TOWN OF AMHERSTBURG

DRAINAGE BOARD MEETING

MINUTES

Tuesday, January 7, 2025
6:00 PM
Council Chambers
271 Sandwich Street South, Amherstburg, ON, N9V 2A5

PRESENT	Anthony Campigotto - Chair Allan Major - Vice Chair Brad Laramie Brian Renaud Murray Sellars
STAFF PRESENT	Sam Paglia - Drainage Superintendent/Engineering Coordinator Nicole Humber - Recording Secretary Selena Scebba - Policy and Committee Coordinator

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1. CALL TO ORDER

The Policy and Committee Coordinator called the meeting to order at 6:00 p.m.

2. ROLL CALL

3. CALL FOR NOMINATIONS

3.1 Nomination of Chair

Moved by M. Sellars
Seconded by A. Major

That Anthony Campigotto **BE APPOINTED** Chair of the Drainage Board.

The Policy and Committee Coordinator put the motion.

Motion Carried

3.2 Nomination of Vice Chair

Moved by B. Renaud
Seconded by M. Sellars

That Allan Major **BE APPOINTED** Vice Chair of the Drainage Board.

The Policy and Committee Coordinator put the motion.

Motion Carried

The Chair assumed control of the meeting.

4. DISCLOSURE OF PECUNIARY INTEREST & GENERAL NATURE THEREOF

There were no disclosures noted.

5. LAND ACKNOWLEDGEMENT

The following land acknowledgement was read, “We will begin by acknowledging that the land on which we gather is the traditional territory of the Three Fires Confederacy of First Nations (comprising the Ojibway, the Odawa, and the Potawatomie Peoples), and of the Huron-Wendat and Wyandot Peoples. We recognize the land as an expression of gratitude to those whose traditional territory we reside on, and a way of honouring the Indigenous people who have been living and thriving on the land since time immemorial. We value the significant historical and contemporary contributions of local and regional First Nations and all of the Original Peoples of Turtle Island.”

6. MINUTES OF PREVIOUS MEETING

Moved by A. Major
Seconded by B. Renaud

That the following minutes of the Drainage Board **BE ADOPTED**:

6.1 Drainage Board Meeting Minutes of December 3, 2024

The Chair put the motion.

Motion Carried

7. ORDER OF BUSINESS

7.1 Consideration of the Final Drainage Report - 4th Concession Road Drain

Moved by B. Laramie
Seconded by A. Major

That:

1. The engineer's report, prepared by R. Dobbin Engineering Inc. dated November 13, 2024 for the improvements to the 4th Concession Road Drain **BE RECEIVED**;
2. The engineer's report, for the improvements to the 4th Concession Road Drain **BE CONSIDERED**;
3. The **PROVISIONAL ADOPTION** of By-law 2025-003 which appends the engineer's report for the improvements to the 4th Concession Road Drain **BE BROUGHT** to the next Regular Council meeting for Council's consideration; and
4. Administration **BE DIRECTED** to proceed with the scheduling of the Public Meeting of the Court of Revision for the improvements to the 4th Concession Road Drain.

The Chair put the motion.

Motion Carried

7.2 Consideration of the Final Drainage Report - Pike Road Drain East

Moved By M. Sellars
Seconded By B. Renaud

That:

1. The engineer's report, prepared by R. Dobbin Engineering Inc. dated November 21, 2024 for the improvements to the Pike Road Drain East **BE RECEIVED**;
2. The engineer's report, for the improvements to the Pike Road Drain East **BE CONSIDERED**;
3. The **PROVISIONAL ADOPTION** of By-law 2025-004 which appends the engineer's report for the improvements to the Pike Road Drain East **BE BROUGHT** to the next Regular Council meeting for Council's consideration; and
4. Administration **BE DIRECTED** to proceed with the scheduling of the Public Meeting of the Court of Revision for the improvements to the Pike Road Drain East.

Motion Carried

7.3 Consideration of the Final Drainage Report - Rebidoux Drain

Moved By A. Major
Seconded By M. Sellars

That:

1. The engineer's report, prepared by R. Dobbin Engineering Inc. dated December 4, 2024 for the improvements to the Rebidoux Drain **BE RECEIVED**;
2. The engineer's report, for the improvements to the Rebidoux Drain **BE CONSIDERED**;
3. The **PROVISIONAL ADOPTION** of By-law 2025-005 which appends the engineer's report for the improvements to the Rebidoux Drain **BE BROUGHT** to the next Regular Council meeting for Council's consideration; and
4. Administration **BE DIRECTED** to proceed with the scheduling of the Public Meeting of the Court of Revision for the improvements to the Rebidoux Drain.

Motion Carried

7.4 Shipman Drain - Preliminary Report Direction Reconsideration

Moved By B. Laramie
Seconded By M. Sellars

That:

1. The Letter of Opinion from appointed engineer Josh Warner, P.Eng of R. Dobbin Engineering Inc. regarding the Shipman Drain **BE RECEIVED**;
2. The Drainage Board **RECIND** their original motion of proceeding with OPTION 3, and Direct the engineer to proceed with the recommended Option 1 based on the letter or opinion of the Engineer under Section 15 of the Act.

Motion Carried

8. ADJOURNMENT

Moved By B. Renaud
Seconded By A. Major

That the Drainage Board **ADJOURN** at 7:45 p.m.

Motion Carried

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Anthony Campigotto - Chair

_____

Sam Paglia - Staff Liaison

R Dobbin Engineering Inc.
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Petrolia, Ontario, N0N 1R0
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November 13, 2024

The Mayor and Council
Town of Amherstburg
271 Sandwich Street South
Amherstburg, Ontario
N9V 2A5

Gentlemen and Mesdames:

Re: 4th Concession Road Drain (2024)

In accordance with your instructions, R. Dobbin Engineering has undertaken an examination with regards to improving the 4th Concession Road Drain in the Town of Amherstburg.

Authorization under the Drainage Act

This is an Engineer's Report that has been prepared under Section 78 of the Drainage Act. R. Dobbin Engineering Inc. was appointed by council on April 4th, 2024.

Section 78 of the Drainage Act states that, where, for the better use, maintenance or repair of any drainage works constructed under a bylaw passed under this Act, or of lands or roads, it is considered expedient to change the course of the drainage works, or to make a new outlet for the whole or any part of the drainage works, or to construct a tile drain under the bed of the whole or any part of the drainage works as ancillary thereto, or to construct, reconstruct or extend embankments, walls, dykes, dams, reservoirs, bridges, pumping stations, or other protective works as ancillary to the drainage works, or to otherwise improve, extend to an outlet or alter the drainage works or to cover the whole or any part of it, or to consolidate two or more drainage works, the Council whose duty it is to maintain and repair the drainage works or any part thereof may, without a petition required under Section 4 but on the report of an Engineer appointed by it, undertake and complete the drainage works as set forth in such report.

Existing Drainage

The drain commences in Lot 35, Concession 4 and extends northwesterly to the east side of Concession Road 4 South. The drain continues northerly along the east side of Concession Road 4 South to the north limit of Lot 37, Concession 4.

The last Engineer's Report on the 4th Concession Road Drain was prepared by H.P. Pearson and is dated June 5, 2013. Under this report, a culvert in the S ½ of Lot 37, Concession 4 was installed.

Under an Engineer's Report dated July 7, 1980, by W. J. Setterington, culverts were replaced, the drain was relocated in front of a property, the channel was improved with brushing, cleaning and a reduction of the drain slopes.

Drain Classification

The 4th Concession Road Drain is currently classified as a class "C" drain from its outlet to Station 0+318. Upstream of Station 0+318 the drain is currently classified as a class "F" drain. These classifications are according to the Department of Fisheries and Oceans (DFO) as presented by the Ontario Ministry of Agriculture, Food and Rural Affair's Agricultural Information Atlas.

Class "F" drains are intermittent or ephemeral (dry for more than two consecutive months).

Approvals

The drain will require approval from the Essex Region Conservation Authority and the Department of Fisheries and Oceans. Construction cannot commence without necessary approvals.

Site Meeting

A site meeting for this drain was held on June 12, 2024. The following were present:

- Josh Warner (R. Dobbin Engineering)
- Sam Paglia (Drainage Superintendent, Town of Amherstburg)
- Kim Brush (Landowner)
- Reg Brush (Landowner)
- Rick Hawkins (Landowner)
- Carol Miller (Landowner)
- Joel Brush (Landowner)
- Roger Wright (Landowner)

The following is a brief summary of the meeting:

- General discussion of the Drainage Act and Landowners rights under the Drainage Act.
- It was requested that the culverts along the length of the drainage works be investigated. Those in poor shape would be replaced under this report and the remainder would be specified for future replacement.
- Landowners were made aware that a 6m top width will be provided as a standard and at a shared cost. If a Landowner requests a longer culvert, the additional cost will be assessed to the requesting property.
- There were no concerns expressed with the current condition of the channel.
- No concerns were brought forward regarding the soil conditions.

Existing Conditions

Below is a summary of the condition of the existing culverts:

Culvert Number / Station	**Location (Parcel Number)**	**Existing Culvert**	**Condition**	**Recommendation**
1	County Road 20	2400mm Span Concrete Box Culvert	Good.	Leave and Specify for Future Replacement
2	6	1000mm dia. CSP	Very Poor – Bottom Collapsed.	Remove – Landowner does not Utilize Culvert.
3	7	Existing 900mm dia. CSP was in very poor shape and was replaced under Emergency Designation with 1050mm dia. Sanitite Pipe		
4	8	Existing 900mm dia. CSP was in very poor shape and was replaced under Emergency Designation with 1050mm dia. Sanitite Pipe		
5	9	900mm dia. CSP	Poor-Rust to spring line complete with holes	Replace
6	10	900mm dia. CSP	Poor-Rust to spring line complete with large number holes	Replace
7	11	900mm dia. CSP	Poor-Rust to spring line complete with large number of holes	Replace
8	12	900mm dia. CSP	Poor-Rust to spring line complete with large number of holes	Replace

Culvert Number / Station	Location (Parcel Number)	Existing Culvert	Condition	Recommendation
9	13	900mm dia. CSP	Good	Leave and Specify for Future Replacement
10	14	Existing 800mm dia. CSP was in very poor shape and was replaced under Emergency Designation with 900mm dia. HDPE Pipe		
11	16	800mm dia. CSP	Poor-Rust to spring line complete with holes	Replace
12	15	800mm dia. CSP	Good - Some Rust below spring line	Leave and Specify for Future Replacement
13	17	Existing 600mm dia. CSP was in very poor shape and was replaced under Emergency Designation with 750mm dia. HDPE Pipe		
14	17	600mm dia. CSP	Ok-Rust below spring line. Culvert above drains grade line	Remove – Landowner does not Utilize Culvert.
15	17	600mm dia. CSP	Ok-Rust below spring line	Leave and Specify for Future Replacement
16	18	600mm dia. CSP	Ok- Some Rust	Leave and Specify for Future Replacement

Draft Report

A draft report, dated October 4, 2024 was sent to all the affected Landowners and a meeting was held on November 12, 2024 to go over the report and address any questions and concerns related to the draft report. The following were present at the meeting:

- Josh Warner (R. Dobbin Engineering)
- Sam Paglia (Drainage Superintendent, Town of Amherstburg)
- Nicole Humber (Public Works Clerk, Town of Amherstburg)
- Kim Brush (Landowner)
- Reg Brush (Landowner)
- Elvin Bratt (Landowner)
- Carol Miller (Landowner)
- Mike Hamelin (Landowner)
- Chad Maynard (Landowner)
- Shane Stuebing (Landowner)

The following is a brief summary of the meeting:

- General discussion of the Drainage Act.
- Landowners expressed concerns with the overall cost of the project.
- Carol Miller provided a tile map for the property with Index Number 19
    - This increased the properties area within the watershed slightly.
- No other major concerns were brought forward.

Design

The proposed culverts have been designed to provide outlet for a 1 in 5-year storm event.

The road culvert has been designed to provide outlet for a 1 in 100-year storm event.

Recommendations

It is therefore recommended that the following work be carried out:

1. A maintenance schedule shall be developed for the open channel portion of the 4th Concession Road Drain.

2. Culvert #5, 6, 7, 8, and 11 shall be replaced. Culvert #3, 4, 10 and 13 that were replaced under Emergency Designation, shall be incorporated under this report. Culvert #2 and 14 shall be removed from the drainage works. Future specifications shall be developed for the remainder of the culverts.

Estimate of Cost

It is recommended that the work be carried out in accordance with the accompanying Specification of Work and Profile that forms part of this Report. There has been prepared an Estimate of Cost in the amount of $277,890.00, including preparation of the report, attending the Meeting to Consider the Report, attending the Court of Revision and estimates for tendering, construction inspection, permitting and contract administration. Appearances before appeal bodies have not been included in the cost estimate.

A Plan has been prepared showing the location of the work and the approximate drainage area. A Profile is included showing the depths and grades of the proposed work.

Assessment

As per Section 21 of the Drainage Act, the Engineer in his report shall assess for benefit and outlet for each parcel of land and road liable for assessment.

Lands, roads, buildings, utilities, or other structures that are increased in value or are more easily maintained as a result of the construction, improvement, maintenance, or repair of a drainage works may be assessed for benefit. (Section 22)

Lands and roads that use a drainage works as an outlet, or for which, when the drainage works is constructed or improved, an improved outlet is provided either directly or indirectly through the medium of any other drainage works or of a swale, ravine, creek, or watercourse may be assessed for outlet. The assessment for outlet shall be based on the volume and rate of flow of the water artificially caused to flow into the drainage works from the lands and roads liable for such assessments. (Section 23)

The Engineer may assess for special benefit any lands for which special benefits have been provided by the drainage works. (Section 24)

A Schedule of Assessment for the lands and roads affected by the work and therefore liable for the cost thereof will be prepared as per the Drainage Act. Also, assessments may be made against any public utility or road authority, as per Section 26 of the Drainage Act, for any increased cost for the removal or relocation of any of its facilities and plant that may be necessitated by the construction or maintenance of the drainage works. Items outside those identified in this report shall be assessed to the utility or road authority as per Section 26 of the Drainage Act plus a portion of the engineering (25% of the construction cost).

The cost of any fees for permits or approvals or any extra work required by any affected utility or road authority shall be assessed to that organization requiring the permit, approval, or extra work.

The proposed work has generally been assessed in the following manner, including all estimated fees, taxes and disbursements:

1. The additional cost to daylight and work around utilities has been assessed to the utility company as a special benefit assessment as per Section 26 of the Drainage Act. The special benefit assessment to the utilities shall be calculated as follows:

Telecom Utility Assessment = $2,681 (For Daylighting as part of Design and Working Around Utility Cost as part of Emergency Replacements) + Tendered Amount to Daylight and Work Around the Utility x 1.30 (For Engineering and Taxes)

Gas Utility Assessment = $5,362 (For Daylighting as part of Design and Working Around Utility Cost as part of Emergency Replacements) + Tendered Amount to Daylight and Work Around the Utility x 1.30 (For Engineering and Taxes)

Water Utility Assessment = $6,703 (For Daylighting as part of Design and Working Around Utility Cost as part of Emergency Replacements) + Tendered Amount to Daylight and Work Around the Utility x 1.30 (For Engineering and Taxes)

2. The engineering cost of Culvert #1 has been assessed to the road authority as a benefit assessment. This amount shall be prorated with the rest of the drainage works. The cost of traffic control has been assessed to the owner of Concession Road 4 South as a special benefit assessment as per Section 26 of the Drainage Act. The special benefit assessment to the road shall be calculated as follows:

   Owner of Concession Road 4 South = $2,541 (Traffic Control as part of Emergency Replacements) + Tendered Amount for Traffic Control x 1.30 (For Engineering and Taxes)

3. The engineering for Culvert #15 and the removal cost for Culvert #14 have been assessed as a special benefit assessment. These amounts shall be prorated with the remainder of the drainage works but will not be eligible for the OMAFRA grant ass they are secondary access culverts.

4. The replacement of culverts has been assessed based on the average cost to provide a culvert providing a 6m top width (standard culvert). This standard culvert and the engineering for future driveway and access culvert replacements has been assessed with 55% of the cost applied as benefit assessment to property, 15% of the cost applied as a benefit assessment to the adjacent road and the remainder of the cost assessed as an outlet assessment on upstream lands and roads based on equivalent hectares.

All final costs included in the cost estimate of this report shall be pro-rated based on the Schedule of Assessment unless otherwise outlined above. Any additional costs shall be assessed in a manner as determined by the Engineer.

Allowances

Under Section 29 of the Drainage Act, the Engineer in his report shall estimate and allow in money to the Owner of any land that it is necessary to use for the construction or improvement of a drainage works or for the disposal of material removed from drainage works. This shall be considered an allowance for right-of-way.

Under Section 30 of the Drainage Act, the Engineer shall determine the amount to be paid to persons entitled thereto for damage, if any, to ornamental trees, lawns, fences, land and crops occasioned by the disposal of material removed from a drainage works. This shall be considered an allowance for damages.

Allowances have been made, where appropriate, as per Section 29 of the Drainage Act for right-of-way for the potential re-sloping that would increase the area occupied by the drain and as per Section 30 of the Drainage Act for damages to lands and crops. Allowances for right of way are based on a land value of $50,000.00 per hectare (approximately $20,000.00 per acre). Allowances for crop loss are based on $2,000.00 per hectare for the first year and $1,000.00 for the second year ($3,000.00 per hectare total).

Access and Working Area

Access to the work site for construction and future maintenance of the drain shall be from adjacent roadways and along the length of the drainage works from the nearest culvert.

The working area for construction and future maintenance shall be restricted to a width of 12m from the top of bank where the work is taking place and 4m from the top of bank on the opposite side. Unless otherwise noted, the excavation shall generally be done from the east side, except across finished lawns. Across finished lawns the drain shall be cleaned from the road side with the excavated material being disposed offsite.

The working area at each culvert shall extend 10 metres from the bank on both sides and for 10 metres along the channel on either side of the culvert.

Any damage caused to gain access to the site shall be restored to its pre-construction state at the expense of the Contractor.

Restrictions

No trees and shrubs shall be planted nor shall permanent structures be erected within 6 metres of the proposed drain without prior written permission of Council.

Attention is also drawn to Sections 80 and 82 of the Drainage Act, which refer to the removal of obstructions in a drain and damage caused to a drain.

Agricultural Grant

If available, it is recommended that application for subsidy be made for eligible agricultural properties. Any assessments against non-agricultural properties are shown separately in the Schedule of Assessment.

Maintenance

The 4th Concession Road Drain shall be maintained and repaired with the specifications, drawings and Schedule of Maintenance contained in this Engineer's Report.

With the culverts shown on the profile, including rip rap end walls, they shall be assessed in the following manner:

Culvert Number	Road Authority	Benefiting Lands	Upstream Properties Based on Equivalent Hectares as Contained in SoM
1	100%		
3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13 & 16	15%	55%	30%
15		100%	

If any owner requests an additional length of culvert beyond that required to have a 6m top width or an asphalt travel surface the extra cost shall be borne by the Landowner making the request including the future maintenance and repair. The location of the 6m top width shall be determined by the Drainage Superintendent and shall generally be in the primary access location.

The additional costs as a result of a road or utility shall be assessed to the owner of the road or utility as per Section 26 of the Drainage Act.

A secondary access on a property shall be constructed, maintained and repaired with 100% of the cost assessed to the benefitting property.

Properties that wish to have the excavated material trucked shall be assessed the cost of trucking (including any cost associated with testing and disposal of the material) less the cost of levelling. The cost of levelling will form part of the drain maintenance cost.

Yours truly,

Josh Warner, P. Eng.
R. Dobbin Engineering Inc.

4th Concession Road Drain
Town of Amherstburg
November 13, 2024

ALLOWANCES

Allowances have been made as per Sections 29 & 30 of the Drainage Act for Right of Way and damages to lands and crops.

Conc.	Lot or part	Parcel Number	Owner	Section 29 ($)	Section 30 ($)	Total ($)
4	Pt. Lot 36	6	G. & R. Vandenbrink		100	100
	Pt. Lot 36	7	B. Kollin		100	100
	Pt. Lot 36	8	R. & A. Brush		100	100
	Pt. Lot 36	9	J. Brush		100	100
	Pt. Lot 36	10	R. & S. Wright		100	100
	Pt. Lot 36	11	C. Mayrand & J. Atkinson		100	100
	Pt. Lot 37	12	M. Hamelin		100	100
	Pt. Lot 37	14	S. Stuebing		100	100
	Pt. Lot 37	16	E. Bratt		100	100
	Pt. Lot 37	17	Miller Cattle & Grain		200	200
			TOTAL ALLOWANCES	$0	$1,100	$1,100

Estimate of Cost

Item Description (Supply and Install New)	Quantity	Unit	Unit Cost ($)	Total ($)
Emergency Works Already Completed				
Pre-Construction Meeting	*1*	*LS*	*600*	*600*
Traffic Control	*1*	*LS*	*1,800*	*1,800*
Restoration/Seeding	*1*	*LS*	*2,800*	*2,800*
Silt Fence	*3*	*each*	*250*	*750*
Daylighting and Working Around Utilities	*1*	*LS*	*5,300*	*5,300*
Remove and Reinstall Signs	*1*	*LS*	*500*	*500*
Culvert #3 Repalcement at Parcel Number 7 (B. Kollin)	*1*	*LS*	*16,400*	*16,400*
Culvert #4 Repalcement at Parcel Number 8 (R. & A. Brush)	*1*	*LS*	*15,400*	*15,400*
Culvert #10 Repalcement at Parcel Number 14 (S. Stuebing)	*1*	*LS*	*15,000*	*15,000*
Culvert #13 Repalcement at Parcel Number 17 (Miller Cattle & Grain)	*1*	*LS*	*14,800*	*14,800*
Proposed Works				
Pre-Construction Meeting	1	LS	600	600
Traffic Control	1	LS	4,000	4,000
Resoration/Seeding	1	LS	5,000	5,000
Silt Fence	1	LS	500	500
Daylighting and Working Around Gas Main and Services	1	LS	3,000	3,000
Daylighting and Working Around Telecom Main and Services	1	LS	3,000	3,000
Daylighting and Working Around Water Main and Services	1	LS	3,000	3,000
Remove and Reinstall Signs	1	LS	800	800
Culvert #2 Removal (Parcel Number 6, G. & R. Vandenbrink), Disposal of Excess Material and Restoration of Channel	1	LS	2,000	2,000

Item Description (Supply and Install New)	Quantity	Unit	Unit Cost ($)	Total ($)
Culvert #5 Repalcement (Parcel Number 9, J. Brush)				
Removal of existing structure and excavated material	1.0	LS	1,000	1,000
Supply & install 1050mm dia. Sanitite c/w Bedding	13.0	m	700	9,100
Supply and install Granular 'B' Type II	100.0	tonne	35	3,500
Supply & install Granular 'A'	25.0	tonne	40	1,000
Supply & install rip rap endwalls	30.0	tonne	100	3,000
Culvert #6 Repalcement (Parcel Number 10, R. & S. Wright)				
Removal of existing structure and excavated material	1.0	LS	1,000	1,000
Supply & install 1050mm dia. Sanitite c/w Bedding	13.0	m	700	9,100
Supply and install Granular 'B' Type II	100.0	tonne	35	3,500
Supply & install Granular 'A'	25.0	tonne	40	1,000
Supply & install rip rap endwalls	30.0	tonne	100	3,000
Culvert #7 Repalcement (Parcel Number 11, C. Mayrand & J. Atkinson)				
Removal of existing structure and excavated material	1.0	LS	1,000	1,000
Supply & install 900mm dia. HDPE c/w Bedding	13.0	m	650	8,450
Supply and install Granular 'B' Type II	100.0	tonne	35	3,500
Supply & install Granular 'A'	25.0	tonne	40	1,000
Supply & install rip rap endwalls	30.0	tonne	100	3,000
Culvert #8 Repalcement (Parcel Number 12, M. Hamelin)				
Removal of existing structure and excavated material	1.0	LS	1,000	1,000
Supply & install 900mm dia. HDPE c/w Bedding	12.0	m	650	7,800
Supply and install Granular 'B' Type II	100.0	tonne	35	3,500
Supply & install Granular 'A'	25.0	tonne	40	1,000
Supply & install rip rap endwalls	30.0	tonne	100	3,000
Culvert #11 Repalcement (Parcel Number 16, E. Bratt)				
Removal of existing structure and excavated material	1.0	LS	1,000	1,000
Supply & install 900mm dia. HDPE c/w Bedding	12.0	m	650	7,800
Supply and install Granular 'B' Type II	100.0	tonne	35	3,500
Supply & install Granular 'A'	25.0	tonne	40	1,000
Supply & install rip rap endwalls	30.0	tonne	100	3,000
Culvert #14 Removal (Parcel Number 17, Miller Cattle & Gran), Disposal of Excess Material and Restoration of Channel	1	LS	2,000	2,000
Contingency				8,230

Sub Total	190,230
Allowances	1,100
Engineering	32,280
SofM and Profile Update	3,500
Daylighting and Surveying Utilities	14,500
Future Culvert Design	7,500
Completing AODA Compliant Document	1,500
Estimate for Tendering, Inspection and Contract Administration	22,000
SCRCA Fee	500
Total Estimate excluding HST	**273,110**
Non-Recoverable HST (1.76%)	4,780
Total Estimate	**$ 277,890**

SCHEDULE OF ASSESSMENT

Conc.	Lot or Part	Affected Hecatares	Parcel Number	Owner	Special Benefit ($)	Benefit ($)	Outlet ($)	Total ($)
Utilities								
Gas Utility				Enbridge Gas	11,595	-	-	11,595
Telecom Utility				Bell Telecom	8,958	-	-	8,958
Water Utility				Town of Amherstburg	12,913	-	-	12,913
					33,466	-	-	33,466
Public Lands								
Concession 4 S		2.55		Town of Amherstburg	7,802	34,476	8,659	50,937
Essex County Road 20		0.43		County of Essex	-	1,500	-	1,500
					7,802	35,976	8,659	52,437
Non Agricultural Lands								
4	Pt. Lot 35 & 34		24	3007507 Nova Scotia		3	-	3
	Pt. Lot 36	0.36	1	J. Vickers		59	-	59
	Pt. Lot 36	0.20	2	M. Walsh		21	1	22
	Pt. Lot 36	0.28	3	J. Daley		-	1	1
	Pt. Lot 36	0.27	4	R. & J. Fournier		8	2	10
	Pt. Lot 36	0.81	5	R. Cote & J. Fournier		39	5	44
	Pt. Lot 36	0.18	7	B. Kollin		13,580	47	13,627
	Pt. Lot 36	0.85	8	R. & A. Brush		13,695	238	13,933
	Pt. Lot 36	0.46	9	J. Brush		13,635	389	14,024
	Pt. Lot 36	6.61	10	R. & S. Wright		13,580	3,130	16,710

Conc.	Lot or Part	Affected Hecatares	Parcel Number	Owner	Special Benefit ($)	Benefit ($)	Outlet ($)	Total ($)
4	Pt. Lot 36	0.38	11	C. Mayrand & J. Atkinson		13,599	623	14,222
	Pt. Lot 37	0.14	12	M. Hamelin		13,574	281	13,855
	Pt. Lot 37	0.28	13	K. & D. Brush		897	566	1,463
	Pt. Lot 37	0.14	14	S. Stuebing		13,580	333	13,913
	Pt. Lot 37	0.34	16	E. Bratt		13,587	959	14,546
	Pt. Lot 37	0.18	18	J. Jennings		873	630	1,503
3	Pt. Lot 33	1.50	20	T. & J. Cox		-	43	43
	Pt. Lot 32	1.50	21	G. & K. Olson		-	51	51
					-	110,730	7,299	118,029
Agricultural Lands								
4	Pt. Lot 36	8.09	6	G. & R. Vandenbrink		1,664	234	1,898
	Pt. Lot 37	7.20	15	M. & J. Rizza		1,006	11,953	12,959
	Pt. Lot 37	6.07	17	Miller Cattle & Grain	4,373	13,827	12,950	31,150
	Pt. Lot 38	11.20	19	C. Miller		60	24,718	24,778
	Pt. Lot 32	8.62	22	G. & R. Vandenbrink		-	2,722	2,722
	Pt. Lot 31	1.40	23	M. Struhar		-	451	451
					4,373	16,557	53,028	73,958

Total Public Utilities	33,466
Total Public Lands	52,437
Total Non Agricultural Lands	118,029
Total Agricultural Lands	73,958
Total Assessment	$277,890

Estimated Net Assessment

Net assessment subject to OMAFRA ADIP Policy and actual construction costs.

Conc.	Lot or Part	Affected Hecatares	Parcel Number	Owner	Total Assessment ($)	Estimated Grant ($)	Allowances ($)	Estimated Net Assessment ($)
Utilities								
Gas Utility				Enbridge Gas	11,595			11,595
Telecom Utility				Bell Telecom	8,958			8,958
Water Utility				Town of Amherstburg	12,913			12,913
Public Lands								
Concession 4 S		2.55		Town of Amherstburg	50,937			50,937
Essex County Road 20		0.43		County of Essex	1,500			1,500
Non Agricultural Lands								
4	Pt. Lot 35 & 34	0.00	24	3007507 Nova Scotia	3			3
	Pt. Lot 36	0.36	1	J. Vickers	59			59
	Pt. Lot 36	0.20	2	M. Walsh	22			22
	Pt. Lot 36	0.28	3	J. Daley	1			1
	Pt. Lot 36	0.27	4	R. & J. Fournier	10			10
	Pt. Lot 36	0.81	5	R. Cote & J. Fournier	44			44
	Pt. Lot 36	0.18	7	B. Kollin	13,627		100	13,527
	Pt. Lot 36	0.85	8	R. & A. Brush	13,933		100	13,833
	Pt. Lot 36	0.46	9	J. Brush	14,024		100	13,924
	Pt. Lot 36	6.61	10	R. & S. Wright	16,710		100	16,610
	Pt. Lot 36	0.38	11	C. Mayrand & J. Atkinson	14,222		100	14,122
	Pt. Lot 37	0.14	12	M. Hamelin	13,855		100	13,755
	Pt. Lot 37	0.28	13	K. & D. Brush	1,463			1,463
	Pt. Lot 37	0.14	14	S. Stuebing	13,913		100	13,813
	Pt. Lot 37	0.34	16	E. Bratt	14,546		100	14,446
	Pt. Lot 37	0.18	18	J. Jennings	1,503			1,503

Conc.	Lot or Part	Affected Hecatares	Parcel Number	Owner	Total Assessment ($)	Estimated Grant ($)	Allowances ($)	Estimated Net Assessment ($)
3	Pt. Lot 33	1.50	20	T. & J. Cox	43			43
	Pt. Lot 32	1.50	21	G. & K. Olson	51			51
Agricultural Lands								
	Pt. Lot 36	8.09	6	G. & R. Vandenbrink	1,898	633	100	1,165
	Pt. Lot 37	7.20	15	M. & J. Rizza	12,959	4,320		8,639
	Pt. Lot 37	6.07	17	Miller Cattle & Grain	31,150	8,926	200	22,024
	Pt. Lot 38	11.20	19	C. Miller	24,778	8,259		16,519
	Pt. Lot 32	8.62	22	G. & R. Vandenbrink	2,722	907		1,815
	Pt. Lot 31	1.40	23	M. Struhar	451	150		301
					277,890	23,195	1,100	253,595

SCHEDULE OF MAINTENANCE

To Maintain the Open Channel of the 4th Concession Road Drain

Conc.	Lot or Part	Affected Hecatares	Parcel Number	Owner	Benefit ($)	Outlet ($)	Total ($)	Equivalent Hectares
Public Lands								
Concession 4 S		2.55		Town of Amherstburg	16.30	6.99	23.29	2.30
Essex County Road 20		0.43		County of Essex	-	0.02	0.02	0.39
					16.30	7.01	23.31	
Non Agricultural Lands								
4	Pt. Lot 35 & 34	0.00	24	3007507 Nova Scotia	0.09	-	0.09	-
	Pt. Lot 36	0.36	1	J. Vickers	1.68	0.01	1.69	0.16
	Pt. Lot 36	0.20	2	M. Walsh	0.61	0.03	0.64	0.09
	Pt. Lot 36	0.28	3	J. Daley	-	0.01	0.01	0.13
	Pt. Lot 36	0.27	4	R. & J. Fournier	0.24	0.05	0.29	0.12
	Pt. Lot 36	0.81	5	R. Cote & J. Fournier	1.10	0.14	1.24	0.36
	Pt. Lot 36	0.18	7	B. Kollin	1.20	0.06	1.26	0.08
	Pt. Lot 36	0.85	8	R. & A. Brush	4.48	0.27	4.75	0.34
	Pt. Lot 36	0.46	9	J. Brush	2.75	0.21	2.96	0.21
	Pt. Lot 36	6.61	10	R. & S. Wright	1.20	2.51	3.71	2.16
	Pt. Lot 36	0.38	11	C. Mayrand & J. Atkinson	1.72	0.21	1.93	0.17
	Pt. Lot 37	0.14	12	M. Hamelin	1.03	0.09	1.12	0.06
	Pt. Lot 37	0.28	13	K. & D. Brush	2.07	0.19	2.26	0.13
	Pt. Lot 37	0.14	14	S. Stuebing	1.20	0.10	1.30	0.06
	Pt. Lot 37	0.34	16	E. Bratt	1.38	0.28	1.66	0.15
	Pt. Lot 37	0.18	18	J. Jennings	1.38	0.68	2.06	0.08

Conc.	Lot or Part	Affected Hecatares	Parcel Number	Owner	Benefit ($)	Outlet ($)	Total ($)	Equivalent Hectares
3	Pt. Lot 33	1.50	20	T. & J. Cox	-	0.26	0.26	0.45
	Pt. Lot 32	1.50	21	G. & K. Olson	-	0.30	0.30	0.53
					22.13	5.40	27.53	
Agricultural Lands								
4	Pt. Lot 36	8.09	6	G. & R. Vandenbrink	6.50	1.39	7.89	2.43
	Pt. Lot 37	7.20	15	M. & J. Rizza	5.16	4.28	9.44	2.16
	Pt. Lot 37	6.07	17	Miller Cattle & Grain	8.26	4.59	12.85	1.82
	Pt. Lot 38	11.20	19	C. Miller	1.72	13.52	15.24	3.28
	Pt. Lot 32	8.62	22	G. & R. Vandenbrink	-	3.00	3.00	2.59
	Pt. Lot 31	1.40	23	M. Struhar	-	0.74	0.74	0.42
					21.64	27.52	49.16	

Total Public Lands	23.31
Total Non Agricultural Lands	27.53
Total Agricultural Lands	49.16
Total Assessment	100.00

4th Concession Road Drain
Town of Amherstburg
November 13, 2024

SPECIFICATION OF WORK

1. Location

The location of the proposed and future work outlined in this specification is in Lots 35 to 38, Concession 4 in the Town of Amherstburg.

2. Scope of Work

The work to be included in this specification includes, but is not limited to, the following:

- Future Open Channel Improvements
- Culvert replacements

3. General

Each tenderer must inspect the site prior to submitting their tender and satisfy themselves by personal examination as to the local conditions that may be encountered during this project. The Contractor shall make allowance in their tender for any difficulties which they may encounter. Quantities or any information supplied by the Engineer is not guaranteed and is for reference only.

All work and materials shall be to the satisfaction of the Drainage Superintendent who may vary these specifications as to minor details but in no way decrease the proposed capacity of the drain.

The Contractor shall provide all labour, equipment, and supervision necessary to complete the work as shown in the Plans and described in these specifications. Any work not described in these specifications shall be completed according to the Ontario Provincial Standard Specifications and Standard Drawings.

Any equivalents shall be approved in writing by the Engineer or Drainage Superintendent prior to ordering.

4. Health and Safety

The Contractor at all times shall be responsible for health and safety on the worksite including ensuring that all employees wear suitable personal protective equipment including safety boots and hard hats.

The Contractor shall be responsible for traffic control as per the Ontario Traffic Manual Book 7 – Temporary Conditions (latest revision) when working on public road allowances. A copy of a traffic control plan shall be submitted to the Engineer, Drainage Superintendent and kept on site at all times. The Contractor shall maintain suitable barricades, warning lights, and temporary traffic notices, at his expense, in their proper position to protect the public both day and night. Flagmen are the responsibility of the Contractor when working on the road allowance and when entering or exiting a worksite onto a roadway.

The Contractor shall be responsible to ensure that all procedures are followed under the Occupational Health and Safety Act to ensure that work sites are safe and that accidents are prevented. In the event of a serious or recurring problem, a notice of noncompliance will be issued. The Contractor will be responsible for reacting immediately to any deficiency and correcting any potential health and safety risk. Continuous disregard for any requirement of the Occupational Health and Safety Act could be cause for the issuance of a stop work order or even termination of the contract.

They shall also ensure that only competent workmen are employed onsite and that appropriate training and certification is supplied to all employees.

5. MNRF Drain Registration

The Contractor is advised that the Town of Amherstburg has conducted an "Endangered Species Act Review" and has registered it’s drainage activities with the Ministry of Natural Resources and Forestry.

The Town of Amherstburg, in pursuant to the Endangered Species Act Municipal Agreement, has identified the potential presence of certain species within the project area. It is the responsibility of the Contractor to make certain that necessary provisions are undertaken to ensure the protection of all species at risk and their habitats throughout the course of construction. It is also the responsibility of the Contractor to make itself familiar with the following documents:

1. Town of Amherstburg – Complete Mitigation Documents

2. Town of Amherstburg - Additional Mitigation Measures for Snakes Species

3. Town of Amherstburg - Additional Mitigation Measures for Turtle Species

4. Snakes of Ontario Identifier Guide

5. Turtles of Ontario Identifier Guide

These documents will be provided to the successful bidder.

The Contractor will be responsible for providing the necessary equipment and materials required by the mitigation plans and shall contact the Town of Amherstburg Drainage Superintendent immediately if any endangered species are encountered during construction.

6. Utilities

The Contractor is responsible for organizing locates and exposing all the utilities along the length of the drainage works. If any utilities interfere with the proposed drainage works in a manner not shown on the accompanying Estimate of Cost or profile the Contractor shall notify the Drainage Superintendent and Engineer.

The Contractor is responsible for coordinating the replacement of additional utilities with the utility company if they interfere with the proposed drain. All costs for the utility to replace their services will be outside of this report and shall be borne by the utility as per Section 26 of the Drainage Act.

All additional costs to work around and organize replacement of the utilities not included in the estimate shall be tracked separately and the cost plus a portion of the engineering and taxes (30% of the cost) shall be borne by that utility.

7. Pre-Construction Meeting

There is a requirement for a pre-construction meeting to be held prior to any construction taking place. The meeting will be scheduled by the Contractor with notices sent out by the Town. The Contractor shall notify all parties at least two weeks prior to wanting to hold a pre-construction meeting.

8. Benchmarks

The benchmarks are based on geodetic elevations. Elevations are available at the locations shown on the profile drawings. Where these elevations are on existing structures to be replaced, they shall be transferred by the Contractor prior to the removal.

The Contractor is required to complete a benchmark loop prior to construction to verify the benchmarks. If discrepancies exist the Contractor must notify the Drainage Superintendent and Engineer prior to completing any work.

9. Traffic Control

Access and driveways to private properties shall not be obstructed longer than the minimum time necessary for the work and shall be reinstated as soon as possible all to the satisfaction of the Engineer. The Contractor shall schedule any obstruction of existing driveways and accesses with the owners at least two full working days in advance. The Traffic Plan must be approved by the Town prior to the commencement of any road closures.

a) The Contractor shall supply, erect and maintain all detour signs and special signs necessary for detours to divert traffic from the area under construction as directed by the Drainage Superintendent or Engineer. All this work shall be at the Contractor's expense.

b) The Contractor shall be responsible for supplying, erecting and maintaining all signs, supports, barricades, flashers, cones, etc. in the construction area and at the boundaries of the work as part of the above detours, all to the satisfaction of the Engineer or Drainage Superintendent. All this work shall be done by the Contractor at their own expense.

c) The Contractor shall not be allowed to proceed with construction activities unless proper signage and flagmen are present. Flagging procedures, signage and detours shall conform to the recommendations of Book 7, Temporary Conditions, Ontario Traffic Manual, issued by the Ministry of Transportation. Conformance shall be enforced by the Ministry of Labour Inspector.

10. Access and Working Area

Access to the work site for construction and future maintenance of the drain shall be from adjacent roadways and along the length of the drainage works from the nearest culvert.

The working area for construction and future maintenance shall be restricted to a width of 12m from the top of bank where the work is taking place and 4m from the top of bank on the opposite side. Unless otherwise noted, the excavation shall generally be done from the east side, except across finished lawns. Across finished lawns the drain shall be cleaned from the road side with the excavated material being disposed offsite.

The working area at each culvert shall extend 10 metres from the bank on both sides and for 10 metres along the channel on either side of the culvert.

Any damage caused to gain access to the site shall be restored to its pre-construction state at the expense of the Contractor.

11. Removals

The culverts and any native backfill material, when required, shall be removed in their entirety. The culvert, backfill and the concrete rubble shall be disposed offsite at the expense of the Contractor. Any broken concrete or rip rap (concrete bags) from the existing structures shall be disposed offsite at the expense of the Contractor unless determined re-usable by the Drainage Superintendent or Engineer.

The Contractor shall work around the existing fences and signs if they are able to. If the existing fences and signs are required to be removed, they shall be removed and re-installed in the same location with the existing materials. All work in connection with fences and signs shall be carried out in a careful manner so they are replaced in as good a condition as the existing materials permit.

