



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

February 14, 2025

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

Gentlemen and Mesdames:

Re: Deslippe Drain (2025)

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

Authorization under the Drainage Act

This is an Engineer's Report that has been prepared under Section 78 and 4 of the Drainage Act. R. Dobbin Engineering Inc. was appointed by council on October 23, 2023. A petition was filed by the owner of Concession Road 6 South on April 5, 2024 in order to have the road crossing south of County Road 18 included as part of the drainage works.

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.

Section 4 (1) of the Drainage Act states:

A petition for the drainage by means of a drainage works of an area requiring drainage as described in the petition may be filed with the Clerk of the local Municipality in which the area is situate by,

- (a) the majority in number of the owners, as shown by the last revised assessment roll of lands in the area, including the owners of any roads in the area;
- (b) the owner or owners, as shown by the last revised assessment roll, of lands in the area representing at least 60 per cent of the hectareage in the area;
- (c) where a drainage works is required for a road or part thereof, the engineer, road superintendent or person having jurisdiction over such road or part, despite subsection 61(5);
- (d) where a drainage works is required for the drainage of lands used for agricultural purposes, the Director. R.S.O. 1990, c.D.17, s.4(1).

The petition was determined to be valid based on Section 4 (1) (c).

Existing Drainage

The Deslippe Drain outlets into the Long Marsh Drain just north of Texas Road on the west side of Concession Road 5 North. The drain continues southerly as an open channel to the south limit of Lot 2, Concession 4. The drain then crosses Concession Road 5 North and continues southerly along the east side of Concession Road 5 North. The drain continues to just south of Alma Street, where it then heads easterly to the east side of Concession Road 6 South. The drain continues southerly along the east side of Concession Road 6 South to a point just north of the south limit of Lot 74, Concession 6.

The last Engineer's Report on the Deslippe Drain was completed in 2024 by RC Spencer. The report replaced two culverts (identified as Culvert #13 and #14 under this report) and one culvert under an Emergency Designation from the Minister of Agribusiness (identified as Culvert #8 under this report).

Drain Classification

The Deslippe Drain is currently classified as a class "F" drain according to the Department of Fisheries and Oceans (DFO) classification as presented by the Ontario Ministry of Agriculture, Food and Rural Affairs' 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.

Emergency Designations

Prior to the site meeting, the County of Essex reached out with concerns regarding the County Road 18 crossing. Therefore, on February 6, 2024 R. Dobbin Engineering went to site to investigate the culvert and the remainder of culverts along the length of the drain. It was determined that the County Road 18 crossing (Culvert #16) and the shared driveway culvert for the properties with Parcel Numbers 21 and 22 (now Culvert #3 and #4) were in very poor condition. In particular, the shared driveway culvert was deemed a safety hazard and unsafe for use. On February 15, 2024 the Emergency Designation Request was filed with the Minister of Agribusiness in order to proceed with the Emergency Culvert Replacements prior to adoption of the report. Approval was granted by the Minister on February 20, 2024. Construction was completed in April of 2024 for the driveway culverts and in June of 2024 for the County Road 18 crossing. As part of the County Road #18 crossing replacement, the watermain was lowered in order to accommodate the proposed culvert and a road crossing under Concession Road 6 South was completed.

On December 28, 2024 R. Dobbin Engineering Inc. was informed that Culvert #5 had been hit by a vehicle and required inspection to determine if it would be suitable for vehicle traffic. R. Dobbin Engineering Inc. was on site on December 28, 2024 and determined that the south beam of the bridge had rotated approximately 45 degrees. As a result, the south side of the bridge is no longer safe for access. The remainder of the beams remained in tact. It was determined that the south side of the bridge should be barricaded off and access shall only be gained utilizing the north side of the bridge. This collision expedited the replacement of this culvert to an emergency. Therefore, on January 3, 2025 Emergency Designation was requested to the Minister of Agribusiness under Section 124 of the Drainage Act.

Site Meeting

A site meeting for this drain was held on March 13, 2024. The following were present:

- Josh Warner (R. Dobbin Engineering)
- Sam Paglia (Drainage Superintendent, Town of Amherstburg)
- Dennis Renaud (Landowner)
- Josh Mailloux (Landowner)
- Mark Fishleigh (County of Essex)
- Don Deslippe (Landowner)
- Ron McGuire (Landowner)
- Brian Renaud (Landowner)
- Gerald Wismer (Landowner)
- Darwin Wismer (Landowner)
- Patricia Renaud (Landowner)
- Colin Novak (Landowner)
- Helen Ule (Landowner)

The following is a brief summary of the meeting:

- General discussion of the Drainage Act and Landowners rights under the Drainage Act.
- Landowners were made aware that the County Road 18 crossing (Culvert #16) and two driveway culverts (Culvert #3 and #4) were being completed under Emergency Designation as per Section 124 of the Drainage Act.
- 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.
- Landowners were made aware that the culverts have been inspected and it has been deemed that Culvert #5, 10, 11, 12, 15 and 17, require replacement.
- Landowners at the top end of the drain requested a cleanout of the drain, stating that their tiles are under the sediment.
- Landowners north of Alma Street stated that they have no concerns with 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	Location	Existing Culvert	Condition	Recommendation
1	Texas Road	3800mm Span Concrete Box Culvert	Good	Leave and Specify for Future Replacement
2	Parcel Number 4	3100x1980mm dia. CSPA	Okay. Rust below Springline	Leave and Specify for Future Replacement
3	Parcel Number 21	Steel Beam Bridge was in very poor condition and was replaced under Emergency Designation with 2200mm dia. CSP.		
4	Parcel Number 22	No Culvert Previously. New Culvert installed under Emergency Designation with 2200mm dia. CSP.		
5	Parcel Number 23	Steel Beam Bridge was in poor condition, but was hit by vehicle which expedited replacement under Emergency Designation with 2200mm dia. CSP.		
6	Parcel Number 3	3100x1980mm dia. CSPA	Okay. Rust below Springline	Leave and Specify for Future Replacement
7	Concession Road 5 North	2500mm Span Concrete Box Culvert	Good	Leave and Specify for Future Replacement

Culvert Number	Location	Existing Culvert Size	Condition	Recommendation
8	Parcel Number 26	1600mm dia. CSP	Good. Replaced through Emergency Designation under RC Spencer 2024 Report	Leave and Specify for Future Replacement
9	Alma Street	1800mm Span Concrete Box Culvert	Good	Leave and Specify for Future Replacement
10	Parcel Number 9	1400x1000mm dia. CSPA	Poor – Rusted, Holes	Replace
11	Concession Road 6 South	2200mm dia. CSP With Concrete Footings	Poor – Rusted, Holes Throughout	Replace
12	Parcel Number 19	1200mm dia. CSP	Poor – Rusted, Holes Throughout and Bottom Gone in Sections	Replace
13	Parcel Number 39	1200mm dia. CSP	Poor – Being Replaced under RC Spencer 2024 Report	Leave and Specify for Future Replacement
14	Parcel Number 38	1200mm dia. CSP	Poor – Being Replaced under RC Spencer 2024 Report	Leave and Specify for Future Replacement
15	Parcel Number 17 & 18	1200mm dia. CSP	Poor – Rusted, Large Holes Throughout	Replace
16	Essex County Road 18	1050mm dia. CSP was in very poor condition and was replaced under Emergency Designation with 1050mm dia. HDPE.		
17	Concession Road 6 South just South of CR 18	250mm dia. CSP was in very poor condition and was replaced under Emergency Designation with 300mm dia. HDPE.		
18	Parcel Number 32	600mm dia. CSP	Poor – Rusted, Holes Throughout	Replace

There are multiple areas on the west side of Concession Road 5 North between Culvert #1 and #2 where the east toe is gone and the gravel shoulder is eroding into the drain. There are also multiples areas on the east side of Concession Road 5 North between Culvert # 7 and #9 where the west toe is gone and the gravel shoulder is eroding into the drain. Both sections pose a safety concern to the roadway. Therefore, it is proposed to move the drain away from the roadway in these sections.

Draft Report

A draft report, dated January 3, 2025 was sent to all the affected Landowners and a meeting was held on February 12, 2025 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)
- Josh Mailloux (Landowner)
- Donald Deslippe (Landowner)
- Ron McGuire (Landowner)
- Leonard Mailloux (Landowner)
- Ron Wismer (Landowner)
- Ted O’Gorman (Landowner)
- R. Wismer (Landowner)
- Dale Trombley (Landowner)
- Brian Renaud (Landowner)

The following is a brief summary of the meeting:

- It was discussed that the tile adjacent the channel move offs get relocated by a licensed tile contractor prior to the report construction. This was to be organized by R. Dobbin Engineering.
- Landowners stated that there should be some adjustments to the watershed, specifically properties north of Alma Street. Tile plans and maps were provided. This was to be reviewed by R. Dobbin Engineering and adjusted as part of the final report.
- It was discussed that a basin shall be added to the enclosure of Culvert #8.
- It was discussed that the maintenance provisions for the rip rap installed as part of the move off should be re-evaluated.
- It was discussed that the channel between Alma and Concession Road 6 South be brushed on both sides.
- No major concerns with the proposed work were brought forward.

Design

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

The road culverts have been designed to provide outlet for a 1 in 25-year storm event.

Recommendations

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

1. The Deslippe Drain from Station 0+064 to 0+683 and 1+295 to 1+900 shall be moved away from the roadway. This will result in the extension of Culvert #8 which was replaced under an Emergency Designation as part of the RC Spencer report that was completed in 2024.
2. The remainder of the Deslippe Drain shall be cleaned.
3. A maintenance schedule shall be developed for the open channel portion of the Deslippe Drain.
4. Culvert #10, 11, 12, 15 and 18 shall be replaced. Culvert #3, 4, 5, 16 and 17 that were replaced under Emergency Designation, shall be incorporated under this report. 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 \$1,223,660.00, 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.

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 (20% 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.

Assessments are estimates only. The final assessments will be based on the final project costs, which will include the actual construction and engineering costs.

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 benefit assessment as per Section 26 of the Drainage Act. These amounts shall be prorated with the remainder of the drainage works. The watermain relocation as part of the County Road 18 crossing replacement has been assessed to the utility as a special benefit assessment as per Section 26 of the Drainage Act. This amount shall not be prorated with the remainder of the drainage works. All other utility costs included in the report shall be prorated.
2. The engineering and/or cleanout cost for Culvert #1, 7 and 9 has been assessed to the road authority as a benefit assessment as per Section 26 of the Drainage Act. These amounts shall be prorated with the remainder of the drainage works. The actual replacement cost of Culvert No. 16 has been assessed to Essex County Road 18 as a special benefit assessment. This amount shall not be prorated with the remainder of the drainage works. The replacement of Culvert No. 11 and 17 has been assessed to Concession Road 6 South as a special benefit assessment. This amount shall not be prorated with the remainder of the drainage works and the special benefit assessment to Concession Road 6 South shall be calculated as follows:

Special Benefit Assessment for Concession Road 6 South = 1.0176 (Net HST) x (\$41,610 + (½ of the Traffic Control + Culvert No. 11 Replacement Cost) x 1.20 (For Engineering))

The two move offs and any associated cost above a standard cleanout (including the culvert replacement and enclosure) has been assessed to the owner of Concession Road 5 North as a special benefit assessment. This amount shall not be prorated with the remainder of the drainage works and shall be calculated as follows:

Special Benefit Assessment for Concession Road 5 North = 1.0176 (Net HST) x ((All Costs under the two Move Offs x 96% + Culvert No. 8 Replacement and Enclosure Cost + ½ of the Traffic Control) x 1.20 (For Engineering) + Section 29 Allowances to Parcel Numbers 5 and 7 + 2/3 of Section 30 Allowances to Parcel Numbers 5 and 7)

3. 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 cleanout and/or engineering for future driveway and access culvert replacements has been assessed with 45% of the cost applied as benefit assessment to property, 10% applied as a benefit assessment to abutting road and the remainder of the cost assessed as an outlet assessment on upstream lands and roads based on equivalent hectares. The additional cost to provide special features (asphalt) or a wider access, as outlined below, have been assessed to the property as a special benefit assessment. Culvert #5 has been lengthened to provide a 7m top width as that will match the existing driveway. Culvert #12 and #15 have been lengthened to provide a 9m top width at the request of the owner. These items shall be prorated with the remainder of the drainage works.
 - a. Due to the Motor Vehicle Accident with Culvert #5, a separate assessment schedule has been produced for Culvert #5. The replacement of Culvert #5 (plus 20% for Engineering), shall be assessed and prorated in accordance with this schedule, less the special benefit assessment to Concession Road 5 North. Any insurance proceeds shall be credited against the assessments contained in this schedule at the discretion of the Engineer. Due to the Motor Vehicle Accident, there is and will be additional engineering and construction cost related to the assessment of the damage, professional reports, separate tenders, revisions to the report and schedules, inspection and separate mobilization and demobilizations. This additional engineering and construction amount has been assessed to Concession Road 5 North as a special benefit assessment.
4. The cost of trucking less the equivalent cost of levelling has been assessed as a special benefit to the adjacent property. This item shall be prorated with the remainder of the drainage works.
5. The open channel cleanout has been assessed with 40% of the cost applied as benefit assessment to the abutting property, 10% of the cost applied as a benefit assessment to the abutting road, and the remainder of the cost assessed as an outlet assessment to 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 No. 1, with the exception of Culvert #5, 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). Allowances were paid for trees on parcel number 7 as part of the drain move off. The allowance given per tree was \$500.

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. Access to the drain between Station 1+913 and 2+401 shall be from the culvert approximately 40m south of the drain on Concession Road 6 South and from the existing driveway on parcel number 10 off of Alma Street.

The working area for the drain move offs shall extend 25m past the existing bank opposite the roadway. All other construction and all 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 field 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 side for the drain downstream of Texas Road shall be on the west side of the channel. The main working side for the drain between Station 1+919 and

2+150 shall be the north/east side. The main working side for the drain between Station 2+150 and 2+401 shall be the south side. The working area shall extend to the other side of the drain if required for brushing or bank repairs.

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 10 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 Deslippe Drain shall be maintained and repaired with the specifications and drawings contained in this Engineer's Report and in the same relative proportions as contained in the Schedule of Maintenance contained in this Engineer's Report. Maintenance and repair of the rip rap required due to the channel move off (just south of Culvert #1, north of Culvert #2, south of Culvert #7, north and south of Culvert #8 and north of Culvert # 9) shall be paid for by the road authority of Concession Road 5 North.

The access culverts shall be maintained and repaired with a culvert length required to have a 6m top width and a granular surface. With the culverts shown on the profile, including rip rap end walls for access and driveway culverts, they shall be assessed in the following manner:

Culvert Number	Road Authority	Benefitting Property	Upstream Properties Based on Equivalent Hectares as Contained in SoM
1, 7, 9, 11, 16 & 17	100%		
2, 3, 4, 6		40%	60%

Culvert Number	Road Authority	Benefitting Property	Upstream Properties Based on Equivalent Hectares as Contained in SoM
8	70%	15%	15%
10, 13, 14		55%	45%
5		43%	57%
12		60%	40%
15		26% to Parcel Number 18 26% to Parcel Number 17	48%
18		65%	35%

If any owner requests an additional length of culvert beyond that included in the report 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.



