



**ALASKA**  
**Department of Transportation**  
**And Public Facilities**

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**SUPPLEMENTAL**  
**GEOLOGY DATA REPORT**

**Talkeetna Airport Improvements**  
**Stage II**

**JANUARY 2005**

**Project# 54660**

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**ALASKA**  
**Department of Transportation**  
**And Public Facilities**

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**SUPPLEMENTAL**  
**GEOLOGY DATA REPORT**

**TALKEETNA AIRPORT IMPROVEMENTS**  
**STAGE II**

Project # 54660

January 2005

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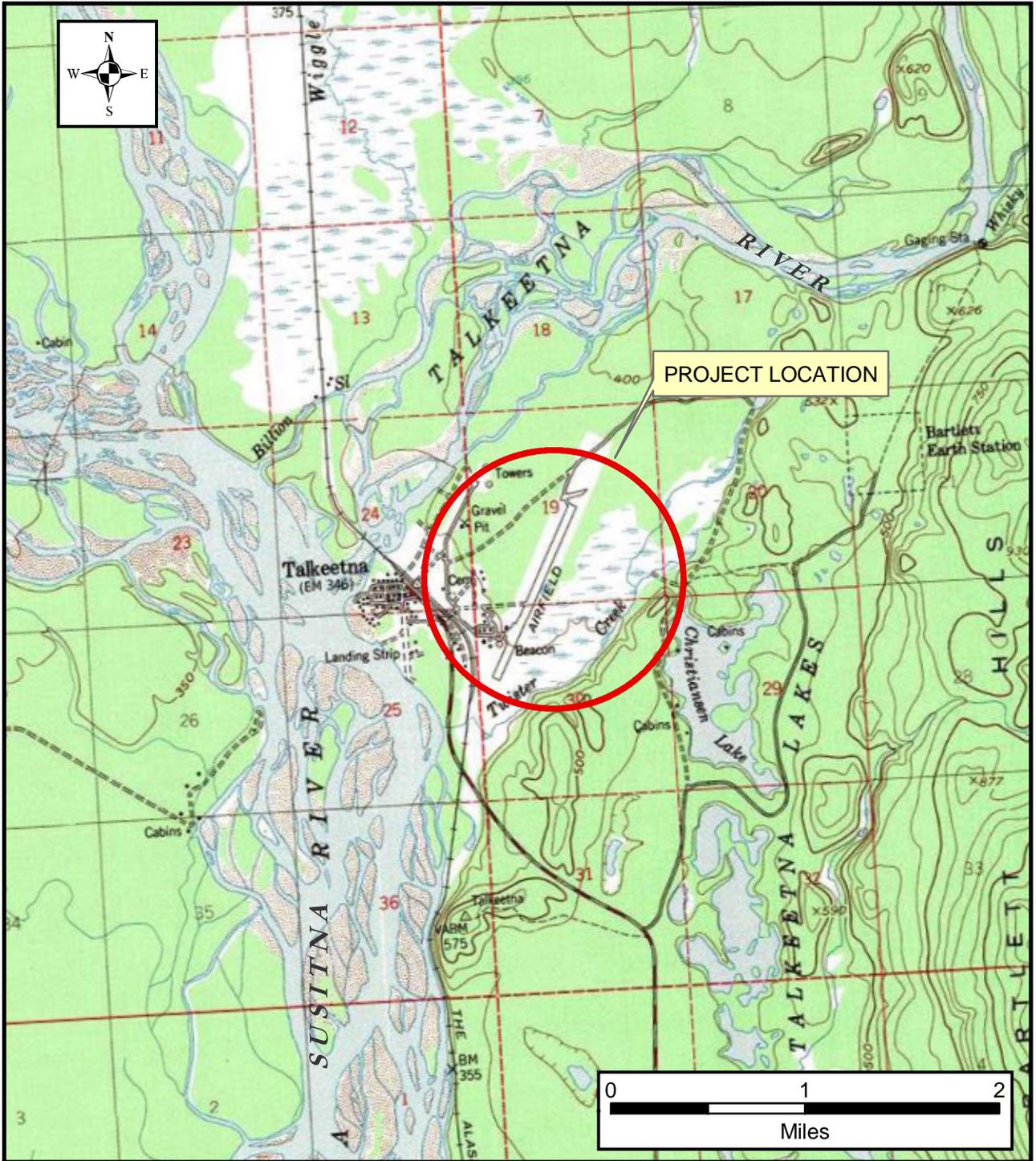
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**Project Location**



State of Alaska  
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**FIGURE 1: SITE LOCATION MAP**

**TALKEETNA AIRPORT  
IMPROVEMENTS  
STAGE II  
PROJECT 54660**

**TALKEETNA AIRPORT IMPROVEMENTS, STAGE II**  
**Project No. 54660**

**SCOPE OF WORK**

The Geology Section of Statewide Materials conducted a supplemental geotechnical investigation at the Talkeetna Airport in June 2004 (Figure 1). The investigation centered on the new proposed locations for the heliport and commercial apron north and northeast of the existing runway. This report summarizes the additional work and is a supplement to ADOT&PF's previous work conducted at the site and reported under "*Geology Report - Talkeetna Airport Improvements, Stage II,*" State Project # 54660, dated November 2003.

The additional work included the following:

1. Eight test holes at the proposed new heliport and access road about 1000 ft north and northeast of the runway.
2. Seven test holes at the proposed new commercial lots, apron, and taxiway located about 500 ft northwest of the runway.
3. Two additional test holes at the proposed airport access road west of the runway.
4. One test hole at the east end of the existing taxiway that provides airplane access to the commercial lots. This area of the taxiway is to be widened.

The locations of the test holes indicated above are shown on Figure 2. Figure 3 shows the locations of the test holes drilled in the vicinity of the airport between 2002 and 2004.

**GEOLOGY AND TOPOGRAPHY**

The Talkeetna Airport is located on alluvial deposits from the Susitna and Talkeetna Rivers. The deposits generally consist of about 2 to 8 ft of organic soil, silt, and silty sand in undeveloped terrain. Below the organic and silts are deposits of sand, gravel, and cobbles with varying percentages of silt. Patchy areas of permafrost are found in the low and wet areas east of the runway as indicated by previous investigations (ADOT&PF, 2003). Wetland areas are generally located to the northeast and east of the runway.

**FIELD METHODS**

The geotechnical field investigation was conducted in June 2004 using a track mounted CME 75 drill rig. Soil samples during this fieldwork were collected as follows:

- Standard penetration tests (SPT) were performed at about 2.5 to 5 ft intervals using a standard split barrel sampler (1.4-in I. D. x 2-in O. D.) driven by a 140-lb automatic hammer with a 30-in drop. The number of blows required to drive the sampler into undisturbed soil for each 6-in increment was recorded.
- Non-standard sized split spoon penetration tests (SS) were performed using a 2.5-in I. D. x 3-in O. D. split barrel sampler that was driven by a 340-lb automatic hammer.

- Grab samples were collected from the auger cuttings from the near surface (0 to 5 feet).

The test holes drilled in June 2004 were located using GPS.

Soil probes were also advanced in marshy or peat bog areas to determine the approximate depth of very loose soil and/or peat. The soil probes were 3/8-in diameter steel rods with a sharp tip that were pushed into the ground by hand.

### LABORATORY TESTING

The field geologist examined and visually classified soil samples in the field following the Unified Soil Classification System (USCS). Selected soil samples were submitted to the Central Materials Laboratory in Anchorage for testing. The test results are shown on the Preconstruction Sample Summary sheets. Field and laboratory testing procedures followed the appropriate Alaska DOT&PF Geotechnical Procedures Manual, AASHTO or ASTM procedures.

### GENERAL FIELD CONDITIONS

The following tables give general soil conditions for the proposed heliport pad, commercial apron, and the new M&O access road. For detailed soil conditions and the location of the individual test holes see the Log of Test Holes in Appendix A. The Preconstruction Sample Summary sheets are included in Appendix B. The test hole locations are shown on Figure 2.

