

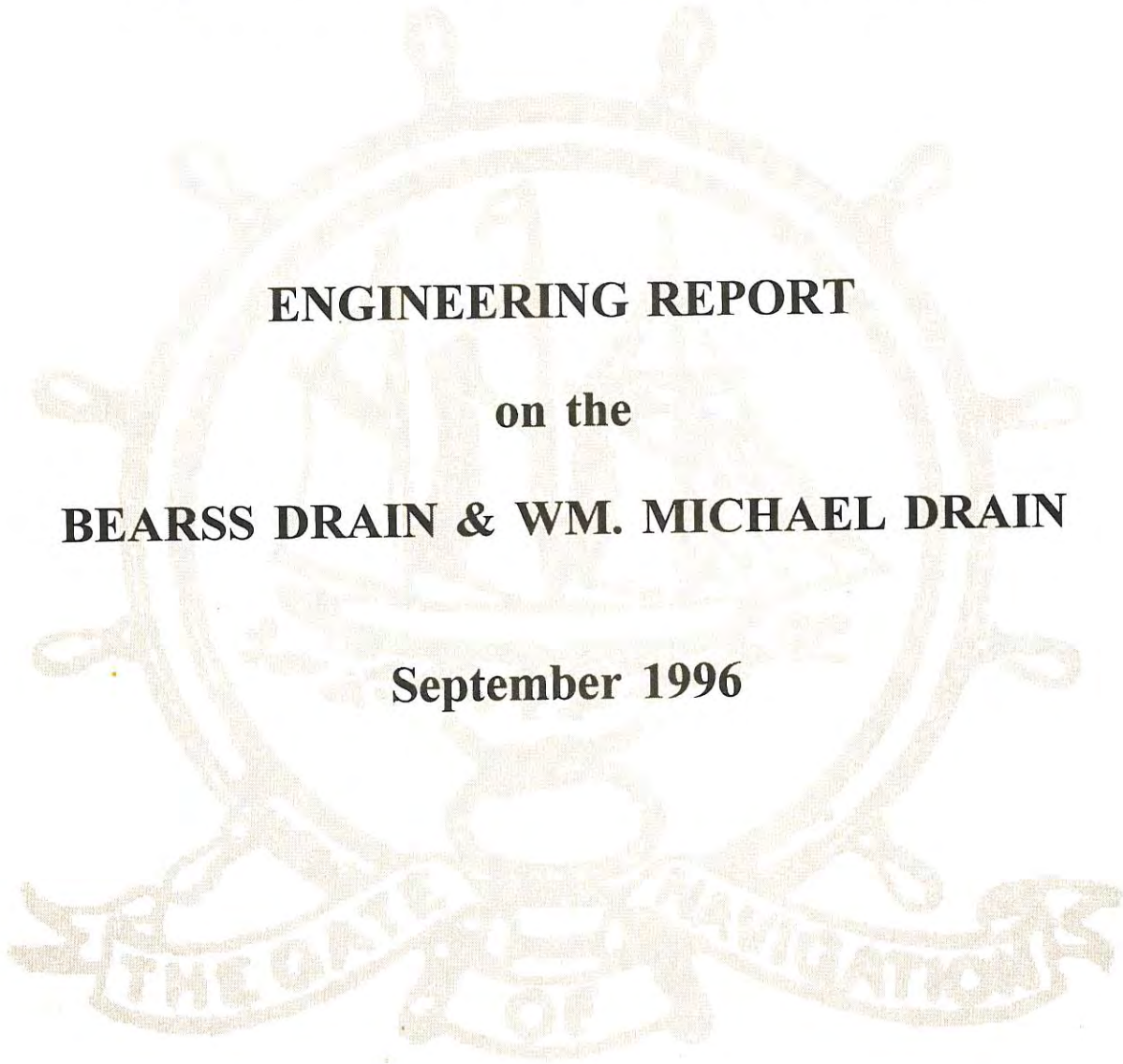
# CITY OF PORT COLBORNE

## ENGINEERING REPORT

on the

**BEARSS DRAIN & WM. MICHAEL DRAIN**

September 1996



**K. SMART ASSOCIATES LIMITED**

85 MCINTYRE DRIVE/KITCHENER /ON/ N2R 1H6  
ENGLEHART/ON/P0J 1H0

**FINAL  
ENGINEERING REPORT**

on the

**BEARSS DRAIN & Wm. MICHAEL DRAIN**

in the

**CITY OF PORT COLBORNE**

September 30, 1996

File No. 93029

**K. SMART ASSOCIATES LIMITED**

**Kitchener Earlton Sudbury**



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September 30, 1996

File No. 93029

**BEARSS DRAIN & Wm. MICHAEL DRAIN**

**City of Port Colborne**

**SUMMARY**

This report is prepared under Section 78 of the Drainage Act, RSO 1990 as amended. At a Council meeting on May 23, 1995, Council accepted a Preliminary Report dated March 31, 1995 and directed the Engineer to prepare a final report.

The March 31, 1995 Preliminary Report had been initiated by the City of Port Colborne under Section 10 of the Drainage Act to address a concern with flooding of low lying lands in the area of the Bearss Drain and the Wm. Michael Drain in Lots 9 and 10, Concession 1 (Humberstone), between Wyldewood Road and Silver Bay Road, City of Port Colborne.

The objectives of this final report are to provide:

- a recommended solution to the flooding problem in the area of the Bearss Drain and the Wm. Michael Drain outlets;
- an estimate of the cost of the proposed work;
- a schedule of assessment to levy the estimated cost to the lands and roads in the watershed of the Bearss Drain;
- an updated schedule of assessment and updated maintenance provisions for future maintenance on the Bearss Drain and Wm. Michael Drain.

The main objective to prevent flooding will be achieved by constructing a berm along both the east and west banks of the Bearss Drain between the block walls near Lake Erie and the Wm. Michael Drain. There would also be a berm constructed along the south bank of the Wm. Michael Drain from the Bearss Drain east for approximately 83m at which point it would run north for about 50m. All berms will be constructed to elevation of 176.2m with a 4m top width and 2:1 side slopes.

To maintain local drainage into the Bearss Drain it will be necessary to install outlet pipes with *Tideflex* check valves (to prevent backflow during high lake levels) at the Bearss Drain, West Branch East outlet and in a low area on the Bearss Drain east bank, north of the West Branch East outlet. A new lane crossing will be constructed across the Wm. Michael Drain on the Benner property using two 900mm diameter CSP with *Tideflex* check valves to complete the flood control measures.

A summary of the proposed work on the Bearss Drain and the Wm. Michael Drain as recommended in this report is as follows:

Bearss Drain

- Construct a berm along the east bank approximately 375m in length, along the west bank approximately 200m in length
- Install 2 - 12m lengths of 600mm diameter CSP with *Tideflex* check valves at a surface drainage outlet and for the West Branch East outlet
- Ditch cleanout and brushing of the drain from water's edge at Lake Erie to the Wm. Michael Drain outlet

Wm. Michael Drain

- Construct 83m of berm along the south bank and approximately 50m of berm north along the Benner farm lane
- Install 2 - 12m lengths of 900mm diameter CSP for the Benner lane crossing
- Ditch cleanout and brushing of the drain from the outlet to Wyldewood Road and east to east limits of Firelane 13

The total estimated cost of the work is \$ 109,400.

The total watershed area is 990 hectares (2,446 acres).

Schedule A on Page 21 shows the assessment of the estimated cost against the affected lands and roads in the Bearss Drain watershed. Schedule A also illustrates the net assessments after applicable grants and allowances are deducted. Schedule B starting on Page 28 is a future maintenance schedule for the Bearss Drain including the Neff Branch and the West Branch East of Silver Bay Road, and the Wm. Michael Drain as identified by this report.

**PRELIMINARY REPORT**

The Preliminary Report on the Bearss Drain and Wm. Michael Drain dated March 31, 1995 was previously circulated. The preliminary report outlines the history of the Bearss Drain and Wm. Michael Drain, contains a description of the watershed area, comments from the on-site meeting on September 22, 1993, design considerations and a detailed description and cost estimate for the various alternatives considered for the improvements to prevent flooding in the area of the Bearss and Wm. Michael Drains in Lots 9 and 10, Concession 1 (former Humberstone Township), in the City of Port Colborne.

The Preliminary Report was considered by Port Colborne City Council on May 23, 1995. Following the Council meeting, Council directed that a final report be prepared for the Bearss Drain and Wm. Michael Drain.

### **DRAINAGE HISTORY**

The history of the Bearss Drain watershed with respect to drainage work under the Drainage Act was outlined in the Preliminary Report. Since the preparation of the Preliminary Report additional information was located on the Neff Branch.

The Neff Branch was previously reconstructed in a report by C. J. Clarke, P. Eng. dated December 1, 1961 which was adopted by Township of Humberstone Bylaw No. 1201. This report provided for a cleanout of the Neff Branch along the north side of Highway 3 and the east side of Neff Road.

The watershed plan with the Preliminary Report showed the location and extent of the Bearss Drain and the Wm. Michael Drain based on the 1979/1986 report by C. J. Clarke. However, as noted in the Preliminary Report, this 1979/1986 report was not adopted by bylaw. Therefore, the previous reports on both drains were re-examined. It has been determined that the upstream end of the Bearss Drain is on the north side of Highway 3 at the outlet of the Neff Branch based on the 1928 Bearss Drain report. The upstream end of the Wm. Michael Drain is located 500' (152m) east of the west limits of Michael Road based on the 1913 Wm. Michael Drain report.

### **SITE MEETING**

On September 26, 1995, a further meeting was conducted, with all landowners in the watershed of the Bearss Drain being notified along with the Niagara Peninsula Conservation Authority, the Ministry of Transportation Ontario, the Region of Niagara, and the City of Port Colborne. The purpose of the meeting was to allow the affected landowners further input to the final recommendations for improvement to the Bearss Drain and Wm. Michael Drain. Prior to this meeting the affected landowners also had an opportunity for input at the Open House for the Preliminary Report and the Council meeting to consider the Preliminary Report on May 23, 1995.

The following is a summary of the comments and concerns from the landowners who attended the above referenced meetings:

- General consensus for berm construction for flood control
- Concern expressed about materials that would be used for berm construction
- Residents along Firelane 9 expressed concern that a berm is required on the west bank of the Bearss Drain in the area of the West Branch East outlet to prevent flooding which occurs on low lying land along Firelane 9

- No consensus on the type of floodgate structure to be used to prevent backflow through the pipes required to provide local drainage into the Bearss Drain
- Concern voiced about water quality in the Bearss Drain and the impact this has on the Lake Erie beach and the beach wells. Some owners related their concern to present and proposed development on the Sherkston Resorts property (Roll No. 4-1-246)

## **SITE EXAMINATION AND CONSIDERATIONS FOR FINAL REPORT**

### Future Maintenance

A proposal dated February 12, 1996 was presented to City of Port Colborne outlining requirements for updating the schedule of assessment for maintenance for all of the Bearss Drain upstream to the Neff Branch outlet including the Neff Branch and the West Branch East and for the Wm. Michael Drain upstream to 152m east of Michael Road. This proposal indicated an increased Engineering cost of \$4,600 to provide updated schedules of assessment for maintenance and to update the 1979/86 profiles for the Bearss Drain and Wm. Michael upstream of the work proposed in the final report. City of Port Colborne Council authorized the update to the maintenance provisions on the Bearss and Wm. Michael Drains by Bylaw on March 4, 1996.

### West Bank Bearss Drain

The west bank of the Bearss Drain and the area to west along Firelane 9 was re-examined and it was determined that a berm will be required along the west bank to prevent flooding of low lying lands along Firelane 9. An outlet pipe will be required to outlet the West Branch East through this berm. The outlet pipe will require a floodgate structure.

### Outlet Pipe Sizing

Computer modelling was used to determine the estimated flow at various locations where outlet pipes into the Bearss or Wm. Michael Drains are required. A meeting was held with representatives of the companies that manufacture (Red Valve) and distribute (Neo Valves) the *Tideflex* check valves. At this meeting it was noted that small diameter (900mm dia or less) *Tideflex* valves are more economical than larger diameter (1m dia or larger) *Tideflex* valves. After consideration of the estimated flows and site examination the following pipe sizes were selected:

West Branch East Outlet - 600mm diameter corrugated steel pipe with a design flow of 0.35 cu.m/sec which is a 10 year return storm flow. All existing culverts (7) on the West Branch East are 450mm diameter corrugated steel pipe.

East Bank Bearss Drain Station 221 - 600mm diameter corrugated steel pipe. This low run does not serve a large or well defined watershed area being primarily for low lying land in Lot 9, Concession 1, south of the Wm. Michael Drain. This area would provide an outlet for

overflow waters from the Wm. Michael Drain. This pipe is thus not designed for a specific flow. The pipe size selected is a reasonable minimum diameter for an outlet pipe in this location.

Benner Lane Culvert-Wm. Michael Drain - Two 900mm diameter corrugated steel pipes placed side by side. Twin smaller diameter pipes were selected for this crossing to reduce the cost of the *Tideflex* check valve(s) required at this location. It should be noted that a twin pipe installation may create a problem for reduced flow at this location due to increased susceptibility to blockage of twin pipes by debris carried by the channel flow. The maintenance provision of this report further addresses this problem. The design flow at this location is 2.6 cu.m/sec for a 2 year return storm flow. As noted above, overflow from the Wm. Michael Drain can also use the pipe proposed on the east bank of the Bearss Drain, Station 221. The combined end area of the two 900mm pipes is approximately 20% less than the end area of the Wyldewood Road Culvert. The pipe size and design flow for the Benner laneway agree with design criteria contained in the "Design and Construction Guidelines for Work Constructed under the Drainage Act" published by O.M.A.F.R.A.

#### Pipe Floodgate

After further consideration of the advantages and disadvantages for various types of backflow prevention structures for the above described outlet pipes, it is recommended that the new 600mm and 900mm diameter pipes be protected with *Tideflex* check valves. As noted in the Preliminary Report, *Tideflex* check valves provide automatic backflow protection with no mechanical parts. This greatly improves reliability of operation with minimal maintenance. *Tideflex* check valves seem to be best suited for the locations required on this project.

#### Existing Bank Protection Bearss Drain Outlet

The existing concrete block wall which protects the sand dune where the Bearss Drain outlets into the lake appears to be stable and not in need of any repair work at this time. This block will be recognized as part of the Bearss Drain and will be maintained as a part of the Bearss Drain as outlined in the maintenance provisions of this report. The existing concrete wall which extends from the east block wall towards the lake also appears to be stable. Records indicate that this wall was constructed as part of the work on the Bearss Drain in the 1913 Engineering Report in Bylaw 438. The wall shows some sign of age and erosion but at present is not creating a major problem to require replacement or major reconstruction. The concrete wall shall continue to be recognized as a part of the Bearss Drain and will be maintained as part of the Bearss Drain as outlined in the maintenance provisions.

#### Sherkston Resorts Property

Two meetings have been held with Mark Cahill, a representative for Sherkston Resorts. The first meeting was held on September 27, 1995. At this meeting plans for a proposed sewage treatment facility were reviewed. The effluent from a sewage treatment plant would be

disposed of through a direct discharge into Lake Erie or through spray irrigation on a controlled site on the Sherkston Resorts property. The spray irrigation site would be located within the watershed of the Wm. Michael Drain. However, due to the controlled nature of such a site no significant increased runoff is anticipated into the Wm. Michael Drain. The majority of the developed portion of the Sherkston Resorts property is not located within the Bearss Drain watershed. Even with the spray irrigation, the Sherkston Resorts property within the Bearss Drain watershed should be assessed as per other agricultural or wooded lands in the watershed. At the time of preparing this final report (fall 1996) the City staff indicated that Sherkston was planning a direct discharge to the Lake.

A further meeting was held with Mark Cahill on March 12, 1996. The purpose of this meeting was to discuss a proposed new development for seasonal trailer sites on the lake side of the sand dunes from Michael Road to Wyldewood Road. Almost all of this proposed development will not be within the Bearss Drain watershed since it is on the lake side of the lakeshore sand dunes. There are small areas that will drain north. However, no significant lot grading is proposed for the new sites and no road drainage will be involved. Therefore, any drainage into the Bearss Drain watershed will be as existing and will be reasonable and will thus not warrant any change in the assessment methodology as described above.

#### Perimeter Watershed

The Preliminary Report noted that the watershed for the Bearss Drain and Wm. Michael Drain was established using previous drain plans and other available plans. No field check of the watershed was undertaken for the Preliminary Report. During the preparation of this final report, a final report was also being prepared for the Beaverdam Drain which has a common watershed boundary with the Bearss Drain. A number of concerns were raised on the Beaverdam Drain perimeter watershed which resulted in field investigation of the Bearss-Beaverdam Drain watershed.

The main area investigated was the south part of Lot 13 and the southeast corner of Lot 14, Concession 2 which historically were shown to drain southeasterly to the Bearss Drain. However, at present the Highway 3 storm drainage system carries all highway drainage from midway between Cedar Bay Road and Sherk Road intersections northwesterly to the Beaverdam Drain. Therefore, the lands in the southeast corner of Lots 13 and 14, Concession 2 (except for the frontage of a number of lots fronting on Sherk Road) are considered to be part of the Beaverdam Drain watershed and are not assessed to the Bearss Drain. A similar problem was noted south of Highway 3 and west of Cedar Bay Road where the northeast corner of Lot 13, Concession 1 was shown historically to drain southeast to the Bearss Drain. Field examination noted that these lands would drain southwesterly to the Oil Mill Creek Drain. A future report on the Oil Mill Creek Drain will have to account for this increased watershed area which was previously assessed to the Bearss Drain.



A watershed check was also completed for Lot 4, Concession 1 north of Beach Road. Historically the reports for the Bearss and Wm. Michael Drains and the Pt. Abino Drain have shown this parcel to be 40.5 acres (16.4 ha). However, the current assessment roll for the City of Port Colborne identifies this parcel to be 50.75 acres (20.5 ha). This parcel size was confirmed by checking the deed for this parcel. The final watershed area for the Bearss Drain and Wm. Michael Drain was determined to be 26.6 acres (10.76 ha) as compared to the previous area assessed at 24 acres (9.7 ha). The balance of the parcel (24.15 acres) should then be assessed to the Pt. Abino Drain as compared to the previously assessed area at 16.5 acres.

## SUMMARY OF RECOMMENDATIONS

### **Bearss Drain**

#### North end of block to wall to water's edge Lake Erie

Access for this work will be from Wyldewood Road and then along the water's edge to the Bearss Drain.

The channel will be cleared of sand and debris between the block walls and continuing to the water's edge of the lake to the depth and bottom width (6m) shown on the profile. All sand material will be levelled on the beach. All rock material to be used to protect the existing concrete wall. All other debris shall be hauled away. No work is proposed at this time on the concrete wall or the concrete block wall. Both shall be maintained as part of the Bearss Drain in the future. The access route shown shall also apply for access for future maintenance.

#### East Bank North of Block Wall

Access will be along the berm from the north.

A berm will be constructed to elevation 176.2 commencing at Station 425 which is 375m north of the block wall and continuing south to match an existing elevation of 176.2 at the north end of the block wall. The berm will have a 4m wide top with 2:1 side slopes and shall be constructed using approximately 75% imported clay material and 25% from material excavated from the channel. Completed berm will be seeded. Lawn area on Kraft property will be restored. East berm slope will be decreased in the Kraft lawn area to make grass cutting easier. Cutting some large trees and brushing will be required to permit berm construction and ditch cleanout. No root or stump removal is recommended. At Station 221, in a low area, a 12m length of 600mm diameter corrugated steel pipe is to be placed to provide local drainage through the berm. The downstream (west) end of the pipe will be protected with a *Tideflex* check valve.

West Bank North of Block Wall

Access will be along Firelane 9 and then along the south bank of the West Branch East. A berm will be constructed similar to the berm on the east bank. The west bank berm will commence at the sand dune 22m south of the West Branch East and continue north at elevation 176.2 to match the existing bank elevation of 176.2 at Station 425. A 12m length of 600mm diameter corrugated steel pipe is to be placed in the West Branch East to provide outlet through the berm. The downstream (east) end of the pipe will be protected with a *Tideflex* check valve. To further maintain local drainage a swale will be required along the west side of the berm from near the northerly limits of the berm southerly to outlet into the West Branch East.

North of Wm. Michael Drain to North Side Highway 3

No work required in this report. Drawing 3 contains a profile for the Bearss Drain to the north side of Highway 3 with recommended grades for future maintenance.

West Branch East of Silver Bay Road

No work required in this report except as noted above. Drawing 3 contains a profile for the West Branch East with recommended grades for future maintenance.

Wm. Michael Drain

Bearss Drain to Benner Laneway

Access will be from Wyldewood Road along north bank of drain. A berm similar to the berm on the east bank of the Bearss Drain will be constructed with top elevation 176.2 along the south bank from the Bearss Drain to the Benner laneway. Berm construction will continue north across the Wm. Michael Drain and for 40m north on the Benner laneway to match elevation 176.2. Two 12m lengths of 900mm diameter corrugated steel pipe shall be placed in the Wm. Michael Drain to provide outlet through the berm. Both pipes will be protected on the downstream (west) end with *Tideflex* check valves.

Benner Laneway to Wyldewood Road

Channel to be cleaned out to grade shown on profile on Drawing 3. All excavated material to be hauled for berm construction. Channel cross-section to be cleared of all brush and trees. Cutting trees and clearing brush will be required on north bank to permit excavation. An entrance culvert (10m of 500mm dia CSP) will be placed on the west side of Wyldewood Road to give access to the north bank. This will be a permanent access thus available for future maintenance. On the 10m working width on the north bank a 6m (minimum) width shall remain as a grass buffer strip and to provide for access for future maintenance.

Wyldewood Road to east of Michael Road

From Wyldewood Road to the east limits of Firelane 13 channel to be cleaned out to grade shown on profile on Drawing 3. All excavated material to be hauled for berm construction. From the east limits of Firelane 13 upstream, no work required in this report. Drawing 3 contains a profile for the Wm. Michael Drain to 152m east of the east limits of Michael Road with recommended grade for future maintenance.

### **CONSTRUCTION SCHEDULING**

Construction cannot commence until after the statutory requirements of the Drainage Act have been satisfied. If there are no appeals, construction may commence approximately 3 months after the date of this report. Appeals under the procedures in the Drainage Act may result in a later starting date for construction as construction cannot proceed until all appeals are settled.

The contract for the construction of the drain will be awarded by public tender. Unless requested prior to tender call, the Contractor will specify starting and completion dates for construction. Once construction commences, if the work is proceeded with continuously, it should be completed in 20 to 25 working days. The Engineer will provide periodic construction supervision and may conduct at least two meetings with the Contractor and the owners affected by construction: one at the commencement and the other at the conclusion of construction.

### **PERMITS AND UNDERGROUND UTILITIES**

No permits should be required on this project. The City may apply to the Ontario Municipal Board for approval of the Bylaw which adopts this report and provides for the financing of the drain cost prior to the final levy to the assessed owners.

It is not anticipated that any utilities should be encountered during the construction proposed. However, the Contractor will be required to have all utilities located by Bell Canada and Consumers Gas prior to construction. Old gas lines that appear to be abandoned are located along and across the Bearss Drain but will not interfere with the construction work proposed.

If any owner knows of any other public or private underground utilities in the vicinity of the proposed construction, they should make the Engineer aware of such prior to construction.

### **ENVIRONMENTAL CONSIDERATIONS**

No significant wildlife, wetland or environmentally sensitive areas were observed along the route of the drain.

The construction of the drainage works proposed will likely be undertaken in mid-summer and this construction timing and construction method should not result in the transport of sediment downstream during construction. The construction of the proposed improvements to the Bearss Drain and Wm. Michael Drain is not expected to have a negative impact on the local environment.

### **PLAN**

The location of the Bearss Drain, Wm. Michael Drain, West Branch East, Neff Branch, and the affected lands and roads are shown on the watershed plan on Drawing 1. The heavy solid line indicates the location of the above drains. The numbers adjacent to these lines are station numbers which indicate in metres the distance along the drain measured from the outlet northerly and easterly to the head of the drains. The heavy shaded broken line indicates the approximate watershed boundary for the lands in the Bearss Drain watershed. The plan also shows other existing drains and property boundaries.

Along with the watershed plan there are three enlargement drawings showing the area for the proposed work as well as those areas with a large number of small lots.

### **PROFILE**

Profiles of the Bearss Drain and the Wm. Michael Drain are included on Drawing 3. The profile of the Bearss Drain from the outlet to the Wm. Michael Drain is from a survey completed for this report. The profile of the Wm. Michael Drain from the Bearss Drain to east of Wyldewood Road along Firelane 13 is from a survey completed for this report. Separate profiles show the proposed berms. The profile of the Bearss Drain West Branch east of Silver Bay Road from its outlet to Silver Bay Road is from a survey completed for this report.

The remainder of the profiles on Drawing 3 include a profile of the Bearss Drain from the Wm. Michael Drain north to the north side of Highway 3 and a profile of the Wm. Michael Drain from Firelane 13 to 152m east of the east limits of Michael Road. These latter profiles have been reproduced from the profiles in the C. J. Clarke report from 1979/1986.

### **COST ESTIMATE**

The cost estimate on this project is made up of the allowances to owners having work on their property, the construction cost estimate including contingency items, the engineering cost estimate, and an estimate of the administration cost which is primarily for financing and application costs.

**Allowances**

Section 29 of the Drainage Act provides for compensation for lands required for a right-of-way for a drainage works. In this report a 10m wide right-of-way is established along the portions of the drain being worked on for berm construction and/or a future maintenance easement. The compensation for the Section 29 right-of-way allowance was calculated as follows:

- For the residential lot at the lakeshore, the allowance was calculated at a rate of \$5000/hectare.
- For the agricultural lands traversed upstream, the allowance is \$2500/hectare.

Section 30 provides for compensation to landowners for lands that will be damaged during the construction of the drainage work. This compensation is for the 10m wide working area for construction. The working area is not considered a permanent easement and is not considered to have a permanent impact on the lands in question, although it should be pointed out that some of the land designated in this working area may be required for levelling future cleanout materials. The Section 30 allowance was calculated at a rate of \$1000/hectare with no differentiation between the agricultural lands and the residential lands. Additional restoration on residential land is provided for in the cost estimate.

For properties which do not have construction work but are used for access to the working area a minimum \$50 compensation was provided. Firelane 9, which is a private road, is to be used for access. No allowance is provided for this access route since the ownership of Firelane 9 is not clear and Firelane 9 is a travelled roadway.

The allowances payable to the owners entitled thereto are as follows:

<u>Con/Plan</u>	<u>Lot</u>	<u>Roll No.</u>	<u>Owner</u>	<u>Allowances</u>
1	Pt 8	4-1-350	P. Gaboury (Firelane 13)	\$ 400
1	Pt 8	4-1-370-02	N. Fletcher	50
1	Pt 9	4-2-001	Maxwell & Collins	50
1	Pt 9	4-2-002	T. & M. Illig	50
1	Pt 9	4-2-003	J. DiBellonia	50
1	Pt 9	4-2-004	B. O'Hear	50
49	1	4-2-005	W. & P. Kraft	750
49	2	4-2-006	J. Schott	50
49	3	4-2-007	L. DiBellonia	50
49	5-8	4-2-008	J. Lamacraft	50
49	9	4-2-009	R. Gartler	50
49	4	4-2-010	A. Henderson & S. Lewis	50
1	Pt 9	4-2-023	D. & B. Wilson	500
1	Pt 9	4-2-024	R. & E. Benner	2,150
1	Pt 10	4-2-047	P. & P. Opdam	950
64	12	4-2-063	J. & J. Bellonte	50
64	13	4-2-121-04	J. & M. Marotta	50
52	43	4-2-129	D. Sherk	250
<b>Total Allowances:</b>				<b>\$ 5,600</b>

In accordance with Section 62(3) of the Drainage Act RSO 1990, the allowances shown may be deducted from the final assessments levied. Payment to the owner would only be made when the allowance is greater than the final assessment. The allowances are a fixed amount and are not adjusted at the conclusion of construction. Allowances can only be changed if the report is modified prior to the adoption of the bylaw or in accordance with the paragraph in the report that deals with changing the scope of work after the bylaw is passed.

**Construction Cost Estimate**

The estimated cost for Labour, Equipment and Materials to construct the proposed drain is outlined in detail in the following section. The Contractor is to supply all labour, equipment and materials (except as noted) for the construction of the drain. The final cost of the drain construction cannot be established until the construction is completed.

<u>Station</u>	<u>Item</u>	<u>Cost</u>
<b>Bearss Drain</b>		
-120 to 000 & 000 to 050	Clean out channel, level sand on beach, place rocks against concrete wall, haul other non-sand material	\$ 600
<u>East Bank</u>		
050 to 425	Construct 375m of earth berm (1300cu.m.- 1100 cu.m. imported, 200cu.m. ditch cleanout) including grading, compacting, and seeding	7,700
	Construction of additional berm and restoration for the Kraft lawn area	1,000
	Brushing along the bank 20m wide	500
221	Install 12m of 600mm dia corrugated steel pipe (2.0mm wall) with 4m <sup>2</sup> riprap and install check valve <i>Tideflex</i> check valve	1,000 7,000
<u>West Bank</u>		
135 to 425	Construct 290m of earth berm (900cu.m - 700cu.m imported, 200cu.m ditch cleanout) including grading, compacting, and seeding of berm and excavating swale along berm	6,700
	Brushing along the bank 20m wide	1,000
160	Install 12m of 600mm dia corrugated steel pipe (2.0mm wall) with 4m <sup>2</sup> riprap and install check valve <i>Tideflex</i> check valve	1,000 <u>7,000</u>
	<b>SUB TOTAL BEARSS DRAIN</b>	<b>\$33,500</b>

**Wm. Michael Drain**

000 to 083	Construct 83m of berm along the south bank and 50m of berm to the north on lane (600cu.m - 500 cu.m imported, 100cu.m ditch cleanout) including grading, compacting and seeding of berm	2,500
083	2 - 12m lengths of 900mm dia corrugated steel pipe (2.8mm wall) with 20m <sup>2</sup> riprap and installation of check valves	4,000
	2 - <i>Tideflex</i> check valves	23,600
083 to 403	322m of ditch cleanout and brushing	1,600
403	10m of 500mm dia corrugated steel pipe (2.0mm wall) with granular backfill for access culvert	600
420 to 600	180m of ditch cleanout and brushing	<u>900</u>
	<b>SUB TOTAL Wm. MICHAEL DRAIN</b>	<b>\$ 33,200</b>
	Sub Total Construction	\$ 66,700
	<b>Contingency Allowance</b>	<u>2,400</u>
	Sub Total Construction	\$ 69,100
	Brushing work completed on both drains to assist survey work	1,570
	Sub Total Construction	\$ 70,670
	Net GST (3%)	<u>2,120</u>
	<b>TOTAL CONSTRUCTION</b>	<b>\$ 72,790</b>

**Engineering Cost Estimate**

The cost for the preparation of this report is usually not altered at the conclusion of a project unless the report is referred back or the report is appealed to the Drainage Tribunal. The estimate shown for construction supervision is based on past experience and assumes good construction conditions and a contractor who completes the construction in an efficient manner. The final cost for construction supervision will vary as per the actual time spent during the construction phase.

- Preliminary Report	\$ 7,900
- For preparation of final report including a further site meeting, additional survey, design, assessments, drafting, final report, consideration and court of revision	10,100
- For update to maintenance provisions on Bearss Drain and Wm. Michael Drain, fly level survey to set benchmarks, replot C. J. Clarke profiles, prepare new schedule of assessment for maintenance	4,600
- For contract documents, tendering, construction meetings, periodic construction supervision, payments, final inspection, post construction follow-up	<u>5,000</u>
Sub Total Engineering	\$ 27,600
Net GST (3%)	<u>830</u>

**TOTAL ENGINEERING COST ESTIMATE** **\$ 28,430**

**Administration Estimate**

The administration cost estimate is included to cover items listed in Section 73 of the Drainage Act as eligible drain costs. The main aspect of this cost estimate is to provide for the temporary financing of the project until the project is completed. The interest estimate is based on a past record of interest charges and assumes that a project will be completed within one year of report filing. The administration estimate also includes a sum for applications such as to the Ontario Municipal Board for bylaw approval. The administration cost estimate does not cover legal expenses incurred by the City or assessed to the City should the project be appealed beyond the Court of Revision, though such costs if incurred will form part of the final drain cost.

