

THE CORPORATION OF THE  
CITY OF WINDSOR

J. B. ADAMAC, C.M.C.  
CITY CLERK



OFFICE OF THE CLERK

CITY HALL  
WINDSOR, ONTARIO  
N9A 6S1  
TELEPHONE 255-6211  
255-6215

IN REPLY, PLEASE REFER  
TO OUR FILE NO. SWD L/83

NOTICE

to owners of properties affected by  
Dike Repairs and Improvements to the Little River Drain  
in the City of Windsor  
pursuant to The Drainage Act, R. S. O. 1980, c. 126

TAKE NOTICE THAT E. O. Lafontaine, P.Eng., Lafontaine, Cowie, Buratto  
and Associates Limited, filed the attached report with the City on June 28, 1983,  
respecting Repairs and Improvements to the Little River Drain.

AND FURTHER TAKE NOTICE that Council of The Corporation of the City  
of Windsor intends to consider the report at its meeting in the Council Chambers,  
Third Floor, City Hall, on Monday, August 15, 1983, at 7:30 o'clock p.m.

AND FURTHER TAKE NOTICE THAT the Council will at such meeting hear any  
person who is present and/or applies to be heard. If you wish to be listed as a  
delegation at the meeting, please telephone 255-6432.

Dated at Windsor, Ontario, this 26th day of July, 1983.

W. J. Braun  
Deputy City Clerk

TL/11

RECEIVED - FILE NO. 2007-6

ROUTE TO:	INITIALS
G.M.	
D.O.	
S.T.	
G.S.	
C.R.S.	
W.M.S.	
BIOLOGIST	
AG. TECH.	
PL. TECH.	
COM. REL. TECH.	
J.R.P.H.	

JUL 27 '83

1983 06 24  
Our Ref. No. WD601



LA FONTAINE,  
COWIE,  
BURATTO  
& ASSOCIATES  
LIMITED

3260 Devon Drive  
Windsor, Ontario  
N8X 4L4

Telephone  
(519) 966-2250  
Cable Address  
LACOBUR

Mayor and Members of Council  
Corporation of the City of Windsor  
City Hall  
Windsor, Ontario  
N9A 6S1

Re: Repairs and Improvements  
Little River Drain, City of Windsor

Mayor Kishkon and Gentlemen:

In accordance with your resolution of February 14, 1983, I have undertaken a survey and prepared a report for the repairs and improvements to the Little River Drain from the north limit of the right-of-way of the Canadian National Railway to the south limit of Riverside Drive in the City of Windsor. I am pleased at this time to submit herewith my report.

#### GENERAL

The condition of the existing dikes and waterway of Little River was the subject of a study for the Essex Region Conservation Authority by LaFontaine, Cowie, Buratto & Associates Limited in 1982. In the course of making this study, the engineering firm took measurements, levels and cross-sections of the waterway and dikes between the north limit of the Canadian National Railway and Lake St. Clair. Hydrological calculations were carried out with the use of computer models and it was determined the existing channel and dikes could not accommodate the runoff from a 1:100 year design flood under average monthly level conditions in Lake St. Clair. Moreover, it was noted the dikes are in a poor structural state of repair, suffering considerable distress from erosion and high flow velocities. Damage to the banks or dikes is further being aggravated by wave action from boat wakes.

The most critical situation, however, is that the banks of the dikes can be overtopped in several locations if exposed

Cont'd . . . .



GENERAL (Cont'd)

to the 1:100 year flood condition with resulting property damage estimated at millions of dollars.

The City Administration reported to City Council on the deficiencies in the channel capacity and the perilous state of the dikes, recommending remedial action be undertaken at the earliest possible date under the provisions of The Drainage Act 1975. Council accepted the recommendations of its Administration and instructed LaFontaine, Cowie, Buratto & Associates Limited to undertake this report.

ON-SITE MEETING

In accordance with provisions of Section 9 of The Drainage Act 1975, I caused your Clerk to send a notice to all owners of the lands affected by the work of a proposed site meeting which was duly held in the library of Riverside Secondary School commencing at 7:30 p.m. on the evening of March 29, 1983. Also invited to the meeting, were representatives of Utility Companies, Railway Companies, Road Authorities, the Essex Region Conservation Authority, Administrative and Elected Officials of the City of Windsor. A list of those persons in attendance was compiled and is attached to this report as Appendix I. In all, approximately 65 persons were in attendance.

At the meeting, there was an exhibit of drawings, sketches, reports and information relating to the proposed drainage undertaking. I explained to those in attendance the purpose of the meeting, the works proposed to be carried out and their potential effects.

It was emphasized that the works were required to protect not only the properties of the affected owners abutting the Little River Drain, but also approximately 1000 homes and businesses which would sustain considerable damage in the event of failure of the dikes. I also explained the nature of the proposed construction and how it would affect the individual property owners abutting the Drain. In particular, I noted the existing melange of docks, jetties, wharfs, boathouses, seawalls, retaining structures, etc. would be removed and replaced by a single uniform and continuous system of steel retaining walls and protective dikes. I noted that both The Drainage Act and The Conservation Authorities Act prohibit the construction of any structures or objects in a watercourse or waterway if such construction or objects reduce capacity or impede flow. For this reason, I advised the ratepayers it was not proposed to replace any docks, boathouses or other structures in the Drain.

In my address to the assembled ratepayers, I also pointed out the work would involve building dikes on land for a

ON-SITE MEETING (Cont'd)

distance of 7 m to 10 m from the water's edge of the Drain. This would require the removal of fences, structures, trees, bushes and shrubs within the working area. I indicated that allowances would be made under the provisions of The Drainage Act for ornamental trees and shrubs, for land taken, damage to land, if any, and for access to the work. I noted that existing fences and surface structures on land would be temporarily removed and replaced and the area generally restored to its condition prior to construction.

After explaining the general details of construction and the extent of the work, I declared a brief recess in the meeting to permit the ratepayers to examine the plans and exhibits after which time the meeting was reconvened and a question and answer period followed.

I attempted to answer the verbal expressions of concern and questions by the ratepayers. The following is a brief summary of the questions presented and the concerns expressed.

- (1) Mr. Chandler of 440 Riverdale Avenue noted that his recently constructed home was not shown on the drawings or on the aerial photographs presented to the meeting. He indicated he had considerable erosion of his back yard, having lost approximately 7 ft. of land into the Drain over the last few years. He indicated he considers it a priority to fix the banks of his property before additional damage is incurred. Mr. Chandler also complained of flooding caused by some defect in the sewer on Riverdale Avenue. He was advised this was not a matter of concern for the meeting and his complaint should be directed to the City Administration.
- (2) Several members of the audience expressed concern over their recent investments in upgrading their docks and jetties and wondered if any compensation would be received for the loss of same. One person indicated he had spent about \$5,000.00 building a new gabion wall, wooden platform and dock. Others indicated they had several jetties in the Drain that were a source of income from boat rentals on a seasonal basis. I advised all concerned that no compensation would be provided for removal and discontinuance of the use of docks, jetties, wharfs, boathouses, etc.
- (3) One person spoke strongly about the need to dredge and dispose of contaminated material from the bottom of the Drain and noted this was an environmental concern which should be addressed as part of the program. Another person spoke of the stagnant

ON-SITE MEETING (Cont'd)

nature of Old Little River which discharges into the Little River Drain noting something should be done to eliminate this potential health hazard. I advised those persons that the proposed work would eliminate some of their concerns but the matter of pollution of the Drain or health hazards of the contributing watersheds was not a subject to be addressed at the meeting.

- (4) One person felt that the Township of Sandwich South should be asked to contribute to the Drain improvements since a great deal of water is conveyed to the Drain from that municipality. I replied that it is proposed that any assessment to cover the cost of construction repair or improvement is to be charged and collected by a special rate levied upon all of the rateable property in the City of Windsor in accordance with the provisions of the City of Windsor Act 1968. There was no intent to make a special assessment directly on any property, or on any other municipality.
- (5) Several parties expressed concern over what type of appurtenances for docking would be allowed after the proposed sheet pile walls and dikes are constructed. I advised that normal mooring bollards, boat lifts, etc. would be allowed so long as they did not impede the flow of water in the Drain. In this connection, I also indicated that fencing would be permitted down to the water's edge or to the top of the steel retaining walls, as the case may be, provided such fencing was of an open mesh type which would permit water to flow through it without impeding the flow.
- (6) One ratepayer suggested the Engineer meet with every property owner to consider the effect of the proposed work on each property. I indicated this would be a difficult undertaking. However, in order to provide further information to the ratepayers and to assist them in assessing the impact of the work on their lands, I promised to provide for a stake to be placed at each property line along the toe of the slope of each dike, as well as along the water's edge at appropriate intervals in order for the property owners to observe where the proposed works would be in relation to their lands.
- (7) Many property owners expressed reservations concerning the height of the dike and how the slope of the dike would affect their property, particularly water runoff or drainage. It was noted however that any

ON-SITE MEETING (Cont'd)

attempt to provide drainage through the dikes to the Drain would also permit back-flow and flooding in time of high water.

- (8) Several owners expressed concern about the structural adequacy of the bridge at Riverside Drive, indicating the underside of the bridge was in poor condition. Concern was also expressed about ice flows jamming the bridge in the same location and the need for possible dynamiting of ice flows. I noted that the structural condition of the Riverside Drive Bridge was a matter for the engineering staff of the Public Works Department and their concerns would be directed to the Commissioner of Works. I also indicated the bridge at Riverside Drive has adequate hydraulic capacity for the projected flood discharge and therefore, it was not intended to replace this structure.
- (9) Many home owners were concerned about the potential loss of trees on their property and damage to landscaping features. I advised that every attempt would be made to eliminate unnecessary damage or destruction of trees or shrubs. However, I stressed that many large trees immediately adjacent to the water's edge would be destroyed during the course of construction and that only nominal compensation would be made for these trees because of their condition and the need to widen and improve the waterway cross-section.
- (10) Several parties expressed concern over the methodology of construction inquiring whether the contractors would be allowed to trespass over any part of their property. I advised that access to the work and construction of the work would only be permitted within precisely defined limits and the contractors would not be permitted to trespass beyond the limits of the working areas so defined. Moreover, I advised that the means of access to the work and the points of entry upon any land would be defined in the report for consideration by Council and all parties concerned.
- (11) It was noted there was work done on the Drain about 10 years ago and concern was expressed as to why this work was not satisfactory or what caused the need for the works now proposed. I indicated the work previously done was a stop-gap type of preventive maintenance required to eliminate and reduce potential flooding caused

ON-SITE MEETING (Cont'd)

by the high water levels of Lake St. Clair. I explained again the need for the work based upon the extensive engineering studies carried out by the Essex Region Conservation Authority.

- (12) The use of existing materials dredged from the Drain as backfill was questioned by some owners who were concerned about the environmental integrity of this type of construction. I explained firstly, that unacceptable or deleterious material would not be used if it was not satisfactory for construction, and secondly, new fill material was to be imported to build the dikes wherever suitable material was not available. In addition, I indicated the amount of material available from dredging was minimal and would not form any significant portion of the dike construction materials.
- (13) Mr. Richard Lehoux, owner of the property at 850 Riverdale Avenue, expressed concern that his house was very close to the bank of the Drain and would be seriously affected by the proposed construction. He inquired whether it was intended to buy out his property. I replied that a special on-site meeting would be held with him and other properties similarly affected to consider measures to be taken and special treatment accorded to certain special cases.
- (14) Several property owners questioned the proposed schedule for construction tentatively presented at the meeting. Concern was expressed that the works would not be constructed in a logical or continuous sequence of events. It was explained that financing arrangements for construction depended upon the capital funding budgets and the availability of potential financing. I explained that construction would be tailored to suit the availability of funds for capital works.

There were a number of minor concerns expressed by citizens in private conversations with myself and my staff. However, it was felt these were dealt with and resolved directly with the individuals concerned and were not, therefore, made a matter of public record. Several parties indicated concern about the works proceeding despite their objections and I explained the method of expressing their concerns to Council and the appeal processes available in the event they were not satisfied that they had been given due consideration. Lastly, I noted a number of parties expressing extreme interest in the work and indicating their agreement with the proposed construction. Many persons indicated they would like to see the works carried out as quickly as possible.

ON-SITE MEETING (Cont'd)

I adjourned the meeting at 10:30 p.m.

DETAILED SURVEY AND EXAMINATION OF SITE

I made detailed examinations and surveys for the purpose of preparing this report under the provisions of The Drainage Act 1975. I caused my assistants to stake out the limits of the work along both sides of Little River in order to indicate to the affected property owners, the extent of the construction and its impact or effect.

In addition, I made a detailed inventory and appraisal of all existing trees, bushes, shrubs and other landscape features with the advice of special consultants for the purpose of determining the value of compensation and allowances to be made to individual property owners. Many large trees which must be removed have potential value for fire wood. I therefore have provided in my report for the preservation of any usable fire wood for the benefit of the affected property owners, if desired.

