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**EBA Engineering Consultants Ltd.**

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*Civil, Geotechnical and Materials Engineers*

**DRAWER # 24**

FINAL REPORT  
GRANULAR SOURCE INVESTIGATIONS  
km 14 to km 245  
DEMPSTER HIGHWAY, YUKON

Submitted to:  
GOVERNMENT OF YUKON                      0201-10312  
DEPARTMENT OF COMMUNITY &      JULY, 1990  
TRANSPORTATION SERVICES



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TRANSPORTATION SERVICES



# ***EBA Engineering Consultants Ltd.***

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***Civil, Geotechnical and Materials Engineers***

1990-07-05

Government of Yukon  
Department of Community &  
Transportation Services

P.O. Box 2703

Whitehorse, Yukon

Y1A 2C6

EBA File No. 0201-10312

**ATTENTION:**

Ms. Glynnis M. Horel, P.Eng.  
Geotechnical Projects Manager  
Transportation Engineering Branch

Dear Glynnis:

Subject: Final Report  
Granular Source Investigations  
km 14 to 245  
Dempster Highway, Yukon

We are pleased to submit our final report on the above captioned project. Included herein are site plans showing testpit locations; testpit logs in Esebase format; applicable laboratory test results; pertinent photographs of testpits and/or spoil piles and Source Data Sheets for each source location. The Source Data Sheets presented in this report utilize the format as presented in the granular source inventory source catalogue prepared by EBA for INAC in 1989. Pertinent information has been updated for each source based on information collected during this project.



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## 1.0 FIELD PROGRAM

After mobilizing from Whitehorse on 1990-05-03, site investigations for km 14.5 and 27.2 were completed on 1990-05-04; km 66.5 and 197 on 1990-05-05; with the km 244.6 investigation and demobilization to Dawson taking place on 1990-05-06.

A total of 29 testpits were excavated at the five sites. All testpits were advanced with a Koehring Bantam tracked backhoe contracted from Klondike Transport of Dawson City, Yukon. Investigations at each site are summarized as follows:

- km 14.5 - 6 Testpits excavated to depths varying from 3.5 to 6.0 m
- km 27.2 - 7 Testpits excavated to 4.0 m.
- km 66.5 - 4 Testpits excavated to depths of between 3.0 to 3.5 m and two exposures of 4.0 and 6.0 m observed.
- km 197.0 - 7 Testpits excavated to between 1.8 and 3.3 m.
- km 244.6 - 5 Testpits excavated to depths of between 3.5 m and 5.0 m.

All sites were accessible by tracked backhoe with very little clearing required to reach testpit locations. Ease of excavation was dependent upon the presence of permafrost at each site.

## 2.0 SAMPLING AND LABORATORY TESTING PROGRAM

Throughout the field program disturbed grab samples were collected at regular 1.0 m intervals. Representative bulk samples from the granular sources were also collected to facilitate additional testing requirements. All samples were returned to the EBA



Whitehorse Laboratory for moisture content determination and classification testing. Additional tests were performed on large bulk samples at the km 244.6 source to determine the percentage of oversize gravel in the deposit. All test results are presented on the testpit logs with grain size analysis report forms inserted following the applicable testpit log.

### 3.0 SITE DEVELOPMENT RECOMMENDATIONS

Based upon observations made during the excavation of 29 testpits in the 5 granular sources, the following recommendations are made:

km 14.5 Pit            Gravel deposit is discontinuous progressing west into the pit clearing, past the existing face. This leaves a small area in the existing pit where usable gravel can be produced. Past performance indicates that gravel from this source makes excellent surfacing material.

km 27.2 Area        South end of deposit, as indicated on Site Plan, has adequate volumes outside the S-80 selection by the Dawson Indian Band. Site is very accessible and overburden thicknesses are not excessive. Good area for development.

km 66.5 Area        This large, thick colluvial deposit has been cleared with adequate space existing for crushing and stockpiling. Deposit is made up of large angular fragments. Past performance indicates that excellent surfacing gravel has been produced from this source.



km 197.0 Area

This alluvial deposit along the Ogilvie River is considered a relatively good area for development. However, permafrost and high water table are inhibiting factors. Area is vegetated by sparse poplars with less than 0.5 m of overburden. Clearing should not pose a problem. As is common for developing most northern granular sources, preclearing is recommended for this area to promote permafrost degradation.

km 224.6 Area

This granular deposit is located on both sides of an old oxbow on the Ogilvie River. Again, high water table and permafrost are development factors. The area is vegetated with moderately dense stands of poplars and willows with some sparse stands of spruce. Setbacks from the Ogilvie River and proximity to land claim selections reduce the quantities which may be recovered. Also, results from oversize testing indicate insufficient oversize material is available for gabion basket backfill. The small volume of coarse material which is present is found below water table elevation. If this area is developed, pre-clearing is recommended to assist in permafrost degradation.



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#### 4.0 CLOSURE

Information presented in Appendices A to E of this report are based upon observations made during the excavation of 29 testpits and the subsequent laboratory testing program completed on samples recovered. Results are considered to be representative of the granular sources investigated but if discrepancies are noted during development, notification would be appreciated so that area assessment can be modified if deemed necessary.

If questions arise upon review of this report, please contact this office at your convenience.

Yours truly,

EBA Engineering Consultants Ltd.



M.C. Plaunt, C.E.T.  
Engineering Technologist

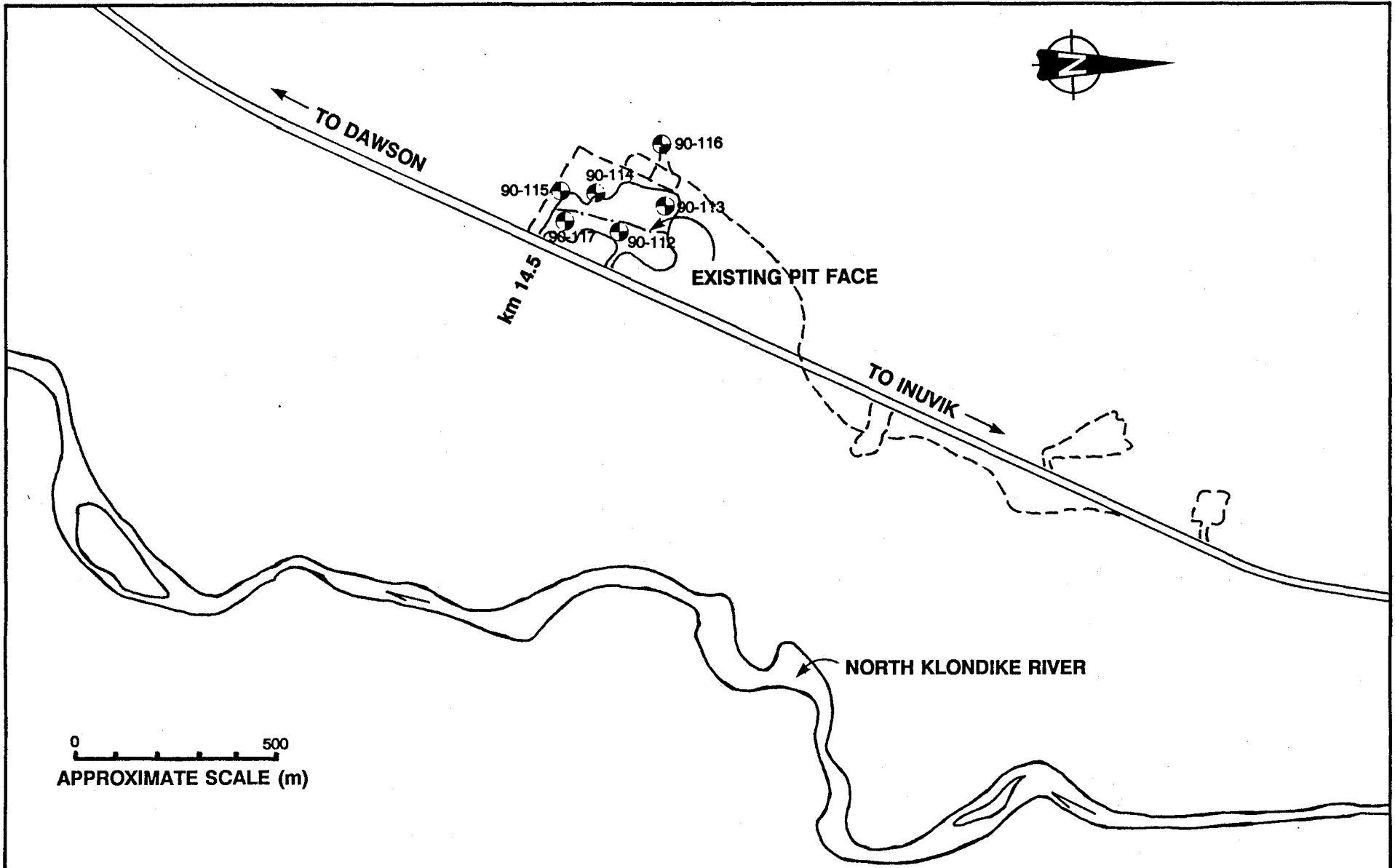
MCP/JRT/amp



J.R. Trimble, P. Eng.  
Project Director  
Office Manager







<b>EBA Engineering Consultants Ltd.</b>			PROJECT <b>GRANULAR SOURCE INVESTIGATIONS</b>	
CLIENT <b>GOVERNMENT OF YUKON</b>			TITLE <b>APPROXIMATE TEST PIT LOCATIONS km 14.5 - DEMPSTER HIGHWAY</b>	
DATE <b>90-06-02</b>	DWN <b>MCP</b>	CHKD	DWG NO. <b>10312-01</b>	<b>0201-10312</b>

APP A

GRANULAR SOURCE INVESTIGATION	CLIENT: YTG-TRANS. ENG. BRANCH	BOREHOLE No. 90-112
km 14 to km 245	DRILL RIG: KOEHRING BANTAM	Project No: 0201-10312
km 14.5 DEMPSTER HIGHWAY	UTM ZONE: 7 N7106210.00 E620275.00	ELEVATION 0.00 (m)
SAMPLE TYPE <input type="checkbox"/> GRAB SAMPLE <input checked="" type="checkbox"/> NO RECOVERY <input checked="" type="checkbox"/> STANDARD PEN. <input type="checkbox"/> 75 mm SPOON <input type="checkbox"/> 75 mm CRREL <input type="checkbox"/> 100 mm CRREL		

DEPTH (m)	SAMPLE TYPE	SAMPLE NO	USC	SOIL DESCRIPTION	STANDARD PENETRATION			PERCENT GRAVEL			PERCENT SAND			PERCENT FINES			DEPTH (ft)
					20	40	60	80	20	40	60	80	20	40	60	80	
0.0				SAND(TILL)(SM)-silty, gravelly, gravel is subangular, moist to wet, dark olive													0.0
0.5	1		SM														0.5
1.0				GRAVEL AND SAND(GM/GP)-trace to some silt, gravel to 100 mm, subangular to subrounded, moist, orangey brown													1.0
1.5	2		GM/GP														1.5
2.0																	2.0
2.5																	2.5
3.0	2		SM	SAND(SM)-some silt, trace of fine gravel, medium to coarse, moist, medium grey													3.0
3.5				GRAVEL AND SAND(GM/GP)-trace of silt to some silt, gravel is subrounded to 100 mm, no oversize, moist, orangey brown													3.5
4.0	4		GM/GP														4.0
4.0				END OF TEST PIT AT 4.0 m													4.0
5.0																	5.0

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Whitehorse, Yukon

COMPLETION DEPTH 4.0 m      COMPLETE 90/05/04  
 LOGGED BY MCP      DWG NO.      Page 1 of 1

## PARTICLE - SIZE ANALYSIS OF SOILS

Project: Granular Source Investigation  
Dempster Highway, Yukon

Project Number: 0201-10312

Date Tested: 1990-05-18

Borehole Number: 90-112

Depth: 2.5 m

Soil Description: SAND(SM)-some silt, trace of gravel

Cu: \_\_\_\_\_

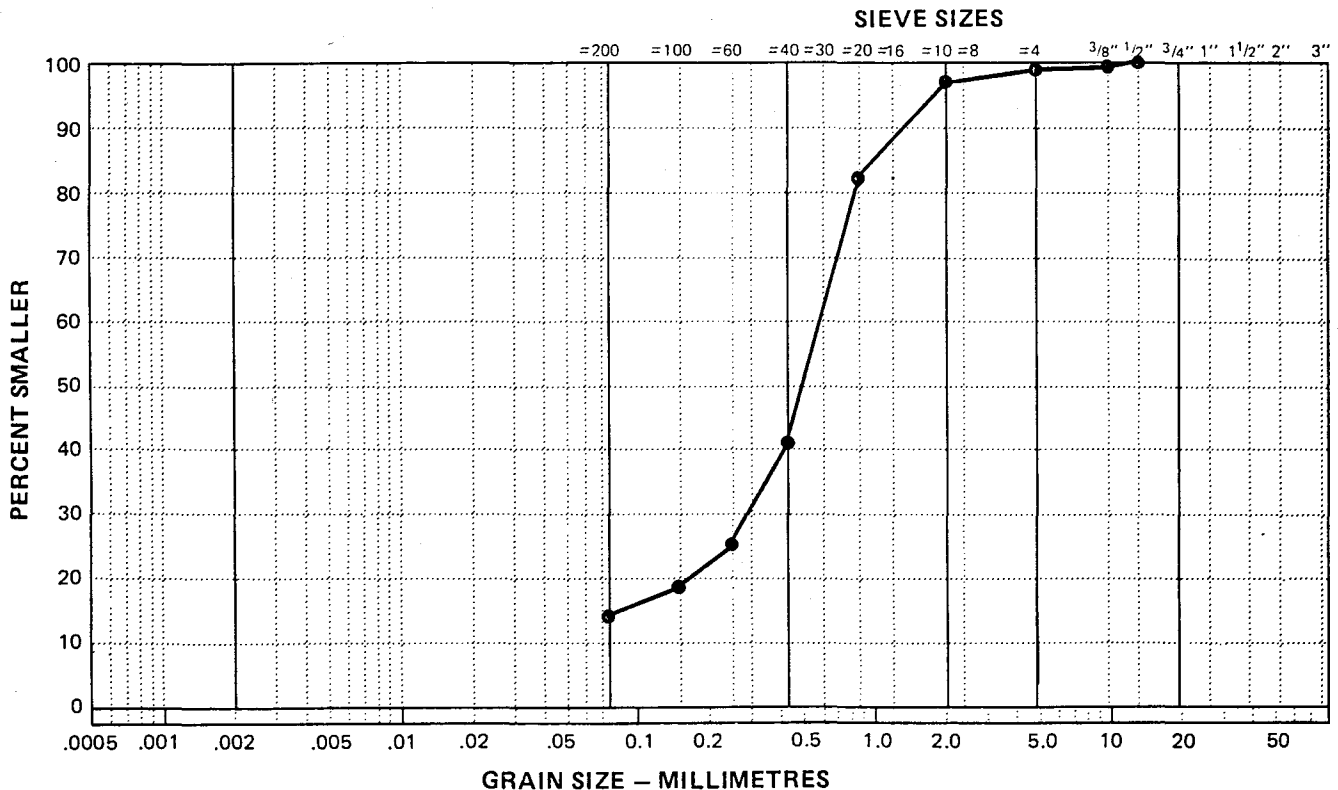
Cc: \_\_\_\_\_

Natural Moisture Content: \_\_\_\_\_ %

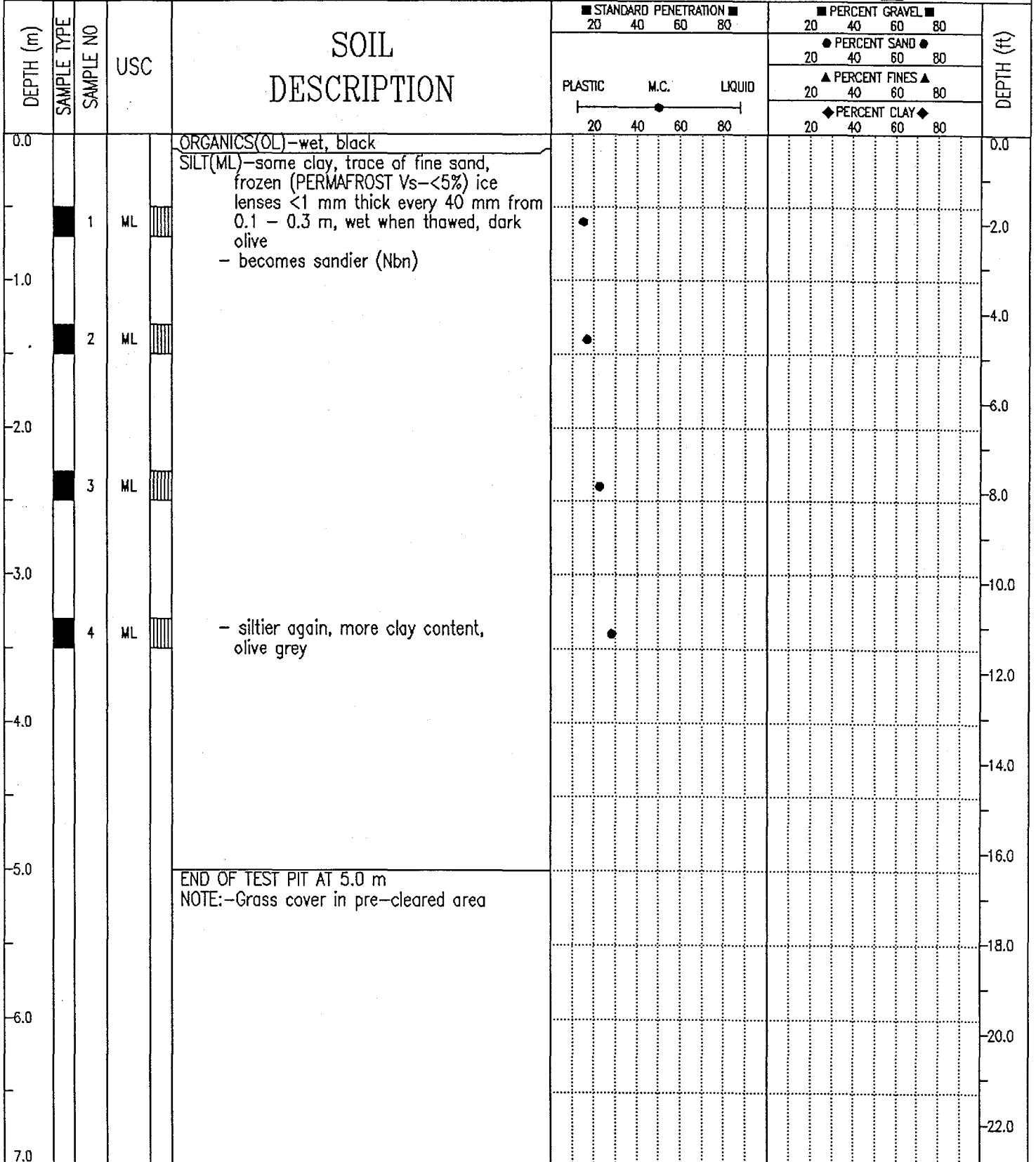
Remarks: \_\_\_\_\_

SIEVE	PERCENTAGE PASSING
3"	
1 1/2"	
1"	
3/4"	
1/2"	100
3/8"	99
No. 4	99
No. 10	98
No. 20	83
No. 40	41
No. 60	26
No. 100	20
No. 200	15

CLAY	SILT	SAND			GRAVEL	
		FINE	MEDIUM	COARSE	FINE	COARSE



GRANULAR SOURCE INVESTIGATION		CLIENT: YTG-TRANS. ENG. BRANCH	BOREHOLE No. 90-113
km 14 to km 245		DRILL RIG: KOEHRING BANTAM	Project No: 0201-10312
km 14.5 DEMPSTER HIGHWAY		UTM ZONE: 7 N7106340.00 E620255.00	ELEVATION 0.00 (m)
SAMPLE TYPE	<input checked="" type="checkbox"/> GRAB SAMPLE	<input checked="" type="checkbox"/> NO RECOVERY	<input checked="" type="checkbox"/> STANDARD PEN.
		<input type="checkbox"/> 75 mm SPOON	<input type="checkbox"/> 75 mm CRREL
			<input type="checkbox"/> 100 mm CRREL



GRANULAR SOURCE INVESTIGATION		CLIENT: YTG-TRANS. ENG. BRANCH		BOREHOLE No. 90-114										
km 14 to km 245		DRILL RIG: KOEHRING BANTAM		Project No: 0201-10312										
km 14.5 DEMPSTER HIGHWAY		UTM ZONE: 7 N7106220.88 E620160.00		ELEVATION 0.00 (m)										
SAMPLE TYPE		<input checked="" type="checkbox"/> GRAB SAMPLE	<input type="checkbox"/> NO RECOVERY	<input checked="" type="checkbox"/> STANDARD PEN.	<input type="checkbox"/> 75 mm SPOON	<input type="checkbox"/> 75 mm CRREL	<input type="checkbox"/> 100 mm CRREL							
DEPTH (m)	SAMPLE TYPE	SAMPLE NO	USC	SOIL DESCRIPTION	STANDARD PENETRATION				PERCENT GRAVEL				DEPTH (ft)	
					20	40	60	80	20	40	60	80		
					PLASTIC M.C. LIQUID				PERCENT SAND					
					20 40 60 80				20 40 60 80					
					20 40 60 80				20 40 60 80					
					20 40 60 80				20 40 60 80					
0.0				GRASS GROUND COVER ORGANICS(OL)-some silt, wet, black and grey										0.0
		1	SM	SAND,SILT AND GRAVEL(SM)-some to trace of clay, gravel is subrounded up to 150 mm maximum size <10% over 100 mm frozen (PERMAFROST Vs <5%)										2.0
-1.0		2	ML	SILT(ML)-some fine sand, trace of clay, fine grained, uniform, unfrozen, very wet, medium olive										4.0
		3	ML											8.0
-2.0														
		4	ML											12.0
-3.0														
		5	ML											16.0
-4.0														
				SILT(ML)-some fine sand, frozen (PERMAFROST Vr<2%) wet when thawed, grey										18.0
-5.0														
				END OF TEST PIT AT 6.0 m										20.0
-6.0														
														22.0
-7.0														

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Whitehorse, Yukon

COMPLETION DEPTH 6.0 m

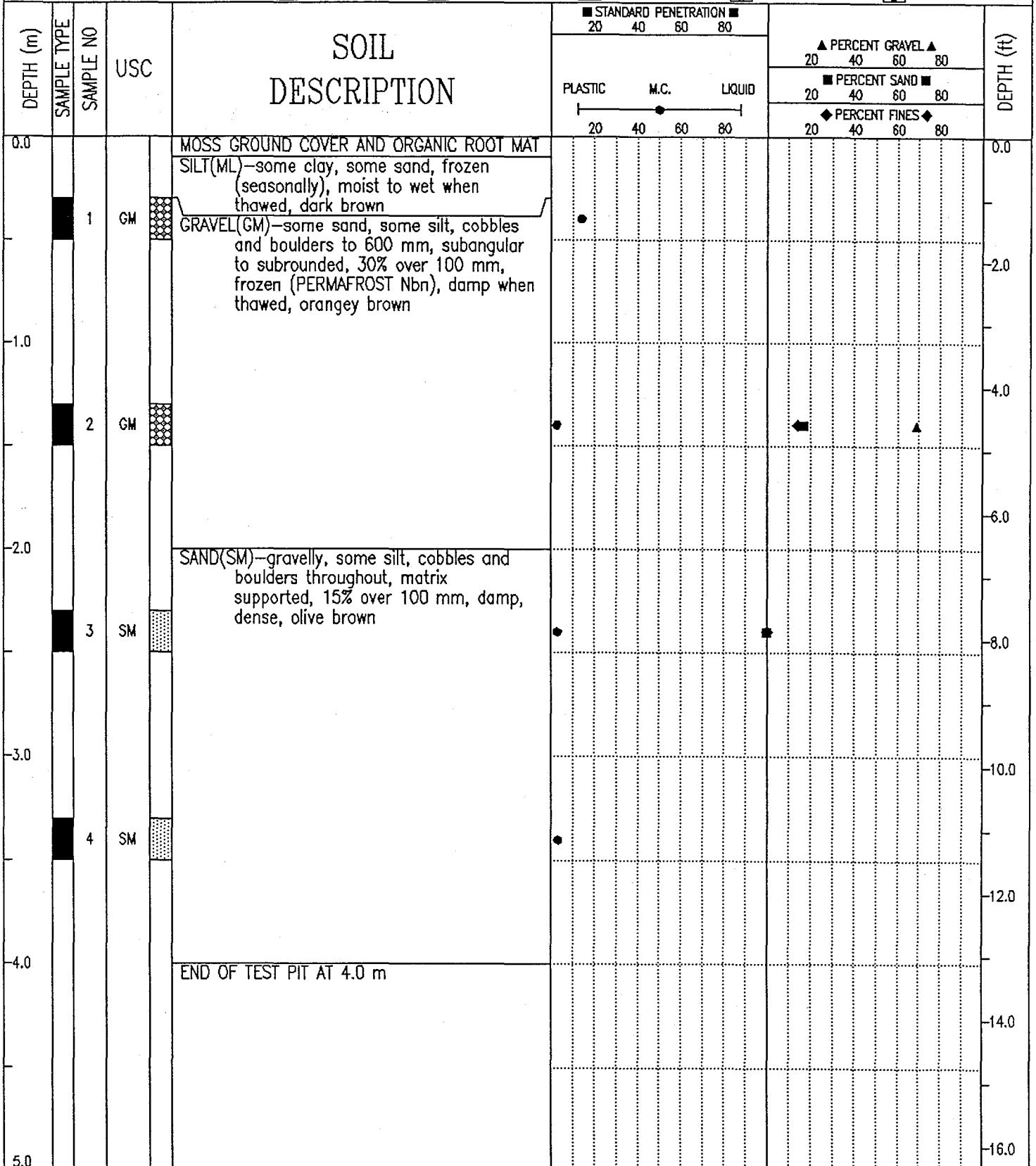
COMPLETE 90/05/04

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DWG NO.

