

**To: David Creery, Chief Administrative Officer**

**From: Douglas Ellis, Development Engineer**

**Re: Consideration of Engineer's Report for the Gould Drain and Jackson Drain  
Section 84 of the Drainage Act**

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**AIM**

To seek Council's adoption of the Engineer's Report dated July 10, 2024, prepared by K. Smart Associates Limited for the Gould Drain and Jackson Drain in accordance with Section 84 of the Drainage Act.

**BACKGROUND**

On November 2, 2023, Council approved the initiation of the abandonment of two municipal drains formerly in the Township of East Zorra-Tavistock, known as the Gould Drain and the Jackson Drain, that traversed development lands now in the City of Woodstock.

On December 14, 2023, Council approved the appointment of K. Smart Associates Limited to prepare an Engineer's Report under Section 84 of the Drainage Act.

On July 16, 2024, City staff circulated Notice of Consideration of the Engineer's Report and the Engineer's Report to all property owners within the drainage sheds of the Gould Drain and the Jackson Drain.

**COMMENTS**

As stated in the Engineer's Report, the primary objective is to document the abandonment of the downstream portion of the Jackson and Gould Drains as a result of development within the City of Woodstock, ensure the current and potential future drainage needs of upstream properties in the Township of East Zorra-Tavistock are addressed in the subdivision and storm infrastructure design, and to prepare new Schedules of Assessments for Future Maintenance for the portion of the Drains still remaining. The report concluded that appropriate design changes were made by the downstream developments to accommodate future improvements to the municipal drains that could be petitioned by the upstream owners.

Curtis MacIntyre, Drainage Engineer from K. Smart Associates Limited and author of the Engineer's Report will make a presentation to Council to outline the report and the next steps of the process. The complete report is also attached.

Once the report is adopted and a provisional by-law passed, affected landowners will be notified and given an opportunity to appeal their assessment under the Act. If an appeal is submitted, this appeal would be heard at a Court of Revision meeting tentatively planned for the regular Council meeting on October 3, 2024. If no appeals are heard, the provisional by-

law will receive its third reading to be finalized at the meeting. The Township of East Zorra-Tavistock will also adopt a by-law to recognize the new assessments for the Gould and Jackson Drains.

## **RECOMMENDATION**

That City Council adopt the Engineer's Report prepared by K. Smart Associates Limited for the Gould Drain and the Jackson Drain, dated July 10, 2024,

And further, Council having adopted the Engineer's Report, give the attached Provisional By-law the first and second reading in accordance with Section 45(1) of the Drainage Act,

And further, Council directs the Clerk to set the October 3, 2024 regular Council meeting for the Court of Revision and circulate the Provisional By-law and the Notice of the Court of Revision, in accordance with Sections 46(1) and 46(2) of the Drainage Act, to the affected property owners.

*Authored by: Douglas Ellis, P.Eng., Development Engineer*

*Approved by: Harold de Haan, P.Eng., City Engineer*

*Approved by: David Creery, P.Eng., MBA, Chief Administrative Officer*

ENGINEERING REPORT

For

**JACKSON & GOULD DRAINS**

**City of Woodstock / Township of East Zorra-Tavistock**

County of Oxford

Date: July 10, 2024

File No. 23-253



**K. SMART ASSOCIATES LIMITED**  
CONSULTING ENGINEERS & PLANNERS

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Definitions:

“Act” means The Drainage Act R.S.O. 1990

“CSP” means corrugated steel pipe

“*Drainage Guide*” means *A Guide for Engineers working under the Drainage Act in Ontario*, (OMAFRA Publication 852, 2018)

“Drain” means Jackson Drain and/or Gould Drain

“HDPE” means high-density polyethylene

“Municipal Drain” means a drainage works constructed under the Act

“Township” means Township of East Zorra-Tavistock

“County” means Oxford County

“City” means City of Woodstock

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

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

“∅” means diameter

Alternate Formats for Accessibility

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July 10, 2024

File No. 23-253

## JACKSON & GOULD DRAINS

### CITY OF WOODSTOCK / TOWNSHIP OF EAST ZORRA-TAVISTOCK

#### **1 EXECUTIVE SUMMARY**

This report is prepared pursuant to Section 84 of the Drainage Act RSO 1990 (the Act).

On December 14, 2023, K. Smart Associates Limited was appointed by resolution of Council to prepare a report on the Jackson and Gould Drains, pursuant to Section 84 of the Act.

The primary objective of this report is to document the abandonment of the downstream portion of the Jackson and Gould Drains as a result of development within the City of Woodstock, ensure the current and potential future drainage needs of upstream properties in the Township of East Zorra-Tavistock are addressed in the subdivision and storm infrastructure design, and to prepare new Schedules of Assessments for Future Maintenance for the portion of the Drains still remaining.

The estimated cost of this report is \$18,000.

The total drain lengths for maintenance purposes are as follows:

- Jackson Drain: 924m (3,033 feet)
- Gould Drain: 1,425m (4,674 feet)

The watersheds served are:

- Jackson Drain: 42.3 hectares (105 acres)
- Gould Drain: 77.2 hectares (191 acres)

Assessment schedules are provided to distribute the cost of this report and maintenance of the drainage works.

- Schedule A outlines the assessments for the cost of the report.
- Schedules B1 and B2 will be used for prorating future maintenance costs of each Drain.
- Appendix A illustrates the calculation of the assessments outlined in Schedules B1 and B2.

