

H. M. GIBSON LTD.

CONSULTING ENGINEERS

H. M. GIBSON, B.A.Sc., P.ENG., D.L.S.

1291 COMMISSIONERS RD., W.
LONDON, ONTARIO, N6K 1C9
471-7900

July 29, 1977

File No. 11-30

The Reeve and Members,
Municipal Council,
Township of Mariposa

Gentlemen:

Hugh Davidson Municipal Drain

In accordance with your instructions pursuant to a petition signed by Hugh Davidson, owner of the NE $\frac{1}{4}$ of Lot 20, Concession 8 and others comprising the majority in number of the owners in an area requiring drainage, I have made an examination and survey of the area and submit herewith report, plan, profile, specifications and assessments for a work to be known as the Hugh Davidson Municipal Drain.

The Hugh Davidson Drain presently consists of a tile drain across part of the N $\frac{1}{2}$ of Lot 20, Concession 8 with the tile terminating at approximately mid point of the NW $\frac{1}{4}$ of Lot 20. From this point downstream to the line between the East and West halves of Lot 19, Concession 8 it consists of a shallow open ditch which terminates in a pond at Station 37+00.

It was found that the tile drain is quite shallow and is considerably undersized by present Ministry of Agriculture standards. The open ditch is too shallow for the tile and does little more than conduct surface run-off.

I recommend that a new tile drain be constructed across Lot 20, Concession 8 starting on the North side of Highway #7 and outletting on the West side of the 19/20 sideroad. From this point I recommend that an open drain be constructed following the existing course from Station 26+26 to 38+49. From Station 38+49 to Station 64+31 the drain shall follow the low run to an outlet in the Mariposa Brook at the line between the East and West halves of Lot 18, Concession 8.

I have made an allowance for severance, payable to the owners, in lieu of constructing farm bridges. This allowance is sufficient to supply and install culverts of the recommended size. Should an owner wish to have a culvert installed as part of the work, he shall notify the municipality prior to letting of tenders, in which case the allowance shall not be paid to the owner.

The side slopes of the open drain shall be seeded down with a suitable grass mix.

This work may be done by the municipality, or with the approval of Council, by an individual owner or owners. The cost of such seeding shall be a charge to the drainage area. In the event that the work is done by the owners, payment shall be at a fixed rate per acre which is set by Council. The area requiring seeding is slightly in excess of 2 acres.

The plan shows the location of the work and the lands affected by it; the profile and specifications show the dimensions, grades, disposal of material and other particulars of the work.

It is considered equitable to make an allowance for Severance instead of providing for the construction, enlargement or other improvement of farm bridges rendered necessary by the work.

Attention is drawn to Section 80 and Section 82 of the Drainage Act 1975 regarding responsibilities of owners with respect to obstructions.

Should repairs, underpinning or other alterations be required for the Highway Bridge on Highway No. 7 I assess the cost thereof including any necessary expenses incidental thereto against the Ministry of Transportation and Communications having control of said road.

I determine the amounts to be paid in allowance to owners entitled thereto under the Drainage Act 1975 as follows:

ALLOWANCES

Con.	Lot or Part	Owner	Damage to Lands & Crops (if any) Sec. 30	Severance Sec. 33	Ditch already constructed Sec. 31	Land taken for ditch Sec. 29
8	E ¹ / ₂ 18	K & B Rich	290.00	350.00		725.00
	N pt W ¹ / ₂ 19	K & B Rich	230.00	280.00		580.00
	N pt E ¹ / ₂ 19	C. Farr	245.00	280.00	490.00	620.00
	NW ¹ / ₂ 20	E. Haines	330.00			
	NE ¹ / ₂ 20	H. Davidson	180.00			
9	E ¹ / ₂ 20	B. VanDenBerg	30.00			
			<u>1,305.00</u>	<u>910.00</u>	<u>490.00</u>	<u>1,925.00</u>

TOTAL ALLOWANCES - \$4,630.00

MY ESTIMATE OF THE COST of the work is as follows:

MAIN DRAIN OPEN

6,600 cu. yds. of excavation including removal of brush, trees and boulders up to $\frac{1}{2}$ cu. yd. and levelling of excavated material and construction of silt basins at Stations 30+00 to 31+00, 44+00 to 45+00, 53+00 to 54+00 and 62+00 to 63+00	5,280.00
Clearing of brush, trees, logs and stumps Station 38+49 to 64+31	940.00

MAIN DRAIN CLOSED

370 lin. ft. of 14" dia. #1 Field Tile	555.00
Dig, lay and backfill	675.00

1,287 lin. ft. of 12" dia. #1 Field Tile	1,495.00
Dig, lay and backfill	2,010.00

793 lin. ft. of 10" dia. #1 Field Tile	700.00
Dig, lay and backfill	1,035.00

19/20 Sideroad	
40 lin. ft. of 15" dia. 14 ga. C.M.P.	215.00
Installation of C.M.P. complete with granular base and backfill	300.00

Outlet structure Sta. 26+26	
20 lin. ft. of 15" dia. 16 ga. C.M.P. complete with rodent grate	100.00
Installation of C.M.P. complete with heavy field stone rip rap (3 cu. yds.)	200.00

Work on Hwy.No.7 right-of-way Sta. 0+00 - 1+20	
20 lin. ft. of 12" dia. 16 ga. C.M.P.	70.00
Installation of C.M.P.	30.00

80 lin. ft. of 12-3/4" dia. 0.25" wall steel casing	530.00
Installation of casing by boring	3,200.00

20 lin. ft. of 12" dia. 16 ga. C.M.P.	70.00
Installation of C.M.P.	30.00

2 Catchbasins Sta. 0+00 and 9+13	500.00
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Survey, Plan, Report, Assistance & Expenses	2,730.00
Allowances under the Drainage Act 1975	4,630.00
Supervision of construction (by Engineer)	1,365.00
Contingencies	700.00

Total Estimated Cost	<u>\$27,360.00</u>
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This sum of \$27,360.00 I assess against the lands and roads affected according to the annexed Schedule of Assessment.

Whether or not the Ministry of Transportation and Communications elects to do the work on Highway Number 7 Station 0+00 to Station 1+20 it shall be assessed the actual cost of the work as a special assessment in addition to the Benefit and Outlet assessments.

After construction, the drain shall be maintained by the Municipality of the Township of Mariposa at the expense of all the lands and roads assessed herein and in the same relative proportion until said assessment shall be varied according to the provisions of the Drainage Act, with the exception that the special assessment against Highway Number 7 shall not apply.



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RECOMMENDED CULVERT SIZES

Con.	Lot or Part	Owner	Ft. diameter or equivalent sq. ft. of opening
8	E $\frac{1}{2}$ 18	K & B Rich	24'x36" dia. 14 ga.C.M.P.
	NW pt 19	K & B Rich	24'x30" dia. 14 ga.C.M.P.
	NE pt 19	C. Farr	24'x30" dia. 14 ga.C.M.P.