In my survey, I also noted there would be some consequential salvage value to the docks, boathouses, jetties, wharfs, etc. which must be removed. My report therefore provides for the salvage of these materials and delivery of same to each property owner, if desired. There are various facilities such as lights, standards, steps, curbs, sidewalks, irrigation pumps, boat lifts, etc. located on land and generally out of the potential waterway. I have provided for the preservation of such in the specifications contained herein.

I observed the deteriorating condition of the banks and dikes during my detailed inspection and noted on several occasions, the damage caused by the wash or wake from speeding boats as well as much evidence of scour and erosion.

DESIGN

The design of the required works has been carried out with the assistance of specialists in hydrology, hydraulics, soils and structural engineering. The watershed was analyzed by hydrologists with the aid of computers, applying several types of runoff criteria to obtain the design flood condition based upon varying water level conditions in Lake St. Clair with rainfall from storms expected to occur on return frequencies of 10, 25, 30 and 100 years. The runoff from the 100 year storm was used as the design parameter for flood calculations.



DESIGN (Cont'd)

The capacity of the existing channel was evaluated with varying flood conditions to determine the theoretical water levels caused by each condition. The evaluation indicated the dikes of Little River would be overtopped on the east side for a distance of approximately 200 metres, extending from Station 0+740 (north side of Wyandotte Street) to Station 0+950 (north side of Pontiac Pumping Station) and for 800 meters along the west side from Station 0+350 (approximately 100 meters north of Menard Street) to Station 1+150 (approximately opposite St. Rose Avenue). The calculations also indicate extremely high flow velocities which would cause severe damage from erosion and scour.

The design exercise assumed hypothetical improvements in the channel and dike cross-sections. The system was then re-analyzed with the improved condition. After a series of refinements, a satisfactory design was obtained leading to recommended works for the various sections of the Drain.

FIGURES AND TABLES

Attached are figures and tables taken from the "Engineering Study, Little River Dike Repairs, City of Windsor - 1982" except as noted.

- Figures 1(a), 1(b), 1(c) - Land Ownership, Little River
- Figure 5 - Type 'A' Typical Cross-Section of Steel Sheet Pile Wall and Bank Construction
- Figure 6 - Type 'B' Typical Cross-Section of Proposed Steel Pile Retaining Wall
- Figure 7 - Type 'C' Typical Proposed Earth Dike Cross-Section
- Figure 8 - Proposed Little River Channel and Dike Improvements
- Figure 9 - Land Affected by Potential Little River Dike Failure
- Figures 10 & 11 \* - Special Construction for Type 'B' System
- Table 11 (Revised) - Calculation of Elevations for Top of Dike & Erosion Protection Systems

\* Not included in Engineering Study

### METRIC SYSTEM

All units, measurements and elevations are given in the metric system. All elevations relate to the Canadian Geodetic Datum and are given in metres. To convert from meters to Imperial units, a multiplier of 3.28 should be applied.

### ESSEX REGION CONSERVATION AUTHORITY

The City of Windsor and the Essex Region Conservation Authority have a cost-sharing agreement for construction of the works required on the Little River Drain. Certain works have already been completed and others are proposed for immediate construction on public rights-of-way, lands owned by the City of Windsor and on lands subject to an easement in favour of the City of Windsor.

The City of Windsor proposes to construct the balance of the works in collaboration with the Essex Region Conservation Authority under the provisions of The Drainage Act 1975.

### RECOMMENDATIONS

Having regard to the foregoing, I recommend the following improvements to the Little River Drain.

- (1) Construct a new steel sheet pile wall with channel and dike improvements along the west side of Little River Drain from the end of the present steel wall at the south side of Riverside Drive (approximate Station 0+163) southerly to the south limit of Registered Plan 1533 (approximate Station 1+300). The construction of this work should conform with the details shown on Figure 6. In special cases, the construction should conform with the details shown on Figures 10 and 11. This work would comprise the construction of a steel sheet pile wall with tie rods and anchors, an earth dike with topsoil and seeding, excavation of existing banks and channel to improve the waterway cross-section, and property restoration.
- (2) Construct a new steel sheet pile wall with channel and dike improvements along the west side of Little River Drain from Little River Boulevard (approximate Station 1+434) southerly to the south limit of the Villages of Riverside Subdivision in Registered Plan M-59 (approximate Station 2+050). This work should be constructed in accordance with the details given in (1) above.

RECOMMENDATIONS (Cont'd)

- (3) Construct a new steel sheet pile wall with channel and dike improvements along the east side of Little River Drain from the end of the existing steel wall on the south side of Riverside Drive (approximate Station 0+163) southerly to the north limit of Wyandotte Street (approximate Station 0+740) in accordance with the details given in (1) above.
- (4) Reconstruct the dike along the west bank of the Little River Drain from the south limit of the Villages of Riverside Subdivision in Registered Plan M-59 (approximate Station 2+050) southerly to the Canadian National Railway (approximate Station 2+684) in accordance with the details given on Figure 7. This work would comprise an earth dike with a 300 mm thickness of 75 mm to 150 mm crushed stone facing on a filter fabric for erosion protection together with all excavation and grading, application of hydramulch seed and fertilizer, cleanup and restoration.
- (5) Reconstruct the dike along the east bank of Little River Drain from the north side of Wyandotte Street (approximate Station 0+740) to the north side of the discharge channel of the Pontiac Pumping Station (approximate Station 0+950) as described in (4) above.
- (6) Reconstruct the dike along the east side of the Little River Drain from Little River Boulevard (approximate Station 1+434) southerly to the Canadian National Railway (approximate Station 2+684) as described in (4) above.

In all cases, the top of the completed dikes shall conform with elevations given in Table 11 "Calculation of Elevations for Top of Dike and Erosion Protection Systems".

All works shall conform with the specifications attached hereto.

ALLOWANCES AND COMPENSATION

In accordance with Sections 29 and 30 of The Drainage Act 1975, I have provided for allowances and compensation to be paid to the owners of lands affected by the construction. These allowances and compensation are intended to provide for land taken for construction, access to the work, damage to land and crops (if any), and allowances for removal, transplanting or replacement of ornamental trees, bushes and shrubs. No allowance has been made for damage to lawns, fences, sidewalks, stairways or any structures, pipes or

ALLOWANCES AND COMPENSATION (Cont'd)

utilities on land outside the waterway since these will be protected, replaced and/or restored by the contractor upon completion of the work. In addition, I have not provided for any allowances or compensation to be paid to any owner of docks, jetties, wharfs, seawalls, boathouses or other structures which will be within the waterway of the Drain.

Allowances and compensation should be paid as follows.

LITTLE RIVER DRAIN, CITY OF WINDSOR

SCHEDULE OF ALLOWANCES AND COMPENSATION

<u>NAME AND ADDRESS</u>	<u>LOT</u>	<u>PLAN</u>	<u>ALLOWANCE OR COMPENSATION</u>
Joseph & Mary Soulliere 402 Riverdale	Block 'B'	1533	\$ 95.00
Theresa Azur 408 Riverdale	Pt. 70, 71	1533	\$ 60.00
Charles & Margaret Burchell 414 Riverdale	69, Pt. 70	1533	\$ 60.00
Louis Edwards 424 Riverdale	68	1533	\$ 85.00
Donald McPherson 428 Riverdale	Pt. 67	1533	\$ 40.00
Herman & Rebecca Mayes 432 Riverdale	Pt. 67	1533	\$ 70.00
Lawrence & Annette Perreault 436 Riverdale	66	1533	\$ 60.00
Bruce & Constance Musson 442 Riverdale	65	1533	\$ 50.00
Stanley & Elizabeth Chandler 444 Riverdale	64	1533	\$ 40.00
Anthony & Susan Bitacola 448 Riverdale	63	1533	\$ 45.00

SCHEDULE OF ALLOWANCES AND COMPENSATION (Cont'd)

NAME AND ADDRESS	LOT	PLAN	ALLOWANCE OR COMPENSATION
Charles & Mary Naroski 452 Riverdale	62	1533	\$ 50.00
Walter & Nina Hancrar 456 Riverdale	61	1533	\$ 60.00
Walter & Nina Hancrar 464 Riverdale	59 & 60	1533	\$175.00
Rita Perreault 458 Riverdale	58	1533	\$ 40.00
Phil & Elizabeth Larsh 472 Riverdale	57	1533	\$ 40.00
Peter Hoffman 1006 Isabelle Place Windsor, Ont. N8S 3B2 (476 Riverdale)	56	1533	\$ 40.00
Rosella Barden 480 Riverdale	55	1533	\$ 40.00
Aldo Lot 484 Riverdale	54	1533	\$ 60.00
Gordon & Adeline Davis 488 Riverdale	53	1533	\$ 65.00
Peleikis Taverns Ltd. 494 Riverdale	52	1533	\$130.00
Mary Schacht 506 Riverdale	51	1533	\$ 90.00
Elizabeth & Joseph Cardinal and Sandra & George Berlasty 516 Riverdale	50	1533	\$ 40.00
Wayne Lausch 520 Riverdale	49	1533	\$ 40.00
Patrick & Violet Renaud 524 Riverdale	48	1533	\$ 40.00
Frank & Verona Sinko 528 Riverdale	47	1533	\$ 50.00
Louis Dewaal 534 Riverdale	46	1533	\$180.00

SCHEDULE OF ALLOWANCES AND COMPENSATION (Cont'd)

NAME AND ADDRESS	LOT	PLAN	ALLOWANCE OR COMPENSATION
Albert & Betsy Jubenville 538 Riverdale	45	1533	\$120.00
William & Dora Baker 548 Riverdale	44	1533	\$ 45.00
Leduina Dubois 552 Riverdale	44	1533	\$ 50.00
Kenneth & Doreen Chase 556 Riverdale	42	1533	\$ 65.00
Kenneth & Ireva Kearns 562 Riverdale	Pt. 41	1533	\$300.00
Nick Pylak 568 Riverdale	Pt. 41	1533	\$ 95.00
Ralph & Joseph Soulliere (Trustees) 367 Frank Avenue Windsor, Ontario (576 Riverdale)	40	1533	\$ 90.00
Ralph Soulliere 580 Riverdale	39	1533	\$ 50.00
David & Marilyn Purcell 586 Riverdale	38	1533	\$ 70.00
City of Windsor	37	1533	Nil
WYANDOTTE STREET CROSSES			Nil
Margaret Reaume 810 Riverdale	36	1533	\$ 25.00
Douglas & Iris Hotte 816 Riverdale	Pt. 35	1533	\$ 40.00
Grazina Kavalunas 820 Riverdale	Pt. 35	1533	\$ 60.00
Nick Prociw 826 Riverdale	33	1533	\$110.00
Gladys Pardy 834-836 Riverdale	33	1533	\$ 65.00

SCHEDULE OF ALLOWANCES AND COMPENSATION (Cont'd)

NAME AND ADDRESS	LOT	PLAN	ALLOWANCE OR COMPENSATION
Albert & Gladys Pardy 842 Riverdale	32	1533	\$ 60.00
David & Barbara Tanner 846 Riverdale	31	1533	\$ 40.00
John & Lorraine Tinus 850 Riverdale	29	1533	\$ 40.00
Stefan & Ross Holod 856 Riverdale	29	1533	\$165.00
Raymond Pentz & Dorothy Andrews 862 Riverdale	28	1533	\$ 50.00
Lloyd & Valerie Basden 866 Riverdale	27	1533	\$ 50.00
Cassie Black 872 Riverdale	26	1533	\$ 60.00
John & Ilene Nikota 876 Riverdale	24 & 25	1533	\$320.00
Romeo De Blois 886 Riverdale	23	1533	\$ 60.00
Peter & Sarah Tonch 12478 Riverside Dr. E. Windsor, Ontario (892 Riverdale)	22	1533	\$ 60.00
Sam & Anne Mazur 902 Riverdale	20 & 21	1533	\$620.00
Pearl Phillips 910 Riverdale	19	1533	\$ 40.00
Mario Iacobelli 914 Riverdale	18	1533	\$105.00
Romeo & Arlene Lehoux 922 Riverdale	16 & 17	1533	\$100.00
Conrad Chaplin 930 Riverdale	15	1533	\$ 60.00
Gloria Laframboise 934 Riverdale	14	1533	\$ 40.00

SCHEDULE OF ALLOWANCES AND COMPENSATION (Cont'd)

