL

STAMP

ASSOCIATION OF ARCHITECTS

Jessica MacDonald

LICENCE

9582

PROJECT

22-013

DRAWING

SPA-01

1

SITE PLAN

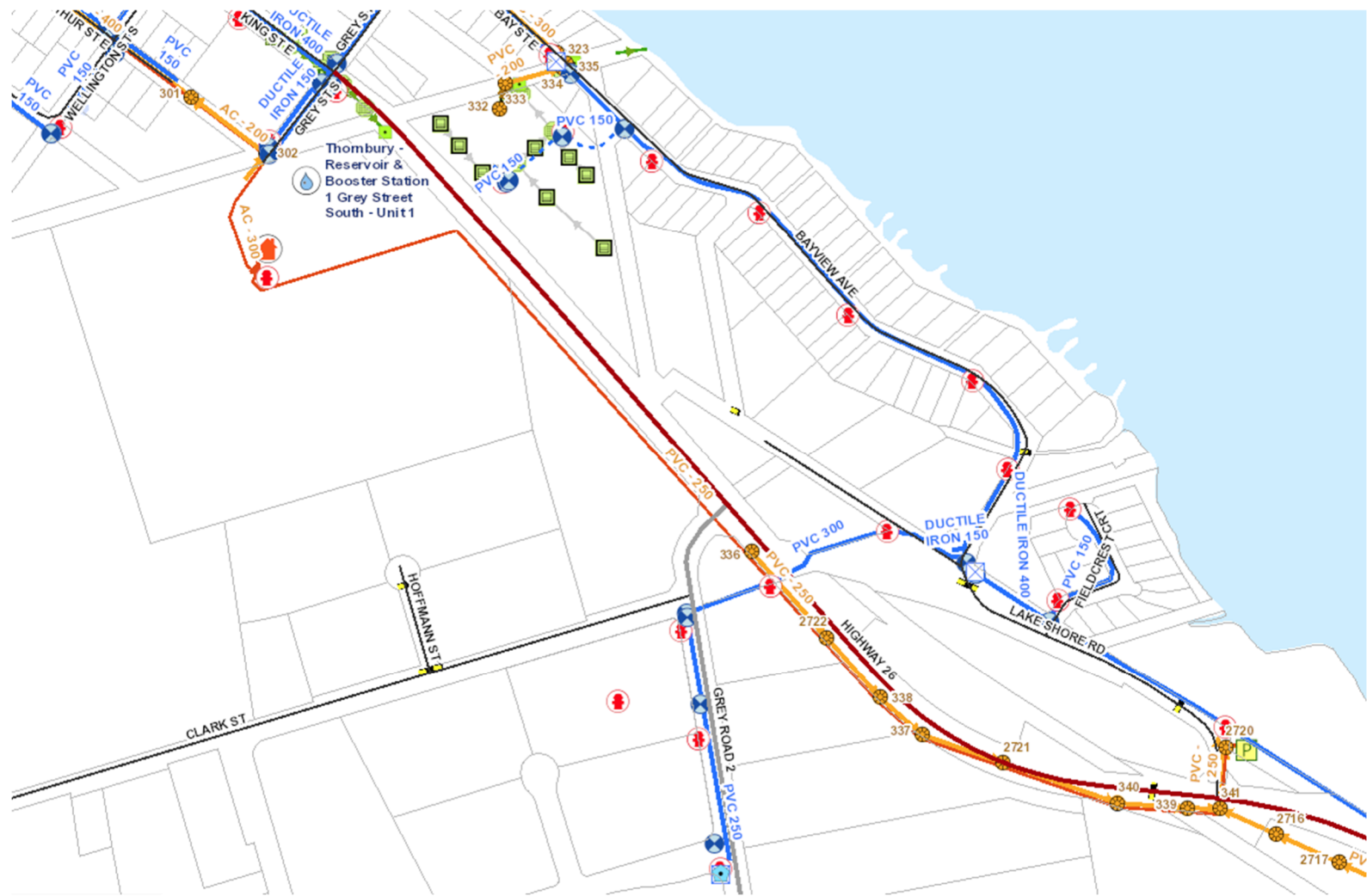
SCALE: 1:500

SUBJECT TO RIGHT OF WAY AS IN INSTRUMENT No. R269322 & R305795

Appendix B – As Constructed Drawings

