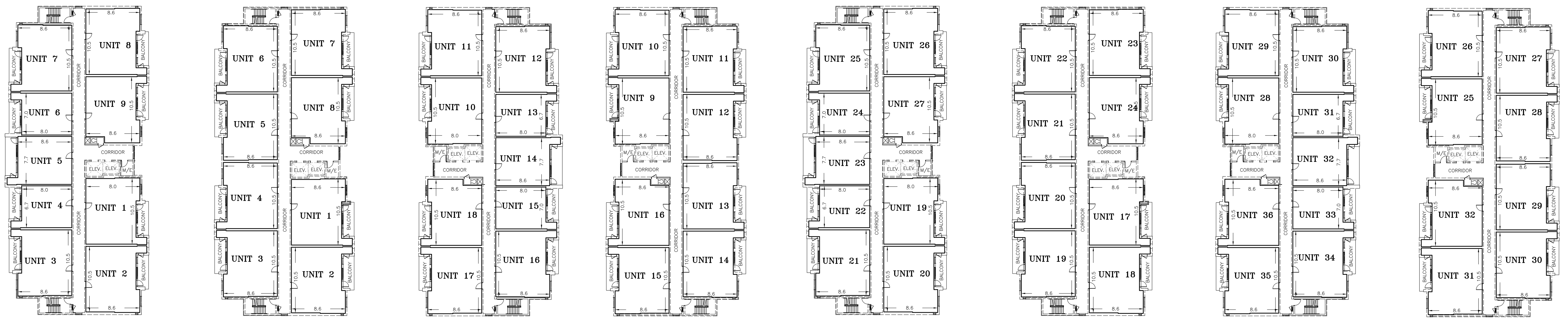
CR435/2023 – Item 8.5 – Map No. CDM-008/23-1 and CDM-008/23-2

See attached on the next page.



UNITS 1 to 9 (incl.) LEVEL 2 — BUILDING 1 — SCALE = 1:250

UNITS 1 to 8 (incl.) LEVELS 3 to 6 (incl.) — BUILDING 1 — SCALE = 1:250

UNITS 10 to 18 (incl.) LEVEL 2 — BUILDING 2 — SCALE = 1:250

UNITS 9 to 16 (incl.) LEVELS 3 to 6 (incl.) — BUILDING 2 — SCALE = 1:250

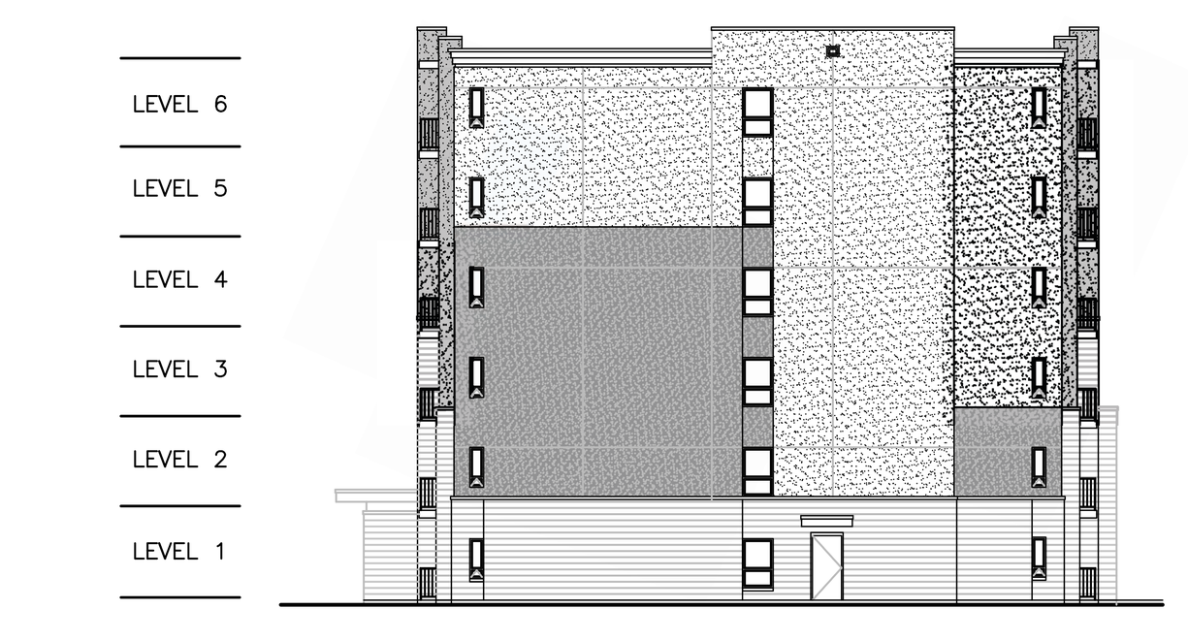
UNITS 19 to 27 (incl.) LEVEL 2 — BUILDING 3 — SCALE = 1:250

UNITS 17 to 24 (incl.) LEVELS 3 to 6 (incl.) — BUILDING 3 — SCALE = 1:250

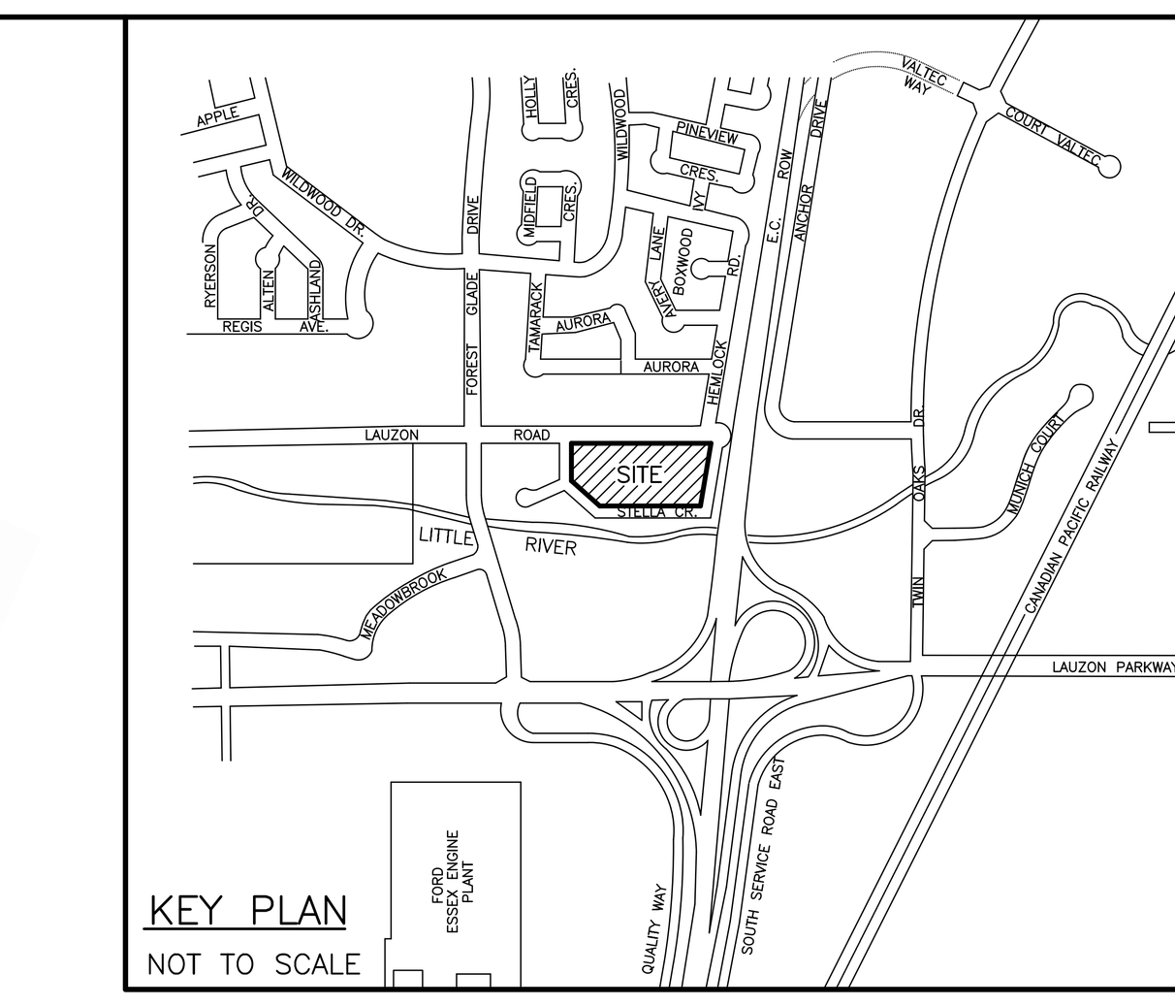
UNITS 28 to 36 (incl.) LEVEL 2 — BUILDING 4 — SCALE = 1:250

UNITS 25 to 32 (incl.) LEVELS 3 to 6 (incl.) — BUILDING 4 — SCALE = 1:250

FRONT ELEVATION
SCALE = 1:250



SIDE ELEVATION
SCALE = 1:250



KEY PLAN
NOT TO SCALE

DRAFT PLAN OF CONDOMINIUM

OF

PART OF LOT 127, CONCESSION 2

GEOGRAPHIC TOWNSHIP OF SANDWICH EAST

NOW IN THE

CITY OF WINDSOR COUNTY OF ESSEX, ONTARIO

SCALE = 1:250

0 2.50 5.00 10.00 15.00 25.00 METRES

LEGEND AND NOTES

BEARINGS ARE UTM GRID DERIVED FROM OBSERVED REFERENCE POINTS "A" AND "B" BY REAL TIME NETWORK OBSERVATIONS AND ARE REFERRED TO UTM ZONE 17 (81° WEST LONGITUDE) NAD 83 (CSRS) (2010.0).

DISTANCES ON THIS PLAN ARE GROUND AND CAN BE CONVERTED TO GRID BY MULTIPLYING BY THE COMBINED SCALE FACTOR OF 0.99988603.

ALL BEARINGS AND DISTANCES SHOWN HEREON ARE IN AGREEMENT WITH PLAN 12R–28768.

- ■ DENOTES SURVEY MONUMENT FOUND
- □ DENOTES SURVEY MONUMENT SET
- SIB DENOTES STANDARD IRON BAR
- SSIB DENOTES SHORT STANDARD IRON BAR
- IB DENOTES IRON BAR
- PB DENOTES PLASTIC BAR
- CP DENOTES STEEL PIN
- WIT DENOTES WITNESS
- M DENOTES MEASURED
- ⊥ DENOTES PERPENDICULAR
- S DENOTES SET
- ORP DENOTES OBSERVED REFERENCE POINT
- (OU) DENOTES ORIGIN UNKNOWN

ALL SET SSIB AND PB MONUMENTS WERE USED DUE TO LACK OF OVERBURDEN AND/OR PROXIMITY OF UNDERGROUND UTILITIES IN ACCORDANCE WITH SECTION 11 (4) OF O.REG. 525/91.

- ——— DENOTES UNIT BOUNDARIES
- – – – DENOTES EXTERIOR FACE OF STRUCTRAL WALLS
- V DENOTES VISITOR PARKING SPACE
- PT DENOTES PATIO AREA
- ♿ DENOTES HANDICAP PARKING SPACE

ADDITIONAL INFORMATION REQUIRED UNDER THE CONDOMINIUM ACT, 1998 AND SECTION 51 (17) OF THE PLANNING ACT, 1990.

a) on draft Plan
b) on draft Plan
c) on draft Plan
d) residential condominium units
e) on draft Plan
f) on draft Plan
g) on draft Plan
h) municiPal water
i) sandy loam
j) on draft Plan
k) all municiPal services available
l) on draft Plan

SITE AREA

1.775 HECTARES / 4.386 ACRES
199 RESIDENTIAL UNITS

DENSITY
112.7 RESIDENTIAL UNITS PER HECTARE
45.6 RESIDENTIAL UNITS PER ACRE

SITE INFORMATION

BUILDING 1					
LEVEL	NUMBER OF RESIDENTIAL UNITS PER LEVEL	NUMBER OF COVERED PARKING UNITS PER LEVEL	NUMBER OF OPEN PARKING UNITS PER LEVEL	NUMBER OF HANDICAP PARKING SPACES	NUMBER OF VISITOR PARKING SPACES
LEVEL 1	8	15	37	3	9
LEVEL 2	9				
LEVEL 3	8				
LEVEL 4	8				
LEVEL 5	8				
LEVEL 6	8				
TOTAL	49	15	37	3	9
BUILDING 2					
LEVEL	NUMBER OF RESIDENTIAL UNITS PER LEVEL	NUMBER OF COVERED PARKING UNITS PER LEVEL	NUMBER OF OPEN PARKING UNITS PER LEVEL	NUMBER OF HANDICAP PARKING SPACES	NUMBER OF VISITOR PARKING SPACES
LEVEL 1	9	15	37	2	9
LEVEL 2	9				
LEVEL 3	8				
LEVEL 4	8				
LEVEL 5	8				
LEVEL 6	8				
TOTAL	50	15	37	2	9
BUILDING 3					
LEVEL	NUMBER OF RESIDENTIAL UNITS PER LEVEL	NUMBER OF COVERED PARKING UNITS PER LEVEL	NUMBER OF OPEN PARKING UNITS PER LEVEL	NUMBER OF HANDICAP PARKING SPACES	NUMBER OF VISITOR PARKING SPACES
LEVEL 1	9	15	37	3	9
LEVEL 2	9				
LEVEL 3	8				
LEVEL 4	8				
LEVEL 5	8				
LEVEL 6	8				
TOTAL	50	15	37	3	9
BUILDING 4					
LEVEL	NUMBER OF RESIDENTIAL UNITS PER LEVEL	NUMBER OF COVERED PARKING UNITS PER LEVEL	NUMBER OF OPEN PARKING UNITS PER LEVEL	NUMBER OF HANDICAP PARKING SPACES	NUMBER OF VISITOR PARKING SPACES
LEVEL 1	9	15	38	2	10
LEVEL 2	9				
LEVEL 3	8				
LEVEL 4	8				
LEVEL 5	8				
LEVEL 6	8				
TOTAL	50	15	38	2	10
TOTAL UNITS	199	60	149	10	37

OWNER'S AUTHORIZATION

I AUTHORIZE THE FILING OF THIS DRAFT PLAN FOR APPROVAL.

FOREST GLADE HORIZONS INC.

DATE ________

DANNY TSANG
"I HAVE THE AUTHORITY TO BIND THE CORPORATION"

SURVEYOR'S CERTIFICATE

THE BOUNDARIES OF THE LANDS TO BE SUBDIVIDED AND THEIR RELATIONSHIP TO THE ADJACENT LANDS HAVE BEEN ACCURATELY AND CORRECTLY SHOWN.

DATE NOVEMBER 8, 2021

Roy Simone
ROY A. SIMONE
ONTARIO LAND SURVEYOR

VERHAEGEN LAND SURVEYORS
A DIVISION OF J.D. BARNES LTD.

DRAWN BY: D.J.	CHECKED BY: R.A.S.	REFERENCE NO.: 20–47–530–04
CAD File: 20–47–530–04A.dwg	E–WIND–2–127	CAD Date: November 8, 2021 9:30 AM

150cm x 87cm (1.3 m²) 59.1"w x 34.2"h (14.0 ft²)

INTEGRATION DATA

POINT ID	NORTHING	EASTING
ORP–A	N4684527.42	E341506.00
ORP–B	N4684350.18	E341584.54

COORDINATES ARE DERIVED FROM GRID OBSERVATIONS USING THE CAN–NET NETWORK SERVICE AND ARE REFERRED TO UTM ZONE 17 (81° WEST LONGITUDE) NAD83 (CSRS) (2010.0).
COORDINATE VALUES ARE TO AN URBAN ACCURACY IN ACCORDANCE WITH SECTION 14(2) O.REG 216/10

COORDINATES CANNOT, IN THEMSELVES, BE USED TO RE–ESTABLISH CORNERS OR BOUNDARIES SHOWN ON THIS PLAN.

