

Project: Mount Nansen 2013 Site Investigation	Area: Tailings Facility - Sand Borrow Area	Test Pit No: TP-BA-13-03
Client: Government of Yukon - AAM	Northing (UTM Zone 8, NAD83): 6880691	Project No: VM00605E
Contractor & Method: Boreal Engineering, Test Pit	Easting (UTM Zone 8, NAD83): 389695	Elevation (m): 1086

SAMPLE TYPE Shelby Tube Core SPT (N) Grab Sample

BACKFILL TYPE Bentonite Chips Bentonite Grout Bentonite Pellets Cement Grout Drill Cuttings Sand Slough

DEPTH (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	OTHER TESTS, COMMENTS	ELEVATION (m)
0		SAND Fine to medium grained, trace silt, trace angular gravel to 75 mm diameter with surface weathering, loose to compact, some 1 mm dark grey to black layers of fine grained sand laminations spaced 1 to 10 mm apart, light grey to brown, damp. (In Situ)		GS1	... Coordinates taken with a handheld GPS. Elevation from 2012 LiDAR survey. ... Test pit completed with a tracked Caterpillar 324D excavator. Bucket is 1 m wide, 1 yd ³ capacity, 5 teeth. ... Gravel rock appears to be a meta-sedimentary rock with orange oxidized surface staining.	1086
0.7 to 1.2		... From 0.7 to 1.2 m: Increasing frequency of gravel to 10%.		ARD-01 GS2		
2.1 to 3.1		... From 2.1 to 3.1 m: Lower frequency of dark coloured laminations.		ARD-02 GS4-BULK		
3.1 to 3.7		... From 3.1 to 3.7 m: Increasing frequency of gravel to 15%.		GS5 GS6		
4.4		SAND Fine to medium grained, trace silt, trace gravel, dense, trace to some 1 mm dark grey to black layers of fine grained sand laminations spaced 1 to 10 mm apart, grey, frozen, Nbn, no visible ice crystals, moist when thawed. (Permafrost)		ARD-03 GS7 GS8	... Soil temperature: -1°C. Value considered very approximate. Taken with a probe thermometer 10 cm into the sample surface, retrieved in the excavator bucket. ... Below 4.4 m: Hard digging.	1081

VM00605 MT NANSEN GEOTECH.GPJ 14-02-27 02:34 PM (TEST PIT LOG)



Start Date: 2013-09-05 8:45:00 AM	Logged By: S. Magnusson
Completion Date: 2013-09-05 11:00:00 AM	Reviewed By: R. Wood
Completion Depth: 5.20 m	Page 1 of 2

Project: Mount Nansen 2013 Site Investigation	Area: Tailings Facility - Sand Borrow Area	Test Pit No: TP-BA-13-03
Client: Government of Yukon - AAM	Northing (UTM Zone 8, NAD83): 6880691	Project No: VM00605E
Contractor & Method: Boreal Engineering, Test Pit	Easting (UTM Zone 8, NAD83): 389695	Elevation (m): 1086

SAMPLE TYPE Shelby Tube Core SPT (N) Grab Sample

BACKFILL TYPE Bentonite Chips Bentonite Grout Bentonite Pellets Cement Grout Drill Cuttings Sand Slough

DEPTH (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	OTHER TESTS, COMMENTS	ELEVATION (m)
6		END OF TEST PIT at 5.2 m Test pit refusal. Test pit sloughed. No free water observed. Test pit backfilled with excavated material.		ARD-04 GS9		1080
7						1079
8						1078
9						1077
						1076

VM00605 MT NANSEN GEOTECH.GPJ 14-02-27 02:34 PM (TEST PIT LOG)



Start Date: 2013-09-05 8:45:00 AM	Logged By: S. Magnusson
Completion Date: 2013-09-05 11:00:00 AM	Reviewed By: R. Wood
Completion Depth: 5.20 m	Page 2 of 2

Project: Mount Nansen 2013 Site Investigation	Area: Tailings Facility - Sand Borrow Area	Test Pit No: TP-BA-13-04
Client: Government of Yukon - AAM	Northing (UTM Zone 8, NAD83): 6880643	Project No: VM00605E
Contractor & Method: Boreal Engineering, Test Pit	Easting (UTM Zone 8, NAD83): 389616	Elevation (m): 1087

SAMPLE TYPE Shelby Tube Core SPT (N) Grab Sample

BACKFILL TYPE Bentonite Chips Bentonite Grout Bentonite Pellets Cement Grout Drill Cuttings Sand Slough

DEPTH (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	OTHER TESTS, COMMENTS	ELEVATION (m)
0		SAND AND GRAVEL Angular rock fragments to about 150 mm diameter, loose to compact, grey to brown, dry to damp. (Rockfill)			... Coordinates taken with a handheld GPS. Elevation from 2012 LiDAR survey. ... Test pit completed with a tracked Caterpillar 324D excavator. Bucket is 1 m wide, 1 yd³ capacity, 5 teeth.	1086
0		SAND Fine to medium grained, trace silt, trace angular gravel to 75 mm diameter with surface weathering, loose to compact, some 1 mm dark grey to black layers of fine grained sand laminations spaced 1 to 10 mm apart, light grey to brown, damp. (In Situ)				1085
1				ARD-01 GS1		1085
2				ARD-02 GS2		1084
3		... From 3.3 to 3.8 m: Increased frequency of gravel to 10%.		ARD-03 GS3		1083
4		... From 3.8 to 5.3 m: Moist.		GS4-BULK	... Soil temperature: 2°C. Value considered very approximate. Taken with a probe thermometer 10 cm into the sample surface, retrieved in the excavator bucket. ... Water level estimated based on moist soil samples retrieved from the excavator bucket.	1083
4				ARD-04 GS5		1082

VM00605 MT NANSEN GEOTECH.GPJ 14-02-27 02:34 PM (TEST PIT LOG)



Start Date: 2013-09-05 2:50:00 PM	Logged By: S. Magnusson
Completion Date: 2013-09-05 4:30:00 PM	Reviewed By: R. Wood
Completion Depth: 5.50 m	Page 1 of 2

Project: Mount Nansen 2013 Site Investigation	Area: Tailings Facility - Sand Borrow Area	Test Pit No: TP-BA-13-04
Client: Government of Yukon - AAM	Northing (UTM Zone 8, NAD83): 6880643	Project No: VM00605E
Contractor & Method: Boreal Engineering, Test Pit	Easting (UTM Zone 8, NAD83): 389616	Elevation (m): 1087

SAMPLE TYPE Shelby Tube Core SPT (N) Grab Sample

BACKFILL TYPE Bentonite Chips Bentonite Grout Bentonite Pellets Cement Grout Drill Cuttings Sand Slough

DEPTH (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	OTHER TESTS, COMMENTS	ELEVATION (m)
6		<p>SAND Fine to medium grained, trace silt, trace gravel, dense, grey to brown, frozen, Nbn, no visible ice crystals, moist when thawed. (Permafrost)</p> <p>END OF TEST PIT at 5.5 m Test pit has sloughed to a circular shape, 9 m diameter. Free water is slowly ponding on the bottom of the test pit. Test pit backfilled with excavated material.</p>		GS6	<p>... Soil temperature: 1°C. Value considered very approximate. Taken with a probe thermometer 10 cm into the sample surface, retrieved in the excavator bucket. ... From 5.3 to 5.5 m: Hard digging, excavator bucket teeth marks visible in soil.</p>	1081
7						1080
8						1079
9						1078
						1077

VM00605 MT NANSEN GEOTECH.GPJ 14-02-27 02:34 PM (TEST PIT LOG)



Start Date: 2013-09-05 2:50:00 PM	Logged By: S. Magnusson
Completion Date: 2013-09-05 4:30:00 PM	Reviewed By: R. Wood
Completion Depth: 5.50 m	Page 2 of 2

Project: Mount Nansen 2013 Site Investigation	Area: Tailings Facility - Sand Borrow Area	Test Pit No: TP-BA-13-05
Client: Government of Yukon - AAM	Northing (UTM Zone 8, NAD83): 6880702	Project No: VM00605E
Contractor & Method: Boreal Engineering, Test Pit	Easting (UTM Zone 8, NAD83): 389798	Elevation (m): 1079

SAMPLE TYPE Shelby Tube Core SPT (N) Grab Sample

BACKFILL TYPE Bentonite Chips Bentonite Grout Bentonite Pellets Cement Grout Drill Cuttings Sand Slough

DEPTH (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	OTHER TESTS, COMMENTS	ELEVATION (m)
0		SAND Fine to medium grained, trace silt, trace angular gravel to 75 mm diameter with surface weathering, loose to compact, some 1 mm dark grey to black layers of fine grained sand laminations spaced 1 to 10 mm apart, light grey to brown, damp, no odor. (In Situ)		ARD-01 GS1	... Coordinates taken with a handheld GPS. Elevation from 2012 LiDAR survey. ... Test pit completed with a tracked Caterpillar 324D excavator. Bucket is 1 m wide, 1 yd³ capacity, 5 teeth.	1079
1				ARD-02 GS2		1078
2				ARD-03		1077
3		... From 3.0 to 3.8 m: Moist, decreased amount of gravel.		GS3-BULK	... Water level estimated based on water seeping into the test pit at 3.0 m depth.	1076
4		... From 3.8 to 5.3 m: wet to saturated.		GS4		1075

VM00605 MT NANSEN GEOTECH.GPJ 14-02-27 02:34 PM (TEST PIT LOG)



Start Date: 2013-09-05 11:20:00 AM	Logged By: S. Magnusson
Completion Date: 2013-09-05 2:10:00 PM	Reviewed By: R. Wood
Completion Depth: 5.30 m	Page 1 of 2

Project: Mount Nansen 2013 Site Investigation	Area: Tailings Facility - Sand Borrow Area	Test Pit No: TP-BA-13-05
Client: Government of Yukon - AAM	Northing (UTM Zone 8, NAD83): 6880702	Project No: VM00605E
Contractor & Method: Boreal Engineering, Test Pit	Easting (UTM Zone 8, NAD83): 389798	Elevation (m): 1079

SAMPLE TYPE Shelby Tube Core SPT (N) Grab Sample

BACKFILL TYPE Bentonite Chips Bentonite Grout Bentonite Pellets Cement Grout Drill Cuttings Sand Slough

DEPTH (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	OTHER TESTS, COMMENTS	ELEVATION (m)
6		END OF TESTPIT at 5.3 m Hole sloughed in to circular shape at 10 m diameter. Free water slowly seeping in at 3.0 m depth. Test pit backfilled with excavated material.		ARD-04 GS5	... Hard digging at 5.3 m.	1074
7						1073
8						1072
9						1071
						1070

VM00605 MT NANSEN GEOTECH.GPJ 14-02-27 02:34 PM (TESTPIT LOG)



Start Date: 2013-09-05 11:20:00 AM	Logged By: S. Magnusson
Completion Date: 2013-09-05 2:10:00 PM	Reviewed By: R. Wood
Completion Depth: 5.30 m	Page 2 of 2

Project: Mount Nansen 2013 Site Investigation	Area: "Shale" Borrow Area	Test Pit No: TP-BA-13-06
Client: Government of Yukon - AAM	Northing (UTM Zone 8, NAD83): 6881040	Project No: VM00605E
Contractor & Method: Boreal Engineering, Test Pit	Easting (UTM Zone 8, NAD83): 389694	Elevation (m): 1142

SAMPLE TYPE Shelby Tube Core SPT (N) Grab Sample

BACKFILL TYPE Bentonite Chips Bentonite Grout Bentonite Pellets Cement Grout Drill Cuttings Sand Slough