Deslippe Drain
 Town of Amherstburg
 February 14, 2025

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 or part	Parcel Number	Owner	Section 29 (\$)	Section 30 (\$)	Total (\$)
4	Pt. Lot 2	2	E. & D. Wismer	380	450	830
	Pt. Lot 2	3	E. Wismer	380	450	830
	N 1/2 Lot 2	4	J. Mailloux	900	900	1,800
	Pt. Lot 3	5	L. & D. Mailloux	27,000	4,500	31,500
	Pt. Lot 2	21	J. D'Alimonte & C. Reynolds	-	100	100
	Pt. Lot 2	22	D. & P. Renaud	-	100	100
	Pt. Lot 2	23	D. Tessier	-	100	100
5	Pt. Lot 1 & Pt. Lot 2	7	Mailloux Farms Ltd	34,450	4,050	38,500
	Pt. Lot 1	26	J. Mailloux & C. Holmes	600	450	1,050
	Pt. Lot 44	9	D. & C. Chemello	490	1,460	1,950
6	Pt. Lot 76	40	C. Dou	20	30	50
	Pt. Lot 76	19	Mcguire Farms Inc	200	600	800
	Pt. Lot 76	39	2497622 Ontario Inc.	120	170	290
	Pt. Lot 76	38	R. Teves & T. Giglione	40	50	90
	Pt. Lot 76	18	C. Mcguire	170	510	680
	Pt. Lot 75	17	R. & C. Mcguire	490	1,460	1,950
	Pt. Lot 75	37	S. Atkinson	100	150	250
	Pt. Lot 74	33	A. & J. Pelan	20	30	50
	Pt. Lot 74	16	B. Renaud	280	840	1,120
	Pt. Lot 74	32	R. & B. Meloche	60	140	200
	Pt. Lot 74	15	D. & R. Deslippe	160	490	650
TOTAL ALLOWANCES				\$65,860	\$17,030	\$82,890

Estimate of Cost

<u>Item Description (Supply and Install New)</u>	<u>Quantity</u>	<u>Unit</u>	<u>Unit Cost (\$)</u>	<u>Total (\$)</u>
Pre-Construction Meeting	1	LS	500	500
Traffic Control	1	LS	8,000	8,000
Remove and Reinstall Fences, Signs and Mailboxes	1	LS	800	800
Locate and Work Around Utilities	1	LS	3,000	3,000
Silt Fence	3	each	500	1,500
General Project Restoration/Seeding	1	LS	5,000	5,000
Open Channel Move Off (Station 0+064 to 0+683)				
Brushing and Tree Removal	1	LS	8,000	8,000
Strip and Place Topsoil for New Channel Alignment	619	m	5	3,095
Strip and Place Topsoil in Existing Open Channel	619	m	7	4,333
Excavation of New Open Channel	619	m	70	43,330
Fill in Existing Open Channel	619	m	20	12,380
Dispose of Excess Excavated Material (Provisional)	100	cu.m	50	5,000
Importing Additional Material to Fill Channel (Provisional)	100	cu.m	50	5,000
Reconnect Existing Tile Outlets	4	each	100	400
Extend Existing 450mm dia. Oultet Pipes from East c/w	2	each	1,500	3,000
Rodent Grate				
Remove and Reinstall Existing Rip Rap	1	LS	2,000	2,000
Supply and Install Rip Rap	150	tonne	110	16,500
Side Slope Hydroseeding	5800	sq.m	3	17,400
Boulevard Topsoil and Hydroseeding	1	LS	8,000	8,000
Supply & Install 100% Crushed Granular 'A' for Shouldering	80	tonne	50	4,000
Provisional: Installation of Tile Headers	210	m	40	8,400
Cleanout Culvert #2 (Parcel Number 4, J. Mailloux)	8	m	50	400
Open Channel Cleanout (Station 0+683 to 1+295)				
Brushing and Tree Removal	1	LS	2,000	2,000
Open Channel Excavation (Bottom Cleanout Only)	562	m	8	4,496
Open Channel Excavation (Bottom Cleanout and Resloping)	50	m	12	600
Levelling of Excavated Material	432	m	5	2,160
Trucking of Excavated Material	180	m	10	1,800
Reconnect Existing Tile Outlets	5	each	100	500
Side Slope Hydroseeding	125	sq.m	3	375
Rip Rap in East toe along the West Side of Concession Road 5 North	50	tonne	110	5,500
Additional Rip Rap as Required	20	tonne	110	2,200

<u>Item Description (Supply and Install New)</u>	<u>Quantity</u>	<u>Unit</u>	<u>Unit Cost (\$)</u>	<u>Total (\$)</u>
Cleanout Culvert #6 (Parcel Number 3, F. Wismer)	20	m	40	800
Cleanout Culvert #7 (Concession Road 5 North)	12	m	80	960
Open Channel Move Off (Station 1+295 to 1+900)				
Brushing and Tree Removal	1	LS	8,000	8,000
Locate and Work Around Gas Service	1	LS	500	500
Strip and Place Topsoil for New Channel Alignment	605	m	5	3,025
Strip and Place Topsoil in Existing Open Channel	605	m	7	4,235
Excavation of New Open Channel	545	m	70	38,150
Fill in Existing Open Channel	605	m	20	12,100
Dispose of Excess Excavated Material (Provisional)	100	cu.m	50	5,000
Importing Additional Material to Fill Channel (Provisional)	100	cu.m	50	5,000
Reconnect Existing Tile Outlets	3	each	100	300
Supply and Install Rip Rap	150	tonne	110	16,500
Side Slope Hydroseeding	5400	sq.m	3	16,200
Topsoil and Hydroseeding: Boulevard and Lawn at Parcel Number 26	1	LS	6,000	6,000
Supply & Install 100% Crushed Granular 'A' for Shouldering and Restoration of Driveway Crossing	100	tonne	50	5,000
Proposed 450mm dia. Catch Basin c/w Cast Iron Grate	1	each	2,500	2,500
Tie Existing Tile into CB	1	LS	400	400
30m of 300mm HDPE c/w Rodent Grate and 45 Degree Elbow	1	LS	4,000	4,000
Provisional: Installation of Tile Headers	370	m	40	14,800
Culvert #8 (Parcel Number 26, J. Mailoux & C. Holmes)				
Remove and Salvage Existing Rip Rap on North End Wall	1	LS	500	500
Supply & Install 1600mm dia. CSP c/w Bedding	45	m	1,400	63,000
Backfill with Excavated Material	1	LS	4,000	4,000
Reinstall Salvaged Rip Rap	1	LS	400	400
Supply and Install Additional Rip Rap	5	tonne	110	550
Topsoil and Hydroseeding (Restoration)	1	LS	2,000	2,000
Work Around Hydro Pole	1	LS	1,500	1,500
Cleanout Culvert #9 (Alma Street)	18	m	80	1,440
Open Channel Cleanout (Station 1+920 to 4+054)				
Brushing and Tree Removal	1	LS	12,000	12,000
Open Channel Excavation (Bottom Cleanout Only)	1502	m	8	12,016
Open Channel Excavation (Bottom Cleanout and Resloping)	500	m	12	6,000
Levelling of Excavated Material	1575	m	5	7,875
Trucking of Excavated Material	427	m	10	4,270
Reconnect Existing Field Tile	50	each	100	5,000
Side Slope Hydroseeding	1250	sq.m	3	3,750
Rip Rap in west toe along the East Side of Concession Road 6 South	80	tonne	110	8,800
Additional Rip Rap as Required	80	tonne	110	8,800

<u>Item Description (Supply and Install New)</u>	<u>Quantity</u>	<u>Unit</u>	<u>Unit Cost (\$)</u>	<u>Total (\$)</u>
Completed Construction Cost for Emergency Replacement of Culvert #3 (Parcel Number 21, J. D'Alimonte & C. Reynolds)	1	LS	43,200	43,200
Completed Construction Cost for Emergency Replacement of Culvert #4 (Parcel Number 22, D. & P. Renaud)	1	LS	38,900	38,900
Culvert #5 (Parcel Number 23, D. Tessier)				
Removal of existing structure and Unsuitable Material	1.0	LS	3,000	3,000
Supply & install 2200mm dia. CSP c/w Bedding	16.0	m	1,800	28,800
Supply and install Granular 'B' Type II	180.0	tonne	40	7,200
Supply & install 100% Crushed Granular 'A'	25.0	tonne	50	1,250
Supply & install rip rap endwalls	30.0	tonne	110	3,300
Culvert #10 (Parcel Number 9, D. & C. Chemello)				
Removal of existing structure and Unsuitable Material	1.0	LS	1,500	1,500
Supply & install 1630x1120mm dia. CSPA c/w Bedding	11.0	m	1,200	13,200
Supply and install Granular 'B' Type II	60.0	tonne	40	2,400
Supply & install 100% Crushed Granular 'A'	20.0	tonne	50	1,000
Supply & install rip rap endwalls	20.0	tonne	110	2,200
Culvert #11 (Concession Road 6 South)				
Sawcut Asphalt c/w Milling and Tac Coat	1.0	LS	800	800
Removal of existing structure and Unsuitable Material	1.0	LS	3,000	3,000
Supply & install 1800mm dia. CSP c/w Bedding	13.0	m	1,600	20,800
Supply & install 100% Crushed Granular 'A'	200.0	tonne	50	10,000
Supply & install rip rap endwalls	40.0	tonne	110	4,400
Supply and Install HL4	15.0	tonne	200	3,000
Supply and Install HL3	15.0	tonne	200	3,000
Restoration/Line Painting and Ditch Re-Grading	1.0	LS	1,000	1,000
Culvert #12 (Parcel Number 19, McGuire Farms Inc.)				
Removal of existing structure and Unsuitable Material	1.0	LS	1,500	1,500
Supply & install 1200mm dia. Sanitite Pipe c/w Bedding	16.0	m	1,200	19,200
Supply and install Granular 'B' Type II	90.0	tonne	40	3,600
Supply & install 100% Crushed Granular 'A'	25.0	tonne	50	1,250
Supply & install rip rap endwalls	20.0	tonne	110	2,200
Culvert #15 (Parcel Number 18 & 17, C. McGuire & R. & C. McGuire)				
Removal of existing structure and Unsuitable Material	1.0	LS	1,500	1,500
Supply & install 1200mm dia. Sanitite Pipe c/w Bedding	16.0	m	1,200	19,200
Supply and install Granular 'B' Type II	90.0	tonne	40	3,600
Supply & install 100% Crushed Granular 'A'	25.0	tonne	50	1,250
Supply & install rip rap endwalls	20.0	tonne	110	2,200
Completed Construction Cost for Emergency Replacement of Culvert #16 (Essex County Road #18) including Watermain	1	LS	132,100	132,100

<u>Item Description (Supply and Install New)</u>	<u>Quantity</u>	<u>Unit</u>	<u>Unit Cost (\$)</u>	<u>Total (\$)</u>
Completed Construction Cost for Emergency Replacement of Culvert #17 (Concession Road 6 South Crossing just south of	1	LS	32,500	32,500
Culvert #18 (Parcel Number 32, R. & B. Meloche)				
Removal of existing structure and Unsuitable Material	1.0	LS	1,500	1,500
Supply & install 600mm dia. HDPE Pipe c/w Bedding	12.0	m	700	8,400
Supply and install Granular 'B' Type II	50.0	tonne	40	2,000
Supply & install Granular 'A'	25.0	tonne	50	1,250
Supply & install rip rap endwalls	20.0	tonne	110	2,200
Contingency				<u>44,710</u>
Sub Total				937,150
Allowances				82,890
Engineering				90,800
Additional Engineering and Construction Cost for Culvert No. 5 Replacement due to Motor Vehicle Accident				8,300
Schedule of Maintenance Update				2,500
Future Culvert Design				7,500
Daylighting and Surveying				6,500
Completing AODA Compliant Document				1,500
Estimate for Tendering, Inspection and Contract ERCA Fee				66,000
				800
Total Estimate excluding HST				<u>1,203,940</u>
Non-Recoverable HST (1.76%)				19,720
Total Estimate				<u>\$ 1,223,660</u>

SCHEDULE OF ASSESSMENT NO.1 (ALL WORK EXCEPT CULVERT NO. 5)

Conc.	Lot or Part	Affected Hecatares	Parcel Number	Owner	Special Benefit (\$)	Benefit (\$)	Outlet (\$)	Total (\$)
Utilities								
				Enbridge Gas		5,560	-	5,560
				Town of Amherstburg	18,773	2,310	-	21,083
				Bell Telecom		2,310	-	2,310
					18,773	10,180	-	28,953
Public Lands								
		3.90		Town of Amherstburg	487,236	31,522	2,667	521,425
		0.50		Town of Amherstburg		1,500	14	1,514
		2.12		Town of Amherstburg	1,760	1,500	2,403	5,663
		3.57		Town of Amherstburg	102,290	42,245	10,492	155,027
		2.26		County of Essex	143,317	-	5,843	149,160
					734,603	76,767	21,419	832,789
Agricultural Lands								
4	Pt. Lot 1	19.21	1	Mailloux Farms Ltd		-	6,422	6,422
	Pt. Lot 2	4.30	2	E. & D. Wismer		2,484	1,399	3,883
	Pt. Lot 2	4.15	3	E. Wismer		3,600	1,287	4,887
	N 1/2 Lot 2	3.26	4	J. Mailloux		3,529	941	4,470
	Pt. Lot 3	12.95	5	L. & D. Mailloux		9,308	14	9,322

Conc.	Lot or Part	Affected Hectares	Parcel Number	Owner	Special Benefit (\$)	Benefit (\$)	Outlet (\$)	Total (\$)
5	Pt. Lot 1	19.07	6	1830011 Ontario Limited		-	4,878	4,878
	Pt. Lot 1 & Pt. Lot 2	12.80	7	Mailloux Farms Ltd		8,694	3,996	12,690
	Pt. Lot 44	2.02	8	M. & S. Mailloux		-	762	762
	Pt. Lot 44	6.14	9	D. & C. Chemello		19,897	2,703	22,600
	Pt. Lot 44	8.90	10	R. & A. Wismer		-	3,679	3,679
	Pt. Lot 44	11.33	11	Mailloux Farms Ltd		-	4,696	4,696
	Pt. Lot 45	21.00	12	G. & B. Wismer		-	8,694	8,694
	Pt. Lot 45	7.15	13	R. & M. Wismer		-	6,514	6,514
	Pt. Lot 46	12.79	14	P. & P. Jobin		-	17,048	17,048
6	Pt. Lot 74	5.86	15	D. & R. Deslippe	602	2,334	10,745	13,681
	Pt. Lot 74	18.92	16	B. Renaud		4,340	19,367	23,707
	Pt. Lot 75	34.86	17	R. & C. Mcguire		14,288	30,119	44,407
	Pt. Lot 76	13.37	18	C. Mcguire		9,020	8,572	17,592
	Pt. Lot 76	12.46	19	Mcguire Farms Inc	4,275	16,471	7,474	28,220
					4,877	93,965	139,310	238,152

Non Agricultural Lands

4	Pt. Lot 1	0.22	20	S. Crawford & W. & M. Mailloux		-	125	125
	Pt. Lot 2	0.14	21	J. D'Alimonte & C. Reynolds		14,034	14	14,048
	Pt. Lot 2	0.19	22	D. & P. Renaud		14,658	52	14,710
	Pt. Lot 2	0.38	23	D. Tessier		2,096	170	2,266
	Pt. Lot 4	0.00	23A	T. Stuebing		273	-	273
5	Pt. Lot 1	0.40	24	D. & J. Trombley		-	272	272
	Pt. Lot 1	0.30	25	C. Gillies		-	208	208
	Pt. Lot 1	0.52	26	J. Mailloux & C. Holmes		614	281	895
	Pt. Lot 44	0.74	27	J. Meloche-O' Gorman		-	330	330
	Pt. Lot 45	0.54	28	J. Meloche		-	698	698
	Pt. Lot 45	2.43	29	Belwood Poultry Limited		-	2,956	2,956
	Pt. Lot 46	0.42	30	M. Kilgallin		-	592	592
	Pt. Lot 46	0.40	31	A. & G. Amlin		-	1,042	1,042

Conc.	Lot or Part	Affected Hecatares	Parcel Number	Owner	Special Benefit (\$)	Benefit (\$)	Outlet (\$)	Total (\$)
6	Pt. Lot 74	0.62	32	R. & B. Meloche	319	11,384	1,015	12,718
	Pt. Lot 74	0.10	33	A. & J. Pelan	190	464	143	797
	Pt. Lot 74	0.23	34	C. Vultaggio		-	329	329
	Pt. Lot 74	0.19	35	A. Sharma		-	264	264
	Pt. Lot 74	0.15	36	R. & J. Masse		-	215	215
	Pt. Lot 75	1.00	37	S. Atkinson	602	1,706	1,366	3,674
	Pt. Lot 76	0.41	38	R. Teves & T. Giglione	172	614	385	1,171
	Pt. Lot 76	1.40	39	2497622 Ontario Inc.	657	1,556	1,292	3,505
	Pt. Lot 76	0.72	40	C. Dou	92	314	545	951
					2,032	47,713	12,294	62,039
Total Utilities					28,953			
Total Non Agricultural Lands					62,039			
Total Agricultural Lands					238,152			
Total Public Lands					832,789			
Total Assessment					\$1,161,933			

SCHEDULE OF ASSESSMENT NO. 2 (CULVERT NO. 5 REPLACEMENT)

