WORKMAN MUNICIPAL DRAIN
THE MUNICIPALITY OF MORRIS-TURNBERRY
CONTRACT NO.: 316047
APRIL, 2018
INDEX

of Contract Documents

in Order of Appearance

Addenda No. ___ to No. ___ inclusive
Tender Advertisement
Articles of Agreement (Form of Agreement for this Contract)
Certificate of Liability Insurance (Standard Form of Insurance Industry Acceptable)
Form of Tender
   Schedule of Unit Prices
   List of Subcontractors
Information to Bidders
Plan and Profile Drawings – Workman Municipal Drain
Special Provisions and Construction Specifications
WORKMAN MUNICIPAL DRAIN
MUNICIPALITY OF MORRIS-TURNBERRY
CONTRACT NO.: 316047

TENDER ADVERTISEMENT
TENDER ADVERTISEMENT
WORKMAN MUNICIPAL DRAIN
MUNICIPALITY OF MORRIS-TURNBERRY
CONTRACT NO.: 316047

Sealed Tenders, clearly marked as to contents, will be received by the owner, at 41342 Morris Road, Brussels until 12:00pm (noon) Local Time, on:

Tuesday, April 24, 2018

for the construction of the Workman Municipal Drain. The tenders will be opened publicly the same day at 12:05 p.m.

ESTIMATED MAJOR ITEM QUANTITIES:

- 1631m of 600mm diameter concrete field tile
- 488m of 525mm diameter concrete field tile
- 1 – junction box and 3 – catch basins
- 28m of 600mm diameter HDPE pipe open cut road crossing

Plans, Specifications, and Tender Forms may be obtained at the office of GM BluePlan Engineering Limited, 975 Wallace Ave. N, Listowel or by email request.

A tender deposit in the amount of $20,000.00 shall accompany all tenders, in the form of a certified cheque or Bid Bond made payable to the Municipality of Morris-Turnberry.

The lowest or any tender will not necessarily be accepted. Construction is anticipated to be totally complete by December 1, 2018.

OWNER
The Corporation of the Municipality of Morris-Turnberry
41342 Morris Rd, P.O. Box 310
Brussels, ON N0G 1H0
Ms. Nancy Michie, Administrator Clerk Treasurer
Tel: 519-887-6137
Email: nmichie@morristurnberry.ca

DRAINAGE ENGINEER
GM BluePlan Engineering Limited
975 Wallace Ave. N
Listowel, ON N4W 1M6
Mr. Matthew Ash
Tel: 519-291-9339
Email: matt.ash@gmblueplan.ca
WORKMAN MUNICIPAL DRAIN
MUNICIPALITY OF MORRIS-TURNBERRY
CONTRACT NO.: 316047

ARTICLES OF AGREEMENT
ARTICLES OF AGREEMENT
WORKMAN MUNICIPAL DRAIN
MUNICIPALITY OF MORRIS-TURNBERRY
CONTRACT NO.: 316047

THIS AGREEMENT made the ___________ of ___________ 2018.

BETWEEN:

(herein and throughout the Contract Documents called the “Contractor”)
- and -

THE CORPORATION OF THE MUNICIPALITY OF MORRIS-TURNBERRY
P.O. Box 310, 41342 Morris Rd
Brussels, ON N0G 1H0

(herein and throughout the Contract Documents called the “Owner”)

WITNESSETH that in consideration of the sum of Five Dollars ($5.00) now paid by each of the parties hereto to the other of them (receipt whereof is hereby acknowledged) and of the mutual covenants, conditions, and agreements herein contained, the parties hereto have agreed and do hereby agree as follows:

ARTICLE I

a) This Agreement together with the Addenda, Special Provisions, Contract Drawings (including Standard Drawings), Specifications, Tender, Supplemental General Conditions, General Conditions, and Working Drawings constitute the “Contract” and are to be read herewith and form part of the Contract as fully and completely to all intents and purposes as though all the stipulations thereof had been embodied herein.

b) Four (4) copies of the Contract which have been prepared by GM BluePlan Engineering Limited, 975 Wallace Ave. N, Listowel ON, N4W 1M6, acting as, and herein (and throughout the Contract) entitled the “Engineer” have been signed for identification by both parties.

ARTICLE II

The Contractor undertakes and agrees:

a) To supply all materials and to perform all the work described in this Contract.

b) To totally complete the work described in this Contract as follows:

- Total Completion – December 1, 2018

All requests for extensions of said completion dates shall be by true verified email, fax or public
courier to the Owner and the decision of the Engineer with respect to such requests is to be considered final and binding upon the Contractor and the Owner.

c) To guarantee that under normal operating conditions and until the issuance by the Engineer of the “Final Certificate” mentioned in sub-clause (b) of Article III hereof, the said work shall be maintained in such condition as will meet with the approval of the Engineer and the appropriate officials of the Municipality of Morris-Turnberry.

The decision of the Engineer is to be final and binding on the Contractor and the Owner as to the nature and cause of any imperfections and as to which party shall bear the cost of such remedy. Failure to comply with the directions of the Engineer within forty-eight (48) hours after written notice may result in the Engineer having the work performed and the cost thereof being deducted from the amount due to the Contractor.

d) To guarantee the work performed under this contract for a period of one year after the “Acceptance of the Work” by the Owner. This guarantee shall cover (i) the workmanship and/or quality of any part of the project and/or materials supplied and placed by the Contractor and (ii) any liability claims arising because of poor or inferior workmanship and/or quality of any part of the project and/or materials supplied and placed by the Contractor. This one year period will be termed the maintenance period.

e) To furnish a Liability Insurance Policy in accordance with Section I - “Liability Insurance”, in the “Information to Bidders” and the General Conditions of this Contract. The Contractor shall furnish the Liability Insurance at his/her own expense.

ARTICLE III

The Owner undertakes and agrees:

a) That the Contractor shall receive payment for work done and materials supplied according to the Unit Prices contained in the Schedule of Unit Prices, which is attached to this Agreement, is considered part of the Form of Tender and forms part of this Contract.

b) That the Contractor shall be entitled to receive payments monthly at the rate of Ninety Percent (90%) of the value of the work actually done and materials in place according to the estimate of the Engineer, less all forfeitures and deductions provided for in the Contract. These payments shall be made on Progress Certificates of the Engineer, which will be based on approximate estimates only, and must not be construed as an acceptance of the work so estimated or as an admission of liability by the Owner in respect thereof. Forty-six (46) days after the completion of the whole work, and in accordance with Section GC 8.02 as soon thereafter as practicable a “Completion Certificate for Payment” will be issued by the Engineer at the rate of One Hundred Percent (100%) of the amount due under this Contract including all extras and deductions except for the 3% maintenance security described in Article III (c) below.

All requests for certification of completion must be accompanied by the Contractor’s Statutory Declaration of Payment.

c) Maintenance Security

The Contractor shall provide to the Owner for the duration of the one year maintenance period a warranty security in the amount of 3% of the total contract value.

The maintenance security, which shall, at no time, be a part of the statutory lien holdback, shall be
retained by the Owner in increments from monies that would otherwise be payable to the Contractor, commencing during the latter part of the period of construction, so that by the date of Substantial Performance of the Work the full value of the required warranty security has been retained.

ARTICLE IV

The following is an exact enumeration of the Contract Drawings and Specifications:

**Contract Drawings**

<table>
<thead>
<tr>
<th>Drawing No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Overall Watershed Plan</td>
</tr>
<tr>
<td>2</td>
<td>Plan</td>
</tr>
<tr>
<td>3</td>
<td>Profile &amp; Details</td>
</tr>
<tr>
<td>4</td>
<td>Notes/Details</td>
</tr>
<tr>
<td>5</td>
<td>Notes/Details</td>
</tr>
</tbody>
</table>

Ontario Provincial Standard Drawings (OPSD) where referred to shall apply.

**Specifications**

1. Information to Bidders  
2. Special Provisions  
3. General Conditions of Contract (OPS General Conditions of Contract)  
4. Ontario Provincial Standard Specifications (OPSS) where referred to shall apply mutatis mutandis

ARTICLE V

In case of any inconsistency or conflicts between the provisions of this Agreement and the Plans or Specifications or General Conditions or Tender or any other document or writing, the provisions of such documents shall take precedence and govern in the following order, namely:

(1) This Agreement  
(2) Addenda  
(3) Information to Bidders  
(4) Special Provisions  
(5) Contract Drawings  
(6) Standard Specifications  
(7) Standard Drawings  
(8) Instructions to Tenderers  
(9) Form of Tender  
(10) General Conditions of Contract  
(11) Working Drawings
ARTICLE VI

If and whenever either party hereto desires to give notice to the other party or to the Engineer under or in connection with this Contract, such notice will be effectively given if sent by true verified email, fax or public courier mail addressed to:

The Contractor at:

- and to the Owner at: The Corporation of the Municipality of Morris-Turnberry
  41342 Morris Rd, PO Box 310
  Brussels, ON N0G 1H0
  Attention: Ms. Nancy Michie, Administrator Clerk Treasurer
  Email: nmichie@morristurnberry.ca

- and to the Engineer at: GM BluePlan Engineering Limited
  975 Wallace Ave. N
  Listowel, ON N4W 1M6
  Attention: Mr. Matt Ash
  Fax: 519-291-5172
  Email: matt.ash@gmblueplan.ca

and will be considered as having been so given upon true verification of date and origin of the correspondence.
ARTICLE VII

This Agreement shall enure to the benefit of and be binding upon the parties hereto and their respective successors and assigns.

IN WITNESS WHEREOF the parties hereto have executed these presents as the day and year first written.

SIGNED, SEALED AND DELIVERED

in the presence of

Witness

Paul Gowing, Mayor

Witness

Nancy Michie, Administrator Clerk Treasurer

Witness

Contractor
CERTIFICATE OF LIABILITY INSURANCE

_____________________________________________________

(Insurance Company)

TO: The Corporation of the Municipality of Morris-Turnberry
    41342 Morris Rd, PO Box 310
    Brussels, ON N0G 1H0

This is to certify that ________________________________________

(Contractor)

Whose address is ___________________________________________

has comprehensive liability insurance in this company under Policy Number _________________

covering legal liability for damages because of:

   a) Bodily injury, sickness or disease, including death at any time resulting therefrom.

   b) Damage to or destruction of property of others caused by accident.

Subject to a limit of liability of not less than $2,000,000.00 inclusive for any one occurrence or accident
which inference applied in respect of all operations, including liability assumed under Contract with the
Owner.

This policy expires on ________________________ and will not be altered, cancelled or allowed to
lapse without thirty (30) days prior notice to the Owner.

_________________________________  _________________________
Date                                      Signed
WORKMAN MUNICIPAL DRAIN
MUNICIPALITY OF MORRIS-TURNBERRY
CONTRACT NO.: 316047

FORM OF TENDER
FORM OF TENDER
WORKMAN MUNICIPAL DRAIN
MUNICIPALITY OF MORRIS-TURNBERRY
CONTRACT NO.: 316047

Tender by

a Company duly incorporated under the laws of

and having its head office at

G.S.T./H.S.T. Registration No.: 

TO: The Corporation of the Municipality of Morris-Turnberry
41342 Morris Rd, PO Box 310
Brussels, ON N0G 1H0

The Tenderer having carefully examined the locality and site of the proposed works, and all Contract Documents relating hereto, including the Form of Tender, Information to Bidders, Special Provisions, Specifications, General Conditions, Form of Agreement, Contract Drawings and Addenda No. ________ to _______* inclusive, hereby tenders and offers to enter into a Contract to construct the said works in accordance with the Contract Documents, including all applicable Federal and Provincial Sales Taxes, for the sum of:

Dollars

and ______________ Cents ($_______________________) subject to such additions and deductions as may be ascertained in accordance with the Contract.

The aforesaid sum is made up as in the Schedule of Unit Prices attached hereto.

The Tenderer declares that this Tender is made without any connection, comparison of figures or arrangement with or knowledge of, any other corporation, firm or persons making a Tender for the same work and is in all respects fair and without collusion or fraud.

The Tenderer declares that no corporation, firm or person, other than the Tenderer has any interest in this Tender or in the proposed Contract for which this Tender is made.

The Tenderer agrees to execute whatever additional or extra work, and to the deletion of any work, as may be ordered by the Engineer, in strict conformity with the Contract, and that payment for additions to the work or deletions therefrom, shall be determined in accordance with the applicable provisions of the Agreement and General Conditions of the Contract.