NAME AND ADDRESS	LOT	PLAN	ALLOWANCE OR COMPENSATION
Leslie & Elizabeth Kiss 938 Riverdale	13	1533	\$ 40.00
John & Beverly Nechitaluk 944 Riverdale	12	1533	\$ 40.00
Gladys Halonen 1390 Riverside Dr. E. Windsor, Ontario (950 Riverdale)	Pt. 11	1533	\$ 60.00
Robert & Cecile Halford 958 Riverdale	Pt. 11	1533	\$220.00
Wallace & Roberta Lepack 966 Riverdale	Pt. 10	1533	\$ 85.00
Stephen Fralick 972 Riverdale	Pt. 10	1533	\$ 50.00
Alathea Smith 980 Riverdale	9	1533	\$ 40.00
James & Martha Vendasco 986 Riverdale	Pt. 8	1533	\$ 40.00
Tom Nosella & Carol Hogge 990 Riverdale	Pt. 8	1533	\$ 40.00
Joseph Hoba 24 Broadmore Ave. St. Catherines, Ont. L2M 6A5	7	1533	\$580.00
Michelle & Antonia Colarossi 1008 Riverdale	6	1533	\$ 70.00
Roger & Linda Garant 1018 Riverdale	Pt. 5	1533	\$290.00
Mario & Maria Staccone 1106 Louis Avenue Windsor, Ontario	Pt. 5	1533	\$240.00
Ernest & Gertrude Dion 1022 Riverdale	4	1533	\$ 40.00



SCHEDULE OF ALLOWANCES AND COMPENSATION (Cont'd)

NAME AND ADDRESS	LOT	PLAN	ALLOWANCE OR COMPENSATION
John Basden 1028 Riverdale	3	1533	\$ 50.00
DiMario Construction Co. Ltd. 1065 California Ave. Windsor, Ontario	2	1533	\$ 50.00
Gordon & Denise Lapalme 1038 Riverdale	1	1533	\$ 60.00
Primord Corporation Limited 400 Renaissance Centre Detroit, Mich. 48243	Pt. F.L. 34	Con. 1	\$200.00
General Motors of Canada Limited - Trim Plant Real Estate Dept. 215 William St. East Oshawa, Ontario L1G 1K7	Pt. F.L. 33 & 34	Con. 1	\$200.00
Roy & Madonna Giroux 421 Bertha	Pt. 1 & 2	1501	\$100.00
Shirley Ellis 425 Bertha	Pt. 1 & 2	1501	\$ 80.00
Duncan & Norah Ascott 429 Bertha	Pt. 1, 2 & 3	1501	\$ 50.00
Calvin & Aline Thorn 433 Bertha	Pt. 3	1501	\$ 80.00
Genevieve Bowers 439 Bertha	Pt. 3 & 4	1501	\$110.00
Hildegarde Braukis 443 Bertha	Pt. 4	1501	\$ 60.00
Richard & Maryanne Pickering 449 Bertha	Pt. 4 & 5	1501	\$ 50.00
Werner & Traute Nuenzberg 453 Bertha	Pt. 5	1501	\$130.00
Thomas & Olga Smith 457 Bertha	Pt. 5 & 6	1501	\$355.00

SCHEDULE OF ALLOWANCES AND COMPENSATION (Cont'd)

NAME AND ADDRESS	LOT	PLAN	ALLOWANCE OR COMPENSATION
James & Katheryn Sanko 461 Bertha	Pt. 6	1501	\$150.00
Norman & Elva Speirn 465 Bertha	Pt. 7	1501	\$ 50.00
John & Gertrude Schilchter 471 Bertha	Pt. 7 & 8	1501	\$ 85.00
John & Janice Lazar 475 Bertha	Pt. 8	1501	\$ 55.00
Allan & Linda Schneider 479 Bertha	Pt. 8 & 9	1501	\$ 85.00
Joseph & Evelyn Lauzon 485 Bertha	Pt. 9	1501	\$110.00
Emanuel & Doreen Asciak 489 Bertha	Pt. 9 & 10	1501	\$ 90.00
Randy Vadnais 493 Bertha	Pt. 10	1501	\$ 40.00
Amelia Peters 509 Bertha	Pt. 11	1501	\$ 95.00
Osmo & Kaija Rasila 515 Bertha	Pt. 11 & 12	1501	\$ 80.00
Evelyn Rickerby 521 Bertha	Pt. 12	1501	\$ 60.00
William & Janette Seifker 527 Bertha	Pt. 12 & 13	1501	\$ 70.00
Evelyn Stuart 535 Bertha	Pt. 13	1501	\$ 65.00
Kenneth & Margaret Doherty 541 Bertha	Pt. 13 & 14	1501	\$ 85.00
Richard & Francie Wilhelm 547 Bertha	Pt. 14	1501	\$ 50.00

SCHEDULE OF ALLOWANCES AND COMPENSATION (Cont'd)

NAME AND ADDRESS	LOT	PLAN	ALLOWANCE OR COMPENSATION
Alfredo & Theresa Pizzuti 553 Bertha	Pt. 14 & 15	1501	\$ 95.00
Robert & Nancy Vidamour 559 Bertha	Pt. 15	1501	\$ 85.00
Elver & Heidi Peruzzo 565 Bertha	Pt. 15 & 16	1501	\$155.00
Lawrence & Bernice Laur 571 Bertha	Pt. 16	1501	\$ 55.00
Bill & Jane Fast 577 Bertha	Pt. 16 & 17	1501	\$ 55.00
Anthony Passalacqua 585 Bertha	Pt. 17 & 18	1501	\$ 75.00
Newton & Laurel Porter 589 Bertha	Pt. 18	1501	\$ 45.00
WYANDOTTE STREET CROSSES			Nil
Homeland Builders c/o Joseph R. Grande Jr. 4135 Highfield Road Royal Oak, Michigan 48074	19 & 20	1501	\$100.00
City of Windsor - Little River Pollution Control Plant & Pontiac Pumping Station	Pt. F.L. 134	Con. 1	Nil
Mary Davison & Dorothy Mae Braedyn c/o Mr. J. Braedyn 233 East Acre Drive Plantation, Florida	Pt. F.L. 134	Con. 1	\$200.00
Canadian National Railway Box 8100 Montreal, Quebec H3C 3N4	Pt. F.L. 134	Con. 1	<u>\$200.00</u>
TOTAL ALLOWANCES OR COMPENSATION .....			<u>\$10,445.00</u>

### ACCESS TO THE WORK

Access to the work for construction and improvement of the Drain shall only be from the locations designated herein and no other point of access will be permitted unless special arrangements are made between the contractor and any owner by mutual agreement. Permissible access points are as follows:

- (1) From any public street, right-of-way or public easement.
- (2) From any point along the channel of the Little River Drain when approached by water.
- (3) Over Lots 7 and 21, Registered Plan 1533.
- (4) Over part of Farm Lots 133 and 134, Concession 1 (lands of General Motors Corporation and Canadian National Railway).

### WORKING AREAS

Construction activity will be confined to the area lying between the toe of the west bank of the proposed reconstructed dike along the west side of the Drain to the toe of the east bank of the reconstructed dike along the east side of the Drain extending from the south limit of Riverside Drive to the north limit of the right-of-way of the Canadian National Railway.

I have staked out the approximate limits of the working areas by placing a wooden stake at each property line along the westerly and easterly limits of the working area described above.

Contractors working on the project will not be permitted to trespass or work beyond the limits of the defined working area except at the access points described above.

### DETAILED DRAWINGS AND CONTRACT DOCUMENTS

Detailed drawings and contract documents relating to various phases of construction will be prepared from time to time to permit tenders to be received and the works to be completed in accordance with the provisions of this Report. These drawings will supplement the information given on Figures 5 to 8 and Figures 10 and 11 to provide specific information for construction. Contract documents will contain detailed specifications, special provisions, general conditions of contract, contract agreement, bonds, etc. These documents will insure protection of property and satisfactory completion of the work with appropriate guarantees normally required by the City of Windsor.

SPECIAL CONSTRUCTION

In certain instances, construction of the dikes is close to existing permanent structures or dwellings. In these cases, special construction techniques will be employed as indicated on Figures 10 and 11.

The special construction will consist of supplying and installing a retaining wall including concrete steps and handrails in front of those buildings or dwellings which are either too close to the proposed dikes or the grade is too low to permit construction. The properties affected are as follows:

- (1) Douglas & Iris Hotte, 816 Riverdale  
Part Lot 35, R.P. 1533
- (2) Gladys Pardy, 842 Riverdale  
Lot 33, R.P. 1533
- (3) Albert & Gladys Pardy, 842 Riverdale  
Lot 32, R.P. 1533
- (4) David & Barbara Tanner, 846 Riverdale  
Lot 31, R.P. 1533
- (5) John & Lorraine Tinus, 850 Riverdale  
Lot 31, R.P. 1533
- (6) Raymond Pentz & Dorothy Andrews, 862 Riverdale  
Lot 28, R.P. 1533
- (7) Cassie Black, 872 Riverdale  
Lot 26, R.P. 1533
- (8) Peter & Sarah Tonch, 892 Riverdale  
Lot 22, R.P. 1533

At the time of construction, the above owners will be permitted to designate which type of special construction (Figure 10 or 11), they prefer as well as location of access steps and handrails.

ESTIMATE OF COST

My estimate of the total cost of the work in accordance with the recommendations contained herein is \$2,400,000. made up as follows.

ESTIMATES OF COST (Cont'd)

- (1) RECONSTRUCTION OF DIKE ALONG WEST SIDE OF LITTLE RIVER FROM SOUTH SIDE OF RIVERSIDE DRIVE (STATION 0+163) TO SOUTH LIMIT R.P. 1533 (APPROXIMATE STATION 1+300)
- a) 950 metres steel sheet pile wall constructed complete including channel excavation, dike construction, restoration of property and fences, provision of topsoil and hydramulch grass seeding  
@ \$700.00 per metre - \$ 665,000.
- b) 187 metres steel sheet pile wall constructed complete including channel excavation, dike construction, restoration of property and fences, provision of topsoil and hydramulch grass seeding  
@ \$800.00 per metre - \$ 149,600.
- (2) RECONSTRUCTION OF DIKE ALONG WEST SIDE OF LITTLE RIVER DRAIN FROM LITTLE RIVER BLVD. (APPROXIMATE STATION 1+434) TO SOUTH LIMIT R.P. M-59 (APPROXIMATE STATION 2+050)
- 620 metres steel sheet pile wall constructed complete including channel excavation, dike construction, restoration of property, provision of topsoil and hydramulch grass seeding  
@ \$700.00 per metre - \$ 434,000.
- (3) RECONSTRUCTION OF DIKE ALONG EAST SIDE OF LITTLE RIVER DRAIN FROM THE SOUTH LIMIT OF RIVERSIDE DRIVE (APPROXIMATE STATION 1+164) TO WYANDOTTE STREET (APPROXIMATE STATION 0+740)
- Approximately 580 metres steel sheet pile wall constructed complete including channel excavation, dike construction, restoration of property and fences, provision of topsoil and hydramulch grass seeding  
@ \$800.00 per metre - \$ 464,000.

ESTIMATES OF COST (Cont'd)

- (4) RECONSTRUCTION OF DIKE ALONG WEST SIDE OF LITTLE RIVER DRAIN FROM SOUTH LIMIT R.P. M-59 (APPROXIMATE STATION 2+050) TO CANADIAN NATIONAL RAILWAY (APPROXIMATE STATION 2+684)
- Approximately 635 metres earth dike construction and channel excavation complete with erosion protection, drainage structures, hydramulch seeding and restoration @ \$200.00 per metre - \$ 127,000.
- (5) RECONSTRUCTION OF DIKE ALONG EAST SIDE OF LITTLE RIVER DRAIN FROM NORTH LIMIT WYANDOTTE STREET (APPROXIMATE STATION 0+740) TO PONTIAC PUMPING STATION (APPROXIMATE STATION 0+950)
- Approximately 210 metres earth dike construction and channel excavation complete with erosion protection, hydramulch seeding of banks, culverts and drainage structures @ \$300.00 per metre - \$ 63,000.
- (6) RECONSTRUCTION OF DIKE ALONG EAST SIDE LITTLE RIVER DRAIN FROM LITTLE RIVER BOULEVARD (APPROXIMATE STATION 1+434) TO CANADIAN NATIONAL RAILWAY (APPROXIMATE STATION 2+684)
- Approximately 1250 metres earth dike construction including erosion protection, hydramulch seeding of banks, culverts, drainage structures and restoration @ \$200.00 per metre - \$ 250,000.
- (7) ALLOWANCES AND COMPENSATION (See Schedule Attached) - \$ 10,445.
- (8) ENGINEERING, PREPARATION OF TENDERS, CONTRACT ADMINISTRATION, ON-SITE INSPECTION SERVICES, SPECIAL CONSULTANTS AND EXPENSES - \$ 198,300.

ESTIMATES OF COST (Cont'd)

(9)	PREPARATION OF REPORT UNDER THE DRAINAGE ACT 1975 INCLUDING ADDITIONAL SURVEYS, MEASUREMENTS AND LEVELS, ON-SITE MEETINGS, SPECIAL ADVISORY SERVICES AND EXPENSES	- \$ 19,800.
(10)	ESTIMATED LAND SURVEYOR'S FEES AND EXPENSES FOR REPLACEMENT OF SURVEY MONUMENTS	- \$ 16,000.
(11)	ALLOWANCE FOR INCIDENTAL EXPENSES AND MISCELLANEOUS COSTS	- \$ <u>2,855.</u>
	TOTAL ESTIMATE .....	<u>\$2,400,000.</u>

ASSESSMENT

No detailed schedule of assessment is provided with this report.