Conc.	Lot or Part	Affected Hectares	Parcel Number	Owner	Special Benefit (\$)	Benefit (\$)	Outlet (\$)	Total (\$)
Public Lands								
	Concession 5 N	3.90		Town of Amherstburg	8,300	4,774	1,013	14,087
	Texas Road	0.50		Town of Amherstburg		-	-	-
	Alma Street	2.12		Town of Amherstburg		-	826	826
	Concession 6 S	3.57		Town of Amherstburg		-	1,391	1,391
	Essex County Road 18	2.26		County of Essex		-	881	881
					8,	4,774	4,111	17,185
Agricultural Lands								
4	Pt. Lot 1	19.21	1	Mailloux Farms Ltd		-	2,495	2,495
	Pt. Lot 2	4.30	2	E. & D. Wismer		-	558	558
	Pt. Lot 2	4.15	3	E. Wismer		-	539	539
	N 1/2 Lot 2	3.26	4	J. Mailloux		-	-	-
	Pt. Lot 3	12.95	5	L. & D. Mailloux		-	-	-

Conc.	Lot or Part	Affected Hectares	Parcel Number	Owner	Special Benefit (\$)	Benefit (\$)	Outlet (\$)	Total (\$)
5	Pt. Lot 1	19.07	6	1830011 Ontario Limited		-	1,647	1,647
	Pt. Lot 1 & Pt. Lot 2	12.80	7	Mailloux Farms Ltd		-	1,435	1,435
	Pt. Lot 44	2.02	8	M. & S. Mailloux		-	262	262
	Pt. Lot 44	6.14	9	D. & C. Chemello		-	930	930
	Pt. Lot 44	8.90	10	R. & A. Wismer		-	1,156	1,156
	Pt. Lot 44	11.33	11	Mailloux Farms Ltd		-	1,472	1,472
	Pt. Lot 45	21.00	12	G. & B. Wismer		-	2,727	2,727
	Pt. Lot 45	7.15	13	R. & M. Wismer		-	929	929
	Pt. Lot 46	12.79	14	P. & P. Jobin		-	1,661	1,661
6	Pt. Lot 74	5.86	15	D. & R. Deslippe		-	761	761
	Pt. Lot 74	18.92	16	B. Renaud		-	2,457	2,457
	Pt. Lot 75	34.86	17	R. & C. Mcguire		-	4,528	4,528
	Pt. Lot 76	13.37	18	C. Mcguire		-	1,736	1,736
	Pt. Lot 76	12.46	19	Mcguire Farms Inc		-	1,618	1,618
					-	-	26,911	26,911
Non Agricultural Lands								
4	Pt. Lot 1	0.22	20	S. Crawford & W. & M. Mailloux		-	43	43
	Pt. Lot 2	0.14	21	J. D'Alimonte & C. Reynolds		-	-	-
	Pt. Lot 2	0.19	22	D. & P. Renaud		-	-	-
	Pt. Lot 2	0.38	23	D. Tessier	2,250	13,373	-	15,623
	Pt. Lot 4	0.00	23A	T. Stuebing		-	-	-
5	Pt. Lot 1	0.40	24	D. & J. Trombley		-	78	78
	Pt. Lot 1	0.30	25	C. Gillies		-	58	58
	Pt. Lot 1	0.52	26	J. Mailloux & C. Holmes		-	101	101
	Pt. Lot 44	0.74	27	J. Meloche-O' Gorman		-	112	112
	Pt. Lot 45	0.54	28	J. Meloche		-	105	105
	Pt. Lot 45	2.43	29	Belwood Poultry Limited		-	421	421
	Pt. Lot 46	0.42	30	M. Kilgallin		-	82	82
	Pt. Lot 46	0.40	31	A. & G. Amlin		-	69	69

Conc.	Lot or Part	Affected Hecatares	Parcel Number	Owner	Special Benefit (\$)	Benefit (\$)	Outlet (\$)	Total (\$)
6	Pt. Lot 74	0.62	32	R. & B. Meloche		-	121	121
	Pt. Lot 74	0.10	33	A. & J. Pelan		-	19	19
	Pt. Lot 74	0.23	34	C. Vultaggio		-	45	45
	Pt. Lot 74	0.19	35	A. Sharma		-	37	37
	Pt. Lot 74	0.15	36	R. & J. Masse		-	29	29
	Pt. Lot 75	1.00	37	S. Atkinson		-	195	195
	Pt. Lot 76	0.41	38	R. Teves & T. Giglione		-	80	80
	Pt. Lot 76	1.40	39	2497622 Ontario Inc.		-	273	273
	Pt. Lot 76	0.72	40	C. Dou		-	140	140
					2,250	13,373	2,008	17,631
Total Utilities						-		
Total Non Agricultural Lands						17,631		
Total Agricultural Lands						26,911		
Total Public Lands						17,185		
Total Assessment						\$61,727		

Estimated Net Assessment

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

Conc.	Lot or Part	Affected Hectares	Parcel Number	Owner	Total Assessment (\$)	Estimated Grant (\$)	Allowances (\$)	Estimated Net Assessment (\$)
Utilities								
	Gas Utility			Enbridge Gas	560			5,560
	Water Utility			Town of Amherstburg	2183			21,083
	Telecom Utility Road			Bell Telecom	210			2,310
Public Lands								
	Concession 5 N	3.90		Town of Amherstburg	53512			535,512
	Texas Road	0.50		Town of Amherstburg	114			1,514
	Alma Street	2.12		Town of Amherstburg	689			6,489
	Concession 6 S	3.57		Town of Amherstburg	15618			156,418
	Essex County Road 18	2.26		County of Essex	15041			150,041
Agricultural Lands								
4	Pt. Lot 1	19.21	1	Mailloux Farms Ltd	8,917	2,972		5,945
	Pt. Lot 2	4.30	2	E. & D. Wismer	4,441	1,480		2,961
	Pt. Lot 2	4.15	3	E. Wismer	5,426	1,809		3,617
	N 1/2 Lot 2	3.26	4	J. Mailloux	4,470	1,490	1,800	1,180
	Pt. Lot 3	12.95	5	L. & D. Mailloux	9,322	3,107	31,500	(25,285)

Conc.	Lot or Part	Affected Hectares	Parcel Number	Owner	Total Assessment (\$)	Estimated Grant (\$)	Allowances (\$)	Estimated Net Assessment (\$)
5	Pt. Lot 1	19.07	6	1830011 Ontario Limited	6,525	2,175		4,350
	Pt. Lot 1 & Pt. Lot 2	12.80	7	Mailloux Farms Ltd	14,125	4,708	38,500	(29,083)
	Pt. Lot 44	2.02	8	M. & S. Mailloux	1,024	341		683
	Pt. Lot 44	6.14	9	D. & C. Chemello	23,530	7,843	1,950	13,737
	Pt. Lot 44	8.90	10	R. & A. Wismer	4,835	1,612		3,223
	Pt. Lot 44	11.33	11	Mailloux Farms Ltd	6,168	2,056		4,112
	Pt. Lot 45	21.00	12	G. & B. Wismer	11,421	3,807		7,614
	Pt. Lot 45	7.15	13	R. & M. Wismer	7,443	2,481		4,962
	Pt. Lot 46	12.79	14	P. & P. Jobin	18,709	6,236		12,473
6	Pt. Lot 74	5.86	15	D. & R. Deslippe	14,442	4,814	650	8,978
	Pt. Lot 74	18.92	16	B. Renaud	26,164	8,721	1,120	16,323
	Pt. Lot 75	34.86	17	R. & C. Mcguire	48,935	16,312	1,950	30,673
	Pt. Lot 76	13.37	18	C. Mcguire	19,328	6,443	680	12,205
	Pt. Lot 76	12.46	19	Mcguire Farms Inc	29,838	9,946	800	19,092

Non Agricultural Lands

4	Pt. Lot 1	0.22	20	S. Crawford & W. & M. Mailloux	168			168
	Pt. Lot 2	0.14	21	J. D'Alimonte & C. Reynolds	14,048		100	13,948
	Pt. Lot 2	0.19	22	D. & P. Renaud	14,710		100	14,610
	Pt. Lot 2	0.38	23	D. Tessier	17,889		100	17,789
	Pt. Lot 4	0.00	23A	T. Stuebing	273			273
5	Pt. Lot 1	0.40	24	D. & J. Trombley	350			350
	Pt. Lot 1	0.30	25	C. Gillies	266			266
	Pt. Lot 1	0.52	26	J. Mailloux & C. Holmes	996		1,050	(54)
	Pt. Lot 44	0.74	27	J. Meloche-O' Gorman	442			442
	Pt. Lot 45	0.54	28	J. Meloche	803			803
	Pt. Lot 45	2.43	29	Belwood Poultry Limited	3,377			3,377
	Pt. Lot 46	0.42	30	M. Kilgallin	674			674
	Pt. Lot 46	0.40	31	A. & G. Amlin	1,111			1,111

Conc.	Lot or Part	Affected Hectares	Parcel Number	Owner	Total Assessment (\$)	Estimated Grant (\$)	Allowances (\$)	Estimated Net Assessment (\$)
6	Pt. Lot 74	0.62	32	R. & B. Meloche	12,839		200	12,639
	Pt. Lot 74	0.10	33	A. & J. Pelan	816		50	766
	Pt. Lot 74	0.23	34	C. Vultaggio	374			374
	Pt. Lot 74	0.19	35	A. Sharma	301			301
	Pt. Lot 74	0.15	36	R. & J. Masse	244			244
	Pt. Lot 75	1.00	37	S. Atkinson	3,869		250	3,619
	Pt. Lot 76	0.41	38	R. Teves & T. Giglione	1,251		90	1,161
	Pt. Lot 76	1.40	39	2497622 Ontario Inc.	3,778		290	3,488
	Pt. Lot 76	0.72	40	C. Dou	1,091		50	1,041
					1,223,660	88,353	81,230	1,054,077

SCHEDULE OF MAINTENANCE
 To Maintain the Open Channel Portion of the Deslippe Drain

Conc.	Lot or Part	Affected Hectares	Parcel Number	Owner	Benefit (\$)	Outlet (\$)	Total (\$)	Equivalent Hectares
Public Lands								
	Concession 5 N	3.90		Town of Amherstburg	4.88	0.50	5.38	3.51
	Texas Road	0.50		Town of Amherstburg	-	0.01	0.01	0.45
	Alma Street	2.12		Town of Amherstburg	-	0.57	0.57	1.91
	Concession 6 S	3.57		Town of Amherstburg	5.19	2.78	7.97	3.21
	Essex County Road 18	2.26		County of Essex	-	1.75	1.75	2.03
					10.	5.61	15.68	
Agricultural Lands								
4	Pt. Lot 1	19.21	1	Mailloux Farms Ltd	-	1.11	1.11	5.76
	Pt. Lot 2	4.30	2	E. & D. Wismer	1.82	0.22	2.04	1.29
	Pt. Lot 2	4.15	3	E. Wismer	1.82	0.18	2.00	1.25
	N 1/2 Lot 2	3.26	4	J. Mailloux	1.93	0.09	2.02	0.98
	Pt. Lot 3	12.95	5	L. & D. Mailloux	6.82	0.01	6.83	3.89
5	Pt. Lot 1	19.07	6	1830011 Ontario Limited	-	1.20	1.20	4.04
	Pt. Lot 1 & Pt. Lot 2	12.80	7	Mailloux Farms Ltd	6.37	0.86	7.23	3.32
	Pt. Lot 44	2.02	8	M. & S. Mailloux	-	0.18	0.18	0.61
	Pt. Lot 44	6.14	9	D. & C. Chemello	4.78	0.64	5.42	2.15
	Pt. Lot 44	8.90	10	R. & A. Wismer	-	1.03	1.03	2.67
	Pt. Lot 44	11.33	11	Mailloux Farms Ltd	-	1.32	1.32	3.40
	Pt. Lot 45	21.00	12	G. & B. Wismer	-	2.44	2.44	6.30
	Pt. Lot 45	7.15	13	R. & M. Wismer	-	1.67	1.67	2.15
	Pt. Lot 46	12.79	14	P. & P. Jobin	-	5.67	5.67	3.84

Conc.	Lot or Part	Affected Hectares	Parcel Number	Owner	Benefit (\$)	Outlet (\$)	Total (\$)	Equivalent Hectares
6	Pt. Lot 74	5.86	15	D. & R. Deslippe	1.71	3.00	4.71	1.76
	Pt. Lot 74	18.92	16	B. Renaud	3.18	5.98	9.16	5.68
	Pt. Lot 75	34.86	17	R. & C. Mcguire	5.57	6.94	12.51	10.46
	Pt. Lot 76	13.37	18	C. Mcguire	1.71	2.10	3.81	4.01
	Pt. Lot 76	12.46	19	Mcguire Farms Inc	2.27	1.58	3.85	3.74
					37.98	36.22	74.20	
Non Agricultural Lands								
4	Pt. Lot 1	0.22	20	S. Crawford & W. & M. Mailloux	-	0.03	0.03	0.10
	Pt. Lot 2	0.14	21	J. D'Alimonte & C. Reynolds	0.34	0.01	0.35	0.06
	Pt. Lot 2	0.19	22	D. & P. Renaud	0.68	0.01	0.69	0.09
	Pt. Lot 2	0.38	23	D. Tessier	1.14	0.02	1.16	0.17
	Pt. Lot 4	0.00	23A	T. Stuebing	0.20	-	0.20	0.00
5	Pt. Lot 1	0.40	24	D. & J. Trombley	-	0.05	0.05	0.18
	Pt. Lot 1	0.30	25	C. Gillies	-	0.04	0.04	0.14
	Pt. Lot 1	0.52	26	J. Mailloux & C. Holmes	0.45	0.06	0.51	0.23
	Pt. Lot 44	0.74	27	J. Meloche-O' Gorman	-	0.08	0.08	0.26
	Pt. Lot 45	0.54	28	J. Meloche	-	0.16	0.16	0.24
	Pt. Lot 45	2.43	29	Belwood Poultry Limited	-	0.76	0.76	0.97
	Pt. Lot 46	0.42	30	M. Kilgallin	-	0.16	0.16	0.19
	Pt. Lot 46	0.40	31	A. & G. Amlin	-	0.32	0.32	0.16

Conc.	Lot or Part	Affected Hecatares	Parcel Number	Owner	Benefit (\$)	Outlet (\$)	Total (\$)	Equivalent Hectares
6	Pt. Lot 74	0.62	32	R. & B. Meloche	0.74	0.34	1.08	0.28
	Pt. Lot 74	0.10	33	A. & J. Pelan	0.34	0.04	0.38	0.05
	Pt. Lot 74	0.23	34	C. Vultaggio	-	0.09	0.09	0.10
	Pt. Lot 74	0.19	35	A. Sharma	-	0.07	0.07	0.09
	Pt. Lot 74	0.15	36	R. & J. Masse	-	0.06	0.06	0.07
	Pt. Lot 75	1.00	37	S. Atkinson	1.25	0.35	1.60	0.45
	Pt. Lot 76	0.41	38	R. Teves & T. Giglione	0.45	0.09	0.54	0.18
	Pt. Lot 76	1.40	39	2497622 Ontario Inc.	1.14	0.29	1.43	0.63
	Pt. Lot 76	0.72	40	C. Dou	0.23	0.13	0.36	0.32
					6.96	3.16	10.12	
Total Non Agricultural Lands					10.12			
Total Agricultural Lands					74.20			
Total Public Lands					15.68			
Total Assessment					100.00			

Deslippe Drain
Town of Amherstburg
February 14, 2025

SPECIFICATION OF WORK

1. Location

The location of the proposed and future work outlined in this specification is in Lot 74 to 76, Concession 6, Lot 44 and 1, Concession 5 and Lot 1 to 4, 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:

- Open Channel Improvements including a move off
- 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.

The Contractor is responsible for ensuring flows are maintained during construction so lands are not negatively impacted by the works.

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.

The utilities at Culvert #8 have not been daylighted.

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 (20% 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 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 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.

Access to the drain between Station 1+913 and 2+401 shall be from the culvert approximately 40m south of the drain on Concession Road 6 South and from the existing driveway on parcel number 10 off of Alma Street.