* The Tenderer will insert here the numbers of the Addenda received by him/her during the tendering period and taken into account by him/her in preparing his/her tender.
<table>
<thead>
<tr>
<th>ITEM NO.</th>
<th>SPEC NO.</th>
<th>DESCRIPTION</th>
<th>ESTIMATED QUANTITY</th>
<th>UNIT OF MEASURE</th>
<th>UNIT PRICE</th>
<th>TOTAL AMOUNT</th>
</tr>
</thead>
<tbody>
<tr>
<td>A.1</td>
<td>C-1, CS</td>
<td>Supply and place 60m² rip rap and geotextile filter material at outlet; Sta 0+310</td>
<td>60 m²</td>
<td></td>
<td>$</td>
<td>$</td>
</tr>
<tr>
<td>A.2</td>
<td>C-2, CS</td>
<td>Supply and install 6m of twin 750mm diameter HDPE complete with rodent grate; Sta 0+310 to 0+316</td>
<td>100% L.S.</td>
<td></td>
<td>$</td>
<td>$</td>
</tr>
<tr>
<td>A.3</td>
<td>C-3, CS</td>
<td>Supply and install 784m of twin 600mm diameter concrete field tile; Sta 0+316 to 1+100</td>
<td>1568 m</td>
<td></td>
<td>$</td>
<td>$</td>
</tr>
<tr>
<td>A.4</td>
<td>C-3, CS</td>
<td>Supply and install 63m of 600mm diameter concrete field tile; Sta 1+128 to 1+191</td>
<td>63 m</td>
<td></td>
<td>$</td>
<td>$</td>
</tr>
<tr>
<td>A.5</td>
<td>C-3, CS</td>
<td>Supply and install 488m of 525mm diameter concrete field tile, Sta 1+129 to 1+679</td>
<td>488 m</td>
<td></td>
<td>$</td>
<td>$</td>
</tr>
<tr>
<td>A.6</td>
<td>C-6, CS</td>
<td>Supply and install 1800 x 3000mm junction box; Sta 1+100</td>
<td>1 ea.</td>
<td></td>
<td>$</td>
<td>$</td>
</tr>
<tr>
<td>A.7</td>
<td>C-3, CS</td>
<td>Wrap and seal with concrete transition between 525mm and 600mm CDT; Sta 1+191</td>
<td>100% L.S.</td>
<td></td>
<td>$</td>
<td>$</td>
</tr>
<tr>
<td>A.8</td>
<td>C-5, CS</td>
<td>Supply and install 2-900x1200mm catchbasins, complete with birdcage grates; Sta 1+128, 1+679</td>
<td>2 ea.</td>
<td></td>
<td>$</td>
<td>$</td>
</tr>
<tr>
<td>A.9</td>
<td>C-5, CS</td>
<td>Supply and install 1-600x600 offset catch basin complete with birdcage grates and 300mm HDPE piping; Sta. 1+100</td>
<td>100% L.S.</td>
<td></td>
<td>$</td>
<td>$</td>
</tr>
<tr>
<td>A.10</td>
<td>C-4, CS</td>
<td>Remove and salvage existing 900mm CSP</td>
<td>100% L.S.</td>
<td></td>
<td>$</td>
<td>$</td>
</tr>
<tr>
<td>A.11</td>
<td>C-4, CS</td>
<td>Supply and install by open cut 28m of 600mm HDPE pipe under Morris Road, complete with restoration of road base, Sta. 1+100 to 1+128</td>
<td>28 m</td>
<td></td>
<td>$</td>
<td>$</td>
</tr>
<tr>
<td>A.12</td>
<td>C-4, CS</td>
<td>Restore asphalt road surface (100mm of HL4)</td>
<td>13.0 tonne</td>
<td></td>
<td>$</td>
<td>$</td>
</tr>
</tbody>
</table>

SUB-TOTAL SECTION A - CONSTRUCTION $
<table>
<thead>
<tr>
<th></th>
<th>Sub-Total</th>
<th>Tender Sub-Total</th>
<th>Harmonized Sales Tax (H.S.T.)</th>
<th>Total Tender Price (Sub-Total + H.S.T.)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sub-Total Section A</strong></td>
<td><strong>Construction</strong></td>
<td>$</td>
<td>$</td>
<td>$</td>
</tr>
<tr>
<td><strong>Sub-Total Section B</strong></td>
<td><strong>Provisional and Contingency Items</strong></td>
<td>$</td>
<td>$</td>
<td>$</td>
</tr>
<tr>
<td><strong>Tender Sub-Total (All Sections)</strong></td>
<td>$</td>
<td>$</td>
<td></td>
<td>$</td>
</tr>
<tr>
<td><strong>Harmonized Sales Tax (H.S.T.) 13% of Tender Sub-Total</strong></td>
<td>$</td>
<td></td>
<td>$</td>
<td>$</td>
</tr>
</tbody>
</table>

Note: We agree that the Total Tender Price includes an Allowance for HST of $_______, and that this Allowance is only an estimate of the amount of HST which will be paid. The Engineer will determine the actual amount of HST to be paid.

*CS = Construction Specification
The Tenderer agrees that this Tender is subject to a formal Contract being prepared and executed.

The Tenderer agrees that this Tender will remain open to acceptance and the prices herein tendered will remain firm and unchanged for a period of sixty (60) days after the opening of Tenders and the Owner may at any time within this period, accept this Tender whether any other Tender has been previously accepted or not.

A tender deposit consisting of a Certified Cheque or Bid Bond in the amount of Twenty Thousand Dollars ($20,000.00), made payable to the Municipality of Morris-Turnberry is attached. The Tenderer agrees that the tender deposit may be used in whole, or in part, by and at the discretion of the Owner if the Tenderer fails to enter into a Contract for this work when notified.

The Tenderer agrees to construct the works completely by December 1, 2018 stipulated in Article II of the Agreement and as detailed in parts D and E of the Information to Bidders.

The Tenderer agrees that the amount of $19,200.00 is provided under Item B.4 solely as a Contingency Fund for the convenience of accounting by the Owner. The Tenderer agrees that there shall be no payment thereof except for extra or additional work carried out in accordance with the Contract and only to the extent of such work or additional work.

The Tenderer declares that he/she has completed the attached statement listing Subcontractors to be used.

Dated at _______________________ this ________________ day of ____________________ 2018.

SIGNATURE OF TENDERER

_________________________________________

_________________________________________

NOTE: The Tender must be signed in the name of the tendering Company by the duly authorized offices and the Corporate seal must be affixed.
LIST OF SUBCONTRACTORS

The Tenderer shall name and list all Subcontractors used in making their Tender stating the portion of the work allotted to each. Only one Subcontractor shall be named for each part of the work to be sublet.

CONTRACTOR:

<table>
<thead>
<tr>
<th>NAME OF SUBCONTRACTOR</th>
<th>ADDRESS</th>
<th>EXTENT OF WORK</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

NOTE: Employment of Subcontractors not included on this list will be prohibited unless authorized in writing by the Engineer.
WORKMAN MUNICIPAL DRAIN
MUNICIPALITY OF MORRIS-TURNBERRY
CONTRACT NO.: 316047

INFORMATION TO BIDDERS
## A. CONTRACT PARTICULARS & SUMMARY

<table>
<thead>
<tr>
<th>Description</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Obligee’s Name and Address</td>
<td>The Corporation of The Municipality of Morris-Turnberry</td>
</tr>
<tr>
<td>Description and Location of Work</td>
<td>Improvements to an existing Workman Municipal Drain, S Pt Lots 19-21 Concession 5 and N Pt Lots 21-22 Concession 6 Morris</td>
</tr>
<tr>
<td>Contract Number</td>
<td>316047</td>
</tr>
<tr>
<td>Engineer</td>
<td>GM BluePlan Engineering Limited</td>
</tr>
<tr>
<td>Contract Closing Date</td>
<td>April 24, 2018</td>
</tr>
<tr>
<td>Estimated Contract Value</td>
<td>$211,800.00 (plus HST)</td>
</tr>
<tr>
<td>Bid Bond/Certified Cheque Required</td>
<td>$20,000.00</td>
</tr>
<tr>
<td>Agreement to Bond</td>
<td>Not required</td>
</tr>
<tr>
<td>Performance Bond</td>
<td>Not required</td>
</tr>
<tr>
<td>Labour and Materials Bond</td>
<td>Not required</td>
</tr>
<tr>
<td>Maintenance Period</td>
<td>12 months</td>
</tr>
<tr>
<td>Payments</td>
<td>Monthly</td>
</tr>
<tr>
<td>Holdback</td>
<td>10% Statutory Lien</td>
</tr>
<tr>
<td>Maintenance Security</td>
<td>3% of the total contract value held for the duration of the maintenance period</td>
</tr>
<tr>
<td>Commencement Date</td>
<td>N/A</td>
</tr>
<tr>
<td>Completion Date</td>
<td>December 1, 2018</td>
</tr>
<tr>
<td>Liquidated Damages for Delay</td>
<td>$500.00 per calendar day</td>
</tr>
<tr>
<td>Number of Days Tender Open</td>
<td>60 days</td>
</tr>
<tr>
<td>Insurance Amounts</td>
<td>$2,000,000.00</td>
</tr>
<tr>
<td>Parties to be Named on Insurance</td>
<td>- The Corporation of the Municipality of Morris-Turnberry</td>
</tr>
<tr>
<td></td>
<td>- GM BluePlan Engineering Limited</td>
</tr>
<tr>
<td></td>
<td>- All Subcontractors</td>
</tr>
<tr>
<td>Bidder’s Site Meeting and Test Holes</td>
<td>N/A</td>
</tr>
</tbody>
</table>
B. GENERAL TYPE OF CONTRACT

Construction of a closed (tile) Municipal Drain under Section 78 of the Drainage Act.

C. LOCATION

Municipality of Morris-Turnberry, S Pt Lots 19-21 Concession 5 and N Pt Lots 21-22 Concession 6 Morris.

D. TIME FOR COMPLETION

Total Completion by December 1, 2018.

E. STAGING AND SCOPE OF THE WORK

Work must be totally completed by December 1, 2018. The contractor will be allowed to work from 7:00 a.m. to 7:00 p.m., Monday to Friday. Additional hours may be permitted under certain circumstances approved by the Engineer.

Where the work requires blocking access to the driveway of a residence, the Contractor shall provide the occupants with 24 hours advance notice.

F. LIQUIDATED DAMAGES AND WORKING DAYS

(i) Liquidated Damages

For the purposes of this section, the “Owner” refers to the Municipality of Morris-Turnberry or the landowners assess to the Municipal Drain.

It is agreed by the parties to the Contract that in case all the work called for under the Contract is not finished or completed by the above completion time, damage will be sustained by the Owner and that it is and will be impracticable and extremely difficult to ascertain and determine the actual damage which the Owner will sustain in the event of and by any reason of such delay and the parties hereto agreed that the Contractor will pay to the Owner the sum of Five Hundred Dollars ($500.00) per day plus engineering costs for liquidated damages for each and every calendar day's delay in finishing the work after the completion date noted elsewhere and it is agreed that this amount is an estimate of the actual damage to the Owner which will accrue during the period after the said completion date.

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

The Contractor shall not be assessed with liquidated damage for any delay caused by natural disasters or criminal activity, Acts of the Province or any Foreign Nation, Fire, Flood, Epidemics, Quarantine Restrictions, Embargoes or delays of Sub-contractors due to such causes.

(ii) Extension of Completion Time

An extension of time may be granted in writing by the Engineer in the event of the work being delayed beyond the prescribed time for completion. Such extension shall be for such
time as the Engineer may prescribe, and the Engineer may fix the terms on which the said extension may be granted. An application for an extension of time shall be made in writing by the Contractor, to the Engineer at least fifteen (15) days prior to the date of completion fixed by the Contract.

G. MATERIALS SUPPLIED BY CONTRACTOR

The Contractor shall supply all materials used on this project that conform to the appropriate specifications.

H. DEPOSIT WITH TENDERS

Every Tender shall be accompanied by a deposit in the form of a Certified Cheque payable to the Municipality of Morris-Turnberry, or a Bid Bond, in the amount of Twenty Thousand Dollars ($20,000.00).

The tender deposits of all Tenderers except the two lowest Tenderers will be returned within ten (10) days from the date of opening Tenders. The tender deposits of the two low Tenderers will be retained until a Tender has been accepted and the documents required herein have been furnished to the satisfaction of the Solicitor and Engineer for the Owner save that if a Tenderer has not been notified that his/her Tender has been recommended to the Owner for acceptance within 60 days after the date of opening Tenders, his/her tender deposit will be returned on demand and if a Tender has not been accepted and an Agreement executed within 90 days after the date of opening Tenders any remaining tender deposit will be returned.

After the execution of the Contract, the tender deposit of the successful Tenderer, and that of the second low Tenderer, will be returned. The demand for the return of a tender deposit in accordance herewith or the return of a tender deposit by the Owner to a Tenderer whose Tender has not been accepted shall constitute the expiry of the validity of the Tender.

Except as otherwise herein provided the Tenderer guarantees that if his/her Tender is withdrawn before the Owner shall have considered the Tenders or before or after he/she has been notified that his/her Tender has been recommended to the Owner for acceptance or that if the Owner does not for any reason receive within the said period of ten (10) days and as required herein, the Agreement executed by the Tenderer, and the other documents required herein, the Owner may retain the tender deposit for its own use and may accept any Tenders, advertise for new Tenders, negotiate a Contract or not accept any Tender as the Owner may deem advisable.

I. LIABILITY INSURANCE

(i) Liability Insurance

The Liability Insurance carried by this Contractor shall name:

- The Corporation of the Municipality of Morris-Turnberry
- GM BluePlan Engineering Limited
- All Subcontractors

as additional insured thereunder.
J. EXECUTE CONTRACT

The party to whom this Contract is awarded will be required to execute the Contract within ten (10) days notice including Sunday or a legal holiday, from the date of notification mailing from the Engineer to the Tenderer, according to the contact information given by him/her that the Contract is ready for signature.

K. TENDERER TO INVESTIGATE

Tenderers must satisfy themselves by personal examination of the site and location of the proposed works as to the local conditions to be met with during the construction and contract of the work, and the Tenderers shall satisfy themselves as to the nature of the sub-surface materials and conditions.

L. ITEMS

The parts of the work have been divided into items, in order to enable the Tenderer to tender for the different portions of the work in accordance with his/her estimate of their cost, so that in the event of an increase or decrease in the quantity of any particular item or work, the actual quantities executed may be paid for at the rate stated for that particular item of work in the Tender Form subject to the basis of payment laid down for each item in the Specifications.