## **2 BACKGROUND**

As a result of upcoming development located at the north edge of the City of Woodstock, the City and the Township of East Zorra-Tavistock have identified two existing municipal drains, the Jackson Drain and the Gould Drain, to be impacted by two proposed residential developments. The City has therefore undertaken the procedure outlined under Section 84 of the Drainage Act, RSO 1990, notifying owners of the City's intent to abandon the portions of the two aforementioned drains within the City limits. It is then understood that subject to Section 84(1), the City received a notice requesting that a "*report of an engineer be made on the proposed abandonments*".

Furthermore, subject to Section 84(3), at the December 14, 2023 council meeting, the City of Woodstock appointed K. Smart Associates Limited by resolution of Council to prepare a report on the partial Jackson & Gould Drain abandonments. The City wishes to have all portions of the Jackson & Gould Drains existing within the City limits abandoned of status under the Drainage Act. The staff report for said resolution also stated that all costs for the report shall be borne by the two developers.

## **3 DRAINAGE HISTORY**

### **3.1 Jackson Drain**

The Jackson Drain was originally established in accordance with a report by W. G. Ure, C. E., dated April 20, 1942. The Drain commenced in the west half of Lot 7, Concession 14 as a 250mmø (10") tile. The Drain continues southeasterly in a near straight line into the west half of Lot 6, Concession 14, across Oxford Road 17 and into the west half of Lot 5, Concession 14 (now lands within the City of Woodstock). At a location approximately 40 feet downstream of the road, the 250mmø tile was joined by a short offset 200mmø (8") tile and catchbasin located at the outlet of an Oxford Road 17 surface culvert. At this junction, the Jackson Drain continued southeasterly through Lot 5, Concession 14 as a 300mmø (12") tile. At the midpoint of Lot 5, Concession 14, the Jackson Drain tile was to an open ditch that continued to the Thames River (Gordon Pittock Reservoir).

With the most recent land use downstream of Oxford Road 17 being a golf course, the exact extents of the remaining Jackson Drain on this property are unknown. It is believed that the Drain, as of this time, currently outlets into a pond constructed on the golf course. The pond's outlet, and the Jackson Drain tile water, may or may not still be the open ditch.

No additional reports on the Jackson Drain have been made since this 1942 report.

### **3.2 Gould Drain**

The Gould Drain was originally established in accordance with a report by W. G. Ure, C.E., dated June 24, 1942. The Drain commenced in the west half of Lot 7, Concession 14 and continued to an outlet in the east half of Lot 6, Concession 14, approximately 800 feet upstream (northwest) of Oxford Road 17. In 1949, a subsequent report by W. G. Ure, C.E., called the "*Gould Drain Extension*", extended the Drain downstream, across Oxford Road 17, to an outlet in the west half of Lot 5, Concession 15.

The final, most recent, report on the Gould Drain was prepared by K. A. Smart, P. Eng. on September 19, 1973 and was referred to as the “*Gould Drain 1973*”. This report was for a repair on the 1949 extension from the north edge of Oxford Road 17 to the east edge of the unopened portion of the 15<sup>th</sup> Line, as well as the outlet of the tile drain. Furthermore, a private tile from the west half of Lot 6, Concession 15 lacked sufficient outlet so a new branch to the Gould Drain was constructed across 15<sup>th</sup> Line and referred to as “*Branch A*”.

#### **4 AUTHORITY FOR REPORT**

On December 14, 2023, K. Smart Associates Limited was appointed by resolution of the City of Woodstock Council to prepare a report on the Jackson and Gould Drains, pursuant to Section 84 of the Act. Being in response to a request for a report of an engineer, made under Section 84(3), this report is valid.

No construction is proposed as a part of a report under Section 84 of the Drainage Act.

#### **5 INVESTIGATION, OUTLET DESIGN, AND CORRESPONDENCE**

##### **5.1 Watershed Description**

The watersheds as defined in this report was established primarily based on topographic information (LiDAR) provided by the province, in addition to on site investigation at select locations. The new watersheds have been compared and found to generally agree with the previous watersheds for each report.

One slight change was made to the southwest corner of the Gould Drain watershed. An additional approximate 14 hectares has been included in the Gould Drain watershed in the southwest corner of property with Roll No. 020-07700 and east side of Roll No. 020-00700. This subwatershed would naturally prefer to flow to the south across Oxford Road 17, however there is no surface culvert under the road at this location. Ditching on the north side of Oxford Road 17 conveys surface water, for the most part, toward the east and to the Gould Drain. The owner of Roll No. 020-02700 had confirmed he has previously tiled this area to the Gould Drain.

Upon adoption of the report, the remaining Jackson and Gould Drain watersheds will be composed of predominantly agricultural lands, removing the proposed residential development.

##### **5.2 Proposed Storm Sewer Capacities (Sufficiency of Outlet for Drains)**

A review of existing watersheds was undertaken in order to evaluate the required capacity to be considered in the proposed developments, to account for any future upstream agricultural drainage improvements. Since the proposed developments had already accounted for surface water quantities from the external Jackson and Gould Drain watersheds in a separate manner, the 12.7mm (½”) drainage coefficient was reviewed and provided to the engineers to accommodate in their systems.

### 5.2.1 Jackson Drain

For the Jackson Drain, all external waters from the upstream Jackson Drain watershed had been proposed to be diverted through the proposed development in what was referred to as a “third pipe storm sewer” (labelled “TST” on Development Engineering Ltd. drawings). The third pipe storm sewer begins at Oxford Road 17 at the end of the Jackson Drain as a 750mmø pipe. The 750mmø third pipe storm sewer was designed to convey external lands at the 5-year storm. It was then further requested that an additional 58.6 L/S be included in the design to account for the ½” drainage coefficient design for subsurface drainage tiling.

