

5738 County Road 1,
Consecon, Ontario
Stormwater Management Report

July 2025

Submitted by:

**Greer Galloway a Division of JP2G
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Project No.: 25-5175A

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1.0 Introduction

The Greer Galloway Group was retained by Azzorypa Group INC. to prepare a stormwater management report for a proposed development at 5738 County Road 1 in Consecon, Ontario. This stormwater management report has been prepared in support of a Site Plan Application for the proposed development. The proposed development includes 10 single-bedroom cabins with a total area of 150 m², as well as a proposed paved driveway, pathway and parking area with an approximate area of 4060 m².

This stormwater report is intended to examine the effects of the proposed development on the existing stormwater quality and quantity for the site and describe the proposed measures to mitigate the impact of the development through various control systems and best management practices. The site location is shown in Figure 1-1.



Figure 1-1: Site Location, 5738 County Road 1, Consecon, Ontario.

2.0 Background Information

2.1 Survey/Site Layout

A topographic survey conducted by Greer Galloway, and topographic information of the surrounding area, was used to delineate the existing conditions of the site. The Site Plan is included in Appendix A.

2.2 Standards and Guidelines

The following standards and guidelines were consulted:

- Stormwater Management Practices Planning and Design Manual – Ministry of the Environment, 2003;
- MTO Drainage Management Manual – Ministry of Transportation, 1997;
- Stormwater Management Submission Guidelines – Quinte Conservation, 2012;
- Low Impact Development Stormwater Management Planning and Design Guide – Credit Valley Conservation, Toronto and Region Conservation, 2010.

2.3 Design Criteria

The design criteria for the stormwater management design are based on the requirements of the Quinte Conservation Authority and the Ministry of the Environment (MOE). The key design criteria are summarized below:

- The site drains north via overland sheet flow to Consecon Lake. Normal (Level 2) treatment as defined by the MOE is required;
- The pre-development outlet for stormwater runoff is Consecon Lake. As there is no risk to flooding the downstream receptor, no on-site storage is required. Safe conveyance of stormwater runoff to the lake is required;
- Sediment erosion and transference is to be mitigated during and after construction of the proposed addition and stormwater management measures.

3.0 Existing Conditions

The subject site is located at 5738 County Road 1, Consecon, Ontario. The site has frontage on the north side of County Road 1. The entire site has an approximate area of 16.4 ha and consists primarily of open field with some wooded and wetland area located near the North end of the property. Currently, a storage building with an area of approximately 330 m² and a gravel driveway and parking lot with a combined area of approximate area of 2506 m² have been constructed on site. The existing outlet for the site is Consecon Lake.

4.0 Proposed Development

The proposed development includes the construction of ten one-bedroom cabins with a total area of 150 m² and a paved driveway and parking lot with an approximate combined area of approximately 4060 m². Currently, a storage building with an area of approximately 330 m² and a gravel driveway and parking lot with a combined area of approximately 2506 m² have been constructed on site.

The construction of the new developments will alter the existing land cover composition of the property and as a result there will be an overall increase in the impervious surface areas.

4.1 Post-Development Drainage Patterns

The outlet for the subject site is Consecon Lake, as such it was determined that there are no flood flow management criteria for the development of the site. This being said, it still must be demonstrated that safe overland flow has been provided for the development site under the 100-year storm conditions. Post-development drawings are included in Appendix A. The drainage has been designed to maintain and improve the existing site drainage conditions. For the purpose of

this report, all gravel roads, parking areas and pathways shall be treated as asphalt to account for any future paving operations.

4.2 Summary of Post-Development Composite Runoff Coefficients

Tables 1 and 2 summarize post-development catchment areas within the subject site. The total project site has been sub-divided into two separate sub-areas in order to assist in stormwater management calculations. Sub-Area 1 is comprised of the proposed building developments, paved driveway and parking lot, and the grassed areas immediately surrounding them. These areas direct runoff into a series of overland earth ditching systems and into a bioswale at the northern limits of the site for treatment before entering Lake Consecon. Sub-Area 2 is comprised primarily of agricultural lands and grassed areas not included in sub-area 1. Flows from this sub-area flow uncontrolled as overland sheet flow into Lake Consecon. It is also important to note that the agricultural lands to the east are not expected to contribute significant runoff to the proposed bioswale due to a berm proposed along the eastern edge development. This berm will act as a barrier, preventing overland flow from entering the bioswale and ensuring that only runoff from the new impervious areas is conveyed through the system.

Table 1: Composite Runoff Coefficient Calculations – Controlled Flow

Land Use	Area (ha.)	Low Coefficient Value	High Coefficient Value	Selected Coefficient Value	C x A
Pavement	0.406	0.800	0.950	0.950	0.385
Concrete	0.000	0.800	0.950	0.950	0.000
Grass	1.600	0.050	0.350	0.250	0.400
Wooded	0.000	0.080	0.520	0.300	0.000
Roof	0.015	0.900	0.900	0.900	0.014
Total	2.021				0.799

Table 2: Composite Runoff Coefficient Calculations – Uncontrolled Flow

Land Use	Area (ha.)	Low Coefficient Values	High Coefficient Value	Selected Coefficient Value	C x A
Pavement	0.417	0.800	0.950	0.950	0.396
Concrete	0.000	0.800	0.950	0.950	0.000
Grass	5.200	0.050	0.350	0.250	1.300
Wooded	0.000	0.080	0.520	0.300	0.000
Roof	0.064	0.900	0.900	0.900	0.058
Agricultural	6.120	0.220	0.700	0.450	2.754
Wetland	2.520	0.050	0.050	0.050	0.126
Total	14.321				4.634

5.0 Stormwater Management

5.1 Quantity Control

Comparing the pre-development and post-development runoff rates, there is an increase of stormwater runoff due to the increase in impervious surfaces onsite. As quantity control is not required for this development, peak flows offsite will not be controlled, and no onsite storage methods are necessary. However, as bioretention practices will receive runoff for quality control purposes for the development area, the practice were also assessed during the 5-year and 100-year storm to determine the potential for flooding the proposed bioswale during high-flow events.

5.2 Quality Control

There is no water treatment system currently present onsite. The proposed drainage conditions will cause runoff from areas in and immediately surrounding proposed developments to drain via a system of ditches to a bioswale on the northern edge of the property. The proposed bioswale will encourage increased infiltration of stormwater and act as a setline basin in order to encourage the removal of sediments prior to entering Lake Consecon.

The bioswale will have a length of 80 m and is proposed to run along the northern edge of the property. The proposed bioswale will have a trough width of 3 m, a top width of 5 m, and a depth of 0.30 m (min). The side slopes of the swale will have a 4:1 ratio. Two rock flow check dams are to be installed to provide a required quality control storage of 25m³. This calculation can be found in appendix C.

The proposed bioswale and preceding earth ditching will be constructed with gravel in order to encourage sediment and pollutant removal prior to entering the site's outlet of Lake Consecon. Gentle 4:1 side slopes will act as a preventative measure against erosion of the side walls. In addition a 300mm wide and 600mm deep granular diaphragm shall added to the proposed drive isle and parking lot to provide pre treatment measures and encourage sediment removal prior to entering the proposed ditching.

6.0 Maintenance

As per the MOE Stormwater Management Planning and Design Manual, for the first two years of operation the stormwater management system shall be inspected after every significant storm to ensure proper functionality. Subsequently the system should be inspected annually to identify potential maintenance issues. Potential maintenance and inspection activities for the stormwater management include:

- Obstruction Removal – Obstructions and garbage should be cleaned from all swales, detention area and the outlet structure.
- Swales – Swales should be inspected regularly for signs of erosion. Any area where erosion has occurred should be infilled and vegetated immediately.
- Outlet Structure – The outlet structure should be inspected for blockages, concrete cracks and outlet erosion. All blockages, cracks and outlet erosion should be repaired immediately to ensure proper function of the outlet structure.

7.0 Erosion Control

During construction, a combination of light duty filter cloth, straw bale check dams, and other common measures will be applied to contain construction related suspended solids and other materials within the disturbed areas. All disturbed areas are to be bordered by light duty filter cloth, and straw bales or rip rap check dams are to be used where flows are concentrated. Vegetated surfaces will be established as rapidly as possible, and the physical barriers noted above will be continuously maintained until the vegetative cover is suitably established.

Prior to site work beginning the location of the proposed bioswale should be clearly marked. Construction runoff should be directed away from the locations of the proposed practices in order to prevent construction sediment from clogging the practice. Upland drainage areas to these practices should be properly stabilized to reduce sediment loads.

8.0 Conclusions and Recommendations

Based on the stormwater analysis described in this report, The Greer Galloway Group Inc. draws the following conclusions and recommendations regarding the impact of the proposed development at 5738 County Road 1:

- Uncontrolled post-development flow will be greater than pre-development flows due to changes in surface cover.
- The proposed stormwater management design provides the required quality control as determined by the MOE Stormwater Design Manual
- The proposed bioswale has the capacity to convey runoff for up to a 100-year storm event without ponding occurring.

