

ITEM 7
MANAGER'S REPORT NO. 38
COUNCIL MEETING 1979 05 14

RE: MEADOWLAND PEAT LTD. - 7625 MEADOW AVENUE

Following is a report from the Director of Planning regarding the subject property.

RECOMMENDATION:

1. THAT the recommendation of the Director of Planning be adopted.

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1979 May 07

TO: MUNICIPAL MANAGER
FROM: DIRECTOR OF PLANNING
RE: MEADOWLAND PEAT LTD. - 7625 MEADOW AVENUE

RECOMMENDATION:

1. THAT the Municipal Council authorize the issuance of a permit to remove soil and to place fill on Lot "B", D.L. 155B and D.L. 155C, Plan 18857, N.W.D. and on Lot 21, D.L. 155B, Plan 1248, N.W.D., subject to those conditions outlined in the following report.

REPORT

A. BACKGROUND

The Planning Department has received an application to permit the removal of soil and to place fill on the subject lands which are located southwest of Meadow Avenue as shown on the attached Figure 1. These lands are owned by Meadowland Peat Ltd. who have operated on this site since 1965. During this time their principle operation has been the production of modified topsoil material composed primarily of amorphous peat and sawdust. They have also engaged in landfill and the cutting of logs into firewood for sale.

The method of producing the topsoil consists of the following steps:

- (a) Approximately 5 ft. of sawdust is spread over a section of peat land from which the top few feet of fibrous peat has already been stripped.

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- (b) A large dragline then digs out the combined sawdust and amorphous peat down to the top of the underlying organic clay-silt (understood to vary between 10 to 15 ft. in depth) and casts it back onto the existing hogfuel fill forming a pile some 5 ft. above initial fill level, i.e. \pm 12 ft. above grade.
- (c) The water filled excavation is backfilled with hogfuel and building debris. Additional hogfuel and building debris are brought in from time to time to build up the fill level to about 5 ft. above adjacent grade in preparation for the next round of peat excavation.
- (d) After a period of a year or more, the drained peat and sawdust mixture is processed into the required type of topsoil. During this period the hogfuel and building debris fill settles several feet under its own weight and the weight of the wet peat-sawdust material.
- (e) The hogfuel fill is finally roughly leveled off at about 8 ft. above original ground level and used as a working area.

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The backfill material consists of hogfuel and building debris. The hogfuel is predominantly fir and hemlock and the building debris consists of boards, cut-off ends, etc. This building debris has been estimated to have a 98% wood content. Included in this backfill material is a very small amount of waste paper, plastic, gypsum board, cans, wire, pieces of metal, old tires, etc.

The net effect of this operation has been that it has continued to advance across the site to the point whereby it now is essentially complete. The owner has estimated that he would be able to continue this operation for a further eighteen months to two years.

The entire site comprises 32.9 acres (13.31 hectares) and the extent of the landfill is shown on the attached Figure 2.

This property is within the area of the Agricultural Land Reserve and consequently, soil removal and the placement of fill are governed by the Soil Conservation Act. This Act has recently been revised and regulations passed which provide the Municipality with the control to regulate landfill and soil removal in the Agricultural Land Reserve.

Meadowland Peat Ltd. was, therefore, formally advised on 1978 August 29 that they were operating in contravention of the Act and that, if they wished to continue with the soil removal and landfill operation on the subject properties, they would be required to submit an application and await receipt of the requisite permit.

An application was received on 1978 September 15. On 1978 October 11, the Director of Planning forwarded a letter which stated that the Planning Department had reviewed the application and our preliminary conclusion was that we were prepared to recommend that a permit be issued subject to the satisfactory completion of certain conditions as follows.

Our primary concern related to the proposed use of the land and the effect of the soil removal and landfill on the operation of the adjacent market gardens. Inasmuch as the majority of the site had already been filled, the applicant was advised that an independent soils consultant should be engaged to report on the state of the existing fill and on any conditions which he feels should be applied to the proposed soil removal and landfill. It was stated that it was the applicant's responsibility to hire a consultant who was a registered Geotechnical Engineer.

