

**PRIOR DRAIN –
BRANCH “C” UPPER PORTION
AND BRANCH “D”**

Municipality of Central Elgin



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PRIOR DRAIN - BRANCH "C" UPPER PORTION & BRANCH "D"

Municipality of Central Elgin

To the Mayor and Council of
the Municipality of Central Elgin

Mayor and Council:

We are pleased to present our report on the construction and incorporation of the Prior Drain – Branch "C" Upper Portion and Branch "D" Municipal Drain serving parts of Lots 17 and 18, Concessions 4 and 5 (geographic Yarmouth) in the Municipality of Central Elgin.

AUTHORIZATION

This report was prepared pursuant to Section 4 of the Drainage Act. Instructions were received from your Municipality with respect to a motion of Council. The work was initiated by a petition signed by one of the affected landowners and the Road Authority.

DRAINAGE AREA

The total watershed area as described above contains approximately 9.7 hectares. The area requiring drainage for Branch "C" Upper Portion and Branch "D" is described as Fruit Ridge Line located in Lots 17 and 18.

HISTORY

The Prior Drain - Branch C was last reconstructed pursuant to a report submitted by H. Huotari, P. Eng., dated April 25, 2018 and consisted of approximately 655 lineal meters of ditch construction commencing at Branch B of the Prior Drain and headed north along the property line in Lot 17, Concession 4 with its head just within the lands of V. McQuiggan (Roll No, 3-089). The drain report also included some upstream erosion works and a connection to a pond in the neighbouring lands to the west.

EXISTING DRAINAGE CONDITIONS

A site meeting was held on February 10, 2023 with respect to the project and through later discussions, the owners reported the following:

- that the owner's, V. McQuiggan (Roll No, 3-089), representative indicated that there was surface water in their lands coming from the Fruit Ridge Line which is causing erosion on their lands
- that the Road Authority for the Municipality of Central Elgin indicated that they were requesting that the existing outlets be incorporated as Municipal Drain to have a legal outlet for the portion of Fruit Ridge Line in Lots 17 and 18



EXISTING DRAINAGE CONDITIONS (cont'd)

- that other owners were present but did not requesting anything at this time

A field investigation and survey were completed. Upon reviewing our findings, we note the following:

- that the existing headwall in the lands of V. McQuiggan (Roll No, 3-089) was recently reconstructed by the municipality and appears to be in excellent condition
- that the two 150mm diameter farm tiles in the lands of V. McQuiggan (Roll No, 3-089) are in good working condition.
- that the surface runs in the lands of V. McQuiggan (Roll No, 3-089) have surface erosion present.

Preliminary design, cost estimates and assessments were prepared, and an informal public meeting was held on June 27, 2023 to review the findings and preliminary proposals. Further input and requests were provided by the affected owners at that time and at later dates. Based on the proposed design it was decided to proceed with the report.

DESIGN CONSIDERATIONS

The Drainage Coefficient method contained in the "DRAINAGE GUIDE FOR ONTARIO", Publication 29 by the Ontario Ministry of Agriculture, Food, and Rural Affairs (OMAFRA) is typically used to design municipal drains. The Drainage Coefficient defines a depth of water that can be removed in a 24-hour period and is expressed in millimetres per 24 hours. The existing drain was checked with respect capacity and found to have a capacity of 25mm per 24 hrs.

The proposed design and report have been generally completed using the "GUIDE FOR ENGINEERS WORKING UNDER THE DRAINAGE ACT IN ONTARIO" OMAFRA Publication 852.

RECOMMENDATIONS

We are therefore recommending the following:

- that the existing headwall and outlet structure in the lands of V. McQuiggan (Roll No, 3-089) be incorporated as part of Branch C Upper Portion
- that the existing 150mm diameter H.D.P.E. farm tile in the lands of V. McQuiggan (Roll No, 3-089) from the existing headwall outlet structure north-westerly through these lands to just within the Fruit Ridge Line Road allowance be incorporated for a length of 216 lineal meters. This shall be referred to as Branch "C" Upper Portion
- that the existing 150mm diameter H.D.P.E. farm tile in the lands of V. McQuiggan (Roll No, 3-089) from Sta. 0+104 Branch "C" Upper Portion, heading north-easterly through these lands to just within the Fruit Ridge Line road allowance be incorporated for a length of approximately 105 lineal meters and be referred to as Branch "D" of the Prior Drain
- that a new 150mm diameter hickenbottom be installed at Branch C Upper Portion Sta. 0+180 including a berm to collect surface water and allow direct access into the tiles
- that a new berm be installed on the catchbasin of Branch "D" to better contain surface water from the roadside ditch



ENVIRONMENTAL CONSIDERATIONS AND MITIGATION MEASURES

There are no significant wetlands or sensitive areas within the affected watershed area or along the route of the drains. The proposed construction of the Branch C Upper Portion and Branch D of the Prior Drain includes surface inlets and berm which greatly help reduce the overland surface flows and any subsequent erosion. A temporary flow check of silt fencing is to be installed in the ditch downstream of the tile outlet for the duration of the construction.