Respectfully Submitted,

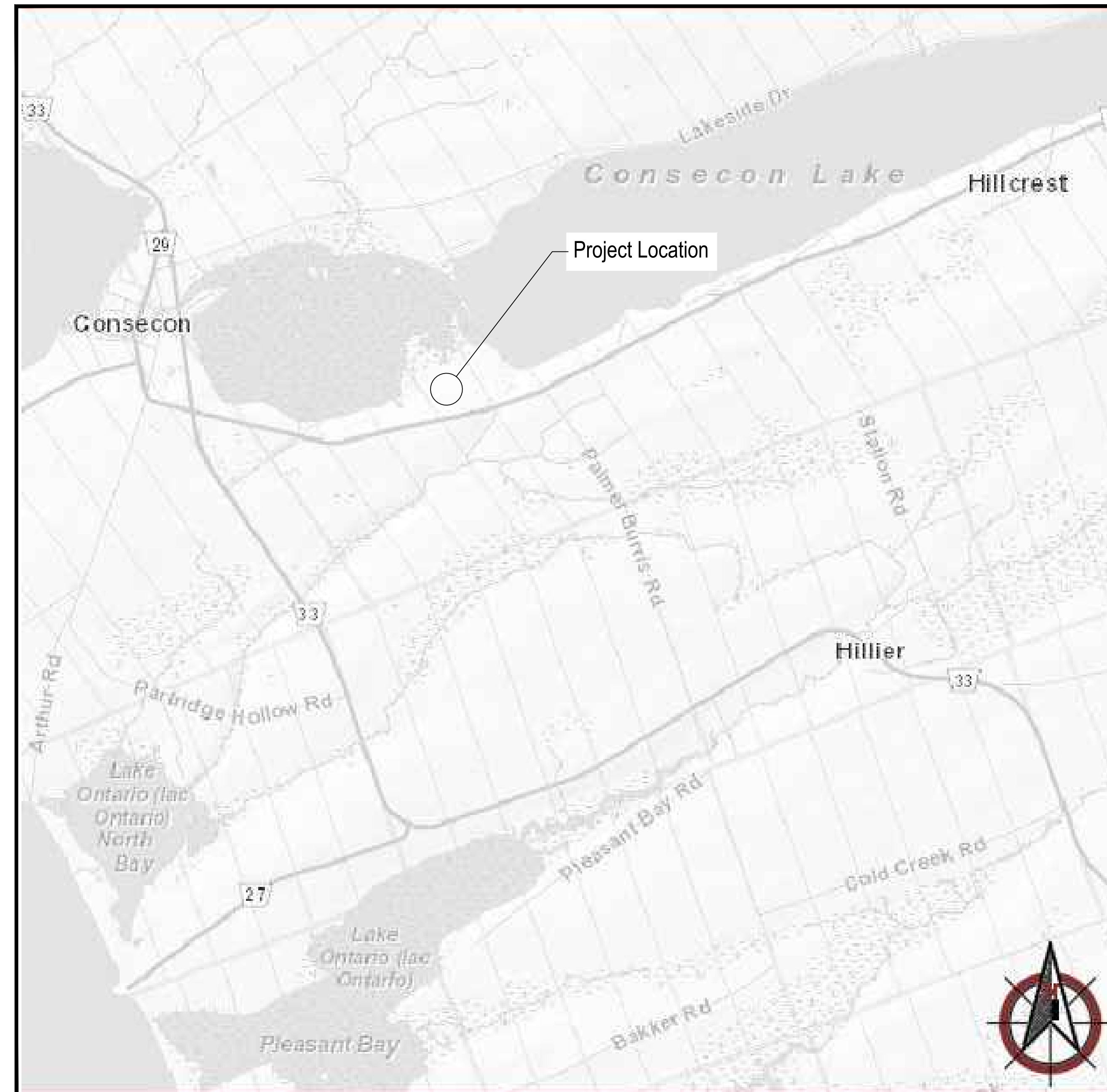


Kevin Hawley, P.Eng.
THE GREER GALLOWAY GROUP INC.
Consulting Engineers

Appendix A

Post-Development Site Drawings

5738 County Road 1 Site Plan Development



LIST OF DRAWINGS

- C0 COVER
- C1 SITE PLAN
- D1 DETAILS
- D2 PROPOSED SEPTIC SYSTEM DETAILS

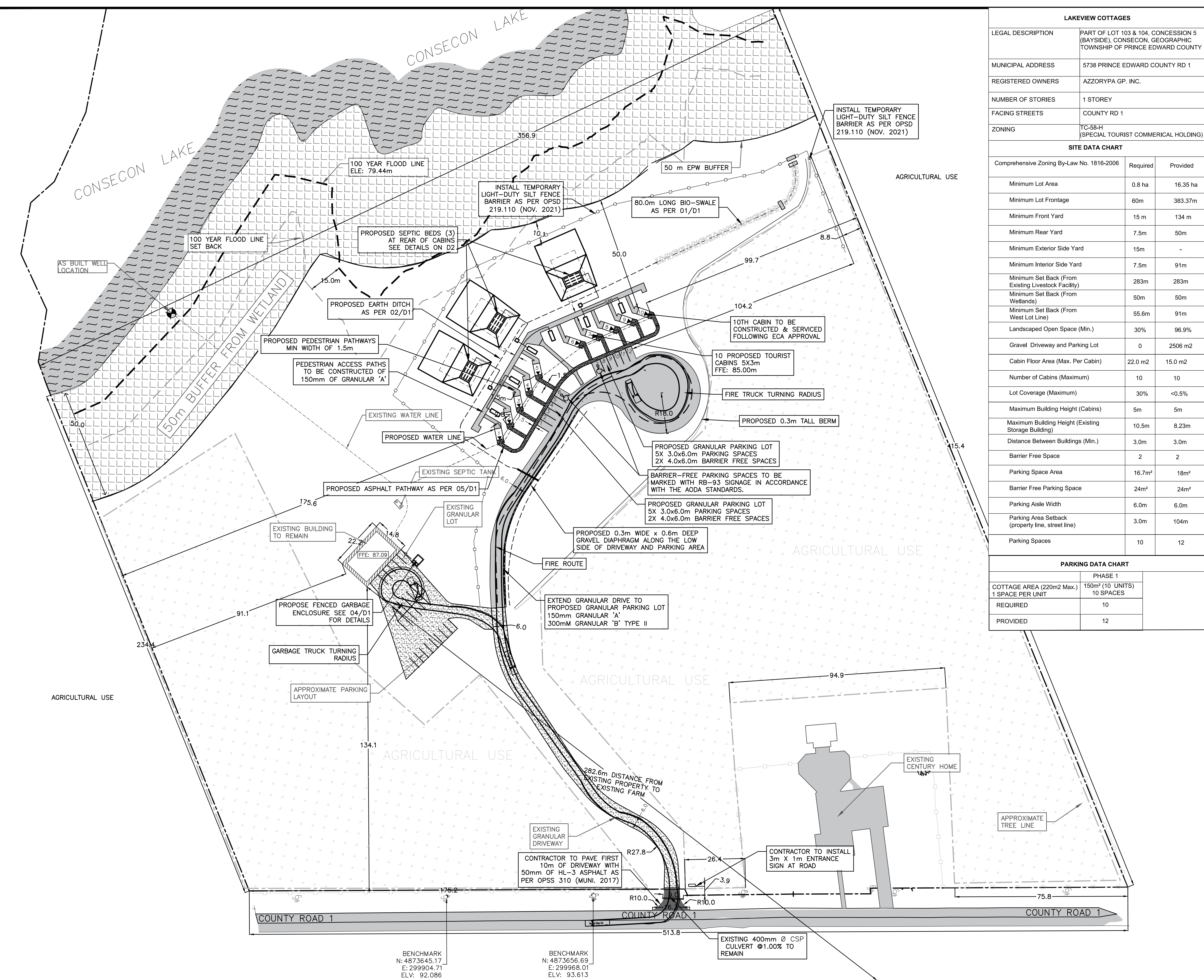


GREER GALLOWAY
a division of Jp2g Consultants Inc.

5738 County Road 1
Site Plan Development

Greer Galloway Project No. 25-5-175A

CAD OPERATOR: M. Laplante/brady
 CAD FILE: J:\5-Chm\2025\25-5175A - Elicott Realty - 5738 County Road 1\05 Drawings\1 Original\25-5175A - 5738 CR 1 - CURRENT.dwg
 GGG-41 DATE PLOTTED: DD/MM/YYYY PLOT SCALE: AS NOTED



LAKEVIEW COTTAGES	
LEGAL DESCRIPTION	PART OF LOT 103 & 104, CONCESSION 5 (BAYSIDE), CONSECON, GEOGRAPHIC TOWNSHIP OF PRINCE EDWARD COUNTY
MUNICIPAL ADDRESS	5738 PRINCE EDWARD COUNTY RD 1
REGISTERED OWNERS	AZZORYPA GP. INC.
NUMBER OF STORIES	1 STOREY
FACING STREETS	COUNTY RD 1
ZONING	TC-88-H (SPECIAL TOURIST COMMERCIAL HOLDING)

SITE DATA CHART		
Comprehensive Zoning By-Law No. 1816-2006	Required	Provided
Minimum Lot Area	0.8 ha	16.35 ha
Minimum Lot Frontage	60m	383.37m
Minimum Front Yard	15 m	134 m
Minimum Rear Yard	7.5m	50m
Minimum Exterior Side Yard	15m	-
Minimum Interior Side Yard	7.5m	91m
Minimum Set Back (From Existing Livestock Facility)	283m	283m
Minimum Set Back (From Wetlands)	50m	50m
Minimum Set Back (From West Lot Line)	55.6m	91m
Landscaped Open Space (Min.)	30%	96.9%
Gravel Driveway and Parking Lot	0	2506 m2
Cabin Floor Area (Max. Per Cabin)	22.0 m2	15.0 m2
Number of Cabins (Maximum)	10	10
Lot Coverage (Maximum)	30%	<0.5%
Maximum Building Height (Cabins)	5m	5m
Maximum Building Height (Existing Storage Building)	10.5m	8.23m
Distance Between Buildings (Min.)	3.0m	3.0m
Barrier Free Space	2	2
Parking Space Area	16.7m ²	18m ²
Barrier Free Parking Space	24m ²	24m ²
Parking Aisle Width	6.0m	6.0m
Parking Area Setback (property line, street line)	3.0m	104m
Parking Spaces	10	12

PARKING DATA CHART	
	PHASE 1
COTTAGE AREA (220m ² Max.)	150m ² (10 UNITS)
1 SPACE PER UNIT	10 SPACES
REQUIRED	10
PROVIDED	12

GREER GALLOWAY
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 PETERBOROUGH
 KINGSTON
 640 CATARAQUI WOODS DRIVE #2A
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 PHONE: 613-536-5420
 FAX: 613-548-3793

- NOTES:
- ALL WORK SHALL BE IN ACCORDANCE WITH RELEVANT CODES AND GUIDELINES.
 - ALL DRAWINGS AND ADDENDA ARE TO BE READ AS, AND IN CONJUNCTION WITH THE SPECIFICATIONS.
 - ALL EQUIPMENT SHALL BE INSTALLED AS SPECIFIED OR APPROVED EQUIVALENT.
 - CONTRACTOR MUST CHECK AND VERIFY ALL DIMENSIONS BEFORE PROCEEDING WITH WORK AND BE RESPONSIBLE FOR SAME.
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 - ANY CHANGES MUST BE APPROVED BY THE ENGINEER.

LEGEND

- PROPOSED EARTH DITCHING
- BOUNDARY OF AGRICULTURAL LAND
- EXISTING WATER LINE
- 50m EPW BUFFER
- HIGH WATER MARK OFFSET
- HIGH WATER MARK
- PROPERTY LINE
- PARKING INDICATORS
- EXISTING PAGE-WIRE FENCE
- LIGHT DUTY SILT-FENCE AS PER OPSPD 219.110
- PROPOSED GRAVEL DIAPHRAGM
- PROPOSED BIO SWALE
- PROPOSED GRAVEL
- PROPOSED ROCK FLOW CHECK DAM
- EXISTING GRANULAR DRIVEWAY & LOT
- AGRICULTURE ZONE
- PROPOSED ASPHALT
- 50m FROM WATER LINE BUFFER
- LAKE ZONE

NORTH

STAMP

PROJECT
**5738 COUNTY ROAD 1
 LAKESIDE COTTAGES**
 CONSECON, ON

AZZORYPA GP. INC.
 PRINCE EDWARD COUNTY, ON

DRAWING TITLE
SITE PLAN

06	RE ISSUED FOR SITE PLAN APPROVAL	11/07/25
05	ISSUED FOR SITE PLAN APPROVAL	18/12/24
04	RE-ISSUED FOR CLIENT REVIEW	01/10/24
03	ISSUED FOR CLIENT REVIEW	07/08/24
02	ISSUED FOR CLIENT REVIEW	26/07/24
REVISION		DATE

DESIGNED BY
K. HAWLEY

DRAWN BY
J. LOCKERBIE/M. LAPLANTE BRADY

REVIEWED BY
A.HICKS

APPROVED BY
K. HAWLEY

PROJECT DATE
10/06/2024
 (DD/MM/YYYY)

PROJECT #
25-5175A
 SCALE
 HOR: 1:750
 VER: NTS

DRAWING #
C1

(METRIC SCALE - ALL DIMS IN METERS UNLESS OTHERWISE SPECIFIED)

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 DATE PLOTTED: DD/MM/YYYY
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A A DETAIL NO.
 B B DRAWING NO. - WHERE DETAILED

LEGEND

	SURFACE ELEVATION LABEL
	SLOPE LABEL
	PROPOSED EARTH DITCHING
	BOUNDARY OF AGRICULTURAL LAND
	EXISTING WATER LINE
	50m EPW BUFFER
	HIGH WATER MARK OFFSET
	HIGH WATER MARK
	PROPERTY LINE
	PARKING INDICATORS
	EXISTING PAGE-WIRE FENCE
	LIGHT DUTY SILT-FENCE AS PER OPSD 219.110
	PROPOSED GRAVEL DIAPHRAGM
	PROPOSED BIO-SWALE
	PROPOSED GRAVEL
	PROPOSED ROCK FLOW CHECK DAM
	EXISTING GRANULAR DRIVEWAY & LOT
	AGRICULTURE ZONE
	PROPOSED ASPHALT
	50m FROM WATER LINE BUFFER
	LAKE ZONE

NORTH

STAMP

PROJECT
 5738 COUNTY ROAD 1
 THE LAKEVIEW IN PEC
 CONSECON, ON
 AZZORYPA GP. INC.
 PRINCE EDWARD COUNTY, ON

DRAWING TITLE

GRADING AND SEDIMENT AND EROSION PLAN

06	RE-ISSUED FOR SPA	11/07/25
05	ISSUED FOR SITE PLAN APPROVAL	18/12/24
04	RE-ISSUED FOR CLIENT REVIEW	01/10/24
03	ISSUED FOR CLIENT REVIEW	07/08/24
02	ISSUED FOR CLIENT REVIEW	26/07/24
REVISION		DATE

