

January 18, 2021

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

Gentlemen and Mesdames:

Re: Charles Shepley Drain

As instructed, we have undertaken an examination of the Charles Shepley Main Drain and Charles Shepley Branch Drain with regards to an investigation of existing culverts and drain maintenance schedules.

Authorization under the Drainage Act

This Engineers Report has been prepared under Section 78 of the Drainage Act as per the request of an affected landowner.

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

Existing Drainage – Charles Shepley Main Drain

Two reports have been authored on the Charles Shepley Main Drain. The first report was by W. Settingington and was dated June 1968. The second report was prepared by M. Armstrong and was dated July 1980.

The existing drainage works consists of approximately 3,786 metres of open channel that outlets into the Long Marsh Drain in Lot 100, Concession 9. The drain extends approximately 1,813 m from the outlet in a southerly direction along the west side of Smith Road until the south side of Malden Colchester South Townline (Concession Road 4). The drain then extends approximately 1,890m in a westerly direction until the east side of Malden Colchester Townline (Concession Road 7) where it then extends approximately 72 m in a southerly direction until the northern limit of the lands identified with the Land Identification Number 19 in Part of Lot 1 Concession 3, Town of Essex.

The existing drain reports identified the following culverts.

Culvert 2– The culvert is located at Station 0+450 on the plan. The culvert provides access to the lands identified with the Land Identification Number 2 (Pt of Lot 101 Concession 9, Town of Amherstburg).

Culvert 3– The culvert is located at Station 1+153 on the plan. The culvert provides access to the lands identified with the Land Identification Number 6 (Pt of Lot 102 Concession 9, Town of Amherstburg).

Culvert 4– The culvert is located at Station 1+236 on the plan. The culvert provides access to the lands identified with the Land Identification Number 8 (Pt of Lot 102 Concession 9, Town of Amherstburg).

Culvert 5– The culvert is located at Station 1+813 on the plan. The culvert is a Malden Colchester South Townline centreline road culvert. The 1980 report identifies a bridge at this location.

Culvert 6 - The culvert is located at Station 2+751 on the plan. The culvert provides access to the lands identified with the Land Identification Number 22 (Pt of Lot 2 Concession 3, Town of Essex).

Culvert 7 - The culvert is located at Station 3+025 on the plan. The culvert provides access to the lands identified with the Land Identification Number 21 (Pt of Lot 1 Concession 3, Town of Essex).

There are two culverts on this drain that are not identified in either of the drain reports.

Culvert 1- The culvert is located at Station 0+135 on the plan. The culvert provides access to the lands identified with the Land Identification Number 1 (Pt of Lot 100 Concession 9, Town of Amherstburg).

Pedestrian Culvert (3+389) – The pedestrian culvert is located at Station 3+389 on the plan. The culvert provides access to the lands identified with the Land Identification Number 20 (Pt of Lot 1 Concession 3, Town of Essex).

The land identified with the Land Identification Number 8 does not currently have an access across the Charles Shepley Main Drain. The property is accessed from Concession Road 9 and a culvert on the Charles Shepley Branch Drain.

The lands identified with the Land Identification Numbers 3 and 4 do not have an access across the Charles Shepley Main Drain and utilize Culvert 2 to access their lands.

The lands identified with the Land Identification Numbers 24, 26 and 30 not have an access across the Charles Shepley Main Drain. The properties are accessed from Concession Road 3.

Existing Drainage – Charles Shepley Branch Drain

Two reports have been authored on the Charles Shepley Branch Drain. The first report was by W. Settingington and was dated June 1969. The second report was prepared by M. Armstrong and was dated July 1980.

The existing drainage works consists of approximately 990 metres of open channel that is located in the Town of Amherstburg and outlets into the Charles Shepley Main Drain at the easterly limit of Lot 102, Concession 9. The drain extends in a westerly direction along the north limit of the South ½ of Lot 102, Concession 9 for approximately 675 m after which it extends southerly for 315 m to the north limit of Lot 103, Concession 9.

The 1980 report identified one access culvert on the Charles Shepley Branch Drain at Station 4+832. The culvert was removed prior to this report.

There are three crossings on this drain that are not identified in the drain report.

Culvert 8 – The culvert is located at Station 4+385 on the plan. The culvert provides access between the land identified with the Land Identification Number 8 (Pt of the South ½ of Lot 102 Concession 8) and the land identified with the Land Identification Number 5 (Pt of the North ½ of Lot 102 Concession 8). Both lands are currently owned by the same landowner. The culvert does not front onto a Municipal road.

Farm Access Culvert (4+684) – The culvert is located at Station 4+684 on the plan. The culvert provides access across the Charles Shepley Branch Drain for the land identified with the Land Identification Number 7 (Part of Lot 100 Concession 9, Town of Amherstburg).

Culvert 9 – The culvert is located at Station 4+983 on the plan. The culvert provides access across the Charles Shepley Branch Drain for the land identified with the Land Identification Number 7 (Pt of Lot 100 Concession 9, Town of Amherstburg).

The drain has accumulated sediment throughout and the field tiles are located at the bottom of the channel at the top of the sediment. The existing culverts were not installed to the design grade line.

Drain Classification

The Charles Shepley Main Drain and the Charles Shepley Branch Drain are classified as a Class “F” drain. These classifications are according to 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). Authorization is not required if work is done in the dry.

The proposed work will have very little effect on the drainage works if carried out during low flows in the channel. The work area is to be maintained in a dry condition during construction by the Contractor.

The Essex Region Conservation Authority (ERCA) reviewed and approved the project via email correspondence. A copy of the approvals (November 25, 2020 email) has been included in Appendix A.

The Department of Fisheries and Oceans Canada reviewed and approved the project. A copy of the Department of Fisheries and Oceans Canada Letter of Advice dated December 21, 2020 has been included in Appendix A.

Onsite Meeting and Landowner Correspondence

An onsite meeting was held on March 7, 2019 at #10596 Smith Road. The following attended the meeting.

Shane McVitty – The Corporation of the Town of Amherstburg
Josh Warner – R. Dobbin Engineering
Mike Gerrits – R. Dobbin Engineering
Alen Beetham – Landowner
Janet Labrecque – Landowner
Chris Beaune – Landowner

A brief summary of the meeting is listed below:

- The Corporation of the Town of Amherstburg received a request for a bridge repair on the Charles Shepley Drain from M. & A. Beetham (Landowner Identification Number 1) whom own Part of Lot 100, Concession 9. Upon investigation it was noted the bridge was not part of a report and as such a report was required.
- ERCA has forwarded comments. The design will need to maintain flood elevations up to and including the 100-year storm event. It will also need to account for ice damming. A 2400 mm concrete box culvert was recently installed upstream of the crossing.
- Maintenance schedule updates will also be included in the new report.
- C. Beaune (Identification Number 4) cannot safely back vehicles and equipment across the Charles Shepley Main Drain. C. Beaune feels the Smith Road is too narrow and has requested a larger culvert. R. Dobbin Engineering Inc. will review the entrance and determine if the road width affects turning movements.
- R. Dobbin Engineering Inc. inspected the Beaune access and note the road width was approximately 7 m with narrow shoulders. It was clear the landowner utilized the entire road platform plus the road embankment to back equipment and vehicles across the Charles Shepley Main Drain.

Prior to issuing this report, R. Dobbin Engineering Inc. contacted the following landowners to discuss the drain grades and culverts.

A. Beetham – The Beetham's own the lands identified by the Landowner Identification Numbers 1,2, 3 and 4. The four properties are serviced by two access culverts. A. Beetham requested Culvert 1 be relocated from Station 0+153 to the southern limit of the property at Station 0+258. The landowner did not want culverts installed to each property nor did he want future replacement specifications incorporated into this report.

C. Beaune – C. Beaune requested the access to his land have a minimum top width equal to the existing culvert plus 1.83m (6 feet). The landowner is aware the costs to lengthen the culvert will be assessed as a benefit to his lands.

J. Grondin (Identification Number 26) – J. Grondin contacted R. Dobbin Engineering Inc. to discuss the Charles Shepley Branch Drain. J. Grondin feels Culvert 8 is an obstruction and needs to be removed or lowered at the landowner's expense. J. Grondin also mentioned the tiles are at the bottom of the channel and do not have a sufficient outlet. M. Gerrits of R. Dobbin Engineering Inc. informed J. Grondin a survey of the drain would be completed and determined if the culvert is an obstruction. The status and condition of the culvert will also be looked into. J. Grondin can access his lands identified with the Land Identification Number 7 (Part of Lot 100 Concession 9, Town of Amherstburg) without crossing over the drain and has informed R. Dobbin Engineering Inc. that he does not require Culvert 9. Culvert 9 has been included in this report for future replacement if there is a change in ownership of the adjacent lands or if the landowner requests the culvert be installed.

F. Miller (Identification Number 20) – F. Miller of Miller Cattle and Grain Ltd. confirmed he would like the pedestrian crossing at Station 3+389 removed and a new access installed at Station 3+786. The landowner requested the ditch be filled in as a culvert was not required. R. Dobbin Engineering Inc. reviewed the crossing and determined the ditch could be filled in to provide the landowner with an access across the Charles Shepley Main Drain.

Bonnefield Farmland Ontario (Identification Numbers 5 & 8) – Bonnefield Farmland Ontario confirmed they wanted to keep the access across the Charles Shepley Branch Drain at Station 4+385 (Culvert 8). The culvert is perched and will be replaced in the future under maintenance.

Design

The proposed residential access culverts will be sized to convey a minimum 2-year design storm. The Municipal road culvert will be designed to convey a minimum 25-year design storm. In order to meet the ERCA requirements the proposed culvert diameters and flow rates will not be reduced.

R Dobbin Engineering Inc. has reviewed the C. Beaune access culvert, Culvert 3, with respect to the Smith Road width, road side ditching and the proximity of the Charles Shepley Main Drain. Smith Road has a 7.0 m paved width with minimal shoulders. When considering the cross section of Smith Road, R Dobbin Engineering Inc. feels the minimum top width for accesses that front onto Municipal Roads should be increased from the standard 6.0 m to 8.5 m to provide safe access to the property. The minimum top width for accesses that do not front onto a Municipal road allowances will remain 6.0 m.

Discussion

Culvert (Station 0+153) – The culvert located on the Charles Shepley Main Drain in Pt. of the Lot 100, Concession 9 (Land Identification Number 1) consists of 7.0 m of a 2000 mm dia. CSP with concrete bag headwalls and is located at Station 0+135. The pipe is in very poor condition. The pipe is to be replaced under this report with 10.5 m of 2200 mm dia. CSP culvert to account for the minimum top width of 8.5 m with concrete block end walls. The landowner has requested the access be moved to the southerly limit of his farm at Station 0+258.

Culvert 2 – The culvert located on the Charles Shepley Main Drain in Pt. of the Lot 101, Concession 9 (Land Identification Number 2) consists of 7.0 m of a 2400 mm X 2400 mm concrete box culvert. The culvert immediately upstream is a 1600 mm dia. CSP and the culvert downstream is a 2000mm dia. CSP. The concrete box culvert is in good condition. In the future, the culvert will be replaced with a 2400 mm X 2400 mm concrete box culvert of similar length unless the approval authorities permit an equivalent CSPA or a smaller 2200 mm dia. CSP since the flows are governed by both the upstream and downstream culverts. The replacement culvert can be lengthened to 10.5 m to account for the minimum top width of 8.5 m with concrete block end walls.

Culvert 3 – The culvert located on the Charles Shepley Main Drain in Pt. of the Lot 102, Concession 9 (Land Identification Number 6) consists of 8.0 m of a 1200 mm CSP with concrete bag headwalls. The pipe is in very poor condition. The pipe is to be replaced under this report with 12 m of 1600 mm dia. CSP culvert to account for the minimum top width of 8.5 m with concrete block end walls.

Culvert 4 – The culvert located on the Charles Shepley Main Drain in Pt. of the Lot 102, Concession 9 (Land Identification Number 8) consists of 6.0 m of a 1200 mm CSP with concrete bag headwalls. The pipe is in poor condition. In the future the pipe shall be replaced with 10.5 m of 1600 mm dia. CSP culvert to account for the minimum top width of 8.5 m with concrete block end walls.

Culvert 5 – The culvert is located on the Charles Shepley Main Drain in the Malden Colchester South Townline road Allowances and consists of 28 m of a 2200 mm CSP with rip rap end protection. The pipe is in good condition. In the future the culvert shall be replaced with 28.0 m of 2200 mm dia. CSP with rip rap end protection.

Culvert 6 – The culvert is located on the Charles Shepley Main Drain in Pt. of the Lot 2, Concession 3 (Land Identification Number 22) consists of 18.0 m of a 1200 mm concrete pipe with rip rap end walls. The pipe is in good condition. In the future the pipe shall be replaced with 18.0 m of 1400 mm dia. CSP culvert to account for the minimum top width of 8.5 m, 5.0 m lawn enclosure with rip rap end protection.

Culvert 7 – The culvert is located on the Charles Shepley Main Drain in Pt. of the Lot 1, Concession 3 (Land Identification Number 21) consists of 8.0 m of a 900 mm CSP pipe with rip rap end walls. The pipe is in good condition. In the future the pipe shall be replaced with 103.0 m of 1000 mm dia. CSP culvert to account for the minimum top width of 8.5 m with concrete block end walls.

Culvert 8 – The culvert is located on the Charles Shepley Branch Drain in Pt. of the South ½ of Lot 102 Concession 8 (Land Identification Number 8) is 10.0 m in length and consists of a CSP culvert with 760 mm dia. High Density Polyethylene (HDPE) culvert extensions. The culvert is in poor condition and is perched. In the future the pipe shall be replaced with 10.5 m of 750 mm dia. HDPE culvert to account for the minimum top width of 6.0 m with rip rap end protection.

Culvert 9 – The culvert is located on the Charles Shepley Branch Drain in Pt. of Lot 100 Concession 9 (Land Identification Number 7) consists of 6.0 m of a 400 mm CSP pipe. In the future the pipe shall be replaced with 10.0 m of 450 mm dia. HDPE pipe culvert to account for the minimum top width of 6.0 m with rip rap end protection.

Farm Access (Station 3+389) – The culvert is located on the Charles Shepley Main Drain in Pt. of the Lot 1, Concession 3 (Land Identification Number 20) consists of 2.0 m of a 900 mm CSP culvert with concrete bag headwalls. The pipe is very short and will be removed under this report and the affected lands will be accessed by a new access at Station 3+786. The new access is at the top end of the drain and will included filling in the existing ditch since a culvert is not required. No subsurface drainage was observed during the survey. Once the access is constructed the portion of the drain between Station 3+780 and 3+810 shall be abandoned as it is not longer required.

Farm Access (4+684) – The culvert is located on the Charles Shepley Branch Drain at Station 4+684 on the plan. The culvert provides access across the drain for the land identified with the Land Identification Number 7 (Part of Lot 100 Concession 9, Town of Amherstburg). The culvert is considered a secondary culvert and will be removed from the drain when maintenance is competed on the drain by the Landowner or the Contractor retained to complete maintenance.

Recommendations

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

1. Remove the culvert at Station 0+135 and restore the crossing to its design cross section complete with the placement of topsoil and seed on all disturbed areas including the bank.
2. Install a new access culvert, Culvert 1 in Pt. of the Lot 100, Concession 9 (Land Identification Number 1) with 10.5 m of 2200 mm dia. corrugated steel pipe culvert with concrete block end walls.
3. Remove and replace Culvert 3 in Pt. of the Lot 102, Concession 9 (Land Identification Number 6) with 12 m of 1600 mm dia. corrugated steel pipe culvert concrete block end walls.
4. Remove the culvert at Station 3+389 and restore the crossing to its design cross section complete with the placement of topsoil and seed on all disturbed areas including the bank.

5. Construct a new access at Station 3+786 by filling in the ditch. A culvert is not required at this location. Once the access is constructed the portion of the drain between Station 3+780 and 3+810 shall be abandoned as it is not longer required.

