

ENGINEERING REPORT

For

**LAVIGNE DRAIN (NEUMANN PROPERTY)**

**Section 65 Schedule Update &  
Realignment on Neumann Property**

**Town of Niagara-on-the-Lake**

(Geographic Township of Niagara)

Region of Niagara

Date: October 31, 2018

File No. 17-239



**K. SMART ASSOCIATES LIMITED**

Kitchener

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SCHEDULE C – SCHEDULE FOR ACTUAL COST BYLAW

APPENDIX A – CALCULATION OF ASSESSMENTS FOR SCHEDULE A

SPECIFICATIONS

- Section 200 – General Conditions
- Section 300 – Special Provisions (See Drawing 4 of 4)
- Section 400 – Standard Specifications for Construction of Drains
- Section 410 – Standard Specifications for Open Drains

DRAWINGS 1 TO 4

Definitions:

“Act” means The Drainage Act RSO 1990

“CSP” means Corrugated Steel Pipe

“Drain” means Lavigne Drain (Neumann Property)

“Grant” means grant paid under Agricultural Drainage Infrastructure Program

“HDPE” means High Density Polyethylene

“Municipality” means Town of Niagara-on-the-Lake

“NPCA” means Niagara Peninsula Conservation Authority

“OMAFRA” means the Ontario Ministry of Agriculture, Food and Rural Affairs

“Tribunal” means Agriculture, Food and Rural Affairs Appeal Tribunal

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October 31, 2018

File No. 17-239

## **LAVIGNE DRAIN (NEUMANN PROPERTY)**

### **TOWN OF NIAGARA-ON-THE-LAKE**

#### **1.0 EXECUTIVE SUMMARY**

This report is prepared pursuant to Sections 65 and 78 of the Drainage Act RSO 1990 (the Act).

In the spring of 2017, the Municipality received a request for improvement/realignment of a portion of Lavigne Drain on the C. & H. Neumann property (Roll No. 020-010-04100) in Lot 73 (Township of Niagara). Pursuant to Section 8 of the Act, on July 17, 2017, K. Smart Associates Limited was appointed by Council (Bylaw 4996-17) to prepare an Engineer's report under the appropriate sections of the Act for the realignment of a portion of the Lavigne Drain.

On July 3, 2018 an email was received from the Town Clerk with direction to adjust the Lavigne Drain maintenance schedule under Section 65 to reflect previous severances.

To address the request and direction received, this report recommends the following:

- Excavation/Improvement/realignment of 110m of open drain including the removal and replacement of 7m of new laneway culvert
- Revise the Lavigne Drain 1995 Schedule B in accordance with Section 65 to reflect previous severances and provide new Schedule B for future maintenance.

The estimated cost of this project is \$68,220.

The watershed served by the realignment is approximately 473.8 hectares (1,170.7 acres).

The watershed for future maintenance of the existing Lavigne Drain is approximately 552.6 hectares (1,365.5 acres).

Assessment schedules are provided for construction and future maintenance of the drainage works.

- Schedule A shows the assessment of the total estimated cost
- Schedule B will be used for prorating future maintenance cost for all of the Lavigne Drain
- Schedule C will be used for levying the final cost of the Drain and it indicates estimated net assessments after deducting grants and allowances where applicable.
- Appendix A illustrates the calculation of the assessments outlined in Schedule A.

## **2.0 DRAINAGE HISTORY**

The most recent report for the Lavigne Drain was filed on May 5, 1995 by John Kuntze, P.Eng. (Young-Smart Engineering Co.). The 1995 report provided for improvements (cleanout, brushing and repairs) to the existing Main Drain and Martin Wiens Branch. The existing Main Drain and Martin Wiens Branch are all open ditch drains. The Main Drain extends from its outlet into Four Mile Creek, midway between Four Mile Creek Road and Wagg Road, upstream to Line 7 in Lot 175 and is 8,550m in length. The Martin Wiens Branch is located in Lots 171 and 172 and is 732m in length.

On May 19, 1998 a Section 65 report was prepared for the E. & S. Wiens property (Pt Lots 170 & 171, Niagara Twp) to reapportion assessments for actual (final) costs and for future maintenance.

The proposed work in this 2018 report involves a realignment of a portion of the Main Drain in Lot 73.

## **3.0 INVESTIGATION**

### **3.1 On-Site Meeting**

On June 21, 2018 an on-site meeting was held in accordance with S. 9(1) and 9(2) of the Act. Notice of the meeting was sent to the landowners most affected by the drain realignment and the affected agencies.

#### In Attendance:

Juan Neumann, Ryan Neumann, Kurt Neumann – Landowners (Roll No. 10-41)  
Kevin Sidey – Niagara-on-the-Lake Hydro  
Rene Landry – Town of Niagara-on-the-Lake  
Neal Morris, P.Eng. – K. Smart Associates

#### Items Discussed:

Kevin Sidey – Niagara-on-the-Lake Hydro  
- He indicated the poles are private poles near the drain relocation.

Juan Neumann (Roll No. 020-010-04100)

- He wanted to know when construction might start
- He wanted tile protected
- He would like the existing culvert replaced and reuse existing headwall and put on brackets to hold back water
- He wanted to compact filling of ditch. It may not be required if fill mounded
- He will be removing grape vines and trees in the fall
- He indicated the soil is clayey silt.

### **3.2 Site Examination and Survey**

The route of the existing drain and proposed realignment was examined after the on-site meeting. Topographic (GPS) survey was completed in June 2018 along the existing and realignment routes on the Neumann property.

### **3.3 Watershed Description**

The perimeter watershed of the Lavigne Drain is the watershed that was shown in the 1995 report.

Land use in the watershed is predominately agricultural except for road allowances, scattered bush areas and numerous residential lots.

## **4.0 AUTHORITY FOR REPORT**

Section 78 of the Drainage Act provides for the repair and improvement of an existing drain constructed under the Drainage Act through a new Engineer's report. The Lavigne Drain was constructed under the Drainage Act and it has been determined from the request to the Town and discussions at the on-site meeting and site examination that the drain requires improvement on the Neumann property. Therefore, this report is properly initiated under Section 78 of the Drainage Act.

Section 65 of the Drainage Act provides for reapportionment of assessments when a parcel of land within the watershed of an existing drainage system becomes subdivided (a severance has occurred). The direction, in an email from the Town Clerk, to adjust the Lavigne Drain maintenance schedule to reflect previous severances in properties, is properly initiated under Section 65 of the Act.

## **5.0 DESIGN CONSIDERATIONS**

### **5.1 Sufficient Outlet**

Section 15 of the Act requires that proposed work be continued downstream to a sufficient outlet. Section 1 of the Act defines sufficient outlet as "a point at which water can be discharged safely so that it will do no damage to lands or roads." For this project, it was determined that the proposed improvement/realignment outlets

into the existing drain which provides sufficient outlet and will allow the proposed works to function as intended.

### **5.2 Drain Capacity**

The proposed realignment of the Main Drain open ditch portion was designed at the same capacity as per the 1995 report, which provides adequate depth for tile drain outlets and will also convey the 10-year storm within the channel cross-section. This is mostly due to the downcutting of the original design grade.

Laneway culverts are also designed for the 2-year storm as per the 1995 report.

### **5.3 Soil Conditions**

The Region of Niagara soils mapping for this area indicates that the soils in the area of the realignment are noted to be primarily clay loam tills (clayey silt), although in some locations there may be sandy or loamy sediments over the loam tills.

If sandy soils are encountered, erosion control (biodegradable Terrafix SC200, Nelix SC32 or equal) blankets shall be installed to reinforce the ditch side slopes.

## **6.0 ENVIRONMENTAL CONSIDERATIONS**

### **6.1 Agency Notification**

Contact was made with the Niagara Peninsula Conservation Authority (NPCA), the Ministry of Natural Resources and Forestry (MNRF) and Fisheries and Oceans Canada (DFO) during the process of preparing this report.

### **6.2 Agency Responses**

#### **6.2.1 NPCA**

The NPCA did not request an environmental appraisal under Section 6 of the Act. The Conservation Authority received notice of public meetings conducted during the course of this project. A project description and drawing package were provided to the Conservation Authority for review. The Conservation Authority requested a meeting with the Engineer. The meeting was held on August 13, 2018 at their office. Consequently, an additional Newbury weir has been added at the request of the NPCA. This structure will preserve an acceptance standard water level for aquatic species during drier periods.

#### **6.2.2 MNRF**

The MNRF received notice of public meetings conducted during the course of this project. A screening request for species at risk along with a project description and drawing package was submitted to MNRF dated July 9, 2018. The response from the ministry indicated there are no known endangered or threatened species or their habitat in the immediate project area, however, MNRF noted that the following species at risk are known to occur in the general area: Eastern Flowering Dogwood, Butternut, Bank Swallow, Barn Swallow, Peregrine Falcon, Eastern

Wood-pewee and Green Dragon. MNRF advised that compliance with the *Endangered Species Act, 2007* (ESA) may be achieved via registration under Section 23.9 of the ESA and species-specific mitigation plans. Town staff are in consultation with MNRF regarding registration and mitigation plans on file.

### **6.2.3 DFO**

The Lavigne Drain is rated Class E under DFO's drain classification system.

A Request for Review was submitted to DFO on July 10, 2018 along with a project description and drawing package. The response from DFO in an email dated August 7, 2018, indicated the proposed works are not likely to result in serious harm to fish or prohibited effects on listed aquatic species at risk. As such, an authorization under the Fisheries Act or a permit under the Species at Risk Act is not required.

## **7.0 RECOMMENDED WORK**

### **7.1 Description of the Work**

A description of the Drain for construction and maintenance can be found on Drawings 2 and 3 and Special Provisions on Drawing 4.

### **7.2 Culverts**

The 1995 report contained tables of culverts (Table 1 – Status of Culverts/ Crossings) that showed the culverts that were part of the drain and also a table (Table 2 – Recommended Culvert Opening Capacities for any Future Installation) that specified minimum end areas for future culverts.

Refer to the Maintenance section of this report for instructions regarding assessing future culvert maintenance costs.

### **7.3 Changes to the Drain After the Bylaw is Passed**

If a substantial addition, deletion, or change is made to the drain proposed in this report, a revised report can be prepared and processed through the Act, or an application can be made under the Act to the Drainage Tribunal to recognize the substantial addition, deletion or change. The application to the Tribunal must occur before final costs are levied.

## **8.0 CONSTRUCTION CONSIDERATIONS**

### **8.1 Pre-Construction Approvals**

Before starting work, the Contractor shall ensure all public utilities are located and shall contact all landowners along the proposed drain route to determine the location of any private utilities. No permits are required for the proposed work.

### **8.2 Construction Scheduling**

Construction cannot commence until 10 days after a bylaw to adopt this report is given third reading in accordance with the Act.

### **8.3 Minor Adjustments During Construction**

Minor changes to the drain may be made during construction if the changes are pre-approved by the Engineer and the Municipality in accordance with the Specifications in this report. Such changes must occur before final costs are levied.

Additional work desired by landowner(s) which is not part of the drainage works may be arranged with the Contractor provided the cost of the work is paid by the landowner(s). All additional work is to be reviewed by the Engineer in advance. Such additional work is not part of the drainage works for future maintenance.

### **8.4 Substantial Alterations to the Drain**

Any alterations that would affect the function of the drain which are requested by landowners, agencies or other authorities after the bylaw is passed cannot be undertaken unless the report is amended.

### **8.5 Alignment of Drains**

All drains shall be constructed and maintained generally to the alignment as noted on the plans and specified by the Special Provisions. In the absence of survey bars, existing fences and similar boundary features are assumed to represent property lines.

Should landowners desire a more precise location for the drains in relation to their property line or if there is a dispute about the location of any property line, it is recommended that landowners obtain a legal survey at their own cost prior to construction or maintenance.

## **9.0 DRAWINGS AND SPECIFICATIONS**

### **9.1 Drawings**

The location of the Lavigne Drain realignment and the watershed boundary for the Lavigne Drain and the affected properties are shown on Drawing No. 1 included with this report. Drawing No. 1 is the 1995 drawing that has been updated to show the severances/amalgamations that have occurred since 1995 and also shows the location of the proposed realignment on the Neumann property. The numbers adjacent to the drain on Drawings 1 and 2 are station numbers which indicate in metres the distance along the drain.

Drawing 2 is the site plan that shows the proposed work for the Drain.

The profiles for the Drain are on Drawing 3. The profiles show the depth and grade for proposed work and future maintenance. Drawing No. 4 contains the Special Provisions.

## **9.2 Specifications**

This report incorporates the General Conditions, Standard Specifications and Special Provisions listed in the Table of Contents which govern the construction of the Drain.

## **10.0 COST ESTIMATE**

The estimated cost of this project includes allowances to owners, the construction cost, the engineering cost and other costs associated with the project.

### **10.1 Allowances**

Sections 29 to 33 of the Drainage Act provides for allowances (compensation) to owners affected by proposed drain construction. On this project, there are only allowances for Section 30 (Damages).

#### **Section 29 – Right of Way**

Section 29 provides for payment of an allowance to landowners for right of way required for construction and maintenance of the new drain. This allowance compensates the owners for land to accommodate the drain, access routes to the drain and for a corridor along the drain for construction and maintenance purposes.

There are no Section 29 allowances to private lands in this report as these were provided in the 1995 report. This amount covered a 6m width on both sides of the drain.

#### **Section 30 - Damages**

Section 30 provides for payment of an allowance to landowners along the drain for damages caused by the construction of the drain. Where separate access routes to the working area are specified in this report, Section 30 allowances also account for access route damage. In agricultural areas, crop damages are computed based on published crop values and declining productivity loss in the years following construction. For this project, Section 30 allowances are based on the following rates:

**Table 10.1-1 - Section 30 Allowance Rates**

| Land Use         | Area Land Value |
|------------------|-----------------|
| Cultivated Lands | \$ 4,400/ha     |

### Summary of Allowances

The table below summarizes the dimensions and amounts of the allowances to be provided under this report.

Table 10.1-2 - Summary of Allowances

| Roll Number              | Damages      | Sec. 30      | 1995 (Sec. 29 & 30) |       |
|--------------------------|--------------|--------------|---------------------|-------|
|                          | Area<br>(ha) |              | Width<br>(m)        |       |
|                          |              | (\$)         |                     | (\$)  |
| 020-010-04100            | 0.32         | 1,400        | 12                  | 2,175 |
| <b>TOTAL ALLOWANCES:</b> |              | <b>1,400</b> |                     |       |

In accordance with Section 62(3) of the Act, the allowances shown may be deducted from the final assessment levied. Payment to the owner would only be made when the allowance is greater than the final assessment. The allowances are a fixed amount and are not adjusted at the conclusion of construction.

### **10.2 Construction Cost Estimate**

The estimated cost for Labour, Equipment and Materials to construct the proposed drain is outlined in detail in Estimated Costs Summary in Table 10.6-1 Estimated Cost Summary. The construction cost estimate is based on recent costs for comparable work. A contingency amount is included to cover additional work that may be required due to field conditions or minor alterations to the project.

The contract for the drain will be awarded by public tender. If the contract price is more than 33% over the engineer's estimate, Section 59 of the Act requires a Council meeting with the assessed landowners to determine if the project should proceed.

### **10.3 Engineering Cost Estimate**

Engineering costs include report preparation and attending the Council meeting to consider report and Court of Revision

Construction Phase Services may include: preparing tender documents and tender call, review of tenders, attending pre-construction meeting, periodic construction inspection, payments, final inspection, post-construction follow-up, final cost analysis, prepare and sign grant application.

The cost for report preparation is usually not altered at the conclusion of a project unless the report is referred back or the report is appealed to the Drainage Tribunal which would result in additional costs. The amount shown for meetings is an estimate. Final cost will be based on the actual time required for meetings. The estimate shown for construction phase services is based on past experience and assumes good construction conditions and a Contractor who completes the construction in an efficient manner. The final cost for the construction phase will

vary as per the actual time spent during and following drain construction. Engineering costs are summarized in Table 10.6-1 Estimated Cost Summary.

#### **10.4 Estimate of Section 73 Costs**

Section 73(2) and 73(3) of the Act direct that the cost of services provided by municipal staff and Council to carry out the Act process shall not form part of the final cost of the drain. However, Section 73(1) outlines that the following costs incurred by the municipality can be included in the cost of the drain: “*cost of any application, reference or appeal and the cost of temporary financing.*”

The estimate of Section 73 (Other Costs) is included to cover the above-referenced items from Section 73(1) and primarily provides for interest charges on financing the project until it is completed. This cost estimate may not be adequate to cover legal or engineering costs incurred by or assessed to the municipality should the project be appealed beyond the Court of Revision though such costs will form part of the final drain cost.

The policy for Grant indicates that municipal cost for photocopying and mailing required to carry out the required procedures under the Act can be included in the final drain cost. This cost estimate includes an allowance for these costs.

Section 73 costs are summarized in Table 10.6-1 Estimated Cost Summary.

#### **10.5 Harmonized Sales Tax**

The Harmonized Sales Tax (HST) will apply to most costs on this project. The Municipality is eligible for a partial refund on HST paid, the net 1.76% HST is included in the cost estimates in this report.

#### **10.6 Estimated Cost Summary**

**Table 10.6-1 Estimated Cost Summary**

| <b>ALLOWANCES:</b>                |                         |  |                |          |            |       | <b>1,400</b> |
|-----------------------------------|-------------------------|--|----------------|----------|------------|-------|--------------|
| <b>CONSTRUCTION COST ESTIMATE</b> |                         |  |                |          |            |       |              |
| Item                              | Stations                | Description  | Unit           | Quantity | Unit Price | Cost  |              |
| <b>i) Main Drain</b>              |                         |  |                |          |            |       |              |
| 1                                 | 0+000 EX to<br>0+051 EX | No work. Existing ditch to remain.   | m              | 0        | --         | 0     |              |
| 2                                 | 0+046 EX                | Construct temporary rock sediment trap<br>(10m <sup>2</sup> riprap)          | L.S.           | 1        | 2,700      | 2,700 |              |
| 3                                 | 0+051 N to<br>0+161 N   | Excavation of 110m of ditch (1.75m<br>bottom width, 1.5:1 side slopes)       | m              | 110      | 35         | 3,900 |              |
| 4                                 | 0+051 N to<br>0+161 N   | Seeding of ditch banks (12m width)   | m <sup>2</sup> | 1320     | 0.50       | 700   |              |
| 5                                 | 0+051 N to<br>0+161 N   | Haul spoils to Sta. 0+051 EX to 0+135<br>EX for existing ditch to fill it in | L.S.           | 1        | 3,000      | 3,000 |              |

| Item  | Stations                                 | Description   | Unit           | Quantity | Unit Price | Cost            |
|---|--|---|----------------|----------|------------|-----------------|
| 6   | 0+051 EX to 0+135 EX                     | Fill existing ditch to surface  | m              | 84       | 8          | 700             |
| 7   | 0+051 EX to 0+135 EX                     | Grade from filled ditch to new ditch at 0.1% grade  | m              | 42       | 33         | 1,400           |
| 8   | 0+140 N                                  | Install 25m of 100mm dia. plastic tubing with rodent gate at outlet to extend existing tile outlet to new ditch   | m              | 25       | 30         | 750             |
| 9   | 0+105 N±                                 | Construct Newbury weir/riffle with 76m <sup>2</sup> of riprap   | m <sup>2</sup> | 76       | 70         | 5,300           |
| 10  | 0+161 N (0+135 EX) to 0+168 N (0+141 EX) | Remove and dispose of existing laneway culvert and place 7m of 2130mm wide by 1400mm high (68 x 13mm corrugations, 2.8mm wall) aluminized arch CSP including 10m <sup>2</sup> of riprap on downstream end and re-using concrete weir blocks on upstream end, constructing steel brackets for stop logs and gravel laneway restoration | L.S.           | 1        | 7,000      | 7,000           |
| 11  | 0+141 EX to 0+188 EX                     | No work. Existing ditch to remain.  | m              | 0        | --         | 0               |
| <b>Sub Total Part i):</b>                     |  |   |                |          |            | <b>25,450</b>   |
| <b>ii) Contingencies</b>                      |  |   |                |          |            |                 |
| 12  |  | Lump sum contingency allowance  | L.S.           | 1        |            | <b>2,550</b>    |
| Net HST (1.76%)                               |  |   |                |          |            | 460             |
| <b>TOTAL CONSTRUCTION COST ESTIMATE:</b>      |  |   |                |          |            | <b>28,460</b>   |
| <b>ENGINEERING</b>                            |  |   |                |          |            |                 |
| Report Preparation                            |  |   |                |          |            | 15,600          |
| Section 65 Costs (59 properties @ \$150 each) |  |   |                |          |            | 8,850           |
| Consideration of Report Meeting               |  |   |                |          |            | 1,200           |
| Court of Revision                             |  |   |                |          |            | 1,200           |
| Construction Phase Services                   |  |   |                |          |            | 7,050           |
| Net HST (1.76%)                               |  |   |                |          |            | 595             |
| <b>TOTAL ENGINEERING COSTS:</b>               |  |   |                |          |            | <b>34,495</b>   |
| <b>SECTION 73 COSTS</b>                       |  |   |                |          |            |                 |
| Printing of report                            |  |   |                |          |            | 1,000           |
| Printing of tender documents                  |  |   |                |          |            | 200             |
| Agencies Permit Fee                           |  |   |                |          |            | 300             |
| Unforeseen costs                              |  |   |                |          |            | 2,300           |
| Net HST (1.76%)                               |  |   |                |          |            | 65              |
| <b>TOTAL SECTION 73 COSTS:</b>                |  |   |                |          |            | <b>3,865</b>    |
| <b>TOTAL ESTIMATED COST:</b>                  |  |   |                |          |            | <b>\$68,220</b> |

## 11.0 ASSESSMENTS

The Drainage Act requires that the total estimated cost be assessed to the affected lands and roads under the categories of Benefit (Section 22), Outlet Liability (Section 23), Injuring Liability (Section 23), Special Benefit (Section 24) and

Increased Cost (Section 26). On this project assessment for Benefit, Special Benefit and Outlet Liability are involved.

### **11.1 Calculation of Assessments**

The method of calculating the assessments for the Drain is illustrated in Appendix A which has been included with this report. The estimated cost is first determined. The next step in the assessment calculation is to determine the Benefit and Special Benefit assessments to the affected lands and roads. Then Special Assessments to roads and utilities are determined, where applicable. After deducting the total Benefit, Special Benefit and Special assessments from the total estimated cost, the balance of the cost is then assessed as outlet liability on a per hectare basis to all lands and roads in the affected watershed.

### **11.2 Benefit Assessments (Section 22 and 24)**

Section 22 benefits were determined based on the estimated value the drain provides to the property and are not proportional to watershed area.

Section 24 special benefit is assessed to lands where additional work or features are requested that have no effect on the function of the drain. Special benefit examples include hauling spoil offsite, aesthetic features and installing lateral drains. Non-grantable benefits relate to work that is not eligible for Grant according to the current OMAFRA policy. Non-proratable benefits are not used to determine the actual cost factor for the final cost levy. Some examples would be lateral drains, culverts or hauling of spoil. Columns with non-grantable and non-proratable are used to complete the final assessment. *Table 11.2-1 - Benefit Assessments* provides a summary of the benefit assessments.

The Special Benefit (Section 24) assessments on this project are for the Section 65 (reapportionment) costs.

**Table 11.2-1 - Benefit Assessments**

| <b>Roll Number (Owner)</b> | <b>Location</b> | <b>Section 22</b> | <b>Section 24</b> | <b>Total Benefit</b> | <b>Non-grantable</b> | <b>Non-proratable</b> |
|----------------------------|-----------------|-------------------|-------------------|----------------------|----------------------|-----------------------|
| 10-41                      | Lot 73          | 48,700            |                   | 48,700               |                      |                       |
| Section 65 costs           |                 |                   | 8,850             |                      | 8,850                | 8,850                 |

### **11.3 Outlet Liability Assessments (Section 23)**

Section 23(3) of the Drainage Act states that outlet liability assessment is to be based on the volume and rate of flow of the water artificially caused to flow. To satisfy this requirement, the lands and roads in the watershed are assessed on a per hectare basis, with adjustments as per the 1995 report made to recognize the different amount of runoff generated by different land uses. The basis for the

adjustments is 1 hectare of cleared agricultural land contributing both surface and subsurface water to the drain. Land uses with a different runoff rate are adjusted by the factors given in Table 11.3-1.

**Table 11.3-1 - Runoff Factors Table**

| <b>Land Use</b> | <b>Runoff factor</b> |
|-----------------|----------------------|
| Agricultural    | 1                    |
| Forest          | 0.5                  |
| Built-up        | 1.5                  |
| Gravel Road     | 2                    |
| Paved Road      | 3                    |

## **11.4 Assessment Schedules**

### **11.4.1 Schedule A- Schedule of Assessments**

The estimated cost for the drainage works in this report is distributed among lands, roads and utilities as shown in Schedule A, the Schedule of Assessments. In Schedule A each parcel of land assessed has been identified by the municipal assessment roll number at the time of the preparation of this report. The size of each parcel was established using the assessment roll information. For convenience only, each parcel is also identified by the owner name(s) from the last revised assessment roll.

### **11.4.2 Schedule B -Schedule of Assessments for Maintenance**

In accordance with Section 74 of the Act, the Lavigne Drain shall be maintained by the municipality and the cost of maintenance shall be assessed to lands and roads upstream of the maintenance location, prorata with the amounts in Schedule B.

Schedule B in this 2018 report is the Schedule B from the 1995 report that has been revised by Section 65 to reflect previous severances/amalgamations in properties.

Roll numbers are per the Municipality's last revised assessment roll, names included for convenience. Amounts (values) are not payable at this time, they determine share of future maintenance cost. Eligibility for the agricultural grant will be determined at the time of the maintenance cost levy. Landowners are responsible for ensuring that their property is listed as eligible for the agricultural grant in the assessment schedule.

Schedule B is divided into columns to reflect the different drain intervals where maintenance work may be undertaken. These column intervals assist in identifying upstream lands and roads to be assessed for future maintenance. The amounts (values) shown are used to establish the percentages that each landowner and road will bear for maintenance costs in that interval. If repair or maintenance work is done in 2 or more intervals, the assessments shown are to be totalled.

A minimum assessment of \$1 is to be applied to all future small lots in the watershed per interval affected.

#### 11.4.3 Schedule C – Schedule for Actual Cost Bylaw

After the construction of the drain is certified complete by the Engineer the municipality will determine the actual cost of the drain. Actual assessments will be determined by prorating the actual cost of the drain using Schedule C. Schedule C illustrates the estimated net assessments after deducting allowances and grants from the total assessments shown in Schedule A. Eligibility for grant will be confirmed by the municipality at the time the actual cost is levied. Actual assessments in Schedule C will be levied to the owner of the identified parcel at the time the Actual Cost Bylaw is passed. Roll numbers are per the Municipality's last revised assessment roll, names included for convenience.

