DRAINAGE REPORT

BRIDGE OVER THE CAMERON-CURRY DRAIN

(for Maurice Trepanier ([redacted]), Part of Lot 25, Concession 11)

TOWN OF KINGSVILLE

N. J. Peralta Engineering Ltd.

Consulting Engineers

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Project No. D-19-008

April 26th, 2019

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April 26th, 2019

Mayor and Municipal Council
Corporation of the Town of Kingsville
2021 Division Road North
Kingsville, Ontario
N9Y 2Y9

Mayor Santos and Members of Council:

PROJECT: BRIDGE OVER THE CAMERON-[redacted]IN
(for Maurice Trepanier ([redacted]),
Part of Lot 25, Concessi[redacted]
(Geographic Township of Gosfield North)
Town of Kingsville, County of Essex
Project No. D-19-008

I. INTRODUCTION

In accordance with the instructions received by email dated February 2nd, 2019, from the Drainage Superintendent, Mr. Ken Vegh, we have made the necessary survey, examinations, and investigations, etc. and have prepared the following report to provide for the installation of a new access bridge within the Cameron-Curry Drain. The proposed farm access bridge is intended to provide [redacted]cess to the lands currently owned by Maurice Trepanier ([redacted]), in Part of Lot 25, Concession 11, in the Geographic [redacted]of Gosfield North. The Cameron-Curry Drain is generally an open drain with a number of access bridges, which were constructed under the auspices of the Drainage Act. A plan showing the Cameron-Curry Drain alignment, as well as the general location of the above mentioned bridge, is included herein as part of this report.

Our appointment and the works related to the construction of the above mentioned access bridge in the Cameron-Curry Drain, proposed under this report, is in accordance with Section 78 of "Drainage Act, R.S.O. 1990, Chapter D.17, as amended 2010". We have performed all of the necessary survey, investigations, etc., for the proposed bridge, as well as the Cameron-Curry Drain, and we report thereon as follows.

II. BACKGROUND

From our review of the Municipality's files, we have determined that the Cameron-Curry Drain is an existing open Municipal Drain which extends from its outlet into the Ruscom River Drain along the west right-of-way limit of County Road 31, within the Town of Lakeshore (Geographic Township of Maidstone). This drain continues upstream, in a southerly direction to the north limit of County Road 8, where it crosses said road into the Town of Kingsville (Geographic Township of Gosfield North). From this point, the drain continues westerly along the south side of County Road 8 to its top end located between Lot 22 and 23, Concession 11.

Through a review of the Municipality's files, we have determined that the Cameron-Curry Drain is an existing open Municipal Drain that has been repaired and improved on a number of previous occasions under the provisions of the Drainage Act. The last major works of repair and improvements carried out on the entire length of the Cameron-Curry Drain was completed under an Engineer's Report prepared by William J. Setterington, P.Eng., dated August 18th, 1980. The works conducted along the entire length of the drain included the excavation and bottom cleanout, drain widening, seeding of all newly excavated drain sideslopes, brushing and grubbing, and the improvement of approximately five (5) access bridges.

We have utilized the above mentioned report to establish the size parameters for the drain and details to be utilized in establishing the new proposed access culvert installation. We have also utilized the Engineer's Report to establish the drain profile grades, and to assist us in establishing the design grade for the subject bridge installation.

III. PRELIMINARY EXAMINATION AND ON-SITE MEETING

After reviewing all the available drainage information and documentation provided by the Town Drainage Superintendent, we arranged to schedule an On-Site Meeting for March 27th, 2019.

Prior to his meeting, Maurice Trepanier had contacted us to advise that he would not be able to attend the On-Site Meeting scheduled and wished to discuss his access bridge needs.

Mr. Trepanier advised that the new access bridge is required as a result of the homestead area being severed from the farm and a new access was required as a condition of severance to facilitate an access to the remaining farm. He further advised that he would prefer that the location of the proposed access bridge be set approximately 60.00 ft. from the west property limit, along County Road 8.

Mr. Trepanier was advised that a minimum standard top width of driveway is 6.10 metres (20.00 ft.). Furthermore, if the he wishes to provide a top width wider than the standard 6.10 metres (20.00 ft.), the additional cost for providing a top width wider than the standard, shall be assessed 100% to the abutting Owner for both the initial construction and future maintenance. Mr. Trepanier requested that the new access bridge have a minimum top width of 9.14 metres (30.00 ft.). We then discussed the options of sloped quarried limestone end treatments versus concrete filled jute bag headwalls and further established that the final design may be governed by the requirements of the Department of Fisheries and Oceans (D.F.O.) and the Essex Region Conservation Authority (E.R.C.A.). Mt. Trepanier emphasized that, if possible, he would prefer the most cost effective option.

Mr. Trepanier was reminded that the costs associated to the new access bridge will be assessed entirely to the property for the construction, together with all associated engineering and incidental fees. Mr. Trepanier indicated that he was aware of these conditions and understood that 100% of the costs are to be borne by the property.

Mr. Trepanier was further advised that this project is under the jurisdiction of the Department of Fisheries and Oceans (D.F.O.), the Essex Region Conservation Authority (E.R.C.A.), and the Ministry of Natural Resources and Forestry (M.N.R.F.). Therefore, it was noted that the new access bridge installation will be subject to further approvals and mitigation measures required by these agencies.

The overall drainage report and future maintenance processes, general timelines, and grant eligibility were generally reviewed with Mr. Trepanier. Mr. Trepanier advised that he would like to see the new access installed as soon as possible. He was advised that it was likely that the works in the drain were not to be undertaken between March 15th and June 30th, unless otherwise permitted by the D.F.O., the E.R.C.A. and the M.N.R.F. However, we will make efforts to complete the Engineer’s Report in a timely manner.

At the conclusion of our discussions, we advised that we would contact Mr. Trepanier prior to the preparation of our Engineer's Report, to review the details of the new access bridge installation.

The On-Site Meeting was conducted on March 27th, 2019. The following people were in attendance at said meeting: Rob Srigley, Emma Srigley, Donald Srigley, Mark Fishleigh (County of Essex), Ken Vegh (Town of Kingsville’s Drainage Superintendent), and Tony Peralta, P.Eng. (N.J. Peralta Engineering Ltd.).

Mr. Vegh introduced himself and generally advised that a written notice had been submitted by Maurice Trepanier to provide a new farm access bridge over the Cameron-Curry Drain. This new access bridge is intended to provide access to the agricultural lands currently owned by Maurice Trepanier (650-03100). It was noted that Mr. Trepanier was unable to attend this meeting. However, we had reviewed details of his request for the new access bridge, prior to this meeting. The general details of the new access bridge was conveyed to those in attendance.

The ratepayers were advised that this project is under the jurisdiction of the Department of Fisheries and Oceans (D.F.O.), the Essex Region Conservation Authority (E.R.C.A.), and the Ministry of Natural Resources and Forestry (M.N.R.F.). Therefore, it was noted that the new access bridge installation will be subject to further approvals and mitigation measures of these agencies.

The overall drainage report and future maintenance processes, general timelines, and grant eligibility were generally reviewed with the ratepayers. All of the ratepayers present were advised that Mr. Trepanier would like to see the new access installed as soon as practical. They were further advised that it was likely that the works in the drain were not to be undertaken between March 15th and June 30th, unless otherwise permitted by the D.F.O., the E.R.C.A. and the M.N.R.F. However, we will make efforts to complete the Engineer's Report in a timely manner.

Mr. Fishleigh (County of Essex) confirmed that an entrance permit shall be submitted to the County of Essex, by the Owner, prior to the installation of the new access bridge.

On this note, the On-Site Meeting was concluded.

IV. FIELD SURVEY AND INVESTIGATIONS

Following the On-Site Meeting, we arranged for our Survey Crew to attend the site to perform a topographic survey, including taking all necessary levels and details, to establish the design parameters for the installation of the new access bridge structure.

Bench Marks were looped from previous work carried out on the drain and were utilized in establishing a relative site Bench Mark near the location of the new access bridge. We also surveyed the drain for a considerable distance both upstream and downstream of the proposed access site in order to establish a design grade profile for the installation of same. We also took cross sections of the Cameron-Curry Drain at the general location of the new access bridge site, as necessary, for us to complete our design calculations, estimates and specifications.

The Ministry of Natural Resources and Forestry (M.N.R.F.) Endangered Species Act Municipal Drain Agreements, under Section 23 of the Act, with the Municipality had expired as of June 30th, 2015. New regulation provisions have replaced these existing drain agreements under Ontario Regulation 242/08, Section 23.9 which allows the Municipality to conduct repairs, maintenance, and improvements, within existing Municipal Drains, under the Drainage Act to be exempt from Section 9 and 10 of the Endangered Species Act, so long as the rules in the regulation are followed. If eligible, the regulatory provision allows Municipalities to give notice to the Ministry by registering their drainage activities through an online registry system.

Prior to our appointment to this project, we understand that the Town of Kingsville provided the Essex Region Conservation Authority (E.R.C.A.) with a notice advising of the proposed drainage works, as required under Section 78(2) of the Drainage Act. Based on their comments, we engaged in further correspondence with the E.R.C.A., regarding specific requirements for the approval of the proposed bridge design.

V. FINDINGS AND RECOMMENDATIONS

E.R.C.A., D.F.O. AND M.N.R.F. CONSIDERATIONS

During the course of our investigations, this drainage project was discussed and reviewed in detail with Ms. Cynthia Casagrande of the E.R.C.A., to deal with any E.R.C.A. issues and comments related to this Municipal Drain. The Cameron-Curry Drain is located within the regulated area and is under the jurisdiction of the E.R.C.A. and therefore, an E.R.C.A. Permit is required for the construction of the proposed access bridge structure. Further to the above, the E.R.C.A. provided us with their comments and concerns through email correspondence, and said email is included within **Appendix "A"**.