As provided under Section 25(1) of The Drainage Act 1975, and the City of Windsor Act 1968, I recommend the whole cost of the construction, repair and improvement of the Little River Drain be charged and collected by a sufficient rate levied upon all of the rateable property in the City of Windsor.

Section 25(2) of The Drainage Act requires the Engineer to designate the proportion of the assessment to be charged against public roads where a block assessment is to be levied against all of the rateable properties in a designated area pro rata on the basis of the assessed value of the land and buildings. I have calculated the areas of lands and roads in the Little River Drainage Area within the City of Windsor to be 1904 hectares and 278 hectares respectively. Having regard to the fact the average runoff factor may be taken as 0.4 for urban land drainage and 0.6 for road allowances, I calculate the runoff from roads in the drainage area would constitute 18% of the flow into the Drain in the City of Windsor.

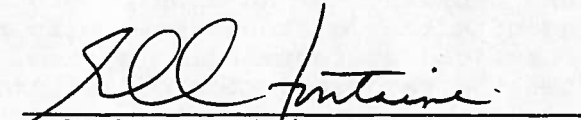
The cost-sharing agreement between the Corporation of the City of Windsor and the Essex Region Conservation Authority provides that the City pay 45% of the total cost of the work. Based upon a total estimated cost of \$2,400,000.00, the City's share would be \$1,080,000.00. Of this amount, therefore, \$194,400.00 would be chargeable to public roads.



FUTURE MAINTENANCE

I would recommend the work be kept up and maintained in a good state of repair under the provisions of the City of Windsor Act 1968, or in accordance with the provisions of either the Municipal Act or the Drainage Act as provided for in Section 4(2) of the City of Windsor Act 1972.

Respectfully submitted,

  
E. O. LaFontaine, P. Eng.

LAFONTAINE, COWIE, BURATTO  
& ASSOCIATES LIMITED

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SPECIFICATIONS FOR  
REPAIR AND IMPROVEMENT OF  
THE LITTLE RIVER DRAIN  
CITY OF WINDSOR

1. GENERAL

The work consists of the repair and improvement of Little River Drain from the Canadian National Railway to Riverside Drive in the City of Windsor. It generally comprises channel improvement, reconstruction of existing dikes and provision of an erosion protection system consisting of either a steel sheet pile retaining wall or a rock-faced protected dike system. The work also includes the reconstruction of all drains and drainage works flowing into the channel, restoration and reinstatement of all property and the protection and support of all utilities, buildings and structures.

The work includes the removal of all existing wharfs, jetties, boathouses, walls, docks, etc. from the waterway or channel.

The location of the specific works to be constructed is as follows:

(a) West Side

- (i) A new steel sheet pile wall from the end of the existing steel wall at the south side of Riverside Drive (approximate Station 0+163) southerly to the south limit of R.P. 1533 (approximate Station 1+300) complete including dike reconstruction, channel excavation, reinstatement of property, restoration of lawns and fences.
- (ii) A new steel sheet pile wall from Little River Blvd. (approximate Station 1+434) southerly to the south limit of R.P. M-59 in the Villages of Riverside Subdivision (approximate Station 2+050) complete including dike reconstruction, channel excavation, reinstatement of property, restoration of lawns and fences.
- (iii) A rock-faced earth dike system from the south limit of R.P. M-59 (approximate Station 2+050) southerly to the Canadian National Railway Bridge (approximate Station 2+684) complete including channel excavation, dike construction, supply and

1. GENERAL (Cont'd)

(a) West Side (Cont'd)

placing of filter cloth, crushed stone erosion protection, construction of drains and drainage structures, seeding of banks and property restoration.

(b) East Side

- (i) A new steel sheet pile wall from the south side of Riverside Drive (approximate Station 0+163) to the north limit of Wyandotte Street (approximate Station 0+740) complete including dike reconstruction, channel excavation, reinstatement of property, restoration of lawns and fences.
- (ii) A rock-faced earth dike system from the north limit of Wyandotte Street (approximate Station 0+740) to the Pontiac Pumping Station (approximate Station 0+950) complete including channel excavation, dike construction, supply and placing of filter cloth, crushed stone erosion protection, construction of drains and drainage structures, seeding of banks and property restoration.
- (iii) A rock-faced earth dike system from Little River Blvd. (approximate Station 1+434) southerly to the bridge over the Canadian National Railway (approximate Station 2+684) complete including channel excavation, dike construction, supply and placing of filter cloth, crushed stone erosion protection, construction of drains and drainage structures, seeding of banks and property restoration.

The works will be constructed in accordance with the general details given on Figures 6, 7, 8, 10 and 11 inclusive. In addition, the elevations of the new dikes will conform with the figures given in Table 11 attached to this report.

When the works are constructed, detailed construction drawings and contract documents will be prepared to implement all of the requirements of the Drainage Report. Other details and specific instructions may be provided by the Engineer from time to time during the course of construction.

2. STEEL SHEET PILE RETAINING WALL AND DIKE SYSTEM

The general details for constructing a new steel sheet pile wall and dike system are shown on Figure 6 for a Type 'B' system. This work will include supplying and driving interlocking steel sheet piling along a proposed new alignment shown on Figure 8. The steel sheet piling will have a continuous steel cap and a continuous steel waler. It will be tied back to buried steel pile sections placed at a distance of 8 metres from the face of the wall at 3 metre intervals. The entire anchor system will be buried or covered under the new fill and dike.

The existing dikes will be reconstructed to the cross-sections shown on Figure 6. This will include excavation of the channel to a depth of 2 metres below the top of piling (about 1 metre below normal water level). Excavated materials, if acceptable, will be placed and compacted behind the new steel sheet pile wall or in the new dike. Unacceptable materials will be hauled away and disposed of by the Contractor at his expense.

Where there is a deficiency of acceptable materials to construct the dike system, additional materials will be hauled into the site.

Topsoil will be stripped and stored for re-use wherever possible. When the dike system has been backfilled, compacted and shaped to the required cross-section, stockpiled topsoil and additional topsoil will be supplied by the Contractor to provide a minimum layer of 50 mm of topsoil which will then be seeded and fertilized, except for special construction areas.

The steel sheet piling will not be painted. The continuous steel cap will be painted a dark green colour to match the colour system used by the City of Windsor Department of Parks and Recreation.

3. ROCK-FACED EARTH DIKE SYSTEM

A Type 'C' protected earth dike system will be constructed in accordance with the general details given on Figure 7. This system will consist of excavating the channel and reshaping the existing dike to the cross-section shown on Figure 7. Materials excavated from the channel and existing banks, if acceptable, will be used in constructing the new dikes. Wherever there is a deficiency of acceptable material, new fill materials will be hauled to the site from offsite sources and placed in the work. Unacceptable materials or excess excavated material may be placed in a spoil area at the back of the new dike as shown on Figure 7. When the dike has been shaped, graded and compacted to the desired cross-section, an application of 300 mm of

3. ROCK-FACED EARTH DIKE SYSTEM (Cont'd)

75 - 150 mm crushed stone will be placed along the front (or waterside) of the dike extending from the bottom of the river channel to a point 1 metre above the normal high water level. This crushed stone material will be placed on a filter cloth which will prevent migration of fine clay or silt particles through the rock facing. The remainder of the dike will be covered with a hydramulch seed and fertilizer application in conformity with the standard specifications of the Ministry of Transportation and Communications.

The elevation of the top of the new dike will conform with the elevations given in Table 11 of the Drainage Report.

4. DRAINS AND DRAINAGE STRUCTURES

All existing ditches, pipes, drains and drainage structures will be protected and maintained in operation throughout the course of construction. This will include the extension, if necessary, of existing pipes, removal and replacement of flapgates, construction of rip-rap or stone protective systems and repair and improvement of inlet works so that all drains or drainage works will be left in a proper functioning state upon completion of the work.

5. REMOVAL OF DOCKS, JETTIES, WALLS AND STRUCTURES IN THE WATERWAY OR CHANNEL

All existing walls, structures, docks, jetties, boat-houses and any item which will lie within the waterway or channel of the Drain will be removed. Prior to removal, the Contractor will be required to contact each individual property owner to determine if the owner wishes to salvage any of the materials from any structure which may be reasonably salvaged. If such owner requests materials be saved, the Contractor will exercise all reasonable care and diligence in preserving them for the owner's use and will remove same and deliver them to stockpiles on the owner's property. If in the opinion of the Engineer, the Contractor fails to exercise due care and diligence in the removal of any structure, he shall be required to provide an equivalent amount of material at no expense to the owner.

No dock, jetty or other structure will be permitted in the channel waterway upon completion of the work.

6. REMOVAL OR RELOCATION OF STRUCTURES ON LAND

Wherever it is necessary to remove or relocate a structure on land, or on the dike system above the projected high water level of the channel, the Contractor shall do so, carefully preserving same, relocating such structure to a temporary or permanent location specified by the property owner. If it is possible to replace the structure along the top of the finished dike upon completion of the work, the Contractor shall do so. Otherwise, he will place the structure in a position specified by the property owner. The cost of removal and relocation of all structures on land will be borne by the Contractor and if he fails to exercise due care and diligence in preserving such structures, he will be required to rebuild or reconstruct same at his expense.

7. RECONSTRUCTION OF STAIRWAYS, SIDEWALKS, PATIOS, ETC.

All existing stairways, sidewalks, curbs, patios, etc. lying on land above the projected high water level of the channel will be reconstructed by the Contractor. The Engineer will make a careful inventory of all existing features and amenities and will require the Contractor to replace same as reasonably close as possible to the original location. If the property owner requests any item be constructed in a new location within the working area, the Contractor will do so at no additional expense.

8. REMOVAL OF TREES AND SHRUBS

All trees and shrubs lying within the working area shown on the drawing, or as staked out in the field, will be removed except for those trees or shrubs which are in an area where the amount of fill to be placed will not adversely affect them.

An inventory has been compiled of all existing trees, bushes and shrubs. The property owners will be allowed compensation for the removal and transplanting of certain shrubs or for the destruction and replacement of others. The Contractor will carefully preserve any tree, shrub or bush designated by the Engineer at the time of construction. In addition, the Contractor will be required to advise the owner of his schedule for constructing the work and provide the owner with sufficient time to transplant or remove any shrubs which he cares to preserve. The Contractor will also co-operate with the owner in assisting him to remove any tree, shrub or bush where the use of construction equipment will expedite such action.

8. REMOVAL OF TREES AND SHRUBS (Cont'd)

Certain trees or bushes will be preserved by providing special protection around the trunks. This protection will include the provision of 200 mm x 200 mm treated timbers placed in a square around the trunk so that not less than 1 metre clearance is provided all around.

All trees which must be removed shall be trimmed, cut down and all brush and stumps hauled away. The Contractor will be required to preserve any wood for the use of the owner of the tree in lengths not exceeding 1.2 metres to a minimum diameter of 100 mm. All wood preserved for the owner's use will be stockpiled on the owner's lands immediately adjacent to the working area. Any wood or materials which the owner does not require shall be hauled away and disposed of by the Contractor.

All stumps, roots, brush and debris will be removed and hauled away by the Contractor.

If the Contractor fails to preserve any tree, bush or shrub designated to be preserved, or if he trespasses beyond the limits of the working area and damages any tree, bush or shrub of the property owner, he will be required to replace same or otherwise compensate the owner.

9. RESTORATION OF LAWNS

All existing lawn areas will be fully restored.

The Contractor will strip and stockpile topsoil wherever available for reincorporation in the work and if he fails to adequately preserve topsoil, he will be required to furnish an equivalent amount at his expense. The Contractor will also be required to furnish additional topsoil where there is insufficient material to permit spreading and placing of topsoil to a depth of 50 mm over the entire dike area.

After the dikes have been properly shaped and constructed, the Contractor will spread and level topsoil to a 50 mm depth, carefully hand-raking and shaping same. Grass seed and fertilizer will then be applied by the hydramulch method over the entire dike area. The grass will be watered and tended to the first cutting by the Contractor. Any areas which fail to germinate or do not grow properly will be replaced by the Contractor at his expense.

9. RESTORATION OF LAWNS (Cont'd)

If any owner does not wish to have topsoil, seed or fertilizer applied in any area to be restored, he may advise the Engineer accordingly and the Contractor will be instructed to delete any specified sections for whatever reason.

10. REMOVAL AND REPLACEMENT OF FENCES

All existing fences within the working area will be removed and replaced by the Contractor at his expense. New materials will be used in all cases to replace fences and wherever possible, the materials will be consistent with or match those of the existing fence. However, where fencing is constructed within the waterway area (below the estimated high water level), the type of fencing shall be an open weave wire mesh type which will not impede the flow of water. In the waterway area, the Contractor will provide 1.2 metre high 9 gauge vinyl coated chain link fencing with galvanized steel posts, top rails and braces throughout the project except under special circumstances where the Engineer deems substitution may be permitted. If any property owner had a higher fence than 1.2 metres, the replacement fence will be consistent with the existing fence in height.