SUMMARY OF PROPOSED WORK

The proposed work consists of the incorporation of 321 lineal meters of 150mm (6") tile and an existing headwall as well as construction of a 150mm dia. Hickenbottom and some berms.

SCHEDULES

Four schedules are attached hereto and form part of this report, being Schedule 'A' - Allowances, Schedule 'B' - Cost Estimate, Schedule 'C' - Assessment for Construction, and Schedule 'D' - Assessment for Maintenance.

Schedule 'A' - Allowances. In accordance with Sections 29 and 30 of the Drainage Act, allowances are provided for right-of-way and damages to lands and crops along the route of the drain as defined below. In accordance with Section 31 of the Drainage Act, a further allowance is provided for the value of the existing drains incorporated as part of this drainage works, to those lands on which the existing drains are located.

Schedule 'B' - Cost Estimate. This schedule provides for a detailed cost estimate of the proposed work which is in the amount of \$ 16,200.00. This estimate includes engineering and administrative costs associated with this project.

Schedule 'C' - Assessment for Construction. This schedule outlines the distribution of the total estimated cost of construction over the roads and lands which are involved.

Schedule 'D' - Assessment for Maintenance. In accordance with Section 38 of the Drainage Act, this schedule outlines the distribution of future repair and/or maintenance costs for portions of, or the entire drainage works.

Drawing No. 1, Job No. 222300, and specifications form part of this report. They show and describe in detail the location and extent of the work to be done and the lands which are affected.

ALLOWANCES

DAMAGES: Section 30 of the Drainage Act provides for the compensation to landowners along the drain for damages to lands and crops caused by the construction of the drain. The amount granted is based on \$3,613.00/ha. for closed drain work. This base rate is multiplied by the hectares derived from the working widths shown on the plans and the applicable lengths.

RIGHT-OF-WAY Section 29 of the Drainage Act provides for an allowance to the owners whose land must be used for the construction, repair, or future maintenance of a drainage works.



ALLOWANCES (cont'd)

For tile drains where the owners will be able to continue to use the land, the allowance provides for the right to enter upon such lands, and at various times for the purpose of inspecting such drain, removing obstructions, and making repairs. Also, the allowance provides for the restrictions imposed on those lands to protect the right-of-way from obstruction or derogation. The amounts granted for right-of-way on tile drains is based on a percentage of the value of the land designated for future maintenance. Therefore, the amounts granted are based on \$2,500.00/ha. through bush. This value is multiplied by the hectares derived from the width granted for future maintenance and the applicable lengths.

ASSESSMENT DEFINITIONS

In accordance with the Drainage Act, lands that make use of a drainage works are liable for assessment for part of the cost of constructing and maintaining the system. These liabilities are known as benefit, outlet liability and special benefit liability as set out under Sections 22, 23, 24 and 26 of the Act.

BENEFIT as defined in the Drainage Act means the advantages to any lands, roads, buildings or other structures from the construction, improvement, repair, or maintenance of a drainage works such as will result in a higher market value or increased crop production or improved appearance or better control of surface or sub-surface water, or any other advantages relating to the betterment of lands, roads, buildings, or other structures.

OUTLET liability is assessed to lands or roads that may make use of a drainage works as an outlet either directly or indirectly through the medium of any other drainage works or of a swale, ravine, creek, or watercourse.

In addition, a Public Utility or Road Authority shall be assessed for and pay all the increased cost to a drainage works due to the construction and operation of the Public Utility or Road Authority. This may be shown as either benefit or special assessment.

ASSESSMENT

A modified "Todgham Method" was used to calculate the assessments shown on Schedule 'C'- Assessment for Construction. This entailed breaking down the costs of the drain into sections along its route.

The remainder is then separated into Benefit and Outlet costs. The Benefit cost is distributed to those properties receiving benefit as defined under "Assessment Definitions", with such properties usually being located along or close to the route of the drain. The Outlet Costs are distributed to all properties within the watershed area of that section on an adjusted basis. The areas are adjusted for location along that section, and relative run-off rates. Due to their different relative run-off rates, forested lands have been assessed for outlet at lower rates than cleared lands. Also, roads and residential properties have been assessed for outlet at higher rates than cleared farmlands.

The actual cost of the work involving this report is to be assessed on a pro-rata basis against the lands and roads liable for assessment for special benefit, benefit, and outlet as shown in detail below and on Schedule 'C' - Assessment for Construction.



SPECIAL ASSESSMENT

If any additional work is required to the drainage works due to the existence of buried utilities such as gas pipelines, communications cables, etc. or if any of the utilities require relocation or repair, then, the extra costs incurred shall be borne by the utility involved in accordance with the provisions of Section 26 of the Drainage Act.

GRANTS

In accordance with the provisions of Section 85 of the Drainage Act, a grant **may** be available for assessments against privately owned parcels of land which are used for agricultural purposes and eligible for the Farm Property Class Tax rate. Section 88 of the Drainage Act directs the Municipality to make application for this grant upon certification of completion of this drain. The Municipality will then deduct the grant from the assessments prior to collecting the final assessments.