Where the culverts are to be removed, the Contractor shall restore the channel in these sections with 2:1 side slopes, a 1.00m bottom and shall restore them in accordance with the restoration specification.

12. Brushing and Tree Removal

For construction and future maintenance of the drain, all brush, stumps, trees, vegetation, etc. within the working area, the drain bottom, along the bank where the work is taking place and on the opposite side where impeding the flow of the drain, as determined by the Drainage Superintendent or Engineer, shall be removed.

A mechanical grinder attached to an excavator shall be used for the removal of brush and trees. Any brush and trees too large to grind shall be close cut. The Contractor shall stockpile the trees and brush in a single pile on the property in which they were removed

or dispose of the trees and brush offsite. Where brush and trees are removed within a bush section of the drain the trees and brush shall be disposed of within the bush at the limits of the working area. The Contractor is responsible for the burning of the trees and brush not in the bush sections. The Contractor is responsible for obtaining all necessary permits for any disposal sites. Burning of the trees and brush is subject to local bylaws and guidelines of the Ministry of the Environment Conservation and Parks.

Certain trees may be left in place at the direction of the Drainage Superintendent or Engineer. Trees may be limbed and piled for firewood, instead of burned, at the request of a Landowner.

13. Excavation of Open Channel

For construction and future maintenance, the open channel shall be excavated and maintained to the depths and grades as per the profile and drawings as contained in this Engineers Report. The channel shall be excavated to the proper depth using a laser or similar approved device with a labourer onsite to ensure correctness of grade and to confirm location of tile ends.

The excavated material shall generally be cast on the side it is being excavated from, except across finished lawns where the excavated material shall be trucked. Excavated material shall be cast at least 1.5 metres clear of the bank. Excavated material shall not be placed in low runs or swales out letting surface water to the channel. The excavated material shall be levelled to a maximum depth of 150mm and left in a condition suitable for cultivation. This shall include the removal of any rocks larger then 10cm in diameter and any debris/wood that could damage or plug farm equipment. Leveling shall occur when the material is dry enough to do so as determined by the Drainage Superintendent or Engineer. All high spots above grade shall be removed. The sediment shall be removed leaving a rounded bottom with the intent not to undercut the existing side slopes. All material unfit for placing on farmlands shall be disposed of offsite by the Contractor.

It is R. Dobbin Engineering’s opinion that the drainage improvements for this project are exempt from Section 8 of O.Reg 406/19 as per Schedule 2, Item 3.6 of the Regulation.

The bottom width identified in the profile drawings represents the original design bottom width. The intent is to match this at a minimum where possible. If matching this width would cause undermining of the banks or road the drain bottom width shall be reduced at the discretion of the Engineer or Drainage Superintendent.

14. Installation of Culverts

The Contractor is required to notify the Landowner forty-eight (48) hours prior to the removal of a culvert.

The high-density polyethylene (HDPE) smooth wall pipe (320 kPa) shall be CSA Approved with bell and spigot joints.

Sanitite Pipe shall be SaniTite HP with 320kPa and bell and spigot joints or approved equivalent. The exposed ends of the SaniTite culverts shall be wrapped in filter cloth to prevent UV damage.

The culverts designated to be replaced in the future under this report shall be examined after any cleanout of the open channel as to its condition. If it is found to be in disrepair (i.e. there are holes corroded in the bottom or sides) it shall be replaced as per these specifications.

The culverts shall be installed generally in the same location or as approved by the Drainage Superintendent or Engineer. The culverts shall be installed with the invert 10% (minimum 150mm) below the original channel bottom elevation unless otherwise shown in order to achieve the minimum cover.

Any tile outlets extended as a result of a culvert shall be extended at the landowner's expense. The pipes that shall be extended upstream or downstream of the proposed culvert shall be done with non-perforated HDPE agricultural tubing with a manufactured coupling, elbow and rodent grate.

Access Culverts:

The bottom of the excavation shall be excavated to a minimum of 100mm below the proposed invert. The pipe shall be bedded with ¾" clear stone. When the pipe has been installed to the proper grade and depth, the excavation shall be backfilled with ¾" clear stone and wrapped in filter fabric from the bottom of the excavation to the spring line of the pipe. Care shall be taken to ensure that the backfill on either side of the culvert does not differ by more than 300mm so that the pipe is not displaced. The access culverts shall be backfilled from the spring line to within 150mm of finished grade with Granular "B" Type II. Where no vehicular traffic is proposed to cross the culvert, the culvert may be backfilled with select native material. The top 150mm shall be backfilled with compacted 100% crushed granular "A" material to finished grade. In sections where no vehicular traffic is proposed to cross the culvert, the top 150mm shall be topsoil and seeded as per the restoration specification. If asphalt is proposed, the asphalt shall be HL3 and shall

match the existing thickness. In these cases, the compacted granular “A” shall occupy 150mm below the proposed asphalt.

Road Culverts:

The concrete box culvert shall be precast, shall be installed as per OPSS 422 and the contractor shall submit shop drawings to the engineer prior to ordering. In the event of a conflict between these specifications and those of the structural designer, the more stringent shall apply. The joints between precast sections shall have butyl tape and shall be wrapped with a minimum 600mm width of geotextile to prevent the migration of soil between the joints.

The bottom of the excavation shall be excavated to a minimum of 200mm below the proposed bottom of the box culvert. The pipe shall be backfilled above the clear stone with Granular “A”.

Asphalt Road: The sub-base shall consist of a minimum of 300mm of OPS 100% crushed Granular “A” and shall not be native material. The asphalt shall be HL4 and HL3 at depths to match the existing thickness.

Gravel Road: The sub-base shall consist of a minimum of 300mm of OPS Granular “A” and shall not be native material. The top 200mm shall be OPS Granular “M”, produced from 100% crushed dolomite, and shall be mechanically compacted to 100% modified standard proctor density.

All culverts included in the profile have been specified with rip rap end walls. Should the end wall specified change the culvert length shall be altered to accommodate the change.

If rip rap end walls are used, they shall consist of 150mm x 300mm quarry stone or approved equal. The area to receive the rip rap shall be graded to a depth of 400mm below finished grade. Filter fabric (Mirafi P150 or approved equal) shall then be placed with any joints overlapped a minimum 600mm. The quarry stone shall then be placed with the smaller pieces placed in the gaps and voids to give it a uniform appearance.

If concrete block end walls are used, they shall consist of concrete blocks with dimensions of approx. 600mm x 600mm x 1200mm, 600mm x 600mm x 2400mm or 300mm x 600mm x 1200mm as required. 600mm x 600mm x 2400mm concrete blocks will be paid at twice the unit price established per block, all others will be at a unit of 1. The top of the culvert shall govern block elevation. The correct block shall be set with the top of the block equal to the top of the culvert. 2400mm wide concrete blocks shall be used as the top block on arch and larger round pipes in order to span between the culvert

top and the supporting block. The blocks shall be set at each end of the culvert so that each row of blocks will be offset approx. 100mm from the row below. The bottom row shall consist of one block placed parallel to the culvert. The blocks shall be imbedded a minimum of 300mm into each bank and shall extend into the drain bottom to match the pipe invert or below. Erosion protection shall be placed on the banks next to the end walls. The erosion protection shall consist of 150mm x 300mm quarry stone over filter fabric (Mirafi P150 or approved equal). It shall extend 500mm upstream or downstream and from top of bank to top of bank at each end wall.

The blocks shall be placed over a layer of filter fabric (Mirafi P150 or approved equal). The culvert shall be backfilled in conjunction with the placement of the blocks. The gaps between the culvert and the blocks shall be filled with concrete cinder blocks/bricks and mortar to give the end wall a finished appearance.

It is the Contractors responsibility to ensure that adequate cover is obtained prior to crossing the culvert in accordance with the manufacturer's recommendations.

15. Maintenance

The Contractor shall be responsible for maintenance of the drain, including access culverts for a period of one year after their installation. This will include repairing any settlement areas on the travel surface with Asphalt, Granular "A" and/or topsoil and seed.

16. Subsurface Drainage

All existing subsurface drains encountered during construction of the open channel shall be reconnected or extended to the open channel unless otherwise noted on the drawings or as directed by the Drainage Superintendent or Engineer.

A suitable length of equivalent sized PE agricultural tubing shall be used to connect the drain to the open channel. Manufactured fittings shall connect the PE tile to the existing drain. The connections shall be carefully backfilled to ensure there is adequate support under the pipe and large clumps of clay do not displace the tile.

Tile outlets larger than 150mm in diameter, or as determined by the Drainage Superintendent or Engineer at the time of construction, require erosion protection and rodent grates. The erosion protection made up of rip rap and filter fabric shall be installed on the embankment slope from 0.3m above the tile obvert to the channel bottom. The erosion protection shall be 1.0m wide. Rip rap shall be made up of 150mm to 300mm quarry stone or approved equal to a depth of 400mm. The area to receive the rip rap shall first be graded to allow the placement of the rip below finished grade. After grading, a

layer of filter fabric (Mirafi P270 or approved equal) is to be placed with any joints overlapped a minimum of 600mm. Rip rap shall then be placed with the smaller pieces placed in the gaps and voids to give it a uniform appearance.

17. Seeding/Restoration

All areas disturbed by construction including accesses, side slopes, working areas, etc. shall be restored with 100mm of screened topsoil and hydroseed. Hydroseed on the side slopes of the channel shall be bonded fiber matrix mulch hydroseed.

18. Environmental Considerations

The Contractor shall take care to adhere to the following considerations.

- Operate machinery in a manner that minimizes disturbance to the banks of the watercourse.
- Erosion and sediment control measures must be installed prior to construction to prevent sediment from entering the water body.
- Material shall not be placed in areas regulated by the Conservation Authority or Ministry of Natural Resources.
- All granular and erosion control materials shall be stockpiled a minimum of 3.0m from the top of the bank or excavation. Material shall not be placed in surface water runs or open inlets that enter the channel.
- All activities, including maintenance procedures, shall be controlled to prevent the entry of petroleum products, debris, rubble, concrete, or other deleterious substances into the water. Vehicle and equipment refuelling and maintenance shall be conducted away from the channel, any surface water runs, or open inlets. All waste materials shall be stockpiled well back from the top of the bank and all surface water runs and open inlets that enter the drain.
- When possible, all construction within the open channel shall be carried out during periods of low flow or in dry conditions.
- The Contractor shall conduct regular inspections and maintain erosion and sediment control measures and structures during the course of construction.
- The Contractor shall repair erosion and sediment control measures and structures if damage occurs.
- The Contractor shall remove non-biodegradable erosion and sediment control materials once site is stabilized.
- Remove all construction materials from site upon project completion.

Light duty silt fencing shall be installed down-gradient of the work for the duration of construction.

The light duty silt fencing shall be supplied and installed in accordance with OPSS 805 and OPSD 219.110. The light duty silt fencing shall be removed once the disturbed area has been re-vegetated.

Best Management Practices – Culvert Replacements in Municipal Drains

This document describes the conditions on which one may proceed with a culvert replacement in a municipal drain without DFO approval/notification. All municipal, provincial, or federal legislation that applies to the work being proposed must be respected. If the conditions/requirements below cannot be met, please complete the drain notification form and submit it to the Fisheries Protection Program form review at: FisheriesProtection@dfo-mpo.gc.ca.

Potential Impacts to Fish Habitat

- Infilling fish habitat by encroachment of the water crossing footprint or channel realignment to accommodate culvert
- Harmful substrate alteration of fish habitat (e.g. blockage of groundwater upwellings, critical SAR habitat, spawning areas)
- Removal of riparian vegetation and cover along the banks of the municipal drain
- Removal of edge habitat (e.g. undercut bank, shallower areas with lower velocity, aquatic vegetation) creation of barriers to fish movement (e.g. perched crossings, velocity barriers, alteration of the natural stream gradient)
- Alteration of channel flow velocity and/or depth (e.g. oversized culvert resulting in insufficient depth for fish passage at low flow or undersized culvert resulting in a flow velocity barrier at high flow)
- Alteration of channel morphology and sediment transport processes caused by the physical structure of the crossing resulting in upstream and downstream sediment aggradation/erosion
- Re-entry of sediment that was removed/stockpiled into the watercourse
- Erosion downstream from sudden release of water due to the failure of site isolation
- Stranding of fish in isolated ponds following de-watering of the site
- Impingement or entrainment of fish when de-watering pumps are used
- Short term or chronic transport of deleterious substances, including sediment, into fish habitat from construction or road drainage

Requirements

The following requirements must be met:

- There are no aquatic Species at Risk present in the work zone or impact zone. To confirm there are no aquatic Species at Risk present, refer to the document, A Guide for Interpreting Fish and Mussel Species at Risk Maps in Ontario which can be found at: http://www.dfo-mpo.gc.ca/Library/356763.pdf. Links for Ontario Conservation Area specific fish and mussel maps that include critical habitat extents and a list of aquatic Species at Risk found within the conversation authority boundary can be found on Page 5 of A Guide for Interpreting Fish and Mussel Species at Risk Maps in Ontario.
- The culvert is embedded into the streambed and must allow for the free passage of fish.
- The work involves like-for-like replacements of existing road or private access culverts on all drain types without SAR.
- On C and F Drains only, this can also include replacements with extensions and end walls for the purposes of providing the property or road with safe access, but the project permanent footprint will not increase more than 250 m^2 below the high water mark.
- The project does not involve replacing a bridge or arch with one or more culverts installed in parallel or a larger-diameter culvert with more than one culvert installed in parallel.

- The project does not involve building more than one culvert installed in parallel on a single watercourse crossing site (e.g. twin culvert).
- The project does not involve temporarily narrowing the watercourse to an extent or for a duration that is likely to cause erosion, structural instability or fish passage problems.
- The municipal drain has no flow/low flow or is frozen to the bottom at the time of the replacement.
- In-water work is scheduled to respect timing windows (Tables 1 and 2) to protect fish, including their eggs, juveniles, spawning adults, and/or the organisms upon which they feed.
- The work can be conducted using the Culvert Removal Method described below and Standard Measures to Avoid Causing *Serious Harm to Fish* will be implemented when required.

Note: If your project must be conducted without delay in response to an emergency (e.g. the project is required to address an emergency that poses a risk to public health or safety or to the environment or property), you may apply for an Emergency Authorization (http://www.dfo-mpo.gc.ca/asp/forceDownload.asp?FilePath=/pnw-ppe/reviews-revues/Emergency-Authorizations-Autorisations-Urgences-eng.pdf).

Culvert Removal Methodology

- Plan/manage the work site in a manner that prevents sediment from entering the municipal drain by installing sediment and erosion control materials where required. Ensure that a sediment and erosion control plan is developed and modified as necessary for the site.
- Where required, install effective erosion and sediment control measures before starting work to prevent sediment from entering the municipal drain.
- Implement site isolation measures when in-water work is required.
    - Install an impervious barrier upstream of the work area (Figure 1). If possible, install a secondary barrier upstream of the work area for added protection.
    - Attempt to drive out the fish from the work area and then install the impervious barrier downstream of the work area. This may reduce or eliminate the need for a fish salvage.
    - When the drain is flowing, maintain downstream flows (e.g. bypass water around the work site using pumps or flume pipes; Figure 2). Provide temporary energy dissipation measures (e.g. rip-rap) at discharge point of the hose or temporary outlet pipe when required. Routinely inspect bypass pump and hose or pipe to ensure proper operation. Inspect discharge point for erosion and reposition hose/pipe or install additional temporary energy dissipation material as needed.
    - Dewater the isolated work area. The hose for a pump may discharge along the top of the bank into existing vegetation; however, the area should be monitored for signs of erosion. Reposition the hose or install additional temporary energy dissipation material as needed.
    - A fish screen with openings no larger than 2.54 mm (0.10 inches) should be equipped on any pump used during the operation. Note: Additional information regarding fish screens can be found in the DFO Freshwater Intake End-of-Pipe Fish Screen Guideline document (http://www.dfo-mpo.gc.ca/Library/223669.pdf).
    - Collect any fish present in the isolated work area and relocate them downstream.
    - Fish salvage operations must be conducted under a license issued by the Ontario Ministry of Natural Resources and Forestry (MNRF). The MNRF should be contacted well in advance of any work to obtain the required fish collection license.
- Install the culvert so that it is embedded into the streambed; ensure the culvert remains passable (e.g. does not become perched) by fish and wildlife.

- Decommission the site isolation in a manner that minimizes the introduction of sediment. The downstream isolation barrier shall gradually be removed first, to equalize water levels inside and outside of the isolated area and to allow suspended sediments to settle.
- Stabilize and remove waste from the site.
- Where required, maintain effective erosion and sediment control measures until complete re-vegetation of disturbed areas is achieved.

Figure 2. Isolation of Site

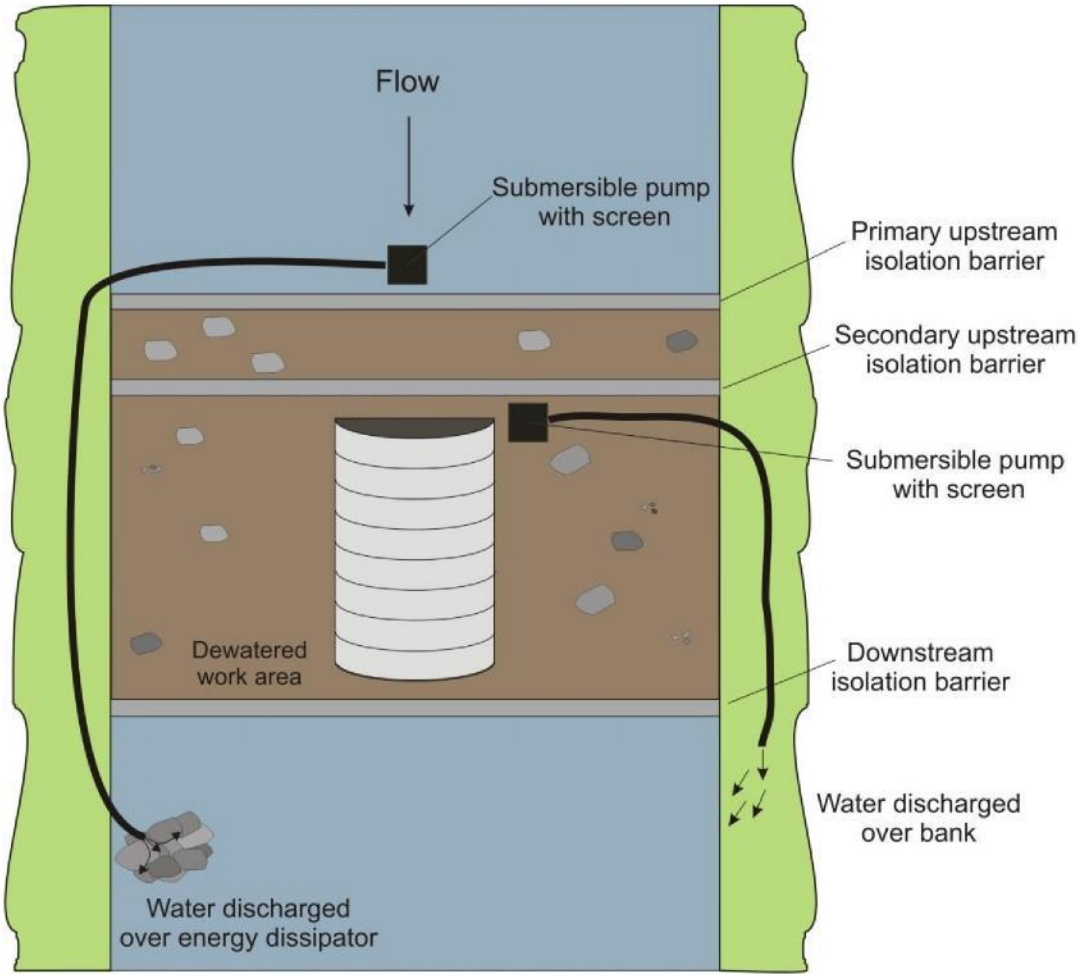


Figure 3. Isolation and Bypass Diversion when Working In-Water

Timing Windows

Figure 1 and Tables 1 and 2 can be used to determine the Restricted Activity period for the drain based on its classification. Note: Timing windows identified on Conservation Authority permits or Ministry of Natural Resources (Government of Ontario) work permits may differ and take precedence.

Figure 1. Ontario's Northern and Southern Region boundaries for determining application of restricted activity timing windows.

Table 1. Restricted Activity timing windows for the protection of spawning fish and developing eggs and fry in the Northern Region. Dates represent when work should be avoided.

DRAIN TYPE	RESTRICTED ACTIVITY PERIOD
A	SEPTEMBER 1 TO JULY 15
B	SEPTEMBER 1 TO JULY 15
C	APRIL 1 TO JULY 15
D	SEPTEMBER 1 TO JULY 15
E	APRIL 1 TO JULY 15

Table 2. Restricted Activity timing windows for the protection of spawning fish and developing eggs and fry in the Southern Region. Dates represent when work should be avoided.

DRAIN TYPE	RESTRICTED ACTIVITY PERIOD
A	SEPTEMBER 15 TO JULY 15
B	MARCH 15 TO JULY 15
C	MARCH 15 TO JULY 15
D	OCTOBER 1 TO JULY 15
E	MARCH 15 TO JULY 15

Standard Measures to Avoid Causing *Serious Harm to Fish*

When implementing a culvert removal project in a municipal drain, the *Fisheries Act* still requires an individual/company to ensure they avoid causing *serious harm to fish* during any activities in or near water. The following advice will help one avoid causing harm and comply with the *Act* (for additional information see http://www.dfo-mpo.gc.ca/pnw-ppe/measures-mesures/measures-mesures-eng.html).

1. Schedule work to avoid wet, windy and rainy periods that may increase erosion and sedimentation.
2. Whenever possible, operate machinery on land above the high water mark or on ice and in a manner that minimizes disturbance to the banks and bed of the municipal drain.
   - Ensure that machinery arrives on site in a clean condition and is maintained free of fluid leaks.
   - Limit machinery fording of the municipal drain to a one-time event (i.e., over and back), and only if no alternative crossing method is available. If repeated crossings of the municipal drain are required, construct a temporary crossing structure.
   - Wash, refuel and service machinery and store fuel and other materials for the machinery in such a way as to prevent any deleterious substances from entering the water.
   - Keep an emergency spill kit on site in case of fluid leaks or spills from machinery.
3. Install effective sediment and erosion control measures before starting work to prevent sediment from entering the municipal drain. Inspect them regularly during the course of construction and make all necessary repairs if any damage occurs.
4. Erosion and sediment control measures should be maintained until all disturbed ground has been permanently stabilized, suspended sediment has resettled to the bed of the municipal drain and runoff water is clear.
5. Undertake all in-water activities in isolation of open or flowing water while maintaining the natural flow of water downstream and avoid introducing sediment into the municipal drain.
6. Ensure applicable permits for relocating fish are obtained and relocate any fish that become trapped in isolated pools or stranded in newly flooded areas to the main channel of the watercourse.
7. Ensure that the water that is being pumped/diverted from the site is filtered (sediment remove) prior to being released (e.g. pumping/diversion of water to a vegetated area).
8. Implement measures for containing and stabilizing waste material (e.g. dredging spoils, construction waste and materials, commercial logging waste, uprooted or cut aquatic plants, accumulated debris) above the high water mark of nearby waterbodies to prevent re-entry.
9. Stabilize shoreline or banks disturbed by any activity associated with the project to prevent erosion and/or sedimentation, preferably through re-vegetation with native species suitable for the site.
10. If replacement rock reinforcement/armouring is required to stabilize eroding or exposed areas, then ensure that appropriately-sized, clean rock is used; and that rock is installed at a similar slope to maintain a uniform bank/shoreline and natural stream/shoreline alignment.
11. Remove all construction materials from site upon project completion.

CON. 3 CON. 4

SHAW DRAIN

SOUTH SIDEROAD

LOT 30

LOT 31

LOT 32

LOT 33

LOT 38

LOT 37

LOT 36

LOT 35

CONCESSION ROAD 4 S

SHAW DRAIN BRANCH

4th CONCESSION ROAD DRAIN

ATKINSON DRAIN

JOHN MCGEE DRAIN

ONG DRAIN

COUNTY ROAD 20

2.24 Ha SUB-SURFACE WATER ONLY

19
C. MILLER
11.20 Ha

17
MILLER CATTLE & GRAIN
6.07 Ha

15
M. & J. RIZZA
7.20 Ha

23
M. STRUHAR
1.40 Ha

22
G. & R. VANDENBRINK
8.62 Ha

10
R. & S. WRIGHT
6.61 Ha

21
T. & J. COX
1.50 Ha

6
G. & R. VANDENBRINK
8.09 Ha

24
3007507 NOVA SCOTIA

1+332 1+216 1+183 1+085 0+927 0+870 0+804 0+766 0+712 0+653 0+623 0+547 0+517 0+390 0+318 0+273 0+012 0+000

BM#5 BM#4 BM#3 BM#2 BM#1

16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1

18 16 14 13 12 11 9 7 5 4 3 2 1

LICENSED PROFESSIONAL ENGINEER
J. H. WARNER
100520016
NOV. 13, 2024
PROVINCE OF ONTARIO

OWNER INDEX NUMBER

1 J. VICKERS 0.36 Ha
2 M. WALSH 0.20 Ha
3 J. DALEY 0.28 Ha
4 R. & J. FOURNIER 0.27 Ha
5 R. COTE & J. FOURNIER 0.81 Ha
7 B. KOLLIN 0.18 Ha
8 R. & A. BRUSH 0.85 Ha
9 J. BRUSH 0.46 Ha
11 C. MAYRAND & J. ATKINSON 0.38 Ha
12 M. HAMELIN 0.14 Ha
13 K. & D. BRUSH 0.28 Ha
14 S. STUEBING 0.14 Ha
16 E. BRATT 0.34 Ha
18 J. JENNINGS 0.28 Ha
21 G. & K. OLSON 1.5 Ha

LEGEND

- DRAINAGE AREA
- 4th CONCESSION ROAD DRAIN
- MUNICIPAL DRAIN
- ① CULVERT NUMBER
- 1 PARCEL NUMBER
- EXISTING CULVERT
- CULVERT REPLACED UNDER EMERGENCY DESIGNATION
- CULVERT TO BE REPLACED
- CULVERT TO BE REMOVED

R Dobbin Engineering Inc.
4218 Oil Heritage Road
Petrolia Ontario, N0N 1R0
Phone: (519) 882-0032 Fax: (519) 882-2233

DRAWING NAME: 4th Concession Road Drain Plan

PROJECT No. 2024-1611

APPROVED	NO.	REVISIONS	DATE	BY
J. WARNER				
CHECKED	1	FINAL REPORT	NOV. 13, 2024	CS
B. VAN RUITENBURG				
DRAWN	SCALE: 1:7500			
C. SAUNDERS	0 100 200 300m			

TOWN of AMHERSTBURG

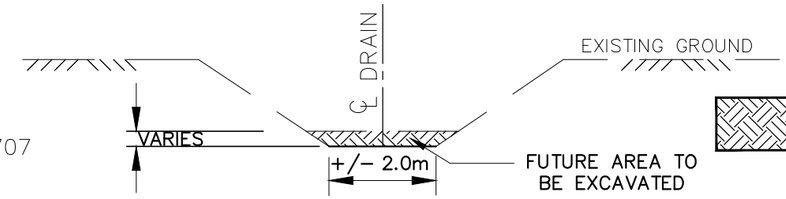
4th CONCESSION ROAD DRAIN PLAN

1 OF 5

Last Updated: November 13, 2024

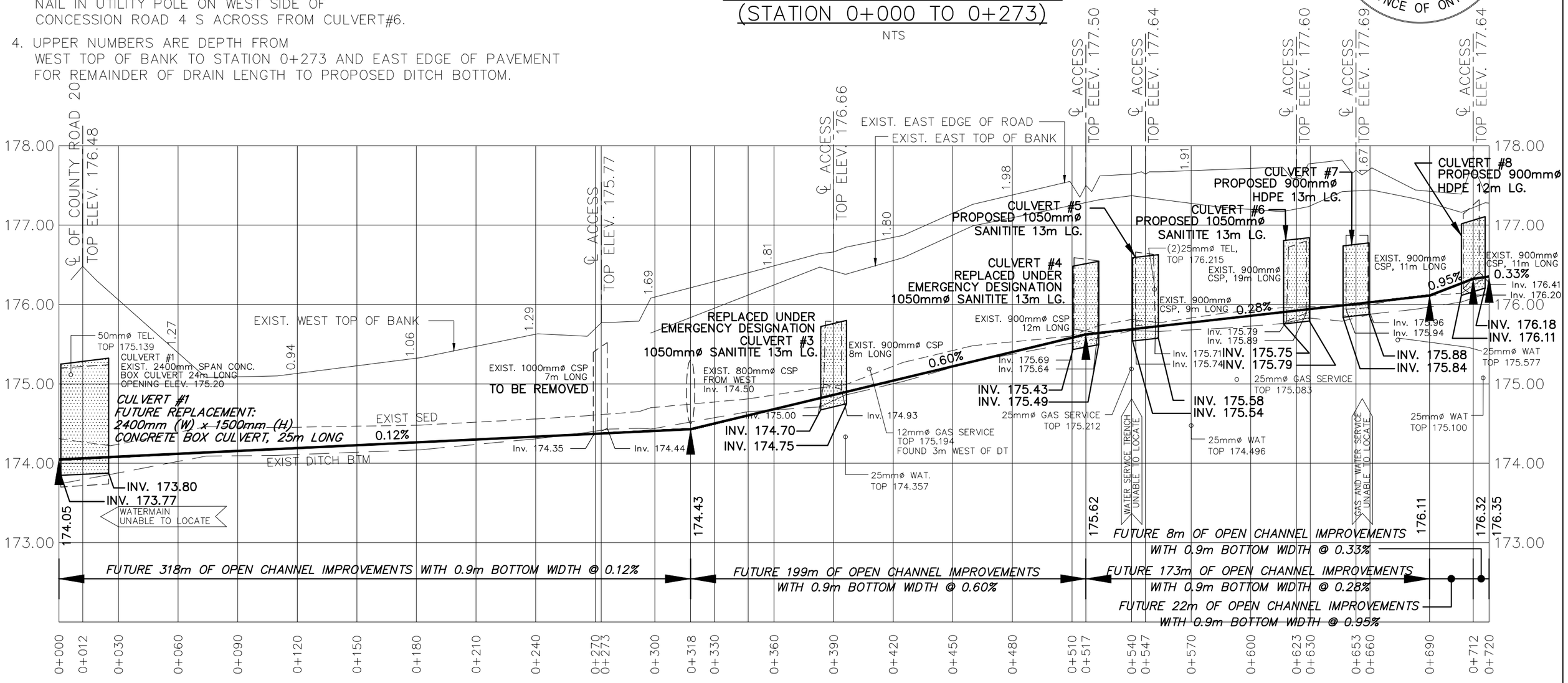
GENERAL NOTES

1. BENCHMARK No.1 ELEV. 177.032
   TOP SPINDLE OF FIRE HYDRANT AT CONCESSION ROAD 4 S AND COUNTY ROAD 20.
2. BENCHMARK No.2 ELEV. 176.302
   NAIL IN UTILITY POLE ON WEST SIDE OF CONCESSION ROAD 4 S ACROSS FROM MN#4707
3. BENCHMARK No.3 ELEV. 177.672
   NAIL IN UTILITY POLE ON WEST SIDE OF CONCESSION ROAD 4 S ACROSS FROM CULVERT#6.
4. UPPER NUMBERS ARE DEPTH FROM WEST TOP OF BANK TO STATION 0+273 AND EAST EDGE OF PAVEMENT FOR REMAINDER OF DRAIN LENGTH TO PROPOSED DITCH BOTTOM.



TYPICAL DRAIN CROSS SECTION (STATION 0+000 TO 0+273)

NTS



Dobbin Engineering Inc.
4218 Oil Heritage Road
Petrolia Ontario, N0N 1R0
Phone: (519) 882-0032 Fax: (519) 882-2233

DRAWING NAME: 4th Concession Road Drain Profile 1

PROJECT No. 2024-1611

APPROVED	NO.	REVISIONS	DATE	BY
J. WARNER				
CHECKED	1	FINAL REPORT	NOV. 13, 2024	CS
B. VAN RUITENBURG				
DRAWN				
C. SAUNDERS				

SCALE: 1:2,000
0 20 40 60m

TOWN of AMHERSTBURG

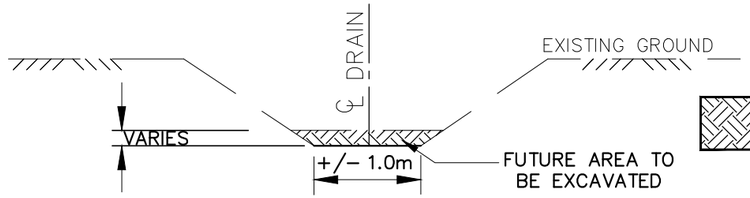
4TH CONCESSION ROAD DRAIN

PROFILE

Last Updated: November 13, 2024

GENERAL NOTES

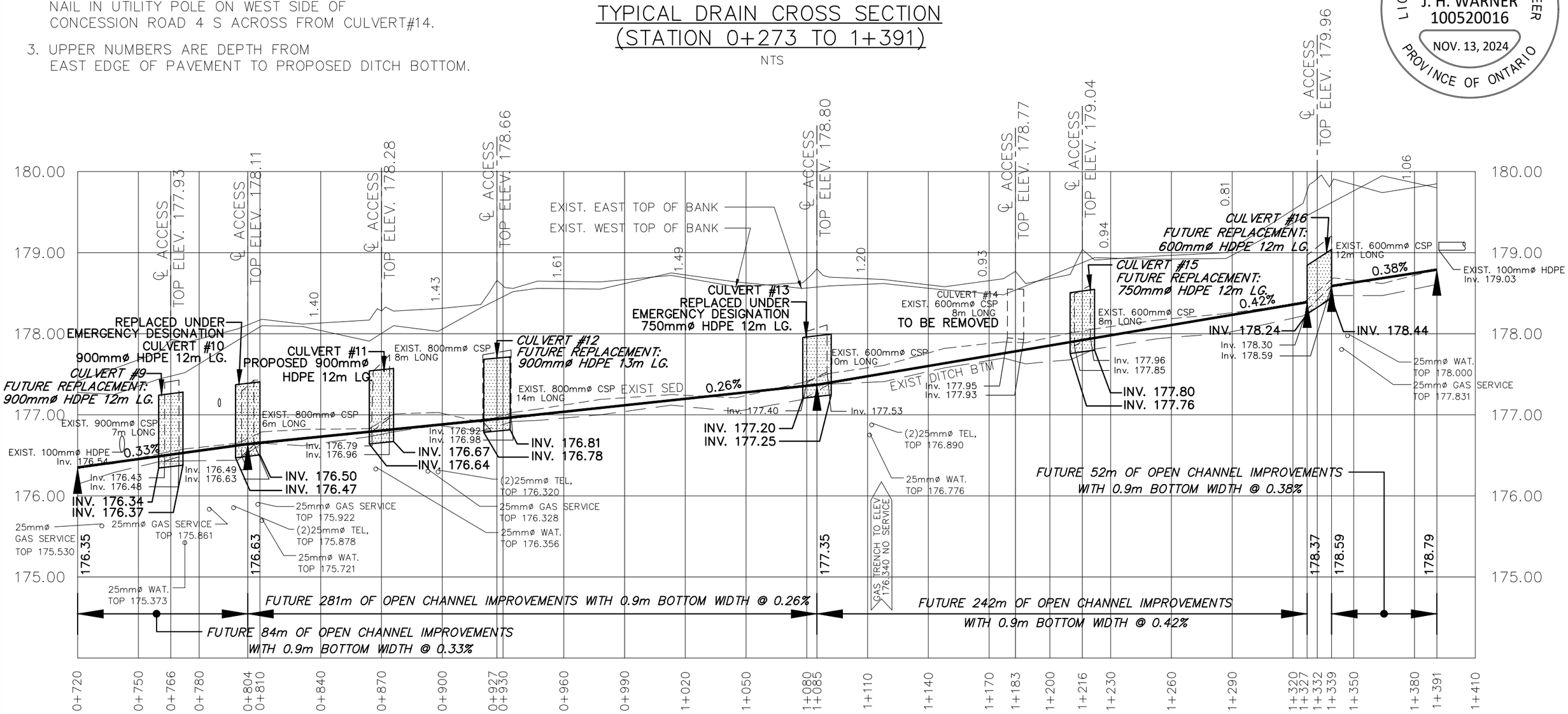
1. BENCHMARK No.4 ELEV. 178.585
   NAIL IN UTILITY POLE ON WEST SIDE OF CONCESSION ROAD 4 S ACROSS FROM MN#4653.
2. BENCHMARK No.5 ELEV. 179.050
   NAIL IN UTILITY POLE ON WEST SIDE OF CONCESSION ROAD 4 S ACROSS FROM CULVERT#14.
3. UPPER NUMBERS ARE DEPTH FROM EAST EDGE OF PAVEMENT TO PROPOSED DITCH BOTTOM.