M. ABILITY AND EXPERIENCE OF TENDERER

It is not the intention of the Owner to award this Contract to any Tenderer who does not furnish satisfactory evidence that he/she has ability and experience in this class of work, and that he/she has sufficient capital and plant to enable him/her to prosecute and complete the same successfully and to complete it in the time named in the Contract.

N. TENDER FORMS

One set of plans, specifications and tender forms will be issued upon request to each prospective Tenderer at the GM BluePlan Engineering Limited Office, 975 Wallace Ave. N, Listowel, ON, N4W 1M6. The Engineer may from time to time, issue Addenda to the Contract and reserves the right to issue the Addenda by true verified email, fax or public courier.

O. RIGHT TO ACCEPT OR REJECT TENDERS

The Owner reserves the right to reject any or all Tenders or to accept any Tender other than the lower Tender should it be deemed in the interest of the Owner to do so.

The Owner shall not be liable for any costs, expenses, loss or damage incurred, sustained or suffered by any Tenderer prior, or subsequent to, or by any reason of the acceptance or the non-acceptance by the Owner of any Tender, or by reason of any delay in the acceptance of a Tender, unless specifically provided in the Tender Documents.

The Tender shall be irrevocable for a period of sixty (60) days following the date of Tender Closing.

P. INFORMAL TENDERS

Tenders which are incomplete, conditional or obscure, or which contain additions not called for, erasures, alterations or irregularities of any kind, may be rejected as informal.
** Tenderers may, at their option, submit a letter to accompany their tender. The inclusion of any such letter will not be considered as rendering the tender “informal” if the letter deals only with any or all of the following matters:

(a) The Tenderer's requirements for security or guarantee of payment.
(b) The Tenderer's alternate completion date if the date specified is not acceptable.
(c) The Tender's proposed work schedule.

Q. UNBALANCED TENDERS

Each item in the Tender Form shall be a reasonable price for such item. Under no circumstances will an unbalanced Tender be considered. The Owner and the Engineer shall be the sole judge of such matters and should any Tender be considered to be unbalanced, the same may be rejected by the Owner.

R. PREPARATION OF PLANS AND SPECIFICATIONS AND ADMINISTRATION OF CONTRACT

The Plans and Specifications were prepared by GM BluePlan Engineering Limited, 975 Wallace Ave. N, Listowel, ON, N4W 1M6, who will inspect the construction of the work for conformity with the plans and specifications and administer the contract. Additional Plans or working drawings showing details in accordance with which the work is to be constructed will be furnished from time to time by the Engineer if found necessary, and shall then become a part hereto.

S. SUBCONTRACTOR

The Tenderer shall submit, with his/her Tender, a full list (with addresses) of the Subcontractors he/she proposes to use on the project if his/her Tender is accepted. Employment of Subcontractors not included on this list will be prohibited unless authorized in writing by the Engineer.

T. SETTING OUT OF WORK (contractor layout)

All setting out of the work, if necessary, shall be performed by the Contractor.

The checking of any setting-out or of any line or level by the Engineer shall not in any way relieve the Contractor of his/her responsibility for the correctness thereof and the Contractor shall carefully protect and preserve all benchmarks, sight rails, pegs, stakes and other items used in setting out the work.

U. PERIOD OF GUARANTEED MAINTENANCE

The period of Guaranteed Maintenance shall extend for twelve (12) months after the date of substantial performance as determined by the Engineer.

Any defects in materials or workmanship which appear within a period of twelve (12) months from the date of granting substantial performance by the Engineer shall be rectified at the Contractor's expense.

This provision shall apply to all deficiencies, including but not limited to, trench settlement, erosion or slumping, structure damage, pipe breaks or any such work which may be constructed.
before the expiration of the 12 month Guarantee Maintenance Period.

All requests for certification of completion must be accompanied by the Contractor’s Statutory Declaration of payments made.

V. TENDER

Each Tender shall include one complete set of Tender Forms marked “Contractor Shall Submit This Copy”. The Tenderer shall give the total tender price both in words and in figures and shall fill in all blank spaces for unit prices, item prices, lump sums, and any other information in the Tender Form.

W. OMISSIONS, DISCREPANCIES AND INTERPRETATIONS

Should a Tenderer find omissions from or discrepancies in any of the tender documents or should he/she be in doubt as to the meaning of any part of such documents, he/she should notify the Engineer, preferably in writing and not later than eight (8) days before the closing date for tenders. If the Engineer considers that a correction, explanation or interpretation is necessary or desirable, he/she will issue an addendum to all who have taken out tender documents.

No oral explanation or interpretation shall modify any of the requirements or provisions of the tender documents.

X. ITEMS TO BE INCLUDED IN TENDER

The Contractor's unit prices shall be deemed to include:

(a) The cost of cleaning up the site by removing all rubbish and surplus materials and leaving the site in a neat and tidy order upon completion of the Contract.
(b) The required fees for all necessary municipal and other permits as may be required.
(c) Release of liability letter signed by all property owners who accepted excess fill material from this project.

Y. QUANTITIES ARE ESTIMATED

The quantities shown for unit price items in the Form of Tender are estimated only and are for the sole purpose of indicating to Tenderers the general magnitude of the work. For any work done or materials supplied on a unit price basis, the Contractor will be paid for the actual measured quantities at the respective unit prices tendered.

The Engineer has the right to increase or reduce the quantities required or to suspend or omit any item or portion of the work at any time as he/she may deem advisable. The Contractor shall not be entitled to any compensation for loss of anticipated profit as a result of the deletion of any item or part of an item from the work.

The Owner reserves the right to reduce the tender quantities, before the start of construction, as may be required by budget limits. The Contractor will be notified in writing of the items and amounts to be reduced.

Z. ASSISTANCE

The Contractor is to furnish the Engineer or any of his/her assistants with any reasonable
assistance which he/she or they may require at any time in checking the works. He/she shall furnish the said parties, or any of the inspectors, at all times, with convenient means of access to all parts of the works, and also with all required assistance to facilitate through examination of the same, and inspection, culling and removal of doubtful or defective material, and for any other purpose required in connection with the said works or in the discharge of their respective duties, for which services no additional allowance will be made.

AA. CONTRACTOR’S RESPONSIBILITIES

The Contractor shall verify the elevations of the existing drainage works using the benchmarks provided by the Engineer, before drain construction commences, and this information shall be given to the Engineer, to be checked. The Contractor shall provide site supervisors, foremen or superintendents as required and assume all responsibility for control and direction of the work in accordance with Section GC 7.0 in the OPS General Conditions of Contract.

The Contractor shall be responsible for locating any existing utilities, services or obstructions. An up to date copy of all field locate sheets or diagrams provided by a utility locator shall be given to the Engineer and a copy shall be kept on site by the Contractor. The cost of repair of any damaged utility, service or obstruction as a result of the Contractor's operation shall be paid for by the Contractor.

The Contractor shall not operate any vehicle with lugs on paved or concrete surfaces and the cost of repairing any damage from such an operation must be borne solely by the Contractor. The Contractor shall perform the job in such a manner as to prevent damage to any public or private property, building, fixture, or service. Any such damage caused by the Contractor must be repaired at his/her expense and all such claims shall be referred to and settled by the Contractor or his/her agents.

The Contractor, except in an emergency or other circumstance, at least twenty-four hours before commencing any digging, trenching, or excavating, shall notify all companies with underground installations of his/her intention. The Contractor shall also provide adequate notification to other owners of underground installations of his/her intention to excavate in their vicinity in a manner likely to interfere with their functioning and shall indemnify and save harmless, the Owner, for and from any damages.
WORKMAN MUNICIPAL DRAIN
MUNICIPALITY OF MORRIS-TURNBERRY
CONTRACT NO.: 316047

PLAN AND PROFILE DRAWINGS
STA. 0+716 - BRANCH 'B' TILE CONNECTION DETAIL

STA. 1+191 - BRANCH 'F' CONNECTION DETAIL

ROAD CROSSING AND BRANCH 'G' DETAIL

WORKMAN MUNICIPAL DRAIN - MAIN

COUNTY ROAD No. 16

STA. 1+133

WORKMAN MAIN

STA. 1+191

WORKMAN DRAIN MAIN

488m - 525Ø CONC FIELD TILE @ 0.30%

BRANCH 'F' CONNECTION DETAIL

ENGINEERING

Preliminary

09/11/2017

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ENGINEER'S REPORT

STA. 0+000 TO 1+700

STA. 1+710

STA. 1+700

STA. 1+660

STA. 1+640

STA. 1+620

STA. 1+600

STA. 1+560

STA. 1+540

STA. 1+440

STA. 1+420

STA. 1+400

STA. 1+360

STA. 1+320

STA. 1+300

STA. 1+260

STA. 1+220

STA. 1+200

STA. 1+180

STA. 1+160

STA. 1+140

STA. 1+100

STA. 1+100 - OFFSET

FIELD TILE @ 0.15%

28m - 600Ø CONC

EX. 30m - 375Ø

CONC FIELD TILE

EX. 186m - 450Ø

FIELD TILE @ 0.16%

EX. 214m - 525Ø CONC FIELD TILE

EX. 172m - 250Ø CONC FIELD TILE 0.37%

EX. JB

CONC FIELD TILE 0.20%

JB.1 - 1800x3000 JB

CB.3 - 900x1200 CB c/w BIRDCAGE GRATE

STA. 1+679

STA. 0+417

MINIMUM INVERT

EXISTING DITCH INLET CATCH BASIN

MINIMUM ELEVATION

DECK ELEVATION

DIAMETER EXISTING CORRUGATED STEEL PIPE

CENTER LINE CONCRETE

COUNTY ROAD 16, N.E.

MORRIS ROAD

2. CONTRACTOR IS TO CONNECT EXISTING TILES DURING CONSTRUCTION.

EX. 25m - 900Ø CSP CULVERT @ 0.99%

STA. 1+128

STA. 1+133

MINIMUM INVERT

FIELD TILE @ 0.15%

63m - 600Ø CONC

3. EXISTING CEMENT TILES TO BE REMOVED AND SALVAGED.

(ASSUMED LOCATION)

(BIRDCAGE GRATE)

4. CONTRACTOR IS TO CONNECT BRANCH 'F' DURING CONSTRUCTION.

EX. JB

5. CONTRACTOR IS TO CONNECT BRANCH 'G' DURING CONSTRUCTION.

(RIP-RAP)

6. CONTRACTOR IS TO CONNECT EXISTING CEMENT TILES DURING CONSTRUCTION.

(N.T.S.)

7. CONTRACTOR IS TO CONNECT BRANCH 'B' DURING CONSTRUCTION.

(C/L)

8. CONTRACTOR IS TO CONNECT EXISTING CEMENT TILES DURING CONSTRUCTION.

(LIMIT OF ASPHALT CUT WORKMAN DRAIN MAIN)

9. CONTRACTOR IS TO CONNECT BRANCH 'F' DURING CONSTRUCTION.

(HAMILTON)

(LONDON)

(RIP-RAP)

(WORKMAN DRAIN MAIN)

(WORKMAN MAIN)

(BRANCH 'G')
STA. 0+650 - BRANCH 'B' CONNECTION TO MAIN DETAIL

NOTES /

1. CONTRACTOR IS TO CONNECT EXISTING TILES DURING CONSTRUCTION.

NOTES / DETAILS

ASSUME ALL LIABILITY FOR ANY DAMAGE TO THEM.

THE POSITION OF SUCH UTILITIES AND STRUCTURES IS NOT GUARANTEED.


MOUNDS, HILLS, RILLS, GULLIES, DITCHES AND THEIR LOCATION ARE NOT SHOWN ON THIS DRAWING.

ROUTE OF DRAIN AND ADJACENT ROAD ARE NOT SHOWN ON THIS DRAWING.

NO. CLASS DESCRIPTION
1. CONTRACTOR IS TO OBTAIN UTILITY LOCATES PRIOR TO CONSTRUCTION.

2. CONTRACTOR IS TO CONNECT EXISTING TILES DURING CONSTRUCTION.
MATCH TO EX. ASPHALT WITH 0.5m STEP JOINT (TYP.)

EX. ROAD SURFACE
45mm HL-4 (TYP.)
55mm HL-4 (TYP.)

EX. 900Ø CSP TO BE REMOVED AND SALVAGED

1.20m MAX.

150mm GRANULAR 'A' (OPSS1010) COMPACTED TO 100% SPMDD PLACED IN MAX. LIFTS OF 150mm (TYP.)

600mm GRANULAR 'B' TYPE 1 (OPSS 1010) COMPACTED TO 100% SPMDD PLACED IN MAX LIFTS OF 300mm (TYP.)

NATIVE BACKFILL/IMPORTED SELECT SUBGRADE MATERIAL (OPSS 1010) COMPACTED TO 98% SPMDD PLACED IN MAX. LIFTS OF 300mm (TYP.)

28m - 600Ø HDPE GRANULAR 'A' BEDDING & EMBEDMENT COMPACTED TO 98% SPMDD

0.15m
0.30m
1.36m
30.48m
2%
6%

NORTH PL
3.8m +/-
2.7m +/-
6.6m +/-

150mm GRANULAR 'A' (OPSS1010) COMPACTED TO 100% SPMDD PLACED IN MAX. LIFTS OF 150mm

600mm GRANULAR 'B' TYPE 1 (OPSS 1010) COMPACTED TO 100% SPMDD PLACED IN MAX LIFTS OF 300mm

45mm HL-4
55mm HL-4

3.8m +/-
2.7m +/-
6.1m +/-

150mm TOP SOIL SEED AND MULCH (EMBANKMENTS GREATER THAN 3:1 TO BE c/w EROSION CONTROL BLANKET AS PER OPSD 219.10)

SOUTH PL
3%
2%
6%
3%

MORRIS ROAD CL (HURON COUNTY LINE 16)

NOTES / DETAILS

B.M. 316047-1, ELV = 100.000m
NAIL SET IN SOUTH FACE OF HYDROPOLE LOCATED AT THE SOUTHWEST CORNER OF THE INTERSECTION OF BUTTON LINE AND MORRIS ROAD (HURON COUNTY ROAD 16).

