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**FIELD AND LABORATORY WORK-SUMMARY REPORT
AREAS 1, 2, 3, 4, 5, 5A, 7 AND 7A
SIERRA-YOYO-DESAN ROAD AREA GRAVEL
INVESTIGATION
NORTHEASTERN, BC**

Submitted to:

New Ventures Branch
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Victoria, BC

Submitted by:

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1.0 INTRODUCTION AND SCOPE OF SERVICES

The British Columbia Ministry of Energy and Mines (MEM) retained AMEC Earth & Environmental Limited (AMEC) to conduct gravel investigations in the Sierra-Yoyo-Desan Road (SYD Road) area in northeastern British Columbia. The scope of services for this work is detailed in AMEC's proposal of January 9, 2003 to the MEM. The work is summarized in the project summary report (AMEC 2003f) provided to the MEM in a separate document.

This report provides a summary of the fieldwork and soil laboratory testing conducted for the target areas detailed below in Table 1:

Table 1: Target Areas Investigated			
Target Area	Location/Access	Target Material	Type of Assessment Conducted
Area 1 (Sahtaneh River)	At confluence of Sahtaneh River and Moss Creek, access was from km 116 of SYD for the east half and km 11.5 of the South Gunnel Road for the west half.	Gravel	Level 1 (Reconnaissance) with limited reporting
Area 2 (Metladoa Creek)	Around existing Sierra Jim Little Pit, Metladoa Creek Area. Access was from km 107 of the SYD Road	Gravel	Level 2 (Development Scale) but with limited soils testing and reporting
Area 3 (Sahdoanah Creek)	Near Sahdoanah Creek. Access was from km 177 of SYD Road	Gravel	Level 2 (Development Scale) but with limited soils testing and reporting
Area 4 (Northwestel Tower Hill)	Near airstrip east of Kotcho Lake. Winter road on a hill where Northwestel towers are located. Access is from km 132 of the SYD Road	Bedrock	Level 1 (Reconnaissance) with limited reporting
Area 5 (Courvoisier Creek)	North side of Courvoisier Creek. Access is from km 19.5 of Komie Road	Gravel	Level 2 (Development Scale) but with limited soils testing and reporting
Area 5A (Courvoisier Creek Hill)	Hill north of Courvoisier Creek Area to the west of the Komie Road. Access was from km 22 of the Komie Road.	Bedrock	Level 1 (Reconnaissance) with limited reporting
Area 7/7A (Kyklo Area)	Kyklo Creek area accessed off of SYD Road either along the Kyklo Road at km 102 of the SYD Road or a well lease road at km 100 of the SYD Road	Gravel	Level 1 (Reconnaissance) with limited reporting

Given the preliminary results of work conducted in these areas and discussions with MEM regarding the preliminary results, full reporting (as conducted for Areas 8, 9, 10 and the Elleh Creek Reserve: AMEC 2003a through 2003e) was not required.

2.0 METHODOLOGY

AMEC's specific methodology was divided into the following general tasks for the target areas detailed in this report:

- 1) Investigation planning
- 2) Field investigation (reconnaissance, test pitting and optional drilling, Level 1 and 2)
- 3) Laboratory testing
- 4) Reporting

2.1 INVESTIGATION PLANNING

Prior to conducting the field investigation, AMEC reviewed available background information and prioritized sites based on the inferred potential to find gravel and/or bedrock. During the process, AMEC had meetings with Sheldon Harrington, B.Sc. of MEM and Jim Little of Mackeno Ventures.

2.2 FIELD INVESTIGATION

The fieldwork for the gravel investigation was divided into three phases:

- 1) Site Reconnaissance: Prior to mobilizing equipment to the general project area, Doug Dewar, P.Eng. of AMEC, Jim Little, and Sheldon Harrington conducted a general site reconnaissance to determine the specific logistics for the field work at each site from February 17 to 25 and March 11 to 13, 2003, including:
 - a) Confirmation of site locations and access requirements
 - b) Utility issues. Note that Jim Little of Mackeno Ventures provided all utility clearances
 - c) Assessment of access issues such as snow clearing, tree cutting etc
 - d) Assessment and organization of equipment staging, turn around and parking locations for low-bed trucks
- 2) Level 1 Reconnaissance Investigations: The Level 1 Reconnaissance Investigations consisted of excavating test pits within a given target area at a grid spacing ranging of approximately 250 to 300 m to determine if granular materials were present. In the case of bedrock targets, test pits were excavated into bedrock, if encountered. The test pitting methodology is summarized below.
- 3) Level 2 Development Scale Investigation: The Level 2 Development Scale Investigations consisted of digging additional test pits in areas where granular materials were encountered to reduce the test pit grid spacing to approximately 150 m. The test pitting methodology is summarized below.

The following items describe the general test pitting methodology and sampling procedures:

- 1) For the purpose of this work granular material was defined as soil with less than 20% fines (silt and clay)
- 2) Test pits were excavated with a tracked excavator provided by Kledo Construction (refer to individual test pit logs for the excavator type). A representative of AMEC (either Shiloh Jorgensen, E.I.T., Bradley Jackman, C.Tech or Bob McFadden) supervised the test pit excavation and logged the test pits using the Modified Unified Soil Classification System.
- 3) Test pits were excavated to 3 m.
 - a) If no granular material was encountered the test pit was backfilled. No samples were taken.
 - b) If granular material was encountered, the test pit was advanced to the full reach of the excavator. At least one bulk soil sample was taken per test pit if granular material was encountered. Note that in some instances when the samples were fine grained sand, samples were not taken.

- 4) A photograph of excavated soil was taken from every test pit.
- 5) The locations of the test pits were marked on a field airphoto and the coordinates were taken with a hand-held GPS where satellite coverage was available.

Table 2 provides a summary of the test pits excavated in each target area:

Table 2: Test Pitting Summary			
Target Area	Number of Test Pits	Test Pits Encountering Granular Material	Test Pits Encountering Bedrock
Area 1 (Sahtaneh River)	46	7	0
Area 2 (Metlandoa Creek)	54	18	0
Area 3 (Sahdoanah Creek)	67	31	0
Area 4 (Northwestel Tower Hill)	8	0	8
Area 5 (Courvoisier Creek)	74	32	0
Area 5A (Courvoisier Creek Hill)	7	0	7
Area 7A 7/7A (Kyklo Area)	8	0	0
Totals	264	88	15

2.3 LABORATORY TESTING

Samples obtained in the field were returned to AMEC's soils laboratory in Prince George. AMEC conducted wash sieve grain size analysis for selected samples collected. Table 3 details the laboratory tests conducted for each specific study area:

Table 3: Soil Laboratory Testing Details			
Target Area	Wash Sieve Analysis	Sand Equivalent Tests	Degradation Tests
Area 2 (Metlandoa Creek)	8	0	0
Area 3 (Sahdoanah Creek)	18	0	0
Area 5 (Courvoisier Creek)	21	0	0
Totals	47	0	0

2.4 REPORTING

A project meeting was held at AMEC's Prince George Office between Doug Dewar, P.Eng. of AMEC and Sheldon Harrington and Vic Levson, P.Geo., PhD. of MEM on April 29, 2003, to discuss potential revisions for final reporting and the format of reporting for the areas (Area 1, 2, 3, 4, 5, 5A, 7, and 7A) described in this report.

The reporting is detailed in the following sections. Note for the purposes of this reporting, granular material was defined as any soil with less than 20% fines. Note that this is different than the previous Level 2 (development scale) reports where granular material was defined as containing less than 15% fines).

3.0 AREA 1: SAHTANEH RIVER

3.1 INTRODUCTION

Area 1 was located at the confluence of Sahtaneh River and Moss Creek. The east portion of Area 1 was accessed from km 116 of SYD Road and the west portion was accessed from km 111.5 on the South Gunnel Road. Refer to Figure B1 for the general location of the study area. A total of forty-six (46) test pits were excavated during February 27 to March 7, 2003. Seven (7) test pits within the western portion of Area 1 encountered granular material. Figure B2 shows the test pit location and site layout.

3.2 SOIL CONDITIONS

Soils in the study area consisted typically of silt and clay with some granular soils. Granular soils encountered in seven (7) of the forty-six (46) test pits excavated were typically sand. The sand was fine grained and contained a trace (0 to 10%) to some (10 to 20%) silt. Table 4 below provides a test pit summary for test pits encountering granular soils:

Table 4: Test Pit Summary Area 1 (Sahtaneh River)						
Test Pit (TP03-1-#)	Depth (m)	Overburden/Non-Granular Material (m)	Granular Material (m)	Description of Granular Material*	Underlying Non-granular Material (m)	Water Table (m)
251	4.5	0.0-1.25	1.25-4.5	Sand**, some silt, SM		NE
257	3.5		0.0-3.0	Sand**, some silt, SM	3.0-3.5	3.5
258	4.0		0.0-1.5	Sand, SP	1.5-4.0	NE
259	3.5		0.0-2.5	Sand, SP	2.5-3.5	2.5
260	4.5		0.0-1.5	Sand, SP	1.5-4.5	1.5
268	3.0	0.0-1.25	1.25-3.0	Sand, SP		3.0
271	4.0	0.0-1.0	1.0-4.0	Sand, SP		NE

* Note that soils from thin layers (less than 0.5 m thick) may not be included in the description (refer to test pit logs in Appendix B)

** Soils that appeared to contain between 13 and 17 percent fines (silt and clay)

NE = Not Encountered

Detailed test pit logs are included in Appendix B.

3.3 LABORATORY TESTING

No laboratory testing was conducted for Area 1, since the fine grained sand was not sampled.

3.4 PRELIMINARY VOLUME ESTIMATE

There is estimated to be approximately 28 500 m³ of fine grained sand available within the western portion of Area 1. Refer to Figure B2 for an outline of the granular potential area.

Table 5: Area 1 Estimated Granular Potential				
Area (m²)	Average Thickness		Potential Volume (m³)	
	Overburden	Granular Material	Overburden	Granular Material
15 000	0.6	1.9	9 000	28 500

The estimate of preliminary granular quantity is based on the following information and necessary assumptions:

1. The estimate is limited to the maximum depth of exploration of the test pits.
2. Depths of overburden and granular thickness are based on the average of all test logs. Volumes were calculated by multiplying the average depth by the area interpreted as having granular potential.
3. Pit slopes and setbacks were not considered in the volume estimate. Any setbacks and required pit slopes would reduce the actual volume of granular soils estimated.
4. The deposits are continuous within the defined granular area.

3.5 GRANULAR POTENTIAL

There is potential that the fine grained sand in Area 1 could be used as winter sand or borrow sand; otherwise, it appeared that the existing pit was depleted.

3.6 RECOMMENDATIONS FOR FURTHER STUDY

Based on the results of the reconnaissance level field assessment conducted by AMEC, it is not recommended that further work be conducted in Area 1.

4.0 AREA 2: METLANDOA CREEK AREA (JIM LITTLE PIT AND METLANDOA RESERVE)

4.1 INTRODUCTION

Area 2 was accessed from approximately km 107 on the SYD road. Refer to Figure C1 for the general location of the study area. A total of fifty-four (54) test pits were excavated from February 28 to March 3, 2003. Eighteen (18) test pits encountered granular material. Figure C2 shows the test pit locations and general layout of Area 2.

4.2 SOIL CONDITIONS

Soils in the study area consisted typically of silt and clay till with some granular soils. Granular soils encountered in eighteen (18) of the fifty-four (54) test pits excavated were typically sand and sand and gravel. The sand contained a trace to some silt and some gravel to being gravelly (20 to 35% content by weight). The sand and gravel contained a trace to some silt. The sand and sand and gravel were typically compact and brown in colour. Table 6 below provides a test pit summary for Area 2:

Table 6: Test Pit Summary Area 2 (Metlandoa Creek)

Test Pit (TP03-2-#)	Depth (m)	Overburden/Non-Granular Material (m)	Granular Material (m)	Description of Granular Material*	Underlying Non-granular Material (m)	Water Table (m)
01	3.5	0.0-0.6	0.6-2.5	Sand and Gravel, SP-SM	2.5-3.5	2.5
02	4.0	0.0-0.3	0.3-3.2	Sand and Gravel, GP-GM	3.2-4.0	0.1
03	3.0	0.0-0.3	0.3-2.6	Gravel**, sandy, GM	2.6-3.0	1.8
04	2.0	0.0-1.0	1.0-2.0	Sand, SP-SM		1.1
06	3.6	0.0-0.8	0.8-2.7	Sand, gravelly, SP-SM (0.8-1.6) Sand, some silt, SM (1.6-2.7)	2.7-3.6	NE
13	3.1	0.0-0.8	0.8-3.0	Gravel, sandy, GM	3.0-3.1	1.9
14	2.0	0.0-1.0	1.0-2.0	Gravel**, sandy, GM		1.5
15	2.0	0.0-0.4	0.4-2.0	Gravel**, sandy, GM		0.5
16	2.5	0.0-0.3	0.3-2.0	Gravel and Sand**, GM	2.0-2.5	1.0
20	2.5	0.0-0.2	0.2-2.5	Sand, SP-SM		0.8
21	3.0	0.0-0.3	0.3-2.8	Sand, SP	2.8-3.0	1.8
22	2.8	0.0-0.4	0.4-1.9	Sand and Gravel, SP-SM	1.9-2.8	1.4
27	3.4	0.0-0.3	0.3-2.3	Gravel**, sandy, GM (0.3-1.0) Sand, some gravel, SP-SM (1.0-2.3)	2.3-3.4	NE
36	3.2	0.0-0.5	0.5-1.7	Sand and Gravel, SP-SM	1.7-3.2	1.7
37	2.7	0.0-0.2	0.2-2.6	Sand**, SM	2.6-2.7	1.6
44	3.5	0.0-0.1	0.1-1.8	Gravel**, sandy, GM (0.1-0.5) Sand and Gravel, GP-GM (0.5-1.8)	1.8-3.5	NE
47	4.0	0.0-1.1	1.1-3.8	Sand, SP-SM	3.8-4.0	3.3
48	3.7		0.0-1.9	Sand**, some gravel, SM (0.0-1.2) Sand, some gravel, SP-SM (1.2-1.9)	1.9-3.7	NE

* Note that soils from thin layers (less than 0.5 m thick) may not be included in the description (refer to test pit logs in Appendix C)

** Soils that appeared to contain between 13 and 19 percent fines (silt and clay)

NE = Not Encountered

Detailed test pit logs are included in Appendix C. As noted in Table 6 above, the area typically had a water table ranging from 0.5 to 1.8 m below ground surface.

4.3 LABORATORY TESTING

Wash sieve analysis was conducted on eight samples obtained from Area 2. Table 7 below provides a summary of the wash sieve analysis results:

Table 7: Area 2 (Metlandoa Creek) Summary of Laboratory Testing Results*									
Test Pit	Depth (m)		Soil Class*	Fines <0.075 mm (%)	Sand <4.75 mm (%)	Gravel (%)		Additional** Oversize >75 mm (%)	Max. size (mm)
	From	To				fine <25 mm	coarse 25-75 mm		
TP-01	1.9	2.4	SP-SM	7	47	27	19	10	200
TP-02	2.0	3.0	GP-GM	11	43	36	10	10	250
TP-20	1.0	1.5	SP-SM	7	76	16	1	0	
TP-21	2.2	2.7	SP	5	61	28	6	0	
TP-36	1.0	1.5	SP-SM	10	48	23	19	10	150
TP-37	0.5	1.5	SM	16	69	13	2	0	
TP-44	1.0	1.8	GP-GM	11	40	28	21	15	200
TP-48	0.5	1.2	SM	18	60	17	5	0	
Average				11	56	23	10	6	

* The modified unified classification system for soils was used to classify soil samples. SP= poorly graded sand, SW=well graded sand, SM/SW= well graded sand with 12% to 17% fines, SP/SW=borderline poorly graded to well graded sand, GP=poorly graded gravel and GW= well graded gravel.

** The additional oversize percentage was a field estimate.

The laboratory results are included in Appendix C.

4.4 PRELIMINARY VOLUME ESTIMATE

There is estimated to be 81 400 m³ of granular materials available within Area 2. Refer to Figure C2 for an outline of the areas judged to have granular potential.

Table 8: Area 2 Preliminary Estimated of Potential Granular Material					
Section	Area (m ²)	Average Thickness		Potential Volume (m ³)	
		Overburden	Granular Material*	Overburden	Granular Material
A	46 800	0.4	0.8	18 700	37 400
B	43 300	0.3	0.9	13 000	39 000
C	9 000	0.5	0.1**	N/A	N/A
D	55 200	0.6	0.3**	N/A	N/A
E	6 100	0.4	0.8	2 400	4 900
Total				34 100	81 400

*The thickness was typically limited by the depth of the water table. If granular deposits were dredged from below the water table, volumes could be increased significantly.

**Not included in the volume available (not practical for development unless granular deposits were dredged from below the water table).

The estimate of preliminary granular quantity is based on the following information and necessary assumptions:

1. The estimate is limited to the maximum depth of exploration of the test pits.
2. Depths of overburden and granular thickness are based on the average of all test logs. Volumes were calculated by multiplying the average depth by the area interpreted as having granular potential.
3. Pit slopes and setbacks were not considered in the volume estimate. Any setbacks and required pit slopes would reduce the actual volume of granular soils estimated.
4. The deposits are continuous within the defined granular area.

4.5 GRANULAR POTENTIAL

Based on the laboratory results the average gradation from Area 2 was gravelly sand with some silt. There was approximately 81 400 m³ of potential granular material within Area 2. The granular material appeared to be generally suitable for general borrow with select areas being suitable for High Fines Granular Surfacing Aggregate.

4.6 RECOMMENDATIONS FOR FURTHER WORK

Given the proximity of Area 2 to the SYD Road, MEM should consider:

1. Having a more detailed review of the soil conditions conducted and determining if there are any areas that may be suitable for gravel extraction and have detailed reporting conducted where granular extraction is feasible.
2. Assessing the areas adjacent to TP-36 and 37 (Section E) to determine the extent of the granular deposits within that area.

5.0 AREA 3: SAHDOANAH CREEK

5.1 INTRODUCTION

Area 3 was located at approximately km 177 on the SYD road. Refer to Figure D1 for the general location of the study area. A total of sixty-seven (67) test pits were excavated during March 1 to March 4, 2003. Thirty-one (31) test pits encountered granular material. Figure D2 shows the test pit location and site layout.

5.2 SOIL CONDITIONS

The study area consisted of a silt and clay till plain with what appeared to be an esker-like feature of predominantly sand deposited onto the plain. The sand contained a trace to some silt and some gravel to gravelly. The sand was typically compact and brown in colour. Refer to Table 9 below for a summary of test pits encountering granular material.

Table 9: Test Pit Summary Area 3 (Sahdoanah Creek)

Test Pit (TP03-3-#)	Depth (m)	Overburden/Non- Granular Material (m)	Granular Material (m)	Description of Granular Material*	Underlying Non- granular Material (m)	Water Table (m)
01	5.5	0.0-0.5	0.0-5.5	Sand, SP-SM		4.5
05	3.7		0.0-3.7	Sand, SP-SM		2.6
06	3.5		0.0-3.5	Sand, SP-SM		2.0
08	3.0	0.0-0.1	0.1-3.0	Sand, SP-SM		2.2
09	3.0	0.0-0.1	0.1-3.0	Sand, SP-SM		2.1
10	3.0	0.0-0.1	0.1-3.0	Sand, SP-SM		2.1
11	4.0	0.0-0.1	0.1-2.1	Sand**, SM	2.1-4.0	2.1
12	3.5		0.0-3.5	Sand**, SM (0.0-1.9) Sand, SP-SM (1.9-3.5)		2.1
14	4.0		0.0-4.0	Sand**, SM		1.9
15	4.0	0.0-0.1	0.1-2.0	Sand**, SM	2.0-4.0	1.9
19	5.5	0.0-0.1	0.1-5.5	Sand and Gravel**, SM (0.1-1.2) Sand, SP (1.2-5.5)		5.5
20	3.5		0.0-3.5	Sand**, SM (0.0-1.0) Sand and Gravel, SP-SM (1.0-3.5)		1.9
22	4.0		0.0-4.0	Sand, SP-SM		3.0
23	4.0	0.0-1.0	1.0-4.0	Sand, SP		NE
27	2.5		0.0-2.5	Sand, SP		1.5
28	3.5	0.0-1.0	1.0-3.5	Sand, SP-SM		NE
30	3.0	0.0-1.1	1.1-3.0	Sand, SP-SM (1.1-2.0) Sand, SP (2.0-3.0)		NE
32	3.0	0.0-0.7	0.7-3.0	Sand, SP		NE
34	2.5		0.0-2.5	Sand, SP-SM		1.1
37	3.0	0.0-0.7	0.7-3.0	Sand, SW		NE
38	4.0	0.0-0.9	0.9-4.0	Sand, SW		NE
42	3.0	0.0-1.0	1.0-3.0	Sand, SP-SM		NE
43	3.0	0.0-0.2	0.2-3.0	Sand**, SM		2.1
44	3.2	0.0-0.8	0.8-3.2	Sand**, SM		NE
48	3.5	0.0-0.7	0.7-3.5	Sand**, SM		NE
49	3.0	0.0-0.1	0.1-3.0	Sand**, SM		NE
51	4.0	0.0-0.8	0.8-4.0	Sand**, SM		NE
54	4.0	0.0-0.7	0.7-4.0	Sand, SP-SM		NE
55	3.0	0.0-0.6	0.6-1.9	Sand, SP-SM	1.9-3.0	2.2
56	3.0	0.0-1.0	1.0-2.1	Sand, SP	2.1-3.0	1.8
57	2.9	0.0-0.4	0.4-2.9	Sand, SP-SM		1.6
58	3.0	0.0-0.1	0.1-1.7	Sand and Gravel, SP-SM	1.7-3.0	1.6
59	4.0	0.0-0.8	0.8-4.0	Sand, SP		3.5

* Note that soils from thin layers (less than 0.5 m thick) may not be included in the description (refer to test pit logs in Appendix D)

** Soils that appeared to contain between 13 and 19 percent fines (silt and clay)

NE = Not Encountered

Detailed test pit logs are included in Appendix D.

5.3 LABORATORY TESTING

Wash sieve analysis was conducted on eighteen (18) samples obtained from Area 3. Results of the wash sieve grain size analysis are included below in Table 10 below:

Table 10: Area 3 (Sahdoanah Creek) Summary of Laboratory Testing Results

Test Pit	Depth (m)		Soil Class*	Fines <0.075 mm (%)	Sand <4.75 mm (%)	Gravel (%)		Additional** Oversize >75 mm (%)	Max. size (mm)
	From	To				fine <25 mm	coarse 25-75 mm		
TP-01	2.5	5.0	SP-SM	6	78	15	1	2	150
TP-05	1.4	2.4	SP-SM	8	91	1	0	0	
TP-06	1.0	2.0	SP-SM	11	85	4	0	0	
TP-10	1.0	2.5	SP-SM	10	86	4	0	0	
TP-12	2.0	3.0	SP-SM	6	73	18	3	0	
TP-19	2.0	3.0	SP	3	77	17	3	0	
TP-20	1.8	2.5	SP-SM	7	61	24	8	5	150
TP-22	2.0	3.0	SP-SM	6	90	4	0	0	
TP-23	1.5	2.5	SP	4	84	8	4	0	
TP-27	1.2	1.5	SP	5	71	20	4	0	
TP-32	1.8	2.7	SP	3	91	6	0	0	
TP-34	1.1	2.0	SP-SM	7	71	19	3	0	
TP-48	1.2	2.0	SM	14	76	9	1	0	
TP-53	0.3	0.7	SP-SM	7	63	27	3	0	
TP-54	1.8	2.5	SP-SM	6	72	18	4	0	
TP-55	1.1	1.6	SP-SM	9	71	19	1	0	
TP-56	1.2	1.5	SP	5	71	20	4	0	
TP-59	2.0	3.0	SP	5	79	15	1	0	
Average				7	77	14	2	0	

* The modified unified classification system for soils was used to classify soil samples. SP= poorly graded sand, SW=well graded sand, SM/SW= well graded sand with 12% to 17% fines, SP/SW=borderline poorly graded to well graded sand, GP=poorly graded gravel and GW= well graded gravel.

** The additional oversize percentage was a field estimate.

The laboratory results are included in Appendix D. The average sample gradation encountered in Area 3 is sand with some gravel and a trace silt.