**TOTAL ADMINISTRATION COST ESTIMATE** **\$ 2,580**

**ESTIMATED COST SUMMARY**

Allowances	\$ 5,600
Construction Cost	72,790
Engineering Cost	28,430
Administration	<u>2,580</u>
<b>TOTAL ESTIMATED COST</b>	<b>\$ 109,400</b>

**ASSESSMENTS**

The Drainage Act requires that the total estimated cost be assessed to the affected lands and roads under the categories of benefit (Section 22), outlet liability (Section 23) injuring liability (Section 23), special benefit (Section 24) and special assessment (Section 26). For this drain assessments for benefit and outlet liability are involved.

The first step in the assessment process was to determine what portion of the total estimated cost is related to flood control (ie. berm construction, *Tideflex* valves, etc.) and what portion is related to normal ditch improvements (ie. ditch cleanout, new culverts, new schedules). The total estimated cost was divided as follows:

	<u>Flood Control</u>	<u>Normal Improve.</u>
Allowances	0	\$ 5,600
Construction		
- West bank Bearss	\$ 14,200	0
- East bank Bearss	16,200	0
- South bank Wm. Michael	25,600	0
- Ditch cleanout culverts	0	12,270
- Contingency	<u>2,000</u>	<u>400</u>
Sub Total	\$ 58,000	\$ 12,670
Net GST	<u>1,740</u>	<u>380</u>
Total Construction	\$ 59,740	\$ 13,050
Engineering	\$ 17,300	\$ 5,700
- Report, construction admin		
- Updated maintenace provisions		<u>4,600</u>
Sub Total		\$ 10,300
Net GST	<u>520</u>	<u>310</u>
Total Engineering	\$ 17,820	\$ 10,610
Administration	<u>2000</u>	<u>580</u>
<b>TOTAL</b>	<b>\$ 79,560</b>	<b>\$ 29,840</b>



Therefore \$79,500 is assessed as benefit to lands and roads which are protected by the proposed flood control work in this report. The area to be assessed this benefit is all residential lots south of the Wm. Michael Drain to the lake, east of Silver Bay Road and west of Wyldewood Road including all residential lots east of Wyldewood Road fronting on Firelane 13. The assessment for benefit for residential lots protected from flooding was set at \$500/lot regardless of lot size, present use or location except as noted below. In this area there are many lots on the sand dune along the lake that are not subject to flooding. East of the Bearss Drain this would include lots south of Firelane 15. These lots have not been assessed a reduced rate since the access to the lots is Wyldewood Road or Firelane 15, both of which could be subject to flooding but will now be protected. At the west end of Firelane 15 the lots extend north into the low lying area being protected. West of the Bearss Drain there are numerous lots on Firelane 12 which are on the sand dune and are not subject to flooding. These lots use Silver Bay Road as an access which is not as susceptible to flooding as is Wyldewood Road. Therefore, these lots have been assessed benefit at a rate of \$100 per lot recognizing that the low area to the north is being protected which does provide an overall benefit to lots in this area.

A summary of the \$79,500 assessed for benefit for flood protection is as follows:

- Wyldewood Road	\$ 15,000
- D. & B. Wilson (4-2-23)	500
- 21 lots west of Wyldewood Road @ \$500	10,500
- 57 lots east of Wyldewood Road @ \$500 (includes Firelane 13)	28,500
- 42 lots west of Wyldewood Road @ \$500 (Firelanes 9 and 7)	21,000
- 40 lots west of Wyldewood Road @ \$100 (Firelane 12)	<u>4,000</u>
Total	\$ 79,500

The remaining cost of \$29,900 is for normal ditch improvement and is assessed to the adjacent lands and roads as benefit and to all the lands and roads in the Bearss Drain watershed as outlet liability.

The benefit assessments for normal ditch improvements are as follows:

R & E Benner (Roll No. 040-002-024)

Bearss Drain Station 173 to 512

Improved drainage for agricultural lands through ditch cleanout - \$8/m. However, this length of the ditch is on the boundary between Opdam & Brenner, therefore, this benefit rate is divided to the two properties, 339m @ \$4

\$ 1,350

Wm. Michael Drain Station 000 to 200	
200m @ \$8/m (as above)	1,600
New lane crossing 50% of \$4,000	<u>2,000</u>
Sub total Benner	\$ 4,950

P & P Opdam (Roll No. 040-002-047)  
 Bearss Drain Station 173 to 512  
 Improved drainage for agricultural lands through  
 ditch cleanout - 339m @ \$4  
 (ditch is on boundary between Opdam & Benner) \$ 1,350

D Sherk (Roll No. 004-002-129)  
 Bearss Drain Station 173 to water's edge  
 Improved drainage from ditch cleanout 250

W & P Kraft (Roll No. 040-002-005)  
 Bearss Drain Station 173 to water's edge  
 Improved drainage from ditch cleanout 250

D & B Wilson 4-2-23  
 Wm. Michael Drain Station 200 to 403  
 Improved drainage for agricultural lands through  
 ditch cleanout - 200m @ \$8/m (as above) 1,600  
 Access to parcel north of ditch through culvert  
 on west side of Wyldeewood Road 500  
 Sub total Wilson \$ 2,100

Wyldeewood Road  
 Improved drainage outlet through ditch cleanout 1,000

Firelane 13 (Roll No. 040-001-350)  
 Improved drainage outlet through ditch cleanout 500

N. Labine & V. Fleming (Roll No. 040-001-347-01)  
 Improved outlet from ditch cleanout 500

Total: 10,900

The remaining balance of \$19,000 is then assessed as outlet liability on a per hectare basis to all lands and roads in the Bearss Drain watershed. The hectares affected are adjusted prior to calculating the outlet liability. This adjustment is to reflect the rate and volume of runoff from the lands and roads in the watershed. The basis for this adjustment is one hectare of cleared agricultural land. Areas which generate greater runoff such as roads are increased by a factor of 2 or 2.5 for gravel roads, 3 for paved roads, and 4 for Highway 3. Roads in small subdivisions were not adjusted. The abandoned CN right-of-way was also not adjusted.

The Firelanes, which are private roads, shown on the watershed plan are not identified in the schedule of assessment and were not included in the outlet liability calculations, except for Firelane 13 which is identified by a Roll Number in the City's Assessment Roll.

The other Firelanes (7, 9, 12, 14, 15, and 16) were not included primarily because the ownership of these private roads is not clear. The cost to verify the ownership of these private roads would have greatly exceeded the amount of outlet liability assessable to the Firelanes. The total area of Firelanes excluding Firelane 13, within the watershed, is approximately 2.3 ha (6 acres) in a 1,000 ha total watershed.

Lands which generate less runoff were decreased by a factor. Lots on the sand dune along the lakeshore will not generate significant runoff. However, the watershed area was not reduced to zero in order to reflect the presence of the Firelanes which service these lots. The Firelanes, as noted above, are not assessed but the Firelanes being gravel roads, can generate runoff. Therefore the parcels on the sand dune are adjusted by a factor of 0.25. This factor was applied to lots on Firelanes 12, 15 (south) and 16. Also, an effort was not made to accurately determine a watershed line on the sand dune for lands that drain north to the Bearss Drain or south to the lake.

#### Assessment Summary

The assessments against the affected lands and roads are summarized in Schedule A. Schedule A also illustrates the net assessments to each owner after grants and allowances are deducted. Schedule A will be used to assess the final cost of the project which may vary depending on final construction and engineering costs. Net assessments may vary depending on the availability of grants. In Schedule A, each parcel of land assessed has been identified by the assessment roll numbers for the City of Port Colborne at the time of the preparation of the this report. The size of each parcel was established using the assessment roll information. For convenience only, each parcel is further identified by the owners name from the last revised assessment roll for the City. Final assessments are not levied until after the work is certified complete by the engineer. The final assessments will thus be levied to the owner of the identified parcel at the time the final cost is levied.

#### **MAINTENANCE**

After adoption of the bylaw for this report the Bearss Drain including the Neff Branch and the West Branch East of Silver Bay Road and the Wm. Michael Drain shall be maintained by the City of Port Colborne with the cost of all maintenance to be assessed to the upstream lands and roads prorata with the assessments in Schedule B.

Schedule B is divided into columns to reflect the different portions of the various drains. The extent of each drain is as shown on the watershed plan and on the profiles. The following is a summary of the various drain lengths and the maintenance provisions applicable.

**Bearss Drain - Water's edge Lake Erie to West Branch outlet**

This length includes the block walls on the east and west bank and the concrete wall on the east bank. For future maintenance any erosion or stability problems may be corrected using poured concrete, concrete blocks, gabion baskets, rock riprap, or any other type of channel bank lining considered appropriate by the Drainage Superintendent. Access will be as outlined in this report. Channel cleanout and disposal will be as per the provisions for such outlined in this report.

**Bearss Drain - East bank berm**

This length shall include the berm on the east bank of the Bearss Drain plus the berm on the south bank of the Wm. Michael Drain, including the berm north of the Wm. Michael Drain, the Tideflex check valves on the 600mm and 900mm pipes and the 600mm diameter steel pipe on the east bank of the Bearss Drain. The 900mm pipes on the Wm. Michael Drain are considered to be part of the Wm. Michael Drain as a new culvert crossing. See paragraph below.

**Bearss Drain - West bank berm**

This length shall include the berm on the west bank of the Bearss Drain plus the swale along the berm and the Tideflex check valve and the 600mm diameter steel pipe on the west bank. Future maintenance on the east and west berms shall be to maintain the berms and the outlet structures to the standard set by this report using whatever steps are deemed appropriate by the Drainage Superintendent.

**Bearss Drain - West Branch East of Silver Bay Road**

The West Branch shall be maintained as per the profile included with this report. All culverts shown on the profile upstream of the Bearss Drain berm are considered part of the branch for future maintenance. End slope stability problems and culvert cleanout shall be assessed as regular ditch maintenance using Schedule B. Culvert replacement shall be assessed 50% to the affected owner and 50% using Schedule B.

**Bearss Drain (from West Branch Outlet to Hwy 3) and Wm. Michael Drain**

Channel to be maintained to grade and cross-section on profile. Future maintenance work may include ditch cleanout, levelling spoil, brushing, clearing and grubbing, bank slope protection using riprap, grass seeding, or other appropriate bank slope protection or lining. No existing culverts are considered part of the drains except for the new culvert on the Wm. Michael Drain. For this new culvert end slope stability problems and culvert cleanout shall be assessed as regular ditch maintenance using Schedule B. Culvert replacement shall be assessed 50% to the owner and 50% using Schedule B. Future work on the existing railroad culvert on the Bearss Drain shall be by and/or at the expense of the owner of the railroad right-of-way.

#### Neff Branch

The Neff Branch shall be maintained as per the profile included with the December 1, 1961 Engineer's report adopted by Bylaw 1201 of Humberstone Township. Future maintenance work may include ditch cleanout, levelling spoil, brushing, clearing and grubbing, bank slope protection using riprap, grass-seeding or other appropriate bank slope protection or lining. No existing culverts are considered part of the branch drain.

All parties affected by the Bearss and Wm. Michael Drains are encouraged to periodically inspect the drains and report any visible or suspected problems to the City of Port Colborne Drainage Superintendent. Routine inspection and maintenance of the drains should allow the drains to provide a service for many years.

The access routes and the working areas in this report shall be available for future repair and maintenance. For the drain portions not worked on by this report, a 10m wide future maintenance right-of-way shall be available along with reasonable access to this right-of-way.

#### GRANTS

In accordance with the provisions of Section 85 of the Drainage Act, a grant of 1/3 may be available on any assessment against privately owned parcels of land which are used for agricultural purposes. On the Bearss Drain and Wm. Michael Drain some of the assessed lands are eligible for the grant. These lands are identified in Schedule A. Section 88 of the Drainage Act directs the City to make application for this grant upon certification of completion of the drains provided for in this report. The City will then deduct the grant from the assessment prior to collecting the final assessments.

In accordance with Section 85 of the Drainage Act, a one-third grant may also be available in the future on the assessment against privately owned parcels of land used for agriculture for maintenance or repair of the Bearss Drain and Wm. Michael Drain West Branch and Neff Branch if done on the recommendation and supervision of the City Drainage Superintendent.

#### CHANGES TO DRAIN AFTER BYLAW IS PASSED AND BEFORE COST IS LEVIED

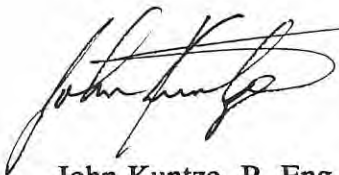
Should changes, deletions or extensions to the drain proposed in this report be requested or required after the bylaw is passed and the contract is awarded, there may be some difficulty in attending to such. Since the construction is to be done in accordance with a City of Port Colborne Bylaw, changes to the drain cannot be undertaken without a change to the bylaw. An exception would be minor changes which are approved by the Engineer and the City in accordance with Section E.7 of the General Conditions and can be accommodated generally within 10% of the construction estimate. This statement does not apply to the items listed in the contingency section of the cost estimate which may exceed the quantities listed and may cause the cost to increase beyond 10% of the construction estimate.

The cost of minor changes to the drain and increased cost from the contingency items will be prorated against all assessments as outlined in this report. Only in specific cases are costs of minor changes assessed to specific owners.

If it is desired to make a substantial addition or deletion to the drain proposed in this report after the bylaw is passed, it will be necessary that a revised report be prepared and processed through the Drainage Act, or an application to the Ontario Drainage Tribunal would be required under the Drainage Act to obtain approval for any modification. If any individual or group of owners require additional work on the proposed drain and are prepared to pay for such, they may make their own arrangements with the contractor to have such work constructed. The Engineer should approve additions and the work so added does not form part of the drain for the purpose of future maintenance.

All of which is respectfully submitted,

K. SMART ASSOCIATES LTD.



John Kuntze, P. Eng.

/as



September 30, 1996

**SCHEDULE A - SCHEDULE OF ASSESSMENT FOR CONSTRUCTION**  
**BEARSS DRAIN & Wm. MICHAEL DRAIN - City of Port Colborne**

File No. 93029

Con	Lot	Roll No.	Owner	Parcel Size (Ha.)	Approx Ha Affected	Approx Ha Adjusted	Benefit	Outlet	Total	1/3 Grant	Allow.	NET
		(04-01)										
* 1	Pts 3 & 4	-186	W. & C. McIntosh	20.54	10.76	10.76		176	176	59		117
1	Pt 4	-186-01	Naymis Holdings Inc.	0.29	0.29	0.58		9	9			9
1	Pt 4	-186-02	S. & B. Shisler	0.35	0.35	0.70		11	11			11
1	Pt 4	-186-03	S. & B. Shisler	0.08	0.08	0.16		3	3			3
1	Pt 4	-187	R. & P. De Clemente	0.20	0.20	0.40		7	7			7
* 1	Pts 3 & 4	-202	D. Elmer	11.74	2.40	2.40		39	39	13		26
* 1	Pt 4	-203	E. Damude Estate	9.71	8.38	8.38		137	137	46		91
* 1	Pt 4	-204	R. & D. Damude	4.57	1.54	1.54		25	25	8		17
* 1	Pt 4	-204-05	W. Wolff	4.83	4.83	4.83		79	79	26		53
1	Pt 4	-205	R. & I. Schultz	0.07	0.07	0.14		2	2			2
1	Pt 4	-206	C. Skinner	0.07	0.07	0.14		2	2			2
1	Pt 4	-207	J. & D. Priebe	0.40	0.40	0.80		13	13			13
1	Pt 4	-224-01	G. Landry	0.45	0.45	0.90		15	15			15
1	Pt 4	-224-03	R. Damude Sr.	0.19	0.19	0.38		6	6			6
1	Pt 4	-225	R. & M. Damude	0.37	0.37	0.74		12	12			12
1	Pt 4	-226	D. & K. Lee	0.94	0.94	1.88		31	31			31
1	Pt 4	-227	M T O	1.01	1.01	2.02		33	33			33
1	Pt 4	-228	R. & P. Horton	0.22	0.22	0.44		7	7			7
1	Pt 4	-229	D. & F. Neff	0.35	0.35	0.70		11	11			11
1	Pt 4	-230	R. Howes	0.22	0.22	0.44		7	7			7
1	Pt 4	-231	P. & D. Ruston	0.49	0.49	0.98		16	16			16
1	Pt 4	-232	Grace United Brethren Church	1.82	1.82	1.82		30	30			30
1	Pt 4	-233	Grace United Brethren Church	0.40	0.40	0.80		13	13			13
1	Pt 4	-234	A. Schofield	0.52	0.52	1.04		17	17			17
1	Pt 4	-234-01	Sherkston Resorts Inc.	0.27	0.27	0.54		9	9			9
1	Pt 4	-234-02	Sherkston Resorts Inc.	0.34	0.34	0.68		11	11			11
1	Pt 4	-234-10	Sherkston Family Go-Carts Ltd.	3.18	3.18	3.18		52	52			52
* 1	Pt 4	-235	A. Dipetta	7.15	0.32	0.32		5	5	2		3
1	Pt 4	-236	R. & D. Damude	3.71	3.71	3.71		61	61			61
1	Pt 4	-237	D. & L. Young	0.47	0.47	0.94		15	15			15
1	Pt 4	-237-01	E. Quesnel	0.18	0.18	0.36		6	6			6
1	Pt 4	-237-02	667080 Ontario Ltd.	0.29	0.29	0.58		9	9			9
1	Pt 4	-238	L. & J. Simmonds	0.14	0.14	0.28		5	5			5
* 1	Pt 4	-239	T. & S. Shisler	2.55	2.55	2.55		42	42	14		28
1	Pt 4	-240	J. & C. Kelba	0.36	0.36	0.72		12	12			12
1	Pt 4	-241	M. Shisler	0.26	0.26	0.52		8	8			8
1	Pt 4	-241-01	L. & M. Ford	0.14	0.14	0.28		5	5			5
1	Pt 4	-242	G. & T. Shisler	0.88	0.88	0.88		14	14			14
1	Pt 4	-243	J. Shisler	0.81	0.81	0.81		13	13			13
1	Pt 4	-243-01	K. & G. Shisler	1.11	1.11	1.11		18	18			18
1	Pt 4	-244	G. & J. Shisler	0.92	0.92	0.92		15	15			15
1	Pt 4	-246	Sherkston Resorts Inc.	183.32	41.60	41.60	500	679	1,179			1,179
1	Pt 5	-256	E. Schatzline	0.40	0.40	0.80		13	13			13
1	Pt 5	-259	D. Moore	0.68	0.68	1.36		22	22			22
1	Pt 5	-261	G. & G. Rizzi	0.37	0.37	0.74		12	12			12
68/NP 827	1	-262	W. & C. Tweedy	0.17	0.17	0.34		6	6			6
68/NP 827	2	-264	M. Vanderhorst	0.18	0.18	0.36		6	6			6
68/NP 827	Pt 4	-265	M. Vanderhorst	0.10	0.10	0.20		3	3			3
68/NP 827	3	-266	D. & W. Wagner	0.49	0.49	0.98		16	16			16
68/NP 827	Pts 4 & 5	-267	E. Landry	0.13	0.13	0.26		4	4			4
68/NP 827	Pt 5	-268	E. & G. Landry	0.07	0.07	0.14		2	2			2
68/NP 827	Pt 6	-269	H. McCrea	0.07	0.07	0.14		2	2			2
68/NP 827	Pts 6 & 7	-270	F. Filipowicz	0.19	0.19	0.38		6	6			6
68/NP 827	Pt 7	-271	R. Dagenais	0.07	0.07	0.14		2	2			2
68/NP 827	Pt 8	-272	R. Dagenais	0.07	0.07	0.14		2	2			2
68/NP 827	Pts 8 & 9	-273	D. Haun & A. Shipp	0.19	0.19	0.38		6	6			6
68/NP 827	Pts 9&10	-274	P. Vullo	0.14	0.14	0.28		5	5			5
68/NP 827	11, Pt 10	-275	M. Toth & K.McConnelly	0.22	0.22	0.44		7	7			7
68/NP 827	12	-276	G. Wilamowski	0.14	0.14	0.28		5	5			5
68/NP 827	13	-277	G. Wilamowski	0.15	0.15	0.30		5	5			5
68/NP 827	14	-278	D. & A. Green	0.21	0.21	0.42		7	7			7
68/NP 827	15 & 16	-279	G. Shaubel	0.28	0.28	0.56		9	9			9
68/NP 827	17	-280	D. Schneegold	0.14	0.14	0.28		5	5			5
68/NP 827	18 & 19	-281	K. & J. Shisler	0.28	0.28	0.56		9	9			9
68/NP 827	Pt 20	-283	J. & M. Kish	0.13	0.13	0.26		4	4			4
68/NP 827	21, Pt 20	-284	J. Davies	0.21	0.21	0.42		7	7			7
68/NP 827	22	-285	S. Brown	0.15	0.15	0.30		5	5			5
68/NP 827	23	-286	J. & K. Paonessa	0.14	0.14	0.28		5	5			5
68/NP 827	24	-287	R. Murrell	0.14	0.14	0.28		5	5			5

September 30, 1996

**SCHEDULE A - SCHEDULE OF ASSESSMENT FOR CONSTRUCTION  
BEARSS DRAIN & Wm. MICHAEL DRAIN - City of Port Colborne**

File No. 93029

Con	Lot	Roll No.	Owner	Parcel Size (Ha.)	Approx Ha Affected	Approx Ha Adjusted	Benefit	Outlet	Total	1/3 Grant	Allow.	NET
68/NP 827	25	-288	R. Murrell	0.14	0.14	0.28		5	5			5
68/NP 827	26, 29	-289	K. Graham & K. Hart	0.28	0.28	0.56		9	9			9
68/NP 827	27	-290	R. Gesl	0.15	0.15	0.30		5	5			5
68/NP 827	28	-291	J. & L. Benner	0.16	0.16	0.32		5	5			5
68/NP 827	30	-292	R. Knapp & J. Warrinton	0.14	0.14	0.28		5	5			5
68/NP 827	31	-293	B. & I. Booth	0.14	0.14	0.28		5	5			5
68/NP 827	32	-294	C. & C. Jr. Thomson	0.14	0.14	0.28		5	5			5
68/NP 827	33	-295	E. Whalen	0.15	0.15	0.30		5	5			5
68/NP 827	Pt 21	-296	R. & I. Stickle	0.18	0.18	0.36		6	6			6
1	Pt 5	-297	L. Pirson	0.21	0.21	0.42		7	7			7
1	Pt 5	-298	C. Gobeil	0.14	0.14	0.28		5	5			5
1	Pt 5	-299	L. & D. Pirson	0.14	0.14	0.28		5	5			5
1	Pt 5	-300	L. & D. Pirson	0.14	0.14	0.28		5	5			5
1	Pt 5	-301	L. Pirson	0.28	0.28	0.56		9	9			9
1	Pt 5	-302	J. Callahan	0.09	0.09	0.18		3	3			3
1	Pt 5	-303	D. Potter	0.08	0.08	0.16		3	3			3
1	Pt 5	-304	M. Conroy	0.32	0.32	0.64		10	10			10
1	Pt 5	-305	R. Wilson	0.26	0.26	0.52		8	8			8
1	Pt 5	-306	A. Sevenpifer	0.16	0.16	0.32		5	5			5
1	Pt 5	-307	M. Zarb	0.28	0.28	0.56		9	9			9
1	Pt 5	-308	T. & K. Kozar	0.11	0.11	0.22		4	4			4
1	Pt 5	-309	T. & K. Kozar	0.11	0.11	0.22		4	4			4
1	Pt 5	-310	D., J. & R. Tait Trustee	2.27	2.27	2.27		37	37			37
1	Pt 5	-311	G. Shaubel	0.64	0.64	1.28		21	21			21
1	Pt 5	-312	C. & N. Stewart	0.21	0.21	0.42		7	7			7
1	Pt 5	-313	R. Schymura	0.11	0.11	0.22		4	4			4
1	Pt 5	-314	K. & D. Schertzing	0.15	0.15	0.30		5	5			5
1	Pt 5	-315	R. Smith	0.41	0.41	0.82		13	13			13
1	Pt 5	-316	S. & J. Dykstra	1.80	1.80	1.80		29	29			29
* 1	Pt 5	-317	D. Tait	17.05	17.05	17.05		278	278	93		185
1	Pt 5	-317-01	Port Colborne City	1.02	1.02	1.02		17	17			17
1	Pt 5	-318	D. & H. Jamieson	0.82	0.82	0.82		13	13			13
1	Pt 5	-318-01	D. & M. Valeriotte	0.83	0.83	0.83		14	14			14
* 1	Pt 5	-319	G. & E. Foss	3.84	3.84	3.84		63	63	21		42
* 1	Pt 5	-320	K. Faragalli	5.81	5.81	5.81		95	95	32		63
* 1	Pt 5	-320-05	D. & L. Young	15.58	15.58	15.58		254	254	85		169
1	Pt 6	-321	J. & M. Heil	0.29	0.29	0.58		9	9			9
1	Pt 6	-322	J. Elsie	0.29	0.29	0.58		9	9			9
1	Pt 6	-323	M. & P. Fitzgerald	0.91	0.91	0.91		15	15			15
1	Pt 6	-324	L. & P. Charlebois	0.48	0.48	0.96		16	16			16
* 1	Pt 6	-325	W. & J. Huibers	7.80	7.80	7.80		127	127	42		85
* 1	Pt 6	-325-30	C. & J. Armstrong	8.09	8.09	8.09		132	132	44		88
* 1	Pt 6	-326	D. & V. Graham	8.90	8.90	8.90		145	145	48		97
1	Pt 6	-326-01	B. Dayboll & L. Bell	0.35	0.35	0.70		11	11			11
1	Pt 6	-326-02	Telesis Oil and Gas	0.39	0.39	0.78		13	13			13
1	Pts 5 & 6	-326-03	Sherkston Resorts Inc.	41.44	41.44	41.44		677	677			677
1	Pt 5	-327	Pembina Exploration	0.40	0.40	0.80		13	13			13
* 1	Pt 5	-328	L. Standing	0.66	0.66	1.32		21	21	7		14
* 1	Pts 6 & 7	-329	D. Michael	55.32	55.32	55.32		903	903	301		602
1	Pt 7	-330	D. & D. Michael	1.22	1.22	1.22		20	20			20
1	Pt 7	-331	Telesis Oil & Gas Ltd.	0.02	0.02	0.04		1	1			1
* 1	Pt 7	-332	J. & M. Quesnel	39.26	39.26	39.26		641	641	214		427
1	Pt 7	-333	W., J., W. & R. Huibers	0.66	0.66	1.32		21	21			21
1	Pt 7	-333-05	E. & J. Balogh	0.64	0.64	1.28		21	21			21
1	Pt 7	-334	R. & K. Toepp	0.61	0.61	1.22		20	20			20
1	Pt 7	-335	J. & L. Terreberry	0.34	0.34	0.68		11	11			11
1	Pt 7	-336	N. & N. Collin	0.50	0.50	1.00		16	16			16
1	Pt 7	-337	L. & D. Caira	0.52	0.52	1.04		17	17			17
1	Pt 8	-338	M. & L. Soucy	0.38	0.38	0.76		12	12			12
* 1	Pt 8	-339	W. & D. Kromkamp	4.96	4.96	4.96		81	81	27		54
1	Pt 8	-340	G. & L. Caverly	0.58	0.58	1.16		19	19			19
1	Pt 8	-341	G. & E. Zavitz	0.71	0.71	1.42		23	23			23
* 1	Pt 8	-341-01	A. & K. Buttigieg	15.18	15.18	15.18		248	248	83		165
1	Pt 8	-342	C. & I. Sauer	0.40	0.40	0.80		13	13			13
1	Pt 8	-343	T. & B. Molenaar	0.36	0.36	0.72		12	12			12
1	Pt 8	-344	M. & S. King	0.10	0.10	0.20		3	3			3
* 1	Pt 8	-345	J. & B. Lambie	4.45	4.45	4.45		73	73	24		49
* 1	Pt 8	-346	A. & C. Domenicucci	4.95	4.95	4.95		81	81	27		54
* 1	Pt 8	-347	J. & H. Fang	6.12	6.12	6.12		100	100	33		67
* 1	Pt 8	-347-01	N. Labine & V. Fleming	4.23	4.23	4.23	500	69	569	190		379



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**SCHEDULE A - SCHEDULE OF ASSESSMENT FOR CONSTRUCTION  
BEARSS DRAIN & Wm. MICHAEL DRAIN - City of Port Colborne**