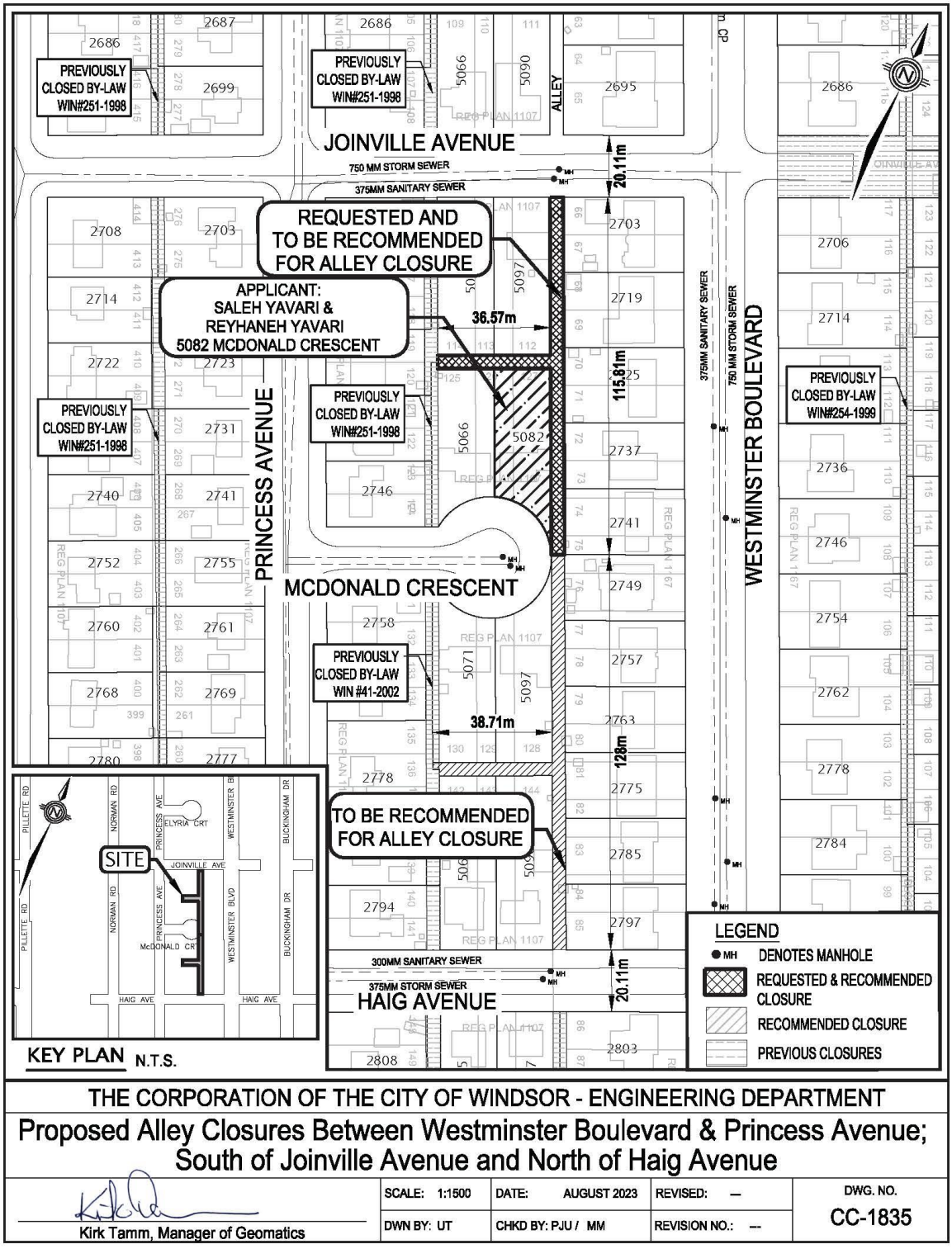
FOR BEARING COMPARISON, A ROTATION OF 01°00'00" CLOCKWISE WAS APPLIED TO (P) AND (P) TO CONVERT TO GRID BEARINGS.

NOTE 1: SUBJECT TO AN EASEMENT AS IN INSTRUMENT No. R1350229.
NOTE 2: SUBJECT TO AN EASEMENT AS IN INSTRUMENT No.'s R1383405 AND R1384571.

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

UNITS 1 to 35 (incl.) – RESIDENTIAL
UNITS 36 to 244 (incl.) – PARKING
EXCLUSIVE USE PATIOS P to P35 (incl.) and

APPENDIX "A"
Drawing No. CC-1835



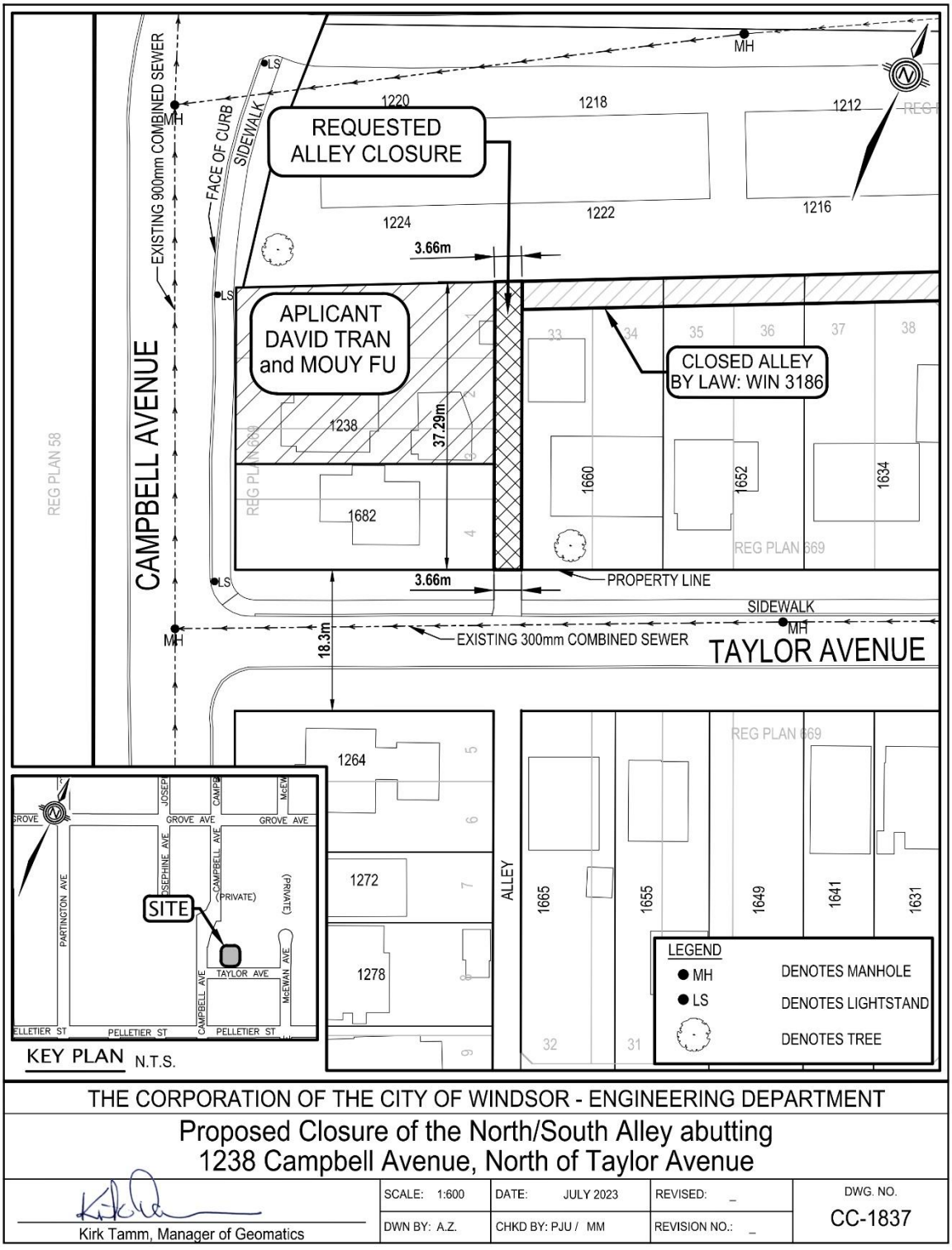
THE CORPORATION OF THE CITY OF WINDSOR - ENGINEERING DEPARTMENT

Proposed Alley Closures Between Westminster Boulevard & Princess Avenue; South of Joinville Avenue and North of Haig Avenue

Kirk Tamm, Manager of Geomatics

SCALE: 1:1500	DATE: AUGUST 2023	REVISED: —	DWG. NO.
DWN BY: UT	CHKD BY: PJU / MM	REVISION NO.: —	CC-1835

APPENDIX "A"
Drawing No. CC-1837



THE CORPORATION OF THE CITY OF WINDSOR - ENGINEERING DEPARTMENT

Proposed Closure of the North/South Alley abutting
1238 Campbell Avenue, North of Taylor Avenue

Kirk Tamm, Manager of Geomatics

SCALE: 1:600	DATE: JULY 2023	REVISED: _	DWG. NO.
DWN BY: A.Z.	CHKD BY: PJU / MM	REVISION NO.: _	CC-1837

DRAINAGE REPORT
FOR THE

GOUIN DRAIN
(NEXTSTAR ENERGY ACCESS BRIDGES)

IN THE
CITY OF WINDSOR

DILLON CONSULTING

14 SEPTEMBER 2023

MARK HERNANDEZ, P.ENG.

FILE No. 22-5108

File No. 22-5108

Corporation of the City of Windsor
Engineering – Design and Development
350 City Hall Square, Suite 310
Windsor, Ontario
N9A 6S1

3200 Deziel Drive
Suite 608
Windsor, Ontario
Canada
N8W 5K8
Telephone
519.948.5000
Fax
519.948.5054

Drainage Report for the
GOUIN DRAIN
(NEXTSTAR ENERGY ACCESS BRIDGES)
In the City of Windsor

Mayor and Council:

Instructions

A request was made by the City of Windsor Road Authority to repair and improve the Gouin Drain. Council accepted the request under Section 78 of the Drainage Act and on 28 November 2022 appointed Dillon Consulting Limited to prepare a report. The proposed works involves two (2) new access bridges to accommodate the NextStar battery production plant development proposed within property Roll Nos. 090-040-03403 and 090-040-00103.

Watershed Description

The Gouin Drain commences on the line between Lot 149 and Lot 150, Concession 1 in the Town of Tecumseh. It flows in a westerly direction, turning north at the west limit of Lot 149 toward the north side of Gouin Street. Here, it turns west for 124 metres before turning north for 75 metres where it again then flows westerly. The Gouin Drain continues northerly from the south side of E.C. Row Avenue East/Anchor Drive, crossing the E.C. Row Expressway and then turning westerly again to its outlet into the Little River Drain.

The total length of the drain is approximately 3,286 metres. The watershed area is 211.00 hectares (521.30 acres) which consists of 114.32 hectares (282.47 acres) within the Town of Tecumseh and 96.68 hectares (238.83 acres) within the City of Windsor.

The lands comprising the watershed are under mixed agricultural, and residential use. There is little topographic relief. From the Ontario Soil Survey, the principle surficial soil in the study area is described as Brookston Clay. Brookston Clay is characterized as having very poor drainage.

Drain History

The recent history of Engineers' reports for the Gouin Drain follows:

- **28 January 2023 by Mark D. Hernandez, P.Eng.:** This report recommended brushing and removal of sediment along the drain. The report also recommended the extension of the drain from its previous outlet at E.C. Row Expressway downstream to the Little River Drain and established the Gouin Drain Branches North & South in the upstream residential area. Bridge work included removals, replacements, and providing future maintenance provisions. Bridge removals included Bridge Nos. 8, 9, and 10.

- **28 January 1987 by Wm. J. Setterington, P.Eng.:** This reconsidered report recommended brushing and removal of sediment along the entirety of the drain, along with deepening/widening and relocation of the drain in select locations along its length. This report also recommended the removal and replacement of access bridges along the drain.
- **2 October 1981 by C. G. Russell Armstrong, P.Eng.:** This report found the drain to be "badly out of repair". The recommended work included the repair and improvement of the Gouin Drain, including a thorough brushing and cleanout. It also recommended that the drain be deepened from E.C. Row Expressway to Gouin Street. The report recommends that the most upstream 28 metres of drain be enclosed with a 450 mm (18") diameter plastic pipe, and that the existing culverts with the exception of the Shawnee Road culvert, be replaced and enlarged to accommodate for flows from a proposed development.

On-Site Meeting

We conducted an on-site meeting on 21st March 2023. A record of the meeting is provided in Schedule 'A', which is appended hereto.

Survey

Our survey and examination of the Gouin Drain was carried out in April 2018 as part of the work completed from the 28th January 2023 report.

Design Considerations

The requested improvements include the construction of an additional bridge access to a future Enbridge Gas Inc. facility that will provide service to the NextStar site. The bridge will also facilitate associated road improvements. This access is to be installed immediately upstream of, and attached to the existing access bridge to property Roll No. 070-650-01351 (Jamieson Laboratories Ltd.) referred to as Bridge No. 7, thus shall be considered an extension of Bridge No. 7. This access currently provides capacity for the peak flows expected in the 2-year design storm according to the previous drainage report (Dillon, 2023). Therefore, the Bridge No. 7 extension shall provide the same level of service at minimum.

The requested improvements also include the construction of a lawn enclosure to facilitate the proposed plan for the NextStar site. This enclosure is proposed to be installed directly downstream of and attached to the Banwell Road bridge, referred to as Bridge No. 13, thus the enclosure is referred to as Bridge No. 13A. Bridge No. 13 currently provides capacity for the peak flows expected in the 10-year design storm according to the previous drainage report (Dillon, 2023). Since Bridge No. 13A is to be directly connected to Bridge No. 13 on the downstream end, it shall also provide the same level of service.

Bridge No. 13A will affect the current level of service of Bridge No. 13. However, we do not recommend replacing Bridge No. 13 at this time because improvement to the E.C. Row Expressway/Banwell Road interchange are expected in the near future and will include the replacement of Bridge No. 13. Since the design requirements of Bridge No. 13 to facilitate the future improvements to Banwell Road cannot be known at this time, for the purposes of this report, the future replacement of Bridge No. 13 is based on the existing road configuration.

A separate technical memorandum was completed at the request of the Essex Region Conservation Authority (ERCA) to outline the hydrologic and hydraulic analysis completed for the recommended drainage works.

This memo included an assessment of the hydraulic impacts of the enclosure using the recently completed two-dimensional hydrologic/hydraulic model in the PCSWMM software for the Little River Drain watershed as part of the Little River Floodplain Mapping Study (Dillon, 2022).

The design criteria required by ERCA for Bridge No. 13 and Bridge No. 13A is that proposed improvements are not to worsen the expected water levels within the drain during the 100-year design storm to within one (1) centimeter of water level increase, regardless of design capacity of the bridge or condition of the drain. The modelling/assessment and physical improvements required to achieve this threshold and level of service are above and beyond what is typically required for a municipal drain, particularly as municipal drains are not designed for that level of service. Bridge No. 7 was not included in the PCSWMM model and was assessed separately in the culvert design software, HY-8.

To meet the design criteria set by ERCA for Bridge No. 13/13A, recommendations were assessed in PCSWMM according to the following scenarios:

- An existing conditions model that was developed through the Little River Floodplain Mapping study (Dillon, 2022) to estimate the existing 100-year flood water elevation upstream of Bridge No. 13.
- An interim conditions model that was developed based on the temporary condition where Bridge No. 13A is constructed and Bridge No. 13 remains in its existing state, prior to the interchange improvements.
- An ultimate condition model that was developed based on the full build-out of Bridge No. 13A and Bridge No. 13 on the basis that Banwell Road is reconstructed to its existing configuration.

Existing Conditions and Recommendations

The 28 January 2023 report for the Gouin Drain & Branches included recommendations along the same section of the Gouin Drain as is considered in this report. These recommendations included drain bottom cleanout, brushing of the banks, establishment of a grass buffer, surface inlet repairs, and bridge removals. The recommendations within this report assume the work described in the previous report have already been completed.

We recommend the drain be widened from a 1 metre bottom width to a 2 metre bottom width from Station 1+032 to Station 1+930. Excavated material from the drain widening shall be trucked to, or remain within the lands of property Roll No. 090-040-00130 for the use of the remaining drainage works and/or use by the landowner. Any unused soils not required for the purposes of the drainage works shall remain on the said property for the landowner to manage.

We further recommend the bridges on the Gouin Drain be either removed or improved as described below. Specific structure numbers have been designated for ease of reference between the specifications and drawings. The locations, dimensions and use of each structure are as follows:

Bridge No. 7: Jamieson Laboratories Ltd. (Roll No. 070-650-01351), City of Windsor (Roll No. 090-040-03403) and City of Windsor Road Authority

A 40.5 m long, 2440 mm x 1600 mm corrugated steel pipe arch with rip rap end protection and asphalt driveable top width provides secondary access to property Roll No. 070-650-01351 through property Roll No. 070-650-01303.

The owner of property Roll No. 090-040-03403 requested a new access over the Gouin Drain to facilitate the development of a new Enbridge Gas facility for the purpose of servicing the NextStar battery production plant. The access is proposed immediately upstream of the existing Bridge No. 7 which currently only provides access to a commercial property (outside of the Gouin Drain watershed) through a vacant lot. Thus, the new bridge shall be considered an upstream extension of Bridge No. 7. Further, the City of Windsor plans to terminate E.C. Row Avenue in a cul-de-sac, which requires additional length of drain to be enclosed.