DESIGNED BY

K. HAWLEY

DRAWN BY

J. LOCKERBIE/M. LAPLANTE BRADY

REVIEWED BY

A.HICKS

APPROVED BY

K. HAWLEY

PROJECT DATE

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PROJECT #

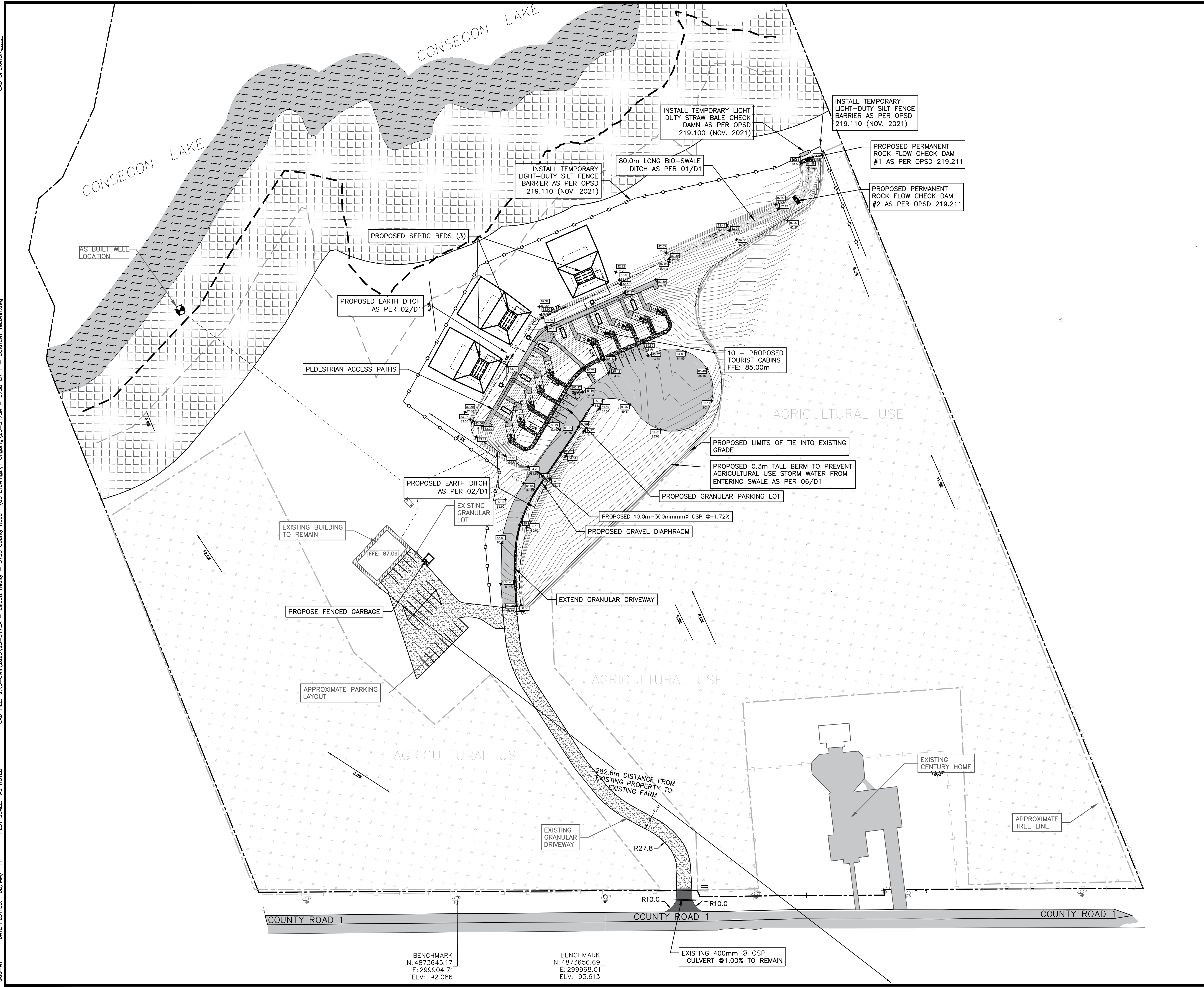
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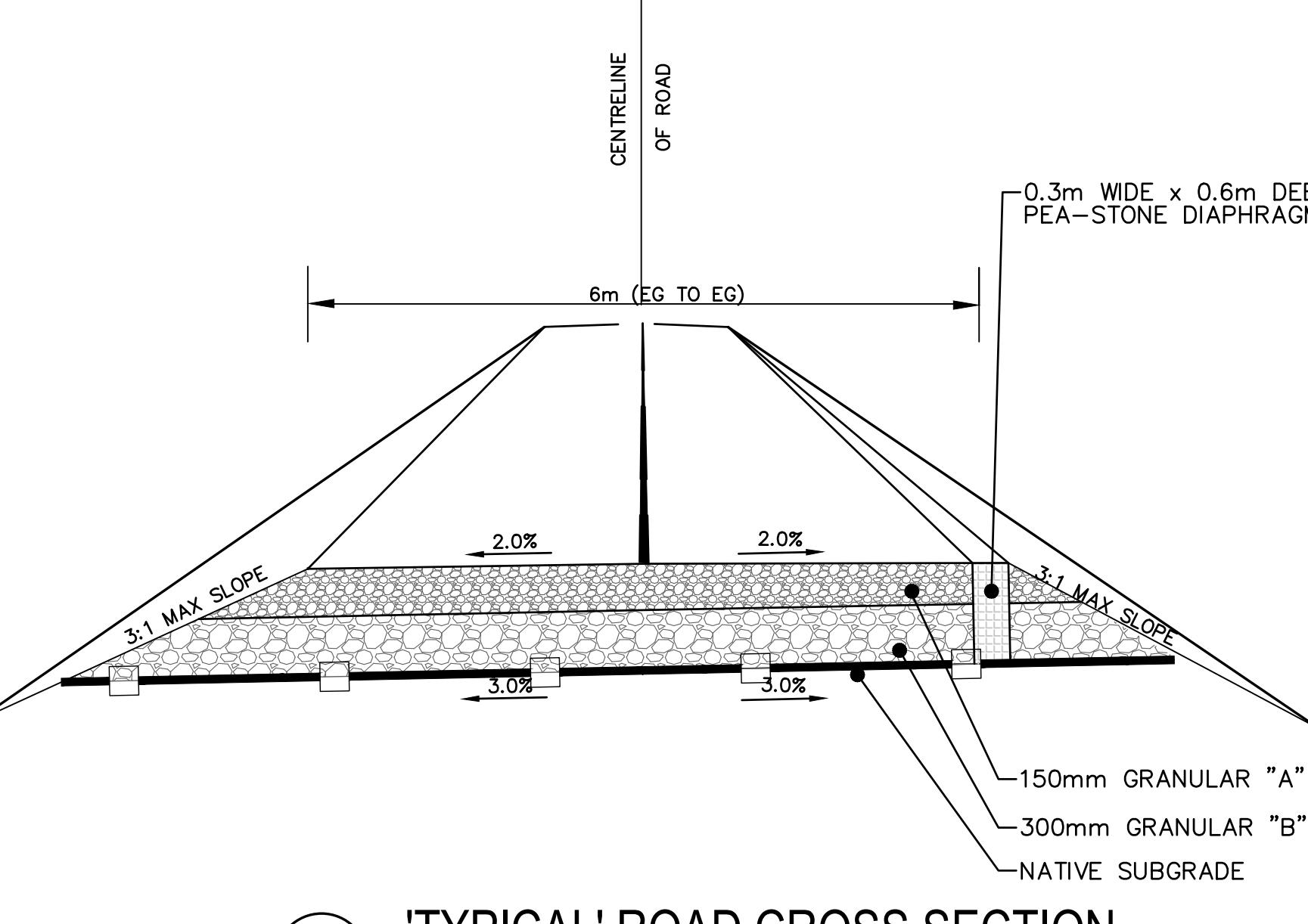