5.4 PRELIMINARY VOLUME ESTIMATE

There is estimated to be 29 200 m³ of granular materials available within Area 3. Refer to Figure D2 for an outline of the granular potential areas.

Table 11: Area 3 Estimated Granular Potential					
Section	Area (m ²)	Average Thickness		Potential Volume (m ³)	
		Overburden	Granular Material	Overburden	Granular Material
A	1 900	0.6	2.3	1 100	4 400
B	440	0.8	2.9	400	1 300
C	6 150	0.3	2.0	1 900	12 300
D	6 600	0.4	1.7	2 600	11 200
Total				6 000	29 200

5.5 GRANULAR POTENTIAL

The average sample gradation encountered in Area 3 was sand with some gravel and a trace silt. There is estimated to be approximately 29 200 m³ of sand within Area 3. The material may be gradationally suitable for use as Select Granular Subbase but the more uniformly sand gradation area may rut under vehicle loading.

5.6 RECOMMENDATIONS FOR FURTHER STUDY

AMEC does not recommend that any additional fieldwork be conducted within the study area given the current test pit spacing and predominant sand composition of the soil.

6.0 AREA 4: NORTHWESTEL TOWER HILL

6.1 INTRODUCTION

Area 4 was located near the Yoyo Airstrip southwest of Kotcho Lake on a hill where a Northwestel tower was located. The study area was accessed from km 132 on the SYD road. Refer to Figure E1 for the general location of the study area. A total of eight (8) test pits were excavated on February 27, 2003 to determine the potential depth of bedrock. Figure E2 shows the test pit location and site layout.

6.2 SOIL CONDITIONS

The study area consisted of a silt or silty sand till overlying either a mudstone (clay and silt stone) or sandstone. Bedrock was encountered in all eight of the test pits excavated. The bedrock was classified as very weak and brown in colour. Table 12 below includes a description of the soil/bedrock conditions encountered:

Table 12: Test Pit Summary Area 4 (Northwestel Tower Hill)					
Test Pit (TP03-4-#)	Depth (m)	Overburden (m)	Bedrock* (m)	Description of Bedrock**	Water Table (m)
01	4.9	0.0-2.1	2.1-4.9	Mudstone, MS	NE
02	3.0	0.0-2.2	2.2-3.0	Mudstone, MS	NE
03	5.6	0.0-0.9	0.9-5.6	Sand, SP-SM (0.9-3.3) Sandstone, SS (3.3-5.6)	NE
04	3.2	0.0-1.1	1.1-3.2	Sandstone, SS	NE
05	6.1	0.0-1.1	1.1-6.1	Sandstone, SS	NE
06	4.5	0.0-2.6	2.6-4.5	Sandstone, SS	NE
07	5.5	0.0-0.1 3.2-5.2	0.1-3.2 5.2-5.5	Sand***, SM Mudstone, MS	NE
08	5.2	0.0-1.2	1.2-5.2	Sandstone, SS	NE

*Includes soils interpreted to be weathered bedrock

** Note that soils from thin layers (less than 0.5 m thick) may not be included in the description (refer to test pit logs in Appendix E)

*** Soils that appeared to contain between 13 and 19 percent fines (silt and clay)

NE = Not Encountered

Detailed test pit logs are included in Appendix E. Based on field observations, the sandstone was generally considered to be very weak based on field observations.

6.3 LABORATORY TESTING

No laboratory testing was conducted on bedrock samples.

6.4 QUARRY POTENTIAL

Based on the preliminary results of the field work, it appeared that the bedrock was predominantly very weak mudstone or sandstone. The material did not appear to be suitable for use as a rip-rap source or crushed product (it would be expected to be crushed to predominantly sand or finer sized particles). The material may be suitable for use as borrow material, but it is expected that closer sources to the current SYD Road alignment exist.

6.5 RECOMMENDATIONS FOR FURTHER STUDY

There is a potential that there may be more competent bedrock underlying the very weak bedrock encountered during AMEC's fieldwork. MEM may wish to consider conducting a drilling program to further evaluate underlying bedrock conditions.

7.0 AREA 5: COURVOISIER CREEK

7.1 INTRODUCTION

Area 5 was located at approximately km 19.5 along Komie Road. Refer to Figure F1 for the general location of the study area. A total of seventy-four (74) test pits were excavated during February 22 to February 26, 2003. Thirty-two (32) test pits encountered granular material. Figure F2 shows the test pit location and site layout.

7.2 SOIL CONDITIONS

The study area appeared to be a thin veneer of glaciofluvial sand or gravel deposited over the underlying silt and/or clay till on the edges and areas adjacent to the Courvoisier Creek meltwater channel. Granular soils encountered in thirty-two (32) of the seventy-four (74) test pits excavated were typically sand and/or gravel. The sand contained a trace to some silt and variable gravel content ranging from some gravel (10 to 25%) to gravelly (25 to 35%). The sand and gravel contained variable amounts of sand and gravel, a trace to some silt. The sand and/or gravel were typically compact and brown in colour. Table 13 below includes descriptions of the granular material encountered:

Table 13: Test Pit Summary Area 5 (Courvoisier Creek)

Test Pit (TP03-5-#)	Depth (m)	Overburden/Non-Granular Material (m)	Granular Material (m)	Description of Granular Material*	Underlying Non-granular Material (m)	Water Table (m)
08	4.9	0.0-0.5	0.5-1.5	Sand**, gravelly, SM	2.7-4.9	NE
13	3.0	0.0-0.5	0.5-1.5	Sand, gravelly, SP	1.5-3.0	NE
14	5.0	0.0-0.25	0.25-5.0	Gravel and Sand, GP-GM (0.25-1.25) Sand and Gravel, SP (1.25-5.0)		NE
51	2.3		0.0-2.3	Gravel, sandy, GW		1.7
52	4.4	0.0-1.2	1.2-3.2	Sand and Gravel, SP-SM	3.2-4.4	NE
53	3.5	0.0-0.5	0.5-3.0	Sand, SP (0.5-2.4) Gravel, sandy, GP (2.4-3.0)	3.0-3.5	3.4
56	4.4	0.0-0.8	0.8-4.2	Sand, SP	4.2-4.4	NE
57	2.4	0.0-0.3	0.3-2.4	Sand, gravelly, SP-SM		2.2
58	2.5	0.0-0.4	0.4-1.8	Sand and Gravel, SP	1.8-2.5	NE
59	3.0	0.0-0.3	0.3-1.3	Sand and Gravel, SP-SM	1.3-3.0	NE
60	3.2	0.0-0.3	0.3-2.3	Sand, SP-SM	2.3-3.0	NE
61	3.5	0.0-0.4	0.4-3.5	Gravel, sandy, GP-GM (0.4-1.8) Sand, gravelly, SP (1.8-3.5)		3.0
62	4.5	0.0-0.8	0.8-4.4	Sand, SP	4.4-4.5	NE
63	3.6	0.0-0.4	0.4-3.3	Sand and Gravel, SP-SM (0.4-1.8) Sand, SP (1.8-3.3)	3.3-3.6	NE
64	3.4	0.0-0.7	0.7-1.8	Sand and Gravel, GP	1.8-3.4	NE
65	2.5	0.0-0.3	0.3-1.5	Sand, SP-SM	1.5-2.5	NE
66	2.7	0.0-0.3	0.3-1.5	Sand, SP-SM	1.5-2.7	1.5
67	2.7	0.0-0.5	0.5-2.5	Sand and Gravel, GP-GM (0.5-1.5) Sand, SP (1.5-2.5)	2.5-2.7	1.5
68	2.0	0.0-0.3	0.3-1.4	Sand, SP-SM	1.4-2.0	1.4
69	2.8	0.0-0.5	0.5-2.8	Sand, SP	2.8	2.4
70	2.7	0.0-0.8	0.8-2.5	Sand and Gravel, GP-GM	2.5-2.7	1.9
72	2.2	0.0-0.3	0.3-1.7	Sand, SP-SM	1.7-2.2	NE
73	4.8	0.0-0.6	0.6-4.8	Sand and Gravel, GP		4.2
74	4.6	0.0-0.5	0.5-4.5	Sand, SP	4.5-4.6	NE
75	4.0		0.0-4.0	Gravel, sandy, GP-GM (0.0-0.8) Sand, SP-SM (0.8-4.0)		2.5
84	3.7	0.0-0.8	0.8-3.0	Sand and Gravel, SP (0.8-1.9) Sand, SP-SM (1.9-3.0)	3.0-3.7	NE
85	3.0	0.0-0.6	0.6-3.0	Sand and gravel, GP-GM (0.6-1.5) Gravel, sandy, GP-GM (1.5-3.0)		1.9
87	5.0	0.0-0.6	0.6-1.7	Sand and Gravel, GP-GM	1.7-5.0	NE
111	3.0		0.0-1.25	Sand and Gravel, SP	1.25-3.0	NE
112	3.0	0.0-0.25	0.25-1.8	Sand and Gravel, SP-SM	1.8-3.0	NE
150	5.0	0.0-0.25	0.25-1.75	Gravel and Sand, GP-GM	1.75-5.0	2.0
152	3.0	0.0-0.75	0.75-3.0	Gravel and Sand, GP-GM (0.75-1.5) Sand**, gravelly, SP-SM (1.5-3.0)		1.5

* Note that soils from thin layers (less than 0.5 m thick) may not be included in the description (refer to test pit logs in Appendix F)

** Soils that appeared to contain between 13 and 19 percent fines (silt and clay)

NE = Not Encountered

Detailed test pit logs are included in Appendix F.

7.3 LABORATORY TESTING

Wash sieve grain size analysis was conducted on twenty-one (21) samples obtained from Area 5. Table 14 includes the results of the wash sieve analysis.

Table 14: Area 5 (Courvoisier Creek) Summary of Laboratory Testing Results*

Test Pit	Depth (m)		Soil Class*	Fines <0.075 mm (%)	Sand <4.75 mm (%)	Gravel (%)		Additional** Oversize >75 mm (%)	Max. size (mm)
	From	To				fine <25 mm	coarse 25-75 mm		
TP-08	1.2	2.5	SM	21	49	23	7	8	200
TP-13	0.5	1.5	SP	4	70	23	3	0	
TP-14	1.0	2.3	SP	3	59	27	11	0	
TP-51	1.0	2.3	GW	1	28	54	17	8	150
TP-52	1.5	3.0	SP-SM	8	46	27	19	5	200
TP-56	2.0	2.3	SP	4	95	1	0	0	
TP-57	1.0	2.2	SP-SM	6	63	23	8	8	200
TP-58	1.0	1.8	SP	3	49	29	19	8	150
TP-59	0.5	1.2	SP-SM	6	54	30	10	0	
TP-60	1.5	2.3	SP-SM	11	84	5	0	0	
TP-61	2.0	3.0	SP	4	63	27	6	5	150
TP-63	1.0	1.5	SP-SM	6	55	32	7	0	
	1.8	2.5	SP	3	74	17	6	0	
TP-65	0.5	1.3	SP-SM	7	77	13	3	0	
TP-69	1.0	1.5	SP	4	80	15	1	0	
TP-70	1.8	2.4	GP-GM	7	45	29	19	5	100
TP-73	1.5	4.5	GP	3	45	41	11	5	150
TP-84	0.9	1.5	SP	3	54	35	8	5	200
TP-87	0.6	1.7	GP-GM	7	41	29	23	8	300
TP-111	0.0	1.25	SP	4	52	31	13	10	200
TP-112	0.25	0.8	SP-SM	6	53	25	16	0	
Average				6	59	25	10	4	

* The modified unified classification system for soils was used to classify soil samples. SP= poorly graded sand, SW=well graded sand, SM/SW= well graded sand with 12% to 17% fines, SP/SW=borderline poorly graded to well graded sand, GP=poorly graded gravel and GW= well graded gravel.

** The additional oversize percentage was a field estimate.

The laboratory results are included in Appendix F. The average gradation for Area 5 is sand and gravel (to gravelly sand) with a trace silt.

7.4 PRELIMINARY VOLUME ESTIMATE

There is estimated to be 664 000 m³ of granular materials available within Area 5. Refer to Figure F2 for an outline of the granular potential areas.

Table 15: Area 5 Estimated Granular Potential						
Section		Area (m²)	Average Thickness		Potential Volume (m³)	
			Overburden	Granular Material	Overburden	Granular Material
East of road	A	51 300	0.6	1.0	31 000	51 000
	B	28 800	0.7	1.0	20 000	29 000
	C	15 000	0.1	0.9	1 500	14 000
West of road	D	336 000	0.5	1.7	168 000	570 000
Total					220 500	664 000

7.5 GRANULAR POTENTIAL

Although the deposits were relatively thin (less than 2 m in total thickness) there appeared to be a considerable amount of sand and gravel west of the road in Section D. Based on AMEC's preliminary volume estimate, there could be approximately 570 000 m³ of sand and gravel in Section D. If additional material is required in the Komie Road area above and beyond that sourced from Area 8, Section D in Area 5 appears to be the next best alternative source of granular material.

The material in area appeared to be suitable for use a Select Granular Subbase with select areas being suitable for use as High Fines Granular Surfacing Aggregate.

7.6 RECOMMENDATIONS FOR FURTHER WORK

If there appears to be additional material required within the Komie Road area, it may be advisable to have the results of the test pitting reviewed and a detailed Level 2 report prepared for Section D.

8.0 AREA 5A: COURVOISIER CREEK HILL

8.1 INTRODUCTION

Area 5A was accessed from km 22 of the Komie Road. Refer to Figure G1 for the general location of the study area. A total of seven (7) test pits were excavated on February 26, 2003 to determine the depth to bedrock, if present. Figure G2 shows the test pit location and site layout.

8.2 SOIL CONDITIONS

The study area consisted of typically clay and silt overlying sandstone. Sandstone bedrock was encountered in all seven of the test pits excavated. The sandstone was very weak and brown in colour. Table 16 below includes a description of the soil/bedrock conditions encountered:

Table 16: Test Pit Summary Area 5A (Courvoisier Creek Hill)					
Test Pit (TP03-5A-#)	Depth (m)	Overburden (m)	Bedrock* (m)	Description of Bedrock**	Water Table (m)
01	4.7	0.0-1.9	1.9-4.7	Sandstone, SS	NE
02	4.1	0.0-0.4	0.4-4.1	Sandstone, SS	NE
03	4.5	0.0-0.5	0.5-4.5	Sandstone, SS	NE
04	4.5	0.0-0.4	0.4-4.5	Sandstone, SS	NE
05	4.4	0.0-0.5	0.5-4.4	Sandstone, SS	NE
06	3.6	0.0-0.4	0.4-3.6	Sandstone, SS	NE
07	5.5	0.0-0.8	0.8-5.5	Sandstone, SS	NE

*Includes soils interpreted to be weathered bedrock

** Note that soils from thin layers (less than 0.5 m thick) may not be included in the description (refer to test pit logs in Appendix E)

NE = Not Encountered

Detailed test pit logs are included in Appendix G. The sandstone was reported to be very weak.

8.3 LABORATORY TESTING

No laboratory testing was conducted on the bedrock sampled.

8.4 QUARRY POTENTIAL

Based on the preliminary results of the fieldwork, it appeared that the bedrock was predominantly very weak sandstone. The material did not appear to be suitable for use as a rip-rap source or crushed product (it would be expected to be crushed to predominantly sand or finer sized particles). The material may be suitable for use as borrow material, but it is expected that closer sources to the current SYD Road alignment exist.

8.5 RECOMMENDATIONS FOR FURTHER STUDY

There is a potential that there may be more competent bedrock underlying the very weak bedrock encountered during AMEC's fieldwork. MEM may wish to consider conducting a drilling program to further evaluate underlying bedrock conditions.

9.0 AREA 7 AND 7A: KYKLO AREA

9.1 INTRODUCTION

Area 7 and 7A was accessed off of SYD Road either along the Kyklo Road at km 102 of the SYD Road or along a well lease road at km 100 of the SYD Road. Refer to Figure H1 for the general location of the study area. A total of eight (8) test pits were excavated on February 23, 2003. No granular material was encountered. Figure H2 shows the test pit location and site layout.

9.2 SOIL CONDITIONS

The study area consisted of typically raised ridges of silt and clay till. The till was very stiff, low plastic, and brown in colour. No granular material was encountered.

Detailed test pit logs are included in Appendix H.

9.3 LABORATORY TESTING

No laboratory testing was conducted for Area 7/7A.

9.4 GRANULAR POTENTIAL

There was no granular potential identified in Area 7/7A.

10.0 LIMITATIONS

This report has been prepared for the exclusive use of the British Columbia Ministry of Energy and Mines for specific application to the areas described within this report. This report is based on 264 test pits and the results of limited laboratory testing. It should be noted that different, and possibly poorer, soil conditions may be encountered between the test pit locations and volume estimates may vary significantly.

Any use which a third party makes of this report, or any reliance on or decisions made based on it, are the responsibility of such third parties. AMEC accepts no responsibility for damages, suffered by any third party as a result of decisions made or actions based on this report. It has been prepared in accordance with generally accepted geological engineering practices. No other warranty, expressed or implied, is made.

11.0 CLOSURE

Should you have any questions or comments please contact the undersigned.

Respectfully submitted,

AMEC Earth & Environmental Limited

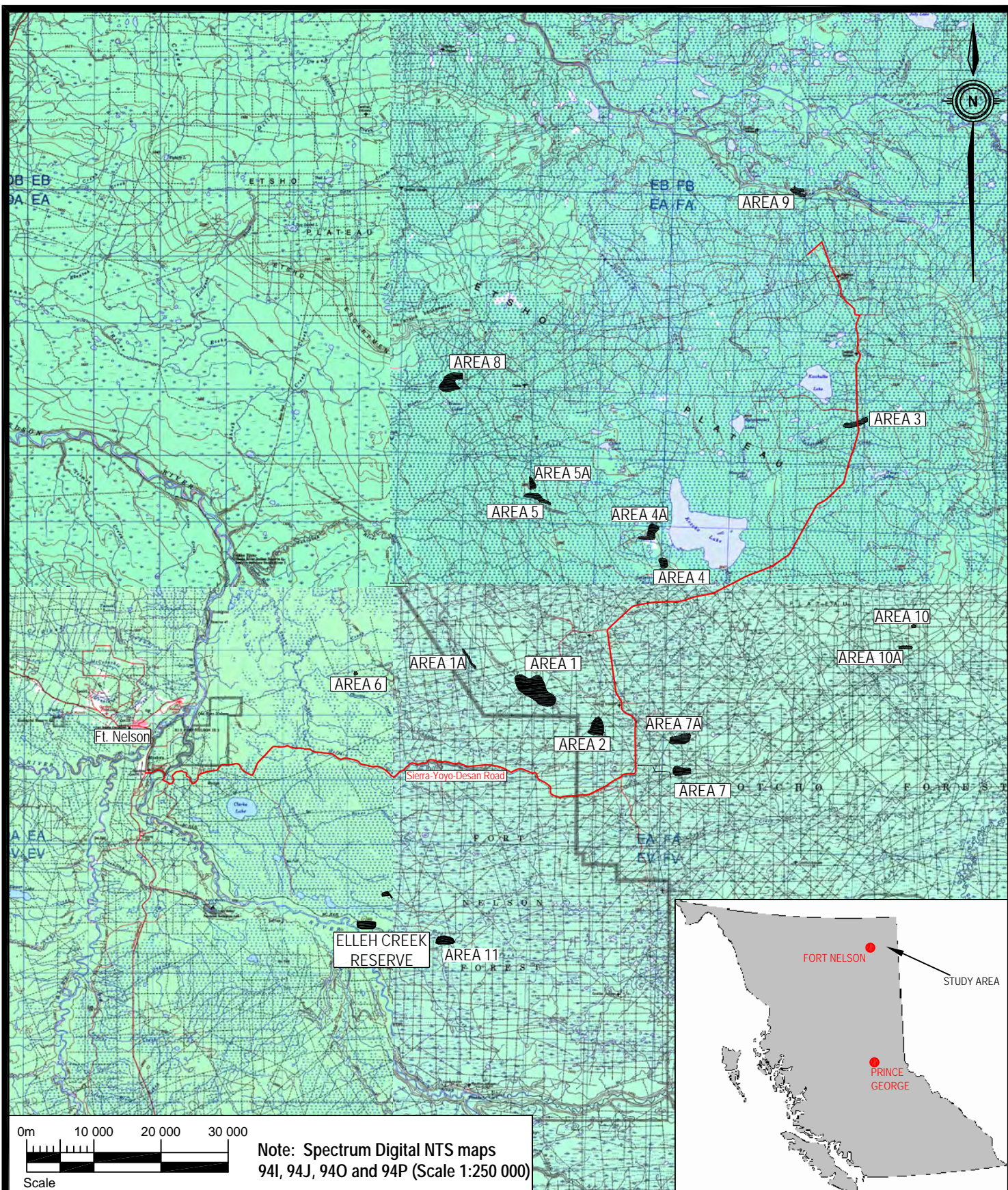
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Per
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12.0 REFERENCES

- AMEC Earth & Environmental Limited 2003a. Gravel Investigation, Area 8, Sierra-Yoyo-Desan Area Gravel Investigation, Near Fort Nelson, Northeastern, BC. Report dated 15 May, 2003 submitted to the New Ventures Branch of the Ministry of Energy and Mines, 19 pp. plus attachments.
- AMEC Earth & Environmental Limited 2003b. Gravel Investigation, Area 9, Sierra-Yoyo-Desan Area Gravel Investigation, Northeastern, BC. Report dated 15 May, 2003 submitted to the New Ventures Branch of the Ministry of Energy and Mines, 25 pp. plus attachments.
- AMEC Earth & Environmental Limited 2003c. Gravel Investigation, Area 10, Sierra-Yoyo-Desan Area Gravel Investigation, Near Fort Nelson, Northeastern, BC. Report dated 15 May, 2003 submitted to the New Ventures Branch of the Ministry of Energy and Mines, 13 pp. plus attachments.
- AMEC Earth & Environmental Limited 2003d. Elleh Creek Reserve, Level 1 (Reconnaissance) Gravel Investigation, Near Fort Nelson, Northeastern, BC. Report dated 23 May, 2003 submitted to Land and Water British Columbia. Inc. and the New Ventures Branch of the Ministry of Energy and Mines, 19 pp. plus attachments.
- AMEC Earth & Environmental Limited 2003e. Addendum Letter for Gravel Investigation, Area 8, Sierra-Yoyo-Desan Area Gravel Investigation, Northeastern, BC. Letter dated 7 July, 2003 submitted to the New Ventures Branch of the Ministry of Energy and Mines, 2 pp. plus attachments.
- AMEC Earth & Environmental Limited 2003f. Project Overview Report dated 8 July, 2003 submitted to the New Ventures Branch of the Ministry of Energy and Mines, 17 pp. plus attachments.
- Thurber Engineering Ltd. 18 December 2001. Sierra-Yoyo-Descan Road Gravel Inventory. Report to BC. Ministry of Energy and Mines, Oil and Gas Initiative Branch, 14 pp.
- Thurber Engineering Ltd. 12 February 2002. Sierra-Yoyo-Descan Road Gravel Inventory. Supplementary Report to BC. Ministry of Energy and Mines, Oil and Gas Initiative Branch, 9 pp.