Estimate of Cost

It is recommended that the work be carried out in accordance with the accompanying Specification of Work and the profile, which form part of this Report. There has been prepared an Estimate of Cost in the amount of \$73,336.00, including the cost of engineering. A plan has been prepared showing the location of the work and the approximate drainage area.

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 lands and roads affected by the work and therefore liable for the cost thereof has been prepared as per the Drainage Act. Any affected public utility or road authority shall be assessed, as per Section 26 of the Drainage Act, any increased costs for the removal or relocation of any of its facilities and plant that may be necessitated by construction or future maintenance and repair work. 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. Items to be assessed under Section 26 shall be tendered separately with the actual cost plus a portion of the engineering (25% of the cost).

1. Culvert 1 has been assessed with 41% of the cost applied as benefit assessment to the landowner of the property and the remainder of the cost assessed as an outlet assessment on upstream lands and roads based on equivalent hectares.
2. Culvert 3 has been assessed with 8.5 metres of the culvert and concrete block end walls assessed with 51% of the cost applied as benefit assessment to the landowner of the property and the remainder of the cost assessed as an outlet assessment on upstream lands and roads based on equivalent hectares. The remainder of the costs has been assessed as a benefit assessment to the landowner of the property for the additional length of culvert beyond the 8.5 m standard access top width.
3. Farm Access (Station 3+786) has been assessed with 9.5 metres of the ditch infilling and end protection assessed with 62% of the cost applied as benefit assessment to the landowner of the property and the remainder of the cost assessed as an outlet assessment on upstream lands and roads based on equivalent hectares. The remainder of the ditch that is filled in has been assessed as a benefit assessment to the landowner of the property for the additional length of infilling beyond the 8.5 m standard access top width.
4. Future culvert replacement engineering costs have generally been assessed as follows:

Description	Benefit Assessment Landowner(s)	Outlet Assessment
Culvert 2	41%	59%
Culvert 4	51%	49%
Culvert 5	100%	
Culvert 6	58%	42%
Culvert 7	62%	38%
Culvert 8	78%	22%
Culvert 9	50%	50%

The outlet portion of the assessment is assessed to upstream lands and roads based on equivalent hectares.

5. Updating the Maintenance Schedules for each drain has been assessed with 100% of the costs applied as an outlet assessment on upstream lands and roads based on equivalent hectares.

The report includes the following Schedules of Assessments tables.

Schedule of Assessment – Charles Shepley Main Drain

The Schedule of Assessment includes the removal of existing culverts at Station 0+135 and Station 3+389, the installation of Culvert 1 at Station 0+258, installation of Culvert 3 at Station 1+153, construction of the access at Station 3+786, future culvert engineering costs, updating the Schedule of Maintenance and updating the Main Drain specifications.

Schedule of Assessment – Charles Shepley Branch Drain

The Schedule of Assessment includes future culvert engineering costs, updating the Schedule of Maintenance and updating the Branch Drain specifications.

Composite Schedule of Assessment – Charles Shepley Main and Branch Drains

The Composite Schedule of Assessment is a summary of total assessment and is calculated by combining each landowner's assessment from the Main Drain and Branch Drain.

Allowances

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

Access and Working Area

Access to the work site shall be gained from road allowances when possible, along existing private lanes and along the fence lines. Access to the drainage works shall be supplied through each property. Access to the working area along the private lanes and fence lines shall be restricted to a width of 6.0 m.

The working area shall be on the same side of the drain on which the excavated material is disposed of. The working corridor is 10.0 m. The working corridor will be measured from the adjacent finished top of bank.

Access for culvert installation or replacements shall be from the property which the culvert is located in. The access shall be along the property line or as agreed to by the landowner. When possible, maintenance should be completed when crops are off.

The working area around culverts shall extend to 12m from the adjacent finished top of bank on each side of the drain for a distance of 20.0 m upstream and downstream of the culvert.

The excavated earth from Station 0+000 to Station 1+813 shall be cast onto the adjacent lands to the west. From Station 1+813 to 3+786 the excavated material shall be cast onto the adjacent lands to the east and south. When a drain passes in front of any house, lawn, garden driveway orchard etc. the excavated material shall be hauled away and spread upon the adjoining lands or as directed by the Drainage Superintendent. The Contractor will to be required to haul material more than 150m.

The excavated earth from Station 4+000 to Station 4+684 (Charles Shepley Branch Drain) shall be cast onto the adjacent lands to the south. From Station 4+684 to 4+983 the excavated material shall be cast onto the adjacent lands to the east.

Restrictions

No trees and shrubs shall be planted nor shall permanent structures be erected within 10 m of either side of the proposed drain without prior written permission of Council. If trees are planted that interfere with access for future maintenance of the drainage works, they shall be removed at the expense of the landowner.

Attention is also drawn to Sections 80 and 82 of the Drainage Act that refers to the obstruction of a drainage works.

Agricultural Grant

Agricultural Grants are determined by OMAFRA's ADIP policies and are not included in this report. It is recommended that application for subsidy be made for eligible agricultural properties be made on behalf of the eligible Landowners. Any assessments against non agricultural properties are shown separately in the Schedule of Assessment. R. Dobbin Engineering Inc. contacted the landowner who will be assessed a benefit on Culvert 8 and informed them the culvert may not be eligible for grant. The Culvert 8 assessments reflect this assumption.

Maintenance

Upon completion of the work, the open channel drainage works shall be maintained as per the applicable Schedules of Maintenance and the specifications enclosed with this report unless otherwise altered under the provisions of the Drainage Act or as outlined below.

Schedule of Maintenance Charles Shepley Main Drain – Section 1

This Schedule of Maintenance includes the work completed between Station 0+000 (Outlet to the Long Marsh Drain) and to Station 1+824 (4th Concession Road). Culverts are to be maintained in accordance with the following culvert maintenance table.

Schedule of Maintenance Charles Shepley Main Drain – Section 2

This Schedule of Maintenance includes the work completed between Station 1+824 (Intersection of Smith Road and 4th Concession Road). Culverts are to be maintained in accordance with the following culvert maintenance table.

Schedule of Maintenance Charles Shepley Branch Drain – Section 1

This Schedule of Maintenance includes the work completed between Station 4+000 (Outlet to the Charles Shepley Main Drain) and to Station 4+990. Culverts are to be maintained in accordance with the following culvert maintenance table.

The standard culvert length for culverts that front onto road allowances shall be based on an 8.5 m top width plus the length required for concrete block end walls or rip rap end protection. The standard culvert length for all other culverts shall be based on a 6.0 m top width plus the length required for rip rap end protection. The rip rap shall be placed with a backslope of 1.5 H:1.0 V. If a landowner requests an additional length of culvert beyond the standard width the extra cost shall be borne by the landowner making the request including the future maintenance and repair.

The cost to maintain the standard culvert length shall be assessed as follows, cost beyond the standard length will be assessed to the benefiting landowner:

Culvert Maintenance Table

Station	Description	Benefiting Landowner(s)	Benefit Assessment Landowner(s)	Outlet Assessment
0+258	Culvert 1	1	41%	59%
0+450	Culvert 2	2	41%	59%
1+153	Culvert 3	6	51%	49%
1+236	Culvert 4	8	51%	49%
1+813	Culvert 5	Town of Amherstburg Town of Essex	50% 50%	
2+751	Culvert 6	22	58%	42%
3+025	Culvert 7	21	62%	38%
4+385	Culvert 8 - Removal of Private Culvert	5/8	50% Each	
4+385	Culvert 8 - Installation	5/8	39% Each	22%
4+684	Private Culvert	7	100%	
4+983	Culvert 9	7	50%	50%

Each property is allowed one access culvert for each municipal drain with any second culvert on the property maintained and repaired 100% by the landowner.

The report includes the following Schedules of Maintenance

These above conditions will apply unless otherwise altered under the provisions of the Drainage Act.

All of the above is submitted for your consideration.

Yours truly,


Jan 18, 2021
2019-1021

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



Charles Shepley Drain
 Town of Amherstburg
 January 18, 2021

ALLOWANCES

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

Conc.	Lot or part	Owner I.D. Number	Roll No.	Owner	Section 30 (\$)	Total (\$)
<u>Charles Shepley Main Drain</u>						
9	Pt Lot 100	1	560-03000	A. & K. Beetham	100	100
	Pt Lot 102	6	560-03400	P. McFadden & C. Beaune	100	100
3	Pt Lot 1	20	750-02000	Miller Cattle and Grain Ltd.	100	100
Total Allowances					\$ 300	\$ 300

Charles Shepley Drain
 Town of Amherstburg
 January 18, 2021

**ESTIMATE OF COST
 CHARLES SHEPLEY MAIN DRAIN & BRANCH DRAIN**

	Quantity	Unit	Material (\$)	Labour (\$)	Total (\$)
<hr/>					
<u>Main Drain</u>					
Allowances:					300
Culvert (Station 0+135)					
Removal of Existing 2000mm dia. CSP Structure and Headwalls and Restore Channel	1	L.S.	250	660	910
Culvert 2 (Station 0+258)					
Supply & Install 2200mm dia CSP c/w Bedding Material	11	m	6,006	4,400	
Supply and Install Backfill Material	100	t	1,000	1,120	
Granular 'A'	37	t	555	463	
Concrete Block End Walls	32	Blocks	2,560	1,600	
Restoration	1	LS	500	500	18,704
Culvert 3 (Station 1+153)					
Removal of Existing 1200mm dia. CSP Structure and Headwalls	1	L.S.	100	220	
Remove and Reinstall Mail Box	1	L.S.	-	250	
Supply & Install 1600mm dia CSP c/w Bedding Material	12.0	m	5,232	3,960	
Supply & Install Backfill Material	110	t	1,100	1,280	
Granular 'A'	40	t	600	500	
Concrete Block End Walls	32	Blocks	2,560	1,600	
Restoration	225	sq.m.	563	563	18,528

Estimate of Costs (cont'd)
(Charles Shepley Drain)

Page 2 of 2

	Quantity	Unit	Material	Labour	Total
Culvert (Station 3+389)					
Removal of Existing 900mm dia CSP Pedestrian Crossing Structure and Headwalls and Restore Channel	1	L.S.	100	220	320
Farm Assess 8 (Station 3+786)					
Strip Existing Ditch	1	L.S.	-	250	
Fill Ditch with Imported Material	61	t	458	305	
Granular 'A'	20	t	300	250	
Rip Rap	15	sq.m.	375	375	
Restoration	1	L.S.	250	250	2,813
Sub Total					41,575
Miscellaneous					2,048
Engineering					11,263
Future Culvert Engineering					6,500
Update Schedules					4,000
ERCA Fee					800
Estimated Cost Main Drain					\$ 66,186
Non-Recoverable HST (1.76%)					1,146
Total Estimated Cost Main Drain					\$ 67,332
Branch Drain					
Future Culvert Engineering					4,543
Update Schedules					1,357
Estimated Cost Branch Drain					\$ 5,900
Non-Recoverable HST (1.76%)					104
Total Estimated Cost Branch Drain					\$ 6,004
Total Estimate Charles Shepley Drain					\$ 73,336

Charles Shepley Drain
 Town of Amherstburg
 January 18, 2021

**SCHEDULE OF ASSESSMENT
 CHARLES SHEPLEY MAIN DRAIN**

For the removal of existing culverts at Station 0+135 and Station 3+389, the installation of Culvert 1 at Station 0+258, installation of Culvert 3 at Station 1+153, construction of the access at Station 3+786, future culvert engineering costs, updating the Schedule of Maintenance and updating the Main Drain specifications.

Conc.	Lot or Part	Affected Hect.	Roll No.	Owner I.D. Number	Owner	Special Benefit (\$)	Benefit (\$)	Outlet (\$)	Total (\$)
<u>Town of Amherstburg</u>									
3. <u>Municipal Lands</u>									
	Malden Colchester S. Townline	1.6			Town of Amherstburg	-	650	659	1,309
	Smith Road	1.8			Town of Amherstburg	-	-	738	738
						-	650	1,397	2,047
						-			
						650			
						1,397			
						2,047			
4. <u>Privately-Owned Non-Agricultural Lands</u>									
9	Pt Lot 101	1.0	560-03200	3	M. & A. Beetham	-	-	165	165
	Pt Lot 103	0.4	560-01601	9	S. & K. Klomp	-	-	110	110
						-	-	275	275
						-			
						-			
						275			
						275			

Conc.	Lot or Part	Affected Hect.	Roll No.	Owner I.D. Number	Owner	Special Benefit (\$)	Benefit (\$)	Outlet (\$)	Total (\$)
5. Privately-Owned Agricultural Lands (Eligible for Available Grants)									
9	Pt Lot 100	9.5	560-03000	1	A. & K. Beetham	-	10,555	204	10,759
	Pt Lot 101	13.5	560-03100	2	M. & A. Beetham	-	650	1,079	1,729
	Pt Lot 101	13.5	560-03300	4	M. & A. Beetham	-	-	1,114	1,114
	Pt Lot 102	19.4	560-01700	7	Grondin Farms Ltd	-	-	2,545	2,545
	Pt Lot 102	2.7	560-01850	5	Bonnefield Farmland Ontario	-	-	219	219
	Pt Lot 102	1.1	560-03400	6	P. McFadden & C. Beaune	-	14,140	87	14,227
	Pt Lot 102	16.0	560-03500	8	Bonnefield Farmland Ontario	-	-	2,116	2,116
	Pt Lot 103	28.7	560-01600	10	Grondin Farms Ltd	-	-	3,857	3,857
						-	25,345	11,221	36,566
Total - Special Benefit						-			
Total - Benefit						25,345			
Total - Outlet						11,221			
Total - Privately-Owned Agricultural Lands						36,566			
Total - Special Benefit						-			
Total - Benefit						25,995			
Total - Outlet						12,893			
Total - Town of Amherstburg						38,888			

Conc.	Lot or Part	Affected Hect.	Roll No.	Owner I.D. Number	Owner	Special Benefit (\$)	Benefit (\$)	Outlet (\$)	Total (\$)
<u>Town of Essex</u>									
3. <u>Municipal Lands</u>									
	Smith Road	0.7			Town of Essex	-	-	348	348
	Malden Colchester S. Townline	2.4			Town of Essex	-	650	2,093	2,743
	Malden Colchester Townline	0.1			Town of Essex	-	-	200	200
						-	650	2,641	3,291
						-			
						-			
						650			
						2,641			
						3,291			
4. <u>Privately-Owned Non-Agricultural Lands</u>									
3	Pt Lot 1	0.4	750-02002	19	R. & M. Ferriss	-	-	359	359
	Pt Lot 2	0.3	750-02610	25	J. & A. Brush	-	-	78	78
	Pt Lot 3	2.9	750-02300	30	K. Pritchard & L. Roessler-Pritchar	-	-	389	389
	Pt Lot 3	0.4	750-02405	34	A. Liser & M. Sahinidis	-	-	116	116
	Pt Lot 3	0.2	750-02410	33	L. Pillon	-	-	46	46
	Pt Lot 3	1.6	750-02415	32	K. Kimball	-	-	420	420
	Pt Lot 3	0.8	750-02420	35	K. Kimball	-	-	205	205
	Pt Lot 3	0.7	750-02500	29	M. Heleeji	-	-	186	186
	Pt Lot 3	0.2	700-02590	28	R. & C. Shaw	-	-	54	54
	Pt Lot 3	0.4	750-02601	27	F. Randall & J. Cooke	-	-	119	119
4	Pt Lot 3	1.9	740-01100	18	H. Hepner	-	-	295	295
	Pt Lot 3	0.4	740-01200	17	S. Scurk	-	-	116	116
						-	-	2,383	2,383
						-			
						-			
						2,383			
						2,383			

Conc.	Lot or Part	Affected Hect.	Roll No.	Owner I.D. Number	Owner	Special Benefit (\$)	Benefit (\$)	Outlet (\$)	Total (\$)
<u>5. Privately-Owned Agricultural Lands (Eligible for Available Grants)</u>									
3	Pt Lot 1	13.8	750-02000	20	Miller Cattle and Grain Ltd.	-	2,950	2,567	5,517
	Pt Lot 1	12.2	750-02100	21	S. Zavaros	-	650	1,865	2,515
	Pt Lot 2	19.7	750-02200	22	B. & N. Gorski	-	650	2,658	3,308
	Pt Lot 3	13.1	750-02400	31	P. Rupert	-	-	1,764	1,764
	Pt Lot 3	18.5	750-02600	26	J. Grondin	-	-	2,487	2,487
	Pt Lot 2	38.3	750-02700	24	J. & A. Brush	-	-	5,161	5,161
	Pt Lot 2	6.1	750-02900	23	L. McLean	-	-	817	817
4	Pt Lot 3	9.3	740-01300	16	J. Drouillard	-	-	1,201	1,201
						-	4,250	18,520	22,770
Total - Special Benefit						-			
Total - Benefit						4,250			
Total - Outlet						18,520			
Total - Privately-Owned Agricultural Lands						22,770			
Total - Special Benefit						-			
Total - Benefit						4,900			
Total - Outlet						23,544			
Total - Town of Essex						28,444			
Total - Town of Essex						28,444			
Total - Town of Amherstburg						38,888			
Total - Assessment						\$ 67,332			

Charles Shepley Drain
 Town of Amherstburg
 January 18, 2021

SCHEDULE OF ASSESSMENT
CHARLES SHEPLEY BRANCH DRAIN

For the future culvert engineering costs, updating the Schedule of Maintenance and updating the Branch Drain specifications.

