WARDROP Engineering Inc.

COPY FOR THE INFORMATION OF
Mr. Dave Ediger

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Mr. Rod Kakowchyk, B.A.
Manager, Industrial Engineering
Carte International Inc.
1995 Logan Avenue
Winnipeg, Manitoba
R2R 0H8

951292-01-04
February 26, 1996

Dear Mr. Kakowchyk:

Re: Transformer Oil Plume Delineation - Beneath Plant Floor
Carte International Inc., Winnipeg, Manitoba

Based on our recent indoor borehole drilling program and subsequent ground water monitoring, as well as our previous investigations, an estimated 370 m^3 of contaminated soils exceed the Manitoba Environment Level III Cleanup Criteria for Mineral Oil and Grease (O & G). Due to the predicted sloughing of the wet silty soil during an excavation and the inherent difficulty in separating varying degrees of contaminated soil, it is estimated that about 1000 m^3 of soil will require excavation and disposal at an approved soil treatment facility. Free product extends slightly east of the zone of Level III soil contamination. In time, the free product plume will expand the areal extent of soil contamination if not recovered. During a soil excavation operation, it is predicted that any significant free product will drain into the excavation, where it could be recovered.

During the borehole drilling program, the presence of a "diesel type" fuel was evident beneath the southwest corner of the plant floor, at the plant entrance. Concentrations of Total Extractable Hydrocarbons (TEH) within a sample collected from this area exceeded Manitoba Environment Level III Guidelines. Oil and grease contamination, above Manitoba Environment Level III criteria, was not found in this area. Delineation of TEH contamination is recommended.

The following details the indoor borehole drilling and a soil sampling program undertaken at the above site on February 9, 1996, and the subsequent monitoring on February 14, 1996. Concerns that may be associated with site remediation via soil excavation, and an option for enhanced bioremediation are presented herein. Detailed cost estimates and scheduling for a bioremediation system will follow in a separate letter.

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400-386 BROADWAY, WINNIPEG, MB., CANADA, R3C 4M8, PH: 204-956-0980 FAX: 204-957-5389 E-MAIL: WINNIPEG@WARDROP.MB.CA
WINNIPEG ▪ TORONTO ▪ THUNDER BAY ▪ NIGERIA ▪ GHANA ▪ PAKISTAN ▪ INDIA ▪ PHILIPPINES

Borehole Drilling and Monitoring Well Installations

A total of six boreholes were drilled to a depth of 3.0 m at the site. This program was designed to further determine the extent and severity of subsurface soil contamination. Three of the boreholes were positioned to the north, two boreholes to the east, and one borehole to the south, of previously drilled boreholes. Each of the six recently drilled boreholes were completed as monitoring wells to facilitate delineation of the free product plume. The locations of the recently installed monitoring wells (labelled MW-15 to MW-20) and the previously installed monitoring wells (labelled MW-9 to MW-14), are presented as Figure 1, attached. The Borehole Logs are also attached.

The borehole drilling was performed by Maple Leaf Enterprises Ltd. of Winnipeg, Manitoba, using a portable concrete coring drill and an 85 mm diameter hand auger.

Each of the ground water monitoring wells comprised a 2.4 m length of 51 mm diameter PVC screen, and a solid casing riser to ground level. A clean silica sand pack was placed around the screen to within 1.2 m of grade. A 0.5 m thick bentonite plug was placed over the sand pack, around the solid casing riser to grade, to prevent any contamination from entering the well. A steel, flush mount, protective casing was placed in concrete and positioned over each of the wells.

During the borehole drilling program, the soil samples collected were observed for any abnormalities in odour, staining and composition. The significant field observations are summarized below:

- MW-15: Slight-to-moderate petroleum odour from 1.5 m to 2.1 m.
- MW-16: Slight-to-moderate petroleum odour from 1.2 to 1.7, greasy between 2.0 and 2.3.
- MW-17: Slight-to-moderate petroleum odour from 1.4 to 1.8, greasy between 1.7 and 2.2.
- MW-19: Slight petroleum odour and greasy at 2.0 m.

Soil Sampling

During the borehole drilling, soil samples were removed from the base of the hand auger at maximum depth intervals of 0.2 m, at stratigraphic boundaries, and at any apparent zones of contamination. The samples were trimmed with a stainless steel blade to remove any soil that had been in contact with the borehole walls or the auger flights. The samples were placed in sterilized sampling bags for head-space hydrocarbon vapour concentration measurements. Additional soil samples from selected depths were placed in laboratory-supplied sampling jars and retained for possible future examination.

...3

Soil Sampling (cont'd)

Head-space hydrocarbon vapour concentrations ranged from 20 parts per million (ppm) to 650 ppm in the bagged soil samples. Generally, elevated measurements were recorded at depths of approximately 1.2 m in silty clay strata and at approximately 2.0 m in silt strata. The hydrocarbon vapour concentrations produced by the soil samples at the various depth intervals are shown on the graphical Borehole Logs, attached.

Seven soil samples were selected for laboratory analyses, based on maximum head-space hydrocarbon vapour concentrations and the field observations. Six of the soil samples were analyzed for O & G content. One sample was analyzed for Benzene, Toluene, Ethylbenzene, and Xylenes (BTEX); Total Purgeable Organic (TPO); and Total Extractable Hydrocarbon (TEH) content in order to determine the presence of any lighter Petroleum Hydrocarbons not typically associated with the longer hydrocarbon chains that comprise O & G. These analyses were conducted by Enviro-Test Laboratories of Edmonton, Alberta. The results of these analyses are compared to the Manitoba Environment Low Risk Level III Criteria in Tables 1 and 2, attached. The laboratory's report is also attached.

Laboratory analyses revealed concentrations of O & G above the Manitoba Environment Guideline of 5000 mg/kg in two of the six soil samples submitted. Four other soil samples revealed O & G concentrations ranging from 1080 to 4620 mg/kg.

The sample collected from MW-15, submitted for BTEX, TPO and TEH analyses, displayed Petroleum Hydrocarbon concentrations indicative of diesel fuel. The concentration of Total Extractable Hydrocarbons slightly exceeded the Manitoba Environment Guideline of 2000 mg/kg. MW-15 was installed near the southwest plant entrance.

Ground Water Monitoring

Hydrocarbon vapour concentrations and free product levels were measured in each of the previously and recently installed monitoring wells on February 14, 1996. The monitoring wells displayed Petroleum Hydrocarbon vapour concentrations ranging from 110 ppm to greater than 100% of the lower explosive limit (LEL).

Significant free product levels were measured in three of the six recently installed wells and two of the six previously installed indoor monitoring wells. These results are listed in Table 3. Any free phase petroleum products should be recovered from the ground water table to limit the progression of soil contamination.

Mr. Rod Kakowchyk, B.C.
Carte International Inc.

February 26, 1996

Petroleum Hydrocarbon Plume Delineation

Based on our recent and previous site investigations, O & G contamination above Manitoba Environment Level III Guidelines is estimated to extend over an area of 245 m^2, between an estimated depth of interval of 0.9 to 2.4 m; therefore, the estimated volume of contaminated soil totals 370 m^3. The aerial extent of the soil contamination above the Manitoba Environment O & G Guideline of 5000 mg/kg is illustrated on Figure 2, attached.

Contamination by TEH, presumably diesel fuel, is present in the southwest corner of the plant. The extent of TEH contamination has not been delineated. The general area of TEH contamination is illustrated on Figure 2.

