SUBSURFACE TESTING REPORT
UPPER BLACKSTONE RIVER
DEMPSTER HIGHWAY MILE 53.8
YUKON TERRITORY

GR-05-001

GEOTECHNICAL & MATERIAL SERVICES
WHITEHORSE, YUKON

CONTENTS

DRILL LOG REPORTS

1969 CENTERLINE RELOCATION INVESTIGATION

PROJECT: DEMPSTER HWY RELOC. MI 0-78

T.H. 69-542	DATE JULY 1969	SAMPLE NO	DEPTH	% GRAVEL	% SAND	% SILT	% CLAY	LIQUID LIMIT	PLASTIC LIMIT	P.I.	NATURAL MOISTURE
LOCATION SEE PLAN											
TYPE 4" AUGER											
0-1' OVERBURDEN		297	1'-6'	60	33	-7	-		NP		
1'-6' FROZEN SANDY GRAVEL COBBLES & BOULDERS											
6' REFUSAL											

T.H. 69-543	DATE: JULY 1969
LOCATION: SEE PLAN	
TYPE: 4" AUGER	
0-7' ROAD FILL	
7'-12' SANDY GRAVEL, COBBLES & BOULDERS	
12' REFUSAL	

T.H. 69-544	DATE: JULY 1969
LOCATION: SEE PLAN.	
TYPE: 4" AUGER	
0-1' OVERBURDEN	
1'-13' SANDY GRAVEL, COBBLES & BOULDERS	
13' REFUSAL	

T.H. 69-545	DATE: JULY 1969										
LOCATION: SEE PLAN											
TYPE: 4" AUGER											
0-1' FROZEN, ORGANIC		298	1-6	9	42	-49-		27.1	22.5	4.6	
1'-6' PARTLY FROZEN, SILTY SANDY CLAY, BOULDERS											
6' REFUSAL											

PROJECT: DEMPSTER HWY RELOC. MILE 0-78

SAMPLE NO	DEPTH	% GRAVEL	% SAND	% SILT	% CLAY	LIQUID LIMIT	PLASTIC LIMIT	P.I.	NATURAL MOISTURE

T.H. 69-546 | DATE JULY 1969

LOCATION SEE PLAN

TYPE 4" AUGER

0-1' OVERBURDEN

1-10' FROZEN SILTY SANDY CLAY, ROCK AT 8'

T.H. 69-547 | DATE: JULY 1969

LOCATION: SEE PLAN

TYPE: 4" AUGER

0-1' OVERBURDEN

1-9' FROZEN, SILTY SANDY CLAY

9' REFUSAL

T.H. 69-548 | DATE: JULY 1969

LOCATION: SEE PLAN

TYPE: 4" AUGER

0-1' OVERBURDEN

1-4' FROZEN, SILTY SANDY CLAY

4' BOULDERS

T.H. 69-549 | DATE: JULY 1969

LOCATION: SEE PLAN

TYPE: 4" AUGER

RIVER BED.

PROJECT: DEMPSTER HWY MILE 0-78 RELOC

T.H. 69-550	DATE JULY 1969	SAMPLE NO	DEPTH	% GRAVEL	% SAND	% SILT	% CLAY	LIQUID LIMIT	PLASTIC LIMIT	P.I.	NATURAL MOISTURE
LOCATION SEE PLAN											
TYPE 4" AUGER											
0-6' SILTY SANDY GRAVEL & COBBLES.		299	0-6	50	40	-1	0-			N.P.	
6' REFUSAL.											

T.H.	DATE:
LOCATION:	
TYPE:	

T.H.	DATE:
LOCATION:	
TYPE:	

T.H.	DATE:
LOCATION:	
TYPE:	

LABORATORY TESTING REPORTS

1969 CENTERLINE RELOCATION INVESTIGATION

SHEET

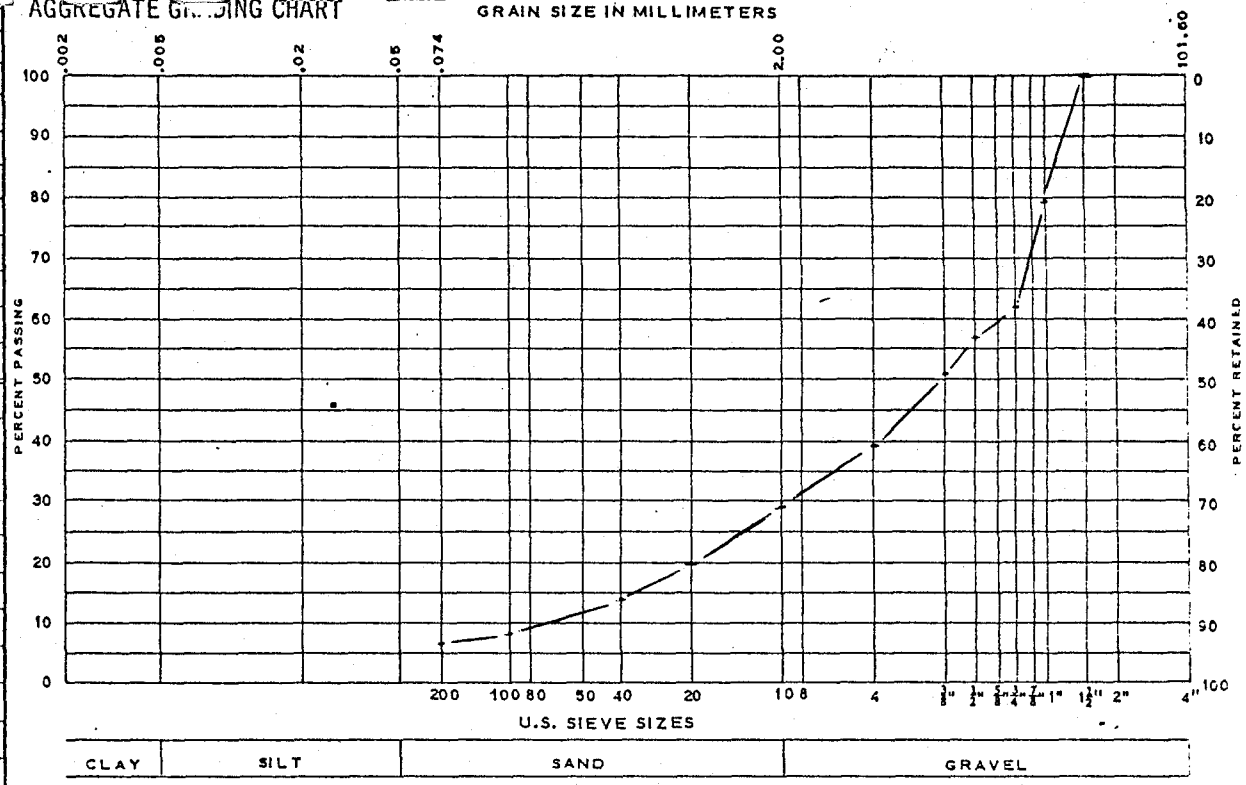
VE A SIS

F BY EIGHT	SAMPLE NUMBER								
	Sieve		Passing	Sieve					
100.0	1½"		29.1	#10					
79.4	1"		20.1	#20					
61.8	¾"		14.1	#40					
56.5	½"		8.1	#100					
50.6	⅜"		6.6	#200					
9.5	#4								
% + 4"									

MPLE NO.	ELEV. OR DEPTH	CLASSIFICATION	L.L.	P.L.	P.I.	L.A. % LOSS	MG SO4 % LOSS	BSpG	COLOUR	% WATER ABSORB.	% ASPH. ABSORB.	F.M.
		A-1-a				0.0						
		GW										
		WELL-GRADED GRAVEL										

AGGREGATE GRADING CHART

GRAIN SIZE IN MILLIMETERS



TYPICAL PETROGRAPHIC ANALYSIS

COARSE AGGREGATE

ROCK TYPE	%

FINE AGGREGATE

ROCK TYPE	%

LABORATORY'S REMARKS

PROJECT Demoster Highway Construction

LOCATION STA. 410+00

HOLE No. ..... DEPTH 1-6'

SAMPLE TYPE ..... DATE SAMPLED ~~July/69~~

FIELD SAMPLE No. ..... LAB SAMPLE No. 297

D. P. W. WHITEHORSE - SOILS LAB

TESTING ENGINEER

24/10
DATE

MATERIALS ENGINEER'S REMARKS

MATERIALS ENGINEER

DATE

673 A

SHEET

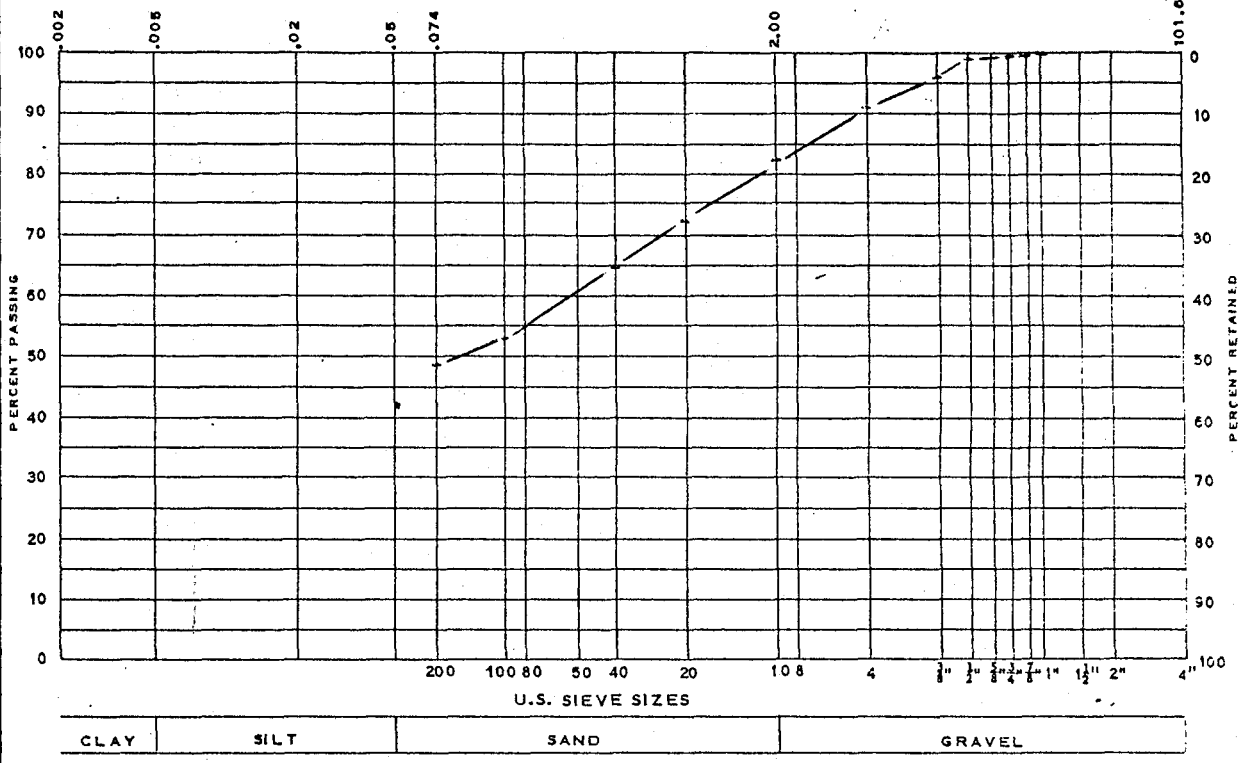
VE ANALYSIS

% FINER BY WEIGHT	SAMPLE NUMBER							
	SIEVE		% FINER	SIEVE				
100.0	1"		82.5	#10				
95.8	3/4"		72.4	#20				
93.9	1/2"		64.7	#40				
86.2	3/8"		53.3	#100				
71.3	#4		48.5	#200				
% + 4"								

SAMPLE NO.	ELEV. OR DEPTH	CLASSIFICATION	L.L.	P.L.	P.I.	L.A. % LOSS	MG SO_4 % LOSS	BSpG	COLOUR	% WATER ABSORB.	% ASPH. ABSORB.	F.M.
		A-4	27	22	5	16						
		ML										
		INORGANIC SILT AND FINE SAND										

AGGREGATE GRADING CHART

GRAIN SIZE IN MILLIMETERS



TYPICAL PETROGRAPHIC ANALYSIS

COARSE AGGREGATE

ROCK TYPE	%

FINE AGGREGATE

ROCK TYPE	%

LABORATORY'S REMARKS

PROJECT Dempster Highway Construction

LOCATION STA 295+00

HOLE No. ..... DEPTH 1'-6'

SAMPLE TYPE ..... DATE SAMPLED Jun/19

FIELD SAMPLE No. ..... LAB SAMPLE No. 238

D. P. W. WHITEHORSE - SOILS LAB

TESTING ENGINEER

DATE 1/4/20

MATERIALS ENGINEER'S REMARKS

MATERIALS ENGINEER

DATE

673 A

SHEET 67

E ANALYSIS

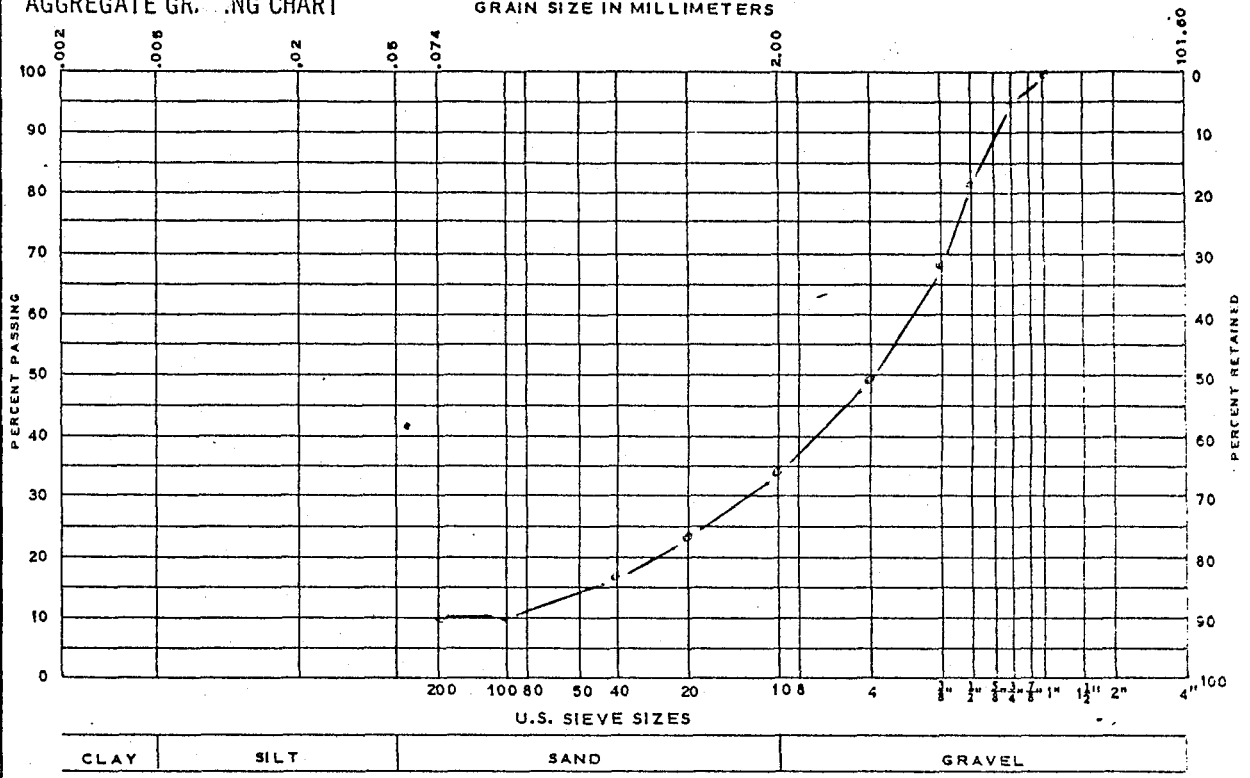
% FINER BY WEIGHT	SIEVE		% FINER	SIEVE
100.0	1"		34.4	#10
94.6	3/4"		23.8	#20
81.6	1/2"		17.1	#40
68.4	3/8"		10.4	#100
49.5	#4		10.1	#200
% + 4"				

SAMPLE NUMBER

SAMPLE NO.	ELEV. OR DEPTH	CLASSIFICATION	L.L.	P.L.	P.I.	L.A. % LOSS	MG SO_4 % LOSS	BSpG	COLOUR	% WATER ABSORB.	% ASPH. ABSORB.	F.M.
		A-1-a			0.0							
		GW										
		WELL GRADED GRAVEL										

AGGREGATE GRADING CHART

GRAIN SIZE IN MILLIMETERS



TYPICAL PETROGRAPHIC ANALYSIS

COARSE AGGREGATE

ROCK TYPE	%

FINE AGGREGATE

ROCK TYPE	%

LABORATORY'S REMARKS

PROJECT Dempster Highway Construction

LOCATION STA. 370+00

HOLE No. ..... DEPTH 0-6'

SAMPLE TYPE ..... DATE SAMPLED Jul 4/69

FIELD SAMPLE No. ..... LAB SAMPLE No. 299

D. P. W. WHITEHORSE - SOILS LAB

TESTING ENGINEER

11/4/70
DATE

MATERIALS ENGINEER'S REMARKS

MATERIALS ENGINEER

DATE

673 A

DRILL LOG SUMMARIES

JULY 1969 INVESTIGATION

PUBLIC WORKS, CANADA

PACIFIC REGION
DESIGN / CONSTRUCTION
CIVIL ENGINEERING – YUKON

Diamond Drill NX Rod

DRILLING RECORD

Dempster HWY. Mile 53.8

PROJECT: Upper Blackstone River

HOLE NO. 69-3-1 DATE July 7-19 /69

LOCATION See Plan

ELEVATION _____ DEPTH 50'

DRILLING NOTES			SAMPLE RECORD					
DEPTH FROM	DEPTH TO	SOIL DESCRIPTION	DEPTH FROM	DEPTH TO	NO.	TYPE	% RECOV.	N VALUE
0'	1½'	Organic material. Sandy silty clay (Frozen)						
1½'	5'	Fine - coarse sand & gravel						
5'	20'	Fine - coarse sand & gravel 3"-6" Cobbles						
20'	30'	Coarse gravel, some sand (Fine, black dark grey) Cobbles 3-8"						
30'	50'	Fine - coarse gravel. Some sand (Medium, black, dark grey) Cobbles 4-8" Boulders up to 3'						

PUBLIC WORKS, CANADA

PACIFIC REGION
DESIGN / CONSTRUCTION
CIVIL ENGINEERING – YUKON

Diamond Drill NX Rod

DRILLING RECORD

Dempster HWY. Mile 53.8

PROJECT Upper Blackstone River

HOLE NO. 69-3-2 DATE July 7-19 /69

LOCATION See Plan

ELEVATION _____ DEPTH 50'

DRILLING NOTES			SAMPLE RECORD					
DEPTH FROM	DEPTH TO	SOIL DESCRIPTION	DEPTH FROM	DEPTH TO	NO.	TYPE	% RECOV.	N VALUE
0'	1'	Organic Material (Frozen)						
1'	3'	Sandy, silty clay (Frozen)						
3'	50'	Fine - medium gravel & sand (Black, dark grey) Some Cobbles 3"-6" Boulders up to 2'						

