

**MUNICIPAL DRAINAGE REPORT**

**EXTENSION OF THE BRANCH OF THE SMITH NEWMAN DRAIN**

**NEAR THE COMMUNITY OF COTTAM**

**TOWN OF KINGSVILLE**



**RC SPENCER ASSOCIATES INC.**  
Consulting Engineers

**Windsor:** 800 University Avenue W. – Windsor ON N9A 5R9

**Leamington:** 18 Talbot Street W. – Leamington ON N8H 1M4

**Chatham-Kent:** 49 Raleigh Street – Chatham ON N7M 2M6

May 20, 2025

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

Re: Extension of the Branch of the Smith Newman Drain  
Near the Community of Cottam, Town of Kingsville  
Project No. 24-1680

Mayor and Municipal Council:

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## **1.0 AUTHORIZATION**

In accordance with your instructions under Section 4 of the Drainage Act, we held an on-site meeting concerning the upstream extension of the Branch of the Smith Newman Drain at the intersection of Belleview Drive and Whitewood Avenue, in the Community of Cottam. The instructions were initiated by a petition from the County of Essex to address the drainage issues on the north side of County Road 34 east of Belleview Drive. The upstream extension is shown on the drawings from Station 1+695 to Station 2+425.

Furthermore, in accordance with your instructions under Section 76 of the Drainage Act, we have prepared a new schedule of assessment for future maintenance of the existing Branch of the Smith Newman Drain from Station 1+009 to Station 1+695.

Our appointment and the works recommended in this report for the repair, improvement and extension of the Branch of the Smith Newman Drain are in accordance with Section 4 and Section 76 of the Drainage Act.

## **2.0 DRAINAGE HISTORY**

The Branch of the Smith Newman Drain is an existing open municipal drain. A review of the records indicates that the last report prepared for the Smith Newman Drain was one prepared by Bruce D. Crozier dated 15 November 2011 and reconsidered on 6 March 2013. That report called for the replacement of an agricultural access culvert. A future maintenance schedule was also prepared for the Smith Newman Drain in that report.

The records also show a previous report prepared by D. A. Averill dated March 1980. That report found that the Smith Newman Drain and Branch was heavily silted and overgrown with brush. It was recommended that the drain be repaired and improved by way of clearing the brush and deepening of the channel.

The records show that prior to the 1980 report, a report was prepared by William J. Settington dated 8 October 1968. In that report, the engineer found that the Smith Newman Drain and Branch had become filled with sediment to the extent that it could not provide adequate drainage to the lands and roads it was intended to serve. Therefore, the report recommended for the improvement of the drain

by cleaning and deepening in accordance with the plans accompanying the report. The report also indicates that the drain was previously repaired in a report prepared by Wm. D. Colby dated September 1959, which was not available in the historical records for our review.

### **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 6 November 2024 with the landowners in the watershed. It was explained that the County of Essex had submitted a petition to extend the Branch of the Smith Newman Drain to address drainage issues being experienced on the north side of County Road 34E. We find that the petition signed by the Road Authority is valid and recommend the upstream extension of the Branch of the Smith Newman Drain.

A summary of the on-site meeting discussions is included in “Appendix C.”

### **4.0 INSPECTION AND SURVEY**

Topographic survey data was gathered along the alignment proposed for the drain extension, the existing Branch of the Smith Newman Drain and the portion of the Smith Newman Drain lying downstream of the outlet of the Branch. The open channel was inspected, as well as, the culverts in the drainage works.

For simplicity purposes throughout this report, north shall be assumed to be the reference direction which is parallel to the property lines between the lots versus the actual north west direction. A depiction of the plan north versus the actual north is shown on the attached drawings.

### **5.0 WATERSHED DESCRIPTION**

The watershed of the Branch of the Smith Newman Drain is irregular in shape and has a surface area of approximately 64.1 Ha (158.4 Ac). A number of private tributary drains, both tile and open, convey surface and subsurface flows to the Branch of the Smith Newman Drain. The watershed primarily falls within Lot 269, Concession N.T.R.

The soil type within the watershed is predominantly Brookston Clay. This is described as having poor natural drainage and requires effective artificial drainage to be productive for agriculture. The topography of the area slopes down in the northerly direction but is generally flat. The bottom gradient of the drain in the area of the proposed work is approximately 0.20%. The lands in the drainage area are used for residential lots and for agricultural purposes.

### **6.0 EXISTING CONDITIONS**

During the survey and inspection of the Smith Newman Drain and Branch, it was found that the existing Branch of the Smith Newman Drain from Station 1+009 to Station 1+695, is in good condition. No drainage concerns from landowners were raised at the on-site meeting for this portion of the drain.

Where the alignment of the municipal drain extension is proposed from Station 1+695 to Station 2+100, there is a small private open swale constructed that does not presently afford proper drainage to the lands and roads it currently serves. The new municipal drain extension will serve as a sufficient outlet for the upstream lands.

On the proposed alignment of the municipal drain extension from Station 2+100 to Station 2+425, there are no existing open swales to manage surface water.

## **7.0 LANDOWNER REQUEST**

The County of Essex submitted a petition for drainage works under Section 4 of the Drainage Act to address the drainage issues on the north side of County Road 34 east of Belleview Drive. This will be addressed by the extension of the Branch of the Smith Newman Drain. The alignment of the new drain will be in accordance with the attached drawings.

## **8.0 RECOMMENDATIONS**

Based on our review of the history, the information obtained during the on-site meeting, subsequent discussions with the landowners and Municipality, a review of the survey data and our detailed analyses and designs, we recommend the following:

- a) The removal and disposal of brush and trees from the existing Branch of the Smith Newman Drain.
- b) The construction recommended for the extension of the Branch of the Smith Newman Drain from Station 1+695 to Station 2+425 in accordance with the drawings attached.
- c) Excavated material shall be used to fill in and abandon the adjacent open ditch.
- d) Material excavated from the extension of the municipal drain that is not required to complete the backfilling of the adjacent open ditch shall be levelled on the adjoining farmlands.
- e) Hydroseeding the banks of the extension of the Branch of the Smith Newman Drain. (Stations 1+695 to Station 2+425).
- f) Quarried rock erosion protection on the banks of the drain at Station 1+700, Station 2+305 and as directed by the Engineer.
- g) Proper sediment control measures be implemented during construction.
- h) The provision of a schedule of assessment for the work recommended under this report on the extension of the Branch of the Smith Newman Drain (Sta. 1+695 to Sta. 2+425).
- i) The provision of a schedule of assessment for the cost of any future works of repair and/or maintenance carried out on the Branch of the Smith Newman Drain (Sta. 1+009 to Sta. 1+695).
- j) We recommend that these works be completed, and the related costs be assessed under the provisions of the Drainage Act.
- k) We are not aware of any tile outlet pipe replacements required during construction. If private tile drains are encountered that require new tile outlet pipes, the Drainage Superintendent will direct the Contractor to install those pipes.
- l) Replace farm tile main (if required) from Station 1+695 to Station 2+425.

## **9.0 DRAWINGS AND SPECIFICATIONS**

As part of this report, we have attached design drawings for the proposed repair, improvement and extension of the Branch of the Smith Newman Drain. There is a set of 6 drawings showing:

- a) A watershed plan indicating the drainage area boundary for the Branch of the Smith Newman Drain;
- b) A profile drawing for the existing and extended course of the municipal drain; and,
- c) Typical cross-sections for the work;

Also attached as **Appendix ‘B’** are:

- a) **‘Special Provisions’** for the 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 Open Drains’**; and,
- c) **‘Environmental Protection Special Provisions’**.

**10.0 ALLOWANCES**

In accordance with Section 29 of The Drainage Act, allowances for the use of the land required to construct the drainage works and for the disposal of material removed from the drainage works have been made. In this particular case, a net loss of land will result from the extension of the municipal drain on the property with Roll No. 590-03000. We have provided a land allowance for this land at a rate of \$39,536 per hectare (\$16,000 per acre). This amount is shown in the following table under the heading “Land”.

Materials excavated from the new extension of the municipal drain shall be disposed of as set out in the Special Provisions. Any material excavated from the new extension of the municipal drain that is not required to complete the backfilling of the existing adjacent swale from Station 1+695 to 2+425, will be levelled on the adjoining farmland with Roll No. 590-03000 on the east side of the new drain.

In accordance with Section 30 of The Drainage Act, we determine the amounts to be paid to the owners of the adjoining lands along the course of the work, for damages to lands and crops (if any) occasioned by the construction of the drainage works, the backfilling of the existing open drain, tree removal and brushing, and by the disposal of excess excavated material.

The damage allowances are based upon an amount of approximately \$5,930 per hectare (\$2,400 per acre) over areas designated as working areas and working corridors where excess excavated material will be disposed and spread out. For areas to be used as working areas and working corridors where no excavated material will be disposed and spread, damage allowances are based upon an amount of approximately \$1,977 per hectare (\$800 per acre). This amount is shown in the following Schedule of Allowances, under the heading “Damages”.

**SCHEDULE OF ALLOWANCES**

| Parcel No. | Roll No.  | Con | Lot or Part Lot | Owner                     | Land             | Damages         | Total            |
|------------|-----------|-----|-----------------|---------------------------|------------------|-----------------|------------------|
| 150        | 590-03000 | NTR | Pt Lot 269 RP   |                           | \$ 13,050        | \$ 2,600        | \$ 15,650        |
|            |           |     |                 | <b>TOTAL ALLOWANCES =</b> | <b>\$ 13,050</b> | <b>\$ 2,600</b> | <b>\$ 15,650</b> |

**11.0 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:

**PART ‘A’ – Station 1+009 to 1+695 (Existing Municipal Drain)**

**INCIDENTALS – PART ‘A’**

|  |                     |
|--|---------------------|
| Survey, report, and updated Schedule of Assessment             | \$ 9,827.00         |
| <b>SUBTOTAL FOR INCIDENTALS – PART ‘A’</b>                     | <b>\$ 9,827.00</b>  |
| H.S.T. ON INCIDENTALS (1.76% NET)                              | \$ 173.00           |
| <b>TOTAL FOR INCIDENTALS – PART ‘A’ (including net H.S.T.)</b> | <b>\$ 10,000.00</b> |
| <b>TOTAL ESTIMATED COST – PART ‘A’</b>                         | <b>\$ 10,000.00</b> |

**PART ‘B’ – Station 1+695 to 2+425 (Municipal Drain Extension)**

**CONSTRUCTION ITEMS – PART ‘B’**

|  |                     |
|--|---------------------|
| 1. Removal and disposal of brush and trees from the existing open ditch adjacent to the extension of the Branch of the Smith Newman Drain. (Stations 1+695 to 2+425)   | \$ 20,000.00        |
| 2. Excavate the new extension of the Branch of the Smith Newman Drain to the profile and cross-sections shown on the drawings from Stations 1+695 to 2+425. Excavated material shall be used to fill in the adjacent open ditch. Material excavated from the extension of the municipal drain that is not required to complete the backfilling of the adjacent open ditch shall be levelled on the adjoining farmlands. Price to include placing, compacting and grading fill material to the elevations shown on the cross-sections. (Approximately 540m <sup>3</sup> ) | \$ 18,900.00        |
| 3. Hydroseed the banks of the drain extension from Stations 1+695 to 2+425 including the 3.0m wide corridor. (Approximately 5,100m <sup>2</sup> )  | \$ 10,200.00        |
| 4. Supply and place quarried rock erosion protection (300mm thick) using 150mm-225mm diameter stone at Station 1+700, Station 2+305 and as directed by the Engineer. (approximately 100m <sup>2</sup> or 60 tonnes)  | \$ 10,000.00        |
| 5. Silt control  | \$ 500.00           |
| <b>SUB TOTAL FOR CONSTRUCTION – PART ‘B’</b>   | <b>\$ 59,600.00</b> |
| H.S.T. ON CONSTRUCTION (1.76% NET)   | \$ 1,050.00         |
| <b>TOTAL FOR CONSTRUCTION – PART ‘B’ (including net H.S.T.)</b>  | <b>\$ 60,650.00</b> |

**INCIDENTALS – PART ‘B’**

|  |                      |
|--|----------------------|
| Allowances under Sections 29 and 30                            | \$ 15,650.00         |
| Survey, report, estimate, specifications and drawings          | \$ 30,000.00         |
| Contract administration and inspection                         | \$ 6,500.00          |
| Cost of ERCA Permit fee  | \$ 800.00            |
| Contingency allowance  | \$ 5,000.00          |
| <b>SUBTOTAL FOR INCIDENTALS – PART ‘B’</b>                     | <b>\$ 57,950.00</b>  |
| H.S.T. ON INCIDENTALS (1.76% NET)                              | \$ 1,020.00          |
| <b>TOTAL FOR INCIDENTALS – PART ‘B’ (including net H.S.T.)</b> | <b>\$ 58,970.00</b>  |
| <b>TOTAL ESTIMATED COST – PART ‘B’</b>                         | <b>\$ 119,620.00</b> |

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 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.

During the construction of the new drain extension, if any modifications to existing tile drains are required, the necessary work shall be carried out at the expense of the drainage works. The Drainage Superintendent shall arrange for a licensed tilling Contractor to make the required modifications.

All items of work recommended in this report shall be pro-ratable items of work for the purposes of levying the actual final assessments.

**12.0 UTILITIES**

It may become necessary to temporarily or permanently relocate utilities that may conflict with the construction recommended under this report. If this occurs, 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.

### **13.0 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).*

No Special Benefit Assessments are levied under this report for the recommended construction.

We have assessed the estimated costs against the affected lands and roads as listed in Schedule 'A-1' and Schedule 'A-2' under "Value of Benefit" and "Value of Outlet." Schedule A-1 relates to the engineering cost of the updated schedule of assessment for future maintenance of the Branch of the Smith Newman Drain. Schedule A-2 relates to the estimated cost of the construction recommended in this report.

When determining "Benefit" assessments, factors such as the advantages to any lands, roads, buildings or other structures resulting from the construction, improvement, repair or maintenance of a drainage works such as will result in a higher market value or increased crop production or improved appearance or better control of surface or subsurface water, or any other advantages relating to the betterment of lands, roads, buildings or other structures are considered.

When determining "Outlet" assessments, factors such as area draining from each property, land use, impervious areas, storm water management facilities 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.

We consider all of the items of work recommended in this report to be pro-rateable items of work for the purposes of levying the actual final assessments.

### **14.0 FUTURE MAINTENANCE**

After completion, the existing Branch of the Smith Newman Drain from Station 1+009 to 1+695 and the extension of the Branch from Stations 1+695 to 2+425 shall be maintained by the Town of Kingsville.

Future maintenance costs for work between Stations 1+009 to 1+682 shall be levied against the affected lands and roads in the watershed of the Branch of the Smith Newman Drain, pro-rata to the assessments contained in "Schedule A-1" attached to this report. Future maintenance costs shall be levied pro-rata only upon the affected lands and roads that are located upstream of the maintenance works.

Future maintenance costs for work between Stations 1+695 to 2+425 shall be levied against the affected lands and roads in the watershed of the Extension of the Branch of the Smith Newman Drain, pro-rata to the assessments contained in "Schedule A-2" attached to this report. Future maintenance costs shall be levied pro-rata only upon the affected lands and roads that are located upstream of the maintenance works.

The repair, maintenance and/or replacement of the existing access culvert from Station 1+682 to Station 1+695, shall be carried out in the future by the Town of Kingsville. Since this culvert is required for a public utility, costs associated with future maintenance shall be levied against the property with Roll No. 590-06101 owned by the Town of Kingsville.

For the purpose of future maintenance, the adjoining property owners shall provide suitable maintenance corridors along the open drain and access corridors to the site of the work, in order to permit future maintenance to be carried out. The access corridor shall have a width of at least 6m. The working corridor along the drain shall have a minimum of 8m.

The Smith Newman Drain along North Talbot Road is not repaired and improved under this report and shall be maintained in accordance with the governing bylaws for the Smith Newman Drain including any culverts that are a part of the drainage works.

The above provisions for the future maintenance of the drain shall remain as noted above, subject to any variations that may be made under the authority of the 'Drainage Act RSP 1990 Chapter D.17'.

### **15.0 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.

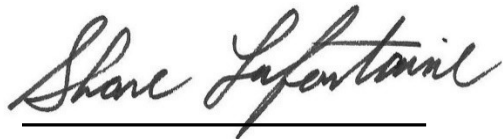
### **16.0 GRANTS**

In accordance with the provisions of Sections 85, 86 and 87 of the Drainage Act, a grant in the amount of 33–1/3 percent of the assessment eligible for a grant may be made in respect to the assessment made under this report upon privately owned lands used for agricultural purposes. The assessments levied against privately owned agricultural land must also satisfy all other eligibility criteria set out in the Agricultural Drainage Infrastructure Program policies. Three assessed properties are privately owned lands used for agricultural purposes and are eligible for grant under the A.D.I.P. policies. We are not aware of any lateral drains involved in this work that would not be eligible for a grant. We recommend that application be made to the Ontario Ministry of Agriculture and Food in accordance with Section 88 of the Drainage Act, for this grant, as well as for all other grants for which this work may be eligible.

All of which is respectfully submitted.

**RC SPENCER ASSOCIATES INC.**

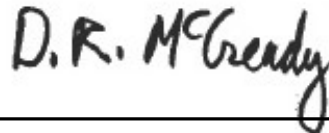
**PREPARED BY:**



**Shane Lafontaine, M. Eng., P. Eng.**  
**Appointed Engineer**  
**May 20, 2025**



**REVIEWED BY:**



**Dennis R. McCready, B.A.Sc., P. Eng.**  
**May 20, 2025**



**APPENDIX 'A'**

**SCHEDULES OF ASSESSMENT**

**SCHEDULE A-1 Schedule of Assessment for Future Maintenance  
Branch of the Smith Newman Drain**

**SCHEDULE A-2 Schedule of Assessment for Construction  
Branch of the Smith Newman Drain Extension**

**EXTENSION OF THE BRANCH OF THE SMITH NEWMAN DRAIN  
TOWN OF KINGSVILLE**

**SCHEDULE A-1  
SCHEDULE OF ASSESSMENT FOR FUTURE MAINTENANCE**

**BRANCH OF THE SMITH NEWMAN DRAIN  
TOWN OF KINGSVILLE**

| <b>A) MUNICIPAL LANDS</b>                  |                                     |                       |                          |                    |                               |                               |                    |  |  |
|--|-------------------------------------|-----------------------|--------------------------|--------------------|-------------------------------|-------------------------------|--------------------|--|--|
| PARCEL NO.                                 | Description                         | AREA OWNED (Hectares) | AREA AFFECTED (Hectares) | OWNER              | (SECTION 22) VALUE OF BENEFIT | (SECTION 23) OUTLET LIABILITY | TOTAL ASSESSMENT   |  |  |
| 1  | Belleview Drive                     | -                     | 1.248                    | Town of Kingsville | \$ -                          | \$ 573.00                     | \$ 573.00          |  |  |
| 2  | Greenwood Avenue                    | -                     | 0.080                    | Town of Kingsville | \$ -                          | \$ 37.00                      | \$ 37.00           |  |  |
| 3  | Redwood Avenue                      | -                     | 1.258                    | Town of Kingsville | \$ -                          | \$ 576.00                     | \$ 576.00          |  |  |
| 4  | Whitewood Avenue                    | -                     | 0.410                    | Town of Kingsville | \$ -                          | \$ 188.00                     | \$ 188.00          |  |  |
| 5  | County Road 34E                     | -                     | 0.528                    | County of Essex    | \$ -                          | \$ 242.00                     | \$ 242.00          |  |  |
| 6  | Roll No. 590-03485 12M-689 BLK 34   | 0.088                 | 0.088                    | Town of Kingsville | \$ -                          | \$ 16.00                      | \$ 16.00           |  |  |
| 7  | Roll No. 590-03486 12M-689 BLK 35   | 0.023                 | 0.023                    | Town of Kingsville | \$ -                          | \$ 6.00                       | \$ 6.00            |  |  |
| 8  | Roll No. 590-04106 12M-392 LOT 3    | 0.078                 | 0.078                    | Town of Kingsville | \$ -                          | \$ 7.00                       | \$ 7.00            |  |  |
| 9  | Roll No. 590-04150 12M-392 BLK 44   | 0.232                 | 0.232                    | Town of Kingsville | \$ -                          | \$ 21.00                      | \$ 21.00           |  |  |
| 10   | Roll No. 590-04154 12M-392 PT LOT 2 | 0.072                 | 0.072                    | Town of Kingsville | \$ -                          | \$ 7.00                       | \$ 7.00            |  |  |
| 11   | Roll No. 590-04155 12M-392 BLK 45   | 0.365                 | 0.365                    | Town of Kingsville | \$ -                          | \$ 33.00                      | \$ 33.00           |  |  |
| 12   | Roll No. 590-06101                  | 21.402                | 10.570                   | Town of Kingsville | \$ 594.00                     | \$ 726.00                     | \$ 1,320.00        |  |  |
| <b>Total affected Lands (Hectares)</b>     |                                     | <b>22.260</b>         | <b>14.952</b>            |                    |                               |                               |                    |  |  |
| <b>Total Assessment on Municipal Lands</b> |                                     |                       |                          |                    | <b>\$ 594.00</b>              | <b>\$ 2,432.00</b>            | <b>\$ 3,026.00</b> |  |  |