DEPTH (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	OTHER TESTS, COMMENTS	ELEVATION (m)
1		BEDROCK Fractured, variably oxidized from surficial staining to crumbling in your hand, meta-sedimentary rock, grey to brown to orange, dry to damp. (In Situ)			... Coordinates taken with a handheld GPS. Elevation from 2012 LiDAR survey. ... Test pit completed with a tracked Caterpillar 324D excavator. Bucket is 1 m wide, 1 yd³ capacity, 5 teeth. ... Test pit longitudinal axis orientated parallel to the primary strike orientation of the bedrock. Rock is dipping approximately 70° to the northwest. The purpose of this test pit it to assess the rippability of the bedrock.	1141
2		END OF TEST PIT at 1.3 m Hit refusal in test pit. No sloughing. No free water encountered. Test pit backfilled with excavated material.		ARD-01 GS1-BULK		1140
3						1139
4						1138
						1137

VM00605 MT NANSEN GEOTECH.GPJ 14-02-27 02:34 PM (TEST PIT LOG)



Start Date: 2013-09-08 11:15:00 AM	Logged By: S. Magnusson
Completion Date: 2013-09-08 11:50:00 AM	Reviewed By: R. Wood
Completion Depth: 1.30 m	Page 1 of 1

Project: Mount Nansen 2013 Site Investigation	Area: "Shale" Borrow Area	Test Pit No: TP-BA-13-07
Client: Government of Yukon - AAM	Northing (UTM Zone 8, NAD83): 6881045	Project No: VM00605E
Contractor & Method: Boreal Engineering, Test Pit	Easting (UTM Zone 8, NAD83): 389739	Elevation (m): 1140

SAMPLE TYPE Shelby Tube Core SPT (N) Grab Sample

BACKFILL TYPE Bentonite Chips Bentonite Grout Bentonite Pellets Cement Grout Drill Cuttings Sand Slough

DEPTH (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	OTHER TESTS, COMMENTS	ELEVATION (m)
0		SAND AND GRAVEL AND COBBLES Scree rock overlying bedrock, angular particles to 200 mm diameter, variably oxidized, brown, dry to damp. The south side of the test pit is bright orange and highly weathered, while the north side of the test pit is competent and slightly weathered. (In Situ)			<p>... Coordinates taken with a handheld GPS. Elevation from 2012 LiDAR survey.</p> <p>... Test pit completed with a tracked Caterpillar 324D excavator. Bucket is 1 m wide, 1 yd³ capacity, 5 teeth.</p> <p>... Test pit longitudinal axis orientated about 45° to the general strike of the beds, dipping about 70° to the northwest.</p> <p>Re-orientated the excavator to dig perpendicular to the strike of the bedrock, but reached the same refusal depth.</p>	1140
0.5		BEDROCK Weathered bedrock, variably weathered from bright orange colour where it crumbles in your hand to a hard, grey, friable meta-sedimentary rock, dry. (In Situ)		ARD-01		
1.2		END OF TEST PIT at 1.2 m Test pit hit refusal. No free water observed. Test pit backfilled with excavated material.		ARD-02	<p>... After TP-BA-13-07 completed, moved the excavator to the base of the bedrock outcrop and ripped at the vertical face. By exploiting the fractures in the rock, the excavator was able to rip the bedrock into pieces up to 300 mm. An area about 8 m wide x 2 m high, the excavator was able to cut about 3 m into the rock in 10 minutes.</p>	1139
2						1138
3						1137
4						1136

VM00605 MT NANSEN GEOTECH.GPJ 14-02-27 02:34 PM (TEST PIT LOG)




Start Date: 2013-09-08 9:50:00 AM	Logged By: S. Magnusson
Completion Date: 2013-09-08 11:00:00 AM	Reviewed By: R. Wood
Completion Depth: 1.20 m	Page 1 of 1

Project: Mount Nansen 2013 Site Investigation	Area: "Shale" Borrow Area	Test Pit No: TP-BA-13-08
Client: Government of Yukon - AAM	Northing (UTM Zone 8, NAD83): 6881158	Project No: VM00605E
Contractor & Method: Boreal Engineering, Test Pit	Easting (UTM Zone 8, NAD83): 389913	Elevation (m): 1148

SAMPLE TYPE Shelby Tube Core SPT (N) Grab Sample

BACKFILL TYPE Bentonite Chips Bentonite Grout Bentonite Pellets Cement Grout Drill Cuttings Sand Slough

DEPTH (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	OTHER TESTS, COMMENTS	ELEVATION (m)
1		BEDROCK Variably weathered meta-sedimentary rock. Intact areas are grey, friable and can be broken with 2 hits of a rock hammer. Weathered areas are orange to red, oxidized and have phyllite/schist alteration and 1 hit of a rock hammer crumbles the rock. Dry. (In Situ)		ARD-01	... Coordinates taken with a handheld GPS. Elevation from 2012 LiDAR survey. ... Test pit completed with a tracked Caterpillar 324D excavator. Bucket is 1 m wide, 1 yd ³ capacity, 5 teeth. ... Rippability test in the shale borrow area. The excavator is facing uphill on a slope about 4H:1V, digging into the bedrock parallel to the major strike orientation.	1147
2		END OF TEST PIT at 1.4 m Test pit hit refusal. No free water observed. Test pit backfilled with excavated material.			... With the excavator digging uphill, the far side of the test pit is more rippable where the excavator is digging more vertically into the face of the rock, compared to digging downwards.	1146
3						1145
4						1144
						1143

VM00605 MT NANSEN GEOTECH.GPJ 14-02-27 02:34 PM (TEST PIT LOG)



Start Date: 2013-09-08 2:20:00 PM	Logged By: S. Magnusson
Completion Date: 2013-09-08 3:00:00 PM	Reviewed By: R. Wood
Completion Depth: 1.40 m	Page 1 of 1

Project: Mount Nansen 2013 Site Investigation	Area: Tailings Facility - Tailings Beach	Test Pit No: TP-T-13-01
Client: Government of Yukon - AAM	Northing (UTM Zone 8, NAD83): 6880700	Project No: VM00605E
Contractor & Method: Boreal Engineering, Test Pit	Easting (UTM Zone 8, NAD83): 389198	Elevation (m): 1098

SAMPLE TYPE	<input type="checkbox"/> Shelby Tube	<input checked="" type="checkbox"/> Core	<input checked="" type="checkbox"/> SPT (N)	<input checked="" type="checkbox"/> Grab Sample			
BACKFILL TYPE	<input checked="" type="checkbox"/> Bentonite Chips	<input checked="" type="checkbox"/> Bentonite Grout	<input checked="" type="checkbox"/> Bentonite Pellets	<input checked="" type="checkbox"/> Cement Grout	<input checked="" type="checkbox"/> Drill Cuttings	<input checked="" type="checkbox"/> Sand	<input type="checkbox"/> Slough

DEPTH (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	OTHER TESTS, COMMENTS	ELEVATION (m)	
		SAND AND SILT Fine to medium grained sand, loose to compact, slightly stratified, orange to brown, wet, 5 to 20 cm layers of tailings slimes interbedded. (Tailings)		GS2	... Coordinates taken with a handheld GPS. Elevation from 2012 LiDAR survey. ... Test pit completed with a tracked Caterpillar 324D excavator. Bucket is 1 m wide, 1 yd³ capacity, 5 teeth. ... The tailings surface in the northwest portion of the TSF is not very stable for the excavator. Local areas slightly higher in elevation (about 10 to 30 cm) with vegetation are stable for one pass with the excavator, multiple passing or turning around results in major rutting and requires the bucket to get unstuck. Lower lying areas are stained red on surface and have little vegetation are soft, operator not comfortable walking the excavator on these areas.	1097	
1		SILT AND SAND Fine to medium grained sand, compact, slightly stratified, grey to brown to orange, damp to moist (Tailings)		GS1		1096	
2		GRAVEL Some fine to medium grained sand, angular to 50 mm diameter, trace silt, compact, grey, saturated to free water, with rootlets and abundant cobbles to 200 mm diameter. (In Situ)		ARD1 GS3		... Below 2.1 m: water pooling in the test pit. ... Water level approximated based on water seeping into test pit.	1095
3		END OF TESTPIT at 2.7 m Test pit is sloughing. Water pooling into the test pit quickly. Test pit backfilled with excavated material.		GS4Bulk		Excavator is sinking into the tailings.	1094
4						1093	

VM00605 MT NANSEN GEOTECH.GPJ 14-02-27 02:34 PM (TEST PIT LOG)



Start Date: 2013-09-07 10:00:00 AM	Logged By: S. Magnusson
Completion Date: 2013-09-07 11:15:00 AM	Reviewed By: R. Wood
Completion Depth: 2.70 m	Page 1 of 1

Project: Mount Nansen 2013 Site Investigation	Area: Tailings Facility - Tailings Beach	Test Pit No: TP-T-13-02
Client: Government of Yukon - AAM	Northing (UTM Zone 8, NAD83): 6880706	Project No: VM00605E
Contractor & Method: Boreal Engineering, Test Pit	Easting (UTM Zone 8, NAD83): 389263	Elevation (m): 1097

SAMPLE TYPE	<input type="checkbox"/> Shelby Tube	<input type="checkbox"/> Core	<input checked="" type="checkbox"/> SPT (N)	<input type="checkbox"/> Grab Sample			
BACKFILL TYPE	<input checked="" type="checkbox"/> Bentonite Chips	<input type="checkbox"/> Bentonite Grout	<input type="checkbox"/> Bentonite Pellets	<input type="checkbox"/> Cement Grout	<input type="checkbox"/> Drill Cuttings	<input type="checkbox"/> Sand	<input type="checkbox"/> Slough

DEPTH (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	OTHER TESTS, COMMENTS	ELEVATION (m)
0		SAND Fine to medium grained, trace silt, loose to compact, light brown to orange, damp to moist. (Tailings)			... Coordinates taken with a handheld GPS. Elevation from 2012 LiDAR survey. ... Test pit completed with a tracked Caterpillar 324D excavator. Bucket is 1 m wide, 1 yd ³ capacity, 5 teeth. ... The tailings surface in the northwest portion of the TSF is not very stable for the excavator. Local areas slightly higher in elevation (about 10 to 30 cm) with vegetation are stable for one pass with the excavator, multiple passing or turning around results in major rutting and requires the bucket to get unstuck. Lower lying areas are stained red on surface and have little vegetation are soft, operator not comfortable walking the excavator on these areas.	1097
1		SILT trace fine grained sand, soft to firm, slightly stratified grain sizes, grey, moist to wet. (Tailings) ... From 1.6 to 2.5 m: brown.		GS1 GS2-BUL	... Test pit is standing vertically from 0.0 to 2.5 m, bucket teeth visible in test pit wall. ... Water level based on seepage observed into the test pit at completion. ... Soil may be slightly plastic, can roll soil into a 2 mm wide worm. Striking palm of hand holding a ball of soil results in water bleeding out (mostly silt).	1096
2					... Water seeping in approximately 0.5 litre/second. ... Most of the seepage is from the north side of the test pit.	1095
3		ORGANICS Loose to compact, black, moist, with rootlets, smells of decaying vegetation. (In Situ)		ARD01 GS3		
3		SAND Fine to medium grained, trace to some silt, trace 1 to 5 mm laminations of organics, compact, grey, moist. (In Situ)		GS4-BULK		1094
4				ARD2		1093
4		GRAVEL AND SAND Trace silt, angular gravel particles to about 50 mm diameter, loose to compact, trace organic laminations to 10 mm, grey, free water. (In Situ)		ARD3 GS5	... Soil temperature: 0°C. Value considered very approximate. Taken with a probe thermometer 10 cm into the sample surface, retrieved in the excavator bucket.	