File No. 93029

Con	Lot	Roll No.	Owner	Parcel Size (Ha.)	Approx Ha Affected	Approx Ha Adjusted	Benefit	Outlet	Total	1/3 Grant	Allow.	NET
* 1	Pt 8	-348	F. & D. Seabourne	4.23	4.23	4.23	.	69	69	23		46
1	Pt 8	-349	D. Lush	0.15	0.15	0.30	500	5	505			505
1	Pt 8	-349-01	H. Szachnicwicz	0.15	0.15	0.30	500	5	505			505
1	Pt 8	-349-02	D. Kirsch	0.15	0.15	0.30	500	5	505			505
1	Pt 8	-349-03	A. Szota	0.15	0.15	0.30	500	5	505			505
1	Pt 8	-349-04	S. Szota	0.15	0.15	0.30	500	5	505			505
1	Pt 8	-349-06	N. Fletcher	0.15	0.15	0.30	500	5	505			505
1	Pt 8	-349-08	L. Gaboury	0.12	0.12	0.24	500	4	504			504
1	Pt 8	-349-10	G. Cameron	0.12	0.12	0.24	500	4	504			504
1	Pt 8	-349-12	J. Young in Trust	0.12	0.12	0.24	500	4	504			504
1	Pt 8	-350	P. Gaboury (Firelane 13)	1.55	1.55	3.10	1,000	51	1,051		400	651
1	Pt 8	-351	J. Paterno	0.15	0.15	0.30	500	5	505			505
1	Pt 8	-352	R. & G. McDonald	0.15	0.15	0.30	500	5	505			505
1	Pt 8	-353	R. McDonald	0.15	0.15	0.30	500	5	505			505
1	Pt 8	-353-02	R. Gaboury	0.15	0.15	0.30	500	5	505			505
1	Pt 8	-353-04	P. Gaboury	0.15	0.15	0.30	500	5	505			505
1	Pt 8	-353-06	R. Gaboury	0.15	0.15	0.30	500	5	505			505
1	Pt 8	-354	D. Schneider	0.18	0.18	0.36	500	6	506			506
1	Pt 8	-355	H. & C. Sammut	0.18	0.18	0.36	500	6	506			506
1	Pt 8	-356	T. & I. Mendy	0.36	0.36	0.72	500	12	512			512
1	Pt 8	-357	K. Sommerville	0.18	0.18	0.36	500	6	506			506
1	Pt 8	-358	P. & M. Guzda	0.18	0.18	0.36	500	6	506			506
1	Pt 8	-359	J. & S. Christiano	0.17	0.17	0.34	500	6	506			506
1	Pt 8	-360	A. Irwin	0.17	0.17	0.34	500	6	506			506
1	Pt 8	-361	L. Wiens	0.11	0.11	0.22	500	4	504			504
1	Pt 8	-362	S. & J. Ryskalczyk	0.11	0.11	0.22	500	4	504			504
1	Pt 8	-363	A. & H. Sherk	0.21	0.21	0.42	500	7	507			507
1	Pt 8	-364	S. Bolguroff	0.11	0.11	0.22	500	4	504			504
1	Pt 8	-365	R. & M. Arndt	0.14	0.14	0.28	500	5	505			505
1	Pt 8	-366	G. Mannell	0.14	0.14	0.28	500	5	505			505
1	Pt 8	-367	K. & L. Mizstal	0.14	0.14	0.28	500	5	505			505
1	Pt 8	-367-01	M. Ravazzolo	0.28	0.28	0.56	500	9	509			509
1	Pt 8	-367-02	H. & C. Groh	0.14	0.14	0.28	500	5	505			505
1	Pt 8	-367-03	K. Mizstal	0.14	0.14	0.28	500	5	505			505
1	Pt 8	-367-04	N. Fletcher	0.14	0.14	0.28	500	5	505			505
1	Pt 8	-367-05	D. Fletcher	0.14	0.14	0.28	500	5	505			505
1	Pt 8	-367-06	I. Yakobchuck	0.14	0.14	0.28	500	5	505			505
1	Pt 8	-367-07	R. & L. Szymanski	0.14	0.14	0.28	500	5	505			505
1	Pt 8	-368	N. Fletcher	0.13	0.13	0.26	500	4	504			504
1	Pt 8	-368-02	D. Fletcher	0.13	0.13	0.26	500	4	504			504
1	Pt 8	-368-04	N. Fletcher	0.13	0.13	0.26	500	4	504			504
1	Pt 8	-368-06	D. Fletcher	0.13	0.13	0.26	500	4	504			504
1	Pt 8	-369	R. Ravazzola	0.13	0.13	0.26	500	4	504			504
1	Pt 8	-369-02	M. Ravazzola	0.13	0.13	0.26	500	4	504			504
1	Pt 8	-369-04	D. Fletcher	0.13	0.13	0.26	500	4	504			504
1	Pt 8	-369-06	J. Young in Trust	0.13	0.13	0.26	500	4	504			504
1	Pt 8	-369-08	G. Cameron	0.13	0.13	0.26	500	4	504			504
1	Pt 8	-370	R. Szymanski	0.14	0.14	0.28	500	5	505			505
1	Pt 8	-370-02	N. Fletcher	0.18	0.18	0.36	500	6	506		50	456
1	Pt 8	-371	J. Biatosik	0.15	0.15	0.30	500	5	505			505
1	Pt 5	-372	J. Ivancie	0.11	0.11	0.22	500	4	504			504
1	Pt 5	-373	A. Gugolz	0.11	0.11	0.22	500	4	504			504
1	Pt 5	-375	F. Bundt	0.63	0.63	1.26	500	20	520			520
1	Pt 5	-376	662665 Ontario Ltd.	0.15	0.15	0.30	500	5	505			505
1	Pt 5	-376-01	662665 Ontario Ltd.	0.03	0.03	0.06		1	1			1
1	Pt 5	-376-02	662665 Ontario Ltd.	0.03	0.03	0.06		1	1			1
1	Pt 5	-376-03	662665 Ontario Ltd.	0.06	0.06	0.12		2	2			2
1	Pt 5	-377	662665 Ontario Ltd.	0.04	0.04	0.08	500	1	501			501
1	Pt 5	-378	W. Brothers	0.67	0.67	1.34	500	22	522			522
1	Pt 5	-379	C. Smith	0.19	0.19	0.38	500	6	506			506
* 2	Pt 4	-388-01	M. Koudis	6.07	0.80	0.80		13	13	4		9
* 2	Pts 5 & 6	-390	E. & J. Helstab	26.10	4.05	4.05		66	66	22		44
* 2	Pt 6	-393	G. & N. Cosby	22.06	14.16	14.16		231	231	77		154
2	Pt 7	-394	T. & D. Hall	0.38	0.38	0.76		12	12			12
* 2	Pt 7	-395	P. & J. Smith	2.54	2.54	2.54		41	41	14		27
2	Pt 7	-395-01	G. Jiges & A. Henry	1.91	1.91	1.91		31	31			31
2	Pt 7	-396	W. & A. Scott	2.83	2.83	2.83		46	46			46
* 2	Pt 7	-397	R. Grimes	28.73	28.73	28.73		469	469	156		313
* 2	Pt 8	-397-10	R. Grimes	10.82	10.82	10.82		177	177	59		118
2	Pt 8	-398	K. & J. Niece	0.76	0.76	1.52		25	25			25

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**SCHEDULE A - SCHEDULE OF ASSESSMENT FOR CONSTRUCTION**  
**BEARSS DRAIN & Wm. MICHAEL DRAIN - City of Port Colborne**

File No. 93029

Con	Lot	Roll No.	Owner	Parcel Size (Ha.)	Approx Ha Affected	Approx Ha Adjusted	Benefit	Outlet	Total	1/3 Grant	Allow.	NET
* 2	Pt 8	-399	B. & E. Jones	3.89	3.89	3.89		64	64	21		43
* 2	Pt 8	-400	A. & E. Caira	3.64	3.64	3.64		59	59	20		39
* 2	Pt 8	-401	S. & S. Adamec	20.24	20.24	20.24		331	331	110		221
		(04-02)										
1	Pt 9	-001	G. Maxwell & T. Collins	3.00	3.00	0.75	500	12	512		50	462
1	Pt 9	-002	T. & M. Illig	0.34	0.34	0.10	500	2	502		50	452
1	Pt 9	-003	J. DiBellonia	0.27	0.27	0.10	500	2	502		50	452
1	Pt 9	-004	B. O'Hear	0.46	0.46	0.10	500	2	502		50	452
49	1	-005	W. & P. Kraft	0.94	0.94	0.25	750	4	754		750	4
49	2	-006	J. Schott	0.34	0.34	0.15	500	2	502		50	452
49	3	-007	L. DiBellonia	0.35	0.35	0.15	500	2	502		50	452
49	5-8	-008	J. Lamacraft	1.83	1.83	0.45	500	7	507		50	457
49	9	-009	R. Gartler	0.48	0.48	0.12	500	2	502		50	452
49	4	-010	A. Henderson & S. Lewis	0.72	0.72	0.18	500	3	503		50	453
1	Pt 9	-011	G. Guzda	0.09	0.09	0.18	500	3	503			503
1	Pt 9	-012	S. McConvey	0.07	0.07	0.14	500	2	502			502
1	Pt 9	-013	P. & K. Richter	0.09	0.09	0.18	500	3	503			503
1	Pt 9	-014	M. Thielman	0.09	0.09	0.18	500	3	503			503
1	Pt 9	-015	J. & V. Blind	0.10	0.10	0.20	500	3	503			503
1	Pt 9	-016	C. Rafter	0.06	0.06	0.12		2	2			2
1	Pt 9	-017	M. Duquette	0.07	0.07	0.14	500	2	502			502
1	Pt 9	-018	C. Rafter	0.08	0.08	0.16	500	3	503			503
1	Pt 9	-019	K. Broda	0.14	0.14	0.28	500	5	505			505
1	Pt 9	-020	E. Dolan	0.21	0.21	0.42	500	7	507			507
1	Pt 9	-021	G. Stachowski	0.15	0.15	0.30	500	5	505			505
1	Pt 9	-022	J. Ivancie	0.15	0.15	0.30	500	5	505			505
* 1	Pt 9	-023	D. & B. Wilson	13.42	13.42	13.42	2,600	219	2,819	940	500	1,379
* 1	Pt 9	-023-01	R. Michael	2.02	2.02	2.02		33	33	11		22
* 1	Pt 9	-023-02	S. & M. Schneider	3.64	3.64	3.64		59	59	20		39
* 1	Pt 9	-023-03	H. & W. Gorbach	3.64	3.64	3.64		59	59	20		39
* 1	Pt 9	-024	R. & E. Benner	21.88	21.88	21.88	4,950	357	5,307	1,769	2,150	1,388
* 1	Pt 9	-025	S. & A. Rowland	5.06	5.06	5.06		83	83	28		55
* 1	Pt 9	-026	H. & R. Tenden	4.86	4.86	4.86		79	79	26		53
1	Pt 9	-026-01	P. & J. Provencal	0.40	0.40	0.80		13	13			13
58/NP 817	1	-027	C. & A. Ferland	0.15	0.15	0.30		5	5			5
58/NP 817	2 & 3	-028	A. Minor	0.28	0.28	0.56		9	9			9
58/NP 817	4	-029	L. & L. Minor	0.14	0.14	0.28		5	5			5
58/NP 817	5	-030	L. & L. Minor	0.14	0.14	0.28		5	5			5
* 1	Pt 9	-030-01	H. Finlayson	3.34	3.34	3.34		55	55	18		37
58/NP 817	Pt 6	-030-05	M. & S. Fretz	0.40	0.40	0.80		13	13			13
58/NP 817	6	-031	M. Fretz	0.42	0.42	0.84		14	14			14
58/NP 817	7 & 8	-032	M. Winker	0.42	0.42	0.84		14	14			14
58/NP 817	9	-033	M. Winker	0.21	0.21	0.42		7	7			7
58/NP 817	10	-034	L. & M. Borgatti	0.21	0.21	0.42		7	7			7
58/NP 817	11 & 12	-035	A. Burechailo	0.42	0.42	0.84		14	14			14
58/NP 817	13	-036	L. & F. Dayboll	0.23	0.23	0.46		8	8			8
58/NP 817	14	-037	J. & W. Getchell	0.35	0.35	0.70		11	11			11
58/NP 817	15	-038	D. Azzopardi	0.59	0.59	1.18		19	19			19
58/NP 817	16	-039	J. Azzopardi	0.66	0.66	1.32		21	21			21
58/NP 817	16	-040	S. & L. Heaslip	0.38	0.38	0.76		12	12			12
1	Pt 9	-041	E. & J. Borg	0.37	0.37	0.74		12	12			12
* 1	Pt 10	-042	W. & N. Blaine	12.04	12.04	12.04		197	197	66		131
1	Pt 10	-043	T. Daudelin	0.15	0.15	0.30		5	5			5
* 1	Pt 10	-044	R. & P. Stretton	6.98	6.98	6.98		114	114	38		76
1	Pt 10	-045	A. & A. Correia	0.97	0.97	1.94		32	32			32
1	Pt 10	-045-05	St. Johns Lutheran Parsonage	0.32	0.32	0.64		10	10			10
* 1	Pt 10	-046	A. & G. Azzopardi	2.45	2.45	2.45		40	40	13		27
* 1	Pt 10	-047	P. & P. Opdam	17.96	17.96	17.96	1,350	293	1,643	548	950	145
1	Pt 10	-048	V. Heil	0.24	0.24	0.48		8	8			8
* 1	Pt 10	-049	N. Symonds	3.32	3.32	3.32		54	54	18		36
1	Pt 10	-049-01	C. Coert	0.18	0.18	0.36		6	6			6
* 1	Pt 10	-049-02	B. & P. Symonds	3.99	3.99	3.99		65	65	22		43
* 1	Pt 10	-050	T. Benner & M. Mink	3.06	3.06	3.06		50	50	17		33
1	Pt 10	-050-01	B. Bussi & W. Dykstra	0.79	0.79	1.58	500	26	526			526
1	Pt 10	-050-?	B. Bussi & W. Dykstra	0.79	0.79	1.58	500	26	526			526
* 1	Pt 10	-051	R. & J. Hilborn	6.33	6.33	6.33		103	103	34		69
1	Pt 10	-052	J. Cochran	0.06	0.06	0.12	500	2	502			502
1	Pt 10	-053	J. Pusztay	0.08	0.08	0.16	500	3	503			503
1	Pt 10	-054	F. & E. Shandala	0.11	0.11	0.22	500	4	504			504
1	Pt 10	-055	J. & D. Marino	0.05	0.05	0.10	500	2	502			502

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File No. 93029

Con	Lot	Roll No.	Owner	Parcel Size (Ha.)	Approx Ha Affected	Approx Ha Adjusted	Benefit	Outlet	Total	1/3 Grant	Allow.	NET
1	Pt 10	-056	L. & J. Shipperbottom	0.46	0.46	0.92	500	15	515			515
1	Pt 10	-057	J. & C. Cruz	0.07	0.07	0.14	50	2	52			52
1	Pt 10	-057-05	J. & C. Cruz	0.14	0.14	0.28	50	5	55			55
64/NP 823	1 & 2	-057-10	W. McDougall	0.17	0.17	0.34	500	6	506			506
64/NP 823	3	-058	W. & B. McDougall	0.08	0.08	0.16	500	3	503			503
64/NP 823	4	-058-01	J. & E. Seemueller	0.08	0.08	0.16	500	3	503			503
64/NP 823	5	-058-02	A. & F. Zaidel	0.08	0.08	0.16	500	3	503			503
64/NP 823	6	-059	M. & K. Maher	0.13	0.13	0.26	500	4	504			504
64/NP 823	Pts 7 & 8	-060	M. Albee	0.17	0.17	0.34	500	6	506			506
64/NP 823	Pt 8, 9	-060-01	R. & R. Durdan	0.09	0.09	0.18	500	3	503			503
64/NP 823	10	-061	R. & R. Durdan	0.08	0.08	0.16	500	3	503			503
64/NP 823	11	-062	J. & J. Bellonte	0.12	0.12	0.24	500	4	504			504
64/NP 823	12	-063	J. & J. Bellonte	0.08	0.08	0.16	500	3	503		50	453
64/NP 823	14 & 15	-066	M. & W. Parker	0.26	0.26	0.52	500	8	508			508
64/NP 823	16 & 17	-067	J. Harrison	0.24	0.24	0.48	500	8	508			508
64/NP 823	18	-068	B. & M. Moore	0.12	0.12	0.24	500	4	504			504
64/NP 823	19	-069	D. Fabian & L. Lannan	0.11	0.11	0.22	500	4	504			504
64/NP 823	20	-070	A. Commodore	0.11	0.11	0.22	500	4	504			504
64/NP 823	21	-071	A. Commodore	0.11	0.11	0.22	500	4	504			504
64/NP 823	22	-072	J. & J. Bellonte	0.11	0.11	0.22	500	4	504			504
64/NP 823	23	-073	S. Stirling	0.11	0.11	0.22	500	4	504			504
64/NP 823	24	-075	R. Moore	0.17	0.17	0.34	500	6	506			506
64/NP 823	26	-076	A. Moore & M. McNulty	0.08	0.08	0.16	500	3	503			503
64/NP 823	Pt 24, 27	-077	M. Stirling	0.15	0.15	0.30	500	5	505			505
64/NP 823	28	-078	A. & C. Baker	0.11	0.11	0.22	500	4	504			504
64/NP 823	29	-079	A. & C. Baker	0.11	0.11	0.22	500	4	504			504
64/NP 823	30	-080	L. & C. Breton	0.11	0.11	0.22	500	4	504			504
64/NP 823	32	-081	L. & C. Breton	0.11	0.11	0.22	500	4	504			504
64/NP 823	31	-082	L. & C. Breton	0.11	0.11	0.22	500	4	504			504
64/NP 823	33	-083	E. Michaels Jr.	0.12	0.12	0.24	500	4	504			504
64/NP 823	34	-084	E. Michaels Jr.	0.12	0.12	0.24	500	4	504			504
64/NP 823	35	-084-01	W. Michaels	0.13	0.13	0.26	500	4	504			504
64/NP 823	36	-084-02	W. Michaels	0.11	0.11	0.22	500	4	504			504
64/NP 823	37	-085	J. & M. Metz	0.11	0.11	0.22	500	4	504			504
64/NP 823	38	-086	J. & M. Metz	0.13	0.13	0.26	500	4	504			504
64/NP 823	39	-087	R. Brady, B. Shepherd, H. Bove	0.30	0.30	0.60	500	10	510			510
64/NP 823	41	-088	J. & M. Stirling, M. Penny	0.17	0.17	0.34	500	6	506			506
64/NP 823	40	-089	R. Brady, B. Shepherd, H. Bove	0.17	0.17	0.34	500	6	506			506
48/NP 807	1, Pt 2	-090	R. Tait	0.20	0.20	0.05	100	1	101			101
48/NP 807	Pts 2 & 3	-091	G. & P. Pupo	0.10	0.10	0.03	100	0	100			100
48/NP 807	Pts 3 & 4	-092	L. & J. Lange	0.10	0.10	0.03	100	0	100			100
48/NP 807	Pts 4 & 5	-093	J. & M. Delmonte	0.11	0.11	0.03	100	0	100			100
48/NP 807	Pts 5 & 6	-094	F. & E. Haley	0.16	0.16	0.06	100	1	101			101
48/NP 807	Pt 6, 7	-095	J. & J. Gilson	0.13	0.13	0.03	100	0	100			100
48/NP 807	8, Pt 9	-096	E. & J. D'Agostino	0.23	0.23	0.09	100	1	101			101
48/NP 807	Pt 9, 10	-097	A. & G. Biasatti	0.11	0.11	0.03	100	0	100			100
48/NP 807	11	-098	Firelane 12 Properties Inc.	0.11	0.11	0.03	100	0	100			100
48/NP 807	12	-099	J. & R. Alexander	0.11	0.11	0.03	100	0	100			100
48/NP 807	13	-100	A. Ferraro & J. Marcella	0.17	0.17	0.07	100	1	101			101
48/NP 807	15	-101	J. & M. Larkin	0.11	0.11	0.03	100	0	100			100
48/NP 807	16	-102	G. & S. Hisrich	0.07	0.07	0.02	100	0	100			100
48/NP 807	17	-103	C. Felser	0.07	0.07	0.02	100	0	100			100
48/NP 807	18	-104	B. McDougall	0.07	0.07	0.02	100	0	100			100
48/NP 807	19	-105	C. Watson	0.07	0.07	0.02	100	0	100			100
48/NP 807	20	-106	R. Casey	0.06	0.06	0.02	100	0	100			100
48/NP 807	21	-107	W. & C. Filipiak	0.06	0.06	0.02	100	0	100			100
48/NP 807	22	-108	D. & C Palczynski	0.05	0.05	0.01	100	0	100			100
48/NP 807	23	-109	J. Wade	0.05	0.05	0.01	100	0	100			100
48/NP 807	24	-110	E. & A. Muratori	0.05	0.05	0.01	100	0	100			100
48/NP 807	25	-111	J. McNamara	0.04	0.04	0.01	100	0	100			100
48/NP 807	26	-112	D. & M. Tait	0.09	0.09	0.02	100	0	100			100
52/NP 811	28, Pt 29	-114	H. Alway	0.11	0.11	0.03	100	0	100			100
52/NP 811	Pt 29, 30	-116	D. & E. Tifickjian	0.11	0.11	0.03	100	0	100			100
52/NP 811	31	-117	D. Shonn & B. Perry Trustees	0.08	0.08	0.02	100	0	100			100
52/NP 811	32	-118	B. Palazzo	0.09	0.09	0.02	100	0	100			100
52/NP 811	33	-119	R. Peterson	0.08	0.08	0.02	100	0	100			100
52/NP 811	Pt 33	-120	J. Hoke & D. Betz	0.11	0.11	0.03	100	0	100			100
52/NP 811	Pt 33	-121	Stirling, Burghart, Tiebor-Franz	0.11	0.11	0.03	100	0	100			100
64	Pt 13	-121-04	J. & M. Marotta	0.40	0.40	0.10	100	2	102		50	52
52/NP 811	35	-122	C. Sauer	0.03	0.03	0.01	100	0	100			100

September 30, 1996

**SCHEDULE A - SCHEDULE OF ASSESSMENT FOR CONSTRUCTION  
BEARSS DRAIN & Wm. MICHAEL DRAIN - City of Port Colborne**

File No. 93029

Con	Lot	Roll No.	Owner	Parcel Size (Ha.)	Approx Ha Affected	Approx Ha Adjusted	Benefit	Outlet	Total	1/3 Grant	Allow.	NET
52/NP 811	37	-123	J. & K. Dietrich	0.15	0.15	0.04	100	1	101			101
52/NP 811	38	-124	J. & D. Kuhn Holdings	0.15	0.15	0.04	100	1	101			101
52/NP 811	39	-125	W. Carney	0.16	0.16	0.04	100	1	101			101
52/NP 811	38 & 39	-126	G. Gasparini & D. Leon-Gasparini	0.18	0.18	0.05	100	1	101			101
52/NP 811	41	-127	B. & A. Bagley	0.11	0.11	0.03	100	0	100			100
52/NP 811	42	-128	E. & A. Leon	0.22	0.22	0.06	100	1	101			101
52/NP 811	43	-129	D. Sherk	0.85	0.85	0.21	350	3	353		250	103
1	Pt 11	-231	J. & B. Yalowica	1.79	1.79	1.79		29	29			29
1	Pt 11	-232	D. MacVicar	0.81	0.81	1.62		26	26			26
1	Pt 11	-232-05	G. Symonds	0.60	0.60	1.20		20	20			20
1	Pt 11	-233	C. & J. McChesney	0.60	0.60	1.20		20	20			20
1	Pt 11	-234	D. Marr	0.81	0.81	1.62		26	26			26
1	Pt 11	-235	H. & D. Price	0.40	0.40	0.80		13	13			13
1	Pt 11	-236	K. Coopman	0.40	0.40	0.80		13	13			13
1	Pt 11	-237	R. & N. Horne	0.40	0.40	0.80		13	13			13
1	Pt 11	-238	B. & M. Graffi	0.81	0.81	1.62		26	26			26
1	Pt 11	-239	D. & R. Augustine	0.40	0.40	0.80		13	13			13
1	Pt 11	-240	R. Dyet	0.40	0.40	0.80		13	13			13
1	Pt 11	-241	A. & Y. Royal	0.81	0.81	1.62		26	26			26
1	Pt 11	-242	G. & B. Rukavina	0.40	0.40	0.80		13	13			13
1	Pt 11	-243	W. Patterson	0.40	0.40	0.80		13	13			13
1	Pt 11	-244	St. Johns Lutheran Parsonage	0.28	0.28	0.56		9	9			9
1	Pt 11	-245	St. Johns Lutheran Parsonage	0.25	0.25	0.50		8	8			8
1	Pt 11	-246	D. Arnold	0.22	0.22	0.44		7	7			7
1	Pt 11	-246-01	R. & E. Stark	0.22	0.22	0.44		7	7			7
1	Pt 11	-247	W. & F. Shaubel	0.34	0.34	0.68		11	11			11
1	Pt 11	-248	A. & N. Niece	0.48	0.48	0.96		16	16			16
* 1	Pt 11	-249	J. & M. Schutter	10.85	10.85	10.85		177	177	59		118
1	Pt 12	-250	R. Pietz & T. Gennings	0.38	0.38	0.76		12	12			12
1	Pt 12	-251	R. & A. Napper	0.42	0.42	0.84		14	14			14
1	Pt 12	-252	P. & T. Leavere	0.57	0.57	1.14		19	19			19
1	Pt 12	-253	W. & G. Price	0.12	0.12	0.24		4	4			4
1	Pt 12	-254	H. & C. Roy	0.12	0.12	0.24		4	4			4
1	Pt 12	-255	H. Adams	0.63	0.63	1.26		20	20			20
* 1	Pt 12	-256	J. Schutter	11.23	11.23	11.23		183	183	61		122
1	Pt 12	-257	W. Bodner	0.25	0.12	0.24		4	4			4
1	Pt 12	-258	J. Schutter & M. Lawrence	0.40	0.40	0.80		13	13			13
1	Pt 12	-259	L. DeLuca	0.27	0.27	0.54		9	9			9
1	Pt 12	-259-01	J. & S. McNay	0.25	0.25	0.50		8	8			8
1	Pt 12	-260	A. & H. Parker	0.15	0.15	0.30		5	5			5
2	Pt 9	-457	Consumers' Gas Co.	2.07	2.07	4.14		68	68			68
2	Pt 9	-458	I. Sibbald	0.28	0.28	0.56		9	9			9
* 2	Pt 9	-459	N. Vattamany	5.87	5.87	5.87		96	96	32		64
2	Pt 9	-460	J. & S. Michaud	0.31	0.31	0.62		10	10			10
* 2	Pt 9	-461	S. Crowe	4.38	4.38	4.38		71	71	24		47
* 2	Pt 9	-462	J. Schutter	28.17	28.17	28.17		460	460	153		307
* 2	Pts 9&10	-463	A. Veenstra	59.07	57.67	57.67		942	942	314		628
2	Pt 9	-464	J. & E. Rogers	0.36	0.18	0.36		6	6			6
2	Pt 9	-465	S. & J. Gillap	1.38	0.69	1.38		23	23			23
2	Pt 9	-465-01	J. & E. Rogers	0.42	0.42	0.84		14	14			14
* 2	Pt 9	-466	T. & K. Morningstar	2.95	2.95	2.95		48	48	16		32
2	Pt 9	-467	Port Colborne Dist. Cons. Club	9.11	9.11	9.11		149	149			149
2	Pt 10	-471	J. & E. Havlin	1.06	1.06	1.06		17	17			17
2	Pt 10	-471-04	E. Havlin	0.40	0.40	0.80		13	13			13
2	Pt 10	-472	O. & M. Meyer	0.65	0.65	1.30		21	21			21
2	Pt 10	-473	J. & B. Dyet	0.14	0.14	0.28		5	5			5
2	Pt 10	-474	J. & D. Fretz	0.11	0.11	0.22		4	4			4
2	Pt 10	-475	MTO	0.15	0.15	0.30		5	5			5
* 2	Pt 10	-476	R. & V. Shaubel	16.37	16.37	16.37		267	267	89		178
2	Pt 10	-477	W. Russell	0.30	0.30	0.60		10	10			10
2	Pt 11	-478	A. & A. Juhasz	0.38	0.38	0.76		12	12			12
2	Pt 11	-479	D. Smith	0.19	0.19	0.38		6	6			6
2	Pt 11	-480	C. & J. Mamo	0.21	0.21	0.42		7	7			7
* 2	Pt 11	-482	E. J. Ruston Management Inc.	8.69	8.69	8.69		142	142	47		95
2	Pt 11	-483	D. Baer	0.46	0.46	0.92		15	15			15
2	Pt 11	-484	E. Ott	0.13	0.13	0.26		4	4			4
* 2	Pt 11	-485	T. Pizzo	3.81	3.81	3.81		62	62	21		41
* 2	Pt 11	-486	J. & C. Pitney	4.05	4.05	4.05		66	66	22		44
* 2	Pt 11	-486-01	A. & J. Hlywka	4.25	4.25	4.25		69	69	23		46
* 2	Pt 11	-487	V. & D. Pascuzzi	2.10	2.10	2.10		34	34	11		23

September 30, 1996

**SCHEDULE A - SCHEDULE OF ASSESSMENT FOR CONSTRUCTION  
BEARSS DRAIN & Wm. MICHAEL DRAIN - City of Port Colborne**

File No. 93029

Con	Lot	Roll No.	Owner	Parcel Size (Ha.)	Approx Ha Affected	Approx Ha Adjusted	Benefit	Outlet	Total	1/3 Grant	Allow.	NET
* 2	Pt 11	-487-01	R. Bowslaugh & D. Haidon	1.99	1.99	1.99		32	32	11		21
* 2	Pt 12	-491	Z. Dumins	28.33	12.23	12.23		200	200	67		133
* 2	Pts 11&12	-491-01	A. Veenstra	53.80	24.63	24.63		402	402	134		268
2	Pt 12	-492	J. & A. Farkas	0.19	0.19	0.38		6	6			6
* 2	Pt 12	-493	G. Deleeuw	14.18	14.18	14.18		232	232	77		155
2	Pt 12	-493-01	M. & B. Cook	0.43	0.43	0.86		14	14			14
2	Pt 12	-493-08	J. & K. Kerekes	0.83	0.83	1.66		27	27			27
2	Pt 12	-493-09	J. & P. Buccione	0.58	0.58	1.16		19	19			19
2	Pt 12	-493-10	G. & J. Guillemette	0.36	0.36	0.72		12	12			12
2	Pt 12	-494	D. & J. Pigeon	0.08	0.08	0.16		3	3			3
2	Pt 12	-495	W. Sturman	1.61	1.61	1.61		26	26			26
2	Pt 12	-496	J. McLennan	0.35	0.35	0.70		11	11			11
2	Pt 12	-496-01	B. & C. Gillespie	0.53	0.53	1.06		17	17			17
2	Pt 12	-496-02	P. & V. Davis	0.57	0.57	1.14		19	19			19
			St. Johns Evangelical Lutheran Church Trustees	1.01	0.50	1.00		16	16			16
2	Pt 13	-501-02	K. & J. Snider	0.43	0.12	0.24		4	4			4
2	Pt 13	-502	R. & M. James	0.67	0.18	0.36		6	6			6
2	Pt 13	-503	J. & M. Dyet	0.43	0.12	0.24		4	4			4
		(04-06)										
* 2	Pt 7	-010	A. Veenstra	40.47	0.40	0.40		6	6	2		4
* 2	Pt 7	-011	H. Sonnenberg	2.51	2.51	2.51		41	41	14		27
* 2	Pt 7	-012	S. Yalowica	2.51	2.51	2.51		41	41	14		27
* 2	Pt 7	-013	C. & A. Doan	30.20	9.96	9.96		163	163	54		109
2	Pt 7	-014	J. & S. Healey	0.14	0.14	0.28		5	5			5
* 2	Pt 7	-015	H. Page	7.89	7.89	7.89		129	129	43		86
* 2	Pt 8	-016	R. & S. Young	39.26	34.40	34.40		562	562	187		375
2	Pt 8	-016-01	A. Clark	1.21	1.06	1.06		17	17			17
<b>Total Assessments on Lands:</b>					<b>929.34</b>	<b>1000.29</b>	<b>74,400</b>	<b>16,337</b>	<b>90,737</b>	<b>7,008</b>	<b>5,600</b>	<b>78,129</b>
Cedar Bay Road					0.35	1.10		18	18			18
Silver Bay Road					2.30	6.90		113	113			113
Wyldeewood Road					3.60	10.80	16,000	176	16,176			16,176
Michael Road					4.70	7.05		115	115			115
Empire Road (Reg. Rd 98)					3.10	9.30		152	152			152
Empire Road					0.80	2.40		39	39			39
Beach Road (Reg Rd 1)					0.50	1.50		24	24			24
Sherk Road					0.80	2.40		39	39			39
Brookfield Road					2.70	8.10		132	132			132
Troup Road					4.00	8.00		131	131			131
Clark Road					3.40	10.20		167	167			167
Neff Road					2.70	8.10		132	132			132
Wilhelm Road (Reg. Rd 98)					0.20	0.60		10	10			10
Sherkston Road					3.00	9.00		147	147			147
Hwy. No. 3					16.50	66.00		1,078	1,078			1,078
Mapleview Crescent					1.60	3.20		52	52			52
Service Road					0.50	1.00		16	16			16
Troop Avenue					0.80	0.80		13	13			13
Elmwood Avenue					0.20	0.20		3	3			3
C.N.R.					6.50	6.50		106	106			106
<b>Total Assessments on Roads:</b>					<b>58.25</b>	<b>163.15</b>	<b>16,000</b>	<b>2,663</b>	<b>18,663</b>			<b>18,663</b>
<b>TOTAL BEARSS DRAIN &amp; Wm. MICHAEL DRAIN:</b>					<b>987.59</b>	<b>1163.44</b>	<b>90,400</b>	<b>19,000</b>	<b>109,400</b>	<b>7,008</b>	<b>5,600</b>	<b>96,792</b>

## Notes:

- Lands noted with an asterisk are classified as agricultural in accordance with Section 37 of the Drainage Act.
- Section 21 of the Drainage Act, RSO 1990 requires that assessments be shown opposite each parcel of land and road affected. The affected parcels of land have been identified using the roll number from the last revised assessment roll for the City. For convenience only, the owners name as shown by the last revised assessment has also been included.