| <b>B) PRIVATELY OWNED - NON-AGRICULTURAL LANDS (NON-GRANTABLE)</b> |              |                  |                    |                       |                          |       |                               |                               |                  |
|--|--------------|------------------|--------------------|-----------------------|--------------------------|-------|-------------------------------|-------------------------------|------------------|
| PARCEL NO.   | TAX ROLL NO. | CON. OR PLAN NO. | LOT OR PART OF LOT | AREA OWNED (Hectares) | AREA AFFECTED (Hectares) | OWNER | (SECTION 22) VALUE OF BENEFIT | (SECTION 23) OUTLET LIABILITY | TOTAL ASSESSMENT |
| 13   | 590-00137    | 12M-392          | PT BLKS 23 24 & 43 | 0.072                 | 0.072                    |       | \$ -                          | \$ 13.00                      | \$ 13.00         |
| 14   | 590-00138    | 12M-392          | BLK 43             | 0.071                 | 0.071                    |       | \$ -                          | \$ 13.00                      | \$ 13.00         |
| 15   | 590-00139    | 12M-392          | PT BLKS 43 & 47    | 0.071                 | 0.071                    |       | \$ -                          | \$ 13.00                      | \$ 13.00         |
| 16   | 590-00140    | 12M-392          | PT BLKS 25 & 47    | 0.071                 | 0.071                    |       | \$ -                          | \$ 13.00                      | \$ 13.00         |
| 17   | 590-00141    | 12M-392          | PT BLK 25          | 0.073                 | 0.073                    |       | \$ -                          | \$ 13.00                      | \$ 13.00         |
| 18   | 590-00142    | 12M-392          | PT LOTS 21 TO 23   | 0.077                 | 0.077                    |       | \$ -                          | \$ 14.00                      | \$ 14.00         |
| 19   | 590-00143    | 12M-392          | PT LOTS 21 TO 23   | 0.077                 | 0.077                    |       | \$ -                          | \$ 14.00                      | \$ 14.00         |
| 20   | 590-00144    | 12M-392          | PT LOTS 21 TO 23   | 0.077                 | 0.077                    |       | \$ -                          | \$ 14.00                      | \$ 14.00         |
| 21   | 590-00145    | 12M-392          | PT LOT 26          | 0.087                 | 0.087                    |       | \$ -                          | \$ 16.00                      | \$ 16.00         |
| 22   | 590-00146    | 12M-392          | PT LOTS 26 & 27    | 0.077                 | 0.077                    |       | \$ -                          | \$ 14.00                      | \$ 14.00         |
| 23   | 590-00147    | 12M-392          | PT LOTS 27 & 28    | 0.078                 | 0.078                    |       | \$ -                          | \$ 14.00                      | \$ 14.00         |
| 24   | 590-00148    | 12M-392          | PT LOTS 28 & 29    | 0.078                 | 0.078                    |       | \$ -                          | \$ 14.00                      | \$ 14.00         |
| 25   | 590-00149    | 12M-392          | PT LOT 29          | 0.078                 | 0.078                    |       | \$ -                          | \$ 14.00                      | \$ 14.00         |
| 26   | 590-02800    | NTR              | PT LOT 269         | 1.297                 | 1.297                    |       | \$ -                          | \$ 192.00                     | \$ 192.00        |
| 27   | 590-02850    | NTR              | PT LOT 269         | 0.152                 | 0.152                    |       | \$ -                          | \$ 42.00                      | \$ 42.00         |
| 28   | 590-02900    | NTR              | PT LOT 269         | 0.197                 | 0.197                    |       | \$ -                          | \$ 54.00                      | \$ 54.00         |
| 29   | 590-03002    | NTR              | PT LOT 269         | 0.215                 | 0.215                    |       | \$ -                          | \$ 57.00                      | \$ 57.00         |
| 30   | 590-03100    | NTR              | PT LOT 269         | 0.343                 | 0.343                    |       | \$ -                          | \$ 73.00                      | \$ 73.00         |
| 31   | 590-03101    | NTR              | PT LOT 269         | 0.172                 | 0.172                    |       | \$ -                          | \$ 47.00                      | \$ 47.00         |
| 32   | 590-03200    | NTR              | PT LOT 269         | 0.172                 | 0.172                    |       | \$ -                          | \$ 47.00                      | \$ 47.00         |
| 33   | 590-03301    | NTR              | PT LOT 269         | 0.188                 | 0.188                    |       | \$ -                          | \$ 34.00                      | \$ 34.00         |
| 34   | 590-03400    | NTR              | PT LOT 269         | 0.084                 | 0.084                    |       | \$ -                          | \$ 15.00                      | \$ 15.00         |
| 35   | 590-03452    | 12M-689          | LOT 1              | 0.085                 | 0.085                    |       | \$ -                          | \$ 16.00                      | \$ 16.00         |
| 36   | 590-03453    | 12M-689          | LOT 2              | 0.085                 | 0.085                    |       | \$ -                          | \$ 16.00                      | \$ 16.00         |
| 37   | 590-03454    | 12M-689          | LOT 3              | 0.085                 | 0.085                    |       | \$ -                          | \$ 16.00                      | \$ 16.00         |
| 38   | 590-03455    | 12M-689          | LOT 4              | 0.085                 | 0.085                    |       | \$ -                          | \$ 16.00                      | \$ 16.00         |

**B) PRIVATELY OWNED - NON-AGRICULTURAL LANDS (NON-GRANTABLE) - Continued**

| PARCEL NO. | TAX ROLL NO. | CON. OR PLAN NO. | LOT OR PART OF LOT | AREA OWNED (Hectares) | AREA AFFECTED (Hectares) | OWNER | (SECTION 22) VALUE OF BENEFIT | (SECTION 23) OUTLET LIABILITY | TOTAL ASSESSMENT |
|------------|--------------|------------------|--------------------|-----------------------|--------------------------|-------|-------------------------------|-------------------------------|------------------|
| 39         | 590-03456    | 12M-689          | LOT 5              | 0.086                 | 0.086                    |       | \$ -                          | \$ 16.00                      | \$ 16.00         |
| 40         | 590-03457    | 12M-689          | LOT 6              | 0.086                 | 0.086                    |       | \$ -                          | \$ 16.00                      | \$ 16.00         |
| 41         | 590-03458    | 12M-689          | LOT 7              | 0.086                 | 0.086                    |       | \$ -                          | \$ 16.00                      | \$ 16.00         |
| 42         | 590-03459    | 12M-689          | LOT 8              | 0.087                 | 0.087                    |       | \$ -                          | \$ 16.00                      | \$ 16.00         |
| 43         | 590-03460    | 12M-689          | LOT 9              | 0.087                 | 0.087                    |       | \$ -                          | \$ 16.00                      | \$ 16.00         |
| 44         | 590-03461    | 12M-689          | LOT 10             | 0.087                 | 0.087                    |       | \$ -                          | \$ 16.00                      | \$ 16.00         |
| 45         | 590-03462    | 12M-689          | LOT 11             | 0.108                 | 0.108                    |       | \$ -                          | \$ 20.00                      | \$ 20.00         |
| 46         | 590-03463    | 12M-689          | LOT 12             | 0.108                 | 0.108                    |       | \$ -                          | \$ 20.00                      | \$ 20.00         |
| 47         | 590-03464    | 12M-689          | LOT 13             | 0.108                 | 0.108                    |       | \$ -                          | \$ 20.00                      | \$ 20.00         |
| 48         | 590-03469    | 12M-689          | LOT 18             | 0.107                 | 0.107                    |       | \$ -                          | \$ 20.00                      | \$ 20.00         |
| 49         | 590-03470    | 12M-689          | LOT 19             | 0.107                 | 0.107                    |       | \$ -                          | \$ 20.00                      | \$ 20.00         |
| 50         | 590-03471    | 12M-689          | LOT 20             | 0.108                 | 0.108                    |       | \$ -                          | \$ 20.00                      | \$ 20.00         |
| 51         | 590-03472    | 12M-689          | LOT 21             | 0.068                 | 0.068                    |       | \$ -                          | \$ 12.00                      | \$ 12.00         |
| 52         | 590-03473    | 12M-689          | LOT 22             | 0.070                 | 0.07                     |       | \$ -                          | \$ 13.00                      | \$ 13.00         |
| 53         | 590-03474    | 12M-689          | LOT 23             | 0.070                 | 0.07                     |       | \$ -                          | \$ 13.00                      | \$ 13.00         |
| 54         | 590-03475    | 12M-689          | LOT 24             | 0.070                 | 0.07                     |       | \$ -                          | \$ 13.00                      | \$ 13.00         |
| 55         | 590-03476    | 12M-689          | LOT 25             | 0.070                 | 0.07                     |       | \$ -                          | \$ 13.00                      | \$ 13.00         |
| 56         | 590-03477    | 12M-689          | LOT 26             | 0.070                 | 0.07                     |       | \$ -                          | \$ 13.00                      | \$ 13.00         |
| 57         | 590-03478    | 12M-689          | LOT 27             | 0.071                 | 0.071                    |       | \$ -                          | \$ 13.00                      | \$ 13.00         |
| 58         | 590-03479    | 12M-689          | LOT 28             | 0.079                 | 0.079                    |       | \$ -                          | \$ 14.00                      | \$ 14.00         |
| 59         | 590-03480    | 12M-689          | LOT 29             | 0.132                 | 0.132                    |       | \$ -                          | \$ 24.00                      | \$ 24.00         |
| 60         | 590-03481    | 12M-689          | LOT 30             | 0.123                 | 0.123                    |       | \$ -                          | \$ 23.00                      | \$ 23.00         |
| 61         | 590-03482    | 12M-689          | LOT 31             | 0.081                 | 0.081                    |       | \$ -                          | \$ 15.00                      | \$ 15.00         |
| 62         | 590-03483    | 12M-689          | LOT 32             | 0.095                 | 0.095                    |       | \$ -                          | \$ 17.00                      | \$ 17.00         |
| 63         | 590-03484    | 12M-689          | LOT 33             | 0.080                 | 0.08                     |       | \$ -                          | \$ 15.00                      | \$ 15.00         |
| 64         | 590-03487    | 12M-689          | PT LOT 15          | 0.061                 | 0.061                    |       | \$ -                          | \$ 11.00                      | \$ 11.00         |
| 65         | 590-03488    | 12M-689          | PT LOT 15          | 0.061                 | 0.061                    |       | \$ -                          | \$ 11.00                      | \$ 11.00         |
| 66         | 590-03489    | 12M-689          | PT LOT 16          | 0.061                 | 0.061                    |       | \$ -                          | \$ 11.00                      | \$ 11.00         |
| 67         | 590-03490    | 12M-689          | PT LOT 16          | 0.061                 | 0.061                    |       | \$ -                          | \$ 11.00                      | \$ 11.00         |
| 68         | 590-03491    | 12M-689          | PT LOT 14          | 0.054                 | 0.054                    |       | \$ -                          | \$ 10.00                      | \$ 10.00         |
| 69         | 590-03492    | 12M-689          | PT LOT 14          | 0.054                 | 0.054                    |       | \$ -                          | \$ 10.00                      | \$ 10.00         |
| 70         | 590-03493    | 12M-689          | PT LOT 17          | 0.054                 | 0.054                    |       | \$ -                          | \$ 10.00                      | \$ 10.00         |
| 71         | 590-03494    | 12M-689          | PT LOT 17          | 0.054                 | 0.054                    |       | \$ -                          | \$ 10.00                      | \$ 10.00         |
| 72         | 590-03500    | NTR              | PT LOT 269         | 0.762                 | 0.762                    |       | \$ -                          | \$ 127.00                     | \$ 127.00        |
| 73         | 590-03600    | PLAN 191         | PT LOT 4           | 0.171                 | 0.171                    |       | \$ -                          | \$ 31.00                      | \$ 31.00         |
| 74         | 590-03700    | PLAN 191         | PT LOTS 3 AND 4    | 0.195                 | 0.195                    |       | \$ -                          | \$ 36.00                      | \$ 36.00         |
| 75         | 590-04107    | 12M-392          | LOT 4              | 0.093                 | 0.093                    |       | \$ -                          | \$ 17.00                      | \$ 17.00         |
| 76         | 590-04108    | 12M-392          | LOT 5              | 0.093                 | 0.093                    |       | \$ -                          | \$ 17.00                      | \$ 17.00         |
| 77         | 590-04109    | 12M-392          | LOT 6              | 0.093                 | 0.093                    |       | \$ -                          | \$ 17.00                      | \$ 17.00         |
| 78         | 590-04110    | 12M-392          | LOT 7              | 0.093                 | 0.093                    |       | \$ -                          | \$ 17.00                      | \$ 17.00         |
| 79         | 590-04111    | 12M-392          | LOT 8              | 0.093                 | 0.093                    |       | \$ -                          | \$ 17.00                      | \$ 17.00         |
| 80         | 590-04112    | 12M-392          | LOT 9              | 0.093                 | 0.093                    |       | \$ -                          | \$ 17.00                      | \$ 17.00         |
| 81         | 590-04113    | 12M-392          | LOT 10             | 0.093                 | 0.093                    |       | \$ -                          | \$ 17.00                      | \$ 17.00         |
| 82         | 590-04114    | 12M-392          | LOT 11             | 0.094                 | 0.094                    |       | \$ -                          | \$ 17.00                      | \$ 17.00         |
| 83         | 590-04115    | 12M-392          | LOT 12             | 0.094                 | 0.094                    |       | \$ -                          | \$ 17.00                      | \$ 17.00         |
| 84         | 590-04116    | 12M-392          | LOT 13             | 0.094                 | 0.094                    |       | \$ -                          | \$ 17.00                      | \$ 17.00         |
| 85         | 590-04117    | 12M-392          | LOT 14             | 0.094                 | 0.094                    |       | \$ -                          | \$ 17.00                      | \$ 17.00         |
| 86         | 590-04118    | 12M-392          | LOT 15             | 0.094                 | 0.094                    |       | \$ -                          | \$ 17.00                      | \$ 17.00         |
| 87         | 590-04119    | 12M-392          | LOT 16             | 0.093                 | 0.093                    |       | \$ -                          | \$ 17.00                      | \$ 17.00         |
| 88         | 590-04120    | 12M-392          | LOT 17             | 0.089                 | 0.089                    |       | \$ -                          | \$ 16.00                      | \$ 16.00         |
| 89         | 590-04121    | 12M-392          | LOT 18             | 0.089                 | 0.089                    |       | \$ -                          | \$ 16.00                      | \$ 16.00         |