We recommend Bridge No. 7 be extended with an 1800 mm diameter reinforced concrete pipe, attached to the existing corrugated steel pipe arch with a poured in place concrete collar. We further recommend the existing sloping stone end wall on the upstream end of Bridge No. 7 be removed to accommodate the extension and replaced on the new upstream end with a concrete block headwall, all in accordance with the City of Windsor engineering detail AS-209A. The bridge is recommended to have a minimum 6.0 m wide gravel driveway.

An existing swale that services the Jamieson Laboratories Ltd. access road currently enters the drain on the upstream end of the bridge. The swale shall be intercepted with a new ditch inlet catch basin that is connected to the new culvert pipe with a prefabricated 'tee' section and a 300 mm diameter PVC DR35 pipe.

Bridge No. 8: City of Windsor (Roll No. 090-040-03403)

A 9.7 m long, 2240 mm x 1630 mm corrugated steel pipe arch with bagged concrete end protection and a gravel driveway provides access to this property. This bridge has been recommended to be removed under a separate report. No recommendations are being made under this report.

Bridge No. 9: City of Windsor (Roll No. 090-040-00103)

An 8.2 m long, 2240 mm x 1630 mm corrugated steel pipe arch with bagged concrete end protection and a gravel driveway provides secondary access to this property. This bridge has been recommended to be removed under a separate report. No recommendations are being made under this report.

Bridge No. 10: City of Windsor (Roll No. 090-040-00103)

A 7.8 m long, 2240 mm x 1630 mm corrugated steel pipe arch with bagged concrete end protection and a gravel driveway provides secondary access to this property. This bridge has been recommended to be removed under a separate report. No recommendations are being made under this report.

Bridge No. 11: City of Windsor (Roll No. 090-040-00103)

A 7.9 m long, 2240 mm x 1630 mm corrugated steel pipe arch with bagged concrete end protection and a gravel driveway provides access to this property. We recommend this culvert be removed as the site plans indicate, they are no longer required.

Bridge No. 12: City of Windsor (Roll No. 090-040-00103)

A 7.6 m long, 2240 mm x 1630 mm corrugated steel pipe arch with bagged concrete end protection and a gravel driveway provides secondary access to this property. We recommend this culvert be removed as the site plans indicate, they are no longer required.

Bridge No. 13A: City of Windsor (Roll No. 090-040-00103)

The owner of property Roll No. 090-040-00103 requested a portion of the drain be enclosed to facilitate the proposed NextStar battery production plant site plan. This enclosure shall be on the downstream end of the existing Bridge No. 13 (Banwell Road).

To facilitate the development of the NextStar battery production plant site, we recommend a 178 m long, 2250 mm diameter reinforced concrete pipe be connected to the downstream end of Bridge No. 13 with a prefabricated bend and a poured in place concrete collar to enclose the drain. The downstream end treatment is recommended to be a concrete block headwall, all in accordance with the City of Windsor engineering detail AS-209A. The enclosure shall intercept the existing roadside ditch on the west side of Banwell Road.

Bridge No. 13: City of Windsor Road Authority (Banwell Road)

A 15.6 m long, 2240 mm x 1630 mm corrugated steel arch pipe with bagged concrete end protection and asphalt roadway provides a road crossing.

We anticipate that the existing road portion of culvert will require replacement within the next 10 years or sooner if conditions warrant. We recommend that in the future the culvert be replaced with a new 16 m long, 2250 mm diameter reinforced concrete pipe complete with concrete block end wall and a 12.0 m asphalt driveable top width. The recommended pipe length assumes future road improvements maintain the same road configuration as currently exists.

The future replacement of this bridge shall require the removal of the proposed concrete collar and prefabricated bend of Bridge No. 13A. When Bridge No. 13 is replaced, a new prefabricated bend will be required, complete with a new concrete collar to facilitate the works.

Allowances

In accordance with Section 29 of the Drainage Act, we have determined allowances be given for the land used in widening the drain between Station 1+032 and Station 1+930. Schedule 'B' shows the distribution of the allowances in the total amount of $2,000.00 to property Roll No. 070-650-01303.

In accordance with Section 30 of the Drainage Act, we do not anticipate any agricultural lands being damaged or taken as a result of the proposed drainage works. Any damage to existing grassed areas shall be restored to original conditions as part of the work.

Cost Estimate

Based on our review of the history, the information obtained during the site meeting and our examination and analysis of the survey data, we recommend that the Gouin Drain be repaired and improved as described below:

Item	Description	Amount
1.	Bridge works, as follows:	
	a) Bridge No. 7 Extension – Jamieson Laboratories Ltd. (Roll No. 070-650-01351), City of Windsor (Roll No. 090-040-03403) & City of Windsor Road Authority (Anchor Drive) – Remove existing stone erosion protection from east end wall of existing bridge and dispose of off-site. Supply and installation of a new	$248,000.00

Item	Description	Amount
	45.5 m long, 1800 mm diameter reinforced concrete pipe, Class 65-D complete with full compacted Granular 'A' bedding and backfill up to 300 mm above the top of pipe (approximately 1,320 tonnes) providing a 6 m wide driveable top width. Supply and install a concrete block headwall consisting of 1200 mm x 600 mm x 600 mm interlocking concrete blocks (approximately 20 full blocks and 4 half blocks), designed and sealed by a professional engineer licensed in the province of Ontario and 1 m wide stone erosion protection on drain banks (approximately 25 m^2). Connect new culvert to existing 2440 mm x 1600 mm corrugated steel pipe arch with a poured in place concrete collar. Supply and placement of topsoil (100 mm thickness). Restore all disturbed areas with fine grading and seeding. The work is to include drain bottom cleanout in close proximity to the bridge as necessary, site cleanup and restoration within the working area. This work also includes the supply and installation of a 600 mm x 600 mm ditch inlet catch basin with 2H:1V grate complete with 300 mm diameter PVC DR 35 leader pipe connected to culvert pipe and a 600 x 600 mm concrete catch basin complete with cast iron frame and grate. The Contractor shall extend the private roadside swale as shown on the drawings attached herein. This work includes the supply and placement of a stone erosion protection apron around the ditch inlet catch basin with stone erosion protection as well as placement of topsoil over newly excavated and disturbed banks (minimum 50 mm thickness), fine graded and seeded.	
	b) Bridge No. 11 – City of Windsor (Roll No. 090-040-00103) – Removal and disposal off-site of existing 7.9 m long, 2240 x 1630 mm CSPA with bagged concrete end walls.	$3,000.00
	c) Bridge No. 12 – City of Windsor (Roll No. 090-040-00103) – Removal and disposal off-site of existing 7.6 m long, 2240 x 1630 mm CSPA with bagged concrete end walls.	$3,000.00
	d) Bridge No. 13A – City of Windsor (Roll No. 090-040-00103) – Remove and dispose of existing west side bagged concrete end wall on Bridge No. 13 at Banwell Road. Supply and installation of a new 178 m long, 2250 mm diameter reinforced concrete pipe, Class 65-D complete with prefabricated 16 degree bend and fully compacted Granular 'A' backfill up to minimum 300 mm above the top of pipe (approximately 4,900 tonnes) with placement of topsoil over top (minimum	$1,209,000.00

Item	Description	Amount
	100 mm thickness), fine graded and seeded. Connect the new prefabricated 16 degree bend to the existing 2240 mm x 1630 mm corrugated steel pipe arch with a poured in place concrete collar. Supply and installation of a concrete block headwall consisting of 1200 mm x 600 mm x 600 mm interlocking concrete blocks (approximately 19 full blocks and 6 half blocks), designed and sealed by a professional engineer licensed in the province of Ontario and 1 m wide stone erosion protection on drain banks (approximately 25 m^2). The work is to include drain bottom cleanout in close proximity to the bridge, site cleanup and restoration within the working area. Replace existing 450 mm diameter CSP from south with new 450 mm diameter HDPE pipe, 12 m long complete with 60 degree bend (Boss 2000 as manufactured by Armtec or approved equal) and connect to the new 2250 mm diameter pipe with a pre-fabricated 'tee'. Extend roadside ditch to new pipe inlet. This work also includes the supply and installation of 600 mm x 600 mm concrete catch basin complete with cast iron frames and grates along the enclosure (approximately 15 required). Work includes salvage and replacement of stone erosion protection, as well as restoration. Restore all disturbed areas with fine grading and seeding.	
2.	Widening of the drain from the south side between Station 1+032 and Station 1+930 (approximately 2200 m^3), complete with placement of topsoil over new and disturbed drain banks (minimum 50 mm thickness), fine graded and seeded (bonded fibre matrix). Excavated material shall be trucked to, or remain on the lands owned by the City of Windsor (property Roll No. 090-040-00103 & 090-040-03403) for use by the landowner. This work includes re-establishment of swale inlets with salvaged or new stone erosion protection, as encountered on the south bank (approximately 4 inlets), as well as re-seeding of 1 metre wide grassed buffer.	$64,300.00
3.	Supply and installation of rock check dam as per OPSD 219.211 and refuge stilling pool as per OPSD 219.220 lined with stone erosion protection on filter fabric underlay directly upstream of Bridge No. 5 (Anchor Drive). The work shall include trucking excavated materials off-site following completion of the work.	$2,000.00
4.	Temporary Silt Control Measures During Construction	$1,500.00
	SUB-TOTAL	**$1,530,800.00**

Item	Description	Amount
5.	Allowances (Section 29)	$2,000.00
6.	Report, Coordination with DFO, Technical Memorandum, Assistance during construction and Final Inspection (cost portion)	$64,500.00
7.	Expenses and incidentals (cost portion)	$1,500.00
8.	ERCA application review and permit fee	$800.00
	TOTAL ESTIMATE	**$1,599,600.00**

The estimate provided in this report was prepared according to current materials and installation prices as of the date of this report. In the event of delays from the time of filing of the report by the Engineer to the time of tendering the work, it is understood that the estimate of cost is subject to inflation. The rate of inflation shall be calculated using the Consumer Price Index applied to the cost of construction from the date of the report to the date of tendering.

Assessment of Costs

The individual assessments are comprised of three (3) assessment components:

i. Benefit (*advantages relating to the betterment of lands, roads, buildings, or other structures resulting from the improvement to the drain).*

ii. Outlet Liability *(part of cost required to provide outlet for lands and roads).*

iii. Special Benefit *(additional work or feature that may not affect function of the drain).*

Assessment Rationale for Special Benefit Assessments (Bridges)

Special Benefit assessment shown in Schedule 'C' and detailed in Schedule 'D' were derived as follows:

1. Since the sole purpose of the Bridge No. 7 extension is for the use by the owner, associated costs shall be assessed 100% to the landowner being the City of Windsor (Roll No. 090-040-03403).
2. Since the sole purpose of the Bridge No. 13A enclosure is for the use by the owner, associated costs shall be assessed 100% to the landowner being the City of Windsor (Roll No. 090-040-00103).
3. Costs associated with the widening of the drain between Station 1+032 and Station 1+930 shall be assessed 100% to the City of Windsor (Roll No. 090-040-00103) because the widening was necessitated by the enclosure works.
4. A future replacement detail was recently completed for Bridge No. 13 as part of the 28 January 2023 report and was assessed to the City of Windsor Road Authority. The Bridge No. 13A enclosure under this report requires a new future maintenance detail for Bridge No. 13 be developed, superseding the previous detail. Therefore, the costs associated with the engineering for the new future replacement of Bridge No. 13 shall be assessed 100% to the City of Windsor (Roll No. 090-040-00103).

Utilities

It may become necessary to temporarily or permanently relocate utilities that may conflict with the construction recommended under this report. In accordance with Section 26 of the Drainage Act, we assess any relocation cost against the public utility having jurisdiction. Under Section 69 of the Drainage Act, the public utility is at liberty to do the work with its own forces, but if it should not exercise this option within a reasonable time, the Municipality will arrange to have this work completed and the costs will be charged to the appropriate public utility.

Future Maintenance (Bridges over the Gouin Drain) (City of Windsor)

We recommend that future work of repair and maintenance of the Gouin Drain private access Bridge No. 7 and Bridge No. 13A shown herein be carried out by the City of Windsor at the expense of the properties. The assessments under Section 26 of the Drainage Act shall be non-proratable assessments.

Enbridge Gas Inc. has been identified to be responsible for the future maintenance costs for a portion of Bridge No. 7 because they are expected to be the future owner of property Roll No. 090-040-03403.

The division for each bridge shall be as follows:

Bridge No.	Type	Owner(s)	Special Benefit	Outlet
7	Private Access Existing Bridge	Roll No. 070-650-01351 Jamieson Laboratories Ltd.	45%	0%
7	Private Access Bridge	Roll No. 090-040-03403 Enbridge Gas Inc. (Section 26)	45%	0%
7	Road Bridge	City of Windsor Road Authority (E.C.Row Ave. East) (Section 26)	10%	0%
13A	Enclosure (178 m)	Roll No. 090-040-00103 City of Windsor (Future NextStar Energy Inc.)	100%	0%
13	Road Bridge (16 m)	City of Windsor Road Authority (Section 26)	100%	0%

Future maintenance costs associated with the new ditch inlet catch basin connected to Bridge No. 7 shall be at the cost of property Roll No. 070-650-03403.

Future Maintenance (Open Drain from Station 1+032 to Station 1+930)

Future maintenance costs associated with the open portion of drain between Station 1+032 and Station 1+930 shall continue to be as directed under the 28 January 2023 Gouin Drain & Branches (Little River Outlet) report.

Drawings and Specifications

Attached to this report is Schedule 'F', which are Specifications setting out the details of the recommended works and Schedule 'G' which represent the drawings that are attached to this report.

Page 1 of 7 – Watershed Plan
Page 2 of 7 – Profile
Page 3 of 7 – Bridge Extension Details
Page 4 of 7 – Bridge Details
Page 5 of 7 – Bridge No. 13 Enclosure Details
Page 5 of 7 – Future Bridge No. 13 Replacement Details
Page 6 of 7 – Miscellaneous Details

Approvals

The construction and/or improvement to a drainage works, including repair and maintenance activities, and all operations connected therewith are subject to the approval, inspection, by-laws and regulations of all Municipal, Provincial, Federal and other authorities having jurisdiction in respect to any matters embraced by the proposed works. Prior to any construction or maintenance works, the Municipality or proponent designated on the Municipality's behalf shall obtain all required approvals/permits and confirm any construction limitations including timing windows, mitigation/off-setting measures, standard practices or any other limitations related to in-stream works. No work shall be permitted during the Restricted Activity timing windows for the protection of spawning fish and developing eggs and fry as determined by Fisheries and Oceans Canada, which is from March 15 to July 15.

Respectfully submitted,

DILLON CONSULTING LIMITED

Mark D. Hernandez, P.Eng.
MDH:wlb:lld

SCHEDULE "A"

MEETING SUMMARY

Subject:	Gouin Drain (NextStar Culverts)
Date:	March 21, 2023, 2:30pm
Location:	Virtual Call
Our File:	22-5108

Attendees

Patrick Winter	City of Windsor
Tom Graziano	City of Windsor
Mark Hernandez	Dillon Consulting Limited
Oliver Moir	Dillon Consulting Limited
Kyle Savoie	Stellantis
Ryan Oswald	Stellantis
Concetta Cafueri	Landowner
Troy Meloche	Landowner

Notes

Item	Discussion	Action by
1.	Dillon introduced the staff from Dillon and the City.	INFO.
2.	An overview of the project was provided: - The City of Windsor submitted a request under Section 78 of the Drainage Act for the installation of two new culverts over the Gouin Drain. - These culverts are to support the development of the battery plant which is currently under construction, located west of Banwell Road and south of EC Row Avenue East. - One culvert is to be located immediately upstream of the Jamieson Inc. access culvert and will provide access to a future Enbridge Gas station as well as allow for EC Row Avenue to be terminated as a cul-de-sac. - The other culvert is to be located immediately downstream of the Banwell Road culvert and is considered an enclosure that will allow for the better use of the battery plant land. - The culverts will be designed to maintain the level of service the drain is designed for, considering the type of access. - All costs of the project are expected to be assessed to the City of Windsor, and no costs will be assessed to upstream landowners	INFO.
3.	It was identified that the on-site meeting is for discussing the NextStar battery plant culverts under the current City of Windsor appointment, and this differs from the Town of Tecumseh appointment for the repair and improvement of the Gouin Drain.	INFO.

Item	Discussion	Action by
4.	The anticipated schedule of the report was discussed: - Approval from the Department of Fisheries and Oceans (DFO) for the approval of the proposed works is anticipated to be approximately two months from submission of the DFO application. DFO is anticipated to have concerns over the length of the enclosure. - Once DFO approval is obtained, the finalized report will be circulated for comments before being submitted to the City of Windsor Council. - Statutory board meetings for approval of a drainage report (Meeting to Consider & Court of Revision) requires a minimum of two months. - Stellantis indicated that the Enbridge access culvert was critical to the timeline.	INFO.