11. SURVEY MONUMENTS

Prior to construction, the Engineer will locate all existing survey monuments and carefully record their position in order to replace them in their exact same location. After construction, all property lines will be provided with a new survey monument established by a Registered Ontario Land Surveyor prior to the replacement or reconstruction of fences.

In the event an existing fence is not on the property line established by a proper land survey, the new fence will be placed on the correct line within the working area and connected to the old fence at the boundary of the working area. If the property owner does not wish the new fence to be connected to the old fence so that he may relocate the old fence to its proper location, the Contractor will terminate his work in such a manner that such connection can be made without difficulty.

12. PRESERVATION OF UTILITIES, PIPES, IRRIGATION SYSTEMS, ETC.

All existing utilities, power supply lines, drains, water pipes, irrigation systems, etc. will be preserved



12. PRESERVATION OF UTILITIES, PIPES, IRRIGATION SYSTEMS, ETC. (Cont'd)

and/or restored after completion of the work. Where it is necessary to take up or remove any such item, the Contractor shall carefully preserve and store same until the work is completed and then reconstruct or replace the item in its former position in a proper working order. If the Contractor fails to exercise due care and diligence in preserving or replacing any such item he shall replace same at his expense.

The Contractor will preserve all public utilities located on private lands or public road allowances. It will be his obligation to contact any utility company to determine the actual location of utilities or plant and to make arrangements to protect same in accordance with the requirements of that company. Detailed specifications for the protection of utilities will be provided by the Engineer at the time of construction. Scheduling of the work will take into account the requirements of any utility company if it requires removal or relocation of any of its plant.

13. SPECIAL CONSTRUCTION

In certain cases, special construction techniques will be required to deal with problems in location and grade of buildings, houses and structures which conflict with the proposed work. Special cases have been identified in the Report and special construction techniques proposed to be used are shown on Figures 10 and 11. Special construction will be required on Lots 22, 26, 28, 31, 32, 33 and north part of Lot 35, Reg. Plan 1533.

Individual property owners of lands designated for special construction will be requested at the time of tendering to advise which alternative method (Figure 6, 10 or 11) they prefer.

14. SCHEDULING

The scheduling of the work will be under the direction of the Engineer. A pre-construction meeting will be held with the Engineer and Contractor to review the Contractor's proposed schedule for constructing the work. If the Engineer deems any concerns warrant revisions to the schedule, he may require the Contractor to make such changes as will accommodate the interests of the parties concerned. The Contractor will not be permitted to charge any extra cost for schedule revisions required by the Engineer.

15. ACCESS TO WORK

Access to the work shall only be from certain designated properties, public road allowances or from the channel of the Little River Drain by way of floating plant or equipment. The Contractor will be permitted to work only within the working areas defined by the contract documents and by the stakes which have been placed on the ground to designate such limits.

Private properties designated for access are Lots 7 and 21, Reg. Plan 1533. These lands shall be fully restored to their former condition immediately upon completion of reconstruction of the dikes.

It will be the Contractor's responsibility also to obtain sites for storage of materials and equipment at his expense and the location of such sites must be approved by the Engineer.

16. CLEANUP

The whole of the works shall be satisfactorily cleaned up during the course of construction and no portion will be left in an untidy or incomplete state before subsequent portions are undertaken.

Restoration of private lands and public road allowances used by the Contractor shall be carried out immediately after use. All roads and access to property shall be maintained in a fully operational and satisfactory state during construction. No piles of construction materials, equipment or debris will be permitted to remain along any highway or public right-of-way.

Before authorizing final payment, the Engineer will inspect the work to ensure that all property and road allowances have been restored to their original condition. In the event the Contractor fails to satisfactorily clean up any portion of the work, the Engineer may order such cleanup to be carried out by others and the cost of same deducted from any money owing to the Contractor.

17. STANDARD SPECIFICATIONS

The contract documents will include standard specifications of the City of Windsor and/or the Essex Region Conservation Authority for the construction of the work.

The contract documents will also include special provisions of contract, special conditions, general conditions of contract and form of agreement which

17. STANDARD SPECIFICATIONS (Cont'd)

will be included in the tender documents and taken into account by the Contractor in submitting his price for the work.

It is the intent of any special and general specifications and conditions of contract to insure the adequate and proper construction of the work in accordance with the requirements of these specifications.

18. BONDS

The Contractor will be required to furnish a bid bond or cash tender deposit, as the case may be, with his tender to ensure that he is able to properly undertake the work for the price submitted. The amount of bid bond or tender deposit will be designated by the Engineer at the time of tendering for the work.

The successful tenderer who is awarded the contract will be required to furnish a performance bond for 100% of the contract price to ensure the due and proper performance of the work.

The performance bond will be retained for a sufficient period after completion of the work to guarantee that defects or deficiencies have been detected and remedied.

When the period of guarantee and maintenance expires, the Contractor will be issued with the final payment certificate, at which time all bonds and/or deposits will be returned to him.

19. INSURANCE

The Contractor will be required to carry adequate insurance to protect against damage to property and public liability from all of his operations and activities. Such insurance will be of a form and in an amount satisfactory to the City of Windsor and/or the Essex Region Conservation Authority to ensure proper protection of all parties concerned, including the property owners affected by the work.

The cost of all insurance will be borne by the Contractor.

20. PAYMENT

Payment for the work will be made to the Contractor in accordance with the prices tendered for same on

20. PAYMENT (Cont'd)

the form of tender included with the contract documents.

Payment will be made to the Contractor on a monthly basis on certificates issued by the Engineer based upon the estimated value of work done and materials in place. A holdback in the amount of 15% of the value of the work performed and materials in place will be retained each month until completion of the work.

Any progress payment authorized by the Engineer does not imply acceptance of the work and final payment will not be authorized until the Contractor has satisfied the Engineer that there are no liens or claims against the work and he has furnished the Engineer with a clearance from the Workmen's Compensation Board.

  
E. O. LaFontaine, P. Eng.

LAFONTAINE, COWIE, BURATTO  
& ASSOCIATES LIMITED

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TABLE 11  
REVISED ELEVATIONS FOR  
TOP OF DIKE & EROSION PROTECTION SYSTEMS

STA.	TR 10 MHWL	TR 25 MWL	PROPOSED ELEV. OF PROTECTION		TR 100 MWL	TR 10 HWL	PROPOSED ELEV. TOP OF DIKE (INCLUDES FREEBOARD)
			STEEL	RIP-RAP			
0+000	175.81	175.20	-	-	175.20	176.40	
0+150	175.81	175.19	176.00	-	175.19	176.40	176.90
0+162	175.86	175.38	176.00	-	175.55	176.43	176.90
0+200	175.86	175.38	176.00	-	175.61	176.43	176.90
0+300	175.90	175.65	176.00	-	175.80	176.47	176.90
0+400	175.94	175.75	176.00	-	175.96	176.49	176.95
0+500	175.98	175.82	176.00	-	176.06	176.51	177.00
0+600	176.02	175.91	176.25	-	176.19	176.54	177.05
0+700	176.05	175.99	176.25	-	176.29	176.56	177.10
0+800	176.10	176.07	176.25	176.10	176.40	176.58	E177.40 W177.15
0+900	176.14	176.16	176.25	176.20	176.50	176.61	E177.50 W177.20
1+000	176.22	176.29	176.25	176.30	176.65	176.64	E177.60 W177.25
1+100	176.26	176.36	176.25	176.40	176.72	176.67	E177.70 W177.40
1+200	176.30	176.43	176.50	176.45	176.81	176.69	E177.80 W177.60
1+300	176.33	176.48	176.50	176.50	176.86	176.71	E177.90 W177.80
1+400	176.36	176.52	176.50	176.55	176.91	176.73	178.00
1+459	176.36	176.61	176.75	176.62	177.13	176.79	178.10
1+500	176.42	176.69	176.75	176.69	177.24	176.83	178.20
1+600	176.47	176.75	176.75	176.76	177.30	176.86	178.30
1+700	176.52	176.82	176.75	176.83	177.36	176.89	178.35
1+800	176.56	176.87	177.00	176.90	177.41	176.91	178.40
1+900	176.63	176.95	177.00	176.97	177.50	176.96	178.45
2+000	176.66	176.99	177.00	177.01	177.54	176.97	178.50
2+100	176.69	177.03	177.00	177.05	177.58	177.00	178.55
2+200	176.74	177.08	-	177.09	177.63	177.03	178.60
2+300	176.78	177.12	-	177.13	177.66	177.05	178.65
2+400	176.81	177.16	-	177.17	177.69	177.07	178.70
2+500	176.85	177.20	-	177.21	177.73	177.10	178.75
2+600	176.92	177.28	-	177.25	177.81	177.15	178.80
2+700	176.94	177.30	-	177.29	177.82	177.16	178.85

HWL - ESTIMATED 1:100 YEAR LEVEL OF LAKE ST. CLAIR WITH WIND SET-UP  
MHWL - HIGHEST MONTHLY LEVEL LAKE ST. CLAIR  
MWL - MEAN WATER LEVEL LAKE ST. CLAIR

APPENDIX I

PERSONS ATTENDING ON-SITE MEETING

MARCH 29, 1983

REPAIR AND IMPROVEMENT OF

THE LITTLE RIVER DRAIN

CITY OF WINDSOR

ON-SITE MEETING, MARCH 29, 1983

LIST OF PERSONS IN ATTENDANCE

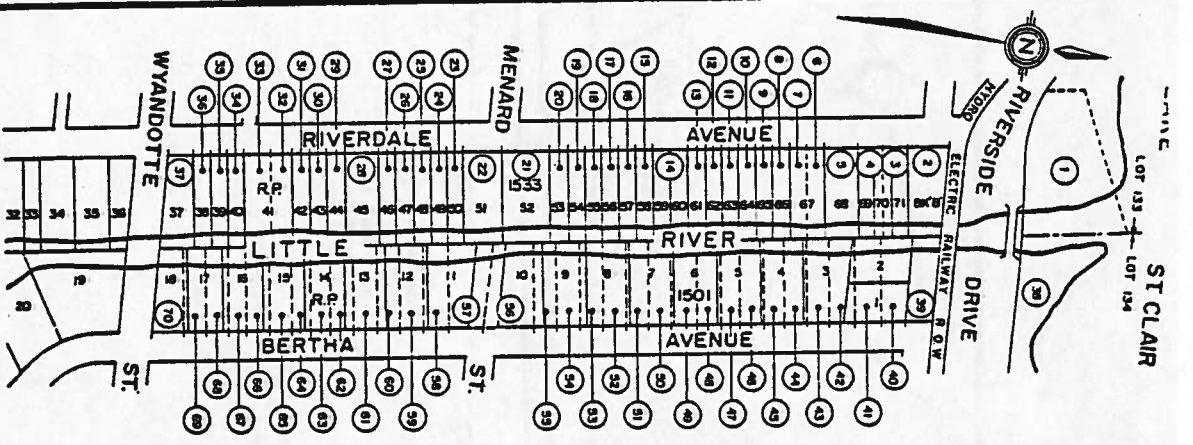
<u>NAME</u>	<u>ADDRESS</u>
E.O. LaFontaine	LaFontaine, Cowie, Buratto & Associates Limited
A.F. Sutherland	LaFontaine, Cowie, Buratto & Associates Limited
J. Sbrocca	LaFontaine, Cowie, Buratto & Associates Limited
T. Murray	City of Windsor Public Works
G. Adams	City of Windsor Public Works
W. Morsink	City of Windsor Parks Dept.
A. Malmberg	Windsor Utilities Commission Water Division
M. Baggio	Windsor Utilities Commission Water Division
J. Rebello	Windsor Utilities Commission Hydro Division
K. J. Schmidt	Essex Region Conservation Authority
P. Hale	Essex Region Conservation Authority
S. Taylor	Essex Region Conservation Authority
Charles Burchell	414 Riverdale
Donald McPherson	428 Riverdale
Stanley & Elizabeth Chandler	444 Riverdale
Susan Bitacola	448 Riverdale
Maria Peleikis	494 Riverdale

<u>NAME</u>	<u>ADDRESS</u>
Mary Schacht	506 Riverdale
Patrick Renaud	524 Riverdale
William Baker	548 Riverdale
Kenneth Chase	556 Riverdale
Kenneth Kearns	562 Riverdale
Nick Pylak	568 Riverdale
Joseph Soulliere (Trustee)	576 Riverdale
Douglas & Iris Hotte	816 Riverdale
David Tanner	846 Riverdale
Richard Lehoux	850 Riverdale
Raymond Pentz	862 Riverdale
Valerie Basden	866 Riverdale
Cassie & Don Black	872 Riverdale
Cliff Phillips	910 Riverdale
Romeo Lehoux	922 Riverdale
Gloria Laframboise	934 Riverdale
Gladys Halonen	950 Riverdale
Stephen Fralick	972 Riverdale
Tom Nosella	990 Riverdale
Ernest Dion	1022 Riverdale
Lucille Adam (Basden)	1028 Riverdale
Peter & Munnice Simeoni	1044 Riverdale
Gordon & Denis Lapalme	1038 Riverdale
Mark Doxey	General Motors Trim
Shirley Ellis	425 Bertha
Duncan Ascot	427 Bertha
Genevieve Bowers	439 Bertha
Thomas Smith	
Charles Smith	457 Bertha