**B) PRIVATELY OWNED - NON-AGRICULTURAL LANDS (NON-GRANTABLE) - Continued**

| PARCEL NO. | TAX ROLL NO. | CON. OR PLAN NO. | LOT OR PART OF LOT | AREA OWNED (Hectares) | AREA AFFECTED (Hectares) | OWNER | (SECTION 22) VALUE OF BENEFIT | (SECTION 23) OUTLET LIABILITY | TOTAL ASSESSMENT |
|------------|--------------|------------------|--------------------|-----------------------|--------------------------|-------|-------------------------------|-------------------------------|------------------|
| 90         | 590-04122    | 12M-392          | LOT 19             | 0.089                 | 0.089                    |       | \$ -                          | \$ 16.00                      | \$ 16.00         |
| 91         | 590-04123    | 12M-392          | LOT 20             | 0.093                 | 0.093                    |       | \$ -                          | \$ 17.00                      | \$ 17.00         |
| 92         | 590-04133    | 12M-392          | LOT 30             | 0.091                 | 0.091                    |       | \$ -                          | \$ 17.00                      | \$ 17.00         |
| 93         | 590-04134    | 12M-392          | LOT 31             | 0.091                 | 0.091                    |       | \$ -                          | \$ 17.00                      | \$ 17.00         |
| 94         | 590-04135    | 12M-392          | LOT 32             | 0.092                 | 0.092                    |       | \$ -                          | \$ 17.00                      | \$ 17.00         |
| 95         | 590-04136    | 12M-392          | LOT 33             | 0.092                 | 0.092                    |       | \$ -                          | \$ 17.00                      | \$ 17.00         |
| 96         | 590-04137    | 12M-392          | LOT 34             | 0.092                 | 0.092                    |       | \$ -                          | \$ 17.00                      | \$ 17.00         |
| 97         | 590-04138    | 12M-392          | LOT 35             | 0.092                 | 0.092                    |       | \$ -                          | \$ 17.00                      | \$ 17.00         |
| 98         | 590-04139    | 12M-392          | LOT 36             | 0.092                 | 0.092                    |       | \$ -                          | \$ 17.00                      | \$ 17.00         |
| 99         | 590-04140    | 12M-392          | LOT 37             | 0.092                 | 0.092                    |       | \$ -                          | \$ 17.00                      | \$ 17.00         |
| 100        | 590-04141    | 12M-392          | LOT 38             | 0.093                 | 0.093                    |       | \$ -                          | \$ 17.00                      | \$ 17.00         |
| 101        | 590-04142    | 12M-392          | LOT 39             | 0.093                 | 0.093                    |       | \$ -                          | \$ 17.00                      | \$ 17.00         |
| 102        | 590-04143    | 12M-392          | LOT 40             | 0.093                 | 0.093                    |       | \$ -                          | \$ 17.00                      | \$ 17.00         |
| 103        | 590-04144    | 12M-392          | LOT 41             | 0.093                 | 0.093                    |       | \$ -                          | \$ 17.00                      | \$ 17.00         |
| 104        | 590-04145    | 12M-392          | LOT 42             | 0.093                 | 0.093                    |       | \$ -                          | \$ 17.00                      | \$ 17.00         |
| 105        | 590-04156    | 12M-392          | PT LOTS 1 & 2      | 0.099                 | 0.099                    |       | \$ -                          | \$ 18.00                      | \$ 18.00         |
| 106        | 590-04165    | 12M-392          | BLK 46             | 0.078                 | 0.078                    |       | \$ -                          | \$ 14.00                      | \$ 14.00         |
| 107        | 590-05901    | 12M-158          | PT LOT 17          | 0.125                 | 0.125                    |       | \$ -                          | \$ 34.00                      | \$ 34.00         |
| 108        | 590-05902    | 12M-158          | LOT 16             | 0.084                 | 0.084                    |       | \$ -                          | \$ 23.00                      | \$ 23.00         |
| 109        | 590-05903    | 12M-158          | LOT 15             | 0.089                 | 0.089                    |       | \$ -                          | \$ 24.00                      | \$ 24.00         |
| 110        | 590-05904    | 12M-158          | LOT 14 & PT BLK 31 | 0.086                 | 0.086                    |       | \$ -                          | \$ 24.00                      | \$ 24.00         |
| 111        | 590-05905    | 12M-158          | LOT 13 BLK 30      | 0.128                 | 0.128                    |       | \$ -                          | \$ 35.00                      | \$ 35.00         |
| 112        | 590-05934    | 12M-158          | LOT 1              | 0.079                 | 0.079                    |       | \$ -                          | \$ 22.00                      | \$ 22.00         |
| 113        | 590-05935    | 12M-158          | LOT 2              | 0.071                 | 0.071                    |       | \$ -                          | \$ 20.00                      | \$ 20.00         |
| 114        | 590-05936    | 12M-158          | LOT 3              | 0.071                 | 0.071                    |       | \$ -                          | \$ 20.00                      | \$ 20.00         |
| 115        | 590-05937    | 12M-158          | LOT 4              | 0.080                 | 0.080                    |       | \$ -                          | \$ 22.00                      | \$ 22.00         |
| 116        | 590-05938    | 12M-158          | LOT 5              | 0.082                 | 0.082                    |       | \$ -                          | \$ 23.00                      | \$ 23.00         |
| 117        | 590-05939    | 12M-158          | LOT 6              | 0.082                 | 0.082                    |       | \$ -                          | \$ 23.00                      | \$ 23.00         |
| 118        | 590-05940    | 12M-158          | LOT 7 & BLK 23     | 0.082                 | 0.082                    |       | \$ -                          | \$ 23.00                      | \$ 23.00         |
| 119        | 590-05941    | 12M-158          | LOT 8 & BLK 24     | 0.089                 | 0.089                    |       | \$ -                          | \$ 24.00                      | \$ 24.00         |
| 120        | 590-05942    | 12M-158          | LOT 9 & BLK 26     | 0.083                 | 0.083                    |       | \$ -                          | \$ 23.00                      | \$ 23.00         |
| 121        | 590-05943    | 12M-158          | LOT 10             | 0.083                 | 0.083                    |       | \$ -                          | \$ 23.00                      | \$ 23.00         |
| 122        | 590-05944    | 12M-158          | LOT 11 & BLK 27    | 0.083                 | 0.083                    |       | \$ -                          | \$ 23.00                      | \$ 23.00         |
| 123        | 590-05945    | 12M-158          | LOT 12 & BLK 28    | 0.083                 | 0.083                    |       | \$ -                          | \$ 23.00                      | \$ 23.00         |
| 124        | 590-05946    | 12M-173          | LOT 12             | 0.097                 | 0.097                    |       | \$ -                          | \$ 27.00                      | \$ 27.00         |
| 125        | 590-05947    | 12M-173          | LOT 13             | 0.097                 | 0.097                    |       | \$ -                          | \$ 27.00                      | \$ 27.00         |
| 126        | 590-05948    | 12M-173          | LOT 14             | 0.098                 | 0.098                    |       | \$ -                          | \$ 27.00                      | \$ 27.00         |
| 127        | 590-05949    | 12M-173          | LOT 15             | 0.098                 | 0.098                    |       | \$ -                          | \$ 27.00                      | \$ 27.00         |
| 128        | 590-05950    | 12M-173          | LOT 16             | 0.098                 | 0.098                    |       | \$ -                          | \$ 27.00                      | \$ 27.00         |
| 129        | 590-05951    | 12M-173          | LOT 17             | 0.098                 | 0.098                    |       | \$ -                          | \$ 27.00                      | \$ 27.00         |
| 130        | 590-05952    | 12M-173          | LOT 18             | 0.098                 | 0.098                    |       | \$ -                          | \$ 27.00                      | \$ 27.00         |
| 131        | 590-05953    | 12M-173          | LOT 19             | 0.095                 | 0.095                    |       | \$ -                          | \$ 26.00                      | \$ 26.00         |
| 132        | 590-05954    | 12M-173          | LOT 20 & BLK 35    | 0.095                 | 0.095                    |       | \$ -                          | \$ 26.00                      | \$ 26.00         |
| 133        | 590-05955    | 12M-173          | LOT 21             | 0.083                 | 0.083                    |       | \$ -                          | \$ 23.00                      | \$ 23.00         |
| 134        | 590-05961    | 12M-173          | LOT 22             | 0.076                 | 0.076                    |       | \$ -                          | \$ 21.00                      | \$ 21.00         |
| 135        | 590-05962    | 12M-173          | LOT 23 & BLK 31    | 0.091                 | 0.091                    |       | \$ -                          | \$ 25.00                      | \$ 25.00         |
| 136        | 590-05963    | 12M-173          | LOT 24             | 0.107                 | 0.107                    |       | \$ -                          | \$ 29.00                      | \$ 29.00         |
| 137        | 590-05964    | 12M-173          | LOT 25             | 0.090                 | 0.090                    |       | \$ -                          | \$ 25.00                      | \$ 25.00         |
| 138        | 590-05965    | 12M-173          | LOT 26             | 0.077                 | 0.077                    |       | \$ -                          | \$ 21.00                      | \$ 21.00         |
| 139        | 590-05966    | 12M-173          | LOT 7              | 0.073                 | 0.073                    |       | \$ -                          | \$ 20.00                      | \$ 20.00         |
| 140        | 590-05967    | 12M-173          | LOT 8              | 0.067                 | 0.067                    |       | \$ -                          | \$ 18.00                      | \$ 18.00         |

| <b>B) PRIVATELY OWNED - NON-AGRICULTURAL LANDS (NON-GRANTABLE) - Continued</b>    |              |                  |                    |                       |                          |       |                               |                               |                  |
|---|--------------|------------------|--------------------|-----------------------|--------------------------|-------|-------------------------------|-------------------------------|------------------|
| PARCEL NO.  | TAX ROLL NO. | CON. OR PLAN NO. | LOT OR PART OF LOT | AREA OWNED (Hectares) | AREA AFFECTED (Hectares) | OWNER | (SECTION 22) VALUE OF BENEFIT | (SECTION 23) OUTLET LIABILITY | TOTAL ASSESSMENT |
| 141   | 590-05968    | 12M-173          | LOT 9              | 0.084                 | 0.084                    |       | \$ -                          | \$ 23.00                      | \$ 23.00         |
| 142   | 590-05969    | 12M-173          | LOT 10             | 0.101                 | 0.101                    |       | \$ -                          | \$ 28.00                      | \$ 28.00         |
| 143   | 590-05970    | 12M-173          | LOT 11             | 0.101                 | 0.101                    |       | \$ -                          | \$ 28.00                      | \$ 28.00         |
| 144   | 590-05971    | 12M-173          | LOT 6              | 0.088                 | 0.088                    |       | \$ -                          | \$ 24.00                      | \$ 24.00         |
| 145   | 590-05972    | 12M-173          | LOT 5              | 0.089                 | 0.089                    |       | \$ -                          | \$ 24.00                      | \$ 24.00         |
| 146   | 590-06006    | 12R14958         | PART 4             | 0.077                 | 0.077                    |       | \$ -                          | \$ 14.00                      | \$ 14.00         |
| 147   | 590-06008    | 12R14958         | PART 3             | 0.078                 | 0.078                    |       | \$ -                          | \$ 14.00                      | \$ 14.00         |
| 148   | 590-06010    | 12R14958         | PART 2             | 0.079                 | 0.079                    |       | \$ -                          | \$ 14.00                      | \$ 14.00         |
| 149   | 590-06012    | 12R14958         | PART 1             | 0.084                 | 0.084                    |       | \$ -                          | \$ 15.00                      | \$ 15.00         |
| <b>Total affected Lands (Hectares)</b>  |              |                  |                    | <b>14.728</b>         | <b>14.728</b>            |       |                               |                               |                  |
| <b>Total Assessment on Privately Owned Non-Agricultural Lands (Non-Grantable)</b> |              |                  |                    |                       |                          |       | \$ -                          | \$ 3,051.00                   | \$ 3,051.00      |

| <b>C) PRIVATELY OWNED - AGRICULTURAL LANDS (GRANTABLE)</b>                |              |                  |                    |                       |                          |       |                               |                               |                  |
|---|--------------|------------------|--------------------|-----------------------|--------------------------|-------|-------------------------------|-------------------------------|------------------|
| PARCEL NO.  | TAX ROLL NO. | CON. OR PLAN NO. | LOT OR PART OF LOT | AREA OWNED (Hectares) | AREA AFFECTED (Hectares) | OWNER | (SECTION 22) VALUE OF BENEFIT | (SECTION 23) OUTLET LIABILITY | TOTAL ASSESSMENT |
| 150   | 590-03000    | NTR              | Pt Lot 269 RP      | 17.410                | 17.410                   |       | \$ -                          | \$ 1,595.00                   | \$ 1,595.00      |
| 151   | 590-06300    | NTR              | Pt Lot 269         | 9.837                 | 5.049                    |       | \$ 426.00                     | \$ 153.00                     | \$ 579.00        |
| 152   | 590-06600    | NTR              | Pt Lot 269         | 9.719                 | 2.440                    |       | \$ 206.00                     | \$ 74.00                      | \$ 280.00        |
| <b>Total affected Lands (Hectares)</b>                                    |              |                  |                    | <b>36.966</b>         | <b>24.899</b>            |       |                               |                               |                  |
| <b>Total Assessment on Privately Owned Agricultural Lands (Grantable)</b> |              |                  |                    |                       |                          |       | \$ 632.00                     | \$ 1,822.00                   | \$ 2,454.00      |

| <b>D) PRIVATELY OWNED - AGRICULTURAL LANDS (NON-GRANTABLE)</b>                |              |                  |                    |                       |                          |       |                               |                               |                  |
|---|--------------|------------------|--------------------|-----------------------|--------------------------|-------|-------------------------------|-------------------------------|------------------|
| PARCEL NO.  | TAX ROLL NO. | CON. OR PLAN NO. | LOT OR PART OF LOT | AREA OWNED (Hectares) | AREA AFFECTED (Hectares) | OWNER | (SECTION 22) VALUE OF BENEFIT | (SECTION 23) OUTLET LIABILITY | TOTAL ASSESSMENT |
| 153   | 590-06000    | NTR              | Pt Lot 269         | 0.279                 | 0.170                    |       | \$ -                          | \$ 46.00                      | \$ 46.00         |
| 154   | 590-06102    | NTR              | Pt Lot 269         | 1.849                 | 1.792                    |       | \$ 151.00                     | \$ 156.00                     | \$ 307.00        |
| 155   | 590-06103    | NTR              | Pt Lot 269         | 1.822                 | 1.702                    |       | \$ 143.00                     | \$ 133.00                     | \$ 276.00        |
| 156   | 590-06104    | NTR              | Pt Lot 269         | 1.858                 | 1.738                    |       | \$ 147.00                     | \$ 119.00                     | \$ 266.00        |
| 157   | 590-06105    | NTR              | Pt Lot 269         | 1.885                 | 1.821                    |       | \$ 153.00                     | \$ 108.00                     | \$ 261.00        |
| 158   | 590-06106    | NTR              | Pt Lot 269         | 2.291                 | 2.138                    |       | \$ 180.00                     | \$ 108.00                     | \$ 288.00        |
| 159   | 590-06200    | NTR              | Pt Lot 269         | 0.276                 | 0.149                    |       | \$ -                          | \$ 25.00                      | \$ 25.00         |
| <b>Total affected Lands (Hectares)</b>  |              |                  |                    | <b>10.260</b>         | <b>9.510</b>             |       |                               |                               |                  |
| <b>Total Assessment on Privately Owned Agricultural Lands (Non-Grantable)</b> |              |                  |                    |                       |                          |       | \$ 774.00                     | \$ 695.00                     | \$ 1,469.00      |

|   |             |             |              |
|---|-------------|-------------|--------------|
| <b>TOTAL ASSESSMENT FOR SCHEDULE A-1 (SECTIONS A, B, C &amp; D)</b> | \$ 2,000.00 | \$ 8,000.00 | \$ 10,000.00 |
|---|-------------|-------------|--------------|

| <b>TOTAL LANDS AFFECTED (Ha)</b>      |               |
|---------------------------------------|---------------|
| A) Municipal Lands                    | 14.952        |
| B) Non-Agricultural Lands             | 14.728        |
| C) Agricultural Lands (Grantable)     | 24.899        |
| D) Agricultural Lands (Non-grantable) | 9.510         |
| <b>Total Lands Affected:</b>          | <b>64.089</b> |

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

1 Hectare = 2.471 Acres

**SCHEDULE A-2**  
**SCHEDULE OF ASSESSMENT FOR CONSTRUCTION**  
**BRANCH OF THE SMITH NEWMAN DRAIN EXTENSION**  
**TOWN OF KINGSVILLE**

| <b>A) MUNICIPAL LANDS</b>                  |                    |         |          |                       |                          |                    |                               |                               |                     |
|--|--------------------|---------|----------|-----------------------|--------------------------|--------------------|-------------------------------|-------------------------------|---------------------|
| PARCEL NO.                                 | Description        |         |          | AREA OWNED (Hectares) | AREA AFFECTED (Hectares) | OWNER              | (SECTION 22) VALUE OF BENEFIT | (SECTION 23) OUTLET LIABILITY | TOTAL ASSESSMENT    |
| 5  | County Road 34E    |         |          | -                     | 0.318                    | County of Essex    | \$ 14,901.00                  | \$ 3,644.00                   | \$ 18,545.00        |
| 8  | Roll No. 590-04106 | 12M-392 | LOT 3    | 0.078                 | 0.000                    | Town of Kingsville | \$ 457.00                     | \$ -                          | \$ 457.00           |
| 9  | Roll No. 590-04150 | 12M-392 | BLK 44   | 0.232                 | 0.000                    | Town of Kingsville | \$ 1,359.00                   | \$ -                          | \$ 1,359.00         |
| 10   | Roll No. 590-04154 | 12M-392 | PT LOT 2 | 0.072                 | 0.000                    | Town of Kingsville | \$ 422.00                     | \$ -                          | \$ 422.00           |
| 11   | Roll No. 590-04155 | 12M-392 | BLK 45   | 0.365                 | 0.000                    | Town of Kingsville | \$ 2,139.00                   | \$ -                          | \$ 2,139.00         |
| <b>Total affected Lands (Hectares)</b>     |                    |         |          | <b>0.747</b>          | <b>0.318</b>             |                    |                               |                               |                     |
| <b>Total Assessment on Municipal Lands</b> |                    |         |          |                       |                          |                    | <b>\$ 19,278.00</b>           | <b>\$ 3,644.00</b>            | <b>\$ 22,922.00</b> |

| <b>B) PRIVATELY OWNED - NON-AGRICULTURAL LANDS (NON-GRANTABLE)</b>                |              |                  |                    |                       |                          |       |                               |                               |                     |
|---|--------------|------------------|--------------------|-----------------------|--------------------------|-------|-------------------------------|-------------------------------|---------------------|
| PARCEL NO.  | TAX ROLL NO. | CON. OR PLAN NO. | LOT OR PART OF LOT | AREA OWNED (Hectares) | AREA AFFECTED (Hectares) | OWNER | (SECTION 22) VALUE OF BENEFIT | (SECTION 23) OUTLET LIABILITY | TOTAL ASSESSMENT    |
| 30  | 590-03100    | NTR              | PT LOT 269         | 0.343                 | 0.343                    |       | \$ 2,412.00                   | \$ 1,573.00                   | \$ 3,985.00         |
| 31  | 590-03101    | NTR              | PT LOT 269         | 0.172                 | 0.172                    |       | \$ 2,016.00                   | \$ 789.00                     | \$ 2,805.00         |
| 32  | 590-03200    | NTR              | PT LOT 269         | 0.172                 | 0.172                    |       | \$ 2,016.00                   | \$ 789.00                     | \$ 2,805.00         |
| 33  | 590-03301    | NTR              | PT LOT 269         | 0.188                 | 0.094                    |       | \$ 1,762.00                   | \$ 431.00                     | \$ 2,193.00         |
| 35  | 590-03452    | 12M-689          | LOT 1              | 0.085                 | 0.000                    |       | \$ 1,992.00                   | \$ -                          | \$ 1,992.00         |
| 36  | 590-03453    | 12M-689          | LOT 2              | 0.085                 | 0.000                    |       | \$ 1,992.00                   | \$ -                          | \$ 1,992.00         |
| 37  | 590-03454    | 12M-689          | LOT 3              | 0.085                 | 0.000                    |       | \$ 1,992.00                   | \$ -                          | \$ 1,992.00         |
| 38  | 590-03455    | 12M-689          | LOT 4              | 0.085                 | 0.000                    |       | \$ 1,992.00                   | \$ -                          | \$ 1,992.00         |
| 39  | 590-03456    | 12M-689          | LOT 5              | 0.086                 | 0.000                    |       | \$ 2,016.00                   | \$ -                          | \$ 2,016.00         |
| 40  | 590-03457    | 12M-689          | LOT 6              | 0.086                 | 0.000                    |       | \$ 2,016.00                   | \$ -                          | \$ 2,016.00         |
| 41  | 590-03458    | 12M-689          | LOT 7              | 0.086                 | 0.000                    |       | \$ 2,016.00                   | \$ -                          | \$ 2,016.00         |
| 42  | 590-03459    | 12M-689          | LOT 8              | 0.087                 | 0.000                    |       | \$ 2,039.00                   | \$ -                          | \$ 2,039.00         |
| 43  | 590-03460    | 12M-689          | LOT 9              | 0.087                 | 0.000                    |       | \$ 2,039.00                   | \$ -                          | \$ 2,039.00         |
| 44  | 590-03461    | 12M-689          | LOT 10             | 0.087                 | 0.000                    |       | \$ 2,039.00                   | \$ -                          | \$ 2,039.00         |
| 75  | 590-04107    | 12M-392          | LOT 4              | 0.093                 | 0.000                    |       | \$ 2,180.00                   | \$ -                          | \$ 2,180.00         |
| 76  | 590-04108    | 12M-392          | LOT 5              | 0.093                 | 0.000                    |       | \$ 2,180.00                   | \$ -                          | \$ 2,180.00         |
| 77  | 590-04109    | 12M-392          | LOT 6              | 0.093                 | 0.000                    |       | \$ 2,180.00                   | \$ -                          | \$ 2,180.00         |
| 78  | 590-04110    | 12M-392          | LOT 7              | 0.093                 | 0.000                    |       | \$ 2,180.00                   | \$ -                          | \$ 2,180.00         |
| 79  | 590-04111    | 12M-392          | LOT 8              | 0.093                 | 0.000                    |       | \$ 2,180.00                   | \$ -                          | \$ 2,180.00         |
| 80  | 590-04112    | 12M-392          | LOT 9              | 0.093                 | 0.000                    |       | \$ 2,180.00                   | \$ -                          | \$ 2,180.00         |
| 81  | 590-04113    | 12M-392          | LOT 10             | 0.093                 | 0.000                    |       | \$ 2,180.00                   | \$ -                          | \$ 2,180.00         |
| 82  | 590-04114    | 12M-392          | LOT 11             | 0.094                 | 0.000                    |       | \$ 2,203.00                   | \$ -                          | \$ 2,203.00         |
| 83  | 590-04115    | 12M-392          | LOT 12             | 0.094                 | 0.000                    |       | \$ 2,203.00                   | \$ -                          | \$ 2,203.00         |
| 84  | 590-04116    | 12M-392          | LOT 13             | 0.094                 | 0.000                    |       | \$ 2,203.00                   | \$ -                          | \$ 2,203.00         |
| 85  | 590-04117    | 12M-392          | LOT 14             | 0.094                 | 0.000                    |       | \$ 2,203.00                   | \$ -                          | \$ 2,203.00         |
| 86  | 590-04118    | 12M-392          | LOT 15             | 0.094                 | 0.000                    |       | \$ 2,203.00                   | \$ -                          | \$ 2,203.00         |
| 87  | 590-04119    | 12M-392          | LOT 16             | 0.093                 | 0.000                    |       | \$ 2,180.00                   | \$ -                          | \$ 2,180.00         |
| 88  | 590-04120    | 12M-392          | LOT 17             | 0.089                 | 0.000                    |       | \$ 2,086.00                   | \$ -                          | \$ 2,086.00         |
| 89  | 590-04121    | 12M-392          | LOT 18             | 0.089                 | 0.000                    |       | \$ 2,086.00                   | \$ -                          | \$ 2,086.00         |
| 90  | 590-04122    | 12M-392          | LOT 19             | 0.089                 | 0.000                    |       | \$ 2,086.00                   | \$ -                          | \$ 2,086.00         |
| 91  | 590-04123    | 12M-392          | LOT 20             | 0.093                 | 0.000                    |       | \$ 2,180.00                   | \$ -                          | \$ 2,180.00         |
| 106   | 590-04165    | 12M-392          | BLK 46             | 0.078                 | 0.000                    |       | \$ 1,828.00                   | \$ -                          | \$ 1,828.00         |
| <b>Total affected Lands (Hectares)</b>  |              |                  |                    | <b>3.386</b>          | <b>0.781</b>             |       |                               |                               |                     |
| <b>Total Assessment on Privately Owned Non-Agricultural Lands (Non-Grantable)</b> |              |                  |                    |                       |                          |       | <b>\$ 67,060.00</b>           | <b>\$ 3,582.00</b>            | <b>\$ 70,642.00</b> |

| <b>C) PRIVATELY OWNED - AGRICULTURAL LANDS (GRANTABLE)</b>                |              |                  |                    |                       |                          |       |                               |                               |                     |
|---|--------------|------------------|--------------------|-----------------------|--------------------------|-------|-------------------------------|-------------------------------|---------------------|
| PARCEL NO.  | TAX ROLL NO. | CON. OR PLAN NO. | LOT OR PART OF LOT | AREA OWNED (Hectares) | AREA AFFECTED (Hectares) | OWNER | (SECTION 22) VALUE OF BENEFIT | (SECTION 23) OUTLET LIABILITY | TOTAL ASSESSMENT    |
| 150   | 590-03000    | NTR              | Pt Lot 269 RP      | 17.410                | 9.350                    |       | \$ 15,339.00                  | \$ 10,717.00                  | \$ 26,056.00        |
| <b>Total affected Lands (Hectares)</b>                                    |              |                  |                    | <b>17.410</b>         | <b>9.350</b>             |       |                               |                               |                     |
| <b>Total Assessment on Privately Owned Agricultural Lands (Grantable)</b> |              |                  |                    |                       |                          |       | <b>\$ 15,339.00</b>           | <b>\$ 10,717.00</b>           | <b>\$ 26,056.00</b> |

|  |                      |                     |                      |
|--|----------------------|---------------------|----------------------|
| <b>TOTAL ASSESSMENT FOR SCHEDULE A-2 (SECTIONS A, B &amp; C)</b> | <b>\$ 101,677.00</b> | <b>\$ 17,943.00</b> | <b>\$ 119,620.00</b> |
|--|----------------------|---------------------|----------------------|

| <b>TOTAL LANDS AFFECTED (Ha)</b>  |               |
|-----------------------------------|---------------|
| A) Municipal Lands                | 0.318         |
| B) Non-Agricultural Lands         | 0.781         |
| C) Agricultural Lands (Grantable) | 9.350         |
| <b>Total Lands Affected:</b>      | <b>10.449</b> |

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

1 Hectare = 2.471 Acres

**APPENDIX 'B'**

**SPECIAL PROVISIONS AND SPECIFICATIONS**

**EXTENSION OF THE BRANCH OF THE SMITH NEWMAN DRAIN**

**TOWN OF KINGSVILLE**

## **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**

This specification and the report, plans and profiles bearing the same date, apply to and govern the works of approximately 730 metres of new open drain construction.

