NOTICE:

"BEST AVAILABLE COPY"

PORTIONS OF THE FOLLOWING DOCUMENT ARE ILLEGIBLE

The Administrative Record Staff

FRENCH DRAIN

GEOTECHNICAL INVESTIGATION

U.S. DEPARTMENT OF ENERGY
Rocky Flats Plant
Golden, Colorado

EG&G ROCKY FLATS
EG&G ROCKY FLATS, INC.

5 OCTOBER 1990

VOLUME 2 - APPENDICES

A-0001-000217

APPENDIX A

BOREHOLE GEOLOGIC LOGS AND WELL COMPLETIONS

1990 FRENCH DRAIN GEOTECHNICAL INVESTIGATION

REVIEWED FOR CLASSIFICATION/UCNI
By F. J. Curran U-NU
Date 9-9-91

ADMIN RECORD

SYMBOL ID Description
BL No recovery
CL Clay
CLAYSTON Claystone (Silty or Sandy)
CLG Gravelly Clay
CLM Silty Clay
CLS Sandy Clay
GC Gravel (Clayey, Silty or Sandy)
GS Sandy Gravel, Gravelly Sand or Sand with Gravel
I Iron Concretion
LIG Lignite
MLS Silt (Sandy or Clayey)
SANDSTON Sandstone (Clayey or Silty)
SILTSTON Siltstone (Sandy or Clayey)
SM Sand (Silty or Clayey)

SYMBOL ID	Description
C	California Sampler
CB	Center bit
D	Dames & Moore sampler
MOSS	Moss System (Rocky Flats)
RC	Rock Core
S	Split Spoon sampler

GEOLOGIC LOG

Rocky Flats: 881 Hillside

Project Number: 2029-33-09-0020

Borehole/Well Id:	B300190	**Drilling Company:**	Boyles Bros.
Northing (ft):	35074.9	**Driller:**	DVStyles
Easting (ft):	22315.7	**Helper:**	ALBoday
Ground Surface Elev (ft):	5916.3	**Rig Type:**	B-57
Total Depth (ft):	10.0/28.0	**Drilling Method:**	HS Auger/NX Core
Logged By:	SPCarpenter/RMSengebush	**Drilling Fluid:**	None/Water
Checked By SM:	[illegible]	**Date Started:**	2/2/90
Checked By PM:		**Date Completed:**	2/7/90
QA By / Date:	JEM 02/08/90	**Well Type:**	BH

Comments: French drain geotechnical study. Surface casing set to 10.0' below ground surface on 02/05/90.

Depth (ft)	Graphic Log	Sample T	Sample ID	SPT N-Val	REC %	RQD %	Lithologic Description	Notes:
0–1					60		**TOPSOIL** 0.0 to 2.0': RUN RECOVERED 1.2/2.0 0.0 to 0.7': SANDY GRAVELLY CLAY; dusky yellowish brown (10YR 4/2); fine to very coarse grained sand; 1 to 6 cm gravels; clayey; silty; poor sorting; subrounded to subangular; quartzose; low plasticity; medium dense; moist. **COLLUVIUM** 0.7 to 1.2': SANDY GRAVELLY CLAY: same as above; moderate yellowish brown (10YR 5/4).	Monitoring Instrument Background Levels: HNu: 0.0 OVA: 20.0 All readings inside auger; in breathing zone; on cuttings; and on core at background unless otherwise noted below. TRIP BLANK SAMPLE TB0202901
2–3					90		2.0 to 4.0': RUN RECOVERED 1.8/2.0' SILTY SANDY CLAY; light brown (5YR 5/6); moderate yellowish brown (10YR 5/4); grading to yellowish gray (5Y 7/2); nonstratified; very fine to very coarse grained sand; some 1 to 3 cm gravels; poor sorting; subangular; quartzose; low to medium plasticity; calcareous grading to caliche in lower zone; stiff; moist to damp	0.0 to 1.2': SAMPLE (VOA'S ONLY) B3001900002 2.0 to 3.8': SAMPLE (VOA'S ONLY) B3001900204 0.0 to 6.0': SAMPLE B3001900006 B3001900006D
4–6					100		4.0 to 6.0': RUN RECOVERED 2.0/2.0' CLAYEY SANDY SILT; medium dark gray (N 4/0), light olive gray (5Y 6/1), grading to moderate yellowish brown (10YR 5/4), dark yellowish orange (10YR 6/6); mottled to banded; nonstratified; very fine to some medium grained sand; inclusions of claystone; very calcareous; some root hairs; iron staining; low to medium plasticity; dense to medium dense; damp.	4.0 to 6.0': SAMPLE (VOA'S ONLY) B3001900406 B3001900406D

GROUNDWATER

	DEPTH	HOUR	DATE
▽		None	
▼			

WESTON

GEOLOGIC LOG

Rocky Flats: 881 Hillside

Project Number: 2029-33-09-0020

Borehole/Well Id: B300190

Depth (ft)	Graphic Log	Sample T	Sample ID	SPT N-Val	REC %	RQD %	Lithologic Description	Notes:
7, 8					100		**BEDROCK** 6.0 to 8.0': RUN RECOVERED 2.0/2.0' SILTY CLAYEY SANDSTONE; very light gray (N 8/0), grayish orange (10YR 7/4), light brown (5YR 5/6); mottled to banded; lensed with silty claystone at 6.8 to 7.0' and 7.4 to 7.6'; very fine to trace medium grained sand; moderate to well sorted; subrounded; quartzose; low to medium plasticity in claystone lenses; iron stained; trace caliche lenses; slightly cemented; weathered; medium to hard; damp.	6.0 to 8.0': SAMPLE (VOA'S ONLY) B3001900608
9					95		8.0 to 10.0': RUN RECOVERED 1.9/2.0' SILTY CLAYEY SANDSTONE: same as above; medium gray (N 5/0); very light gray (N 8/0); olive gray (5Y 4/1); claystone lens at 9.0 to 9.4'. TOTAL AUGERED DEPTH = 10.0'	8.0 to 9.9': SAMPLE (VOA'S ONLY) B3001900810
10, 11, 12					40	0	10.0 to 12.5': RUN RECOVERED 1.0/2.5' RQD = 0/2.5 SILTY CLAYEY SANDSTONE: dark yellowish orange (10YR 6/6); mottled with gray and patches of white clay to 2.5 cm in diameter; irregular shapes; blocky; indistinct bedding; very fine to fine grained sand; very well sorted; abundant muscovite grains; trace to some clay; heavily weathered; stiff to hard; damp.	10.5 to 10.8': SAMPLE (GEOTECHNICAL) GTB300190105108 10.2': 45 deg.; 10.4': 45 deg.; 10.6': 45 deg.; 10.8': 45 deg.;11.0': 45 deg. 10.0 to 11.0': LITHOLOGY Field interpertation changed from SANDY SILTYSTONE to SILTY CLAYEY SANDSTONE based on grain size analysis. 12.8': 45 deg.; 13.0': 45 deg.; 13.2': 45 deg.
13, 14					100	64	12.5 to 15.0': RUN RECOVERED 2.5/2.5' RQD 1.6/2.5 12.5 to 12.9': SILTY CLAYSTONE; dark yellowish orange (10YR 6/6); blocky; iron nodules at 12.5' and 12.9'; weathered; low to medium plasticity; stiff; damp. 12.9 to 13.0': SANDY SILTSTONE; same as 10.0 to 12.5'. 13.0 TO 14.4': SILTY CLAYSTONE; same as 12.5 to 12.9'.	

GROUNDWATER

	DEPTH	HOUR	DATE
▽		None	
▼			

WESTON

GEOLOGIC LOG

Rocky Flats: 881 Hillside

Project Number: 2029-33-09-0020

Borehole/Well Id: B300190

Depth (ft)	Graphic Log	Sample T	Sample ID	SPT N-Val	REC %	RQD %	Lithologic Description	Notes:
							14.4 to 14.7': CLAYEY SILTSTONE; same as 10.0 to 12.5'; interbedded with silty claystone; low plasticity. 14.7 to 15.0': SANDY SILTSTONE; same as 10.0 to 12.5'; interbedded with silty sandstone 2 to 5 mm thick .	PACKER TEST: 13.00 to 20.25'
15					100	57	15.0 to 19.0': RUN RECOVERED 3.6/4.0' RQD 2.3/4.0' 15.0 to 15.6': CLAYEY SILTSTONE; pale yellowish brown (10YR 6/2); light olive gray (5Y 5/2); trace gravel and iron concretions; low to medium plasticity; stiff; damp. 15.6 to 15.8': SANDY SILTSTONE; very fine grained sand; low plasticity; soft; damp. 15.8 to 16.4': CLAYEY SILTSTONE; same as 15.0 to 15.6'. 16.4 to 16.8': SANDY SILTSTONE; sand as 15.6 to 15.8': up to 5 mm laminations of silty sandstone; very fine to fine grained. 16.8 to 17.2': SILTY SANDSTONE: very fine grained; well sorted; round; quartzose; trace clay; low to nonplastic; noncemented. 17.3 to 17.6': SANDY SILTSTONE; same as 15.6 to 15.8'; trace to some clay. 17.6 to 18.6': SILTY CLAYSTONE; interbedded with siltstone; some clay to some sand.	15.2': 45 deg.; 15.4': 45 deg.; 15.6': 45 deg. 16.3': 45 deg.; 16.4': 45 deg.; 16.6': 45 deg. PACKER TEST: 16.11 to 22.37' 16.8 to 17.3': SAMPLE (GEOTECHNICAL) GTB3001902168173 17.1': 45 deg.; 17.3': 45 deg. 18.4': 45 deg. PACKER TEST: 18.82 to 25.08'
19					100	73	19.0' to 23.0': RUN RECOVERED 4.0/4.0' RQD = 2.9/4.0' CLAYSTONE: dark yellowish orange (10YR 6/6) and medium dark gray (N 4/0); interlayered beds of siltstone 0.05' thick; as described in 10.0 to 12.5'; gravel lenses to 0.17' thick; 0.08' apart; 0.01 to 0.1' in diameter; subrounded to subangular; clast are siltstone; one iron nodule; very hard; not calcareous.	19.2': 45 deg. 19.4': 45 deg. 19.6'; 45 deg. 20.3': 45 deg. 21.3': 30-45 deg.; 21.7': 30-45 deg.; 22.4': 30-45 deg.
20								
21								
22								

GROUNDWATER

	DEPTH	HOUR	DATE
∇		None	
▼			

WESTON

GEOLOGIC LOG

Rocky Flats: 881 Hillside

Project Number: 2029-33-09-0020

Borehole/Well Id: B300190

Depth (ft)	Graphic Log	Sample T	Sample ID	SPT N-Val	REC %	RQD %	Lithologic Description	Notes:
23					100	80	23.0 to 27.0': RUN RECOVERED 4.0/4.0' RQD = 3.2/4.0' CLAYSTONE AND SILTSTONE; as described in 19.0 to 23.0; mottled gray and orange; no gravel; moderately weathered.	23.0 to 23.4': SAMPLE (GEOTECHNICAL) GTB300190323234 23.4': 45 deg.; 28.6': 45 deg.; 23.8': 45 deg.; 24.3': 45 deg.
24								
25								25.1': 45 deg. 25.3': 45 deg. 25.7': 45 deg.
26								26.1 to 26.7': SAMPLE (GEOTECHNICAL) GTB3001904271277
27					100	0	27.0 to 28.0': RUN RECOVERED 1.0/1.0' RQD = 0.0/1.0' CLAYEY SILTSTONE; interbedded with silty claystone; moderate yellowish brown (10YR 5/4); limonite to 10%; dark yellowish orange (10YR 6/6); blocky; broken; iron oxide nodules to 0.08' thick in 3 zones in 1.0'; moderately weathered; stiff to hard; damp.	27.0': 45 deg.; 27.2': 45 deg.; 27.4': 45 deg. 27.6': 45 deg.; 27.8': 45 deg.; 28.0': 45 deg.
28							TOTAL BOREHOLE DEPTH = 28.0'.	
29								
30								

GROUNDWATER

	DEPTH	HOUR	DATE
▽		None	
▼			

WESTON

GEOLOGIC LOG	Rocky Flats: 881 Hillside	Project Number: 2029-33-09-0020	PAGE: 1 of 4

Borehole/Well Id:	B300290	**Drilling Company:**	Boyles Bros.
Northing (ft):	35031.7	**Driller:**	DVStyles
Easting (ft):	22227.9	**Helper:**	ALBoday
Ground Surface Elev (ft):	5909.4	**Rig Type:**	B-57
Total Depth (ft):	10.0/28.0	**Drilling Method:**	HS Auger/NX Core
Logged By:	SPCarpenter/RMSengebush	**Drilling Fluid:**	None/Water
Checked By SM:	JEMarks 7/10/90	**Date Started:**	2/5/90
Checked By PM:		**Date Completed:**	2/7/90
QA By / Date:	SPC 03/26/90	**Well Type:**	BH
Comments:	French drain geotechnical study. Surface casing set to 10.0' below ground surface on 02/05/90.		

Depth (ft)	Graphic Log	Sample T	Sample ID	SPT N-Val	REC %	RQD %	Lithologic Description	Notes:
0					50		0.0 to 2.0': RUN RECOVERED 1.0/2.0' TOPSOIL 0.0 to 0.4': GRAVELLY SANDY CLAY. COLLUVIUM 0.4 to 1.01' GRAVELLY SANDY CLAY: pale brown (5YR 5/4); moderate brown (5YR 4/4); nonstratified; fine to very coarse grained sand; 1 to 5 cm gravels; poor sorting; subangular; sandstone to quartzose; low plasticity; stiff; damp.	Monitoring Instrument Background Levels: HNu: 0.0 OVA: 20.0 All readings inside auger; in breathing zone; on cuttings; and on core at background unless otherwise noted below. TRIP BLANK SAMPLE TB020590 0.0 to 1.0': SAMPLE (VOA'S ONLY) B3002900002 0.0 to 3.0': SAMPLE B3002900004
1								
2					55		2.0 to 4.0': RUN RECOVERED 1.1/2.0' SANDY CLAY: grayish orange (10YR 7/4); dark yellowish brown (10YR 4/2); mottled; nonstratified; fine to very coarse grained sand; some 1 to 3 cm gravels; some silt; scattered claystone pieces less than 1 cm; poor sorting; subangular; quartzose; medium plasticity; calcareous; very stiff; damp to dry.	2.0 to 3.1': SAMPLE (VOA'S ONLY) B3002900024
3								
4					95		4.0 to 6.0': RUN RECOVERED 1.9/2.0' SILTY SANDY CLAY: pale brown (5YR 5/2); dusky yellow (5Y 6/4); light olive gray (5YR 5/2); very mottled; nonstratified; reworked claystone; some sand to sandy; trace gravels; very calcareous to caliche zones; medium plasticity; very stiff; damp.	4.0 to 5.9': SAMPLE (VOA'S ONLY) B3002900406 4.0 to 7.5': SAMPLE B3002900408
5								
6								

GROUNDWATER

	DEPTH	HOUR	DATE
▽		None	
▼			

WESTON

GEOLOGIC LOG

Rocky Flats: 881 Hillside

Project Number: 2029-33-09-0020

Borehole/Well Id: B300290

Depth (ft)	Graphic Log	Sample T	Sample ID	SPT N-Val	REC %	RQD %	Lithologic Description	Notes:
					75		**BEDROCK** 6.0 to 8.0': RUN RECOVERED 1.5/2.0' 6.0 to 7.0': SILTY SANDSTONE: yellowish gray (5Y 7/2); dusky yellow (5Y 6/4); mottled; nonstratified; fine to medium grained sand; well sorted; rounded; quartzose; scattered claystone inclusions; very fractured; scattered iron staining; very calcareous; low to nonplastic; weathered; firm; damp. 7.0 to 7.5': CLAYSTONE: olive gray (5Y 6/4); nonstratified; blocky; silty; very fractured with iron staining; some caliche; medium plasticity; weathered; firm; damp to moist.	6.0 to 7.5': SAMPLE (VOA'S ONLY) B3002900608
7								
8					100		8.0 to 10.0': RUN RECOVERED 2.0/2.0' SILTY CLAYSTONE: light olive gray (5Y 6/1); medium dark gray (N 4/0); blocky; fractured; filled with iron staining and occasional caliche; medium plasticity; slightly weathered; hard; damp. TOTAL AUGERED DEPTH = 10.0'	8.0 to 10.0': SAMPLE (VOA'S ONLY) B3002900810
9								
10					100	0	10.0 to 10.75': RUN RECOVERED 0.75/0.75' RQD = 0.0/0.75' CLAYSTONE: brownish gray (5YR 4/1); slightly blocky; some silt; homogeneous; trace orange iron oxide staining in fractures; medium plasticity; heavily weathered; stiff; damp to dry.	10.2'; vertical 10.4'; vertical 10.6'; vertical Fractures are near vertical; irregular limonite filled; 1%
11					15	0	10.75 to 14.0': RUN RECOVERED 0.50/3.25' RQD = 0.0/3.25' CLAYSTONE: light olive gray (5Y 5/2); no structure or bedding; pieces up to 0.17' long mixed with smaller chunks; heavily weathered; firm; damp. NOTE: drill cuttings only recovered.	
12								
13								
14								

GROUNDWATER

	DEPTH	HOUR	DATE
∇		None	
▼			

WESTON

GEOLOGIC LOG

Rocky Flats: 881 Hillside

Project Number: 2029-33-09-0020

Borehole/Well Id: B300290

Depth (ft)	Graphic Log	Sample T	Sample ID	SPT N-Val	REC %	RQD %	Lithologic Description	Notes:
15					100	100	14.0 to 16.0': RUN RECOVERED 2.0/2.0' RQD = 2.0/2.0' CLAYEY SILTSTONE: light olive gray (5Y 5/2) with trace of iron oxide stain; dark yellowish orange (10YR 6/6); trace white (N 9/0); mottled; slightly banded; thinly laminated or varved; interbedded with 1 to 2 mm laminations of sandy siltstone and silt sandstone; very fine grained limonite 1 to 2 %; trace of black (N 1/0) manganse oxide or carbonaceous debris; not plastic; moderately weathered; stiff; damp to dry.	Mechanical fractures only, No apparent natural fractures PACKER TEST: 14.95 to 21.25'
16					83	77	16.0 to 19.0': RUN RECOVERED 2.5/3.0' RQD 2.3/3.0' 16.0 to 18.3': SILTY CLAYSTONE: light olive gray (5Y 5/2); trace to some iron oxide dark yellowish orange (10YR 6/6); mottled with trace carbon 18.3 to 18.5'; black (N 1/0); trace to some sand; very fine grained.	16.9 to 17.2': SAMPLE (GEOTECHNICAL) GTB30029011169172
17								
18							18.3 to 18.5': SANDY SILTSTONE; platy; laminated or varved; blocky fracture when broken moderately weathered; stiff to hard; damp to dry.	PACKER TEST: 18.09 to 24.35' 18.3'; 10 deg.
19					78	71	19.0 to 23.5': RUN RECOVERED 3.5/4.5' RQD = 3.2/4.5' SILTY CLAYSTONE: light olive gray (5Y 5/2) with trace to some iron oxide stain; dark yellowish orange (10YR 6/6) and trace black (N 1/0) manganse stained; grading to clayey siltstone; thinly laminated; blocky fractured when broken; moderately weathered; hard to cemented; dry.	19.9 to 20.5': SAMPLE (GEOTECHNICAL) GTB3002902199205
20								
21								21.0'; vertical fracture mangenese nodule to 1" in diameter
22								

GROUNDWATER

DEPTH	HOUR	DATE
	None	

WESTON

GEOLOGIC LOG

Rocky Flats: 881 Hillside

Project Number: 2029-33-09-0020

Borehole/Well Id: B300290

Depth (ft)	Graphic Log	Sample T	Sample ID	SPT N-Val	REC %	RQD %	Lithologic Description	Notes:
								22.2'; 10 deg.
23								
					100	93	23.5 to 26.5': RUN RECOVERED 3.0/3.0' RQD = 2.8/3.0' SILTY CLAYSTONE: light olive gray (5Y 5/2) with orange and black as in 19.0 to 23.5'; thinly laminated clay and silty clay; some sand to sandy; with pockets of silty sand up to 1 cm; possible flame structure or bioturbation in beddings (0.08 to 0.17'); siltstone nodules to 1 cm in diameter; calcareous; effervesce in HCL; moderately weathered; stiff to hard; dry.	Water loss at 24.0' 24.5 to 25.0': SAMPLE (GEOTECHNICAL) GTB300290324525 25.4'; 10 deg. 26.2'; 10 deg.
24								
25								
26								
					100	100	26.5 to 28.0': RUN RECOVERED 1.5/1.5' RQD = 1.5/1.5' SILTY CLAYSTONE: same as in 23.5 to 26.5'.	26.7 to 27.0': SAMPLE (GEOTECHNICAL) GTB3002904267270 27.0'; 10 deg. 27.5'; 10 deg.
27								
28							TOTAL BOREHOLE DEPTH = 28.0'.	
29								
30								

GROUNDWATER

DEPTH	HOUR	DATE
	None	

WESTON

GEOLOGIC LOG	Rocky Flats: 881 Hillside	Project Number: 2029-33-09-0020	PAGE: 1 of 5

Borehole/Well Id:	B300390	Drilling Company:	Boyles Bros.
Northing (ft):	34990.4	Driller:	DVStyles
Easting (ft):	22134.6	Helper:	ALBoday
Ground Surface Elev (ft):	5904.6	Rig Type:	B-57
Total Depth (ft):	13.0/31.7	Drilling Method:	HS Auger/NX Core
Logged By:	SPCarpenter/RMSengebush	Drilling Fluid:	None/Water
Checked By SM:		Date Started:	2/7/90
Checked By PM:		Date Completed:	2/12/90
QA By / Date:	JEM 02/14/90	Well Type:	BH
Comments:	French drain geotechnical study. Surface casing set to 13.0' below ground surface on 02/07/90.		

Depth (ft)	Graphic Log	Sample T	Sample ID	SPT N-Val	REC %	RQD %	Lithologic Description	Notes:
0					0		0.0 to 2.0': RUN RECOVERED 0.0/2.0 = 0%	Monitoring Instrument Background Levels: HNu: 0.0 OVA: 20.0 All readings inside auger; in breathing zone; on cuttings; and on core at background unless otherwise noted below. TRIP BLANK SAMPLE TB020791
1								
2					90		COLLUVIUM 2.0 to 3.0': RUN RECOVERED 0.9/1.0 2.0 to 2.5': GRAVELLY SANDY CLAY; grayish brown (5YR 3/2); nonstratified; fine to very coarse grained sand; gravels to cobbles; some silt; poor sorting; subangular; granite to quartzose; low to medium plasticity; stiff; damp.	2.0 to 2.9': SAMPLE (VOA'S ONLY) B3003900203 2.0 to 4.0': SAMPLE B3003900004
3					85		2.5 to 2.9': SANDY SILTY CLAY; dark yellowish orange (10YR 6/6), moderate brown (5YR 4/4); mottled; nonstratified; trace fine to coarse grained sand; poor sorting; subrounded; quartzose; claystone inclusions; calcareous; medium plasticity; stiff; damp.	3.0 to 4.7': SAMPLE (VOA'S ONLY) B3003900305
4							3.0 to 5.0': RUN RECOVERED 1.7/2.0' SANDY CLAY: moderate brown (5YR 4/4); yellowish gray (5Y 7/2); banded; stratified; fine to very coarse grained sand; some gravels; poor sorting; subrounded; quartzose; claystone inclusions at 3.6 to 4.2'; calcareous; low to medium plastic; stiff; damp.	4.0 to 6.3': SAMPLE B3003900408
5					65		5.0 to 7.0': RUN RECOVERED 1.3/2.0' 5.0 to 5.4': CLAY; yellowish gray (5Y 7/2); light olive gray (5Y 5/2); dusky yellow (5Y 6/4); mottled; nonstratified; reworked claystone; calcareous; stiff; damp. 5.4 to 5.6': CLAYEY SAND; moderate yellowish brown	5.0 to 6.3': SAMPLE (VOA'S ONLY) B3003900050
6								

GROUNDWATER

	DEPTH	HOUR	DATE
▽		None	
▼			

WESTON

GEOLOGIC LOG

Rocky Flats: 881 Hillside

Project Number: 2029-33-09-0020

Borehole/Well Id: B300390

Depth (ft)	Graphic Log	Sample T	Sample ID	SPT N-Val	REC %	RQD %	Lithologic Description	Notes:
							(10YR 5/4); fine to very coarse grained sand; some silt; poor sorting; subrounded; quartzose; low plasticity; medium dense; moist. 5.6 to 6.3': SANDY CLAY; moderate yellowish brown (10YR 5/4); nonstratified; fine to very coarse grained sand; some silt; trace gravel; poor sorting; subrounded; quartzose; medium plasticity; very stiff; moist.	
7							7.0 to 8.0': RUN RECOVERED 0.0/1.0'	
8					100		8.0 to 10.0': RUN RECOVERED 2.0/2.0 SANDY CLAY; light olive gray (5Y 5/2); dark yellowish orange (10YR 6/6); medium gray ((N 5/0); mottled; nonstratified; fine to coarse grained sand; trace gravel; moderate to poor sorting; subrounded; quartzose and granite; reworked claystone in parts, calcareous in parts; trace iron staining; medium plasticity; very stiff; damp.	8.0 to 10.0': SAMPLE (VOA'S ONLY) B3003900810
9								
10					80		10.0 to 10.5': SAMPLE Center bit run. No sample taken.	
11							BEDROCK 10.5 to 12.0': RUN RECOVERED 1.2/1.5' SILTY CLAYSTONE; light brown (5YR 5/6) moderate brown (5YR 3/4); olive gray (5Y 4/1); blocky; 1 to 3 cm iron nodules; medium plasticity; very weathered; firm; damp.	
12					100		12.0 to 13.0': RUN RECOVERED 1.0/1.0 SILTY CLAYSTONE: same as above; olive gray (5Y 411); yellowish gray (5Y 7/2). TOTAL AUGERED DEPTH = 13.0'.	
13					0		13.0 to 14.5': RUN RECOVERED 0.0/1.5'	
14								

GROUNDWATER

	DEPTH	HOUR	DATE
▽		None	
▼			

WESTON

GEOLOGIC LOG	Rocky Flats: 881 Hillside	Project Number: 2029-33-09-0020	PAGE: 3 of 5

Borehole/Well Id: B300390

Depth (ft)	Graphic Log	Sample T	Sample ID	SPT N-Val	REC %	RQD %	Lithologic Description	Notes:
					60	52	14.5 to 18.7': RUN RECOVERED 2.5/4.2' RQD = 2.2/4.2' CLAYSTONE: light olive gray (5Y 5/2); blocky; no apparent bedding; some silt to silty; trace gravel at 15.5', 15.6', and 16.8'; clasts to 2 cm in diameter; siltstone; subangular to subrounded; nodules at 16.5' to 1 cm in diameter; trace of limonite stain in fractures; dark yellowish orange (10YR 6/6); trace of iron oxide nodules to 2 cm in diameter; loose, not cemented together; moderately weathered; stiff to hard; damp.	15.2 to 15.8': SAMPLE (GEOTECHNICAL) GTB3003901152158 15.50'; 30 deg.; Fe oxide 15.60'; 45 deg.; Fe oxide and nodules 16.80'; 45 deg.; Fe oxide and gravel
15								
16								
17								
18								
					63	47	18.7 to 22.7': RUN RECOVERED 2.5/4.0' RQD = 1.9/4.0' CLAYSTONE: light olive gray (5Y 5/2) and dark yellowish orange (10YR 6/6); some silty to silty; blocky; trace gravel at 21.0 to 21.7', 0.5 to 3 cm in diameter; clasts siltstone; subangular to subrounded; loosely compacted with no cement; limonite 5 to 10% in clay and in nodules to 3 cm in diameter; moderately weathered; stiff to hard; damp.	19.0'; 30 deg. 19.4'; 10 deg. 21.0'; 30 deg.; gravel and Fe nodules
19								
20								
21								
22								

GROUNDWATER

	DEPTH	HOUR	DATE
▽		None	
▼			

WESTON

GEOLOGIC LOG

Rocky Flats: 881 Hillside

Project Number: 2029-33-09-0020

Borehole/Well Id: B300390

Depth (ft)	Graphic Log	Sample T	Sample ID	SPT N-Val	REC %	RQD %	Lithologic Description	Notes:
23					27	0	22.7 to 25.7': RUN RECOVERED 0.80/3.0' RQD = 0.0/3.0' CLAYSTONE: light olive gray (5Y 5/2) and dark yellowish orange (10YR 6/6) in fractures; blocky; no apparent bedding; trace gravel 0.1 to 4 cm in diameter; one 4 cm clast is hard and calcareous; effervesce in HCL; clasts of siltstone and iron oxide nodules; slightly weathered; stiff to hard; damp.	23.0'; 45 deg. 23.1'; 45 deg. 23.3'; 45 deg. NOTE: Fe oxide in all fractures; calcareous gravel in 23.3'
24								
25								
26					15	0	25.7 to 27.7': RUN RECOVERED .30/2.0' RQD = 0.0/2.0' SILTY CLAYSTONE: same as interval 22.7 to 25.7'; with trace of iron nodules; extremely weathered; stiff; damp.	25.8'; 45 deg. 26.0'; 45 deg. trace siltstone gravel NOTE: lost 1.7' of core; loosing water in hole
27								
28					60	60	27.7 to 28.7': RUN RECOVERED 0.60/1.0' RQD = 0.6/1.0' CLAYSTONE: light olive gray (5Y 5/2) with a trace of dark yellowish orange (10YR 6/6); blocky; mottled; claystone is as in 22.7 to 25.7'; trace to some silt; trace of iron oxide nodules to 2 cm in diameter; manganese staining; moderately weathered; stiff; damp.	Micro Fracture
29					83	80	28.7 to 31.7': RUN RECOVERED 2.5/3.0' RQD = 2.4/3.0' CLAYSTONE: as in 22.7 to 25.7'; except no gravel; thinly laminated from 28.7 to 29.3'; moderately weathered; stiff; damp.	28.8'; 45 deg.; Fe oxide 29.5 to 30.0': SAMPLE (GEOTECHNICAL) GTB300390229530
30								

GROUNDWATER

DEPTH	HOUR	DATE
	None	

WESTON

GEOLOGIC LOG

Rocky Flats: 881 Hillside

Project Number: 2029-33-09-0020

Borehole/Well Id: B300390

Depth (ft)	Graphic Log	Sample T	Sample ID	SPT N-Val	REC %	RQD %	Lithologic Description	Notes:
								30.4'; 45 deg.
31								31.1'; 45 deg.
								31.5'; 45 deg.; leached
32							TOTAL BOREHOLE DEPTH = 31.7'.	
33								
34								
35								
36								
37								
38								

GROUNDWATER

	DEPTH	HOUR	DATE
▽		None	
▼			

WESTON

GEOLOGIC LOG	Rocky Flats: 881 Hillside	Project Number: 2029-33-09-0020	PAGE: 1 of 5

Borehole/Well Id:	B300490	Drilling Company:	Boyles Bros.
Northing (ft):	34939.4	Driller:	DVStyles
Easting (ft):	22052.0	Helper:	TWMerritt
Ground Surface Elev (ft):	5891.3	Rig Type:	B-57
Total Depth (ft):	10.0/30.0	Drilling Method:	HS Auger/NX Core
Logged By:	SPCarpenter	Drilling Fluid:	None/Water
Checked By SM:		Date Started:	2/9/90
Checked By PM:		Date Completed:	2/21/90
QA By / Date:	JEM 02/15/90	Well Type:	BH
Comments:	French drain geotechnical study. Surface casing set to 10.0' below ground surface on 02/09/90.		

Depth (ft)	Graphic Log	Sample T	Sample ID	SPT N-Val	REC %	RQD %	Lithologic Description	Notes:
0					50		COLUVIUM 0.0 to 2.0': RUN RECOVERED 1.0/2.0' SILTY SANDY CLAY; dusky brown (5YR 2/2); grading to moderate yellowish brown (10YR 2/2); banded; nonstratified; fine to very coarse grained sand; some gravels; poor sorting; subangular; quartzose; low plasticity; roots and graded in topsoil at 0.0 to 0.6'; medium stiff; moist.	Monitoring Instrument Background Levels: HNu: 0.0 OVA: 20.0 All readings inside auger; in breathing zone; on cuttings; and on core at background unless otherwise noted below. TRIP BLANK SAMPLE TB0209901 0.0 to 1.0': SAMPLE (VOA'S ONLY) B3004900002
1								
2					90		2.0 to 4.0': RUN RECOVERED 1.8/2.0' SANDY CLAY: pale yellowish brown (10YR 6/2); moderately yellowish brown (10YR 5/4); nonstratified; fine to very coarse grained sand; trace fine gravels; some silt; poor sorting; subangular to subrounded; quartzose and granitic; medium plasticity; reworked claystone; calcareous in part; root hairs; stiff; moist.	0.0 to 3.8': SAMPLE B3004900004 2.0 to 3.8': SAMPLE (VOA'S ONLY) B3004900204
3								
4							4.0 to 6.0': RUN RECOVERED 1.4/2.0' 4.0 to 4.8': SANDY CLAY: same as above. 4.8 to 5.4': SILTY CLAY: light olive gray (5Y 5/2); light brown (5YR 5/6); nonstratified; trace to some fine to coarse gravel sand; trace very fine gravels; moderately sorting; subrounded to subangular; quartzose and granitic; medium plastic; reworked claystone; iron staining; some calcareous in part; hard; damp.	4.0 to 5.4': SAMPLE (VOA'S ONLY) B3004900406 4.0 to 7.7': SAMPLE B3004900408
5					70			
6								

GROUNDWATER

DEPTH	HOUR	DATE
	None	

WESTON

GEOLOGIC LOG

Rocky Flats: 881 Hillside

Project Number: 2029-33-09-0020

Borehole/Well Id: B300490

Depth (ft)	Graphic Log	Sample T	Sample ID	SPT N-Val	REC %	RQD %	Lithologic Description	Notes:
							6.0 to 7.0': RUN RECOVERED 1.0/1.0' SILTY CLAY: same as above.	6.0 to 7.0': SAMPLE (VOA'S ONLY) B3004900607
7					100		7.0 to 9.0': RUN RECOVERED 1.5/2.0' 7.0 to 7.7': SILTY CLAY: same as above; no gravel; trace sand.	7.0 to 8.5': SAMPLE (VOA'S ONLY) B3004900709
8					75		BEDROCK 7.7 to 8.5': CLAYSTONE: light olive gray (5Y 5/2); blocky; very fractured; some silt to silty in part; medium to high plasticity; weathered; iron staining; manganese oxide staining; hard to medium hard; damp.	
9							9.0 to 10.0': RUN RECOVERED 1.0/1.0' CLAYSTONE: same as above. TOTAL AUGERED DEPTH = 10.0'	
10					0	0	10.0 to 12.0': RUN RECOVERED 0.0/2.0' RQD = 0.0/2.0'	
11								
12					83	82	12.0 to 15.0': RUN RECOVERED 2.85/3.0' RQD = 2.45/3.0' CLAYSTONE: olive gray (5Y 4/1); dusky yellow (5Y 6/4); blocky; silty grading to some silt; medium to high plasticity; iron staining; weathered; medium hard; damp.	12.6 to 13.1': SAMPLE (GEOTECHNICAL) B300490126131 12.0 to 12.5'; mechanical damage 12.6'; 70 deg.; healed; Fe oxide 12.75'; 65 deg.; healed; Fe oxide 12.95'; 90 deg.; healed; Fe oxide 13.4'; 45 deg.; healed; Fe oxide 13.7'; 60 deg.; healed; Fe oxide
13								
14								

GROUNDWATER

	DEPTH	HOUR	DATE
▽		None	
▼			

WESTON

GEOLOGIC LOG	Rocky Flats: 881 Hillside	Project Number: 2029-33-09-0020	PAGE: 3 of 5

Borehole/Well Id: B300490

Depth (ft)	Graphic Log	Sample T	Sample ID	SPT N-Val	REC %	RQD %	Lithologic Description	Notes:
								13.95'; 70 deg.; healed; Fe oxide 14.5'; 90 deg.; healed; Fe oxide
15					97	82	15.0 to 18.0': RUN RECOVERED 2.9/3.0' RQD = 2.45/3.0' CLAYSTONE: same as above; light olive gray (5Y 6/1); olive gray (5Y 4/1); trace silt.	15.6'; 45 deg.; Fe oxide and manganese oxide 15.75'; 60 deg.; healed; Fe oxide 16.1'; 80 deg.; healed; Fe oxide 16.3'; 50 deg.; healed; Fe oxide 16.6 to 17.1'; 5-5 deg.; healed; Fe oxide 17.2 to 17.3'; 70-70-60 deg.; healed; Fe oxide 17.6 to 17.75'; 50-50-90 deg.; healed; Fe oxide
16								
17								
18					96	90	18.0 to 23.0': RUN RECOVERED 4.8/5.0' RQD = 4.5/5.0' CLAYSTONE: same as above; medium gray (N 5/0); dusky yellow (5Y 6/4); medium dark gray (N 4/0); abundant iron staining with iron nodules.	18.2 to 19.1': SAMPLE (GEOTECHNICAL) B300490182191 18.0 to 18.3'; mechanical damage 18.1'; 75 deg.; healed; Fe oxide with nodules 18.4'; 60 deg.; healed; Fe oxide 18.5'; 80 deg.; healed; Fe oxide 18.6'; 90 deg.; healed; Fe oxide 18.7 to 18.8'; 90-80 deg.; healed; Fe oxide 19.25'; 50-70 deg.; healed/open; filled Fe oxide and nodules 19.4'; possible leached veggy 19.5 to 19.8'; 40-35 deg.; healed; Fe oxide 19.8 to 20.0'; multi 70-90 deg.; micro fractures; healed;Fe oxide 20.0 to 20.4'; 20-30 deg.; healed; Fe oxide 20.5 to 20.7'; 30 deg.; healed; Fe oxide 20.8 to 2.1'; 90-50-45 deg; healed; Fe oxide
19								
20								
21								
22								

GROUNDWATER

	DEPTH	HOUR	DATE
▽		None	
▼			

WESTON

GEOLOGIC LOG

Rocky Flats: 881 Hillside

Project Number: 2029-33-09-0020

Borehole/Well Id: B300490

Depth (ft)	Graphic Log	Sample T	Sample ID	SPT N-Val	REC %	RQD %	Lithologic Description	Notes:
								21.6'; 60 deg.; leached open; Fe nodules 21.7 to 21.0'; pockets of Fe nodules 22.3 to 22.7'; 70-70-40 deg.; healed; Fe oxide
23					40	34	23.0 to 28.0': RUN RECOVERED 2.0/5.0' RQD = 1.7/5.0' CLAYSTONE: same as above.	23.15 to 23.35'; 50-25 deg.; healed; Fe oxide 23.65'; mechanical damage
24								24.2 to 24.7'; micro fractures with abundant Fe concretionsand nodules
25								24.7'; 70 deg.; leached open; Fe concrections 26.9'; 45 deg.; healed; Fe oxide 27.05'; 45 deg.; healed; Fe oxide 27.2'; 55 deg.; healed; Fe oxide 27.5'; 70 deg.; healed; Fe oxide
26								27.6 to 27.7'; 50-40 deg.; healed; Fe oxide 27.8'; 85 deg.; healed; Fe oxide 28.0 to 28.6': SAMPLE (GEOTECHNICAL) B300490280286
27								
28					185	170	28.0 to 30.0': RUN RECOVERED 3.7/2.0' RQD = 3.4/2.0' CLAYSTONE: same as above; light olive gray (5Y 6/1); olive gray (5Y 4/1); decreased iron staining with scattered iron concretions.	28.3'; 85 deg.; leached open; Fe oxide with Fe concreation 28.4 to 28.6'; 35-30-60 deg.; healed; Fe oxide 28.65 to 28.85'; 45 deg.; healed; Fe oxide 28.9'; 60 deg.; healed; Fe oxide 29.2'; 50 deg.; healed; Fe oxide 29.3'; 90 deg.; healed; Fe oxide 29.4 to 29.5'; 80-90-80 deg.; healed; Fe oxide
29								
30								

GROUNDWATER

	DEPTH	HOUR	DATE
∇		None	
∇			

WESTON

GEOLOGIC LOG	Rocky Flats: 881 Hillside	Project Number: 2029-33-09-0020	PAGE: 5 of 5

Borehole/Well Id: B300490

Depth (ft)	Graphic Log	Sample T	Sample ID	SPT N-Val	REC %	RQD %	Lithologic Description	Notes:
							TOTAL BOREHOLE DEPTH = 30.0'.	29.85'; 90 deg.; healed; Fe oxide
31								
32								
33								
34								
35								
36								
37								
38								

GROUNDWATER

	DEPTH	HOUR	DATE
▽		None	
▼			

WESTON

GEOLOGIC LOG	Rocky Flats: 881 Hillside	Project Number: 2029-33-09-0020	PAGE: 1 of 4

Borehole/Well Id:	B300590	Drilling Company:	Boyles Bros.
Northing (ft):	34892.7	Driller:	DVStyles/PCBushkovski
Easting (ft):	21964.7	Helper:	TWMerritt/MBoyd
Ground Surface Elev (ft):	5895.9	Rig Type:	B-57
Total Depth (ft):	7.0/27.5	Drilling Method:	HS Auger/NX Core
Logged By:	SPCarpenter/JKHarriz	Drilling Fluid:	None/Water
Checked By SM:		Date Started:	2/9/90
Checked By PM:		Date Completed:	2/19/90
QA By / Date:	JEM 02/18/90	Well Type:	BH
Comments:	French drain geotechnical study. Surface casing set to 7.0' below ground surface on 02/09/90.		

