



September 10, 2012

Alliance Consulting Engineers, Inc.
P.O. Box 8147
Columbia, South Carolina 29202-8147

Attention: Rebecca J. Murrell, EIT
Engineering Associate

Reference: Evaluation of Seismic Site Classification
Westgate Certified Site – US Highway 321
Clover, South Carolina
S&ME Project No. 1614-12-301

Dear Ms. Murrell:

S&ME, Inc. has completed evaluation of the seismic site classification for the Westgate Certified Site on US Hwy 321 in Clover, South Carolina. Our services were performed in general accordance with our proposal No. 1614-8368-11 dated August 9, 2012.

PROJECT DESCRIPTION

Information about the project was obtained through e-mail correspondence between you and Mr. Marty Baltzegar of S&ME on September 1, 2011. In this e-mail chain, a Site Location Map and a *Preliminary Geotechnical Investigation – Westgate Industrial Park* dated March 4, 1997 and prepared by F&ME Consultants were provided.

The Westgate Industrial Park consists of approximately 130 acres located west of the intersection of Ballycastle Drive and Old North Main Street in Clover, York County, South Carolina. Infrastructure (roads, water and sewer lines, pump station, etc.) have been previously constructed and, based on aerial photographs obtained from Google Earth®, some parcels within the industrial park have already been developed.

We understand Alliance is preparing documents to submit the undeveloped parcels within the industrial park into the South Carolina Certified Site Program. Alliance has requested S&ME perform a Wetlands Delineation and prepare a letter outlining the Seismic Site Classification based on the previously performed borings. This Letter outlines the Seismic Site Classification; results of the wetlands delineation have been provided under separate cover.

SEISMIC DESIGN PARAMETERS

Sixteen soil test borings (B-1 through B-16) and eight hand auger borings (HA-1 through HA-8) were performed by F&ME in 1997. We have attached the boring locations (Figure 1) and boring logs from the F&ME Report for reference.

The Standard Penetration Resistances (N-values) indicated on the F&ME boring logs were reviewed in order to evaluate the Seismic Site Classification in accordance with Section 1613 of the South Carolina Building Code. The borings located in the eastern portion of the site (B-1, B-2, B-3, B-14, and B-16) exhibit average N-values greater than 50 bpf in the upper 100 feet and the remainder of the borings exhibit average N-values between 15 and 50 bpf in the top 100 feet. It should be noted that this evaluation is based on existing grades and the Seismic Site Classification, which accounts for site effects under earthquake loading, should consider design grades.

Based on Section 1613.5.5 of the 2006 International Building Code and the results of the borings performed by others, the subsurface conditions for the parcels in the eastern portion of the industrial park are indicative of Seismic Site Class C conditions and the parcels in the western portion are indicative of Seismic Site Class D. Interpolating between the borings performed, the approximate boundary between the classes is provided in Figure 1.

For design purposes, we recommend the Seismic Site Class be determined based on borings performed within proposed building footprints and consider design grades.

CLOSING

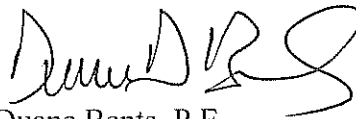
S&ME, Inc. appreciates the opportunity to assist you during this phase of the project. If you should have any questions concerning this report or if we may be of further assistance, please contact us.

Very truly yours,

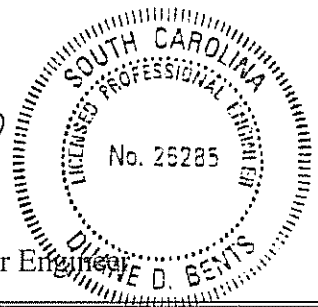
S&ME, Inc.



Jason B Cox, G.I.T.
Staff Professional

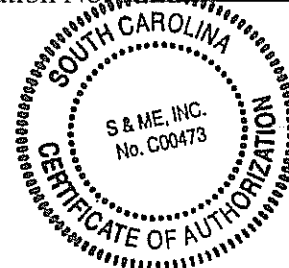


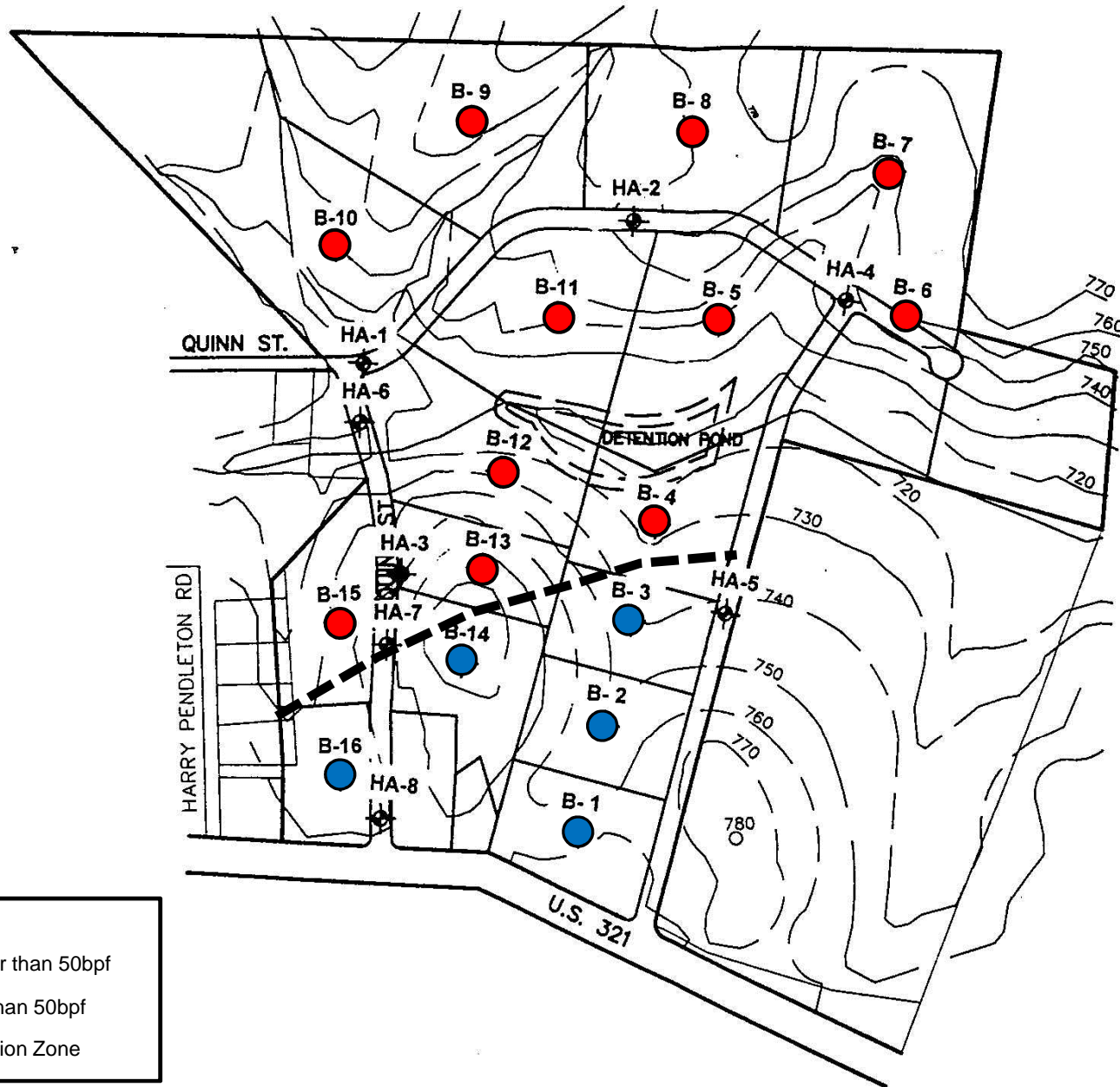
Duane Bents, P.E.
Geotechnical Manager/Senior Engineer
S.C. Registration No. 26285



Attachments: Boring Location Plan, Figure 1
F&ME Boring Logs B-1 through B-16

S:\1614\1614-12-301WestgateCertifiedSiteLetter Report





Legend:

- Greater than 50bpf
- Less than 50bpf
- Transition Zone

SCALE: NTS

DRAWN BY: JBC

CHECKED BY: DDB

DATE: 8/9/2012



BORING LOCATION PLAN

Westgate Certified Site
Clover, South Carolina

JOB NO.: 1614-12-301

FIGURE NO.