<u>NAME</u>	<u>ADDRESS</u>
Norman Speirn	465 Bertha
John Schilchter	471 Bertha
Allan & Linda Schneider	479 Bertha
Emanuel Asciak	489 Bertha
Osmo Rasila	515 Bertha
Evelyn Rickerby	521 Bertha
Evelyn Stuart	535 Bertha
Fred D. Cowell	541 Bertha
Robert Vidamour	559 Bertha
Anthony Passalacqua	583 Bertha





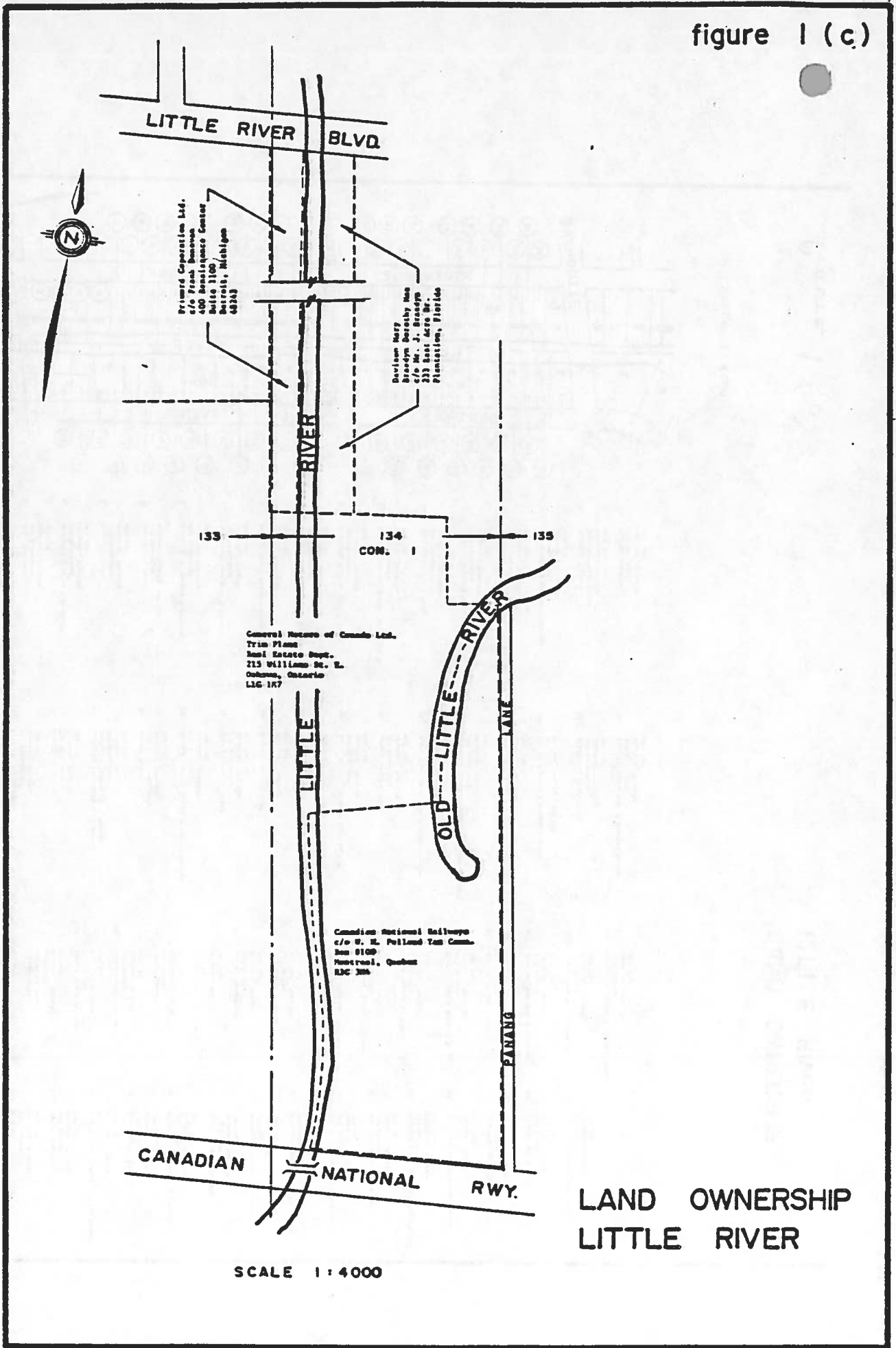
SCALE 1:4000

Figure 1 (a)

- |   |   |   |  |
|---|---|---|--|
| 1. Vincent City<br>677 Property Reg.<br>City Lot<br>Municipal, Ontario<br>M.P. 100                | 19. Sgt. Alder<br>677 Property Reg.<br>City Lot<br>Municipal, Ontario<br>M.P. 100                       | 37. Vincent City<br>677 Property Reg.<br>City Lot<br>Municipal, Ontario<br>M.P. 100 | 54. Arthur James Barker & Son<br>677 Property Reg.<br>City Lot<br>Municipal, Ontario<br>M.P. 100 |
| 2. Hamilton Park Land & Survey<br>677 Property Reg.<br>City Lot<br>Municipal, Ontario<br>M.P. 100 | 20. Bruce Green, Frederick & Cecilia<br>677 Property Reg.<br>City Lot<br>Municipal, Ontario<br>M.P. 100 | 38. Vincent City<br>677 Property Reg.<br>City Lot<br>Municipal, Ontario<br>M.P. 100 | 55. Arthur James Barker & Son<br>677 Property Reg.<br>City Lot<br>Municipal, Ontario<br>M.P. 100 |
| 3. 409 Riverdale<br>Municipal, Ontario<br>M.P. 100  | 21. Pringle Thomas Ltd.<br>677 Property Reg.<br>City Lot<br>Municipal, Ontario<br>M.P. 100              | 39. Vincent City<br>677 Property Reg.<br>City Lot<br>Municipal, Ontario<br>M.P. 100 | 56. Vincent Smith Paul<br>677 Property Reg.<br>City Lot<br>Municipal, Ontario<br>M.P. 100        |
| 4. 409 Riverdale<br>Municipal, Ontario<br>M.P. 100  | 22. 205 Riverside<br>Municipal, Ontario<br>M.P. 100   | 40. Vincent City<br>677 Property Reg.<br>City Lot<br>Municipal, Ontario<br>M.P. 100 | 57. Vincent Smith Paul<br>677 Property Reg.<br>City Lot<br>Municipal, Ontario<br>M.P. 100        |
| 5. 409 Riverdale<br>Municipal, Ontario<br>M.P. 100  | 23. 205 Riverside<br>Municipal, Ontario<br>M.P. 100   | 41. Vincent City<br>677 Property Reg.<br>City Lot<br>Municipal, Ontario<br>M.P. 100 | 58. Vincent Smith Paul<br>677 Property Reg.<br>City Lot<br>Municipal, Ontario<br>M.P. 100        |
| 6. 409 Riverdale<br>Municipal, Ontario<br>M.P. 100  | 24. 205 Riverside<br>Municipal, Ontario<br>M.P. 100   | 42. Vincent City<br>677 Property Reg.<br>City Lot<br>Municipal, Ontario<br>M.P. 100 | 59. Vincent Smith Paul<br>677 Property Reg.<br>City Lot<br>Municipal, Ontario<br>M.P. 100        |
| 7. 409 Riverdale<br>Municipal, Ontario<br>M.P. 100  | 25. 205 Riverside<br>Municipal, Ontario<br>M.P. 100   | 43. Vincent City<br>677 Property Reg.<br>City Lot<br>Municipal, Ontario<br>M.P. 100 | 60. Vincent Smith Paul<br>677 Property Reg.<br>City Lot<br>Municipal, Ontario<br>M.P. 100        |
| 8. 409 Riverdale<br>Municipal, Ontario<br>M.P. 100  | 26. 205 Riverside<br>Municipal, Ontario<br>M.P. 100   | 44. Vincent City<br>677 Property Reg.<br>City Lot<br>Municipal, Ontario<br>M.P. 100 | 61. Vincent Smith Paul<br>677 Property Reg.<br>City Lot<br>Municipal, Ontario<br>M.P. 100        |
| 9. 409 Riverdale<br>Municipal, Ontario<br>M.P. 100  | 27. 205 Riverside<br>Municipal, Ontario<br>M.P. 100   | 45. Vincent City<br>677 Property Reg.<br>City Lot<br>Municipal, Ontario<br>M.P. 100 | 62. Vincent Smith Paul<br>677 Property Reg.<br>City Lot<br>Municipal, Ontario<br>M.P. 100        |
| 10. 409 Riverdale<br>Municipal, Ontario<br>M.P. 100   | 28. 205 Riverside<br>Municipal, Ontario<br>M.P. 100   | 46. Vincent City<br>677 Property Reg.<br>City Lot<br>Municipal, Ontario<br>M.P. 100 | 63. Vincent Smith Paul<br>677 Property Reg.<br>City Lot<br>Municipal, Ontario<br>M.P. 100        |
| 11. 409 Riverdale<br>Municipal, Ontario<br>M.P. 100   | 29. 205 Riverside<br>Municipal, Ontario<br>M.P. 100   | 47. Vincent City<br>677 Property Reg.<br>City Lot<br>Municipal, Ontario<br>M.P. 100 | 64. Vincent Smith Paul<br>677 Property Reg.<br>City Lot<br>Municipal, Ontario<br>M.P. 100        |
| 12. 409 Riverdale<br>Municipal, Ontario<br>M.P. 100   | 30. 205 Riverside<br>Municipal, Ontario<br>M.P. 100   | 48. Vincent City<br>677 Property Reg.<br>City Lot<br>Municipal, Ontario<br>M.P. 100 | 65. Vincent Smith Paul<br>677 Property Reg.<br>City Lot<br>Municipal, Ontario<br>M.P. 100        |
| 13. 409 Riverdale<br>Municipal, Ontario<br>M.P. 100   | 31. 205 Riverside<br>Municipal, Ontario<br>M.P. 100   | 49. Vincent City<br>677 Property Reg.<br>City Lot<br>Municipal, Ontario<br>M.P. 100 | 66. Vincent Smith Paul<br>677 Property Reg.<br>City Lot<br>Municipal, Ontario<br>M.P. 100        |
| 14. 409 Riverdale<br>Municipal, Ontario<br>M.P. 100   | 32. 205 Riverside<br>Municipal, Ontario<br>M.P. 100   | 50. Vincent City<br>677 Property Reg.<br>City Lot<br>Municipal, Ontario<br>M.P. 100 | 67. Vincent Smith Paul<br>677 Property Reg.<br>City Lot<br>Municipal, Ontario<br>M.P. 100        |
| 15. 409 Riverdale<br>Municipal, Ontario<br>M.P. 100   | 33. 205 Riverside<br>Municipal, Ontario<br>M.P. 100   | 51. Vincent City<br>677 Property Reg.<br>City Lot<br>Municipal, Ontario<br>M.P. 100 | 68. Vincent Smith Paul<br>677 Property Reg.<br>City Lot<br>Municipal, Ontario<br>M.P. 100        |
| 16. 409 Riverdale<br>Municipal, Ontario<br>M.P. 100   | 34. 205 Riverside<br>Municipal, Ontario<br>M.P. 100   | 52. Vincent City<br>677 Property Reg.<br>City Lot<br>Municipal, Ontario<br>M.P. 100 | 69. Vincent Smith Paul<br>677 Property Reg.<br>City Lot<br>Municipal, Ontario<br>M.P. 100        |
| 17. 409 Riverdale<br>Municipal, Ontario<br>M.P. 100   | 35. 205 Riverside<br>Municipal, Ontario<br>M.P. 100   | 53. Vincent City<br>677 Property Reg.<br>City Lot<br>Municipal, Ontario<br>M.P. 100 | 70. Vincent Smith Paul<br>677 Property Reg.<br>City Lot<br>Municipal, Ontario<br>M.P. 100        |
| 18. 409 Riverdale<br>Municipal, Ontario<br>M.P. 100   | 36. 205 Riverside<br>Municipal, Ontario<br>M.P. 100   | 54. Vincent City<br>677 Property Reg.<br>City Lot<br>Municipal, Ontario<br>M.P. 100 | 71. Vincent Smith Paul<br>677 Property Reg.<br>City Lot<br>Municipal, Ontario<br>M.P. 100        |