September 30, 1996

SCHEDULE B - SCHEDULE FOR FUTURE MAINTENANCE  
BEARSS DRAIN - City of Port Colborne

Con	Lot	Roll No.	Owner	BERM		MAIN DRAIN				WEST BR. EAST	NEFF BRANCH	
				East Bank	West Bank	000 to 161	161 to 512	512 to 1+272	1+272 to 1+929		000 to 1+219	1+219 to 1+732
		(04-01)										
* 1	Pts 3 & 4	-186	W. & C. McIntosh			176	176	0	0			
1	Pt 4	-186-01	Naymis Holdings Inc.			9	9	0	0			
1	Pt 4	-186-02	S. & B. Shisler			11	11	0	0			
1	Pt 4	-186-03	S. & B. Shisler			3	3	0	0			
1	Pt 4	-187	R. & P. De Clemente			7	7	0	0			
* 1	Pts 3 & 4	-202	D. Elmer			39	39	36	45		98	0
* 1	Pt 4	-203	E. Damude Estate			137	137	82	103		341	0
* 1	Pt 4	-204	R. & D. Damude			25	25	0	0			
* 1	Pt 4	-204-05	W. Wolff			79	79	69	87		197	0
1	Pt 4	-205	R. & I. Schultz			2	2	0	0			
1	Pt 4	-206	C. Skinner			2	2	0	0			
1	Pt 4	-207	J. & D. Priebe			13	13	0	0			
1	Pt 4	-224-01	G. Landry			15	15	8	10		37	0
1	Pt 4	-224-03	R. Damude Sr.			6	6	3	4		15	0
1	Pt 4	-225	R. & M. Damude			12	12	7	8		30	0
1	Pt 4	-226	D. & K. Lee			31	31	17	21		77	0
1	Pt 4	-227	M T O			33	33	22	27		82	0
1	Pt 4	-228	R. & P. Horton			7	7	4	5		18	0
1	Pt 4	-229	D. & F. Neff			11	11	6	8		29	0
1	Pt 4	-230	R. Howes			7	7	4	5		18	0
1	Pt 4	-231	P. & D. Ruston			16	16	9	11		40	0
1	Pt 4	-232	Grace United Brethren Church			30	30	21	27		49	0
1	Pt 4	-233	Grace United Brethren Church			13	13	0	0			
1	Pt 4	-234	A. Schofield			17	17	0	0			
1	Pt 4	-234-01	Sherkston Resorts Inc.			9	9	0	0			
1	Pt 4	-234-02	Sherkston Resorts Inc.			11	11	0	0			
1	Pt 4	-234-10	Sherkston Family Go-Carts Ltd.			52	52	0	0			
* 1	Pt 4	-235	A. Dipetta			5	5	0	0			
1	Pt 4	-236	R. & D. Damude			61	61	0	0			
1	Pt 4	-237	D. & L. Young			15	15	0	0			
1	Pt 4	-237-01	E. Quesnel			6	6	0	0			
1	Pt 4	-237-02	667080 Ontario Ltd.			9	9	0	0			
1	Pt 4	-238	L. & J. Simmonds			5	5	0	0			
* 1	Pt 4	-239	T. & S. Shisler			42	42	0	0			
1	Pt 4	-240	J. & C. Kelba			12	12	0	0			
1	Pt 4	-241	M. Shisler			8	8	0	0			
1	Pt 4	-241-01	L. & M. Ford			5	5	0	0			
1	Pt 4	-242	G. & T. Shisler			14	14	0	0			
1	Pt 4	-243	J. Shisler			13	13	0	0			
1	Pt 4	-243-01	K. & G. Shisler			18	18	0	0			
1	Pt 4	-244	G. & J. Shisler			15	15	0	0			
1	Pt 4	-246	Sherkston Resorts Inc.	500		679	679	0	0			
1	Pt 5	-256	E. Schatzline			13	13	0	0			
1	Pt 5	-259	D. Moore			22	22	0	0			
1	Pt 5	-261	G. & G. Rizzi			12	12	0	0			
68/NP 827	1	-262	W. & C. Tweedy			6	6	0	0			
68/NP 827	2	-264	M. Vanderhorst			6	6	0	0			
68/NP 827	Pt 4	-265	M. Vanderhorst			3	3	0	0			
68/NP 827	3	-266	D. & W. Wagner			16	16	0	0			
68/NP 827	Pts 4 & 5	-267	E. Landry			4	4	0	0			
68/NP 827	Pt 5	-268	E. & G. Landry			2	2	0	0			
68/NP 827	Pt 6	-269	H. McCrea			2	2	0	0			
68/NP 827	Pts 6 & 7	-270	F. Filipowicz			6	6	0	0			
68/NP 827	Pt 7	-271	R. Dagenais			2	2	0	0			
68/NP 827	Pt 8	-272	R. Dagenais			2	2	0	0			
68/NP 827	Pts 8 & 9	-273	D. Haun & A. Shipp			6	6	0	0			
68/NP 827	Pts 9&10	-274	P. Vullo			5	5	0	0			
68/NP 827	11, Pt 10	-275	M. Toth & K. McConnelly			7	7	0	0			
68/NP 827	12	-276	G. Wilamowski			5	5	0	0			
68/NP 827	13	-277	G. Wilamowski			5	5	0	0			
68/NP 827	14	-278	D. & A. Green			7	7	0	0			
68/NP 827	15 & 16	-279	G. Shaubel			9	9	0	0			
68/NP 827	17	-280	D. Schneegold			5	5	0	0			
68/NP 827	18 & 19	-281	K. & J. Shisler			9	9	0	0			

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SCHEDULE B - SCHEDULE FOR FUTURE MAINTENANCE  
BEARSS DRAIN - City of Port Colborne

Con	Lot	Roll No.	Owner	BERM		MAIN DRAIN				WEST BR. EAST	NEFF BRANCH	
				East Bank	West Bank	000 to 161	161 to 512	512 to 1+272	1+272 to 1+929		000 to 1+219	1+219 to 1+732
68/NP 827	Pt 20	-283	J. & M. Kish			4	4	0	0			
68/NP 827	21, Pt 20	-284	J. Davies			7	7	0	0			
68/NP 827	22	-285	S. Brown			5	5	0	0			
68/NP 827	23	-286	J. & K. Paonessa			5	5	0	0			
68/NP 827	24	-287	R. Murrell			5	5	0	0			
68/NP 827	25	-288	R. Murrell			5	5	0	0			
68/NP 827	26, 29	-289	K. Graham & K. Hart			9	9	0	0			
68/NP 827	27	-290	R. Gesl			5	5	0	0			
68/NP 827	28	-291	J. & L. Benner			5	5	0	0			
68/NP 827	30	-292	R. Knapp & J. Warrinton			5	5	0	0			
68/NP 827	31	-293	B. & I. Booth			5	5	0	0			
68/NP 827	32	-294	C. & C. Jr. Thomson			5	5	0	0			
68/NP 827	33	-295	E. Whalen			5	5	0	0			
68/NP 827	Pt 21	-296	R. & I. Stickles			6	6	0	0			
1	Pt 5	-297	L. Pirson			7	7	0	0			
1	Pt 5	-298	C. Gobeil			5	5	0	0			
1	Pt 5	-299	L. & D. Pirson			5	5	0	0			
1	Pt 5	-300	L. & D. Pirson			5	5	0	0			
1	Pt 5	-301	L. Pirson			9	9	0	0			
1	Pt 5	-302	J. Callahan			3	3	0	0			
1	Pt 5	-303	D. Potter			3	3	0	0			
1	Pt 5	-304	M. Conroy			10	10	0	0			
1	Pt 5	-305	R. Wilson			8	8	0	0			
1	Pt 5	-306	A. Sevenpifer			5	5	0	0			
1	Pt 5	-307	M. Zarb			9	9	0	0			
1	Pt 5	-308	T. & K. Kozar			4	4	0	0			
1	Pt 5	-309	T. & K. Kozar			4	4	0	0			
1	Pt 5	-310	D., J. & R. Tait Trustee			37	37	0	0			
1	Pt 5	-311	G. Shaubel			21	21	0	0			
1	Pt 5	-312	C. & N. Stewart			7	7	0	0			
1	Pt 5	-313	R. Schymura			4	4	0	0			
1	Pt 5	-314	K. & D. Schertzing			5	5	0	0			
1	Pt 5	-315	R. Smith			13	13	0	0			
1	Pt 5	-316	S. & J. Dykstra			29	29	0	0			
* 1	Pt 5	-317	D. Tait			278	278	86	105		192	0
1	Pt 5	-317-01	Port Colborne City			17	17	18	0			
1	Pt 5	-318	D. & H. Jamieson			13	13	15	0			
1	Pt 5	-318-01	D. & M. Valeriote			14	14	15	0			
* 1	Pt 5	-319	G. & E. Foss			63	63	68	67		122	0
* 1	Pt 5	-320	K. Faragalli			95	95	103	89		163	0
* 1	Pt 5	-320-05	D. & L. Young			254	254	76	0			
1	Pt 6	-321	J. & M. Heil			9	9	5	4		13	0
1	Pt 6	-322	J. Elsie			9	9	5	4		13	0
1	Pt 6	-323	M. & P. Fitzgerald			15	15	16	18		33	0
1	Pt 6	-324	L. & P. Charlebois			16	16	9	11		39	0
* 1	Pt 6	-325	W. & J. Huibers			127	127	140	0			
* 1	Pt 6	-325-30	C. & J. Armstrong			132	132	0	0			
* 1	Pt 6	-326	D. & V. Graham			145	145	160	69		126	0
1	Pt 6	-326-01	B. Dayboll & L. Bell			11	11	6	2		8	0
1	Pt 6	-326-02	Telesis Oil and Gas			13	13	0	0			
1	Pts 5 & 6	-326-03	Sherkston Resorts Inc.			677	677	0	0			
1	Pt 5	-327	Pembina Exploration			13	13	7	0			
* 1	Pt 5	-328	L. Standing			21	21	12	15		54	0
* 1	Pts 6 & 7	-329	D. Michael			903	903	262	0			
1	Pt 7	-330	D. & D. Michael			20	20	22	0			
1	Pt 7	-331	Telesis Oil & Gas Ltd.			1	1	0	0			
* 1	Pt 7	-332	J. & M. Quesnel			641	641	0	0			
1	Pt 7	-333	W., J., W. & R. Huibers			21	21	12	0			
1	Pt 7	-333-05	E. & J. Balogh			21	21	11	0			
1	Pt 7	-334	R. & K. Toepp			20	20	11	0			
1	Pt 7	-335	J. & L. Terreberry			11	11	6	0			
1	Pt 7	-336	N. & N. Collin			16	16	9	0			
1	Pt 7	-337	L. & D. Caira			17	17	9	0			
1	Pt 8	-338	M. & L. Soucy			12	12	7	0			
* 1	Pt 8	-339	W. & D. Kromkamp			81	81	88	0			

Handwritten notes in yellow box:  
 3227 changed  
 1400-3100  
 21001-3710  
 90 + 1 = 91  
 90 + 0 = 90  
 90 + 0 = 90

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SCHEDULE B - SCHEDULE FOR FUTURE MAINTENANCE  
BEARSS DRAIN - City of Port Colborne

Con	Lot	Roll No.	Owner	BERM		MAIN DRAIN				WEST BR. EAST	NEFF BRANCH	
				East Bank	West Bank	000 to 161	161 to 512	512 to 1+272	1+272 to 1+929		000 to 1+219	1+219 to 1+732
1	Pt 8	-340	G. & L. Caverly			19	19	10	0			
1	Pt 8	-341	G. & E. Zavitz			23	23	13	0			
* 1	Pt 8	-341-01	A. & K. Buttigieg			248	248	57	0			
1	Pt 8	-342	C. & I. Sauer			13	13	7	0			
1	Pt 8	-343	T. & B. Molenaar			12	12	6	0			
1	Pt 8	-344	M. & S. King			3	3	2	0			
* 1	Pt 8	-345	J. & B. Lambie			73	73	79	0			
* 1	Pt 8	-346	A. & C. Domenicucci			81	81	0	0			
* 1	Pt 8	-347	J. & H. Fang			100	100	109	0			
* 1	Pt 8	-347-01	N. Labine & V. Fleming			69	69	0	0			
* 1	Pt 8	-348	F. & D. Seabourne			69	69	0	0			
1	Pt 8	-349	D. Lush	500		5	5	0	0			
1	Pt 8	-349-01	H. Szachnicwicz	500		5	5	0	0			
1	Pt 8	-349-02	D. Kirsch	500		5	5	0	0			
1	Pt 8	-349-03	A. Szota	500		5	5	0	0			
1	Pt 8	-349-04	S. Szota	500		5	5	0	0			
1	Pt 8	-349-06	N. Fletcher	500		5	5	0	0			
1	Pt 8	-349-08	L. Gaboury	500		4	4	0	0			
1	Pt 8	-349-10	G. Cameron	500		4	4	0	0			
1	Pt 8	-349-12	J. Young in Trust	500		4	4	0	0			
1	Pt 8	-350	P. Gaboury (Firelane 13)	500		51	51	0	0			
1	Pt 8	-351	J. Paterno	500		5	5	0	0			
1	Pt 8	-352	R. & G. McDonald	500		5	5	0	0			
1	Pt 8	-353	R. McDonald	500		5	5	0	0			
1	Pt 8	-353-02	R. Gaboury	500		5	5	0	0			
1	Pt 8	-353-04	P. Gaboury	500		5	5	0	0			
1	Pt 8	-353-06	R. Gaboury	500		5	5	0	0			
1	Pt 8	-354	D. Schneider	500		6	6	0	0			
1	Pt 8	-355	H. & C. Sammut	500		6	6	0	0			
1	Pt 8	-356	T. & I. Mendy	500		12	12	0	0			
1	Pt 8	-357	K. Sommerville	500		6	6	0	0			
1	Pt 8	-358	P. & M. Guzda	500		6	6	0	0			
1	Pt 8	-359	J. & S. Christiano	500		6	6	0	0			
1	Pt 8	-360	A. Irwin	500		6	6	0	0			
1	Pt 8	-361	L. Wiens	500		4	4	0	0			
1	Pt 8	-362	S. & J. Ryskalczyk	500		4	4	0	0			
1	Pt 8	-363	A. & H. Sherk	500		7	7	0	0			
1	Pt 8	-364	S. Bolguroff	500		4	4	0	0			
1	Pt 8	-365	R. & M. Arndt	500		5	5	0	0			
1	Pt 8	-366	G. Mannell	500		5	5	0	0			
1	Pt 8	-367	K. & L. Mizstal	500		5	5	0	0			
1	Pt 8	-367-01	M. Ravazzolo	500		9	9	0	0			
1	Pt 8	-367-02	H. & C. Groh	500		5	5	0	0			
1	Pt 8	-367-03	K. Mizstal	500		5	5	0	0			
1	Pt 8	-367-04	N. Fletcher	500		5	5	0	0			
1	Pt 8	-367-05	D. Fletcher	500		5	5	0	0			
1	Pt 8	-367-06	I. Yakobchuck	500		5	5	0	0			
1	Pt 8	-367-07	R. & L. Szymanski	500		5	5	0	0			
1	Pt 8	-368	N. Fletcher	500		4	4	0	0			
1	Pt 8	-368-02	D. Fletcher	500		4	4	0	0			
1	Pt 8	-368-04	N. Fletcher	500		4	4	0	0			
1	Pt 8	-368-06	D. Fletcher	500		4	4	0	0			
1	Pt 8	-369	R. Ravazzola	500		4	4	0	0			
1	Pt 8	-369-02	M. Ravazzola	500		4	4	0	0			
1	Pt 8	-369-04	D. Fletcher	500		4	4	0	0			
1	Pt 8	-369-06	J. Young in Trust	500		4	4	0	0			
1	Pt 8	-369-08	G. Cameron	500		4	4	0	0			
1	Pt 8	-370	R. Szymanski	500		5	5	0	0			
1	Pt 8	-370-02	N. Fletcher	500		6	6	0	0			
1	Pt 8	-371	J. Biatosik	500		5	5	0	0			
1	Pt 5	-372	J. Ivancie	500		4	4	0	0			
1	Pt 5	-373	A. Gugolz	500		4	4	0	0			
1	Pt 5	-375	F. Bundt	500		20	20	0	0			
1	Pt 5	-376	662665 Ontario Ltd.	500		5	5	0	0			
1	Pt 5	-376-01	662665 Ontario Ltd.			1	1	0	0			



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SCHEDULE B - SCHEDULE FOR FUTURE MAINTENANCE  
BEARSS DRAIN - City of Port Colborne

Con	Lot	Roll No.	Owner	BERM		MAIN DRAIN				WEST BR. EAST	NEFF BRANCH	
				East Bank	West Bank	000 to 161	161 to 512	512 to 1+272	1+272 to 1+929		000 to 1+219	1+219 to 1+732
1	Pt 5	-376-02	662665 Ontario Ltd.			1	1	0	0			
1	Pt 5	-376-03	662665 Ontario Ltd.			2	2	0	0			
1	Pt 5	-377	662665 Ontario Ltd.	500		1	1	0	0			
1	Pt 5	-378	W. Brothers	500		22	22	0	0			
1	Pt 5	-379	C. Smith	500		6	6	0	0			
* 2	Pt 4	-388-01	M. Koudis			13	13	25	31		33	0
* 2	Pts 5 & 6	-390	E. & J. Helstab			66	66	117	147		165	0
* 2	Pt 6	-393	G. & N. Cosby			231	231	246	309		677	2,359
2	Pt 7	-394	T. & D. Hall			12	12	7	8		131	200
* 2	Pt 7	-395	P. & J. Smith			41	41	45	57		49	0
2	Pt 7	-395-01	G. Jiges & A. Henry			31	31	34	43			
2	Pt 7	-396	W. & A. Scott			46	46	50	63		916	0
* 2	Pt 7	-397	R. Grimes			469	469	512	642		546	0
* 2	Pt 8	-397-10	R. Grimes			177	177	193	242			
2	Pt 8	-398	K. & J. Niece			25	25	14	17			
* 2	Pt 8	-399	B. & E. Jones			64	64	69	87		82	0
* 2	Pt 8	-400	A. & E. Caira			59	59	65	81		648	0
* 2	Pt 8	-401	S. & S. Adamec			331	331	360	452		797	0
		(04-02)										
1	Pt 9	-001	G. Maxwell & T. Collins	500		12	0	0	0			
1	Pt 9	-002	T. & M. Illig	500		2	0	0	0			
1	Pt 9	-003	J. DiBellonia	500		2	0	0	0			
1	Pt 9	-004	B. O'Hear	500		2	0	0	0			
49	1	-005	W. & P. Kraft	500		4	0	0	0			
49	2	-006	J. Schott	500		2	0	0	0			
49	3	-007	L. DiBellonia	500		2	0	0	0			
49	5-8	-008	J. Lamacraft	500		7	0	0	0			
49	9	-009	R. Gartler	500		2	0	0	0			
49	4	-010	A. Henderson & S. Lewis	500		3	0	0	0			
1	Pt 9	-011	G. Guzda	500		3	3	0	0			
1	Pt 9	-012	S. McConvey	500		2	2	0	0			
1	Pt 9	-013	P. & K. Richter	500		3	3	0	0			
1	Pt 9	-014	M. Thielman	500		3	3	0	0			
1	Pt 9	-015	J. & V. Blind	500		3	3	0	0			
1	Pt 9	-016	C. Rafter	500		2	2	0	0			
1	Pt 9	-017	M. Duquette	500		2	2	0	0			
1	Pt 9	-018	C. Rafter	500		3	3	0	0			
1	Pt 9	-019	K. Broda	500		5	5	0	0			
1	Pt 9	-020	E. Dolan	500		7	7	0	0			
1	Pt 9	-021	G. Stachowski	500		5	5	0	0			
1	Pt 9	-022	J. Ivancie	500		5	5	0	0			
* 1	Pt 9	-023	D. & B. Wilson	500		219	219	0	0			
* 1	Pt 9	-023-01	R. Michael			33	33	36	0			
* 1	Pt 9	-023-02	S. & M. Schneider			59	59	36	0			
* 1	Pt 9	-023-03	H. & W. Gorbach			59	59	65	0			
* 1	Pt 9	-024	R. & E. Benner			357	357	1,357	0			
* 1	Pt 9	-025	S. & A. Rowland			83	83	90	220			
* 1	Pt 9	-026	H. & R. Tenden			79	79	87	9			
1	Pt 9	-026-01	P. & J. Provencal			13	13	7	0			
58/NP 817	1	-027	C. & A. Ferland			5	5	3	0			
58/NP 817	2 & 3	-028	A. Minor			9	9	5	0			
58/NP 817	4	-029	L. & L. Minor			5	5	2	0			
58/NP 817	5	-030	L. & L. Minor			5	5	2	0			
* 1	Pt 9	-030-01	H. Finlayson			55	55	59	629			
58/NP 817	Pt 6	-030-05	M. & S. Fretz			13	13	7	0			
58/NP 817	6	-031	M. Fretz			14	14	7	0			
58/NP 817	7 & 8	-032	M. Winker			14	14	7	9			
58/NP 817	9	-033	M. Winker			7	7	4	5			
58/NP 817	10	-034	L. & M. Borgatti			7	7	4	5			
58/NP 817	11 & 12	-035	A. Burechailo			14	14	7	9			
58/NP 817	13	-036	L. & F. Dayboll			8	8	4	5			
58/NP 817	14	-037	J. & W. Getchell			11	11	6	8			
58/NP 817	15	-038	D. Azzopardi			19	19	11	43			
58/NP 817	16	-039	J. Azzopardi			21	21	12	55			
58/NP 817	16	-040	S. & L. Heaslip			12	12	7	38			

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**SCHEDULE B - SCHEDULE FOR FUTURE MAINTENANCE**  
**BEARSS DRAIN - City of Port Colborne**

Con	Lot	Roll No.	Owner	BERM		MAIN DRAIN				WEST BR. EAST	NEFF BRANCH	
				East Bank	West Bank	000 to 161	161 to 512	512 to 1+272	1+272 to 1+929		000 to 1+219	1+219 to 1+732
1	Pt 9	-041	E. & J. Borg			12	12	7	8			
* 1	Pt 10	-042	W. & N. Blaine			197	197	214	1,700			
1	Pt 10	-043	T. Daudelin			5	5	3	3			
* 1	Pt 10	-044	R. & P. Stretton			114	114	124	34			
1	Pt 10	-045	A. & A. Correia			32	32	17	22			
1	Pt 10	-045-05	St. Johns Lutheran Parsonage			10	10	6	7			
* 1	Pt 10	-046	A. & G. Azzopardi			40	40	44	43			
* 1	Pt 10	-047	P. & P. Opdam			293	293	2,851	0	100		
1	Pt 10	-048	V. Heil			8	8	0	0	100		
* 1	Pt 10	-049	N. Symonds			54	54	48	0	100		
1	Pt 10	-049-01	C. Coert			6	6	0	0	100		
* 1	Pt 10	-049-02	B. & P. Symonds			65	65	64	0	100		
* 1	Pt 10	-050	T. Benner & M. Mink			50	50	22	0	100		
1	Pt 10	-050-01	B. Bussi & W. Dykstra		500	26	0	0	0	100		
1	Pt 10	-050-?	B. Bussi & W. Dykstra		500	26	0	0	0	100		
* 1	Pt 10	-051	R. & J. Hilborn			103	103	0	0	100		
1	Pt 10	-052	J. Cochrane		500	2	0	0	0	100		
1	Pt 10	-053	J. Pusztay		500	3	0	0	0	100		
1	Pt 10	-054	F. & E. Shandala		500	4	0	0	0	100		
1	Pt 10	-055	J. & D. Marino		500	2	0	0	0	100		
1	Pt 10	-056	L. & J. Shipperbottom		500	15	0	0	0	100		
1	Pt 10	-057	J. & C. Cruz		50	2	0	0	0	50		
1	Pt 10	-057-05	J. & C. Cruz		50	5	0	0	0	50		
64/NP 823	1 & 2	-057-10	W. McDougall		500	6	0	0	0	100		
64/NP 823	3	-058	W. & B. McDougall		500	3	0	0	0	100		
64/NP 823	4	-058-01	J. & E. Seemueller		500	3	0	0	0	100		
64/NP 823	5	-058-02	A. & F. Zaidel		500	3	0	0	0	100		
64/NP 823	6	-059	M. & K. Maher		500	4	0	0	0	100		
64/NP 823	Pts 7 & 8	-060	M. Albee		500	6	0	0	0	100		
64/NP 823	Pt 8, 9	-060-01	R. & R. Durdan		500	3	0	0	0	100		
64/NP 823	10	-061	R. & R. Durdan		500	3	0	0	0	100		
64/NP 823	11	-062	J. & J. Bellonte		500	4	0	0	0	100		
64/NP 823	12	-063	J. & J. Bellonte		500	3	0	0	0	100		
64/NP 823	14 & 15	-066	M. & W. Parker		500	8	0	0	0	100		
64/NP 823	16 & 17	-067	J. Harrison		500	8	0	0	0	100		
64/NP 823	18	-068	B. & M. Moore		500	4	0	0	0	100		
64/NP 823	19	-069	D. Fabian & L. Lannan		500	4	0	0	0	100		
64/NP 823	20	-070	A. Commodore		500	4	0	0	0	100		
64/NP 823	21	-071	A. Commodore		500	4	0	0	0	100		
64/NP 823	22	-072	J. & J. Bellonte		500	4	0	0	0	100		
64/NP 823	23	-073	S. Stirling		500	4	0	0	0	100		
64/NP 823	24	-075	R. Moore		500	6	0	0	0	100		
64/NP 823	26	-076	A. Moore & M. McAnulty		500	3	0	0	0	100		
64/NP 823	Pt 24, 27	-077	M. Stirling		500	5	0	0	0	100		
64/NP 823	28	-078	A. & C. Baker		500	4	0	0	0	100		
64/NP 823	29	-079	A. & C. Baker		500	4	0	0	0	100		
64/NP 823	30	-080	L. & C. Breton		500	4	0	0	0	100		
64/NP 823	32	-081	L. & C. Breton		500	4	0	0	0	100		
64/NP 823	31	-082	L. & C. Breton		500	4	0	0	0	100		
64/NP 823	33	-083	E. Michaels Jr.		500	4	0	0	0	100		
64/NP 823	34	-084	E. Michaels Jr.		500	4	0	0	0	100		
64/NP 823	35	-084-01	W. Michaels		500	4	0	0	0	100		
64/NP 823	36	-084-02	W. Michaels		500	4	0	0	0	100		
64/NP 823	37	-085	J. & M. Metz		500	4	0	0	0	100		
64/NP 823	38	-086	J. & M. Metz		500	4	0	0	0	100		
64/NP 823	39	-087	R. Brady, B. Shepherd, H. Bove		500	10	0	0	0	100		
64/NP 823	41	-088	J. & M. Stirling, M. Penny		500	6	0	0	0	100		
64/NP 823	40	-089	R. Brady, B. Shepherd, H. Bove		500	6	0	0	0	100		
48/NP 807	1, Pt 2	-090	R. Tait		100	1	0	0	0	100		
48/NP 807	Pts 2 & 3	-091	G. & P. Pupo		100	0	0	0	0	100		
48/NP 807	Pts 3 & 4	-092	L. & J. Lange		100	0	0	0	0	100		
48/NP 807	Pts 4 & 5	-093	J. & M. Delmonte		100	0	0	0	0	100		
48/NP 807	Pts 5 & 6	-094	F. & E. Haley		100	1	0	0	0	100		
48/NP 807	Pt 6, 7	-095	J. & J. Gilson		100	0	0	0	0	100		
48/NP 807	8, Pt 9	-096	E. & J. D'Agostino		100	1	0	0	0	100		

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**SCHEDULE B - SCHEDULE FOR FUTURE MAINTENANCE**  
**BEARSS DRAIN - City of Port Colborne**

Con	Lot	Roll No.	Owner	BERM		MAIN DRAIN				WEST BR. EAST	NEFF BRANCH	
				East Bank	West Bank	000 to 161	161 to 512	512 to 1+272	1+272 to 1+929		000 to 1+219	1+219 to 1+732
48/NP 807	Pt 9, 10	-097	A. & G. Biasatti		100	0	0	0	0	100		
48/NP 807	11	-098	Firelane 12 Properties Inc.		100	0	0	0	0	100		
48/NP 807	12	-099	J. & R. Alexander		100	0	0	0	0	100		
48/NP 807	13	-100	A. Ferraro & J. Marcella		100	1	0	0	0	100		
48/NP 807	15	-101	J. & M. Larkin		100	0	0	0	0	100		
48/NP 807	16	-102	G. & S. Hisrich		100	0	0	0	0	100		
48/NP 807	17	-103	C. Felser		100	0	0	0	0	100		
48/NP 807	18	-104	B. McDougall		100	0	0	0	0	100		
48/NP 807	19	-105	C. Watson		100	0	0	0	0	100		
48/NP 807	20	-106	R. Casey		100	0	0	0	0	100		
48/NP 807	21	-107	W. & C. Filipiak		100	0	0	0	0	100		
48/NP 807	22	-108	D. & C Palczynski		100	0	0	0	0	100		
48/NP 807	23	-109	J. Wade		100	0	0	0	0	100		
48/NP 807	24	-110	E. & A. Muratori		100	0	0	0	0	100		
48/NP 807	25	-111	J. McNamara		100	0	0	0	0	100		
48/NP 807	26	-112	D. & M. Tait		100	0	0	0	0	100		
52/NP 811	28, Pt 29	-114	H. Alway		100	0	0	0	0	100		
52/NP 811	Pt 29, 30	-116	D. & E. Tiftickjian		100	0	0	0	0	100		
52/NP 811	31	-117	D. Shonn & B. Perry Trustees		100	0	0	0	0	100		
52/NP 811	32	-118	B. Palazzo		100	0	0	0	0	100		
52/NP 811	33	-119	R. Peterson		100	0	0	0	0	100		
52/NP 811	Pt 33	-120	J. Hoke & D. Betz		100	0	0	0	0	100		
52/NP 811	Pt 33	-121	Stirling, Burghart, Tiebor-Franz		100	0	0	0	0	100		
52/NP 811	64 Pt 13	-121-04	J. & M. Marotta		100	2	0	0	0	100		
52/NP 811	35	-122	C. Sauer		100	0	0	0	0	100		
52/NP 811	37	-123	J. & K. Dietrich		100	1	0	0	0	100		
52/NP 811	38	-124	J. & D Kuhn Holdings		100	1	0	0	0	100		
52/NP 811	39	-125	W. Carney		100	1	0	0	0	100		
52/NP 811	38 & 39	-126	G. Gasparini & D.Leon-Gasparini		100	1	0	0	0	100		
52/NP 811	41	-127	B. & A. Bagley		100	0	0	0	0	100		
52/NP 811	42	-128	E. & A. Leon		100	1	0	0	0	100		
52/NP 811	43	-129	D. Sherk		100	3	0	0	0	100		
1	Pt 11	-231	J. & B. Yalowica			29	29	32	0			
1	Pt 11	-232	D. MacVicar			26	26	14	0			
1	Pt 11	-232-05	G. Symonds			20	20	11	0			
1	Pt 11	-233	C. & J. McChesney			20	20	11	0			
1	Pt 11	-234	D. Marr			26	26	14	0			
1	Pt 11	-235	H. & D. Price			13	13	7	0			
1	Pt 11	-236	K. Coopman			13	13	7	0			
1	Pt 11	-237	R. & N. Horne			13	13	7	0			
1	Pt 11	-238	B. & M. Graffi			26	26	14	0			
1	Pt 11	-239	D. & R. Augustine			13	13	7	0			
1	Pt 11	-240	R. Dyet			13	13	7	0			
1	Pt 11	-241	A. & Y. Royal			26	26	14	0			
1	Pt 11	-242	G. & B. Rukavina			13	13	7	0			
1	Pt 11	-243	W. Patterson			13	13	7	0			
1	Pt 11	-244	St. Johns Lutheran Parsonage			9	9	5	0			
1	Pt 11	-245	St. Johns Lutheran Parsonage			8	8	4	0			
1	Pt 11	-246	D. Arnold			7	7	4	0			
1	Pt 11	-246-01	R. & E. Stark			7	7	4	0			
1	Pt 11	-247	W. & F. Shaubel			11	11	6	0			
1	Pt 11	-248	A. & N. Niece			16	16	9	0			
* 1	Pt 11	-249	J. & M. Schutter			177	177	193	0			
1	Pt 12	-250	R. Pietz & T. Gennings			12	12	7	0			
1	Pt 12	-251	R. & A. Napper			14	14	7	0			
1	Pt 12	-252	P. & T. Leavere			19	19	10	0			
1	Pt 12	-253	W. & G. Price			4	4	2	0			
1	Pt 12	-254	H. & C. Roy			4	4	2	0			
1	Pt 12	-255	H. Adams			20	20	11	0			
* 1	Pt 12	-256	J. Schutter			183	183	200	0			
1	Pt 12	-257	W. Bodner			4	4	4	0			
1	Pt 12	-258	J. Schutter & M. Lawrence			13	13	7	0			
1	Pt 12	-259	L. DeLuca			9	9	5	0			
1	Pt 12	-259-01	J. & S. McNay			8	8	4	0			
1	Pt 12	-260	A. & H. Parker			5	5	3	0			