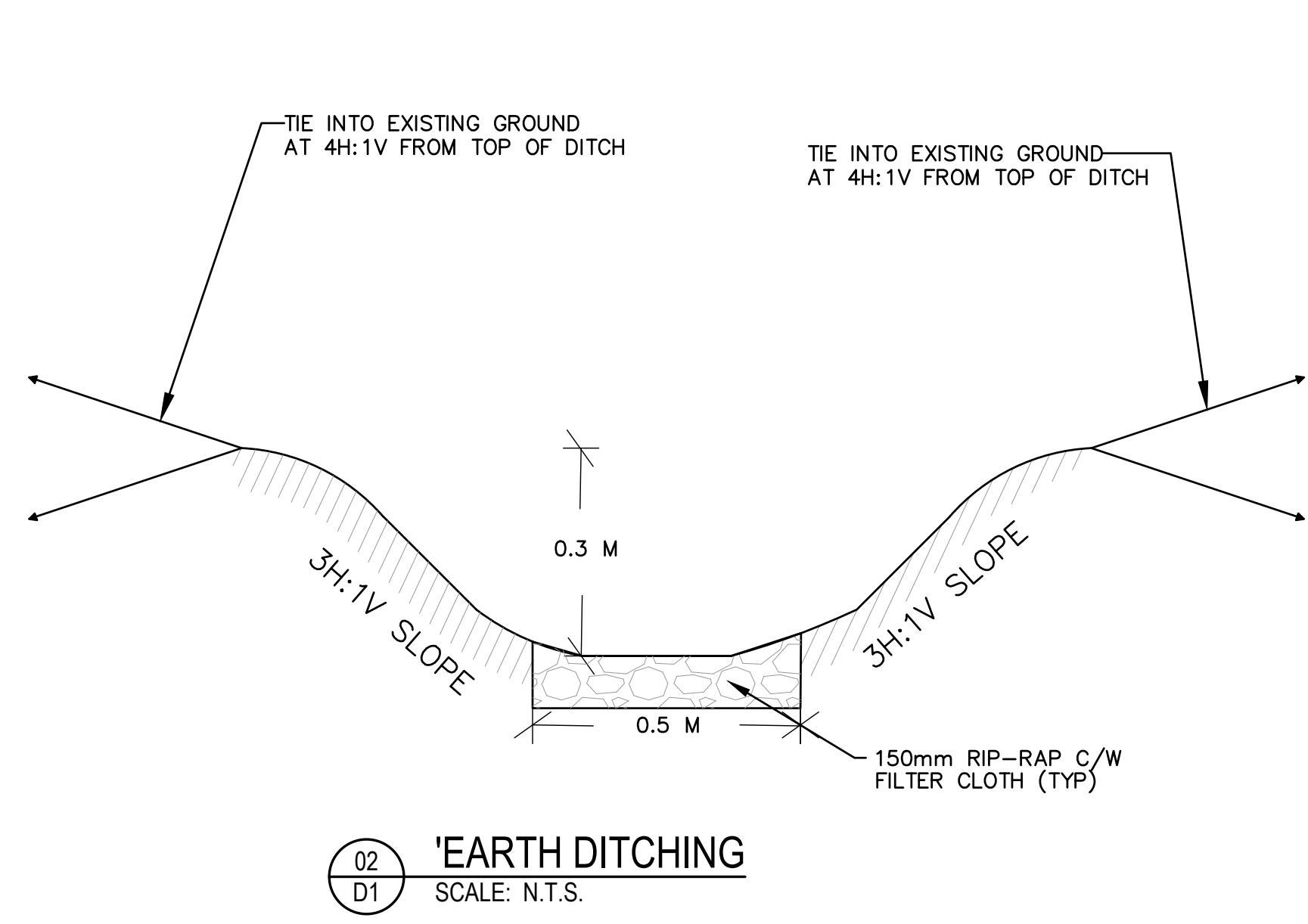
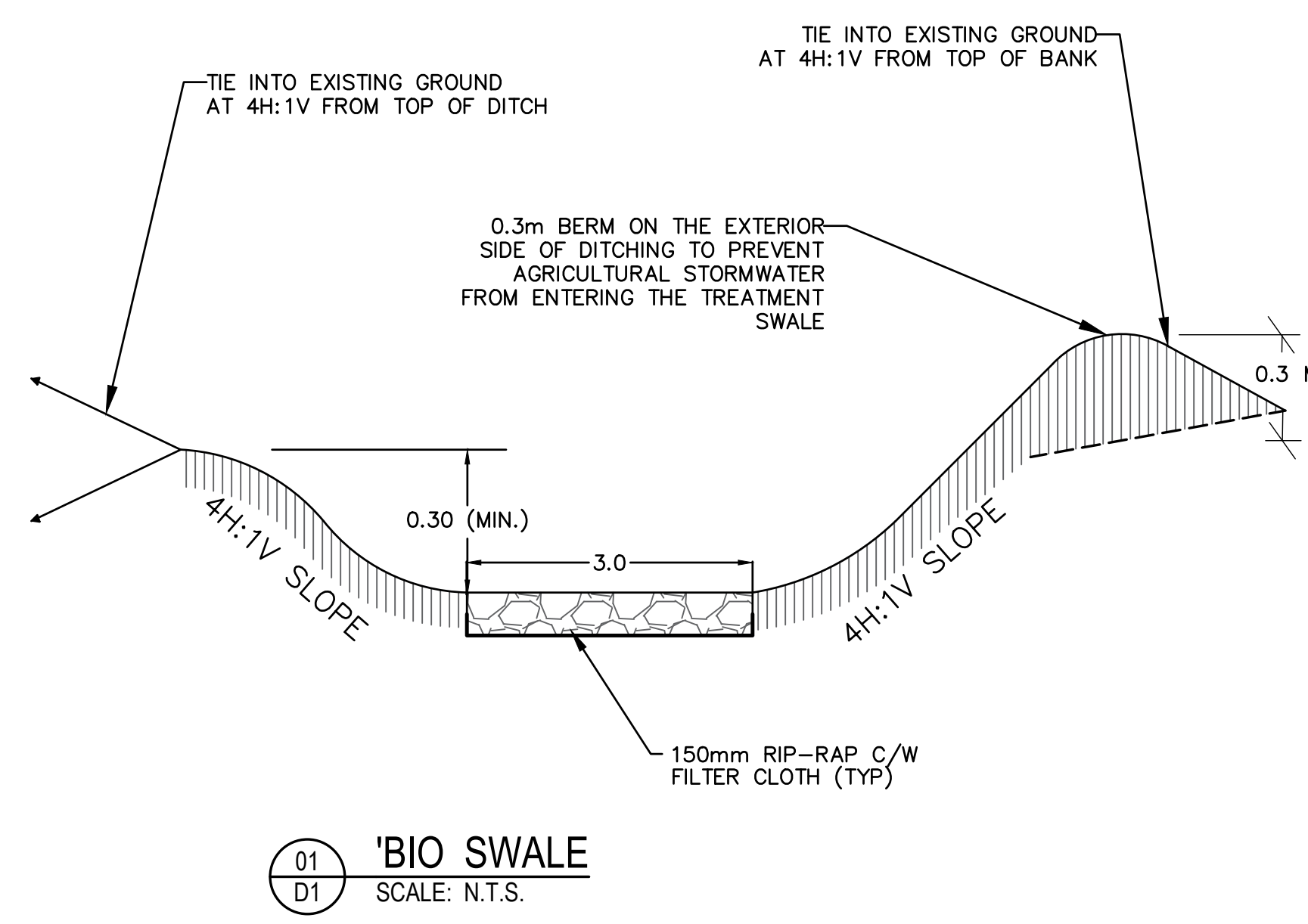
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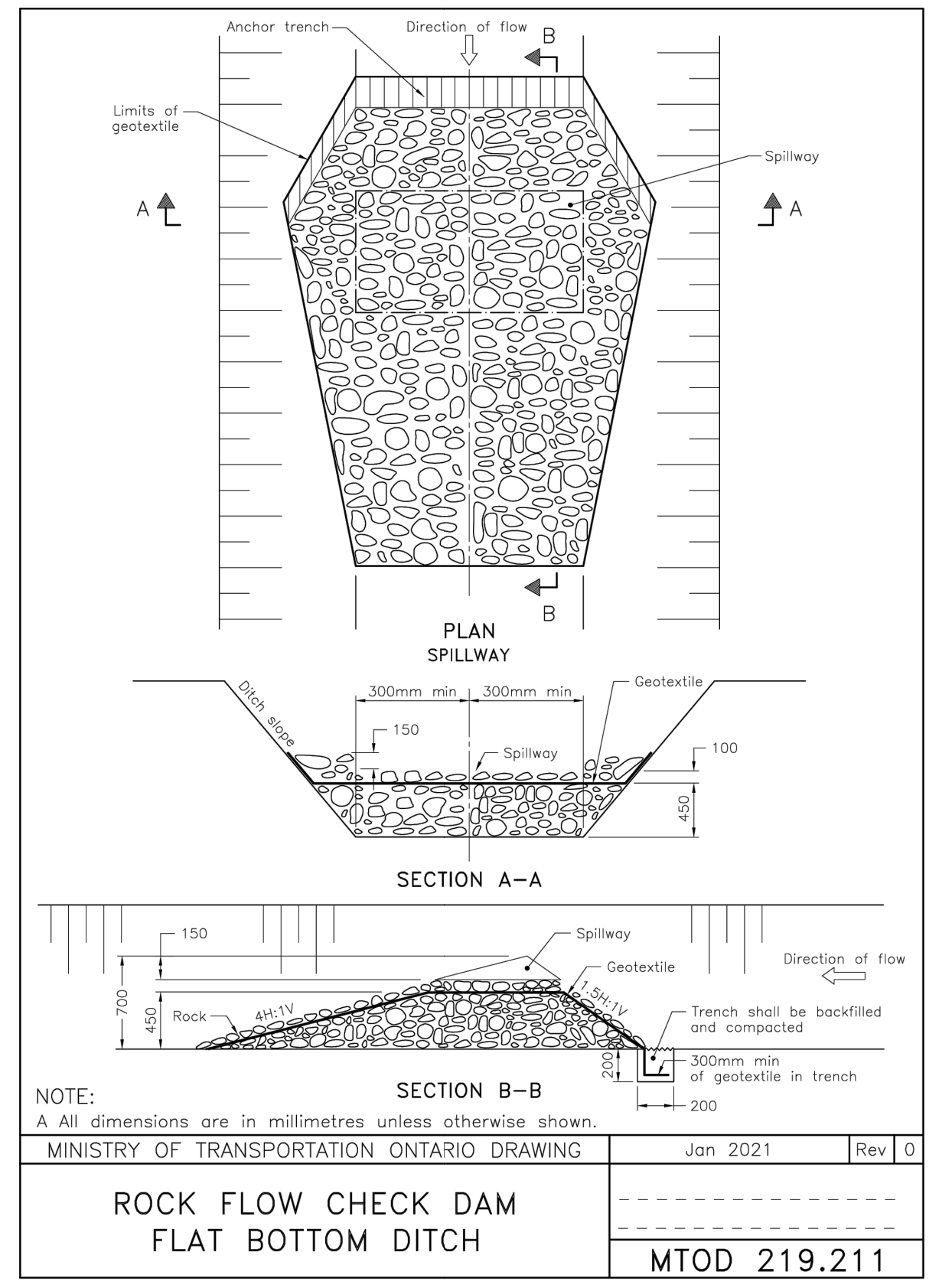
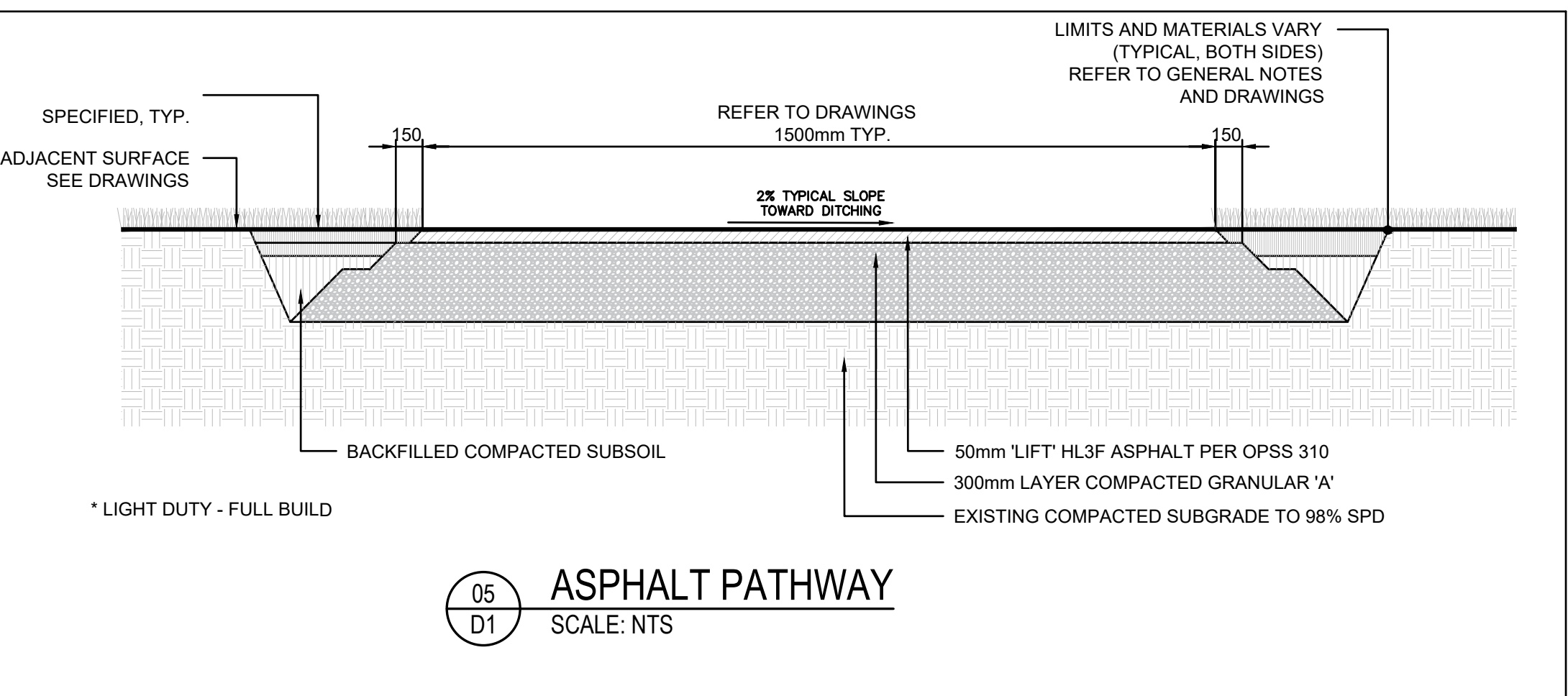
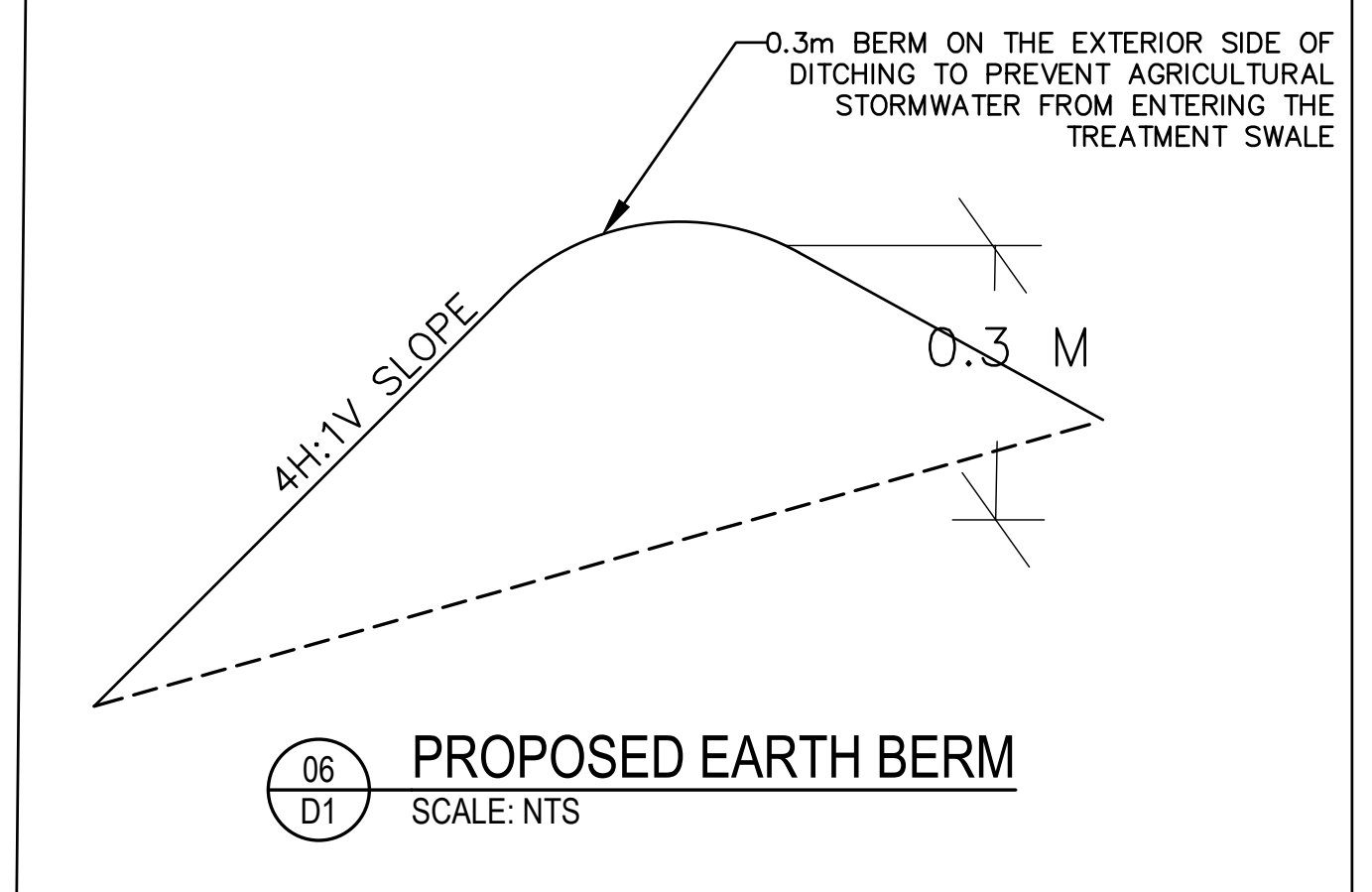
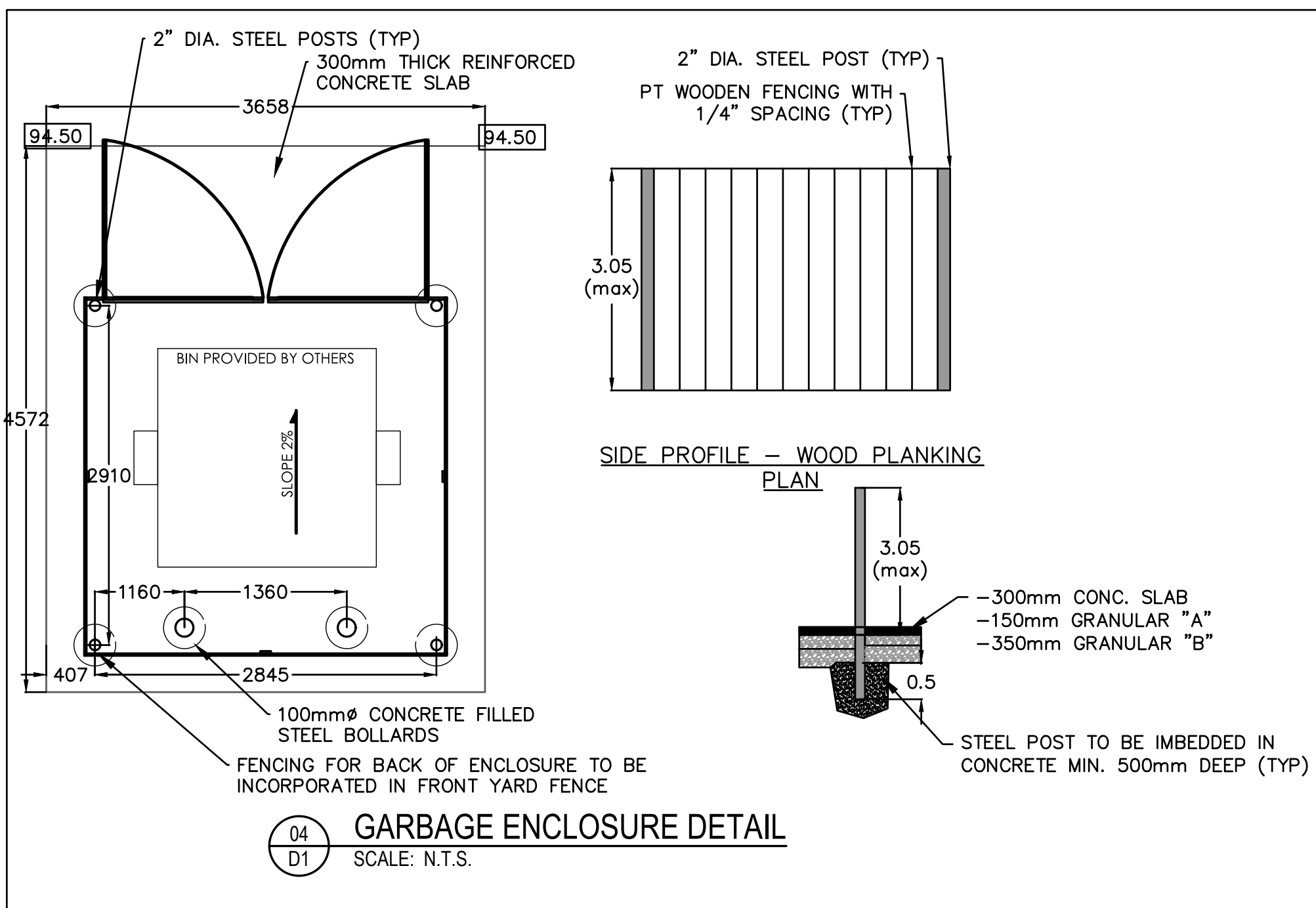