Page 1 of 1

GRANULAR SOURCE INVESTIGATION	CLIENT: YTG-TRANS. ENG. BRANCH	BOREHOLE No. 90-115
km 14 to km 245	DRILL RIG: KOEHRING BANTAM	Project No: 0201-10312
km 14.5 DEMPSTER HIGHWAY	UTM ZONE: 7 N7106060.00 E620160.00	ELEVATION 0.00 (m)
SAMPLE TYPE	<input checked="" type="checkbox"/> GRAB SAMPLE	<input type="checkbox"/> NO RECOVERY
	<input checked="" type="checkbox"/> STANDARD PEN.	<input type="checkbox"/> 75 mm SPOON
	<input type="checkbox"/> 75 mm CRREL	<input type="checkbox"/> 100 mm CRREL



EBA Engineering Consultants Ltd. Whitehorse, Yukon	COMPLETION DEPTH 4.0 m	COMPLETE 90/05/04
LOGGED BY MCP	DWG NO.	Page 1 of 1

# EBA Engineering Consultants Ltd.

## PARTICLE - SIZE ANALYSIS OF SOILS

Project: Granular Source Investigation  
Dempster Highway, Yukon

Project Number: 0201-10312

Date Tested: 1990-05-18

Borehole Number: 90-115

Depth: 1.5 m

Soil Description: GRAVEL(GM)-some sand, some silt

Cu: \_\_\_\_\_

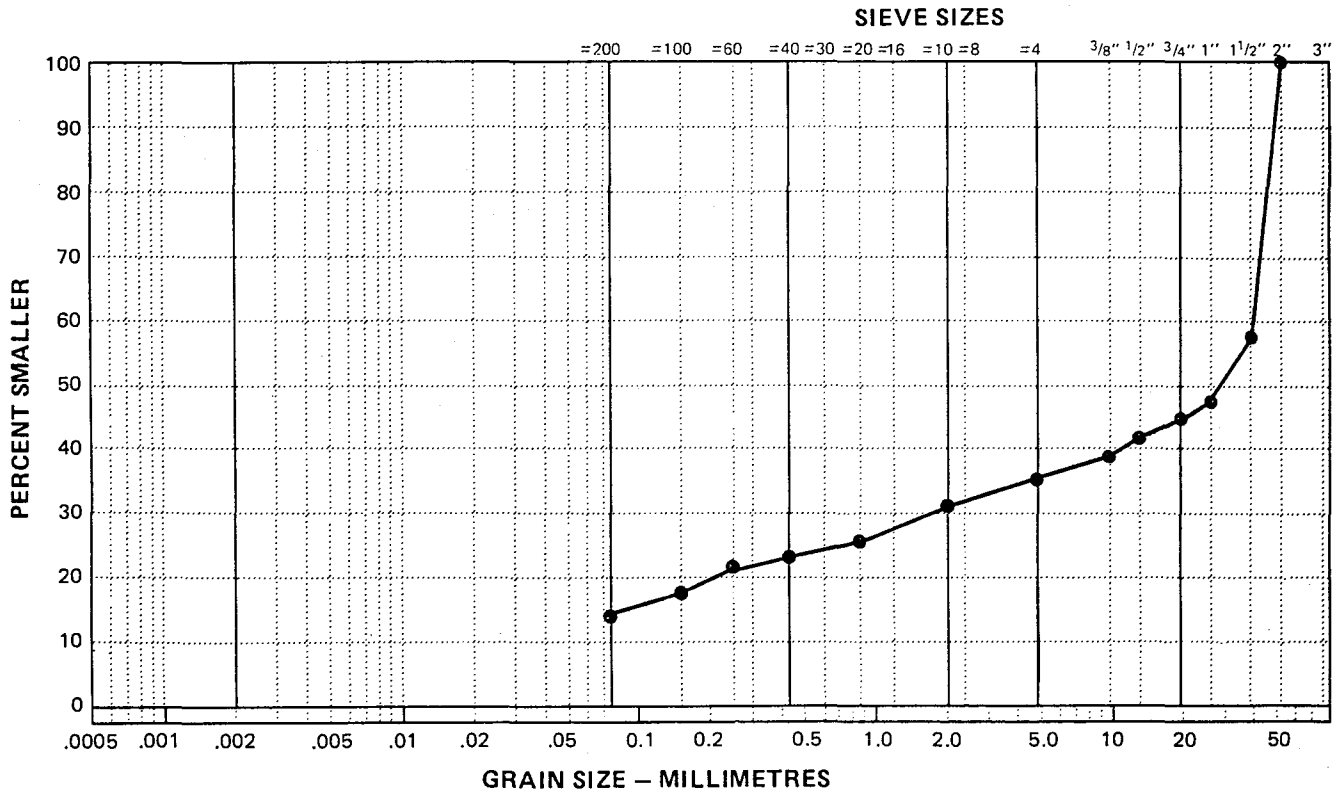
Cc: \_\_\_\_\_

Natural Moisture Content: \_\_\_\_\_ %

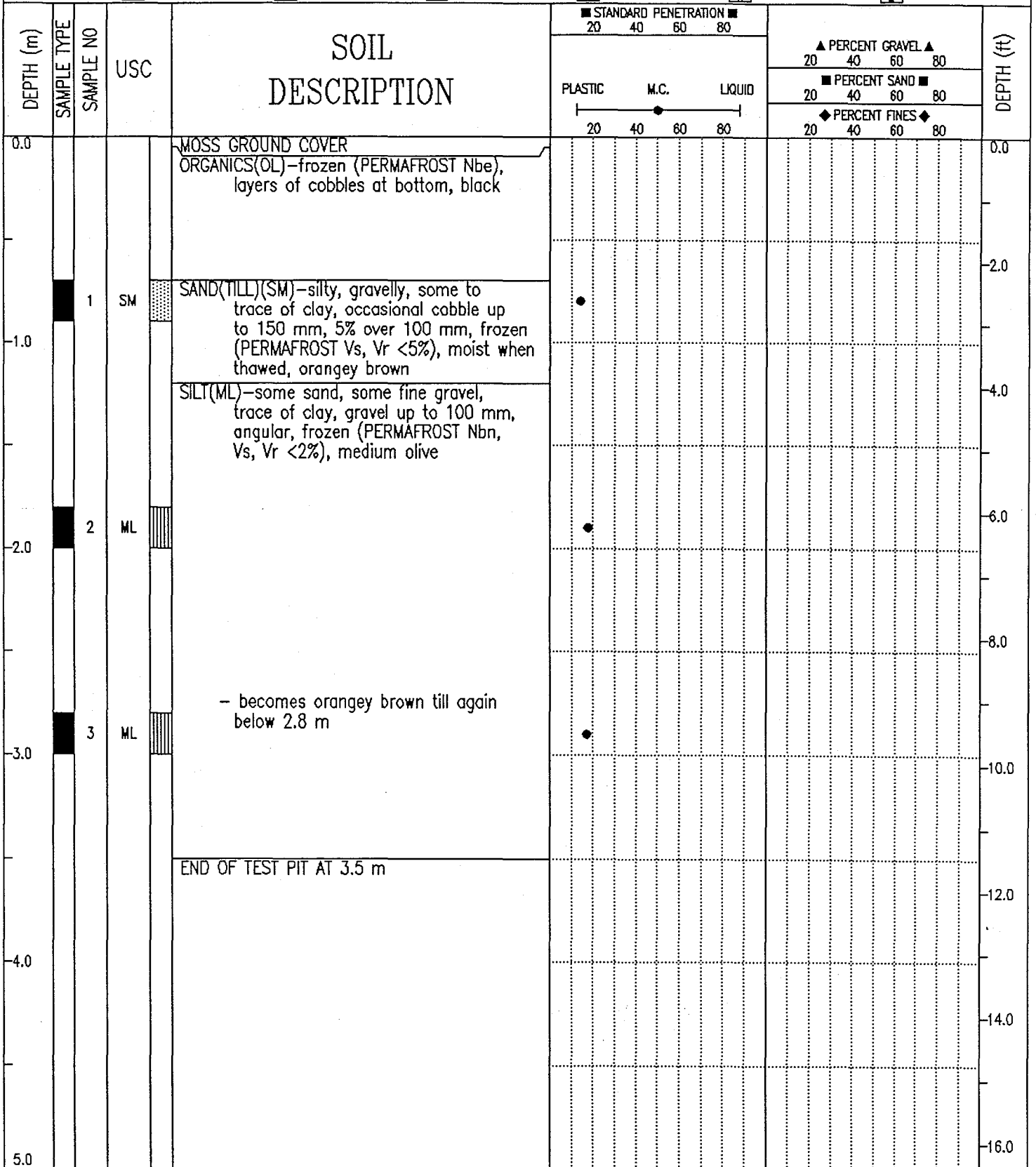
Remarks: \_\_\_\_\_

SIEVE	PERCENTAGE PASSING
2"	100
1 1/2"	59
1"	48
3/4"	45
1/2"	42
3/8"	39
No. 4	36
No. 10	31
No. 20	27
No. 40	23
No. 60	20
No. 100	18
No. 200	14

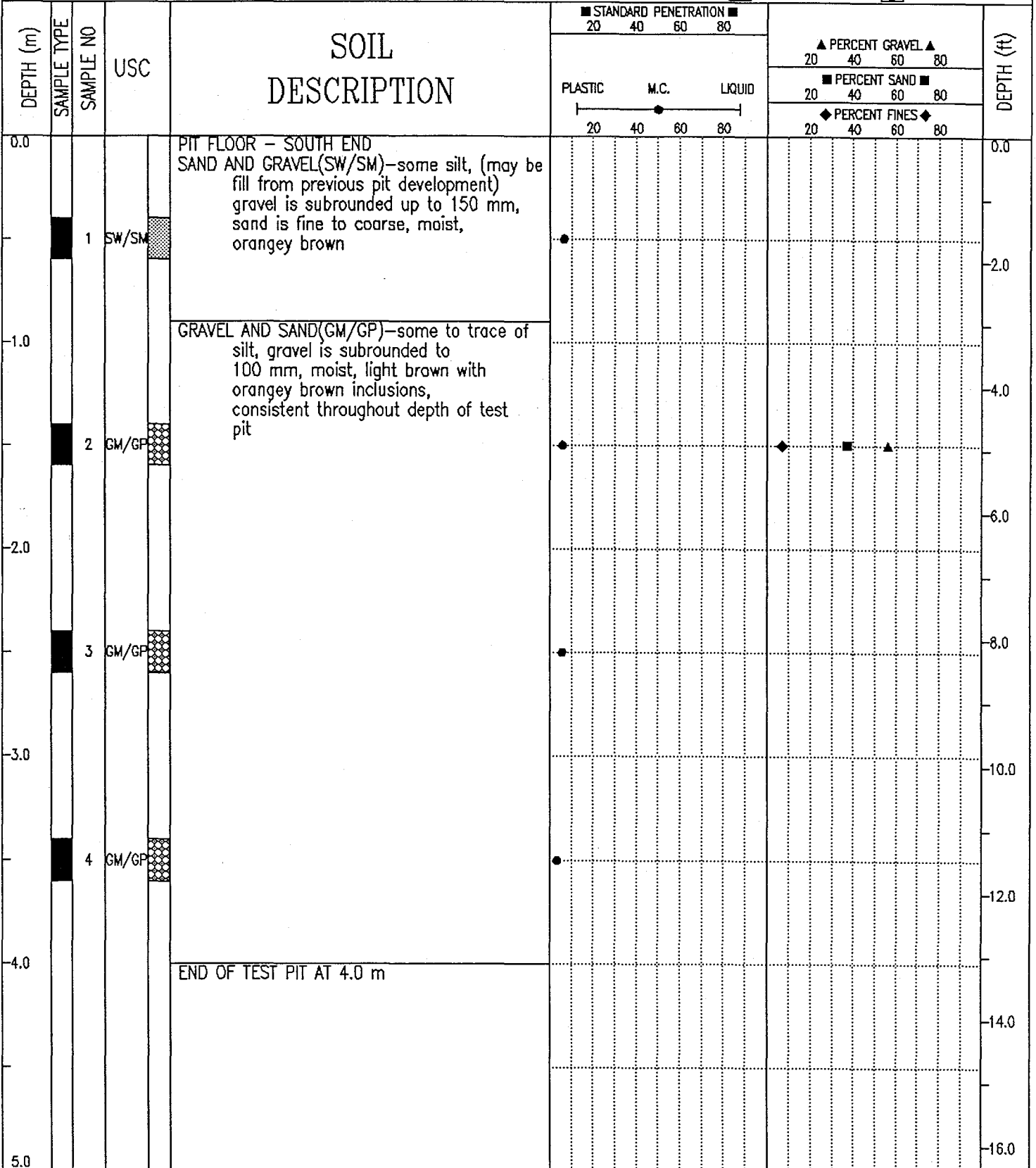
CLAY	SILT	SAND			GRAVEL	
		FINE	MEDIUM	COARSE	FINE	COARSE



GRANULAR SOURCE INVESTIGATION	CLIENT: YTG-TRANS. ENG. BRANCH	BOREHOLE No. 90-116
km 14 to km 245	DRILL RIG: KOEHRING BANTAM	Project No: 0201-10312
km 14.5 DEMPSTER HIGHWAY	UTM ZONE: 7 N7106340.00 E620100.00	ELEVATION 0.00 (m)
SAMPLE TYPE	<input checked="" type="checkbox"/> GRAB SAMPLE	<input type="checkbox"/> NO RECOVERY
	<input checked="" type="checkbox"/> STANDARD PEN.	<input type="checkbox"/> 75 mm SPOON
	<input type="checkbox"/> 75 mm CRREL	<input type="checkbox"/> 100 mm CRREL



GRANULAR SOURCE INVESTIGATION	CLIENT: YTG-TRANS. ENG. BRANCH	BOREHOLE No. 90-117
km 14 to km 245	DRILL RIG: KOEHRING BANTAM	Project No: 0201-10312
km 14.5 DEMPSTER HIGHWAY	UTM ZONE: 7 N7106120.00 E620230.00	ELEVATION 0.00 (m)
SAMPLE TYPE	<input checked="" type="checkbox"/> GRAB SAMPLE	<input type="checkbox"/> NO RECOVERY
	<input checked="" type="checkbox"/> STANDARD PEN.	<input type="checkbox"/> 75 mm SPOON
	<input type="checkbox"/> 75 mm CRREL	<input type="checkbox"/> 100 mm CRREL



EBA Engineering Consultants Ltd.  
Whitehorse, Yukon

COMPLETION DEPTH 4.0 m

COMPLETE 90/05/04

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DWG NO.

Page 1 of 1

## PARTICLE - SIZE ANALYSIS OF SOILS

Project: Granular Source Investigation  
Dempster Highway, Yukon

Project Number: 0201-10312

Date Tested: 1990-05-18

Borehole Number: 90-117

Depth: 1.5 m

Soil Description: GRAVEL AND SAND(GM/GP)-trace of silt

Cu: 43.3

Cc: 0.6

Natural Moisture Content: \_\_\_\_\_ %

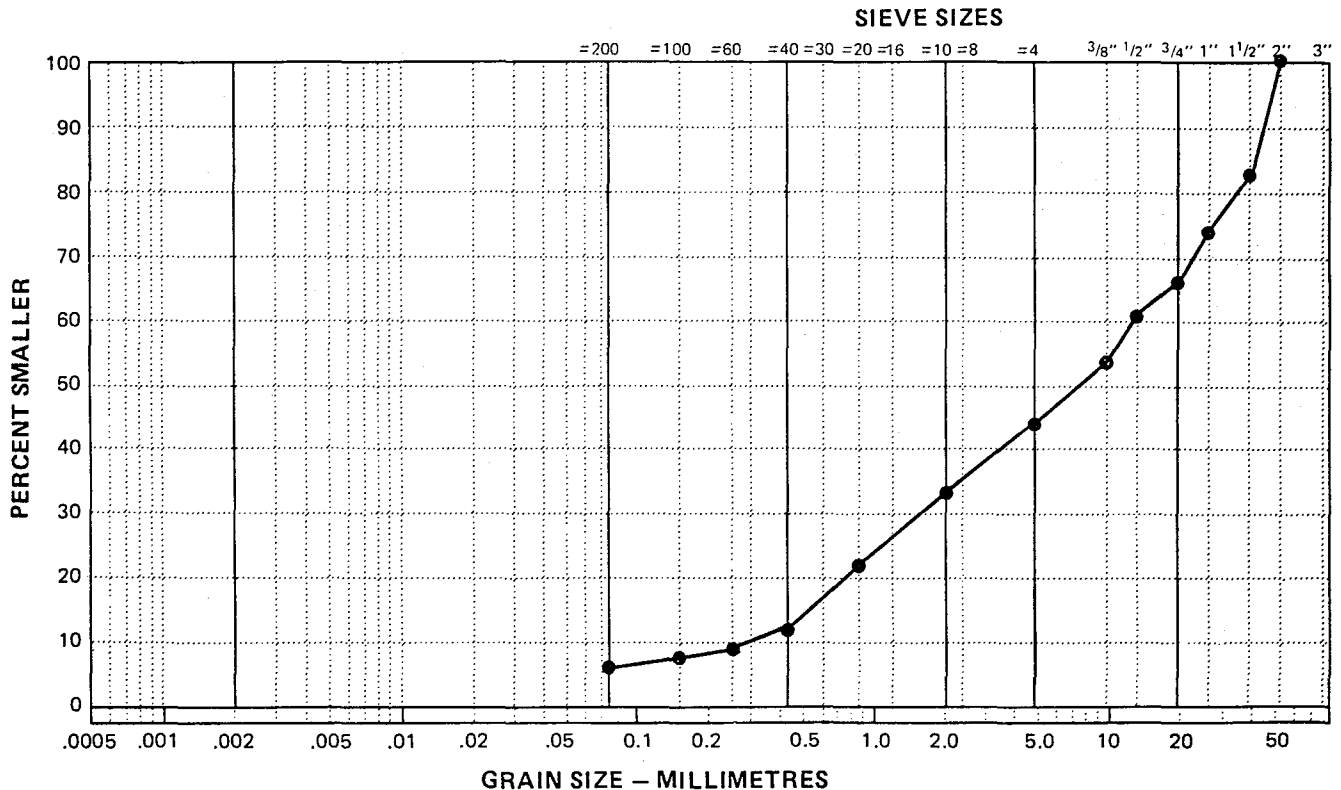
Remarks: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

SIEVE	PERCENTAGE PASSING
2"	100
1 1/2"	83
1"	75
3/4"	67
1/2"	60
3/8"	54
No. 4	44
No. 10	33
No. 20	22
No. 40	13
No. 60	10
No. 100	8
No. 200	7

CLAY	SILT	SAND			GRAVEL	
		FINE	MEDIUM	COARSE	FINE	COARSE

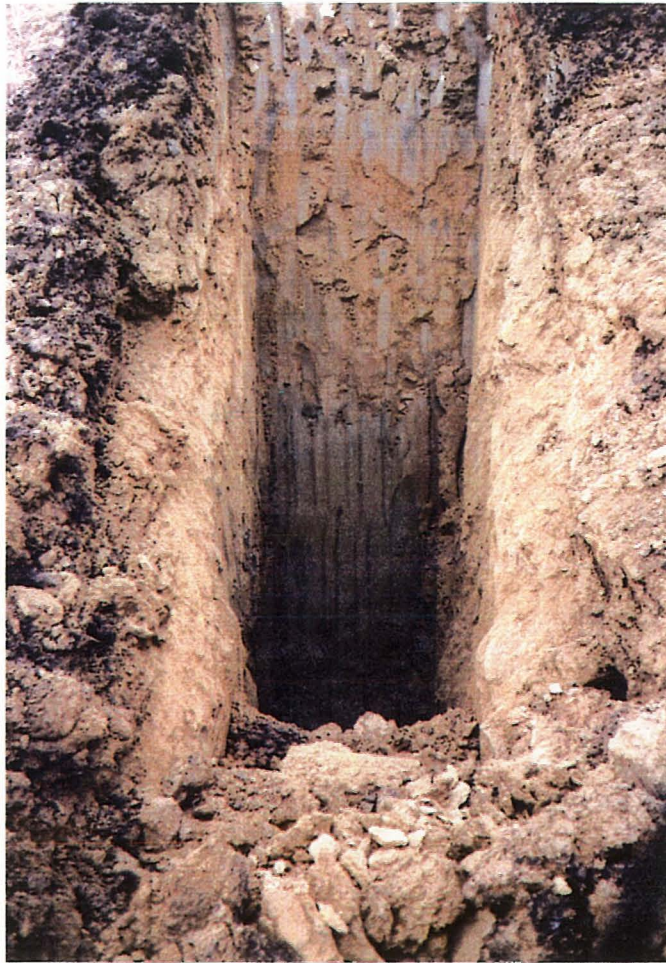




km 14.5 PIT



90-112



90-113



90-114



90-115



90-116



90-117

DEMPSTER HIGHWAY CORRIDOR (YT/NWT)  
GRANULAR RESOURCES DATABASE  
SOURCE CATALOGUE DATA SHEET

===== PART A: LOCATION AND STATUS =====

SOURCE NUMBER : 0014.6L STUDY NO. : n/a  
NTS MAP REFERENCE : 116B/2 DIGITIZ NO: MAP SCALE : 1:50000  
UTM ZONE-EASTING : 7-620200 LOCATION : 14.5 km N of Klon Hwy Int  
UTM NORTHING : 7106000  
LOCAL NAME(S) : Old 9-10 Mile Gravel Pit  
CORRIDOR NO./NAME : 05-Dempster Highway  
KILOMETRE POST : 14.6 OFFSET(m) : 50-L

SOURCE ACCESS : 2 Pit Entrances  
ACCESS DISTANCE (m): 30 CONDITION : Good  
AREA (ha) : 2 SITE SCALE: 1:NTS DIGITIZ NO:

LAND TENURE : Territorial STATUS : Unknown  
PAST USE - SOURCE : Surfacing Gravel STOCKPILE - TYPE : Surfacing Gravel (20 mm)  
PERFORMANCE RATING : Good - QUANTITY : 23,300(83)Dep89

===== PART B: SOURCE INVESTIGATION AND DESCRIPTIVE INFORMATION =====

INVESTIGATION LEVEL: Delineation LAST INVEST DATE : 1990  
GEOPHYSICAL DATA : None TEST HOLE DENSITY (#/ha): 1  
BOREHOLES - NUMBER : 0 TEST PITS - NO. : 6 EXPOSURES - NO. : 1  
- DEPTH (m) : n/a - DEPTH (m): 3.5-4.4-6.0 - DEPTH (m) : 4.0-UN-UN  
DATA QUALITY : Good  
SOURCE TOPOGRAPHY : Irregular SLOPE: Moderate to the East  
AREA DRAINAGE : Good in Pit Area  
SOURCE VEGETATION : Large Spruce Around Pit  
PERMAFROST FEATURES: Visible Ice  
ACTIVE LAYER (m) : Unknown DESCRIPT. DATA : 07/04/90  
GENERIC ORIGIN : Alluvial LANDFORM(S) : Gravel Terrace  
GRANULAR - TYPE : GRAVEL(GM/GP) OVERBURDEN-TYPE : SILT-clayey  
- THICKNESS (m) : 4.0 - THICKNESS (m): 0.0-2.5-6.0  
UNDERBURDEN : Unknown

DEVELOP. CONSTRAINT: Deposit Does Not Continue West From Pit Entrance  
DEVELOP. POTENTIAL : Good-Pit Floor

===== PART C: TEST RESULTS AND MATERIAL QUANTITY =====

USC - NUMBER : 3 MOISTURE CONTENT-NUMBER : 24  
CLASS : GM/GP-GM -RESULTS: n/a  
SIZE ANALYSIS-NO. : 2 GRAVEL (%) : 56-60-64 SAND (%) : 22-47-84 FINES (%) : 7-12-15  
- OVERSIZE (%) : 0 D-50 (um) : 0

PETROGRAPHIC ANALYSIS-NO. OF TESTS: 0 RESULTS: n/a

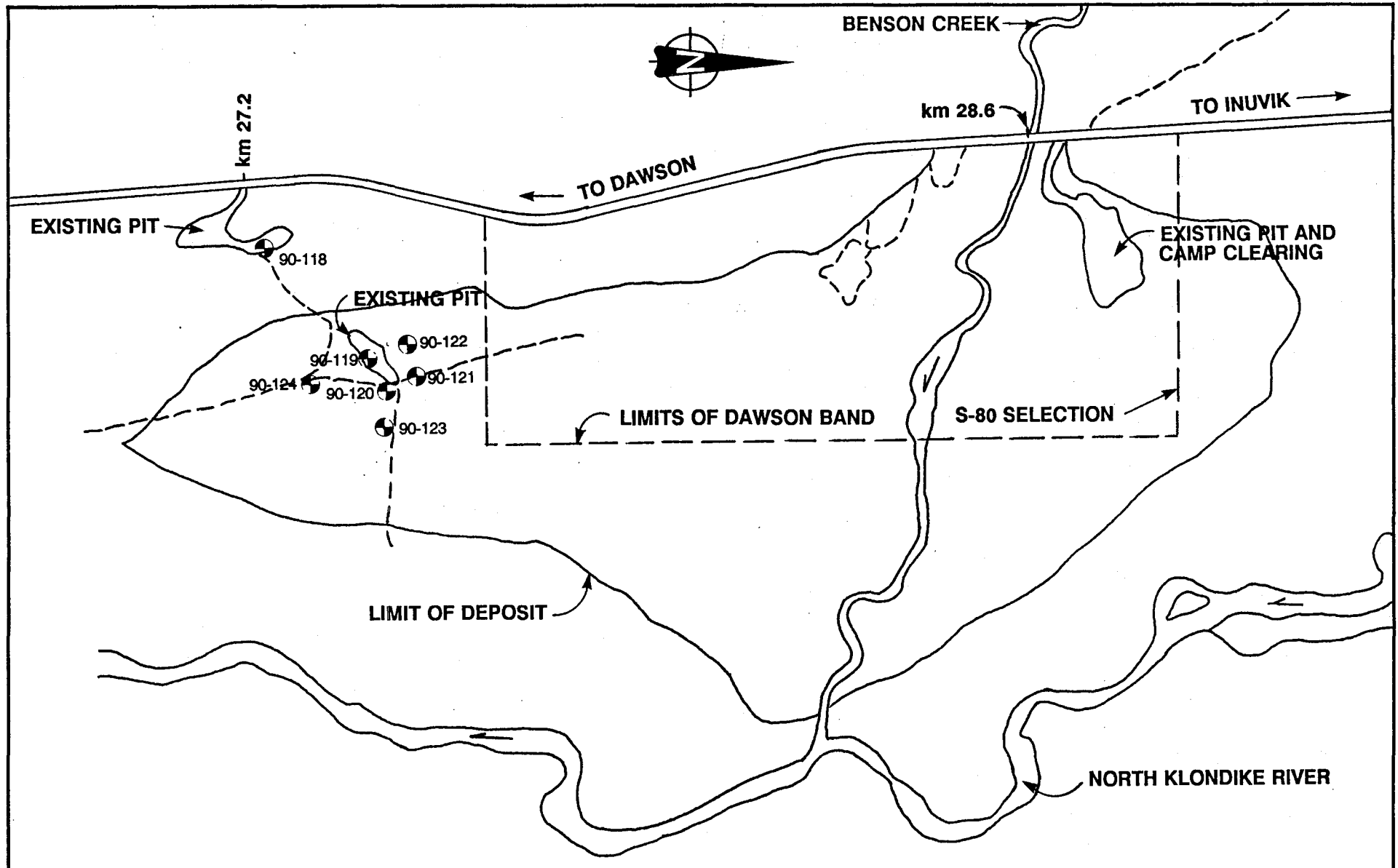
OTHER TESTS (see the DATA DICTIONARY) : n/a

MATERIAL QUANTITY (All in cubic metres) CLASS 1: 30,000  
CLASS 2: Unknown  
TOTAL RECOVERABLE : 30,000 CLASS 3: Unknown  
ANNUAL RECOVERABLE : Unknown CLASS 4: Unknown  
CLASS 5: Unknown  
TOTAL VOLUME: 30,000

RECORD UPDATED BY : EBA Engineering Consultants Ltd.  
LAST UPDATE : 07/04/90

EBA PROJECT NUMBER : 0201-4989

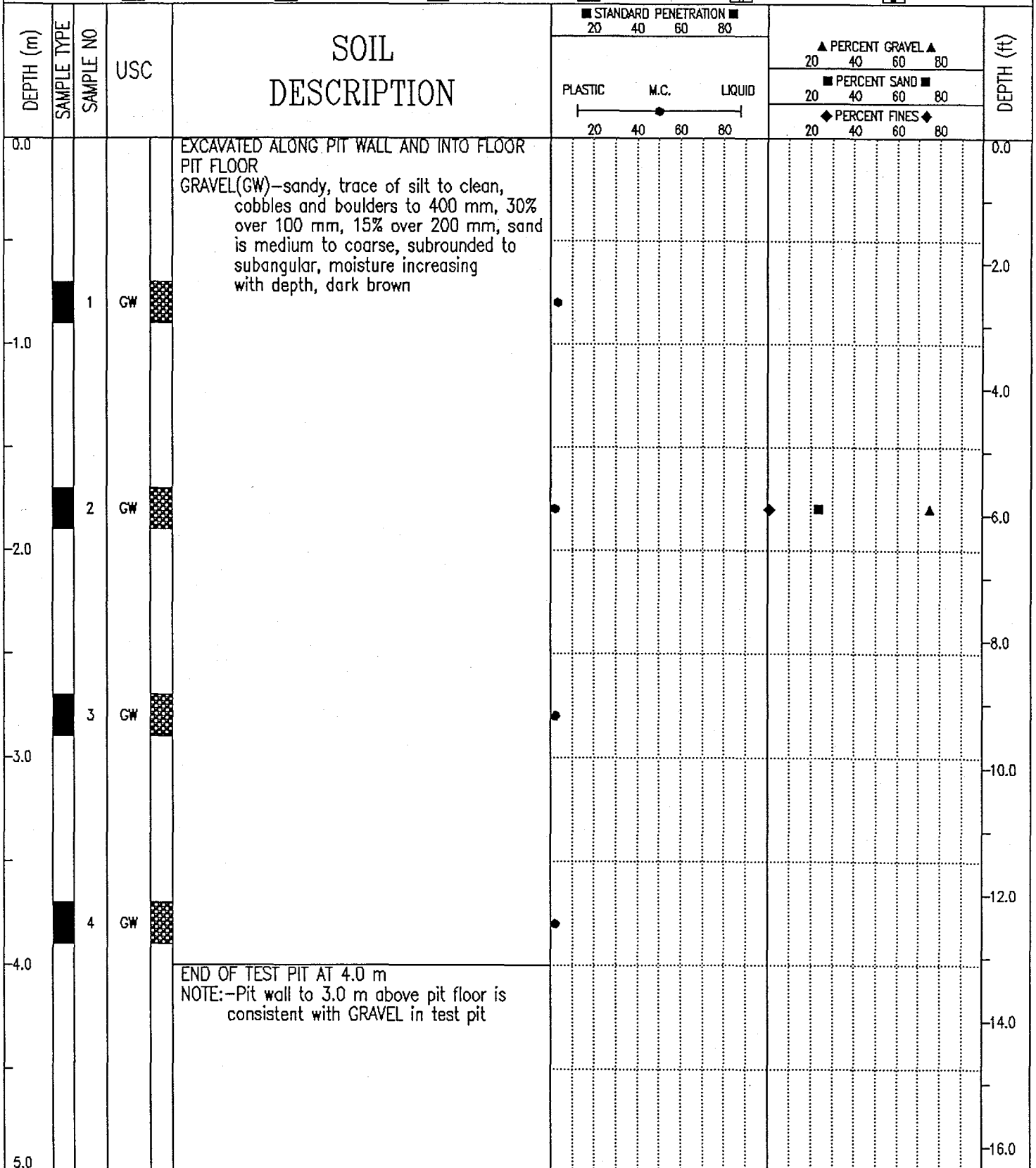




<b>EBA Engineering Consultants Ltd.</b>				PROJECT <b>GRANULAR SOURCE INVESTIGATIONS</b>	
CLIENT <b>GOVERNMENT OF YUKON</b>				TITLE <b>APPROXIMATE TEST PIT LOCATIONS km 27.2 - DEMPSTER HIGHWAY</b>	
DATE <b>90-06-02</b>	DWN <b>MCP</b>	CHKD	DWG NO. <b>10312-02</b>	<b>0201-10312</b>	

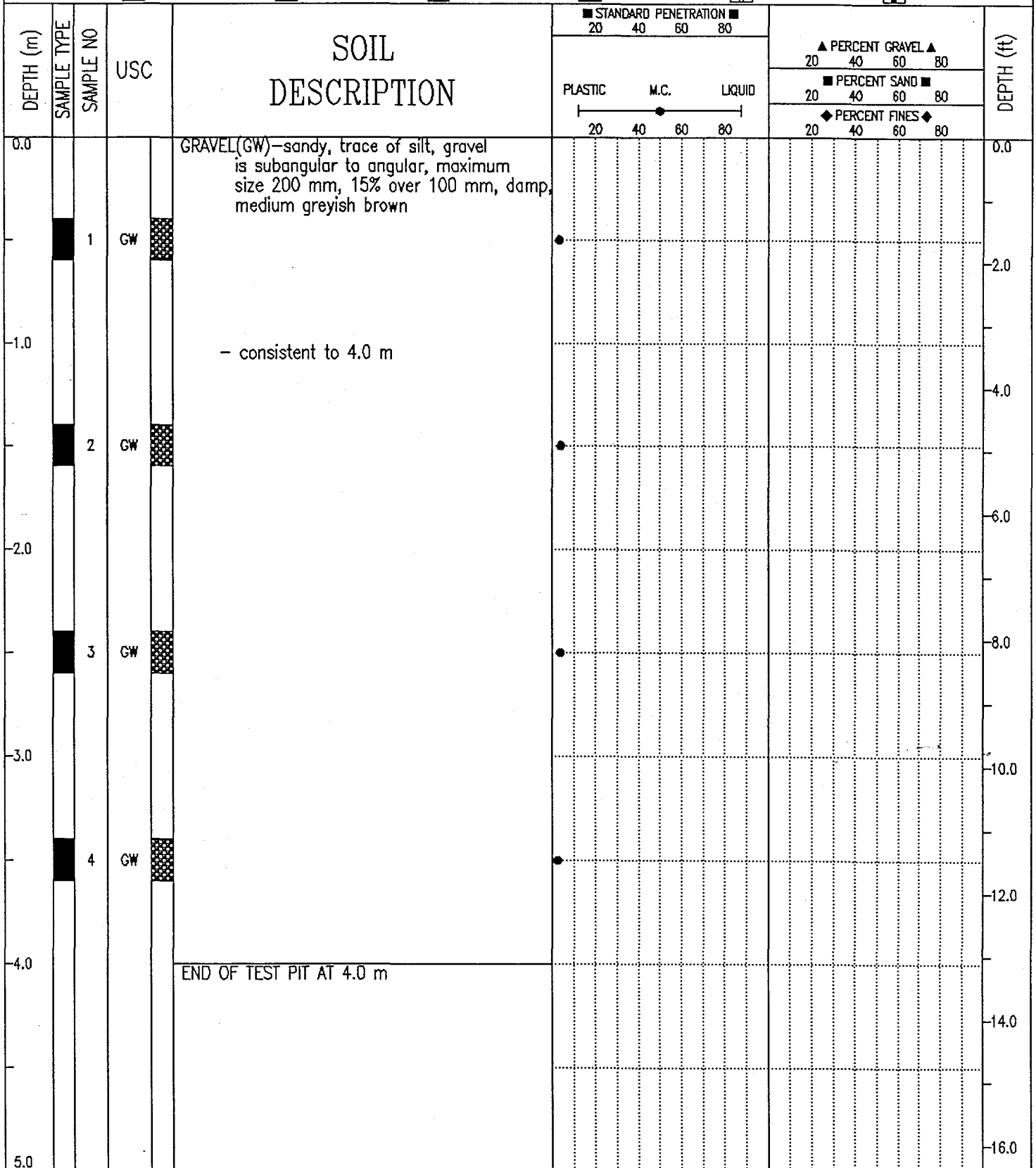
App B

GRANULAR SOURCE INVESTIGATION	CLIENT: YTG-TRANS. ENG. BRANCH	BOREHOLE No. 90-119
km 14 to km 245	DRILL RIG: KOEHRING BANTAM	Project No: 0201-10312
km 27.2 DEMPSTER HIGHWAY	UTM ZONE: 7 N7117750.00 E619560.00	ELEVATION 0.00 (m)
SAMPLE TYPE <input checked="" type="checkbox"/> GRAB SAMPLE <input type="checkbox"/> NO RECOVERY <input checked="" type="checkbox"/> STANDARD PEN.	<input checked="" type="checkbox"/> 75 mm SPOON <input type="checkbox"/> 75 mm CRREL <input type="checkbox"/> 100 mm CRREL	



EBA Engineering Consultants Ltd. Whitehorse, Yukon	COMPLETION DEPTH 4.0 m	COMPLETE 90/05/04
	LOGGED BY MCP	DWG NO.