Errors and/or Omissions

These minutes were prepared by Oliver Moir, P.Eng who should be notified of any errors and/or omissions.

"SCHEDULE B"

SCHEDULE OF ALLOWANCES

GOUIN DRAIN (NextStar Energy Access Bridges)

CITY OF WINDSOR

Roll No.	Con.	Description	Owner	Section 30 Damages	Section 29 Land	Total Allowances
070-650-01303	3	Pt. Lot 138 & 139	2823351 Ontario Ltd	$0.00	$2,000.00	$2,000.00
TOTAL ALLOWANCES				**$0.00**	**$2,000.00**	**$2,000.00**

"SCHEDULE C"
SCHEDULE OF ASSESSMENT
GOUIN DRAIN (NextStar Energy Access Bridges)
CITY OF WINDSOR

MUNICIPAL LANDS:

Description			Area Affected (Acres)	(Ha.)	Owner	Special Benefit	Benefit	Outlet	Total Assessment
090-040-00103	3	Pt. Lots 139-141	102.46	41.46	City of Windsor	$1,341,180.00	$0.00	$0.00	$1,341,180.00
090-040-03403	3	Pt. Lot 139	7.55	3.06	City of Windsor	$258,420.00	$0.00	$0.00	$258,420.00
Total on Municipal Lands						$1,599,600.00	$0.00	$0.00	$1,599,600.00
TOTAL ASSESSMENT (City of Windsor)						**$1,599,600.00**	**$0.00**	**$0.00**	**$1,599,600.00**

	(Acres)	(Ha.)
Total Area		
City of Windsor:	**110.01**	**44.52**

"SCHEDULE D"
DETAILS OF SPECIAL BENEFIT
GOUIN DRAIN (NextStar Energy Access Bridges)
CITY OF WINDSOR

SPECIAL BENEFIT ASSESSMENT

(MUNICIPAL LANDS)

Roll No.	Owner	Item Description	Estimated Cost	Cost of Report	Special Benefit
090-040-00103	City of Windsor	Cost of Bridge No. 13A and Bridge No. 13 (future replacement) as well as drain widening and associated works (100%)	$1,287,100.00	$54,080.00	$1,341,180.00
090-040-03403	City of Windsor	Bridge No. 7 Extension (100%)	$248,000.00	$10,420.00	$258,420.00
Total Special Benefit Assessment (Non - Agricultural Lands)……			$1,535,100.00	$64,500.00	$1,599,600.00
OVERALL TOTAL SPECIAL BENEFIT ASSESSMENT					**$1,599,600.00**

"SCHEDULE F"
DRAINAGE REPORT FOR THE
GOUIN DRAIN (NEXTSTAR ENERGY ACCESS BRIDGES)
IN THE CITY OF WINDSOR

SPECIAL PROVISIONS - GENERAL

1.0 GENERAL SPECIFICATIONS

The General Specifications attached hereto is part of "Schedule F." It also forms part of this specification and is to be read with it, but where there is a difference between the requirements of the General Specifications and those of the Special Provisions which follow, the Special Provisions will take precedence.

2.0 DESCRIPTION OF WORK

The work to be carried out under this Contract includes, but is not limited to, the supply of all **labour, equipment, and materials** to complete the following items:

- Bridge works, as follows:
  - Bridge No. 7 Extension – Jamieson Laboratories Ltd. (Roll No. 070-650-01351), City of Windsor (Roll No. 090-040-03403) & City of Windsor Road Authority (Anchor Drive) – Remove existing stone erosion protection from east end wall of existing bridge and dispose of off-site. Supply and installation of a new 45.5 m long, 1800 mm diameter reinforced concrete pipe, Class 65-D complete with full compacted Granular 'A' bedding and backfill up to 300 mm above the top of pipe (approximately 1,320 tonnes) providing a 6 m wide driveable top width. Supply and install a concrete block headwall consisting of 1200 mm x 600 mm x 600 mm interlocking concrete blocks (approximately 20 full blocks and 4 half blocks), designed and sealed by a professional engineer licensed in the province of Ontario and 1 m wide stone erosion protection on drain banks (approximately 25 m^2). Connect new culvert to existing 2440 mm x 1600 mm corrugated steel pipe arch with a poured in place concrete collar. Supply and placement of topsoil (100 mm thickness). Restore all disturbed areas with fine grading and seeding. The work is to include drain bottom cleanout in close proximity to the bridge as necessary, site cleanup and restoration within the working area. This work also includes the supply and installation of a 600 mm x 600 mm ditch inlet catch basin with 2H:1V grate complete with 300 mm diameter PVC DR 35 leader pipe connected to culvert pipe and a 600 x 600 mm concrete catch basin complete with cast iron frame and grate. The Contractor shall extend the private roadside swale as shown on the drawings attached herein. This work includes the supply and placement of a stone erosion protection apron around the ditch inlet catch basin with stone erosion protection as well as placement of topsoil over newly excavated and disturbed banks (minimum 50 mm thickness), fine graded and seeded.
  - Bridge No. 11 – City of Windsor (Roll No. 090-040-00103) – Removal and disposal off-site of existing 7.9 m long, 2240 x 1630 mm CSPA with bagged concrete end walls.

- Bridge No. 12 – City of Windsor (Roll No. 090-040-00103) – Removal and disposal off-site of existing 7.6 m long, 2240 x 1630 mm CSPA with bagged concrete end walls.
- Bridge No. 13A – City of Windsor (Roll No. 090-040-00103) – Remove and dispose of existing west side bagged concrete end wall on Bridge No. 13 at Banwell Road. Supply and installation of a new 178 m long, 2250 mm diameter reinforced concrete pipe, Class 65-D complete with prefabricated 16 degree bend and fully compacted Granular 'A' backfill up to minimum 300 mm above the top of pipe (approximately 4,900 tonnes) with placement of topsoil over top (minimum 100 mm thickness), fine graded and seeded. Connect the new prefabricated 16 degree bend to the existing 2240 mm x 1630 mm corrugated steel pipe arch with a poured in place concrete collar. Supply and installation of a concrete block headwall consisting of 1200 mm x 600 mm x 600 mm interlocking concrete blocks (approximately 19 full blocks and 6 half blocks), designed and sealed by a professional engineer licensed in the province of Ontario and 1 m wide stone erosion protection on drain banks (approximately 25 m^2). The work is to include drain bottom cleanout in close proximity to the bridge, site cleanup and restoration within the working area. Replace existing 450 mm diameter CSP from south with new 450 mm diameter HDPE pipe, 12 m long complete with 60 degree bend (Boss 2000 as manufactured by Armtec or approved equal) and connect to the new 2250 mm diameter pipe with a pre-fabricated 'tee'. Extend roadside ditch to new pipe inlet. This work also includes the supply and installation of 600 mm x 600 mm concrete catch basin complete with cast iron frames and grates along the enclosure (approximately 15 required). Work includes salvage and replacement of stone erosion protection, as well as restoration. Restore all disturbed areas with fine grading and seeding.

- Widening of the drain from the south side between Station 1+032 and Station 1+930 (approximately 2200 m^3), complete with placement of topsoil over new and disturbed drain banks (minimum 50 mm thickness), fine graded and seeded (bonded fibre matrix). Excavated material shall be trucked to, or remain on the lands owned by the City of Windsor (property Roll No. 090-040-00103 & 090-040-03403) for use by the landowner. This work includes re-establishment of swale inlets with salvaged or new stone erosion protection, as encountered on the south bank (approximately 4 inlets), as well as re-seeding of 1 metre wide grassed buffer.
- Supply and installation of rock check dam as per OPSD 219.211 and refuge stilling pool as per OPSD 219.220 lined with stone erosion protection on filter fabric underlay directly upstream of Bridge No. 5 (Anchor Drive). The work shall include trucking excavated materials off-site following completion of the work.
- Temporary Silt Control Measures During Construction

3.0 ACCESS TO THE WORK

Access to the drain shall be from E.C. Row Avenue East. Through traffic must be maintained at all times along municipal roads with the required traffic control as per Section 13.0 in the General Specifications. All construction materials for the bridge are to be placed on the field side of the road side drains. Any damage resulting from the Contractor's access to the bridge site shall be rectified to pre-existing conditions at the Contractor's expense.

All road areas, grass lawn areas and fence lines disturbed shall be restored to original conditions at the Contractor's expense. The Contractor shall make his/her own arrangements for any additional access for his/her convenience.

4.0 WORKING AREA

The working area at the bridge sites shall be restricted to the E.C. Row Avenue East right-of-way and a 10.0 m wide corridor centred over the proposed centreline of the new culvert.

Any damages to lands and/or roads from the Contractor's work shall be rectified to pre-existing conditions at his/her expense.

5.0 BRIDGE CONSTRUCTION

5.1 Location of New Bridges

Bridge No. 7 extension shall be constructed immediately upstream of, and attached to the existing Bridge No. 7. Bridge No. 13A shall be constructed immediately downstream of, and attached to the existing Bridge No. 13 (Banwell Road). Both bridges shall be constructed in accordance with the specifications and drawings attached hereto.

5.2 Removal of Existing Bridges

The Contractor shall exercise caution when removing Bridge No. 11 and Bridge No. 12 as to minimize damage to the drain banks. Any damage to the drain shall be restored to original conditions at the expense of the Contractor. The removed materials (existing culvert debris and end wall materials) shall be hauled away off-site.

5.3 Materials for New Bridges

Materials shall be as follows:

Culvert Pipe	**Bridge No. 7:** *New 45.5 m long, 1800 mm diameter reinforced concrete pipe Class 65-D manufactured in accordance with CSA-A257.2.* **Bridge No. 13A:** *New 178 m long, 2250 mm diameter reinforced concrete pipe Class 65-D manufactured in accordance with CSA-A257.2.* **Bridge No. 13 (Future Maintenance):** *New 16 m long, 2250 mm diameter reinforced concrete pipe Class 65-D manufactured in accordance with CSA-A257.2.*
Pipe Bedding Below Pipe	*Granular 'A' conforming to OPSS Division 10.*
Backfill 300 mm min. above Pipe	*Granular 'A' conforming to OPSS Division 10.*

Driveway Surface	*Granular 'A' conforming to OPSS Division 10.*
Enclosure Surface Materials	*100 mm minimum top soil, fine graded and seeded*
Vertical End Wall	*Vertical interlocking concrete blocks (600 mm x 600 mm x 1200 mm size) specified herein.*
Erosion Stone	*All stone to be used for erosion protection shall be 125 - 250 mm clear quarried rock or OPSS.Muni 1004, minimum 300 mm thickness.*
Filter Fabric	*"Non-Woven" geotextile filter fabric with a minimum strength equal to or greater than Terrafix 270R, Amoco 4546, Mirafi 140NC or approved equivalent.*

5.4 Culvert Installation

Suitable dykes shall be constructed in the drain so that the installation of the pipe can be accomplished in the dry. The drain bottom shall be cleaned, prepared, shaped and compacted to suit the new culvert configuration, as shown on the drawings. Granular materials shall be compacted to 100% of their maximum dry density; imported clean native materials shall be supplied, placed and compacted to 95% of their maximum dry density.

5.5 Interlocking Concrete Block End Walls

End walls shall be constructed of interlocking concrete blocks, as shown on the drawings. The size of the blocks shall measure 600 mm wide, 600 mm high and 1200 mm long, and shall be plain chamfered concrete style blocks, with a minimum 20 MPa strength, with 6% air entrainment, as manufactured by Lock-Block Ltd. or approved equal. The concrete block end walls shall be set on a minimum 10:1 batter and shall be keyed into the existing drain banks and provided with a filter fabric backing to separate the backfill materials from the concrete blocks. The void space between the pipe culvert and the concrete blocks shall be formed and filled with minimum 30 MPa concrete.

Concrete block end walls shall be designed by a Professional Engineer licensed in the Province of Ontario and submitted to the Engineer for review for approval.

5.6 Granular 'A' Driveway

The Contractor shall construct the driveway with a longitudinal grade 2% – 10% approach over the new culvert providing a minimum cover as specified on the drawings. This work includes the installation of a minimum 200 mm thickness of compacted Granular 'A' (crushed limestone) surface. The minimum top width of the driveway shall be as shown on the drawings.

5.7 Asphalt Road Restoration

The Contractor shall restore the road providing a minimum cover as per OPSD 805.020. This work includes 100 mm asphalt surface (40 mm HL4 surface asphalt and 60 mm HL8 base asphalt) over a compacted Granular 'A' surface.

5.8 Lateral Tile Drains

Should the Contractor encounter any lateral tiles within the proposed culvert limits not shown on attached drawings, the Contractor shall connect the outlet tile drain(s) to the new drain pipe in consultation with the Drainage Superintendent, as required.

Known lateral tile drains identified on the drawings shall be connected to the new drain through a pre-fabricated 'Tee'

Care must be taken in handling plastic drain pipe in cold weather to avoid causing damage.

Plastic drain pipe shall be held in position on planned grade immediately after installation by careful placement of backfill material.

5.9 Culvert Connection

The Contractor shall connect the existing pipes to the new reinforced concrete pipe using a concrete collar. The Contractor shall install a poured in place concrete collar to join the two (2) pipe ends as shown on the Drawings. The pipes shall be butted together and wrapped with filter fabric (Terrafix 270R or approved equal) a minimum 1.0 m wide prior to pouring the concrete collar. All concrete used to construct the concrete collar shall have a minimum compressive strength of 30 MPa in 28 days. The Contractor shall prepare the form work and false work within the drain as required that facilitates the placement of the concrete within the minimum coverage thicknesses surrounding the pipe joint as specified on the Drawings. The concrete needs to be vibrated to fill in all voids. The Contractor shall avoid backfilling the new concrete collar until the concrete has had a minimum three (3) days to cure.

5.10 Site Cleanup and Restoration

As part of the work and upon completion, the Contractor shall remove and dispose of, off-site any loose timber, logs, stumps, large stones, rubber tires, cinder blocks or other debris from the drain bottom and from the side slopes. Where the construction works cross a lawn, the Contractor shall take extreme care to avoid damaging the lawn, shrubs and trees encountered. Upon completion of the work, the Contractor shall completely restore the area by the placement and fine grading of topsoil and seeding or sodding the area as specified by the Engineer or Drainage Superintendent.

6.0 NEW CATCH BASINS

The Contractor shall arrange for the supply and installation of pre-cast concrete catch basins as specified on the drawings shown. Grate elevations of catch basins shall be set to allow proper grading and drainage of surrounding lands and to the satisfaction of the Drainage Superintendent and/or Engineer.

The Contractor shall install all precast structures plumb and true to line and grade. Precast bases shall be set to the specified grade, shall be level, and shall have uniform overall contact with the underlying soil.

All catch basins installed shall meet the dimensions and locations outlined in the drawings and in accordance with City of Windsor Drawing AS-309A and conform to the requirements of Ontario Provincial Standard Specification (OPSS 1351). Frame and grates installed shall be in accordance with City of Windsor Drawing AS-301.

Leader pipes of the catch basins shall be connected to the new concrete pipe drain centered about the drain pipe springline, with a minimum pipe grade of 1%. New catch basin leads shall be PVC DR 35. Approved native material may be used in areas outside of the roadways.

Leader pipes shall connect to the drain pipe with pre-fabricated ‘tees’.

All parging material shall be hydraulic cement. Portland cement mixes will not be allowed.

Pipe placed in the catch basin walls for inlet and outlet connections shall extend through the wall a sufficient distance to allow for connections. The pipes shall be trimmed flush with the inside wall and shall be securely sealed into place using grout.

All catch basins shall be manufactured to allow for a minimum 150 mm height of riser adjustment rings to permit elevation modifications if required.

Catch basins shall be backfilled with clean native material in maximum 300 mm lifts and compacted to 98% of the maximum standard proctor density.

6.1 Ditch Inlet Catch Basin (Bridge No. 7 Extension)

The ditch inlet catch basin shall be as per OPSD 705.03 and be supplied with a steel honeycomb grate as per OPSD 403.01 with a 2:1 side slope. The inlet elevation and location shall be as specified on the Drawings.

7.0 HYDRAULIC SEEDING OF GRASS BUFFER & ENCLOSURE

All new drain banks and existing grassed areas disturbed by construction shall be hydraulic mulch seeded as specified herein. The existing ground surface to be seeded shall be loosened to a depth of 26 mm and shall be rendered uniformly loose for that 25 mm depth. The surface shall be predominantly fine and free from weeds and other unwanted vegetation. All other loose surface litter shall be removed and disposed of.

Hydraulic mulch shall consist of finely ground cellulose pulp derived from recycled newsprint and shall be dyed green. Its fiber consistency shall be approximately 60% fine fiber with the balance being paper particles, 40% of which shall be a diameter of 3 mm minimum and 6 mm maximum. Hydraulic mulch shall be applied at 2,000 kg per 10,000 m². Clean water shall be applied at 42,700 liters per 10,000 m².