DATE : FEBRUARY 2018
1. STANDARD SPECIFICATIONS

Where reference is made to OPSS or OPSD, the Contractor shall refer to the latest revision of the Ontario Provincial Standard Specifications and the Ontario Provincial Standard Drawings. These specifications and drawings may not be bound within this document. They are available on-line at:

www.raqsa.mto.gov.on.ca/techpubs/ops.nsf/opshomepage

Where in the Specifications the word “Corporation”, “Municipality” or “Owner” occurs it shall mean the “The Municipality of Morris-Turnberry”.

Where in the Specifications the word “Engineer” occurs it shall mean “GM BluePlan Engineering Limited”.

2. SALES TAXES

Harmonized Sales Tax (H.S.T.)

The Total Tender Price shall include an allowance for H.S.T., calculated as 13% of the cost of the works as itemized in the Schedule of Unit Prices in the Form of Tender.

This allowance is simply an estimate of the amount of H.S.T. to be paid to the Contractor.

The Engineer will determine the appropriate amount of H.S.T. to be paid on each progress payment and on the final payment, and this amount may be more or less than the “allowance” included in the Total Tender Price.

3. LASER ALIGNMENT

The Contractor shall use a laser beam or equivalent line and grade control methods for laying all drain tile to maintain the on grade and alignment shown on the plans. Batter boards or any other means will not be acceptable. Tile drains shall be laid to a grade not more than +/- 25mm from the alignment as shown on the plans. Tile drains with a vertical variation of greater than 25mm may be rejected by the Engineer, and in that event the Contractor will be required to take up and re-lay those sections of tile drain at their expense.

4. TRENCHES TO BE CLOSED

No trench may be left open at the end of each day unless authorized by the Engineer. Any trench that is to be left open shall be completely fenced off with steel construction fencing. All fencing shall be at the Contractor's expense. If the Contractor neglects to fence a trench, the Engineer shall have the right to have this work done by others and charged to the Contractor.

5. ROAD SIGNS

The Contractor, at his/her own expense, shall carefully remove and satisfactorily replace Municipal Road Signs which must be removed in order to carry out the contract. Where traffic control signs, such as Stop Signs, have to be temporarily or permanently relocated, they shall be immediately reset either temporarily or permanently, as conditions dictate. All temporarily relocated signs shall be permanently reset as soon as site conditions permit. Where replacements are necessary, new signs shall conform to Huron County Development Standards.
6. DAMAGE TO TREES

A penalty of $1,000.00 will be levied against the Contractor to be deducted from monies payable under this Contract for each and every tree destroyed or damaged due to the Contractor's carelessness or negligence and which is not designated in the Contract for removal. As to what constitutes the carelessness or negligence on the part of the Contractor, the Engineer's decision shall be final.

7. COORDINATION MEETINGS

The Contractor shall attend such meetings with the Owner, Engineer, landowners and Utility Company Authorities (as necessary) as may be required by the Engineer to co-ordinate services affected by this Contract.

8. DISPOSAL OF SURPLUS OR UNSUITABLE EXCAVATED MATERIAL

All earth material excavated in carrying out the work of the various tender items included in this Contract and which is unsuitable for, or which is surplus to, the requirements for backfill shall be disposed of off-site. The excess material may be disposed of at a site arranged by the contractor upon receipt of a sign-off by the property owner.

All concrete, asphalt pavements, curbs, sidewalks, large boulders and other "solid" materials are to be loaded and hauled separately from the other earth and granular materials and disposed of at an MOECC-approved site obtained by the Contractor at no cost to the Owner.

9. COMPACTION

This Contract contains no separate tender item for compaction equipment as may be required to compact the earth or granular materials whether used for embankment construction, base courses, bedding, or backfill.

The Contract prices for the materials to be placed or the work to be carried out shall include full compensation for supplying and operating such compaction equipment as the Contractor may require and for compacting the materials to the specified density.

When it is impractical with the larger types of compaction equipment to obtain the required degree of compaction in areas where working space is limited, the Contractor shall provide and use mechanical hand compaction equipment in order to achieve the specified density.

Granular materials used as bedding shall be compacted to a density of 98% of the maximum dry density, granular backfill or base courses shall be compacted to a density of 100% of the maximum dry density. All other earth materials shall be compacted to a density of 95% of the maximum dry density.

When field tests indicate that the required degree of compaction cannot be obtained with the equipment in use or the procedure being followed, the Contractor's operations shall be halted until the Engineer is satisfied that the Contractor has made such modifications, in his/her equipment and procedure, which will produce the required results.

10. NATURAL GAS CONSTRUCTION SPECIFICATIONS

Where the Contractor is working near natural gas mains the work shall be carried out in accordance with the requirements and specifications of the Gas Company having control over such mains.

11. OTHER CONTRACTORS WITHIN OR ADJACENT TO THE LIMITS OF THE WORK

The Contractor is advised that other work may be in progress within and adjacent to the limits of this Contract and that he/she shall co-operate with other Contractors, Utility Companies, and the Corporation and they shall be allowed free access to their work at all times.

The Engineer reserves the right to alter the method of operation on this Contract to avoid interference with other
work.

12. UTILITY POLE LINES

Where utility poles may have to be supported, the Contractor shall make arrangements with the hydro authority to do this work. There shall be no charge to the Contractor for this work.

13. UTILITIES AND PIPE CROSSINGS

The location and depth of underground utilities shown on the Contract Drawings are based on information received by the Engineer. The position of all pole lines, conduits, watermains, sewers and other underground and over ground utilities and structures is not necessarily shown on the Contract Drawings and where shown, the accuracy of the position of such utilities and structures is not guaranteed. It is the Contractor's responsibility before starting any work to contact the Municipal Authorities or Utility Companies for further information in regard to the exact location of these utilities and to take such other precautions as necessary to safeguard the utilities from damage.

Where pipes and other utilities are encountered in the excavation, these shall be maintained and supported by the Contractor to minimize damage done to them. Prior to backfilling, the Contractor shall submit to the Engineer, for his/her approval, details of the proposed method of support of such pipes and utilities and no backfilling may take place prior to the Engineer's review of such details. Approval by the Engineer of any such details will in no way relieve the Contractor from his/her responsibility to avoid any damage where possible.

14. DAMAGE BY VEHICLES AND OTHER EQUIPMENT

If at any time, in the opinion of the Engineer, damage is being or is likely to be done to any highway or any improvement thereon, other than such portions as are part of the work, by the Contractor's vehicles or other equipment, whether licensed or unlicensed, the Contractor shall, on the direction of the Engineer and at the Contractor's own expense make changes in or substitutions for such vehicles or other equipment or shall alter loading or shall in some other manner remove the cause of such damage to the satisfaction of the Engineer. Where such damage has occurred, the Contractor shall make repairs satisfactory to the Owner or, where the Owner has found it necessary to make the repairs, make payment to the Owner of the cost of repairs carried out by the Owner.

15. SURVEY BARS AND MONUMENTS

The Contractor shall be responsible for replacing all survey bars which are bent, moved, removed, due to carelessness but will not be responsible for survey bars that have to be removed for construction. The contractor shall provide a list of all damaged and removed survey bars to the Engineer.

16. MAINTENANCE OF ROAD

The Contractor shall at all times and at his/her own expense, maintain safely and adequately, all private entrance facilities throughout the length of the Contract.

17. IMPERIAL CONVERSION OF METRIC SPECIFICATIONS

The Standard Specifications governing this work are in metric units. For the purpose of this Contract it is assumed that the metric units shall be hard converted to Imperial units, wherever necessary.

18. ACCESS TO PRIVATE PROPERTIES

If a traffic lane is closed temporarily to allow asphalt paving or road grading (including patch work), local access shall be maintained as much as possible and notifications shall be made 24 hours in advance.
19. CONSTRUCTION HOURS

The Contractor will be allowed to work from 7:00 a.m. to 7:00 p.m., Monday to Friday. Additional hours may be permitted under certain circumstances if approved by the Engineer.

20. MAINTENANCE OF FLOWS

The contractor shall be responsible to maintain all drainage flows during construction. No extra payment will be made for pumping, hauling or disposing of any drainage flow or removing any granular material that enters the drainage system through manhole or catch basin frame adjustments. The contractor will be responsible for maintaining and directing storm water flows during construction so that flooding of private property and silt migration or washouts do not occur. The contractor shall be responsible to pay for any damages caused by storm water flooding due to, or as a result of, construction activities during the duration of this project.
Special Provisions
For The Construction Of The
Workman Municipal Drain 2018
The Municipality of Morris-Turnberry

SPECIFICATIONS

The Special Provisions, along with the “Specifications for the Construction of Municipal Drainage Works” attached hereto, shall apply to and govern the construction of the “Workman Municipal Drain”.

PLAN AND REPORT

The Plan and Profile and the Engineer's Report on the proposed Drainage Works shall be a part of this Specification.

EXTENT OF WORK

General

1. All standard Detailed Drawings are attached to these Specifications.

2. The Contractor shall notify the Owners and the Engineer seventy-two (72) hours prior to construction.

3. The Contractor shall verify the location of the new tile drains with the Engineer and the landowners prior to construction.

4. The working area shall be 20m centered on the proposed tile drain. Each landowner on whose property the drainage works is to be constructed shall designate access to and from the working area.

5. All utilities shall be located and uncovered in the affected areas by the Contractor prior to construction.

6. The Contractor shall supply all materials unless otherwise stated at the time of tendering.

7. All standard catch basins shall be precast concrete catch basins supplied by Coldstream Concrete or approved equal. Knockout shall be provided in the catch basins.

8. The catch basin grate elevations shall be set to the satisfaction of the Engineer.

9. Stone rip-rap protection and geo-textile material (Terrafix 270R or approved equivalent) shall be placed around all catch basins as part of this contract.

10. All catch basin grates shall be fastened to the new catch basins.

11. All stone rip-rap material shall be quarry stone 150mm to 300mm diameter and placed to a depth of 400mm.

12. The Contractor shall supply all necessary materials to complete the connections of any existing drains to the new drain.

13. All CSP pipe shall be minimum 2.0mm (14 gauge) with a 68mm x 13mm corrugation profile, and galvanized.
14. All HDPE pipe shall be CSA rated 320kPa with bell and spigot gasket joints. Pipe shall be double wall smooth interior, Boss2000 or approved equivalent.

15. All clear stone shall be 19mm Type I as per OPSS.MUNI 1004.

16. All Rip Rap stone shall be R50 unless otherwise specified, as per OPSS.MUNI 1004.

17. The Contractor shall be responsible for all trench settlement.

18. The Contractor shall supply and install catch basin markers beside all catch basins.

19. All concrete tile shall meet the requirements of ASTM C412-15.

20. The Contractor shall strip the topsoil for a width of 4.0m centered on the drain before installing the tile drain. In deep cuts the Contractor shall strip the topsoil in the locations where the drain is being installed with an excavator for the full top width of the trench. The topsoil shall be later spread over the backfilled trench.

21. The Contractor shall grade the road ditches to the new catch basins. The disturbed areas within the road Right-Of-Way shall be top soiled and seeded.

22. The Contractor shall clean up the site and leave it in a neat and tidy condition.

23. The tender shall be based upon unit prices and shall be as detailed on the tender form.

24. Nothing in these Specifications shall be construed as requiring less than a complete and satisfactory job in accordance with the obvious intent of the Drawings and Specifications.

25. All work shall be done to the satisfaction of the Engineer.

26. In accordance with Section A.19 of the General Specifications, the Contractor shall be responsible for all faulty materials or workmanship which appears within a one year period from the date of the Engineer's final Payment Certificate. An amount equal to 3% of the final contract price shall be retained for the maintenance period. Any part of the money retained may be used to make good any deficiencies after five (5) working days’ notice being given to the Contractor. This notice may be either in writing or by telephone.

CLOSED WORK

C-1 Rip Rap Channel

Supply and install approximately 60m² rip rap as shown on the drawings accompanying the Report at Sta. 0+310. Rip rap shall be field or quarry stone, of 150mm to 300mm diameter (R50) or as approved by the Engineer on a filter mat base (Terrafix 270R or approved equivalent), machine placed to produce a smooth locked surfaced. The protection shall extend to the top of the backfilled trench and below the pipe to 400mm under the streambed for a distance of 10m downstream of the outlet pipe.

All rip rap and geotextile shall be installed as shown on the drawings accompanying the Report, and in accordance with OPSD 810.010 Type B.

Payment for rip rap will be on an area basis for the actual quantity placed at the rate quoted in the tender.

C-2 Outlet Pipe

Supply and install the first two 6m sections of 750mm HDPE pipe complete with rodent grate from Sta. 0+310 to Sta. 0+316. Connect the successive 600mm diameter concrete field tile by sealing all around
with 150mm of concrete or wrapping with a 600mm wide strip of Terrafix 270R filter cloth, or approved equivalent.

C-3  Concrete Field Tile by Wheel Trencher

Concrete tile shall be Heavy-Duty Extra-Quality Concrete Drain Tile as per ASTM C412-15.