Client: MINISTRY OF ENERGY AND MINES

File: amec

Project: STUDY AREA LOCATIONS

Summary Report: SIERRA-YOVO-DESAN ROAD AREA GRAVEL INVESTIGATION NORTHEASTERN BC

Drawn By: SANDE

Project No: KKM435

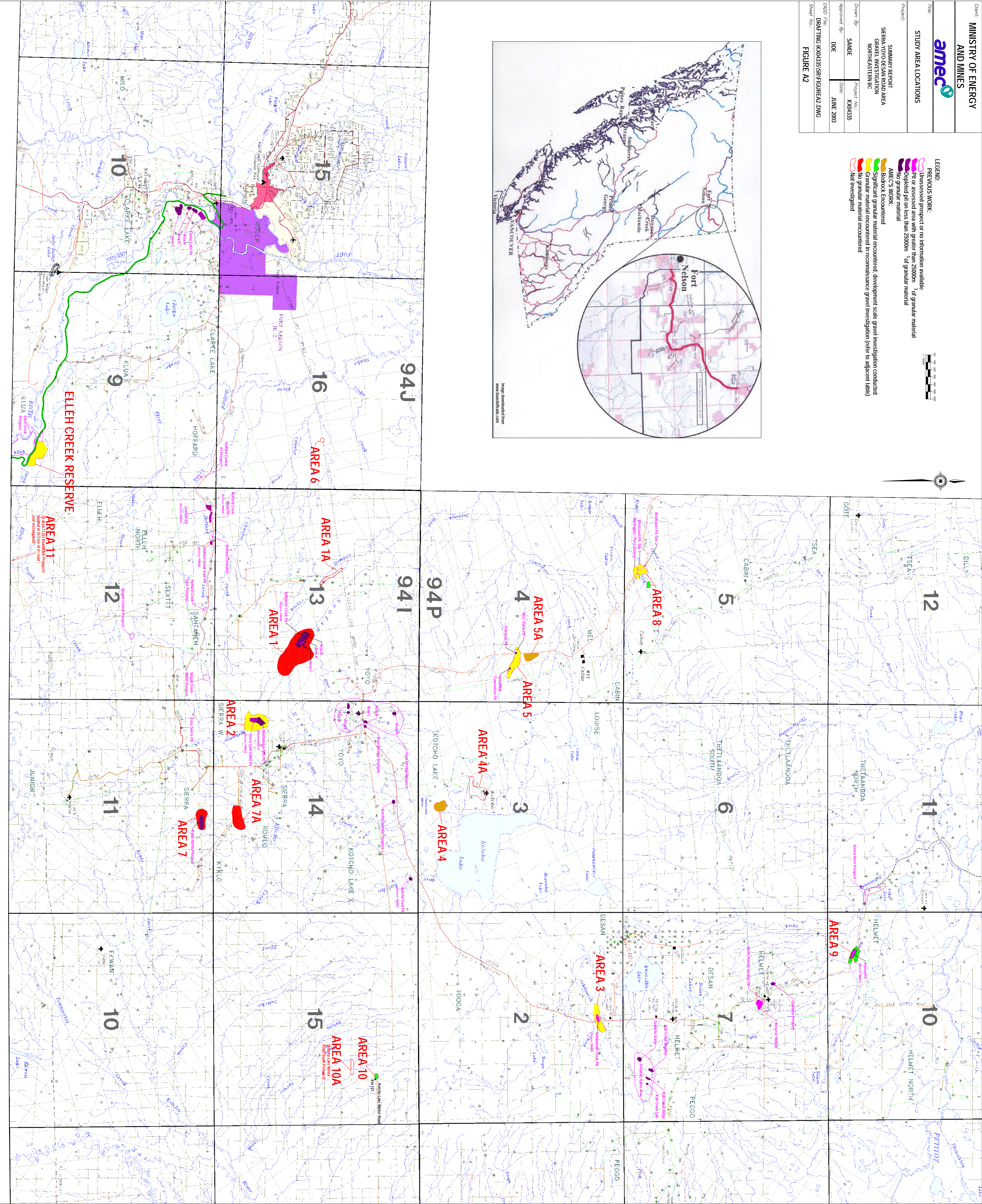
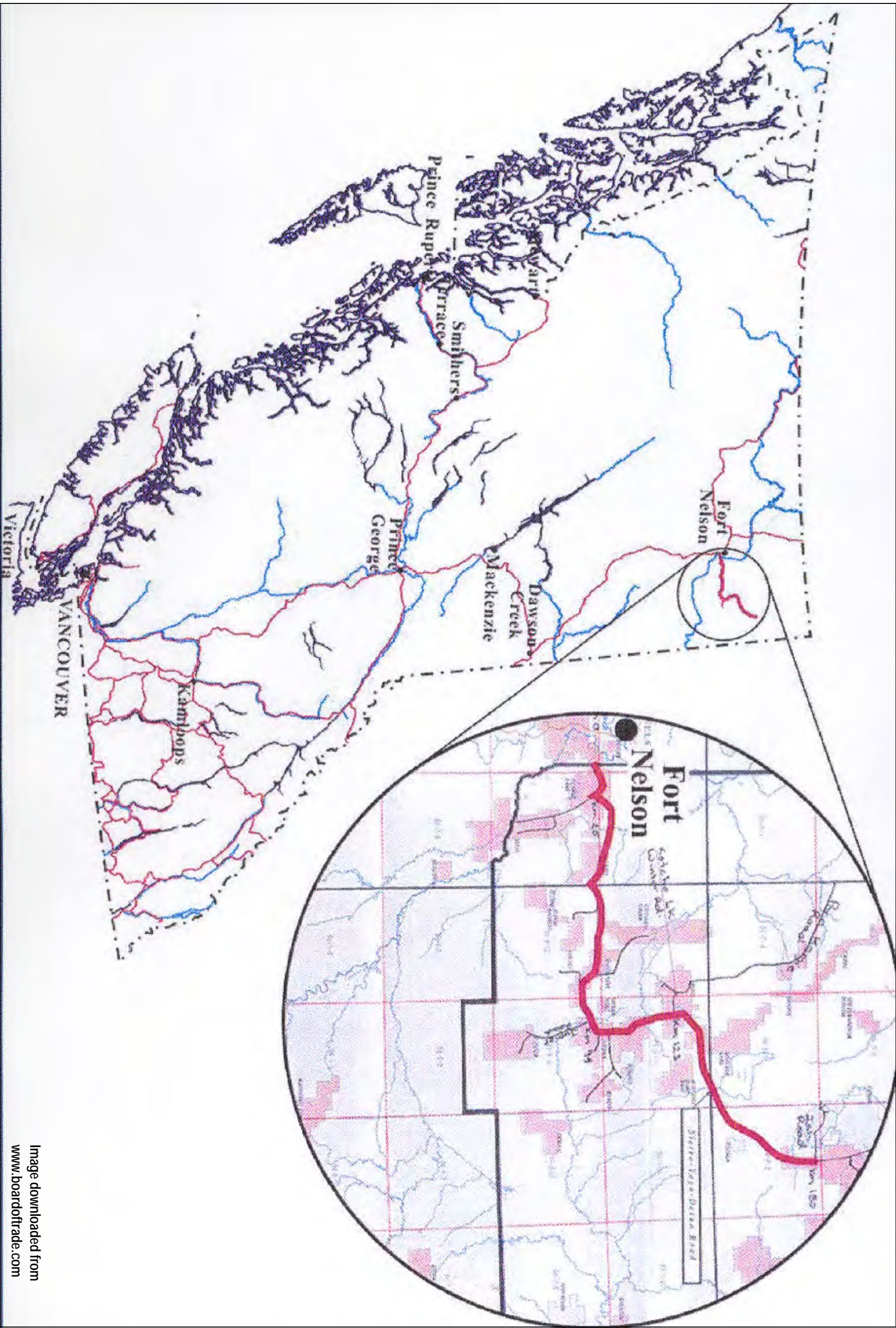
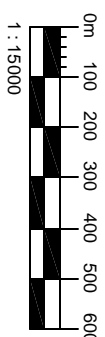
Approved By: DOE

Date: JUNE 2003

Coord. File: DRAFTING KKM435.SRFIGUREA2.DWG


Sheet No: FIGURE A2

- LEGEND:
- PREVIOUS WORK:
- Assessed gravel or no information available
- Gravel with greater than 2500m³ of granular material
- Gravel with less than 2500m³ of granular material
- No granular material
- AMECS WORK:
- Bedrock Encountered
- Significant granular material encountered, development scale gravel investigation conducted
- Granular material encountered in reconnaissance gravel investigation (refer to adjacent table)
- No granular material encountered
- Not Investigated





Sierra-Yoyo-Desan Road Gravel Investigation Area No. 1 Test Pit No. 01

Area Sierra-Yoyo-Desan Road				Excavator Type Cat 325								Location Notes			
Project KX04335				Contractor Kledo Construction											
GPS Location				Date 27 Feb 2003								Test Pit Location Ribbon			
Northing 6523622				Weather Sunny											
Easting 0581300				Logged by BJ											
Elevation (m) 540															

Soil Type				Estimated Gradation					Lab. Gradation			Soil Properties				Sampling Information				
Depth (m)		General Soil Type		Sums to 100%			Additional Oversize (%)	Max. (mm)	Sums to 100%			Density / Consistency	Plasticity	Colour	Moisture	#	Depth (m)		Type (Check one)	
From	To	Description	USC*	Fines	Sand	Gravel			Fines	Sand	Gravel						From	To	Bucket	Bag
0	0.1	TOPSOIL, organic	OL	80	20							soft	low	brown	frozen					
0.1	0.6	SILT, sandy	ML	70	30							firm	low	brown	moist					
0.6	3.2	SILT, some sand	ML	80	20							firm	low	brown	moist					
3.2	4.0	CLAY, silty, some sand	CI	87	10	3						firm	med	brown	moist - wet					


Water Encountered: No			Depth:		Type:		Notes	
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Remarks

*Unified soils classification system symbol



Sierra-Yoyo-Desan Road Gravel Investigation Area No. 1 Test Pit No. 02

Area Sierra-Yoyo-Desan Road Project KX04335 GPS Location Northing 6523508 Easting 0581294 Elevation (m) 540				Excavator Type Cat 325 Contractor Kledo Construction Date 27 Feb 2003 Weather Sunny Logged by BJ								Location Notes 			
												Test Pit Location Ribbon			

Soil Type				Estimated Gradation					Lab. Gradation			Soil Properties				Sampling Information				
Depth (m)		General Soil Type		Sums to 100%			Additional Oversize (%)	Max. (mm)	Sums to 100%			Density / Consistency	Plasticity	Colour	Moisture	#	Depth (m)		Type (Check one)	
From	To	Description	USC*	Fines	Sand	Gravel			Fines	Sand	Gravel						From	To	Bucket	Bag
0	0.1	TOPSOIL, organics	OL	80	20							loose	non	brown	frozen					
0.1	0.5	SILT, sandy	ML	75	25							loose	low	brown	moist					
0.5	3.0	SILT, some sand	ML	85	15							loose	low	brown	moist					


Water Encountered: No				Depth:		Type:				Notes			
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Remarks

*Unified soils classification system symbol



Sierra-Yoyo-Desan Road Gravel Investigation Area No. 1 Test Pit No. 03

Area Sierra-Yoyo-Desan Road Project KX04335 GPS Location Northing 6523752 Easting 0581136 Elevation (m) 541				Excavator Type Cat 325 Contractor Kledo Construction Date 27 Feb 2003 Weather Overcast Logged by BJ								Location Notes 			
												Test Pit Location Ribbon			

Soil Type				Estimated Gradation					Lab. Gradation			Soil Properties				Sampling Information				
Depth (m)		General Soil Type		Sums to 100%			Additional Oversize (%)	Max. (mm)	Sums to 100%			Density / Consistency	Plasticity	Colour	Moisture	#	Depth (m)		Type (Check one)	
From	To	Description	USC*	Fines	Sand	Gravel			Fines	Sand	Gravel						From	To	Bucket	Bag
0	0.1	TOPSOIL, organics	OL	90	10							frozen	non	brown	frozen					
0.1	2.7	SILT, sandy	ML	75	25							loose	non	brown	moist					
2.7	4.0	SILT, trace sand	ML	90	10							loose	low	brown	moist					


Water Encountered: No				Depth:		Type:				Notes			
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Remarks

*Unified soils classification system symbol



Sierra-Yoyo-Desan Road Gravel Investigation Area No. 1 Test Pit No. 04

Area Sierra-Yoyo-Desan Road				Excavator Type Cat 325								Location Notes			
Project KX04335				Contractor Kledo Construction											
GPS Location												Test Pit Location Ribbon			
Northing 6523742				Date 27 Feb 2003											
Easting 0580815				Weather Overcast											
Elevation (m) 527				Logged by BJ											

Soil Type				Estimated Gradation					Lab. Gradation			Soil Properties				Sampling Information				
Depth (m)		General Soil Type		Sums to 100%			Additional Oversize (%)	Max. (mm)	Sums to 100%			Density / Consistency	Plasticity	Colour	Moisture	#	Depth (m)		Type (Check one)	
From	To	Description	USC*	Fines	Sand	Gravel			Fines	Sand	Gravel						From	To	Bucket	Bag
0	0.1	TOPSOIL, organic	OL	90	10							loose	non	brown	frozen					
0.1	0.4	SILT, some sand	ML	85	15							loose	non	brown	dry					
0.4	0.8	GRAVEL, silty	GM	30	30	40						loose	non	brown	dry					
0.8	4.0	CLAY (till)	CI	70	20	10						stiff	med	brown	moist					


Water Encountered: No				Depth:		Type:				Notes			
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Remarks

*Unified soils classification system symbol



Sierra-Yoyo-Desan Road Gravel Investigation Area No. 1 Test Pit No. 05

Area Sierra-Yoyo-Desan Road				Excavator Type Cat 325								Location Notes			
Project KX04335				Contractor Kledo Construction											
GPS Location				Date 27 Feb 2003								Test Pit Location Ribbon			
Northing 6523829				Weather Overcast											
Easting 0580730				Logged by BJ											
Elevation (m) 540															

Soil Type				Estimated Gradation					Lab. Gradation			Soil Properties				Sampling Information				
Depth (m)		General Soil Type		Sums to 100%			Additional Oversize (%)	Max. (mm)	Sums to 100%			Density / Consistency	Plasticity	Colour	Moisture	#	Depth (m)		Type (Check one)	
From	To	Description	USC*	Fines	Sand	Gravel			Fines	Sand	Gravel						From	To	Bucket	Bag
0	0.1	TOPSOIL, organic	OL	90	10							loose	non	brown	frozen					
0.1	0.4	SILT, sandy, trace gravel	ML	74	20	6						loose	low	brown	moist					
0.4	0.9	SAND and GRAVEL	SW	10	50	40	5	150				compact	non	brown	moist					
0.9	3.9	CLAY, silty, trace gravel	CI	80	15	5						soft - firm	med	brown	moist					


Water Encountered: No				Depth:		Type:				Notes			
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Remarks

*Unified soils classification system symbol



Sierra-Yoyo-Desan Road Gravel Investigation Area No. 1 Test Pit No. 06

Area Sierra-Yoyo-Desan Road Project KX04335 GPS Location Northing 6523915 Easting 0580398 Elevation (m) _____				Excavator Type Cat 325 Contractor Kledo Construction Date 27 Feb 2003 Weather Overcast Logged by BJ								Location Notes 			
												Test Pit Location Ribbon			

Soil Type				Estimated Gradation					Lab. Gradation			Soil Properties				Sampling Information				
Depth (m)		General Soil Type		Sums to 100%			Additional Oversize (%)	Max. (mm)	Sums to 100%			Density / Consistency	Plasticity	Colour	Moisture	#	Depth (m)		Type (Check one)	
From	To	Description	USC*	Fines	Sand	Gravel			Fines	Sand	Gravel						From	To	Bucket	Bag
0	0.2	TOPSOIL, organic	OL	95	5							frozen	low	brown	moist					
0.2	4.0	SILT, some clay, trace gravel	ML	84	15	1						soft	low	brown	moist - wet					


Water Encountered: No	Depth:	Type:	Notes
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Remarks _____

*Unified soils classification system symbol



Sierra-Yoyo-Desan Road Gravel Investigation Area No. 1 Test Pit No. 07


Area Sierra-Yoyo-Desan Road		Excavator Type Cat 325				Location Notes														
Project KX04335		Contractor Kledo Construction																		
GPS Location		Date 27 Feb 2003				Test Pit Location Ribbon														
Northing 6524621		Weather Overcast, light snow																		
Easting 0580400		Logged by BJ																		
Elevation (m) 543																				
Soil Type				Estimated Gradation			Lab. Gradation		Soil Properties				Sampling Information							
Depth (m)		General Soil Type		Sums to 100%			Additional Oversize (%)	Max. (mm)	Sums to 100%			Soil Properties Density / Consistency Plasticity Colour Moisture				#	Depth (m)		Type (Check one)	
From	To	Description	USC*	Fines	Sand	Gravel			Fines	Sand	Gravel						From	To	Bucket	Bag
0	0.1	TOPSOIL, organics	OL	95	5							frozen	low	brown	frozen					
0.1	3.8	CLAY, silty	CI	95	5							firm	med	brown	moist					
3.8	4.2	CLAY (till)	CI	84	15	1						v. stiff	med	brown	moist					
Water Encountered: No				Depth:		Type:				Notes										

Remarks

*Unified soils classification system symbol



Sierra-Yoyo-Desan Road Gravel Investigation Area No. 1 Test Pit No. 08

Area Sierra-Yoyo-Desan Road Project KX04335 GPS Location Northing 6524338 Easting 0580445 Elevation (m) 540				Excavator Type Cat 325 Contractor Kledo Construction Date 28 Feb 2003 Weather Clear Logged by BJ								Location Notes Test Pit Location Ribbon			

Soil Type				Estimated Gradation					Lab. Gradation			Soil Properties				Sampling Information				
Depth (m)		General Soil Type		Sums to 100%			Additional Oversize (%)	Max. (mm)	Sums to 100%			Density / Consistency	Plasticity	Colour	Moisture	#	Depth (m)		Type (Check one)	
From	To	Description	USC*	Fines	Sand	Gravel			Fines	Sand	Gravel						From	To	Bucket	Bag
0	0.2	TOPSOIL, organic	OL	95	5							frozen	non	brown	frozen					
0.2	3.8	SILT, trace clay, trace sand	ML	85	15							soft	low	brown	moist - wet					


Water Encountered: No				Depth:		Type:				Notes			
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Remarks _____

*Unified soils classification system symbol



Sierra-Yoyo-Desan Road Gravel Investigation Area No. 1 Test Pit No. 09

Area Sierra-Yoyo-Desan Road Project KX04335 GPS Location Northing 6524351 Easting 0580240 Elevation (m) 533				Excavator Type Cat 325 Contractor Kledo Construction Date 28 Feb 2003 Weather Clear Logged by BJ								Location Notes Test Pit Location Ribbon /Stake / No Marker								
Soil Type				Estimated Gradation					Lab. Gradation			Soil Properties				Sampling Information				
Depth (m)		General Soil Type		Sums to 100%			Additional Oversize (%)	Max. (mm)	Sums to 100%			Density / Consistency	Plasticity	Colour	Moisture	#	Depth (m)		Type (Check one)	
From	To	Description	USC*	Fines	Sand	Gravel			Fines	Sand	Gravel						From	To	Bucket	Bag
0	0.2	TOPSOIL, organic	OL	90	10							frozen	non	black	frozen					
0.2	2.3	SAND, silty, some gravel	SM	30	40	30														
2.3	3.2	SILT, some sand	ML	90	10															
Water Encountered: Yes				Depth: 2.3 m				Type: Water Seepage								Notes				
Remarks																				

*Unified soils classification system symbol



Sierra-Yoyo-Desan Road Gravel Investigation Area No. 1 Test Pit No. 10


Area Sierra-Yoyo-Desan Road Project KX04335 GPS Location Northing 6524144 Easting 0580425 Elevation (m) 538				Excavator Type Cat 325 Contractor Kledo Construction Date 28 Feb 2003 Weather Clear Logged by BJ								Location Notes Test Pit Location Ribbon /Stake / No Marker								
Soil Type				Estimated Gradation					Lab. Gradation			Soil Properties				Sampling Information				
Depth (m)		General Soil Type		Sums to 100%			Additional Oversize (%)	Max. (mm)	Sums to 100%			Density / Consistency	Plasticity	Colour	Moisture	#	Depth (m)		Type (Check one)	
From	To	Description	USC*	Fines	Sand	Gravel			Fines	Sand	Gravel						From	To	Bucket	Bag
0	0.2	TOPSOIL, organic	OL	90	10							frozen	non	brown	frozen					
0.2	3.5	SILT, sandy	ML	60	40							loose - v. loose	non	brown	moist					
Water Encountered: No				Depth:		Type:						Notes								

Remarks

*Unified soils classification system symbol



Sierra-Yoyo-Desan Road Gravel Investigation Area No. 1 Test Pit No. 11

Area Sierra-Yoyo-Desan Road Project KX04335 GPS Location Northing 6524171 Easting 0580528 Elevation (m) 554				Excavator Type Cat 325 Contractor Kledo Construction Date 28 Feb 2003 Weather Clear Logged by BJ								Location Notes 			
												Test Pit Location Ribbon			

Soil Type				Estimated Gradation					Lab. Gradation			Soil Properties				Sampling Information				
Depth (m)		General Soil Type		Sums to 100%			Additional Oversize (%)	Max. (mm)	Sums to 100%			Density / Consistency	Plasticity	Colour	Moisture	#	Depth (m)		Type (Check one)	
From	To	Description	USC*	Fines	Sand	Gravel			Fines	Sand	Gravel						From	To	Bucket	Bag
0	0.2	TOPSOIL, organic	OL	100								frozen	non	brown	frozen					
0.2	3.2	SAND, silty, trace gravel	SM	30	60	10						loose	non	brown	moist					


Water Encountered: No	Depth:	Type:	Notes
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Remarks

*Unified soils classification system symbol



Sierra-Yoyo-Desan Road Gravel Investigation Area No. 1 Test Pit No. 250

Area Sierra-Yoyo-Desan Road Project KX04335 GPS Location Northing 6524745 Easting 0578621 Elevation (m) 539				Excavator Type Cat 322 B Contractor Kledo Construction Date 5 March 2003 Weather -27 C Logged by BM								Location Notes 125 m @ 270 degrees from TP-252			
												Test Pit Location Ribbon			

Soil Type				Estimated Gradation					Lab. Gradation			Soil Properties				Sampling Information				
Depth (m)		General Soil Type		Sums to 100%			Additional Oversize (%)	Max. (mm)	Sums to 100%			Density / Consistency	Plasticity	Colour	Moisture	#	Depth (m)		Type (Check one)	
From	To	Description	USC*	Fines	Sand	Gravel			Fines	Sand	Gravel						From	To	Bucket	Bag
0	0.25	TOPSOIL	OL																	
0.25	1.25	SILT	ML																	
1.25	4.5	SILT (CLAY) AND SAND	ML	50	48	2														


Water Encountered: No	Depth:	Type:	Notes
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Remarks

*Unified soils classification system symbol



Sierra-Yoyo-Desan Road Gravel Investigation Area No. 1 Test Pit No. 251

Area Sierra-Yoyo-Desan Road Project KX04335 GPS Location Northing 6524733 Easting 0578729 Elevation (m) 535				Excavator Type Cat 322 B Contractor Kledo Construction Date 5 March 2003 Weather -27 C Logged by BM								Location Notes 125 m @ 270 degrees from TP-252			
												Test Pit Location Ribbon			

Soil Type				Estimated Gradation					Lab. Gradation			Soil Properties				Sampling Information				
Depth (m)		General Soil Type		Sums to 100%			Additional Oversize (%)	Max. (mm)	Sums to 100%			Density / Consistency	Plasticity	Colour	Moisture	#	Depth (m)		Type (Check one)	
From	To	Description	USC*	Fines	Sand	Gravel			Fines	Sand	Gravel						From	To	Bucket	Bag
0	0.25	TOPSOIL	OL																	
0.25	1.25	SILT	ML																	
1.25	4.5	SAND, some silt	SM	15	82	3														


Water Encountered: No	Depth:	Type:	Notes
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Remarks

*Unified soils classification system symbol



Sierra-Yoyo-Desan Road Gravel Investigation Area No. 1 Test Pit No. 252

Area Sierra-Yoyo-Desan Road Project KX04335 GPS Location Northing 6524751 Easting 0578830 Elevation (m) 531				Excavator Type Cat 322 B Contractor Kledo Construction Date 5 March 2003 Weather -27 C Logged by BM								Location Notes 600 m @ 90 degrees from A (6524717,0578251)			
												Test Pit Location Ribbon			

Soil Type				Estimated Gradation					Lab. Gradation			Soil Properties				Sampling Information				
Depth (m)		General Soil Type		Sums to 100%			Additional Oversize (%)	Max. (mm)	Sums to 100%			Density / Consistency	Plasticity	Colour	Moisture	#	Depth (m)		Type (Check one)	
From	To	Description	USC*	Fines	Sand	Gravel			Fines	Sand	Gravel						From	To	Bucket	Bag
0	0.25	TOPSOIL	OL																	
0.25	3.5	SILT AND CLAY	ML-CL																	


Water Encountered: No	Depth:	Type:	Notes
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Remarks _____

*Unified soils classification system symbol



Sierra-Yoyo-Desan Road Gravel Investigation Area No. 1 Test Pit No. 253

Area Sierra-Yoyo-Desan Road Project KX04335 GPS Location Northing 6524662 Easting 0578857 Elevation (m) 532				Excavator Type Cat 322 B Contractor Kledo Construction Date 5 March 2003 Weather -27 C Logged by BM								Location Notes 75 m @ 180 degrees from TP-252			
												Test Pit Location Ribbon			