Depth (ft)	Graphic Log	Sample T	Sample ID	SPT N-Val	REC %	RQD %	Lithologic Description	Notes:
0					13		**COLLUVIUM** 0.0 to 3.0': RUN RECOVERED .40/3.0 SANDY GRAVELLY CLAY: grayish brown (5YR 3/2); nonstratified; fine to very coarse grained sand; 1 to 4 cm gravels; poor sorting; subangular; quartzose; low plasticity; roots and grass; medium to stiff; moist.	Monitoring Instrument Background Levels: HNu: 0.0 OVA: 20.0 All readings inside auger; in breathing zone; on cuttings; and on core at background unless otherwise noted below. TRIP BLANK SAMPLE TB0209901 0.0 to 0.4': SAMPLE (VOA'S ONLY) B3005900003 0.0 to 5.2': SAMPLE B3005900005
1								
2								
3					60		3.0 to 5.0': RUN RECOVERED 1.2/2.0 SANDY CLAY: moderately yellowish brown (10YR 5/4) grading to medium dark gray (N 4/0); nonstratified; fine to very coarse grained sand; some gravels; poor sorting; subangular; quartzose; medium plasticity; calcareous; iron staining; claystone inclusions; very stiff; damp.	3.0 to 4.2': SAMPLE (VOA'S ONLY) B3005900305
4								
5					100		5.0 to 7.0': RUN RECOVERED 2.0/2.0 5.0 to 5.2': SANDY CLAY: same as above. 5.2 to 7.0': CLAY; medium dark gray (N 4/0); light olive gray (5Y 5/2); trace silt; medium to high plasticity; fractured with calcareous filling; iron staining; some	
6								

GROUNDWATER

	DEPTH	HOUR	DATE
▽		None	
▼			

WESTON

GEOLOGIC LOG

Rocky Flats: 881 Hillside

Project Number: 2029-33-09-0020

Borehole/Well Id: B300590

Depth (ft)	Graphic Log	Sample T	Sample ID	SPT N-Val	REC %	RQD %	Lithologic Description	Notes:
							manganse staining; root cast; very stiff; damp. TOTAL AUGERED DEPTH = 7.0'.	
7					0		7.0 to 9.5': RUN RECOVERED 0.0/2.5'	
8								
9								
					62		9.5 to 14.0': RUN RECOVERED 2.8/4.5' 9.5 to 10.0': SILTY CLAY: grayish orange (10YR 7/4); slightly mottled; weakly laminated; 100% medium plastic fines; occasional medium grains; subangular to subrounded; moderate plasticity; firm; damp. 10.0 to 11.6': SILTY SANDY CLAY: moderate yellowish brown (10YR 5/4); no apparent structure; slightly to 40 to 70% medium plastic fines; (40 to 30%) fine to medium grained sand; occasional gravel; moderately sorted; angular; quartzite; firm to stiff; damp. 11.5 to 12.3': SILTY CLAY: grayish orange (10YR 7/4); slightly mottled; weakly laminated; 100% medium plastic fines; firm; damp.	PACKER TEST: 9.71 to 14.98' 10.0 to 11.6': LITHOLOGY Field interpretation changed from SANDY CLAY to SILTY SANDY CLAY based on grain size analysis. 10.6 to 11.3': SAMPLE (GEOTECHNICAL) B300590115122
10								
11								
12								
13								
14								

GROUNDWATER

	DEPTH	HOUR	DATE
∇		None	
▼			

WESTON

GEOLOGIC LOG

Rocky Flats: 881 Hillside

Project Number: 2029-33-09-0020

Borehole/Well Id: B300590

Depth (ft)	Graphic Log	Sample T	Sample ID	SPT N-Val	REC %	RQD %	Lithologic Description	Notes:
15 16 17					35	35	**BEDROCK** 14.0 to 18.0': RUN RECOVERED 1.4/4.0' RQD 1.4/4.0' SILTY CLAYSTONE: pale yellowish brown (10YR 6/2); mottled; iron staining on some surfaces and along fine fractures; light brown (5YR 5/4); trace to occasional medium to coarse grained sand; subangular; moderate plasticity; highly weathered; firm; damp.	14.5 to 14.8': SAMPLE (GEOTECHNICAL) B300590145148 14.5 to 14.62'; 50 deg. PACKER TEST: 14.76 to 20.03' 14.8 to 14.89'; 65 deg. 15.05 to 15.21'; (3); 90 deg. 15.3 to 5.2'; (2); 45 deg. PACKER TEST: 17.13 to 22.4'
18 19					80	50	18.0 to 20.0' RUN RECOVERED 1.6/2.0 RQD = 1.0/2.0' 18.0 to 18.5': SILTY CLAYSTONE: dark yellowish brown (10YR 4/2); as above; slightly less weathered; gradual change to silty claystone. 18.5 to 19.0': SILTY CLAYSTONE: moderate brown (10YR 4/4) to dusky brown (5YR 4/4); lots of color variations; nonplastic fines but may be some fine sand percentage; highly weathered caliche; very brittle; incompetant; iron cement; hard; wet. 19.0 to 19.6': IRON CONCRETION.	Limonite filled fractures: 18.1 to 18.22'; 60 deg. 18.2 to 18.5' (4-6) other time fractures: difficult to measure angle 18.4'; 90 deg. 18.5 to 19.6'; brittle pieces, highly fractured
20 21 22					100	90	20.0 to 22.0': RUN RECOVERED 2.0/2.0' RQD = 1.8/2.0' 20.0 to 20.2': IRON NODULE: same as above; sand mixed with silty clay. 20.2 to 22.0': SILTY CLAYSTONE: same as 14.0 to 18.0'; very firm.	20.75'; fine limonite filled fractures 20.75 to 20.9'; 50-45-0 deg. 20.9 to 21.14'; 0 deg. other small, not measurable 21.2 to 21.9': SAMPLE (GEOTECHNICAL) B300590212219 21.15 to 21.28'; 60 deg. 21.15'; caliche along horizontal zone 21.2'; 60 deg. 21.25 to 21.55'; (6) 60 deg.

GROUNDWATER

	DEPTH	HOUR	DATE
▽		None	
▼			

WESTON

GEOLOGIC LOG	Rocky Flats: 881 Hillside	Project Number: 2029-33-09-0020	PAGE: 4 of 4

Borehole/Well Id: B300590

Depth (ft)	Graphic Log	Sample T	Sample ID	SPT N-Val	REC %	RQD %	Lithologic Description	Notes:
					0	0	22.0 to 24.0': RUN RECOVERED 0.0/2.0 RQD = 0.0/2.0'.	21.8 to 22.0'; (2) 70 deg.; (1) 0 deg.
23								
24					100	100	24.0 to 26.0': RUN RECOVERED 2.0/2.0' RQD = 2.0/2.0' SILTY CLAYSTONE: same as 14.0 to 18.0; very firm, 24.2 to 24.6': heavily altered to limonite; no distinct fractures.	Fine limonite filled fractures: 24.65 to 24.7'; 70 deg. 24.7 to 24.85'; 60 deg. 24.8 to 24.85'; 70 deg. Change angle at 24.85 to 24.95'; 40 deg. 24.9 to 25.2'; 55 deg.; several faint traces parallel to the fracture 25.25 to 25.27'; 50 deg.
25								
26					73	73	26.0 to 27.5': RUN RECOVERED 1.1/1.5' RQD = 1.1/1.5'. SILTY CLAYSTONE: same as 14.0 to 18.0'; very firm.	25.7 to 26.0'; 30 deg. and the less distinct parallel fractures. 26.0'; fine limonite filled fractures. 26.0 to 26.3'; (2) 60 deg.; one also with caliche other small fracture indistinct. 26.35 to 26.8'; 40-60 deg. 26.9 to 27.1'; 0 deg.; (3) several indistict fractures with curved surfaces.
27								
							TOTAL BOREHOLE DEPTH = 27.5'.	
28								
29								
30								

GROUNDWATER

DEPTH	HOUR	DATE
	None	

WESTON

GEOLOGIC LOG	Rocky Flats: 881 Hillside	Project Number: 2029-33-09-0020	PAGE: 1 of 5

Borehole/Well Id:	B300690	Drilling Company:	Boyles Bros.
Northing (ft):	34847.3	Driller:	DVStyles/PCBushkovski
Easting (ft):	21877.4	Helper:	TWMerritt/MBoyd
Ground Surface Elev (ft):	5896.4	Rig Type:	B-57
Total Depth (ft):	6.0/31.2	Drilling Method:	HS Auger/NX Core
Logged By:	SPCarpenter/JKHarriz	Drilling Fluid:	None/Water
Checked By SM:		Date Started:	2/9/90
Checked By PM:		Date Completed:	2/21/90
QA By / Date:	JEM 02/18/90	Well Type:	BH
Comments:	French drain geotechnical study. Surface casing set to 6.0' below ground surface on 02/09/90.		

Depth (ft)	Graphic Log	Sample T	Sample ID	SPT N-Val	REC %	RQD %	Lithologic Description	Notes:
0					90		0.0 to 2.0': RUN RECOVERED 1.8/2.0 TOPSOIL 0.0 to 0.4': SANDY SILTY GRAVELLY CLAY: moderate brown (5YR 3/4); nonstratified; fine to very coarse grained sand; 1 to 7 cm. gravels; poor sorting; subangular; quartzose; low to medium plasticity; roots and grass; medium stiff; moist. COLLUVIUM 0.4 to 1.8: GRAVELLY SAND AND CLAY: moderate yellowish brown (10YR 5/4) to light light brown (5YR 5/6); nonstratified; fine to very coarse grained sand; 1 to 5 cm. gravels; poor sorting; subangular; quartzose and granite; low plasticity; stiff; damp.	Monitoring Instrument Background Levels: HNu: 0.0 All readings inside auger; in breathing zone; on cuttings; and on core at background unless otherwise noted below. TRIP BLANK SAMPLE TB0209901 0.0 to 1.8': SAMPLE (VOA'S ONLY) B3006900002 0.0 to 2.6': SAMPLE B3006900003
1								
2					0		2.0 to 4.0': RUN Center bit run. No sample taken. GRAVELLY SAND AND CLAY: same as above.	2.0 to 2.6': SAMPLE (VOA'S ONLY) B3006900203
3								
4					85		4.0 to 6.0': RUN RECOVERED 1.7/2.0' CLAY: medium dark gray (N 4/0) to moderate yellowish brown (10YR 5/4); blocky; trace to some silt; medium to high plasticity; calcareous pockets; some iron staining; weathered; firm to medium hard; damp. TOTAL AUGERED DEPTH = 6.0'.	
5								
6								

GROUNDWATER

	DEPTH	HOUR	DATE
▽		None	
▼			

WESTON

GEOLOGIC LOG	Rocky Flats: 881 Hillside	Project Number: 2029-33-09-0020	PAGE: 2 of 5

Borehole/Well Id: B300690

Depth (ft)	Graphic Log	Sample T	Sample ID	SPT N-Val	REC %	RQD %	Lithologic Description	Notes:
7					100		6.0 to 8.0': RUN RECOVERED 2.0/2.0' SILTY CLAY: pale yellowish brown to dark yellowish brown (10YR 6/2 to 10YR 4/2); 100% medium plastic fines; limonite staining (mottling) throughout; caliche in small amounts throughout; very firm; damp.	6.6 to 6.7'; Fracture; 70% dip; very indistinct; infilled with Fe oxide. 7.2 to 7.4'; Lens/block of limonite stained clay may be zone of weakness or slightly coarser.
8					49		8.0 to 12.5': RUN RECOVERED 2.2/4.5' 8.0 to 9.0': SILTY CLAY AND GRAVEL: dark yellowish brown (10YR 4/2); (50%) gravel; poorly sorted; angular to subangular grains; quartzose and siltstone; maximum size 1 cm.; minimum size 1 mm.; (50%) medium plastic fines; soft; moist to damp.	
9							9.0 to 10.1': SILTY CLAY: moderate yellowish brown; to dark yellowish orange (10YR 5/4 to 10YR 6/6); (85 to 95%) plastic fines; (5 to 15%) gravel; poorly sorted; angular grains; quartzite; maximum size 3 cm.; indistinct horizontal laminae delineated by color variations; mottling caliche scattered throughout; firm; damp.	
10							10.1 to 10.2: SILTY CLAY: grayish brown to dusky brown (5YR 3/3 to 5YR 2/2); 100% medium plastic fines; fairly uniform texture; firm; damp.	PACKER TEST: 10.1 to 15.37'
11								
12								
13					60	60	BEDROCK 12.5 to 14.5': RUN RECOVERED 1.2/2.0 RQD = 1.2/2.0' 12.5 to 13.2': SILTY CLAYSTONE: grayish brown (5YR 3/2); dusky brown (5YR 2/2); medium plastic; firm; damp. 13.2 to 13.7': CLAYEY SILTSTONE: pale yellow brown (10YR 6/2); (100%) nonplastic fines; caliche at base (127') along horizontal planes; hard; damp.	12.5 to 13.2': SAMPLE (GEOTECHNICAL) B300690125132 13.4'; Indistinct fracture 70 deg. angle; infilled with limonite; suture like surface.
14								

GROUNDWATER

	DEPTH	HOUR	DATE
▽		None	
▼			

WESTON

GEOLOGIC LOG

Rocky Flats: 881 Hillside

Project Number: 2029-33-09-0020

Borehole/Well Id: B300690

Depth (ft)	Graphic Log	Sample T	Sample ID	SPT N-Val	REC %	RQD %	Lithologic Description	Notes:
15					50	40	14.5 to 18.5': RUN RECOVERED 2.0/4.0' RQD = 1.6/4.0' 14.5 to 16.0': SILTY CLAYSTONE: pale yellowish brown to dark yellowish brown (10YR 6/2 to 10YR 4/2); indistinct lamina based on subtle color variations most likely due to slight grain size variations; 100% medium plastic fines; silt content variable (to 30%) firm to very firm; damp to moist.	PACKER TEST: 14.98 to 20.25' 15.0 to 15.5'; fine fracture, 0 deg; infilled with limonite.
16							16.0 to 16.5': SILTY, SANDY CLAYSTONE: moderate yellowish brown (10YR 5/4); uniform structure; (80%) slightly plastic fines; very fine to fine grained sand; soft to moderately soft; moist.	16.0 to 16.1'; (3) indistinct fine fractures; 90 deg.; infilled with limonite, one with caliche.
17								
18								18.5 to 19.6': LITHOLOGY Field interpretation changed from CLAYEY SILTY SANDSTONE to CLAYEY SILTSTONE based on grain size analysis
19					100	100	18.5 to 20.0': RUN RECOVERED 1.5/1.5' RQD 1.5/1.5' 18.5 to 19.6: CLAYEY SILTSTONE: moderate yellowish brown (10YR 5/4); interlaminated (indistinctly) with SILTY CLAYSTONE (as 14.5 to 16.0); sandstone is (60%+) very fine to fine grained sand; well sorted; subangular to subrounded; quartzose (40%); non to slightly plastic fines; medium soft; moist. 19.6 to 20.0': SANDY CLAYEY SILTSTONE: interbedded with silty claystone; very thinly laminated.	18.5 to 19.0': SAMPLE (GEOTECHNICAL) B300690195200 19.0 to 19.5': SAMPLE (GEOTECHNICAL) B300690200205 19.5 to 19.9': SAMPLE (GEOTECHNICAL) B300690205208
20					32	32	20.0 to 22.5': RUN RECOVERED 0.8/2.5' RQD = 0.8/2.5' 20.0 to 20.6': SILTY CLAYEY SANDSTONE: as at 18.5 to 20.0'; slightly greater percentage of sand (70%); laminated with SILTY CLAYSTONE from 20.6 to 20.8'.	
21							20.6 to 20.8: SILTY CLAYSTONE: laminated with SILTY CLAYEY SANDSTONE.	
22								

GROUNDWATER

	DEPTH	HOUR	DATE
▽		None	
▼			

WESTON

GEOLOGIC LOG

Rocky Flats: 881 Hillside

Project Number: 2029-33-09-0020

Borehole/Well Id: B300690

Depth (ft)	Graphic Log	Sample T	Sample ID	SPT N-Val	REC %	RQD %	Lithologic Description	Notes:
23					100	30	22.5 to 24.5': RUN RECOVERED 2.0/2.0 RQD = 0.6/2.0' 22.5 to 23.3': CLAYEY SANDY SILTSTONE: same as 19.6 to 20.0'. 23.3 to 24.5': SILTY CLAYSTONE: moderate yellowish brown (10YR 5/4); interlaminated with CLAYEY SILTSTONE layers as at 13.2 to 13.7' (90%); slightly to medium plastic fines; (5%) very fine to fine grained sand; moderately well sorted; subrounded; quartzose; caliche at base; occasional limonite staining; iron oxide nodule 3 cm. at 23.6; firm; damp.	
24					100	25	24.5 to 26.5': RUN RECOVERED 2.0/2.0' RQD = 0.5/2.0' 24.5 to 26.3': CLAYSTONE: pale yellowish brown (10YR 6/2); 100% medium plastic fines; lower silt percentage than previous claystone (<10%); discontinuous lenses and pockets of iron oxide (limonite) from 26.0 to 26.3'; firm (25.5 to 26.0') soft (24.5 to 25.0); soft (26.0 to 26.5); moist; damp. 26.3 to 26.5': SILTY CLAYSTONE: as above at 24.5 to 26.3' except greater silt concentration (20%) and alternating with limonite stained laminations and horizontal laminations of caliche; very firm; moist to wet.	Fine fractures: 24.6 ~ 60 deg.; 24.7 ~ 55 deg.; 24.8 ~ 50 deg.; 25.0 ~ 50 deg.; 24.6 to 24.8 may have been induced by coring.
25					100	85	26.5 to 28.5': RUN RECOVERED 2.0/2.0' RQD = 1.7/2.0' 26.5 to 27.6': SILTY CLAYSTONE: as at 26.3 to 26.5; laminations less frequent. 27.6 to 28.5': SILTY CLAYSTONE: pale yellowish brown (10YR 6/2); relatively uniform (homogeneous); silt and clay content (50/50%) 100% non to slightly plastic fines; limonite in veins (thin); very firm; damp.	Fine fracture 27.1'; 0 deg. limonite filled may be more fracture from 27.1 to 27.6' but broke in pieces and not distinguisable; No distinct fractures 27.6 to 28.7'.
26					33	33	28.5 to 31.2': RUN RECOVERED 0.9/2.7' RQD 0.9/2.7' SILTY CLAYSTONE: pale yellowish brown (10YR 6/2); 100% nonplastic to slight plastic fines; large silt percentage (50%); fine veins of limonite throughout; very firm; damp.	Fine fractures infilled with limonite 28.5 to 28.9'; 30 deg.; 29.1 to 29.1'; 90 deg.
27								
28								
29								
30								

GROUNDWATER

	DEPTH	HOUR	DATE
∇		None	
▼			

WESTON

GEOLOGIC LOG	Rocky Flats: 881 Hillside	Project Number: 2029-33-09-0020	PAGE: 5 of 5

Borehole/Well Id: B300690

Depth (ft)	Graphic Log	Sample T	Sample ID	SPT N-Val	REC %	RQD %	Lithologic Description	Notes:
31								
							TOTAL BOREHOLE DEPTH = 31.2'.	
32								
33								
34								
35								
36								
37								
38								

GROUNDWATER

	DEPTH	HOUR	DATE
∇		None	
▼			

WESTON

GEOLOGIC LOG	Rocky Flats: 881 Hillside	Project Number: 2029-33-09-0020	PAGE: 1 of 4

Borehole/Well Id:	B300790	**Drilling Company:**	Boyles Bros.
Northing (ft):	34831.6	**Driller:**	DVStyles/PCBushkovski
Easting (ft):	21779.4	**Helper:**	TWMerritt/MBoyd
Ground Surface Elev (ft):	5890.6	**Rig Type:**	B-57
Total Depth (ft):	6.0/23.0	**Drilling Method:**	NX Core
Logged By:	SPCarpenter/JKHarriz	**Drilling Fluid:**	None/Water
Checked By SM:	[illegible]	**Date Started:**	2/9/90
Checked By PM:		**Date Completed:**	2/22/90
QA By / Date:	JEM 02/18/90	**Well Type:**	BH
Comments:	French drain geotechnical study. Surface casing set to 6.0' below ground surface on 02/09/90		

Depth (ft)	Graphic Log	Sample T	Sample ID	SPT N-Val	REC %	RQD %	Lithologic Description	Notes:
0							**COLLUVIUM** 0.0 to 2.0': RUN RECOVERED 0.5/2.0' GRAVELLY SANDY CLAY: dusky brown (5YR 2/2); nonstratified; fine to very coarse grained sand; 1 to 6 cm gravels; poor sorting; subangular; quartzose; low plasticity; roots and grass; medium stiff; moist.	Monitoring Instrument Background Levels: HNu: 0.0 All readings inside auger; in breathing zone; on cuttings; and on core at background unless otherwise noted below. TRIP BLANK SAMPLE TB0209901 FIELD BLANK SAMPLE B30079000004FB 0.0 to 0.5': SAMPLE (VOA'S ONLY) B3007900002 B3007900002D
1					25			
2					95		2.0 to 4.0': RUN RECOVERED 1.9/2.0' 2.0 to 3.7': SANDY CLAY: dusky yellow (5YR 6/4) medium light gray (N 5/0); nonstratified; fine to coarse grained sand; trace fine gravels; moderate to poor sorting; subangular; quartzose; medium plasticity; calcareous; iron staining; root hairs; very stiff; damp. 3.7 to 3.9': SILTY CLAY: medium gray (N 5/0) to light olive gray (5Y 6/1 to 5/2); blocky; medium plasticity; root hairs; trace iron staining; slightly calcareous; firm; damp.	0.0 to 3.7': SAMPLE B3007900004 B3007900004D 2.9 to 3.9': SAMPLE (VOA'S ONLY) B3007900204
3								
4					60		4.0 to 6.0': RUN RECOVERED 1.2/2.0' SILTY CLAY: same as above.	
5							TOTAL AUGERED DEPTH = 6.0'.	
6								

GROUNDWATER

	DEPTH	HOUR	DATE
▽		None	
▼			

WESTON

GEOLOGIC LOG

Rocky Flats: 881 Hillside

Project Number: 2029-33-09-0020

Borehole/Well Id: B300790

Depth (ft)	Graphic Log	Sample T	Sample ID	SPT N-Val	REC %	RQD %	Lithologic Description	Notes:
7					23		6.0 to 10.0': RUN RECOVERED .09/4.0' SILTY CLAY: pale yellowish brown (10YR 6/2); very indistinctly laminated; slightly mottled; predominantly (60 to 70%) very fine to fine grained sand; moderately well sorted; subrounded; quartz; (40 to 30%) nonplastic to slightly plastic fines; firm to stiff; damp.	6.0 to 6.3': SAMPLE (GEOTECHNICAL) B3007906063 6.0 to 10.0': LITHOLOGY Field interpertation changed from SILTY CLAYSTONE to SILTY CLAY based on grain size analysis.
8								
9							9.3 to 10.0': SANDY CLAYEY SILT: pale yellowish brown (10YR 6/2); trace gravels; reworked bedrock.	Note: extra recovery from following run
10					123	65	BEDROCK 10.0 to 13.0': RUN RECOVERED 3.7/3.0' RQD = 2.4/3.0' 10.0 to 11.2': SILTY CLAYSTONE interlaminated with SILTY CLAYEY SANDSTONE: dark yellowish orange (10YR 6/6) to moderate yellowish brown (10YR 5/4) mottled; lighter in sandy layers; darker in clayey layers; sandstone as above; SILTY CLAYSTONE: 100% medium plastic fines; firm to stiff; damp.	10.0 to 10.4': SAMPLE (GEOTECHNICAL) B300790106110 PACKER TEST: 10.1 to 13.0'
11								Fine limonite filled fractures at: 11.0'; 45 deg. 11.5 to 10.3'; 90 deg.
12							11.2 to 11.8': SANDY SILTY CLAYSTONE interlaminated with SILTY SANDSTONE: as at 10.0 to 11.2; firm to stiff; gradual increase in claystone percentage towards base; caliche in lamina at 11.8'. 11.8 to 13.0': SILTY CLAYSTONE: moderate yellowish brown (10YR 5/4); (100%) medium plastic fines; firm to stiff; damp; several small caliche nodules at 12.5'.	11.95'; 45 deg. 12.05 to 12.35'; 20 deg. 12.30 to 12.5'; 20 deg. 12.6'; 90 deg.; open; (mechanical) brake
13					50	50	13.0 to 15.0': RUN RECOVERED 1.0/2.0' RQD = 1.0/2.0' 13.0 to 13.4': SILTY CLAYSTONE: dark yellowish brown (10YR 4/2); uniform texture; (100%) medium plastic fines; low silt percentage; moldable; soft to firm. 13.4 to 14.0': SILTY CLAYSTONE: dark yellowish brown	PACKER TEST: 13.0 to 17.0' 13.3'; open brake; 90 deg.; probably mechanical 13.61 to 13.62'; three fine limonite veins; 90 deg. 13.7; 13.74'; limonite in
14								

GROUNDWATER

	DEPTH	HOUR	DATE
∇		None	
▼			

WESTON

GEOLOGIC LOG

Rocky Flats: 881 Hillside

Project Number: 2029-33-09-0020

Borehole/Well Id: B300790

Depth (ft)	Graphic Log	Sample T	Sample ID	SPT N-Val	REC %	RQD %	Lithologic Description	Notes:
							(10YR 4/2); finely laminated; (100%) non to slightly plastic fines; lamina vary in silt percentage between approximately 10% silt to 50% silt; caliche along horizontal lamina throughout; damp.	horizontal lamina (.5 cm wide) potential healed fractures 13.85 to 14.0'; fine fracture infilled with limonite; 0 deg.
15					95	95	15.0 to 17.0': RUN RECOVERED 1.9/2.0' RQD = 1.9/2.0' 15.0 to 15.7': SILTY CLAYSTONE: dark yellow brown (10YR 4/2); uniform texture; firm to stiff; limonite in pockets (0.5 cm) at 15.1, 15.25, 15.62; damp. 15.7 to 16.05': SILTY CLAYSTONE interlaminated with CLAYEY SILTSTONE: claystone as at 15.0'; pale yellowish brown (10YR 6/2); (100%) non plastic to slightly plastic fines; possible trace very fine grained sand; stiff; damp. 16.05 to 16.9': SILTY CLAYSTONE: as at 15.7 (no interlaminations of claystone).	Suture like limonite viens throughout; indistinct fracture traces 15.7'; limonite in siltstone 16.0 to 16.8': SAMPLE (GEOTECHNICAL) B300790160168 16.0 to 16.1'; fine fracture infilled with limonite; 80 deg.
16								
17					73	67	17.0 to 20.0': RUN RECOVERED 2.2/3.0' RQD = 2.0/3.0' 17.0 to 18.1': SILTY CLAYSTONE: same as 13.0 to 13.4': grading to claystone.	16.2 to 16.4'; limonite pockets 1 cm 16.2'; caliche nodules 2 cm 16.5 to 16.6'; 50 deg. 16.6'; caliche nodules (2 cm); fine limonite filled fractures 16.65 to 16.85'; 35 deg. 16.7 to 16.9'; 0 deg. PACKER TEST: 17.0 to 23.0' Fine limonite filled fractures: 17.1 to 17.25'; (1); 50 deg. 17.35 to 17.55'; (2); 0 deg. 17.55'; (1) 90 deg.; caliche on surface; core brake along plane 17.7'; (1); 90 deg. 17.73'; (1); 90 deg. 17.78'; (1); 90 deg. 17.82 to 17.98'; (1) curved; 0 deg. 18.6 to 18.8': SAMPLE
18							18.1 to 18.6': CLAYSTONE: same as above with less silt; 1 to 2 mm laminations silty sandstone.	
19							18.6 to 19.2': SILTY CLAYSTONE: same as above with laminations of silty sandstone.	
20					100	100	20.0 to 23.0': RUN RECOVERED 3.0/3.0' RQD = 3.0/3.0' CLAYEY SILTSTONE: same as 18.1 to 18.6; with laminations up to 7 mm of sandy siltstone to 21.5' then laminations of silty sandstone.	(GEOTECHNICAL) B300790186188 18.25'; limonite nodule 18.32 to 18.34'; 75 deg. 18.45 to 18.5'; 90 deg.; broke along this line 18.55 to 18.8'; 45 deg. 18.7 to 18.85'; 0 deg. 18.95'; caliche in lamina 20.0 to 23.0': LITHOLOGY Field interpertation changed from CLAYSTONE to CLAYEY SILTSTONE based
21								
22								

GROUNDWATER

	DEPTH	HOUR	DATE
▽		None	
▼			

WESTON

GEOLOGIC LOG	Rocky Flats: 881 Hillside	Project Number: 2029-33-09-0020	PAGE: 4 of 4

Borehole/Well Id: B300790

Depth (ft)	Graphic Log	Sample T	Sample ID	SPT N-Val	REC %	RQD %	Lithologic Description	Notes:
								on grain size analysis. Many fine limonite filled fractures 20.1 to 20.15'; 80 deg. 20.2 to 20.23'; curved; 0 deg. 20.3 to 20.4'; 65 deg. ~~20.42 to 20.46'; 75 deg.~~
23							TOTAL BOREHOLE DEPTH = 23.0'.	20.5 to 20.6'; 60 deg. 20.6 to 20.8'; 45 deg. 20.8 to 21.5': SAMPLE (GEOTECHNICAL) B300790208215 20.73'; 90 deg. 21.0 to 21.5'; (6); 45 deg. 21.75' to 21.3'; 90 deg. 21.85 to 22.45'; (9) 90 deg. 22.65' caliche in small nodules (1cm) 22.8 to 22.85'; (2); 65 deg.; caliche in small nodules < 1 cm.
24								
25								
26								
27								
28								
29								
30								

GROUNDWATER

	DEPTH	HOUR	DATE
▽		None	
▼			

WESTON

GEOLOGIC LOG

Rocky Flats: 881 Hillside

Project Number: 2029-33-09-0020

Borehole/Well Id:	B300890	**Drilling Company:**	Boyles Bros.
Northing (ft):	34820.8	**Driller:**	DVStyles/PCBushkovski
Easting (ft):	21680.1	**Helper:**	TWMerritt/MBoyd
Ground Surface Elev (ft):	5897.4	**Rig Type:**	B-57
Total Depth (ft):	14.0/29.5	**Drilling Method:**	HS Auger/NX Core
Logged By:	TALutherer/JEMarks	**Drilling Fluid:**	None/Water
Checked By SM:	[illegible]	**Date Started:**	2/12/90
Checked By PM:		**Date Completed:**	3/5/90
QA By / Date:	JEM 02/13/90	**Well Type:**	BH

Comments: French drain geotechnical study. Surface casing to 14.0' below ground surface on 02/12/90.

Depth (ft)	Graphic Log	Sample T	Sample ID	SPT N-Val	REC %	RQD %	Lithologic Description	Notes:
0–1					50		**TOPSOIL** 0.0 to 2.0': RUN RECOVERED 1.0/2.0 GRAVELLY CLAY: dusky brown (5YR 2/2); nonlaminated; 1 to 3 cm broken gravels; quartzose; organics; roots; medium plasticity; damp.	Monitoring Instrument Background Levels: HNu: 0.0 All readings inside auger; in breathing zone; on cuttings; and on core at background unless otherwise noted below. TRIP BLANK SAMPLE TB0212901 0.0 to 1.0': SAMPLE (VOA'S ONLY) B3008900002 0.0 to 3.4': SAMPLE B3008900004
2–3					70		**COLLUVIUM** 2.0 to 4.0': RUN RECOVERED 1.4/2.0' SILTY CLAY: moderate brown (10YR 5/4) to grayish orange (10YR 7/4); mottled; medium plasticity; iron staining; nonlaminated; silty; trace very fine grained sand; trace to some caliche; bluish white (5B 9/1); strong HCL reaction; reworked claystone; medium plasticity; dense; damp.	2.0 to 2.4': SAMPLE (VOA'S ONLY) B3008900204
4–6					90		4.0 to 6.0': RUN RECOVERED 1.8/2.0' SILTY CLAY: as above; some fractures; no caliche; reworked claystone; trace iron nodules; dry.	4.0 to 5.8': SAMPLE (VOA'S ONLY) B3008900406 4.0 to 8.0': SAMPLE B3008900408

GROUNDWATER

	DEPTH	HOUR	DATE
▽		None	
▼			

WESTON

GEOLOGIC LOG

Rocky Flats: 881 Hillside

Project Number: 2029-33-09-0020

Borehole/Well Id: B300890

Depth (ft)	Graphic Log	Sample T	Sample ID	SPT N-Val	REC %	RQD %	Lithologic Description	Notes:
7					100		6.0 to 8.0': RUN RECOVERED 2.0/2.0' SILTY CLAY: same as above; trace very fine to fine grained sand; trace 3 to 5 mm lithic gravels; slightly calcareous; slight HCL reaction; trace fractures.	6.0 to 8.0': SAMPLE (VOA'S ONLY) B3008900608
8					100		8.0 to 10.0': RUN RECOVERED 2.0/2.0' SILTY CLAY: same as above; trace gravels to cobbles; 9.7 to 10.0' moderately calcareous; moderate HCL reaction.	8.0 to 10.0': SAMPLE (VOA'S ONLY) B3008900820 8.0 to 12.0': SAMPLE B3008900812
9								
10					100		10.0 to 12.0': RUN RECOVERED 2.0/2.0 SILTY CLAY: same as above; some gravels; trace iron concretions.	10.0 to 12.0': SAMPLE (VOA'S ONLY) B3008901012
11								
12					100		12.0 to 14.0': RUN RECOVERED 2.0/2.0' 12.0 to 12.1': SILTY CLAY: same as above. BEDROCK 12.1 to 14.0': SILTY CLAYEY SANDSTONE: very pale orange (10YR 8/2); to dark yellowish orange (10YR 6/6); mottled; nonlaminated; silty; very fine to fine grained sand; subangular to subrounded; quartzose; clayey; non to low plasticity; firm; moderately; consolidated; slightly calcareous; slight HCL reaction; at times grading to silty sandy claystone; damp.	
13								
14								

GROUNDWATER

	DEPTH	HOUR	DATE
▽		None	
▼			

WESTON

GEOLOGIC LOG

Rocky Flats: 881 Hillside

Project Number: 2029-33-09-0020

Borehole/Well Id: B300890

Depth (ft)	Graphic Log	Sample T	Sample ID	SPT N-Val	REC %	RQD %	Lithologic Description	Notes:
							TOTAL AUGERED DEPTH = 14.0'.	
15 16 17 18					75	75	14.5 to 18.5': RUN RECOVERED 3.0/4.0' RQD = 3.0/4.0' CLAYSTONE: light olive gray (5YR 6/1); medium gray (N 5/0); pale yellowish brown (10YR 6/2); mottled; blocky; trace to some silt; medium to high plasticity; abundant iron staining; weathered; medium hard; damp.	14.8'; 90 deg.; healed; Fe oxide 15.0'; 90 deg.; healed; Fe oxide 15.1 to 15.4': SAMPLE (GEOTECHNICAL) B300890151154 PACKER TEST: 16.26 to 19.5' Abundant discontiouous mico fractures 16.4 to 16.6'; 75-80 deg.; healed; Fe oxide
19					100 60	100 0	18.5 to 19.0': RUN RECOVERED 0.5/0.5' RQD = 0.5/0.5' CLAYSTONE: same as above light olive gray (5Y 5/2); light olive brown (5Y 5/6); 1 cm silt lenses to inclusions at 18.5 to 18.7'.	18.75'; 90 deg.; healed; Fe oxide 19.0 to 19.3'; trace vertical fractures; Fe stained; healed
20					105	19	19.0 to 19.5': RUN RECOVERED 0.3/0.5' RQD = 0.0/0.5' SILTY CLAYSTONE: pale yellowish brown (10YR 6/2); trace iron stain; light brown (5YR 5/6); slightly mottled; nonstratified; low to medium plasticity; firm; damp.	19.4 to 20.2'; mechanical fractured throughout; open; vertical throughout PACKER TEST: 19.5 to 25.0'
21 22					60	20	19.5 to 21.5': RUN RECOVERED 2.1/2.0' RQD = 0.4/2.0' 19.4 to 20.2: SILTY CLAYSTONE: pale yellowish brown (10YR 6/2); broken; fractured throughout; high plasticity; soft; dry to damp. 20.2 to 21.5': SILTY CLAYSTONE with laminations of SANDY SILTYSTONE: pale yellowish brown (10YR 6/2); trace to abundant iron staining throughout; dark yellowish orange (10YR 6/6); sand with very fine grained; well sorted; subrounded; quartzose; parts very sandy; semiconsolidated to unconsolidated; weathered; moderately soft to soft; damp throughout.	20.2 to 21.5'; abundant fractures; 60-90 deg. Fe stained 21.6'; mechanical fracture

GROUNDWATER

	DEPTH	HOUR	DATE
∇		None	
▼			

WESTON

GEOLOGIC LOG

Rocky Flats: 881 Hillside

Project Number: 2029-33-09-0020

Borehole/Well Id: B300890

Depth (ft)	Graphic Log	Sample T	Sample ID	SPT N-Val	REC %	RQD %	Lithologic Description	Notes:
23							21.5 to 23.5': RUN RECOVERED 1.2/2.0' RQD = 0.4/2.0' SILTY CLAYSTONE: pale yellowish brown (10YR 6/2); same as above; less sand in places; trace iron stain dark yellowish orange (10YR 6/6); caliche nodules; trace to medium plasticity; moderately hard; damp.	21.9'; 90 deg. 22.1'; 90 deg. 22.2'; 90 deg. 22.2 to 22.4'; 0-15 deg.; fracture; trace Fe stained; healed 22.3'; mechanical fracture; 90 deg. 22.4'; mechanical fracture; 90 deg.
24					0	0	23.5 to 24.5': RUN RECOVERED 0.0/1.0' RQD = 0.0/1.0'	
25					100 110	80 50	24.5 to 25.0': RUN RECOVERED 0.5/0.5' RQD = 0.4/0.5' SILTY CLAYSTONE: pale yellowish brown (10YR 6/2); mottled; abundant iron staining; dark yellowish orange (10YR 6/6); trace black carbonaceous specks (10YR 6/6); medium plasticity; highly weathered; soft; damp.	24.5 to 25.0'; abundant fractures; 0-30 deg.; Fe stained; filled PACKER TEST: 24.5 to 29.5'
26							25.0 to 27.0': RUN RECOVERED 2.2/2.0' RQD = 1.1/2.0' CLAYSTONE: pale yellowish brown (10YR 6/2); blocky texture; some silt to silty; trace very fine grained; sand in places; quartzose; more sandy towards bottom; carbonaceous at 25.4 to 25.5'; olive gray (5Y 4/1); trace iron stain in places dark yellow orange (10YR 6/6); low to no plasticity; abundant caliche cement at 26.8 to 27.0': consolidated; unweathered; moderately hard; damp.	25.5 to 25.7'; abundant mechanical fractures; 80 - 90 deg. 26.1 to 26.7': SAMPLE (GEOTECHNICAL) B300890261267
27					0	0	27.0 to 28.5': RUN RECOVERED 0.0/1.5' RQD = 0.0/1.5'	
28								
29					90	50	28.5 to 29.5': RUN RECOVERED 0.9/1.0' RQD = 0.5/1.0' SILTY CLAYSTONE: dusky yellowish (5Y 6/4); sandy in part; very fine grained; trace to some iron staining light olive brown (5Y 5/6); trace black carbonaceous specks (N 1/0); trace plasticity; weathered; moderately soft; damp.	28.7'; mechanical fracture; closed to 90 deg. 28.7 to 28.9'; numerous 90 deg. fractures
30							TOTAL BOREHOLE DEPTH = 29.5'.	