PUBLIC WORKS, CANADA

PACIFIC REGION
DESIGN / CONSTRUCTION
CIVIL ENGINEERING – YUKON

Diamond Drill NX Rod

DRILLING RECORD

Dempster Hwy. Mile 53.8

PROJECT Upper Blackstone River

HOLE NO. 69-3-3 DATE July 7-19 /69

LOCATION See Plan

ELEVATION _____ DEPTH 25

DRILLING NOTES			SAMPLE RECORD					
DEPTH FROM	DEPTH TO	SOIL DESCRIPTION	DEPTH FROM	DEPTH TO	NO.	TYPE	% RECOV.	N VALUE
0'	1'	Organic Material (Frozen)						
1'	4'	Sandy, silty clay. Some cobbles 2"-4"						
4'	25'	Fine gravel, fine-medium sand. Some cobbles 3"-8" Some boulders up to 1½' (21'- 25')						

PUBLIC WORKS, CANADA

PACIFIC REGION
DESIGN / CONSTRUCTION
CIVIL ENGINEERING – YUKON

Diamond Drill NX Rod

DRILLING RECORD

Demoster Hwy. Mile 53.8

PROJECT Upper Blackstone River

HOLE NO. 69-3-4 DATE July 7-19/69

LOCATION See plan

ELEVATION _____ DEPTH 25

DRILLING NOTES			SAMPLE RECORD					
DEPTH FROM	TO	SOIL DESCRIPTION	DEPTH FROM	TO	NO.	TYPE	% RECOV.	N VALUE
0	2'	Organic material (Frozen)						
2'	5'	Sandy, silty clay. Some cobbles 3-6"						
5'	9'	Fine gravel, fine-coarse sand. Some cobbles 3-6"						
9'	19'	Fine-coarse gravel and sand. Some cobbles 3-8"						
19'	25'	Fine to coarse gravel & sand Some cobbles 3-8" Boulders up to 1½'						

PUBLIC WORKS, CANADA

PACIFIC REGION
DESIGN / CONSTRUCTION
CIVIL ENGINEERING – YUKON

Diamond Drill NXRod

DRILLING RECORD

Dempster Hwy. Mile 53.8

PROJECT Upper Blackstone River

HOLE NO. 69-3-5 DATE July 7-19 /69

LOCATION See Plan

ELEVATION _____ DEPTH 50'

DRILLING NOTES			SAMPLE RECORD					
DEPTH FROM	DEPTH TO	SOIL DESCRIPTION	DEPTH FROM	DEPTH TO	NO.	TYPE	% RECOV.	N VALUE
0'	2'	Fine silty sand & clay (Frozen) Some organic material						
2'	5'	Fine silty sand & clay. Some medium to coarse gravel. Some cobbles 3-6"						
5'	35'	Sand & gravel. Sand-dark brown Cobbles 3-8" Some boulders up to 1'						
35'	50'	Sand & gravel. Sand-dark brown Cobbles 3-8" Some boulders up to 3'						

PUBLIC WORKS, CANADA

PACIFIC REGION
DESIGN / CONSTRUCTION
CIVIL ENGINEERING – YUKON

Diamond DRill NX Rod

DRILLING RECORD

Dempster Hwy. Mile 53.8

PROJECT Upper Blackstone River

HOLE NO. 69-3-6 DATE July 7-19 /69

LOCATION See Plan

ELEVATION _____ DEPTH 52'

DRILLING NOTES			SAMPLE RECORD					
DEPTH FROM	DEPTH TO	SOIL DESCRIPTION	DEPTH FROM	DEPTH TO	NO.	TYPE	% RECOV.	N VALUE
0'	2'	Fine sand						
2'	36'	Fine to coarse sand & gravel Sand-dark brown. Cobbles 3-8" Some boulders up to 1½'						
36'	52'	Fine to coarse sand & gravel Sand-dark brown. Cobbles 3-8" Some boulders up to 2½' Fairly hard drilling						

PUBLIC WORKS, CANADA

PACIFIC REGION
DESIGN / CONSTRUCTION
CIVIL ENGINEERING – YUKON

Diamond Drill NX Rod

DRILLING RECORD

Dempster Hwy. Mile 53.8

PROJECT Upper Blackstone River

HOLE NO. 69-3-7 DATE July 7-19 /69

LOCATION See Plan

ELEVATION _____ DEPTH 25'

DRILLING NOTES			SAMPLE RECORD					
DEPTH FROM	DEPTH TO	SOIL DESCRIPTION	DEPTH FROM	DEPTH TO	NO.	TYPE	% RECOV.	N VALUE
0'	6'	Fine silty sand & clay Some medium to coarse gravel Cobbles 3-8" Easy drilling						
6'	25'	Medium to coarse sand & gravel Sand-light to dark brown Cobbles 3-8" Some boulders up to 1'						

PUBLIC WORKS, CANADA

PACIFIC REGION
DESIGN / CONSTRUCTION
CIVIL ENGINEERING – YUKON

Diamond Drilling NX Rod

DRILLING RECORD

Dempster Hwy. Mile 53.8

PROJECT Upper Blackstone River

HOLE NO. 69-3-8 DATE July 7-19 /69

LOCATION See Plan

ELEVATION _____ DEPTH 25'

DRILLING NOTES			SAMPLE RECORD					
DEPTH FROM	DEPTH TO	SOIL DESCRIPTION	DEPTH FROM	DEPTH TO	NO.	TYPE	% RECOV.	N VALUE
0'	4'	Fine silty sand & clay, some fine to coarse gravel Cobbles 3-6"						
4'	25'	Fine to coarse sand & gravel Sand-dark brown Cobbles 3-8" Some boulders up to 1'						

DRILL LOG SUMMARIES

OCT. 1974 INVESTIGATION

PUBLIC WORKS, CANADA
PACIFIC REGION
DESIGN / CONSTRUCTION
CIVIL ENGINEERING – YUKON

RECORD OF SUBSURFACE EXPLORATION PROGRAM

DRILLING AND LABORATORY TESTING

WHITEHORSE QUALITY CONTROL CENTER, WHITEHORSE, Y.T.

PROJECT DEMPSTER HWY. RELOC. 0510
HOLE NO 1 DATE Oct. 9-11/74
LOCATION Upper Blackstone River - Mi. 54.8
ELEVATION _____ SHEET 1 OF 1

DRILLING NOTES
HOLE DEPTH 51'
TYPE OF DRILL Rotary (Mud)
WATER LEVEL _____

LABORATORY TESTING

DEPTH (FT)	SOIL DESCRIPTION	SAMPLE ID: SAMPLE DEPTH (FT) FROM	TO	SAMPLE NUMBER (FIELD)	SAMPLE TYPE	LABORATORY NUMBER	NATURAL MOISTURE CONTENT %	DEGREE OF SATURATION %	VOID RATIO	POROSITY	DRY DENSITY LBS/CU.FT	SPECIFIC GRAVITY	STANDARD PENETRATION RESISTANCE BLOWS/FT	UNCONFINED COMPRESSIVE STRENGTH LBS/SQ.FT	CONSISTENCY LIMITS: LIQUID LIMIT %	PLASTIC LIMIT %	PLASTICITY INDEX %	UNIFIED CLASSIFICATION	MECHANICAL ANALYSIS: MAXIMUM SIZE	% PASSING .005 mm	No 200	No 40	No 10	No 4
	Organic & Organic Silt																							
2½'	Clayey Silty Sandy Gravel																							
	10 – 10½ – 4" recovery – slight plasticity – grey to med. brown	10	10½	1	SPT	9172	4						100/5"					SM	¾"	–	32.2	44.3	60.0	73.2
		15	15½	2	SPT	9173	9						108/6"					GM	1½"	–	20.8	30.3	42.6	51.7
		20	20½	3	SPT	9174	9						100/4½"					SM	1"	–	37.1	52.3	66.8	76.1
		25	25½	4	SPT	9175	13						25/1"					GM	1½"	–	24.5	35.2	45.8	54.0
	30 – 30½ – 5" recovery – dry to damp	30	30½	5	SPT	9176	9						150/5"					GM	1"	–	20.7	29.7	38.5	45.9
		35	35½	6	SPT	9177	14						150/5"					GP-GM	1½"	–	11.2	19.0	31.1	41.6
		40	40½	7	SPT	9178	9						150/3¾"					GP-GM	1"	–	9.0	13.8	22.3	32.8
		50	50½	8	SPT	9179	8						150/5"					GP	1½"	–	3.9	8.3	17.4	26.0
51'	Bottom of Hole																							

FIELD — DRILLED BY P.A., R.H. DATE Oct. 74 | LOGGED BY P.A. DATE Oct. 74
LABORATORY — TESTED BY Soils DATE JAN. 75 | RECORDED BY B.F. DATE 28-2-75
DRAFTING — PLOTTED DRWG. NO _____ BY _____ DATE _____ PROJECT NO. T.S _____

DRWG NO 60-151 T.S 73-107

LABORATORY TESTING REPORTS

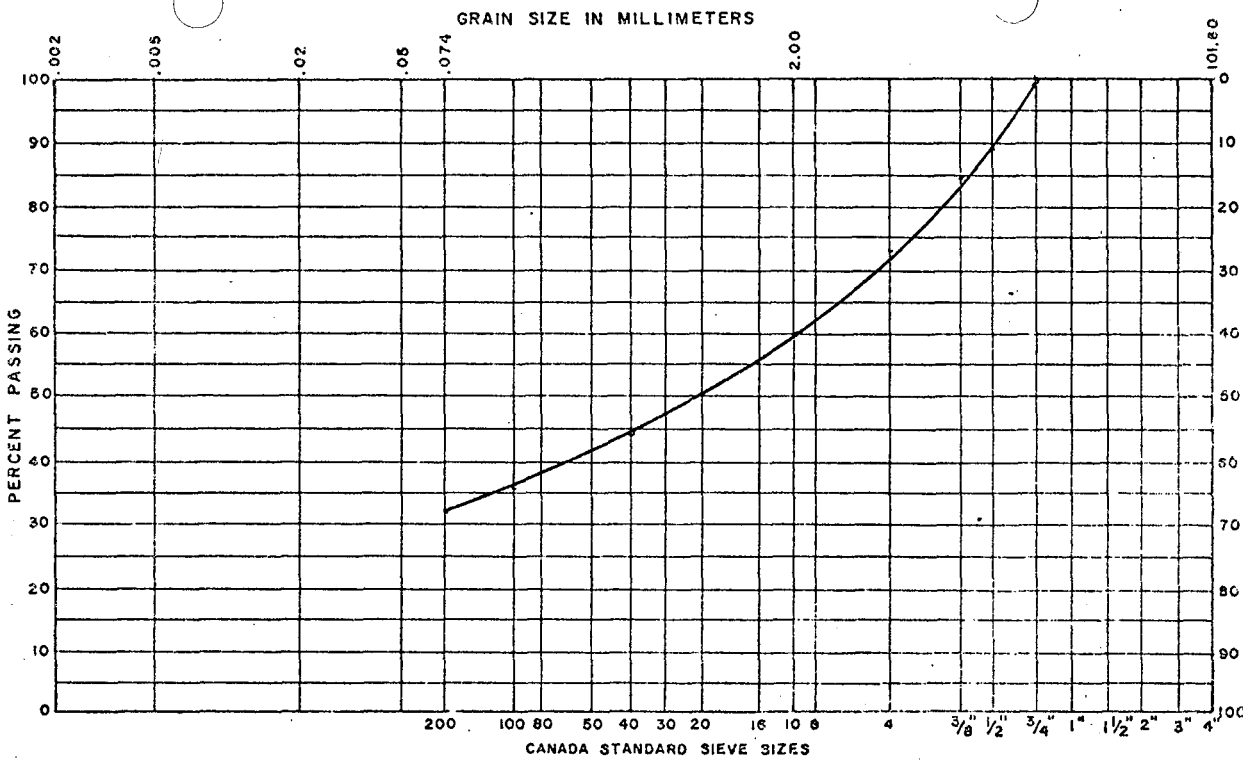
OCT. 1974 INVESTIGATION

GRAIN SIZE ANALYSIS

SIEVE SIZE	% FINER BY WEIGHT	SIEVE SIZE	% FINER BY WEIGHT	SIEVE SIZE	% FINER BY WEIGHT	SIEVE SIZE	% FINER BY WEIGHT
4"	100.0	#200	32.2				
2	89.0						
8	84.6						
4	73.2						
)	60.0						
)	50.4						
O	44.3						
O	35.8						

SAMPLE NO.	CLASSIFICATION	L.L.	P.L.	P.I.	NAT. %W	S.G.
	SM				4-	
	GRAVEL - SILT - SAND MIXTURE					

CRUSH COUNT %



PETROGRAPHIC ANALYSIS

MATERIAL TYPE	% OF TOTAL SAMPLE
SALT	
ESTONE	
ANITIC	
NDSTONE	
ALE	
HIST	
ARTZITE	
HERS	

PARTICLE SHAPE ANALYSIS

UND	
B-ROUND	
GULAR	
B-ANGULAR	
ATS	
EDLES	

PROJECT DEMPSTER HWY. RELOCATION MILE 0-78.

LOCATION UPPER BLACKSTONE RIVER MILE 54.8

HOLE NO. 1

DEPTH 10'-10'12' FIELD NO. 1

SAMPLE TYPE S/P

LAB. NO. 9172

LABORATORY'S REMARKS

INSUFFICIENT SAMPLE FOR FURTHER TESTING.

DATE SAMPLED 9-10-74.

DATE RECEIVED - 10-74

DATE RECORDED 30-12-74.

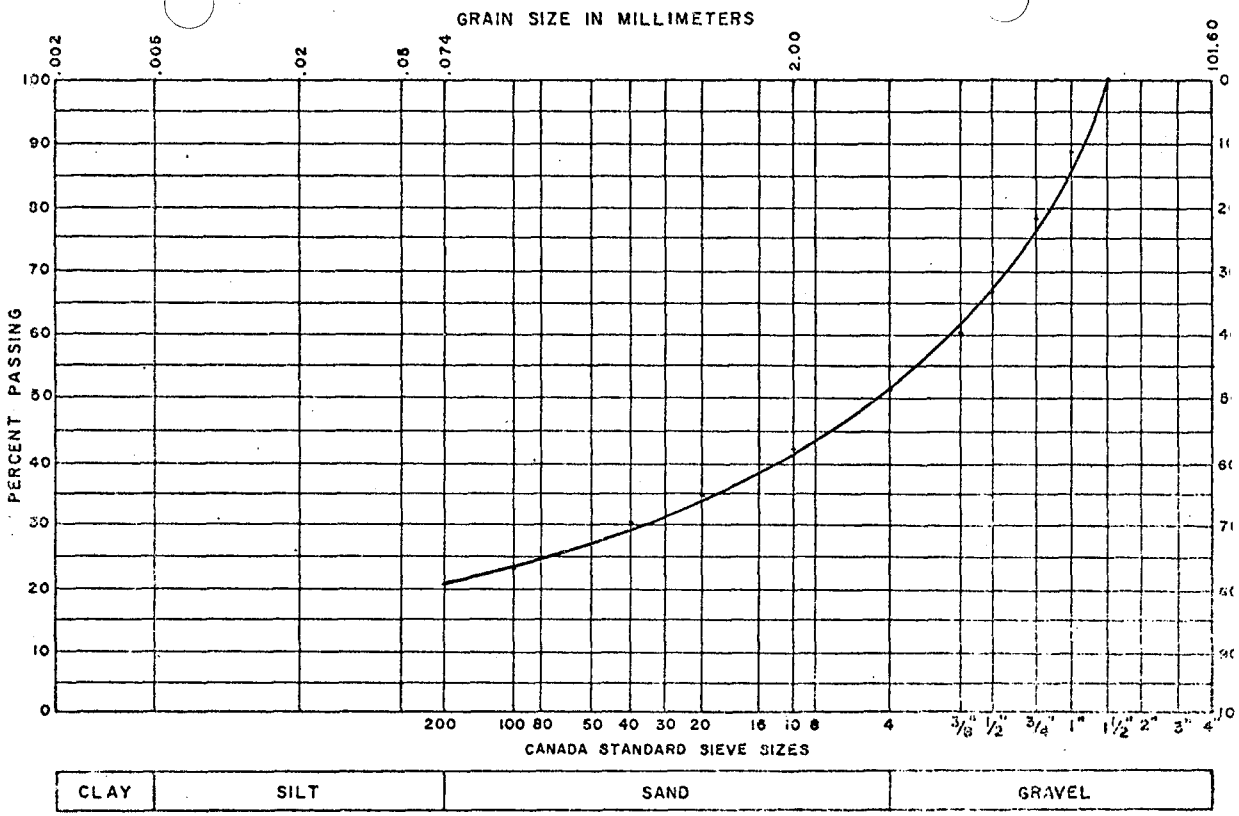
TESTED BY RK JE ~~DA~~ BJ SE

GRAIN SIZE ANALYSIS

SIEVE SIZE	% FINER BY WEIGHT	SIEVE SIZE	% FINER BY WEIGHT		SIEVE SIZE	% FINER BY WEIGHT	SIEVE SIZE	% FINER BY WEIGHT
1/2"	100.0	#40	30.3					
1	88.8	100	23.6					
3/4	78.4	200	20.8					
1/2	66.9							
3/8	60.6							
#4	51.7							
10	42.6							
30	34.9							

SAMPLE NO.	CLASSIFICATION	L.L.	P.L.	P.I.	NAT. %W	S.G.
	GM				9	
	SILTY SANDY GRAVEL					

CRUSH COUNT %



PETROGRAPHIC ANALYSIS

MATERIAL TYPE	% OF TOTAL SAMPLE
BASALT	
LIMESTONE	
GRANITIC	
SANDSTONE	
SHALE	
SCHIST	
QUARTZITE	
OTHERS	

PARTICLE SHAPE ANALYSIS

ROUND	
SUB-ROUND	
ANGULAR	
SUB-ANGULAR	
FLATS	
NEEDLES	

PROJECT DEMPSTER HWY. RELOCATION MILE 0-78

LOCATION UPPER BLACKSTONE RIVER MILE 54.8

HOLE NO. 1

DEPTH 15'-15 1/2' FIELD NO. 2

SAMPLE TYPE S/P

LAB. NO. 9173

LABORATORY'S REMARKS

INSUFFICIENT SAMPLE FOR FURTHER TESTING

DATE SAMPLED 09-10-74.

DATE RECEIVED - 10-74.

DATE RECORDED 30-12-74.