Soil Type				Estimated Gradation					Lab. Gradation			Soil Properties				Sampling Information				
Depth (m)		General Soil Type		Sums to 100%			Additional Oversize (%)	Max. (mm)	Sums to 100%			Density / Consistency	Plasticity	Colour	Moisture	#	Depth (m)		Type (Check one)	
From	To	Description	USC*	Fines	Sand	Gravel			Fines	Sand	Gravel						From	To	Bucket	Bag
0	0.25	TOPSOIL	OL																	
0.25	1.25	SILT	ML																	
1.25	3.5	CLAY	CL																	


Water Encountered: No	Depth:	Type:	Notes
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Remarks _____

*Unified soils classification system symbol



Sierra-Yoyo-Desan Road Gravel Investigation Area No. 1 Test Pit No. 254

Area Sierra-Yoyo-Desan Road Project KX04335 GPS Location Northing 6524592 Easting 0578884 Elevation (m) 534				Excavator Type Cat 322 B Contractor Kledo Construction Date 5 March 2003 Weather -27 C Logged by BM								Location Notes 125 m @ 168 degrees from TP-253			
												Test Pit Location Ribbon			

Soil Type				Estimated Gradation					Lab. Gradation			Soil Properties				Sampling Information				
Depth (m)		General Soil Type		Sums to 100%			Additional Oversize (%)	Max. (mm)	Sums to 100%			Density / Consistency	Plasticity	Colour	Moisture	#	Depth (m)		Type (Check one)	
From	To	Description	USC*	Fines	Sand	Gravel			Fines	Sand	Gravel						From	To	Bucket	Bag
0	0.25	TOPSOIL	OL																	
0.25	0.75	SILT	ML																	
0.75	3.0	CLAY	CL																	


Water Encountered: No	Depth:	Type:	Notes
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Remarks _____

*Unified soils classification system symbol



Sierra-Yoyo-Desan Road Gravel Investigation Area No. 1 Test Pit No. 255

Area Sierra-Yoyo-Desan Road Project KX04335 GPS Location Northing 6524554 Easting 0578935 Elevation (m) 531				Excavator Type Cat 322 B Contractor Kledo Construction Date 5 March 2003 Weather -27 C Logged by BM								Location Notes 50 m @ 124 degrees from TP-254			
												Test Pit Location Ribbon			

Soil Type				Estimated Gradation					Lab. Gradation			Soil Properties				Sampling Information				
Depth (m)		General Soil Type		Sums to 100%			Additional Oversize (%)	Max. (mm)	Sums to 100%			Density / Consistency	Plasticity	Colour	Moisture	#	Depth (m)		Type (Check one)	
From	To	Description	USC*	Fines	Sand	Gravel			Fines	Sand	Gravel						From	To	Bucket	Bag
0	0.25	TOPSOIL	OL																	
0.25	0.5	SILT	ML																	
0.5	3.5	SAND, silty	SM	35	65															


Water Encountered: No	Depth:	Type:	Notes
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Remarks _____

*Unified soils classification system symbol



Sierra-Yoyo-Desan Road Gravel Investigation Area No. 1 Test Pit No. 256


Area Sierra-Yoyo-Desan Road		Excavator Type Cat 322 B			Location Notes 40 m @ 84 degrees from TP-255															
Project KX04335		Contractor Kledo Construction																		
GPS Location		Date 5 March 2003			Test Pit Location Ribbon															
Northing 6524570		Weather -27 C																		
Easting 0578973		Logged by BM																		
Elevation (m) 539																				
Soil Type				Estimated Gradation			Lab. Gradation		Soil Properties				Sampling Information							
Depth (m)		General Soil Type		Sums to 100%			Additional Oversize (%)	Max. (mm)	Sums to 100%			Soil Properties Density / Consistency Plasticity Colour Moisture				#	Depth (m)		Type	
From	To	Description	USC*	Fines	Sand	Gravel			Fines	Sand	Gravel						From	To	(Check one)	
0	0.25	TOPSOIL	OL																	
0.25	3.5	SILT	ML																	
Water Encountered: No				Depth:		Type:				Notes										

Remarks _____

*Unified soils classification system symbol



Sierra-Yoyo-Desan Road Gravel Investigation Area No. 1 Test Pit No. 257

Area Sierra-Yoyo-Desan Road Project KX04335 GPS Location Northing 6524650 Easting 0578948 Elevation (m) 536				Excavator Type Cat 322 B Contractor Kledo Construction Date 5 March 2003 Weather -27 C Logged by BM								Location Notes 75 m @ 348 degrees from TP-256			
												Test Pit Location Ribbon			

Soil Type				Estimated Gradation					Lab. Gradation			Soil Properties				Sampling Information				
Depth (m)		General Soil Type		Sums to 100%			Additional Oversize (%)	Max. (mm)	Sums to 100%			Density / Consistency	Plasticity	Colour	Moisture	#	Depth (m)		Type (Check one)	
From	To	Description	USC*	Fines	Sand	Gravel			Fines	Sand	Gravel						From	To	Bucket	Bag
0	3.0	SAND, some silt	SM	15	85															
3.0	3.5	CLAY	CL																	


Water Encountered: Yes	Depth: 3.5 m	Type: Water Table	Notes
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Remarks _____

*Unified soils classification system symbol



Sierra-Yoyo-Desan Road Gravel Investigation Area No. 1 Test Pit No. 258

Area Sierra-Yoyo-Desan Road				Excavator Type Cat 322 B								Location Notes 75 m @ 348 degrees from TP-257			
Project KX04335				Contractor Kledo Construction											
GPS Location				Date 5 March 2003								Test Pit Location Ribbon			
Northing 6524726				Weather -27 C											
Easting 0578928				Logged by BM											
Elevation (m) 532															

Soil Type				Estimated Gradation					Lab. Gradation			Soil Properties				Sampling Information				
Depth (m)		General Soil Type		Sums to 100%			Additional Oversize (%)	Max. (mm)	Sums to 100%			Density / Consistency	Plasticity	Colour	Moisture	#	Depth (m)		Type (Check one)	
From	To	Description	USC*	Fines	Sand	Gravel			Fines	Sand	Gravel						From	To	Bucket	Bag
0	1.5	SAND, trace silt	SP	5	95															
1.5	4.0	CLAY	CL																	


Water Encountered: No				Depth:		Type:				Notes			
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Remarks

*Unified soils classification system symbol



Sierra-Yoyo-Desan Road Gravel Investigation Area No. 1 Test Pit No. 259

Area Sierra-Yoyo-Desan Road				Excavator Type Cat 322 B								Location Notes 60 m @ 78 degrees from TP-258			
Project KX04335				Contractor Kledo Construction											
GPS Location				Date 6 March 2003								Test Pit Location Ribbon			
Northing 6524748				Weather -30 C, Windy											
Easting 0578984				Logged by BM											
Elevation (m) 528															

Soil Type				Estimated Gradation					Lab. Gradation			Soil Properties				Sampling Information				
Depth (m)		General Soil Type		Sums to 100%			Additional Oversize (%)	Max. (mm)	Sums to 100%			Density / Consistency	Plasticity	Colour	Moisture	#	Depth (m)		Type (Check one)	
From	To	Description	USC*	Fines	Sand	Gravel			Fines	Sand	Gravel						From	To	Bucket	Bag
0	1.5	SAND, trace silt	SP	5	95									gray						
1.5	2.5	SAND, trace silt	SP	5	95									brown						
2.5	3.5	CLAY	CL																	


Water Encountered: Yes				Depth: 2.5 m		Type: Water Table				Notes			
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Remarks _____

*Unified soils classification system symbol



Sierra-Yoyo-Desan Road Gravel Investigation Area No. 1 Test Pit No. 260

Area Sierra-Yoyo-Desan Road				Excavator Type Cat 322 B								Location Notes 75 m @ 172 degrees from TP-259			
Project KX04335				Contractor Kledo Construction											
GPS Location				Date 6 March 2003								Test Pit Location Ribbon			
Northing 6524675				Weather -30 C, Windy											
Easting 0579008				Logged by BM											
Elevation (m) 530															

Soil Type				Estimated Gradation					Lab. Gradation			Soil Properties				Sampling Information				
Depth (m)		General Soil Type		Sums to 100%			Additional Oversize (%)	Max. (mm)	Sums to 100%			Density / Consistency	Plasticity	Colour	Moisture	#	Depth (m)		Type (Check one)	
From	To	Description	USC*	Fines	Sand	Gravel			Fines	Sand	Gravel						From	To	Bucket	Bag
0	0.5	SAND, trace silt	SP	5	95									gray						
0.5	1.5	SAND, trace silt	SP	5	95									brown						
1.5	4.5	CLAY	CL																	


Water Encountered: Yes				Depth: 1.5 m		Type: Water Table				Notes			
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Remarks _____

*Unified soils classification system symbol



Sierra-Yoyo-Desan Road Gravel Investigation Area No. 1 Test Pit No. 261

Area Sierra-Yoyo-Desan Road Project KX04335 GPS Location Northing 6524584 Easting 0579039 Elevation (m) 530				Excavator Type Cat 322 B Contractor Kledo Construction Date 6 March 2003 Weather -30 C, Windy Logged by BM								Location Notes 85 m @ 160 degrees from TP-260			
Test Pit Location Ribbon															

Soil Type				Estimated Gradation					Lab. Gradation			Soil Properties				Sampling Information				
Depth (m)		General Soil Type		Sums to 100%			Additional Oversize (%)	Max. (mm)	Sums to 100%			Density / Consistency	Plasticity	Colour	Moisture	#	Depth (m)		Type (Check one)	
From	To	Description	USC*	Fines	Sand	Gravel			Fines	Sand	Gravel						From	To	Bucket	Bag
0	0.25	TOPSOIL	OL																	
0.25	2.25	SAND, silty	SM	25	72	3														
2.25	4.0	CLAY	CL																	


Water Encountered: Yes	Depth: 2.25m	Type: Water Table	Notes
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Remarks _____

*Unified soils classification system symbol



Sierra-Yoyo-Desan Road Gravel Investigation Area No. 1 Test Pit No. 262

Area Sierra-Yoyo-Desan Road Project KX04335 GPS Location Northing 6524577 Easting 0579088 Elevation (m) 534				Excavator Type Cat 322 B Contractor Kledo Construction Date 6 March 2003 Weather -30 C, Windy Logged by BM								Location Notes 50 m @ 108 degrees from TP-261			
Test Pit Location Ribbon															

Soil Type				Estimated Gradation					Lab. Gradation			Soil Properties				Sampling Information				
Depth (m)		General Soil Type		Sums to 100%			Additional Oversize (%)	Max. (mm)	Sums to 100%			Density / Consistency	Plasticity	Colour	Moisture	#	Depth (m)		Type (Check one)	
From	To	Description	USC*	Fines	Sand	Gravel			Fines	Sand	Gravel						From	To	Bucket	Bag
0	0.25	TOPSOIL	OL																	
0.25	2.25	SILT	ML																	
2.25	3.5	CLAY	CL																	

Water Encountered: No	Depth:	Type:	Notes
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Remarks


At 0.25 - 0.75 m lense of silty gravel on east side of test pit

At 0.75 - 1.25 m seam of gravel on east side of test pit

*Unified soils classification system symbol



Sierra-Yoyo-Desan Road Gravel Investigation Area No. 1 Test Pit No. 263

Area Sierra-Yoyo-Desan Road Project KX04335 GPS Location Northing 6524628 Easting 0579088 Elevation (m) 537				Excavator Type Cat 322 B Contractor Kledo Construction Date 6 March 2003 Weather -30 C, Windy Logged by BM								Location Notes 50 m @ 360 degrees from TP-262			
												Test Pit Location Ribbon			

Soil Type				Estimated Gradation					Lab. Gradation			Soil Properties				Sampling Information				
Depth (m)		General Soil Type		Sums to 100%			Additional Oversize (%)	Max. (mm)	Sums to 100%			Density / Consistency	Plasticity	Colour	Moisture	#	Depth (m)		Type (Check one)	
From	To	Description	USC*	Fines	Sand	Gravel			Fines	Sand	Gravel						From	To	Bucket	Bag
0	0.5	SILT AND CLAY	ML-CL																	
0.5	3.5	CLAY	CL																	


Water Encountered: No	Depth:	Type:	Notes
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Remarks

*Unified soils classification system symbol



Sierra-Yoyo-Desan Road Gravel Investigation Area No. 1 Test Pit No. 264

Area Sierra-Yoyo-Desan Road Project KX04335 GPS Location Northing 6524682 Easting 0579066 Elevation (m) 528				Excavator Type Cat 322 B Contractor Kledo Construction Date 6 March 2003 Weather -30 C, Windy Logged by BM								Location Notes 50 m @ 360 degrees from TP-263			
Test Pit Location Ribbon															

Soil Type				Estimated Gradation					Lab. Gradation			Soil Properties				Sampling Information				
Depth (m)		General Soil Type		Sums to 100%			Additional Oversize (%)	Max. (mm)	Sums to 100%			Density / Consistency	Plasticity	Colour	Moisture	#	Depth (m)		Type (Check one)	
From	To	Description	USC*	Fines	Sand	Gravel			Fines	Sand	Gravel						From	To	Bucket	Bag
0	0.5	SILT	ML																	
0.5	1.75	SILT	ML																	
1.75	4.0	CLAY	CL																	

Water Encountered: No	Depth:	Type:	Notes
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Remarks

At 0 to 0.5 m trace of gravel on east side of test pit

*Unified soils classification system symbol



Sierra-Yoyo-Desan Road Gravel Investigation Area No. 1 Test Pit No. 265

Area Sierra-Yoyo-Desan Road Project KX04335 GPS Location Northing 6525134 Easting 0578591 Elevation (m) 531				Excavator Type Cat 322 B Contractor Kledo Construction Date 6 March 2003 Weather -30 C, Windy Logged by BM								Location Notes 540 m @ 310 degrees from TP-258								
												Test Pit Location Ribbon								
Soil Type				Estimated Gradation				Lab. Gradation			Soil Properties				Sampling Information					
Depth (m)		General Soil Type		Sums to 100%			Additional Oversize (%)	Max. (mm)	Sums to 100%			Density / Consistency	Plasticity	Colour	Moisture	#	Depth (m)		Type (Check one)	
From	To	Description	USC*	Fines	Sand	Gravel			Fines	Sand	Gravel						From	To	Bucket	Bag
0	0.25	TOPSOIL	OL																	
0.25	0.75	SILT	ML																	
0.75	3.5	CLAY	CL																	
Water Encountered: No				Depth:		Type:				Notes										

Remarks

*Unified soils classification system symbol




Remarks	

*Unified soils classification system symbol



Sierra-Yoyo-Desan Road Gravel Investigation Area No. 1 Test Pit No. 267

Area Sierra-Yoyo-Desan Road				Excavator Type Cat 322 B								Location Notes 250 m @ 310 degrees from TP-258			
Project KX04335				Contractor Kledo Construction											
GPS Location				Date 6 March 2003								Test Pit Location Ribbon			
Northing 6524881				Weather -30 C, Windy											
Easting 0578766				Logged by BM											
Elevation (m) 537															

Soil Type				Estimated Gradation				Lab. Gradation			Soil Properties				Sampling Information					
Depth (m)		General Soil Type		Sums to 100%			Additional Oversize (%)	Max. (mm)	Sums to 100%			Density / Consistency	Plasticity	Colour	Moisture	#	Depth (m)		Type (Check one)	
From	To	Description	USC*	Fines	Sand	Gravel			Fines	Sand	Gravel						From	To	Bucket	Bag
0	0.25	TOPSOIL	OL																	
0.25	2.5	SILT	ML																	
2.5	3.5	CLAY	CL																	

Water Encountered: No	Depth:	Type:	Notes
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Remarks

*Unified soils classification system symbol



Sierra-Yoyo-Desan Road Gravel Investigation Area No. 1 Test Pit No. 268


Area Sierra-Yoyo-Desan Road		Excavator Type Cat 322 B			Location Notes
Project KX04335		Contractor Kledo Construction			
GPS Location					
Date 6 March 2003					
Northing 6524783		Weather -30 C, Windy		Test Pit Location Ribbon	
Easting 0578864		Logged by BM			
Elevation (m) 513					

Soil Type				Estimated Gradation					Lab. Gradation			Soil Properties				Sampling Information				
Depth (m)		General Soil Type		Sums to 100%			Additional Oversize (%)	Max. (mm)	Sums to 100%							#	Depth (m)		Type (Check one)	
From	To	Description	USC*	Fines	Sand	Gravel			Fines	Sand	Gravel	Density / Consistency	Plasticity	Colour	Moisture		From	To	Bucket	Bag
0	0.25	TOPSOIL	OL																	
0.25	1.25	SILT	ML																	
1.25	1.5	SAND, trace gravel	SP-SM	10	85	5														
1.5	3.0	SAND, trace silt	SP-SM	10	90															
Water Encountered: Yes				Depth: 3.0			Type: Water Table						Notes							

*Unified soils classification system symbol




Sierra-Yoyo-Desan Road Gravel Investigation Area No. 1 Test Pit No. 269

Area Sierra-Yoyo-Desan Road Project KX04335 GPS Location Northing 6525197 Easting 0578256 Elevation (m) 516				Excavator Type Cat 322 B Contractor Kledo Construction Date 6 March 2003 Weather -30 C, Windy Logged by BM								Location Notes Test Pit Location Ribbon								
Soil Type				Estimated Gradation				Lab. Gradation			Soil Properties				Sampling Information					
Depth (m)		General Soil Type		Sums to 100%			Additional Oversize (%)	Max. (mm)	Sums to 100%			Density / Consistency Plasticity Colour Moisture				#	Depth (m)		Type (Check one)	
From	To	Description	USC*	Fines	Sand	Gravel			Fines	Sand	Gravel						From	To	Bucket	Bag
0	0.25	TOPSOIL	OL																	
0.25	1.75	SILT	ML																	
1.75	3.0	CLAY	CL																	
Water Encountered: No				Depth:		Type:						Notes								
Remarks																				

*Unified soils classification system symbol



Sierra-Yoyo-Desan Road Gravel Investigation Area No. 1 Test Pit No. 270

Area Sierra-Yoyo-Desan Road Project KX04335 GPS Location Northing 6525326 Easting 0578448 Elevation (m) 520				Excavator Type Cat 322 B Contractor Kledo Construction Date 6 March 2003 Weather -30 C, Windy Logged by BM								Location Notes 250 m @ 70 degrees from TP-269			
												Test Pit Location Ribbon			

Soil Type				Estimated Gradation					Lab. Gradation			Soil Properties				Sampling Information				
Depth (m)		General Soil Type		Sums to 100%			Additional Oversize (%)	Max. (mm)	Sums to 100%			Density / Consistency	Plasticity	Colour	Moisture	#	Depth (m)		Type (Check one)	
From	To	Description	USC*	Fines	Sand	Gravel			Fines	Sand	Gravel						From	To	Bucket	Bag
0	1.0	Frozen organics																		


Water Encountered: Yes	Depth: 1.0	Type: Water Table	Notes
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Remarks _____

*Unified soils classification system symbol



Sierra-Yoyo-Desan Road Gravel Investigation Area No. 1 Test Pit No. 271

Area Sierra-Yoyo-Desan Road Project KX04335 GPS Location Northing 6525245 Easting 0578342 Elevation (m) 535				Excavator Type Cat 322 B Contractor Kledo Construction Date 6 March 2003 Weather -30 C, Windy Logged by BM								Location Notes 125 m @ 70 degrees from TP-269			
												Test Pit Location Ribbon			

Soil Type				Estimated Gradation					Lab. Gradation			Soil Properties				Sampling Information				
Depth (m)		General Soil Type		Sums to 100%			Additional Oversize (%)	Max. (mm)	Sums to 100%			Density / Consistency	Plasticity	Colour	Moisture	#	Depth (m)		Type (Check one)	
From	To	Description	USC*	Fines	Sand	Gravel			Fines	Sand	Gravel						From	To	Bucket	Bag
0	0.25	TOPSOIL	OL																	
0.25	0.75	SILT	ML																	
0.75	1.0	SILT AND SAND, trace gravel	ML	50	40	10														
1.0	4.0	SAND, trace gravel	SP	5	85	10														


Water Encountered: No	Depth:	Type:	Notes
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Remarks

*Unified soils classification system symbol



Sierra-Yoyo-Desan Road Gravel Investigation Area No. 1 Test Pit No. 272

Area Sierra-Yoyo-Desan Road Project KX04335 GPS Location Northing 6525364 Easting 0578246 Elevation (m) 541				Excavator Type Cat 322 B Contractor Kledo Construction Date 6 March 2003 Weather -30 C, Windy Logged by BM								Location Notes 170 m @ 360 degrees from TP-269			
Test Pit Location Ribbon															

Soil Type				Estimated Gradation					Lab. Gradation			Soil Properties				Sampling Information				
Depth (m)		General Soil Type		Sums to 100%			Additional Oversize (%)	Max. (mm)	Sums to 100%			Density / Consistency	Plasticity	Colour	Moisture	#	Depth (m)		Type (Check one)	
From	To	Description	USC*	Fines	Sand	Gravel			Fines	Sand	Gravel						From	To	Bucket	Bag
0	0.25	TOPSOIL	OL																	
0.25	1.0	SILT AND SAND, trace gravel	ML	50	40	10														
1.0	1.5	SAND, trace gravel	SP	5	85	10														
1.5	3.5	CLAY	CL																	


Water Encountered: No	Depth:	Type:	Notes
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Remarks

*Unified soils classification system symbol



Sierra-Yoyo-Desan Road Gravel Investigation Area No. 1 Test Pit No. 273

Area Sierra-Yoyo-Desan Road				Excavator Type Cat 322 B								Location Notes 150 m @ 270 degrees from TP-269			
Project KX04335				Contractor Kledo Construction											
GPS Location				Date 6 March 2003								Test Pit Location Ribbon			
Northing 6525421				Weather -30 C, Windy											
Easting 0578108				Logged by BM											
Elevation (m) 543															

Soil Type				Estimated Gradation					Lab. Gradation			Soil Properties				Sampling Information				
Depth (m)		General Soil Type		Sums to 100%			Additional Oversize (%)	Max. (mm)	Sums to 100%			Density / Consistency	Plasticity	Colour	Moisture	#	Depth (m)		Type (Check one)	
From	To	Description	USC*	Fines	Sand	Gravel			Fines	Sand	Gravel						From	To	Bucket	Bag
0	0.25	TOPSOIL	OL																	
0.25	2.5	CLAY	CL																	


Water Encountered: No				Depth:		Type:				Notes			
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Remarks

*Unified soils classification system symbol



Sierra-Yoyo-Desan Road Gravel Investigation Area No. 1 Test Pit No. 274

Area Sierra-Yoyo-Desan Road Project KX04335 GPS Location Northing 6524504 Easting 0578872 Elevation (m) 540				Excavator Type Cat 322 B Contractor Kledo Construction Date 6 March 2003 Weather -30 C, Windy Logged by BM								Location Notes 80 m @ 180 degrees from TP-254			
												Test Pit Location Ribbon			

Soil Type				Estimated Gradation				Lab. Gradation			Soil Properties				Sampling Information					
Depth (m)		General Soil Type		Sums to 100%			Additional Oversize (%)	Max. (mm)	Sums to 100%			Density / Consistency	Plasticity	Colour	Moisture	#	Depth (m)		Type (Check one)	
From	To	Description	USC*	Fines	Sand	Gravel			Fines	Sand	Gravel						From	To	Bucket	Bag
0	0.25	TOPSOIL	OL																	
0.25	3.5	SILT	ML																	


Water Encountered: No	Depth:	Type:	Notes
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Remarks _____

*Unified soils classification system symbol



Sierra-Yoyo-Desan Road Gravel Investigation Area No. 1 Test Pit No. 275

Area Sierra-Yoyo-Desan Road	Excavator Type Cat 322 B		Location Notes 150 m @ 115 degrees from TP-274
Project KX04335	Contractor Kledo Construction		
GPS Location			
Date 6 March 2003			
Northing 6524408	Weather -30 C, Windy		Test Pit Location Ribbon
Easting 0578993	Logged by BM		
Elevation (m) 532			

