

THE CORPORATION OF THE TOWN OF AMHERSTBURG

BY-LAW NO. 2017 - 13

By-law to provide for the New Residential Access Culvert over the South 7th Concession Drain for Jon Marwood Parks (Roll No. 570-0440 (Part2) – Part of Lot 83, Concession 7 based on the Drainage Report by RC Spencer Associates Inc.

WHEREAS as request for repair and improvement of the South 7th Concession Drain was received under section 78 of the Drainage Act;

WHEREAS Council of the Corporation of the Town of Amherstburg felt it necessary to appoint an engineer for the purpose of preparation of an engineer's report for the repair and improvement under section 78 of the Drainage Act;

WHEREAS Council of the Corporation of the Town of Amherstburg has authorized Lou Zarlenga, P. Eng., RC Spencer Associates Inc. to prepare a report and said engineer's report dated December 19, 2016, can be referenced as Schedule A, located in the Clerk's Department agreement file # 2017-13.

WHEREAS \$28,270.00 is the amount to be contributed by the Town of Amherstburg for the drainage works;

AND WHEREAS the report was considered and adopted by Amherstburg Drainage Board at the meeting held on Tuesday, February 7th, 2017.

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

1. AUTHORIZATION

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

2. BORROWING

The Corporation of the Town of Amherstburg may borrow on the credit of the Corporation the amount of \$28,270.00 being the amount necessary for the improvements of the drainage works.

This project being the New Residential Access Culvert over the South 7th Concession Drain for Jon Marwood Parks (Roll No. 570-0440 (Part2) – Part of Lot 83, Concession 7.

3. DEBENTURE(S)

The Corporation may issue debenture(s) for the amount borrowed less the total amount of:

- (a) Grants received under section 85 of the Drainage Act;
- (b) Monies paid as allowances;
- (c) Commuted payments made in respect of lands and roads assessed with the municipality;
- (d) Money paid under subsection 61(3) of the Drainage Act; and
- (e) Money assessed in and payable by another municipality.

4. PAYMENT

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

- (1) A special equal annual rate sufficient to redeem the principal and interest on the debenture(s) shall be levied upon the lands and roads as shown in the schedule and shall be collected in the same manner and at the same as other taxes are collected in each year for 5 years after the passing of this by-law.
- (2) For paying the amount \$0.00 being the amount assessed upon the lands and roads belonging to or controlled by the municipality a special rate sufficient to pay the amount assessed plus interest thereon shall be levied upon the whole rateable property in the Town of Amherstburg in each year for 5 years after the passing of this by-law to be collected in the same manner and at the same time as other taxes collected.
- (3) All assessments of \$1000.00 or less are payable in the first year in which the assessments are imposed.

5. SCHEDULE OF ASSESSMENTS OF LANDS AND ROADS

Property Description				Estimated Assessment as per Report	Estimated Grants 33 1/3%	Equal Bi-Annual Rate to be Imposed
Lot or Part Lot No.	Concession	Geographic Township	Parcel Roll No.			
Part Lot 83	7	Malden	570-04400 (Part 2)	\$28,270.00	\$0.00	\$6,294.40
Total				\$28,270.00	\$0.00	\$6,294.00

Read a first and second time and provisionally adopted this 13th day of February, 2017.

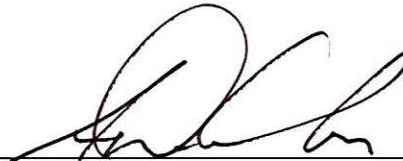


MAYOR – ALDO DICARLO



CLERK – PAULA PARKER

Read a third time and finally passed this 10 day of APRIL, 2017.



MAYOR – ALDO DICARLO



CLERK – PAULA PARKER-

DEPUTY CLERK – TAMMY FOWKES

MUNICIPAL DRAINAGE REPORT

**NEW RESIDENTIAL ACCESS CULVERT OVER THE
SOUTH 7th CONCESSION DRAIN**

FOR JON MARWOOD PARKS

Roll No. 570-04400 (Part 2) - Part of Lot 83, Concession 7



RC SPENCER ASSOCIATES INC.
Consulting Engineers

Windsor: 261 Shepherd St. E. - Windsor ON N8X 2K6
Leamington: 18 Talbot St. W. - Leamington ON N8H 1M4
Chatham-Kent: 138 King St. W. Unit 102 - Chatham ON N7M 1E3

File No. 16-523

December 19, 2016

December 19, 2016

Mayor and Municipal Council
Corporation of the Town of Amherstburg
271 Sandwich Street South
Amherstburg, Ontario
N9V 2A5

Re: South 7th Concession Drain – New Residential Access Culvert for Jon Marwood Parks
Roll No. 570-04400 (Part 2) - Part of Lot 83, Concession 7
Town of Amherstburg
Project No. 16-523

Mayor and Members of Council:

1.0 AUTHORIZATION

In accordance with your instructions, we have prepared the following report that provides for the construction of a new residential access culvert in the South 7th Concession Drain adjacent to the east side of Concession Road 7 on the newly severed property owned by Jon Marwood Parks (Roll No. 570-04400 Part 2) in Part of Lot 83, Concession 7, in the Town of Amherstburg. The new access culvert will serve a 0.47 Ha (1.16 Ac) parcel newly severed from Roll No. 570-04400. On the watershed drawing, the remnant parcel is shown as Roll No. "570-04400 Part 1" and the severed parcel is shown as Roll No. "570-04400 Part 2".

The Municipality has issued instructions to carry out the necessary improvements to this drain by the installation of this culvert under the provisions of the Drainage Act. Our appointment and the works relating to the construction of the above mentioned access culvert are in accordance with Section 78 of the "Drainage Act, R.S.O. 1990, Chapter D.17". Accordingly the firm of RC Spencer Associates Inc. has performed all of the necessary surveys, investigations, etc., and we report thereon as follows.

2.0 CURRENT DRAINAGE REPORT AND HISTORY

The South 7th Concession Drain is an open ditch along the east side of Concession Road 7. It outlets into the Beaudoin Drain in Lot 63, Concession 6. The drain proceeds upstream, northerly, to its head at the south limit of South Sideroad (formerly Middle Sideroad). Presently, the property designated as Roll No. 570-04400 (Part 2) has no direct access from Concession Road 7.

The most recent drainage report prepared for the South 7th Concession Drain is one dated June 5, 2009 and provided for a 2700mm diameter access culvert was installed in the South 7th Concession Drain to serve a property in Lot 65, Concession 7. Prior to this, an Engineer's report was prepared by Lou Zarlenga, P.Eng. dated April 8, 1996. Under the 1996 report, a 2700mm diameter access culvert was installed in the South 7th Concession Drain to serve a property in Lot

66, Concession 7. An Engineer's report prepared by Lou Zarlenga dated June 5, 1987, provided a new maintenance schedule for assessing the costs of repairing and maintaining the open drain.

Under a previous report dated November 20, 1972 and prepared by W. J. Settington is the current report and provided for the entire length of the South 7th Concession Drain to be repaired and improved by brushing and deepening of the open drain and by the replacement of two access culverts in Lot 82, Concession 7. At that time, there was no access culvert in the portion of the drain fronting Roll No. 570-04400 (Part 2). The 1972 report is the current and governing bylaw that establishes the design gradeline for the bottom of the open drain.

3.0 SITE MEETING

After reviewing the drainage information and the previous Engineer's reports on the drain, an on-site meeting was held on August 12, 2016 with the affected landowners, at the site of this drain enclosure.

In attendance were:

- Mr. Lou Zarlenga, P.Eng.
- Mr. Marvel Hormiz, E.I.T.
- Mr. Shane McVitty
- Mr. Jon Parks

Representing:

RC Spencer Associates Inc.
RC Spencer Associates Inc.
Town of Amherstburg
Landowner

Comments of Mr. Jon Parks – Roll No. 570-04400

- Residential access culvert will be a new installation at the location of a newly severed residential site.
- Mr. Parks prefers to have headwalls constructed of decorative concrete blocks.
- Mr. Parks indicated the location preferred for the centreline of the new access crossing.
- Mr. Parks indicated that he not yet decided the type of surface treatment that he will ultimately have at this driveway. It may be asphalted, gravel, etc.

Design Consideration

- Ensure that the concrete block headwalls are not so close to the road or so high that they would interfere with snow plows.

4.0 INSPECTION AND SURVEY

Topographic survey data was gathered on the alignment of the South 7th Concession Drain in the area where the new access culvert is proposed for installation. The open channel was inspected, as well as, the closest upstream and downstream structures.

5.0 WATERSHED DESCRIPTION

The watershed area upstream of the proposed culvert on the South 7th Concession Drain is irregular in shape and serves a surface drainage area of approximately 75.3 hectares (186 acres).

The soil type within the watershed area upstream of the culvert site is predominantly Brookston Clay Loam. The topography of the watershed area upstream is relatively flat and the bottom gradient of the drain at the site is approximately 0.13%.

6.0 EXISTING CONDITIONS

Presently, there is no access culvert across the frontage of the newly severed residential lot (Roll No. 570-04400 Part 2) to provide direct access to the new house lot from Concession Road 7. Generally, the open drain at the proposed culvert site is reasonably wide and deep. The average top width is approximately 5.80m (19') and the depth is approximately 1.57m (5'2"). The open drain is in fair to good condition.

7.0 LANDOWNER'S REQUEST

Landowner of Roll No. 570-04400 (Part 2) has requested that a new access culvert be installed in the South 7th Concession Drain to accommodate the new residential property.

A preliminary estimate for the decorative concrete block headwalls was provided to the property owner. Upon further review of the headwall options, the property owner decided to use sloped quarried rock erosion protection as a replacement for the decorative concrete block headwalls.

The property owner also requested a driveable top width of 9.1m (30') to provide more room for trucks and big farm equipment entering into the driveway.

8.0 DESIGN CONSIDERATIONS

The selected hydraulic capacity of the structure must meet the current design standards recommended by the Ministry of Agriculture, Food and Rural Affairs. The Design and Construction Guidelines suggest that an access culvert serving agricultural land, farm operations and residences be designed to freely pass the runoff generated from a 5 to 10 year return period storm. We have applied a 10 year return period storm criterion.

The design bottom elevations of the new culvert is set approximately 10% of the pipe diameter being approximately 140mm (5.5") below the by-law grade. This embedment is requested by the conservation authorities to enhance aquatic habitat.

9.0 RECOMMENDATIONS

Based on our detailed investigations, examinations, discussions and review with all affected landowners and the Municipality of Amherstburg, we recommend the construction of a new access culvert as follows:

- a) The installation of a new round, corrugated steel pipe (CSP) that is structurally and hydraulically adequate and provides a minimum clear driveable top width of 9m (30') plus the additional width required to provide a turning radii of 5 metres (16.4') on both sides. The culvert shall consist of a 16m (52'6") length of 1400mm diameter aluminized (Type II) Corrugated Steel Pipe with a minimum metal thickness of 2.8mm (12 gauge) and a corrugation profile of 125mm x 25mm.

- b) The backfill at both ends of the culvert will be sloped and protected with graded erosion stone, for bank stabilization and erosion protection.
- c) That the pipe have an embedment of 140mm below the governing grade line to provide sufficient cover, decrease the obstructions to flow, and increase the passage of aquatic species.
- d) We recommend that the works constructed under this report be herein after considered a part of the South 7th Concession Drain. We recommend that these works be done and the related costs be assessed under the provisions of The Drainage Act.

10.0 DRAWINGS AND SPECIFICATIONS

As part of this report, we have attached design drawings for the proposed culvert. There is a set of three drawings:

- a) drawing showing the location of the culvert on the South 7th Concession Drain and the approximate limits of the watershed;
- b) drawing showing a site plan and longitudinal section with details and dimensions for the culvert constructions; and
- c) drawing showing a cross-section for the culvert construction.

Also attached as **Appendix 'B'** are:

- a) **'Special Provisions'** for the culvert construction which set out specifications and construction details for the various aspects of the required works to be conducted under this report;
- b) **'General Specifications for Access Culvert Construction'**;
- c) **'Environmental Protection Special Provisions'**.

Also attached as **Appendix 'C'** is an **'Endangered Species Act Review'** providing pertinent information.

11.0 ALLOWANCES

The construction of the access culvert will be carried out wholly from private property described as Roll No. 570-04400 (Part 2). We have not provided any allowance under Section 29 of the Drainage Act as the culvert will be located within the limits of the existing municipal drain. Also, we have not included any allowance under Section 30 of the Drainage Act for damages to lands and crops (if any) caused by the construction of the access crossing and the operation of equipment as all excess materials will be hauled off-site and no crops are involved. The working area designated in the specifications shall be provided by the landowner, in the future, for the purposes of future maintenance of the culvert crossing.

12.0 ESTIMATE OF COSTS

Our estimate of the total cost of the proposed work, including the cost of the engineer’s report and all incidental expenses, is made up as follows:

CONSTRUCTION ITEMS

1. Access Culvert - 1400 mm diameter CSP pipe

a) Remove and dispose of existing brush and trees (approximately two trees) including stumps, and strip top soil for road base.	\$	900.00
b) Supply to site 16m of 1400mm diameter aluminized (Type II) corrugated steel pipe (CSP) with a 2.8mm wall thickness and a 125mm x 25mm corrugation profile	\$	7,550.00
c) Supply and install all 20-25mm clear stone material for pipe bedding, being approximately 9 tonnes.	\$	300.00
d) Supply and install all granular ‘B’ (Type II) bedding and backfill material for pipe installation, being approximately 130 tonnes.	\$	3,220.00
e) Supply and install all granular ‘A’ material for road base, being approximately 72 tonnes.	\$	2,160.00
f) Supply labour and equipment to excavate for and install specified pipe including all drain excavation, compaction, disposal of surplus material and all drain bank and road restoration and bank seeding & mulching. Supply labour, equipment and materials to redirect all lateral tile drains that outlet into the open drain opposite the new culvert and outlet them into the open drain beyond the limits of the new culvert. Traffic control is also included.	\$	3,000.00
g) Supply and install a total of approximately 43 square metres (25 tonne) of quarried and graded erosion stone (150mm - 230mm) protection on the drain banks at both ends of culvert pipe, approximately 300mm in depth including all required excavation, disposal of surplus materials, and placement of Terrafix 270R or equal geotextile non-woven filter fabric.	\$	1,900.00
h) Supply, install and maintain silt fence for duration of project.	\$	500.00
SUB TOTAL FOR CONSTRUCTION	\$	19,530.00
H.S.T. ON INCIDENTALS (1.76%)	\$	345.00
TOTAL FOR CONSTRUCTION (including H.S.T.)	\$	19,875.00

INCIDENTALS

Survey, report, estimate, specifications, contract administration and inspection.	\$	5,900.00
Review drainage reports provided to determine drainage area and make associated revisions required.	\$	1,600.00
Contingency Allowance (if required)	\$	750.00
SUBTOTAL FOR INCIDENTALS	\$	8,250.00
H.S.T. ON INCIDENTALS (1.76%)	\$	145.00
TOTAL FOR INCIDENTALS	\$	8,395.00
TOTAL ESTIMATED COST	\$	28,270.00

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

13.0 UTILITIES

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

14.0 ASSESSMENT

Under the Drainage Act, assessments against individual properties are normally comprised of three (3) assessment components:

- i. Benefit (*advantages relating to the betterment of lands, roads, buildings, or other structures resulting from the improvement to the drain*).
- ii. Outlet Liability (*part of cost required to provide outlet for lands and roads*).
- iii. Special Benefit (*additional work or feature that may not affect function of the drain*).

In general, if a project involves the replacement of an existing access culvert, we would normally assess the costs involved in constructing this culvert, 60% against the property being provided access as a “Special Benefit” and 40% against the upstream watershed as “Outlet” assessments. Where the crossing is a “first time” installation of an access culvert where no culvert currently

provides direct access to the property, we would normally assess the costs entirely against the adjoining private property as a “Special Benefit”.

On this particular project, the access culvert is a new installation where no culvert currently exists to provide access to the newly severed residential lot. In view of the above, we have assessed the above estimated cost entirely against Roll No. 570-04400 (Part 2) as a “Special Benefit” as shown in the attached Schedule of Assessment labelled as **Schedule ‘A-1’** included in **Appendix ‘A’**.

