Appendix B

Boring and Test Pit Logs

Professional Geotechnical Services

Foundation Engineering, Inc.

Foundation Engineering, Inc.
Turner Energy Center
Project 2011116

Table 1B. Summary of Boring Locations

Borehole Number	Northing	Easting	Elevation (ft)	Completed Depth (ft)
BH-1	435952.3	7565412.4	287.39	50
BH-2	436210.1	7565375.8	286.79	75
BH-3	436490.4	7565384.1	286.10	50
BH-4	436478.4	7565540.6	285.73	50
BH-5	436347.2	7565540.4	287.11	50
BH-6	435854.6	7565621.5	288.87	25
BH-7	435864.9	7565196.9	287.46	25
BH-8	436397.5	7565184.0	286.07	25
BH-9	436162.8	7565367.3	287.05	25
BH-10	436161.7	7564833.9	285.14	50

Notes: 1. Coordinates and elevations provided by Northstar Surveying, Inc.
2. Horizontal control based on NAD 83, vertical control based on NGVD 29/47.

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Project 2011116

Table 2B. Summary of Test Pit Locations

Test Pit Number	Northing	Easting	Elevation (ft)	Completed Depth (ft)
TP-1	436346.9	7565267.7	286.1	10.5
TP-2	436352.5	7565072.1	285.3	11.0
TP-3	436371.2	7564875.2	284.5	9.0
TP-4	436383.3	7564723.9	285.0	11.0
TP-5	436606.0	7565385.6	285.2	4.0
TP-6	436640.6	7565082.3	285.2	4.0
TP-7	435864.9	7565196.9	286.3	12.5
TP-8	435866.3	7565215.4	287.6	12.5
TP-9	436240.3	7565137.7	285.7	4.0
TP-10	436099.7	7564973.6	285.7	7.0
TP-11	435921.5	7564759.9	285.5	6.0
TP-12	436646.6	7564776.6	283.9	4.0
TP-13	436214.6	7565524.0	286.5	11.0
TP-14	436444.1	7565487.4	285.2	13.0
TP-15	436443.0	7565631.6	286.0	4.0
TP-16	436436.8	7565713.7	287.8	12.0
TP-17	436298.6	7565705.9	286.5	15.0
TP-18	436236.2	7565664.7	287.4	4.0
TP-19	436077.4	7565647.8	287.2	13.0
TP-20	436078.3	7565728.1	286.5	9.0
TP-21	435978.1	7565733.4	288.4	11.0
TP-22	435876.9	7565730.7	289.2	9.0
TP-23	436894.6	7565498.9	285.3	6.0
TP-24	436928.0	7565753.2	285.5	6.5

Notes: 1. Coordinates and elevations provided by Northstar Surveying, Inc.
2. Horizontal control based on NAD 83, vertical control based on NGVD 29/47.

DISTINCTION BETWEEN FIELD LOGS AND FINAL LOGS

A field log is prepared for each boring or test pit by our field representative. The log contains information concerning sampling depths and the presence of various materials such as gravel, cobbles, and fill, and observations of ground water. It also contains our interpretation of the soil conditions between samples. The final logs presented in this report represent our interpretation of the contents of the field logs and the results of the laboratory examinations and tests. Our recommendations are based on the contents of the final logs and the information contained therein and not on the field logs.

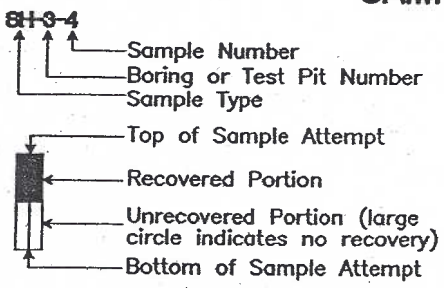
VARIATION IN SOILS BETWEEN TEST PITS AND BORINGS

The final log and related information depict subsurface conditions only at the specific location and on the date indicated. Those using the information contained herein should be aware that soil conditions at other locations or on other dates may differ. Actual foundation or subgrade conditions should be confirmed by us during construction.

TRANSITION BETWEEN SOIL OR ROCK TYPES

The lines designating the interface between soil, fill or rock on the final logs and on subsurface profiles presented in the report are determined by interpolation and are therefore approximate. The transition between the materials may be abrupt or gradual. Only at boring or test pit locations should profiles be considered as reasonably accurate and then only to the degree implied by the notes thereon.

SAMPLE OR TEST SYMBOLS



S – Grab Samples
SS – Standard Penetration Test Sample (split–spoon)
SH – Thin–walled Shelby Tube Sample
C – Core Sample
CS – Continuous Sample

▲ Standard Penetration Test Resistance equals the number of blows a 140 lb. weight falling 30 in. is required to drive a standard split–spoon sampler 1 ft. Practical refusal is equal to 50 or more blows per 6 in. of sampler penetration.

● Water Content (%).

UNIFIED SOIL CLASSIFICATION SYMBOLS

G – Gravel	W – Well Graded
S – Sand	P – Poorly Graded
M – Silt	L – Low Plasticity
C – Clay	H – High Plasticity
Pt – Peat	O – Organic

FIELD SHEAR STRENGTH TEST

Shear strength measurements on test pit side walls, blocks of soil or Shelby tube samples are typically made with Torvane or pocket penetrometer devices.

TYPICAL SOIL/ROCK SYMBOLS

Sand
Silt
Clay
Gravel
Basalt
Siltstone

WATER TABLE

Water Table Location

(1/31/00) Date of Measurement

Piezometer Tip Location (if used)

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SYMBOL KEY
BORING AND TEST PIT LOGS

Explanation of Common Terms Used in Soil Descriptions

Field Identification	Cohesive Soils			Granular Soils	
	SPT	S_u* (tsf)	Term	SPT	Term
Easily penetrated several inches by fist.	0 – 1	< 0.125	Very Soft	0 – 4	Very Loose
Easily penetrated several inches by thumb.	2 – 4	0.125–0.25	Soft	5 – 10	Loose
Can be penetrated several inches by thumb with moderate effort.	5 – 8	0.25 – 0.50	Medium Stiff (Firm)	11 – 30	Medium Dense
Readily indented by thumb but penetrated only with great effort.	9 – 15	0.50 – 1.0	Stiff	31 – 50	Dense
Readily indented by thumbnail.	16 – 30	1.0 – 2.0	Very Stiff	> 50	Very Dense
Indented with difficulty by thumbnail.	31 – 60	> 2.0	Hard		

* Undrained shear strength

Term	Soil Moisture Field Description
Dry	Absence of moisture. Dusty. Dry to the touch.
Damp	Soil has moisture. Cohesive soils are below plastic limit and usually moldable.
Moist	Grains appear darkened, but no visible water. Silt/clay will clump. Sand will bulk. Soils are often at or near plastic limit.
Wet	Visible water on larger grain surfaces. Sand and cohesionless silt exhibit dilatancy. Cohesive silt/clay can be readily remolded. Soil leaves wetness on the hand when squeezed. "Wet" indicates that the soil is wetter than the optimum moisture content and above the plastic limit.

Term	PI	Plasticity Field Test
Nonplastic	0 – 3	Cannot be rolled into a thread.
Low Plasticity	3 – 15	Can be rolled into a thread with some difficulty.
Medium Plasticity	15 – 30	Easily rolled into thread.
High Plasticity	> 30	Easily rolled and rerolled into thread.

Term	Soil Structure Criteria
Stratified	Alternating layers at least 1 inch thick – describe variation.
Laminated	Alternating layers at less than 1 inch thick – describe variation.
Fissured	Contains shears and partings along planes of weakness.
Slickensides	Partings appear glossy or striated.
Blocky	Breaks into lumps – crumbly.
Lensed	Contains pockets of different soils – describe variation.

Term	Soil Cementation Criteria
Weak	Breaks under light finger pressure.
Moderate	Breaks under hard finger pressure.
Strong	Will not break with finger pressure.