VM00605 MT NANSEN GEOTECH.GPJ 14-02-27 02:34 PM (TEST PIT LOG)



Start Date: 2013-09-07 11:40:00 AM	Logged By: S. Magnusson
Completion Date: 2013-09-07 2:00:00 PM	Reviewed By: R. Wood
Completion Depth: 4.80 m	Page 1 of 2

Project: Mount Nansen 2013 Site Investigation	Area: Tailings Facility - Tailings Beach	Test Pit No: TP-T-13-02
Client: Government of Yukon - AAM	Northing (UTM Zone 8, NAD83): 6880706	Project No: VM00605E
Contractor & Method: Boreal Engineering, Test Pit	Easting (UTM Zone 8, NAD83): 389263	Elevation (m): 1097

SAMPLE TYPE			
<input type="checkbox"/> Shelby Tube	<input type="checkbox"/> Core	<input checked="" type="checkbox"/> SPT (N)	<input type="checkbox"/> Grab Sample
BACKFILL TYPE			
<input checked="" type="checkbox"/> Bentonite Chips	<input checked="" type="checkbox"/> Bentonite Grout	<input checked="" type="checkbox"/> Bentonite Pellets	<input type="checkbox"/> Cement Grout <input checked="" type="checkbox"/> Drill Cuttings <input type="checkbox"/> Sand <input type="checkbox"/> Slough

DEPTH (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	OTHER TESTS, COMMENTS	ELEVATION (m)
6		END OF TEST PIT at 4.8 m Sides sloughing in. At completion, circular shaped on surface, 7.0 m diameter. Water observed seeping in below 2.5 m, and at 0.9 m (top of the fine grained tailings). Test pit backfilled with excavated material.				1092
7						1091
8						1090
9						1089
						1088

VM00605 MT NANSEN GEOTECH.GPJ 14-02-27 02:34 PM (TEST PIT LOG)



Start Date: 2013-09-07 11:40:00 AM	Logged By: S. Magnusson
Completion Date: 2013-09-07 2:00:00 PM	Reviewed By: R. Wood
Completion Depth: 4.80 m	Page 2 of 2

Project: Mount Nansen 2013 Site Investigation	Area: Tailings Facility - Tailings Beach	Test Pit No: TP-T-13-04
Client: Government of Yukon - AAM	Northing (UTM Zone 8, NAD83): 6880683	Project No: VM00605E
Contractor & Method: Boreal Engineering, Test Pit	Easting (UTM Zone 8, NAD83): 389415	Elevation (m): 1097

SAMPLE TYPE Shelby Tube Core SPT (N) Grab Sample

BACKFILL TYPE Bentonite Chips Bentonite Grout Bentonite Pellets Cement Grout Drill Cuttings Sand Slough

DEPTH (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	OTHER TESTS, COMMENTS	ELEVATION (m)
1		SAND AND SILT Fine grained, compact, laminated 5 to 20 mm thick with slightly finer grained sand, brown to orange, damp. (Tailings)		GS1-BULK	... Coordinates taken with a handheld GPS. Elevation from 2012 LiDAR survey. ... Test pit completed with a tracked Caterpillar 324D excavator. Bucket is 1 m wide, 1 yd ³ capacity, 5 teeth. ... Tailings surface was stable for the excavator to traffic on. Minor rutting after several passes. Dry loose sand tailings on surface.	1096
		... From 1.5 to 1.8 m: wet to saturated.			... Water level based on samples retrieved from test pit. No free water noted.	
2		SILT Some sand, trace to some clay, soft to firm, non-plastic, grey, saturated, some layers are an olive-yellow-tan colour finer grained material. Some fine to medium grained sand interbedded in 5 to 30 cm thick layers. (Tailings)		GS2 GS3		1095
3		SAND Fine to medium grained, silty, trace organics, loose to compact, black to grey, damp to moist, smells of decaying vegetation. (In Situ)		GS4 GS5-BULK		1094
4		SAND Fine to medium grained, silty, trace organics, loose to compact, black to grey, damp to moist, smells of decaying vegetation. (In Situ)		ARD1 GS6		1093
					... From 4.9 to 5.2 m: hard digging.	1092

VM00605 MT NANSEN GEOTECH.GPJ 14-02-27 02:34 PM (TEST PIT LOG)



Start Date: 2013-09-06 4:30:00 PM	Logged By: S. Magnusson
Completion Date: 2013-09-06 6:15:00 PM	Reviewed By: R. Wood
Completion Depth: 5.20 m	

Project: Mount Nansen 2013 Site Investigation	Area: Tailings Facility - Tailings Beach	Test Pit No: TP-T-13-04
Client: Government of Yukon - AAM	Northing (UTM Zone 8, NAD83): 6880683	Project No: VM00605E
Contractor & Method: Boreal Engineering, Test Pit	Easting (UTM Zone 8, NAD83): 389415	Elevation (m): 1097

SAMPLE TYPE Shelby Tube Core SPT (N) Grab Sample

BACKFILL TYPE Bentonite Chips Bentonite Grout Bentonite Pellets Cement Grout Drill Cuttings Sand Slough

DEPTH (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	OTHER TESTS, COMMENTS	ELEVATION (m)
6		<p>SAND Fine to medium grained, some gravel to 50 mm diameter, trace fines, angular, dense, grey, moist. (In Situ) (continued) END OF TEST PIT at 5.2 m Test pit is sloughing in. No freewater observed. Test pit left open overnight to assess stand up performance.</p>		ARD2 GS7	<p>... Soil temperature: 1°C. Value considered very approximate. Taken with a probe thermometer 10 cm into the sample surface, retrieved in the excavator bucket. Test pit left open overnight to assess stand up performance ... Did not enlarge in size on surface (6 m wide) ... Side sloughing in ... Water ponding to 2.3 m depth with yellow foam on surface ... Wet zone of seepage 2.0 to 2.3 m depth above the water surface ... The surrounding tailings pond is 8 to 12 m away, and 1.2 m deep from the top of the test pit. ... Test pit backfilled with excavated material.</p>	1091
7						1090
8						1089
9						1088
						1087




VM00605 MT NANSEN GEOTECH.GPJ 14-02-27 02:34 PM (TEST PIT LOG)



Start Date: 2013-09-06 4:30:00 PM	Logged By: S. Magnusson
Completion Date: 2013-09-06 6:15:00 PM	Reviewed By: R. Wood
Completion Depth: 5.20 m	Page 2 of 2

Project: Mount Nansen 2013 Site Investigation	Area: Tailings Facility - Tailings Beach	Test Pit No: TP-T-13-05
Client: Government of Yukon - AAM	Northing (UTM Zone 8, NAD83): 6880620	Project No: VM00605E
Contractor & Method: Boreal Engineering, Test Pit	Easting (UTM Zone 8, NAD83): 389250	Elevation (m): 1097

SAMPLE TYPE	<input checked="" type="checkbox"/> Shelby Tube	<input type="checkbox"/> Core	<input checked="" type="checkbox"/> SPT (N)	<input type="checkbox"/> Grab Sample			
BACKFILL TYPE	<input checked="" type="checkbox"/> Bentonite Chips	<input checked="" type="checkbox"/> Bentonite Grout	<input checked="" type="checkbox"/> Bentonite Pellets	<input checked="" type="checkbox"/> Cement Grout	<input checked="" type="checkbox"/> Drill Cuttings	<input checked="" type="checkbox"/> Sand	<input type="checkbox"/> Slough

DEPTH (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	OTHER TESTS, COMMENTS	ELEVATION (m)
1		SAND Fine to medium grained, trace to some silt, loose to compact, trace to some 5 to 20 mm laminations of grey finer grained material, brown to orange, moist to wet. (Tailings)		GS1	<p>... Coordinates taken with a handheld GPS. Elevation from 2012 LiDAR survey.</p> <p>... Test pit completed with a tracked Caterpillar 324D excavator. Bucket is 1 m wide, 1 yd³ capacity, 5 teeth.</p> <p>... Excavator access to test pit site difficult. One pass results in 15 cm ruts, two passes results in large ruts that liquifies when walking on foot. Test pit completed on a mound about 30 cm above the surroundings tailings.</p> <p>... At 0.8 m, water seeping into the test pit.</p> <p>... The tailings pond is 12.5 m away, and 0.8 m below the top of the test pit.</p> <p>... The test pit is sloughing and the ground is very soft.</p>	1096
2				GS2		1095
3		END OF TEST PIT at 2.6 m Test pit is sloughing to 4 m wide. Water seeping into excavation from 0.8 m depth. Test pit backfilled with excavated material.			<p>... The excavator is sinking into the tailings, cracks visible. Terminated test pit due to safety.</p> <p>... After backfilling, the excavator bucket tapped the surface about a dozen times to liquefy the backfill. Dozens of sandboils approximately 5 to 15 cm in diameter developed, and about 10 cm of water ponded on the surface of the test pit. Revisiting the site after several days, the ponded water was gone and the backfill was still very soft and unsafe to walk on.</p>	1094
4						1093
						1092

VM00605 MT NANSEN GEOTECH.GPJ 14-02-27 02:34 PM (TEST PIT LOG)



Start Date: 2013-09-07 3:10:00 PM	Logged By: S. Magnusson
Completion Date: 2013-09-07 3:50:00 PM	Reviewed By: R. Wood
Completion Depth: 2.60 m	Page 1 of 1

Project: Mount Nansen 2013 Site Investigation	Area: Tailings Facility - Tailings Beach	Test Pit No: TP-T-13-06
Client: Government of Yukon - AAM	Northing (UTM Zone 8, NAD83): 6880593	Project No: VM00605E
Contractor & Method: Boreal Engineering, Test Pit	Easting (UTM Zone 8, NAD83): 389198	Elevation (m): 1099

SAMPLE TYPE	<input type="checkbox"/> Shelby Tube	<input checked="" type="checkbox"/> Core	<input checked="" type="checkbox"/> SPT (N)	<input checked="" type="checkbox"/> Grab Sample			
BACKFILL TYPE	<input checked="" type="checkbox"/> Bentonite Chips	<input checked="" type="checkbox"/> Bentonite Grout	<input checked="" type="checkbox"/> Bentonite Pellets	<input checked="" type="checkbox"/> Cement Grout	<input checked="" type="checkbox"/> Drill Cuttings	<input checked="" type="checkbox"/> Sand	<input type="checkbox"/> Slough

DEPTH (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	OTHER TESTS, COMMENTS	ELEVATION (m)
1		SAND AND SILT Fine to medium grained sand, compact, stratified with some sulphide rich layers, brown to orange, moist. (Tailings)		GS1-BULK	... Coordinates taken with a handheld GPS. Elevation from 2012 LiDAR survey. ... Test pit completed with a tracked Caterpillar 324D excavator. Bucket is 1 m wide, 1 yd ³ capacity, 5 teeth. ... No difficulty for excavator to access the test pit site. The area is raised, coarser grained, and well drained. Minor rutting after multiple passes.	1099
1		... From 0.9 to 2.0 m: wet to saturated.				
2		... From 1.7 to 2.01 m: grey coloured.				
2		SAND Fine to medium grained sand, silty, trace organics, compact to dense, dark grey, saturated, smells of decaying vegetation. (In Situ)		GS2 ARD1	... Moderately hard digging ... Soil temperature: 5°C.	1097
3				GS3 ARD2	... Soil temperature: 2°C.	1096
4		END OF TEST PIT at 4.1 m Water seeping in at 2.5 m depth. Test pit sloughing in. Test pit left open overnight to assess stand up performance.		GS4 ARD3	... Soil temperature: 1°C. Values considered very approximate. Taken with a probe thermometer 10 cm into the sample surface, retrieved in the excavator bucket. ... Cracks forming around the test pit and excavator Test pit left open overnight. A brief heavy rainfall occurred in the morning of Sept 8, 2013. ... Surface dimensions 7 m long and 6 m wide enlarged to 8 m long and 7 m wide ... Water surface at 1.6 m below and frothy yellow ... Wet seepage zone 1.3 to 1.6 m depth, above water surface ... Tension cracks visible 1 to 1.5 m from the edge on surface ... Sides are vertical to 0.8 m depth, then about 2H:1V to the water surface ... Test pit backfilled with excavated material.	1095