### 5.2.2 Gould Drain

As for the Gould Drain, external waters from the upstream Gould Drain watershed had been proposed to be split up into two parts: the subsurface Gould Drain tile water proposed to be diverted by what was referred to as a “bypass” storm sewer, and the Gould Drain surface waters, which was proposed to join into the subdivision storm sewers. In this case, the “bypass” storm sewer was requested to have capacity for 108.9 L/S, which again, is the ½” drainage coefficient design for subsurface drainage tiling. The proposed design, commencing at the north side of Oxford Road 17, is a 375mmø pipe at a 0.5% grade for a total approximate capacity of 124 L/S.

In the case of the Gould Drain, since the surface and subsurface water from the Gould Drain watershed has been split, should a request be made in the future to upsize the portion of the Gould Drain on agricultural lands in the Township of East Zorra-Tavistock to a standard above the ½” drainage coefficient (i.e. 1.0” design, meaning ½” for surface water + ½” for subsurface water, or 1.5” design, meaning 1” for surface water + ½” for subsurface water), the appointed engineer will likely have to split the outlet into the two separate systems. An approximate flow equal to the ½” drainage coefficient (124 L/S) can be connected into the dedicated “bypass” storm sewer, while flows above that would have to be re-routed to the separate surface water system (a system that was design for external surface water flows anyways).

### 5.3 Other Design Details Discussed

Through review of the proposed subdivision technical report and drawing submissions, aside from the requested pipe capacities, the following are additional design details discussed/requested by the undersigned:

- Pre-locating the Jackson Drain (horizontally and vertically) on the south side of Oxford Road 17 to ensure proposed connections and future upstream upgrades will work as anticipated.
- Develop a plan for construction scheduling around the Gould Drain and outlet, depending on which subdivision construction occurs first.
- Revision to the Gould Drain watershed to account for the subwatershed without natural drainage across Oxford Road 17, as discussed herein this report.
- A short connection be made from the existing catchbasin on “Branch A” (serving Roll No. 020-04400) to the proposed MH on the 375mmø “bypass” storm sewer at the

intersection of Oxford Road 17 and 15<sup>th</sup> Line. Therefore eliminating the need for the existing “Branch A”.

**5.4 On-Site Meeting**

On May 23, 2024 an on-site meeting was held in accordance with the Act. Notice of the meeting was sent to all landowners in the watersheds.

The following were in attendance: Doug Ellis (City of Woodstock), Connor Occleston (Township of East Zorra-Tavistock), Justin Salvucci (SCS Consulting Group – “Thames Development Phase 6”), Jason Fleury (Development Engineering – “Woodstock Meadows”), Don Lazenby, Steve & Jeff Vandendool (Northlea), and Hassimian Singh.

Owners in attendance were informed of the proposed abandonment extents and the new storm sewers proposed through the developments to provide a sufficient standard of upstream agricultural drainage for the remaining Jackson and Gould Drains. Owners were also presented with the proposed revised maintenance schedules for the Township of East Zorra-Tavistock to maintain the drains.

**6 REMAINING DRAIN EXTENTS**

**6.1 Drain Stations**

The following tables outline, simply, the different sections of the Jackson and Gould Drains as they exist and are to be maintained by the Township of East Zorra-Tavistock. For greater detail on grades, shapes/sizes, and other specifications for the Jackson Drain and Gould Drain, reference should be made to the applicable report as outlined in the table below.

Table 6-1 - Drain Intervals and Specifications (Jackson Drain)

<u>Drain Interval</u>	<u>Stations (in feet)</u>	<u>Governing Report</u>	<u>Specifications</u>
Interval 2	0+00 to 29+54	“Jackson Drain”, W. G. Ure, C.E. April 20, 1942	250mmø tile
Interval 1	29+54 to 30+33		

Table 6-2 - Drain Intervals and Specifications (Gould Drain)

<u>Drain Interval</u>	<u>Stations (in feet)</u>	<u>Governing Report</u>	<u>Specifications</u>
Interval 1	0+00 to 38+45	“Gould Drain” W. G. Ure, C. E. June 24, 1942	150mmø (0+00 to 6+00) 200mmø (6+00 to 8+90) 350mmø (8+90 to 38+45)
	38+45 to 46+74 (0 to 8+29 from 1949 stationing)	“Gould Extension Drain” W. G. Ure, C. E. July 8, 1949	250mmø (38+45 to 43+45) 300mmø (43+45 to 46+74)

## **7 DRAWINGS**

### **7.1 Drawings**

The location of the drains, watershed boundary and the affected properties are shown on Drawing No. 1 included with this report. The numbers adjacent to the drains are station numbers which indicate, in feet, the distance along the drain.

### **7.1 Alignment of the Drain**

For maintenance purposes, the drain location shown on Drawing No. 1 is based on the current, governing reports.

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 drain 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 maintenance work.

## **8 COSTS**

### **8.1 Engineering Cost Estimate**

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

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. The final cost will be based on the actual time required for meetings. Engineering costs are summarized in Table 8-1 - Estimated Cost Summary.

At this time it is unknown what amount of involvement, if any, will be required of K. Smart Associates Limited as construction proceeds within the subdivisions in relation of the existing Jackson and Gould Drain pipes and proposed outlet storm sewer systems. Should no issues arise, KSAL's involvement may perhaps conclude upon the third reading of the by-law for this report, however, should that not be the case, the City of Woodstock may wish to involve KSAL should any construction issues arise. In the event additional costs are incurred following the filing of this report and attendance at the required meetings, KSAL may invoice the City under this project file and comment as to which development the invoice should be re-directed to. Refer to *Section 9 ASSESSMENTS* for additional detail.