### **12.0 GRANT**

In accordance with the provisions of Section 85 of the Act, a grant not exceeding 1/3 (33-1/3%) may be available on the assessments against lands used for agricultural purposes. Current OMAFRA grant policy defines agricultural lands as privately owned parcels of land which have the Farm Property Class Tax Rate. Based on Municipal assessment roll information, parcels that have the Farm Property Tax Class are identified with an 'F' in the first column of the assessment schedules.

Section 88 of the Act provides for the Municipality to apply for this grant after the construction of the drain is certified complete by the Engineer. The municipality must confirm the Farm Property Tax Class on the assessed parcels at the time the grant application is completed and submitted to OMAFRA. OMAFRA has the authority to determine grant eligibility regardless of the designation herein.

The assessments of any portion of the drainage works which are not eligible for grant has been separately identified in this report.

### **13.0 PRIVACY OF LANDS**

Although a municipal drain is situated on the property of various landowners, one landowner may not enter another landowner's property by means of the drain. Persons authorized to enter private lands to carry out duties authorized under the Act include: Engineers (or their assistants), Contractors (or their assistants) and the appointed Drainage Superintendents (or their assistants).

### **14.0 MAINTENANCE**

#### **14.1 General**

Section 74 of the Act requires the drain to be maintained by the Municipality, and the cost of maintenance to be assessed to the upstream lands and roads prorata

with the assessments in the maintenance schedule, which is Schedule B in this report. Schedule B is the Schedule from the 1995 report that has been revised by Section 65 to reflect previous severances/amalgamations in properties.

The Lavigne Drain consists of the works described in the 1995 report except for the filled in portion on the Neumann property (Roll No. 020-010-04100) and now includes the new realignment. The maintenance of the works shall follow the 1995 report (report, drawings and specifications) including the new realignment.

All parties affected by the drain, are encouraged to periodically inspect the drain and report any visible or suspected problems to the Municipality.

A 6m right-of-way along both sides of the drain and access routes to the drain exist for the Municipality to maintain the drain. The right-of-way for the drain as described in the 1995 report, shall remain free of obstructions. The cost for removing obstructions is the responsibility of the owner.

Any landowner making a new connection to the drain, shall notify the Drainage Superintendent before making the connection. If the Drainage Superintendent is not notified, the cost to remedy new connections that obstruct or otherwise damage the drain will be the responsibility of the owner.

The discharge of anything but clean, unpolluted water into a drain is regulated by other provincial legislation. Any non-compliance will be reported to the appropriate environmental agency.

Buffer strips along open drains shall be maintained in accordance with the specifications in the 1995 report.

Spoil generated from maintenance activities hauled off-site shall be assessed to the adjacent landowner unless there is a Town by-law stating otherwise.

### **14.2 Updating Future Maintenance Schedules**

To ensure future maintenance assessments are equitable, the assessments provided in this report should be reapportioned under Section 65 when severances or amalgamations occur, when new lands are connected to the drain or when a land-use change occurs that can be accommodated by the existing drain. If a future land-use change will cause the drain capacity to be exceeded, a report under Section 4 or 78 may be required to provide increased capacity.

### **14.3 Culvert Maintenance**

- The costs of cleaning through all culverts shall be assessed as drain maintenance to upstream lands and roads.
- The cost for future structural repair, extension or replacement of road culverts will be assessed fully to the road authority.

- When the responsibility for an access culvert/crossing is shown in Table 1 – Status of Culverts/Crossings in the 1995 report as “Yes” in the “To Form Part of the Drain for Maintenance” column, the cost for repair or replacement shall be assessed 50% to the abutting landowner and the remainder to the upstream watershed. The cost of additional culvert length is assessed to the owner.
- When the responsibility for an access culvert/crossing is shown as “No”, the cost for installation, repair, replacement and removal are the responsibility of the roll number listed in Table 1 of the 1995 Report.
- Prior approval of the Municipality is required before a landowner installs a culvert not constructed under this report and the 1995 report. The culvert shall be installed per sizing (capacity) as shown in Tables 1 and 2 in the 1995 report and design grade specified in the 1995 report. If culverts smaller than the minimum recommended size are installed, such culverts will be deemed an obstruction to the drain and removed at the landowner’s expense.

#### **14.4 Irrigation Works**

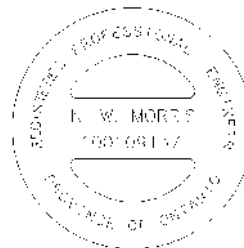
In accordance with an Act respecting the Town of Niagara-on-the-Lake (1990), Chapter Pr 31, that for any portion of works described in this report that are shared with any irrigation works, maintenance shall be assessed one-half to the persons responsible for the irrigation works and one-half responsible for the drain. These are in accordance with the assessments in Schedule A. Also refer to the “Irrigation” section in the 1995 report.

#### **15.0 BYLAW**

This report including the drawings and specifications, assessment schedules and appendices, when adopted by bylaw in accordance with the Act, provides the basis for construction and maintenance of the Drain. The 1995 report shall govern the Lavigne Drain, grades, shapes and specifications for the Main Drain upstream and downstream of the realignment in this 2018 report and also for the Martin Wiens Branch.

All of which is respectfully submitted,

K. SMART ASSOCIATES LTD.



N. Morris, P. Eng.

mw



**SCHEDULE A - SCHEDULE OF ASSESSMENTS  
LAVIGNE DRAIN (NEUMANN PROPERTY)  
Town of Niagara-on-the-Lake**

| Plan   | Lot         | Roll No. | Owner                      | Total Ha Affected | Special Benefit (Sec 65) (\$) | Benefit (\$) | Outlet (\$) | Total (\$) | Gross Total (\$) |
|--|-------------|----------|----------------------------|-------------------|-------------------------------|--------------|-------------|------------|------------------|
| <b><u>(Geographic Township of Niagara)</u></b> |             |          |                            |                   |                               |              |             |            |                  |
| M-1  | 78 & 99     | 10-17    | G. Lepp                    | 0.00              | 150                           | 0            | 0           | 0          | 150              |
| M-1  | 79 & 98     | 10-18    | 828263 Ontario Ltd.        | 0.00              | 150                           | 0            | 0           | 0          | 150              |
| M-1  | 83          | 10-33    | B. & M. Pospiech           | 0.00              | 150                           | 0            | 0           | 0          | 150              |
| M-1  | 82 & 92     | 10-34    | R. & R. Hunter             | 0.00              | 150                           | 0            | 0           | 0          | 150              |
| M-1  | Pt 94       | 10-35-05 | 828263 Ontario Ltd.        | 0.00              | 150                           | 0            | 0           | 0          | 150              |
| M-1  | Pt 94       | 10-36    | J. & N. Redekop            | 0.00              | 150                           | 0            | 0           | 0          | 150              |
| M-1  | Pt 100,101  | 10-36-05 | Murmass Inc.               | 0.00              | 0                             | 0            | 0           | 0          | 0                |
| M-1  | 77          | 10-38-10 | 1174724 Ontario Inc.       | 0.00              | 150                           | 0            | 0           | 0          | 150              |
| M-1  | 80          | 10-39    | G. & L. Dyck               | 0.00              | 150                           | 0            | 0           | 0          | 150              |
| M-1  | 81          | 10-40    | J. & D. Neumann            | 0.00              | 0                             | 0            | 0           | 0          | 0                |
| M-1  | 82          | 10-40-05 | J. Neumann                 | 0.00              | 150                           | 0            | 0           | 0          | 150              |
| M-1  | 83          | 10-40-10 | Neumann Vineyards Ltd.     | 0.00              | 150                           | 0            | 0           | 0          | 150              |
| M-1  | 73          | 10-41    | J. & D. Neumann            | 0.00              | 0                             | 48,700       | 0           | 48,700     | 48,700           |
| M-1  | 72 & 74     | 10-42    | L. & P. Dubois             | 0.70              | 0                             | 0            | 8           | 8          | 8                |
| M-1  | 69          | 10-44    | G. Delorme                 | 0.00              | 0                             | 0            | 0           | 0          | 0                |
| M-1  | 70          | 10-45    | G. Dingman                 | 4.40              | 150                           | 0            | 48          | 48         | 198              |
| M-1  | Pts 67 & 70 | 10-46    | 1931131 Ontario Inc        | 5.90              | 150                           | 0            | 64          | 64         | 214              |
| M-1  | Pt 67       | 10-46-10 | John Neufeld Farms Limited | 0.00              | 150                           | 0            | 0           | 0          | 150              |
| M-1  | Pt 67       | 10-46-20 | 1863540 Ontario Inc.       | 0.00              | 150                           | 0            | 0           | 0          | 150              |
| M-1  | 68          | 10-47    | W. & I. Dingman            | 0.10              | 0                             | 0            | 1           | 1          | 1                |
| M-1  | 67          | 10-75    | J. Neufeld                 | 3.80              | 150                           | 0            | 41          | 41         | 191              |
| M-1  | 75 & 111    | 10-83-05 | William Falk Farms Ltd.    | 0.00              | 0                             | 0            | 0           | 0          | 0                |
| M-1  | 108         | 10-87    | J. & D. Zabek              | 0.00              | 0                             | 0            | 0           | 0          | 0                |
| M-1  | 107         | 10-88    | E. Werner                  | 0.00              | 0                             | 0            | 0           | 0          | 0                |
| M-1  | 106         | 10-89    | Brox Company Ltd.          | 0.00              | 0                             | 0            | 0           | 0          | 0                |
| M-1  | 105         | 10-90    | Brox Company Ltd.          | 0.00              | 0                             | 0            | 0           | 0          | 0                |
| M-1  | 103         | 10-93    | L. Ying                    | 0.00              | 0                             | 0            | 0           | 0          | 0                |
| --   | Pt 160      | 15-6     | 1276229 Ontario Limited    | 9.90              | 0                             | 0            | 107         | 107        | 107              |
| --   | Pt 160      | 15-8     | A. Teichroeb & R. Willms   | 0.00              | 150                           | 0            | 0           | 0          | 150              |
| --   | Pt 160      | 15-8-10  | D. & J. Lambert            | 7.80              | 150                           | 0            | 84          | 84         | 234              |
| --   | Pt 161      | 15-9     | E. & J. Suszek             | 4.10              | 0                             | 0            | 44          | 44         | 44               |
| --   | Pt 161      | 15-10    | Discover Ontario Adventure | 4.10              | 0                             | 0            | 44          | 44         | 44               |
| --   | Pt 161      | 15-11    | G. Chiaramonte             | 6.70              | 150                           | 0            | 72          | 72         | 222              |
| 85   | Pt Blk 12   | 15-11-50 | R. Chiaramonte-Turner      | 0.40              | 150                           | 0            | 4           | 4          | 154              |
| --   | Pt 161      | 15-12    | H. & H. Van Derlee         | 4.10              | 0                             | 0            | 44          | 44         | 44               |
| --   | Pt 161      | 15-13    | S. Meduri                  | 0.40              | 0                             | 0            | 4           | 4          | 4                |
| --   | Pt 161      | 15-14    | J. & D. Neumann            | 0.30              | 150                           | 0            | 3           | 3          | 153              |
| 85   | Pt Blk 12   | 15-14-01 | J. & D. Neumann            | 7.50              | 150                           | 0            | 81          | 81         | 231              |
| --   | Pt 161      | 15-15    | L. Quinn                   | 0.50              | 0                             | 0            | 5           | 5          | 5                |
| --   | Pt 158      | 15-20    | N. & S. Enns               | 0.00              | 150                           | 0            | 0           | 0          | 150              |
| --   | Pt 158      | 15-29    | R. & C. Smith              | 3.30              | 0                             | 0            | 36          | 36         | 36               |
| --   | Pt 158      | 15-29-05 | Smith Vineyards Inc.       | 0.40              | 150                           | 0            | 4           | 4          | 154              |
| --   | Pt 159      | 15-32    | D. Lambert                 | 6.90              | 0                             | 0            | 75          | 75         | 75               |
| --   | Pt 157      | 15-34    | J. & V. Skubel             | 0.00              | 150                           | 0            | 0           | 0          | 150              |
| --   | Pt 156      | 15-39    | Andres Wines Ltd.          | 2.80              | 150                           | 0            | 30          | 30         | 180              |
| --   | Pt 156      | 15-43    | P. Ornelas                 | 0.00              | 150                           | 0            | 0           | 0          | 150              |
| --   | Pt 156      | 15-43-01 | B. Schmidt                 | 0.40              | 0                             | 0            | 4           | 4          | 4                |
| --   | Pt 157      | 15-43-35 | R. & H. Data               | 0.40              | 150                           | 0            | 4           | 4          | 154              |
| --   | Pt 156      | 15-43-50 | A. Reuther                 | 1.80              | 150                           | 0            | 19          | 19         | 169              |
| --   | Pt 157      | 15-44    | R. & C. Quevillon          | 2.00              | 0                             | 0            | 22          | 22         | 22               |
| --   | Pt 157      | 15-45    | A. & A. Reddecopp          | 0.30              | 0                             | 0            | 3           | 3          | 3                |
| --   | Pts 154&155 | 15-63    | H. & E. Tiedtke            | 4.80              | 0                             | 0            | 52          | 52         | 52               |
| --   | Pt 163      | 15-72    | D. & J. Lambert            | 9.70              | 150                           | 0            | 105         | 105        | 255              |
| --   | Pt 163      | 15-73    | H. & E. Tiedtke            | 0.50              | 150                           | 0            | 5           | 5          | 155              |
| --   | Pt 163      | 15-73-50 | Willow Lake Ventures Inc.  | 0.00              | 150                           | 0            | 0           | 0          | 150              |
| --   | Pt 162      | 15-90    | R. & D. Stanclik           | 2.00              | 0                             | 0            | 22          | 22         | 22               |
| --   | Pt 164      | 15-91    | B. & B. Kolff              | 2.20              | 0                             | 0            | 24          | 24         | 24               |

**SCHEDULE A - SCHEDULE OF ASSESSMENTS  
LAVIGNE DRAIN (NEUMANN PROPERTY)  
Town of Niagara-on-the-Lake**

| Plan | Lot    | Roll No.  | Owner                          | Total Ha<br>Affected | Special<br>Benefit<br>(Sec 65)<br>(\$) | Benefit<br>(\$) | Outlet<br>(\$) | Total<br>(\$) | Gross<br>Total<br>(\$) |
|------|--------|-----------|--------------------------------|----------------------|--|-----------------|----------------|---------------|------------------------|
| --   | Pt 164 | 15-92     | T. Sheldrake & K. Young        | 2.20                 | 0                                      | 0               | 24             | 24            | 24                     |
| --   | Pt 165 | 15-93     | B. Wiens                       | 5.20                 | 0                                      | 0               | 56             | 56            | 56                     |
| --   | Pt 165 | 15-94     | S. & M. Tobe                   | 5.20                 | 0                                      | 0               | 56             | 56            | 56                     |
| --   | Pt 165 | 15-95     | M. & S. Perreault              | 1.70                 | 0                                      | 0               | 18             | 18            | 18                     |
| --   | Pt 165 | 15-96     | M. & D. McCarthy               | 0.30                 | 0                                      | 0               | 3              | 3             | 3                      |
| --   | Pt 165 | 15-97     | R. Bator                       | 8.10                 | 0                                      | 0               | 88             | 88            | 88                     |
| --   | Pt 165 | 15-98     | P G Enns Farms Ltd.            | 2.00                 | 0                                      | 0               | 22             | 22            | 22                     |
| --   | Pt 164 | 15-101    | Green Lawn Farms Ltd.          | 3.60                 | 150                                    | 0               | 39             | 39            | 189                    |
| --   | Pt 164 | 15-102    | R. & D. Enns                   | 7.70                 | 0                                      | 0               | 83             | 83            | 83                     |
| --   | Pt 164 | 15-102-01 | Green Lawn Farms Ltd.          | 0.00                 | 150                                    | 0               | 0              | 0             | 150                    |
| --   | Pt 167 | 15-103    | 1049596 Ontario Ltd.           | 15.40                | 0                                      | 0               | 167            | 167           | 167                    |
| --   | Pt 167 | 15-103-01 | L. & L. Byl                    | 0.40                 | 0                                      | 0               | 4              | 4             | 4                      |
| --   | Pt 167 | 15-104    | A. Reuther                     | 15.80                | 0                                      | 0               | 171            | 171           | 171                    |
| --   | Pt 166 | 15-106    | Glenlake Orchards Ltd.         | 18.30                | 0                                      | 0               | 198            | 198           | 198                    |
| --   | Pt 166 | 15-107    | Reuther Farms Ltd.             | 12.00                | 0                                      | 0               | 130            | 130           | 130                    |
| --   | Pt 168 | 15-108    | J. Allison                     | 0.20                 | 0                                      | 0               | 2              | 2             | 2                      |
| --   | Pt 168 | 15-109    | 466147 Ontario Inc             | 0.70                 | 150                                    | 0               | 8              | 8             | 158                    |
| --   | Pt 168 | 15-109-10 | 1866115 Ontario Inc            | 19.50                | 150                                    | 0               | 211            | 211           | 361                    |
| --   | Pt 169 | 15-110    | V. , V. & R. Contino           | 0.30                 | 0                                      | 0               | 3              | 3             | 3                      |
| --   | Pt 169 | 15-110-01 | A. & M. Wieler                 | 0.30                 | 0                                      | 0               | 3              | 3             | 3                      |
| --   | Pt 169 | 15-111    | J. & P. Van Staalduinen        | 5.50                 | 0                                      | 0               | 60             | 60            | 60                     |
| --   | Pt 169 | 15-111-01 | J. Robson                      | 0.40                 | 0                                      | 0               | 4              | 4             | 4                      |
| --   | Pt 169 | 15-112-50 | A. & S. Miele                  | 0.10                 | 150                                    | 0               | 1              | 1             | 151                    |
| --   | Pt 169 | 15-113    | J. Dyck & C. Deamude           | 0.10                 | 150                                    | 0               | 1              | 1             | 151                    |
| --   | Pt 169 | 15-115    | P. & E. O'Brien                | 0.60                 | 0                                      | 0               | 6              | 6             | 6                      |
| --   | Pt 169 | 15-116    | J. Mantini                     | 0.40                 | 0                                      | 0               | 4              | 4             | 4                      |
| --   | Pt 169 | 15-117-01 | W. Kukaryshen                  | 0.40                 | 0                                      | 0               | 4              | 4             | 4                      |
| --   | Pt 169 | 15-118    | D. & J. Lambert                | 10.10                | 0                                      | 0               | 109            | 109           | 109                    |
| --   | Pt 169 | 15-119    | N. Awramenko & N. Chornenky    | 10.10                | 0                                      | 0               | 109            | 109           | 109                    |
| --   | Pt 168 | 15-120    | G. Reuther                     | 0.10                 | 150                                    | 0               | 1              | 1             | 151                    |
| --   | Pt 169 | 15-121    | C. Bezuyen                     | 7.10                 | 0                                      | 0               | 77             | 77            | 77                     |
| --   | Pt 168 | 15-122    | R. & L. Carson                 | 0.10                 | 150                                    | 0               | 1              | 1             | 151                    |
| --   | Pt 168 | 15-123    | K. & S. Weberbauer             | 0.10                 | 150                                    | 0               | 1              | 1             | 151                    |
| --   | Pt 168 | 15-123-50 | L. & M. Byl                    | 0.40                 | 150                                    | 0               | 4              | 4             | 154                    |
| --   | Pt 168 | 15-124    | P. Ornelas                     | 13.40                | 150                                    | 0               | 145            | 145           | 295                    |
| --   | Pt 168 | 15-124-50 | L. & M. Byl                    | 0.40                 | 150                                    | 0               | 4              | 4             | 154                    |
| --   | Pt 168 | 15-125    | 466147 Ontario Inc.            | 0.40                 | 150                                    | 0               | 4              | 4             | 154                    |
| --   | Pt 168 | 15-126    | 466147 Ontario Inc.            | 0.00                 | 150                                    | 0               | 0              | 0             | 150                    |
| --   | Pt 171 | 15-128-15 | L. & S. Rudat                  | 4.40                 | 150                                    | 0               | 48             | 48            | 198                    |
| --   | Pt 171 | 15-129    | R. & P. Lepp                   | 1.30                 | 150                                    | 0               | 14             | 14            | 164                    |
| --   | Pt 170 | 15-130    | D. & L. Abrams                 | 0.20                 | 0                                      | 0               | 2              | 2             | 2                      |
| --   | Pt 170 | 15-132    | D. Sanderson                   | 0.90                 | 0                                      | 0               | 10             | 10            | 10                     |
| --   | Pt 170 | 15-133    | E. Wiens                       | 5.20                 | 0                                      | 0               | 56             | 56            | 56                     |
| --   | Pt 170 | 15-133-01 | C. & C. Fowler                 | 0.10                 | 0                                      | 0               | 1              | 1             | 1                      |
| --   | Pt 170 | 15-134    | E. & S. Wiens                  | 11.60                | 150                                    | 0               | 126            | 126           | 276                    |
| --   | Pt 170 | 15-134-01 | T. Miller                      | 0.20                 | 0                                      | 0               | 2              | 2             | 2                      |
| --   | Pt 170 | 15-134-05 | E. & S. Wiens                  | 0.60                 | 150                                    | 0               | 6              | 6             | 156                    |
| --   | Pt 171 | 15-135    | Meyers Holdings Inc.           | 15.70                | 150                                    | 0               | 170            | 170           | 320                    |
| --   | Pt 171 | 15-135-01 | D. Dingman                     | 0.50                 | 150                                    | 0               | 5              | 5             | 155                    |
| --   | Pt 171 | 15-135-03 | E. & S. Wiens                  | 0.20                 | 150                                    | 0               | 2              | 2             | 152                    |
| --   | Pt 171 | 15-135-05 | K. & A. Wall                   | 0.40                 | 0                                      | 0               | 0              | 0             | 0                      |
| --   | Pt 171 | 15-135-10 | 2094350 Ontario Inc.           | 4.40                 | 150                                    | 0               | 48             | 48            | 198                    |
| --   | Pt 171 | 15-136    | 2440652 Ontario Ltd.           | 6.50                 | 150                                    | 0               | 70             | 70            | 220                    |
| --   | Pt 171 | 15-137    | V. & K. Desimone               | 7.80                 | 0                                      | 0               | 84             | 84            | 84                     |
| --   | Pt 172 | 19-42-02  | St David's Hydroponics Ltd     | 20.80                | 150                                    | 0               | 225            | 225           | 375                    |
| --   | Pt 172 | 19-42-10  | St David's Hydroponics Ltd     | 0.60                 | 150                                    | 0               | 6              | 6             | 156                    |
| --   | Pt 172 | 19-105    | River Realty Devel.(1976) Inc. | 0.00                 | 150                                    | 0               | 0              | 0             | 150                    |
| --   | Pt 172 | 19-105-01 | J. & J. Colavecchia            | 0.20                 | 0                                      | 0               | 2              | 2             | 2                      |

**SCHEDULE A - SCHEDULE OF ASSESSMENTS  
LAVIGNE DRAIN (NEUMANN PROPERTY)  
Town of Niagara-on-the-Lake**

| Plan   | Lot    | Roll No. | Owner                      | Total Ha<br>Affected | Special<br>Benefit<br>(Sec 65)<br>(\$) | Benefit<br>(\$) | Outlet<br>(\$) | Total<br>(\$) | Gross<br>Total<br>(\$) |
|--|--------|----------|----------------------------|----------------------|--|-----------------|----------------|---------------|------------------------|
| --   | Pt 172 | 19-106   | M. & C. Murray             | 0.00                 | 0                                      | 0               | 0              | 0             | 0                      |
| --   | Pt 172 | 19-107   | M. & C. Murray             | 4.30                 | 0                                      | 0               | 47             | 47            | 47                     |
| --   | 173    | 19-108   | B. Cochrane                | 0.00                 | 150                                    | 0               | 0              | 0             | 150                    |
| --   | 174    | 19-109   | St David's Hydroponics Ltd | 47.40                | 150                                    | 0               | 513            | 513           | 663                    |
| --   | 175    | 19-110   | Chateau Des Charmes Wines  | 19.80                | 0                                      | 0               | 214            | 214           | 214                    |
| --   | Pt 176 | 19-111   | A. & M. Giordano           | 15.30                | 0                                      | 0               | 166            | 166           | 166                    |
| --   | Pt 176 | 19-112   | A. & A. Wall               | 3.40                 | 0                                      | 0               | 37             | 37            | 37                     |
| --   | Pt 176 | 19-113   | M. & L. Van Egmond         | 2.80                 | 0                                      | 0               | 30             | 30            | 30                     |
| --   | Pt 176 | 19-114   | K. & J. Lagerwerf          | 5.10                 | 0                                      | 0               | 55             | 55            | 55                     |
| --   | Pt 176 | 19-118   | F. & L. Grimwood           | 6.30                 | 0                                      | 0               | 68             | 68            | 68                     |
| <b>Total Assessments on Lands:</b>                           |        |          |                            | <b>452.80</b>        | <b>8,850</b>                           | <b>48,700</b>   | <b>4,887</b>   | <b>53,587</b> | <b>62,437</b>          |
| Irrigation Works   |        |          |                            | 0.00                 |  | 0               | 5,335          | 5,335         | 5,335                  |
| Hwy 55 (Niagara Stone Rd)                                    |        |          |                            | 1.30                 |  | 0               | 57             | 57            | 57                     |
| Reg. Rd 85 (East-West Line)                                  |        |          |                            | 1.50                 |  | 0               | 0              | 0             | 0                      |
| Regional Rd 83 (Line 4)                                      |        |          |                            | 1.50                 |  | 0               | 50             | 50            | 50                     |
| Regional Road 106 (Conc 7)                                   |        |          |                            | 0.60                 |  | 0               | 20             | 20            | 20                     |
| Concession Road 7  |        |          |                            | 5.70                 |  | 0               | 131            | 131           | 131                    |
| Wagg Road  |        |          |                            | 1.70                 |  | 0               | 0              | 0             | 0                      |
| Line 1 Road (Lambert Rd)                                     |        |          |                            | 1.20                 |  | 0               | 33             | 33            | 33                     |
| Line 2 Road (Bradfield Rd)                                   |        |          |                            | 1.80                 |  | 0               | 50             | 50            | 50                     |
| Line 3 Road  |        |          |                            | 2.00                 |  | 0               | 55             | 55            | 55                     |
| Line 5 Road  |        |          |                            | 1.90                 |  | 0               | 22             | 22            | 22                     |
| Line 7 Road  |        |          |                            | 1.80                 |  | 0               | 30             | 30            | 30                     |
| <b>Total Assessments on Roads:</b>                           |        |          |                            | <b>21.00</b>         | <b>0</b>                               | <b>0</b>        | <b>5,783</b>   | <b>5,783</b>  | <b>5,783</b>           |
| <b>TOTAL ASSESSMENTS ON LAVIGNE DRAIN (NEUMANN PROPERTY)</b> |        |          |                            | <b>473.80</b>        | <b>8,850</b>                           | <b>48,700</b>   | <b>10,670</b>  | <b>59,370</b> | <b>68,220</b>          |