15.0 FUTURE MAINTENANCE

After completion, the access culvert installed under this report shall be maintained by the Town of Amherstburg using ‘**Schedule A-2**’ included in **Appendix ‘A’**. ‘**Schedule A-2**’ is based upon an arbitrary maintenance cost of \$10,000. The actual maintenance assessments will be determined by pro-rating the actual maintenance costs in the proportions set out in ‘Schedule A-2’. The adjoining property served by the access culvert will be assessed 60% of the future maintenance costs. The remaining 40% of the future maintenance costs will be assessed against the upstream lands and roads that drain through this culvert as “Outlet” assessments. When determining “Outlet” assessments, factors such as area draining from each property, land use, impervious areas and other factors are considered. “Outlet” assessments are based upon 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.

Furthermore, all of the above provisions for the future maintenance of this culvert shall remain as noted above until otherwise determined under the provisions of the ‘Drainage Act RSP 1990 Chapter D. 17’.

16.0 FISHERIES ISSUES

The Federal Fisheries Act requires that no deleterious substances be introduced to fish habitat and that there be no net loss of fish habitat as a result of any undertaking. Any activities that may introduce deleterious substances or result in loss of fish habitat may require a permit from the Minister of Fisheries, Oceans and the Canadian Coast Guard. To reduce administration and time spent evaluating relatively simple projects that have easily predicted impacts that are easily mitigated, the Department of Fisheries and Oceans Canada (DFO) has instituted a self-assessment process. This means that certain activities or activities within certain types of water bodies may be undertaken by the proponent without contacting DFO, provided that appropriate avoidance and mitigation measures are followed.

A self-assessment of the project has been completed. The DFO lists of types of water bodies and activities that do not require review by their office have been reviewed. The project activities and water bodies involved fall within those categories and this project can be self assessed. The Environmental Specifications attached to this report provides appropriate avoidance and mitigation measures for the Contractor to adhere to.

17.0 GRANTS

In accordance with the provisions of Sections 85, 86 and 87 of “The Drainage Act, 1990”, a grant may be made with respect to the assessments made upon privately owned lands used for

agricultural purposes. As the land served by the new access culvert is residential, a grant for this particular culvert would not be available.

18.0 DRAINAGE ACT PROCEDURE FOR CONSTRUCTION OF NEW BRIDGE

The following is a summary of the general procedure the Town will follow to provide for a new access bridge/enclosure in the Municipal Drain. As this is only a summary additional details may be obtained from the Town Clerk or Engineer.

- a) Landowner signs petition requesting new bridge.
- b) Council accepts petition and appoints engineer.
- c) Engineer arranges for site meeting with Town Drainage Superintendent and others to discuss project and will take survey of bridge site.
- d) Engineer designs bridge to appropriate standards and prepares drainage report including description of required bridge, breakdown of the construction items and quantities, estimate of cost, specifications and plans and tender documents for construction.
- e) Engineer provides copies of drainage report to the Town. The Town Clerk then sends copies of the report to the bridge owner and others. The Town Clerk then arranges to have the drainage report considered by the Drainage Board at a regular Drainage Board meeting.
- f) At the meeting for consideration of the drainage report the Town of Amherstburg Drainage Board may adopt the report if there are no objections. If adopted by the Drainage Board and approved by Council, the town Clerk prepares a Provisional By-Law for the new bridge and sends copies of the By-Law to affected parties and arranges a second meeting of the Drainage Board for the Court of Revision.
- g) The Court of Revision is held 20 to 30 days after mailing of the Provisional By-Law and the purpose is to discuss issues of cost assessments. If there are no appeals to the Court of Revision Council may instruct that tenders be called from local Contractors to provide quotations for the bridge construction.
- h) The Town Drainage Superintendent will then request quotations from three or more reliable and insured Contractors having experience with Municipal Drainage and bridge construction.
- i) The Town Drainage Superintendent will arrange for the construction of the bridge with the selected Contractor and will also provide intermittent inspection of the Contractors work. If there are no appeals to the Court of Revision within 21 days of the Courts decision then construction can commence approximately 30 to 35 days after the date of the Court Revision.


- j) Upon completion of construction, the Town Clerk will finalize all applicable costs, submit grant applications to the Ministry of Agriculture, Food and Rural Affairs, if applicable, and the Clerk will then send a final assessment to the landowner.
- k) As described above the Drainage Act requires a minimum waiting period of approximately 60 to 65 days after report adoption before construction can start. The Town realizes that circumstances may arise where the landowner must obtain access to the lands within a shorter time period. In this regard the Town Council may accept a signed Waiver of Appeal Rights from the landowner where the landowner agrees with the conditions of the drainage report and the landowner agrees that he will not appeal the report or assessments. Should Council accept the signed Waiver the Town Drainage Superintendent would be instructed to obtain Contractor quotations soon after the drainage report is adopted and construction can then start as soon as a Contractor is selected.

In this event the Town Clerk must still provide the necessary Provisional By-Laws and still arrange for Court of Revision as per normal Drainage Act procedures.

- l) The Town will not normally permit a landowner to install their own bridge due to the insurance liabilities and an obligation to upstream landowners to safe guard their drainage requirements. Should the landowner request a certain Contractor the Drainage Superintendent may include said Contractor among those Contractors requested to provide a quotation.

All of which is respectfully submitted.

RC SPENCER ASSOCIATES INC.


Lou Zarlenga, P.Eng.



REVIEWED BY


Dennis McCready, P.Eng.



APPENDIX 'A'

SCHEDULES OF ASSESSMENT

**NEW RESIDENTIAL ACCESS CULVERT OVER THE
SOUTH 7th CONCESSION DRAIN**

FOR JON MARWOOD PARKS

Roll No. 570-04400 (Part 2) Part of Lot 83, Concession 7

TOWN OF AMHERSTBURG

COUNTY OF ESSEX

**SCHEDULE A-1
SCHEDULE OF ASSESSMENT FOR CONSTRUCTION**

**SOUTH 7th CONCESSION DRAIN
TOWN OF AMHERSTBURG**

A) PRIVATELY OWNED - NON-AGRICULTURAL LANDS (NOT GRANTABLE)								
ENTRY NO.	Description			AREA AFFECTED (Hectares)	OWNER	(SECTION 23) VALUE OF OUTLET LIABILITY	(SECTION 24) VALUE OF SPECIAL BENEFIT	TOTAL ASSESSMENT
1	570-04400 (Part 2)	7	Pt Lot 83	0.235	Jon Marwood Parks	\$ -	\$ 28,270.00	\$ 28,270.00
Total Affected Lands (Hectares)				0.235				
Total Assessment on Privately Owned Non-Agricultural Lands (Not Grantable)						\$ -	\$ 28,270.00	\$ 28,270.00

TOTAL ASSESSMENT FOR SCHEDULE A-1						\$ -	\$ 28,270.00	\$ 28,270.00
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NOTE: Assessment Values have been rounded to the nearest whole dollar for presentation purposes.

**SCHEDULE A-2
SCHEDULE OF ASSESSMENT FOR FUTURE MAINTENANCE
SOUTH 7th CONCESSION DRAIN
TOWN OF AMHERSTBURG**

A) MUNICIPAL LANDS						
ENTRY NO.	Description	AREA AFFECTED (Hectares)	OWNER	(SECTION 23) VALUE OF OUTLET LIABILITY	(SECTION 24) VALUE OF SPECIAL BENEFIT	TOTAL ASSESSMENT
1	Concession Road 7	1.000	Town of Amherstburg	\$ 336.00	\$ -	\$ 336.00
Total Affected Lands (Hectares)		1.000				
Total Assessment on Municipal Lands				\$ 336.00	\$ -	\$ 336.00

B) PRIVATELY OWNED - NON-AGRICULTURAL LANDS								
ENTRY NO.	TAX ROLL NO.	CON. OR PLAN NO.	LOT OR PART OF LOT	AFFECTED AREA (Ha)	OWNER	(SECTION 23) VALUE OF OUTLET LIABILITY	(SECTION 24) VALUE OF SPECIAL BENEFIT	TOTAL ASSESSMENT
2	570-04400 (Part 2)	7	Pt Lot 83	0.235	Jon Marwood Parks	\$ 32.00	\$ 6,000.00	\$ 6,032.00
3	570-04650	7	Pt Lot 82	0.397	Michael & Lynette Marie Shaw	\$ 53.00	\$ -	\$ 53.00
Total Affected Lands (Hectares)				0.632				
Total Assessment on Privately Owned Non-Agricultural Lands (Not Grantable)						\$ 85.00	\$ 6,000.00	\$ 6,085.00

C) PRIVATELY OWNED - AGRICULTURAL LANDS (GRANTABLE)								
ENTRY NO.	TAX ROLL NO.	CON. OR PLAN NO.	LOT OR PART OF LOT	AFFECTED AREA (Ha)	OWNER	(SECTION 23) VALUE OF OUTLET LIABILITY	(SECTION 24) VALUE OF SPECIAL BENEFIT	TOTAL ASSESSMENT
4	570-04800	7	Pt Lot 82	3.238	Russel Charles Wood	\$ 218.00	\$ -	\$ 218.00
5	570-04700	7	Pt Lot 82	3.238	Alan & Pauline Waters	\$ 218.00	\$ -	\$ 218.00
6	570-04600	7	Pt Lot 82	13.767	Vincent Paul French	\$ 926.00	\$ -	\$ 926.00
7	570-04500	7	Pt Lot 83	18.760	Jon Marwood Parks	\$ 1,263.00	\$ -	\$ 1,263.00
8	570-04400 (Part 1)	7	Pt Lot 83	14.170	Jon Marwood Parks	\$ 954.00	\$ -	\$ 954.00
Total Affected Lands (Hectares)				53.173				
Total Assessment on Privately Owned Agricultural Lands (Grantable)						\$ 3,579.00	\$ -	\$ 3,579.00

TOTAL ASSESSMENT FOR SCHEDULE A-2 (SECTIONS A, B & C)				\$ 4,000.00	\$ 8,000.00	\$ 10,000.00
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TOTAL LANDS AFFECTED (Ha)	
A) Municipal Lands	1.000
B) Non-Agricultural Lands	0.632
C) Agricultural Lands	53.173
Total Lands Affected:	54.805

NOTE: Assessment Values have been rounded to the nearest whole dollar for presentation purposes.

1 Hectare = 2.471 Acres

APPENDIX 'B'

SPECIFICATIONS

**NEW RESIDENTIAL ACCESS CULVERT OVER THE
SOUTH 7th CONCESSION DRAIN**

FOR JON MARWOOD PARKS

Roll No. 570-04400 (Part 2) Part of Lot 83, Concession 7

TOWN OF AMHERSTBURG

COUNTY OF ESSEX

SPECIAL PROVISIONS

1.0 GENERAL SPECIFICATIONS

The General Specifications attached hereto are part of Appendix 'B'. It forms part of this specification and is to be read with these specifications and the Drawings contained in the report. Where there is a difference between the requirements of the Special Provisions and the General Specifications, the Special Provisions shall take precedence.

2.0 DESCRIPTION OF WORK

The accompanying Engineer's report deals with the construction of a new access culvert to serve property Roll No. 570-04400 (Part 2). The work to be carried out under this Contract generally comprises the supply of all materials, equipment and labour required to construct a new corrugated steel pipe culvert with rip-rap end treatment, granular bedding, backfill and road surface. The work also includes the re-routing of all private tile drains that outlet into the open drain, clean-up, restoration, topsoil, seeding and mulching as required, and traffic controls as required. All excavated materials, brush, trees and surplus materials shall be disposed of off site.

All work shall be carried out conforming to Ontario Provincial Standard Specifications OPSS 421.

3.0 ACCESS TO THE WORK

Access to the drain shall be from Concession Road 7. Through traffic must be maintained at all times along all municipal roads. All required traffic control is as per Section 13.0 in the General Specifications. All construction materials for the drain enclosure are to be placed on the property side of the road side drains. Any damage resulting from the Contractor's access to the drain enclosure sites shall be rectified to pre-existing conditions at the contractor's expense.

4.0 WORKING AREA

The working area at the access culvert site shall be restricted to a radius of 30.0m from the proposed centre line of the new culvert.

Any damages to lands and/or roads from the Contractor's work within the working areas for the drain enclosure site shall be rectified to pre-existing conditions at the Contractor's expense.

5.0 CULVERT CONSTRUCTION

5.1 Location of Access Culvert

In general, the new access culvert shall be installed as shown on the drawings attached to the engineer's report. Prior to installation, the Contractor shall contact the Drainage Superintendent to confirm the exact location for the new culvert. The Drainage Superintendent, in consultation with the property owner, shall establish the exact location for the new culvert in the field.

5.2 Reference specifications

Materials shall be as follows:

Access Culvert Pipe Material

All CSP materials shall be aluminized (Type II) steel with rerolled ends. The access culvert construction must conform to OPSS 421(Construction) and 1801(Materials). New culvert shall be joined with annular aluminized corrugated wide bolt and angle couplers (minimum of 8 corrugation overlap and 2.8mm wall thickness) and no single pipe less than 6.0m in length. All pipes connected with couplers shall abut to each other with no more than a 25mm gap between pipes prior to installation of the coupler.

Bedding Below Pipe Invert

20-25mm clear stone conforming to OPSS Division 10.

Bedding and Backfill Material for Culvert

Granular 'B' (Type II) conforming to OPSS Division 10.

Driveway Surface

Granular 'A' made from crushed limestone conforming to OPSS Division 10. Minimum 300mm thickness.

Erosion Stone for Sloping End Protection

All stone to be used for erosion protection shall be 125-250mm clear quarried rock or OPSS 1004, minimum 300mm thickness.

Topsoil

Topsoil conforming to OPSS, 100mm thickness.

Native Material

Select earth material, dry, free from broken concrete, steel, wood and deleterious substances.

Filter Fabric

"Non-Woven" geotextile filter fabric with a minimum strength equal to or greater than Terrafix 270R, Amoco 4546, Mirafi 140NC or approved equivalent.

5.3 Dry Culvert Installation

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

5.4 Sloping Stone End Protection

Endwalls shall be constructed of quarry stone rip rap material, as shown on the Drawings. Each endwall shall extend from the invert of the new culvert to the top of the proposed lane. The endwalls shall be sloped to a minimum of 1 vertical to 1.5 horizontal unless stated otherwise with a filter fabric underlay surrounding the pipe and spanning across the entire width of the drain, wrapping around the drain banks to align with the ends of the new pipe culvert. The minimum thickness requirement of the erosion stone layer is 300mm with no portion of the filter fabric to be exposed to sunlight.

5.5 Lateral Tile Drains

Should the Contractor encounter any lateral tiles within the proposed culvert limits as shown and also those not shown on the attached drawings, the Contractor shall re-route the outlet tile drain(s) in consultation with the Drainage Superintendent, as required, to accommodate the new culvert. **Tile drain outlets through the wall of the new culvert pipe will not be permitted.** All costs associated with re-routing lateral tile drains (if any) shall be at the Contractor's expense.

**GENERAL SPECIFICATIONS FOR
NEW RESIDENTIAL ACCESS CULVERT OVER THE
SOUTH 7th CONCESSION DRAIN
TOWN OF AMHERSTBURG
PROJECT REFERENCE 16-523**

1.0 PIPE MATERIAL

The Contractor shall supply and install pipe material as shown on the site plan and detail sheets. Pipe length is also specified for the site.

2.0 WORKING AREA

The Contractor shall restrict his equipment to the road side of the drain and those private lands on the south side of the culvert that are within 30m of the culvert.

3.0 DISPOSAL OF EXCAVATED MATERIAL

The Contractor shall dispose of all surplus excavated material at an approved disposal site at his expense.

4.0 LOCATION AND ELEVATION OF BRIDGES

The required pipe shall be set in the drain to the dimensions shown on the accompanying drawings and the Contractor shall carry out all required excavation to install the pipe and specified rip-rap end treatment.

The centreline location of the new enclosure is to be located at the described location, the stationing being as shown in the current drainage report on this drain and as shown on the accompanying drawings, however, the final position of the bridge may be determined by the Drainage Superintendent in charge.

The invert (inside bottom) bottom of the pipe shall be set according to the elevations shown on the accompanying plans including the embedment of the pipe as required by the Conservation Authority. For the purpose of construction the bench mark indicated on the accompanying plans shall be used to determine the elevation of the proposed enclosure.