The free product plume appears to have migrated slightly east of the soil contamination, but generally follows the pattern of the soil contamination. The extent of the free product plume is estimated on Figure 2.

Remediation Options and Concerns, Soil Excavation and Bioremediation

Due to the wet and silty nature of the soils beneath the plant floor, a great deal of sloughing is expected to occur during an open excavation. This will cause several structural concerns with the floor slab and building structure. The extent of the removal of the floor slab will be based on structural concerns and the locations of grade beams and construction joints rather than the areal extent of the soil contamination.

It is estimated that sloughing will effectively increase the perimeter of the excavation by 2 m. This is shown on Figure 2. In addition, since all soils to a depth of 2.5 m are impacted by Petroleum Hydrocarbons to some extent, it will be very difficult to separate the heavily contaminated soils from the less contaminated soils during an excavation operation. Therefore, all soils to a depth of 2.5 m will require excavation and treatment. The total volume of contaminated soil beneath the floor of the plant that will require removal is approximately 1000 m^3.

Due to the elevated water table beneath the plant, significant quantities of ground water mixed with free product are expected to enter the excavation and will require proper disposal. The disposal of water and oil saturated soils is also a concern. Soil treatment facilities will not usually accept saturated soils. Therefore, ground water will likely have to be pumped from the soils prior to excavation and an absorbent material or method of drainage may be required to dry the soils prior to transport.

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Remediation Options and Concerns, Soil Excavation and Bioremediation (cont'd)

Given the above constraints, other remediation options should be addressed. In our opinion, the hydrogeological parameters of the plant subsurface are ideally suited to a sequential free product recovery operation and a bioremediation remediation program. A significant amount of the free product could be recovered by a large recovery well or series of recovery wells installed in the southwest portion of the plant followed by pumping of the ground water through an oil water separator. Following this, microbes, nutrients, and ground water could be injected into the previously installed ground water monitoring wells and recirculated through the soil. Because of the warm subsurface environment created by the building structure, highly controlled conditions can be maintained to enable optimum microbial populations. Oil and grease, as well as any diesel fuel contained in the subsurface, will be consumed by the microorganisms as food. Based on our past experience with bioremediation, we believe remediation of the entire site could be completed effectively and efficiently within one year, and cause little disruption to your facility operations. A confirmatory borehole drilling and soil sampling program would complete the remediation project.

Conclusions and Recommendations

- An estimated 370 m^3 of soil beneath the plant floor at the site is contaminated above Manitoba Environment Level III Guidelines by O & G.

- Due to the anticipated sloughing during an excavation operation and the difficultly in separating varying degrees of soil contamination, it is estimated that 1000 m^3 of soil will require excavation to complete the remediation of the O & G contaminated soil. This size of an excavation would be very difficult to maintain given the poor soils conditions, will be very costly, and in order not to jeopardize the integrity of the building structure, is not advisable.

- The soil beneath the southwest corner of the plant is contaminated by TEH, slightly above the Manitoba Environment Level III guidelines. This area does not appear to be heavily impacted by O & G. TEH contamination could extend the remediation area to the south and possibly underneath the washroom.

- We recommend the delineation of the diesel fuel contamination at the site. We have retained, in freezer storage, several soil samples from the previous borehole drilling programs undertaken at the site. These samples may be analyzed for diesel fuel parameters to aid in this delineation. Nevertheless, three to four more boreholes would be required to accurately define diesel fuel contamination.

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Mr. Rod Kakowchyk, B.C.
Carte International Inc.

February 26, 1996

Conclusions and Recommendations (cont'd)

- A free product plume extends to the east, beyond the extent of Level III O & G contamination. Due to the wet and silty nature of the soils beneath the southwest portion of the plant, it is predicted that any significant free product will drain into the cavity created by the removal of impacted soils.

- Significant quantities of ground water mixed with free product will likely require removal and disposal during an excavation operation.

- Due to the permeable nature of the soils underlying the southwest portion of the plant, and the possibility of soil contamination from both diesel fuel and O & G, free product recovery followed by bioremediation is likely the most economical and efficient method of site remediation.

We trust that this information is helpful. Please call if you have any questions.

Sincerely,

WARDROP ENGINEERING INC.

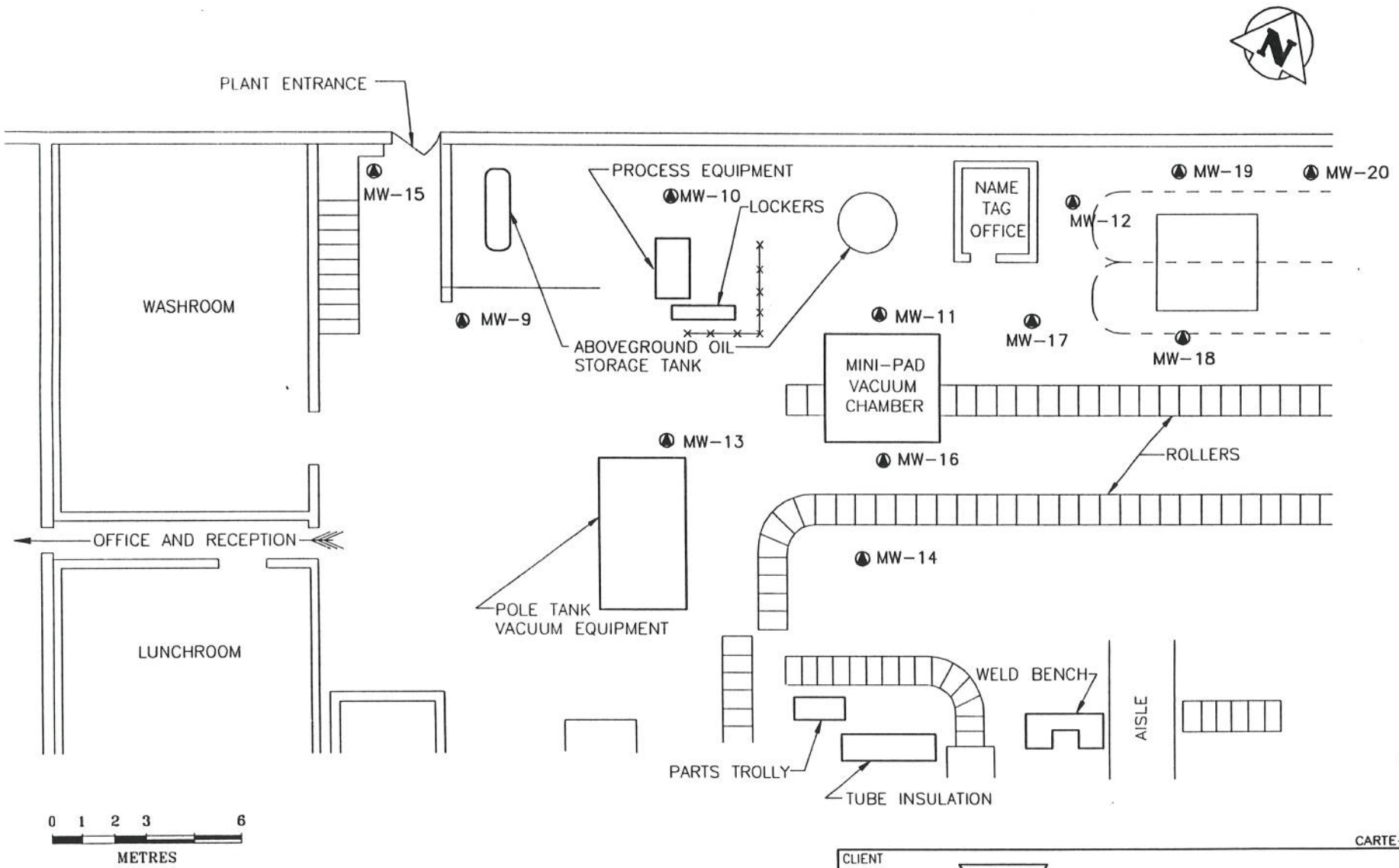
PROVINCE OF MANITOBA
E. A. WOLOWICH
REGISTERED PROFESSIONAL ENGINEER

Mr. E.A. Wolowich
Principal and Project Manager
Environmental Earth Sciences

EAW/pp

Attachment

Copy: Mr. J.E. Bakos, Wardrop Engineering
Mr. P.A. Michalchuk, Wardrop Engineering



CARTE-3

CLIENT

CARTE International Inc. CARTE INTERNATIONAL INC.