As outlined in our discussions with the E.R.C.A., and with respect to the Department of Fisheries and Oceans (D.F.O.) concerns and comments, due to the amendments to the Fisheries Act coming into effect, the partnership agreement between the D.F.O. and the E.R.C.A. has lapsed as of November 25th, 2013. As a result, the proposed works within the Cameron-Curry Drain was "self-assessed" by the Engineer, through the D.F.O. website to determine whether this project shall be reviewed by the D.F.O. Based on the D.F.O. Self-Assessment website, we have determined that the project activities would not require a D.F.O. review for the works proposed under this project, so long as standard measures for fish habitat and migration are implemented.

Under the Species at Risk Provincial Legislation, set in place with the Ministry of Natural Resources and Forestry (M.N.R.F.), Section 23.9 of the Endangered Species Act, 2007, allows the Municipality to conduct eligible repair, maintenance, and improvement work under the Drainage Act that exempts these works from Sections 9 and 10 of this Act, so long as they follow the rules within Ontario Regulation 242/08.

In recognition of impact that these species may experience as a result of the subject works, the Town of Kingsville has provided comprehensive mitigation measures as well as species identification guides for reference. These references shall be provided to the successful Tenderer and shall be available for viewing at the Municipal Office for those interested.

Through correspondence with the E.R.C.A., the self-assessment through the D.F.O., and the mitigation measures related the Endangered Species Act, we have provided for all of the E.R.C.A., D.F.O., and M.N.R.F. concerns and issues in our design and recommend that this drainage works be constructed in total compliance with all of the above.

NEW ACCESS BRIDGE STRUCTURE

Prior to the completion of our Engineer's Report on this project, we engaged in further correspondence with Mr. Trepanier to review the particulars of the access bridge, in detail. Based on our findings, the proposed access bridge would require approximately

17.00 metres of 1400mm diameter Aluminized Steel corrugated Hel-Cor pipe with sloped quarried limestone end treatments. The culvert installation shall provide for 140mm of pipe embedment for fish habitat and migration. The resulting travelled portion of driveway top width would be 9.16 metres (30.05 ft.), and that the bridge location shall be located 18.80 metres eas[redacted] west property limit currently owned by Maurice Trepanier ([redacted]), as outlined within the plans. Mr. Trepanier was reminde[redacted]s a new access bridge within the Cameron-Curry Drain, all costs associated to this new access bridge shall be assessed entirely to this property. Mr. Trepanier generally agreed with our recommendations. As a result of these discussions, this report and the works proposed herein has been prepared on that basis. Based on our detailed survey, investigations, examinations, and discussions with the Mr. Trepanier, we would recommend that the new access bridge be constructed in the Cameron-Curry Drain at the location and to the general parameters as established in our design drawings attached herein.

Based on all the above, we therefore recommend that a new access bridge be constructed in the Cameron-Curry D[redacted] serve the agricultural lands owned by Maurice Trepanier ([redacted]), in Part of Lot 25, Concession 11, in accordance with [redacted]eport, the attached specifications and the accompanying drawing, and that all works associated with same be carried out in accordance with Section 78 of the "Drainage Act, R.S.O. 1990, Chapter D.17, as amended 2010".

VI. ESTIMATE OF COST

Our estimate of the Total Cost of this work, including all incidental expenses, is the sum of **THIRTY TWO THOUSAND ONE HUNDRED FIFTY FOUR DOLLARS ($32,154.00)**, made up as follows:

CONSTRUCTION

Item 1)	Provide all labour, equipment and materials to construct a new access bridge consisting of 17.00 metres (55.77 ft.) of 1400mm diameter, 2.0mm thick, Aluminized Steel Type II corrugated Hel-Cor pipe, including sloped quarried limestone end treatments, granular bedding and backfill, granular backfill in all gore areas, native fill driveway apron and fill radius transition, excavation, compaction, topsoil, seeding and mulching, cleanup and restoration, complete.	Lump Sum	$ 22,700.00
Item 2)	Net H.S.T. for above item (1.76%)		$ 400.00
	TOTAL FOR CONSTRUCTION		**$ 23,100.00**

INCIDENTALS

1)	Report, Estimates, & Specifications	$ 3,600.00
2)	Survey, Assistants, Expenses, and Drawings	$ 2,900.00
3)	Duplication Costs of Report and Drawings	$ 350.00
4)	Estimated Cost of Preparing Tender Documents, Tender process on an invitation basis, and Tender review	$ 900.00
5)	Estimated Cost of Providing Supervision and Full-Time Inspection During Construction (based on a 2 day duration)	$ 1,000.00
6)	Estimated Net H.S.T. on Above Items (1.76%)	$ 154.00
7)	Estimated Cost for E.R.C.A. Permit	$ 150.00
	TOTAL FOR INCIDENTALS	**$ 9,054.00**
	TOTAL FOR CONSTRUCTION (brought forward)	**$ 23,100.00**
	TOTAL ESTIMATE	**$ 32,154.00**

VII. DRAWINGS AND SPECIFICATIONS

As part of this report, we have attached the design drawing for the construction of this access bridge. The design drawing show the subject bridge location and the details of the new access bridge installation. The design drawing is attached to the back of this report and is labelled herein as **Appendix "C"**.

Also attached, we have prepared Specifications which set out the required construction details for the proposed bridge installation, which also includes Standard Specifications labelled therein as **Appendix "B"**.

VIII. CONSTRUCTION SCHEDULE OF ASSESSMENT

We would recommend that all of the costs associated to the construction of the new access bridge, as described above and detailed herein, be totally assessed against the agricultural lands currently owned by Maurice Trepanier (650-03100), and in accordance with the attached **Construction Schedule of Assessment.**

The Ontario Ministry of Agriculture, Food, and Rural Affairs (O.M.A.F.R.A.) have issued administrative policies for Agricultural Drainage Infrastructure Program (A.D.I.P.) to provide financial assistance for assessments to agricultural lands pursuant to the Drainage Act. We understand that the subject agricultural lands currently has the "Farm Tax Classification" required for the subject grant. However, this subject access bridge is being installed within agricultural lands to facilitate a new severance. Therefore, the proposed access bridge to the subject lands is likely **not** eligible for such grant due to the following provisions within the A.D.I.P. policies through O.M.A.F.R.A.:

1. **Policy 2.3.i(B)** – Notwithstanding (i) above, any new crossing required as a result of any lot severance that occurred after July 28, 2004, is not eligible for grant.

Since this subject access bridge is being provided as a result of a lot severance, the cost for same would be ineligible for the 1/3 grant through the current A.D.I.P. Policy. Therefore, the assessments related to the construction of the access to this property, shall be shown in the attached Construction Schedule of Assessment under the Subheading **"5. Privately Owned – Agricultural Lands (non-grantable)"**.

IX. FUTURE MAINTENANCE

After the completion of the construction of this new access bridge, all of same shall be maintained in the future by the Town of Kingsville.

Furthermore, if any maintenance work is required in the future to this access bridge, we wish to establish that **68.1%** of the future maintenance costs be assessed as a Benefit to the abutting property being served by t[redacted]ss bridge, which is currently owned by Maurice Trepanier([redacted]), in Part of Lot 25, Concession 11, and that the remaining [redacted]f the future maintenance costs shall be assessed as an Outlet Liability against the lands and roads lying upstream of the bridge site, within the drains watershed. The assessment to upstream lands and roads shall be assessed in the same proportions as the Outlet assessment charges shown in the governing Schedule of Assessment of the Engineer's Report prepared by William J. Setterington, P.Eng., dated August 18th, 1980, or per subsequent amendments made thereto, under the provisions of the Drainage Act. The percentages above account for the bridge users share of the increased pipe length beyond the standard length available to provide a standard 6.10 metres (20.00 ft.) minimum driveway top width.

We recommend that the new access bridge structure as identified herein, be maintained in the future as part of the drainage works. We would also recommend that this legal access bridge newly constructed in the drain, for which the maintenance costs are to be shared with the upstream lands and roads within the watershed, be maintained by the Town and that said maintenance would include works

to the bridge culvert, bedding, backfill and end treatment. Should concrete, asphalt or other decorative driveway surfaces over these bridge culverts require removal as part of the maintenance works, these surfaces should also be repaired or replaced as part of the works. Likewise, if any fencing, gate, decorative walls, guard rails or other special features exist that will be impacted by the maintenance work, they are also to be removed and restored or replaced as part of the bridge maintenance work. However, the cost of the supply and installation of any surface material other than Granular "A" material, and the cost of removal and restoration or replacement, if necessary, of any special features, shall be totally assessed to the benefiting adjoining Owner served by said private access bridge.

The above provisions for the future maintenance of this new access bridge, being constructed under this report, shall remain as aforesaid until otherwise determined under the provisions of the "Drainage Act, R.S.O. 1990, Chapter D.17, as amended 2010".

All of which is respectfully submitted.

N.J. PERALTA ENGINEERING LTD.

Antonio B. Peralta, P.Eng.

ABP/amm

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CONSTRUCTION SCHEDULE OF ASSESSMENT

BRIDGE OVER THE CAMERON-CURRY DRAIN

(for Maurice Trepanier [redacted]), Part of Lot 25, Concession 11)

(Geographic Township of Gosfiled North)

TOWN OF KINGSVILLE

5. PRIVATELY OWNED - AGRICULTURAL LANDS (non-grantable):

Tax Roll No.	Con. or Plan No.	Lot or Part of Lot	Acres Afft'd	Hectares Afft'd	Owner's Name	Value of Benefit	Value of Outlet	Value of Special Benefit	TOTAL VALUE
[redacted]	11	25	39.24	15.882	Maurice Trepanier	$ 32,154.00	$ -	$ -	$ 32,154.00
Total on Privately Owned - Agricultural Lands (non-grantable).....						**$ 32,154.00**	**$ -**	**$ -**	**$ 32,154.00**
TOTAL ASSESSMENT			39.24	15.882		**$ 32,154.00**	**$ -**	**$ -**	**$ 32,154.00**

1 Hectare = 2.471 Acres
Project No. D-19-008
April 26th, 2019

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SPECIFICATIONS

BRIDGE OVER THE CAMERON-CURRY DRAIN

(for Maurice Trepanier ([redacted]),
Part of Lot 25, Conces[redacted]

(Geographic Township of Gosfield North)

TOWN OF KINGSVILLE

I. GENERAL SCOPE OF WORK

The scope of the work to be provided under this project consists of the installation of a new access bridge within the Cameron-Curry Drain.