Soil Type				Estimated Gradation					Lab. Gradation			Soil Properties				Sampling Information				
Depth (m)		General Soil Type		Sums to 100%			Additional Oversize (%)	Max. (mm)	Sums to 100%			Density / Consistency	Plasticity	Colour	Moisture	#	Depth (m)		Type (Check one)	
From	To	Description	USC*	Fines	Sand	Gravel			Fines	Sand	Gravel						From	To	Bucket	Bag
0	0.25	TOPSOIL	OL																	
0.25	3.0	SILT	ML																	


Water Encountered: No	Depth:	Type:	Notes
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Remarks

*Unified soils classification system symbol



Sierra-Yoyo-Desan Road Gravel Investigation Area No. 1 Test Pit No. 276

Area Sierra-Yoyo-Desan Road				Excavator Type Cat 322 B								Location Notes 75 m @ 115 degrees from TP-274			
Project KX04335				Contractor Kledo Construction											
GPS Location				Date 6 March 2003								Test Pit Location Ribbon			
Northing 6524473				Weather -30 C, Windy											
Easting 0578918				Logged by BM											
Elevation (m) 529															

Soil Type				Estimated Gradation					Lab. Gradation			Soil Properties				Sampling Information				
Depth (m)		General Soil Type		Sums to 100%			Additional Oversize (%)	Max. (mm)	Sums to 100%			Density / Consistency	Plasticity	Colour	Moisture	#	Depth (m)		Type (Check one)	
From	To	Description	USC*	Fines	Sand	Gravel			Fines	Sand	Gravel						From	To	Bucket	Bag
0	0.25	TOPSOIL	OL																	
0.25	3.5	SILT	ML																	


Water Encountered: No				Depth:		Type:				Notes			
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Remarks

*Unified soils classification system symbol



Sierra-Yoyo-Desan Road Gravel Investigation Area No. 1 Test Pit No. 277

Area Sierra-Yoyo-Desan Road				Excavator Type Cat 322 B								Location Notes 650 m @ 90 degrees and 50 m @ 360 degrees from B (6523968, 0579187)			
Project KX04335				Contractor Kledo Construction											
GPS Location				Date 7 March 2003								Test Pit Location Ribbon			
Northing 6523985				Weather -35 C											
Easting 0579877				Logged by BM											
Elevation (m) 531															

Soil Type				Estimated Gradation					Lab. Gradation			Soil Properties				Sampling Information				
Depth (m)		General Soil Type		Sums to 100%			Additional Oversize (%)	Max. (mm)	Sums to 100%			Density / Consistency	Plasticity	Colour	Moisture	#	Depth (m)		Type (Check one)	
From	To	Description	USC*	Fines	Sand	Gravel			Fines	Sand	Gravel						From	To	Bucket	Bag
0	0.25	TOPSOIL	OL																	
0.25	3.0	SILT	ML																	


Water Encountered: No				Depth:		Type:				Notes			
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Remarks

*Unified soils classification system symbol



Sierra-Yoyo-Desan Road Gravel Investigation Area No. 1 Test Pit No. 278

Area Sierra-Yoyo-Desan Road				Excavator Type Cat 322 B								Location Notes 820 m @ 90 degrees and 15 m @360 degrees from B			
Project KX04335				Contractor Kledo Construction											
GPS Location				Date 7 March 2003								Test Pit Location Ribbon			
Northing 6523952				Weather -35 C											
Easting 0580026				Logged by BM											
Elevation (m) 515															

Soil Type				Estimated Gradation				Lab. Gradation			Soil Properties				Sampling Information					
Depth (m)		General Soil Type		Sums to 100%			Additional Oversize (%)	Max. (mm)	Sums to 100%			Density / Consistency	Plasticity	Colour	Moisture	#	Depth (m)		Type (Check one)	
From	To	Description	USC*	Fines	Sand	Gravel			Fines	Sand	Gravel						From	To	Bucket	Bag
0	0.25	TOPSOIL	OL																	
0.25	3.5	SILT	ML																	


Water Encountered: No				Depth:		Type:				Notes			
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Remarks _____

*Unified soils classification system symbol



Sierra-Yoyo-Desan Road Gravel Investigation Area No. 1 Test Pit No. 279

Area Sierra-Yoyo-Desan Road				Excavator Type Cat 322 B								Location Notes 1025 m @ 90 degrees and 5 m @ 180 degrees from B			
Project KX04335				Contractor Kledo Construction											
GPS Location				Date 7 March 2003								Test Pit Location Ribbon			
Northing 6523953				Weather -35 C											
Easting 0580237				Logged by BM											
Elevation (m) 529															

Soil Type				Estimated Gradation				Lab. Gradation			Soil Properties				Sampling Information					
Depth (m)		General Soil Type		Sums to 100%			Additional Oversize (%)	Max. (mm)	Sums to 100%			Density / Consistency	Plasticity	Colour	Moisture	#	Depth (m)		Type (Check one)	
From	To	Description	USC*	Fines	Sand	Gravel			Fines	Sand	Gravel						From	To	Bucket	Bag
0	0.25	TOPSOIL	OL																	
0.25	0.75	SILT	ML																	
0.75	3.5	CLAY	CL																	


Water Encountered: No				Depth:		Type:				Notes			
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Remarks

*Unified soils classification system symbol



Sierra-Yoyo-Desan Road Gravel Investigation Area No. 1 Test Pit No. 280

Area Sierra-Yoyo-Desan Road				Excavator Type Cat 322 B								Location Notes 500 m @ 60 degrees from C (6523477, 0580157)			
Project KX04335				Contractor Kledo Construction											
GPS Location				Date 7 March 2003								Test Pit Location Ribbon			
Northing 6523797				Weather -35 C											
Easting 0580559				Logged by BM											
Elevation (m) 539															

Soil Type				Estimated Gradation				Lab. Gradation			Soil Properties				Sampling Information					
Depth (m)		General Soil Type		Sums to 100%			Additional Oversize (%)	Max. (mm)	Sums to 100%			Density / Consistency	Plasticity	Colour	Moisture	#	Depth (m)		Type (Check one)	
From	To	Description	USC*	Fines	Sand	Gravel			Fines	Sand	Gravel						From	To	Bucket	Bag
0	0.25	TOPSOIL	OL																	
0.25	3.0	SILT	ML																	


Water Encountered: No				Depth:		Type:				Notes			
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Remarks

*Unified soils classification system symbol



Sierra-Yoyo-Desan Road Gravel Investigation Area No. 1 Test Pit No. 281

Area Sierra-Yoyo-Desan Road				Excavator Type Cat 322 B								Location Notes 95 m @ 148 degrees from TP-280			
Project KX04335				Contractor Kledo Construction											
GPS Location				Date 7 March 2003								Test Pit Location Ribbon			
Northing 6523744				Weather -35 C											
Easting 0580606				Logged by BM											
Elevation (m) 489															

Soil Type				Estimated Gradation				Lab. Gradation			Soil Properties				Sampling Information					
Depth (m)		General Soil Type		Sums to 100%			Additional Oversize (%)	Max. (mm)	Sums to 100%			Density / Consistency	Plasticity	Colour	Moisture	#	Depth (m)		Type (Check one)	
From	To	Description	USC*	Fines	Sand	Gravel			Fines	Sand	Gravel						From	To	Bucket	Bag
0	0.25	TOPSOIL	OL																	
0.25	0.5	SILT	ML																	
0.5	3.0	CLAY	CL																	


Water Encountered: No				Depth:		Type:				Notes			
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Remarks

*Unified soils classification system symbol



Sierra-Yoyo-Desan Road Gravel Investigation Area No. 1 Test Pit No. 282

Area Sierra-Yoyo-Desan Road				Excavator Type Cat 322 B								Location Notes 400m @ 48 degrees from D (no signal)			
Project KX04335				Contractor Kledo Construction											
GPS Location												Test Pit Location Ribbon			
Northing No Reading				Date 7 March 2003											
Easting				Weather -35 C											
Elevation (m)				Logged by BM											

Soil Type				Estimated Gradation					Lab. Gradation			Soil Properties					Sampling Information				
Depth (m)		General Soil Type		Sums to 100%			Additional Oversize (%)	Max. (mm)	Sums to 100%			Density / Consistency	Plasticity	Colour	Moisture	#	Depth (m)		Type (Check one)		
From	To	Description	USC*	Fines	Sand	Gravel			Fines	Sand	Gravel						From	To	Bucket	Bag	
0	0.25	TOPSOIL	OL																		
0.25	3.5	SILT	ML																		


Water Encountered: No				Depth:		Type:				Notes			
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Remarks _____

*Unified soils classification system symbol



Sierra-Yoyo-Desan Road Gravel Investigation Area No. 1 Test Pit No. 283

Area Sierra-Yoyo-Desan Road				Excavator Type Cat 322 B								Location Notes 200m @ 228 degrees from D			
Project KX04335				Contractor Kledo Construction											
GPS Location				Date 7 March 2003								Test Pit Location Ribbon			
Northing 6523121				Weather -35 C											
Easting 0580455				Logged by BM											
Elevation (m) 542															

Soil Type				Estimated Gradation					Lab. Gradation			Soil Properties					Sampling Information				
Depth (m)		General Soil Type		Sums to 100%			Additional Oversize (%)	Max. (mm)	Sums to 100%			Density / Consistency	Plasticity	Colour	Moisture	#	Depth (m)		Type (Check one)		
From	To	Description	USC*	Fines	Sand	Gravel			Fines	Sand	Gravel						From	To	Bucket	Bag	
0	0.25	TOPSOIL	OL																		
0.25	3.0	SILT	ML																		


Water Encountered: No				Depth:		Type:				Notes			
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Remarks _____

*Unified soils classification system symbol



Sierra-Yoyo-Desan Road Gravel Investigation Area No. 1 Test Pit No. 284

Area Sierra-Yoyo-Desan Road				Excavator Type Cat 322 B								Location Notes			
Project KX04335				Contractor Kledo Construction											
GPS Location				Date 7 March 2003								Test Pit Location Ribbon			
Northing 6523465				Weather -35 C											
Easting 0580153				Logged by BM											
Elevation (m) 544															

Soil Type				Estimated Gradation					Lab. Gradation			Soil Properties				Sampling Information				
Depth (m)		General Soil Type		Sums to 100%			Additional Oversize (%)	Max. (mm)	Sums to 100%			Density / Consistency	Plasticity	Colour	Moisture	#	Depth (m)		Type (Check one)	
From	To	Description	USC*	Fines	Sand	Gravel			Fines	Sand	Gravel						From	To	Bucket	Bag
0	0.25	TOPSOIL	OL																	
0.25	3.0	SILT	ML																	

Water Encountered: No				Depth:		Type:				Notes			
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Remarks _____

*Unified soils classification system symbol

Field Checks	Lab Checks
100	0
100	0
100	0
100	0
0	0
0	0

Field Checks

Lab Checks

100

0

100

0

100

0

0

0

0

0

0

0

Field Checks

Lab Checks

100

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Field Checks

Lab Checks

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Field Checks

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Field Checks	Lab Checks
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100	0
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Field Checks

Lab Checks

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Field Checks

Lab Checks

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Lab Checks

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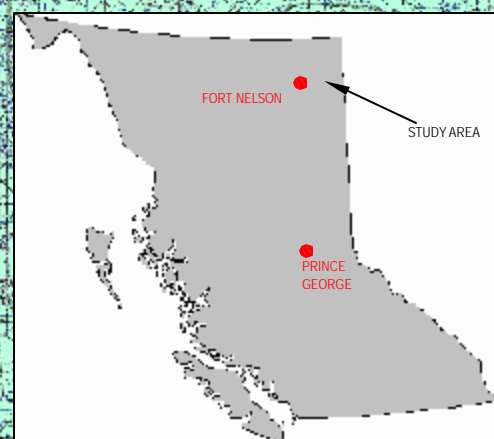
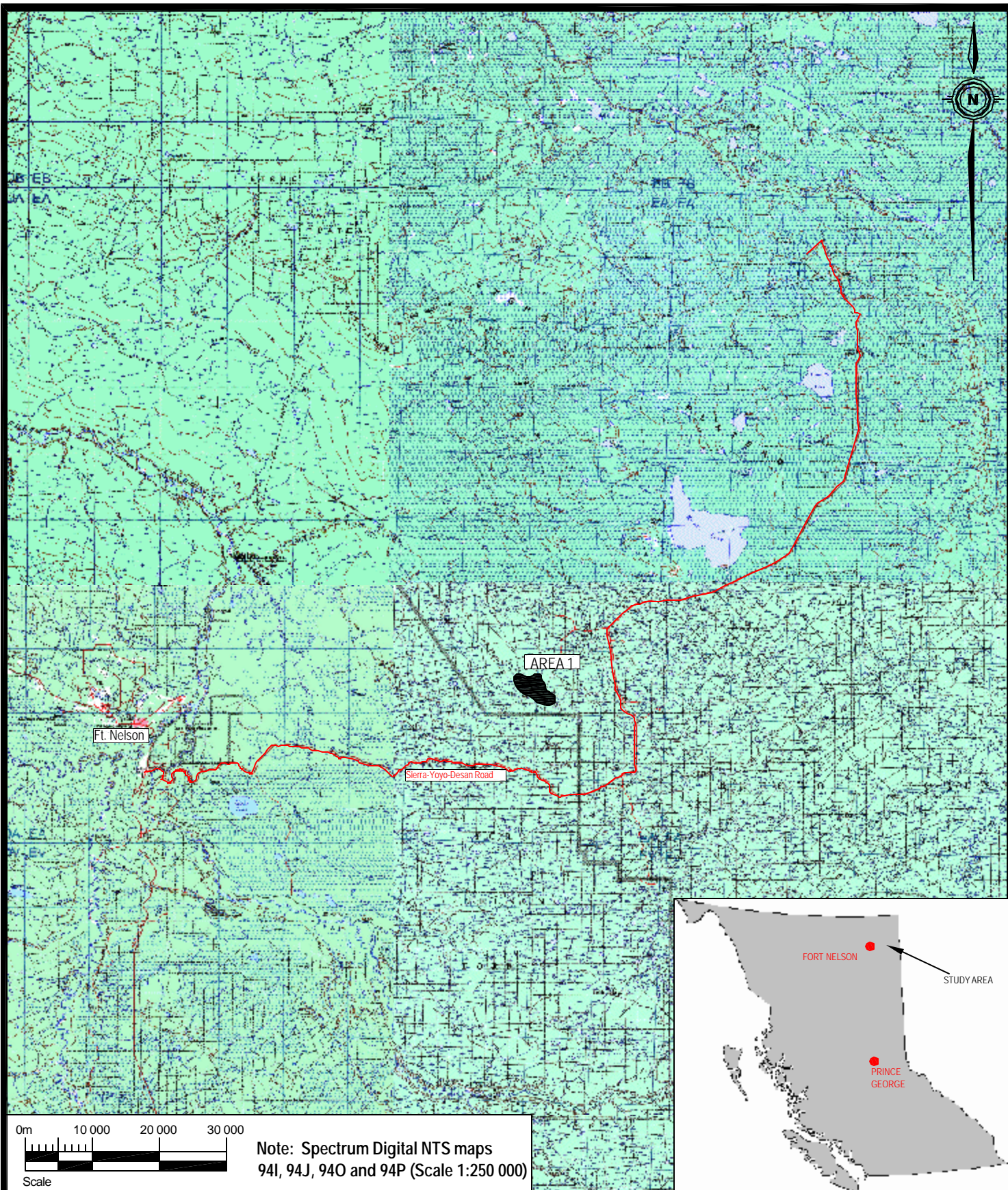
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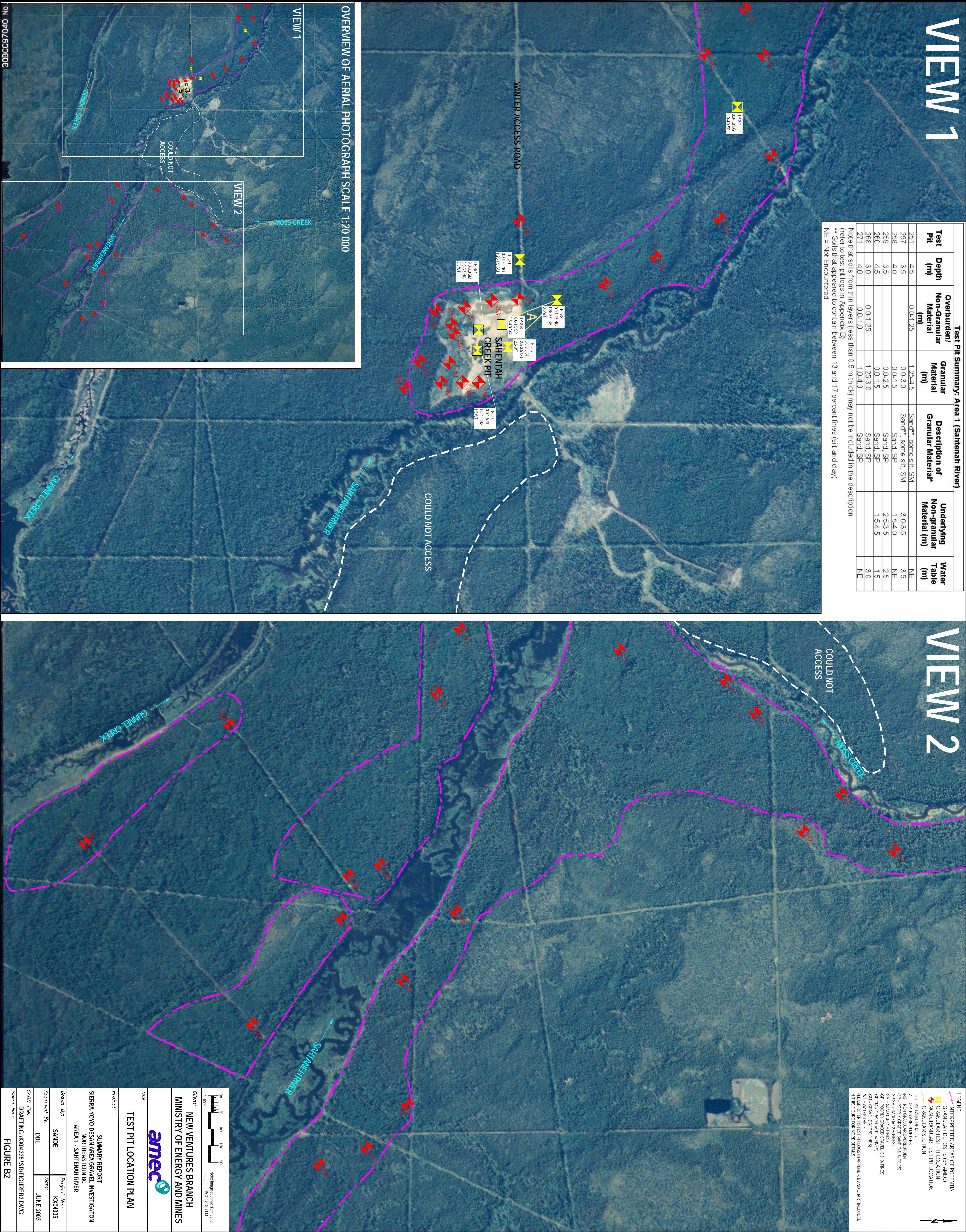


CLIENT:
NEW VENTURES BRANCH
MINISTRY OF ENERGY AND MINES

TITLE:
GENERAL STUDY AREA LOCATON


PROJECT:
**SUMMARY REPORT
SIERRA-YOYO-DESAN ROAD AREA GRAVEL INVESTIGATION
NORTHEASTERN BC
AREA 1-SAHTENAH RIVER**

DATE: JUNE 2003	
JOB #: KX04335	
DRAWN BY: SANDE	PROJECT MGR: DDE
CAD FILE: DRAFTING \4335\SR\FIGUREB1.DWG	
FIGURE #: FIGURE B1	





Sierra-Yoyo-Desan Road Gravel Investigation Area No. 2 Test Pit No. 01

Area Sierra-Yoyo-Desan Road				Excavator Type JD 230 LC								Location Notes 100m at 350 degrees from southend of plowed line			
Project KX04335				Contractor Kledo Construction											
GPS Location WP068												Test Pit Location Ribbon			
Northing 6519087				Date 28 Feb 2003											
Easting 0589523				Weather -20C Overcast											
Elevation (m) 475				Logged by SJ											

Soil Type				Estimated Gradation					Lab. Gradation			Soil Properties				Sampling Information				
Depth (m)		General Soil Type		Sums to 100%			Additional Oversize (%)	Max. (mm)	Sums to 100%			Density / Consistency	Plasticity	Colour	Moisture	#	Depth (m)		Type (Check one)	
From	To	Description	USC*	Fines	Sand	Gravel			Fines	Sand	Gravel						From	To	Bucket	Bag
0	0.1	TOPSOIL	OL	100								frozen	non	brown	frozen					
0.1	0.6	GRAVEL, silty, sandy	GM	22	28	50	5	200				loose	non	brown	damp					
0.6	2.5	SAND AND GRAVEL	SP-SM	12	35	53	10	200	7	47	46	compact	non	brown	moist-sat.	1	1.9	2.4		x
2.5	3.5	SILT AND CLAY, trace gravel	ML-CL	85	10	5						firm	low	gray-black	wet					

Water Encountered: Yes				Depth: 2.5m		Type: Water Seepage				Notes: moderate			
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Remarks

*Unified soils classification system symbol



Sierra-Yoyo-Desan Road Gravel Investigation Area No. 2 Test Pit No. 02

Area Sierra-Yoyo-Desan Road	Excavator Type JD 230 LC		Location Notes South along treeline in existing pit
Project KX04335	Contractor Kledo Construction		
GPS Location WP069			
Northing 6518891	Date 28 Feb 2003		
Easting 0589443	Weather -20C Overcast		
Elevation (m) 467	Logged by SJ		Test Pit Location Ribbon

Soil Type				Estimated Gradation					Lab. Gradation			Soil Properties				Sampling Information				
Depth (m)		General Soil Type		Sums to 100%			Additional Oversize (%)	Max. (mm)	Sums to 100%			Density / Consistency	Plasticity	Colour	Moisture	#	Depth (m)		Type (Check one)	
From	To	Description	USC*	Fines	Sand	Gravel			Fines	Sand	Gravel						From	To	Bucket	Bag
0	0.3	TOPSOIL, peat, organic	PT	100								soft	non	black	frozen					
0.3	3.2	GRAVEL AND SAND	GP-GM	15	35	50	10	250	11	43	46	compact	non	brown	sat	1	2.0	3.0		x
3.2	4.0	CLAY AND SILT, trace gravel	CL-ML	90	5	5						firm	low- med	gray- black	wet					

Water Encountered: Yes	Depth: 0.1m	Type: Water Seepage	Notes: light to moderate
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Remarks

*Unified soils classification system symbol



Sierra-Yoyo-Desan Road Gravel Investigation Area No. 2 Test Pit No. 03

Area Sierra-Yoyo-Desan Road				Excavator Type JD 230 LC				Location Notes South following treeline 1st seismic line					
Project KX04335				Contractor Kledo Construction									
GPS Location WP070				Date 28 Feb 2003				Test Pit Location Ribbon					
Northing 6518692				Weather -20C Overcast									
Easting 0589401				Logged by SJ									
Elevation (m) 461													

Soil Type				Estimated Gradation					Lab. Gradation			Soil Properties				Sampling Information				
Depth (m)		General Soil Type		Sums to 100%			Additional Oversize (%)	Max. (mm)	Sums to 100%			Density / Consistency	Plasticity	Colour	Moisture	#	Depth (m)		Type (Check one)	
From	To	Description	USC*	Fines	Sand	Gravel			Fines	Sand	Gravel						From	To	Bucket	Bag
0	0.3	TOPSOIL, organic, peat	PT	100								soft	non	black	frozen					
0.3	2.6*	GRAVEL, some silt, sandy	GM	18	30	52	5	150				compact	non	brown	sat					
2.6*	3.0*	CLAY AND SILT, trace gravel	CL-ML	90	5	5						firm	low	brown	wet					

Water Encountered: Yes				Depth: 1.8m		Type: Water Seepage				Notes: moderate to heavy			
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Remarks

* Estimate difficult due to water table

*Unified soils classification system symbol



Sierra-Yoyo-Desan Road Gravel Investigation Area No. 2 Test Pit No. 04

Area Sierra-Yoyo-Desan Road				Excavator Type JD 230 LC				Location Notes 180m south along 1st seismic line 180m			
Project KX04335				Contractor Kledo Construction							
GPS Location WP071								Test Pit Location Ribbon			
Northing 6518491		Date 28 Feb 2003									
Easting 0589391		Weather -20C Overcast									
Elevation (m) 460		Logged by SJ									