5.0 PLACEMENT OF CULVERT

- a) Handling – The Contractor shall carefully unload, handle and place the specified pipe so as not to damage same. Damaged material or pipes distorted from improper installation will not be accepted.
- b) Bedding – The Contractor shall carefully excavate for and install the specified pipe upon 150mm (6”) of 20-25mm clear stone bedding.

- c) Backfill – The Contractor shall provide Granular “B” backfill and a Granular “A” road base to finish grade with a minimum thickness of 300 mm. All granular material is to be compacted to 100% Standard Proctor Density.
- d) Excavation – The Contractor shall perform the excavation, placement of bedding, pipe and backfill in a dry condition and shall provide all required pumps and/or equipment to enable the work to proceed in the dry.

The Contractor shall excavate sufficient material from the drain banks and bottom to permit placement of the pipe and backfill material. The minimum trench width as shown on the drawings, shall be provided from the face of the pipe to the excavated trench wall along each bank to provide working room to compact the backfill material.
- e) Erosion Protection at Pipe Ends – The end protection to each end of the pipe structure shall be as specified in the tender item description and in accordance with the following applicable specifications.
- f) Seeding – All newly excavated portions of the drain bank shall be seeded.

6.0 BRIDGE BACKFILL

After the pipe has been set on the clear stone bedding, the Contractor shall backfill the trench or ditch with Granular “B” (Type II) material, O.P.S.S. Spec. 1010, to the bottom of the Granular ‘A’ driveway surface. The backfill material shall be carefully placed so damage to or movement of the pipe is avoided. Then, a 300mm thick layer of Granular ‘A’ material, O.P.S.S. Spec 1010 shall be constructed. All backfill materials shall be placed in layers not exceeding 300mm (12”) in thickness, loose measurement. Each layer shall be thoroughly compacted in place to a Standard Proctor Density of 100% by means of mechanical compactors. The Contractor shall provide sufficient water to the granular material such that optimum compaction levels are achieved. The equipment used and method of compacting the backfill material shall be to the full satisfaction of the Drainage Superintendent.

7.0 BAGGED CONCRETE HEADWALLS - SINGLE BAG WALL THICKNESS (NOT APPLICABLE TO THIS PROJECT)

Where specified and after the Contractor has set in place the new pipe and partially backfilled same, he shall install new concrete filled jute bag headwalls at each end of the pipe. 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 in behind the new concrete jute bag headwalls with granular material, Granular “B” per O.P.S.S. 1010, and the granular material shall be compacted in place with 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 300mm (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 20.7 MPa in 28 days and shall be provided and placed only as a wet mix. Under no circumstances 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 x 660mm (18" x 26"). The jute bags shall be filled with concrete so that when they are laid flat they will be approximately 100mm (4") thick, 300mm (12") to 380mm (15") wide and 460mm (18") long. The concrete jute bag headwall to be provided at the end of the pipe shall be of single bag wall construction or as specified otherwise. The concrete filled bags shall be laid so that the 460mm (18") dimension is parallel with the longitudinal length of the new pipe. The concrete filled bags shall be laid on a footing of plain concrete being 460mm (18") wide or as otherwise specified, extending for the full length of the wall, and from .3 metres (1.0') below the bottom of the corrugated pipe to the bottom of the culvert pipe. All concrete used for the footing shall have a minimum compressive strength of 20.7 MPa in 28 days. The completed jute bag headwalls shall be securely embedded a minimum of 0.50m (20") into the side slopes of the drain. At the road side of the bridge the Contractor shall flair outwards each headwall approximately 1.5m (5.0') as directed by the Drainage Superintendent.

Upon completion of the jute bag headwall the Contractor shall cap the top row of concrete filled bags with a layer of plain concrete, 150mm (6") thick, and hand trowelled to obtain a pleasing appearance. The concrete cap shall be the same width as the bagged wall and excess concrete will not be allowed to be placed on the cap area. The concrete cap shall not overhang the bagged wall on the driveway side of the wall.

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.

7.1 BAGGED CONCRETE HEADWALLS - DOUBLE BAG WALL THICKNESS (NOT APPLICABLE TO THIS PROJECT)

All above-noted specifications for single bag wall thickness are to be used with the following exceptions:

- a) Dimensions are to be as shown on the accompanying drawings.
- b) The concrete filled bags are to be laid so that the 460mm (18") dimension is perpendicular (at right angles) to the longitudinal length of the new pipe. Therefore the long dimension of the bag will be visible when the headwall is complete.

8.0 GROUTED CONCRETE RIP RAP WALL (NOT APPLICABLE TO THIS PROJECT)

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 flat parallel sides. The rip rap shall be fully mortared in place using a mixture composed of three parts of clean, sharp sand to one part of Portland Cement.

9.0 PRECAST CONCRETE HEADWALLS (NOT APPLICABLE TO THIS PROJECT)

Where specified as an alternative, the Contractor may supply and install precast concrete headwalls. Said precast headwalls shall be a custom made product, manufactured by Underground Specialties (Windsor) or similar provider.

The precast concrete headwall or precast blocks or modules shall be of the shape, size and dimensions shown on the accompanying plan.

Precast provider to provide stamped engineering drawing for precast headwall and Geotextile restrainers providing vertical plumb headwalls.

Excavation for the headwalls shall be in conformance with O.P.S.S. Section 902.

The supply and placement of concrete shall be in conformance with O.P.S.S. Section 904. All concrete shall have a strength of 33 MPa after 28 days. All concrete shall be air entrained to an air content of $6\% \pm 1.5\%$ by volume for 19mm maximum size of aggregate. Minimum cover for concrete shall be 40mm (1 ½”).

The supply and placement of reinforcing steel shall be in conformance with O.P.S.S. Section 905. The reinforcing steel shall be grade 400 and shall be of the size and type shown on the drawings.

The Contractor shall place the precast headwall so that it is straight and plumb. The method of backfilling the side slope trenches shall be such that no voids remain under the haunches of the sloping concrete headwall. The Contractor’s method of achieving this shall be approved prior to start of construction.

The Contractor shall provide a sufficient opening in the headwalls so that when the headwalls are set and plumb the corrugated steel pipe may be inserted or adjusted to grade. The void between the corrugated steel pipe and opening in the headwall shall be fully mortared in place using a mixture composed of three parts of clean, sharp sand to one part of Portland Cement.

After the corrugated steel pipe has been set and partially backfilled with Granular “B” per O.P.S.S. 1010 and compacted to 100% Standard Proctor Density, geotextile tie backs to the precast concrete headwalls in accordance to approved stamped headwall and restraining devices.

10.0 QUARRIED ROCK END PROTECTION

Where specified and after the pipe has been set and backfilled, the Contractor shall install quarried rock erosion protection at each end of the pipe.

The granular backfill and quarried rock protection over the ends of the pipe shall be set on a specified slope as shown on the attached site drawings. The top 300mm (12”) in thickness of the backfill over the ends of the pipe shall be quarried rock. The quarried rock shall have a minimum dimension of 100mm (4”) and a maximum dimension of 225mm (9”). Prior to placing quarried rock end protection over the granular material, the Contractor shall lay a non-woven geotextile filter fabric equal to a “Terrafix 270R” or approved equal. The geotextile filter fabric shall extend from the bottom of the pipe to the top of each side slope of the drain and between both side slopes of the drain. The Contractor shall take extreme care to not damage the geotextile filter fabric when placing the quarried rock on top of the filter fabric. The geotextile

filter fabric and quarried rock shall be placed to the complete satisfaction of the Drainage Superintendent.

11.0 ALIGNMENT

The whole of the work shall be done in a neat, thorough and workmanlike manner such that the alignment of the bridge pipe at each location meets the full satisfaction of the drainage superintendent.

12.0 LOCATION OF STRUCTURES, ETC.

The Contractor shall satisfy himself as to the exact location, nature and extent of any existing structure, utility or other object which he may encounter during the course of the work. The Contractor shall indemnify and save harmless the Municipality and the Engineer for any damages which he may cause or sustain during the progress of the work. He shall not hold the Municipality or the Engineer liable for any legal action arising out of any claims brought about by such damage caused by him.

13.0 TRAFFIC CONTROL

The Contractor will be required to control vehicular and pedestrian traffic along roads at all times and shall, at his/her own expense, provide for placing and maintaining such barricades, signs, flags, lights and flag persons as may be required to ensure public safety. The Contractor will be solely responsible for controlling traffic and shall appoint a representative to maintain the signs and warning lights at night, on weekends and holidays and at all other times that work is not in progress. The costs associated with provision of proper signage, barricades, lights and flag persons shall be considered incidental to the works to remove the old bridge and complete the new bridge installation.

During all phases of the project, adjoining public roadways shall remain open to through traffic with at least one lane being open to through traffic at all times.

All traffic control during construction shall be strictly in accordance with the **Occupational Health and Safety Act** and the current version of the **Ontario Traffic Manuals**. Access to the electronic version of the **Ontario Traffic Manual** is available online through the MTO website, free of charge to all users. To access the electronic standards on the Web go to <http://www.mto.gov.on.ca/english/transrd/>, click on "Library Catalogue", under the "Title", enter "Ontario Traffic Manual" as the search. Open the applicable "Manual(s)" by choosing the "Access Key", once open look for the "Attachment", click the PDF file. Users require Adobe Acrobat to view all PDF files.

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

14.0 PROPERTY BARS AND SURVEY MONUMENTS

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

15.0 DAMAGE TO TRAVELLED PORTION OF MUNICIPAL ROAD

The Contractor shall be responsible for any damage caused by him 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 a road, the travelled portion shall be protected by having the excavation equipment placed on satisfactory timber planks or timber pads. If any parts of the travelled portion of the road are damaged by the Contractor, the Municipality 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 Municipality.

16.0 CONSTRUCTION SAFETY

The Contractor shall comply with all the requirements of the Occupational Health and Safety Act, 2013, and the regulations passed in connection therewith, as administered by the Ontario Ministry of Labour and all subsequent amendments of the said Act.

The Contractor shall exercise all possible precaution against injury to persons or property resulting from his work. The Contractor shall leave no trenches, pits, holes or excavations uncovered, without providing sufficient protection at all times. The Contractor shall install, erect and provide barricades, signs, traffic cones, flashers, lights, plates, warning and other devices, materials and personnel as may be required at his own expense in order to provide for the safe passage and control of traffic and to ensure public safety. All traffic control shall be in accordance with the latest standards of the Ministry of Transportation.

17.0 CERTIFICATE OF CLEARANCE

The Contractor shall be required to submit to the Municipality 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 Municipality a Certificate of Clearance for the project from the Workplace Safety and Insurance Board before final payment is made to the Contractor.

18.0 MEASUREMENT AND PAYMENT

Payment for the work shall be on a lump sum basis unless otherwise indicated and shall include all the work shown on the accompanying drawings and specifications.

19.0 PROGRESS ORDERS

Monthly progress orders for payment shall be furnished to the Contractor by the Engineer in charge; said orders shall not be for 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.

20.0 CLEANING UP

The Contractor shall leave the whole of the site of the work in a neat, thorough and workmanlike appearance to the full satisfaction of the Commissioner. He shall haul away any excess earth from the site. He shall haul to the site, at his own expense, sufficient earth to fill any depressions caused by his work. The site shall be left, as closely as possible, in the same condition it was in prior to the commencement of the work.

21.0 MAINTAINING FLOW

The Contractor shall maintain the flow of any drainage works encountered in the progress of the work at no expense to the Owner. The Contractor shall obtain written approval from the Engineer in charge to stop up any drain and if necessary provide pumping equipment, build necessary by-passes, etc. at no expense to the Owner.

22.0 DRAINAGE SUPERINTENDENT

The Drainage Superintendent shall be permitted to make minor variations in the work so long as these variations will result in a more satisfactory project or a more economical one. These variations, however, must not be such as to change the intent of the work performed nor are they to reduce the standard of quality.

23.0 NOTIFICATION OF WORK

Prior to commencing any work of installing any new bridge or removing any existing structures, the Contractor shall inform the Municipal Drainage Superintendent of his intent to commence work at least 48 hours prior to commencing any work. The Owner or Contractor shall endeavor to install and complete the new structure without delay once the work has commenced. If for any reason the work does not proceed continuously then the Owner or Contractor shall notify the Drainage Superintendent in advance of any backfilling operation or headwall construction so that he may schedule inspection of same. The completed work must be done to the satisfaction of the Drainage Superintendent and be approved by him.

24.0 MAINTENANCE

The Contractor shall repair and make good at his expense any damages or faults in the work that may appear within one year after its completion (as evidenced by the final inspection report) as the result of imperfect or defective work done or materials furnished. Nothing herein contained shall be construed as in any way restricting or limiting the liability of the Contractor under the appropriate laws under which the work is being done.

25.0 ONTARIO PROVINCIAL STANDARDS

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

25.0 APPROVALS, PERMITS AND NOTICES

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

**SPECIFICATIONS
ENVIRONMENTAL PROTECTION SPECIAL PROVISIONS
TOWN OF AMHERSTBURG
PROJECT REFERENCE 16-523**

1.0 GENERAL

These Environmental Protection Special Provisions shall apply and form part of this Contract. All costs associated to conforming with these Special Provisions shall be included in the Tender prices bid.

2.0 FIRES

Fires and burning of rubbish on site will be permitted only with special approval from the Town of Amherstburg.

3.0 DISPOSAL OF WASTES

The Contractor shall not bury rubbish and waste materials on site unless approved by the Engineer and all applicable approving authorities. The site shall be maintained free of accumulated waste and rubbish. All waste materials should be disposed of in a legal manner at a site approved by all local approving authorities and the Engineer.

The Contractor shall not allow deleterious substances, waste or volatile materials such as mineral spirits, or paint thinner, to enter into waterways, storm or sanitary sewers.

The disposal of dredge material where applicable shall be in accordance with the above.

4.0 POLLUTION CONTROL

The Contractor shall maintain under this Contract temporary erosion, sediment and pollution control features installed.

The Contractor shall control emissions from equipment and plant to local authorities emission requirements.

The Contractor shall not cause excessive turbidity when performing in-water work. The Contractor shall not allow any debris, fill or other foreign matter to enter into the waterway. The Contractor shall remove from the waterway, all extraneous materials resulting from in-water work.

The Contractor shall abide by local noise By-Laws for the duration of the Contract.

Spills of deleterious substances into waterways and on land shall be immediately contained by the Contractor and the Contractor shall cleanup in accordance with Provincial regulatory requirements. All spills shall be reported to the Ontario Spills Action Centre (1-800-268-6060), local authorities having jurisdiction and the Engineer. To reduce the risk of fuel entering the

waterway, refuelling of machinery must take place a safe distance from the waterway. The Contractor shall note that the Engineer or the Owner takes no responsibility for spills, this shall be the sole responsibility of the Contractor.

5.0 WHMIS

The Contractor shall comply with the requirements of Workplace Hazardous Materials Information System (WHMIS) regarding use, handling, storage and disposal of hazardous materials and regarding labelling and the provision of material safety data sheets acceptable to Labour Canada.

6.0 DRAINAGE

The Contractor shall not pump water containing suspended materials into waterways, sewers or drainage systems. The Contractor shall be solely responsible for the control, disposal or runoff of water containing suspended materials or other harmful substances in accordance with these specifications, and local authority requirements. The Contractor shall provide temporary drainage and pumping as necessary to keep excavations and the site free from water.

The Contractor shall install and maintain sediment control devices as indicated on the Contract Drawing and as directed by the Engineer.

7.0 PROTECTION OF VEGETATION

The Contractor shall exercise the utmost caution to ensure that existing trees and plants on-site and on adjacent properties are not damaged or disturbed unless noted otherwise in the Removals Special Provisions of this Contract. The Contractor shall restrict tree removal to areas indicated on the Contract Drawings and/or designated on-site. No trees or shrubs shall be removed without the approval of the Engineer.

8.0 DUST CONTROL

The Contractor will be solely responsible for controlling dust nuisance resulting from his operations, both on the site and within adjacent right-of-ways.

Water and calcium chloride shall be applied to areas on or adjacent to the site as authorized by the Engineer as being necessary and unavoidable for the prevention of dust nuisance or hazard to the public. No payment will be made for dust control unless otherwise specified in the Special Provisions.