Conc.	Lot or Part	Affected Hect.	Roll No.	Owner I.D. Number	Owner	Special Benefit (\$)	Benefit (\$)	Outlet (\$)	Total (\$)
<u>Town of Amherstburg</u>									
5. <u>Privately-Owned Agricultural Lands (Eligible for Available Grants)</u>									
9	Pt Lot 102	19.4	560-01700	7	Grondin Farms Ltd	-	1,300	1,505	2,805
	Pt Lot 102	2.7	560-01850	5	Bonnefield Farmland Ontario	-	761	-	761
	Pt Lot 102	12.0	560-03500	8	Bonnefield Farmland Ontario	-	761	712	1,473
	Pt Lot 103	4.1	560-01600	10	Grondin Farms Ltd	-	-	965	965
						-	2,822	3,182	6,004
Total - Special Benefit						-			
Total - Benefit						2,822			
Total - Outlet						3,182			
Total - Privately-Owned Agricultural Lands						6,004			
Total Assessment						\$	6,004		

Charles Shepley Drain
Town of Amherstburg
January 18, 2021

COMPOSITE SCHEDULE OF ASSESSMENT
CHARLES SHEPLEY MAIN DRAIN & CHARLES SHEPLEY BRANCH DRAIN

The Composite Schedule of Assessment is a summary of total assessment and is calculated by combining each landowner's assessment from the Main Drain and Branch Drain.

Conc.	Lot or Part	Affected Hect.	Roll No.	Owner I.D. Number	Owner	Special Benefit (\$)	Benefit (\$)	Outlet (\$)	Total (\$)
<u>Town of Amherstburg</u>									
<u>3. Municipal Lands</u>									
	Malden Colchester S. Townline	1.6			Town of Amherstburg	-	650	659	1,309
	Smith Road	1.8			Town of Amherstburg	-	-	738	738
						-	650	1,397	2,047
		Total - Special Benefit				-			
		Total - Benefit				650			
		Total - Outlet				1,397			
		Total - Municipal Lands				2,047			
<u>4. Privately-Owned Non-Agricultural Lands</u>									
9	Pt Lot 101	1.0	560-03200	3	M. & A. Beetham	-	-	165	165
	Pt Lot 103	0.4	560-01601	9	S. & K. Klomp	-	-	110	110
						-	-	275	275
		Total - Special Benefit				-			
		Total - Benefit				-			
		Total - Outlet				275			
		Total - Privately-Owned Non-Agricultural Lands				275			

Conc.	Lot or Part	Affected Hect.	Roll No.	Owner I.D. Number	Owner	Special Benefit (\$)	Benefit (\$)	Outlet (\$)	Total (\$)
<u>5. Privately-Owned Agricultural Lands (Eligible for Available Grants)</u>									
9	Pt Lot 100	9.5	560-03000	1	A. & K. Beetham	-	10,555	204	10,759
	Pt Lot 101	13.5	560-03100	2	M. & A. Beetham	-	650	1,079	1,729
	Pt Lot 101	13.5	560-03300	4	M. & A. Beetham	-	-	1,114	1,114
	Pt Lot 102	19.4	560-01700	7	Grondin Farms Ltd	-	1,300	4,050	5,350
	Pt Lot 102	2.7	560-01850	5	Bonnefield Farmland Ontario	-	761	219	980
	Pt Lot 102	1.1	560-03400	6	P. McFadden & C. Beaune	-	14,140	87	14,227
	Pt Lot 102	16.0	560-03500	8	Bonnefield Farmland Ontario	-	761	2,828	3,589
	Pt Lot 103	28.7	560-01600	10	Grondin Farms Ltd	-	-	4,822	4,822
						-	28,167	14,403	42,570
Total - Special Benefit						-			
Total - Benefit						28,167			
Total - Outlet						14,403			
Total - Privately-Owned Agricultural Lands						42,570			
Total - Special Benefit						-			
Total - Benefit						28,817			
Total - Outlet						16,075			
Total - Town of Amherstburg						44,892			

Conc.	Lot or Part	Affected Hect.	Roll No.	Owner I.D. Number	Owner	Special Benefit (\$)	Benefit (\$)	Outlet (\$)	Total (\$)
<u>Town of Essex</u>									
<u>3. Municipal Lands</u>									
	Smith Road	0.7			Town of Essex	-	-	348	348
	Malden Colchester S. Townline	2.4			Town of Essex	-	650	2,093	2,743
	Malden Colchester Townline	0.1			Town of Essex	-	-	200	200
						-	650	2,641	3,291
		Total - Special Benefit				-			
		Total - Benefit				650			
		Total - Outlet				2,641			
		Total - Municipal Lands				3,291			
<u>4. Privately-Owned Non-Agricultural Lands</u>									
3	Pt Lot 1	0.4	750-02002	19	R. & M. Ferriss	-	-	359	359
	Pt Lot 2	0.3	750-02610	25	J. & A. Brush	-	-	78	78
	Pt Lot 3	2.9	750-02300	30	K. Pritchard & L. Roessler-Pritchar	-	-	389	389
	Pt Lot 3	0.4	750-02405	34	A. Liser & M. Sahinidis	-	-	116	116
	Pt Lot 3	0.2	750-02410	33	L. Pillon	-	-	46	46
	Pt Lot 3	1.6	750-02415	32	K. Kimball	-	-	420	420
	Pt Lot 3	0.8	750-02420	35	K. Kimball	-	-	205	205
	Pt Lot 3	0.7	750-02500	29	M. Heleeji	-	-	186	186
	Pt Lot 3	0.2	700-02590	28	R. & C. Shaw	-	-	54	54
	Pt Lot 3	0.4	750-02601	27	F. Randall & J. Cooke	-	-	119	119
4	Pt Lot 3	1.9	740-01100	18	H. Hepner	-	-	295	295
	Pt Lot 3	0.4	740-01200	17	S. Scurk	-	-	116	116
						-	-	2,383	2,383
		Total - Special Benefit				-			
		Total - Benefit				-			
		Total - Outlet				2,383			
		Total - Privately-Owned Non-Agricultural Lands				2,383			

Conc.	Lot or Part	Affected Hect.	Roll No.	Owner I.D. Number	Owner	Special Benefit (\$)	Benefit (\$)	Outlet (\$)	Total (\$)
<u>5. Privately-Owned Agricultural Lands (Eligible for Available Grants)</u>									
3	Pt Lot 1	13.8	750-02000	20	Miller Cattle and Grain Ltd.	-	2,950	2,567	5,517
	Pt Lot 1	12.2	750-02100	21	S. Zavaros	-	650	1,865	2,515
	Pt Lot 2	19.7	750-02200	22	B. & N. Gorski	-	650	2,658	3,308
	Pt Lot 3	13.1	750-02400	31	P. Rupert	-	-	1,764	1,764
	Pt Lot 3	18.5	750-02600	26	J. Grondin	-	-	2,487	2,487
	Pt Lot 2	38.3	750-02700	24	J. & A. Brush	-	-	5,161	5,161
	Pt Lot 2	6.1	750-02900	23	L. McLean	-	-	817	817
4	Pt Lot 3	9.3	740-01300	16	J. Drouillard	-	-	1,201	1,201
						-	4,250	18,520	22,770
Total - Special Benefit						-			
Total - Benefit						4,250			
Total - Outlet						18,520			
Total - Privately-Owned Agricultural Lands						22,770			
Total - Special Benefit						-			
Total - Benefit						4,900			
Total - Outlet						23,544			
Total - Town of Essex						28,444			
Total - Town of Essex						28,444			
Total - Town of Amherstburg						44,892			
Total - Assessment						\$ 73,336			

Charles Shepley Drain
Town of Amherstburg
January 18, 2021

**SCHEDULE OF MAINTENANCE - CHARLES SHEPLEY MAIN DRAIN
SECTION 1 - STATION 0+000 TO STATION 1+824**

For maintaining the open channel section of the Charles Shepley Drain between 0+000 (Outlet to the Long Marsh Drain) and Station 1+824 (4th Concession Road). The culverts are to be maintained in accordance with the culvert maintenance table in the maintenance section of the Report.

Conc.	Lot or Part	Affected Hect.	Roll No.	Owner I.D. Number	Owner	Benefit (\$)	Outlet (\$)	Total (\$)
<u>Town of Amherstburg</u>								
3. <u>Municipal Lands</u>								
	Malden Colchester S. Townline	1.6			Town of Amherstburg	-	99	99
	Smith Road	1.8			Town of Amherstburg	2,250	57	2,307
4. <u>Privately-Owned Non-Agricultural Lands</u>								
9	Pt Lot 101	1.0	560-03200	3	M. & A. Beetham	31	9	40
	Pt Lot 103	0.4	560-01601	9	S. & K. Klomp	-	17	17
5. <u>Privately-Owned Agricultural Lands (Eligible for Available Grants)</u>								
9	Pt Lot 100	9.5	560-03000	1	A. & K. Beetham	307	-	307
	Pt Lot 101	13.5	560-03100	2	M. & A. Beetham	369	32	401
	Pt Lot 101	13.5	560-03300	4	M. & A. Beetham	400	74	474
	Pt Lot 102	19.4	560-01700	7	Grondin Farms Ltd	-	246	246
	Pt Lot 102	2.7	560-01850	5	Bonnefield Farmland Ontario	200	24	224
	Pt Lot 102	1.1	560-03400	6	P. McFadden & C. Beaune	229	11	240
	Pt Lot 102	16.0	560-03500	8	Bonnefield Farmland Ontario	370	203	573
	Pt Lot 103	28.7	560-01600	10	Grondin Farms Ltd	345	463	808
						<u>4,501</u>	<u>1,235</u>	<u>5,736</u>
Total - Benefit						4,501		
Total - Outlet						<u>1,235</u>		
Total - Town of Amherstburg						<u>5,736</u>		

Schedule of Maintenance Charles Shepley Main Drain (cont'd)
(Section 1 - Station 0+000 to Station 1+824)

Conc.	Lot or Part	Affected Hect.	Roll No.	Owner I.D. Number	Owner	Benefit (\$)	Outlet (\$)	Total (\$)
<u>Town of Essex</u>								
3. <u>Municipal Lands</u>								
	Malden Colchester S. Townline	2.4			Town of Essex	-	151	151
	Smith Road	0.7			Town of Essex	-	42	42
	Malden Colchester Townline	0.1			Town of Essex	-	10	10
4. <u>Privately-Owned Non-Agricultural Lands</u>								
3	Pt Lot 1	0.4	750-02002	19	R. & M. Ferriss	-	17	17
	Pt Lot 2	0.3	750-02610	25	J. & A. Brush	-	12	12
	Pt Lot 3	2.9	750-02300	30	K. Pritchard & L. Roessler-Pritchard	-	62	62
	Pt Lot 3	0.4	750-02405	34	A. Liser & M. Sahinidis	-	18	18
	Pt Lot 3	0.2	750-02410	33	L. Pillon	-	7	7
	Pt Lot 3	1.6	750-02415	32	K. Kimball	-	66	66
	Pt Lot 3	0.8	750-02420	35	K. Kimball	-	32	32
	Pt Lot 3	0.7	750-02500	29	M. Heleeji	-	29	29
	Pt Lot 3	0.2	700-02590	28	R. & C. Shaw	-	9	9
	Pt Lot 3	0.4	750-02601	27	F. Randall & J. Cooke	-	19	19
4	Pt Lot 3	1.9	740-01100	18	H. Hepner	-	41	41
	Pt Lot 3	0.4	740-01200	17	S. Scurk	-	13	13
5. <u>Privately-Owned Agricultural Lands (Eligible for Available Grants)</u>								
3	Pt Lot 1	13.8	750-02000	20	Miller Cattle and Grain Ltd.	-	294	294
	Pt Lot 1	12.2	750-02100	21	S. Zavaros	-	260	260
	Pt Lot 2	19.7	750-02200	22	B. & N. Gorski	-	420	420
	Pt Lot 3	13.1	750-02400	31	P. Rupert	-	279	279
	Pt Lot 3	18.5	750-02600	26	J. Grondin	-	393	393
	Pt Lot 2	38.3	750-02700	24	J. & A. Brush	-	815	815
	Pt Lot 2	6.1	750-02900	23	L. McLean	-	129	129
4	Pt Lot 3	9.3	740-01300	16	J. Drouillard	-	146	146
						-	3,264	3,264

Schedule of Maintenance Charles Shepley Main Drain (cont'd)
 (Section 1 - Station 0+000 to Station 1+824)

Conc.	Lot or Part	Affected Hect.	Roll No.	Owner I.D. Number	Owner	Benefit (\$)	Outlet (\$)	Total (\$)
Total - Benefit						-		
Total - Outlet						3,264		
Total - Town of Essex						3,264		
Total - Town of Amherstburg						5,736		
Total - Town of Essex						3,264		
Total Assessment						\$ 9,000		

Charles Shepley Drain
Town of Amherstburg
January 18, 2021

**SCHEDULE OF MAINTENANCE - CHARLES SHEPLEY MAIN DRAIN
SECTION 2 - STATION 1+824 TO STATION 3+800**

For maintaining the section of the Charles Shepley Drain between Station 1+824 (Intersection of Smith Road and 4th Concession Road).
The culverts are to be maintained in accordance with the culvert maintenance table in the maintenance section of the Report.