VM00605 MT NANSEN GEOTECH.GPJ 14-02-27 02:34 PM (TEST PIT LOG)



Start Date: 2013-09-07 5:30:00 PM	Logged By: S. Magnusson
Completion Date: 2013-09-07 6:40:00 PM	Reviewed By: R. Wood
Completion Depth: 4.10 m	Page 1 of 1

Project: Mount Nansen 2013 Site Investigation	Area: Tailings Facility - Tailings Beach	Test Pit No: TP-T-13-07
Client: Government of Yukon - AAM	Northing (UTM Zone 8, NAD83): 6880563	Project No: VM00605E
Contractor & Method: Boreal Engineering, Test Pit	Easting (UTM Zone 8, NAD83): 389263	Elevation (m): 1098

SAMPLE TYPE Shelby Tube Core SPT (N) Grab Sample

BACKFILL TYPE Bentonite Chips Bentonite Grout Bentonite Pellets Cement Grout Drill Cuttings Sand Slough

DEPTH (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	OTHER TESTS, COMMENTS	ELEVATION (m)
1		SILT Some fine to medium grained sand, loose to compact, laminated 5 to 15 cm grey fine grained silts, brown to orange, moist. (Tailings)		GS1	... Coordinates taken with a handheld GPS. Elevation from 2012 LiDAR survey. ... Test pit completed with a tracked Caterpillar 324D excavator. Bucket is 1 m wide, 1 yd ³ capacity, 5 teeth. ... The tailings surface is red coloured and firm around the test pit. 25 mm ruts occur after one pass of the excavator.	1097
2		... From 1.0 to 3.4 m: saturated, test pit sloughing in.		GS2	... Water level based on observation in test pit. The tailings pond water level is 16 m east of the test pit, and 1.0 m below the top of the test pit.	1096
3				GS3		1095
4		END OF TEST PIT at 3.4 m Test pit sloughing in. No free water. Test pit left open overnight to assess stand up performance.			... Cracks on the tailings surface forming around the excavator ... Soil temperature: 2°C. Value considered very approximate. Taken with a probe thermometer 10 cm into the sample surface, retrieved in the excavator bucket. Test pit left open overnight to assess stand up performance ... Test pit size on surface is unchanged at about 7.0 m diameter. ... Water level is at 1.4 m depth ... Wet seepage zone on pit sides is at 1.2 to 1.4 m depth ... Depth of water in the center of the test pit is 0.5 m. ... Test pit backfilled with excavated material.	1094
						1093

VM00605 MT NANSEN GEOTECH.GPJ 14-02-27 02:34 PM (TEST PIT LOG)



Start Date: 2013-09-07 4:15:00 PM	Logged By: S. Magnusson
Completion Date: 2013-09-07 5:15:00 PM	Reviewed By: R. Wood
Completion Depth: 3.40 m	Page 1 of 1

Project: Mount Nansen 2013 Site Investigation	Area: Tailings Facility - Tailings Beach	Test Pit No: TP-T-13-09
Client: Government of Yukon - AAM	Northing (UTM Zone 8, NAD83): 6880557	Project No: VM00605E
Contractor & Method: Boreal Engineering, Test Pit	Easting (UTM Zone 8, NAD83): 389379	Elevation (m): 1097

SAMPLE TYPE Shelby Tube Core SPT (N) Grab Sample

BACKFILL TYPE Bentonite Chips Bentonite Grout Bentonite Pellets Cement Grout Drill Cuttings Sand Slough

DEPTH (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	OTHER TESTS, COMMENTS	ELEVATION (m)
1		SAND Fine to medium grained, some silt to silty, slightly stratified with finer grained sediments, loose to compact, light brown to orange, moist to wet. (Tailings)			... Coordinates taken with a handheld GPS. Elevation from 2012 LiDAR survey. ... Test pit completed with a tracked Caterpillar 324D excavator. Bucket is 1 m wide, 1 yd ³ capacity, 5 teeth. ... Tailings surface was stable for the excavator to traffic on. Minor rutting after several passes. Dry loose sand tailings on surface.	1096
1.2		... At 1.2 m: water seeping into testpit, wet to saturated. Side sloughing in 150 to 300 mm wide slabs, test pit vertical to 1 m depth.		GS1	... Water level based on water seeping in test pit at 1.2 m.	1095
2		... From 2.0 to 3.0 m: grey coloured, wet to saturated.		GS2		1094
3				GS3		1093
4				GS4		1092
4.4		END OF TESTPIT at 4.4 m No free water visible. Test pit sloughing in to 3.5 m depth, slough appears dry/damp. Test pit left open overnight to assess stand up performance.			Test pit left open overnight to assess stand up performance. ... Test pit is 8.0 m in diameter at the end of the day, and 9.0 m the following day ... Side walls are vertical for about 1 m, then 2H:1V to the water level ... Water in test pit is 1.6 m depth, yellow and frothy ... Seepage, wet zone is 1.3 to 1.3 m depth	1092

VM00605 MT NANSEN GEOTECH.GPJ 14-02-27 02:34 PM (TESTPIT LOG)



Start Date: 2013-09-06 2:30:00 PM	Logged By: S. Magnusson
Completion Date: 2013-09-06 4:20:00 PM	Reviewed By: R. Wood
Completion Depth: 4.40 m	Page 1 of 2

Project: Mount Nansen 2013 Site Investigation	Area: Tailings Facility - Tailings Beach	Test Pit No: TP-T-13-09
Client: Government of Yukon - AAM	Northing (UTM Zone 8, NAD83): 6880557	Project No: VM00605E
Contractor & Method: Boreal Engineering, Test Pit	Easting (UTM Zone 8, NAD83): 389379	Elevation (m): 1097

SAMPLE TYPE Shelby Tube Core SPT (N) Grab Sample

BACKFILL TYPE Bentonite Chips Bentonite Grout Bentonite Pellets Cement Grout Drill Cuttings Sand Slough

DEPTH (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	OTHER TESTS, COMMENTS	ELEVATION (m)
6					<ul style="list-style-type: none"> ... The tailings pond is about 7 m to the north, and 0.7 m below the top of the test pit ... Tension cracks about 1 m away from the perimeter of the test pit ... Test pit backfilled with excavated material. 	1091
7						1090
8						1089
9						1088
						1087

VM00605 MT NANSEN GEOTECH.GPJ 14-02-27 02:35 PM (TEST PIT LOG)



Start Date: 2013-09-06 2:30:00 PM	Logged By: S. Magnusson
Completion Date: 2013-09-06 4:20:00 PM	Reviewed By: R. Wood
Completion Depth: 4.40 m	Page 2 of 2

Project: Mount Nansen 2013 Site Investigation	Area: Tailings Facility - Tailings Dam	Test Pit No: TP-TD-13-01
Client: Government of Yukon - AAM	Northing (UTM Zone 8, NAD83): 6880679	Project No: VM00605E
Contractor & Method: Boreal Engineering, Test Pit	Easting (UTM Zone 8, NAD83): 389479	Elevation (m): 1096

SAMPLE TYPE Shelby Tube Core SPT (N) Grab Sample

BACKFILL TYPE Bentonite Chips Bentonite Grout Bentonite Pellets Cement Grout Drill Cuttings Sand Slough

DEPTH (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	OTHER TESTS, COMMENTS	ELEVATION (m)
		SAND AND GRAVEL Some cobbles, angular, to approximately 150 mm, compact, brown, damp to dry. ("Shale" Borrow Material)			... Coordinates taken with a handheld GPS. Elevation from 2012 LiDAR survey. ... Test pit completed with a tracked Caterpillar 324D excavator. Bucket is 1 m wide, 1 yd³ capacity, 5 teeth. ... Below 0.3 m: Sand has laminations and appears to be insitu, not fill placed for dam construction.	1096
1		SAND Fine to medium grain, trace to some silt, fine laminations of dark grey material 1 mm thick every 25 to 75 mm, compact, light brown to grey, with trace angular oxidized rock fragments up to 75 mm diameter. (In Situ)		ARD-01		1095
2		... From 2.2 to 4.4 m: Fewer rock fragments.		ARD-02		1094
3				ARD-03 GS1		1093
4		... From 4.4 to 4.7 m: Hard digging, possible permafrost, no visible ice crystals, moist when thawed.		ARD-04	... Soil temperature: 0°C. Value considered very approximate. Taken with a probe thermometer 10 cm into the sample surface, retrieved in the excavator bucket.	1092
		END OF TESTPIT at 4.7 m. Excavator hit refusal. Side sloughing in. No free water observed. Test pit backfilled in excavator bucket compacted 0.5 m thick lifts with excavated				

VM00605 MT NANSEN GEOTECH.GPJ 14-02-27 02:35 PM (TEST PIT LOG)



Start Date: 2013-09-05 5:00:00 PM	Logged By: S. Magnusson
Completion Date: 2013-09-05 6:30:00 PM	Reviewed By: R. Wood
Completion Depth: 4.70 m	Page 1 of 2

Project: Mount Nansen 2013 Site Investigation	Area: Tailings Facility - Tailings Dam	Test Pit No: TP-TD-13-01
Client: Government of Yukon - AAM	Northing (UTM Zone 8, NAD83): 6880679	Project No: VM00605E
Contractor & Method: Boreal Engineering, Test Pit	Easting (UTM Zone 8, NAD83): 389479	Elevation (m): 1096

SAMPLE TYPE Shelby Tube Core SPT (N) Grab Sample

BACKFILL TYPE Bentonite Chips Bentonite Grout Bentonite Pellets Cement Grout Drill Cuttings Sand Slough

DEPTH (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	OTHER TESTS, COMMENTS	ELEVATION (m)
		material.				1091
6						1090
7						1089
8						1088
9						1087

VM00605 MT NANSEN GEOTECH.GPJ 14-02-27 02:35 PM (TEST PIT LOG)



Start Date: 2013-09-05 5:00:00 PM	Logged By: S. Magnusson
Completion Date: 2013-09-05 6:30:00 PM	Reviewed By: R. Wood
Completion Depth: 4.70 m	Page 2 of 2

Project: Mount Nansen 2013 Site Investigation	Area: Tailings Facility - Tailings Dam	Test Pit No: TP-TD-13-02
Client: Government of Yukon - AAM	Northing (UTM Zone 8, NAD83): 6880668	Project No: VM00605E
Contractor & Method: Boreal Engineering, Test Pit	Easting (UTM Zone 8, NAD83): 389459	Elevation (m): 1095

SAMPLE TYPE	<input type="checkbox"/> Shelby Tube	<input checked="" type="checkbox"/> Core	<input checked="" type="checkbox"/> SPT (N)	<input checked="" type="checkbox"/> Grab Sample			
BACKFILL TYPE	<input checked="" type="checkbox"/> Bentonite Chips	<input checked="" type="checkbox"/> Bentonite Grout	<input checked="" type="checkbox"/> Bentonite Pellets	<input checked="" type="checkbox"/> Cement Grout	<input checked="" type="checkbox"/> Drill Cuttings	<input checked="" type="checkbox"/> Sand	<input type="checkbox"/> Slough