The Contractor shall provide all material, labour, and equipment to construct a new access bridge consisting of 17.00 metres (55.77 ft.) of 1400mm diameter, 2.0mm thick, Aluminized Steel Type II corrugated Hel-Cor pipe, granular bedding and backfill, quarried limestone end protection, and all other ancillary work. All works under this project shall provide us with a complete and satisfactory job.

The location of the new access bridge shall be set approximately 18.80 metres (61.68 ft.) east of the west property limit and placed at the exact designated location as shown on the plan, unless otherwise directed by the property Owner and in conjunction with the Town Drainage Superintendent, prior to the construction of same. Any changes to the location of the new access bridge, must be approved in writing by the Consulting Engineer.

All work shall be carried out in accordance with these specifications and serve to supplement and/or amend the current Ontario Provincial Standard Specifications and Standard Drawings, adopted by the Ontario Municipal Engineers Association. All work shall also comply in all regards with **Appendix "A"**, as well as the Standard Specifications included in **Appendix "B"**. The works shall be carried out in accordance with the plan labelled herein as **Appendix "C"**. The structure shall be of the size, type, depth, etc., as is shown in the accompanying drawings, as determined from the **Bench Mark**, and as may be further laid out at the site at the time of construction. All work carried out under this project shall be completed to the full satisfaction of the Town Drainage Superintendent and/or the Consulting Engineer.

II. E.R.C.A. AND D.F.O. CONSIDERATIONS

The Contractor shall be required to implement stringent erosion and sedimentation controls during the course of the work to minimize the amount of silt and sediment being carried downstream into the Ruscom River Drain. It is intended that work on this project be carried out during relatively dry weather to ensure proper site and drain conditions and to avoid conflicts with sediment being deposited into the outlet drainage systems. All disturbed areas shall be restored as quickly as possible with grass seeding and mulching installed to ensure a protective cover and to minimize any erosion from the work site subsequent to construction. The Contractor may be required to provide temporary silt fencing and straw bales as outlined further in these specifications.

All of the work shall be carried out in accordance with any permits or authorizations issued by the Essex Region Conservation Authority (E.R.C.A.) or the Department of Fisheries and Oceans (D.F.O.), copies of which shall be provided, if available. The Contractor is advised that no work shall be carried out in the existing drain from March 15th to June 30th, of any given year, because the drain is directly connected to the downstream drain that is classified as sensitive to impacts on aquatic life and habitat by the E.R.C.A. and the D.F.O.

As part of its work, the Contractor shall implement the following measures that shall ensure that any potential adverse effects on fish and fish habitat shall be mitigated:

a) As per standard requirements, work shall not be conducted at times when flows in the drain are elevated due to local rain events, storms, or seasonal floods. Work shall be done in the dry.

b) All disturbed soils on the drain banks and within the channel, including spoil, must be stabilized immediately upon completion of work. The restoration of the site must be completed to a like or better condition to what existed prior to the works. The spoil material must be hauled away and disposed of at a suitable site, or spread an appropriate distance from the top of the drain bank to ensure that it is not washed back into the drain.

c) To prevent sediment entry into the Drain, in the event of an unexpected rainfall, silt barriers and/or traps must be placed in the channel during the works and until the site has been stabilized. All sediment and erosion control measures are to be in accordance with related Ontario Provincial Standards. It is incumbent on the proponent and his/her Contractors to ensure that sediment and erosion control measures are functioning properly and are maintained/upgraded as required.

d) Silt or sand accumulated in the barrier traps must be removed and stabilized on land once the site is stabilized.

e) All activities including maintenance procedures should be controlled to prevent the entry of petroleum products, debris, rubble, concrete, or other deleterious substances into the water. Vehicular refuelling and maintenance should be conducted away from the water.

Not only shall the Contractor comply with all of the above, it shall also be required to further comply with any information included within the email correspondence with the E.R.C.A. All of which are included within theses specifications and labelled herein as **Appendix "A"**.

III. M.N.R.F. CONSIDERATIONS

Under the Species at Risk Provincial Legislation, set in place with the Ministry of Natural Resources and Forestry (M.N.R.F.), Section 23.9 of the Endangered Species Act, 2007, allows the Town to conduct eligible repair, maintenance, and improvement work under the Drainage Act that exempts these works from Sections 9 and 10 of this Act, so long as they follow the rules within Ontario Regulation 242/08.

Prior to commencing work, the Town of Kingsville will complete an "Endangered Species Act Review" for the Cameron-Curry Drain and will provide the Contractor with the results of said review, including Town documents for the purpose of identification of known species at risk within the project area and mitigation measures for species and habitat protection. 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.

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

IV. ACCESS TO WORK AND TRAFFIC CONTROL

The Contractor is advised that all the work to be carried out on this project extends along the south side of County Road 8. The Contractor shall have access for the full width of the roadway abutting the proposed drainage works. The Contractor may use the entire width of County Road 8 right-of-way necessary to permit the completion of all the work required to be completed for this project.

The Contractor shall ensure that the travelling public is protected at all times while utilizing the roadway for its access. The Contractor shall provide traffic control, including flag persons when required. The Contractor shall be required to submit a Traffic Control Plan to the Consulting Engineer for approval from the governing Road Authorities. The Traffic Control Plan shall be carried out in accordance with the requirements of the Ontario Traffic Manual's Book 7 for Temporary Conditions. Should the Contractor have to close County Road 8 for the proposed works, it shall arrange to obtain the necessary authorizations from the County of Essex Road Department and the Town of Kingsville Public Works Department and distribute notification of detours around the site. The Contractor shall also ensure that all emergency services, school bus companies, etc. are contacted about the disruption to access at least 48 hours in advance of same. All detour routes shall be established in consultation with the Town and County Roads Department.

Throughout the course of the work it is imperative that the Contractor protect as much landscaping and vegetation as possible when accessing along the drain. This shall be of particular concern along the lawn areas of residential properties. Due to the extent of the work and the area for carrying out the work, the Contractor shall be required to carry out all of the necessary steps to direct traffic and provide temporary diversion of traffic around work sites, including provision of all lights, signs, flag persons, and barricades required to protect the safety of the travelling public. Any accesses or areas used in carrying out the works are to be fully restored to their original conditions by the Contractor, including topsoil placement and lawn restoration as directed by the Town Drainage Superintendent and/or the Consulting Engineer. Restoration shall include but not be limited to all necessary levelling, grading, shaping, topsoil, seeding and mulching, and granular placement required to make good any damage caused.

V. REMOVAL OF BRUSH, TREES AND RUBBISH

Where there is any brush, trees or rubbish along the course of the drainage works, including the full width of the work access, all such brush, trees or rubbish shall be close cut and grubbed out, and the whole shall be chipped up for recycling, burned or otherwise satisfactorily disposed of by the Contractor. The brush and trees removed along the course of the work are to be put into piles by the Contractor in locations where they can be safely chipped and disposed of, or burned by it, or hauled away and disposed of by the Contractor to a site to be obtained by it at its expense. Prior to and during the course of any burning operations, the Contractor shall comply with the guidelines prepared by the Air Quality Branch of the Ontario Ministry of the Environment and Climate Change, and shall ensure that the Environmental Protection Act is not violated. The Contractor shall be required to notify the local Fire Authorities and cooperate with them in the carrying out of any work. The removal of brush

and trees shall be carried out in close consultation with the Town Drainage Superintendent and/or Consulting Engineer to ensure that no decorative trees or shrubs are disturbed by the operations of the Contractor that can be saved. It is the intent of this project to save as many trees and bushes as practical within the roadway allowances and on private lands.

The Contractor shall protect all other trees, bushes, and shrubs located along the length of the drainage works except for those trees that are established, in consultation with the Town Drainage Superintendent, the Consulting Engineer, and the Owners, to be removed as part of the works. The Contractor shall note that protecting and saving the trees may require the Contractor to carry out hand work around the trees, bushes, and shrubs to complete the necessary final site grading and restoration.

Following the completion of the work, the Contractor is to trim up any broken or damaged limbs on trees which are to remain standing, and it shall dispose of said branches along with other brush, thus leaving the trees in a neat and tidy condition.

The Contractor shall remove all deleterious materials and rubbish along the course of the open drain and any such materials located in the bridge culverts while carrying out its cleaning of same. All such deleterious materials and rubbish shall be loaded up and hauled away by the Contractor to a site to be obtained by it at its cost.

VI. FENCING

Where it is necessary to take down any fence to proceed with the work, the same shall be done by the Contractor across or along that portion of the work where such fence is located. The Contractor shall be required to exercise extreme care in the removal of any fencing so as to cause a minimum of damage to same. The Contractor shall be required to replace any fence that is taken down in order to proceed with the work, and the fence shall be replaced in a neat and workmanlike manner. The Contractor shall not be required to procure any new materials for rebuilding the fence provided that it has used reasonable care in the removal and replacing of same. When any fence is removed by the Contractor, and the Owner thereof deems it advisable and procures new material for replacing the fence so removed, the Contractor shall replace the fence using the new materials and the materials from the present fence shall remain the property of the Owner.

VII. DETAILS OF BRIDGE WORK

The Contractor shall provide all material, labour and equipment to install a n[redacted] bridge for the agricultural lands of Maurice Trepanier ([redacted]), in the Cameron-Curry Drain.

When complete, the access bridge along the centreline of the new culvert shall have a total top width, including the top width of the sloped quarried limestone endwalls, of approximately 10.26 metres (33.66 ft.) and a travelled driveway top width of 9.16 metres (30.05 ft.). The quarried limestone end protection shall be installed on a slope no steeper than 1.50 horizontal to 1.00 vertical, and shall extend from the end of the new Aluminized Steel Type II pipe to the top elevation of the driveway.

The culvert installation on this project shall be set to the grades as shown on the plans or as otherwise established herein and the Town Drainage Superintendent and/or the Consulting Engineer may make minor changes to the bridge alignment as they deem necessary to suit the site conditions. All work shall be carried out in general accordance with the "**STANDARD SPECIFICATIONS FOR ACCESS BRIDGE CONSTRUCTION INCLUDING ENDWALL TREATMENTS, BACKFILLING AND INSTALLATION PROCEDURES**" attached to the specification and labelled **Appendix "B"**.