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**SCHEDULE B - SCHEDULE FOR FUTURE MAINTENANCE  
BEARSS DRAIN - City of Port Colborne**

Con	Lot	Roll No.	Owner	BERM		MAIN DRAIN				WEST BR. EAST	NEFF BRANCH	
				East Bank	West Bank	000 to 161	161 to 512	512 to 1+272	1+272 to 1+929		000 to 1+219	1+219 to 1+732
2	Pt 9	-457	Consumers' Gas Co.			68	68	37	46		50	
2	Pt 9	-458	I. Sibbald			9	9	5	6		123	0
* 2	Pt 9	-459	N. Vattamany			96	96	104	131		619	0
2	Pt 9	-460	J. & S. Michaud			10	10	6	7		25	0
* 2	Pt 9	-461	S. Crowe			71	71	78	98			
* 2	Pt 9	-462	J. Schutter			460	460	501	629		283	0
* 2	Pts 9&10	-463	A. Veenstra			942	942	1,012	1,270			
2	Pt 9	-464	J. & E. Rogers			6	6	3	4			
2	Pt 9	-465	S. & J. Gillap			23	23	5	6			
2	Pt 9	-465-01	J. & E. Rogers			14	14	7	9			
* 2	Pt 9	-466	T. & K. Morningstar			48	48	53	66			
2	Pt 9	-467	Port Colborne Dist. Cons. Club			149	149	163	205			
2	Pt 10	-471	J. & E. Havlin			17	17	19	23			
2	Pt 10	-471-04	E. Havlin			13	13	7	9			
2	Pt 10	-472	O. & M. Meyer			21	21	12	15			
2	Pt 10	-473	J. & B. Dyet			5	5	2	3			
2	Pt 10	-474	J. & D. Fretz			4	4	2	2			
2	Pt 10	-475	MTO			5	5	3	3			
* 2	Pt 10	-476	R. & V. Shaubel			267	267	291	366			
2	Pt 10	-477	W. Russell			10	10	5	7			
2	Pt 11	-478	A. & A. Juhasz			12	12	7	8			
2	Pt 11	-479	D. Smith			6	6	3	4			
2	Pt 11	-480	C. & J. Mamo			7	7	4	5			
* 2	Pt 11	-482	E. J. Ruston Management Inc.			142	142	155	194			
2	Pt 11	-483	D. Baer			15	15	8	10			
2	Pt 11	-484	E. Ott			4	4	2	3			
* 2	Pt 11	-485	T. Pizzo			62	62	68	85			
* 2	Pt 11	-486	J. & C. Pitney			66	66	72	90			
* 2	Pt 11	-486-01	A. & J. Hlywka			69	69	76	95			
* 2	Pt 11	-487	V. & D. Pascuzzi			34	34	37	47			
* 2	Pt 11	-487-01	R. Bowslaugh & D. Haidon			32	32	35	44			
* 2	Pt 12	-491	Z. Dumins			200	200	218	273			
* 2	Pts 11&12	-491-01	A. Veenstra			402	402	438	550			
2	Pt 12	-492	J. & A. Farkas			6	6	3	4			
* 2	Pt 12	-493	G. Deleeuw			232	232	252	317			
2	Pt 12	-493-01	M. & B. Cook			14	14	8	10			
2	Pt 12	-493-08	J. & K. Kerekes			27	27	15	19			
2	Pt 12	-493-09	J. & P. Buccione			19	19	10	13			
2	Pt 12	-493-10	G. & J. Guillemette			12	12	6	8			
2	Pt 12	-494	D. & J. Pigeon			3	3	1	2			
2	Pt 12	-495	W. Sturman			26	26	29	36			
2	Pt 12	-496	J. McLennan			11	11	6	8			
2	Pt 12	-496-01	B. & C. Gillespie			17	17	9	12			
2	Pt 12	-496-02	P. & V. Davis			19	19	10	13			
2	Pt 13	-501	St.Johns Evangelical Lutheran Church Trustees			16	16	9	11			
2	Pt 13	-501-02	K. & J. Snider			4	4	2	3			
2	Pt 13	-502	R. & M. James			6	6	3	4			
2	Pt 13	-503	J. & M. Dyet			4	4	2	3			
		(04-06)										
* 2	Pt 7	-010	A. Veenstra			6	6	7	9		16	53
* 2	Pt 7	-011	H. Sonnenberg			41	41	45	56		16	0
* 2	Pt 7	-012	S. Yalowica			41	41	45	56		16	0
* 2	Pt 7	-013	C. & A. Doan			163	163	195	245		33	0
2	Pt 7	-014	J. & S. Healey			5	5	2	3			
* 2	Pt 7	-015	H. Page			129	129	140	176			
* 2	Pt 8	-016	R. & S. Young			562	562	699	877			
2	Pt 8	-016-01	A. Clark			17	17	22	27			
Total Assessments on Lands:				39,500	25,000	16,337	16,042	14,315	12,001	8,900	7,019	3,112
Cedar Bay Road			City of Port Colborne			18	18	37	0			
Silver Bay Road			City of Port Colborne			113	113	20	0	100		
Wyldeewood Road			City of Port Colborne	500		176	176	23	0			
Michael Road			City of Port Colborne			115	115	18	2			
Empire Road (Reg. Rd 98)			Niagara Region			152	152	11	14		75	0
Empire Road			City of Port Colborne			39	39	0	0			

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**SCHEDULE B - SCHEDULE FOR FUTURE MAINTENANCE  
BEARSS DRAIN - City of Port Colborne**

Con	Lot	Roll No.	Owner	BERM		MAIN DRAIN				WEST BR. EAST	NEFF BRANCH	
				East Bank	West Bank	000 to 161	161 to 512	512 to 1+272	1+272 to 1+929		000 to 1+219	1+219 to 1+732
Beach Road (Reg Rd 1)			Niagara Region			24	24	0	0			
Sherk Road			City of Port Colborne			39	39	14	18			
Brookfield Road			City of Port Colborne			132	132	45	57			
Troup Road			City of Port Colborne			131	131	71	89		175	0
Clark Road			City of Port Colborne			167	167	61	76		149	0
Neff Road			City of Port Colborne			132	132	48	61		433	2,538
Wilhelm Road (Reg. Rd 98)			Niagara Region			10	10	4	5		29	0
Sherkston Road			City of Port Colborne			147	147	37	0			
Hwy. No. 3			MTO			1,078	1,078	185	670		4,320	0
Mapleview Crescent			City of Port Colborne			52	52	0	0			
Service Road			City of Port Colborne			16	16	9	40			
Troop Avenue			City of Port Colborne			13	13	14	34			
Elmwood Avenue			City of Port Colborne			3	3	4	33			
C.N.R.			C.N.R.			106	106	284	0			
<b>Total Assessments on Roads:</b>				500	0	2,663	2,663	885	1,099	100	5,181	2,538
<b>TOTAL ASSESSMENTS ON BEARSS DRAIN, MAIN DRAIN:</b>				40,000	25,000	19,000	18,705	15,200	13,100	9,000	12,200	5,150

September 30, 1996

**SCHEDULE B - SCHEDULE FOR FUTURE MAINTENANCE**  
**Wm. MICHAEL DRAIN - City of Port Colborne**

Con	Lot	Roll No.	Owner	000 to 600	600 to 1+331	1+331 to 1+483
		(04-01)				
	* 1 Pts 3 & 4	-186	W. & C. McIntosh	183	305	87
	1 Pt 4	-186-01	Naymis Holdings Inc.	5	8	2
	1 Pt 4	-186-02	S. & B. Shisler	6	10	3
	1 Pt 4	-186-03	S. & B. Shisler	1	2	2
	1 Pt 4	-187	R. & P. De Clemente	3	6	2
	* 1 Pts 3 & 4	-202	D. & E. Elmer	7	11	3
	* 1 Pt 4	-203	E. Damude Estate	102	171	49
	* 1 Pt 4	-204	R. & D. Damude	26	44	13
	* 1 Pt 4	-204-05	W. Wolff	16	26	8
	1 Pt 4	-205	R. & I. Schultz	1	2	1
	1 Pt 4	-206	C. Skinner	1	2	1
	1 Pt 4	-207	J. & D. Priebe	7	11	3
	1 Pt 4	-232	Grace United Brethren Church	11	18	5
	1 Pt 4	-233	Grace United Brethren Church	7	11	3
	1 Pt 4	-234	A. Schofield	9	15	4
	1 Pt 4	-234-01	Sherkston Resorts Inc.	5	8	2
	1 Pt 4	-234-02	Sherkston Resorts Inc.	6	10	3
	1 Pt 4	-234-10	Sherkston Family Go-Carts Ltd.	54	90	26
	* 1 Pt 4	-235	A. Dipetta	3	4	1
	1 Pt 4	-236	R. & D. Damude	63	105	30
	1 Pt 4	-237	D. & L. Young	8	13	4
	1 Pt 4	-237-01	E. Quesnel	3	5	1
	1 Pt 4	-237-02	667080 Ontario Ltd.	5	8	2
	1 Pt 4	-238	L. & J. Simmonds	2	4	1
	* 1 Pt 4	-239	T. & S. Shisler	43	71	20
	1 Pt 4	-240	J. & C. Kelba	6	10	3
	1 Pt 4	-241	M. Shisler	4	7	2
	1 Pt 4	-241-01	L. & M. Ford	2	4	1
	1 Pt 4	-242	G. & T. Shisler	15	25	7
	1 Pt 4	-243	J. Shisler	14	23	7
	1 Pt 4	-243-01	K. & G. Shisler	19	32	9
	1 Pt 4	-244	G. & J. Shisler	16	26	7
	1 Pt 4	-246	Sherkston Resorts Inc.	708	1,180	338
	1 Pt 5	-256	E. Schatzline	7	11	3
	1 Pt 5	-259	D. Moore	12	19	6
	1 Pt 5	-261	G. & G. Rizzi	6	11	3
68/NP 827	1	-262	W. & C. Tweedy	3	5	1
68/NP 827	2	-264	M. Vanderhorst	3	5	1
68/NP 827	Pt 4	-265	M. Vanderhorst	2	3	1
68/NP 827	3	-266	D. & W. Wagner	8	14	4
68/NP 827	Pts 4 & 5	-267	E. Landry	2	4	1
68/NP 827	Pt 5	-268	E. & G. Landry	1	2	1
68/NP 827	Pt 6	-269	H. McCrea	1	2	1
68/NP 827	Pts 6 & 7	-270	F. Filipowicz	3	5	2
68/NP 827	Pt 7	-271	R. Dagenais	1	2	1
68/NP 827	Pt 8	-272	R. Dagenais	1	2	1

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**SCHEDULE B - SCHEDULE FOR FUTURE MAINTENANCE**  
**Wm. MICHAEL DRAIN - City of Port Colborne**

Con	Lot	Roll No.	Owner	000 to 600	600 to 1+331	1+331 to 1+483
68/NP 827	Pts 8 & 9	-273	D. Haun & A. Shipp	3	5	2
68/NP 827	Pts 9&10	-274	P. Vullo	2	4	1
68/NP 827	11, Pt 10	-275	M. Toth & K. McConnelly	4	6	2
68/NP 827	12	-276	G. Wilamowski	2	4	1
68/NP 827	13	-277	G. Wilamowski	3	4	1
68/NP 827	14	-278	D. & A. Green	4	6	2
68/NP 827	15 & 16	-279	G. Shaubel	5	8	2
68/NP 827	17	-280	D. Schneegold	2	4	1
68/NP 827	18 & 19	-281	K. & J. Shisler	5	8	2
68/NP 827	Pt 20	-283	J. & M. Kish	2	4	1
68/NP 827	21, Pt 20	-284	J. Davies	4	6	2
68/NP 827	22	-285	S. Brown	3	4	1
68/NP 827	23	-286	J. & K. Paonessa	2	4	1
68/NP 827	24	-287	R. Murrell	2	4	1
68/NP 827	25	-288	R. Murrell	2	4	1
68/NP 827	26, 29	-289	K. Graham & K. Hart	5	8	2
68/NP 827	27	-290	R. Gesl	3	4	1
68/NP 827	28	-291	J. & L. Benner	3	5	1
68/NP 827	30	-292	R. Knapp & J. Warrinton	2	4	1
68/NP 827	31	-293	B. & I. Booth	2	4	1
68/NP 827	32	-294	C. & C. Jr. Thomson	2	4	1
68/NP 827	33	-295	E. Whalen	3	4	1
68/NP 827	Pt 21	-296	R. & I. Stickles	3	5	1
	1 Pt 5	-297	L. Pirson	4	6	2
	1 Pt 5	-298	C. Gobeil	2	4	1
	1 Pt 5	-299	L. & D. Pirson	2	4	1
	1 Pt 5	-300	L. & D. Pirson	2	4	1
	1 Pt 5	-301	L. Pirson	5	8	2
	1 Pt 5	-302	J. Callahan	2	4	1
	1 Pt 5	-303	D. Potter	1	3	1
	1 Pt 5	-304	M. Conroy	5	9	3
	1 Pt 5	-305	R. Wilson	4	7	2
	1 Pt 5	-306	A. Sevenpifer	3	5	1
	1 Pt 5	-307	M. Zarb	5	8	2
	1 Pt 5	-308	T. & K. Kozar	2	3	1
	1 Pt 5	-309	T. & K. Kozar	2	3	1
	1 Pt 5	-310	D., J. & R. Tait Trustee	39	64	18
	1 Pt 5	-311	G. Shaubel	11	18	5
	1 Pt 5	-312	C. & N. Stewart	4	6	2
	1 Pt 5	-313	R. Schymura	2	3	1
	1 Pt 5	-314	K. & D. Schertzing	3	4	2
	1 Pt 5	-315	R. Smith	7	12	3
	1 Pt 5	-316	S. & J. Dykstra	31	51	15
*	1 Pt 5	-317	D. Tait	291	484	138
*	1 Pt 5	-320-05	D. & L. Young	193	322	92
*	1 Pt 6	-325-30	C. & J. Armstrong	138	230	66
	1 Pt 6	-326-02	Telesis Oil and Gas	7	11	53

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**SCHEDULE B - SCHEDULE FOR FUTURE MAINTENANCE**  
**Wm. MICHAEL DRAIN - City of Port Colborne**

Con	Lot	Roll No.	Owner	000 to 600	600 to 1+331	1+331 to 1+483
	1 Pts 5 & 6	-326-03	Sherkston Resorts Inc.	707	1,176	836
*	1 Pts 6 & 7	-329	D. Michael	694	1,754	91
	1 Pt 7	-331	Telesis Oil and Gas	1	2	0
*	1 Pt 7	-332	J. & M. Quesnel	670	2,814	0
*	1 Pt 8	-341-01	A. & K. Buttigieg	205	800	0
*	1 Pt 8	-346	A. & C. Domenicucci	84	0	0
*	1 Pt 8	-347-01	N. Labine & V. Fleming	369	0	0
*	1 Pt 8	-348	F. & D. Seabourne	72	0	0
	1 Pt 8	-349	D. Lush	23	0	0
	1 Pt 8	-349-01	H. Szachnicwicz	23	0	0
	1 Pt 8	-349-02	D. Kirsch	23	0	0
	1 Pt 8	-349-03	A. Szota	23	0	0
	1 Pt 8	-349-04	S. Szota	23	0	0
	1 Pt 8	-349-06	N. Fletcher	23	0	0
	1 Pt 8	-349-08	L. Gaboury	22	0	0
	1 Pt 8	-349-10	G. Cameron	22	0	0
	1 Pt 8	-349-12	J. Young in Trust	22	0	0
	1 Pt 8	-350	P. Gaboury (Firelane 13)	326	0	0
	1 Pt 8	-351	J. Paterno	23	0	0
	1 Pt 8	-352	R. & G. McDonald	23	0	0
	1 Pt 8	-353	R. McDonald	23	0	0
	1 Pt 8	-353-02	R. Gaboury	23	0	0
	1 Pt 8	-353-04	P. Gaboury	23	0	0
	1 Pt 8	-353-06	R. Gaboury	23	0	0
	1 Pt 8	-354	D. Schneider	23	0	0
	1 Pt 8	-355	H. & C. Sammut	23	0	0
	1 Pt 8	-356	T. & I. Mendy	26	0	0
	1 Pt 8	-357	K. Sommerville	23	0	0
	1 Pt 8	-358	P. & M. Guzda	23	0	0
	1 Pt 8	-359	J. & S. Christiano	23	0	0
	1 Pt 8	-360	A. & A. Irwin	23	0	0
	1 Pt 8	-361	L. Wiens	22	0	0
	1 Pt 8	-362	S. & J. Ryskalczyk	22	0	0
	1 Pt 8	-363	A. & H. Sherk	24	0	0
	1 Pt 8	-364	S. Bolguroff	22	0	0
	1 Pt 8	-365	R. & M. Arndt	22	0	0
	1 Pt 8	-366	G. Mannell	22	0	0
	1 Pt 8	-367	K. & L. Mizstal	22	0	0
	1 Pt 8	-367-01	M. Ravazzolo	25	0	0
	1 Pt 8	-367-02	H. & C. Groh	22	0	0
	1 Pt 8	-367-03	K. Mizstal	22	0	0
	1 Pt 8	-367-04	N. Fletcher	22	0	0
	1 Pt 8	-367-05	D. Fletcher	22	0	0
	1 Pt 8	-367-06	I. Yakobchuck	22	0	0
	1 Pt 8	-367-07	R. & L. Szymanski	22	0	0
	1 Pt 8	-368	N. Fletcher	22	0	0
	1 Pt 8	-368-02	D. Fletcher	22	0	0



September 30, 1996

**SCHEDULE B - SCHEDULE FOR FUTURE MAINTENANCE**  
**Wm. MICHAEL DRAIN - City of Port Colborne**

Con	Lot	Roll No.	Owner	000 to 600	600 to 1+331	1+331 to 1+483
	1 Pt 8	-368-04	N. Fletcher	22	0	0
	1 Pt 8	-368-06	D. Fletcher	22	0	0
	1 Pt 8	-369	R. Ravazzola	22	0	0
	1 Pt 8	-369-02	M. Ravazzola	22	0	0
	1 Pt 8	-369-04	D. Fletcher	22	0	0
	1 Pt 8	-369-06	J. Young in Trust	22	0	0
	1 Pt 8	-369-08	G. Cameron	22	0	0
	1 Pt 8	-370	R. Szymanski	22	0	0
	1 Pt 8	-370-02	N. Fletcher	23	0	0
	1 Pt 8	-371	J. Biatosik	23	0	0
	1 Pt 5	-372	J. Ivancie	22	0	0
	1 Pt 5	-373	A. Gugolz	22	0	0
	1 Pt 5	-375	F. Bundt	31	0	0
	1 Pt 5	-376	662665 Ontario Ltd.	23	0	0
	1 Pt 5	-376-01	662665 Ontario Ltd.	1	0	0
	1 Pt 5	-376-02	662665 Ontario Ltd.	1	0	0
	1 Pt 5	-376-03	662665 Ontario Ltd.	1	0	0
	1 Pt 5	-377	662665 Ontario Ltd.	21	0	0
	1 Pt 5	-378	W. Brothers	31	0	0
	1 Pt 5	-379	C. Smith	23	0	0
		(04-02)				
	1 Pt 9	-011	G. Guzda	22	0	0
	1 Pt 9	-012	S. McConvey	21	0	0
	1 Pt 9	-016	C. Rafter	1	0	0
	1 Pt 9	-017	M. Duquette	21	0	0
	1 Pt 9	-018	C. Rafter	21	0	0
	1 Pt 9	-019	K. Broda	22	0	0
	1 Pt 9	-020	E. Dolan	24	0	0
	1 Pt 9	-021	G. Stachowski	23	0	0
	1 Pt 9	-022	J. Ivancie	23	0	0
	* 1 Pt 9	-023	D. & B. Wilson	779	0	0
	* 1 Pt 9	-023-02	S. & M. Schneider	27	0	0
	* 1 Pt 9	-024	R. & E. Benner	707	0	0
	Total Assessments on Lands:			8,324	10,284	2,047
	Wyldeewood Road		City of Port Colborne	302	0	0
	Michael Road		City of Port Colborne	66	210	116
	Empire Road (Reg Rd 98)		Niagara Region	102	170	49
	Empire Road		City of Port Colborne	41	68	19
	Beach Road (Reg Rd 1)		Niagara Region	26	43	12
	Sherkston Road		City of Port Colborne	41	68	19
	Mapleview Crescent		City of Port Colborne	55	91	26
	C.N.R.		C.N.R.	43	66	12
	Total Assessments on Roads:			676	716	253
	<b>TOTAL ON Wm. MICHAEL DRAIN:</b>			<b>9,000</b>	<b>11,000</b>	<b>2,300</b>

**SPECIFICATIONS**

for the

**BEARSS DRAIN AND Wm. MICHAEL DRAIN**

in the

City of Port Colborne

Date: September 30, 1996.

File No. 93029

K. Smart Associates Limited  
Kitchener Sudbury Englehart

PART E  
GENERAL CONDITIONS  
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E.

## GENERAL CONDITIONS

### E.1 SCOPE

The work to be done under this specification consists of supplying all labour, materials, equipment, etc., to construct the work as outlined on the accompanying drawings, in the estimate of quantities and on the form of Tender. In some municipalities, the Contractor shall supply all materials. The Instructions to Tenderers lists which materials are to be supplied by the Contractor.

### E.2 TENDERS

Tenders are to be submitted on a lump sum basis for the complete works or a portion thereof, as instructed by the Municipality. A deposit of \$7,000 in the form of a certified cheque payable to the Treasurer of the Municipality must accompany each tender as a guarantee of good faith. All certified cheques, except that of the bidder to whom the work is awarded, will be returned within 10 days of the time the contract is awarded. The certified cheque of the bidder to whom the work is awarded will be returned with the final payment on the work or will be retained until the successful tenderer furnishes a Performance Bond and/or Labour and Materials Bond for 100% of the amount of the tender or other satisfactory security, if required by the Municipality. A Performance Bond may be required to insure completion of the work and maintenance of the work for a period of one year after the date of the Completion Certificate.

### E.3 EXAMINATION OF SITE, PLANS AND SPECIFICATIONS

The tenderer must examine the premises and site to compare them with the plans and specifications in order to satisfy himself of the existing conditions and the extent of the work to be done before submission of his tender. No allowances shall be made on behalf of the Contractor by reason of any error on his part.

Any estimates of quantities shown or indicated on the plan or elsewhere in the contract documents are provided for the convenience of the tender. Any use made of these quantities by the tenderer in calculating his tender shall be done at his own risk. The tenderer for his own protection should check these quantities for accuracy.

The tenderer must satisfy himself that he understands the meaning and intent of the plans and specifications before submission of his tender. In case of any inconsistency or conflict between the plans and specifications, the construction notes on the plans and the Special Provisions shall take precedence over the Standard Specifications.

### E.4 PAYMENT

Progress payments 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 monthly on the written request of the Contractor to the Engineer. An additional 17% will be paid 37 days after the final acceptance of the Engineer and 3% of the contract price may be reserved by the Municipality for one year.

E.4 PAYMENT - continued

A greater percentage of the contract price may be reserved by the Municipality for the same period if in the opinion of the Engineer, particular conditions of the contract require such greater holdback. After the completion of the work, any part of this reserve may be used to correct defects developed within that time from faulty workmanship and material and loose backfill, provided that notice shall first be given to the Contractor and that he shall have the opportunity to make good such defects, himself if he desires, and within seven (7) days if so directed by the Engineer.

E.5 INSPECTION

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

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

E.6 COMMENCEMENT AND COMPLETION OF WORK

The work must commence immediately after the Contractor is notified of the acceptance of his tender or at a later date, if set out as a condition of the tender. If weather and ground conditions are unsuitable, work may be started at a later date from either of these two dates if such delay is approved by the Engineer. The work must be proceeded with in such manner as to ensure its completion at the earliest possible date consistent with first class workmanship and within the time limit set out in the tender or in the contract documents. Failure to commence or complete the work as set out in the Form of Tender may result in a forfeiture of all or part of the Certified Cheque if the Engineer deems that damages have been sustained to the Township or to any landowner because of the non-commencement or non-completion of the contract as awarded and that the failure to meet the specified dates has been the fault of the Contractor.

E.7 ALTERATIONS AND ADDITIONS

The Engineer shall have the power to make alterations in the work as shown or described in the drawings or specifications and the Contractor shall proceed to make such changes without causing delay. In every such case, the price agreed to be paid for the work under the contract shall be increased or decreased as the case may require according to a fair and reasonable evaluation of the work added or omitted. Where such changes involve work additional and similar to items in the main contract, the price agreed to be paid shall be determined after due consideration has been given to the ratio of the tendered amount to the Engineer's estimate of the contract. Such alterations and variations shall in no way render void the contract. No claims for variations or alterations in the increased or decreased price shall be valid unless done in pursuance of an order from the Engineer and notice of such claims made in writing before commencement of such work. In no case shall the Contractor commence work which he considers to be extra work before receiving the Engineer's approval.

E.8 SUPERVISION

The Contractor shall give the work his constant supervision and shall keep a competent foreman in charge at the site.

E.9 MAINTENANCE

The Contractor shall repair and make good any damages or faults in the drain that may appear within one year after its completion (as evidenced by the final payment certificate) because of 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 certificate nor payment thereunder, nor any provision in the contract documents shall relieve the Contractor from this responsibility.

E.10 CONTRACTOR'S RESPONSIBILITY FOR DAMAGES

The Contractor, his agents and all workmen and persons employed by him or under his control, including Sub-Contractors, shall use due care that no person or property is injured and that no rights are infringed in the prosecution of the work, and the Contractor shall be solely responsible for all damages by whomsoever claimable in respect of any injury to persons or to lands, buildings, structures, fences, livestock, trees, crops, roadways, ditches, drains and watercourses, whether natural or artificial, or property of whatever description and in respect of any infringement of any right, privilege or easement whatever occasioned in the carrying on of the work or any part thereof, or by any neglect, misfeasance or non-feasance on the Contractor's part or on the part of any of his agents, workmen or persons employed by him or under his control including Sub-Constructors, and shall bear the full cost thereof and shall at his own expense make such temporary provisions as may be necessary to ensure the avoidance of any such damage, injury or infringement and to prevent the interruption of or danger or menace to the traffic in any railway or any public or private road entrance or sidewalk and to secure to all persons and corporations the uninterrupted enjoyment of all their rights, in and during the performance of the work and the Contractor shall indemnify and save harmless the Municipality from and against all claims, demands, loss, costs, damages, actions, suits or other proceedings by whomsoever made, brought or prosecuted in any manner based upon, occasioned by, or attributed to any such damage, injury or infringement.

Wherever any work is of such an extent and nature that it must necessarily be confined to particular areas of a roadway, a working area, or private property, the Contractor shall use reasonable care not to damage or deface the remaining portions of the property, and if any damage is occasioned as a result of the Contractor's operations, it shall be rectified by the Contractor at his own expense, to the satisfaction of the Engineer.

E.10 CONTRACTOR'S RESPONSIBILITY FOR DAMAGES - continued

Notwithstanding the indemnity provisions contained in this section, where in the opinion of the Engineer the Contractor has failed to rectify any damage, injury or infringement or has failed to adequately compensate any person for any damage, injury or infringement for which the Contractor is responsible under the contract, the Engineer, following notice in writing to the Contractor of his intention so to do, may withhold payment of any monies due the Contractor under this or any other contract until the Contractor has rectified such damage, injury or infringement or has paid adequate compensation for such damage, injury or infringement, provided however, that the Municipality will not withhold such monies where in the opinion of the Engineer there are reasonable grounds upon which the Contractor denies liability for such damage, injury or infringement and the Contractor has given the claimant a reasonable time in which to establish the validity of his claim, and provided further that the amount withheld under this section shall not exceed the amount of such claims against the Contractor.

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

E.11 LIABILITY INSURANCE

The Contractor shall take out and keep in force until the date of acceptance of the entire work by the Engineer, a comprehensive policy of public liability and property damage insurance providing insurance coverage in respect of any one accident to the limit of at least \$1,000,000 exclusive of interest and cost, against loss or damage resulting from bodily injury to or death of one or more persons and loss of or damage to property and such policy shall where, and as requested by the Municipality, name the Municipality as an additional insured thereunder and shall protect the Municipality against all claims for all damage or injury including death to any person or persons and for damage to any property of the Municipality or any other public or private property resulting from or arising out of any act or omission on part of the Contractor or any of his servants or agents during the execution of the Contract.

E.12 ACCESS TO PROPERTIES ADJOINING THE WORK

The Contractor shall provide at all times and at his own expense, adequate pedestrian access to private homes and commercial establishments unless otherwise authorized by the Engineer.

Where interruptions to access have been authorized by the Engineer, reasonable notice shall be given by the Contractor to the affected property owners and such interruptions shall be arranged so as to create a minimum interference to those affected.

**E.13 LIMITATIONS OF OPERATIONS**

Except for such work as may be required by the Engineer to maintain the works in a safe and satisfactory condition, the Contractor shall not carry on his operations under the contract on Sundays, or Statutory Holidays, without permission in writing of the Engineer.

The Engineer may, in writing, require the Contractor to cease or limit his operations under the contract, on any day or days if the operations are of such a nature, or if the work is so located, or if the traffic is of such a volume that the Engineer deems it necessary or expedient so to do.

**E.14 LOSSES DUE TO ACTS OF NATURE, ETC.**

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

**E.15 SUB-CONTRACTORS**

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

**E.16 CHARACTER AND EMPLOYMENT OF WORKMAN**

The Contractor shall employ only orderly, competent and skillful men to do the work and shall give preference to available residents in the area of the contract. Whenever the Engineer shall inform him in writing that any man or men on the work are, in the opinion of the Engineer, incompetent, unfaithful, or disorderly, such a man or men shall be discharged from the work and shall not again be employed on the work without the consent in writing of the Engineer.

**E.17 ROAD CROSSINGS**

All road crossings may be made with an open cut unless otherwise noted. The exact location of the crossing shall be verified and approved by the Road Authority or the Engineer. A one hundred & fifty (150) millimetre depth of pit run gravel, well compacted shall be placed as a base for each pipe crossing if required on the drawings. The pipe shall be backfilled with a granular material for the width of the travelled portion plus one (1) metre on either side. The material shall be placed in lifts not exceeding three hundred (300) millimetres in depth and shall be thoroughly compacted with an approved type mechanical vibrating compactor where so required by the Engineer. The top one hundred & fifty (150) millimetres of the roadway backfill shall consist of a crushed granular material meeting the specifications of the Ministry of Transportation and Communications for Granular Base Course Class "A" (Granular "A") material. An existing asphalt or concrete pavement, if any, shall not be replaced by the Contractor unless noted differently on the plan. The Contractor shall be responsible, however, for subsequent uneven joints in the pavement due to settling of the backfill. The Contractor should arrange with a local resident to keep the crossing in repair if unable to



do such personally. A small load of Granular "A" gravel at the side of the road may be advisable so that if any settlement does occur, the local resident can add some additional gravel. All road crossings shall meet the approval of the Road Authority. For County and Regional Road crossings see "Standard Specifications for Municipal Drains Crossing County and Regional Roads". If any road crossing is not left in a safe manner at the end of the working day, such barricades, etc., shall be erected to guarantee the safety of the travelling public.

A Road Authority will supply no labour, equipment or materials for the construction of the road crossing, with the sole exception of patching an existing asphalt surface and except where metal pipe on the contract is supplied by the Municipality.

The excavated material removed from the travelled portion of the road and one (1) metre 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 consent of the Municipal Road Superintendent and the balance shall be levelled equally on the private lands on each side of the road.

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 materials on the roadway to restore it to a safe and passable condition at no additional cost.