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 PLOT SCALE: AS NOTED
 DATE PLOTTED: DD/MM/YYYY
 GGG-A1



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- A A DETAIL NO.
 B DRAWING NO. - WHERE DETAILED



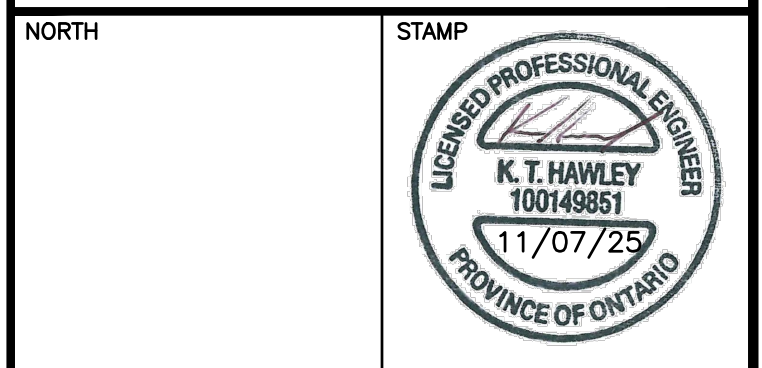
- GENERAL
- ALL WORK TO BE INSTALLED IN ACCORDANCE WITH CURRENT PRINCE EDWARD COUNTY, ONTARIO BUILDING CODE AND, ONTARIO PROVINCIAL STANDARD SPECIFICATIONS AND DRAWINGS UNLESS SPECIFIED OTHERWISE.
 - PRIOR TO CONSTRUCTION, CONTRACTOR TO VERIFY ALL DIMENSIONS, SEWER INVERTS AND UTILITY LOCATES AND IDENTIFY POSSIBLE CONFLICTS.
 - ALL ENVIRONMENTAL PROTECTION MEASURES ARE THE RESPONSIBILITY OF THE CONTRACTOR.
 - ANY TRAFFIC SIGNS OR INFORMATION SIGNS DAMAGED DURING CONSTRUCTION ARE TO BE REPLACED AT THE CONTRACTORS COSTS. ALL TRAFFICS SIGNS ARE TO BE MAINTAINED BY THE CONTRACTOR THROUGHOUT CONSTRUCTION.
 - ALL UTILITY POLES TO BE BRACED AS NECESSARY.
 - THE LOCATION OF UTILITIES IS APPROXIMATE ONLY, AND THE EXACT LOCATION SHOULD BE DETERMINED BY CONSULTING THE MUNICIPAL AUTHORITIES AND UTILITY COMPANIES CONCERNED. THE CONTRACTOR SHALL PROVE THE LOCATION OF UTILITIES AND SHALL BE RESPONSIBLE FOR ADEQUATE PROTECTION FROM DAMAGE DURING CONSTRUCTION.
 - ALL WORK SHALL BE IN ACCORDANCE WITH RELEVANT CODES AND GUIDELINES.
 - ALL DRAWINGS AND ADDENDA ARE TO BE READ AS, AND IN CONJUNCTION WITH THE SPECIFICATIONS.
 - ALL MATERIAL SHALL BE INSTALLED AS SPECIFIED OR APPROVED EQUIVALENT.
 - CONTRACTOR MUST CHECK AND VERIFY ALL DIMENSIONS BEFORE PROCEEDING WITH WORK AND BE RESPONSIBLE FOR SAME.
 - CONTRACTOR IS RESPONSIBLE TO LOCATE ALL UTILITIES PRIOR TO CONSTRUCTION.
 - CONTRACTOR MUST REPORT ANY DISCREPANCIES TO ENGINEER FOR RESOLUTION BEFORE COMMENCING THE WORK.
 - ANY CHANGES MUST BE APPROVED BY THE ENGINEER.
 - ALL SERVICES THAT ARE TO BE REMOVED, SHALL BE REMOVED FROM THE MAIN TO PROPERTY LINE.
 - THE CONTRACTOR IS RESPONSIBLE TO LOCATE ALL UTILITIES PRIOR TO CONSTRUCTION.
 - EXCAVATED MATERIAL MAY BE USED TO COMPLETE TRENCH BACKFILLING, EXCEPT THAT NO BOULDERS SHALL BE ALLOWED. ALL COMPACTION OF TRENCH TO BE A MINIMUM OF 95% STANDARD PROCTOR DENSITY.
 - SIDEWALKS ARE TO BE DEPRESSED AT ALL EXISTING ENTRANCES. MAXIMUM SLOPE OF 1:20 AS PER 80.23-ACCESSIBILITY FOR ONTARIANS WITH DISABILITIES ACT (2005).
 - THE CONTRACTOR SHALL IDENTIFY ALL SUB-PUMPS COMING FROM RESIDENCES AND SHALL NOTIFY THE CONTRACT ADMINISTRATOR IMMEDIATELY SHOULD A SUB-PUMP BE FOUND DISCHARGING INTO THE EXISTING SANITARY SYSTEM.
 - ALL RELEVANT OPS3 & OPS4 REFERENCED WITHIN THIS CONTRACT ARE TO BE THE CURRENT VERSION AT THE TIME OF TENDERING.

- TRAFFIC CONTROL
- ALL TRAFFIC CONTROL/PEDESTRIAN SIGNING AS PER OTM.
- GRADING
- FINISHED SURFACES SHALL BE AT A MINIMUM GRADE OF 2% UNLESS OTHERWISE NOTED.
 - SLOPES IN LANDSCAPED AREAS SHALL NOT EXCEED 3:1.
 - ALL EXISTING ELEVATIONS AND GRADES ARE TO BE VERIFIED BY THE CONTRACTOR PRIOR TO GRADING.
 - UTILITIES ARE TO BE LOCATED PRIOR TO CONSTRUCTION.
 - ALL GROUND SURFACES SHALL BE GRADED TO PREVENT PONDING AND WITHOUT LOW AREAS EXCEPT WHERE APPROVED SWALE OR CATCH BASIN OUTLETS ARE PROVIDED.
 - THE CONTRACTOR IS RESPONSIBLE FOR REVIEWING PROPOSED GRADES WITH CONFLICTS REGARDING THE PROPOSED STRUCTURES.
 - SUB-GRADE SHALL BE GRADED AT A MINIMUM OF 3%, UNTIL A LOWER DITCH IS ENCOUNTERED OR THE EXISTING SURFACE DRAINS AWAY FROM THE SLOPED SUB-GRADE.
 - ALL GRANULAR 'A' SHOULDERS SHALL BE SLOPED AT 6.0% UNLESS OTHERWISE NOTED.