GROUNDWATER

	DEPTH	HOUR	DATE
∇		None	
▼			

WESTON

GEOLOGIC LOG

Rocky Flats: 881 Hillside

Project Number: 2029-33-09-0020

Borehole/Well Id:	B300990	Drilling Company:	Boyles Bros.
Northing (ft):	34810.0	Driller:	DVStyles/PCBushkovski
Easting (ft):	21581.8	Helper:	TWMerritt
Ground Surface Elev (ft):	5905.4	Rig Type:	B-57
Total Depth (ft):	14.0/29.3	Drilling Method:	HS Auger/NX Core
Logged By:	TALutherer/SPCarpenter	Drilling Fluid:	None/Water
Checked By SM:	[signature]	Date Started:	2/12/90
Checked By PM:		Date Completed:	2/26/90
QA By / Date:	JEM 02/14/90	Well Type:	BH
Comments:	French drain geotechnical survey. Surface casing to 14.0' below ground surface on 02/12/90.		

Depth (ft)	Graphic Log	Sample T	Sample ID	SPT N-Val	REC %	RQD %	Lithologic Description	Notes:
0					85		**TOPSOIL** 0.0 to 2.0': RUN RECOVERED 1.7/2.0' 0.0 to 1.0': GRAVELLY SILTY CLAY: moderately brown (5YR 3/4) to light brown (5R 5/6); mottled; nonlaminated; organics; 1 to 3 cm subrounded to broken gravels; lithic trace very fine grained sand; low to medium plasticity; caliche; light gray (N 8/0); strong HCL reaction; dry. **COLLUVIUM** 1.0 to 1.7': GRAVELLY SILTY CLAY: light brown (5YR 5/6) to moderate brown (5YR 4/4); same as above; iron staining.	Monitoring Instrument Background Levels: HNu: 0.0 All readings inside auger; in breathing zone; on cuttings; and on core at background unless otherwise noted below. TRIP BLANK SAMPLE TB0212901 FIELD BLANK SAMPLE B30099000014FB 0.0 to 1.7': SAMPLE (VOA'S ONLY) B3009900002 0.0 to 3.7': SAMPLE B3009900004 2.0 to 3.7': SAMPLE (VOA'S ONLY) B3009900204
1								
2					85		2.0 to 4.0': RUN RECOVERED 1.7/2.0' GRAVELLY SILTY CLAY: same as above; iron concretions; moderately calcareous; moderate to strong HCL reaction; trace to some fine to medium grained sand; quartzose and feldspathic; grading to gravelly sandy clay.	
3								
4					85		4.0 to 6.0': RUN RECOVERED 1.7/2.0' GRAVELLY SANDY CLAY: same as above; sand; subangular to subrounded.	4.0 to 5.7': SAMPLE (VOA'S ONLY) B3009900406 4.0 to 8.0': SAMPLE B3009900408
5								
6								

GROUNDWATER

DEPTH	HOUR	DATE
	None	

WESTON

GEOLOGIC LOG	Rocky Flats: 881 Hillside	Project Number: 2029-33-09-0020	PAGE: 2 of 4

Borehole/Well Id: B300990

Depth (ft)	Graphic Log	Sample T	Sample ID	SPT N-Val	REC %	RQD %	Lithologic Description	Notes:
7					100		6.0 to 8.0': RUN RECOVERED 2.0/2.0' GRAVELLY SANDY CLAY: same as above.	6.0 to 8.0': SAMPLE (VOA'S ONLY) B3009900608
8					100		8.0 to 10.0': RUN RECOVERED 2.0/2.0' GRAVELLY SANDY CLAY: moderately brown (5YR 4/4); same as above.	8.0 to 10.0': SAMPLE (VOA'S ONLY) B3009900810 8.0 to 11.0': SAMPLE B3009900812
9								
10					50		10.0 to 12.0': RUN RECOVERED 1.0/2.0' GRAVELLY SANDY CLAY: same as above; at times grading to GRAVELLY CLAYEY SAND; fine to medium grained sand; quartzose; 1 to 4 mm gravels; subrounded; clayey; reworked claystone; calcareous; strong HCL reaction; firm; moist.	10.0 to 11.0': SAMPLE (VOA'S ONLY) B3009901012
11								
12					100		BEDROCK 12.0 to 14.0': RUN RECOVERED 2.0/2.0' SILTY CLAYSTONE: grayish orange (10YR 7/4) to light brown (5YR 4/4); mottled; iron stained; nonlaminated; trace fracture; trace iron concretions; trace sand; as above; low plasticity; moderately consolidated; firm; dry.	
13								
14								

GROUNDWATER

	DEPTH	HOUR	DATE
▽		None	
▼			

WESTON

GEOLOGIC LOG

Rocky Flats: 881 Hillside

Project Number: 2029-33-09-0020

Borehole/Well Id: B300990

Depth (ft)	Graphic Log	Sample T	Sample ID	SPT N-Val	REC %	RQD %	Lithologic Description	Notes:
							TOTAL AUGERED DEPTH = 14.0'.	
15 16					30	30	14.3 to 16.3': RUN RECOVERED 0.6/2.0 RQD = 0.6/2.0 CLAYSTONE: pale yellowish brown (10YR 6/2) medium gray (N 5/0); mottled; blocky; trace to some silt; medium to high plasticity; calcareous deposits; iron staining; weathered; damp.	PACKER TEST: 14.3 to 19.3'
17 18 19					70	57	16.3 to 19.3': RUN RECOVERED 2.1/3.0' RQD = 1.7/3.0' CLAYSTONE: same as above; light olive gray (5Y 6/1); dusky yellow (5Y 6/4); no calcareous deposits.	16.3 - 16.6'; mechanical damage 16.6 - 16.8'; 30 deg.; healed; Fe oxide 16.8'; 50 deg.; healed; Fe oxide 17.2 - 17.3'; 80 deg.; healed; Fe oxide 17.4 - 17.5'; 65 deg.; healded; Fe oxide 17.6 - 17.8'; 60 deg. crossed by a 20 deg.; healed; Fe oxide 17.9 - 18.0'; 75 deg.; healed; Fe oxide PACKER TEST: 19.3 to 24.3'
20					80	80	19.3 to 20.3': RUN RECOVERED 0.8/1.0' RQD = 0.8/1.0' CLAYSTONE: same as above.	19.3 to 20.1': SAMPLE (GEOTECHNICAL) B300990193201 19.5 - 19.7'; 10 deg.; healed; Fe oxide 19.7'; 45 deg.; healed; Fe oxide
21 22					55	0	20.3 to 22.3': RUN RECOVERED 1.1/2.0' RQD = 0.0/2.0' CLAYSTONE: same as above.	19.8 - 20.0'; 40 deg. healed; Fe oxide 20.4 - 20.5'; 50 deg.; mechanical damage 20.5 - 20.6'; 60 deg.; mechanical damage 20.6 - 21.0'; 0 deg.; mechanical damage Following fractures intersect the above 20.6 - 21.0 0 deg. fracture; 20.7'; 70 deg.; mechanical damage; 20.8;

GROUNDWATER

	DEPTH	HOUR	DATE
∇		None	
▼			

WESTON

GEOLOGIC LOG

Rocky Flats: 881 Hillside

Project Number: 2029-33-09-0020

Borehole/Well Id: B300990

Depth (ft)	Graphic Log	Sample T	Sample ID	SPT N-Val	REC %	RQD %	Lithologic Description	Notes:
								70-60-65deg.; mechanical damage; 20.9'; 60 deg.; mechanical damage; 21.0'; 90-80-55-45 deg.; mechanical damage 22.3 - 22.9'; mechanical damage 23.0 - 23.1'; 50 deg.; healed; Fe oxide 23.1'; 75 deg.; healed; Fe oxide 23.3 - 23.5'; 30 deg.; healed; Fe oxide 23.6 - 23.7'; 40 deg.; healed; Fe oxide 24.3 to 25.1': SAMPLE (GEOTECHNICAL) B300990243251 PACKER TEST: 24.3 to 29.3' 24.4 - 24.8'; 5 deg.; healed; Fe oxide 24.6 - 24.8'; 30 deg.; healed; Fe oxide 25.3 - 25.5'; 20 deg.; healed; Fe oxide 25.9 - 26.2'; 20 deg.; healed; Fe oxide 26.0 - 26.1'; 50 - 35 deg.; healed; Fe oxide 26.3 - 26.5'; 35 deg.; healed; Fe oxide 26.4 - 26.5'; 30 deg.; healed; Fe oxide 26.7 - 27.2'; 0 deg.; healed; Fe oxide 27.3 - 27.4'; 55 deg.; healed; Fe oxide 27.3 - 27.6'; 0 deg.; healed; Fe oxide 26.4 - 26.5'; 30 deg.; healed; Fe oxide 27.5 - 27.8'; 8 deg.; healed; Fe oxide 27.8 - 28.3'; 20 deg.; healed; Fe oxide 27.8 - 28.0'; 30 deg.; healed; Fe oxide 28.5 - 28.7'; 60 - 75 deg.; healed; Fe oxide
					70	40	22.3 to 24.3': RUN RECOVERED 1.4/2.0' RQD = 0.8/2.0' CLAYSTONE: same as above; medium gray (N 5/0); light olive gray (5Y 5/2).	
23								
24								
					100	100	24.3 to 25.3': RUN RECOVERED 1.0/1.0' RQD = 1.0/1.0' CLAYSTONE: same as above; light olive gray (5Y 6/1); pale yellowish brown (10YR 6/2); grayish orange (10YR 7/4); trace carbonaceous debris.	
25								
					100	100	25.3 to 27.3': RUN RECOVERED 2.0/2.0' RQD = 2.0/2.0' CLAYSTONE; same as above; dusky yellow (5Y 6/4); light olive gray (5Y 6/1); medium gray (N 5/0); increasing silt to silty in part at 25.3 to 26.5'; no carbonaceous debris.	
26								
27								
					75	75	27.3 to 29.3': RUN RECOVERED 1.5/2.0' RQD = 1.5/2.0' CLAYSTONE: same as above; light olive gray (5Y 6/1); medium gray (N 5/0); trace silt.	
28								
29								
							TOTAL BOREHOLE DEPTH = 29.3'.	
30								

GROUNDWATER

DEPTH	HOUR	DATE
	None	

WESTON

GEOLOGIC LOG	Rocky Flats: 881 Hillside	Project Number: 2029-33-09-0020	PAGE: 1 of 6

Borehole/Well Id:	B301090	Drilling Company:	Boyles Bros.
Northing (ft):	34797.9	Driller:	DVStyles
Easting (ft):	21482.8	Helper:	TWMerritt
Ground Surface Elev (ft):	5910.8	Rig Type:	B-57
Total Depth (ft):	22.0/42.5	Drilling Method:	HS Auger/NX Core
Logged By:	TALutherer/SPCarpenter	Drilling Fluid:	None/Water
Checked By SM:	Janet Ellman	Date Started:	2/12/90
Checked By PM:		Date Completed:	2/16/90
QA By / Date:	JEM 02/18/90	Well Type:	BH
Comments:	French drain geotechnical survey. Surface casing set to 22.0' below ground surface on 02/16/90.		

Depth (ft)	Graphic Log	Sample T	Sample ID	SPT N-Val	REC %	RQD %	Lithologic Description	Notes:
0					30		**TOPSOIL** 0.0 to 2.0': RUN RECOVERED 0.6/2.0 SILTY CLAY: dusky brown (5YR 2/2); nonlaminated; mottled; organics; silty; trace sand; fine to medium grained; subangular to subrounded; quartzose; low to medium plasticity; dense; damp.	Monitoring Instrument Background Levels: HNu: 0.0 All readings inside auger; in breathing zone; on cuttings; and on core at background unless otherwise noted below. TRIP BLANK SAMPLES TB0212901 TB0216901 0.0 to 8.0': SAMPLE B3010900008
1								
2					0		**COLLUVIUM** 2.0 to 3.0': RUN Center bit run. No sample taken. Colluvium inferred by driller due to gravels under bit.	
					0			
3							3.0 to 6.0': RUN Center bit run. No sample taken. Lithology from cuttings. SILTY CLAYEY GRAVEL: 90% gravel, 2-5 cm.; subrounded to broken; quartzose and lithic; 10% silty clay; moderate yellowish brown (10YR 5/4); trace fine to medium grained sand; quartzose; low plasticity; stiff; dry.	
4								
5								
6								

GROUNDWATER

	DEPTH	HOUR	DATE
▽	14.0		
▼			

WESTON

GEOLOGIC LOG

Rocky Flats: 881 Hillside

Project Number: 2029-33-09-0020

Borehole/Well Id: B301090

Depth (ft)	Graphic Log	Sample T	Sample ID	SPT N-Val	REC %	RQD %	Lithologic Description	Notes:
					60		6.0 to 7.0': RUN RECOVERED 0.6/1.0' GRAVELLY SILTY SAND: grayish orange (10YR 7/4); nonlaminated; fine to coarse grained sand; subangular to subrounded; quartzose and feldspathic; silty; gravel 2 to 4 cm.; broken; lithic; trace clay; nonplastic; very stiff; dry.	6.0 to 6.6': SAMPLE (VOA'S ONLY) B3010900607
7					0		7.0 to 7.5': RUN Center bit run. No sample taken.	
					100		7.5 to 8.0': RUN RECOVERED 0.5/0.5' GRAVELLY SILTY SAND: same as above.	7.5 to 8.0': SAMPLE (VOA'S ONLY) B3010900708
8					60		8.0 to 10.0': RUN RECOVERED 1.2/2.0' GRAVELLY SILTY SAND: same as above; trace to some caliche; light gray (N 8/0); Slight to moderate HCL reaction.	8.0 to 9.2': SAMPLE (VOA'S ONLY) B3010900810 8.0 to 13.6': SAMPLE B3010900814
9								
10					0		10.0 to 12.0': RUN RECOVERED 0.0/2.0'	
11								
12					0		12.0 to 12.5': RUN Center bit run. No sample taken.	
					55		12.5 to 14.0': RUN RECOVERED 1.1/2.0' GRAVELLY CLAYEY SAND: light brown (5YR 6/4) to moderate brown (5YR 4/4); nonlaminated; mottled; fine to coarse grained sand; subangular to subrounded; quartzose; 1 to 3 cm. gravels; broken to subrounded; trace to some silt; clayey; low plasticity; stiff; damp; locally grading to gravelly sandy clay.	12.5 to 13.6': SAMPLE (VOA'S ONLY) B3010901314
13								
▽14								

GROUNDWATER

	DEPTH	HOUR	DATE
▽	14.0		
▼			

WESTON

GEOLOGIC LOG

Rocky Flats: 881 Hillside

Project Number: 2029-33-09-0020

Borehole/Well Id: B301090

Depth (ft)	Graphic Log	Sample T	Sample ID	SPT N-Val	REC %	RQD %	Lithologic Description	Notes:
					100		14.0 to 15.0': RUN RECOVERED 1.0/1.0' GRAVELLY CLAYEY SAND: light brown (5YR 5/6) to grayish orange (10YR 7/4) mottled; nonlaminated; fine to medium grained sand; subangular to subrounded; quartzose and feldspathic; 2 to 3 cm. gravels; subrounded to broken; lithic; caliche at 14.5; very pale orange (10YR 8/2); strong HCL reaction; wet.	14.0 to 15.0': SAMPLE (VOA'S ONLY) B3010901415 14.0 to 18.0': SAMPLE B3010901418 15.0 to 16.3': SAMPLE (VOA'S ONLY) B3010901517
15					65		15.0 to 17.0': RUN RECOVERED 1.3/2.0' 15.0 to 16.0': GRAVELLY CLAYEY SAND: same as above.	
16							16.0 to 16.3': CLAY: pale yellowish brown (10YR 6/2) to moderate yellowish brown (10YR 5/4); mottled; nonlaminated; trace to some silt; rounded claystone; caliche: bluish white (5B 9/1); strong HCL reaction; low to medium plasticity; dense; dry.	
17					100		17.0 to 19.0': RUN RECOVERED 2.0/2.0' 17.0 to 18.5': CLAY: same as above; caliche; same as above.	17.0 to 19.0': SAMPLE (VOA'S ONLY) B3010901719
18							18.5 to 18.7': GRAVEL: 3 to 6 cm.; subrounded; lithic. 18.7 to 19.0': CLAY: same at 17.0 to 18.5'.	18.0 to 19.0': SAMPLE B3010901821
19					100		19.0 to 21.0': RUN RECOVERED 2.0/2.0' CLAY: same as above.	19.0 to 21.0': SAMPLE (VOA'S ONLY) B3010901921
20								
21					100		BEDROCK 21.0 to 22.0': RUN RECOVERED 1.0/1.0' SANDY SILTY CLAYSTONE: light brown (5Y 5/6) to grayish orange (10YR 7/4); mottled; nonlaminated; trace to some very fine to fine grained sand; subangular to	
22								

GROUNDWATER

	DEPTH	HOUR	DATE
▽	14.0		
▼			

WESTON

GEOLOGIC LOG

Rocky Flats: 881 Hillside

Project Number: 2029-33-09-0020

Borehole/Well Id: B301090

Depth (ft)	Graphic Log	Sample T	Sample ID	SPT N-Val	REC %	RQD %	Lithologic Description	Notes:
					0	0	subrounded; trace caliche; moderate HCL reaction; low to medium plasticity; dense; at times grading to silty clayey sandstone; silty; dry.	PACKER TEST: 22.07 to 27.34'
23							TOTAL AUGERED DEPTH = 22.0'. 22.0 to 24.0': RUN RECOVERED 0.0/2.0' RQD = 0.0/2.0' Loss of core due to mislatching of core barrel.	
24					0	0	24.0 to 25.0': RUN RECOVERED 0.0/1.0' RQD = 0.0/1.0' Loss of core due to mislatching of core barrel.	24.8 to 25.0'; 0 deg.; Healed; Fe oxide.
25					113	98	25.0 to 29.0': RUN RECOVERED 4.5/4.0' RQD = 3.9/4.0' CLAYSTONE: light olive gray (5Y 5/2); blocky; silty to some silt; fine to coarse gravels at 28.7 to 28.9'; poor sorting; subangular; siltstones; medium to high plasticity; iron staining to scattered concretions; weathered; medium hard; moist to damp.	PACKER TEST: 25.03 to 30.30' 25.1 to 25.3'; 25 deg.; Healed; Fe oxide. 25.4 to 25.7'; 25-90-65 deg.; Healed; Fe oxide. 25.5 to 26.0': SAMPLE (GEOTECHNICAL) B301090255260 25.8 to 26.0'; 70-80-60 deg.; Healed; Fe oxide. 26.2'; 85 deg.; Healed; Fe oxide. 26.5'; 90-90-85 deg.; Healed; Fe oxide. 27.0 to 27.3'; 30 deg.; Healed; Fe oxide.
26								
27								
28								29.0 to 33.7: LITHOLOGY Field interpretatin changed from CLAYSTONE to SILTY CLAYSTONE based on grain size analysis.
29					94	88	29.0 to 34.0': RUN RECOVERED 4.7/5.0' RQD = 4.4/5.0' SILTY CLAYSTONE: same as above; light olive gray (5Y 5/2); medium dark gray (N 4/0); sandy lens at 33.0'; no gravel lenses.	29.0 to 29.3'; 55-65 deg.; Healed; Fe oxide. 29.4 to 30.0': SAMPLE (GEOTECHNICAL) B301090294300
30								

GROUNDWATER

	DEPTH	HOUR	DATE
▽	14.0		
▼			

WESTON

GEOLOGIC LOG

Rocky Flats: 881 Hillside

Project Number: 2029-33-09-0020

Borehole/Well Id: B301090

Depth (ft)	Graphic Log	Sample T	Sample ID	SPT N-Val	REC %	RQD %	Lithologic Description	Notes:
31								29.5'; 85 deg.; Healed; Fe oxide. 29.7'; 90 deg.; Healed; Fe oxide. 29.7 to 30.0'; 15 deg.; Healed; Fe oxide. 30.4'; 80 deg.; Healed; Fe oxide. 30.55'; 50 deg.; Healed; Fe oxide. 30.7'; 70 deg.; Healed; Fe oxide. 30.9'; 80 deg.; Healed; Fe oxide. 30.9 to 31.2'; 50-41-35-35 deg.; Healed; Fe oxide. 31.1 to 31.5': SAMPLE (GEOTECHNICAL) B301090311315 31.2 to 31.5'; 38-30-45-60 deg.; Healed; Fe oxide. 31.8'; 40 deg.; Healed; Fe oxide. 33.0'; 60-90 deg.; Healed; Fe oxide; Calcium carbonate sandy
32								
33								
34					100	72	34.0 to 39.0': RUN RECOVERED 5.0/5.0' RQD = 3.6/5.0' CLAYSTONE: same as above; light olive gray (5Y 5/2); medium dark gray (N 4/0); yellowish gray (5Y 7/2); trace calcite nodules at 38.2'; no sand gravel lenses.	33.65'; 75 deg.; Healed; Fe oxide. 34.4 to 34.65'; 40-40-65-90-98-90 deg.; Healed; Fe oxide. 34.75'; 80-75 deg.; Healed; Fe oxide. 34.8 to 34.9'; 90-70 deg.; Mechanically damaged; Fe oxide. 35.0'; 90 deg.; Mechanically damaged; Fe oxide. 35.1'; 55 deg.; Healed; Fe oxide. 35.4'; 50-50-75-75 deg.; Healed; Fe oxide. 35.8'; 60 deg.; Mechanically damaged; Fe oxide. 36.1'; 80-80-80 deg.; Healed; Fe oxide. 36.8'; 70 deg.; Mechanically damaged; Fe oxide. 37.3 to 37.7'; 5-90 deg.; Healed; Fe oxide.
35								
36								
37								
38								

GROUNDWATER

	DEPTH	HOUR	DATE
▽	14.0		
▼			

WESTON

GEOLOGIC LOG

Rocky Flats: 881 Hillside

Project Number: 2029-33-09-0020

Borehole/Well Id: B301090

Depth (ft)	Graphic Log	Sample T	Sample ID	SPT N-Val	REC %	RQD %	Lithologic Description	Notes:
								38.1 to 39.0'; Core is mechanically damaged.
39					94	91	39.0 to 42.5': RUN RECOVERED 3.3/3.5' RQD = 3.2/3.5' CLAYSTONE: same as above; black carbonaceous deposits at 41.4 to 41.5'; woody stem; no calcite nodules.	39.5'; 65 deg.; Healed; Fe oxide.
40								40.0 to 40.1'; 55-70-70 deg.; Healed; Fe oxide. 40.4 to 40.6'; 20-75 deg.; Healed; Fe oxide.
41								41.4 to 41.5'; 90-90-55-90 deg.; Healed; Fe oxide; Black carbonaceous deposit.
42								
43							TOTAL BOREHOLE DEPTH = 42.5'.	
44								
45								
46								

GROUNDWATER

	DEPTH	HOUR	DATE
∇	14.0		
▼			

WESTON

GEOLOGIC LOG	Rocky Flats: 881 Hillside	Project Number: 2029-33-09-0020	PAGE: 1 of 6

Borehole/Well Id:	B301190	Drilling Company:	Boyles Bros.
Northing (ft):	34785.9	Driller:	DVStyles
Easting (ft):	21386.3	Helper:	TWMerritt
Ground Surface Elev (ft):	5912.9	Rig Type:	B-57
Total Depth (ft):	22.5/43.0	Drilling Method:	HS Auger/NX Core
Logged By:	SPCarpenter	Drilling Fluid:	None/Water
Checked By SM:	[illegible]	Date Started:	2/22/90
Checked By PM:		Date Completed:	2/23/90
QA By / Date:	RW 02/17/90	Well Type:	BH
Comments:	French drain geotechnical study. Surface casing set to 22.5' below ground surface on 02/22/90.		

Depth (ft)	Graphic Log	Sample T	Sample ID	SPT N-Val	REC %	RQD %	Lithologic Description	Notes:
0					100		**TOPSOIL** 0.0 to 2.0': RUN RECOVERED 2.0/2.0' 0.0 to 0.4': SANDY CLAY: grayish brown (5YR 3/2); nonstratified; fine to very coarse grained sand; some 1 to 3 cm. gravels; poor sorting; subangular; quartzose; low to medium plasticity; organics; medium stiff; moist. **COLLUVIUM** 0.4 to 2.0': SANDY CLAY: same as above; pale brown (5YR 5/2); moderate brown (5YR 4/4); stiff.	Monitoring Instrument Background Levels: HNu: 0.0 All readings inside auger; in breathing zone; on cuttings; and on core at background unless otherwise noted below. TRIP BLANK SAMPLE TB0222901 0.0 to 2.0': SAMPLE (VOA'S ONLY) B3011900002; B301190002D 0.0 to 3.5': SAMPLE B3011900004; B301190004D 2.0 to 3.5': SAMPLE (VOA'S ONLY) B3011900204
1								
2					75		2.0 to 4.0': RUN RECOVERED 1.5/2.0' SANDY CLAY: Same as above; some 1 to 5 cm. gravels; hard.	
3								
4					100		4.0 to 6.0': RUN RECOVERED 2.0/2.0 SANDY CLAY: same as above; moderate brown (5YR 4/4) light brown (5YR 5/6); slightly calcareous as calcareous veining; no organics.	4.0 to 6.0': SAMPLE (VOA'S ONLY) B3011900406 4.0 to 8.0': SAMPLE B3011900408
5								
6								

GROUNDWATER

	DEPTH	HOUR	DATE
▽			
▼			

WESTON

GEOLOGIC LOG	Rocky Flats: 881 Hillside	Project Number: 2029-33-09-0020	PAGE: 2 of 6

Borehole/Well Id: B301190

Depth (ft)	Graphic Log	Sample T	Sample ID	SPT N-Val	REC %	RQD %	Lithologic Description	Notes:
7					100		6.0 to 8.0': RUN RECOVERED 2.0/2.0' SAND AND CLAY: same as above; trace fine gravels; increased calcareous deposits; trace carbonaceous specks.	6.0 to 8.0': SAMPLE (VOA'S ONLY) B3011900608
8, 9							8.0 to 10.0': RUN RECOVERED 2.0/2.0' SILTY CLAY AND SAND: moderate brown (5YR 4/4); light brown (5YR 5/6); nonstratified; fine to trace coarse grained sand; moderate sorting; subrounded; quartzose; low to medium plasticity; calcareous in parts; medium dense; damp to dry.	8.0 to 10.0': SAMPLE (VOA'S ONLY) B3011900810 8.0 to 12.0': SAMPLE B3011900812
10, 11					100		10.0 to 12.0': RUN RECOVERED 2.0/2.0 SILTY CLAY AND SAND: same as above; trace fine gravels; decreasing calcareous deposits.	10.0 to 12.0': SAMPLE (VOA'S ONLY) B3011901012
12, 13, 14					100		12.0 to 14.0': RUN RECOVERED 2.0/2.0' SILTY CLAYEY SAND: same as above; increasing gravel size and percentage with depth; low to no plasticity; dense; moist.	12.0 to 14.0': SAMPLE (VOA'S ONLY) B3011901214 12.0 to 15.1': SAMPLE B3011901416

GROUNDWATER

	DEPTH	HOUR	DATE
∇			
▼			

WESTON

GEOLOGIC LOG

Rocky Flats: 881 Hillside

Project Number: 2029-33-09-0020

Borehole/Well Id: B301190

Depth (ft)	Graphic Log	Sample T	Sample ID	SPT N-Val	REC %	RQD %	Lithologic Description	Notes:
15					55		14.0 to 16.0': RUN RECOVERED 1.1/2.0' SILTY GRAVELLY SAND: medium brown (5YR 4/4); light brown (5YR 5/6); some clay; fine to coarse grained sand; 1 to 5 cm. gravels; poor sorting; subangular; quartzose; low to no plasticity; dense; moist.	14.0 to 15.1': SAMPLE (VOA'S ONLY) B3011901416
16 17					45		16.0 to 18.0': RUN RECOVERED 0.9/2.0' GRAVELLY SANDY CLAY: moderate brown (5YR 4/4 to 3/4); nonstratified; fine to very coarse grained sand; gravels to cobbles; poor sorting; subangular; quartzose; low to medium plasticity; very stiff; moist.	16.0 to 16.9': SAMPLE (VOA'S ONLY) B3011901618 16.0 to 18.6': SAMPLE B3011901620
18 19					35		18.0 to 20.0': RUN RECOVERED 0.7/2.0' 18.0 to 18.6': GRAVELLY SANDY CLAY: same as above. BEDROCK 18.6 to 18.7': SILTY SANDSTONE: dark yellowish orange (10YR 6/6); dusky yellow (5Y 6/4); yellowish gray (5Y 7/2); nonstratified; fine to medium grained sand; some clay; moderate sorting; subrounded; quartzose; low plasticity; weathered; medium hard; moist.	18.0 to 18.7': SAMPLE (VOA'S ONLY) B3011901820
20					0		20.0 to 20.5': RUN Center bit run. No samples taken.	
21					47		20.5 to 22.0': RUN RECOVERED 0.7/1.5' SILTY SANDSTONE: same as above.	
22								

GROUNDWATER

	DEPTH	HOUR	DATE
▽			
▼			

WESTON

GEOLOGIC LOG

Rocky Flats: 881 Hillside

Project Number: 2029-33-09-0020

Borehole/Well Id: B301190

Depth (ft)	Graphic Log	Sample T	Sample ID	SPT N-Val	REC %	RQD %	Lithologic Description	Notes:
							22.0 to 22.5': RUN Center bit run. No sample taken.	
					0		TOTAL AUGERED DEPTH = 22.5'. 22.5 to 23.0': RUN RECOVERED 0.0/0.5'	PACKER TEST: 23.0 to 28.0'
23					80	80	23.0 to 25.0': RUN RECOVERED 1.6/2.0' RQD = 1.6/2.0' 23.0 to 23.6': SILTY SANDY CLAYSTONE: moderate yellowish brown (10YR 5/4); nonstratified; fine grained sand; well sorted; subrounded; quartzose; medium plasticity; heavy iron staining; weathered; medium hard; moist. 23.6 to 24.1': SANDY SILTSTONE: light gray (N 7/0); dusky yellow (5Y 6/4); nonstratified; fine grained sand; trace clay; well sorted; subrounded; quartzose; no plasticity; iron staining; weathered; noncemented; medium hard; moist.	23.6 to 24.0': SAMPLE (GEOTECHNICAL) B301190236240 23.6 to 24.1': LITHOLOGY Field interpertation changed from SILTY SANDSTONE to SANDY SILTSTONE based on grain size analysis.
24								
25					80	80	24.1 to 24.6': SILTY SANDY CLAYSTONE: same as 23.0 to 23.6; moderate yellowish brown (10YR 5/4); light brown (5YR 5/6); manganse oxide deposits.	
26							25.0 to 28.0': RUN RECOVERED 2.4/3.0' RQD = 2.4/3.0' SILTY CLAYSTONE: same as above; moderate yellowish brown (10YR 5/4); light brown (5YR 5/6); light olive gray (5Y 6/1); mottled; inclusions of sandy claystone at 26.1 to 26.3' and 26.8 to 27.3'; heavy iron staining with carbonate and iron oxide concretions and iron cementation along fracture surface.	25.5' 70 deg.; Healed; Fe oxide with Fe nodules. 25.7' 80 deg.; Healed; Fe oxide. 26.0 to 26.3'; 35 deg.; Healed; Fe oxide. 26.3 to 26.5'; 60 deg.; Leach open; Fe oxide with Fe nodules 26.8'; 55 deg.; Healed; Fe oxide. 26.9'; 55 deg.; Healed; Fe oxide.
27								
28					40	20	28.0 to 30.0': RUN RECOVERED 0.8/2.0' RQD = 0.4/2.0' SILTY CLAYSTONE: same as above; silty sandstone lens at 28.3 to 28.5'same as 23.6 to 24.1'.	PACKER TEST: 28.0 to 33.0' 28.6 to 28.7'; 55 deg; Healed; Fe oxide.
29								
30								

GROUNDWATER

	DEPTH	HOUR	DATE
▽			
▼			

WESTON

GEOLOGIC LOG

Rocky Flats: 881 Hillside

Project Number: 2029-33-09-0020

Borehole/Well Id: B301190

Depth (ft)	Graphic Log	Sample T	Sample ID	SPT N-Val	REC %	RQD %	Lithologic Description	Notes:
31 32					17	17	30.0 to 33.0': RUN RECOVERED 0.5/3.0' RQD = 0.5/3.0' SANDY CLAYEY SILTSTONE: light gray (N 7/0); moderate yellowish brown (10YR 5/4); grayish orange (10YR 7/4); nonstratified; fine grained; well sorted; rounded; quartzose; no to medium plasticity; iron staining; noncemented; medium hard; moist.	30.0 to 30.5': LITHOLOGY Field interpretation changed from SILTY CLAYEY SANDSTONE to SANDY CLAYEY SILTSTONE based on grain size analysis. 31.1 to 32.0': SAMPLE (GEOTECHNICAL) B301190311320
33 34					140	140	33.0 to 35.0': RUN RECOVERED 2.8/2.0' RQD = 2.8/2.0' SANDY CLAYEY SILTSTONE: grayish orange (10YR 7/4); light brown (5YR 5/6); mottled; gradational with degree of sand percentage; with lenses of clayey sandstone; fine grained sand; well sorted; rounded; quartzose; low to medium plasticity; heavy iron staining; trace manganse staining; medium hard; moist.	33.0 to 35.0': LITHOLOGY Field interpretation changed from SANDY CLAYSTONE to SANDY CLAYEY SILTSTONE based on grain size analysis. PACKER TEST: 34.0 to 39.0' 35.0 to 35.5': SAMPLE
35 36 37 38					100	100	35.0 to 38.0': RUN RECOVERED 3.0/3.0' RQD = 3.0/3.0' SANDY CLAYEY SILTSTONE: same as above; grading to light gray (N 7/0); olive gray (5Y 4/1); fine grained sand decreasing with depth; iron staining decreasing with depth; scattered 0.5 to 1.0 mm. lenses of silty sandstone; medium hard; moist.	(GEOTECHNICAL) B301190350255 35.0 to 38.0': LITHOLOGY Field interpretation changed from SILTY SANDY CLAYSTONE to SANDY CLAYEY SILTSTONE based on grain size analysis. 35.2'; 70-70 deg.; Healed; Fe oxide. 35.3 to 35.4'; 45 deg.; Healed; Fe oxide. 35.4 to 35.5'; 75-75 deg.; Healed; Fe oxide. 35.8 to 36.0'; Multi. 80-85 deg.; Healed; Fe oxide. 36.0 to 36.2'; 35-80-80 deg.; Healed; Fe oxide. 36.5 to 36.6'; 90-90 deg.; Healed; Fe oxide.

GROUNDWATER

	DEPTH	HOUR	DATE
▽			
▼			

WESTON

GEOLOGIC LOG

Rocky Flats: 881 Hillside

Project Number: 2029-33-09-0020

Borehole/Well Id: B301190

Depth (ft)	Graphic Log	Sample T	Sample ID	SPT N-Val	REC %	RQD %	Lithologic Description	Notes:
39 40 41 42 43					100	82	38.0 to 43.0': RUN RECOVERED 5.0/5.0' RQD = 4.1/5.0' CLAYSTONE: medium gray (N 5/0); dusky yellow (5Y 6/4); brownish gray (5YR 4/1); mottled; blocky; nonstratified; trace silt; medium to high plasticity; iron and manganse staining; slightly weathered; hard; moist.	36.85'; 75 deg.; Healed; Fe oxide. 37.0'; 80 deg.; Healed; Fe oxide. 38.3 to 38.4'; 90-60 deg.; Mechanically damage; Fe oxide. 38.65 to 38.9'; 45 deg.; Healed; Fe oxide. 38.9 to 39.1'; 35 deg.; Healed; Fe oxide. 39.5'; 90 deg.; Healed; Fe oxide. 39.7'; 70-60 deg.; Healed; Fe oxide. 39.8 to 40.1'; 15 deg.; Healed; Fe oxide. 40.2'; 65 deg.; Healed; Fe oxide. 40.8'; 75 deg.; Healed; Fe oxide. 41.3 to 41.4'; 40 deg.; Healed; Fe oxide. 41.8'; 40 deg.; Healed; Fe oxide. 41.9 to 42.1'; 20 deg.; Healed; Fe oxide. 42.3 to 42.5'; 80-80-80 deg.; Healed; Fe oxide.
44 45 46							TOTAL BOREHOLE DEPTH = 43.0'.	

GROUNDWATER

	DEPTH	HOUR	DATE
▽			
▼			

WESTON

GEOLOGIC LOG	Rocky Flats: 881 Hillside	Project Number: 2029-33-09-0020	PAGE: 1 of 4

Borehole/Well Id:	B301290	Drilling Company:	Boyles Bros.
Northing (ft):	34776.5	Driller:	DVStyles/PCBushkovski
Easting (ft):	21286.5	Helper:	ALBoday/MBoyd
Ground Surface Elev (ft):	5916.5	Rig Type:	B-57
Total Depth (ft):	8.0/24.5	Drilling Method:	HS Auger/NX Core
Logged By:	SPCarpenter/JKHarriz	Drilling Fluid:	None/Water
Checked By SM:		Date Started:	2/26/90
Checked By PM:		Date Completed:	3/5/90
QA By / Date:	SPC 02/28/90	Well Type:	BH
Comments:	French drain geotechnical study. Surface casing set to 8.0' below ground surface on 02/27/90.		