The working area for the drain move offs shall extend 25m past the existing bank opposite the roadway. All other construction and all 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 field 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 side for the drain downstream of Texas Road shall be on the west side of the channel. The main working side for the drain between Station 1+919 and 2+150 shall be the north/east side. The main working side for the drain between Station 2+150 and 2+401 shall be the south side. The working area shall extend to the other side of the drain if required for brushing or bank repairs.

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, footings 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 1.0m 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. The drain shall be brushed from top of bank to top of bank from Station 1+913 to 2+430.

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 topsoil shall be stripped in the existing channel and along the proposed channel route. The topsoil shall be placed at the edge of the working allowance. Once the excavated material has been placed and compacted in maximum 300mm lifts in the existing channel the topsoil shall be placed over the backfill. 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 or where trees are on the field side do not provide a suitable area to the level the material. In these areas 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 than 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. Where the channel is being moved off the excavated material shall be utilized to fill in the existing channel. Any excess material shall be disposed of offsite at the expense of the Contractor. The excavated material shall be placed in a maximum of 300mm lifts and shall be compacted to 95% SPD. The Contractor shall be responsible for maintaining a dry working area where the drain is being filled in.

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 3.4 of the Regulation. The drain move off is intended to re-use all of the soil to fill in the existing channel.

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.

Where, determined by the Drainage Superintendent or Engineer, the banks are unstable the banks shall be re-sloped to 2:1.

15. Cleaning Out Culverts

The culverts shall be cleaned out with a method determined by the Contractor. The Contractor shall ensure the footings are not undermined on the culverts.

The excavated material from the road culverts shall be disposed offsite.

The excavated material from the access/driveway culverts shall be levelled in the adjacent field.

16. Installation of Culverts

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

The Contractor shall supply, install, and backfill aluminized corrugated steel pipe (CSP) with a minimum wall thickness of 2.8mm. Culverts under roadways shall have a minimum wall thickness of 3.5mm. All corrugation profiles shall be of helical lock seam manufacture using 68 x 13mm corrugations for 1600mm dia. pipe and smaller and 125 x 25mm corrugations for 1800mm dia. pipe and larger. Pipe with 125 x 25mm corrugations shall be used if 68 x 13mm corrugations are not available.

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. It is the Contractors responsibility to ensure that the minimum cover is achieved when backfilling the culverts. The minimum cover for CSP under Highway Loading shall be 1/6 of the span, and shall be no less than 300mm.

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. 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, this is considered the bedding. 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 bottom of the excavation shall be excavated to a minimum of 100mm below the proposed invert. 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, this is considered the bedding. For concrete box culverts the clear stone shall extend from the bottom of the culvert to 200mm below. 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 pipe shall be backfilled above the clear stone with OPS 100% crushed imported Granular "A".

Asphalt Road: The asphalt shall be HL4 and HL3 at depths to match the existing thickness, with a minimum of 50mm of HL4 and 50mm of HL3. Lifts shall not be greater than 75mm.

Gravel Road: 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, except Culvert No. 1. 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 Contractor's responsibility to ensure that adequate cover is obtained prior to crossing the culvert in accordance with the manufacturer's recommendations.

17. 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.

18. Basin and Tile at Parcel Number 26

A basin shall be installed at the approximate location shown on the plans on parcel number 26. The basin shall be a 450mm dia. HDPE pipe set vertically. The pipe shall be set on a patio stone and shall have a cast iron grate.

The catch basin shall be set at the final elevations as directed by the Drainage Superintendent or Engineer. The catch basin 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. The catch basin shall have a 300mm sump.

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

The existing tile at parcel number 26 shall be connected to the proposed catch basin.

Approximately 30m of 300mm dia. HDPE, c/w a 45-degree elbow, shall be installed from the catch basin to the upstream end of Culvert #8. Downstream of the basin location is the Landowners septic system. The HDPE pipe shall be CSA Approved (320 kPa) with bell and spigot joints and shall be bedded with $\frac{3}{4}$ " clear stone to the spring line. Within the driveway the drain shall be backfilled with 100% crushed Granular "A", outside of this native material may be used. All areas shall be restored with screened topsoil and hydroseed. The outlet of the pipe shall have a manufactured rotating rodent grate.

19. Provisional: Installation of Tile Headers

It is the intent to have the private tile drains adjacent the channel move offs relocated prior to the construction in this report. However, if this is not the case this shall be completed as part of the report by a licensed tile contractor.

20. 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 outlet 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.

21. Rip Rap

Erosion protection shall be installed at the direction of the Drainage Superintendent or Engineer. The Contractor shall ensure that the rip rap is separated from any soil prior to

final placement. Rip rap shall be made up of 150mm to 300mm quarry stone or approved equal. Rip rap larger than 300mm will be rejected. 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. The rip rap along the toe shall be placed in order to ensure proper support for the side slope and continue to allow proper drainage through the channel. The rip rap shall be keyed into the bottom of the channel a minimum of 400mm

22. Seeding/Restoration

All areas disturbed by construction shall be restored to their pre-construction state. Accesses, working areas, lawns, boulevards and all others previously grassed shall be restored with 100mm of screened topsoil and hydroseed. The side slopes shall be restored with Bonded Fibre Matrix Hydroseed. Farmers fields shall be left in a state that is suitable to cultivation.

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 for 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 m² 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

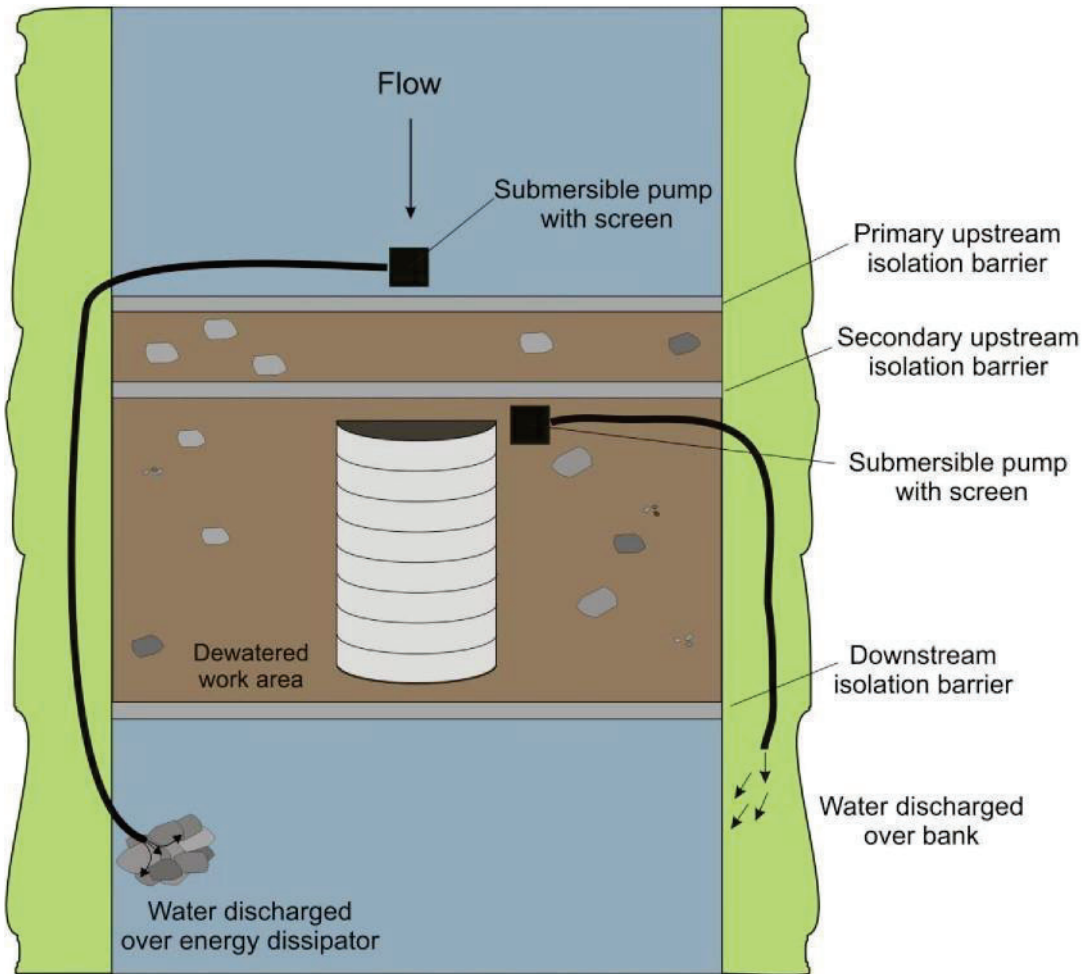


Figure 3. Isolation and Bypass Diversion when Working In-Water

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.

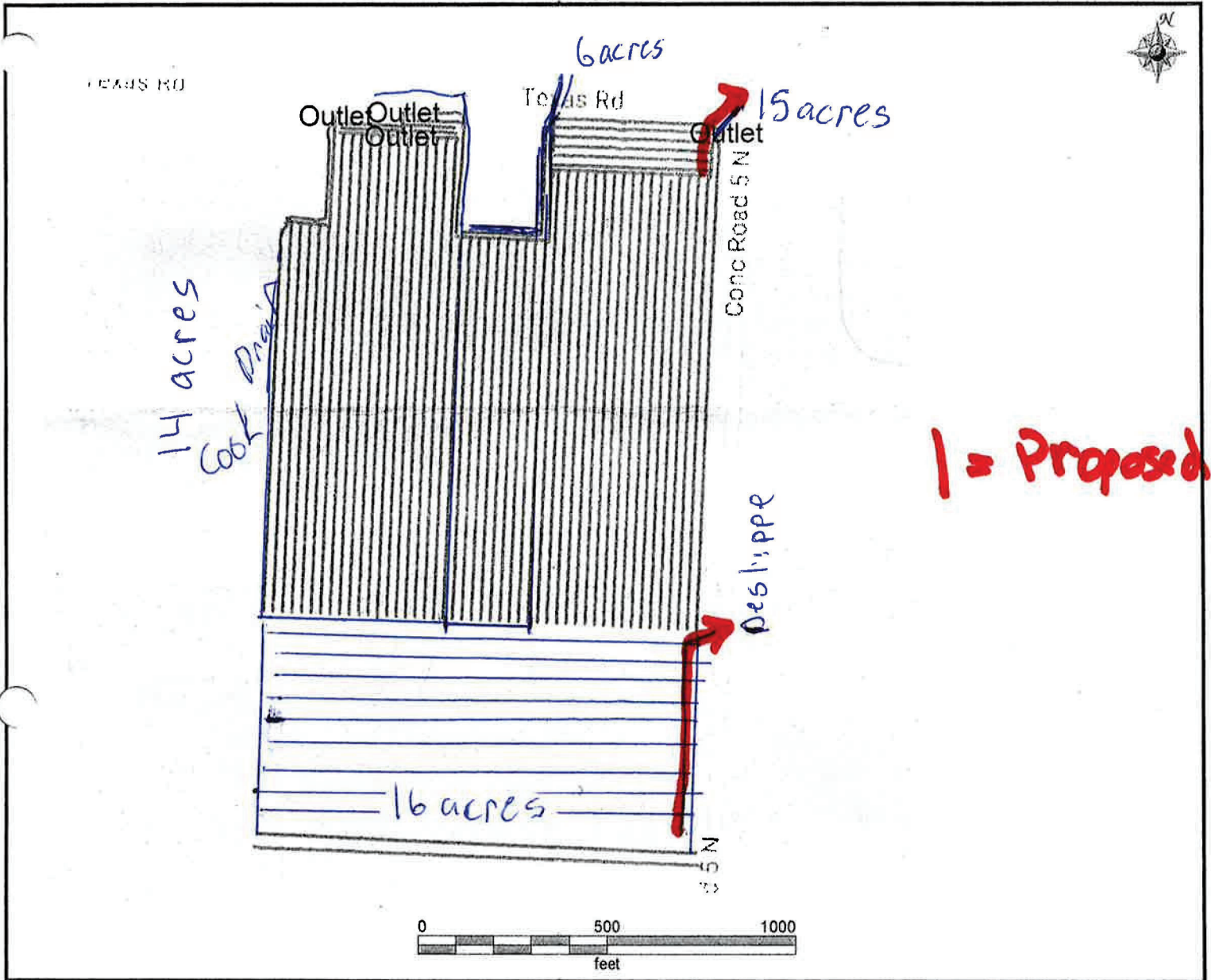
DRAIN TYPE	RESTRICTED ACTIVITY PERIOD
A	SEPTEMBER 15 TO JULY 15
B	MARCH 15 TO JULY 15
C	MARCH 15 TO JULY 15
D	OCTOBER 1 TO JULY 15
E	MARCH 15 TO JULY 15

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-ppc/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.

SW corner 5th & Texas Rd
Type



Client: Josh Mailoux
Farm: 4761 Texas Rd
Field: SW corner 5th & Texas Rd
Name: Drainage - Completed
Spacing 25'
2023

■ Lateral
■ Main

CONC. 4

CONC. 5

CONC. 6

LOT 4

LOT 3

LOT 2

LOT 1

LOT 43

LOT 44

LOT 42

LOT 45

LOT 41

LOT 46

LOT 47

LOT 40

LOT 47

LOT 40

LOT 47

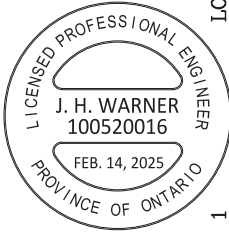
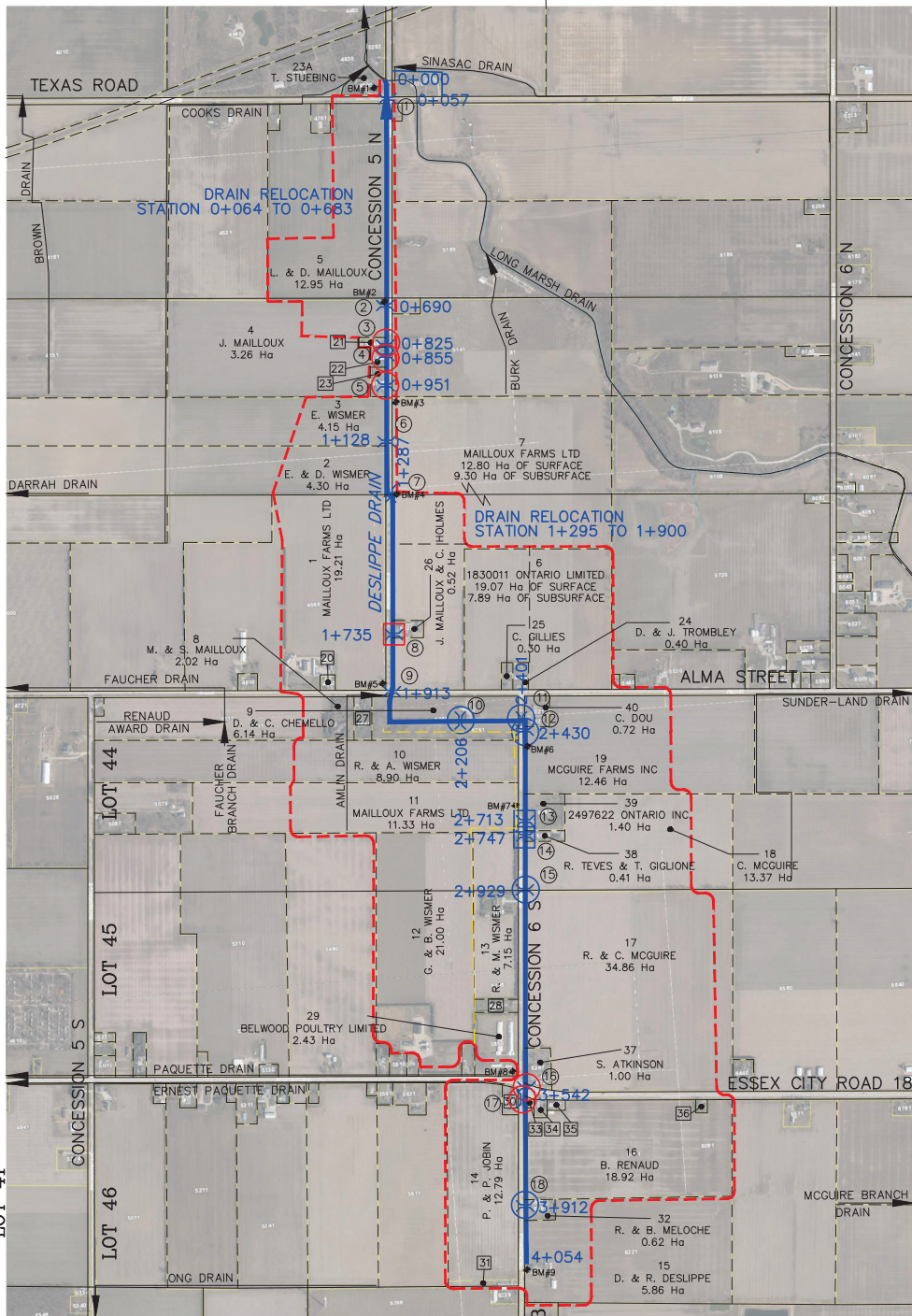
LOT 40