Soil Type				Estimated Gradation				Lab. Gradation			Soil Properties				Sampling Information					
Depth (m)		General Soil Type		Sums to 100%			Additional Oversize (%)	Max. (mm)	Sums to 100%			Density / Consistency	Plasticity	Colour	Moisture	#	Depth (m)		Type (Check one)	
From	To	Description	USC*	Fines	Sand	Gravel			Fines	Sand	Gravel						From	To	Bucket	Bag
0	0.3	TOPSOIL, organic, peat	PT	100								frozen	non	black	moist					
0.3	1.0	SAND, silty (clayey), trace gravel	SM	20	70	10						compact	non	brown	sat					
1.0	2.0	SAND, trace silt, trace gravel	SP-SM	10	80	10						compact	non	brown	sat					

Water Encountered: Yes				Depth: 1.1m		Type: Water Seepage				Notes: heavy			
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Remarks

0.8m of ice at ground surface

*Unified soils classification system symbol



Sierra-Yoyo-Desan Road Gravel Investigation Area No. 2 Test Pit No. 05

Area Sierra-Yoyo-Desan Road				Excavator Type JD 230 LC				Location Notes East-West running seismic line out of lower portion of JL Pit ~150m East of creek crossing			
Project KX04335				Contractor Kledo Construction							
GPS Location				Date 28 Feb 2003				Test Pit Location Ribbon			
Northing 6518781				Weather -20C Sunny							
Easting 0589673				Logged by SJ							
Elevation (m) 459											

Soil Type				Estimated Gradation				Lab. Gradation			Soil Properties				Sampling Information					
Depth (m)		General Soil Type		Sums to 100%			Additional Oversize (%)	Max. (mm)	Sums to 100%			Density / Consistency	Plasticity	Colour	Moisture	#	Depth (m)		Type (Check one)	
From	To	Description	USC*	Fines	Sand	Gravel			Fines	Sand	Gravel						From	To	Bucket	Bag
0	0.3	TOPSOIL, organic	OL	100								soft	non	black	damp					
0.3	3.0	CLAY, silty, some sand	CI	70	25	5						firm	med	brown	wet					
3.0	3.8	CLAY, trace gravel (till)	CL	90	5	5						firm	low	gray	wet					


Water Encountered: Yes				Depth: 2.7m		Type: Water Seepage				Notes: slow trickle			
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Remarks

*Unified soils classification system symbol



Sierra-Yoyo-Desan Road Gravel Investigation Area No. 2 Test Pit No. 06

Area Sierra-Yoyo-Desan Road				Excavator Type JD 230 LC								Location Notes North South seismic line East of TP-6			
Project KX04335				Contractor Kledo Construction											
GPS Location WP073												Test Pit Location Ribbon			
Northing 6518789				Date 28 Feb 2003											
Easting 0589861				Weather -20C Sunny											
Elevation (m) 458				Logged by SJ											

Soil Type				Estimated Gradation					Lab. Gradation			Soil Properties				Sampling Information				
Depth (m)		General Soil Type		Sums to 100%			Additional Oversize (%)	Max. (mm)	Sums to 100%			Density / Consistency	Plasticity	Colour	Moisture	#	Depth (m)		Type (Check one)	
From	To	Description	USC*	Fines	Sand	Gravel			Fines	Sand	Gravel						From	To	Bucket	Bag
0	0.1	TOPSOIL, organic	OL	100								frozen	non	black	frozen					
0.1	0.8	SAND, silty, trace gravel	SM	35	60	5						compact	non	brown	moist					
0.8	1.6	SAND, gravelly, trace silt	SP-SM	8	62	30						loose - compact	non	brown	moist					
1.6	2.7	SAND, trace gravel, some silt	SP-SM	12	83	5						compact	non	brown	wet					
2.7	3.6	CLAY (till)	CL	90	5	5						firm	low	gray	moist					


Water Encountered: No				Depth:		Type:				Notes:			
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Remarks

*Unified soils classification system symbol



Sierra-Yoyo-Desan Road Gravel Investigation Area No. 2 Test Pit No. 07

Area Sierra-Yoyo-Desan Road	Excavator Type JD 230 LC		Location Notes
Project KX04335	Contractor Kledo Construction		East West seismic line ~150m East of TP-6
GPS Location WP074			
Northing 6518780	Date 28 Feb 2003		
Easting 0590067	Weather -20C Sunny		
Elevation (m) 460	Logged by SJ		Test Pit Location Ribbon

Soil Type				Estimated Gradation					Lab. Gradation			Soil Properties				Sampling Information				
Depth (m)		General Soil Type		Sums to 100%			Additional Oversize (%)	Max. (mm)	Sums to 100%			Density / Consistency	Plasticity	Colour	Moisture	#	Depth (m)		Type (Check one)	
From	To	Description	USC*	Fines	Sand	Gravel			Fines	Sand	Gravel						From	To		
																			Bucket	Bag
0	0.1	TOPSOIL, organic	OL	100								frozen	non	black	damp					
0.1	3.0	CLAY, some sand, trace gravel	CI	80	15	5	5	150				firm	med	brown	moist					
3.0	3.8	CLAY, trace gravel (till)	CL	90	5	5	5	150				firm	low	gray	moist					


Water Encountered: No	Depth:	Type:	Notes:
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Remarks

*Unified soils classification system symbol



Sierra-Yoyo-Desan Road Gravel Investigation Area No. 2 Test Pit No. 08

Area Sierra-Yoyo-Desan Road				Excavator Type JD 230 LC				Location Notes ~150m South along 1st North/South seismic line			
Project KX04335				Contractor Kledo Construction							
GPS Location WP075								Test Pit Location Ribbon			
Northing 6518621		Date 28 Feb 2003									
Easting 0589853		Weather -20C Sunny									
Elevation (m) 460		Logged by SJ									

Soil Type				Estimated Gradation				Lab. Gradation			Soil Properties				Sampling Information					
Depth (m)		General Soil Type		Sums to 100%			Additional Oversize (%)	Max. (mm)	Sums to 100%			Density / Consistency	Plasticity	Colour	Moisture	#	Depth (m)		Type (Check one)	
From	To	Description	USC*	Fines	Sand	Gravel			Fines	Sand	Gravel						From	To	Bucket	Bag
0	0.3	TOPSOIL, organic	OL	100								frozen	non	black	damp					
0.3	3.2	CLAY, some sand	CI	70	25	5						firm	med	brown	wet					
3.2	3.7	CLAY, trace gravel (till)	CL	85	5	10						firm	low	gray	wet					


Water Encountered: Yes				Depth: 3.2m		Type: Water Seepage				Notes: slow			
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Remarks _____

*Unified soils classification system symbol



Sierra-Yoyo-Desan Road Gravel Investigation Area No. 2 Test Pit No. 09

Area Sierra-Yoyo-Desan Road Project KX04335 GPS Location WP076 Northing 6518983 Easting 0589857 Elevation (m) 464	Excavator Type JD 230 LC Contractor Kledo Construction Date 28 Feb 2003 Weather -20C Sunny Logged by SJ		Location Notes ~200m North along North/South seismic line Test Pit Location Ribbon
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Soil Type				Estimated Gradation					Lab. Gradation			Soil Properties				Sampling Information				
Depth (m)		General Soil Type		Sums to 100%			Additional Oversize (%)	Max. (mm)	Sums to 100%			Density / Consistency	Plasticity	Colour	Moisture	#	Depth (m)		Type (Check one)	
From	To	Description	USC*	Fines	Sand	Gravel			Fines	Sand	Gravel						From	To	Bucket	Bag
0	0.1	TOPSOIL, organic	OL	100								frozen	non	brown	damp					
0.1	3.6	CLAY, some sand, trace gravel	CI	65	25	10	5	250				firm	med	brown	moist					


Water Encountered: No	Depth:	Type:	Notes:
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Remarks

*Unified soils classification system symbol



Sierra-Yoyo-Desan Road Gravel Investigation Area No. 2 Test Pit No. 10

Area Sierra-Yoyo-Desan Road Project KX04335 GPS Location WP077 Northing 6519411 Easting 0589876 Elevation (m) 468				Excavator Type JD 230 LC Contractor Kledo Construction Date 28 Feb 2003 Weather -15C Sunny Logged by SJ								Location Notes North along North/South seismic line towards creek			
												Test Pit Location Ribbon			

Soil Type				Estimated Gradation				Lab. Gradation				Soil Properties				Sampling Information				
Depth (m)		General Soil Type		Sums to 100%			Additional Oversize (%)	Max. (mm)	Sums to 100%			Density / Consistency	Plasticity	Colour	Moisture	#	Depth (m)		Type (Check one)	
From	To	Description	USC*	Fines	Sand	Gravel			Fines	Sand	Gravel						From	To	Bucket	Bag
0	1.1	SILT, some sand	ML	77	18	5						loose-compact	low	brown	damp					
1.1	3.7	SILT AND CLAY, some sand	CL-ML	70	20	10						firm	low	brown	moist					
3.7	3.8	CLAY, trace gravel (till)	CL	90	5	5						firm - hard	low	gray	moist					


Water Encountered: No				Depth:		Type:				Notes:			
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Remarks _____

*Unified soils classification system symbol



Sierra-Yoyo-Desan Road Gravel Investigation Area No. 2 Test Pit No. 11


Area Sierra-Yoyo-Desan Road Project KX04335 GPS Location WP078 Northing 6519278 Easting 0589531 Elevation (m) 462				Excavator Type JD 230 LC Contractor Kledo Construction Date 28 Feb 2003 Weather -20C Sunny Logged by SJ								Location Notes ~30m North of end of access road Test Pit Location Ribbon								
Soil Type Depth (m) General Soil Type From To Description USC*				Estimated Gradation Sums to 100% Additional Oversize (%) Max. (mm) Fines Sand Gravel				Lab. Gradation Sums to 100% Fines Sand Gravel				Soil Properties Density / Consistency Plasticity Colour Moisture				Sampling Information # Depth (m) Type (Check one) From To Bucket Bag				
0	0.2	TOPSOIL, organic	OL	100								frozen	non	black	damp					
0.2	2.2	CLAY, sandy	CI	60	30	10	10	250				firm	med	brown	moist-wet					
2.2	3.0	CLAY (till)	CL	85	5	10						firm	low	gray	moist-wet					
Water Encountered: No				Depth:				Type:				Notes:								

Remarks
 Sloughed in

*Unified soils classification system symbol



Sierra-Yoyo-Desan Road Gravel Investigation Area No. 2 Test Pit No. 12

Area Sierra-Yoyo-Desan Road				Excavator Type JD 230 LC				Location Notes 90m North of TP-5			
Project KX04335				Contractor Kledo Construction							
GPS Location WP080								Test Pit Location Ribbon			
Northing 6518876		Date 01 Mar 2003									
Easting 0589675		Weather -25C Overcast									
Elevation (m) 525		Logged by SJ									

Soil Type				Estimated Gradation					Lab. Gradation			Soil Properties				Sampling Information				
Depth (m)		General Soil Type		Sums to 100%			Additional Oversize (%)	Max. (mm)	Sums to 100%			Density / Consistency	Plasticity	Colour	Moisture	#	Depth (m)		Type (Check one)	
From	To	Description	USC*	Fines	Sand	Gravel			Fines	Sand	Gravel						From	To	Bucket	Bag
0	0.7	TOPSOIL, organic	OL	100								frozen	non	black	frozen					
0.7	2.8	CLAY, some sand	CI	65	25	10						soft-firm	med	brown	moist					
2.8	3.7	CLAY	CL	90	5	5						firm	low	gray	moist					


Water Encountered: Yes				Depth: 2.7m		Type: Water Seepage				Notes: slow			
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Remarks _____

*Unified soils classification system symbol



Sierra-Yoyo-Desan Road Gravel Investigation Area No. 2 Test Pit No. 13

Area Sierra-Yoyo-Desan Road				Excavator Type JD 230 LC				Location Notes ~30m West of 2nd North/South seismic line southern ridge			
Project KX04335				Contractor Kledo Construction							
GPS Location WP081				Date 01 Mar 2003				Test Pit Location Ribbon			
Northing 6518488				Weather -15C Overcast							
Easting 0589292				Logged by SJ							
Elevation (m) 532											

Soil Type				Estimated Gradation					Lab. Gradation			Soil Properties				Sampling Information				
Depth (m)		General Soil Type		Sums to 100%			Additional Oversize (%)	Max. (mm)	Sums to 100%			Density / Consistency	Plasticity	Colour	Moisture	#	Depth (m)		Type (Check one)	
From	To	Description	USC*	Fines	Sand	Gravel			Fines	Sand	Gravel						From	To	Bucket	Bag
0	0.3	TOPSOIL, organic	OL	100								frozen	non	black	frozen					
0.3	0.8	CLAY, sandy	CI-MI	65	25	10						soft-firm	med	brown	moist					
0.8	3.0	GRAVEL, some clay, sandy	GM	15	30	55						compact	non	brown	wet - sat					
3.0	3.1	CLAY AND SILT	CI-MI	90	5	5						firm	med	gray-black	wet					

Water Encountered: Yes				Depth: 1.9m		Type: Water Seepage				Notes: moderate			
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Remarks

*Unified soils classification system symbol




Remarks
0.2m of ice at ground surface above topsoil
Beaver dam to west

*Unified soils classification system symbol



Sierra-Yoyo-Desan Road Gravel Investigation Area No. 2 Test Pit No. 15

Area Sierra-Yoyo-Desan Road				Excavator Type JD 230 LC				Location Notes 2nd seismic line (north/south), ~70m @ 300 degrees into trees (northern ridge before pit)			
Project KX04335				Contractor Kledo Construction							
GPS Location WP083				Date 01 Mar 2003				Test Pit Location Ribbon			
Northing 6518645				Weather -25C Overcast							
Easting 0589299				Logged by SJ							
Elevation (m) 536											

Soil Type				Estimated Gradation				Lab. Gradation			Soil Properties				Sampling Information					
Depth (m)		General Soil Type		Sums to 100%			Additional Oversize (%)	Max. (mm)	Sums to 100%			Density / Consistency	Plasticity	Colour	Moisture	#	Depth (m)		Type (Check one)	
From	To	Description	USC*	Fines	Sand	Gravel			Fines	Sand	Gravel						From	To	Bucket	Bag
0	0.4	SILT AND SAND	SP	40	50	10						frozen	non	brown	frozen					
0.4	2.0	GRAVEL, some silt/clay, sandy	GM	15	30	55						compact	non	brown	sat					

Water Encountered: Yes				Depth: 0.5m		Type: Water Seepage				Notes: moderate to heavy			
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Remarks

Sloughing in


*Unified soils classification system symbol



Remarks	
Sloughing in	
*Estimate	
*Unified soils classification system symbol	



Sierra-Yoyo-Desan Road Gravel Investigation Area No. 2 Test Pit No. 17

Area Sierra-Yoyo-Desan Road Project KX04335 GPS Location WP085 Northing 6518747 Easting 0589084 Elevation (m) 538				Excavator Type JD 230 LC Contractor Kledo Construction Date 01 Mar 2003 Weather -25C Overcast, snow Logged by SJ								Location Notes ~100m west along east/west seismic line southwest portion of pit			
												Test Pit Location Ribbon			

Soil Type				Estimated Gradation					Lab. Gradation			Soil Properties				Sampling Information				
Depth (m)		General Soil Type		Sums to 100%			Additional Oversize (%)	Max. (mm)	Sums to 100%			Density / Consistency	Plasticity	Colour	Moisture	#	Depth (m)		Type (Check one)	
From	To	Description	USC*	Fines	Sand	Gravel			Fines	Sand	Gravel						From	To	Bucket	Bag
0	0.7	TOPSOIL, organic, peat	PT	100								frozen	non	black	frozen					
0.7	3.8	CLAY AND SILT, some sand, trace gravel	CI-MI	80	15	5	3	150				firm	med	brown-gray	wet					


Water Encountered: Yes				Depth: 0.1m		Type: Water Seepage				Notes: slow to moderate			
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Remarks _____

*Unified soils classification system symbol



Sierra-Yoyo-Desan Road Gravel Investigation Area No. 2 Test Pit No. 18

Area Sierra-Yoyo-Desan Road				Excavator Type JD 230 LC				Location Notes ~200m from TP-17 (30m west to the pipeline)			
Project KX04335				Contractor Kledo Construction							
GPS Location WP086				Date 01 Mar 2003				Test Pit Location Ribbon			
Northing 6518743				Weather -25C Overcast, snow							
Easting 0588813				Logged by SJ							
Elevation (m) 540											

Soil Type				Estimated Gradation				Lab. Gradation			Soil Properties				Sampling Information					
Depth (m)		General Soil Type		Sums to 100%			Additional Oversize (%)	Max. (mm)	Sums to 100%			Density / Consistency	Plasticity	Colour	Moisture	#	Depth (m)		Type (Check one)	
From	To	Description	USC*	Fines	Sand	Gravel			Fines	Sand	Gravel						From	To	Bucket	Bag
0	0.3	TOPSOIL, organic	OL	100								soft	non	black	moist					
0.3	3.0	SAND, clayey	SM	30	60	10						firm	low- med	brown	wet-sat					

Water Encountered: Yes				Depth: 1.5m		Type: Water Seepage				Notes:			
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Remarks _____

Sloughing in _____

*Unified soils classification system symbol



Sierra-Yoyo-Desan Road Gravel Investigation Area No. 2 Test Pit No. 19

Area Sierra-Yoyo-Desan Road Project KX04335 GPS Location WP087 Northing 6518825 Easting 0589107 Elevation (m) 547				Excavator Type JD 230 LC Contractor Kledo Construction Date 01 Mar 2003 Weather -25C Light snow Logged by SJ								Location Notes Northeast seismic line east towards Jim Little pit			
Test Pit Location Ribbon															

Soil Type				Estimated Gradation				Lab. Gradation			Soil Properties				Sampling Information					
Depth (m)		General Soil Type		Sums to 100%			Additional Oversize (%)	Max. (mm)	Sums to 100%			Density / Consistency	Plasticity	Colour	Moisture	#	Depth (m)		Type (Check one)	
From	To	Description	USC*	Fines	Sand	Gravel			Fines	Sand	Gravel						From	To	Bucket	Bag
0	0.4	TOPSOIL, organic, peat	PT	100								soft	non	black	moist					
0.4	2.2	SAND, clayey, trace gravel	SM	30	60	10						compact	low	brown	wet					
2.3	3.6	CLAY AND SILT	CL-ML	90	5	5						firm	low- med	brown	wet					


Water Encountered: Yes	Depth: 0.1m	Type: Water Seepage	Notes: moderate
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Remarks _____

*Unified soils classification system symbol



Sierra-Yoyo-Desan Road Gravel Investigation Area No. 2 Test Pit No. 20

Area Sierra-Yoyo-Desan Road				Excavator Type JD 230 LC								Location Notes Northeast seismic line ~10m from Jim Little pit edge			
Project KX04335				Contractor Kledo Construction											
GPS Location WP089												Test Pit Location Ribbon			
Northing 6518910				Date 01 Mar 2003											
Easting 0589226				Weather -20C Light Snow											
Elevation (m) 556				Logged by SJ											

Soil Type				Estimated Gradation				Lab. Gradation			Soil Properties				Sampling Information					
Depth (m)		General Soil Type		Sums to 100%			Additional Oversize (%)	Max. (mm)	Sums to 100%			Density / Consistency	Plasticity	Colour	Moisture	#	Depth (m)		Type (Check one)	
From	To	Description	USC*	Fines	Sand	Gravel			Fines	Sand	Gravel						From	To	Bucket	Bag
0	0.2	TOPSOIL, organic	OL	100								frozen	non	black	frozen					
0.2	0.5	SAND, some silt	SP-SM	12	78	10						compact	non	brown	wet					
0.5	2.5*	SAND, some gravel	SP-SM	8	50	42			7	76	17	compact	non	brown	sat	1	1.0	1.5		x

Water Encountered: Yes				Depth: 0.8m		Type: Water Seepage				Notes: moderate to heavy			
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Remarks _____

*Estimate too much water

*Unified soils classification system symbol



Sierra-Yoyo-Desan Road Gravel Investigation Area No. 2 Test Pit No. 21

Area Sierra-Yoyo-Desan Road				Excavator Type JD 230 LC						Location Notes ~40m North along west pit edge from northeast seismic line					
Project KX04335				Contractor Kledo Construction											
GPS Location WP090										Test Pit Location Ribbon					
Northing 6519037				Date 01 Mar 2003											
Easting 0589250				Weather -20C Overcast											
Elevation (m) 559				Logged by SJ											

Soil Type				Estimated Gradation					Lab. Gradation			Soil Properties				Sampling Information				
Depth (m)		General Soil Type		Sums to 100%			Additional Oversize (%)	Max. (mm)	Sums to 100%			Density / Consistency	Plasticity	Colour	Moisture	#	Depth (m)		Type (Check one)	
From	To	Description	USC*	Fines	Sand	Gravel			Fines	Sand	Gravel						From	To	Bucket	Bag
0	0.1	TOPSOIL, organic	OL	100								frozen	non	black	frozen					
0.1	0.3	SILT	ML	90	10							loose	low	brown	damp					
0.3	2.8	SAND, gravelly	SP	10	50	40			5	61	34	compact	non	brown	moist-wet	1	2.2	2.7		x
2.8	3.0	CLAY AND SILT	CL-ML	90	5	5						firm	low	gray	wet					


Water Encountered: Yes				Depth: 1.8m		Type: Water Seepage				Notes: moderate			
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Remarks

*Unified soils classification system symbol



Sierra-Yoyo-Desan Road Gravel Investigation Area No. 2 Test Pit No. 22

Area Sierra-Yoyo-Desan Road				Excavator Type JD 230 LC				Location Notes ~100m west edge of Jim Little pit			
Project KX04335				Contractor Kledo Construction							
GPS Location WP091								Test Pit Location Ribbon			
Northing 6519117		Date 01 Mar 2003									
Easting 0589208		Weather -20C Overcast									
Elevation (m) 559		Logged by SJ									

Soil Type				Estimated Gradation					Lab. Gradation			Soil Properties				Sampling Information				
Depth (m)		General Soil Type		Sums to 100%			Additional Oversize (%)	Max. (mm)	Sums to 100%			Density / Consistency	Plasticity	Colour	Moisture	#	Depth (m)		Type (Check one)	
From	To	Description	USC*	Fines	Sand	Gravel			Fines	Sand	Gravel						From	To	Bucket	Bag
0	0.1	TOPSOIL, organic	OL	100								frozen	non	black	frozen					
0.1	0.4	SAND, silty	SM	20	75	5						loose	non	brown	moist					
0.4	1.9	SAND AND GRAVEL	SP-SM	8	48	47	5	250				compact	non	brown	wet-sat					
1.9	2.8	CLAY AND SILT	CL-ML	90	5	5						firm	low	gray- black	wet					


Water Encountered: Yes				Depth: 1.4m		Type: Water Seepage				Notes: moderate			
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Remarks _____

*Unified soils classification system symbol



Sierra-Yoyo-Desan Road Gravel Investigation Area No. 2 Test Pit No. 23

Area Sierra-Yoyo-Desan Road				Excavator Type JD 230 LC				Location Notes ~70m along west edge of Jim Little pit (pipeline)					
Project KX04335				Contractor Kledo Construction									
GPS Location WP092				Date 01 Mar 2003				Test Pit Location Ribbon					
Northing 6519205				Weather -20C Overcast									
Easting 0589189				Logged by SJ									
Elevation (m) 557													

Soil Type				Estimated Gradation					Lab. Gradation			Soil Properties				Sampling Information				
Depth (m)		General Soil Type		Sums to 100%			Additional Oversize (%)	Max. (mm)	Sums to 100%			Density / Consistency	Plasticity	Colour	Moisture	#	Depth (m)		Type (Check one)	
From	To	Description	USC*	Fines	Sand	Gravel			Fines	Sand	Gravel						From	To	Bucket	Bag
0	0.2	TOPSOIL, organic	OL	100								soft	non	black	damp					
0.2	0.9	GRAVEL AND SAND	GP-GM	8	35	57	10	300				compact	non	brown	moist					
0.9	2.8	SAND, clayey, trace gravel	SM	30	60	10						compact	non	brown	moist					
2.8	3.6	CLAY	CL	90	5	5						firm	low	gray	moist					

Water Encountered: Yes				Depth: 2.6m		Type: Water Seepage				Notes: slow			
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Remarks _____