Depth (ft)	Graphic Log	Sample T	Sample ID	SPT N-Val	REC %	RQD %	Lithologic Description	Notes:
0–1					48		**COLLUVIUM** 0.0 to 2.0': RUN RECOVERED .95/2.0' CLAYEY SILT: very dark grayish brown (10YR 3/2); 95% nonplastic to slightly plastic fines; 5% fine grained sand; <1% trace gravel; moderately well sorted; subangular; maximum size 2 cm.; firm to stiff; damp; rooted throughout.	Monitoring Instrument Background Levels: HNu: 0.0 RAD: 20.0 All readings inside auger; in breathing zone; on cuttings; and on core at background unless otherwise noted below. TRIP BLANK SAMPLE TB0226901 0.0 to 0.95': SAMPLE (VOA'S ONLY) B3012900002 0.0 to 3.6': SAMPLE B3012900004
2–3					80		2.0 to 4.0': RUN RECOVERED 1.6/2.0' SANDY CLAYEY SILT: brown (10YR 5/3); 50 to 60% nonplastic slightly plastic fines; 40 to 50% very fine to fine grained sand; occasional very coarse sand; subangular; very stiff; damp to dry; limonite veins mottling at base; brownish yellow (10YR 6/8); .5% caliche throughout white (10YR 8/1); occasional roots (very fine).	2.0 to 3.6': SAMPLE (VOA'S ONLY) B3012900204
4–6					100		4.0 to 6.0': RUN RECOVERED 2.0/2.0 4.0 to 4.4': SANDY CLAYEY SILT: not rooted; light yellowish brown (10YR 6/4). 4.4 to 4.55: SANDY CLAYEY SILT: (as at 2.0'); except dark yellowish brown (10YR 4/6); fine roots; fine caliche stringers along roots. 4.55 to 5.7': SILTY CLAY: dark grayish brown (2.5Y 4/2); blocky; 100% medium plastic fines; very stiff; several; fine limonite filled fractures; occasional caliche pockets; mottled; occasional black (10YR 2/1): carbon discoloration in pockets (1cm.) and stringers; clay percentage increases to base; damp.	4.0 to 6.0': SAMPLE (VOA'S ONLY) B3012900406 4.0 to 4.55': SAMPLE B3012900406

GROUNDWATER

	DEPTH	HOUR	DATE
▽			
▼			

WESTON

GEOLOGIC LOG

Rocky Flats: 881 Hillside

Project Number: 2029-33-09-0020

Borehole/Well Id: B301290

Depth (ft)	Graphic Log	Sample T	Sample ID	SPT N-Val	REC %	RQD %	Lithologic Description	Notes:
					100		5.7 to 6.0': SILTY CLAY: as at 4.55'; except color change to dark grayish brown (10YR 4/2); slight increase in silt percentage; finely laminated.	
7							6.0 to 8.0': RUN RECOVERED 2.0/2.0' SILTY CLAY: highly weathered; dark grayish brown to grayish brown (10YR 4/2 to 5/2); blocky; 100% medium plastic fines; fine limonite veins throughout (fine fractures) predominantly horizontal and vertical; occasional caliche along layers; very stiff; damp.	
8					73		TOTAL AUGERED DEPTH = 8.0'. 8.0 to 9.5' RUN RECOVERED 1.1/1.5' SILTY CLAY: pale yellowish brown (10YR 6/2); moderately brown (5YR 4/4); dark gray (N 3/0); mottled; trace very fine grained gravel up to 5mm.; angular; quartzite; trace sand; poorly sorted; feldspathic; same caliche zones; effervesce with HCL; highly weathered; consolidated; soft; damp.	
9								
10					60	44	BEDROCK 9.5 to 12.0': RUN RECOVERED 1.5/2.5 RQD = 1.1/2.5' 9.5 to 9.9': SILTY CLAYSTONE: light gray (N 7/0) to dusky yellow (5Y 5/4); mottled; some very fine grain sand; well sorted; quartzose; weathered; soft; damp. 9.9 to 11.0: CLAYSTONE: light olive gray (5Y 5/2) to moderate brown (5YR 4/4); mottled; some silt to silty; abundant iron and caliche nodules up to 2 cm.; trace plasticity; very weathered; moderately soft; damp.	PACKER TEST: 9.5 to 14.5' 9.7 to 9.9': SAMPLE (GEOTECHNICAL) B3012909799
11								
12					0	0	12.0 to 13.0': RUN RECOVERED 0.0/1.0' RQD = 0.0/1.0'	
13					0	0	13.0 to 13.5': RUN RECOVERED 0.0/0.5' RQD = 0.0/0.5'	
					70	60	13.5 to 14.5': RUN RECOVERED 0.7/1.0' RQD = 0.6/1.0' CLAYSTONE: light olive gray (5Y 6/1); light gray (N	
14								

GROUNDWATER

DEPTH	HOUR	DATE

WESTON

GEOLOGIC LOG

Rocky Flats: 881 Hillside

Project Number: 2029-33-09-0020

Borehole/Well Id: B301290

Depth (ft)	Graphic Log	Sample T	Sample ID	SPT N-Val	REC %	RQD %	Lithologic Description	Notes:
							7/0); stained dark yellowish orange (10YR 6/6); blocky; some to trace silt; iron staining; medium to high plasticity; weathered; firm; damp.	14.1'; 70 deg.; healed to open; slickenside.
15					40	27	14.5 to 17.5': RUN RECOVERED 1.2/3.0' RQD = 0.8/3.0' CLAYSTONE: as above; iron nodules at 14.8 to 14.9'; scattered laminations of iron staining to 3 mm.	PACKER TEST: 14.5 to 19.5'
16								
17								
18					75	65	17.5 to 19.5': RUN RECOVERED 1.5/2.0' RQD = 1.3/2.0' 17.5 to 18.5': CLAYSTONE: same as above; dark yellowish orange (10YR 6/6); medium gray (N 5/0); light brownish gray (5YR 6/1); blocky; some to trace silt; micro laminations to mottled iron staining throughout; medium to high plasticity; weathered; firm; damp. 18.5 to 19.0: SILTY SANDY CLAYSTONE: medium gray (N 5/0); light brownish gray (5YR 6/1); nonstratified; very fine to fine grained sand; moderate sorting; subrounded; quartzose; medium plastic; firm; damp.	18.0 to 18.5': SAMPLE (GEOTECHNICAL) B301290180185
19								
20					0	0	19.5 to 21.5': RUN RECOVERED 0.0/2.0' RQD = 0.0/2.0'	PACKER TEST: 19.5 to 24.5'
21								
22					50	0	21.5 to 22.5: RUN RECOVERED 0.5/1.0' RQD = 0.0/1.0'	

GROUNDWATER

	DEPTH	HOUR	DATE
▽			
▼			

WESTON

GEOLOGIC LOG

Rocky Flats: 881 Hillside

Project Number: 2029-33-09-0020

Borehole/Well Id: B301290

Depth (ft)	Graphic Log	Sample T	Sample ID	SPT N-Val	REC %	RQD %	Lithologic Description	Notes:
							SILTY SANDY CLAYSTONE: same as 18.5 to 19.0'; with iron cement at 21.9 to 22.0'.	
23					25	0	22.5 to 24.5': RUN RECOVERED 0.5/2.0' RQD = 0.0/2.0' SILTY SANDY CLAYSTONE: moderate yellowish brown (10YR 5/4); dark yellowish orange (10YR 6/6); nonstratified; very fine grained sand; well sorted; calcium carbonate to iron cement in part; hard at 22.9 to 23.0': low plasticity; moderately soft; damp.	
24								
25							TOTAL BOREHOLE DEPTH = 24.5'.	
26								
27								
28								
29								
30								

GROUNDWATER

	DEPTH	HOUR	DATE
▽			
▼			

WESTON

GEOLOGIC LOG

Rocky Flats: 881 Hillside

Project Number: 2029-33-09-0020

Borehole/Well Id:	B301390	**Drilling Company:**	Boyles Bros.
Northing (ft):	34764.8	**Driller:**	DVStyles
Easting (ft):	21187.1	**Helper:**	ALBoday
Ground Surface Elev (ft):	5918.5	**Rig Type:**	
Total Depth (ft):	13.8/33.8	**Drilling Method:**	HS Auger/NX Core
Logged By:	JKHarriz/SPCarpenter	**Drilling Fluid:**	None/Water
Checked By SM:		**Date Started:**	2/26/90
Checked By PM:		**Date Completed:**	6/26/90
QA By / Date:	SPC 02/28/90	**Well Type:**	BH
Comments:	French drain geotechnical study. Surface casing set to 13.0' below ground surface.		

Depth (ft)	Graphic Log	Sample T	Sample ID	SPT N-Val	REC %	RQD %	Lithologic Description	Notes:
0–1					35		**TOPSOIL** 0.0 to 2.0': RUN RECOVERED 0.7/2.0' 0.0 to 0.5': CLAYEY SILT: very dark grayish brown (10YR 3/2); 95% non to slightly plastic fines; 5% fine grained sand; occasional very coarse sand; subangular; soft; rooted throughout; dry - damp. **COLLUVIUM** 0.5 to 0.7': SILTY CLAY: dark yellowish brown (10YR 4/4); 100% medium plastic fines; soft; moldable; occasional roots; damp.	Monitoring Instrument Background Levels: HNu: 0.0 RAD: 20.0 All readings inside auger; in breathing zone; on cuttings; and on core at background unless otherwise noted below. TRIP BLANK SAMPLE TB0226901 0.0 to 0.7': SAMPLE (VOA'S ONLY) B3013900002 0.0 to 4.0': SAMPLE B3013900004
2–3					100		2.0 to 4.0': RUN RECOVERED 2.0/2.0' SANDY CLAY: dark yellowish brown (10YR 4/4); laminated (45 deg.); lamina delineated by mottling; (70 to 80%) medium plastic fines; (20 to 30%) very fine grained sand; moderately well sorted; subrounded; quartz; slightly sandier towards 4.0'; occasional very coarse sand; scattered fine traces of carbonaceous material (black) and scattered fine rootlets; firm; damp.	2.0 to 4.0': SAMPLE (VOA'S ONLY) B3013900204
4–6					45		4.0 to 6.0': RUN RECOVERED 0.9/2.0' CLAYEY SAND: yellowish brown (10YR 5/6); no structure; (70 to 60%) fine grained sand; 30 to 40%) medium plastic fines; (10% trace) gravel; moderately well sorted; subrounded to subangular quartzose; maximum size 3 cm; mottled; occasional fine rootlets; firm; damp.	4.0 to 4.9': SAMPLE (VOA'S ONLY) B3013900406 4.0 to 11.5': SAMPLE B3013900412

GROUNDWATER

	DEPTH	HOUR	DATE
▽		None	
▼			

WESTON

GEOLOGIC LOG

Rocky Flats: 881 Hillside

Project Number: 2029-33-09-0020

Borehole/Well Id: B301390

Depth (ft)	Graphic Log	Sample T	Sample ID	SPT N-Val	REC %	RQD %	Lithologic Description	Notes:
7					40		6.0 to 8.0': RUN RECOVERED 0.8/2.0' SILTY CLAY: light yellowish brown (10YR 6/4) to brownish yellow (10YR 6/6); no structure to weakly laminated; (95%) plastic fines; (5%) gravel; subrounded; quartz and granite; occasional fine grained sand in several lamina; mottled; limonite stained at base fine; moist.	6.0 to 6.8': SAMPLE (VOA'S ONLY) B3013900608
8					10		8.0 to 10.0' RUN RECOVERED 0.2/2.0' CLAYEY SILT; pale brown (10YR 6/3) to brownish yellow (10YR 6/8); weakly laminated; (95%) slightly plastic fines; (5%) very fine grained to fine grained sand; moderately well sorted; quartz; limonite in bands throughout; mottled; firm; damp.	
9								
10					0		10.0 to 12.0': RUN RECOVERED particial part of core CLAYEY SILT: pale brown (10YR 6/3) to brownish yellow (10YR 6/8); as above; except occasional gravel; subrounded; quartz; maximum size 1 cm; black carbonaceous spots (Mn Oxide) throughout.	
11								
12							12.0 to 13.0': RUN Center bit run. No sample taken.	
13					200		BEDROCK 13.0 to 13.8': RUN RECOVERED 1.6/0.8' SILTY CLAYSTONE: brown (10YR 4/3); blocky; highly weathered; (100%) medium plastic fines; scattered caliche in veins - pockets; limonite in fine veins; stiff - firm; damp.	
14					13	13		

GROUNDWATER

DEPTH	HOUR	DATE
	None	

WESTON

GEOLOGIC LOG	Rocky Flats: 881 Hillside	Project Number: 2029-33-09-0020	PAGE: 3 of 5

Borehole/Well Id: B301390

Depth (ft)	Graphic Log	Sample T	Sample ID	SPT N-Val	REC %	RQD %	Lithologic Description	Notes:
							TOTAL AUGERED DEPTH = 13.8'.	
							13.8 to 16.8': RUN RECOVERED 0.4/3.0' RQD = 0.4/3.0' CLAYSTONE: light olive gray (5Y 6/1); slightly blocky; some silt; some iron staining; weathered; medium to high plasticity; soft to fine; moist.	PACKER TEST: 14.8 to 18.8'
15								
16								
					0	0	16.8 to 18.8': RUN RECOVERED 0.0/2.0' RQD = 0.0/2.0'	
17								
18								
					37	37	18.8 to 21.8': RUN RECOVERED 1.1/3.0' RQD = 1.1/3.0' SANDY CLAYSTONE AND SILTY SANDSTONE: light olive gray (5Y 6/1); interbedded end gradational; very fine to fine grained sand; moderate sorting; round; quartzose; uncemented; some iron banding; scattered calcareous veins; low to no plasticity in parts; soft to firm; moist.	PACKER TEST: 18.8 to 23.8'
19								
20								
21								
					60	25		
22								

GROUNDWATER

	DEPTH	HOUR	DATE
▽		None	
▼			

WESTON

GEOLOGIC LOG

Rocky Flats: 881 Hillside

Project Number: 2029-33-09-0020

Borehole/Well Id: B301390

Depth (ft)	Graphic Log	Sample T	Sample ID	SPT N-Val	REC %	RQD %	Lithologic Description	Notes:
23							21.8 to 23.8: RUN RECOVERED 1.2/2.0' RQD = 0.5/2.0' SANDY CLAYSTONE and SILTY SANDSTONE: same as above except light olive gray (5Y 5/2); moderate olive brown (5Y 4/4); core too broken to determine accurate fracture angles.	23.8 to 24.4': SAMPLE (GEOTECHNICAL) B301390238244 23.3 to 25.8': LITHOLOGY Field interpretation changed from SANDY CLAYSTONE and SILTY SANDSTONE to CLAYEY SILTSTONE and SANDY SILTSTONE based on grain size analysis.
24 25					90	70	23.8 to 25.8': RUN RECOVERED 1.8/2.0' RQD = 1.4/2.0' CLAYEY SILTSTONE and SANDY SILTSTONE: light olive brown (5Y 5/6); light olive gray (5Y 6/1); moderate olive brown (5Y 4/4); interbedded and gradational; very fine grained sand; moderate sorting; round; quartzose; trace calcareous veins; trace iron staining; low to medium plasticity; soft to firm; moist.	24.7'; 90 deg.; healed; Fe PACKER TEST: 24.8 to 28.8' 25.1'; 70 deg.; healed; Fe 25.1 to 26.4': LITHOLOGY Field interpretation changed from SANDY CLAYSTONE and SILTY SANDSTONE to CLAYEY SILTSTONE and SANDY SILTSTONE based on grain size analysis.
26 27 28					100	100	25.8 to 28.8': RUN RECOVERED 3.0/3.0' RQD = 3.0/3.0' 25.8 to 26.4': CLAYEY SILTSTONE and SANDY SILTSTONE: as above. 26.4 to 27.9': SILTY CLAYSTONE; light olive brown (5Y 5/6); light olive gray (5Y 6/1); lenses of clayey siltstone; some to trace very fine to fine grained sand amount decreasing with depth; iron staining; medium plasticity; soft to firm; moist. 27.9 to 28.8': CLAYSTONE: light olive gray (5Y 6/1); blocky; some silt; abundant micro fractures with iron filling along blocky structure; medium to high plasticity; firm; moist.	25.9'; 90 deg.; healed; Fe 26.0'; 90 deg.; healed; Fe 26.5'; 75 deg.; healed; Fe
29 30					57	57	28.8 to 31.8': RUN RECOVERED 1.7/3.0' RQD = 1.7/3.0' CLAYSTONE: same as above except; moderate olive brown (5Y 4/4); medium gray (N 5/0).	PACKER TEST: 28.8 to 33.8' 28.8 to 29.4': SAMPLE (GEOTECHNICAL) B301390288294

GROUNDWATER

	DEPTH	HOUR	DATE
▽		None	
▼			

WESTON

GEOLOGIC LOG

Rocky Flats: 881 Hillside

Project Number: 2029-33-09-0020

Borehole/Well Id: B301390

Depth (ft)	Graphic Log	Sample T	Sample ID	SPT N-Val	REC %	RQD %	Lithologic Description	Notes:
31								30.8 to 31.2': SAMPLE (GEOTECHNICAL) B301390308312
32					80	80	31.8 to 33.3': RUN RECOVERED 1.2/1.5' RQD = 1.2/1.5' 31.8 to 32.7': CLAYSTONE: same as above. 32.7 to 33.0': SILTY CLAYSTONE: light olive gray (5Y 6/1); blocky to platy; trace very fine grained sand; trace iron staining; medium to low plasticity; soft to firm; damp to moist.	
33								
					80	80	33.3 to 33.8': RUN RECOVERED 0.4/0.5' RQD = 0.4/0.5' SILTY CLAYSTONE: same as above except; trace to some very fine grained sand.	
34							TOTAL BOREHOLE DEPTH = 33.8'	
35								
36								
37								
38								

GROUNDWATER

	DEPTH	HOUR	DATE
▽		None	
▼			

WESTON

GEOLOGIC LOG	Rocky Flats: 881 Hillside	Project Number: 2029-33-09-0020	PAGE: 1 of 6

Borehole/Well Id:	B301490	**Drilling Company:**	Boyles Bros.
Northing (ft):	34752.9	**Driller:**	DVStyles
Easting (ft):	21082.2	**Helper:**	ALBoday
Ground Surface Elev (ft):	5922.5	**Rig Type:**	B-57
Total Depth (ft):	18.0/40.0	**Drilling Method:**	HS Auger/NX Core
Logged By:	JKHarriz/RMSengebush	**Drilling Fluid:**	None/Water
Checked By SM:		**Date Started:**	2/26/90
Checked By PM:		**Date Completed:**	3/5/90
QA By / Date:	SPC 03/09/90	**Well Type:**	BH
Comments:	French drain geotechnical study. Surface casing set to 18.0' below ground surface on 02/26/90.		

Depth (ft)	Graphic Log	Sample T	Sample ID	SPT N-Val	REC %	RQD %	Lithologic Description	Notes:
0					0		COLLUVIUM 0.0 to 2.0': RUN RECOVERED 0.0/2.0'	Monitoring Instrument Background Levels: HNu: 0.0 RAD: 20.0 units All readings inside auger; in breathing zone; on cuttings; and on core at background unless otherwise noted below. TRIP BLANK SAMPLE TB0226901 FIELD BLANK SAMPLE B014900016FB
1								
2					0		2.0 to 3.0': RUN Center bit run. No sample taken.	
3					90		3.0 to 4.0': RUN RECOVERED 0.9/1.0' SILTY CLAY: dark yellowish brown (10YR 4/4); mottled; no structure; 80% medium plastic fines; 10% fine grained sand; 10% gravel up to 3 cm; moderately sorted; subrounded; quartzite; fine rootlets throughout; stiff to firm; damp.	3.0 to 3.9': SAMPLE (VOA'S ONLY) B3014900304 3.0 to 3.9': SAMPLE B3014900004
4					65		4.0 to 6.0': RUN RECOVERED 1.3/2.0' SILTY CLAY: same as above; except slightly greater sand (15%); gravel to 4.5 cm; occasional caliche and 1 mm - 2mm; black brittle grains (Mn Oxide); occasional fine rootlets.	4.0 to 5.3': SAMPLE (VOA'S ONLY) B3014900406 4.0 to 8.0': SAMPLE B3014900408
5								
6								

GROUNDWATER

	DEPTH	HOUR	DATE
▽			
▼			

WESTON

GEOLOGIC LOG

Rocky Flats: 881 Hillside

Project Number: 2029-33-09-0020

Borehole/Well Id: B301490

Depth (ft)	Graphic Log	Sample T	Sample ID	SPT N-Val	REC %	RQD %	Lithologic Description	Notes:
7					100		6.0 to 8.0': RUN RECOVERED 2.0/2.0' SILTY SANDY CLAY: dark yellowish brown (10YR 4/4); mottled; 70% medium plastic fines; 20% fine grained sand; 10% gravel up to 2 cm; poorly sorted; subrounded; quartzite; limonite stains throughout; occasional caliche; damp.	6.0 to 8.0': SAMPLE (VOA'S ONLY) B3014900608
8, 9					85		8.0 to 10.0': RUN RECOVERED 1.7/2.0' SANDY CLAYEY SILT: yellowish brown (10YR 5/4); mottled; 70% medium plastic fines; 20% fine grained sand; 10% gravel up to 1 cm; poorly sorted; subrounded; quartzite; limonite stains; caliche throughout (10% of pore space); much greater percentage than previous intervals; gradually slightly less sandy at 9.7'; stiff to firm; damp.	8.0 to 9.7': SAMPLE (VOA'S ONLY) B3014900810 B3014900810D 8.0 to 11.9': SAMPLE B3014900812 B3014900812D
10, 11					95		10.0 to 12.0': RUN RECOVERED 1.9/2.0' 10.0 to 10.7': SILTY CLAY: brown (10YR 5/3); 95% medium plastic fines; 5% gravel up to 1 cm; subrounded; quartzite; caliche throughout; firm to stiff; damp. 10.7 to 11.9': SILTY CLAY: brown (10YR 5/3); 95% medium plastic fines; mottled; trace to 5% very fine to fine grained sand; occasional gravel up to 1 cm; subangular; quartzite; caliche throughout (<1%); limonite views; firm to stiff; damp.	10.0 to 11.9': SAMPLE (VOA'S ONLY) B3014901012 10.7': caliche infilled fracture at 80 deg.
12, 13, 14					85		12.0 to 14.0': RUN RECOVERED 1.7/2.0' 12.0 to 12.4': SILTY CLAY: same as above. 12.4': CALICHE: in lamina; gravel to 4 cm. 12.4 to 13.7': CLAY AND SAND interbedded with SILTY SAND: strong yellowish brown (7.5YR 5/6); CLAY AND SAND: 50% medium slightly plastic fines; 50% fine grained sand; moderately sorted; subrounded; quartzose; occasional gravel up to 4 cm; caliche veins throughout; firm; damp. SILTY SAND: 80% medium fine grained; moderately well sorted; subrounded; quartzose; 20% slightly plastic fines; loose; damp. 13.7': GRAVEL: 6 cm quartzite cobble at base	12.0 to 14.0': SAMPLE (VOA'S ONLY) B3014901214 12.0 to 15.6': SAMPLE B3014901216

GROUNDWATER

DEPTH	HOUR	DATE

WESTON

GEOLOGIC LOG

Rocky Flats: 881 Hillside

Project Number: 2029-33-09-0020

Borehole/Well Id: B301490

Depth (ft)	Graphic Log	Sample T	Sample ID	SPT N-Val	REC %	RQD %	Lithologic Description	Notes:
					80		14.0 to 16.0': RUN RECOVERED 1.6/2.0' 14.0 to 14.4': SANDY CLAY: brown (10YR 5/3); mottled; 60% medium plastic fines; 30% fine grained sand; moderately well sorted; subrounded; quartzose; trace very coarse sand; maximum size 2 mm.; caliche veins; firm; damp. 14.4 to 14.7': CLAYEY GRAVEL: brown (10YR 5/3); up to 4 cm in clay matrix; clay is 90% medium plastic fines; 10% fine grained sand; damp. 14.7 to 15.6': SILTY CLAY: brown (10YR 5/3); mottled; 90% medium plastic fines; 5% fine grained sand; 5% gravels up to 3 cm; subrounded; quartzose; caliche in veins throughout; firm to stiff; damp.	14.0 to 15.6': SAMPLE (VOA'S ONLY) B3014901416
15								
16					100		16.0 to 18.0': RUN RECOVERED 2.0/2.0' 16.0 to 16.1': CLAYEY GRAVEL: as above at 14.4 to 14.7'. **BEDROCK** 16.1 to 18.0': SILTY CLAYSTONE: grayish brown (2.5Y 5/2); blocky; 99% medium plastic fines; 1% very coarse sand; well sorted; subrounded; quartzose; scattered caliche in pockets and veins; very stiff; damp. TOTAL AUGERED DEPTH = 18.0'.	
17								
18					27	27	18.0 to 19.5': RUN RECOVERED 0.4/1.5' RQD = 0.4/1.5' 18.0 to 18.4': CLAYSTONE: pale yellowish brown (10YR 6/2) with a trace of light brown (5YR 6/4); some silt; trace of limonite in minute veinlets to 0.5 mm in width (randomly oriented); stiff to hard; damp.	PACKER TEST: 18.0 to 23.27'
19								
20					100	100	19.5 to 22.5': RUN RECOVERED 3.0/3.0' RQD = 3.0/3.0' 19.5 to 21.0': CLAYSTONE: as in 18.0 to 18.4'.	19.5 to 22.5': No fractures
21							21.0 to 21.9': SILTY CLAYSTONE: olive gray (5Y 3/2); some very fine grained sand; iron nodules; stiff; damp. 21.9 to 22.5': SILTY SANDY CLAYSTONE: same as 21.0 to 21.9'.	20.7 to 20.9': SAMPLE (GEOTECHNICAL) B301490207209
22								

GROUNDWATER

	DEPTH	HOUR	DATE
▽			
▼			

WESTON

GEOLOGIC LOG

Rocky Flats: 881 Hillside

Project Number: 2029-33-09-0020

Borehole/Well Id: B301490

Depth (ft)	Graphic Log	Sample T	Sample ID	SPT N-Val	REC %	RQD %	Lithologic Description	Notes:
					125	125	22.5 to 24.5': RUN RECOVERED 2.5/2.0' RQD 2.5/2.0' 22.5 to 22.8': SILTY SANDY CLAYSTONE: same as above.	PACKER TEST: 22.7 to 27.97'
23							22.8 to 23.3': CLAYEY SANDY SILTSTONE: pale yellowish brown (10YR 6/2); very fine grained sand; well sorted; rounded; quartzose; low plasticity; soft; damp.	23.2'; 90 deg.; open; Fe oxide.
24							23.3 to 23.7': CLAYEY SANDY SILTSTONE: same as above; interbedded with thin laminations of clayey silty sandstone. 23.7 to 24.0': SILTY SANDSTONE: pale yellowish brown (10YR 6/2); very fine grained; well sorted; rounded; quartzose; low plasticity; soft; damp.	23.7 to 23.9': SAMPLE (GEOTECHNICAL) B301490237239 24.1'; 90 deg.; open; Fe oxide.
					12	0	24.0 to 24.5': CLAYEY SANDY SILTSTONE: same a 23.3 to 23.7'; grading into claystone.	24.5 to 28.5': No fractures
25							24.5 to 28.5': RUN RECOVERED 0.1/4.0' RQD = 0.0/4.0' CLAYSTONE: as in 18.0 to 18.4'.	
26						100	26.0 to 26.5': CLAYSTONE: pale yellowish brown (10YR 6/2); with mottled gray (5Y 3/2); stiff to hard; damp.	Note: 2.5' picked up from subsequence run. RQD = 2.5/2.5'
27							26.5 to 27.8': SILTY CLAYSTONE: trace of limonite in an oval patch to 2 cm in diameter at 27.4'; stiff to hard; damp.	26.9'; 90 deg.; open; Fe oxide.
								PACKER TEST: 27.5 to 32.77'
28							27.8 to 28.5': SILTY CLAYEY SANDSTONE: pale yellowish brown (10YR 6/2); very fine grained sand; well sorted; rounded; quartzose; low plasticity; soft; damp.	28.3 to 28.6': SAMPLE (GEOTECHNICAL) B301490283286
					350	100	28.5 to 29.5': RUN RECOVERED 3.5/1.0' RQD = 1.0/1.0' 28.5 to 29.5': CLAYSTONE: pale yellowish brown (10YR 6/2); blocky; with 3 cm in diameter limonite nodule at 29.2' some silt to silty; stiff; damp.	29.0'; 45 deg.; open; Fe oxide.
29								
					100	92	29.5 to 34.5': RUN RECOVERED 5.0/5.0' RQD = 4.6/5.0' 29.5 to 34.3': CLAYSTONE: grayish orange (10YR 7/4);	29.7'; 45 deg.; open; Fe oxide.
30								

GROUNDWATER

DEPTH	HOUR	DATE

WESTON

GEOLOGIC LOG	Rocky Flats: 881 Hillside	Project Number: 2029-33-09-0020	PAGE: 5 of 6

Borehole/Well Id: B301490

Depth (ft)	Graphic Log	Sample T	Sample ID	SPT N-Val	REC %	RQD %	Lithologic Description	Notes:
							mottled with limonite filled veinlets to 1.0 mm in width; mostly vertical, jagged and irregular patterns; very stiff; damp. 34.3 to 34.5': SILTY CLAYSTONE: medium gray (N 5/0); well sorted; stiff; damp to dry.	30.3 to 31.3': SAMPLE (GEOTECHNICAL) B301490303313
31								
								31.5'; 90 deg.; open; Fe oxide.
32								
								32.3'; 45 deg.; open; Fe oxide. 32.5'; 45 deg.; open; Fe oxide. 32.7'; 45 deg.; open; Fe oxide.
33								
34								
					82	82	34.5 to 38.5': RUN RECOVERED 3.3/4.0' RQD = 3.3/4.0' CLAYSTONE: yellowish gray (5Y 7/2) with trace of light brown (looks orange) (5YR 5/6); some silt to silty with up to 5 mm. inclusions to laminations of clayey siltstone; trace of limonite stained veinlets to 1.0 mm wide, mostly vertical; closed; no apparent bedding structure; very stiff; damp.	
35								
36								
37								
38								

GROUNDWATER

	DEPTH	HOUR	DATE
▽			
▼			

WESTON

GEOLOGIC LOG

Rocky Flats: 881 Hillside

Project Number: 2029-33-09-0020

Borehole/Well Id: B301490

Depth (ft)	Graphic Log	Sample T	Sample ID	SPT N-Val	REC %	RQD %	Lithologic Description	Notes:
								37.9'; 90 deg.; open; Fe oxide.
39					93	93	38.5 to 40.0': RUN RECOVERED 1.4/1.5' RQD = 1.4/1.5' SILTY CLAYSTONE: yellowish gray (5Y 7/2); blocky when broken; some sand to sandy with 1 to 3 mm laminations to inclusions of very fine grained sandstone; trace of limonite veinlets (closed); near vertical and irregular; very stiff; damp.	38.8'; 45 deg.; open; Fe oxide. 39.2'; 90 deg.; open; Fe oxide.
40							TOTAL BOREHOLE DEPTH = 40.0'.	
41								
42								
43								
44								
45								
46								

GROUNDWATER

	DEPTH	HOUR	DATE
∇			
▼			

WESTON

GEOLOGIC LOG	Rocky Flats: 881 Hillside	Project Number: 2029-33-09-0020	PAGE: 1 of 5

Borehole/Well Id:	B301590	Drilling Company:	Boyles Bros.
Northing (ft):	34741.9	Driller:	DVStyles/PCBushkovski
Easting (ft):	20990.0	Helper:	ALBoday/MBoyd
Ground Surface Elev (ft):	5926.6	Rig Type:	B-57
Total Depth (ft):	15.5/34.8	Drilling Method:	HS Auger/NX Core
Logged By:	JFHerrick/SPCarpenter	Drilling Fluid:	None/Water
Checked By SM:	[signature]	Date Started:	3/19/90
Checked By PM:		Date Completed:	3/22/90
QA By / Date:	JDL 07/24/90	Well Type:	BH
Comments:	French drain geotechnical study. Surface casing set to 15.0' below ground surface on 03/19/90.		

Depth (ft)	Graphic Log	Sample T	Sample ID	SPT N-Val	REC %	RQD %	Lithologic Description	Notes:
0					100		**COLLUVIUM** 0.0 to 2.0': RUN RECOVERED 2.0/2.0' SILTY CLAY: moderately yellowish brown (10YR 5/4); mottled with moderate brown (5YR 4/4) iron staining; weak reaction with HCL; some grass roots; trace gravels up to 2 cm; subrounded; quartzose; stiff; wet.	Monitoring Instrument Background Levels: HNu: 0.0 RAD: 24.0 units All readings inside auger; in breathing zone; on cuttings; and on core at background unless otherwise noted below. TRIP BLANK SAMPLE TB031990 0.0 to 2.0': SAMPLE (VOA'S ONLY) B3015900002
1								
2					55		2.0 to 4.0': RUN RECOVERED 1.1/2.0' 2.0 to 3.1': SILTY CLAY: same as above; trace gravels up to 5 cm; no roots.	0.0 to 3.1': SAMPLE B3015900004 2.0 to 3.1': SAMPLE (VOA'S ONLY) B3015900204 **
3								
4					35		4.0 to 6.0': RUN RECOVERED 0.7/2.0' SILTY CLAY: same as above.	4.0 to 4.7': SAMPLE (VOA'S ONLY) B3015900406 4.0 to 7.7': SAMPLE B3015900408
5								
6								

GROUNDWATER

DEPTH	HOUR	DATE
	None	

WESTON

GEOLOGIC LOG

Rocky Flats: 881 Hillside

Project Number: 2029-33-09-0020

Borehole/Well Id: B301590

Depth (ft)	Graphic Log	Sample T	Sample ID	SPT N-Val	REC %	RQD %	Lithologic Description	Notes:
					0		6.0 to 7.0': RUN No sample taken used center bit to penetrate gravels.	
7					70		7.0 to 8.0': RUN RECOVERED 0.7/1.0' SILTY CLAY: moderate yellowish brown (10YR 5/4); gravelly to some gravel (1 to 5cm); subangular to subrounded; quartzose; weak reaction with HCL; stiff; damp.	7.0 to 7.7': SAMPLE (VOA'S ONLY) B3015900708
8					0		8.0 to 10.0': RUN No sample taken used center bit to penetrate gravels.	
9								
10					67		10.0 to 11.5': RUN RECOVERED 1.0/1.5' GRAVELLY CLAY: moderately yellowish brown (10YR 5/4); gravel 0.5 to 4 cm; poorly sorted; subrounded; quartzose; some mica and pink feldspar; strong reaction with HCL; stiff to firm; low plasticity; damp.	10.0 to 12.0': SAMPLE (VOA'S ONLY) B3015901012 10.0 to 12.0': SAMPLE B3015900812
11								
12					75		11.5 to 13.5': RUN RECOVERED 1.5/2.0' 11.5 to 12.0: CLAY: yellowish gray (5Y 7/2); some light brown (5Y 5/6); white carbonaceous veinlets up to 4 mm; strong reaction with HCL; firm; medium plastic; damp. 12.0 to 12.1': GRAVEL: yellowish gray (5Y 7/2); moderately sorted, subangular, quartzose (0.5 cm). 12.1 to 13.5': CLAY: same as above.	11.5 to 13.0': SAMPLE (VOA'S ONLY) B3015701214
13								
14					100		13.5 to 15.5': RUN RECOVERED 2.0/2.0'	

GROUNDWATER

	DEPTH	HOUR	DATE
▽		None	
▼			

WESTON

GEOLOGIC LOG

Rocky Flats: 881 Hillside

Project Number: 2029-33-09-0020

Borehole/Well Id: B301590

Depth (ft)	Graphic Log	Sample T	Sample ID	SPT N-Val	REC %	RQD %	Lithologic Description	Notes:
15							13.5 to 13.55': CLAY: dusky yellow (5Y 6/4); up to 5 cm; subangular to subrounded, quartzose, damp. **BEDROCK** 13.55 to 15.5': SILTY CLAYSTONE: dusky yellow (5Y 6/4); trace light olive gray (5Y 6/1) mottling; white carbonaceous mottles; weak reaction with HCL; low plasticity; firm; cohesive; damp. TOTAL AUGERED DEPTH = 15.5'	
					0		15.5 to 16.0': RUN RECOVERED 0.0/0.5'	
16					46	46	16.0 to 20.3': RUN RECOVERED 2.0/4.3' RQD = 2.0/4.3' CLAYSTONE: dusky yellow (5Y 6/4); light olive gray 5Y 6/1); medium dark gray (N 4/0); blocky; some silt to silty; very silty inclusions at 16.9 to 17.0'; iron staining to veining around blocky structure; 1 to 2 mm discontinuous healed fractures; medium to high plastic; weathered; soft; damp.	PACKER TEST: 16.5 to 20.3'
17								
18								
19								
20								
					50	50	20.3 to 22.3': RUN RECOVERED 1.0/2.0' RQD 1.0/2.0' CLAYSTONE: same as above; medium gray (N 4/0); brownish gray (5Y 4/1); decreasing silt; decreasing iron staining.	PACKER TEST: 20.3 to 25.3'
21								
22								

GROUNDWATER

	DEPTH	HOUR	DATE
▽		None	
▼			

WESTON

GEOLOGIC LOG

Rocky Flats: 881 Hillside

Project Number: 2029-33-09-0020

Borehole/Well Id: B301590

Depth (ft)	Graphic Log	Sample T	Sample ID	SPT N-Val	REC %	RQD %	Lithologic Description	Notes:
								21.9 to 22.2': 90 deg.; healed; Fe
23					140	60	22.3 to 23.3': RUN RECOVERED 1.4/1.0' RQD 0.6/1.0' CLAYSTONE: light olive gray (5Y 5/2); brownish black (5YR 2/1); blocky; some silt to silty; 1 to 2 mm 90 deg. laminations of iron oxide at 21.9 to 22.2'; 0.5 to 1 cm 90 deg. laminations of siltstone at 22.5 to 22.7': platy structure; medium to high plasticity; soft; damp.	22.5 to 22.7': 90 deg.; filled; silt
					110	110	23.3 to 25.3': RUN RECOVERED 2.2/2.0' RQD 2.2/2.0' SANDY SILTSTONE: very light gray (N 7/0); medium dark gray (N 4/0); lensed; some to trace clay; very fine grained sand; well sorted; round; quartzose; lens of silty sandstone at 24.7 to 25.0': carbonaceous debris; manganese mottling; low to no plasticity; firm; damp.	23.9 to 24.2'; 5 deg.; healed; Fe 24.3 to 24.4': 50-50 deg.; healed; Fe 24.9'; 60-70 deg.; open; Fe 25.2'; 80 deg.; healed; Fe
24								
25					33	0	25.3 to 25.9': RUN RECOVERED 0.2/0.6' RQD = 0.0/0.6' SANDY SILTSTONE: same as above.	PACKER TEST: 25.3 to 30.3'
26					86	86	25.9 to 27.3': RUN RECOVERED 1.2/1.4' RQD = 1.2/1.4' 25.9 to 26.4': SANDY CLAYSTONE: dusky yellow (5Y 6/4); medium gray (N 5/0); slightly blocky; very fine grained sand; some silt to slightly; well sorted; round; quartzose; abundant iron staining in veins and mottlings; medium plasticity; soft to firm; damp. 26.4 to 27.1': SILTY SANDSTONE: dusky yellow (5Y 6/4); medium gray (N 5/0); nonstratified; some silt to silty; very fine grained sand; well sorted; round; quartzose; iron and manganese staining; trace carbonaceous; low to no plasticity; firm to stiff; damp.	PACKER TEST: 26.3 to 30.3' 26.4 to 27.1: LITHOLOGY Field interpertation changed from CLAYEY SANDSTONE to SILTY SANDSTONE based on grain size analysis. 26.75 to 27.10': SAMPLE (GEOTECHNICAL) B30159026752710 27.45 to 27.6'; 60-80-50 deg.; open; trace Fe 27.75'; 80 deg.; open 27.85'; 70 deg.; healed; Fe
27					80	60		
28							27.3 to 29.3': RUN RECOVERED 1.6/2.0' RQD = 1.0/2.0' 27.3 to 27.9': CLAYEY SANDSTONE: same as above. 27.9 to 28.9': CLAYSTONE: medium gray (N 5/0); moderate yellowish brown (10YR 5/4); blocky; trace to very fine grained sand; some silt; inclusions of silty claystone; iron staining and mottling throughout; medium to high plasticity; soft to firm; damp.	28.6'; 90 deg.; healed; Fe
29								
30					110	0	29.3 to 30.3': RUN RECOVERED 1.1/1.0' RQD = 0.0/1.0' 29.2 to 29.35': CLAYSTONE: same as above. 29.35 to 30.3': CLAYEY SANDSTONE: same as 26.4 to	29.5'; 70 deg.; open to healed; Fe 29.65 to 29.8'; 90-40-70 deg.;

GROUNDWATER

	DEPTH	HOUR	DATE
▽		None	
▼			

WESTON

GEOLOGIC LOG

Rocky Flats: 881 Hillside

Project Number: 2029-33-09-0020

Borehole/Well Id: B301590

Depth (ft)	Graphic Log	Sample T	Sample ID	SPT N-Val	REC %	RQD %	Lithologic Description	Notes:
							27.1'.	open; Fe 30.0'; 90 deg.; healed; Fe
					60	60	30.3 to 31.3': RUN RECOVERED 0.6/1.0' RQD = 0.6/1.0' CLAYEY SANDSTONE: light olive gray (5Y 6/1); dusky yellow (5Y 6/4); very fine grained sand; well sorted; round; quartzose; some silt to silty; laminations of 1 mm iron staining; low to medium plasticity; soft to firm; moist.	30.2'; 70 deg.; healed to open; Fe
31					50	50	31.3 to 32.3': RUN RECOVERED 0.5/1.0' RQD = 0.5/1.0' 31.3 to 31.4': CLAYEY SANDSTONE: same as above. 31.4 to 31.7': CLAYSTONE: moderate yellowish brown (10YR 5/4); laminations of 1 to 3 cm iron to calcareous cemented siltstone; silty to some silt; heavy iron staining; medium plasticity; firm.	
32					160	160	31.7 to 31.8': SILTSTONE: dark yellowish orange (10YR 6/6); platy; iron cement; no plasticity; firm to medium hard; dry.	
33					100	100	32.3 to 33.3': RUN RECOVERED 1.6/1.0' RQD = 1.6/1.0' CLAYSTONE: moderate yellowish brown (10YR 5/4); dark yellowish brown (10YR 4/2); blocky; some silt to silty at 31.8 to 32.5'; scattered 1 to 5 mm iron nodules; iron staining throughout; medium to high plasticity; soft to firm; moist to damp.	33.3 to 33.5'; 50-90-0 deg.; healed; Fe 33.7 to 33.8'; 70 deg.; open; Fe nodules
34							33.3 to 34.8': RUN RECOVERED 1.5/1.5' RQD = 1.5/1.5' CLAYSTONE: light olive gray (5Y 5/2); olive gray (5Y 4/1); non stratified; blocky; trace silt; iron staining; medium to high plasticity; soft; damp.	33.8 to 34.1'; 20-20 deg.; healed to open; Fe
35							TOTAL BOREHOLE DEPTH = 34.8'	
36								
37								
38								

GROUNDWATER

	DEPTH	HOUR	DATE
▽		None	
▼			

WESTON

GEOLOGIC LOG

Rocky Flats: 881 Hillside

Project Number: 2029-33-09-0020

Borehole/Well Id:	B301690	**Drilling Company:**	Boyles Bros.
Northing (ft):	34722.1	**Driller:**	DVStyles/PCBushkovski
Easting (ft):	20892.3	**Helper:**	ALBoday/MBoyd
Ground Surface Elev (ft):	5930.5	**Rig Type:**	B-57
Total Depth (ft):	22.9/37.8	**Drilling Method:**	HS Auger/NX Core
Logged By:	JFHerrick/SPCarpenter	**Drilling Fluid:**	None/Water
Checked By SM:	[signature]	**Date Started:**	3/19/90
Checked By PM:		**Date Completed:**	3/22/90
QA By / Date:	JEM 03/26/90	**Well Type:**	BH

Comments: French drain geotechnical study. Surface casing set to 22.5' below ground surface on 03/20/90.