- SITE WORKS
- WHERE IN EARTH SUBGRADE GRANULAR DEPTHS TO BE 150 MM GRANULAR A AND 300MM GRANULAR B TYPE 2. PROVIDE 3% CROSSFALL ON SUBGRADE.
 - CONCRETE CURB, AS PER OPSD 600.020.
 - CONCRETE SHALL BE CLASS C2, 30 MPA 28 DAY STRENGTH, 15MM COARSE AGGREGATE NOMINAL MAXIMUM SIZE, 6.0% TO 8.0% AIR CONTENT.
 - CONCRETE MATERIALS AND PRODUCTION AS PER OPSD 350, 351, 352, 353, 1001, 1302 AND 1350.
 - BOULEVARDS AND LANDSCAPE AREAS TO BE FINISHED WITH 100MM OF TOPSOIL AND NURSERY SOD, OR TO PRE-EXISTING CONDITION.
 - ASPHALT SHALL BE 50 MM HL3 BINDER COURSE AND 40 MM HL3 SURFACE COURSE AS PER OPS310 AND THE SPECIAL PROVISIONS IN THE CONTRACT DOCUMENTS. RESURFACING SHALL TAKE PLACE ALONG THE EXTENT OF PRINCETON PLACE.
 - IN ALL AREAS WHERE A JOINT IS REQUIRED BETWEEN PROPOSED AND EXISTING ASPHALT, THE JOINT SHALL BE A 1.0m STEP JOINT IF THE DEPTH OF PROPOSED ASPHALT EXCEEDS 60mm.
 - COMPACTION TESTING SHALL BE AS PER OPS5 501 AND AT THE DISCRETION OF THE CONTRACT ADMINISTRATOR FOR ALL GRANULAR MATERIAL INCORPORATED INTO THE WORK.
 - ASPHALT SHALL BE AS PER OPS310 (NOV 2017) AND OPS5 1150 (NOV 2010). THE PGAC SHALL BE 58-28.
 - A TOTAL OF 3 BULK ASPHALT SAMPLES SHALL BE TAKEN AS PER OPS310 (NOV 2017).
 - CONTRACTOR IS RESPONSIBLE FOR THE SHORING OF ALL EXCAVATIONS IF REQUIRED TO PROTECT ADJACENT INFRASTRUCTURE.
 - IN AREAS WHERE COMPACTION CANNOT BE ACHIEVED, THE CONTRACTOR SHALL USE NON-SHRINK FILL AS THE BACKFILL MATERIAL AS PER OPS5 1359 (NOV 2016).
 - PRIVATE WATER SERVICES SHALL COMPLY WITH OBC 7.1.2.5. MOE PIBS 6881e, DESIGN GUIDELINES FOR DRINKING WATER SYSTEMS.

- SEDIMENT AND EROSION CONTROL NOTE
- ALL EROSION AND SEDIMENT CONTROLS SHALL BE INSTALLED PRIOR TO CONSTRUCTION AND MONITORED AND MAINTAINED BY THE CONTRACTOR THROUGHOUT THE CONSTRUCTION PROCESS, UNTIL ALL DISTURBED AREAS HAVE BEEN RE-VEGETATED THEN THE TEMPORARY SEDIMENT AND EROSION CONTROL MEASURES MUST BE REMOVED ONCE THE SITE HAS BEEN STABILIZED/COMPLETED OF SITE WORKS.
 - ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE INSPECTED AFTER EACH RAINFALL TO THE SATISFACTION OF THE CONSTRUCTION AUTHORITY.
 - ANY DISTURBED AREAS NOT SCHEDULED FOR FURTHER CONSTRUCTION WITHIN FORTY-FIVE (45) DAYS WILL BE PROVIDED WITH A SUITABLE TEMPORARY MULCH AND SEED COVER WITHIN SEVEN (7) DAYS OF COMPLETION.
 - REGARDLESS OF SITE SPECIFIC ITEMS DETAILED ON THE PLANS, THE CONTRACTOR SHALL INSTALL EROSION CONTROL MEASURES TO SUIT THE PROPOSED WORK METHODS TO CONTROL SEDIMENT FROM RUNNING OFF THE SITE PRIOR TO ANY DISTURBANCE.
 - FOLLOWING CONSTRUCTION, DISTURBED AREAS, AS WELL AS PROPOSED GRASSED AND VEGETATED SURFACES, SHALL BE REINSTATED AS SOON AS PRACTICAL. SUCH DISTURBED AREAS SHALL BE REINSTATED WITH TOPSOIL AND SOD AS PER OPS5 802 (NOV 2010) & OPS5 803 (NOV 2015).
 - ALL ROADS USED TO ACCESS THE SITE SHALL BE KEPT CLEAN TO THE SATISFACTION OF THE DIRECTOR OF PUBLIC WORKS.

- ENVIRONMENTAL
- WHILE UNDERTAKING CLEARING, DEMOLITION, EXCAVATION OR CONSTRUCTION THE OWNER AND THE CONTRACTOR SHALL BE VIGILANT FOR THE POTENTIAL PRESENCE OF UNDERGROUND FUEL TANKS, CONTAMINATED SOIL OR GROUNDWATER, BURIED WASTES OR ABANDONED WATER WELLS.
 - IF ANY OF THE ABOVE ARE ENCOUNTERED OR SUSPECTED, THE OWNER SHALL ENSURE THAT ANY WASTES GENERATED BY SITE CLEAN-UPS ARE MANAGED IN ACCORDANCE WITH APPLICABLE LAWS AND STANDARDS.
 - CONSTRUCTION WASTES ARE NOT TO BE BURIED WITHIN THE PROPERTY THAT IS THE SUBJECT OF THIS AGREEMENT AND THAT THE OWNER AND THEIR CONTRACTORS REPORT ALL SPILLS TO THE MINISTRY OF THE ENVIRONMENT'S SPILLS ACTION CENTRE (1-800-268-6960) AND TO THE MUNICIPALITY (613 386-7351) FORTHWITH.
 - ALL SANITARY SEWER MAIN AND LATERALS ARE ASSUMED TO BE ASBESTOS CONDUIT. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO ENSURE THAT CONTAMINATES ARE CONTAINED AND THE REQUIREMENTS OF THE SPECIAL PROVISION FOR ASBESTOS MANAGEMENT ARE MET. ALL COSTS ASSOCIATED WITH MANAGEMENT OF SAID CONTAMINANTS ARE THE RESPONSIBILITY OF THE CONTRACTOR.



NORTH
 PROJECT
**5738 COUNTY ROAD 1
 LAKESIDE COTTAGES**

CONSECON, ON
 LAND & BOG
 CONSECON, ON

DRAWING TITLE
DETAILS

NO.	DESCRIPTION	DATE
06		
05		
04	RE-ISSUED FOR SPA	11/07/25
03	ISSUED FOR SITE PLAN APPROVAL	18/12/24
02	RE-ISSUED FOR CLIENT REVIEW	01/10/24

DESIGNED BY
S. HIGH

DRAWN BY
S. HIGH/M. LAPLANTE BRADY

REVIEWED BY
A. HICKS

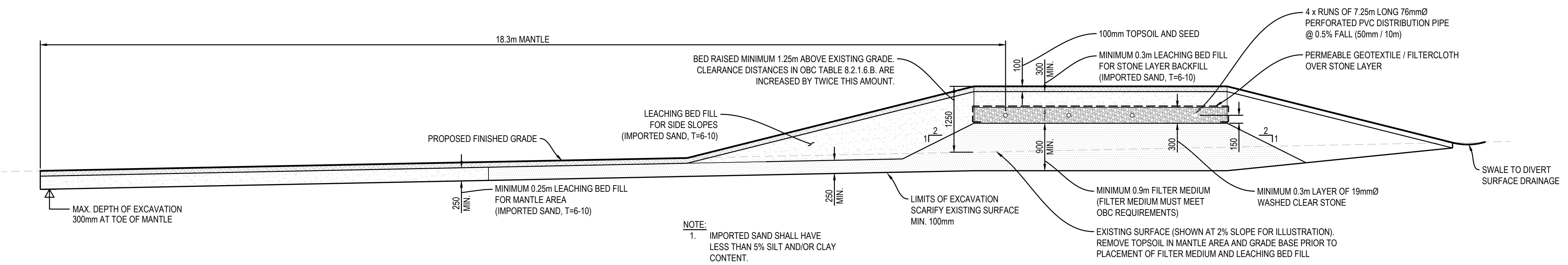
APPROVED BY
K. HAWLEY

PROJECT DATE
10/06/2024
 (DD/MM/YYYY)

PROJECT #
25-5175A

SCALE
 HOR: 1:750
 VER: N.T.S.

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 DATE PLOTTED: DD/MM/YYYY
 GGG-A1