B. EXISTING SITUATION

Meadowland Peat Ltd. subsequently authorized Macleod Geotechnical Ltd., a Soil Mechanics and Foundation Engineering Company, to undertake a study based on the terms of reference provided by the Planning Department.

This report states that, due to the large proportion of course material in the landfill, the hogfuel (not sawdust) has been found to be much stronger and much less compressible than peat, although perhaps subject to a higher rate of decomposition. Consequently, current practice has allowed the use of hogfuel as a lightweight fill when preloading in peat areas providing the hogfuel is finally depressed below the average groundwater level where it undergoes anerobic decomposition. It is considered that the rate of anerobic decomposition is sufficiently slow as not to damage the usual type of development on this type of peat land.

The floodproofing requirements in the subject area as established by the Corporation dictate that the final height of fill should be approximately 7 feet (2.13 metres) above Meadow Avenue. The consultant states, therefore, that since the existing hogfuel fill is already at this elevation (or higher) over some 26 acres (10.52 hectares), it would be desirable to make use of the fill in place even at the cost of some restriction on possible types of development.

He further states that little is known about the long term settlement behavior of hogfuel due to biological activity especially under aerobic conditions. However, development over hogfuel fill in light and general industrial areas seems a logical extension where the particular use is not sensitive to moderate long term settlement. Use of lightweight hogfuel fill would be particularly advantageous as a high fill is required in this peat area. At this site additional preloading requirements would be minimal since the older fill areas have already settled for some years under at least 4 ft. of wet peat and sawdust.

In summary, the consultant considered that the hogfuel fill at this site could be developed for suitable types of light and general industrial uses (M2-M5 zoning) subject to the following conditions: (see attached Figure 4)

1. The hogfuel fill should ultimately be completely covered with soil fill and the sides sloped and planted with ground cover as necessary to control dust and runoff and to support traffic - see attached Figure 3.
2. All major structures including floor slabs and/or heavy concentrated loads should be pile supported down to a denser subsoil stratum below the soft organic clay-silt. Building crawl spaces and similar areas should be vented to prevent any accumulation of methane gas.
3. Should future use indicate heavy loads, e.g. storage loads, additional preloading will be required. Possible fire hazard should be controlled by dividing up the hogfuel fill area into cells using trenches excavated to low ground water level and backfilled with sand.
4. One or more loaded test areas should be constructed in representative areas of the existing hogfuel fill with suitable instrumentation to record the rate of long term settlement due to biological degradation. Settlement plates should distinguish between settlement of the hogfuel above and below the groundwater level. Additional measurements of temperature and gas composition in the hogfuel above groundwater level would also be desirable. If a covered test area is proposed then measurements of temperature and gas composition become essential. The test areas should be run for at least six months and preferably for one complete climate cycle of twelve months.

The results of the test section(s) would be used to indicate the limitations of development for the hogfuel fill in its present condition and to develop satisfactory design and construction procedures.

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With regard to the effect of the landfill operation on the adjacent market gardens, the consultant has stated that the groundwater level under the hogfuel fill area was found to be only slightly higher than the standing groundwater level on the west side of the site and lower than the ground level in the adjoining agricultural land. Therefore, it would seem that normal ditching and subsoil drainage would take care of any groundwater problems in the market gardens.

This view has been supported by staff of the Provincial Agricultural Land Commission and the Ministry of Agriculture have conducted site inspections of the adjacent market gardens. Their general conclusion was the land base of the market gardens is good and that with relatively minor adjustments and improvements to the drainage system, the agricultural capability of the land will be enhanced.

The owners of these market gardens have applied to the Ministry of Agriculture for assistance in implementing drainage improvements and it is our understanding that drainage improvements are proposed.

C. STAFF CONCLUSION

The Municipal Engineer has reviewed the consultant's report and concluded that it has appeared to cover all points of concern.