The open drain extension from Stations 1+695 to 2+425 includes the excavation of a new channel, seeding of the new drain banks, and backfilling of the adjacent existing open swale. Also included is the removal of trees and brush, and stripping of the adjacent existing swale prior to backfilling. The material excavated for the construction of the new drain shall be used to backfill the adjacent swale. In the case where there is excess material after the backfilling of the adjacent swale is complete, the material shall be deposited and spread east of the open drain, on the adjoining farm property with Roll No. 590-03000.

Quarried rock erosion protection will be installed at Station 1+700, Station 2+305 and as directed by the Engineer. Approximately 100m<sup>2</sup> or 60 tonnes of rip-rap stone will be required.

Silt Control measures will be implemented during construction.

Tile outlet pipes will be replaced if required and as designated by the Drainage Superintendent in the field.

### **3.0 STATIONING**

The reference stations are measured along the existing and new course of the municipal drain. Station 1+000 is set at the center line of pavement on North Talbot Road. The downstream end of the Branch of the Smith Newman Drain is referenced as Station 1+009. A property line is located along the entire length of the drain. The offsets in the cross-sections are referenced from this property line.

### **4.0 SUPPLY OF MATERIALS**

The contractor shall supply all materials, labour and equipment necessary for the proper completion of the work, unless otherwise stated in the Specifications or the Tender documents.

Materials shall be as follows:

#### Erosion Stone for Sloping End Protection

All stone to be used for erosion protection shall be 125-250 mm clear quarried rock or OPSS 1004, minimum 300 mm thickness. Round field stone is not acceptable.

Topsoil for Drain Banks

Topsoil conforming to OPSS, 50 mm 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.

**5.0 ALIGNMENT**

The new course of the open drain from Station 1+695 to Station 2+425 shall generally follow the alignment shown on the drawings. Prior to construction, the Contractor shall stake the alignment proposed for the new course of the drain in the field for review by the Drainage Superintendent, in consultation with the property owners. The intention is to make the centreline of the new drain as straight as possible, while connecting with the existing municipal drain at Station 1+695 and follow a course which is parallel to the west limit of the property with Roll No. 590-03000. The Contractor shall request the legal survey plan for Roll No. 590-03000 which shows the survey bars for the west limit of the property. The Contractor shall stake the alignment for the new drain based upon the legal survey plan.

**6.0 PROFILE**

The contractor shall exercise extreme caution in adhering strictly to the design gradeline shown in the drawings and avoid over-excavation as over-excavation of the drain will cause ponding of water to occur.

**7.0 BOTTOM WIDTH AND SIDE SLOPES**

The new course of the drain from Station 1+695 to Station 2+425 shall have a finished bottom width of 0.6 metres and side slopes of 2.0 m horizontal to 1.0 m vertical.

**8.0 BRUSH AND TREES**

Brush and trees shall be removed from the existing private swale from Station 1+695 to approximately Station 2+100 and shall be disposed of as set out in Section 15 of the General Specification for Open Drains.

From Station 1+695 to Station 2+100, the existing private swale west of the new drain extension will be backfilled. Prior to backfilling the open swale, the Contractor will also be required to remove any visible stumps and roots from both banks that are within a 1 m vertical distance of the top of the existing drain banks.

In accordance with Regulation 67/87 of The Ontario Fire Code, open air burning is not permitted unless approved. In addition to complying with all other applicable legislation relating to open air burning, the Contractor must apply to the Chief of the Town of Kingsville Fire Department for approval to burn the brush and trees on this project. No open burning will be permitted unless authorized, in writing, by the Fire Chief. The Drainage Superintendent will supply to the Contractor, the name and address of the Fire Chief responsible for the area in which the project is located.

## 9.0 DISPOSAL OF MATERIAL

### a) Station 1+695 to Station 2+425

From Station 1+695 to Station 2+425, the existing open swale west of the new drain extension is to be backfilled. First, the contractor shall complete the excavation of the new course of the drain. When excavating the new drain, the topsoil is to be removed and stockpiled. Then, the subsoil is to be excavated from the new drain course and placed and spread in the open swale being abandoned in uniform full width layers of not more than 0.3 metres (loose measurement) in depth. Each layer shall be compacted to a Standard Proctor Dry Density of 95% by repetitive passes over the fill area with standard levelling equipment or compaction equipment if necessary. Any material that is in excess of filling in the existing swale shall be spread out evenly on the farm property with Roll No. 590-03000. Refer to Section 17(4) of the General Specification for Open Drains for construction details.

Once all of the subsoil has been placed in the adjacent swale, then the contractor will be required to replace and spread the topsoil over the abandoned drain area. The area is to be graded to provide a uniform contour and slope. If additional material is required to complete the levelling and regrading operation, then suitable imported material shall be used.

Once the backfilling and regrading of the area near the abandoned section of open drain has been completed, any excess topsoil is to be placed on the drain banks to a depth of 50 mm and the design cross-section shall be maintained. Any excess topsoil shall be levelled along the maintenance corridor as set out in the General Specification for Open Drains.

Alternative methods or procedures for completing the earthworks may be proposed by the Contractor for approval of the Engineer prior to construction.

## 10.0 ACCESS CULVERTS

From Stations 1+682 to 1+695, there is a 13 m length of 1030mm x 740mm corrugated steel pipe-arch (CSPA). The Contractor shall take care to avoid causing any damages to it in the process of cleaning out the upstream drain.

## 11.0 EROSION PROTECTION STONE

The Contractor shall supply and install the required quantities of graded stone rip-rap erosion protection materials at Station 1+700, Station 2+305 and as directed by the Engineer. The exact location of the rip-rap is to be established in the field by the Drainage Superintendent prior to installation by the contractor. All stone to be used for erosion protection shall be 125 - 250 mm clear quarried rock or OPSS 1001 placed over a non-woven filter fabric Terrafix 270R or approved equivalent. **Concrete rip-rap will not be permitted.**

The Contractor shall place a suitable synthetic filter material on the prepared slope. The material shall extend from the toe of the slope to the top of the bank. The geotextile filter fabric shall meet the Class 1 requirements of OPSS Specification 1860. The material shall then be covered with a 300 mm thick layer of graded stone rip-rap.

The minimum thickness requirement of the erosion stone layer is 300 mm with no portion of the filter fabric to be exposed. All work must be completed to the satisfaction of the Drainage Superintendent.

## 12.0 SEEDING OF DRAIN BANKS

Hydraulic seeding and mulching shall be carried out in accordance with OPSS 804 as modified below, on the following areas:

- From Station 1+695 to Station 2+425, the banks of the new course of the municipal drain shall be seeded.

The surface to be seeded shall be loosened to a depth of 25 mm and shall be rendered uniformly loose for that 25 mm depth. The surface shall be predominantly fine and free from weeds and other unwanted vegetation. All other loose surface litter shall be removed and disposed of.

Hydraulic mulch shall consist of finely ground cellulose pulp derived from recycled newsprint and shall be dyed green. Its fiber consistency shall be approximately 60% fine fiber with the balance being paper particles, 40% of which shall be a diameter of 3 mm minimum and 6 mm maximum. Hydraulic mulch shall be applied at 2,000 kg of dry product per 10,000 m<sup>2</sup>. Clean water shall be applied at 42,700 litres per 10,000 m<sup>2</sup>.

Seeding and mulching shall be a one step process in which the seed, fertilizer and hydraulic mulch are applied simultaneously in a water slurry via the hydraulic seeder/mulcher. The materials shall be added to the supply tank while it is being loaded with water. The materials shall be thoroughly mixed into a homogeneous water slurry and shall be distributed uniformly over the prepared surface. The materials shall be measured by mass or by a mass-calibrated volume measurement, acceptable to the Drainage Superintendent.

The hydraulic seeder/mulcher shall be equipped with mechanical agitation equipment capable of mixing the materials into a homogenous state until applied. The discharge pumps and gun nozzles shall be capable of applying the material uniformly. The following seed mixtures are required:

### Ditch Banks and Bottom

Grass seed shall be Canada No. 1 grass seed mixture. The seed mixture shall be applied at a rate of 200 kg per 10,000 m<sup>2</sup>. The mixture shall meet the requirements of a Waterway Slough Mixture as supplied by Growmark or approved equal, as follows:

|                            |     |
|----------------------------|-----|
| <i>Creeping Red Fescue</i> | 20% |
| <i>Meadow Fescue</i>       | 30% |
| <i>Tall Fescue</i>         | 30% |
| <i>Timothy</i>             | 10% |
| <i>White Clover</i>        | 10% |

Bags shall bear the label of the supplier indicating the content by species, grade and mass. Other grass seed mixtures will be considered with approval of Engineer and Drainage Superintendent. Fertilizer shall be 8-32-16 applied at 350 kg per 10,000 m<sup>2</sup>. It shall be in granular form, dry, free from lumps and in bags bearing the label of the manufacturer, indicating mass and analysis.

**The hydraulic seeding shall be deemed "Completed by the Contractor" when the seed has established in all areas to the satisfaction of the Engineer. Re-seeding and/or other methods required to establish the grass will be given consideration to achieve the end result and the costs shall be incidental to the works.**

Any alternative method of seeding must be reviewed and approved by the Engineer, prior to installation.

### **13.0 SILT CONTROL**

The Contractor shall supply, install, maintain and remove a temporary water permeable filter fence (silt fence) to remove suspended particulars from the water passing through it. At the commencement of construction, the contractor shall install a silt fence across the outlet of the drain. The silt fence shall be constructed of a minimum 1.0 m wide geotextile securely fastened to steel posts. The geotextile shall be attached to the up-gradient side of the posts. Where required, wire or any other type of support may be constructed between the geotextile and the posts in order to improve the load carrying capacity of the silt fence. The geotextile may be a woven or a non-woven material that has a minimum tensile strength of 100 lbs., permittivity of at least 90 gal/min/ft<sup>2</sup> and an apparent opening size of US Sieve No. 30.

Steel posts of sufficient strength to support the silt fence shall be used. The maximum post spacing shall be approximately 2 m. Every effort must be made to ensure that the bottom edge of the silt fence is in continuous contact with the bottom of the channel.

The silt fence shall remain in place until the project is complete. The contractor shall maintain the silt fence until it is removed. Upon removal, the silt accumulation upstream of the fence shall also be removed. The cost of supply, installation, maintenance and removal of the silt fence shall be included in the Lump Sum price bid for this item.

### **14.0 MAINTENANCE OF FLOWS**

Should rainfall events generate flows in the drain, the Contractor is responsible for maintaining the flows in the open drain so that flooding does not occur and for maintaining flows in the covered drains so that subsurface drainage is maintained.

### **15.0 TILE OUTLET PIPES AND TILE MAINS**

We are not aware of any tile outlet pipe replacements required during construction. If private tile drains are encountered that require new tile outlet pipes, the Drainage Superintendent will direct the Contractor to install those pipes. During the construction of the new drain extension, if any modifications to existing tile mains/headers are required, the necessary work shall be carried out at the expense of the drainage works. The Drainage Superintendent shall arrange for a licensed tilling Contractor to make the required modifications.

Tile outlet pipes shall consist of 320 kPa smooth wall high density polyethylene pipe (H.D.P.E.). Each outlet pipe shall be a minimum 3 metre length of non-perforated pipe complete with rodent grate. The inside diameter of the tile outlet pipes shall be at least as large as the inside diameter of the tile drain.

### **16.0 ENVIRONMENTAL REQUIREMENTS**

The Contractor shall comply with the requirements of the attached “Environmental Protection Special Provisions” included in “Appendix B”. The Contractor shall also comply with the approval requirements of the Department of Fisheries and Oceans and the Essex Region Conservation Authority.

## GENERAL SPECIFICATION FOR OPEN DRAINS

(Revised 2016 11 25)

### SECTION 1 - AGREEMENT AND GENERAL CONDITIONS

- (1) Payment for the work shall be on a lump sum basis unless otherwise indicated. The Contractor agrees to enter into a formal contract with the Municipality upon acceptance of the tender. The General Conditions of the contract shall be those of the Stipulated Price Contract CCDC2-Engineers, 2008 or the most recent revision of this document. The form of agreement between Owner and Contractor shall be that of the previously stated document or a form of agreement specifically prepared by the Municipality for this purpose.
- (2) All work shall be in first class condition, comply fully with the report, Special Provisions, General Specifications and the Drainage Act, and be carried out to the satisfaction and approval of the Drainage Superintendent for the Municipality. Upon completion of the project, the work will be inspected by the Engineer and the Drainage Superintendent. Any deficiencies noted during the final inspection shall be immediately rectified by the Contractor. Final inspection will be made by the Engineer within 20 days after the Drainage Superintendent has received notice in writing from the Contractor that the work is completed, or as soon thereafter as weather conditions permit.
- (3) The Contractor shall complete all work on or before the date fixed at the time of tendering. The Contractor will be held liable for any damages or expenses occasioned by his/her failure to complete the work on time and for any expenses of inspection, superintending, re-tendering or re-surveying, due to their neglect or failure to carry out the work satisfactorily or in a timely manner. Any such expenses or damages may be deducted by the Drainage Superintendent from the amount of the contract or may be recovered by the Municipality from the Contractor and his sureties.
- (4) 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.
- (5) The Contractor shall keep the work under his/her personal control, and shall not assign, transfer, or sublet any portion without first obtaining the written consent of the Municipality.

### SECTION 2 - EXAMINATION OF SITE, PLANS AND SPECIFICATIONS

- (1) Each tenderer must visit the site and review the plans and specifications before submitting his tender and must satisfy himself as to the extent of the work and local conditions to be met during the construction. He is not to claim at any time after submission of his tender that there was any misunderstanding of the terms and conditions of the contract relating to site conditions. The Contractor will be at liberty, before bidding, to examine any data in the possession of the Municipality or of the Engineer.
- (2) The quantities shown or indicated on the drawings or in the report are estimates only and are for the sole purpose of indicating to the tenderers the general magnitude of the work. The tenderer is responsible for checking the quantities for accuracy prior to submitting his tender.

### SECTION 3 - CONTRACTOR'S LIABILITY

- (1) The Contractor, his/her agents and all workmen or persons under his control including sub-contractors, shall use due care that no person or property is injured and that no rights are infringed in the prosecution of the work. The Contractor shall be solely responsible for all damages, by whomsoever claimable, in respect to any injury to persons or property of whatever description and in respect of any infringement of any right, privilege or easement whatever, occasioned in the carrying on of the work, or by any neglect on the Contractor's part.
- (2) The Contractor, shall indemnify and hold harmless the Municipality and the Engineer, their agents and employees from and against claims, demands, losses, costs, damages, actions, suits, or proceedings arising out of or attributable to the Contractor's performance of the contract.

### SECTION 4 – ONTARIO PROVINCIAL STANDARDS

- (1) 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.

### SECTION 5 – APPROVALS, PERMITS AND NOTICES

- (1) 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.

### SECTION 6 – NOTIFICATION OF WORK

- (1) 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

## SECTION 7 – CONSTRUCTION SAFETY

- (1) 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.
- (2) 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.

## SECTION 8 – TRAFFIC CONTROL

- (1) The Contractor shall not perform excavation operations from the travelled portion of the roadway nor close a road or reduce the width or number of traffic lanes available for traffic except as specified in the contract documents or approved by the Engineer.
- (2) 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.
- (3) **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.**
- (4) 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.
- (5) **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.**

## SECTION 9 – GENERAL CO-ORDINATION

- (1) The Contractor shall be responsible for the coordination between the working forces of other organizations and utility companies in connection with this work. The Contractor shall have no cause of action against the Municipality or the Engineer for delays based on the allegation that the site of the work was not made available to him by the Municipality or the Engineer by reason of the acts, omissions, misfeasance or non-feasance of other organizations or utility companies engaged in other work.

## SECTION 10 – STATIONS AND BENCHMARKS

- (1) Reference Stations measured in meters, are indicated on the drawings and represent stations along the course of the work. Stationing is shown along the profile at 25 m intervals numbered consecutively, 0+000, 0+025, 0+050, 0+075, etc. Where cut depths are shown on the profile, they represent the approximate depth, in meters, of the finished drain as measured from the surface of the ground to the design gradeline for the bottom of the open drain. Where excavation depths are shown on the profile, they represent the approximate depth, in meters, from the existing drain bottom down to the design gradeline for the bottom of the open drain.
- (2) The Contractor will be held responsible during the progress of the work for the preservation of all reference stakes, bench marks and survey markers which fall within the limits of the work. The cost of replacing any bench mark or survey marker defaced or destroyed by the Contractor as a result of his work will be deducted from any monies due the Contractor.

## SECTION 11 - ALIGNMENT

- (1) Except where specified otherwise, the excavation will follow as nearly as possible the course of the existing drain with sloping and widening carried out on each bank as required to produce the specified cross-section. Wherever sharp or irregular bends occur, all sloping and widening is to be done on that side of the drain that will tend to reduce the curve and improve the alignment of the channel.
- (2) Where one drain bank adjoins the travelled part of any roadway or laneway, all sloping and widening is to be done on that side of the drain farthest from the roadway unless otherwise directed by the Engineer.
- (3) Where the drain bank adjoins an existing fence which is not specified for removal or relocation all required sloping and widening shall be carried out on that side of the drain farthest from the fence.
- (4) Where a drain is to be moved off a road allowance and onto adjoining lands, the top edge of the nearest finished drain bank is to be not closer than 1 metre to the limit of the road allowance or top edge of the abandoned channel. The centreline of the new channel is to be as straight as possible even though this 1 metre dimension is exceeded in places.
- (5) Where a new drain is constructed, its centre line will be as straight as possible and any changes in direction shall be in the form of smooth, regular bends.
- (6) Where a new drain is to be constructed adjoining an existing fence line, the Contractor shall lay out a suitable centre line such that the top edge of the adjacent drain bank, at its widest point, will not be closer than 1 metre to the fence and the Contractor shall use this centre line to establish the drain location.
- (7) The Contractor must lay out the proposed centre line in the field for approval by the Drainage Superintendent prior to construction.