DEPTH (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	OTHER TESTS, COMMENTS	ELEVATION (m)
0		SAND AND GRAVEL Some cobbles, angular, to approximately 150 mm, compact, brown, damp to dry, with trace rootlets. ("Shale" Borrow Material)			... Coordinates taken with a handheld GPS. Elevation from 2012 LiDAR survey. ... Test pit completed with a tracked Caterpillar 324D excavator. Bucket is 1 m wide, 1 yd³ capacity, 5 teeth. ... Test pit walls standing up near vertically.	1095
0.5		SAND Fine to medium grained, trace silt, trace angular gravel to 75 mm diameter with surface weathering, no laminations/structure, compact to dense, light brown to grey, damp. (FILL)		ARD-01		1094
2		SAND Fine to medium grained, trace silt, fine laminations of dark grey material, compact, light brown to grey, damp. (In Situ)		ARD-02		1093
3.2		... From 3.2 to 3.7 m: Colour is grey, dense, damp to moist.				1092
3.7		... From 3.7 to 6.0 m: Less frequent laminations, brown coloured, trace gravel, dense, damp to moist.		ARD-03 GS1	... Soil temperature: 5°C. Value considered very approximate. Taken with a probe thermometer 10 cm into the sample surface, retrieved in the excavator bucket.	1091
4					... Soil temperature: 3°C. Value considered very approximate. Taken with a probe thermometer 10 cm into the sample surface, retrieved in the excavator bucket.	1091

VM00605 MT NANSEN GEOTECH.GPJ 14-02-27 02:35 PM (TEST PIT LOG)



Start Date: 2013-09-06 8:20:00 AM	Logged By: S. Magnusson
Completion Date: 2013-09-06 10:20:00 AM	Reviewed By: R. Wood
Completion Depth: 6.00 m	Page 1 of 2

Project: Mount Nansen 2013 Site Investigation	Area: Tailings Facility - Tailings Dam	Test Pit No: TP-TD-13-02
Client: Government of Yukon - AAM	Northing (UTM Zone 8, NAD83): 6880668	Project No: VM00605E
Contractor & Method: Boreal Engineering, Test Pit	Easting (UTM Zone 8, NAD83): 389459	Elevation (m): 1095

SAMPLE TYPE Shelby Tube Core SPT (N) Grab Sample

BACKFILL TYPE Bentonite Chips Bentonite Grout Bentonite Pellets Cement Grout Drill Cuttings Sand Slough

DEPTH (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	OTHER TESTS, COMMENTS	ELEVATION (m)
		SAND Fine to medium grained, trace silt, fine laminations of dark grey material, compact, light brown to grey, damp. (In Situ) (continued)		ARD-04		1090
6		END OF TEST PIT at 6.0 m Maximum reach of the excavator. Test pit is not sloughing, standing up near vertical. No free water observed. Test pit backfilled in bucket compacted 0.5 m thick lifts with excavated material.		GS2		1089
7						1088
8						1087
9						1086

VM00605 MT NANSEN GEOTECH.GPJ 14-02-27 02:35 PM (TEST PIT LOG)



Start Date: 2013-09-06 8:20:00 AM	Logged By: S. Magnusson
Completion Date: 2013-09-06 10:20:00 AM	Reviewed By: R. Wood
Completion Depth: 6.00 m	Page 2 of 2

Project: Mount Nansen 2013 Site Investigation	Area: Tailings Facility - Tailings Dam	Test Pit No: TP-TD-13-03
Client: Government of Yukon - AAM	Northing (UTM Zone 8, NAD83): 6880521	Project No: VM00605E
Contractor & Method: Boreal Engineering, Test Pit	Easting (UTM Zone 8, NAD83): 389474	Elevation (m): 1095

SAMPLE TYPE <input type="checkbox"/> Shelby Tube <input type="checkbox"/> Core <input checked="" type="checkbox"/> SPT (N) <input type="checkbox"/> Grab Sample		
BACKFILL TYPE <input checked="" type="checkbox"/> Bentonite Chips <input checked="" type="checkbox"/> Bentonite Grout <input checked="" type="checkbox"/> Bentonite Pellets <input type="checkbox"/> Cement Grout <input checked="" type="checkbox"/> Drill Cuttings <input type="checkbox"/> Sand <input type="checkbox"/> Slough		

DEPTH (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	OTHER TESTS, COMMENTS	ELEVATION (m)
0		SAND AND GRAVEL Some cobbles, angular, to approximately 150 mm, compact, brown, damp to dry ("Shale" Borrow Material)			... Coordinates taken with a handheld GPS. Elevation from 2012 LiDAR survey. ... Test pit completed with a tracked Caterpillar 324D excavator. Bucket is 1 m wide, 1 yd³ capacity, 5 teeth.	1094
1		SAND Fine to medium grained, trace to some silt, trace angular gravel to 50 mm diameter with surface weathering, compact, no laminations/structure, grey to light brown, damp to moist. (Fill)		ARD-01		1093
2		... From 1.2 to 2.8 m: 10 to 30 cm thick layers of grey sand fill, compact to dense.		ARD-02		1092
3		... From 2.8 to 4.5 m: dense.		ARD-03		1091
4		... From 4.4 to 4.5 m: Above the organics layer, the sand is white and appears to have crystals/precipitates.		ARD-04		1090
		ORGANICS Compact, black, moist, smells of decomposing vegetation, with rootlets. (In Situ)		ARD-05		
				GS1		

VM00605 MT NANSEN GEOTECH.GPJ 14-02-27 02:35 PM (TEST PIT LOG)



Start Date: 2013-09-06 1:45:00 PM	Logged By: S. Magnusson
Completion Date: 2013-09-06 1:45:00 PM	Reviewed By: R. Wood
Completion Depth: 6.00 m	Page 1 of 2

Project: Mount Nansen 2013 Site Investigation	Area: Tailings Facility - Tailings Dam	Test Pit No: TP-TD-13-03
Client: Government of Yukon - AAM	Northing (UTM Zone 8, NAD83): 6880521	Project No: VM00605E
Contractor & Method: Boreal Engineering, Test Pit	Easting (UTM Zone 8, NAD83): 389474	Elevation (m): 1095

SAMPLE TYPE			
<input type="checkbox"/> Shelby Tube	<input type="checkbox"/> Core	<input checked="" type="checkbox"/> SPT (N)	<input type="checkbox"/> Grab Sample
BACKFILL TYPE			
<input checked="" type="checkbox"/> Bentonite Chips	<input checked="" type="checkbox"/> Bentonite Grout	<input checked="" type="checkbox"/> Bentonite Pellets	<input type="checkbox"/> Cement Grout
<input checked="" type="checkbox"/> Drill Cuttings	<input type="checkbox"/> Sand	<input type="checkbox"/> Slough	

DEPTH (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	OTHER TESTS, COMMENTS	ELEVATION (m)
		SAND Fine to medium grained, trace silt, compact, interbedded with coarser grained brown sand, grey, moist. (In Situ) (continued)			... Soil temperature: 0°C. Value considered very approximate. Taken with a probe thermometer 10 cm into the sample surface, retrieved in the excavator bucket.	
6		SAND Fine to medium grained, trace silt, dense, grey, frozen, Nbn, no visible ice crystals, moist to wet when thawed. (Permafrost) END OF TESTPIT at 6.0 m Small amount of free water observed on the bottom of the test pit after 10 minutes. Test pit slightly sloughing, walls generally near vertical. Test pit backfilled in bucket compacted 0.5 m lifts with excavated material.		ARD-06 GS2	... Soil temperature: -1°C. Value considered very approximate. Taken with a probe thermometer 10 cm into the sample surface, retrieved in the excavator bucket. ... Water level estimated based on wet soil samples retrieved in test pit. ... From 5.8 to 6.0 m: Hard digging	1089
7						1088
8						1087
9						1086
						1085

VM00605 MT NANSEN GEOTECH.GPJ 14-02-27 02:35 PM (TEST PIT LOG)



Start Date: 2013-09-06 1:45:00 PM	Logged By: S. Magnusson
Completion Date: 2013-09-06 1:45:00 PM	Reviewed By: R. Wood
Completion Depth: 6.00 m	Page 2 of 2

Project: Mount Nansen 2013 Site Investigation	Area: Waste Rock Area - Northwest Pile	Test Pit No: TP-WA-13-01
Client: Government of Yukon - AAM	Northing (UTM Zone 8, NAD83): 6881707	Project No: VM00605E
Contractor & Method: Boreal Engineering, Test Pit	Easting (UTM Zone 8, NAD83): 388770	Elevation (m): 1232

SAMPLE TYPE Shelby Tube Core SPT (N) Grab Sample

BACKFILL TYPE Bentonite Chips Bentonite Grout Bentonite Pellets Cement Grout Drill Cuttings Sand Slough

DEPTH (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	OTHER TESTS, COMMENTS	ELEVATION (m)
0		GRAVEL Sandy, some cobbles, trace boulders to 500 mm diameter, angular, trace to some silt, compact to dense, brown to orange to grey, damp to moist, rocks are variably weathered from intact grey colour, and hard to break with a rock hammer, to a vibrant orange colour which crumbles to the touch, approximately 50% > 25 mm. (Waste Rock) ... From surface to 0.6 m: dry, approximately 50% > 25 mm. ... From 0.6 to 1.3 m: dense, orange.		GS2	... Coordinates taken with a handheld GPS. Elevation from 2012 LiDAR survey. ... Test pit completed with a tracked Caterpillar 324D excavator. Bucket is 1 m wide, 1 yd ³ capacity, 5 teeth.	1231
1		GRAVEL AND COBBLES Sandy, trace silt, some boulders to 600 mm diameter, angular, compact to dense, brown to orange, variably weathered, damp to moist, approximately 70% > 25 mm. (Waste Rock)		GS1		1230
2		GRAVEL AND COBBLES Sandy, trace silt, some boulders to 600 mm diameter, angular, compact to dense, brown to orange, variably weathered, damp to moist, approximately 70% > 25 mm. (Waste Rock)		GS3		1229
3		GRAVEL AND COBBLES Sandy, trace silt, some boulders to 600 mm diameter, angular, compact to dense, brown to orange, variably weathered, damp to moist, approximately 70% > 25 mm. (Waste Rock)		GS4-BULK		1228
4		... From 3.8 to 4.5 m: less weathered with surface staining only.		GS5	... Soil temperature: 2°C. Value considered approximate. Taken with a probe thermometer 10 cm into the sample surface, retrieved in the excavator bucket.	1227
4.5		END OF TEST PIT at 4.5 m Maximum reach of excavator. No free water observed. Test pit sloughed, becoming unstable. Test pit backfilled with excavated material.				1227

VM00605 MT NANSEN GEOTECH.GPJ 14-02-27 02:35 PM (TEST PIT LOG)



Start Date: 2013-09-10 5:30:00 PM	Logged By: S. Magnusson
Completion Date: 2013-09-10 6:45:00 PM	Reviewed By: R. Wood
Completion Depth: 4.50 m	Page 1 of 1

Project: Mount Nansen 2013 Site Investigation	Area: Waste Rock Area - East Pile	Test Pit No: TP-WA-13-02
Client: Government of Yukon - AAM	Northing (UTM Zone 8, NAD83): 6881673	Project No: VM00605E
Contractor & Method: Boreal Engineering, Test Pit	Easting (UTM Zone 8, NAD83): 388958	Elevation (m): 1213

SAMPLE TYPE Shelby Tube Core SPT (N) Grab Sample

BACKFILL TYPE Bentonite Chips Bentonite Grout Bentonite Pellets Cement Grout Drill Cuttings Sand Slough

DEPTH (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	OTHER TESTS, COMMENTS	ELEVATION (m)
1		SAND AND GRAVEL Some cobbles, trace boulders to 300 mm, trace to some silt, angular, compact to dense, brown to orange to grey, damp to moist, rocks are variably weathered from intact, grey colour and hard to break with a rock hammer, to a vibrant orange colour which crumbles to the touch, approximately 40% > 25 mm. (Waste Rock) ... From 0.7 to 1.9 m: compact to dense, moist.		ARD-01 GS1	... Coordinates taken with a handheld GPS. Elevation from 2012 LiDAR survey. ... Test pit completed with a tracked Caterpillar 324D excavator. Bucket is 1 m wide, 1 yd ³ capacity, 5 teeth.	1212
2		ORGANICS Compact, black, moist, smells of decaying vegetation, with 5 cm diameter roots/branches. (In Situ)		ARD-02 GS2		1211
		GRAVEL AND SAND Some cobbles to 150 mm diameter, angular, trace to some silt, compact, brown, moist to wet, slightly weathered, approximately 30% > 25 mm. (Waste Rock)				
3		ORGANICS Soft, brown to black, moist, with wood fibres and rootlets. (In Situ)		ARD-03 GS3	... Below 3.3 m: Test pit is stable and standing nearly vertical. Above 3.3 m, the test pit is sloughing.	1210
4		SAND Fine to medium grained, subangular, some gravels and cobbles to 150 mm diameter, trace to some silt, compact, grey to light brown, damp to moist, gravel and cobbles are slightly weathered and stained on the surface, approximately 30% > 25 mm. (In Situ)		GS4	... Soil temperature: 2°C. Value considered approximate. Taken with a probe thermometer 10 cm into the sample surface, retrieved in the excavator bucket.	1209
					... Soil temperature: -1°C. Value considered approximate.	