Notes:

1. Roll numbers are per the Municipality's last revised assessment roll, names included for convenience.

SCHEDULE B - SCHEDULE OF ASSESSMENT FOR FUTURE MAINTANCE  
LAVIGNE DRAIN, TOWN OF NIAGARA-ON-THE-LAKE

| Plan                                    | Lot         | Roll No.  | Owner                      | MAIN DRAIN                   |                   |                     |                   |                   |                   |                   | MARTIN WIENS BR.  |               |               |
|---|-------------|-----------|----------------------------|------------------------------|-------------------|---------------------|-------------------|-------------------|-------------------|-------------------|-------------------|---------------|---------------|
|   |             |           |                            | 000 to 1+378<br>& 000 to 325 | 325 to<br>1+395.5 | 1+395.5<br>to 2+330 | 2+330 to<br>3+270 | 3+270 to<br>4+397 | 4+397 to<br>5+283 | 5+283 to<br>6+297 | 6-297 to<br>7+199 | 000 to<br>456 | 456 to<br>732 |
| <b>(Geographic Township of Niagara)</b> |             |           |                            |                              |                   |                     |                   |                   |                   |                   |                   |               |               |
| M-1                                     | 173         | 10-12     | J. & M. Young              | 11                           | 0                 | 0                   | 0                 | 0                 | 0                 | 0                 | 0                 | 0             | 0             |
| M-1                                     | 102         | 10-13     | R. Snyder                  | 387                          | 0                 | 0                   | 0                 | 0                 | 0                 | 0                 | 0                 | 0             | 0             |
| M-1                                     | 78 & 99     | 10-17     | G. Lepp                    | 242                          | 0                 | 0                   | 0                 | 0                 | 0                 | 0                 | 0                 | 0             | 0             |
| M-1                                     | 79 & 98     | 10-18     | 828263 Ontario Ltd.        | 1,333                        | 0                 | 0                   | 0                 | 0                 | 0                 | 0                 | 0                 | 0             | 0             |
| M-1                                     | 83          | 10-33     | B. & M. Pospiech           | 0                            | 0                 | 0                   | 0                 | 0                 | 0                 | 0                 | 0                 | 0             | 0             |
| M-1                                     | 82 & 92     | 10-34     | R. & R. Hunter             | 49                           | 0                 | 0                   | 0                 | 0                 | 0                 | 0                 | 0                 | 0             | 0             |
| M-1                                     | Pt 94       | 10-35-05  | 828263 Ontario Ltd.        | 49                           | 0                 | 0                   | 0                 | 0                 | 0                 | 0                 | 0                 | 0             | 0             |
| M-1                                     | Pt 94       | 10-36     | J. & N. Redekop            | 14                           | 0                 | 0                   | 0                 | 0                 | 0                 | 0                 | 0                 | 0             | 0             |
| M-1                                     | Pt 100,101  | 10-36-05  | Murmass Inc.               | 232                          | 0                 | 0                   | 0                 | 0                 | 0                 | 0                 | 0                 | 0             | 0             |
| M-1                                     | 77          | 10-38-10  | 1174724 Ontario Inc.       | 254                          | 0                 | 0                   | 0                 | 0                 | 0                 | 0                 | 0                 | 0             | 0             |
| M-1                                     | 80          | 10-39     | G. & L. Dyck               | 24                           | 0                 | 0                   | 0                 | 0                 | 0                 | 0                 | 0                 | 0             | 0             |
| M-1                                     | 81          | 10-40     | J. & D. Neumann            | 453                          | 0                 | 0                   | 0                 | 0                 | 0                 | 0                 | 0                 | 0             | 0             |
| M-1                                     | 82          | 10-40-05  | J. Neumann                 | 246                          | 0                 | 0                   | 0                 | 0                 | 0                 | 0                 | 0                 | 0             | 0             |
| M-1                                     | 83          | 10-40-10  | Neumann Vineyards Ltd.     | 63                           | 0                 | 0                   | 0                 | 0                 | 0                 | 0                 | 0                 | 0             | 0             |
| M-1                                     | 73          | 10-41     | J. & D. Neumann            | 2,890                        | 0                 | 0                   | 0                 | 0                 | 0                 | 0                 | 0                 | 0             | 0             |
| M-1                                     | 72 & 74     | 10-42     | L. & P. Dubois             | 261                          | 0                 | 0                   | 0                 | 0                 | 0                 | 0                 | 0                 | 0             | 0             |
| M-1                                     | 69          | 10-44     | G. Delorme                 | 292                          | 0                 | 0                   | 0                 | 0                 | 0                 | 0                 | 0                 | 0             | 0             |
| M-1                                     | 70          | 10-45     | G. Dingman                 | 594                          | 0                 | 0                   | 0                 | 0                 | 0                 | 0                 | 0                 | 0             | 0             |
| M-1                                     | Pts 67 & 70 | 10-46     | 1931131 Ontario Inc        | 468                          | 0                 | 0                   | 0                 | 0                 | 0                 | 0                 | 0                 | 0             | 0             |
| M-1                                     | Pt 67       | 10-46-10  | John Neufeld Farms Limited | 127                          | 0                 | 0                   | 0                 | 0                 | 0                 | 0                 | 0                 | 0             | 0             |
| M-1                                     | Pt 67       | 10-46-20  | 1863540 Ontario Inc.       | 42                           | 0                 | 0                   | 0                 | 0                 | 0                 | 0                 | 0                 | 0             | 0             |
| M-1                                     | 68          | 10-47     | W. & I. Dingman            | 11                           | 0                 | 0                   | 0                 | 0                 | 0                 | 0                 | 0                 | 0             | 0             |
| M-1                                     | 67          | 10-75     | J. Neufeld                 | 0                            | 0                 | 0                   | 0                 | 0                 | 0                 | 0                 | 0                 | 0             | 0             |
| M-1                                     | 75 & 111    | 10-83-05  | William Falk Farms Ltd.    | 527                          | 0                 | 0                   | 0                 | 0                 | 0                 | 0                 | 0                 | 0             | 0             |
| M-1                                     | 108         | 10-87     | J. & D. Zabek              | 253                          | 0                 | 0                   | 0                 | 0                 | 0                 | 0                 | 0                 | 0             | 0             |
| M-1                                     | 107         | 10-88     | E. Werner                  | 127                          | 0                 | 0                   | 0                 | 0                 | 0                 | 0                 | 0                 | 0             | 0             |
| M-1                                     | 106         | 10-89     | Brox Company Ltd.          | 53                           | 0                 | 0                   | 0                 | 0                 | 0                 | 0                 | 0                 | 0             | 0             |
| M-1                                     | 105         | 10-90     | Brox Company Ltd.          | 169                          | 0                 | 0                   | 0                 | 0                 | 0                 | 0                 | 0                 | 0             | 0             |
| M-1                                     | 103         | 10-93     | L. Ying                    | 359                          | 0                 | 0                   | 0                 | 0                 | 0                 | 0                 | 0                 | 0             | 0             |
| --                                      | Pt 160      | 15-6      | 1276229 Ontario Limited    | 960                          | 1,104             | 0                   | 0                 | 0                 | 0                 | 0                 | 0                 | 0             | 0             |
| --                                      | Pt 160      | 15-8      | A. Teichroeb & R. Willms   | 0                            | 0                 | 0                   | 0                 | 0                 | 0                 | 0                 | 0                 | 0             | 0             |
| --                                      | Pt 160      | 15-8-10   | D. & J. Lambert            | 823                          | 61                | 0                   | 0                 | 0                 | 0                 | 0                 | 0                 | 0             | 0             |
| --                                      | Pt 161      | 15-9      | E. & J. Suszek             | 337                          | 25                | 0                   | 0                 | 0                 | 0                 | 0                 | 0                 | 0             | 0             |
| --                                      | Pt 161      | 15-10     | Discover Ontario Adventure | 348                          | 86                | 0                   | 0                 | 0                 | 0                 | 0                 | 0                 | 0             | 0             |
| --                                      | Pt 161      | 15-11     | G. Chiamonte               | 488                          | 1,502             | 0                   | 0                 | 0                 | 0                 | 0                 | 0                 | 0             | 0             |
| 85                                      | Pt Blk 12   | 15-11-50  | R. Chiamonte-Turner        | 29                           | 10                | 0                   | 0                 | 0                 | 0                 | 0                 | 0                 | 0             | 0             |
| --                                      | Pt 161      | 15-12     | H. & H. Van Derlee         | 359                          | 527               | 0                   | 0                 | 0                 | 0                 | 0                 | 0                 | 0             | 0             |
| --                                      | Pt 161      | 15-13     | S. Meduri                  | 42                           | 3                 | 0                   | 0                 | 0                 | 0                 | 0                 | 0                 | 0             | 0             |
| --                                      | Pt 161      | 15-14     | J. & D. Neumann            | 32                           | 2                 | 0                   | 0                 | 0                 | 0                 | 0                 | 0                 | 0             | 0             |
| 85                                      | Pt Blk 12   | 15-14-01  | J. & D. Neumann            | 792                          | 55                | 0                   | 0                 | 0                 | 0                 | 0                 | 0                 | 0             | 0             |
| --                                      | Pt 161      | 15-15     | L. Quinn                   | 53                           | 4                 | 0                   | 0                 | 0                 | 0                 | 0                 | 0                 | 0             | 0             |
| --                                      | Pt 158      | 15-20     | N. & S. Enns               | 0                            | 0                 | 0                   | 0                 | 0                 | 0                 | 0                 | 0                 | 0             | 0             |
| --                                      | Pt 158      | 15-29     | R. & C. Smith              | 348                          | 26                | 0                   | 0                 | 0                 | 0                 | 0                 | 0                 | 0             | 0             |
| --                                      | Pt 158      | 15-29-05  | Smith Vineyards Inc.       | 42                           | 3                 | 0                   | 0                 | 0                 | 0                 | 0                 | 0                 | 0             | 0             |
| --                                      | Pt 159      | 15-32     | D. Lambert                 | 728                          | 54                | 0                   | 0                 | 0                 | 0                 | 0                 | 0                 | 0             | 0             |
| --                                      | Pt 157      | 15-34     | J. & V. Skubel             | 0                            | 0                 | 0                   | 0                 | 0                 | 0                 | 0                 | 0                 | 0             | 0             |
| --                                      | Pt 156      | 15-39     | Andres Wines Ltd.          | 304                          | 22                | 0                   | 0                 | 0                 | 0                 | 0                 | 0                 | 0             | 0             |
| --                                      | Pt 156      | 15-43     | P. Ornelas                 | 0                            | 0                 | 0                   | 0                 | 0                 | 0                 | 0                 | 0                 | 0             | 0             |
| --                                      | Pt 156      | 15-43-01  | B. Schmidt                 | 42                           | 3                 | 0                   | 0                 | 0                 | 0                 | 0                 | 0                 | 0             | 0             |
| --                                      | Pt 157      | 15-43-35  | R. & H. Data               | 43                           | 3                 | 0                   | 0                 | 0                 | 0                 | 0                 | 0                 | 0             | 0             |
| --                                      | Pt 156      | 15-43-50  | A. Reuther                 | 190                          | 14                | 0                   | 0                 | 0                 | 0                 | 0                 | 0                 | 0             | 0             |
| --                                      | Pt 157      | 15-44     | R. & C. Quevillon          | 211                          | 16                | 0                   | 0                 | 0                 | 0                 | 0                 | 0                 | 0             | 0             |
| --                                      | Pt 157      | 15-45     | A. & A. Reddecopp          | 32                           | 2                 | 0                   | 0                 | 0                 | 0                 | 0                 | 0                 | 0             | 0             |
| --                                      | Pts 154&155 | 15-63     | H. & E. Tiedtke            | 506                          | 38                | 37                  | 59                | 0                 | 0                 | 0                 | 0                 | 0             | 0             |
| --                                      | Pt 163      | 15-72     | D. & J. Lambert            | 1,019                        | 916               | 0                   | 0                 | 0                 | 0                 | 0                 | 0                 | 0             | 0             |
| --                                      | Pt 163      | 15-73     | H. & E. Tiedtke            | 95                           | 7                 | 0                   | 0                 | 0                 | 0                 | 0                 | 0                 | 0             | 0             |
| --                                      | Pt 163      | 15-73-50  | Willow Lake Ventures Inc.  | 0                            | 0                 | 0                   | 0                 | 0                 | 0                 | 0                 | 0                 | 0             | 0             |
| --                                      | Pt 162      | 15-90     | R. & D. Stanclik           | 211                          | 16                | 0                   | 0                 | 0                 | 0                 | 0                 | 0                 | 0             | 0             |
| --                                      | Pt 164      | 15-91     | B. & B. Kolff              | 232                          | 17                | 532                 | 0                 | 0                 | 0                 | 0                 | 0                 | 0             | 0             |
| --                                      | Pt 164      | 15-92     | T. Sheldrake & K. Young    | 232                          | 17                | 167                 | 0                 | 0                 | 0                 | 0                 | 0                 | 0             | 0             |
| --                                      | Pt 165      | 15-93     | B. Wiens                   | 475                          | 35                | 510                 | 0                 | 0                 | 0                 | 0                 | 0                 | 0             | 0             |
| --                                      | Pt 165      | 15-94     | S. & M. Tobe               | 506                          | 36                | 272                 | 0                 | 0                 | 0                 | 0                 | 0                 | 0             | 0             |
| --                                      | Pt 165      | 15-95     | M. & S. Perreault          | 179                          | 13                | 13                  | 0                 | 0                 | 0                 | 0                 | 0                 | 0             | 0             |
| --                                      | Pt 165      | 15-96     | M. & D. McCarthy           | 32                           | 2                 | 2                   | 0                 | 0                 | 0                 | 0                 | 0                 | 0             | 0             |
| --                                      | Pt 165      | 15-97     | R. Bator                   | 812                          | 60                | 923                 | 0                 | 0                 | 0                 | 0                 | 0                 | 0             | 0             |
| --                                      | Pt 165      | 15-98     | P G Enns Farms Ltd.        | 211                          | 16                | 16                  | 0                 | 0                 | 0                 | 0                 | 0                 | 0             | 0             |
| --                                      | Pt 164      | 15-101    | Green Lawn Farms Ltd.      | 380                          | 28                | 28                  | 0                 | 0                 | 0                 | 0                 | 0                 | 0             | 0             |
| --                                      | Pt 164      | 15-102    | R. & D. Enns               | 812                          | 60                | 1,110               | 0                 | 0                 | 0                 | 0                 | 0                 | 0             | 0             |
| --                                      | Pt 164      | 15-102-01 | Green Lawn Farms Ltd.      | 0                            | 0                 | 0                   | 0                 | 0                 | 0                 | 0                 | 0                 | 0             | 0             |
| --                                      | Pt 167      | 15-103    | 1049596 Ontario Ltd.       | 1,624                        | 120               | 120                 | 1,015             | 0                 | 0                 | 0                 | 0                 | 0             | 0             |
| --                                      | Pt 167      | 15-103-01 | L. & L. Byl                | 42                           | 3                 | 3                   | 5                 | 0                 | 0                 | 0                 | 0                 | 0             | 0             |
| --                                      | Pt 167      | 15-104    | A. Reuther                 | 1,666                        | 124               | 123                 | 945               | 0                 | 0                 | 0                 | 0                 | 0             | 0             |
| --                                      | Pt 166      | 15-106    | Glenlake Orchards Ltd.     | 1,930                        | 144               | 142                 | 1,771             | 0                 | 0                 | 0                 | 0                 | 0             | 0             |
| --                                      | Pt 166      | 15-107    | Reuther Farms Ltd.         | 1,265                        | 94                | 93                  | 148               | 0                 | 0                 | 0                 | 0                 | 0             | 0             |
| --                                      | Pt 168      | 15-108    | J. Allison                 | 21                           | 2                 | 2                   | 5                 | 0                 | 0                 | 0                 | 0                 | 0             | 0             |
| --                                      | Pt 168      | 15-109    | 466147 Ontario Inc         | 74                           | 5                 | 9                   | 13                | 0                 | 0                 | 0                 | 0                 | 0             | 0             |
| --                                      | Pt 168      | 15-109-10 | 1866115 Ontario Inc        | 2,056                        | 153               | 152                 | 240               | 805               | 0                 | 0                 | 0                 | 0             | 0             |
| --                                      | Pt 169      | 15-110    | V. , V. & R. Contino       | 32                           | 2                 | 2                   | 4                 | 8                 | 0                 | 0                 | 0                 | 0             | 0             |
| --                                      | Pt 169      | 15-110-01 | A. & M. Wieler             | 32                           | 2                 | 2                   | 4                 | 8                 | 0                 | 0                 | 0                 | 0             | 0             |
| --                                      | Pt 169      | 15-111    | J. & P. Van Staaldunin     | 580                          | 43                | 43                  | 68                | 149               | 0                 | 0                 | 0                 | 0             | 0             |
| --                                      | Pt 169      | 15-111-01 | J. Robson                  | 42                           | 3                 | 3                   | 5                 | 11                | 0                 | 0                 | 0                 | 0             | 0             |

**SCHEDULE B - SCHEDULE OF ASSESSMENT FOR FUTURE MAINTANCE  
LAVIGNE DRAIN, TOWN OF NIAGARA-ON-THE-LAKE**

| Plan                                       | Lot    | Roll No.  | Owner                          | MAIN DRAIN                   |                   |                     |                   |                   |                   |                   | MARTIN WIENS BR.  |               |               |   |   |
|--|--------|-----------|--------------------------------|------------------------------|-------------------|---------------------|-------------------|-------------------|-------------------|-------------------|-------------------|---------------|---------------|---|---|
|  |        |           |                                | 000 to 1+378<br>& 000 to 325 | 325 to<br>1+395.5 | 1+395.5<br>to 2+330 | 2+330 to<br>3+270 | 3+270 to<br>4+397 | 4+397 to<br>5+283 | 5+283 to<br>6+297 | 6-297 to<br>7+199 | 000 to<br>456 | 456 to<br>732 |   |   |
| --   | Pt 169 | 15-112-50 | A. & S. Miele                  | 16                           | 1                 | 1                   | 2                 | 4                 | 0                 | 0                 | 0                 | 0             | 0             | 0 |   |
| --   | Pt 169 | 15-113    | J. Dyck & C. Deamude           | 16                           | 1                 | 1                   | 2                 | 4                 | 0                 | 0                 | 0                 | 0             | 0             | 0 |   |
| --   | Pt 169 | 15-115    | P. & E. O'Brien                | 63                           | 5                 | 5                   | 7                 | 16                | 0                 | 0                 | 0                 | 0             | 0             | 0 |   |
| --   | Pt 169 | 15-116    | J. Mantini                     | 42                           | 3                 | 3                   | 5                 | 11                | 0                 | 0                 | 0                 | 0             | 0             | 0 |   |
| --   | Pt 169 | 15-117-01 | W. Kukaryshen                  | 42                           | 3                 | 3                   | 5                 | 11                | 0                 | 0                 | 0                 | 0             | 0             | 0 |   |
| --   | Pt 169 | 15-118    | D. & J. Lambert                | 1,065                        | 79                | 78                  | 124               | 638               | 0                 | 0                 | 0                 | 0             | 0             | 0 |   |
| --   | Pt 169 | 15-119    | N. Awramenko & N. Chornenky    | 960                          | 71                | 71                  | 112               | 1,429             | 0                 | 0                 | 0                 | 0             | 0             | 0 |   |
| --   | Pt 168 | 15-120    | G. Reuther                     | 11                           | 1                 | 1                   | 1                 | 1                 | 0                 | 0                 | 0                 | 0             | 0             | 0 |   |
| --   | Pt 169 | 15-121    | C. Bezuyen                     | 675                          | 50                | 50                  | 79                | 731               | 0                 | 0                 | 0                 | 0             | 0             | 0 |   |
| --   | Pt 168 | 15-122    | R. & L. Carson                 | 11                           | 1                 | 1                   | 1                 | 3                 | 0                 | 0                 | 0                 | 0             | 0             | 0 |   |
| --   | Pt 168 | 15-123    | K. & S. Weberbauer             | 11                           | 1                 | 1                   | 1                 | 1                 | 0                 | 0                 | 0                 | 0             | 0             | 0 |   |
| --   | Pt 168 | 15-123-50 | L. & M. Byl                    | 42                           | 3                 | 3                   | 5                 | 6                 | 0                 | 0                 | 0                 | 0             | 0             | 0 |   |
| --   | Pt 168 | 15-124    | P. Ornelas                     | 1,423                        | 106               | 105                 | 167               | 1,216             | 0                 | 0                 | 0                 | 0             | 0             | 0 |   |
| --   | Pt 168 | 15-124-50 | L. & M. Byl                    | 42                           | 3                 | 3                   | 5                 | 6                 | 0                 | 0                 | 0                 | 0             | 0             | 0 |   |
| --   | Pt 168 | 15-125    | 466147 Ontario Inc.            | 0                            | 0                 | 0                   | 0                 | 0                 | 0                 | 0                 | 0                 | 0             | 0             | 0 |   |
| --   | Pt 168 | 15-126    | 466147 Ontario Inc.            | 0                            | 0                 | 0                   | 0                 | 0                 | 0                 | 0                 | 0                 | 0             | 0             | 0 |   |
| --   | Pt 171 | 15-128-15 | L. & S. Rudat                  | 423                          | 32                | 31                  | 49                | 108               | 126               | 0                 | 0                 | 127           | 0             | 0 |   |
| --   | Pt 171 | 15-129    | R. & P. Lepp                   | 125                          | 9                 | 9                   | 15                | 32                | 37                | 0                 | 0                 | 38            | 0             | 0 |   |
| --   | Pt 170 | 15-130    | D. & L. Abrams                 | 21                           | 2                 | 2                   | 2                 | 5                 | 6                 | 0                 | 0                 | 0             | 0             | 0 |   |
| --   | Pt 170 | 15-132    | D. Sanderson                   | 95                           | 7                 | 7                   | 11                | 24                | 28                | 0                 | 0                 | 0             | 0             | 0 |   |
| --   | Pt 170 | 15-133    | E. Wiens                       | 548                          | 41                | 40                  | 64                | 140               | 163               | 0                 | 0                 | 0             | 0             | 0 |   |
| --   | Pt 170 | 15-133-01 | C. & C. Fowler                 | 11                           | 1                 | 1                   | 1                 | 3                 | 3                 | 0                 | 0                 | 0             | 0             | 0 |   |
| --   | Pt 170 | 15-134    | E. & S. Wiens                  | 1,164                        | 76                | 75                  | 120               | 262               | 1,703             | 0                 | 0                 | 0             | 0             | 0 |   |
| --   | Pt 170 | 15-134-01 | T. Miller                      | 21                           | 2                 | 2                   | 2                 | 5                 | 6                 | 0                 | 0                 | 0             | 0             | 0 |   |
| --   | Pt 170 | 15-134-05 | E. & S. Wiens                  | 60                           | 4                 | 4                   | 6                 | 14                | 8                 | 0                 | 0                 | 0             | 0             | 0 |   |
| --   | Pt 171 | 15-135    | Meyers Holdings Inc.           | 1,575                        | 103               | 102                 | 162               | 355               | 2,304             | 0                 | 0                 | 0             | 0             | 0 |   |
| --   | Pt 171 | 15-135-01 | D. Dingman                     | 50                           | 3                 | 3                   | 5                 | 11                | 7                 | 0                 | 0                 | 0             | 0             | 0 |   |
| --   | Pt 171 | 15-135-03 | E. & S. Wiens                  | 21                           | 1                 | 1                   | 3                 | 5                 | 2                 | 0                 | 0                 | 0             | 0             | 0 |   |
| --   | Pt 171 | 15-135-05 | K. & A. Wall                   | 42                           | 3                 | 3                   | 5                 | 11                | 13                | 0                 | 0                 | 0             | 0             | 0 |   |
| --   | Pt 171 | 15-135-10 | 2094350 Ontario Inc.           | 441                          | 29                | 29                  | 45                | 99                | 59                | 0                 | 0                 | 0             | 0             | 0 |   |
| --   | Pt 171 | 15-136    | 2440652 Ontario Ltd.           | 2,542                        | 188               | 188                 | 297               | 652               | 1,307             | 2,137             | 630               | 630           | 0             | 0 |   |
| --   | Pt 171 | 15-137    | V. & K. Desimone               | 622                          | 46                | 46                  | 73                | 159               | 185               | 0                 | 0                 | 537           | 0             | 0 |   |
| --   | Pt 172 | 19-42-02  | St David's Hydroponics Ltd     | 1,968                        | 146               | 146                 | 230               | 505               | 584               | 2,129             | 0                 | 0             | 0             | 0 |   |
| --   | Pt 172 | 19-42-10  | St David's Hydroponics Ltd     | 57                           | 4                 | 4                   | 7                 | 15                | 17                | 8                 | 0                 | 0             | 0             | 0 |   |
| --   | Pt 172 | 19-105    | River Realty Devel.(1976) Inc. | 0                            | 0                 | 0                   | 0                 | 0                 | 0                 | 0                 | 0                 | 0             | 0             | 0 |   |
| --   | Pt 172 | 19-105-01 | J. & J. Colavecchia            | 21                           | 2                 | 2                   | 2                 | 5                 | 6                 | 0                 | 0                 | 0             | 0             | 0 |   |
| --   | Pt 172 | 19-106    | M. & C. Murray                 | 1,033                        | 77                | 76                  | 121               | 265               | 307               | 0                 | 0                 | 311           | 1,461         | 0 |   |
| --   | Pt 172 | 19-107    | M. & C. Murray                 | 453                          | 34                | 33                  | 53                | 116               | 135               | 0                 | 0                 | 136           | 237           | 0 |   |
| --   | 173    | 19-108    | B. Cochrane                    | 0                            | 0                 | 0                   | 0                 | 0                 | 0                 | 0                 | 0                 | 0             | 0             | 0 |   |
| --   | 174    | 19-109    | St David's Hydroponics Ltd     | 5,221                        | 386               | 385                 | 610               | 1,339             | 1,550             | 3,358             | 2,342             | 127           | 221           | 0 |   |
| --   | 175    | 19-110    | Chateau Des Charmes Wines      | 2,088                        | 155               | 154                 | 244               | 535               | 621               | 666               | 1,759             | 0             | 0             | 0 |   |
| --   | Pt 176 | 19-111    | A. & M. Giordano               | 1,613                        | 120               | 119                 | 188               | 413               | 479               | 514               | 519               | 0             | 0             | 0 |   |
| --   | Pt 176 | 19-112    | A. & A. Wall                   | 359                          | 27                | 26                  | 42                | 92                | 106               | 114               | 60                | 0             | 0             | 0 |   |
| --   | Pt 176 | 19-113    | M. & L. Van Egmond             | 295                          | 22                | 22                  | 34                | 76                | 88                | 94                | 49                | 0             | 0             | 0 |   |
| --   | Pt 176 | 19-114    | K. & J. Lagerwerf              | 538                          | 40                | 40                  | 63                | 138               | 160               | 177               | 90                | 0             | 0             | 0 |   |
| --   | Pt 176 | 19-118    | F. & L. Grimwood               | 664                          | 49                | 49                  | 78                | 170               | 197               | 212               | 111               | 0             | 0             | 0 |   |
| <b>TOTAL ASSESSMENTS ON LANDS:</b>         |        |           |                                | <b>57,289</b>                | <b>7,417</b>      | <b>6,225</b>        | <b>7,323</b>      | <b>10,630</b>     | <b>10,207</b>     | <b>9,403</b>      | <b>5,560</b>      | <b>1,906</b>  | <b>1,919</b>  |   |   |
| Irrigation Works                           |        |           |                                |                              |                   |                     |                   |                   |                   |                   |                   |               |               |   |   |
| Hwy 55 (Niagara Stone Rd)                  |        |           |                                | 548                          | 41                | 40                  | 64                | 140               | 813               | 0                 | 0                 | 0             | 0             | 0 | 0 |
| Reg. Rd 85 (East-West Line)                |        |           |                                | 475                          | 325               | 0                   | 0                 | 0                 | 0                 | 0                 | 0                 | 0             | 0             | 0 | 0 |
| Regional Rd 83 (Line 4)                    |        |           |                                | 475                          | 35                | 35                  | 55                | 122               | 325               | 0                 | 0                 | 0             | 0             | 0 | 0 |
| Regional Road 106 (Conc 7)                 |        |           |                                | 190                          | 14                | 14                  | 22                | 49                | 56                | 0                 | 0                 | 57            | 0             | 0 | 0 |
| Concession Road 7                          |        |           |                                | 1,265                        | 169               | 39                  | 37                | 27                | 0                 | 0                 | 0                 | 0             | 0             | 0 | 0 |
| Wagg Road                                  |        |           |                                | 703                          | 0                 | 0                   | 0                 | 0                 | 0                 | 0                 | 0                 | 0             | 0             | 0 | 0 |
| Line 1 Road (Lambert Rd)                   |        |           |                                | 316                          | 23                | 325                 | 0                 | 0                 | 0                 | 0                 | 0                 | 0             | 0             | 0 | 0 |
| Line 2 Road (Bradfield Rd)                 |        |           |                                | 475                          | 35                | 30                  | 575               | 0                 | 0                 | 0                 | 0                 | 0             | 0             | 0 | 0 |
| Line 3 Road                                |        |           |                                | 527                          | 39                | 33                  | 53                | 825               | 0                 | 0                 | 0                 | 0             | 0             | 0 | 0 |
| Line 5 Road                                |        |           |                                | 200                          | 15                | 15                  | 23                | 51                | 60                | 0                 | 0                 | 949           | 570           | 0 | 0 |
| Line 7 Road                                |        |           |                                | 285                          | 21                | 21                  | 33                | 73                | 85                | 91                | 373               | 0             | 0             | 0 | 0 |
| <b>TOTAL ASSESSMENTS ON ROADS:</b>         |        |           |                                | <b>5,459</b>                 | <b>717</b>        | <b>552</b>          | <b>862</b>        | <b>1,287</b>      | <b>1,339</b>      | <b>91</b>         | <b>373</b>        | <b>1,006</b>  | <b>570</b>    |   |   |
| <b>TOTAL ASSESSMENTS ON LAVIGNE DRAIN:</b> |        |           |                                | <b>62,748</b>                | <b>8,134</b>      | <b>6,777</b>        | <b>8,185</b>      | <b>11,917</b>     | <b>11,546</b>     | <b>9,494</b>      | <b>5,933</b>      | <b>2,912</b>  | <b>2,489</b>  |   |   |