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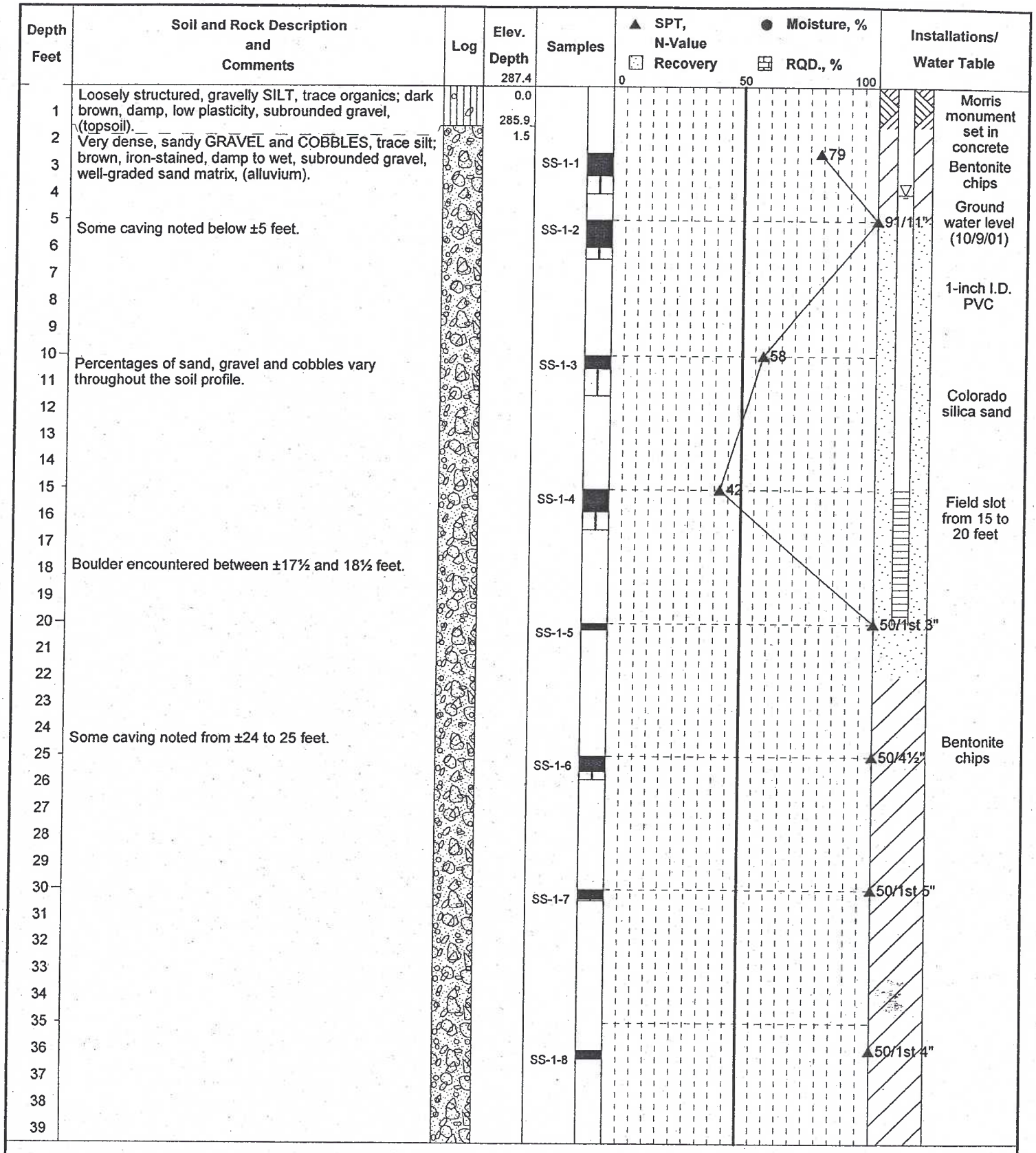
COMMON TERMS
SOIL DESCRIPTIONS



Project No.: 2011116

Surface Elevation: 287.4 feet (Approx.)

Date of Boring: October 8, 2001

Boring Log: BH- 1

Turner Energy Center

Turner, Oregon

Foundation Engineering, Inc.

Depth Feet	Soil and Rock Description and Comments	Log	Elev. Depth	Samples	SPT, N-Value / Recovery / Moisture, % / RQD., %	Installations/ Water Table
40	Very dense, sandy GRAVEL and COBBLES, trace silt; brown, damp to wet, subrounded gravel, well-graded sand matrix, (alluvium).		247.9	SS-1-9	50/1st 4"	
41						
42						
43						
44						
45						
46			241.4	SS-1-10	50/1st 3½"	
47	Hard, sandy SILT, trace gravel; brown, damp to moist, non-plastic to low plasticity, fine-grain sand, subrounded gravel, (alluvium).		46.0			
48						
49	Gravel content increases between ±48½ to 50 feet.					
50				SS-1-11	74	
51			235.9			
	BOTTOM OF BORING		51.5			

0 50 100

0 50 100

Project No.: 2011116

Surface Elevation: 287.4 feet (Approx.)

Date of Boring: October 8, 2001

Boring Log: BH- 1

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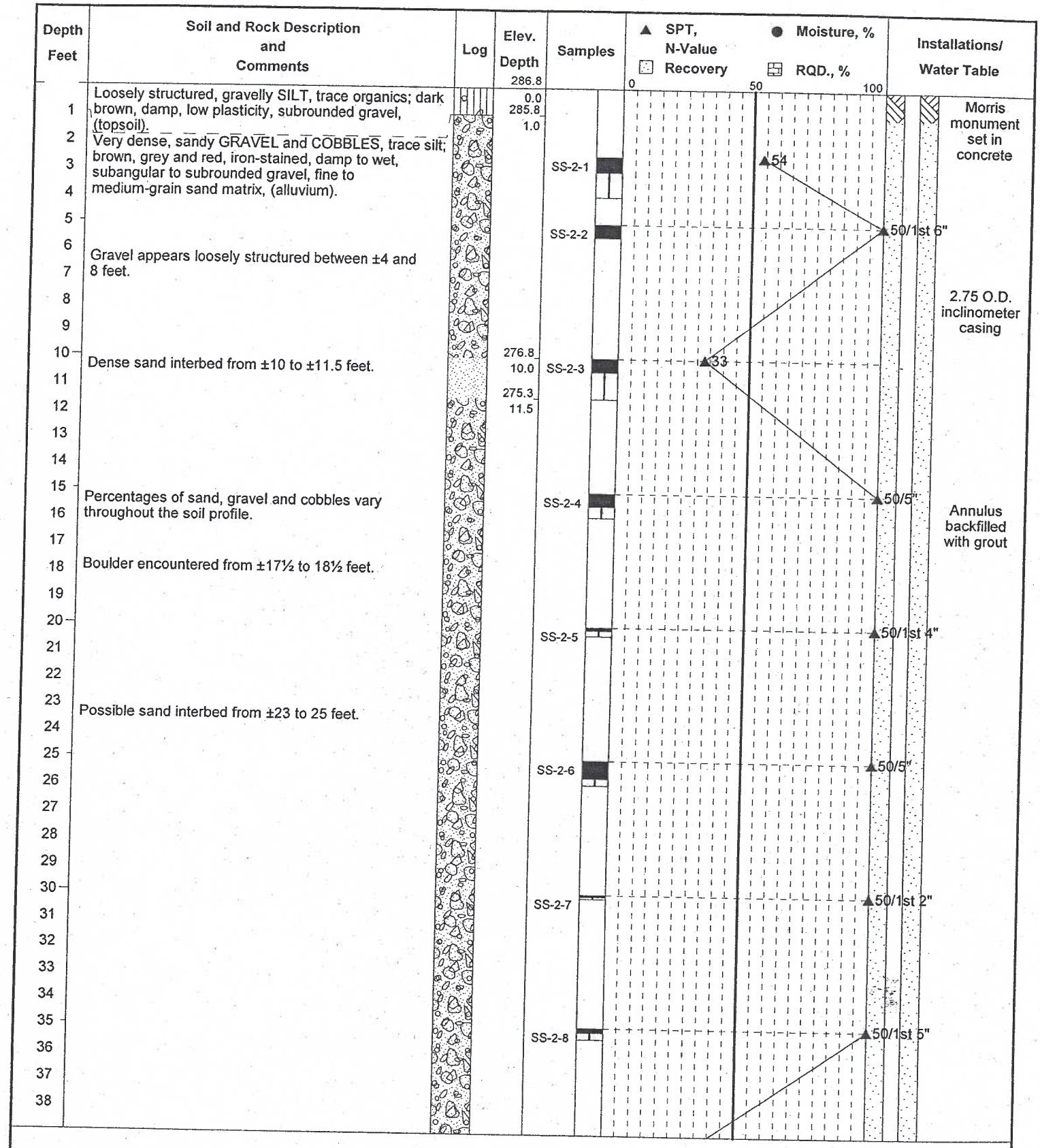


Project No.: 2011116

Surface Elevation: 286.8 feet (Approx.)

Date of Boring: October 11, 2001

Boring Log: BH- 2

Turner Energy Center

Turner, Oregon

Foundation Engineering, Inc.

Depth Feet	Soil and Rock Description and Comments	Log	Elev. Depth	Samples	SPT, N-Value / Recovery / Moisture, % / RQD., %	Installations/ Water Table
			247.8		0 50 100	
40	Loose to medium dense SAND, trace gravel; grey, wet, medium-grain sand, subrounded gravel, (alluvium).		247.8 39.0			
41				SS-2-9	10	
42						
43						
44			242.8 44.0			
45	Very dense, sandy GRAVEL and COBBLES; brown to grey, wet, subrounded to rounded, fine to medium-grain sand matrix, (alluvium).			SS-2-10	50/1st 5"	
46						
47	Caving of boring walls occurred at ±40 and ±45 feet.					
48						
49						
50				SS-2-11	50/1st 2½"	
51						
52						
53						
54						
55	Iron-staining observed in sample SS-2-12.			SS-2-12	50/1st 4"	
56	Lost drilling mud circulation from ±55 to 56 feet.					
57						
58						
59						
60				SS-2-13	50/1st 3½"	
61						
62						
63						
64						
65	Lost drilling mud circulation at ±65 feet.			SS-2-14	95/11"	
66						
67			219.8 67.0			
68	Medium dense SAND, trace to some silt; brown, wet, non-plastic to low plasticity silt, medium-grain sand, (alluvium).				30	
69				SS-2-15		
70						
71						
72						
73			213.8 73.0			
74	Very dense, sandy GRAVEL and COBBLES, trace silt; brown, wet, subrounded to subangular gravel, medium-grain sand matrix, (alluvium).					
75			211.6 75.2	SS-2-16	50/1st 2"	
	BOTTOM OF BORING				0 50 100	

Project No.: 2011116

Surface Elevation: 286.8 feet (Approx.)