1

Westgate Industrial Park
Clover, South Carolina
G2959

LOG OF BORING NO. B- 1

Lot #1

DATE STARTED: 2/19/97 DATE FINISHED: 2/19/97

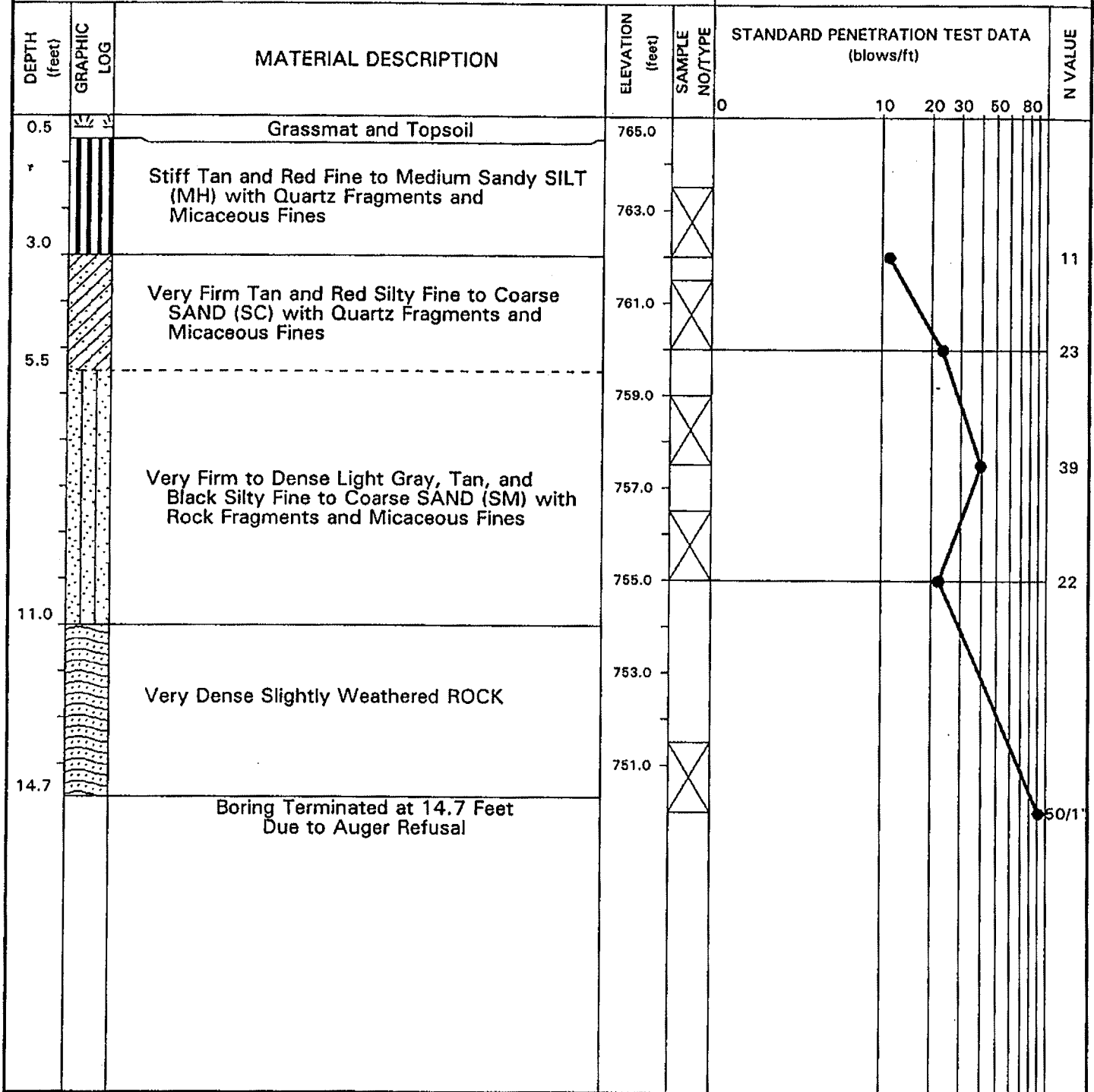
NOTES:

DRILLING METHOD: Hollow Stem Auger

CME-550 ATV Mounted Drill Rig

CASING LENGTH: N/A SUPERVISOR: Ron Willing

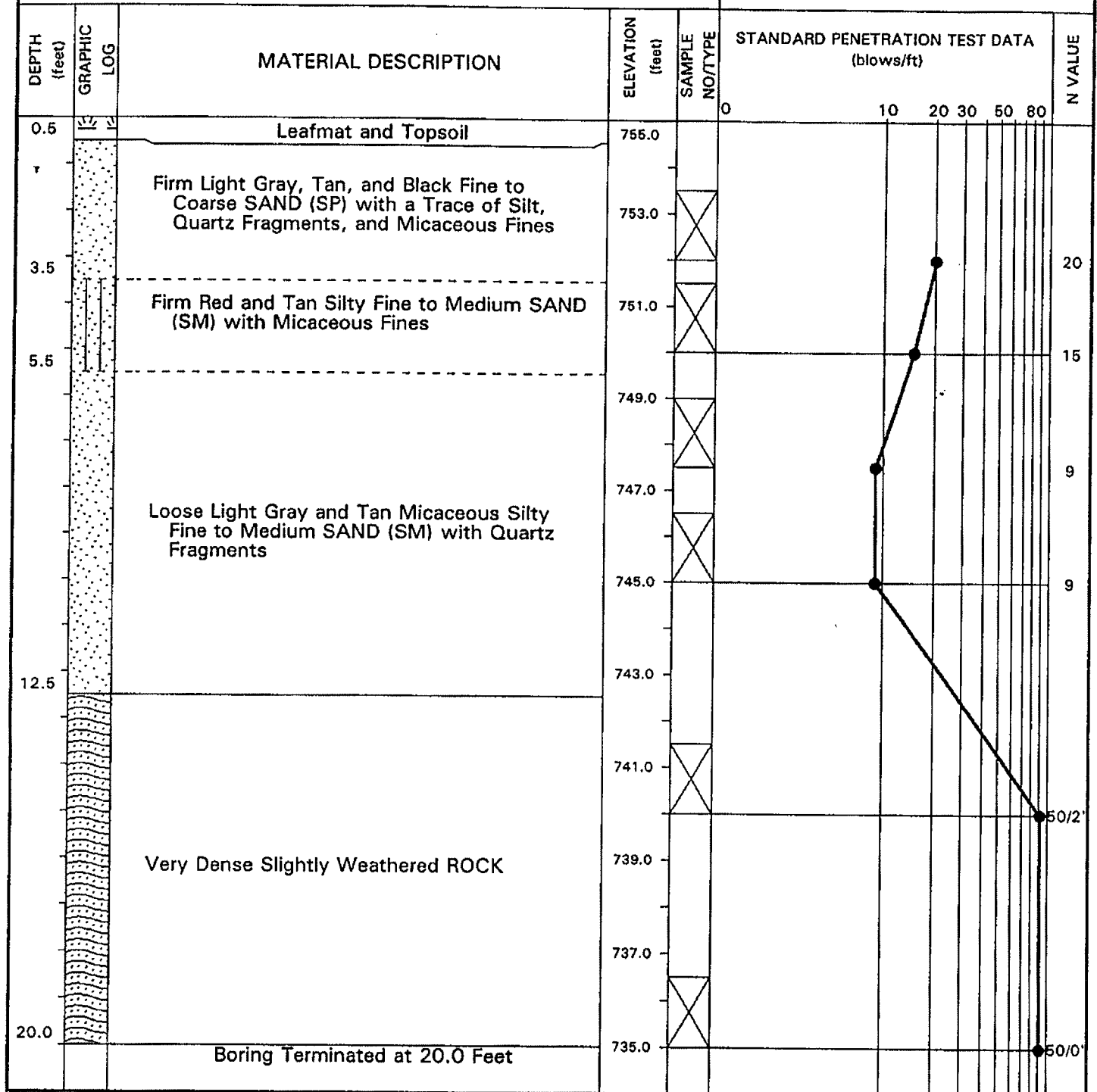
WATER LEVEL: None at T.O.B.