Seeding and mulching shall be a one step process in which the seed, fertilizer and hydraulic mulch are applied simultaneously in a water slurry via the hydraulic seeder/mulcher. The materials shall be added to the supply tank while it is being loaded with water. The materials shall be thoroughly mixed into a homogeneous water slurry and shall be distributed uniformly over the prepared surface. The materials shall be measured by mass or by a mass-calibrated volume measurement, acceptable to the Drainage Superintendent.

The hydraulic seeder/mulcher shall be equipped with mechanical agitation equipment capable of mixing the materials into a homogenous state until applied. The discharge pumps and gun nozzles shall be capable of applying the material uniformly.

Grass seed shall be Canada No. 1 grass seed mixture meeting the requirements of a Waterway Slough Mixture as supplied by Growmark or approved equal, as follows:

Creeping Red Fescue	*20%*
Meadow Fescue	*30%*
Tall Fescue	*30%*
Timothy	*10%*
White Clover	*10%*

Bags shall bear the label of the supplier indicating the content by species, grade and mass. Seed shall be applied at a rate of 200 kg per 10,000 m².

Fertilizer shall be 8-32-16 applied at 350 kg per 10,000 m². It shall be in granular form, dry, free from lumps and in bags bearing the label of the manufacturer, indicating mass and analysis.

The hydraulic seeding shall be deemed "Completed by the Contractor" when the seed has established in all areas to the satisfaction of the Engineer. Re-seeding and/or other methods required to establish the grass will be given consideration to achieve the end result and the costs shall be incidental to the works.

8.0 HYDRAULIC SEEDING OF DRAIN BANKS

The newly established drain banks and all existing grassed areas disturbed by construction shall be hydraulic mulch seeded as specified herein. The surface shall be predominantly fine and free from weeds and other unwanted vegetation. All other loose surface litter shall be removed and disposed of.

Bonded Fibre Matrix shall consist of thermally refined wood fibers and 10% cross-linked hydro-colloidal tackifiers. It should be 100% biodegradable. The curing period shall be not more than 48 hours. Bonded Fibre Matrix shall be hydraulically applied and after application be capable of adhering to the soil. In a dry state, shall be comprised of not less than 70% by weight of long, stranded wood fibres held together by organic or mineral bonding agents or both.

Bonded Fibre Matrix shall be applied at a minimum rate of 3,700 kg of dry product per 10,000 m^2. It shall be thoroughly mixed with water in a hydraulic seeder and mulcher at a rate of 20-30 kg of dry product to 500-600 litres of water to form a homogeneous slurry. Refer to OPSS.PROV 804 for specifications.

Seeding and mulching shall be a one step process in which the seed, fertilizer and hydraulic mulch are applied simultaneously in a water slurry via the hydraulic seeder/mulcher. The materials shall be added to the supply tank while it is being loaded with water. The materials shall be thoroughly mixed into a homogeneous water slurry and shall be distributed uniform, cohesive mat over the prepared surface. The materials shall be measured by mass or by a mass-calibrated volume measurement, acceptable to the Drainage Superintendent.

The hydraulic seeder/mulcher shall be equipped with mechanical agitation equipment capable of mixing the materials into a homogenous state until applied. The discharge pumps and gun nozzles shall be capable of applying the material uniformly.

Grass seed shall be Canada No. 1 grass seed mixture meeting the requirements of a Waterway Slough Mixture as supplied by Growmark or approved equal, as follows:

Creeping Red Fescue	*20%*
Meadow Fescue	*30%*
Tall Fescue	*30%*
Timothy	*10%*
White Clover	*10%*

Bags shall bear the label of the supplier indicating the content by species, grade and mass. Seed shall be applied at a rate of 200 kg per 10,000 m².

Fertilizer shall be 8-32-16 applied at 350 kg per 10,000 m². It shall be in granular form, dry, free from lumps and in bags bearing the label of the manufacturer, indicating mass and analysis.

The hydraulic seeding shall be deemed "Completed by the Contractor" when the seed has established in all areas to the satisfaction of the Engineer. Re-seeding and/or other methods required to establish the grass will be given consideration to achieve the end result and the costs shall be incidental to the works.

9.0 ROCK CHECK DAM

Rock check dam shall be installed upstream of Bridge No. 5 prior to commencing construction. The location and exact dimensions of the rock check dams will be confirmed with the Drainage Superintendent prior to their installation. Installation shall be in accordance with OPSD 219.211 with the modifications to size as discussed with the Drainage Superintendent.

The rock check dam will not be removed until as directed by the Drainage Superintendent.

10.0 REFUGE STILLING POOL

The Contractor shall construct a refuge stilling pool in the bottom of the open drain directly upstream of Bridge No. 5 in accordance with OPSD 219.220. The contractor shall excavate the pool in the drain bottom to enhance fish habitat. The pool shall have a length of 4 metres, a bottom width of 1.0 metres with 1:1 side slopes and a depth below design grade of 300 mm. A stone rip-rap lining, countersunk and 200 mm thick with filter fabric underlay, shall be placed in the bottom. The pool shall be centred on the finished bottom width of the drain as specified herein. Material excavated from the pool shall be disposed of in the same manner as all other material excavated from the channel bottom.

11.0 ROADSIDE DITCH WORK

The Contractor shall replace the existing corrugated steel pipe located on the west side of Banwell Road with a new 450 mm diameter high density polyethylene (HDPE) Boss 2000 pipe (as manufactured by Armtec, or approved equal) complete with a prefabricated 60 degree bend connected to prefabricated 'tee' as specified on the drawings attached herein. The Contractor shall also extend the existing roadside ditch to the new pipe inlet and reinstall salvaged stone erosion protection.

GENERAL SPECIFICATIONS

1.0 AGREEMENT AND GENERAL CONDITIONS

The part of the Specifications headed "Special Provisions" which is attached hereto forms part of this Specification and is to be read with it. Where there is any difference between the requirements of this General Specification and those of the Special Provisions, the Special Provisions shall govern.

Where the word "Drainage Superintendent" is used in this specification, it shall mean the person or persons appointed by the Council of the Municipality having jurisdiction to superintend the work.

Tenders will be received and contracts awarded only in the form of a lump sum contract for the completion of the whole work or of specified sections thereof. The Tenderer agrees to enter into a formal contract with the Municipality upon acceptance of the tender. The General Conditions of the contract and Form of Agreement shall be those of the Stipulated Price Contract CCDC2-Engineers, 1994 or the most recent revision of this document.

2.0 EXAMINATION OF SITE, PLANS AND SPECIFICATIONS

Each tenderer must visit the site and review the plans and specifications before submitting his/her tender and must satisfy himself/herself as to the extent of the work and local conditions to be met during the construction. Claims made at any time after submission of his/her tender that there was any misunderstanding of the terms and conditions of the contract relating to site conditions, will not be allowed. The Contractor will be at liberty, before bidding to examine any data in the possession of the Municipality or of the Engineer.

The quantities shown or indicated on the drawings or in the report are estimates only and are for the sole purpose of indicating to the tenderers the general magnitude of the work. The tenderer is responsible for checking the quantities for accuracy prior to submitting his/her tender.

3.0 MAINTENANCE PERIOD

The successful Tenderer shall guarantee the work for a period of one (1) year from the date of acceptance thereof from deficiencies that, in the opinion of the Engineer, were caused by faulty workmanship or materials. The successful Tenderer shall, at his/her own expense, make good and repair deficiencies and every part thereof, all to the satisfaction of the Engineer. Should the successful Tenderer for any cause, fail to do so, then the Municipality may do so and employ such other person or persons as the Engineer may deem proper to make such repairs or do such work, and the whole costs, charges and expense so incurred may be deducted from any amount due to the Tenderer or may be collected otherwise by the Municipality from the Tenderer.

4.0 GENERAL CO-ORDINATION

The Contractor shall be responsible for the coordination between the working forces of other organizations and utility companies in connection with this work. The Contractor shall have no cause of action against the Municipality or the Engineer for delays based on the allegation that the site of the work was not made available to him by the Municipality or the Engineer by reason of the acts, omissions, misfeasance or non-feasance of other organizations or utility companies engaged in other work.

5.0 RESPONSIBILITY FOR DAMAGES TO UTILITIES

The Contractor shall note that overhead and underground utilities such as hydro, gas, telephone and water are not necessarily shown on the drawings. It is the Contractor's responsibility to contact utility companies for information regarding utilities, to exercise the necessary care in construction operations and to take other precautions to safeguard the utilities from damage. All work on or adjacent to any utility, pipeline, railway, etc., is to be carried out in accordance with the requirements of the utility, pipeline, railway, or other, as the case may be, and its specifications for such work are to be followed as if they were part of this specification. The Contractor will be liable for any damage to utilities.

6.0 CONTRACTOR'S LIABILITY

The Contractor, his/her agents and all workmen or persons under his/her control including sub-contractors, shall use due care that no person or property is injured and that no rights are infringed in the prosecution of the work. The Contractor shall be solely responsible for all damages, by whomsoever claimable, in respect to any injury to persons or property of whatever description and in respect of any infringement of any right, privilege or easement whatever, occasioned in the carrying on of the work, or by any neglect on the Contractor's part.

The Contractor, shall indemnify and hold harmless the Municipality and the Engineer, their agents and employees from and against claims, demands, losses, costs, damages, actions, suits, or proceedings arising out of or attributable to the Contractor's performance of the contract.

7.0 PROPERTY BARS AND SURVEY MONUMENTS

The Contractor shall be responsible for marking and protecting all property bars and survey monuments during construction. All missing, disturbed or damaged property bars and survey monuments shall be replaced at the Contractor's expense, by an Ontario Land Surveyor.

8.0 MAINTENANCE OF FLOW

The Contractor shall, at his/her own cost and expense, permanently provide for and maintain the flow of all drains, ditches and water courses that may be encountered during the progress of the work.

9.0 ONTARIO PROVINCIAL STANDARDS

Ontario Provincial Standard Specifications (OPSS) and Ontario Provincial Standard Drawings (OPSD) shall apply and govern at all times unless otherwise amended or extended in these Specifications or on the Drawing. Access to the electronic version of the Ontario Provincial Standards is available online through the MTO website, free of charge to all users. To access the electronic standards on the Web go to http://www.mto.gov.on.ca/english/transrd/. Under the title Technical Manuals is a link to the Ontario Provincial Standards. Users require Adobe Acrobat to view all pdf files.

10.0 APPROVALS, PERMITS AND NOTICES

The construction of the works and all operations connected therewith are subject to the approval, inspection, by-laws and regulations of all Municipal, Provincial, Federal and other authorities having jurisdiction in respect to any matters embraced in this Contract. The Contractor shall obtain all approvals and permits and notify the affected authorities when carrying out work in the vicinity of any public utility, power, underground cables, railways, etc.

11.0 SUBLETTING

The Contractor shall keep the work under his/her personal control, and shall not assign, transfer, or sublet any portion without first obtaining the written consent of the Municipality.

12.0 TIME OF COMPLETION

The Contractor shall complete all work on or before the date fixed at the time of tendering. The Contractor will be held liable for any damages or expenses occasioned by his/her failure to complete the work on time and for any expenses of inspection, superintending, re-tendering or re-surveying, due to their neglect or failure to carry out the work in a timely manner.

13.0 TRAFFIC CONTROL

The Contractor will be required to control vehicular and pedestrian traffic along roads at all times and shall, at his/her own expense, provide for placing and maintaining such barricades, signs, flags, lights and flag persons as may be required to ensure public safety. The Contractor will be solely responsible for controlling traffic and shall appoint a representative to maintain the signs and warning lights at night, on weekends and holidays and at all other times that work is not in progress. All traffic control during construction shall be strictly in accordance with the **Occupational Health and Safety Act** and the current version of the **Ontario Traffic Manuals**. Access to the electronic version of the **Ontario Traffic Manual** is available online through the MTO website, free of charge to all users. To access the electronic standards on the Web go to http://www.mto.gov.on.ca/english/transrd/, click on "Library Catalogue," under the "Title," enter "Ontario Traffic Manual" as the search. Open the applicable "Manual(s)" by choosing the "Access Key," once open look for the "Attachment," click the pdf file. Users require Adobe Acrobat to view all pdf files.

Contractors are reminded of the requirements of the Occupational Health and Safety Act pertaining to Traffic Protection Plans for workers and Traffic Control Plan for Public Safety.

14.0 SITE CLEANUP AND RESTORATION

As part of the work and upon completion, the Contractor shall remove and dispose of, off-site any loose timber, logs, stumps, large stones, rubber tires, cinder blocks or other debris from the drain bottom and from the side slopes. Where the construction works cross a lawn, the Contractor shall take extreme care to avoid damaging the lawn, shrubs and trees encountered. Upon completion of the work, the Contractor shall completely restore the area by the placement and fine grading of topsoil and seeding or sodding the area as specified by the Engineer or Drainage Superintendent.

15.0 UTILITY RELOCATION WORKS

In accordance with Section 26 of the Drainage Act, if utilities are encountered during the installation of the drainage works that conflict with the placement of the new culvert, the operating utility company shall relocate the utility at their own costs. The Contractor however will be responsible to co-ordinate these required relocations (if any) and their co-ordination work shall be considered incidental to the drainage works.

16.0 FINAL INSPECTION

All work shall be carried out to the satisfaction of the Drainage Superintendent for the Municipality, in compliance with the specifications, drawings and the Drainage Act. Upon completion of the project, the work will be inspected by the Engineer and the Drainage Superintendent.

Any deficiencies noted during the final inspection shall be immediately rectified by the Contractor.

Final inspection will be made by the Engineer within 20 days after the Drainage Superintendent has received notice in writing from the Contractor that the work is completed, or as soon thereafter as weather conditions permit.

17.0 FISHERIES CONCERNS

Standard practices to be followed to minimize disruption to fish habitat include embedment of the culvert a minimum 10% below grade, constructing the work 'in the dry' and cutting only trees necessary to do the work (no clear-cutting). No in-water work is to occur during the timing window unless otherwise approved by the appropriate authorities.

LEGEND

- MUNICIPAL BOUNDARY
- GOUIN DRAIN DRAINAGE AREA BOUNDARY
- GOUIN DRAIN
- OTHER DRAINS
- BRIDGE EXTENSION
- EXISTING BRIDGE
- BRIDGE REMOVAL (BY OTHERS)
- NEW ENCLOSURE
- LOCAL BENCHMARK
- WOODLOT

SITE BENCHMARKS

BM1 – TOP OF SOUTH END OF CONCRETE BOX CULVERT UNDER EC ROW EXPRESSWAY AT APPROX. STA. 0+980.

ELEVATION=181.18m

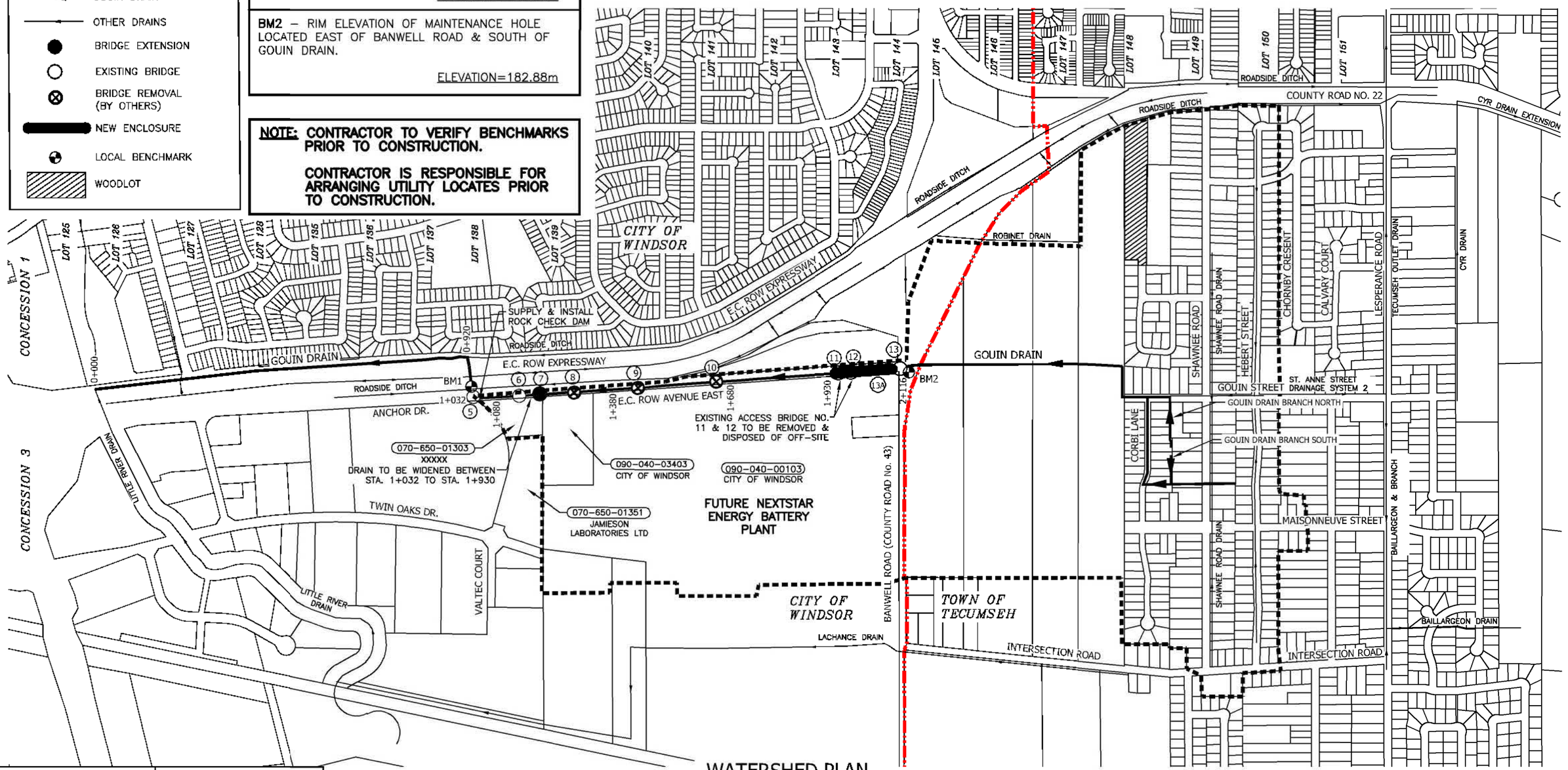
BM2 – RIM ELEVATION OF MAINTENANCE HOLE LOCATED EAST OF BANWELL ROAD & SOUTH OF GOUIN DRAIN.