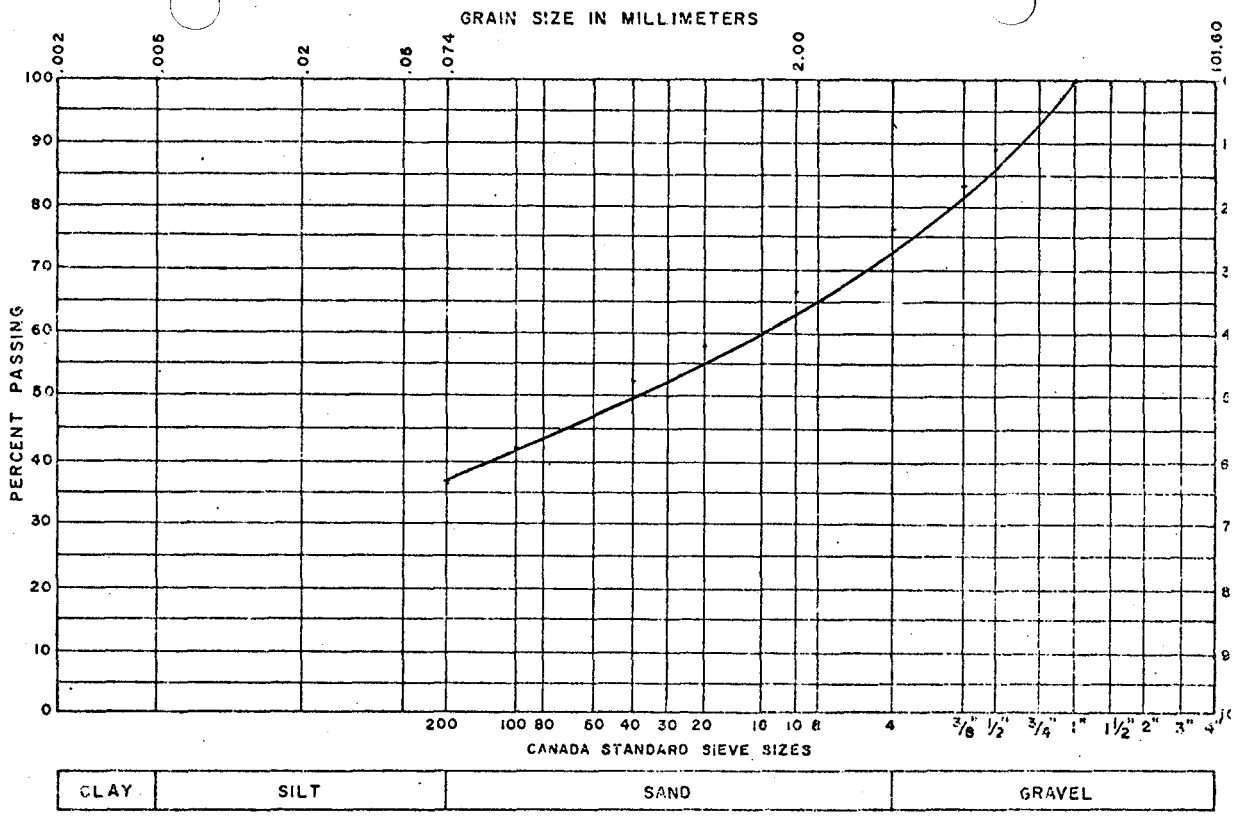
TESTED BY RK JE DH GT SE

GRAIN SIZE ANALYSIS

SIEVE SIZE	% FINER BY WEIGHT	SIEVE SIZE	% FINER BY WEIGHT		SIEVE SIZE	% FINER BY WEIGHT	SIEVE SIZE	% FINER BY WEIGHT
1"	100.0	#100	42.2					
3/4	95.1	200	37.1					
1/2	89.0							
3/8	83.6							
#4	76.1							
10	66.8							
20	58.7							
40	52.3							

SAMPLE NO.	CLASSIFICATION	L.L.	P.L.	P.I.	NAT. %W	S.G.
	SM				9	
	GRACELLY SAND-SILT MIXTURE					

CRUSH COUNT %



PETROGRAPHIC ANALYSIS

MATERIAL TYPE	% OF TOTAL SAMPLE
BASALT	
LIMESTONE	
GRANITIC	
SANDSTONE	
SHALE	
SCHIST	
QUARTZITE	
OTHERS	

PARTICLE SHAPE ANALYSIS

ROUND	
SUB-ROUND	
ANGULAR	
SUB-ANGULAR	
FLATS	
NEEDLES	

PROJECT DEMPSTER HWY. RELOCATION MILE 0-78

LOCATION UPPER BLACKSTONE RIVER MILE 54.8

HOLE NO. 1

DEPTH 20'-20 1/2' FIELD NO. 3

SAMPLE TYPE S/P

LAB. NO. 9174

LABORATORY'S REMARKS

INSUFFICIENT SAMPLE FOR FURTHER TESTING.

DATE SAMPLED 10-10-74

DATE RECEIVED - 10-74.

DATE RECORDED 30-12-74.

TESTED BY RK JE ~~DT~~ BJ SE (DT)

GRAIN SIZE ANALYSIS

SIEVE SIZE	% FINER BY WEIGHT	SIEVE SIZE	% FINER BY WEIGHT		SIEVE SIZE	% FINER BY WEIGHT	SIEVE SIZE	% FINER BY WEIGHT
1/2"	100.0	#40	35.2					
1	89.1	100	28.2					
3/4	89.1	200	24.5					
1/2	75.4							
3/8	64.7							
#4	54.0							
10	45.8							
20	39.4							

SAMPLE NO.	CLASSIFICATION	L.L.	P.L.	P.I.	NAT. %W	F.M.
	GM				13	
	SILTY-SANDY GRAVEL					

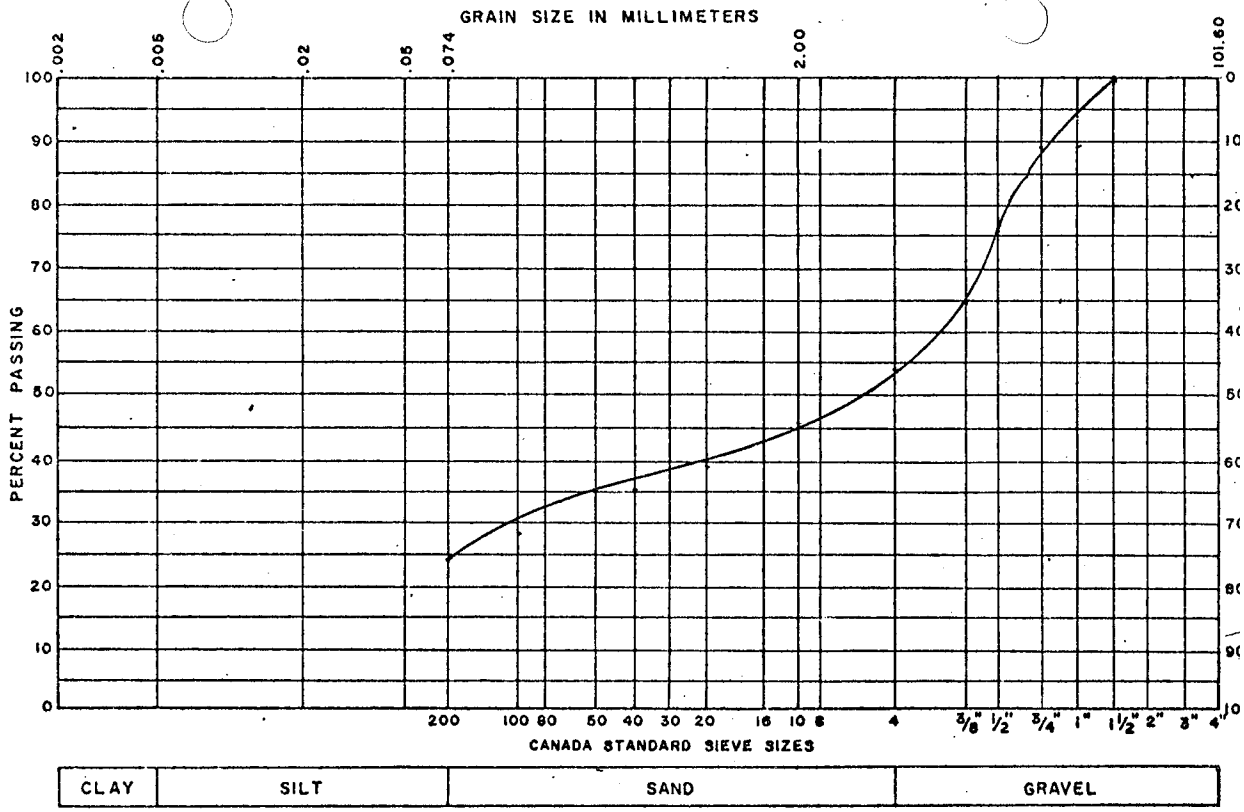
CRUSH COUNT %

PETROGRAPHIC ANALYSIS

MATERIAL TYPE	% OF TOTAL SAMPLE
SALT	
MESTONE	
ANITIC	
NDSTONE	
HALE	
CHIST	
UARTZITE	
THERS	

PARTICLE SHAPE ANALYSIS

OUND	
UB-ROUND	
NGULAR	
UB-ANGULAR	
LATS	
EEDLES	



PROJECT DEMASTER HWY. RELOCATION MILE 0-78

LOCATION UPPER BLACKSTONE RIVER MILE 54.8

HOLE NO. 1

DEPTH 25'-25 1/2' FIELD NO. 4

SAMPLE TYPE S/P

LAB. NO. 9175

LABORATORY'S REMARKS

INSUFFICIENT SAMPLE FOR FURTHER TESTING

DATE SAMPLED 10-10-74

DATE RECEIVED - 10-74

DATE RECORDED 30-12-74

TESTED BY RK JE DH ES SE

GRAIN SIZE ANALYSIS

SIEVE SIZE	% FINER BY WEIGHT	SIEVE SIZE	% FINER BY WEIGHT		SIEVE SIZE	% FINER BY WEIGHT	SIEVE SIZE	% FINER BY WEIGHT
1"	100.0	#100	23.1					
3/4	75.9	200	20.7					
1/2	59.8							
3/8	52.1							
#4	45.9							
10	38.5							
16	33.5							
40	29.7							

SAMPLE NO.	CLASSIFICATION	L.L.	P.L.	P.I.	NAT. %W	S.G.
	GM				9	
	SILTY SANDY GRAVEL					

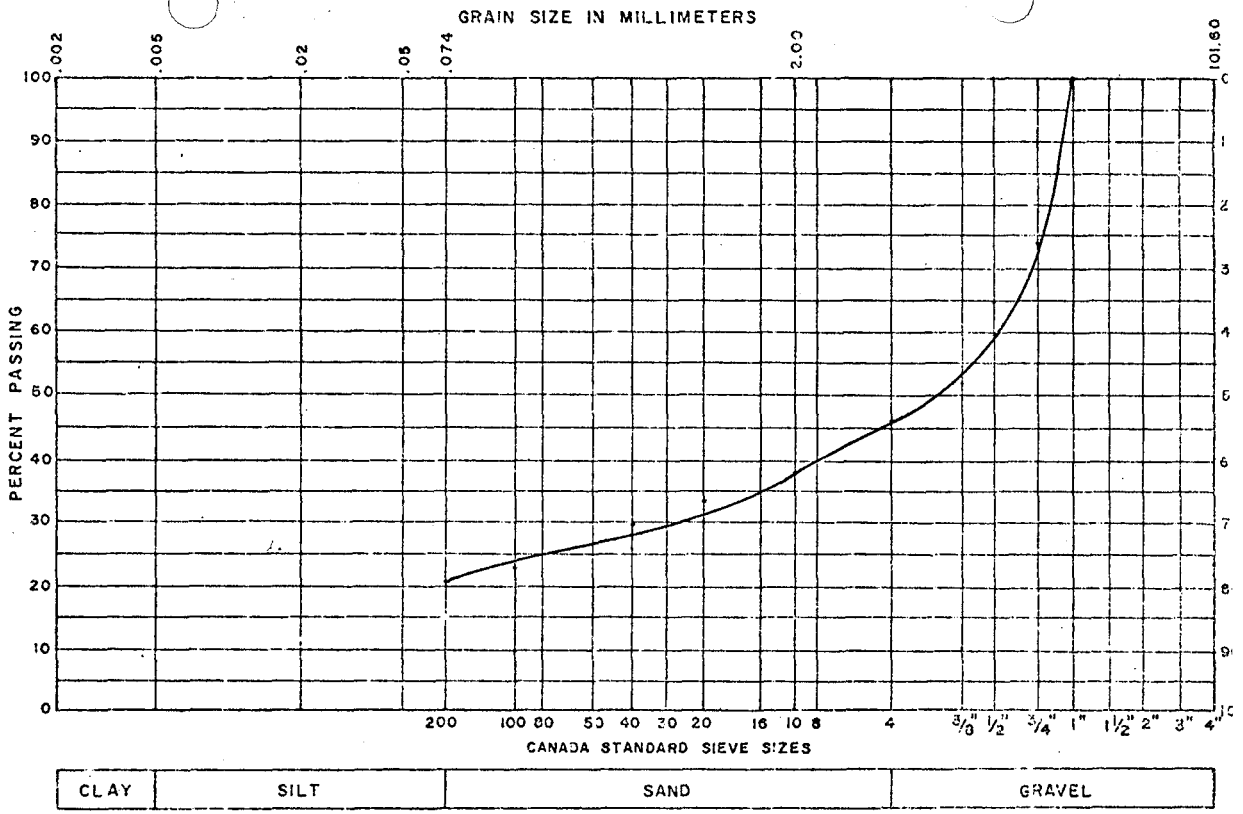
CRUSH COUNT %

PETROGRAPHIC ANALYSIS

MATERIAL TYPE	% OF TOTAL SAMPLE
BASALT	
LIMESTONE	
GRANITIC	
SANDSTONE	
SHALE	
SCHIST	
QUARTZITE	
OTHERS	

PARTICLE SHAPE ANALYSIS

ROUND	
SUB-ROUND	
ANGULAR	
SUB-ANGULAR	
FLATS	
NEEDLES	



PROJECT DEMPSTER HWY. RELOCATION MILE 0-78

LOCATION UPPER BLACKSTONE RIVER MILE 54.8

HOLE NO. 1

DEPTH 30'-30½' FIELD NO. 5

SAMPLE TYPE S/P

LAB. NO. 9176

LABORATORY'S REMARKS

INSUFFICIENT SAMPLE FOR FURTHER TESTING.

DATE SAMPLED 10-10-74

DATE RECEIVED - 10-74

DATE RECORDED 2-1-75

TESTED BY RK JE DH BS SE

GRAIN SIZE ANALYSIS

SIEVE SIZE	% FINER BY WEIGHT	SIEVE SIZE	% FINER BY WEIGHT	SIEVE SIZE	% FINER BY WEIGHT	SIEVE SIZE	% FINER BY WEIGHT
2"	100.0	#40	19.0				
	87.3	100	13.6				
4	77.6	200	11.2				
2	62.0						
3	53.1						
4	41.6						
)	31.1						
)	23.4						

LE	CLASSIFICATION	L.L.	P.L.	P.I.	NAT. %W	S.G.
	GP-GM				14	
	SILTY GRAVEL					

CRUSH COUNT %

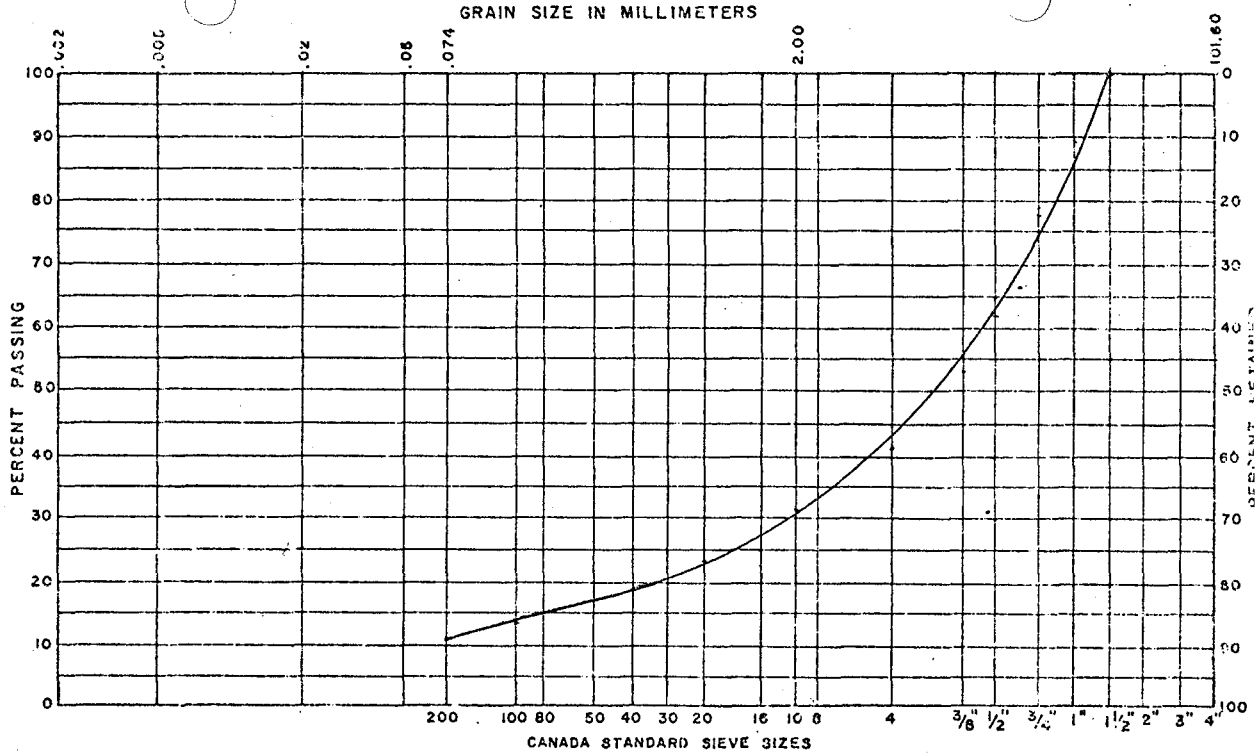
PETROGRAPHIC ANALYSIS

MATERIAL TYPE	% OF TOTAL SAMPLE
ALT	
ESTONE	
NITIC	
DSTONE	
LE	
IST	
RTZITE	
IERS	

PARTICLE SHAPE ANALYSIS

ND	
-ROUND	
ULAR	
-ANGULAR	
TS	
DLES	

GRAIN SIZE IN MILLIMETERS



PROJECT DEMPSTER HWY. RELOCATION MILE 0-78

LOCATION UPPER BLACKSTONE RIVER MILE 54.8

HOLE NO. 1

DEPTH 35'-35½' FIELD NO. 6

SAMPLE TYPE S/P

LAB. NO. 9177

LABORATORY'S REMARKS

INSUFFICIENT SAMPLE FOR FURTHER TESTING

DATE SAMPLED 11-10-74

DATE RECEIVED - 10-74

DATE RECORDED 2-1-75

TESTED BY RK JE JH KJ SE

GRAIN SIZE ANALYSIS

SIEVE SIZE	% FINER BY WEIGHT	SIEVE SIZE	% FINER BY WEIGHT		SIEVE SIZE	% FINER BY WEIGHT	SIEVE SIZE	% FINER BY WEIGHT
"	100.0	#10	10.1					
4	80.0	200	9.0					
2	56.7							
8	49.0							
4	32.3							
0	22.3							
0	16.9							
0	13.3							