VM00605 MT NANSEN GEOTECH.GPJ 14-02-27 02:35 PM (TEST PIT LOG)



Start Date: 2013-09-10 10:50:00 AM	Logged By: S. Magnusson
Completion Date: 2013-09-10 12:10:00 PM	Reviewed By: R. Wood
Completion Depth: 5.60 m	Page 1 of 2

Project: Mount Nansen 2013 Site Investigation	Area: Waste Rock Area - East Pile	Test Pit No: TP-WA-13-02
Client: Government of Yukon - AAM	Northing (UTM Zone 8, NAD83): 6881673	Project No: VM00605E
Contractor & Method: Boreal Engineering, Test Pit	Easting (UTM Zone 8, NAD83): 388958	Elevation (m): 1213

SAMPLE TYPE	<input type="checkbox"/> Shelby Tube	<input checked="" type="checkbox"/> Core	<input checked="" type="checkbox"/> SPT (N)	<input checked="" type="checkbox"/> Grab Sample			
BACKFILL TYPE	<input checked="" type="checkbox"/> Bentonite Chips	<input checked="" type="checkbox"/> Bentonite Grout	<input checked="" type="checkbox"/> Bentonite Pellets	<input checked="" type="checkbox"/> Cement Grout	<input checked="" type="checkbox"/> Drill Cuttings	<input checked="" type="checkbox"/> Sand	<input type="checkbox"/> Slough

DEPTH (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	OTHER TESTS, COMMENTS	ELEVATION (m)
		BEDROCK Fractured rock to 300 mm, angular, dense, orange, moist, weathered to sand and trace silt, fairly hard to break with a rock hammer, approximately 60% > 25 mm. (In Situ) (continued)		GS5	Taken with a probe thermometer 10 cm into the sample surface, retrieved in the excavator bucket.	
6		END OF TEST PIT at 5.6 m Maximum reach of the excavator. No free water observed. Test pit backfilled with excavated material.				1207
7						1206
8						1205
9						1204

VM00605 MT NANSEN GEOTECH.GPJ 14-02-27 02:35 PM (TEST PIT LOG)



Start Date: 2013-09-10 10:50:00 AM	Logged By: S. Magnusson
Completion Date: 2013-09-10 12:10:00 PM	Reviewed By: R. Wood
Completion Depth: 5.60 m	Page 2 of 2

Project: Mount Nansen 2013 Site Investigation	Area: Waste Rock Area - East Pile	Test Pit No: TP-WA-13-03
Client: Government of Yukon - AAM	Northing (UTM Zone 8, NAD83): 6881634	Project No: VM00605E
Contractor & Method: Boreal Engineering, Test Pit	Easting (UTM Zone 8, NAD83): 388988	Elevation (m): 1217

SAMPLE TYPE Shelby Tube Core SPT (N) Grab Sample

BACKFILL TYPE Bentonite Chips Bentonite Grout Bentonite Pellets Cement Grout Drill Cuttings Sand Slough

DEPTH (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	OTHER TESTS, COMMENTS	ELEVATION (m)
1		SAND Cobbly to 150 mm diameter, some gravel, angular, trace silt, loose to compact, brown to orange, damp to moist, low to moderate oxidation with mostly surface staining, rock is hard to break with a rock hammer, approximately 45% > 25 mm. (Waste Rock)		ARD-01 GS1	... Coordinates taken with a handheld GPS. Elevation from 2012 LiDAR survey. ... Test pit completed with a tracked Caterpillar 324D excavator. Bucket is 1 m wide, 1 yd ³ capacity, 5 teeth.	1216
2		... From 1.4 to 2.6: Compact to dense, moist. ... From 1.9 to 2.6 m: Brown, lower level of oxidation, trace pieces of organics and rootlets mixed with the waste rock.		ARD-02 GS2		1215
3		ORGANICS Compact, black, moist, with pieces of decomposed moss and 1 to 2 cm willow branches laying down over top the organics. (In Situ)		ARD-03		1214
3		GRAVEL AND COBBLES Particles to 200 mm diameter, anuglar, some sand, trace silt, brown, moist, with trace rootlets and organics, rock is slightly weathered and hard to break with a rock hammer, approximately 75% > 25 mm. (Waste Rock)		GS3	... Below 3.1 m: Test pit is standing up nearly vertical, and sloughing above 3.1 m.	
4		ORGANICS Some sand, loose, black, moist, with rootlets and wood fibres. (In Situ)				
4		SAND Trace to some boulders and cobbles to 600 mm, some to trace silt, compact, brown, moist to wet, rocks are lightly weathered on surface and hard to break with a rock hammer, approximately 30% > 25 mm. (In Situ)				1213
4.6		END OF TEST PIT at 4.6 m Test pit hit refusal. No free water observed. Test pit sloughed above 3.1 m. Test pit backfilled with backfilled material.		GS4-BULK		1212

VM00605 MT NANSEN GEOTECH.GPJ 14-02-27 02:35 PM (TEST PIT LOG)



Start Date: 2013-09-10 8:45:00 AM	Logged By: S. Magnusson
Completion Date: 2013-09-10 10:40:00 AM	Reviewed By: R. Wood
Completion Depth: 4.60 m	Page 1 of 1

Project: Mount Nansen 2013 Site Investigation	Area: Waste Rock Area - Northwest Pile	Test Pit No: TP-WA-13-04
Client: Government of Yukon - AAM	Northing (UTM Zone 8, NAD83): 6881591	Project No: VM00605E
Contractor & Method: Boreal Engineering, Test Pit	Easting (UTM Zone 8, NAD83): 388807	Elevation (m): 1228

SAMPLE TYPE <input type="checkbox"/> Shelby Tube <input checked="" type="checkbox"/> Core <input checked="" type="checkbox"/> SPT (N) <input checked="" type="checkbox"/> Grab Sample			
BACKFILL TYPE <input checked="" type="checkbox"/> Bentonite Chips <input checked="" type="checkbox"/> Bentonite Grout <input checked="" type="checkbox"/> Bentonite Pellets <input checked="" type="checkbox"/> Cement Grout <input checked="" type="checkbox"/> Drill Cuttings <input checked="" type="checkbox"/> Sand <input type="checkbox"/> Slough			

DEPTH (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	OTHER TESTS, COMMENTS	ELEVATION (m)
1		GRAVEL AND SAND Some cobbles, angular, trace silt, trace boulders to 500 mm diameter, angular, dense, dark brown, damp to moist, rock fragments are slightly weathered, hard to break with a rock hammer, granitic rocks present are heavily weathered and can crumble in hands, approximately 40% > 25 mm. (Waste Rock)		GS1	... Coordinates taken with a handheld GPS. Elevation from 2012 LiDAR survey. ... Test pit completed with a tracked Caterpillar 324D excavator. Bucket is 1 m wide, 1 yd³ capacity, 5 teeth.	1227
2		... From 2.3 to 3.2 m: Increasing oversize content to approximately 50% > 25 mm, the matrix soil has lower amounts of weathering.		GS2	... Below 2.3 m: Test pit is standing up nearly vertical, and starting to undercut below 3 m, resulting in overhanging portions. Test pit is sloughing above 2.3 m.	1226
3		... From 3.2 to 4.2 m: Increasing oversize to approximately 60% > 25 mm with boulders up to 1 m diameter, rock fragments are more oxidized, matrix soil is moist and consists of sand, trace silt, with some pieces of blasting cord.		GS3		1225
4		... From 4.2 to 5.6 m: Decreasing oversize to approximately 40% > 25 mm, trace boulders, moist to wet.		GS4		1224

VM00605 MT NANSEN GEOTECH.GPJ 14-02-27 02:35 PM (TEST PIT LOG)



Start Date: 2013-09-10 3:10:00 PM	Logged By: S. Magnusson
Completion Date: 2013-09-10 5:10:00 PM	Reviewed By: R. Wood
Completion Depth: 6.10 m	Page 1 of 2

Project: Mount Nansen 2013 Site Investigation	Area: Waste Rock Area - Northwest Pile	Test Pit No: TP-WA-13-04
Client: Government of Yukon - AAM	Northing (UTM Zone 8, NAD83): 6881591	Project No: VM00605E
Contractor & Method: Boreal Engineering, Test Pit	Easting (UTM Zone 8, NAD83): 388807	Elevation (m): 1228

SAMPLE TYPE <input type="checkbox"/> Shelby Tube <input checked="" type="checkbox"/> Core <input checked="" type="checkbox"/> SPT (N) <input checked="" type="checkbox"/> Grab Sample			
BACKFILL TYPE <input checked="" type="checkbox"/> Bentonite Chips <input checked="" type="checkbox"/> Bentonite Grout <input checked="" type="checkbox"/> Bentonite Pellets <input checked="" type="checkbox"/> Cement Grout <input checked="" type="checkbox"/> Drill Cuttings <input checked="" type="checkbox"/> Sand <input type="checkbox"/> Slough			

DEPTH (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	OTHER TESTS, COMMENTS	ELEVATION (m)
6		GRAVEL AND SAND Some cobbles, angular, trace silt, trace boulders to 500 mm diameter, angular, dense, dark brown, damp to moist, rock fragments are slightly weathered, hard to break with a rock hammer, granitic rocks present are heavily weathered and can crumble in hands, approximately 40% > 25 mm. (Waste Rock) (continued) ... From 5.6 to 6.1 m: Increasing oversize to approximately 50% > 25 mm, highly weathered, moist to wet.		GS5	... Soil temperature: -1°C. Value considered approximate. Taken with a probe thermometer 10 cm into the sample surface, retrieved in the excavator bucket.	1222
		END OF TEST PIT at 6.1 m Maximum reach of excavator. No free water observed. Test pit is standing nearly vertical. Test pit backfilled with excavated material.		GS6		1221
7						1220
8						1219
9						

VM00605 MT NANSEN GEOTECH.GPJ 14-02-27 02:35 PM (TEST PIT LOG)



Start Date: 2013-09-10 3:10:00 PM	Logged By: S. Magnusson
Completion Date: 2013-09-10 5:10:00 PM	Reviewed By: R. Wood
Completion Depth: 6.10 m	Page 2 of 2

Project: Mount Nansen 2013 Site Investigation	Area: Waste Rock Area - West Lower Pile	Test Pit No: TP-WA-13-05
Client: Government of Yukon - AAM	Northing (UTM Zone 8, NAD83): 6881499	Project No: VM00605E
Contractor & Method: Boreal Engineering, Test Pit	Easting (UTM Zone 8, NAD83): 388708	Elevation (m): 1211

SAMPLE TYPE Shelby Tube Core SPT (N) Grab Sample

BACKFILL TYPE Bentonite Chips Bentonite Grout Bentonite Pellets Cement Grout Drill Cuttings Sand Slough