Note: Amounts are not payable at this time. They only determine share of future maintenance.

**SCHEDULE C - SCHEDULE FOR ACTUAL COST BYLAW  
Lavigne Drain (Neumann Property)  
Town of Niagara-on-The-Lake**

| Farm<br>Tax<br>Rated                           | Con | Lot         | Roll No. | Owner                      | Sec. 65 Costs                         | Sec. 78 Costs          |                      |                         | TOTAL<br>NET<br>(\$) |
|--|-----|-------------|----------|----------------------------|---------------------------------------|------------------------|----------------------|-------------------------|----------------------|
|  |     |             |          |                            | Gross<br>Total<br>(Non-<br>Grantable) | Gross<br>Total<br>(\$) | 1/3<br>Grant<br>(\$) | Allow-<br>ances<br>(\$) |                      |
| <b><u>(Geographic Township of Niagara)</u></b> |     |             |          |                            |                                       |                        |                      |                         |                      |
| M-1  |     | 78 & 99     | 10-17    | G. Lepp                    | 150                                   | 0                      | 0                    |                         | 150                  |
| M-1  |     | 79 & 98     | 10-18    | 828263 Ontario Ltd.        | 150                                   | 0                      | 0                    |                         | 150                  |
| M-1  |     | 83          | 10-33    | B. & M. Pospiech           | 150                                   | 0                      | 0                    |                         | 150                  |
| M-1  |     | 82 & 92     | 10-34    | R. & R. Hunter             | 150                                   | 0                      | 0                    |                         | 150                  |
| M-1  |     | Pt 94       | 10-35-05 | 828263 Ontario Ltd.        | 150                                   | 0                      | 0                    |                         | 150                  |
| M-1  |     | Pt 94       | 10-36    | J. & N. Redekop            | 150                                   | 0                      | 0                    |                         | 150                  |
| M-1  |     | Pt 100,101  | 10-36-05 | Murmass Inc.               | 0                                     | 0                      | 0                    |                         | 0                    |
| M-1  |     | 77          | 10-38-10 | 1174724 Ontario Inc.       | 150                                   | 0                      | 0                    |                         | 150                  |
| M-1  |     | 80          | 10-39    | G. & L. Dyck               | 150                                   | 0                      | 0                    |                         | 150                  |
| M-1  |     | 81          | 10-40    | J. & D. Neumann            | 0                                     | 0                      | 0                    |                         | 0                    |
| M-1  |     | 82          | 10-40-05 | J. Neumann                 | 150                                   | 0                      | 0                    |                         | 150                  |
| M-1  |     | 83          | 10-40-10 | Neumann Vineyards Ltd.     | 150                                   | 0                      | 0                    |                         | 150                  |
| F  |     | 73          | 10-41    | J. & D. Neumann            | 0                                     | 48,700                 | 16,233               | 1,400                   | 31,067               |
| M-1  |     | 72 & 74     | 10-42    | L. & P. Dubois             | 0                                     | 8                      | 0                    |                         | 8                    |
| M-1  |     | 69          | 10-44    | G. Delorme                 | 0                                     | 0                      | 0                    |                         | 0                    |
| M-1  |     | 70          | 10-45    | G. Dingman                 | 150                                   | 48                     | 0                    |                         | 198                  |
| M-1  |     | Pts 67 & 70 | 10-46    | 1931131 Ontario Inc        | 150                                   | 64                     | 0                    |                         | 214                  |
| M-1  |     | Pt 67       | 10-46-10 | John Neufeld Farms Limited | 150                                   | 0                      | 0                    |                         | 150                  |
| M-1  |     | Pt 67       | 10-46-20 | 1863540 Ontario Inc.       | 150                                   | 0                      | 0                    |                         | 150                  |
| M-1  |     | 68          | 10-47    | W. & I. Dingman            | 0                                     | 1                      | 0                    |                         | 1                    |
| M-1  |     | 67          | 10-75    | J. Neufeld                 | 150                                   | 41                     | 0                    |                         | 191                  |
| M-1  |     | 75 & 111    | 10-83-05 | William Falk Farms Ltd.    | 0                                     | 0                      | 0                    |                         | 0                    |
| M-1  |     | 108         | 10-87    | J. & D. Zabek              | 0                                     | 0                      | 0                    |                         | 0                    |
| M-1  |     | 107         | 10-88    | E. Werner                  | 0                                     | 0                      | 0                    |                         | 0                    |
| M-1  |     | 106         | 10-89    | Brox Company Ltd.          | 0                                     | 0                      | 0                    |                         | 0                    |
| M-1  |     | 105         | 10-90    | Brox Company Ltd.          | 0                                     | 0                      | 0                    |                         | 0                    |
| M-1  |     | 103         | 10-93    | L. Ying                    | 0                                     | 0                      | 0                    |                         | 0                    |
| --   |     | Pt 160      | 15-6     | 1276229 Ontario Limited    | 0                                     | 107                    | 0                    |                         | 107                  |
| --   |     | Pt 160      | 15-8     | A. Teichroeb & R. Willms   | 150                                   | 0                      | 0                    |                         | 150                  |
| --   |     | Pt 160      | 15-8-10  | D. & J. Lambert            | 150                                   | 84                     | 0                    |                         | 234                  |
| --   |     | Pt 161      | 15-9     | E. & J. Suszek             | 0                                     | 44                     | 0                    |                         | 44                   |
| --   |     | Pt 161      | 15-10    | Discover Ontario Adventure | 0                                     | 44                     | 0                    |                         | 44                   |
| --   |     | Pt 161      | 15-11    | G. Chiaramonte             | 150                                   | 72                     | 0                    |                         | 222                  |
| 85   |     | Pt Blk 12   | 15-11-50 | R. Chiaramonte-Turner      | 150                                   | 4                      | 0                    |                         | 154                  |
| --   |     | Pt 161      | 15-12    | H. & H. Van Derlee         | 0                                     | 44                     | 0                    |                         | 44                   |
| --   |     | Pt 161      | 15-13    | S. Meduri                  | 0                                     | 4                      | 0                    |                         | 4                    |
| --   |     | Pt 161      | 15-14    | J. & D. Neumann            | 150                                   | 3                      | 0                    |                         | 153                  |
| 85   |     | Pt Blk 12   | 15-14-01 | J. & D. Neumann            | 150                                   | 81                     | 0                    |                         | 231                  |
| --   |     | Pt 161      | 15-15    | L. Quinn                   | 0                                     | 5                      | 0                    |                         | 5                    |
| --   |     | Pt 158      | 15-20    | N. & S. Enns               | 150                                   | 0                      | 0                    |                         | 150                  |
| --   |     | Pt 158      | 15-29    | R. & C. Smith              | 0                                     | 36                     | 0                    |                         | 36                   |
| --   |     | Pt 158      | 15-29-05 | Smith Vineyards Inc.       | 150                                   | 4                      | 0                    |                         | 154                  |
| --   |     | Pt 159      | 15-32    | D. Lambert                 | 0                                     | 75                     | 0                    |                         | 75                   |
| --   |     | Pt 157      | 15-34    | J. & V. Skubel             | 150                                   | 0                      | 0                    |                         | 150                  |
| --   |     | Pt 156      | 15-39    | Andres Wines Ltd.          | 150                                   | 30                     | 0                    |                         | 180                  |
| --   |     | Pt 156      | 15-43    | P. Ornelas                 | 150                                   | 0                      | 0                    |                         | 150                  |
| --   |     | Pt 156      | 15-43-01 | B. Schmidt                 | 0                                     | 4                      | 0                    |                         | 4                    |
| --   |     | Pt 157      | 15-43-35 | R. & H. Data               | 150                                   | 4                      | 0                    |                         | 154                  |
| --   |     | Pt 156      | 15-43-50 | A. Reuther                 | 150                                   | 19                     | 0                    |                         | 169                  |
| --   |     | Pt 157      | 15-44    | R. & C. Quevillon          | 0                                     | 22                     | 0                    |                         | 22                   |
| --   |     | Pt 157      | 15-45    | A. & A. Reddecopp          | 0                                     | 3                      | 0                    |                         | 3                    |
| --   |     | Pts 154&155 | 15-63    | H. & E. Tiedtke            | 0                                     | 52                     | 0                    |                         | 52                   |
| --   |     | Pt 163      | 15-72    | D. & J. Lambert            | 150                                   | 105                    | 0                    |                         | 255                  |
| --   |     | Pt 163      | 15-73    | H. & E. Tiedtke            | 150                                   | 5                      | 0                    |                         | 155                  |
| --   |     | Pt 163      | 15-73-50 | Willow Lake Ventures Inc.  | 150                                   | 0                      | 0                    |                         | 150                  |
| --   |     | Pt 162      | 15-90    | R. & D. Stanlik            | 0                                     | 22                     | 0                    |                         | 22                   |
| --   |     | Pt 164      | 15-91    | B. & B. Kolff              | 0                                     | 24                     | 0                    |                         | 24                   |
| --   |     | Pt 164      | 15-92    | T. Shelldrake & K. Young   | 0                                     | 24                     | 0                    |                         | 24                   |
| --   |     | Pt 165      | 15-93    | B. Wiens                   | 0                                     | 56                     | 0                    |                         | 56                   |
| --   |     | Pt 165      | 15-94    | S. & M. Tobe               | 0                                     | 56                     | 0                    |                         | 56                   |
| --   |     | Pt 165      | 15-95    | M. & S. Perreault          | 0                                     | 18                     | 0                    |                         | 18                   |
| --   |     | Pt 165      | 15-96    | M. & D. McCarthy           | 0                                     | 3                      | 0                    |                         | 3                    |
| --   |     | Pt 165      | 15-97    | R. Bator                   | 0                                     | 88                     | 0                    |                         | 88                   |
| --   |     | Pt 165      | 15-98    | P G Enns Farms Ltd.        | 0                                     | 22                     | 0                    |                         | 22                   |

**SCHEDULE C - SCHEDULE FOR ACTUAL COST BYLAW**  
**Lavigne Drain (Neumann Property)**  
**Town of Niagara-on-The-Lake**

| Farm<br>Tax<br>Rated                                  | Con | Lot    | Roll No.  | Owner                          | Sec. 65 Costs                         | Sec. 78 Costs          |                      |                         | TOTAL<br>NET<br>(\$) |               |
|---|-----|--------|-----------|--------------------------------|---------------------------------------|------------------------|----------------------|-------------------------|----------------------|---------------|
|   |     |        |           |                                | Gross<br>Total<br>(Non-<br>Grantable) | Gross<br>Total<br>(\$) | 1/3<br>Grant<br>(\$) | Allow-<br>ances<br>(\$) |                      |               |
| --  |     | Pt 164 | 15-101    | Green Lawn Farms Ltd.          | 150                                   | 39                     | 0                    |                         | 189                  |               |
| --  |     | Pt 164 | 15-102    | R. & D. Enns                   | 0                                     | 83                     | 0                    |                         | 83                   |               |
| --  |     | Pt 164 | 15-102-01 | Green Lawn Farms Ltd.          | 150                                   | 0                      | 0                    |                         | 150                  |               |
| --  |     | Pt 167 | 15-103    | 1049596 Ontario Ltd.           | 0                                     | 167                    | 0                    |                         | 167                  |               |
| --  |     | Pt 167 | 15-103-01 | L. & L. Byl                    | 0                                     | 4                      | 0                    |                         | 4                    |               |
| --  |     | Pt 167 | 15-104    | A. Reuther                     | 0                                     | 171                    | 0                    |                         | 171                  |               |
| --  |     | Pt 166 | 15-106    | Glenlake Orchards Ltd.         | 0                                     | 198                    | 0                    |                         | 198                  |               |
| --  |     | Pt 166 | 15-107    | Reuther Farms Ltd.             | 0                                     | 130                    | 0                    |                         | 130                  |               |
| --  |     | Pt 168 | 15-108    | J. Allison                     | 0                                     | 2                      | 0                    |                         | 2                    |               |
| --  |     | Pt 168 | 15-109    | 466147 Ontario Inc             | 150                                   | 8                      | 0                    |                         | 158                  |               |
| --  |     | Pt 168 | 15-109-10 | 1866115 Ontario Inc            | 150                                   | 211                    | 0                    |                         | 361                  |               |
| --  |     | Pt 169 | 15-110    | V. , V. & R. Contino           | 0                                     | 3                      | 0                    |                         | 3                    |               |
| --  |     | Pt 169 | 15-110-01 | A. & M. Wieler                 | 0                                     | 3                      | 0                    |                         | 3                    |               |
| --  |     | Pt 169 | 15-111    | J. & P. Van Staalduijn         | 0                                     | 60                     | 0                    |                         | 60                   |               |
| --  |     | Pt 169 | 15-111-01 | J. Robson                      | 0                                     | 4                      | 0                    |                         | 4                    |               |
| --  |     | Pt 169 | 15-112-50 | A. & S. Miele                  | 150                                   | 1                      | 0                    |                         | 151                  |               |
| --  |     | Pt 169 | 15-113    | J. Dyck & C. Deamude           | 150                                   | 1                      | 0                    |                         | 151                  |               |
| --  |     | Pt 169 | 15-115    | P. & E. O'Brien                | 0                                     | 6                      | 0                    |                         | 6                    |               |
| --  |     | Pt 169 | 15-116    | J. Mantini                     | 0                                     | 4                      | 0                    |                         | 4                    |               |
| --  |     | Pt 169 | 15-117-01 | W. Kukaryshen                  | 0                                     | 4                      | 0                    |                         | 4                    |               |
| --  |     | Pt 169 | 15-118    | D. & J. Lambert                | 0                                     | 109                    | 0                    |                         | 109                  |               |
| --  |     | Pt 169 | 15-119    | N. Awramenko & N. Chornenky    | 0                                     | 109                    | 0                    |                         | 109                  |               |
| --  |     | Pt 168 | 15-120    | G. Reuther                     | 150                                   | 1                      | 0                    |                         | 151                  |               |
| --  |     | Pt 169 | 15-121    | C. Bezuyen                     | 0                                     | 77                     | 0                    |                         | 77                   |               |
| --  |     | Pt 168 | 15-122    | R. & L. Carson                 | 150                                   | 1                      | 0                    |                         | 151                  |               |
| --  |     | Pt 168 | 15-123    | K. & S. Weberbauer             | 150                                   | 1                      | 0                    |                         | 151                  |               |
| --  |     | Pt 168 | 15-123-50 | L. & M. Byl                    | 150                                   | 4                      | 0                    |                         | 154                  |               |
| --  |     | Pt 168 | 15-124    | P. Ornelas                     | 150                                   | 145                    | 0                    |                         | 295                  |               |
| --  |     | Pt 168 | 15-124-50 | L. & M. Byl                    | 150                                   | 4                      | 0                    |                         | 154                  |               |
| --  |     | Pt 168 | 15-125    | 466147 Ontario Inc.            | 150                                   | 4                      | 0                    |                         | 154                  |               |
| --  |     | Pt 168 | 15-126    | 466147 Ontario Inc.            | 150                                   | 0                      | 0                    |                         | 150                  |               |
| --  |     | Pt 171 | 15-128-15 | L. & S. Rudat                  | 150                                   | 48                     | 0                    |                         | 198                  |               |
| --  |     | Pt 171 | 15-129    | R. & P. Lepp                   | 150                                   | 14                     | 0                    |                         | 164                  |               |
| --  |     | Pt 170 | 15-130    | D. & L. Abrams                 | 0                                     | 2                      | 0                    |                         | 2                    |               |
| --  |     | Pt 170 | 15-132    | D. Sanderson                   | 0                                     | 10                     | 0                    |                         | 10                   |               |
| --  |     | Pt 170 | 15-133    | E. Wiens                       | 0                                     | 56                     | 0                    |                         | 56                   |               |
| --  |     | Pt 170 | 15-133-01 | C. & C. Fowler                 | 0                                     | 1                      | 0                    |                         | 1                    |               |
| --  |     | Pt 170 | 15-134    | E. & S. Wiens                  | 150                                   | 126                    | 0                    |                         | 276                  |               |
| --  |     | Pt 170 | 15-134-01 | T. Miller                      | 0                                     | 2                      | 0                    |                         | 2                    |               |
| --  |     | Pt 170 | 15-134-05 | E. & S. Wiens                  | 150                                   | 6                      | 0                    |                         | 156                  |               |
| --  |     | Pt 171 | 15-135    | Meyers Holdings Inc.           | 150                                   | 170                    | 0                    |                         | 320                  |               |
| --  |     | Pt 171 | 15-135-01 | D. Dingman                     | 150                                   | 5                      | 0                    |                         | 155                  |               |
| --  |     | Pt 171 | 15-135-03 | E. & S. Wiens                  | 150                                   | 2                      | 0                    |                         | 152                  |               |
| --  |     | Pt 171 | 15-135-05 | K. & A. Wall                   | 0                                     | 0                      | 0                    |                         | 0                    |               |
| --  |     | Pt 171 | 15-135-10 | 2094350 Ontario Inc.           | 150                                   | 48                     | 0                    |                         | 198                  |               |
| --  |     | Pt 171 | 15-136    | 2440652 Ontario Ltd.           | 150                                   | 70                     | 0                    |                         | 220                  |               |
| --  |     | Pt 171 | 15-137    | V. & K. Desimone               | 0                                     | 84                     | 0                    |                         | 84                   |               |
| --  |     | Pt 172 | 19-42-02  | St David's Hydroponics Ltd     | 150                                   | 225                    | 0                    |                         | 375                  |               |
| --  |     | Pt 172 | 19-42-10  | St David's Hydroponics Ltd     | 150                                   | 6                      | 0                    |                         | 156                  |               |
| --  |     | Pt 172 | 19-105    | River Realty Devel.(1976) Inc. | 150                                   | 0                      | 0                    |                         | 150                  |               |
| --  |     | Pt 172 | 19-105-01 | J. & J. Colavecchia            | 0                                     | 2                      | 0                    |                         | 2                    |               |
| --  |     | Pt 172 | 19-106    | M. & C. Murray                 | 0                                     | 0                      | 0                    |                         | 0                    |               |
| --  |     | Pt 172 | 19-107    | M. & C. Murray                 | 0                                     | 47                     | 0                    |                         | 47                   |               |
| --  |     | 173    | 19-108    | B. Cochrane                    | 150                                   | 0                      | 0                    |                         | 150                  |               |
| --  |     | 174    | 19-109    | St David's Hydroponics Ltd     | 150                                   | 513                    | 0                    |                         | 663                  |               |
| --  |     | 175    | 19-110    | Chateau Des Charmes Wines      | 0                                     | 214                    | 0                    |                         | 214                  |               |
| --  |     | Pt 176 | 19-111    | A. & M. Giordano               | 0                                     | 166                    | 0                    |                         | 166                  |               |
| --  |     | Pt 176 | 19-112    | A. & A. Wall                   | 0                                     | 37                     | 0                    |                         | 37                   |               |
| --  |     | Pt 176 | 19-113    | M. & L. Van Egmond             | 0                                     | 30                     | 0                    |                         | 30                   |               |
| --  |     | Pt 176 | 19-114    | K. & J. Lagerwerf              | 0                                     | 55                     | 0                    |                         | 55                   |               |
| --  |     | Pt 176 | 19-118    | F. & L. Grimwood               | 0                                     | 68                     | 0                    |                         | 68                   |               |
| <b>Total Assessments on Lands:</b>                    |     |        |           |                                | <b>8,850</b>                          | <b>0</b>               | <b>53,587</b>        | <b>16,233</b>           | <b>1,400</b>         | <b>44,804</b> |
| Irrigation Works                                      |     |        |           |                                |                                       |                        | 5,335                | 0                       |                      | 5,335         |
| Hwy 55 (Niagara Stone Rd) Min. of Transportation Ont. |     |        |           |                                |                                       |                        | 57                   | 0                       |                      | 57            |

**SCHEDULE C - SCHEDULE FOR ACTUAL COST BYLAW  
Lavigne Drain (Neumann Property)  
Town of Niagara-on-The-Lake**

| Farm<br>Tax<br>Rated   | Con | Lot                         | Roll No. | Owner                       | Sec. 65 Costs                         |          | Sec. 78 Costs          |                      |                         | TOTAL<br>NET<br>(\$) |
|--|-----|-----------------------------|----------|-----------------------------|---------------------------------------|----------|------------------------|----------------------|-------------------------|----------------------|
|  |     |                             |          |                             | Gross<br>Total<br>(Non-<br>Grantable) |          | Gross<br>Total<br>(\$) | 1/3<br>Grant<br>(\$) | Allow-<br>ances<br>(\$) |                      |
|  |     | Reg. Rd 85 (East-West Line) |          | Region of Niagara           |                                       |          | 0                      | 0                    |                         | 0                    |
|  |     | Regional Rd 83 (Line 4)     |          | Region of Niagara           |                                       |          | 50                     | 0                    |                         | 50                   |
|  |     | Regional Road 106 (Conc 7)  |          | Region of Niagara           |                                       |          | 20                     | 0                    |                         | 20                   |
|  |     | Concession Road 7           |          | Town of Niagara-on-the-Lake |                                       |          | 131                    | 0                    |                         | 131                  |
|  |     | Wagg Road                   |          | Town of Niagara-on-the-Lake |                                       |          | 0                      | 0                    |                         | 0                    |
|  |     | Line 1 Road (Lambert Rd)    |          | Town of Niagara-on-the-Lake |                                       |          | 33                     | 0                    |                         | 33                   |
|  |     | Line 2 Road (Bradfield Rd)  |          | Town of Niagara-on-the-Lake |                                       |          | 50                     | 0                    |                         | 50                   |
|  |     | Line 3 Road                 |          | Town of Niagara-on-the-Lake |                                       |          | 55                     | 0                    |                         | 55                   |
|  |     | Line 5 Road                 |          | Town of Niagara-on-the-Lake |                                       |          | 22                     | 0                    |                         | 22                   |
|  |     | Line 7 Road                 |          | Town of Niagara-on-the-Lake |                                       |          | 30                     | 0                    |                         | 30                   |
| Total Assessments on Roads:                                  |     |                             |          |                             | 0                                     | 0        | 5,783                  | 0                    | 0                       | 5,783                |
| <b>TOTAL ASSESSMENTS ON LAVIGNE DRAIN (NEUMANN PROPERTY)</b> |     |                             |          |                             | <b>8,850</b>                          | <b>0</b> | <b>59,370</b>          | <b>16,233</b>        | <b>1,400</b>            | <b>50,587</b>        |

Notes:

1. Roll numbers are per the Municipality's last revised assessment roll, names included for convenience.
2. "F" denotes lands with current Farm Property Tax Class designation that may qualify for grant.
3. Net assessment is levied to the owner at the time of actual cost levy.
4. Grant eligibility subject to farm property tax class at time of actual cost levy.