SAMPLE NO.	CLASSIFICATION	L.L.	P.L.	P.I.	NAT. %W	S.G.
	GP-GM				9	
	POORLY GRADED SILTY GRAVEL					

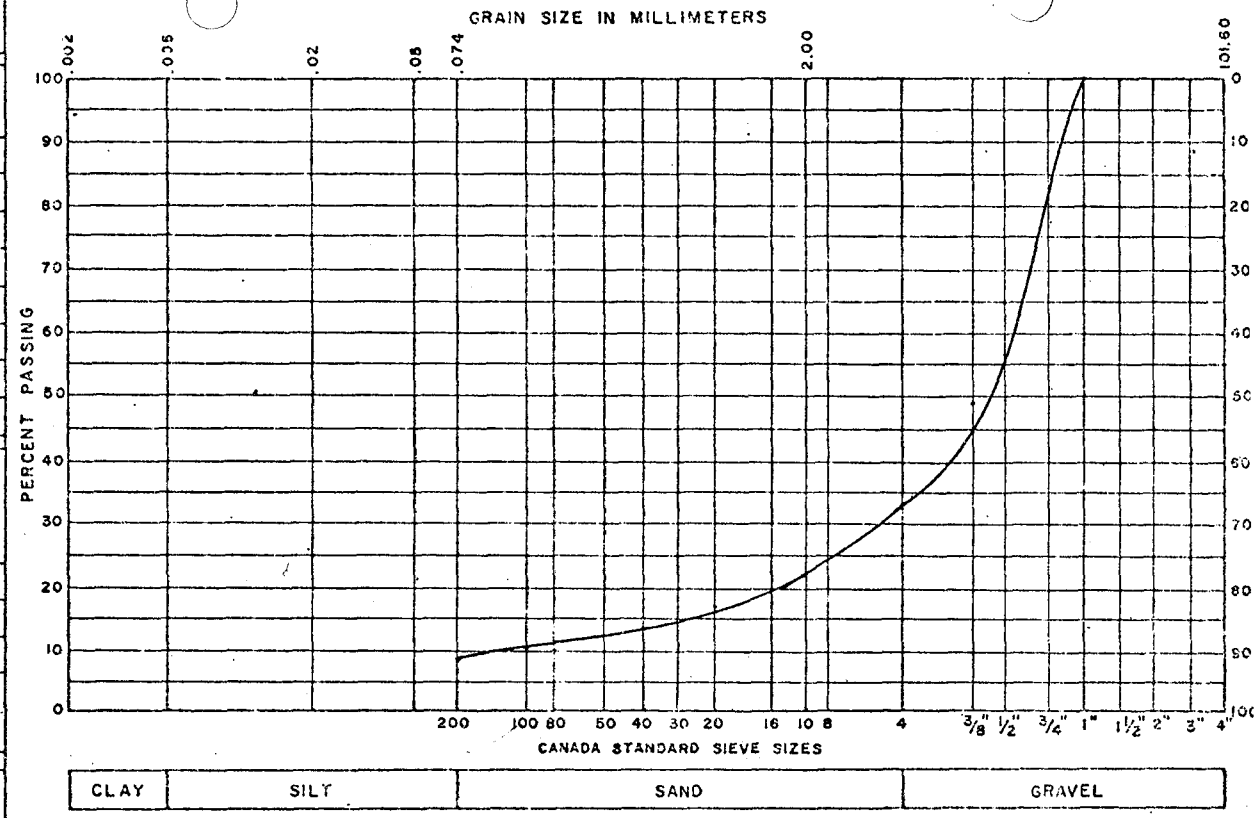
CRUSH COUNT %

PETROGRAPHIC ANALYSIS

MATERIAL TYPE	% OF TOTAL SAMPLE
SALT	
ESTONE	
ANITIC	
NDSTONE	
ALE	
HIST	
ARTZITE	
HERS	

PARTICLE SHAPE ANALYSIS

UND	
B-ROUND	
GULAR	
B-ANGULAR	
ATS	
EDLES	



PROJECT DEMPSTER HWY. RELOCATION MILE 0-78

LOCATION UPPER BLACKSTONE RIVER MILE 54.8

HOLE NO. 1

DEPTH 40'-40½' FIELD NO. 7

SAMPLE TYPE S/P

LAB. NO. 9178

LABORATORY'S REMARKS

INSUFFICIENT SAMPLE FOR FURTHER TESTING

DATE SAMPLED 11-10-74

DATE RECEIVED - 10 - 74

DATE RECORDED 2-1-75

TESTED BY RK JE ~~DH~~ BJ SE

GRAIN SIZE ANALYSIS

SIEVE SIZE	% FINER BY WEIGHT	SIEVE SIZE	% FINER BY WEIGHT		SIEVE SIZE	% FINER BY WEIGHT	SIEVE SIZE	% FINER BY WEIGHT
3"	100.0	#40	8.3					
	52.2	100	5.0					
4	52.2	200	3.9					
2	43.6							
3	33.0							
4	26.0							
0	17.4							
0	11.4							

PLE O.	CLASSIFICATION	L.L.	P.L.	P.I.	NAT. %W	S.G.
	GP				8	
	POORLY GRADED GRAVEL					

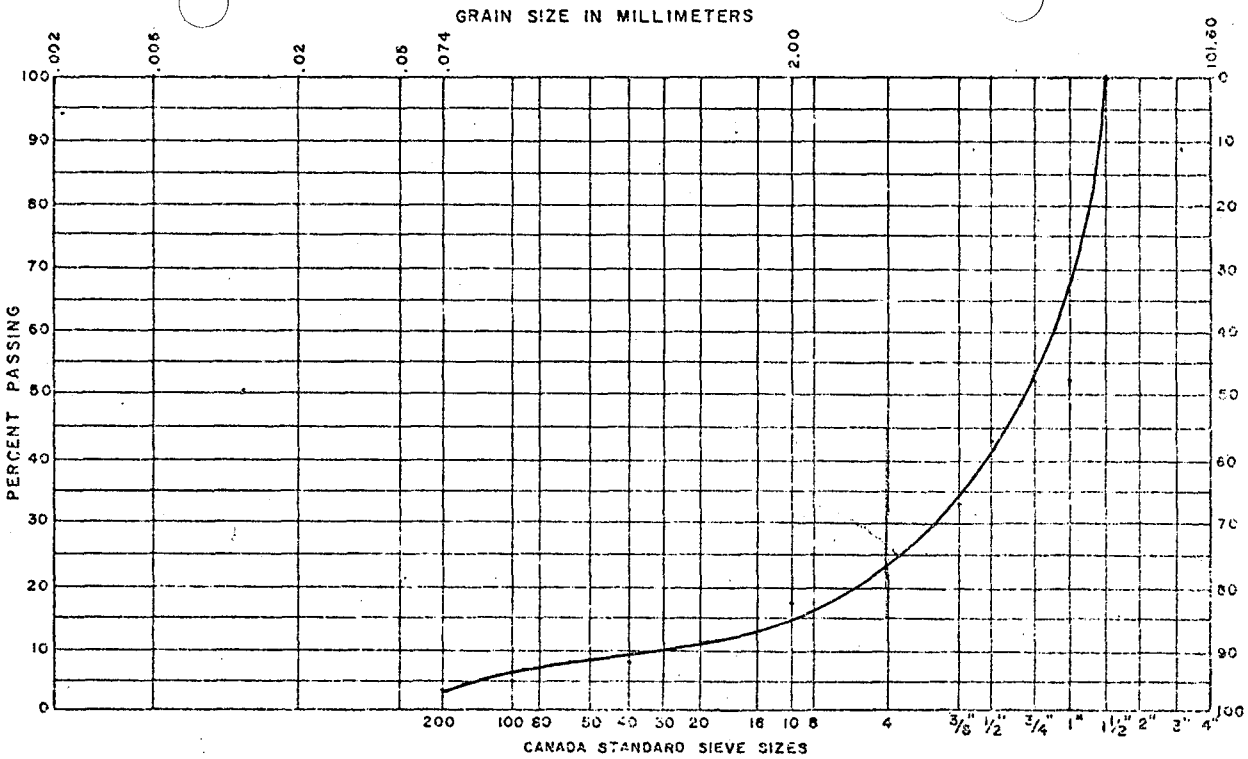
CRUSH COUNT %

PETROGRAPHIC ANALYSIS

MATERIAL TYPE	% OF TOTAL SAMPLE
SALT	
ESTONE	
ANITIC	
NDSTONE	
ALE	
HIST	
ARTZITE	
HERS	

PARTICLE SHAPE ANALYSIS

UND	
B-ROUND	
GULAR	
B-ANGULAR	
ATS	
EDLES	



PROJECT DEMPSTER HWY. RELOCATION MILE 0-78.

LOCATION UPPER BLACKSTONE RIVER MILE 54.8.

HOLE NO. 1

DEPTH 50'-50½' FIELD NO. 8

SAMPLE TYPE S/P

LAB. NO. 9179.

LABORATORY'S REMARKS

INSUFFICIENT SAMPLE FOR FURTHER TESTING.

DATE SAMPLED 11-10-74

DATE RECEIVED - 10-74.

DATE RECORDED 2-1-75

TESTED BY RK JE DH BT SE

GRAIN SIZE ANALYSIS

SIEVE SIZE	% FINER BY WEIGHT	SIEVE SIZE	% FINER BY WEIGHT		SIEVE SIZE	% FINER BY WEIGHT	SIEVE SIZE	% FINER BY WEIGHT
1"	100.0	#10	37.8					
3/4	92.3	200	24.3					
1/2	87.5							
3/8	85.0							
#4	69.4							
10	55.5							
30	44.6							
40	37.6							

SAMPLE NO.	CLASSIFICATION	L.L.	P.L.	P.I.	NAT. %W	S.G.
	SM	19.9		TRACE	13	
	SILTY GRAVELLY SAND					

CRUSH COUNT %

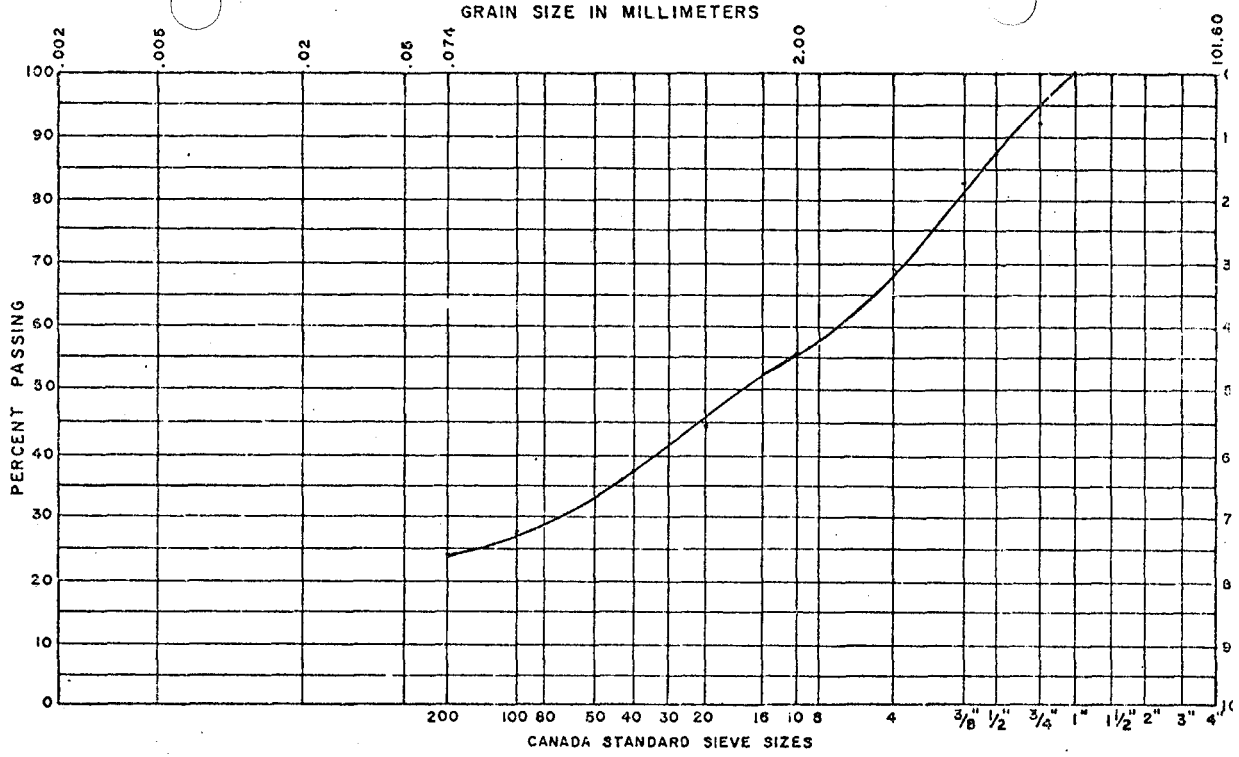
PETROGRAPHIC ANALYSIS

MATERIAL TYPE	% OF TOTAL SAMPLE
BASALT	
LIMESTONE	
GRANITIC	
SANDSTONE	
SHALE	
SCHIST	
QUARTZITE	
OTHERS	

PARTICLE SHAPE ANALYSIS

ROUND	
SUB-ROUND	
ANGULAR	
SUB-ANGULAR	
FLATS	
NEEDLES	

GRAIN SIZE IN MILLIMETERS



CLAY	SILT	SAND	GRAVEL

PROJECT DEMPSTER HWY RELOCATION MILE 0-78

LOCATION UPPER BLACKSTONE RIVER MILE 54.8

HOLE NO. 1

DEPTH 15'-21' FIELD NO. -

SAMPLE TYPE AUGER

LAB. NO. 9180

LABORATORY'S REMARKS

DATE SAMPLED 9-10-74

DATE RECEIVED - 10-74

DATE RECORDED 03-1-75

TESTED BY RK JE DH BJ SE

DRILL LOG SUMMARIES
JULY 1977 INVESTIGATION

Public Works Canada

MATERIALS QUALITY CONTROL LABORATORY
WHITEHORSE, Y.T.

SUBSURFACE TESTING REPORT

PROJECT: UPPER BLACKSTONE RIVER D/H Mi 33.8 | HOLE LOCATION: STA. 398 + 00

DATE DRILLED: 13-7-77 | DRILL TECHNICIAN: P.A. | PLOTTED BY: S.C | HOLE ELEVATION: | HOLE NO.: 1

HOLE DEPTH 13'
TYPE OF DRILL AUGER
WATER LEVEL

DEPTH (FT.)	SOIL DESCRIPTION	N.R.C. PERMAFROST CLASSIFICATION	SAMPLE IDENTIFICATION DATA: SAMPLE DEPTH (FT.)	SAMPLE NUMBER (FIELD)	SAMPLE TYPE	LABORATORY NUMBER	NATURAL MOISTURE CONTENT %	CONSISTENCY LIMITS: LIQUID LIMIT %	PLASTIC LIMIT %	PLASTICITY INDEX %	MECHANICAL ANALYSIS: GRAVEL %	SAND %	<.074 mm >.005 mm %	<.005 mm %	DRY DENSITY LBS. CU. FT.	STANDARD PENETRATION RESISTANCE BLOWS FT.	UNIFIED CLASSIFICATION
0	ORGANIC PEAT																
	1'	1															
	SILTY SAND MIXTURE																
	2½																
	GRAVELLY SILT SAND	Vx, Vc & Vr.	3'														
5			5'	1	AUGER	363	55.8	18.8		N.P.	17	48	25	10			SM
	6'																
	SANDY SILT. ICE 2"	7½ (2" ice)	7½														
	SANDY SILT		9½	2	AUGER	364	48.1	17.9		N.P.	2	39	50	9			ML
10	ICE 2"	10½ (2" ice)															
	10½																
	SANDY SILT.																
	END HOLE 13'	13															
	GRAVEL																
15																	
20																	
25																	

DRWG. NO. 60-194

Public Works Canada

MATERIALS QUALITY CONTROL LABORATORY
WHITEHORSE, Y.T.

SUBSURFACE TESTING REPORT

PROJECT: UPPER BLACKSTONE RIVER D/W MI 53.8 | HOLE LOCATION: STA. 396+40

DATE DRILLED: 13-7-77 | DRILL TECHNICIAN: P.A. | PLOTTED BY: S.C | HOLE ELEVATION: | HOLE NO.: 2

HOLE DEPTH 12'1/2'
TYPE OF DRILL AUGER
WATER LEVEL

DEPTH (FT.)	SOIL DESCRIPTION	N.R.C. PERMAFROST CLASSIFICATION	SAMPLE IDENTIFICATION DATA: SAMPLE DEPTH (FT.)	SAMPLE NUMBER (FIELD)	SAMPLE TYPE	LABORATORY NUMBER	NATURAL MOISTURE CONTENT %	CONSISTENCY LIMITS: LIQUID LIMIT %	PLASTIC LIMIT %	PLASTICITY INDEX %	MECHANICAL ANALYSIS: GRAVEL %	SAND %	>.005mm <.074mm %	<.005mm %	DRY DENSITY LBS./CU. FT.	STANDARD PENETRATION RESISTANCE BLOWS/FT.	UNIFIED CLASSIFICATION
0	ORGANIC (PEAT) 6"	1/2															
	ORGANIC. 2'	2															
	ORGANIC ICE 3'	ICE 3															
	GRAVELLY SILT SAND MIXTURE	Vc, Vx some Vr	3 1/2 – 5'	3	AUGER	366	33.1			N.P.	10	62	17	11			SM
5	GRAVELLY SILTY SAND 6'																
	GRAVELLY SAND 10'																
10	END HOLE 12'1/2	12'1/2															
15																	
20																	
25																	

DRWG. NO. 60-194

Public Works Canada

MATERIALS QUALITY CONTROL LABORATORY
WHITEHORSE, Y.T.

SUBSURFACE TESTING REPORT

PROJECT: UPPER BLACKSTONE RIVER D/H MI 53.8 | HOLE LOCATION: STA. 394+40 ℄

DATE DRILLED: 13-7-77 | DRILL TECHNICIAN: P.A. | PLOTTED BY: S.C. | HOLE ELEVATION: | HOLE NO.: 3

HOLE DEPTH 10½

TYPE OF DRILL AUGER

WATER LEVEL

DEPTH (FT.)	SOIL DESCRIPTION	N.R.C. PERMAFROST CLASSIFICATION	SAMPLE IDENTIFICATION DATA: SAMPLE DEPTH (FT.)	SAMPLE NUMBER (FIELD)	SAMPLE TYPE	LABORATORY NUMBER	NATURAL MOISTURE CONTENT %	CONSISTENCY LIMITS: LIQUID LIMIT %	PLASTIC LIMIT %	PLASTICITY INDEX %	MECHANICAL ANALYSIS: GRAVEL %	SAND %	>.005 mm <.074 mm %	<.005 mm %	DRY DENSITY LBS./CU. FT.	STANDARD PENETRATION RESISTANCE BLOWS/FT.	UNIFIED CLASSIFICATION
0	ORGANIC PEAT	½															
	1																
	ORGANIC - ORGANIC SILT	2															
	2' ICE	2½															
	2½ GRAVEL																
	GRAVELLY SAND	ICE															
5		Vx, Vc															
10	END HOLE 10½	10½															
15																	
20																	
25																	

DRWG. NO. 60-194

Public Works Canada

MATERIALS QUALITY CONTROL LABORATORY
WHITEHORSE, Y.T.

SUBSURFACE TESTING REPORT

PROJECT: UPPER BLACKSTONE RIVER D/H MI 53.8 | HOLE LOCATION: STA. 393+25 ℄

DATE DRILLED: 13-7-77 | DRILL TECHNICIAN: P.A. | PLOTTED BY: S.C | HOLE ELEVATION: | HOLE NO.: 4

HOLE DEPTH 6'

TYPE OF DRILL AUGER

WATER LEVEL

DEPTH (FT.)	SOIL DESCRIPTION	N.R.C. PERMAFROST CLASSIFICATION	SAMPLE IDENTIFICATION DATA: SAMPLE DEPTH (FT.)	SAMPLE NUMBER (FIELD)	SAMPLE TYPE	LABORATORY NUMBER	NATURAL MOISTURE CONTENT %	CONSISTENCY LIMITS: LIQUID LIMIT %	PLASTIC LIMIT %	PLASTICITY INDEX %	MECHANICAL ANALYSIS: GRAVEL %	SAND %	>.005mm %	<.074mm %	<.005mm %	DRY DENSITY LBS./CU. FT.	STANDARD PENETRATION RESISTANCE BLOWS/FT.	UNIFIED CLASSIFICATION
0	ORGANIC PEAT 6'	½																
	ICE	ICE																
	2'	2	2'															
	GRAVELLY SANDY SILT 3'	Vx	3½'	4	AUGER	362	86.9	36.9	N.P.		11	39	33	17				SM-ML MIX.
	GRAVELLY SAND	+	4															
5	5'	Vc	5½'	5	AUGER	367	64.2	37.9	N.P.		13	55	21	11				SM
	GRAVEL - GRAVELLY SAND 6'	6																
	END HOLE COARSE GRAVEL																	
10																		
15																		
20																		
25																		

DRWG. NO. 60-194

Public Works Canada

MATERIALS QUALITY CONTROL LABORATORY
WHITEHORSE, Y.T.