DATE STARTED: **2/19/97** DATE FINISHED: **2/19/97**
DRILLING METHOD: **Hollow Stem Auger**
CASING LENGTH: **N/A** SUPERVISOR: **Ron Willing**
WATER LEVEL: **None at T.O.B.**

NOTES:

CME-550 ATV Mounted Drill Rig



Westgate Industrial Park
Clover, South Carolina
G2959

LOG OF BORING NO. B- 4
Lot #4

DATE STARTED: 2/19/97 DATE FINISHED: 2/19/97

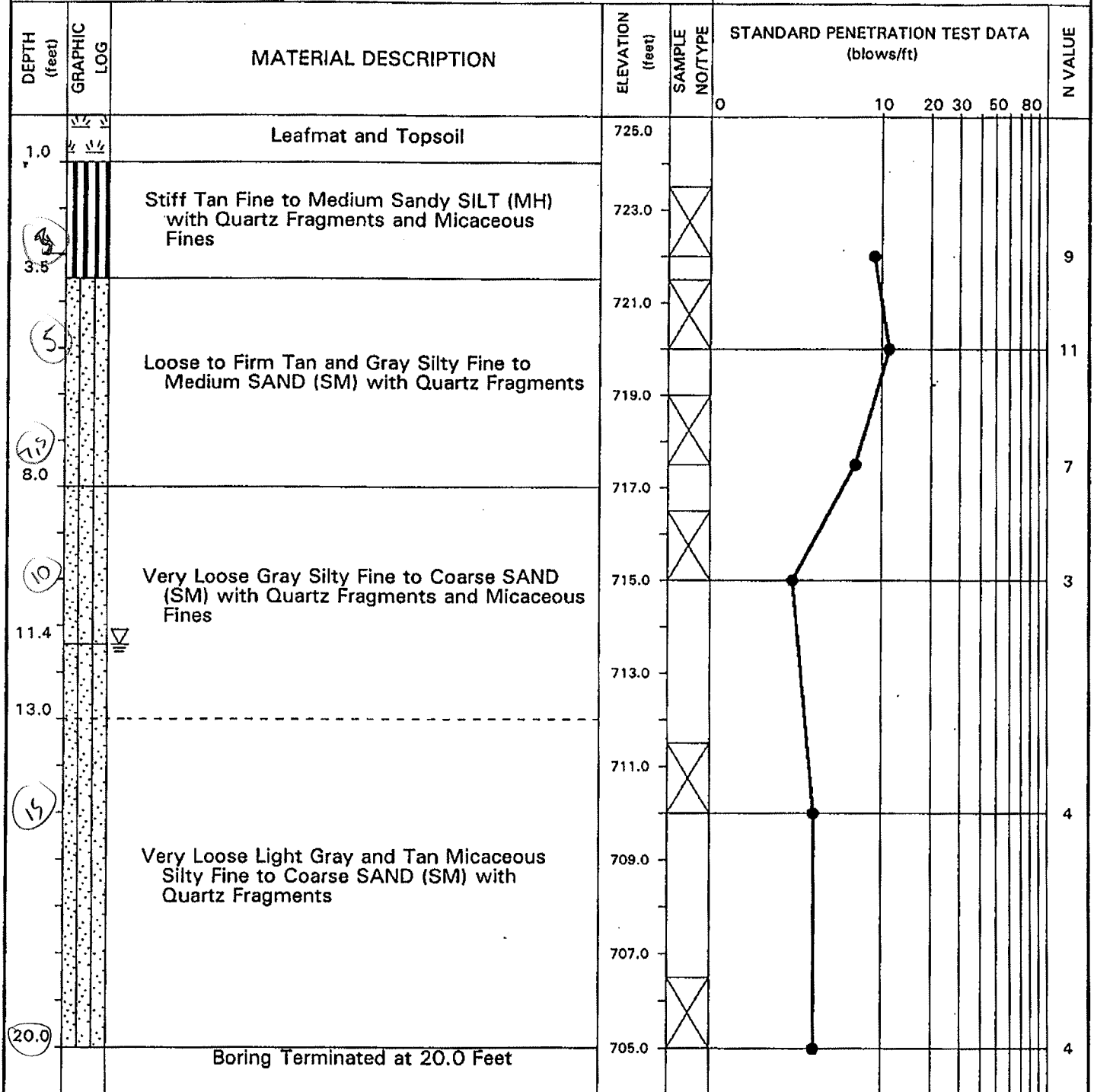
DRILLING METHOD: Hollow Stem Auger

CASING LENGTH: N/A SUPERVISOR: Ron Willing

WATER LEVEL: 11.4 Feet at T.O.B.

NOTES:

CME-550 ATV Mounted Drill Rig



DATE STARTED: 2/20/97

DATE FINISHED: 2/20/97

NOTES:

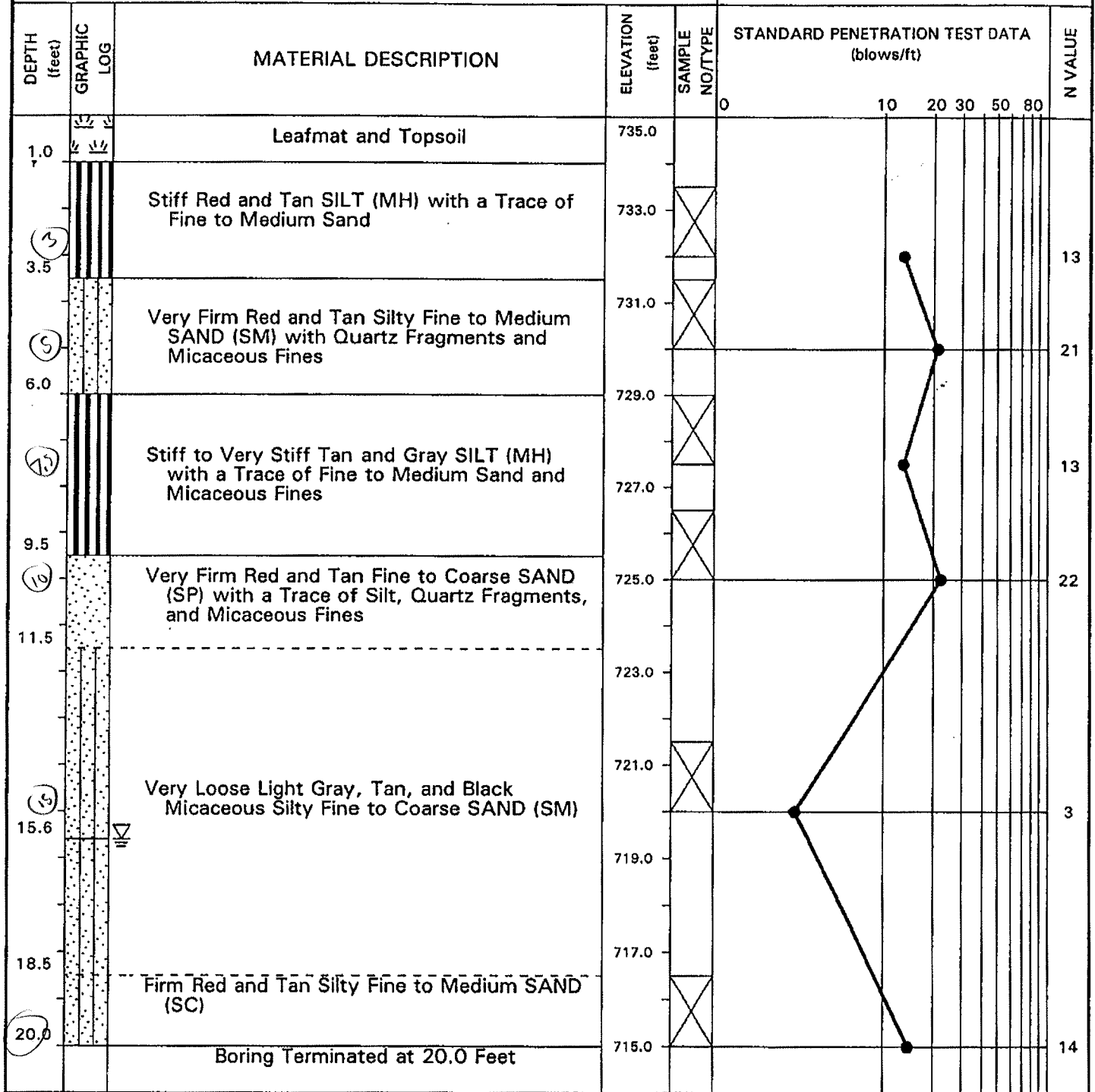
DRILLING METHOD: Hollow Stem Auger

CME-550 ATV Mounted Drill Rig

CASING LENGTH: N/A

SUPERVISOR: Ron Willing

WATER LEVEL: 15.6 Feet at T.O.B.