Depth (ft)	Graphic Log	Sample T	Sample ID	SPT N-Val	REC %	RQD %	Lithologic Description	Notes:
0–1					100		**COLLUVIUM** 0.0 to 2.0': RUN RECOVERED 2.0/2.0' SILTY CLAY: moderate brown (5YR 3/4); some gravels (0.5 to 1 cm) well sorted; subrounded; quartzose; firm; slightly cohesive; plastic; moist.	Monitoring Instrument Background Levels: HNu: 0.0 RAD: 24.0 units All readings inside auger; in breathing zone; on cuttings; and on core at background unless otherwise noted below. TRIP BLANK SAMPLE TB031990 0.0 to 2.0': SAMPLE (VOA'S ONLY) B3016900002
2–3					100		2.0 to 4.0': RUN RECOVERED 2.0/2.0' SILTY CLAY: dark yellowish brown (10YR 4/2); very firm; cohesive; medium plasticity; damp.	0.0 to 4.0': SAMPLE B3016900004 2.0 to 4.0': SAMPLE (VOA'S ONLY) B3016900204
4–6					100		4.0 to 6.0': RUN RECOVERED 2.0/2.0' SILTY CLAY grading to CLAYEY SILT: moderate yellowish brown (10YR 5/4); some mottling with iron oxide, moderately brown (5YR 4/4); soft; low plasticity; damp.	4.0 to 6.0': SAMPLE (VOA'S ONLY) B3016900406 4.0 to 8.0': SAMPLE B3016900408

GROUNDWATER

	DEPTH	HOUR	DATE
∇			
▼			

WESTON

GEOLOGIC LOG

Rocky Flats: 881 Hillside

Project Number: 2029-33-09-0020

Borehole/Well Id: B301690

Depth (ft)	Graphic Log	Sample T	Sample ID	SPT N-Val	REC %	RQD %	Lithologic Description	Notes:
7					100		6.0 to 8.0': RUN RECOVERED 2.0/2.0' CLAYEY SILT: moderate yellowish brown (10YR 5/4); trace gravel (0.5 cm); well sorted; subrounded; quartzose; some mottling with iron oxide moderate brown (5YR 4/4); soft; low plasticity; damp.	6.0 to 8.0': SAMPLE (VOA'S ONLY) B3016900608
8					100		8.0 to 10.0': RUN RECOVERED 2.0/2.0' CLAYEY SILT: as above; trace gravel (0.5 to 2 cm); moderately sorted; subrounded; quartzose; well mottled with iron oxide, moderate brown (5YR 4/4); damp.	8.0 to 10.0': SAMPLE (VOA'S ONLY) B3016900810 8.0 to 12.0': SAMPLE B3016900812
9								
10					100		10.0 to 12.0': RUN RECOVERED 2.0/2.0' SILTY CLAY: moderate yellowish brown (10YR 5/4); trace gravel (0.5 to 2 cm); moderate sorting; subangular to subrounded; quartzose; stiff; cohesive; low plasticity; damp.	10.0 to 12.0': SAMPLE (VOA'S ONLY) B3016901012
11								
12					85		12.0 to 14.0: RUN RECOVERED 1.7/2.0' 12.0 to 12.2': CLAYEY SILT: moderately yellowish brown (10YR 5/4); trace gravels (0.5 to 2 cm); moderate sorted; subrounded; quartzose; well mottled with iron oxide, moderate brown (5YR 4/4); soft; slightly plastic; damp. 12.2 to 12.8': SILTY CLAY: moderately yellowish brown (10YR 5/4); trace gravel (0.5 to 2 cm); moderate sorting; subangular to subrounded; quartzose; stiff; cohesive; low plasticity; damp. 12.8 to 13.7': GRAVELLY SILTY CLAY: moderate yellowish brown (10YR 5/4); gravels (0.5 to 2cm); poor	12.0 to 13.7': SAMPLE VOA'S ONLY) B3016901214 12.0 to 15.9': SAMPLE B3016701216
13								
14								

GROUNDWATER

	DEPTH	HOUR	DATE
∇			
▼			

WESTON

GEOLOGIC LOG

Rocky Flats: 881 Hillside

Project Number: 2029-33-09-0020

Borehole/Well Id: B301690

Depth (ft)	Graphic Log	Sample T	Sample ID	SPT N-Val	REC %	RQD %	Lithologic Description	Notes:
					0		sorting; subangular; quartzose; firm; cohesive; damp.	Measured bottom depth discrepancy from 14.0 to 14.9'
15					50		14.9 to 16.9': RUN RECOVERED 1.0/2.0' GRAVELLY SILTY CLAY: light brown (5YR 5/6); gravels (0.5 to 5 cm); poor sorting; subangular to angular; quartzose; firm; cohesive; low plasticity; damp.	14.9 to 15.9': SAMPLE (VOA'S ONLY) B3016901416
16								16.9 to 18.9': SAMPLE (VOA'S ONLY) B3016901618
17					100		16.9 to 18.9': RUN RECOVERED 2.0/2.0' 16.9 to 18.3': SILTY CLAY: light brown (5YR 6/4); trace gravel (1 to 5 cm); poorly sorted; subrounded; quartzose; firm to stiff; cohesive; damp.	16.9 to 19.9': SAMPLE B3016901620
18							18.3 to 18.9': GRAVELLY SILTY CLAY: light brown (5YR 6/4); gravels (1 to 4 cm); poorly sorted; angular; abundant calcite white mottling; firm to stiff; low plasticity; damp.	
19					50		18.9 to 20.9': RUN RECOVERED 1.0/2.0' SILTY CLAY: light olive gray (5Y 6/1); some grading to GRAVELLY SILTY CLAY; gravels (0.5 to 4 cm); poorly sorted; subrounded to subangular; quartzose; abundant gravels at bottom; firm; cohesive; low plasticity; damp.	18.9 to 19.9': SAMPLE (VOA'S ONLY) B3016901820
20								
21					95		**BEDROCK** 20.9 to 22.9': RUN RECOVERED 1.9/2.0' SILTY CLAYSTONE: pale yellowish brown (10YR 6/2); soft; friable; low plasticity; slightly cohesive; no gravels; damp.	
22								

GROUNDWATER

	DEPTH	HOUR	DATE
▽			
▼			

WESTON

GEOLOGIC LOG

Rocky Flats: 881 Hillside

Project Number: 2029-33-09-0020

Borehole/Well Id: B301690

Depth (ft)	Graphic Log	Sample T	Sample ID	SPT N-Val	REC %	RQD %	Lithologic Description	Notes:
							TOTAL AUGERED DEPTH = 22.9'.	
23					0	0	22.9 to 23.6': RUN RECOVERED 0.0/0.8' RQD = 0.0/0.8'	PACKER TEST: 22.8 to 27.6' 23.4'; 70 deg.; healed; Fe
24					122	122	23.6 to 25.9': RUN RECOVERED 2.8/2.3 RQD = 2.8/2.3 CLAYSTONE: dark yellowish brown (10YR 4/2); light olive gray (5Y 5/2); olive black (5Y 2/1); nonstratified; blocky; some to trace silt; iron staining throughout along blocky structure except at 25.0 to 25.5': weathered; medium to high plasticity; soft to firm; damp.	24.0 to 24.2'; 40-25 deg.; healed; Fe
25								PACKER TEST: 24.75 to 32.9' 24.8'; 25 deg.; healed; Fe
26					94	94	25.9 to 27.6': RUN RECOVERED 1.6/1.7 RQD = 1.6/1.7' 25.9 to 27.0': CLAYSTONE: same as above; olive black (5Y 2/1); carbonaceous.	
27							27.0 to 27.5': SILTSTONE: very light gray (N 8/0); brownish gray (5YR 4/1); nonstratified; platy; trace to some clay; trace very fine grained sand; low to no plasticity; noncemented; firm; damp to dry.	
28					0	0	27.6 to 28.9': RUN RECOVERED 0.0/1.3' RQD 0.0/1.3'	
29					90	80	28.9 to 30.9': RUN RECOVERED 1.8/2.0' RQD = 1.6/2.0' 28.9 to 30.1': CLAYEY SILTSTONE: light olive gray (5Y 6/1); yellowish gray (5Y 8/1); stratified with lenses of clayey siltstone 0.5 to 3 cm thick; trace sand; scattered iron staining in veins or mottlings; manganse mottling; low to medium plasticity; soft to firm; damp to moist.	28.9 to 30.1': LITHOLOGY Field interpertation changed from SILTSTONE to CLAYEY SILTSTONE based on grain size analysis. 29.6 to 30.0': SAMPLE (GEOTECHNICAL)
30								

GROUNDWATER

	DEPTH	HOUR	DATE
▽			
▼			

WESTON

GEOLOGIC LOG

Rocky Flats: 881 Hillside

Project Number: 2029-33-09-0020

Borehole/Well Id: B301690

Depth (ft)	Graphic Log	Sample T	Sample ID	SPT N-Val	REC %	RQD %	Lithologic Description	Notes:
								B30160296300
							30.1 to 30.3': SANDSTONE: light olive gray (5Y 6/1);very fine grained; well sorted; round; quartzose; some silt to silty; noncemented; no plasticity; soft; wet.	30.1 to 30.3'; mechanical damage
31					90	85	30.3 to 30.7': SILTSTONE: same as 28.9 to 30.1'; yellowish gray (5Y 7/2); dusky yellow (5Y 6/4); heavy iron staining.	~~31.0'; 75 deg.; healed; Fe~~
							30.9 to 32.9': RUN RECOVERED 1.8/2.0' RQD 1.7/2.0' 30.9 to 31.5': SILTSTONE: same as above.	31.2'; 80 deg.; healed; Fe 31.3'; 50 deg.; healed; Fe 31.5'; 70 deg.; healed; Fe
32							31.5 to 32.2': CLAYSTONE: medium gray (N 5/0); light olive gray (5Y 6/1); light brownish gray (5YR 6/1); mottled; blocky; some silt to silty; with 0.5 to 3 cm lenses of clayey siltstone; iron staining in veins and 1 to 2 mm laminations; medium plasticity; soft; damp.	32.2 to 32.7: LITHOLOGY Field interpretation changed from SILTY SANDSTONE to SANDY SILTYSTONE base on grain size analysis.
33					30	30	32.2 to 32.7': SANDY SILTSTONE: dusky yellow (5Y 6/4); stained dark yellowish orange (10YR 6/6); very fine grained; well sorted; round; quartzose; 32.2 to 32.4' some Clay to Clayey; iron staining; noncemented; no to low plasticity; soft to firm; moist to wet.	32.4 to 32.7': SAMPLE ~~(GEOTECHNICAL)~~
							32.9 to 33.9': RUN RECOVERED 0.3/1.0' RQD = 0.3/1.0' CLAYEY SANDY SILTSTONE: yellowish gray (5Y 7/2); dusky yellowish (5Y 6/4); nonstratified; platy; very fine grained sand; well sorted; round; quartzose; laminations of iron staining; low to medium plasticity; soft to firm; moist.	B301690324327 PACKER TEST: 32.9 to 37.8'
34					70	0		
							33.9 to 34.9': RUN RECOVERED 0.7/1.0' RQD 0.0/1.0' SILTY SANDSTONE: light gray (N 7/0); light olive gray (5Y 6/1); stained dark yellowish orange; (01YR 6/6); platy; 1 cm bedding joints at 90 degree; very fine grained; well sorted; rounded; quartzose; iron and manganse staining; iron oxide and calcareous cementation; hard to firm based on degree of cementation; damp.	
35					50	50		34.9 to 35.0'; 10 deg.; healed; Fe ~~35.1'; 80 deg.; healed; Fe~~
							34.9 to 36.3': RUN RECOVERED 0.7/1.4' RQD 0.7/1.4' SILTY CLAYSTONE: light olive gray (5Y 6/1); pale yellowish brown (10YR 6/2); stained dark yellowish orange (10YR 6/6); nonstratified; trace very fine grained sand; iron and manganse staining to iron cementation; medium to low plasticity; firm to soft; damp to moist.	35.35'; 90 deg.; healed; Fe 35.5'; 40-90-90 deg.; healed; Fe
36					53	53		
							36.3 to 37.8': RUN RECOVERED 0.8/1.5 RQD = 0.8/1.5' SILTY CLAYSTONE: same as above.	
37							TOTAL BOREHOLE DEPTH = 37.8'.	37.0 to 37.3': SAMPLE (GEOTECHNICAL) B301690370373
38								

GROUNDWATER

	DEPTH	HOUR	DATE
▽			
▼			

WESTON

GEOLOGIC LOG	Rocky Flats: 881 Hillside	Project Number: 2029-33-09-0020	PAGE: 1 of 6

Borehole/Well Id:	B301790	**Drilling Company:**	Boyles Bros.
Northing (ft):	34733.4	**Driller:**	DVStyles/PCBushkovski
Easting (ft):	20793.6	**Helper:**	ALBoday/BO'Connor
Ground Surface Elev (ft):	5932.2	**Rig Type:**	B-57
Total Depth (ft):	19.5/39.6	**Drilling Method:**	HS Auger/NX Core
Logged By:	JKHarriz/SPCarpenter	**Drilling Fluid:**	None/Water
Checked By SM:	Jon Ellman	**Date Started:**	3/20/90
Checked By PM:		**Date Completed:**	6/27/90
QA By / Date:	JDL 07/23/90	**Well Type:**	BH
Comments:	French drain geotechnical study. Surface casing set to 19.5' below ground surface on 03/20/90.		

Depth (ft)	Graphic Log	Sample T	Sample ID	SPT N-Val	REC %	RQD %	Lithologic Description	Notes:
0–1					75		**COLLUVIUM** 0.0 to 2.0': RUN RECOVERED 1.5/2.0' SILTY CLAY: yellowish brown (10YR 5/2); some iron mottles to dark yellowish orange (10YR 6/6); some fine grass roots; 5 cm gravel in shoe; angular; quartzose; soft; plastic; moist.	Monitoring Instrument Background Levels: HNu: 0.0 RAD: 24.0 units All readings inside auger; in breathing zone; on cuttings; and on core at background unless otherwise noted below. TRIP BLANK SAMPLE TB03209001 FIELD BLANK SAMPLE B3017900019FB 0.0 to 1.5': SAMPLE (VOA'S ONLY) B3017900002
2–3					25		2.0 to 4.0': RUN RECOVERED 0.5/2.0' 2.0 to 2.5': SILTY CLAY: same as above; damp.	0.0 to 2.5': SAMPLE B3017900004 2.0 to 2.5': SAMPLE (VOA'S ONLY) B3017900204
4–6					95		4.0 to 6.0': RUN RECOVERED 1.9/2.0' SILTY SANDY CLAY: yellowish brown (10YR 5/2); fine grained sand; well sorted; subrounded; quartzose; iron mottling/staining moderate brown (5YR 3/4); firm; medium plasticity; damp.	4.0 to 5.9': SAMPLE (VOA'S ONLY) B3017900406 B307900406D 4.0 to 8.0': SAMPLE B3017900408 B3017900408D

GROUNDWATER

	DEPTH	HOUR	DATE
▽	8.5	08:36	03/20/90
▼			

WESTON

GEOLOGIC LOG

Rocky Flats: 881 Hillside

Project Number: 2029-33-09-0020

Borehole/Well Id: B301790

Depth (ft)	Graphic Log	Sample T	Sample ID	SPT N-Val	REC %	RQD %	Lithologic Description	Notes:
7					100		6.0 to 8.0': RUN RECOVERED 2.0/2.0' SILTY SANDY CLAY: same as above pale yellowish brown (10YR 6/2); mottlings are moderate brown (5YR 4/4); some black speckles.	6.0 to 8.0': SAMPLE (VOA'S ONLY) B3017900608
8 9					100		8.0 to 10.0': RUN RECOVERED 2.0/2.0' SILTY SANDY CLAY: Same as above; moist.	8.0 to 10.0': SAMPLE (VOA'S ONLY) B3017900810 Water table 8.5' 8.0 to 12.0': SAMPLE B3017900812
10 11					100		10.0 to 12.0': RUN RECOVERED 2.0/2.0' SILTY CLAY: moderate yellowish brown (10YR 5/4); trace fine grained sand; well sorted; well rounded; quartzose; some iron staining, mottles; moderate brown (5YR 4/4); damp.	10.0 to 12.0': SAMPLE (VOA'S ONLY) B3017901012
12					100		12.0 to 13.0': RUN RECOVERED 1.0/1.0' SILTY CLAY: same as above; moist.	12.0 to 13.0': SAMPLE (VOA'S ONLY) B3017901213 12.0 to 17.0': SAMPLE B3017901217
13 14					100		13.0 to 15.0': RUN RECOVERED 2.0/2.0' SILTY CLAY: moderate yellowish brown (10YR 5/4); trace gravel (1 to 4 cm); poor sorting; subrounded; quartzose; white mottling seen on gravels (not calcium carbonate); matrix not mottled; firm; cohesive; medium plasticity;	13.0 to 15.0': SAMPLE (VOA'S ONLY) B3017901315

GROUNDWATER

DEPTH	HOUR	DATE
8.5	08:36	03/20/90

WESTON

GEOLOGIC LOG

Rocky Flats: 881 Hillside

Project Number: 2029-33-09-0020

Borehole/Well Id: B301790

Depth (ft)	Graphic Log	Sample T	Sample ID	SPT N-Val	REC %	RQD %	Lithologic Description	Notes:
							moist.	
15					100		15.0 to 17.0': RUN RECOVERED 2.0/2.0' 15.0 to 16.7': SILTY CLAY: same as above: some gravels (0.5 to 4 cm); poor sorting; subrounded; quartzose; some white calcareous precipitates gives medium reaction with HCL. 16.7 to 17.0': GRAVEL: several (3 to 5 cm) gravels in shoe and bottom 0.3' of sample.	
16								
17					0			Measured bottom depth discrepancy from 17.0 to 17.5'.
					100		BEDROCK 17.5 to 19.5': RUN RECOVERED 2.0/2.0' SILTY CLAYSTONE: pale yellowish brown (10YR 6/2); abundant white precipitates/carbonate; strong reaction; note carbonate filled fracture at 18.1' (20 deg.); firm; low plasticity; wet; grades to: SILTY CLAYSTONE: as above moderate yellowish brown (10YR 5/4); no precipitates/carbonate; abundant iron stains (5YR 4/4); abundant iron nodules (1 to 2 cm) angular found at 19.0'. TOTAL AUGERED DEPTH = 19.5'.	
18								
19								
					0	0	19.5 to 23.6': RUN RECOVERED 0.0/4.1' RQD = 0.0/4.1'	
20								PACKER TEST: 22.76 to 24.6' 20.2 to 20.9': SAMPLE (GEOTECHNICAL) B301790202209
21								PACKER TEST: 24.6 to 29.6'
22								

GROUNDWATER

	DEPTH	HOUR	DATE
▽	8.5	08:36	03/20/90
▼			

WESTON

GEOLOGIC LOG

Rocky Flats: 881 Hillside

Project Number: 2029-33-09-0020

Borehole/Well Id: B301790

Depth (ft)	Graphic Log	Sample T	Sample ID	SPT N-Val	REC %	RQD %	Lithologic Description	Notes:
								25.6'; 45 deg.; healed; Fe
23								28.0'; 45 deg.; healed; Fe
					440	440	23.6 to 24.6': RUN RECOVERED 4.4/1.0 RQD = 4.4/1.0' 20.2 to 24.6': CLAYSTONE: dark yellowish orange (10YR 6/6); medium light gray (N 6/0); light olive gray (5Y 5/2); blocky; some silt; very weathered 20.2' to 21.2' with heavy iron staining at 21.2 to 22.4'; abundant microfractures along blocky structure with iron filling; medium plasticity; soft to firm; moist.	
24								
					100	100		
25							24.6 to 28.6': RUN RECOVERED 4.0/4.0' RQD = 4.0/4.0' 24.6 to 25.3': CLAYSTONE: medium gray (N 5/0); blocky; some silt; iron staining; medium to high plasticity; soft to firm; moist. 25.3 to 28.6': SILTY SANDY CLAYSTONE AND SANDY SILTSTONE; dusky yellowish brown (10YR 2/2); yellowish gray (5Y 7/2); interbedded and gradational; very fine to fine grained sand; moderately sorted; rounded; quartzose; iron staining; abundant microfractures; low to medium plasticity; soft; moist.	PACKER TEST: 29.6 to 34.6'
26								30.7'; 85 deg.; healed; Fe
27								30.7 to 30.9'; 45 deg.; healed; Fe
28								31.4'; 80 deg.; healed; Fe
					100	100	28.6 to 29.6': RUN RECOVERED 1.0/1.0' RQD = 1.0/1.0' SILTY SANDY CLAYSTONE: same as above; yellowish gray (5Y 7/2).	
29								
					95	95	29.6 to 33.6': RUN RECOVERED 3.8/4.0' RQD = 3.8/4.0	29.6 to 29.9': SAMPLE (GEOTECHNICAL) B301790296299
30								

GROUNDWATER

	DEPTH	HOUR	DATE
▽	8.5	08:36	03/20/90
▼			

WESTON

GEOLOGIC LOG

Rocky Flats: 881 Hillside

Project Number: 2029-33-09-0020

Borehole/Well Id: B301790

Depth (ft)	Graphic Log	Sample T	Sample ID	SPT N-Val	REC %	RQD %	Lithologic Description	Notes:
							29.6 to 30.7': SILTY SANDY CLAYSTONE: Same as 25.3 to 28.6'.	32.9 to 33.0'; 70 deg.; healed; Fe
31							30.7 to 33.4': CLAYSTONE: dusky yellow (5Y 6/4); medium dark gray (N 4/0); lenses of sandy siltstone at 31.35 to 31.6' and 31.9 to 32.05'; some silt to silty; abundant iron staining; scattered microfractures along blocky structure with iron filling; medium to high plasticity; soft to firm; moist.	34.1 to 34.5'; 15 deg.; healed/open; Fe 31.5'; 85 deg.; healed; Fe
32								34.5 to 34.6'; 15 deg.; healed/open; Fe
33								PACKER TEST: 34.6 to 39.6' 34.9 to 35.0'; 50 deg.; healed; Fe
34					120	100	33.6 to 34.6': RUN RECOVERED 1.2/1.0' RQD 1.0/1.0' CLAYSTONE: same as above; moderate yellowish brown (10YR 5/4); medium dark gray (N 4/0).	Note: expansive claystone 35.2'; 60 deg.; healed; Fe 35.3'; 90 deg.; healed; Fe
35					105	105	34.6 to 38.6': RUN RECOVERED 4.2/4.0' RQD 4.2/4.0' CLAYSTONE: light olive gray (5Y 6/1); medium dark gray (N 4/0); blocky; some silt to silty in part; iron staining; firm to soft; moist.	Note: expansive claystone 35.4'; 70 deg.; healed; Fe 35.5 to 35.6'; 60-70 deg.; healed; Fe
36								35.7'; 85 deg.; healed; Fe 36.05'; 85 deg.; healed; Fe 36.5'; 90 deg.; healed; Fe
37								36.8'; 80 deg.; healed; Fe 37.1'; 80 deg.; healed; Fe 37.7'; 80 deg.; healed; Fe
38								37.8'; 80 deg.; healed; Fe

GROUNDWATER

	DEPTH	HOUR	DATE
▽	8.5	08:36	03/20/90
▼			

WESTON

GEOLOGIC LOG

Rocky Flats: 881 Hillside

Project Number: 2029-33-09-0020

Borehole/Well Id: B301790

Depth (ft)	Graphic Log	Sample T	Sample ID	SPT N-Val	REC %	RQD %	Lithologic Description	Notes:
								38.0'; 65 deg.; healed; Fe
					120	120	38.6 to 39.6': RUN RECOVERED 1.2/1.0' RQD = 1.2/1.0' CLAYSTONE: same as above.	Note: expansive claystone 39.1'; 90 deg.; healed; Fe 39.3'; 70 deg.; healed; Fe
39								
40							TOTAL BOREHOLE DEPTH = 39.6'.	
41								
42								
43								
44								
45								
46								

GROUNDWATER

	DEPTH	HOUR	DATE
▽	8.5	08:36	03/20/90
▼			

WESTON

GEOLOGIC LOG	Rocky Flats: 881 Hillside	Project Number: 2029-33-09-0020	PAGE: 1 of 6

Borehole/Well Id:	B301890	**Drilling Company:**	Boyles Bros.
Northing (ft):	34732.1	**Driller:**	DVStyles/PCBushkovski
Easting (ft):	20693.3	**Helper:**	ALBoday/BO'Connor
Ground Surface Elev (ft):	5934.1	**Rig Type:**	B-57
Total Depth (ft):	21.0/41.9	**Drilling Method:**	HS Auger/NX Core
Logged By:	JFHerrick/SPCarpenter	**Drilling Fluid:**	None/Water
Checked By SM:		**Date Started:**	3/20/90
Checked By PM:		**Date Completed:**	6/29/90
QA By / Date:	JDL 07/23/90	**Well Type:**	BH

Comments: French drain geotechnical study. Surface casing to 21.0' below ground surface on 03/21/90.

Depth (ft)	Graphic Log	Sample T	Sample ID	SPT N-Val	REC %	RQD %	Lithologic Description	Notes:
0–1					50		**COLLUVIUM** 0.0 to 2.0': RUN RECOVERED 1.0/2.0' SILTY CLAY: moderate yellowish brown (10YR 5/4); some mottles of moderate brown (5YR 4/4); with trace mottles of light olive gray (5Y 6/1); abundant grass roots (fine ~ 1 mm); soft; cohesive; low plasticity; damp.	Monitoring Instrument Background Levels: HNu: 0.0 RAD: 24.0 units All readings inside auger; in breathing zone; on cuttings; and on core at background unless otherwise noted below. TRIP BLANK SAMPLE TB03209001 0.0 to 1.0': SAMPLE (VOA'S ONLY) B3018900002
2–3					100		2.0 to 4.0': RUN RECOVERED 2.0/2.0' CLAY: brown (5YR 3/3); some fine roots (1 mm); no mottles; stiff; cohesive; medium plasticity; damp.	0.0 to 4.0': SAMPLE B3018900004 2.0 to 4.0': SAMPLE (VOA'S ONLY) B3018900204
4–6					100		4.0 to 6.0': RUN RECOVERED 2.0/2.0' CLAY: same as above; grading to SILTY SANDY CLAY: dark yellowish brown (10YR 4/2); fine grained sand; well sorted; well rounded; quartzose; soft; not cohesive; low plasticity; damp.	4.0 to 6.0': SAMPLE (VOA'S ONLY) B3018900406 4.0 to 8.0': SAMPLE B3018900408

GROUNDWATER

	DEPTH	HOUR	DATE
∇		None	
▼			

WESTON

GEOLOGIC LOG

Rocky Flats: 881 Hillside

Project Number: 2029-33-09-0020

Borehole/Well Id: B301890

Depth (ft)	Graphic Log	Sample T	Sample ID	SPT N-Val	REC %	RQD %	Lithologic Description	Notes:
7					100		6.0 to 8.0': RUN RECOVERED 2.0/2.0' SILTY SANDY CLAY: As above grading to some fine grained sand; well sorted; well rounded; quartzose; trace black nodules/gravels; (0.5 cm); subangular; firm; cohesive; low plasticity; damp.	6.0 to 8.0': SAMPLE (VOA'S ONLY) B3018900608
8					100		8.0 to 10.0': RUN RECOVERED 2.0/2.0' SILTY CLAY: moderate yellow brown (10YR 5/4); some fine grained sand; well sorted; well rounded; quartz with mica; weak reaction with HCL; soft; slightly cohesive; low plasticity; damp.	8.0 to 10.0': SAMPLE (VOA'S ONLY) B3018900810 8.0 to 12.0': SAMPLE B3018900812
9								
10					100		10.0 to 12.0': RUN RECOVERED 2.0/2.0' SILTY CLAY: moderate yellowish brown (10YR 5/4); trace fine grained sand; well sorted; well rounded; quartzose; trace gravels (1 to 3 cm); poor sorting; subrounded; quartzose; mild reaction with HCL; damp.	10.0 to 12.0': SAMPLE (VOA'S ONLY) B3018901012
11								
12					100		12.0 to 14.0': RUN RECOVERED 2.0/2.0' 12.0 to 13.0': SILTY SANDY CLAY: moderate yellowish brown (10YR 5/4); fine grained sand; well sorted; well rounded; quartzose; some fine mottles; light brown (5YR 5/6); soft; slightly cohesive; low plasticity; damp. 13.0 to 14.0': SILTY CLAY: moderate yellowish brown (10YR 5/4); trace fine sand; well sorting; well rounded; quartzose; trace fine black precipitate speckles (1 mm); trace gravel up to 1 cm; well sorted; subrounded to subangular; quartzose; highly mottled with white precipitate; weak reaction; light bluish gray (5B 7/1); firm;	12.0 to 14.0': SAMPLE (VOA'S ONLY) B3018901214 12.0 to 16.0': SAMPLE B3018901216
13								
14								

GROUNDWATER

	DEPTH	HOUR	DATE
▽		None	
▼			

WESTON

GEOLOGIC LOG	Rocky Flats: 881 Hillside	Project Number: 2029-33-09-0020	PAGE: 3 of 6

Borehole/Well Id: B301890

Depth (ft)	Graphic Log	Sample T	Sample ID	SPT N-Val	REC %	RQD %	Lithologic Description	Notes:
					100		cohesive: low plasticity; damp.	
							14.0 to 16.0': RUN RECOVERED 2.0/2.0' SILTY CLAY: same as 13.0 to 14.0' gravel (1 to 3 cm); poorly sorted; subangular to subrounded; quartzose.	14.0 to 16.0': SAMPLE (VOA'S ONLY) B3018901416
15								
16					100		16.0 to 18.0': RUN RECOVERED 2.0/2.0' SILTY CLAY: moderate yellowish brown (10YR 5/4); trace gravels (1 to 2 cm); moderately sorted; subrounded to subangular; quartzose; mottles present as above but light brown (5YR 9/6) with some iron nodules of same color; firm; cohesive; medium plasticity; damp.	16.0 to 18.0': SAMPLE (VOA'S ONLY) B3018901618 16.0 to 18.0': SAMPLE B3018901618
17								
18					100		18.0 to 20.0': RUN RECOVERED 2.0/2.0' SILTY CLAY: moderately yellowish brown (10YR 5/4); 18.0 to 18.3': many mottles, light brown (5YR 5/6); iron; white calcite mottles with white calcite concretions (0.5 cm); subrounded; strong reaction with HCL; stiff; cohesive; low plasticity; damp. 18.3 to 19.6': as above with iron stains moderate brown (5YR 4/4). 19.6 to 20.0': as above with some gravels (1 to 3 cm); black (iron nodules) poorly sorted; angular.	18.0 to 20.0': SAMPLE (VOA'S ONLY) B3018901820 18.0 to 20.0': SAMPLE B3018901820
19								
20					100		BEDROCK 20.0 to 21.0': RUN RECOVERED 1.0/1.0' SILTY CLAYSTONE: moderate yellowish brown (10YR 5/4); iron staining/mottles light brown (5YR 5/6); calcite concretion as seen above; stiff; cohesive; low plasticity; damp. TOTAL AUGERED DEPTH = 21.0'	
21								
					50	50	21.5 to 23.9': RUN RECOVERED 1.2/2.4' RQD = 1.2/2.4'	
22								

GROUNDWATER

	DEPTH	HOUR	DATE
▽		None	
▼			

WESTON

GEOLOGIC LOG

Rocky Flats: 881 Hillside

Project Number: 2029-33-09-0020

Borehole/Well Id: B301890

Depth (ft)	Graphic Log	Sample T	Sample ID	SPT N-Val	REC %	RQD %	Lithologic Description	Notes:
23							CLAYSTONE: dusky yellow (5Y 6/4); medium gray (N 5/0); blocky; some silt to silty; slightly calcareous; iron staining; medium plasticity; soft; moist.	PACKER TEST: 23.5 to 26.9'
24					27	27	23.9 to 26.9': RUN RECOVERED 0.8/3.0 RQD = 0.8/3.0' CLAYSTONE: same as above; with medium dark gray (N 4/0).	
25								
26								
27					120	120	26.9 to 28.9': RUN RECOVERED 2.4/2.0' RQD = 2.4/2.0' CLAYSTONE: medium light gray (N 6/0); dark gray (N 3/0); blocky; some silt to silty; iron staining; medium plasticity; soft; moist.	PACKER TEST: 26.9 to 31.9' 27.1 to 27.9': SAMPLE (GEOTECHNICAL) B301890271279 27.2 to 27.3'; 50 deg.; healed; Fe 27.5 to 27.6'; 45 deg.; healed; Fe 27.8 to 27.9'; 90-85-90 deg.; healed; Fe
28								
29					107	93	28.9 to 31.9': RUN RECOVERED 3.2/3.0' RQD = 2.8/3.0' 28.9 to 30.5': CLAYEY SILTSTONE: brownish gray (5YR 4/1); brownish black (5YR 2/1); trace to some very fine grained sand; organic; medium plasticity; soft; damp.	28.9 to 29.3': SAMPLE (GEOTECHNICAL) B301890289293 28.9 to 30.5': LITHOLOGY Field interpertation changed from SILTY CLAYSTONE to CLAYEY SILTYSTONE based on grain size analysis.
30								

GROUNDWATER

	DEPTH	HOUR	DATE
∇		None	
▼			

WESTON

GEOLOGIC LOG

Rocky Flats: 881 Hillside

Project Number: 2029-33-09-0020

Borehole/Well Id: B301890

Depth (ft)	Graphic Log	Sample T	Sample ID	SPT N-Val	REC %	RQD %	Lithologic Description	Notes:
					107	87		
31							30.5 to 31.1': CLAYEY SILTSTONE: light gray (N 7/0); dusky yellow (5Y 6/4); nonstratified; trace to some very fine grained sand; iron staining; no to low plasticity; soft; moist. 31.1 to 31.9': CLAYSTONE: light olive gray (5Y 5/2); some silt to silty; iron staining; medium plasticity; soft to firm; moist.	
32					115	115	31.9 to 33.9': RUN RECOVERED 2.3/2.0' RQD = 2.3/2.0' CLAYEY SILTSTONE: dusky yellow (5Y 6/4); yellowish gray (5Y 7/2); dark yellowish orange (10YR 6/6); mottled; lensed; trace very fine grained sand; iron staining; medium plasticity; soft; moist.	PACKER TEST: 31.9 to 36.9' 31.9 to 33.9': LITHOLOGY Field interpertation changed from SILTY CLAYSTONE to CLAYEY SILTYSTONE based on grain size analysis.
33								33.3 to 33.7': SAMPLE (GEOTECHNICAL) B301890333337
34					120	93	33.9 to 36.9': RUN RECOVERED 3.6/3.0' RQD 2.8/3.0' 33.9 to 35.1': CLAYSTONE: same as 31.1 to 31.9'.	34.2'; 80 deg.; healed; Fe 34.7'; 70 deg.; healed; Fe
35							35.1 to 35.9': SANDY SILTSTONE: light gray (N 7/0); dusky yellow (5Y 6/4); platy; very fine to fine grained sand; moderate sorting; round; quartzose; iron staining; calcareous cement in part; soft to medium hard; damp.	35.2'; 80 deg.; healed; Fe 35.3'; 90-80 deg.; healed; Fe 35.4'; 90 deg.; healed; Fe 35.5'; 80 deg.; healed; Fe 35.6'; 90 deg.; healed; Fe 35.7'; 90 deg.; healed;Fe
36							35.9 to 36.9': SILTY CLAYSTONE: same 31.9 to 33.9'.	
37					120	120	36.9 to 39.9': RUN RECOVERED 3.6/3.0' RQD 3.6/3.0' CLAYSTONE: dusky yellow (5Y 6/4); medium dark gray (N 4/0); mottled; blocky; some silt to silty; iron staining; medium plasticity; soft; moist.	Note: expansive claystone
38								

GROUNDWATER

	DEPTH	HOUR	DATE
▽		None	
▼			

WESTON

GEOLOGIC LOG

Rocky Flats: 881 Hillside

Project Number: 2029-33-09-0020

Borehole/Well Id: B301890

Depth (ft)	Graphic Log	Sample T	Sample ID	SPT N-Val	REC %	RQD %	Lithologic Description	Notes:
39								PACKER TEST: 37.9 to 41.9'
40					110	110	39.9 to 41.9': RUN RECOVERED 2.2/2.0' RQD = 2.2/2.0' CLAYSTONE: same as above; light olive gray (5Y 6/1); medium gray (N 5/0).	
41								41.4 to 41.5'; 60 deg.; healed; Fe
42							TOTAL BOREHOLE DEPTH = 41.9'.	
43								
44								
45								
46								

GROUNDWATER

	DEPTH	HOUR	DATE
▽		None	
▼			

WESTON

GEOLOGIC LOG	Rocky Flats: 881 Hillside	Project Number: 2029-33-09-0020	PAGE: 1 of 6

Borehole/Well Id:	B301990	Drilling Company:	Boyles Bros.
Northing (ft):	34761.2	Driller:	KParker/PCBushkovski
Easting (ft):	20650.4	Helper:	BO'Connor/BO'Connor
Ground Surface Elev (ft):	5933.1	Rig Type:	B-57
Total Depth (ft):	21.7/41.6	Drilling Method:	HS Auger/NX Core
Logged By:	JFHerrick/SPCarpenter	Drilling Fluid:	None/Water
Checked By SM:		Date Started:	3/21/90
Checked By PM:		Date Completed:	7/9/90
QA By / Date:	JDL 07/24/90	Well Type:	BH
Comments:	French drain geotechnical study. Surface casing to 21.0' below ground surface on 03/22/90.		