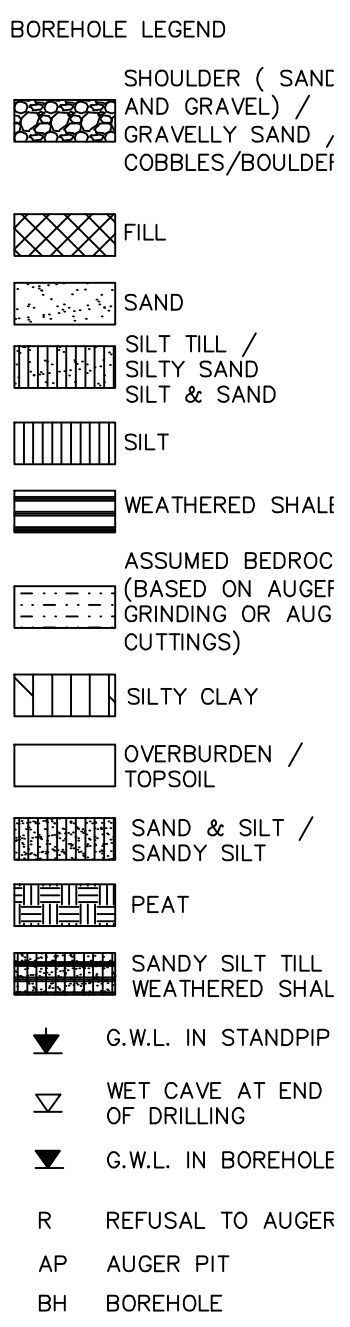
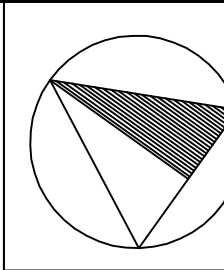
Lt 13 Clark St

Based on Town GIS, the following infrastructure appears to be fronting or in the vicinity of the site (*provided for discussion purposes, not be assumed accurate for design and should be verified in the field*):