The Planning Department views the continuance of the landfill in a pragmatic sense. The site has been virtually filled and the area remaining to be filled is relatively small. It is impractical to consider the removal of the existing landfill. In fact, in light of the consultant's conclusion that the hogfuel fill at this site could be developed for suitable types of light and general industrial uses subject to certain conditions, such a proposal is not necessary.

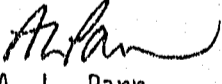
The condition of the existing fill site is somewhat untidy and if approval is given to continue the landfill, sufficient safeguards must be established to guarantee that the site is satisfactorily maintained and the consultant's recommendations adhered to. In this regard, it is proposed that a letter of credit be deposited with the Corporation to ensure compliance with the terms of the soil removal and landfill permit.

The specific terms of the permit are proposed to be as follows:

1. Meadowland Peat Ltd. shall deposit an irrevocable Bank Letter of Credit with the Local Authority (Director of Planning) in the amount of \$10,000 to guarantee compliance with the terms and conditions of the soil removal and landfill permit as set forth herein.
2. The landfill and soil removal procedures shall conform to the recommendations in the 1979 February report prepared by Macleod Geotechnical Ltd. entitled "Preliminary Report on Operating Conditions and Future Development at Property of Meadowland Peat Ltd., Meadow Avenue, Burnaby".
3. The final height of the fill shall be within a foot of an elevation 9 feet above the current elevation of Meadow Avenue. (This elevation will permit the regrading of the existing fill and the placement of a cover fill.)
4. Meadowland Peat Ltd. shall provide the Local Authority with a letter from a registered Geotechnical Engineer on a minimum six month interval to ensure that the soil removal and landfill is being undertaken according to the terms of the permit.