GRANULAR SOURCE INVESTIGATION	CLIENT: YTG-TRANS. ENG. BRANCH	BOREHOLE No. 90-118
km 14 to km 245	DRILL RIG: KOEHRING BANTAM	Project No: 0201-10312
km 27.2 DEMPSTER HIGHWAY	UTM ZONE: 7 N7117500.00 E619290.00	ELEVATION 0.00 (m)
SAMPLE TYPE <input checked="" type="checkbox"/> GRAB SAMPLE <input checked="" type="checkbox"/> NO RECOVERY <input checked="" type="checkbox"/> STANDARD PEN. <input type="checkbox"/> 75 mm SPOON <input type="checkbox"/> 75 mm CRREL <input type="checkbox"/> 100 mm CRREL		



EBA Engineering Consultants Ltd. Whitehorse, Yukon	COMPLETION DEPTH 4.0 m	COMPLETE 90/05/04
	LOGGED BY MCP	DWG NO.

## PARTICLE - SIZE ANALYSIS OF SOILS

Project: Granular Source Investigation  
Dempster Highway, Yukon

Project Number: 0201-10312

Date Tested: 1990-05-18

Borehole Number: 90-119

Depth: 1.8 m

Soil Description: GRAVEL (GW)-sandy, trace of silt

Cu: 32.3

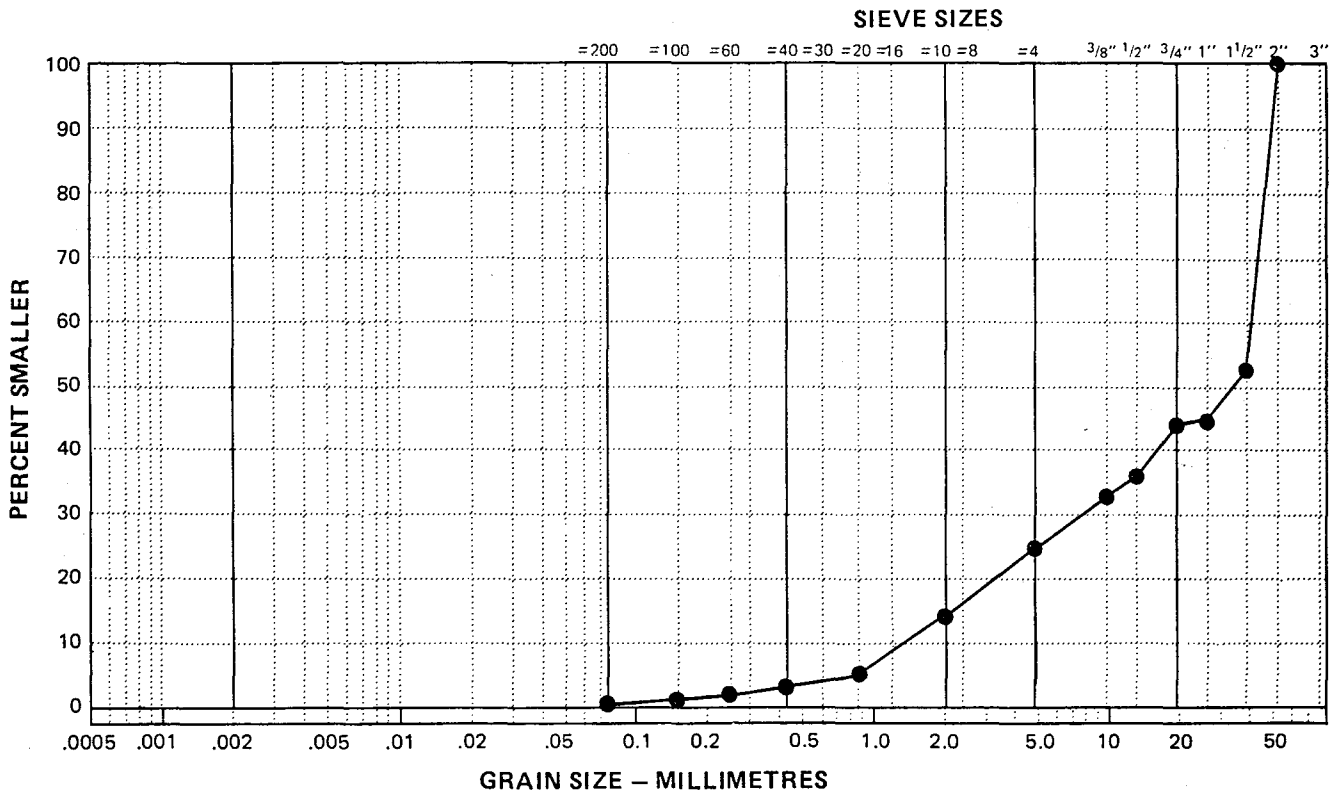
Cc: 1.2

Natural Moisture Content: \_\_\_\_\_ %

Remarks: \_\_\_\_\_

SIEVE	PERCENTAGE PASSING
2"	100
1 1/2"	54
1"	45
3/4"	44
1/2"	38
3/8"	33
No. 4	25
No. 10	14
No. 20	6
No. 40	3
No. 60	2
No. 100	1
No. 200	1

CLAY	SILT	SAND			GRAVEL	
		FINE	MEDIUM	COARSE	FINE	COARSE

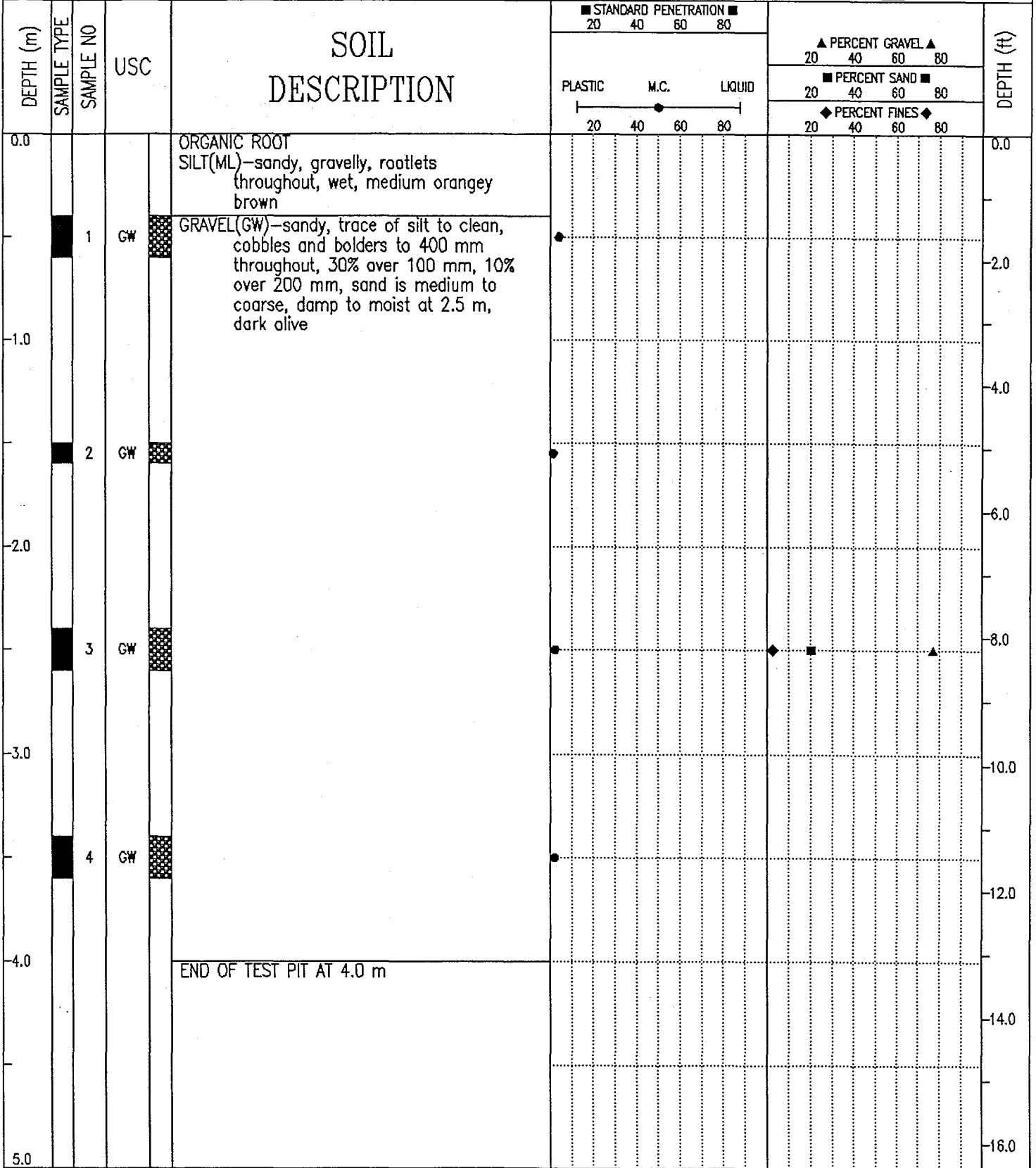


GRANULAR SOURCE INVESTIGATION	CLIENT: YTG-TRANS. ENG. BRANCH	BOREHOLE No. 90-120
km 14 to km 245	DRILL RIG: KOEHRING BANTAM	Project No: 0201-10312
km 27.2 DEMPSTER HIGHWAY	UTM ZONE: 7 N7117810.00 E619600.00	ELEVATION 0.00 (m)
SAMPLE TYPE	<input type="checkbox"/> GRAB SAMPLE <input checked="" type="checkbox"/> NO RECOVERY <input checked="" type="checkbox"/> STANDARD PEN.	<input type="checkbox"/> 75 mm SPOON <input type="checkbox"/> 75 mm CRREL <input type="checkbox"/> 100 mm CRREL

DEPTH (m)	SAMPLE TYPE	SAMPLE NO	USC	SOIL DESCRIPTION	STANDARD PENETRATION			PERCENT GRAVEL			PERCENT SAND			PERCENT FINES			DEPTH (ft)
					20	40	60	80	20	40	60	80	20	40	60	80	
0.0				GRAVEL(GW/GM)-sandy, trace of silt, damp, medium brown													0.0
		1	GW	GRAVEL(GW)-sandy, trace of silt to clean, cobbles and boulders throughout, maximum size - 500 mm, 30% over 100 mm, 10% over 250 mm, sand is medium to coarse, damp to moist below 3.0 m, dark olive brown													2.0
		2	GW														4.0
		3	GW														8.0
		4	GW														12.0
4.0				END OF TEST PIT AT 4.0 m													14.0
5.0																	16.0

EBA Engineering Consultants Ltd. Whitehorse, Yukon	COMPLETION DEPTH 4.0 m	COMPLETE 90/05/04
	LOGGED BY MCP	DWG NO.

GRANULAR SOURCE INVESTIGATION	CLIENT: YTG-TRANS. ENG. BRANCH	BOREHOLE No. 90-121
km 14 to km 245	DRILL RIG: KOEHRING BANTAM	Project No: 0201-10312
km 27.2 Dempster Highway	UTM ZONE: 7 N7117950.00 E619585.00	ELEVATION 0.00 (m)
SAMPLE TYPE	<input checked="" type="checkbox"/> GRAB SAMPLE	<input type="checkbox"/> NO RECOVERY
	<input checked="" type="checkbox"/> STANDARD PEN.	<input type="checkbox"/> 75 mm SPOON
	<input type="checkbox"/> 75 mm CRREL	<input type="checkbox"/> 100 mm CRREL



## PARTICLE - SIZE ANALYSIS OF SOILS

Project: Granular Source Investigation  
Dempster Highway, Yukon

Project Number: 0201-10312

Date Tested: 1990-05-18

Borehole Number: 90-121

Depth: 2.5 m

Soil Description: GRAVEL (GW)-some sand to sandy

Cu: 26.9

Cc: 1.4

Natural Moisture Content: \_\_\_\_\_ %

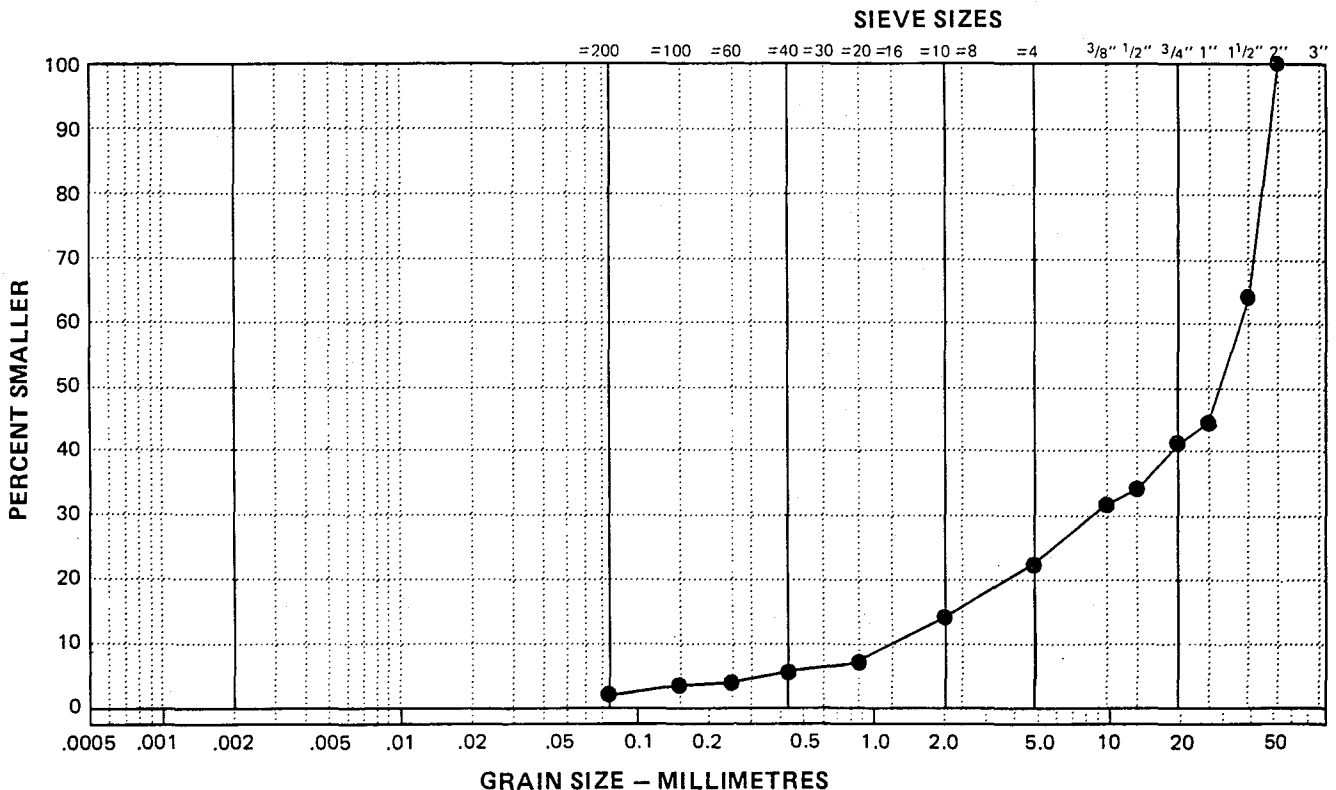
Remarks: \_\_\_\_\_

\_\_\_\_\_

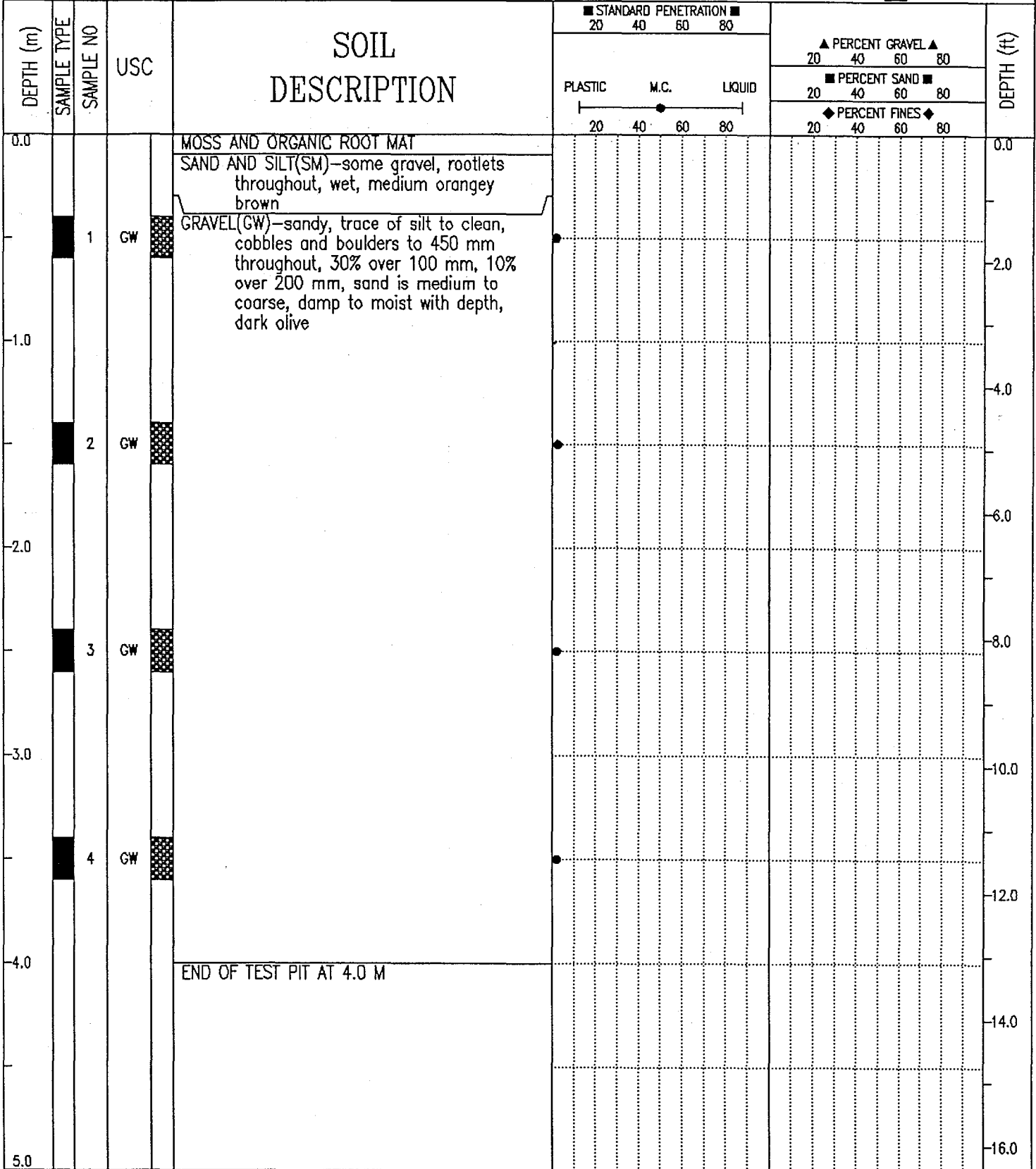
\_\_\_\_\_

SIEVE	PERCENTAGE PASSING
2"	100
1 1/2"	65
1"	45
3/4"	41
1/2"	35
3/8"	32
No. 4	23
No. 10	14
No. 20	8
No. 40	5
No. 60	4
No. 100	3
No. 200	3

CLAY	SILT	SAND			GRAVEL	
		FINE	MEDIUM	COARSE	FINE	COARSE

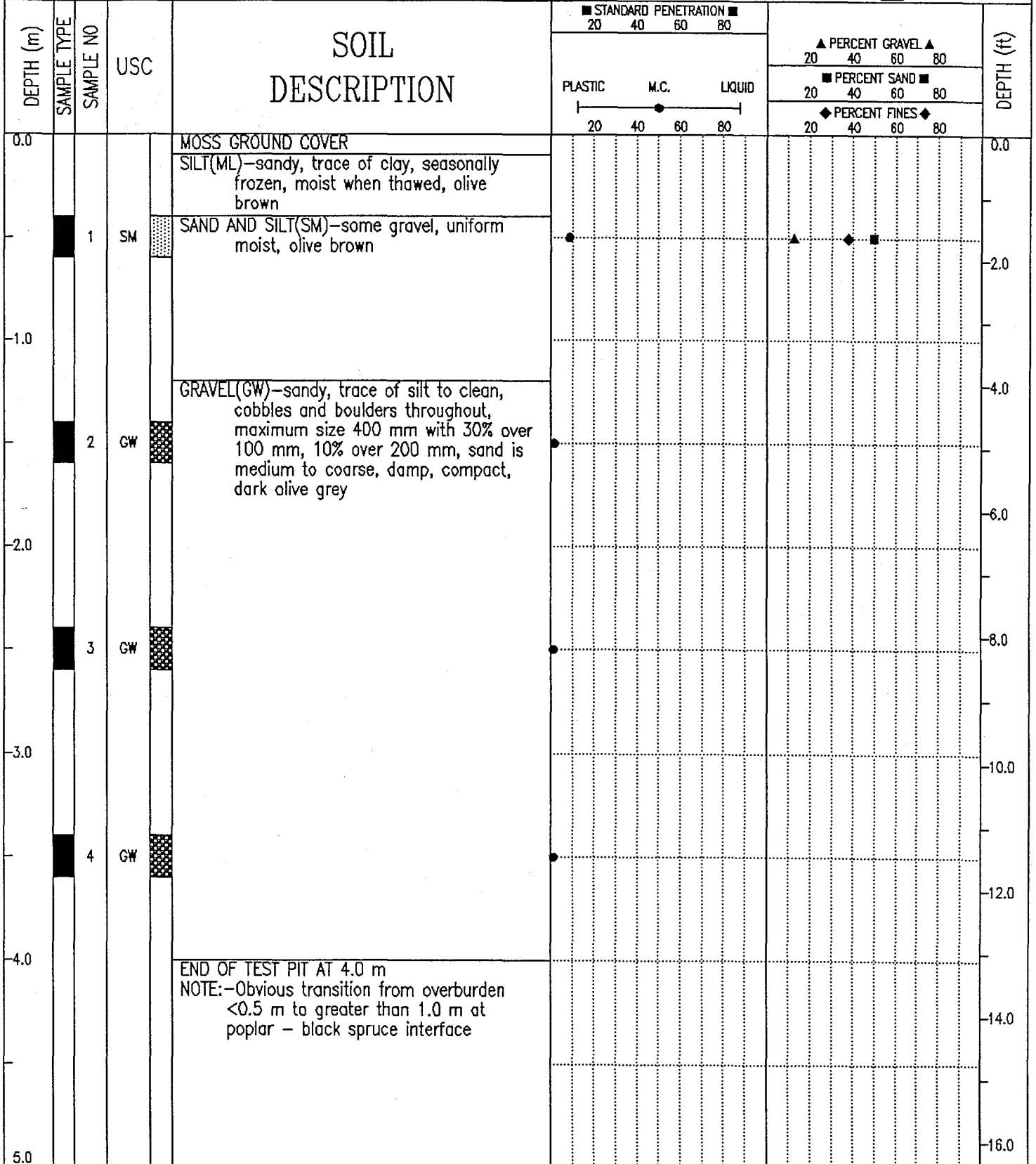


GRANULAR SOURCE INVESTIGATION	CLIENT: YTG-TRANS. ENG. BRANCH	BOREHOLE No. 90-122
km 14 to km 245	DRILL RIG: KOEHRING BANTAM	Project No: 0201-10312
km 27.2 Dempster Highway	UTM ZONE: 7 N7117820.00 E619500.00	ELEVATION 0.00 (m)
SAMPLE TYPE <input checked="" type="checkbox"/> GRAB SAMPLE <input checked="" type="checkbox"/> NO RECOVERY <input checked="" type="checkbox"/> STANDARD PEN. <input type="checkbox"/> 75 mm SPOON <input type="checkbox"/> 75 mm CRREL <input type="checkbox"/> 100 mm CRREL		



EBA Engineering Consultants Ltd. Whitehorse, Yukon		COMPLETION DEPTH 4.0 m	COMPLETE 90/05/04
LOGGED BY MCP	DWG NO.	Page 1 of 1	

GRANULAR SOURCE INVESTIGATION	CLIENT: YTG-TRANS. ENG. BRANCH	BOREHOLE No. 90-123
km 14 to km 245	DRILL RIG: KOEHRING BANTAM	Project No: 0201-10312
km 27.2 Dempster Highway	UTM ZONE: 7 N7117910.00 E619700.00	ELEVATION 0.00 (m)
SAMPLE TYPE <input checked="" type="checkbox"/> GRAB SAMPLE <input type="checkbox"/> NO RECOVERY <input checked="" type="checkbox"/> STANDARD PEN. <input type="checkbox"/> 75 mm SPOON <input type="checkbox"/> 75 mm CRREL <input type="checkbox"/> 100 mm CRREL		



EBA Engineering Consultants Ltd. Whitehorse, Yukon	COMPLETION DEPTH 4.0 m	COMPLETE 90/05/04
	LOGGED BY MCP	DWG NO.
		Page 1 of 1