SUBSURFACE TESTING REPORT

PROJECT: UPPER BLACKSTONE RIVER D/H MI 53.8 | HOLE LOCATION: STA 292+80 0/S 5' RT

DATE DRILLED: 13-7-77 | DRILL TECHNICIAN: P.A. | PLOTTED BY: S.C | HOLE ELEVATION: | HOLE NO.: 5

HOLE DEPTH 5 1/2'

TYPE OF DRILL Auger

WATER LEVEL

DEPTH (FT.)	SOIL DESCRIPTION	N.R.C. PERMAFROST CLASSIFICATION	SAMPLE IDENTIFICATION DATA: SAMPLE DEPTH (FT.)	SAMPLE NUMBER (FIELD)	SAMPLE TYPE	LABORATORY NUMBER	NATURAL MOISTURE CONTENT %	CONSISTENCY LIMITS: LIQUID LIMIT %	PLASTIC LIMIT %	PLASTICITY INDEX %	MECHANICAL ANALYSIS: GRAVEL %	SAND %	<.074 mm >.005 mm %	<.005 mm %	DRY DENSITY LBS./CU. FT.	STANDARD PENETRATION RESISTANCE BLOWS/FT.	UNIFIED CLASSIFICATION
0	Silt. - Organic traces																
1'		1	1'														
	Some fine sand	Vx		6	Auger	357	40.6	28.5	N.P.			28	54	18			ML
3 1/2		Vc	3'														
	Gravel Gravelly sand End Hole																
5 1/2		5 1/2															
10																	
15																	
20																	
25																	

DRWG. NO. 60-194

Public Works Canada

MATERIALS QUALITY CONTROL LABORATORY
WHITEHORSE, Y.T.

SUBSURFACE TESTING REPORT

PROJECT: UPPER BLACKSTONE RIVER D/H MI 53.8 | HOLE LOCATION: STA 392+80 0/S 27' RT

DATE DRILLED: 13-7-77 | DRILL TECHNICIAN: P.A. | PLOTTED BY: S.C | HOLE ELEVATION: | HOLE NO.: 6

HOLE DEPTH 5'

TYPE OF DRILL AUGER

WATER LEVEL

DEPTH (FT.)	SOIL DESCRIPTION	N.R.C. PERMAFROST CLASSIFICATION	SAMPLE IDENTIFICATION DATA: SAMPLE DEPTH (FT.)	SAMPLE NUMBER (FIELD)	SAMPLE TYPE	LABORATORY NUMBER	NATURAL MOISTURE CONTENT %	CONSISTENCY LIMITS: LIQUID LIMIT %	PLASTIC LIMIT %	PLASTICITY INDEX %	MECHANICAL ANALYSIS: GRAVEL %	SAND %	<.074mm >.005mm %	<.005mm %	DRY DENSITY LBS./CU. FT.	STANDARD PENETRATION RESISTANCE BLOWS/FT.	UNIFIED CLASSIFICATION
0	ORGANIC SILT.																
	1'	1															
	SILT SAND MIXTURE ORGANIC TRACES	V_{x_1}															
	3½	V_c	3½														
	GRAVEL GRAVELLY SAND END HOLE 5'	5	5'	7	AUGER	359	12.3	NP			36	52	-12-				SM
5																	
10																	
15																	
20																	
25																	

DRWG. NO. 60-194

Public Works Canada

MATERIALS QUALITY CONTROL LABORATORY
WHITEHORSE, Y.T.

SUBSURFACE TESTING REPORT

PROJECT: UPPER BLACKSTONE RIVER D/H Mi 53.8 | HOLE LOCATION: STA 292+45 9/S 25' RT

DATE DRILLED: 13-7-77 | DRILL TECHNICIAN: P.A. | PLOTTED BY: S.C | HOLE ELEVATION: | HOLE NO.: 7

HOLE DEPTH 6'

TYPE OF DRILL AUGER

WATER LEVEL

DEPTH (FT.)	SOIL DESCRIPTION	N.R.C. PERMAFROST CLASSIFICATION	SAMPLE IDENTIFICATION DATA: SAMPLE DEPTH (FT.)	SAMPLE NUMBER (FIELD)	SAMPLE TYPE	LABORATORY NUMBER	NATURAL MOISTURE CONTENT %	CONSISTENCY LIMITS: LIQUID LIMIT %	PLASTIC LIMIT %	PLASTICITY INDEX %	MECHANICAL ANALYSIS: GRAVEL %	SAND %	>.005mm <.074mm %	<.005mm %	DRY DENSITY LBS./CU. FT.	STANDARD PENETRATION RESISTANCE BLOWS/FT.	UNIFIED CLASSIFICATION
0	ORGANIC. 6"																
	SILT SAND MIXTURE																
	2½	2½															
	SILT. SAND																
	4'	Vc,															
5	GRAVEL																
	GRAVELLY SAND	Vx															
	END HOLE 6'	6															
	COURSE GRAVEL																
10																	
15																	
20																	
25																	

DRWG NO 60-194

Public Works Canada

MATERIALS QUALITY CONTROL LABORATORY
WHITEHORSE, Y.T.

SUBSURFACE TESTING REPORT

PROJECT: UPPER BLACKSTONE RIVER D/H Mi 53.8 | HOLE LOCATION: STA 392+40 ℄

DATE DRILLED: 13-7-77 | DRILL TECHNICIAN: P.A. | PLOTTED BY: S.C | HOLE ELEVATION: | HOLE NO.: 8

HOLE DEPTH 5½"

TYPE OF DRILL AUGER

WATER LEVEL

DEPTH (FT.)	SOIL DESCRIPTION	N.R.C. PERMAFROST CLASSIFICATION	SAMPLE IDENTIFICATION DATA: SAMPLE DEPTH (FT.)	SAMPLE NUMBER (FIELD)	SAMPLE TYPE	LABORATORY NUMBER	NATURAL MOISTURE CONTENT %	CONSISTENCY LIMITS: LIQUID LIMIT %	PLASTIC LIMIT %	PLASTICITY INDEX %	MECHANICAL ANALYSIS: GRAVEL %	SAND %	<.074 mm >.005 mm %	<.005 mm %	DRY DENSITY LBS. CU. FT.	STANDARD PENETRATION RESISTANCE BLOWS FT.	UNIFIED CLASSIFICATION
0	Silt SAND ORGANIC.																
	1½																
	Silt. SAND mixture																
	3'	3															
	GRAVEL GRAVELLY SAND	Vc, Vx															
	4																
5	GRAVELLY SAND FROZ HOLE																
	5½	5½															
10																	
15																	
20																	
25																	

DRWG NO 60-104

Public Works Canada

MATERIALS QUALITY CONTROL LABORATORY
WHITEHORSE, Y.T.

SUBSURFACE TESTING REPORT

PROJECT: UPPER BLACKSTONE RIVER D/H Mi 33.8 | HOLE LOCATION: STN 391+43 ℄

DATE DRILLED: 13-7-77 | DRILL TECHNICIAN: P.A. | PLOTTED BY: S.C | HOLE ELEVATION: | HOLE NO.: 9

HOLE DEPTH 7½

TYPE OF DRILL AUGER

WATER LEVEL

DEPTH (FT.)	SOIL DESCRIPTION	N.R.C. PERMAFROST CLASSIFICATION	SAMPLE IDENTIFICATION DATA: SAMPLE DEPTH (FT.)	SAMPLE NUMBER (FIELD)	SAMPLE TYPE	LABORATORY NUMBER	NATURAL MOISTURE CONTENT %	CONSISTENCY LIMITS: LIQUID LIMIT %	PLASTIC LIMIT %	PLASTICITY INDEX %	MECHANICAL ANALYSIS: GRAVEL %	SAND %	>.005mm <.074mm %	<.005mm %	DRY DENSITY LBS./CU. FT.	STANDARD PENETRATION RESISTANCE BLOWS/FT.	UNIFIED CLASSIFICATION
0	GRAVEL SILT. SAND MIXTURE																
	2½'																
	GRAVELLY SANDY SILT.																
	4'																
5	GRAVEL GRAVELLY SAND 5'	5															
	GRAVEL.	Vx, Vc															
	END HOLE 7½	7½															
	@ COBBLES & COARSE GRAVEL																
10																	
15																	
20																	
25																	

DRWG. NO. 60-194

Public Works Canada

MATERIALS QUALITY CONTROL LABORATORY
WHITEHORSE, Y.T.

SUBSURFACE TESTING REPORT

PROJECT: UPPER BLACKSTONE RIVER D/H Mi 53.8 | HOLE LOCATION: STA 392+60 ℄

DATE DRILLED: 14-7-77 | DRILL TECHNICIAN: P.A. | PLOTTED BY: S.C. | HOLE ELEVATION: | HOLE NO.: 10

HOLE DEPTH 10'
TYPE OF DRILL AUGER
WATER LEVEL

DEPTH (FT.)	SOIL DESCRIPTION	N.R.C. PERMAFROST CLASSIFICATION	SAMPLE IDENTIFICATION DATA: SAMPLE DEPTH (FT.)	SAMPLE NUMBER (FIELD)	SAMPLE TYPE	LABORATORY NUMBER	NATURAL MOISTURE CONTENT %	CONSISTENCY LIMITS: LIQUID LIMIT %	PLASTIC LIMIT %	PLASTICITY INDEX %	MECHANICAL ANALYSIS: GRAVEL %	SAND %	>.005mm <.074mm %	<.005mm %	DRY DENSITY LBS./CU. FT.	STANDARD PENETRATION RESISTANCE BLOWS/FT.	UNIFIED CLASSIFICATION
0	GRAVEL GRAVELLY SAND																
5	5' GRAVEL SAND SILT MIXTURE TRACE CLAY MIXED IN.	7 Nbn Nf															
10	END HOLE 10' 2 HOLES DRILLED.	10															
15																	
20																	
25																	

DRWG. NO 60-194

Public Works Canada

MATERIALS QUALITY CONTROL LABORATORY
WHITEHORSE, Y.T.

SUBSURFACE TESTING REPORT

PROJECT: UPPER BLACKSTONE RIVER D/H MI 53.8 | HOLE LOCATION: STA 292+40 0/S 45' WT

DATE DRILLED: 14-7-77 | DRILL TECHNICIAN: P.A. | PLOTTED BY: S C | HOLE ELEVATION: | HOLE NO.: 11

HOLE DEPTH 5'

TYPE OF DRILL AUGER

WATER LEVEL

DEPTH (FT.)	SOIL DESCRIPTION	N.R.C. PERMAFROST CLASSIFICATION	SAMPLE IDENTIFICATION DATA: SAMPLE DEPTH (FT.)	SAMPLE NUMBER (FIELD)	SAMPLE TYPE	LABORATORY NUMBER	NATURAL MOISTURE CONTENT %	CONSISTENCY LIMITS: LIQUID LIMIT %	PLASTIC LIMIT %	PLASTICITY INDEX %	MECHANICAL ANALYSIS: GRAVEL %	SAND %	<.074mm >.005mm %	<.005mm %	DRY DENSITY LBS. CU. FT.	STANDARD PENETRATION RESISTANCE BLOWS FT.	UNIFIED CLASSIFICATION
0	Silt SAND mixture Some GRAVEL																
	3½	3½ Non Vc 5															
5	GRAVELLY GRAVELLY SAND 5' END HOLE																
10																	
15																	
20																	
25																	

DRWG. NO. 60-194

Public Works Canada

MATERIALS QUALITY CONTROL LABORATORY
WHITEHORSE, Y.T.

SUBSURFACE TESTING REPORT

PROJECT: UPPER BLACKSTONE D/H MILE 53.9 | HOLE LOCATION: Sm 390+00 @ 30' RT

DATE DRILLED: 14-7-77 | DRILL TECHNICIAN: P.A. | PLOTTED BY: S.C | HOLE ELEVATION: | HOLE NO.: 12

HOLE DEPTH 11'

TYPE OF DRILL AUGER

WATER LEVEL

DEPTH (FT.)	SOIL DESCRIPTION	N.R.C. PERMAFROST CLASSIFICATION	SAMPLE IDENTIFICATION DATA: SAMPLE DEPTH (FT.)	SAMPLE NUMBER (FIELD)	SAMPLE TYPE	LABORATORY NUMBER	NATURAL MOISTURE CONTENT %	CONSISTENCY LIMITS: LIQUID LIMIT %	PLASTIC LIMIT %	PLASTICITY INDEX %	MECHANICAL ANALYSIS: GRAVEL %	SAND %	<.074mm >.005mm %	<.005mm %	DRY DENSITY LBS./CU. FT.	STANDARD PENETRATION RESISTANCE BLOWS/FT.	UNIFIED CLASSIFICATION
0	ORGANIC.																
	1'																
	SILT, SAND CLAY MIXTURE																
	2½	2	2½														
	GRAVEL-GRAVELLY SAND	Vx, Vc		8	AUGER	356	34.2	19.7	N.P.		13	50	28	9			SM
	½"	4½	4½														
5	GRAVEL GRAVELLY SAND	¾" Vr	5½														
		Vx, Vc, Vr ¼"-½"	7'	9	AUGER	358	35.8	17.3	14+1	3.2	30	41	18	11			SM
10	END HOLE 11'	11															
	COURSE GRAVEL																
15																	
20																	
25																	

DRWG. NO 60-194

Public Works Canada

MATERIALS QUALITY CONTROL LABORATORY
WHITEHORSE, Y.T.

SUBSURFACE TESTING REPORT

ROJECT: UPPER BLACKSTONE O/H MILE 53.8 | HOLE LOCATION: STN 388+21 o/s 20' RT

ATE DRILLED: 14-7-77 | DRILL TECHNICIAN: P.A. | PLOTTED BY: S.C. | HOLE ELEVATION: | HOLE NO.: 13

OLE DEPTH 10'

YPE OF DRILL AUGER

VATER LEVEL

DEPTH (FT.)	SOIL DESCRIPTION	N.R.C. PERMAFROST CLASSIFICATION	SAMPLE IDENTIFICATION DATA: SAMPLE DEPTH (FT.)	SAMPLE NUMBER (FIELD)	SAMPLE TYPE	LABORATORY NUMBER	NATURAL MOISTURE CONTENT %	CONSISTENCY LIMITS: LIQUID LIMIT %	PLASTIC LIMIT %	PLASTICITY INDEX %	MECHANICAL ANALYSIS: GRAVEL %	SAND %	>.005mm <.074mm %	<.005mm %	DRY DENSITY LBS./CU. FT.	STANDARD PENETRATION RESISTANCE BLOWS/FT.	UNIFIED CLASSIFICATION
0	ORGANIC																
1'	GRAVELLY SILTY SAND																
3½	GRAVEL GRAVELLY SAND	3½ Vc, Vx															
5 (5')	ICE	5 Ice															
9'	GRAVEL	9 Vc, Vx															
10 (10')	END HOLE	10															
15																	
20																	
25																	

DRWG. NO. 60-194

Public Works Canada

MATERIALS QUALITY CONTROL LABORATORY
WHITEHORSE, Y.T.

SUBSURFACE TESTING REPORT

PROJECT: UPPER BLACKSTONE O/H MILE 53.9 | HOLE LOCATION: STN 3867 90 %S 30' RT

DATE DRILLED: 14-7-77 | DRILL TECHNICIAN: R.A. | PLOTTED BY: S.C. | HOLE ELEVATION: | HOLE NO.: 14

HOLE DEPTH 18'

TYPE OF DRILL AUGER

WATER LEVEL

DEPTH (FT.)	SOIL DESCRIPTION	N.R.C. PERMAFROST CLASSIFICATION	SAMPLE IDENTIFICATION DATA: SAMPLE DEPTH (FT.)	SAMPLE NUMBER (FIELD)	SAMPLE TYPE	LABORATORY NUMBER	NATURAL MOISTURE CONTENT %	CONSISTENCY LIMITS: LIQUID LIMIT %	PLASTIC LIMIT %	PLASTICITY INDEX %	MECHANICAL ANALYSIS: GRAVEL %	SAND %	<.074 mm >.005 mm %	<.005 mm %	DRY DENSITY LBS./CU. FT.	STANDARD PENETRATION RESISTANCE BLOWS/FT.	UNIFIED CLASSIFICATION
0	ORGANIC 6"																
	SILT SAND ORGANIC 1½	½'															
	GRAVELLY SAND	¼	2'														
	4'	¼	4'	10	AUGER	360	23.8	17.8	N.P.		13	71	— 16 —				SM
5	GRAVEL 5	5															
	ICE																
10		ICE															
15																	
	17																
	ICE SOME SILT 17½	17½															
	GRAVEL 18'	18'															
	END HOLE																
20																	
25																	

DRWG. NO. 60-194

Public Works Canada

MATERIALS QUALITY CONTROL LABORATORY
WHITEHORSE, Y.T.

SUBSURFACE TESTING REPORT

PROJECT: UPPER BLACKSTONE D\H MILE 53.9 | HOLE LOCATION: Sta 386+10 c/s 100' RT.

DATE DRILLED: 14-7-77 | DRILL TECHNICIAN: P.A. | PLOTTED BY: S.C. | HOLE ELEVATION: | HOLE NO.: 15

HOLE DEPTH 15'
TYPE OF DRILL AUGER
WATER LEVEL

DEPTH (FT.)	SOIL DESCRIPTION	N.R.C. PERMAFROST CLASSIFICATION	SAMPLE IDENTIFICATION DATA: SAMPLE DEPTH (FT.)	SAMPLE NUMBER (FIELD)	SAMPLE TYPE	LABORATORY NUMBER	NATURAL MOISTURE CONTENT %	CONSISTENCY LIMITS: LIQUID LIMIT %	PLASTIC LIMIT %	PLASTICITY INDEX %	MECHANICAL ANALYSIS: GRAVEL %	SAND %	>.005mm <.074mm %	<.005mm %	DRY DENSITY LBS./CU. FT.	STANDARD PENETRATION RESISTANCE BLOWS/FT.	UNIFIED CLASSIFICATION
0	ORGANIC (PEAT) 6"																
	SANDY SILT 1'	1'															
	GRAVELLY SILTY SAND	Nbn, Vx, Vc,															
5			5½														
			7½	11	AUGER	361	25.4	19.4	N.P.			50	39	11			ML-SM mix
10	10'	10'															
	SILTY SAND																
	1" VR 12'	Vr															
	SILTY SAND, ½" VR 13'																
	SILTY SAND 13½																
	GRAVELLY SILTY SAND																
15	END HOLE 15'	15'															
20																	
25																	

DRWG. NO. 60-194

Public Works Canada

MATERIALS QUALITY CONTROL LABORATORY
WHITEHORSE, Y.T.