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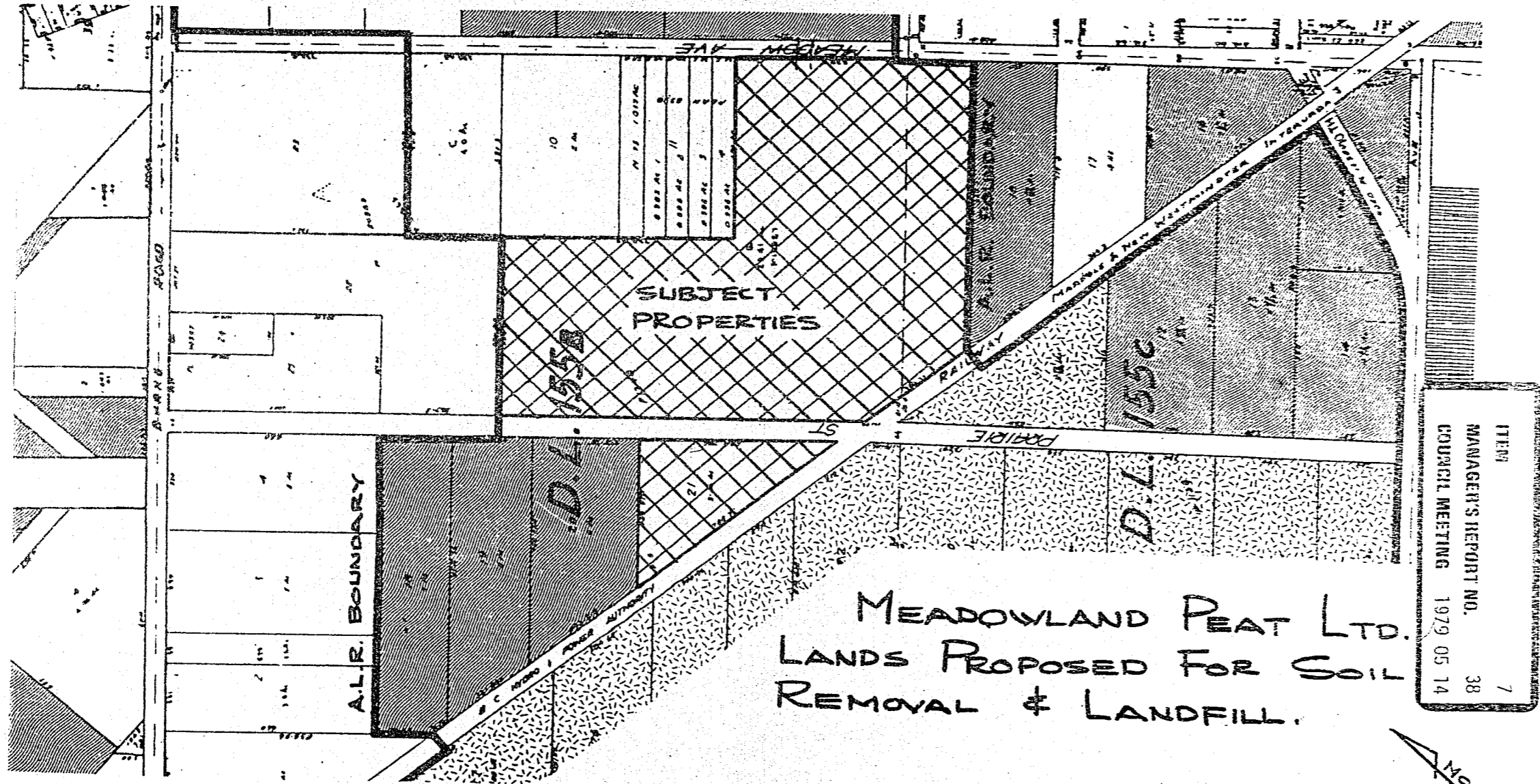
5. Meadowland Peat Ltd. shall submit to the Local Authority a schedule establishing a timetable for the implementation of the recommendations contained in the 1979 February report prepared by Macleod Geotechnical Ltd. This schedule will include the following items:
- (a) provision for regrading the side slopes of the landfill to a slope of 2:1 and the placement of cover fill and the planting of ground cover as specified on the attached Figure 3.
 - (b) establishing the procedure for controlling fine dust and wood particles from the hogfuel and other fill material being blown onto adjacent properties (with particular attention being paid to the adjacent market gardens).
 - (c) implementation of procedures for preventing leachate from the hogfuel fill from entering any open water-course, e.g. storm drain ditches. Implementation of procedures to prevent leachate from running onto adjacent occupied properties or from possibly spreading beyond the site through the upper subsoil zone. The recommended control measures are shown on the attached Figure 3.
 - (d) establish the procedure for extinguishing any fires that may occur within the hogfuel and building debris.
 - (e) establish the location and construction timing for the provision of trenches excavated to low ground water and backfilled with sand to control the possible fire hazard in the hogfuel fill.
 - (f) establish the timing for the regrading of the fill site and the placement of a fill cover as illustrated on the attached Figure 4.
 - (g) establish a reasonable setback (through consultation with a Geotechnical Engineer) for the landfill from the property line of the B.C. Hydro Railway.
 - (h) establish one or more loaded test areas in representative areas of the existing hogfuel fill with suitable instrumentation to record the rate of long term settlement due to biological degradation as described in the consultant's report.


A. L. Parr
DIRECTOR OF PLANNING

PB/hf

Attach.

c.c. - Municipal Engineer



MEADOWLAND PEAT LTD.
 LANDS PROPOSED FOR SOIL
 REMOVAL & LANDFILL.