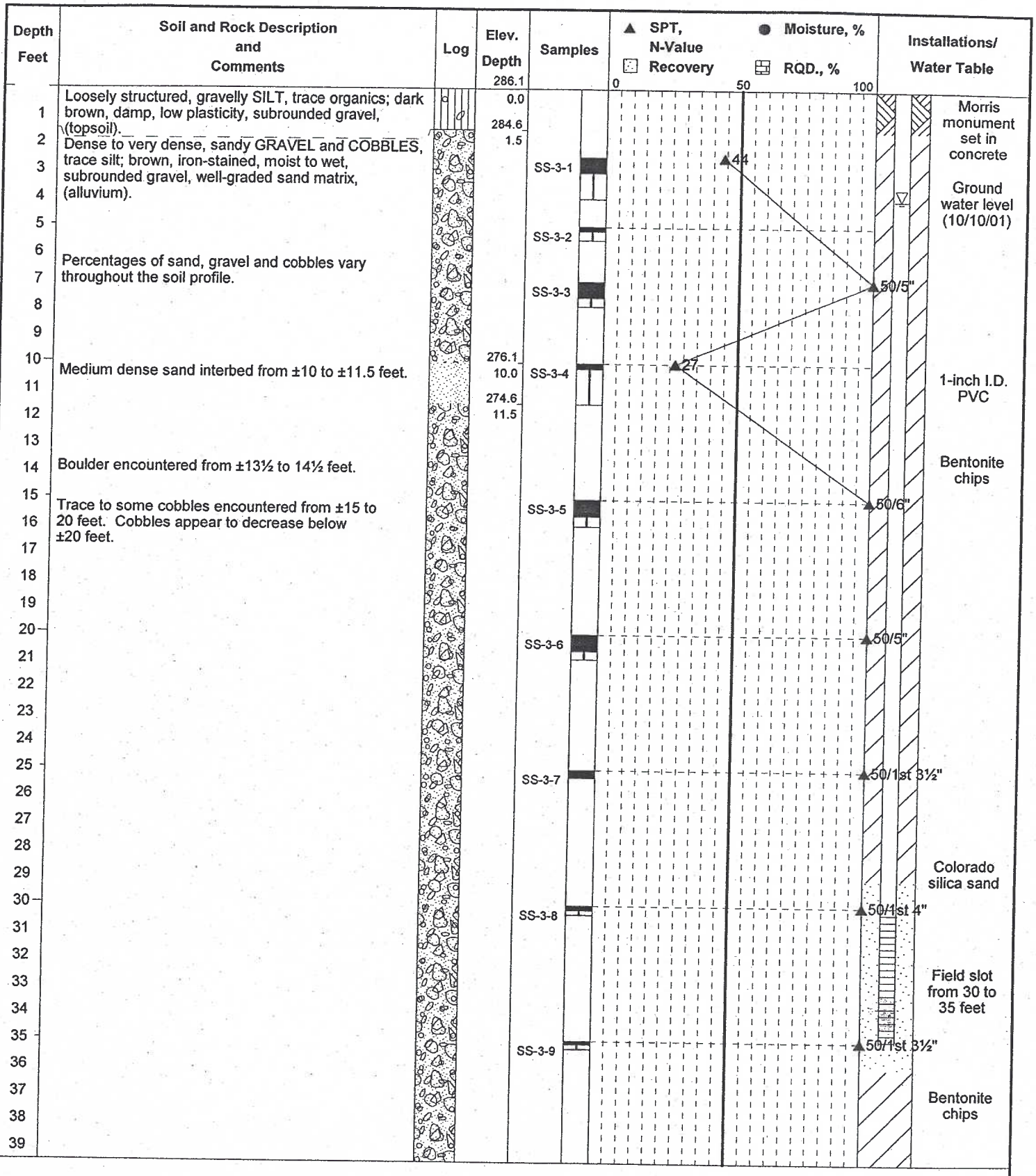
Date of Boring: October 11, 2001

Boring Log: BH- 2

Turner Energy Center

Turner, Oregon

Foundation Engineering, Inc.



Project No.: 2011116

Surface Elevation: 286.1 feet (Approx.)

Date of Boring: October 9, 2001

Boring Log: BH- 3

Turner Energy Center

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Depth Feet	Soil and Rock Description and Comments	Log	Elev. Depth	Samples	SPT, N-Value / Recovery / Moisture, % / RQD., %	Installations/ Water Table
40 41 42 43 44 45 46 47 48 49 50	Dense to very dense, sandy GRAVEL and COBBLES, trace silt; brown, iron-stained, moist to wet, subrounded gravel, well-graded sand matrix, (alluvium).		246.6	SS-3-10 SS-3-11 SS-3-12	0 50 100 50/2" 94/11½" 50/1st 3"	
	BOTTOM OF BORING		235.9 50.3			

Project No.: 2011116

Surface Elevation: 286.1 feet (Approx.)

Date of Boring: October 9, 2001

Boring Log: BH- 3

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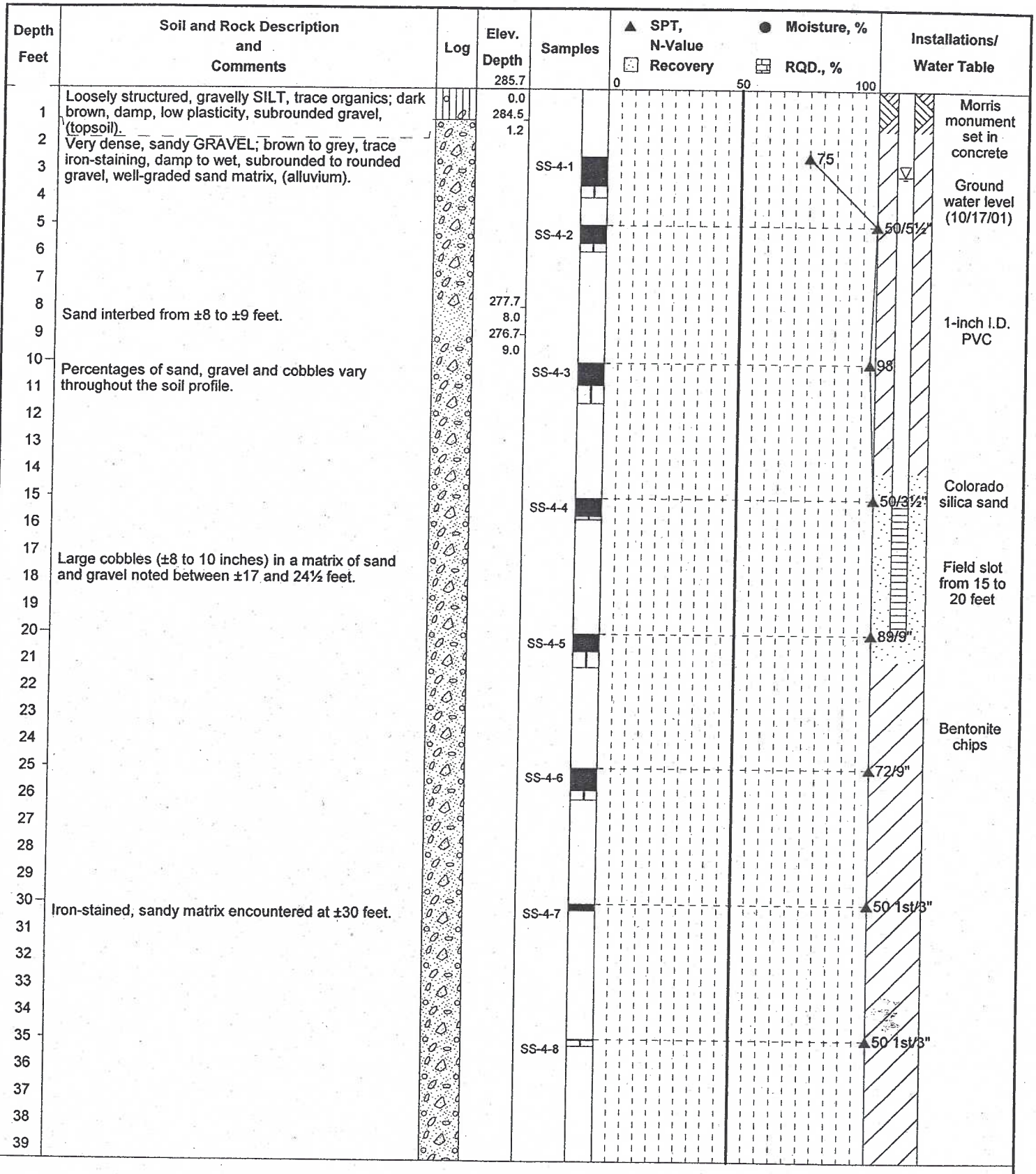

Project No.: 2011116

Surface Elevation: 285.7 feet (Approx.)