VIII. ALUMINIZED STEEL PIPE INSTALLATION

The new Aluminized Steel Corrugated Hel-Cor pipes to be installed The new Aluminized Steel Corrugated Hel-Cor pipe to be installed for this bridge is required to be provided as one (1) continuous length; however, where it is absolutely necessary, and only with the approval of the Town Drainage Superintendent and/or the Consulting Engineer, the Contractor may be allowed to utilize two (2) equal lengths of pipe coupled together with an Aluminized Steel Type II 10C bolted coupler of the same thickness of the culvert pipe, if applicable. The Aluminized Steel Corrugated pipe for this installation must be of the length, size, and thickness as identified in the plans and approved by the Town Drainage Superintendent and/or the Consulting Engineer prior to its placement in the drain.

The Contractor shall also note that the placement of the new access bridge culvert is to be performed totally in the dry, and it shall be prepared to take whatever steps are necessary to ensure same, all to the full satisfaction of the Town Drainage Superintendent and/or Consulting Engineer. As part of the work, the Contractor shall be required to clean out the drain along the full length of the bridge pipe and for a distance of 3.05 metres (10.00 ft.) both upstream and downstream of said pipe. The design parameters of the Cameron-Curry Drain at the location of the new access bridge installation consists of a 1.00 metre (3.28 ft.) bottom width, 0.08% grade, and 1.50 horizontal to 1.00 vertical side slopes. The Contractor shall be required to cut any brush and denude the existing drain side slopes of any vegetation as part of the grubbing operation. The Contractor shall also be required to dispose of all excavated and deleterious materials, as well as any grubbed out materials, to a site to be obtained by it at its own expense. The Contractor shall note that our survey indicates that the existing drain bottom is above the design grade. The Contractor shall be required to provide any and all labour,

materials and equipment to set the pipe to the required design grades. The Contractor shall also be required to supply, if necessary, a minimum of 150mm (6″) of 20mm (3/4″) clear stone bedding underneath the culvert pipe, extending from the bottom of the drain to the culvert invert grade, all to the full satisfaction of the Town Drainage Superintendent and/or Consulting Engineer. Furthermore, if an unsound base is encountered, it must be removed and replaced with 20mm (3/4″) clear stone satisfactorily compacted in place to the full satisfaction of the Town Drainage Superintendent and/or the Consulting Engineer.

The installation of the complete length of the new culvert pipe, including all appurtenances, shall be completely inspected by the Town Drainage Superintendent and/or the Consulting Engineer's Inspector prior to backfilling any portions of same. Under no circumstance shall the Contractor commence the construction or backfill of the replacement culvert pipe without the site presence of the Town Drainage Superintendent and/or the Consulting Engineer's Inspector to inspect and approve said installation. The Contractor shall provide a minimum of forty-eight (48) hours notice to the Town Drainage Superintendent and/or the Consulting Engineer prior to commencement of the work. The installation of the replacement culvert structure is to be performed during normal working hours of the Town Drainage Superintendent and/or the Consulting Engineer from Monday to Friday unless written authorization is provided by them to amend said working hours.

The Contractor shall also note that the placing of the new access bridge culvert shall be completed so that it totally complies with the parameters established and noted in the bridge plan. The placement of the culvert shall be on an even grade and performed totally in the dry, and the Contractor should be prepared to take whatever steps are necessary to ensure same, all to the full satisfaction of the Town Drainage Superintendent and/or Consulting Engineer.

IX. BRIDGE CONSTRUCTION

Once the new Aluminized Steel Corrugated pipe has been satisfactorily set in place, the Contractor shall completely backfill same with granular material M.T.O. Type "B" O.P.S.S. Form 1010, or local approved equivalent, with the following exception. The top 305mm (12″) of the backfill material for the full top width of the access, the full top width of the drain, and the approach to the east and transitions to the west shall be M.T.O. Type "A" O.P.S.S. Form 1010, or local approved equivalent.

The Contractor shall also perform the necessary excavation to extend the width of the driveway from the existing edge of the gravel shoulder to the top of the north bank, and from the top of the south bank to approximately 3.00 metres south of the right-of-way limit of County Road 8. This driveway approach for the entire length and width shall consist of a minimum of 305mm (12″) of granular material M.T.O. Type "A" satisfactory compacted in

place. The gravel apron shall extend from the full width of the access bridge culvert length, and include a 5.00 metre radius from approximately the edge of the asphalt roadway to the edge of the new gravel driveway, as shown on the plans. The gravel backfill shall extend across the pipe to approximately 3.00 metres south of the right-of-way limit of County Road 8, as shown on the plans.

The Contractor shall also be required to provide all labour, equipment and material to provide granular backfill to all gore areas between the east and west limits of the sloped quarried limestone end protection and the granular driveway as illustrated on the accompanying plans.

All granular backfill for the bridge installation shall be satisfactorily compacted in place to a minimum standard proctor density of 98% by means of mechanical compaction equipment. All of the backfill material, equipment used, and method of compacting the backfill material shall be provided and performed to the satisfaction of the Town Drainage Superintendent and/or Consulting Engineer.

The new corrugated steel pipe, for this installation, is to be provided with a minimum depth of cover measured from the top of the pipe of 305mm (12"). If the bridge culvert is placed at its proper elevations, same should be achieved. The above specified minimum requirement is **critical** and must be attained. Obviously, in order for the new residential access bridge culvert to properly fit the channel parameters, **all of the design grade elevations must be strictly adhered to**.

Also, for use by the Contractor, we have established a Bench Mark on-site. This Bench Mark is the top of nail set on south face of existing hydro pole on the north side of County Road 8, located approximately 20.00 metres east of the proposed bridge, and this **Bench Mark** is Elevation **186.639 metres**. The new pipe culvert and the backfilling is to be placed on the following basis:

The **west (upstream) invert** of the proposed bridge culvert is to be set at Elevation **184.513** metres.

The **east (downstream) invert** of the proposed bridge culvert is to be set at Elevation **184.500** metres.

The centreline of driveway for this bridge installation shall be set to Elevation **187.220** metres at the existing edge of the asphalt roadway, Elevation **186.833** metres at the culvert pipe centreline, and Elevation **186.472** metres at approximately 3.00 metres south of the right-of-way limit of County Road 8. The access bridge driveway, in all cases, shall be graded with a crossfall from the centreline of the driveway to the outer ends of the driveway at an approximate grade of 1.50%.

As a check, all of the access bridge culvert design grade elevations shall be confirmed before commencing to the next stage of the access bridge installation. The Contractor is also to check that the pipe

invert grades are correct by referencing the Bench Mark and the information provided on the detail within the plans.

Although it is anticipated that the culvert installation shall be undertaken in the dry, the Contractor shall supply and install a temporary Straw Bale Check Dam in the drain bottom immediately downstream of the culvert site during the time of construction. The straw bale check dam shall be to the satisfaction of the Town Drainage Superintendent and/or Consulting Engineer and must be removed upon completion of the Construction. All costs associated with the supply and installation of this Straw Bale Check Dam shall be included in the cost bid for the bridge installation.

X. REMOVALS

The Contractor shall be required to cut any brush and denude the existing drain sideslopes of any vegetation as part of the grubbing operation. However, the Contractor is asked to create minimal disturbance to existing vegetation beyond the limits of the proposed access bridge. The Contractor shall also be required to dispose of all excavated and deleterious materials, as well as any grubbed out materials, to a site to be obtained by it at its own expense. Likewise, any material excavated to allow for granular approaches to the bridge, driveway transitions, or installation of new end treatments shall be hauled away and disposed of by the Contractor.

XI. SLOPED QUARRIED LIMESTONE END PROTECTION

Once the new aluminized steel corrugated pipe has been set in place, the Contractor shall install sloped quarried limestone end protection at both ends of the access. The top 305mm (12″) of backfill material over the ends of the corrugated steel pipe, from the invert of said pipe to the top of the driveway elevation of the access bridge, shall be quarried limestone. The quarried limestone shall be provided as shown and detailed on the plan or as indicated in the Standard Specifications in **Appendix "B"** and shall be graded in size from a minimum of 100mm (4″) to a maximum of 250mm (10″). The quarried limestone to be placed on the sloped ends of the access bridge shall be underlain with a synthetic **non-woven** geotextile filter fabric. The sloped quarried limestone protection is to be rounded as shown on the plan details and shall also extend along the drain side slopes to a point directly in line with the ends of the culvert pipe. The road side approach to the entrance shall be provided with a minimum 5.00 metre radius at each end of the driveway entrance. All work shall be completed to the full satisfaction of the Town Drainage Superintendent and/or the Consulting Engineer.

The quarried limestone shall be provided as is shown and detailed and shall vary in size from a minimum of 100mm (4″) to a maximum of 250mm (10″). The quarried limestone pieces shall be carefully tamped into place with the use of a shovel bucket so that, when

complete, the quarried limestone erosion protection shall be consistent, uniform, and tightly laid in place. Prior to placing the quarried limestone, the Contractor shall place non-woven geotextile filter fabric "GMN160" conforming to O.P.S.S. 1860 Class 1 or approved equal, as an underlay. The Contractor shall take extreme care not to damage the geotextile filter fabric when placing the quarried limestone. The placement of the geotextile filter fabric and the quarried limestone, and the completion of the quarried limestone erosion protection shall be conducted to the full satisfaction of the Town Drainage Superintendent and/or Consulting Engineer.

The installation of the sloped quarried limestone end protection, unless otherwise specified herein, shall be provided in total compliance with Item 2, Item 3, and Item 4 of the **"STANDARD SPECIFICATIONS FOR ACCESS BRIDGE CONSTRUCTION INCLUDING ENDWALL TREATMENT, BACKFILLING AND INSTALLATION PROCEDURES".** These are attached to the back of these specifications and labelled **Appendix "B"**. The Contractor shall comply in all respects with the General Conditions included in Item 4 and the **"Typical Quarried Limestone End Protection"** detail illustrated within the plan.