# EBA Engineering Consultants Ltd.

## PARTICLE - SIZE ANALYSIS OF SOILS

Project: Granular Source Investigation  
Dempster Highway, Yukon

Project Number: 0201-10312

Date Tested: 1990-05-18

Borehole Number: 90-123

Depth: 0.5 m

Soil Description: SAND AND SILT(SM)-some gravel

Cu: \_\_\_\_\_

Cc: \_\_\_\_\_

Natural Moisture Content: \_\_\_\_\_ %

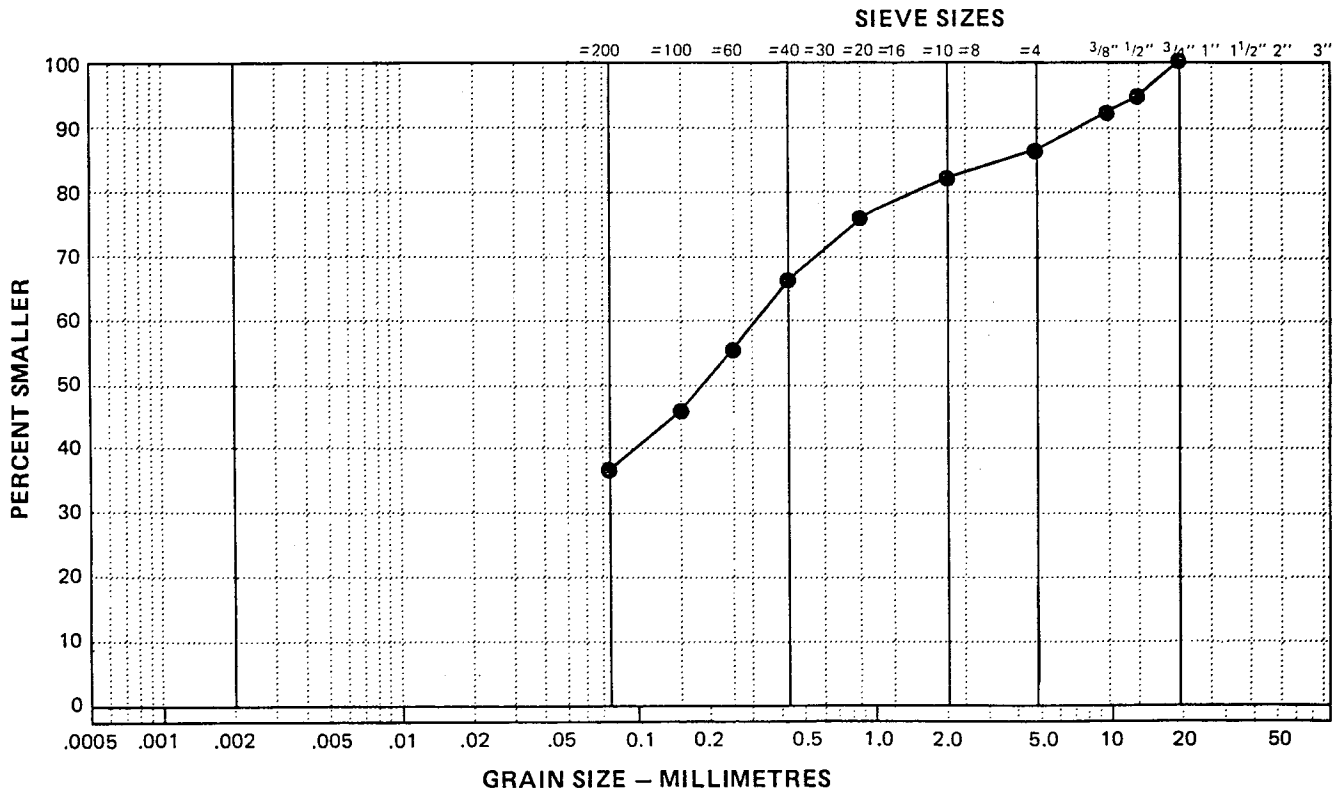
Remarks: \_\_\_\_\_

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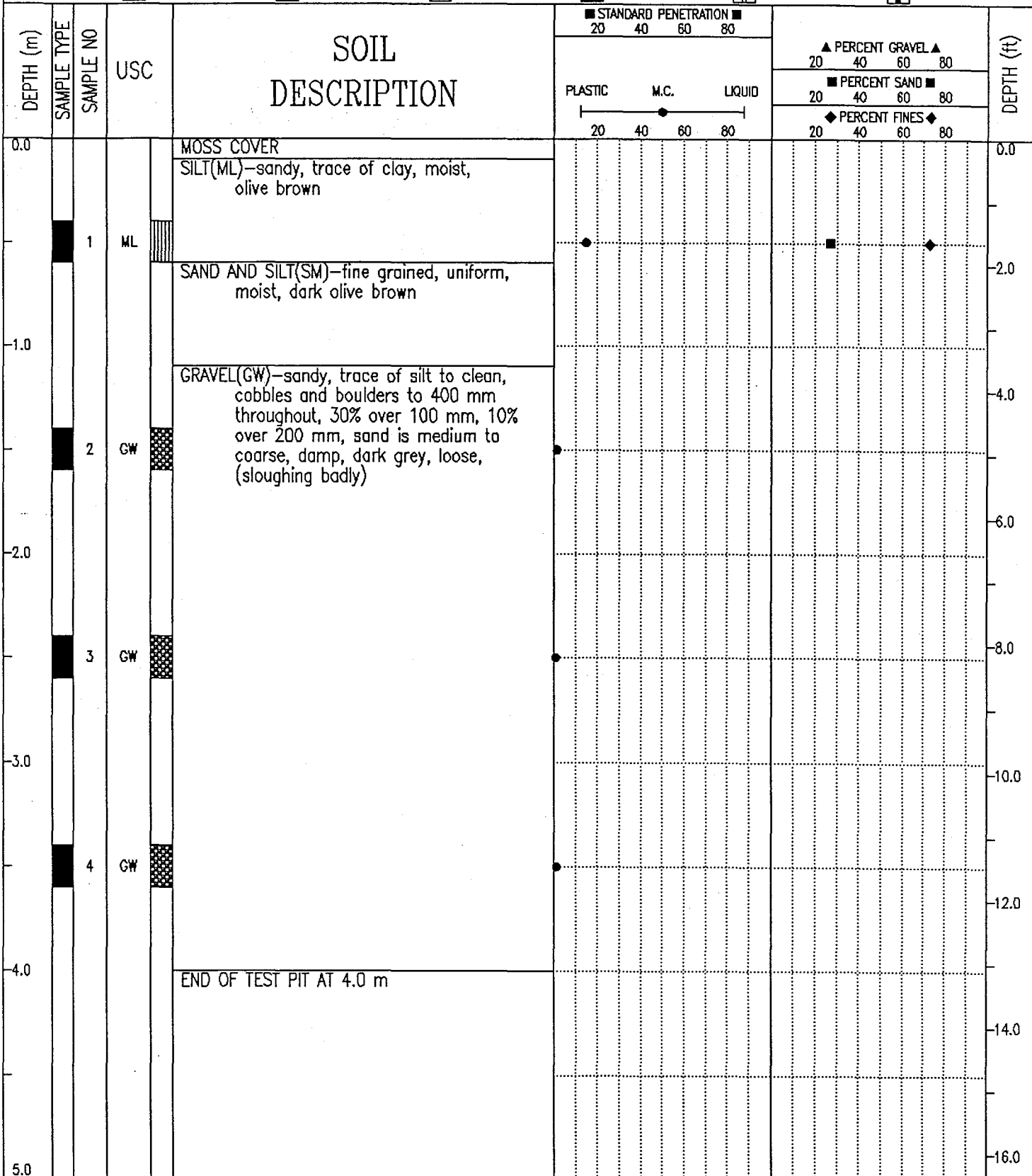
\_\_\_\_\_

SIEVE	PERCENTAGE PASSING
3"	
1 1/2"	
1"	
3/4"	100
1/2"	95
3/8"	93
No. 4	88
No. 10	82
No. 20	77
No. 40	68
No. 60	56
No. 100	47
No. 200	38

CLAY	SILT	SAND			GRAVEL	
		FINE	MEDIUM	COARSE	FINE	COARSE



GRANULAR SOURCE INVESTIGATION	CLIENT: YTG-TRANS. ENG. BRANCH	BOREHOLE No. 90-124
km 14 to km 245	DRILL RIG: KOEHRING BANTAM	Project No: 0201-10312
km 27.2 Dempster Highway	UTM ZONE: 7 N7117800.00 E619690.00	ELEVATION 0.00 (m)
SAMPLE TYPE	<input checked="" type="checkbox"/> GRAB SAMPLE	<input type="checkbox"/> NO RECOVERY
	<input checked="" type="checkbox"/> STANDARD PEN.	<input type="checkbox"/> 75 mm SPOON
	<input type="checkbox"/> 75 mm CRREL	<input type="checkbox"/> 100 mm CRREL



EBA Engineering Consultants Ltd.  
Whitehorse, Yukon

COMPLETION DEPTH 4.0 m

COMPLETE 90/05/04

LOGGED BY MCP

DWG NO.

Page 1 of 1

## PARTICLE - SIZE ANALYSIS OF SOILS

Project: Granular Source Investigation  
Dempster Highway, Yukon

Project Number: 0201-10312

Date Tested: 1990-05-20

Borehole Number: 90-124

Depth: 0.5 m

Soil Description: SILT(ML)-sandy, trace of clay

Cu: \_\_\_\_\_

Cc: \_\_\_\_\_

Natural Moisture Content: \_\_\_\_\_ %

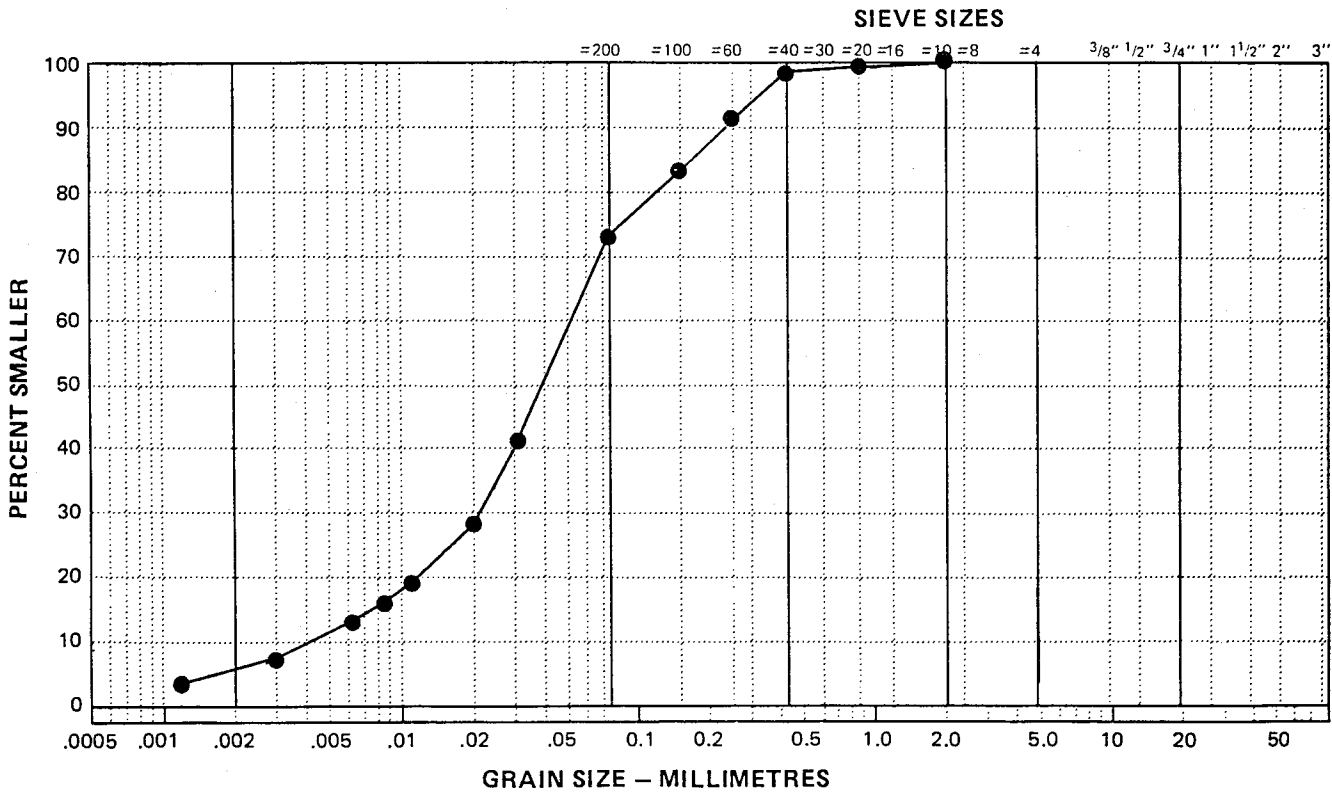
Remarks: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

SIEVE	PERCENTAGE PASSING
3"	
1 1/2"	
1"	
3/4"	
1/2"	
3/8"	
No. 4	
No. 10	100
No. 20	99.2
No. 40	97.0
No. 60	91.8
No. 100	84.3
No. 200	73.0

CLAY	SILT	SAND			GRAVEL	
		FINE	MEDIUM	COARSE	FINE	COARSE





90-118



90-119



90-119



90-120



90-121



90-122



90-123



90-124

DEMPSTER HIGHWAY CORRIDOR (YT/NWT)  
GRANULAR RESOURCES DATABASE  
SOURCE CATALOGUE DATA SHEET

-----  
PART A: LOCATION AND STATUS  
-----

SOURCE NUMBER : 0026.7R STUDY NO. : DHC-056  
NTS MAP REFERENCE : 116B/2 DIGITIZ NO: MAP SCALE : 1:50000  
UTM ZONE-EASTING : 7-619340 LOCATION : 2.4 km N of Glacier Creek  
UTM NORTHING : 7117180  
LOCAL NAME(S) : None  
CORRIDOR NO./NAME : 05-Dempster Highway  
KILOMETRE POST : 26.7 OFFSET(m) : 200-R

SOURCE ACCESS : Fair to Good  
ACCESS DISTANCE (m): 200 CONDITION : Unknown  
AREA (ha) : 12 SITE SCALE: 1:n/a DIGITIZ NO:

LAND TENURE : Territorial STATUS : Unknown  
PAST USE - SOURCE : Unknown STOCKPILE - TYPE : None  
PERFORMANCE RATING : Unknown - QUANTITY : n/a

-----  
PART B: SOURCE INVESTIGATION AND DESCRIPTIVE INFORMATION  
-----

INVESTIGATION LEVEL: Delineation c/w Backhoe LAST INVEST DATE : 1990  
GEOPHYSICAL DATA : None TEST HOLE DENSITY (#/ha): 0.8  
BOREHOLES - NUMBER : 0 TEST PITS - NO. : 11 EXPOSURES - NO. : 0  
- DEPTH (m) : n/a - DEPTH (m): 2.7-3.3-4.0 - DEPTH (m) : n/a  
DATA QUALITY : Fair  
SOURCE TOPOGRAPHY : Fairly Flat SLOPE: Gentle to the East  
AREA DRAINAGE : Good  
SOURCE VEGETATION : Poplars at pit, Black Spruce Towards River  
PERMAFROST FEATURES: None  
ACTIVE LAYER (m) : n/a DESCRIPT. DATA : 07/04/90  
GENERIC ORIGIN : Alluvial LANDFORM(S) : Alluvial Fan  
GRANULAR - TYPE : GRAVEL(GW) OVERBURDEN-TYPE : SILT/SILT AND SAND  
- THICKNESS (m) : 2.4-3.3-4.0 - THICKNESS (m): 0.0-0.4-1.1  
UNDERBURDEN : Unknown  
DEVELOP. CONSTRAINT: Land Claim Selection-(Dawson Band S-80)  
DEVELOP. POTENTIAL : Excellent

-----  
PART C: TEST RESULTS AND MATERIAL QUANTITY  
-----

USC - NUMBER : 3 MOISTURE CONTENT-NUMBER : 28  
CLASS : GW/ML/SM -RESULTS: n/a  
SIZE ANALYSIS-NO. : 5 GRAVEL (%) : 68-UN-79 SAND (%) : 19-UN-29 FINES (%) : 1-UN-3  
- OVERSIZE (%) : 0 D-50 (um) : 0

PETROGRAPHIC ANALYSIS-NO. OF TESTS: 0 RESULTS: n/a

OTHER TESTS (see the DATA DICTIONARY) : TRIAL CRUSH - No:3 G:58-59-60 S:36-37-37 F:4-5-5

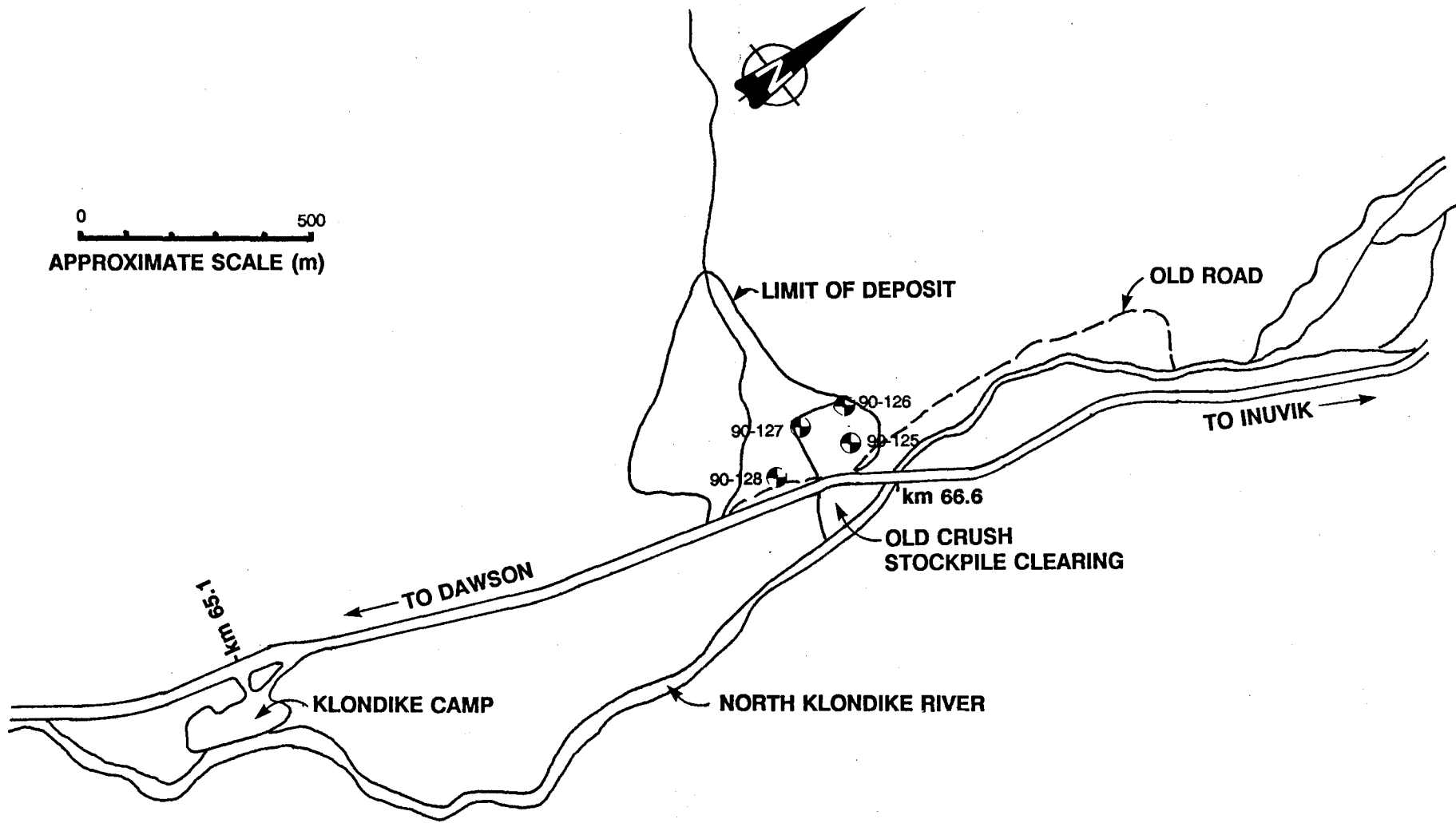
MATERIAL QUANTITY (All in cubic metres) CLASS 1: 175,000  
CLASS 2: 100,000  
TOTAL RECOVERABLE : 350,000 CLASS 3: 75,000  
ANNUAL RECOVERABLE : Unknown CLASS 4: Unknown  
CLASS 5: Unknown  
TOTAL VOLUME: 350,000

-----  
RECORD UPDATED BY : EBA Engineering Consultants Ltd.  
LAST UPDATE : 07/04/90

EBA PROJECT NUMBER : 0201-4989

**APPENDIX C**

0 500  
 APPROXIMATE SCALE (m)



**EBA Engineering Consultants Ltd.**

PROJECT **GRANULAR SOURCE INVESTIGATIONS**

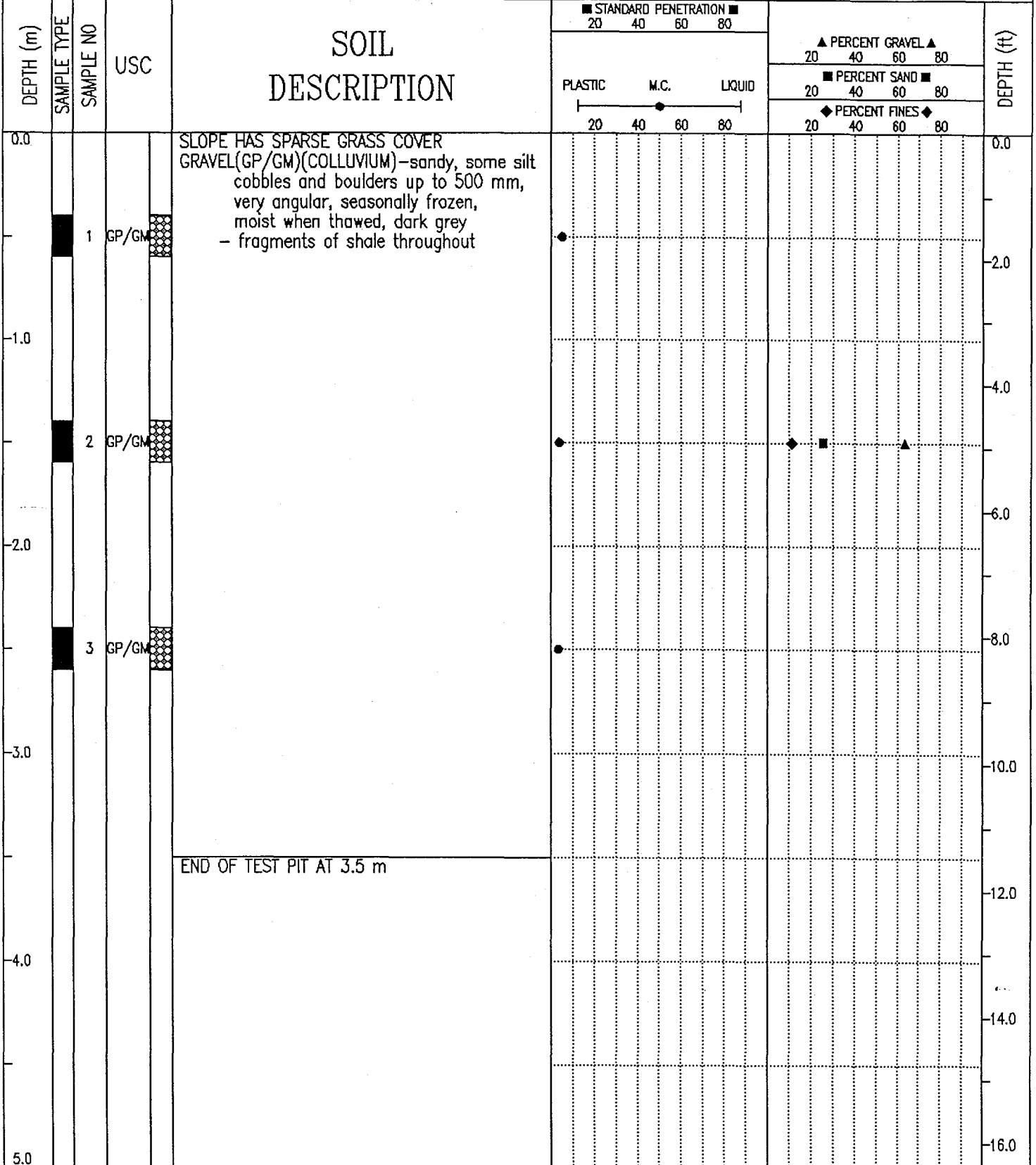
CLIENT  
**GOVERNMENT OF YUKON**

TITLE  
**APPROXIMATE TEST PIT LOCATIONS  
 km 66.5 - DEMPSTER HIGHWAY**

DATE	90-06-02	DWN	MCP	CHKD	DWG NO.	10312-03	0201-10312
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APRC

GRANULAR SOURCE INVESTIGATION	CLIENT: YTG-TRANS. ENG. BRANCH	BOREHOLE No. 90-125
km 14 to km 245	DRILL RIG: KOEHRING BANTAM	Project No: 0201-10312
km 66.5 Dempster Highway	UTM ZONE: 7 N7151675.00 E634360.00	ELEVATION 0.00 (m)
SAMPLE TYPE	<input checked="" type="checkbox"/> GRAB SAMPLE	<input type="checkbox"/> NO RECOVERY
	<input checked="" type="checkbox"/> STANDARD PEN.	<input type="checkbox"/> 75 mm SPOON
	<input type="checkbox"/> 75 mm CRREL	<input type="checkbox"/> 100 mm CRREL



## PARTICLE - SIZE ANALYSIS OF SOILS

Project: Granular Source Investigation  
Dempster Highway, Yukon

Project Number: 0201-10312

Date Tested: 1990-05-20

Borehole Number: 90-125

Depth: 1.5 m

Soil Description: GRAVEL (GP/GM)-sandy, some silt

Cu: 62.5

Cc: 7.84

Natural Moisture Content: \_\_\_\_\_ %

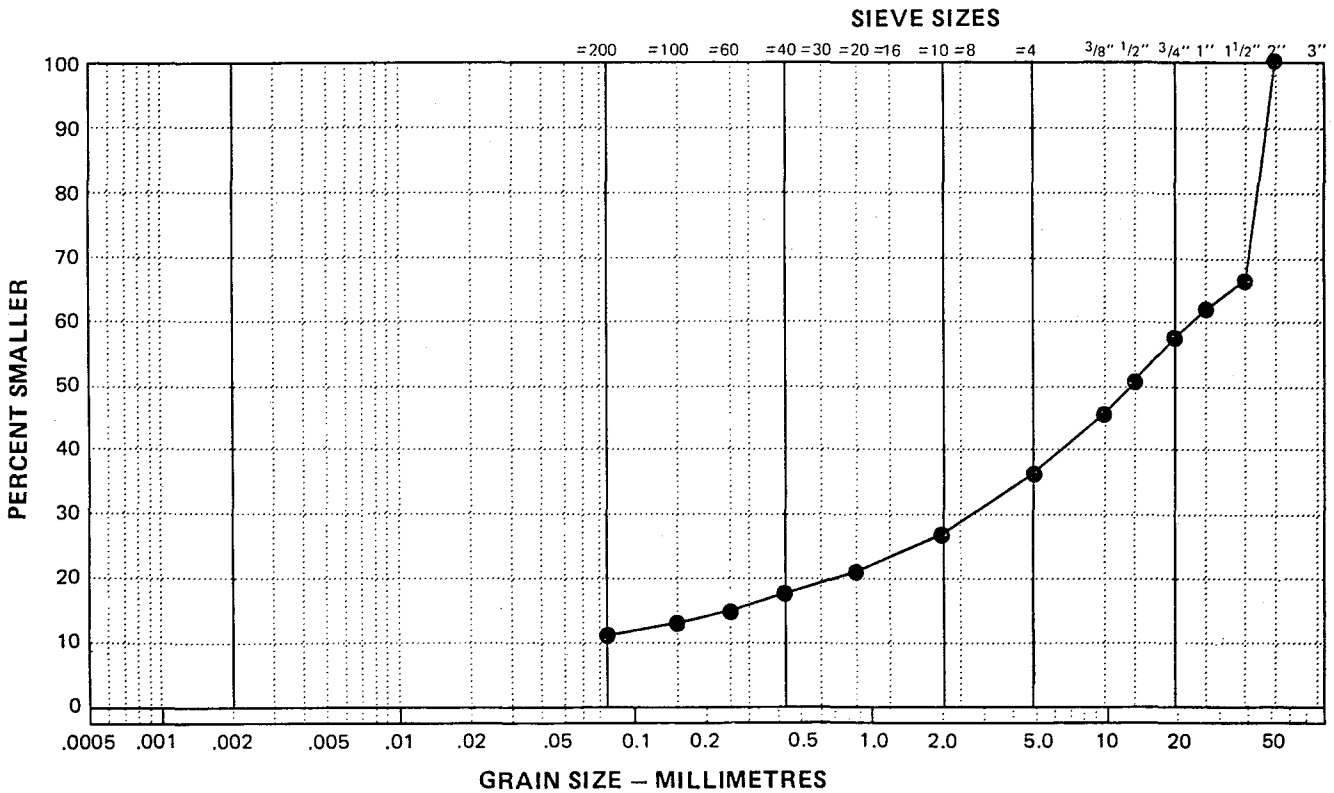
Remarks: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

SIEVE	PERCENTAGE PASSING
2"	100
1 1/2"	67
1"	63
3/4"	58
1/2"	50
3/8"	46
No. 4	37
No. 10	28
No. 20	22
No. 40	17
No. 60	15
No. 100	13
No. 200	11

CLAY	SILT	SAND			GRAVEL	
		FINE	MEDIUM	COARSE	FINE	COARSE



GRANULAR SOURCE INVESTIGATION		CLIENT: YTG-TRANS. ENG. BRANCH		BOREHOLE No. 90-126	
km 14 to km 245		DRILL RIG: KOEHRING BANTAM		Project No: 0201-10312	
km 66.5 Dempster Highway		UTM ZONE: 7 N7151660.00 E634260.00		ELEVATION 0.00 (m)	
SAMPLE TYPE <input checked="" type="checkbox"/> GRAB SAMPLE		<input type="checkbox"/> NO RECOVERY		<input checked="" type="checkbox"/> STANDARD PEN.	
		<input type="checkbox"/> 75 mm SPOON		<input type="checkbox"/> 75 mm CRREL	
				<input type="checkbox"/> 100 mm CRREL	

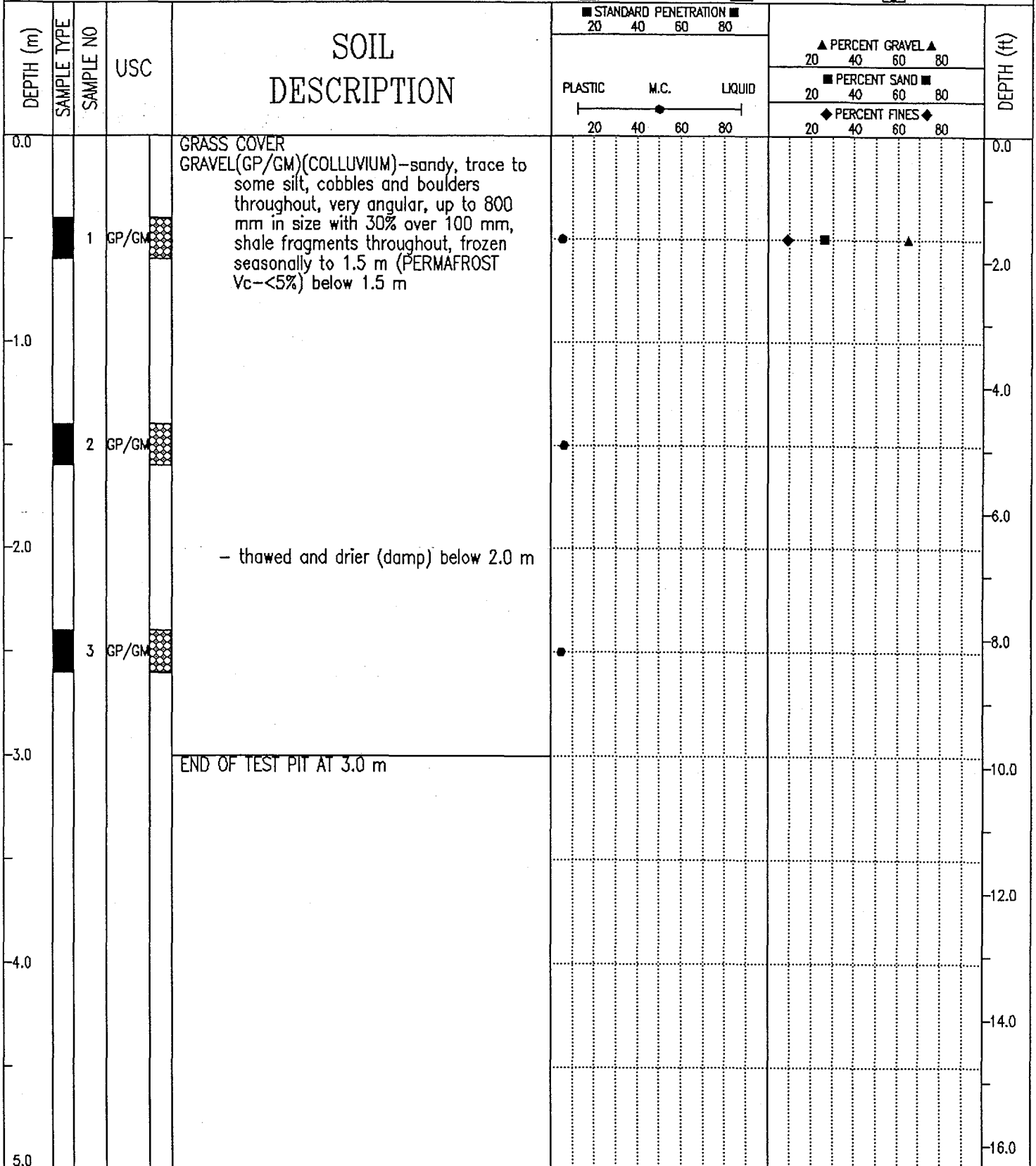
  

DEPTH (m)	SAMPLE TYPE	SAMPLE NO	USC	SOIL DESCRIPTION	STANDARD PENETRATION		PERCENT GRAVEL		PERCENT SAND		PERCENT FINES		DEPTH (ft)
					20	40	60	80	20	40	60	80	
0.0				GRASS COVER (SPARSE) GRAVEL(GP/GM)(COLLUVIUM)-sandy, some silt cobbles and boulders throughout up to 500 mm maximum, 20% over 100 mm, very angular (shale fragments), seasonally frozen, moist when thawed, dark grey									0.0
		1	GP/GM										2.0
-1.0				- PERMAFROST Vr, Vc-5% below 1.0 m									4.0
		2	GP/GM										6.0
-2.0													8.0
		3	GP/GM										10.0
-3.0				END OF TEST PIT AT 3.0 m									12.0
													14.0
-4.0													16.0
													18.0
-5.0													20.0

EBA Engineering Consultants Ltd. Whitehorse, Yukon		COMPLETION DEPTH 3.0 m	COMPLETE 90/05/05
LOGGED BY MCP	DWG NO.	Page 1 of 1	

GRANULAR SOURCE INVESTIGATION	CLIENT: YTG--TRANS. ENG. BRANCH	BOREHOLE No. 90-127
km 14 to km 245	DRILL RIG: KOEHRING BANTAM	Project No: 0201-10312
km 66.5 Dempster Highway	UTM ZONE: 7 N7151480.00 E634230.00	ELEVATION 0.00 (m)
SAMPLE TYPE <input checked="" type="checkbox"/> GRAB SAMPLE <input checked="" type="checkbox"/> NO RECOVERY <input checked="" type="checkbox"/> STANDARD PEN. <input type="checkbox"/> 75 mm SPOON <input type="checkbox"/> 75 mm CRREL <input type="checkbox"/> 100 mm CRREL		



EBA Engineering Consultants Ltd. Whitehorse, Yukon	COMPLETION DEPTH 3.0 m	COMPLETE 90/05/05
	LOGGED BY MCP	DWG NO.