#### Proposed Heliport Area and Commercial Apron Area (Test Holes TH04-1 through TH04-15)

Material Type	Depth Below Surface	Approx. Layer Thickness	Approx. Moisture Content	Comments and Percentage Passing #200 Sieve
Organic soil and Silt (OL/ML)	0 to 8 ft	3.5 to 8 ft	14 to 48%	Silt was non plastic. There is a 10 ft high waste berm near TH04-09, a result of clearing work north of the M&O Bldg and west of the runway (see Figure 3).
Gravel and Sand (SW/GW)	Below silt layer generally 3.5 to 8 ft	--	--	Contains Cobbles. Groundwater at about 3.5 to 7 ft. In TH04-01 P200 = 14.8%.

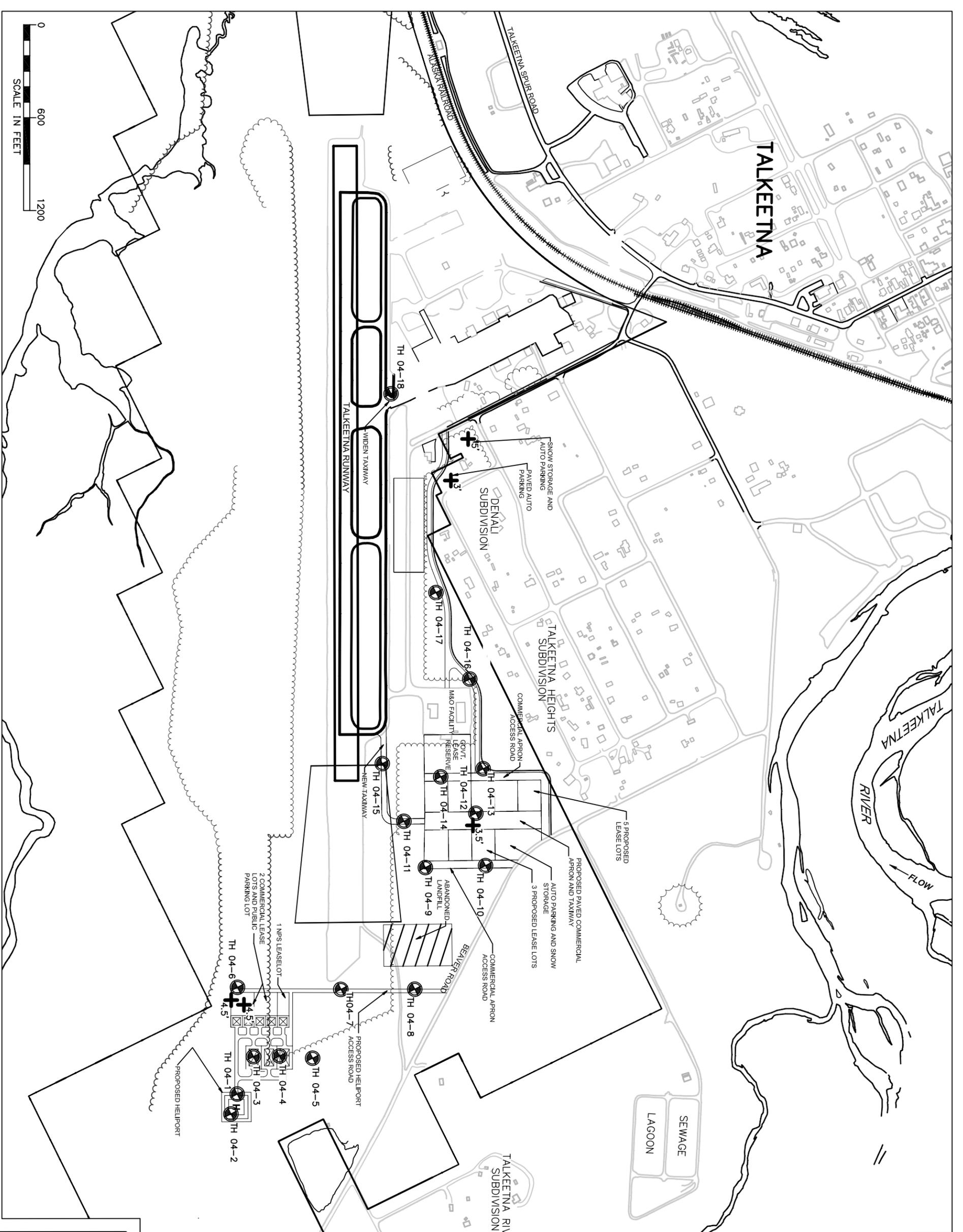
#### Access Road to the State Maintenance (M&O) Station (Test Holes TH04-16 and TH04-17)

Material Type	Depth Below Surface	Approx. Layer Thickness	Approx. Moisture Content	Comments and Percentage Passing #200 Sieve
Organic soil and Silt (OL/ML)	0 to 9 ft	3 to 9 ft	--	Former slough at the NW corner of the pad for the state M&O buildings has about 4 ft of peat over gravel and sand. Surface water present.
Gravel and Sand (SW/GW)	Below silt layer, generally >3 to 9 ft	--	--	Contains cobbles. Groundwater at about 3 to 15 ft.

## REFERENCES

1. State of Alaska DOT&PF, "*Geology Report - Talkeetna Airport Improvements, Stage II*," State Project # 54660, November 2003.
2. CH2M HILL, "*Talkeetna Airport Improvements, Phase II, Heliport Relocation Study*," State Project # 54660, January 2003a.
3. CH2M HILL, "*Talkeetna Airport Improvements, Phase II, Hydrologic/Hydraulic Assessment*," **Incomplete Draft**. State Project # 54660, URS Corp., January 2003b.
4. State of Alaska DOT&PF, "*Talkeetna Airport Master Plan*," USKH, Inc. 2001.
5. State of Alaska DOT&PF, Engineering Geology and Soils Report, *Talkeetna Materials Investigation, January 1980*.
6. State of Alaska DOT&PF, Engineering Geology and Soils Report, *Talkeetna Airport Paving*, Project Number; 54172, July 1986.
7. State of Alaska DOT&PF, Geotechnical Report, *Talkeetna Airport Improvements*, Project #60045, May 1996
8. State of Alaska DOT&PF, "*Alaska Geotechnical Procedures Manual*", October 2003.

# FIGURES



STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	54660	2004		

**LEGEND**

- TH 04-1 2004 TEST HOLE
- ±4.5' 2004 SOIL PROBE WITH DEPTH (FEET)
- UNPAVED SURFACE
- PAVED SURFACE
- RUNWAY

**NOTES:**

1. THE LOCATIONS FOR TEST PTS TP02-35 TO TP02-49 ARE CORRECTED AND SUPERCEDE THE PREVIOUS LOCATIONS INDICATED IN THE NOVEMBER 2003 GEOLOGY REPORT.
2. TEST HOLE AND TEST PT. LOCATIONS WERE LOCATED BY THE FIELD GEOLOGIST BY REFERENCE TO AERIAL PHOTOGRAPHY AND PLAN SHEETS AVAILABLE AT THAT TIME, OR WERE LOCATED FROM GPS COORDINATES; THE LOCATIONS ARE APPROXIMATE.

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**TALKEETNA AIRPORT IMPROVEMENTS  
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**FIGURE 2  
2004 TEST HOLE  
LOCATION MAP**



STATE	PROJECT DESIGNATION	YEAR	SHEET NO.	TOTAL SHEETS
ALASKA	54660	2004		

**LEGEND**

- TH 04-1 2004 TEST HOLE
- 14.5' 2004 SOIL PROBE WITH DEPTH (FEET)
- TH 03-1 2003 TEST HOLE
- TH 02-1 2002 TEST HOLE
- TP 02-1 2002 TEST PIT

**NOTES:**

1. THE LOCATIONS FOR TEST PITS TP02-35 TO TP02-49 ARE CORRECTED AND SUPERCEDE THE PREVIOUS LOCATIONS INDICATED IN THE NOVEMBER 2003 GEOLOGY REPORT.

2. TEST HOLE AND TEST PIT LOCATIONS WERE LOCATED BY THE FIELD GEOLOGIST BY REFERENCE TO AERIAL PHOTOGRAPHY AND PLAN SHEETS AVAILABLE AT THAT TIME. OR WERE LOCATED FROM GPS COORDINATES. THE LOCATIONS ARE APPROXIMATE.