TYPICAL DRAIN CROSS SECTION (STATION 0+273 TO 1+391)

NTS

LICENSED PROFESSIONAL ENGINEER
J. H. WARNER
100520016
NOV. 13, 2024
PROVINCE OF ONTARIO



Dobbin Engineering Inc.
4218 Oil Heritage Road
Petrolia Ontario, N0N 1R0
Phone: (519) 882-0032 Fax: (519) 882-2233

DRAWING NAME: 4th Concession Road Drain Profile 2

PROJECT No. 2024–1611

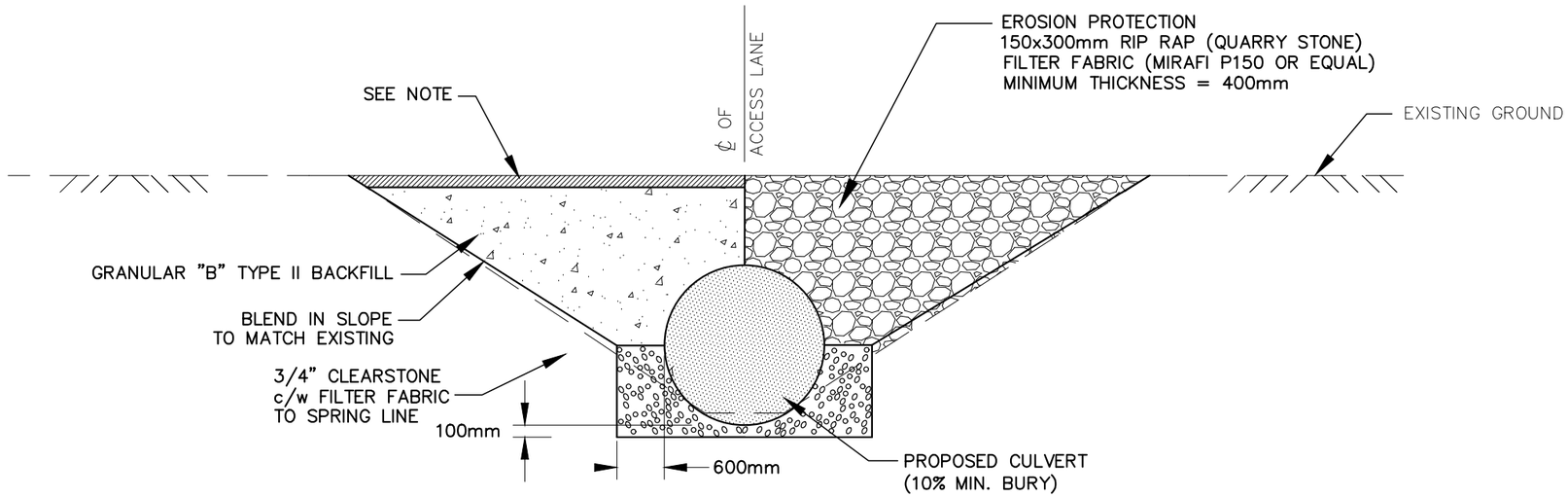
APPROVED	NO.	REVISIONS	DATE	BY
J. WARNER				
CHECKED	1	FINAL REPORT	NOV. 13, 2024	CS
B. VAN RUITENBURG				
DRAWN	SCALE: 1:2,000			
C. SAUNDERS	0 20 40 60m			

TOWN of AMHERSTBURG

4TH CONCESSION ROAD DRAIN

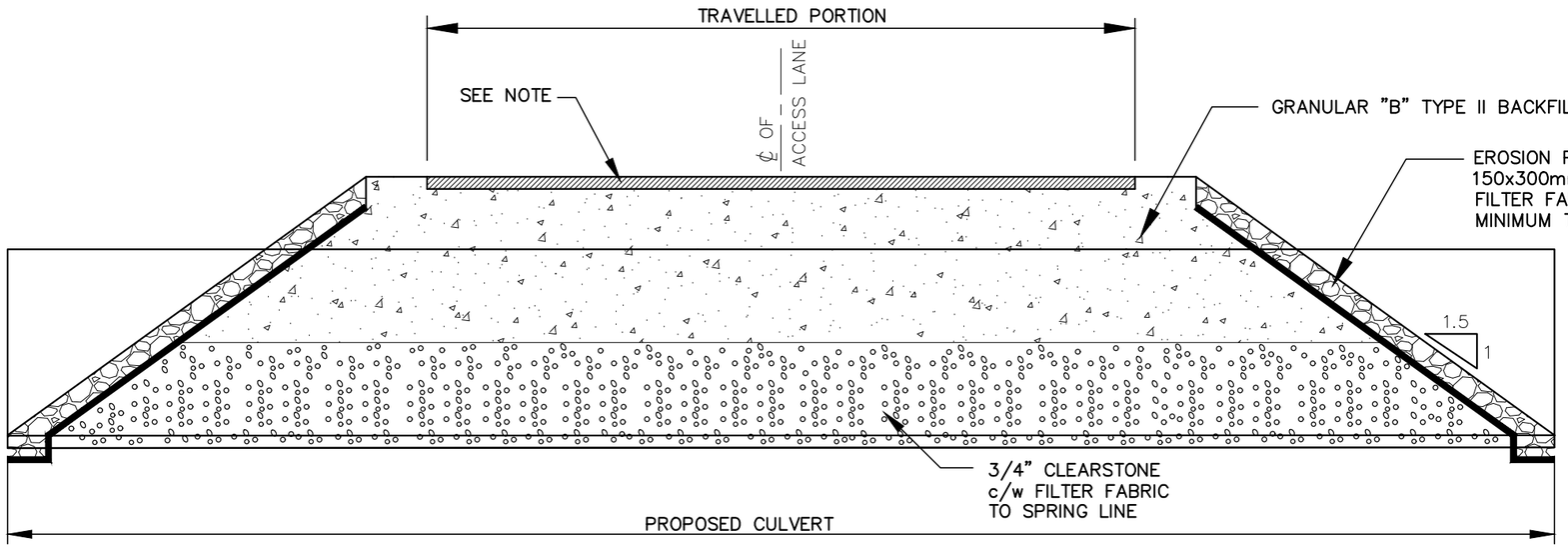
PROFILE

Last Updated: November 13, 2024



PROPOSED PIPE END SECTION

LICENSED PROFESSIONAL ENGINEER
J. H. WARNER
100520016
NOV. 13, 2024
PROVINCE OF ONTARIO



PROPOSED CROSS-SECTION

NOTES:

ALL BACKFILL COMPACTED
TO 95% MODIFIED PROCTOR DENSITY
CONTRACTOR SHALL ENSURE MINIMUM
COVER IS MET PRIOR TO CROSSING

ASPHALT ROAD

- HL3 AND HL4 TO MATCH EXISTING THICKNESS
- 300mm OF 100% CRUSHED GRAN "A"
  EXTENDING TO SHOULDER

GRAVEL ROAD

- 200mm OF OPS GRANULAR "M"
  (CRUSHED DOLOMITE SOURCE)
  TO MATCH EXISTING ROAD WIDTH

ACCESS CULVERT

- 150mm OF 100% CRUSHED GRANULAR "A"
- IF ASPHLAT: HL3 TO MATCH EXISTING THICKNESS

Dobbin Engineering Inc.
4218 Oil Heritage Road
Petrolia Ontario, N0N 1R0
Phone: (519) 882-0032 Fax: (519) 882-2233

DRAWING NAME:
4th Concession Road Drain Typical Culvert Detail

PROJECT No.
2024-1611

APPROVED
J. WARNER

CHECKED
B. VAN RUITENBURG

DRAWN
C. SAUNDERS

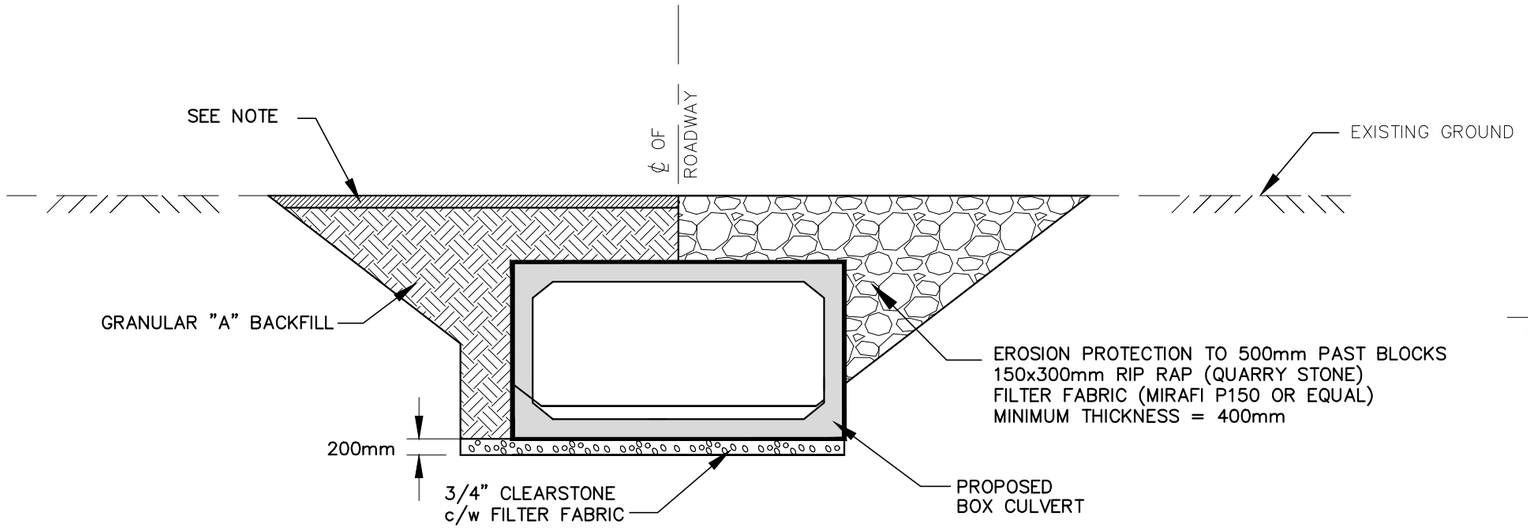
NO.	REVISIONS	DATE	BY
1	FINAL REPORT	NOV. 13, 2024	CS

SCALE 1:75
0 2m

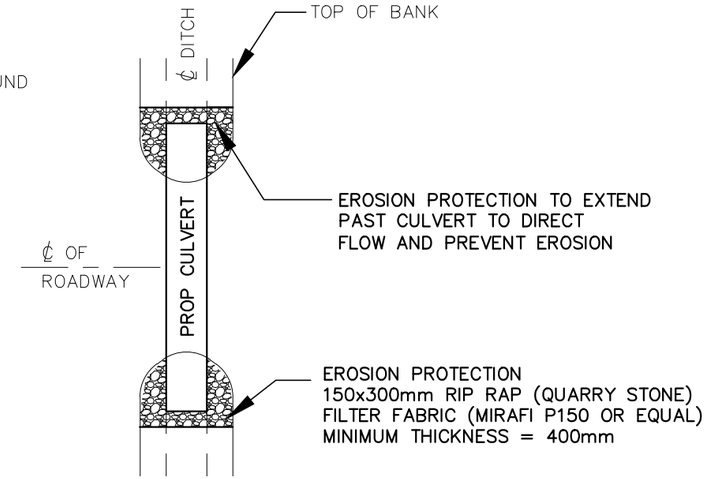
TOWN of AMHERSTBURG

4TH CONCESSION ROAD DRAIN
TYPICAL CULVERT DETAIL

Last Updated: November 13, 2024



PROPOSED END SECTION



TYPICAL CULVERT PLAN

NTS

NOTE:

ALL BACKFILL COMPACTED
TO 95% MODIFIED PROCTOR DENSITY

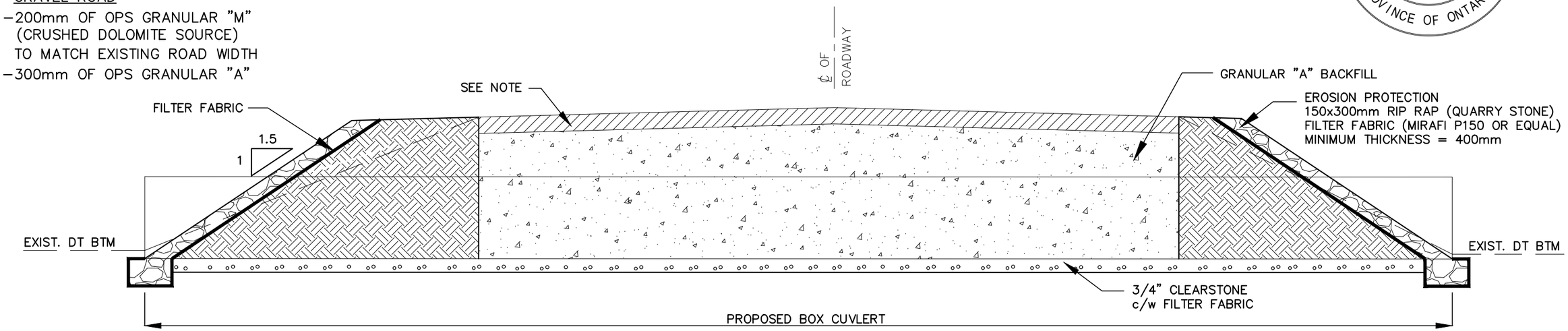
ASPHALT ROAD

- HL3 AND HL4 TO MATCH EXISTING THICKNESS
- 300mm OF 100% CRUSHED GRAN "A"

GRAVEL ROAD

- 200mm OF OPS GRANULAR "M"
  (CRUSHED DOLOMITE SOURCE)
  TO MATCH EXISTING ROAD WIDTH
- 300mm OF OPS GRANULAR "A"

LICENSED PROFESSIONAL ENGINEER
J. H. WARNER
100520016
NOV. 13, 2024
PROVINCE OF ONTARIO



PROPOSED CROSS-SECTION

Dobbin Engineering Inc.

4218 Oil Heritage Road
Petrolia Ontario, N0N 1R0
Phone: (519) 882-0032 Fax: (519) 882-2233

DRAWING NAME:
4th Concession Road Drain Typical Concrete Box Road Culvert Detail 2024-1611

PROJECT No.

APPROVED	NO.	REVISIONS	DATE	BY
J. WARNER				
CHECKED	1	FINAL REPORT	NOV. 13, 2024	CS
B. VAN RUITENBURG				
DRAWN	SCALE 1:75			
C. SAUNDERS	0 2m			

TOWN of AMHERSTBURG

4TH CONCESSION ROAD DRAIN

TYPICAL CONCRETE BOX ROAD CULVERT DETAIL

5

OF 5

Last Updated: July 11, 2024

THE CORPORATION OF THE TOWN OF AMHERSTBURG

BY-LAW NO. 2025-003

By-law to provide for the improvements to the 4th Concession Road Drain based on the report of Josh Warner, P.Eng of R. Dobbin Engineering Inc.

WHEREAS a request for improvement of the 4th Concession Road Drain was received under section 78 of the Drainage Act;

WHEREAS Council of the Corporation of the Town of Amherstburg appointed an engineer for the purpose of preparation of an engineer's report for improvements to the 4th Concession Road Drain under Section 78 of the Drainage Act;

WHEREAS Council of the Corporation of the Town of Amherstburg has authorized Josh Warner, P.Eng., of R. Dobbin Engineering Inc., to prepare a report and said engineer's report dated November 13, 2024 entitled 4th Concession Road Drain (2024) can be referenced as Schedule A, as attached hereto;

WHEREAS $277,890.00 is the estimated cost provided for the new the drainage works;

AND WHEREAS the report was considered by the Amherstburg Drainage Board at the meeting held on January 7, 2025.

NOW THEREFORE the Council of the Corporation of the Town of Amherstburg hereby enacts as follows:

1. AUTHORIZATION

The attached drainage report is adopted and the drainage works is authorized and shall be completed as specified in the report.

2. BORROWING

The Corporation of the Town of Amherstburg may borrow on the credit of the Corporation the amount of $277,890.00 being the estimated amount necessary for the improvements of the drainage works.

3. DEBENTURE(S)

The Corporation may issue debenture(s) for the amount borrowed less the total amount of:
(a) Grants received under section 85 of the Drainage Act;
(b) Monies paid as allowances;
(c) Commuted payments made in respect of lands and roads assessed with the municipality;
(d) Money paid under subsection 61(3) of the Drainage Act; and
(e) Money assessed in and payable by another municipality.

4. PAYMENT

Such debenture(s) shall be made payable within 5 years from the date of the debenture(s) and shall bear interest at a rate not higher than 1% more than the municipal lending rates as posted by The Town of Amherstburg's Bank's Prime Lending Rate on the date of sale of such debenture(s).

(1) A special equal annual rate sufficient to redeem the principal and interest on the debenture(s) shall be levied upon the lands and roads and shall be collected in the same manner and at the same as other taxes are collected in each year for 5 years after the passing of this by-law.

(2) All assessments of $1000.00 or less are payable in the first year in which the assessments are imposed.

Read a first and second time and provisionally adopted this 27th day of January, 2025.

_____
MAYOR – MICHAEL PRUE

_____
CLERK – KEVIN FOX

Read a third time and finally passed this ___ day of _____, 2025.

_____
MAYOR – MICHAEL PRUE

_____
CLERK – KEVIN FOX

R. Dobbin Engineering Inc.
4218 Oil Heritage Road
Petrolia, Ontario, N0N 1R0
Phone: (519) 882-0032 Fax: (519) 882-2233
www.dobbineng.com

November 21, 2024

The Mayor and Council
Town of Amherstburg
271 Sandwich Street South
Amherstburg, Ontario
N9V 2A5

Gentlemen and Mesdames:

Re: Pike Road Drain (2024)

In accordance with your instructions, R. Dobbin Engineering has undertaken an examination with regards to improving the Pike Road Drain in the Town of Amherstburg.

Authorization under the Drainage Act

This is an Engineer's Report that has been prepared under Section 78 of the Drainage Act. R. Dobbin Engineering Inc. was appointed by council on April 30th, 2024.

Section 78 of the Drainage Act states that, where, for the better use, maintenance or repair of any drainage works constructed under a bylaw passed under this Act, or of lands or roads, it is considered expedient to change the course of the drainage works, or to make a new outlet for the whole or any part of the drainage works, or to construct a tile drain under the bed of the whole or any part of the drainage works as ancillary thereto, or to construct, reconstruct or extend embankments, walls, dykes, dams, reservoirs, bridges, pumping stations, or other protective works as ancillary to the drainage works, or to otherwise improve, extend to an outlet or alter the drainage works or to cover the whole or any part of it, or to consolidate two or more drainage works, the Council whose duty it is to maintain and repair the drainage works or any part thereof may, without a petition required under Section 4 but on the report of an Engineer appointed by it, undertake and complete the drainage works as set forth in such report.

Existing Drainage

The Pike Road Drain outlets into the Long Marsh Drain at the southeast corner of Essex County Road 18 (Pike Road) and 9 (Howard Avenue). The drain continues easterly to just west of Concession Road 9. The drain is currently a closed drain at its upper end.

The last Engineer's Report on the Pike Road Drain was prepared by N.J. Peralta and is dated June 8, 1984. Under this report the road side drain was moved southerly, a 1.22m

wide buffer strip was provided between the farm properties and the new open drain. The upper end of the drain was enclosed due to the closeness of the drain to the existing homes.

Drain Classification

The Pike Road Drain is currently classified as a class "F" drain according to the Department of Fisheries and Oceans (DFO) as presented by the Ontario Ministry of Agriculture, Food and Rural Affair's Agricultural Information Atlas.

Class "F" drains are intermittent or ephemeral (dry for more than two consecutive months).

Approvals

The drain will require approval from the Essex Region Conservation Authority and the Department of Fisheries and Oceans. Construction cannot commence without necessary approvals.

Site Meeting

A site meeting for this drain was held on June 12, 2024. The following were present:

- Josh Warner (R. Dobbin Engineering)
- Sam Paglia (Drainage Superintendent, Town of Amherstburg)
- Mark Fishleigh (Field Service Engineer, County of Essex)
- Todd Bastien (Landowner)
- Don Shaw (Landowner)
- Jim Shaw (Landowner)
- Paul Greenham (Landowner)

The following is a brief summary of the meeting:

- General discussion of the Drainage Act and Landowners rights under the Drainage Act.
- It was requested that the culverts along the length of the drainage works be investigated. Those in poor shape would be replaced under this report and the remainder would be specified for future replacement.
- Landowners were made aware that a 6m top width will be provided as a standard and at a shared cost. If a Landowner requests a longer culvert, the additional cost will be assessed to the requesting property. However, if a culvert was lengthened

under the 1984 report as a result of the move off and the proximity of the drain to a house the enclosure cost would be assessed to the road authority.

- Landowners stated that the existing drain holds water and does not drain properly.
- R. Dobbin Engineering was to investigate the condition of the top end enclosure by completing a video inspection.
- The owner of the property with parcel number 5 stated they would like to see the cost to truck the material instead of level as there have been trees planted on the south side of the drain.
- No concerns were brought forward regarding the soil conditions.

Existing Conditions

Below is a summary of the condition of the existing culverts:

Culvert Number / Station	Location (Parcel Number)	Existing Culvert	Condition	Recommendation
1*	9	Originally 750mm dia. CSP. Replaced in Fall of 2024 by County as part of County Road 18 Culvert Replacement with 750mm dia. HDPE.		
2	9	750mm dia. CSP	Poor – Rust and Holes throughout and significantly below perched to proposed grade line	Replace
3	8	750mm dia. CSP	Okay – Small holes, rust and significantly perched to proposed grade line.	Replace
4	7	600mm dia. CSP	Poor – Rust and Holes found but culvert mainly under water. Significantly perched to proposed grade line.	Replace
5*	7	600mm dia. CSP	Poor – Rust and Holes found but culvert mainly under water. Significantly perched to proposed grade line.	Replace

*Specifies a Secondary Access

Overall, the channel has significant standing water due to the accumulation of material creating a high point in the channel downstream of Station 0+300. The 1984 report specified a 0.08% grade for the majority of the channel.

A video was completed on August 6, 2024 of the existing storm sewer portion of the Pike Road Drain to evaluate if any work should be completed under this report. Below is a summary of the findings:

Outlet (Station 1+055) to CB1 (Station 1+090):

- Not videoed

CB2 (station 1+148) to CB1 (Station 1+090):

- Miscellaneous water throughout
- Inverse curvature at 3.4m
- Pipe Connections from south at 8.8m, 14.1m, 26.2m (all defective)

CB2 (Station 1+148) to CB3 (Station 1+186):

- Miscellaneous water throughout
- Inverse curvature at 1.5m from CB2
- Abandoned survey at 4.5m from CB2 due to water
- Miscellaneous pipe size change at 1m from CB3
- Inverse curvature 3.2m from CB3
- Abandoned survey at 4.5m from CB3 due to water

CB4 (station 1+220) to CB3 (Station 1+186):

- Miscellaneous water throughout
- Poor connection from south at 13.2m, 15.9m, 30.5 and 31.2m
- Connection at 25.5m
- Pipe broken at 28m

CB4 (Station 1+220) to CB5 (Station 1+365):

- Miscellaneous water throughout
- Pipe change at 1m from CB5
- Connection at 1.9m from CB5
- Hole visible at 24.8m from CB5
- Pipe Connection from south at 14.5m from CB4
- Abandoned at 18.7m from CB4 and 26.3m from CB5 due to water

Based on the above, R. Dobbin Engineering Inc. recommends that the pipe be replaced under this report as it is in poor condition, poses a safety concern and is not providing the designed capacity to the drainage works.

Draft Report

A draft report, dated October 4, 2024 was sent to all the affected Landowners and a meeting was held on November 12, 2024 to go over the report and address any questions and concerns related to the draft report. The following were present at the meeting:

- Josh Warner (R. Dobbin Engineering)
- Sam Paglia (Drainage Superintendent, Town of Amherstburg)
- Nicole Humber (Public Works Clerk, Town of Amherstburg)
- Royce Borrowman (Landowner)
- Terry Crawford (Landowner)
- Phyllis Crawford (Landowner)
- Don Shaw (Landowner)
- Todd Bastien (Landowner)
- Paul Greenham (Landowner)
- Patsy Greenham (Landowner)

The following is a brief summary of the meeting:

- General discussion of the Drainage Act.
- It was discussed that a buffer strip be added to the project. This would be reinstated at a width of 1.22m, which is consistent with the 1984 report.
- Landowners stated that they believe there is water from the farms north of Pike Road draining into the drain.
    - Following the meeting, R. Dobbin Engineering surveyed the property in question and determined that some water does drain towards the Pike Road Drain. The report has been revised to reflect this.
- Landowners expressed concerns with the elevation of the recently replaced culvert at the lower end of the drain.
    - Following the meeting, R. Dobbin Engineering surveyed the culvert and verified that the elevation was as indicated on the drawings.
- No other major concerns were brought forward.

Design

The proposed culverts and storm sewer have been designed to provide outlet for a 1 in 5-year storm event.

Recommendations

It is therefore recommended that the following work be carried out:

1. The closed section of the Pike Drain (1+055 to 1+262) shall be replaced. A new Schedule of Maintenance shall be developed for the closed section of the drain.

2. The open channel shall be deepened and improved from Station 0+000 to 1+055. A new Schedule of Maintenance shall be developed for the open portion of the drain and a 1.22m buffer strip shall be re-established.

3. Culvert #2, 3, 4, and 5 shall be replaced. The replacement of Culvert #1, completed by the County of Essex, shall be incorporated under this report.

Estimate of Cost

It is recommended that the work be carried out in accordance with the accompanying Specification of Work and Profile that forms part of this Report. There has been prepared an Estimate of Cost in the amount of $395,505.00, including preparation of the report, attending the Meeting to Consider the Report, attending the Court of Revision and estimates for tendering, construction inspection, permitting and contract administration. Appearances before appeal bodies have not been included in the cost estimate.

A Plan has been prepared showing the location of the work and the approximate drainage area. A Profile is included showing the depths and grades of the proposed work.

Assessment

As per Section 21 of the Drainage Act, the Engineer in his report shall assess for benefit and outlet for each parcel of land and road liable for assessment.

Lands, roads, buildings, utilities, or other structures that are increased in value or are more easily maintained as a result of the construction, improvement, maintenance, or repair of a drainage works may be assessed for benefit. (Section 22)

Lands and roads that use a drainage works as an outlet, or for which, when the drainage works is constructed or improved, an improved outlet is provided either directly or

indirectly through the medium of any other drainage works or of a swale, ravine, creek, or watercourse may be assessed for outlet. The assessment for outlet shall be based on the volume and rate of flow of the water artificially caused to flow into the drainage works from the lands and roads liable for such assessments. (Section 23)

The Engineer may assess for special benefit any lands for which special benefits have been provided by the drainage works. (Section 24)

A Schedule of Assessment for the lands and roads affected by the work and therefore liable for the cost thereof will be prepared as per the Drainage Act. Also, assessments may be made against any public utility or road authority, as per Section 26 of the Drainage Act, for any increased cost for the removal or relocation of any of its facilities and plant that may be necessitated by the construction or maintenance of the drainage works. Items outside those identified in this report shall be assessed to the utility or road authority as per Section 26 of the Drainage Act plus a portion of the engineering (30% of the construction cost).

The cost of any fees for permits or approvals or any extra work required by any affected utility or road authority shall be assessed to that organization requiring the permit, approval, or extra work.

The proposed work has generally been assessed in the following manner, including all estimated fees, taxes and disbursements:

1. The additional cost to daylight and work around utilities has been assessed to the utility company as a special benefit assessment as per Section 26 of the Drainage Act. The special benefit assessment to the utilities shall be calculated as follows:

   Gas Utility= $2,340 (For Daylighting and Surveying as part of Design) + Tendered Amount to Daylight and Work Around the Utility x 1.30 (For Engineering and Taxes)

   Telecom Utility= $203 (For Daylighting and Surveying as part of Design) + Tendered Amount to Daylight and Work Around the Utility x 1.30 (For Engineering and Taxes)

   Water Utility= $2,340 (For Daylighting and Surveying as part of Design) + Tendered Amount to Daylight and Work Around the Utility x 1.30 (For Engineering and Taxes)

   Hydro Utility=$1,221 (For Daylighting and Surveying as part of Design) + Tendered Amount to Daylight and Work Around the Utility x 1.30 (For Engineering and Taxes) + Tendered Amount to Co-Ordinate with Hydro One and Supply and Install Duct for

Hydro Service Relocation x 1.30 (For Engineering and Taxes) + Rip Rap Cost at Poles x 1.30 (For Engineering and Taxes)

2. The cost of traffic control has been assessed to the owner of Pike Road as a special benefit assessment as per Section 26 of the Drainage Act. The special benefit assessment to the road shall be calculated as follows:

   Pike Road = Tendered Amount for Traffic Control x 1.30 (For Engineering and Taxes)

3. The culverts have generally been assessed based on the average culvert cost to provide a 6m access width. This base culvert has been assessed with 50% of the cost applied as benefit assessment to the owner of the property, 20% applied as a benefit assessment to the owner of Pike Road and the remainder to upstream lands and roads based on equivalent hectares. Portions of the drain that, if left open, pose a safety risk to the residences are proposed to be enclosed under this report. The additional costs to enclose these portions of the drain (Culvert No. 4) has been assessed to the owner of Pike Road as a result of the 1984 move off. The cost to have a second access culvert on a single property has been assessed as a special benefit to the property. Culvert #1 and 5 are secondary accesses and therefore will not be eligible for grant.

4. The cost of hauling away spoils at finished lawns less the cost of levelling has been assessed to the benefitting property as a special benefit assessment. The cost of an asphalt surface has been assessed as a special benefit assessment. These costs shall be prorated with the remainder of the drainage works. The extra cost for hauling away spoils will not be eligible for grant.

5. The open channel improvements have been assessed with 30% of the cost applied as a benefit assessment to the owner of Pike Road, 30% applied as benefit assessment to the owner of the adjacent property, and the remainder of the cost has been assessed as outlet assessment to upstream lands and roads based on equivalent hectares.

6. The tile drain has been assessed with the abutting property being assessed the equivalent cost of a culvert and open channel. This equivalent cost has also been applied as outlet assessment to upstream lands and roads based on equivalent hectares. Due to the move off in 1984, the remaining cost of the tile drain has been assessed to the owner of Pike Road.

All final costs included in the cost estimate of this report shall be pro-rated based on the Schedule of Assessment unless otherwise outlined above. Any additional costs shall be assessed in a manner as determined by the Engineer.

Allowances

Under Section 29 of the Drainage Act, the Engineer in his report shall estimate and allow in money to the Owner of any land that it is necessary to use for the construction or improvement of a drainage works or for the disposal of material removed from drainage works. This shall be considered an allowance for right-of-way.

Under Section 30 of the Drainage Act, the Engineer shall determine the amount to be paid to persons entitled thereto for damage, if any, to ornamental trees, lawns, fences, land and crops occasioned by the disposal of material removed from a drainage works. This shall be considered an allowance for damages.

Allowances have been made, where appropriate, as per Section 29 of the Drainage Act for right-of-way for the potential re-sloping that would increase the area occupied by the drain and as per Section 30 of the Drainage Act for damages to lands and crops. Allowances for right of way are based on a land value of $50,000.00 per hectare (approximately $20,000.00 per acre). Allowances for crop loss are based on $2,000.00 per hectare for the first year and $1,000.00 for the second year ($3,000.00 per hectare total).

Access and Working Area

Access to the work site for construction and future maintenance of the drain shall be from adjacent roadways and along the length of the drainage works from the nearest culvert.

The working area for construction shall be restricted to a width of 20m from the top of bank where the work is taking place and 4m from the top of bank on the opposite side. For future maintenance the working area on the side the work is taking place shall be reduced to 12m. Unless otherwise noted, the excavation shall generally be done from the field (south side), except across finished lawns. Across finished lawns the drain shall be cleaned from the road side with the excavated material being disposed offsite. As outlined, levelling shall occur from Station 0+000 to 0+627 and from 0+706 to 0+781, with the remainder being trucked.

The working area at each culvert shall extend 10 metres from the bank on both sides and for 10 metres along the channel on either side of the culvert.

The working area for the closed drain shall be 10m wide and shall be normally centered on the proposed drain.

Any damage caused to gain access to the site shall be restored to its pre-construction state at the expense of the Contractor.

Restrictions

No trees and shrubs shall be planted nor shall permanent structures be erected within 6 metres of the proposed drain without prior written permission of Council.

Attention is also drawn to Sections 80 and 82 of the Drainage Act, which refer to the removal of obstructions in a drain and damage caused to a drain.

Agricultural Grant

If available, it is recommended that application for subsidy be made for eligible agricultural properties. Any assessments against non-agricultural properties are shown separately in the Schedule of Assessment.

Maintenance

The Pike Road Drain shall be maintained and repaired with the specifications, drawings and applicable Schedule of Maintenance contained in this Engineer's Report.

With the culverts shown on the profile, including rip rap end walls, they shall be assessed in the following manner:

Culvert Number	Road Authority	Benefiting Lands	Upstream Properties Based on Equivalent Hectares as Contained in SoM for Channel
1 & 5		100%	
2 & 3	20%	50%	30%
4	50%	25%	25%

If any owner requests an additional length of culvert beyond that shown in this report with rip rap end walls or an asphalt travel surface the extra cost shall be borne by the Landowner making the request including the future maintenance and repair.

The additional costs as a result of a road or utility shall be assessed to the owner of the road or utility as per Section 26 of the Drainage Act.

A secondary access on a property shall be constructed, maintained and repaired with 100% of the cost assessed to the benefitting property.

Properties that wish to have the excavated material trucked shall be assessed the cost of trucking (including any cost associated with testing and disposal of the material) less the cost of levelling. The cost of levelling will form part of the drain maintenance cost.

The buffer strips are to extend 1.22 metres from the top of the bank on the south side of the channel. If the buffer strip extends less than this due to encroaching cropping practices, the buffer strip shall be maintained with 100% of the cost assessed to the property. Otherwise, the buffer strip shall be maintained and repaired in the same relative portions as contained in the enclosed Schedule of Maintenance.

Yours truly,

Josh Warner, P. Eng.
R. Dobbin Engineering Inc.

Pike Road Drain
Town of Amherstburg
November 21, 2024

ALLOWANCES

Allowances have been made as per Sections 29 & 30 of the Drainage Act for Right of Way and damages to lands and crops.

Conc.	Lot or Part	Parcel Number	Owner	Section 29 ($)	Section 30 ($)	Total ($)
8	Pt. Lot 92	5	P. & P. Greenham	-	400	400
	Pt. Lot 92	8	McGuire Farms Inc	3,900	3,140	7,040
	Pt. Lot 92	9	806574 Ontario Inc	1,400	1,100	2,500
	Pt. Lot 92	1	W. Maisonville & M. Harrison	-	90	90
	Pt. Lot 92	3	T. & P. Crawford	-	240	240
	Pt. Lot 92	4	T. Bastien	-	160	160
	Pt. Lot 92	6	P. & P. Greenham	-	260	260
	Pt. Lot 92	7	R. Borrowman	200	120	320
			TOTAL ALLOWANCES	$5,500	$5,510	$11,010

Estimate of Cost

Item Description (Supply and Install New)	Quantity	Unit	Unit Cost ($)	Total ($)
Pre-Construction Meeting	1	LS	200	200
Traffic Control	1	LS	2,500	2,500
Brushing and Tree Removal	1	LS	4,000	4,000
Restoration/Seeding including Buffer Strip	1	LS	18,000	18,000
Remove and Reinstall Mailboxes and Signs	1	LS	500	500
Silt Fence	1	LS	500	500
Open Channel Works				
Open Channel Excavation	1055	m	20	21,100
Levelling of Excavated Material (Station 0+000 to 0+627 & 0+706 to 0+781)	702	m	15	10,530
Trucking of Excavated Material (Station 0+627 to 0+706 & 0+781 to 1+055)	353	m	35	12,355
Stripping of Adjacent Farmland where Material is being Levelled (Station 0+000 to 0+627 & 0+706 to 0+781)	702	m	10	7,020
Rip Rap at Utility Poles between Station 0+781 and 1+055	40	tonne	100	4,000
Additional Rip Rap as Required	80	tonne	100	8,000
Reconnect Existing Field Tile	30	each	100	3,000
Culvert #2 (Parcel Number 9, 806574 Ontario Inc.)				
Removal of existing structure and Unsuitable Material	1.0	LS	1,000	1,000
Supply & install 750mm dia. HDPE Pipe c/w Bedding	15.0	m	650	9,750
Supply and install Granular 'B' Type II	100.0	tonne	35	3,500
Supply & install 100% Crushed Granular 'A'	25.0	tonne	40	1,000
Supply & install rip rap endwalls	30.0	tonne	100	3,000

Item Description (Supply and Install New)	Quantity	Unit	Unit Cost ($)	Total ($)
Culvert #3 (Parcel Number 8, McGuire Farms Inc.)				
Removal of existing structure and Unsuitable Material	1.0	LS	1,000	1,000
Supply & install 750mm dia. HDPE Pipe c/w Bedding	13.0	m	650	8,450
Supply and install Granular 'B' Type II	100.0	tonne	35	3,500
Supply & install 100% Crushed Granular 'A'	25.0	tonne	40	1,000
Supply & install rip rap endwalls	30.0	tonne	100	3,000
Culvert #4 (Parcel Number 7, R. Borrowman)				
Removal of existing structure and Unsuitable Material	1.0	LS	2,500	2,500
Supply & install 750mm dia. HDPE Pipe c/w Bedding	28.0	m	650	18,200
Place Suitable Native Backfill Outside Driveway	1.0	LS	2,000	2,000
Supply and install Granular 'B' Type II	100.0	tonne	35	3,500
Supply & install Granular 'A'	25.0	tonne	40	1,000
Remove and Reinstall Re-Usable Rip Rap	1.0	LS	500	500
Supply & install rip rap endwalls	15.0	tonne	110	1,650
Locate and Work Around Existing Telecom Service	1.0	LS	500	500
Work Around Existing Fire Hydrant	1.0	LS	800	800
Locate Work Around Existing Hydro Service	1.0	LS	500	500
Culvert #5 (Parcel Number 7, R. Borrowman)				
Removal of existing structure and excavated material	1.0	LS	2,000	2,000
Supply & install 750mm dia. HDPE Pipe c/w Bedding	14.0	m	650	9,100
Supply and install Granular 'B' Type II	120.0	tonne	35	4,200
Supply & install Granular 'A'	25.0	tonne	40	1,000
Remove and Reinstall Re-Usable Rip Rap	1.0	LS	500	500
Supply & install rip rap endwalls	15.0	tonne	110	1,650
Closed Works				
Locate and Work Around Gas Services	3	each	500	1,500
Locate and Work Around Water Services	3	each	500	1,500
Co-Ordinate with Hydro One and Supply and Install Duct for Hydro Service Re-location	1	each	3,500	3,500
Locate and Work Around Hydro Poles and Guide Wires, including coordination of any required pole holds	1	LS	1,500	1,500
Locate and Remove Existing Tile (Station 1+055 to 1+262)	207	m	20	4,140
Remove and Dispose of Existing Catch Basins	5	each	400	2,000
Rip Rap at Tile Outlet (Station 1+055)	5	tonne	100	500

Item Description (Supply and Install New)	Quantity	Unit	Unit Cost ($)	Total ($)
Remove and Reinstall Re-Usable Rip Rap at Station 1+055	1	LS	500	500
Rodent Grate at Station 1+055	1	LS	500	500
450mmø HDPE Pipe	131	m	350	45,850
375mmø HDPE Pipe	34	m	310	10,540
300mmø HDPE Pipe	42	m	280	11,760
Supply and Install Catch Basins	6	each	2,500	15,000
100% Crushed Granular "A" for Driveways (LIN 6, 4, 3 & 1)	200	tonne	40	8,000
Locate and Connect Existing Tiles	15	each	200	3,000
Contingency				13,770

Sub Total	300,065
Allowances	11,010
Engineering	46,980
Video Closed Portion of Drain	1,800
Daylighting and Surveying Utilities	6,000
Estimate for Tendering, Inspection and Contract Administration	23,000
ERCA Fee	400
Total Estimate excluding HST	**389,255**
Non-Recoverable HST (1.76%)	6,650
Total Estimate	**$ 395,905**

SCHEDULE OF ASSESSMENT

Conc.	Lot or Part	Affected Hecatares	Parcel Number	Owner	Special Benefit ($)	Benefit ($)	Outlet ($)	Total ($)
Utilities								
Gas Utility				Enbridge Gas	4,215	-	-	4,215
Telecom Utility				Bell Telecom	842	-	-	842
Water Utility				Town of Amherstburg	5,233	-	-	5,233
Hydro Utility				Hydro One	13,511	-	-	13,511
					23,801	-	-	23,801
Public Lands								
Pike Road		2.40		County of Essex	3,188	137,902	25,552	166,642
					3,188	137,	25,552	166,642
Agricultural Lands								
8	Pt. Lot 92	11.02	5	P. & P. Greenham	2,740	15,645	29,254	47,639
	Pt. Lot 92	4.90	8	McGuire Farms Inc		27,558	6,490	34,048
	Pt. Lot 92	0.50	9	806574 Ontario Inc		17,406	129	17,535
	Pt. Lot 93	1.50	10	M. Schwab & T. Dube		-	2,442	2,442
					2,740	60,	38,315	101,664
Non Agricultural Lands								
8	Pt. Lot 92	0.13	1	W. Maisonville & M. Harrison		7,160	5,730	12,890
	Pt. Lot 92	0.00	2	B. Pillon		-	-	-
	Pt. Lot 92	0.55	3	T. & P. Crawford		7,520	12,718	20,238
	Pt. Lot 92	0.47	4	T. Bastien		7,260	7,494	14,754
	Pt. Lot 92	0.40	6	P. & P. Greenham		10,850	3,399	14,249
	Pt. Lot 92	0.69	7	R. Borrowman	25,297	14,340	2,030	41,667
					25,297	47,130	31,371	103,798
				Total Utilities	23,801			
				Total Non Agricultural Lands	103,798			
				Total Agricultural Lands	101,664			
				Total Public Lands	166,642			
				Total Assessment	$395,905			

Estimated Net Assessment

Net assessment subject to OMAFRA ADIP Policy and actual construction costs.

Conc.	Lot or Part	Affected Hecatares	Parcel Number	Owner	Total Assessment ($)	Estimated Grant ($)	Allowances ($)	Estimated Net Assessment ($)
Utilities								
Gas Utility				Enbridge Gas	4,215			4,215
Telecom Utility				Bell Telecom	842			842
Water Utility				Town of Amherstburg	5,233			5,233
Hydro Utility				Hydro One	13,511			13,511
Public Lands								
Pike Road		2.40	0.00	County of Essex	166,642			166,642
Agricultural Lands								
8	Pt. Lot 92	11.02	5	P. & P. Greenham	47,639	14,966	400	32,273
	Pt. Lot 92	4.90	8	McGuire Farms Inc	34,048	11,349	7,040	15,659
	Pt. Lot 92	0.50	9	806574 Ontario Inc	17,535	5,845	2,500	9,190
	Pt. Lot 93	1.50	10	M. Schwab & T. Dube	2,442	814		1,628
Non Agricultural Lands								
8	Pt. Lot 92	0.13	1	W. Maisonville & M. Harrisor	12,890		90	12,800
	Pt. Lot 92	0.00	2	B. Pillon	-			-
	Pt. Lot 92	0.55	3	T. & P. Crawford	20,238		240	19,998
	Pt. Lot 92	0.47	4	T. Bastien	14,754		160	14,594
	Pt. Lot 92	0.40	6	P. & P. Greenham	14,249		260	13,989
	Pt. Lot 92	0.69	7	R. Borrowman	41,667		320	41,347
					395,905	32,974	11,010	351,921

SCHEDULE OF MAINTENANCE (OPEN CHANNEL)

To Maintain the Open Channel Portion of the Pike Road Drain (Station 0+000 to 1+055)

Conc.	Lot or Part	Affected Hecatares	Parcel Number	Owner	Benefit ($)	Outlet ($)	Total ($)
Public Lands							
Pike Road		2.40		County of Essex	15.00	11.95	26.95
					15.00	11.95	26.95
Agricultural Lands							
8	Pt. Lot 92	11.02	5	P. & P. Greenham	10.39	17.97	28.36
	Pt. Lot 92	4.90	8	McGuire Farms Inc	19.67	3.81	23.48
	Pt. Lot 92	0.50	9	806574 Ontario Inc	6.94	0.14	7.08
	Pt. Lot 93	1.50	10	M. Schwab & T. Dube	-	1.79	1.79
					37.00	23.71	60.71
Non Agricultural Lands							
8	Pt. Lot 92	0.13	1	W. Maisonville & M. Harrison	-	0.67	0.67
	Pt. Lot 92	0.00	2	B. Pillon	-	-	-
	Pt. Lot 92	0.55	3	T. & P. Crawford	-	2.85	2.85
	Pt. Lot 92	0.47	4	T. Bastien	-	2.43	2.43
	Pt. Lot 92	0.40	6	P. & P. Greenham	-	2.07	2.07
	Pt. Lot 92	0.69	7	R. Borrowman	2.99	1.33	4.32
					2.99	9.35	12.34
				Total Non Agricultural Lands	12.34		
				Total Agricultural Lands	60.71		
				Total Public Lands	26.95		
				Total Assessment	100.00		

SCHEDULE OF MAINTENANCE (TILE DRAIN)

To Maintain the Tile Portion of the Pike Road Drain (Station 1+055 to 1+262)

Conc.	Lot or Part	Affected Hecatares	Parcel Number	Owner	Benefit ($)	Outlet ($)	Total ($)
Public Lands							
Pike Road		2.40		County of Essex	40.00	7.67	47.67
					40.	7.67	47.67
Agricultural Lands							
8	Pt. Lot 92	11.02	5	P. & P. Greenham	4.35	3.58	7.93
	Pt. Lot 92	4.90	8	McGuire Farms Inc	-	-	-
	Pt. Lot 92	0.50	9	806574 Ontario Inc	-	-	-
	Pt. Lot 93	1.50	10	M. Schwab & T. Dube	-	-	-
					4.35	3.58	7.93
Non Agricultural Lands							
8	Pt. Lot 92	0.13	1	W. Maisonville & M. Harrison	4.78	4.20	8.98
	Pt. Lot 92	0.00	2	B. Pillon	-	-	-
	Pt. Lot 92	0.55	3	T. & P. Crawford	7.39	9.28	16.67
	Pt. Lot 92	0.47	4	T. Bastien	5.51	4.10	9.61
	Pt. Lot 92	0.40	6	P. & P. Greenham	7.97	1.17	9.14
	Pt. Lot 92	0.69	7	R. Borrowman	-	-	-
					25.65	18.75	44.40
				Total Non Agricultural Lands	44.40		
				Total Agricultural Lands	7.93		
				Total Public Lands	47.67		
				Total Assessment	100.00		

Pike Road Drain
Town of Amherstburg
November 21, 2024

SPECIFICATION OF WORK

1. Location

The location of the proposed and future work outlined in this specification is in Lot 92, Concession 8 in the Town of Amherstburg.