# EBA Engineering Consultants Ltd.

## PARTICLE - SIZE ANALYSIS OF SOILS

Project: Granular Source Investigation  
 Dempster Highway, Yukon

Project Number: 0201-10312

Date Tested: 1990-05-18

Borehole Number: 90-127

Depth: 2.5 m

Soil Description: GRAVEL(GM/GP)-sandy, trace of silt

Cu: 23.0

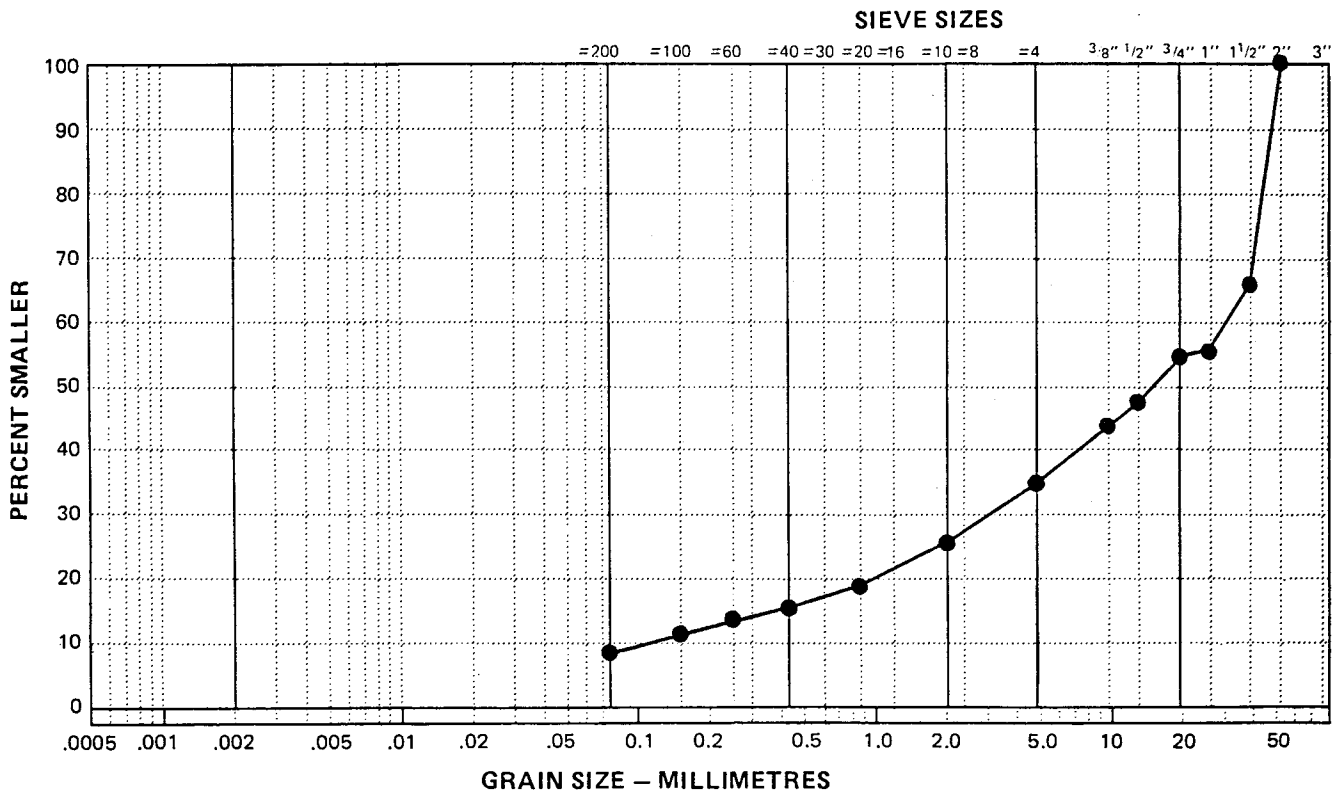
Cc: 0.4

Natural Moisture Content: \_\_\_\_\_ %

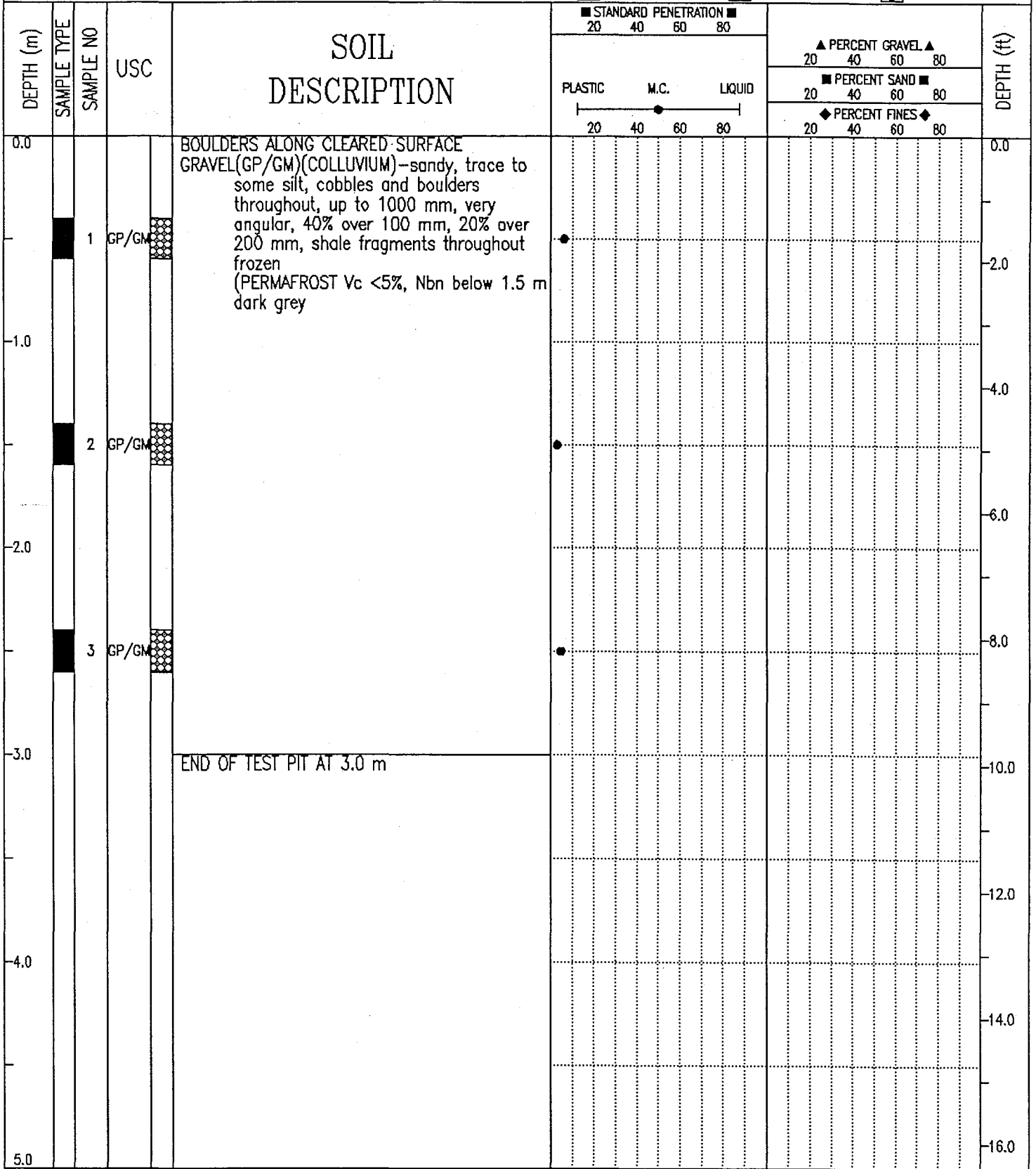
Remarks: \_\_\_\_\_

SIEVE	PERCENTAGE PASSING
2"	100
1 1/2"	67
1"	57
3/4"	55
1/2"	48
3/8"	44
No. 4	35
No. 10	26
No. 20	20
No. 40	16
No. 60	13
No. 100	11
No. 200	9

CLAY	SILT	SAND			GRAVEL	
		FINE	MEDIUM	COARSE	FINE	COARSE



GRANULAR SOURCE INVESTIGATION	CLIENT: YTG-TRANS. ENG. BRANCH	BOREHOLE No. 90-128
km 14 to km 245	DRILL RIG: KOEHRING BANTAM	Project No: 0201-10312
km 66.5 Dempster Highway	UTM ZONE: 7 N7151400.00 E634300.00	ELEVATION 0.00 (m)
SAMPLE TYPE <input checked="" type="checkbox"/> GRAB SAMPLE <input checked="" type="checkbox"/> NO RECOVERY <input checked="" type="checkbox"/> STANDARD PEN.	<input checked="" type="checkbox"/> 75 mm SPOON	<input type="checkbox"/> 75 mm CRREL <input type="checkbox"/> 100 mm CRREL





90-125

CREEK BED EXPOSURE (TOP OF DEPOSIT)

NORTH EDGE OF DEPOSIT



90-126



90-127



90-127



90-128



EXPOSURE ABOVE HIGHWAY



DEMPSTER HIGHWAY CORRIDOR (YT/NWT)  
GRANULAR RESOURCES DATABASE  
SOURCE CATALOGUE DATA SHEET

-----  
PART A: LOCATION AND STATUS  
-----

SOURCE NUMBER : 0066.6B STUDY NO. : DHC-008;DHC-042  
NTS MAP REFERENCE : 116B/8 DIGITIZ NO: MAP SCALE : 1:50000  
UTM ZONE-EASTING : 7-634500 LOCATION : 1.5 km N of Klondike Camp  
UTM NORTHING : 7151500  
LOCAL NAME(S) : North Klondike River  
CORRIDOR NO./NAME : 05-Dempster Highway  
KILOMETRE POST : 66.6 OFFSET(m) : L

SOURCE ACCESS : Along Highway  
ACCESS DISTANCE (m): 0 CONDITION : Unknown  
AREA (ha) : 10 SITE SCALE: 1:n/a DIGITIZ NO:

LAND TENURE : Territorial STATUS : Unknown  
PAST USE - SOURCE : Borrow, Crush Gravel-Surfacing STOCKPILE - TYPE : Crushed Surfacing  
PERFORMANCE RATING : Fair to Good - QUANTITY : Depleted

-----  
PART B: SOURCE INVESTIGATION AND DESCRIPTIVE INFORMATION  
-----

INVESTIGATION LEVEL: Expl.Drilling/Delineation LAST INVEST DATE : 1990  
GEOPHYSICAL DATA : None TEST HOLE DENSITY (#/ha): 1.7  
BOREHOLES - NUMBER : 13 TEST PITS - NO. : 4 EXPOSURES - NO. : 2  
- DEPTH (m) : 2.5-UN-18.0 - DEPTH (m) : 3.0-3.2-3.5 - DEPTH (m) : 4.0-UN-6.0  
DATA QUALITY : Good  
SOURCE TOPOGRAPHY : Hillside SLOPE: Moderate to Steep  
AREA DRAINAGE : Fair  
SOURCE VEGETATION : Grass Ground Cover With Shrubs  
PERMAFROST FEATURES: Visible Ice  
ACTIVE LAYER (m) : Unknown DESCRIPT. DATA : 07/04/90  
GENERIC ORIGIN : Colluvial LANDFORM(S) : Slope Wash  
GRANULAR - TYPE : SAND AND GRAVEL-some silt OVERBURDEN-TYPE : ORGANICS AND SILT  
- THICKNESS (m) : 1.2-6.8-18.7 - THICKNESS (m): 0.0-UN-0.9  
UNDERBURDEN : SILT

DEVELOP. CONSTRAINT: Permafrost, Very Coarse and Angular  
DEVELOP. POTENTIAL : Good

-----  
PART C: TEST RESULTS AND MATERIAL QUANTITY  
-----

USC - NUMBER : 28 MOISTURE CONTENT-NUMBER : 37  
CLASS : SM/SM/GW-GM/GP-GM -RESULTS: 6-UN-65  
SIZE ANALYSIS-NO. : 28 GRAVEL (%) : 4-UN-99 SAND (%) : 1-UN-88 FINES (%) : 7-UN-43  
- OVERSIZE (%) : 0 D-50 (um) : 0

PETROGRAPHIC ANALYSIS-NO. OF TESTS: 0 RESULTS: n/a

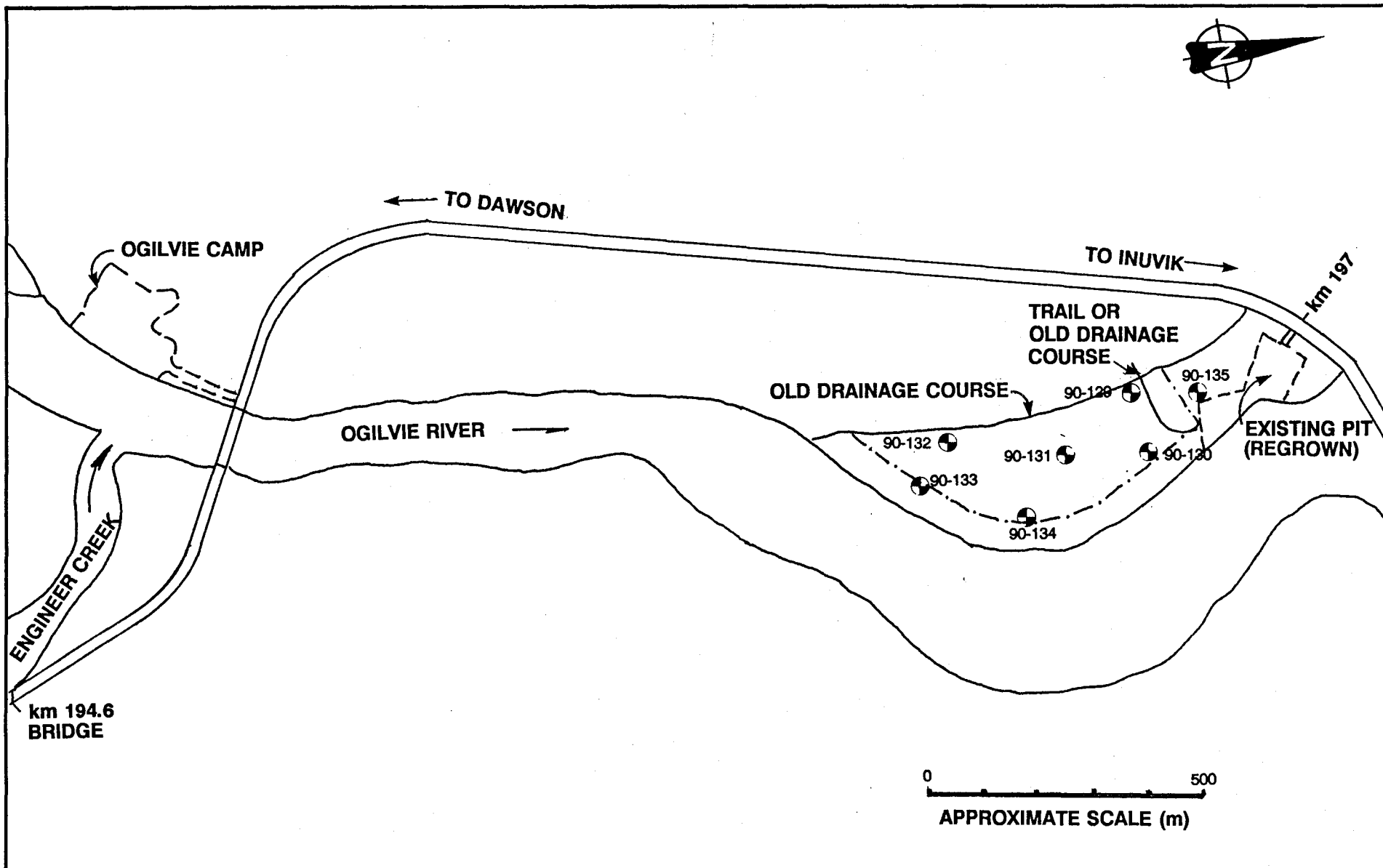
OTHER TESTS (see the DATA DICTIONARY) : n/a

MATERIAL QUANTITY (All in cubic metres) CLASS 1: Unknown  
CLASS 2: 300,000  
TOTAL RECOVERABLE : 400,000 CLASS 3: 100,000  
ANNUAL RECOVERABLE : Unknown CLASS 4: Unknown  
CLASS 5: Unknown  
TOTAL VOLUME: 400,000

RECORD UPDATED BY : EBA Engineering Consultants Ltd.  
LAST UPDATE : 07/04/90

EBA PROJECT NUMBER : 0201-4989





**EBA Engineering Consultants Ltd.**

PROJECT

**GRANULAR SOURCE INVESTIGATIONS**

CLIENT

**GOVERNMENT OF YUKON**

TITLE

**APPROXIMATE TEST PIT LOCATIONS  
km 197 - DEMPSTER HIGHWAY**

DATE **90-06-02**

DWN **MCP**

CHKD

DWG NO. **10312-04**

**0201-10312**

0000

GRANULAR SOURCE INVESTIGATION		CLIENT: YTG-TRANS. ENG. BRANCH		BOREHOLE No. 90-129				
km 14 to km 245		DRILL RIG: KOEHRING BANTAM		Project No: 0201-10312				
km 197 Dempster Highway		UTM ZONE: 7 N7252895.00 E625880.00		ELEVATION 0.00 (m)				
SAMPLE TYPE		<input checked="" type="checkbox"/> GRAB SAMPLE	<input type="checkbox"/> NO RECOVERY	<input checked="" type="checkbox"/> STANDARD PEN.	<input type="checkbox"/> 75 mm SPOON	<input type="checkbox"/> 75 mm CRREL	<input type="checkbox"/> 100 mm CRREL	
DEPTH (m)	SAMPLE TYPE	SAMPLE NO	USC	SOIL DESCRIPTION	STANDARD PENETRATION			DEPTH (ft)
					20	40	60	
					PLASTIC M.C. LIQUID			
					20 40 60 80			
					PERCENT GRAVEL			
					20 40 60 80			
					PERCENT SAND			
					20 40 60 80			
					PERCENT FINES			
					20 40 60 80			
0.0				ORGANIC ROOT MAT				0.0
				SILT(ML)-sandy, trace of clay, fine grained, uniform, rootlets throughout, moist, dark grey				
	1		GP	GRAVEL(GP)-sandy, trace of silt, gravel is subrounded to 150 mm, 10% over 100 mm, sand is fine to medium grained, interbedded coarse and fine lenses, dry to damp, (PERMAFROST Vc, Nbn) below 0.8 m	●	◆	■	2.0
-1.0								
	2		GP		●			4.0
-2.0								
	3		GP		●			8.0
-3.0								
	4		GP		●			10.0
				- water level at 2.7 m upon completion				
				END OF TEST PIT AT 3.0 m				16.0
				NOTE:- Very hard to excavate				
				- Poplar vegetation throughout site				
5.0								

EBA Engineering Consultants Ltd.  
Whitehorse, Yukon

COMPLETION DEPTH 3.0 m

COMPLETE 90/05/05

LOGGED BY MCP

DWG NO.

Page 1 of 1

# EBA Engineering Consultants Ltd.

## PARTICLE - SIZE ANALYSIS OF SOILS

Project: Granular Source Investigation  
Dempster Highway, Yukon

Project Number: 0201-10312

Date Tested: 1990-05-18

Borehole Number: 90-129

Depth: 1.5 m

Soil Description: GRAVEL (GP)-sandy, trace of silt

Cu: 38

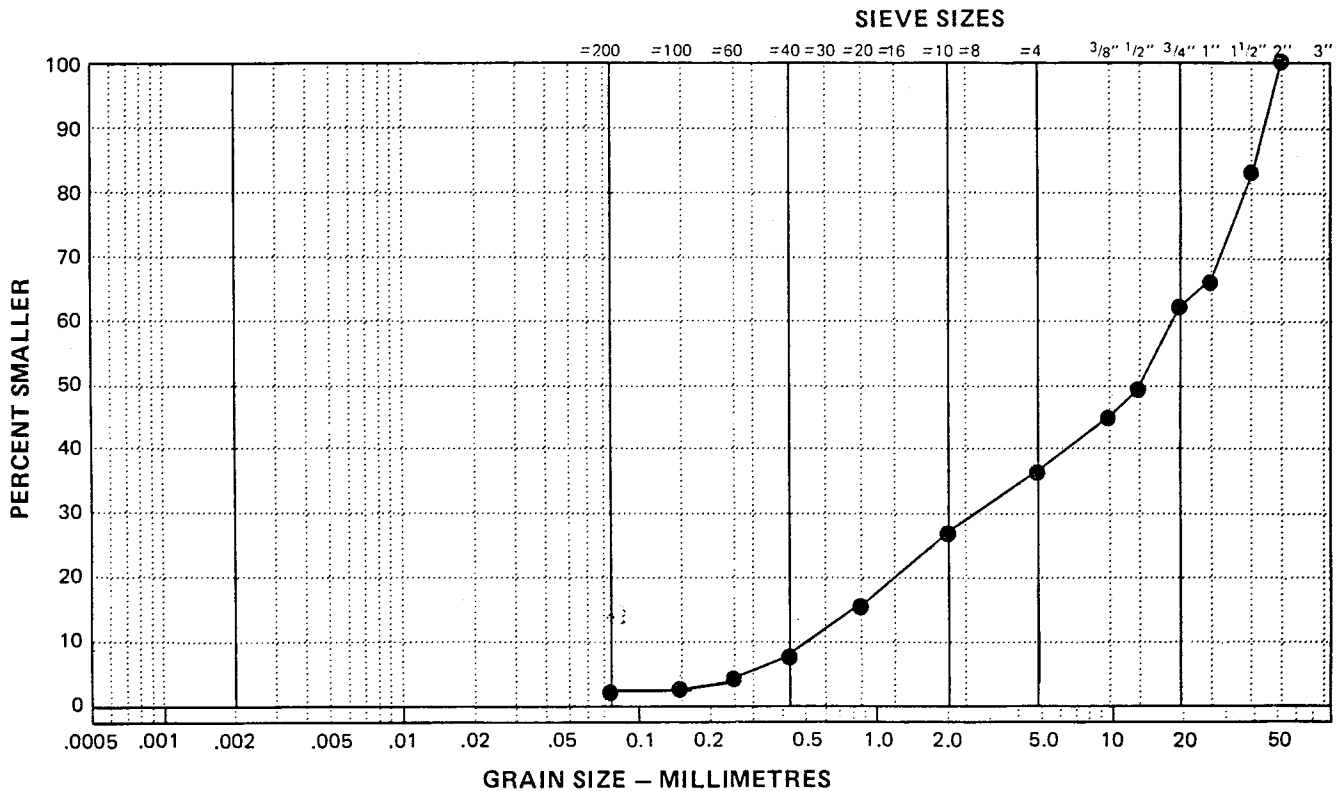
Cc: 0.7

Natural Moisture Content: \_\_\_\_\_ %

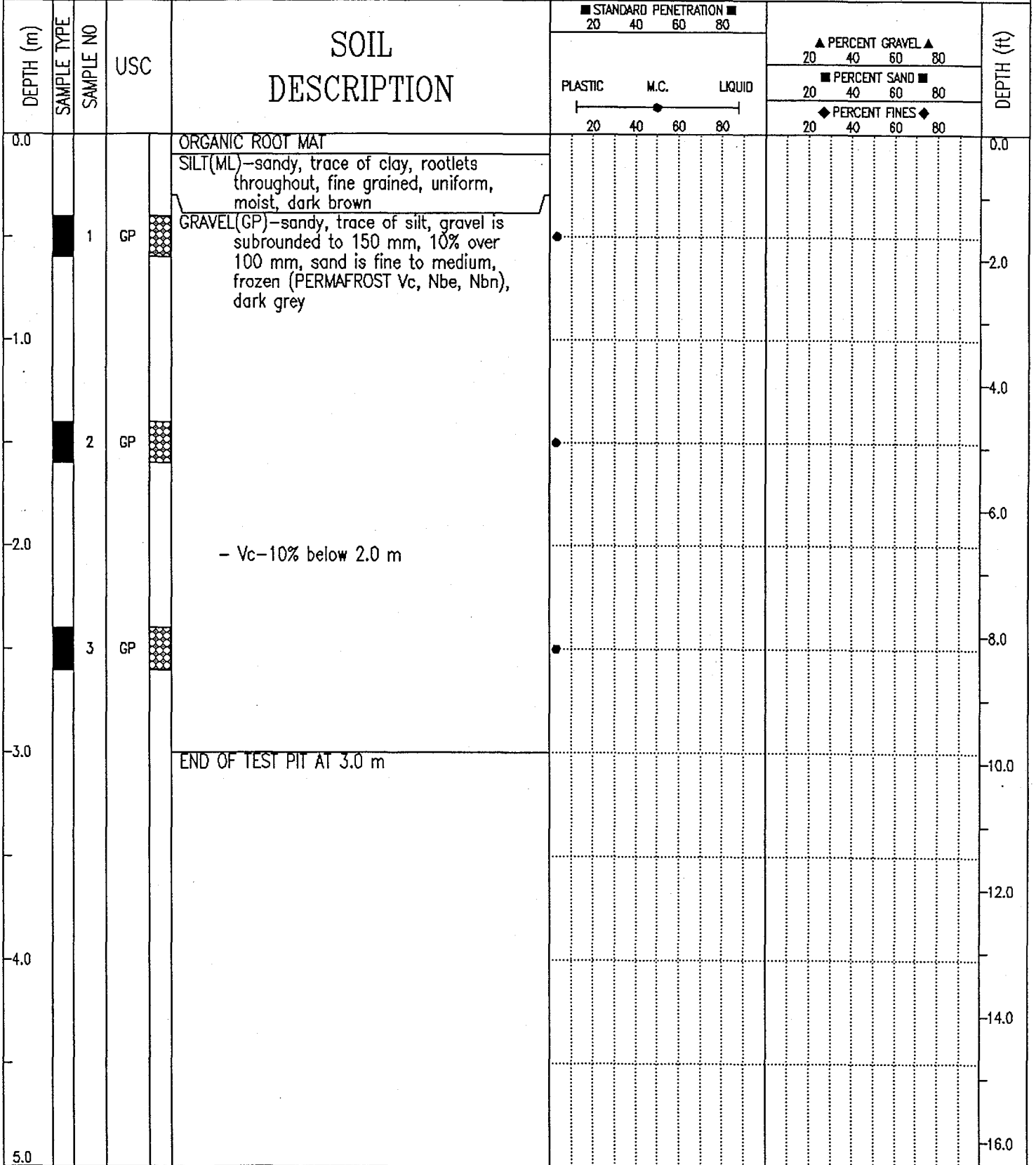
Remarks: \_\_\_\_\_

SIEVE	PERCENTAGE PASSING
2"	100
1 1/2"	83
1"	68
3/4"	60
1/2"	50
3/8"	45
No. 4	38
No. 10	27
No. 20	16
No. 40	8
No. 60	5
No. 100	3
No. 200	3