SUBSURFACE TESTING REPORT

PROJECT: UPPER BLACKSTONE D\H MILE 53.9 | HOLE LOCATION: STA 584+50 95 105' RT

DATE DRILLED: 14-7-77 | DRILL TECHNICIAN: P.A. | PLOTTED BY: S.C | HOLE ELEVATION: | HOLE NO.: 16

HOLE DEPTH 5'

TYPE OF DRILL AUGER

WATER LEVEL

DEPTH (FT.)	SOIL DESCRIPTION	N.R.C. PERMAFROST CLASSIFICATION	SAMPLE IDENTIFICATION DATA: SAMPLE DEPTH (FT.)	SAMPLE NUMBER (FIELD)	SAMPLE TYPE	LABORATORY NUMBER	NATURAL MOISTURE CONTENT %	CONSISTENCY LIMITS: LIQUID LIMIT %	PLASTIC LIMIT %	PLASTICITY INDEX %	MECHANICAL ANALYSIS: GRAVEL %	SAND %	>.005mm <.074mm %	<.005mm %	DRY DENSITY LBS./CU. FT.	STANDARD PENETRATION RESISTANCE BLOWS/FT.	UNIFIED CLASSIFICATION
0	ORGANIC PEAT 6"	½'															
	ORGANIC SILT 1'	Nbn															
	GRAVELLY SILTY SAND	Vc															
	4'																
5	GRAVEL GRAVELLY SAND 5' END HOLE	5'															
10																	
15																	
20																	
25																	

DRWG. NO. 60-194

Public Works Canada

MATERIALS QUALITY CONTROL LABORATORY
WHITEHORSE, Y.T.

SUBSURFACE TESTING REPORT

PROJECT: UPPER BLACKSTONE D/H MILE 53.9 | HOLE LOCATION: Sm 383+00 95 125' RT

DATE DRILLED: 14-7-77 | DRILL TECHNICIAN: P.A. | PLOTTED BY: S.C | HOLE ELEVATION: | HOLE NO.: 17

HOLE DEPTH 4'

TYPE OF DRILL Auger

WATER LEVEL

DEPTH (FT.)	SOIL DESCRIPTION	N.R.C. PERMAFROST CLASSIFICATION	SAMPLE IDENTIFICATION DATA: SAMPLE DEPTH (FT.)	SAMPLE NUMBER (FIELD)	SAMPLE TYPE	LABORATORY NUMBER	NATURAL MOISTURE CONTENT %	CONSISTENCY LIMITS: LIQUID LIMIT %	PLASTIC LIMIT %	PLASTICITY INDEX %	MECHANICAL ANALYSIS: GRAVEL %	SAND %	<.074 mm >.005 mm %	<.005 mm %	DRY DENSITY LBS./CU. FT.	STANDARD PENETRATION RESISTANCE BLOWS/FT.	UNIFIED CLASSIFICATION
0	ORGANIC PEAT 6"	½'															
	SILTY SAND MIXTURE	Nbn Vx Vc															
	3'																
	GRAVEL GRAVELLY SAND 4' END HOLE	4'															
5																	
10																	
15																	
20																	
25																	

DRWG. NO. 60-194

Public Works Canada

MATERIALS QUALITY CONTROL LABORATORY
WHITEHORSE, Y.T.

SUBSURFACE TESTING REPORT

PROJECT: UPPER BLACKSTONE D/H MILE 53.9 | HOLE LOCATION: Sta 384+00 ℄ on CURVE

DATE DRILLED: 14-7-77 | DRILL TECHNICIAN: P.A. | PLOTTED BY: S.C | HOLE ELEVATION: | HOLE NO.: 18

HOLE DEPTH 10'

TYPE OF DRILL AUGER

WATER LEVEL

DEPTH (FT.)	SOIL DESCRIPTION	N.R.C. PERMAFROST CLASSIFICATION	SAMPLE IDENTIFICATION DATA: SAMPLE DEPTH (FT.)	SAMPLE NUMBER (FIELD)	SAMPLE TYPE	LABORATORY NUMBER	NATURAL MOISTURE CONTENT %	CONSISTENCY LIMITS: LIQUID LIMIT %	PLASTIC LIMIT %	PLASTICITY INDEX %	MECHANICAL ANALYSIS: GRAVEL %	SAND %	>.005mm <.074mm %	<.005mm %	DRY DENSITY LBS./CU. FT.	STANDARD PENETRATION RESISTANCE BLOWS/FT.	UNIFIED CLASSIFICATION
0	GRAVELLY SILTY SAND																
	2'																
	GRAVEL																
5																	
10	END HOLE 10'																
15																	
20																	
25																	

DRWG. NO. 60-194

Public Works Canada

MATERIALS QUALITY CONTROL LABORATORY
WHITEHORSE, Y.T.

SUBSURFACE TESTING REPORT

PROJECT: LIPPER BLACKSTONE O/H MILE 53.8 | HOLE LOCATION: Sta 387+00 9/S 105' RT

DATE DRILLED: 14-7-77 | DRILL TECHNICIAN: P.A. | PLOTTED BY: S.C | HOLE ELEVATION: | HOLE NO.: 19

HOLE DEPTH 12½'

TYPE OF DRILL AUGER

WATER LEVEL

DEPTH (FT.)	SOIL DESCRIPTION	N.R.C. PERMAFROST CLASSIFICATION	SAMPLE IDENTIFICATION DATA: SAMPLE DEPTH (FT.)	SAMPLE NUMBER (FIELD)	SAMPLE TYPE	LABORATORY NUMBER	NATURAL MOISTURE CONTENT %	CONSISTENCY LIMITS: LIQUID LIMIT %	PLASTIC LIMIT %	PLASTICITY INDEX %	MECHANICAL ANALYSIS: GRAVEL %	SAND %	<.074 mm >.005 mm %	<.005 mm %	DRY DENSITY LBS./CU. FT.	STANDARD PENETRATION RESISTANCE BLOWS/FT.	UNIFIED CLASSIFICATION
0	ORGANIC 6"	½'															
	SILTY SAND																
	2½'																
	GRAVEL GRAVELLY SAND 3½'																
	SILTY SAND	Vx Vc															
5																	
	7½'																
	GRAVEL GRAVELLY SAND																
10																	
	END HOLE 12½'	12½'															
15																	
20																	
25																	

DRWG. NO. 60-194

Public Works Canada

MATERIALS QUALITY CONTROL LABORATORY
WHITEHORSE, Y.T.

SUBSURFACE TESTING REPORT

PROJECT: UPPER BLACKSTONE O/H MILE 53.9 | HOLE LOCATION: Grn 588+20 % 95' RT

DATE DRILLED: 14-7-77 | DRILL TECHNICIAN: P.A. | PLOTTED BY: S.C. | HOLE ELEVATION: | HOLE NO.: 20

HOLE DEPTH 16'

TYPE OF DRILL AUGER

WATER LEVEL

DEPTH (FT.)	SOIL DESCRIPTION	N.R.C. PERMAFROST CLASSIFICATION	SAMPLE IDENTIFICATION DATA: SAMPLE DEPTH (FT.)	SAMPLE NUMBER (FIELD)	SAMPLE TYPE	LABORATORY NUMBER	NATURAL MOISTURE CONTENT %	CONSISTENCY LIMITS: LIQUID LIMIT %	PLASTIC LIMIT %	PLASTICITY INDEX %	MECHANICAL ANALYSIS: GRAVEL %	SAND %	>.005mm <.074mm %	<.005mm %	DRY DENSITY LBS./CU. FT.	STANDARD PENETRATION RESISTANCE BLOWS/FT.	UNIFIED CLASSIFICATION
0	ORGANIC PEAT 6"																
	GRAVELLY SILTY SAND 8'	2' Vx, Vc															
	GRAVEL GRAVELLY SAND 4'	4'															
5	ICE																
		ICE															
10																	
15	GRAVEL GRAVELLY SAND 16'	15' 16'															
	END HOLE																
20																	
25																	

DRWG. NO. 60-194

Public Works Canada

MATERIALS QUALITY CONTROL LABORATORY
WHITEHORSE, Y.T.

SUBSURFACE TESTING REPORT

PROJECT: UPPER BLACKSTONE O/H MILE 53.9 | HOLE LOCATION: SM 589+00 95 100' RT

DATE DRILLED: 15-7-77 | DRILL TECHNICIAN: P.A. | PLOTTED BY: S.C | HOLE ELEVATION: | HOLE NO.: 21

HOLE DEPTH 9'

TYPE OF DRILL AUGER

WATER LEVEL

DEPTH (FT.)	SOIL DESCRIPTION	N.R.C. PERMAFROST CLASSIFICATION	SAMPLE IDENTIFICATION DATA: SAMPLE DEPTH (FT.)	SAMPLE NUMBER (FIELD)	SAMPLE TYPE	LABORATORY NUMBER	NATURAL MOISTURE CONTENT %	CONSISTENCY LIMITS: LIQUID LIMIT %	PLASTIC LIMIT %	PLASTICITY INDEX %	MECHANICAL ANALYSIS: GRAVEL %	SAND %	>.005 mm %	<.074 mm %	<.005 mm %	DRY DENSITY LBS. / CU. FT.	STANDARD PENETRATION RESISTANCE BLOWS / FT.	UNIFIED CLASSIFICATION
0	ORGANIC PEAT																	
	1'																	
	GRAVELLY SILTY SAND																	
	4'	4' Nbn, Vc, 5' Vx, Vc, Vs, 9'																
5	GRAVEL GRAVELLY SAND																	
	END HOLE 9'																	
10																		
15																		
20																		
25																		

DRWG. NO. 60-194

Public Works Canada

MATERIALS QUALITY CONTROL LABORATORY
WHITEHORSE, Y.T.

SUBSURFACE TESTING REPORT

PROJECT: UPPER BLACKSTONE O\H MILE 53.9 | HOLE LOCATION: Sta 388+60 @ 175' RT

DATE DRILLED: 15-7-77 | DRILL TECHNICIAN: P.A. | PLOTTED BY: S.C | HOLE ELEVATION: | HOLE NO.: 22

HOLE DEPTH 10½'

TYPE OF DRILL AUGER

WATER LEVEL

DEPTH (FT.)	SOIL DESCRIPTION	N.R.C. PERMAFROST CLASSIFICATION	SAMPLE IDENTIFICATION DATA: SAMPLE DEPTH (FT.)	SAMPLE NUMBER (FIELD)	SAMPLE TYPE	LABORATORY NUMBER	NATURAL MOISTURE CONTENT %	CONSISTENCY LIMITS: LIQUID LIMIT %	PLASTIC LIMIT %	PLASTICITY INDEX %	MECHANICAL ANALYSIS: GRAVEL %	SAND %	>.005 mm <.074 mm %	<.005 mm %	DRY DENSITY LBS./CU. FT.	STANDARD PENETRATION RESISTANCE BLOWS/FT.	UNIFIED CLASSIFICATION
0	PEAT ORGANIC.	1'	1'														
	GRAVELLY SILTY SAND	Vc, Vx															
5																	
	GRAVELLY SILTY SAND	6½															
	GRAVEL	9½															
10	END HOLE	10½	10½'														
15																	
20																	
25																	

DRWG. NO. 60-194

Public Works Canada

MATERIALS QUALITY CONTROL LABORATORY
WHITEHORSE, Y.T.

SUBSURFACE TESTING REPORT

PROJECT: UPPER BLACKSTONE D/H MILE 53.9 | HOLE LOCATION: 5m 387+65 9's 150' RT

DATE DRILLED: 15-7-77 | DRILL TECHNICIAN: P.A. | PLOTTED BY: S.C | HOLE ELEVATION: | HOLE NO.: 23

HOLE DEPTH 6½'

TYPE OF DRILL AUGER

WATER LEVEL

DEPTH (FT.)	SOIL DESCRIPTION	N.R.C. PERMAFROST CLASSIFICATION	SAMPLE IDENTIFICATION DATA: SAMPLE DEPTH (FT.)	SAMPLE NUMBER (FIELD)	SAMPLE TYPE	LABORATORY NUMBER	NATURAL MOISTURE CONTENT %	CONSISTENCY LIMITS: LIQUID LIMIT %	PLASTIC LIMIT %	PLASTICITY INDEX %	MECHANICAL ANALYSIS: GRAVEL %	SAND %	>.005mm <.074mm %	<.005mm %	DRY DENSITY LBS./CU. FT.	STANDARD PENETRATION RESISTANCE BLOWS/FT.	UNIFIED CLASSIFICATION
0	ORGANIC. (PEAT)	1'															
	GRAVELLY SILTY SAND	Vx Vc															
5		4½ some Vf															
	END HOLE	6½ 6½															
10																	
15																	
20																	
25																	

DRWG. NO. 60-194

LABORATORY TESTING REPORTS

JULY 1977 INVESTIGATION

Public Works Canada

MATERIALS QUALITY CONTROL LABORATORY
WHITEHORSE, Y.T.

PROJECT					DATE RECORDED
UPPER BLACKSTONE					9-9-77
STA.	SAMPLE TYPE	DEPTH	HOLE NO.	FIELD NO.	LAB NO.
390+00 N/S 30' RT	AUGER	2½-4½'	12	8	356

LABORATORY TESTING REPORT

GRAIN SIZE ANALYSIS

SIEVE SIZE	% FINER BY WEIGHT	SIEVE SIZE	% FINER BY WEIGHT		SIEVE SIZE	% FINER BY WEIGHT	SIEVE SIZE	% FINER BY WEIGHT
1	100.0	100	44.0		.066	37.2	.005	9.4
3/4	95.7	200	38.1		.048	32.0		
1/2	93.5				.035	26.2		
3/8	91.8				.025	22.0		
4	87.4				.018	17.8		
10	82.3				.013	14.1		
20	67.2				.009	12.8		
40	56.8				.007	11.0		

SAMPLE NO.	UNIFIED CLASSIFICATION	L.L.	P.L.	P.I.	NATURAL % H_2O	S.G.
356	SM	19.7	N.P.		34.2	

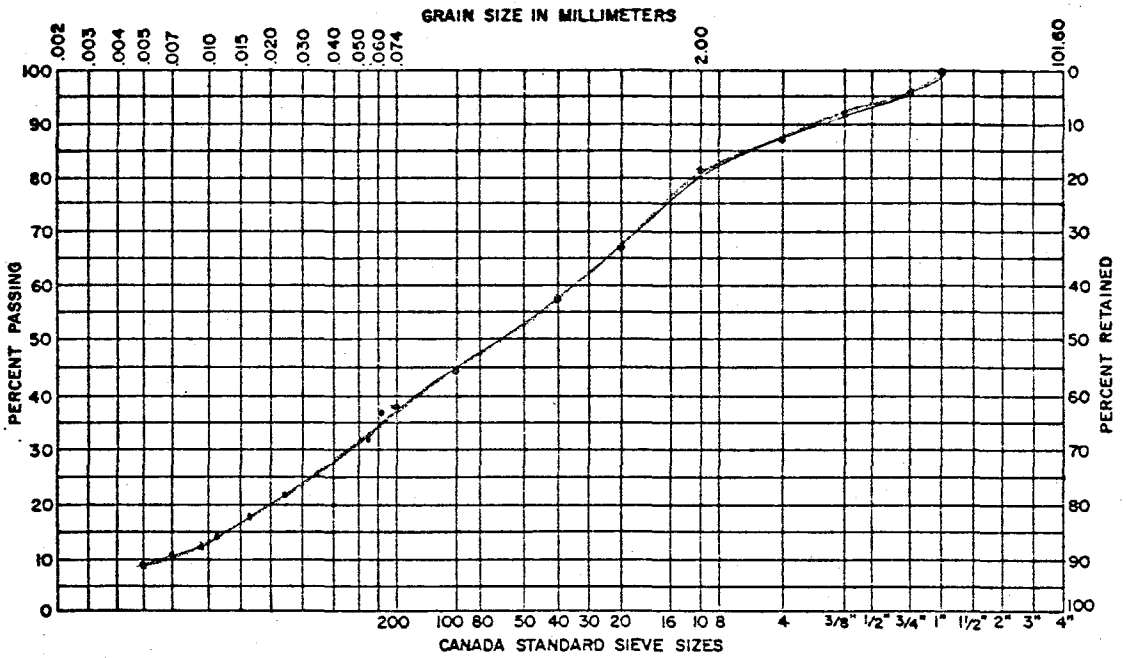
CRUSH COUNT _____ %

PETROGRAPHIC ANALYSIS

MATERIAL TYPE	% OF TOTAL SAMPLE

PARTICLE SHAPE ANALYSIS

ROUND	
SUB-ROUND	
ANGULAR	
SUB-ANGULAR	
FLATS	
NEEDLES	



CLAY (PLASTIC) TO SILT (NON-PLASTIC)	SAND			GRAVEL	
	FINE	MEDIUM	COARSE	FINE	COARSE

LABORATORY'S REMARKS _____

DATE SAMPLED 14-7-77
DATE RECEIVED 21-7-77
TECHNICIAN(S) LAB
CHECKED BY BEF.

Public Works Canada

MATERIALS QUALITY CONTROL LABORATORY
WHITEHORSE, Y.T.

PROJECT					DATE RECORDED
UPPER BLACKSTONE					12-9-77
STA.	SAMPLE TYPE	DEPTH	HOLE NO.	FIELD NO.	LAB NO.
292+80	AUGER	1'-3'	5	6	357

LABORATORY TESTING REPORT

GRAIN SIZE ANALYSIS

SIEVE SIZE	% FINER BY WEIGHT	SIEVE SIZE	% FINER BY WEIGHT		SIEVE SIZE	% FINER BY WEIGHT	SIEVE SIZE	% FINER BY WEIGHT
4	100.0				.061	66.1	.005	18.1
10	99.8				.044	58.1		
20	99.2				.033	48.6		
40	98.5				.024	42.3		
100	86.6				.017	32.3		
200	72.0				.013	30.8		
					.009	26.4		
					.006	21.3		

SAMPLE NO.	UNIFIED CLASSIFICATION	L.L.	P.L.	P.I.	NATURAL % H_2O	S.G.
357	ML	28.5	NP.		40.6	

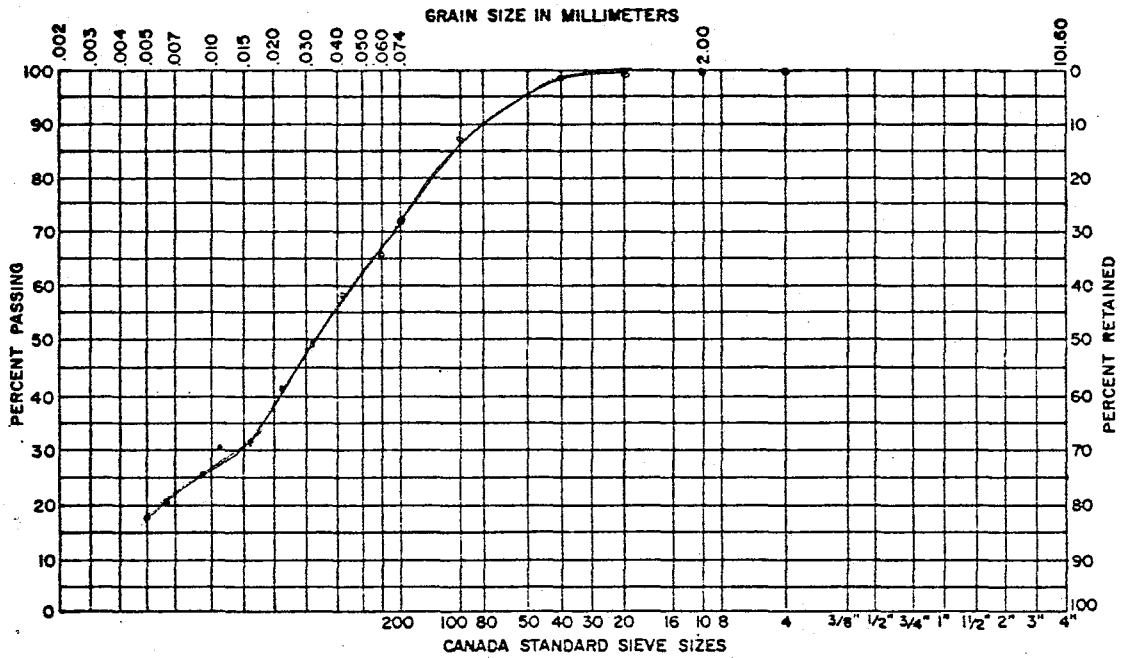
CRUSH COUNT _____ %

PETROGRAPHIC ANALYSIS

MATERIAL TYPE	% OF TOTAL SAMPLE

PARTICLE SHAPE ANALYSIS

ROUND	
SUB-ROUND	
ANGULAR	
SUB-ANGULAR	
FLATS	
NEEDLES	



CLAY (PLASTIC) TO SILT (NON-PLASTIC)	SAND			GRAVEL	
	FINE	MEDIUM	COARSE	FINE	COARSE

LABORATORY'S REMARKS _____

DATE SAMPLED 13-7-77
DATE RECEIVED 21-7-77
TECHNICIAN(S) LAB
CHECKED BY RBT.