2. Scope of Work

The work to be included in this specification includes, but is not limited to, the following:

- Open Channel Improvements
- Culvert replacements
- Tile Drain

3. General

Each tenderer must inspect the site prior to submitting their tender and satisfy themselves by personal examination as to the local conditions that may be encountered during this project. The Contractor shall make allowance in their tender for any difficulties which they may encounter. Quantities or any information supplied by the Engineer is not guaranteed and is for reference only.

All work and materials shall be to the satisfaction of the Drainage Superintendent who may vary these specifications as to minor details but in no way decrease the proposed capacity of the drain.

The Contractor shall provide all labour, equipment, and supervision necessary to complete the work as shown in the Plans and described in these specifications. Any work not described in these specifications shall be completed according to the Ontario Provincial Standard Specifications and Standard Drawings.

Any equivalents shall be approved in writing by the Engineer or Drainage Superintendent prior to ordering.

4. Health and Safety

The Contractor at all times shall be responsible for health and safety on the worksite including ensuring that all employees wear suitable personal protective equipment including safety boots and hard hats.

The Contractor shall be responsible for traffic control as per the Ontario Traffic Manual Book 7 – Temporary Conditions (latest revision) when working on public road allowances. A copy of a traffic control plan shall be submitted to the Engineer, Drainage Superintendent and kept on site at all times. The Contractor shall maintain suitable barricades, warning lights, and temporary traffic notices, at his expense, in their proper position to protect the public both day and night. Flagmen are the responsibility of the Contractor when working on the road allowance and when entering or exiting a worksite onto a roadway.

The Contractor shall be responsible to ensure that all procedures are followed under the Occupational Health and Safety Act to ensure that work sites are safe and that accidents are prevented. In the event of a serious or recurring problem, a notice of noncompliance will be issued. The Contractor will be responsible for reacting immediately to any deficiency and correcting any potential health and safety risk. Continuous disregard for any requirement of the Occupational Health and Safety Act could be cause for the issuance of a stop work order or even termination of the contract.

They shall also ensure that only competent workmen are employed onsite and that appropriate training and certification is supplied to all employees.

5. MNRF Drain Registration

The Contractor is advised that the Town of Amherstburg has conducted an "Endangered Species Act Review" and has registered it’s drainage activities with the Ministry of Natural Resources and Forestry.

The Town of Amherstburg, in pursuant to the Endangered Species Act Municipal Agreement, has identified the potential presence of certain species within the project area. It is the responsibility of the Contractor to make certain that necessary provisions are undertaken to ensure the protection of all species at risk and their habitats throughout the course of construction. It is also the responsibility of the Contractor to make itself familiar with the following documents:

1. Town of Amherstburg – Complete Mitigation Documents

2. Town of Amherstburg - Additional Mitigation Measures for Snakes Species

3. Town of Amherstburg - Additional Mitigation Measures for Turtle Species

4. Snakes of Ontario Identifier Guide

5. Turtles of Ontario Identifier Guide

These documents will be provided to the successful bidder.

The Contractor will be responsible for providing the necessary equipment and materials required by the mitigation plans and shall contact the Town of Amherstburg Drainage Superintendent immediately if any endangered species are encountered during construction.

6. Utilities

The Contractor is responsible for organizing locates and exposing all the utilities along the length of the drainage works. If any utilities interfere with the proposed drainage works in a manner not shown on the accompanying Estimate of Cost or profile the Contractor shall notify the Drainage Superintendent and Engineer.

The Contractor is responsible for coordinating the replacement of additional utilities with the utility company if they interfere with the proposed drain. All costs for the utility to replace their services will be outside of this report and shall be borne by the utility as per Section 26 of the Drainage Act.

All additional costs to work around and organize replacement of the utilities not included in the estimate shall be tracked separately and the cost plus a portion of the engineering and taxes (30% of the cost) shall be borne by that utility.

The Contractor will be responsible for organizing the Hydro One service relocation:

The duct and associated work shall be done in co-ordination with Hydro One and shall conform to Hydro One's Trench Detail and related drawings as included in this report. Notes in addition to the attached drawings and specifications are listed below:

- Table 1B often calls for a 300mm separation – if possible, achieve 1m separation between HONI and other utilities.
- As the new underground path will have bends as a result, any bends in the duct must have a minimum radius of 0.9m (3').

- If concrete needs to be poured around an underground duct, typically they are mechanically separated by Styrofoam or another medium.
- All trench installations to be installed as per the preferred (main) option – prior permission from Hydro One is required if an alternative installation ('D1' or 'D2') is to be used.

Hydro One will complete the wire relocation. The Contractor is also responsible for coordinating any required pole holds with Hydro One. The actual cost of the pole holds will be the responsibility of Hydro One.

7. Pre-Construction Meeting

There is a requirement for a pre-construction meeting to be held prior to any construction taking place. The meeting will be scheduled by the Contractor with notices sent out by the Town. The Contractor shall notify all parties at least two weeks prior to wanting to hold a pre-construction meeting.

8. Benchmarks

The benchmarks are based on geodetic elevations. Elevations are available at the locations shown on the Profile drawing. Where these elevations are on existing structures to be replaced, they shall be transferred by the Contractor prior to the removal.

The Contractor is required to complete a benchmark loop prior to construction to verify the benchmarks. If discrepancies exist the Contractor must notify the Drainage Superintendent and Engineer prior to completing any work.

9. Traffic Control

Access and driveways to private properties shall not be obstructed longer than the minimum time necessary for the work and shall be reinstated as soon as possible all to the satisfaction of the Engineer. The Contractor shall schedule any obstruction of existing driveways and accesses with the owners at least two full working days in advance. The Traffic Plan must be submitted to the County of Essex prior to the commencement of any road closures.

a) The Contractor shall supply, erect and maintain all detour signs and special signs necessary for detours to divert traffic from the area under construction as directed by the Drainage Superintendent or Engineer. All this work shall be at the Contractor's expense.

b) The Contractor shall be responsible for supplying, erecting and maintaining all signs, supports, barricades, flashers, cones, etc. in the construction area and at the boundaries of the work as part of the above detours, all to the satisfaction of the Engineer or Drainage Superintendent. All this work shall be done by the Contractor at their own expense.

c) The Contractor shall not be allowed to proceed with construction activities unless proper signage and flagmen are present. Flagging procedures, signage and detours shall conform to the recommendations of Book 7, Temporary Conditions, Ontario Traffic Manual, issued by the Ministry of Transportation. Conformance shall be enforced by the Ministry of Labour Inspector.

10. Access and Working Area

Access to the work site for construction and future maintenance of the drain shall be from adjacent roadways and along the length of the drainage works from the nearest culvert.

The working area for construction shall be restricted to a width of 20m from the top of bank where the work is taking place and 4m from the top of bank on the opposite side. For future maintenance the working area on the side the work is taking place shall be reduced to 12m. Unless otherwise noted, the excavation shall generally be done from the field (south side), except across finished lawns. Across finished lawns the drain shall be cleaned from the road side with the excavated material being disposed offsite. As outlined, levelling shall occur from Station 0+000 to 0+627 and from 0+706 to 0+781, with the remainder being trucked.

The working area at each culvert shall extend 10 metres from the bank on both sides and for 10 metres along the channel on either side of the culvert.

The working area for the closed drain shall be 10m wide and shall be normally centered on the proposed drain.

Any damage caused to gain access to the site shall be restored to its pre-construction state at the expense of the Contractor.

11. Removals

The culverts, tile, catch basins, asphalt, and any native backfill material, when required, shall be removed in their entirety. The culvert, tile, catch basins, asphalt, backfill and the concrete rubble shall be disposed offsite at the expense of the Contractor. Any broken

concrete or rip rap (concrete bags) from the existing structures shall be disposed offsite at the expense of the Contractor unless determined re-usable by the Drainage Superintendent or Engineer.

The Contractor shall work around the existing fences and signs if they are able to. If the existing fences and signs are required to be removed, they shall be removed and re-installed in the same location with the existing materials. All work in connection with fences and signs shall be carried out in a careful manner so they are replaced in as good a condition as the existing materials permit.

12. Brushing and Tree Removal

For construction and future maintenance of the drain, all brush, stumps, trees, vegetation, etc. within the working area, the drain bottom, along the bank where the work is taking place and on the opposite side where impeding the flow of the drain, as determined by the Drainage Superintendent or Engineer, shall be removed.

A mechanical grinder attached to an excavator shall be used for the removal of brush and trees. Any brush and trees too large to grind shall be close cut. The Contractor shall stockpile the trees and brush in a single pile on the property in which they were removed or dispose of the trees and brush offsite. Where brush and trees are removed within a bush section of the drain the trees and brush shall be disposed of within the bush at the limits of the working area. The Contractor is responsible for the burning of the trees and brush not in the bush sections. The Contractor is responsible for obtaining all necessary permits for any disposal sites. Burning of the trees and brush is subject to local bylaws and guidelines of the Ministry of the Environment Conservation and Parks.

Certain trees may be left in place at the direction of the Drainage Superintendent or Engineer. Trees may be limbed and piled for firewood, instead of burned, at the request of a Landowner.

13. Strip and Place Topsoil

The Contractor shall strip the topsoil adjacent the channel where the material is to be levelled (Station 0+000 to 0+627 and 0+706 to 0+781) for a width of 15m on the side the excavation is taking place. The topsoil shall be placed at the edge of the working allowance until the levelling of the excavated material has taken place. Once the excavated material has been levelled the Contractor shall level the topsoil over the excavated material. This item is only to be done as part of the improvement project and not maintenance.

14. Excavation of Open Channel

For construction and future maintenance, the open channel shall be excavated and maintained to the depths and grades as per the profile and drawings as contained in this Engineers Report. The channel shall be excavated to the proper depth using a laser or similar approved device with a labourer onsite to ensure correctness of grade and to confirm location of tile ends.

The excavated material shall generally be cast on the side it is being excavated from, except across finished lawns where the excavated material shall be trucked. As outlined, levelling shall occur from Station 0+000 to 0+627 and from 0+706 to 0+781, with the remainder being trucked. Excavated material shall be cast at least 1.5 metres clear of the bank. Excavated material shall not be placed in low runs or swales out letting surface water to the channel. The excavated material shall be levelled to a maximum depth of 150mm and left in a condition suitable for cultivation. This shall include the removal of any rocks larger then 10cm in diameter and any debris/wood that could damage or plug farm equipment. Leveling shall occur when the material is dry enough to do so as determined by the Drainage Superintendent or Engineer. All high spots above grade shall be removed. The sediment shall be removed leaving a rounded bottom with the intent not to undercut the existing side slopes. All material unfit for placing on farmlands shall be disposed of offsite by the Contractor.

It is R. Dobbin Engineering's opinion that the drainage improvements for this project are exempt from Section 8 of O.Reg 406/19 as per Schedule 2, Item 3.6 of the Regulation.

The bottom width identified in the profile drawings represents the original design bottom width. The intent is to match this at a minimum where possible. If matching this width would cause undermining of the banks or road the drain bottom width shall be reduced at the discretion of the Engineer or Drainage Superintendent. The side slopes of the channel may be reduced in the vicinity of the utility poles in order to ensure they are not undermined. Rip rap shall be installed in these locations at the discretion of the Drainage Superintendent or Engineer.

15. Installation of Culverts

The Contractor is required to notify the Landowner forty-eight (48) hours prior to the removal of a culvert.

The high-density polyethylene (HDPE) smooth wall pipe (320 kPa) shall be CSA Approved with bell and spigot joints.

The culverts designated to be replaced in the future under this report shall be examined after any cleanout of the open channel as to its condition. If it is found to be in disrepair (i.e. there are holes corroded in the bottom or sides) it shall be replaced as per these specifications.

The culverts shall be installed generally in the same location or as approved by the Drainage Superintendent or Engineer. The culverts shall be installed with the invert 10% (minimum 150mm) below the original channel bottom elevation unless otherwise shown in order to achieve the minimum cover.

Any tile outlets extended as a result of a culvert shall be extended at the landowner's expense. The pipes that shall be extended upstream or downstream of the proposed culvert shall be done with non-perforated HDPE agricultural tubing with a manufactured coupling, elbow and rodent grate.

Access Culverts:

The bottom of the excavation shall be excavated to a minimum of 100mm below the proposed invert. The pipe shall be bedded with ¾" clear stone. When the pipe has been installed to the proper grade and depth, the excavation shall be backfilled with ¾" clear stone and wrapped in filter fabric from the bottom of the excavation to the spring line of the pipe. Care shall be taken to ensure that the backfill on either side of the culvert does not differ by more than 300mm so that the pipe is not displaced. The access culverts shall be backfilled from the spring line to within 150mm of finished grade with Granular "B" Type II. Where no vehicular traffic is proposed to cross the culvert, the culvert may be backfilled with select native material. The top 150mm shall be backfilled with compacted 100% crushed granular "A" material to finished grade. In sections where no vehicular traffic is proposed to cross the culvert, the top 150mm shall be topsoil and seeded as per the restoration specification. If asphalt is proposed, the asphalt shall be HL3 and shall match the existing thickness. In these cases, the compacted granular "A" shall occupy 150mm below the proposed asphalt.

All culverts included in the profile have been specified with rip rap end walls. Should the end wall specified change the culvert length shall be altered to accommodate the change.

If rip rap end walls are used, they shall consist of 150mm x 300mm quarry stone or approved equal. Where applicable, rip rap shall be re-used. The Contractor shall ensure that the rip rap is separated from any soil prior to final placement. The area to receive the rip rap shall be graded to a depth of 400mm below finished grade. Filter fabric (Mirafi P150 or approved equal) shall then be placed with any joints overlapped a minimum

600mm. The quarry stone shall then be placed with the smaller pieces placed in the gaps and voids to give it a uniform appearance.

If concrete block end walls are used, they shall consist of concrete blocks with dimensions of approx. 600mm x 600mm x 1200mm, 600mm x 600mm x 2400mm or 300mm x 600mm x 1200mm as required. 600mm x 600mm x 2400mm concrete blocks will be paid at twice the unit price established per block, all others will be at a unit of 1. The top of the culvert shall govern block elevation. The correct block shall be set with the top of the block equal to the top of the culvert. 2400mm wide concrete blocks shall be used as the top block on arch and larger round pipes in order to span between the culvert top and the supporting block. The blocks shall be set at each end of the culvert so that each row of blocks will be offset approx. 100mm from the row below. The bottom row shall consist of one block placed parallel to the culvert. The blocks shall be imbedded a minimum of 300mm into each bank and shall extend into the drain bottom to match the pipe invert or below. Erosion protection shall be placed on the banks next to the end walls. The erosion protection shall consist of 150mm x 300mm quarry stone over filter fabric (Mirafi P150 or approved equal). It shall extend 500mm upstream or downstream and from top of bank to top of bank at each end wall.

The blocks shall be placed over a layer of filter fabric (Mirafi P150 or approved equal). The culvert shall be backfilled in conjunction with the placement of the blocks. The gaps between the culvert and the blocks shall be filled with concrete cinder blocks/bricks and mortar to give the end wall a finished appearance.

It is the Contractors responsibility to ensure that adequate cover is obtained prior to crossing the culvert in accordance with the manufacturer’s recommendations.

16. Maintenance

The Contractor shall be responsible for maintenance of the drain, including access culverts for a period of one year after their installation. This will include repairing any settlement areas on the travel surface with Asphalt, Granular “A” and/or topsoil and seed.

17. Subsurface Drainage

All existing subsurface drains encountered during construction of the open channel and tile drain shall be reconnected or extended to the open channel and tile drain unless otherwise noted on the drawings or as directed by the Drainage Superintendent or Engineer.

A suitable length of equivalent sized PE agricultural tubing shall be used to connect the drain to the open channel. Manufactured fittings shall connect the PE tile to the drain. The connections shall be carefully backfilled to ensure there is adequate support under the pipe and large clumps of clay do not displace the tile.

Tile outlets larger than 150mm in diameter, or as determined by the Drainage Superintendent or Engineer at the time of construction, require erosion protection and rodent grates. The erosion protection made up of rip rap and filter fabric shall be installed on the embankment slope from 0.3m above the tile obvert to the channel bottom. The erosion protection shall be 1.0m wide. Rip rap shall be made up of 150mm to 300mm quarry stone or approved equal. The area to receive the rip rap shall first be graded to allow the placement of the rip below finished grade. After grading, a layer of filter fabric (Mirafi P270 or approved equal) is to be placed with any joints overlapped a minimum of 600mm. Rip rap shall then be placed with the smaller pieces placed in the gaps and voids to give it a uniform appearance.

18. Supply and Install Storm Drain

The storm drain shall be HDPE smooth wall pipe (bell and spigot joints with 320 kPa) or approved equivalent. Laser control shall be used to ensure grade.

The drain shall run in approximately the same alignment as the existing.

The pipe shall be bedded with ¾" clear stone from 100mm below the invert to the spring line of the pipe. The pipe shall be backfilled from the spring line to 300mm above the pipe with Granular 'A' material. All bedding and backfill shall be included as part of this item. Within driveways the pipe shall be backfilled with 100% crushed Granular "A" to finished grade. Where an asphalt driveway is specified, the asphalt shall be HL3 and shall match the existing thickness. Where no vehicular traffic is proposed to cross the pipe, the tile may be backfilled with select native material. In these sections, the top 100mm shall be topsoil and seeded as per the restoration specification.

As part of this item, excess excavated material shall be disposed of offsite at the expense of the Contractor.

19. Supply and Install Catch Basins

All work shall conform to OPSS 402 and OPSS 407.

The unit price shall include supply and installation of precast concrete catch basins per OPSD-705.010 complete with precast adjustment units, and frame and grates per OPSD-400.020 or approved equivalent.

The catch basins shall be made with the top sections separate from the base sections in order to allow riser sections to be installed or removed as necessary (i.e. the base section shall not extend for more than 150mm above the top of the highest opening in the base section).

The catch basins shall be set at the final elevations as directed by the Drainage Superintendent or Engineer. The catch basins shall be set on a layer of clear stone. The clear stone shall be extended up to the spring line of the inlet and outlet pipe connections. All catch basins shall have a 300mm sump.

All excess excavated material shall be disposed of offsite. All Backfill shall be clean, select, native material compacted to 95% Standard Proctor Maximum Dry Density (SPMDD) with the upper one metre compacted to 98% SPMDD.

This item shall include any grading required in the vicinity of the catch basins.

Structure	Station	Type (mm)	Inlet Elev. (m)	Outlet Pipe Elev. (m)	Inlet Pipe Elev. (m)
CB #1	1+072	600x600	185.75	181.63 (W) 450	181.64 (E) 450
CB #2	1+090	600x600	185.70	184.66 (W) 450	184.67 (S) 450
CB #3	1+148	600x600	185.68	184.76 (N) 450	184.77 (E) 450
CB #4	1+186	600x600	185.85	184.82 (W) 450	184.85 (E) 375
CB #5	1+220	600x600	185.80	184.90 (W) 375	184.91 (E) 300
CB #6	1+262	600x600	185.93	185.00 (W) 300	185.10 (E) 200

20. Rodent Grate

A manufactured rodent rotating grate shall be installed on the outlet pipe to the open channel.

21. Rip Rap

Erosion protection shall be installed at the proposed tile outlet at Station 1+055, adjacent the poles between Station 0+781 and 1+055 if required and at the discretion of the Engineer or Drainage Superintendent. The intent is to re-use as much of the existing erosion protection as possible. The Contractor shall ensure that the rip rap is separated from any soil prior to final placement. Erosion protection made up of rip rap and filter fabric shall be installed on the channel side slope from the bottom of the channel to the top of the bank and for a distance of 1.5m on either side of the outlet pipe and poles as required. If additional rip rap is required, it shall be made up of 150mm to 300mm quarry stone or approved equal. The area to receive the rip rap shall first be graded to allow the placement of the rip rap to a depth of 400mm below finished grade. After grading, a layer of filter fabric (Mirafi P150 or approved equal) is to be placed with any joints overlapped a minimum of 600mm. Rip rap shall then be placed with the smaller pieces placed in the gaps and voids to give it a uniform appearance.

22. Seeding/Restoration including Buffer Strip

All areas disturbed by construction including accesses, side slopes, working areas, etc. shall be restored with 100mm of screened topsoil or the stripped topsoil relevelled. Hydro seed shall be placed on all areas previously grassed, side slopes, and the buffer strip. Farmers fields shall be left in a condition suitable to cultivation. Hydroseed on the side slopes of the channel shall be bonded fiber matrix mulch hydroseed. The buffer strip shall be established for 1.22m from the south top of bank. The buffer strip areas that shall be hydroseeded as part of the construction under this report are from Station 0+021 to 0+781.

23. Environmental Considerations

The Contractor shall take care to adhere to the following considerations.

- Operate machinery in a manner that minimizes disturbance to the banks of the watercourse.
- Erosion and sediment control measures must be installed prior to construction to prevent sediment from entering the water body.

- Material shall not be placed in areas regulated by the Conservation Authority or Ministry of Natural Resources.
- All granular and erosion control materials shall be stockpiled a minimum of 3.0m from the top of the bank or excavation. Material shall not be placed in surface water runs or open inlets that enter the channel.
- All activities, including maintenance procedures, shall be controlled to prevent the entry of petroleum products, debris, rubble, concrete, or other deleterious substances into the water. Vehicle and equipment refuelling and maintenance shall be conducted away from the channel, any surface water runs, or open inlets. All waste materials shall be stockpiled well back from the top of the bank and all surface water runs and open inlets that enter the drain.
- When possible, all construction within the open channel shall be carried out during periods of low flow or in dry conditions.
- The Contractor shall conduct regular inspections and maintain erosion and sediment control measures and structures during the course of construction.
- The Contractor shall repair erosion and sediment control measures and structures if damage occurs.
- The Contractor shall remove non-biodegradable erosion and sediment control materials once site is stabilized.
- Remove all construction materials from site upon project completion.

Light duty silt fencing shall be installed down-gradient of the work for the duration of construction.

The light duty silt fencing shall be supplied and installed in accordance with OPSS 805 and OPSD 219.110. The light duty silt fencing shall be removed once the disturbed area has been re-vegetated.

Best Management Practices – Culvert Replacements in Municipal Drains

This document describes the conditions on which one may proceed with a culvert replacement in a municipal drain without DFO approval/notification. All municipal, provincial, or federal legislation that applies to the work being proposed must be respected. If the conditions/requirements below cannot be met, please complete the drain notification form and submit it to the Fisheries Protection Program form review at: FisheriesProtection@dfo-mpo.gc.ca.

Potential Impacts to Fish Habitat

- Infilling fish habitat by encroachment of the water crossing footprint or channel realignment to accommodate culvert
- Harmful substrate alteration of fish habitat (e.g. blockage of groundwater upwellings, critical SAR habitat, spawning areas)
- Removal of riparian vegetation and cover along the banks of the municipal drain
- Removal of edge habitat (e.g. undercut bank, shallower areas with lower velocity, aquatic vegetation) creation of barriers to fish movement (e.g. perched crossings, velocity barriers, alteration of the natural stream gradient)
- Alteration of channel flow velocity and/or depth (e.g. oversized culvert resulting in insufficient depth for fish passage at low flow or undersized culvert resulting in a flow velocity barrier at high flow)
- Alteration of channel morphology and sediment transport processes caused by the physical structure of the crossing resulting in upstream and downstream sediment aggradation/erosion
- Re-entry of sediment that was removed/stockpiled into the watercourse
- Erosion downstream from sudden release of water due to the failure of site isolation
- Stranding of fish in isolated ponds following de-watering of the site
- Impingement or entrainment of fish when de-watering pumps are used
- Short term or chronic transport of deleterious substances, including sediment, into fish habitat from construction or road drainage

Requirements

The following requirements must be met:

- There are no aquatic Species at Risk present in the work zone or impact zone. To confirm there are no aquatic Species at Risk present, refer to the document, A Guide for Interpreting Fish and Mussel Species at Risk Maps in Ontario which can be found at: http://www.dfo-mpo.gc.ca/Library/356763.pdf. Links for Ontario Conservation Area specific fish and mussel maps that include critical habitat extents and a list of aquatic Species at Risk found within the conversation authority boundary can be found on Page 5 of A Guide for Interpreting Fish and Mussel Species at Risk Maps in Ontario.
- The culvert is embedded into the streambed and must allow for the free passage of fish.
- The work involves like-for-like replacements of existing road or private access culverts on all drain types without SAR.
- On C and F Drains only, this can also include replacements with extensions and end walls for the purposes of providing the property or road with safe access, but the project permanent footprint will not increase more than 250 m^2 below the high water mark.
- The project does not involve replacing a bridge or arch with one or more culverts installed in parallel or a larger-diameter culvert with more than one culvert installed in parallel.

- The project does not involve building more than one culvert installed in parallel on a single watercourse crossing site (e.g. twin culvert).
- The project does not involve temporarily narrowing the watercourse to an extent or for a duration that is likely to cause erosion, structural instability or fish passage problems.
- The municipal drain has no flow/low flow or is frozen to the bottom at the time of the replacement.
- In-water work is scheduled to respect timing windows (Tables 1 and 2) to protect fish, including their eggs, juveniles, spawning adults, and/or the organisms upon which they feed.
- The work can be conducted using the Culvert Removal Method described below and Standard Measures to Avoid Causing *Serious Harm to Fish* will be implemented when required.

Note: If your project must be conducted without delay in response to an emergency (e.g. the project is required to address an emergency that poses a risk to public health or safety or to the environment or property), you may apply for an Emergency Authorization (http://www.dfo-mpo.gc.ca/asp/forceDownload.asp?FilePath=/pnw-ppe/reviews-revues/Emergency-Authorizations-Autorisations-Urgences-eng.pdf).

Culvert Removal Methodology

- Plan/manage the work site in a manner that prevents sediment from entering the municipal drain by installing sediment and erosion control materials where required. Ensure that a sediment and erosion control plan is developed and modified as necessary for the site.
- Where required, install effective erosion and sediment control measures before starting work to prevent sediment from entering the municipal drain.
- Implement site isolation measures when in-water work is required.
    - Install an impervious barrier upstream of the work area (Figure 1). If possible, install a secondary barrier upstream of the work area for added protection.
    - Attempt to drive out the fish from the work area and then install the impervious barrier downstream of the work area. This may reduce or eliminate the need for a fish salvage.
    - When the drain is flowing, maintain downstream flows (e.g. bypass water around the work site using pumps or flume pipes; Figure 2). Provide temporary energy dissipation measures (e.g. rip-rap) at discharge point of the hose or temporary outlet pipe when required. Routinely inspect bypass pump and hose or pipe to ensure proper operation. Inspect discharge point for erosion and reposition hose/pipe or install additional temporary energy dissipation material as needed.
    - Dewater the isolated work area. The hose for a pump may discharge along the top of the bank into existing vegetation; however, the area should be monitored for signs of erosion. Reposition the hose or install additional temporary energy dissipation material as needed.
    - A fish screen with openings no larger than 2.54 mm (0.10 inches) should be equipped on any pump used during the operation. Note: Additional information regarding fish screens can be found in the DFO Freshwater Intake End-of-Pipe Fish Screen Guideline document (http://www.dfo-mpo.gc.ca/Library/223669.pdf).
    - Collect any fish present in the isolated work area and relocate them downstream.
    - Fish salvage operations must be conducted under a license issued by the Ontario Ministry of Natural Resources and Forestry (MNRF). The MNRF should be contacted well in advance of any work to obtain the required fish collection license.
- Install the culvert so that it is embedded into the streambed; ensure the culvert remains passable (e.g. does not become perched) by fish and wildlife.

- Decommission the site isolation in a manner that minimizes the introduction of sediment. The downstream isolation barrier shall gradually be removed first, to equalize water levels inside and outside of the isolated area and to allow suspended sediments to settle.
- Stabilize and remove waste from the site.
- Where required, maintain effective erosion and sediment control measures until complete re-vegetation of disturbed areas is achieved.

Figure 2. Isolation of Site

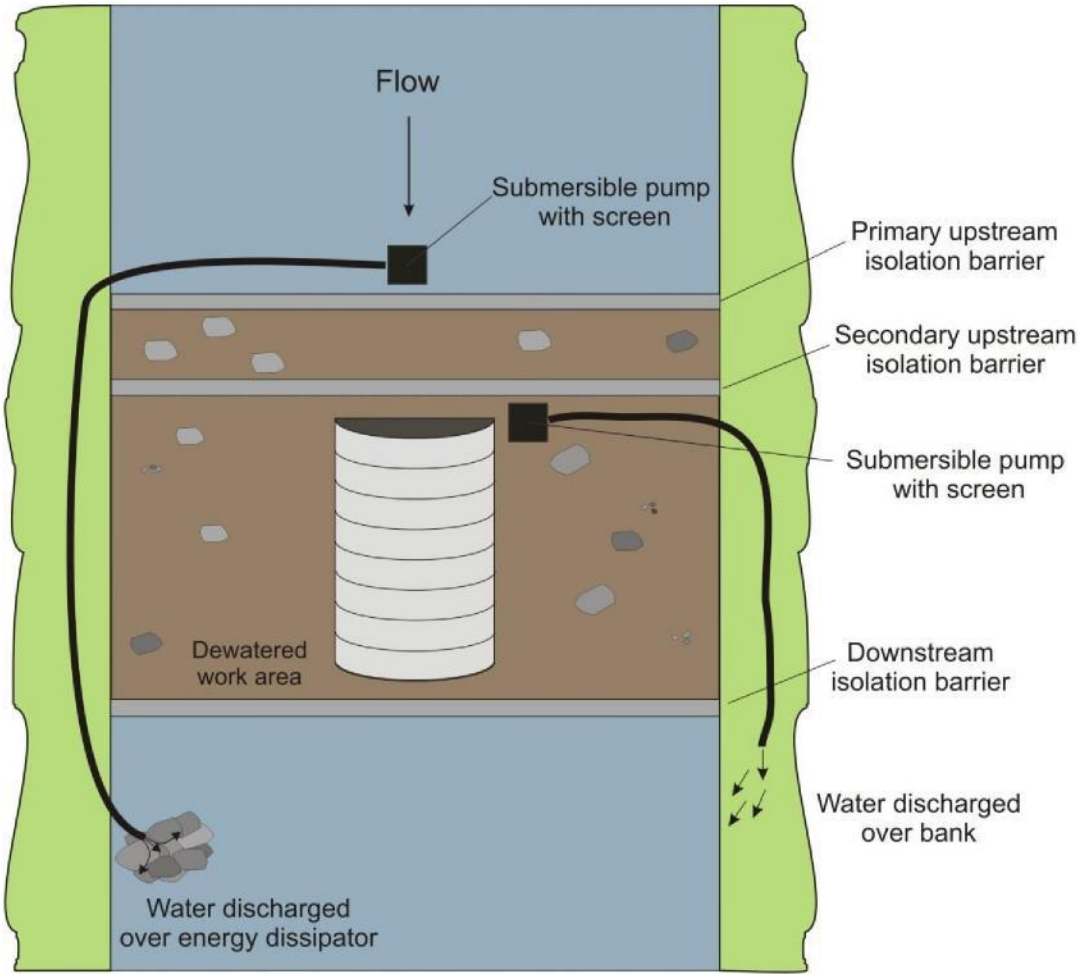


Figure 3. Isolation and Bypass Diversion when Working In-Water

Timing Windows

Figure 1 and Tables 1 and 2 can be used to determine the Restricted Activity period for the drain based on its classification. Note: Timing windows identified on Conservation Authority permits or Ministry of Natural Resources (Government of Ontario) work permits may differ and take precedence.

Figure 1. Ontario's Northern and Southern Region boundaries for determining application of restricted activity timing windows.

Table 1. Restricted Activity timing windows for the protection of spawning fish and developing eggs and fry in the Northern Region. Dates represent when work should be avoided.

Drain Type	Restricted Activity Period
A	September 1 to July 15
B	September 1 to July 15
C	April 1 to July 15
D	September 1 to July 15
E	April 1 to July 15

Table 2. Restricted Activity timing windows for the protection of spawning fish and developing eggs and fry in the Southern Region. Dates represent when work should be avoided.

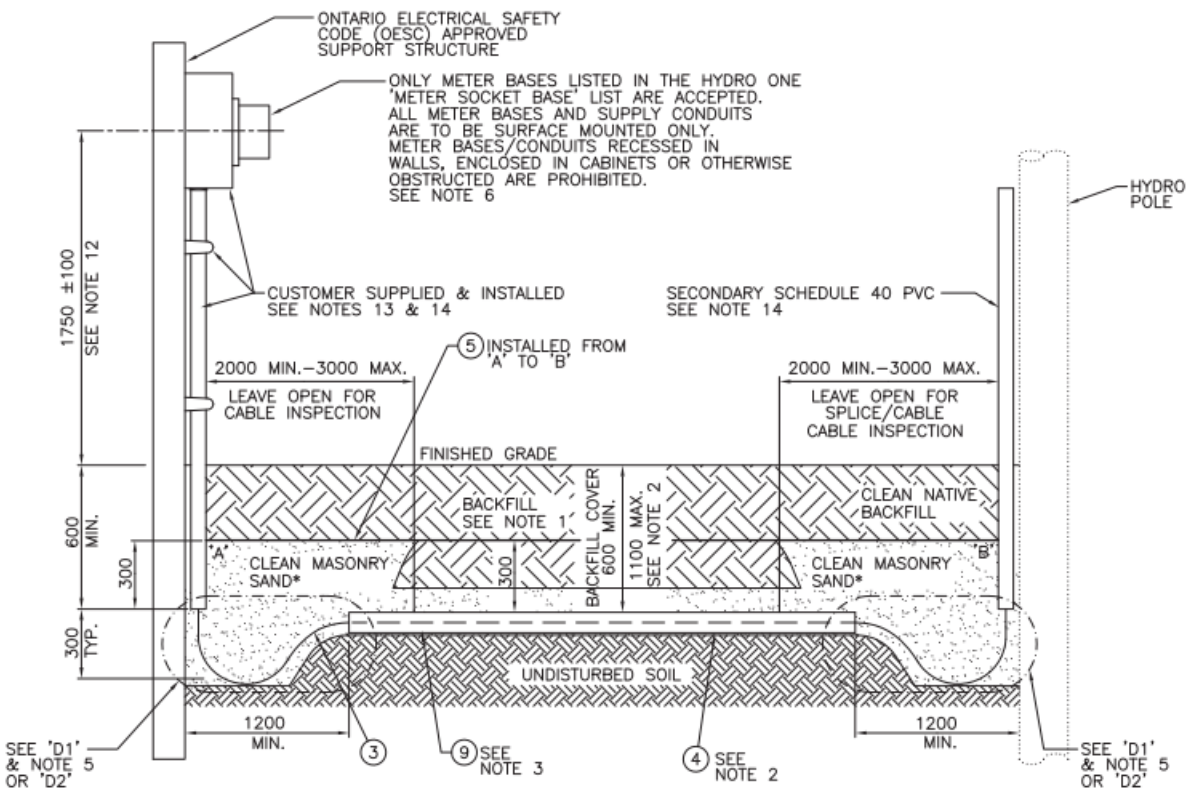
Drain Type	Restricted Activity Period
A	September 15 to July 15
B	March 15 to July 15
C	March 15 to July 15
D	October 1 to July 15
E	March 15 to July 15

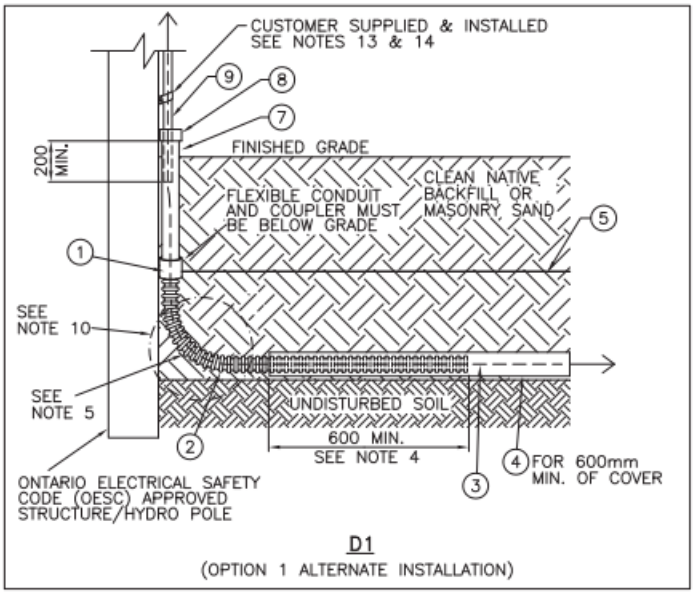
Standard Measures to Avoid Causing *Serious Harm to Fish*

When implementing a culvert removal project in a municipal drain, the *Fisheries Act* still requires an individual/company to ensure they avoid causing *serious harm to fish* during any activities in or near water. The following advice will help one avoid causing harm and comply with the *Act* (for additional information see http://www.dfo-mpo.gc.ca/pnw-ppe/measures-mesures/measures-mesures-eng.html).

1. Schedule work to avoid wet, windy and rainy periods that may increase erosion and sedimentation.
2. Whenever possible, operate machinery on land above the high water mark or on ice and in a manner that minimizes disturbance to the banks and bed of the municipal drain.
   - Ensure that machinery arrives on site in a clean condition and is maintained free of fluid leaks.
   - Limit machinery fording of the municipal drain to a one-time event (i.e., over and back), and only if no alternative crossing method is available. If repeated crossings of the municipal drain are required, construct a temporary crossing structure.
   - Wash, refuel and service machinery and store fuel and other materials for the machinery in such a way as to prevent any deleterious substances from entering the water.
   - Keep an emergency spill kit on site in case of fluid leaks or spills from machinery.
3. Install effective sediment and erosion control measures before starting work to prevent sediment from entering the municipal drain. Inspect them regularly during the course of construction and make all necessary repairs if any damage occurs.
4. Erosion and sediment control measures should be maintained until all disturbed ground has been permanently stabilized, suspended sediment has resettled to the bed of the municipal drain and runoff water is clear.
5. Undertake all in-water activities in isolation of open or flowing water while maintaining the natural flow of water downstream and avoid introducing sediment into the municipal drain.
6. Ensure applicable permits for relocating fish are obtained and relocate any fish that become trapped in isolated pools or stranded in newly flooded areas to the main channel of the watercourse.
7. Ensure that the water that is being pumped/diverted from the site is filtered (sediment remove) prior to being released (e.g. pumping/diversion of water to a vegetated area).
8. Implement measures for containing and stabilizing waste material (e.g. dredging spoils, construction waste and materials, commercial logging waste, uprooted or cut aquatic plants, accumulated debris) above the high water mark of nearby waterbodies to prevent re-entry.
9. Stabilize shoreline or banks disturbed by any activity associated with the project to prevent erosion and/or sedimentation, preferably through re-vegetation with native species suitable for the site.
10. If replacement rock reinforcement/armouring is required to stabilize eroding or exposed areas, then ensure that appropriately-sized, clean rock is used; and that rock is installed at a similar slope to maintain a uniform bank/shoreline and natural stream/shoreline alignment.
11. Remove all construction materials from site upon project completion.