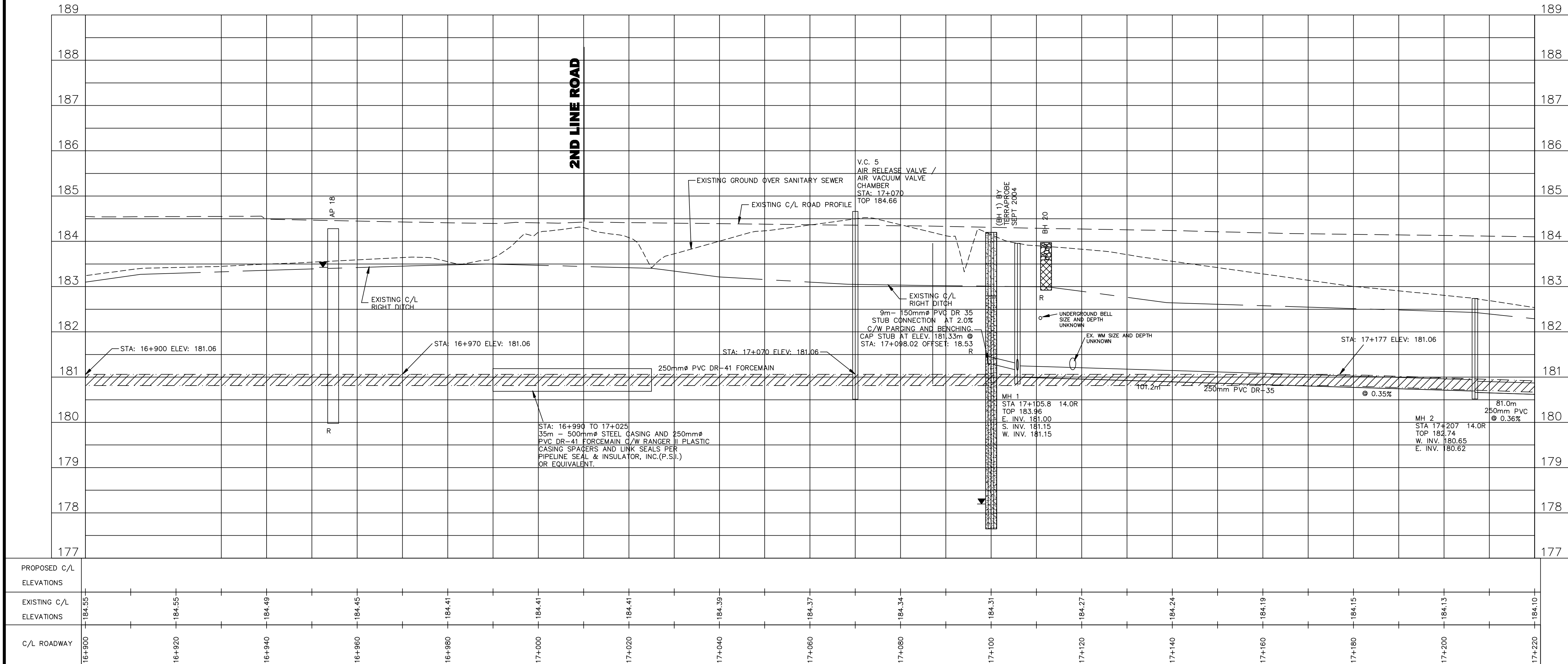


Legend:

Water Department	Wastewater Department	Drainage (Storm)
Autoflush	Structures	Storm Structures
Chamber	Maintenance Hole	Catch Basin
Facilities	Chamber	Double Catch Basin
Valve (Watermain)	Pump Station	Storm Maintenance Hole
Hydrants	Facilities	Catch Basin Maintenance Hole
Watermain Pipe	Sanitary Pipe	Double Catch Basin Maintenance Hole
Town	Gravity - Town	Ditch Inlet Catch Basin
Town (Unassumed)	Gravity - Town (Unassumed)	Ditch Inlet Maintenance Hole
Town (Abandoned)	Gravity - Private	Rear Yard Catch Basin
Private	Forcemain - Town	Oil Grit Separator
	Forcemain - Town (Unassumed)	Other
	Forcemain - Private	Storm Sewer Pipes
		Storm Sewer
		Storm Sewer - Town (Unassumed)
		Storm Sewer - Abandoned
		Storm Sewer - Private/Other
		Snowmaking
		Chamber
		Junction
		Valve
		Line
		Service



NOTES							SCALE: 1:500 HOR 1:50 VER	TOWN OF THE BLUE MOUNTAINS CAMPERDOWN SEWER SERVICING	 Skelton Brumwell CONSULTING ENGINEERS & PLANNERS 93 BELL FARM ROAD, SUITE 107 BARRIE, ONTARIO L4M 5G TELEPHONE (705) 726-1141 FAX. (705) 726-0331			
							DRAWN: BDD					
							CHECKED:					
							APPROVED:					
	1	AS CONSTRUCTED INFORMATION AS SUPPLIED	FEB 08				DATE: APR 2005			PLAN AND PROFILE HWY NO. 26 STA: 16+560 TO 16+900	04-1863	DRWG NO. 041863-PP2
	NO.	SCHEDULE OF REVISIONS	DATE	CHECKED								



NOTES
TBM 1
CC ON S/W BOLT OF HOME
HARDWARE SIGN ELEV 184.038
STA: 16+575.71 24.081 L

NO.	SCHEDULE OF REVISIONS	DATE	CHECKED
1	AS CONSTRUCTED INFORMATION AS SUPPLIED	AUG 08	

SCALE: 1:500 HOR
1:50 VER
DRAWN: BDD
CHECKED:
APPROVED:
DATE: APR 2005

TOWN OF THE BLUE MOUNTAINS
CAMPERDOWN
SEWER SERVICING

PLAN AND PROFILE HWY NO. 26
STA: 16+900 TO 17+220



Skelton Brumwell
ASSOCIATES INC.

CONSULTING ENGINEERS & PLANNERS
93 BELL FARM ROAD, SUITE 107
BARRIE, ONTARIO L4M 5G
TELEPHONE (705) 726-1141
FAX: (705) 726-0331

04-1863

DRWG NO. 041863-PP3