DWG. DESCRIPTION

ENVIRONMENTAL ASSESSMENT
1995 LOGAN AVENUE - WINNIPEG, MANITOBA
PARTIAL SITE PLAN OF INTERIOR OF BUILDING
SHOWING MONITORING WELL LOCATIONS

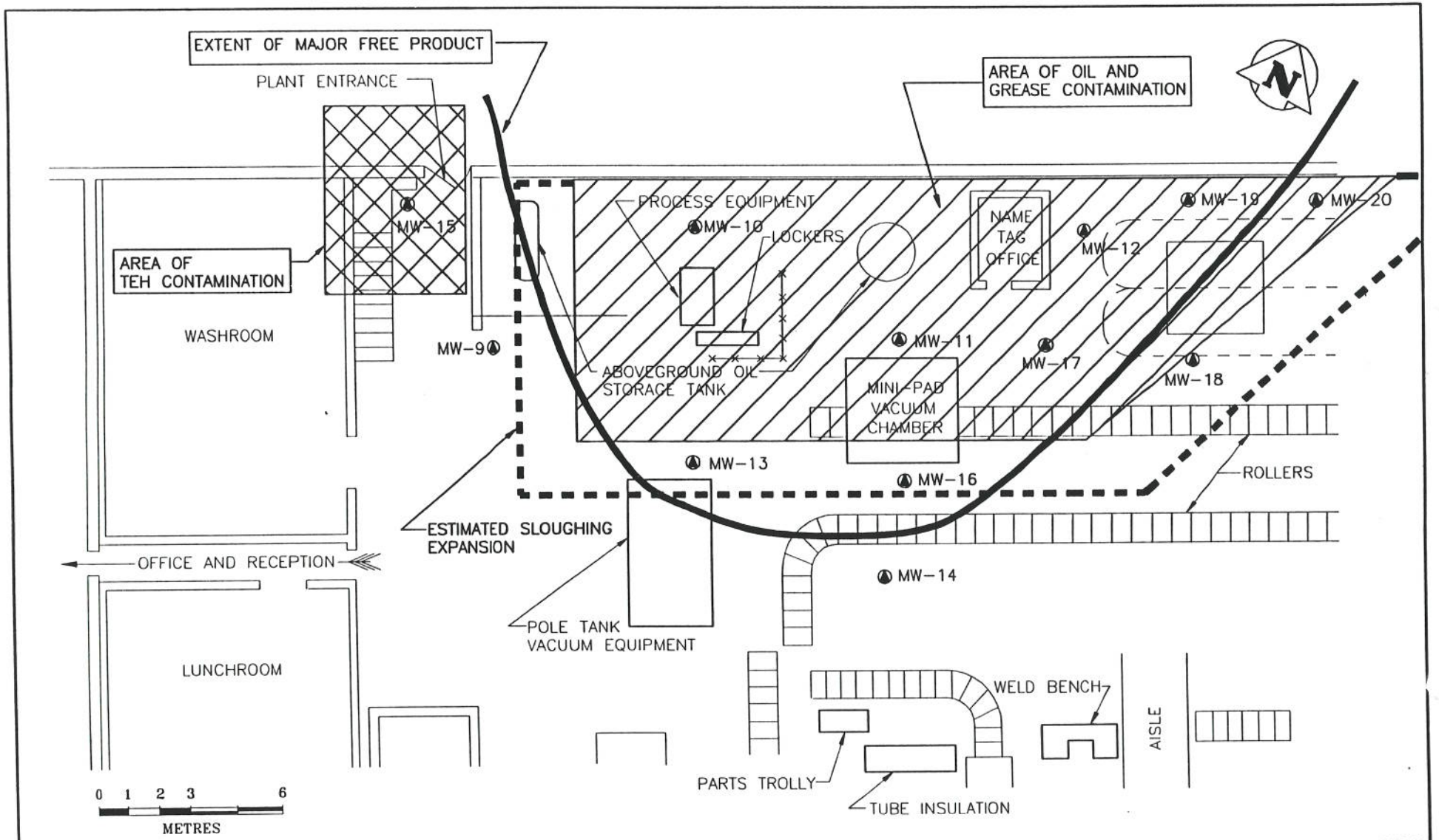
LEGEND

MW-10 ◉ MONITORING WELL

WARDROP ENGINEERING INC.
WINNIPEG TORONTO THUNDER BAY

DESIGNED BY: J.E.B.	DRAWN BY: P.C.F.	DWG. NO.
CHECKED BY: F.A.W.	DATE 96/02/26	951292-01-04

FIG.1



CARTE-3

LEGEND

- MW-10 MONITORING WELL
- AREA OF OIL AND GREASE CONTAMINATION
- AREA OF TEH CONTAMINATION
- LIMIT OF REQUIRED EXCAVATION
- EXTENT OF MAJOR FREE PRODUCT

WARDROP ENGINEERING INC.
WINNIPEG TORONTO THUNDER BAY

CLIENT: CARTE INTERNATIONAL INC.

DWG. DESCRIPTION

ENVIRONMENTAL ASSESSMENT
1995 LOGAN AVENUE - WINNIPEG, MANITOBA
PARTIAL SITE PLAN OF INTERIOR OF BUILDING IN AREA OF CONTAMINATION

DESIGNED BY: J.E.B.	DRAWN BY: P.C.F.	DWG. NO.	
CHECKED BY: E.A.W.	DATE: 96/02/26	951292-01-04	FIG.2

TABLE 1

February 9, 1996
Mineral Oil and Grease Soil Sample Analyses
Carte International Inc.
1995 Logan Avenue, Winnipeg, Manitoba

Parameter	BH-15 @1.7m	BH-16 @2.0m	BH-17 @1.8m	BH-18 @1.7m	BH-19 @2.0m	BH-20 @1.7m	Manitoba Environment Low Risk (Level III)[1]
Mineral Oil & Grease (mg/kg)	2490	1080	**6450**	1200	**13 300**	4620	5000

Note: [1]Manitoba Environment "A Guideline for the Environmental Investigation and Remediation of Petroleum Hydrocarbon Storage Sites in Manitoba," July 1993.
BOLD text signifies a concentration exceeding the applicable guidelines.