### **8.2 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 may be included in the cost of the drain: "*cost of any application, reference or appeal and the cost*

of temporary financing.” However, no Section 73 costs are anticipated for this project and therefore no estimated cost has been included.

**8.3 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.

**8.4 Estimated Cost Summary**

*Table 8-1 - Estimated Cost Summary*

<b>ENGINEERING</b>	
Report Preparation	\$15,554.29
Public Meeting Room Rental	134.39
Consideration of Report Meeting	\$1,000
Court of Revision	\$1,000
Net HST (1.76%)	\$311.32
<b>TOTAL ENGINEERING COSTS:</b>	<b>\$18,000</b>
<b>SECTION 73 COSTS</b>	
<b>TOTAL SECTION 73 COSTS:</b>	<b>\$0</b>
<b>TOTAL ESTIMATED COST: \$18,000</b>	

**9 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 and Outlet Liability are involved only.

**9.1 Calculation of Assessments**

The method of calculating the assessments for the purposes of Future Maintenance of the Drain is illustrated in Appendix A, included with this report. Appendix A divides the Drain into intervals. An estimated (hypothetical) cost of future maintenance is established at the top of the column for each interval. This hypothetical maintenance cost is not a real cost at this time, and is included only for establishing the Benefit and Outlet Liability assessments for each property. The hypothetical maintenance cost is a reflection of a potential cost of a full replacement of the Drain at the same size, depth, and grade.

For each interval, the first step in the assessment calculation is to determine the benefit assessment to the affected lands and roads. After deducting the total benefit from the hypothetical maintenance cost (per interval), the balance of the cost is then assessed as outlet liability on a per hectare basis to all lands and roads within and/or upstream of this interval.

### **9.2 Benefit Assessments (Section 22)**

Section 22 benefits were calculated for lands that benefit from the existence of the drain and are not proportional to watershed area. Where applicable, Section 22 benefits are outlined per interval in Appendix A.

### **9.3 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 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 the Table 9-1 - Runoff Factors Table.

Table 9-1 - Runoff Factors Table

Land Use	Runoff factor
Agricultural	1
Forest	0.5
Gravel Road	2
Paved Road	3

## **10 ASSESSMENT SCHEDULES**

In accordance with Section 74 of the Act, the Drain is to be maintained by the municipality, and the cost of maintenance assessed to lands/roads upstream of the maintenance location. In the assessment schedules, 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).

### **10.1 Schedule A - Schedule of Assessments**

As indicated in the staff report for the Council Resolution by the City of Woodstock upon appointing K. Smart Associates Limited under Section 84 of the Act, all costs associated with this report shall be assessed to the two developments. It is also this engineer's opinion that the rationale stated above is correct for these circumstances and that no upstream rural properties should be assessed the costs for this report. The following rationale for a division of costs has been used:

This report addresses the abandonment of the downstream lengths of two drains of roughly equal size and watershed. The two drains are impacted by two separate residential developments, by two separate owners. The existing Jackson Drain is located through the centre of the proposed "Woodstock Meadows" Development. The existing Gould Drain crosses the very northeast corner of the Woodstock Meadows development and continues southeasterly through much of the proposed "Thames Development Phase 6" lands.

Though the Gould Drain does cross both developments, only a minor relocation would be technically required by the Woodstock Meadows development to align with the proposed "Montgomery Road". The majority of the Gould Drain watershed impact and re-routing of tile is observed on and for the Thames Development Phase 6 property. For this reason, all costs associated with this report are proposed to be split **evenly** between the two proposed developments. This total has been shown in Schedule A, the Schedule of Assessments For Report.

As discussed in *Section 8.1 Engineering Cost Estimate*, should additional involvement of K. Smart Associates Limited be required during construction of the subdivisions, additional invoices will be sent to the City with direction as to which development/drain the engineer's involvement was required for. Should the engineer's involvement be related to both drains, the invoice may be asked to be split into equal amounts. Such will be the discretion of the engineer.

### **10.2 Schedule B - Schedule of Assessment for Future Maintenance**

Schedule B amounts are not payable at this time, they will be used to prorate maintenance cost. The amounts in Schedule B are derived from the cost distribution shown in Appendix A. Refer to *9.1 Calculation of Assessments* for a detailed explanation of how maintenance assessments were arrived at.

Schedule B is divided into columns to reflect the different drain intervals where maintenance work may occur. The intervals assist in identifying upstream lands/roads to be assessed for maintenance. The percentages shown in Schedule B determine the share of maintenance to be levied on a property/road. For example, a \$1,000 tile repair will result in a \$50 assessment to a property with a 5% maintenance assessment.

## **11 PRIVACY OF LANDS**

Although a right of way for the Municipality exists along the Drain and along access routes identified in this report for future maintenance, the land remains private property. Other landowners or the public may not enter or use the drain right of way. Persons authorized to enter the drain right of way to carry out duties under the Act include: Engineers, Contractors and the Drainage Superintendent and/or their assistants.

## **12 MAINTENANCE**

Section 74 of the Act requires the Drain to be maintained by the Municipality with the cost of maintenance assessed to the upstream lands and roads pro rata with the assessments in Schedule B.

### **12.1 The Drain For Future Maintenance**

The Jackson Drain and Gould Drain, for the purpose of future maintenance, will include all tile and catchbasins, as defined and constructed in accordance with the drawings and special provisions of previous governing reports, commencing and including the new

structures installed at Sta. 30+33 and Sta. 46+74 for the Jackson and Gould Drains, respectively.