Conc.	Lot or Part	Affected Hect.	Roll No.	Owner I.D. Number	Owner	Benefit (\$)	Outlet (\$)	Total (\$)
<u>Town of Amherstburg</u>								
3. <u>Municipal Lands</u>								
	Malden Colchester S. Townline	1.6			Town of Amherstburg	-	77	77
4. <u>Privately-Owned Non-Agricultural Lands</u>								
9	Pt Lot 103	0.4	560-01601	9	S. & K. Klomp	-	45	45
						-	122	122
		Total - Benefit				-		
		Total - Outlet				122		
		Total - Town of Amherstburg				122		
<u>Town of Essex</u>								
3. <u>Municipal Lands</u>								
	Malden Colchester S. Townline	2.4			Town of Essex	2,355	269	2,624
	Malden Colchester Townline	0.1			Town of Essex	213	601	814
4. <u>Privately-Owned Non-Agricultural Lands</u>								
3	Pt Lot 1	0.4	750-02002	19	R. & M. Ferriss	-	1,292	1,292
	Pt Lot 2	0.3	750-02610	25	J. & A. Brush	-	5	5
	Pt Lot 3	2.9	750-02300	30	K. Pritchard & L. Roessler-Pritchard	213	-	213
	Pt Lot 3	0.7	750-02500	29	M. Heleeji	-	5	5
	Pt Lot 3	0.2	700-02590	28	R. & C. Shaw	-	1	1
	Pt Lot 3	0.4	750-02601	27	F. Randall & J. Cooke	-	3	3

Schedule of Maintenance Charles Shepley Main Drain (cont'd)
(Section 2 - Station 1+824 to Station 3+800)

Conc.	Lot or Part	Affected Hect.	Roll No.	Owner I.D. Number	Owner	Benefit (\$)	Outlet (\$)	Total (\$)
<u>5. Privately-Owned Agricultural Lands (Eligible for Available Grants)</u>								
3	Pt Lot 1	13.8	750-02000	20	Miller Cattle and Grain Ltd.	800	1,023	1,823
	Pt Lot 1	12.2	750-02100	21	S. Zavaros	163	676	839
	Pt Lot 2	19.7	750-02200	22	B. & N. Gorski	469	506	975
	Pt Lot 2	38.3	750-02700	24	J. & A. Brush	475	309	784
	Pt Lot 2	6.1	750-02900	23	L. McLean	-	49	49
	Pt Lot 3	18.5	750-02600	26	J. Grondin	238	63	301
						<u>4,926</u>	<u>4,802</u>	<u>9,728</u>
Total - Benefit						4,926		
Total - Outlet						<u>4,802</u>		
Total - Town of Essex						9,728		
Total - Town of Amherstburg						122		
Total - Town of Essex						<u>9,728</u>		
Total Assessment						<u>\$ 9,850</u>		

Charles Shepley Branch Drain
 Town of Amherstburg
 January 18, 2021

**SCHEDULE OF MAINTENANCE - CHARLES SHEPLEY BRANCH DRAIN
 SECTION 1 - STATION 4+000 TO STATION 4+990**

For maintaining the section of the Charles Shepley Branch Drain between 4+000 (Outlet to the Charles Shepley Drain) and Station 4+990. The culverts are to be maintained in accordance with the culvert maintenance table in the maintenance section of the Report.

Conc.	Lot or Part	Affected Hect.	Roll No.	Owner I.D. Number	Owner	Benefit (\$)	Outlet (\$)	Total (\$)
<u>Town of Amherstburg</u>								
<u>5. Privately-Owned Agricultural Lands (Eligible for Available Grants)</u>								
9	Pt Lot 102	19.4	560-01700	7	Grondin Farms Ltd	765	1,414	2,179
	Pt Lot 102	12.0	560-03500	8	Bonnefield Farmland Ontario	1,710	-	1,710
	Pt Lot 103	4.1	560-01600	10	Grondin Farms Ltd	-	1,061	1,061
						<hr/> 2,475	<hr/> 2,475	<hr/> 4,950
Total - Benefit						2,475		
Total - Outlet						2,475		
Total Assessment						<hr/> \$ 4,950		

Charles Shepley Main Drain and
Charles Shepley Branch Drain
Town of Amherstburg
January 18, 2021

SPECIFICATION OF WORK

1. Scope of Work

The work to be included in this specification includes the removal and replacement access culverts and drain maintenances.

2. 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 the 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 be responsible for the notification of all utilities prior to the start of construction.

3. Plans and Specifications

These specifications shall apply and be part of the contract along with the General Specifications for Open Drains. This specification of work shall take precedence over all plans and general conditions pertaining to the contract. The Contractor shall provide all labour, equipment, and supervision necessary to complete the work as shown in the plans and described in these specifications. Any work not described in these specifications shall be completed according to the applicable Ontario Provincial Standard Specifications and Standard Drawings.

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 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.

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

5. Workplace Safety and Insurance Board

Upon award of the contract and prior to commencement of work, the Contractor shall furnish the Town of Amherstburg with a satisfactory Certificate of Insurance (COI) containing the information below, for the period of the execution of the work:

- i. A Commercial General Liability (CGL) policy that shall be not less than 5 million dollars per occurrence.
- ii. The CGL policy shall include bodily injury including death, personal injury, property damage, tenants legal liability, non-owned automobile and contain a cross liability/severability of interest clause. The certificate must also include acknowledgement that coverage under the policy specifically extends to the works in question. The COI shall name the Town of Amherstburg as additional insured to the policy.

- iii. The CGL policy shall not contain any exclusion or limitation in respect to shoring, underpinning, raising or demolition of any building or structure, pile driving, caisson work, collapse of any structure or subsidence of any property, structure or land from any cause.
- iv. The Contractor shall note that where construction works are performed within lands owned by the County of Essex or Ministry of Transportation the CGL policy shall also name the County of Essex and/or the Ministry of Transportation as additional insured to the policy.
- v. The liability insurance shall be endorsed to provide that the policy shall not be altered, cancelled or allowed to lapse without 30 days prior written notice to the Town of Amherstburg.

6. MNRF Drain Registration

The Contractor is advised that the Town of Amherstburg has conducted an "Endangered Species Act Review" and has registered its 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.

7. Benchmarks

The benchmarks are based on geodetic elevations. The benchmark information is available on the plan and profile drawings.

8. Access and Working Area

Access to the work site shall be gained from road allowances when possible, along existing private lanes and along the fence lines. Access to the drainage works shall be supplied through each property. Access to the working area along the private lanes and fence lines shall be restricted to a width of 6 m.

The working area shall be on the same side of the drain on which the excavated material is disposed of. The working corridor is 10.0 m. The working corridor will be measured from the adjacent finished top of bank.

Access for culvert installation or replacements shall be from the property which the culvert is located in. The access shall be along the property line or as agreed to by the landowner. When possible, maintenance should be completed when crops are off.

The working area around culverts shall extend to 12m from the adjacent finished top of bank on each side of the drain for a distance of 20.0 m upstream and downstream of the culvert.

The excavated earth from Station 0+000 to Station 1+813 shall be cast onto the adjacent lands to the west. From Station 1+813 to 3+786 the excavated material shall be cast onto the adjacent lands to the east and south. When a drain passes in front of any house, lawn, garden driveway orchard etc. the excavated material shall be hauled away and spread upon the adjoining lands or as directed by the Drainage Superintendent. The Contractor will to be required to haul material more than 150m.

The excavated earth from Station 4+000 to Station 4+684 shall be cast onto the adjacent lands to the south. From Station 4+684 to 4+983 the excavated material shall be cast onto the adjacent lands to the east.

9. Removal of Existing Access Culverts

The existing access culverts shall be removed in their entirety from the open channel. The steel culvert, concrete rubble and excavated material shall be disposed offsite at the expense of the Contractor.

When mailboxes or 911 signs need to be removed to facilitate construction, the Contractor shall remove, store and reinstall them for the duration of the culvert installation. The mailbox or sign shall be reinstalled to the existing conditions or better using the existing materials.

Removals in accordance with OPSS 511.

10. Brushing and Tree Removal

All brush, trees, woody vegetation, etc. shall be removed from the working area/allowance of the drain. Trees and brush shall be removed in their entirety including stumps and piled and burnt by the Contractor. Trees and brush on the side slopes shall be close cut.

Brush can be cut with a chainsaw. A mechanical tree shear mower can be used on brush smaller than 35 mm in diameter. The Contractor shall be responsible for obtaining all necessary burning permits.

Certain trees may be left in place at the direction of the Drainage Superintendent. Any trees to be salvaged by the individual landowners shall be removed by the landowners with all resulting brush and branches cleaned up prior to the start of construction. If the Contractor agrees to remove any trees and set them aside for a landowner, the landowner will be responsible for any cleanup as above.

Brushing and tree removal in accordance with OPSS 201.

11. Excavation of Channel

Channel works shall have a minimum of 1.5H:1V side slopes.

The side slopes of any disturbed areas shall be seeded as soon as the final grading is completed. 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.

Spoils shall be placed a minimum 1.5 m back from the top of the bank. The excavated material shall be placed and levelled to a maximum depth of 200 mm and shall not impede overland drainage or cultivation of the land using farm machinery. If the spoils have sub-soil in them, the topsoil shall be windrowed along the edge of the working corridor prior to placing the sub-soil. After the excavated material has been levelled, the topsoil shall be spread to its original depth and left in a condition suitable for cultivation.

If landowners request the spoils be disposed of outside the working area, a sign-off from the receiving property must be obtained. Costs associated with disposing of spoils outside the working area are the responsibility of the Contactor. No additional payment will be made for disposing of spoils outside the working area.

Excavation in accordance with OPSS 206.

Restoration shall be in accordance with the restoration specification.

12. Installation of Culvert

The Contractor shall supply, install, and backfill pipe culverts. High density polyethylene (HDPE) smooth wall pipe (320 kPa) for pipe culvert sizes 900 mm and smaller shall be Boss 2000 or approved equal with coupler joints. Corrugated Steel Pipe (CSP) culverts shall be aluminized CSP with a minimum wall thickness of 2.8 mm in all cases. All corrugation profiles shall be of helical lockseam manufacture using 68 mm x 13 mm corrugations for 1600 mm diameter pipe and smaller and 125 mm x 25 mm corrugations for 1800 mm diameter pipe and larger. Pipe with 125 mm x 25 mm corrugations shall be used if 68 mm x 13 mm corrugations are not available. Future culvert replacements shall be to the same specifications

The proposed access culvert shall be installed in the same general location as the existing culvert with the exception of Culvert 1 which will be relocated to the south property limit. The culvert shall be installed with the invert 10% (minimum 150 mm) below the proposed channel bottom elevation, as shown on the drawings. The location

of the culvert may be moved a short distance upstream or downstream if approved by the Drainage Superintendent or Engineer.

If a landowner requests a longer culvert than that specified above, please refer to the report.

The culvert length is based on using rip rap ends. If concrete block ends are to be utilized in the future, the culvert will be shortened the travelled portion plus the width of the concrete block headwalls. The culvert may be moved upstream or downstream as necessary to avoid existing tile outlets. If the pipes cannot be avoided, they shall be extended upstream or downstream of the proposed culvert and shall be done with non-perforated HDPE agricultural tubing with a manufactured coupling, elbow and rodent grate. Any tile outlets extended as a result of extra length requested by a landowner shall be extended at the landowner's expense.

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

Access culverts shall be backfilled from the springline to finished grade with free draining native material or Granular "B" to within 300 mm of finished grade. The top 300 mm shall be backfilled with compacted Granular "A" material to finished grade. If excavated material is found unsuitable for backfill purposes, then Granular 'B' material will be required as backfill at the expense of the drainage works.

Municipal road culverts shall be backfilled from the springline to finished grade with Granular "B" to within 500 mm of finished grade. The top 500 mm shall match the existing road base materials.

All granular bedding and backfill material shall be mechanically compacted to 95% standard proctor maximum dry density. The Granular "B" material shall be mechanically compacted to 98% standard proctor maximum dry density and the Granular "A" material shall be mechanically compacted to 100% standard proctor maximum dry density.

Rip rap ends are to be used with 1.5H:1V side slopes. The rip rap shall consist of 100 mm x 250 mm quarry stone or approved equal. The area to receive the rip rap shall be graded to a depth of 400 mm below finished grade. Filter fabric (Terrafix 270R 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 blocks are used the concrete blocks shall have dimensions of approx. 600 mm x 600 mm x 1200 mm, 600 mm x 600 mm x 2400 mm or 300 mm x 600 mm x 1200 mm as required. 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. 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 300 mm into each bank and shall extend into the drain bottom to match the pipe invert or below.

The blocks shall be placed over a layer of filter fabric (Terrafix 270R 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 endwall a finished appearance.

Excavation in accordance with OPSS 206.
Compaction in accordance with OPSS 501.
Granular in accordance with OPSS 1010.

13. Access at Station 3+786 (Access 8)

The Contractor will be required to remove any topsoil within the footprint of the access and stockpile it for restoration. Any existing tiles or culverts encountered during Construction shall be extended to the open channel at an expense to the drain. The drain shall be backfilled with imported fill to within 300 mm of finished grade. The top 300 mm shall be backfilled with compacted granular "A" material to finished grade.

All imported fill shall be mechanically compacted to 95% standard proctor maximum dry density. The Granular "A" material shall be mechanically compacted to 100% standard proctor maximum dry density.

Compaction in accordance with OPSS 501.
Granular in accordance with OPSS 1010.

14. Subsurface Drainage

All existing subsurface drains encountered during construction shall be reconnected to the open channel unless otherwise noted on the drawings or as directed by the Drainage Superintendent. The downstream end shall be plugged to the satisfaction of the Drainage Superintendent.

15. Trucking of Excavated Material

When a drain passes in front of any house, lawn, garden driveway orchard etc. the excavated material shall be loaded, hauled away and spread upon the adjoining lands or as directed by the Drainage Superintendent. The Contractor will to be required to haul material more than 150 m. The cost of trucking will form part of the drain maintenance cost and be assessed as per the Schedule of Maintenance.

If other agricultural landowners request the spoils be disposed of outside the working area, a sign-off from the receiving property must be obtained. Costs associated with disposing of spoils outside the working area are the responsibility of the Contactor. No additional payment will be made for disposing of spoils outside the working area.

16. Silt Fence

Light duty silt fencing shall be installed immediately downstream of any channel works or culvert replacements for the duration of construction. The silt fence shall consist of filter fabric or manufactured silt fence supported with posts.

The light duty silt fencing shall be supplied and installed in accordance with OPSS 577 and OPSD 219.110. The light duty silt fencing shall be removed once the disturbed area has been revegetated.

17. Restoration

Road restoration shall be in accordance with the following:

Disturbed areas within the road right-of-way shall be restored in accordance with 100 mm of native topsoil and seed. Topsoil in accordance with OPSS 802. Seed in accordance with OPSS 804.

Seeding Application rates are as follows:

- Primary seed (85 kg/ha.) consisting of 50% red fescue, 40% perennial ryegrass and 5% white clover.
- Nurse crop consisting of Italian (annual) ryegrass at 25% of total weight.

- Fertilizer (300 kg/ha.) consisting of 8-32-16.

18. Environmental Considerations

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

1. All excavated and stockpiled material shall be placed a minimum of 1.5 m from the top of the bank. Material shall not be placed in surface water runs or open inlets that enter the channel.
2. All granular and erosion control materials shall be stockpiled a minimum of 1.5 m from the top of the bank. Material shall not be placed in surface water runs or open inlets that enter the channel.
3. All activities, including maintenance procedures, shall be controlled to prevent the entry of petroleum products, debris, rubble, concrete, or other deleterious substances into the water. Vehicle and equipment refuelling and maintenance shall be conducted away from the channel, any surface water runs, or open inlets. All waste materials shall be stockpiled well back from the top of the bank and all surface water runs and open inlets that enter the drain.
4. All construction in the channel shall be carried out during periods of low flow. The Contractor shall maintain a dry working area during construction. A temporary dam consisting of excavated material shall be constructed upstream and downstream of the work area if working during low water flow. The temporary dams shall be covered with filter fabric or plastic that shall be anchored with rip rap material or broken concrete. Water shall be bailed and pumped from the work area to an area downstream of the temporary dam and upstream of the silt fence. Water will be controlled in the area between the two temporary dams for the duration of construction using pumps, if necessary.

After completion of the construction, the temporary dams and any collected sediment shall be removed. The final removal shall be the silt fence. By following the above procedure, the work should have little or no impact on the existing channel if carried out during low flows.

5. The Contractor shall take care to adhere to the following Best Management Practices prepared by the Department of Fisheries and Ocean.

a) Culvert Replacements in Municipal Drains (Appendix A)

6. The Contractor shall take care to familiarize them with the Town of Amherstburg's mitigation documents and species identification guidelines which will be provided to the successful bidder.