**APPENDIX A - CALCULATION OF ASSESSMENTS FOR SCHEDULE A  
LAVIGNE DRAIN (NEUMANN PROPERTY)  
Town of Niagara-on-the-lake**

| Interval                                       |                            |                      | Interval 1<br>MAIN DRAIN 0+000 to 0+188<br>(10-41) |                        |          |          |                |
|--|----------------------------|----------------------|--|------------------------|----------|----------|----------------|
| Roll No.                                       | Owner                      | Total ha<br>Affected | Sp. Ben.<br>(Sec 65)                               | Section 78<br>Total ha |          |          | Gross<br>Total |
|  |                            |                      |  | Benefit                | Adjusted | Outlet % |                |
| <b>Cost Estimate</b>                           |                            |                      |  |                        |          |          |                |
| Allowances                                     |                            |                      |  |                        |          |          | 1,400          |
| Construction                                   |                            |                      |  |                        |          |          | 28,460         |
| Engineering                                    |                            |                      |  |                        |          |          | 34,495         |
| Other Costs                                    |                            |                      |  |                        |          |          | 3,865          |
| <b>TOTAL ESTIMATED COSTS</b>                   |                            |                      |  |                        |          |          | <b>68,220</b>  |
| <b><u>(Geographic Township of Niagara)</u></b> |                            |                      |  |                        |          |          |                |
| 10-17  | G. Lepp                    | 0.00                 | 150  | 0.00                   | 0        | 0.00     | 150            |
| 10-18  | 828263 Ontario Ltd.        | 0.00                 | 150  | 0.00                   | 0        | 0.00     | 150            |
| 10-33  | B. & M. Pospiech           | 0.00                 | 150  | 0.00                   | 0        | 0.00     | 150            |
| 10-34  | R. & R. Hunter             | 0.00                 | 150  | 0.00                   | 0        | 0.00     | 150            |
| 10-35-05                                       | 828263 Ontario Ltd.        | 0.00                 | 150  | 0.00                   | 0        | 0.00     | 150            |
| 10-36  | J. & N. Redekop            | 0.00                 | 150  | 0.00                   | 0        | 0.00     | 150            |
| 10-36-05                                       | Murmass Inc.               | 0.00                 |  | 0.00                   | 0        | 0.00     | 0              |
| 10-38-10                                       | 1174724 Ontario Inc.       | 0.00                 | 150  | 0.00                   | 0        | 0.00     | 150            |
| 10-39  | G. & L. Dyck               | 0.00                 | 150  | 0.00                   | 0        | 0.00     | 150            |
| 10-40  | J. & D. Neumann            | 0.00                 |  | 0.00                   | 0        | 0.00     | 0              |
| 10-40-05                                       | J. Neumann                 | 0.00                 | 150  | 0.00                   | 0        | 0.00     | 150            |
| 10-40-10                                       | Neumann Vineyards Ltd.     | 0.00                 | 150  | 0.00                   | 0        | 0.00     | 150            |
| 10-41  | J. & D. Neumann            | 10.10                |  | 48,700                 | 0.00     | 0 82.03  | 48,700         |
| 10-42  | L. & P. Dubois             | 0.70                 |  | 0.70                   | 8        | 0.01     | 8              |
| 10-44  | G. Delorme                 | 0.00                 |  | 0.00                   | 0        | 0.00     | 0              |
| 10-45  | G. Dingman                 | 4.40                 | 150  | 4.40                   | 48       | 0.08     | 198            |
| 10-46  | 1931131 Ontario Inc        | 5.90                 | 150  | 5.90                   | 64       | 0.11     | 214            |
| 10-46-10                                       | John Neufeld Farms Limited | 0.00                 | 150  | 0.00                   | 0        | 0.00     | 150            |
| 10-46-20                                       | 1863540 Ontario Inc.       | 0.00                 | 150  | 0.00                   | 0        | 0.00     | 150            |
| 10-47  | W. & I. Dingman            | 0.10                 |  | 0.10                   | 1        | 0.00     | 1              |
| 10-75  | J. Neufeld                 | 3.80                 | 150  | 3.80                   | 41       | 0.07     | 191            |
| 10-83-05                                       | William Falk Farms Ltd.    | 10.00                |  | 0.00                   | 0        | 0.00     | 0              |
| 10-87  | J. & D. Zabek              | 2.40                 |  | 0.00                   | 0        | 0.00     | 0              |
| 10-88  | E. Werner                  | 1.20                 |  | 0.00                   | 0        | 0.00     | 0              |
| 10-89  | Brox Company Ltd.          | 0.90                 |  | 0.00                   | 0        | 0.00     | 0              |
| 10-90  | Brox Company Ltd.          | 2.20                 |  | 0.00                   | 0        | 0.00     | 0              |
| 10-93  | L. Ying                    | 3.40                 |  | 0.00                   | 0        | 0.00     | 0              |
| 15-6   | 1276229 Ontario Limited    | 9.90                 |  | 9.90                   | 107      | 0.18     | 107            |
| 15-8   | A. Teichroeb & R. Willms   | 0.00                 | 150  | 0.00                   | 0        | 0.00     | 150            |
| 15-8-10  | D. & J. Lambert            | 7.80                 | 150  | 7.80                   | 84       | 0.14     | 234            |
| 15-9   | E. & J. Suszek             | 4.10                 |  | 4.10                   | 44       | 0.07     | 44             |
| 15-10  | Discover Ontario Adventure | 4.10                 |  | 4.10                   | 44       | 0.07     | 44             |
| 15-11  | G. Chiamonte               | 6.70                 | 150  | 6.70                   | 72       | 0.12     | 222            |
| 15-11-50                                       | R. Chiamonte-Turner        | 0.40                 | 150  | 0.40                   | 4        | 0.01     | 154            |
| 15-12  | H. & H. Van Derlee         | 4.10                 |  | 4.10                   | 44       | 0.07     | 44             |
| 15-13  | S. Meduri                  | 0.40                 |  | 0.40                   | 4        | 0.01     | 4              |
| 15-14  | J. & D. Neumann            | 0.30                 | 150  | 0.30                   | 3        | 0.01     | 153            |
| 15-14-01                                       | J. & D. Neumann            | 7.50                 | 150  | 7.50                   | 81       | 0.14     | 231            |
| 15-15  | L. Quinn                   | 0.50                 |  | 0.50                   | 5        | 0.01     | 5              |
| 15-20  | N. & S. Enns               | 0.00                 | 150  | 0.00                   | 0        | 0.00     | 150            |
| 15-29  | R. & C. Smith              | 3.30                 |  | 3.30                   | 36       | 0.06     | 36             |
| 15-29-05                                       | Smith Vineyards Inc.       | 0.40                 | 150  | 0.40                   | 4        | 0.01     | 154            |
| 15-32  | D. Lambert                 | 6.90                 |  | 6.90                   | 75       | 0.13     | 75             |
| 15-34  | J. & V. Skubel             | 0.00                 | 150  | 0.00                   | 0        | 0.00     | 150            |
| 15-39  | Andres Wines Ltd.          | 2.80                 | 150  | 2.80                   | 30       | 0.05     | 180            |
| 15-43  | P. Ornelas                 | 0.00                 | 150  | 0.00                   | 0        | 0.00     | 150            |
| 15-43-01                                       | B. Schmidt                 | 0.40                 |  | 0.40                   | 4        | 0.01     | 4              |
| 15-43-35                                       | R. & H. Data               | 0.40                 | 150  | 0.40                   | 4        | 0.01     | 154            |
| 15-43-50                                       | A. Reuther                 | 1.80                 | 150  | 1.80                   | 19       | 0.03     | 169            |
| 15-44  | R. & C. Quevillon          | 2.00                 |  | 2.00                   | 22       | 0.04     | 22             |
| 15-45  | A. & A. Reddecopp          | 0.30                 |  | 0.30                   | 3        | 0.01     | 3              |
| 15-63  | H. & E. Tiedtke            | 4.80                 |  | 4.80                   | 52       | 0.09     | 52             |

**APPENDIX A - CALCULATION OF ASSESSMENTS FOR SCHEDULE A  
LAVIGNE DRAIN (NEUMANN PROPERTY)  
Town of Niagara-on-the-lake**

| Interval  |                             |                      | Interval 1<br>MAIN DRAIN 0+000 to 0+188<br>(10-41) |                     |          |          |                |
|-----------|-----------------------------|----------------------|--|---------------------|----------|----------|----------------|
| Roll No.  | Owner                       | Total ha<br>Affected | Sp. Ben.<br>(Sec 65)                               | Section 78          |          |          | Gross<br>Total |
|           |                             |                      |  | Total ha<br>Benefit | Adjusted | Outlet % |                |
| 15-72     | D. & J. Lambert             | 9.70                 | 150  | 9.70                | 105      | 0.18     | 255            |
| 15-73     | H. & E. Tiedtke             | 0.50                 | 150  | 0.50                | 5        | 0.01     | 155            |
| 15-73-50  | Willow Lake Ventures Inc.   | 0.00                 | 150  | 0.00                | 0        | 0.00     | 150            |
| 15-90     | R. & D. Stanclik            | 2.00                 |  | 2.00                | 22       | 0.04     | 22             |
| 15-91     | B. & B. Kolff               | 2.20                 |  | 2.20                | 24       | 0.04     | 24             |
| 15-92     | T. Sheldrake & K. Young     | 2.20                 |  | 2.20                | 24       | 0.04     | 24             |
| 15-93     | B. Wiens                    | 5.20                 |  | 5.20                | 56       | 0.09     | 56             |
| 15-94     | S. & M. Tobe                | 5.20                 |  | 5.20                | 56       | 0.09     | 56             |
| 15-95     | M. & S. Perreault           | 1.70                 |  | 1.70                | 18       | 0.03     | 18             |
| 15-96     | M. & D. McCarthy            | 0.30                 |  | 0.30                | 3        | 0.01     | 3              |
| 15-97     | R. Bator                    | 8.10                 |  | 8.10                | 88       | 0.15     | 88             |
| 15-98     | P G Enns Farms Ltd.         | 2.00                 |  | 2.00                | 22       | 0.04     | 22             |
| 15-101    | Green Lawn Farms Ltd.       | 3.60                 | 150  | 3.60                | 39       | 0.07     | 189            |
| 15-102    | R. & D. Enns                | 7.70                 |  | 7.70                | 83       | 0.14     | 83             |
| 15-102-01 | Green Lawn Farms Ltd.       | 0.00                 | 150  | 0.00                | 0        | 0.00     | 150            |
| 15-103    | 1049596 Ontario Ltd.        | 15.40                |  | 15.40               | 167      | 0.28     | 167            |
| 15-103-01 | L. & L. Byl                 | 0.40                 |  | 0.40                | 4        | 0.01     | 4              |
| 15-104    | A. Reuther                  | 15.80                |  | 15.80               | 171      | 0.29     | 171            |
| 15-106    | Glenlake Orchards Ltd.      | 18.30                |  | 18.30               | 198      | 0.33     | 198            |
| 15-107    | Reuther Farms Ltd.          | 12.00                |  | 12.00               | 130      | 0.22     | 130            |
| 15-108    | J. Allison                  | 0.20                 |  | 0.20                | 2        | 0.00     | 2              |
| 15-109    | 466147 Ontario Inc          | 0.70                 | 150  | 0.70                | 8        | 0.01     | 158            |
| 15-109-10 | 1866115 Ontario Inc         | 19.50                | 150  | 19.50               | 211      | 0.36     | 361            |
| 15-110    | V. , V. & R. Contino        | 0.30                 |  | 0.30                | 3        | 0.01     | 3              |
| 15-110-01 | A. & M. Wieler              | 0.30                 |  | 0.30                | 3        | 0.01     | 3              |
| 15-111    | J. & P. Van Staalduin       | 5.50                 |  | 5.50                | 60       | 0.10     | 60             |
| 15-111-01 | J. Robson                   | 0.40                 |  | 0.40                | 4        | 0.01     | 4              |
| 15-112-50 | A. & S. Miele               | 0.10                 | 150  | 0.10                | 1        | 0.00     | 151            |
| 15-113    | J. Dyck & C. Deamude        | 0.10                 | 150  | 0.10                | 1        | 0.00     | 151            |
| 15-115    | P. & E. O'Brien             | 0.60                 |  | 0.60                | 6        | 0.01     | 6              |
| 15-116    | J. Mantini                  | 0.40                 |  | 0.40                | 4        | 0.01     | 4              |
| 15-117-01 | W. Kukaryshen               | 0.40                 |  | 0.40                | 4        | 0.01     | 4              |
| 15-118    | D. & J. Lambert             | 10.10                |  | 10.10               | 109      | 0.18     | 109            |
| 15-119    | N. Awramenko & N. Chornenky | 10.10                |  | 10.10               | 109      | 0.18     | 109            |
| 15-120    | G. Reuther                  | 0.10                 | 150  | 0.10                | 1        | 0.00     | 151            |
| 15-121    | C. Bezuyen                  | 7.10                 |  | 7.10                | 77       | 0.13     | 77             |
| 15-122    | R. & L. Carson              | 0.10                 | 150  | 0.10                | 1        | 0.00     | 151            |
| 15-123    | K. & S. Weberbauer          | 0.10                 | 150  | 0.10                | 1        | 0.00     | 151            |
| 15-123-50 | L. & M. Byl                 | 0.40                 | 150  | 0.40                | 4        | 0.01     | 154            |
| 15-124    | P. Ornelas                  | 13.40                | 150  | 13.40               | 145      | 0.24     | 295            |
| 15-124-50 | L. & M. Byl                 | 0.00                 | 150  | 0.40                | 4        | 0.01     | 154            |
| 15-125    | 466147 Ontario Inc.         | 0.40                 | 150  | 0.40                | 4        | 0.01     | 154            |
| 15-126    | 466147 Ontario Inc.         | 0.00                 | 150  | 0.00                | 0        | 0.00     | 150            |
| 15-128-15 | L. & S. Rudat               | 4.40                 | 150  | 4.40                | 48       | 0.08     | 198            |
| 15-129    | R. & P. Lepp                | 1.30                 | 150  | 1.30                | 14       | 0.02     | 164            |
| 15-130    | D. & L. Abrams              | 0.20                 |  | 0.20                | 2        | 0.00     | 2              |
| 15-132    | D. Sanderson                | 0.90                 |  | 0.90                | 10       | 0.02     | 10             |
| 15-133    | E. Wiens                    | 5.20                 |  | 5.20                | 56       | 0.09     | 56             |
| 15-133-01 | C. & C. Fowler              | 0.10                 |  | 0.10                | 1        | 0.00     | 1              |
| 15-134    | E. & S. Wiens               | 11.60                | 150  | 11.60               | 126      | 0.21     | 276            |
| 15-134-01 | T. Miller                   | 0.20                 |  | 0.20                | 2        | 0.00     | 2              |
| 15-134-05 | E. & S. Wiens               | 0.60                 | 150  | 0.60                | 6        | 0.01     | 156            |
| 15-135    | Meyers Holdings Inc.        | 15.70                | 150  | 15.70               | 170      | 0.29     | 320            |
| 15-135-01 | D. Dingman                  | 0.50                 | 150  | 0.50                | 5        | 0.01     | 155            |
| 15-135-03 | E. & S. Wiens               | 0.20                 | 150  | 0.20                | 2        | 0.00     | 152            |
| 15-135-05 | K. & A. Wall                | 0.40                 |  | 0.00                | 0        | 0.00     | 0              |
| 15-135-10 | 2094350 Ontario Inc.        | 4.40                 | 150  | 4.40                | 48       | 0.08     | 198            |
| 15-136    | 2440652 Ontario Ltd.        | 6.50                 | 150  | 6.50                | 70       | 0.12     | 220            |
| 15-137    | V. & K. Desimone            | 7.80                 |  | 7.80                | 84       | 0.14     | 84             |

**APPENDIX A - CALCULATION OF ASSESSMENTS FOR SCHEDULE A  
LAVIGNE DRAIN (NEUMANN PROPERTY)  
Town of Niagara-on-the-lake**

| Interval                    |                                |                      | Interval 1<br>MAIN DRAIN 0+000 to 0+188<br>(10-41) |                        |               |               |                |               |
|-----------------------------|--------------------------------|----------------------|--|------------------------|---------------|---------------|----------------|---------------|
| Roll No.                    | Owner                          | Total ha<br>Affected | Sp. Ben.<br>(Sec 65)                               | Section 78<br>Total ha |               |               | Gross<br>Total |               |
|                             |                                |                      |  | Benefit                | Adjusted      | Outlet        | %              |               |
| 19-42-02                    | St David's Hydroponics Ltd     | 20.80                | 150  | 20.80                  | 225           | 0.38          | 375            |               |
| 19-42-10                    | St David's Hydroponics Ltd     | 0.60                 | 150  | 0.60                   | 6             | 0.01          | 156            |               |
| 19-105                      | River Realty Devel.(1976) Inc. | 0.00                 | 150  | 0.00                   | 0             | 0.00          | 150            |               |
| 19-105-01                   | J. & J. Colavecchia            | 0.20                 |  | 0.20                   | 2             | 0.00          | 2              |               |
| 19-106                      | M. & C. Murray                 | 0.00                 |  | 0.00                   | 0             | 0.00          | 0              |               |
| 19-107                      | M. & C. Murray                 | 4.30                 |  | 4.30                   | 47            | 0.08          | 47             |               |
| 19-108                      | B. Cochrane                    | 0.00                 | 150  | 0.00                   | 0             | 0.00          | 150            |               |
| 19-109                      | St David's Hydroponics Ltd     | 47.40                | 150  | 47.40                  | 513           | 0.86          | 663            |               |
| 19-110                      | Chateau Des Charmes Wines      | 19.80                |  | 19.80                  | 214           | 0.36          | 214            |               |
| 19-111                      | A. & M. Giordano               | 15.30                |  | 15.30                  | 166           | 0.28          | 166            |               |
| 19-112                      | A. & A. Wall                   | 3.40                 |  | 3.40                   | 37            | 0.06          | 37             |               |
| 19-113                      | M. & L. Van Egmond             | 2.80                 |  | 2.80                   | 30            | 0.05          | 30             |               |
| 19-114                      | K. & J. Lagerwerf              | 5.10                 |  | 5.10                   | 55            | 0.09          | 55             |               |
| 19-118                      | F. & L. Grimwood               | 6.30                 |  | 6.30                   | 68            | 0.11          | 68             |               |
| Irrigation Works            |                                | 0.00                 |  | 0.00                   | 5,335         | 8.99          | 5,335          |               |
| Hwy 55 (Niagara Stone Rd)   | Min. of Transportation Ont.    | 1.30                 |  | 5.20                   | 57            | 0.10          | 57             |               |
| Reg. Rd 85 (East-West Line) | Region of Niagara              | 1.50                 |  | 0.00                   | 0             | 0.00          | 0              |               |
| Regional Rd 83 (Line 4)     | Region of Niagara              | 1.50                 |  | 4.50                   | 50            | 0.07          | 50             |               |
| Regional Road 106 (Conc 7)  | Region of Niagara              | 0.60                 |  | 1.80                   | 20            | 0.03          | 20             |               |
| Concession Road 7           | Town of Niagara-on-the-Lake    | 5.70                 |  | 12.00                  | 131           | 0.22          | 131            |               |
| Wagg Road                   | Town of Niagara-on-the-Lake    | 1.70                 |  | 0.00                   | 0             | 0.00          | 0              |               |
| Line 1 Road (Lambert Rd)    | Town of Niagara-on-the-Lake    | 1.20                 |  | 3.00                   | 33            | 0.06          | 33             |               |
| Line 2 Road (Bradfield Rd)  | Town of Niagara-on-the-Lake    | 1.80                 |  | 4.50                   | 50            | 0.08          | 50             |               |
| Line 3 Road                 | Town of Niagara-on-the-Lake    | 2.00                 |  | 5.00                   | 55            | 0.09          | 55             |               |
| Line 5 Road                 | Town of Niagara-on-the-Lake    | 1.90                 |  | 1.90                   | 22            | 0.04          | 22             |               |
| Line 7 Road                 | Town of Niagara-on-the-Lake    | 1.80                 |  | 2.70                   | 30            | 0.05          | 30             |               |
| <b>TOTALS:</b>              |                                | <b>503.60</b>        | <b>8,850</b>                                       | <b>48,700</b>          | <b>493.00</b> | <b>10,670</b> | <b>100.00</b>  | <b>68,220</b> |
|                             |                                |                      | <b>Outlet %</b>                                    |                        |               |               |                | <b>15.60%</b> |

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**200            GENERAL CONDITIONS****200.1           SCOPE**

The work to be done under this contract consists of supplying all labour, equipment and materials to construct the drainage work as outlined in the Instructions to Tenderers, the Form of Tender and Agreement, the Schedule of Tender Prices, the Drawings, the General Conditions, Special Provisions and the Standard Specifications.

**200.2           ORDER OF PRECEDENCE**

In case of any inconsistency or conflict between the drawings and specifications, the following order of precedence shall apply: Addenda, Form of Tender and Agreement, Schedule of Tender Prices, Special Provisions, Contract Drawings, Standard Specifications, General Conditions.

**200.3           MUNICIPALITY**

Municipality refers to a municipal corporation in the Province of Ontario. Where reference to Township, County, Region, Town, City or Owner appears it shall be deemed to be the same as the word Municipality. Where reference to owner appears in the specifications it is usually in reference to the owner of the property on which the drain is being constructed.

**200.4           TENDERS**

Tenders are to be submitted on a lump sum basis for the complete works or a portion thereof, as instructed by the Municipality. The Schedule of Tender Prices must be completed and submitted with the Form of Tender and Agreement even though the Contract will be a lump sum. As outlined in the Instructions to Tenders a deposit in the form of a certified cheque, bank draft, bonding or irrevocable letter of credit must accompany each tender as a guarantee of good faith. The deposit shall name the Municipality as the payee. All deposits, except that of the Tenderer to whom the work is awarded, will be returned within 10 days of the time the contract is awarded. The certified cheque of the Tenderer awarded the work will be retained as Contract Security and returned with the Completion Certificate for the work. A Performance Bond may also be required to ensure maintenance of the work for a period of one year after the date of the Completion Certificate.

**200.5           EXAMINATION OF SITE, PLANS AND SPECIFICATIONS**

Prior to the submission of the Tender, the Tenderer must examine the premises and site to compare them with the Drawings and Specifications in order to be satisfied with the existing conditions and the extent of the work to be done. The Tenderer must ensure that the meaning and intent of the drawings, estimated quantities and specifications is clearly understood before submission of the Tender. No allowances shall be made on behalf of the Contractor by reason of any error made in the preparation of the tender submission.

Any estimates of quantities shown or indicated on the drawings or elsewhere in the tender document are provided for the convenience of the Tenderer. The Tenderer should check the estimate of quantities for accuracy. Any use made of the estimated quantities by the Tenderer in calculating the tendered amounts is done at the Tenderers risk.

**200.6 COMMENCEMENT AND COMPLETION OF WORK**

The work must commence immediately after the Tenderer is notified of the contract award or at a later date, if set out as a condition in the Form of Tender and Agreement. If weather and ground conditions are unsuitable, work may be started at a later date from either of the above two dates if such delay is approved by the Engineer. The Contractor shall provide a minimum of 48 hours advance notice to the Engineer and the Municipality before commencement of any work. The work must proceed in such manner as to ensure its completion at the earliest possible date consistent with first class workmanship and within the time limit set out in the tender/contract document. Failure to commence or complete the work as set out in the tender/contract document may result in a forfeiture of all or part of the Contract Security if the Engineer deems that damages have been sustained to the Municipality or to any landowner because of the non-commencement or non-completion of the contract as awarded and that the failure to meet the specified dates has been the fault of the Contractor.

**200.7 NOTICES RE COMMENCEMENT OF WORK**

If the Contractor leaves the job site for a period of time after initiation of work, a minimum of 48 hours advance notice shall be given to the Engineer and the Municipality before commencement of any further work. If any work is commenced without the advance notice the Contractor shall be fully responsible for all such work undertaken prior to such notification and shall make good any works or materials judged to be inadequate or constructed in any manner that may have been subject to alteration if made known to the Engineer prior to commencement of construction.

**200.8 PERMITS, NOTICES, LAWS AND RULES**

The Contractor shall apply and pay for all necessary permits or licenses required for the execution of the work. This shall not include the obtaining of permanent easements or rights or servitude. The Contractor shall give all necessary notices and pay all fees required by the law and comply with all laws, ordinances, rules and regulations relating to the work and to the preservation of the public's health and safety and if the specifications and drawings are at variance therewith, any resulting additional expense incurred by the Contractor shall constitute an addition to the contract price.

**200.9 HEALTH AND SAFETY**

*Contractor must comply with the Occupational Health and Safety Act (OHSA) and the associated Regulations for Construction Projects. Contractor will also follow any site-specific safety and training requirements of the Municipality, agencies, utility companies or other authorities.*

Communication about site-specific hazards and safety requirements shall occur at the pre-construction meeting. If no pre-construction meeting is conducted, Contractor will communicate site-specific hazards and safety requirements before beginning work.

Contractor shall immediately report any workplace incidents, near misses, injuries and occupational illnesses to the Engineer.

**200.10 LIMITATIONS OF OPERATIONS**

Except for such work as may be required by the Engineer to maintain the works in a safe and satisfactory condition, the Contractor shall not carry out operations under the contract on Sundays or Statutory Holidays without permission in writing from the Engineer. The Engineer may direct in writing to the Contractor to cease or limit operations under the contract on any day or days if the operations are of such a nature, or if the work is so located, or if the traffic is of such a volume, that the Engineer deems it necessary or expedient to do so.

**200.11 SUPERVISION**

The Contractor shall provide constant supervision of the construction work and shall keep a competent foreman in charge at the site.

**200.12 CHARACTER AND EMPLOYMENT OF WORKERS**

The Contractor shall employ only orderly, competent and skillful workers to do the work and shall give preference to available qualified residents in the area of the contract. Whenever the Engineer informs the Contractor in writing that any workers are, in the opinion of the Engineer, disorderly, incompetent, or breaking the law, such workers shall be discharged from the job site and shall not again be employed on the job site without the written consent of the Engineer.

**200.13 SUB-CONTRACTORS**

If the Municipality so directs, the Contractor shall not sublet the whole or any part of this contract without the approval of the Engineer.

**200.14 PAYMENT**

Progress payments in cash equal to about 90% of the value of the work done and materials incorporated in the work will be made to the Contractor monthly. If directed by the Engineer the Contractor may be required to provide a written request for the progress payment amount. An additional 7% will be paid 45 days after the date of the Completion Certificate by the Engineer and 3% of the contract price may be reserved by the Municipality as a maintenance holdback for one year from the date of the Completion Certificate.

The holdbacks noted above may be increased by the Municipality if, in the written opinion of the Engineer, particular conditions of the contract require such greater holdback.

After the completion of the work any part of maintenance holdback may be used to correct defects from faulty construction and/or materials provided that notice shall first be given by the Engineer in writing to the Contractor stating that the Contractor has seven (7) days in which to remedy the defect in construction and/or materials.