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STAGE II  
PROJECT NO. 54660

FIGURE 3  
2002-2004 TEST HOLE & TEST PIT  
LOCATION MAP

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# **APPENDIX A**

## **TEST HOLE LOGS**

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# LOG OF TEST HOLE

**HOLE # TH04-01**

PROJECT NUMBER: 54660

PROJECT: Talkeetna Airport Improvements, Stage II

Station / Location: See Site Location Map  
 Offset:  
 Elevation:

Equipment Type: CME 75 Track Rig  
 Drilling Method: 3.75" ID x 8" OD Hollow Auger  
 Field Crew: G. Hamrick, J. Love

Total Depth: 15.0 feet  
 Date: 6/24/2004 - 6/24/2004  
 Geologist: C. Boeckman

Depth (Feet)	Sample Data					USCS Classification	Frozen Zone	Soil Graphic	Ground Water Data									
	Sample Type	Number	Blow Count	Sample Recovery	N-Value				Depth in (ft.)	Time	Date	Symbol						
0						OL			7									
0 - 1						ML												
1 - 7	SPT	SP-5	0 3 2 3	X	5													
7 - 9	SPT	SP-6	17 50R	X		SW-SM												
9 - 15	SPT		20 50	X														
15								BOH 15										

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# LOG OF TEST HOLE

**HOLE # TH04-02**

PROJECT NUMBER: 54660

PROJECT: Talkeetna Airport Improvements, Stage II

Station / Location: See Site Location Map  
 Offset:  
 Elevation:

Equipment Type: CME 75 Track Rig  
 Drilling Method: 3.75" ID x 8" OD Hollow Auger  
 Field Crew: G. Hamrick, J. Love

Total Depth: 16.5 feet  
 Date: 6/23/2004 - 6/23/2004  
 Geologist: C. Boeckman

Depth (Feet)	Sample Data					USCS Classification	Frozen Zone	Soil Graphic	Ground Water Data				
	Sample Type	Number	Blow Count	Sample Recovery	N-Value				Depth in (ft.)	Time	Date	Symbol	
0						OL			5				
0.0												SUBSURFACE MATERIAL	
0.0 - 1.0						ML						ORGANICS (OL) Dark brown, moist, soft	
1.0 - 5.5												SILT (ML) Brown, moist, soft	
5.5 - 5.5												p200=86.1%, Sa=14%, Moisture=48.1%, Org=5.1%	
5.5 - 16.5						GW-GM						GRAVEL with Silt and Sand (GW-GM) Gray Iron stained gravel., wet, dense, Contains cobbles.	
5	SPT	SP-7	1 1 8 12		9								
10	SPT		17 17 22 22		39								
15	SPT		15 31 22 20		53								
16.5								BOH 16.5				Notes:	

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# LOG OF TEST HOLE

## HOLE # TH04-03

**PROJECT NUMBER:** 54660  
**PROJECT:** Talkeetna Airport Improvements, Stage II

Station / Location: See Site Location Map  
 Offset:  
 Elevation:

Equipment Type: CME 75 Track Rig  
 Drilling Method: 3.75" ID x 8" OD Hollow Auger  
 Field Crew: G. Hamrick, J. Love

Total Depth: 16.5 feet  
 Date: 6/22/2004 - 6/22/2004  
 Geologist: C. Boeckman

Depth (Feet)	Sample Data					USCS Classification	Frozen Zone	Soil Graphic	Ground Water Data					
	Sample Type	Number	Blow Count	Sample Recovery	N-Value				Depth in (ft.)	Time	Date	Symbol		
0						OL			7		6/22/04	▼	SUBSURFACE MATERIAL	
0.0						OL							ORGANICS (OL) Dark brown, moist, soft	
1.0						ML							SANDY SILT (ML) Brown, moist, soft	
2.0	GS													
3.0														
4.0														
5.0	SPT		1											
5.5			2											
6.0			3											
6.5			2		5									
7.0														
7.0						GW-GM							GRAVEL with Silt and Sand (GW-GM) Gray, wet, medium dense, Contains cobbles.	
8.0														
9.0														
10.0	SPT		5											
10.5			13											
11.0			13											
11.5			20		26									
12.0														
13.0														
14.0														
15.0	SPT		15											
15.5			15											
16.0			22											
16.5			21		37									
16.5								BOH 16.5					Notes:	

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# LOG OF TEST HOLE

**HOLE # TH04-05**

**PROJECT NUMBER:** 54660  
**PROJECT:** Talkeetna Airport Improvements, Stage II

Station / Location: See Site Location Map  
 Offset:  
 Elevation:

Equipment Type: CME 75 Track Rig  
 Drilling Method: 3.75" ID x 8" OD Hollow Auger  
 Field Crew: G. Hamrick, J. Love

Total Depth: 16.5 feet  
 Date: 6/22/2004 - 6/22/2004  
 Geologist: C. Boeckman

Depth (Feet)	Sample Data					USCS Classification	Frozen Zone	Soil Graphic	Ground Water Data			
	Sample Type	Number	Blow Count	Sample Recovery	N-Value				Depth in (ft.)	Time	Date	Symbol
0						OL			4		6/22/04	▼
0.0	<b>SUBSURFACE MATERIAL</b>											
0						OL			<b>ORGANICS (OL)</b> Dark brown, moist, soft			0.0
1						ML			<b>SILT (ML)</b> Brown, moist, soft			1.0
2												
3												
4						GW-GM			<b>GRAVEL with Silt and Sand (GW-GM)</b> Brown, wet, medium dense			4.0
5	SPT		9		21							
6			10									
7			11									
8			9									
9						SP-SM			<b>SAND with Silt and Gravel (SP-SM)</b> Gray, wet, dense			8.0
10	SPT		5		19							
11			7									
12			12									
13			12									
14						GW-GM			<b>GRAVEL with Silt and Sand (GW-GM)</b> Gray, wet, very dense, Contains cobbles.			13.0
15	SPT		5		51							
16			23									
			28									
			45									
16.5						BOH			<b>Notes:</b> Test hole located here in the area of a proposed helipad for the Army Reserve.			16.5

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# LOG OF TEST HOLE

**HOLE # TH04-06**

**PROJECT NUMBER:** 54660  
**PROJECT:** Talkeetna Airport Improvements, Stage II

Station / Location: See Site Location Map  
 Offset:  
 Elevation:

Equipment Type: CME 75 Track Rig  
 Drilling Method: 3.75" ID x 8" OD Hollow Auger  
 Field Crew: G. Hamrick, J. Love

Total Depth: 12.0 feet  
 Date: 6/24/2004 - 6/24/2004  
 Geologist: C. Boeckman

Depth (Feet)	Sample Data					USCS Classification	Frozen Zone	Soil Graphic	Ground Water Data			
	Sample Type	Number	Blow Count	Sample Recovery	N-Value				Depth in (ft.)	Time	Date	Symbol
0						OL			3.5		6/24/04	▼
0.0	<b>SUBSURFACE MATERIAL</b>											
0						OL						
1						ML						
1.0						ML						
2												
3												
3.5						GW-GM						
4						GW-GM						
5			6									
6	SPT		7									
7			10		17							
8			12									
9												
10			11									
11	SPT		17									
12			23		40							
			22									
12.0												

**Notes:**  
 Test hole was located near a couple wetland areas. The test hole was in an area of trees with no surface water and about 3 ft higher in elevation than the wetland areas.  
 Soil probes in the wetland areas had loose soil to about 4.5 feet. Surface water was present in the wetland areas.