#### E.18 LANEWAYS

All pipe crossing laneways shall be backfilled with material that is clean, free of foreign material or frozen particles and readily tamped or compacted in place. Laneway culverts on open ditch projects shall be backfilled with material that also is not easily erodable while gravel laneway culverts on closed drain projects shall be backfilled such that the upper six hundred (600) millimetres of material consists of four hundred & fifty (450) millimetres of pit run granular material and one hundred & fifty (150) millimetres of crushed granular material. All backfill materials shall be thoroughly compacted if directed by the Engineer.

The backfill on access culverts (between buildings and the road) shall be surfaced with a minimum of one hundred & fifty (150) millimetres of crushed granular material. All backfill materials shall be thoroughly compacted if directed by the Engineer.

All granular surface materials shall be placed to the full width of the travelled portions.

Any settling of backfill material shall be repaired by or at the expense of the Contractor during the warranty period of the project and as soon as required. Any existing bituminous pavement on laneways shall be replaced to its original condition by the Contractor at no additional cost. No less than a fifty (50) millimetre thickness of Hot Mix Asphalt shall be applied.

E.19 FENCES

No earth is to be placed against fences and all fences removed by a Contractor are to be replaced by him in as good a condition as existing materials permit. Where practical and where required by the landowner, the Contractor shall take down a new existing fence or fences in good condition, at the nearest anchor post and roll it back rather than cutting the fence and attempting to patch it. The replacement of the fences shall be done to the satisfaction of the Engineer or Superintendent. Any fences found in such poor condition that replacement is not necessary shall be noted and verified with the Engineer or Superintendent prior to commencement of work. Where directed by the Engineer, additional steel posts shall be placed to adequately support a fence upon re-erection. All fences shall be properly stretched and fastened. Where the Engineer directs that new fencing material be erected, additional payment will be provided.

Any fences paralleling an open drain, that are not line fences, that hinder the proper working of the excavating machinery shall be removed, and rebuilt by the landowner at his own expense. If such parallel fences are line fences they shall be removed and rebuilt by the Contractor.

E.20 LIVESTOCK, ETC.

If any construction will be within a fenced field containing livestock or other customary farm animals or fowl, (hereafter referred to as livestock, etc.) that are evident or have been made known to the Contractor, the Contractor shall notify the owner or attendant of the field or livestock, etc., thirty-six (36) hours in advance of his entrance into the field. Thereafter, the owner or attendant shall be responsible for the protection and damage to all livestock, etc., on said property during construction and shall also be liable for any damages caused by such livestock, etc. Where the owner or attendant so directs or where the Contractor has failed to reach the owner or attendant, the Contractor shall adequately re-erect all fences at the end of each working day and shall have any open trench backfilled within seventy-two (72) hours including weekends and statutory holidays. In all cases the trench shall be backfilled within seven (7) days. Failure of the Contractor to notify or to attempt to notify the owner or attendant, or failure of the Contractor to erect the fencing or to backfill the trench as described in this paragraph shall render the Contractor responsible for the protection of or damage to livestock, etc., on the property and the damage they may cause.

Where livestock may be encountered on any property the Contractor shall notify the Engineer promptly so that arrangements may be made to inspect the drainage works before the time required for backfilling.

E.21 STANDING CROPS

The Contractor shall not be held responsible for damages to standing crops along the course of the drain with the exception of those crops ready to be harvested or salvaged, that are damaged by the placing and levelling of soil from an open drain and about which the Contractor has failed to, or has not attempted to, notify the owner forty-eight (48) hours prior to commencement of the excavation on that portion.

**E.22 SURPLUS GRAVEL**

If as a result of any work granular gravel or crushed stone is required and not all the gravel or crushed stone is used in the construction of the works, the Contractor shall haul away such surplus gravel or stone. This does not apply to a road crossing where surplus gravel is to be left to allow for building up the trench after a settlement occurs.

**E.23 PERMITS, NOTICES, LAWS AND RULES**

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

**E.24 LOCATIONS OF EXISTING UTILITIES**

The position of pole lines, conduits, watermains, sewers and other underground and overground utilities and structures is not necessarily shown on the Contract plans and drawings, and, where shown, the accuracy of the position of such utilities and structures is not guaranteed. Before starting work, the Contractor shall inform himself of the exact location of all such utilities and structures, and shall assume all liability for damage to them. Unless otherwise specified, the Contractor shall support all such utilities and structures, or temporarily remove them and restore them, to the satisfaction of the owners of the utilities and structures.

**E.25 RAILWAYS, HIGHWAYS AND UTILITIES**

A minimum of forty-eight (48) hours notice in writing to any Railway's Division Engineer, the M.T.C.'s District Engineer, or any Utility Company, exclusive of Saturdays, Sundays, and Holidays, is required by the Contractor prior to any work being performed on or affecting the applicable property and in the case of a pipe being installed by open cutting or boring, a minimum of seventy-two (72) hours notice is required.

Copies of all plans are submitted to any affected telephone company by the Engineer prior to Contract Award. It is the Contractor's responsibility to obtain and review these plans from the Engineer.

**E.26 TERMINATION OF CONTRACT BY THE MUNICIPALITY**

If the Contractor should be adjudged bankrupt, or if he should make a general assignment for the benefit of his creditors, or if a receiver should be appointed on account of his insolvency or if he should refuse or fail to supply enough properly skilled workmen or proper materials after having received seven (7) days notice in writing from the Engineer to

**E.26 TERMINATION OF CONTRACT BY THE MUNICIPALITY - continued**

supply such additional workmen or materials in order to commence or complete the works, or if he should fail to make prompt payment to sub-contractors or for materials or labour or persistently disregard laws, ordinances, or instruction of the Engineer, or otherwise be guilty of a substantial violation of the provisions of the contract, then the Owner, upon Certificate of the Engineer that sufficient cause exists to justify such action, may without prejudice to any other right or remedy, by giving the Contractor written notice, terminate the employment of the Contractor and take possession of the premises, and of all materials, tools and appliances thereon, and may finish the work by whatever method the Owner may deem expedient, but without undue delay or expense. In such case, the Contractor shall not be entitled to receive any further payment until the work is finished. If the unpaid balance of the contract price will exceed the expense of finishing the work including compensation to the Engineer for his additional services and including other damages of every name and nature, such excess shall be paid to the Contractor. If such expense will exceed such unpaid balance including the certified cheque deposit as provided for by E.2, the Contractor shall pay the difference to the Owner. The expense incurred by the Owner, as herein provided, shall be certified by the Engineer.

If the contract is terminated by the Owner due to the Contractor's failure to properly commence the works, the Contractor shall forfeit the certified cheque bid deposit and furthermore shall pay to the Municipality an amount to cover the increased costs, if any, associated with a new tender for the contract being terminated.

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

**E.27 ERRORS AND UNUSUAL CONDITIONS**

The Contractor shall notify the Engineer immediately of any error or unusual conditions which may be found. Any attempt by the Contractor to correct the error on his own shall be done at his own risk. Any additional cost incurred by the Contractor to remedy a wrong decision on his part shall be borne by the Contractor.

The Engineer shall make the alteration necessary to correct errors or to adjust for unusual conditions. The contract amount shall be adjusted in accordance with a fair evaluation of the work added or deleted.

**E.28 EXCESS TILE**

If the tile is supplied by the Municipality, the Contractor shall stockpile all excess tile in one readily accessible location for pickup by the Municipality at the end of the job. If the tile is supplied by the Contractor he shall remove all excess tile from the job site.

E.29 REPLACEMENT OF STAKES

The Contractor shall be held liable for the cost of replacing any stakes or bench marks destroyed during the course of construction. The drainage area shall be liable for the cost of replacing stakes prior to construction.

E.30 DRAINAGE SUPERINTENDENT

Where a Drainage Superintendent is appointed by the Municipality, the Drainage Superintendent will act as the Engineer's representative. The Superintendent shall have the power to direct the execution of the work and to make any necessary minor adjustments.

Any instructions given by the Superintendent, which changes considerably the proposed work or with which the Contractor does not agree, shall be referred to the Engineer for his decision.

E.31 TESTS

The cost of testing materials, supplied to the job by the Contractor, shall be borne by the Contractor. The cost of testing materials, supplied to the job by the Municipality, shall be borne by the Municipality. The Engineer reserves the right to subject any lengths of any tile or pipe to a competent testing laboratory to ensure the adequacy of the tile. If any tile or pipe supplied by the Contractor is determined to be inadequate to meet the applicable A.S.T.M. Standards, the Contractor shall bear full responsibility to remove and/or replace all such inadequate tile or pipe on the contract with tile or pipe capable of meeting the A.S.T.M. Standards.

E.32 OPENING UP OF FINISHED WORK

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

E.33 ONTARIO MUNICIPAL BOARD

The Contractor shall prior to starting work, determine from the Clerk of the Municipality that Ontario Municipal Board approval, where required, has been obtained.

E.34 NOTICES RE COMMENCEMENT OF WORK

The Contractor shall give the Engineer and Superintendent a minimum of twenty-four (24) 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, he shall give the Engineer and Superintendent a minimum of twenty-four (24) hours advance notice prior to returning to the contract. If any work is commenced without the advance

E.34 NOTICES RE COMMENCEMENT OF WORK - continued

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 any manner that may have been subject to alteration if made known to the Engineer prior to commencement of construction.

E.35 OWNER, CORPORATION, MUNICIPALITY, TOWNSHIP

The words Owner, Corporation, Municipality or Township all mean the same and wherever either appears it may be replaced by any of the other.

E.36 DEFINITIONS

- i) M.T.C. means the Ministry of Transportation and Communications.
- ii) A.S.T.M. means the American Society for Testing Materials.
- iii) C.S.A. means the Canadian Standard Association.

E.37 COLD WEATHER

When work is permitted or ordered by the Engineer to be done in cold weather, the Contractor shall provide suitable means for heating and protection, and all the materials shall be heated and protected. Unless the Engineer directs otherwise, all work such as masonry, concrete and painting that may be injured by frost, and which cannot be satisfactorily completed, shall be put in a proper and satisfactory condition, and shall be protected from damage by frost. Unless otherwise specified, the cost of such protection shall be borne by the Contractor. All backfilling operations shall be done as soon as possible to avoid backfilling with ground containing frozen particles. The Contractor will assume all responsibility for damages to any tile drains and for settlements or bank slippages that may result from work in cold weather.

E.38 WORKING AREA

Where any part of the drain is on a road allowance, the road allowance shall be the working area. On a closed drain the working area is to be a width of eighteen (18) metres. On an open drain the working area shall be eighteen (18) metres on the side of levelling and six (6) metres on the opposite side unless additional width is required to windrow cleared materials or to level the materials to a three hundred (300) millimetre thickness. If any part of the drain is close to a property line then the fence line shall be one of the limits of the work area. On most projects the working area is described in detail on the drawings.

E.39 ACCESS

Each landowner on whose property any significant part of the drainage works is to be constructed has to make a reasonable means of access available to the Contractor. The Contractor shall not enter in any other lands without the written permission of the landowner and he shall make good any damages caused by such entry.

**E.40 CLEANING UP BEFORE ACCEPTANCE**

Before any work shall be finally accepted by the Municipality, the Contractor shall make such replacements of improper materials and such corrections of faulty workmanship as have been directed by the Engineer and do such trimming and disposal of rubbish and surplus materials as to leave the work neat and presentable.

**E.41 LIQUIDATED DAMAGES**

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

The Municipality may deduct any amount due under this 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 Municipality.

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

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

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

F.1

STANDARD SPECIFICATIONS

FOR

OPEN DRAINS

TABLE OF CONTENTS

- F.1.1 Description
- F.1.2 Materials
- F.1.3 Construction



F.1

STANDARD SPECIFICATIONS FOR OPEN DRAINS

F.1.1

DESCRIPTION

Work under this item shall include the supplying of all labour, tools, equipment and materials beyond those to be supplied by the Township, required for the clearing of all trees, roots, bush debris, the excavation of all open channels, the levelling or disposal as directed of all spoil, the cutting and re-erection of all fences, the construction of all roadway and laneway crossings required, the reconstruction of all intercepted drains as required, the supply and placement of all riprap protection required and all other items indicated in the Estimate of Quantities or shown on the drawings as being part of the Open Portion.

F.1.2

MATERIALS

A) Corrugated Metal Pipe

Corrugated Metal Pipe shall comply with AASHO Specification M-36 and shall be to the U.S. Standard Gauges indicated on the drawings. Unless otherwise specified, the pipe shall have a standard sixty gram galvanized coating.

B) Concrete

Concrete shall be twenty (20) mega Pascal (mpa) concrete premixed.

C) Stone for Riprap

Average stone weight shall be no less than fifteen to twenty (15-20) kilograms and shall be hard stone free of earth materials.

F.1.3

CONSTRUCTION

A) Stakes

Stakes are set along the course of the drain at intervals of twenty-five (25) metres. The Contractor shall ensure that the stakes are not disturbed unless approval is obtained from the Engineer. If the Contractor is unable to locate any stakes along the drain, the Contractor shall clear, if necessary, a path for re-staking and contact the Engineer with regard to re-staking the drain.

B) Excavation

The bottom width and the side slopes of the ditch shall be those shown on the profile drawing. Side slopes are normally one and one-half metre horizontal to one metre vertical unless otherwise noted on the profile drawing. 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 required width, depth and bank slopes for the new ditch to be constructed without destructing existing banks, such banks will be left as is, subject to the clearing of brush required and described in Section F.1.3.1.

C) Profile

The profile drawing shows the depth of cuts from the ground beside the stake to the final invert of the ditch in metres and decimals of a metre and also the approximate depth of cuts from the bottom of the existing ditch to the final invert of the ditch. These cuts are established for the convenience of the Contractor; however, bench marks (established along the course of the drain) will govern the final elevation of the drain. The location and elevations of the bench marks are given on the profile drawing.

D) Line

The drain shall be constructed in a straight line and shall follow the course of the present drain or water run except where necessary to straighten any unnecessary bends or irregularities in alignment. Where there are such unnecessary bends or irregularities on the existing course of the drain, the Contractor shall contact the Engineer before commencing work to verify the manner in which such irregularities or bends shall be removed from the drain. All curves shall be made with a minimum radius of fifteen (15) metres. A uniform grade shall be maintained between stakes in accordance with the profile drawing. The Contractor shall over dig the bottom by one hundred to one hundred and fifty (100-150) millimetres in depth to allow for silting in from fresh bank cuts. A variation of twenty-five (25) millimetres from the required profile plus over digging shall be sufficient to require the Contractor to remedy this discrepancy.

E) 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 dumped on the low side of the drain or opposite trees and fences. No excavated material shall be placed in tributary drains, depressions, or low areas which direct or channel water into the ditch so that no water will be trapped behind the spoilbank. Beyond the berm, the excavated material shall be

placed and levelled to a maximum depth of three hundred (300) millimetres; unless otherwise instructed. The edge of the spoilbank away from the ditch shall be feathered down to the existing ground, the edge of the spoilbank nearest the ditch shall have a maximum slope of 2 to 1. The material shall be levelled such that it may be cultivated with ordinary equipment without causing undue hardship on farm machinery and farm personnel. Wherever clearing at the area was necessary prior to the levelling of the materials, the Contractor shall remove all roots unless he obtains the landowners permission in advance to leave same in place and to cover same with spoil. No excavated material shall cover any logs, brush or rubbish of any kind. Large stones or boulders heavier than fifteen (15) kilograms shall be moved to and be left along the edge of the spoilbank nearest to the ditch but in general no closer than one (1) metre to the ditch bank. A berm no less than six hundred (600) millimetres shall be left along the top edges of the drain.

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

A written statement from the owners indicating their complete satisfaction with the levelling of the spoilbank is sufficient to comply with this specification. The final decision, with respect to levelling of the spoilbank, shall be made by the Engineer. The Engineer may require the Contractor to obtain written statements from any or all of the landowners.

If the Contractor obtains a statement in writing, signed by the owner of lands affected that he does not wish the spoil to be levelled, the Engineer may release the Contractor from obligation in that regard, and a sum of money based on the price of ten (10) cents per cubic metre of material left shall be deducted from the Contractor's payment and be paid to the owner affected.

F) Excavation at Bridge Sites

The Contractor shall excavate the drain to the full specified depth under all bridges and to the full width between abutments. Temporary bridges may be carefully removed and left on the bank of the drain. Permanent bridges must, if at all possible be left intact. All necessary care and precautions shall be taken to protect the structure. The Contractor shall notify the owner if excavation will expose the footings or otherwise cause the structure to undermine or collapse such that the owner may make provision for repair of the bridge.

Where the invert of any culvert is above the grade line, the Contractor will be required to dig up the culvert, clean and relay it, so that the invert of the culvert is one hundred and fifty (150) millimetres below grade for the bottom of the finished drain at this location.

G) Bridges and Culverts

Any farm bridges constructed or reconstructed shall have a minimum span of two (2) metres or twice the bottom width, whichever is the greatest. Metal culverts shall have a minimum diameter of twelve hundred (1200) millimetres or a diameter not less than three hundred (300) millimetres greater than the specified bottom width of the drain up to a bottom width of twelve hundred (1200) millimetres and a diameter not less than six hundred (600) millimetres greater than the specified bottom width for widths in excess of twelve hundred (1200) millimetres whichever is greater. These are minimum sizes and will be increased where required. Dimensions of Arch Culverts shall be confirmed by the Engineer prior to construction or reconstruction.

If an owner at the time of construction has furnished a suitable culvert at the site, the Contractor shall install it as part of the work, with the invert one hundred and fifty (150) millimetres 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 riprapping of the backfill shall be the responsibility of the landowner(s) involved. A minimum of three hundred (300) millimetres of cover shall be placed over each culvert.

All culverts installed as part of the contract shall be installed one hundred and fifty (150) millimetres below grade, have three hundred (300) millimetres minimum cover and have a minimum platform width of six (6) metres unless directed otherwise by the drawings or by the Engineer.

Where multi-plate culverts are assembled by the Contractor the manufacturers instructions re hoisting of any length, torsion of all bolts and backfilling shall be observed by the Contractor.

H) Riprap Protection for Culverts

Where riprap protection is called for at either or both ends of a new culvert, such riprap shall be sacked concrete or old concrete pieces and/or stone, grouted with a cement mortar if required. The riprap shall extend one hundred and fifty (150) millimetres below the culvert invert for the full ditch bottom width and six hundred (600) millimetres into undisturbed soil along the banks adjacent to the culvert and shall extend to the level of the finished roadway or laneway over the culvert. Maximum slopes for riprap shall be 1/4:1 or as directed by the Engineer. The Contractor shall be responsible for any defects or damages that may develop in the riprap or the earth behind the riprap that the Engineer deems to have been fully or partially caused by faulty workmanship or materials for a period of one year from the time of the final payment certificate. Wherever a nine (9) metre culvert is installed, and where elsewhere called for, existing field sods shall be placed along the laneway slopes, from the bottom of the ditch level up to the springline of the pipe. Lane slopes shall not be steeper than 1:1 in such situations. Any long culvert installed that replaces an existing culvert shall be riprapped as well as with any stones that formerly existed around the old culvert. The cost of all riprap work discussed herein shall be deemed as part of the contract.

I) Obstructions

All brush, bushes, fallen timber and debris shall be moved from the banks of the drain and to such a distance on each side to eliminate any interference with the spreading of the spoilbank. The slopes shall be cleared only, whether or not they are affected directly by the excavation. The roots shall be left in the banks if no bank excavation is required as part of the new channel excavation. In wooded or heavily overgrown areas, the brush, limbs, etc. may be pushed into piles and rows back out of the way. All dead elms or other dead trees alongside either side of the drain that may impede the performance of the drain if allowed to remain and fall into the ditch, shall be removed prior to excavation and put in piles, unless directed otherwise by the Engineer.

J) Moving Drains off Roads

Where an open drain is being removed from a road allowance, it must be reconstructed wholly on the adjacent farm land with a minimum berm width of one (1) metre 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 levelled 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. If it is necessary to haul materials away, additional payment will be provided unless described on the plan.

K) New Road and Access Lane Crossings

Refer to the General Conditions, Specification No. E.17.

L) Tile Outlets and Existing Ditches

All tile outlets in existing ditches shall be noted by the Contractor prior to excavation. If any tile outlet is damaged during or altered due to construction, the Contractor shall repair or replace the damaged or 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 gate, such outlet shall either be relocated to adjust to the new banks or shall be repaired if damaged. If any outlet becomes plugged as a result of construction, the Contractor shall be obligated to free such outlet of any impediments. Where stone or concrete riprap protection exists at any existing tile outlet such protection shall be moved as necessary to protect the outlet after reconstruction of the channel. Where any damage results to tile leading to and upstream of the outlet, as a consequence of such construction, the Engineer may direct the Contractor to repair such tile and shall determine a fair compensation to be paid to the Contractor for performing the work.

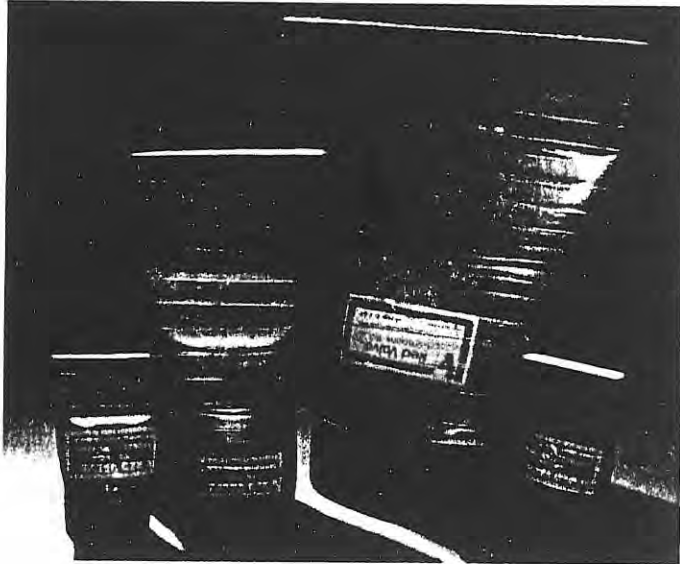
If a Contractor has verified the location of all tile outlets with the landowner prior to construction and then, subsequently encounters an outlet not made known to him whether metal, clay or other, he shall only be responsible for ensuring that the outlet consists of undamaged lengths of tile.

M) Completion

At the time of completion and final inspection, all work in the contract shall have the full dimensions and cross-sections specified in addition to any allowance for caving of the banks or sediment in the bottom.

# TIDEFLEX™ All-Rubber Check Valve

## Installation, Operation, and Maintenance Manual



The revolutionary design of the all rubber Tideflex™ Check Valve provides absolute backflow protection. This unique "duck bill" design eliminates costly backflow from oceans, rivers or storm water and is the ideal valve for effluent diffuser systems.

Tideflex™ Valves seal "drop tight" on entrapped solids and debris without jamming. Unlike traditional flap gates there are no hinged gates to hang open and no warping or freezing. It's maintenance-free.

The Tideflex™ Check Valve is available in a wide variety of elastomers and is designed to meet your exact flow specifications.



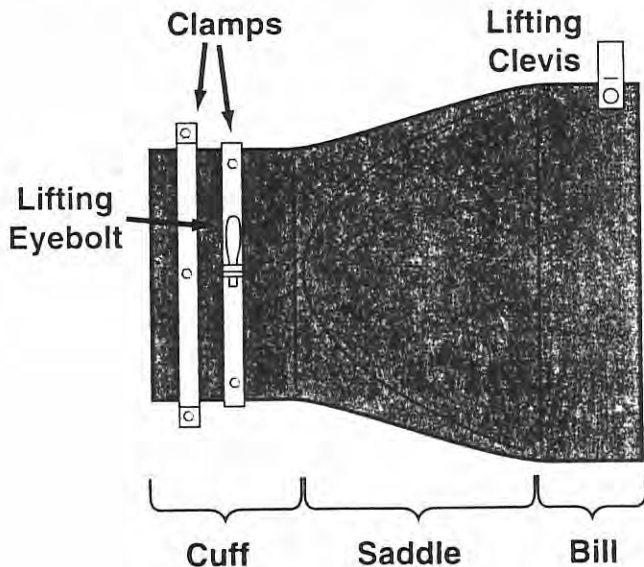
### IMPORTANT

Please take time to read this manual. **Read the entire installation instructions before starting installation.** The improper installation or use of this product may result in personal injury, product failure, or reduced product life. Red Valve Co., Inc. can accept NO liability resulting from the improper use or installation of this product. If you have any questions or problems, please call the customer service hotline at (412) 279-8464. We appreciate your comments. And thank you for choosing Red Valve.

## GENERAL DESCRIPTION

The Red Valve Tideflex™ Check Valve is an all-elastomer, one-piece check valve. Terms used in this I.O.M. to refer to various parts of the valve are described below.

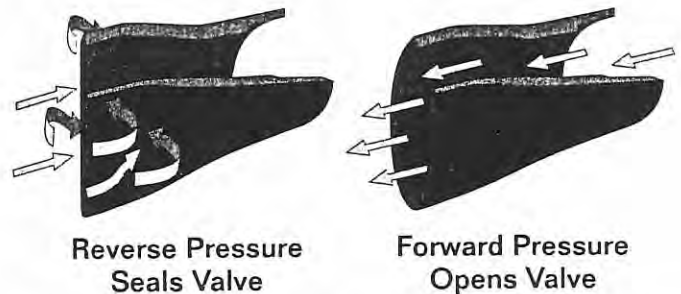
1. **Cuff** The Cuff is designed with a full round bore and slips over the end of the pipe.
2. **Saddle** The Saddle is the middle part of the valve, tapering from the round cuff to the flat bill. The Saddle directs the flow to the bill, and is flexible to sustain increased flow conditions.
3. **Bill** The Bill is the discharge end of the valve. The Bill flexes to allow flow to discharge, yet is stiff enough to prevent the valve from opening without line pressure. Back pressure – pressure created on the exterior of the valve by reverse flow or submersion – will seal the lips of the bill tightly together, preventing backflow into the valve.
4. **Clamps** One set of clamps is required for 14", 16", and 18" Tideflex™ Check Valves. Two or more sets are provided for larger sizes. The clamps are tightened around the Cuff after the Cuff has been slipped over the end of the discharge pipe. These clamps are normally furnished by Red Valve Company, Inc.
4. **Lifting Clevis** A lifting clevis may be attached to the Bill of the Check Valve in some applications. This clevis is used during installation to assist in lifting the valve, and may be used to attach a line to the bill to help support the valve after installation.



## OPERATION

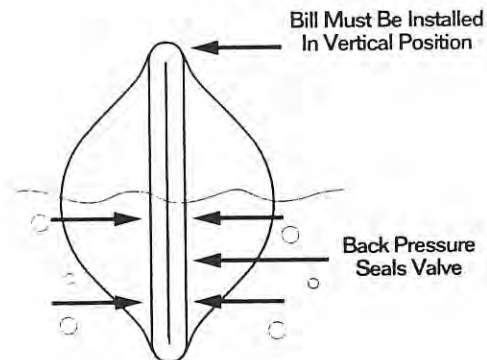
Red Valve Check Valves are custom made products intended for a specific application and have been designed to respond to criteria unique to that purpose, such as line pressure, minimum and maximum backflow pressure and chemical compatibility. Should the conditions for which the valve has been designed be altered or change in any way, it could affect the normal operation of the valve.

Tideflex™ Check Valves work on backpressure exerted on the bill area to seal the valve. The bill may appear to be slightly open when installed. This slight opening does not affect the operation of the valve, as the valve depends on backpressure to seal.



Tideflex™ Check Valves MUST be installed in such a manner that the bill is upright (vertical) to the ground (Figure #1). Water back pressure will hold the seal and insure drop-tight shut off. Installing the Tideflex™ Check Valve in a position other than vertical will cause the valve to gap open.

**FIGURE 1**



### NEVER...

Cut or modify check valve.

### NEVER...

Use a lubricant to slide Tideflex™ on pipe.

### DO...

Keep valve on pallet until ready to install.

### DO...

Tighten clamp bolts evenly.

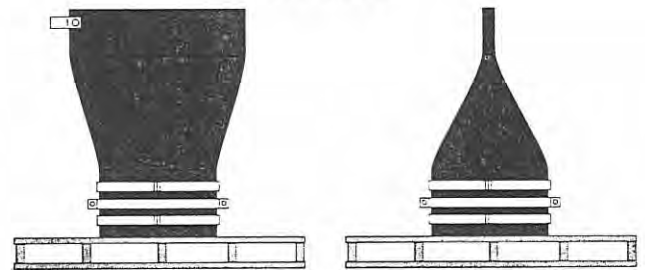


## STORAGE

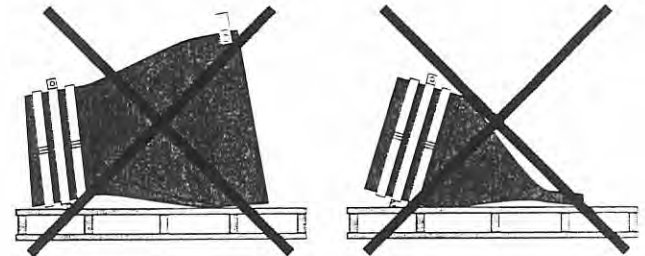
Rubber Check Valves should be stored in a cool, dry location on original shipping pallet with the bill facing upward (not on side) (Figure # 2). Do not drop, bend or twist Check Valve or damage may occur.

1. Store valve in a cool, clean, dry location.
2. Avoid exposure to light, electric motors, dirt or chemicals. Resilient Check Valves are subject to deterioration when exposed to ozones and non-compatible chemicals. Ozone especially causes age hardening of the elastomer.
3. Store Installation Operation Manual with product so it will be readily available for installation.

FIGURE 2



STORE VERTICALLY

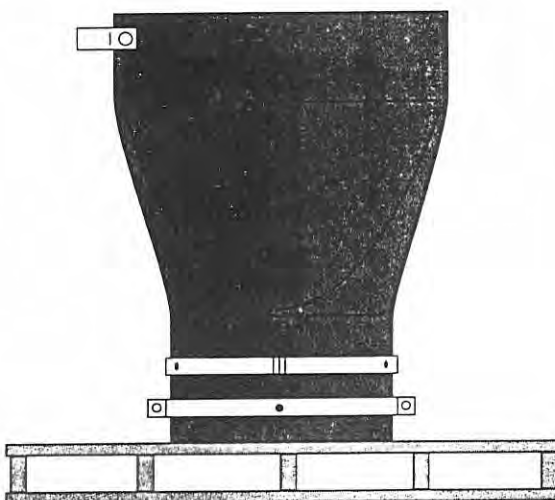


NEVER STORE HORIZONTALLY

## INSTALLATION INSTRUCTIONS – LARGE DIAMETER TIDEFLEX™ CHECK VALVES 24" AND OVER

### 1. INSPECTION OF CHECK VALVE:

Check the inside diameter of the Cuff of the Tideflex™ Check Valve to compare it to the O.D. of the outfall pipe. Inspect the outfall pipe for sharp or damaged areas. The Pipeline should be in a smooth condition to prevent cutting the Rubber Check Valve. Lifting clevis and Lifting Eye Bolts are provided only for sizes 36" and over.



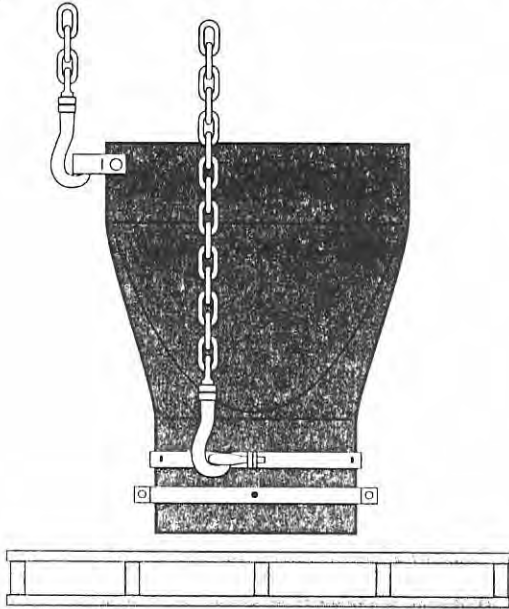
### 2. INSPECTION OF THE PIPE

Check the outside diameter of the pipe to determine if it matches the I.D. of the Cuff of the Tideflex™ Check Valve. The Cuff of the Check Valve is made slightly larger to permit ease of installation.