Westgate Industrial Park
Clover, South Carolina
G2959

LOG OF BORING NO. B- 6

Lot #6

DATE STARTED: 2/20/97

DATE FINISHED: 2/20/97

NOTES:

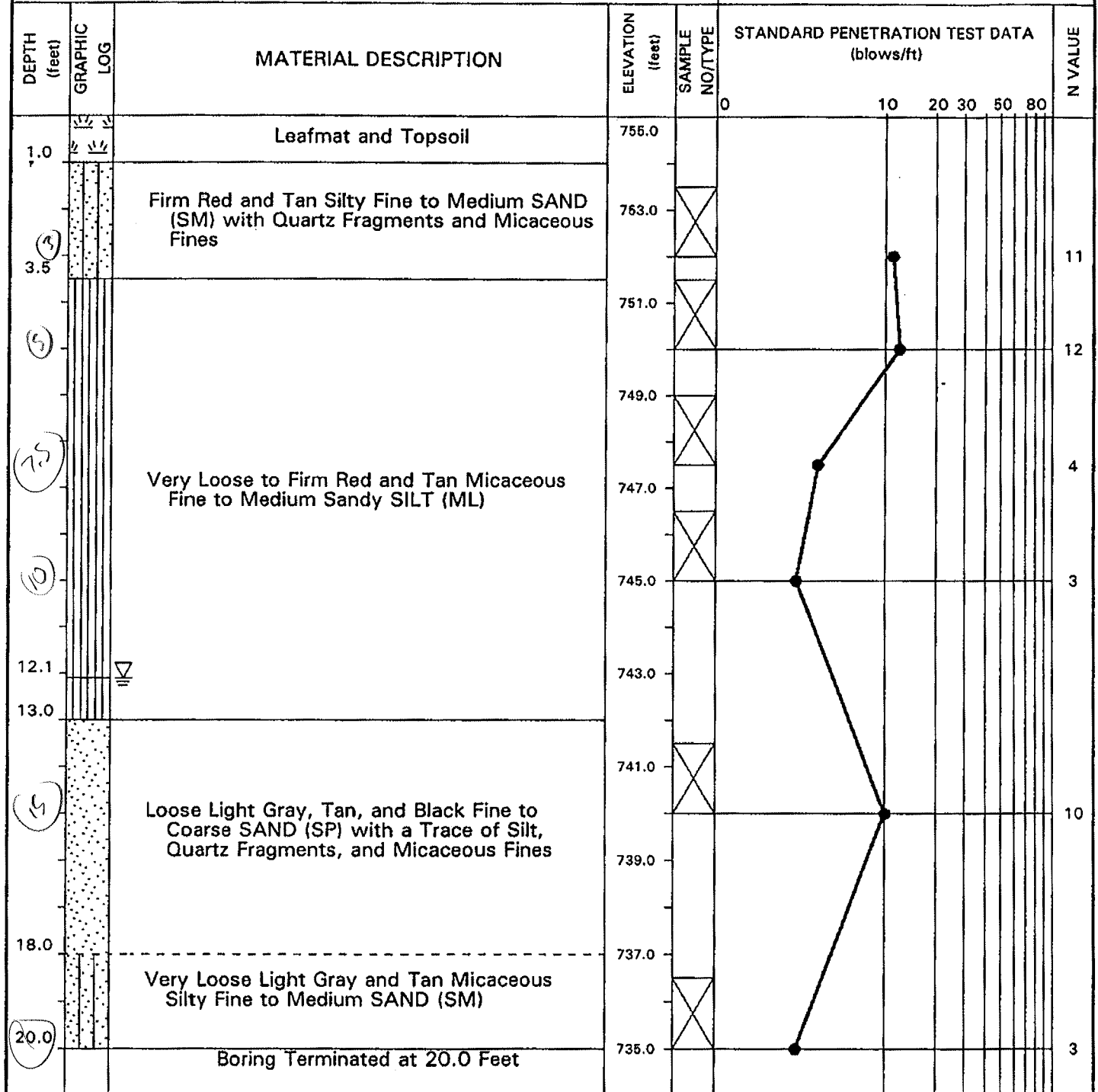
DRILLING METHOD: Hollow Stem Auger

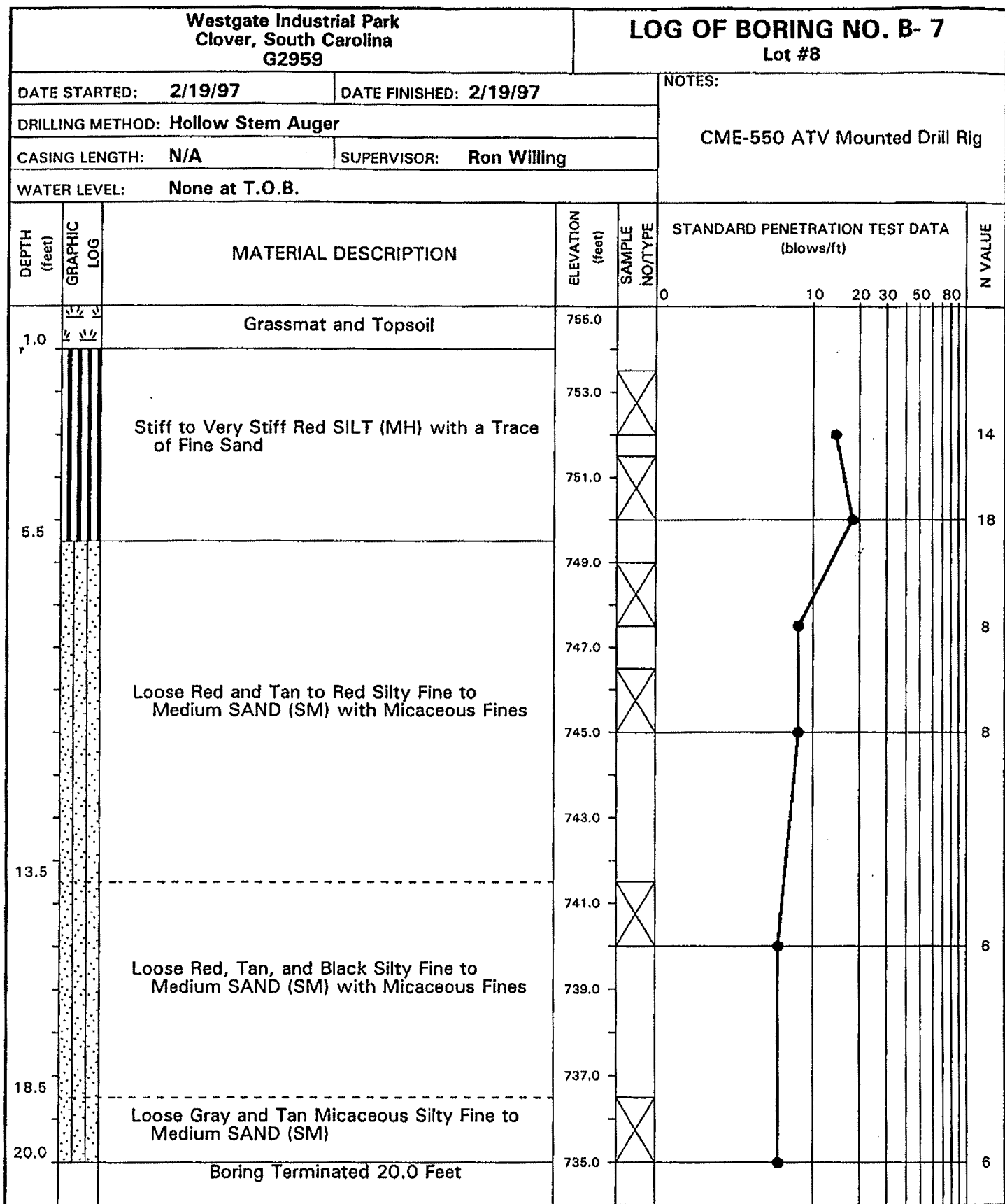
CME-550 ATV Mounted Drill Rig

CASING LENGTH: N/A

SUPERVISOR: Ron Willing

WATER LEVEL: 12.1 Feet at T.O.B.





Westgate Industrial Park
Clover, South Carolina
G2959

LOG OF BORING NO. B- 8

Lot #9

DATE STARTED: 2/19/97

DATE FINISHED: 2/19/97

NOTES:

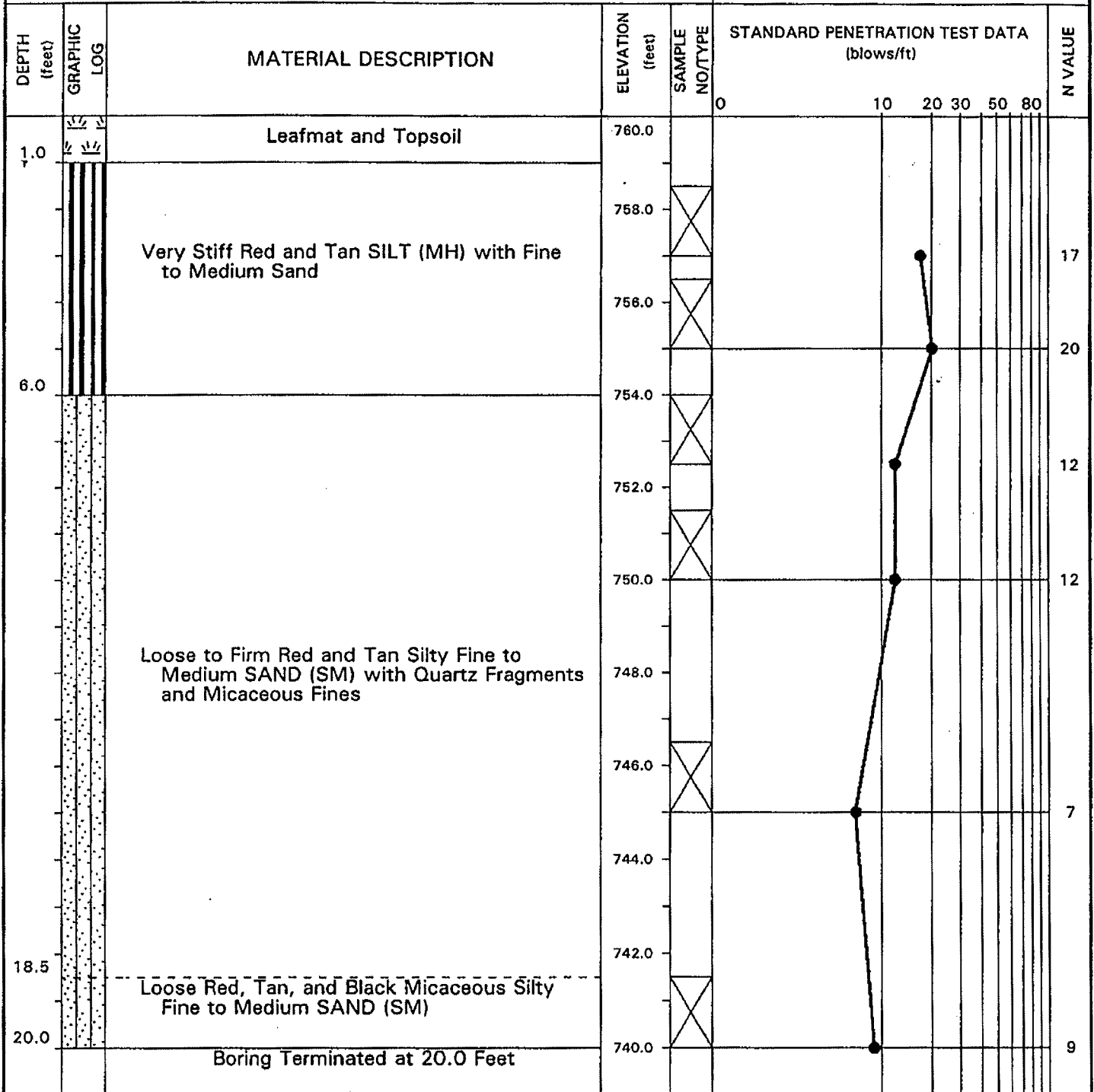
DRILLING METHOD: Hollow Stem Auger

CME-550 ATV Mounted Drill Rig

CASING LENGTH: N/A

SUPERVISOR: Ron Willing

WATER LEVEL: None at T.O.B.



Westgate Industrial Park
Clover, South Carolina
G2959

LOG OF BORING NO. B- 9
Lot #10

DATE STARTED: 2/19/97 DATE FINISHED: 2/19/97

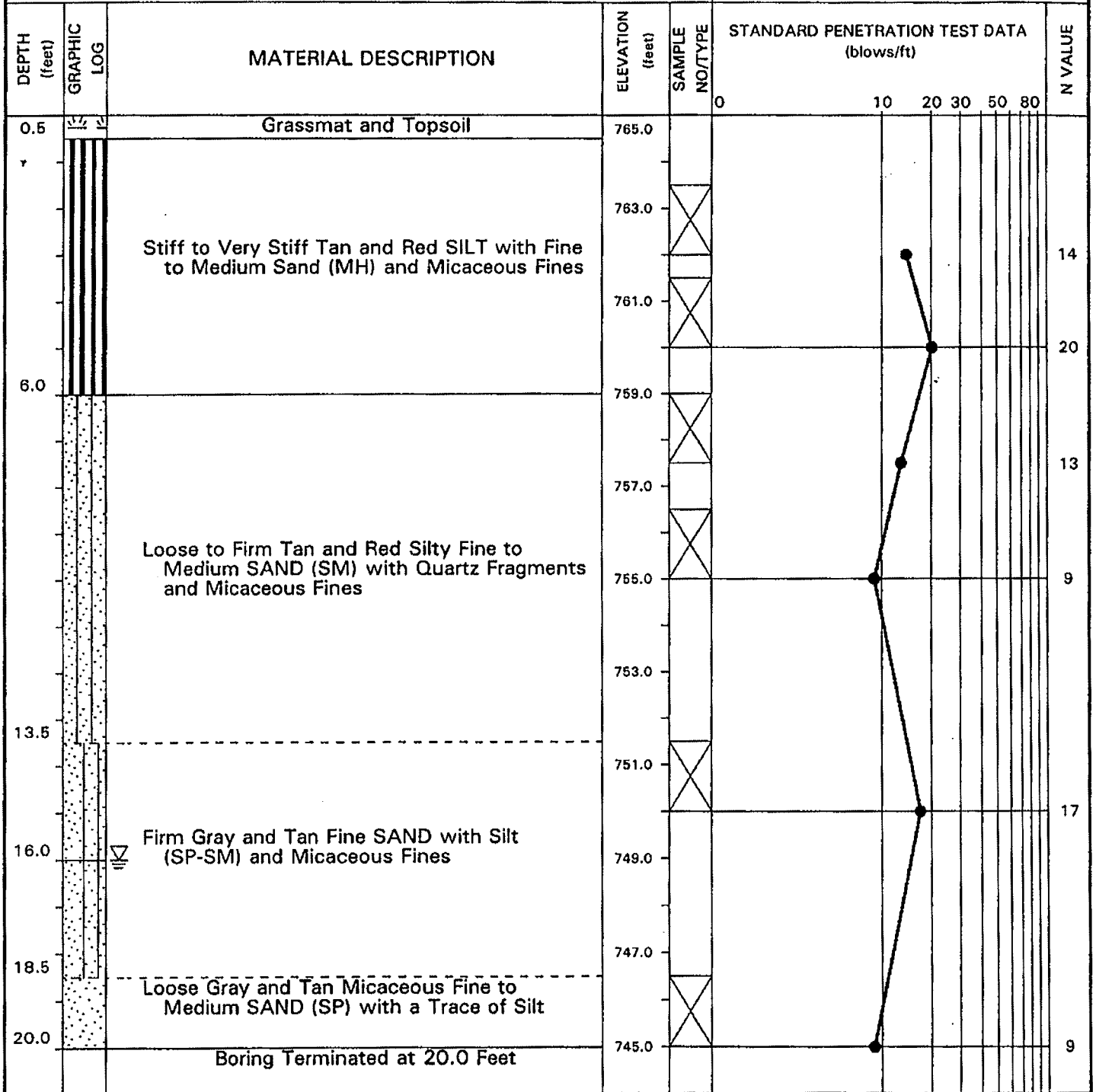
DRILLING METHOD: Hollow Stem Auger

CASING LENGTH: N/A SUPERVISOR: Ron Willing

WATER LEVEL: 16.0 Feet at T.O.B.

NOTES:

CME-550 ATV Mounted Drill Rig



Westgate Industrial Park
Clover, South Carolina
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LOG OF BORING NO. B-10
Lot #11

DATE STARTED: 2/19/97

DATE FINISHED: 2/19/97

NOTES:

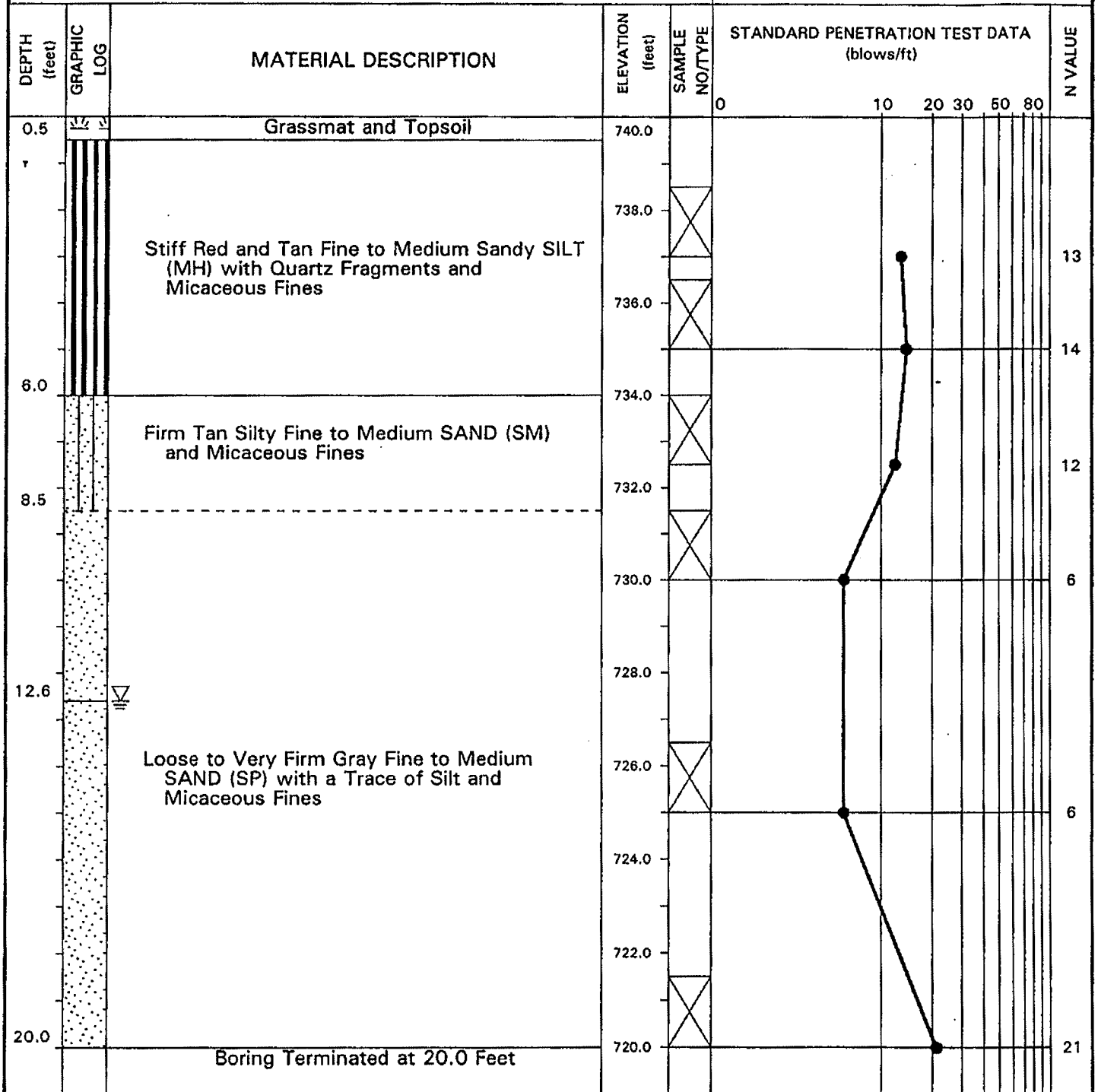
DRILLING METHOD: Hollow Stem Auger

CME-550 ATV Mounted Drill Rig

CASING LENGTH: N/A

SUPERVISOR: Ron Willing

WATER LEVEL: 12.6 Feet at T.O.B.



DATE STARTED: 2/20/97 DATE FINISHED: 2/20/97

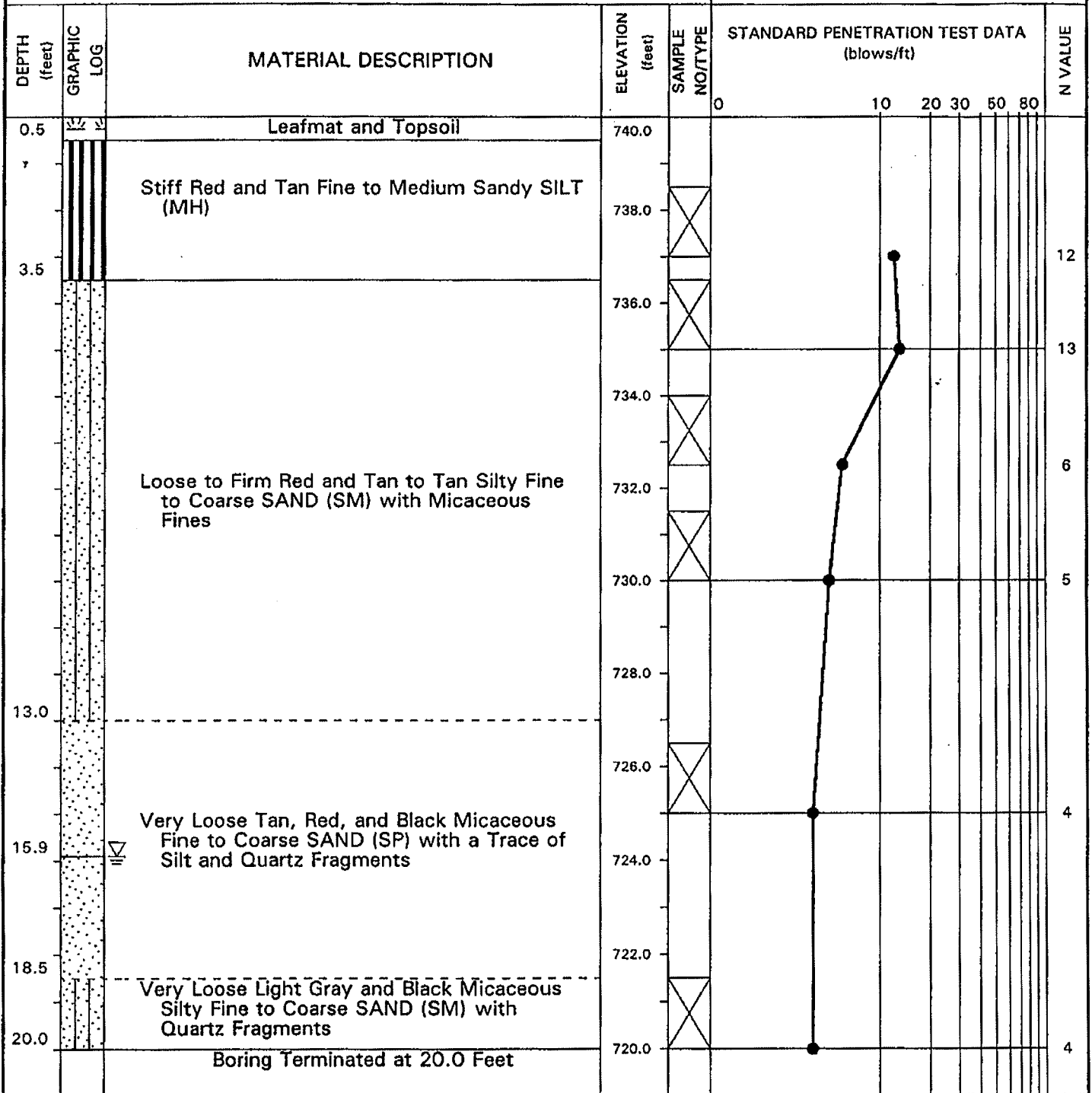
DRILLING METHOD: Hollow Stem Auger

CASING LENGTH: N/A SUPERVISOR: Ron Willing

WATER LEVEL: 15.9 Feet at T.O.B.

NOTES:

CME-550 ATV Mounted Drill Rig



Westgate Industrial Park
Clover, South Carolina
G2959

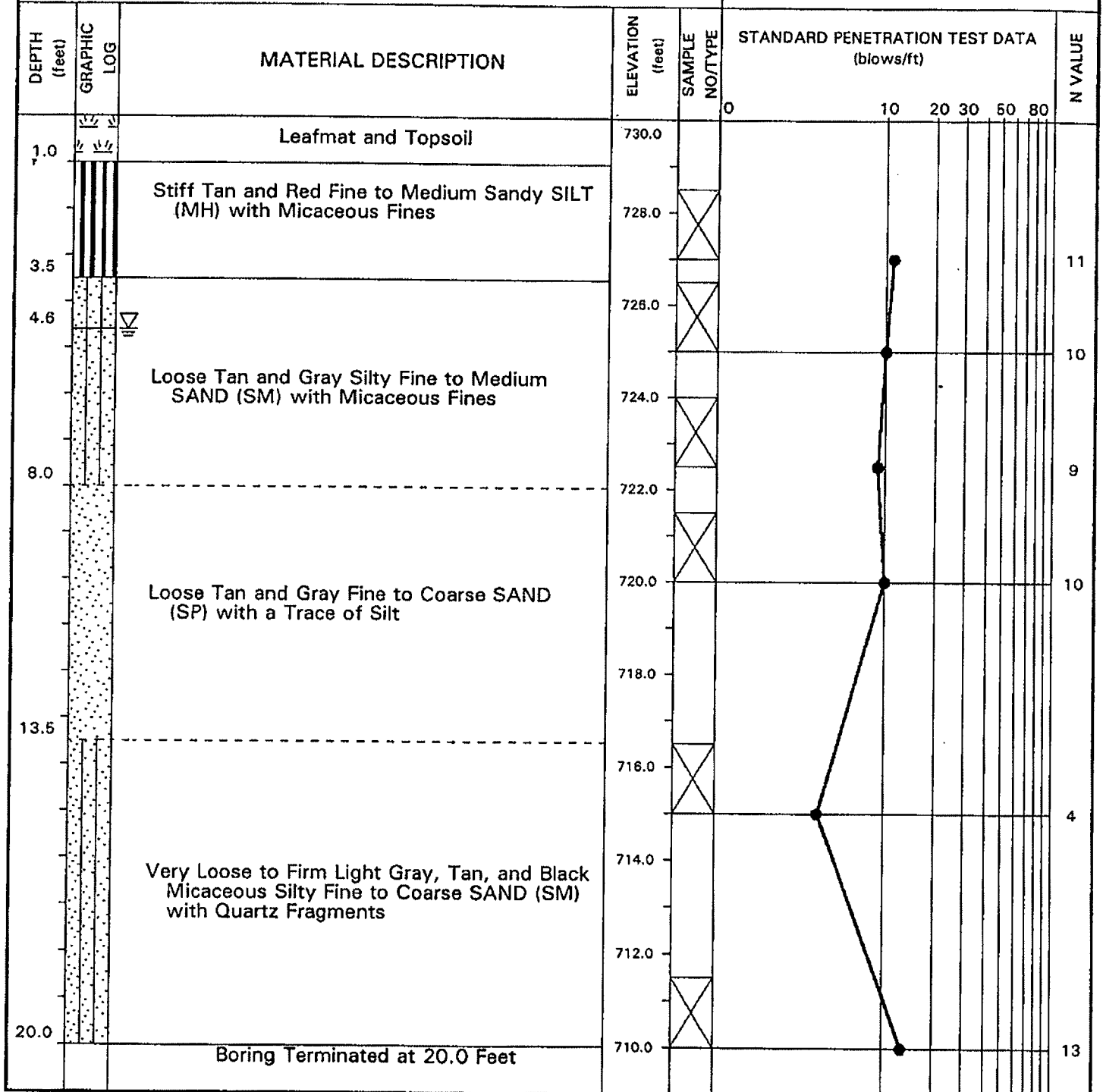
LOG OF BORING NO. B-12

Lot #13

DATE STARTED: 2/20/97 DATE FINISHED: 2/20/97
DRILLING METHOD: Hollow Stem Auger
CASING LENGTH: N/A SUPERVISOR: Ron Willing
WATER LEVEL: 4.6 Feet at T.O.B.

NOTES:

CME-550 ATV Mounted Drill Rig



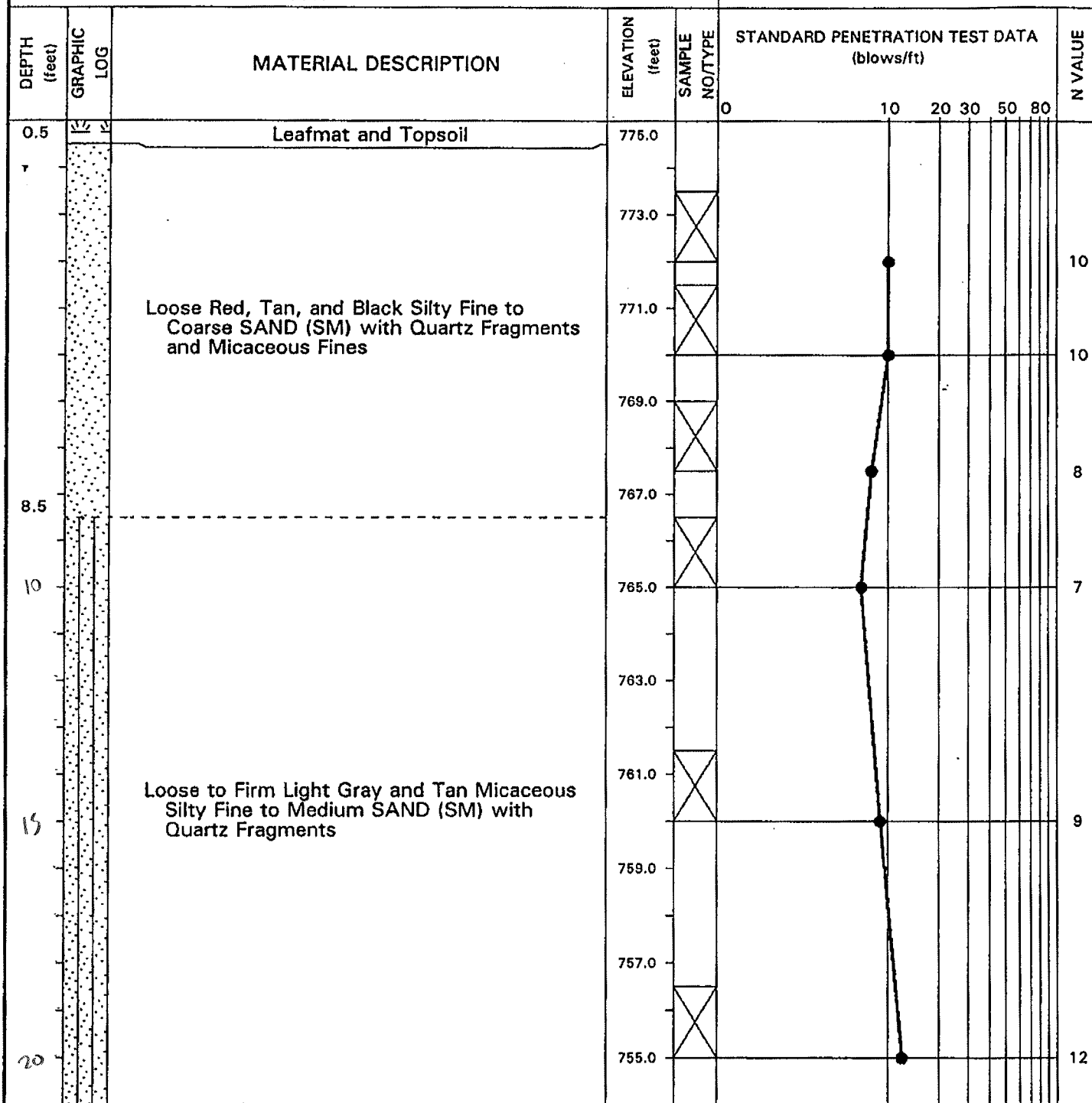
Westgate Industrial Park
Clover, South Carolina
G2959

LOG OF BORING NO. B-13
Lot #14

DATE STARTED: 2/20/97 DATE FINISHED: 2/20/97
DRILLING METHOD: Hollow Stem Auger
CASING LENGTH: N/A SUPERVISOR: Ron Willing
WATER LEVEL: None at T.O.B.

NOTES:

CME-550 ATV Mounted Drill Rig



Westgate Industrial Park
Clover, South Carolina
G2959

LOG OF BORING NO. B-13
Lot #14

DATE STARTED: 2/20/97 DATE FINISHED: 2/20/97

DRILLING METHOD: Hollow Stem Auger

CASING LENGTH: N/A SUPERVISOR: Ron Willing

WATER LEVEL: None at T.O.B.

NOTES:

CME-550 ATV Mounted Drill Rig

DEPTH (feet)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION (feet)	SAMPLE NO./TYPE	STANDARD PENETRATION TEST DATA (blows/ft)						N VALUE
					0	10	20	30	50	80	
775.0		Loose to Firm Light Gray and Tan Micaceous Silty Fine to Medium SAND (SM) with Quartz Fragments	753.0								
			751.0	X							
			749.0								15
			747.0	X							
30.0			745.0	X							18
		Boring Terminated at 30.0 Feet									

Westgate Industrial Park
Clover, South Carolina
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LOG OF BORING NO. B-14
Lot #15