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# LOG OF TEST HOLE

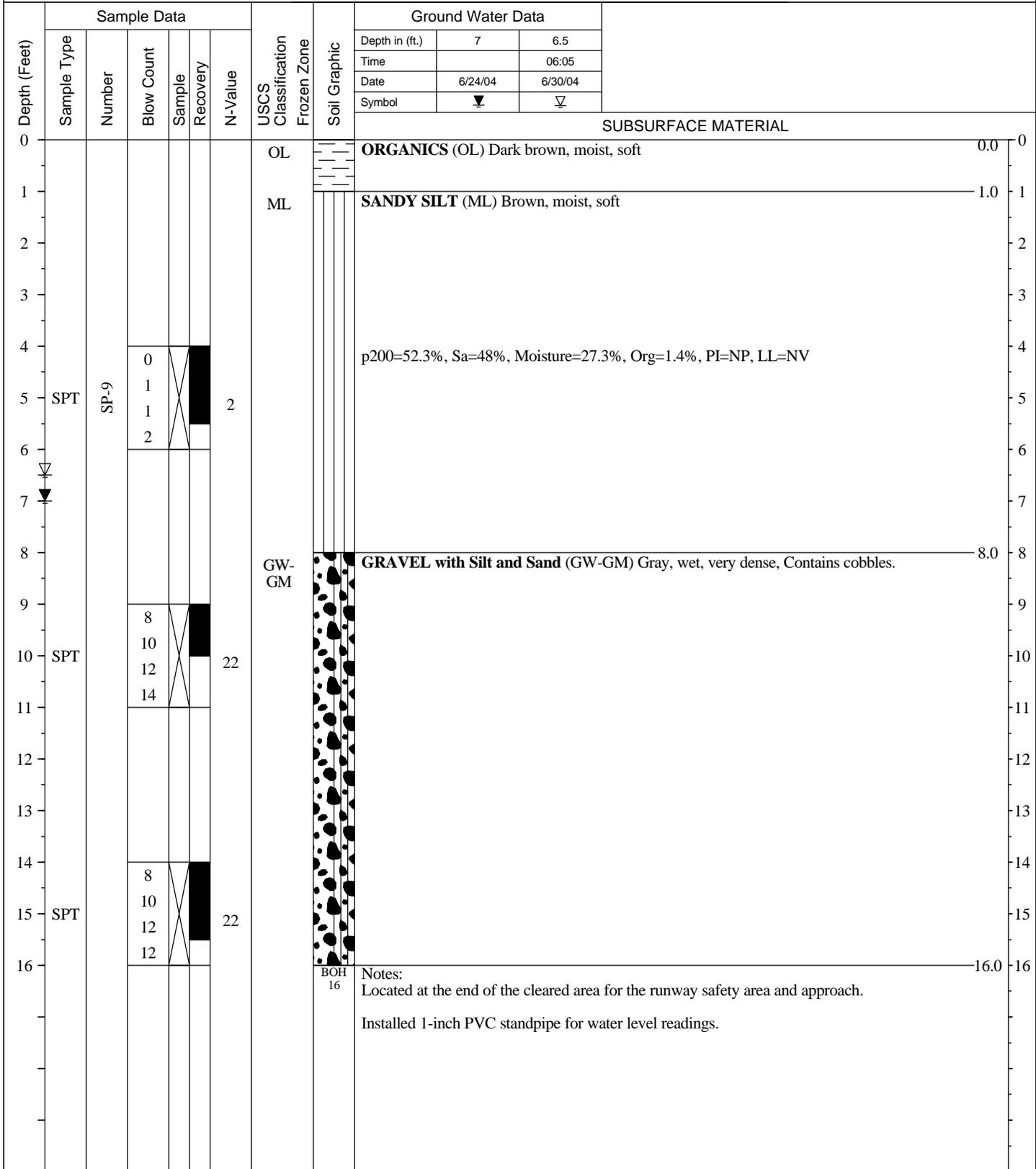
## HOLE # TH04-07

**PROJECT NUMBER:** 54660  
**PROJECT:** Talkeetna Airport Improvements, Stage II

Station / Location: See Site Location Map  
 Offset:  
 Elevation:

Equipment Type: CME 75 Track Rig  
 Drilling Method: 3.75" ID x 8" OD Hollow Auger  
 Field Crew: G. Hamrick, J. Love

Total Depth: 16.0 feet  
 Date: 6/24/2004 - 6/24/2004  
 Geologist: C. Boeckman



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**LOG OF TEST HOLE**

**HOLE # TH04-08**

**PROJECT NUMBER:** 54660  
**PROJECT:** Talkeetna Airport Improvements, Stage II

Station / Location: See Site Location Map  
 Offset:  
 Elevation:

Equipment Type: CME 75 Track Rig  
 Drilling Method: 3.75" ID x 8" OD Hollow Auger  
 Field Crew: G. Hamrick, J. Love

Total Depth: 15.5 feet  
 Date: 6/24/2004 - 6/24/2004  
 Geologist: C. Boeckman

Depth (Feet)	Sample Data					USCS Classification	Frozen Zone	Soil Graphic	Ground Water Data										
	Sample Type	Number	Blow Count	Sample Recovery	N-Value				Depth in (ft.)	Time	Date	Symbol							
0						OL			6.5										
0.0														SUBSURFACE MATERIAL					
0.0						OL								ORGANICS (OL) Dark brown, moist, soft					
1.0						ML								SANDY SILT (ML) Brown, moist, soft					
5.0						GW-GM								GRAVEL with Silt and Sand (GW-GM) Gray, wet, very dense, Contains cobbles. In general the material here is coarser than the test holes near the proposed helipad site.					
4.0	SPT		1 2 2		4														
9.0	SPT		17 20 22		42														
14.0	SPT		8 10 6		16														
15.5			11					BOH 15.5						Notes:					

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# LOG OF TEST HOLE

**HOLE # TH04-09**

**PROJECT NUMBER:** 54660  
**PROJECT:** Talkeetna Airport Improvements, Stage II

Station / Location: See Site Location Map  
 Offset:  
 Elevation:

Equipment Type: CME 75 Track Rig  
 Drilling Method: 3.75" ID x 8" OD Hollow Auger  
 Field Crew: G. Hamrick, J. Love

Total Depth: 12.0 feet  
 Date: 6/25/2004 - 6/25/2004  
 Geologist: C. Boeckman

Depth (Feet)	Sample Data					USCS Classification	Frozen Zone	Soil Graphic	Ground Water Data					
	Sample Type	Number	Blow Count	Sample Recovery	N-Value				Depth in (ft.)	Time	Date	Symbol		
0						OL			9			SUBSURFACE MATERIAL		
0.0						OL						ORGANICS (OL) Dark brown, moist, soft		
1.0						ML						SANDY SILT (ML) Brown, moist, soft		
6.0	SPT		2 3 4 13		7	SM						SILTY SAND (SM) Gray, wet, medium dense		
7.0						GW-GM						GRAVEL with Silt and Sand (GW-GM) Gray, wet, very dense, Contains cobbles.		
10.0	SPT		6 9 12 12		21									
12.0								BOH 12				Notes: The berm at the edge of the cleared area near TH04-09 contains remnants of trees, organic material, and silt. It is about 6 to 8 ft in height.		

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# LOG OF TEST HOLE

## HOLE # TH04-10

**PROJECT NUMBER:** 54660  
**PROJECT:** Talkeetna Airport Improvements, Stage II

Station / Location: See Site Location Map  
 Offset:  
 Elevation:

Equipment Type: CME 75 Track Rig  
 Drilling Method: 3.75" ID x 8" OD Hollow Auger  
 Field Crew: G. Hamrick, J. Love

Total Depth: 16.5 feet  
 Date: 6/25/2004 - 6/25/2004  
 Geologist: C. Boeckman

Depth (Feet)	Sample Data					USCS Classification	Frozen Zone	Soil Graphic	Ground Water Data				
	Sample Type	Number	Blow Count	Sample Recovery	N-Value				Depth in (ft.)	Time	Date	Symbol	
0						OL			11				
0 - 1						ML							
1 - 5													
5 - 16.5						GW-GM							
5.0			5										
6.0	SPT		8		20								
12.0			12										
16.5			12										
10.0			10										
11.0	SPT		15		35								
12.0			20										
15.0			15										
16.0	SPT		20		48								
16.5			28										
16.5								BOH 16.5					

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# LOG OF TEST HOLE

**HOLE # TH04-11**

**PROJECT NUMBER:** 54660  
**PROJECT:** Talkeetna Airport Improvements, Stage II

Station / Location: See Site Location Map  
 Offset:  
 Elevation:

Equipment Type: CME 75 Track Rig  
 Drilling Method: 3.75" ID x 8" OD Hollow Auger  
 Field Crew: G. Hamrick, J. Love

Total Depth: 16.0 feet  
 Date: 6/25/2004 - 6/25/2004  
 Geologist: C. Boeckman

Depth (Feet)	Sample Data					USCS Classification	Frozen Zone	Soil Graphic	Ground Water Data			
	Sample Type	Number	Blow Count	Sample Recovery	N-Value				Depth in (ft.)	Time	Date	Symbol
0						OL			6.5		6/25/04	▼
<b>SUBSURFACE MATERIAL</b>												
0.0						OL						
1.0						SM						
4.0			2									
5.0	SPT	SP-11 SP-10	2		4	ML						
6.0			2									
7.0			2			SP-SM						
8.0			2									
10.0	SPT		3		8							
11.0			5									
12.0			5									
13.0						GW-GM						
14.0			9									
15.0	SPT		20		42							
16.0			22									
			11									
16.0												
Notes: Installed 1-inch PVC standpipe for water level readings.												