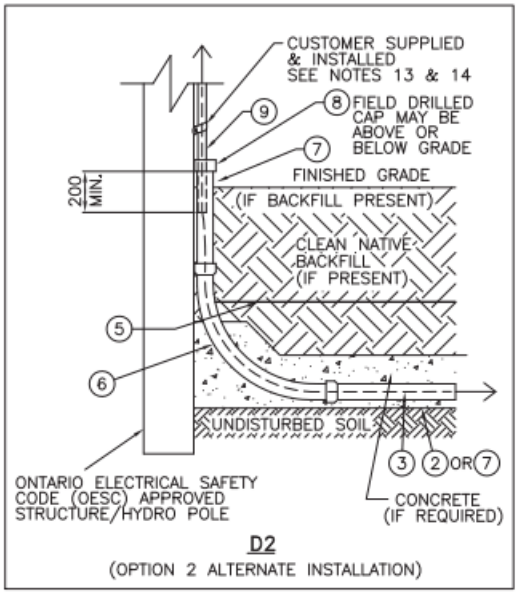
APPENDIX A
HYDRO ONE TRENCH DETAIL





D1

(OPTION 1 ALTERNATE INSTALLATION)



D2

(OPTION 2 ALTERNATE INSTALLATION)

FOR SHEET 2 OF THIS DRAWING SEE DU–03–209.1–0501
FOR SHEET 3 OF THIS DRAWING SEE DU–03–209.1–0502

ALL DIMENSIONS IN MILLIMETRES UNLESS OTHERWISE STATED

Rev No.	Date	Revision Particulars	dwn	ckd	des	app
04	AUG 2019	REMOVED 2" OPTION, UNIVERSAL SIZE. MODIFIED PARTS 1, 2 & 8. MODIFIED NOTES 1, 2 & 4. ADDED NEW NOTES 12, 13 & 14. REMOVED PREVIOUS PART 9 (STRAPS). INTRODUCED GENERIC SUPPORT STRUCTURE FOR CUSTOMER INSTALLATION.	PC/LS	SJ	SJ	MM
03	SEP 2018	GENERAL UPDATES. CHANGED TO NEW DWG. & NUMBERING FORMAT. FOR PREVIOUS REVISIONS REFER TO DU–03–209.1–R2.	SO	PC	AS	PS

hydro one **Hydro One Networks Inc.**

Drawn By:	Checked By:	Designed By:	Design Approved By:
L.SEQUEIRA			
Scale: N.T.S.	Date: (yyyy/mm/dd) 2012/08/30	Pole ID:	

Title: TRENCH DETAIL – SECONDARY SERVICE CABLE FROM DIP POLE TO METER BASE

Drawing No. DU–03–209.1–0500

Rev. No. 04

A4 (210 x 297) millimetres 0 10 50

Sheet Number: 1 / 3

TITLE BLOCK REV 02 – AUGUST 2014

NOTES:

1. BACKFILL: ENSURE DB2 CONDUIT IS ENVELOPED WITH MASONRY SAND UPON INSTALLATION (75mm MINIMUM BELOW AND 150mm MINIMUM ABOVE). REMAINDER OF BACKFILL MUST BE CLEAN AND FREE OF DEBRIS TO PREVENT DAMAGE TO THE DUCT. BACKFILL SHALL BE WELL TAMPED.
2. STRAIGHT DUCT SHALL BE EMPLOYED IN THE TRENCH TO HOUSE THE CABLE. IT SHALL BE 100mm (4") DIAMETER PVC TYPE DB2 CONDUIT. THE ENDS OF THE DUCT SHALL BE CAPPED OR BAGGED TO PREVENT DEBRIS AND MOISTURE FROM ENTERING THE DUCT PRIOR TO CABLE INSTALLATION. IF OPEN TRENCH ENDS MUST BE LEFT UNATTENDED AFTER CABLE INSTALLATION, SEE DU–03–209.1–0500 OPTION 1, WITH A LENGTH OF FLEXIBLE CONDUIT TO MAKE 90° TRANSITION.

   SEE OPTION 2 FOR ALTERNATE METHODS.
3. PULL TAPE: A 1/2" WIDE POLYESTER PULLING TAPE MUST BE INSTALLED THROUGH THE ENTIRE LENGTH OF THE DUCT.
4. INSERT 3" FLEXIBLE CONDUIT 600mm IN THE DB2 CONDUIT.
5. RADIUS MUST BE GREATER THAN THE SPECIFIED CABLE MINIMUM BENDING RADIUS.
6. INSTALL METER COMPARTMENT AS PER ONTARIO ELECTRICAL SAFETY CODE (OESC), USE ONLY HYDRO ONE APPROVED METER BASES LISTED IN THE HYDRO ONE 'METER SOCKET BASE' LIST. METER BASE TO MAINTAIN 1M MINIMUM CLEARANCE FROM DISCHARGE OF ANY COMBUSTIBLE GAS RELIEF DEVICE OR VENT.
7. TELECOMMUNICATION PLANT MAY SHARE SERVICE TRENCH BUT MUST BE INSTALLED IN ITS OWN CONDUIT.
8. PREFERRED ROUTING FOR GAS SERVICE SHALL BE ON OPPOSITE SIDE OF THE BUILDING THAN THAT OF THE ELECTRICAL SERVICE. IF COMMON TRENCHING IS UNAVOIDABLE, 300mm MINIMUM CLEAR SEPARATION SHALL BE MAINTAINED IN ALL DIRECTIONS BETWEEN GAS SERVICE AND ELECTRICAL SUPPLY CABLE.
9. CLEARANCES, DEPTHS, SEPARATIONS AND FORMS OF MECHANICAL PROTECTION OF THE CABLE ARE MINIMUM REQUIREMENTS. INCREASED CLEARANCES AND OR ADDITIONAL FORMS OF MECHANICAL PROTECTION ARE CONSIDERED POSITIVE DEVIATIONS AND ARE ALLOWED.
10. IF FURTHER TRENCHING ALONG ROAD ALLOWANCE IS REQUIRED, IT SHALL BE CONSTRUCTED PER HYDRO ONE STANDARD TRENCH PROFILES.
11. RISER CONDUIT TO BE EASILY REMOVED BY HYDRO ONE FOR CABLE INSTALLATION PURPOSES.
12. FINAL METER BASE HEIGHT IN REFERENCE TO FINISHED GRADE.
13. CUSTOMER SUPPLIED AND INSTALLED CONDUIT, METER BASE, CLAMPS AND ASSOCIATED HARDWARE INSTALLED PER ONTARIO ELECTRICAL SAFETY CODE (OESC).
14. THE METER BASE AND DIP POLE CONDUITS WILL VARY IN SIZE DEPENDING ON CONDUCTOR SIZE (i.e. 2" DIAMETER FOR 3/0, 3" FOR 250Kcmil OR 500Kcmil CONDUCTOR). FLEXIBLE CONDUIT WILL BE 3" FOR ALL CONDUCTOR SIZES FOR TEMPORARY PROTECTION OF TRENCH ENDS PER OPTION 1 AND 4" FOR ALL CONDUCTOR SIZES IF USED AS MAIN CONDUIT PER OPTION 2. APPROPRIATELY SIZE COUPLERS (SHOWN AND LISTED IN THE PARTS LIST) SHALL BE USED TO CONNECT THE SCHEDULE 40 PVC TO THE FLEXIBLE CONDUIT.

FOR SHEET 1 OF THIS DRAWING SEE DU–03–209.1–0500
FOR SHEET 3 OF THIS DRAWING SEE DU–03–209.1–0502

ALL DIMENSIONS IN MILLIMETRES
UNLESS OTHERWISE STATED

PARTS LIST

PART No.	MM No.	DESCRIPTION	QTY.
1	30031161 30030236 30031918	COUPLER KIT, 3" FLEX TO 2" RIGID COUPLER KIT, 3" FLEX TO 3" RIGID COUPLER KIT, 4" FLEX TO 4" RIGID	A/R
2	30030235 30031917	CONDUIT, FLEX, 3" CONDUIT, FLEX, 4"	A/R
3	30005908 30005915 30005959	SERVICE CABLE, 3/0 AWG, 3–COND., AL. SERVICE CABLE, 250Kcmil, 3–COND., AL. SERVICE CABLE, 500Kcmil, 3–COND., AL.	A/R
4	30007710	CONDUIT, PVC, 4", DB2	A/R
5	20002181	CAUTION TAPE, BURIED ELECTRIC LINE	A/R
6	30007687	SWEEP, 4" x 16" RADIUS, SCHEDULE 40, PVC	A/R
7	30007583	CONDUIT, 4", SCHEDULE 40, PVC	A/R
8	30031602	CAP, 4", SCHEDULE 40, PVC	A/R
9	20000007	TAPE, PULLING, 1/2" WIDE, POLYESTER	A/R

MM# = REFER TO SECTION 16 ONLY | A/R = AS REQUIRED

* = SUPPLIED BY CUSTOMER

Rev No.	Date	Revision Particulars	dwn	ckd	des	app
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03	SEP 2018	GENERAL UPDATES. CHANGED TO NEW DWG. & NUMBERING FORMAT. FOR PREVIOUS REVISIONS REFER TO DU–03–209.1–R2.	SO	PC	AS	PS

hydro one **Hydro One Networks Inc.**

Drawn By:	Checked By:	Designed By:	Design Approved By:
L.SEQUEIRA			
Scale: N.T.S.	Date: (yyyy/mm/dd) 2012/08/30	Pole ID:	

Title: TRENCH DETAIL – SECONDARY SERVICE CABLE FROM DIP POLE TO METER BASE

Drawing No. DU–03–209.1–0501 | Rev. No. 04

A4 (210 x 297) millimetres 0 10 50

TITLE BLOCK REV 02 – AUGUST 2014

Hydro One trenching guidelines:
Secondary service trench with supply taken from dip pole
per Hydro One Networks Inc. standard drawing DU–03–209.1–0500

The installation options listed below explain Hydro One Networks' Standard (DU–03–209.1–0500) for the installation of Hydro One owned single–phase secondary underground cables. Regardless of who installs the cable, the trench **must** be constructed per DU–03–209.1–0500/0501. **Note: Options described below will allow the cable installer crew to perform their work without a coordinated site visit with the trench installer.**

For most installations, either Option 1 or Option 2 can be selected by the customer (Option 2 calls for increased mechanical protection via more rigorous conduit); however, Option 2 must be selected for installations where a minimum cover of 600mm is not possible.

Option 1 (requires minimum cover of 600mm): Direct buried cable encapsulated in masonry sand at trench ends as shown in DU–03–209.1–0500

- The trench can be backfilled, excluding open pit area, at either end of trench prior to cable installation.
- The trench must be backfilled with clean masonry sand in areas indicated in DU–03–209.1–0500 and clean native backfill to finished grade immediately after installation of cable.

If the trench end(s) is(are) temporarily left open (i.e. if backfilling cannot occur immediately after cable installation), a length of flexible conduit (specified by Hydro One and listed in DU–03–209.1–0500) shall be applied between the horizontal DB2 conduit and the vertical Schedule 40 PVC at both the meter base and the source pole to provide temporary protection of the cable. See 'D1' in DU–03–209.1–0500. The flexible conduit shall be inserted inside the 100mm DB2 duct a minimum of 600mm.

Option 2 (reduced cover): Schedule 40 PVC / flexible conduit, and sweeps

- In areas of poor soil conditions (e.g. rocky) and where installing straight lengths of Schedule 40 PVC is impossible, flexible conduit can be installed at the sole discretion of Hydro One. This flexible conduit, as listed in DU–03–209.1–0500, shall be 100mm diameter electrical grade corrugated flexible conduit. Flexible drainage pipe or thin wall conduit is **NOT** acceptable.
- In a case where 600mm of cover is not possible, the secondary cable may be installed in Schedule 40 PVC or in a continuous length of flexible conduit (see above for details on flexible conduit) at a minimum cover of 300mm.
- In a case where 300mm of cover is not possible, such as on bald rock, Schedule 40 PVC (or alternatively the flexible conduit as mentioned above) will be covered in a minimum thickness of 3" (75mm) of concrete wherever reduced cover is encountered. The concrete shall cover the conduit at all points until the vertical component of the sweep is reached. If flexible conduit is employed, it shall not permanently extend beyond the concrete and be left exposed.
- Schedule 40 PVC sweeps shall be used at the trench ends to make the transition to the meter base and dip pole conduits. See 'D2' in DU–03–209.1–0500.

NOTE: If any discrepancies between this document and the referenced standard are found, the standard shall prevail. It is **the customer's responsibility to ensure compliance** to the standard. Not complying with the standard will result in Hydro One not completing their work and an "extra trip charge" being applied.

FOR SHEET 1 OF THIS DRAWING SEE DU–03–209.1–0500
FOR SHEET 2 OF THIS DRAWING SEE DU–03–209.1–0501

ALL DIMENSIONS IN MILLIMETRES
UNLESS OTHERWISE STATED

Rev No.	Date	Revision Particulars	dwn	ckd	des	app
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hydro one **Hydro One Networks Inc.**

Drawn By:	Checked By:	Designed By:	Design Approved By:
L.SEQUEIRA			
Scale: N.T.S.	Date: (yyyy/mm/dd) 2012/08/30	Pole ID:	

Title: TRENCH DETAIL – SECONDARY SERVICE CABLE FROM DIP POLE TO METER BASE

Drawing No. DU–03–209.1–0502 Rev. No. 04

A4 (210 x 297) millimetres 0 10 50

TITLE BLOCK REV 02 – AUGUST 2014

R04 ➤

Table 1B
MINIMUM HORIZONTAL CLEARANCES
Between HONI Distribution Equipment (<50 kV) & Other Plant/Structures

Other Plant/Structures		Separation (mm)					
		Underground			Overhead		
		Primary & Secondary Cables/Ducts	Pad-mounted Equipment (Foundation)		Pole (below grade)	Conductor 0-0.75kV (note 3)	Conductor 0.751-50kV (note 3)
			Access side	Non-access Sides			
Water Plant	Water Line	300	300	300	600	-	-
	Valve Box / Chamber	300	300[1]	300[1]	600	-	-
	Hydrant	300	3000	1000	1000	-	-
Sewer Plant	Sewer Line	300	300	300	600	-	-
	Catch Basin	300	300[1]	300[1]	600	-	-
	Manhole	300	300[1]	300[1]	600	-	-
Gas	Gas Line	300[4]	300	300	600	-	-
Traffic / Street Lighting	Pole/Mast/Pillar	600	3000	1000	3000	1000	1000
	Cable or Duct	300	300	300	600	-	-
	Joint Use Pole	600	3000	1000	3000	1000	1000
	U/G Vault / Hand-hole	300	300[1]	300[1]	1000	-	-
	Control Pedestal	300	3000	150[5]	1000	-	-
Comm.	Pedestal	300	3000	150[5]	1000	-	-
	Cable (Direct Buried / Joint-Use Trench)	300 / 0[2]	300	300	600	-	-
	U/G Vault / Hand-hole	300	300[1]	300[1]	1000	-	-
Misc.	Tree (Direct Buried / Duct)	1000 / 300	3000	3000	3000	10	1000
	Building/Structure Foundation[6]	300	3000	1000	5000	-	-

[1] The specified clearance is to the outside of the ground grid of the pad-mounted equipment.
[2] Only applicable in a joint-use trench when there is 300 mm of vertical separation between the communication and supply cables.
[3] Overhead conductors are in full position of horizontal swing as calculated in DL6-109.
[4] Zero horizontal separation is allowed during cable crossing if there is 300 mm vertical clearance.
[5] Communication pedestals located within 3 m of pad-mounted supply equipment shall be bonded to the ground grid. See DU-03-214 for details.
[6] Measured from the nearest extent of the structure including footings and any associated drainage components.

Note: The clearances are measured from the surface of the listed equipment to the closest surface of the other.

LOT 78

LOT 79

LOT 96

LOT 97

HOWARD AVENUE

LOT 93

LOT 92

CONCESSION ROAD 9

RENAUD DRAIN

ESSEX COUNTY ROAD 18

ESSEX COUNTY ROAD 9

8TH CONCESSION DRAIN

LAFRAMBOISE D&W

LONG MARSH DRAIN

BM #1

BM #2

PIKE ROAD

CHANNEL PORTION

PIKE ROAD DRAIN

TILE PORTION
SEE DETAIL PLAN

0+000
0+011
0+144
0+183
0+596
0+624
0+658
0+699
0+781
1+055
1+144
1+262

10
M. SCHWAB & T. DUBE
1.50 Ha

7
R. BORROWMAN
0.69 Ha

6
P. & P. GREENHAM
0.40 Ha

1
W. MAISONVILLE & M. HARRISON
0.13 Ha

372961000001800
2
B. PILLON

8
McGUIRE FARMS INC
4.90 Ha

9
806574 ONTARIO INC

4
T. BASTIEN
0.47 Ha

5
P. & P. GREENHAM
11.02 Ha

3
T. & P. CRAWFORD
0.55 Ha

CON. 7

CON. 8

CON. 9

LEGEND

- DRAINAGE AREA
- PIKE ROAD DRAIN
- MUNICIPAL DRAIN
- (1) CULVERT NUMBER
- EXISTING CULVERT
- EXISTING CULVERT TO BE REPLACED

LICENSED PROFESSIONAL ENGINEER
J. H. WARNER
100520016
NOV. 21, 2024
PROVINCE OF ONTARIO

Dobbin Engineering Inc.
4218 Oil Heritage Road
Petrolia Ontario, N0N 1R0
Phone: (519) 882-0032 Fax: (519) 882-2233

DRAWING NAME:
Pike Road Drain Plan

PROJECT No.
2024-1619

APPROVED
J. WARNER

CHECKED
B. VAN RUITENBURG

DRAWN
C. SAUNDERS

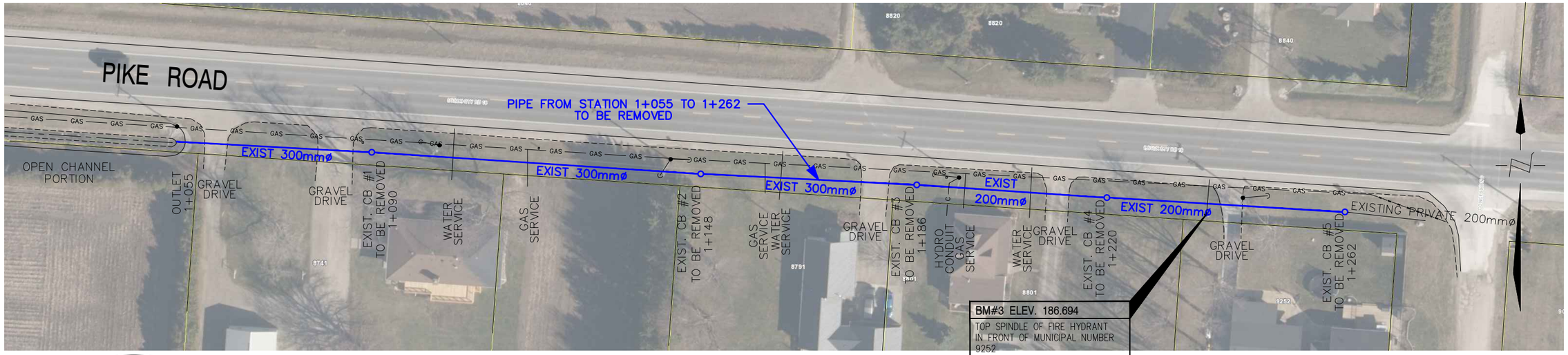
NO.	REVISIONS	DATE	BY
1	FINAL REPORT	NOV. 21, 2024	CS

SCALE: 1:7500
0 100 200 300m

TOWN of AMHERSTBURG

PIKE ROAD DRAIN
PLAN

Last Updated: November 21, 2024



EXISTING CONDITIONS AND REMOVALS

PROPOSED

Dobbin Engineering Inc.
4218 Oil Heritage Road
Petrolia Ontario, N0N 1R0
Phone: (519) 882-0032 Fax: (519) 882-2233

DRAWING NAME: Pike Road Drain Detail Plan

PROJECT No. 2024-1619

APPROVED J. WARNER

CHECKED B. VAN RUITENBURG

DRAWN C. SAUNDERS

NO.	REVISIONS	DATE	BY
1	FINAL REPORT	NOV. 21, 2024	CS

SCALE: 1:750
0 10 20 30m

TOWN of AMHERSTBURG

PIKE ROAD DRAIN DETAIL PLAN

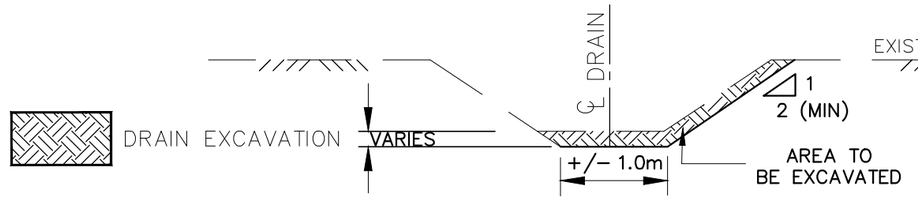
Last Updated: November 21, 2024

LICENSED PROFESSIONAL ENGINEER
J. H. WARNER
100520016
NOV. 21, 2024
PROVINCE OF ONTARIO

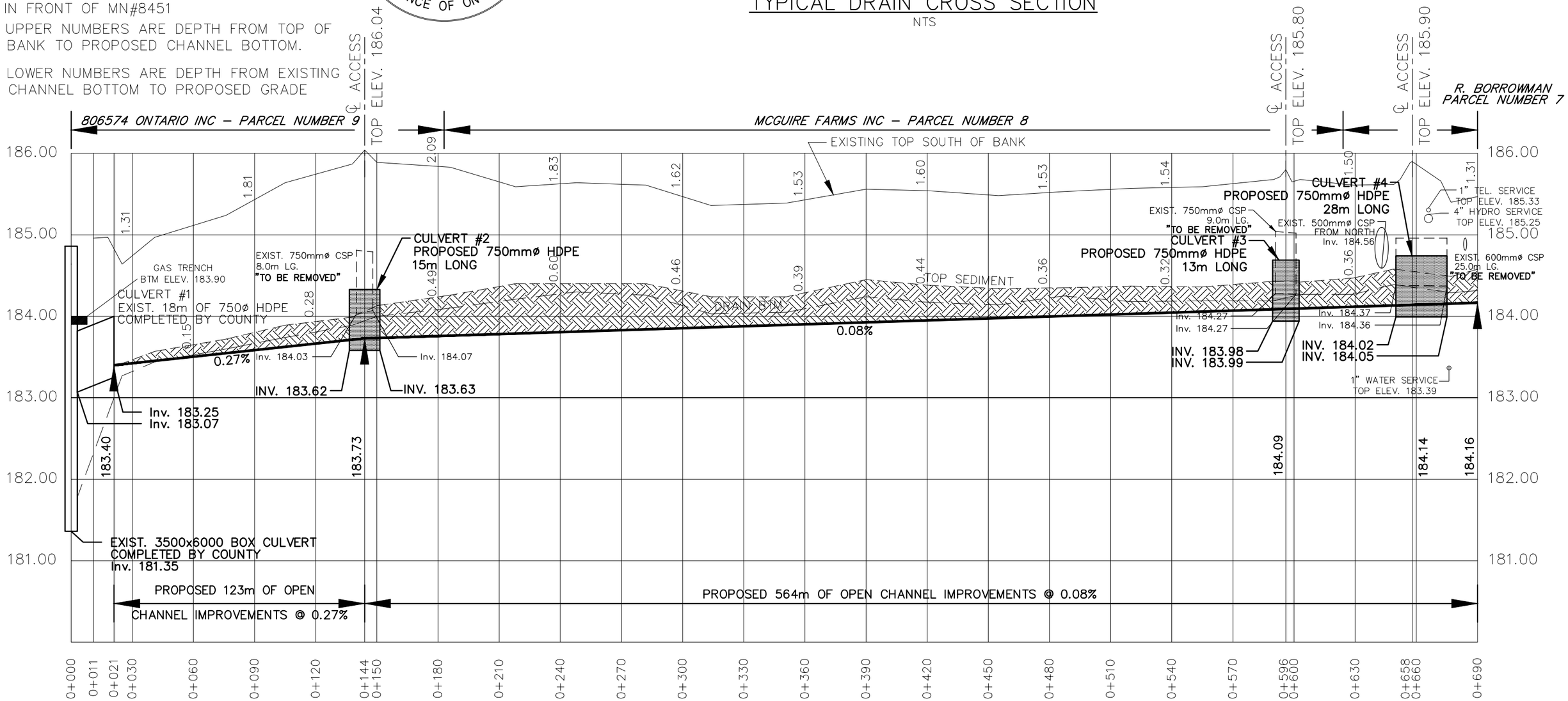
GENERAL NOTES

1. BENCHMARK No.1 ELEV. 186.235
   TOP SPINDLE OF FIRE HYDRANT
   NORTH SIDE OF COUNTY ROAD 18
   IN FRONT OF MN#8060.
   BENCHMARK No.2 ELEV. 186.493
   TOP SPINDLE OF FIRE HYDRANT
   SOUTH SIDE OF COUNTY ROAD 18
   IN FRONT OF MN#8451
2. UPPER NUMBERS ARE DEPTH FROM TOP OF BANK TO PROPOSED CHANNEL BOTTOM.
3. LOWER NUMBERS ARE DEPTH FROM EXISTING CHANNEL BOTTOM TO PROPOSED GRADE

LICENSED PROFESSIONAL ENGINEER
J. H. WARNER
100520016
NOV. 21, 2024
PROVINCE OF ONTARIO



TYPICAL DRAIN CROSS SECTION
NTS



Dobbin Engineering Inc.
4218 Oil Heritage Road
Petrolia Ontario, N0N 1R0
Phone: (519) 882-0032 Fax: (519) 882-2233

DRAWING NAME: Deslippe Drain Profile 1

PROJECT No. 2023–1559

APPROVED	NO.	REVISIONS	DATE	BY
J. WARNER				
CHECKED	1	FINAL REPORT	NOV. 21, 2024	CS
B. VAN RUITENBURG				
DRAWN				
C. SAUNDERS				

SCALE: 1:2,000
0 20 40 60m

TOWN of AMHERSTBURG

PIKE ROAD DRAIN

PROFILE

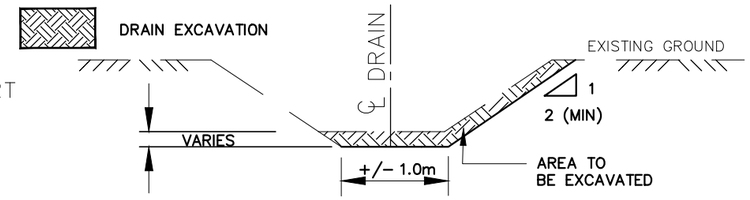
Last Updated: November 21, 2024

GENERAL NOTES

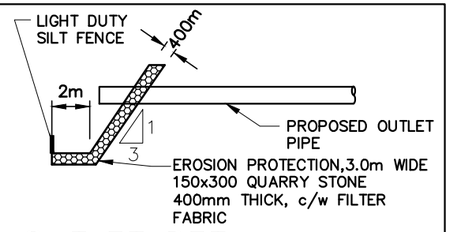
1. BENCHMARK No.3 ELEV. 186.694
   TOP SPINDLE OF FIRE HYDRANT ON SOUTH SIDE OF COUNTY ROAD 18 IN FRONT OF MN#9252.

   BENCHMARK No.2 ELEV. 186.493
   TOP SPINDLE OF FIRE HYDRANT SOUTH SIDE OF COUNTY ROAD 18 IN FRONT OF MN#8451

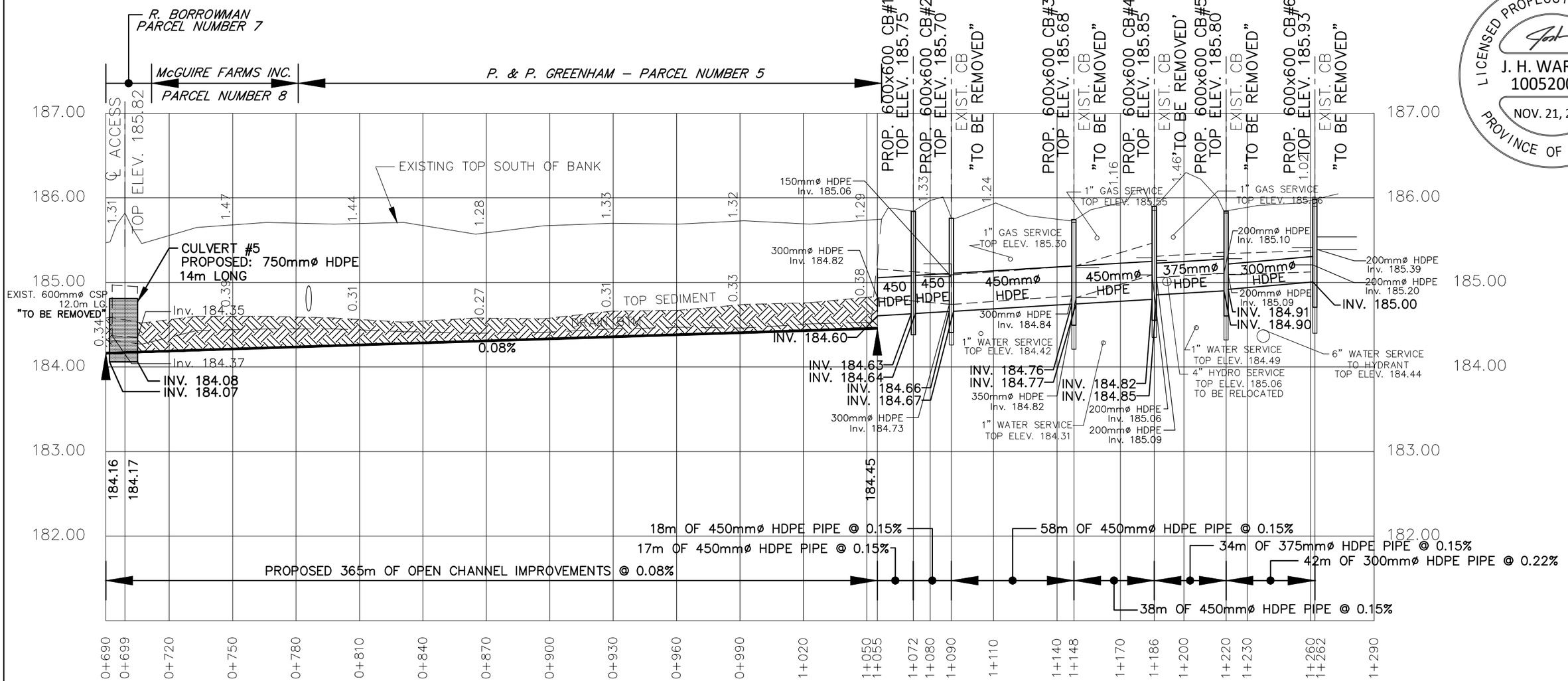
2. UPPER NUMBERS ARE DEPTH FROM TOP OF BANK TO PROPOSED CHANNEL BOTTOM & PROPOSED TILE INVERT
3. LOWER NUMBERS ARE DEPTH FROM EXISTING CHANNEL BOTTOM TO PROPOSED GRADE



TYPICAL DRAIN CROSS SECTION
NTS



OUTLET DETAIL
NTS



Dobbin Engineering Inc.
4218 Oil Heritage Road
Petrolia Ontario, N0N 1R0
Phone: (519) 882-0032 Fax: (519) 882-2233

DRAWING NAME: Pike Road Drain Profile 2

PROJECT No. 2024–1619

APPROVED	NO.	REVISIONS	DATE	BY
J. WARNER				
CHECKED	1	FINAL REPORT	NOV. 21, 2024	CS
B. VAN RUITENBURG				
DRAWN				
C. SAUNDERS				

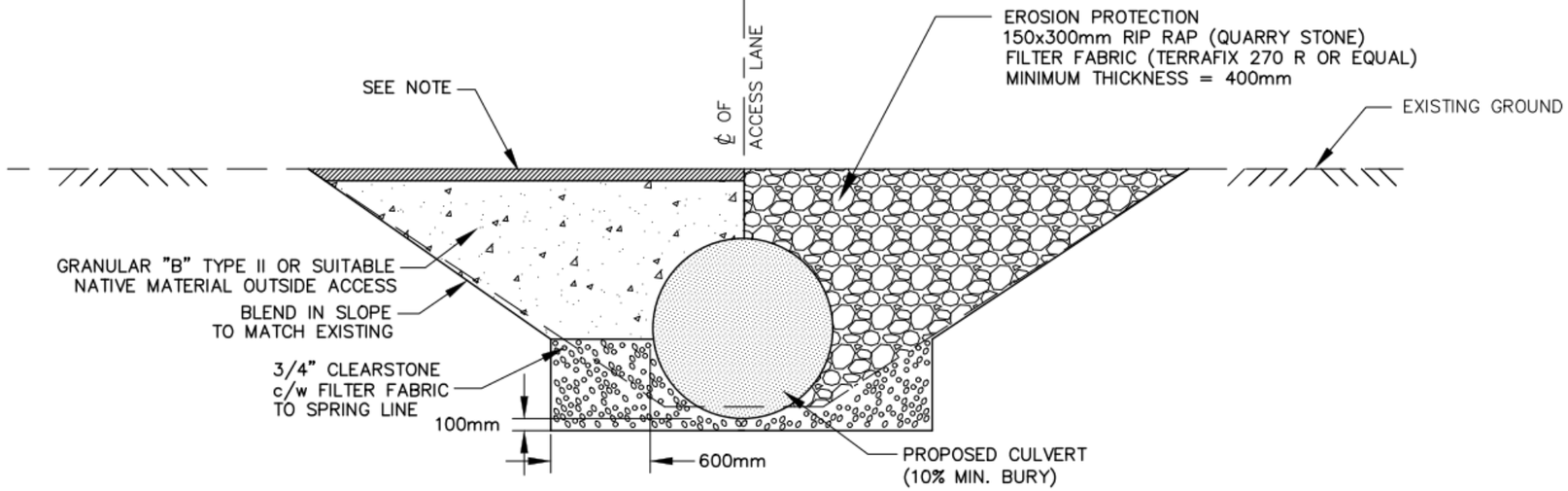
SCALE: 1:2,000
0 20 40 60m

TOWN of AMHERSTBURG

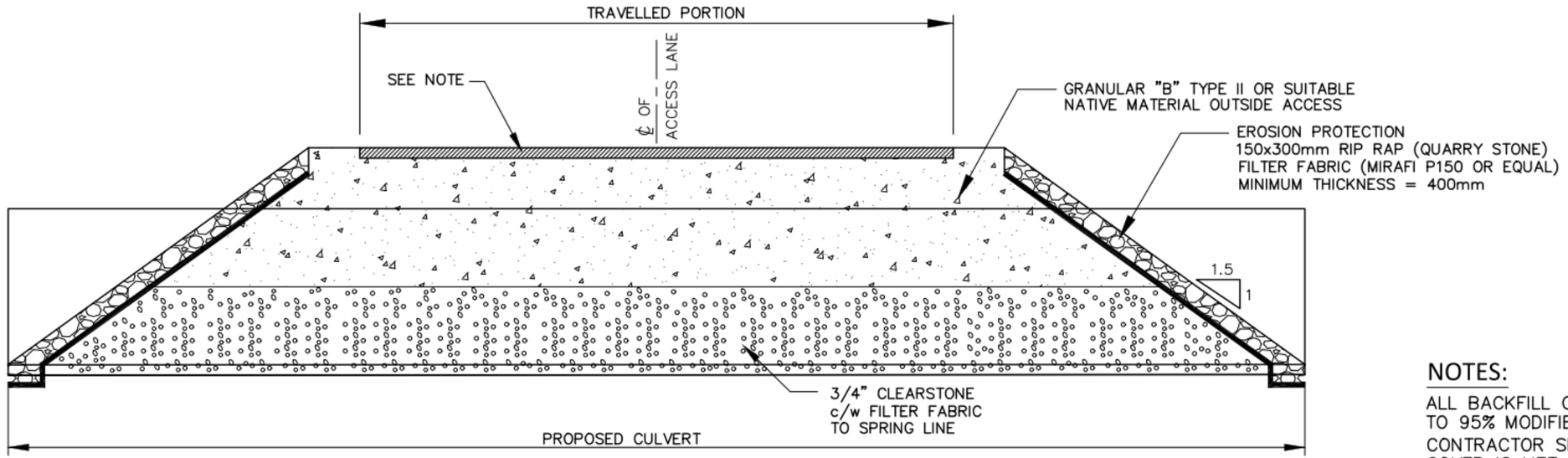
PIKE ROAD DRAIN

PROFILE

Last Updated: November 21, 2024



PROPOSED PIPE END SECTION



PROPOSED CROSS-SECTION

NOTES:

ALL BACKFILL COMPACTED
TO 95% MODIFIED PROCTOR DENSITY
CONTRACTOR SHALL ENSURE MINIMUM
COVER IS MET PRIOR TO CROSSING

ASPHALT ROAD

-HL3 AND HL4 TO MATCH EXISTING THICKNESS
-150mm OF COMPACTED GRANULAR 'A'

ACCESS

-MIN 150mm OF COMPACTED GRANULAR 'A'

LICENSED PROFESSIONAL ENGINEER
J. H. WARNER
100520016
NOV. 21, 2024
PROVINCE OF ONTARIO

Dobbin Engineering Inc.
4218 Oil Heritage Road
Petrolia Ontario, N0N 1R0
Phone: (519) 882-0032 Fax: (519) 882-2233

DRAWING NAME:
Pike Road Drain Typical Culvert Detail

PROJECT No.
2024-1619

APPROVED	NO.	REVISIONS	DATE	BY
J. WARNER				
CHECKED	1	FINAL REPORT	NOV. 21, 2024	CS
B. VAN RUITENBURG				
DRAWN				
C. SAUNDERS				

SCALE 1:75
0 2m

TOWN of AMHERSTBURG

PIKE ROAD DRAIN
TYPICAL CULVERT DETAIL

5
OF 5

Last Updated: November 21, 2024

THE CORPORATION OF THE TOWN OF AMHERSTBURG

BY-LAW NO. 2025-004

By-law to provide for the improvements to the Pike Road Drain East based on the report of Josh Warner, P.Eng of R. Dobbin Engineering Inc.

WHEREAS a request for improvement of the Pike Road Drain East was received under section 78 of the Drainage Act;

WHEREAS Council of the Corporation of the Town of Amherstburg appointed an engineer for the purpose of preparation of an engineer's report for improvements to the Pike Road Drain East under Section 78 of the Drainage Act;

WHEREAS Council of the Corporation of the Town of Amherstburg has authorized Josh Warner, P.Eng., of R. Dobbin Engineering Inc., to prepare a report and said engineer's report dated November 21, 2024 entitled Pike Road Drain East (2024) can be referenced as Schedule A, as attached hereto;

WHEREAS $395,905.00 is the estimated cost provided for the new the drainage works;

AND WHEREAS the report was considered by the Amherstburg Drainage Board at the meeting held on January 7, 2025.

NOW THEREFORE the Council of the Corporation of the Town of Amherstburg hereby enacts as follows:

1. AUTHORIZATION

The attached drainage report is adopted and the drainage works is authorized and shall be completed as specified in the report.

2. BORROWING

The Corporation of the Town of Amherstburg may borrow on the credit of the Corporation the amount of $395,905.00 being the estimated amount necessary for the improvements of the drainage works.

3. DEBENTURE(S)

The Corporation may issue debenture(s) for the amount borrowed less the total amount of:
(a) Grants received under section 85 of the Drainage Act;
(b) Monies paid as allowances;
(c) Commuted payments made in respect of lands and roads assessed with the municipality;
(d) Money paid under subsection 61(3) of the Drainage Act; and
(e) Money assessed in and payable by another municipality.

4. PAYMENT

Such debenture(s) shall be made payable within 5 years from the date of the debenture(s) and shall bear interest at a rate not higher than 1% more than the municipal lending rates as posted by The Town of Amherstburg's Bank's Prime Lending Rate on the date of sale of such debenture(s).

(1) A special equal annual rate sufficient to redeem the principal and interest on the debenture(s) shall be levied upon the lands and roads and shall be collected in the same manner and at the same as other taxes are collected in each year for 5 years after the passing of this by-law.

(2) All assessments of $1000.00 or less are payable in the first year in which the assessments are imposed.

Read a first and second time and provisionally adopted this 27th day of January, 2025.

_____
MAYOR – MICHAEL PRUE

_____
CLERK – KEVIN FOX

Read a third time and finally passed this ___ day of _____, 2025.

_____
MAYOR – MICHAEL PRUE

_____
CLERK – KEVIN FOX

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Petrolia, Ontario, N0N 1R0
Phone: (519) 882-0032 Fax: (519) 882-2233
www.dobbineng.com

December 4, 2024

The Mayor and Council
Town of Amherstburg
271 Sandwich Street South
Amherstburg, Ontario
N9V 2A5

Gentlemen and Mesdames:

Re: Rebidoux Drain (2024)

As instructed, R. Dobbin Engineering Inc. has undertaken an examination of the Rebidoux Drain, with regard to improvements of the drain in Part of Lots 41, 42, and 43, Concession 4 in the Town of Amherstburg.

Authorization under the Drainage Act

This Engineer's Report has been prepared under Section 78 of the Drainage Act, as per the direction of Council, which is based on the request of the Town of Amherstburg.

Existing Reports

Two reports have been authored on the Rebidoux Drain. The Rebidoux Drain was established under a reconsidered report authored by C.G.R. Armstrong, P.Eng., dated April 1st, 1966. The report included an open channel along the east side of the 4th Concession Road South road allowance. The drain commenced at the Ernest Paquette Drain and extended 1,059m north. A closed tile was installed beneath the drain on the east side of the road allowance, from Pike Road, north for 983m. The drain included four catch basins. The open channel portion of the drain was filled in across the residential lands, between Station 0+724 and Station 0+852.

A second report was prepared by L. Zarlenga, P. Eng, dated June 5, 1987. The report included maintaining the Rebidoux Drain, and included an updated Schedule of Assessment for maintenance.

Existing Conditions and Site Investigation

The Rebidoux Drain is a combination of an open channel drain with an auxiliary tile beneath an open channel. The auxiliary tile extends from a catch basin located at the northern limit of the County Road 18 (Pike Road) road allowance, north for 983m.

In December of 2018, a CCTV video inspection of the drain was completed. Due to obstructions, the CCTV inspection was limited to the section of drain between Station 0+076 and Station 0+115.

In January 2019, the drain was flushed and a second CCTV inspection was completed. Due to obstructions, the CCTV inspection was limited to the section of drain between Station 0+076 and Station 0+115. The CCTV inspection confirmed the closed drain is in poor shape with longitudinal cracking. The CCTV inspections confirmed tree roots have migrated through the tile joints, are causing obstructions, and are reducing the capacity of the drain.