DATE STARTED: 2/19/97 DATE FINISHED: 2/19/97

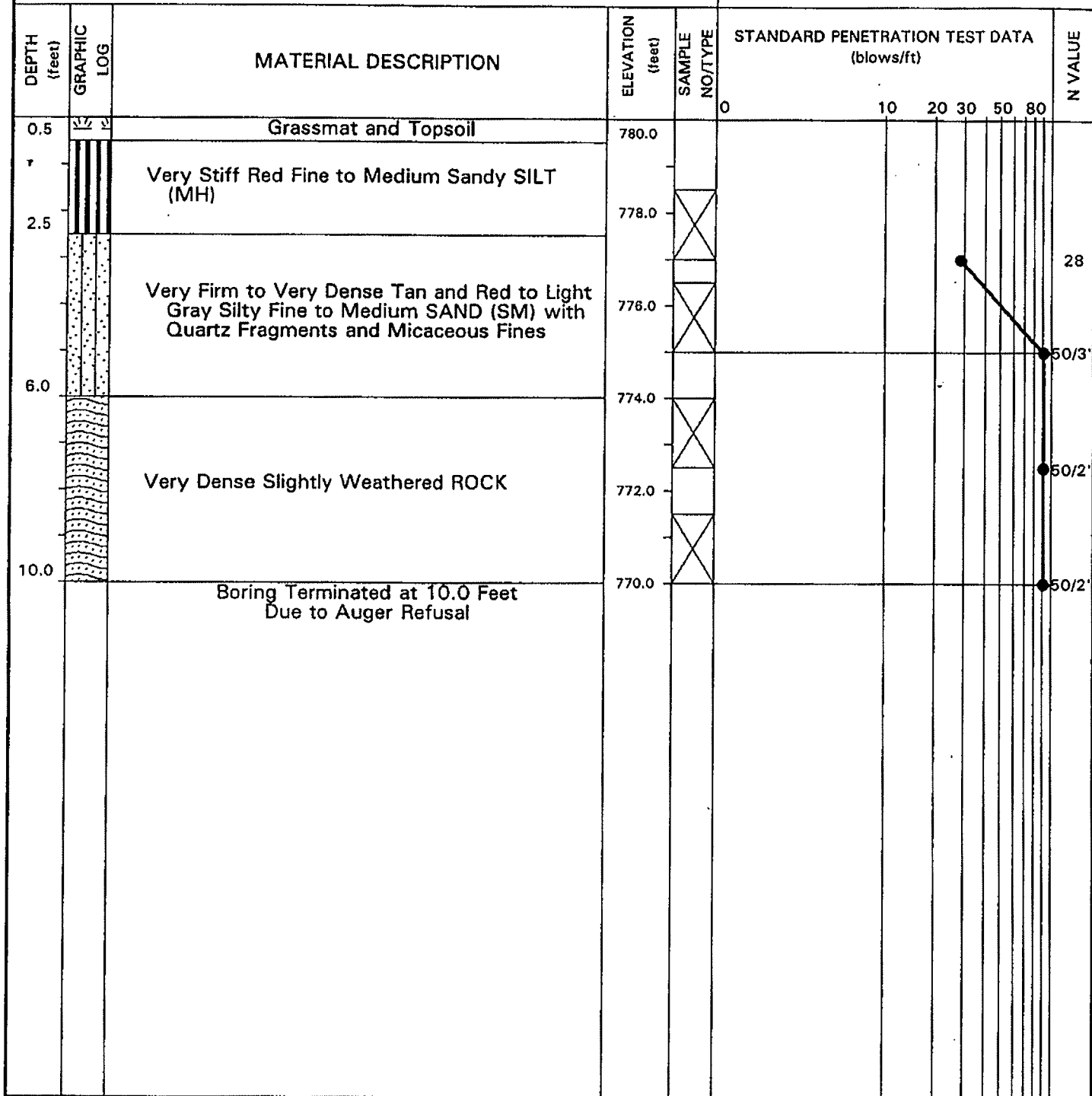
DRILLING METHOD: Hollow Stem Auger

CASING LENGTH: N/A SUPERVISOR: Ron Willing

WATER LEVEL: None at T.O.B.

NOTES:

CME-550 ATV Mounted Drill Rig



Westgate Industrial Park
Clover, South Carolina
G2959

LOG OF BORING NO. B-15
Lot #16

DATE STARTED: 2/20/97

DATE FINISHED: 2/20/97

NOTES:

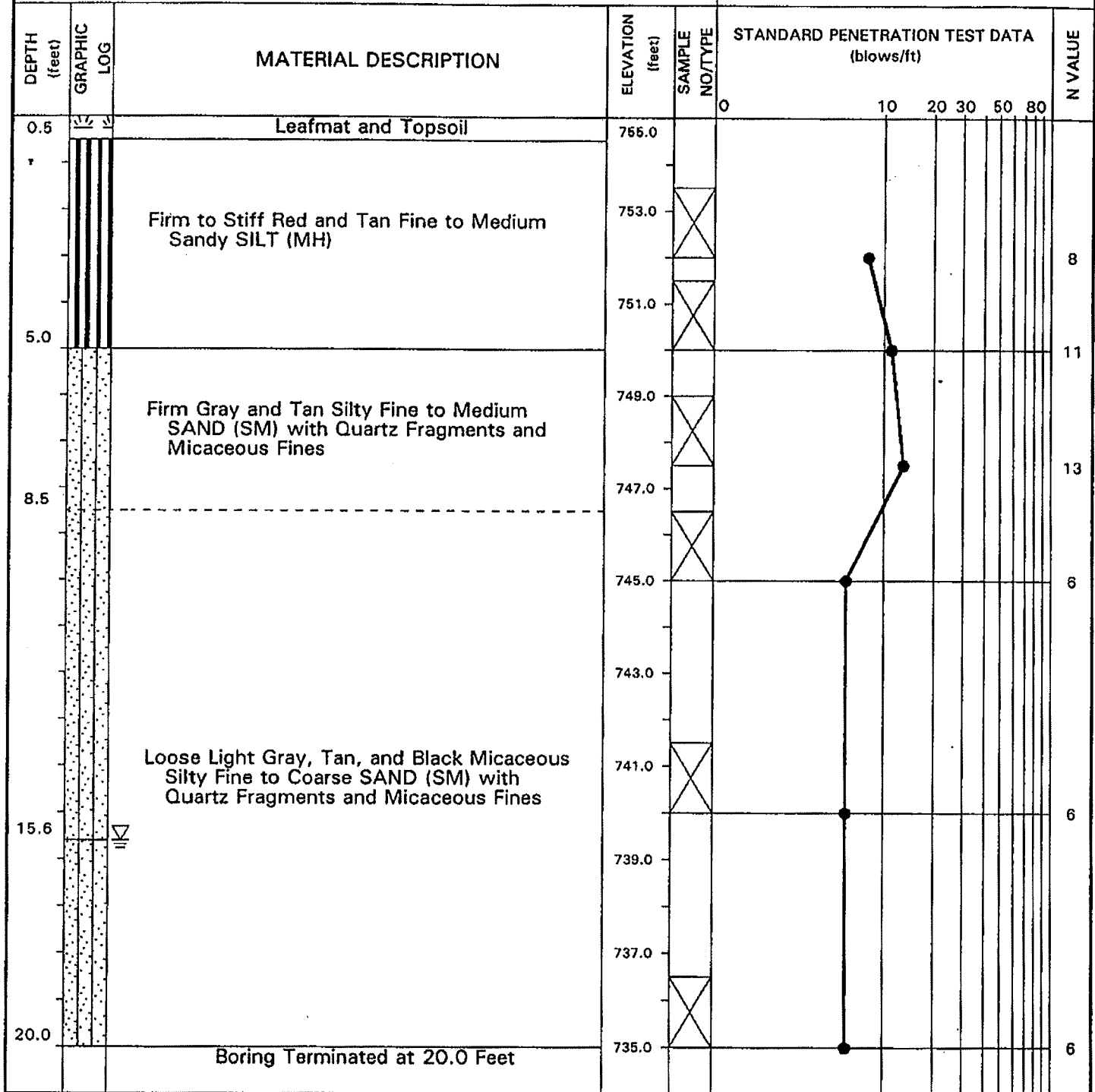
DRILLING METHOD: Hollow Stem Auger

CME-550 ATV Mounted Drill Rig

CASING LENGTH: N/A

SUPERVISOR: Ron Willing

WATER LEVEL: 15.6 Feet at T.O.B.



Westgate Industrial Park Clover, South Carolina G2959				LOG OF BORING NO. B-16 Lot #17								
DATE STARTED: 2/20/97		DATE FINISHED: 2/20/97		NOTES: CME-550 ATV Mounted Drill Rig								
DRILLING METHOD: Hollow Stem Auger												
CASING LENGTH: N/A		SUPERVISOR: Ron Willing										
WATER LEVEL: None at T.O.B.												
DEPTH (feet)	GRAPHIC LOG	MATERIAL DESCRIPTION	ELEVATION (feet)	SAMPLE NO/TYPE	STANDARD PENETRATION TEST DATA (blows/ft)						N VALUE	
					0	10	20	30	50	80		
1.0		Grassmat and Topsoil	755.0									
		Firm to Stiff Gray and Tan Fine to Coarse Sandy SILT (MH) with Quartz Fragments	753.0	X								5
			751.0	X								15
6.0		Firm Gray and Tan Silty Fine to Coarse SAND (SM) with Quartz Fragments and Micaceous Fines	749.0	X								
8.0		Very Dense Slightly Weathered ROCK	747.0	X								13
9.2		Boring Terminated at 9.2 Feet Due to Auger Refusal		X								50/1"