**200.15 TERMINATION OF CONTRACT BY THE MUNICIPALITY**

Termination of the contract by the Municipality may be considered if the Contractor:

1. should be adjudged bankrupt or make a general assignment for the benefit of creditors or if a receiver should be appointed on account of insolvency;
2. should refuse or fail to supply enough properly skilled workmen or proper materials after having received seven (7) days' notice in writing from the Engineer to supply such additional workmen or materials in order to commence or complete the works;
3. should fail to make prompt payment to sub-contractors or for materials or labour;
4. should persistently disregard laws, ordinances, or instructions from the Engineer, or otherwise be guilty of a substantial violation of the provisions of the contract;

then the Municipality, upon Certificate of the Engineer that sufficient cause exists to justify such action, may without prejudice to any other right or remedy, give written notice to the Contractor to terminate the employment of the Contractor and take possession of the premises, and of all materials, tools and appliances thereon, and may finish the work by whatever method the Municipality may deem expedient, but without undue delay or expense. In such case, the Contractor shall not be entitled to receive any further payment until the work is finished. If the unpaid balance of the contract price will exceed the expense of finishing the work including compensation to the Engineer for additional

services and including other damages of every name and nature, such excess shall be paid to the Contractor. If such expense will exceed such unpaid balance including the Contract Security, the Contractor shall pay the difference to the Municipality. The expense incurred by the Municipality, as herein provided, shall be certified by the Engineer. If the contract is terminated by the Municipality due to the Contractor's failure to properly commence the works, the Contractor shall forfeit the Contract Security and furthermore shall pay to the Municipality an amount to cover the increased costs, if any, associated with a new tender for the contract being terminated.

If any unpaid balance and the Contract Security do not equal the monies owed by the Contractor upon the termination of the contract, the Municipality may also charge such expenses against any money which is or may thereafter be due to the Contractor from the Municipality.

#### **200.16 LIQUIDATED DAMAGES**

It is agreed by the parties to the Contract that in case all the work called for under the Contract is not finished or complete within the period of time as set forth in the Tender/Contract Document, damage will be sustained by the Municipality. It is understood by the parties that it will be impracticable and extremely difficult to ascertain and determine the actual damage which the Municipality will sustain in the event of and by reason of such delay. The parties hereto agree that the Contractor will pay to the Municipality a sum as set out in the Form of Tender and Agreement for liquidated damages for each and every calendar day delay, including Saturdays, Sundays and Statutory Holidays, in finishing the work in excess of the number of working days prescribed. It is agreed that the liquidated damages amount is an estimate of the actual damage to the Municipality which will accrue during the period in excess of the prescribed number of working days.

The Municipality may deduct any amount due under this section from any monies that may be due or payable to the Contractor on any account whatsoever. The liquidated damages payable under this section are in addition to and without prejudice to any other remedy, action or other alternative that may be available to the Municipality.

The Contractor shall not be assessed with liquidated damages for any delay caused by acts of nature, or of the Public Enemy, Acts of the Province or of any Foreign State, Fire, Flood, Epidemics, Quarantine Restrictions, Embargoes or any delays of Sub-Contractors due to such causes.

If the time available for the completion of the work is increased or decreased by reason of alterations or changes made under the provisions of the Contract, the number of working days shall be increased or decreased as determined by the Engineer.

If the Form of Tender and Agreement does not show an amount for Liquidated Damages then Liquidated Damages do not apply for this contract.

#### **200.17 CONTRACTOR'S LIABILITY**

The Contractor and all workers, agents or any party under the Contractor's control, including Sub-Contractors, shall use due care that no person or property is injured and that no rights are infringed during the construction work outlined in the contract. The Contractor shall be solely responsible for all damages by whomsoever claimable in respect of any injury to persons or to lands, buildings, structures, fences, livestock, trees, crops, roadways, ditches, drains and watercourses, whether natural or artificial, or property of whatever description and in respect of any infringement of any right, privilege or easement wherever occasioned in the carrying on of the work or any part thereof, or by any neglect, misfeasance or non-feasance on the Contractor's part or on the part of any workers, agents or parties under the Contractor's control including Sub-Contractors, and shall bear the full cost thereof. The Contractor shall be fully responsible to make such temporary provisions as may be necessary to ensure the avoidance of any such damage, injury or infringement and to prevent the interruption of or danger or menace to the traffic in any railway or any public or private road entrance or sidewalk and to secure to all persons and corporations the uninterrupted enjoyment of all their

rights, in and during the performance of the work. The Contractor shall indemnify and save harmless the Municipality and the Engineer from and against all claims, demands, losses, costs, damages, actions, suits or other proceedings by whomsoever made, brought or prosecuted in any manner based upon, occasioned by, or attributed to any such damage, injury or infringement.

Wherever any work is of such an extent and nature that it must necessarily be confined to particular areas of a roadway, a working area, or private property, the Contractor shall use reasonable care not to damage or deface the remaining portions of the property, and if any damage is occasioned as a result of the Contractor's operations, it shall be rectified by and at the expense of the Contractor, to the satisfaction of the Engineer. Notwithstanding the indemnity provisions contained in this section, where in the opinion of the Engineer the Contractor has failed to rectify any damage, injury or infringement or has failed to adequately compensate any person for any damage, injury or infringement for which the Contractor is responsible under the contract, the Engineer, following notice in writing to the Contractor of an intention so to do, may withhold payment of any monies due the Contractor under this or any other contract until the Contractor has rectified such damage, injury or infringement or has paid adequate compensation for such damage, injury or infringement, provided however, that the Municipality will not withhold such monies where in the opinion of the Engineer there are reasonable grounds upon which the Contractor denies liability for such damage, injury or infringement and the Contractor has given the claimant a reasonable time in which to establish the validity of the claim, and provided further that the amount withheld under this section shall not exceed the amount of such claims against the Contractor.

Where the Contractor uses privately owned lands for pits or waste disposal areas, the Contractor shall comply with applicable laws and provide the Engineer with a release signed by or on behalf of the owner of each pit or waste disposal area used by the Contractor. If the said release is not obtained, then sufficient monies will be withheld from the Contractor except, however, where the owner's signature is withheld solely on the basis of damage, injury, or infringement it will be dealt with as provided elsewhere in this subsection.

Nothing herein contained shall be construed as in any way restricting or limiting the liability of the Contractor under the laws of the country, province or locality in which the work is being done. Neither the Completion Certificate nor final payment thereunder, nor any provision in the Contract Document shall relieve the Contractor from this liability.

#### **200.18 LIABILITY INSURANCE**

The Contractor shall take out and keep in force until the date of acceptance of the entire work by the Engineer, a comprehensive policy of public liability and property damage insurance providing insurance coverage of at least \$3,000,000 for each and every accident, exclusive of interest and cost, against loss or damage resulting from bodily injury to or death of one or more persons and loss of or damage to property and such policy shall where, and as requested by the Municipality, name the Municipality and the Engineer as an additional insured thereunder and shall protect the Municipality against all claims for all damage or injury including death to any person or persons and for damage to any property of the Municipality or any other public or private property resulting from or arising out of any act or omission on part of the Contractor or any of his servants or agents during the execution of the Contract.

#### **200.19 LOSSES DUE TO ACTS OF NATURE, ETC.**

All damage, loss, expense and delay incurred or experienced by the Contractor in the prosecution of the work, by reason of unanticipated difficulties, bad weather, strikes, wars, acts of nature, or other mischances, shall be borne by the Contractor and shall not be the subject of a claim for additional compensation.

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**400 STANDARD SPECIFICATIONS FOR CONSTRUCTION OF DRAINS****400.1 ABBREVIATIONS**

- i) M.T.O. means the Ministry of Transportation of Ontario.
- ii) A.S.T.M. means the American Society for Testing Materials.
- iii) C.S.A. means the Canadian Standard Association.
- iv) O.P.S.D. means Ontario Provincial Standard Drawings
- v) O.P.S.S. means Ontario Provincial Standard Specifications
- vi) DFO means Fisheries and Oceans Canada
- vii) MNRF means Ministry of Natural Resources and Forestry
- viii) MOECC means Ministry of Environment and Climate Change

**400.2 PRE CONSTRUCTION MEETING**

The Contractor should arrange a pre-construction meeting with the Engineer, Municipality, affected landowners prior to commencement of construction.

If there is no pre-construction meeting or if a landowner is not present at the pre-construction meeting, the following shall apply. The drain is to be walked by the Contractor and each landowner prior to construction to ensure that both agree on the work to be done. Any difference of opinion shall be referred to the Engineer for decision. If the landowner is not contacted for such review, they are to advise the Engineer and/or Municipality.

**400.3 COLD WEATHER**

When working in cold weather is approved by the Engineer, the Contractor shall provide suitable means for heating and protection. All work completed in cold weather conditions shall be to the satisfaction of the Engineer and any additional cost to remedy unsatisfactory work, or protect the work shall be borne by the Contractor. All backfilling operations shall be done as soon as possible to avoid backfilling with ground containing frozen particles. The Contractor will assume all responsibility for damages to any tile drains and for settlements or bank slippages that may result from work in cold weather.

**400.4 WORKING AREA**

Where any part of the drain is on a road allowance, the road allowance shall be the working area. For a closed drain the working area shall be a 10 metre width on either side of the trench or any combination not exceeding 20 metres. A 10m x 10m working area shall exist around any catchbasin, junction box or access point. For an open drain the working area shall be 17 metres on the side for leveling and 3 metres on the opposite side. A 10m working area shall exist for any overflow swale or grassed waterway. If any part of the drain is close to a property line then the fence line shall be one of the limits of the work area. Reduced or increased working areas will be described in detail on the Drawings.

**400.5 ACCESS**

The Contractor shall have access to the drain by entering the working area directly from road allowances or along access routes shown on the Drawings. All specifications governing fences, livestock and crops during drain construction apply to access routes. No other access routes shall be used unless first approved by the Engineer and the affected landowner. The Contractor shall contact each landowner prior to using the designated access routes. Contractor shall make good any damages caused by using the designated access routes.

**400.6 ACCESS TO PROPERTIES ADJOINING THE WORK**

The Contractor shall provide at all times and at no additional cost, adequate pedestrian access to private homes and commercial establishments unless otherwise authorized by the Engineer. Where interruptions to access have been authorized by the Engineer, reasonable notice shall be given by the Contractor to the affected landowners and such interruptions shall be arranged to minimize interference to those affected.

**400.7 DRAINAGE SUPERINTENDENT**

Where a Drainage Superintendent (Superintendent) is appointed by the Municipality, the Engineer may designate the Superintendent to act as the Engineer's representative. If so designated, the Superintendent will have the power to inspect and direct the execution of the work.

Any instructions given by the Superintendent which change the proposed work or with which the Contractor does not agree shall be referred to the Engineer for final decision.

**400.8 ALTERATIONS TO WORK**

The Engineer shall have the power to make alterations, additions and/or deletions in the work as shown or described in the Drawings or Specifications and the Contractor shall proceed to implement such changes without delay. Alterations ordered by the Engineer shall in no way render the contract void.

If a landowner desires deviations from the work described on the Drawings, the landowner shall submit a written request to the Engineer, at least 48 hours in advance of the work in question.

In every such case, the contract amount shall be increased or decreased as required according to a fair evaluation of the work completed. Where such changes involve additional work similar to items in the contract, the price for additional work shall be determined after consideration is given to the tendered price for similar items.

In no case shall the Contractor commence work considered to be extra work without the Engineer's approval. Payment for extra work is contingent on receipt of documentation to the satisfaction of the Engineer. Refer to the Extra Work Summary included in the Special Provisions.

**400.9 ERRORS AND UNUSUAL CONDITIONS**

The Contractor shall notify the Engineer immediately of any error or unusual conditions which may be found. Any attempt by the Contractor to correct the error without notice shall be done at the Contractor's risk. Any additional cost incurred by the Contractor to remedy an error or unusual condition without notice shall be borne by the Contractor. The Engineer shall direct the alteration necessary to correct errors or unusual conditions. The contract amount shall be adjusted in accordance with a fair evaluation of documentation for the work added, deleted or adjusted.

**400.10 TESTS**

The Engineer reserves the right to subject any materials to a competent testing laboratory for compliance with the standard. If any materials supplied by the Contractor are determined to be inadequate to meet the applicable standards, the Contractor shall bear full responsibility to remove and/or replace all such inadequate materials with materials capable of meeting the standards.

The cost of testing the materials supplied by the Contractor shall be borne by the Contractor.

#### **400.11 BENCHMARKS AND STAKES**

Prior to construction, the Engineer will confirm the benchmarks. The Contractor shall be held liable for the cost of replacing any benchmarks destroyed during construction.

If the Engineer provides layout stakes, the Contractor shall be held liable for the cost of replacing any layout stakes destroyed during construction.

Where property bars are shown on the Drawings, they are to be protected and if damaged by the Contractor, they will be reinstated by an Ontario Land Surveyor at the expense of the Contractor. Where property bars not shown on the Drawings are damaged, they will be reinstated by an Ontario Land Surveyor at the expense of the project.

#### **400.12 OPENING UP OF FINISHED WORK**

If ordered by the Engineer, the Contractor shall make such openings in the work as are needed to re-examine the work, and shall forthwith make the work good again. Should the Engineer find the work so opened up to be faulty in any respect, the whole of the expense of opening, inspecting and making the work good shall be borne by the Contractor. Should the Engineer find the work opened up to be in an acceptable condition the Contractor shall be paid for the expense of opening and making the work good, unless the Contractor has been obligated by any specification or by the direction of the Engineer to leave the work open for the Engineer's inspection.

#### **400.13 FINAL INSPECTION**

Final inspection by the Engineer will be made within twenty (20) days after receiving notice in writing from the Contractor that work is complete, or as soon thereafter as weather conditions permit. All the work included in the contract must at the time of final inspection have the full dimensions and cross-sections.

Prior to commencing the final inspection an on-site meeting may be held by the Engineer and landowners directly affected by the construction of the drain. The Contractor will attend this meeting upon notice by the Engineer.

If there is no on-site meeting with the Engineer and landowners, the Contractor shall obtain from each landowner a written statement indicating that the work has been performed to the owner's satisfaction. If the Contractor is unable to obtain a written statement from the landowner, the Engineer will determine if further work is required prior to issuing the Completion Certificate.

#### **400.14 WARRANTY**

There shall be a one-year warranty period on all completed work. The warranty period will commence on the date of the Completion Certificate.

When directed by the Engineer, the Contractor shall repair and make good any deficiencies in the work that may appear during the warranty period.

Before the work shall be finally accepted by the Municipality, the Contractor shall complete all work as directed by the Engineer and remove all debris and surplus materials and leave the work neat and presentable.

**400.15 MATERIALS****400.15.1 Concrete Drain Tile**

Concrete drain tile shall conform to the requirements of the most recent ASTM C412 specifications for heavy duty extra quality, unless a stronger concrete tile is required by the Special Provisions or Drawings. All tile furnished shall be subject to the approval of the Engineer.

The minimum nominal lengths of the tile shall be 750mm for 150 to 350mm diameter tile and 1200mm for 400 to 900mm diameter tile.

All tile should be of good quality, free from distortions and cracks and shall meet the standards specified. The ends should be smooth and free from cracks or checks. All rejected tile are to be immediately removed from the site.

Granular backfill, where required, shall consist of approved sand or gravel having no particles retained on a screen having 50mm square openings.

Earth backfill shall consist of approved material having no large lumps or boulders.

**400.15.2 Corrugated Plastic Tubing**

Corrugated plastic tubing shall conform to the *Land Improvement Contractors of Ontario Standard Specification for Corrugated Plastic Drainage Tubing, 2006*. Type of material (solid or perforated) and need for filter sock will be specified on the Drawings or in the description of the work in the Special Provisions. Filter sock where specified shall be a standard synthetic filter material as provided by a recognized plastic tubing manufacturer unless noted differently on the contract drawings or elsewhere in the contract document. Protect coils of plastic tubing from damage and deformation.

**400.15.3 Corrugated Steel Pipe**

Corrugated Steel Pipe (CSP) shall be according to OPSS 1801 (CSA G401). Unless stated otherwise in the Special Provisions the pipe shall be:

- galvanized
- helical corrugation with lock seam and re-rolled annular ends
- 68mm x 13mm corrugation profile for diameters up to 1200mm
- 125mm x 25mm corrugation profile for diameters 1200mm and larger
- minimum wall thickness of 1.6mm for diameters up to 500mm
- minimum wall thickness of 2.0mm for diameters 600mm and larger
- joined using standard couplers matching the pipe diameter and material

Other coatings that may be specified include aluminized Type 2 or polymer. Polymer coating shall be a 254mm polymer film laminated to both sides of the pipe.

**400.15.4 Plastic Pipe**

Plastic Pipe shall be a high density polyethylene (HDPE) double wall corrugated pipe with smooth inner wall, solid with no perforations in accordance with OPSS 1840.

A minimum stiffness of 320 KPa at 5% deflection

The pipe shall be joined with snap-on or split couplers.

**400.15.5 Concrete Sewer Pipe**

Concrete sewer pipe shall be in accordance with OPSS 1820.

Non-reinforced concrete sewer pipe shall be used for pipe 375mm in diameter and smaller and reinforced concrete sewer pipe shall be used for pipe over 375mm.

Classes shall be as shown on the Contract Drawings or as described in the Form of Tender.

All new concrete sewer pipe shall have rubber-type gasket joints.

Where concrete sewer pipe “seconds” are specified, the pipe should exhibit no damage or cracks on the barrel section and shall be capable of satisfying the crushing strength requirements of OPSS 1820. The pipe may contain cracks or chips in the bell or spigot which prevent the use of rubber gaskets but the joints must be protected with filter cloth.

#### **400.16 RIPRAP**

All riprap is to be placed on a geotextile underlay (Terrafix 360R or equal) unless directed otherwise in the specific construction notes. The riprap is to be graded heavy angular stone (quarry stone is recommended) with particles averaging in size from 225mm to 300mm and is to be placed at 300mm thickness. Fine particles may be included to fill voids. Along upstream edges of riprap, where surface water will enter, underlay is to extend a minimum of 300mm upstream from riprap and then be keyed down a minimum of 300mm. Wherever riprap is placed, the area is to be over-dug so that finished top of riprap is at design cross-section, at design elevation or flush with existing ground.

#### **400.17 GEOTEXTILE**

To be non-woven fabric that is rot proof, non-biodegradable, chemically resistant to acidic or alkaline soils and is dimensionally stable under different hydraulic conditions. The filter fabric is to be a material whose primary function is to act as a highly permeable, non-clogging soil separator for fine soils (Terrafix 360R or equal). Contractor is to avail himself of manufacturer's recommendations for cutting, installation and precautions necessary to avoid damage to fabric. Other approved equals will be considered by the Engineer prior to construction.

#### **400.18 DISPOSAL OF MATERIALS**

The Contractor shall remove all surplus materials from the job site at the end of the project. The Contractor shall locate the disposal site for all materials to be disposed of. Disposal of materials shall comply with applicable regulations.

#### **400.19 NOTIFICATION OF RAILROADS, ROAD AUTHORITIES AND UTILITIES**

Contractor will notify any Railroad, Road Authority or Utility at least 48 hours in advance regarding work to be performed on their property or affecting their infrastructure. The notice will be in writing and is exclusive of Saturdays, Sundays and Holidays.

A utility includes any entity supplying the general public with necessities or conveniences.

**400.20 WORKING IN ROAD ALLOWANCES****400.20.1 General**

Work within public road allowances shall be done in accordance with the Ontario Traffic Manual Book 7, latest edition.

**400.20.2 Road Crossings**

If no specific detail is provided for road crossings on the drawings or in the specifications the following shall apply:

- A Road Authority will supply no labour, equipment or materials for the construction of the road crossing.
- Contractor will not commence road crossing work until any required permits have been obtained. The Engineer may apply for any required permits prior to construction.
- Contractor will notify the Road Authority at least 72 hours in advance of any construction in the road allowance.
- Road crossings may be made with an open cut unless otherwise noted.
- Exact location of crossing shall be verified with the Road Authority and the Engineer.
- Pipe shall be placed on a minimum 150mm depth of Granular A shaped for the pipe.
- Pipe backfill shall be compacted Granular A and extend 300mm above the top of the pipe.
- Trench shall be backfilled with acceptable native material for the base width of the road bed.
- The material shall be placed in lifts not exceeding 300mm in depth and shall be thoroughly compacted with an approved mechanical vibrating compactor.
- Top 600mm of the road bed backfill shall consist of 450mm Granular B and 150mm of Granular A placed in lifts and fully compacted.
- Any surplus excavated material within the road allowance may be spread on the right-of-way with consent of the Road Superintendent otherwise the surplus material shall be hauled away.
- Existing asphalt or concrete pavement or surface treatment shall be replaced by the Contractor to the satisfaction of the Engineer and Road Authority.
- Contractor shall be responsible for correcting any backfill settlement during construction and during the warranty period. Upon approval of the road authority, surplus gravel shall be stockpiled near gravel road crossings to provide backfill for future trench settlement.
- All road crossings shall meet the approval of the Road Authority.
- If any road crossing is not left in a safe manner at the end of the working day barricades and warning signs shall be erected to guarantee the safety of the travelling public.
- If the Engineer deems a road to surface to have been damaged by the construction of a drain, either across or along the road, the Engineer may direct the Contractor to restore the road surface to existing or better condition at no additional cost.

**400.20.3 Maintenance of Traffic**

Unless directed otherwise on the drawings or in the specifications the Contractor shall keep the road open to traffic at all times. The Contractor shall provide suitable warning signs and/or flagging to the satisfaction of the Road Authority to notify of the construction work.

If a detour is required, the Contractor shall submit a proposal as to the details of the detour for approval by the Road Authority. If necessary to close the road to through traffic, the Contractor shall provide for and adequately sign the detour route. Contractor shall undertake all notifications required for a road closure in consultation with the Municipality.

**400.21 LOCATIONS OF EXISTING UTILITIES**

The position of pole lines, conduits, watermains, sewers and other underground and overhead utilities are not necessarily shown on the Contract Drawings, and, where shown, the accuracy of the position

of such utilities and structures is not guaranteed. Before starting work, the Contractor shall have all utilities located in accordance with the Ontario Underground Infrastructure Notification System Act.

All utilities shall be exposed to the satisfaction of the utility company to verify that the construction proposed will not conflict with the utility structure. Additional payment will be allowed for relocation of utilities if conflicts should occur.

The Contractor is responsible for protecting all located and exposed utilities from damage during construction. The Contractor shall assume liability for damage caused to all properly located utilities.

#### **400.22 LANEWAYS**

If no specific detail is provided for laneway crossings on the Drawings or in the Specifications the following shall apply:

- Pipe backfill shall be acceptable native material that can be compacted in place.
- Top 450mm of laneway backfill shall consist of 300mm Granular B and 150mm of Granular A placed in lifts and fully compacted.
- Minimum cover on laneway culverts shall be 300mm.
- Existing asphalt or concrete pavement or surface treatment shall be replaced by the Contractor.
- The width of surface restoration shall match the existing laneway.
- Contractor shall be responsible for correcting any backfill settlement during construction and during the warranty period.

The timing of laneway closures will be coordinated by the Contractor to the satisfaction of the landowner.

#### **400.23 EXISTING CROSSING CLEANOUT**

Where the Special Provisions require an existing crossing to be cleaned, the Contractor shall provide a bottom width and depth that provides capacity equivalent to the capacity of the channel on either side. Excavated materials shall be hauled away unless adjacent landowners give permission for leveling. Care shall be taken to ensure that existing abutments or any portion of the structure are not damaged or undercut. The method of removing the material is to be pre-approved by the Engineer.

#### **400.24 FENCES**

If the Contractor is responsible to remove and install fences, the following shall apply:

- All fences removed by a Contractor are to be re-erected in as good a condition as existing materials permit.
- All fences shall be properly stretched and fastened. Where directed by the Engineer, additional steel posts shall be placed to adequately support a fence upon re-erection.
- Where practical and where required by the landowner, the Contractor shall take down an existing fence at the nearest anchor post and roll the fence back rather than cutting the fence and attempting to patch it.
- Where fence materials are in such poor condition that re-erection is not possible, the Contractor shall replace the fence using equivalent materials. Such fence material shall be approved by the Engineer and the landowner. Where the Engineer approves new fence material, additional payment will be provided.

Any fences paralleling an open drain, that are not line fences, that hinder the proper working of the excavating machinery for drain construction or maintenance shall be removed and rebuilt by the

landowner at their own expense. If such parallel fences are line fences they shall be removed and reinstalled by the Contractor.

No excavated or cleared material shall be placed against fences.

The installation of all fences shall be done to the satisfaction of the Engineer and the landowner.

#### **400.25 LIVESTOCK**

If any construction will be within a fenced field containing livestock that are evident or have been made known to the Contractor, the Contractor shall notify the owner of the livestock 48 hours in advance of access into the field. Thereafter, the owner shall be responsible for the protection of the livestock in the field during construction and shall also be liable for any damage to or by the livestock.

Where the owner so directs or where the Contractor has failed to reach the owner, the Contractor shall adequately re-erect all fences at the end of each working day. No field containing livestock shall have a trench left open at the end of the working day, unless the trench has been adequately backfilled or protected. Failure of the Contractor to comply with this paragraph shall render the Contractor liable for any damage to or by the livestock.

Where livestock may be encountered on any property the Contractor shall notify the Engineer to arrange for inspection of the work prior to backfilling.

#### **400.26 STANDING CROPS**

The Contractor shall not be held responsible for damages to standing crops within the working area for the drain. However, the Contractor shall notify the owner of the crops 48 hours prior to commencement of construction so as to allow the owner an opportunity to harvest or salvage the crop within the drain working area. If this advance notice is not given the Contractor may be liable for the loss of the standing crops.

#### **400.27 CLEARING VEGETATION**

##### **400.27.1 General**

The area for clearing, if not defined elsewhere, shall be 15m on each side of the drain.

##### **400.27.2 Trees to Remain**

Where it is feasible to work around existing trees that do not impede the function of the drainage works, the Contractor shall not remove any deciduous tree larger than 300mm and any coniferous tree larger than 200mm, unless authorized by the Engineer.

##### **400.27.3 Incidental Clearing**

Incidental clearing includes removal of trees, brush or other vegetation with an excavator during construction activities, and the cost is to be included in the price for the related construction activity.

##### **400.27.4 Power Brushing**

Power brushing includes removal of above-ground vegetation with a rotary brush cutter or other mechanical means. Stump and root removal is not required. Power brushed vegetation in a channel cross-section shall be removed and leveled in the working area. Excavated material may be placed and leveled on power brushed vegetation.

##### **400.27.5 Close-Cut Clearing**

Close-cut clearing includes removal of above-ground vegetation cut flush with the ground. Stump and root removal is not required.