Date of Boring: October 16, 2001

Boring Log: BH- 4

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Depth Feet	Soil and Rock Description and Comments	Log	Elev. Depth	Samples	▲ SPT, N-Value ● Moisture, % ☐ Recovery ⊞ RQD., %	Installations/ Water Table
40			246.2		0 50 100	
41				SS-4-9	50/2½"	
42	Sand interbed with some silt and gravel encountered from ±41½ to 43½ feet.		244.2 41.5			
43						
44			242.2 43.5			
45				SS-4-10	50 1st/5"	
46						
47						
48						
49						
50	BOTTOM OF BORING		235.5 50.3	SS-4-11	50 1st/3½"	
					0 50 100	

Project No.: 2011116

Surface Elevation: 285.7 feet (Approx.)

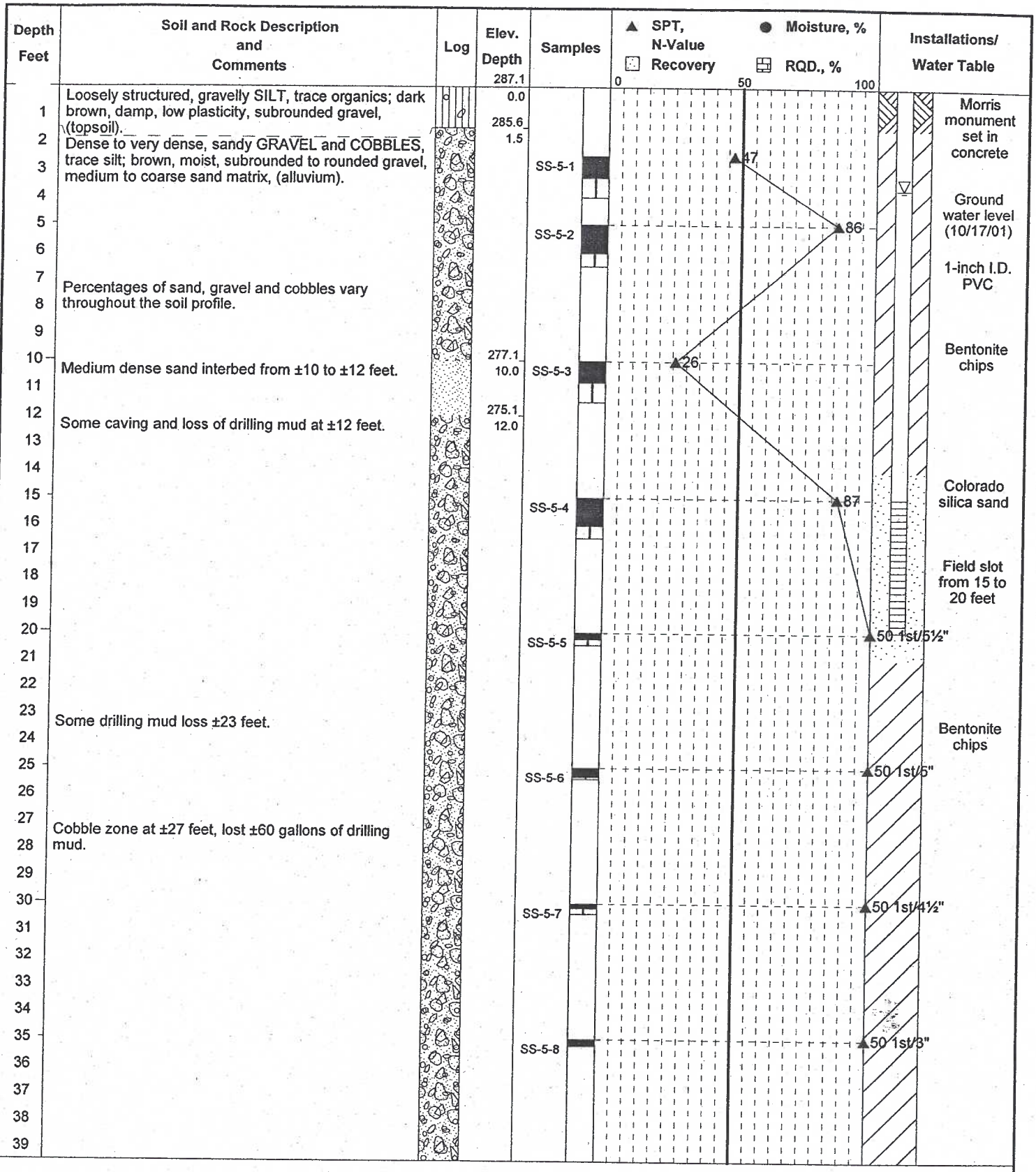
Date of Boring: October 16, 2001

Boring Log: BH- 4

Turner Energy Center

Turner, Oregon

Foundation Engineering, Inc.



Project No.: 2011116

Surface Elevation: 287.1 feet (Approx.)

Date of Boring: October 15, 2001

Boring Log: BH- 5

Turner Energy Center

Turner, Oregon

Foundation Engineering, Inc.

Depth Feet	Soil and Rock Description and Comments	Log	Elev. Depth	Samples	▲ SPT, N-Value / ● Moisture, % / ⊡ Recovery / ⊞ RQD., %	Installations/ Water Table
40	Dense to very dense, sandy GRAVEL and COBBLES, trace silt; brown, moist, subrounded to rounded gravel, medium to coarse sand matrix, (alluvium).		247.6	SS-5-9	0 50 100 — 50 1st/5"	
41						
42						
43						
44						
45				SS-5-10	50/5"	
46						
47						
48						
49						
50			236.9			
	BOTTOM OF BORING		50.3	SS-5-11	0 50 100 — 50 1st/3"	

Project No.: 2011116

Surface Elevation: 287.1 feet (Approx.)

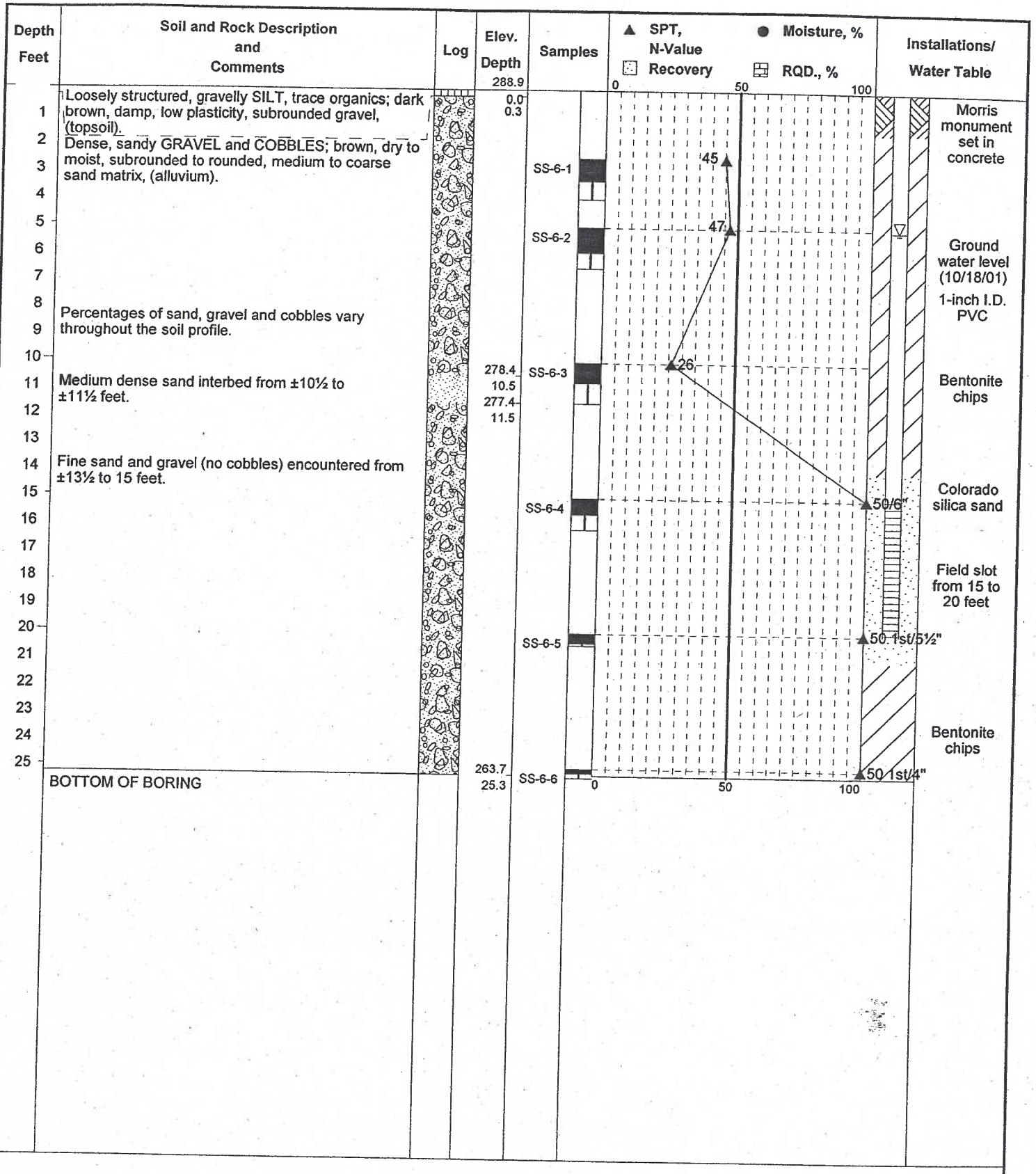
Date of Boring: October 15, 2001

Boring Log: BH- 5

Turner Energy Center

Turner, Oregon

Foundation Engineering, Inc.