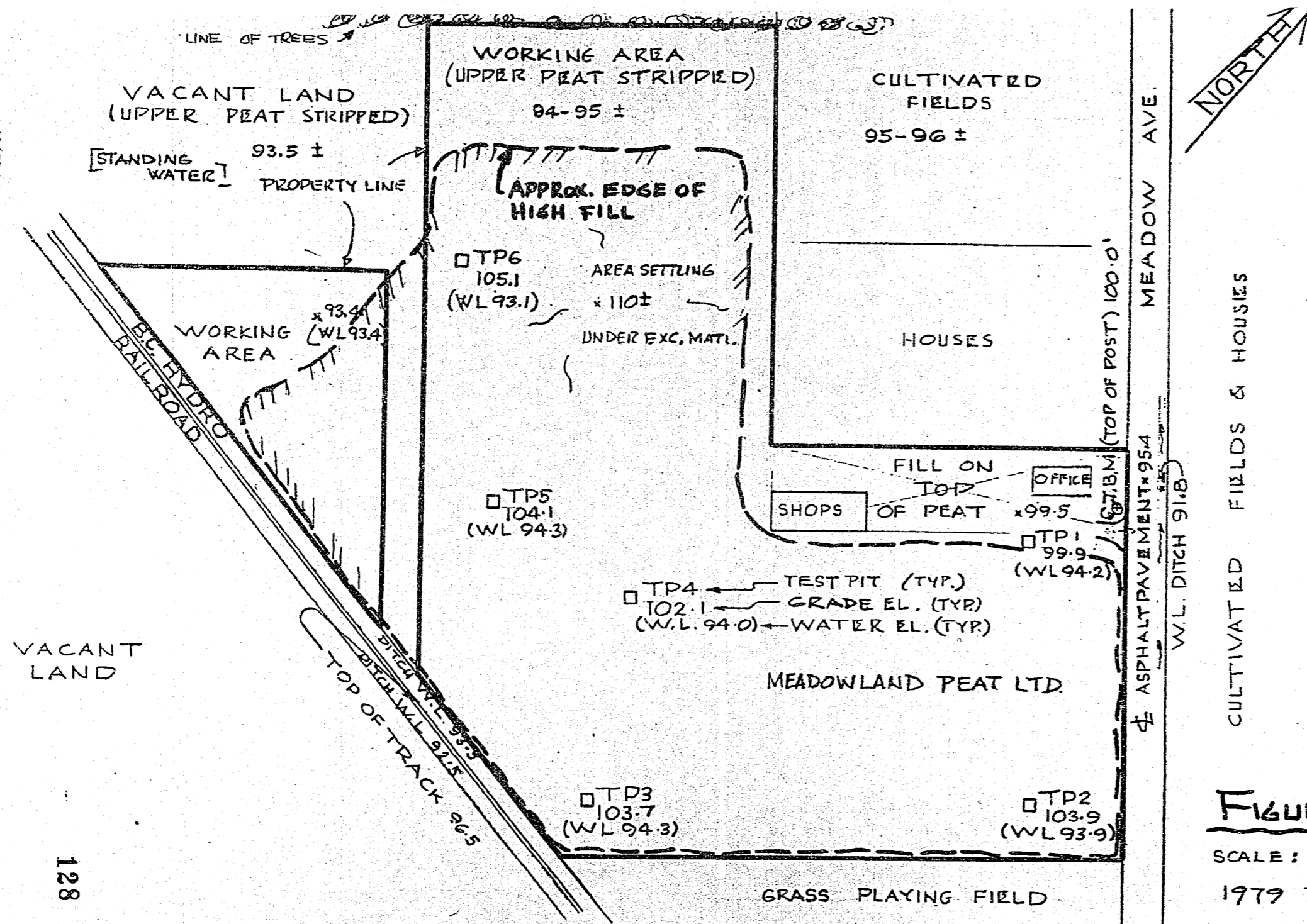
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FIGURE 1