**400.27.6 Clearing And Grubbing**

Clearing and grubbing includes removal of vegetation, including stumps and roots. Removal of earth from the grubbed area into the windrows or piles is to be minimized.

**400.27.7 Disposal of Cleared Vegetation****400.27.7.1 *In Bush Areas***

Cleared vegetation is to be pushed into windrows or piles at the edge of the cleared area. Stumps and roots are to be piled first at the edge of the cleared area, followed by other vegetation (trunks, branches, etc.). Provisions for lateral drainage are required through all windrows. Windrows are not to block any laneways or trails. After removing cleared vegetation, the working area shall be leveled to the satisfaction of the Engineer.

**400.27.7.2 *In Field Areas***

Cleared vegetation resulting from incidental clearing or power brushing may be hauled away, mulched in place or reduced to a size that permits cultivation using conventional equipment without causing undue hardship on farm machinery.

Cleared vegetation resulting from close-cut clearing or clearing and grubbing is to be hauled away to an approved location. Disposal sites may be in bush areas or other approved locations on the same farm. No excavated material shall be levelled over any logs, brush or rubbish of any kind.

**400.27.8 Landowner Requested Salvage**

A landowner may request that wood be separated from the windrows for the landowner's future use. This additional work would be eligible for extra payment, subject to the approval of the Engineer. The cost of the additional work would be assessed to the landowner.

**400.27.9 Clearing by Landowner**

Wherever the Special Provisions indicate that clearing may be undertaken by the landowner, work by the landowner shall be in accordance with the Clearing Vegetation requirements of this specification and must be completed so as not to cause delay for the Contractor. If the landowner does not complete clearing in accordance with these requirements, the Contractor will undertake the clearing at a price approved by the Engineer.

**400.28 ROCK REMOVAL****400.28.1 General**

Rock shall be defined as bedrock and boulders that are greater than one-half cubic metre in size and that require blasting or hoe-ram removal. Bedrock or boulders that can be removed with a standard excavator bucket are not considered rock removal.

**400.28.2 Blasting Requirements**

All blasting shall be performed by a competent, qualified blaster in accordance with OPSS 120. Blasting mats are required. A pre-blast survey meeting the requirements of OPSS 120 must be completed for any structure within 200m of any blasting. The cost for pre-blast survey shall be included in the tender price for rock removal.

**400.28.3 Typical Sections and Pay Limits**

For tile drains and road culverts, rock shall be removed to 150mm below the proposed grade shown on the profile so that pipes are not in direct contact with rock. The width of rock removal shall be 1m minimum or the diameter of the pipe plus 600mm.

For open drains, rock removal shall match the proposed grade and bottom width shown on the Drawings. Side slopes shall be vertical or sloped outward. Side slopes shall be free of loose rock when excavation is completed.

Payment for the quantity of rock removed will be based on the typical sections described in these specifications and confirmed by field measurements. There will be no payment for overbreak.

#### **400.28.4 Disposal of Rock**

Excavated rock shall be piled at the edge of the working area at locations designated by the landowner. The cost to pile excavated rock shall be included in the tender price for rock removal. If the Special Provisions or the landowner require excavated rock to be hauled away, additional payment will be considered.

Where approved by the Engineer, excavated rock may be used in place of imported riprap.

### **400.29 SEEDING**

#### **400.29.1 General**

Contractor responsible for re-seeding as necessary for uniform catch during warranty period. Areas that remain grassed after construction may not need to be seeded unless directed otherwise by the Engineer.

#### **400.29.2 Drainage Works and Road Allowances**

All disturbed ditch banks, berms and road allowances are to be seeded at the end of the day.

The following seed mixture shall be applied at 60kg/ha using a mechanical (cyclone) spreader:

- 35% Creeping Red Fescue
- 25% Birdsfoot Trefoil
- 25% Kentucky Bluegrass
- 10% Cover Crop (Oats, Rye, Barley, Wheat)
- 5% White Clover

Provide temporary cover for late fall planting by adding an additional 10 kg/ha of rye or winter wheat.

#### **400.29.3 Hydroseeding**

Where hydroseeding is specified, disturbed areas will be restored by the uniform application of a standard roadside mix, fertilizer, mulch and water at a rate of 2,000 kg/ha and be in accordance with OPSS 804.

#### **400.29.4 Seeding Lawns**

Unless specified otherwise, lawn areas shall be seeded with Canada No. 1 lawn grass mixture applied at 300 kg/ha using a mechanical (cyclone) spreader on 100mm of topsoil. Fertilizer shall be 5:20:20 or 10:10:10 applied at 300 kg/ha. Seed and fertilizer shall be applied together. Contractor shall arrange for watering with landowners.

#### **400.29.5 Sod**

Where sod is specified, sod is to be commercial grade turfgrass nursery sod, Kentucky Bluegrass placed on 50mm of topsoil. Fertilizer shall be 5-20-20 applied at 10kg/ha. Place sod in accordance with supplier instructions. Contractor is responsible for saturating the sod with water on the day of sod placement. Subsequent watering is the responsibility of the landowner.

**400.30 EROSION CONTROL BLANKETS**

Erosion Control Blankets (ECB) shall be biodegradable and made of straw/coconut (Terrafix SC200, Nillex SC32 or equal) or coconut (Terrafix C200, Nillex C32 or equal) with photodegradable, double net construction. The blanket and the staples shall be supplied and installed as per OPSS 804.

Erosion control blanket shall be placed and stapled into position as per the manufacturer's installation instructions on slopes as directed by the Engineer. Blankets shall be installed in direct contact with the ground surface to form a uniform, cohesive mat over the seeded earth area. The blankets are to be single course with 150mm overlap between blankets and joints are to be staggered. The Contractor shall ensure that the ECB is anchored to the soil and that tenting of the ECB does not occur.

On slopes, when the ECB cannot be extended 1m beyond the crest of the slope, the uppermost edge of the ECB shall be anchored in a 150mm wide by 150mm deep trench. The trench shall be backfilled with earth and compacted.

**400.31 SEDIMENT CONTROL****400.31.1 General**

Contractor shall install sediment control features at the downstream limits of the project and at other locations as shown on the drawings or directed by the Engineer.

Sediment control features shall be installed prior to any excavation taking place upstream of that location. The Contractor shall maintain all sediment control features throughout construction and the warranty period.

Sediment that accumulates during construction shall be removed and levelled as required.

**400.31.2 Flow Check Dams****400.31.2.1 Temporary Straw Bale Flow Check Dam**

The straw bale flow check dam shall consist of a minimum of 3 bales. Each bale is to be embedded at least 150mm into the channel bottom and shall be anchored in place with 2 T-bar fence posts or 1.2m wooden stakes driven through the bale.

Straw bales shall be hauled away at the end of the warranty period. Accumulated sediments shall be excavated and levelled when the temporary straw bale flow check dam is removed.

**400.31.2.2 Temporary Rock Flow Check Dam**

The temporary rock flow check dam shall extend to the top of the banks so that dam overtopping does not cause bank erosion. Rock shall be embedded a minimum of 150mm into the ditch bottom and banks. No geotextile is required for temporary rock flow check dams.

Accumulated sediments shall be excavated and levelled when the temporary rock flow check dam is removed at the conclusion of the warranty period.

**400.31.2.3 Permanent Rock Flow Check Dam**

The requirements of temporary rock flow check dams shall apply except rock shall be placed on geotextile and the dam shall remain in place permanently.

**400.31.3 Sediment Traps****400.31.3.1 *General***

The channel bottom shall be deepened in accordance with the dimensions provided in the Drawings or Special Provisions. If dimensions are not specified on the Drawings, the sediment trap shall be excavated within the channel cross-section at least 0.3m below the design grade.

The Contractor will monitor the sediment trap during construction and cleanout accumulated sediments as required to maintain the function of the sediment trap.

If specified to be temporary, no sediment trap maintenance is required after construction is complete.

If specified to be permanent, the contractor will clean out the sediment trap at the conclusion of the warranty period, unless directed otherwise by the Engineer.

**400.31.3.2 *Sediment Trap with Flow Check Dam***

A permanent rock sediment trap shall include a permanent sediment trap and a rock flow check dam.

A temporary rock/straw sediment trap shall include a temporary sediment trap and a rock/straw flow check dam.

**400.31.4 Turbidity Curtains**

A turbidity curtain is required when there is permanent water level/flow and a sediment trap is not feasible.

Turbidity curtains shall be in accordance with OPSS 805 and installed per manufacturer's instructions.

Turbidity curtains shall be sized and anchored to ensure the bottom edge of the curtain is continuously in contact with the waterbody bed so that sediment passage from the enclosed area is prevented. The curtain must be free of tears and capable of passing the base flow from the drainage works. Turbidity curtain locations may be approved by the Engineer.

Turbidity curtains are to remain functional until work in the enclosed area is completed. Prior to relocating or removing turbidity curtains, accumulated sediment is to be removed from the drain and levelled.

Where a turbidity curtain remains in place for more than two weeks it shall be inspected for damage or clogging and replaced, repaired or cleaned as required.

**400.31.5 Silt Fence**

Silt fence shall be in accordance with OPSS 805.07.02.02 and OPSD 219.110 (light-duty).

**400.32 GRASSED WATERWAYS AND OVERFLOW SWALES**

Grassed waterways and overflow swales typically follow low ground along the historic flow route. The cross-section shall be saucer shaped with a nominal 1m bottom width, 8:1 side slopes and 300mm depth unless stated otherwise in the Special Provisions.

All grassed waterways are to be permanently vegetated. Grassed waterways shall be seeded with the following permanent seed mixture: 50% red fescue, 45% perennial ryegrass and 5% white clover, broadcast at 80 kg/ha. Fertilizer to be 7-7-7 applied at 80 kg/ha.

Provide temporary cover for late fall planting by adding an additional 10 kg/ha of rye or winter wheat.

Overflow swales may be cropped using conventional farming practice.

#### **400.33 BUFFER STRIPS**

Open drains shall include minimum 3m wide, permanently vegetated buffer strips on each side of the drain. Catchbasins shall include a minimum 1m radius, vegetated buffer strip around the catchbasin.

Cultivation of buffer strips using conventional farming practice may be undertaken, provided sediment transport into the drain is minimized.

#### **400.34 MAINTENANCE CORRIDOR**

The maintenance corridor along the route of the drain, as established in the report, shall be kept free of obstructions, ornamental vegetation and structures. When future maintenance is undertaken, the cost of removing such items from the corridor shall be assessed to the landowner.

#### **400.35 POLLUTION**

The Contractor shall keep their equipment in good repair. The Contractor or any landowner shall not spill or cause to flow any polluted material into the drain that is not acceptable to the MOECC. The local MOECC office and the Engineer shall be contacted if a polluted material enters the drain. The Contractor shall refill or repair equipment away from open water. If the Contractor causes a spill, the Contractor is responsible to clean-up the spill in accordance with MOECC clean-up protocols.

#### **400.36 SPECIES AT RISK**

If a Contractor encounters a known Species At Risk designated by the MNRF or DFO, the Contractor shall notify the Engineer immediately and follow the Ministry's guidelines for work around the species.

**STANDARD SPECIFICATIONS**

**FOR**

**OPEN DRAINS**

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**410.1 DESCRIPTION**

Work under this item shall include the supply of labour, equipment and materials required for: channel excavation to the cross-section specified, leveling or disposal of all excavated material (spoil) as directed, reconstruction of all intercepted drains as required and any other items related to open drain construction as required by the Schedule of Tender Prices, Special Provisions or the Drawings.

**410.2 MATERIALS**

Refer to Section 400, Standard Specifications for Drain Construction for any materials required for open drain construction.

**410.3 CONSTRUCTION****410.3.1 Excavation**

The bottom width and the side slopes of the ditch shall be as shown on the profile drawing. If the channel cross-section is not specified in the Special Provisions it shall be a 1m bottom width with 1.5m horizontal to 1m vertical (1.5:1) bank slope. At locations along the drain where the specified side slopes change there shall be a transitional length of not less than 5m between the varying side slopes. At locations along the drain where the specified bottom width changes there shall be a transitional length of not less than 5m. In all cases there shall be a smooth transition between changes in any part of the channel cross-section. Where the bottom width of the existing ditch matches the specified bottom width, ditch excavation shall be completed without disturbing existing banks.

**410.3.2 Low Flow Channels**

Unless specified otherwise in the Special Provisions, all intermittent open drains with a bottom width greater than 1.8m and a grade less than 0.07%, shall have a low flow channel. The bottom of the low flow channel shall be the grade shown on the profiles.

The low flow channel shall have a U-shaped cross-section with an average top width of 0.5m and a minimum depth of 0.3m. The low flow channel will not be seeded and may meander along the main channel bottom provided it remains at least .3m from the toe of main channel bank slope.

**410.3.3 Line**

The drain shall be constructed according to the alignment shown on the drawings or shall follow the course of the existing ditch. All bends shall have a minimum inside radius of 2m. There shall be a smooth transition between changes in the channel alignment. The Contractor shall contact the Engineer before removing any bends or irregularities in an existing ditch.

**410.3.4 Grade Control**

The profile shows the grade line for the bottom of the ditch. Cuts may be shown on the profile from the existing top of bank and/or from the existing ditch bottom to the new ditch bottom. These cuts are shown for the convenience of the Contractor and are not recommended for quantity estimate or grade control. Accurate grade control must be maintained by the Contractor during ditch excavation. The ditch bottom elevation should be checked every 50 metres and compared to the elevation on the profile.

Benchmarks are identified on the Contract Drawings. The Engineer will confirm all benchmark elevations prior to construction.

**410.3.5 Variation from Design Grade**

A variation of greater than 25mm above the design grade line may require re-excavation. Excavation below design grade up to 150mm is recommended so that sediment accumulation during or following excavation will not place the ditch bottom above the design grade at completion. Under some circumstances the Engineer may direct that over excavation greater than 200mm will have to be backfilled. No additional payment will be made if backfilling is required to remedy over excavation.

**410.3.6 Excavated Material**

Excavated material (spoil) shall be deposited on either or both sides of the drain within the specified working area as directed in the Special Provisions. The Contractor shall verify the location for the spoil with each landowner before commencing work on their property. If not specified, spoil shall be placed on the low side of the ditch or opposite trees and fences. The spoil shall be placed a minimum 1m from the top of the bank. No excavated material shall be placed in tributary drains, depressions, or low areas such that water is trapped behind the spoil bank. Swales shall be provided through the leveled or piled spoil at approximately 60m intervals to prevent trapping water behind the spoil bank.

The excavated material shall be placed and leveled to a maximum depth of 250mm; unless otherwise instructed. If excavating more than 450mm topsoil shall be stripped, stockpiled separately and replaced over the leveled spoil, unless stated otherwise in the Special Provisions. The edge of the spoil bank furthest from the ditch shall be feathered down to existing ground. The edge of the spoil bank nearest the ditch shall have a maximum slope of 2:1. The material shall be leveled such that it may be cultivated with conventional equipment without causing undue hardship on farm machinery.

Wherever clearing is necessary prior to leveling, the Contractor shall remove all stumps and roots from the working area. No excavated material shall cover any logs, brush or rubbish of any kind. Large stones in the leveled spoil that are greater than 300mm in diameter shall be moved to the edge of the spoil bank nearest to the ditch but in general no closer than 1m to the top of bank.

Lateral channels that outlet into the drain shall be tapered over a distance of 10m to match the grade of drain excavation. No additional payment will be made for this work.

Where the elevation difference between the lateral channel and the drain is greater than 450mm, a rock chute or similar bank protection approved by the Engineer shall be provided. Additional payment may be allowed for this work.

Where it is specified to straighten any bends or irregularities in the alignment of the ditch or to relocate any portion of an existing ditch, the excavation from the new cut shall be used for backfilling the original ditch. Regardless of the distance between the new ditch and old ditch, no additional payment will be allowed for backfilling the existing ditch.

The Contractor shall contact the Engineer if a landowner indicates in writing that spoil on the owner's property does not need to be leveled. The Engineer may release the Contractor from the obligation to level the spoil and the Engineer shall determine the credit to be applied to the Contractor's payment. No additional compensation is provided to the owner if the spoil is not leveled.

The Engineer may require the Contractor to obtain written statements from any or all of the landowners affected by the leveling of the spoil. Final determination on whether or not the leveling of spoil meets the specification shall be made by the Engineer.

**410.3.7 Excavation at Existing Bridge and Culvert Sites**

The Contractor shall excavate the drain to the specified depth under all bridges and to the full width of the structure unless specified otherwise in the Special Provisions. All necessary care and precautions shall be taken to protect permanent structures. Temporary bridges may be removed and left on the bank of the drain. In cases where the design grade line falls below the top of footings, the Contractor shall take care to not over-excavate below the grade line. The Contractor shall notify the Engineer if excavation of the channel exposes the footings of the bridge or culvert, so the Engineer can make an evaluation.

The Contractor shall clean through all pipe culverts to the grade line and width specified on the profile. The Contractor shall immediately contact the Engineer after a culvert cleanout if it is found that the culvert bottom is above the grade line or where the structural integrity of the culvert is questionable.

Material resulting from cleanout through bridges or culverts shall be levelled on the adjacent private lands or hauled offsite at the expense of the bridge/culvert owner.

**410.3.8 Bridges and Culverts**

The size and material for any new ditch crossings shall be as outlined in the Special Provisions.

For culvert installation instructions, refer to the General Specifications for Drain Construction and the Drawings.

Any crossings assembled on-site shall be assembled in accordance with the manufacturer's specifications.

If directed on the drawings that the existing crossing is to be salvaged for the owner, the Contractor shall carefully remove the existing crossing and place it beside the ditch or haul to a location as specified by the owner. If the existing crossing is not to be saved then the Contractor shall remove and dispose of the existing crossing. Disposal by burying on-site must be approved by the Engineer and the owner.

All new pipe crossings shall be installed at the invert elevations as specified on the Drawings, usually a minimum of 50mm below design grade. If the ditch is over excavated greater than 200mm below design grade the Contractor shall confirm with the Engineer the elevations for installation of the new pipe crossing.

For backfill and surface restoration, refer to the General Specifications for Drain Construction and the Drawings.

Installation of private crossings during construction must be approved by the Engineer.

**410.3.9 Obstructions**

All trees, brush, fallen timber and debris shall be removed from the ditch cross-section and as required for spreading of the spoil. The roots shall be left in the banks if no bank excavation is required as part of the new channel excavation. In wooded or heavily overgrown areas all cleared material may be pushed into piles or rows along the edge of the cleared path and away from leveled spoil. All dead trees along either side of the drain that may impede the performance of the drain if allowed to remain and fall into the ditch, shall be removed and put in piles, unless directed otherwise by the Engineer.

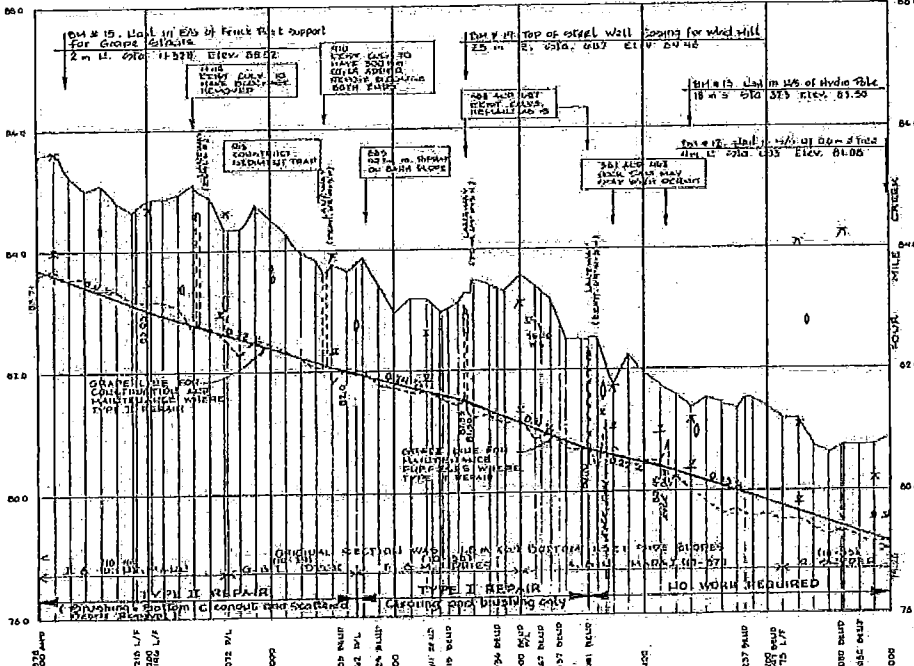
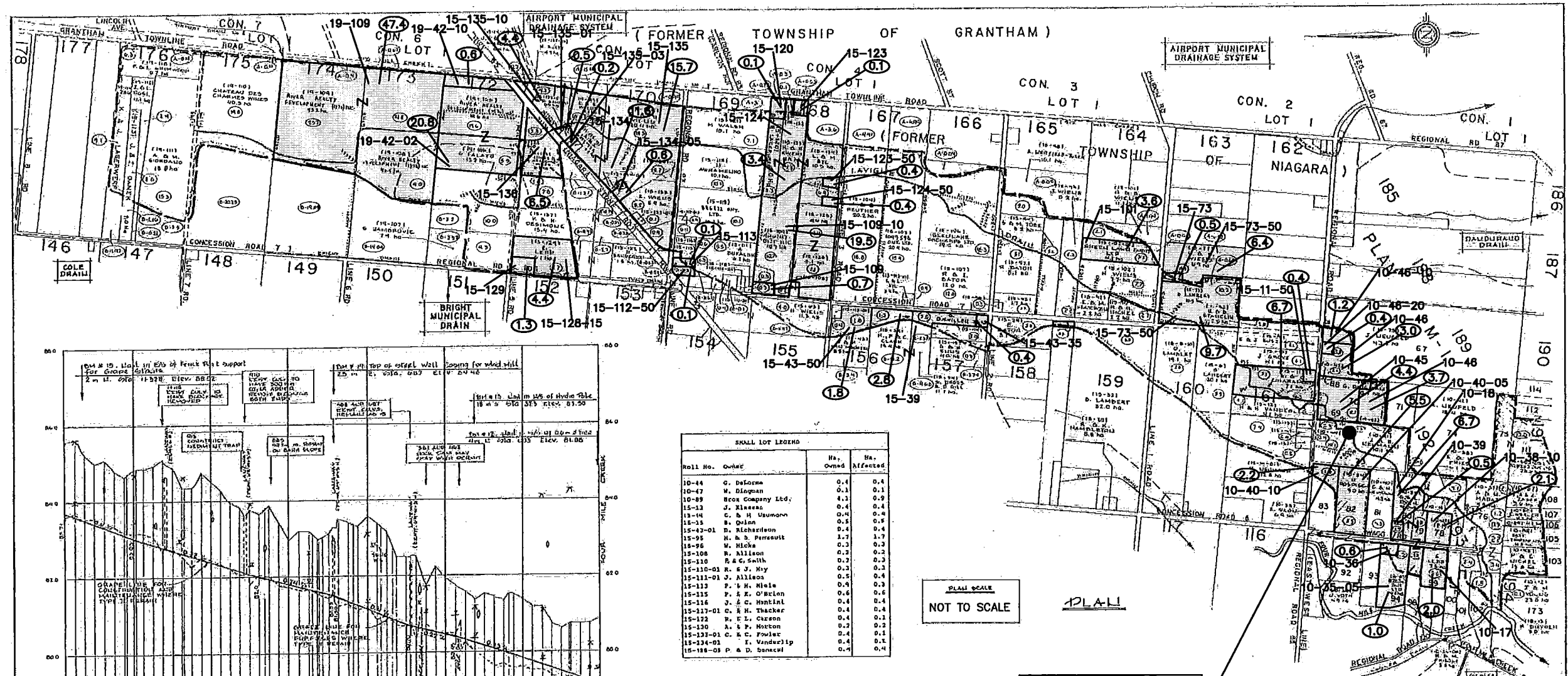
**410.3.10 Tile Outlets**

The location of all existing tile outlets may not be shown on the profile for the drain. The Contractor shall contact each owner and ensure that all tile outlets are marked prior to commencing excavation on the owner's property. If a marked tile outlet or the tile upstream is damaged due to construction, it shall be replaced at the Contractor's expense. Additional payment will be allowed for the repair or replacement of any unmarked tile outlets encountered during excavation. In all cases, if an existing tile outlet requires replacement the Contractor shall confirm the replacement tile outlet with the Engineer. Where riprap protection exists at any existing tile outlet such protection shall be removed and replaced as necessary to protect the outlet after reconstruction of the channel.

If any tile outlet becomes plugged as a result of construction, the Contractor shall remove the obstruction.

**410.3.11 Completion**

At the time of final inspection, all work in the contract shall have the full dimensions and cross-sections specified.



SMALL LOT LEGEND

| Roll No.  | Owner             | No. Owned | No. Affected |
|-----------|-------------------|-----------|--------------|
| 10-44     | G. DeLoore        | 0.4       | 0.4          |
| 10-47     | W. Dismann        | 0.3       | 0.1          |
| 10-89     | Waco Company Ltd. | 4.1       | 0.9          |
| 15-13     | J. Klaxson        | 0.4       | 0.4          |
| 13-14     | C. & H. Usomann   | 0.4       | 0.4          |
| 15-18     | R. DeLeon         | 0.5       | 0.5          |
| 15-43-01  | D. Richardson     | 0.4       | 0.4          |
| 15-98     | H. & S. Perreault | 1.7       | 1.7          |
| 15-98     | W. Hicks          | 0.3       | 0.3          |
| 15-108    | R. Allison        | 0.2       | 0.2          |
| 15-110    | R. & G. Smith     | 0.3       | 0.3          |
| 15-110-03 | R. & J. May       | 0.3       | 0.3          |
| 15-111-01 | J. Allison        | 0.5       | 0.4          |
| 15-113    | P. & M. Meale     | 0.8       | 0.8          |
| 15-115    | P. & E. O'Brien   | 0.6       | 0.6          |
| 15-116    | J. & C. Hontela   | 0.4       | 0.4          |
| 15-117-01 | C. & H. Thacker   | 0.4       | 0.4          |
| 15-122    | P. E. Carson      | 0.4       | 0.1          |
| 15-130    | A. & P. Houston   | 0.2       | 0.2          |
| 15-133-01 | C. & C. Fowler    | 0.4       | 0.1          |
| 15-134-01 | I. Vanderlip      | 0.4       | 0.4          |
| 15-138-03 | P. & D. Senechal  | 0.4       | 0.4          |

NOTE: - TYPE II Repair is bottom cleanout and brushing, including leveling, clearing of wooded areas and cutting of weeds.  
 - TYPE I Repair is line a TYPE II but not a bottom cleanout or leveling.