In accordance with Section 19 of the Act, upon receiving third reading of the bylaw, the following drains shall be abandoned of status under the Drainage Act:

#### Jackson Drain

- The approximate 777 feet (237m) of 12"Ø (300mm) concrete tile and 415 feet (126m) of open ditch from Sta. 30+33 (south side of Oxford Road 17) to its outlet at Sta. 42+25.

#### Gould Drain

- The approximate 1,348 feet (411m) of 12"Ø (300mm) concrete tile from Sta. 8+29 (46+74 from Gould Drain 1942 report) (north side of Oxford Road 17) to its outlet at Sta. 22+50.
- 176 feet (54m) of 6" (150mm) concrete tile serving the Marston Farm Ltd. property on the east side of 15<sup>th</sup> Line and currently referred to as "Branch A".
  - As discussed in *Section 5.3 Other Design Details Discussed*, a new 150mm dia. (6") connection will be made to the proposed manhole in the intersection.

The abandoned section of Drains will be removed as a part of the subdivision servicing.

### **12.2 General**

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

A right-of-way along 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 this report shall remain free of obstructions. Costs to remove obstructions from the maintenance right-of-way will be assessed to the owner.

The cost of cleaning through road crossings shall be assessed to upstream lands and roads in accordance with Schedule B. The cost of replacing, repairing and/or maintaining any road culverts or crossings shall be assessed fully to the road authority. The road authority may elect to complete such work with their own forces, provided the work is completed in a timely manner and maintains the function of the Drain.

### **12.3 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 or 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.

### **13 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.

All of which is respectfully submitted,

K. SMART ASSOCIATES LTD.



Curtis MacIntyre, P. Eng.



**SCHEDULE A - SCHEDULE OF ASSESSMENTS FOR REPORT  
JACKSON AND GOULD DRAINS  
CITY OF WOODSTOCK / TOWNSHIP OF EAST ZORRA-TAVISTOCK**

Con	Lot	Roll No. (Owner)	Special Benefit (Section 24) (\$)
<b><i>City of Woodstock (Roll No. 32-42-020-)</i></b>			
14	Pt Lot 5	087-02410 (WOODSTOCK MEADOWS DEVELOPMENTS INC.)	9,000
15	Pt Lot 5	087-04200 (THAMES DEVELOPMENTS (VI) INC.)	9,000
<b>TOTAL ASSESSMENTS JACKSON &amp; GOULD DRAINS (For Report):</b>			<b>18,000</b>

**SCHEDULE B1 - SCHEDULE OF ASSESSMENTS FOR FUTURE MAINTENANCE  
JACKSON DRAIN  
CITY OF WOODSTOCK / TOWNSHIP OF EAST ZORRA-TAVISTOCK**

			MAIN DRAIN					
			Interval 1		Interval 2		TOTAL	
			30+33 to 29+54		29+54 to 0+00		30+33 to 0+00	
Con	Lot	Roll No. (Owner)	\$	%	\$	%	\$	%
<b>County of Oxford (Roll No. 32-38-010-)</b>								
13	E1/2 Lot 6	010-23810 (Northlea Farms Inc)	77	5.13	3,548	7.88	3,625	7.80
13	S Pt Lot 8	010-23900 (M. & K. Van Wely)	33	2.20	1,498	3.33	1,531	3.29
14	S Pt Lot 8	020-00400 (K. & A. Bhangu)	3	0.20	0	0.00	3	0.01
14	Pt Lot 6	020-00500 (R. & J. Thornton)	12	0.80	0	0.00	12	0.03
14	Pt Lot 6	020-00700 (Northlea Farms Inc.)	348	23.20	24,298	54.00	24,646	53.00
14	W Pt Lot 7	020-00800 (D. & G. McCallum)	192	12.80	11,792	26.20	11,984	25.77
14	W Pt Lot 7	020-00801 (E. & C. Haley)	3	0.20	158	0.35	161	0.35
14	S Pt Lot 8	020-00900 (Grassy-Lea Farms Ltd.)	33	2.20	1,498	3.33	1,531	3.29
Total Assessments on Lands:			701	46.73	42,792	95.09	43,493	93.54
14th Line (Township of East Zorra-Tavistock)			49	3.27	2,208	4.91	2,257	4.85
Oxford Road 17 (City of Woodstock)			750	50.00	0	0.00	750	1.61
Total Assessments on Roads:			799	53.27	2,208	4.91	3,007	6.46
<b>TOTAL ASSESSMENTS JACKSON DRAIN (For Maintenance):</b>			<b>1,500</b>	<b>100.00</b>	<b>45,000</b>	<b>100.00</b>	<b>46,500</b>	<b>100.00</b>

Notes:

1. Agricultural designation not included as grant eligibility has to be confirmed at the time of maintenance cost levy.
2. \$ amounts above are listed solely for calculating percentages (share of future maintenance costs) and will not be levied with the final cost of the drainage works.

**SCHEDULE B2 - SCHEDULE OF ASSESSMENTS FOR FUTURE MAINTENANCE  
GOULD DRAIN  
CITY OF WOODSTOCK / TOWNSHIP OF EAST ZORRA-TAVISTOCK**