Project No.: 2011116

Surface Elevation: 288.9 feet (Approx.)

Date of Boring: October 17, 2001

Boring Log: BH- 6

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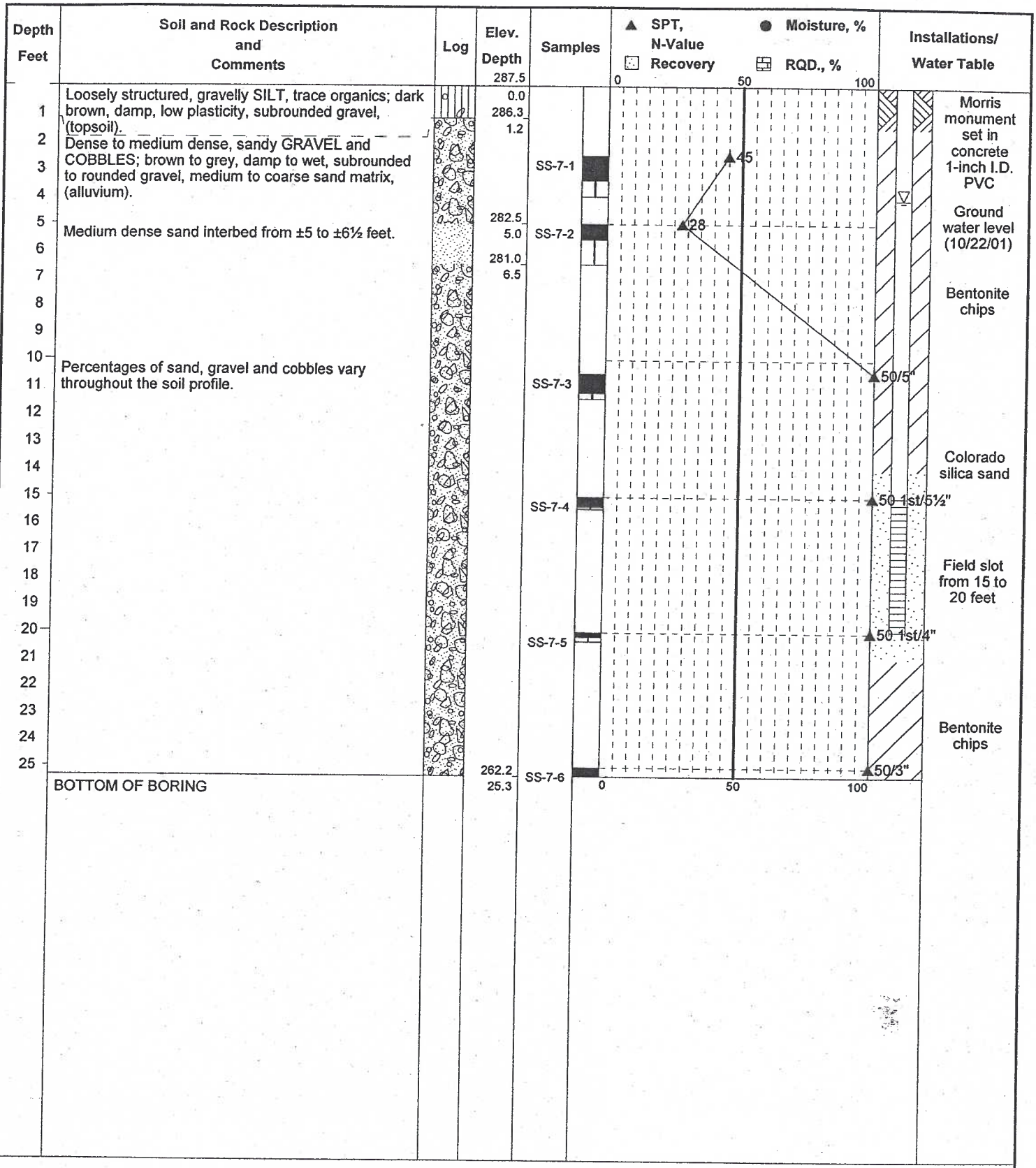

Project No.: 2011116

Surface Elevation: 287.5 feet (Approx.)

Date of Boring: October 19, 2001

Boring Log: BH- 7

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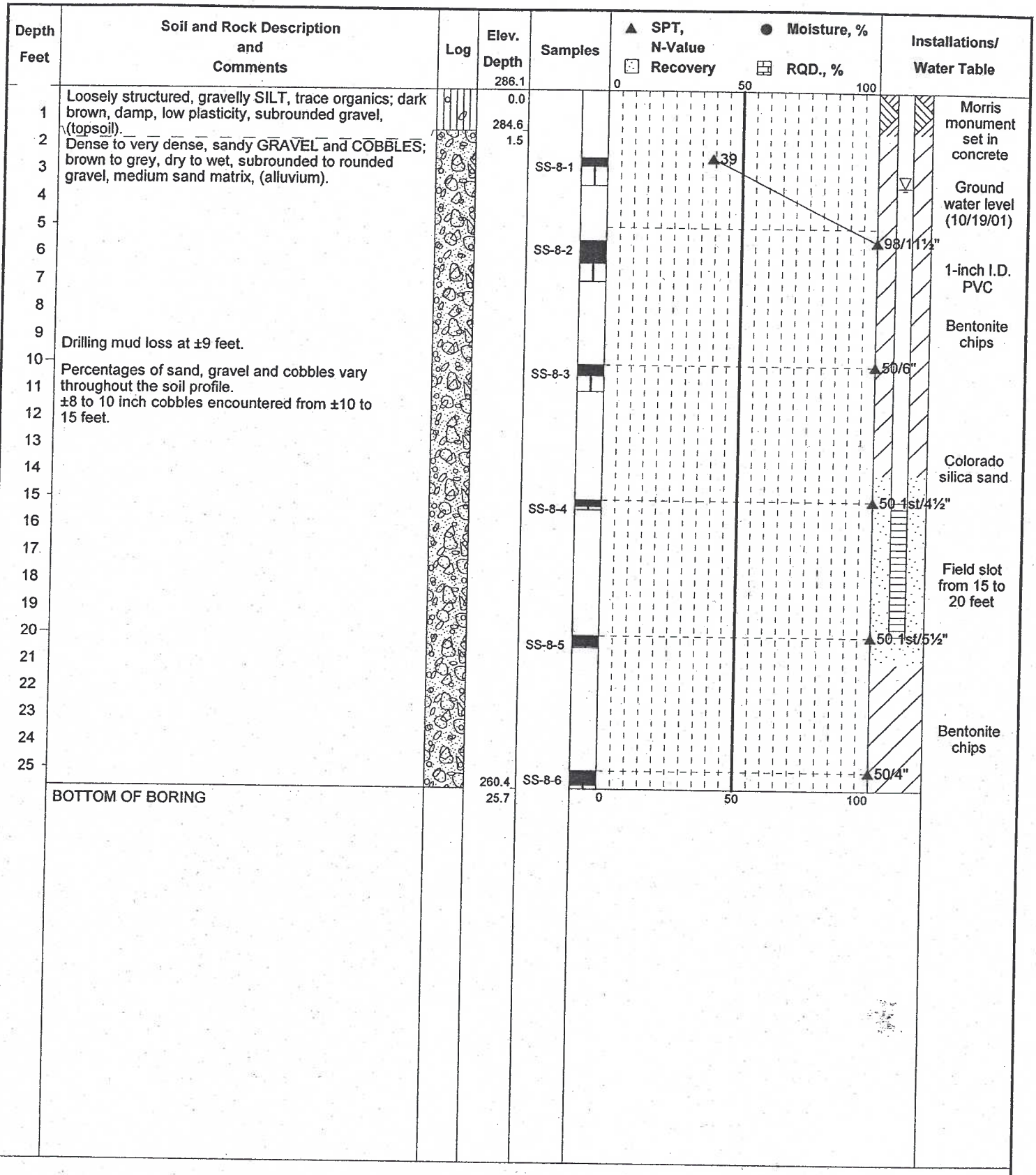
Foundation Engineering, Inc.