LOT 40

LOT 40

LOT 40

LOT 40



LEGEND

- EXISTING CULVERT
- DRAINAGE AREA
- DESLIPPE DRAIN
- MUNICIPAL DRAIN
- CULVERT REPLACED OR INSTALLED UNDER EMERGENCY DESIGNATION
- CULVERT REPLACED UNDER RC SPENCER REPORT
- EXISTING CULVERT TO BE REPLACED THROUGH DOBBIN REPORT
- EXISTING CULVERT TO BE EXTENDED THROUGH DOBBIN REPORT

OWNERS INDEX

21 J. D'ALMONTE & C. REYNOLDS 0.14 Ha	20 S. CRAWFORD & W. & M. MAILLOUX 0.22 Ha	30 M. KILGALLIN 0.42 Ha	34 C. VULTAGGIO 0.23 Ha
22 D. & P. RENAUD 0.19 Ha	27 J. MELOCHE-O'GORMAN 0.74 Ha	31 A. & G. AMLIN 0.40 Ha	35 A. SHARMA 0.19 Ha
23 D. TESSIER 0.38 Ha	28 J. MELOCHE 0.54 Ha	33 A. & J. PELAN 0.10 Ha	36 R. & J. MASSE 0.15 Ha

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

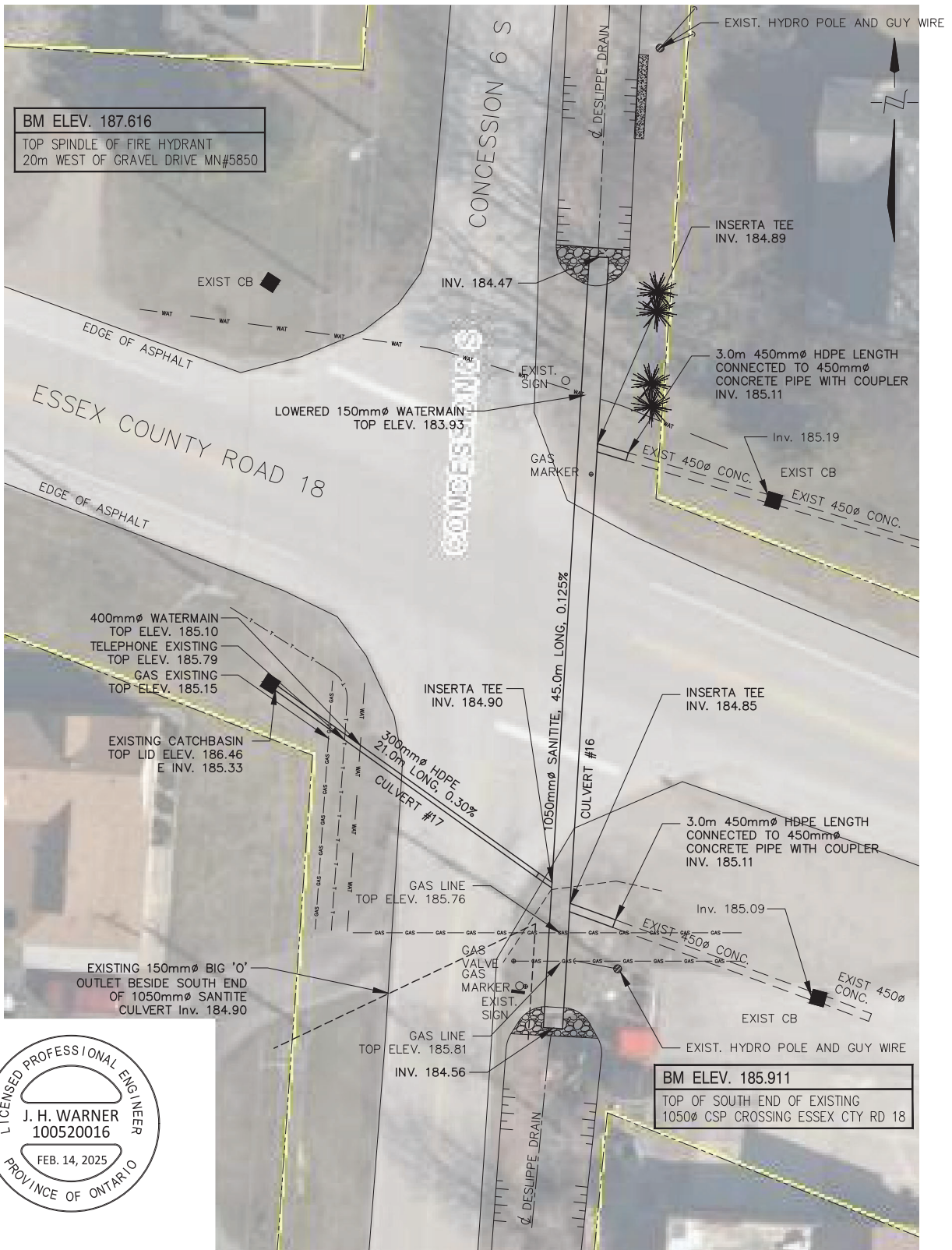
DRAWING NAME: Deslippe Drain Plan
 PROJECT No. 2023-1559

APPROVED	NO.	REVISIONS	DATE	BY
J. WARNER				
CHECKED	1	FINAL REPORT	FEB. 14, 2025	CS
DRAWN	SCALE: 1:15,000			
C. SAUNDERS				

TOWN of AMHERSTBURG
DESLIPPE DRAIN
PLAN

1
OF 14

Last Updated: February 14, 2025



CONSTRUCTION NOTES

1. WORK SHOWN COMPLETED UNDER EMERGENCY DESIGNATION.
2. LINE PAINTING DONE BY COUNTY OF ESSEX.
3. EXISTING ROAD SIGNS REMOVED TO FACILITATE CONSTRUCTION THEN REINSTALLED UPON COMPLETION.

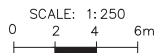


4218 Oil Heritage Road
 Petrolia Ontario, N0N 1R0
 Phone: (519) 882-0032 Fax: (519) 882-2233

DRAWING NAME:
 Deslippe Drain Detail Plan - Essex City Road 18 Culvert Replacement

PROJECT No.
 2023-1559

APPROVED	NO.	REVISIONS	DATE	BY
J. WARNER				
CHECKED	1	FINAL REPORT	FEB. 14, 2025	CS
B. VAN RUITENBURG				
DRAWN				
C. SAUNDERS				



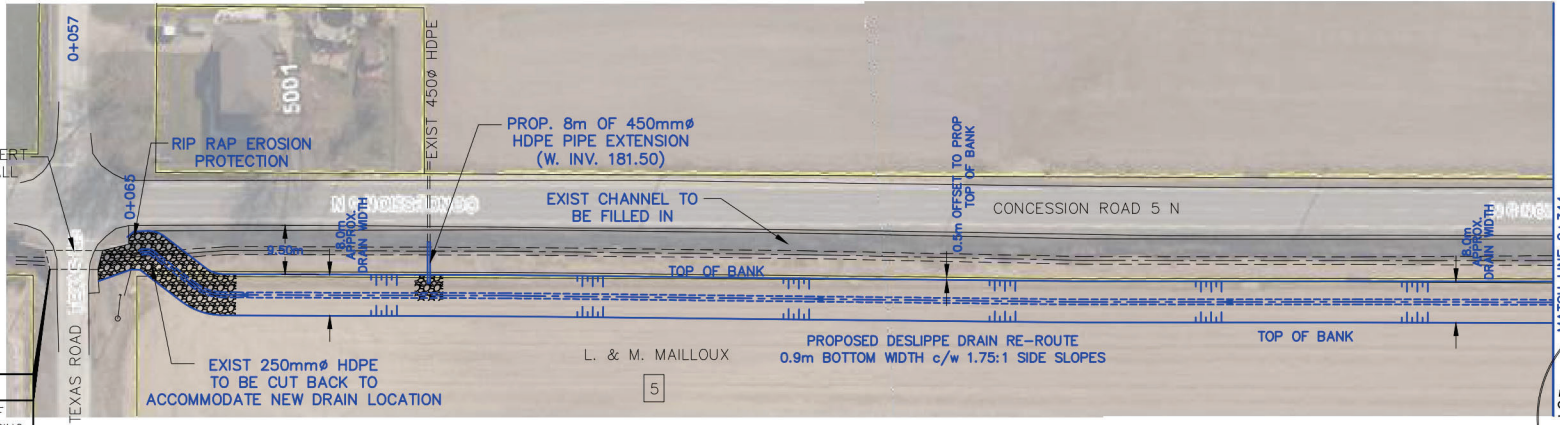
TOWN of AMHERSTBURG
DESLIPPE DRAIN
DETAIL PLAN - ESSEX CITY ROAD 18 CULVERT REPLACEMENT

2
OF 14

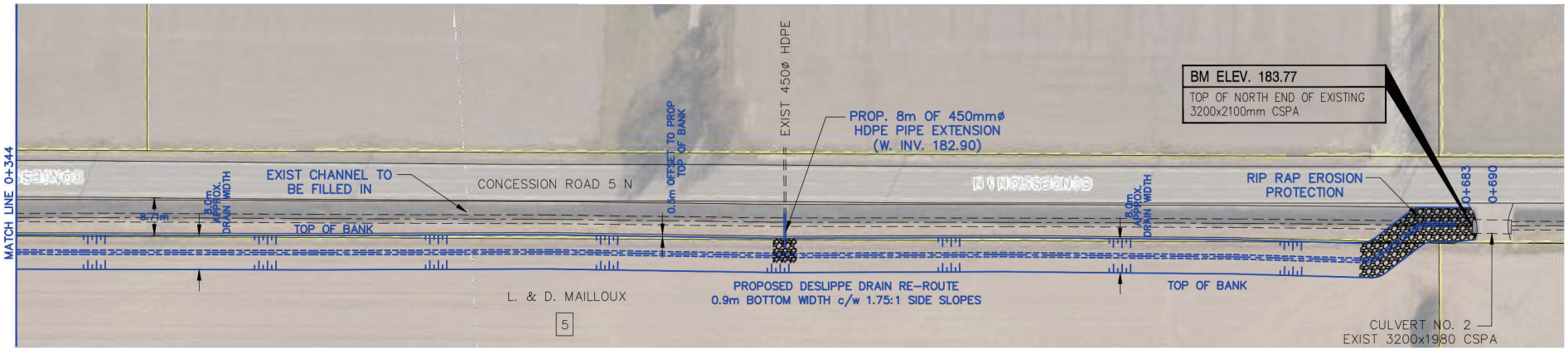
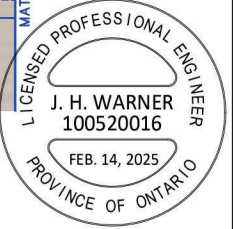
Last Updated: February 14, 2025



CULVERT NO. 1
EXIST CONC BOX CULVERT
& CONCRETE HEADWALL



BM ELEV. 181.766
TOP OF NORTHWEST CORNER OF
CONCRETE BOX CULVERT CROSSING
TEXAS ROAD



BM ELEV. 183.77
TOP OF NORTH END OF EXISTING
3200x2100mm CSP



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

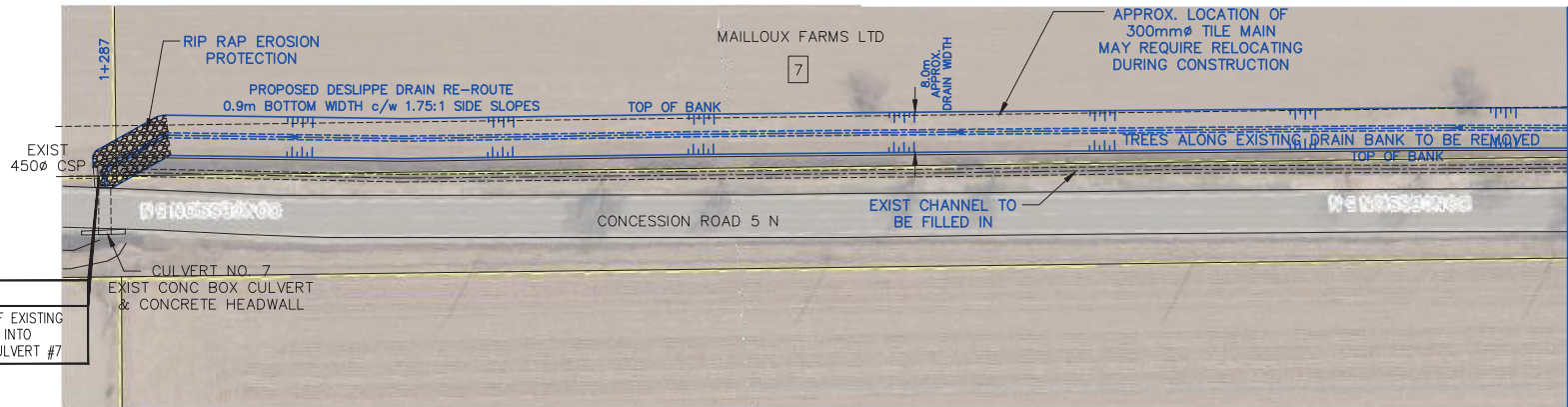
APPROVED	NO.	REVISIONS	DATE	BY
J. WARNER				
CHECKED	1	FINAL REPORT	FEB. 14, 2025	CS
B. VAN RUITENBURG				
DRAWN				
C. SAUNDERS				

SCALE 1: 1000

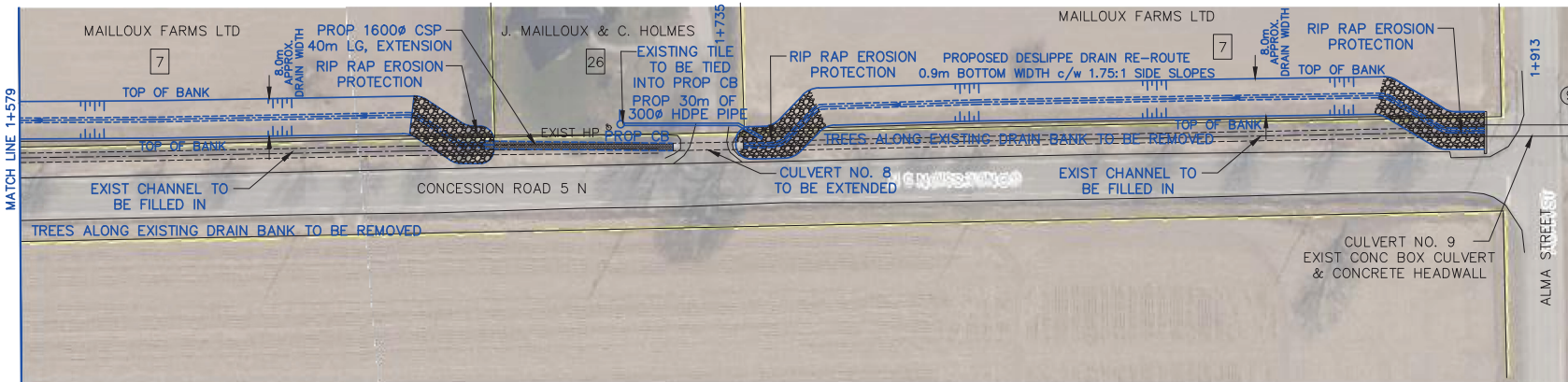
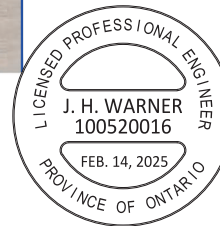
TOWN of AMHERSTBURG