DEPTH (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	OTHER TESTS, COMMENTS	ELEVATION (m)
1		GRAVEL Cobbly, trace to some boulders to 600 mm diameter, angular, sandy, trace silt, compact, brown, damp to moist, rock fragments slightly weathered and hard to break with a rock hammer, rock mostly igneous, approximately 50% > 25 mm, with trace pieces of blasting cord. (Waste Rock)		ARD-01 GS1	... Coordinates taken with a handheld GPS. Elevation from 2012 LiDAR survey. ... Test pit completed with a tracked Caterpillar 324D excavator. Bucket is 1 m wide, 1 yd ³ capacity, 5 teeth.	1211
2		GRAVEL AND COBBLES Angular, sandy, trace silt, some boulders to 1 m diameter, angular, compact to dense, brown, moist, slightly weathered, approximately 70% > 25 mm.		ARD-02 GS2	... From 2.5 to 4.2 m: Test pit is slumping, difficult digging with large boulders present.	1209
3		GRAVEL AND COBBLES Angular, sandy, trace silt, some boulders to 1 m diameter, angular, compact to dense, brown, moist, slightly weathered, approximately 70% > 25 mm.		ARD-03 GS3		1208
4		GRAVEL AND COBBLES Angular, sandy, trace silt, some boulders to 1 m diameter, angular, compact to dense, brown, moist, slightly weathered, approximately 70% > 25 mm.		ARD-04 GS4		1207
		END OF TEST PIT at 4.2 m Test pit hit refusal. No free water observed. Test pit sloughed. Test pit backfilled with excavated material.			... At completion: Test pit is approximately 6.5 m long and 5.5 m wide on surface, the top 2.5 m of finer grained soil is vertical and overhanging the higher boulder content material below.	1207

VM00605 MT NANSEN GEOTECH.GPJ 14-02-27 02:35 PM (TEST PIT LOG)



Start Date: 2013-09-09 1:15:00 PM	Logged By: S. Magnusson
Completion Date: 2013-09-09 3:00:00 PM	Reviewed By: R. Wood
Completion Depth: 4.20 m	Page 1 of 1

Project: Mount Nansen 2013 Site Investigation	Area: Waste Rock Area - West Lower Pile	Test Pit No: TP-WA-13-06
Client: Government of Yukon - AAM	Northing (UTM Zone 8, NAD83): 6881442	Project No: VM00605E
Contractor & Method: Boreal Engineering, Test Pit	Easting (UTM Zone 8, NAD83): 388711	Elevation (m): 1209

SAMPLE TYPE Shelby Tube Core SPT (N) Grab Sample

BACKFILL TYPE Bentonite Chips Bentonite Grout Bentonite Pellets Cement Grout Drill Cuttings Sand Slough

DEPTH (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	OTHER TESTS, COMMENTS	ELEVATION (m)	
		SAND Fine to medium grained, trace silt, trace gravel to 50 mm diameter, loose, grey, dry. (Road Topping)			... Coordinates taken with a handheld GPS. Elevation from 2012 LiDAR survey. ... Test pit completed with a tracked Caterpillar 324D excavator. Bucket is 1 m wide, 1 yd³ capacity, 5 teeth. ... In order to start the test pit some 1-2 m diameter boulders had to be moved, some of these boulders crumbled in the excavator bucket when the thumb held them.	1209	
		GRAVEL AND SAND Cobbly, trace boulders to 600 mm diameter, angular, trace silt, compact, stratified in 300 mm layers, brown to orange, damp to moist, rock is moderately weathered and hard, approximately 45% > 25 mm. (Waste Rock)					
1		... From 1.2 to 2.2 m: Less weathering of the rock and matrix soil.		ARD-01 GS1			1208
2		... From 2.2 to 3.5 m: Some boulders to 600 mm diameter, moist, some rock pieces are highly weathered and crumble in your hand, approximately 60% > 25 mm.		ARD-02 GS2		... Below 2.2 m: Test pit walls are standing up nearly vertical, hard digging. Test pit is sloughing above 2.2 m.	1207
3		... From 3.5 to 4.5 m: Orange, high level of weathering.		ARD-03 GS3-BULK		1206	
4		END OF TEST PIT at 4.5 m Test pit hit refusal. No free water observed. Test pit sloughed a bit. Test pit backfilled with excavated material.		ARD-04 GS4		1205	

VM00605 MT NANSEN GEOTECH.GPJ 14-02-27 02:35 PM (TEST PIT LOG)



Start Date: 2013-09-09 3:15:00 PM	Logged By: S. Magnusson
Completion Date: 2013-09-09 5:00:00 PM	Reviewed By: R. Wood
Completion Depth: 4.50 m	Page 1 of 1

Project: Mount Nansen 2013 Site Investigation	Area: Waste Rock Area - West Mid Pile	Test Pit No: TP-WA-13-07
Client: Government of Yukon - AAM	Northing (UTM Zone 8, NAD83): 6881430	Project No: VM00605E
Contractor & Method: Boreal Engineering, Test Pit	Easting (UTM Zone 8, NAD83): 388774	Elevation (m): 1214

SAMPLE TYPE Shelby Tube Core SPT (N) Grab Sample

BACKFILL TYPE Bentonite Chips Bentonite Grout Bentonite Pellets Cement Grout Drill Cuttings Sand Slough

DEPTH (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	OTHER TESTS, COMMENTS	ELEVATION (m)
1214		GRAVEL AND SAND Cobbly, trace silt, trace boulders to 300 mm diameter, angular, compact, brown to orange, dry to damp, moderate level of weathering, approximately 40% > 25 mm. (Waste Rock) ... From 0.3 to 4.8 m: Trace to some silt, dense to very dense, moist to wet.			... Coordinates taken with a handheld GPS. Elevation from 2012 LiDAR survey. ... Test pit completed with a tracked Caterpillar 324D excavator. Bucket is 1 m wide, 1 yd ³ capacity, 5 teeth. ... From 0.3 to 4.8 m: Hard digging, bucket teeth marks on test pit sides, test pit standing near vertical to 1.5 m depth, then sloughing and widening below 1.5 m.	1214
1213				GS1		1213
1212				GS2-BULK		1212
1211				GS3		1211
1210				GS4		1210
				GS5		

VM00605 MT NANSEN GEOTECH.GPJ 14-02-27 02:35 PM (TEST PIT LOG)



Start Date: 2013-09-10 1:30:00 PM	Logged By: S. Magnusson
Completion Date: 2013-09-10 3:00:00 PM	Reviewed By: R. Wood
Completion Depth: 5.80 m	Page 1 of 2

Project: Mount Nansen 2013 Site Investigation	Area: Waste Rock Area - West Mid Pile	Test Pit No: TP-WA-13-07
Client: Government of Yukon - AAM	Northing (UTM Zone 8, NAD83): 6881430	Project No: VM00605E
Contractor & Method: Boreal Engineering, Test Pit	Easting (UTM Zone 8, NAD83): 388774	Elevation (m): 1214

SAMPLE TYPE Shelby Tube Core SPT (N) Grab Sample

BACKFILL TYPE Bentonite Chips Bentonite Grout Bentonite Pellets Cement Grout Drill Cuttings Sand Slough

DEPTH (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	OTHER TESTS, COMMENTS	ELEVATION (m)
		GRAVEL Cobbly, trace silt, sandy, trace boulders to 300 mm diameter, dense, orange, moist, high level of weathering, rock crumbled with a blow from the rock hammer, approximately 60% > 25 mm. (Waste Rock) (continued)				1209
		... From 5.6 to 5.8 m: Some silt/clay, brown, moist, less weathering.			... Soil temperature: 1°C. Value considered approximate. Taken with a probe thermometer 10 cm into the sample surface, retrieved in the excavator bucket.	
6		END OF TEST PIT at 5.8 m Maximum reach of excavator. Test pit standing near vertical. No free water observed. Test pit backfilled with excavated material.		GS6		1208
7						1207
8						1206
9						1205

VM00605 MT NANSEN GEOTECH.GPJ 14-02-27 02:35 PM (TEST PIT LOG)



Start Date: 2013-09-10 1:30:00 PM	Logged By: S. Magnusson
Completion Date: 2013-09-10 3:00:00 PM	Reviewed By: R. Wood
Completion Depth: 5.80 m	Page 2 of 2

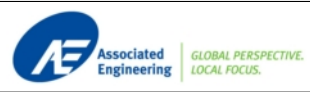
Project: Mount Nansen 2013 Site Investigation	Area: Waste Rock Area - South Pile	Test Pit No: TP-WA-13-08
Client: Government of Yukon - AAM	Northing (UTM Zone 8, NAD83): 6881356	Project No: VM00605E
Contractor & Method: Boreal Engineering, Test Pit	Easting (UTM Zone 8, NAD83): 388922	Elevation (m): 1215

SAMPLE TYPE	<input type="checkbox"/> Shelby Tube	<input checked="" type="checkbox"/> Core	<input checked="" type="checkbox"/> SPT (N)	<input checked="" type="checkbox"/> Grab Sample
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BACKFILL TYPE	<input checked="" type="checkbox"/> Bentonite Chips	<input checked="" type="checkbox"/> Bentonite Grout	<input checked="" type="checkbox"/> Bentonite Pellets	<input checked="" type="checkbox"/> Cement Grout	<input checked="" type="checkbox"/> Drill Cuttings	<input checked="" type="checkbox"/> Sand	<input type="checkbox"/> Slough
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DEPTH (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	OTHER TESTS, COMMENTS	ELEVATION (m)
1		GRAVEL Cobbly, trace boulders to 600 mm diameter, sandy, trace silt, compact, brown to orange, damp to moist, approximately half of the rock pieces are highly weathered and break easily with a rock hammer, and the other half are stained on surface and competent, approximately 50% > 25 mm. (Waste Rock)		ARD-01 GS1-BULK	... Coordinates taken with a handheld GPS. Elevation from 2012 LiDAR survey. ... Test pit completed with a tracked Caterpillar 324D excavator. Bucket is 1 m wide, 1 yd ³ capacity, 5 teeth.	1214
2		... At 2.2 m: Plastic sample bag encountered.		ARD-02 GS2		1213
3		... at 3.1 m: Pieces of organics/top soil with rootlets mixed up in the waste rock.		ARD-03 GS3		1212
4		BEDROCK Weathered to cobbles, boulders, gravel and sand pieces, to 1 m diameter, dense, red to orange to brown, moist, bedrock is variably oxidized with numerous fractures, some pieces are intact 1 m boulders, and some crumble in your hand, highly weathered parts consist of sand, some silt, some gravel and moist, approximately 60% > 25 mm. (In Situ)		GS4	... Weathered bedrock temperature: 5°C. Value considered approximate. Taken with a probe thermometer 10 cm into the sample surface, retrieved in the excavator bucket. ... Below 3.2 m: Hard digging, tooth marks present on test pit wall.	1211
		... From 4.0 to 4.7 m: Matrix soil between rock is hard and clumps together, permafrost?			... Weathered bedrock temperature: 2°C. Value considered approximate. Taken with a probe thermometer 10 cm into the sample surface, retrieved in the excavator bucket. ... Below 4.0 m: Test pit standing near vertical, sloughing above 4.0 m.	1210
		END OF TEST PIT at 4.7 m Test pit hit refusal. No free water observed. Test pit sloughed to 7 m long and 5.5 m wide. Test pit backfilled with excavated				

VM00605 MT NANSEN GEOTECH.GPJ 14-02-27 02:35 PM (TEST PIT LOG)



Start Date: 2013-09-09 10:50:00 AM	Logged By: S. Magnusson
Completion Date: 2013-09-09 1:00:00 PM	Reviewed By: R. Wood
Completion Depth: 4.70 m	Page 1 of 2