9.0 RESTRICTIONS FOR IN-WATER WORKS

The Contractor shall only perform in-water works during times when conditions permit reasonable production rates to be achieved. The Contractor shall be required to adopt good housekeeping practices that minimize disturbance to the site and the adjacent waterway.

The Contractor shall note that this Project is subject to approval from the Essex Region Conservation Authority and as such, any possible turbidity caused by the construction of shore protection works is of key importance.

The Contractor shall minimize the turbidity (sedimentation) produced by any in-water works construction or operations. The Contractor will be ordered to cease operations if, in the opinion of the Engineer or authorities having jurisdiction, the in-water work is producing unacceptable amounts of turbidity in the waterway. Based on this, the Contractor shall either adjust his operation(s) to produce lower turbidity levels, wait for more favourable conditions before operations will be allowed to continue, or undertake approved mitigating measures (e.g. sediment control, etc.). All costs associated with the above will be the sole responsibility of the Contractor, and no claims for extras or delays will be considered.

10.0 FISH HABITAT

No work shall be undertaken when there is likelihood of adverse effects on fish spawning or fish habitat in downstream waters. The Contractor shall implement the following measures to avoid causing harm to fish and fish habitat:

10.1 Site Selection

Design and plan activities and works in the water body such that loss or disturbance to aquatic habitat is minimized and sensitive spawning habitats are avoided.

Design and construct approaches to the water body such that they are perpendicular to the watercourse to minimize loss or disturbance to riparian vegetation.

Undertake all instream activities in isolation of open or flowing water to maintain the natural flow of water downstream and avoid introducing sediment into the watercourse.

10.2 Standard Practices

Work will not be conducted at times when flows are elevated due to local rain events, storms or seasonal floods. Construct the work 'in the dry' and cut only trees necessary to do the work (no clear-cutting) and as specified in the Construction Specifications. All disturbed areas and all disturbed soils on both banks and within the channel, including spoil, must be stabilized immediately, and upon completion of work returned to a pre-disturbed state or better as soon as conditions allow.

10.3 Timing Windows

For spring spawning fish in southwestern Ontario, The timing window for construction, is July 15 to March 15. This covers all warmwater fish species, which is the type of fish that will be found in essentially all the small watercourses and drains in southwestern Ontario. Do not carry out in-water work and any work affecting fish or fish habitat outside of the timing window without prior authorization from the appropriate authorities for emergency situations affecting public safety.

10.4 Contaminant and Spill Management

Plan activities near water such that materials such as paint, primers, blasting abrasives, rust solvents, degreasers, grout, poured concrete, or other chemicals do not enter the watercourse. All activities should be controlled to prevent the entry of petroleum products, debris, rubble, concrete or other deleterious substances into the water.

Develop a response plan that is to be implemented immediately in the event of a sediment release or spill of a deleterious substance and keep an emergency spill kit on site.

Ensure that building material used in a watercourse has been handled and treated in a manner to prevent the release or leaching of substances into the water that may be deleterious to fish.

10.5 Erosion and Sediment Control

Develop and implement an ‘Erosion and Sediment Control Plan’ for the site that minimizes risk of sedimentation of the water body during all phases of the project. 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 water body or settling basin, and runoff water is clear. The plan should, where applicable, include:

- Installation of effective erosion and sediment control measures before starting work to prevent sediment from entering the water body.
- Measures for managing water flowing into the site, as well as, water being pumped/diverted from the site such that sediment is filtered out prior to the water entering a water body. For example, pumping/diversion of water to a vegetation area, construction of a settling basin or other filtration system.
- Site isolation measures (e.g., silt boom or silt curtain) for containing suspended sediment where in-water work is required (e.g., dredging, culvert work). 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.
- Measures for containing and stabilizing waste material (e.g., dredging spoils, construction waste and materials, uprooted or cut aquatic plants, accumulated debris) above the high water mark of nearby water bodies to prevent re-entry.
- Regular inspection and maintenance of erosion and sediment control measures and structures during the course of construction. Repairs to erosion and sediment control measures and structures if damage occurs. Sediment in the barriers/traps must be removed and stabilized on land to prevent entry of sediment into the water. Removal of non-biodegradable erosion and sediment control materials once the site is stabilized.

10.6 Fish Protection

Ensure that all in-water activities, or associated in-water structures, do not interfere with fish passage, constrict the channel width, or reduce flows.

Retain a qualified professional to ensure applicable permits for relocating fish are obtained and to capture any fish trapped within an isolated/enclosed area at the work site and safely relocate them to an appropriate location in the same waters. Fish may need to be relocated again, should flooding occur on the site.

Screen any water intakes or outlet pipes to prevent entrainment or impingement of fish. Entrainment occurs when a fish is drawn into a water intake and cannot escape. Impingement occurs when an entrapped fish is held in contact with the intake screen and is unable to free itself.

Avoid using explosives in or near water. Use of explosives in or near water produces shock waves that can damage a fish's swim bladder and rupture internal organs. Blasting vibrations may also kill or damage fish eggs or larvae.

10.7 Operation of Machinery

Ensure that machinery arrives on site in a clean condition and is maintained free of fluid leaks, invasive species, and noxious weeds. 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.

Whenever possible operate machinery on land above the high water mark, on ice, or from a floating barge in a manner that minimizes disturbance to the banks and bed of the water body.

To cross a municipal drain or watercourse, use the existing crossing structures within the designated working corridors or construct temporary crossing structures approved by the Engineer. Forging will not be permitted unless approved by the Engineer and carried out by the Contractor according to the requirements determined by the Engineer.

10.8 Culvert Work

It is important to apply the relevant mitigation measures outlined above, to ensure that no deleterious materials reach fish habitat and that there are no detrimental impacts to physical fish habitat.

Existing culverts may be repaired, replaced, and removed, and debris may be removed from them, without contacting DFO. Important things to consider are:

- the timing window, which will be July 15 to March 15 for almost 100% of projects;
- that fish passage must not be obstructed;
- that the channel cannot be realigned;
- that culverts are designed for a minimum embedment of 10% below grade;
- that new material placed below the high water mark must be properly stabilized and protected from erosion;
- that the channel must not be narrowed; and
- that work must be done when there is no flowing water.

It is best to time work when stream flows are at a minimum, but contingency measures should be in place in the event that a heavy rain occurs. Cofferdams or other features should be used above the area of construction and water above it should be pumped into the stream channel downstream of the construction. If the initial dewatering strands fish, they should be captured and placed downstream in the wetted area. It may be necessary to get a permit from MNRF to move the fish.

11.0 ENDANGERED SPECIES ACT

All work must comply with the current version of the Ontario Endangered Species Act, 2007, S.O. 2007, c.6; O. Reg.230/08: (Species at Risk In Ontario); and O. Reg. 242/08: (General).

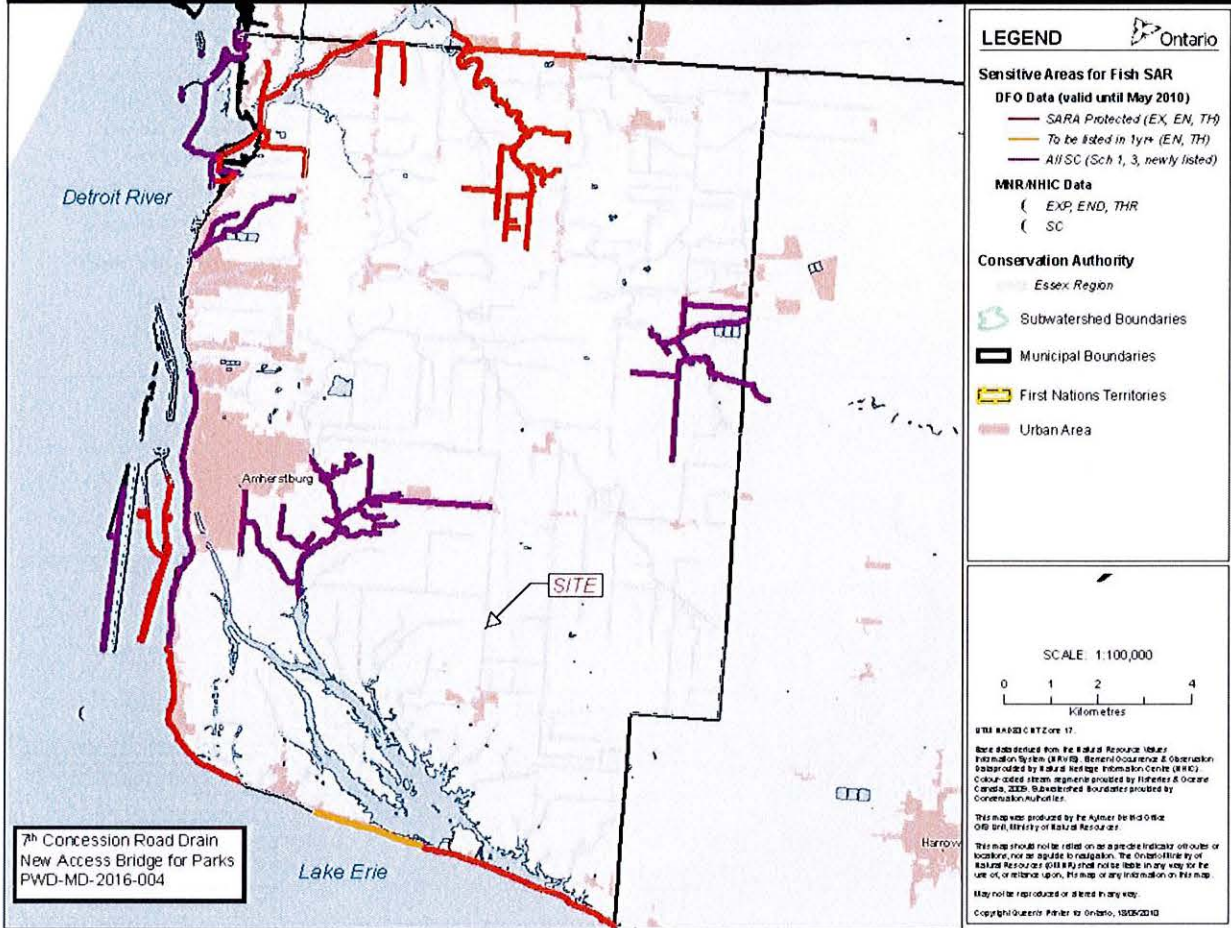
The Municipality shall obtain the most current Endangered Species information available from MNRF and other sources. A designated persons employed by the Municipality will be responsible for reviewing habitat maps to determine if registration of prescribed activities or full review and approval by MNRF and other agencies is required.

Prior to the start of any construction activities, the Contractor shall meet with the Municipal Designate to obtain a copy of specific mitigation procedures for dealing with endangered species should they be encountered anytime during construction.

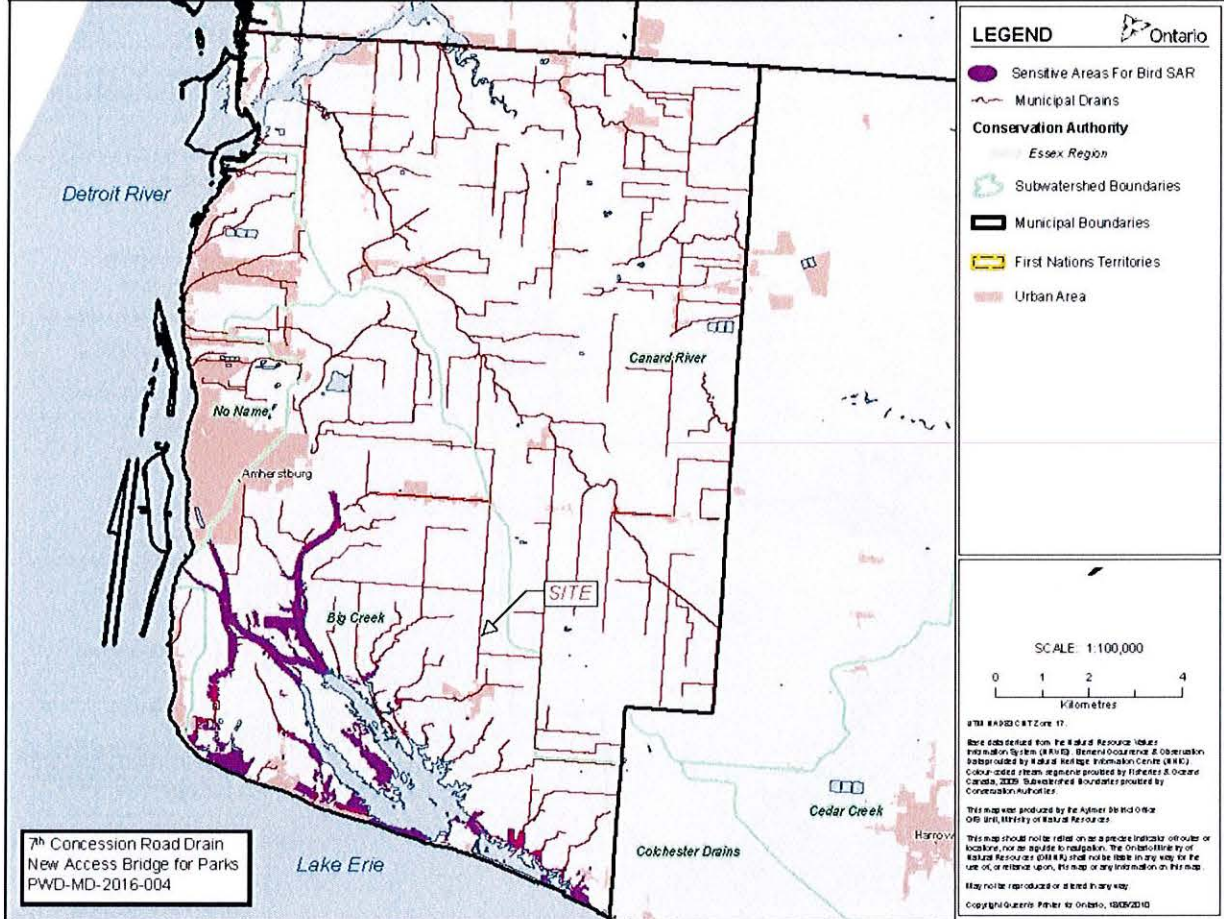
APPENDIX 'C'

ENDANGERED SPECIES ACT REVIEW

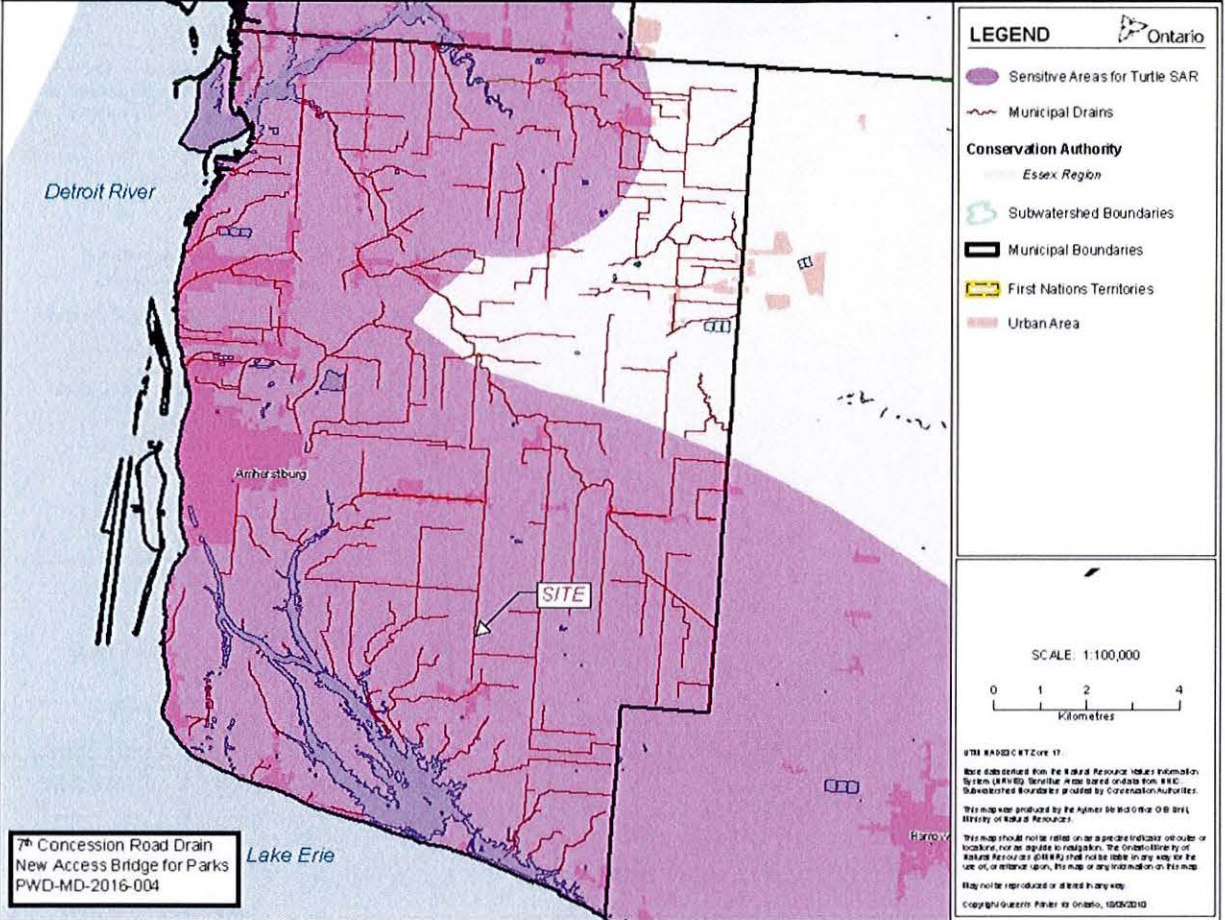
Town of Amherstburg: Sensitive Areas Map for Fish Species at Risk