TABLE 3

February 14, 1996
Ground Water Monitoring
Carte International Inc.
1995 Logan Avenue, Winnipeg, Manitoba

Well No.	Borehole Elevations	Static Water Level (m below casing)	Depth to Free Product (m below casing)	Ground Water Elevation (m above datum)	Free Product Thickness (mm)	Petroleum Hydrocarbon Vapour Concentration
MW-9	99.50	1.520	trace	97.980	trace	205 ppm
MW-10	99.48	1.667	1.664	97.813	3	94% LEL
MW-11	99.49	1.626	1.602	97.864	24	44% LEL
MW-12	99.49	1.671	trace	97.819	trace	29% LEL
MW-13	99.49	1.708	1.601	97.782	107	28% LEL
MW-14	99.49	1.693	trace	97.797	trace	110 ppm
MW-15	99.49	1.440	trace	98.050	trace	>100% LEL
MW-16	99.49	1.663	1.577	97.827	86	65% LEL
MW-17	99.49	1.648	1.601	97.842	47	>100% LEL
MW-18	99.49	1.609	none	97.881	none	28% LEL
MW-19	99.49	1.628	1.612	97.862	16	59% LEL
MW-20	99.49	1.520	none	97.970	none	69% LEL

Note: LEL = Lower Explosive Limit
ppm = parts per million
> = greater than

TABLE 2

February 9, 1996
Petroleum Hydrocarbon Soil Sample Analytical Results
Carte International Inc.
1995 Logan Avenue, Winnipeg, Manitoba

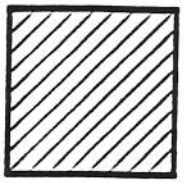
Constituent	BH-15 (mg/kg)	Manitoba Environment Low Risk (Level III)[1] (mg/kg)
BTEX:		
Benzene	0.015	5
Toluene	<0.005	30
Ethylbenzene	0.088	50
Xylenes[2]	0.47	50
Total Purgeable Organics (TPO)	2	800
Total Extractable Hydrocarbons (TEH)	**2400**	2000

Note: [1]Manitoba Environment "A Guideline for the Environmental Investigation and Remediation of Petroleum Hydrocarbon Storage Sites in Manitoba," July 1993.
[2]Summation of o,m, and p xylenes.
< = less than laboratory's minimum detection limit.
BOLD text signifies a concentration exceeding the applicable guidelines.

BOREHOLE LEGEND

TOPSOIL/ORGANICS

SILT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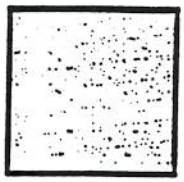
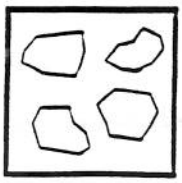

SAND

GRANULAR (GRAVEL)

LIMESTONE

DOLOMITE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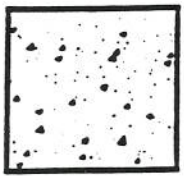
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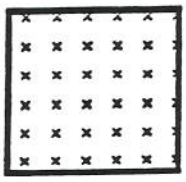
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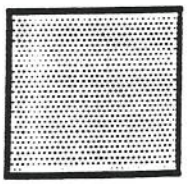
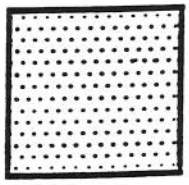

SCREEN BACKFILL (SAND)

DRILL CUTTINGS

ASPHALT


SANDSTONE

BENTONITE

▼ WATER LEVEL

WARDROP ENGINEERING INC.
WINNIPEG TORONTO THUNDER BAY

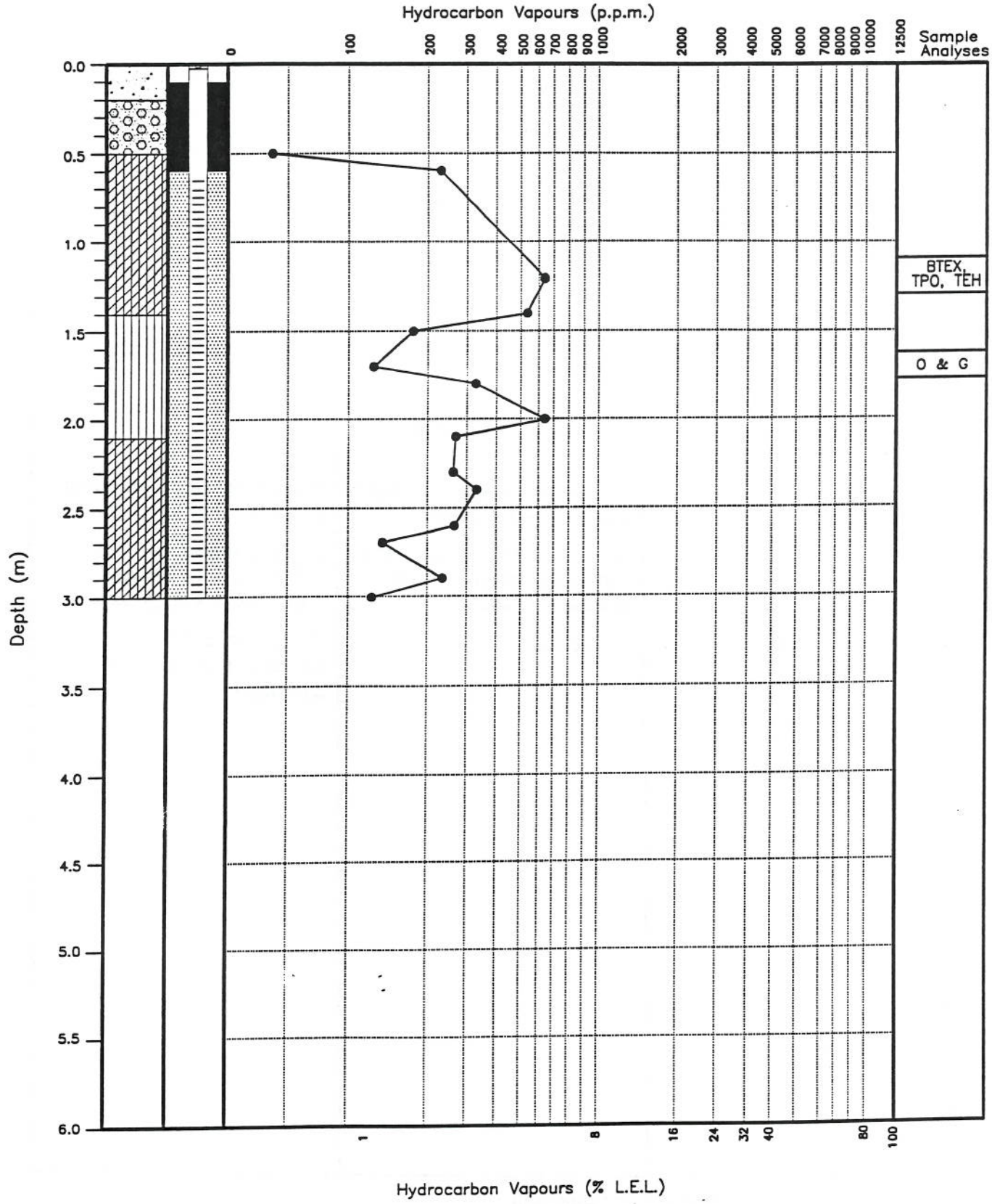
BOREHOLE LOG
ENVIRONMENTAL SITE ASSESSMENT
CARTE INTERNATIONAL INC.
1995 LOGAN AVENUE, WINNIPEG