* Denotes non-agricultural lands

TOWNSHIP OF MARIPOSA - SCHEDULE OF ASSESSMENT - HUGH DAVIDSON MUNICIPAL DRAIN - Project No. 11-30

Con.	Lot or Part	Approx. Acres Affected	Owner	MAIN DRAIN OPEN		MAIN DRAIN CLOSED		Special Assessment
				Benefit Liability	Outlet Liability	Benefit Liability	Outlet Liability	
8	E $\frac{1}{2}$ 18	22	K & B Rich	3,120.00				
	N pt W $\frac{1}{2}$ 19	22	K & B Rich	3,075.00	81.00			
	N pt E $\frac{1}{2}$ 19	32	C. Farr	3,300.00	252.00			
	S pt 19	5	J. McMorrow		21.00			
	S $\frac{1}{2}$ 20	11	L. Hope		150.00		39.00	
	Pt NW $\frac{1}{4}$ 20	45	E. Haines	300.00	615.00	3,300.00	144.00	
*	Pt NW $\frac{1}{4}$ 20	F	R. Barclay C. Bos		15.00		39.00	
	NE $\frac{1}{4}$ 20, N $\frac{1}{2}$ 21	21	H. Davidson		288.00	2,235.00	474.00	
* 9	Pt SW $\frac{1}{4}$ 20	F	L. Foster		15.00		39.00	
*	Pt SW $\frac{1}{4}$ 20	F	T. Hannah		15.00		39.00	
*	Pt SW $\frac{1}{4}$ 20	F	R. Deschamps		15.00		39.00	
	Pt SW $\frac{1}{4}$ 20	5	C. Everson		69.00		126.00	
	SE $\frac{1}{4}$ 20	24	B. VanDenBerg		330.00	585.00	600.00	
*	Pt SE $\frac{1}{4}$ 21	1	Victoria County Bd. of Education		15.00		39.00	
	Pt SE $\frac{1}{4}$ 21	5	Doug Appelton		69.00		126.00	
	Total Lands			9,795.00	1,950.00	6,120.00	1,704.00	
	Sideroad 19/20	2.5	Twp. of Mariposa	180.00	135.00	750.00		
	Highway No. 7	5.5	Min. of Tpt. & Comm.		450.00	1,185.00	1,251.00	3,840.00
	Total Roads			180.00	585.00	1,935.00	1,251.00	3,840.00
	Total Lands and Roads			9,975.00	2,535.00	8,055.00	2,955.00	3,840.00
TOTAL ASSESSMENT								\$27,360.00

H.M. GIBSON LIMITED

1291 Commissioners Rd. W.,
London, Ontario
N6K 1C9

SPECIFICATIONS

1. EXTENT OF WORK: These specifications and the report, plan and profile of the same date apply to and govern the construction of:

3,801 lineal feet of OPEN DRAIN (6,600 cu. yds.)
2,630 lineal feet of CLOSED DRAIN
2 catchbasins

2. INSTRUCTIONS TO BIDDERS: Tenders will be received and contracts awarded only in the form of a lump sum for the completion of the whole work in accordance with the plan, profile and specifications or of such portions as specified in the Tender call.

Each bidder shall file a sealed proposal and with it a certified cheque for a sum equal to ten percent (10%) of the bid price, made payable to the Municipality. If a person making such a proposal fails to enter into a contract pursuant to the requirements of the Council within fourteen days of acceptance of the proposal, the aforesaid cheque shall be forfeited to the Municipality. All certified cheques, except that of the bidder to whom the work is awarded, will be returned within ten days after the contract is awarded. The certified cheque of the bidder to whom the work is awarded, will be returned with the final payment of the work.

The bidders must examine for themselves the plans, profiles and specifications, and the location of the proposed work, and exercise their own judgement as to the extent of the work to be done. The Contractor must assume all risks of variance in any computation by whomsoever made, of statements of amounts or quantities necessary to complete the work required by the contract.

If any doubt exists in the mind of any person tendering as to the exact meaning of any portion of these specifications or this plan or profile, it must be removed before signing the contract agreement; thereafter the Contractor will be bound by the decision of the Engineer on all points.

3. ERRORS: The Contractor shall satisfy himself before the commencement of any part of the work, of the meaning of all stakes, marks and any apparent errors which he may find shall be immediately reported to the Engineer for correction before the work is commenced. Should the Contractor attempt to correct the mistakes, he will be held liable to bring the work back to the proper grade.
4. TERMINATION OF CONTRACT: Time shall be deemed the essence of this contract. All the work included in the contract must be concluded on or before the date fixed at the time the contract is awarded. The Contractor further agrees that if at any time the Engineer shall be of the opinion and shall so certify in writing to the Municipal Council, that the said work or any part thereof is unnecessarily delayed or that the said Contractor is violating any of the conditions of this contract, or is executing same in bad faith, or if the said work is not fully completed within the time named in the contract for its completion, the Council shall have the power, five days after receiving notice of the Engineer, to notify the said Contractor to discontinue all further work and terminate all future performance thereof by the Contractor but reserving all claims against the Contractor for breach of contract by written notice to be served upon the Contractor, either personally, or at his residence, or by registered mail, or with his agent in charge of the work. Thereupon the Contractor shall discontinue said work, and the Council shall have the power to procure labour, tools, material and machinery, by contract or otherwise, and to complete said work, and to charge the expense thereof, including other damages of every name and nature, to the aforesaid Contractor. The expense so charged shall be deducted by the Council out of such moneys as may then be due, or may at any time thereafter become due to the said Contractor under or by virtue of this Agreement. In case such expense is less than the amount which would have been payable under the contract if the work had been completed by said Contractor, he shall receive the difference, and in the case such expense shall exceed the sum, he shall pay the amount of such excess to the Municipality.