Project No.: 2011116

Surface Elevation: 286.1 feet (Approx.)

Date of Boring: October 18, 2001

Boring Log: BH- 8

Turner Energy Center

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Foundation Engineering, Inc.

Depth Feet	Soil and Rock Description and Comments	Log	Elev. Depth	Samples	SPT, N-Value / Recovery / Moisture, % / RQD., %	Installations/ Water Table
			287.1		0 50 100	
1	Loosely structured, gravelly SILT, trace organics; dark brown, damp, low plasticity, subrounded gravel, (topsoil).		0.0			Morris monument set in concrete 1-inch I.D. PVC
2	Dense to very dense, sandy GRAVEL and COBBLES; brown to grey, iron-stained, dry to damp, subrounded to rounded gravel, medium sand matrix, (alluvium).		285.6 1.5			
3				SS-9-1	▲32	
4						
5						Ground water level (10/18/01)
6				SS-9-2	▲50/6"	
7						
8						
9						Bentonite chips
10						
11	Percentages of sand, gravel and cobbles vary throughout the soil profile.			SS-9-3	▲50 1st/5½"	
12						
13						
14						Colorado silica sand
15						
16				SS-9-4	▲50 1st/1"	
17						
18						Field slot from 15 to 20 feet
19						
20						
21				SS-9-5	▲50 1st/4"	
22						
23						
24						Bentonite chips
25						
26	BOTTOM OF BORING		261.1 26.0	SS-9-6	▲50/6"	
					0 50 100	

Project No.: 2011116

Surface Elevation: 287.1 feet (Approx.)

Date of Boring: October 17, 2001

Boring Log: BH- 9

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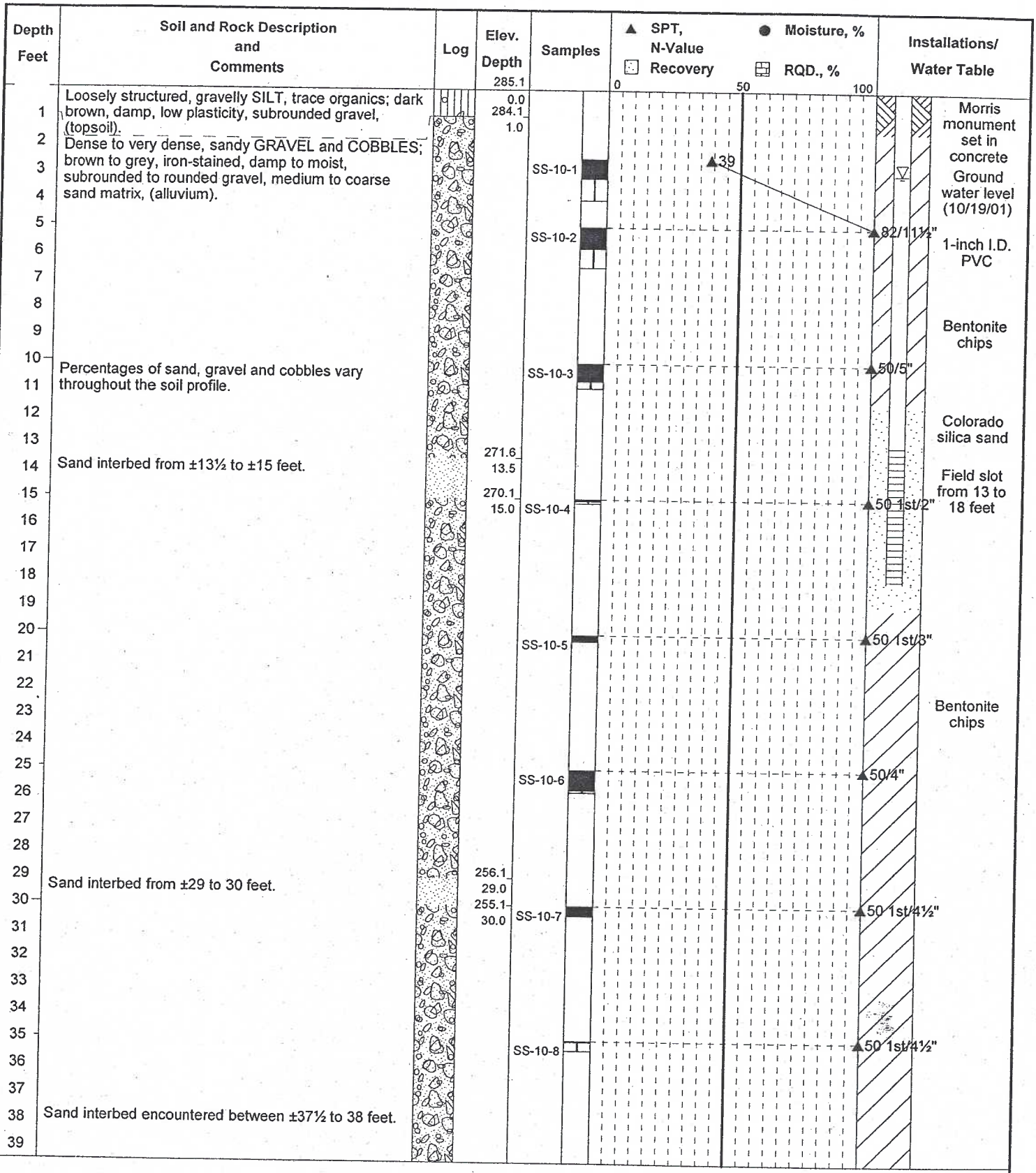
Foundation Engineering, Inc.



Project No.: 2011116

Surface Elevation: 285.1 feet (Approx.)

Date of Boring: October 18, 2001

Boring Log: BH-10

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Foundation Engineering, Inc.

Depth Feet	Soil and Rock Description and Comments	Log	Elev. Depth (245.6)	Samples	▲ SPT, N-Value / ⬚ Recovery / ● Moisture, % / RQD., % (0 – 50 – 100)	Installations/ Water Table
40 – 50	Dense to very dense, sandy GRAVEL and COBBLES; brown to grey, damp to moist, subrounded to rounded gravel, medium to coarse sand matrix, (alluvium).			SS-10-9	50 1st/3"	
				SS-10-10	50 1st/3"	
	BOTTOM OF BORING		234.9 / 50.3	SS-10-11	50 1st/3"	

Project No.: 2011116

Surface Elevation: 285.1 feet (Approx.)

Date of Boring: October 18, 2001

Foundation Engineering, Inc.

Boring Log: BH-10

Turner Energy Center

Turner, Oregon

Comments	Depth, Feet	Sample #	Location	Class Symbol	Water Table	C, TSF	Symbol	Soil and Rock Description
Fine roots extend to ±1.7 feet.	1-							Loosely structured, gravelly SILT; brown, dry, low plasticity, (topsoil).
	2-							Stiff, gravelly SILT and silty GRAVEL, some sand; brown, damp, high plasticity, medium to fine sand, (alluvium).
	3-							
	4-							Dense, sandy GRAVEL and COBBLES, trace to some silt; brown, iron-stained, moist, cemented, coarse to fine sand, (alluvium).
Slight seepage noted at ±4½ feet.	5-							
	6-							
Significant inflow noted at 6 feet and below.	7-							
	8-							
	9-							
	10-							
Caving of test pit side walls below ±10 feet.	11-							BOTTOM OF TEST PIT
	12-							
	13-							
	14-							
	15-							
	16-							

Project No.: 2011116

Surface Elevation: 286.1 feet (Approx.)

Date of Test Pit: October 10, 2001

Test Pit Log: TP- 1

Turner Energy Center

Turner, Oregon

Comments	Depth, Feet	Sample #	Location	Class Symbol	Water Table	C, TSF	Symbol	Soil and Rock Description
	1-							Loosely structured, gravelly SILT; brown, dry, low plasticity, (topsoil).
	2-							Dense, sandy GRAVEL and COBBLES, trace to some silt; brown, iron-stained, damp to wet, cemented, coarse to fine sand, (alluvium).
	3-							
Seepage noted at ±3½ feet.	4-							
	5-							
Slight caving of test pit side walls below ±5 feet.	6-							
	7-							
	8-							
	9-							
	10-							
	11-							
	12-							BOTTOM OF TEST PIT
	13-							
	14-							
	15-							
	16-							

Project No.: 2011116

Surface Elevation: 285.3 feet (Approx.)