The access culvert that services the land with the Landowner ID 8 (Station 0+117) is failing. The landowner contacted the Town of Amherstburg to notify them of the failing culvert. The Town of Amherstburg inspected the culvert and installed a steel plate over the crossing, to prevent further collapse. At the time of this report the steel plate remained in service.

Meetings

The Town of Amherstburg held a site meeting with landowners to review the condition of the drain. Landowners voiced the following concerns:

- Flushing the drain has not improved drainage as the upstream lands are still experiencing flooding during rain events.
- The existing tile seems obstructed and possibly collapsed.
- The drain seems undersized.
- The drain's watershed has changed since the drain was designed.
- Landowners were concerned that the costs to maintain or improve the drain are not determined at this time.

Shane McVitty, the Drainage Superintendent for the Town of Amherstburg, informed landowners a preliminary report could be completed, to provide answers to the concerns raised at the meeting. The landowners present agreed to proceed with a preliminary report, prior to completing an engineer's report for improvements to the drain.

On June 4, 2019, a motion was passed by the Amherstburg Drainage Board, to authorize R. Dobbin Engineering Inc. to prepare a preliminary drainage report, to address improvements to the Rebidoux Drain. On June 13, 2019, R. Dobbin Engineering Inc. received instruction from the Town of Amherstburg to proceed with the preparation of a preliminary report.

An onsite meeting was held on July 10, 2019. The following attended the meeting:

Shane McVitty, Town of Amherstburg	Becky McCaffrey, Landowner
Mark Fishleigh, County of Essex	Tim McCaffrey, Landowner
Jim Willis – R. Dobbin Engineering	Don Van Lare, Landowner
Mike Gerrits – R. Dobbin Engineering	Phil Van Lare, Landowner
Margaret Bjorkman, Landowner	Sharon Van Lare, Landowner

The following is a brief summary of the meeting.

- M. Gerrits gave a brief overview of the Drainage Act. M. Gerrits provided the Ontario Ministry of Agriculture and Rural Affairs (OMAFRA) Fact sheet title "So, What's a Municipal Drain?" available to all landowners.
- M. Gerrits informed landowners that the preliminary report will include options and general cost estimates. The report will help landowners make informed decisions on the future work of the drain. Estimated assessments to each property cannot be completed as part of the report.
- T. McCaffrey requested clarifications on the options. M. Gerrits informed landowners that the options would consist of maintaining the drain or improving the drain.
- T. McCaffrey was concerned that water generated on agricultural lands on the west side of the road, enters the drain via a centerline culvert. M. Gerrits informed landowners that R. Dobbin Engineering Inc. will survey the field to determine the watershed boundary.

A Drainage Board meeting was held on April 5, 2022 in Council Chambers to review the preliminary report prepared by R. Dobbin Engineering Inc., dated March 10, 2022 with landowners. The following options were presented at this meeting:

- Option 1 – Do nothing
- Option 2 - Improve the existing section of drain, where known obstructions are, and replace the failing access culvert at Station 0+117 (Landowner ID 8) under a Section 78 Drain Report.
- Option 3 - Maintain/improve the open drain between Station 0+000 and 1+059, replace the failing access culvert at Station 0+117 (Landowner ID 8) and improve the existing closed drain from Station 0+045 to Station 1+059 under a Section 78 Drain Report.
- Option 4 - Replace the closed drain with an open channel, between Station 0+076 and Station 1+055, install a lawn enclosure across the residential lands, between Station 0+724 and Station 0+852, and replace the failing access culvert at Station 0+117 (Landowner ID 8) under a Section 78 Drain Report.

Three landowners addressed the Drainage Board. The following is a brief summary of the landowner concerns:

Tim McCaffrey (Landowner ID 1)

- T. McCaffrey indicated that he owns the farm to the north, and that his farm drains slowly. T. McCaffrey does not feel that Option 1, to do nothing, is a viable option. T. McCaffrey suggested that perhaps an "Option 5" could be looked at by digging out an open ditch for the entire length of the drain.
- T. McCaffrey noted that at Station 0+726 there is a road crossing culvert on a 45-degree angle, and that there are three other farms on the west side of the road that should be assessed into this drain, as the water goes into the cross culvert, under the road, and into the Rebidoux drain.
- M. Gerrits advised that the area on the west side of the road is very flat, and that his preliminary examinations suggest that it does not drain easterly. He added that as part of the preparation of the final report, he would further study the landscape, and review LIDAR mapping.
- S. McVitty pointed out that T. McCaffrey's suggestion of his Option 5, matches Option 4 under the preliminary report, which proposes enclosures in front of the residential properties, and an open drain everywhere else along the length of the drain.

Tyler Kimball (Landowner ID 8)

- T. Kimball indicated that he does need a new culvert, however he does not require a closed drain adjacent to his property. He added that he does not feel that he drains into the closed portion of the drain, but rather into the roadside ditch along Pike Road. T. Kimball questioned the number of trees that would have to be removed from his property as part of this project. T. Kimball advised that he would be happy with an open drain concept at his property, if it keeps the project costs down.
- M. Gerrits advised that the land abutting a drain will be considered a benefitting landowner. M. Gerrits indicated that, as this is a preliminary report, he has not calculated assessments at this point. He added that landowners will have the right to appeal if they do not agree with the assessments that will be provided under the final engineering report. M. Gerrits noted that, as part of his examinations, he will survey the Kimball lot and observe where the surface water is draining, to ensure that T. Kimball's property is assessed correctly. M. Gerrits indicated that he will review the impact of the existing trees on the proposed work, under his final report. M. Gerrits stated that there is an existing line of mature trees adjacent to the drain that will need to be addressed, in order to establish a working corridor for the drain.

Don & Mary Ann Van Laere (Landowner ID 6)

- M. Van Laere stated that her yard did not hold water after they cleaned the drain, but now that the drain is filled in, her property floods. M. Van Laere reiterated that a lot of the problem was down at the bottom end of the drain.
- D. Van Laere spoke about the catch basins, and noted that there were only four catch basins shown on the preliminary report plan, when there are actually six. D. Van Laere indicated that he wished to have his catch basin filled in as the water does not move fast enough through the drain, but comes up through the catch basin and floods his yard. He added that he has had 8-10" of water on his property in some cases. D. Van Laere noted that he has actually installed steel covers over the catch basin lids to stop the flooding.
- M. Gerrits stated he was unsure of the exact reason behind the water flooding on the Van Lare lot, or what causes it to dissipate. He suggested that perhaps the recent flushing work near the bottom end, along with pressure buildup near the top end during flooded periods, may have pushed a blockage through. M. Gerrits advised that there is a catch basin at Pike Road, and it could have been something as simple as a landowner cleaning the lid to the catch basin, to allow the water to flow better.
- M. Gerrits explained that the catch basins shown on his drawings are the legal ones that were noted under a previous drainage report, and acknowledged that there are likely others. M. Gerrits indicated that the catch basins are taking the surface water to the drain. M. Gerrits advised that when completing the final report, he would confirm the number and location of all catch basins as part of surveying the yards.

Three members of the Drainage Board provided comments; the following is a brief summary:

Board Member Bob Pillon

- B. Pillon questioned if the majority of the problem was at the bottom end of the drain. He suggested that work improvements should start with the root of the problem, near the bottom, and then go from there. B. Pillon indicated that Option 2 would be preferred.
- M. Gerrits advised that Option 2 addresses the known issues uncovered during the CCTV inspection.

Board Member Brad Laramie

- B. Laramie stated that the covered drain, for the McCaffrey farm, is not a good option. He added that in his experience as a farmer, a closed tile drain can be problematic for farm drainage. B. Laramie further stated that he would like to see the problem fixed for everyone, and to have the final report prepared so that if there are further issues, the work can be completed without the need for any further reports.

Board Member Anthony Campigotto

- A. Campigotto stated that a temporary solution does not make sense.
- M. Gerrits reiterated that confirmation of known utility conflicts will be needed, in order for Option 4 to be viable. He explained that a new, fully open drain will take up more space, which may conflict with existing utilities. He indicated that utility conflicts have not yet been reviewed as part of his preliminary examinations.

The Drainage Board made a motion for the Engineer to proceed with the preparation of a final engineering report in accordance with Section 78 of the Drainage Act according to Option 4 – Improvement Between Station 0+000 and Station 1+059 (Open Channel c/w Lawn Enclosures), as described in the preliminary engineer's report, dated March 10, 2022, but to proceed with Option 3 – Improvement Between Station 0+000 and Station 1+059 (2 Stage Design), if Option 4 is found to be unfeasible.

A site meeting was held on October 10, 2023 on the 4th Concession Road South at Station 0+847. The following is a summary of the onsite meeting:

Sam Paglia, Town of Amherstburg
Mike Gerrits – R. Dobbin Engineering
Jim Anderson, Landowner
Margaret Bjorkman, Landowner
Nicole Kimball, Landowner
Tyler Kimball, Landowner
Stacey Ouellette, Landowner

- M. Gerrits gave a brief overview of the Drainage Act and the landowners rights under the Drainage Act.
- M. Gerrits informed landowners, that the report was revised as per the decision at the April 5, 2022 Drainage Board meeting.
- M. Gerrits presented the design, which included a combination of open and closed drains.
- M. Gerrits confirmed the lawn enclosures would be designed to convey the 2-year design storm.

At the meeting, it became known that the McCaffery lands have been sold to A. & C. Parks. Following the meeting, M. Gerrits contacted A. Parks to discuss the drain. A. Parks voiced he would like the drain to be closed on his lands.

A site meeting was held on October 23, 2024 with BCE Inc to discuss telephone and fibreoptic lines.

A public meeting was held on October 30, 2024 at the Town of Amherstburg Council Chambers. The following is a summary of the onsite meeting:

Sam Paglia, Town of Amherstburg
Mike Gerrits – R. Dobbin Engineering
Gabrielle Fillion, Landowner
Allan Parks, Landowner
Donald Van Lare, Landowner
Nicole Kimball, Landowner
Ashely Bergeron, Landowner
Stephen Patrick, Landowner
Veronique Peladeau, Landowner

- M. Gerrits gave a brief overview of the Drainage Act and the landowners rights under the Drainage Act.
- M. Gerrits presented the report.
- G. Fillion requested clarification about maintenance on drains on boulevards in front of residential lots. S. Paglia informed all present what the Drainage Act states about landowners maintaining drains, however it was noted that the Fillion land consist of a closed drain with an overland flow swale/ditch and not an open channel with steep side slopes and significant vegetation.
- A. Parks requested the Engineer review the schedule of maintenance for his lands. M. Gerrits confirmed he would review the schedule of maintenance prior to issuing the report.
- A. Parks requested the Engineer review the tile connections at the top end of the drain. M. Gerrits confirmed a survey crew would be onsite to review the tiles with A. Parks
- D. Van Lare asked if the 4" subdrain on his lands would be reconnected to the drain. M. Gerrits confirmed the subdrain would be reconnected to the drain.
- V. Peladeau asked how the limits of the watershed were determined on her lands. M. Gerrits informed V. Peladeau that a topographic survey was completed on her lands. M. Gerrits also informed V. Peladeau that her lands are assessed for outlet only and do not have a direct connection to the drain. If she would like a direct connection to the drain a request would need to be made and a benefit assessment would be levied against the lands.

Recommendations

R. Dobbin Engineering Inc. recommends that a new drain report be prepared for a drainage works, to be known as the Rebidoux Drain (2024) across Part of Lots 41, 42, and 43, Concession 4 in the Town of Amherstburg. The report includes the following:

- Abandon the existing 1966 and 1987 reports.
- Remove and replace the closed drain from Station 0+045 to Station 0+131 and Station 0+705 to Station 1+059.
- Construct a new open channel from Station 0+131 to Station 0+705.
- Provide future maintenance specifications for the drain.
- Prepare Schedules of Maintenance for the drain to assess future accesses and construction costs.

Design

This open drain has been designed to accommodate a drainage coefficient of 37.5 mm/24 hours. The drainage coefficient is based on a value of 12.5mm/24hrs for subsurface flows, and an additional 25mm/24hrs for surface water flows that can be directed into the drain. Under agricultural flows, the open channel portion of the drain, between Station 0+705 and Station 0+131, would have a flow depth of 0.21m.

Lawn enclosure have been designed to convey the 2-year design flow.

The access culvert at Station 0+117 (Landowner ID 8), was designed to convey the standard 2-year design flow.

The Pike Road centreline culvert was designed to convey the 10-year design flow. Flows greater then the 10-year design flow will flow overland to the Ernest Paquette Drain.

Approvals

All construction will be completed in accordance with the Department of Fisheries and Oceans (DFO) regulations, and the applicable Conservation Authority permits.

Estimate of Cost

It is recommended that the work be carried out in accordance with the accompanying specification of work and profile, that form a part of this report. An Estimate of Cost has been prepared in the amount of $658,313, which includes engineering fees and an allowance for construction inspection.

Plans have been prepared, which show the location of the work and the approximate drainage area. Profiles have been prepared, which show the depths and grades of the proposed work.

Assessment

As per Section 21 of the Drainage Act, a Schedule of Assessment, for the lands and roads affected by the Rebidoux Drain, has been prepared.

Lands, roads, buildings, utilities, or other structures that are increased in value or are more easily maintained as a result of the construction, improvement, maintenance, or repair of a drainage works, may be assessed for benefit (Section 22).

Lands and roads that use the drainage works as an outlet, for which the drainage works are constructed or improved, an improved outlet is provided either directly or indirectly through the medium of any other drainage works or of a swale, ravine, creek, or watercourse, may be assessed for outlet. The assessment for outlet shall be based on the volume and the rate of flow of the water artificially caused to flow into the drainage works, from the lands and roads liable for such assessments. If, from any land or road, water is artificially caused by any means to flow upon and injure any other land or road, the land or road from which the water is caused to flow, may be assessed for injuring liability with respect to a drainage works to relieve the injury so caused to such other land or road (Section 23).

The Engineer may assess for special benefit, any lands for which special benefits have been provided by the drainage works (Section 24).

A Schedule of Assessment for the lands and roads affected by the Rebidoux Drain has been prepared. As per the Drainage Act, assessments may be made against any Public Utility or Road Authority, as per Section 26 of the Drainage Act, for any increased cost for locating, special backfill or construction, or for the removal or relocation of any of its facilities or plants that may be necessary for the construction or maintenance of the drainage works. Items to be assessed under Section 26 shall be tendered separately, and the Utility or Road Authority shall be assessed the actual construction costs, plus the associated overhead and engineering costs (25% of the construction costs).

Special Assessment Table

All final costs included in the cost estimate of this report, except special benefit assessments, shall be pro-rated based on the Schedule of Assessment. Any additional costs shall be assessed in a manner as determined by the Engineer, in accordance with the Drainage Act.

Description	Owner/ Landowner ID	Item No.	Description	Quantity	Unit	Total Cost ($)	Fixed Cost ($)	Special Benefit Cost ($)	Fixed Engineering (25%) ($)	Net H.S.T. (1.76%) ($)	Total Special Benefit ($)
General Construction											
Fibreoptic Utility	BCE Inc.	2	Locate and Work Around Fiberoptic Utility (Above Ground and Underground)	1	LS	500	$ -	$ 500	$ 125	$ 11	$ 636
		75	Contingency	1	LS	4,500	$ -	$ 4,500	$ 1,125	$ 99	$ 5,724
Hydro Uitity	Hydro One Networks Inc.	3	Locate and Work Around Hydro	1	LS	750	$ -	$ 750	$ 188	$ 17	$ 955
		75	Contingency	1	LS	4,500	$ -	$ 4,500	$ 1,125	$ 99	$ 5,724
Watermain	Town of Amhurstberg	4	Locate and Work Around Waterman and Services	1	LS	500	$ -	$ 500	$ 125	$ 11	$ 636
		75	Contingency	1	LS	4,500	$ -	$ 4,500	$ 1,125	$ 99	$ 5,724
Telephone Utility	BCE Inc.	5	Locate and Work Around Telephone	1	LS	500	$ -	$ 500	$ 125	$ 11	$ 636
		75	Contingency	1	LS	4,500	$ -	$ 4,500	$ 1,125	$ 99	$ 5,724
Gas Utility	Enbridge Gas Inc.	6	Locate and Work Around Gas	1	LS	500	$ -	$ 500	$ 125	$ 11	$ 636
		75	Contingency	1	LS	4,500	$ -	$ 4,500	$ 1,125	$ 99	$ 5,724
37296300000560000000	3	70	Remove and Stockpile Rail Ties for Landowner at 4097 4th Conc. Rd.	1	LS	200	$ -	$ 200	$ 50	$ 4	$ 254
37296300000560000000	4	67	Paved Drive Way Restoration	1	LS	3,500	$ 1,250	$ 2,250	$ 563	$ 50	$ 2,863
		71	Remove and Stockpile Landscape Stones for Landowner at 4105 4th Conc. Rd.	1	LS	200	$ -	$ 200	$ 50	$ 4	$ 254
37296300000550000000	5	72	Remove and Stockpile Landscape Stones for Landowner at 4107 4th Conc. Rd.	1	LS	200	$ -	$ 200	$ 50	$ 4	$ 254
Pike Road Crossing											
County of Essex		44	Traffic Control	1	LS	3,500	$ -	$ 3,500	$ 875	$ 77	$ 4,452
		45	Remove and Dispose of CSP Culvert	1	LS	725	$ -	$ 725	$ 181	$ 16	$ 922
		46	Remove and Dispose of Catch Basin A (CB-A)	1	LS	300	$ -	$ 300	$ 75	$ 7	$ 382
		47	Remove and Reinstall Road Signs	1	LS	150	$ -	$ 150	$ 38	$ 3	$ 191
		48	900mm HDPE Smooth Wall Culvert	31	m	26,350	$ 1,550	$ 24,800	$ 6,200	$ 546	$ 31,546
		49	Excavation	1	L.S.	3,930	$ -	$ 3,930	$ 983	$ 86	$ 4,999
		50	Bedding Material	70	t	2,800	$ -	$ 2,800	$ 700	$ 62	$ 3,562
		51	Granular 'B', Type 2, (400mm min depth)	164	t	6,560	$ -	$ 6,560	$ 1,640	$ 144	$ 8,344
		52	Granular 'A' (150mm min depth)	80	t	3,200	$ -	$ 3,200	$ 800	$ 70	$ 4,070
		53	Asphalt (Min 170mm - 50mm superpave 12.5 and 120mm Superpave 90) c/w 600mm milled header on each side	100	t	20,000	$ -	$ 20,000	$ 5,000	$ 440	$ 25,440
		54	Rip Rap c/w Geotextile	20	t	2,000	$ -	$ 2,000	$ 500	$ 44	$ 2,544
		55	Catch Basin Maintenance Hole 1	1	ea	10,000	$ -	$ 10,000	$ 2,500	$ 220	$ 12,720
Fibreoptic Utility	BCE Inc.	56	Locate and Work Around Fiberoptic Utility (Above Ground and Underground)	1	ea	1,000	$ -	$ 1,000	$ 250	$ 22	$ 1,272
Hydro Uitity	Hydro One Networks Inc.	57	Locate and Work Around Overhead Hydro Utility	1	ea	1,000	$ -	$ 1,000	$ 250	$ 22	$ 1,272
Watermain	Town of Amhurstberg	58	Locate and Work Around Watermain	1	ea	500	$ -	$ 500	$ 125	$ 11	$ 636
Telephone Utility	BCE Inc.	59	Locate and Work Around Telephone Utility	1	ea	500	$ -	$ 500	$ 125	$ 11	$ 636

The estimated cost of the drainage works has been assessed in the following manner:

1. Culvert No. 1 (Station 0+063) − The cost of the Pike Road centreline culvert has been assessed with 88% of the estimated cost assessed as a special benefit assessment to the road authority, 4% of the estimated cost assessed as a special benefit assessment to the affected utilities, 7% of the estimated cost assessed as a benefit to the road authority, and the remainder assessed as an outlet assessment to upstream lands based on equivalent hectares.

2. Culvert No. 2 (Station 0+117) - The cost of a standard access culvert with a 6m travel (top) width and rip rap end protection, has been assessed with 50% of the estimated cost assessed as a benefit assessment to the benefiting lands (25% to Landowner ID 8 and 25% to the Road Authority), and the remainder assessed as an outlet assessment to the upstream properties, based on equivalent hectares.
3. The cost of the closed drain between Station 0+076 ad Station 0+131 has generally been assessed with 56% of the estimated cost assessed as a benefit assessment to the benefiting lands (14% to Landowner ID 8 and 42% to the Road Authority), and the remainder assessed as an outlet assessment to the upstream properties, based on equivalent hectares.
4. The cost of the open drain between Station 0+131 and Station 0+705 has generally been assessed with 50% of the estimated cost assessed as a benefit assessment to the benefiting lands, and the remainder assessed as an outlet assessment to the upstream properties, based on equivalent hectares.
5. The cost of the closed drain between Station 0+705 and Station 0+852, less any special benefits, has generally been assessed with 70% of the estimated cost assessed as a benefit assessment to the benefiting lands, and the remainder assessed as an outlet assessment to the upstream properties, based on equivalent hectares.
6. The cost of the closed drain between Station 0+852 and Station 1+059 has generally been assessed with 95% of the estimated cost assessed as a benefit assessment to the benefiting lands, and the remainder assessed as an outlet assessment to the upstream properties, based on equivalent hectares.

Allowances

Under Section 29 of the Drainage Act, the Engineer in his report shall estimate and allow in money to the Owner of any land that it is necessary to use for the construction or improvement of a drainage works, or for the disposal of material removed from drainage works. This shall be considered an allowance for right-of-way. Section 29 allowances will be provided to the agricultural landowners that abut the open drain portion of the project (Station 0+131 to Station 0+705) under this report, since the work includes open channel construction outside of an existing drain working corridor. Section 29 allowances have been provided under this report for right of way. Section 29 allowances are based on a land value of $24,700.00 per acre ($61,048.00 per hectare).

Under Section 30 of the Drainage Act, the Engineer shall determine the amount to be paid to persons entitled for damage, if any, to ornamental trees, lawns, fences, land and crops occasioned by the disposal of material removed from a drainage works. This shall be considered an allowance for damages. Section 30 allowances will be provided under

this report to all affected landowners of the portion of the drain outside the Municipal road allowance on private property. Section 30 allowances for crop loss, tree removal, and lawns are based on $1,500.00 per hectare for the first year and $750.00 for the second year ($2,250.00 per hectare total).

Access and Working Area

Access to the drain shall be gained from road allowances, when possible, along existing private lanes, fence lines, property lines, and the drain. Access to the working area along the private lanes, property lines and fence lines, shall be restricted to a width of 6m. In addition to the road allowances, the additional access and working areas for future repair and maintenance have been summarized below:

- Station 0+000 to Station 0+045 – 4th Concession Road South road allowance, plus 3 of private lands on the east side of the drain.
- Station 0+045 to Station 0+076– Pike Road road allowance.
- Station 0+076 to Station 0+131 – 4 th Concession Road South road allowance plus 3m of private lands on the east side of the drain.
- Station 0+131 to Station 0+705 – 4 th Concession Road South road allowance plus 40m of private lands on the east side of the drain for construction
- Station 0+131 to Station 0+705 – 4 th Concession Road South road allowance plus 15m of private lands on the east side of the drain for maintenance.
- Station 0+705 to Station 0+852 – 4 th Concession Road South road allowance plus 3m of private lands on the east side of the drain.
- Station 0+852 to Station 1+059 – 4 th Concession Road South road allowance plus 10m of private lands on the east side of the drain.

The working area shall be stripped of topsoil. The excavated material generated in the open channel between Station 0+131 and Station 0+705 shall be hauled offsite to an approved waste disposal site.

Restrictions

Following construction, no permanent structures shall be erected within the working corridor, without prior written permission of Council, unless otherwise specified in this report. Removal of any fences, trees within the working corridor that are required due to maintenance operations, are the responsibility of the landowner on which the trees or fence are located.

Attention is also drawn to Sections 80 and 82 of the Drainage Act, which refers to a landowner's responsibility regarding obstruction of a drainage works, the removal of obstructions in a drain, and the damage caused to a drain by an obstruction.

Agricultural Grant

Under Section 85 of the Drainage Act, a grant may be available for assessments against privately owned parcels of land which are used for agricultural purposes, and are eligible for the Farm Property Class Tax Rate. Section 88 of the Drainage Act directs the Municipality to make application for this grant upon certification of this drain.

Maintenance

Upon completion of the work, the drainage works shall be repaired and maintained by the Town of Amherstburg, under the provisions of the Drainage Act, as per the applicable Schedule of Maintenance enclosed in this report, until said maintenance assessment is varied in accordance with the provisions of the Drainage Act or as outlined below. The Schedule of Maintenance is provided for the future maintenance of the drainage works, and has been based on an arbitrary maintenance cost for each section of the drain.

- Culvert1 (Pike Road centreline culvert) – 95% of the costs applied as a benefit assessment to the road authority, and the remainder assessed as an outlet assessment to upstream lands, based on equivalent hectares as contained in the Schedule of Maintenance 3.
- Culvert 2 (Station 0+117) – 25% of the costs applied as a benefit assessment to the benefiting (Landowner ID 8) landowner, 25% to the Road Authority, and the remainder assessed as an outlet assessment to upstream lands, based on equivalent hectares as contained in the schedule of Maintenance 3.

Yours truly,

Michael Gerrits, P. Eng.
R. Dobbin Engineering Inc.

Town of Amherstburg
Rebidoux Drain (2024)
December 4, 2024

ALLOWANCES

Allowances have been made as per Sections 29 & 30 of the Drainage Act for damages to lands and crops, including for future maintenance operations.

Conc.	Lot or part	Owner ID	Owner	Section 29	Section 30	Total
Agricultural Lands						
4	Pt Lot 43	1	A. & C. Parks	1411	178	1589
	Pt Lot 42	7	M. Bjorkman	7063	2543	9606
Non-Agricultural Lands						
4	Pt Lot 43	3	D. & M. Vanlaere		60	60
	Pt Lot 43	4	J. Anderson & S. Ouellette		28	28
	Pt Lot 43	5	D. & D. Renaud		28	28
	Pt Lot 43	6	P. & S. Van Lare		28	28
	Pt Lot 42	8	G. Fillion & A. Bergeron		62	62
				$ 8,474	$ 2,927	$ 11,401

Town of Amherstburg
Rebidoux Drain (2024)
December 4, 2024

ESTIMATE OF COST

Item	Description	Quantity	Unit	Unit Price ($)	Total ($)
Drain Works					
1	Traffic Control (General)	1	LS	3,500	3,500
2	Locate and Work Around Hydro	1	LS	750	750
3	Locate and Work Around Gas	1	LS	500	500
4	Locate and Work Around Waterman and Services	1	LS	500	500
5	Locate and Work Around Telephone	1	LS	500	500
6	Locate and Work Around Fiberoptic Lines	1	LS	500	500
7	Remove and Dispose of Catch Basin B (CB-B)and Grade Roadside Ditch to Open Channel	1	LS	300	300
8	Remove and Dispose of Catch Basin C (CB-C)	1	LS	300	300
9	Remove and Dispose of Catch Basin D (CB-D)	1	LS	300	300
10	Remove and Dispose of Catch Basin E (CB-E) and Grade Private Swale to CB-7	1	LS	500	500
11	Remove Trees (Station 0+724 to Station 0+749)	3	ea	550	1,650
12	Remove Drain (Stations 0+076 to 0+131 & Stations 0+705 to 0+852)	202	m	10	2,020
13	Abandon Drain (Stations 0+255, 0+315, 0+455, 0+565, 0+635, 0+925 & 1+026)	7	ea	150	1,050
14	Strip Existing Working Corridor as Required to Facilitate Construction (Station 0+076 to Station 0+131)	55	m	5	275
15	Strip Existing Working Corridor (Station 0+131 to Station 0+705)	574	m	5	2,870
16	Strip Existing Working Corridor as Required to Facilitate Construction (Station 0+705 to Station 0+852)	147	m	5	735
17	Strip Existing Working Corridor (Station 0+852 to Station 1+059)	207	m	5	1,035
18	Open Channel Construction (Station 0+131 to Station 0+705)	574	m	60	34,440
19	200mm dia. Catch Basin Lead c/w Connection to Catch Basin F (CB-F), Excavation and Bedding	7	m	150	1,050
20	250mm dia. Tile c/w Excavation and Bedding	66	m	130	8,580
21	300mm dia. Tile c/w Excavation and Bedding	141	m	140	19,740
22	600mm dia. Tile c/w Excavation and Bedding	147	m	600	88,200
23	750mm dia. Tile c/w Excavation and Bedding	55	m	700	38,500
24	250mmX250mmX250mm Tee	1	ea	300	300
25	250mmX300mm Reducer	1	ea	250	250
26	300mm dia. 45 Degree Bend	1	ea	250	250

Item	Description	Quantity	Unit	Unit Price ($)	Total ($)
27	600mm dia. 45 Degree Bend	2	ea	300	600
28	Pro-Eco-Lite Headwall with Trash Rack (Station 0+131)	1	ea	5,500	5,500
29	Catch Basin 2 (900mmX1200mm) c/w Regrading of Private Swale	1	ea	4,840	4,840
30	Catch Basin 3 (900mmX1200mm) c/w Connections	1	ea	4,840	4,840
31	Catch Basin 4 (900mmX1200mm) c/w Connections	1	ea	4,840	4,840
32	Catch Basin 5 (900mmX1200mm) c/w Connections	1	ea	4,840	4,840
33	Catch Basin 6 (900mmX1200mm) c/w Connections	1	ea	4,840	4,840
34	Catch Basin 7 (900mmX1200mm)c/w Connections	1	ea	7,840	7,840
35	Catch Basin 8 (600mmX600mm)	1	ea	4,840	4,840
Access Culvert (Station 0+117)					
36	Remove and Dispose of CSP Culvert	1	LS	180	180
37	600mm HDPE Smooth Wall Tile	9	m	450	4,050
38	Excavation	1	L.S.	400	400
39	Bedding Material	12	t	40	480
40	Granular 'B'	45	t	40	1,800
41	Granular 'A'	17	t	40	680
42	Rip Rap c/w Geotextile	20	t	100	2,000
43	Regrade Existing Ditch Statin 0+076 to Station 0+111)	35	m	25	875
Pike Road Crossing					
44	Traffic Control	1	LS	3,500	3,500
45	Remove and Dispose of CSP Culvert	1	LS	725	725
46	Remove and Dispose of Catch Basin A (CB-A)	1	LS	300	300
47	Remove and Reinstall Road Signs	1	LS	150	150
48	900mm HDPE Smooth Wall Culvert	31	m	850	26,350
49	Excavation	1	L.S.	3,930	3,930
50	Bedding Material	70	t	40	2,800
51	Granular 'B', Type 2, (400mm min depth)	164	t	40	6,560
52	Granular 'A' (150mm min depth)	80	t	40	3,200
53	Asphalt (Min 170mm - 50mm superpave 12.5 and 120mm Superpave 90) c/w 600mm milled header on each side	100	t	200	20,000
54	Rip Rap c/w Geotextile	20	t	100	2,000
55	Catch Basin Maintenance Hole 1	1	ea	10,000	10,000
56	Locate and Work Around Fiberoptic Utility (Above Ground and Underground)	1	ea	1,000	1,000
57	Locate and Work Around Overhead Hydro Utility	1	ea	1,000	1,000
58	Locate and Work Around Watermain	1	ea	500	500
59	Locate and Work Around Telephone Utility	1	ea	500	500

Item	Description	Quantity	Unit	Unit Price ($)	Total ($)
Drain Works (con't)					
60	Channel Rip Rap (Station 0+131 to Station 0+140)	50	t	100	5,000
61	Channel Rip Rap (Station 0+602)	3	t	100	300
62	Channel Rip Rap (Station 0+695 to Station 0+705)	50	t	100	5,000
63	Silt Fence Barrier (Station 0+043)	1	LS	500	500
64	Haul Excess Spoils Off Site (Station 0+131 to Station 0+705)	4500	m3	10	45,000
65	Haul Excess Spoils Off Site (Station 0+078 to Station 0+131)	1	LS	750	750
66	Haul Excess Spoils Off Site (Station 0+724 to Station 0+852)	1	LS	1,200	1,200
66	Gravel Drive Way Restoration	4	ea	1,250	5,000
67	Paved Drive Way Restoration	1	ea	3,500	3,500
68	Remove, Store and Reinstall 911 Sign	4	ea	100	400
69	Remove, Store and Reinstall Mail Box	4	ea	200	800
70	Remove and Stockpile Rail Ties for Landowner at 4097 4th Conc. Rd.	1	LS	200	200
71	Remove and Stockpile Landscape Stones for Landowner at 4105 4th Conc. Rd.	1	LS	200	200
72	Remove and Stockpile Landscape Stones for Landowner at 4107 4th Conc. Rd.	1	LS	200	200
73	Restore Lawns	1	LS	5,000	5,000
74	Restore Open Channel c/w Hydroseed and Mulch	1	LS	24,000	24,000
75	Conenct tile to Closed Drain (Provisional)	1	ea	250	250
76	Open Channel Tile Outlet Rip Rap (Provisional)	1	ea	350	350
77	Contingency	1	LS	48,661	48,661
	Sub Total				866
				Allowances	401
				Engineering	441
				Preliminary Report	868
				CCTV Inspection	435
				Permitting	
				Construction Inspection Allowance	661
				Net H.S.T.	781
				Total Estimate	$ 658,313

Town of Amherstburg
Rebidoux Drain (2024)
December 4, 2024

SCHEDULE OF ASSESSMENT

Conc.	Lot or Part	Affected Hect.	Owner ID	Owner	Special Benefit	Benefit	Outlet	Total	Eq. Ha.
Agricultural Lands									
4	Pt Lot 43	14.29	1	A. & C. Parks	-	20,337	76,380	96,717	13.43
	Pt Lot 42	13.71	7	M. Bjorkman	-	20,337	28,280	48,617	10.82
					-	40,674	104,660	145,334	
			Total Special Benefit		-				
			Total Benefit		40,674				
			Total Outlet		104,660				
			Total Agricultural Lands		145,334				
Non-Agricultural Lands									
3	Pt. Lot 26	0.07	9	S. & S. Patrick	-	-	138	138	0.14
4	Pt Lot 43	0.24	2	K. & V. Peladeau	-	-	3,846	3,846	0.24
	Pt Lot 43	0.28	3	D. & M. Vanlaere	254	12,085	6,776	19,115	0.56
	Pt Lot 43	0.14	4	J. Anderson & S. Ouellette	3,117	6,288	4,472	13,877	0.28
	Pt Lot 43	0.14	5	D. & D. Renaud	254	6,288	4,268	10,810	0.28
	Pt Lot 43	0.15	6	P. & S. Van Lare	-	6,288	4,226	10,514	0.30
	Pt Lot 42	0.15	8	G. Fillion & A. Bergeron	-	7,870	2,053	9,923	0.30
					3,625	38,819	25,779	68,223	
			Total Special Benefit		3,625				
			Total Benefit		38,819				
			Total Outlet		25,779				
			Total Non- Agricultural Lands		68,223				

Schedule of Assessment (cont'd)

Conc.	Lot or Part	Affected Hect.	Owner ID	Owner	Special Benefit	Benefit	Outlet	Total	Eq. Ha.
Public Lands									
Pike Road		0.07		County of Essex	99,172	21,562	275	121,009	0.28
Con. Rd 4 S		1.51		Town of Amhertburg	-	181,050	106,762	287,812	6.04
Fibreoptic Utility				BCE Inc.	7,632	-		7,632	
Hydro Uitity				Hydro One Netrks Inc.	7,632	-		7,632	
Watermain				Town of Amhurtberg	6,996	-		6,996	
Telephone Utility				BCE Inc.	6,996	-		6,996	
Gas Utility				Enbridge Gas I.	6,679	-		6,679	
					135,107	202,612	107,037	444,756	

Total Special Benefit	135,107
Total Benefit	202,612
Total Outlet	107,037
Total Public Lands	444,756
Total Assessment	$ 658,313

Town of Amherstburg
Rebidoux Drain (2024)
December 4, 2024

SCHEDULE OF MAINTENANCE - SECTION 1

For maintaining the closed drain between Station 1+059 and Station 0+852.

Conc.	Lot or Part	Affected Hect.	Owner ID	Owner	Benefit	Outlet	Total	Eq. Ha.
Agricultural Lands								
4	Pt Lot 43	14.29	1	A. & C. Parks	1,489	381	1,870	13.43
Non-Agricultural Lands								
4	Pt Lot 43	0.24	2	K. & V. Peladeau	-	57	57	0.24
Public Lands								
	Con. Rd 4 S	1.51		Town of Amherstburg	3,124	124	3,248	6.04
					4,613	562	5,175	
				Total Maintenance Assessment - Section 1	5,175			

Town of Amherstburg
Rebidoux Drain (2024)
December 4, 2024

SCHEDULE OF MAINTENANCE - SECTION 2

For Maintaining the closed drain between Station 0+852 and Station 0+724 (Lawn Enclosure).

Conc.	Lot or Part	Affected Hect.	Owner ID	Owner	Benefit	Outlet	Total	Eq. Ha.
Agricultural Lands								
4	Pt Lot 43	14.29	1	A. & C. Parks	-	234	234	13.43
Non-Agricultural Lands								
4	Pt Lot 43	0.24	2	K. & V. Peladeau	-	11	11	0.24
	Pt Lot 43	0.28	3	D. & M. Vanlaere	278	14	292	0.56
	Pt Lot 43	0.14	4	J. Anderson & S. Ouellette	125	4	129	0.28
	Pt Lot 43	0.14	5	D. & D. Renaud	125	2	127	0.28
	Pt Lot 43	0.15	6	P. & S. Van Lare	125	-	125	0.30
Public Lands								
	Con. Rd 4 S	1.51		Town of Amherstburg	1,913	369	2,282	6.04
					2,566	634	3,200	

Total Maintenance Assessment - Section 2 3,200

Town of Amherstburg
Rebidoux Drain (2024)
December 4, 2024

SCHEDULE OF MAINTENANCE - SECTION 3

For Maintaining the drain between Station 0+724 and Station 0+000.
Culverts to be maintained in accordance with the report.

Conc.	Lot or Part	Affected Hect.	Owner ID	Owner	Benefit	Outlet	Total	Eq. Ha.
Agricultural Lands								
4	Pt Lot 43	14.29	1	A. & C. Parks	-	2,782	2,782	13.43
	Pt Lot 42	13.71	7	M. Bjorkman	2,123	1,388	3,511	10.82
Non-Agricultural Lands								
3	Pt. Lot 26	0.07	9	S. & S. Patrick	-	3	3	0.14
4	Pt Lot 43	0.24	2	K. & V. Peladeau	-	91	91	0.24
	Pt Lot 43	0.28	3	D. & M. Vanlaere	-	211	211	0.56
	Pt Lot 43	0.14	4	J. Anderson & S. Ouellette	-	105	105	0.28
	Pt Lot 43	0.14	5	D. & D. Renaud	-	105	105	0.28
	Pt Lot 43	0.15	6	P. & S. Van Lare	-	113	113	0.30
	Pt Lot 42	0.15	8	G. Fillion & A. Bergeron	181	6	187	0.30
Public Lands								
	Pike Road	0.07		County of Essex	-	5	5	0.28
	Con. Rd 4 S	1.51		Town of Amherstburg	6,963	3,324	10,287	6.04
					9,267	8,133	17,400	

Rebidoux Drain (2024)
Town of Amherstburg
December 4, 2024

SPECIFICATION OF WORK

1. Scope of Work

The work to be included in this specification, includes the drain improvements located on Part of Lots 41, 42, and 43, Concession 4 in the Town of Amherstburg.

2. Plans and Specifications

These specifications shall apply and be a part of the construction Contract. This Specification of Work shall take precedence over all plans and general conditions pertaining to the Contract. The Contractor shall provide all labour, equipment, and supervision necessary to complete the work as shown in the plans, and described in these specifications. Any work not described in these specifications, shall be completed according to the Ontario Provincial Standard Specifications (OPSS) and Standard Drawings (OPSD).

Any reference to the Owner contained in these Contract Documents, shall refer to the Town of Amherstburg, or the Engineer authorized by the Town of Amherstburg, to act on its behalf.

3. Health and Safety

The Contractor, at all times, shall be responsible for health and safety on the worksite, including ensuring that all employees wear suitable personal protective equipment, including safety boots and hard hats.

The Contractor shall be responsible to ensure that all procedures are followed under the Occupational Health and Safety Act, to ensure that work sites are safe, and that accidents are prevented. In the event of a serious or recurring problem, a notice of noncompliance will be issued. The Contractor will be responsible for reacting immediately to any deficiency, and correcting any potential health and safety risk. Continuous disregard for any requirement of the Occupational Health and Safety Act could be cause for a stop work order to be issued, or even termination of the Contract.

The Contractor shall also ensure that only competent workmen are employed onsite, and that appropriate training and certification is supplied to all employees.

4. Traffic Control and Construction Signage

The Contractor shall be responsible for traffic control, as per the Ontario Traffic Manual Book 7 – Temporary Conditions (latest revision), when working on public road allowances. The Contractor will be required to provide the Engineer with a detailed traffic control plan one week prior to mobilizing to the site. A copy of the traffic control plan shall be kept on site at all times. The Contractor shall maintain suitable barricades, warning lights, and temporary traffic notices, at his expense, in their proper position, to protect the public both day and night. Flagmen are the responsibility of the Contractor when working on the road allowance, and when entering or exiting a worksite onto a roadway.