5. ALTERATIONS: The Engineer may make minor changes in the work as it progresses, an amount proportionate to the amount contained in the tender being added to or deducted from the contract price to cover such changes. No change will be made unless ordered by the Engineer in writing.
6. SPECIAL CONDITIONS: If the Contractor should encounter any conditions of any sort which may not have been known to the Engineer, and were not provided for by these plans and specifications, and which would make necessary alterations 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 alterations. Failure of the Contractor to so notify the Engineer shall not relieve the Contractor of the responsibility of fully completing the work and maintaining it for a period of one year after completion of construction.
7. HIGHWAYS, UTILITIES, ETC.: The Contractor shall, before performing any work affecting the land or property of the Ministry of Transportation and Communications, or any Railway, Telephone, or Pipeline Company or Public Utility, obtain at his expense any necessary permits. The Contractor shall further agree to perform the work affecting said lands or property in accordance with the specifications of such Ministry, Company or Utility, as though said specifications were hereto attached.
8. DAMAGES, LIABILITY: The Contractor shall pay all losses, damages or claims received by the Municipality and he shall protect and save harmless the Municipality against liability for any accidents, damages, casualty, losses or claims directly or indirectly arising out of the Contract, or manner of performance thereof by the Contractor, his agents, employees or sub-contractors. The Contractor will be solely liable for all injuries and/or accidents to workmen, and/or public and/or property and shall furnish the Municipality with proof of his insurance against all liabilities prior to obtaining the Contract.

The Contractor shall be held liable for any expenses or damages occasioned 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 carrying on the work. Any such expense or damages may be deducted by the Engineer from the amount of the contract or may be recovered by the Municipality from the Contractor or his sureties.

9. **PAYMENT:** Progress payment in cash equal to about 80% of the value of the work done and materials incorporated in the work will be made to the Contractor on the written certificate of the Engineer. An additional 17% will be paid 30 days after the final acceptance by the Engineer, and 3% of the contract price may be reserved by the Municipality for one year. After the completion of the work, any part of this reserve may be used to make good defects developed within that time from faulty workmanship, materials supplied by the Contractor and loose backfill, provided that written notice shall first be given the Contractor so that he may promptly make good such defects if he so desires.
10. **FINAL INSPECTION:** All the work included in the contract must at the time of completion and final inspection have the full dimensions and cross-sections. Final inspection will be made by the Engineer within 30 days after he has received notice in writing from the Contractor that the work is completed or as soon thereafter as weather conditions permit.
11. **STAKES:** Stakes are set one hundred feet apart throughout the course of the work or as shown on the accompanying plan and profile. The Contractor shall be held liable for the cost of replacing any stakes or bench marks destroyed during the course of construction and the drainage area shall be liable for the cost of replacing stakes or marks destroyed before commencement of construction.
12. **LINE:** The drain shall run in straight lines throughout each course except that at intersections of courses it shall run on a curve of at least 50 feet radius. The centre line of the present drain shall in general be the centre line of the finished work but the present courses shall be lined out and all sloping and widening necessary shall be done in such manner as to make the finished work uniform.
13. **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 inner side of the invert. The profile shows, for the convenience of the Contractor and others, the approximate depths from the surface of the ground at points where the numbered stakes are set and from the average bottom of the present drain as taken at the time of survey but the bench-marks must govern. The depths are indicated on the profile in feet and tenths of feet.