XII. BENCH MARKS

Also, for use by the Contractor, we have established a Bench Mark along the course of the work and especially at the location where the structure is being constructed.

The plan includes a detail illustrating the work to be carried out. A Bench Mark has been indicated and the elevation has been shown and may be utilized by the Contractor in carrying out its work. The Contractor shall note that a specific design elevation grade has been provided for the invert at each end of the pipe in the table accompanying the detail. The table also sets out the pipe size, materials, and other requirements relative to the installation of the bridge structure. In all cases, the Contractor is to utilize the specified drain slope to set any new pipe installation. The Contractor shall ensure that it takes note of the direction of flow and sets the pipe to assure that all grades flow from south to north to match the direction of flow within the drain. The Contractor's attention is drawn to the fact that the pipe invert grades established herein provide for same to be set approximately 140mm below the design bottom, which is approximately 10% of the culvert diameter.

XIII. ANCILLARY WORK

During the course of any repair or improvements, the Contractor will be required to protect or extend any existing tile ends or swales to maintain the drainage from the adjacent lands. All existing tiles shall be extended utilizing Boss 1000 or equal plastic pipe of the same diameter as the existing tile and shall be installed in accordance with the "**Standard Lateral Tile Detail**"

as shown in the details included **Appendix "B"**, unless otherwise noted. Connections shall be made using a manufacturer's coupling wherever possible. For other connections, the Contractor shall utilize a grouted connection. Grouted mortar joints shall be composed of three (3) parts of clean, sharp sand to one (1) part of Portland Cement with just sufficient water added to provide a stiff plastic mix, and the mortar connection shall be performed to the full satisfaction of the Town Drainage Superintendent or the Consulting Engineer. The mortar joint shall be of a sufficient mass around the full circumference of the joint on the exterior side to ensure a tight, solid seal.

The Contractor shall also be required as part of the bridge installations to excavate and widen the drain bottom where required to fit the new bridge culvert pipes in order to provide a smooth transition between the new bridge culvert installations and the existing drain. Furthermore, the Contractor shall be required to divert and existing swales or furrows that conflict with the proposed access bridge structure.

The Contractor, when doing his excavation or any other portion of the work, shall be very careful not to interfere with, plug up or damage, any existing surface drains, swales and lateral or main tile ends. If it is found that said existing drains are interfered with in any way, the Contractor will be required to unplug or repair said drains immediately, at no extra cost to the project. If it is found that any existing lateral tiles or main tile drains or tile ends have been cut off or damaged in any way during the course of the work, the Contractor will be required to either repair or replace same, to the full satisfaction of the Town Drainage Superintendent and the Consulting Engineer.

XIV. TOPSOIL, SEED AND MULCH

The Contractor shall be required to restore all existing grassed areas and drain side slopes damaged by the structure installation, and place topsoil and seed and mulch over said areas including any specific areas noted on the plans. The Contractor shall be required to use the scavenged topsoil stripped from the drain banks. The balance of the topsoil required shall be obtained by the Contractor at its own expense. The Contractor shall provide all the material to cover the above mentioned surface areas with approximately 50mm of good, clean, dry topsoil on slopes and 100mm of good, clean, dry topsoil on horizontal surfaces, fine graded and spread in place ready for seeding and mulching. The placing and grading of all topsoil shall be carefully carried out according to Ontario Provincial Standard Specifications, Form 570, dated November, 2007, or as subsequently amended or as amended by these Specifications. Once the topsoil has been properly placed and fine graded, the Contractor shall seed and mulch the area. Seeding and mulching operations shall be carried out according to Ontario Provincial Standard Specifications, Form 572, dated November, 2003, or as subsequently amended or as amended by these Specifications. The seeding mixture shall be OSECO Seed Mixture Canada No. 1, as

available from Morse Growers Supply in Leamington, or equal. As part of the seeding and mulching operation, the Contractor shall be required to provide either a hydraulic mulch mix or a spread straw mulch with an adhesive binder in accordance with O.P.S.S. 1103.05.03 dated November, 2007, or as subsequently amended, to ensure that the grass seed shall be protected during germination and provide a thick, uniform cover to protect against erosion, where necessary. All work shall be completed to the full satisfaction of the Town Drainage Superintendent and/or the Consulting Engineer.

All of the work relative to the placement of topsoil and the seeding and mulching operation, shall be meticulously done and completed in a good and workmanlike manner all to the full satisfaction of the Town Drainage Superintendent and/or Consulting Engineer.

XV. GENERAL CONDITIONS

a) The Town Drainage Superintendent or Consulting Engineer shall have authority to carry out minor changes to the work where such changes do not lessen the efficiency of the work.

b) The Contractor shall satisfy itself as to the exact location, nature and extent of any existing structure, utility or other object which it may encounter during the course of the work. The Contractor shall indemnify and save harmless the Town of Kingsville and the Consulting Engineer and its' representatives for any damages which it may cause or sustain during the progress of the work. It shall not hold the Town of Kingsville or the Consulting Engineer liable for any legal action arising out of any claims brought about by such damage caused by it.

c) The Contractor shall provide a sufficient number of layout stakes and grade points so that the Drainage Superintendent and Consulting Engineer can review same and check that the work shall generally conform to the design and project intent.

d) The Contractor shall be responsible for any damage caused by it to any portion of the Municipal road system, especially to the travelled portion. When excavation work is being carried out and the excavation equipment is placed on the travelled portion of the road, the travelled portion shall be protected by having the excavation equipment placed on satisfactory timber planks or timber pads. If any part of the travelled portion of the road is damaged by the Contractor, the Town shall have the right to have the necessary repair work done by its' employees and the cost of all labour and materials used to carry out the repair work shall be deducted from the Contractor's Contract and credited to the Town. The Contractor, upon completing the works, shall clean all debris and junk, etc., from the roadside of the drain, and leave the site in a neat and workmanlike manner. The Contractor shall be responsible for keeping all public roadways utilized for hauling materials free and clear of mud and debris.

e) The Contractor shall provide all necessary lights, signs, and barricades to protect the public. All work shall be carried out in accordance with the requirements of the Occupational Health and Safety Act, and latest amendments thereto. A Traffic Control Plan is required on this project. The Traffic Control Plan is to comply with The Ontario Traffic Manual's Book 7 for Temporary Conditions. A suitable Traffic Control Plan must be submitted to the Consulting Engineer, the Town and/or the County of Essex for approval, where applicable.

f) Following the completion of the work, the Contractor is to trim up any broken or damaged limbs on trees which are to remain standing, and it shall dispose of said branches along with other brush, thus leaving the trees in a neat and tidy condition.

g) The whole of the work shall be satisfactorily cleaned up, and during the course of the construction, no work shall be left in any untidy or incomplete state before subsequent portions are undertaken.

h) All driveways, laneways and access bridges, or any other means of access on to the job site shall be fully restored to their former condition at the Contractor's expense. Before authorizing Final Payment, the Town Drainage Superintendent and the Consulting Engineer shall inspect the work in order to be sure that the proper restoration has been performed. In the event that the Contractor fails to satisfactorily clean up any portion of these accesses, the Consulting Engineer shall order such cleanup to be carried out by others and the cost of same be deducted from any monies owing to the Contractor.

i) The Contractor shall be required to submit to the Town, a Certificate of Good Standing from the Workplace Safety and Insurance Board prior to the commencement of the work and the Contractor shall be required to submit to the Town, a Certificate of Clearance for the project from the Workplace Safety and Insurance Board before Final Payment is made to the Contractor.

j) The Contractor shall furnish a Performance and Maintenance Bond along with a separate Labour and Material Payment Bond within ten (10) days after notification of the execution of the Agreement by the Owner unless otherwise established within the Tender Documents. One copy of said bonds shall be bound into each of the executed sets of the Contract. Each Performance and Maintenance Bond and Labour and Material Payment Bond shall be in the amount of 100% of the total Tender Price. All Bonds shall be executed under corporate seal by the Contractor and a surety company, authorized by law to carry out business in the Province of Ontario. The Bonds shall be acceptable to the Owner in every way and shall guarantee faithful performance of the Contract during the period of the Contract, including the period of guaranteed maintenance which shall be in effect for twelve (12) months after substantial completion of the works.

The Tenderer shall include the cost of bonds in the unit price of the Tender items as no additional payment shall be made in this regard.

k) The Contractor shall be required, as part of this Contract, to provide Comprehensive Liability Insurance coverage for not less than $5,000,000.00 on this project unless otherwise established in the Tender Documents, and shall name the Town of Kingsville and its' officials, and the Consulting Engineer and its staff as additional insured under the policy. The Contractor must submit a copy of this policy to both the Town Clerk and the Consulting Engineer prior to the commencement of work.

l) Monthly progress orders for payment shall be furnished the Contractor by the Town Drainage Superintendent. Said orders shall be for not more than 90% of the value of the work done and the materials furnished on the site. The paying of the full 90% does not imply that any portion of the work has been accepted. The remaining 10% shall be paid 45 days after the final acceptance and completion of the work and payment shall not be authorized until the Contractor provides the following:

i) a Certificate of Clearance for the project from the Workplace Safety and Insurance Board

ii) proof of advertising

iii) a Statutory Declaration, in a form satisfactory to the Consulting Engineer and the Town, that all liabilities incurred by the Contractor and its Sub-Contractors in carrying out the Contract have been discharged and that all liens in respect of the Contract and Sub-Contracts thereunder have expired or have been satisfied, discharged or provided for by payment into Court.

The Contractor shall satisfy the Consulting Engineer or Town that there are no liens or claims against the work and that all of the requirements as per the Construction Lien Act, 1983 and its' subsequent amendments have been adhered to by the Contractor.

m) In the event that the Specifications, Information to Tenderers, or the Form of Agreement do not apply to a specific condition or circumstance with respect to this project, the applicable section or sections from the Canadian Construction Documents Committee (C.C.D.C.) shall govern and be used to establish the requirements of the work.