LAND OWNERSHIP  
LITTLE RIVER

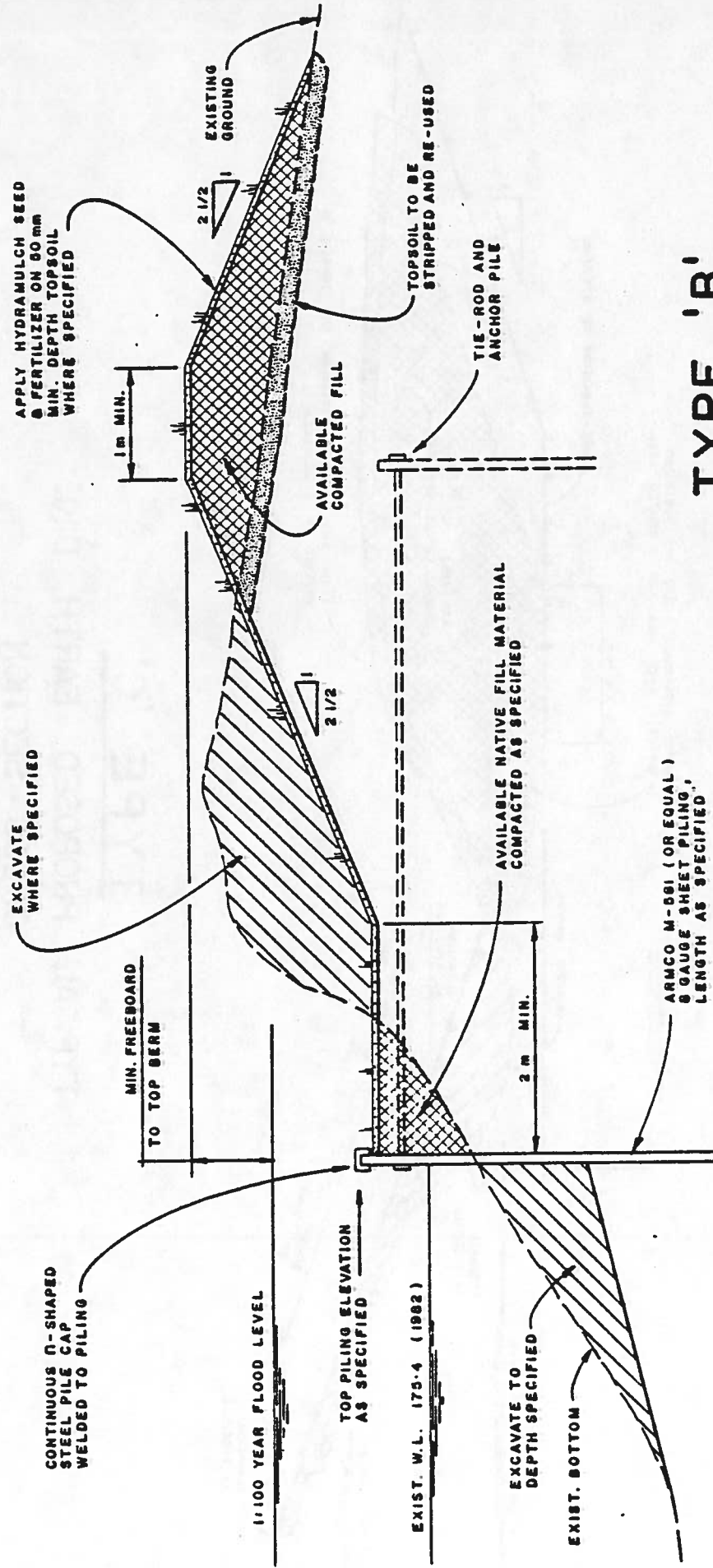
figure 1 (c)



LAND OWNERSHIP  
LITTLE RIVER

SCALE 1 : 4000

figure 6

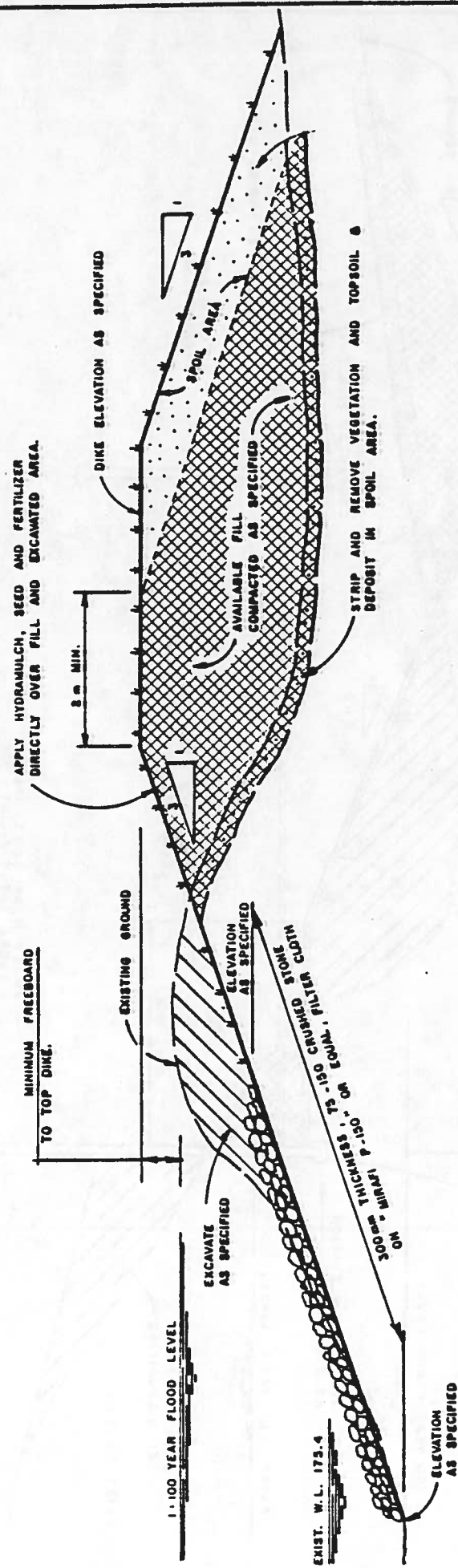


**TYPE 'B'**  
**TYPICAL CROSS-SECTION**  
**OF PROPOSED STEEL PILE**  
**RETAINING WALL**

SCALE 1:50

**NOTE:**

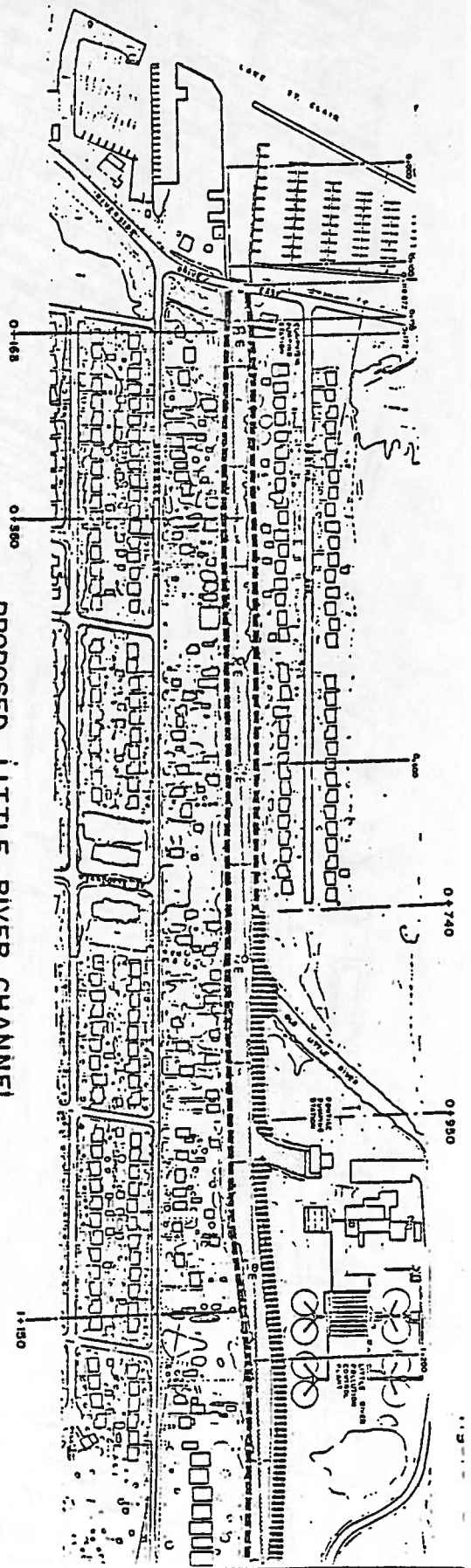
FOR ELEVATIONS OF TOP OF BERM AND TOP OF PILING SEE TABLE II



**TYPE 'C'**  
**TYPICAL PROPOSED EARTH DIKE**  
**CROSS - SECTION**

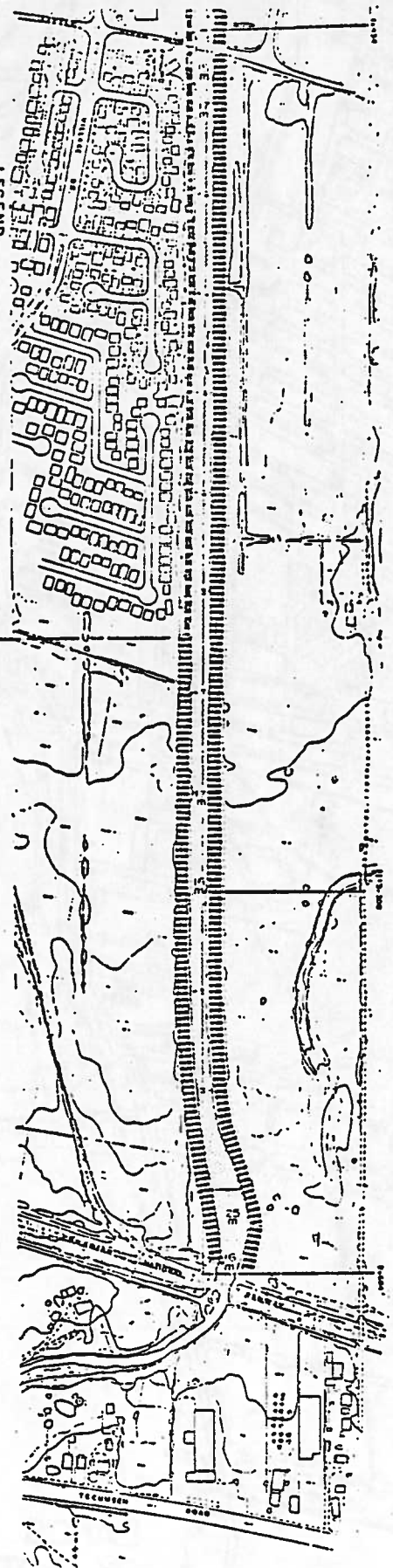
SCALE 1:75

**NOTE 1**  
 FOR ELEVATIONS OF TOPS OF  
 DIKES AND EROSION PROTECTION  
 SEE TABLE II



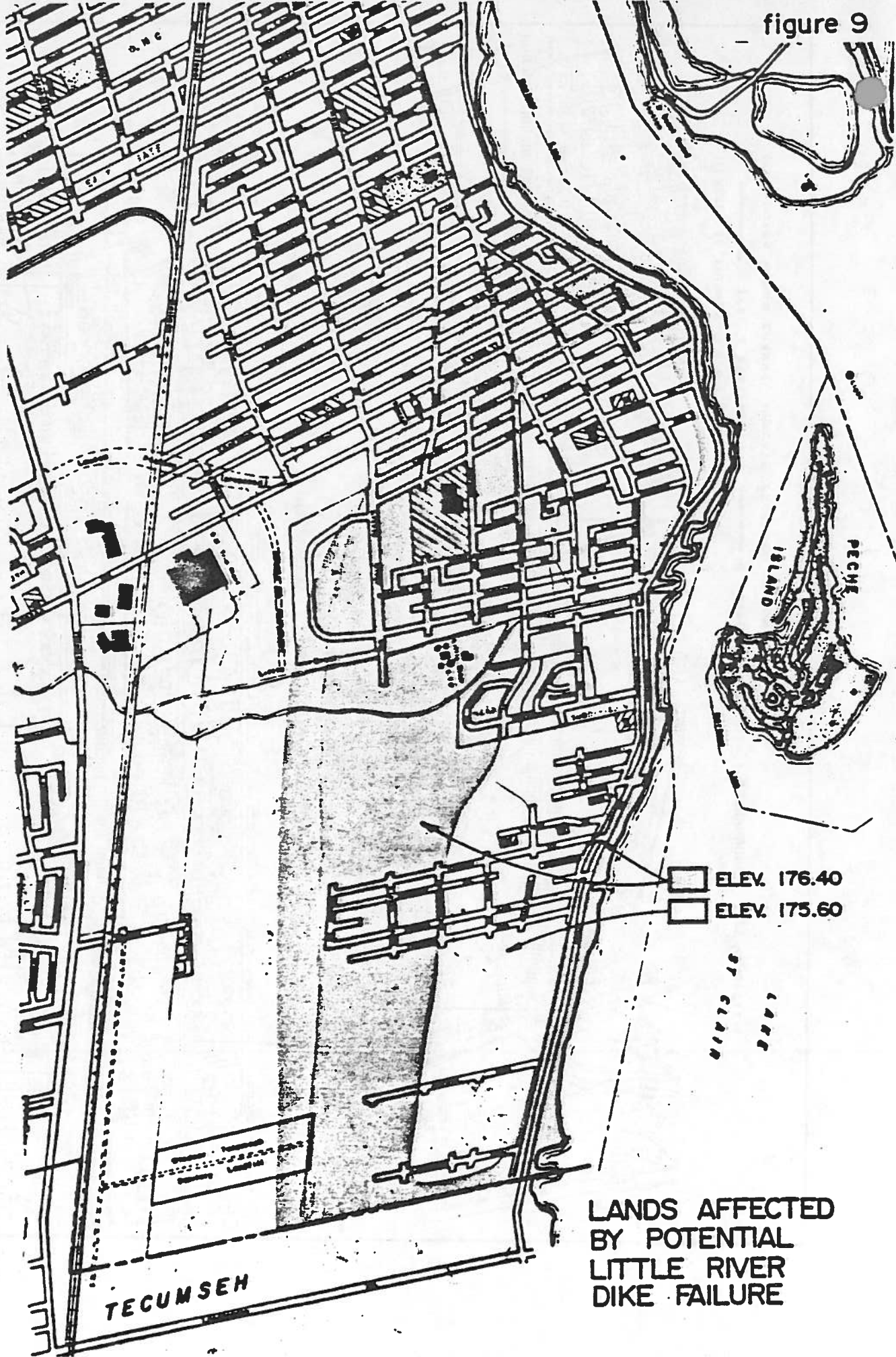
PROPOSED LITTLE RIVER CHANNEL  
AND DIKE IMPROVEMENTS