MAINTENANCE

Upon completion of construction, all owners are hereby made aware of Sections 80 and 82 of the Drainage Act which forbid the obstruction of or damage or injury to a municipal drain.

After completion, the entire Prior Drain - Branch "C" Upper Portion and Branch "D" shall be maintained by the Municipality of Central Elgin at the expense of all upstream lands and roads assessed in Schedule 'D' - Assessment for Maintenance and in the same relative proportions until such time as the assessment is changed under the Drainage Act.

Repairs or improvements to any road culvert or bridge or sub-surface road crossing required by the performance of this work and for future repair and/or replacement, shall be the responsibility of the applicable Road Authority, entirely at their cost.



BW:ms

Respectfully submitted,

SPRIET ASSOCIATES LONDON LIMITED

B. Widner, P.Eng.



TOTAL ALLOWANCES ON THE PRIOR DRAIN - BRANCH "C" UPPER PORTION & BRANCH "D"	\$ 6,180.00
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PRIOR DRAIN - BRANCH "C" UPPER PORTION & BRANCH "D"**Municipality of Central Elgin**

We have made an estimate of the cost of the proposed work which is outlined in detail as follows:

BRANCH "C" UPPER PORTION

Supply and Install on 150mm Hickenbottom on existing 150mm dia. tile including berm using onsite materials including seeded ext.	\$ 2,500.00
Allowances under Sections 29,30, and 31 of the Drainage Act	\$ 4,210.00

BRANCH "D"

Construct berm around existing catchbasin using on-site materials	\$ 900.00
Allowances under Sections 29 & 31 of the Drainage Act	\$ 1,970.00

ADMINISTRATION

Interest and Net Harmonized Sales Tax	\$ 240.00
Survey, Plan and Final Report	\$ 5,200.00
Expenses	\$ 490.00
Supervision and Final Inspection	\$ <u>690.00</u>

TOTAL ESTIMATED COST	\$ <u><u>16,200.00</u></u>
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SCHEDULE 'D' - ASSESSMENT FOR MAINTENANCE
PRIOR DRAIN - BRANCH "C" UPPER PORTION & BRANCH "D"

Municipality of Central Elgin

Job No. 222300

June 28, 2023

CON.	LOT	HECTARES AFFECTED	ROLL No. (OWNER)	PERCENTAGE OF MAINTENANCE COST
BRANCH "C" UPPER PORTION				
4	Pt. 17 & 18	2.9	3-089 (V. McQuiggan)	42.4 %
4	Pt. 18	0.5	3-092 (J. & E. Derrough)	1.9
5	Pt. 17	1.6	5-006 (R. & T. Burns)	12.2
5	Pt. 17	0.8	5-007 (K. & W. Macdonald)	5.3
5	Pt. 18	3.1	5-010 (P. White)	8.8
				=====
TOTAL ASSESSMENT ON LANDS				70.6 %
				=====
Fruit Ridge Line		0.8	Municipality of Central Elgin	29.4 %
				=====
TOTAL ASSESSMENT ON ROADS				29.4 %
				=====
TOTAL ASSESSMENT FOR MAINTENANCE FOR BRANCH "C" UPPER PORTION				<u>100.0 %</u>
BRANCH "D"				
4	Pt. 17 & 18	0.7	3-089 (V. McQuiggan)	34.4 %
4	Pt. 18	0.5	3-092 (J. & E. Derrough)	3.1
5	Pt. 18	3.1	5-010 (P. White)	15.3
				=====
TOTAL ASSESSMENT ON ROADS				52.8 %
				=====
Fruit Ridge Line		0.4	Municipality of Central Elgin	47.2 %
				=====
TOTAL ASSESSMENT ON ROADS				47.2 %
				=====
TOTAL ASSESSMENT FOR MAINTENANCE FOR BRANCH "D"				<u>100.0 %</u>

SCHEDULE OF NET ASSESSMENT

PRIOR DRAIN - BRANCH "C" UPPER PORTION & BRANCH "D"

Municipality of Central Elgin

(FOR INFORMATION PURPOSES ONLY)

Job No. 222300

June 28, 2023

* = Non-agricultural

	ROLL NUMBER (OWNER)	TOTAL ASSESSMENT	GRANT	ALLOWANCES	APPROX. NET
*	3-089 (V. McQuiggan)	\$ 7,857.00	\$	\$ 6,180.00	\$ 1,677.00
*	3-092 (J. & E. Derrough)	244.00			244.00
	5-006 (R. & T. Burns)	871.00	290.00		581.00
*	5-007 (K. & W. Macdonald)	381.00			381.00
	5-010 (P. White)	1,154.00	385.00		769.00
	Fruit Ridge Line	5,693.00			5,693.00
TOTALS		\$ 16,200.00	\$ 675.00	\$ 6,180.00	\$ 9,345.00