Public Works Canada

MATERIALS QUALITY CONTROL LABORATORY
WHITEHORSE, Y.T.

PROJECT					DATE RECORDED
UPPER BLACKSTONE					12-9-77
STA.	SAMPLE TYPE	DEPTH	HOLE NO.	FIELD NO.	LAB NO.
390+00 @ 35'RT	AUGER	5½ - 7'	12	9	358

LABORATORY TESTING REPORT

GRAIN SIZE ANALYSIS

SIEVE SIZE	% FINER BY WEIGHT	SIEVE SIZE	% FINER BY WEIGHT		SIEVE SIZE	% FINER BY WEIGHT	SIEVE SIZE	% FINER BY WEIGHT
1	100.0	100	34.1		.066	25.5	.005	12.1
3/4	96.3	200	29.4		.047	24.7		
1/2	85.3				.034	22.7		
3/8	79.1				.024	23.1		
4	70.4				.017	19.2		
10	62.1				.013	17.2		
20	51.5				.009	16.0		
40	44.9				.006	13.4		

SAMPLE NO.	UNIFIED CLASSIFICATION	L.L.	P.L.	P.I.	NATURAL % H_2O	S.G.
358	SM	17.3	14.1	3.2	35.8	

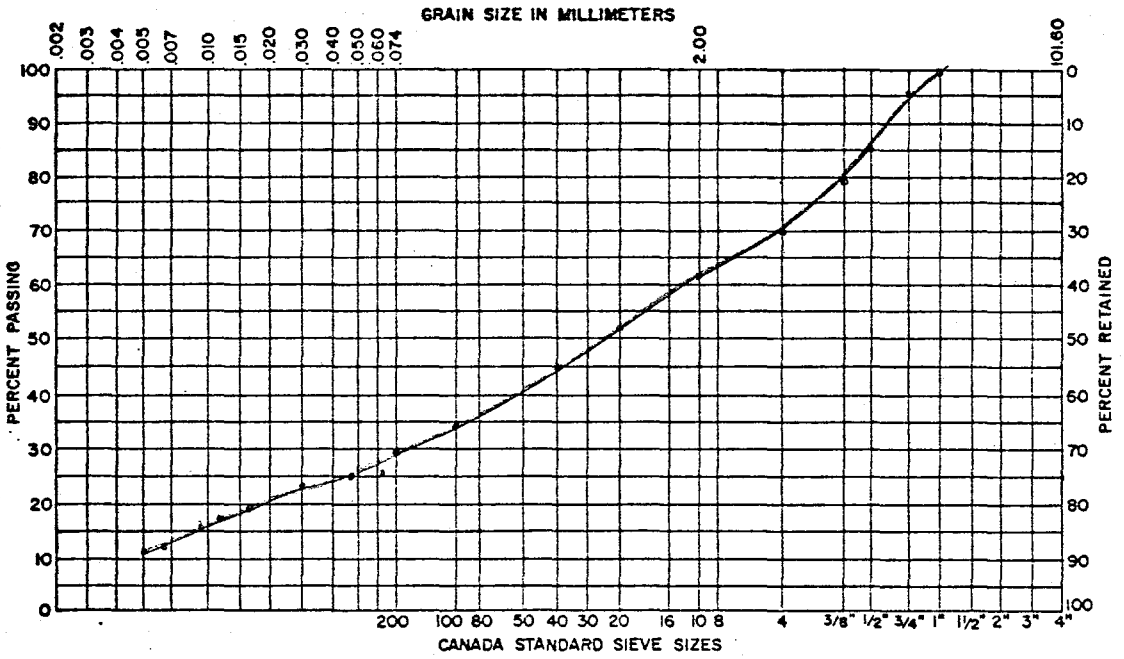
CRUSH COUNT _____ %

PETROGRAPHIC ANALYSIS

MATERIAL TYPE	% OF TOTAL SAMPLE

PARTICLE SHAPE ANALYSIS

ROUND	
SUB-ROUND	
ANGULAR	
SUB-ANGULAR	
FLATS	
NEEDLES	



CLAY (PLASTIC) TO SILT (NON-PLASTIC)	SAND			GRAVEL	
	FINE	MEDIUM	COARSE	FINE	COARSE

LABORATORY'S REMARKS _____

DATE SAMPLED 14-7-77
DATE RECEIVED 21-7-77
TECHNICIAN(S) LAB
CHECKED BY BR

Public Works Canada

MATERIALS QUALITY CONTROL LABORATORY
WHITEHORSE, Y. T.

PROJECT					DATE RECORDED
UPPER BLACKSTONE					12-9-77
STA.	SAMPLE TYPE	DEPTH	HOLE NO.	FIELD NO.	LAB NO.
392+00 9'S 27'RT	AUGER	3½-5'	6	7	359

LABORATORY TESTING REPORT

GRAIN SIZE ANALYSIS

SIEVE SIZE	% FINER BY WEIGHT	SIEVE SIZE	% FINER BY WEIGHT		SIEVE SIZE	% FINER BY WEIGHT	SIEVE SIZE	% FINER BY WEIGHT
1	100.0	100	16.7					
3/4	97.0	200	13.2					
1/2	91.4							
3/8	82.5							
4	63.6							
10	49.3							
20	33.2							
40	25.3							

SAMPLE NO.	UNIFIED CLASSIFICATION	L.L.	P.L.	P.I.	NATURAL % H_2O	S.G.
359	SM	NP			12.3	

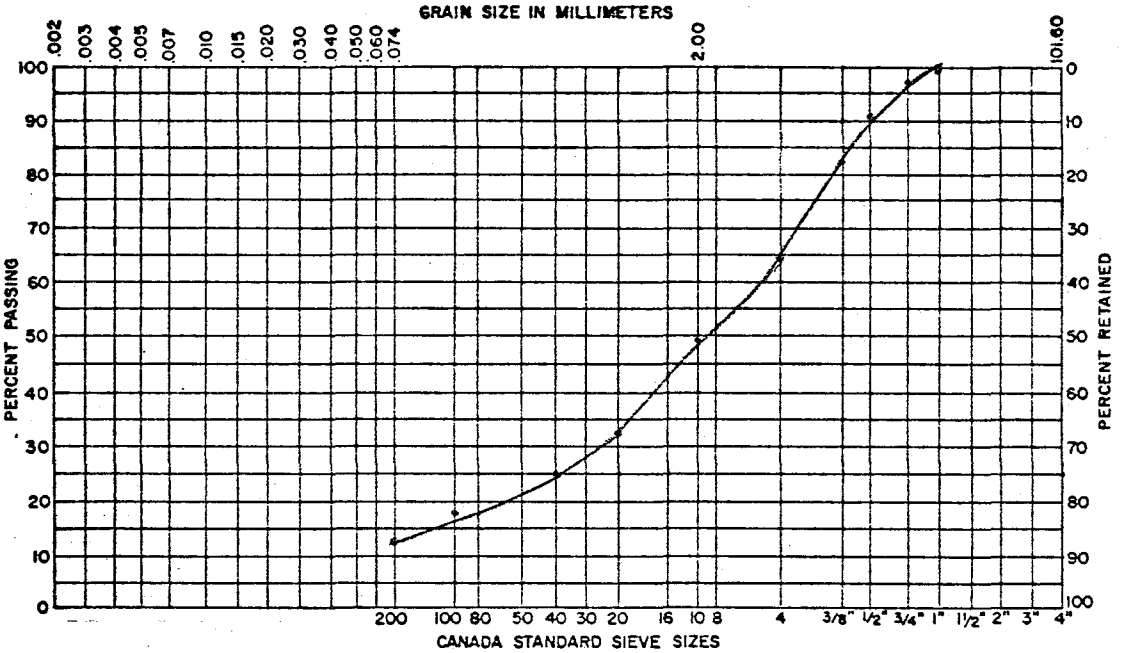
CRUSH COUNT _____ %

PETROGRAPHIC ANALYSIS

MATERIAL TYPE	% OF TOTAL SAMPLE

PARTICLE SHAPE ANALYSIS

ROUND	
SUB-ROUND	
ANGULAR	
SUB-ANGULAR	
FLATS	
NEEDLES	



CLAY (PLASTIC) TO SILT (NON-PLASTIC)	SAND			GRAVEL	
	FINE	MEDIUM	COARSE	FINE	COARSE

LABORATORY'S REMARKS _____

DATE SAMPLED 13-7-77
DATE RECEIVED 21-7-77
TECHNICIAN(S) LAB
CHECKED BY RR

Public Works Canada

MATERIALS QUALITY CONTROL LABORATORY
WHITEHORSE, Y.T.

PROJECT					DATE RECORDED
UPPER BLACKSTONE					9-9-77
STA.	SAMPLE TYPE	DEPTH	HOLE NO.	FIELD NO.	LAB NO.
386+90 9% 30'RT	AUGER	2-4'	14	10	360

LABORATORY TESTING REPORT

GRAIN SIZE ANALYSIS

SIEVE SIZE	% FINER BY WEIGHT	SIEVE SIZE	% FINER BY WEIGHT		SIEVE SIZE	% FINER BY WEIGHT	SIEVE SIZE	% FINER BY WEIGHT
3/4	100.0	200	15.6					
1/2	98.5							
3/8	94.5							
4	78.2							
10	80.2							
20	67.1							
40	59.5							
100	46.7							

SAMPLE NO.	UNIFIED CLASSIFICATION	L.L.	P.L.	P.I.	NATURAL % H_2O	S.G.
360	SM	17.8	NP.		23.8	

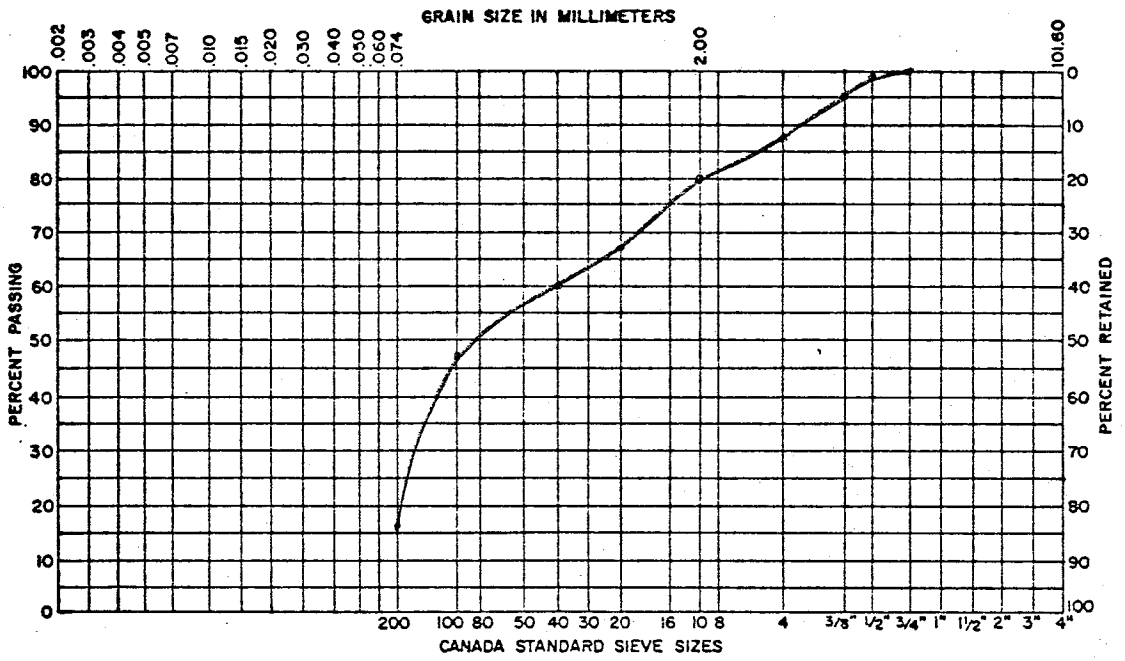
CRUSH COUNT _____ %

PETROGRAPHIC ANALYSIS

MATERIAL TYPE	% OF TOTAL SAMPLE

PARTICLE SHAPE ANALYSIS

ROUND	
SUB-ROUND	
ANGULAR	
SUB-ANGULAR	
FLATS	
NEEDLES	



CLAY (PLASTIC) TO SILT (NON-PLASTIC)	SAND			GRAVEL	
	FINE	MEDIUM	COARSE	FINE	COARSE

LABORATORY'S REMARKS _____

DATE SAMPLED 14-7-77
DATE RECEIVED 21-7-77
TECHNICIAN(S) LAB
CHECKED BY BRT

Public Works Canada

MATERIALS QUALITY CONTROL LABORATORY
WHITEHORSE, Y.T.

PROJECT					DATE RECORDED
UPPER BLACKSTONE					9-9-77
STA.	**SAMPLE TYPE**	**DEPTH**	**HOLE NO.**	**FIELD NO.**	**LAB NO.**
386+10 @ 5 100' RT	AUGER	5½ - 7½	15	11	361

LABORATORY TESTING REPORT

GRAIN SIZE ANALYSIS

SIEVE SIZE	% FINER BY WEIGHT	SIEVE SIZE	% FINER BY WEIGHT		SIEVE SIZE	% FINER BY WEIGHT	SIEVE SIZE	% FINER BY WEIGHT
4	100.0				.065	47.9	.005	10.8
10	99.4				.048	40.3		
20	85.7				.035	31.4		
40	76.9				.025	23.8		
100	62.9				.018	20.0		
200	53.3				.013	16.2		
					.009	14.3		
					.007	12.4		

SAMPLE NO.	UNIFIED CLASSIFICATION	L.L.	P.L.	P.I.	NATURAL % H_2O	S.G.
361	ML-SM	19.4	N.P.		25.4	
	mix					

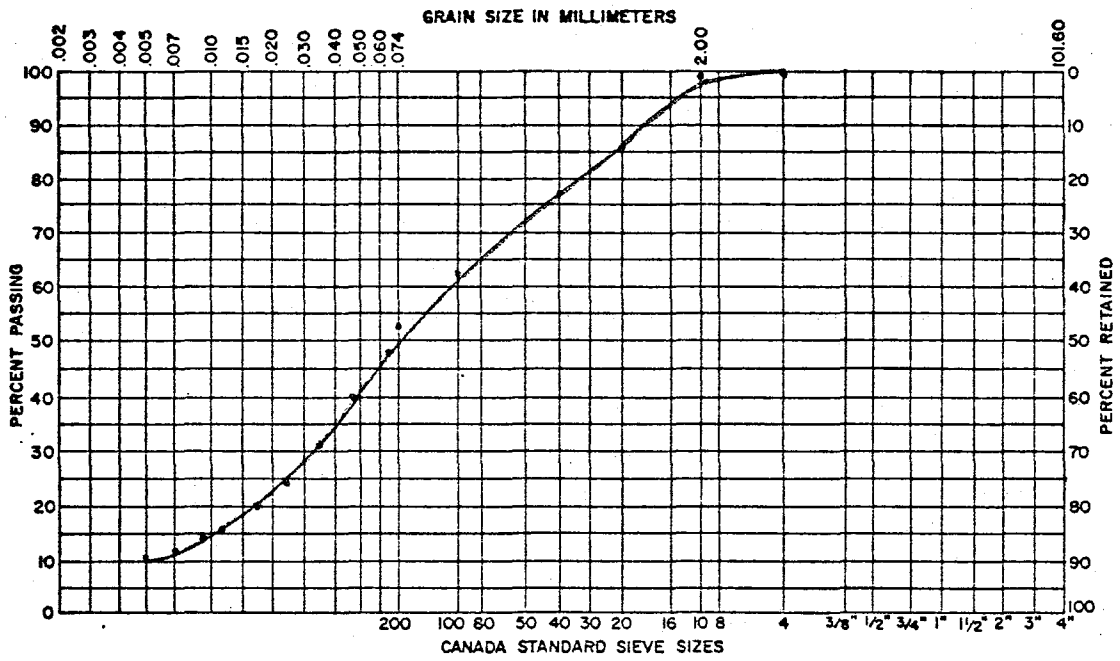
CRUSH COUNT _____ %

PETROGRAPHIC ANALYSIS

MATERIAL TYPE	% OF TOTAL SAMPLE

PARTICLE SHAPE ANALYSIS

ROUND	
SUB-ROUND	
ANGULAR	
SUB-ANGULAR	
FLATS	
NEEDLES	



CLAY (PLASTIC) TO SILT (NON-PLASTIC)	SAND			GRAVEL	
	FINE	MEDIUM	COARSE	FINE	COARSE

LABORATORY'S REMARKS _____

DATE SAMPLED 14-7-77
DATE RECEIVED 21-7-77
TECHNICIAN(S) LAB
CHECKED BY BRT

Public Works Canada

MATERIALS QUALITY CONTROL LABORATORY
WHITEHORSE, Y.T.

PROJECT					DATE RECORDED
UPPER BLACKSTONE					12-9-77
STA.	SAMPLE TYPE	DEPTH	HOLE NO.	FIELD NO.	LAB NO.
393+25	AUGER	2-3 1/2'	4	4	362

LABORATORY TESTING REPORT

GRAIN SIZE ANALYSIS

SIEVE SIZE	% FINER BY WEIGHT	SIEVE SIZE	% FINER BY WEIGHT		SIEVE SIZE	% FINER BY WEIGHT	SIEVE SIZE	% FINER BY WEIGHT
1	100.0	100	57.7		.063	45.1	.005	16.5
3/4	96.6	200	49.9		.045	39.7		
1/2	94.3				.033	35.9		
3/8	91.9				.023	32.7		
4	89.2				.017	29.4		
10	84.8				.012	25.6		
20	75.2				.010	21.9		
40	69.5				.006	19.4		

SAMPLE NO.	UNIFIED CLASSIFICATION	L.L.	P.L.	P.I.	NATURAL % H_2O	S.G.
362	SM-ML	36.9		N.P.	8.6.9	
	MIXTURE.					