14. EXCAVATION: Both sides of an open drain are to be sloped one foot horizontally to one foot vertically, or as otherwise shown on the accompanying profile. The drain shall have the full specified bottom width at the grade line.
15. EXCAVATED MATERIAL: A clear berm or margin of at least six feet shall be left between the top edge of the ditch and the spoil bank. No excavated material is to be left in any ditches, depressions, furrows or tiles intended to conduct water into the open drain. In no case shall the side of the spoil bank nearest the ditch have a slope greater than one and one half to one. Excavated material shall in general be placed on the lower side of the drain or on the side opposite trees and fences. The spoil shall be deposited, spread and levelled so that the land on which it lies may be cultivated with adjacent lands by use of ordinary farm machinery. This shall mean the spreading of material to a maximum depth of 12 inches. If the Contractor obtains a statement in writing, signed by the owner of the lands affected that he does not wish the spoil to be levelled, the Engineer may release the Contractor from obligation in that regard. Disposal of the material shall be to the satisfaction of the Engineer or the Commissioner appointed to be in charge of the work.
16. ROADS: Where a drain is removed from the road allowance, the new channel shall be constructed entirely on farm lands and the excavated material shall be placed in the abandoned channel. Excess material, if any, not required for such filling, shall be placed on the adjoining farm lands. On road allowances, disposal of excavated material, levelling, backfilling, installation of culverts and catch basins, and all other work shall be performed as directed by the Superintendent in charge of the road concerned and to his satisfaction.

Any corrugated metal pipe culverts laid under the travelled portion of any road allowance shall be laid on six inches of pit run gravel and shall be backfilled to the road surface with pit run gravel. Any paved road surface shall be restored with a similar paving material to the satisfaction of the road authority having jurisdiction.

17. CLEARING - TILE DRAINS: All brush, timber, logs and stumps shall be cleared back a minimum of 50 feet on each side of the drain, unless otherwise specified on the profile. All cleared material shall be piled for use or disposal by the owner.

17. Continued

CLEARING - OPEN DRAINS: Brush, timber, logs, stumps or stones or any other obstructions 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. 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. Brush removed from the drain and banks thereof shall be piled to the satisfaction of the Engineer. Contractors 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 excavating equipment. Timber necessarily cut by the Contractor shall be left on the property where found for the use or disposal of the owner.

18. **FENCES:** The Contractor will be permitted to remove fences to the extent necessary to enable him to excavate the drain and dispose of the 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 so far as material permits. Fences shall be properly stretched and fastened. Replacing of the fences shall be to the satisfaction of the Engineer or the Commissioner appointed to be in charge of the work. When authorized by the Engineer, the Contractor shall supply new materials to repair a fence, the cost of such material being an additional expense to the drainage area.
19. **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. Temporary bridges may be removed for this purpose and the material left at the side of the drain for the subsequent use of the owner in rebuilding. Bridges of a permanent character are not to be unnecessarily disturbed, the excavation at these bridges being made if necessary by hand, tractor, or other suitable means.
20. **BRIDGES:** All bridges hereafter constructed or reconstructed, in order not to be regarded as obstructions, shall have openings of clear width equal to twice the specified bottom width of the drain.
21. **ALLOWANCES FOR DAMAGES:** The damages for which allowances are made include damages for lands on which the excavation is actually made and those on which excavated material, timber, brush or other obstructions may be deposited.

22. **TILE AND LAYING:** All tile shall be sound, of first quality and conform to the requirements of ASTM C412. They shall be laid carefully on a smooth bottom with joints fitting tightly. The grade shall be made by using horizontal sight-bars at stakes above and below the point where the tile is being laid.
23. **LATERAL TILE DRAINS:** The Contractor shall guard against damaging outlets of tributary drains and he shall connect tributary drains to the main tile as work progresses. The cost of such connections shall be an extra to the contract.
24. **MAIN OUTLETS:** Any Main, Award or Municipal Drains encountered shall be connected to this drain constructed under these specifications. Any existing tile drains which have an outlet in the upstream end of this drain, or an old drain which may be replaced by this drain, shall be connected to this drain. These connections shall be made by the Contractor as part of this contract.
25. **FILLING:** As the laying of the tile progresses, partial filling is to be made at the sides sufficient to hold the tile in place. After the work is inspected by the Engineer or the Commissioner in charge of the work, the remainder of the excavated material shall be used to restore and maintain the natural surface of the ground. Care shall be taken to backfill the excavated material evenly on either side of the tile to prevent movement of the tile. All backfill material shall be free of stones larger than 4 inches in diameter.
26. **PROTECTION:** The protection at the outlet of a tile drain shall be a length of corrugated metal pipe 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 hand placed rip rap (sacked concrete or heavy field stone, as directed) and shall extend along bottom of the open drain as directed and in a manner satisfactory to the Engineer. Where heavy overflow is likely to occur, the rip rap shall be extended up the sides to prevent the water cutting around the protection. Protection for the ends of culverts shall be in accordance with the plans, profiles and special specifications provided.
27. **CATCHBASINS:** Shall be constructed in accordance with the plans provided. If there are no existing drains to be connected to the catchbasin 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