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**LOG OF TEST HOLE**

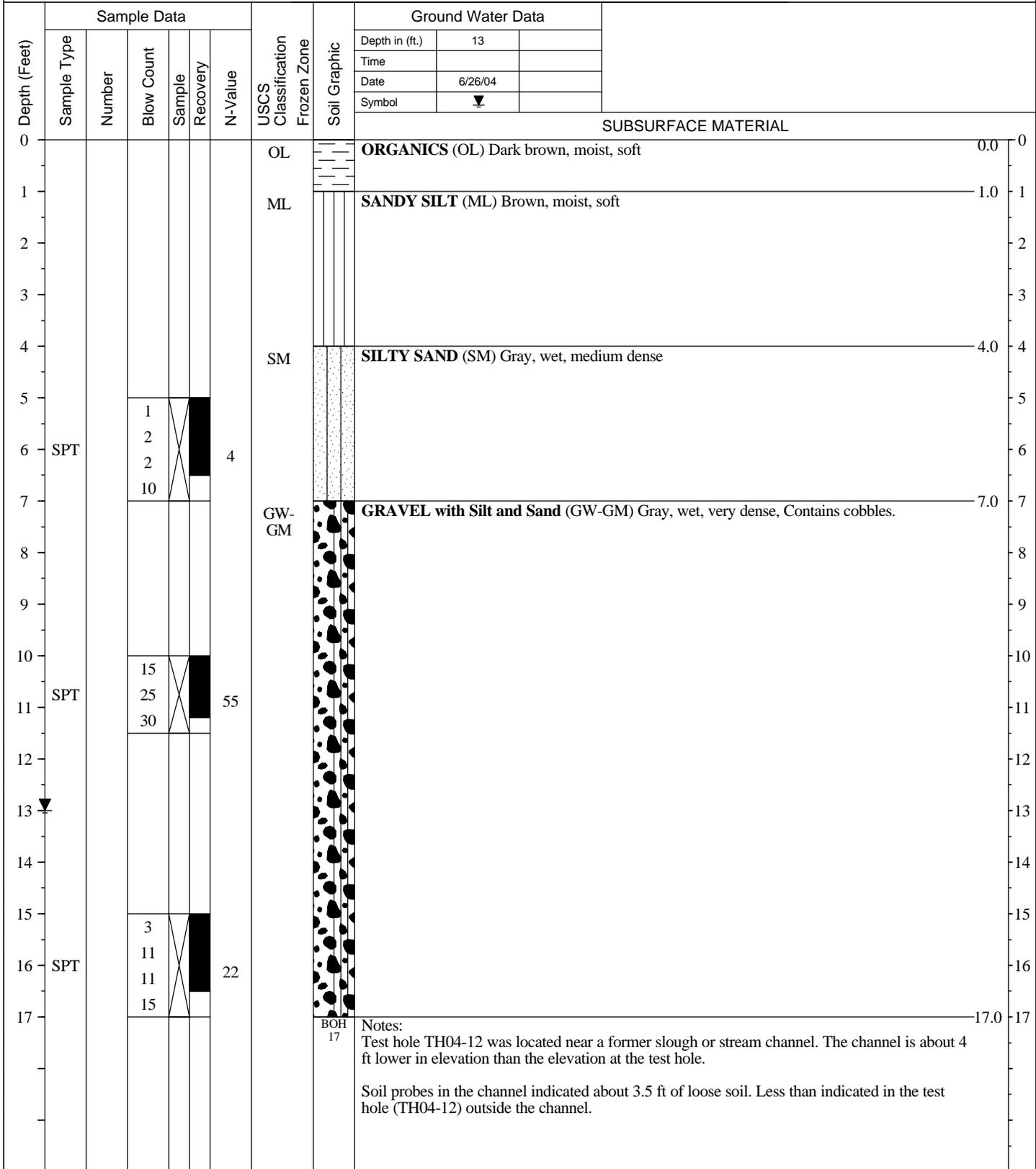
**HOLE # TH04-12**

**PROJECT NUMBER:** 54660  
**PROJECT:** Talkeetna Airport Improvements, Stage II

Station / Location: See Site Location Map  
 Offset:  
 Elevation:

Equipment Type: CME 75 Track Rig  
 Drilling Method: 3.75" ID x 8" OD Hollow Auger  
 Field Crew: G. Hamrick, J. Love

Total Depth: 17.0 feet  
 Date: 6/26/2004 - 6/26/2004  
 Geologist: C. Boeckman



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# LOG OF TEST HOLE

**HOLE # TH04-13**

PROJECT NUMBER: 54660

PROJECT: Talkeetna Airport Improvements, Stage II

Station / Location: See Site Location Map  
 Offset:  
 Elevation:

Equipment Type: CME 75 Track Rig  
 Drilling Method: 3.75" ID x 8" OD Hollow Auger  
 Field Crew: G. Hamrick, J. Love

Total Depth: 12.0 feet  
 Date: 6/26/2004 - 6/26/2004  
 Geologist: C. Boeckman

Depth (Feet)	Sample Data					USCS Classification	Frozen Zone	Soil Graphic	Ground Water Data				
	Sample Type	Number	Blow Count	Sample Recovery	N-Value				Depth in (ft.)	Time	Date	Symbol	
0						OL			11				
1						ML							
4.5			3			SM							
5.0	SPT		8		23	GW-GM							
11	SPT		8		23								
12			7										
								BOH 12					Notes:

A USCS LOG OF TEST HOLE\_TALKEETNA\_AIRPORT\_2004.LOGS.GPJ\_2004TEMPLATE.GDT\_9/28/04



**STATE OF ALASKA DOT&PF**  
 Statewide Materials  
 Geology Section

# LOG OF TEST HOLE

**HOLE # TH04-14**

**PROJECT NUMBER:** 54660  
**PROJECT:** Talkeetna Airport Improvements, Stage II

Station / Location: See Site Location Map  
 Offset:  
 Elevation:

Equipment Type: CME 75 Track Rig  
 Drilling Method: 3.75" ID x 8" OD Hollow Auger  
 Field Crew: G. Hamrick, J. Love

Total Depth: 12.0 feet  
 Date: 6/25/2004 - 6/25/2004  
 Geologist: C. Boeckman

Depth (Feet)	Sample Data					USCS Classification	Frozen Zone	Soil Graphic	Ground Water Data										
	Sample Type	Number	Blow Count	Sample Recovery	N-Value				Depth in (ft.)	Time	Date	Symbol							
0						OL			9.5										
0.0															SUBSURFACE MATERIAL				
0						OL									ORGANICS (OL) Dark brown, moist, soft				
1						ML									SANDY SILT (ML) Brown, moist, soft				
3		SP-12													p200=62.9%, Sa=37%, Moisture=26.8%, Org=2.4%, PI=NP, LL=NV				
5.5						GW-GM									GRAVEL with Silt and Sand (GW-GM) Gray, wet, dense, Contains cobbles.				
5	SPT		2																
6			8																
6			8																
6			10		16														
10			3																
10	SPT		8																
11			9																
11			13		17														
12																			
12								BOH 12							Notes:				

A USCS LOG OF TEST HOLE\_TALKEETNA\_AIRPORT\_2004.LOGS.GPJ\_2004TEMPLATE.GDT\_9/28/04



**STATE OF ALASKA DOT&PF**  
 Statewide Materials  
 Geology Section

# LOG OF TEST HOLE

## HOLE # TH04-15

PROJECT NUMBER: 54660

PROJECT: Talkeetna Airport Improvements, Stage II

Station / Location: See Site Location Map

Equipment Type: CME 75 Track Rig

Total Depth: 16.0 feet

Offset:

Drilling Method: 3.75" ID x 8" OD Hollow Auger

Date: 6/24/2004 - 6/24/2004

Elevation:

Field Crew: G. Hamrick, J. Love

Geologist: C. Boeckman

Depth (Feet)	Sample Data					USCS Classification	Frozen Zone	Soil Graphic	Ground Water Data			
	Sample Type	Number	Blow Count	Sample Recovery	N-Value				Depth in (ft.)	Time	Date	Symbol
0						OL			9		6/24/04	▼
<b>SUBSURFACE MATERIAL</b>												
0						OL						
1						ML						
2												
3						SM						
4						GW-GM						
5	SPT		8		15							
6			9									
7			6									
8			4									
9												
10	SPT		12		34							
11			21									
12			13									
13			11									
14												
15	SPT		20		29							
16			19									
			10									
			18									
16.0								BOH 16				

A USCS LOG OF TEST HOLE\_TALKEETNA\_AIRPORT\_2004.LOGS.GPJ\_2004TEMPLATE.GDT\_9/28/04



**STATE OF ALASKA DOT&PF**  
 Statewide Materials  
 Geology Section

**LOG OF TEST HOLE**

**HOLE # TH04-16**

**PROJECT NUMBER:** 54660  
**PROJECT:** Talkeetna Airport Improvements, Stage II

Station / Location: See Site Location Map  
 Offset:  
 Elevation:

Equipment Type: CME 75 Track Rig  
 Drilling Method: 3.75" ID x 8" OD Hollow Auger  
 Field Crew: G. Hamrick, J. Love

Total Depth: 11.0 feet  
 Date: 6/26/2004 - 6/26/2004  
 Geologist: C. Boeckman

Depth (Feet)	Sample Data					USCS Classification	Frozen Zone	Soil Graphic	Ground Water Data			
	Sample Type	Number	Blow Count	Sample Recovery	N-Value				Depth in (ft.)	Time	Date	Symbol
0						OL			0.2		6/26/04	▼
<b>SUBSURFACE MATERIAL</b>												
0.0						OL			<b>Peat (OL)</b> Dark brown, wet, soft			0.0
3.0						GW-GM			<b>GRAVEL with Silt and Sand (GW-GM)</b> Gray, wet, dense, Contains cobbles.			3.0
4.0	SPT		15		43							
5.0			28									
6.0			15									
7.0			15									
9.0	SPT		26		34							
10.0			24									
11.0			10									
11.0			9									
						BOH 11			<b>Notes:</b> Located in a slough near the embankment for the M&O Building Site.			11.0

A USCS LOG OF TEST HOLE\_TALKEETNA\_AIRPORT 2004 LOGS.GPJ\_2004TEMPLATE.GDT 9/28/04



**STATE OF ALASKA DOT&PF**  
 Statewide Materials  
 Geology Section

# LOG OF TEST HOLE

**HOLE # TH04-17**

**PROJECT NUMBER:** 54660  
**PROJECT:** Talkeetna Airport Improvements, Stage II

Station / Location: See Site Location Map  
 Offset:  
 Elevation:

Equipment Type: CME 75 Track Rig  
 Drilling Method: 3.75" ID x 8" OD Hollow Auger  
 Field Crew: G. Hamrick, J. Love

Total Depth: 12.0 feet  
 Date: 6/26/2004 - 6/26/2004  
 Geologist: C. Boeckman

Depth (Feet)	Sample Data					USCS Classification	Frozen Zone	Soil Graphic	Ground Water Data			
	Sample Type	Number	Blow Count	Sample Recovery	N-Value				Depth in (ft.)	Time	Date	Symbol
0						OL			10		6/26/04	▼
<b>SUBSURFACE MATERIAL</b>												
0.0						OL						
1.0						ML						
3.5						GW-GM						
5.0			8									
6.0	SPT		12									
7.0			17		29							
8.0			21									
10.0			12									
11.0	SPT		12									
12.0			14		26							
			24									

A USCS LOG OF TEST HOLE\_TALKEETNA\_AIRPORT 2004 LOGS.GPJ\_2004TEMPLATE.GDT\_9/28/04



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## **APPENDIX B**

### **PRECONSTRUCTION SAMPLE SUMMARY FORMS**

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PRECONSTRUCTION SAMPLE SUMMARY

Project Name Talkeetna Airport Imp. Stage 2

Project No. 54660 Sampled By C. Boeckman

Centerline June 2004 Drilling

Station	Offset (feet)	Depth (feet)	Test Hole No.	Field No.	Date Sampled	Lab No.
	5.0'-7.0'	0.0'-5.5'	0.0'-2.0'	3.5'-5.5'		
	TH 04-11	TH 04-14	TH 04-18	TH 04-18		
	SP-11	SP-12	SP-13	SP-14		
	06/25/2004	06/25/2004	06/29/2004	06/29/2004		
	04A-1440	04A-1441	04A-1442	04A-1443		
Percent	3" 2" 1" 3/4" 1/2" 3/8"	100 100 100	86 84 72	100 98 95		
Passing	#4 #10 #40 #80 #200 .02mm .002mm	100 99 98	53 44 25	90 85 74		
Sieve		62.9	10.3	56.3		
Size						
AASHTO Class		A-4 (0)	A-4 (0)			
FSV Class						
Unified Class		ML	ML			
Liquid Limit		NV	NV			
Plastic Index		NP	NP			
Moisture Content %	29.8	26.8		21.5		
Organic Content %		2.4				
% Gravel			47	10		
% Sand	23	37	43	34		
% Silt & Clay	77	63	10	56		
Max. Dry Density						
Opt. Moisture %						
Degradation Value						
L.A. Abrasion Loss						
Sulfate Soundness	/	/	/	/		/

NOTE: Gradation Tests Based on Minus 3" Material. AASHTO class may be inappropriate if Organic Content > 5%.

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## **APPENDIX C**

### **ADOT&PF – ALASKA GEOTECHNICAL PROCEDURES MANUAL**

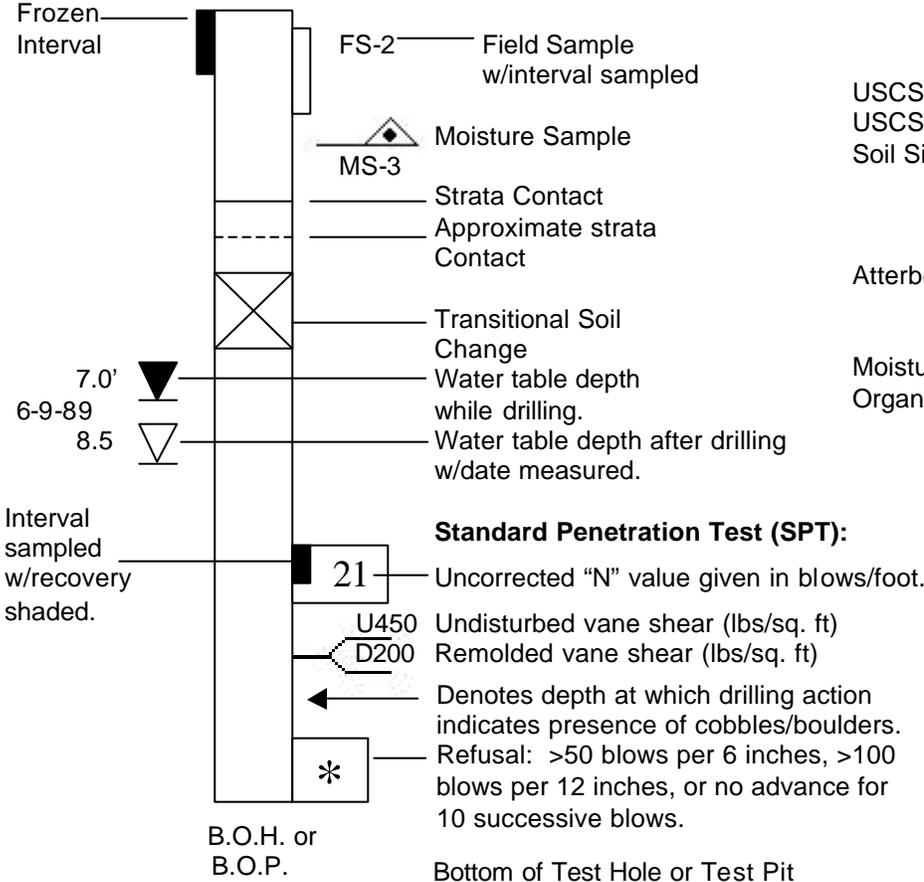
#### **Test Hole & Test Pit Log Explanation Legend, Lab And Field USCS Soil Classification Legend**