ELEVATION=182.88m

NOTE: CONTRACTOR TO VERIFY BENCHMARKS PRIOR TO CONSTRUCTION.

CONTRACTOR IS RESPONSIBLE FOR ARRANGING UTILITY LOCATES PRIOR TO CONSTRUCTION.

PLAN NORTH



WATERSHED PLAN

SCALE=1:10,000

'SCHEDULE G'

LICENSED PROFESSIONAL ENGINEER
M. D. HERNANDEZ
100078099
Province of Ontario

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1	ERCA REVIEW	JULY 21/23	MDH

DES GN	OEM
REVIEWED BY	TRO
DRAWN	WLB
CHECKED BY	LRO
DATE	September 11, 2023
SCALE	AS SHOWN

DILLON CONSULTING

PROJECT NO. 22-5108

DRAWING SCALES BASED ON A 11" X 17" SHEET

Drainage Report for the
GOUIN DRAIN
(NEXTSTAR ENERGY BRIDGES)
City of Windsor

SHEET TITLE
WATERSHED PLAN

PAGE NO. 1 of 7

1+020–BRIDGE No. 5–ANCHOR DRIVE
EX. TWIN 1520mmø CSP,19m LONG
1+032–DRAIN TURNS EAST
START OF DRAIN WIDENING WORK
1+040–1+050–INSTALL ROCK
CHECK DAM & REFUGE POOL

1+104–SWALE FROM SOUTH
REINSTATE SWALE & STONE EROSION PROTECTION

1+109–BRIDGE No. 6
EX. 2240 X 1630mm CSPA, 7.6m LONG

1+191–BRIDGE No. 7
EX. 2440 X 1600mm CSPA, 40.5m LONG
SUPPLY & INSTALL 45.5m LONG, 1800mmø REINFORCED CONCRETE PIPE EXTENSION ON UPSTREAM END C/W CONCRETE COLLAR & CONC. BLOCK END WALL

1+278–BRIDGE No. 8
EX. 2240 X 1630mm CSPA, 9.7m LONG
(REMOVED BY OTHERS PRIOR TO CONSTRUCTION)

1+376–SWALE FROM SOUTH
REINSTATE EX. SWALE & STONE EROSION PROTECTION

1+442 BRIDGE No. 9
EX. 2240 X 1630mm CSPA, 8.2m LONG
(REMOVED BY OTHERS PRIOR TO CONSTRUCTION)

1+549–SWALE FROM SOUTH
REINSTATE EX. SWALE & STONE EROSION PROTECTION

1+646–BRIDGE No. 10
EX. 2240 X 1630mm CSPA, 7.8m LONG
(REMOVED BY OTHERS PRIOR TO CONSTRUCTION)

1+751–SWALE FROM SOUTH
REINSTATE EX. SWALE & STONE EROSION PROTECTION

1+930–END OF DRAIN WIDENING

1+955–BRIDGE No. 11
EX. 2240 X 1630mm CSPA, 7.9m LONG
REMOVE & DISPOSE OF OFF–SITE

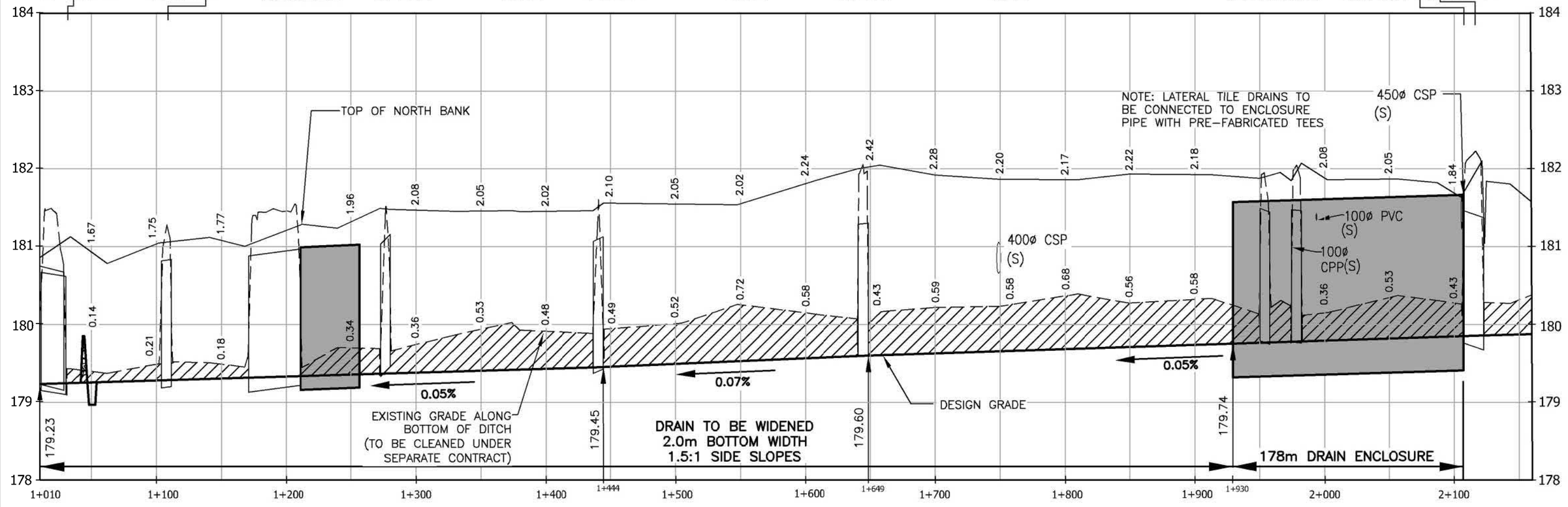
1+980–BRIDGE No. 12
EX. 2240 X 1630mm CSPA, 7.6m LONG
REMOVE & DISPOSE OF OFF–SITE

2+019–BRIDGE No. 13A
SUPPLY & INSTALL 178m LONG, 2250mmø REINFORCED CONCRETE PIPE ENCLOSURE C/W CONCRETE COLLAR, PIPE BEND & CONC. BLOCK END WALL

2+108–END OF WORK

2+116–BRIDGE No. 13–BANWELL ROAD
EX. 2240 X 1630mm CSPA, 15.6m LONG
(FUTURE MAINTENANCE)

2+124–BANWELL ROAD ROADSIDE DITCHES FROM NORTH & SOUTH



PROFILE

SCALE-HORIZ.=1:3,000
VERT.=1:100

'SCHEDULE G'

LICENSED PROFESSIONAL ENGINEER
M. D. HERNANDEZ
100078099
Sept 14/23
PROVINCE OF ONTARIO

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City of Windsor

SHEET TITLE
PROFILE

PAGE NO. 2 of 7

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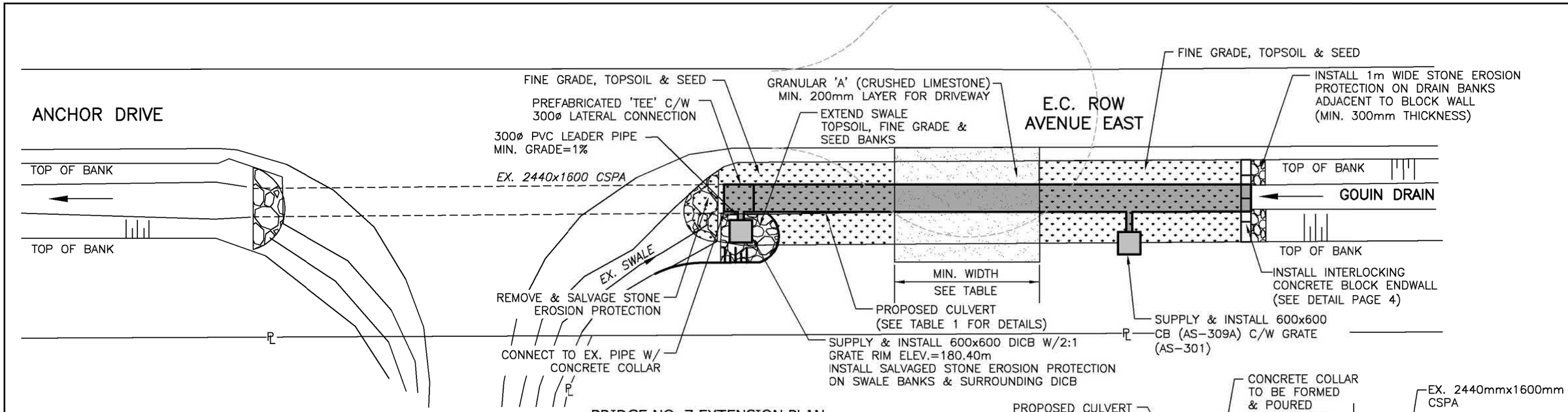
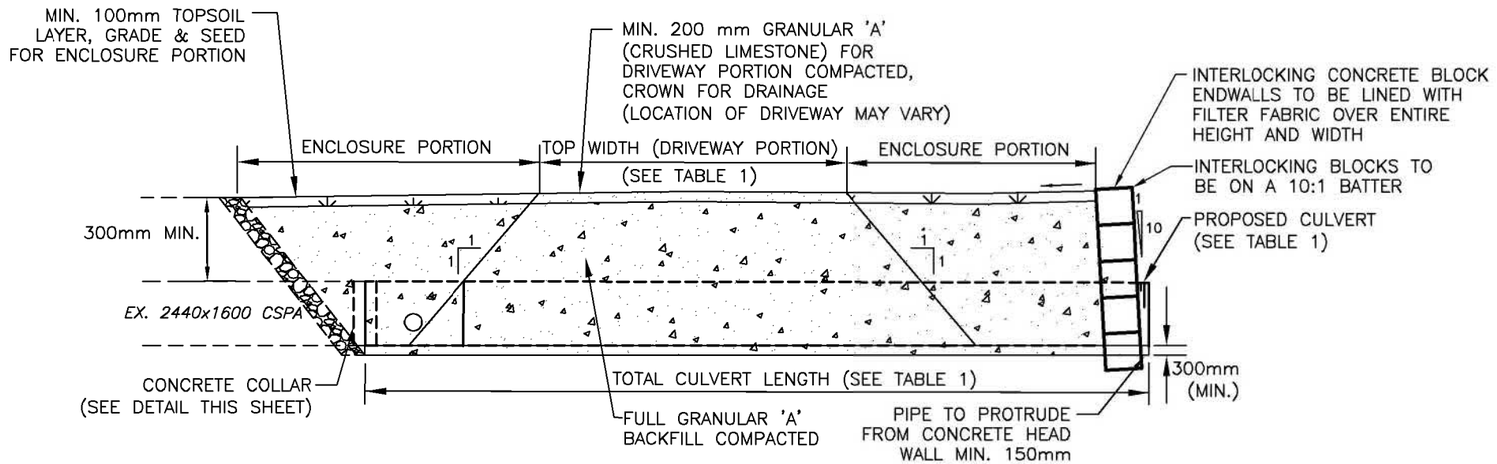


BRIDGE NO. 7 EXTENSION PLAN
NOT TO SCALE



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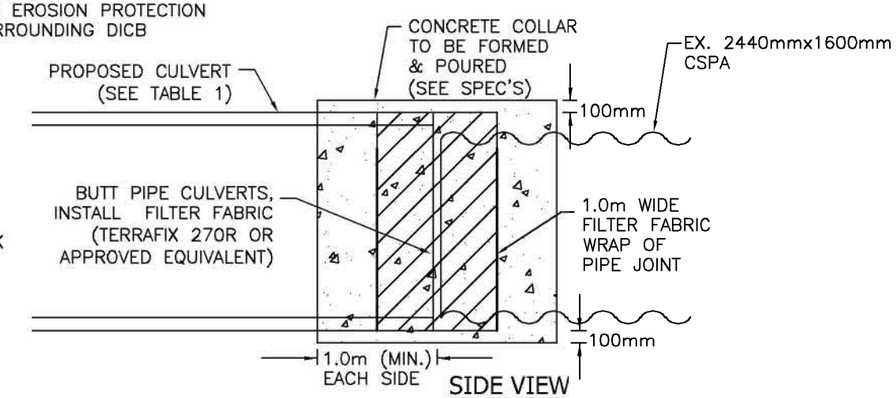

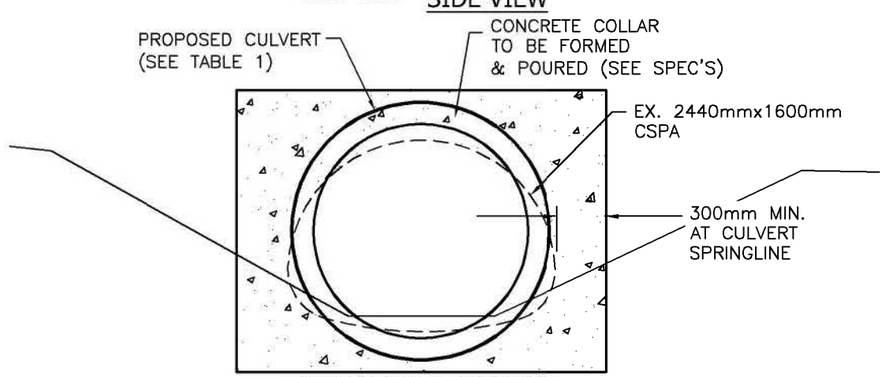

BRIDGE NO. 7 EXTENSION CONCRETE COLLAR DETAIL
NOT TO SCALE

'SCHEDULE G'

LICENSED PROFESSIONAL ENGINEER
M. D. HERNANDEZ
100078099
Sept 14/23
PROVINCE OF ONTARIO

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DRAWN	WLB
CHECKED BY	LRO
DATE	September 14, 2023
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PROJECT NO. 22-5108

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Drainage Report for the
GOUIN DRAIN
(NEXTSTAR ENERGY BRIDGES)
City of Windsor