APPENDIX "A"

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Subject: RE: Bridge Over the Cameron-Curry Drain (Trepanier) - Town of Kingsville - D19-008
From: Cynthia Casagrande <CCasagrande@erca.org>
Date: 3/26/2019, 9:06 AM
To: Tony Peralta <tony@peraltaengineering.com>, Dan Jenner <DJenner@erca.org>
CC: "russell@peraltaengineering.com" <russell@peraltaengineering.com>, Ken Vegh <kvegh@kingsville.ca>

Dear Tony:

We were not aware of this proposed bridge and your appointment under Section 78 of the Drainage Act, however, we have the following information to provide.

A review of our floodplain mapping for the Cameron-Curry Drain indicates that this drain is located within an area that is under the jurisdiction of the Essex Region Conservation Authority (ERCA) (Section 28 of the *Conservation Authorities Act*). Prior to undertaking works, a permit is required from this office.

We note that this office could issue an ERCA Permit to the Town of Kingsville for the installation of a temporary and permanent culvert crossing over the Cameron-Curry Drain at this site. This permit could be issued prior to review under the *Drainage Act* of the Final Drainage Report to be prepared by N. J. Peralta Ltd. Project No. D19-008.

It would be noted, as part of the ERCA permit approval, that if during the ERCA review of the Final Drainage Report, as per review under the *Drainage Act*, that if additional concerns or conditions of the ERCA became apparent, then these concerns may affect the design and ultimately require changes to the works that the Town will have to correct and/or alter works that will have already been installed. However, we do not expect that there will be any extraneous comments or concerns with respect to this project.

In order to proceed with the temporary culvert installation, we will require an application for permit form and the application for permit fee of $150.00. We would then look forward to receiving a copy of the Final Drainage Report for our review and approval through the Drainage Act processes.

If further information or clarification is required, please do not hesitate to email me.

Yours truly,

Cynthia Casagrande
Regulations Coordinator
Essex Region Conservation Authority
360 Fairview Avenue West, Suite 311
Essex ON N8M 1Y6
(519) 776-5209, Ext. 349

From: Tony Peralta <tony@peraltaengineering.com>
Sent: Wednesday, March 13, 2019 5:31 PM
To: Cynthia Casagrande <CCasagrande@erca.org>; Dan Jenner <DJenner@erca.org>
Cc: russell@peraltaengineering.com; Ken Vegh <kvegh@kingsville.ca>
Subject: Bridge Over the Cameron-Curry Drain (Trepanier) - Town of Kingsville - D19-008

Good afternoon Cynthia and Dan;

As you may be aware, our office was appointed under Section 78 of the Drainage Act for the installation of a new access bridge over the Cameron-Curry Drain for Maurice Trepanier (650-03100), along County Road 8. We are currently in the process of scheduling an on-site meeting for this project.

Based on our discussions with the Drainage Superintendent, Ken Vegh, and the Owner, the agricultural lands have been severed from the homestead. As part of the severance, a new access bridge is required for the agricultural property. As a result, we understand that the farm property Owner currently does not have a legal access to the farm property until the new access is installed. Based on this information, Mr. Trepanier has approached the Town of Kingsville to request that the a "temporary" access bridge be installed, in order to farm the lands, and the Town has accepted this request so long that an engineer's report through the provisions of the Drainage Act is completed. To avoid duplication of work, our office has prepared a bridge design for the "temporary" access bridge installation. The engineer's report, through the provisions of the Drainage Act, will follow to provide details of the "permanent" access bridge.

At this time, we wish to provide you with the preliminary design proposal for the above noted project.

The new access bridge shall be installed at the west limit of the subject property, within the Cameron-Curry Drain. Approximately 240.0m upstream of the proposed access bridge site is an existing 1400mm diameter CSP culvert having a length of 14.0m in length with sloped quarried limestone end treatments. This access bridge was installed under an Engineer's report prepared by our office in 2005. Approximately 115.0m downstream of the proposed access bridge consist of a road crossing culvert having 14.0m of 2.45m span x 1.55m rise concrete bridge. Furthermore, approximately 500.0m downstream of the road crossing culvert consists of an access bridge having 17.0m of 1600mm dia. CSP culvert.

Based on our preliminary design, we have determined that the new access bridge shall consist of approximately 17.0m of 1400mm diameter CSP with quarried limestone end treatments and 140mm of pipe embedment. This access is intended to provide a minimum access top width of 9.10m (30.0'). Attached you will find preliminary design drawings for your review.

We have reviewed the DFO website as it relates to the Fisheries Act and have performed a "Self Assessment" for this project. Also, as it relates the the Endangered Species Act, we have contacted the Town of Kingsville to ensure that this project is covered under the new ESA Regulation 242/08.

We trust that this information is satisfactory in order to obtain a permit for the installation of the "temporary" farm access bridge culvert. However, if you have any concerns or require additional information, please contact us at your earliest opportunity.
--

Regards,

Tony Peralta, P.Eng.

N.J. Peralta Engineering Ltd.
45 Division Street North
Kingsville, ON
N9Y 1E1
(519)733-6587 office
(519)733-6588 fax

APPENDIX "B"

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STANDARD SPECIFICATIONS FOR ACCESS BRIDGE CONSTRUCTION INCLUDING ENDWALL TREATMENT, BACKFILLING AND INSTALLATION PROCEDURES

1. CONCRETE FILLED JUTE BAG HEADWALLS

After the Contractor has set in place the new pipe, it shall completely backfill the same and install new concrete jute bag headwalls at the locations and parameters indicated on the drawing. When constructing the concrete jute bag headwalls, the Contractor shall place the bags so that the completed headwall will have a slope inward from the bottom of the pipe to the top of the finished headwall. The slope of the headwall shall be one unit horizontal to five units vertical. The Contractor shall completely backfill behind the new concrete jute bag headwalls with Granular "B" and Granular "A" material as per O.P.S.S. Form 1010 and the granular material shall be compacted in place to a Standard Proctor Density of 100%. The placing of the jute bag headwalls and the backfilling shall be performed in lifts simultaneously. The granular backfill shall be placed and compacted in lifts not to exceed 305mm (12") in thickness.

The concrete jute bag headwalls shall be constructed by filling jute bags with concrete. All concrete used to fill the jute bags shall have a minimum compressive strength of 21 MPa in 28 days and shall be provided and placed only as a wet mix. Under no circumstance shall the concrete to be used for filling the jute bags be placed as a dry mix. The jute bags, before being filled with concrete, shall have a dimension of 460mm (18") x 660mm (26"). The jute bags shall be filled with concrete so that when they are laid flat, they will be approximately 100mm (4") thick, 305mm (12") to 380mm (15") wide and 460mm (18") long.

The concrete jute bag headwall to be provided at the end of the bridge pipe shall be of a single bag wall construction. The concrete filled bags shall be laid so that the 460mm (18") dimension is parallel with the length of the new pipe. The concrete filled jute bags shall be laid on a footing of plain concrete being 460mm (18") wide, extending for the full length of the wall, and from 305mm (12") below the bottom of the culvert pipe to a minimum of 305mm (12") above the bottom of the culvert pipe invert.

All concrete used for the footing, cap and bags shall have a minimum compressive strength of 21 Mpa in 28 days and include 6% ± 1% air entrainment.

Upon completion of the jute bag headwall the Contractor shall cap the top row of concrete filled bags with a layer of plain concrete, minimum 100mm (4") thick, and hand trowelled to obtain a pleasing appearance. If the cap is made more than 100mm thick, the Contractor shall provide two (2) continuous 15M reinforcing bars set at mid-depth and equally spaced in the cap. The Contractor shall fill all voids between the concrete filled jute bags and the corrugated steel pipe with concrete, particular care being taken underneath the pipe haunches to fill all voids.

The completed jute bag headwalls shall be securely embedded a minimum of 500mm (20") measured perpendicular to the sideslopes of the drain.

As an alternate to constructing a concrete filled jute bag headwall, the Contractor may construct a grouted concrete rip rap headwall. The specifications for the installation of a concrete filled jute bag headwall shall be followed with the exception that broken sections of concrete may be substituted for the jute bags. The concrete rip rap shall be approximately 460mm (18") square and 100mm (4") thick and shall have two (2) flat parallel sides. The concrete rip rap shall be fully mortared in place using a mixture composed of three (3) parts of clean sharp sand and one (1) part of Portland Cement.

The complete placement and backfilling of the headwalls shall be performed to the full satisfaction of the Town Drainage Superintendent.

2. PRECAST INTERLOCKING CONCRETE BLOCK HEADWALLS

With the authorization of the Owner, the Town Drainage Superintendent and the Consulting Engineer, the Contractor shall install interlocking concrete block headwalls in lieu of concrete filled jute bag headwalls.

The standard precast interlocking concrete blocks shall be rectangular in shape with square corners and be a minimum size of 600mm x 600mm x 1200mm (2' x 2' x 4'), as available from Underground Specialties Inc./Wolseley Inc., or approved equal. Blocks with modified lengths may be utilized to fill in staggered sections of the block wall. All blocks shall be cast in one pour with no cold joints and shall have minimum compression strength of 20MPa at 28 days. All precast concrete blocks shall be formed with interlocking pockets and tenons and each block shall be assembled in a staggered formation to prevent

sliding at the interface between blocks. All precast concrete blocks shall be uniform in size with relatively smooth and consistent joints. All precast concrete blocks shall have a smooth and consistent exterior finish. Each block shall be fitted with a lifting ring that will not interfere with the assembly of the block wall once they are set in place. Cap blocks shall be utilized on the top course of the wall with the top of the cap blocks having a smooth, uniform finish.

Precast interlocking blocks that abut the culvert pipe shall be cast as once solid piece and shall be cut and shaped to fit closely around the perimeter of the pipe. The face of the wall shall not extend beyond the end of the pipe. All minor gaps between the blocks and the pipe shall be sealed with no shrink grout for the full depth of the blocks. At the base of the wall, a base block shall be used at the bottom of the interlocking block wall. The base block shall be founded on a firm solid base. When necessary, the Contractor shall provide a minimum of 150mm thickness of level compacted granular bedding, or a lean concrete footing, as a firm foundation for the blocks. The base block shall be set level and shall convey a vertical projection throughout its full height and shall include filter cloth behind the wall for the full height of the blocks to prevent soil migration though any joints. Filter cloth fabric shall be non-woven geotextile material and be minimum GMN-160 meeting O.P.S.S. Class I. Both headwalls shall be assembled concurrently with a continuous uni-axial geogrid SG350, or equal, installed across the entire structure at every second course of blocks, to tie each headwall to each other. Both the non-woven filter cloth and the uni-axial geogrid are available from Armtec Construction Products or approved equal.