Depth (ft)	Graphic Log	Sample T	Sample ID	SPT N-Val	REC %	RQD %	Lithologic Description	Notes:
0					80		**COLLUVIUM** 0.0 to 2.0': RUN RECOVERED 1.6/2.0' SILTY CLAY: moderate yellowish brown (10YR 5/4); abundant fine roots (~ 1mm) and stems (0.5 cm); occasional white mottles; weak reaction with HCL; soft; cohesive; low plasticity; moist to wet.	Monitoring Instrument Background Levels: HNu: 0.4 units RAD: 24.0 units All readings inside auger; in breathing zone; on cuttings; and on core at background unless otherwise noted below. TRIP BLANK SAMPLE TB03219001 TB03229001 FIELD BLANK SAMPLE B3019900014FB 0.0 to 1.6': SAMPLE (VOA'S ONLY) B3019900002
1								
2					100		2.0 to 4.0': RUN RECOVERED 2.0/2.0' SILTY CLAY: multicolored; moderate brown (5YR 3/4); light brown (5YR 5/6); moderate yellowish brown (10YR 5/4); in roughly equal proportions; trace gravels (1 to 2 cm); moderately sorted; subrounded; quartzose; gravel up to 3 cm in shoe at bottom 4' depth; trace white carbonates with weak reaction using HCL; general no reaction; occasional fine root (1 to 2 mm); firm; cohesive; medium plasticity; damp.	0.0 to 6.0': SAMPLE B3019900006 B301990006D 2.0 to 4.0': SAMPLE (VOA'S ONLY) B3019900204
3								
4					100		4.0 to 6.0': RUN RECOVERED 2.0/2.0' SILTY CLAY: yellowish brown (10YR 5/2); some gravels (0.5 to 4 cm); poorly sorted; subangular to subrounded (1, 4 cm gravel at 4'); quartz and quartzose; iron nodules/fragments; trace fine grained sand; moderate sorted; subrounded; quartzose; mottled with iron; black (N 1/0) to light brown (5YR 3/6); occasional white carbonate; weak reaction with HCL; generally no reaction; slightly firm; cohesive; medium plasticity; damp.	4.0 to 6.0': SAMPLE (VOA'S ONLY) B3019900406
5								
6								

GROUNDWATER

	DEPTH	HOUR	DATE
▽	16.3		
▼			

WESTON

GEOLOGIC LOG	Rocky Flats: 881 Hillside	Project Number: 2029-33-09-0020	PAGE: 2 of 6

Borehole/Well Id: B301990

Depth (ft)	Graphic Log	Sample T	Sample ID	SPT N-Val	REC %	RQD %	Lithologic Description	Notes:
7					75		6.0 to 8.0': RUN RECOVERED 1.5/2.0' SILTY CLAY: dark yellowish brown (10YR 4/2); some gravels (0.5 to 2 cm); poor sorted; subangular to subrounded; quartzose; trace medium to fine grained sand; poor sorting; subangular; quartzose; slightly firm; not cohesive; low plasticity; damp to dry.	6.0 to 7.5': SAMPLE B3019900608 B3019900608D 6.0 to 14.0': SAMPLE B3019900614
8					0		8.0 to 10.3': RUN RECOVERED 0.0/2.2'	
9								
10					5			
11							10.3 to 12.3': RUN RECOVERED 0.1/2.0' SILTY CLAY: dark yellowish brown (10YR 4/2); trace gravel (0.5 cm); poor sorting; subangular; quartzose; occasional mottles of carbonate; grayish orange (10YR 7/4); with strong reaction with HCL; generally no reaction; firm; cohesive; low plasticity; damp.	
12								
13					0		12.3 to 13.3': RUN No sample taken Center bit used.	
14					70		13.3 to 14.3': RUN RECOVERED 0.7/1.0' SILTY CLAY: moderate yellowish brown (10YR 5/4); some	

GROUNDWATER

	DEPTH	HOUR	DATE
▽	16.3		
▼			

WESTON

GEOLOGIC LOG

Rocky Flats: 881 Hillside

Project Number: 2029-33-09-0020

Borehole/Well Id: B301990

Depth (ft)	Graphic Log	Sample T	Sample ID	SPT N-Val	REC %	RQD %	Lithologic Description	Notes:
					100		fine grained sand; moderate sorting; subrounded; quartzose with mica; some gravel (0.5 to 4 cm); poor sorting; subangular to subrounded; quartzose; slightly firm; slightly cohesive; low plasticity; damp.	14.3 to 16.3': SAMPLE (VOA'S ONLY) B3019901416 14.3 to 19.3': SAMPLE B3019901420
15							14.3 to 16.3': RUN RECOVERED 2.0/2.0' GRAVELLY SILTY CLAY: moderate yellowish brown (10YR 5/4); grading downward to moderate brown (5YR 4/4); gravels (0.5 to 2 cm); poorly sorted; subangular to subrounded; quartzite; some medium to coarse grained sand; poor sorting; subrounded to subangular; quartzose; weak to no reaction with HCL; firm to slightly firm; slightly cohesive; low plasticity; damp.	
16								
▽					0		16.3 to 17.0': RUN No recovery. Mislatch on the moss sampler.	
17					100		17.0 to 17.7': RUN RECOVERY 0.7/0.7' SANDY CLAY: pale yellowish brown (10YR 6/2); medium to coarse grained sand; poor sorting; angular to subrounded; quartzite; some gravels (1 to 2 cm); poor sorting; angular to subangular; quartzose; abundant white precipitate concretions/nodules of calcite; strong reaction; 1 mm subrounded; stiff to firm; cohesive; plasticity; damp.	17.0 to 17.7': SAMPLE (VOA'S ONLY) B3019901718
18					100			17.7 to 18.7': SAMPLE (VOA'S ONLY) B3019901819
19					65		17.7 to 18.7': RUN RECOVERED 1.0/1.0' SAND to CLAYEY SAND: light brown (5YR 5/6); coarse to very coarse grained sand; poor sorting; subangular to angular; quartzose; sand is poorly cemented with clay; some gravels (1-2 cm); moderately sorted; subangular to subrounded; quartzite; soft; friable; low plasticity; wet.	
20							18.7 to 20.7': RUN RECOVERED 1.3/2.0' 18.7 to 19.6: CLAYEY GRAVEL: light olive gray (5Y 6/1); gravel (0.5 to 2 cm); poor sorting; subangular to subrounded; quartzose; soft; non friable; low plasticity; wet. **BEDROCK** 19.6 to 20.0': SILTY CLAYSTONE: pale olive (10YR 6/2); some white carbonate; weak reaction; some iron stains; light olive brown (5Y 5/6); dense; firm; medium plasticity; wet.	
21					100			
22					0	0	20.7 to 21.7': RUN RECOVERED 1.0/1.0' SILTY CLAYSTONE: olive gray (5Y 4/1); blocky texture; abundant near vertical fractures with iron oxide stains; light brown (5Y 5/6); some black carbon stains; possible slickensides; low plasticity; slightly damp.	

GROUNDWATER

	DEPTH	HOUR	DATE
▽	16.3		
▼			

WESTON

GEOLOGIC LOG

Rocky Flats: 881 Hillside

Project Number: 2029-33-09-0020

Borehole/Well Id: B301990

Depth (ft)	Graphic Log	Sample T	Sample ID	SPT N-Val	REC %	RQD %	Lithologic Description	Notes:
							TOTAL AUGERED DEPTH = 21.7'	
23							21.7 to 23.6': RUN RECOVERED 0.0/1.9' RQD 0.0/1.9' CLAYSTONE: (in bit tip); light gray (N 7/0); dark yellowish orange (10YR 6/6); some silt; weathered; medium plasticity. 21.8 to 23.4': CLAYSTONE: light olive gray (5Y 6/1 to 5/2); blocky; trace to some silt; weathered; medium to high plasticity; soft; moist.	PACKER TEST: 22.6 to 26.6' Note: picked up from subsequent run RQD = 1.8/1.8'
24					160	160	23.6 to 26.6': RUN RECOVERED 4.8/3.0 RQD = 4.8/3.0' 23.4 to 26.6': SILTY CLAYSTONE: brownish gray (5YR 4/1); light olive gray (5Y 6/1); nonstratified; trace very fine grained sand; trace iron staining; medium to low plasticity; soft to firm; damp to moist.	
25								
26								26.6 to 27.7': LITHOLOGY Field interpretation changed from SILTY SANDY CLAYSTONE to SANDY
27					110	110	26.6 to 28.6': RUN RECOVERED 2.2/2.0' RQD = 2.2/2.0' 26.6 to 27.9': SANDY SILTSTONE: light olive gray (5Y 5/2); olive gray (5Y 3/2); gradational lenses of clayey silty sandstone; very fine to fine grained; moderate sorting; round; quartzose; iron staining; medium to low plasticity; soft to firm; moist.	CLAYEY SILTSTONE based on grain size analysis. PACKER TEST: 26.6 to 31.6' 26.7 to 27.0'; 20 deg.; healed; Fe 26.8 to 27.7': SAMPLE (GEOTECHNICAL) B301990268277 27.7'; 65 deg.; healed; Fe 27.8'; 65 deg.; healed; Fe 27.8'; 65-65 deg.; healed; Fe
28							27.9 to 28.6': CLAYSTONE: light olive gray (5Y 3/2); olive gray (5Y 3/2); blocky; some silt; iron staining; medium to high plasticity; soft; moist.	
29					100	100	28.6 to 29.6: RUN RECOVERED 1.0/1.0' RQD = 1.0/1.0' CLAYSTONE: same as above.	28.7'; 80 deg.; healed; Fe
30					110	110	29.6 to 31.6': RUN RECOVERED 2.2/2.0' RQD = 2.2/2.0	29.6 to 30.3': SAMPLE (GEOTECHNICAL) B301990296303

GROUNDWATER

	DEPTH	HOUR	DATE
▽	16.3		
▼			

WESTON

GEOLOGIC LOG

Rocky Flats: 881 Hillside

Project Number: 2029-33-09-0020

Borehole/Well Id: B301990

Depth (ft)	Graphic Log	Sample T	Sample ID	SPT N-Val	REC %	RQD %	Lithologic Description	Notes:
31							29.6 to 30.8': SANDY CLAYEY SILTSTONE: yellowish gray (5YR 7/2); light olive brown (5Y 5/6); nonstratified; very fine to fine grained sand; moderate sorting; round; quartzose; iron and manganese staining; medium to low plasticity; soft; moist. 30.8 to 31.6': CLAYSTONE: olive gray (5Y 3/2); moderate yellowish brown (10Y 5/4); blocky; trace to some silt; iron and manganese staining; medium to high plasticity; soft to firm; moist to damp.	29.6 to 30.8': LITHOLOGY Field interpretation changed from SILTY SANDY CLAYSTONE to SANDY CLAYEY SILTSTONE based on grain size analysis. 30.9'; 75 deg.; healed; Fe 31.1'; 80 deg.; healed; Fe 31.4'; 50 deg.; healed; Fe
32					125	125	31.6 to 33.6': RUN RECOVERED 2.5/2.0' RQD = 2.5/2.0' CLAYSTONE: light olive gray (5Y 5/2); dusky yellow (5Y 6/4); mottled; blocky; trace to some silt; medium to high plasticity; soft; moist.	PACKER TEST: 31.6 to 36.6' Note: expansive claystone
33								
34					120	120	33.6 to 34.6': RUN RECOVERED 1.2/1.0' RQD 1.2/1.0' CLAYSTONE: same as above; increasing silt with depth.	Note: expansive claystone
35					110	110	34.6 to 36.6': RUN RECOVERED 2.2/2.0' RQD = 2.2/2.0' SILTY CLAYSTONE: light olive gray (5Y 5/2); dusky yellow (5Y 6/4); nonstratified; some very fine grained sand; moderate sorting; round; quartzose; iron staining; low to medium plasticity; firm; damp.	34.7 to 34.9'; 35 deg.; healed; Fe 35.2'; 60 deg.; healed; Fe 35.6'; 90 deg.; healed; Fe 35.8 to 36.0'; 75-70-60-80 deg.; healed; Fe 36.0 to 36.2'; 30 deg.; healed; Fe
36								
37					115	115	36.6 to 38.6': RUN RECOVERED 2.3/2.0' RQD 2.3/2.0' CLAYSTONE: dusky yellow (5Y 6/4); olive gray (5Y 3/2); blocky; some silt to silty in part; iron staining; medium plasticity; soft to firm; damp.	36.6 to 37.5': SAMPLE (GEOTECHNICAL) B301990366375 37.8'; 80 deg.; healed; Fe
38								

GROUNDWATER

	DEPTH	HOUR	DATE
▽	16.3		
▼			

WESTON

GEOLOGIC LOG

Rocky Flats: 881 Hillside

Project Number: 2029-33-09-0020

Borehole/Well Id: B301990

Depth (ft)	Graphic Log	Sample T	Sample ID	SPT N-Val	REC %	RQD %	Lithologic Description	Notes:
								37.8 to 38.0'; 25 deg.; healed; Fe 38.1 to 38.4'; 20-60-60 deg.; healed; Fe
39					93	93	38.6 to 41.6': RUN RECOVERED 2.8/3.0' RQD = 2.8/3.0' SILTY CLAYSTONE: light olive gray (5Y 6/1); nonstratified; blocky to platy; some iron staining; medium plasticity; soft to firm; moist.	PACKER TEST: 38.6 to 41.6' 39.3 to 39.8'; 15 deg.; healed; Fe
40								
41								
42							TOTAL BOREHOLE DEPTH = 41.6'.	
43								
44								
45								
46								

GROUNDWATER

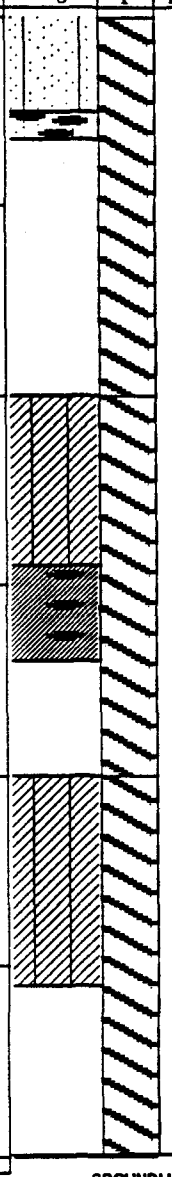
	DEPTH	HOUR	DATE
▽	16.3		
▼			

WESTON

GEOLOGIC LOG	Rocky Flats: 881 Hillside	Project Number: 2029-33-09-0020	PAGE: 1 of 6

Borehole/Well Id:	B302090	**Drilling Company:**	Boyles Bros.
Northing (ft):	34824.4	**Driller:**	KParker/PCBushkovski
Easting (ft):	20591.5	**Helper:**	BO'Connor
Ground Surface Elev (ft):	5954.2	**Rig Type:**	B-57
Total Depth (ft):	27.0/42.0	**Drilling Method:**	HS Auger/NX Core
Logged By:	JFHerrick/SPCarpenter	**Drilling Fluid:**	None/Water
Checked By SM:	[signature]	**Date Started:**	3/22/90
Checked By PM:		**Date Completed:**	7/12/90
QA By / Date:	JDL 07/23/90	**Well Type:**	BH

Comments: French drain geotechnical study. Surface casing to 27.0' below ground surface on 03/22/90.

Depth (ft)	Graphic Log	Sample T	Sample ID	SPT N-Val	REC %	RQD %	Lithologic Description	Notes:
0					35		**ARTIFICIAL FILL** 0.0 to 2.0': RUN RECOVERED 0.7/2.0' 0.0 to 0.5': CLAYEY SAND: pale yellowish brown (10YR 6/2); medium to fine grained sand; poor sorting; subrounded; quartzose; loose; soft; slightly cohesive; low plasticity; damp. 0.5 to 0.7': SAND AND GRAVEL: light brown (5YR 5/6); medium to very coarse grained sand; poor sorting; subrounded; quartzose; gravels (0.5 to 3 cm); poor sorting; subangular to subrounded; quartzose; some clay; mottled with iron oxide, light olive brown (5Y 5/6) and light brown (5YR 5/6); loose; soft; slightly cohesive; low plasticity; damp.	Monitoring Instrument Background Levels: HNu: 0.0 units RAD: 24.0 units All readings inside auger; in breathing zone; on cuttings; and on core at background unless otherwise noted below. 0.0 to 0.7': SAMPLE (VOA'S ONLY) B3020900002 0.0 to 3.4': SAMPLE B3020900004
1								
2					70		2.0 to 4.0': RUN RECOVERED 1.4/2.0' 2.0 to 2.9': SILTY CLAY: light olive gray (5Y 6/1); mottled with dark yellowish orange (10YR 6/6); soft; slightly cohesive; low plasticity; damp. 2.9 to 3.4': GRAVELLY CLAY: grayish brown (5YR 3/2); gravels (1 to 4 cm); poor sorting; subangular to angular; quartzose; mottled with moderate reddish brown (10YR 4/6); soft; slightly cohesive; low plasticity; damp.	2.0 to 3.4': SAMPLE (VOA'S ONLY) B3020900204
3								
4					55		4.0 to 6.0': RUN RECOVERED 1.1/2.0 SILTY CLAY: light olive gray (5Y 6/1); mottling of iron; light olive brown (5Y 5/6); soft; friable; slight cohesive; low plasticity; damp.	4.0 to 5.1': SAMPLE (VOA'S ONLY) B3020900406 4.0 to 7.6': SAMPLE B3020900408
5								
6								

GROUNDWATER

	DEPTH	HOUR	DATE
▽	16.0		
▼			

WESTON

GEOLOGIC LOG	Rocky Flats: 881 Hillside	Project Number: 2029-33-09-0020	PAGE: 2 of 6

Borehole/Well Id: B302090

Depth (ft)	Graphic Log	Sample T	Sample ID	SPT N-Val	REC %	RQD %	Lithologic Description	Notes:
7					80		6.0 to 8.0': RUN RECOVERED 1.6/2.0' SILTY CLAYEY SAND: as above; mottled with dark yellowish orange (10YR 6/6); iron stains; firm.	6.0 to 7.6': SAMPLE (VOA'S ONLY) B3020900608
8					80		8.0 to 10.0': RUN RECOVERED 1.6/2.0' SILTY CLAY: same as above.	8.0 to 9.6': SAMPLE (VOA'S ONLY) B3020900810 8.0 to 11.9': SAMPLE B3020900812
9								
10					95		10.0 to 12.0': RUN RECOVERED 1.9/ 2.0' SILTY CLAY: same as above; trace gravel (0.5 cm); moderately sorted; subangular; quartzose; located between 10.8 to 11.9'.	10.0 to 11.9': SAMPLE (VOA'S ONLY) B3020901012
11								
12					50		12.0 to 14.0': RUN RECOVERED 1.0/2.0' SILTY CLAY: light olive gray (5Y 6/1); grading to pale yellowish brown (10YR 6/2); trace gravels (0.5 cm); moderately sorted; subrounded; quartzose; gravel 7 cm at shoe; quartzose; iron mottlings, dark yellowish orange (10YR 6/6); firm; cohesive; low plasticity; moist.	12.0 to 13.0': SAMPLE (VOA'S ONLY) B3020901214 12.0 to 16.0': SAMPLE B3020901216
13								
14								

GROUNDWATER

	DEPTH	HOUR	DATE
▽	16.0		
▼			

WESTON

GEOLOGIC LOG	Rocky Flats: 881 Hillside	Project Number: 2029-33-09-0020	PAGE: 3 of 6

Borehole/Well Id: B302090

Depth (ft)	Graphic Log	Sample T	Sample ID	SPT N-Val	REC %	RQD %	Lithologic Description	Notes:
					100		14.0 to 16.0': RUN RECOVERED 2.0/2.0' SILTY CLAY: same as above; with iron stains, grayish orange (10YR 7/4); moist.	14.0 to 16.0': SAMPLE (VOA'S ONLY) B3020901416
15								
▽16					60		COLLUVIUM BURIED TOPSOIL 16.0 to 18.0': RUN RECOVERED 1.2/2.0' SILTY CLAY: olive dark gray (5Y 3/1); organic rich with abundant plant fiber present; trace gravels (1 to 4 cm); poor sorting; angular to subrounded; quartzite; trace fine grained sand; moderately sorted; subangular to subrounded; soft; slightly cohesive; low plasticity; wet.	16.0 to 17.2': SAMPLE (VOA'S ONLY) B3020901618 16.0 to 19.0': SAMPLE B3020901619
17								
18					100		18.0 to 19.0': RUN RECOVERED 1.0/1.0' SILTY CLAY: dark yellowish brown (10YR 4/2); trace fine grained sand; moderate sorting; subrounded; quartzose; trace gravel (2 to 4 cm); poor sorting; subangular; quartzite; some iron staining, moderate yellowish brown (10YR 5/4); firm; cohesive; low plasticity; damp.	19.0 to 19.8': SAMPLE (VOA'S ONLY) B3020901921
19					40		19.0 to 12.0': RUN RECOVERED 0.8/2.0' SILTY CLAY: dark yellowish brown (10YR 4/2); some gravels (2 to 4 cm); poor sorting; angular; quartzite; pink feldspar; trace fine to medium grain sand; poor sorting; angular to subrounded; quartzose; firm; cohesive; low plasticity; damp.	19.0 to 26.9': SAMPLE B3020901927
20								
21					60		21.0 to 23.0': RUN RECOVERED 1.2/2.0' 21.0 to 21.5': SILTY CLAY: moderate yellowish brown (10YR 5/4); some gravel (0.5 to 4 cm); poor sorting; angular; quartzose; some medium to coarse grained sand; poor sorting; subangular; quartzite; very mottled with light	
22								

GROUNDWATER

	DEPTH	HOUR	DATE
▽	16.0		
▼			

WESTON

GEOLOGIC LOG

Rocky Flats: 881 Hillside

Project Number: 2029-33-09-0020

Borehole/Well Id: B302090

Depth (ft)	Graphic Log	Sample T	Sample ID	SPT N-Val	REC %	RQD %	Lithologic Description	Notes:
							brown (5YR 5/6); and moderate brown (5YR 4/4) iron stains; firm; cohesive; low plasticity; damp. 21.5 to 22.2': SILTY CLAY: moderate yellowish brown (10YR 5/4); some iron staining, light brown (10YR 5/6); no gravels; firm; cohesive; medium plastic; damp.	
23					50		23.0 to 25.0': RUN RECOVERED 1.0/2.0' SILTY CLAY: moderate yellowish brown (10YR 5/4); no gravel except at tip (in shoe); gravels, (4 and 7 cm); angular; quartzose; some iron stains; light brown (5YR 5/6); firm; cohesive; low plasticity; damp.	
24								
25					80		BEDROCK 25.0 to 27.0': RUN RECOVERED 1.9/2.0' 25.0 to 25.9': SILTY SANDSTONE: light olive gray (5Y 6/1); trace clay; fine grained sand; well sorted; well rounded; quartzose; firm; nonplastic; not cohesive; slightly damp. 25.9 to 26.9': SANDSTONE: light olive gray (5Y 6/1); fine grained sand; well sorted; subrounded; quartzite; well mottled with dark yellowish orange (10YR 6/6); firm friable; noncohesive; slightly damp. TOTAL AUGERED DEPTH = 27.0'	
26								
27					69	69	27.0 to 28.6': RUN RECOVERED 1.1/1.6' RQD = 1.1/1.6' SILTY CLAYSTONE: light gray (N 7/0); stained dark yellowish orange (10YR 6/6); nonstratified; trace to some very fine grained sand; iron staining; medium plasticity; soft to firm; moist.	27.4'; 60-60-60-60 deg.; healed; Fe 27.5 to 27.7'; 30 deg.; healed; Fe 27.6 to 27.7'; 80 deg.; healed; Fe 28.0 to 28.1'; 50 deg.; healed; Fe
28								
					100	100	28.6 to 30.6': RUN RECOVERED 2.0/2.0 RQD = 2.0/2.0' SILTY CLAYSTONE: same as above; 2 to 5 mm laminations of iron stained clayey siltstone.	PACKER TEST: 29.0 to 32.0'
29								
30								

GROUNDWATER

	DEPTH	HOUR	DATE
▽	16.0		
▼			

WESTON

GEOLOGIC LOG

Rocky Flats: 881 Hillside

Project Number: 2029-33-09-0020

Borehole/Well Id: B302090

Depth (ft)	Graphic Log	Sample T	Sample ID	SPT N-Val	REC %	RQD %	Lithologic Description	Notes:
								PACKER TEST: 32.0 to 37.0'
31					100	100	30.6 to 32.0': RUN RECOVERED 1.4/1.4' RQD = 1.4/1.4' SILTY CLAYSTONE: same as above; trace carbonaceous laminations.	
32 33					100	100	32.0 to 33.6': RUN RECOVERED 1.6/1.6' RQD = 1.6/1.6' SILTY CLAYSTONE: same as above; dusky yellow (5Y 6/4); light olive gray (5Y 5/2); mottled.	
34 35 36					100	100	33.6 to 37.0': RUNE RECOVERED 3.4/3.4' RQD = 3.4/3.4' SILTY CLAYSTONE: same as above; siltstone laminations at 34.7 to 35.1'; trace manganese staining.	34.0 to 34.7'; 10 deg.; healed; Fe
37 38					119	119	37.0 to 38.6': RUN RECOVERED 1.9/1.6' RQD = 1.9/1.6' SILTY CLAYSTONE: light olive gray (5Y 5/2); nonstratified; 1 to 2 mm laminations of siltstone; iron staining; medium plasticity; firm; damp.	Note: expansive claystone

GROUNDWATER

	DEPTH	HOUR	DATE
▽	16.0		
▼			

WESTON

GEOLOGIC LOG

Rocky Flats: 881 Hillside

Project Number: 2029-33-09-0020

Borehole/Well Id: B302090

Depth (ft)	Graphic Log	Sample T	Sample ID	SPT N-Val	REC %	RQD %	Lithologic Description	Notes:
								PACKER TEST: 38.0 to 42.0'
39					100	100	38.6 to 42.0': RUN RECOVERED 3.4/3.4' RQD 3.4/3.4' 38.6 to 40.4': SILTY CLAYSTONE: dark yellowish orange (10YR 6/6); yellowish gray (5Y 7/2); nonstratified; silty to some silt; iron staining and iron pellets; medium plasticity; firm; moist.	
40								
41							40.4 to 42.0': CLAYSTONE: yellowish gray (5Y 7/2); dark gray (N 3/0); blocky; trace to some silt; iron staining; medium to high plasticity; firm; damp to moist.	40.2 to 41.5': SAMPLE (GEOTECHNICAL) B30290402415 40.6 to 40.7'; 90-90-90 deg.; healed; Fe
42							TOTAL BOREHOLE DEPTH = 42.0'.	
43								
44								
45								
46								

GROUNDWATER

	DEPTH	HOUR	DATE
▽	16.0		
▼			

WESTON

GEOLOGIC LOG

Rocky Flats: 881 Hillside

Project Number: 2029-33-09-0020

Borehole/Well Id:	B302190	**Drilling Company:**	Boyles Bros.
Northing (ft):	34923.5	**Driller:**	DVStyles/PCBushkovski
Easting (ft):	20492.5	**Helper:**	ALBoday/BO'Connor
Ground Surface Elev (ft):	5974.8	**Rig Type:**	B-57
Total Depth (ft):	30.4/45.0	**Drilling Method:**	HS Auger/NX Core
Logged By:	RWeed/SPCarpenter	**Drilling Fluid:**	None/Water
Checked By SM:		**Date Started:**	6/25/90
Checked By PM:		**Date Completed:**	7/16/90
QA By / Date:	JDL 07/25/90	**Well Type:**	BH

Comments: French drain geotechnical study. Surface casing set to 30.4' below ground surface on 06/25/90.

Depth (ft)	Graphic Log	Sample T	Sample ID	SPT N-Val	REC %	RQD %	Lithologic Description	Notes:
0–1					50		0.0 to 2.0': RUN RECOVERED 1.0/2.0' TOPSOIL 0.0 to 0.3': SILTY CLAY: dark yellowish brown (10YR 4/2); nonstratified; trace fine to coarse grained sand; poorly sorted; low to medium plasticity; grass and roots; stiff; moist. ARTIFICIAL FILL 0.3 to 1.0': GRAVELLY SILTY SAND: moderate yellowish brown (10YR 5/4) with dark yellowish (10YR 6/6) mottles; fine to coarse grained sand; gravels up to 3 mm; subangular and subrounded; quartzose and feldspathic; non plastic; uncemented; dry.	Monitoring Instrument Background Levels: HNu: 0.0 units All readings inside auger; in breathing zone; on cuttings; and on core at background unless otherwise noted below. TRIP BLANK SAMPLE TB062590 0.0 to 1.0': SAMPLE (VOA'S ONLY) B3021900002
2–3					27		2.0 to 4.0': RUN RECOVERED 0.54/2.0' GRAVELLY SILTY SAND: pale yellowish brown (10YR 6/2) to moderate yellowish brown (10YR 5/4); nonstratified; gravels; subangular and subrounded; quartzose and feldspathic; uncemented; dry.	2.0 to 2.54': SAMPLE (VOA'S ONLY) B3021900204 B3021900204D
4–5					35		4.0 to 6.0': RUN RECOVERED 0.7/2.0 SAND AND CLAY: light olive gray (5Y 5/2) with moderate yellow (5Y 7/6) stain; trace gravel; limonite in voids; poorly cemented; stiff; damp.	4.0 to 5.7': SAMPLE (VOA'S ONLY) B3021900406 B3021900406D
6								

GROUNDWATER

	DEPTH	HOUR	DATE
▽			
▼			

WESTON

GEOLOGIC LOG

Rocky Flats: 881 Hillside

Project Number: 2029-33-09-0020

Borehole/Well Id: B302190

Depth (ft)	Graphic Log	Sample T	Sample ID	SPT N-Val	REC %	RQD %	Lithologic Description	Notes:
7, 8					36		6.0 to 8.35': RUN RECOVERED 0.85/2.85' SILTY CLAY: light olive gray (5Y 5/2) with moderate yellow (5Y 7/6) banding; trace sand; fine to coarse; limonite nodules; firm; damp.	6.0 to 6.85': SAMPLE (VOA'S ONLY) B3021900608 0.0 to 6.85': SAMPLE (VOA'S ONLY) B3021900008
9, 10					100		8.35 to 10.35': RUN RECOVERED 2.0/2.0' SILTY CLAY: same as above; with dusky yellow (5Y 6/4) iron nodules,	8.35 to 10.35': SAMPLE (VOA'S ONLY) B3021900810 8.35 to 14.35': SAMPLE B3021900814
11, 12					48		10.35 to 12.35': RUN RECOVERED 0.95/2.0' SILTY CLAY: as above; light brown (5Y 5/6) mottling; stiff; damp to moist.	10.35 to 11.30': SAMPLE (VOA'S ONLY) B3021901012
13, 14					100		12.35 to 14.35': RUN RECOVERED 2.0/2.0' SILTY CLAY: light olive gray (5Y 5/2) with light olive brown (5Y 5/6); some silt; trace sand; stiff; damp.	12.35 to 14.35': SAMPLE (VOA'S ONLY) B3021901214

GROUNDWATER

	DEPTH	HOUR	DATE
▽			
▼			

WESTON

GEOLOGIC LOG

Rocky Flats: 881 Hillside

Project Number: 2029-33-09-0020

Borehole/Well Id: B302190

Depth (ft)	Graphic Log	Sample T	Sample ID	SPT N-Val	REC %	RQD %	Lithologic Description	Notes:
15, 16					100		14.35 to 16.3': RUN RECOVERED 1.95/1.95' SILTY CLAY: light olive gray (5Y 5/2) with dark yellowish orange (10YR 6/6) mottling; nonstratified; medium plasticity; stiff; damp.	14.35 to 16.3': SAMPLE (VOA'S ONLY) B3021901416
17, 18					100		16.3 to 18.3': RUN RECOVERED 2.0/2.0' SILTY CLAY: light olive gray (5Y 5/2) with moderate yellow (5YR 7/6) lensed; medium plasticity; stiff; damp.	16.3 to 18.3': SAMPLE (VOA'S ONLY) B3021901618
19, 20					55		18.3 to 20.3': RUN RECOVERED 1.1/2.0' 18.3 to 18.8': SILTY CLAY: light olive gray (5Y 5/2) with light olive brown (5Y 5/6); as above. COLLUVIUM BURIED TOPSOIL 18.8 to 19.4': SILTY CLAY: olive gray (5Y 3/2); trace gravel up to 5 cm;' trace sand; medium plasticity; fine roots; calcareous flecks; sharp contact with fill above; stiff; damp to moist.	18.3 to 19.4': SAMPLE (VOA'S ONLY) B3021901820 18.3 to 22.7': SAMPLE B3021901822
21, 22					58		20.3 to 22.7': RUN RECOVERED 1.4/2.4' 20.3 to 20.9': SILTY CLAY: light olive gray (5Y 5/2) and olive gray (5Y 3/2); nonstratified; trace gravel; sand; subrounded to subangular; stiff; damp to moist. 20.9 to 21.7': SILTY CLAY: as above; some gravel; cobbles up to 10 cm; calcareous coatings.	20.3 to 21.7': SAMPLE (VOA'S ONLY) B3021902022

GROUNDWATER

	DEPTH	HOUR	DATE
▽			
▼			

WESTON

GEOLOGIC LOG

Rocky Flats: 881 Hillside

Project Number: 2029-33-09-0020

Borehole/Well Id: B302190

Depth (ft)	Graphic Log	Sample T	Sample ID	SPT N-Val	REC %	RQD %	Lithologic Description	Notes:
23					50		22.7 to 24.7': RUN RECOVERED 1.0/2.0' SILTY CLAY: light olive brown (5YR 5/6); nonstratified; some gravel; medium plasticity; calcareous flecks; stiff; damp to moist.	22.7 to 23.7': SAMPLE (VOA'S ONLY) B3021902224 22.7 to 28.4': SAMPLE B3021902227
24								
25					33		24.7 to 26.7': RUN RECOVERED 0.65/2.0' SILTY CLAY: light olive gray (5YR 5/2) with dusky yellow (5Y 6/4); nonstratified; trace sand up to coarse grained; calcareous flecks; stiff; moist.	24.7 to 25.4': SAMPLE (VOA'S ONLY) B3021902426
26								
					0		26.7 to 26.9': RUN Center bit run. No sample taken.	
27					100		26.9 to 28.4': RUN RECOVERED 1.5/1.5' 26.9 to 27.5': SILTY CLAY: light olive gray (5Y 5/2); nonstratified; trace gravel; calcareous flecks; firm; moist. **BEDROCK** 27.5 to 28.4': SILTY CLAYSTONE: light olive gray (5Y 5/2) with moderate yellow (5Y 7/6) stain; blocky; trace pyrite; stiff; damp.	26.9 to 28.4': SAMPLE (VOA'S ONLY) B3021902628
28								
29					100	88	28.4 to 30.4': RUN RECOVERED 2.0/2.0 RQD = 1.75/2.0' 28.4 to 29.1': SILTY CLAYSTONE: as above; with some partings. 29.1 to 30.4': SILTY CLAYSTONE: as above; with dark yellowish orange (10YR 6/6) mottling; lenses; without partings.	
30								

GROUNDWATER

	DEPTH	HOUR	DATE
▽			
▼			

WESTON

GEOLOGIC LOG

Rocky Flats: 881 Hillside

Project Number: 2029-33-09-0020

Borehole/Well Id: B302190

Depth (ft)	Graphic Log	Sample T	Sample ID	SPT N-Val	REC %	RQD %	Lithologic Description	Notes:
							TOTAL AUGERED DEPTH = 30.4'.	
31 32 33					22	22	30.4 to 33.6': RUN RECOVERED 0.7/3.2' RQD = 0.7/3.2' CLAYSTONE: light olive gray (5Y 6/1); medium gray (N 5/0); blocky; trace silt; iron staining; medium to high plasticity; firm; damp.	PACKER TEST: 32.0 to 35.2'
34 35					119	106	33.6 to 35.2': RUN RECOVERED 1.9/1.6' RQD = 1.7/1.6' 33.3 to 34.5': CLAYSTONE: same as above. 34.5 to 35.2': SILTY CLAYSTONE: dark yellowish orange (10YR 6/6); medium light gray (N 6/0); nonstratified; iron staining; medium plasticity; soft; moist.	34.5 to 34.7': damaged fracture zone
36 37					85	85	35.2 to 37.2': RUN RECOVERED 1.7/2.0' RQD = 1.7/2.0' CLAYSTONE: medium dark gray (N 4/0); light olive gray (5Y 6/1); mottled; blocky; trace to some silt; iron staining; medium plasticity; firm; damp.	PACKER TEST: 35.2 to 40.0'
38					121	121	37.2 to 38.6': RUN RECOVERED 1.7/1.4' RQD = 1.7/1.4' 36.9 to 37.7': CLAYSTONE: same as above; manganese staining.	

GROUNDWATER

	DEPTH	HOUR	DATE
▽			
▼			

WESTON

GEOLOGIC LOG

Rocky Flats: 881 Hillside

Project Number: 2029-33-09-0020

Borehole/Well Id: B302190

Depth (ft)	Graphic Log	Sample T	Sample ID	SPT N-Val	REC %	RQD %	Lithologic Description	Notes:
							37.7 to 38.6': SILTY CLAYSTONE: light olive gray (5Y 6/1); nonstratified; 1mm discontinuous siltstone laminations; iron and manganese staining; medium plasticity; firm; moist.	
39					86	86	38.6 to 40.0': RUN RECOVERED 1.2/1.4' RQD 1.2/1.4' CLAYSTONE: light olive brown (5Y 5/2); grayish orange (10YR 7/4); mottled; blocky; 1mm discontinuous siltstone laminations; some silt to silty in part; iron and manganese staining; medium plasticity; firm; damp.	39.3'; 90 deg.; healed; Fe 40.0 to 40.3': LITHOLOGY Field interpertation changed from SILTSTONE to SILTY SANDSTONE based on grain size analysis.
40					111	111	40.4 to 43.6': RUN RECOVERED 4.0/3.6' RQD 4.0/4.0' 40.0 to 40.3': SILTY SANDSTONE: dark yellowish brown (10YR 4/2); dark yellowish orange (10YR 6/6); platy; iron cemented and stained; no plasticity; firm to medium hard; damp. 40.3 to 43.6': CLAYSTONE: light olive gray (5Y 5/2); dark gray (N 3/0); blocky; trace to some silt; iron and manganese staining; trace calcareous veining in fractures; medium to high plasticity; stiff to firm; damp.	Note: expansive claystone PACKER TEST: 40.0 to 45.0' 40.0 to 40.3': SAMPLE (GEOTECHNICAL) B302190400403 40.6'; 90 deg.; healed; Fe 40.9'; 90 deg.; healed/open; Fe 41.0 to 41.1'; 50-55 deg.; healed; Fe 41.2 to 41.3'; 85 deg.; healed/open; Mn/Ca 41.2 to 41.3'; 30 deg.; healed; Fe 41.3 to 41.5'; 30-35 deg.; healed; Fe/Ca 41.9 to 42.2'; 30-30-30 deg.; healed; Fe 42.8 to 43.1'; 40 deg.; healed; Fe 43.3 to 43.5'; 40 deg.; healed; Fe
41								
42								
43								
44					114	114	43.6 to 45.0': RUN RECOVERED 1.6/1.4' RQD = 1.6/1.4' CLAYSTONE: same as above; increasing silt.	
45							TOTAL BOREHOLE DEPTH = 45.0'.	
46								

GROUNDWATER

	DEPTH	HOUR	DATE
▽			
▼			

WESTON

GEOLOGIC LOG	Rocky Flats: 881 Hillside	Project Number: 2029-33-09-0020	PAGE: 1 of 5

Borehole/Well Id:	B302290	**Drilling Company:**	Boyles Bros.
Northing (ft):	34978.0	**Driller:**	DVStyles/PCBushkovski
Easting (ft):	20445.8	**Helper:**	ALBoday/BO'Connor
Ground Surface Elev (ft):	5977.3	**Rig Type:**	B-57
Total Depth (ft):	22.0/37.0	**Drilling Method:**	HS Auger/NX Core
Logged By:	RWeed/SPCarpenter	**Drilling Fluid:**	None/Water
Checked By SM:	[signature]	**Date Started:**	6/26/90
Checked By PM:		**Date Completed:**	7/17/90
QA By / Date:	JDL 07/25/90	**Well Type:**	BH
Comments:	French drain geotechnical study. Surface casing set to 22.0' below ground surface on 06/26/90.		