PLAN SCALE  
 NOT TO SCALE

AREA OF REALIGNMENT 10-041  
 J. & D. NEUMANN  
 314 EAST-WEST LINE

SKETCH REVISED DATE:  
 OCTOBER 31, 2018

PLAN LEGEND

- MAJOR WATERSHED
- INTERMEDIATE WATERSHED
- PROPOSED DRAIN
- EXISTING DRAIN
- PRIVATE TILE DRAINS
- PROPERTY OWNERSHIP ON BOTH SIDES OF LOT LINE
- APPROXIMATE BOUNDARIES IN WATERSHED FOR LAVIGNE DRAIN
- APPROXIMATE BOUNDARIES IN WATERSHED FOR BRIGHT DRAIN
- APPROXIMATE BOUNDARIES IN WATERSHED FOR AIRPORT MUNICIPAL DRAINAGE SYSTEM
- ASSESSMENT ROLL NUMBER
- ACCESS ROUTE
- TILED INTO LAVIGNE DRAIN WATERSHED
- TILED OUT OF LAVIGNE DRAIN WATERSHED
- PROPERTY SUBJECT TO REAPPORTMENT

PROFILE SCALE  
 HORIZONTAL  
 NOT TO SCALE

MAIL DRAIN

| No. | REVISION | DATE | DESIGNED BY: KAG     | SCALE        |
|-----|----------|------|----------------------|--------------|
|     |          |      | CHECKED BY: JJK      | NOT TO SCALE |
|     |          |      | DRAWN BY: JG/3/19/18 |              |
|     |          |      | CHECKED BY: KAG/JJK  |              |
|     |          |      | FIELD BOOK: Y92001   |              |

NOTE TO CONTRACTORS:  
 CONTRACTORS ARE ADVISED THAT ALL EXTRA WORK MUST BE REPORTED ON DAILY EXTRA WORK SHEET TO ENGINEER BY PHONE OR BY PERSON AT COMPLETION OF EACH DAY OR PRIOR TO STARTING ANY FURTHER EXTRA WORK THE NEXT DAY. FAILURE TO DO SUCH MAY CAUSE REJECTION OF CLAIM FOR EXTRA PAYMENT. THE CONNECTIONS ARE EXCEPTED.

NOTE 1 METRIC CONVERSION

| IN     | MM      | FT       | M        |
|--------|---------|----------|----------|
| 1/8"   | 3.175   | 0.015625 | 0.003048 |
| 1/4"   | 6.350   | 0.03125  | 0.006096 |
| 3/8"   | 9.525   | 0.046875 | 0.009144 |
| 1/2"   | 12.700  | 0.0625   | 0.01524  |
| 5/8"   | 15.875  | 0.078125 | 0.019685 |
| 3/4"   | 19.050  | 0.09375  | 0.023813 |
| 7/8"   | 22.225  | 0.109375 | 0.027941 |
| 1"     | 25.400  | 0.125    | 0.03178  |
| 1 1/8" | 31.750  | 0.15625  | 0.039624 |
| 1 1/4" | 38.100  | 0.1875   | 0.047638 |
| 1 3/8" | 44.450  | 0.21875  | 0.055823 |
| 1 1/2" | 50.800  | 0.25     | 0.063501 |
| 1 5/8" | 57.150  | 0.28125  | 0.071450 |
| 1 3/4" | 63.500  | 0.3125   | 0.079560 |
| 1 7/8" | 69.850  | 0.34375  | 0.087831 |
| 2"     | 76.200  | 0.375    | 0.096264 |
| 2 1/8" | 82.550  | 0.40625  | 0.104858 |
| 2 1/4" | 88.900  | 0.4375   | 0.113613 |
| 2 3/8" | 95.250  | 0.46875  | 0.122529 |
| 2 1/2" | 101.600 | 0.5      | 0.131604 |
| 2 5/8" | 107.950 | 0.53125  | 0.140839 |
| 2 3/4" | 114.300 | 0.5625   | 0.150234 |
| 2 7/8" | 120.650 | 0.59375  | 0.159789 |
| 3"     | 127.000 | 0.625    | 0.169504 |
| 3 1/8" | 133.350 | 0.65625  | 0.179379 |
| 3 1/4" | 139.700 | 0.6875   | 0.189414 |
| 3 3/8" | 146.050 | 0.71875  | 0.199609 |
| 3 1/2" | 152.400 | 0.75     | 0.209964 |
| 3 5/8" | 158.750 | 0.78125  | 0.220479 |
| 3 3/4" | 165.100 | 0.8125   | 0.231154 |
| 3 7/8" | 171.450 | 0.84375  | 0.241989 |
| 4"     | 177.800 | 0.875    | 0.252984 |
| 4 1/8" | 184.150 | 0.90625  | 0.264139 |
| 4 1/4" | 190.500 | 0.9375   | 0.275454 |
| 4 3/8" | 196.850 | 0.96875  | 0.286929 |
| 4 1/2" | 203.200 | 1.0      | 0.298564 |
| 4 5/8" | 209.550 | 1.03125  | 0.310359 |
| 4 3/4" | 215.900 | 1.0625   | 0.322314 |
| 4 7/8" | 222.250 | 1.09375  | 0.334429 |
| 5"     | 228.600 | 1.125    | 0.346704 |
| 5 1/8" | 234.950 | 1.15625  | 0.359139 |
| 5 1/4" | 241.300 | 1.1875   | 0.371734 |
| 5 3/8" | 247.650 | 1.21875  | 0.384489 |
| 5 1/2" | 254.000 | 1.25     | 0.397404 |
| 5 5/8" | 260.350 | 1.28125  | 0.410479 |
| 5 3/4" | 266.700 | 1.3125   | 0.423714 |
| 5 7/8" | 273.050 | 1.34375  | 0.437109 |
| 6"     | 279.400 | 1.375    | 0.450664 |
| 6 1/8" | 285.750 | 1.40625  | 0.464379 |
| 6 1/4" | 292.100 | 1.4375   | 0.478254 |
| 6 3/8" | 298.450 | 1.46875  | 0.492289 |
| 6 1/2" | 304.800 | 1.5      | 0.506484 |
| 6 5/8" | 311.150 | 1.53125  | 0.520839 |
| 6 3/4" | 317.500 | 1.5625   | 0.535354 |
| 6 7/8" | 323.850 | 1.59375  | 0.550029 |
| 7"     | 330.200 | 1.625    | 0.564864 |
| 7 1/8" | 336.550 | 1.65625  | 0.579859 |
| 7 1/4" | 342.900 | 1.6875   | 0.595014 |
| 7 3/8" | 349.250 | 1.71875  | 0.610329 |
| 7 1/2" | 355.600 | 1.75     | 0.625804 |
| 7 5/8" | 361.950 | 1.78125  | 0.641439 |
| 7 3/4" | 368.300 | 1.8125   | 0.657234 |
| 7 7/8" | 374.650 | 1.84375  | 0.673189 |
| 8"     | 381.000 | 1.875    | 0.689304 |
| 8 1/8" | 387.350 | 1.90625  | 0.705579 |
| 8 1/4" | 393.700 | 1.9375   | 0.722014 |
| 8 3/8" | 400.050 | 1.96875  | 0.738609 |
| 8 1/2" | 406.400 | 2.0      | 0.755364 |
| 8 5/8" | 412.750 | 2.03125  | 0.772279 |
| 8 3/4" | 419.100 | 2.0625   | 0.789354 |
| 8 7/8" | 425.450 | 2.09375  | 0.806589 |
| 9"     | 431.800 | 2.125    | 0.823984 |
| 9 1/8" | 438.150 | 2.15625  | 0.841539 |
| 9 1/4" | 444.500 | 2.1875   | 0.859254 |
| 9 3/8" | 450.850 | 2.21875  | 0.877129 |
| 9 1/2" | 457.200 | 2.25     | 0.895164 |
| 9 5/8" | 463.550 | 2.28125  | 0.913359 |
| 9 3/4" | 469.900 | 2.3125   | 0.931714 |
| 9 7/8" | 476.250 | 2.34375  | 0.950229 |
| 10"    | 482.600 | 2.375    | 0.968904 |

LAVIGNE DRAIN 1995

REGIONAL MUNICIPALITY OF NIAGARA TOWN OF NIAGARA ON THE LAKE

PLAN AND PROFILE (Main Drain Sta. 0+00 to Sta. 1+376+000 A.H.D.)

JOB NUMBER: Y92001

DATE: MAY 3, 1995

DRAWING NUMBER:

YOUNG-SMART ENGINEERING CO.  
 101 ADVANCE BLVD., SUITE 100 BRAMPTON, ONTARIO L6Y 4T6  
 88 MCINTYRE DRIVE KITCHENER, ONTARIO N2B 1G4

(10-41) (LOT 73)  
C. & H. NEUMANN  
(314 EAST-WEST LINE)

STA. 0+100 N TO 0+113± N  
CONSTRUCT NEWBURY WEIR/RIFFLER  
WITH 168m<sup>2</sup> OF RIPRAP  
(SEE DETAIL ON DWG. 3)

ELEV. 85.46  
STA. 0+046 EX. (1+424)  
CONSTRUCT TEMPORARY  
ROCK SEDIMENT TRAP  
WITH 10m<sup>2</sup> RIPRAP

STA. 0+000 EX. (1+378)  
TO 0+051 EX. (1+428)  
NO WORK REQUIRED.  
EXISTING DITCH TO REMAIN

STA. 0+051 N TO 0+161 N  
EXCAVATE 110m OF NEW DITCH  
(1.75m BOTTOM WIDTH,  
1.5:1 SIDE SLOPES)  
USE EXCAVATED MATERIALS  
TO FILL IN EXISTING DITCH

STA. 0+051 EX. TO 0+135 EX.  
FILL IN 84m OF EXISTING DITCH  
AND GRADE FROM EXISTING  
TO NEW DITCH AT 0.1% GRADE

STA. 0+161 N TO 0+168 N  
REMOVE AND DISPOSE OF EXISTING  
2000mm WIDEX1400mm HIGHX7m LONG ARCH CSP  
PLACE 7m OF 2130mm WIDEX1400mm HIGH ARCH CSP  
REUSE CONCRETE WEIR BLOCKS ON UPSTREAM END  
AND CONSTRUCT BRACKETS FOR STOP LOGS. (SEE DETAIL)  
PLACE 10m<sup>2</sup> OF RIPRAP ON D/S END  
D/S INV. 84.00  
U/S INV. 84.05

STA. 0+140± N (0+104± EX.)  
EXTEND EXISTING PRIVATE TILE OUTLET  
TO NEW DITCH WITH 25m± OF 100mmφ  
PLASTIC TUBING WITH RODENT GATE AT OUTLET

**PLAN LEGEND**  
(1+533) -1995 STATION  
0+075 N -2018 NEW ALIGNMENT STATION  
0+047 EX -2018 EXISTING DITCH STATION

BM#8  
SPIKE IN W/S OF 5" DIA. WOOD BRACE  
POST FOR GRAPE VINES  
11m WEST OF SOUTH (U/S) END OF  
LANEWAY CULVERT  
ELEV. 85.888

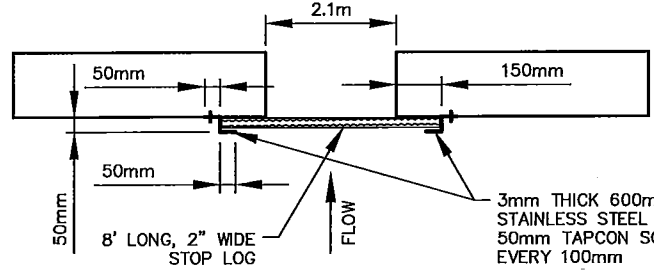
**GEOGRAPHIC TOWNSHIP OF NIAGARA**

DESIGNED BY: N.W.M.  
CHECKED BY: N.W.M.  
DRAWN BY: D.C.P.  
CHECKED BY: N.W.M.



SCALE  
0 5 10m  
(1:500 ON 11"x17")

STA. 0+141  
EX. (1+501) TO 0+188 EX. (1+566)  
NO WORK REQUIRED.  
EXISTING DITCH TO REMAIN



**STOP LOG BRACKET DETAIL**  
TOP VIEW  
N.T.S.

**LAVIGNE DRAIN (NEUMANN PROPERTY)**  
NIAGARA REGION TOWN OF NIAGARA-ON-THE-LAKE

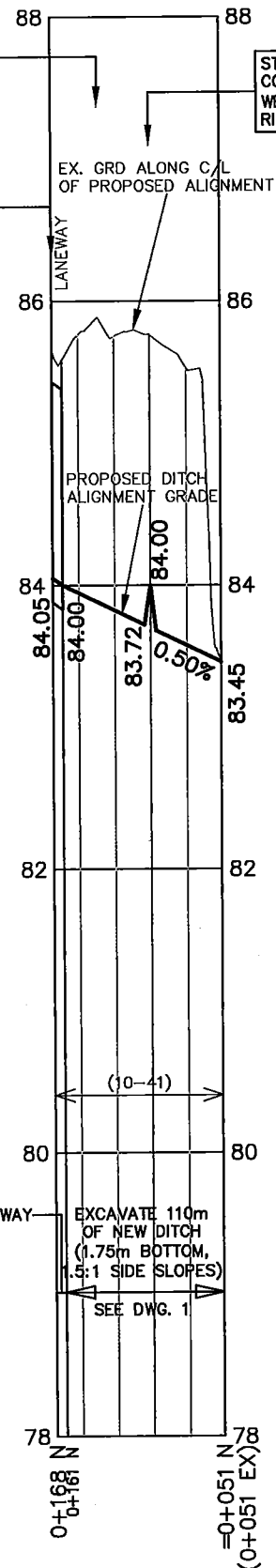
**SITE PLAN** OCT. 31, 2018

**K. SMART ASSOCIATES LIMITED**  
CONSULTING ENGINEERS AND PLANNERS  
KITCHENER SUDBURY

REVISED:  
JOB NUMBER: 17-239  
DRAWING: 2

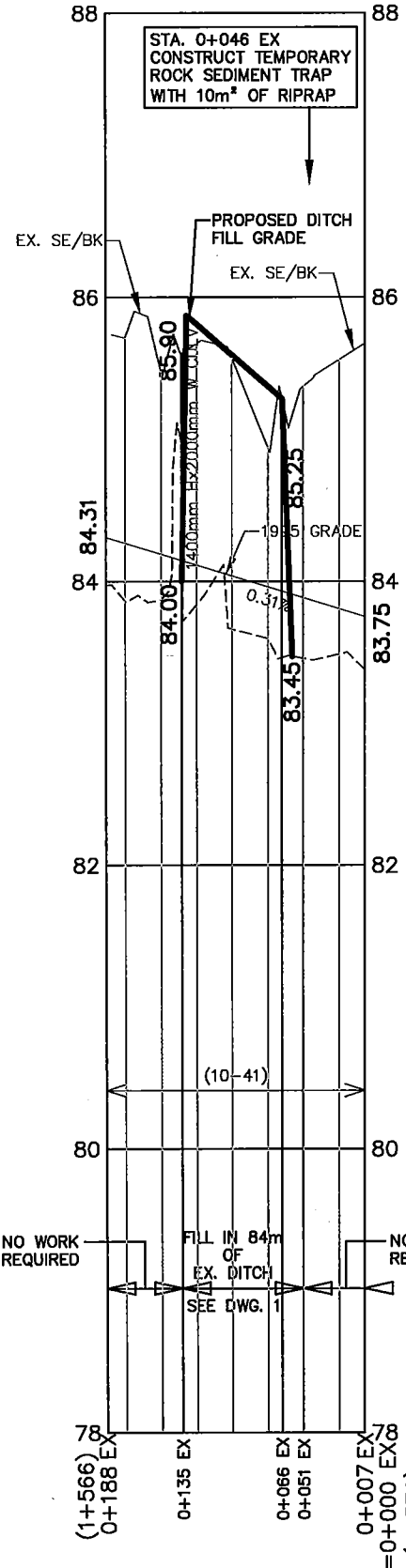
STA. 0+140± N (0+104± EX.)  
EXTEND EXISTING TILE OUTLET  
TO NEW DITCH WITH 25m OF  
100mmØ PLASTIC TUBING WITH  
RODENT GATE AT OUTLET

STA. 0+161 N TO 0+168 N  
REMOVE EXISTING LANEWAY  
CULVERT AND REPLACE WITH  
7m OF 2130mm WIDEx1400mm  
HIGH ARCH CSP  
D/S INV. 83.98  
U/S INV. 84.03

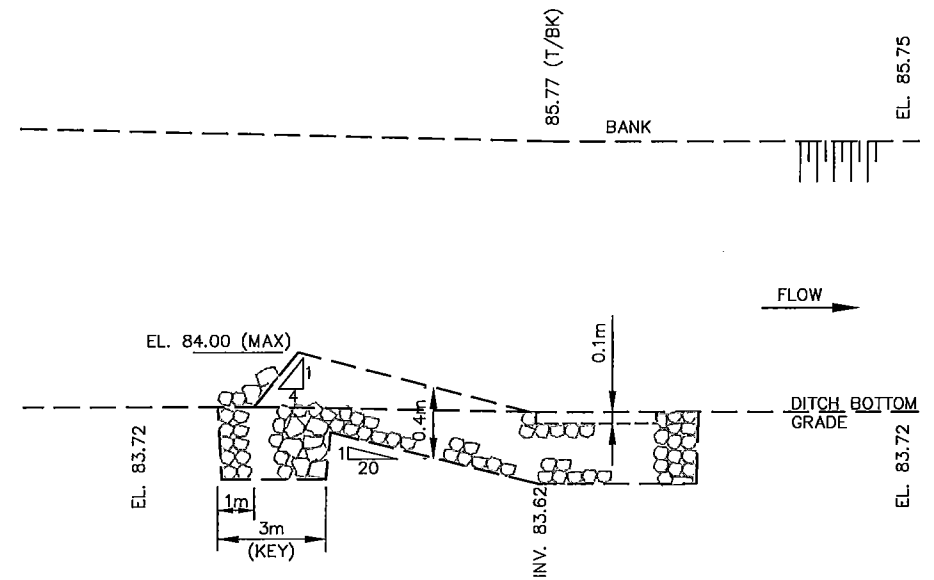


**PROPOSED DITCH**  
(NEW ALIGNMENT)

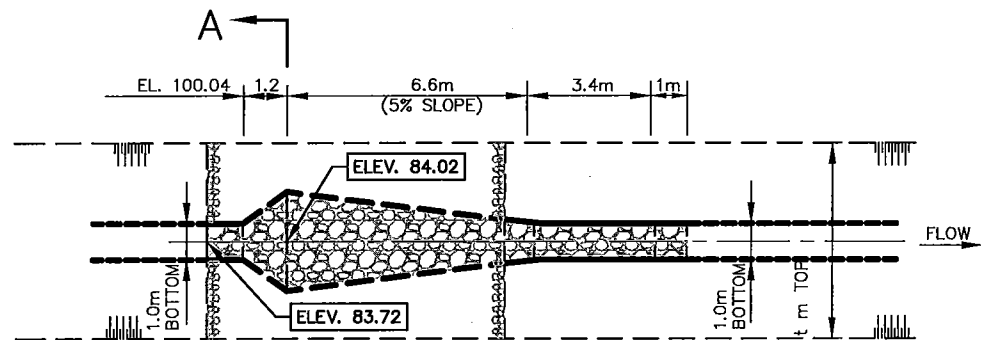
STA. 0+100 N TO 0+113 N  
CONSTRUCT NEWBURY  
WEIR/RIFLE WITH 76m² OF  
RIPRAP AT BEND



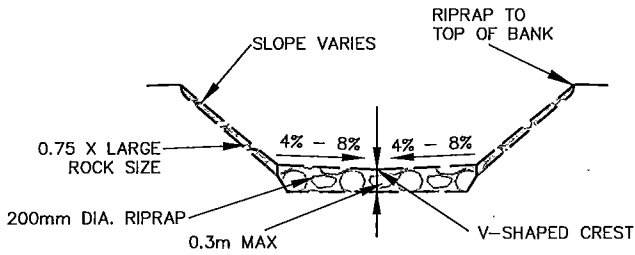
**EXISTING DITCH**



**SIDE VIEW**  
N.T.S.

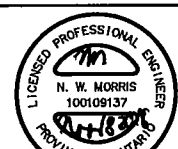


**NEWBURY WEIR/RIFLE TOP VIEW**  
N.T.S.



**SECTION A - A**  
N.T.S.

DESIGNED BY: N.W.M.  
CHECKED BY: N.W.M.  
DRAWN BY: D.C.P.  
CHECKED BY: N.W.M.



SCALE  
0 50 100m  
(SCALE HORIZ. 1 : 5000)  
0 0.5 1m  
(SCALE VERT. 1 : 50)  
(ON 11"x17")

|  |  |  |   |
|--|--|--|---|
| <b>LAVIGNE DRAIN (NEUMANN PROPERTY)</b>  |  | NIAGARA REGION TOWN OF NIAGARA-ON-THE-LAKE |   |
| <b>PROFILES AND NEWBURY WEIR DETAILS</b>   |  | OCT. 31, 2018                              |   |
| <b>K. SMART ASSOCIATES LIMITED</b><br>CONSULTING ENGINEERS AND PLANNERS<br>KITCHENER SUDBURY |  | REVISED:                                   |   |
|  |  | JOB NUMBER: 17-239                         |   |
|  |  | DRAWING                                    | 3 |

**300) CONSTRUCTION NOTES (SPECIAL PROVISIONS)**

**300.1) SPECIFIC NOTES**

| Sta.                                     | Description  |
|--|--|
| 0+000 (1+378) to 0+188 (1+566)           | - See detail on Drawing 2.   |
| 0+000 (1+378) to 0+051 (1+428)           | - No work required. Existing ditch to remain.  |
| 0+046 (1+424)                            | - Construct temporary rock sediment trap (10m <sup>2</sup> of riprap)  |
| 0+051 N to 0+161 N                       | - Excavation of 110m of ditch (1.75m bottom width, 1.5:1 side slopes)<br>- Seeding of ditch banks (12m width – 1,320m <sup>2</sup> )<br>- Haul spoil to Sta. 0+051 EX to 0+135 EX of existing ditch to fill it in  |
| 0+100N to 0+113N                         | - Construct Newbury weir/riffle with 76m <sup>2</sup> riprap   |
| 0+051 EX to 0+135 EX                     | - Fill in 84m of existing ditch to surface.<br>- Grade from filled ditch to new ditch at 0.1% grade.   |
| 0+140 N                                  | - Install 25m of 100mm dia. plastic tubing with rodent gate at outlet to extend existing tile outlet to new ditch  |
| 0+161 N (0+135 EX) to 0+168 N (0+141 EX) | - Remove and dispose of existing laneway culvert and install 7m of 2130mm wide x 1400mm high (68 x 13mm corrugations, 2.8mm wall) aluminized arch CSP including 10m <sup>2</sup> of riprap on downstream end and re-using existing concrete weir blocks on upstream end, constructing steel brackets for stop logs and gravel laneway restoration. |
| 0+141 EX to 0+188 EX                     | - No work required. Existing ditch to remain.  |

**300.2) PROJECT NOTES**

**300.2.1) Working Area**

For work for the drain on the Neumann property, the working area is to be as shown on Drawing 2. Refer to Section 400.4 of Standard Specifications for Construction of Drains for exceptions.

**300.2.2) Access - General Condition E.11**

The Contractor shall have access to the drain along the routes, if any, shown on Drawing 1. The access routes shall be along existing laneways or paths or where none exist, along a 6m wide (maximum) path. No other access routes shall be used unless first approved by the Engineer and affected landowner. The contractor shall also contact each owner prior to using designated accesses. Refer to Section 400.5 of the Standard Specifications for the Construction of Drains. Telephone numbers for contact are:

|  |                       |
|--|-----------------------|
| 010-04100 John and Kurt Neumann                    | 905-658-2134          |
| Neal Morris, P.Eng. (K. Smart Associates Limited)) | 519-748-1199 ext. 240 |
| Niagara On-The-Lake Hydro (Kevin Sidey)            | 905-468-1285 ext. 530 |
| Niagara On-The-Lake                                | 905-468-3278 ext. 255 |
| (Brett Ruck, Drainage Superintendent)              |                       |
| One Call Centre                                    | 1-800-400-2055        |

**300.2.3) Soils Considerations**

The Region of Niagara soils mapping for this area indicates that the soils in the area of the realignment are noted to be primarily clay loam tills (clayey silt), although in some locations there may be sandy or loamy sediments over the loam tills.

Based on available information, no adverse subsurface conditions are expected on this project and the use of conventional construction equipment is anticipated.

**300.2.4) Environmental**

The following agencies have been notified of the project:

- Applications to NPCA, MNRF and DFO have been submitted in regards to Species at Risk and in regards to working in water, water course alterations and associated permits dated July 9, 2018
- There has been no response from MNRF to date
- The response from DFO indicated that the proposed works are not likely to result in serious harm to fish or prohibited effects on listed aquatic species at risk.

**300.2.5) Newbury Weir/Riffle**

The Newbury weir/riffle from Sta. 0+100 N to 0+113± N shall be constructed as per the detail on Drawing 3 with 200mm rock size riprap on the bottom and 150mm rock size riprap on the sides. All riprap is to be placed on a filter fabric underlay material, and is to be in accordance with OPSS 511 (Construction Specification for Rip-Rap, Rock Protection, and Granular Sheeting) & OPSS 1004 (Material Specifications for Aggregates).

**300.2.6) Native Seed (Seeding Mixture)**

Use Sassafras Farms wetland sites mixture or approved equal. Seed mixture to contain:

| Botanical Name                    | Common Name            | %  |
|-----------------------------------|------------------------|----|
| ( <i>Carex vulpinoidea</i> )      | Fox Sedge              | 20 |
| ( <i>Juncus effuses</i> )         | Soft Rush              | 5  |
| ( <i>Carex lupulina</i> )         | Hop Sedge              | 4  |
| ( <i>Elymus Riparius</i> )        | River Bank Wild Rye    | 22 |
| ( <i>Elymus Canadensis</i> )      | Canada Wild Rye        | 25 |
| ( <i>Mimulus ringens</i> )        | Monkey Flower          | 1  |
| ( <i>Verbena hastate</i> )        | Blue Vervain           | 2  |
| ( <i>Aster novae-angliae</i> )    | New England Aster      | 3  |
| ( <i>Carex stipata</i> )          | Awl Sedge              | 3  |
| ( <i>Eupatorium fistulosum</i> )  | Joe Pye Weed           | 1  |
| ( <i>Eupatorium perfoliatum</i> ) | Boneset                | 1  |
| ( <i>Scirpus cyperinus</i> )      | Wool Grass             | 7  |
| ( <i>Asclepias incarnate</i> )    | Swamp Milkweed         | 1  |
| ( <i>Solidago patula</i> )        | Rough Leaved Goldenrod | 5  |

To be applied at a rate of 3 kg per hectare.