			<b>MAIN DRAIN</b>	
			<b>Total</b>	
			46+74 to 0+00	
Con	Lot	Roll No. (Owner)	\$	%
<b>County of Oxford (Roll No. 32-38-010-)</b>				
14	Pt Lot 6	020-00700 (Northlea Farms Inc.)	6,814	9.09
14	W Pt Lot 7	020-00800 (D. & G. McCallum)	27,454	36.61
14	S Pt Lot 8	020-00900 (Grassy-Lea Farms Ltd.)	1,450	1.93
14	Pt Lot 6	020-02500 (B. & T. Shuster)	145	0.19
14	E Pt Lot 6	020-02600 (J. & J. Burbine)	290	0.39
14	Pt Lot 6	020-02700 (100341795 Ontario Inc.)	31,662	42.22
14	E Pt Lot 7	020-02800 (A. McCallum & J. Berkeley)	3,344	4.46
15	W Pt Lot 6	020-04400 (Marstou Farms Ltd.)	2,320	3.09
<b>Total Assessments on Lands:</b>			<b>73,479</b>	<b>97.98</b>
15th Line (Township of East Zorra-Tavistock)			870	1.16
Oxford Road 17 (City of Woodstock)			651	0.86
<b>Total Assessments on Roads:</b>			<b>1,521</b>	<b>2.02</b>
<b>TOTAL ASSESSMENTS GOULD DRAIN (For Maintenance):</b>			<b>75,000</b>	<b>100.00</b>

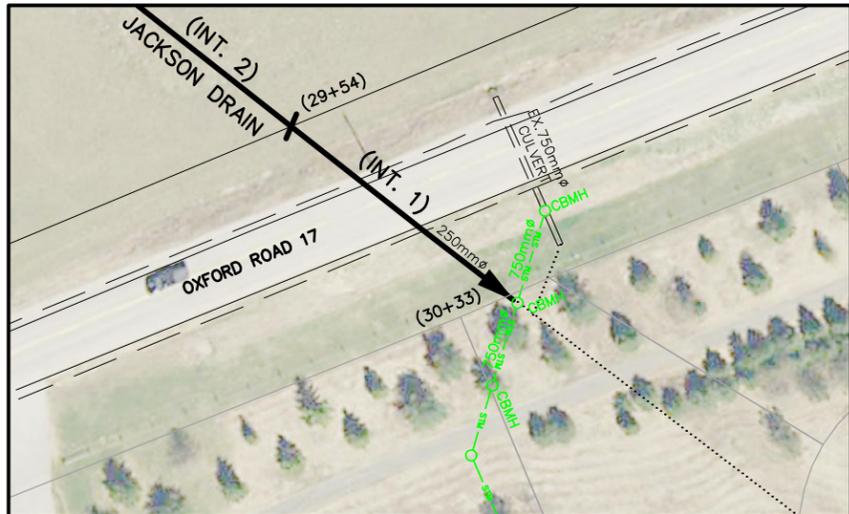
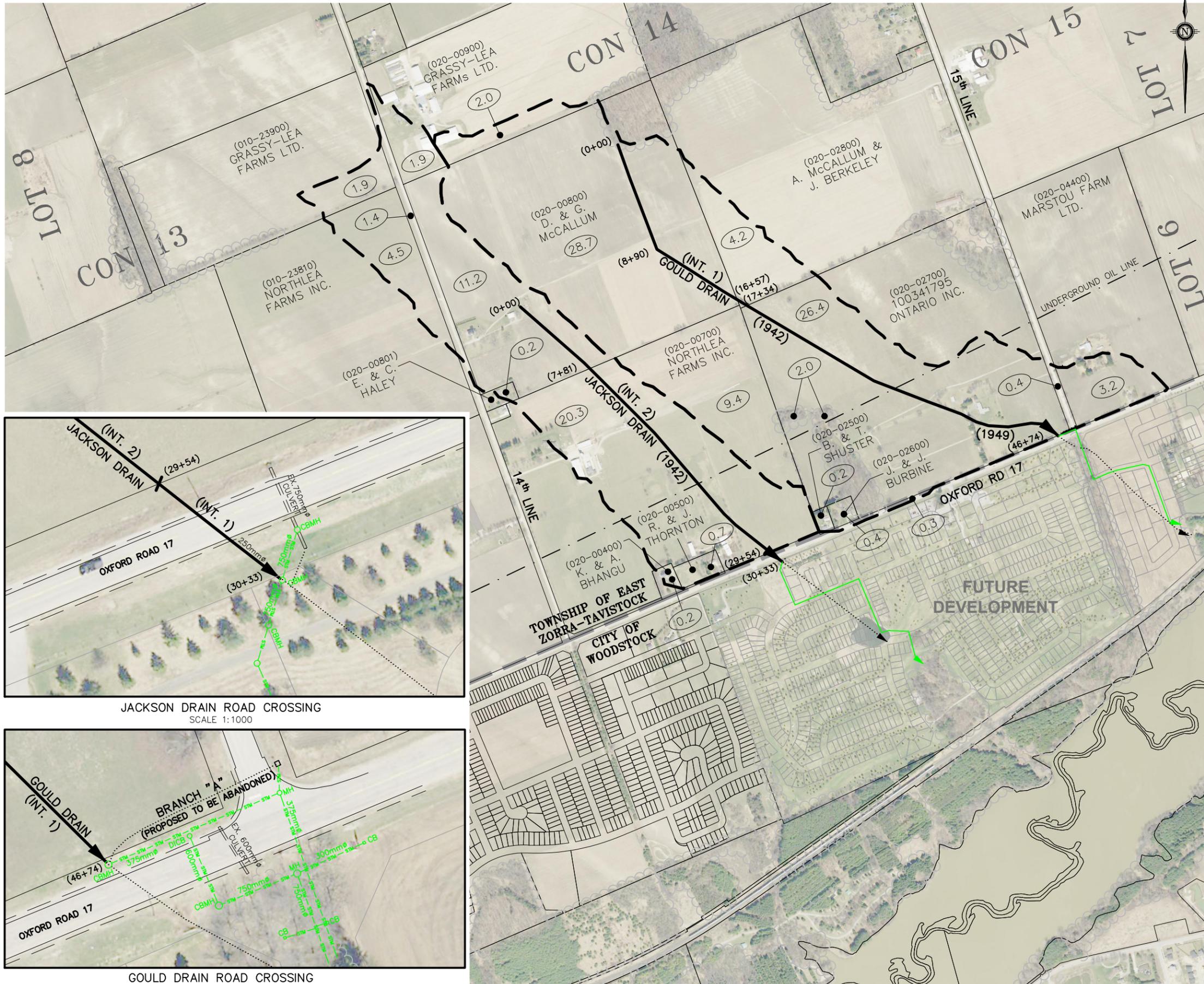
Notes:

1. Agricultural designation not included as grant eligibility has to be confirmed at the time of maintenance cost levy.
2. \$ amounts above are listed solely for calculating percentages (share of future maintenance costs) and will not be levied with the final cost of the drainage works.