Depth (ft)	Graphic Log	Sample T	Sample ID	SPT N-Val	REC %	RQD %	Lithologic Description	Notes:
0–1					45		**ARTIFICIAL FILL** 0.0 to 2.0': RUN RECOVERED 0.9/2.0' GRAVELLY SILTY SAND: dark yellowish brown (10YR 4/2); nonstratified; poorly sorted sand and gravels; subangular and subrounded; limonite stain; calcareous coatings; soft; dry to damp.	Monitoring Instrument Background Levels: HNu: 0.0 units All readings inside auger; in breathing zone; on cuttings; and on core at background unless otherwise noted below. TRIP BLANK SAMPLE TB062690 FIELD BLANK SAMPLE B3022900008FB 0.0 to 0.90': SAMPLE
2–3					55		2.0 to 4.0': RUN RECOVERED 1.1/2.0' GRAVELLY SILTY SAND: as above.	(VOA'S ONLY) B3022900002 2.0 to 3.1': SAMPLE (VOA'S ONLY) B3022900204 0.0 to 3.1': SAMPLE B3022900004
4–6					100		4.0 to 6.0': RUN RECOVERED 2.0/2.0 4.0 to 5.2': SILTY CLAY: light olive gray (5Y 5/2) and moderate olive brown (5Y 4/4); nonstratified; trace gravel and sand; poorly sorted; limonite stain; firm; damp to moist. 5.2 to 6.0': SILTY CLAY: as above; less moderate olive brown (5Y 4/4).	4.0 to 6.0': SAMPLE (VOA'S ONLY) B3022900406 4.0 to 7.7': SAMPLE B3022900408

GROUNDWATER

	DEPTH	HOUR	DATE
▽			
▼			

WESTON

SYMBOL ID Description
BL No recovery
CL Clay
CLAYSTON Claystone (Silty or Sandy)
CLG Gravelly Clay
CLM Silty Clay
CLS Sandy Clay
GC Gravel (Clayey, Silty or Sandy)
GS Sandy Gravel, Gravelly Sand or Sand with Gravel
I Iron Concretion
LIG Lignite
MLS Silt (Sandy or Clayey)
SANDSTON Sandstone (Clayey or Silty)
SILTSTON Siltstone (Sandy or Clayey)
SM Sand (Silty or Clayey)

GEOLOGIC LOG

Rocky Flats: 881 Hillside

Project Number: 2029-33-09-0020

Borehole/Well Id: B302290

Depth (ft)	Graphic Log	Sample T	Sample ID	SPT N-Val	REC %	RQD %	Lithologic Description	Notes:
7					85		6.0 to 8.0': RUN RECOVERED 1.7/2.0' SILTY CLAY: light olive gray (5Y 5/2) with light olive brown (5Y 5/6) mottlings and coatings; nonstratified; trace gravels and sand; low plasticity; calcareous nodules; limonite nodules; trace roots; stiff; damp.	6.0 to 7.7': SAMPLE (VOA'S ONLY) B3022900608
8, 9					95		8.0 to 10.0': RUN RECOVERED 1.9/2.0' SILTY CLAY: as above; voids with limonite and calcareous coatings; firm.	8.0 to 10.0': SAMPLE (VOA'S ONLY) B3022900810 B3022900810D 8.0 to 14.5': SAMPLE B3022900014
10, 11, 12					52		10.0 to 12.3': RUN RECOVERED 1.2/2.3' 10.0 to 10.7': SILTY CLAY: as above. COLLUVIUM BURIED TOPSOIL 10.7 to 11.2': SILTY CLAY: dusky brown (5Y 2/2); nonstratified; trace gravel, sand; sharp contact with fill above; medium plasticity; stiff; moist.	10.0 to 11.2': SAMPLE (VOA'S ONLY) B3022901012
13, 14					36		12.3 to 14.5': RUN RECOVERED 0.8/2.2' SILTY CLAY: light olive gray (5Y 5/2); nonstratified; trace gravel; sand; gravels up to 3 cm; medium plasticity; calcareous coating; filling in voids; stiff; moist.	12.3 to 13.1': SAMPLE (VOA'S ONLY) B3022901214

GROUNDWATER

	DEPTH	HOUR	DATE
▽			
▼			

WESTON

GEOLOGIC LOG

Rocky Flats: 881 Hillside

Project Number: 2029-33-09-0020

Borehole/Well Id: B302290

Depth (ft)	Graphic Log	Sample T	Sample ID	SPT N-Val	REC %	RQD %	Lithologic Description	Notes:
					0		14.5 to 18.0': RUN Center bit run. No sample taken.	
15								
16								
17								
18					80		BEDROCK 18.0 to 20.0': RUN RECOVERED 1.6/2.0' SILTY CLAYSTONE: light olive gray (5Y 5/2); nonstratified to blocky; slight limonite stain; calcareous nodules; manganese oxide on partings; stiff; damp.	18.0 to 19.6': SAMPLE (VOA'S ONLY) B3019901820
19								
20					100		20.0 to 22.0': RUN RECOVERED 2.0/2.0' SILTY CLAYSTONE: as above.	
21								
22							TOTAL AUGERED DEPTH = 22.0'.	

GROUNDWATER

	DEPTH	HOUR	DATE
▽			
▼			

WESTON

GEOLOGIC LOG

Rocky Flats: 881 Hillside

Project Number: 2029-33-09-0020

Borehole/Well Id: B302290

Depth (ft)	Graphic Log	Sample T	Sample ID	SPT N-Val	REC %	RQD %	Lithologic Description	Notes:
23					17	17	22.0 to 23.8': RUN RECOVERED 0.3/1.8' RQD = 0.3/1.8' CLAYSTONE: yellowish gray (5Y 7/2); blocky; some silt; weathered; medium plasticity; soft; moist.	PACKER TEST: 23.0 to 27.0'
24 25 26					44	44	23.8 to 27.0': RUN RECOVERED 1.4/3.2 RQD = 1.4/3.2' CLAYSTONE: same as above; light olive gray (5YR 5/2); medium dark gray (N 4/0); mottled; iron staining in bands; slightly weathered.	
27 28					100	100	27.0 to 28.8': RUN RECOVERED 1.8/1.8' RQD = 1.8/1.8' CLAYSTONE: dark yellowish orange (10Y 6/6);light olive gray (5Y 5/2); some silt; iron staining; iron cemented claystone nodules at 27.4 to 27.7'; medium plasticity; soft to firm; moist.	PACKER TEST: 27.0 to 32.0'
29 30					112	112	28.8 to 32.0': RUN RECOVERED 3.6/3.2 RQD = 3.6/3.2' 28.8 to 29.1': CLAYSTONE: same as above. 29.1 to 32.0': CLAYSTONE: light olive gray (5Y 6/1) grading to olive black (5Y 2/1); blocky; trace silt; medium to high plasticity; soft to firm. damp.	Note: expansive claystone 29.3'; 80 deg.; healed; Fe/Mn 29.3 to 30.4': SAMPLE (GEOTECHNICAL) B302290293304

GROUNDWATER

	DEPTH	HOUR	DATE
▽			
▼			

WESTON

GEOLOGIC LOG

Rocky Flats: 881 Hillside

Project Number: 2029-33-09-0020

Borehole/Well Id: B302290

Depth (ft)	Graphic Log	Sample T	Sample ID	SPT N-Val	REC %	RQD %	Lithologic Description	Notes:
31								
32					105	105	32.0 to 33.8': RUN RECOVERED 1.9/1.8' RQD = 1.9/1.8' CLAYSTONE: medium gray (N 4/0); light olive gray (5Y 5/2); blocky; trace silt; iron staining; medium to high plasticity; soft to firm; damp.	PACKER TEST: 32.0 to 37.0'
33								
34					0	0	33.8 to 37.0': RUN RECOVERED 0.0/3.2' RQD = 0.0/3.2'	
35								
36								
37							TOTAL BOREHOLE DEPTH = 37.0'.	
38								

GROUNDWATER

	DEPTH	HOUR	DATE
∇			
▼			

WESTON

GEOLOGIC LOG	Rocky Flats: 881 Hillside	Project Number: 2029-33-09-0020	PAGE: 1 of 2

Borehole/Well Id:	B302990	Drilling Company:	Boyles Bros.
Northing (ft):	34979.3	Driller:	DVStyles
Easting (ft):	20959.6	Helper:	
Ground Surface Elev (ft):	5952.3	Rig Type:	B-57
Total Depth (ft):	13.8	Drilling Method:	HS Auger
Logged By:	RWeed	Drilling Fluid:	None
Checked By SM:	Jane Ellwanger	Date Started:	7/6/90
Checked By PM:		Date Completed:	7/6/90
QA By / Date:		Well Type:	BH
Comments:	French drain geotechnical study. Influent - effluent line.		

Depth (ft)	Graphic Log	Sample T	Sample ID	SPT N-Val	REC %	RQD %	Lithologic Description	Notes:
0					35		**ARTIFICIAL FILL** 0.0 to 2.0': RUN RECOVERED 0.7/2.0' GRAVELLY CLAY: dark yellowish brown (10YR 4/1); nonstratified; some silt to coarse grained sand; gravel up to 5 cm; quartzose; feldspathic; calcareous; medium plasticity; firm; moist.	Monitoring Instrument Background Levels: HNu: 0.0 units All readings inside auger; in breathing zone; on cuttings; and on core at background unless otherwise noted below. TRIP BLANK SAMPLE TB070690
1								
2					85		2.0 to 4.0': RUN RECOVERED 1.7/2.0' 2.0 to 2.3': SILTY CLAY: light olive brown (5Y 5/6); nonstratified; stiff; moist. 2.3 to 3.0': SILTY CLAY: as above; light olive gray (5Y 5/2); some sand; some gravel to 5 cm; calcareous flecks. **COLLIVIUM** **TOPSOIL (BURIED)** 3.0 to 3.7': SILTY CLAY: dusky brown (4YR 2/2); nonstratified; trace subrounded; gravels to 7 cm; slight stain on partings only; soft to firm; moist.	0.0 to 0.7': SAMPLE (VOA'S ONLY) B3029900204 0.0 to 3.7': SAMPLE B3029900004
3								
4				4 7 8	100		4.0 to 5.5': RUN RECOVERED 1.5/1.5' SILTY CLAY: light olive brown (5Y 5/6) and light olive gray (5Y 5/2); nonstratified; trace fine to coarse sand; quartzose; stiff; moist.	4.0 to 5.5': SAMPLES (GEOTECHNICAL) B3029900405B B3029900405M
5								
					0		5.5 to 7.8': RUN Center bit run. No sample taken.	
6								

GROUNDWATER

	DEPTH	HOUR	DATE
▽			
▼			

WESTON

GEOLOGIC LOG

Rocky Flats: 881 Hillside

Project Number: 2029-33-09-0020

Borehole/Well Id: B302990

Depth (ft)	Graphic Log	Sample T	Sample ID	SPT N-Val	REC %	RQD %	Lithologic Description	Notes:
7								
8				5 9 11	87		**BEDROCK** 7.8 to 9.3': RUN RECOVERED 1.3/1.5' SILTY CLAYSTONE: light olive gray (5Y 5/2) with light olive brown (5YR 5/6) on partings only; nonstratified to blocky; weathered; trace manganese oxide on partings; very stiff; damp.	
9								
10					0		9.3 to 11.8': RUN Center bit run. No sample taken.	
11								
12				11 19 32	65		11.8 to 13.8': RUN RECOVERED 1.3/2.0' SILTY CLAYSTONE: as above; unstratified; many partings; liminite stained partings; very stiff.	
13							TOTAL BOREHOLE DEPTH = 13.8'.	
14								

GROUNDWATER

	DEPTH	HOUR	DATE
∇			
▼			

WESTON

GEOLOGIC LOG	Rocky Flats: 881 Hillside	Project Number: 2029-33-09-0020	PAGE: 1 of 3

Borehole/Well Id:	B303090	Drilling Company:	Boyles Bros.
Northing (ft):	34937.8	Driller:	DVStyles
Easting (ft):	20888.5	Helper:	KParker
Ground Surface Elev (ft):	5951.2	Rig Type:	B-57
Total Depth (ft):	18.5	Drilling Method:	HS Auger
Logged By:	RWeed	Drilling Fluid:	None
Checked By SM:	[signature]	Date Started:	7/6/90
Checked By PM:		Date Completed:	7/6/90
QA By / Date:	JDL 07/25/90	Well Type:	BH
Comments:	French drain geotechnical study. Influent - effluent line.		

Depth (ft)	Graphic Log	Sample T	Sample ID	SPT N-Val	REC %	RQD %	Lithologic Description	Notes:
0					65		0.0 to 2.0': RUN RECOVERED 1.3/2.0' TOPSOIL 0.0 to 0.5': SILTY SANDY CLAY: pale yellowish brown (10YR 6/2); nonstratified; abundant roots and grass; no plasticity; soft; dry. COLLUVIUM 0.5 to 1.3': SILTY CLAY: light olive brown (5Y 5/6); nonstratified; unoxidized blebs (5Y 5/6); fine roots throughout; calcareous flecks; limonite stains; stiff; dry.	Monitoring Instrument Background Levels: HNu: 0.0 units All readings inside auger; in breathing zone; on cuttings; and on core at background unless otherwise noted below. TRIP BLANK SAMPLE TB070690 FIELD BLANK SAMPLE B3030900018FB
1								
2					65		2.0 to 4.0': RUN RECOVERED 1.3/2.0' SILTY SANDY CLAY: light olive gray (5Y 5/2) and light olive brown (5Y 5/6); nonstratified; trace subangular gravel up to 7 cm; no plastictiy; calcareous coatings; limonite mottling and rinds on gravels; soft; dry. MEASURED BOREHOLE TO 4.2'.	2.0 to 3.0': SAMPLE (VOA'S ONLY) B3030900204 0.0 to 4.2': SAMPLE B3030900004
3								
4					67		4.2 to 5.7': RUN RECOVERED 1.0/1.5 SILTY SANDY CLAY: as above; firm; moist.	4.2 to 5.2': SAMPLE (GEOTECHNICAL) B3030900405M B3030900405B
5				7 7 8				
6					0		5.7 to 7.8': RUN	

GROUNDWATER

	DEPTH	HOUR	DATE
▽			
▼			

WESTON

GEOLOGIC LOG

Rocky Flats: 881 Hillside

Project Number: 2029-33-09-0020

Borehole/Well Id: B303090

Depth (ft)	Graphic Log	Sample T	Sample ID	SPT N-Val	REC %	RQD %	Lithologic Description	Notes:
7							Center bit run. No sample taken.	
8				5 6 11	93		7.8 to 9.3': RUN RECOVERED 1.4/1.5' SILTY CLAY: light olive gray (5Y 5/2) grading to olive gray (5Y 3/2); nonstratified; trace fine to coarse sand; medium plasticity; calcareous; stiff; moist.	
9								
10					0		9.3 to 12.5': RUN Center bit run. No sample taken.	
11								
12								
13				9 14 18	73		BEDROCK 12.5 to 14.0': RUN RECOVERED 1.1/1.5' SILTY CLAYSTONE: light olive gray (5Y 5/2) and light olive brown (5Y 5/6); nonstratified; blocky; medium plasticity; moderate limonite stain on partings; very stiff; damp.	
14								

GROUNDWATER

	DEPTH	HOUR	DATE
▽			
▼			

WESTON

GEOLOGIC LOG

Rocky Flats: 881 Hillside

Project Number: 2029-33-09-0020

Borehole/Well Id: B303090

Depth (ft)	Graphic Log	Sample T	Sample ID	SPT N-Val	REC %	RQD %	Lithologic Description	Notes:
15					0		14.0 to 17.0': RUN Center bit run. No sample taken.	
16								
17				8 11 20	100		17.0 to 18.5': RUN RECOVERED 1.5/1.5' SILTY CLAYSTONE with LIGNITE CLAYSTONE: live gray (5Y 4/1) grading to (5Y 3/2) with black (N 1/0) lignite; platy; medium plasticity; carbonaceous fragments (stems, leaves) grading to LIGNITE CLAYSTONE; limonite flecks; stiff; moist.	
18								
19							TOTAL BOREHOLE DEPTH = 18.5'.	
20								
21								
22								

GROUNDWATER

	DEPTH	HOUR	DATE
∇			
▼			

WESTON

GEOLOGIC LOG	Rocky Flats: 881 Hillside	Project Number: 2029-33-09-0020	PAGE: 1 of 4

Borehole/Well Id:	B303190	Drilling Company:	Boyles Bros.
Northing (ft):	34844.1	Driller:	DVStyles
Easting (ft):	20886.7	Helper:	ALBoday
Ground Surface Elev (ft):	5937.9	Rig Type:	B-57
Total Depth (ft):	26.8	Drilling Method:	HS Auger
Logged By:	DKWittenhagen	Drilling Fluid:	None
Checked By SM:		Date Started:	7/9/90
Checked By PM:		Date Completed:	7/9/90
QA By / Date:	JDL 07/26/90	Well Type:	BH
Comments:	French drain geotechnical study. Influent - effluent line.		

Depth (ft)	Graphic Log	Sample T	Sample ID	SPT N-Val	REC %	RQD %	Lithologic Description	Notes:
0					95		COLLUVIUM 0.0 to 2.0': RUN RECOVERED 1.9/2.0' 0.0 to 0.6': SANDY CLAY: light olive gray (5Y 5/2); coarse sand; organics; poorly sorted; some iron staining; moist. 0.6 to 1.9': SANDY CLAY: light olive gray (5Y 5/2) grading to light olive brown (5Y 5/6); coarse sand; large gravel at 0.6'; some iron staining; some claystone nodules; dry.	Monitoring Instrument Background Levels: HNu: 0.0 units All readings inside auger; in breathing zone; on cuttings; and on core at background unless otherwise noted below. TRIP BLANK SAMPLE TB070990
1								
2					43		2.0 to 4.1': RUN RECOVERED 0.9/2.1' SANDY SILTY CLAY grading to SILTY CLAY: light olive brown (5Y 5/6); trace coarse sand; iron staining; sorted; dry.	2.0 to 2.9': SAMPLE (VOA'S ONLY) B3031900204
3								
4				3 4	67		4.1 to 4.85': RUN RECOVERED 0.5/.75' SANDY SILTY CLAY: light olive brown (5Y 5/6); coarse sand; some claystone nodules; iron staining; moist.	0.0 to 4.5': SAMPLE B3031900005 4.85 to 5.85': SAMPLE (GEOTECHNICAL) B3031900506
5				4 4	90		4.85 to 5.85': RUN RECOVERED 0.9/1.0' SILTY CLAY: light olive brown (5Y 5/6); some claystone nodules; some iron staining; moist.	
6					0			

GROUNDWATER

	DEPTH	HOUR	DATE
▽	17.0		
▼			

WESTON

GEOLOGIC LOG

Rocky Flats: 881 Hillside

Project Number: 2029-33-09-0020

Borehole/Well Id: B303190

Depth (ft)	Graphic Log	Sample T	Sample ID	SPT N-Val	REC %	RQD %	Lithologic Description	Notes:
7, 8, 9							5.85 to 9.6': RUN Center bit run. No sample taken.	
10				3 4			9.6 to 10.6': RUN RECOVERED 0.6/1.0 SILTY CLAY: light olive gray (5Y 5/2) to light olive brown (5Y 5/6); trace to some coarse sand; few claystone nodules; very moist.	
11, 12, 13					0		10.6 to 13.2': RUN Center bit run. No sample taken.	
14					90		13.2 to 14.2': RUN RECOVERED 0.9/1.0' SILTY CLAY: olive gray (5Y 4/1); some coarse sand and few large gravel; rounded; fairly well sorted; few organics; moist.	

GROUNDWATER

	DEPTH	HOUR	DATE
∇	17.0		
▼			

WESTON

GEOLOGIC LOG	Rocky Flats: 881 Hillside	Project Number: 2029-33-09-0020	PAGE: 3 of 4

Borehole/Well Id: B303190

Depth (ft)	Graphic Log	Sample T	Sample ID	SPT N-Val	REC %	RQD %	Lithologic Description	Notes:
					0		14.2 to 16.4': RUN Center bit run. No sample taken.	
15								
16								
					0		16.4 to 17.4': RUN RECOVERED 0.0/1.0'	Note: in water.
▽17								
					100		17.4 to 17.5': RUN Center bit run. No sample taken.	
18							17.5 to 18.5': RUN RECOVERED 1.0/1.0' SILTY CLAY: light olive gray (5Y 5/2); trace to some rounded coarse sand; some fine gravel; rounded to subrounded.	
					0		18.5 to 21.3': RUN Center bit run. No sample taken.	
19								
20								
21								
					95		BEDROCK 21.3 to 22.3': RUN RECOVERED 0.95/1.0'	
22								

GROUNDWATER

	DEPTH	HOUR	DATE
▽	17.0		
▼			

WESTON

GEOLOGIC LOG

Rocky Flats: 881 Hillside

Project Number: 2029-33-09-0020

Borehole/Well Id: B303190

Depth (ft)	Graphic Log	Sample T	Sample ID	SPT N-Val	REC %	RQD %	Lithologic Description	Notes:
						0	SILTY CLAYSTONE: dark yellowish orange (10YR 6/6) to light olive gray brown (5Y 5/4); trace to some sand; few iron nodules; weathered; moist.	
							22.3 to 25.8': RUN Center bit run. No sample taken.	
23								
24								
25								
26					95	95	25.8 to 26.8': RUN RECOVERED 0.95/1.0' SILTY CLAYSTONE: light brown (5YR 5/6) to moderate yellowish brown (10YR 5/4); iron staining; stiff; moist.	
27							TOTAL BOREHOLE DEPTH = 26.8'.	
28								
29								
30								

GROUNDWATER

	DEPTH	HOUR	DATE
▽	17.0		
▼			

WESTON

GEOLOGIC LOG

Rocky Flats: 881 Hillside

Project Number: 2029-33-09-0020

Borehole/Well Id:	B303290	Drilling Company:	Boyles Bros.
Northing (ft):	34794.5	Driller:	DVStyles
Easting (ft):	20890.4	Helper:	KParker
Ground Surface Elev (ft):	5937.0	Rig Type:	B-57
Total Depth (ft):	32.4	Drilling Method:	HS Auger
Logged By:	RWeed	Drilling Fluid:	None
Checked By SM:		Date Started:	7/10/90
Checked By PM:		Date Completed:	7/10/90
QA By / Date:	JDL 07/25/90	Well Type:	BH
Comments:	French drain geotechnical study. Influent - effluent line.		

Depth (ft)	Graphic Log	Sample T	Sample ID	SPT N-Val	REC %	RQD %	Lithologic Description	Notes:
0					100		**TOPSOIL** 0.0 to 2.0': RUN RECOVERED 2.0/2.0' 0.0 to 0.6': SILTY CLAY: light olive gray (5Y 5/2); nonstratified; trace sand and gravel; low plasticity; roots and grass throughout; firm; moist. **COLLUVIUM** 0.6 to 2.0': SILTY SANDY CLAY: as above; calcareous flecks; limonite stain; fine roots throughout; soft; dry to damp.	Monitoring Instrument Background Levels: HNu: 0.2 units All readings inside auger; in breathing zone; on cuttings; and on core at background unless otherwise noted below. HNu: 0 - 2.0' Inside auger: 7 units In hole: 20 units On core: 1 - 3 units TRIP BLANK SAMPLE TB071090
1								
2					50		2.0 to 4.0': RUN RECOVERED 1.0/2.0' SILTY SANDY CLAY: light olive brown (5Y 5/2) and moderate olive brown (5Y 4/4); nonstratified; trace gravel; subangular and subrounded; low plasticity; calcareous flecks; fine roots throughout; soft; dry to damp.	2.0 to 3.0': SAMPLE (VOA'S ONLY) B3032900204 B3032900204D 0.0 to 3.0': SAMPLE B3032900004
3								
4				6 9 11	56		4.0 to 5.6': RUN RECOVERY 0.9/1.6' SANDY SILTY CLAY: as above; calcareous coatings on gravels; calcareous flecks; carbonaceous fragments; limonite stain.	4.0 to 4.9': SAMPLE (GEOTECHNICAL) B3032900405B B3032900405M
5								
6					0		5.6 to 8.0': RUN Center bit run. No sample taken.	

GROUNDWATER

DEPTH	HOUR	DATE

WESTON

GEOLOGIC LOG

Rocky Flats: 881 Hillside

Project Number: 2029-33-09-0020

Borehole/Well Id: B303290

Depth (ft)	Graphic Log	Sample T	Sample ID	SPT N-Val	REC %	RQD %	Lithologic Description	Notes:
7								
8				6 7 10	80		8.0 to 9.5': RUN RECOVERED 1.2/1.5 SILTY CLAY: light olive gray (5Y 5/2) and light olive brown (5Y 5/6) mottling; nonstratified; trace gravel and sand up to 1 cm; subangular and subrounded; medium plasticity; limonite mottling; firm; moist.	
9								
10					0		9.5 to 12.8': RUN Center bit run. No sample taken.	HNu: Inside auger: 5 units during auger removal
11								
12								
13				5 6 7	100		12.8 to 14.3': RUN RECOVERED 1.5/1.5' SILTY CLAY: light olive gray (5Y 5/2) and light olive brown (5Y 5/6); nonstratified; trace sand; medium to high plasticity; soft; moist.	
14								

GROUNDWATER

	DEPTH	HOUR	DATE
∇			
▼			

WESTON

GEOLOGIC LOG	Rocky Flats: 881 Hillside	Project Number: 2029-33-09-0020	PAGE: 3 of 5

Borehole/Well Id: B303290

Depth (ft)	Graphic Log	Sample T	Sample ID	SPT N-Val	REC %	RQD %	Lithologic Description	Notes:
					0		14.3 to 16.7': RUN Center bit run. No sample taken.	
15 16								
				5 5 6	93		16.7 to 18.2': RUN RECOVERED 1.4/1.5' SILTY CLAY: as above; carbonaceous fragments; soft to firm.	
17 18								
					0		18.2 to 20.5': RUN Center bit run. No sample taken.	
19 20								
				5 7 10	93		20.5 to 22.0': RUN RECOVERED 1.4/1.5 SILTY CLAY: light olive gray (5Y 5/2) and pale olive (10Y 6/2); nonstratified; trace gravel and sand; subangular; quartzose; feldspathic; calcareous; medium to high plasticity; calcareous coatings; limonite mottles; carbonaceous fragments; soft to firm; moist.	
21 22								

GROUNDWATER

	DEPTH	HOUR	DATE
∇			
▼			

WESTON

GEOLOGIC LOG	Rocky Flats: 881 Hillside	Project Number: 2029-33-09-0020	PAGE: 4 of 5

Borehole/Well Id: B303290

Depth (ft)	Graphic Log	Sample T	Sample ID	SPT N-Val	REC %	RQD %	Lithologic Description	Notes:
23					0		22.0 to 23.3': RUN *Center bit run. No sample taken.*	
24				6 10 16	100		23.3 to 24.8': RUN RECOVERED 1.5/1.5' SILTY CLAY: light olive gray (5Y 5/2) and light olive brown (5Y 5/6) mottles; partings; nonstratified; blocky; trace sand; medium to high plasticity; calcareous veins and coatings; carbonaceous fragments; firm to stiff; moist.	
25 26 27 28					0		24.8 to 28.2'; RUN Center bit run. No sample taken.	
29				7 14 18	93		28.2 to 29.7': RUN RECOVERED 1.4/1.5' SILTY CLAY: as above; light brown (5Y 5/6) and stains between partings; stiff to very stiff.	
30					0		29.7 to 30.9': SAMPLE	

GROUNDWATER

	DEPTH	HOUR	DATE
∇			
▼			

WESTON

GEOLOGIC LOG

Rocky Flats: 881 Hillside

Project Number: 2029-33-09-0020

Borehole/Well Id: B303290

Depth (ft)	Graphic Log	Sample T	Sample ID	SPT N-Val	REC %	RQD %	Lithologic Description	Notes:
							Center bit run. No samples taken.	
31				19 28 50	93		**BEDROCK** **30.9 to 32.4': RUN** **RECOVERED 1.4/1.5'** **SILTY CLAYSTONE: olive gray (5Y 3/2) and dark yellowish orange (10YR 6/6) on partings only; nonstratified; blocky; low plasticity; manganese oxide on some partings; very stiff; damp.**	
32								
							TOTAL BOREHOLE DEPTH = 32.4'.	
33								
34								
35								
36								
37								
38								

GROUNDWATER

	DEPTH	HOUR	DATE
∇			
▼			

WESTON

GEOLOGIC LOG

Rocky Flats: 881 Hillside

Project Number: 2029-33-09-0020

Borehole/Well Id:	B303390	**Drilling Company:**	Boyles Bros.
Northing (ft):	35123.2	**Driller:**	DVStyles
Easting (ft):	22405.6	**Helper:**	KParker
Ground Surface Elev (ft):	5916.4	**Rig Type:**	B-57
Total Depth (ft):	10.8	**Drilling Method:**	HS Auger
Logged By:	RWeed	**Drilling Fluid:**	None
Checked By SM:	[signature]	**Date Started:**	7/11/90
Checked By PM:		**Date Completed:**	7/11/90
QA By / Date:	JDL 07/26/90	**Well Type:**	BH/Piezometer

Comments: French drain geotechnical study. French drain extension. Piezometer installed on 07/11/90.

Depth (ft)	Graphic Log	Sample T	Sample ID	SPT N-Val	REC %	RQD %	Lithologic Description	Notes:
0					45		**TOPSOIL** 0.0 to 2.0': RUN RECOVERED 0.9/2.0 SILTY SANDY CLAY: dusky yellowish brown (10YR 2/2); nonstratified; trace gravel up to 3 cm; subrounded; quartzose and calcareous; low plasticity; slight limonite stain; calcareous flecks; grass and roots throughout; soft to firm; dry to damp. **COLLUVIUM**	Monitoring Instrument Background Levels: HNu: 0.2 units All readings inside auger; in breathing zone; on cuttings; and on core at background unless otherwise noted below. Inside auger: 20 PPM HNu: 20 PPM TRIP BLANK SAMPLE TB071190
1								
2					100		2.0 to 3.6': RUN RECOVERED 1.6/1.6' 2.0 to 2.5': SILTY SANDY CLAY: as above; dark yellowish brown (10YR 4/2); soft; damp. 2.5 to 3.6': SILTY CLAY: dark yellowish brown (10YR 4/2); nonstratified; some sand; trace gravel up to 4 cm; subangular; quartzose; feldspathic; calcareous; low plasticity; calcareous coatings; very stiff; damp.	0.0 to 0.9': SAMPLE (VOA'S ONLY) B3033900002 B3033900002D 2.0 to 3.6': SAMPLE (VOA'S ONLY) B3033900204
3								
4					100		3.6 to 5.5': RUN RECOVERED 1.9/1.9' SILTY SANDY CLAY: as above; more sand; dry to damp.	HNu: 25 on core 0.0 to 5.5': SAMPLE (CUTTINGS) 3033900006
5								
6					60		5.5 to 8.0': RUN RECOVERED 1.5/2.5' SANDY SILTY CLAY: light olive gray (5YR 5/2) to pale	HNu: 3 on auger HNu: 12 on core

GROUNDWATER

	DEPTH	HOUR	DATE
▽			
▼			

WESTON

GEOLOGIC LOG

Rocky Flats: 881 Hillside

Project Number: 2029-33-09-0020

Borehole/Well Id: B303390

Depth (ft)	Graphic Log	Sample T	Sample ID	SPT N-Val	REC %	RQD %	Lithologic Description	Notes:
7							yellowish brown (10YR 6/2); nonstratified; trace gravel to 1 cm.; subangular to subrounded; low plasticity; calcareous coatings; trace roots; stiff; dry.	5.5 to 7.0': SAMPLE (VOA'S ONLY) B3033900608 0.0 to 7.0': SAMPLE B3033900008 B3033900008D
8					100		**BEDROCK** 8.0 to 10.0': RUN RECOVERED 2.0/2.0' SILTY CLAYSTONE: dark yellowish brown (10Y 6/6) and light olive brown (5Y 5/6) banded; blocky; trace to some sand; medium plasticity; abundant limonite stain; trace manganese oxide; intermittent caliche; stiff; dry to damp.	
9								
10					100		10.0 to 10.8': RUN RECOVERED 0.8/0.8' SILTY CLAYSTONE: as above; light olive gray (5Y 5/2) yellowish gray (5Y 7/2) and moderate yellowish brown (10YR 5/4); trace fine to medium grained sand.	
11							TOTAL BOREHOLE DEPTH = 10.8'.	
12								
13								
14								

GROUNDWATER

	DEPTH	HOUR	DATE
▽			
▼			

WESTON

WELL COMPLETION INFORMATION

QA By/Date [illegible] 8/8/90

Location 881 Hillside; French Drain

Well No. B303390

Coordinates N 35123.24 E 22405.64 (RFP)

Elevation: Ground Surface 5916.40'

Total Depth: Well 9.25'

Top of Casing 5918.41'

Borehole 10.80'

Formation of Completion Colluvium

Casing Material Schedule 40 PVC

Casing Diameter 2 3/8" O.D.

Screen Material Schedule 40 10-slotted PVC

Surface Casing Diameter 5 5/8" O.D.

Date Installed 07/11/1990

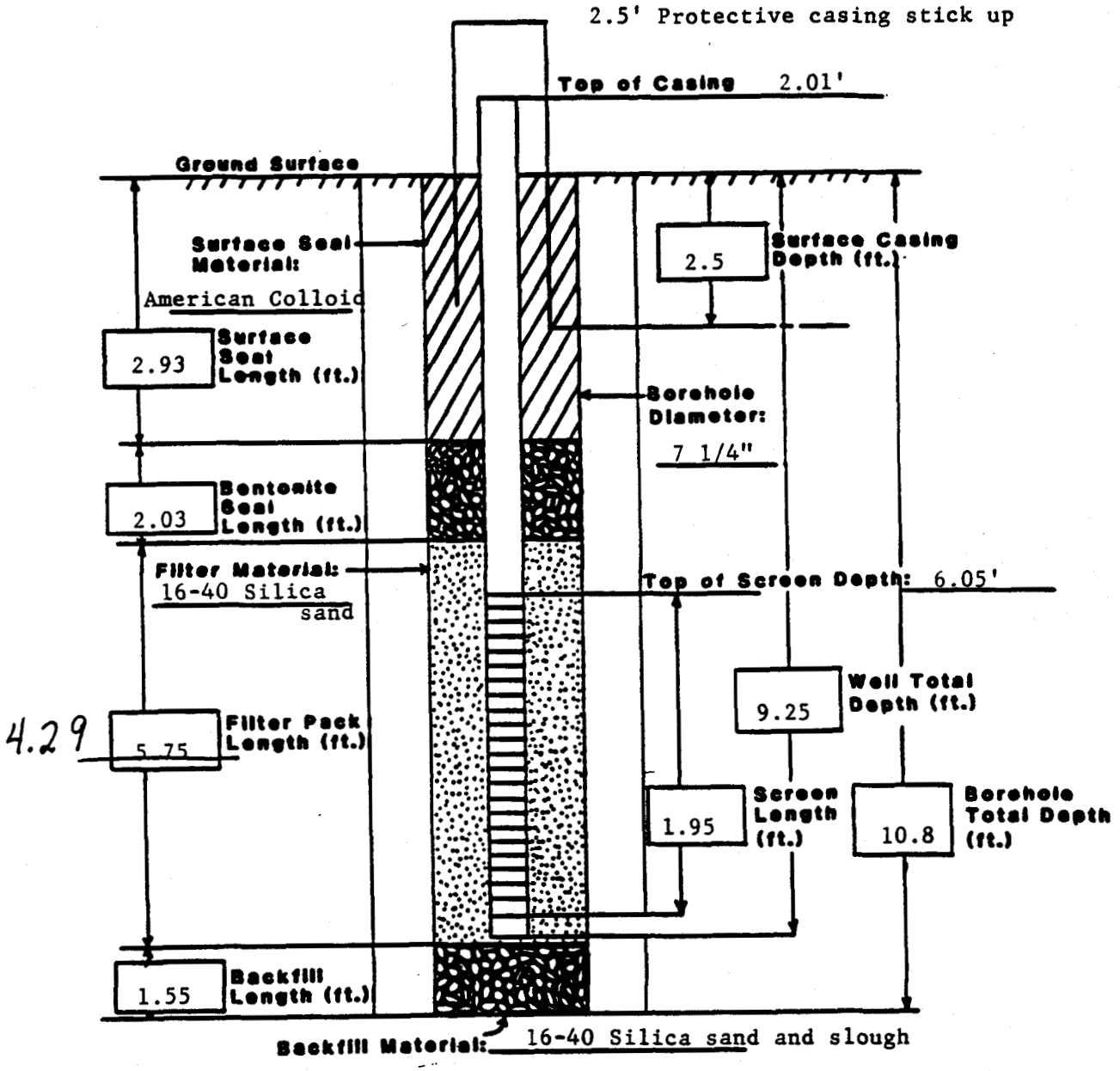
Approved By [illegible]

Installed By R. Weed
Geologist

Site Manager

CEARP Manager

Comments Stainless steel centralizer placed at 8.20' to 9.23' below ground surface



GEOLOGIC LOG	Rocky Flats: 881 Hillside	Project Number: 2029-33-09-0020	PAGE: 1 of 2

Borehole/Well Id:	B303490	**Drilling Company:**	Boyles Bros.
Northing (ft):	35168.3	**Driller:**	DVStyles
Easting (ft):	22492.4	**Helper:**	KParker
Ground Surface Elev (ft):	5913.6	**Rig Type:**	B-57
Total Depth (ft):	11.2	**Drilling Method:**	HS Auger
Logged By:	RWeed	**Drilling Fluid:**	None
Checked By SM:	[signature]	**Date Started:**	7/11/90
Checked By PM:		**Date Completed:**	7/12/90
QA By / Date:	JDL 07/26/90	**Well Type:**	BH/Piezometer
Comments:	French drain geotechnical study. French drain extension. Piezometer installed on 07/11/90.		

Depth (ft)	Graphic Log	Sample T	Sample ID	SPT N-Val	REC %	RQD %	Lithologic Description	Notes:
0					70		**TOPSOIL** 0.0 to 2.0': RUN RECOVERED 1.4/2.0 SILTY CLAY: olive gray (5Y 3/2); nonstratified; some sand; trace gravel; low plasticity; grass and roots; soft; damp.	Monitoring Instrument Background Levels: HNu: 0.0 units All readings inside auger; in breathing zone; on cuttings; and on core at background unless otherwise noted below. HNu: 26 in auger TRIP BLANK SAMPLE TB071190 TB071290 0.0 to 1.4': SAMPLE (VOA'S ONLY) B3034900002 ~~B3034900002D~~
1								
2					95		**COLLUVIUM** 2.0 to 4.0': RUN RECOVERED 1.9/2.0' 2.0 to 2.2': SILTY CLAY: light olive brown (5Y 5/2); nonstratified; trace sand and gravel; medium plasticity; calcareous flecks and coatings; very stiff; damp to moist. 2.2 to 3.9': SILTY CLAY: as above; moderate olive brown (5Y 4/4); more stiff; moist.	HNu: 160 in auger HNu: 190 on core HNu: 10 on cuttings 2.0 to 3.9': SAMPLE (VOA'S ONLY) B3034900204
3								
4					0		4.0 to 5.5': RUN Center bit run. No sample taken.	
5								
6					100		5.5 to 7.2': RUN RECOVERED 1.7/1.7' 5.5 to 6.3': SANDY SILTY GRAVELLY CLAY: light olive	

GROUNDWATER

	DEPTH	HOUR	DATE
▽			
▼			

WESTON

GEOLOGIC LOG	Rocky Flats: 881 Hillside	Project Number: 2029-33-09-0020	PAGE: 2 of 2

Borehole/Well Id: B303490

Depth (ft)	Graphic Log	Sample T	Sample ID	SPT N-Val	REC %	RQD %	Lithologic Description	Notes:
7							gray (5Y 5/2) and light olive brown (5Y 5/6); nonstratified; poorly sorted; medium plasticity; limonite stain; stiff; damp. 6.3 to 7.2': SILTY CLAY: light olive gray (5Y 5/2); nonstratified; very stiff; moist.	
8					100		7.2 to 9.2': RUN RECOVERED 2.0/2.0' 7.2 to 7.5': SILTY CLAY: as above; trace gravel 1 to 2 cm; angular. BEDROCK 7.5 to 9.2': SILTY CLAYSTONE: light olive gray (5Y 5/2); slightly blocky; medium plasticity; abundant limonite stain; calcareous veining; stiff; moist.	0.0 to 9.2': SAMPLE B3034900008 B3034900008D
9								
10					100		9.2 to 11.2': RUN RECOVERED 2.0/2.0' SILTY CLAYSTONE: as above; dusky yellow (5Y 6/4); damp to moist.	
11								
12							TOTAL BOREHOLE DEPTH = 11.2'.	
13								
14								

GROUNDWATER

	DEPTH	HOUR	DATE
▽			
▼			

WESTON

WELL COMPLETION INFORMATION

QA By/Date SPE

Location 881 Hillside: French Drain

Well No. B303490

Coordinates N 35168.33 E 22492.44

Elevation: Ground Surface 5913.60'

Total Depth: Well 8.08'

Top of Casing 5915.55'

Borehole 11.20'

Formation of Completion Colluvium

Casing Material Schedule 80 PVC

Casing Diameter 2 3/8" O.D.