Date of Test Pit: October 10, 2001

Test Pit Log: TP- 2

Turner Energy Center

Turner, Oregon

Comments	Depth, Feet	Sample #	Location	Class Symbol	Water Table	C, TSF	Symbol	Soil and Rock Description
Caving of test pit side walls below ±3 feet. Seepage noted at ±3½ feet.	1- 2- 3- 4- 5- 6- 7- 8- 9- 10– 11- 12- 13- 14- 15- 16-							Loosely structured, gravelly SILT; brown, dry, low plasticity, (topsoil). Dense, sandy GRAVEL, some cobbles; grey to brown, iron-stained, moist, cemented, coarse to fine sand, (alluvium). Medium dense, sandy GRAVEL; grey to brown, wet, coarse to fine sand, (alluvium). Cobbles below ±6 feet. BOTTOM OF TEST PIT

Project No.: 2011116

Surface Elevation: 284.5 feet (Approx.)

Date of Test Pit: October 10, 2001

Test Pit Log: TP- 3

Turner Energy Center

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Comments	Depth, Feet	Sample #	Location	Class Symbol	Water Table	C, TSF	Symbol	Soil and Rock Description
Seepage noted at ±6 feet.	1- 2- 3- 4- 5- 6- 7- 8- 9- 10– 11- 12- 13- 14- 15- 16-							Loosely structured, gravelly SILT; brown, dry, low plasticity, (topsoil). Stiff, gravelly CLAY; grey, moist, high plasticity, medium to fine gravel, (alluvium). Dense, sandy GRAVEL and COBBLES; brown to grey, iron-stained, moist to wet, cemented, coarse to fine sand, (alluvium). BOTTOM OF TEST PIT

Project No.: 2011116

Surface Elevation: 285.0 feet (Approx.)

Date of Test Pit: October 10, 2001

Test Pit Log: TP- 4

Turner Energy Center

Turner, Oregon

Comments	Depth, Feet	Sample #	Location	Class Symbol	Water Table	C, TSF	Symbol	Soil and Rock Description
No water encountered to the limit of excavation.	1- 2- 3- 4- 5- 6- 7- 8- 9- 10– 11- 12- 13- 14- 15- 16-							Loosely structured, gravelly SILT; brown, dry, low plasticity, (topsoil). Medium dense to dense, sandy GRAVEL, some cobbles; brown, damp to moist, coarse to fine sand, (alluvium). BOTTOM OF TEST PIT

Project No.: 2011116

Surface Elevation: 285.2 feet (Approx.)

Date of Test Pit: October 10, 2001

Test Pit Log: TP- 5

Turner Energy Center

Turner, Oregon

Comments	Depth, Feet	Sample #	Location	Class Symbol	Water Table	C, TSF	Symbol	Soil and Rock Description
No water encountered to the limit of excavation.	1- 2- 3- 4- 5- 6- 7- 8- 9- 10– 11- 12- 13- 14- 15- 16-							Loosely structured, gravelly SILT; brown, dry, low plasticity, (topsoil). Medium dense to dense, sandy GRAVEL, some cobbles; brown, damp to moist, coarse to fine sand, (alluvium). BOTTOM OF TEST PIT

Project No.: 2011116

Surface Elevation: 285.2 feet (Approx.)

Date of Test Pit: October 10, 2001

Test Pit Log: TP- 6

Turner Energy Center

Turner, Oregon

Comments	Depth, Feet	Sample #	Location	Class Symbol	Water Table	C, TSF	Symbol	Soil and Rock Description
Fine roots extend to ±1½ feet.	1-							Loosely structured, gravelly SILT; brown, dry, low plasticity, (topsoil).
	2-							Dense, sandy GRAVEL and COBBLES, some silt; brown to grey, iron-stained, dry to wet, cemented, coarse to fine sand, (alluvium).
	3-							
	4-							
	5-							
Very slow seepage noted at ±5 feet. No appreciable infiltration until ±10 feet.	6-							
	7-							
	8-							Dense, clayey GRAVEL and COBBLES, some sand; grey, iron-stained, wet, high plasticity clay, (alluvium).
	9-							
	10-							
	11-							Medium dense SAND; grey, wet, medium to fine sand, (alluvium).
	12-							Dense, sandy GRAVEL and COBBLES; brown to grey, wet, coarse to fine sand, (alluvium).
	13-							BOTTOM OF TEST PIT
	14-							
	15-							
	16-							

Project No.: 2011116

Surface Elevation: 286.3 feet (Approx.)

Date of Test Pit: October 10, 2001

Test Pit Log: TP- 7

Turner Energy Center

Turner, Oregon

Comments	Depth, Feet	Sample #	Location	Class Symbol	Water Table	C, TSF	Symbol	Soil and Rock Description
	1-							Loosely structured, gravelly SILT; brown, dry, low plasticity, (topsoil).
	2-							Dense, sandy GRAVEL and COBBLES, trace to some silt; brown, iron-stained, dry to wet, cemented, coarse to fine sand, (alluvium).
	3-							
	4-							
	5-							
Seepage noted at ±6 feet.	6-							
Some caving of test pit side walls below ±7 feet.	7-							
	8-							Dense, sandy GRAVEL, some cobbles; grey to brown, wet, coarse to fine sand, (alluvium).
	9-							
	10-							
	11-							Medium dense SAND; grey, wet, medium to fine sand, (alluvium).
	12-							Dense, sandy GRAVEL and COBBLES; brown to grey, wet, coarse to fine sand, (alluvium).
	13-							BOTTOM OF TEST PIT
	14-							
	15-							
	16-							

Project No.: 2011116

Surface Elevation: 287.6 feet (Approx.)

Date of Test Pit: October 10, 2001

Test Pit Log: TP- 8

Turner Energy Center

Turner, Oregon

Comments	Depth, Feet	Sample #	Location	Class Symbol	Water Table	C, TSF	Symbol	Soil and Rock Description
Fine roots extend to ±2 feet. Fast seepage noted at ±2½ feet. Cobbles increase with depth.	1- 2- 3- 4- 5- 6- 7- 8- 9- 10– 11- 12- 13- 14- 15- 16-	S-9-1						Loosely structured, gravelly SILT, some sand; dark brown, moist to wet, low to medium plasticity, fine to medium sand, (topsoil). Dense to very dense, sandy GRAVEL, some cobbles; brown to light brown, iron-stained, wet, rounded, medium sand, (alluvium). BOTTOM OF TEST PIT

Project No.: 2011116

Surface Elevation: 285.7 feet (Approx.)

Date of Test Pit: November 27, 2001

Test Pit Log: TP- 9

Turner Energy Center

Turner, Oregon

Comments	Depth, Feet	Sample #	Location	Class Symbol	Water Table	C, TSF	Symbol	Soil and Rock Description
Fine roots extend to ±2 feet. Medium to fast seepage noted at ±3 feet. Caving of test pit side walls to ±5 feet.	1- 2- 3- 4- 5- 6- 7- 8- 9- 10– 11- 12- 13- 14- 15- 16-							Loosely structured, gravelly SILT; dark brown, moist to wet, low to medium plasticity, (topsoil). Medium dense, sandy GRAVEL, some silt; brown, iron-stained, wet, rounded, medium to coarse sand, (alluvium). Medium dense SAND, trace to some gravel; brown, wet, fine to medium sand, (alluvium). Dense GRAVEL, some cobbles, trace sand; brown, wet, rounded, (alluvium). BOTTOM OF TEST PIT

Project No.: 2011116

Surface Elevation: 285.7 feet (Approx.)

Date of Test Pit: November 27, 2001

Test Pit Log: TP-10

Turner Energy Center

Turner, Oregon

Comments	Depth, Feet	Sample #	Location	Class Symbol	Water Table	C, TSF	Symbol	Soil and Rock Description
Fine roots extend to ±2 feet. Fast seepage noted from ±2 to 2½ feet; ponded water at surface. Iron-stained contact at ±2½ feet.	1- 2- 3- 4- 5- 6- 7- 8- 9- 10- 11- 12- 13- 14- 15- 16-							Loosely structured, silty GRAVEL, some sand; dark brown, wet, low to medium plasticity, fine to medium sand, (topsoil). Dense to very dense GRAVEL and COBBLES, some sand and silt; brown, wet, rounded, well-graded, medium to coarse sand, cobbles increase with depth, (alluvium). BOTTOM OF TEST PIT

Project No.: 2011116

Surface Elevation: 285.5 feet (Approx.)

Date of Test Pit: November 27, 2001

Test Pit Log: TP-11

Turner Energy Center

Turner, Oregon

Comments	Depth, Feet	Sample #	Location	Class Symbol	Water Table	C, TSF	Symbol	Soil and Rock Description
Ponded water at surface infilling test pit. Fine roots extend to ±2 feet.	1- 2- 3- 4- 5- 6- 7- 8- 9- 10- 11- 12- 13- 14- 15- 16-	S-12-1						Loosely structured, gravelly, clayey SILT; dark brown to grey, wet, medium to high plasticity, rounded gravel, (topsoil). Dense, sandy GRAVEL; brown, wet, rounded gravel, medium to coarse sand, (alluvium). BOTTOM OF TEST PIT

Project No.: 2011116

Surface Elevation: 283.9 feet (Approx.)