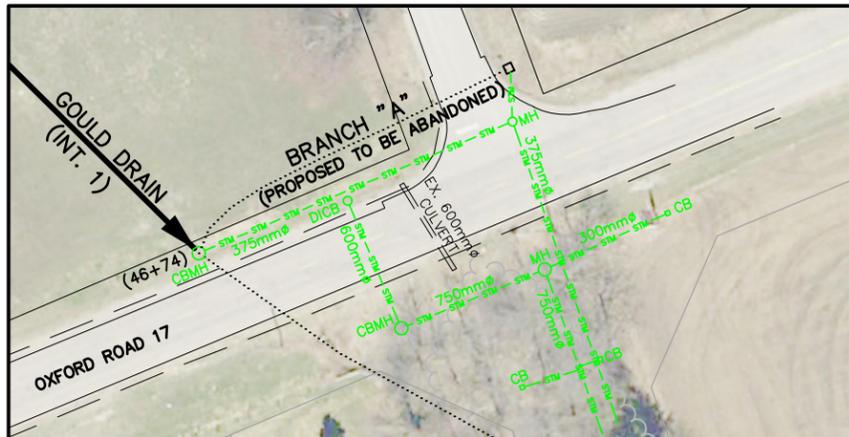
**APPENDIX A - Calculation of Assessments for Future Maintenance  
JACKSON AND GOULD DRAINS  
CITY OF WOODSTOCK / TOWNSHIP OF EAST ZORRA-TAVISTOCK**

		JACKSON DRAIN													
		Interval 1				Interval 2				Main Drain					
		Station 30+33 to 29+54				Station 29+54 to 0+00				Total					
<b>ESTIMATED (HYPOTHETICAL) MAINTENANCE COSTS</b>		<b>1,500</b>				<b>45,000</b>				<b>46,500</b>					
Roll No. (Owner)	Total Ha Affected	Run-off Factor	Total ha Adjusted	Benefit (Sec. 22)	Adj Ha	Outlet (Sec. 23)	%	Benefit (Sec. 22)	Adj Ha	Outlet (Sec. 23)	%	Total Benefit	Total Outlet	Total	%
<b>County of Oxford (Roll No. 32-38-010-)</b>															
010-23810 (Northlea Farms Inc)	4.5	1.00	4.5	4.5	77	5.13		4.5	3,548	7.88		0	3,625	3,625	7.80
010-23900 (M. & K. Van Wely)	1.9	1.00	1.9	1.9	33	2.20		1.9	1,498	3.33		0	1,531	1,531	3.29
020-00400 (K. & A. Bhangu)	0.2	1.00	0.2	0.2	3	0.20		0.0	0	0.00		0	3	3	0.01
020-00500 (R. & J. Thornton)	0.7	1.00	0.7	0.7	12	0.80		0.0	0	0.00		0	12	12	0.03
020-00700 (Northlea Farms Inc.)	20.3	1.00	20.3	20.3	348	23.20		8,290	20.3	16,008	54.00	8,290	16,356	24,646	53.00
020-00800 (D. & G. McCallum)	11.2	1.00	11.2	11.2	192	12.80		2,960	11.2	8,832	26.20	2,960	9,024	11,984	25.77
020-00801 (E. & C. Haley)	0.2	1.00	0.2	0.2	3	0.20		0.2	158	0.35		0	161	161	0.35
020-00900 (Grassy-Lea Farms Ltd.)	1.9	1.00	1.9	1.9	33	2.20		1.9	1,498	3.33		0	1,531	1,531	3.29
<b>Subtotal (Lands):</b>	<b>40.9</b>		<b>40.9</b>	<b>0</b>	<b>40.9</b>	<b>701</b>	<b>46.73</b>	<b>11,250</b>	<b>40.0</b>	<b>31,542</b>	<b>95.09</b>	<b>11,250</b>	<b>32,243</b>	<b>43,493</b>	<b>93.54</b>
14th Line (Township of East Zorra-Tavistock)	1.4	2.0	2.8		2.8	49	3.27		2.8	2,208	4.91	0	2,257	2,257	4.85
Oxford Road 17 (City of Woodstock)	0.0		0.0	750	0.0	0	50.00		0.0	0	0.00	750	0	750	1.61
<b>Subtotal (Roads):</b>	<b>1.4</b>		<b>2.8</b>	<b>750</b>	<b>2.8</b>	<b>49</b>	<b>53.27</b>	<b>0</b>	<b>2.8</b>	<b>2,208</b>	<b>4.91</b>	<b>750</b>	<b>2,257</b>	<b>3,007</b>	<b>6.46</b>
<b>TOTAL ASSESSMENTS JACKSON DRAIN (For Maintenance):</b>	<b>42.3</b>		<b>43.7</b>	<b>750</b>	<b>43.7</b>	<b>750</b>	<b>100.00</b>	<b>11,250</b>	<b>42.8</b>	<b>33,750</b>	<b>100.00</b>	<b>12,000</b>	<b>34,500</b>	<b>46,500</b>	<b>100.00</b>