Supply and install 1,631m of 600mm diameter and 488m of 525mm diameter concrete field tile by trencher or backhoe. Use drain tile as supplied by Coldstream Concrete or approved equivalent.

1,568m of the 600mm diameter tile is intended to be installed in a “twin” pipe system, with the pipes set approximately 600mm apart, or as otherwise approved by the Engineer.

The connection point between the 525mm and 600mm diameter drain tile shall be both wrapped with geotextile, and sealed all around with a 150mm thick layer of 20 MPa concrete.

By whatever means the pipe is installed, the Contractor shall place it so that support is provided for the bottom and sides. This may require hand work to “blind” the pipe and place and compact soil under the haunches of the pipe, and/or modification to the excavator. If the Contractor elects to install the pipe by excavator, the Contractor will be responsible for either properly shaping and preparing the trench bottom to seat the pipe to the satisfaction of the Engineer, or installing the pipe on a 150mm thick bed of 19mm clear stone. There shall be no additional payment made beyond the bid price where the Contractor has elected to install the drain by excavator. The Contractor is responsible for any breakage of pipe in the ground, however it occurs and whether or not the method of installation is approved by the Engineer.

If the Contractor elects to install the pipe by excavator, extra will not be paid for stoney conditions unless boulders are encountered, larger than can be lifted by the excavator. Payment under this item includes all labour, equipment and materials necessary to excavate the trench and shape the bottom, lay and wrap the pipe, backfill and shape the trench, and includes topsoil stripping and replacement.

This item shall include the wrapping of tile joints. The Contractor shall supply and wrap all concrete tile joints with geotextile filter material as part of this contract. The width of the filter material should be 400mm. Also included in this item is the interconnecting of the twin main drain pipes at approximately station 0+716 with a length of 300mm HDPE pipe, which is to be sealed all around with 20 MPa concrete.

The filter material shall completely cover the tile joint and shall have a minimum overlap of 300mm. The type of filter material shall be Terrafix 270R or approved equal.

No payment will be made for partial wrapping of tile.

C-4  Morris Road Crossing Sta. 1+100 to 1+128

Supply and install 28m of 600mm diameter HDPE with bell and spigot gasket joints. Pipe shall be double wall smooth interior, Boss2000 or approved equivalent.

Pipes shall be installed by open cut method. Bedding and embedment shall be granular ‘A’ compacted to 98% SPD. The road shall be restored as shown in the detailed drawings, with 600mm of granular ‘B’ sub-base, 150mm of granular ‘A’ base, and 100mm of HL4 asphalt placed in two lifts.

This item shall also include the removal and salvage of the existing 900mm CSP immediately adjacent to the proposed road crossing.

The Contractor shall be responsible for all traffic control, including detour routes, in accordance with the OTM Book 7.
Refer to A.17 of the Construction Specifications for additional installation requirements.

### C-5 Ditch Inlet Catch Basins or Catch Basins

Supply and install 2 – 900 x 1,200 flat catch basins and 1 – 600 x 600 flat catch basin complete with birdcage grates by Coldstream Concrete or approved equivalent.

The catch basins shall be as supplied by Coldstream Concrete or approved equal. Ditch inlets shall have a 3:1 sloped top and heavy duty galvanized steel grate (minimum bar diameter 15mm, maximum spacing 75mm) of the “birdcage” type set so that the top of the back of the ditch inlet is approximately flush with the surrounding ground. Flat catch basins shall have a flat top and heavy duty galvanized steel grate (minimum bar diameter 15mm, maximum spacing 75mm) of the “birdcage” type set so that the top of the catch basins is approximately flush with the surrounding ground.

The 600 x 600 catch basin shown on the north side of Morris Road, Sta. 1+096, shall be connected to JB#1 using approximately 6m of 300mm HDPE pipe.

All necessary minor grading and contouring to convey water to the catch basin is included. The approximate top of grate elevation has been shown on the detailed plans; however the contractor shall confirm the surface elevations prior to ordering or placing any catch basins and shall ensure that the top does not extend above the ground surface. All catch basins shall include at least one 150mm riser section. All ditch inlets shall include an earthen berm, graded to match the top of the high side of the inlet. The berm shall be finished with topsoil and seed.

Securely fasten the grate to the ditch inlet with two galvanized bolts. All pipes connected to the catch basin shall be suitably grouted with concrete, and all grouted connections shall be completely wrapped with geotextile. Further, geotextile shall be placed over all the joints between sections of the box for the entire perimeter of the box.

Supply and install approximately 2 tonnes of rip rap at each ditch inlet catch basin to the standard described in Item C-1.

Payment for rip rap will be on a tonnage basis for the actual quantity placed at the rate quoted in the tender.

### C-6 Junction Boxes

All junction boxes shall be supplied from a precast manufacturer. Dimensions for junction boxes shall conform to the dimensions as shown on the accompanying plans. An approximate top of structure elevation has been shown on the detailed plans; however the contractor shall confirm the surface and top of structure elevations prior to ordering or placing any junction boxes to confirm the elevation.

All pipes connected to the junction box shall be suitably grouted with concrete, and all grouted connections shall be completely wrapped with geotextile. Further, geotextile shall be placed over all the joints between sections of the box for the entire perimeter of the box.

All junction boxes will be covered with a solid concrete top, minimum 150mm thick, with two galvanized lifting handles.

### C-7 Tile Connections

All tile encountered shall be connected into the main drain or a catch basin. Tile connections may be made by using the same size of concrete field tile or one size larger of standard corrugated plastic drainage tubing. Connection at the main shall be “earth tight” to the satisfaction of the Engineer. All tile
connections shall be done by core drilling the main drain or catch basin, and the connection shall be sealed by a method satisfactory to the Engineer.

Included in this item are connections to the existing branches ‘A’, ‘B’, ‘F’ and ‘G’, as noted on the drawings.

The contractor will be paid as follows for the connection of tributary tile to the proposed works:

<table>
<thead>
<tr>
<th>100mm Connections to</th>
<th>Total c/w Coring</th>
<th>150mm Connections to</th>
<th>Total c/w Coring</th>
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</thead>
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<td>$130.00</td>
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<td>$165.00</td>
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The number of tributary tile connections required is unknown until construction commences.

The above prices include supply and install of up to a 3m length of tile, or tubing to make connections. Connections in excess of 3m shall be paid for at the rate of $15.00/m for 100mm and 150mm diameter tile, and $25.00 for 200mm diameter tile.

**C-8 Poor Soil Conditions**

Poor soil conditions may be encountered. Should they occur and be sufficiently severe, in the opinion of the Engineer, that installation by wheel trencher is not possible; extra will be paid at the rate quoted in the tender for installation of the tile by excavator. Work under this item will include trench excavation of sufficient depth to install clear stone bedding if necessary. All costs involved in removing the wheel trencher, crew downtime, or any other costs related to the transition from wheel trencher to excavator will be included in the cost of this item, and no additional payments will be made.

When installing pipe by excavator, the Contractor shall place the pipe on a 200mm thick layer of 19mm clear stone bedding and use clear stone embedment to the spring line so that the pipe is supported from the bottom and sides. This may require hand work to “blind” the pipe and place stone under the haunches of the pipe, and/or modification to the excavator. The Contractor is responsible for any breakage of pipe in the ground however it occurs.

Extra will not be paid for stoney conditions unless boulders are encountered, larger than can be lifted by the excavator. Payment under this item includes all labour, equipment and materials necessary to excavate and shape the trench, supply and place the clear stone, lay and wrap the pipe, backfill the trench, and includes topsoil stripping and replacement.

This item shall include the wrapping of tile joints. The Contractor shall supply and wrap all concrete tile joints with geotextile filter material as part of this contract. The width of the filter material shall be 400mm.

The filter material shall completely cover the tile join and shall have a minimum overlap of 300mm. The type of filter material shall be Terrafix 270R or approved equal.

No additional payment will be made for wrapping of tile.

**C-9 Clear Stone**

Supply and install 19mm diameter clear crushed stone for bedding or envelope. Where not already specified in the contract, location for installation shall be designated by the Engineer at the time of construction. Payment will be for the actual quantity, in tonnes, installed.
C-10  Sediment Control

The Contractor shall install light duty silt fence, at the locations as shown on the plans. The Contractor shall remove any accumulated sediment at regular intervals or as directed by the Engineer. The Contractor shall remove any sediment control devices and accumulated sediment after completion of the project and once the new drain has stabilized, but only upon the authority of the Engineer or Drainage Superintendent.
WORKMAN MUNICIPAL DRAIN
MUNICIPALITY OF MORRIS-TURNBERRY
CONTRACT NO.: 316047

CONSTRUCTION SPECIFICATIONS
# INDEX

## SECTION A - GENERAL

<table>
<thead>
<tr>
<th>Section</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>A.1</td>
<td>BENCH MARKS</td>
<td>1</td>
</tr>
<tr>
<td>A.2</td>
<td>STAKES</td>
<td>1</td>
</tr>
<tr>
<td>A.3</td>
<td>LINE</td>
<td>1</td>
</tr>
<tr>
<td>A.4</td>
<td>PROFILE</td>
<td>1</td>
</tr>
<tr>
<td>A.5</td>
<td>ERRORS OR OMISSIONS</td>
<td>1</td>
</tr>
<tr>
<td>A.6</td>
<td>CLEARING</td>
<td>2</td>
</tr>
<tr>
<td>A.7</td>
<td>FENCES</td>
<td>3</td>
</tr>
<tr>
<td>A.8</td>
<td>TRIBUTARY OUTLETS</td>
<td>3</td>
</tr>
<tr>
<td>A.9</td>
<td>ALTERATIONS</td>
<td>3</td>
</tr>
<tr>
<td>A.10</td>
<td>SPECIAL CONDITIONS</td>
<td>3</td>
</tr>
<tr>
<td>A.11</td>
<td>PERMITS, NOTICES, LAWS AND RULES</td>
<td>4</td>
</tr>
<tr>
<td>A.12</td>
<td>HIGHWAYS, RAILWAYS, UTILITIES</td>
<td>4</td>
</tr>
<tr>
<td>A.13</td>
<td>CONTRACTOR’S LIABILITY INSURANCE</td>
<td>4</td>
</tr>
<tr>
<td>A.14</td>
<td>SUB-CONTRACTORS</td>
<td>5</td>
</tr>
<tr>
<td>A.15</td>
<td>STANDING CROPS AND LIVESTOCK</td>
<td>5</td>
</tr>
<tr>
<td>A.16</td>
<td>SURPLUS GRAVEL</td>
<td>5</td>
</tr>
<tr>
<td>A.17</td>
<td>OPEN CUT ROAD CROSSINGS</td>
<td>5</td>
</tr>
<tr>
<td>A.18</td>
<td>LANEWAYS</td>
<td>5</td>
</tr>
<tr>
<td>A.19</td>
<td>REMOVALS</td>
<td>6</td>
</tr>
<tr>
<td>A.20</td>
<td>FINAL INSPECTION</td>
<td>6</td>
</tr>
<tr>
<td>A.21</td>
<td>COMPLETION OF WORK</td>
<td>6</td>
</tr>
<tr>
<td>A.22</td>
<td>NOTICE OF COMMENCEMENT OF WORK</td>
<td>6</td>
</tr>
<tr>
<td>A.23</td>
<td>FIELD MEETINGS</td>
<td>7</td>
</tr>
<tr>
<td>A.24</td>
<td>SUPERVISION</td>
<td>7</td>
</tr>
<tr>
<td>A.25</td>
<td>MAINTENANCE OR FAULTY WORKMANSHIP</td>
<td>7</td>
</tr>
<tr>
<td>A.26</td>
<td>DRAINAGE SUPERINTENDENT</td>
<td>7</td>
</tr>
</tbody>
</table>

## SECTION B - OPEN DRAINS

<table>
<thead>
<tr>
<th>Section</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>B.1</td>
<td>BOTTOM WIDTH AND SIDE SLOPES</td>
<td>8</td>
</tr>
<tr>
<td>B.2</td>
<td>EXCAVATED MATERIAL</td>
<td>8</td>
</tr>
<tr>
<td>B.3</td>
<td>SPREADING AND LEVELLING</td>
<td>8</td>
</tr>
<tr>
<td>B.4</td>
<td>FILLING OLD CHANNEL</td>
<td>8</td>
</tr>
<tr>
<td>B.5</td>
<td>INLETS FOR SURFACE WATER</td>
<td>9</td>
</tr>
<tr>
<td>B.6</td>
<td>EXCAVATION AT BRIDGE SITES</td>
<td>9</td>
</tr>
<tr>
<td>B.7</td>
<td>FARM BRIDGES AND FARM CULVERTS</td>
<td>9</td>
</tr>
<tr>
<td>B.8</td>
<td>RIP RAP PROTECTION FOR CULVERTS</td>
<td>9</td>
</tr>
<tr>
<td>B.9</td>
<td>OBSTRUCTIONS</td>
<td>9</td>
</tr>
<tr>
<td>B.10</td>
<td>ROADS</td>
<td>10</td>
</tr>
<tr>
<td>B.11</td>
<td>TILE OUTLETS IN EXISTING DITCHES</td>
<td>10</td>
</tr>
<tr>
<td>B.12</td>
<td>GRASS SEED AND FERTILIZER</td>
<td>10</td>
</tr>
<tr>
<td>B.13</td>
<td>EQUIPMENT</td>
<td>10</td>
</tr>
<tr>
<td>B.14</td>
<td>COMPLETION</td>
<td>10</td>
</tr>
</tbody>
</table>

## SECTION C - TILE DRAINS

<table>
<thead>
<tr>
<th>Section</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>C.1</td>
<td>TILE QUALITY</td>
<td>11</td>
</tr>
<tr>
<td>C.2</td>
<td>LINE</td>
<td>11</td>
</tr>
<tr>
<td>C.3</td>
<td>TILE LAYING</td>
<td>11</td>
</tr>
<tr>
<td>C.4</td>
<td>LOWERING OF SURFACE GRADES</td>
<td>11</td>
</tr>
<tr>
<td>C.5</td>
<td>TRIBUTARY DRAINS</td>
<td>12</td>
</tr>
<tr>
<td>C.6</td>
<td>CONNECTIONS</td>
<td>12</td>
</tr>
</tbody>
</table>
C.7 BACKFILLING ................................................................. 12
C.8 OUTLET PROTECTION .................................................. 12
C.9 CATCH BASINS ............................................................. 13
C.11 BRUSH, TREES, DEBRIS, ETC. ...................................... 13
C.12 POOR SOIL CONDITIONS ............................................... 13
C.13 ROCKS ........................................................................ 14
C.14 BROKEN OR DAMAGED TILE ...................................... 14
C.15 FILLING IN EXISTING DITCHES .................................... 14
C.16 CONSTRUCTION OF GRASSED SWALES/WATERWAYS ....... 14
C.18 TILE CROSSING ROADWAYS BY OPEN CUT .................. 14
C.19 RECOMMENDED PRACTICE FOR CONSTRUCTION OF SUBSURFACE DRAINAGE SYSTEMS ............. 15
SECTION A - GENERAL

A.1 Bench Marks

Bench Marks are set along the course of the work as shown on the accompanying Plan and Profile. Attention is drawn to Section 13 (2) of the Drainage Act regarding liability for interference with Bench Marks.