*Unified soils classification system symbol



Sierra-Yoyo-Desan Road Gravel Investigation Area No. 2 Test Pit No. 24

Area Sierra-Yoyo-Desan Road	Excavator Type JD 230 LC		Location Notes Across pipeline Metladoa Creek pit intersection with northeast seismic line
Project KX04335	Contractor Kledo Construction		
GPS Location WP093			
Northing 6519488	Date 01 Mar 2003		
Easting 0589360	Weather -15C Overcast		
Elevation (m) 568	Logged by SJ	Test Pit Location Ribbon	

Soil Type				Estimated Gradation					Lab. Gradation			Soil Properties				Sampling Information				
Depth (m)		General Soil Type		Sums to 100%			Additional Oversize (%)	Max. (mm)	Sums to 100%			Density / Consistency	Plasticity	Colour	Moisture	#	Depth (m)		Type (Check one)	
From	To	Description	USC*	Fines	Sand	Gravel			Fines	Sand	Gravel						From	To		
																			Bucket	Bag
0	0.1	TOPSOIL, organic	OL	100								soft	non	black	damp					
0.1	3.5	SILT AND CLAY, trace gravel	ML-CL	80	10	10						firm	low	brown	damp					
3.5	3.6	CLAY (till)	CL	90	5	5						firm	low	gray	damp					


Water Encountered: No	Depth:	Type:	Notes:
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Remarks

*Unified soils classification system symbol



Sierra-Yoyo-Desan Road Gravel Investigation Area No. 2 Test Pit No. 25

Area Sierra-Yoyo-Desan Road Project KX04335 GPS Location WP094 Northing 6519641 Easting 0589389 Elevation (m) 572				Excavator Type JD 230 LC Contractor Kledo Construction Date 01 Mar 2003 Weather -15C Overcast Logged by SJ								Location Notes ~100m north of TP-24 along seismic line, ~30m east seismic line Thurber (2001) pit to the east			
												Test Pit Location Ribbon			

Soil Type				Estimated Gradation				Lab. Gradation			Soil Properties				Sampling Information					
Depth (m)		General Soil Type		Sums to 100%			Additional Oversize (%)	Max. (mm)	Sums to 100%			Density / Consistency	Plasticity	Colour	Moisture	#	Depth (m)		Type (Check one)	
From	To	Description	USC*	Fines	Sand	Gravel			Fines	Sand	Gravel						From	To	Bucket	Bag
0	0.1	TOPSOIL, organic	OL	100								soft	non	black	damp					
0.1	0.5	SILT, some sand	ML	85	15							firm	low	brown	damp					
0.5	3.3	SILT AND CLAY, trace gravel	CL-ML	75	15	10						firm	low-med	brown	damp					


Water Encountered: No	Depth:	Type:	Notes:
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Remarks

*Unified soils classification system symbol



Sierra-Yoyo-Desan Road Gravel Investigation Area No. 2 Test Pit No. 26

Area Sierra-Yoyo-Desan Road				Excavator Type JD 230 LC				Location Notes ~20m south of beaver dam perpendicular to north pipeline					
Project KX04335				Contractor Kledo Construction									
GPS Location WP095				Date 01 Mar 2003				Test Pit Location Ribbon					
Northing 6519745				Weather -15C Overcast									
Easting 0589358				Logged by SJ									
Elevation (m) 575													

Soil Type				Estimated Gradation					Lab. Gradation			Soil Properties				Sampling Information				
Depth (m)		General Soil Type		Sums to 100%			Additional Oversize (%)	Max. (mm)	Sums to 100%			Density / Consistency	Plasticity	Colour	Moisture	#	Depth (m)		Type (Check one)	
From	To	Description	USC*	Fines	Sand	Gravel			Fines	Sand	Gravel						From	To	Bucket	Bag
0	0.1	TOPSOIL, organic	OL	100								soft	non	black	damp					
0.1	3.1	CLAY, some silt, some sand(till)	CI	68	20	12	10	300				firm	med	brown	moist					
3.1	3.6	SILT AND CLAY	CL-ML	90	5	5						firm	low	gray	moist					


Water Encountered: Yes				Depth: 2.3m		Type: Water Seepage				Notes: slow			
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Remarks

*Unified soils classification system symbol



Sierra-Yoyo-Desan Road Gravel Investigation Area No. 2 Test Pit No. 27

Area Sierra-Yoyo-Desan Road				Excavator Type JD 230 LC				Location Notes Northeast corner of Jim Little Pit					
Project KX04335				Contractor Kledo Construction									
GPS Location WP096				Date 01 Mar 2003				Test Pit Location Ribbon					
Northing 6519427				Weather -15C Overcast									
Easting 0589408				Logged by SJ									
Elevation (m) 575													

Soil Type				Estimated Gradation				Lab. Gradation			Soil Properties				Sampling Information					
Depth (m)		General Soil Type		Sums to 100%			Additional Oversize (%)	Max. (mm)	Sums to 100%			Density / Consistency	Plasticity	Colour	Moisture	#	Depth (m)		Type (Check one)	
From	To	Description	USC*	Fines	Sand	Gravel			Fines	Sand	Gravel						From	To	Bucket	Bag
0	0.1	TOPSOIL, organic	OL	100								soft	non	black	damp					
0.1	0.3	SILT, some sand	ML	80	15	5						soft -firm	low	brown	damp					
0.3	1.0	GRAVEL, sandy, some silt	GM	15	30	55						compact	non	brown	moist					
1.0	2.3	SAND, some gravel	SP-SM	8	72	20						compact	non	brown	moist					
2.3	3.1	CLAY AND SILT	CI-MI	80	10	10						firm	med	brown	moist					
3.1	3.4	CLAY (till)	CL	85	5	10						firm	low	gray	moist					


Water Encountered: No				Depth:		Type:				Notes:			
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Remarks

*Unified soils classification system symbol



Sierra-Yoyo-Desan Road Gravel Investigation Area No. 2 Test Pit No. 28

Area Sierra-Yoyo-Desan Road Project KX04335 GPS Location WP097 Northing 6519576 Easting 0589307 Elevation (m) 519				Excavator Type JD 230 LC Contractor Kledo Construction Date 02 Mar 2003 Weather -30C Overcast Logged by SJ								Location Notes Northwest seismic line Metladoa Creek Reserve ~50m			
												Test Pit Location Ribbon			

Soil Type				Estimated Gradation					Lab. Gradation			Soil Properties				Sampling Information				
Depth (m)		General Soil Type		Sums to 100%			Additional Oversize (%)	Max. (mm)	Sums to 100%			Density / Consistency	Plasticity	Colour	Moisture	#	Depth (m)		Type (Check one)	
From	To	Description	USC*	Fines	Sand	Gravel			Fines	Sand	Gravel						From	To	Bucket	Bag
0	0.1	TOPSOIL, organic	OL	100								soft	non	black	damp					
0.1	3.4	CLAY, silty, some sand	CL	83	12	5						firm	low	brown	damp					


Water Encountered: No	Depth:	Type:	Notes:
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Remarks _____

*Unified soils classification system symbol



Sierra-Yoyo-Desan Road Gravel Investigation Area No. 2 Test Pit No. 29

Area Sierra-Yoyo-Desan Road	Excavator Type JD 230 LC		Location Notes Thurber line into trees from Northeast seismic line, by Thurbers (2001) pit
Project KX04335	Contractor Kledo Construction		
GPS Location WP098			
Northing 6519455	Date 02 Mar 2003		
Easting 0589174	Weather -20C Overcast		
Elevation (m) 511	Logged by SJ	Test Pit Location Ribbon	

Soil Type				Estimated Gradation					Lab. Gradation			Soil Properties				Sampling Information				
Depth (m)		General Soil Type		Sums to 100%			Additional Oversize (%)	Max. (mm)	Sums to 100%			Density / Consistency	Plasticity	Colour	Moisture	#	Depth (m)		Type (Check one)	
From	To	Description	USC*	Fines	Sand	Gravel			Fines	Sand	Gravel						From	To		
																			Bucket	Bag
0	0.1	TOPSOIL, organic	OL	100								soft	non	black	damp					
0.1	3.5	CLAY, silty, some sand	CI	75	15	10	10	300				soft-firm	med	brown	moist					
3.5	3.7	CLAY, some silt	CL	90	5	5						firm	low	gray	moist					


Water Encountered: No	Depth:	Type:	Notes:
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Remarks

*Unified soils classification system symbol



Sierra-Yoyo-Desan Road Gravel Investigation Area No. 2 Test Pit No. 29B

Area Sierra-Yoyo-Desan Road	Excavator Type JD 230 LC		Location Notes Thurber (2001) pit hole by TP-29
Project KX04335	Contractor Kledo Construction		
GPS Location	Date 02 Mar 2003		
Northing _____	Weather -20C Overcast		
Easting _____	Logged by SJ	Test Pit Location No Marker	
Elevation (m) _____			

Soil Type				Estimated Gradation					Lab. Gradation			Soil Properties				Sampling Information				
Depth (m)		General Soil Type		Sums to 100%			Additional Oversize (%)	Max. (mm)	Sums to 100%			Density / Consistency	Plasticity	Colour	Moisture	#	Depth (m)		Type (Check one)	
From	To	Description	USC*	Fines	Sand	Gravel			Fines	Sand	Gravel						From	To		
																			Bucket	Bag
0	1.2	GRAVEL, silty, sandy	GM	25	30	45						compact	non	brown	moist	1	0.5	1.2		x
1.2	1.4	CLAY, silty	CL	75	15	10						firm	low	brown	moist					


Water Encountered: No	Depth:	Type:	Notes:
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Remarks

*Unified soils classification system symbol



Sierra-Yoyo-Desan Road Gravel Investigation Area No. 2 Test Pit No. 30

Area Sierra-Yoyo-Desan Road	Excavator Type JD 230 LC		Location Notes Northwest seismic line Metladoa Creek Reserve
Project KX04335	Contractor Kledo Construction		
GPS Location WP099			
Northing 6519728	Date 02 Mar 2003		
Easting 0589193	Weather -20C Overcast		
Elevation (m) 503	Logged by SJ	Test Pit Location Ribbon	

Soil Type				Estimated Gradation					Lab. Gradation			Soil Properties				Sampling Information				
Depth (m)		General Soil Type		Sums to 100%			Additional Oversize (%)	Max. (mm)	Sums to 100%			Density / Consistency	Plasticity	Colour	Moisture	#	Depth (m)		Type (Check one)	
From	To	Description	USC*	Fines	Sand	Gravel			Fines	Sand	Gravel						From	To	Bucket	Bag
0	1.0	TOPSOIL, organic, peat	PT	100								soft	non	black	damp					
1.0	3.1	CLAY, silty, sandy, trace to some gravel	CI	65	25	10	5	200				firm	med	brown	wet					


Water Encountered: No	Depth:	Type:	Notes:
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Remarks

*Unified soils classification system symbol



Sierra-Yoyo-Desan Road Gravel Investigation Area No. 2 Test Pit No. 31

Area Sierra-Yoyo-Desan Road	Excavator Type JD 230 LC		Location Notes ~100m east along east west seismic line at top edge of Metladoa Pit Reserve
Project KX04335	Contractor Kledo Construction		
GPS Location WP100			
Northing 6519956	Date 02 Mar 2003		
Easting 0589203	Weather -15C Overcast		
Elevation (m) 497	Logged by SJ	Test Pit Location Ribbon	

Soil Type				Estimated Gradation					Lab. Gradation			Soil Properties				Sampling Information				
Depth (m)		General Soil Type		Sums to 100%			Additional Oversize (%)	Max. (mm)	Sums to 100%			Density / Consistency	Plasticity	Colour	Moisture	#	Depth (m)		Type (Check one)	
From	To	Description	USC*	Fines	Sand	Gravel			Fines	Sand	Gravel						From	To		
																			Bucket	Bag
0	2.1	SILT AND CLAY, some sand	ML-CL	85	15							soft	low	brown	moist					
2.1	3.0	CLAY, silty, some sand	CI	75	15	10	10	200				firm	med	brown	wet					
3.0	3.4	CLAY AND SILT	CL-ML	85	5	10	10	200				firm	low	gray	wet					


Water Encountered: No	Depth:	Type:	Notes:
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Remarks

*Unified soils classification system symbol



Sierra-Yoyo-Desan Road Gravel Investigation Area No. 2 Test Pit No. 32

Area Sierra-Yoyo-Desan Road Project KX04335 GPS Location Northing <u>No Signal</u> Easting _____ Elevation (m) _____	Excavator Type <u>JD 230 LC</u> Contractor <u>Kledo Construction</u> Date <u>02 Mar 2003</u> Weather <u>-20C Overcast</u> Logged by <u>SJ</u>		Location Notes East along east/west seismic line intersected with north/south line Test Pit Location Ribbon
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Soil Type				Estimated Gradation					Lab. Gradation			Soil Properties				Sampling Information				
Depth (m)		General Soil Type		Sums to 100%			Additional Oversize (%)	Max. (mm)	Sums to 100%			Density / Consistency	Plasticity	Colour	Moisture	#	Depth (m)		Type (Check one)	
From	To	Description	USC*	Fines	Sand	Gravel			Fines	Sand	Gravel						From	To		
																			Bucket	Bag
0	0.1	TOPSOIL, organic	OL	100								frozen	non	black	damp					
0.1	2.2	SILT AND CLAY, some sand	CL-ML	85	15							soft-firm	low	brown	moist					
2.2	3.2	CLAY, silty, some sand	CI	75	15	10	10	200				firm	med	brown	moist					
3.2	3.6	CLAY AND SILT	CL-ML	85	5	10						firm	low	gray	moist					


Water Encountered: No	Depth:	Type:	Notes:
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Remarks

*Unified soils classification system symbol



Sierra-Yoyo-Desan Road Gravel Investigation Area No. 2 Test Pit No. 33

Area Sierra-Yoyo-Desan Road	Excavator Type JD 230 LC		Location Notes ~10m west of seismic line intersection
Project KX04335	Contractor Kledo Construction		
GPS Location WP0101			
Northing 6519837	Date 02 Mar 2003		
Easting 0589087	Weather -20C Overcast		
Elevation (m) 490	Logged by SJ	Test Pit Location Ribbon	

Soil Type				Estimated Gradation					Lab. Gradation			Soil Properties				Sampling Information				
Depth (m)		General Soil Type		Sums to 100%			Additional Oversize (%)	Max. (mm)	Sums to 100%			Density / Consistency	Plasticity	Colour	Moisture	#	Depth (m)		Type (Check one)	
From	To	Description	USC*	Fines	Sand	Gravel			Fines	Sand	Gravel						From	To		
																			Bucket	Bag
0	0.1	TOPSOIL, organic	OL	100								soft	non	black	damp					
0.1	0.3	SILT, clayey, some sand	ML	80	20							soft-firm	low	brown	moist					
0.3	3.1	CLAY, silty, some sand	CI	75	15	10	5	200				firm	med	brown	moist					
3.1	3.2	CLAY AND SILT	CL-ML	80	10	10						firm	low	gray	moist					


Water Encountered: No	Depth:	Type:	Notes:
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Remarks

*Unified soils classification system symbol



Sierra-Yoyo-Desan Road Gravel Investigation Area No. 2 Test Pit No. 34

Area Sierra-Yoyo-Desan Road				Excavator Type JD 230 LC				Location Notes ~130m from TP-33 west along seismic line			
Project KX04335				Contractor Kledo Construction							
GPS Location WP0102				Date 02 Mar 2003				Test Pit Location Ribbon			
Northing 6519735				Weather -20C Overcast							
Easting 0588968				Logged by SJ							
Elevation (m) 483											

Soil Type				Estimated Gradation					Lab. Gradation			Soil Properties				Sampling Information				
Depth (m)		General Soil Type		Sums to 100%			Additional Oversize (%)	Max. (mm)	Sums to 100%			Density / Consistency	Plasticity	Colour	Moisture	#	Depth (m)		Type (Check one)	
From	To	Description	USC*	Fines	Sand	Gravel			Fines	Sand	Gravel						From	To	Bucket	Bag
0	0.3	TOPSOIL, organic	OL	100								soft	non	black	moist					
0.3	2.9	CLAY, silty, some sand	CI	75	15	10						soft-firm	med	brown	moist					
2.9	3.4	CLAY AND SILT	CL	80	10	10	5	250				firm	low	gray	moist					


Water Encountered: Yes				Depth: 1.9m		Type: Water Seepage				Notes: slow			
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Remarks _____

*Unified soils classification system symbol



Sierra-Yoyo-Desan Road Gravel Investigation Area No. 2 Test Pit No. 35

Area Sierra-Yoyo-Desan Road	Excavator Type JD 230 LC		Location Notes ~185m from TP-34 west along seismic line
Project KX04335	Contractor Kledo Construction		
GPS Location WP0103			
Northing 6519588	Date 02 Mar 2003		
Easting 0588843	Weather -20C Overcast		
Elevation (m) 479	Logged by SJ	Test Pit Location Ribbon	

Soil Type				Estimated Gradation					Lab. Gradation			Soil Properties				Sampling Information				
Depth (m)		General Soil Type		Sums to 100%			Additional Oversize (%)	Max. (mm)	Sums to 100%			Density / Consistency	Plasticity	Colour	Moisture	#	Depth (m)		Type (Check one)	
From	To	Description	USC*	Fines	Sand	Gravel			Fines	Sand	Gravel						From	To		
																			Bucket	Bag
0	0.5	TOPSOIL, organic	OL	100								soft	non	black	moist					
0.5	2.9	CLAY, silty, some sand	CI	75	15	10						soft-firm	med	brown	moist					
2.9	3.1	CLAY AND SILT	CL-ML	80	10	10						firm	low	gray	moist					


Water Encountered: No	Depth:	Type:	Notes:
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Remarks

*Unified soils classification system symbol



Sierra-Yoyo-Desan Road Gravel Investigation Area No. 2 Test Pit No. 36

Area Sierra-Yoyo-Desan Road	Excavator Type JD 230 LC		Location Notes ~180m west of TP-35
Project KX04335	Contractor Kledo Construction		
GPS Location WP0104			
Northing 6519364	Date 02 Mar 2003		
Easting 0588640	Weather -20C Sunny		
Elevation (m) 473	Logged by SJ		Test Pit Location Ribbon

Soil Type				Estimated Gradation					Lab. Gradation			Soil Properties				Sampling Information				
Depth (m)		General Soil Type		Sums to 100%			Additional Oversize (%)	Max. (mm)	Sums to 100%			Density / Consistency	Plasticity	Colour	Moisture	#	Depth (m)		Type (Check one)	
From	To	Description	USC*	Fines	Sand	Gravel			Fines	Sand	Gravel						From	To		
																			Bucket	Bag
0	0.2	TOPSOIL, organic	OL	100								soft	non	black	moist					
0.2	0.5	CLAY, silty, some sand	CI	80	15	5						soft-firm	med	brown	moist					
0.5	1.7	SAND AND GRAVEL	SP-SM	12	39	49	10	150	10	48	42	compact	non	brown	moist	1	1.0	1.5		x
1.7	3.2	CLAY AND SILT	CL	80	10	10						firm	low	gray	moist					


Water Encountered: Yes	Depth: 1.7m	Type: Water Seepage	Notes: slow
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Remarks

*Unified soils classification system symbol



Sierra-Yoyo-Desan Road Gravel Investigation Area No. 2 Test Pit No. 37

Area Sierra-Yoyo-Desan Road				Excavator Type JD 230 LC				Location Notes ~150m west from TP-37 along seismic line			
Project KX04335				Contractor Kledo Construction							
GPS Location				Date 02 Mar 2003				Test Pit Location Ribbon			
Northing 6519241				Weather -20C Sunny							
Easting 0588531				Logged by SJ							
Elevation (m) 469											

Soil Type				Estimated Gradation				Lab. Gradation			Soil Properties				Sampling Information					
Depth (m)		General Soil Type		Sums to 100%			Additional Oversize (%)	Max. (mm)	Sums to 100%			Density / Consistency	Plasticity	Colour	Moisture	#	Depth (m)		Type (Check one)	
From	To	Description	USC*	Fines	Sand	Gravel			Fines	Sand	Gravel						From	To	Bucket	Bag
0	0.2	TOPSOIL, organic	OL	100								soft	non	black	moist					
0.2	1.0	SAND, gravelly, some clay	SM	15	55	30			16	69	15	compact	non	brown	moist- sat	1	0.5	1.5		x
1.0	2.6	SAND, some gravel, some clay	SM	15	68	17						compact	non	brown	sat					
2.6	2.7	CLAY	CL	90	5	5						firm	low	gray	wet					

Water Encountered: Yes				Depth: 1.6m		Type: Water Seepage				Notes: heavy			
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Remarks


Sloughing in

Thurber pit WP106 6519531, 0588829, 470m ~0.6m gravelly clay, followed by clay with gravelly layers, SR5-15

*Unified soils classification system symbol



Sierra-Yoyo-Desan Road Gravel Investigation Area No. 2 Test Pit No. 38

Area Sierra-Yoyo-Desan Road	Excavator Type JD 230 LC		Location Notes 100m west of TP-29
Project KX04335	Contractor Kledo Construction		
GPS Location WP107			
Northing 6519461	Date 02 Mar 2003		
Easting 0589051	Weather -20C Sunny		
Elevation (m) 470	Logged by SJ	Test Pit Location Ribbon	

Soil Type				Estimated Gradation					Lab. Gradation			Soil Properties				Sampling Information				
Depth (m)		General Soil Type		Sums to 100%			Additional Oversize (%)	Max. (mm)	Sums to 100%			Density / Consistency	Plasticity	Colour	Moisture	#	Depth (m)		Type (Check one)	
From	To	Description	USC*	Fines	Sand	Gravel			Fines	Sand	Gravel						From	To	Bucket	Bag
0	0.1	TOPSOIL, organic	OL	100								frozen	non	black	frozen					
0.1	1.8	GRAVEL, clayey (silty), sandy	GC	30	30	40						compact	med	brown	moist					
1.8	2.4	CLAY, silty, some sand	CI	70	20	10						firm	med	brown	moist					
2.4	3.0	CLAY AND SILT	CL-ML	85	10	5						firm	low	gray	moist					


Water Encountered: Yes	Depth: 1.5m	Type: Water Seepage	Notes:
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Remarks

*Unified soils classification system symbol



Sierra-Yoyo-Desan Road Gravel Investigation Area No. 2 Test Pit No. 39

Area Sierra-Yoyo-Desan Road	Excavator Type JD 230 LC		Location Notes ~120m south of TP-38
Project KX04335	Contractor Kledo Construction		
GPS Location WP108			
Northing 6519327	Date 02 Mar 2003		
Easting 0589039	Weather -20C Sunny		
Elevation (m) 467	Logged by SJ		Test Pit Location Ribbon

Soil Type				Estimated Gradation					Lab. Gradation			Soil Properties				Sampling Information				
Depth (m)		General Soil Type		Sums to 100%			Additional Oversize (%)	Max. (mm)	Sums to 100%			Density / Consistency	Plasticity	Colour	Moisture	#	Depth (m)		Type (Check one)	
From	To	Description	USC*	Fines	Sand	Gravel			Fines	Sand	Gravel						From	To	Bucket	Bag
0	0.3	TOPSOIL, organic	OL	100								frozen	non	black	damp					
0.3	1.0	GRAVEL, clayey, sandy	GC	30	30	40	5	150				firm	med	brown	moist					
1.0	2.4	CLAY, some sand, some gravel	CI	70	15	15						firm	med	brown	moist					
2.4	3.0	CLAY, silty, trace gravel	CL	80	10	10						firm	low	brown- gray	moist					


Water Encountered: No	Depth:	Type:	Notes:
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Remarks

*Unified soils classification system symbol



Sierra-Yoyo-Desan Road Gravel Investigation Area No. 2 Test Pit No. 40

Area Sierra-Yoyo-Desan Road	Excavator Type JD 230 LC		Location Notes ~125m west of TP-38
Project KX04335	Contractor Kledo Construction		
GPS Location WP109			
Northing 6519482	Date 02 Mar 2003		
Easting 0588904	Weather -20C Sunny		Test Pit Location Ribbon
Elevation (m) 465	Logged by SJ		