DATE DRILLED: February 9, 1996
BOREHOLE: BH-15
DRILLED BY: Maple Leaf Enterprises
LOCATION: South Corner, Plant Entrance Mandoor

Depth (m)	Material	Observation
0.0 - 0.2	Concrete	
0.2 - 0.5	Sand/Gravel - moist, light brown	Moderate petroleum odour at 0.5 m to 1.5 m
0.5 - 1.4	Silty Clay - above plastic limit, soft in situ, grey/black	
1.4 - 2.1	Silt - moist to wet, loose in situ, light grey	Slight-to-moderate petroleum odour at 1.5 m to 2.1 m
2.1 - 3.0	Silty Clay - above plastic limit, stiff in situ, dark grey becoming greyish-brown with depth, inclusions of silt	Slight petroleum odour at 2.1 m to 3.0 m
3.0	End of Hole	Trace of water at bottom of hole 8 hours after borehole completed

Note: Borehole completed as monitoring well

ENVIRONMENTAL ASSESSMENT
CARTE INTERNATIONAL INC.
1995 LOGAN AVENUE
BOREHOLE BH-15 (MONITORING WELL MW-15)



WARDROP ENGINEERING INC.

CARTE International Inc. CARTE INTERNATIONAL INC.

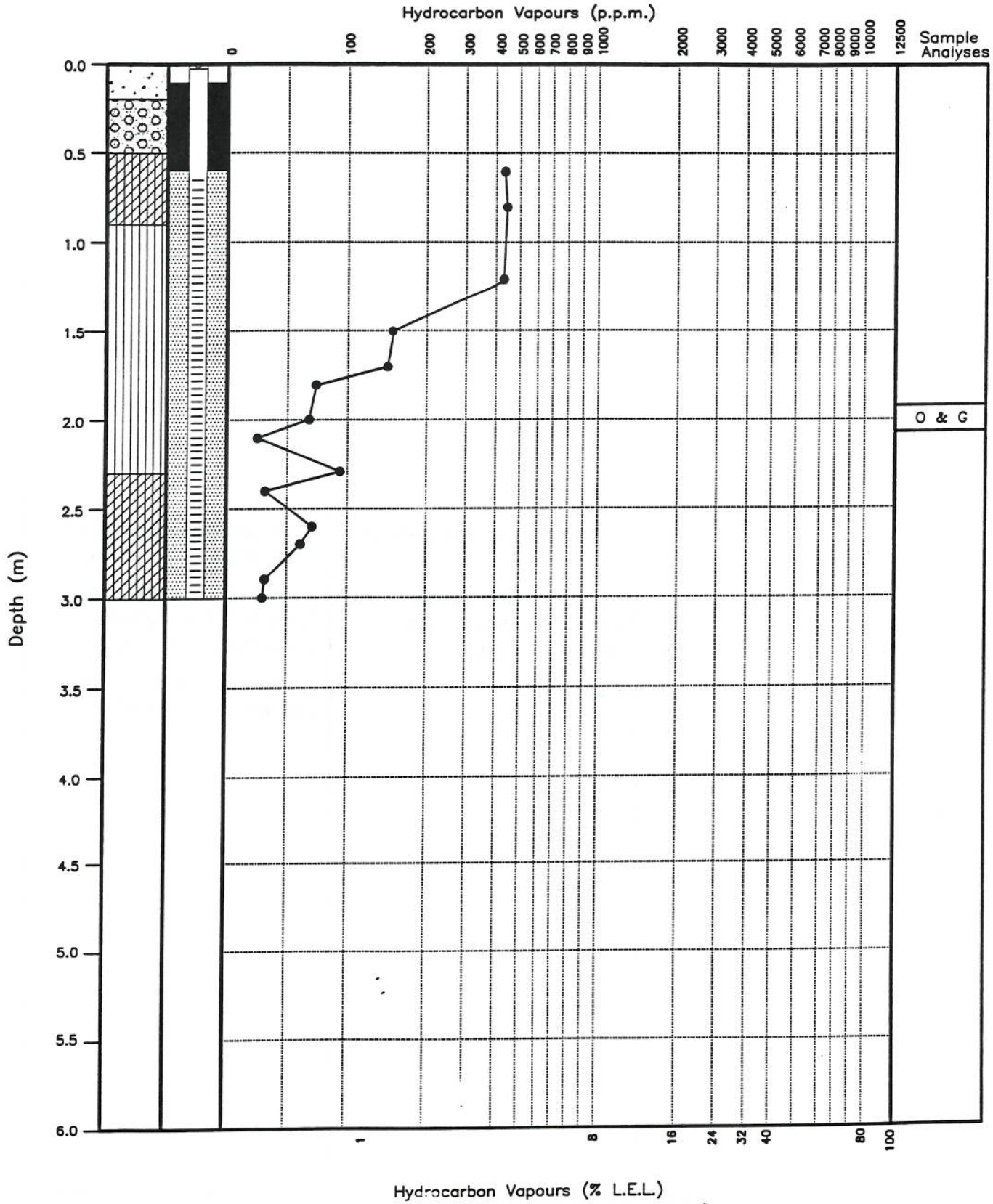
BOREHOLE LOG
ENVIRONMENTAL SITE ASSESSMENT
CARTE INTERNATIONAL INC.
1995 LOGAN AVENUE, WINNIPEG

DATE DRILLED: February 9, 1996
BOREHOLE: BH-16
DRILLED BY: Maple Leaf Enterprises
LOCATION: 1.2 m East of Mini-Pad Vacuum Chamber

Depth (m)	Material	Observation
0.0 - 0.2	Concrete	
0.2 - 0.5	Sand/Gravel - damp, light brown	Slight petroleum odour at 0.6 m to 1.2 m
0.5 - 0.9	Silty Clay - above plastic limit, soft in situ, grey/black	
0.9 - 2.3	Silt - damp, loose in situ, light grey; below 1.4 m, wet	Slight-to-moderate petroleum odour at 1.2 m to 1.7 m
2.3 - 3.0	Silty Clay - above plastic limit, stiff in situ, greyish-brown, inclusions of silt	Slight petroleum odour at 1.7 m to 2.7 m; between 2.0 m and 2.3 m, greasy
3.0	End of Hole	Water level at 1.7 m 6.5 hours after borehole completed

Note: Borehole completed as monitoring well

ENVIRONMENTAL ASSESSMENT
CARTE INTERNATIONAL INC.
1995 LOGAN AVENUE
BOREHOLE BH-16 (MONITORING WELL MW-16)