DESLIPPE DRAIN RELOCATION PLAN 1

Last Updated: February 14, 2025



BM ELEV. 183.968
 TOP OF SOUTH END OF EXISTING
 450Ø CSP OUTLETING INTO
 DESLIPPE DRAIN AT CULVERT #7



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

DRAWING NAME:
 General Drain Detail Plan 2

PROJECT No.
 2023-1499

APPROVED	NO.	REVISIONS	DATE	BY
J. WARNER				
CHECKED	1	FINAL REPORT	FEB. 14, 2025	CS
B. VAN RUITENBURG				
DRAWN				
C. SAUNDERS				

SCALE 1: 1000

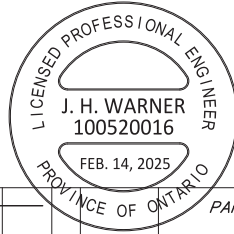
TOWN of AMHERSTBURG

DESLIPPE DRAIN RELOCATION PLAN 2

4
 OF 14

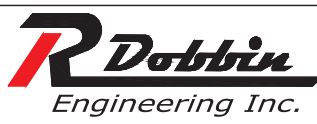
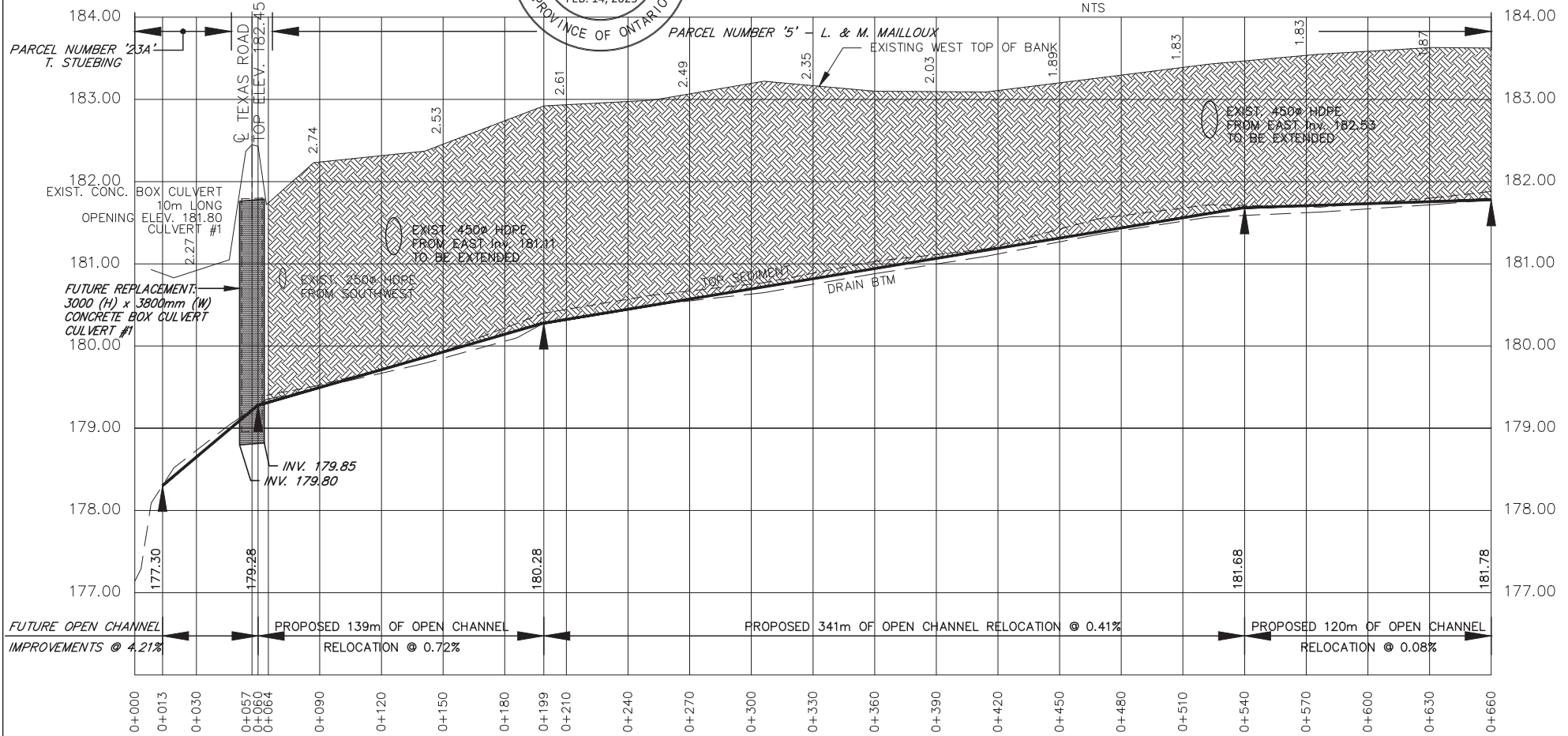
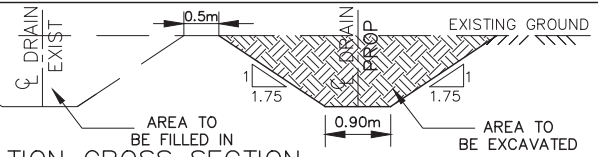
GENERAL NOTES

- BENCHMARK No.1 ELEV. 181.766
TOP OF NORTHWEST CORNER OF CONCRETE BOX CULVERT CROSSING TEXAS ROAD
- UPPER NUMBERS ARE DEPTH FROM TOP OF BANK TO PROPOSED CHANNEL BOTTOM.



DRAIN EXCAVATION

TYPICAL RELOCATION CROSS SECTION



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

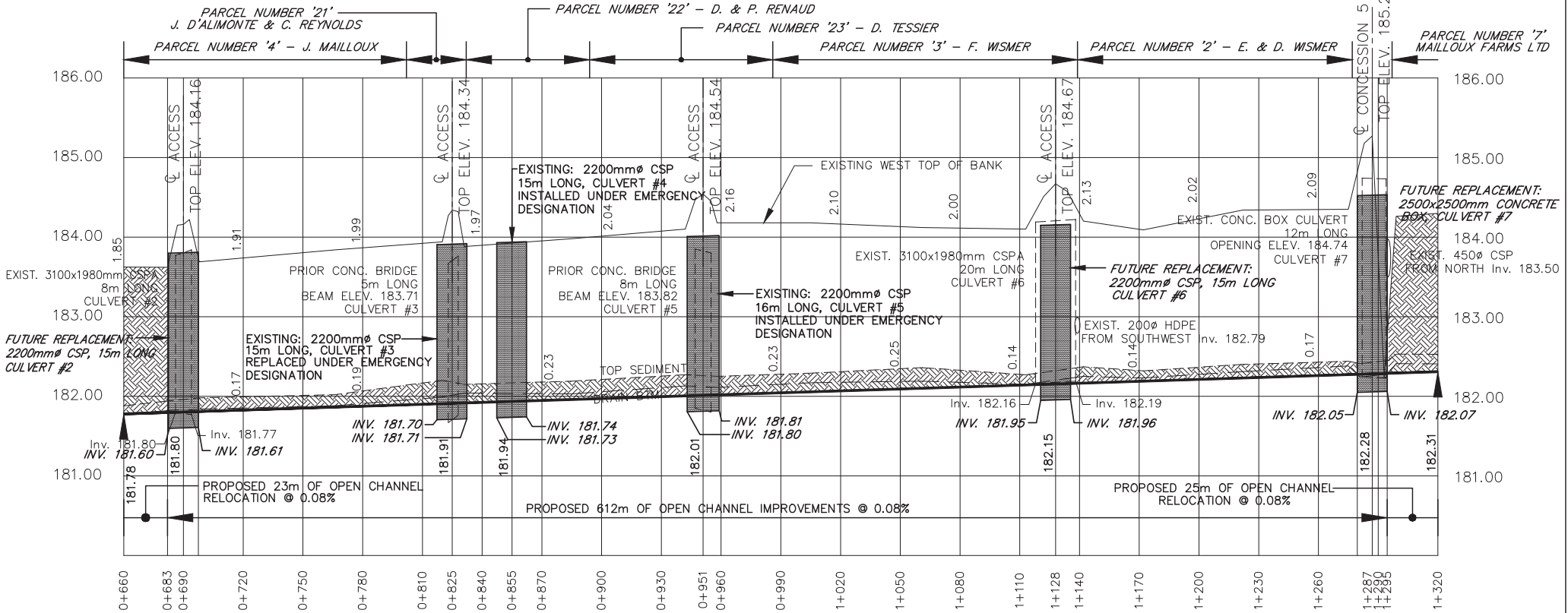
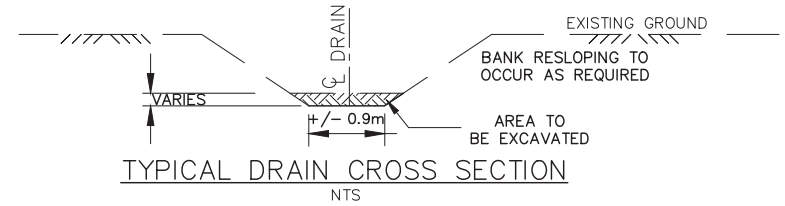
APPROVED	NO.	REVISIONS	DATE	BY
J. WARNER				
CHECKED	1	FINAL REPORT	FEB. 14, 2025	CS
B. VAN RUITENBURG				
DRAWN	SCALE: 1:2,000			
C. SAUNDERS	0 20 40 60m			

TOWN of AMHERSTBURG
DESLIPPE DRAIN
PROFILE

Last Updated: February 14, 2025

GENERAL NOTES

1. BENCHMARK No.2 ELEV. 183.77
TOP NORTH END OF EXISTING
3200x1980mm DIA. CSPA
CULVERT #2
 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
- BENCHMARK No.3 ELEV. 185.153
TOP SPINDLE OF FIRE HYDRANT ON
EAST SIDE OF CONCESSION 5 N
40m SOUTH OF CULVERT #5



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

DRAWING NAME:
Deslippe Drain Profile 2

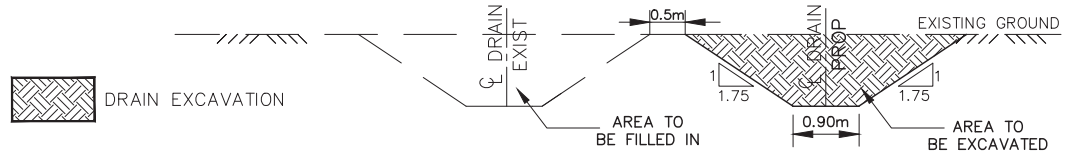
PROJECT No.
2023-1559

APPROVED	NO.	REVISIONS	DATE	BY
J. WARNER				
CHECKED	1	FINAL REPORT	FEB. 14, 2025	CS
B. VAN RUITENBURG				
DRAWN	SCALE: 1:2,000			
C. SAUNDERS	0 20 40 60m			

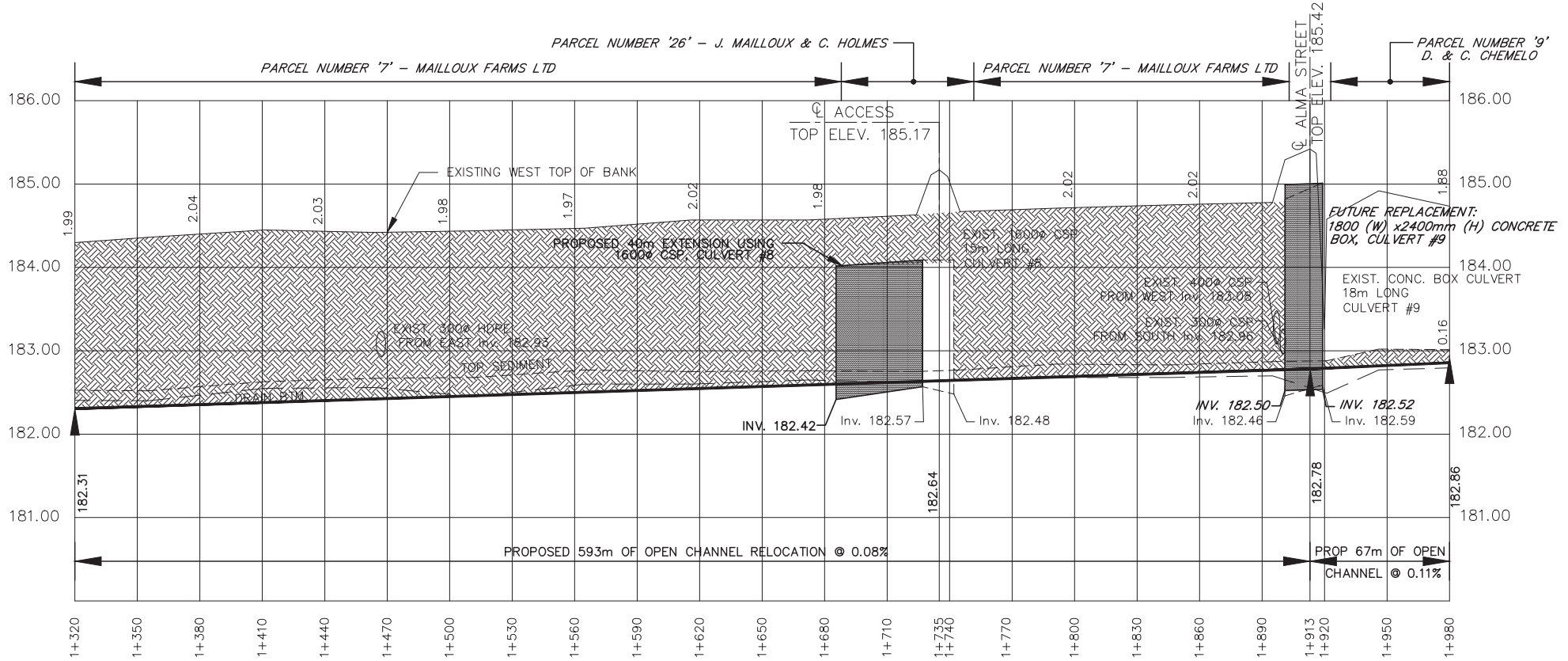
TOWN of AMHERSTBURG
DESILIPPE DRAIN
PROFILE

GENERAL NOTES

- BENCHMARK No.4 ELEV. 183.968
TOP OF SOUTH END OF EXIST. 450Ø CSP IN EAST ROADSIDE DITCH OUTLETING AT CROSSING AT CONCESSION 5 N.
- UPPER NUMBERS ARE DEPTH FROM TOP OF BANK TO PROPOSED CHANNEL BOTTOM.