Soil Type				Estimated Gradation					Lab. Gradation			Soil Properties				Sampling Information				
Depth (m)		General Soil Type		Sums to 100%			Additional Oversize (%)	Max. (mm)	Sums to 100%			Density / Consistency	Plasticity	Colour	Moisture	#	Depth (m)		Type (Check one)	
From	To	Description	USC*	Fines	Sand	Gravel			Fines	Sand	Gravel						From	To		
																			Bucket	Bag
0	0.2	TOPSOIL, organic	OL	100								frozen	non	black	damp					
0.2	2.2	CLAY, silty, sandy	CI	70	30							firm	med	brown	moist					
2.2	2.6	CLAY AND SILT	CL-ML	80	10	10						firm	low	gray	moist					


Water Encountered: No	Depth:	Type:	Notes:
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Remarks

*Unified soils classification system symbol



Sierra-Yoyo-Desan Road Gravel Investigation Area No. 2 Test Pit No. 41

Area Sierra-Yoyo-Desan Road	Excavator Type JD 230 LC		Location Notes ~100m 40 degrees of TP-40
Project KX04335	Contractor Kledo Construction		
GPS Location WP110			
Northing 6519590	Date 02 Mar 2003		
Easting 0588963	Weather -20C Sunny		
Elevation (m) 461	Logged by SJ		Test Pit Location Ribbon

Soil Type				Estimated Gradation					Lab. Gradation			Soil Properties				Sampling Information				
Depth (m)		General Soil Type		Sums to 100%			Additional Oversize (%)	Max. (mm)	Sums to 100%			Density / Consistency	Plasticity	Colour	Moisture	#	Depth (m)		Type (Check one)	
From	To	Description	USC*	Fines	Sand	Gravel			Fines	Sand	Gravel						From	To		
																			Bucket	Bag
0	0.1	TOPSOIL, organic	OL	100								frozen	non	black	damp					
0.1	0.8	GRAVEL, some clay, sandy	GC	20	35	45						compact	non	brown	moist					
0.8	2.1	CLAY, silty, some sand	CI	70	20	10						firm	med	brown	moist					
2.1	2.7	CLAY AND SILT	CL-ML	80	10	10						firm	low	gray	moist					


Water Encountered: No	Depth:	Type:	Notes:
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Remarks

*Unified soils classification system symbol



Sierra-Yoyo-Desan Road Gravel Investigation Area No. 2 Test Pit No. 42

Area Sierra-Yoyo-Desan Road				Excavator Type JD 230 LC				Location Notes TP-13 ~260 degrees, 100m			
Project KX04335				Contractor Kledo Construction							
GPS Location WP111				Date 03 Mar 2003				Test Pit Location Ribbon			
Northing 6518468				Weather -20C Overcast, Snow							
Easting 0589146				Logged by SJ							
Elevation (m) 464											

Soil Type				Estimated Gradation				Lab. Gradation			Soil Properties				Sampling Information					
Depth (m)		General Soil Type		Sums to 100%			Additional Oversize (%)	Max. (mm)	Sums to 100%			Density / Consistency	Plasticity	Colour	Moisture	#	Depth (m)		Type (Check one)	
From	To	Description	USC*	Fines	Sand	Gravel			Fines	Sand	Gravel						From	To	Bucket	Bag
0	0.7	TOPSOIL, organic, peat	PT	100								frozen, soft	non	black	moist					
0.7	2.9	SAND, some gravel, clayey	SC	30	50	20						compact	med	brown	wet-sat					

Water Encountered: Yes				Depth: 1.0m		Type: Water Seepage				Notes: slow			
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Remarks _____

Sloughing in _____

*Unified soils classification system symbol



Sierra-Yoyo-Desan Road Gravel Investigation Area No. 2 Test Pit No. 43

Area Sierra-Yoyo-Desan Road Project KX04335 GPS Location WP0112 Northing 6518384 Easting 0589001 Elevation (m) 465				Excavator Type JD 230 LC Contractor Kledo Construction Date 03 Mar 2003 Weather -20C Overcast, Snow Logged by SJ								Location Notes ~240 degrees, 150m			
												Test Pit Location Ribbon			

Soil Type				Estimated Gradation					Lab. Gradation			Soil Properties				Sampling Information				
Depth (m)		General Soil Type		Sums to 100%			Additional Oversize (%)	Max. (mm)	Sums to 100%			Density / Consistency	Plasticity	Colour	Moisture	#	Depth (m)		Type (Check one)	
From	To	Description	USC*	Fines	Sand	Gravel			Fines	Sand	Gravel						From	To	Bucket	Bag
0	0.1	TOPSOIL, organic	OL	100								soft	non	black	damp					
0.1	0.9	SILT, some sand	ML	85	15							firm	low	brown	damp					
0.9	3.0	SAND, some silt	SM	20	80							compact	non	brown	damp- sat					
3.0	3.5	CLAY AND SILT	CL	80	10	10						firm	low	gray	wet					

Water Encountered: Yes	Depth: 2.8m	Type: Water Seepage	Notes: slow
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Remarks _____

Sloughing in _____

*Unified soils classification system symbol



Sierra-Yoyo-Desan Road Gravel Investigation Area No. 2 Test Pit No. 44


Area Sierra-Yoyo-Desan Road Project KX04335 GPS Location WP113 Northing 6519207 Easting 0589559 Elevation (m) 466				Excavator Type JD 230 LC Contractor Kledo Construction Date 03 Mar 2003 Weather -20C Light Snow Logged by SJ								Location Notes Perpendicular to tree line southeast access road Test Pit Location Ribbon								
Soil Type Depth (m) General Soil Type				Estimated Gradation Sums to 100% Additional Oversize (%) Max. (mm)				Lab. Gradation Sums to 100%				Soil Properties Density / Consistency Plasticity Colour Moisture				Sampling Information # Depth (m) Type (Check one) From To Bucket Bag				
From	To	Description	USC*	Fines	Sand	Gravel	Additional Oversize (%)	Max. (mm)	Fines	Sand	Gravel	Density / Consistency	Plasticity	Colour	Moisture	#	From	To	Bucket	Bag
0	0.1	TOPSOIL, organic, roots, grass	OL	100								soft	non	black	damp					
0.1	0.5	GRAVEL, silty	GM	17	28	55	15	200				compact	non	brown	damp					
0.5	1.8	GRAVEL AND SAND	GP-GM	12	30	58	15	200	11	40	49	compact	non	brown	damp	1	1.0	1.8	x	
1.8	2.5	CLAY AND SILT	CI-MI	80	10	10						firm	low-med	brown	moist					
2.5	3.5	CLAY AND SILT	CL-ML	80	10	10						firm	low-med	gray	moist					
Water Encountered: No				Depth:				Type:				Notes:								

Remarks

*Unified soils classification system symbol



Sierra-Yoyo-Desan Road Gravel Investigation Area No. 2 Test Pit No. 45

Area Sierra-Yoyo-Desan Road				Excavator Type JD 230 LC				Location Notes Northeast of Jim Little Pit by access road			
Project KX04335				Contractor Kledo Construction							
GPS Location WP114				Date 03 Mar 2003				Test Pit Location No Marker			
Northing 6519257				Weather -15C Light Snow							
Easting 0589460				Logged by SJ							
Elevation (m) 463											

Soil Type				Estimated Gradation					Lab. Gradation			Soil Properties				Sampling Information				
Depth (m)		General Soil Type		Sums to 100%			Additional Oversize (%)	Max. (mm)	Sums to 100%			Density / Consistency	Plasticity	Colour	Moisture	#	Depth (m)		Type (Check one)	
From	To	Description	USC*	Fines	Sand	Gravel			Fines	Sand	Gravel						From	To	Bucket	Bag
0	0.6	GRAVEL, roots	GM	12	38	50						compact	non	brown	damp					
0.6	1.3	TOPSOIL	OL	100								soft	non	black	moist					
1.3	2.1	SAND AND GRAVEL, some silt	GM	15	38	47	10	150				compact	non	brown	moist					
2.1	3.1	SILT AND CLAY, trace gravel	CI-MI	80	10	10						firm	med	brown	moist					
3.1	4.4	SILT AND CLAY	CL-ML	80	10	10						firm	low	gray	moist					


Water Encountered: No				Depth:		Type:				Notes:			
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Remarks _____

*Unified soils classification system symbol



Sierra-Yoyo-Desan Road Gravel Investigation Area No. 2 Test Pit No. 46

Area Sierra-Yoyo-Desan Road Project KX04335 GPS Location WP115 Northing 6519379 Easting 0589457 Elevation (m) 468				Excavator Type JD 230 LC Contractor Kledo Construction Date 03 Mar 2003 Weather -20C Light Snow Logged by SJ								Location Notes Tree line north east portion of Jim Little Pit			
												Test Pit Location Ribbon			

Soil Type				Estimated Gradation				Lab. Gradation			Soil Properties				Sampling Information					
Depth (m)		General Soil Type		Sums to 100%			Additional Oversize (%)	Max. (mm)	Sums to 100%			Density / Consistency	Plasticity	Colour	Moisture	#	Depth (m)		Type (Check one)	
From	To	Description	USC*	Fines	Sand	Gravel			Fines	Sand	Gravel						From	To	Bucket	Bag
0	3.7	CLAY, silty, trace gravel	CI	75	15	10						firm	med	brown	moist					
3.7	4.4	CLAY AND SILT	CL-ML	80	10	10						firm	low	gray	moist					


Water Encountered: No				Depth:		Type:				Notes:			
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Remarks _____

*Unified soils classification system symbol



Sierra-Yoyo-Desan Road Gravel Investigation Area No. 2 Test Pit No. 47

Area Sierra-Yoyo-Desan Road				Excavator Type JD 230 LC				Location Notes Northeast corner Jim Little Pit by pipeline crossing			
Project KX04335				Contractor Kledo Construction							
GPS Location WP116				Date 03 Mar 2003				Test Pit Location No Marker			
Northing 6519353				Weather -20C Overcast							
Easting 0589420				Logged by SJ							
Elevation (m) 466											

Soil Type				Estimated Gradation					Lab. Gradation			Soil Properties				Sampling Information				
Depth (m)		General Soil Type		Sums to 100%			Additional Oversize (%)	Max. (mm)	Sums to 100%			Density / Consistency	Plasticity	Colour	Moisture	#	Depth (m)		Type (Check one)	
From	To	Description	USC*	Fines	Sand	Gravel			Fines	Sand	Gravel						From	To	Bucket	Bag
0	0.8	GRAVEL, some silt, sandy	GM	15	35	50	5	150				compact	non	brown	damp					
0.8	1.1	SILT, organics (TOPSOIL)	ML	85	15							firm	low	brown	damp					
1.1	3.8*	SAND, some silt, trace gravel	SP-SM	12	68	20						compact	non	brown	moist- sat					
3.8*	4.0	CLAY AND SILT, trace gravel	CL-ML	80	10	10						firm	low	gray	wet					

Water Encountered: Yes				Depth: 3.3m		Type: Water Seepage				Notes: moderate			
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Remarks _____

*Estimate _____

*Unified soils classification system symbol



Sierra-Yoyo-Desan Road Gravel Investigation Area No. 2 Test Pit No. 48

Area Sierra-Yoyo-Desan Road				Excavator Type JD 230 LC				Location Notes ~150m northeast along access road into trees on north side Thurber (2001) test pit			
Project KX04335				Contractor Kledo Construction							
GPS Location WP117				Date 03 Mar 2003				Test Pit Location Ribbon			
Northing 6519368				Weather -20C Light Snow							
Easting 0589623				Logged by SJ							
Elevation (m) 472											

Soil Type				Estimated Gradation				Lab. Gradation				Soil Properties				Sampling Information				
Depth (m)		General Soil Type		Sums to 100%			Additional Oversize (%)	Max. (mm)	Sums to 100%			Density / Consistency	Plasticity	Colour	Moisture	#	Depth (m)		Type (Check one)	
From	To	Description	USC*	Fines	Sand	Gravel			Fines	Sand	Gravel						From	To	Bucket	Bag
0	1.2	SAND, some gravel	SM	15	35	50			18	60	22	compact	non	brown	damp	1	0.5	1.2		x
1.2	1.9	SAND, some gravel	SP-SM	12	58	30						compact	non	brown	moist					
1.9	3.4	SILT AND CLAY	ML-CL	80	10	10						firm	low	brown	moist					
3.4	3.7	SILT AND CLAY	ML-CL	80	10	10						firm	low	gray	moist					


Water Encountered: No				Depth:		Type:				Notes:			
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Remarks

*Unified soils classification system symbol



Sierra-Yoyo-Desan Road Gravel Investigation Area No. 2 Test Pit No. 49

Area Sierra-Yoyo-Desan Road	Excavator Type JD 230 LC		Location Notes ~150m TP-48 northeast along access road
Project KX04335	Contractor Kledo Construction		
GPS Location WP118			
Northing 6519505	Date 03 Mar 2003		
Easting 0589647	Weather -20C Light Snow		
Elevation (m) 474	Logged by SJ		Test Pit Location Ribbon

Soil Type				Estimated Gradation					Lab. Gradation			Soil Properties				Sampling Information				
Depth (m)		General Soil Type		Sums to 100%			Additional Oversize (%)	Max. (mm)	Sums to 100%			Density / Consistency	Plasticity	Colour	Moisture	#	Depth (m)		Type (Check one)	
From	To	Description	USC*	Fines	Sand	Gravel			Fines	Sand	Gravel						From	To		
																			Bucket	Bag
0	2.3	SILT, clayey, some sand, trace gravel	ML	80	15	5						firm	low	brown	moist					
2.3	3.0	CLAY, silty	CI	85	10	5						firm-stiff	med	brown	moist					

Water Encountered: No	Depth:	Type:	Notes:
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Remarks

*Unified soils classification system symbol



Sierra-Yoyo-Desan Road Gravel Investigation Area No. 2 Test Pit No. 50

Area Sierra-Yoyo-Desan Road Project KX04335 GPS Location WP119 Northing 6519419 Easting 0589653 Elevation (m) 472				Excavator Type JD 230 LC Contractor Kledo Construction Date 03 Mar 2003 Weather -20C Light Snow Logged by SJ								Location Notes Southwest along access road toward TP-48			
												Test Pit Location No Marker			

Soil Type				Estimated Gradation				Lab. Gradation				Soil Properties				Sampling Information				
Depth (m)		General Soil Type		Sums to 100%			Additional Oversize (%)	Max. (mm)	Sums to 100%			Density / Consistency	Plasticity	Colour	Moisture	#	Depth (m)		Type (Check one)	
From	To	Description	USC*	Fines	Sand	Gravel			Fines	Sand	Gravel						From	To	Bucket	Bag
0	3.0	SILT, clayey, some sand, trace gravel	ML	80	15	5							firm-hard	low	brown	moist				


Water Encountered: No				Depth:		Type:				Notes:			
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Remarks

*Unified soils classification system symbol



Sierra-Yoyo-Desan Road Gravel Investigation Area No. 2 Test Pit No. 51

Area Sierra-Yoyo-Desan Road				Excavator Type JD 230 LC				Location Notes 200m of TP-49 north running seismic line Thurber (2001) test pit					
Project KX04335				Contractor Kledo Construction									
GPS Location WP120				Date 03 Mar 2003				Test Pit Location No Marker					
Northing 6519636				Weather -20C Light Snow									
Easting 0589890				Logged by SJ									
Elevation (m) 476													

Soil Type				Estimated Gradation					Lab. Gradation			Soil Properties				Sampling Information				
Depth (m)		General Soil Type		Sums to 100%			Additional Oversize (%)	Max. (mm)	Sums to 100%			Density / Consistency	Plasticity	Colour	Moisture	#	Depth (m)		Type (Check one)	
From	To	Description	USC*	Fines	Sand	Gravel			Fines	Sand	Gravel						From	To	Bucket	Bag
0	3.1	CLAY AND SILT, trace gravel	CI-MI	80	10	10	10	300				firm-hard	low- med	brown	moist					

Water Encountered: No				Depth:		Type:				Notes:			
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Remarks

*Unified soils classification system symbol



Sierra-Yoyo-Desan Road Gravel Investigation Area No. 2 Test Pit No. 52

Area Sierra-Yoyo-Desan Road	Excavator Type JD 230 LC		Location Notes Northwest seismic line turns into access road
Project KX04335	Contractor Kledo Construction		
GPS Location WP121			
Northing 6519640	Date 03 Mar 2003		
Easting 0590080	Weather -20C Overcast		
Elevation (m) 487	Logged by SJ	Test Pit Location Ribbon	

Soil Type				Estimated Gradation					Lab. Gradation			Soil Properties				Sampling Information				
Depth (m)		General Soil Type		Sums to 100%			Additional Oversize (%)	Max. (mm)	Sums to 100%			Density / Consistency	Plasticity	Colour	Moisture	#	Depth (m)		Type (Check one)	
From	To	Description	USC*	Fines	Sand	Gravel			Fines	Sand	Gravel						From	To		
																			Bucket	Bag
0	0.6	SILT, some clay, some sand	ML	85	15							firm	low	brown	damp					
0.6	3.4	CLAY, silty, trace gravel	CI	60	20	20	10	300				firm-hard	low- med	brown	moist					


Water Encountered: No	Depth:	Type:	Notes:
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Remarks

*Unified soils classification system symbol



Sierra-Yoyo-Desan Road Gravel Investigation Area No. 2 Test Pit No. 53

Area Sierra-Yoyo-Desan Road				Excavator Type JD 230 LC				Location Notes South along northwest/southeast seismic line					
Project KX04335				Contractor Kledo Construction									
GPS Location WP122				Date 03 Mar 2003				Test Pit Location Ribbon					
Northing 6519678				Weather -20C Overcast									
Easting 0590259				Logged by SJ									
Elevation (m) 487													

Soil Type				Estimated Gradation					Lab. Gradation			Soil Properties				Sampling Information				
Depth (m)		General Soil Type		Sums to 100%			Additional Oversize (%)	Max. (mm)	Sums to 100%			Density / Consistency	Plasticity	Colour	Moisture	#	Depth (m)		Type (Check one)	
From	To	Description	USC*	Fines	Sand	Gravel			Fines	Sand	Gravel						From	To	Bucket	Bag
0	0.1	TOPSOIL, organic, roots	OL	100								soft	non	black	damp					
0.1	0.8	SILT, sandy, some clay	ML	70	30							firm	low	brown	moist					
0.8	3.3	CLAY AND SILT, some sand, trace to some gravel	CI-MI	60	20	20	10	200				firm-hard	low- med	brown	moist					


Water Encountered: No				Depth:		Type:				Notes:			
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Remarks

*Unified soils classification system symbol



Sierra-Yoyo-Desan Road Gravel Investigation Area No. 2 Test Pit No. 54

Area Sierra-Yoyo-Desan Road				Excavator Type JD 230 LC				Location Notes End of northwest/southeast seismic line at creek			
Project KX04335				Contractor Kledo Construction							
GPS Location WP123				Date 03 Mar 2003				Test Pit Location Ribbon			
Northing 6519614				Weather -20C Overcast							
Easting 0590337				Logged by SJ							
Elevation (m) 483											

Soil Type				Estimated Gradation					Lab. Gradation			Soil Properties				Sampling Information				
Depth (m)		General Soil Type		Sums to 100%			Additional Oversize (%)	Max. (mm)	Sums to 100%			Density / Consistency	Plasticity	Colour	Moisture	#	Depth (m)		Type (Check one)	
From	To	Description	USC*	Fines	Sand	Gravel			Fines	Sand	Gravel						From	To	Bucket	Bag
0	3.5	SILT AND CLAY, gravelly, some sand	CI-MI	50	20	30	200	10				firm-hard	low-med	brown	moist					

Water Encountered: No				Depth:		Type:				Notes:			
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Remarks

*Unified soils classification system symbol

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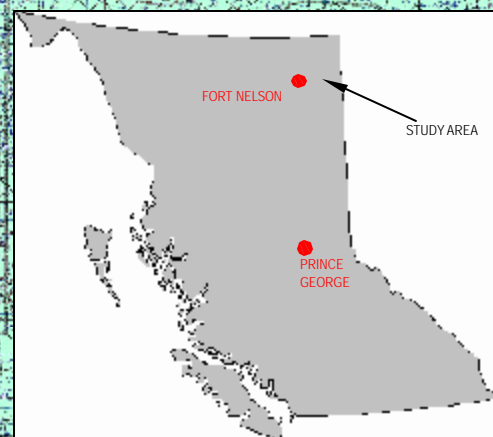
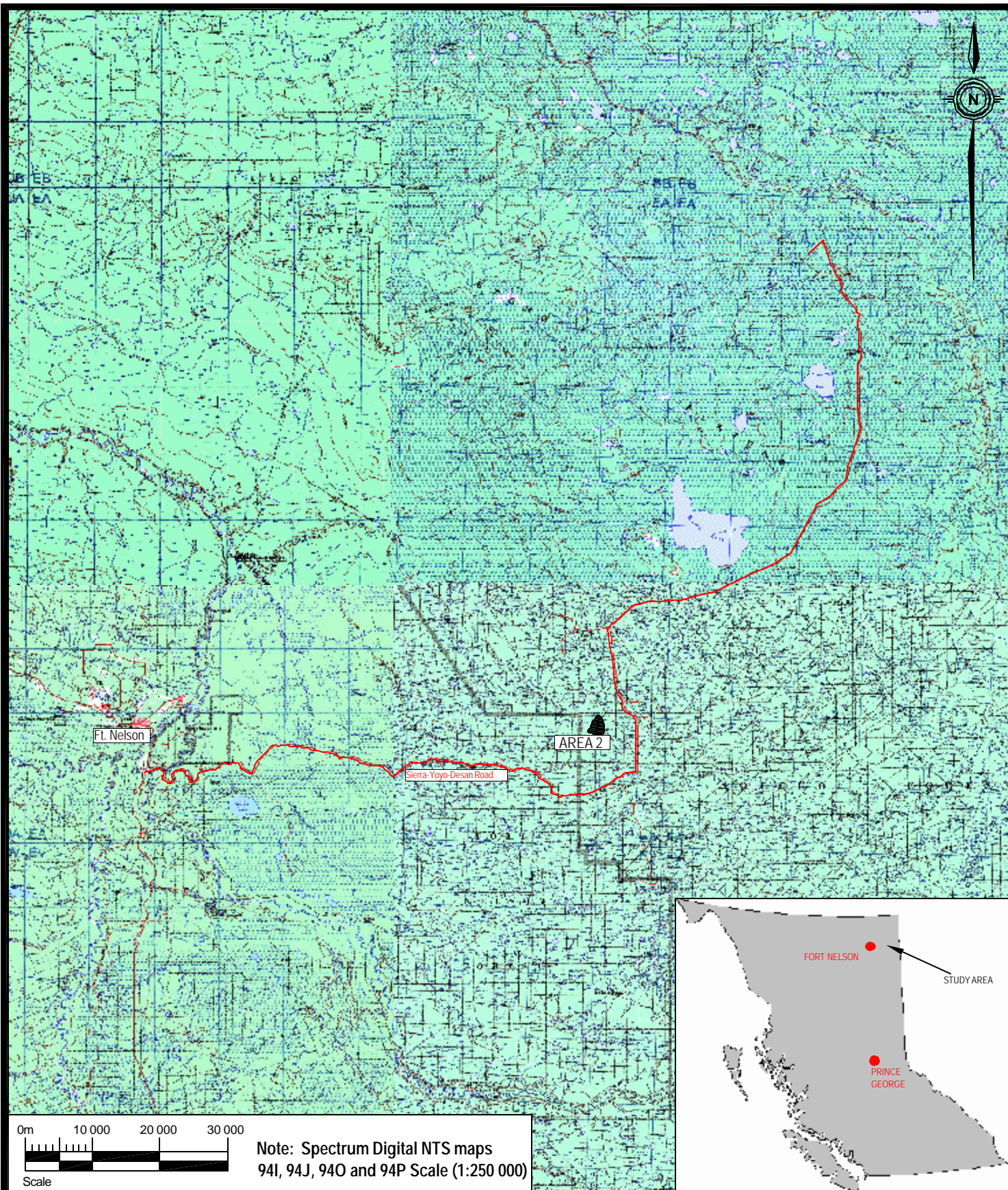
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CLIENT:
NEW VENTURES BRANCH
MINISTRY OF ENERGY AND MINES

TITLE:

GENERAL STUDY AREA LOCATON

PROJECT:

SUMMARY REPORT
SIERRA-YOYO-DESAN ROAD AREA GRAVEL INVESTIGATION
NORTHEASTERN BC
AREA 2-METLADOA CREEK

DATE:

JUNE 2003

JOB #:

KX04335

DRAWN BY:

SANDE

PROJECT MGR:

DDE

CAD FILE:

DRAFTING \4335\SR\FIGUREC1.DWG

FIGURE #:

FIGURE C1