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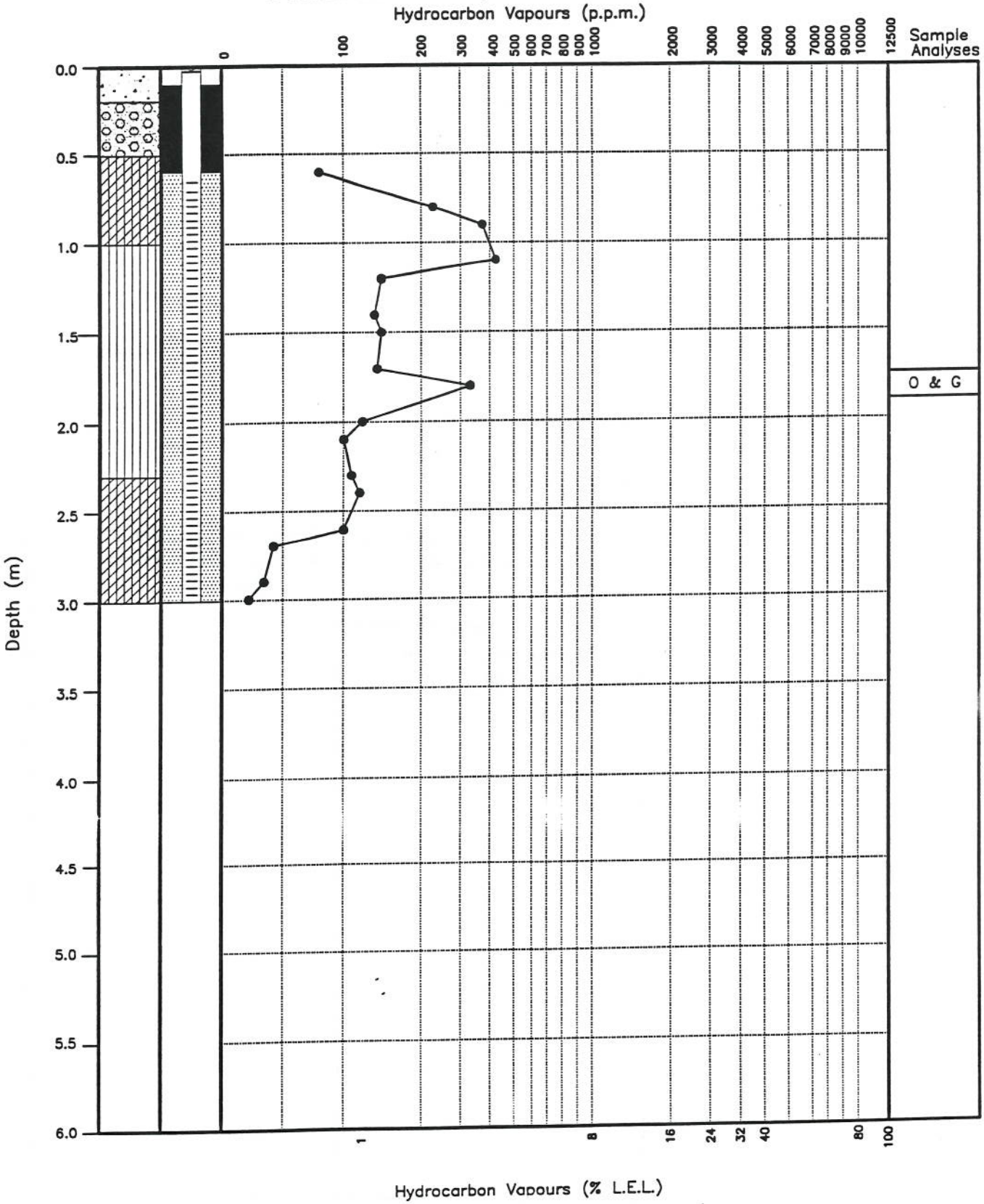
BOREHOLE LOG
ENVIRONMENTAL SITE ASSESSMENT
CARTE INTERNATIONAL INC.
1995 LOGAN AVENUE, WINNIPEG

DATE DRILLED: February 9, 1996
BOREHOLE: BH-17
DRILLED BY: Maple Leaf Enterprises
LOCATION: 2.7 m East of Nametag Office

Depth (m)	Material	Observation
0.0 - 0.2	Concrete	
0.2 - 0.5	Sand/Gravel - damp, greyish-brown	Moderate petroleum odour at 0.6 m to 1.4 m
0.5 - 1.0	Silty Clay - above plastic limit, soft to stiff in situ, grey/black; between 0.8 m and 1.0 m, organic soil, organics	
1.0 - 2.3	Silt - damp, loose in situ, light grey; below 1.4 m, wet	Slight-to-moderate petroleum odour at 1.4 m to 1.8 m
2.3 - 3.0	Silty Clay - above plastic limit, stiff in situ, greyish-brown, inclusions of silt	Slight petroleum odour at 1.8 m to 3.0 m; between 1.7 m and 2.2 m, greasy
3.0	End of Hole	Water level at 1.8 m, 5 hours after borehole completed

Note: Borehole completed as monitoring well

ENVIRONMENTAL ASSESSMENT
CARTE INTERNATIONAL INC.
1995 LOGAN AVENUE
BOREHOLE BH-17 (MONITORING WELL MW-17)



WARDROP ENGINEERING INC.

CARTE International Inc. CARTE INTERNATIONAL INC.

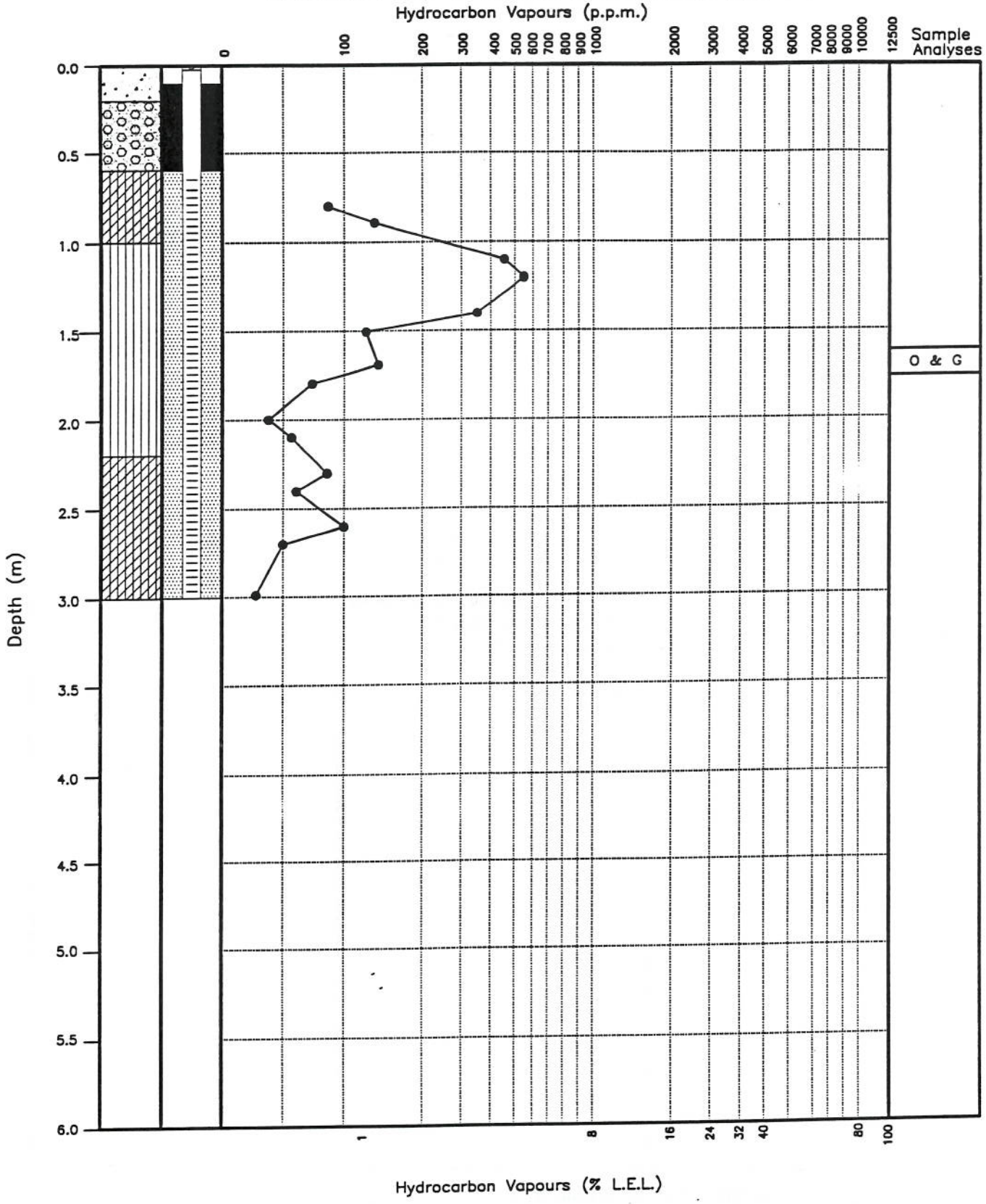
BOREHOLE LOG
ENVIRONMENTAL SITE ASSESSMENT
CARTE INTERNATIONAL INC.
1995 LOGAN AVENUE, WINNIPEG