## SECTION 12 - PROFILE

- (1) The excavation of the drain must be at least to the depth intended by the grade line shown on the Profile, which grade line is governed by the bench marks. The Profile shows, for the convenience of the Contractors and others, the approximate depth of excavation from the surface of the ground to the final invert of the channel in metres and decimals of a metre and also the approximate depth of excavation from the bottom of the existing channel to the final invert of the channel. Bench marks, which have been established along the course of the drain, shall govern the final elevation of the drain. The location and elevation of the bench marks are shown on the Drawings.

## SECTION 13 - BOTTOM WIDTH AND SIDE SLOPES

- (1) The bottom widths and the side slopes of the various sections of the finished drain are to be true to line and grade as shown on the Profile.
- (2) Contractors will not be restricted to the exact dimensions specified but must excavate clear of the specified cross-sections and may excavate such additional depth or width as may be required to accommodate the use of suitable excavating equipment or to allow for minor sedimentation prior to final inspection provided that at no place are the side slopes of the excavation to be cut steeper than the slope specified on the Profile. The Contractor is not to excavate the drain bottom so much deeper than the grade line as to result in the formation of pockets in the drain bottom that will cause water to stand in pools along the drain. Should over-excavation of the drain bank occur, the Contractor will **not** be permitted to repair with native material packed into place by the excavator and reshaped. Should over-excavation occur, the Contractor will be required to have a bank repair detail engineered by a Professional Engineer (hired by the Contractor), to ensure long term stability of the bank is maintained. Such repairs shall be subject to approval by the Engineer and will be at no extra cost to the item.

## SECTION 14 - OBSTRUCTIONS

- (1) All brush, timber, logs, stumps, stones, or other obstructions encountered within the limits of the channel along the course of the drain are to be removed by the Contractor. Timber, logs and stumps are to be dealt with in the same manner as specified for brush and trees. Large stones and other similar materials are to be piled near the limit of the spread area so as not to interfere with the spreading of the excavated material. The disposal of this material shall be the owner's responsibility.

## SECTION 15 - BRUSH AND TREES

- (1) Brushing shall be carried out on the entire drain within the above identified sections of the drain where required and as specified herein. **All** brush and trees located within the drain side slopes shall be cut parallel to the side slopes, as close to the ground as practicable. Tree branches that overhang the drain shall be trimmed. Small branches and limbs are to be disposed of by the Contractor along with the other brush. Tree stumps, where removed to facilitate the drain excavation and reshaping of the drain banks, may be burned by the Contractor where permitted; otherwise, they shall be disposed of, off the site. All thorn trees shall be disposed of off-site.
- (2) Where the existing bottom widths and side slopes of the drain are sufficient to permit the specified deepening of the drain without disturbing the existing banks above the present drain bottom, the Contractor will be required to cut the brush and trees on the sloping banks flush with the surface of the banks but he will not be required to remove their roots and stumps unless they will obviously create obstructions to the flow of water in the drain.
- (3) Where it is necessary to widen the drain and excavate material from the sloping banks, all brush and trees within the limits of the channel and within 1 metre of the top of the drain banks and within the spread area are to be cut and those roots and stumps in the drain bottom and on the banks where the widening takes place shall be completely removed unless the Drainage Superintendent permits the Contractor to cut the roots and stumps flush with the surface of the finished banks.
- (4) The Contractor shall make every effort to preserve mature trees which are beyond the drain side slopes, and the working corridors. If requested to do so by the Drainage Superintendent, the Contractor shall preserve certain mature trees within the designated working corridors.
- (5) Where there is a fence adjoining the drain, he will be required to cut the brush in the fence line and on the side of the fence opposite the drain only if the excavating equipment will be operated from this side or excavated material is to be placed and levelled on this side.
- (6) The Contractor shall cut off flush with the ground all brush and trees having a diameter of 150 mm or less from the disposal area. Should the Contractor find it necessary to remove trees having a diameter of 150 mm or larger from the disposal area in order to permit the efficient excavation of the drain or spreading of excavated material, he will be at liberty to do so only on permission of the Drainage Superintendent in charge of the work.
- (7) All trees over 200 mm in diameter that are cut are to be trimmed of branches, and the trunks, along with branches over 200 mm in diameter, are to be cut up into log lengths and piled for the use of the adjoining owner unless the owner advises the Drainage Superintendent he does not want them, in which case they are to be disposed of by the Contractor along with the other brush. Small branches and limbs are to be disposed of by the Contractor along with the other brush. Tree stumps may be burned by the Contractor where permitted; otherwise, they shall be disposed of by him away from the site of the work.
- (8) Following completion of the work, the Contractor is to trim up any broken or damaged limbs on trees which remain standing, disposing of the branches cut off along with other brush and leaving the trees in a neat and tidy condition.
- (9) Brush and trees removed from the drain and banks thereof and from the disposal area are to be put into piles by the Contractor, in locations where they can be safely burned, and are to be burned by the Contractor after obtaining the necessary permits, as required. If, in the opinion of the Drainage Superintendent, any of the piles are too wet or green to be burned, he will so advise the Contractor who may then arrange, to the Drainage Superintendent's satisfaction, an agreement in writing, with the owners where the piles are located, for them to burn the material when dry enough. If a satisfactory agreement cannot be made, the Contractor to haul away the unburned materials to an approved dump site.
- (10) Since the trees and brush that are cut off flush with the earth surface may sprout new growth later, it is strongly recommended that the Municipality make arrangements for spraying this new growth at the appropriate time so as to kill the trees and brush.

- (11) Prior to and during the course of burning operations the Contractor shall comply with the guidelines prepared by the Air Quality Branch of the Ontario Ministry of the Environment and shall ensure that the Environmental Protection Act is not violated.
- (12) In no case will brush or trees be buried in the spoil bank or within the excavated material.
- (13) The Contractor will be required to brush rake the excavated material to remove brush and trees from the spoil if so instructed by the Drainage Superintendent.
- (14) As part of this work, the Contractor shall remove any loose timber, logs, stumps, large stones or other debris from the drain bottom and from the side slopes. Timber, logs, stumps, large stones or other debris shall be disposed of off-site.

#### **SECTION 16 – EXCAVATION OF DRAIN**

- (1) All excavated material shall be handled as specified in the following section. Materials deposited on the farmlands shall be within the working corridors, at least 2.0 m from the top of the drain bank, or as specified on the drawings. Upon allowing drying of excavated materials (if necessary) and as approved by the Drainage Superintendent, the Contractor shall level excavated materials as specified. Excavated material shall not be placed on dykes, in ditches, tiles or depressions intended to conduct water into the drain.
- (2) Seeding of the disturbed drain banks shall be completed immediately following drain construction as specified in the Special Provisions.
- (3) All excavation work shall be done in such a manner as to not harm any vegetation or trees, not identified in this report or by the Drainage Superintendent for clearing. Any damages to trees or vegetation caused by the Contractors work shall be rectified to the satisfaction of the Drainage Superintendent.
- (4) The Contractor shall exercise caution around existing tile inlets and shall confirm with the property owners that all tiles have been located and tile ends repaired as specified.

#### **SECTION 17 - DISPOSAL OF EXCAVATED MATERIAL**

- (1) Where a part of the drain is being relocated, the Contractor shall strip the topsoil from the alignment of the new course and stockpile it for re-use following the completion of the subsoil operations. Subsoil excavated from the new course is to be used first to fill the existing course which is to be abandoned. Where the Contractor can conveniently do so, he may deposit the material in the old course as he excavates it from the new course but where the distance separating the new course from the old course is too great to permit this the excavated material must be loaded onto trucks, hauled to the abandoned drain and placed in the old channel. The material shall be placed in the abandoned channel in layers no greater than 300 mm in thickness. Each layer shall be thoroughly compacted with the levelling equipment available at the site prior to the placement of the subsequent layers. The abandoned channel shall be filled to an elevation at least 300 mm higher than the adjacent natural ground elevation to allow for settlement. If insufficient material is available to fill the old course, the surface of the material shall be graded so as to eliminate any low areas that would collect water.
- (2) Excess excavated material not required for the filling of an abandoned channel or material excavated from the drain under normal construction, repair, or improvement shall be deposited and spread on the immediately adjoining farm lands in the locations set out in the Special Specifications. The material shall be deposited and spread no closer than 2 metres from the top edge of the adjacent drain bank and at least 1 metre clear of all fences.
- (3) Where the excavated material is deposited in bush land, it is to be spread and levelled in the form of a spoil bank over at least the full width of the strip that has been cleared to permit the passage of excavating equipment but in no case is the top surface to be left more than 600 mm above the natural ground level even though this may require additional clearing to produce a sufficient disposal area. On completion, the spoil bank is to be left so that it is smooth enough to drive an ordinary farm vehicle along it.
- (4) Where the adjoining land is sufficiently clear to permit cultivation, the Contractor shall deposit the excavated material on the property and spread the material over a width that, after spreading, the excavated material will generally have a thickness of approximately 150 mm. The Contractor shall utilize a minimum spread width of 6 metres and a maximum spread width of 20 metres even though this results in a depth of material in excess of 150 mm. The material shall be thoroughly spread and levelled with suitable equipment and left in a condition which permits cultivation with ordinary farm equipment without causing undue hardship on farm machinery and personnel.
- (5) After the excavated material has been spread and levelled, any stockpiled topsoil is to be spread over it to a depth of no more than 100 mm.
- (6) No excavated material is to be placed on lawns or ornamental shrubbery but is to be deposited on either or both sides of the lawn on the farm lands immediately adjacent to the lawn.
- (7) Excavated material or topsoil shall not be placed in ditches, tiles or depressions intended to conduct water into the drain.
- (8) The material shall be sufficiently levelled to allow further working by agricultural implements.
- (9) All stones and other debris removed from the drain, which may interfere with agricultural implements, shall be disposed of off-site.
- (10) The Drainage Superintendent in charge will be the sole judge as to the proper disposal of material under the contract and this specification

#### **SECTION 18 - FENCES**

- (1) Where it is necessary to remove any fences which parallel the course of the drain in order to permit the excavation of the drain or the disposal of excavated material the Contractor shall remove the fence. An allowance will be made to the owners of the properties to compensate them for damages to fences which are considered capable of restraining cattle. The Contractor shall notify the owner of his intentions to remove the fence at least 7 days prior to doing so. Any owner has the option to salvage his fencing materials but must do so sufficiently in advance of the Contractor's operations so as to cause no unnecessary delays to him. If the owner does not remove his fences, the Contractor shall carefully take down the fence and leave the materials neatly placed beyond the limit of the spread area for disposal or reconstruction by the owner. The owner will be responsible to construct and maintain any temporary fencing during the progress of the work. The landowners and not the Contractor will be

responsible for the control of livestock in the adjoining field during the period of construction. Unless otherwise specified, the Contractor will not be required to reconstruct the fences following the completion of the work of excavation and levelling.

- (2) No permanent fencing shall be constructed or reconstructed without the approval of the Drainage Superintendent. Any fences that are constructed or reconstructed along the course of the drain are to be kept at least 1 metre clear of the top edge of the adjacent drain bank.
- (3) Where the Contractor finds it necessary to remove any fences which cross the drain, he shall remove the fencing materials in a careful, workmanlike manner. Unless otherwise directed the Contractor shall reconstruct the cross fences in as good a condition as the old material permits.

#### **SECTION 19 - ROAD CROSSINGS**

- (1) Where the drain crosses the travelled part of a road through a bridge, the Contractor shall excavate the drain to its specified dimensions through the bridge opening, using care to avoid damaging it. If after the drain has been excavated at any bridge structure it appears to the Drainage Superintendent that repairs or replacement may be required, he shall so advise the Road Authority having jurisdiction over the particular bridge.
- (2) Where a new bridge is required or where any underpinning, strengthening or repairs is rendered necessary by the work, it is to be carried out by the Road Authority at its own expense.
- (3) Where the drain crosses the travelled part of a road through a pipe that does not have to be replaced or lowered, the Contractor shall clean the pipe to its full cross-sectional area using care to avoid damaging it.
- (4) Where the existing pipe is of sufficient size and is in a good state of repair but requires to be lowered, the Contractor shall carefully remove it, clean it to its full cross-sectional area and replace it in the drain as specified herein.
- (5) Where the existing pipe must be replaced, the Contractor shall carefully remove it from the drain, clean it to its full cross-sectional area, and leave it beside the drain for removal by the Road Authority. Unless otherwise instructed he shall install the new road culvert as supplied by the Road Authority. All backfill material shall be compacted granular material supplied by the Road Authority, unless otherwise specified.
- (6) The Contractor shall notify the Road Authority having jurisdiction over the structure under construction at least 72 hours in advance of any construction activities.

#### **SECTION 20 - FARM AND ACCESS CULVERTS**

- (1) Where a farm or access culvert or bridge does not have to be replaced or lowered, the Contractor shall clean it to its full cross-sectional area using care to avoid causing damage to it in the process.
- (2) Where a pipe culvert is to be lowered, the Contractor shall carefully remove it, clean it to its full cross-sectional area and replace it in the drain with its invert set 10% of the pipe diameter below the grade line.
- (3) Where a culvert is to be replaced, the Contractor shall carefully remove it from the drain, clean it to its full cross-sectional area and leave it on the drain bank. If the pipe was originally supplied and installed by the property owner, it shall be left for disposal by the owner. If the pipe was installed under the provisions of The Drainage Act, it shall be disposed of as directed by the Drainage Superintendent and any salvage value from the sale of the pipe shall be credited to the drain. Wooden or concrete farm or access bridges which must be removed from the drain shall be disposed of in the same manner.
- (4) Where a pipe culvert is to be installed in the drain, all materials shall be supplied by the Drainage Superintendent as an expense to the drain. The Contractor shall install the pipe in the location directed by the Drainage Superintendent in accordance with the specifications governing the installation.
- (5) Where a new culvert is to be installed, the owner may request the Drainage Superintendent to have it placed in a different location from the existing one and this will be permitted so long as the relocation does not result in an increase in the area draining through the culvert. Adequate notice of the change must be given to the Contractor. In no case may the existing culvert be left in the drain when it has been specified that it is to be removed.

#### **SECTION 21 - FARM AND ACCESS PIPE CULVERT INSTALLATION**

##### **21.1 - Location and Elevation of Access Culvert or Farm Culvert**

- (1) In general, the new access or farm 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.
- (2) The invert (inside bottom) bottom of the pipe shall be set according to the elevations shown on the accompanying plans. For the purpose of construction, the bench mark indicated on the accompanying plans shall be used to determine the elevation of the proposed enclosure.

##### **21.2 Dry Culvert Installation**

- (1) Suitable dykes shall be constructed in the drain so that the installation of the pipe can be accomplished in the dry. 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.

##### **21.3 Pipe Installation**

- (1) 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 drain bottom shall be cleaned, prepared, shaped and compacted to suit the new culvert configuration, as shown on the drawings. 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.

- (2) The surface on which the culvert is to be laid shall be true to grade and alignment and shaped to accept the materials to be placed. The pipe shall be laid to the alignment and grade shown in the report but may not be placed on a bed containing frozen materials.
- (3) The end protection to each end of the pipe structure shall be as specified in the Special Provisions and on the Drawings and in accordance with the following applicable specifications.
- (4) All newly excavated portions of the drain bank shall be seeded.
- (5) The Contractor shall dispose of all surplus excavated material at an approved disposal site at his expense.
- (6) Riveted corrugated steel pipe shall be laid with the inside circumferential laps pointing in the direction of the flow. The longitudinal laps shall be located in the upper half of the pipe.
- (7) All helical corrugated steel pipe shall be supplied with re-rolled annular ends and shall be installed so that the helix angle is constant for the total length of the installation and each pipe section shall be installed next to the previous section such that the lock-seam forms a continuous helix.
- (8) Corrugated steel pipe sections shall be joined together by means of plant fabricated couplers having a minimum wall thickness of 1.6 mm and a 10 c width. The couplers shall be installed to lap approximately equal portions of the pipe sections being connected, such that the corrugations or projections of the coupler properly engage the pipe corrugations.
- (9) Where fabrication of structural plate structures by the Contractor is specified, they must be assembled in the trench or at the side of the excavation. If the assembled structure has to be moved to its final position, it shall be moved in such a manner that no damage or distortion is caused to the structure. The materials shall be assembled and handled in accordance with the manufacturers specifications and directions.
- (10) 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.

#### 21.4 Backfilling and Compaction

- (1) Backfill and cover material on each side of the culvert pipe shall be carefully placed simultaneously on each side of the pipe so that damage to or movement of the pipe is avoided. At no time shall the levels on each side differ by more than the 300 mm uncompacted layer. Then, a 300mm thick layer of Granular 'A' material, O.P.S.S. Spec 1010 shall be constructed as a road base. 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.

#### SECTION 22 – LATERAL TILE DRAINS

- (1) 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. Care must be taken in handling plastic drain pipe in cold weather to avoid causing damage.
- (2) Plastic drain pipe shall be held in position on planned grade immediately after installation by careful placement of backfill material.

#### SECTION 23 – CULVERT END PROTECTION - SLOPING RIP-RAP

- (1) Where specified, the Contractor shall install quarried rip-rap erosion protection materials on the slopes at both ends of the pipe. The backfill and quarried rip-rap protection over the ends of the pipe shall be sloped at 1.5 horizontal to 1 vertical or to a flatter slope specified on the drawings. All stone used for rip-rap culvert end protection shall be 125-225 mm clear quarried rock or OPSS.MUNI 1004 and be placed with a minimum thickness of 300mm thickness. Prior to placing rip-rap materials on the backfill materials, the Contractor shall lay a non-woven geotextile filter fabric equal to a "Terrafox 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. No portion of the filter fabric shall remain exposed to sunlight. The Contractor shall take extreme care to not damage the geotextile filter fabric when placing the rip-rap on top of the filter fabric. The geotextile filter fabric and quarried stone shall be placed to the complete satisfaction of the Drainage Superintendent. **Concrete rip-rap or round stone will not be permitted.**
- (2) Where a clay layer is specified beneath the Rip-Rap End Protection, it shall be a 500 mm thick layer of cohesive clay material that is dry select earth material free of topsoil, organic matter, broken concrete, steel, wood and deleterious substances. It shall be placed and shaped before the filter fabric layer is placed.

#### SECTION 24 - BAGGED CONCRETE HEADWALLS – SINGLE BAG THICKNESS

- (1) Sacked concrete end walls that do not exceed 1.8 m in height shall be constructed of a single row of sacked concrete. The installation of the end wall shall be governed by the drawings. The end wall treatment shall extend to the same elevation as the finished travelled surface and fit to the top of bank elevation on both banks and in any event be a minimum of 300 mm above the crown of the pipe.
- (2) 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.
- (3) 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.

- (4) 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 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.
- (5) 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 0.3 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 MPa in 28 days.
- (6) 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.
- (7) 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.
- (8) 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.

#### **SECTION 25 – BAGGED CONCRETE HEADWALLS – DOUBLE BAG THICKNESS**

- (1) Sacked concrete end walls that exceed 1.8 m in height shall be constructed of double rows of sacked concrete.
- (2) 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.

#### **SECTION 26 – GROUTED CONCRETE RIP-RAP WALL**

- (1) Where specified, 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.

#### **SECTION 27 – PRECAST CONCRETE HEADWALLS**

- (1) 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.
- (2) The precast concrete headwall or precast blocks or modules shall be of the shape, size and dimensions shown on the drawings.
- (3) Precast provider to provide stamped engineering drawing for precast headwall and Geotextile restrainers for approval.
- (4) Excavation for the headwalls shall be in conformance with O.P.S.S. Section 902.
- (5) 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 1/2").
- (6) 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.
- (7) 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.
- (8) 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.
- (9) 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.