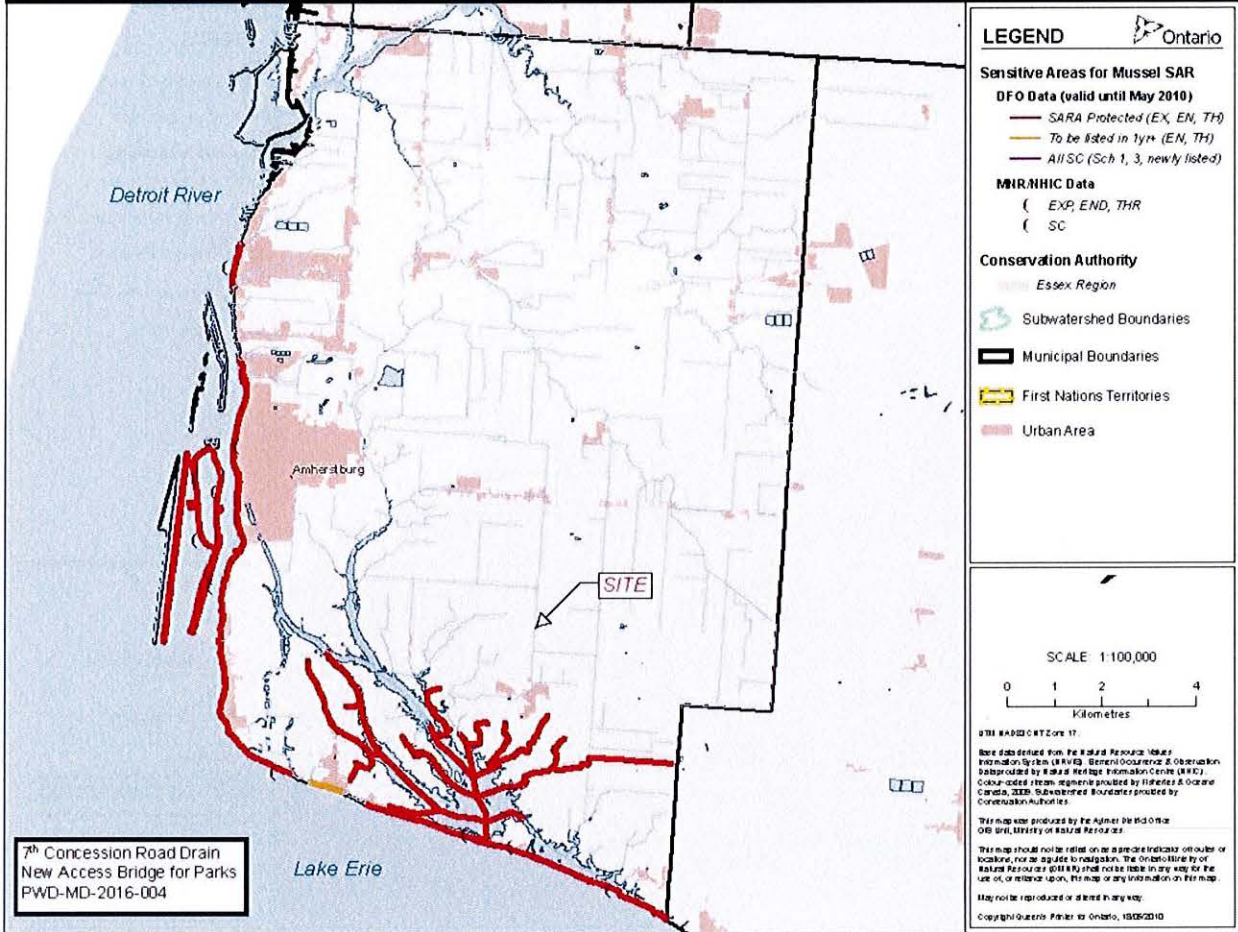
Town of Amherstburg: Sensitive Areas Map for Bird Species at Risk



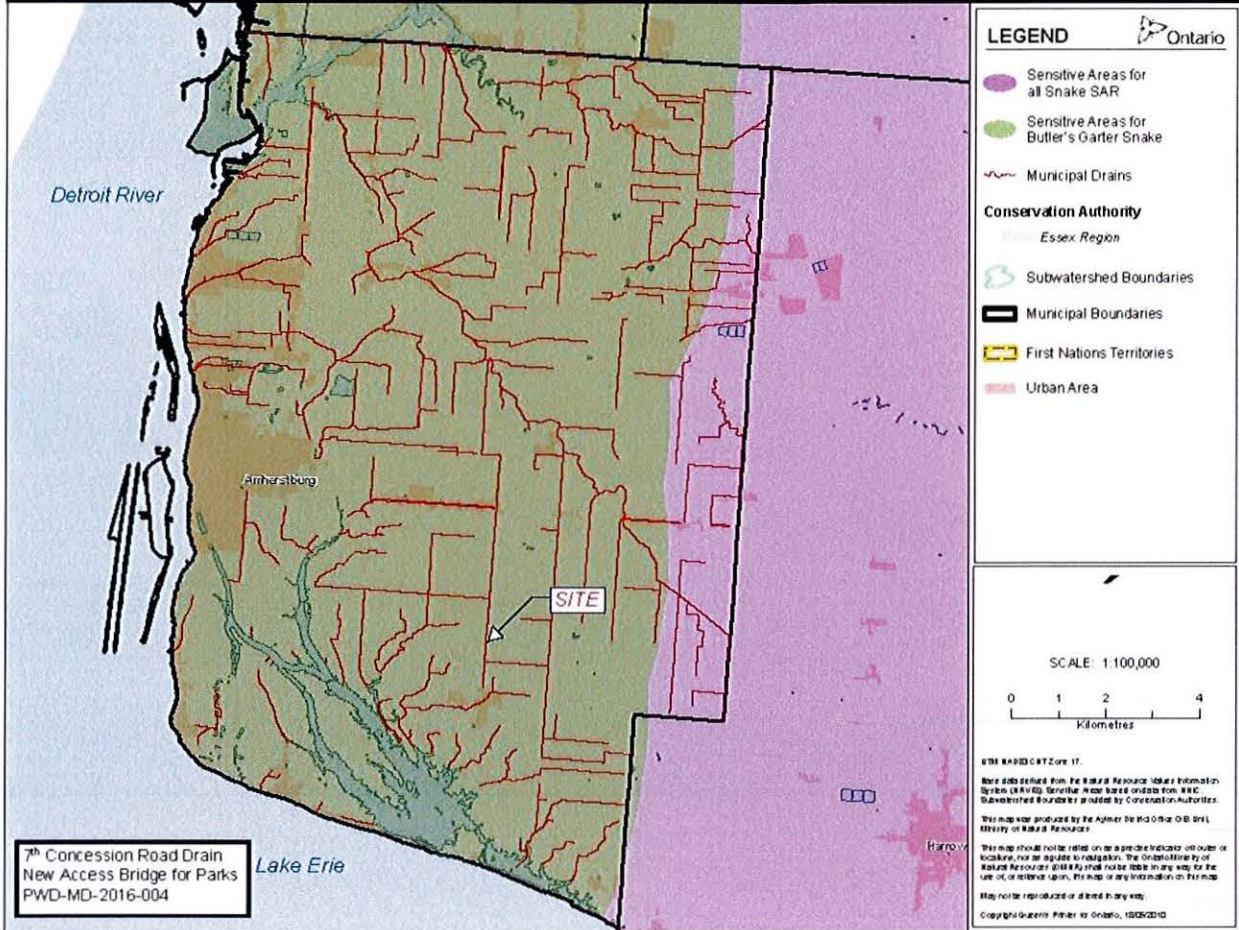
Town of Amherstburg: Sensitive Areas Map for Turtle Species at Risk

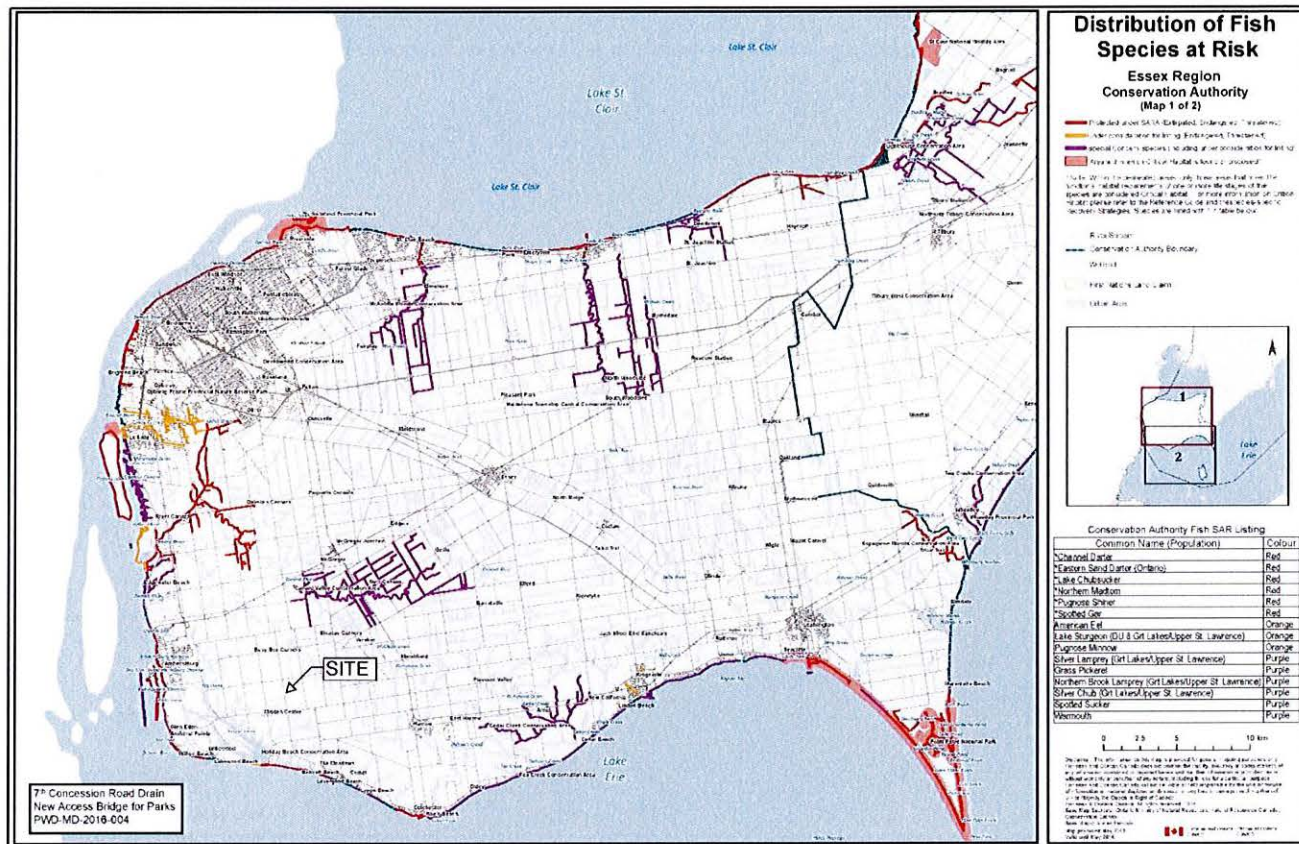


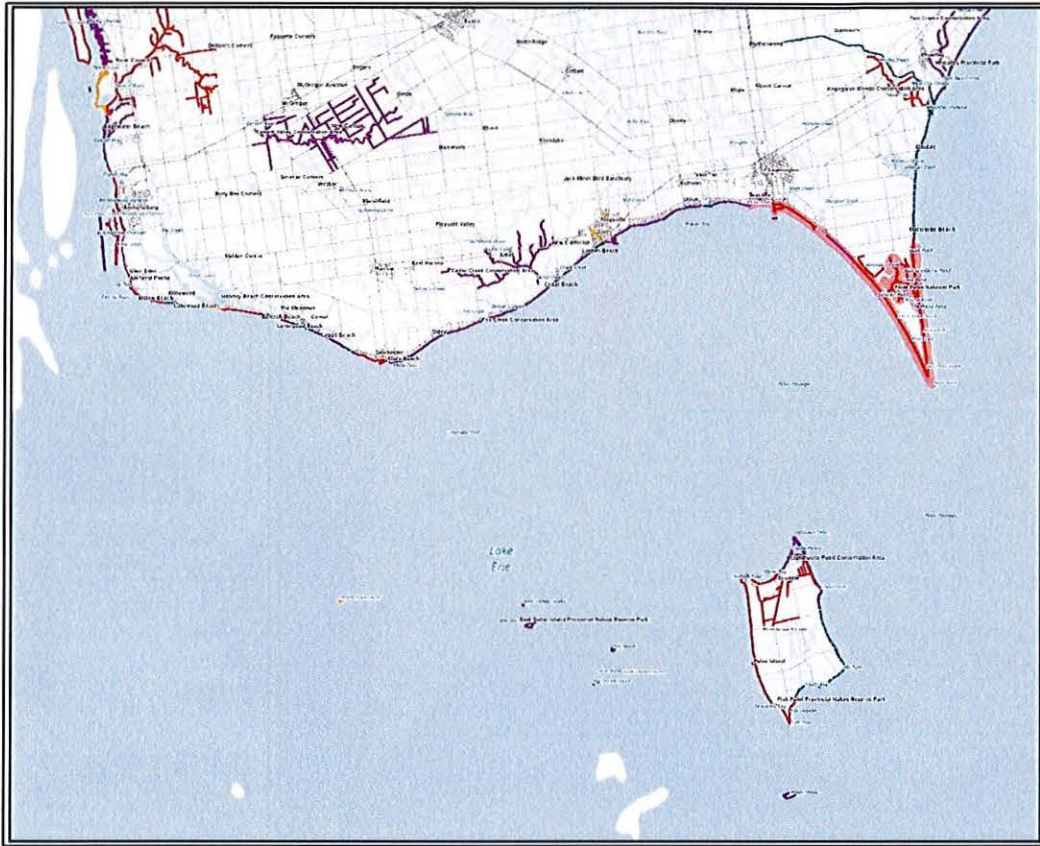
Town of Amherstburg: Sensitive Areas Map for Mussel Species at Risk



Town of Amherstburg: Sensitive Areas Map for Snake Species at Risk







Distribution of Fish Species at Risk

Essex Region Conservation Authority

Map 2 of 2

Legend:

- Red: Species with SAR (Special Attention Required) status
- Orange: Species with SAR (Special Attention Required) status
- Purple: Species with SAR (Special Attention Required) status
- Yellow: Species with SAR (Special Attention Required) status

Scale: 0 2.5 5 10 km

Inset Map: Shows the location of the Conservation Authority within the Great Lakes basin.