A.2 Stakes

Where requested, stakes may be set approximately 25m apart throughout the course of the work and at all fences or as shown on the accompanying Plan and Profile. The Contractor shall be held liable for the cost of replacing any stakes destroyed during the course of construction and the drainage area shall be liable for the cost of replacing stakes destroyed before commencement of construction.

A.3 Line

Open drains shall run in straight lines throughout each course except that at intersections of courses it shall run on a curve of at least 15m radius. The centre line of existing open drain shall in general be the centre line of the finished work but the straight lines of the drain shall be staked by the Contractor at least one complete course ahead of the digging, and all sloping and widening necessary shall be done in such a manner as to make the finished work uniform.

The Contractor shall exercise care not to disturb any existing tile drain or drains which parallel the course of the new drain, particularly where the new and existing tile act together to provide the necessary capacity. Where any such existing drain is disturbed or damaged, the Contractor shall perform all necessary correction or repair at his expense. The Engineer will designate the general location of the tile drain, but the landowners may indicate the exact location if approval is given by the Engineer.

The Contractor shall verify the location of the new tile drain with the Engineer, Drainage Superintendent and the landowners before proceeding with the work.

A.4 Profile

The drain is to be excavated to regular grade lines as shown on the Profile. These grade lines are governed entirely by the bench marks and show the bottom of the finished drain. In the case of tile drains, the grade line is that of the invert of the tile. The Profile shows, for the convenience of the Contractor and others, the approximate depths from the surface of the ground, but the bench marks must govern the construction. Open drains shall be brought to an even grade in the bottom so that water will not stand therein, except in special cases such as sediment traps.

The drain shall be constructed with a uniform grade in accordance with the Profile Drawing. A variation of 20mm from the proposed Profile shall be sufficient to require the Contractor to remedy this discrepancy.

A.5 Errors or Omissions

The Contractor shall satisfy themselves before the commencement of any part of the work, of the meaning of all stakes and marks, and any errors or omissions they may find in Plans, Profiles or Specifications shall not relieve the responsibility of completing the work in accordance with the evident intention of such Plans, Profiles and Specifications. The Contractor shall report any such errors or omissions to the Engineer for correction before the work is commenced.
A.6 Clearing

(a) General

Brush, timber, logs, stumps, stones or any obstruction in the course of the work, and any brush along the banks thereof shall be removed to a sufficient distance to be clear of the excavated material or to the width as shown on the Profile.

The Special Provisions and the Engineering Plans lay out the amount of the work of clearing through bush and treed areas for both open and closed drains.

All brush and trees removed from the drain and banks thereof must be piled to the satisfaction of the Engineer for burning or disposal by the Owner.

Any deviation during construction will require the written authorization of the Engineer or the Drainage Superintendent in charge of the work. Other deviation will only be by Special Specification applicable to and governing certain aspects of special situations.

The Contractor will be permitted to cut standing timber along the banks of the drain to the extent that may, in the opinion of the Engineer, be reasonably necessary for the operation of the excavation equipment.

The quality of workmanship shall be equal to the best in the industry and the Contractor shall be held liable for all damages incurred due to carelessness, negligence or failure to adhere to this Specification.

(b) Open Work

Clearing shall be 15m on the spoil side as designated on the Profile unless specified otherwise in the Special Provisions. All overhanging limbs and any dead or dying trees liable to fall into the drain on the opposite side shall be cut and removed. Care shall be exercised to prevent the scraping or barking of trees outside of the clearing area.

All trees 150mm in diameter, 450mm above the ground, must be cut, trimmed and stacked in log lengths in a location accessible to the Owner. These trees shall be cut sufficiently close to the ground in the cleared area that the spoil can be leveled over them.

No brush or trees are to be left inside the slopes of the drain whether they come within the limits of the excavation or not.

Under no circumstances shall the cleared material be pushed or deposited in any way in the uncleared area so as to impede the passage through the bush or to do damage to the uncleared bush. All remaining trees, bush and trimmed limbs shall be cleared with suitable equipment and temporarily placed on the edge of the cleared area remote from the drain. After the spoil has been spread and leveled, the cleared material is to be placed in piles along the centre of the cleared area free from dirt for disposal by others. The piles of brush shall be a minimum of 60m apart. For the clearing of willows, the Contractor shall use the equipment necessary to uproot and stack the bush in piles free from dirt for disposal by others.

(c) Closed Work

Clearing width shall be as provided for in the Special Provisions.

In the normal case where the course of the drain is to be included in cultivated lands in the near future, all stumps shall be removed and the land leveled for the full width of the clearing.

Where the course of the drain is through low, wet or swampy land and clearing prior to tile installation is impractical, then with special written permission ONLY can the tile be laid before clearing. For drainage
purposes, the clearing shall be postponed until ground and weather conditions permit working within the area adjacent to the tile.

Where the course of the drain is not to be included in cultivated lands, all stumps shall be removed and the land leveled for 6m on each side of the installed tile. All stumps in the remaining cleared area shall be cut as close as is practically possible to the ground and chemically treated to prevent regrowth.

After the tiles have been laid, heavy machinery shall not be driven over it if there is any possibility of disturbing or damaging the tile.

Care shall be taken to prevent the scraping or barking of trees outside the cleared area.

All trees 150m in diameter, 450mm above the ground shall be cut, trimmed and stacked in log lengths, in a location accessible to the Owner.

The cleared material shall not be pushed or deposited in the uncleared area in any manner so as to impede the passage through the bush or to do damage to the uncleared bush. All trees, bush and trimmed limbs remaining shall be cleared with suitable equipment and placed in piles free from dirt at intervals of 60m for disposal by other methods.

Willows shall be cleared using the necessary equipment to uproot and stack the bush in piles free from dirt for disposal by others.

A.7 Fences

The Contractor will be permitted to remove fences to the extent necessary to enable the Contractor to construct the drain and dispose of any excess material. Any such fences must be carefully handled so as to cause no unnecessary damage and shall be replaced by the Contractor in as good condition as found. Fences shall be properly stretched and fastened. The Contractor shall supply all wire and/or material necessary to properly reconstruct any fences. The Contractor shall not leave any fence open when they are not at work in the immediate vicinity. Replacing of the fences shall be to the satisfaction of the Engineer, or the Drainage Superintendent appointed to be in charge of the work.

A.8 Tributary Outlets

During the construction of an open drain, the Contractor shall guard against damaging outlets of any tributary drains and during the construction of a tile drain the Contractor shall connect all tributary tile drains to the main tile as work progresses and before backfilling the new drain. Attention is drawn to Article B.11 and Article C.5 of these Specifications. The Contractor will be held liable for damage caused by negligence or carelessness, on the part of their self, their workers or subcontractors.

A.9 Alterations

The Engineer may make minor changes in the work as it progresses. An amount proportionate to the amount contained in the Tender or as Tendered in the Schedule of Unit Prices shall be added to or deducted from the contract price to cover such changes. No changes will be made unless ordered by the Engineer or the Drainage Superintendent in charge of the works.

A.10 Special Conditions

If the Contractor should encounter any unusual soil conditions of any sort which may not have been known to the Engineer, and where not provided for by these Plans and Specifications and which would make necessary alternations to the Plans and Specifications in order that the work be completed in a satisfactory and workmanlike manner, the Contractor shall immediately notify the Engineer who will make the necessary alternations.
Failure of the Contractor to so notify the Engineer shall not relieve the Contractor of the responsibility of fully completing the work to the satisfaction of the Engineer, and shall make the Contractor ineligible to receive any extra compensation made necessary by the alteration.

A.11 Permits, Notices, Laws and Rules

The Contractor shall apply and pay for all permits, licenses or approvals required for the completion of the work (but this shall not include the obtaining of permanent easement or rights of servitude). The Contractor shall give all necessary notices and pay all associated fees required by law and comply with all laws, rules and regulations relating to the work and to the preservation of the public’s health and safety. If the Specifications and Drawings differ, any resulting additional expenses incurred by the Contractor shall constitute an addition to the Contract Price.

A.12 Highways, Railways, Utilities

The Contractor shall perform the work affecting any lands of the Ministry of Transportation of Ontario, or any Railway, Telephone, Pipeline Company or Public Utility in accordance with the Specifications or permit requirements of such Ministry, Company or Utility, as though said Specifications were hereto attached.

Notices Required

(a) Highways

Before any construction may take place on the right-of-way of any King's Highway, forty-eight (48) hours notice in writing, exclusive of Saturdays, Sundays and Holidays, must be given to the appropriate District Engineer of the Ministry of Transportation of Ontario.

(b) Railways

Before any construction may take place on the property of any Railway, a minimum of forty-eight (48) hours notice in writing, exclusive of Saturdays, Sundays and Holidays, must be given to the Area Engineer of the Railway Company.

Where a pipe is to be installed under Railway tracks by open cutting, a minimum of seventy-two (72) hours notice in writing, exclusive of Saturdays, Sundays and Holidays, must be given to the Area Engineer of the Railway Company.

A.13 Contractor’s Liability Insurance

The Contractor shall protect their self and indemnify and save the Owner harmless from any and all claims which may arise from the Contractor’s operations under the Contract where bodily injury, death, or property damage is caused and for this purpose shall, without restricting the generality of the foregoing, maintain an insurance acceptable to the Owner, and subject to the limits and conditions under the Articles of Agreement of the tender, per occurrence for bodily injury, death, and damage to property including loss of use thereof. The Contractor will be solely liable for all injuries and/or accidents to workers, and/or the public, and/or livestock, and/or property and for any expenses or damages created by fences being left open or improperly closed, insufficient guarding and lighting or bad workmanship at places where a drain runs along or across a road allowance or any negligence in completing the work.

The Contractor shall furnish evidence of compliance with all requirements of the Workplace Safety and Insurance Act including payments due there under.

Prior to the commencement of any work hereunder, the Contractor shall file with the Owner a copy of each insurance policy and certificate required. All such insurance shall be maintained until final completion of the work including the making good of faulty work or materials; except that coverage of completed operations liability in any event by maintained for one (1) year from the date of final payment certificate by the Engineer.
A.14 Sub-Contractors

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

A.15 Standing Crops and Livestock

The Contractor shall not be held responsible for damages to standing crops within the "working space" as defined in the report or in the access to and from such "working areas" such access having been defined by the owner of the property if the Contractor notifies the owner thereof in writing at least two (2) days prior to commencement of the work on that portion. Similarly, the Contractor constructing a tile drain shall not be held responsible for damages or injury to livestock occasioned by leaving trenches open for inspection by the Engineer if they notify the owner in writing at least two (2) days prior to commencement of the work on that portion. But the Contractor will be held liable for such damages or injury if the backfilling of such trenches is delayed more than seven (7) days after acceptance by the Engineer.

When notified as outlined above, the owner of the property on which the drain is located shall be responsible for the protection of all livestock on said property during construction and shall also be liable for any damages caused by such livestock.

A.16 Surplus Gravel

If as a result of any work, gravel or crushed stone is required and not all the gravel or crushed stone is used in the construction or the works, the Contractor shall haul away such surplus gravel or stone.

A.17 Open Cut Road Crossings

All road crossings may be made with an open cut unless otherwise noted. The exact location of the crossings shall be verified and approved by the Road Authority or the Engineer. A 150mm depth of Granular ‘A’, compacted to 98% SPD, shall be placed as a base for each pipe crossing. The pipe shall be backfilled with granular material for the width of the travelled portion plus 1,200mm on either side. The material shall be placed in lifts not exceeding 150mm in depth and shall be thoroughly compacted with an approved type mechanical vibrating compactor. The top 150mm of the roadway backfill shall consist of crushed granular material meeting the Specifications of the Ministry of Transportation of Ontario for Granular Base Course Class ‘A’ (Granular ‘A’) material.