SHEET TITLE
BRIDGE NO. 7 EXTENSION DETAILS

PAGE NO. 3 of 7

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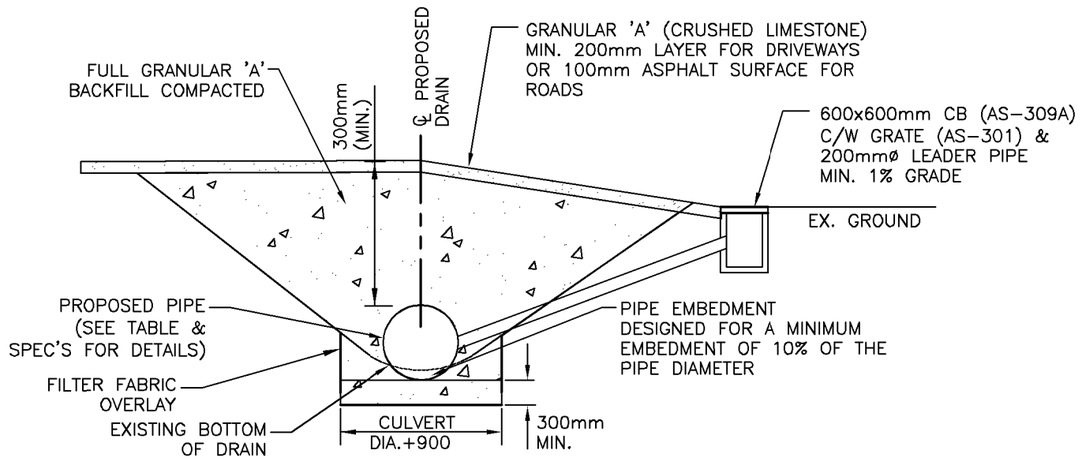
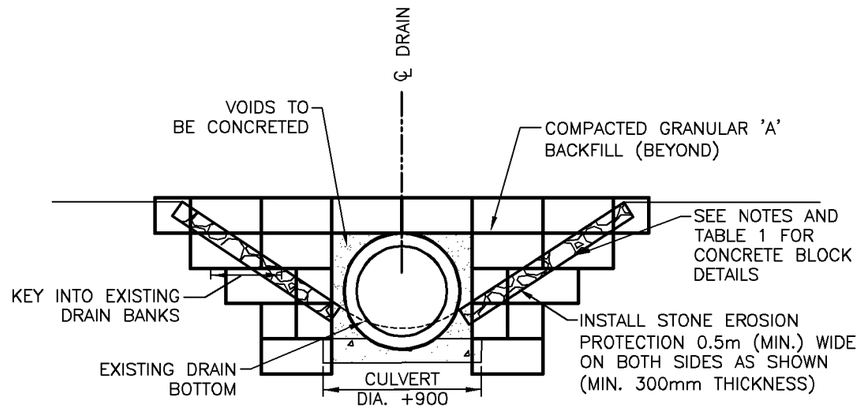


CROSS SECTION
(BRIDGE NO. 7 EXTENSION)
NOT TO SCALE



TYPICAL CONCRETE BLOCK END WALL SECTION
(BRIDGE NO. 7 & 13A)
NOT TO SCALE

TABLE 1 – ACCESS CULVERT DESIGN INFORMATION

DESCRIPTION	BRIDGE No. 7 EXT.	BRIDGE No. 13A
PIPE INVERT ELEV. U/S SIDE(m)	179.15	179.41
PIPE INVERT ELEV. D/S SIDE(m)	179.12	179.32
TOP OF ℄ DRIVEWAY SURFACE ELEV. (m)	181.48	182.25
DRAIN BOTTOM (m) (DESIGN) (AT CENTRELINE OF CULVERT)	179.35	179.80
MIN. TOP WIDTH OF DRIVEWAY (m)	6.0	N/A
MIN. CULVERT GRADE (%)	0.05	0.05
CULVERT TYPE	CONCRETE	CONCRETE
CULVERT LENGTH (m)	45.5	178.0
PIPE SIZE (mm)	1800	2250
CULVERT ENDWALL TYPE	CONC. BLOCK	CONC. BLOCK
TOP ELEV. OF CONCRETE BLOCK ENDWALL	181.76	182.42
APPROX. NO. OF CONCRETE BLOCKS	20 FULL BLKS 4 HALF BLKS	19 FULL BLKS 6 HALF BLKS

NOTES:

- BLOCK END WALLS TO BE DESIGNED AND SEALED BY A PROFESSIONAL ENGINEER LICENSED IN THE PROVINCE OF ONTARIO
- THE CULVERT PIPE TO PROTRUDE A MINIMUM 150mm BEYOND THE LOWEST BLOCK ROW.
- FULL CONCRETE BLOCKS ARE 600x600x1200mm

LICENSED PROFESSIONAL ENGINEER
M. D. HERNANDEZ
100078099
Sept 14/23
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DRAWN: WLB | CHECKED BY: LRO
DATE: September 14, 2023
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PROJECT NO.: 22-5108
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'SCHEDULE G'

Drainage Report for the
GOUIN DRAIN
(NEXTSTAR ENERGY BRIDGES)
City of Windsor

SHEET TITLE
BRIDGE DETAILS

PAGE NO.: 4 of 7

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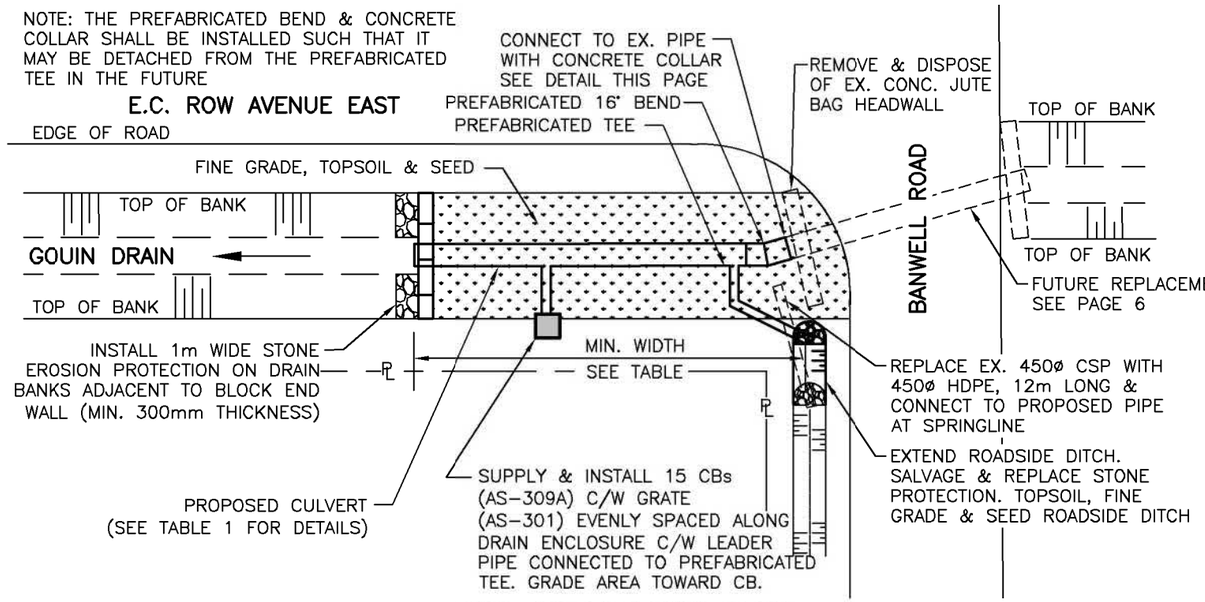
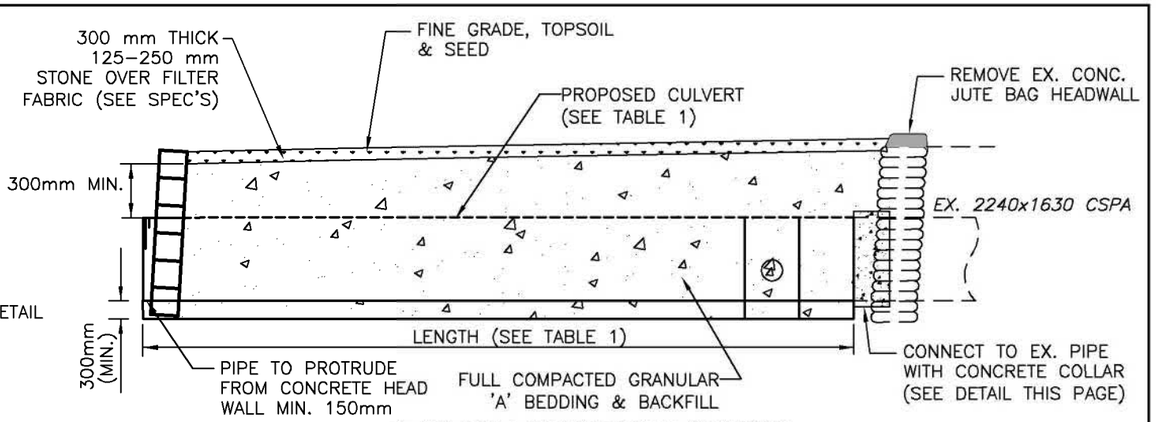


BRIDGE NO. 13A ENCLOSURE PLAN
NOT TO SCALE



BRIDGE NO 13A LONGITUDINAL SECTION
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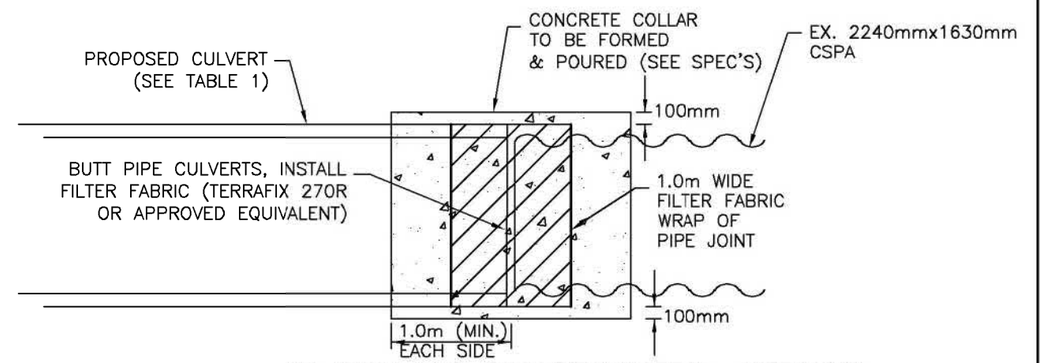
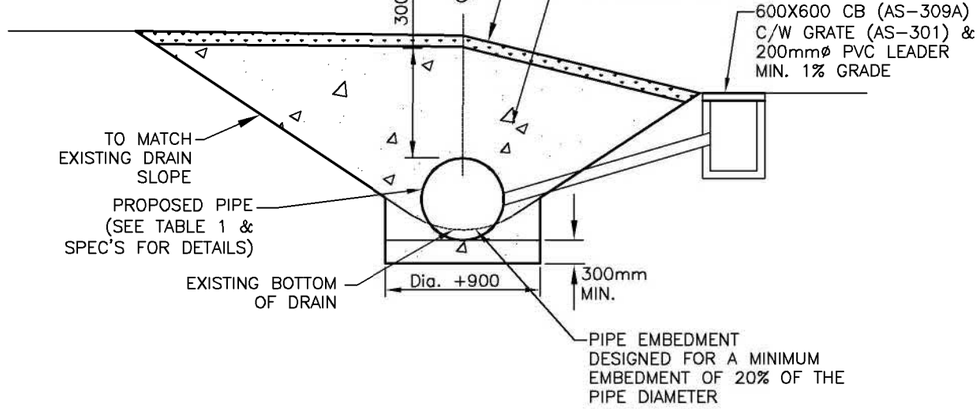
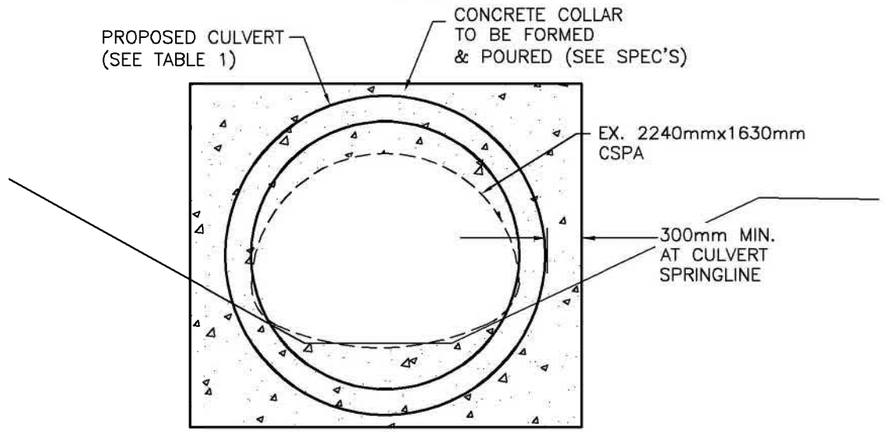


BRIDGE NO. 13/13A PIPE CONNECTION DETAIL - SIDE VIEW
NOT TO SCALE



BRIDGE NO. 13A CROSS SECTION
NOT TO SCALE



BRIDGE NO. 13/13A CONCRETE COLLAR DETAIL
NOT TO SCALE

'SCHEDULE G'

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M. D. HERNANDEZ
100078099
Province of Ontario

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Drainage Report for the
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(NEXTSTAR ENERGY BRIDGES)
City of Windsor

SHEET TITLE: BRIDGE NO. 13A ENCLOSURE DETAILS

PAGE NO. 5 of 7

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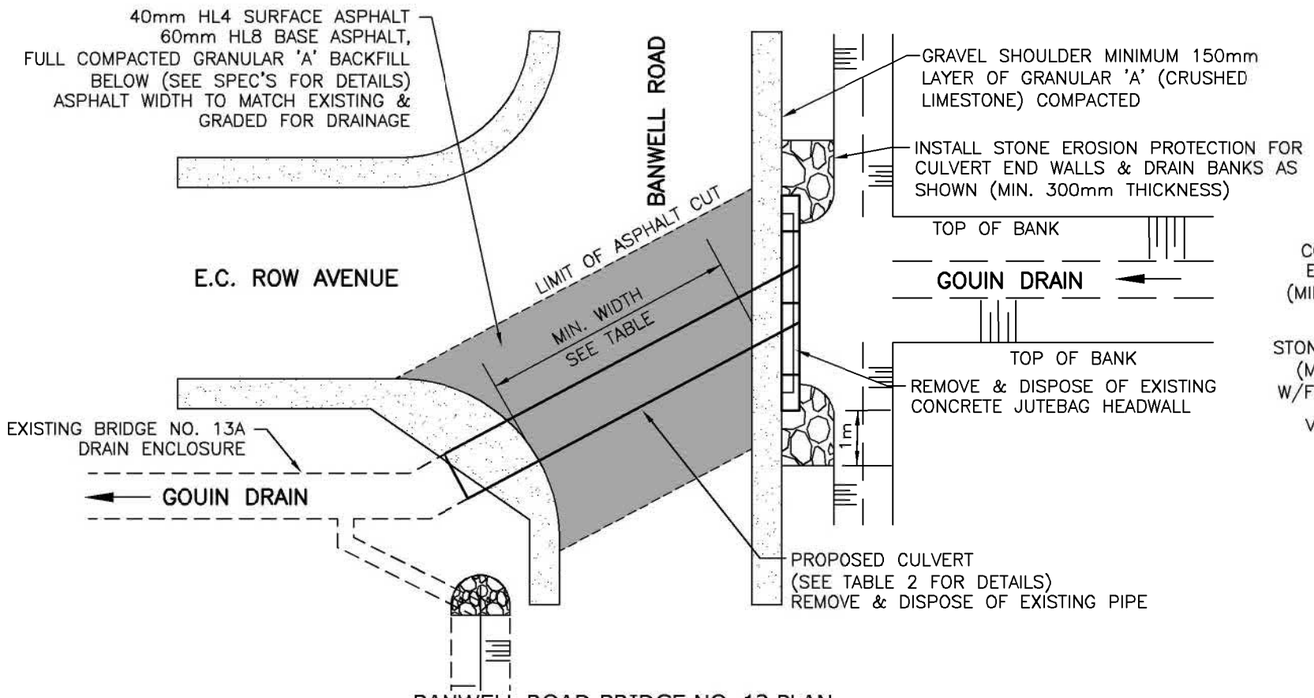
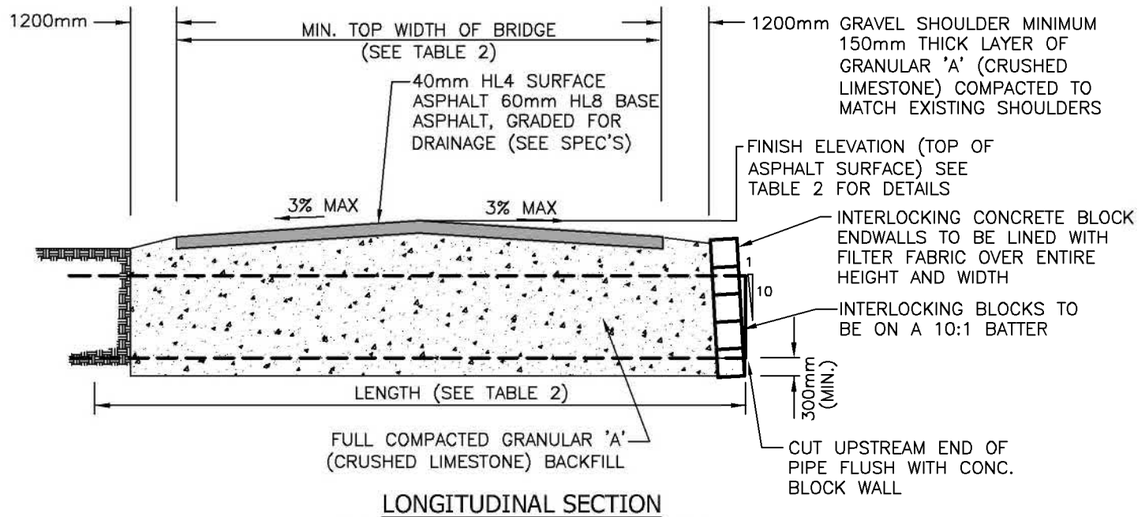