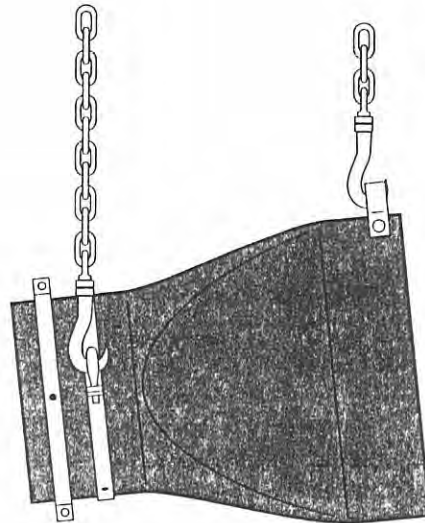
### 3. REMOVING THE VALVE FROM PALLET OR CRATING

A lifting clevis is provided at the top end of the Tideflex™ Check Valve. Lifting eye bolts are provided on the clamps. Remove the cuff retainer "Shipping Ring" or wooden brace located inside the Cuff of the valve. The valve should be lifted from the pallet using both the clevis and the lifting eye bolts.



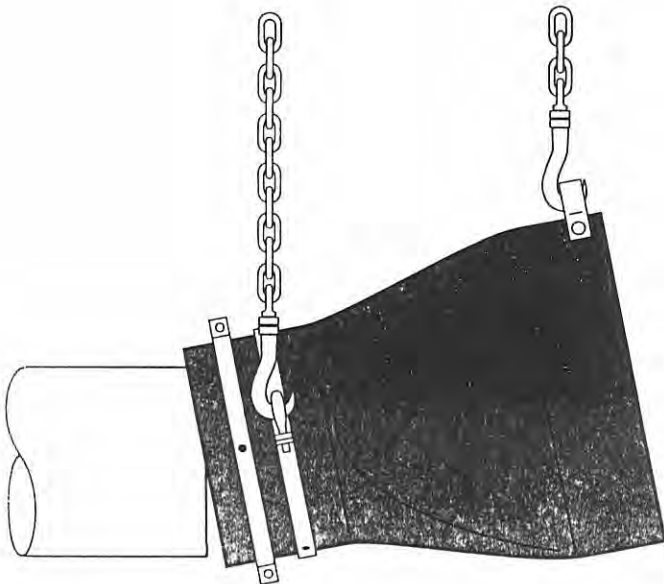
### 4. LIFTING THE VALVE

Do not discard the metal clamps holding the valve onto the pallet; THESE CLAMPS ARE NEEDED to install the Tideflex™ Check Valve. In lifting the Tideflex™ Check Valve from the pallet, keep the bill end of the Tideflex™ higher than the cuff for ease of installation.



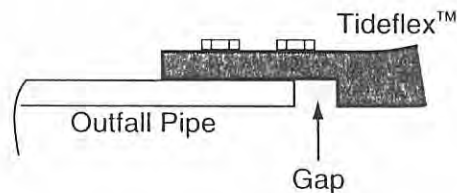
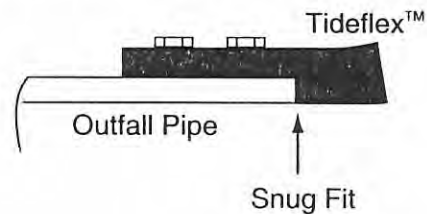
### 5. POSITIONING THE VALVE

With the bill end of the Tideflex™ lifted higher than the cuff end start to fit cuff on the outfall line. The Tideflex™ Check Valve should fit snugly against the outfall pipe, leaving no gap.



### 6. SEAT TIDEFLEX™ ON PIPE

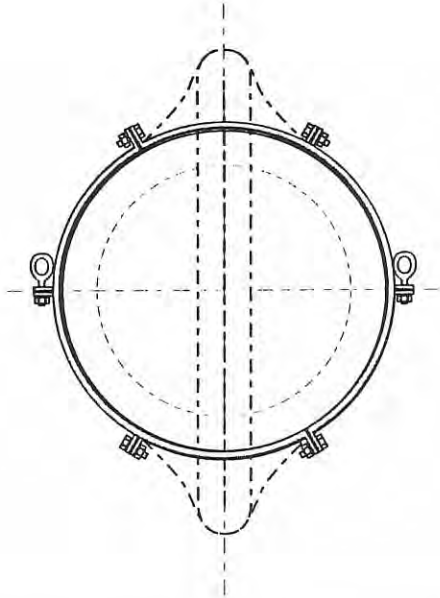
The Tideflex™ Check Valve should fit snugly against the outfall pipe, leaving no gap. If possible, inspect installation from the inlet end of the Tideflex™ Check Valve to insure that the Check Valve Cuff fits snugly on the pipe. Do not allow a gap between the cuff and the end face of the outfall pipe. A gap will create an imbalance which will not provide proper support for the Tideflex™ Check Valve..



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### 7. POSITIONING CLAMPS FOR 3 CLAMPS

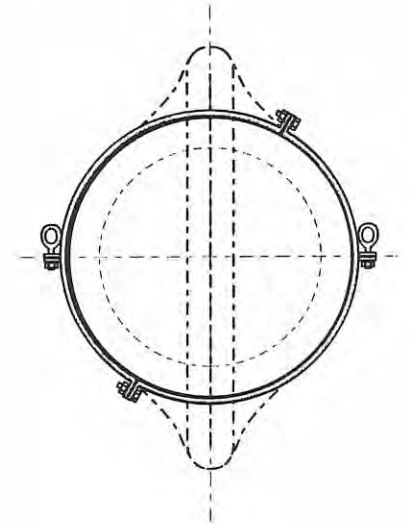
Position clamps on the Tideflex™ Check Valve around the Cuff in an offset arrangement. All clamps are provided with blank holes to receive holding bolts to the outfall pipe. See instructions 9,10,11.



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### 8. POSITIONING CLAMPS FOR 2 CLAMPS

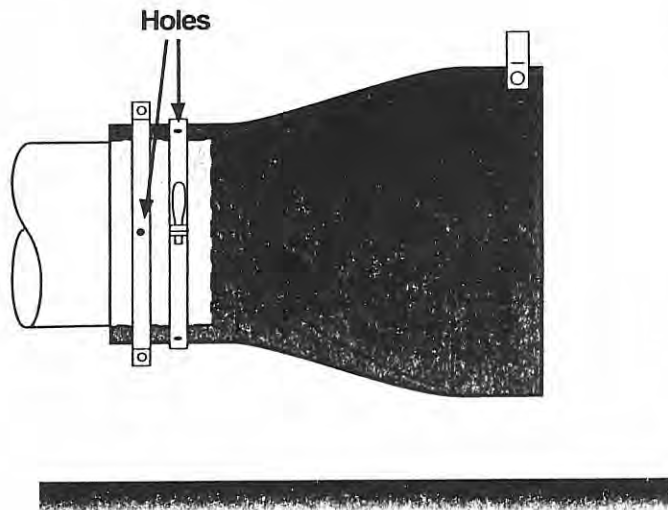
After the unit is securely pegged into position, proceed to install the first clamp. A mild lubricant may be applied to the I.D. of the **clamp** to prevent a brake shoe effect when tightening down clamps.



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### 9. TIGHTENING CLAMPS

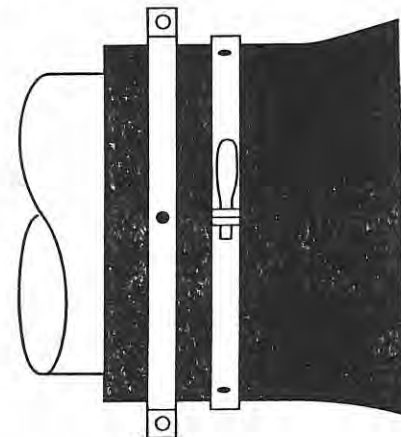
Install the second clamp on the cuff of the Tideflex™. Rotating the clamp 90° in relation to the first clamp will ensure even pressure around the valve and pipe, thus increasing the effectiveness of the clamps.



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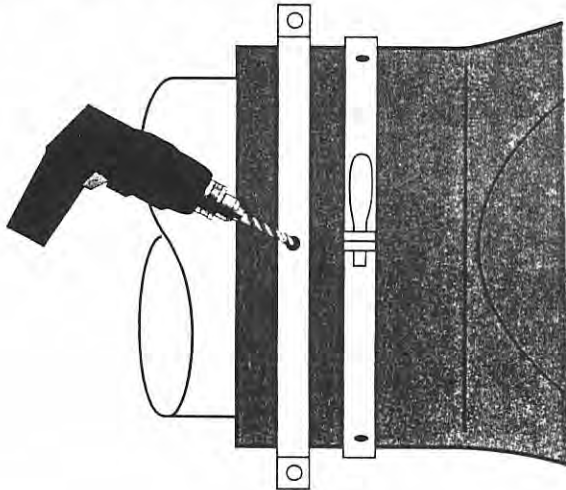
### 10. POSITIONING BLANK HOLES IN CLAMPS

Tighten all clamps and bolts once all components have been positioned properly. Blank holes are drilled in the three clamps. These are provided so as to secure the Tideflex™ Check Valve with "holding pins" to the outfall pipe. This will secure the Tideflex™ Check Valve to the pipe and assure a long, trouble-free service life. After tightening the clamps, the blank holes should be staggered. Holes are not drilled in the rubber cuff of the Tideflex™ at the factory since they would **not** line up to the tightened clamps.



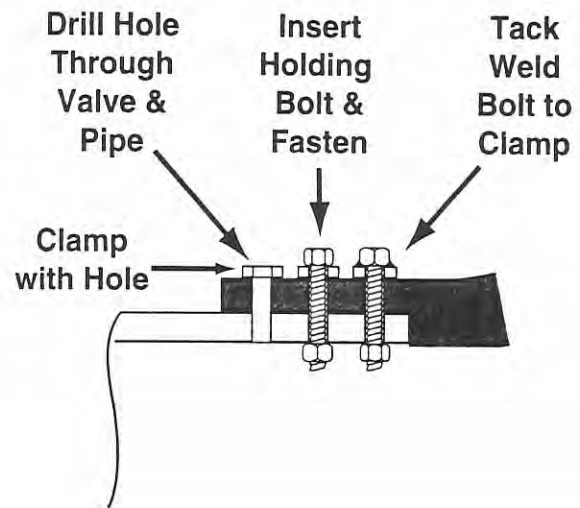
### 11. TACK WELDING HOLDING BOLTS TO CLAMPS

Once clamps are secure use a standard steel drill bit and drill holes through the rubber cuff. Insert holding bolts through the cuff and secure opposite side with nut, if possible. Holding bolts should be stainless steel. **Steel bolts can corrode and break off, causing the Check Valve to slip off the pipe.** Holding bolts are not provided because of various widths of the outfall pipe.



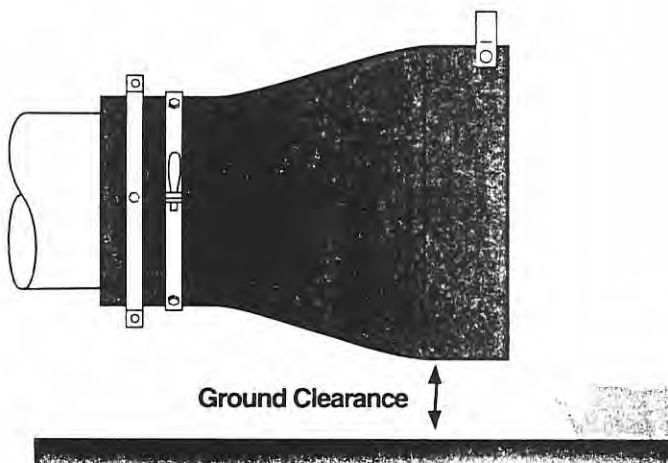
### 12. BOLTS TACK WELDED TO CLAMPS

After tightening, heads of holding bolts can be tack welded to the clamps using small tacks. Certain installations will not permit installing of nuts to bolts. In these situations, the tightness of the clamps and tack weld of the bolts will assure good support.



### 13. COMPLETED INSTALLATION

Make certain of at least 6" ground clearance of the Tideflex™ during installation and after. Debris under the Tideflex™ will keep the check valve partially open. Double check that lifting clevis on bill is on top. Tideflex™ Check Valves are built directional to have a top and bottom.



### 14. CORRUGATED PIPE AND PVC PIPE INSTALLATION

For installation on corrugated or PVC pipe, please contact the factory for special instructions.

## TROUBLESHOOTING

### **SYMPTOM:**

#### **Valve will not fit to pipe**

- Make certain that the inside cuff retainer ring has been removed prior to fitting the valve to the pipe.
- Verify that the valve has enough area to fit over the pipe.
- If the pipe can be removed, or if an adapter ring which bolts to the wall or inside a vault is used, a crane or high-lift may be used to lower the valve onto the ring with the valve turned on end and the bill facing up.

### **SYMPTOM:**

#### **Valve will not close fully, or check flow in opposing direction**

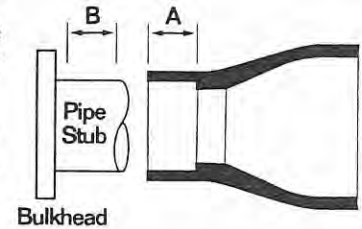
- Possible obstruction in line. Inspect the valve for entrapped foreign objects which may have lodged between the lips of the valve.
- Valve may not be installed high enough to clear the ground under the bill. Ensure that there is enough space between the bottom of the valve and the ground in order to prevent contact of the two or debris build-up.
- Back-pressure may not be sufficient to completely seal the valve.
- The Valve may not have been installed in a vertical position.

### **SYMPTOM:**

#### **Valve will not stay on pipe**

- Check all clamp bolts to assure that all bolts are tightened sufficiently.
- Valve may not be fully seated onto outfall line.
- Clamps are not rotated 90° from each other in order to provide adequate holding power.
- Valve cuff has a much larger I.D. in relation to pipe O.D.
- Make sure holding pins are used on 42" and larger Check Valves in order to prevent the valve from slipping off the line.

TF-2 Check Valves are designed to slide over a pipe stub. The below chart illustrates the **minimum** length required to support and secure the Check Valve in position. Too short of a pipe stub may cause the Check Valve to slip off or cause the Check Valve to gap open.



Check Valve Size	Cuff Length A	Pipe Stub B
1/2" - 3/4"	1/2"	1/2"
1" - 1-1/4"	3/4"	3/4"
1-1/2" - 2-1/2"	7/8"	7/8"
3"	1-1/2"	1-1/2"
4"	2"	2"
6"	1-3/4"	1-3/4"
8"	1-7/8"	1-7/8"
10"	2"	2"
12" - 14"	4"	4"
16" - 20"	6"	6"
24" - 36"	8"	8"
42"	10"	10"
48" - 60"	12"	12"
72"	16"	16"

*This chart does not represent the overall Check Valve dimensions, only the length of the Check Valve cuff area which slides onto the pipe stub.*

## MAINTENANCE

Line pressure should flush the valve clean of debris in most cases. Periodic inspections for trapped debris should be conducted.

In vacation seashore areas quart size plastic bottles have a tendency to float on top and not flush through except during a major storm.

A feathered 1" x 4", 1-1/2" x 12", or suitable plank inserted into the bill of the valve and turned 90° is a simple method of clearing the Check Valve of small debris which may be trapped between the lips.

**CAUTION: Sharp objects should not be used on the Tideflex™ as there is a chance of cutting the rubber and damaging the protective fabric covering.**

Any gouges in the cover wrap that occur should be sealed to safeguard against ozone or chemical attack. This is best done with rubber cement or a good brand of silicone or polyurethane rubber sealer made by the major manufacturers.

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## RED VALVE WARRANTY

### WARRANTIES - REMEDIES - DISCLAIMERS - LIMITATION OF LIABILITY

Unless otherwise agreed to in writing signed by Red Valve, all Products supplied by Red Valve will be described in the specifications set forth on the face hereof.

THE WARRANTIES SET FORTH IN THIS PROVISION ARE EXCLUSIVE AND IN LIEU OF ALL OTHER WARRANTIES WHETHER STATUTORY, EXPRESS OR IMPLIED (INCLUDING ALL WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE AND ALL WARRANTIES ARISING FROM COURSE OF DEALING OR USAGE OR TRADE).

Red Valve Products are guaranteed for a period of one year from date of shipment, against defective workmanship and material only, when properly installed, operated and serviced in accordance with Red Valve's recommendations. Replacement for items of Red Valve's manufacture will be made free of charge if proved to be defective within such year; but not claim for transportation, labor or consequential damages shall be allowed. We shall have the option of requiring the return of the defective product to our factory, with transportation charges prepaid, to establish the claim and our liability shall be limited to the repair or replacement of the defective product, F.O.B. our factory. Red Valve will not assume costs incurred to remove or install defective products nor shall we incur backcharges or liquidated damages as a result of warranty work. Red Valve does not guarantee resistance to corrosion erosion, abrasion or other sources of failure, nor does Red Valve guarantee a minimum length of service, or that the product shall be fit for any particular service. Failure of purchaser to give prompt written notice of any alleged defect under this guarantee forthwith upon its discovery, or use, and possession thereof after an attempt has been made and completed to remedy defects therein, or failure to return product or part for replacement as herein provided, or failure to install and operate said products and parts according to instructions furnished by Red Valve, or failure to pay entire contract price when due, shall be a waiver by purchaser of all rights under these representations. All orders accepted shall be deemed accepted subject to this warranty which shall be exclusive of any other or previous warranty, and shall be the only effective guarantee or warranty binding on Red Valve, anything on the contrary contained in purchaser's order, or represented by any agent or employee of Red Valve in writing or otherwise, notwithstanding implied warranties. RED VALVE MAKES NO WARRANTY THAT THE PRODUCTS, AUXILIARIES AND PARTS ARE MERCHANTABILITY OR FIT FOR ANY PARTICULAR PURPOSE.

 **Red Valve<sup>®</sup>  
Company, Inc.**  
700 N. Bell Avenue  
Pittsburgh, PA 15106  
(412) 279-0044  
FAX (412) 279-7878

## CONSTRUCTION NOTES - SPECIAL PROVISIONS

### SPECIFIC NOTES

#### Bearss Drain

Water's Edge  
to 000 & 000  
to 050

All access to be from the beach.  
Remove all material to grade line and bottom width shown on profile  
Equipment to work within channel cross-section  
From 000 to 050 work on banks is not possible. Sand removed is to be levelled on the beach  
Non-sand material removed is to be hauled away.  
Rocks and stones to be placed along toe of concrete wall from 000 to -050. Do not damage this concrete wall.

050 to 425

#### East Bank

All access to be from north  
Construct berm on east bank, brushing and large tree removal required. All large trees and brush material to be windrowed to east of working area.  
Refer to General Note for berm construction for further details  
Cleanout channel to grade on profile and to cross-section shown on Drawing 2. Use excavated material on berm

050 to 075

On lawn area berm to have 4:1 slope on east side. All disturbed areas to be restored with topsoil fine grading and seeding. If possible, large trees to remain. Any large trees removed shall be placed in the wooded area to the north.

221

Install 12m length of 600mm dia corrugated steel pipe (2.0mm wall) in surface run. West invert 174.44, East invert 174.46. Place 2m<sup>2</sup> of riprap on end slope at each end of pipe  
Place *Tideflex* check valve on downstream end of pipe

135 to 425

#### West Bank

Access to be from Firelane 9  
Construct berm on west bank. Brushing and cutting large trees required. Remains of old fence may also be removed. All large trees and brush piles to be hauled away. Continue channel cleanout from west bank if unable to reach full cleanout width from east bank.

- 160 to 425 After berm construction a swale shall be graded along the west edge of the berm to direct all surface runs to the West Branch east ditch. Swale to be saucer shaped (equivalent trapezoidal cross-section - 600mm bottom with 6:1 bank slopes). Profile for west bank berm shows approximate grade for swale. Final grade and depth to be set after berm construction. Completed swale to be seeded.
- 160 Install 12m length of 600mm dia corrugated steel pipe (2.0mm wall) at West Branch East outlet.  
Place 2m<sup>2</sup> of riprap on end slope at each end of pipe  
Place *Tideflex* check valve on downstream end of pipe
- 425 to 512 Clean out channel to give required bottom width. Use excavated material for berm construction. Minor clearing may be required to permit work
- 512 to 1+929 No work at this time. Profile shows suggested gradeline and channel cross-section for future improvement on this length of the Bearss Drain

Wm. Michael Drain

- 000 to 083 Continue berm construction on south bank of Wm. Michael Drain  
Bottom cleanout of channel. Use excavated material on berm
- 083 Remove and dispose of existing concrete culvert. If culvert is broken up it can be used in berm construction provided all pieces are fully covered or used as riprap otherwise concrete culvert material to be hauled away
- Install two 12m lengths of 900mm dia corrugated steel pipe (2.8mm wall) side by side with 900mm minimum separation.  
Place 10m<sup>2</sup> of riprap on the end slope at each end of the culverts  
Place *Tideflex* check valves on downstream end of both pipes  
Continue berm construction across new culvert and continue north for approximately 40m on existing laneway to match elevation 176.2
- 083 to 405 Work on north bank. This 10m working width is to be the construction access for all work on east bank of Bearss Drain  
All brush and trees within channel cross-section to be removed. Root and stump removal not required.



- Clearing and grubbing along top of bank required to permit access and excavation. Large trees can remain if they will not interfere with excavation. Remains of old fence may also have to be removed and hauled away.  
Bottom cleanout of ditch to grade shown on profile  
All excavated material to be hauled for berm construction
- 405 to 420 No work required at existing culvert
- 420 to 600 Work on south bank. Remove all brush and trees within channel cross-section. Bottom cleanout of ditch to grade shown on profile. All excavated material to be hauled for berm construction.
- 570 to 600 Taper cleanout up to match existing ditch bottom at Station 600. Haul all material away. Restore any disturbed lawn areas. Minimal clearing. No tree removal unless approved by the Engineer and the owner.
- 600 to 1+483 No work at this time. Profile shows suggested grade line and channel cross-section for future improvement on this part of the Wm. Michael Drain

## GENERAL NOTES

### Working Area - General Condition E.38

Working area shall be a 20m width measured from the top of bank where a berm is to be constructed and a 10m width measured from the top of bank where no berm is to be constructed. The enlargement on Drawing 2 illustrates the working area.

### Access - General Condition E.39

#### East Bank Bearss Drain and Wm. Michael Drain

The contractor shall install an access off the west side of Wyldewood Road to the north bank of the Wm. Michael Drain. This access shall consist of a 10m length of 500mm dia (2.0mm wall) CSP with granular backfill in the road ditch. Access route will then follow the working area on the north bank to the Benner laneway.

All surface drainage swales to be restored at completion of construction.

**NO CONSTRUCTION EQUIPMENT SHALL USE FIRELANE 15 AS AN ACCESS ROUTE TO THE BEARSS DRAIN.**

A 6m wide easement along the north bank of the Wm. Michael Drain shall remain as a grass buffer strip after construction to provide an access route for future maintenance.

#### Beach Area Bearss Drain

Access shall be from Wyldewood Road to water's edge and then along the water's edge to the Bearss Drain. Contractor shall protect all water lines during access. Restricted access width at shoreline protection on Lamacraft property. Do not damage shoreline protection in this area. Contractor responsible for any restoration required on this access route.

#### West Bank Bearss Drain

Use Firelane 9 (private road) and then along the south bank of the West Branch East of Silver Bay Road. At the end of the travelled portion of Firelane 9 it will be necessary to remove a railway tie curb and to cross a lawn area for a short distance. Contractor to restore lawn area and railway tie curb at construction completion.

### Berm Construction

Berm construction will commence at the north end of the proposed berm on the laneway on the Benner property and then continue downstream, southerly, as the berm will be the access route for all work on the Wm. Michael Drain and the Bearss Drain east bank. Refer also to the General Note for Access.

In areas where the depth of the berm exceeds 0.5m, the initial 600mm of the berm shall be imported clay material. The contractor shall be responsible for locating a good source of imported clay. The imported material shall be free of granular of any type as well as free of topsoil, coarse grained soil particles or debris of any kind. The Engineer shall approve the imported clay fill before the contractor starts hauling. It will be the contractor's

responsibility to locate an appropriate source for the imported material. It is possible that arrangements can be made with local landowners to have an earth borrow site close to the drain.

Berm construction shall proceed in lifts not to exceed 500mm and shall be fully compacted using track equipment. Mechanical compaction is required around all pipe installations.

All pipe installations shall be done as the berm is constructed. It is not recommended that the berm first be fully constructed and then the pipe installed by means of an open cut in the berm. Granular (19mm clear stone) to be used for stable pipe bedding. Clay seal required at downstream end of any granular bedding. Use imported clay content fill to backfill pipe and for 300mm cover on pipe. Balance of fill to be as per berm construction.

Excavated material from the channel can be used for the upper part of the berm and for the berm away from the ditch side. It is recommended that some clay material be used to finish the berm on the ditch side. The contractor may wish to construct sufficient berm using imported clay fill to permit full access. The contractor can then clean out the channel and place this material on the side of the berm away from the ditch to better determine the final imported fill quantity required.

Clearing and brushing will be required to permit berm construction. This clearing and brushing shall be done using a mechanical brush cutter mounted on a backhoe or using a chainsaw. Large trees shall be windrowed along the edge of the working area or hauled away as directed in the specific notes. All material is to be clear cut as close to the ground as possible. For the berm area, as well as the working area adjacent to the berm, no root or stump removal is to be undertaken. In the low areas, this root structure will be required to ensure stability to the base of the berm.

After final grading, the completed berm shall be seeded.

#### Tideflex Check Valves

The *Tideflex* check valves shall be Neo-Red Series TF-2 (manufactured by the Red Valve Co., Pittsburg, PA) as supplied by Neo Valves (430 Norfinch Drive, Downsview, Ontario). The City of Port Colborne will arrange for the supply of the *Tideflex* check valves. The contractor will be responsible for unloading the *Tideflex* check valves at Wyldewood Road, transporting them to the installation sites and installing the *Tideflex* check valves. The check valves shall be installed on the respective pipes in accordance with the manufacturer's specifications for installation.

A copy of an installation, operation, and maintenance manual for *Tideflex* check valves is included in the specifications.

#### Geotextile Filter Fabric

To be non-woven fabric, rot proof, non-biodegradable, chemically resistant to acidic or alkaline soils, dimensionally stable under different hydraulic conditions and is to be a material whose primary function is a high permeable non-clogging soil separator for fine soils. Contractor is to avail himself of manufacturer's recommendations for installation, cutting and precautions necessary to avoid damage to fabric.

Filter Fabric is available from:

MIRAFI Coldstream Concrete Ltd.  
Ilderton, Ontario

(519) 666-0604

TEXEL NSP Drainage Systems  
60 Burwell Drive  
St. Thomas, Ontario

1-800-265-4323

TREVIRA Armtec Construction Products  
Guelph, Ontario

(519)763-2360

Other approved equals will also be considered by the Engineer.  
Approval must be obtained prior to construction.

#### Riprap

All riprap is to be placed on a filter fabric underlay (Mirafi P250 or Texel 7612 is suggested) unless directed otherwise on Plan.

Along upstream edges of riprap, where surface water will enter, underlay is to extend a minimum of 300mm upstream from riprap and then be keyed down a minimum of 300mm. The riprap is to be graded angular heavy stone (quarry stone is suggested) with particles averaging in size from 225mm to 300mm and is to be placed at 300mm thickness. Sufficient fine particles are to be included to fill voids. Wherever riprap is used, the area is to be overdug so that finished top of riprap is at design cross-section, at design elevation or flush with existing ground.

#### Pre and Post Construction Meetings

The Contractor is required to attend a pre- and post- construction site meeting with the Engineer and landowners before starting and after finishing the work.

#### Seeding of Berm, Ditch Bank Slopes and Levelled Spoil

For seeding use mechanical (cyclone) spreader and the following shall apply:

Seed mixture applied at 60kg/ha:

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

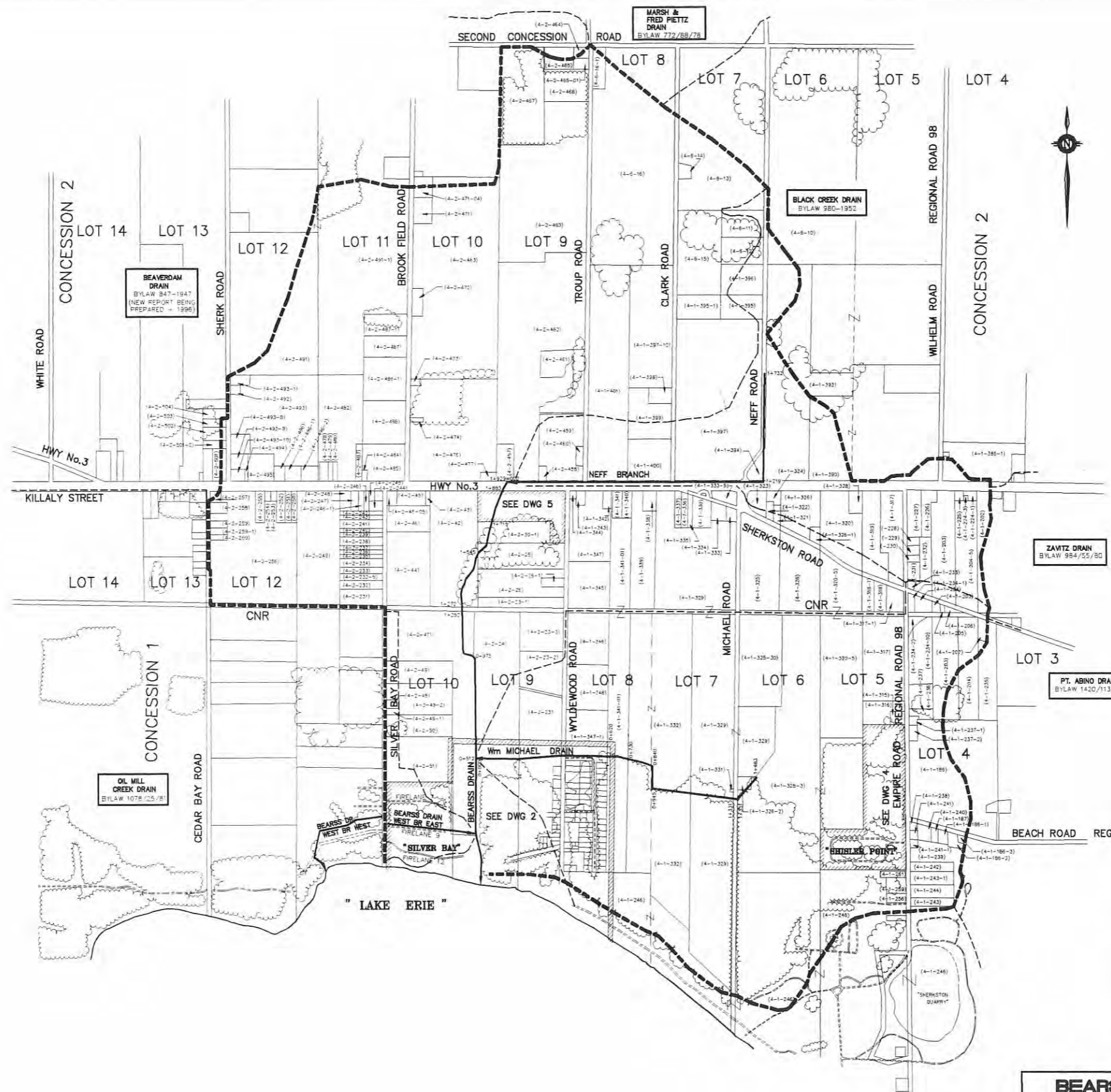
Fertilizer to be 5:20:20 or 10:10:10 applied at 300 kg/ha.