CLAY	SILT	SAND			GRAVEL	
		FINE	MEDIUM	COARSE	FINE	COARSE

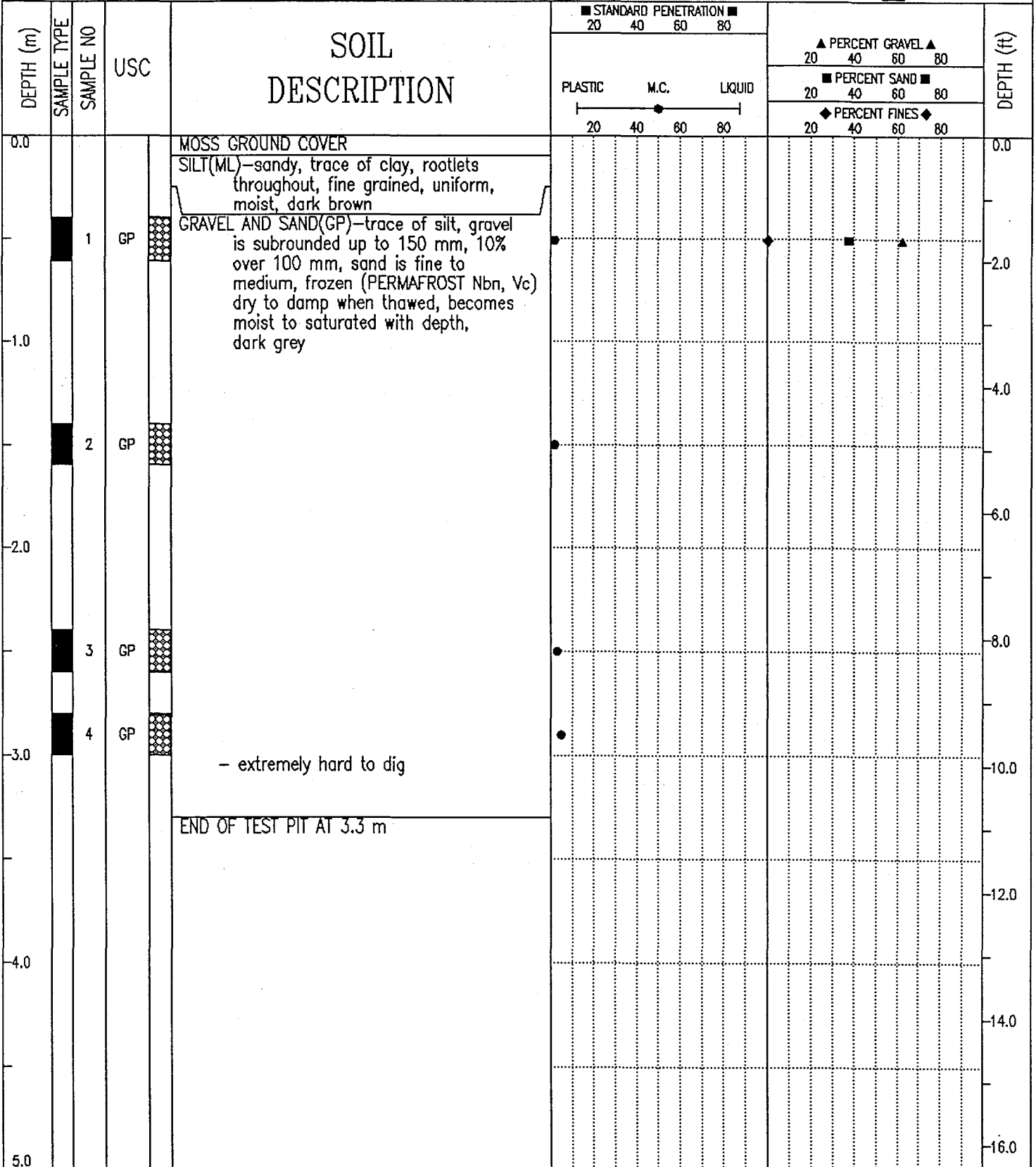


GRANULAR SOURCE INVESTIGATION		CLIENT: YTG-TRANS. ENG. BRANCH	BOREHOLE No. 90-130
km 14 to km 245		DRILL RIG: KOEHRING BANTAM	Project No: 0201-10312
km 197 Dempster Highway		UTM ZONE: 7 N7252900.00 E626040.00	ELEVATION 0.00 (m)
SAMPLE TYPE	<input checked="" type="checkbox"/> GRAB SAMPLE	<input type="checkbox"/> NO RECOVERY	<input checked="" type="checkbox"/> STANDARD PEN.
			<input type="checkbox"/> 75 mm SPOON
			<input type="checkbox"/> 75 mm CRREL
			<input type="checkbox"/> 100 mm CRREL



EBA Engineering Consultants Ltd. Whitehorse, Yukon		COMPLETION DEPTH 3.0 m	COMPLETE 90/05/05
LOGGED BY MCP	DWG NO.	Page 1 of 1	

GRANULAR SOURCE INVESTIGATION	CLIENT: YTG-TRANS. ENG. BRANCH	BOREHOLE No. 90-131
km 14 to km 245	DRILL RIG: KOEHRING BANTAM	Project No: 0201-10312
km 197 Dempster Highway	UTM ZONE: 7 N7252750.00 E626000.00	ELEVATION 0.00 (m)
SAMPLE TYPE <input checked="" type="checkbox"/> GRAB SAMPLE <input type="checkbox"/> NO RECOVERY <input checked="" type="checkbox"/> STANDARD PEN.	<input checked="" type="checkbox"/> 75 mm SPOON <input type="checkbox"/> 75 mm CRREL <input type="checkbox"/> 100 mm CRREL	



EBA Engineering Consultants Ltd. Whitehorse, Yukon	COMPLETION DEPTH 3.3 m	COMPLETE 90/05/05
	LOGGED BY MCP	DWG NO. <span style="float: right;">Page 1 of 1</span>

# EBA Engineering Consultants Ltd.

## PARTICLE - SIZE ANALYSIS OF SOILS

Project: Granular Source Investigation  
 Dempster Highway, Yukon

Project Number: 0201-10312

Date Tested: 1990-05-18

Borehole Number: 90-131

Depth: 0.5 m

Soil Description: GRAVEL AND SAND(GP) -trace of silt to clean

Cu: 35.0

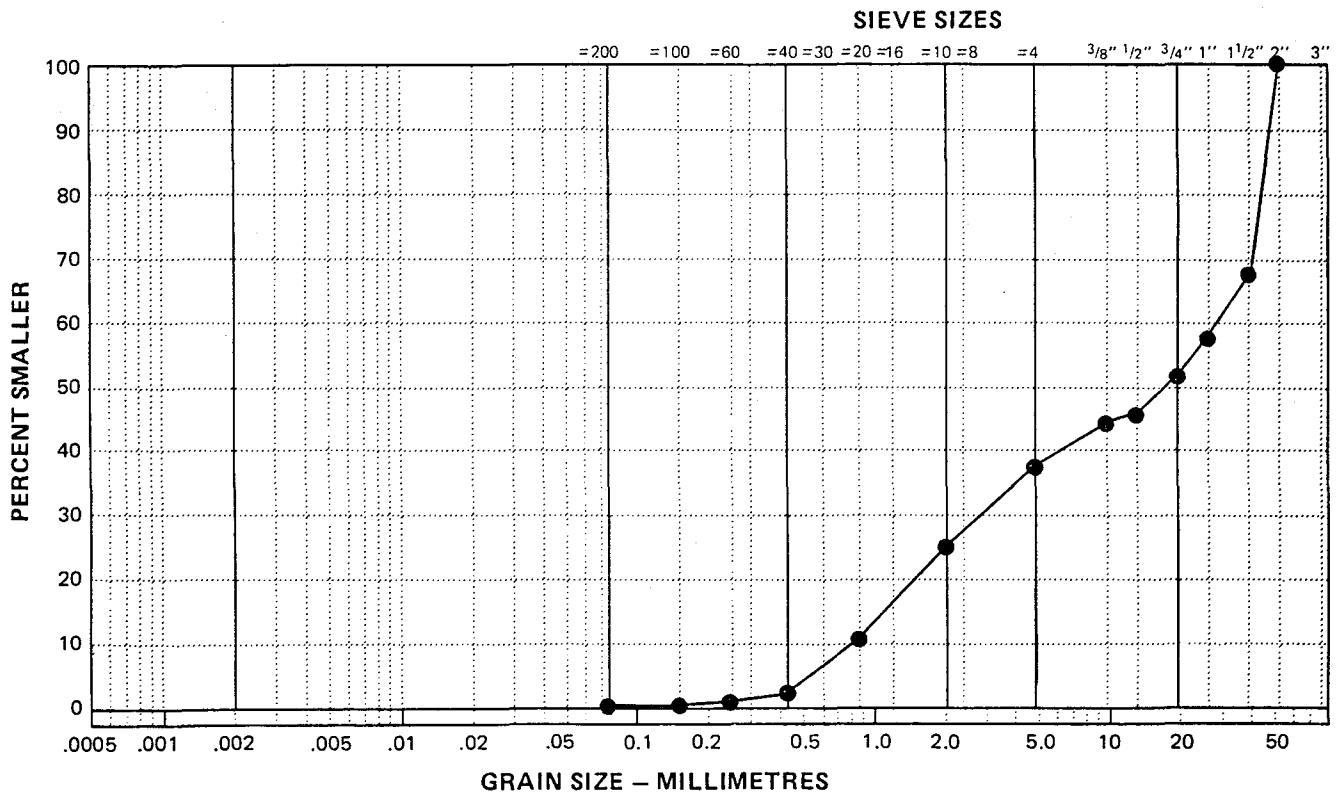
Cc: 0.4

Natural Moisture Content: \_\_\_\_\_ %

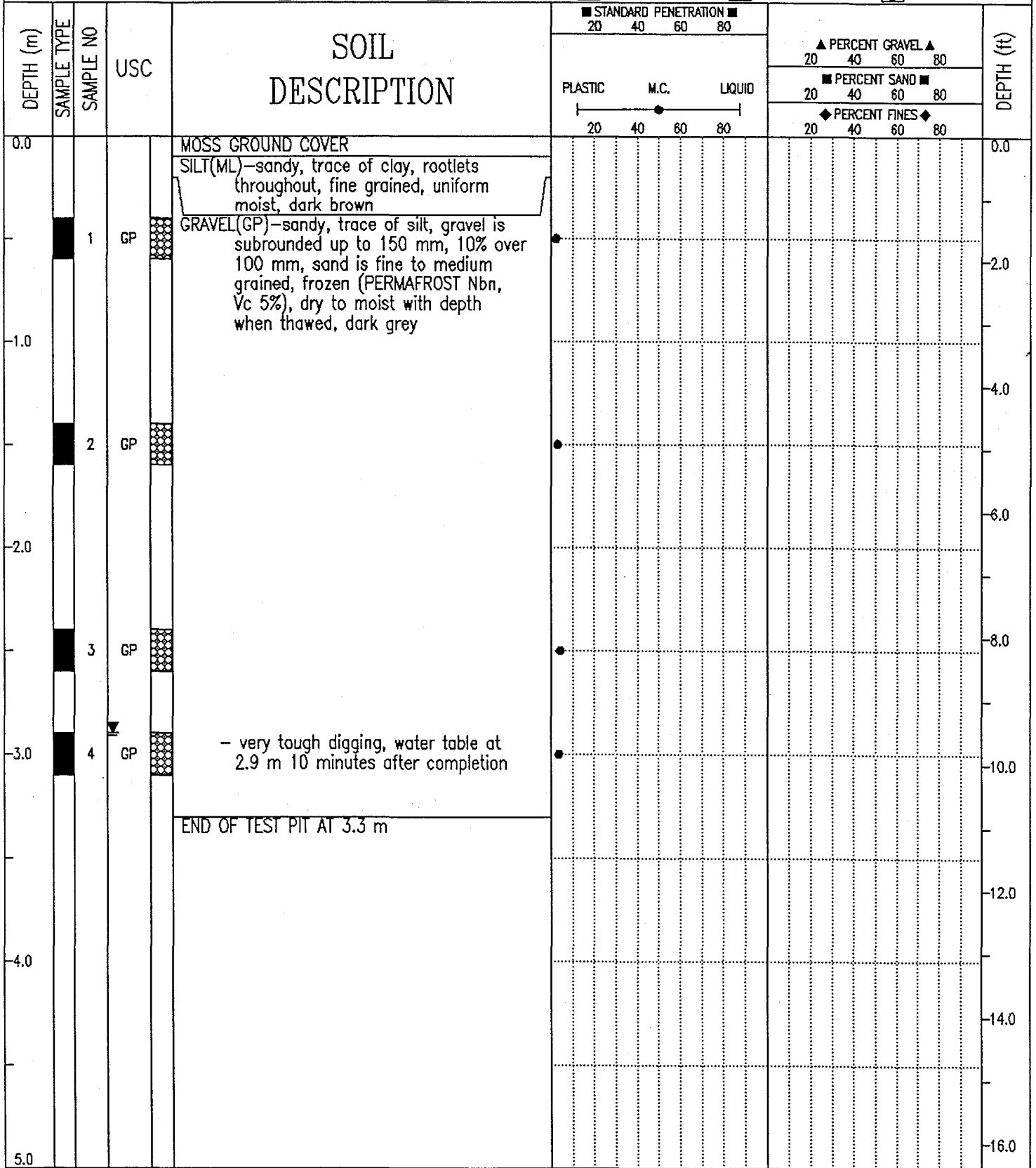
Remarks: \_\_\_\_\_

SIEVE	PERCENTAGE PASSING
2"	100
1 1/2"	69
1"	59
3/4"	52
1/2"	47
3/8"	45
No. 4	38
No. 10	26
No. 20	10
No. 40	3
No. 60	1
No. 100	1
No. 200	0.4

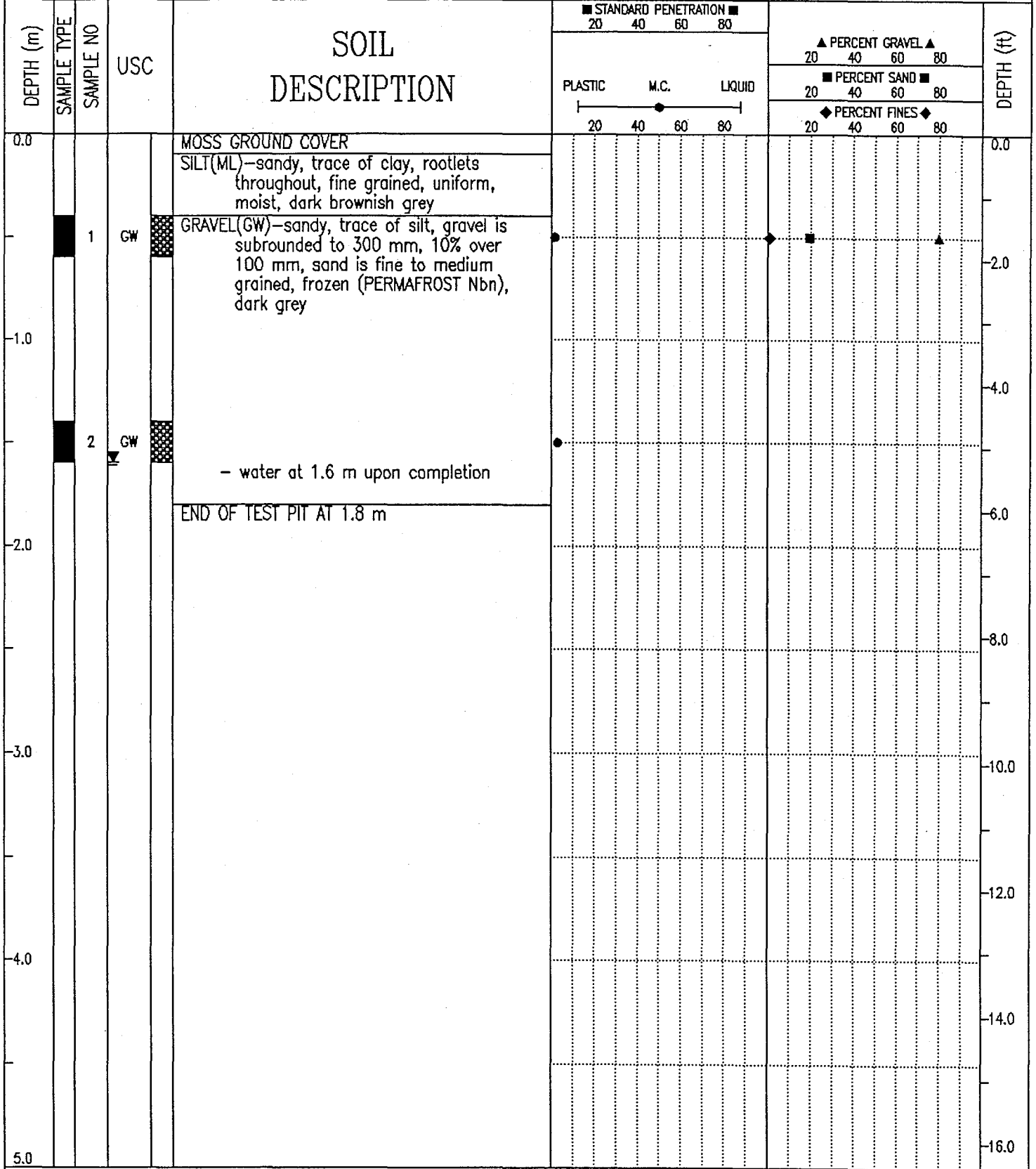
CLAY	SILT	SAND			GRAVEL	
		FINE	MEDIUM	COARSE	FINE	COARSE



GRANULAR SOURCE INVESTIGATION		CLIENT: YTG-TRANS. ENG. BRANCH	BOREHOLE No. 90-132
km 14 to km 245		DRILL RIG: KOEHRING BANTAM	Project No: 0201-10312
km 197 Dempster Highway		UTM ZONE: 7 N7252480.00 E626000.00	ELEVATION 0.00 (m)
SAMPLE TYPE	<input checked="" type="checkbox"/> GRAB SAMPLE	<input type="checkbox"/> NO RECOVERY	<input checked="" type="checkbox"/> STANDARD PEN.
		<input type="checkbox"/> 75 mm SPOON	<input type="checkbox"/> 75 mm CRREL
			<input type="checkbox"/> 100 mm CRREL



GRANULAR SOURCE INVESTIGATION		CLIENT: YTG-TRANS. ENG. BRANCH	BOREHOLE No. 90-133
km 14 to km 245		DRILL RIG: KOEHRING BANTAM	Project No: 0201-10312
km 197 Dempster Highway		UTM ZONE: 7 N7252540.00 E626110.00	ELEVATION 0.00 (m)
SAMPLE TYPE	<input checked="" type="checkbox"/> GRAB SAMPLE	<input checked="" type="checkbox"/> NO RECOVERY	<input checked="" type="checkbox"/> STANDARD PEN.
		<input type="checkbox"/> 75 mm SPOON	<input type="checkbox"/> 75 mm CRREL
			<input type="checkbox"/> 100 mm CRREL



EBA Engineering Consultants Ltd. Whitehorse, Yukon		COMPLETION DEPTH 1.8 m	COMPLETE 90/05/05
LOGGED BY MCP		DWG NO.	Page 1 of 1

# EBA Engineering Consultants Ltd.

## PARTICLE - SIZE ANALYSIS OF SOILS

Project: Granular Source Investigation  
 Dempster Highway, Yukon

Project Number: 0201-10312

Date Tested: 1990-05-18

Borehole Number: 90-133

Depth: 1.5 m

Soil Description: GRAVEL (GW)-some sand, trace of silt

Cu: 26.7

Cc: 1.7

Natural Moisture Content: \_\_\_\_\_ %

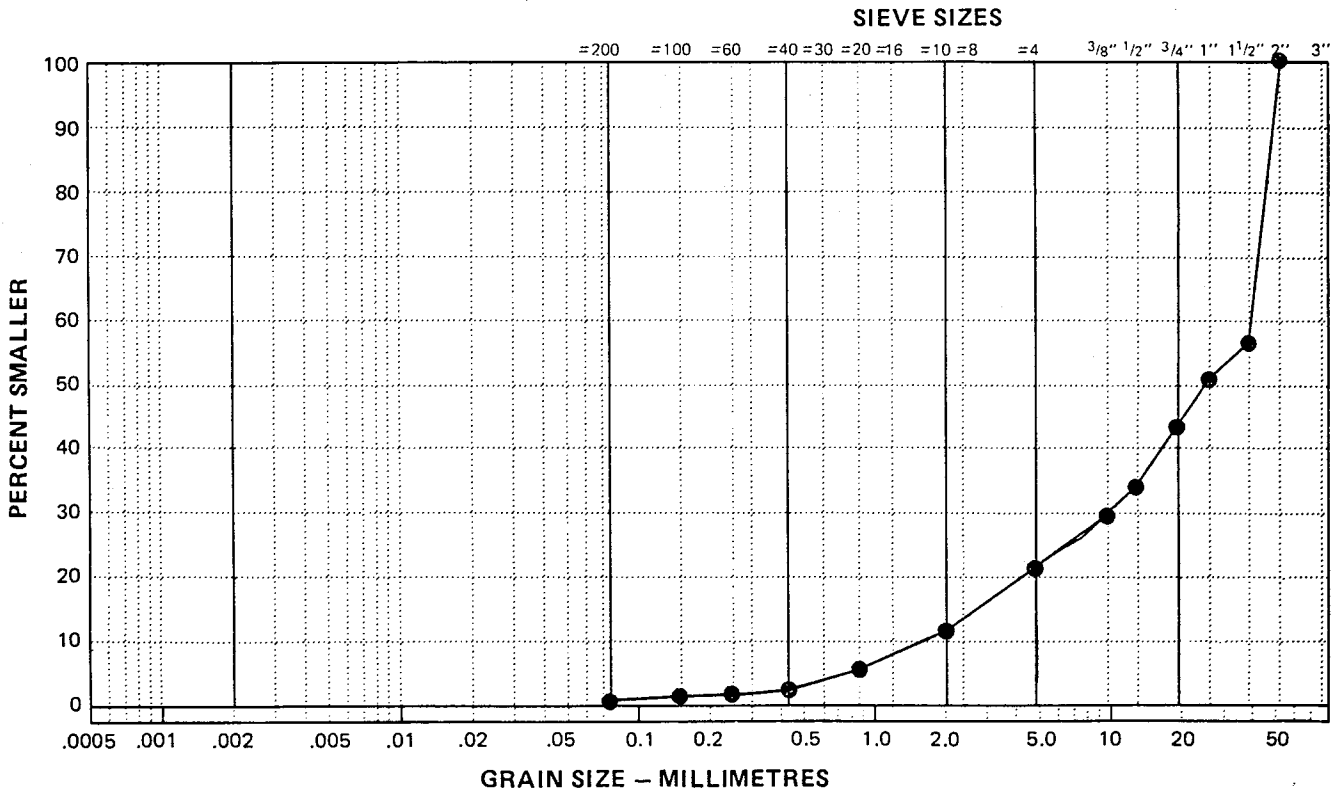
Remarks: \_\_\_\_\_

\_\_\_\_\_

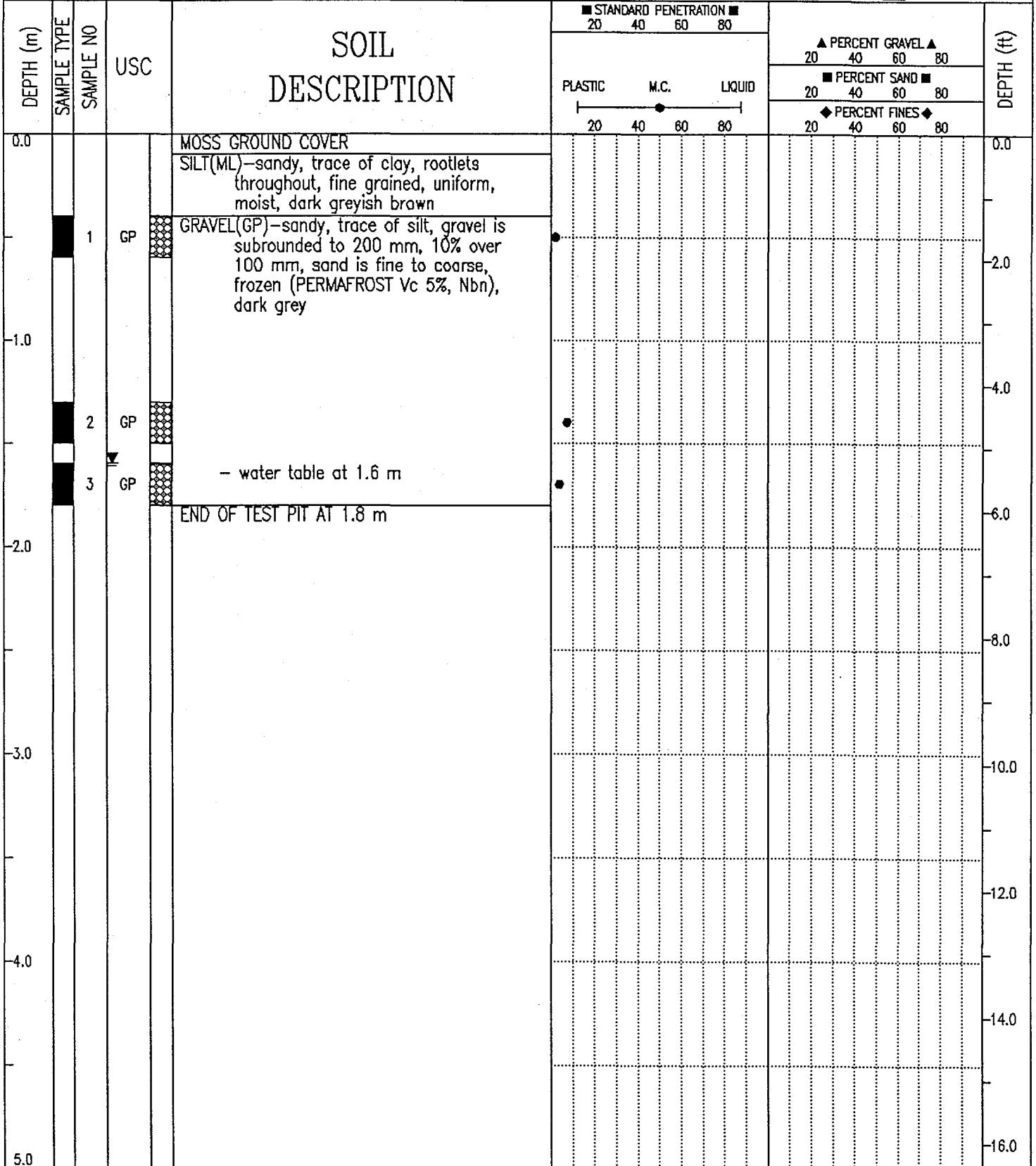
\_\_\_\_\_

SIEVE	PERCENTAGE PASSING
2"	100
1 1/2"	57
1"	51
3/4"	43
1/2"	34
3/8"	29
No. 4	20
No. 10	12
No. 20	6
No. 40	3
No. 60	2
No. 100	1
No. 200	1

CLAY	SILT	SAND			GRAVEL	
		FINE	MEDIUM	COARSE	FINE	COARSE

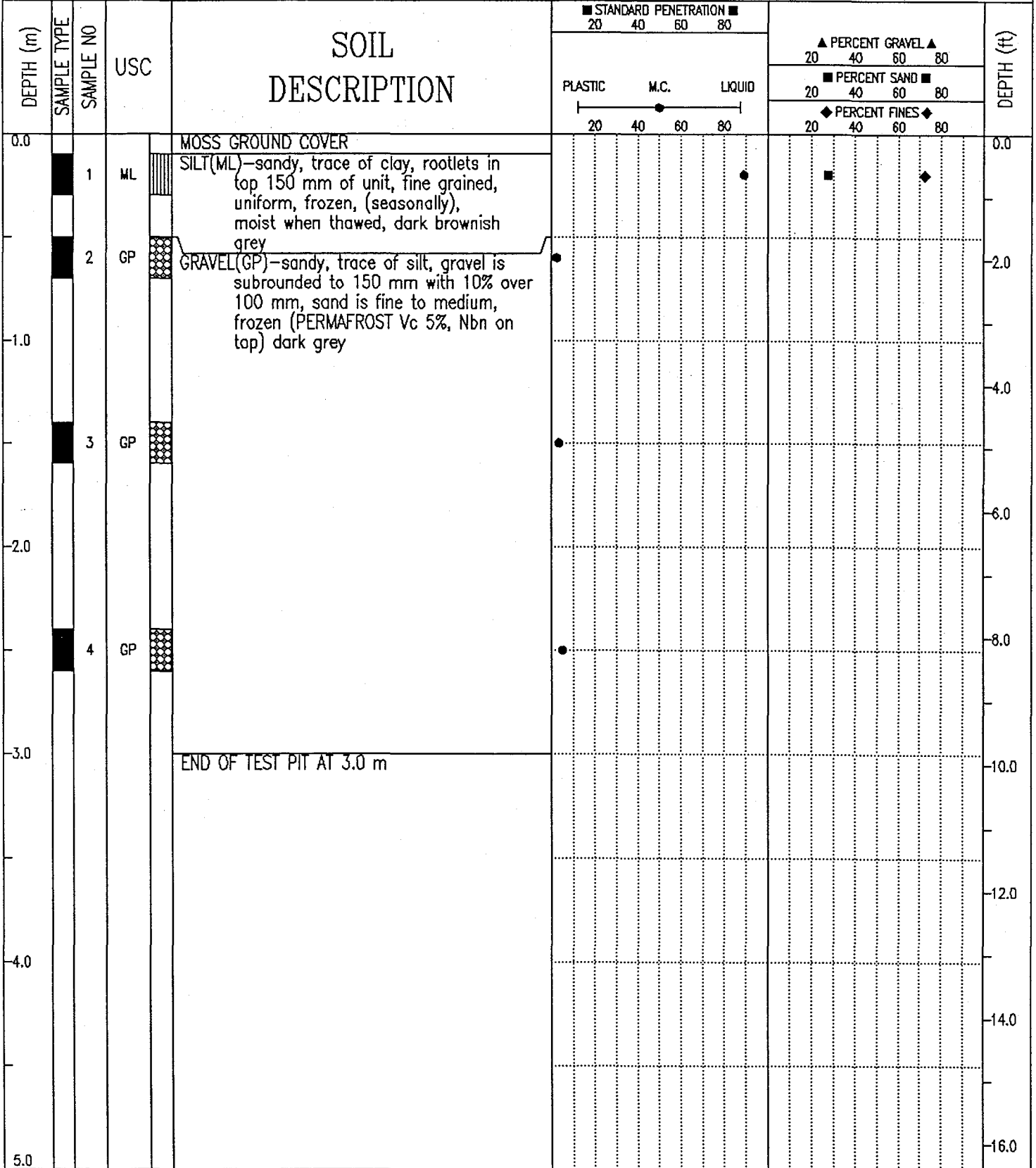


GRANULAR SOURCE INVESTIGATION	CLIENT: YTG-TRANS. ENG. BRANCH	BOREHOLE No. 90-134
km 14 to km 245	DRILL RIG: KOEHRING BANTAM	Project No: 0201-10312
km 197 Dempster Highway	UTM ZONE: 7 N7252700.00 E626125.00	ELEVATION 0.00 (m)
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EBA Engineering Consultants Ltd. Whitehorse, Yukon		COMPLETION DEPTH 1.8 m	COMPLETE 90/05/05
LOGGED BY MCP	DWG NO.	Page 1 of 1	

GRANULAR SOURCE INVESTIGATION	CLIENT: YTG-TRANS. ENG. BRANCH	BOREHOLE No. 90-135
km 14 to km 245	DRILL RIG: KOEHRING BANTAM	Project No: 0201-10312
km 197 Dempster Highway	UTM ZONE: 7 N7253115.00 E625830.00	ELEVATION 0.00 (m)
SAMPLE TYPE <input checked="" type="checkbox"/> GRAB SAMPLE <input type="checkbox"/> NO RECOVERY <input checked="" type="checkbox"/> STANDARD PEN.	<input checked="" type="checkbox"/> 75 mm SPOON <input type="checkbox"/> 75 mm CRREL <input type="checkbox"/> 100 mm CRREL	



EBA Engineering Consultants Ltd. Whitehorse, Yukon	COMPLETION DEPTH 3.0 m	COMPLETE 90/05/05
	LOGGED BY MCP	DWG NO.