Project: Mount Nansen 2013 Site Investigation	Area: Waste Rock Area - South Pile	Test Pit No: TP-WA-13-08
Client: Government of Yukon - AAM	Northing (UTM Zone 8, NAD83): 6881356	Project No: VM00605E
Contractor & Method: Boreal Engineering, Test Pit	Easting (UTM Zone 8, NAD83): 388922	Elevation (m): 1215

SAMPLE TYPE Shelby Tube Core SPT (N) Grab Sample

BACKFILL TYPE Bentonite Chips Bentonite Grout Bentonite Pellets Cement Grout Drill Cuttings Sand Slough

DEPTH (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	OTHER TESTS, COMMENTS	ELEVATION (m)
6		material.				1209
7						1208
8						1207
9						1206
						1205

VM00605 MT NANSEN GEOTECH.GPJ 14-02-27 02:35 PM (TEST PIT LOG)



Start Date: 2013-09-09 10:50:00 AM	Logged By: S. Magnusson
Completion Date: 2013-09-09 1:00:00 PM	Reviewed By: R. Wood
Completion Depth: 4.70 m	Page 2 of 2

Project: Mount Nansen 2013 Site Investigation	Area: Waste Rock Area - West Lower Pile	Test Pit No: TP-WA-13-09
Client: Government of Yukon - AAM	Northing (UTM Zone 8, NAD83): 6881319	Project No: VM00605E
Contractor & Method: Boreal Engineering, Test Pit	Easting (UTM Zone 8, NAD83): 388834	Elevation (m): 1205

SAMPLE TYPE	<input type="checkbox"/> Shelby Tube	<input checked="" type="checkbox"/> Core	<input checked="" type="checkbox"/> SPT (N)	<input checked="" type="checkbox"/> Grab Sample			
BACKFILL TYPE	<input checked="" type="checkbox"/> Bentonite Chips	<input checked="" type="checkbox"/> Bentonite Grout	<input checked="" type="checkbox"/> Bentonite Pellets	<input checked="" type="checkbox"/> Cement Grout	<input checked="" type="checkbox"/> Drill Cuttings	<input checked="" type="checkbox"/> Sand	<input type="checkbox"/> Slough

DEPTH (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	OTHER TESTS, COMMENTS	ELEVATION (m)
1		GRAVEL Cobbly, sandy, some boulders to 1 m diameter, angular, loose to compact, orange to brown, damp to moist, rock is highly weathered and fractured, granitic rocks have weathered to a powder, while meta-sedimentary rock is stained on surface and competent, matrix soil is highly weathered, approximately 60% > 25 mm. (Waste Rock)		ARD-01 GS1	... Coordinates taken with a handheld GPS. Elevation from 2012 LiDAR survey. ... Test pit completed with a tracked Caterpillar 324D excavator. Bucket is 1 m wide, 1 yd³ capacity, 5 teeth. ... Difficult access to test pit site, excavator constructed a temporary access route, lots of large weathered boulders around site.	1204
1		... From 0.9 to 2.2 m: Some to trace silt, trace to some boulders, dense, grey, moist, less weathering, approximately 50% > 25 mm.		ARD-02 GS2	... Below 0.9 m: Hard digging, test pit standing nearly vertical.	1203
2				ARD-03 GS3		1202
3		COBBLES AND BOULDERS Approximately 40% boulders to 1 m diameter, angular, some gravel, trace sand and silt, angular, dense, grey, moist, slightly weathered and rocks are competent, approximately 80% ? 25 mm, possible frozen conditions - no ice or water visible, based on temperature measurement. (Waste Rock)		ARD-04 GS4	... Soil temperature: -1°C. Value considered approximate. Taken with a probe thermometer 10 cm into the sample surface, retrieved in the excavator bucket.	1201
4				ARD-05 GS5	... Soil temperature: 0°C. Value considered approximate. Taken with a probe thermometer 10 cm into the sample surface, retrieved in the excavator bucket.	1200

VM00605 MT NANSEN GEOTECH.GPJ 14-02-27 02:35 PM (TEST PIT LOG)



Start Date: 2013-09-10 8:30:00 AM	Logged By: S. Magnusson
Completion Date: 2013-09-10 11:00:00 AM	Reviewed By: R. Wood
Completion Depth: 5.20 m	Page 1 of 2

Project: Mount Nansen 2013 Site Investigation	Area: Waste Rock Area - West Lower Pile	Test Pit No: TP-WA-13-09
Client: Government of Yukon - AAM	Northing (UTM Zone 8, NAD83): 6881319	Project No: VM00605E
Contractor & Method: Boreal Engineering, Test Pit	Easting (UTM Zone 8, NAD83): 388834	Elevation (m): 1205

SAMPLE TYPE Shelby Tube Core SPT (N) Grab Sample

BACKFILL TYPE Bentonite Chips Bentonite Grout Bentonite Pellets Cement Grout Drill Cuttings Sand Slough

DEPTH (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	OTHER TESTS, COMMENTS	ELEVATION (m)
6	▲▲▲▲	END OF TEST PIT at 5.2 m Maximum reach of excavator. No free water observed. Test pit sloughed a bit below 2.2 m. Test pit backfilled with excavated material.	█	ARD-06 GS6	Soil temperature: 0°C. Value considered approximate. Taken with a probe thermometer 10 cm into the sample surface, retrieved in the excavator bucket.	1199
7						1198
8						1197
9						1196
						1195

VM00605 MT NANSEN GEOTECH.GPJ 14-02-27 02:35 PM (TEST PIT LOG)



Start Date: 2013-09-10 8:30:00 AM	Logged By: S. Magnusson
Completion Date: 2013-09-10 11:00:00 AM	Reviewed By: R. Wood
Completion Depth: 5.20 m	Page 2 of 2

Project: Mount Nansen 2013 Site Investigation	Area: Waste Rock Area - South Pile	Test Pit No: TP-WA-13-10
Client: Government of Yukon - AAM	Northing (UTM Zone 8, NAD83): 6881272	Project No: VM00605E
Contractor & Method: Boreal Engineering, Test Pit	Easting (UTM Zone 8, NAD83): 389001	Elevation (m): 1214

SAMPLE TYPE Shelby Tube Core SPT (N) Grab Sample

BACKFILL TYPE Bentonite Chips Bentonite Grout Bentonite Pellets Cement Grout Drill Cuttings Sand Slough

DEPTH (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	OTHER TESTS, COMMENTS	ELEVATION (m)
1		COBBLES Some boulders to 1 m diameter, some gravel, angular, some sand, trace silt, loose to compact, brown, damp to moist, rock pieces and soil moderately weathered, approximately 70% > 25 mm. (Waste Rock)		ARD-01 GS1	... Coordinates taken with a handheld GPS. Elevation from 2012 LiDAR survey. ... Test pit completed with a tracked Caterpillar 324D excavator. Bucket is 1 m wide, 1 yd ³ capacity, 5 teeth.	1213
2		... From 1.8 to 4.1 m: Some to trace boulders, sandy, compact to dense, approximately 20% of the rock pieces are weathered and break easily with a rock hammer, 80% of the rock pieces are intact with surface staining, approximately 60% > 25 mm.		ARD-02 GS2		1212
3				ARD-03 GS3		1211
4				ARD-04 GS4	... Soil temperature: 4°C. Value considered approximate. Taken with a probe thermometer 10 cm into the sample surface, retrieved in the excavator bucket. ... At completion, the test pit is approximately 7.5 m long and 6 m wide and sloughing.	1210
		END OF TEST PIT at 4.1 m Test pit sloughed. No free water observed. Test pit backfilled with excavated material.				

VM00605 MT NANSEN GEOTECH.GPJ 14-02-27 02:35 PM (TEST PIT LOG)



Start Date: 2013-09-09 8:15:00 AM	Logged By: S. Magnusson
Completion Date: 2013-09-09 10:30:00 AM	Reviewed By: R. Wood
Completion Depth: 4.10 m	Page 1 of 1

Project: Mount Nansen 2013 Site Investigation	Area: Waste Rock Area - Southwest Lower Pile	Test Pit No: TP-WA-13-11
Client: Government of Yukon - AAM	Northing (UTM Zone 8, NAD83): 6881208	Project No: VM00605E
Contractor & Method: Boreal Engineering, Test Pit	Easting (UTM Zone 8, NAD83): 389001	Elevation (m): 1202

SAMPLE TYPE	<input type="checkbox"/> Shelby Tube	<input type="checkbox"/> Core	<input checked="" type="checkbox"/> SPT (N)	<input type="checkbox"/> Grab Sample
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BACKFILL TYPE	<input checked="" type="checkbox"/> Bentonite Chips	<input checked="" type="checkbox"/> Bentonite Grout	<input checked="" type="checkbox"/> Bentonite Pellets	<input type="checkbox"/> Cement Grout	<input checked="" type="checkbox"/> Drill Cuttings	<input type="checkbox"/> Sand	<input type="checkbox"/> Slough
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DEPTH (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	OTHER TESTS, COMMENTS	ELEVATION (m)
1		COBBLES Sandy, some gravel, some boulders to 600 mm diameter, angular, trace silt, loose to compact, brown, dry, approximately 70% > 25 mm, the matrix material is fine to medium grained sand, some silt, some gravel, compact, brown, moist. (Waste Rock)		ARD-01 GS1	... Coordinates taken with a handheld GPS. Elevation from 2012 LiDAR survey. ... Test pit completed with a tracked Caterpillar 324D excavator. Bucket is 1 m wide, 1 yd³ capacity, 5 teeth.	1201
2		GRAVEL AND SAND Some cobbles, trace boulders to 600 mm diameter, trace silt, compact, brown to grey, moist, slightly weathered, approximately 40% > 25 mm. (Waste Rock)		ARD-02 GS2		1200
3		... From 2.2 to 2.6 m: Oversize approximately 50% > 25 mm.		ARD-03 GS3	... From 2.6 to 3.8 m: Test pit standing up nearly vertical.	1199
4		... From 3.8 to 5.0 m: orange to brown, highly weathered, approximately 30% > 25 mm.		ARD-04 GS4	... Soil temperature: 5°C. Value considered approximate. Taken with a probe thermometer 10 cm into the sample surface, retrieved in the excavator bucket.	1198
				ARD-05 GS5		

VM00605 MT NANSEN GEOTECH.GPJ 14-02-27 02:35 PM (TEST PIT LOG)



Start Date: 2013-09-08 3:45:00 PM	Logged By: S. Magnusson
Completion Date: 2013-09-08 5:50:00 PM	Reviewed By: R. Wood
Completion Depth: 5.00 m	Page 1 of 2

Project: Mount Nansen 2013 Site Investigation	Area: Waste Rock Area - Southwest Lower Pile	Test Pit No: TP-WA-13-11
Client: Government of Yukon - AAM	Northing (UTM Zone 8, NAD83): 6881208	Project No: VM00605E
Contractor & Method: Boreal Engineering, Test Pit	Easting (UTM Zone 8, NAD83): 389001	Elevation (m): 1202

SAMPLE TYPE Shelby Tube Core SPT (N) Grab Sample

BACKFILL TYPE Bentonite Chips Bentonite Grout Bentonite Pellets Cement Grout Drill Cuttings Sand Slough

DEPTH (m)	SOIL SYMBOL	SOIL DESCRIPTION	SAMPLE TYPE	SAMPLE NO	OTHER TESTS, COMMENTS	ELEVATION (m)
6		END OF TEST PIT at 5.0 m. Test pit sloughed and is unstable. No free water observed. Test pit backfilled with excavated material.		GS5-BULK		1196
7						1195
8						1194
9						1193

VM00605 MT NANSEN GEOTECH.GPJ 14-02-27 02:35 PM (TEST PIT LOG)



Start Date: 2013-09-08 3:45:00 PM	Logged By: S. Magnusson
Completion Date: 2013-09-08 5:50:00 PM	Reviewed By: R. Wood
Completion Depth: 5.00 m	Page 2 of 2