Seed and fertilizer to be applied as soon as possible after excavation (the end of the day).

To provide temporary cover for late fall planting add as additional 10 kg/ha of rye or winter wheat.

Areas that remain grassed after excavation may not need to be seeded as directed by the Engineer.

Contractor responsible for additional seeding to provide uniform catch.



**LEGEND**

--- MAJOR WATERSHED LIMITS

- - - INTERMEDIATE WATERSHED

← DRAIN

(4-1-325-30) PROPERTY ASSESSMENT ROLL NUMBER

**NOTE:**

- ALL PROPERTIES ARE IDENTIFIED USING THE ASSESSMENT ROLL NUMBER FROM THE CURRENT CITY OF PORT COLBORNE ASSESSMENT ROLL. ALSO, THE ROLL NUMBER SHOWN eg (4-1-329) IS ABBREVIATED FROM THE FULL ROLL NUMBER LISTED IN THE CITY ROLL.
- THE DESIGNATION INDICATES OWNERSHIP CROSSING A LOT LINE.
- THE PERIMETER WATERSHED SHOWN IS BASED ON A PLAN BY C. J. CLARKE NIAGARA LTD. DATED JULY 1978. WHERE ADJACENT DRAINS HAVE HAD REPORTS SINCE 1978 AN ATTEMPT WAS MADE TO USE THE WATERSHED LINE FROM THE NEWER REPORT.

**BEARSS DR & Wm MICHAEL DR.**  
CITY OF PORT COLBORNE (FORMERLY HUMBERSTONE TOWNSHIP)

---

**WATERSHED PLAN**

**K. SMART ASSOCIATES LIMITED**  
CONSULTING ENGINEERS AND PLANNERS  
85 McINTYRE DRIVE  
KITCHENER, ONTARIO N2R 1G2

JOB NUMBER 93029  
DATE SEPT. 30, 1996  
SCALE 1:10,000  
DRAWING NUMBER 1 OF 5

No.	REVISION	DATE

DESIGNED BY: JK  
CHECKED BY: JK  
DRAWN BY: M.I./R.A.M.  
CHECKED BY: JK  
FIELD BOOK:

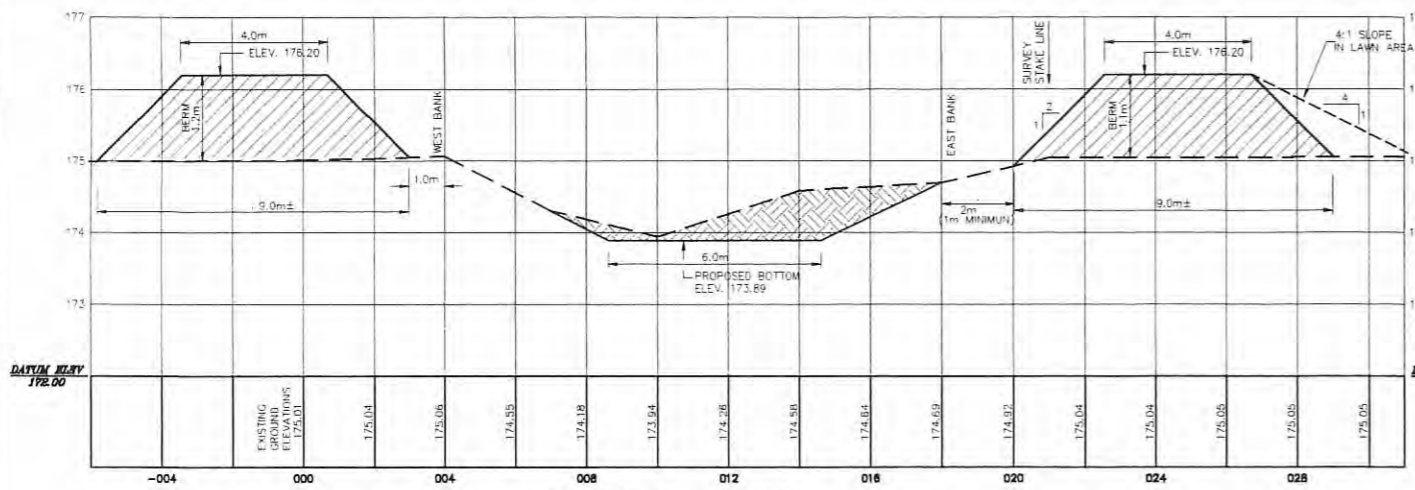
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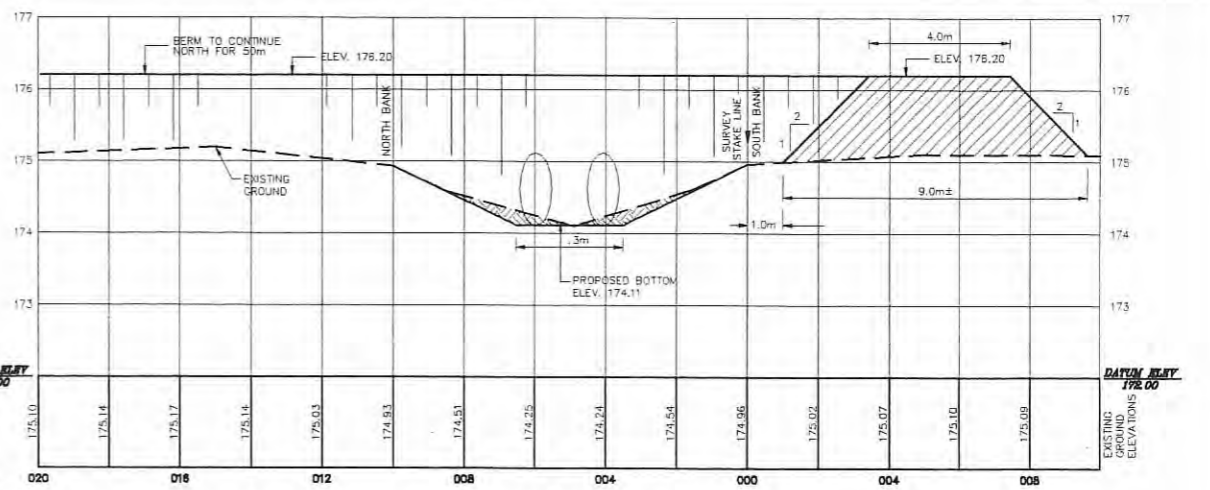
SEE DWG 5

SEE DWG 2

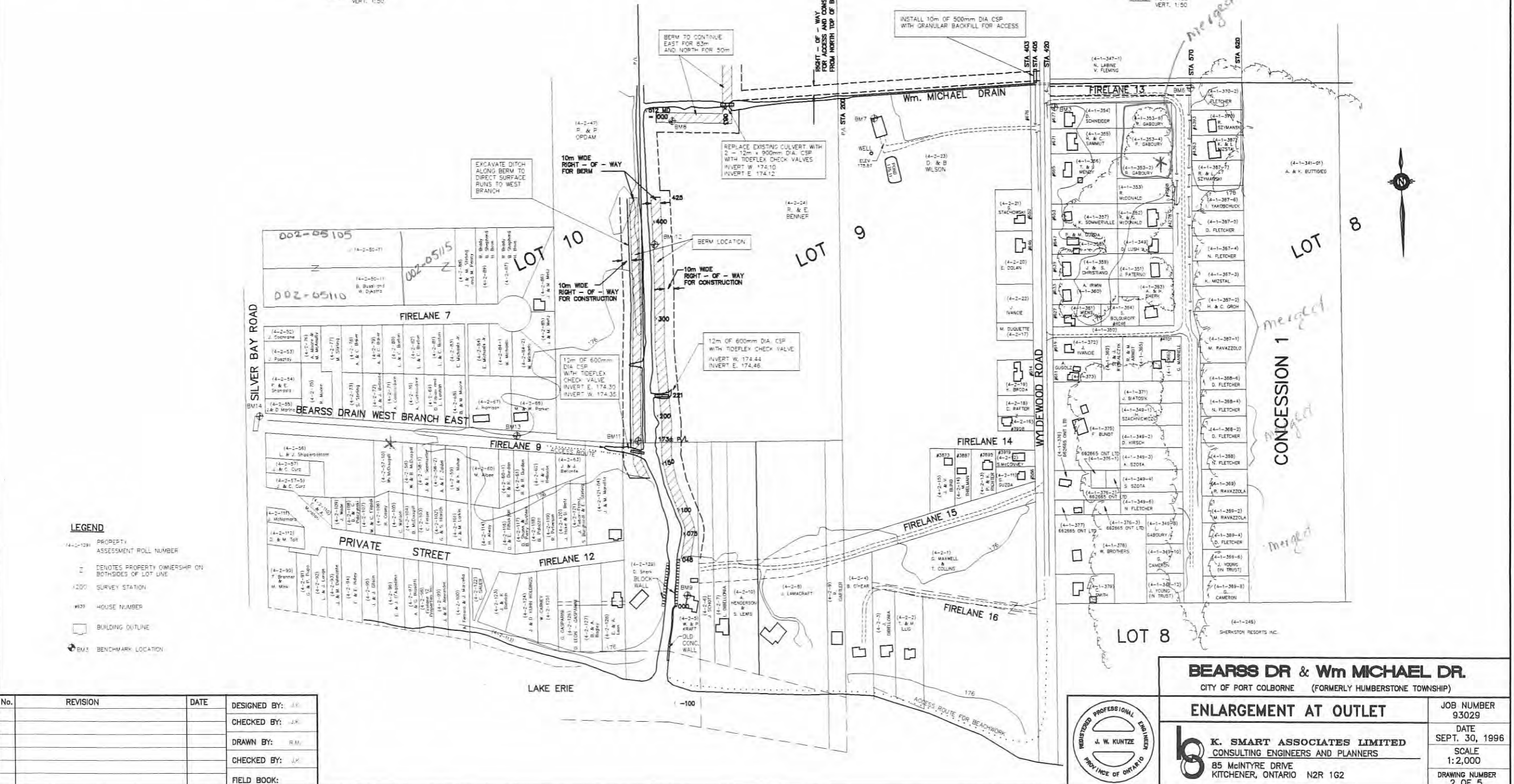
SEE DWG 4



**BEARSS DRAIN - STA 175**  
**LOOKING NORTH (UPSTREAM)**  
 SCALE: HOR. 1:100  
 VERT. 1:50



**MICHAEL DRAIN - STA 075**  
**LOOKING EAST (UPSTREAM)**  
 SCALE: HOR. 1:100  
 VERT. 1:50



No.	REVISION	DATE	DESIGNED BY:	CHECKED BY:	DRAWN BY:	CHECKED BY:	FIELD BOOK:

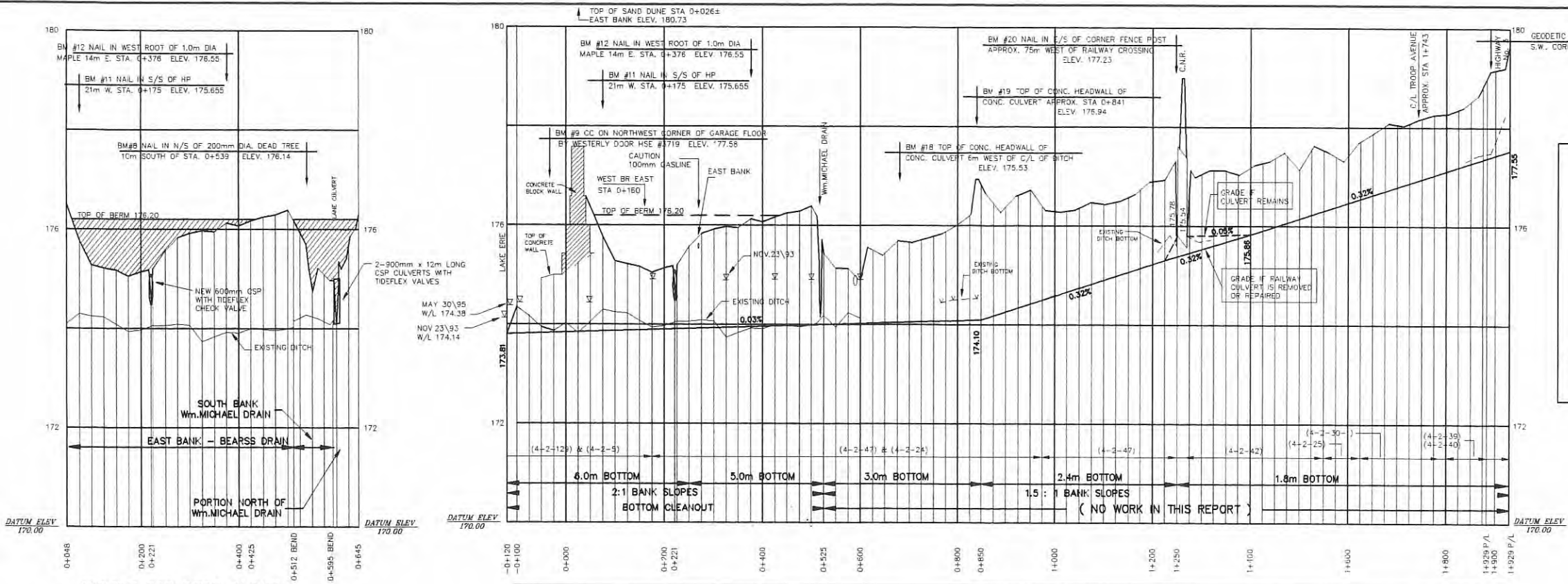
**BEARSS DR & Wm MICHAEL DR.**  
 CITY OF PORT COLBORNE (FORMERLY HUMBERSTONE TOWNSHIP)

**ENLARGEMENT AT OUTLET**

**K. SMART ASSOCIATES LIMITED**  
 CONSULTING ENGINEERS AND PLANNERS  
 85 MCINTYRE DRIVE  
 KITCHENER, ONTARIO N2R 1G2

REGISTERED PROFESSIONAL ENGINEER  
 J. W. KUNTZE  
 PROVINCE OF ONTARIO

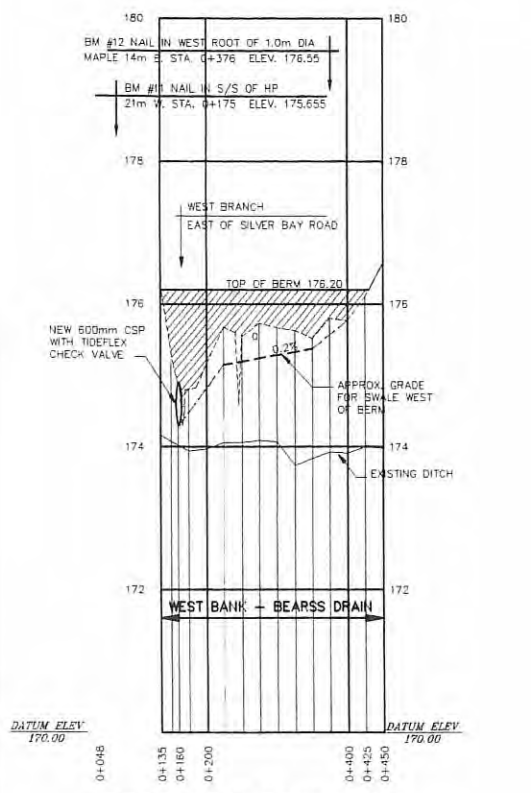
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 DATE SEPT. 30, 1996  
 SCALE 1:2,000  
 DRAWING NUMBER 2 OF 5



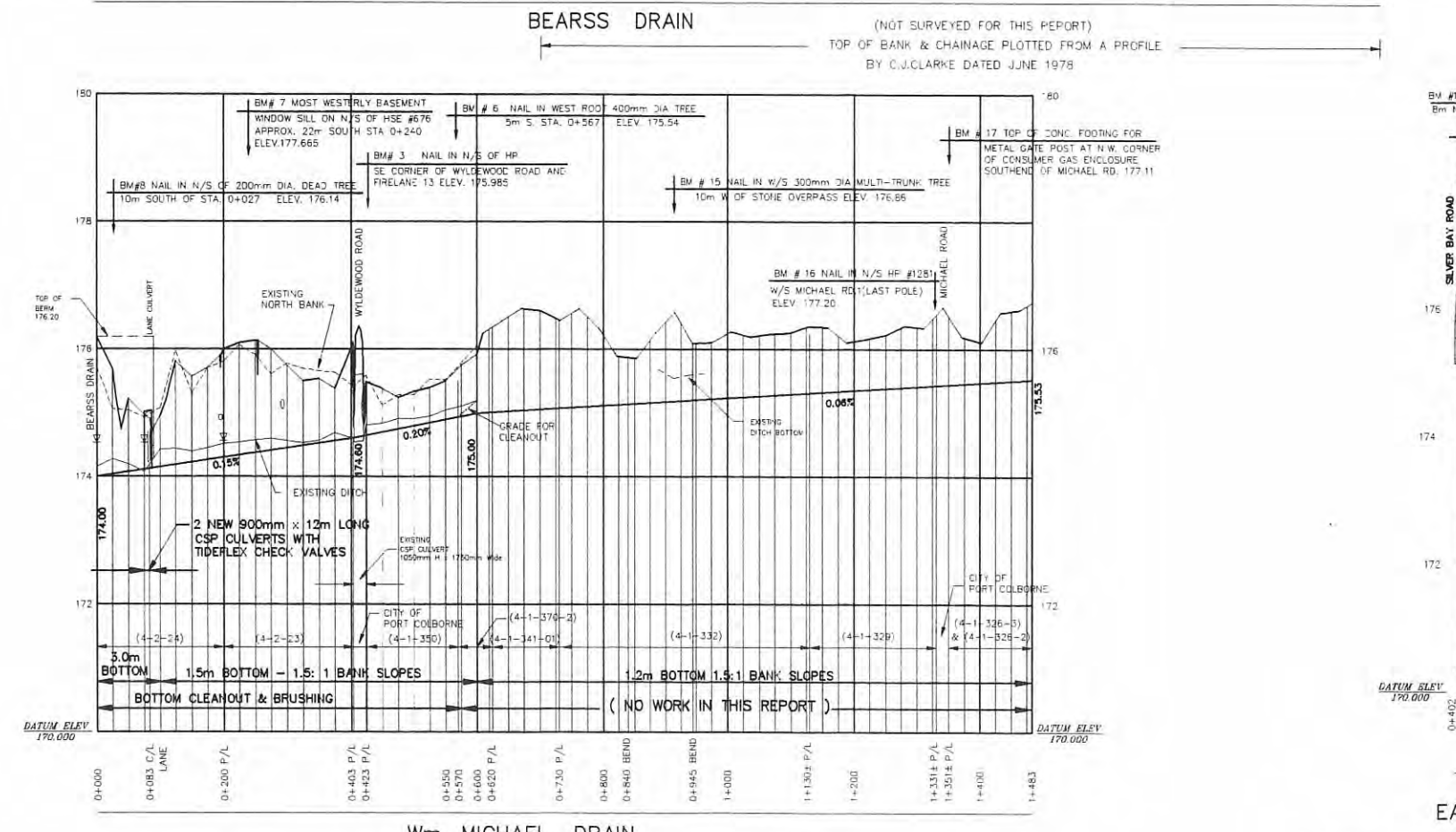
**PROFILE LEGEND**

- ∩ - WATER LEVEL AT TIME OF SURVEY
- ∧ - LOW SHOT
- ∧ - HIGH SHOT ( OPPOSITE BANK )
- - TILE OUTLET
- - EXISTING CULVERT
- ∩ - CUT TO BOTTOM OF DITCH ( INVERT OF TILE ) IN METRES
- ∩ - GROUND LEVEL AT STAKE
- ∩ - CUT TO DITCH BOTTOM IN METRES
- ∩ - DITCH BOTTOM
- ∩ - GRADE FOR PROPOSED DRAIN
- ∩ - INVERT FOR PROPOSED DRAIN

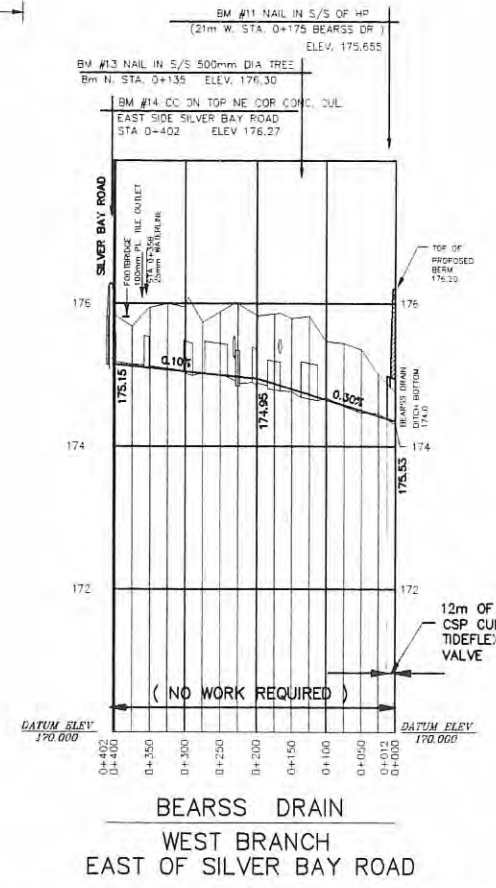
PROFILE FOR BERM ALONG EAST BANK OF BEARSS DRAIN, SOUTH BANK OF Wm.MICHAEL DRAIN AND NORTH OF Wm. MICHAEL DRAIN



PROFILE FOR BERM ALONG WEST BANK OF BEARSS DRAIN



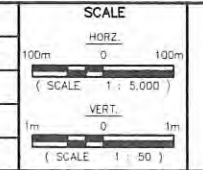
Wm. MICHAEL DRAIN (NOT SURVEYED FOR THIS REPORT) TOP OF BANK & CHAINAGE PLOTTED FROM A PROFILE BY C.J.CLARKE DATED JUNE 1978



BEARSS DRAIN WEST BRANCH EAST OF SILVER BAY ROAD (NO WORK REQUIRED)

**NOTE:**  
FOR CONSTRUCTION NOTES (General Notes), SEE PAGES FOLLOWING THE SPECIFICATIONS IN THE REPORT. (In front of Drawing No. 1).

No.	REVISION	DATE	DESIGNED BY:	J.K.
	CHECKED BY:	J.K.		
	DRAWN BY:	R.M.		
	CHECKED BY:	J.K.		
	FIELD BOOK:	93029		

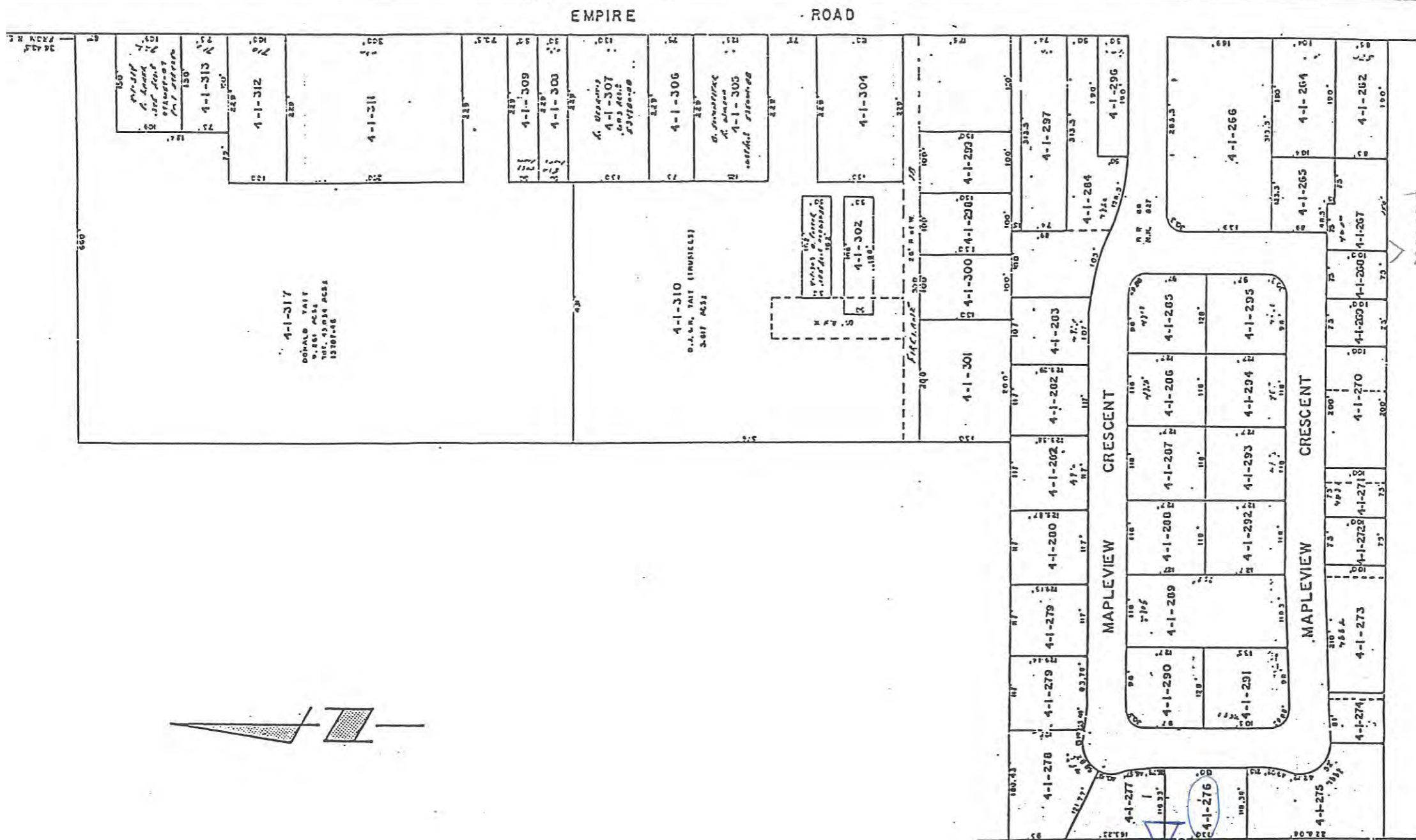


**BEARSS DR & Wm MICHAEL DR.**  
CITY OF PORT COLBORNE (FORMERLY HUMBERSTONE TOWNSHIP)

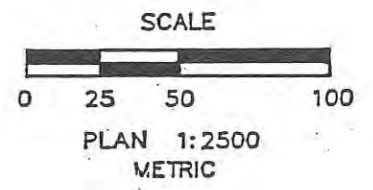
**PROFILES**

**K. SMART ASSOCIATES LIMITED**  
CONSULTING ENGINEERS AND PLANNERS  
85 MCINTYRE DRIVE  
KITCHENER, ONTARIO N2R 1G2

JOB NUMBER: 93029  
DATE: SEPT. 30, 1996  
DRAWING NUMBER: 3 OF 5

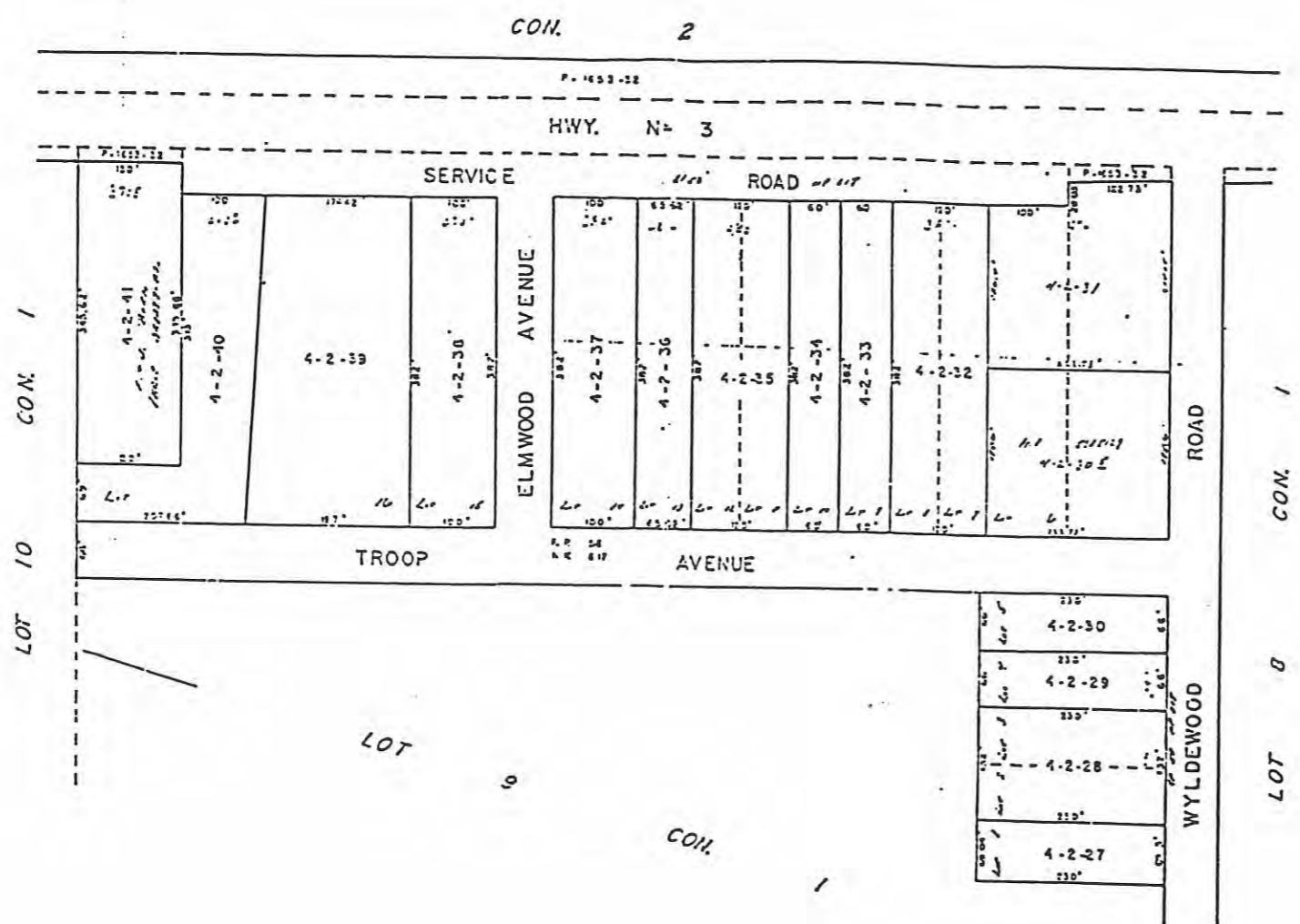


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FROM THE CITY OF PORT COLBORNE

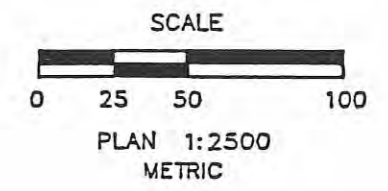


<b>BEARSS DR &amp; Wm MICHAEL DR.</b> CITY OF PORT COLBORNE (FORMERLY HUMBERSTONE TOWNSHIP)	
<b>PARTIAL WATERSHED ENLARGEMENT</b>	JOB NUMBER 93029
 <b>K. SMART ASSOCIATES LIMITED</b> CONSULTING ENGINEERS AND PLANNERS 85 MCINTYRE DRIVE KITCHENER, ONTARIO N2R 1G2	DATE SEPT. 30, 1996
	SCALE AS SHOWN
	DRAWING NUMBER 4 OF 5





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<b>BEARSS DR &amp; Wm MICHAEL DR.</b>	
CITY OF PORT COLBORNE (FORMERLY HUMBERSTONE TOWNSHIP)	
<b>PARTIAL WATERSHED ENLARGEMENT</b>	JOB NUMBER 93029
 <b>K. SMART ASSOCIATES LIMITED</b> CONSULTING ENGINEERS AND PLANNERS 85 McINTYRE DRIVE KITCHENER, ONTARIO N2R 1G2	DATE SEPT. 30, 1996
	SCALE AS SHOWN
	DRAWING NUMBER 5 OF 5