1" = 400' FB
 1979 APRIL



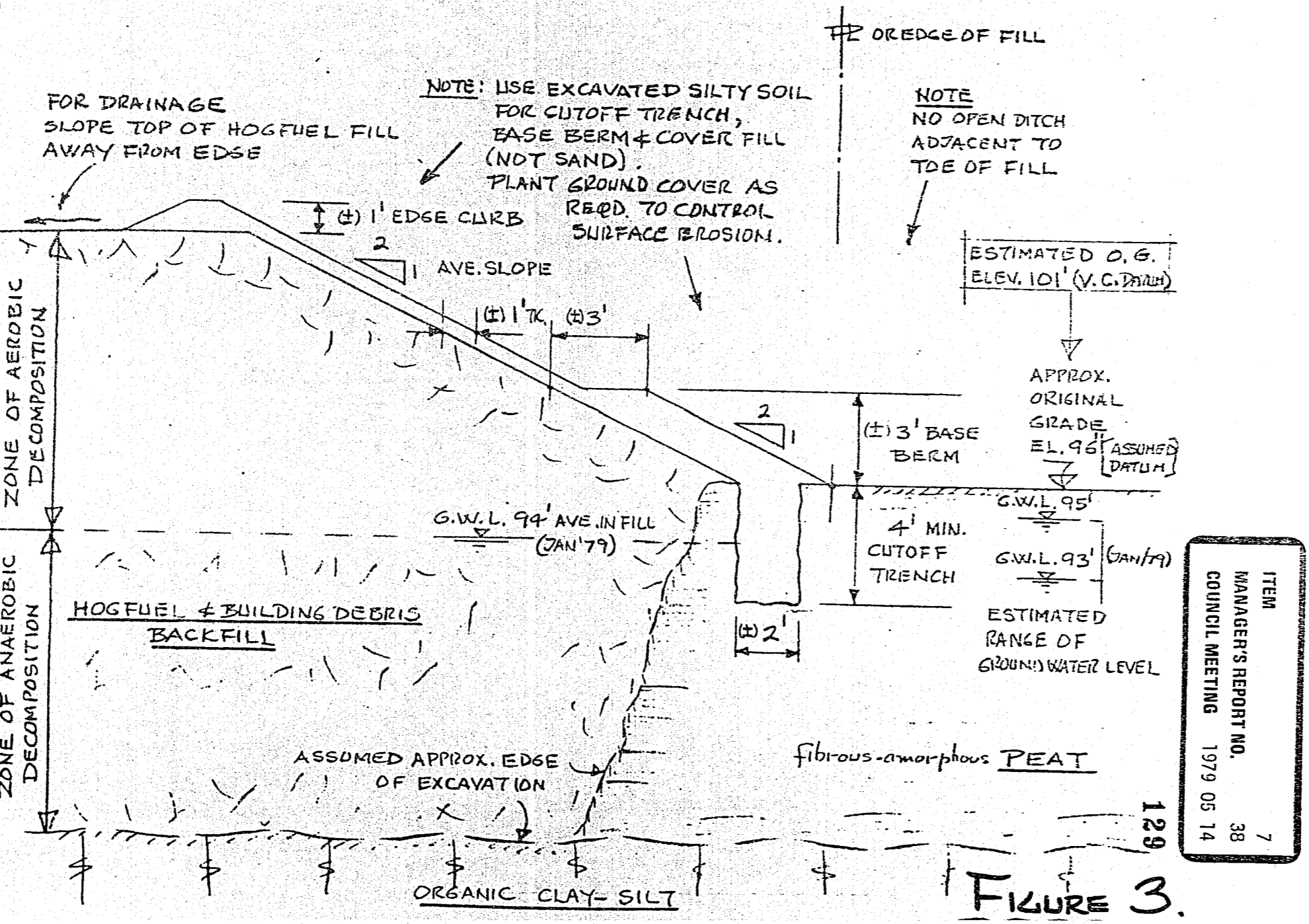
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FIGURE 2
 SCALE: 1" = 200 ft
 1979 FEBRUARY