# EBA Engineering Consultants Ltd.

## PARTICLE - SIZE ANALYSIS OF SOILS

Project: Granular Source Investigation  
Dempster Highway, Yukon

Project Number: 0201-10312

Date Tested: 1990-05-20

Borehole Number: 90-135

Depth: 0.3 m

Soil Description: SILT(ML)-sandy, trace of clay

Cu: \_\_\_\_\_

Cc: \_\_\_\_\_

Natural Moisture Content: \_\_\_\_\_ %

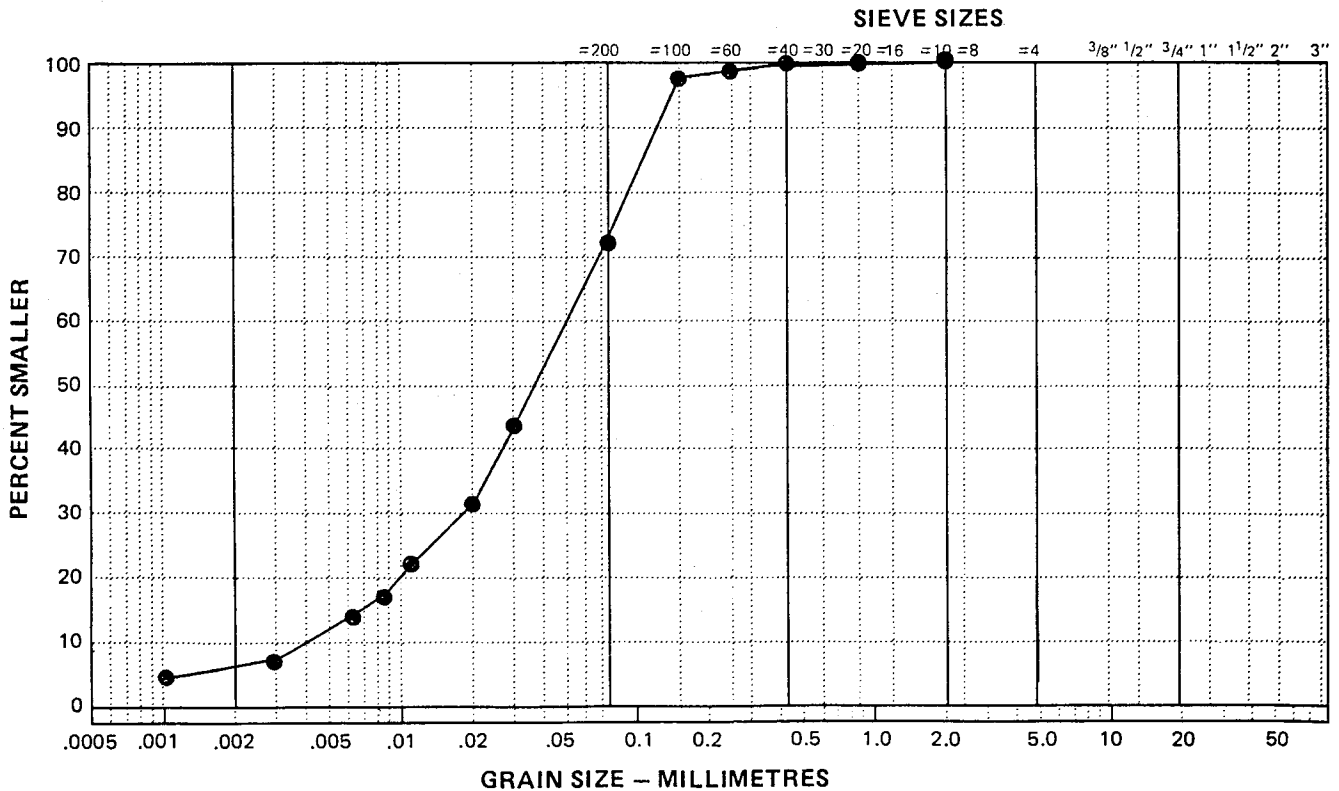
Remarks: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

SIEVE	PERCENTAGE PASSING
3"	
1 1/2"	
1"	
3/4"	
1/2"	
3/8"	
No. 4	
No. 10	100
No. 20	99.8
No. 40	99.4
No. 60	99.2
No. 100	97.8
No. 200	72.4

CLAY	SILT	SAND			GRAVEL	
		FINE	MEDIUM	COARSE	FINE	COARSE





90-129



90-129



90-130



90-131



90-132



90-133



90-134



90-135

DEMPSTER HIGHWAY CORRIDOR (YT/NWT)  
GRANULAR RESOURCES DATABASE  
SOURCE CATALOGUE DATA SHEET

=====  
PART A: LOCATION AND STATUS  
=====

SOURCE NUMBER : 0197.0R STUDY NO. : n/a  
NTS MAP REFERENCE : 116 G/8 DIGITIZ NO: MAP SCALE : 1:50000  
UTM ZONE-EASTING : 7-626000 LOCATION : 2 km N of Ogilvie Camp  
UTM NORTHING : 7252750  
LOCAL NAME(S) : None  
CORRIDOR NO./NAME : 05-Dempster Highway  
KILOMETRE POST : 197.0 OFFSET(m) : R

SOURCE ACCESS : Access Road  
ACCESS DISTANCE (m): 100 CONDITION : Poor  
AREA (ha) : 5 SITE SCALE: 1:n/a DIGITIZ NO:

LAND TENURE : Territorial STATUS : Undeveloped  
PAST USE - SOURCE : Borrow STOCKPILE - TYPE : None  
PERFORMANCE RATING : Unknown - QUANTITY : n/a

=====  
PART B: SOURCE INVESTIGATION AND DESCRIPTIVE INFORMATION  
=====

INVESTIGATION LEVEL: Delineation c/w Backhoe LAST INVEST DATE : 1990  
GEOPHYSICAL DATA : None TEST HOLE DENSITY (#/ha): 1.4  
BOREHOLES - NUMBER : 0 TEST PITS - NO. : 7 EXPOSURES - NO. : 0  
- DEPTH (m) : 0 - DEPTH (m): 1.8-2.7-3.3 - DEPTH (m) : n/a  
DATA QUALITY : Good  
SOURCE TOPOGRAPHY : River Bed SLOPE: Flat  
AREA DRAINAGE : Poor  
SOURCE VEGETATION : Polars Along River  
PERMAFROST FEATURES: Visible Ice  
ACTIVE LAYER (m) : 1.0 DESCRIPT. DATA : 07/15/89  
GENERIC ORIGIN : Alluvial LANDFORM(S) : Gravel Bar  
GRANULAR - TYPE : GRAVEL(GP) OVERBURDEN-TYPE : ORGANICS  
- THICKNESS (m) : 3.9-UN-UN - THICKNESS (m): 0.6-UN-UN  
UNDERBURDEN : Unknown

DEVELOP. CONSTRAINT: Water Table, Permafrost  
DEVELOP. POTENTIAL : Poor to Fair

=====  
PART C: TEST RESULTS AND MATERIAL QUANTITY  
=====

USC - NUMBER : 3 MOISTURE CONTENT-NUMBER : 24  
CLASS : GP/GW/ML -RESULTS: 0  
SIZE ANALYSIS-NO. : 3 GRAVEL (%) : 62-68-80 SAND (%) : 19-30-37 FINES (%) : 1-2-3  
- OVERSIZE (%) : 0 D-50 (um) : 0

PETROGRAPHIC ANALYSIS-NO. OF TESTS: 0 RESULTS: n/a

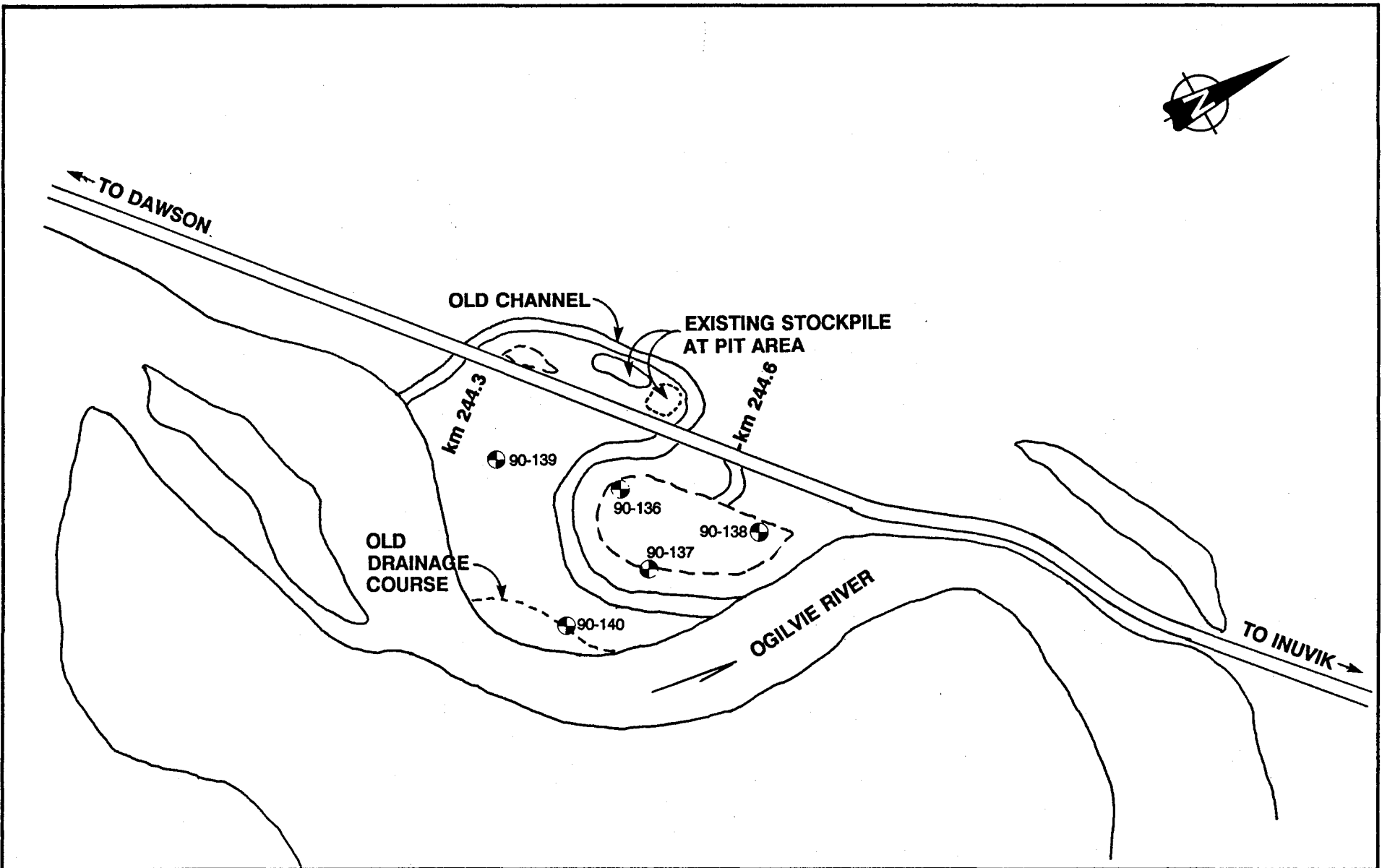
OTHER TESTS (see the DATA DICTIONARY) : n/a

MATERIAL QUANTITY (All in cubic metres) CLASS 1: 75,000  
CLASS 2: 50,000  
TOTAL RECOVERABLE : 150,000 CLASS 3: 25,000  
ANNUAL RECOVERABLE : Unknown CLASS 4: Unknown  
CLASS 5: Unknown  
TOTAL VOLUME: 150,000

RECORD UPDATED BY : EBA Engineering Consultants Ltd.  
LAST UPDATE : 07/04/90

EBA PROJECT NUMBER : 0201-4989

**APPENDIX E**



**EBA Engineering Consultants Ltd.**

PROJECT **GRANULAR SOURCE INVESTIGATIONS**

CLIENT **GOVERNMENT OF YUKON**

TITLE **APPROXIMATE TEST PIT LOCATIONS  
km 244 - DEMPSTER HIGHWAY**

DATE **90-06-02**

DWN **MCP**

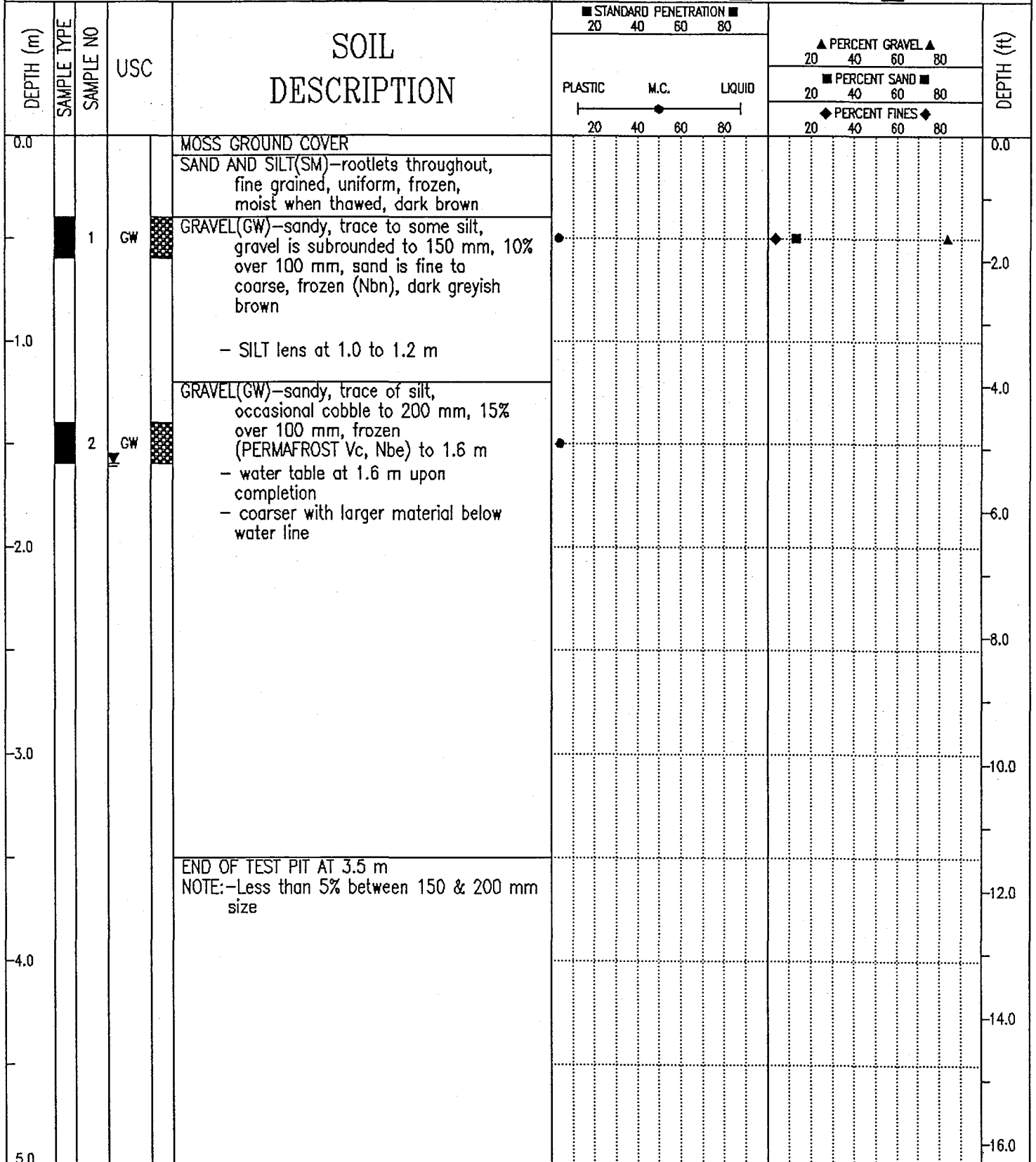
CHKD

DWG NO. **10312-05**

**0201-10312**

APP E

GRANULAR SOURCE INVESTIGATION	CLIENT: YTG-TRANS. ENG. BRANCH	BOREHOLE No. 90-136
km 14 to km 245	DRILL RIG: KOEHRING BANTAM	Project No: 0201-10312
km 244.6 Dempster Highway	UTM ZONE: 8 N7291000.00 E362250.00	ELEVATION 0.00 (m)
SAMPLE TYPE <input checked="" type="checkbox"/> GRAB SAMPLE <input type="checkbox"/> NO RECOVERY <input checked="" type="checkbox"/> STANDARD PEN. <input type="checkbox"/> 75 mm SPOON <input type="checkbox"/> 75 mm CRREL <input type="checkbox"/> 100 mm CRREL		



# EBA Engineering Consultants Ltd.

## PARTICLE - SIZE ANALYSIS OF SOILS

Project: Granular Source Investigation  
Dempster Highway, Yukon

Project Number: 0201-10312

Date Tested: 1990-05-18

Borehole Number: 90-136

Depth: 0.5 m

Soil Description: GRAVEL(GP)-some sand, trace of silt

Cu: 18.3

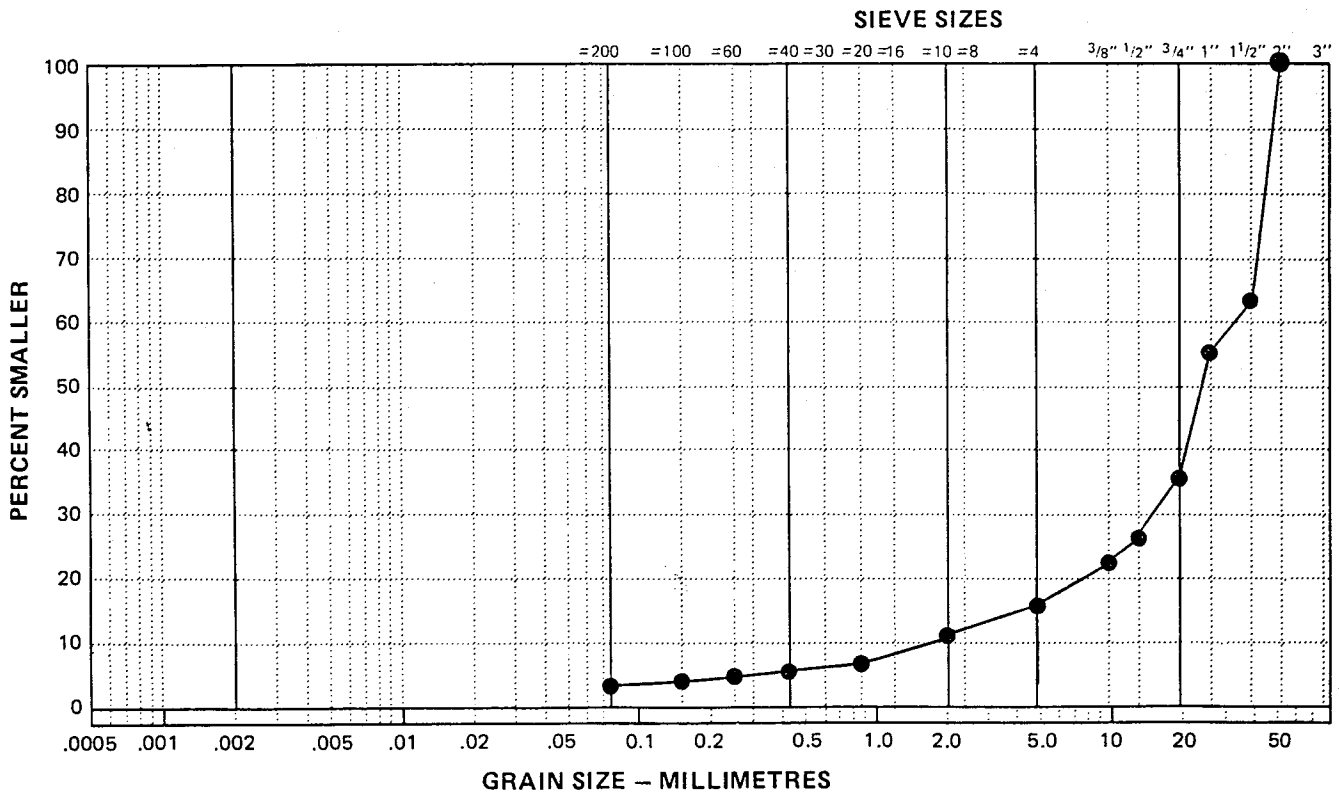
Cc: 3.8

Natural Moisture Content: \_\_\_\_\_ %

Remarks: Sample unrealistically coarse.

SIEVE	PERCENTAGE PASSING
2"	100
1 1/2"	64
1"	46
3/4"	37
1/2"	28
3/8"	23
No. 4	17
No. 10	11
No. 20	8
No. 40	6
No. 60	5
No. 100	4
No. 200	3

CLAY	SILT	SAND			GRAVEL	
		FINE	MEDIUM	COARSE	FINE	COARSE



# EBA Engineering Consultants Ltd.

## LARGE AGGREGATE ANALYSIS REPORT

**Project:** Granular Source Investigation **Sample Number:** \_\_\_\_\_  
**Address:** KM 244 - Dempster Highway **Sample Location:** TP 90-136  
**Project Number:** 0201 - 10312 Km 244.6  
**Date Sampled:** 1990-05-06 **By:** M.C.P. **Time:** \_\_\_\_\_ **Temp.:** \_\_\_\_\_ °C  
**Client:** Government of Yukon, **Date Tested:** 1990-05-15  
Department of Community **Tested By:** J.B.  
& Transportation Services **Natural Moisture Content:** \_\_\_\_\_  
P.O.Box 2703, Whitehorse, Yukon **Crushed Faces:**  1  2

**Attention:** Ms. Glynnis Horel, P.Eng.

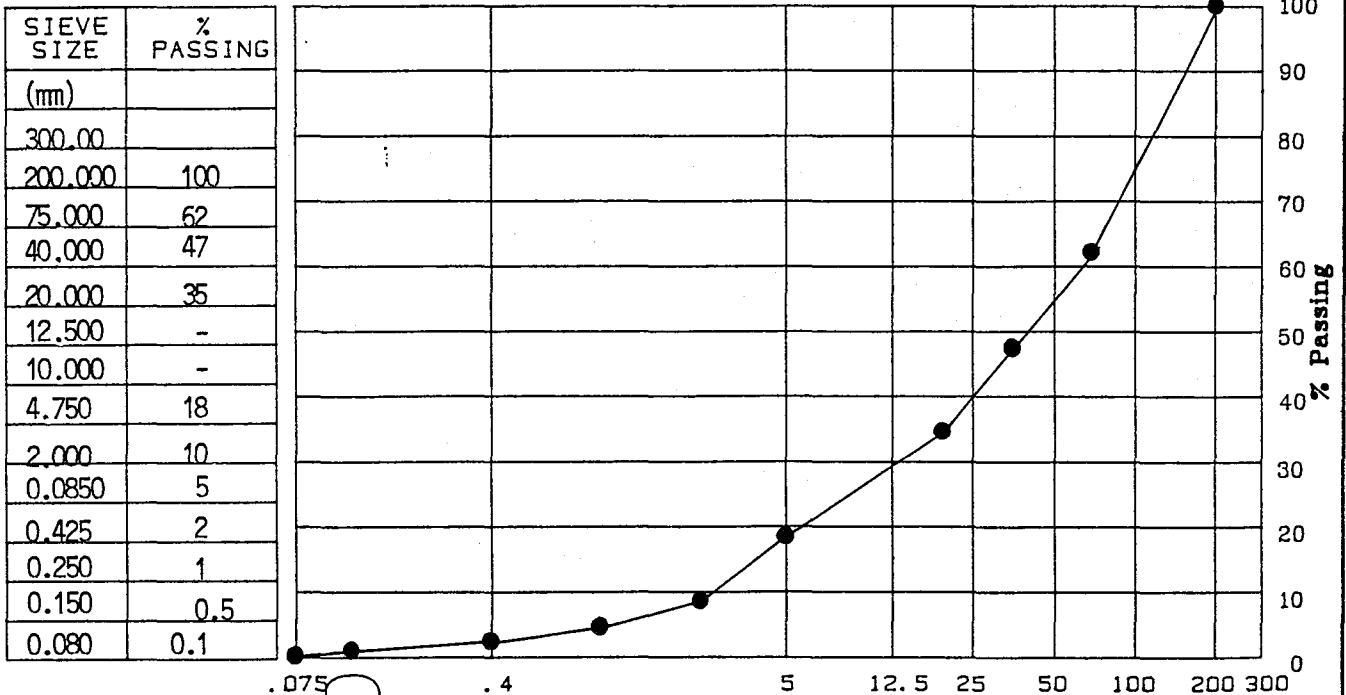
**Soil Description:** GRAVEL (GW) - cobbles throughout, some sand, trace of silt

**Cu:** 35

**Cc:** 1.2

**Remarks:** \_\_\_\_\_

Grading Curve of Aggregate

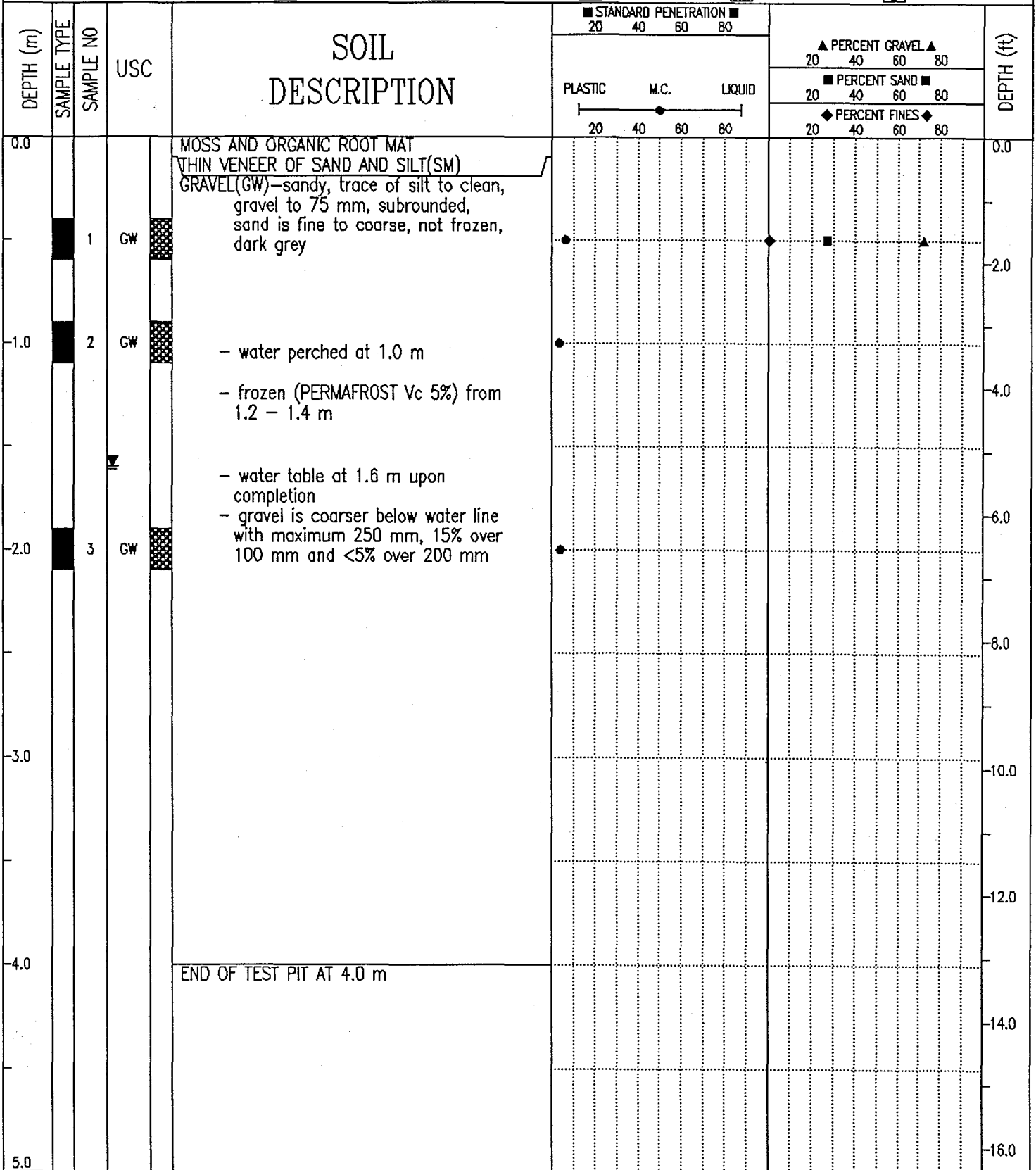


**Sieve Size (mm)**  
**Reviewed By:** [Signature]

Data presented hereon is for the sole use of the stipulated client. EBA is not responsible, nor can be held liable, for use made of this report by any other party, with or without the

The testing services reported herein have been performed by an EBA technician to recognized industry standards, unless otherwise noted. No other warranty is made. These data do not include or represent any interpretation or opinion of specification compliance or material suitability. Should engineering interpretation be required, EBA will provide it upon written request.