19. Culvert Maintenance

The Contractor shall be responsible for maintenance of the access culverts for a period of one year after their installation. This will include repairing any settlement areas on the travel surface with Granular "A".

20. Miscellaneous

Any subsurface drains encountered upstream of the culvert that conflict with the proposed culvert shall be extended to an outlet to the open channel to the approval of the Drainage Superintendent.

Any fences that must be removed to allow construction or maintenance shall be reinstalled by the Contractor using the existing materials.

The contractor may be required to work around utilities.

It is the landowner's responsibility to mark all tile and tile mains prior to maintenance being carried out.

APPENDIX A



Fisheries and Oceans
Canada

Ontario and Prairie Region
Fish and Fish Habitat Protection Program
867 Lakeshore Rd.
Burlington, ON
L7S 1A1

Pêches et Océans
Canada

Région de l'Ontario et des Prairies
Programme de protection du poisson et de son habitat
867 chemin Lakeshore
Burlington, ON
L7S 1A1

December 21, 2020

Our file *Notre référence*
20-HCAA-02438

Michael Gerrits
4218 Oil Heritage Road, P.O. Box 1928
Petrolia, ON N0N 1R0

Subject: Culvert Replacements, Charles Shepley Drain, Town of Amherstburg (20-HCAA-02438) – Implementation of Measures to Avoid and Mitigate the Potential for Prohibited Effects to Fish and Fish Habitat

Dear Michael Gerrits:

The Fish and Fish Habitat Protection Program (the Program) of Fisheries and Oceans Canada (DFO) received your proposal on November 27, 2020. We understand that you propose to:

- Remove existing 2m x 7m CSP culvert and install new 2.2m x 10.5m CSP culvert in a new location;
- Replace existing 1.2m x 8m CSP culvert with new 1.6m x 12m CSP culvert;
- Remove existing 900mm x 2m CSP culvert and infill approximately 9m of channel at the top end of the drain with riprap;
- Perform all activities in adherence to the [Best Management Practices-Culvert Replacements in Municipal Drains](#); and
- Restore any disturbed areas following work completion.

Our review considered the following information:

- Request for Review form and associated documents submitted on November 27, 2020.

Your proposal has been reviewed to determine whether it is likely to result in:

- the death of fish by means other than fishing and the harmful alteration, disruption or destruction of fish habitat which are prohibited under subsections 34.4(1) and 35(1) of the *Fisheries Act*; and
- effects to listed aquatic species at risk, any part of their critical habitat or the residences of their individuals in a manner which is prohibited under sections 32, 33 and subsection 58(1) of the *Species at Risk Act*.

The aforementioned impacts are prohibited unless authorized under their respective legislation and regulations.

To avoid and mitigate the potential for prohibited effects to fish and fish habitat (as listed above), we recommend implementing the measures listed below:

- Plan in-water works, undertakings and activities to respect [timing windows](#) to protect fish, including their eggs, juveniles, spawning adults and/or the organisms upon which they feed and migrate;
- Capture, relocate and monitor for fish trapped within isolated, enclosed, or dewatered areas;
- Conduct in-water undertakings and activities during periods of low water levels;
- Limit the duration of in-water works, undertakings and activities so that it does not diminish the ability of fish to carry out one or more of their life processes (spawning, rearing, feeding, migrating);
- Limit impacts on riparian vegetation to those approved for the work, undertaking or activity;
- Replace/restore any other disturbed habitat features and remediate any areas impacted by the work, undertaking or activity;
- Develop and implement an erosion and sediment control plan to avoid the introduction of sediment into any waterbody during all phases of the work, undertaking or activity;
 - Install effective erosion and sediment control measures prior to beginning work, undertaking or activity in order to stabilize all erodible and exposed areas;
 - Monitor the watercourse to observe signs of sedimentation during all phases of the work, undertaking or activity and take corrective action;
 - Schedule work to avoid wet, windy and rainy periods (and heed weather advisories) that may result in high flow volumes and/ or increase erosion and sedimentation;
 - Operate machinery on land in stable dry areas; and,
- Develop and implement a response plan to avoid a spill of deleterious substances

Provided that you incorporate these measures into your plans, the Program is of the view that your proposal will not require an authorization under the *Fisheries Act*, the *Aquatic Invasive Species Regulations* or the *Species at Risk Act*.

Should your plans change or if you have omitted some information in your proposal, further review by the Program may be required. Consult our website (<http://www.dfo-mpo.gc.ca/pnw-ppe/index-eng.html>) or consult with a qualified environmental consultant to determine if further review may be necessary. It remains your responsibility to remain in compliance with the *Fisheries Act* and the *Species at Risk Act*.

It is also your *Duty to Notify* DFO if you have caused, or are about to cause, the death of fish by means other than fishing and/or the harmful alteration, disruption or destruction of

fish habitat. Such notifications should be directed to (<http://www.dfo-mpo.gc.ca/pnw-ppe/CONTACT-eng.html>).

We recommend that you notify this office at least 10 days before starting your project and that a copy of this letter be kept on site while the work is in progress. It remains your responsibility to meet all other federal, territorial, provincial and municipal requirements that apply to your proposal.

If you have any questions with the content of this letter, please contact Kyle Mataya at Kyle.Mataya@dfo-mpo.gc.ca. Please refer to the file number referenced above when corresponding with the Program.

Yours sincerely,

A handwritten signature in blue ink, appearing to read 'K. Mataya', is positioned above the printed name.

Kyle Mataya
Biologist, Triage and Planning
Fish and Fish Habitat Protection Program

From: Ashley Gyori <AGyori@erca.org>
Sent: Wednesday, November 25, 2020 2:43 PM
To: mike@mgerritsconsulting.ca
Subject: RE: 2019-1021 Charles Shepley Drain Draft Pans (November 2, 2020), 2019-1021 Charles Shepley Drain Draft Report (November 2, 2020)
Attachments: ERCA Watershed Management Services 2020 Fee Schedule.pdf

Good afternoon,

We acknowledge receipt of the Draft Engineering Report and Plans for the proposed drainage works to the Charles Shepley Drain. We have reviewed the plans prepared by your office, Project No. 2019-1021, and have determined that the draft proposal satisfies this office's concerns with respect to Section 28 of the *Conservation Authorities Act*.

For this project to proceed, we will need a copy of the signed and sealed final drainage report and drawings and an ERCA application for permit form, completed by the municipality. Our office will invoice the Town of Amherstburg the application for permit fee of \$800.00 in accordance with Item 22 of the attached Board-approved Fee Schedule, upon issuance of the approval.

If you have any questions, please do not hesitate to contact me.

Kind regards,



ASHLEY GYORI
Regulations Analyst
Essex Region Conservation Authority
360 Fairview Avenue West, Suite 311 • Essex, Ontario • N8M 1Y6
P. 519-776-5209 x 247 • F. 519-776-8688
agyori@erca.org • essexregionconservation.ca

Please consider the environment before printing this email

This e-mail transmission is confidential and may contain proprietary information for the express use of the intended recipient. Any use, distribution or copying of this transmission, other than by the intended recipient, is strictly prohibited. If you are not the intended recipient, please notify us by telephone at the number above and arrange to return this transmission to us or destroy it.

Follow us on Twitter: @essexregionca

**** Please note that the ERCA office is closed to the public; however, staff are continuing to respond to inquiries and review applications in a modified capacity. We appreciate your understanding and patience at this time.****

-----Original Message-----

From: Dan Jenner <DJenner@erca.org>
Sent: Monday, November 9, 2020 7:30 AM
To: Ashley Gyori <AGyori@erca.org>
Subject: FW: 2019-1021 Charles Shepley Drain Draft Pans (November 2, 2020), 2019-1021 Charles Shepley Drain Draft Report (November 2, 2020)

DAN JENNER

Regulations Coordinator
Essex Region Conservation Authority
360 Fairview Avenue West, Suite 311 Essex, Ontario N8M 1Y6
P. 519-776-5209 x 359 F. 519-776-8688

djenner@erca.org essexregionconservation.ca Please consider the environment before printing this email This e-mail transmission is confidential and may contain proprietary information for the express use of the intended recipient. Any use, distribution or copying of this transmission, other than by the intended recipient, is strictly prohibited. If you are not the intended recipient, please notify us by telephone at the number above and arrange to return this transmission to us or destroy it. Follow us on Twitter: @essexregionca

****NOTE:** As per public health guidelines, our offices are closed to the public, but staff are working remotely to provide responses to inquiries and review applications as efficiently as possible. Your patience and understanding is greatly appreciated at this time. ******

-----Original Message-----

From: mike@mgerritsconsulting.ca <mike@mgerritsconsulting.ca>
Sent: Tuesday, November 3, 2020 9:16 AM
To: Dan Jenner <DJenner@erca.org>
Subject: 2019-1021 Charles Shepley Drain Draft Pans (November 2, 2020), 2019-1021 Charles Shepley Drain Draft Report (November 2, 2020)

Hello Dan,

Please review the report and forward any comments. We had some original comments from ERCA. If you would like I can send them to you. They said we had to consider ice damming and the 100 year flood levels. The culverts are equal or larger than the existing conditions. Please review the replacement spec for Culvert 2, it is a concrete box culvert however the culverts upstream and downstream are smaller csp's. In the future is it possible to replace the box culvert with a smaller CSP that matches the adjacent culverts.

Thanks

Mike

Best Management Practices – Culvert Replacements in Municipal Drains

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

Potential Impacts to Fish Habitat

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

Requirements

The following requirements must be met:

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

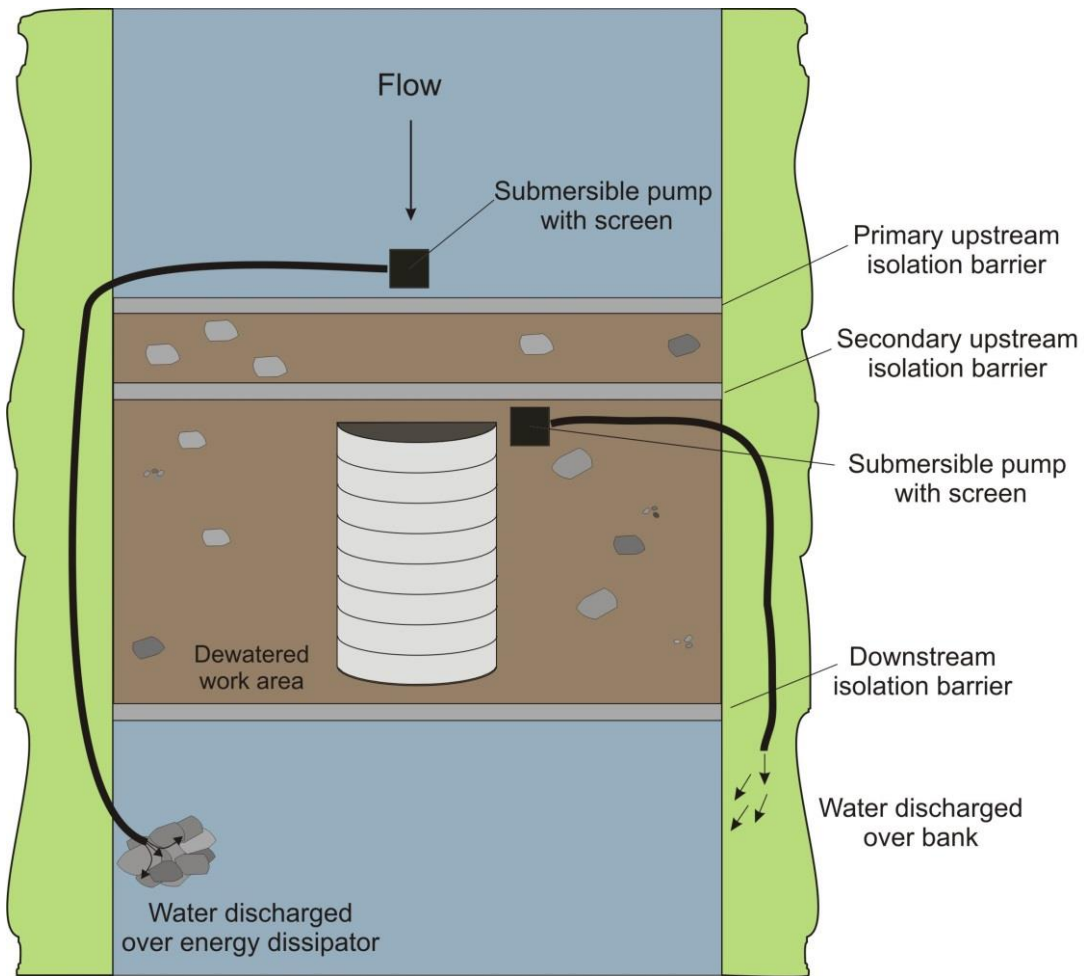


Figure 3. Isolation and Bypass Diversion when Working In-Water

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-ppe/measures-mesures/measures-mesures-eng.html>).

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

GENERAL NOTES

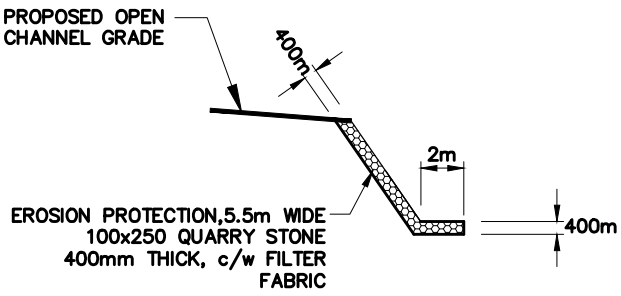
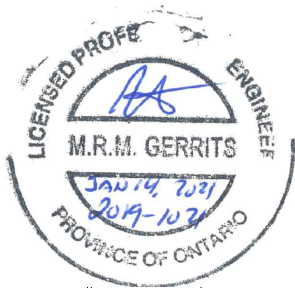
1. BENCHMARK No.1 ELEV. 185.99

TOP NORTH END OF EXISTING 2200mmØ CSP AT STATION 0+131

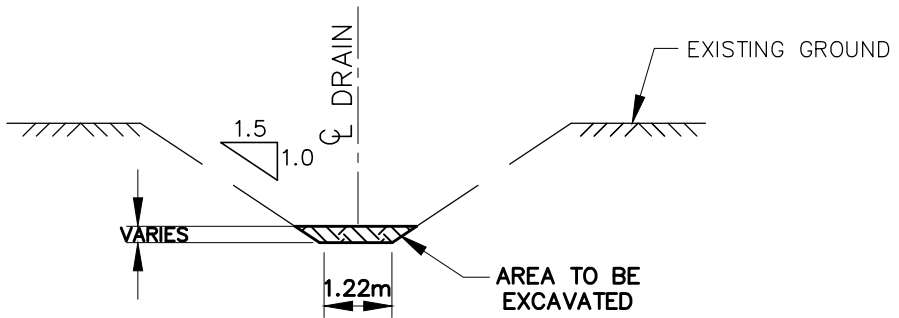
CULVERT #1
- BENCHMARK No.2 ELEV. 186.837