The blocks shall extend up from the pipe invert and cross the full width of the drain and be embedded a minimum of 500mm into the drain banks. Where required for the top of the block wall to match the height of the completed driveway, the Contractor shall embed the bottom course of blocks into the drain bottom the appropriate depth to achieve the required top elevation of the wall.

The Contractor shall arrange for the supplier to provide a interlocking block layout drawings outlining block assembly of the proposed headwall to the Consulting Engineer for approval prior to proceeding with fabrication and assembly of same. The Contractor shall arrange with the supplier for technical assistance with the assembly of the structure on-site in full accordance with the requirements of the supplier. All assembly installation shall be carried out to avoid any damage to the culvert and shall follow the supplier's recommendation in every respect to ensure a proper and safe installation.

The precast interlocking concrete block headwalls shall be installed vertically, and shall extend from the end of the Aluminized Steel Corrugated Hel-Cor Pipe to the top elevation of the driveway. Under no circumstances shall the interlocking block wall be installed with an outward projection. When complete, the outside face of the headwall shall be installed flush with the end of the proposed culvert. The precast interlocking concrete block headwall shall be installed perpendicular to the drain banks. The Contractor shall also be required to satisfactorily backfill the area in behind the new headwall with granular fill as already specified in the preceding paragraphs for backfilling of the bridge culvert. The top elevation of the headwalls, opposite the travelled roadway, are to be set no less than 75mm (3"), below the existing ground elevation. The alignment of these headwalls shall be performed to the full satisfaction of the Drainage Superintendent or the Consulting Engineer. The installation of the precast interlocking concrete block headwalls shall also comply with the "Block Headwall Installation Instructions for Culverts" provided by Underground Specialties Inc./Wolseley Inc.

3. QUARRIED LIMESTONE ENDWALLS

The backfill over the ends of the corrugated steel pipe shall be set on a slope of 1-½ metres horizontal to 1 metre vertical from the bottom of the corrugated steel pipe to the top of each sideslope and between drain sideslopes. The top 305mm (12") in thickness of the backfill over the ends of the corrugated steel pipe shall be quarried limestone. The quarried limestone shall also be placed on a slope of 1-½ metres horizontal to 1 metre vertical from the bottom of the corrugated steel pipe to the top of each sideslope of the drain and between both sideslopes. The quarried limestone shall have a minimum dimension of 100mm (4") and a maximum dimension of 250mm (10"). It shall be placed with the quarried limestone pieces carefully tamped into place with the use of a shovel bucket so that, when complete, the end protection shall be consistent, uniform, and tightly laid in place.

Prior to placing the quarried limestone end protection over the granular backfill, the Contractor shall lay non-woven geotextile filter fabric "GMN160" conforming to O.P.S.S. 1860 Class I or approved equal. The geotextile filter fabric shall extend from the bottom of the corrugated steel pipe to the top of each sideslope of the drain and between both sideslopes of the drain.

The Contractor shall take extreme care not to damage the geotextile filter fabric when placing the quarried limestone on top of the filter fabric.

4. BRIDGE BACKFILL

After the corrugated steel pipe has been set in place, the Contractor shall backfill the pipe with Granular "B" material, O.P.S.S. Form 1010 with the exception of the top 305mm (12") of the backfill. The top 305mm (12") of the backfill for the full width of the excavated area (between each sideslope of the drain) and for the top width of the driveway, shall be Granular "A" material, O.P.S.S. Form 1010. The granular backfill shall be compacted in place to a Standard Proctor Density of 100% by means of mechanical compactors. All of the backfill material, equipment used, and method of compacting the backfill material shall be inspected and approved and meet with the full satisfaction of the Town Drainage Superintendent.

5. GENERAL

Prior to the work commencing, the Town Drainage Superintendent must be notified, and under no circumstances shall work begin without the Superintendent being at the site. Furthermore, the grade setting of the pipe must be checked, confirmed, and approved by the Superintendent prior to continuing on with the bridge installation.

The alignment of the new bridge culvert pipe shall be in the centreline of the existing drain, and the placing of same must be performed totally in the dry.

Prior to the installation of the new access bridge culvert, the existing sediment build-up in the drain bottom must be excavated and completely removed. This must be done not only along the drain where the bridge culvert pipe is to be installed, but also for a distance of 3.05 metres (10 ft.) both upstream and downstream of said new access bridge culvert. When setting the new bridge culvert pipe in place it must be founded on a good undisturbed base. If unsound soil is encountered, it must be totally removed and replaced with 20mm (3/4") clear stone, satisfactorily compacted in place.

When doing the excavation work or any other portion of the work relative to the bridge installation, care should be taken not to interfere with, plug up, or damage any existing surface drains, swales, and lateral or main tile ends. Where damage is encountered, repairs to correct same must be performed immediately as part of the work.

The Contractor and/or landowner performing the bridge installation shall satisfy themselves as to the exact location, nature and extent of any existing structure, utility or other object that they may encounter during the course of the work. The Contractor shall indemnify and save harmless the Town, the Town Drainage Superintendent and the Engineer for any damages which it may cause or sustain during the progress of the work. It shall not hold them liable for any legal action arising out of any claims brought about by such damage caused by it.

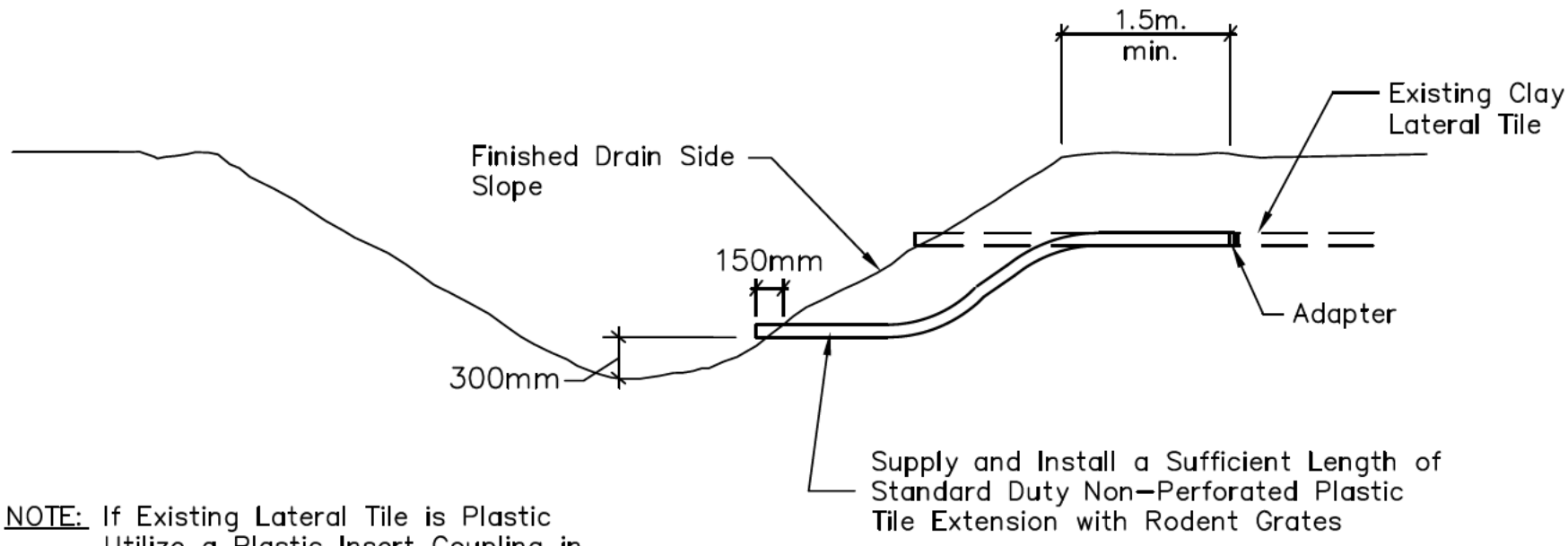
Where applicable, the Contractor and/or landowner constructing the new bridge shall be responsible for any damage caused by them to any portion of the Town road right-of-way. They shall take whatever precautions are necessary to cause a minimum of damage to same and must restore the roadway to its' original condition upon completion of the works.

When working along a municipal roadway, the Contractor shall provide all necessary lights, signs, barricades and flagmen, as required to protect the public. All work shall be carried out in accordance with the requirements of the Occupational Health and Safety Act, and latest amendments thereto. If traffic control is required on this project, it is to comply with the M.T.O. Traffic Control Manual for Roadway Work Operations.

Once the bridge installation has been completed, the drain sideslopes directly adjacent the new headwalls and/or endwalls are to be completely restored including revegetation, where necessary.

All of the work required towards the installation of the bridge shall be performed in a neat and workmanlike manner. The general site shall be restored to its' original condition, and the general area shall be cleaned of all debris and junk, etc. caused by the work.

All of the excavation, installation procedures, and parameters as above mentioned under this sub-heading, are to be carried out and performed to the full satisfaction of the Town Drainage Superintendent.



NOTE: If Existing Lateral Tile is Plastic Utilize a Plastic Insert Coupling in Place of Adapter.

STANDARD LATERAL TILE DETAIL

SCALE = N.T.S.