		GOULD DRAIN											
		Interval 1				Main Drain							
		Station 46+74 to 0+00				Total							
<b>ESTIMATED (HYPOTHETICAL) MAINTENANCE COSTS</b>		<b>75,000</b>				<b>75,000</b>							
Roll No. (Owner)	Total Ha Affected	Run-off Factor	Total ha Adjusted	Benefit (Sec. 22)	Adj Ha	Outlet (Sec. 23)	%	Total Benefit	Total Outlet	Total	%		
<b>County of Oxford (Roll No. 32-38-010-)</b>													
020-00700 (Northlea Farms Inc.)	9.4	1.00	9.4		9.4	6,814	9.09	0	6,814	6,814	9.09		
020-00800 (D. & G. McCallum)	28.7	1.00	28.7	6,650	28.7	20,804	36.61	6,650	20,804	27,454	36.61		
020-00900 (Grassy-Lea Farms Ltd.)	2.0	1.00	2.0	2.0	1,450	1.93		0	1,450	1,450	1.93		
020-02500 (B. & T. Shuster)	0.2	1.00	0.2	0.2	145	0.19		0	145	145	0.19		
020-02600 (J. & J. Burbine)	0.4	1.00	0.4	0.4	290	0.39		0	290	290	0.39		
020-02700 (100341795 Ontario Inc.)	28.4	0.96	27.4	11,800	27.4	19,862	42.22	11,800	19,862	31,662	42.22		
020-02800 (A. McCallum & J. Berkeley)	4.2	1.00	4.2	300	4.2	3,044	4.46	300	3,044	3,344	4.46		
020-04400 (Marstou Farms Ltd.)	3.2	1.00	3.2	3.2	2,320	3.09		0	2,320	2,320	3.09		
<b>Subtotal (Lands):</b>	<b>76.5</b>		<b>75.5</b>	<b>18,750</b>	<b>75.5</b>	<b>54,729</b>	<b>97.98</b>	<b>18,750</b>	<b>54,729</b>	<b>73,479</b>	<b>97.98</b>		
15th Line (Township of East Zorra-Tavistock)	0.4	3.0	1.2		1.2	870	1.16	0	870	870	1.16		
Oxford Road 17 (City of Woodstock)	0.3	3.0	0.9		0.9	651	0.86	0	651	651	0.86		
<b>Subtotal (Roads):</b>	<b>0.7</b>		<b>2.1</b>	<b>0</b>	<b>2.1</b>	<b>1,521</b>	<b>2.02</b>	<b>0</b>	<b>1,521</b>	<b>1,521</b>	<b>2.02</b>		
<b>TOTAL ASSESSMENTS GOULD DRAIN (For Maintenance):</b>	<b>77.2</b>		<b>77.6</b>	<b>18,750</b>	<b>77.6</b>	<b>56,250</b>	<b>100.00</b>	<b>18,750</b>	<b>56,250</b>	<b>75,000</b>	<b>100.00</b>		



JACKSON DRAIN ROAD CROSSING  
SCALE 1:1000



GOULD DRAIN ROAD CROSSING  
SCALE 1:1000

- NOTES:**
1. THE POSITION OF POLE LINES, CONDUITS, WATERMANS, SEWERS AND OTHER UNDERGROUND AND OVERGROUND UTILITIES AND STRUCTURES IS NOT NECESSARILY SHOWN ON THE CONTRACT DRAWINGS, AND, WHERE SHOWN, THE ACCURACY IS NOT GUARANTEED. BEFORE STARTING WORK, THE CONTRACTOR SHALL BE INFORMED OF THE EXACT LOCATION OF ALL SUCH UTILITIES AND STRUCTURES, AND SHALL ASSUME ALL LIABILITY FOR DAMAGE TO THEM
  2. ALL ROLL NUMBERS BEGIN WITH 32-38-010 (ie. 020-02700 IN FULL IS 32-38-010-020-02700)

**BENCHMARKS:**

- LEGEND:**
- WATERSHED
  - SUBWATERSHED
  - (004-07900) ASSESSMENT ROLL NUMBER
  - 5.2 ha HECTARES OWNED
  - (12.8) APPROXIMATE HECTARES IN WATERSHED
  - DRAIN EXTENTS TO REMAIN
  - EXISTING DRAINS TO BE ABANDONED BY STATUS AND REMOVED BY DEVELOPMENT
  - PROPOSED STORM BY DEVELOPMENT (CITY OR COUNTY ASSET FOR MAINTENANCE)
  - DITCH OR WATERCOURSE
  - WOODED AREA

No.	DESCRIPTION	DATE
1	ISSUED FOR REPORT	JULY 10, 2024

DESIGNED BY: C.J.M.		<p><b>SCALE</b></p> <p>0 100 200m</p> <p>1 : 10,000</p> <p>(ON 11"x 17")</p>
CHECKED BY: C.J.M.		
DRAWN BY: V.E.S.		
CHECKED BY: C.J.M.		

**JACKSON & GOULD DRAINS**  
CITY OF WOODSTOCK      TOWNSHIP OF EAST ZORRA-TAVISTOCK

**WATERSHED PLAN**

<p><b>K. SMART ASSOCIATES LIMITED</b> CONSULTING ENGINEERS AND PLANNERS KITCHENER      SUDBURY</p>	<p><b>JULY 10, 2024</b></p>
	<p>JOB NUMBER: <b>23-253</b></p> <p>DRAWING: <b>1 OF 1</b></p>