TOP NORTH END OF EXISTING HEADWALL AT STATION 0+446

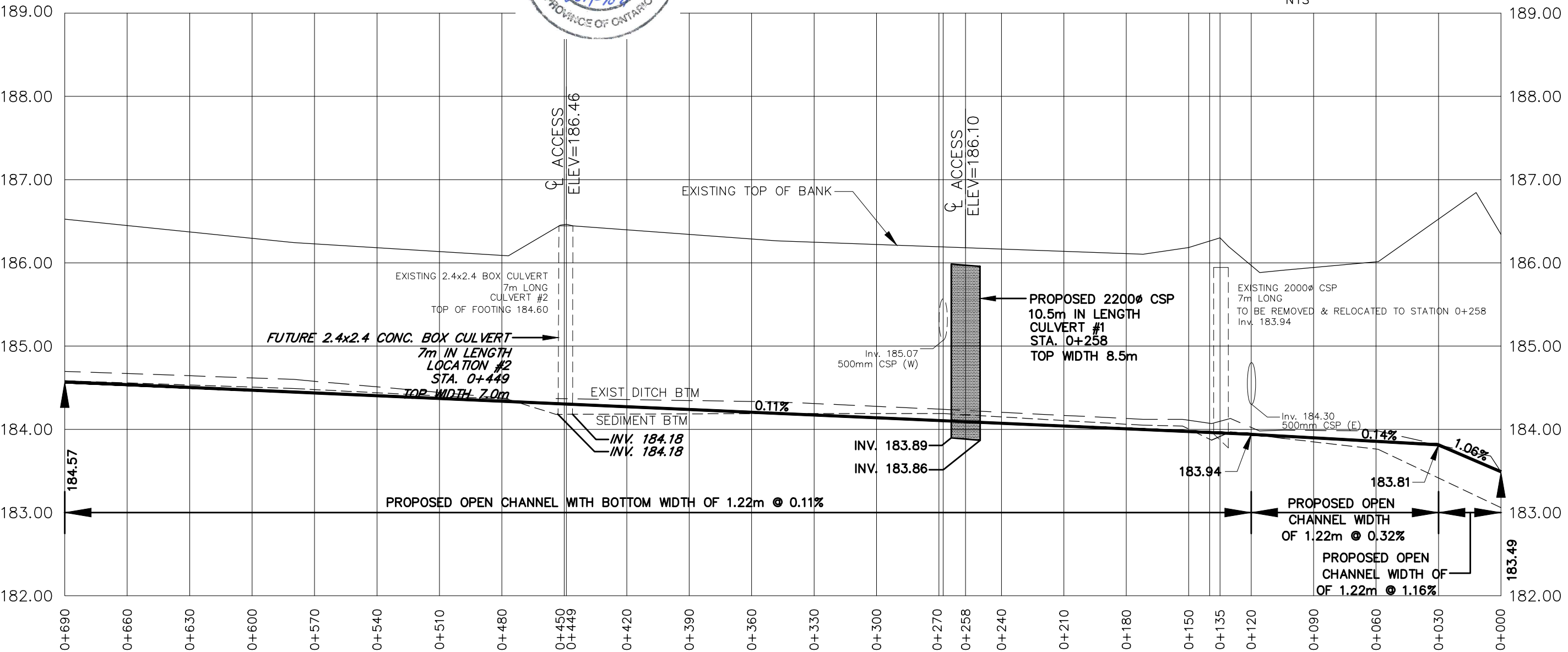
CULVERT #2



OUTLET DETAIL
NTS



TYPICAL DRAIN CROSS SECTION
(STA. 0+000 TO 1+265)
NTS



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

DRAWING NAME:
Charles Shepley Drain Profile1

PROJECT No.
2019-1021

APPROVED	NO.	REVISIONS	DATE	BY
M. GERRITS	2	FINAL REPORT	JAN.18, 2021	MG
CHECKED	1	DRAFT REPORT	DEC.16, 2020	MG
J. WARNER				
DRAWN				
B. VAN RUITENBURG				

SCALE: 1:2,000

0204060m

TOWN of AMHERSTBURG
CHARLES SHEPLEY MAIN DRAIN
PROFILE

GENERAL NOTES

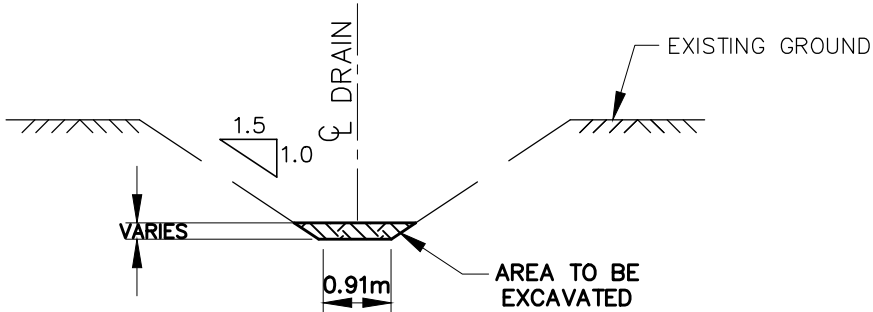
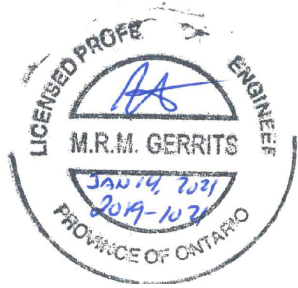
1. BENCHMARK No.3 ELEV. 186.99

TOP SOUTH END OF EXISTING 1200mmØ CSP AT STATION 1+157

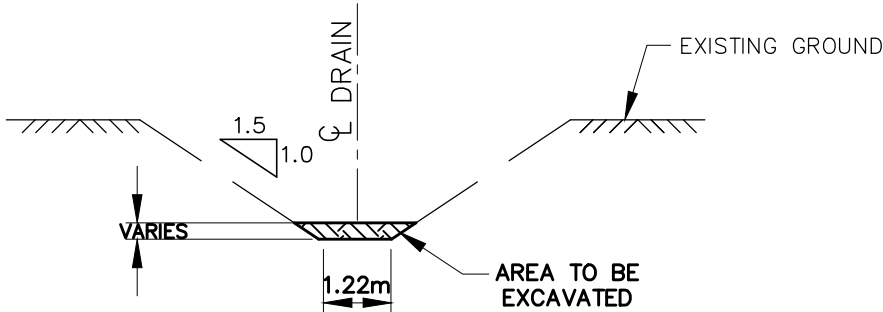
CULVERT #3
- BENCHMARK No.4 ELEV. 186.99

TOP SOUTH END OF EXISTING 1200mmØ CSP AT STATION 1+239

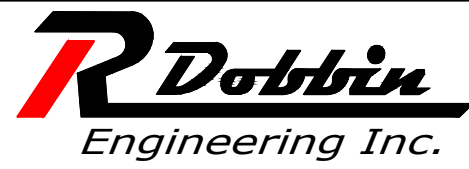
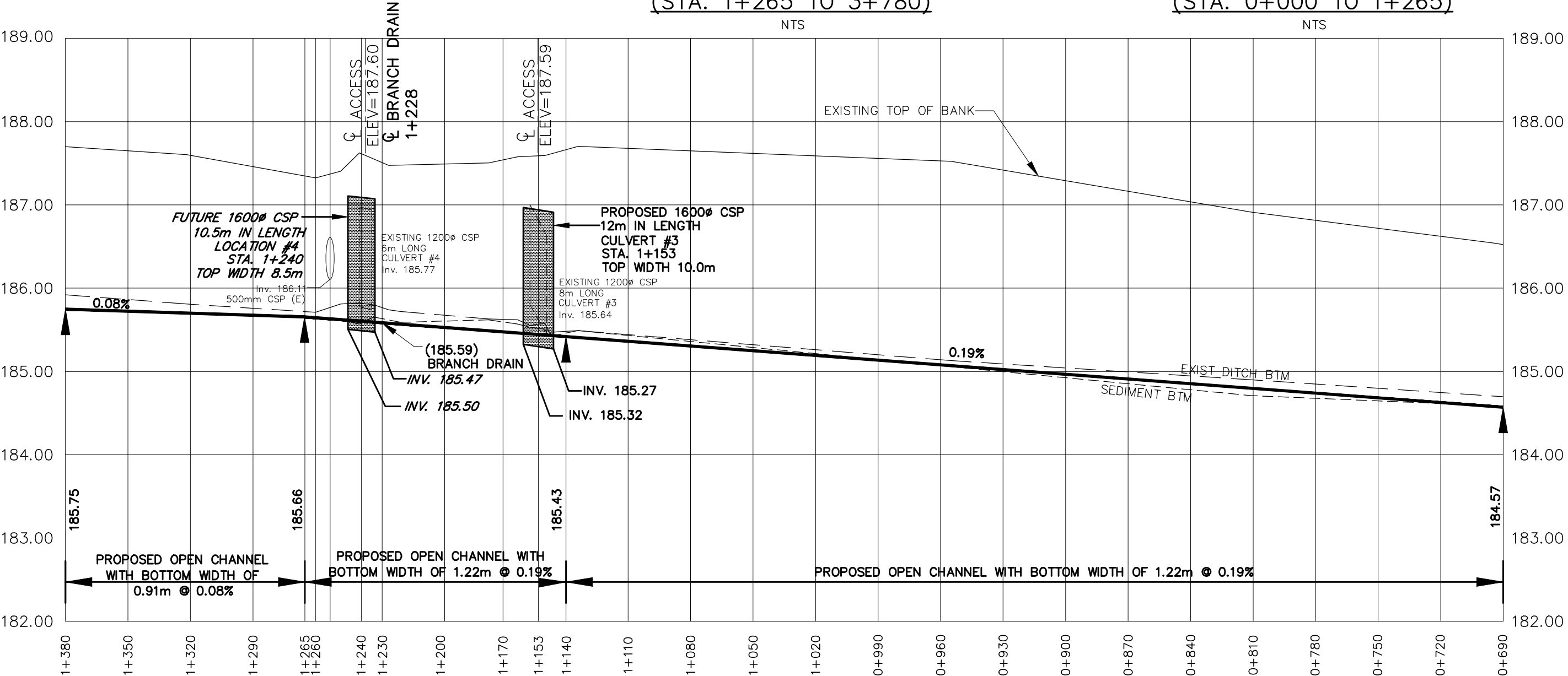
CULVERT #4



TYPICAL DRAIN CROSS SECTION
(STA. 1+265 TO 3+780)



TYPICAL DRAIN CROSS SECTION
(STA. 0+000 TO 1+265)



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

DRAWING NAME: Charles Shepley Drain Profile2
PROJECT No. 2019-1021

APPROVED	NO.	REVISIONS	DATE	BY
M. GERRITS	2	FINAL REPORT	JAN.18, 2021	MG
CHECKED	1	DRAFT REPORT	DEC.16, 2020	MG
J. WARNER				
DRAWN				
B. VAN RUITENBURG				

SCALE: 1:2,000

0

20

40

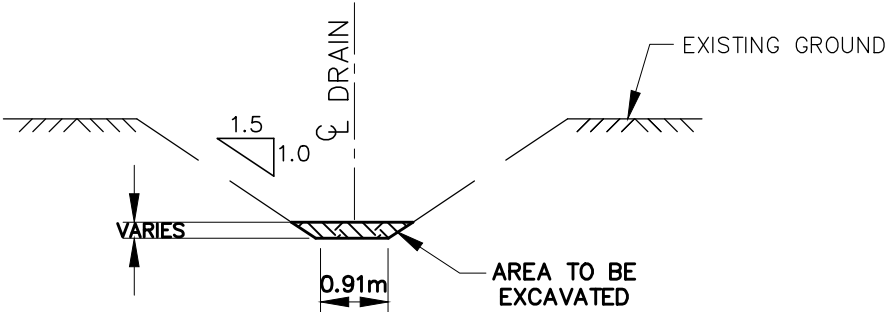
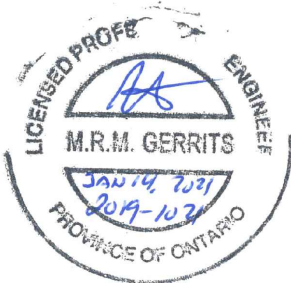
60m

TOWN of AMHERSTBURG
CHARLES SHEPLEY MAIN DRAIN
PROFILE

Last Updated: January 15, 2021

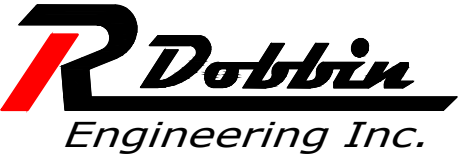
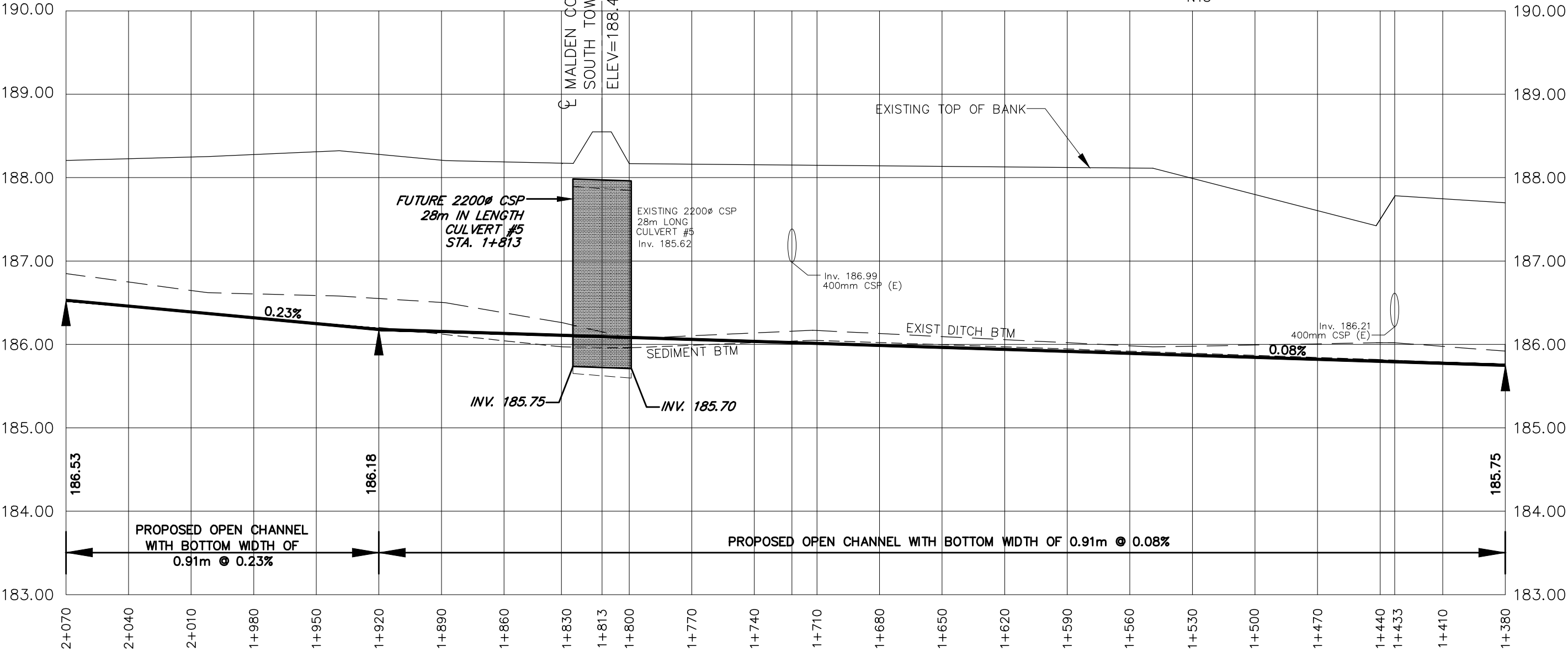
GENERAL NOTES

- 1. BENCHMARK No.5 ELEV. 187.82
TOP NORTH END OF EXISTING 2200mmø
CSP AT STATION 1+799
CULVERT #5



TYPICAL DRAIN CROSS SECTION
(STA. 1+265 TO 3+780)