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# TEST HOLE AND TEST PIT LOG EXPLANATION

ALASKA DEPARTMENT OF TRANSPORTATION & PUBLIC FACILITIES

T.H. 03-3 ————— Test Hole or Test Pit Number  
 Sta. 15+00, 15' Rt. — Location and Offset from Centerline   
 Northing, Easting ——— Coordinate Location  
 Elev. 86.5 ————— Elevation  
 6-8-89 ————— Date drilled or excavated



## SAMPLE DATA

### Unified Soil Classification System

USCS Name Silty Sand with Gravel  
 USCS Symbol (SM)  
 Soil Size Distribution:  
     Gravel Gr = 22%  
     Sand Sa = 35%  
     Silt/Clay or P200 Si/Cl or P200 = 43.2%  
 Atterberg Limits:  
     Liquid Limit LL = 16 NV = No Value  
     Plasticity Index PI = 2 NP = Nonplastic  
 Moisture Content Moisture = 20.5%  
 Organic Content Org = 4.2%

NOTE: All soils encountered are field-classified by the Geologist. Laboratory classifications are made on selected samples. The field classifications are adjusted if necessary, to match the laboratory classification.

### Abbreviations

Auger = Auger Cuttings  
 Core = Rock Core  
 Grab = Grab Sample  
 MC = "Modified California"  
     (OD) 3-in. Split Spoon  
 MS = Modified Shelby Tube  
 NR = No Recovery  
 SNT = Sample Not Tested  
 SPT = Standard Penetration Test  
 SS = 2.5-in. (OD) Split Spoon  
 ST = Shelby Tube  
 UNDIST = Undisturbed Sample  
 VANE = Vane Shear Test  
 EB = Excavator Bucket Sample  
 FLD WT = Field Weighted Sample

### Soil Size Distribution

Based on U.S. Standard  
 Sieve Sizes:  
 Boulders: > 12"  
 Cobbles: 3" to 12"  
 Gravel: #4 to 3"  
 Sand: #200 to #4  
 Silt/Clay: < #200

### Plan View Symbols

-  Power Auger Test Hole
-  Hand Auger Test Hole
-  Hand Probe Depth At Location
-  Hand Dug Test Pit
-  Dozer/Backhoe Pit

### Graphic Symbols

(Two or more soil symbols may be used together to indicate a combination of soil types.)

-  Cobbles and/or Boulders
-  Gravel (Grl)
-  Sand (Sa)
-  Silt (Si)
-  Clay (Cl)
-  Organics (Org)
-  Peat
-  Bedrock (Bx)
-  Ice (Ice)



# Laboratory Classification

of Soils for Engineering Purposes  
Unified Soil Class. System  
ASTM D2487

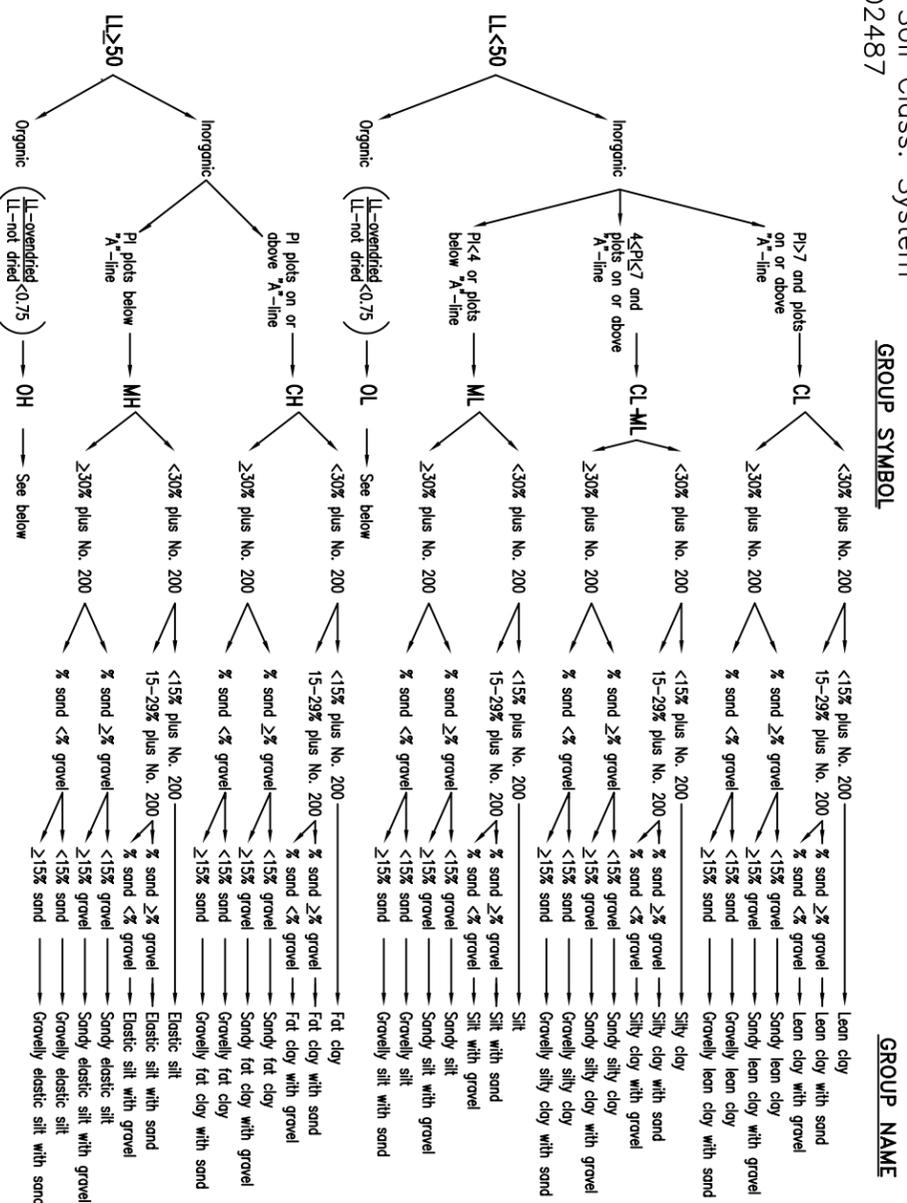


Figure 1: Flow Chart for Classifying Fine-Grained Soil (50% or More Passes No. 200 Sieve)