DATE DRILLED: February 9, 1996
BOREHOLE: BH-18
DRILLED BY: Maple Leaf Enterprises
LOCATION: 2.1 m East of Paint Enclosure

Depth (m)	Material	Observation
0.0 - 0.2	Concrete	
0.2 - 0.6	Sand/Gravel - damp, light brown	Slight petroleum odour at 0.2 m to 2.1 m
0.6 - 1.0	Silty Clay - above plastic limit, soft to stiff in situ, grey/black; between 0.9 m and 1.0 m, organic soil	
1.0 - 2.2	Silt - damp, loose in situ, light grey; below 1.4 m, wet	Water level at 1.7 m 4.5 hours after borehole completed
2.2 - 3.0	Silty Clay - above plastic limit, stiff in situ, greyish-brown, inclusions of silt	
3.0	End of Hole	

Note: Borehole completed as monitoring well

ENVIRONMENTAL ASSESSMENT
CARTE INTERNATIONAL INC.
1995 LOGAN AVENUE
BOREHOLE BH-18 (MONITORING WELL MW-18)



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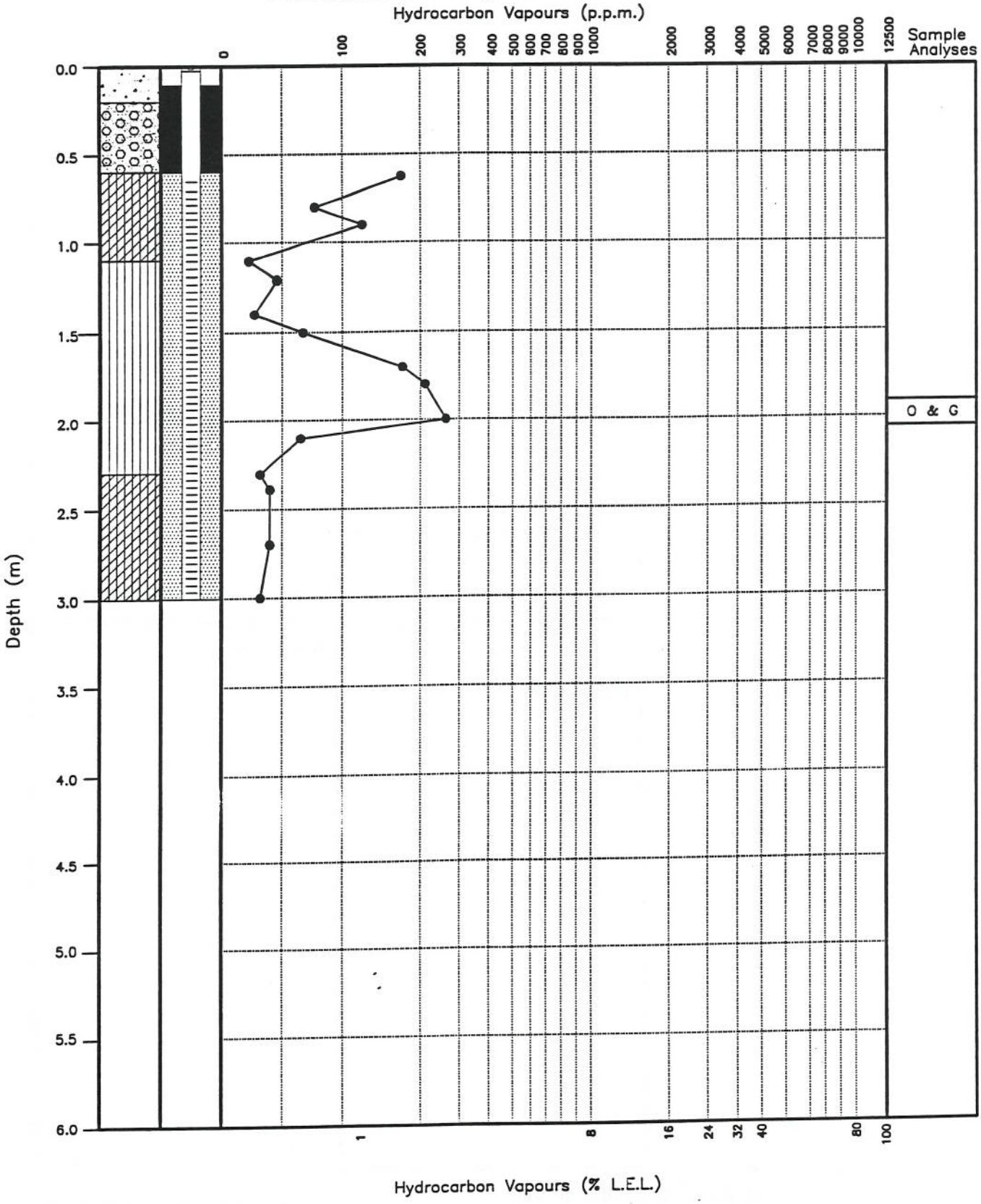
BOREHOLE LOG
ENVIRONMENTAL SITE ASSESSMENT
CARTE INTERNATIONAL INC.
1995 LOGAN AVENUE, WINNIPEG

DATE DRILLED: February 9, 1996
BOREHOLE: BH-19
DRILLED BY: Maple Leaf Enterprises
LOCATION: Between West Block Wall and Paint Enclosure

Depth (m)	Material	Observation
0.0 - 0.2	Concrete	
0.2 - 0.6	Sand/Gravel - damp, light greyish-brown	
0.6 - 1.1	Silty Clay - above plastic limit, soft to stiff in situ, greyish-brown; between 0.6 m and 0.8 m, organic soil	At 2.0 m, slight petroleum odour, greasy
1.1 - 2.3	Silt - damp, loose in situ, light grey; below 1.4 m, wet	
2.3 - 3.0	Silty Clay - above plastic limit, stiff in situ, greyish-brown, inclusions of silt	
3.0	End of Hole	

Note: Borehole completed as monitoring well

ENVIRONMENTAL ASSESSMENT
CARTE INTERNATIONAL INC.
1995 LOGAN AVENUE
BOREHOLE BH-19 (MONITORING WELL MW-19)