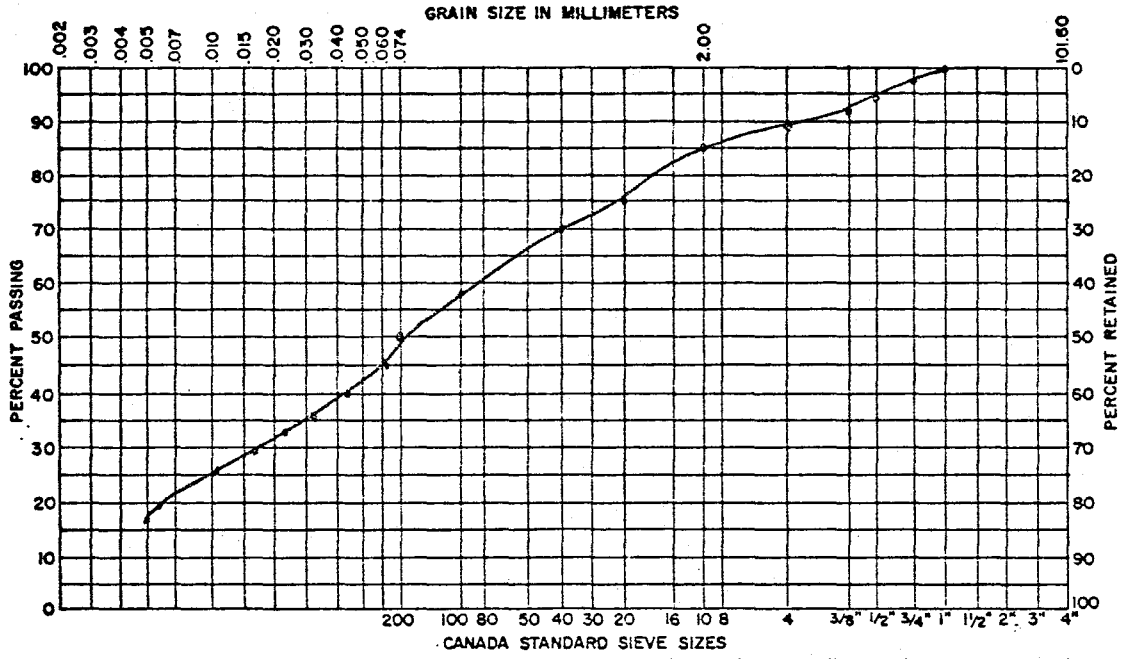
CRUSH COUNT _____ %

PETROGRAPHIC ANALYSIS

MATERIAL TYPE	% OF TOTAL SAMPLE

PARTICLE SHAPE ANALYSIS

ROUND	
SUB-ROUND	
ANGULAR	
SUB-ANGULAR	
FLATS	
NEEDLES	



CLAY (PLASTIC) TO SILT (NON-PLASTIC)	SAND			GRAVEL	
	FINE	MEDIUM	COARSE	FINE	COARSE

LABORATORY'S REMARKS _____

DATE SAMPLED 13-7-77
DATE RECEIVED 21-7-77
TECHNICIAN(S) LAB.
CHECKED BY RCF.

Public Works Canada

MATERIALS QUALITY CONTROL LABORATORY
WHITEHORSE, Y.T.

PROJECT					DATE RECORDED
Upper Blackstone					12-9-77
STA.	SAMPLE TYPE	DEPTH	HOLE NO.	FIELD NO.	LAB NO.
398+00	Auger	3'-5'	1	1	363

LABORATORY TESTING REPORT

GRAIN SIZE ANALYSIS

SIEVE SIZE	% FINER BY WEIGHT	SIEVE SIZE	% FINER BY WEIGHT		SIEVE SIZE	% FINER BY WEIGHT	SIEVE SIZE	% FINER BY WEIGHT
3/4	100.0	200	35.2		.067	36.7	.005	14.4
1/2	96.1				.047	35.1		
3/8	93.2				.034	32.4		
4	83.3				.024	29.2		
10	75.1				.017	26.0		
20	63.7				.013	22.9		
40	55.2				.009	19.7		
100	39.4				.007	17.8		

SAMPLE NO.	UNIFIED CLASSIFICATION	L.L.	P.L.	P.I.	NATURAL % H_2O	S.G.
363	SM	18.8	10.9		55.8	

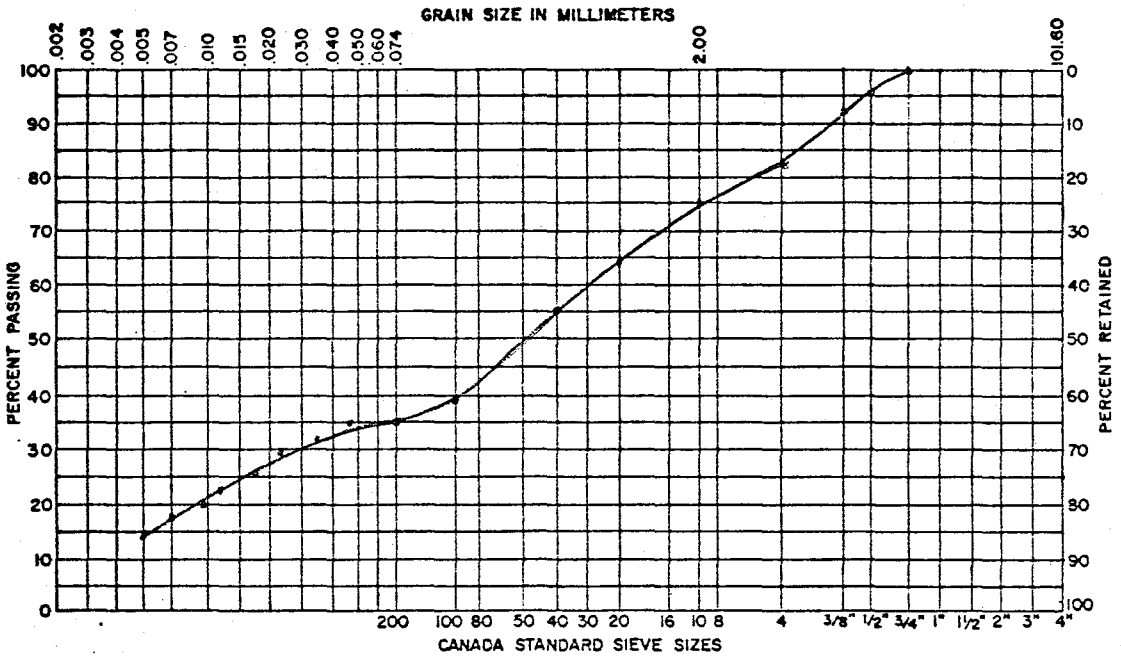
CRUSH COUNT _____ %

PETROGRAPHIC ANALYSIS

MATERIAL TYPE	% OF TOTAL SAMPLE

PARTICLE SHAPE ANALYSIS

ROUND	
SUB-ROUND	
ANGULAR	
SUB-ANGULAR	
FLATS	
NEEDLES	



CLAY (PLASTIC) TO SILT (NON-PLASTIC)	SAND			GRAVEL	
	FINE	MEDIUM	COARSE	FINE	COARSE

LABORATORY'S REMARKS _____

DATE SAMPLED 13-7-77
DATE RECEIVED 21-7-77
TECHNICIAN(S) Lab.
CHECKED BY RR7

Public Works Canada

MATERIALS QUALITY CONTROL LABORATORY
WHITEHORSE, Y.T.

PROJECT					DATE RECORDED
UPPER BLACKSTONE					12-9-77
STA.	**SAMPLE TYPE**	**DEPTH**	**HOLE NO.**	**FIELD NO.**	**LAB NO.**
398+00	AUGER	7½ - 9½'	1	2	364

LABORATORY TESTING REPORT

GRAIN SIZE ANALYSIS

SIEVE SIZE	% FINER BY WEIGHT	SIEVE SIZE	% FINER BY WEIGHT		SIEVE SIZE	% FINER BY WEIGHT	SIEVE SIZE	% FINER BY WEIGHT
1/2	100.0				.063	54.7	.005	14.3
3/8	99.7				.046	49.8		
4	97.8				.033	43.7		
10	95.2				.024	38.3		
20	89.0				.017	33.4		
40	84.0				.013	27.3		
100	66.9				.009	22.5		
200	58.7				.007	17.3		

SAMPLE NO.	UNIFIED CLASSIFICATION	L.L.	P.L.	P.I.	NATURAL % H_2O	S.G.
364	ML	17.9	N.P.		4.8.1	

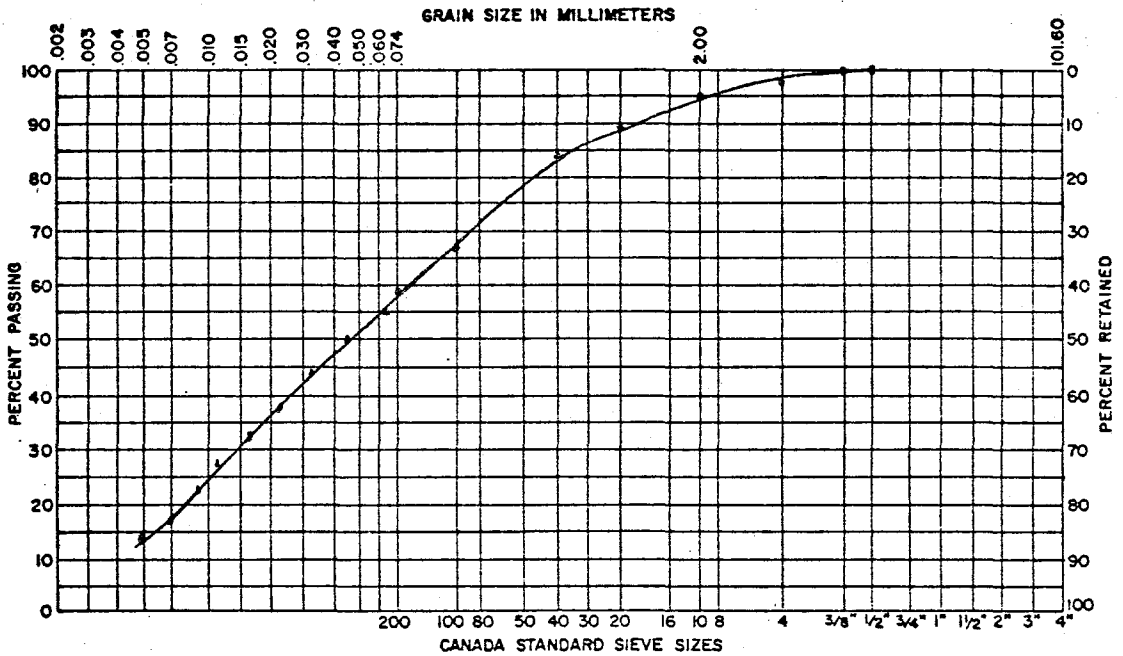
CRUSH COUNT _____ %

PETROGRAPHIC ANALYSIS

MATERIAL TYPE	% OF TOTAL SAMPLE

PARTICLE SHAPE ANALYSIS

ROUND	
SUB-ROUND	
ANGULAR	
SUB-ANGULAR	
FLATS	
NEEDLES	



CLAY (PLASTIC) TO SILT (NON-PLASTIC)	SAND			GRAVEL	
	FINE	MEDIUM	COARSE	FINE	COARSE

LABORATORY'S REMARKS _____

DATE SAMPLED 13-7-77
DATE RECEIVED 21-7-77
TECHNICIAN(S) LAB
CHECKED BY BSA

Public Works Canada

MATERIALS QUALITY CONTROL LABORATORY
WHITEHORSE, Y.T.

PROJECT					DATE RECORDED
UPPER BLACKSTONE					12-9-77
STA.	**SAMPLE TYPE**	**DEPTH**	**HOLE NO.**	**FIELD NO.**	**LAB NO.**
396+40	AUGER	3½' - 5'	2	3	366

LABORATORY TESTING REPORT

GRAIN SIZE ANALYSIS

SIEVE SIZE	% FINER BY WEIGHT	SIEVE SIZE	% FINER BY WEIGHT		SIEVE SIZE	% FINER BY WEIGHT	SIEVE SIZE	% FINER BY WEIGHT
3/4	100.0	200	28.1		.069	27.5	.005	11.1
1/2	97.5				.049	26.0		
3/8	96.6				.035	23.4		
4	90.0				.025	21.3		
10	80.6				.018	17.5		
20	63.7				.013	16.2		
40	52.5				.009	13.6		
100	32.8				.007	11.3		

SAMPLE NO.	UNIFIED CLASSIFICATION	L.L.	P.L.	P.I.	NATURAL % H_2O	S.G.
366	SM		N.P.		33.1	

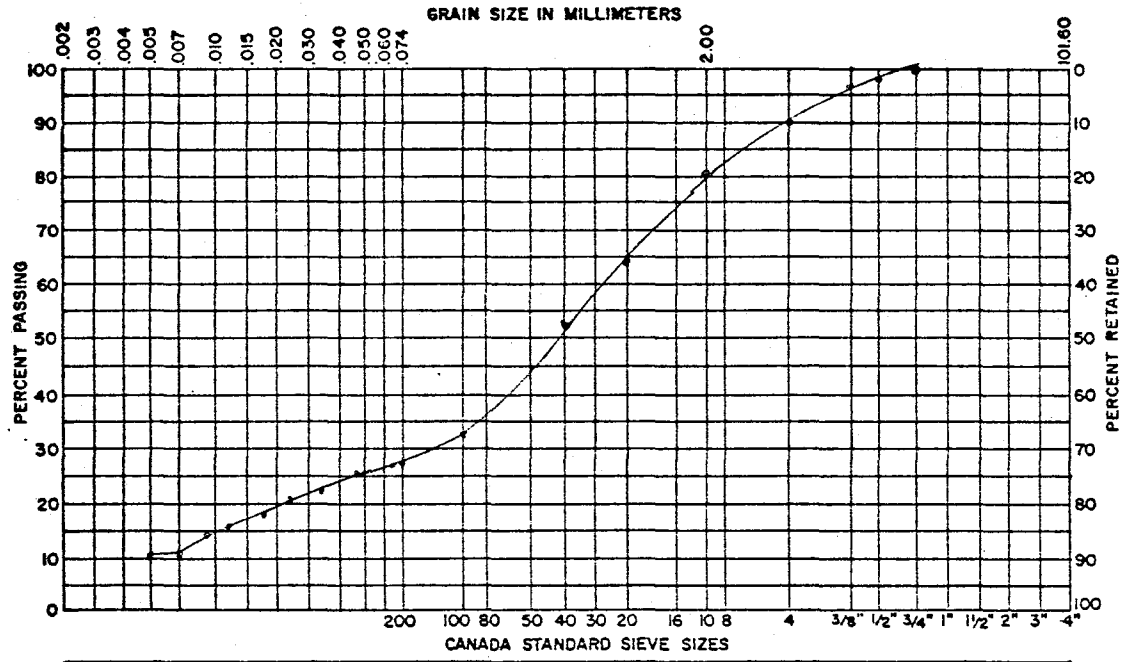
CRUSH COUNT _____ %

PETROGRAPHIC ANALYSIS

MATERIAL TYPE	% OF TOTAL SAMPLE

PARTICLE SHAPE ANALYSIS

ROUND	
SUB-ROUND	
ANGULAR	
SUB-ANGULAR	
FLATS	
NEEDLES	



CLAY (PLASTIC) TO SILT (NON-PLASTIC)	SAND			GRAVEL	
	FINE	MEDIUM	COARSE	FINE	COARSE

LABORATORY'S REMARKS _____

DATE SAMPLED 13-7-77
DATE RECEIVED 21-7-77
TECHNICIAN(S) LAB
CHECKED BY R.F.

Public Works Canada

MATERIALS QUALITY CONTROL LABORATORY
WHITEHORSE, Y.T.

PROJECT					DATE RECORDED
UPPER BLACKSTONE					12-9-77
STA.	**SAMPLE TYPE**	**DEPTH**	**HOLE NO.**	**FIELD NO.**	**LAB NO.**
393+25 ℄	AUGER	4' - 5½'	4	5	367

LABORATORY TESTING REPORT

GRAIN SIZE ANALYSIS

SIEVE SIZE	% FINER BY WEIGHT	SIEVE SIZE	% FINER BY WEIGHT		SIEVE SIZE	% FINER BY WEIGHT	SIEVE SIZE	% FINER BY WEIGHT
3/4	100.0	200	32.5		.067	31.6	.005	10.7
1/2	97.8				.048	28.8		
3/8	96.5				.034	26.0		
4	86.6				.025	22.3		
10	72.8				.018	19.0		
20	53.8				.013	14.9		
40	46.7				.009	14.4		
100	38.1				.007	11.8		

SAMPLE NO.	UNIFIED CLASSIFICATION	L.L.	P.L.	P.I.	NATURAL % H_2O	S.G.
367	SM	37.9		N.P.	62.4	

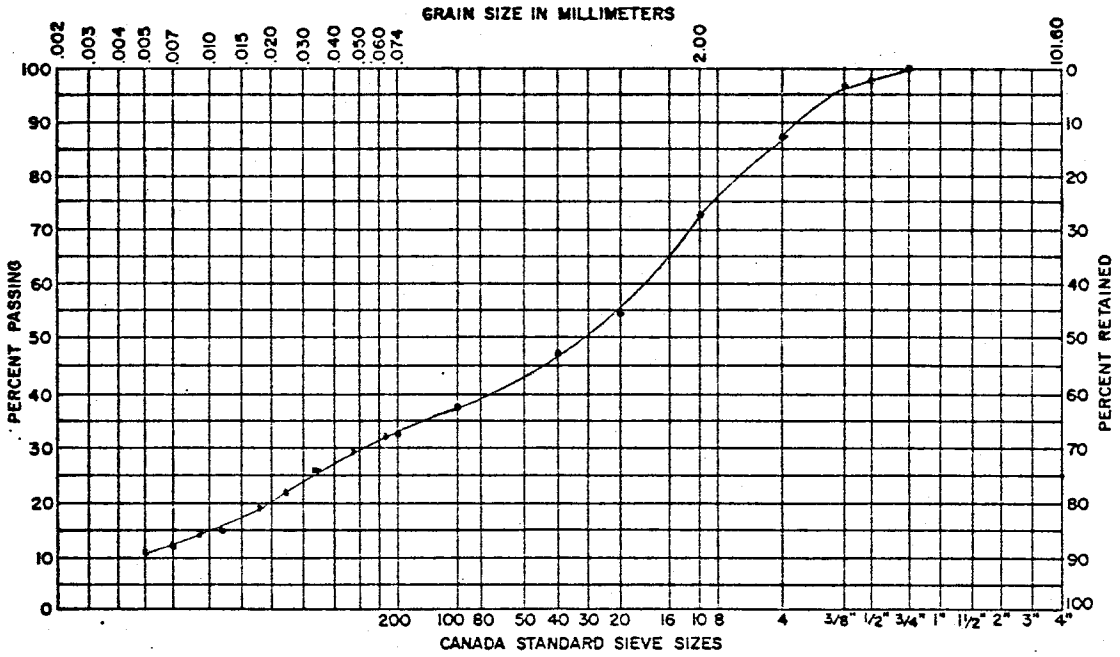
CRUSH COUNT _____ %

PETROGRAPHIC ANALYSIS

MATERIAL TYPE	% OF TOTAL SAMPLE

PARTICLE SHAPE ANALYSIS

ROUND	
SUB-ROUND	
ANGULAR	
SUB-ANGULAR	
FLATS	
NEEDLES	



CLAY (PLASTIC) TO SILT (NON-PLASTIC)	SAND			GRAVEL	
	FINE	MEDIUM	COARSE	FINE	COARSE

LABORATORY'S REMARKS _____

DATE SAMPLED 13-7-77
DATE RECEIVED 21-7-77
TECHNICIAN(S) LAB.
CHECKED BY RGT.