APPENDIX "C"

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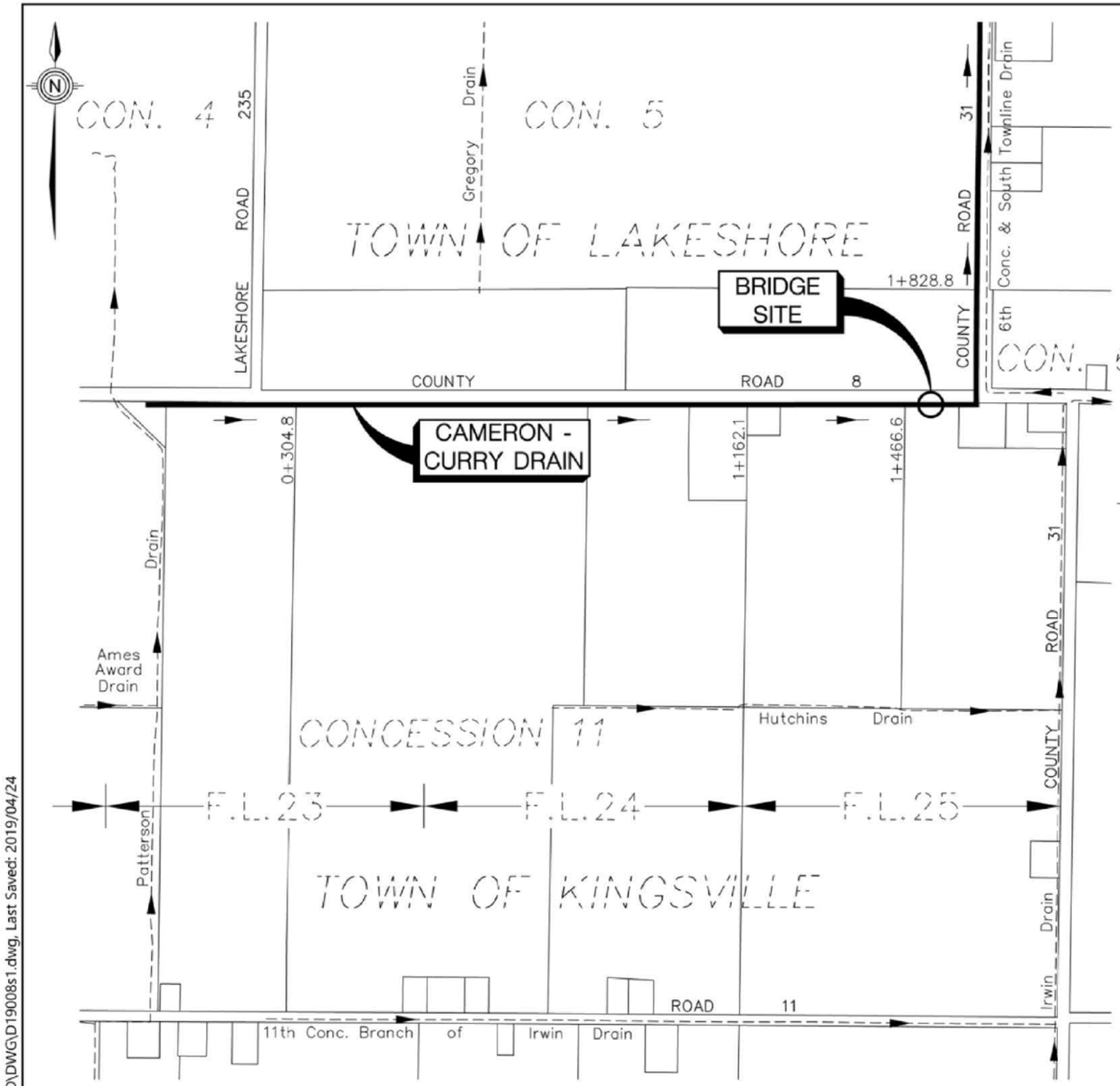
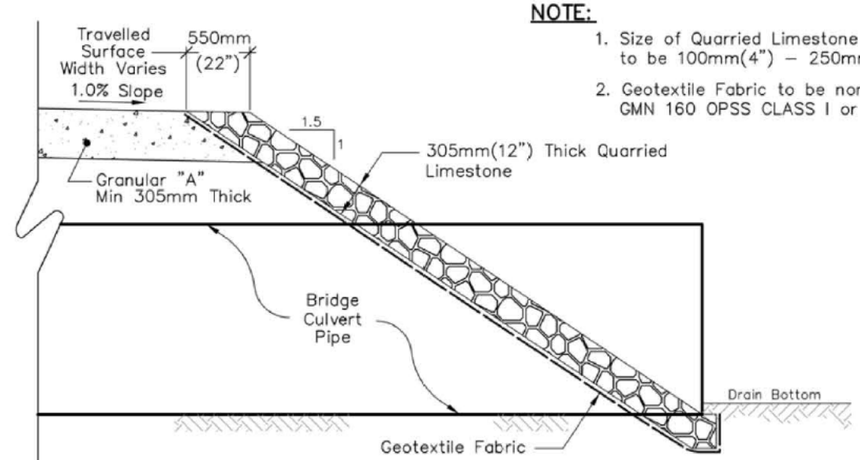


KEY PLAN

Scale = 1:10,000

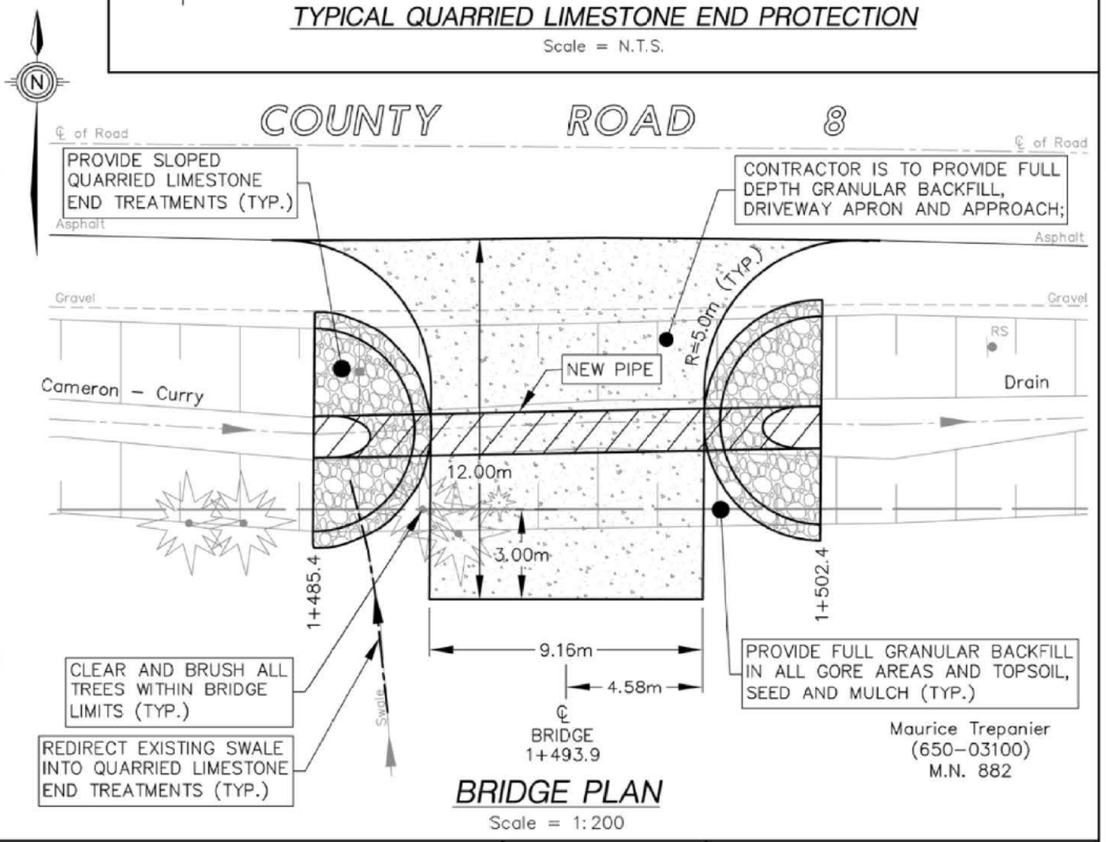
NOTE:

1. Size of Quarried Limestone to be 100mm(4") – 250mm(10")
2. Geotextile Fabric to be non–woven GMN 160 OPSS CLASS I or Equal



TYPICAL QUARRIED LIMESTONE END PROTECTION

Scale = N.T.S.



BRIDGE PLAN

Scale = 1:200

BENCHMARK:

TOP OF NAIL SET ON SOUTH FACE OF EXISTING HYDRO POLE ON THE NORTH SIDE OF COUNTY ROAD 8, LOCATED APPROXIMATELY 20.0m EAST OF PROPOSED BRIDGE.

ELEV. = 186.639m

PIPE SIZE:	PIPE LENGTH:	PIPE GAUGE:	CORRUGATIONS:	TYPE OF PIPE:
1400mm	17.0m (55.77 FT.)	2.0mm (14 GA.)	125mm x 25mm (5.0" x 1.0")	ALUMINIZED STEEL TYPE II CORRUGATED HEL–COR PIPE

PIPE & DRIVEWAY ELEVATIONS:

UPSTREAM INV. (W) = 184.513m
DOWNSTREAM INV. (E) = 184.500m
DESIGN GRADE = 0.08%
℄ OF DRIVEWAY AT PAVEMENT EDGE = 187.220m
℄ OF DRIVEWAY AT PIPE CENTRELINE = 186.833m
℄ OF DRIVEWAY 3.0m SOUTH OF R.O.W. LIMIT = 186.472m
DRIVEWAY CROSSFALL FROM CENTRELINE TO TOP OUT END OF END WALL = 1.50%

BRIDGE OVER THE CAMERON-CURRY DRAIN

(for Maurcie Trepanier, (650-03100), Pt. Lot 25, Concession 11)

IN THE

TOWN OF KINGSVILLE (Geographic Township of Gosfield North)

IN THE

COUNTY OF ESSEX • ONTARIO

LICENSED PROFESSIONAL ENGINEER
A. B. PERALTA
100138683
2019-04-26
PROVINCE OF ONTARIO

N. J. PERALTA ENGINEERING LTD.
45 DIVISION STREET NORTH
KINGSVILLE, ONTARIO
N9Y 1E1

DATE: APRIL 26th, 2019

ANTONIO B. PERALTA, P.ENG.

FILE No.: D19-008

DRAWN BY: R.A.L.
PLOT CODE: 1:1
FILE: D19008S1.DWG

APPENDIX 'C'

100mm 80mm 60mm 40mm 20mm 0 20mm 1:1

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