Common Name (Population)	Colour
American Darter	Red
Eastern Sand Darter (Ontario)	Red
Bluegill Sunfish	Red
Threespine Sturgeon	Red
Spottail Shiner	Red
Spotted Goby	Red
American Eel	Orange
White Sturgeon (DU & GL Lakes/Upper St. Lawrence)	Orange
Pugnose Minnow	Purple
Silver Lamprey (GL Lakes/Upper St. Lawrence)	Purple
Grass Pickerel	Purple
Northern Brook Lamprey (GL Lakes/Upper St. Lawrence)	Purple
Silver Chub (GL Lakes/Upper St. Lawrence)	Purple
Spotted Sucker	Purple
Wormmouth	Purple

Conservation Authority Fish SAR Listing

Common Name (Population) | **Colour**

American Darter | Red

Eastern Sand Darter (Ontario) | Red

Bluegill Sunfish | Red

Threespine Sturgeon | Red

Spottail Shiner | Red

Spotted Goby | Red

American Eel | Orange

White Sturgeon (DU & GL Lakes/Upper St. Lawrence) | Orange

Pugnose Minnow | Purple

Silver Lamprey (GL Lakes/Upper St. Lawrence) | Purple

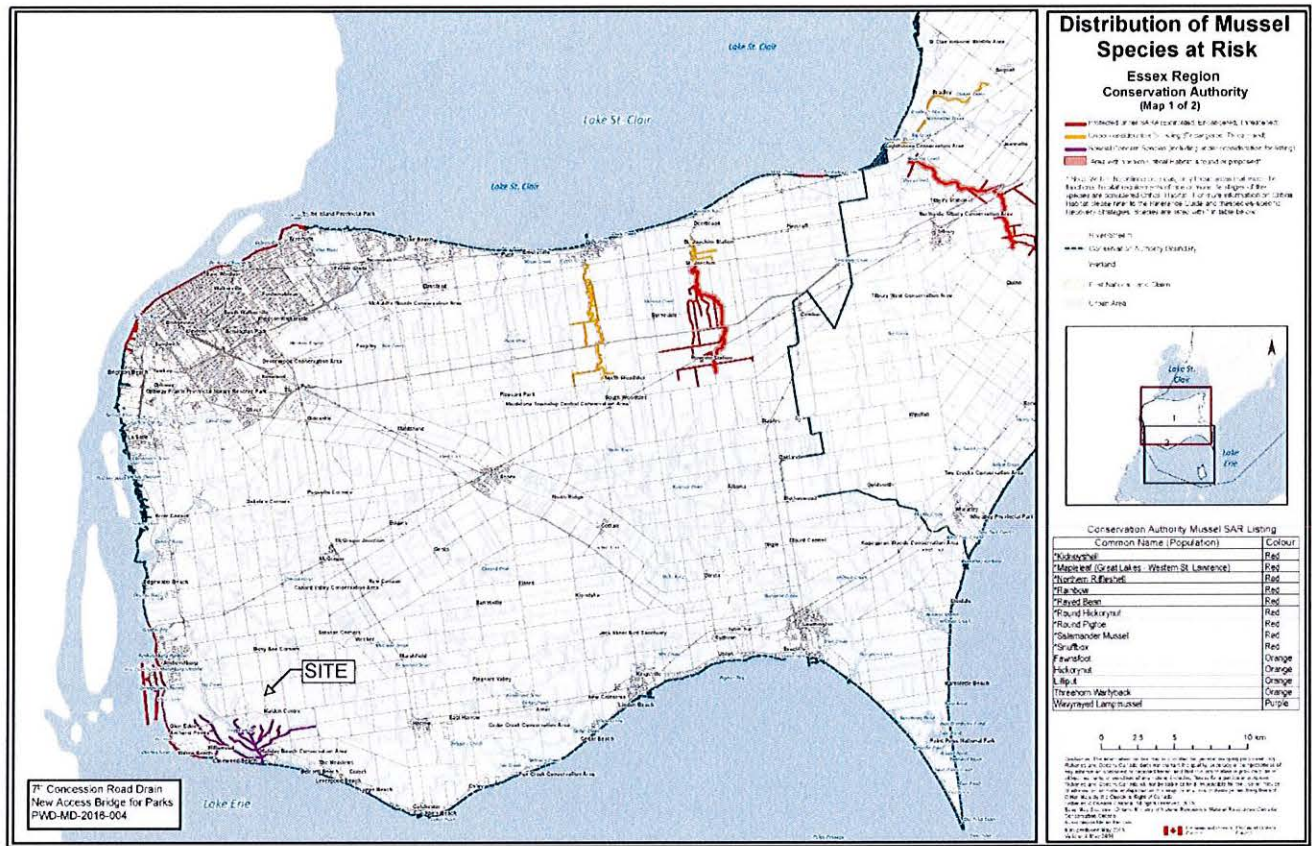
Grass Pickerel | Purple

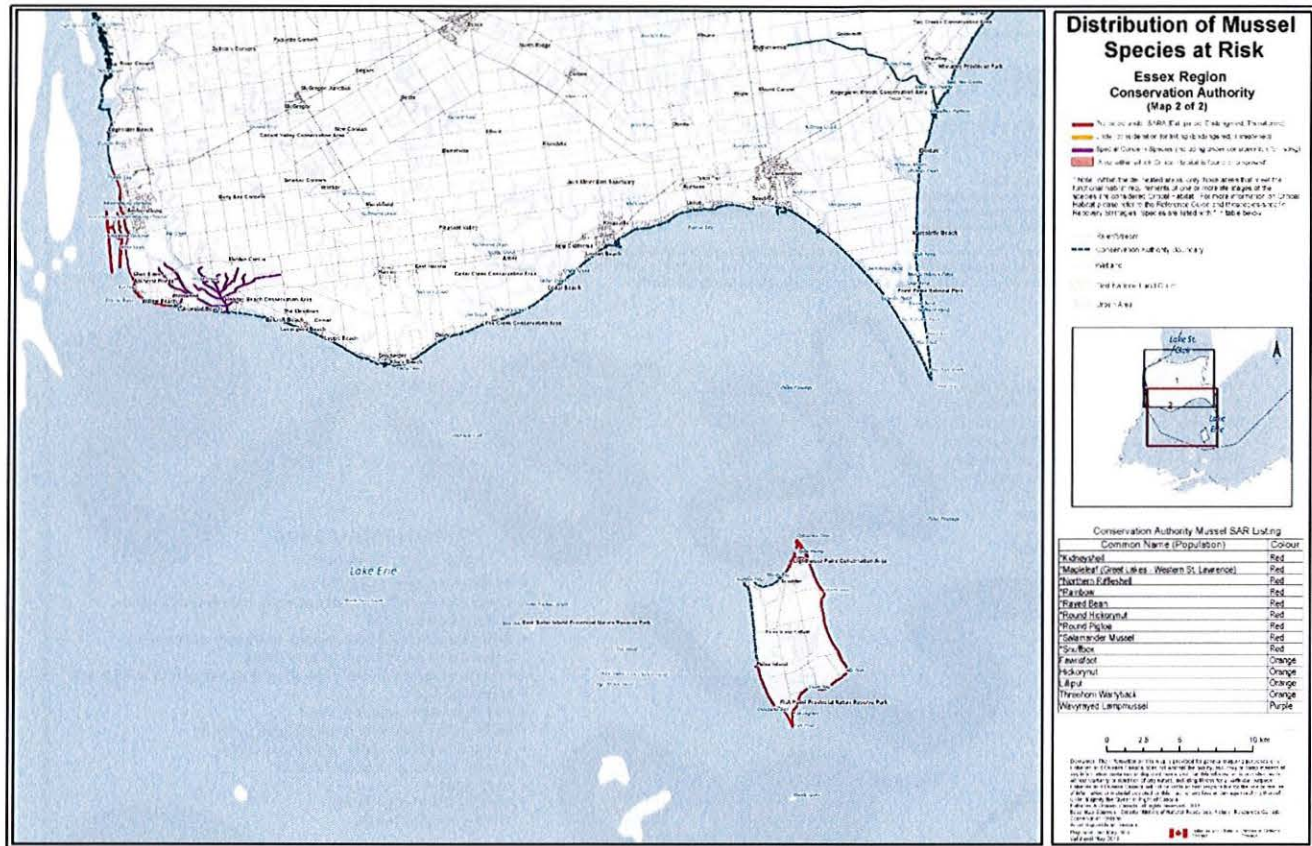
Northern Brook Lamprey (GL Lakes/Upper St. Lawrence) | Purple

Silver Chub (GL Lakes/Upper St. Lawrence) | Purple

Spotted Sucker | Purple

Wormmouth | Purple





SNAKES OF ONTARIO IDENTIFIER



An identification guide to the Massasauga Rattlesnake and other Ontario snakes.

Recovery through education and conservation.

This guide will help you identify the Massasauga Rattlesnake and other snakes in Ontario. The Massasauga is one of five Ontario snakes with blotches. Snakes on this identifier are grouped by appearance (blotched, striped and no pattern). When you see a snake, look at its size and pattern. Does it have blotches, stripes, or no pattern?

Snakes are illustrated at quarter-life size. These snakes are not found in all Ontario regions. Consult a field guide for maps of snakes in your area. The size of snakes includes U.S. populations as listed in 'Conant, Roger and Joseph T. Collins, 1991 *A Field Guide to Reptiles and Amphibians of Eastern and Central North America*. 3rd edition. Houghton Mifflin Co. Boston'

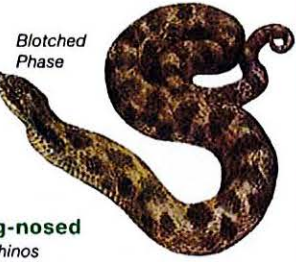
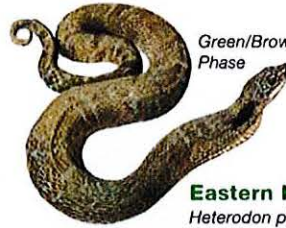
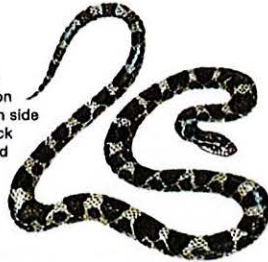
For information on the Toronto Zoo's Rattlesnake Workshop write to:

Toronto Zoo - Rattlesnakes
361-A Old Finch Ave.
Scarborough, ON, CANADA M1B 5K7
email: alentin@torontozoo.ca
Visit the Massasauga Rattlesnake
Recovery Team website: www.massasauga.ca

Milk

Lampropeltis triangulum

- 61-90 cm; record 132.1 cm
- Cream, tan, or light grey with red or dark brown black-bordered blotches or rings on back alternating with blotches along each side
- Young have red blotches bordered in black
- Blotch on neck may appear Y or V shaped
- Belly whitish with black checkerboard pattern
- Scales smooth; anal scale single
- Lays eggs
- SPECIAL CONCERN (COSEWIC); SPECIAL CONCERN (OMNR)



Eastern Hog-nosed

Heterodon platirhinos

- 51-84 cm; record 115.6 cm
- Large dark blotches down back alternating with smaller blotches along sides
- When threatened, spreads neck to display darker neck pattern and will roll over to play dead
- Can be blotched phase, plain grey, green-brown or even black
- Heavy-bodied
- Flat head with upturned snout
- Belly yellow-grey with greenish grey pattern
- Underside of tail lighter colour than body
- Scales keeled; anal scale divided
- Lays eggs
- THREATENED (COSEWIC); THREATENED (OMNR)



Northern Water

Nerodia sipedon sipedon

- 61-106.7 cm; record 140.5 cm
- Well patterned individuals have reddish brown squarish blotches down back with row of alternating blotches along each side
- At front of body, some blotches extend as saddles over back and on to sides
- Pattern on older individuals may be obscured and they appear black or brown
- Usually found in or near water
- Belly cream with irregular rows of reddish half moon crescents
- Scales keeled; anal scale divided
- Gives birth to live young

Lake Erie Water

Nerodia sipedon insularum

- 61-106.7 cm; record 140.5 cm
- A sub-species of the more wide spread Northern Water snake
- Range from uniformly grey with no markings to dark grey-brown with some banding
- Only found at western end of Lake Erie and on Pelee and surrounding islands
- Belly whitish yellow to grey
- Scales keeled; anal scale divided
- Gives birth to live young
- ENDANGERED (COSEWIC); ENDANGERED (OMNR)



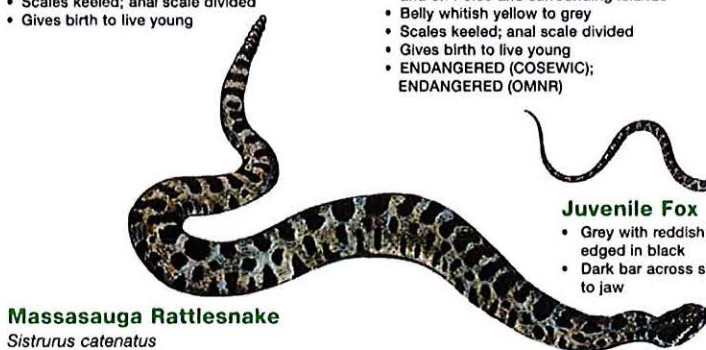
Eastern Fox

Elaphe gloydi

- 91-137 cm; record 179.1 cm (large snake)
- Yellow-brown with large brown or black blotches on back that alternate with smaller blotches along sides
- May have red-brown head
- Belly yellow with black checkerboard pattern
- Scales weakly keeled; anal scale divided
- Lays eggs
- THREATENED (COSEWIC); THREATENED (OMNR)

Juvenile Fox

- Grey with reddish brown blotches edged in black
- Dark bar across snout and from eye to jaw



Massasauga Rattlesnake

Sistrurus catenatus

- Ontario's only venomous snake
- 47.2-76 cm; record 100.3 cm
- Grey to brownish grey with darker blotches along back and several rows of alternating blotches along sides; blotches edged in white
- Black snakes with no pattern, very rare
- Pit on each side of head between eye and nostril
- Distinct segmented rattle
- Tall thick, squarish; does not taper to a point like all others
- Does not always rattle a warning; relies on pattern and remaining motionless to go undetected
- Heavy bodied; often found coiled
- Belly black
- Scales keeled; anal scale single
- Gives birth to live young
- THREATENED (COSEWIC); THREATENED (OMNR)





DeKay's Brown

Storeria dekayi

- 23-33 cm; record 49.2 cm (small snake)
- Light grey-brown to red-brown
- Two rows of spots along light coloured stripe on back
- Rows of spots may be joined by narrow lines
- Dark downward bar on side of head
- Juveniles have three yellowish spots on neck
- Belly cream or pinkish
- Scales keeled; anal scale divided
- Gives birth to live young



Northern Red-bellied

Storeria occipitomaculata occipitomaculata

- 20.3-25.4 cm; record 40.6 cm (small snake)
- Reddish brown to grey-brown in colour
- Three light brown or yellow spots on neck
- Orange-red belly; few dark spots may be present
- Scales keeled; anal scale divided
- Gives birth to live young

Smooth Green

Ophedryx vernalis

- 30.3-51 cm; record 66 cm
- Bright green and shiny
- Belly white or yellow
- Scales smooth; anal scale divided
- Lays eggs



Ring-necked

Diadophis punctatus

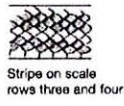
- 25.4-38 cm; record 70.6 cm
- Shiny steel blue, slate or brown in colour
- Neck ring and belly orange-yellow
- Scales adjacent to neck ring darker
- Belly has interrupted row of small black spots
- Scales smooth; anal scale divided
- Lays eggs



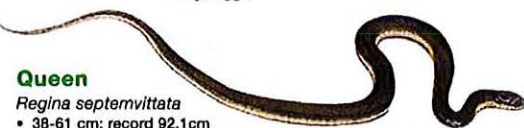
Eastern Ribbon

Thamnophis sauritus

- 45.7-66 cm; record 96.5 cm
- Black with 3 yellow stripes
- Lateral stripes on scale rows 3 and 4
- Distinct white half-moon spot in front of eye
- May have brown colour along each side of belly
- Belly yellow-green
- Scales keeled; anal scale single
- Gives birth to live young
- SPECIAL CONCERN (COSEWIC); SPECIAL CONCERN (OMNR)