GRANULAR SOURCE INVESTIGATION	CLIENT: YTG-TRANS. ENG. BRANCH	BOREHOLE No. 90-137
km 14 to km 245	DRILL RIG: KOEHRING BANTAM	Project No: 0201-10312
km 244.6 Dempster Highway	UTM ZONE: 8 N7290950.00 E362300.00	ELEVATION 0.00 (m)
SAMPLE TYPE <input checked="" type="checkbox"/> GRAB SAMPLE <input type="checkbox"/> NO RECOVERY <input checked="" type="checkbox"/> STANDARD PEN. <input type="checkbox"/> 75 mm SPOON <input type="checkbox"/> 75 mm CRREL <input type="checkbox"/> 100 mm CRREL		



EBA Engineering Consultants Ltd.  
Whitehorse, Yukon

COMPLETION DEPTH 4.0 m

COMPLETE 90/05/06

LOGGED BY MCP

DWG NO.

Page 1 of 1

# EBA Engineering Consultants Ltd.

## PARTICLE - SIZE ANALYSIS OF SOILS

Project: Granular Source Investigation  
Dempster Highway, Yukon

Project Number: 0201-10312

Date Tested: 1990-05-18

Borehole Number: 90-137

Depth: 1.0 m

Soil Description: GRAVEL (GW)-sandy, trace of silt to clean

Cu: 5.5

Cc: 1.4

Natural Moisture Content: \_\_\_\_\_ %

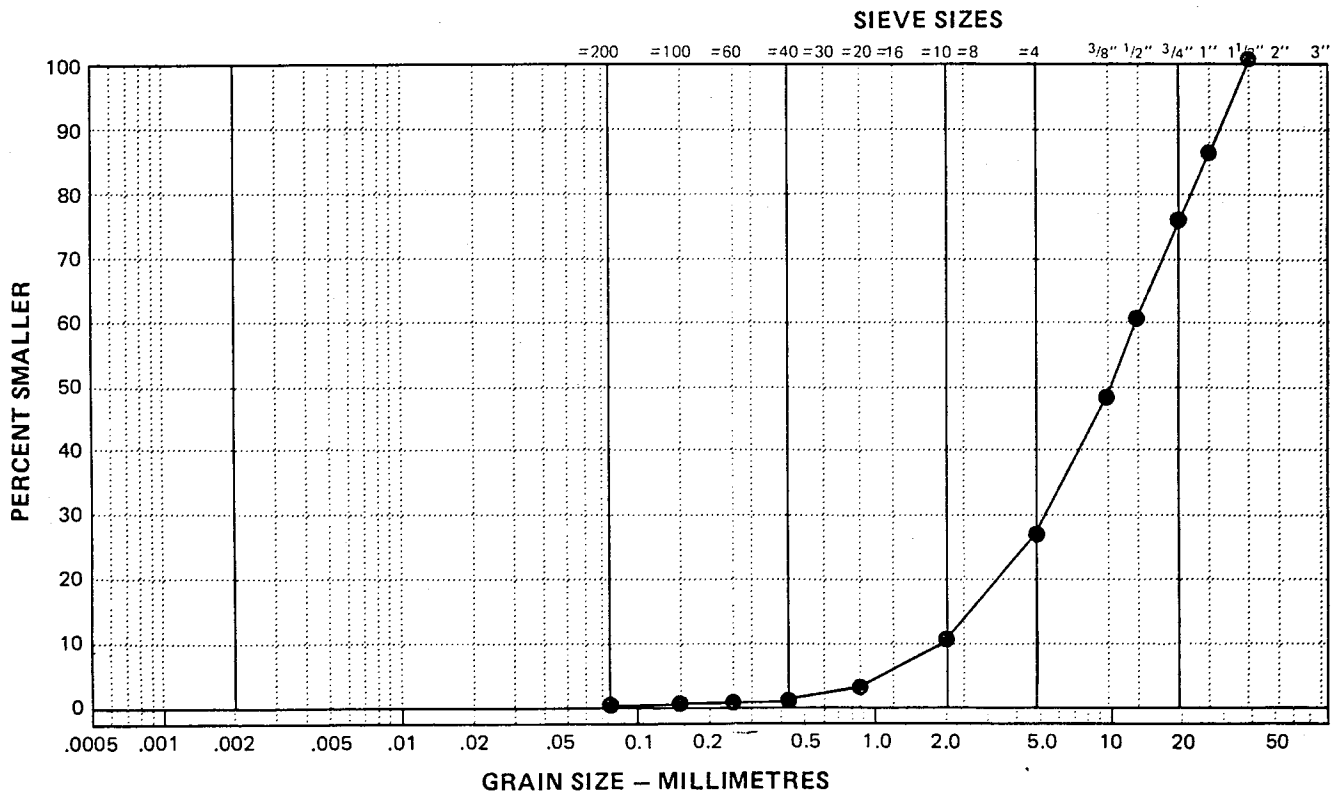
Remarks: \_\_\_\_\_

\_\_\_\_\_

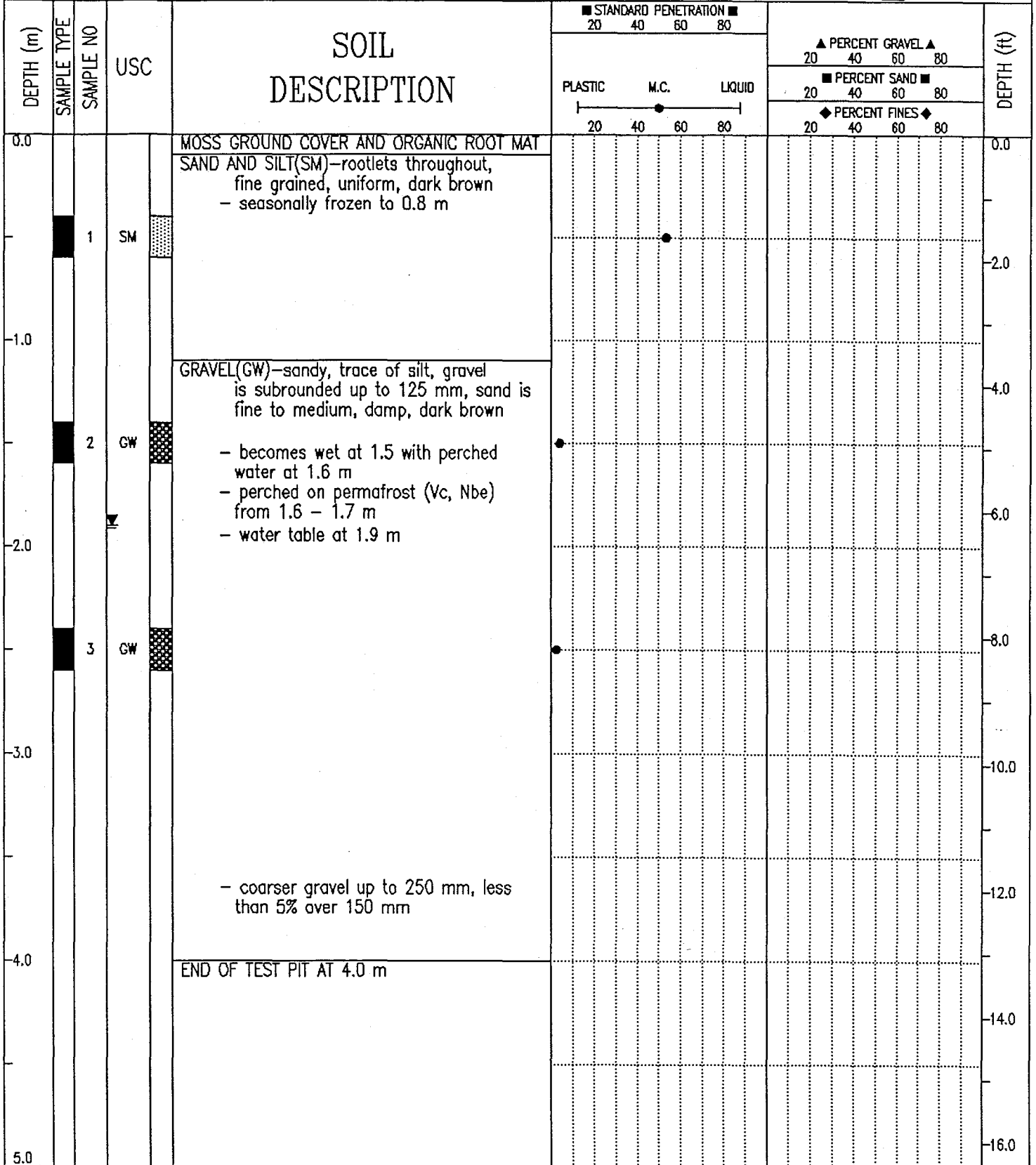
\_\_\_\_\_

SIEVE	PERCENTAGE PASSING
3"	
1 1/2"	100
1"	88
3/4"	77
1/2"	61
3/8"	49
No. 4	28
No. 10	10
No. 20	3
No. 40	1
No. 60	0.9
No. 100	0.8
No. 200	0.7

CLAY	SILT	SAND			GRAVEL	
		FINE	MEDIUM	COARSE	FINE	COARSE



GRANULAR SOURCE INVESTIGATION	CLIENT: YTG-TRANS. ENG. BRANCH	BOREHOLE No. 90-138
km 14 to km 245	DRILL RIG: KOEHRING BANTAM	Project No: 0201-10312
km 244.6 Dempster Highway	UTM ZONE: 8 N7291050.00 E362400.00	ELEVATION 0.00 (m)
SAMPLE TYPE <input checked="" type="checkbox"/> GRAB SAMPLE <input type="checkbox"/> NO RECOVERY <input checked="" type="checkbox"/> STANDARD PEN.	<input checked="" type="checkbox"/> 75 mm SPOON	<input type="checkbox"/> 75 mm CRREL <input type="checkbox"/> 100 mm CRREL



# EBA Engineering Consultants Ltd.

## LARGE AGGREGATE ANALYSIS REPORT

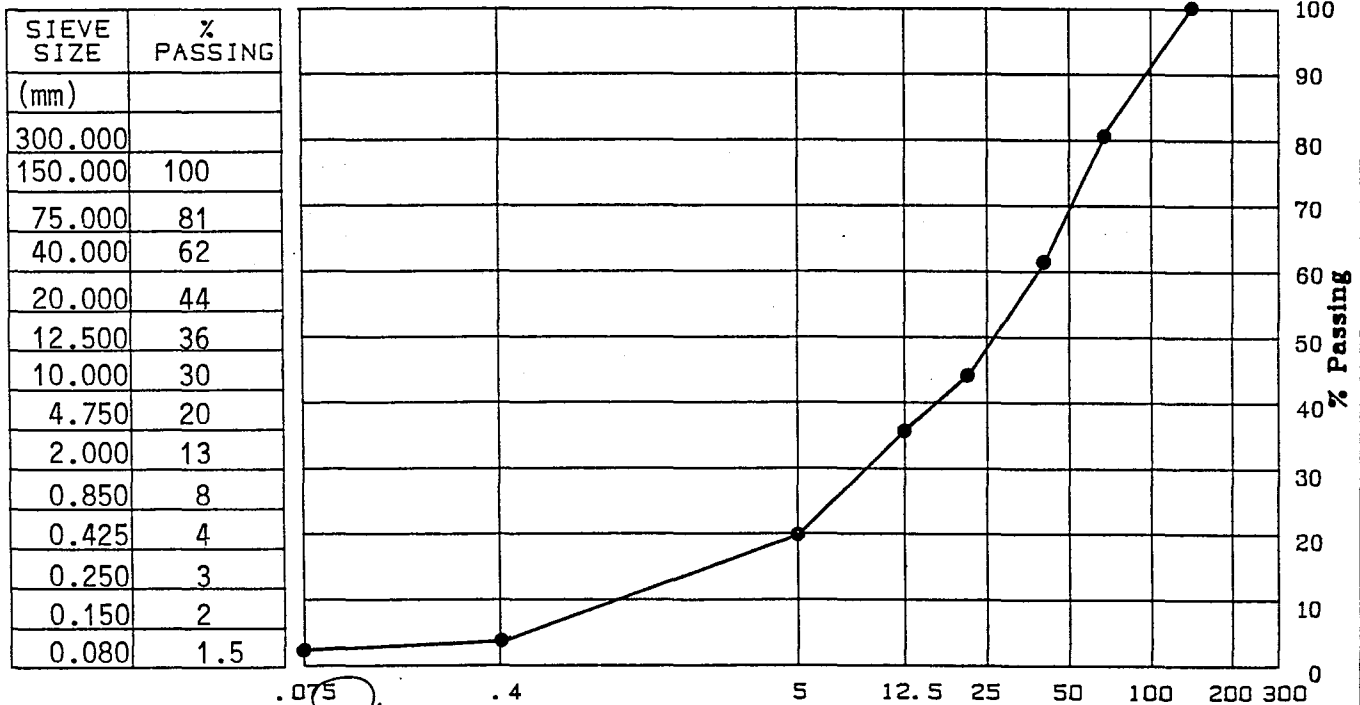
**Project:** Granular Source Investigation **Sample Number:** \_\_\_\_\_  
**Address:** Dempster Highway (km 244) **Sample Location:** TP 90-138  
**Project Number:** 0201-10312 **km 244.6 Site**  
**Date Sampled:** 1990-05-06 **By:** MCP **Time:** \_\_\_\_\_ **Temp.:** \_\_\_\_\_ °C  
**Client:** Government of Yukon **Date Tested:** 1990-05-10  
 Department of Community & **Tested By:** J.B.  
 Transportation Services **Natural Moisture Content:** \_\_\_\_\_  
 P.O. Box 2703, Whitehorse, Y.T. **Crushed Faces:**  1  2  
**Attention:** Ms. Glynnis Horel, P.Eng.  
**Soil Description:** GRAVEL(GW)-cobble throughout, some sand, trace of silt

**Cu:** 40

**Cc:** 2

**Remarks:** \_\_\_\_\_

Grading Curve of Aggregate



Sieve Size (mm)  
 Reviewed By: *[Signature]*



Data presented hereon is for the sole use of the stipulated client. EBA is not responsible, nor can be held liable, for use made of this report by any other party, with or without the knowledge of EBA.

The testing services reported herein have been performed by an EBA technician to recognized industry standards, unless otherwise noted. No other warranty is made. These data do not include or represent any interpretation or opinion of specification compliance or material suitability. Should engineering interpretation be required, EBA will provide it upon written request.

GRANULAR SOURCE INVESTIGATION		CLIENT: YTG-TRANS. ENG. BRANCH	BOREHOLE No. 90-139
km 14 to km 245		DRILL RIG: KOEHRING BANTAM	Project No: 0201-10312
km 244.6 Dempster Highway		UTM ZONE: 8 N7290875.00 E362150.00	ELEVATION 0.00 (m)
SAMPLE TYPE <input checked="" type="checkbox"/> GRAB SAMPLE <input checked="" type="checkbox"/> NO RECOVERY <input checked="" type="checkbox"/> STANDARD PEN. <input type="checkbox"/> 75 mm SPOON <input type="checkbox"/> 75 mm CRREL <input type="checkbox"/> 100 mm CRREL			

DEPTH (m)	SAMPLE TYPE	SAMPLE NO	USC	SOIL DESCRIPTION	STANDARD PENETRATION			PERCENT GRAVEL			PERCENT SAND			PERCENT FINES			DEPTH (ft)
					20	40	60	80	20	40	60	80	20	40	60	80	
0.0				MOSS COVER AND ORGANIC ROOT MAT												0.0	
				SAND AND SILT(SM)-rootlets throughout, fine grained, uniform, moist, dark brown													
	1		GW	GRAVEL(GW)-sandy, trace to some silt, gravel is subrounded to 125 mm, 5% over 100 mm, silt lenses at 1.0 - 1.7 m	●				◆	■	▲					2.0	
-1.0																4.0	
	2		GW		●											6.0	
-2.0				SILT(ML)-some sand, trace of clay, frozen (Nbe) PERMAFROST (Nbe) dark brown													
	3		GW	GRAVEL(GW)-sandy, trace of silt, occasional cobble, maximum size 250 mm with less than 15% over 100 mm - water table at 2.3 m	●											8.0	
-3.0																10.0	
-4.0																12.0	
																14.0	
																16.0	
5.0				END OF TEST PIT AT 4.5 m													

EBA Engineering Consultants Ltd. Whitehorse, Yukon		COMPLETION DEPTH 4.5 m	COMPLETE 90/05/06
LOGGED BY MCP		DWG NO.	Page 1 of 1

# EBA Engineering Consultants Ltd.

## PARTICLE - SIZE ANALYSIS OF SOILS

Project: Granular Source Investigation  
Dempster Highway, Yukon

Project Number: 0201-10312

Date Tested: 1990-05-18

Borehole Number: 90-139

Depth: 1.5 m

Soil Description: GRAVEL (GW)-sandy, trace of silt to clean

Cu: 13.6

Cc: 2.6

Natural Moisture Content: \_\_\_\_\_ %

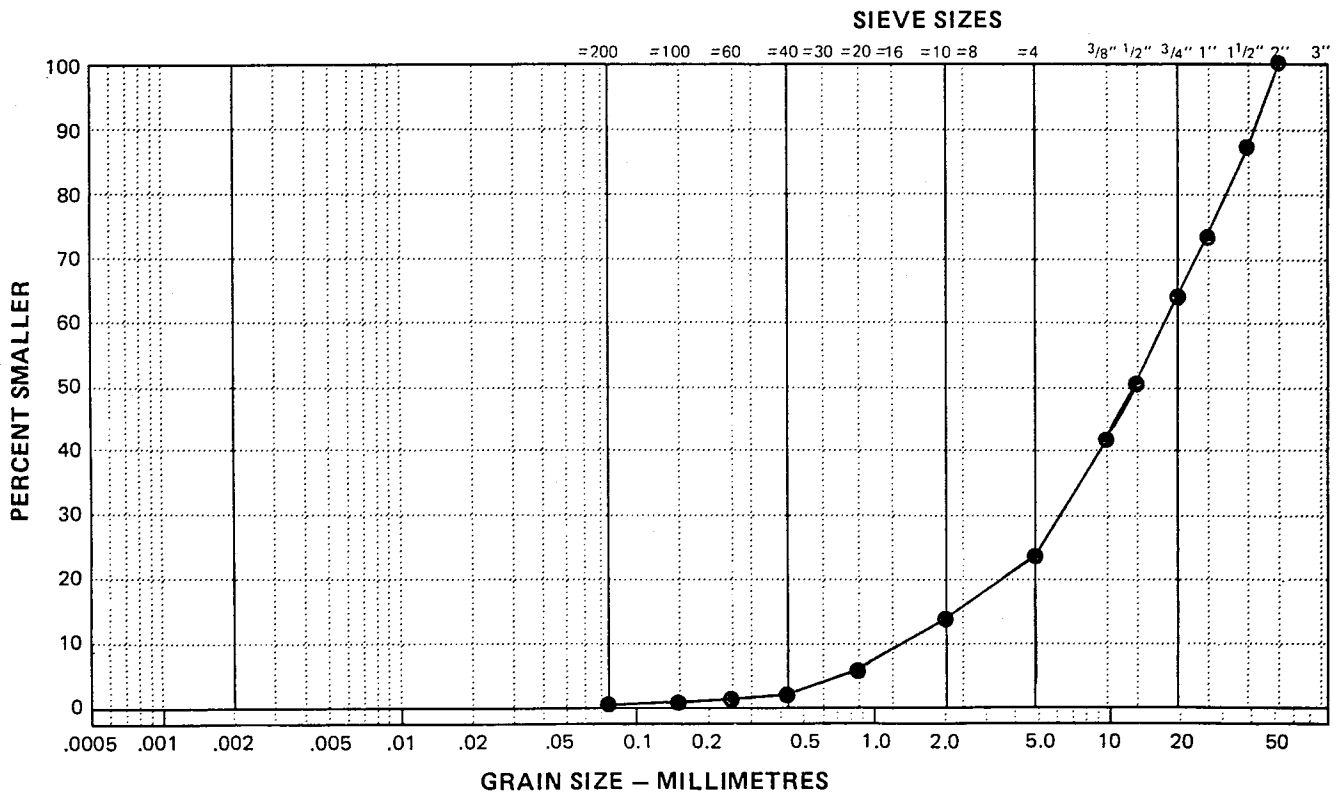
Remarks: \_\_\_\_\_

\_\_\_\_\_

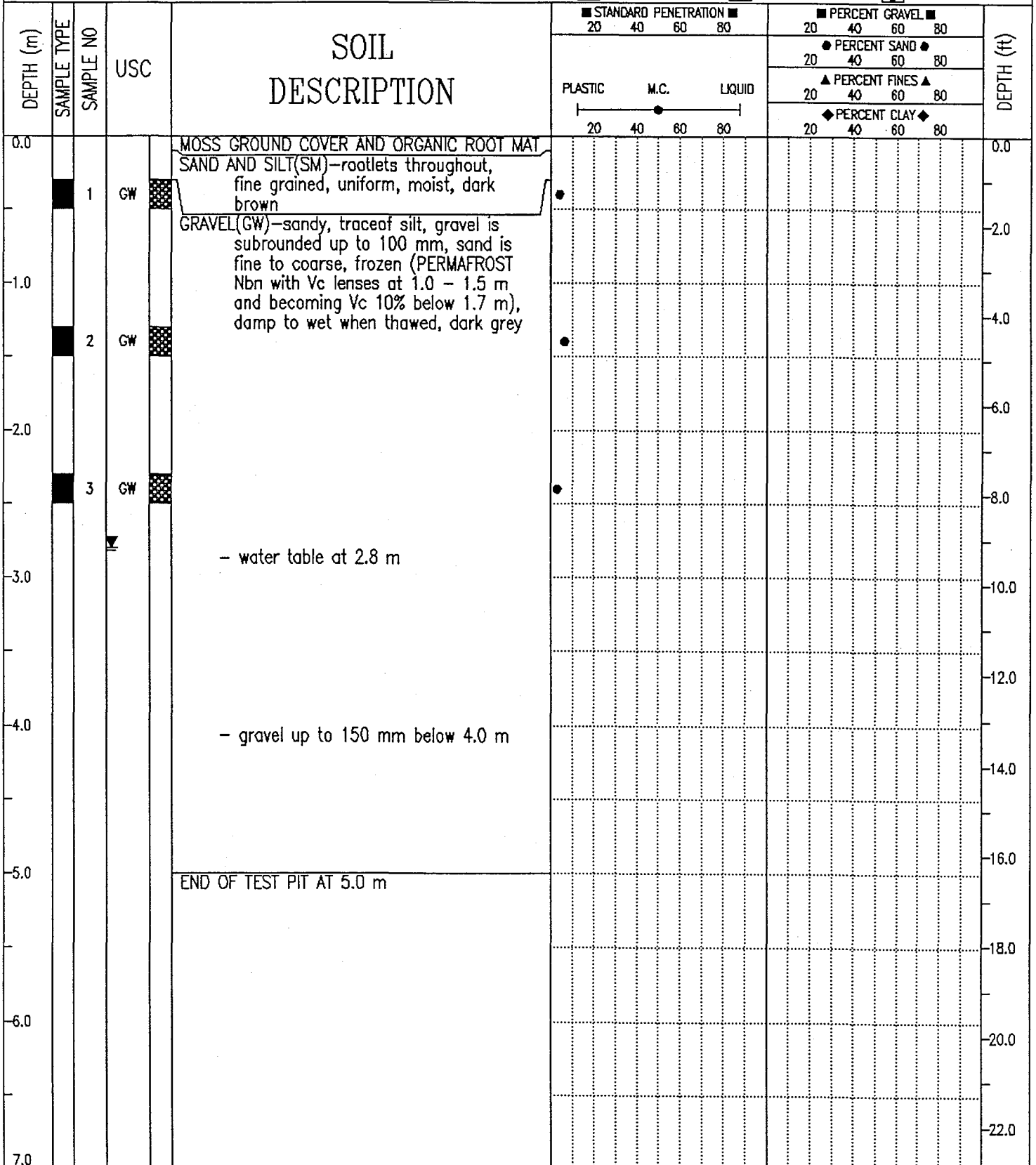
\_\_\_\_\_

SIEVE	PERCENTAGE PASSING
2"	100
1 1/2"	89
1"	74
3/4"	64
1/2"	50
3/8"	41
No. 4	25
No. 10	14
No. 20	6
No. 40	1.8
No. 60	1.0
No. 100	0.7
No. 200	0.6

CLAY	SILT	SAND			GRAVEL	
		FINE	MEDIUM	COARSE	FINE	COARSE



GRANULAR SOURCE INVESTIGATION	CLIENT: YTG-TRANS. ENG. BRANCH	BOREHOLE No. 90-140
km 14 to km 245	DRILL RIG: KOEHRING BANTAM	Project No: 0201-10312
km 244.6 Dempster Highway	UTM ZONE: 8 N7290800.00 E362650.00	ELEVATION 0.00 (m)
SAMPLE TYPE <input checked="" type="checkbox"/> GRAB SAMPLE <input checked="" type="checkbox"/> NO RECOVERY <input checked="" type="checkbox"/> STANDARD PEN. <input type="checkbox"/> 75 mm SPOON <input type="checkbox"/> 75 mm CRREL <input type="checkbox"/> 100 mm CRREL		



EBA Engineering Consultants Ltd. Whitehorse, Yukon	COMPLETION DEPTH 5.0 m	COMPLETE 90/05/06
	LOGGED BY MCP	DWG NO.



90-136



90-136



90-137



90-138



90-138



90-139



90-139



90-140



90-140

DEMPSTER HIGHWAY CORRIDOR (YT/NWT)  
GRANULAR RESOURCES DATABASE  
SOURCE CATALOGUE DATA SHEET

=====  
PART A: LOCATION AND STATUS  
=====

SOURCE NUMBER : 0244.0RL STUDY NO. : DHC-056  
NTS MAP REFERENCE : 116H/12 DIGITIZ NO: MAP SCALE : 1:50000  
UTM ZONE-EASTING : 8-362900 LOCATION : S of Joe Henry's Cabin  
UTM NORTHING : 7291200  
LOCAL NAME(S) : None  
CORRIDOR NO./NAME : 05-Dempster Highway  
KILOMETRE POST : 244.0 OFFSET(m) : R/L

SOURCE ACCESS : Along Highway (Both Sides)  
ACCESS DISTANCE (m): 0 CONDITION : Unknown  
AREA (ha) : 15 SITE SCALE: 1:n/a DIGITIZ NO:

LAND TENURE : Territorial STATUS : Unknown  
PAST USE - SOURCE : Borrow STOCKPILE - TYPE : Gravel Stockpile  
PERFORMANCE RATING : Good - QUANTITY : 10,000

=====  
PART B: SOURCE INVESTIGATION AND DESCRIPTIVE INFORMATION  
=====

INVESTIGATION LEVEL: Explor.Drilling/Delineat. LAST INVEST DATE : 1990  
GEOPHYSICAL DATA : None TEST HOLE DENSITY (#/ha): 0.4  
BOREHOLES - NUMBER : 1 TEST PITS - NO. : 5 EXPOSURES - NO. : 1  
- DEPTH (m) : 4.5 - DEPTH (m): 3.5-4.2-5.0 - DEPTH (m) : 2.0  
DATA QUALITY : Good

SOURCE TOPOGRAPHY : River Bed SLOPE: Flat  
AREA DRAINAGE : Poor  
SOURCE VEGETATION : Poplars Along River  
PERMAFROST FEATURES: Visible Ice  
ACTIVE LAYER (m) : 0.8 DESCRIPT. DATA : 07/05/90  
GENERIC ORIGIN : Alluvial LANDFORM(S) : Old Gravel Bar  
GRANULAR - TYPE : GRAVEL(GW) OVERBURDEN-TYPE : ORGANICS & SAND AND SILT  
- THICKNESS (m) : 3.5-3.7-5.0 - THICKNESS (m): 0.2-0.5-1.2  
UNDERBURDEN : Unknown

DEVELOP. CONSTRAINT: Water Table, Permafrost  
DEVELOP. POTENTIAL : Poor to Fair

=====  
PART C: TEST RESULTS AND MATERIAL QUANTITY  
=====

USC - NUMBER : 3 MOISTURE CONTENT-NUMBER : 14  
CLASS : SM-GW-ML -RESULTS: 0  
SIZE ANALYSIS-NO. : 4 GRAVEL (%) : 23-63-83 SAND (%) : 14-32-63 FINES (%) : 1-6-14  
- OVERSIZE (%) : 25 D-50 (um) : 0

PETROGRAPHIC ANALYSIS-NO. OF TESTS: 0 RESULTS: n/a

OTHER TESTS (see the DATA DICTIONARY) : n/a

MATERIAL QUANTITY (All in cubic metres) CLASS 1: 150,000  
CLASS 2: Unknown  
TOTAL RECOVERABLE : 225,000 CLASS 3: Unknown  
ANNUAL RECOVERABLE : 100,000 CLASS 4: Unknown  
CLASS 5: 75,000  
TOTAL VOLUME: 225,000

RECORD UPDATED BY : EBA Engineering Consultants Ltd.  
LAST UPDATE : 07/04/90

EBA PROJECT NUMBER : 0201-4989