#### **SECTION 28 - TILE OUTLET PIPES AND ROAD DRAINS**

- (1) Where existing tile outlet pipes of cast iron, asbestos cement, corrugated steel or other rigid material are encountered along the course of the drain, and where they will be removed or rendered useless by the work, the Contractor, as part of his work, shall reinstall the outlet pipes in the re-graded bank.
- (2) Where, in the course of the grading operation tile drains having no outlet pipe are encountered or the existing outlet pipe is not suitable for re-installation, the Contractor shall install an outlet pipe manufactured for that purpose. The outlet pipe shall be one size larger than the diameter of the tile, 3 metres in length, and supplied by the Drainage Superintendent as an expense to the drain.
- (3) All outlet pipes installed shall be at least 3 metres long and shall be embedded 2.5 metres into the bank of the drain and shall protrude 0.5 metres beyond its face. The outlet end shall be fitted with a removable wire rodent guard.
- (4) Where a drain adjoining a road is relocated, the Drainage Superintendent shall arrange to have all existing private and road drains which cross beneath the road extended across the old course of the drain to the drain in its new location. The cost of all pipe materials to extend these drains together with the installation costs will be borne by the Road Authority having jurisdiction.

**SECTION 29 – RIP-RAP EROSION PROTECTION**

- (1) The Contractor shall supply and install the required quantities of graded stone rip-rap erosion protection materials where specified. All stone used for rip-rap culvert end protection shall be 125-225 mm clear quarried rock or OPSS.MUNI 1004 and be placed with a minimum thickness of 300mm thickness. Prior to placing rip-rap materials on the backfill materials, the Contractor shall lay a non-woven geotextile filter fabric equal to a "Terrafix 270R" or approved equal. No portion of the filter fabric shall remain exposed to sunlight. The Contractor shall take extreme care to not damage the geotextile filter fabric when placing the rip-rap on top of the filter fabric. The geotextile filter fabric and quarried stone shall be placed to the complete satisfaction of the Drainage Superintendent. **Concrete rip-rap or round stone will not be permitted.**

**SECTION 30 – LOCATION OF STRUCTURES, ETC.**

- (1) 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.

**SECTION 31 - LAWN RESTORATION**

- (1) Where the construction works cross a lawn, the Contractor shall take extreme care to avoid damaging the lawn, shrubs and trees encountered. Upon completion of the work, the Contractor shall completely restore the area by the placement and fine grading of topsoil and seeding or sodding the area as specified by the Engineer or Drainage Superintendent.

**SECTION 32 – PROPERTY BARS AND SURVEY MONUMENTS**

- (1) 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.

**SECTION 33 - CLEAN UP AND RESTORATION**

- (1) 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 Drainage Superintendent. 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. All debris and waste materials specified for disposal by others shall be left in a neat condition. All materials to be disposed of under this contract shall be removed by the Contractor and the site left in a neat and tidy condition. The site shall be left, as closely as possible, in the same condition it was in prior to the commencement of the work.
- (2) As part of the work and upon completion, the Contractor shall remove and dispose of, off-site any loose timber, logs, stumps, large stones, rubber tires, cinder blocks or other debris from the drain bottom and from the side slopes. Where the construction works cross a lawn, the Contractor shall take extreme care to avoid damaging the lawn, shrubs and trees encountered. Upon completion of the work, the Contractor shall completely restore the area by the placement and fine grading of topsoil and seeding or sodding the area as specified by the Engineer or Drainage Superintendent.

**SECTION 34 - UTILITIES, RAILWAYS, ETC.**

- (1) The Contractor shall note that overhead and underground utilities such as hydro, gas, telephone and water are not necessarily shown on the drawings. Before commencing work, the Contractor will investigate the location of any and all railways, utility lines, wires, pipes, poles, towers, cables, etc. which may interfere with the proposed work. He will take all necessary steps to avoid damaging these. The Contractor will be liable for any damage to utilities and should any damage result to them from his operations, he will be completely responsible for these damages and will save harmless the Municipality and the Engineer from any legal actions which may arise as a result of such damage.
- (2) If permits are required to allow the work to be carried out on or adjacent to any utilities, pipelines, railways, etc., the Contractor shall obtain these at his own expense.
- (3) All work on or adjacent to any utility, pipeline, railway, etc., is to be carried out in accordance with the requirements of the utility, pipeline, railway, or other, as the case may be, and its specifications for such work form part of this specification and apply.
- (4) In accordance with Section 26 of the Drainage Act, if utilities are encountered during the installation of the drainage works that conflict with the work, the operating utility company shall relocate the utility at their own costs. The Contractor however will be responsible to co-ordinate these required relocations and their co-ordination work shall be considered incidental to the project.

**SECTION 35 – DAMAGE TO TRAVELLED PORTION OF MUNICIPAL ROADS**

- (1) 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.

**SECTION 36 – MAINTAINING FLOWS**

- (1) 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.

**SECTION 37 – MAINTENANCE**

- (1) The successful Tenderer shall guarantee the work for a period of one (1) year from the date of acceptance (as evidenced by the final inspection report), thereof from deficiencies that, in the opinion of the Engineer, were caused by faulty workmanship or materials. The successful Tenderer shall, at his/her own expense, make good and repair deficiencies and every part thereof, all to the satisfaction of the Engineer. Should the successful Tenderer for any cause, fail to do so, then the Municipality may do so and employ such other person or persons as the Engineer may deem proper to make such repairs or do such work, and the whole costs, charges and expense so incurred may be deducted from any amount due to the Tenderer or may be collected otherwise by the Municipality from the Tenderer. 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.

**SECTION 38 - DRAINAGE SUPERINTENDENT**

- (1) Where the word "Drainage Superintendent" is used in this specification, it shall mean the person or persons appointed by the Council of the Municipality having jurisdiction, to superintend the work.
- (2) The Drainage Superintendent will be permitted to make minor variations in the, work so long as these variations will result in either a more satisfactory drain 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.

**SECTION 39 - SPECIAL PROVISIONS**

- (1) The Part of the Specifications headed "Special Provisions" which is attached hereto forms part of this Specification and is to be read with it. Where there is any difference between the requirements of this General Specification and those of the Special Provisions, the Special Provisions shall govern.

**RC SPENCER ASSOCIATES INC.**

Windsor, Leamington & Chatham, Ontario

## **ENVIRONMENTAL PROTECTION SPECIAL PROVISIONS**

(Revised 2016 11 25)

### **SECTION 1 – GENERAL**

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

### **SECTION 2 - FIRES**

- (1) Fires and burning of rubbish on site will be permitted only with special approval from the Municipality.

### **SECTION 3 - DISPOSAL OF WASTES**

- (1) 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.
- (2) 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.
- (3) The disposal of dredge material where applicable shall be in accordance with the above.

### **SECTION 4 - POLLUTION CONTROL**

- (1) The Contractor shall maintain under this Contract temporary erosion, sediment and pollution control features installed.
- (2) The Contractor shall control emissions from equipment and plant to local authority's emission requirements.
- (3) 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.
- (4) The Contractor shall abide by local noise By-Laws for the duration of the Contract.
- (5) 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.

### **SECTION 5 - WHMIS**

- (1) 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.

### **SECTION 6 - DRAINAGE**

- (1) 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.
- (2) The Contractor shall install and maintain sediment control devices as indicated on the Contract Drawing and as directed by the Engineer.

### **SECTION 7 - PROTECTION OF VEGETATION**

- (1) 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.

### **SECTION 8 - DUST CONTROL**

- (1) The Contractor will be solely responsible for controlling dust nuisance resulting from his operations, both on the site and within adjacent right-of-ways.
- (2) 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.

## **SECTION 9 - RESTRICTIONS FOR IN-WATER WORKS**

- (1) 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.
- (2) 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.
- (3) 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.

## **SECTION 10 - 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**

- (1) 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.
- (2) Design and construct approaches to the water body such that they are perpendicular to the watercourse to minimize loss or disturbance to riparian vegetation.
- (3) 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**

- (1) 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**

- (1) For spring spawning fish in southwestern Ontario, the timing window for construction, is July 15 to March 15. This covers all warm water 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**

- (1) 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.
- (2) 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.
- (3) 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**

- (1) 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

- (1) Ensure that all in-water activities, or associated in-water structures, do not interfere with fish passage, constrict the channel width, or reduce flows.
- (2) 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.
- (3) 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.
- (4) 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

- (1) 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.
- (2) 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.
- (3) 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. Fording 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

- (1) 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.
- (2) 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.
- (3) 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.

#### SECTION 11 - ENDANGERED SPECIES ACT

- (1) 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).
- (2) 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.
- (3) 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.

**RC SPENCER ASSOCIATES INC.**  
Windsor, Leamington & Chatham, Ontario

**APPENDIX 'C'**

**RECORD OF ON-SITE MEETINGS**

**EXTENSION OF THE BRANCH OF THE SMITH NEWMAN DRAIN  
TOWN OF KINGSVILLE**

## DRAINAGE REPORT TO EXTEND THE BRANCH OF THE SMITH NEWMAN DRAIN

### First On-Site Meeting

**Date:** 6 November 2024

**Time:** 9:00 a.m.

**Place:** On-Site (in the area of 18 Whitewood, along the roadway)

**File:** 24-1680

**Municipal Representatives:** Lu-Ann Marentette, Drainage Superintendent

**Engineer's Representatives:** Shane Lafontaine, P.Eng., RC Spencer Associates Inc.  
Marvel Hormiz, P.Eng., RC Spencer Associates Inc.

**Landowners in Attendance:** See attached

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#### **Introduction:**

##### Lu-Ann Marentette – Drainage Superintendent

Lu-Ann made a quick introduction and explained the purpose of the meeting.

##### Shane Lafontaine – RC Spencer Associates Inc.

There has been a petition submitted by the County of Essex to extend the Branch of the Smith Newman Drain to address drainage issues experienced on the north side of County Road 34 East. The Town has appointed RC Spencer Associates Inc. to complete a drainage report for this extension in accordance with the Drainage Act. As part of the Drainage Act process, an on-site meeting must be held to discuss the project with the landowners within the watershed of the municipal drain.

There is also a need to update the schedule of assessment for the Branch of the Smith Newman Drain. The current report and assessment schedule do not consider the lands that were subdivided in the watershed. This is required to properly assess costs associated with any maintenance needed on the municipal drain.

The purpose of this meeting is to also give landowners the opportunity to share any drainage issues that you may be experiencing. Furthermore, please advise the Engineer if you are aware of any watershed changes that would increase or reduce your assessment area into the drain. The information provided will be most helpful to us and will be considered when preparing this drainage report.

## Comments and Questions of Landowners in Attendance:

**1. Where is the Smith Newman Drain?**

- The existing Branch of the Smith Newman Drain is located just downstream (north) of the pond which drains the subdivision lands and flows in the northerly direction down to the outlet at North Talbot Road.

**2. Where is the drain extension going to be located?**

- The location of the drain extension has not been finalized yet. It will most likely be located along the farmland immediately east of the residential development properties.

**3. Will it be located on the residential lots?**

- The location of the drain extension has not been finalized yet. It will most likely be located along the farmland immediately east of the residential development properties.

**4. We were recently sent a bill to pay for the lagoon expansion. Will we be paying for this work on top of the amount we have already paid recently?**

- The lagoon is for sanitary water. The Branch of the Smith Newman Drain is strictly for draining storm water. The assessment from the Lagoon does not relate to this work.

**5. Why was the ditch backing onto the East lots of the subdivision not relocated as part of the subdivision work? The property line stakes showed that the drain was inside the properties.**

- We cannot speak to the history of why this was not addressed as part of the subdivision developments. We can only speak to our current appointment to address the County Road drainage issues.

**6. The owner of the farm property (Roll No. 590-03000) asked why the drain would be located on his farm property? Why would it not be located on the residential properties?**

- The location of the drain extension has not been finalized yet. If it is located on the farm property, an allowance for land taken will be paid out to the farm owner.

**7. What is the main issue right now?**

- The County Road has submitted a petition to extend the Branch of the Smith Newman Drain to address drainage issues being experienced on the north side of County Road 34E. The Town has also received drainage complaints from the landowners backing onto the farm property in this same area.

**8. Is there any work that will be done on the existing drain?**

- The Town recently completed a maintenance cleanout on the existing Branch of the Smith Newman Drain. No further work on the existing drain is anticipated at this time.

**9. Will the new drain be an open ditch?**

- Yes, the new drain will be an open drain.

**10. Will the lots backing onto the drain be paying more?**

- The lots backing onto the property will be paying more due to the direct improvement from the drain construction. A cut-off benefit may also be assessed to these landowners since this work will re-direct stormwater that would potentially drain towards their property.

-

**11. How much money are the lots backing onto the drain going to pay?**

- This on-site meeting is the first stage of this process. At this time, an estimate of the work or the individual assessments cannot be provided.

**12. Will you be going through existing fences when constructing the new drain?**

- The location of the drain will be reviewed. We will avoid removal of any fences or permanent structures wherever possible to minimize construction costs and reduce the assessment to landowners.

**13. Are costs going to be assessed to residents that do not drain into the extension?**

- Properties will be assessed for work completed on the length of drain that is used by those properties. A cut-off benefit may still be assessed to lots that do not directly outlet into the drain extension.

**14. Will you be tying in from the South side of County Road 34E?**

- Further investigation is required along County Road 34E to establish a drainage boundary.

**15. How many properties will be included?**

- All properties located within the watershed will be assessed, including roads, subdivision lands and farm properties.

**16. Notification letter was received less than one week prior to this meeting. A lot of residents are not able to attend this meeting because of work. Why would this meeting not be done during after business hours?**

- The Drainage Act specifies that we provide Landowners with seven (7) days' advance notice. Residents that are unable to attend this meeting, can reach out to the Town or Engineer with any questions or concerns.

**17. Why didn't the Developer address these drainage concerns as part of the subdivision development? Why are we having to pay for something that the Developers should have been responsible for?**

- We cannot speak to the history of why this was not addressed as part of the subdivision developments. We can only speak to our current appointment to address the County Road drainage issues.

**18. Will we be assessed the costs through our property taxes?**

- The Town will send an invoice of the assessments to each Landowner after all of the work has been completed. Payment options will be included with the invoice.

- 19. Can there be transparency in the bidding process where we see the bids that were submitted? There are concerns about not picking the lowest bidder.**
- As long as the Contractor is qualified and has the experience to complete the work, the lowest bidder is typically awarded the project. The Drainage Act also specifies that if the contract price exceeds 133% of the Engineer's estimate, a meeting will be held with the Landowners to discuss the costs prior to awarding the contract.
- 20. When will the construction begin?**
- The work is anticipated to be completed in 2025.
- 21. If the drain is for surface water, why would residents on Redwood Avenue pay for it?**
- Redwood Avenue collects storm water into the local storm sewer network and discharges into the existing Branch of the Smith Newman Drain, immediately downstream (north) of the stormwater pond along Belleview Drive.
- 22. If I am located downstream of the extension, will I pay for the upstream work?**
- Landowners will only receive outlet assessment for the length of the drainage work for which they make use. A cut-off benefit may still be assessed to lots that do not directly outlet into the drain extension.
- 23. Does the Town pay into the drainage?**
- The Town will be assessed for any municipal roadways or municipally owned properties within the watershed that drain into the Branch of the Smith Newman Drain.
- 24. Who owns the Lagoon?**
- The lagoon is owned by the Town. Operation and maintenance of the facility by the Ontario Clean Water Agency.
- 25. Why would you not drain the swale into the pond?**
- The stormwater management pond located just upstream of the existing Branch of the Smith Newman Drain has only been designed to store and convey stormwater from the roads and lands that currently drain into it.

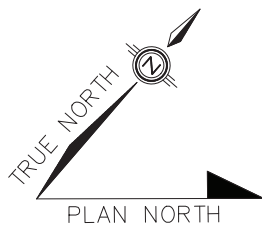
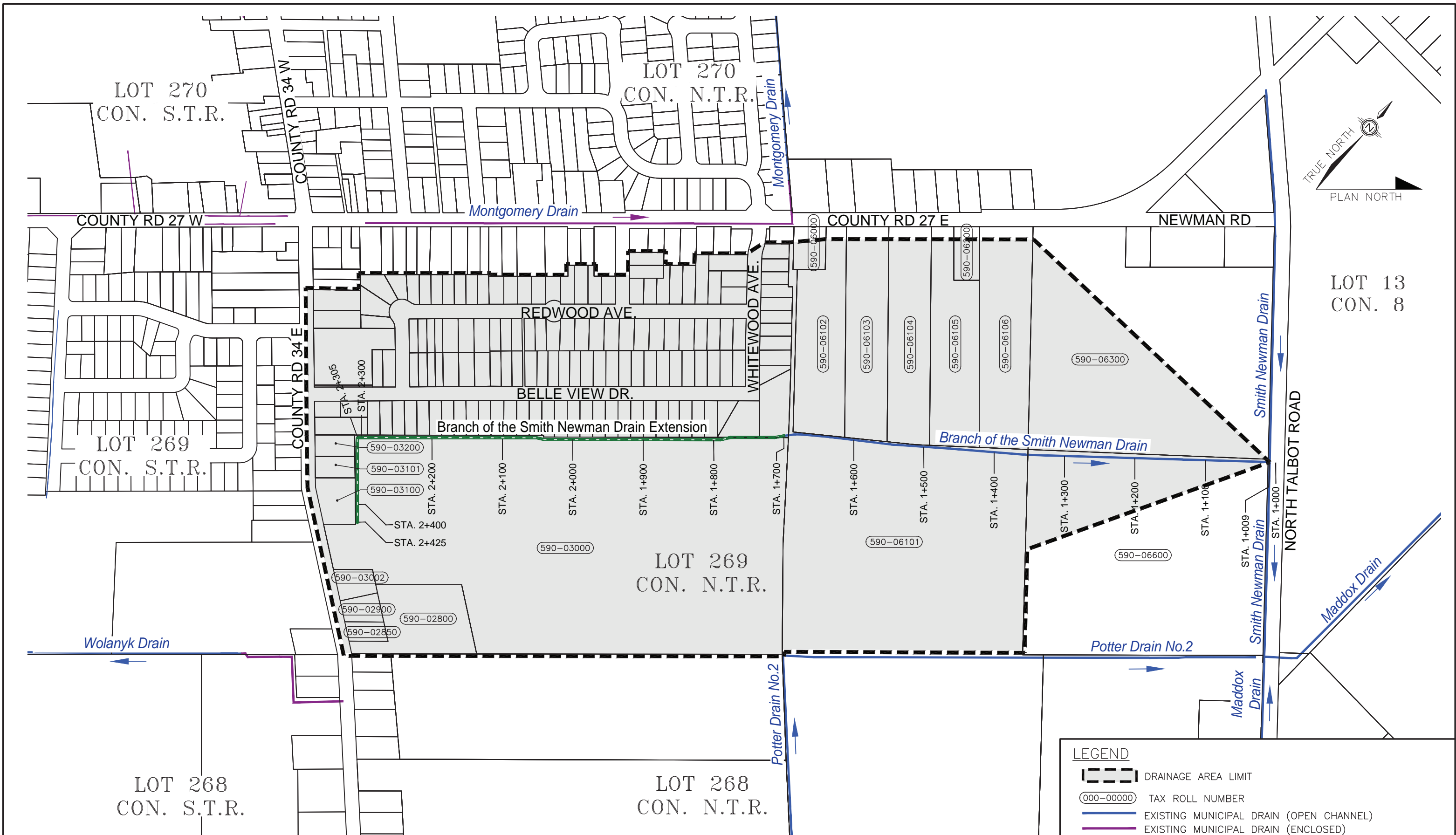
**Concluding Statements:**

Shane Lafontaine thanked the Landowners for their attendance and explained the next steps in the Drainage Act process. The Landowners were informed of their future opportunities for appeal to the report and assessments.