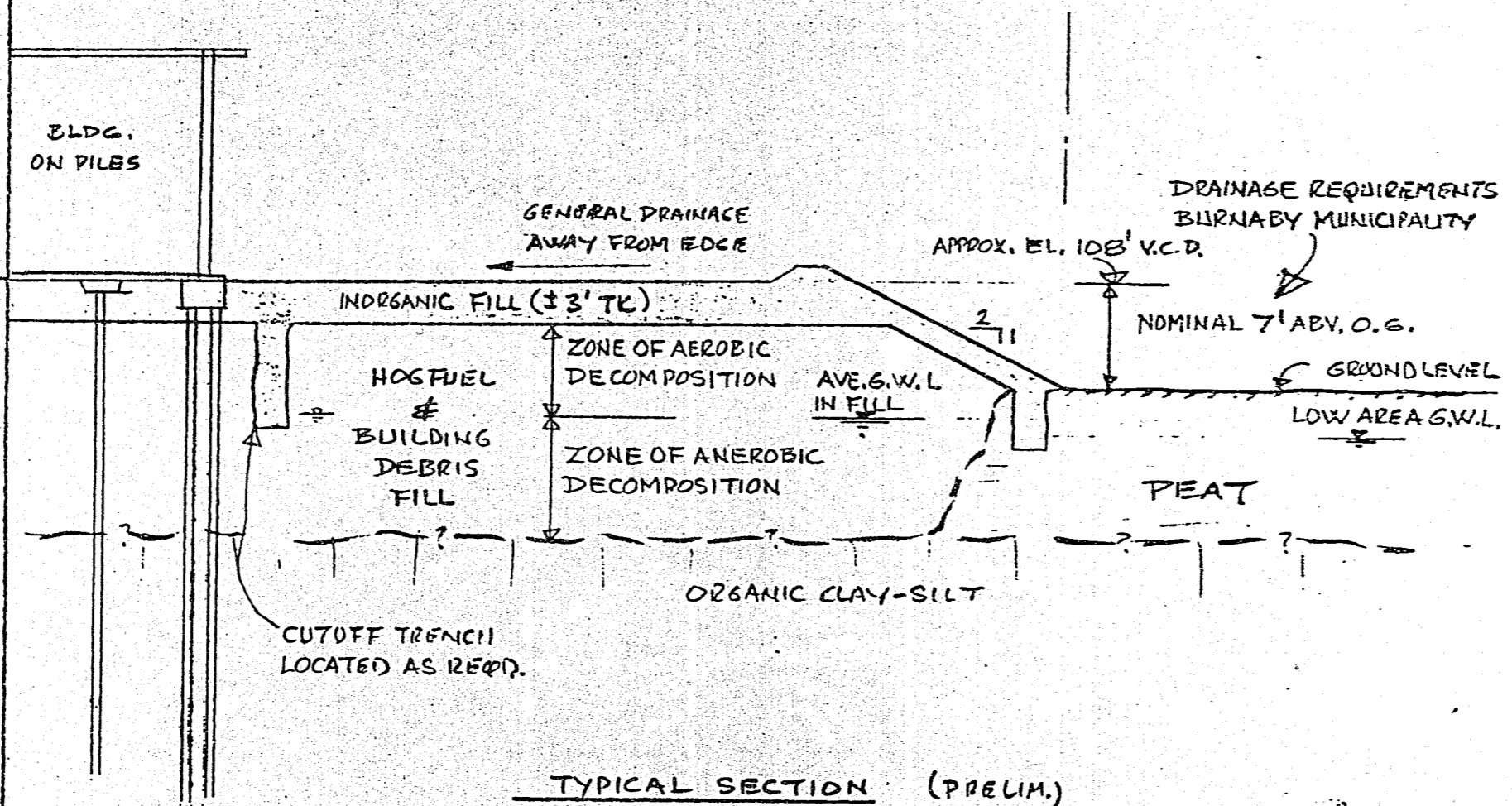
MEADOWLAND PEAT LTD.		MACLEOD GEOTECHNICAL LTD.	
MEADOW AVE. BURNABY, B.C.		1451 MARINE DRIVE WEST VANCOUVER, B.C.	
RECOMMENDED CONTROL MEASURES		By: GM	Date: FEB 79
		Job:	Dwg: C37-2



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FIGURE 3.

MEADOWLAND PEAT LTD		MACLEOD GEOTECHNICAL LTD. 1451 MARINE DRIVE WEST VANCOUVER, B.C.	
MEADOW AVE. TURNARBY, B.C.		TYPICAL CONSTRUCTION (PRELIMINARY)	
By: G.M.	Date: FEB 79	Job:	Dwg: C37-4



TYPICAL SECTION (PRELIM.)

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FIGURE 4.