TYPICAL RELOCATION CROSS SECTION



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

DRAWING NAME:
Deslippe Drain Profile 3

PROJECT No.
2023-1559

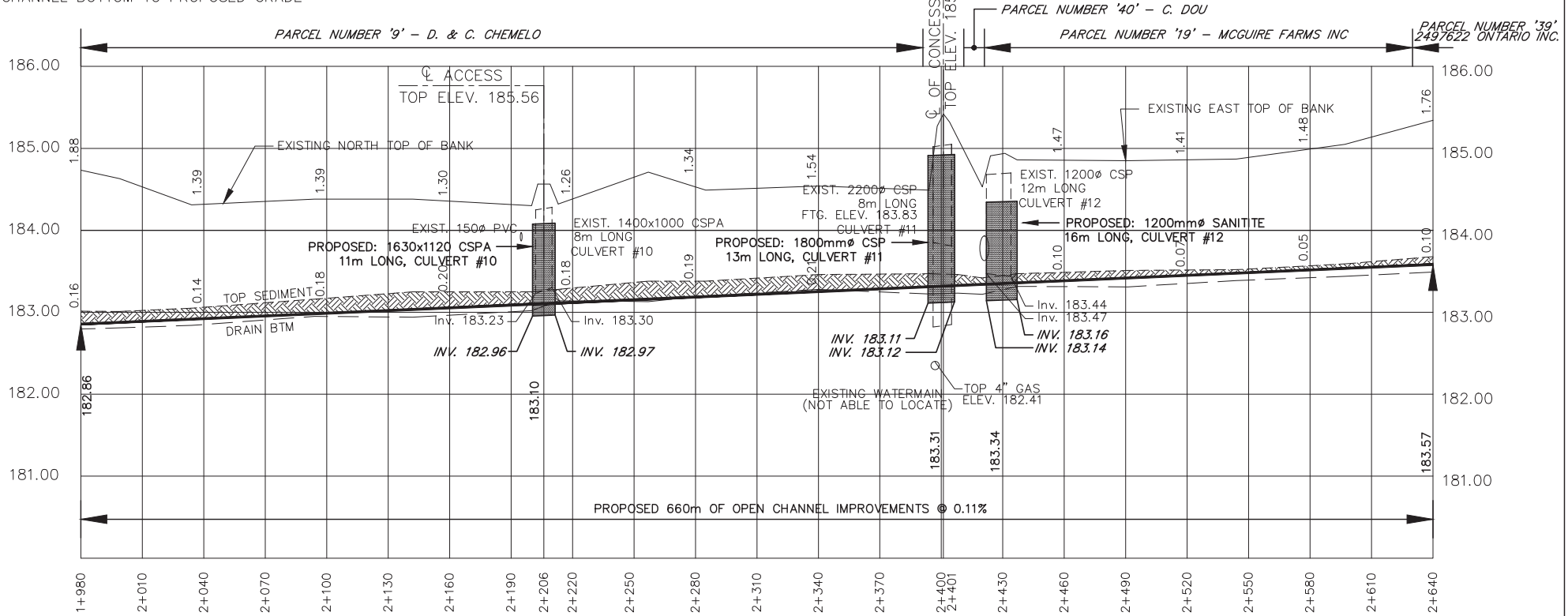
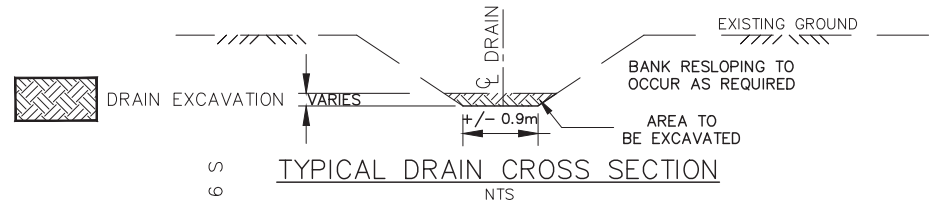
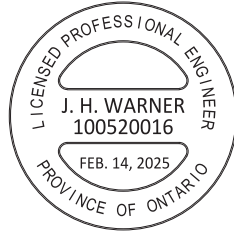
APPROVED	NO.	REVISIONS	DATE	BY
J. WARNER				
CHECKED	1	FINAL REPORT	FEB. 14, 2025	CS
B. VAN RUITENBURG				
DRAWN				
C. SAUNDERS				

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

TOWN of AMHERSTBURG
DESLIPE DRAIN
PROFILE

GENERAL NOTES

- BENCHMARK No.5 ELEV. 185.841
TOP SPINDLE OF FIRE HYDRANT LOCATED AT THE NORTHWEST CORNER OF THE INTERSECTION OF CONCESSION 5 N AND ALMA STREET.
BENCHMARK No.6 ELEV. 184.70
TOP SOUTH END OF EXISTING 1200mm DIA, CSP, CULVERT #12
- UPPER NUMBERS ARE DEPTH FROM TOP OF BANK TO PROPOSED CHANNEL BOTTOM.
- LOWER NUMBERS ARE DEPTH FROM EXISTING CHANNEL BOTTOM TO PROPOSED GRADE



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

DRAWING NAME:
Deslippe Drain Profile 4

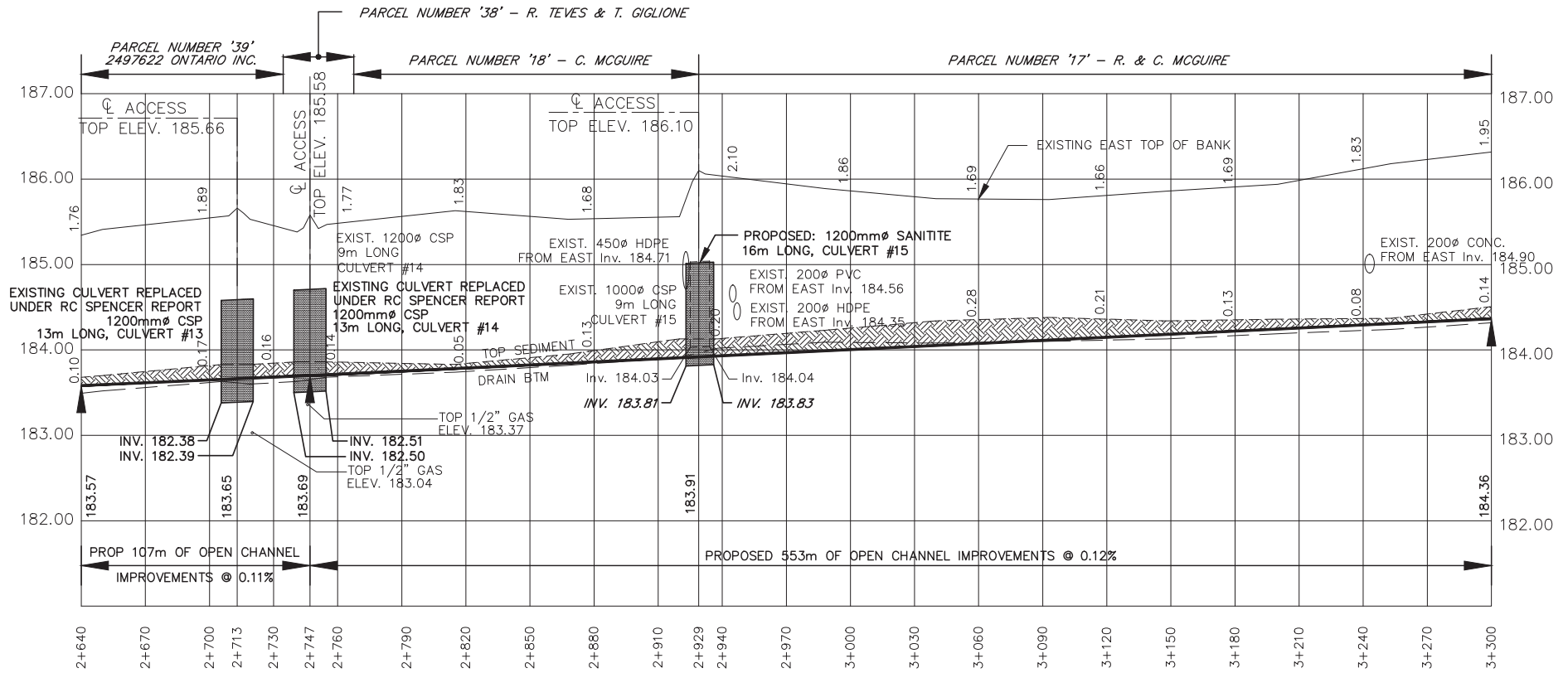
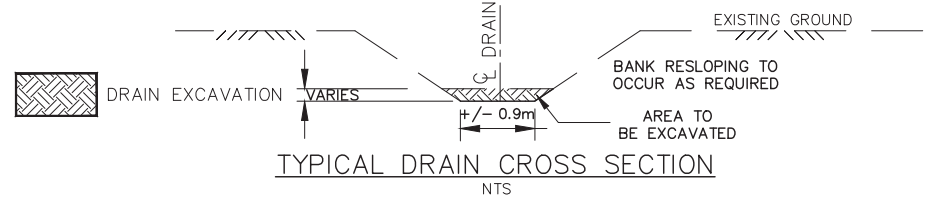
PROJECT No.
2023-1559

APPROVED J. WARNER	NO.	REVISIONS	DATE	BY
CHECKED B. VAN RUITENBURG	1	FINAL REPORT	FEB. 14, 2025	CS
DRAWN C. SAUNDERS	SCALE: 1:2,000 0 20 40 60m			

TOWN of AMHERSTBURG
DESLIPPE DRAIN
PROFILE

GENERAL NOTES

- BENCHMARK No.7 ELEV. 185.936
TOP OF NAIL IN UTILITY POLE ON WEST SIDE OF CONCESSION 6 S. NORTH OF MN# 6087
- UPPER NUMBERS ARE DEPTH FROM TOP OF BANK TO PROPOSED CHANNEL BOTTOM.
- LOWER NUMBERS ARE DEPTH FROM EXISTING CHANNEL BOTTOM TO PROPOSED GRADE



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

PROJECT No.
2023-1559

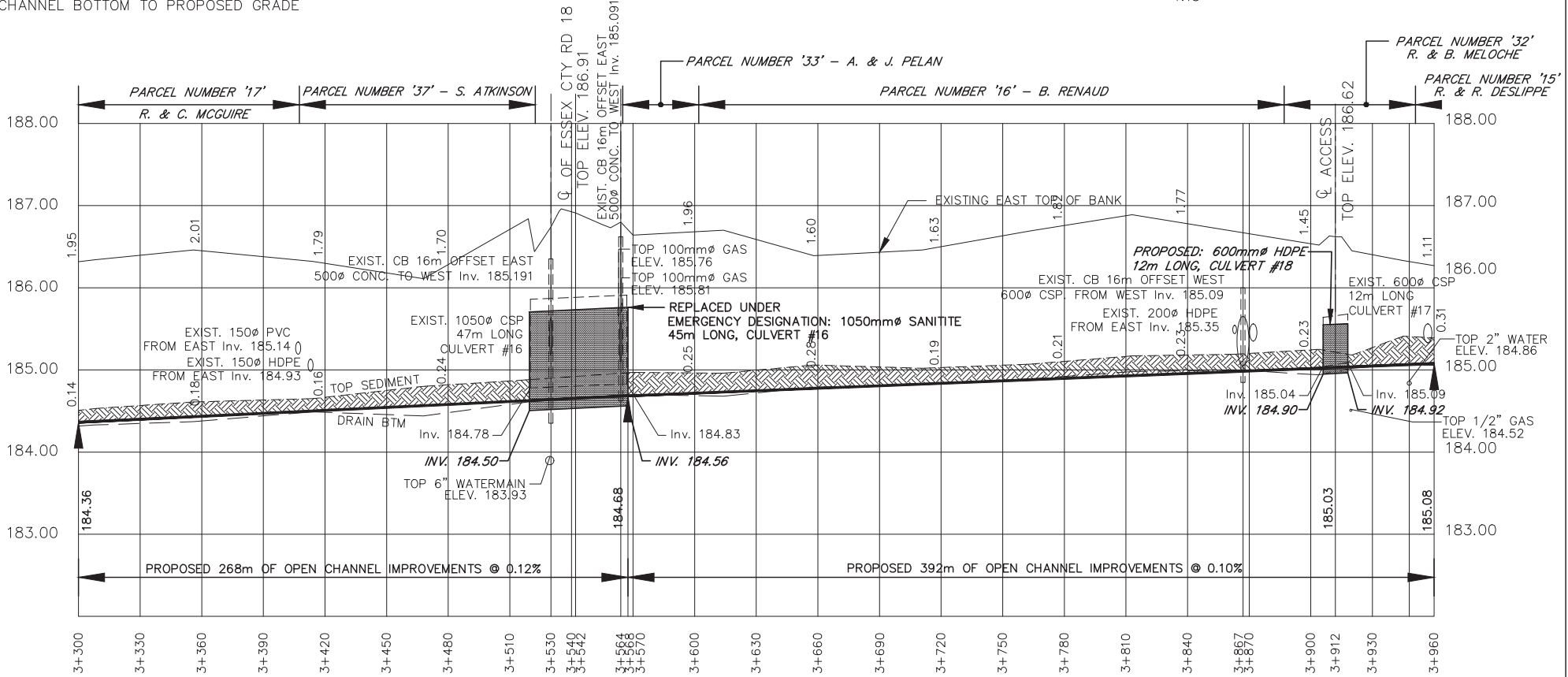
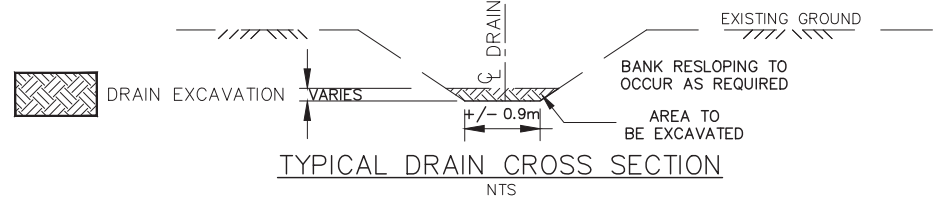
APPROVED	NO.	REVISIONS	DATE	BY
J. WARNER				
CHECKED	1	FINAL REPORT	FEB. 14, 2025	CS
B. VAN RUITENBURG				
DRAWN	SCALE: 1:2,000			
C. SAUNDERS	0 20 40 60m			

TOWN of AMHERSTBURG
DESILPPE DRAIN
PROFILE

DRAWING NAME:
Deslippe Drain Profile 5

GENERAL NOTES

- BENCHMARK No.8 ELEV. 187.617
TOP SPINDLE OF FIRE HYDRANT
ON NORTHWEST CORNER OF INTERSECTION
AT ESSEX COUNTY ROAD 18 AND CONCESSION 6 S.
- UPPER NUMBERS ARE DEPTH FROM TOP OF
BANK TO PROPOSED CHANNEL BOTTOM.
- LOWER NUMBERS ARE DEPTH FROM EXISTING
CHANNEL BOTTOM TO PROPOSED GRADE



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

DRAWING NAME:
Deslippe Drain Profile 6

PROJECT No.
2023-1559

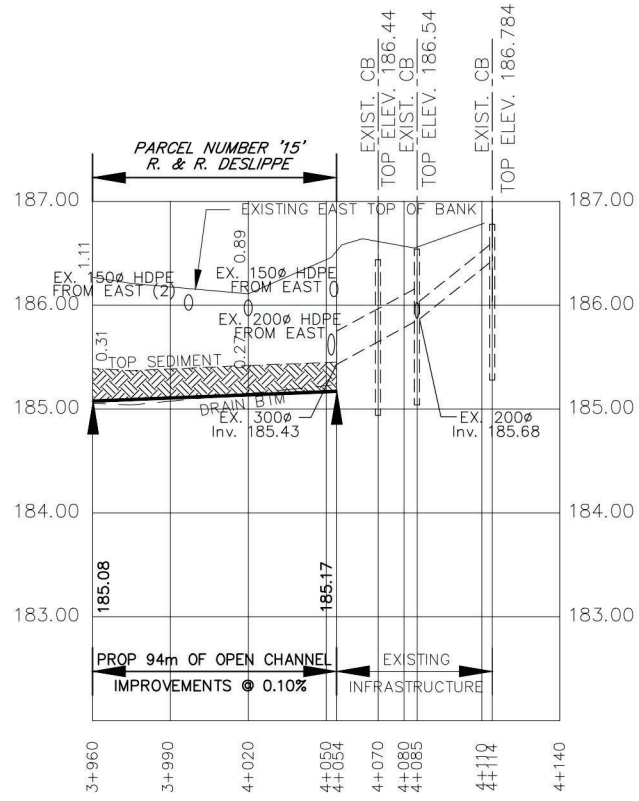
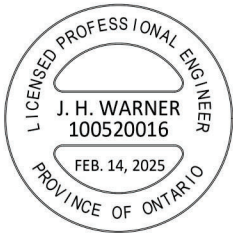
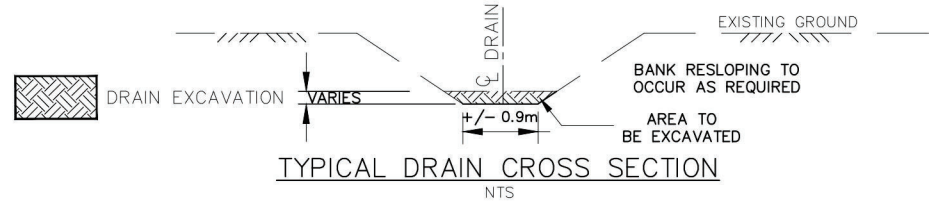
APPROVED	NO.	REVISIONS	DATE	BY
J. WARNER				
CHECKED	1	FINAL REPORT	FEB. 14, 2025	CS
B. VAN RUITENBURG				
DRAWN				
C. SAUNDERS				