NTS



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

DRAWING NAME:
Charles Shepley Drain Profile3

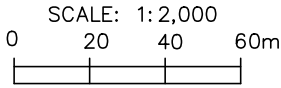
PROJECT No.
2019-1021

APPROVED
M. GERRITS

CHECKED
J. WARNER

DRAWN
B. VAN RUITENBURG

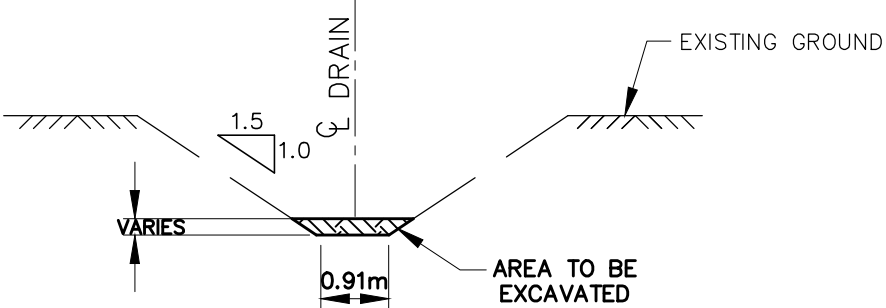
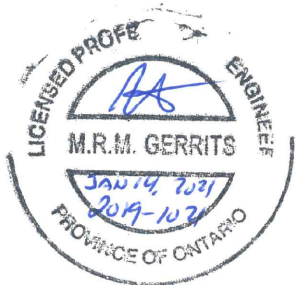
NO.	REVISIONS	DATE	BY
2	FINAL REPORT	JAN.18, 2021	MG
1	DRAFT REPORT	DEC.16, 2020	MG



TOWN of AMHERSTBURG
CHARLES SHEPLEY MAIN DRAIN
PROFILE

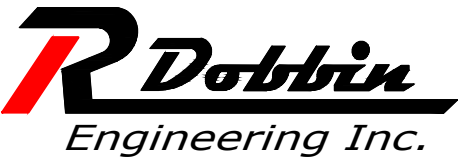
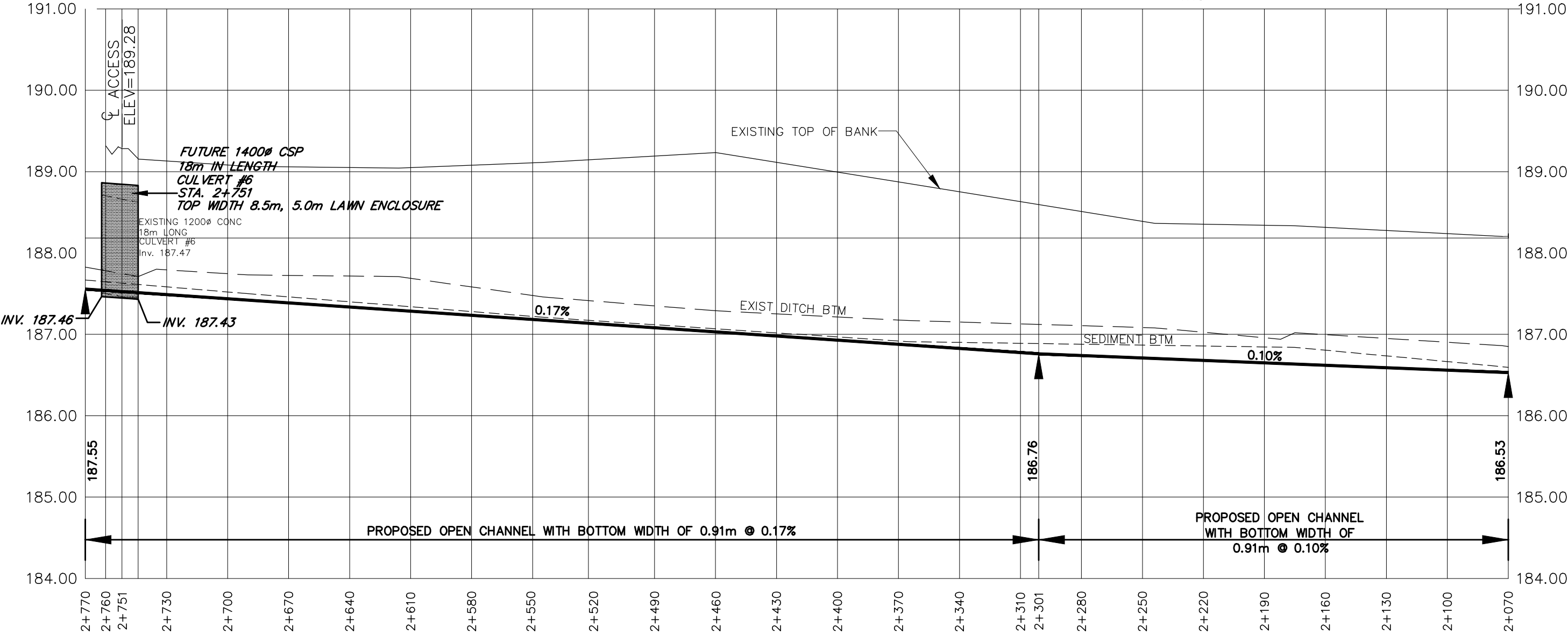
GENERAL NOTES

- 1. BENCHMARK No.6 ELEV. 188.62
TOP EAST END OF EXISTING 1200mmØ
CSP AT STATION 2+744
CULVERT #6



TYPICAL DRAIN CROSS SECTION
(STA. 1+265 TO 3+780)

NTS



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

DRAWING NAME:
Charles Shepley Drain Profile4

PROJECT No.
2019-1021

APPROVED	NO.	REVISIONS	DATE	BY
M. GERRITS	2	FINAL REPORT	JAN.18, 2021	MG
CHECKED	1	DRAFT REPORT	DEC.16, 2020	MG
J. WARNER				
DRAWN				
B. VAN RUITENBURG				

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

TOWN of AMHERSTBURG
CHARLES SHEPLEY MAIN DRAIN
PROFILE

5
OF 9

GENERAL NOTES

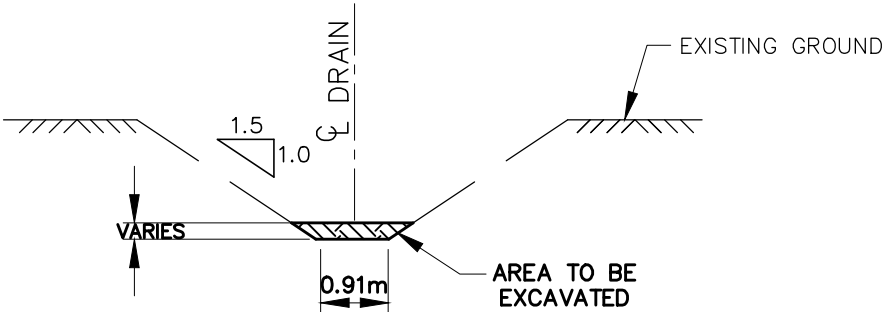
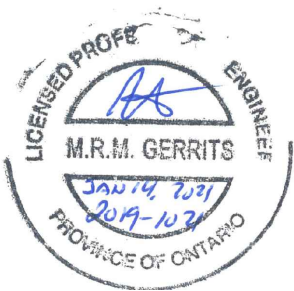
1. BENCHMARK No.7 ELEV. 188.11

INVERT OF EAST END OF EXISTING 900mmø CSP AT STATION 3+021

CULVERT #7
- BENCHMARK No.8 ELEV. 188.13

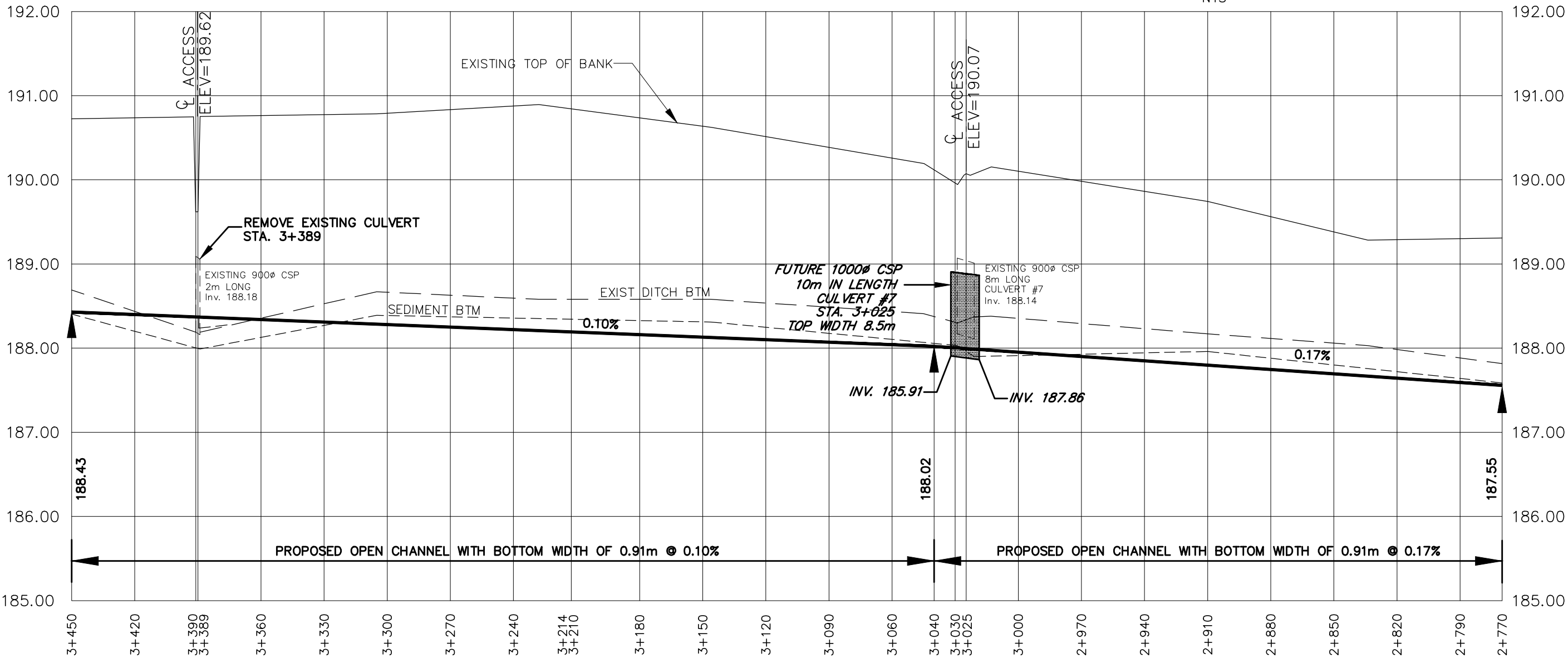
TOP WEST END OF EXISTING 900mmø CSP AT STATION 3+391

CULVERT #8



TYPICAL DRAIN CROSS SECTION
(STA. 1+265 TO 3+780)

NTS



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

DRAWING NAME:
Charles Shepley Drain Profile5

PROJECT No.
2019-1021

APPROVED
M. GERRITS

CHECKED
J. WARNER

DRAWN
B. VAN RUITENBURG

NO.	REVISIONS	DATE	BY
2	FINAL REPORT	JAN.18, 2021	MG
1	DRAFT REPORT	DEC.16, 2020	MG

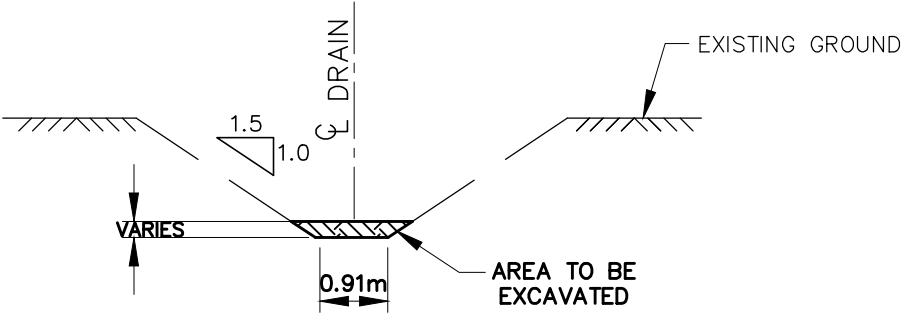
SCALE: 1:2,000
0 20 40 60m

TOWN of AMHERSTBURG
CHARLES SHEPLEY MAIN DRAIN
PROFILE

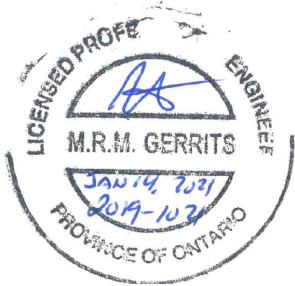
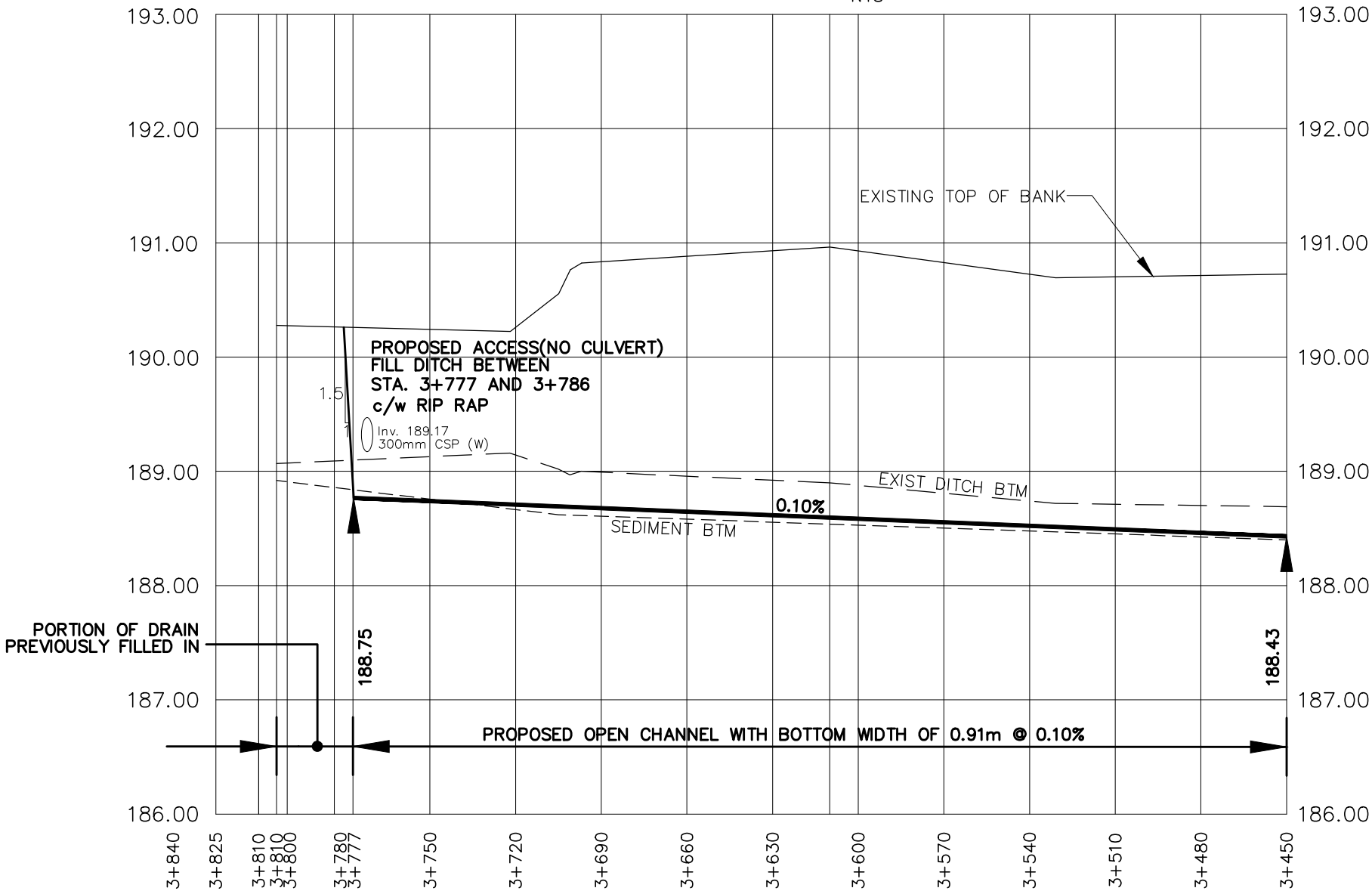
6
OF 9