**RC Spencer Associates Inc.  
Consulting Engineers  
Windsor, Ontario**

File No.: 24-1680

Date: 6 November 2024

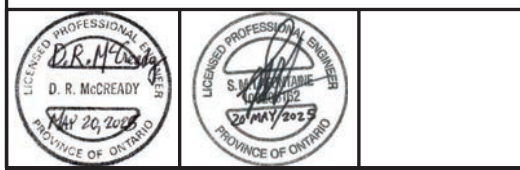


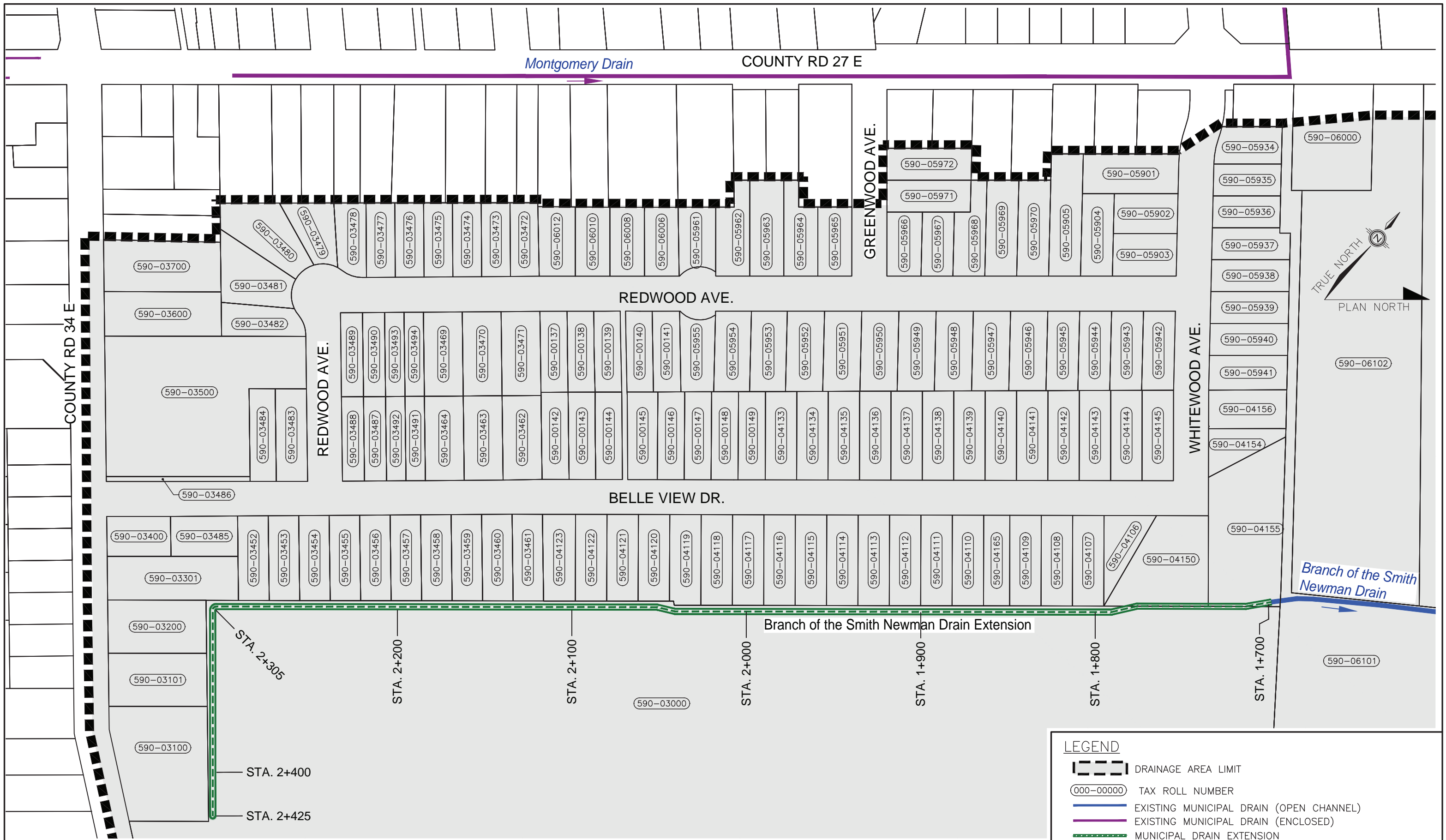
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|--------|---|
|        | DRAINAGE AREA LIMIT                     |
|        | TAX ROLL NUMBER                         |
|        | EXISTING MUNICIPAL DRAIN (OPEN CHANNEL) |
|        | EXISTING MUNICIPAL DRAIN (ENCLOSED)     |
|        | MUNICIPAL DRAIN EXTENSION               |

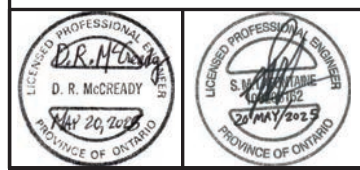
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| DESIGN  | S.M.L.      | EXTENSION OF THE BRANCH<br>OF THE SMITH NEWMAN DRAIN | PROJECT NO. | 24-1680 |
| CHECKED | M.M.H.      |  | SHEET NO.   | 1       |
| DRAWN   | M.B.        | <b>DRAINAGE AREA PLAN</b>                            | OF          | 6       |
| CHECKED | S.M.L.      |  |             |         |
| DATE    | 20 MAY 2025 |  |             |         |
| SCALE   | 1:5000      |  |             |         |

| SITE BENCHMARKS:   |               |
|--|---------------|
| 1) CATCHBASIN FRONTING 128 COUNTY RD. 34 E.  | ELEV= 197.900 |
| 2) CATCHBASIN FRONTING BELLEVIEW DR. SWM POND.   | ELEV= 194.420 |
| 3) T.O.N. ON FIRE HYDRANT ON NORTH TALBOT RD.<br>AT BRANCH OF THE SMITH NEWMAN DRAIN OUTLET. | ELEV= 194.630 |





| LEGEND |   |
|--------|---|
|        | DRAINAGE AREA LIMIT                     |
|        | TAX ROLL NUMBER                         |
|        | EXISTING MUNICIPAL DRAIN (OPEN CHANNEL) |
|        | EXISTING MUNICIPAL DRAIN (ENCLOSED)     |
|        | MUNICIPAL DRAIN EXTENSION               |

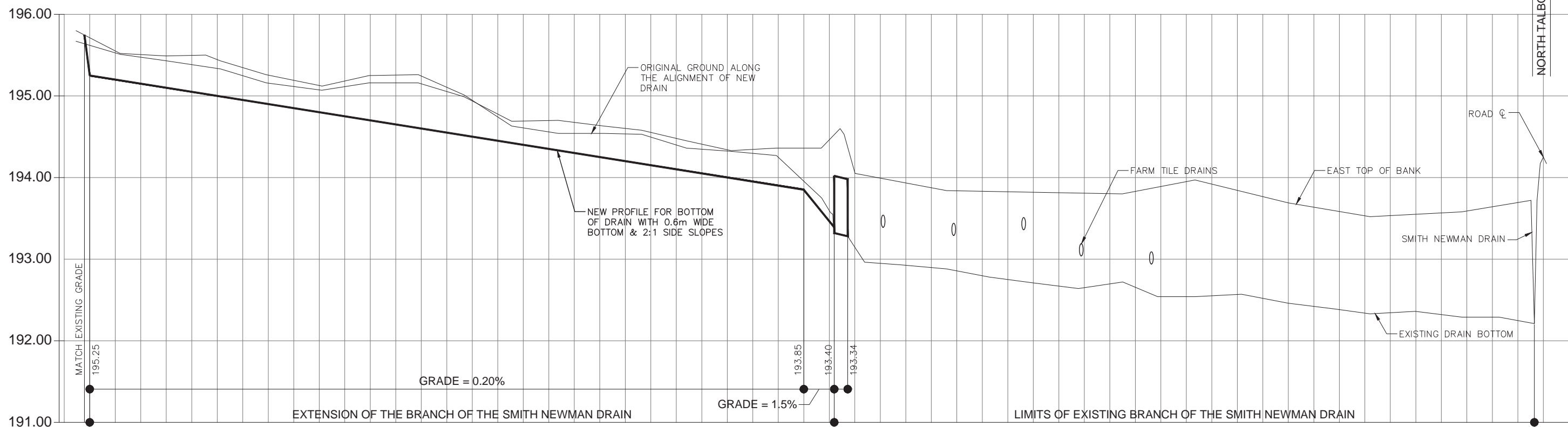


|         |             |
|---------|-------------|
| DESIGN  | S.M.L.      |
| CHECKED | M.M.H.      |
| DRAWN   | M.B.        |
| CHECKED | S.M.L.      |
| DATE    | 20 MAY 2025 |
| SCALE   | 1:2000      |

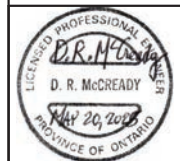
|   |  |             |         |
|---|--|-------------|---------|
| EXTENSION OF THE BRANCH OF THE SMITH NEWMAN DRAIN |  | PROJECT NO. | 24-1680 |
| <b>DRAINAGE AREA CONT'D</b>                       |  | SHEET NO.   | 2       |
|   |  | OF          | 6       |

1+682 — NORTH END OF 1000mm x 700mm (CSPA)  
 1.3m LONG, RIP-RAP HEADWALLS  
 — N. INV = 193.28  
 — S. INV = 193.32

1+009 — BRANCH OF THE SMITH NEWMAN DRAIN  
 — OUTLETS INTO THE SMITH NEWMAN DRAIN  
 1+000 —  $\phi$  OF NORTH TALBOT RD



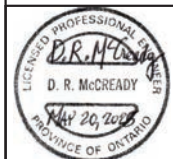
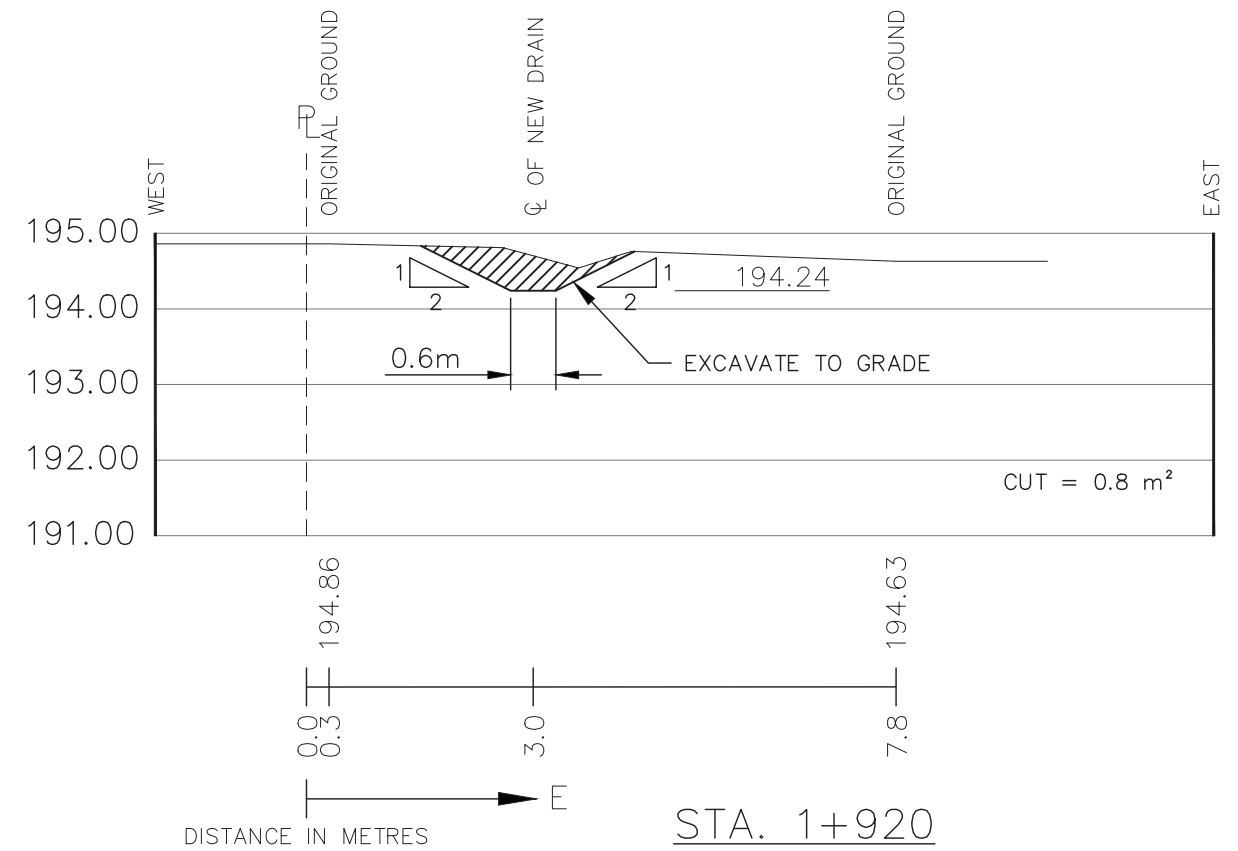
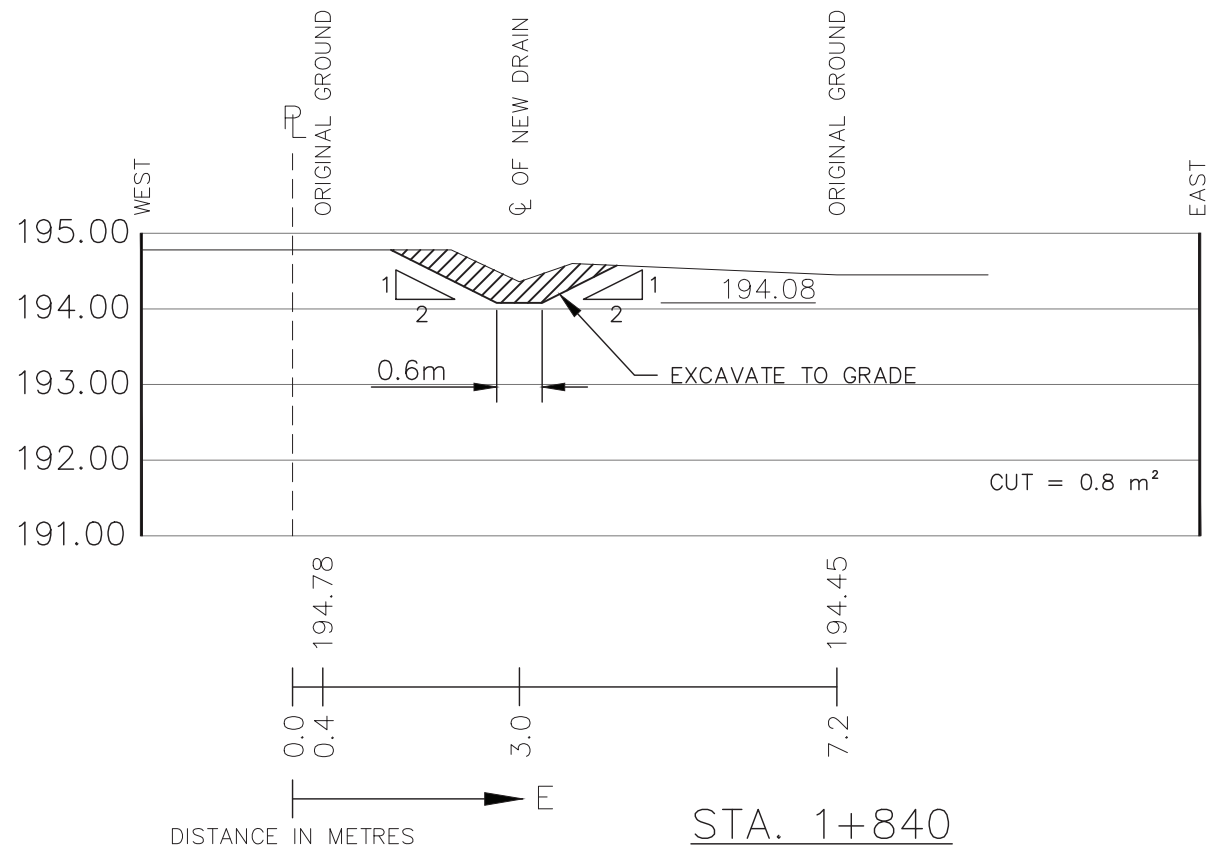
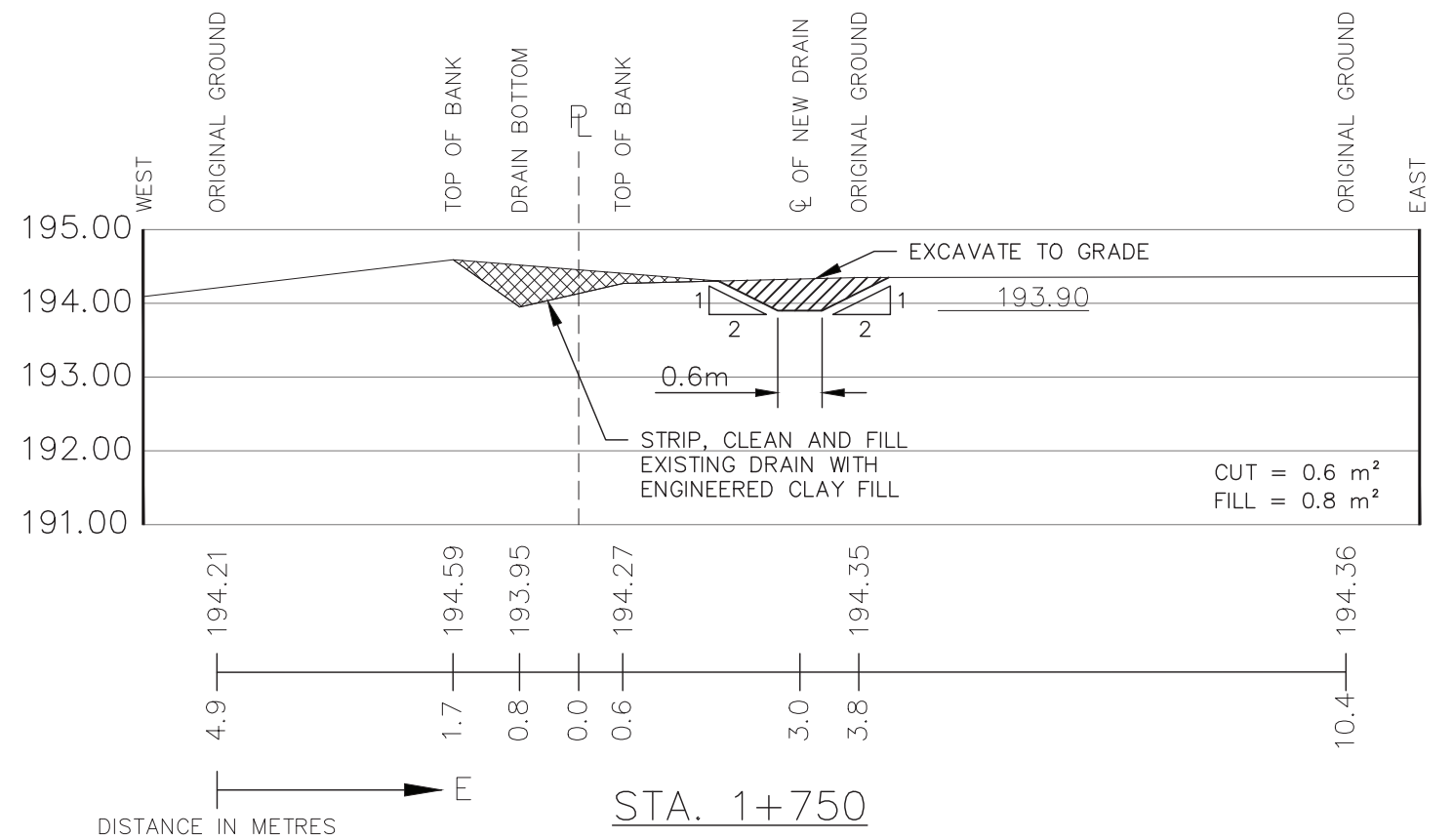
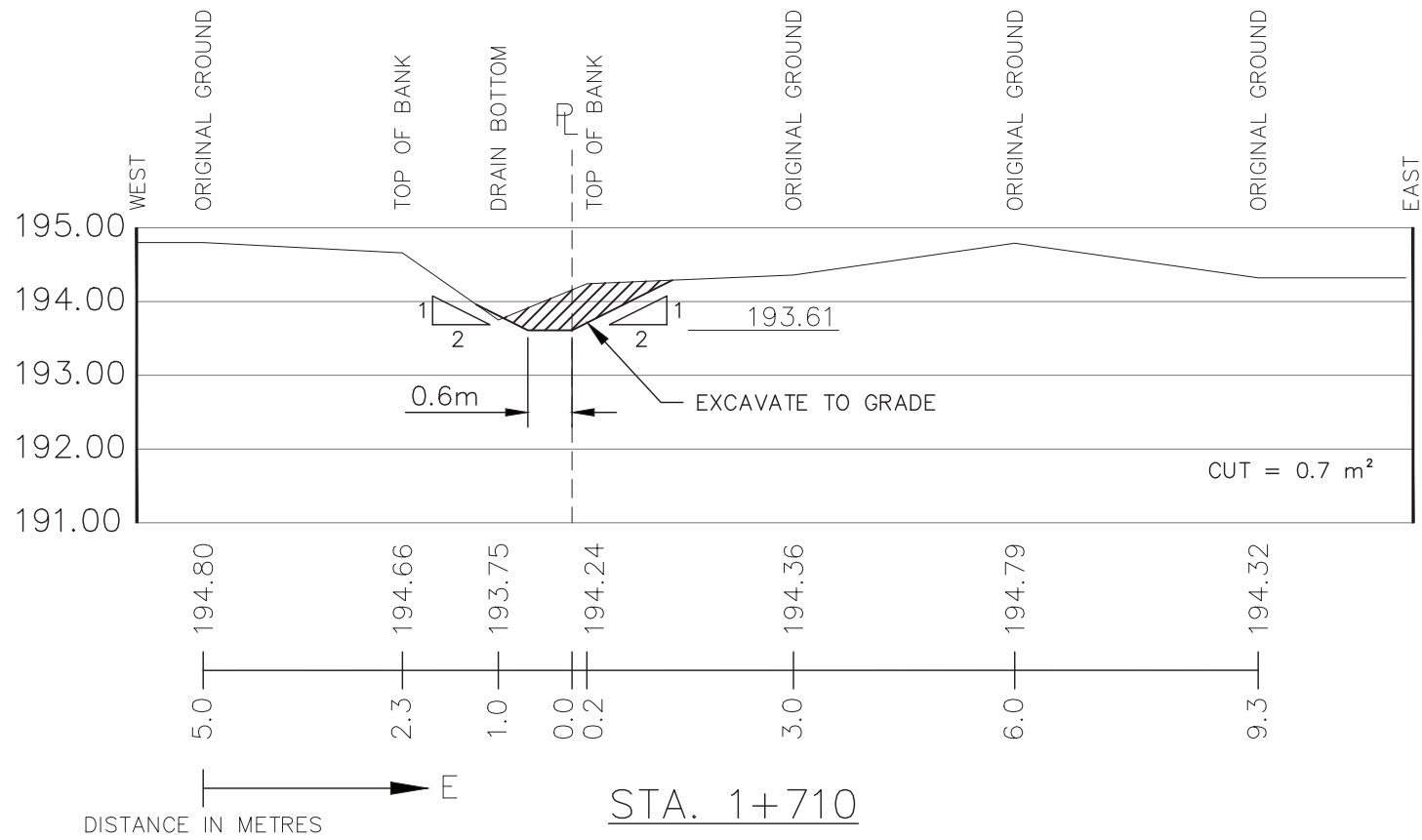
| DRAIN STATIONS                | 2+425  | 2+400  | 2+350  | 2+300  | 2+250  | 2+200  | 2+150  | 2+100  | 2+050  | 2+000  | 1+950  | 1+900  | 1+850  | 1+800  | 1+750  | 1+725  | 1+700  | 1+695  | 1+682  | 1+650  | 1+600  | 1+550  | 1+500  | 1+450  | 1+400  | 1+350  | 1+300  | 1+250  | 1+200  | 1+150  | 1+100  | 1+050  | 1+009  | 1+000  |  |  |
|-------------------------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--|--|
| DESIGN DRAIN BOTTOM ELEVATION | 195.25 | 195.20 | 195.10 | 195.00 | 194.90 | 194.80 | 194.70 | 194.60 | 194.50 | 194.40 | 194.30 | 194.20 | 194.10 | 194.00 | 193.90 | 193.85 | 193.46 | 193.40 | 193.34 |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |  |  |
| EXISTING EAST TOP OF BANK     | 195.62 | 195.55 | 195.43 | 195.34 | 195.16 | 195.07 | 195.16 | 195.15 | 194.94 | 194.69 | 194.68 | 194.60 | 194.48 | 194.34 | 194.36 | 194.46 | 194.46 | 193.99 | 193.87 | 193.87 | 193.83 | 193.82 | 193.82 | 193.81 | 193.83 | 193.95 | 193.84 | 193.69 | 193.58 | 193.53 | 193.57 | 193.64 | 193.64 | 192.21 |  |  |
| EXISTING DRAIN BOTTOM         |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        |        | 193.59 | 192.95 | 192.90 | 192.80 | 192.71 | 192.65 | 192.66 | 192.54 | 192.57 | 192.46 | 192.38 | 192.34 | 192.32 | 192.29 | 192.21 |        |        |        |  |  |