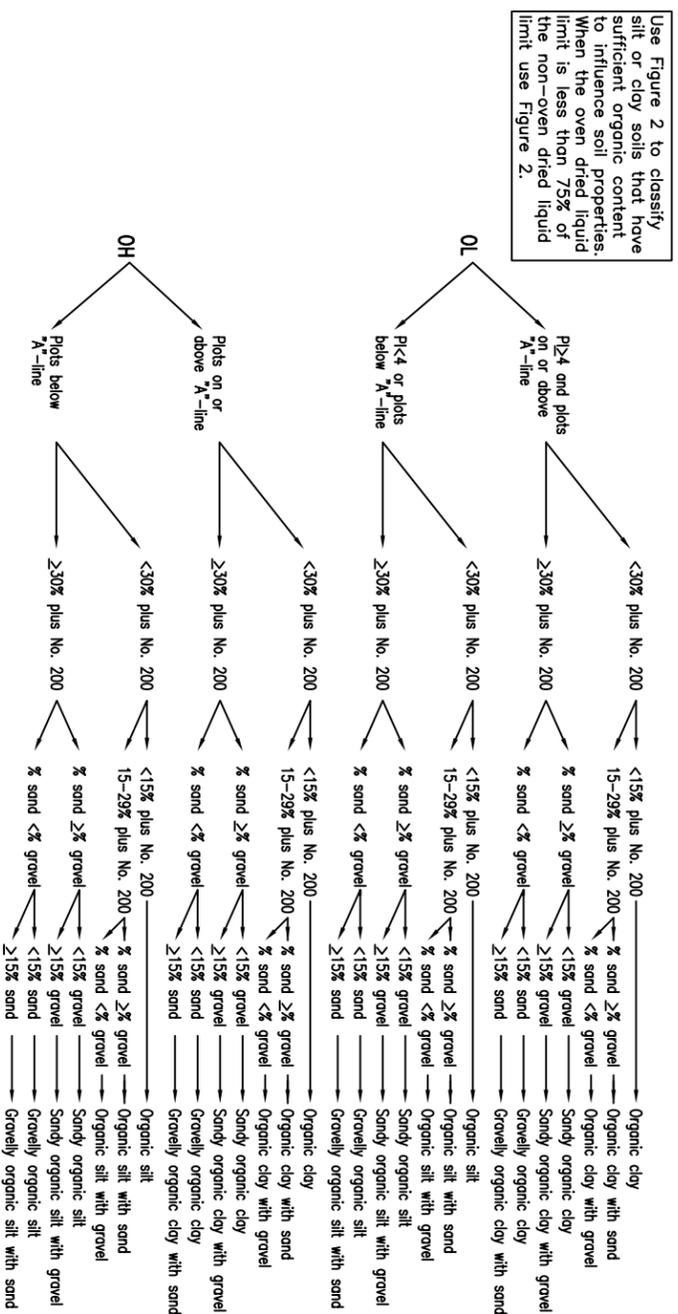


Figure 2: Flow Chart for Classifying Organic Fine-Grained Soil (50% or More Passes No. 200 Sieve)

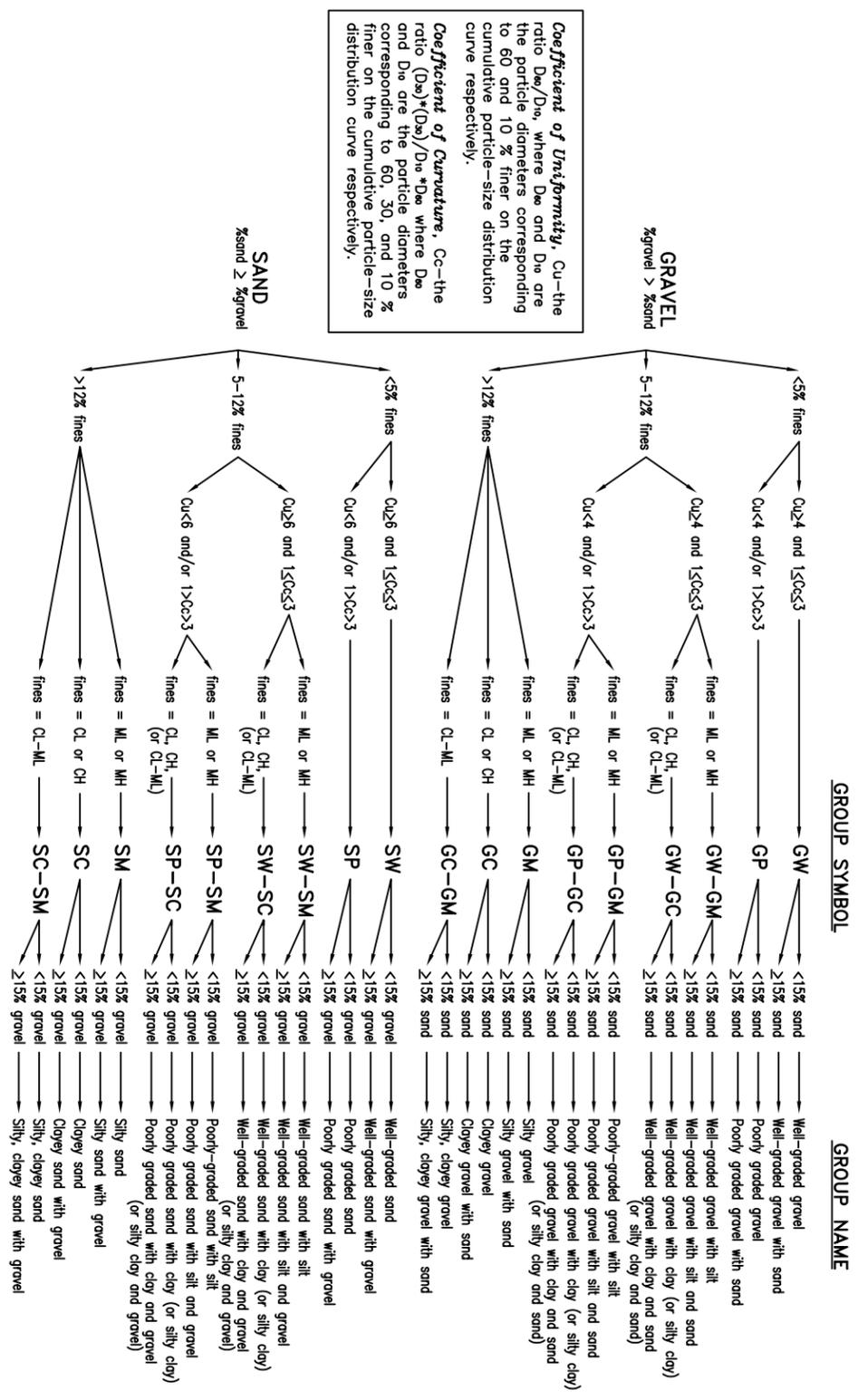


Figure 3: Flow Chart for Classifying Coarse-Grained Soil (More Than 50% Retained on No. 200 Sieve)

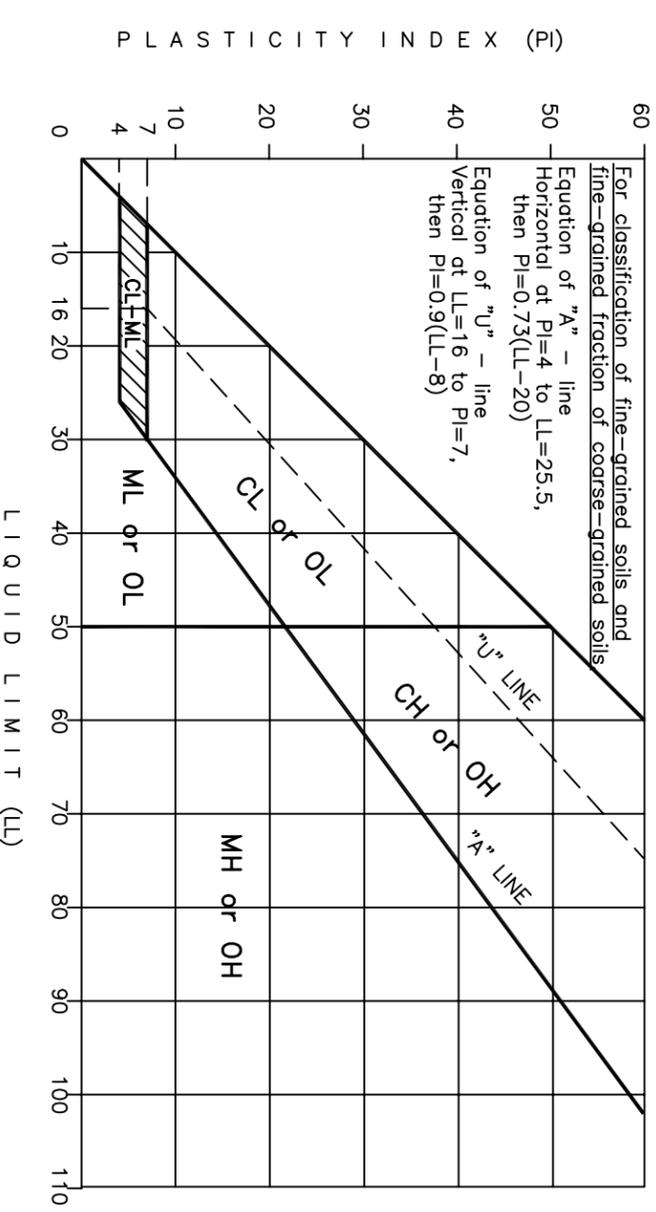


Figure 4: Plasticity Chart