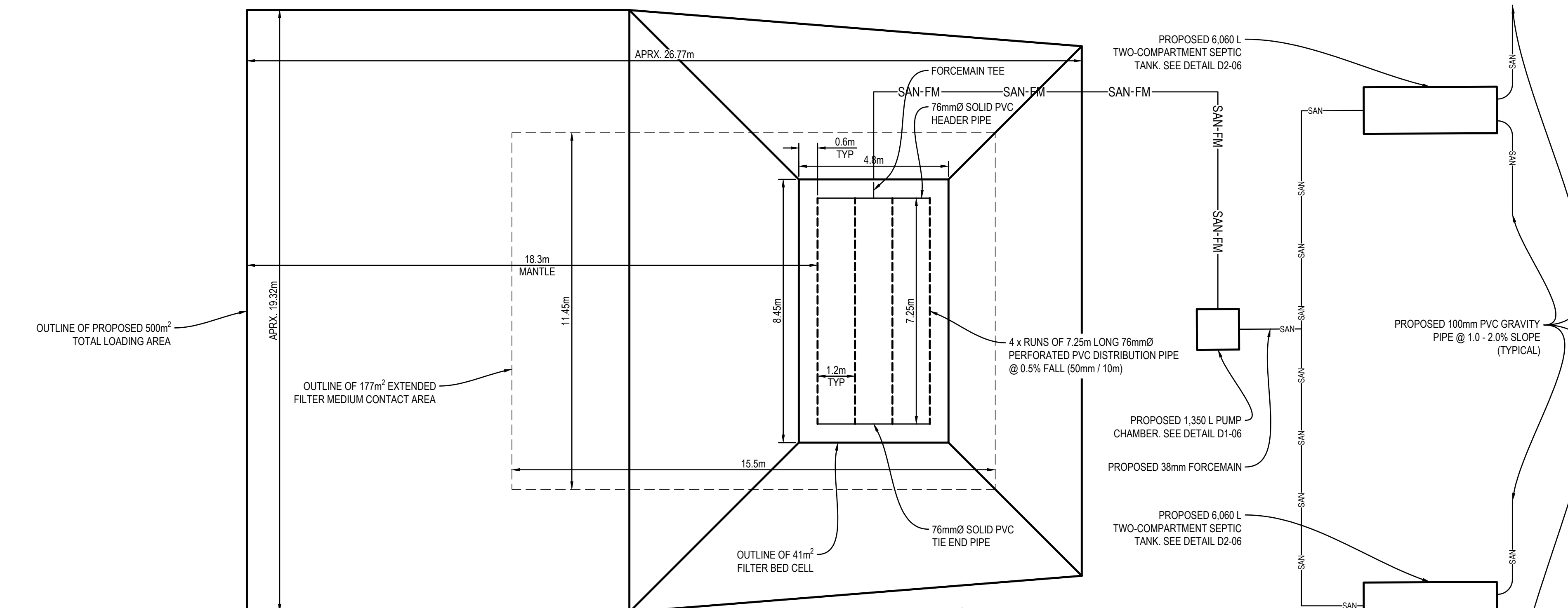


04
D2
DISTRIBUTION BED - SECTION
 1:50

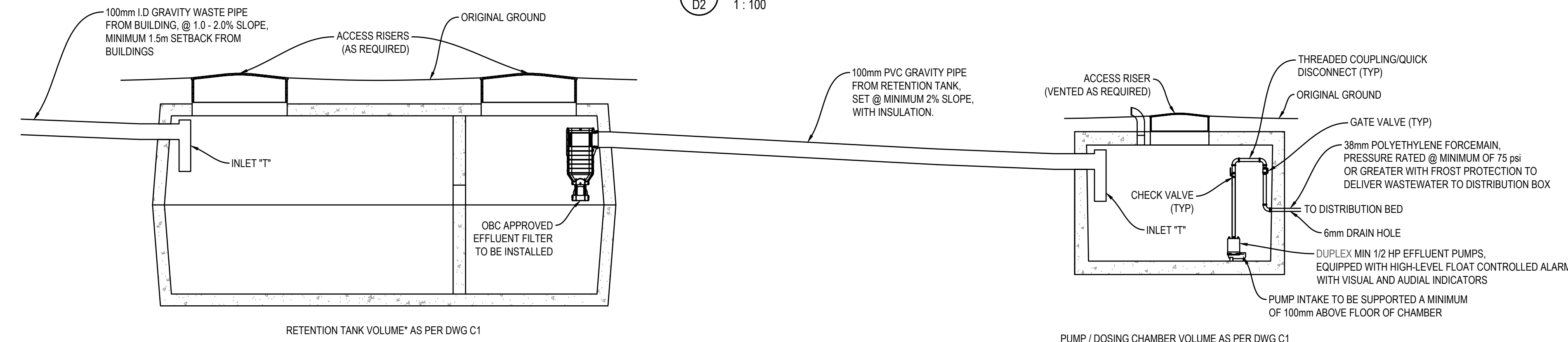
- NOTES:
- ALL WORK SHALL BE IN ACCORDANCE WITH RELEVANT CODES AND GUIDELINES.
 - ALL DRAWINGS AND ADDENDA ARE TO BE READ AS, AND IN CONJUNCTION WITH THE SPECIFICATIONS.
 - ALL EQUIPMENT SHALL BE INSTALLED AS SPECIFIED OR APPROVED EQUIVALENT.
 - CONTRACTOR MUST CHECK AND VERIFY ALL DIMENSIONS BEFORE PROCEEDING WITH WORK AND BE RESPONSIBLE FOR SAME.
 - CONTRACTOR MUST REPORT ANY DISCREPANCIES TO ENGINEER FOR RESOLUTION BEFORE COMMENCING THE WORK.
 - ANY CHANGES MUST BE APPROVED BY THE ENGINEER.

- GENERAL NOTES
- CONTRACTOR RESPONSIBLE FOR ALL BUILDING PERMIT(S).
 - ALL PLASTIC PIPING SHALL HAVE CSA CERTIFICATION TO CAN/CSA-B137.6 (PRESSURE RATED PVC OR HDPE).
 - STONE AS PER OBC 8.7.3.3. DISTRIBUTION PIPE:
 - THE LAYER OF STONE REQUIRED SHALL BE COMPRISED OF WASHED SEPTIC STONE, FREE OF FINE MATERIALS, WITH GRADATION CONFORMING TO TABLE 8.7.3.3.A.
 - BE NOT LESS THAN 500mm IN WIDTH.
 - EXTEND NOT LESS THAN 150mm BELOW THE DISTRIBUTION PIPE, AND
 - EXTEND NOT LESS THAN 50mm ABOVE THE DISTRIBUTION PIPE.
 - THE TOP SOIL AND GRASS COVER FORM AN INTEGRAL PART OF THIS SEPTIC SYSTEM AND MUST BE ESTABLISHED IMMEDIATELY FOLLOWING CONSTRUCTION AND MAINTAINED.
 - NO TRAFFIC INCLUDING SNOWMOBILES, ATVs OR STRUCTURES ON MANTLE AREA.
 - SOIL NOT TO BE WORKED WHEN WET.
 - ALL PIPING IS TO HAVE 6-12 GAUGE TRACER WIRE FIXED TO PIPING.

- ELECTRICAL NOTES:
- ALL ELECTRICAL INSTALLATIONS SHALL BE PERFORMED IN ACCORDANCE WITH THE ONTARIO ELECTRICAL SAFETY CODE.
 - ELECTRICAL SERVICING FROM MAIN BUILDING.
 - PUMPS SHALL BE POWERED AND CONTROLLED BY OUTDOOR-RATED CONTROL CABINET.
 - TANK SHALL CONTAIN FLOAT SWITCHES TO INDICATE:
 - HIGH LEVEL
 - LOW LEVEL
 - HIGH LEVEL FAILURE CONDITION
 - LOW LEVEL FAILURE CONDITION
 - PUMPS SHALL BE COMMANDED ON ACCORDING TO "HIGH LEVEL" FLOAT, AND COMMANDED OFF ACCORDING TO "LOW LEVEL" FLOAT.
 - CONTROL CABINET SHALL PROVIDE THE FOLLOWING VISUAL AND AUDIAL TROUBLE INDICATIONS:
 - ONE INDICATOR PER PUMP INDICATING ABNORMALITY HIGH OR ABNORMALITY LOW ELECTRICAL SUPPLY CURRENT.
 - ONE INDICATOR WHICH LATCHES "ON" UPON ABNORMAL SIGNAL FROM ANY PUMP, INDICATOR SHALL REMAIN "ON" UNTIL MANUALLY RESET.
 - ONE INDICATOR FOR HIGH LEVEL FAILURE CONDITION.
 - ONE INDICATOR FOR LOW LEVEL FAILURE CONDITION.



05
D2
DISTRIBUTION BED - PLAN
 1:100

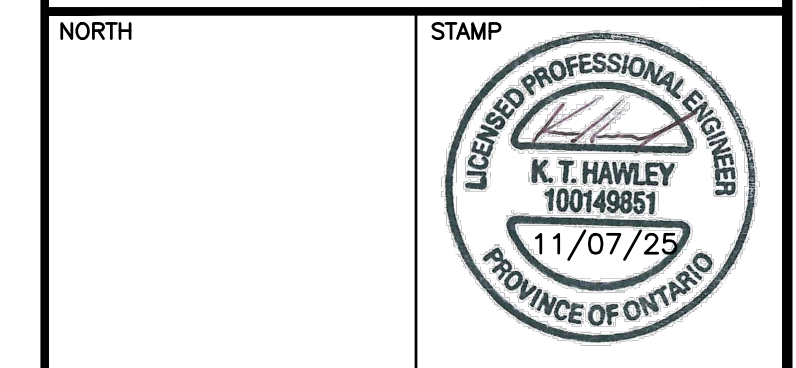


06
D2
RETENTION TANK AND PUMP CHAMBER DETAIL
 N.T.S.

TANK CONSTRUCTION / INSTALLATION NOTES:

- TANK SUPPLIER IS TO BE CONSULTED WHEN LOCATION OF TANK IS SUBJECT TO VEHICULAR TRAFFIC OR EXCESSIVE EARTH PRESSURE. SUCH CASES MAY NECESSITATE ADDITIONAL REINFORCEMENT OF THE TANK(S) TO AVOID STRUCTURE FAILURE.
- MAXIMUM DEPTH OF BURIAL OF TANK 600mm TO TOP OF LID UNLESS PRIOR APPROVAL FROM TANK MANUFACTURER RECEIVED.
- ACCESS RISERS AND LIDS TO BE INSTALLED WHERE REQUIRED.
- INSTALLATION SITE MUST BE ACCESSIBLE TO LARGE HEAVY CRANE EQUIPMENT:
 - THIS AREA MUST BE FREE OF OVERHEAD WIRES, TREE LIMBS, OR OTHER ABOVE GRADE OBSTRUCTIONS WHICH COULD AFFECT NORMAL CRANE OPERATIONS.
 - A FIRM FLAT LEVEL AREA OF SUFFICIENT SIZE TO ALLOW MANEUVERING ROOM FOR THIS TYPE OF EQUIPMENT MUST BE PROVIDED.

- EXCAVATION WIDTH AND LENGTH SHOULD ALLOW FOR SAFE CLEARANCE ON ALL SIDES OF THE TANK:
 - SOIL CONDITIONS MUST BE FIRM AND STABLE.
 - TO MINIMIZE STRESS ON THE TANK OR CHAMBER, IT SHOULD BE PLACED ON A BASE OF GRAVEL OR CRUSHED STONE, MINIMUM 150mm THICK.
- WHEN BACKFILLING:
 - BACKFILL MATERIAL SHALL BE FREE OF BOULDERS OR LARGE STONES.
 - THE WHEELS AND TRACKS OF BACKFILLING EQUIPMENT SHALL BE KEPT AT LEAST 1m AWAY FROM THE TANK OR CHAMBER.
 - AT NO TIME SHALL HEAVY EQUIPMENT COME IN CONTACT WITH ANY PART OF THE TANK OR CHAMBER.
 - DO NOT DROP BACKFILL ON THE TANK OR CHAMBER, OR INTO THE EXCAVATION FROM A HEIGHT GREATER THAN 1m.
 - BACKFILL MUST BE PLACED IN LAYERS PROGRESSIVELY AGAINST THE FOUR SIDE WALLS OF THE TANK OR CHAMBER STRUCTURE.
- TANKS ARE TO BE SEALED WITH BUTYL TAPE AT THE JOINTS.
- TANKS ARE TO BE PROPERLY ANCHORED IN ORDER TO AVOID LIFT DUE TO HYDROSTATIC PRESSURE.



PROJECT
 5738 COUNTY ROAD 1
 LAKESIDE COTTAGES

CONSECON, ON
 LAND & BOG
 CONSECON, ON

DRAWING TITLE
PROPOSED SEPTIC SYSTEM DETAILS

NO.	REVISION	DATE
06		
05		
04		
03	RE-ISSUED FOR SPA	11/07/25
02	ISSUED FOR SITE PLAN APPROVAL	18/12/24
01		

DESIGNED BY
 S. HIGH

DRAWN BY
 S. HIGH/M. LAPLANTE BRADY

REVIEWED BY
 A. HICKS

APPROVED BY
 K. HAWLEY

PROJECT DATE
 10/06/2024
 (DD/MM/YYYY)

PROJECT #
 25-5175A
 SCALE
 HOR: 1:750
 VER: NTS

DRAWING #
 D2

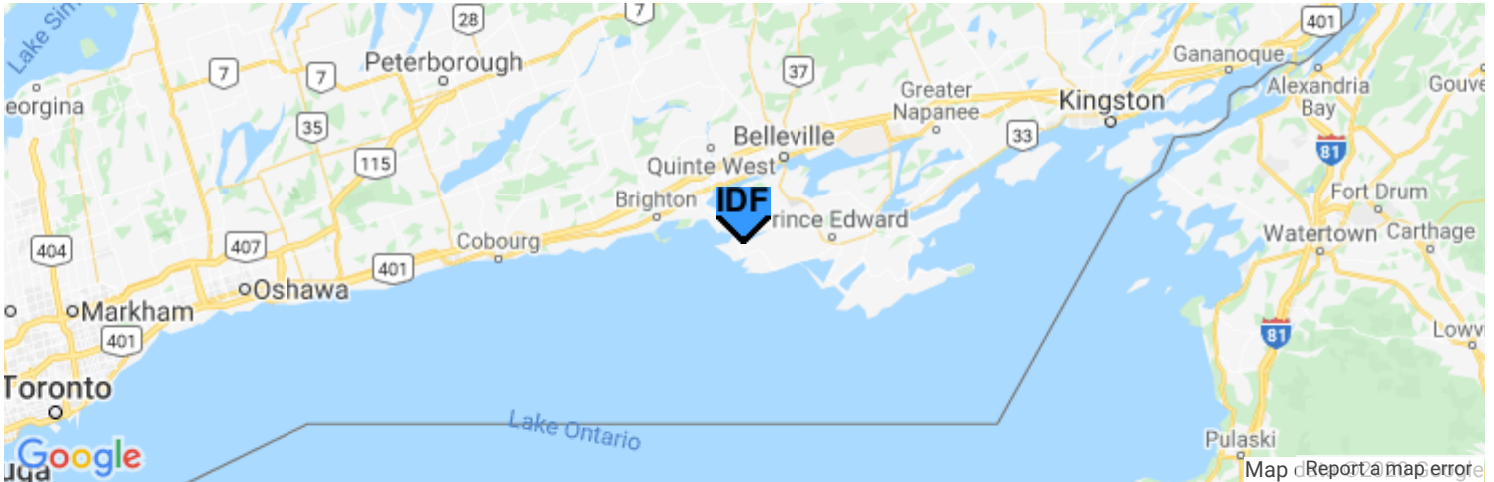
Appendix B

Design Criteria

Active coordinate

43° 59' 15" N, 77° 29' 45" W (43.987500,-77.495833)