DESIGN S.M.L.  
 CHECKED M.M.H.  
 DRAWN M.B.  
 CHECKED S.M.L.  
 DATE 20 MAY 2025  
 SCALE H=1:4000  
 V=1:50

EXTENSION OF THE BRANCH OF THE SMITH NEWMAN DRAIN  
**PROFILE**

PROJECT NO. 24-1680  
 SHEET NO. 3  
 OF 6

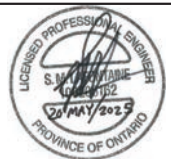
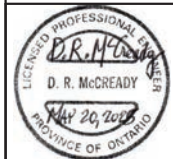
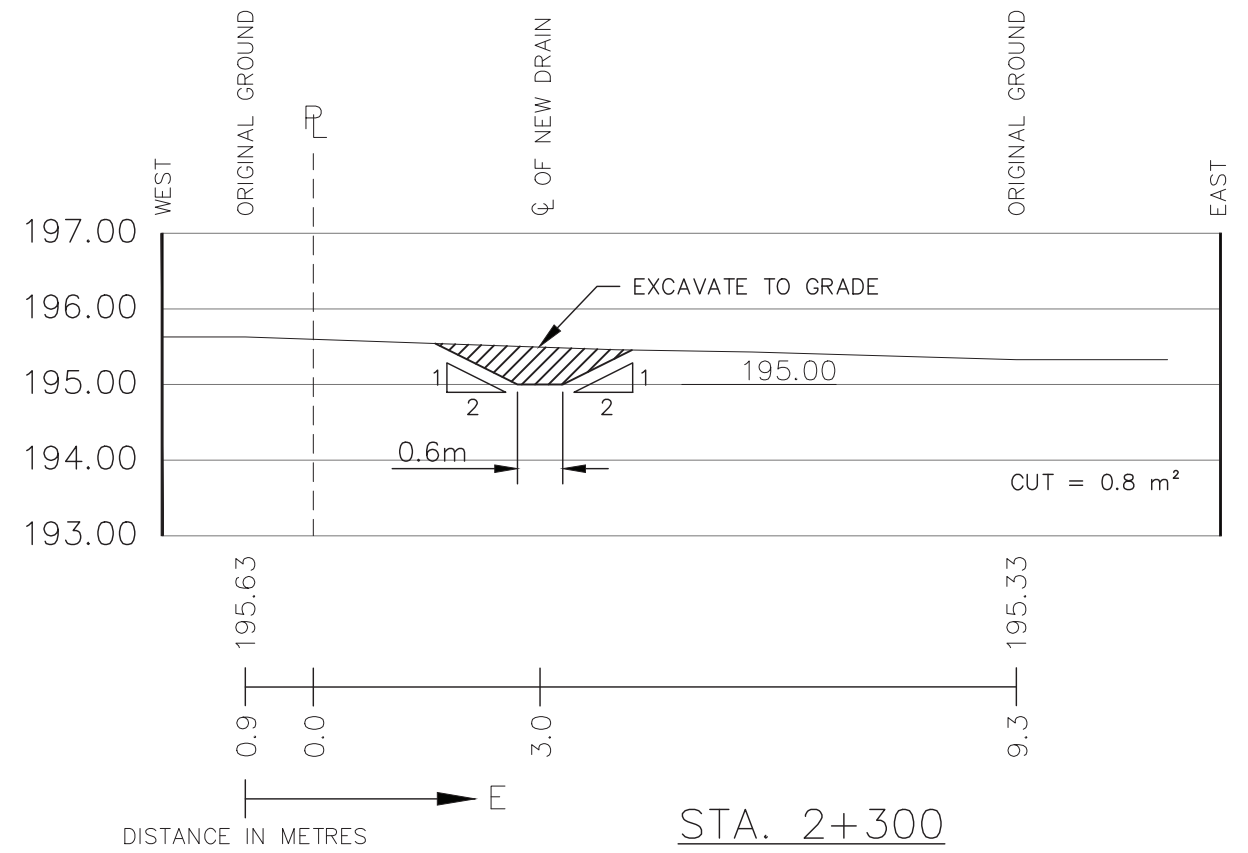
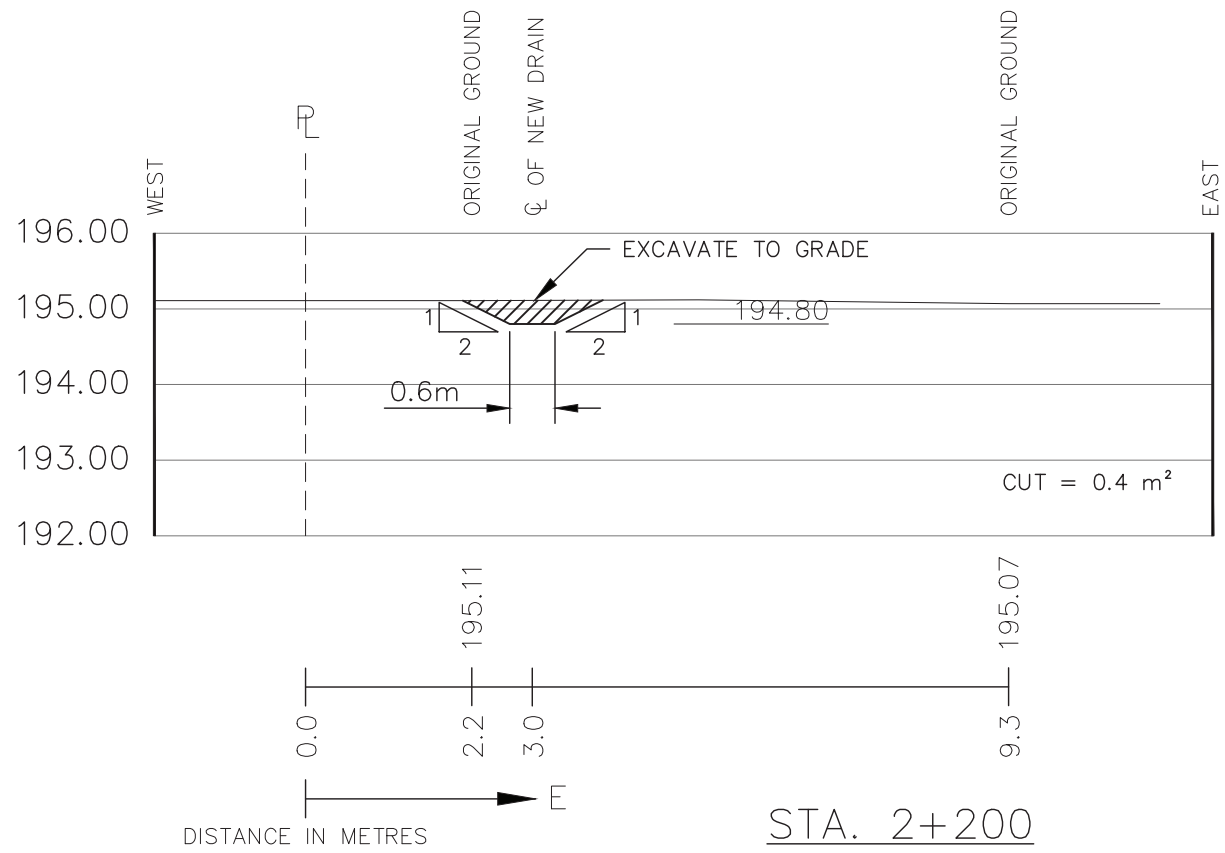
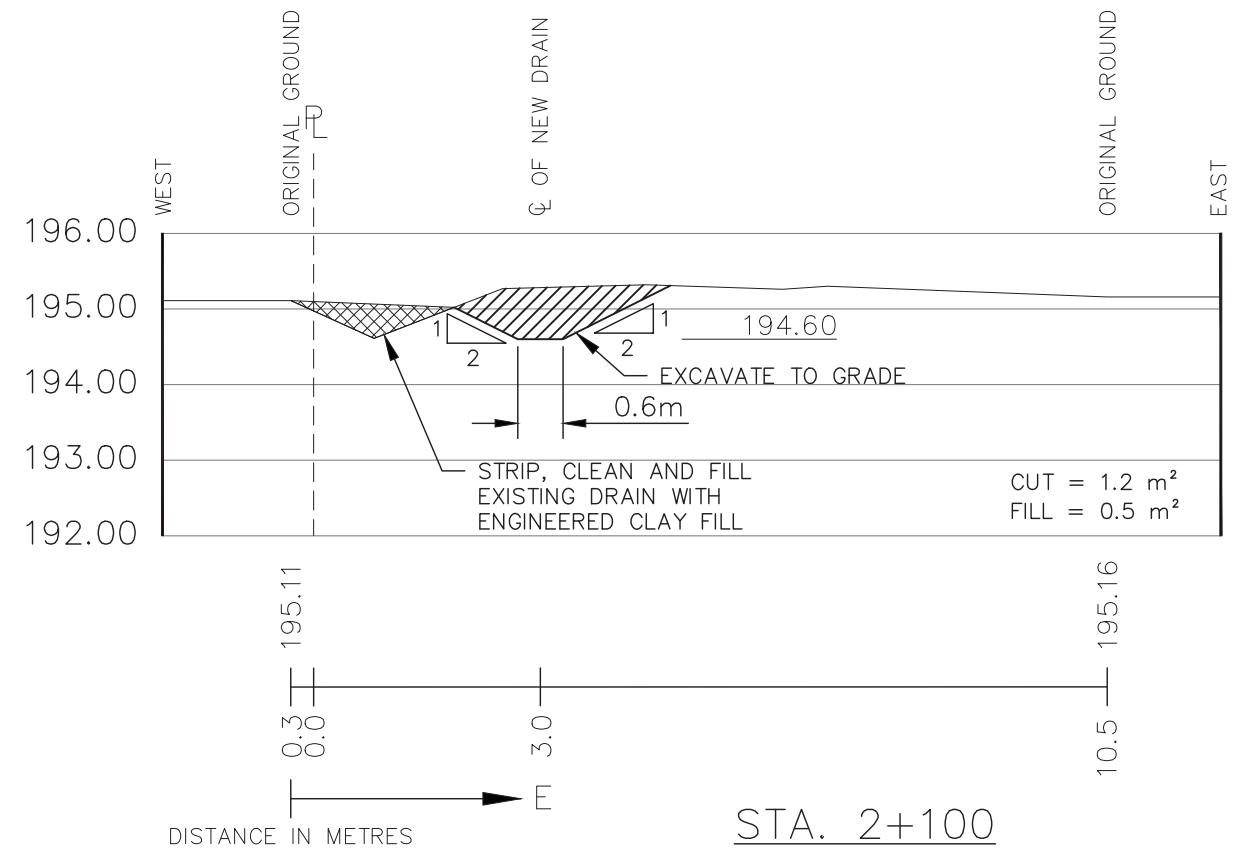
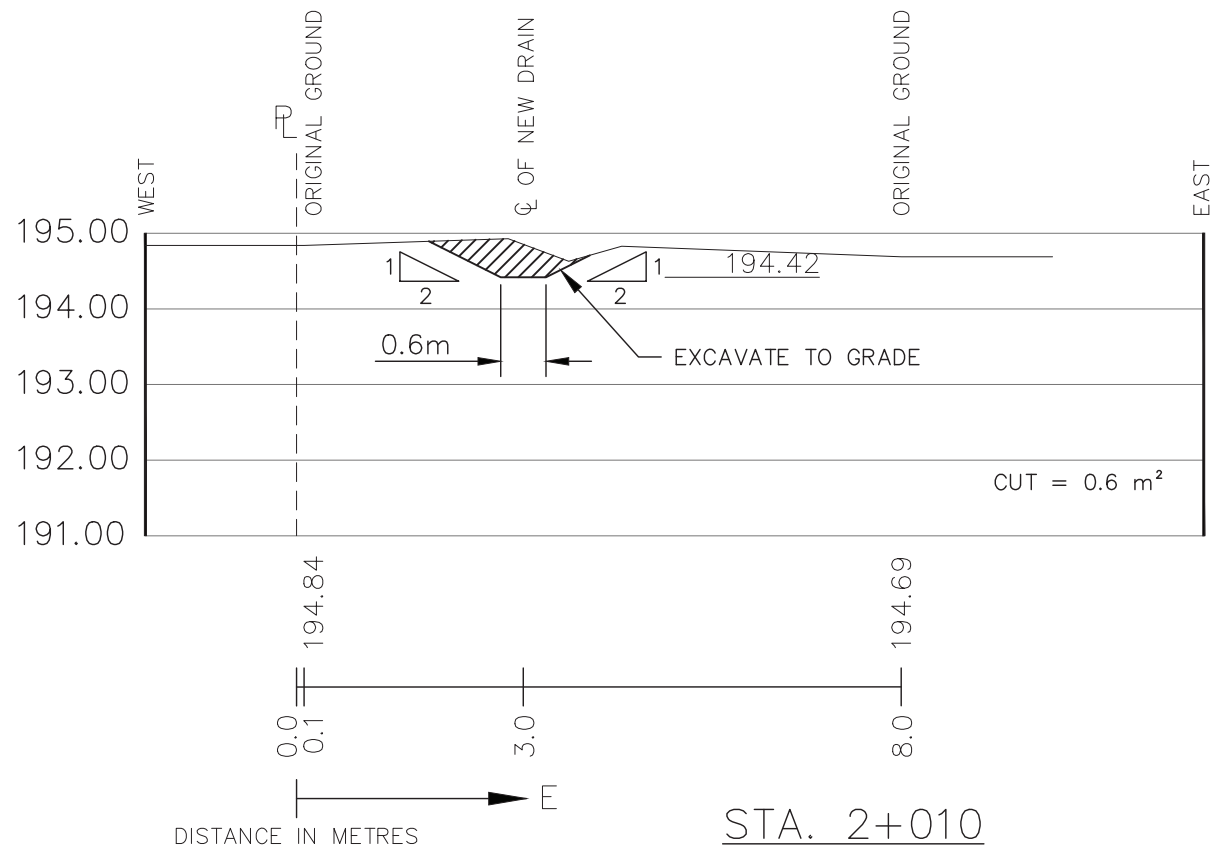


|         |             |
|---------|-------------|
| DESIGN  | S.M.L.      |
| CHECKED | M.M.H.      |
| DRAWN   | M.B.        |
| CHECKED | S.M.L.      |
| DATE    | 20 MAY 2025 |
| SCALE   | 1:100       |

EXTENSION OF THE BRANCH OF THE SMITH NEWMAN DRAIN

CROSS-SECTIONS 1

|             |         |
|-------------|---------|
| PROJECT NO. | 24-1680 |
| SHEET NO.   | 4       |
| OF          | 6       |



|         |             |
|---------|-------------|
| DESIGN  | S.M.L.      |
| CHECKED | M.M.H.      |
| DRAWN   | M.B.        |
| CHECKED | S.M.L.      |
| DATE    | 20 MAY 2025 |
| SCALE   | 1:100       |

EXTENSION OF THE BRANCH OF THE SMITH NEWMAN DRAIN

CROSS-SECTIONS 2

|             |         |
|-------------|---------|
| PROJECT NO. | 24-1680 |
| SHEET NO.   | 5       |
| OF          | 6       |