Town of Amherstburg and County Roads cannot be closed to facilitate construction. The Contractor will be required to maintain a single lane of traffic on all roads at all times, unless otherwise approved by the Town of Amherstburg.

Pedestrian access should be provided to all properties, at all times during construction.

The Contractor shall be responsible for supply, installation, maintenance, and removal of all temporary traffic control signage required on the project.

Following the installation of traffic signage for temporary conditions, the Contractor is responsible to remove, store and reinstate any permanent traffic signage, as required to facilitate the construction process. The Contractor is responsible to reinstate the pre-existing signs and posts, or at the option of the Town of Amherstburg, reinstall new signs and posts supplied by the Town of Amherstburg.

5. Workplace Safety and Insurance Board

The Contractor hereby certifies, that all employees and officers working on the project are covered by the Contractor's benefits. The WSIB Clearance Certificate must be furnished prior to the execution of the Contract, and updated every 90 days.

6. Benchmarks

The benchmark locations are identified on the profile drawing. When these elevations are on existing structures that are to be replaced, the Contractor shall transfer the benchmark to a new location, prior to the removal of the structure.

The Contractor is required to complete a benchmark loop, prior to construction, to verify the benchmarks. If discrepancies exist, the Contractor must notify the Drainage Superintendent and Engineer, prior to completing any work.

7. Utility Locates

Prior to completing any tile installation, the Contractor shall locate all utilities in the working area and adjacent road allowances, and forward the locations and elevations to the Drainage Superintendent and Engineer for review.

The contractor will be required to work around utilities, and coordinate utility relocation or supporting of utilities, with the applicable utility as required. The cost of any relocation, replacement, removal or supporting of poles or utilities shall be borne by the utility.

8. Geotechnical Investigation

A geotechnical investigation has not been undertaken within the project limits.

9. Access and Working Area

Refer to the report for the access and working area requirements.

10. Abandon Existing Drain

The existing tile drain shall be abandoned at Station 0+225, Station 0+315, Station 0+455, Station 0+565, Station 0+635, Station 0+925, and Station 1+026.

The tile drain shall be plugged at each location. The downstream and upstream ends are to be plugged with concrete and wrapped with filter fabric or covered with 100 mm concrete blocks and wrapped with filter fabric.

Removals shall be in accordance with OPSS MUNI 510.

11. Removals

The existing culverts and rip rap end protection, drainage structures, and clay tile drain, (where identified) shall be removed in their entirety. The steel, rip rap, and the concrete rubble, shall be disposed of offsite at the expense of the Contractor. Suitable backfill shall be stockpiled adjacent to the site for reuse during the installation of the proposed culvert.

The existing drain shall be removed in its entirety between the following stations:

- Station 0+045 and Station 0+131
- Station 0+721 and Station 0+852

Removals shall be in accordance with OPSS MUNI 510.

12. Brushing and Tree Removal

All brush, trees, woody vegetation, etc., required to facilitate construction, shall be removed from the working area and side slopes of the existing channel. Larger trees, brush and stumps shall be disposed of offsite at the expense of the Contractor.

Brushing and clearing shall be in accordance with OPSS MUNI 201.

13. Strip Existing Channel and Ditches

The existing channel and ditches shall be stripped of organic matter. Topsoil shall be stockpiled onsite and the material must be used as part of the final restoration.

Stripping shall be in accordance with OPSS 206.

14. Excavation Channel

The open channel shall be excavated and maintained to the depths and grades as per the profile drawings, which are contained in this Engineer's Report. The channel shall be excavated to the proper depth using a laser, or similar approved device, with a labourer on site, to ensure that the grade is correct.

When possible, the proposed channel shall have a minimum of 2H:1V side slopes on the road side of the ditch and 1.5H:1V side slope on the private side of the ditch, as identified on the drawings. The existing topsoil in the area of the channel excavation and working area, shall be stripped and stockpiled within the working area, and used for restoration of the working area.

Any spoils shall be levelled within the working area. Spoils shall be placed at a minimum of 1.5m back from the top of the bank, on the east side of the channel. The excavated material shall be placed and levelled to a maximum depth of one hundred and fifty millimeters (150mm), and shall not impede overland drainage. Low runs will remain to ensure overland flows can freely drain into the open channel. If the spoils have sub-soil in them, the topsoil shall be windrowed along the edge of the working area, prior to placing the sub-soil. After the excavated material has been levelled, the topsoil shall be spread to its original depth, and left in a condition suitable for seeding or cultivation.

The excess excavated spoils from Station 0+131 to Station 0+705 shall be hauled to a disposal site. The Contractor will be responsible for all costs associated with sampling, handling, and disposing of the excess material in accordance with applicable excess soils regulations.

All excavated materials, which are excess to the requirements of the Contract, shall be moved downstream to a section of the working area, where it can be properly leveled.

The side slopes of the new channel shall be seeded as soon as the final grading is completed.

Restoration is to be in accordance with the Restoration Specification.

Excavation shall be in accordance with OPSS MUNI 206.

15. Installation of Tile by Wheel Machine

The Contractor shall supply, install, and backfill the tile to the depths and grades as shown on the drawings. High Density Polyethylene (HDPE) tile on agricultural lands shall be smooth wall pipe (320 kPa), with bell and spigot or coupler joints. HDPE tile on residential lands or within the road allowance lands, shall be smooth wall pipe (320 kPa), with bell and spigot joints.

An excavator must be used in areas of soil instability, unless approved by the Engineer. The tile shall be laid in straight lines or on smooth gradual curves with a minimum radius of 25 metres.

Laser control shall be used to ensure proper grades. The grades calculated on the profile drawings are to the invert of the tile, with allowances to be made by the Contractor for the wall thickness of the tile and pipe.

The tile trench may be excavated by means of a wheel machine, chain trencher, or hydraulic excavator. Specifications for each are as follows:

Wheel Machine or Chain Trencher

A wheel machine or trencher shall be used to excavate the trench to allow for a round bottom. Prior to backfilling, the tile shall be covered manually to a depth of approx. 100mm over the pipe, to ensure that the tile and pipe are not displaced by large clumps of earth. The trench shall be backfilled with excavated material free of stones, broken tile or other deleterious material. All stones larger than 100mm in diameter evident immediately after construction, shall be picked up by the Contractor and disposed offsite. The landowners are responsible for stones after that. The excavated earth material shall be left windrowed over the trench, to allow for settlement.

If the Contractor determines that it will be necessary to lower the level of the ground over the trench in order to facilitate the Contractor's equipment, the Contractor shall be responsible for all additional costs.

The topsoil shall be stripped for the full width of the excavation and stockpiled it along one side of the working width, and then the area graded to allow the trenching to be carried out. When possible, all excavated material, shall be windrowed on the side opposite the trench that the topsoil is stockpiled. After trenching and backfilling operations are complete, the topsoil shall be spread to its original depth.

All areas disturbed by construction, except the material windrowed over the trench, shall be left in a condition suitable for cultivation (or seeding). Final levelling or removal of excess material, shall be the responsibility of the property owner.

The Contractor shall not operate any trenching or backfill equipment, delivery trucks or equipment, pickup trucks or other vehicles along or over the trench during or after construction. The Contractor shall be responsible for any damage caused by any equipment or vehicles operated over the trench. If the Contractor must cross the trench, he will do so in one area.

In order to protect the tile, landowners should not operate farm equipment or heavy equipment over the length of the trench or along the length of the trench for 1 year after construction.

Installation of Tile by Open Cut

The Contractor shall supply, install and backfill the drain. HDPE tile on agricultural lands shall be smooth wall pipe (320 kPa), with bell and spigot or coupler joints. HDPE tile on residential lands or within the road allowance lands, shall be smooth wall pipe (320 kPa), with bell and spigot joints.

It is intended that the proposed tile be located along the same alignment as the existing tile when the drain abuts residential lands, providing the tile bedding can be founded on native substrate. If the tile cannot be founded on native substrate, the Contractor must notify the Drainage Superintendent or Engineer, to determine if additional granular material will be installed, or if the drain alignment is to be moved east into competent soils.

The bottom of the excavation shall be excavated to the required depth with any over excavation backfilled with granular material or 3/4 inch clear stone. When the pipe has been installed to the proper grade and depth, the excavation shall be backfilled with granular or clear stone from the bottom of the excavation to the springline of the pipe. Care shall be taken to ensure that the backfill on either side of the culvert does not differ by more than 300mm so that the pipe is not displaced. The drain shall be backfilled from the springline to within 100mm of finished grade with excavated material. The top 100mm shall be backfilled with topsoil.

Note that if excavated material is found unsuitable for backfill purposes, then granular material will be required as backfill. Unit prices shall be established in any tender for the disposal of the excavated material, and the import of approved granular material, at the expense of the drainage works.

All backfill shall be free from deleterious material. All granular bedding material shall be mechanically compacted to 95% modified proctor maximum dry density. All backfill material above the springline shall be mechanically compacted to 95% modified proctor density, using appropriate compaction equipment.

The section of drain within the residential accesses, shall be backfilled with Granular 'B" material as detailed on the drawings. For gravel accesses, the backfill shall be placed from the top of the bedding, to within 150mm of the finished grade. The top 150mm of the access shall be restored with Granular 'A' material. For asphalt accesses, the Granular 'B' backfill shall be placed from the top of the bedding, to within 190mm of the finished grade. The top 190mm of the road shall be restored with 150mm (min) of Granular 'A' material, and 40mm of HL4 asphalt. Asphalt depths shall match the existing depths.

All granular bedding and backfill material including any required fill below the culvert invert, shall be mechanically compacted to 95% modified proctor maximum dry density and the top 150mm of Granular "A" material shall be mechanically compacted to 100% modified proctor maximum dry density.

Laser control shall be used to ensure proper grades. The grades calculated on the profile are to the invert of the tile, with allowances to be made by the Contractor for the wall thickness of the tile and pipe.

The topsoil shall be stripped for the full width of the excavation, and stockpiled along one side of the working area, and then the area graded to allow the trenching to be carried out. After trenching and backfilling operations are complete, the topsoil shall be spread to its original depth.

All areas disturbed by construction, except the material windrowed over the trench, shall be left in a condition suitable for cultivation (or seeding). Final levelling or removal of excess material, shall be the responsibility of the property owner.

The Contractor shall not operate any trenching or backfill equipment, delivery trucks or equipment, pickup trucks or other vehicles along or over the trench during or after construction. The Contractor shall be responsible for any damage caused by any equipment or vehicles operated over the trench. If the Contractor must cross the trench, he will do so in one area.

In order to protect the tile, landowners should not operate farm equipment or heavy equipment over the length of the trench or along the length of the trench for 1 year after construction.

16. Installation of Culverts

The Contractor shall supply, install, and backfill pipe culverts. Pipe material can be Corrugated Steel Pipe (CSP) or HDPE pipe. HDPE pipe shall be smooth wall pipe (320 kPa) with bell and spigot joints. CSP culverts shall be aluminized corrugated steel pipe with a minimum wall thickness of 2.8 mm in all cases. All corrugation profiles shall be of helical lockseam using 68 mm x 13 mm corrugations for 1600 mm diameter pipe, and smaller and 125 mm x 25 mm corrugations for 1800 mm diameter pipe and larger. Pipe with 125 mm x 25 mm corrugations shall be used if 68 mm x 13 mm corrugations are not available. Future culvert replacements shall be to the same specifications.

Access culvert lengths are based on using rip rap end protection (1.5:1.0) with the standard 6.0 m top width.

Culverts shall have a minimum cover of 1/6 of the culvert span, and shall be no less than 300mm, unless otherwise approved by the Drainage Superintendent. It is the Contractors responsibility to ensure that adequate cover is obtained prior to crossing the culvert in accordance with the manufacturer's recommendations. It is the Contractors responsibility to ensure that the minimum cover is achieved when backfilling the culverts.

The location of the culvert shall be in the general location as the existing culvert or may be moved at the request of the landowner and discretion of the Drainage Superintendent.

Culverts shall have 150mm of bedding below the bottom of the pipe.

All granular bedding and backfill material including any required fill below the culvert invert, shall be mechanically compacted to 95% modified proctor maximum dry density. The top 300mm of Granular "B" material or suitable approved native backfill material, shall be mechanically compacted to 98% modified proctor maximum dry density, and the top 150mm of Granular "A" material shall be mechanically compacted to 100% modified proctor maximum dry density. The Contractor shall supply any extra backfill material required above the springline. Payment for additional backfill material will be specified in the Contract Documents.

Pipe culverts shall be constructed to the depths and grades as shown on the drawings. Any over excavation will be backfilled with granular material or clear stone. When the pipe has been installed to the proper grade and depth, the excavation shall be backfilled with Granular "A", or clear stone, from the bottom of the excavation to the springline of the pipe. Care shall be taken to ensure that the backfill on either side of the culvert does not differ by more than 300mm, so that the pipe is not displaced.

Residential access pipe culverts are to be backfilled with Granular “B” material or suitable free draining material and compacted to 95% modified proctor maximum dry density. The backfill shall be placed from the top of the bedding, to within 150mm of the finished grade. The top 150mm of Granular “A” material, shall be mechanically compacted to 98% modified proctor maximum dry density. The Contractor shall supply any extra backfill material required above the springline. Payment for additional backfill material will be specified in the Contract Documents.

Unless otherwise specified, the top width will be based on the width of the existing gravel, plus one (1) metre on each side. The top 150mm of the access shall be restored with Granular “A” material for a sufficient distance, to match the existing access road width. The location of the agricultural access culverts may be moved a short distance upstream or downstream as necessary, to avoid existing tile outlets subject to the approval of the Drainage Superintendent or Engineer. If a tile outlet cannot be avoided, the tile outlet shall be extended upstream or downstream to an outlet. Any tile outlets extended as a result of extra length requested by an Owner, shall be extended at the Owner’s expense.

The Pike Road centreline pipe culverts shall be backfilled with Granular ‘B” type 2 material mechanically compacted to 95% modified proctor maximum dry density, as detailed on the drawings. The top 400mm of Granular “B” material, shall be mechanically compacted to 98% modified proctor maximum dry density. The backfill shall be placed from the top of the bedding, to within 320mm of the finished grade. The top 320mm of the lane shall be restored with 150mm of Granular “A” material, and mechanically compacted to 100% modified proctor maximum dry density, and 170mm of Asphalt.

Rip rap end protection shall have a minimum 1.5H:1V sideslopes. The rip rap shall consist of 150mm x 300mm quarry stone, or an approved equal. The area to receive the rip rap shall be graded to a depth of 300mm below the finished grade. Filter fabric (Terrafix 270R or an approved equal) shall then be placed with any joints overlapped at a minimum of 600mm. The quarry stone shall be placed with the smaller pieces placed in the gaps and voids, to give it a uniform appearance.

The Contractor shall maintain a dry working area during construction. The Contractor shall install a silt fence downstream of the work area, (at the bottom end of the channel improvement, if all work is completed at the same time).

After completion of construction, the sediment and erosion control measures shall be removed. The final removal shall be the silt fence.

17. Catch Basins/Catch Basin Maintenance Hole

The catch basins and catch basin maintenance hole, shall be in accordance with the applicable OPSS and OPSD, and shall be installed to the elevations and locations shown on the drawings as follows:

Structure	Station	Dia. (mm)	Inlet (Grate) Elev. (m)	Inlet Pipe Elev. (m)	Outlet Pipe Elev. (m)
CBMH#1	0+076	1800	181.70	180.37 (N) (750mm) 180.98 (E) (375mm)	180.22 (SW) (900mm)
CB#2	0+725	900X1200	183.00	182.19 (N) (600mm)	182.18 (S) (600mm)
CB#3	0+749	900X1200	183.40	182.23 (N) (600mm)	182.22 (S (600mm)
CB#4	0+769	900X1200	183.59	182.27 (N) (600mm)	182.26 (S) (600mm)
CB#5	0+795	900X1200	183.65	182.31 (N) (600mm)	182.30 (S) (600mm)
CB#6	0+816	900X1200	183.55	182.35 (N) (600mm)	182.34 (S) (600mm)
CB#7	0+852	900X1200	183.50	182.45 (NE) (300mm)	182.40 (S) (600mm)
CB#8	1+059	600X600	183.95		182.77 (S) (250mm)

The structures shall be precast concrete structures as noted above. Catch basin maintenance hole 1 and catch basin 7 shall have a flat top with a birdcage type grate. Birdcage grates shall be manufactured with a bar spacing no larger than 50mm. Catch basins 2, 3, 4, 5, 6 and 8 shall have a flat top with a herringbone grate in accordance with OPSD 400.0100.

The structures shall be made with the top sections separate from the base sections, in order to allow riser sections to be installed or removed as necessary (i.e. the base section shall not extend for more than 150mm above the top of the highest opening in the base section). The structures shall have a 600mm sump.

The structures shall be set at the final elevation, as directed by the Drainage Superintendent. The structure shall be set on a layer of clear stone. The clear stone shall be extended up to the springline of the inlet and outlet pipe connections.

Any tile connection to the structures shall be concreted on both the inside and outside, prior to backfilling. Any pipe or tile shall not protrude more than 50mm inside the wall.

18. Concrete Headwall and Grate

A Pro-Eco-Lite headwall with a trash rack by Armtec, or an approved equivalent, shall be installed on the closed drain inlet at station 0+131. The Contractor shall provide shop drawings of the structure prior to ordering materials.

19. Subsurface Drainage

The landowner is responsible to mark all of the tiles or tile outlets entering the drain. The landowner is responsible for all of the costs to maintain private tiles or tile outlets. Any washouts along the channel banks caused by surface or subsurface water entering the channel through private facilities shall be repaired at the direction of the Drainage Superintendent, with the costs assessed to the benefitting landowner.

Tile ends shall be repaired with equivalent sized, non perforated agricultural HDPE pipe with a manufactured coupling, and rodent grate. Tile mains shall be repaired with equivalent sized, non perforated HDPE tile, with a manufactured coupling and rodent grate. In the case of concrete or clay tiles, the tile end shall be excavated into the bank a minimum of 3m. Any washouts from surface water, or at tile ends, shall be repaired with rip rap (150mm X 300mm quarry stone or gabion stone) and filter fabric (Terrafix 270R or an approved equal).

The area to receive rip rap shall be graded to a minimum depth of 300mm. If the washout is greater than 300mm, then excavated or fill material shall be placed to sub-grade. The filter fabric will then be placed with all joints overlapped with a minimum of 600mm. The rip rap will then be placed to a minimum depth of 300mm from the base of the side slope to the top of the tile outlet, with the smaller pieces being placed in the gaps and voids to give it a uniform appearance. The area to receive rip rap shall be graded, and the rip rap is placed to allow any surface water directed to this area to enter the channel over the rip rap. The rip rap shall generally be keyed to a depth of 600mm at the top of the bank. Any native material that has washed into the channel, shall be removed and spread on the adjacent property.

20. Channel Protection (Rip Rap)

The channel protection shall consist of rip rap and filter fabric. Rip rap shall be made up of 150mm x300mm quarry stone, or an approved equal. The area to receive the rip rap shall be graded first, to allow the placement of the rip rap to a depth of 400mm. After grading, a layer of filter fabric (Terrafix 270R or an approved equal) shall be placed with any joints overlapping a minimum of 600mm. Rip rap shall then be placed with the smaller pieces in the gaps and voids, to give it a uniform appearance.

The channel protection between Station 0+131 and Station 0+140 shall consist of rip rap and filter fabric and shall be installed on the slopes, from the bottom of the channel to the top of the bank. Rip rap shall be made up of 150mm x 300mm quarry stone, or an approved equal. The area to receive the rip rap shall be graded first, to allow the placement of the rip rap to a depth of 300mm. After grading, a layer of filter fabric (Terrafix 270R or an approved equal) shall be placed with any joints overlapping a minimum of 600mm. Rip rap shall then be placed with the smaller pieces in the gaps and voids, to give it a uniform appearance.

Channel protection shall be in accordance with OPSS MUNI 511.

21. Trucking of Excavated Material

Excess excavated material across finished lawns and agricultural lands between Station 0+000 and Station 0+852 shall be trucked and disposed offsite by the Contractor. The cost of trucking across finished lawns will form part of the drain construction cost and future maintenance costs.

Excess soils generated during future maintenance of the drain across agricultural lands will be disposed of within the working corridor.

22. Levelling of Excavated Material

When applicable, the excavated material shall be levelled to a maximum depth of 200mm, and left in a condition suitable for restoration.

23. Survey Bars

Any survey bars that are removed as a result of construction must be replaced by an Ontario Land Surveyor, registered with the Association of Ontario Land Surveyors. If a property bar is required to be moved or replaced to facilitate construction or maintenance, the costs to reinstate the property bar will be in addition to the contract price.

24. Restoration

Restoration shall be in accordance with the following:

Working Area and Access Restoration

- Disturbed areas within non-cultivated portions of the working area, shall be restored with a minimum of 100mm of native topsoil generated on site and seeded.

Pike Road Restoration

- Asphalt, Granular 'A' and Granular 'B' depths shall match the existing depths. If applicable, the asphalt shall be placed in maximum 60mm lifts.
- Asphalt shall be 50mm Superpave 12.5 asphalt, and 120mm (2 lifts) Superpave 19 asphalt. The Contractor match the field thickness of the asphalt or the minimum 170 asphalt thickness whichever is greater. Changes to the pavement design cannot be completed without approval from the County A minimum 600 milled header either side of the excavation is required.
- Granular 'A' to be 150mm in depth. If the existing Granular 'A' thickness is greater than 150mm, additional Granular 'A' will be placed at the direction of the Drainage Superintendent or Engineer.
- Granular 'B' Type2 to be 400mm in depth. If the existing Granular 'B' thickness is greater than 400mm, additional Granular 'B' will be placed at the direction of the Drainage Superintendent or Engineer.
- Granular 'B' to be used for backfill under paved portions of the road.
- Disturbed areas shall be restored with native topsoil and seed. Native topsoil is to match existing depths.

Private Accesses Restoration

- When applicable, HL4 asphalt to match the existing depths. If the existing asphalt thickness is greater than 40mm, additional asphalt will be placed in two lifts at the direction of the Drainage Superintendent or Engineer.
- Granular 'A' to be 150mm in depth.
- Granular 'B' to be 300mm in depth.
- Granular 'B' to be used for backfill under gravel/paved portions of the access.
- Disturbed areas shall be restored with native topsoil and seed. Native topsoil is to match existing depths.

Seed

All areas shall be hydro seeded upon completion of construction. Areas specified on the drawings or in these specifications shall be hydro seeded and mulched upon completion of construction in accordance with OPSS 804. Application rates are as follows:

- Primary seed (85 kg/ha.) consisting of 50% red fescue, 40% perennial ryegrass and 5% white clover.
- Nurse crop consisting of Italian (annual) ryegrass at 25% of total weight.
- Fertilizer (300 kg/ha.) consisting of 8-32-16.
- Hydraulic mulch (2,999 kg/ha.) type "B" and water (52,700 litres/ha.)

Seeding and mulching with the seed mixture, fertilizer at the application rates shown above. Spreading of the seed and mulch shall be by use of a mechanical spreader.

Excavation shall be in accordance with OPSS MUNI 206.

Compaction shall be in accordance with OPSS MUNI 501.

Topsoil shall be in accordance with OPSS MUNI 802.

Seed shall be in accordance with OPSS MUNI 804.

Granular shall be in accordance with OPSS 1010.

Asphalt shall be in accordance with OPSS MUNI 310.

25. Fencing

If a fence is required to be removed to facilitate the initial construction of the drain, the Contractor shall remove the fence and stockpile materials. Upon completion of the work, the fences shall be reconstructed using existing materials.

26. Silt Fence

Light duty silt fencing shall be installed immediately downstream of the Pike Road culvert installation, for the duration of construction. The silt fence shall consist of filter fabric, or manufactured silt fence supported with posts.

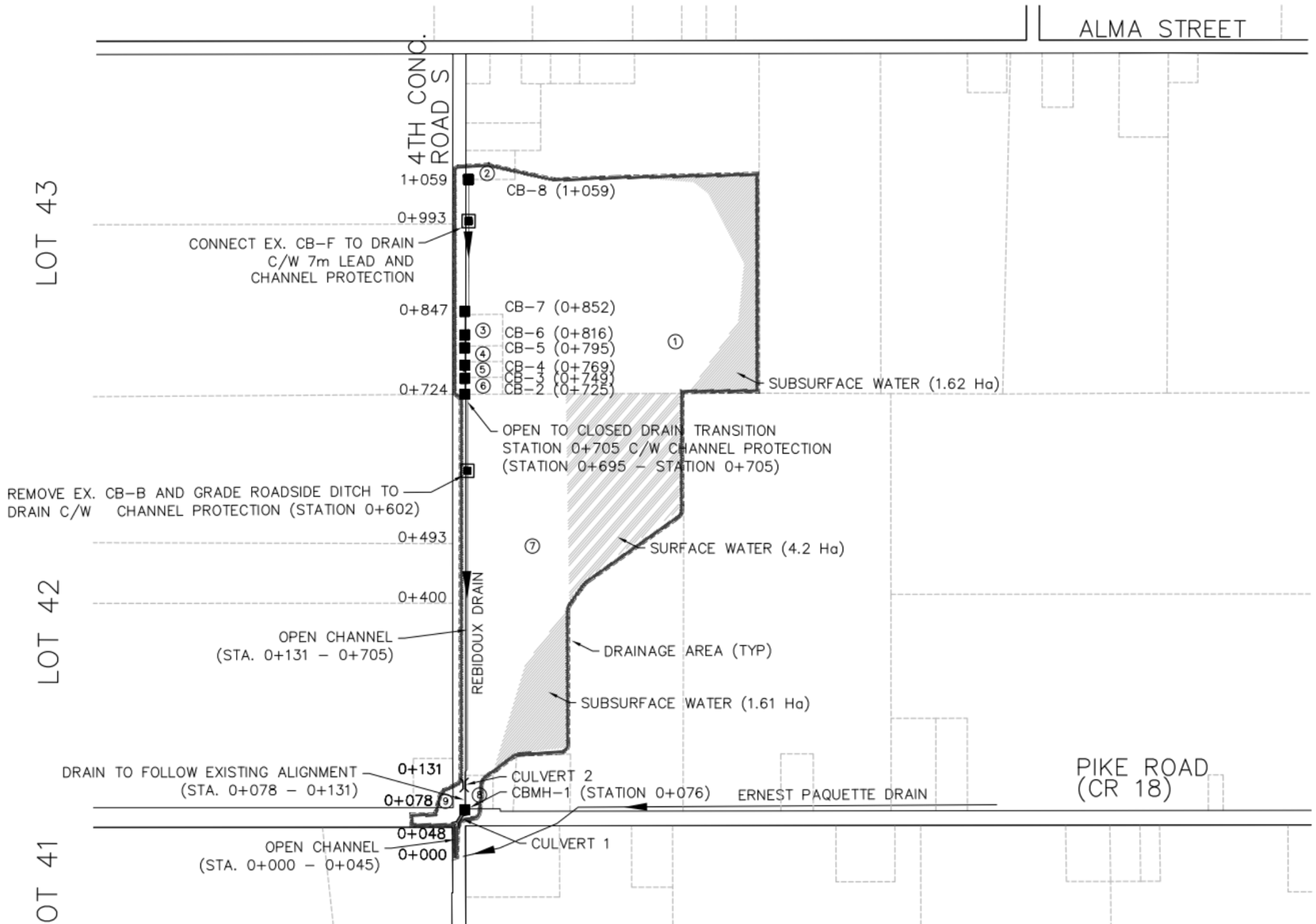
The light duty silt fencing and accumulated sediment shall be removed, once the disturbed area has been revegetated.

Light duty silt fencing shall be in accordance with OPSS MUNI 805 and OPSD 219.110.

27. Environmental Considerations

The Contractor shall take care to adhere to the following considerations.

1. All excavated and stockpiled material shall be placed a minimum of 1.5m from the top of the bank. Material shall not be placed in surface water runs or open inlets that enter the channel or closed drain.
2. All granular and erosion control materials shall be stockpiled a minimum of 1.5m from the top of the bank or surface water runs. Material shall not be placed in surface water runs or open inlets that enter the channel or closed drain.
3. All activities, including maintenance procedures, shall be controlled to prevent the entry of petroleum products, debris, rubble, concrete, or other deleterious substances into the water. Vehicle and equipment refuelling and maintenance, shall be conducted away from the channel, any surface water runs, or open inlets. All waste materials shall be stockpiled well back from the top of the bank, surface water runs, and open inlets that enter the drain.
4. All construction in the channel shall be carried out during periods of low flow. When possible, the Contractor shall schedule work to avoid periods of high winds and rain. The Contractor shall maintain a dry working area during construction. Prior to construction, the Contractor shall install a silt fence downstream of the work area.
5. The work shall be completed in accordance with any required Department of Fisheries and Oceans timing windows and Conservation Authority permits.



LICENSED PROFESSIONAL ENGINEER
M.R.M. GERRITS
Dec 4, 2024
2019-1070
PROVINCE OF ONTARIO

LANDOWNER INDEX NUMBER

1.	14.29	Ha	A. & C. PARKS
2.	0.24	Ha	K. & V. PELADEAU
3.	0.28	Ha	D. & M. VANLAERE
4.	0.14	Ha	J. ANDERSON & S. OUELLETTE
5.	0.14	Ha	D. & D. RENAUD
6.	0.15	Ha	P. & S. VAN LARE
7.	13.71	Ha	M. BJORKMAN
8.	0.15	Ha	G. FILLION & A. BERGERON
9.	0.07	Ha	S. & S. PATRICK
10.	1.35	Ha	PIKE ROAD (CR18)
11.	0.07	Ha	CONC RD 4 S

LEGEND

- DRAINAGE AREA
- REBIDOUX DRAIN
- MUNICIPAL DRAIN
- PROPOSED CULVERT
- PROPOSED CATCHBASIN
- EXISTING CATCHBASIN
- SUBSURFACE FLOWS
- SURFACE FLOWS

R Dobbin Engineering Inc.
4218 Oil Heritage Road
Petrolia Ontario, N0N 1R0
Phone: (519) 882-0032 Fax: (519) 882-2233

DRAWING NAME: Rebidoux Drain Plan
PROJECT No. 2019-1070

APPROVED: J. WARNER
CHECKED: B. VAN RUITENBURG
DRAWN: M. GERRITS

NO.	REVISIONS	DATE	BY
2	FOR REPORT	DEC. 4, 2024	MG
1	PUBLIC MEETING	OCT. 11, 2024	MG

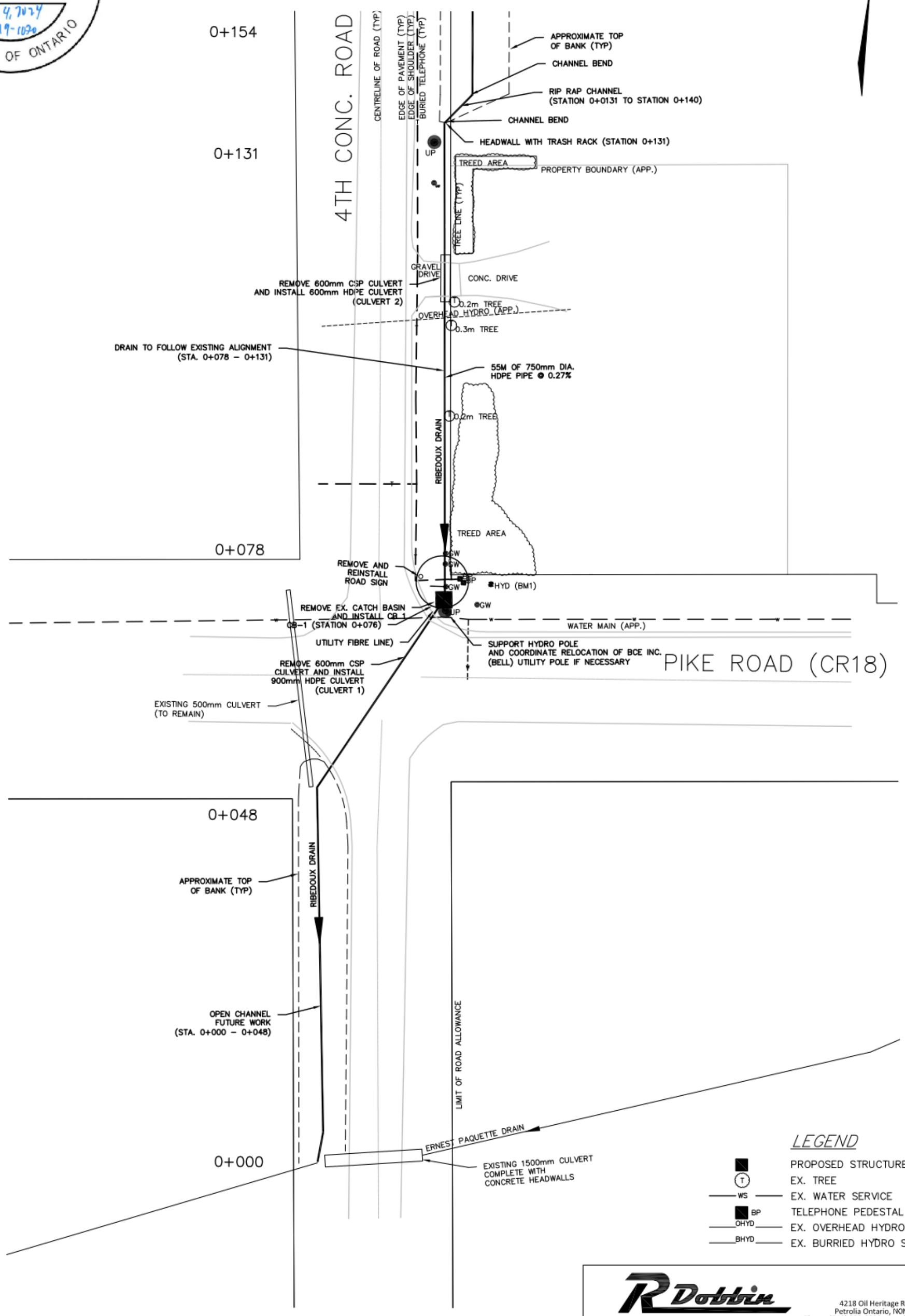
SCALE: 1:7,500
0 50 100 150m

TOWN of AMHERSTBURG

REBIDOUX DRAIN (2024)

OVERALL PLAN

LICENSED PROFESSIONAL ENGINEER
M.R.M. GERRITS
Dec 4, 2024
2019-1070
PROVINCE OF ONTARIO



LEGEND

- PROPOSED STRUCTURE
- (T) EX. TREE
- WS — EX. WATER SERVICE
- BP TELEPHONE PEDESTAL
- OHYD — EX. OVERHEAD HYDRO SERVICE
- BHYD — EX. BURRIED HYDRO SERVICE

R Dobbin Engineering Inc.
4218 Oil Heritage Road
Petrolia Ontario, N0N 1R0
Phone: (519) 882-0032 Fax: (519) 882-2233

DRAWING NAME: Rebidoux Drain Plan 1
PROJECT No. 2019-1070

APPROVED J. WARNER	NO.	REVISIONS	DATE	BY
CHECKED B. VAN RUITENBURG	2	FOR REPORT	DEC. 4, 2024	MG
	1	PUBLIC MEETING	OCT. 11, 2024	MG
DRAWN M. GERRITS	SCALE: 1:500 0 4 8 12m			

TOWN of AMHERSTBURG

REBIDOUX DRAIN (2024)

DETAILED PLAN 1

LICENSED PROFESSIONAL ENGINEER
M.R.M. GERRITS
Dec 4, 2024
2019-1070
PROVINCE OF ONTARIO

0+700

REMOVE EX. CB–B AND GRADE ROADSIDE DITCH TO DRAIN C/W CHANNEL PROTECTION (STATION 0+602)

0+493

REMOVE EX. BCE INC. (BELL) OFFSET MARKER POLE

0+400

RIBEDOUX DRAIN

4TH CONC. ROAD

CENTRELINE OF ROAD (TYP)
EDGE OF PAVEMENT (TYP)
EDGE OF SHOULDER (TYP)
BURIED TELEPHONE (TYP)
LIMIT OF ROAD ALLOWANCE

APPROXIMATE TOP OF BANK (TYP)

0+154

LEGEND

- PROPOSED STRUCTURE
- OHYD — EX. OVERHEAD HYDRO SERVICE
- BHYD — EX. BURRIED HYDRO SERVICE

R Dobbin Engineering Inc.
4218 Oil Heritage Road
Petrolia Ontario, N0N 1R0
Phone: (519) 882-0032 Fax: (519) 882-2233

DRAWING NAME: Rebidoux Drain Plan 2
PROJECT No. 2019–1070

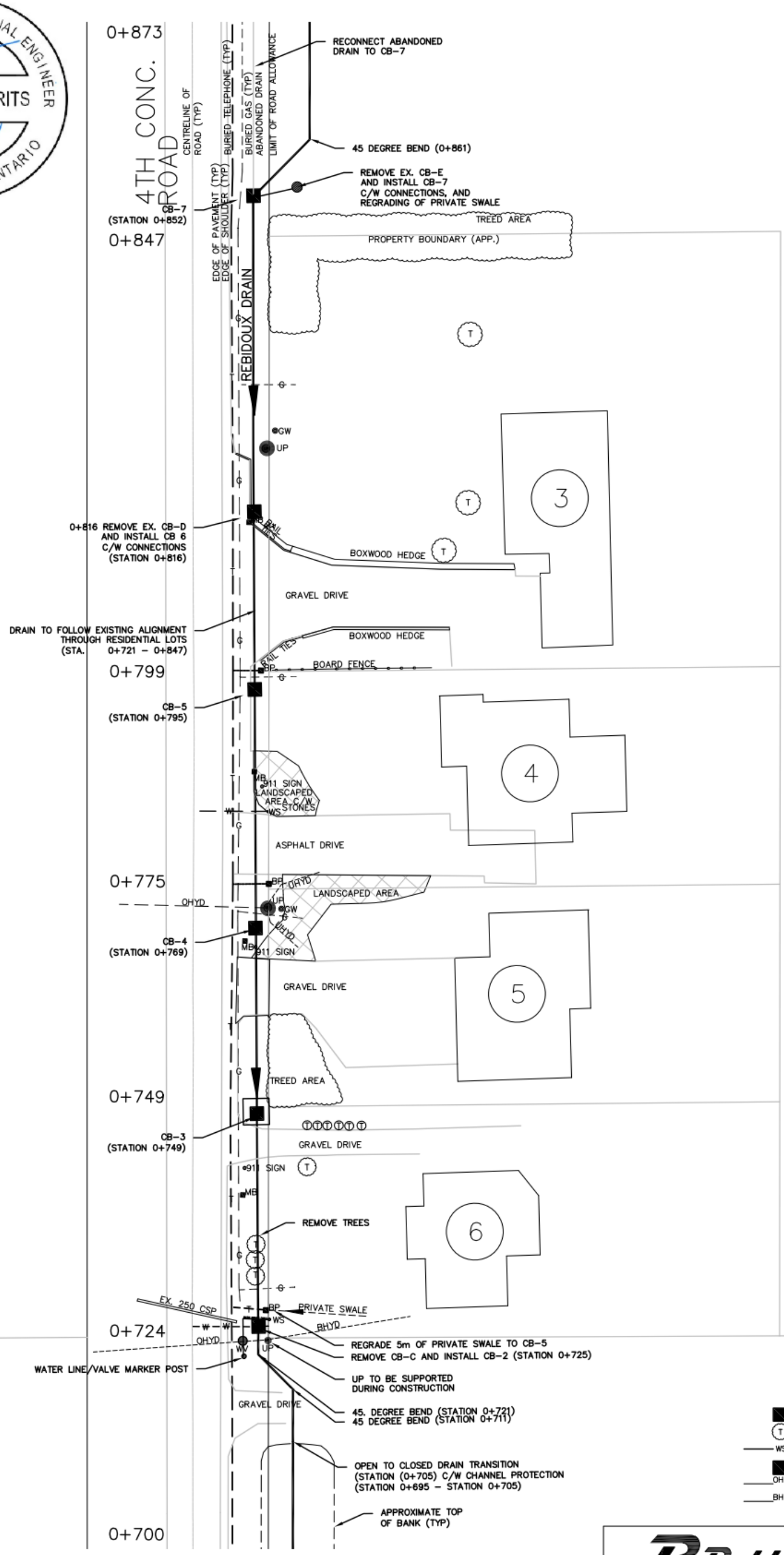
APPROVED	NO.	REVISIONS	DATE	BY
J. WARNER				
CHECKED	2	FOR REPORT	DEC. 4, 2024	MG
B. VAN RUITENBURG	1	PUBLIC MEETING	OCT. 11, 2024	MG
DRAWN	SCALE: 1:500 0 4 8 12m			
M. GERRITS				

TOWN of AMHERSTBURG

REBIDOUX DRAIN (2024)

DETAILED PLAN 2

LICENSED PROFESSIONAL ENGINEER
M.R.M. GERRITS
Dec 4, 2024
2019-1070
PROVINCE OF ONTARIO



LEGEND

- PROPOSED STRUCTURE
- EX. TREE
- EX. WATER SERVICE
- TELEPHONE PEDESTAL
- EX. OVERHEAD HYDRO SERVICE
- EX. BURRIED HYDRO SERVICE

R Dobbin Engineering Inc.
4218 Oil Heritage Road
Petrolia Ontario, N0N 1R0
Phone: (519) 882-0032 Fax: (519) 882-2233

DRAWING NAME: Rebidoux Drain Plan 3
PROJECT No. 2019-1070

APPROVED J. WARNER	NO.	REVISIONS	DATE	BY
CHECKED B. VAN RUITENBURG	2	FOR REPORT	DEC. 4, 2024	MG
	1	PUBLIC MEETING	OCT. 11, 2024	MG
DRAWN M. GERRITS	SCALE: 1:500 0 4 8 12m			

TOWN of AMHERSTBURG

REBIDOUX DRAIN (2024)

DETAILED PLAN 3

LICENSED PROFESSIONAL ENGINEER
M.R.M. GERRITS
Dec 4, 2024
2019-1070
PROVINCE OF ONTARIO

1+059

CB-8
(STATION 1+059)

UP

ROAD SIGN

0+993

CONNECT EX. CB-F TO DRAIN
C/W 7m LEAD

UP

UP

RIBEDOUX DRAIN

4TH CONC. ROAD

0+873

CENTRELINE OF ROAD (TYP)
EDGE OF PAVEMENT (TYP)
EDGE OF SHOULDER (TYP)
BURIED TELEPHONE (TYP)
BURIED GAS (TYP)
EX. DRAIN
LIMIT OF ROAD ALLOWANCE

UP

LEGEND

PROPOSED STRUCTURE

Dobbin Engineering Inc.
4218 Oil Heritage Road
Petrolia Ontario, N0N 1R0
Phone: (519) 882-0032 Fax: (519) 882-2233

DRAWING NAME: Rebidoux Drain Plan 4

PROJECT No. 2019-1070

APPROVED J. WARNER	NO.	REVISIONS	DATE	BY
CHECKED B. VAN RUITENBURG	2	FOR REPORT	DEC. 4, 2024	MG
	1	PUBLIC MEETING	OCT. 11, 2024	MG
DRAWN M. GERRITS	SCALE: 1:500 0 4 8 12m			

TOWN of AMHERSTBURG

REBIDOUX DRAIN (2024)

DETAILED PLAN 4

GENERAL NOTES

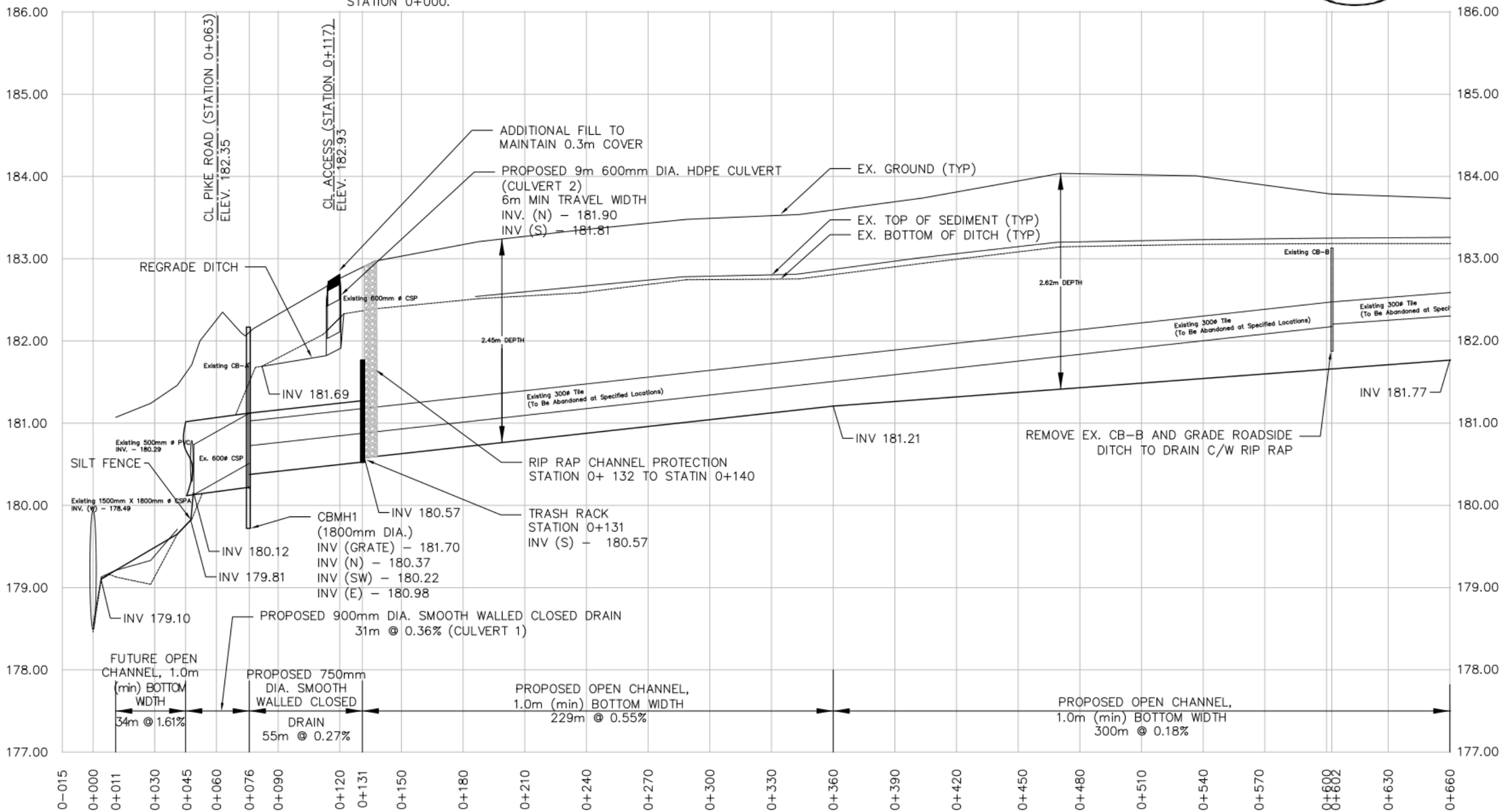
1. THE CONTRACTOR IS REQUIRED TO COMPLETE A BENCHMARK CHECK/LOOP, PRIOR TO CONSTRUCTION, TO VERIFY THE BENCHMARKS. IF DISCREPANCIES EXIST, THE CONTRACTOR MUST NOTIFY THE DRAINAGE SUPERINTENDENT AND ENGINEER, PRIOR TO COMMENCING ANY WORK.