Retrieved: Wed, 05 Aug 2020 12:20:51 GMT



Location summary

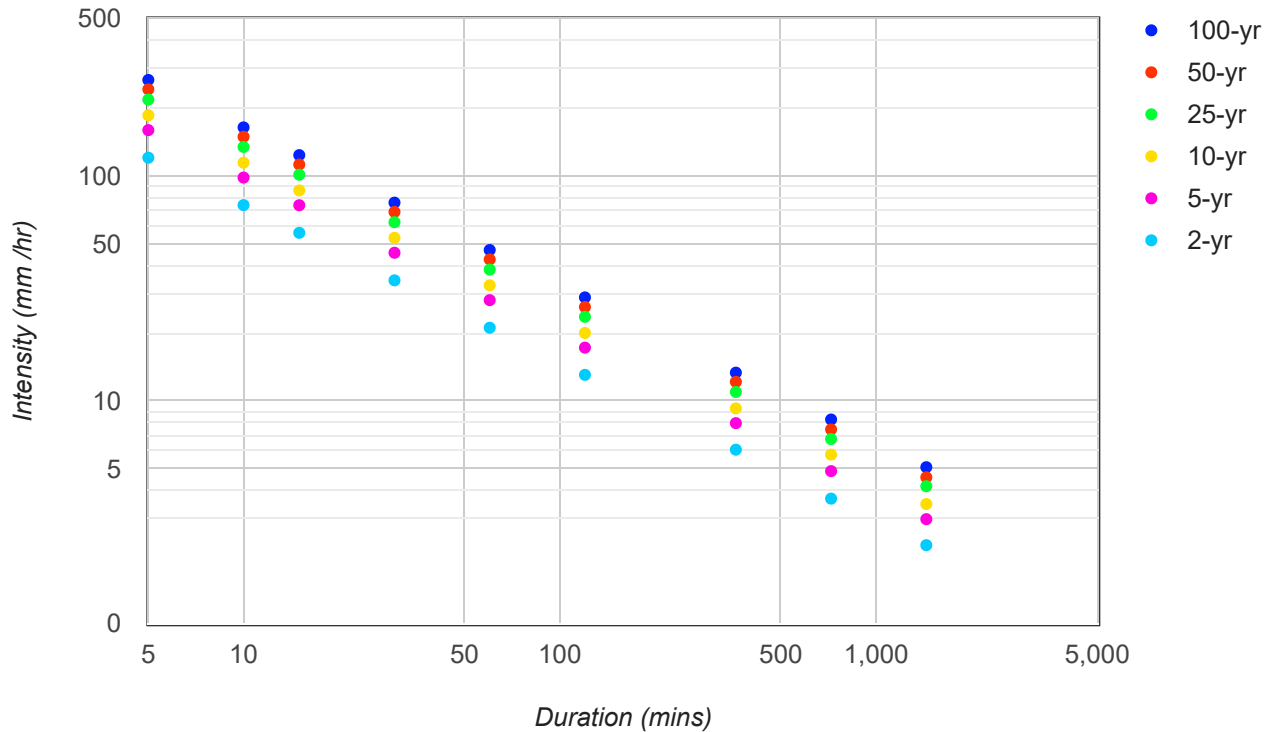
These are the locations in the selection.

IDF Curve: 43° 59' 15" N, 77° 29' 45" W (43.987500,-77.495833)

Results

An IDF curve was found.

Coordinate: 43.987500, -77.495833
IDF curve year: 2010



Coefficient summary

IDF Curve: 43° 59' 15" N, 77° 29' 45" W (43.987500,-77.495833)

Retrieved: Wed, 05 Aug 2020 12:20:51 GMT

Data year: 2010

IDF curve year: 2010

Return period	2-yr	5-yr	10-yr	25-yr	50-yr	100-yr
A	21.2	28.1	32.7	38.4	42.6	46.9
B	-0.699	-0.699	-0.699	-0.699	-0.699	-0.699

Statistics**Rainfall intensity (mm hr⁻¹)**

Duration	5-min	10-min	15-min	30-min	1-hr	2-hr	6-hr	12-hr	24-hr
2-yr	120.4	74.2	55.9	34.4	21.2	13.1	6.1	3.7	2.3
5-yr	159.6	98.3	74.1	45.6	28.1	17.3	8.0	4.9	3.0
10-yr	185.7	114.4	86.2	53.1	32.7	20.1	9.3	5.8	3.5
25-yr	218.1	134.4	101.2	62.3	38.4	23.7	11.0	6.8	4.2
50-yr	242.0	149.1	112.3	69.2	42.6	26.2	12.2	7.5	4.6
100-yr	266.4	164.1	123.6	76.1	46.9	28.9	13.4	8.3	5.1

Rainfall depth (mm)

Duration	5-min	10-min	15-min	30-min	1-hr	2-hr	6-hr	12-hr	24-hr
2-yr	10.0	12.4	14.0	17.2	21.2	26.1	36.4	44.8	55.2
5-yr	13.3	16.4	18.5	22.8	28.1	34.6	48.2	59.4	73.1
10-yr	15.5	19.1	21.5	26.5	32.7	40.3	56.1	69.1	85.1
25-yr	18.2	22.4	25.3	31.2	38.4	47.3	65.8	81.1	99.9
50-yr	20.2	24.8	28.1	34.6	42.6	52.5	73.1	90.0	110.9
100-yr	22.2	27.3	30.9	38.1	46.9	57.8	80.4	99.1	122.1

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Last Modified: September 2016

Appendix C

Stormwater Calculations

GGG Project No. 25-5175A
5738 County Road 1 Consecon
Composite Runoff Coefficient

Composite Runoff Coefficient Calculations for 5738 County Road 1 - Controlled Flow

Land Use	Area (ha.)	Coefficient Range			C x A
		Low	High	Selected	
Pavement	0.406	0.800	0.950	0.950	0.385
Concrete	0.000	0.800	0.950	0.950	0.000
Grass	1.600	0.050	0.350	0.250	0.400
Wooded	0.000	0.080	0.520	0.300	0.000
Roof	0.015	0.900	0.900	0.900	0.014
Total	2.021				0.799

Composite Runoff Coefficient: 0.39

Composite Runoff Coefficient Calculations for 5738 County Road 1 - Uncontrolled Flow

Land Use	Area (ha.)	Coefficient Range			C x A
		Low	High	Selected	
Pavement	0.417	0.800	0.950	0.950	0.396
Concrete	0.000	0.800	0.950	0.950	0.000
Grass	5.200	0.050	0.350	0.250	1.300
Wooded	0.000	0.080	0.520	0.300	0.000
Roof	0.064	0.900	0.900	0.900	0.058
Agricultural	6.120	0.220	0.700	0.450	2.754
Wetland	2.520	0.050	0.050	0.050	0.126
Total	14.321				4.63375

Composite Runoff Coefficient 0.32

5738 County Road 1 - Consecon, Ontario
Swale Sizing Calculations

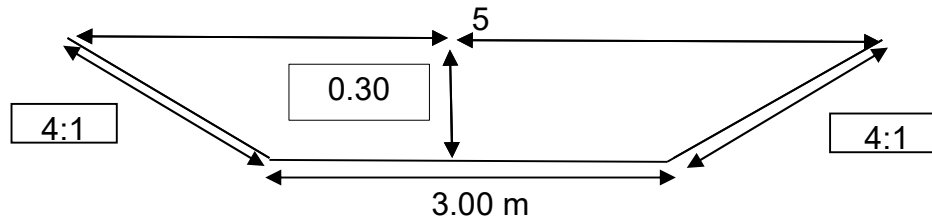
Swale Capacity Calculations

Capacity of Swale

Minimum Side Slope: 4:1
 Minimum Longitudinal Slope: 0.50%

Manning's Roughness Coefficient = 0.033 (Gravel - Dry Rubble)
 Ditch Side Slope Width @ 4:1 = 2.4 m
 Ditch Depth = **0.300** m
 Ditch 'Flat Bottom' Width = **3.000** m (bottom rounding)
 Flow Area = 1.260 m²
 Wetted Perimeter = 5.47 m
 Hydraulic Radius = 0.230 m
 Channel Slope = **0.005** m/m
 Velocity = 0.805 m/s

$Q=VA= 1.0140 \text{ m}^3/\text{s}$



Channel Length = 55 m
 Time in Channel = 1.1 min

5-Year Conditions

Peak Flow	Q: $2.78 * C * I * A$	
Rainfall Intensity	I: $28.1 * ((Tc/60)^{-0.699})$	MTO IDF Curve Lookup for LEBP, ON 5-yr Storm
Time of Concentration	Tc: $0.0195L^{0.77}S^{-0.385}$	(Kirpich)
	Tc: $3.26 * (1.1 - C) * L^{0.5} / S_w^{0.33}$	(C < 0.4, Airport Formula)
	Tc: $0.057 * L / (S_w^{0.2} * XA^{0.1})$	(C > 0.4, Bransby Williams Formula)

5-Year Pre-Development

Drainage Area: 1.784
 Composite Runoff Coefficient: 0.40
 Watershed Length: 92
 Watershed Slope: 0.8
 Difference in Elevation: 1.0
Time of Concentration
 Tc: 4 (Kirpich)
 Tc: 24 (Airport)
 Tc: 5 (Bransby Williams)
 Tc: 15 (Minimum)

5-Year Post-Development

Drainage Area: 1.784
 Composite Runoff Coefficient: 0.43
 Watershed Length: 92
 Watershed Slope: 0.8
 Difference in Elevation: 1.0
Time of Concentration
 Tc: 4 (Kirpich)
 Tc: 23 (Airport)
 Tc: 5 (Bransby Williams)
 Tc: 15 (Minimum)

Time of Concentration: 24 minutes

Time of Concentration: 23 minutes

Intensity: 54.010 mm/hr

Intensity: 55.689 mm/hr

Peak Flow 107.1 l/s

Peak Flow 118.8 l/s

100-Year Conditions

Peak Flow	Q: $2.78 * C * I * A$	
Rainfall Intensity	I: $46.9 * ((Tc/60)^{-0.699})$	MTO IDF Curve Lookup for LEBP, ON 100-yr Storm
Time of Concentration	Tc: $0.0195L^{0.77}S^{-0.385}$	(Kirpich)
	Tc: $3.26 * (1.1 - C) * L^{0.5} / S_w^{0.33}$	(C < 0.4, Airport Formula)
	Tc: $0.057 * L / (S_w^{0.2} * A^{0.1})$	(C > 0.4, Bransby Williams Formula)

100-Year Post-Development

Drainage Area:	0.7414
Composite Runoff Coefficient:	0.64
Watershed Length:	200
Watershed Slope:	2.50
Difference in Elevation:	5.0
<u>Time of Concentration</u>	
Tc:	5 (Kirpich)
Tc:	16 (Airport)
Tc:	10 (Bransby Williams)
Tc:	15 (Minimum)

Time of Concentration: 16 minutes

Intensity: 119.861 mm/hr

Peak Flow 158.1 I/s

Table 3.2 (MOE Stormwater Management Planning and Design Manual)

Protection Level	SWMP Type	Storage Volume (m ³ /ha) for Impervious Level: 35%	Storage Volume (m ³ /ha) for Impervious Level: 55%	Storage Volume (m ³ /ha) for Impervious Level: 70%	Storage Volume (m ³ /ha) for Impervious Level: 85%
Enhanced 80% long-term S.S. Removal	Infiltration	25	30	35	40
Normal 70% long-term S.S. removal	Infiltration	20	20	25	30

Impervious Area (Uncontrolled Flow): 0.421

Total Uncontrolled Flow Area: 2.020

percentage of impervious area: 21%

Required Storage Volume (Enhanced): 12.38

Required Storage Volume (Normal): 9.90

5738 County Road 1, Consecon, Ontario
Quantity Control - Detention Storage Calculations

Swale Capacity Calculations

Required Storage Volume	12.4	m ³
Ditch Grade	0.005	m/m
width of flat bottom	3	m
total length of ditching	80	m
# of chack damns	2	
Side Slopes of 4H:1V	4	
Height of Check Dam	0.2	m
acual length of ponding	25	m
Theoretical max Length of Ponding	40.0	m
Theoretical max Ponding Quantity	14.13	m ³
acual ponding quantity/checkdam	12.50208333	m ³
total volumn stored	25.00416667	m³

2 - 200mm deep chack dams @ 25m are recommended to provide the necessary volumn for treatement with a minimal depth