Date of Test Pit: November 27, 2001

Test Pit Log: TP-12

Turner Energy Center

Turner, Oregon

Comments	Depth, Feet	Sample #	Location	Class Symbol	Water Table	C, TSF	Symbol	Soil and Rock Description
Fine to coarse roots extend to ±2 feet. Slow seepage noted at ±2 feet. Fast seepage noted at ±4 feet. Caving of test pit side walls. More gravel and cobbles and less silt below ±7 feet. Some sand lenses observed.	1- 2- 3- 4- 5- 6- 7- 8- 9- 10- 11- 12- 13- 14- 15- 16-							Loosely structured, gravelly SILT, some sand; dark brown, wet, low to medium plasticity, fine to medium sand, semi-blocky structure, (topsoil). Dense to very dense, sandy GRAVEL, trace silt and cobbles; brown, wet, rounded, well-graded, fine to medium sand, (alluvium). BOTTOM OF TEST PIT

Project No.: 2011116

Surface Elevation: 286.5 feet (Approx.)

Date of Test Pit: November 27, 2001

Test Pit Log: TP-13

Turner Energy Center

Turner, Oregon

Comments	Depth, Feet	Sample #	Location	Class Symbol	Water Table	C, TSF	Symbol	Soil and Rock Description
Ponded water at surface. Fine roots extend to ±2½ feet. Very slow to slow seepage noted at ±2½ to 3 feet. Iron-stained horizon at ±4 feet.	1- 2- 3- 4- 5- 6- 7- 8- 9- 10- 11- 12- 13- 14- 15- 16-	S-14-1						Loosely structured, gravelly SILT, some clay; dark brown to grey, wet, low to medium plasticity, (topsoil). Dense to very dense, sandy GRAVEL and COBBLES; grey to light brown to brown, wet, rounded to subrounded, well-graded, medium sand, (alluvium). BOTTOM OF TEST PIT

Project No.: 2011116

Surface Elevation: 285.2 feet (Approx.)

Date of Test Pit: November 27, 2001

Test Pit Log: TP-14

Turner Energy Center

Turner, Oregon

Comments	Depth, Feet	Sample #	Location	Class Symbol	Water Table	C, TSF	Symbol	Soil and Rock Description
Fine roots extend to ±2½ feet. Fast to very fast seepage noted at ±2½ feet. Cobbles increase with depth.	1- 2- 3- 4- 5- 6- 7- 8- 9- 10- 11- 12- 13- 14- 15- 16-							Loosely structured, gravelly SILT, some to trace clay; dark brown, moist to wet, low to medium plasticity, semi-blocky structure, (topsoil). Dense to very dense, sandy GRAVEL and COBBLES; brown-grey, rounded, well-graded, fine to medium sand, (alluvium). BOTTOM OF TEST PIT

Project No.: 2011116

Surface Elevation: 286.0 feet (Approx.)

Date of Test Pit: November 27, 2001

Test Pit Log: TP-15

Turner Energy Center

Turner, Oregon

Comments	Depth, Feet	Sample #	Location	Class Symbol	Water Table	C, TSF	Symbol	Soil and Rock Description
Fine roots extend to ±2 feet. Some iron-staining in upper ±1½ to 3 feet. Medium to fast seepage noted at ±3 feet. Some minor caving of test pit side walls.	1- 2- 3- 4- 5- 6- 7- 8- 9- 10- 11- 12- 13- 14- 15- 16-							Loosely structured, gravelly SILT, trace clay; dark brown, moist to wet, low to medium plasticity, semi-blocky structure, (topsoil). Dense to very dense, sandy GRAVEL, some cobbles with depth; brown, wet, rounded, well-graded, weakly cemented, medium sand, (alluvium). BOTTOM OF TEST PIT

Project No.: 2011116

Surface Elevation: 287.8 feet (Approx.)

Date of Test Pit: November 27, 2001

Test Pit Log: TP-16

Turner Energy Center

Turner, Oregon

Comments	Depth, Feet	Sample #	Location	Class Symbol	Water Table	C, TSF	Symbol	Soil and Rock Description
Fine roots extend to ±2½ feet. Draintile gusher noted at ±3 feet, otherwise remainder of test pit was moist to wet.	1- 2- 3- 4- 5- 6- 7- 8- 9- 10— 11- 12- 13- 14- 15- 16-	S-17-1						Loosely structured, gravelly SILT, some clay; dark brown to grey, moist, low to medium plasticity, semi-blocky structure, (topsoil). Medium stiff to stiff CLAY, trace sand and fine roots; grey, moist, high plasticity, (alluvium). Medium dense, clayey GRAVEL, trace to some sand; light brown to brown, wet, medium to high plasticity, (alluvium). Very dense, sandy GRAVEL and COBBLES; grey to brown, wet, rounded, well-graded, medium sand, (alluvium). BOTTOM OF TEST PIT

Project No.: 2011116

Surface Elevation: 286.5 feet (Approx.)

Date of Test Pit: November 27, 2001

Test Pit Log: TP-17

Turner Energy Center

Turner, Oregon

Comments	Depth, Feet	Sample #	Location	Class Symbol	Water Table	C, TSF	Symbol	Soil and Rock Description
Fine roots extend to ±1½ feet. Seepage encountered at ±1½ feet, test pit filled in ±5 minutes.	1- 2- 3- 4- 5- 6- 7- 8- 9- 10— 11- 12- 13- 14- 15- 16-	S-18-1						Loosely structured SILT, some gravel; dark brown, moist, medium plasticity, rounded gravel, (topsoil). Dense, sandy GRAVEL, some silt; brown, wet, rounded gravel, medium sand, (alluvium). BOTTOM OF TEST PIT

Project No.: 2011116

Surface Elevation: 287.4 feet (Approx.)

Date of Test Pit: November 27, 2001

Test Pit Log: TP-18

Turner Energy Center

Turner, Oregon

Comments	Depth, Feet	Sample #	Location	Class Symbol	Water Table	C, TSF	Symbol	Soil and Rock Description
Fine roots extend to ±2 feet. Very fast seepage noted at ±2½ feet.	1- 2- 3- 4- 5- 6- 7- 8- 9- 10- 11- 12- 13- 14- 15- 16-	S-19-1						Loosely structured, gravelly SILT to SILT with some gravel; dark brown, moist to wet, low to medium plasticity, subrounded to rounded, (topsoil). Dense to very dense, sandy GRAVEL, some cobbles with depth; brown, rounded, wet, medium to coarse sand, well-graded, (alluvium). BOTTOM OF TEST PIT

Project No.: 2011116

Surface Elevation: 287.2 feet (Approx.)

Date of Test Pit: November 27, 2001

Test Pit Log: TP-19

Turner Energy Center

Turner, Oregon

Comments	Depth, Feet	Sample #	Location	Class Symbol	Water Table	C, TSF	Symbol	Soil and Rock Description
Fine roots extend to ±2½ feet. Very fast seepage noted at ±2½ feet. Test pit filled within ±1 foot of the surface in 5 minutes. Collapse of test pit side walls below ±8 feet.	1- 2- 3- 4- 5- 6- 7- 8- 9- 10- 11- 12- 13- 14- 15- 16-							Loosely structured, gravelly SILT; dark brown, moist to wet, low to medium plasticity, (topsoil). Dense to very dense GRAVEL and COBBLES, some sand; grey to brown, wet, rounded, medium to coarse sand, (alluvium). BOTTOM OF TEST PIT

Project No.: 2011116

Surface Elevation: 286.5 feet (Approx.)

Date of Test Pit: November 27, 2001

Test Pit Log: TP-20

Turner Energy Center

Turner, Oregon

Comments	Depth, Feet	Sample #	Location	Class Symbol	Water Table	C, TSF	Symbol	Soil and Rock Description
Fine roots extend to ±2 feet.	1-							Loosely structured, gravelly SILT; dark brown, moist, medium plasticity, (topsoil).
	2-							
	3-							Dense, sandy GRAVEL, trace cobbles, brown, moist to wet, rounded, medium sand, (alluvium).
Moderate seepage noted at ±4 feet.	4-							
	5-							
	6-							
	7-							BOTTOM OF TEST PIT
	8-							
	9-							
	10-							
	11-							
	12-							
	13-							
	14-							
	15-							
	16-							

Project No.: 2011116

Surface Elevation: 285.3 feet (Approx.)

Date of Test Pit: November 27, 2001

Test Pit Log: TP-23

Turner Energy Center

Turner, Oregon

Comments	Depth, Feet	Sample #	Location	Class Symbol	Water Table	C, TSF	Symbol	Soil and Rock Description
Fine roots extend to ±2½ feet.	1-							Loosely structured, gravelly SILT; dark brown, moist, low to medium plasticity, (topsoil).
	2-							
	3-							Dense, sandy GRAVEL, trace cobbles; brown, moist to wet, rounded, medium sand, (alluvium).
Moderate seepage noted at ±3 feet.	4-							
	5-							
	6-							
	7-							BOTTOM OF TEST PIT
	8-							
	9-							
	10-							
	11-							
	12-							
	13-							
	14-							
	15-							
	16-							

Project No.: 2011116

Surface Elevation: 285.5 feet (Approx.)

Date of Test Pit: November 27, 2001

Test Pit Log: TP-24

Turner Energy Center

Turner, Oregon