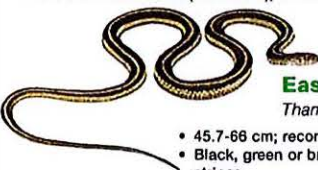
Stripes on scale rows three and four



Queen

Regina septemvittata

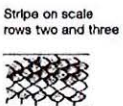
- 38-61 cm; record 92.1 cm
- Yellow-brown with yellow stripe along lower flank
- 3-5 dark stripes may be found on back
- Belly cream-yellow; brown stripes may be visible
- Usually found near rivers and marshes
- Scales keeled; anal scale divided
- Gives birth to live young
- THREATENED (COSEWIC); THREATENED (OMNR)



Eastern Garter

Thamnophis sirtalis sirtalis

- 45.7-66 cm; record 123.8 cm
- Black, green or brown with three yellow or yellow-green stripes
- Stripes may be orange or reddish in some parts of range
- Some snakes may be all black with no stripes (melanistic)
- Lateral stripes on scale rows 2 and 3
- May have dark scales or spots between stripes giving it a checkered pattern
- Belly yellowish green
- Scales keeled; anal scale single
- Gives birth to live young



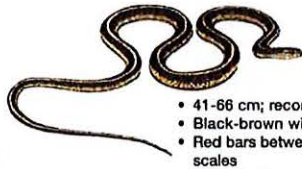
Stripes on scale rows two and three



Blue Racer

Coluber constrictor foxii

- 90-152 cm; record 182.90 cm (large snake)
- Grey to greenish blue
- Head dark, throat white
- Belly light blue
- Only found on Pelee Island
- Scales smooth; anal scale divided
- Lays eggs
- ENDANGERED (COSEWIC); ENDANGERED (OMNR)



Red-sided Garter

Thamnophis sirtalis parietalis

- 41-66 cm; record 124.1 cm
- Black-brown with 3 yellow stripes
- Red bars between stripes and reddish wash on sides between scales
- Lateral stripes on scale rows 2 and 3
- Belly green-black
- In Ontario, only found along the Manitoba border
- Scales keeled; anal scale single
- Gives birth to live young



Juvenile Blue Racer

- Grey with central row of dark grey-brown blotches
- Few or no blotches on brown or grey tail
- Side of head speckled white and black



Butler's Garter

Thamnophis butleri

- 38-51 cm; record 69.2 cm
- Black or brown-green with 3 yellow stripes
- Stripes may be orange
- Lateral stripes on scale row 3 extending onto row 2 below and 4 above
- Towards back of body lateral stripe on scale rows 2 and 3
- Smallish head
- Belly green-yellow
- Only found in SW Ontario
- Scales keeled; anal scale single
- Gives birth to live young
- THREATENED (COSEWIC); THREATENED (OMNR)



Eastern Rat

Elaphe obsoleta

- 106.7-183 cm; record 256.6 cm (large snake)
- In some, faint blotched pattern may be seen
- Throat white
- Belly grey-brown wash
- Scales weakly keeled; anal scale divided
- Lays eggs
- THREATENED (COSEWIC); THREATENED (OMNR)



Juvenile Eastern Rat

- Light grey with grey-brown blotches on body and tail
- Dark bar across snout and from eye to jaw



How to count scale rows on a snake



Smooth Scales



Keeled Scales



Divided Anal Scale



Single Anal Scale



TOWN OF AMHERSTBURG

ADDITIONAL MITIGATION MEASURES FOR SNAKE SPECIES

16. Training and Required On Site Materials for Snakes

16.1. The Municipality will ensure any person:

- (a) involved in the capture, temporary holding, transfer and release of any snake Species has received training in proper snake handling procedures; and
- (b) who undertakes an Activity has a minimum of two Holding Tubs and cotton sacks on site at all times.

17. Activities undertaken in Sensitive Areas and Sensitive Periods for Snakes

17.1. Where a proposed Activity involves physical infrastructure (e.g., culverts, pump houses, etc.) and will occur in a Sensitive Area for any snake Species and during a *Sensitive Period – Hibernation* for that Species, the Municipality shall undertake the Activity outside of the Sensitive Period, unless otherwise authorized by and in accordance with any site-specific measures provided in writing by the MNR Designated Representative.

17.2. Where a proposed Activity will occur at or adjacent to a known hibernacula (as identified by the MNR) for any snake Species and during a *Sensitive Period – Staging* for that Species, the Municipality shall:

- (a) erect effective temporary snake barriers approved by the MNR that will not pose a risk of entanglement for snakes and that shall be secured so that individual snakes may not pass over or under the barrier or between any openings to enter or re-enter the Work Zone;
- (b) inspect the temporary snake barriers daily during periods when snakes are active, capture any individuals incidentally encountered within the area bounded by the snake barrier and release the captured individuals in accordance with section 21.1; and
- (c) remove the temporary snake barriers immediately upon completion of the Activity.

17.3. Where a proposed Activity that does not involve physical infrastructure will occur in a Sensitive Area for any snake Species and during a *Sensitive Period – Staging* for that Species, the Municipality shall undertake the Activity outside of the Sensitive Period, unless otherwise authorized by and in accordance with any site-specific measures provided in writing by the MNR Designated Representative.

18. Measures for Encounters with Snakes During a Sensitive Period

18.1. Where one or more individuals belonging to a snake Species is encountered, or should an active hibernacula be uncovered, while conducting an Activity in any part of a Work Zone (including, but not limited to, a Sensitive Area) during a Sensitive Period for that Species, the Municipality shall:

- (a) capture and transfer all injured and uninjured individual snakes of that Species into individual light-coloured, drawstring cotton sacks;
- (b) place all cotton sacks filled with the captured individuals into a Holding Tub;
- (c) ensure that the Holding Tub with the captured individuals is stored at a cool temperature to protect the snakes from freezing until the individuals can be retrieved or transferred;
- (d) if an active hibernacula is uncovered, cease all Activities at the hibernacula site; and
- (e) immediately Contact the MNR to seek direction and to arrange for the transfer and/or retrieval.

19. Measures for Encounters with Snake Nests

19.1. Where an active nest of any of the snake Species is encountered and disturbed while undertaking an Activity in any part of a Work Zone, the Municipality shall:

- (a) collect any displaced or damaged eggs and transfer them to a Holding Tub;
- (b) capture and transfer all injured dispersing juveniles of that Species into a light coloured drawstring cotton sack;
- (c) place all cotton sacks with the captured injured individuals into a Holding Tub;
- (d) ensure that the Holding Tub with the captured injured individuals is stored out of direct sunlight;
- (e) immediately Contact the MNR to seek direction and to arrange for the transfer of the injured individuals;
- (f) immediately stop any disturbance to the nest site and loosely cover exposed portions with soil or organic material to protect the integrity of the remaining individuals;
- (g) not drive any equipment over the nest site or conduct any Activities within 5 metres of the nest site;
- (h) not place any dredged materials removed from the Drainage Works on top of the nest site;
- (i) mark out the physical location of the nest site but not by any means that might increase the susceptibility of the nest to predation or poaching; and
- (j) where there are no collected eggs or captured individuals, Contact the MNR within 72 hours to provide information on the location of the nest site.

20. Measures for Encounters with Snakes Outside of a Sensitive Period

20.1. Where one or more individuals belonging to a snake Species is encountered while undertaking an Activity in any part of a Work Zone (including, but not limited to, a Sensitive Area) but outside of any Sensitive Period for that Species, the Municipality shall:

- (a) follow the requirements in section 16;
- (b) briefly stop the Activity for a reasonable period of time to allow any uninjured individual snakes of that Species to leave the Work Zone;
- (c) if the individuals do not leave the Work Zone after the Activity is briefly stopped in accordance with (b) above, capture all uninjured individuals and release them in accordance with section 21.1;
- (d) where circumstances do not allow for the immediate release of captured uninjured individuals, they may be transferred into individual, light-coloured, drawstring cotton sacks before placing them in a Holding Tub which shall be stored out of direct sunlight for a maximum of 24 hours before releasing them in accordance with section 21.1;
- (e) capture and transfer any individuals injured as a result of conducting the Activities into a Holding Tub separate from any Holding Tub containing uninjured individuals; and
- (f) store all captured injured individuals out of direct sunlight and immediately Contact the MNR to seek direction and to arrange for their transfer.

21. Release of Captured Individuals Outside of a Sensitive Period

21.1. Where uninjured individuals are captured under section 20.1, they shall be released:

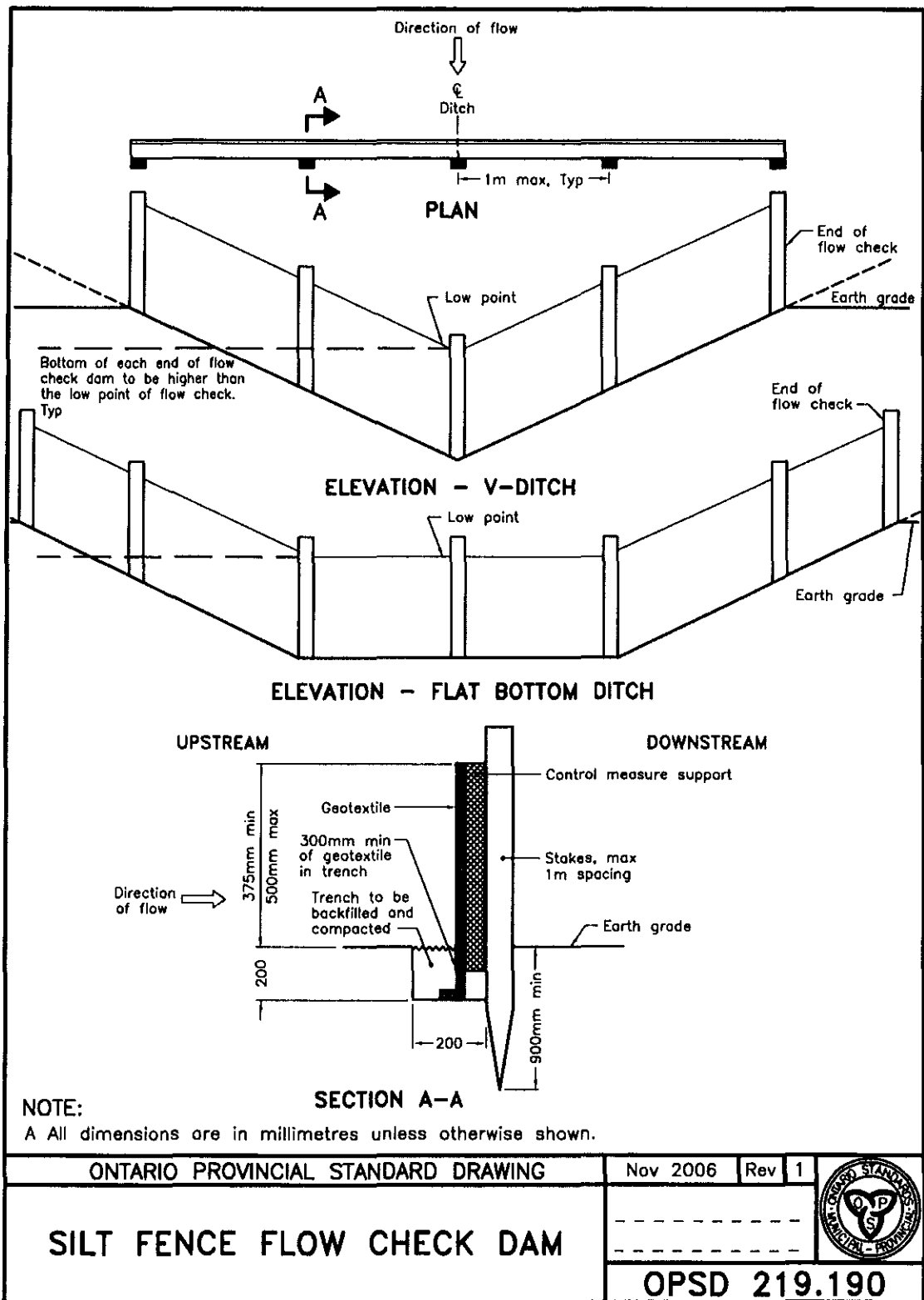
- (a) within 24 hours of capture;
- (b) in an area immediately adjacent to the Drainage Works where there is natural vegetation cover;
- (c) in an area that will not be further impacted by the undertaking of any Activity;
- and
- (d) not more than 250 metres from the capture site.

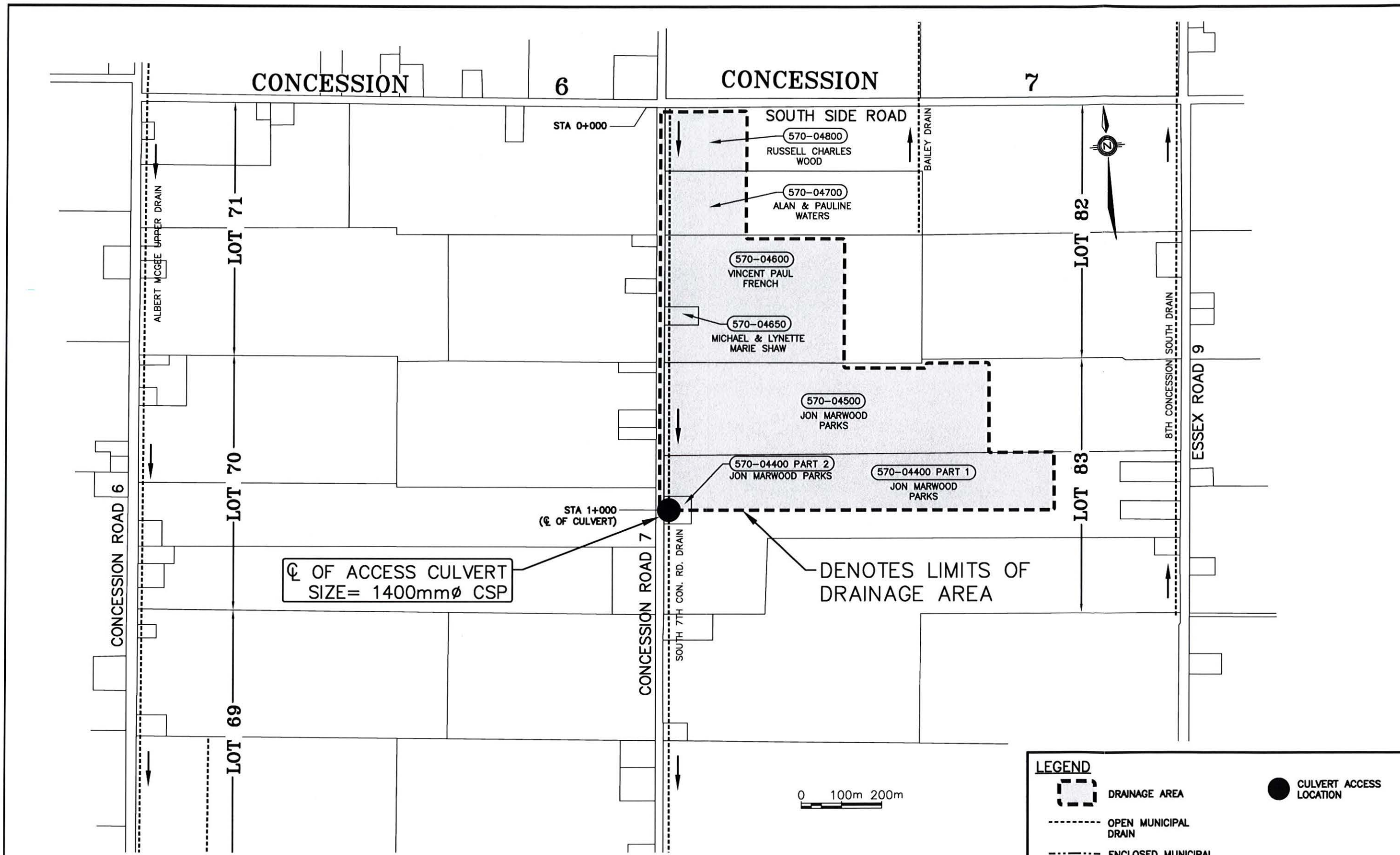
21.2. Following a release under section 21.1, the Municipality shall Contact the MNR within 72 hours of the release to provide information on the name of the Drainage Works, the location of the encounter and the location of the release site.