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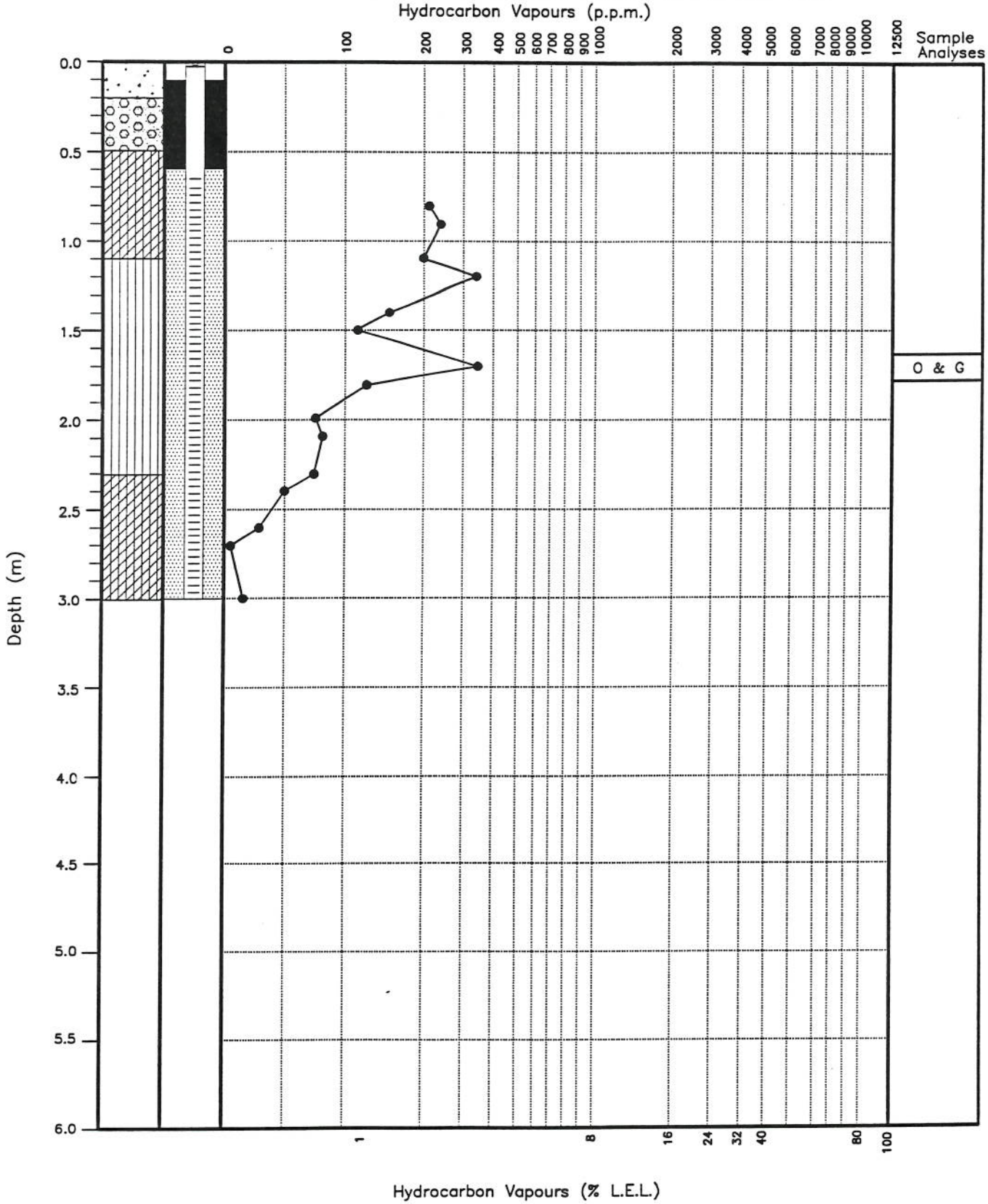
BOREHOLE LOG
ENVIRONMENTAL SITE ASSESSMENT
CARTE INTERNATIONAL INC.
1995 LOGAN AVENUE, WINNIPEG

DATE DRILLED: February 9, 1996
BOREHOLE: BH-20
DRILLED BY: Maple Leaf Enterprises
LOCATION: 0.6 m East of West Block Wall, 6.4 m North of Paint Enclosure

Depth (m)	Material	Observation
0.0 - 0.2	Concrete	
0.2 - 0.5	Sand/Gravel - damp, light greyish-brown	
0.5 - 1.1	Silty Clay - above plastic limit, soft in situ, greyish-brown; between 0.9 m and 1.0 m, organic soil	Slight petroleum odour at 0.7 m to 0.9 m
1.1 - 2.3	Silt - damp, loose in situ, light grey; below 1.6 m, wet	
2.3 - 3.0	Silty Clay - above plastic limit, stiff in situ, greyish-brown, inclusions of silt	Trace of water at bottom of hole 1.5 hours after borehole completed
3.0	End of Hole	

Note: Borehole completed as monitoring well

ENVIRONMENTAL ASSESSMENT
CARTE INTERNATIONAL INC.
1995 LOGAN AVENUE
BOREHOLE BH-20 (MONITORING WELL MW-20)



WARDROP ENGINEERING INC.

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ENVIRO-TEST CHEMICAL ANALYSIS REPORT

LAB ID	SAMPLE ID	TEST DESCRIPTION	RESULT	D.L.	UNITS	EXTRACTED	ANALYZED	BY
E602209-01	BH15 @ 4'							
Sample Type:SOIL								
		BTEX, TPH and TEH in Soil						
		BTEX and Total Purgeables						
		Benzene	0.015	0.005	ug/g (ppm)	02/21/96	02/21/96	QVP
		Toluene	< 0.005	0.005	ug/g (ppm)	02/21/96	02/21/96	QVP
		Ethylbenzene	0.088	0.005	ug/g (ppm)	02/21/96	02/21/96	QVP
		Xylenes	0.47	0.005	ug/g (ppm)	02/21/96	02/21/96	QVP
		Total Purgeables	2.0	0.1	ug/g (ppm)	02/21/96	02/21/96	QVP
		% Moisture	16.4		%	02/20/96	02/21/96	QVP
		Total Extractables (Soil)	2400	5.0	ug/g (ppm)	02/10/96	02/20/96	QVP
E602209-02	BH15 @ 5.5'							
Sample Type:SOIL								
		Hydrocarbons,Recoverable	2490	100	mg/kg	02/20/96	02/21/96	JZ
E602209-03	BH16 @ 6.5'							
Sample Type:SOIL								
		Hydrocarbons,Recoverable	1080	100	mg/kg	02/20/96	02/21/96	JZ
E602209-04	BH17 @ 6.0'							
Sample Type:SOIL								
		Hydrocarbons,Recoverable	6450	100	mg/kg	02/20/96	02/21/96	JZ
E602209-05	BH18 @ 5.5'							
Sample Type:SOIL								
		Hydrocarbons,Recoverable	1200	100	mg/kg	02/20/96	02/21/96	JZ
E602209-06	BH19 @ 6.5'							
Sample Type:SOIL								
		Hydrocarbons,Recoverable	13300	100	mg/kg	02/20/96	02/21/96	JZ
E602209-07	BH20 @ 5.5'							
Sample Type:SOIL								
		Hydrocarbons,Recoverable	4620	100	mg/kg	02/20/96	02/21/96	JZ

N.D. - NOT DETECTED, LESS THAN THE DETECTION LIMIT

THIS IS THE FINAL PAGE OF THE REPORT
NOT INCLUDING APPENDICES