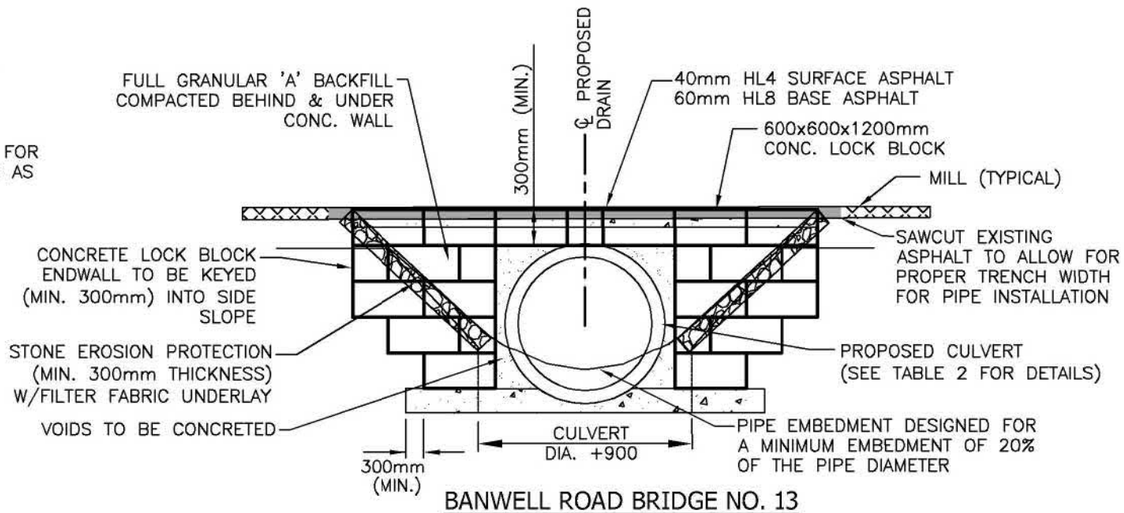
BANWELL ROAD BRIDGE NO. 13 PLAN

NOT TO SCALE



LONGITUDINAL SECTION
(BANWELL ROAD BRIDGE NO. 13)

NOT TO SCALE



BANWELL ROAD BRIDGE NO. 13
CROSS SECTION

NOT TO SCALE

NOTES:

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- FULL CONCRETE BLOCKS ARE 600x600x1200mm
- SUPPLY & INSTALL OBJECT MARKER SIGNS WA-33L/R AS PER THE ONTARIO TRAFFIC MANUAL

TABLE 2 – ACCESS CULVERT DESIGN INFORMATION

DESCRIPTION	BRIDGE No. 13
PIPE INVERT ELEV. U/S SIDE(m)	179.42
PIPE INVERT ELEV. D/S SIDE(m)	179.41
TOP OF ℄ DRIVEWAY SURFACE ELEV. (m)	182.23
DRAIN BOTTOM (m) (DESIGN) (AT CENTRELINE OF CULVERT)	179.86
MIN. TOP WIDTH OF DRIVEWAY (m)	12.0
MIN. CULVERT GRADE (%)	0.05
CULVERT TYPE	CONCRETE
CULVERT MATERIAL	CLASS 65-D
CULVERT LENGTH (m)	16.0
PIPE SIZE (mm)	2250
CULVERT ENDWALL TYPE	CONC. BLOCK
TOP ELEV. OF CONCRETE BLOCK END WALL	182.22
APPROX. NO. OF CONCRETE BLOCKS	20 FULL BLOCKS 6 HALF BLOCKS

NOTE:
THIS DRAWING ASSUMES BRIDGE NO. 13A HAS BEEN CONSTRUCTED ACCORDING TO PAGE NO. 4 & 5 & THE SPECIFICATIONS.

'SCHEDULE G'

LICENSED PROFESSIONAL ENGINEER
M. D. HERNANDEZ
100078099
Sept 14/23
PROVINCE OF ONTARIO

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1	ERCA REVIEW	JULY 21/23	MDH

DESIGN: OEM	REVIEWED BY: TRO
DRAWN: WLB	CHECKED BY: LRO
DATE: September :4, 2023	
SCALE: AS SHOWN	

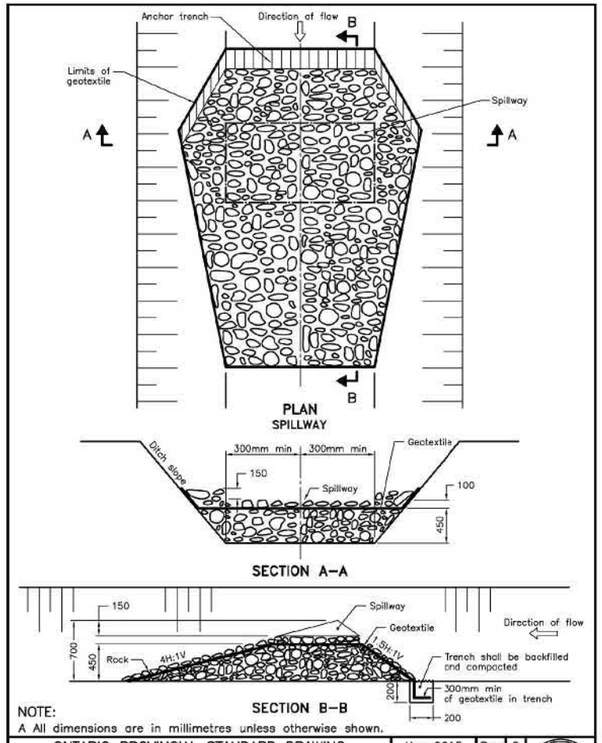
DILLON CONSULTING

PROJECT NO. 22-5108

DRAWING SCALES BASED ON A 11" X 17" SHEET

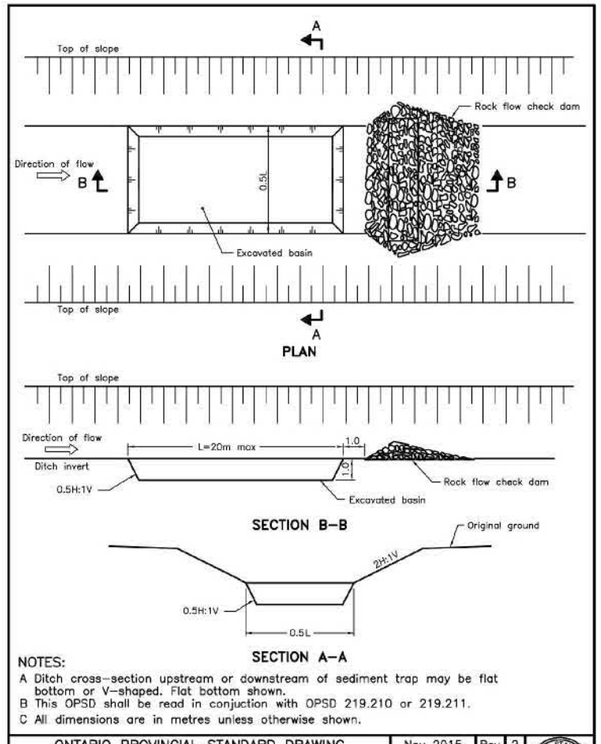
Drainage Report for the
GOUIN DRAIN
(NEXTSTAR ENERGY BRIDGES)
City of Windsor

SHEET TITLE: FUTURE BRIDGE NO. 13 REPLACEMENT DETAILS



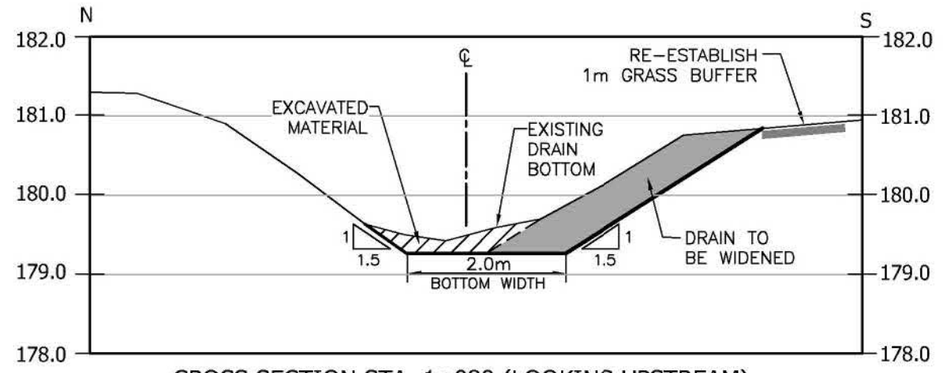
NOTE:
A All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2015	Rev 2
TEMPORARY ROCK FLOW CHECK DAM FLAT BOTTOM DITCH		OPSD 219.211

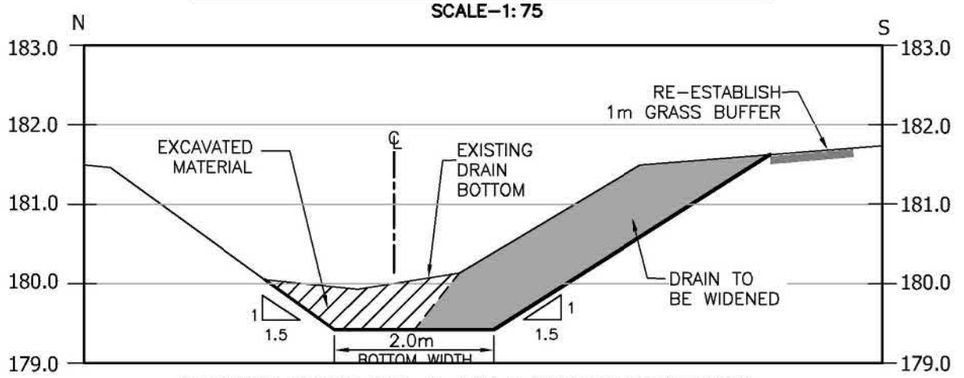


NOTES:
A Ditch cross–section upstream or downstream of sediment trap may be flat bottom or V–shaped. Flat bottom shown.
B This OPSD shall be read in conjuction with OPSD 219.210 or 219.211.
C All dimensions are in metres unless otherwise shown.

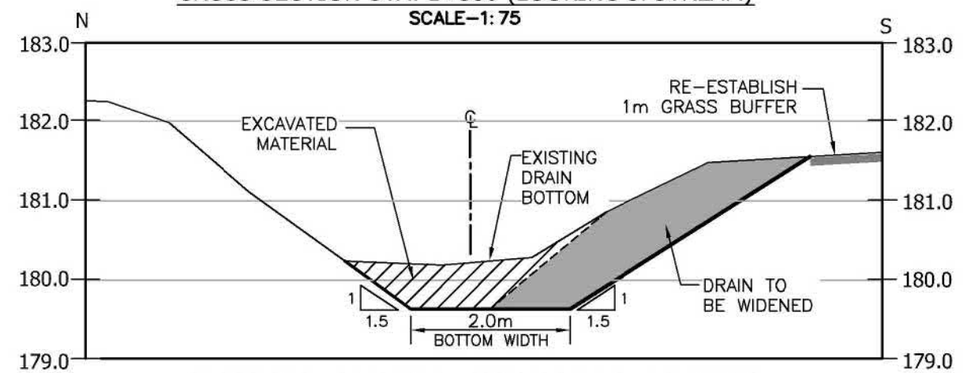
ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2015	Rev 2
SEDIMENT TRAP IN DITCH		OPSD 219.220



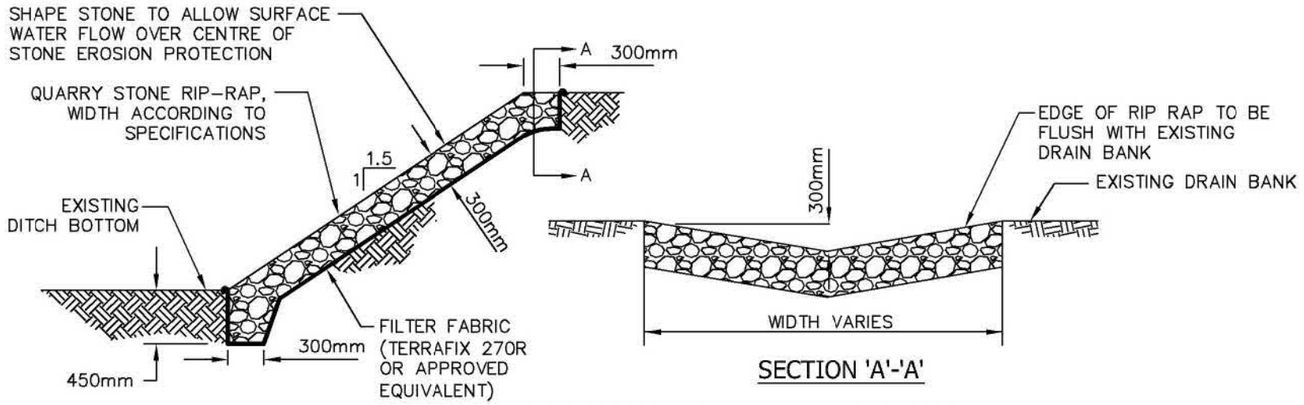
CROSS SECTION STA. 1+080 (LOOKING UPSTREAM)
SCALE–1: 75



CROSS SECTION STA. 1+380 (LOOKING UPSTREAM)
SCALE–1: 75



CROSS SECTION STA. 1+680 (LOOKING UPSTREAM)
SCALE–1: 75



SECTION 'A'–'A'

SURFACE INLET SWALE BANK PROTECTION
NOT TO SCALE

NOTES:
- CONTRACTOR REQUIRED TO CHECK DESIGN GRADE OF DRAIN & CLEAN DRAIN AS REQUIRED.
- DRAIN BOTTOM TO BE WIDENED BY 1.0m FROM STA. 1+032 TO 1+930.
- CLEANING OF EXISTING DRAIN SCHEDULED UNDER SEPARATE CONTRACT.

LICENSED PROFESSIONAL ENGINEER
M. D. HERNANDEZ
100078099
Sept 14/23
PROVINCE OF ONTARIO

Conditions of Use

Verify elevations and/or dimensions on drawing prior to use. Report any discrepancies to Dillon Consulting Limited.

Do not scale dimensions from drawing.

Do not modify drawing, re-use it, or use it for purposes other than those intended at the time of its preparation without prior written permission from Dillon Consulting Limited.

No.	ISSUED FOR	DATE	BY
3	FINAL REPORT SUBMISSION	SEP. 14/23	MDH
2	CLIENT REVIEW	AUG. 16/23	MDH
1	ERCA REVIEW	JULY 21/23	MDH

DESIGN: OEM	REVIEWED BY: TRO
DRAWN: WLB	CHECKED BY: LRO
DATE: September :4, 2023	
SCALE: AS SHOWN	

DILLON CONSULTING

PROJECT NO. 22-5108

DRAWING SCALES BASED ON A 11" X 17" SHEET

'SCHEDULE G'

Drainage Report for the
GOUIN DRAIN
(NEXTSTAR ENERGY BRIDGES)
City of Windsor

SHEET TITLE
MISCELLANEOUS DETAILS

PAGE NO. 7 of 7

Sep 12, 2023 – 10:58am C:\Users\330EM\appdata\local\temp\AcPublish_3668\225108-03-DRN-CON.dwg

APPENDIX B

Amendment to:
Local Improvement Policy Consolidation

4.6 Shoreline Structures
a) Where:

- A municipally owned shoreline structure abuts one or more privately owned properties; and
- The abutting property owner(s) have requested in writing that repair and/or replacement of the shoreline structure be carried out; or
- The City initiates repair or replacement of the shoreline structure as a Local Improvement.

The abutting property owner(s) shall be assessed for:

- 100% of the cost per metre frontage for the repair and/or replacement of the shoreline structure abutting their property, including restoration.
- 100% of work required in the backshore of the benefitting property.

The City will:

- Pay 100% of the cost per metre frontage for the repair and/or replacement of the shoreline structure abutting municipally owned property.
- Assess the costs plus rate of interest determined by the City Treasurer to the property owner, to be repayable as a one time payment or as a Local Improvement Charge assessed to the property owner for the desired repayment period of no longer than 20 years.