22. Measures for Dead Snakes

22.1. Where one or more individuals belonging to a snake Species is killed as a result of an Activity in a Work Zone, or if a person undertaking an Activity finds a deceased individual of a snake Species within the Work Zone, the Municipality shall:

- (a) collect and transfer any dead individuals into a Holding Tub outside of direct sunlight; and
- (b) Contact the MNR within 72 hours to seek direction and to arrange for the transfer of the carcasses of the dead individuals.





☉ OF ACCESS CULVERT
SIZE = 1400mm Ø CSP

DENOTES LIMITS OF
DRAINAGE AREA

LEGEND	
	DRAINAGE AREA
	OPEN MUNICIPAL DRAIN
	ENCLOSED MUNICIPAL DRAIN
	CULVERT ACCESS LOCATION

THIS PLAN HAS BEEN REDUCED IN SIZE FOR PRESENTATION PURPOSES AND THEREFORE IT IS NOT TO THE SCALES INDICATED. A FULL SIZE SET OF DRAWINGS IS AVAILABLE FOR REVIEW AT THE TOWN OFFICE

RC SPENCER ASSOCIATES INC.
CONSULTING ENGINEERS
1800-261-3464
Professional Engineers Ontario

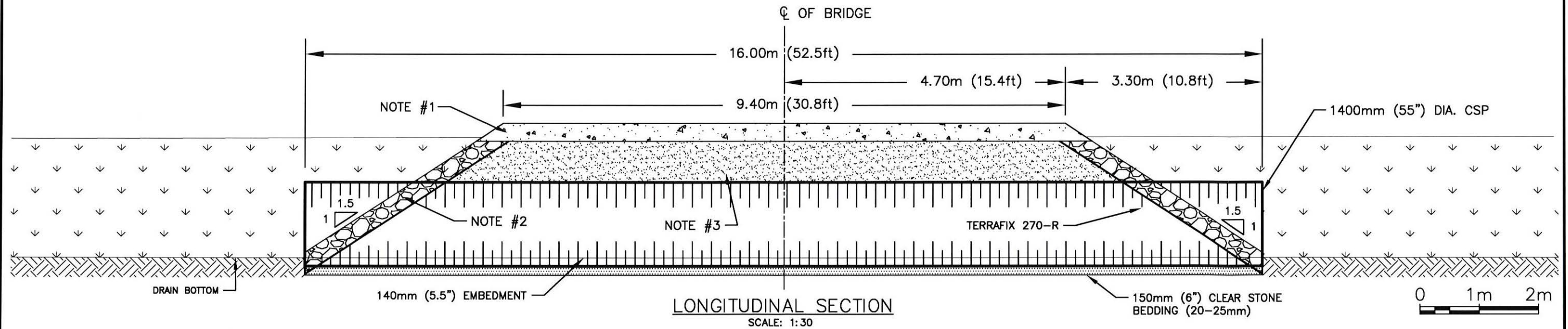
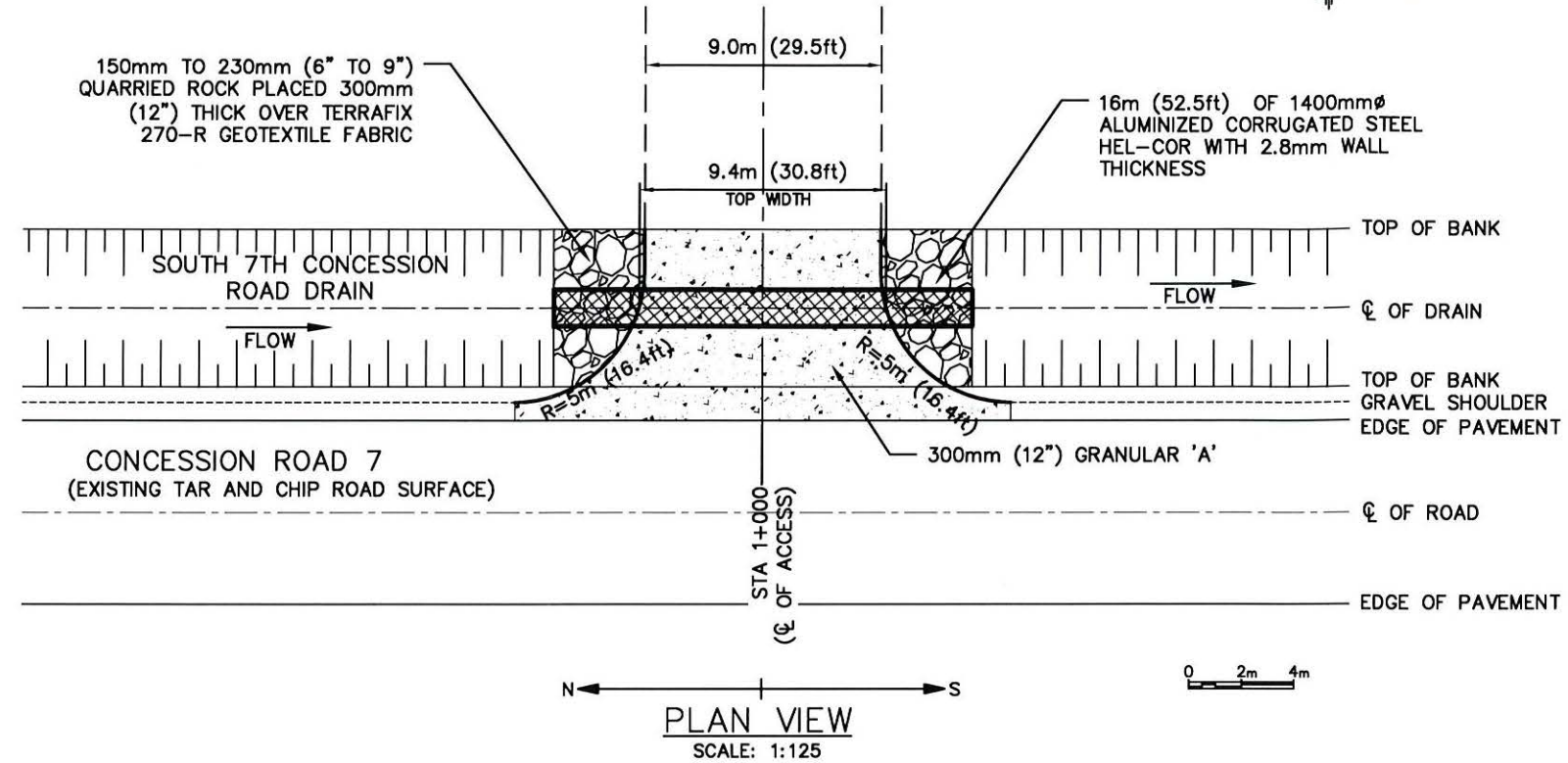
L. ZARUBKA
REGISTERED PROFESSIONAL ENGINEER
PROVINCE OF ONTARIO

D. R. MCGREADY
REGISTERED PROFESSIONAL ENGINEER
PROVINCE OF ONTARIO

DESIGN M.H.	SOUTH SEVENTH CONCESSION ROAD DRAIN (JON PARKS ACCESS)	PROJECT NO. 16-523D
CHECKED L.Z.		SHEET NO. 1
DRAWN M.H.	DRAINAGE AREA PLAN	OF 3
CHECKED L.Z.		
DATE DEC 19, 2016		
SCALE 1:4000		

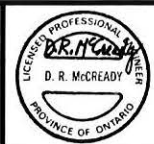
NOTES:

1. GRANULAR 'A' ACCESS COMPACTED TO 100% S.P.D. (MIN 300mm) THICKNESS
2. INSTALL QUARRIED ROCK EROSION PROTECTION WITH TERRAFIX FILTER CLOTH (270-R) (MIN 300mm (12") THICKNESS)
3. GRANULAR 'B' TYPE II BACKFILL MATERIAL COMPACTED TO 100% S.P.D.



BENCH MARK ELEVATION: 186.800		BENCH MARK LOCATION: TOP OF N/W CORNER OF NORTH CONCRETE HEADWALL AT MUNICIPAL NO. 7631 7TH CONCESSION ROAD			
PIPE SIZE	PIPE LENGTH	PIPE GAUGE	CORRUGATIONS	TYPE OF PIPE	PIPE INVERT ELEVATIONS
1400mm DIA. (55" DIA.)	16 METERS (52.5 FT)	2.8mm (12 GA)	125 x 25mm (5" x 1")	ALUMINIZED HEL-COR CSP	UPSTREAM END: 185.150 METERS DOWNSTREAM END: 185.120 METERS

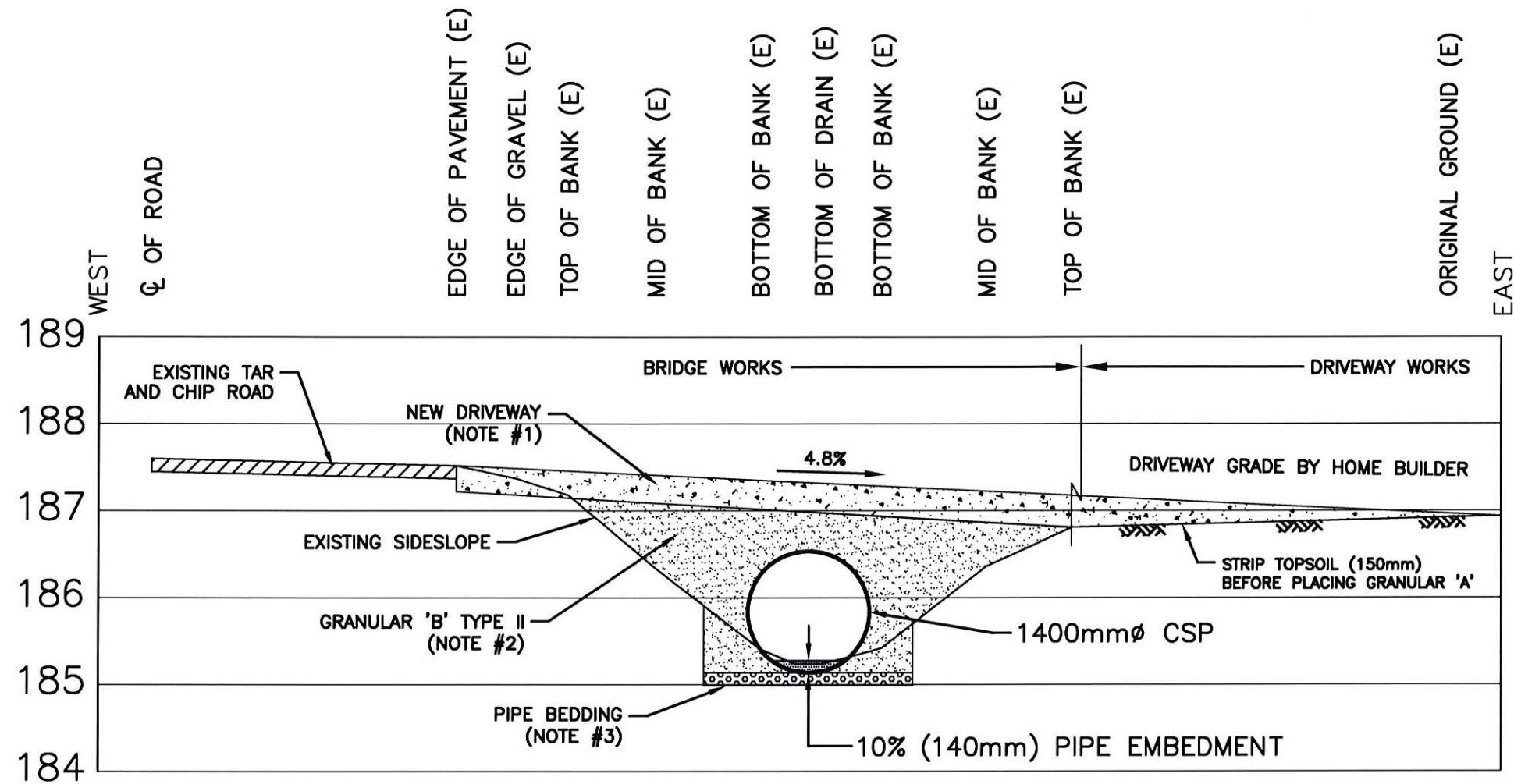
THIS PLAN HAS BEEN REDUCED IN SIZE FOR PRESENTATION PURPOSES AND THEREFORE IT IS NOT TO THE SCALES INDICATED. A FULL SIZE SET OF DRAWINGS IS AVAILABLE FOR REVIEW AT THE TOWN OFFICE



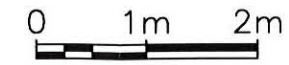
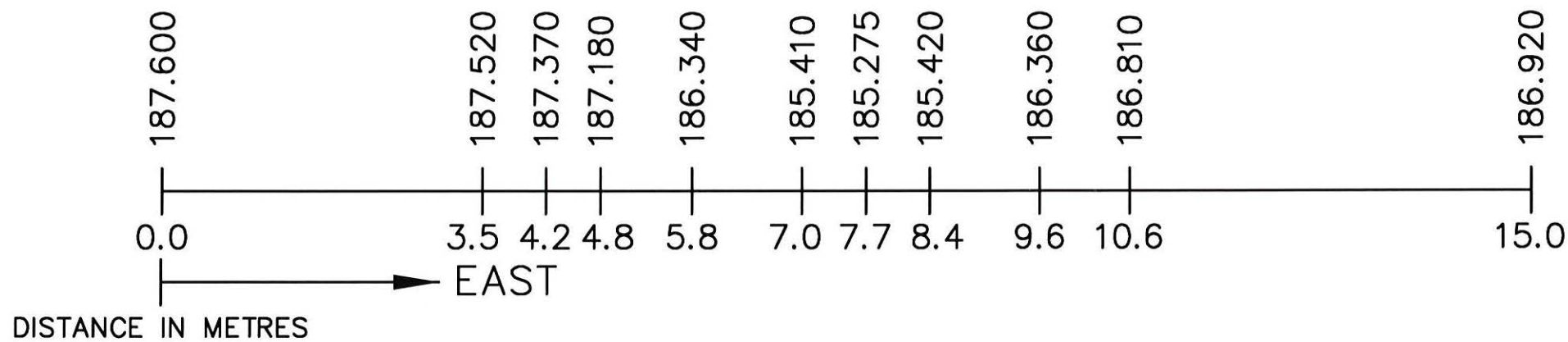
DESIGN	M.H.
CHECKED	L.Z.
DRAWN	M.H.
CHECKED	L.Z.
DATE	DEC 19, 2016
SCALE	AS SHOWN

SOUTH SEVENTH CONCESSION ROAD DRAIN (JON PARKS ACCESS)
NEW CULVERT INSTALLATION FOR JON PARKS

PROJECT NO.	16-523D
SHEET NO.	2
OF	3



- NOTES:**
- NEW DRIVEWAY:** GRANULAR 'A' 300mm MIN COMPACTED TO 100% S.P.D. AND CROWNED FOR PROPER DRAINAGE (450mm (18") MIN COVER OVER CSP)
 - BACKFILL:** GRANULAR 'B' TYPE II, COMPACTED TO 100% S.P.D.
 - PIPE BEDDING:** CLEARSTONE BEDDING (20-25mm) 150mm THICKNESS AS PER OPSD 802.034



(STA. 1+000) \perp OF ACCESS CROSS-SECTION
SCALE: 1:30

THIS PLAN HAS BEEN REDUCED IN SIZE FOR PRESENTATION PURPOSES AND THEREFORE IT IS NOT TO THE SCALES INDICATED. A FULL SIZE SET OF DRAWINGS IS AVAILABLE FOR REVIEW AT THE TOWN OFFICE



DESIGN	M.H.
CHECKED	L.Z.
DRAWN	M.H.
CHECKED	L.Z.
DATE	DEC 19, 2016
SCALE	1:30

SOUTH SEVENTH CONCESSION ROAD DRAIN (JON PARKS ACCESS)	
CROSS SECTION STA 1+000	

PROJECT NO.	16-523D
SHEET NO.	3
OF	3