B.M. - BOLT IN SOUTHWEST FACE OF SOUTH STONE  
REMAINS WALL AT EAST END OF C.M.R. BRIDGE  
OVER LITTLE RIVER. ELEV. 128.338 METERS



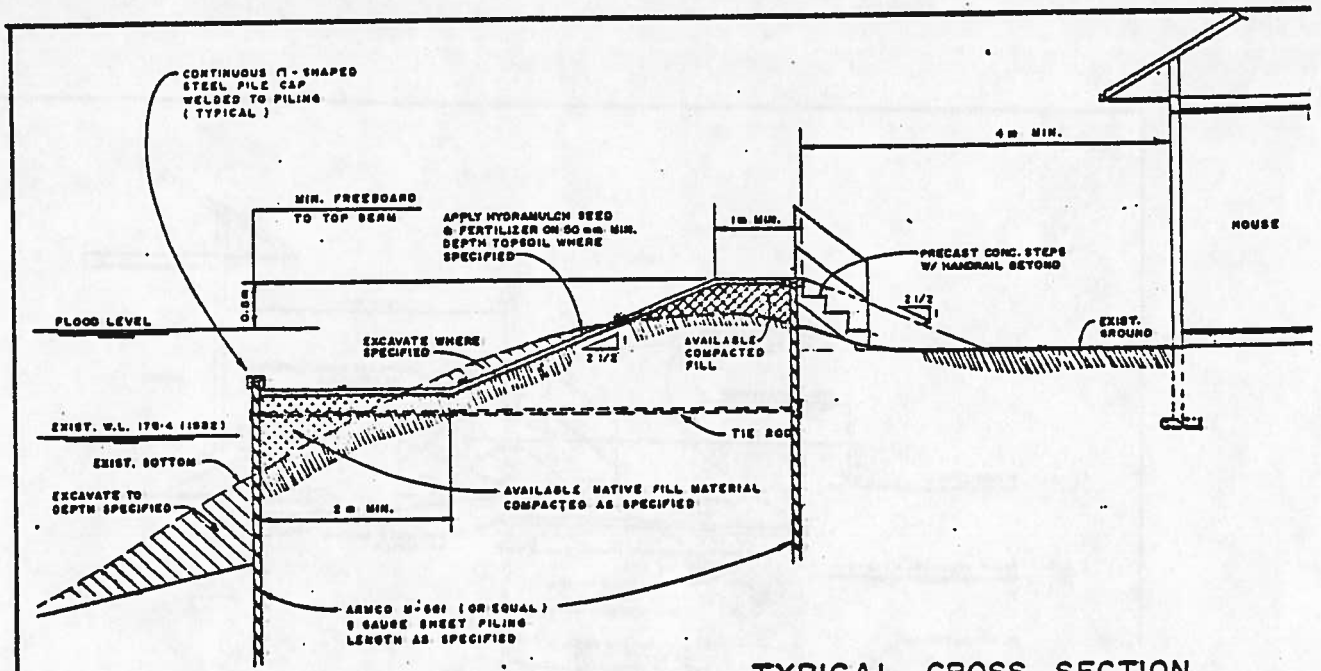
LEGEND  
 (1) REFER TO FIGURES 5, 6, & 7  
 TYPE 'A' SYSTEM  
 TYPE 'B' SYSTEM  
 TYPE 'C' SYSTEM  
 NUMBERS WITHIN CHANNEL INDICATE PROPOSED BOTTOM WIDTH

figure 9

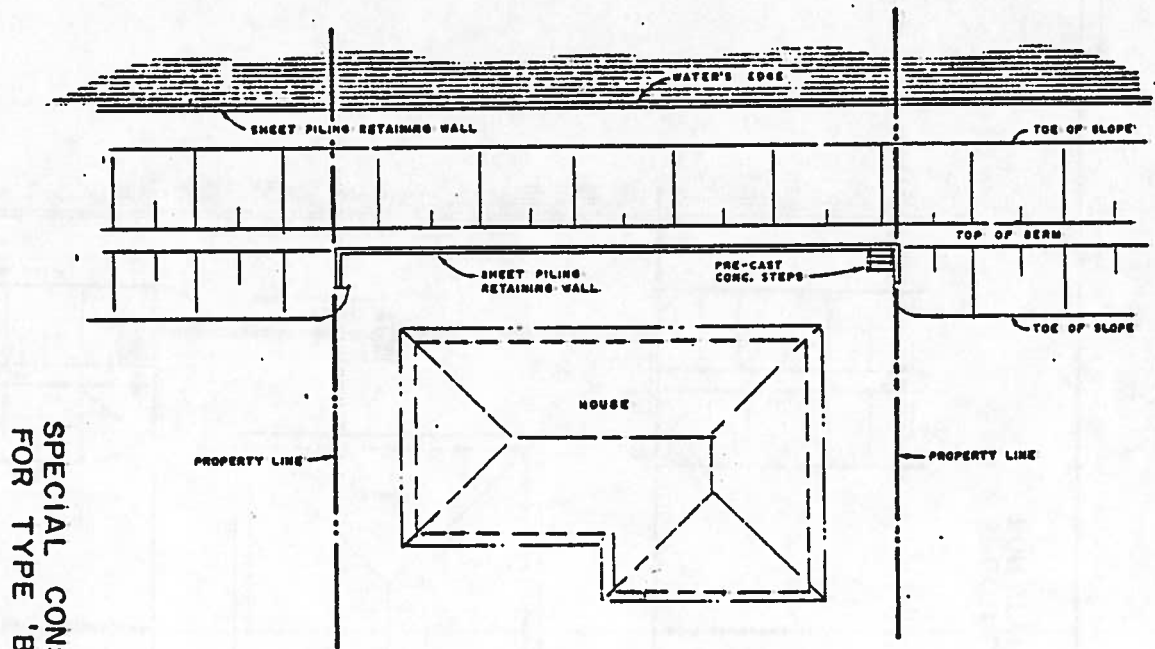


LANDS AFFECTED  
BY POTENTIAL  
LITTLE RIVER  
DIKE FAILURE



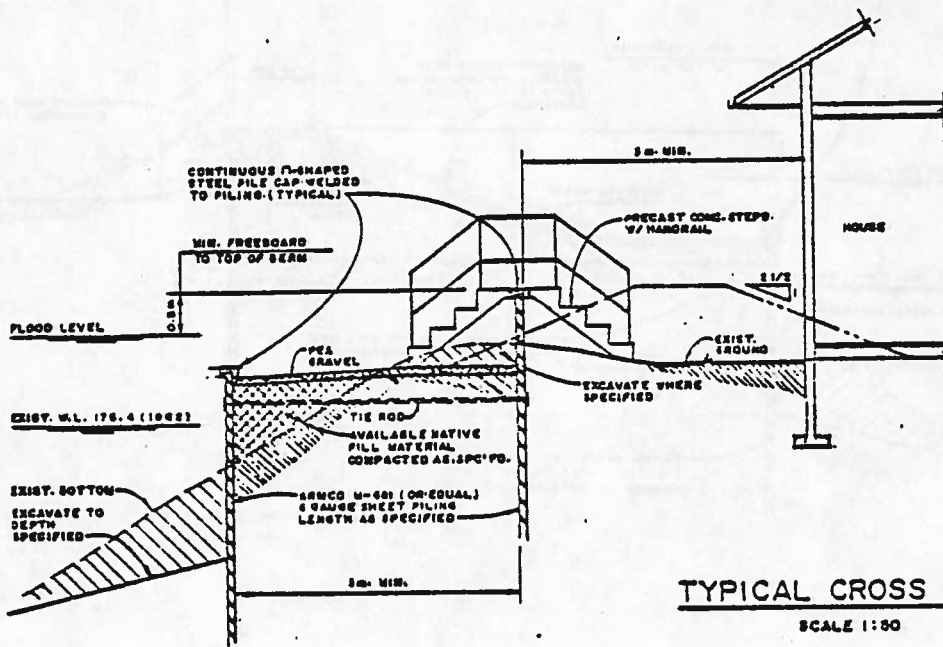


**TYPICAL CROSS SECTION**  
SCALE 1:50

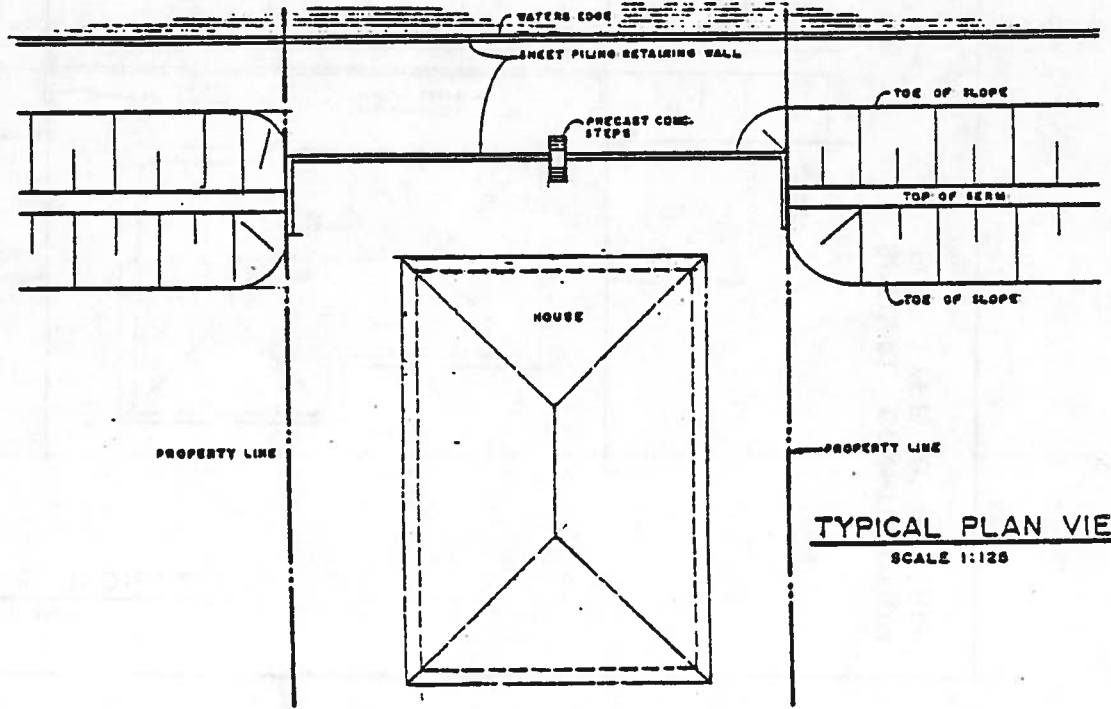


SPECIAL CONSTRUCTION FOR TYPE 'B' SYSTEM

**TYPICAL PLAN VIEW**  
SCALE 1:240



**TYPICAL CROSS SECTION**  
SCALE 1:50



**TYPICAL PLAN VIEW**  
SCALE 1:125

SPECIAL CONSTRUCTION  
FOR TYPE 'B' SYSTEM