27. Continued

- tile. Where the catchbasin is on a road allowance the Contractor shall obtain from the Road Superintendent approval of the location of the catchbasin, the grate to be used and the elevation at which the top shall be set. All tile entering the catchbasin shall be tightly cemented into the wall.
28. UNSTABLE SOIL: If during the construction of the drain quick sand, fine sand, silt or other unstable soil conditions are encountered the Contractor shall immediately notify the Engineer or Commissioner in charge of the work. The basis of payment for such extra work shall be set by the Engineer.
29. EXCESS TILE: If the tile are supplied by the Municipality, at the end of the job the Contractor shall stockpile all excess tile in one readily accessible location for pick-up by the Municipality.
30. LIVESTOCK: It shall be the responsibility of each owner to keep his livestock clear of the construction area. Loss or damage to livestock in the construction area shall not be the liability of the Contractor except through negligence or carelessness on the part of the Contractor and/or his agents.
31. TRENCH WIDTH: The minimum width of trench shall be not less than the outside diameter of the drain tile plus six (6) inches, except where authorized in writing by the Engineer.
32. RODENT GRATES: Rodent Grates shall be an integral part of the Corrugated Metal Culvert at the outlet. These grates shall be of a style and type acceptable to the Engineer.

IN ADDITION

Lateral Tile - All lateral tile encountered during construction shall be connected to the new tile. The cost of such connections shall be an extra to the contract.

Clearing Widths - Open Work - 70 feet on spoil side. Closed portion - 50 feet on each side of drain, unless otherwise directed by the Engineer.

Open Drain - Side Slopes $1\frac{1}{2}:1$; Bottom width - 3 feet throughout.

Sediment Basins - Shall be constructed in accordance with the attached drawings.

Seeding & Mulching - The grass seed mix shall contain a minimum of three varieties, suitable to the area, NOT including canary grass and shall be approved by Council.

M.T.C. Right-of-way - All disturbed areas on the right-of-way shall be restored to current M.T.C. specifications. The cost of the restoration shall be a direct charge to the M.T.C.

SPECIFICATIONS FOR MUNICIPAL DRAINS CROSSING TOWNSHIP ROADS

1. The Township will supply no labour, equipment or materials for the construction of the road crossing, with the sole exception of patching an existing asphalt surface.
2. The excavated material removed from the travelled portion of the road and four feet (4') or the full width of the gravelled shoulder, whichever is greater, on each side of the travelled portion, shall be removed. Excavated material may be spread on the right-of-way with the consent of the Township Road Superintendent.
3. The granular backfill material for the excavation on the travelled portion and four feet (4'), or the full shoulder width, on either side shall be acceptable to the Township Road Superintendent, and shall be thoroughly compacted in layers not exceeding 12 inches with a MECHANICAL VIBRATING COMPACTOR.
4. The Township will place the asphalt patch over the excavation on existing asphalt covered roads.
5. The excavated material from the trench beyond a point four feet (4') 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 24 inches. The finished work shall be left in a clean and orderly manner, flush with or slightly higher than the adjacent ground.
6. The location on the right-of-way and the elevation of the top of catchbasins, inlets, and junction boxes on the right-of-way shall be as required by the Township Road Superintendent.
7. The Contractor shall give the Township Road Superintendent at least two (2) days notice before he commences any work on the right-of-way of any Township Road.
8. 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 flagmen to the satisfaction of the Township Road Superintendent to notify the 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 route.

H.M. Gibson Limited
Consulting Engineers