The excavated material from the travelled portion of the road and 1,200mm or the full width of the graveled shoulder, whichever is greater, on each side of the travelled portion shall be removed and disposed of at an approval disposal site.

If the Engineer deems a gravel road to have been damaged by the construction of a drain either across or along the said road, the Engineer may direct the Contractor to supply and place sufficient crushed granular material on the roadway to restore it to a safe and passable condition at the Contractors expense.

A.18 Laneways

All pipes crossing laneways shall be backfilled with material that is clean, free of foreign material or frozen particles and readily tamped or compacted in place unless otherwise specified. Laneway culverts on open ditch projects shall be backfilled with material that also is not easily erodible. All backfill material shall be thoroughly compacted as directed by
the Engineer.

All pipe culverts located under laneways shall be backfilled with granular material to a minimum of 900mm beyond each side of the culvert. 150mm of granular ‘A’ shall be placed under the culvert as a base. Granular material shall be placed simultaneously on each side of the culvert in 150 mm layers and compacted to a ninety-eight per cent (98%) Standard Proctor maximum dry density. All culverts are to be assembled according to the Manufacturers Specifications. Culverts to have a minimum of 600mm of cover over the pipe unless otherwise noted on the Drawings.

The backfill over culverts and subsurface pipes at all existing laneways that have granular surfaces on open ditch and closed drainage projects shall be surfaced with a minimum of 300mm of pit run granular material and 150mm of Granular ‘A’ material. All backfill shall be thoroughly compacted as directed by the Engineer. All granular material shall be placed to the full width of the travelled portion.

Any settling of backfilled material shall be repaired by or at the expense of the Contractor during the warranty period of the project as soon as required. Any existing bituminous pavement on laneways shall be placed to its original condition by the Contractor.

A.19 Remova ls

Unless otherwise specified, the cost of removing existing catchbasins, junction boxes, tile (any size), outlets, farm bridge/culverts, and other such structures that are no longer required for the proposed drainage works and are encounter during construction are consider part of the Contract price.

A.20 Final Inspection

Final inspection will be made by the Engineer within ten (10) days after they have received notice in writing from the Contractor that the work is completed or as soon thereafter as weather conditions permit.

If, after receiving notice from the Contractor that the work has been completed, the Engineer or Drainage Superintendent in charge of the work finds items uncompleted which entail a further inspection of the whole or part of the work, the cost of such further inspection may be charged against the Contractor.

All the work included in the Contract must, at the time of final inspection, have the full dimensions and cross-sections called for in the Plans and Specifications.

A.21 Completion of Work

The work may commence immediately after the Contractor is notified of the acceptance of the Tender or at a later date as specified in the contract documents, when weather and ground conditions are suitable.

The work must proceed in such a manner as to ensure its completion at the earliest possible date consistent with the first class workmanship and within the time limit set out in the Tender or the Contract Documents.

A.22 Notice of Commencement of Work

The Contractor shall give the Engineer and the Drainage Superintendent a minimum of seventy-two (72) hours advance notice before commencement of work on any municipal drain.

If the Contractor leaves the job site for a period of time after initiation of work, they shall give the Engineer and Drainage Superintendent a minimum of forty-eight (48) hours advance notice prior to returning to the job.

If any work is commenced without such 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 used judged to be inadequate or constructed in a manner that may have been subject to alteration if made known to the Engineer prior to commencement.
of construction.

**A.23 Field Meetings**

At the Engineers discretion, a field meeting with the Contractor or his representative, the Engineer and with those others that the Engineer deems to be affected, shall be held after notification of commencement of work has been given and prior to commencement of, or during construction.

**A.24 Supervision**

The Contractor shall provide site supervisors and/or forepersons as required and assume all responsibility for control and direction of the work in accordance with section GC7.0 of the OPS General Conditions of Contract.

**A.25 Maintenance or Faulty Workmanship**

The Contractor shall repair and make good any damages or faults in the drain that may appear within one (1) year after its completion (as evident by the final payment certificate) as the result of the imperfect or defective work done or materials furnished if certified by the Engineer as being due to one or both of these causes; but 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 final payment certificate nor payment there under, nor any provision in the Contract Documents shall relieve the Contractor from responsibility.

**A.26 Drainage Superintendent**

Where a Drainage Superintendent is appointed by the Municipality, the Drainage Superintendent may act as the Engineer's representative, if so directed by the Engineer. The Drainage Superintendent shall have the power to direct the execution of the work and to make any necessary minor adjustments.
SECTION B - OPEN DRAINS

B.1 Bottom Width and Side Slopes

The drain shall have the full specified bottom width at the grade line at the time of final inspection. Both sides of an open drain are to be sloped as shown on the accompanying Profile. Bottom widths will vary with the size of the drain. Where the width of the bottom of the existing ditch is sufficient to permit the desired width, depth and back slopes for the new ditch to be constructed without disturbing the existing banks, such banks shall be left as is, subject to clearing required as described in Section B.9 “Obstructions”. Sides of the drain shall be smooth and have a uniform slope from top to bottom.

B.2 Excavated Material

Excavated material shall be deposited on either or both sides of the drain as directed by the Engineer. In general, the material shall be placed on the low side of the drain or opposite trees and fences. The Contractor shall contact all landowners before proceeding with the work to verify the location to place and level the excavated material.

A clear berm or margin of at least 2.0m shall be left between the top edge of the ditch and the leveled spoil. In no case shall the side of the spoil bank nearest the ditch have a slope greater than 1.5m to 1m.

Any large stones or boulders which exceed 500mm in diameter shall be bulldozed into a pile and left near the ditch banks or a nearby fence line or bush, or such other convenient location as approved by the landowner.

Where it is necessary to straighten any bends or irregularities in the alignment of the ditch or to relocate any portion or all of an existing ditch, the excavated material from the new cut shall be used for backfilling the original ditch. Regardless of the distance between the new ditch and the old ditch, no extra compensation will be allowed for this work and it must be included in the Contractor’s price for the open work.

B.3 Spreading and Levelling

The spoil shall be deposited, spread and leveled up to a maximum depth of 200mm and be left so that the land on which it lies may be cultivated with adjacent lands by use of ordinary farm machinery. If the Contractor obtains a statement in writing, signed by the owner of the lands affected that they do not wish the spoil to be leveled, the Engineer may release the Contractor from obligation in that regard. Disposal of the material shall be to the satisfaction of the Engineer. Through timbered land the excavated material may be spread to a maximum depth of 600mm unless otherwise noted on the Plans governing the work. The Contractor is not required to remove stones and boulders from the excavated material unless called for in the Special Provisions.

B.4 Filling Old Channel

At every new cut, the excavated material shall be used to fill the abandoned channel unless otherwise directed by the Engineer. Fill shall be placed to 300mm below finished ground surface.

Where the on-site soil available is of insufficient quantity or quality to fill the abandoned channel, new soil shall be imported from an approved source. The imported soil shall be of the quality necessary to support agricultural operations, and shall meet the most current Table 1 standards for Agricultural Use under the “Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act” as published by the Ontario Ministry of the Environment and Climate Change. All imported soil will be subject to the approval of the receiving landowner. Fill soil placed to fill in abandoned channels shall be compacted to 95% SPMDD or as otherwise directed by the Engineer.

Abandoned channels shall be finished with a 300mm layer of topsoil of the quality necessary to support agricultural operations, and subject to the approval of the Engineer and the receiving landowner.
B.5  Inlets for Surface Water

Inlets shall be left in the leveled spoil on each property but not over 90m apart, or as shown on the Plan or Profile. No excavated material is to be left in or any damage done to any ditches, depressions, furrows, pipes, or tiles intended to conduct water into or across the open drain.

B.6  Excavation at Bridge Sites

The Contractor shall be required to excavate the drain to full depths and as nearly as possible to the full widths and slopes at the sites of all bridges. Bridges of a permanent character are not to be unnecessarily disturbed. The excavation at these bridges being made if necessary by hand, or by other suitable means.

Excavation under culverts and bridges is to conform to the grades, bottom widths and side slopes specified. The Contractor shall be held liable for any damage to any structure caused by carelessness, neglect or over-excavation. The Contractor shall immediately notify the Engineer if it should become apparent that the excavation of the drain to the grades shown on the Plan will in any way endanger any culvert or bridge and the Contractor shall discontinue work on the drain until the Engineer instructs them to proceed.

B.7  Farm Bridges and Farm Culverts

All farm bridges hereafter constructed or reconstructed, in order not to be regarded as obstruction, shall have minimum openings equal to the cross-sectional area recommended in the Report or of clear width equal to twice the specified bottom width of the drain. If required, it shall be the responsibility of the landowner to arrange for the supply, delivery and installation of a culvert of the recommended size. This work shall not form part of the Contract.

If a landowner at the time of construction has furnished a suitable culvert at the site, the Contractor shall install it as part of the work at the landowner’s expense, with the invert 150mm below the grade of the drain, and with a suitable earth backfill such that a crossing with normal farm machinery can be made. Final grading, shaping or rip rapping of backfill shall be the responsibility of the landowner(s) involved. A minimum of 500mm cover shall be placed over each culvert.

Where it is necessary to remove a temporary farm bridge in order to perform the necessary excavation, the material from the bridge shall be carefully handled and left at the side of the drain for the use of the owner.

B.8  Rip rap Protection for Culverts

Where rip rap protection is called for at either or both ends of a new culvert such rip rap shall be heavy field stone or quarry stone rip rap protection with geotextile filter material (Terrafix 270R filter cloth or approved equivalent).

The Contractor shall be responsible for any defects or damages that may develop in the rip rap or the earth behind the rip rap that the Engineer deems to have been fully or partially caused by the faulty workmanship of the materials for a period of one (1) year from the time of the final payment certificate.

B.9  Obstructions

All brush, bushes, fallen timber and debris shall be removed from the banks and slopes of the drain to such a distance on each side to eliminate any interference with the spreading of the spoil bank. Grubbing shall include the removal and disposal of all stumps to the satisfaction of the Engineer. The slopes shall be cleared whether or not they are directly affected by the excavation. The roots shall be left in the banks if no bank excavation is required as part of the new channel excavation. Any tress necessarily removed, are to be brushed and left for the landowner. In wooded or heavily overgrown areas, the brush, limbs, etc. may be pushed into piles back out of the way. All dead trees alongside the drain that impede the performance of the drain shall be removed prior to excavation and put in piles, unless directed otherwise by the Engineer. All brush, limbs, debris, etc. shall be put into pile for disposal by the landowner.
B.10 Roads

Where an open drain is being removed from the road allowance, it must be reconstructed wholly on the adjacent land with a minimum berm width of 1,200mm on the roadway side of the ditch, unless otherwise noted on the Drawings. The excavated material shall be used to fill the existing open ditch and any excess excavated material shall be placed and leveled on the adjacent farm land. Any work done on the road allowance with respect to excavation, disposal of materials, installation of culverts, cleaning under bridges, etc., shall be to the satisfaction of the Road Authority. Any pipe culvert laid under the traveled portion of the road allowance shall be constructed as per Section A.17.

All excavated excess material from the construction of a road culvert or cleanout through culverts on any road allowance shall be trucked away for disposal. Any culverts suitable for salvage shall become the property of the landowner, if the landowner wishes to retain same, otherwise the Contractor be responsible for the disposal of the culvert to the satisfaction of the Engineer.

B.11 Tile Outlets in Existing Ditches

All tile outlets in existing ditches shall be noted by the Contractor prior to excavation. The Contractor shall contact all landowners and ask them to mark all their tile outlets which enter the ditch. Any tile drain outlets that were marked and are subsequently damaged by the Contractor shall be repaired by the Contractor at their expense. If any ditch bank is altered due to the construction at the tile outlet, the Contractor shall replace the altered outlet.

In general, if the existing outlet is tile only, the new outlet shall consist of undamaged lengths of tile. If the existing outlet is a metal pipe with or without a rodent grate, such outlet shall either be relocated to adjust to the new banks or shall be replaced if damaged. If any outlet becomes plugged as a result of construction, the Contractor shall be obliged to free such outlet of impediments. Where stone or concrete rip rap protection exists at any existing outlet, such protection shall be moved as necessary to protect the outlet after reconstruction of the ditch. Where any damage results to tile leading to and upstream of the outlet as a consequence of construction, the Engineer may direct the Contractor to repair such tile and shall determine fair compensation to be paid to the Contractor for performing the work.

B.12 Grass Seed and Fertilizer

The ditch slopes where disturbed shall be seeded using an approved seed mixture. The grass seed and fertilizer shall be applied the same day as the excavation of the open ditch. Grass seed shall only be applied between April 15th to November 15th, unless otherwise directed by the Engineer.

Grass seed shall be fresh, clean and new crop seed, meeting the requirements of OPSS 804 for Standard Roadside Mix. Grass seed shall be applied at the rate of 170kg/ha (150lbs/acre) and the fertilizer shall be applied at the rate of 365kg/ha (325lbs/acre), or as directed otherwise. Fertilizer shall be 8-32-16 (N-P-K).

B.13 Equipment

An approved hydraulic backhoe shall be used to carry out the excavation of the open ditch unless otherwise directed by the Engineer.

B.14 Completion

At the time of completion and final inspection, all work in the Contract shall have the full dimensions and cross-sections specified without any allowance for caving of banks or sediment in the ditch bottom.
SECTION C - TILE DRAINS

C.1 Tile Quality

All tile installed under these Specifications shall be sound and of first quality and shall meet all ASTM Specifications as set out in Designation C412-15 for Concrete Tile. Where tile is being supplied by the Contractor, it shall be approved by the Engineer before being incorporated into the work and the Engineer shall have the right to order such tests as he deems necessary to be made upon the tile, including that of testing by an independent testing laboratory. The costs of all such tests shall be borne by the Contractor and may be deducted from monies due to the Contractor under this Contract.