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

TOWN of AMHERSTBURG
DESLIPPE DRAIN
PROFILE

GENERAL NOTES

1. BENCHMARK No.9 ELEV. 186.784
TOP OF CATCHBASIN AT TOP END OF DESLIPPE DRAIN AT STATION 4+114
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



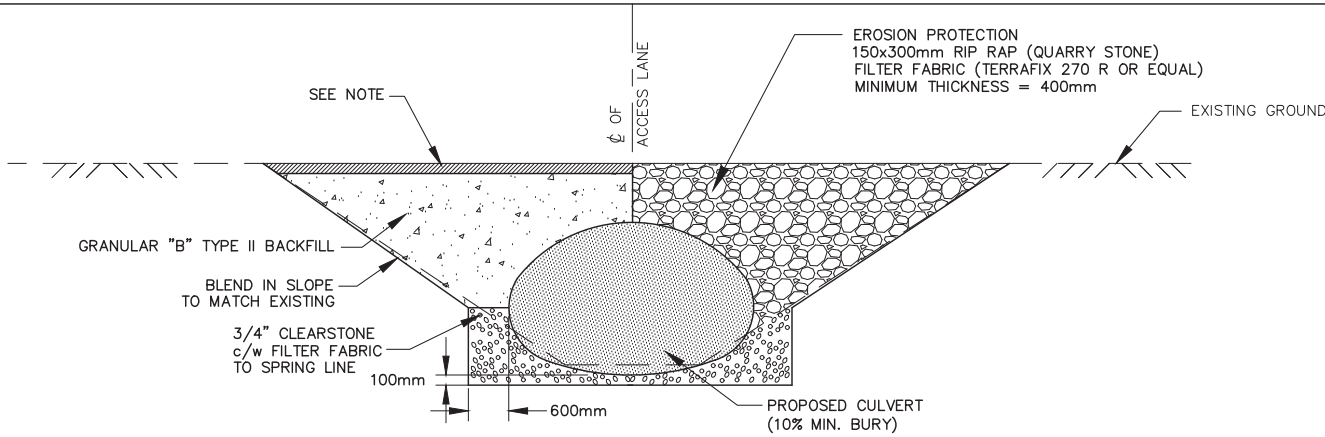
4218 Oil Heritage Road
Petrolia Ontario, N0N 1R0
Phone: (519) 882-0032 Fax: (519) 882-2233

DRAWING NAME:
Deslippe Drain Profile 7

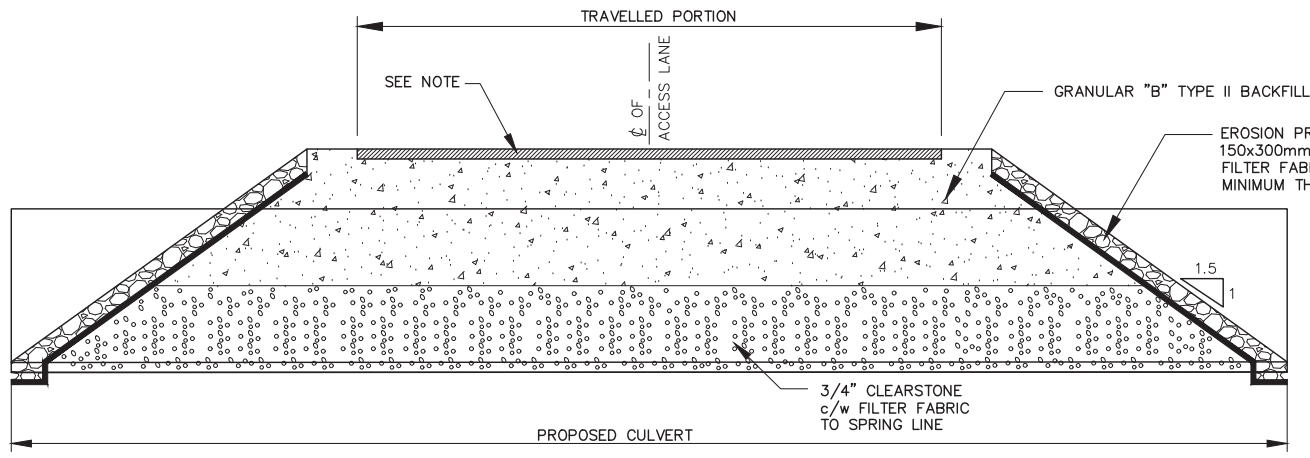
PROJECT No.
2023-1559

APPROVED	NO.	REVISIONS	DATE	BY
J. WARNER				
CHECKED	1	FINAL REPORT	FEB. 14, 2025	CS
B. VAN RUITENBURG				
DRAWN	SCALE: 1:2,000			
C. SAUNDERS	0 20 40 60m			

TOWN of AMHERSTBURG
DESLIPPE DRAIN
PROFILE



PROPOSED PIPE END SECTION



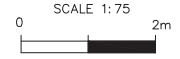
PROPOSED CROSS-SECTION

- NOTES:**
- ALL BACKFILL COMPACTED TO 95% MODIFIED PROCTOR DENSITY CONTRACTOR SHALL ENSURE MINIMUM COVER IS MET PRIOR TO CROSSING
 - ACCESS CULVERT
 - 150mm OF 100% CRUSHED GRANULAR "A"
 - HL3 ASPHALT TO MATCH EXISTING THICKNESS (IF SPECIFIED)



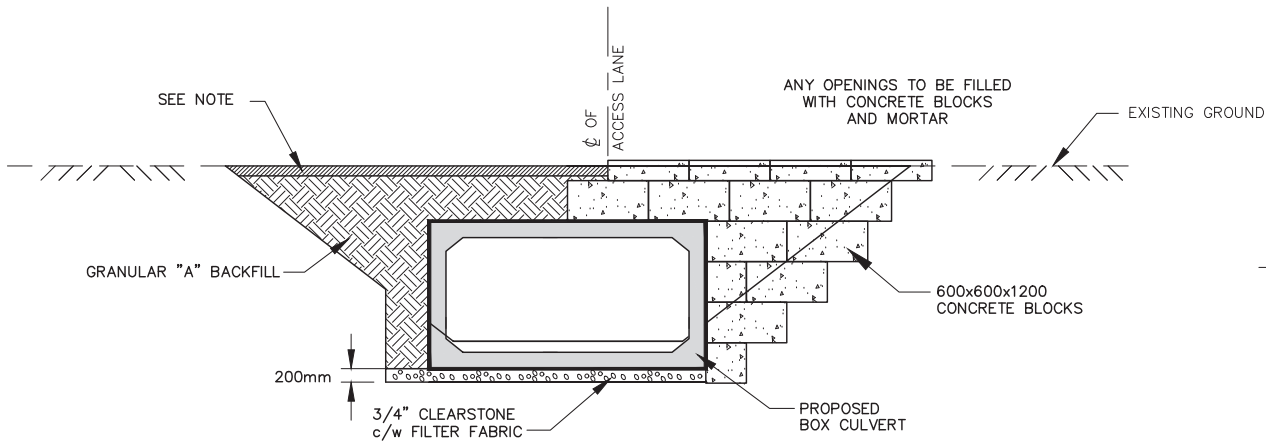
4218 Oil Heritage Road
 Petrolia Ontario, N0N 1R0
 Phone: (519) 882-0032 Fax: (519) 882-2233

APPROVED J. WARNER	NO.	REVISIONS	DATE	BY
CHECKED B. VAN RUITENBURG	1	FINAL REPORT	FEB. 14, 2025	CS
DRAWN C. SAUNDERS	SCALE 1:75			

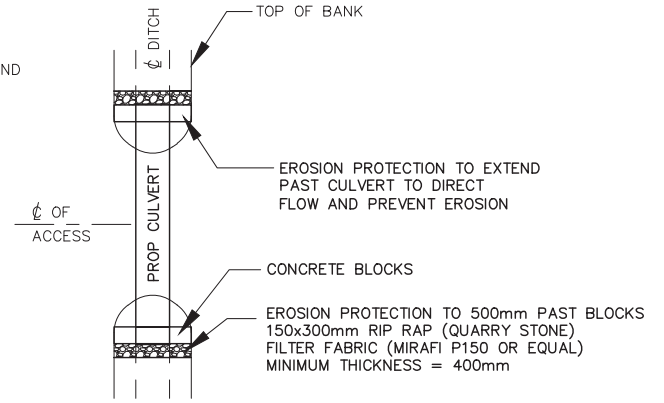


TOWN of AMHERSTBURG
 DESLIPPE DRAIN
 TYPICAL CULVERT DETAIL

**12
 OF 14**

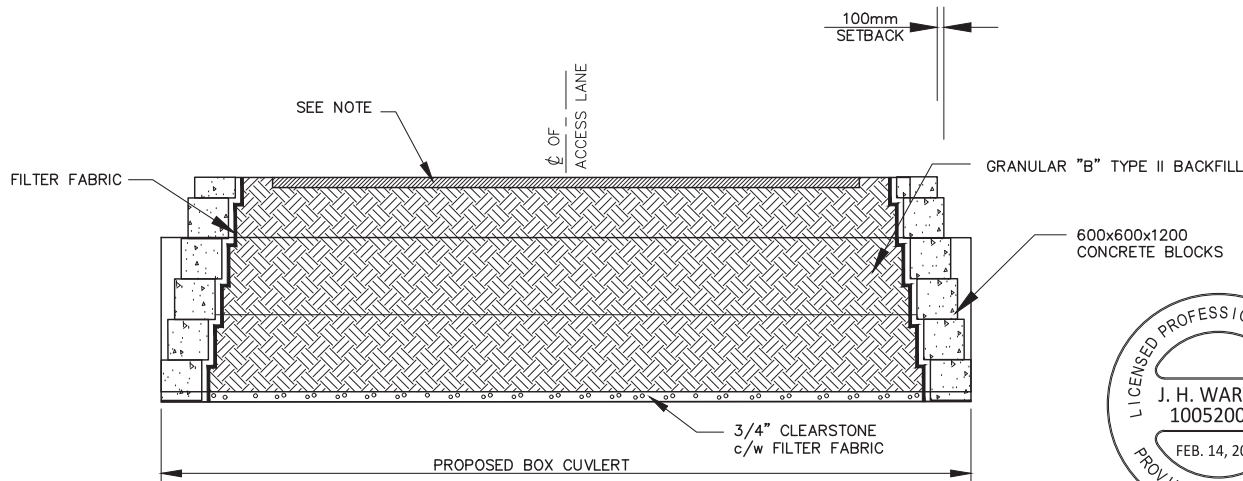


PROPOSED END SECTION



TYPICAL CULVERT PLAN

NTS



PROPOSED CROSS-SECTION

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"



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

DRAWING NAME:
Deslippe Drain Typical Road Crossing Box Culvert Detail

PROJECT No.
2023-1559

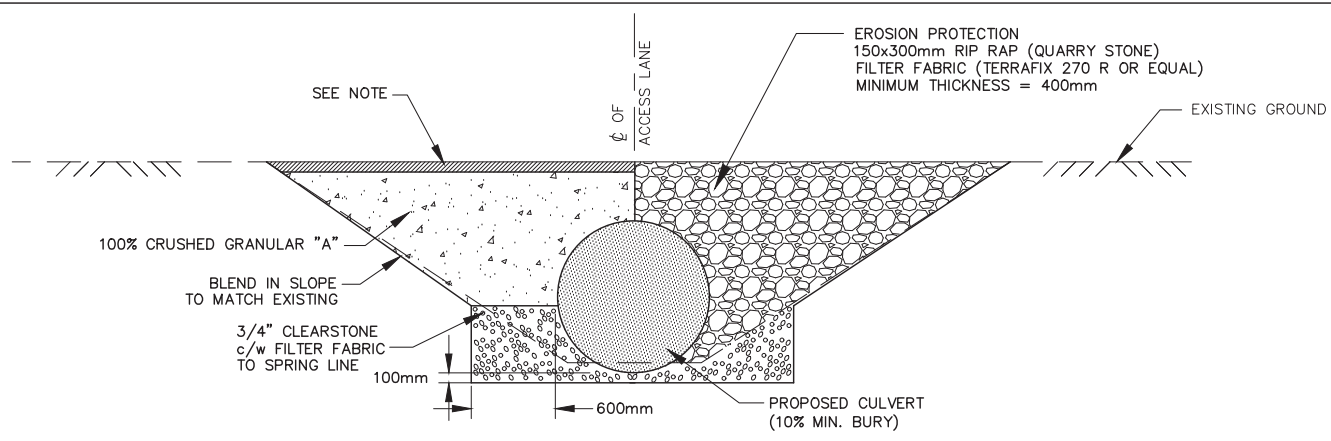
APPROVED	NO.	REVISIONS	DATE	BY
J. WARNER				
CHECKED	1	FINAL REPORT	FEB. 14, 2025	CS
B. VAN RUITENBURG				
DRAWN				
C. SAUNDERS				

SCALE 1:75

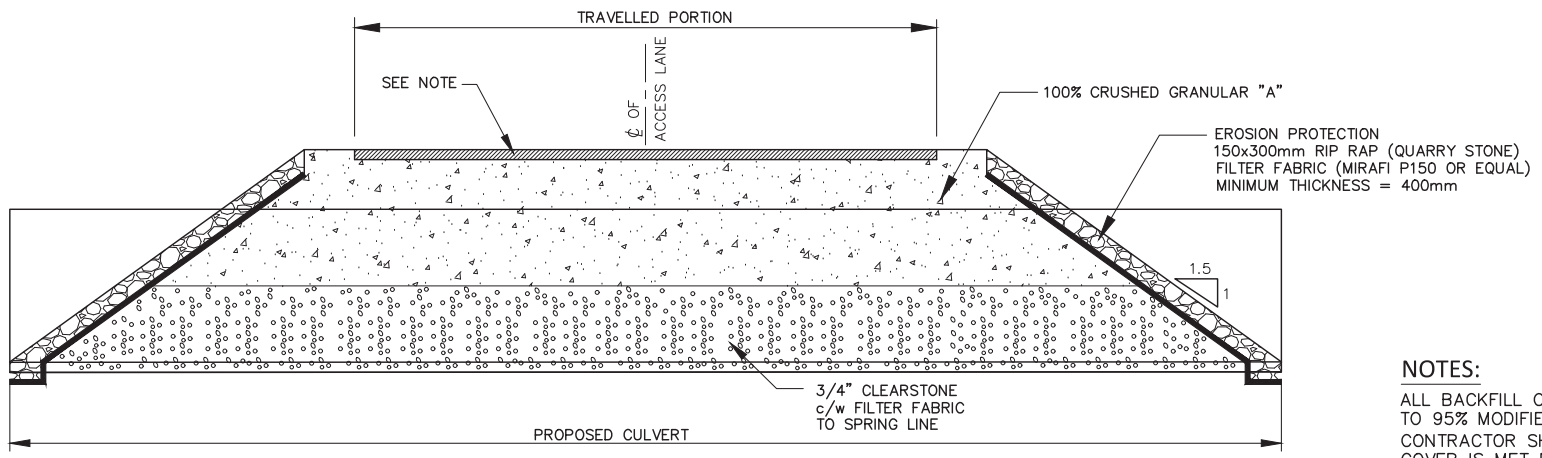
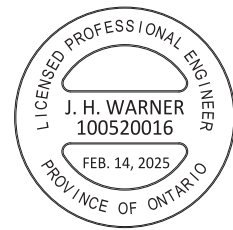
TOWN of AMHERSTBURG

DESLIPE DRAIN
TYPICAL ROAD CROSSING - BOX CULVERT DETAIL

13
OF 14

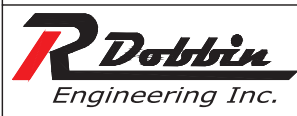


PROPOSED PIPE END SECTION



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



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

APPROVED	NO.	REVISIONS	DATE	BY
J. WARNER				
CHECKED	1	FINAL REPORT	FEB. 14, 2025	CS
B. VAN RUITENBURG				
DRAWN				
C. SAUNDERS				

SCALE 1:75

DRAWING NAME: Deslippe Drain Typical Road Crossing Round Culvert Detail
 PROJECT No. 2023-1559

TOWN of AMHERSTBURG
 DESLIPPE DRAIN
 TYPICAL ROAD CROSSING - ROUND CULVERT DETAIL

14
 OF 14

Last Updated: February 14, 2025