GENERAL NOTES

- 1. BENCHMARK No.8 ELEV. 188.13
TOP WEST END OF EXISTING 900mmØ
CSP AT STATION 3+391
CULVERT #8



TYPICAL DRAIN CROSS SECTION
(STA. 1+265 TO 3+780)
NTS



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

DRAWING NAME:
Charles Shepley Drain Profile6

PROJECT No.
2019-1021

APPROVED
M. GERRITS

CHECKED
J. WARNER

DRAWN
B. VAN RUITENBURG

NO.	REVISIONS	DATE	BY
2	FINAL REPORT	JAN.18, 2021	MG
1	DRAFT REPORT	DEC.16, 2020	MG

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

TOWN of AMHERSTBURG
CHARLES SHEPLEY MAIN DRAIN
PROFILE

7
OF 9

GENERAL NOTES

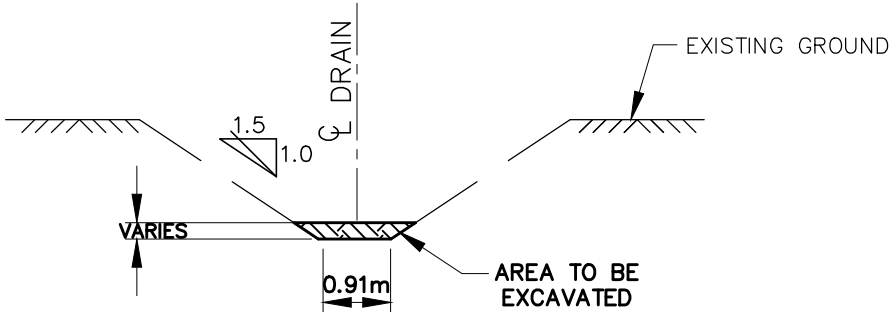
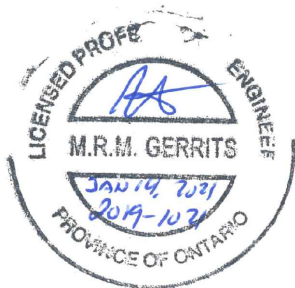
1. BENCHMARK No.9 ELEV. 186.87

TOP WEST END OF EXISTING 760mmø CSP AT STATION 4+388

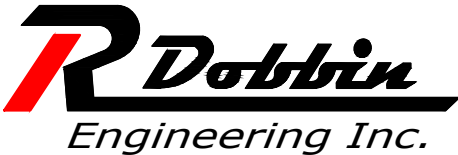
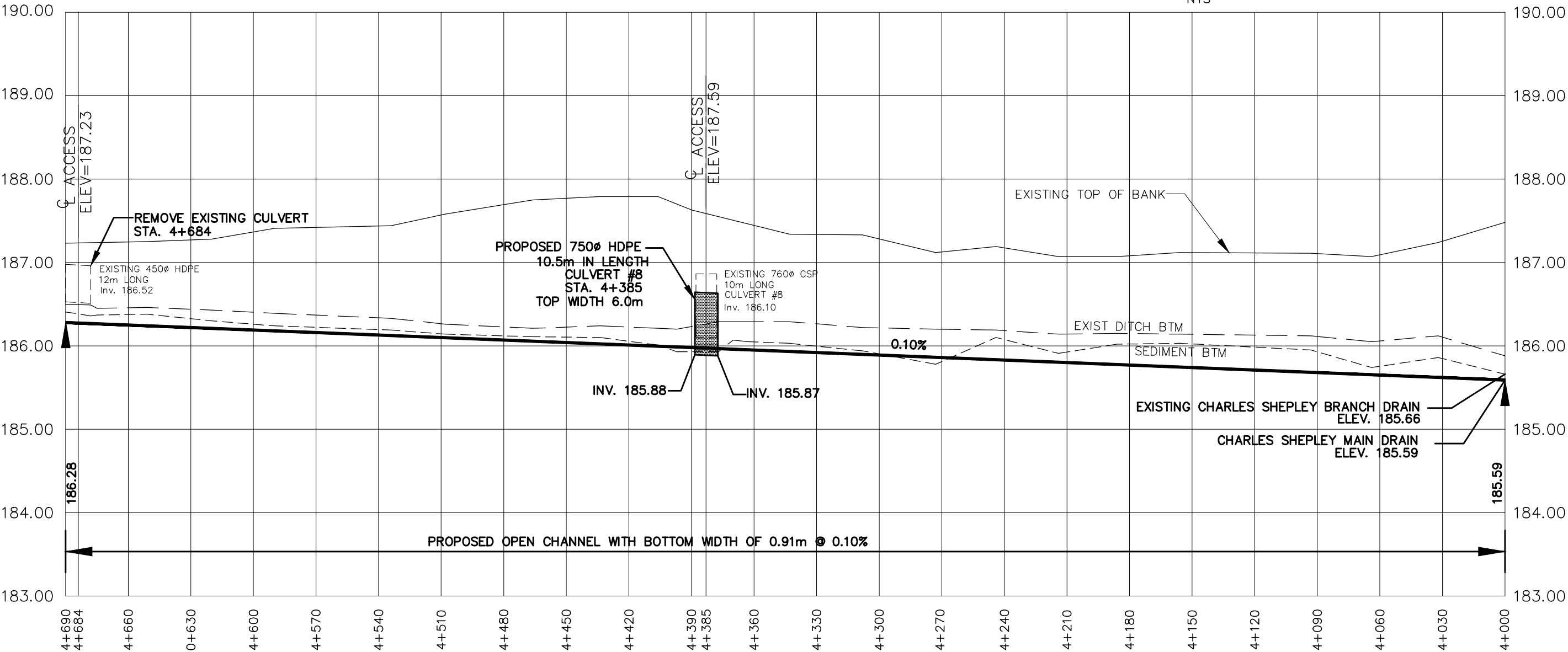
CULVERT #9
- BENCHMARK No.10 ELEV. 186.98

TOP NORTH END OF EXISTING 450mmø HDPE AT STATION 4+678

CULVERT #10



TYPICAL DRAIN CROSS SECTION
(STA. 4+000 TO 4+990)
NTS



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

DRAWING NAME:
Charles Shepley Branch Drain Profile1

PROJECT No.
2019-1021

APPROVED
M. GERRITS

CHECKED
J. WARNER

DRAWN
B. VAN RUITENBURG

NO.	REVISIONS	DATE	BY
2	FINAL REPORT	JAN.18, 2021	MG
1	DRAFT REPORT	DEC.16, 2020	MG

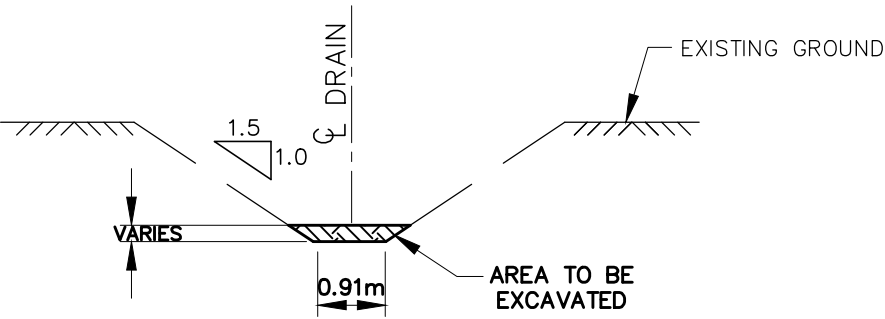
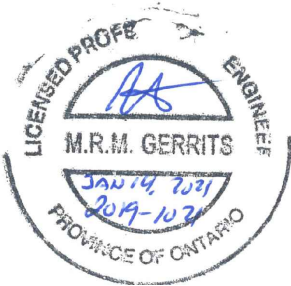
SCALE: 1:2,000
0 20 40 60m

TOWN of AMHERSTBURG
CHARLES SHEPLEY BRANCH DRAIN
PROFILE

8
OF 9

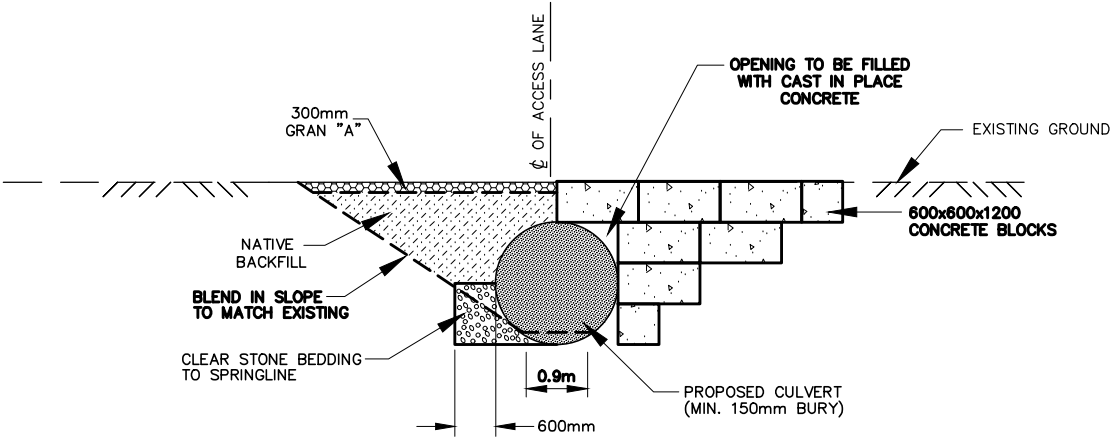
GENERAL NOTES

- 1. BENCHMARK No.11 ELEV. 187.22
TOP WEST END OF EXISTING 400mmØ
CSP AT STATION 4+980
CULVERT #11
- 2. ALL GRANULARS COMPACTED TO 98%
MODIFIED PROCTOR DENSITY



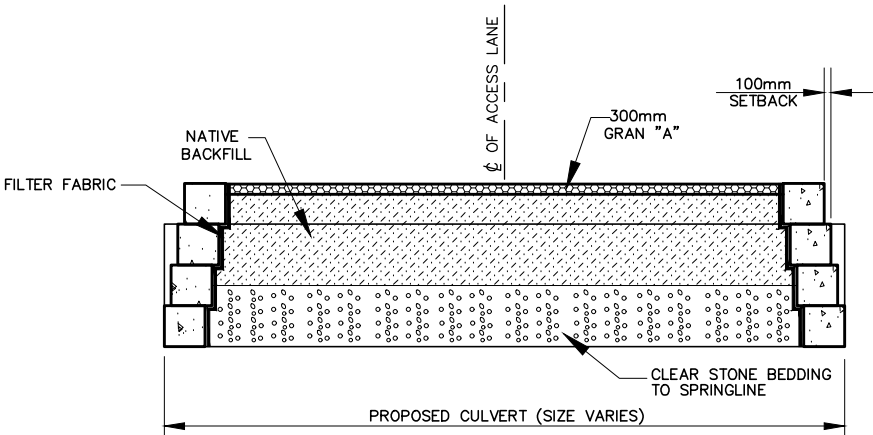
TYPICAL DRAIN CROSS SECTION
(STA. 4+000 TO 4+990)

NTS



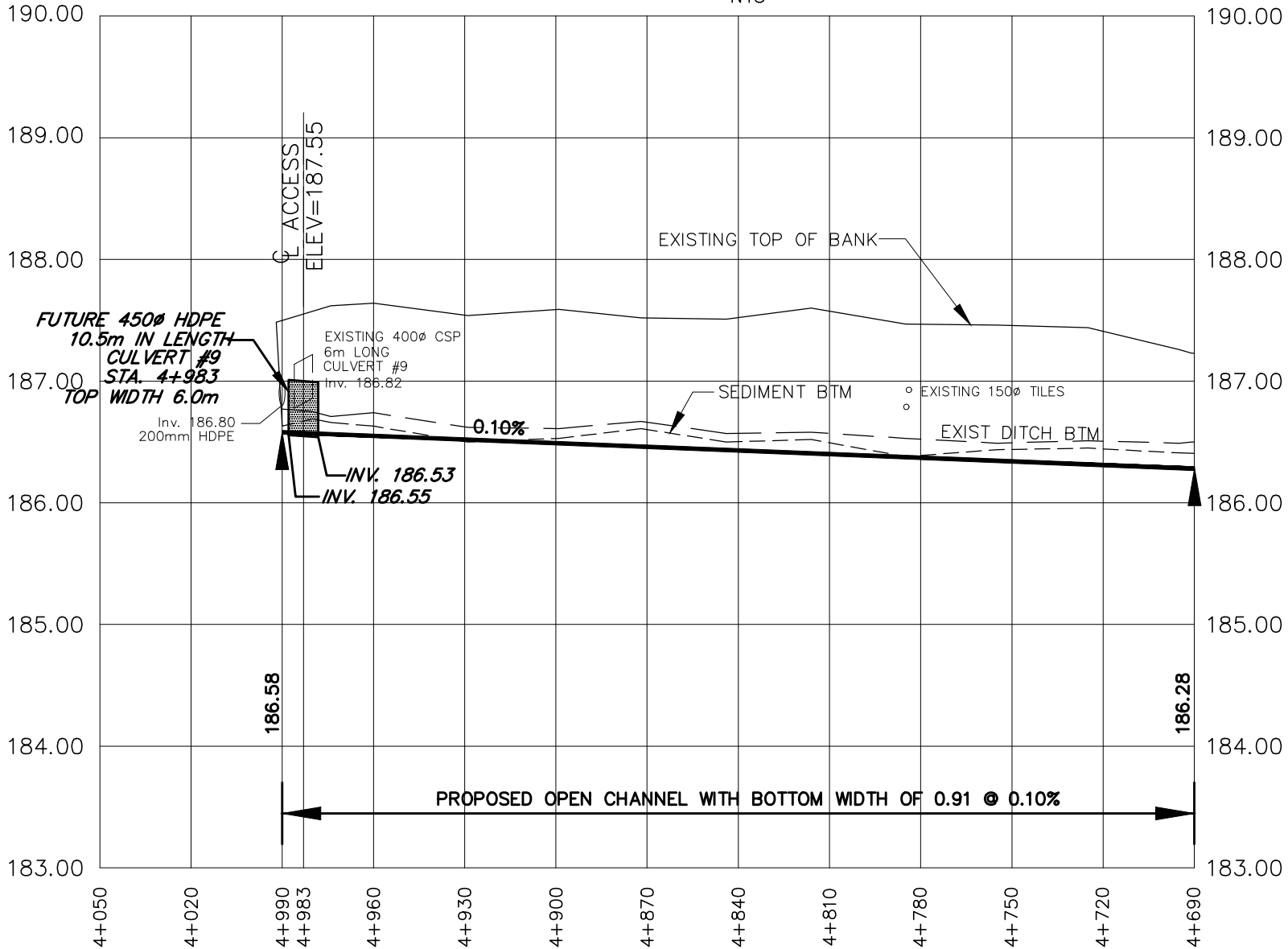
PROPOSED PIPE END SECTION
TYPICAL CULVERT

NTS



PROPOSED CROSS-SECTION
TYPICAL CULVERT

NTS



DRAWING NAME:
Charles Shepley Branch Drain Profile2

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

PROJECT No.
2019-1021

APPROVED
M. GERRITS

CHECKED
J. WARNER

DRAWN
B. VAN RUITENBURG

NO.	REVISIONS	DATE	BY
2	FINAL REPORT	JAN.18, 2021	MG
1	DRAFT REPORT	DEC.16, 2020	MG

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

TOWN of AMHERSTBURG
CHARLES SHEPLEY BRANCH DRAIN
PROFILE AND DETAILS

9
OF 9