C.2 Line

New tile drains shall be constructed at an offset from and parallel to any existing ditch or defined watercourse in order that fresh backfill will not be endangered by the flow of surface water. The Contractor shall exercise care not to disturb any existing tile drains which follow the same course as the new drain particularly where the new and existing tile act together to provide the necessary capacity. Where any such existing drain is disturbed or damaged, the Contractor shall perform the necessary correction or repair at his expense.

The Contractor shall verify the location of the new tile drain with the Engineer, Drainage Superintendent and the landowner before proceeding with the work.

C.3 Tile Laying

All tile shall be laid carefully on a rounded, smooth solid bottom with all joints aligned both vertically and horizontally. All tile being laid in a straight line shall be placed together as tightly as possible with the maximum space between successive tiles not exceeding 6mm. All tile being laid on a curve shall be fitted with a maximum space between successive tiles not exceeding 6mm at any point on the circumference. Any tile joint exceeding this tolerance shall be covered with wire mesh and sealed all around with concrete not less than 150mm thick. The grades and location of the tile shall be as specified on the Plan and Profile. No deviation shall be permitted without the written permission of the Engineer with the exception of that stated in Section A.4 of these Specifications. The maximum trench width at the top of the tile shall not be greater than the outside diameter of the tile plus 600mm. The trench shall not be opened up for a distance greater than 60m in advance of the tile laying. All dirt, foreign material and obstructions shall be removed from inside the tile before laying. Where corrugated metal or plastic pipe is used, the joints between the pipe and the field tile shall be sealed with concrete not less than 150mm all around. When construction is stopped for the day, the open ends of all tile drains shall be completely closed to prevent entry by animals or unnecessary water.

The sides of the tile are to be supported by partial filling of the trench prior to inspection by the Engineer. The remainder of the excavated material shall be used to restore and maintain the natural surface of the ground. No tile shall be backfilled until inspected by the Drainage Superintendent or Engineer unless directed otherwise by the Engineer. The tile shall be backfilled such that a sufficient mound of backfill is placed over the disturbed area. The Contractor’s Tender Price shall include the cost of stripping the topsoil, bulldozing of the subsoil to the depth required and subsequent replacement of subsoil and topsoil.

C.4 Lowering of Surface Grades

Where required, the Contractor shall strip back and stockpile the topsoil, and strip the subsoil in order that the tiling machine may trench to the correct depths. After the tile is installed, the trench shall be backfilled, subsoil replaced and the topsoil shall be spread over the disturbed area. The Contractor’s Tender Price shall include the cost of stripping the topsoil, bulldozing of the subsoil to the depth required and subsequent replacement of subsoil and topsoil.
C.5 Tributary Drains

Any tributary tile encountered in the course of the drain is to be carefully taken up by the Contractor and placed clear of the excavated earth. If the tributary drains encountered are clean or reasonably clean, they shall be connected into the new drain. Tributary tile drain connections into the new drain shall be made using high density polyethylene agricultural drain tubing installed on and backfilled with 19mm clear crushed stone. All tile drain connections into the new drain shall be cored hole with an InsertaTee or a manufactured “tee”.

Where the existing drains are full of sediment, the decision to connect or not to connect the new drain shall be left to the Engineer. The Contractor shall be paid for each tributary drain connection as outlined in the Form of Tender and Articles of Agreement.

The Contractor shall be responsible for all tributary tile connections for a period of one (1) year after the issuance of the final payment certificate by the Engineer. After construction, any missed tile connections required to be made into the new drain shall be paid at the same rate as defined in the Form of Tender and Agreement. The Contractor will have the option to make any subsequent tile connections or have the Municipality make the required connections and have the cost of which deducted from the holdback.

Where the Contractor is required by the Engineer to hook up an existing tile which is not encountered in the course of the drain, the cost of such work shall constitute an extra and the basis for payment shall be determined by the Engineer subject to the provision of Section A.20 “Completion of Work”.

C.6 Connections

All tile encountered shall be connected into the main drain or a catch basin. Tile connections may be made by using the same size of concrete field tile or one size larger of standard corrugated plastic drainage tubing. Connections are included as part of the Contract. The Unit Price shall include the supply and installation of up to 3m of tile in order that the connection will be sloped at not greater than 3m horizontal to 1m vertical. All tile connections will be made in the upper 1/3 of the circumference of the main tile. Connection at the main shall be “earth tight” to the satisfaction of the Engineer. All connections shall be left uncovered for inspection by the Engineer.

Any open ends of tile left by making the connections shall be securely plugged with concrete.

C.7 Backfilling

All tile shall be left open, as the laying of tile progresses, until after inspection. After laying and prior to inspection, partial filling (blinding) is to be made at the sides of the tile and compacted sufficiently to maintain the alignment. The upper 1/3 of the tile shall be left uncovered until after inspection by the Engineer or Drainage Superintendent in charge of the works. Where conditions indicate that damage may occur, arrangements shall be made for daily or continuous inspection by the Engineer or Drainage Superintendent. The Engineer or the Drainage Superintendent in charge of the work reserves the right to demand that all or any part of the works be uncovered to allow for adequate inspection and the Contractor shall supply, at their own expense, all equipment and labour to do the said work.

After the work is inspected by the Engineer or Drainage Superintendent in charge of the work, the remainder of the excavated material shall be used to restore and maintain the natural surface of the ground. Stones having any dimensions larger than 150mm shall not be used for backfill material within 300mm of the tile.

C.8 Outlet Protection

The protection at the outlet of a tile drain shall be a length of corrugated metal or plastic pipe, as specified, fitted with a rodent-proof grate. The grate shall be hinged at the top to permit the exit of foreign material from the tile. The pipe shall be protected with rip rap protection consisting of quarry stone or heavy field stone and geotextile filter material in a manner satisfactory to the Engineer. The rip rap shall extend from the bottom of the trench to the original ground surface and for a distance of at least 4m from the end of the outlet pipe unless otherwise specified on the Drawings. The
protection shall extend to the top of the backfilled trench and below the pipe to 400mm under the streambed and also extend 600mm into undisturbed soil on either side of the backfilled trench unless otherwise specified on the Drawings.

Where the outlet occurs at the end of an open ditch, the above sacked concrete or heavy field stone rip rap protection will extend all around the end of the ditch and to a point 800mm downstream on either side unless otherwise specified on the Drawings. Where heavy overflow is likely to occur, sufficient additional rip rap and filter material shall be placed as directed by the Engineer to prevent the water cutting around the protection. A concrete structure may be required to protect against heavy overflow if so indicated on the Drawings. The corrugated outlet pipe shall have a hinged metal grate on the outlet end to prevent the entry of small animals. Maximum spacing between bars shall be 50mm.

C.9 Catch basins

All catch basins shall be approved reinforced precast units having inside dimensions as noted on the drawings with a 450mm sump. The sides shall be a minimum of 115mm thick, and the bottom shall have a minimum thickness of 150mm. The elevation of the top of the catch basin shall be as set by the Engineer at the time of construction. All necessary grading to convey water to the catch basin shall be included as part of the Contract.

All tile and pipe entering a catch basin shall be sealed all around with 15 MPa concrete which shall extend a minimum of 150mm beyond the OUTSIDE WALL of the catch basin. The INSIDE WALL of the catch basin shall be formed and the void around all tile and pipe entering a catch basin shall be completely filled with concrete to form a smooth flush surface.

If there are no existing drains to be connected to the catch basin at the top end of the drain, a plugged tile shall be placed in the upstream wall, with the same diameter and at the same elevation as the outlet tile.

Offset catch basins shall be offset with tile in the size specified on the drawings. All offsets shall enter into the main tile at a maximum angle of 45 degrees downstream with a maximum grade of 0.50%. The connection into the main tile shall be fitted and sealed all around with a minimum of 150mm of 15 MPa concrete. It shall be the responsibility of the Contractor to supply and install all tile required for the construction of the offset. Payment shall be made for the actual quantity installed, as measured at the time of construction, in accordance with the Unit Prices. All offsets shall be left open for inspection by the Engineer.

All blind inlets shall be constructed with 19mm clean, crushed stone placed to a minimum depth of 150mm over the top of the tile between the stations as specified in the Special Provisions.

C.11 Brush, Trees, Debris, Etc.

The Contractor is to include the removal of all excavation of whatever nature, disposal of material, removal and cutting of all brush, supplying of all labour and completing the whole work in accordance with the Plan, Profile and Specifications. Any trees necessarily removed are to be brushed and left for the Owner of the property on which they are found. All brush, limbs, etc. are to be put in piles by the Contractor and left for disposal by the landowner. No additional payment will be made for brushing of scattered trees where required by the Engineer.

Where, in the opinion of the Engineer, the drain or proposed location of the drain is heavily overgrown with small trees and brush, the Contractor may use a bulldozer or other such equipment to clear a maximum width of 20m. The resulting debris shall be placed where directed by the Engineer and/or the landowner(s) and left for disposal by the landowner(s). Where roots may interfere with the new drain, all such roots shall be grubbed and placed in a pile convenient for disposal by the landowner. No additional payment will be made for such work.

C.12 Poor Soil Conditions

The Contractor shall immediately contact the Engineer or Drainage Superintendent if poor soil conditions are encountered. The Engineer or Drainage Superintendent shall direct the Contractor to construct a temporary open drain to lower the water table or to lay the tile on a crushed stone mat and wrap the tile joints with filter material, or to take such action as may be necessary. The basis of payment for such work shall be determined by the Engineer or Drainage Superintendent.
Superintendent.

C.13  Rocks

The Contractor shall immediately contact the Engineer or Drainage Superintendent if boulders of sufficient size and number are encountered such that the Contractor cannot continue trenching with a tiling machine. The Engineer or Drainage Superintendent may direct the Contractor to use some other method of excavating to install the drain. The basis of payment for this work shall be determined by the Engineer or Drainage Superintendent.

If only scattered large stone or boulder are removed on any project, the Contractor shall either excavate a hole to bury same adjacent to the drain, or they shall haul the same to a nearby bush or fence line, or other convenient location as approved by the landowner(s).

C.14  Broken or Damaged Tile

The Contractor shall either bury or remove all damaged tile. NO tile shall be left on the ground for the landowner(s).

C.15  Filling in Existing Ditches

The Contractor shall backfill the ditch sufficiently for traversing by farm machinery. If sufficient material is not available from the old spoil banks to fill in the existing ditch, the topsoil shall be stripped and the subsoil shall be bulldozed into the ditch and the topsoil shall then be spread over the backfilled waterway.

C.16  Construction of Grassed Swales/Waterways

Where the Contractor is required to construct a grassed swale/waterway, the existing waterway shall be filled in, regarded, shaped and a seed bed prepared prior to applying the grass seed and fertilizer. The grass seed shall be fresh, clean and new crop seed, meeting the requirements of “Lowland Mix” as per OPS 804.

Grass seed shall be applied at the rate of 170kg/ha (150lbs/acre) and the fertilizer shall be applied at the rate of 350kg/ha (300lbs/acre), or as directed otherwise. Fertilizer shall be 8-32-16 (N-P-K).

C.18  Tile Crossing Roadways By Open Cut

(a)  Unless otherwise specified, the Municipality will supply no labour, equipment or materials for the construction of any road crossing.

(b)  The excavated material removed from the travelled portion of the road and 1.2m or the full width of the gravel shoulder, whichever is greater, on each side of the travelled portion shall be removed and disposed of off the site by the Contractor. No excavated material shall be spread on the right-of-way without written consent of the Engineer.

(c)  The backfill material for the excavation on the travelled portion and 1.2m, or the full shoulder width, on either side, shall be in accordance with A.17 “Road Crossings”.

(d)  The Contractor shall apply calcium chloride at the rate of 1 kg/m$^3$ to the finished surface for the entire width of the excavation covered in this section.

(e)  The excavated material from the trench beyond a point 1.2m from the travelled portion or beyond the outside edge of the gravel shoulder, may be replaced in the trench in the case of covered drains. This material shall be compacted by hand tamping in layers not exceeding 300mm. The finished work shall be
left in a clean and orderly condition, flush with or slightly higher than the adjacent ground, and seeded with a good quality grass seed mixture to the requirements of the Engineer.

(f) The type, location on the right-of-way and the elevation of the top of catch basins, inlets and junction boxes on the right-of-way shall be as required by the Engineer.

(g) (i) The Contractor shall give the Road Authority such notice as it may require before the Contractor commences any work on the right-of-way of any road. A copy of the notice shall at the same time be sent to the Engineer.

(ii) The Contractor shall be responsible for maintaining the road crossing until the work has been approved by the Engineer and shall be responsible for any deficiencies arising from their work for the period of guaranteed maintenance.

(h) If at all possible, the Contractor shall keep the road open to traffic at all times. The Contractor shall provide suitable warning signs and/or flagpersons to satisfy all requirements for safety and to notify motorists of work on the road ahead. If it is necessary to close the road to through traffic, the Contractor shall provide for and adequately sign the detour road as per the Ontario Traffic Manual Book 7.

C.19 Recommended Practice for Construction of Subsurface Drainage Systems

The latest version of The Drainage Guide for Ontario, as published by OMAFRA, shall be the guide to all methods and materials to be used in the construction of tile drains except where superceded by other Specification of the Contract.