2. DETAIL CROSS SECTIONS ARE LOCATED ON DRAWING 7.

3. WORKING AROUND AND SUPPORTING UTILITIES WILL BE REQUIRED TO FACILITATE CONSTRUCTION.

4. BENCHMARKS
PRIMARY BENCHMARK #1 ELEV. 183.34
TOP OF HYDRANT NUT (SPINDLE) ON THE NORTH SIDE OF PIKE ROAD (CR18) AT STATION 0+077.
SECONDARY BENCHMARK #2 – 180.23
OBVERT OF OF EAST END 1800mm X 1500mm CSPA (ERNEST PAQUETTE DRAIN) 4TH CONCESSION ROAD CENTRELINE CULVERT AT STATION 0+000.

LICENSED PROFESSIONAL ENGINEER
M.R.M. GERRITS
Dec 4, 2024
2019-1070
PROVINCE OF ONTARIO



Dobbin Engineering Inc.
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Petrolia Ontario, N0N 1R0
Phone: (519) 882-0032 Fax: (519) 882-2233

DRAWING NAME: Rebidoux Drain Profile 1
PROJECT No. 2019–1070

APPROVED	NO.	REVISIONS	DATE	BY
J. WARNER				
	2	FOR REPORT	DEC. 4, 2024	MG
CHECKED	1	PUBLIC MEETING	OCT. 11, 2024	MG
B. VAN RUITENBURG				
DRAWN	SCALE: 1:2,000			
M. GERRITS	0 20 40 60m			

TOWN of AMHERSTBURG

REBIDOUX DRAIN (2024)

PROFILE 1

GENERAL NOTES

1. THE CONTRACTOR IS REQUIRED TO COMPLETE A BENCHMARK CHECK/LOOP, PRIOR TO CONSTRUCTION, TO VERIFY THE BENCHMARKS. IF DISCREPANCIES EXIST, THE CONTRACTOR MUST NOTIFY THE DRAINAGE SUPERINTENDENT AND ENGINEER, PRIOR TO COMMENCING ANY WORK.

2. DETAIL CROSS SECTIONS ARE LOCATED ON DRAWING 7.

3. WORKING AROUND AND SUPPORTING UTILITIES WILL BE REQUIRED TO FACILITATE CONSTRUCTION.

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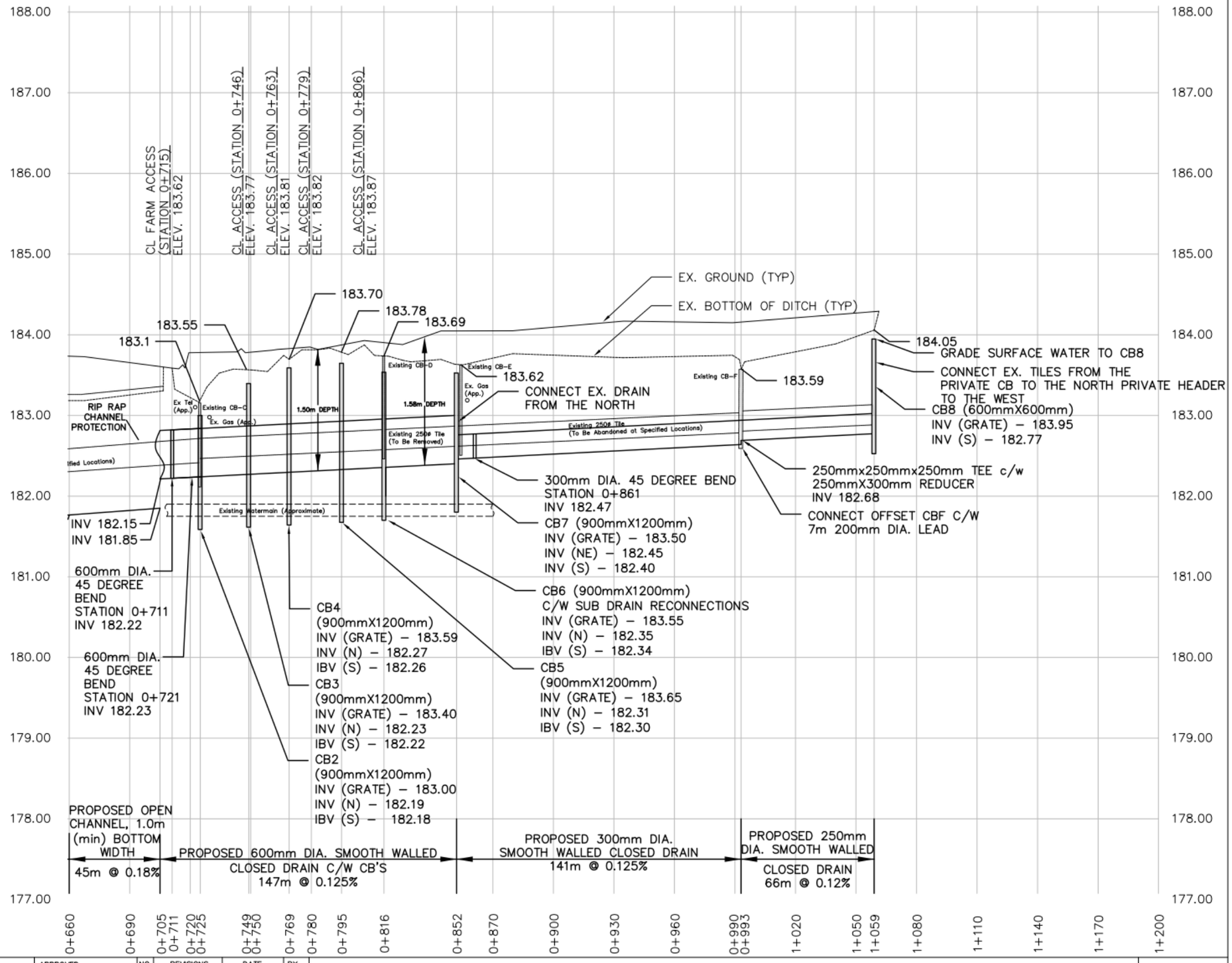
   PRIMARY BENCHMARK #1 ELEV. 183.34
   TOP OF HYDRANT NUT (SPINDLE) ON THE NORTH SIDE OF PIKE ROAD (CR18) AT STATION 0+077.
   SECONDARY BENCHMARK #2 – 180.23
   OBVERT OF OF EAST END 1800mm X 1500mm CSPA (ERNEST PAQUETTE DRAIN) 4TH CONCESSION ROAD CENTRELINE CULVERT AT STATION 0+000.



LICENSED PROFESSIONAL ENGINEER
M.R.M. GERRITS
Dec 4, 2024
2019-1070
PROVINCE OF ONTARIO

Dobbin Engineering Inc.	4218 Oil Heritage Road Petrolia Ontario, N0N 1R0 Phone: (519) 882-0032 Fax: (519) 882-2233	APPROVED J. WARNER CHECKED B. VAN RUITENBURG DRAWN M. GERRITS

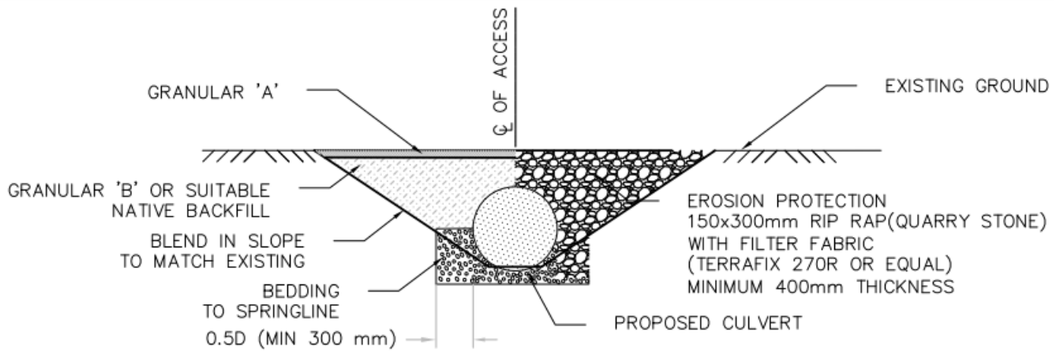
NO.	REVISIONS	DATE	BY
2	FOR REPORT	DEC. 4, 2024	MG
1	PUBLIC MEETING	OCT. 11, 2024	MG

SCALE: 1:2,000
0 20 40 60m

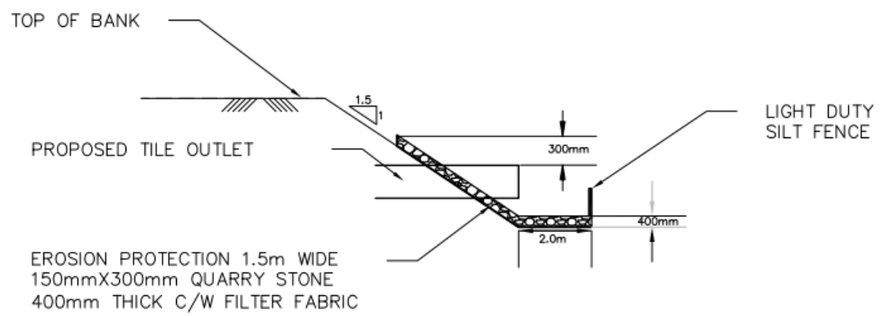
DRAWING NAME: Rebidoux Drain Profile 2
PROJECT No. 2019–1070

TOWN of AMHERSTBURG

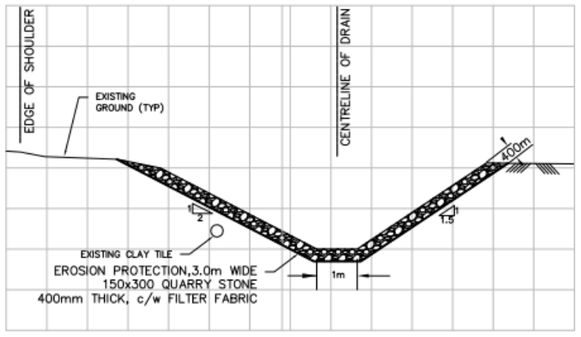
REBIDOUX DRAIN (2024)
PROFILE 2



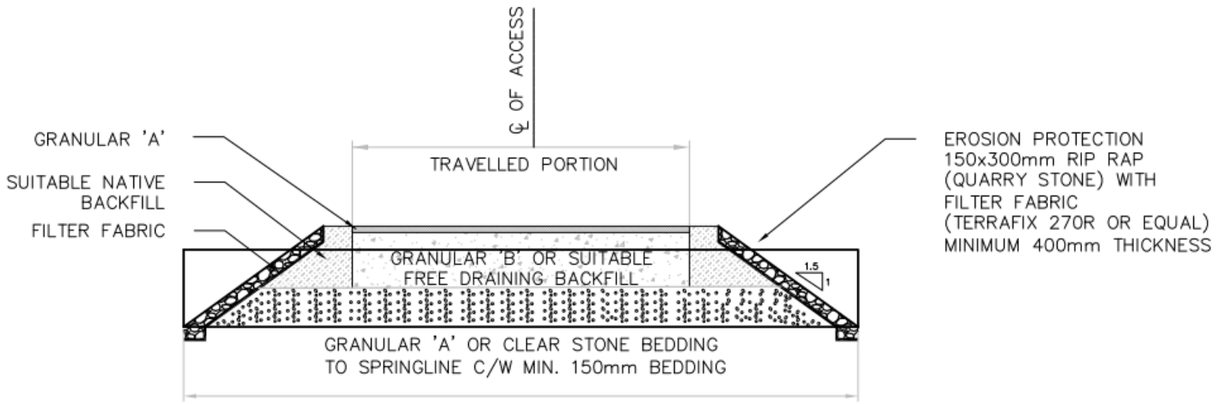
PROPOSED BLOCK ENDWALL END SECTION
TYPICAL CULVERT
N.T.S.



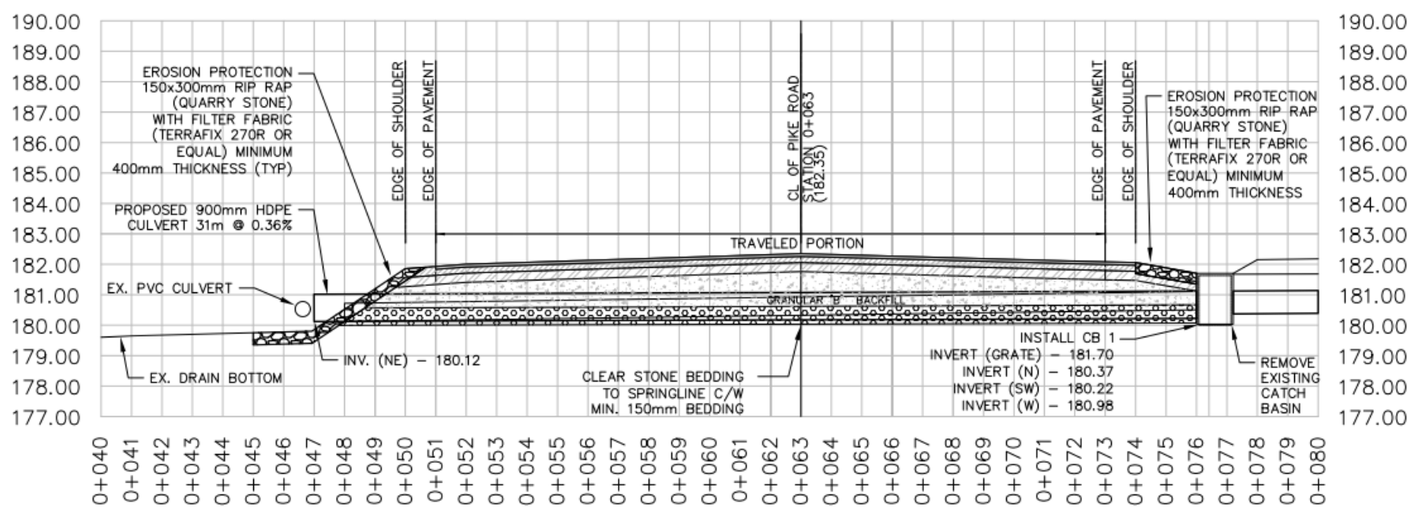
TYPICAL OUTLET DETAIL
N.T.S.



TYPICAL CHANNEL PROTECTION DETAIL
1:150



PROPOSED CROSS SECTION
TYPICAL CULVERT
N.T.S.



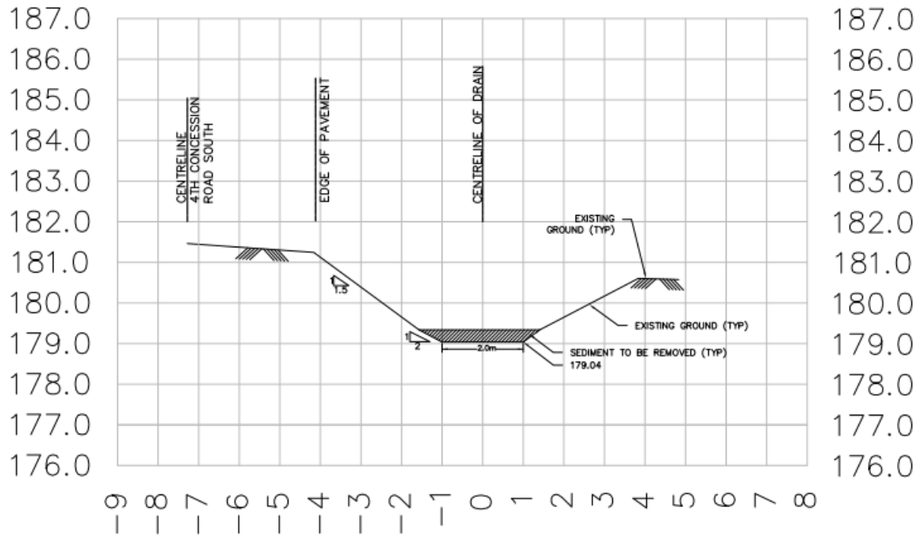
PIKE ROAD CROSS SECTION
1:200

Dobbin Engineering Inc.
4218 Oil Heritage Road
Petrolia Ontario, N0N 1R0
Phone: (519) 882-0032 Fax: (519) 882-2233

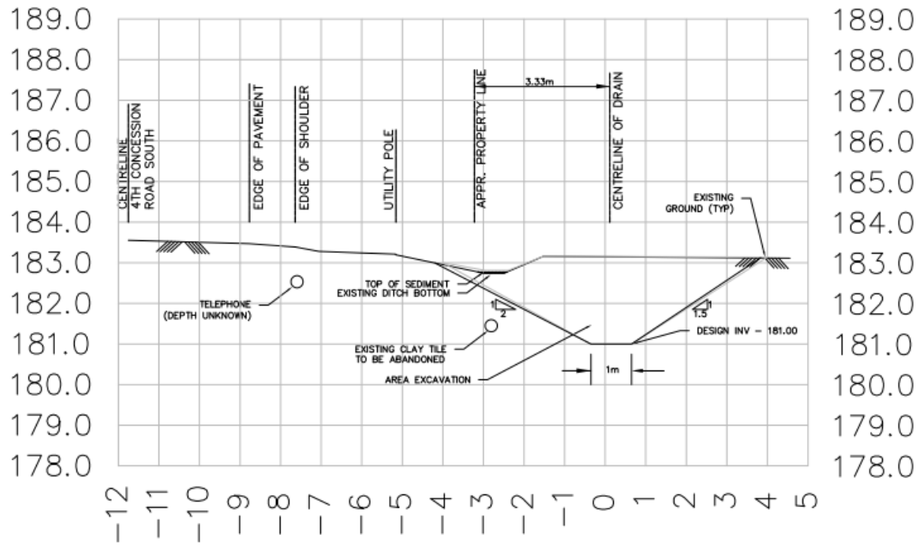
DRAWING NAME: Rebidoux Drain Details
PROJECT No. 2019-1070

APPROVED	NO.	REVISIONS	DATE	BY
J. WARNER				
	2	FOR REPORT	DEC. 4, 2024	MG
CHECKED B. VAN RUITENBURG	1	PUBLIC MEETING	OCT. 11, 2024	MG
DRAWN M. GERRITS	SCALE: AS NOTED			

TOWN of AMHERSTBURG
REBIDOUX DRAIN (2024)
DETAILS



4TH CONCESSION ROAD SOUTH
CROSS SECTION AT STATION 0+027
1:150



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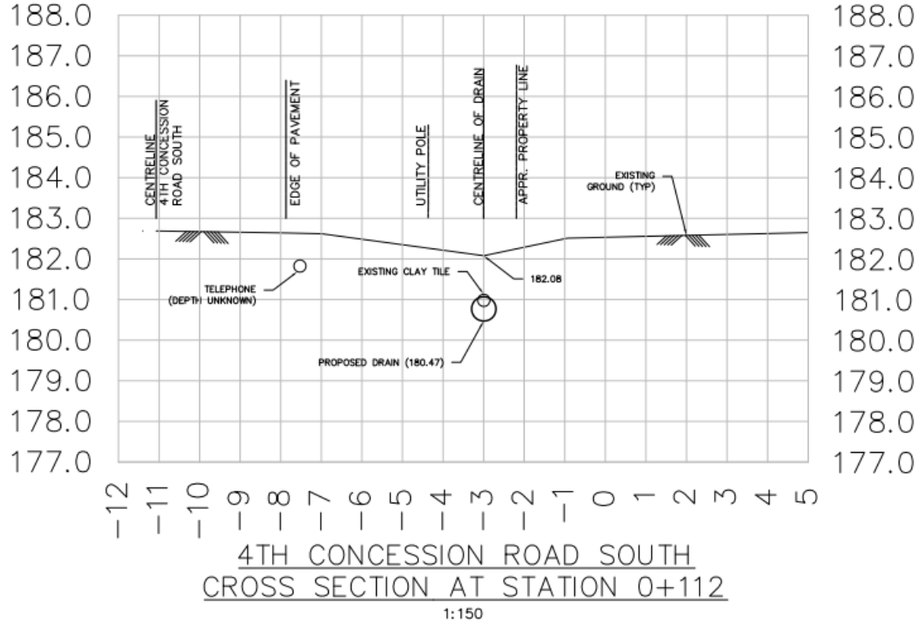
CROSS SECTION AT STATION 0+287
1:150



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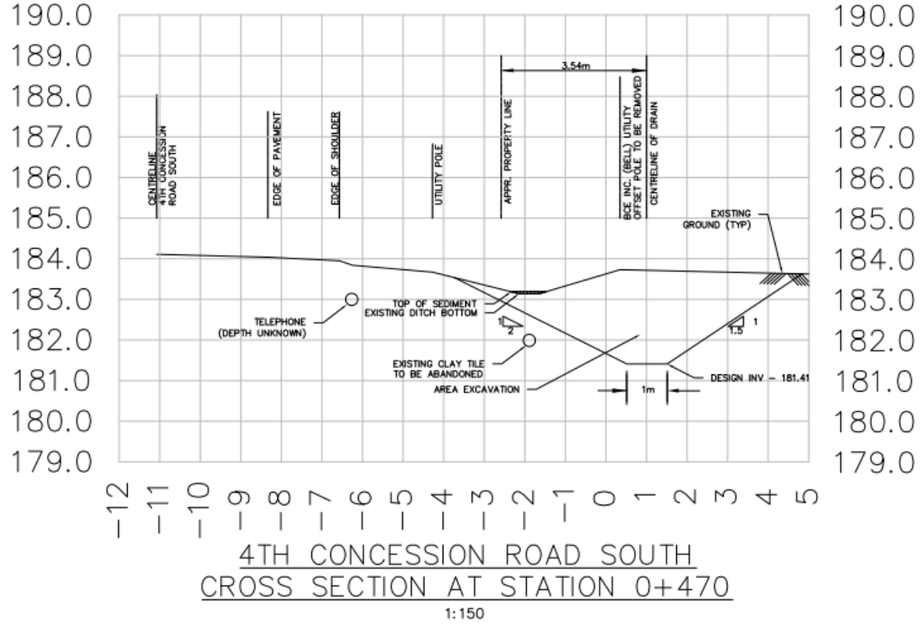
CROSS SECTION AT STATION 0+112
1:150



4TH CONCESSION ROAD SOUTH
CROSS SECTION AT STATION 0+470
1:150

LICENSED PROFESSIONAL ENGINEER
M.R.M. GERRITS
Dec 4, 2024
2019-1070
PROVINCE OF ONTARIO

Dobbin Engineering Inc.
4218 Oil Heritage Road
Petrolia Ontario, N0N 1R0
Phone: (519) 882-0032 Fax: (519) 882-2233

DRAWING NAME: Rebidoux Drain Cross Sections & Details
PROJECT No. 2019-1070

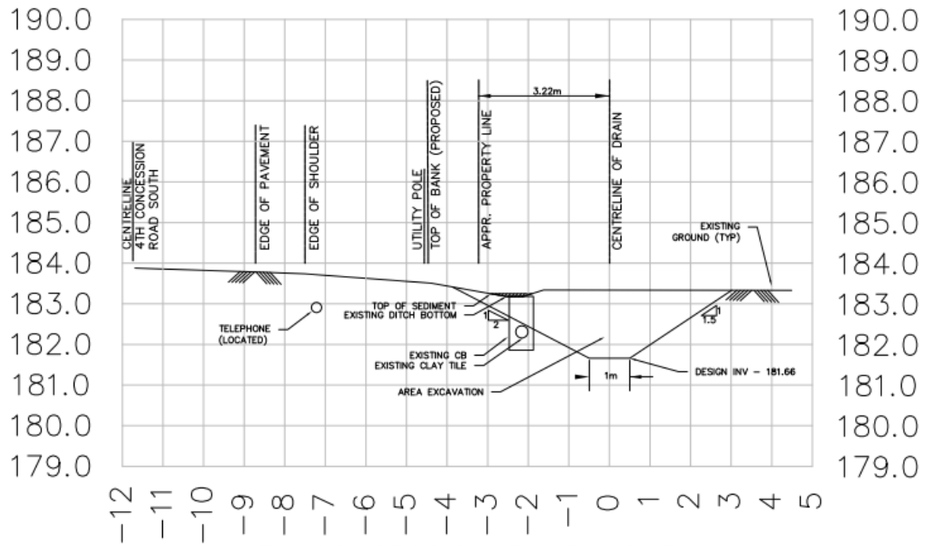
APPROVED J. WARNER
CHECKED B. VAN RUITENBURG
DRAWN M. GERRITS

NO.	REVISIONS	DATE	BY
2	FOR REPORT	DEC. 4, 2024	MG
1	PUBLIC MEETING	OCT. 11, 2024	MG

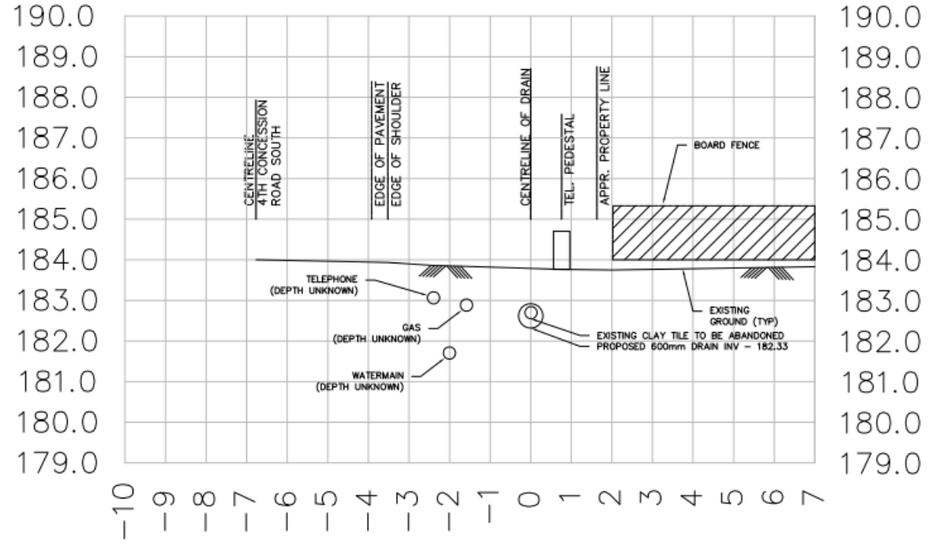
SCALE: AS NOTED

TOWN of AMHERSTBURG

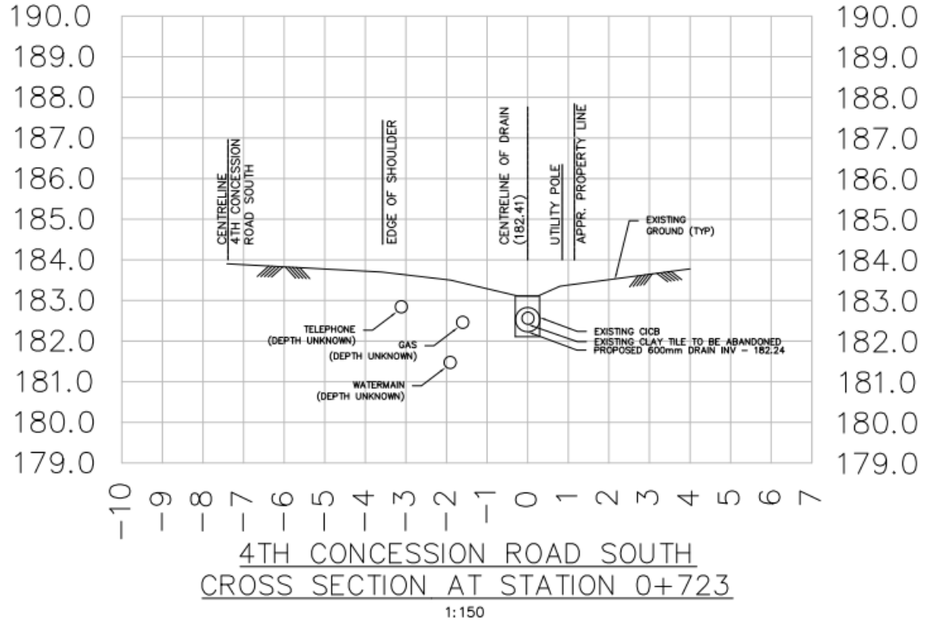
REBIDOUX DRAIN (2024)
CROSS SECTIONS & DETAILS



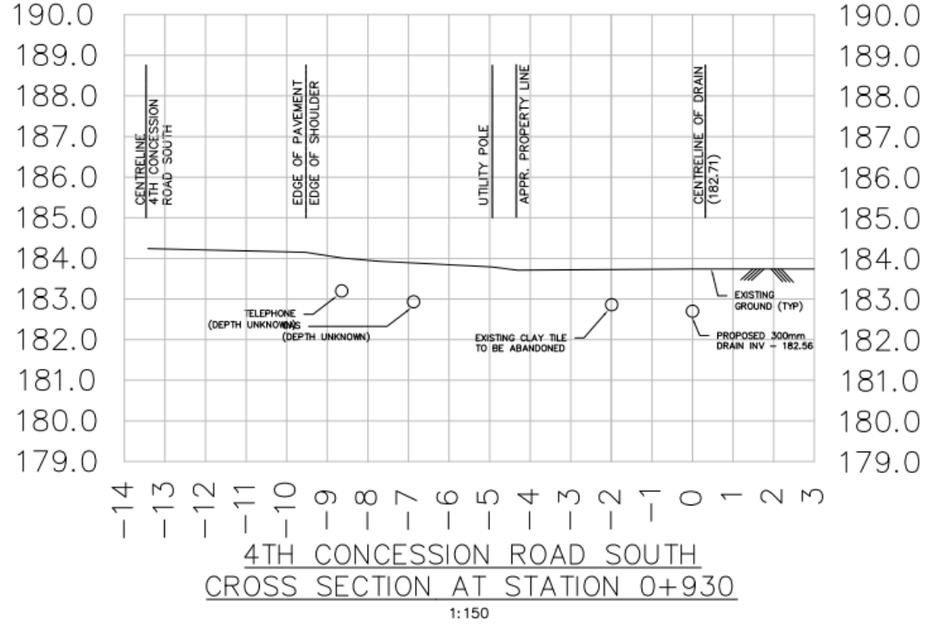
4TH CONCESSION ROAD SOUTH
CROSS SECTION AT STATION 0+601
1:150



4TH CONCESSION ROAD SOUTH
CROSS SECTION AT STATION 0+796
1:150



4TH CONCESSION ROAD SOUTH
CROSS SECTION AT STATION 0+723
1:150



4TH CONCESSION ROAD SOUTH
CROSS SECTION AT STATION 0+930
1:150

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DRAWING NAME: Rebidoux Drain Cross Sections & Details
PROJECT No. 2019-1070

APPROVED	NO.	REVISIONS	DATE	BY
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DRAWN M. GERRITS		SCALE: AS NOTED		

TOWN of AMHERSTBURG

REBIDOUX DRAIN (2024)
CROSS SECTIONS & DETAILS

THE CORPORATION OF THE TOWN OF AMHERSTBURG

BY-LAW NO. 2025-005

By-law to provide for the improvements to the Rebidoux Drain based on the report of Mike Gerrits, P.Eng of R. Dobbin Engineering Inc.

WHEREAS a request for improvement of the Rebidoux Drain was received under section 78 of the Drainage Act;

WHEREAS Council of the Corporation of the Town of Amherstburg appointed an engineer for the purpose of preparation of a preliminary report for improvements to the Rebidoux Drain under Section 78 of the Drainage Act;

WHEREAS Council of the Corporation of the Town of Amherstburg has authorized Mike Gerrits, P.Eng., of R. Dobbin Engineering Inc., to prepare a final report and said engineer's report dated December 4, 2024 entitled Rebidoux Drain (2024) can be referenced as Schedule A, as attached hereto;

WHEREAS $658,313.00 is the estimated cost provided for the new the drainage works;

AND WHEREAS the report was considered by the Amherstburg Drainage Board at the meeting held on January 7, 2025.

NOW THEREFORE the Council of the Corporation of the Town of Amherstburg hereby enacts as follows:

1. AUTHORIZATION

The attached drainage report is adopted and the drainage works is authorized and shall be completed as specified in the report.

2. BORROWING

The Corporation of the Town of Amherstburg may borrow on the credit of the Corporation the amount of $658,313.00 being the estimated amount necessary for the improvements of the drainage works.

3. DEBENTURE(S)

The Corporation may issue debenture(s) for the amount borrowed less the total amount of:
(a) Grants received under section 85 of the Drainage Act;
(b) Monies paid as allowances;
(c) Commuted payments made in respect of lands and roads assessed with the municipality;
(d) Money paid under subsection 61(3) of the Drainage Act; and
(e) Money assessed in and payable by another municipality.

4. PAYMENT

Such debenture(s) shall be made payable within 5 years from the date of the debenture(s) and shall bear interest at a rate not higher than 1% more than the municipal lending rates as posted by The Town of Amherstburg's Bank's Prime Lending Rate on the date of sale of such debenture(s).

(1) A special equal annual rate sufficient to redeem the principal and interest on the debenture(s) shall be levied upon the lands and roads and shall be collected in the same manner and at the same as other taxes are collected in each year for 5 years after the passing of this by-law.

(2) All assessments of $1000.00 or less are payable in the first year in which the assessments are imposed.

Read a first and second time and provisionally adopted this 27th day of January, 2025.

_____
MAYOR – MICHAEL PRUE

_____
CLERK – KEVIN FOX

Read a third time and finally passed this ___ day of _____, 2025.

_____
MAYOR – MICHAEL PRUE

_____
CLERK – KEVIN FOX

R. Dobbin Engineering Inc.
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Petrolia, Ontario, N0N 1R0
Phone: (519) 882-0032 Fax: (519) 882-2233
www.dobbineng.com

November 20, 2024

The Mayor and Council
Town of Amherstburg
271 Sandwich Street South
Amherstburg, Ontario
N9V 2A5

Gentlemen and Mesdames:

Re: Shipman Drain Preliminary Report Direction Reconsideration

This letter outlines my opinion that the decision by the Drainage Board on September 10, 2024 should be reconsidered. The preliminary report that was prepared outlined three options that were discussed at the on-site meeting. The following options were presented at a Drainage Board Meeting on September 10th, 2024:

- Option 1: A storm system outletting into the Long Marsh Drain complete with a pump station at the outlet. The estimated cost for this option was $613,985.
- Option 2: A gravity storm system outletting into the Long Marsh Drain. The estimated cost for this option was $477,815.
- Option 3: A split gravity storm system with some of the water draining north and some of the water draining south. This allowed for the potential re-use of a section of the drain that was replaced privately. The estimated cost for this option was $433,289.

At the meeting, R. Dobbin Engineering's recommendation was to proceed with Option 1 in order to eliminate the reliance of the drainage system on the water levels of the surrounding bodies of water. Landowners stated that they did not have any concerns with the system and that if improvements were required, they wished to go with the least expensive option. The Drainage Board provided direction to proceed with Option 3. Option 3 will result in the drain being reliant on the water levels of the surrounding water bodies. With higher water levels the drain will not function to its designed capacity. Based on the water levels on January 5, 2024 the majority of the drain will be under water. The drain elevation cannot be raised due to utilities and existing drainage infrastructure. Option 3 cannot be designed to provide the roads and lands with a sufficient outlet, as required under Section 15 of the Drainage Act. Therefore, I request that the Drainage Board reconsider and direct us to proceed with Option 1.

Yours truly,

Josh Warner, P. Eng.
R. Dobbin Engineering Inc.