Screen Material Schedule 80 10-slotted PVC

Surface Casing Diameter 5 5/8" O.D.

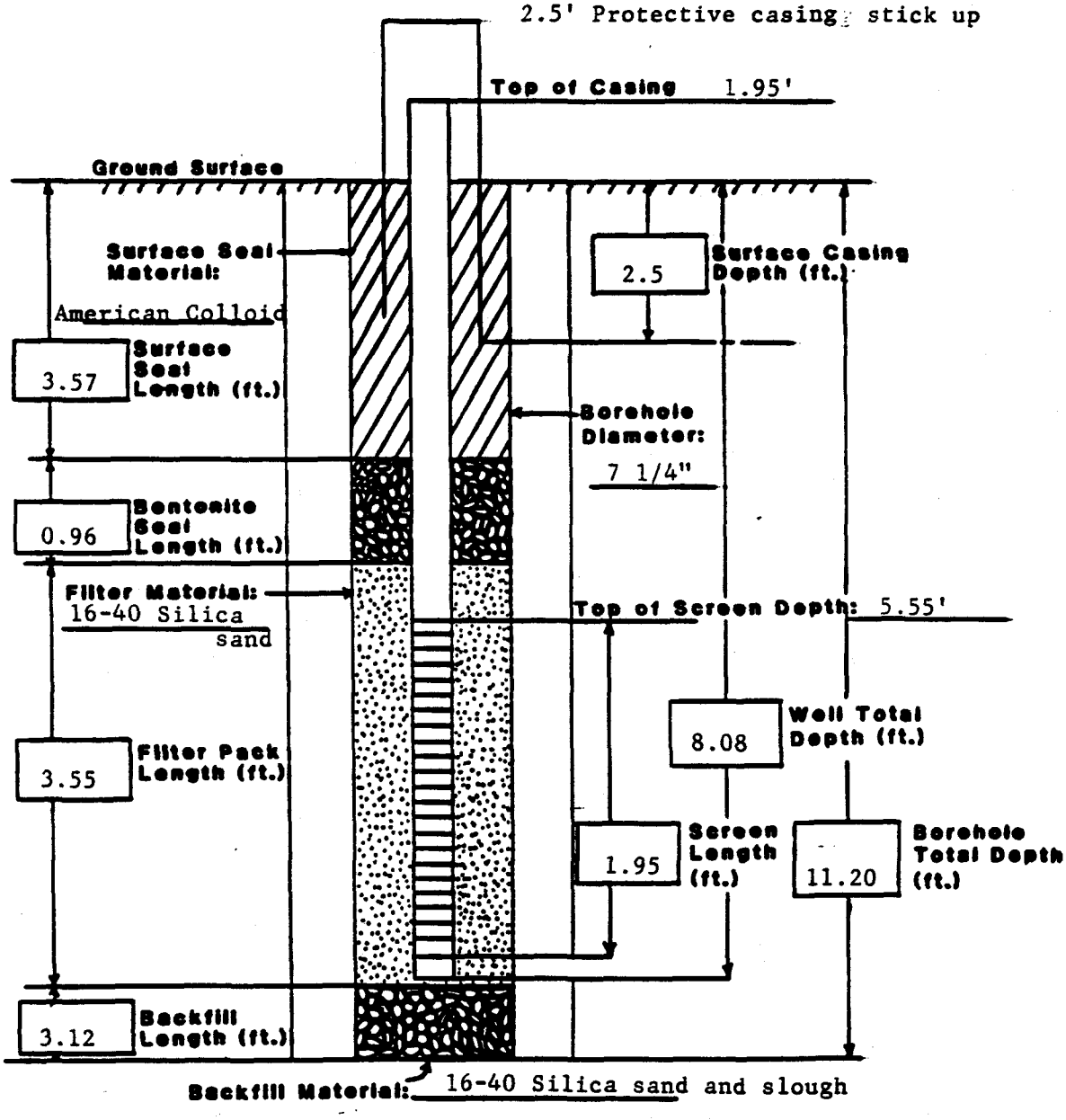
Date Installed 07/11/1990

Approved By JE Mayo
Site Manager

Installed By R. Weed
Geologist

CEARP Manager

Comments Stainless steel centralizer placed at 7.01' to 8.06' below ground surface



GEOLOGIC LOG	Rocky Flats: 881 Hillside	Project Number: 2029-33-09-0020	PAGE: 1 of 3

Borehole/Well Id:	B303590	Drilling Company:	Boyles Bros.
Northing (ft):	35212.9	Driller:	DVStyles
Easting (ft):	22579.2	Helper:	KParker
Ground Surface Elev (ft):	5911.9	Rig Type:	B-57
Total Depth (ft):	17.8	Drilling Method:	HS Auger
Logged By:	RWeed	Drilling Fluid:	None
Checked By SM:		Date Started:	7/12/90
Checked By PM:		Date Completed:	7/12/90
QA By / Date:	JDL 07/26/90	Well Type:	BH/Piezometer

Comments: French drain geotechnical study. French drain extension. Piezometer installed on 07/12/90.

Depth (ft)	Graphic Log	Sample T	Sample ID	SPT N-Val	REC %	RQD %	Lithologic Description	Notes:
0					65		**TOPSOIL** 0.0 to 2.0': RUN RECOVERED 1.3/2.0 0.0 to 0.4': SILTY CLAY: dusky yellowish brown (10YR 2/2); nonstratified; trace sand; low plasticity; grass and roots; soft; damp. 0.4 to 1.3': SILTY CLAY: grayish brown (5YR 3/2); nonstratified; some gravel up to 9 cm; subrounded and subangular; trace sand; low plasticity; firm roots; calcareous coatings; firm; damp.	Monitoring Instrument Background Levels: OVA: 0.0 ppm All readings inside auger; in breathing zone; on cuttings; and on core at background unless otherwise noted below. TRIP BLANK SAMPLE TB071290 0.0 to 1.3': SAMPLE (VOA'S ONLY) B3035900002 B3035900002D
1								
2					60		**COLLUVIUM** 2.0 to 4.0': RUN RECOVERED 1.2/2.0' SILTY CLAY: as above; some sand; slight limonite stain; calcareous nodules; soft.	2.0 to 3.2': SAMPLE (VOA'S ONLY) B3035900204 B3035900204D
3					0		3.2 to 3.8': RUN RECOVERED 0.0/0.6'	
4					0		3.8 to 5.4': RUN Center bit run. No sample taken.	
5					87		5.4 to 7.7': RUN RECOVERED 2.0/2.3'	5.4 to 7.4': SAMPLE B3035900507 B3035900507D
6								

GROUNDWATER

	DEPTH	HOUR	DATE
▽			
▼			

WESTON

GEOLOGIC LOG

Rocky Flats: 881 Hillside

Project Number: 2029-33-09-0020

Borehole/Well Id: B303590

Depth (ft)	Graphic Log	Sample T	Sample ID	SPT N-Val	REC %	RQD %	Lithologic Description	Notes:
7							SILTY CLAY: light olive gray (5Y 5/2) and moderate brown (5Y 3/4) in upper 0.3'; lensed; trace to some fine to coarse grained sandy lenses; medium plasticity; calcareous lenses; very stiff; moist.	7.7 to 9.7': SAMPLE (VOA'S ONLY) B3035900709 B3035900709D
8					50		7.7 to 9.7': RUN RECOVERED 1.0/2.0' SILTY CLAY: moderate yellowish brown (10YR 5/4); nonstratified; trace to some sand; trace gravel up to 6 cm; subangular and subrounded; quartzose; schistose; feldspathic; firm to stiff; damp.	0.0 to 9.7': SAMPLE B3035900709 B3035900709D
9								9.7 to 11.5': SAMPLE B3035900911 B3035900911D
10					90		BEDROCK 9.7 to 11.7': RUN RECOVERED 1.8/2.0' SILTY CLAYSTONE: light olive gray (5Y 5/2); nonstratified to horizontal partings; trace sand; medium plasticity; calcareous veins, flecks, nodules; limonite stain; stiff; moist.	
11								11.7 to 12.6': SAMPLE B3035901213 B3035901213D
12					50		11.7 to 13.5': RUN RECOVERED 0.9/1.8 SILTY CLAYSTONE: as above; some fine laminations; abundant limonite stain; damp.	
13								
14					0		13.5 to 15.5': RUN RECOVERED 0.0/2.0	

GROUNDWATER

	DEPTH	HOUR	DATE
▽			
▼			

WESTON

GEOLOGIC LOG

Rocky Flats: 881 Hillside

Project Number: 2029-33-09-0020

Borehole/Well Id: B303590

Depth (ft)	Graphic Log	Sample T	Sample ID	SPT N-Val	REC %	RQD %	Lithologic Description	Notes:
15								
					0		15.5 to 16.1': RUN Center bit run. No sample taken.	
16								16.1 to 17.8': SAMPLE
					100		16.1 to 17.8': RUN RECOVERED 1.7/1.7 SILTY CLAYSTONE: as above; trace calcareous veins; very stiff.	B3035901618 B3035901618D
17								
18							TOTAL BOREHOLE DEPTH = 17.8'.	
19								
20								
21								
22								

GROUNDWATER

	DEPTH	HOUR	DATE
▽			
▼			

WESTON

WELL COMPLETION INFORMATION

QA By/Date [signature] 8/8/90

Location 881 Hillside: French Drain

Well No. B303590

Coordinates N 35212.94 E 22579.15 (RFP)

Elevation: Ground Surface 5911.9'

Total Depth: Well 10.7'

Top of Casing 5913.89'

Borehole 17.8'

Formation of Completion Colluvium

Casing Material Schedule 80 PVC

Casing Diameter 2 3/8" O.D.

Screen Material Schedule 80 10-slotted PVC

Surface Casing Diameter 5 5/8" O.D.

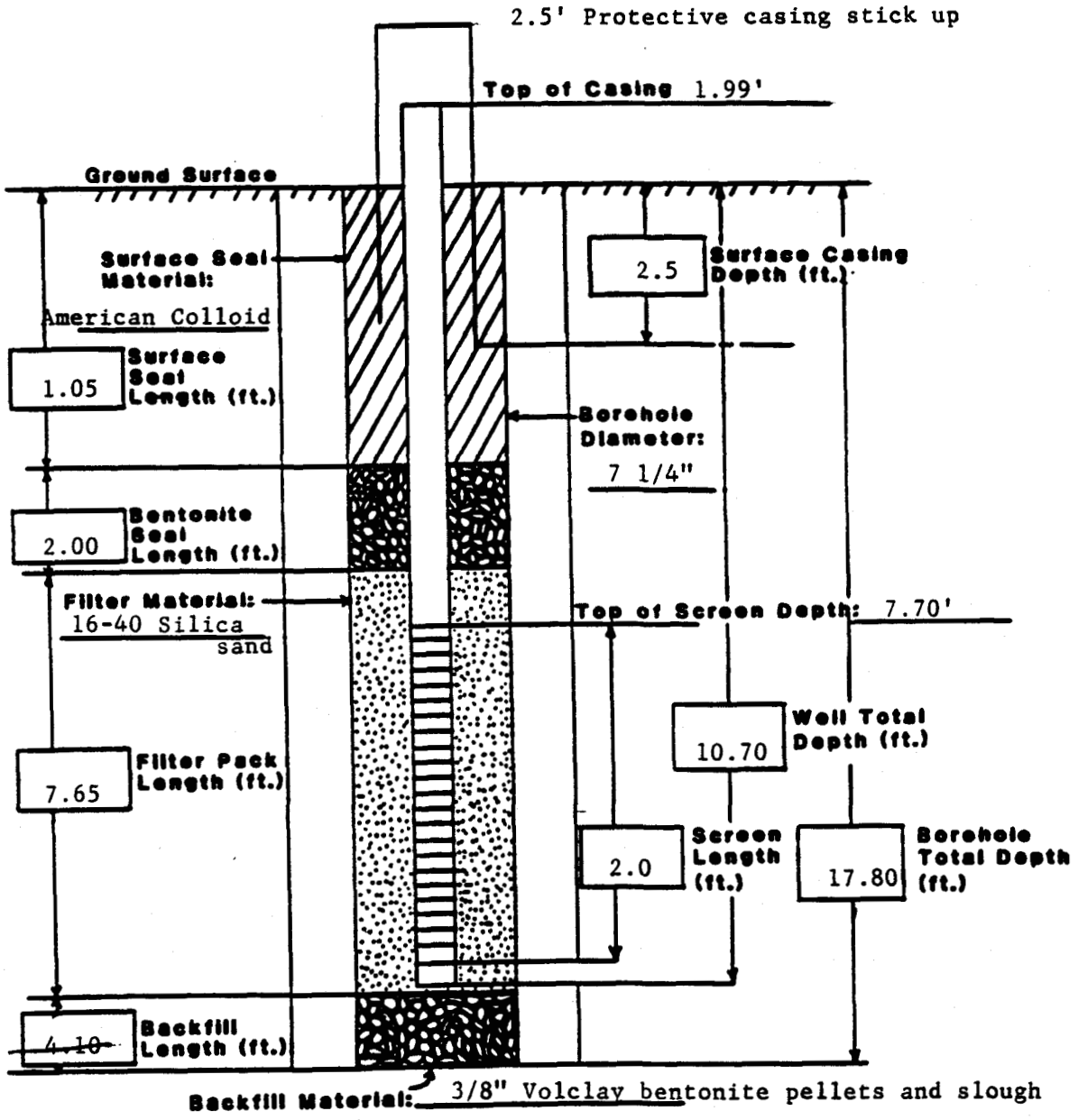
Date Installed 07/12/1990

Approved By [signature]
Site Manager

Installed By R. Weed
Geologist

CEARP Manager

Comments Stainless steel centralizer placed at 9.65' to 10.70' below ground surface



GEOLOGIC LOG	Rocky Flats: 881 Hillside	Project Number: 2029-33-09-0020	PAGE: 1 of 3

Borehole/Well Id:	B303690	Drilling Company:	Boyles Bros.
Northing (ft):	35260.2	Driller:	DVStyles
Easting (ft):	22668.2	Helper:	KParker
Ground Surface Elev (ft):	5912.2	Rig Type:	B-57
Total Depth (ft):	20.8	Drilling Method:	HS Auger
Logged By:	RWeed	Drilling Fluid:	None
Checked By SM:		Date Started:	7/13/90
Checked By PM:		Date Completed:	7/13/90
QA By / Date:	JDL 07/26/90	Well Type:	BH/Piezometer

Comments: French drain geotechnical study. French drain extension. Piezometer installed on 07/13/90.

Depth (ft)	Graphic Log	Sample T	Sample ID	SPT N-Val	REC %	RQD %	Lithologic Description	Notes:
0–1					85		**TOP SOIL** 0.0 to 2.0': RUN RECOVERED 1.7/2.0 0.0 to 0.8': SILTY GRAVELLY CLAY: dusky brown (5YR 2/2); nonstratified; gravel up to 7 cm; subrounded and subangular; quartzose; low plasticity; grass and roots; soft; moist. **COLLUVIUM** 0.8 to 1.7': SILTY GRAVELLY CLAY: as above; no grass.	Monitoring Instrument Background Levels: HNu: 0.0 units All readings inside auger; in breathing zone; on cuttings; and on core at background unless otherwise noted below. TRIP BLANK SAMPLE TB071390
2–3					90		2.0 to 4.0': RUN RECOVERED 1.8/2.0' 2.0 to 2.3': GRAVELLY SANDY CLAY: as above; calcareous coatings. 2.3 to 3.8': SILTY CLAY: olive gray (5Y 3/2); nonstratified; trace to some fine to coarse grained sand; low plasticity; calcareous veins; fine roots throughout; very stiff; damp.	0.0 to 1.7': SAMPLE (VOA'S ONLY) B3036900002 B3036900002D 2.0 to 3.8': SAMPLE (VOA'S ONLY) B3036900204 B3036900204D
4–6					100		4.0 to 6.0': RUN RECOVERED 2.0/2.0' SANDY SILTY CLAY: as above; more micaceous; less calcareous veining.	4.0 to 6.0': SAMPLE (VOA'S ONLY) B3036900406 0.0 to 6.0': SAMPLE B3036900006 B3036900006D

GROUNDWATER

	DEPTH	HOUR	DATE
▽			
▼			

WESTON

GEOLOGIC LOG

Rocky Flats: 881 Hillside

Project Number: 2029-33-09-0020

Borehole/Well Id: B303690

Depth (ft)	Graphic Log	Sample T	Sample ID	SPT N-Val	REC %	RQD %	Lithologic Description	Notes:
7					95		6.0 to 8.1': RUN RECOVERED 2.0/2.1' SANDY SILTY CLAY: dark yellowish brown (10YR 4/2) grading to moderate brown (10YR 5/4) otherwise as above.	6.0 to 8.0': SAMPLE (VOA'S ONLY) B3036900608
8					100		8.1 to 10.0': RUN RECOVERED 1.9/1.9' SILTY SANDY CLAY: as above; moderate brown (10YR 5/4); trace gravel 1 to 2 cm; subrounded; damp to moist.	8.0 to 9.9': SAMPLE (VOA'S ONLY) B3036900810
9								
10					100		10.0 to 11.9': RUN RECOVERED 1.9/1.9' SILTY SANDY CLAY: as above.	10.0 to 11.9': SAMPLE (VOA'S ONLY) B3036901012
11								
12					95		11.9 to 14.0': RUN RECOVERED 2.0/2.1' 11.9 to 13.0': SANDY SILTY CLAY: as above.	11.9 to 14.0': SAMPLE (VOA'S ONLY) B3036901214
13							13.0 to 13.9': GRAVELLY SANDY SILTY CLAY: moderate brown (10YR 5/4); nonstratified; gravels to 7 cm; subrounded to rounded; quartzose; schistose; low plasticity; calcareous coatings; moist.	
14								

GROUNDWATER

	DEPTH	HOUR	DATE
∇			
▼			

WESTON

GEOLOGIC LOG

Rocky Flats: 881 Hillside

Project Number: 2029-33-09-0020

Borehole/Well Id: B303690

Depth (ft)	Graphic Log	Sample T	Sample ID	SPT N-Val	REC %	RQD %	Lithologic Description	Notes:
					0		14.0 to 15.0': RUN Center bit run. No sample taken.	
15					60		15.0 to 16.5': RUN RECOVERED 0.9/1.5': SANDY SILTY CLAY: as above; moderate brown (10YR 5/4) and light olive gray (5Y 5/2); more clayey material at base; disturbed by pushing gravels.	15.0 to 15.9': SAMPLE (VOA'S ONLY) B3036901517
16								
					0		16.5 to 17.2': RUN Center bit run. No sample taken.	
17								
					100		BEDROCK 17.2 to 18.8': RUN RECOVERED 1.6/1.6' SILTY CLAYSTONE: light olive gray (5Y 5/2) and pale olive (10YR 6/2) and light olive brown (5Y 5/6); medium plasticity; carbonaceous fragments; stiff; moist.	17.2 to 18.8': SAMPLE (VOA'S ONLY) B3036901718
18								
					100		18.8 to 20.8': RUN RECOVERED 2.0/2.0' SILTY CLAYSTONE: as above; more carbonaceous fragments; less stiff.	
19								
20								
21							TOTAL BOREHOLE DEPTH = 20.8'.	
22								

GROUNDWATER

	DEPTH	HOUR	DATE
▽			
▼			

WESTON

WELL COMPLETION INFORMATION

QA By/Date R. Smith 8/8/90

Location 881 Hillside: French Drain

Well No. B303690

Coordinates N 35260.23 E 22668.15 (RFP)

Elevation: Ground Surface 5912.20'

Total Depth: Well 20.3'

Top of Casing 5914.19'

Borehole 20.8'

Formation of Completion Colluvium

Casing Material Schedule 40 PVC

Casing Diameter 2 3/8" O.D.

Screen Material Schedule 40 10-slotted PVC

Surface Casing Diameter 5 5/8" O.D.

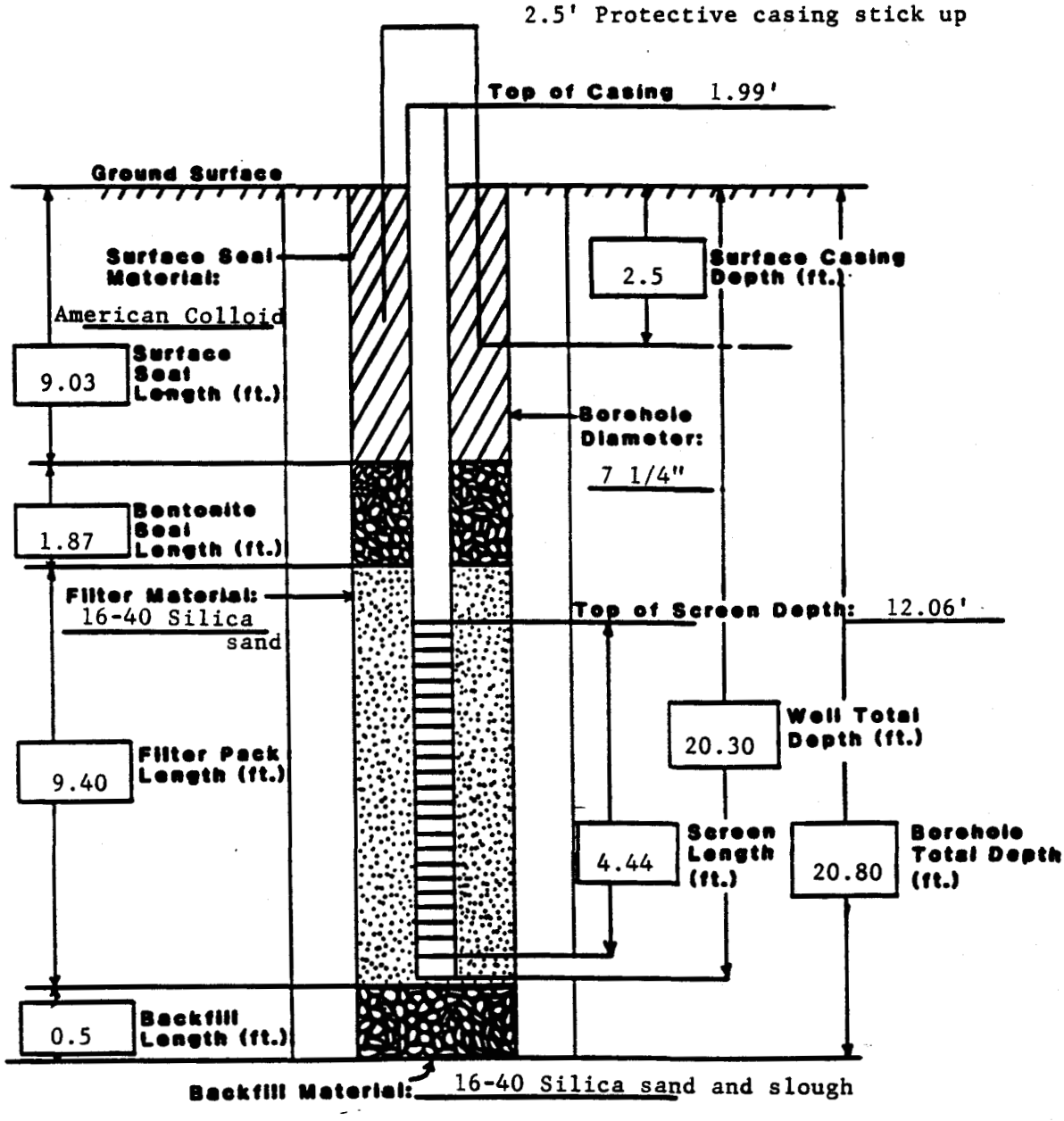
Date Installed 07/13/1990

Approved By JEMarks
Site Manager

Installed By R. Weed
Geologist

CEARP Manager

Comments Stainless steel centralizer placed at 16.72' to 17.77' below ground surface



GEOLOGIC LOG

Rocky Flats: 881 Hillside

Project Number: 2029-33-09-0020

Borehole/Well Id:	B303790	**Drilling Company:**	Boyles Bros.
Northing (ft):	35025.6	**Driller:**	DVStyles/PBushkouski
Easting (ft):	22176.8	**Helper:**	KParker/BO'Connor
Ground Surface Elev (ft):	5913.3	**Rig Type:**	B-57
Total Depth (ft):	11.3/32.0	**Drilling Method:**	HS Auger/NX Core
Logged By:	RWeed/SPCarpenter	**Drilling Fluid:**	None/Water
Checked By SM:		**Date Started:**	7/16/90
Checked By PM:		**Date Completed:**	7/19/90
QA By / Date:	JDL 07/26/90	**Well Type:**	BH

Comments: French drain geotechnical study. Surface casing set to 11.3' below ground surface on 07/16/90. Alluvial geotechnical samples collected. French drain alignment.

Depth (ft)	Graphic Log	Sample T	Sample ID	SPT N-Val	REC %	RQD %	Lithologic Description	Notes:
0–1					45		**TOPSOIL** 0.0 to 2.0': RUN RECOVERED 0.9/2.0 SILTY SANDY CLAY: moderate brown (5YR 3/4); nonstratified; some gravel up to 5 cm; subrounded and subangular; roots and grass throughout; soft; dry to damp.	Monitoring Instrument Background Levels: HNu: 0.0 units All readings inside auger; in breathing zone; on cuttings; and on core at background unless otherwise noted below. TRIP BLANK SAMPLE TB071690
2–3					100		**COLLUVIUM** 2.0 to 3.5': RUN RECOVERED 1.5/1.5' 2.0 to 2.1': SILTY SANDY CLAY: as above. 2.1 to 3.5': SILTY CLAY: light olive brown (5Y 5/6) and light olive gray (5Y 5/2); nonstratified; trace sand, gravel; medium plasticity; calcareous lenses to 2 cm thick; locally laminated; very stiff; damp.	2.0 to 3.5': SAMPLE (VOA'S ONLY) B3037900204 0.0 to 3.5': SAMPLE B3037900004
4–5				8 13 27	33		3.5 to 5.0': RUN RECOVERED 0.5/1.5' SILTY SANDY CLAY: dark yellowish brown (10YR 4/2); some gravel up to 7 cm; poorly sorted; quartzose; subrounded; low plasticity; calcareous flecks; roots; soft; dry to damp.	5.3 to 6.3': SAMPLE (VOA'S AND GEOTECHNICAL) B3037900507 5.3 to 6.3': LITHOLOGY Field interpretation change from SILTY CLAY to SANDY CLAY based on grain size analysis.
5–6				23 34 62	67		5.3 to 6.8': RUN RECOVERY 1.0/1.57 SANDY CLAY: light olive brown (5Y 5/6) and white (N9/0); nonstratified; trace to some sand; trace gravel;	HNu: 250 on core; 220 in cuttings; 0 - 5 in auger

GROUNDWATER

	DEPTH	HOUR	DATE
▽			
▼			

WESTON

GEOLOGIC LOG	Rocky Flats: 881 Hillside	Project Number: 2029-33-09-0020	PAGE: 2 of 5

Borehole/Well Id: B303790

Depth (ft)	Graphic Log	Sample T	Sample ID	SPT N-Val	REC %	RQD %	Lithologic Description	Notes:
							subangular; low plasticity; abundant calcareous lenses coatings; very stiff; damp.	
7					0		6.8 to 10.3': RUN Center bit run. No sample taken.	
8								
9								
10								HNu: 30-40 in hole
11				10 28 49	100		10.3 to 11.3': RUN RECOVERED 1.0/1.0' SILTY CLAYSTONE: light olive brown (5YR 5/6); blocky; trace sand; calcareous nodules; limonite on fractures, partings; very stiff; moist. TOTAL AUGERED DEPTH = 11.3'.	
12					116		11.3 to 13.2': SAMPLE RECOVERED 2.2/1.9' CLAY: yellowish gray (5Y 7/2); some to trace silt; iron staining; trace caliche; scattered sand size iron nodules; iron cementing; calcareous veining; claystone pieces; medium plasticity; soft; moist.	
13								
14					79		13.2 to 16.0': RUN RECOVERED 2.2/2.8' CLAY: light olive gray (5Y 5/2); medium gray (N5/0); some silt; some coarse to very coarse grained sand; moderately sorted; subangular; quartzose trace gravels up	

GROUNDWATER

	DEPTH	HOUR	DATE
∇			
▼			

WESTON

GEOLOGIC LOG	Rocky Flats: 881 Hillside	Project Number: 2029-33-09-0020	PAGE: 3 of 5

Borehole/Well Id: B303790

Depth (ft)	Graphic Log	Sample T	Sample ID	SPT N-Val	REC %	RQD %	Lithologic Description	Notes:
15							to 2 cm; scattered calcareous nodules and granules; iron staining; medium plasticity; stiff; moist.	
16					95	45	16.0 to 18.0': RUN RECOVERED 1.9/2.0 RQD = 0.9/2.0' 16.0 to 17.0': CLAY: yellowish gray (5Y 7/2); pale yellowish brown (10YR 6/2); dark yellowish orange (10YR 6/6); mottled; silty; trace gravels; trace sand; reworked claystone; iron staining; slight calcareous; medium plasticity; stiff; moist.	
17							BEDROCK 17.0 to 17.9': SILTY CLAYSTONE: dusky yellow (5Y 6/4); light olive gray (5Y 5/2); lenses of .1 to 2 cm of clayey siltstone; iron and manganese staining; weathered; calcareous veining; medium to low plasticity; soft to firm; moist.	PACKER TEST: 17.0 to 22.0'
18					93	93	18.0 to 21.0': RUN RECOVERED 2.8/3.0' RQD = 2.8/3.0' SILTY CLAYSTONE: same as above.	
19								
20								19.7': 90 deg.; Healed; Fe
21					100	100	21.0 to 22.0': RUN RECOVERED 1.0/1.0' RQD = 1.0/1.0' SILTY CLAYSTONE: same as above; moderate yellowish brown (10YR 5/4); dusky yellow (5Y 6/4); calcareous veins to inclusions.	21.5': 60 deg.; Healed; Fe/Ca
22								

GROUNDWATER

	DEPTH	HOUR	DATE
▽			
▼			

WESTON

GEOLOGIC LOG	Rocky Flats: 881 Hillside	Project Number: 2029-33-09-0020	PAGE: 4 of 5

Borehole/Well Id: B303790

Depth (ft)	Graphic Log	Sample T	Sample ID	SPT N-Val	REC %	RQD %	Lithologic Description	Notes:
23					108	108	22.0 to 23.2': RUN RECOVERED 1.3/1.2' RQD = 1.3/1.2' SILTY CLAYSTONE: moderate yellowish brown (10YR 5/4); light olive gray (5Y 5/2); .1 to 2 cm lenses of clayey siltstone; blocky; trace very fine grained sand; iron and manganese; medium plasticity; soft to firm; moist.	PACKER TEST: 22.0 to 27.0' 22.8': 70 deg.; Healed; Fe
24 25 26					110	110	23.2 to 27.0': RUN RECOVERED 4.2/3.8' RQD 4.2/3.8' CLAYSTONE: light olive gray (5Y 5/2); grayish orange (10YR 7/2); stained dark yellowish orange (10YR 6/6); mottled to banded; gradationally some silt to silty; calcareous nodules and caliche lenses up to 2 cm; manganese and iron staining; some iron and calcareous cementing; medium plasticity; soft to firm; moist.	Note: expansive claystone 24.3': 70 deg.; Healed/Open; Ca/Fe 24.5': 70 deg.; Healed/Open; Fe/Mn
27 28					100	100	27.0 to 28.2': RUN RECOVERED 1.2/1.2' RQD 1.2/1.2' SILTY CLAYSTONE: moderate yellowish brown (10YR 5/4); dusky yellow (5Y 6/4); lense; mottled; trace very fine grained sand; iron and manganese; medium to low plasticity; firm; damp to moist.	PACKER TEST: 27.0 to 32.0'
29 30					126	126	28.2 to 32.0': RUN RECOVERED 4.8/3.8' RQD = 4.8/3.8' CLAYEY SILTSTONE: same as above; .5 to 4 cm lenses of clayey siltstone to silty sandstone; very fine grained sand; well sorted; round; quartzose; some clay; iron and manganese staining; calcareous in part; medium to low plasticity; soft to firm; moist to damp.	Note: expansive claystone 28.2 to 32.0': LITHOLOGY Field interpretation changed from SILTY CLAYSTONE to CLAYEY SILTSTONE based on grain size analysis. 29.2': 80 deg.; Healed; Fe 29.4': 80 deg.; Healed; Fe

GROUNDWATER

	DEPTH	HOUR	DATE
▽			
▼			

WESTON

GEOLOGIC LOG	Rocky Flats: 881 Hillside	Project Number: 2029-33-09-0020	PAGE: 5 of 5

Borehole/Well Id: B303790

Depth (ft)	Graphic Log	Sample T	Sample ID	SPT N-Val	REC %	RQD %	Lithologic Description	Notes:
31								29.9': 80 deg.; Healed; Fe 30.8 to 31.5': SAMPLE (GEOTECHNICAL) B302790308315 30.9': 60 deg.; Healed; Fe 31.1': 80 deg.; Healed; Fe
32							TOTAL BOREHOLE DEPTH = 32.0'.	
33								
34								
35								
36								
37								
38								

GROUNDWATER

	DEPTH	HOUR	DATE
∇			
▼			

WESTON

GEOLOGIC LOG	Rocky Flats: 881 Hillside	Project Number: 2029-33-09-0020	PAGE: 1 of 4

Borehole/Well Id:	B303890	**Drilling Company:**	Boyles Bros.
Northing (ft):	34929.9	**Driller:**	DVStyles/PBushkouski
Easting (ft):	22017.9	**Helper:**	KParker/BO'Connor
Ground Surface Elev (ft):	5894.2	**Rig Type:**	B-57
Total Depth (ft):	13.0/28.0	**Drilling Method:**	HS Auger/NX Core
Logged By:	RWeed	**Drilling Fluid:**	None/Water
Checked By SM:	[signature]	**Date Started:**	7/13/90
Checked By PM:		**Date Completed:**	7/18/90
QA By / Date:	JDL 07/26/90	**Well Type:**	BH
Comments:	French drain geotechnical study. Surface casing set to 13.0' below ground suface on 07/13/90.		

Depth (ft)	Graphic Log	Sample T	Sample ID	SPT N-Val	REC %	RQD %	Lithologic Description	Notes:
0–1					55		**TOPSOIL** 0.0 to 2.0': RUN RECOVERED 1.1/2.0 0.0 to 0.5': SILTY CLAY: dusky brown (5YR 2/2) grading to olive gray (5Y 3/2); nonstratified; trace gravel; some fine to very coarse grained sand; low plasticity; soft; damp to moist. **COLLUVIUM** 0.5 to 1.1': SILTY CLAY: as above; no grass.	Monitoring Instrument Background Levels: HNu: 0.0 units All readings inside auger; in breathing zone; on cuttings; and on core at background unless otherwise noted below. TRIP BLANK SAMPLE TB071390 0.0 to 1.1': SAMPLE (VOA'S ONLY) B3038900002
2–3					40		2.0 to 4.0': RUN RECOVERED 0.8/2.0' SILTY CLAY: olive gray (5Y 3/2) grading to light olive brown (5Y 5/6); nonstratified; some gravel up to 10 cm; some fine to coarse grained sand; quartzose; feldspathic; low plasticity; fine roots; calcareous nodules; veins; limonite stain; very stiff; damp.	2.0 to 2.8': SAMPLE (VOA'S ONLY) B3038900204
4–6					100		4.0 to 6.0': RUN RECOVERED 2.0/2.0' SANDY SILTY CLAY: dusky yellow (5Y 6/4) and light olive brown (5Y 5/6); nonstratified; trace to some gravel; cobbles in last 0.6'; low plasticity; calcareous; very stiff; damp.	4.0 to 6.0': SAMPLE (VOA'S ONLY) B3038900406 0.0 to 6.0': SAMPLE B3038900006

GROUNDWATER

	DEPTH	HOUR	DATE
▽			
▼			

WESTON

GEOLOGIC LOG

Rocky Flats: 881 Hillside

Project Number: 2029-33-09-0020

Borehole/Well Id: B303890

Depth (ft)	Graphic Log	Sample T	Sample ID	SPT N-Val	REC %	RQD %	Lithologic Description	Notes:
7					100		6.0 to 8.0': RUN RECOVERY 2.0/2.0 6.0 to 7.8': SILTY CLAY: as above; some sand; banded and mottled limonite. 7.8 to 8.0': as above; moderate brown (5Y 4/4); sharp contact with above.	6.0 to 8.0': SAMPLE (VOA'S ONLY) B3038900608
8, 9					80		8.0 to 10.0': RUN RECOVERY 1.6/2.0' SILTY CLAY: moderate brown (5Y 4/4); nonstratified; trace to some sand; trace subrounded gravel to 10 cm; poorly sorted; low plasticity; calcareous coatings; very stiff; damp.	8.0 to 9.6': SAMPLE (VOA'S ONLY) B3038900810 6.0 to 9.6': SAMPLE B3038900610
10, 11					70		10.0 to 12.0': RUN RECOVERY 1.4/2.0 10.0 to 10.4': SILTY SANDY CLAY: light brown (5YR 5/6) trace to some gravel; otherwise as above. BEDROCK 10.4 to 11.4': SILTY CLAYSTONE: light olive gray (5YR 5/2) with light brown stain (5YR 5/6); blocky; medium plasticity; calcareous veining and blebs; limonite stains; very stiff; damp.	
12					0		12.0 to 13.0': RUN Center bit run. No sample taken. TOTAL AUGERED DEPTH = 13.0'.	
13, 14					16	16	13.0 to 16.2': RUN RECOVERED 0.5/3.2' RQD 0.5/3.2' CLAYSTONE: light olive gray (5Y 5/2) stained dark yellowish orange (10YR 6/6); blocky; some silt; weathered; iron staining; medium plasticity; stiff; damp.	

GROUNDWATER

	DEPTH	HOUR	DATE
▽			
▼			

WESTON

GEOLOGIC LOG	Rocky Flats: 881 Hillside	Project Number: 2029-33-09-0020	PAGE: 3 of 4

Borehole/Well Id: B303890

Depth (ft)	Graphic Log	Sample T	Sample ID	SPT N-Val	REC %	RQD %	Lithologic Description	Notes:
15 16								PACKER TEST: 14.0 to 18.0'
17					0	0	16.2 to 18.0': RUN RECOVERED 0.0/1.8' RQD = 0.0/1.8' CLAYSTONE: light olive gray (5Y 5/2); stained dark yellowish orange (10YR 6/6); blocky; some silty; weathered; iron staining; medium plasticity; soft; damp.	
18					120	120	18.0 to 19.0': RUN RECOVERED 1.2/1.0' RQD = 1.2/1.0' CLAYSTONE: olive gray (5Y 3/2); grayish orange (10YR 7/4); blocky; trace to some silt; iron staining; medium to high plasticity; firm; damp.	Note: expansive claystone
19 20 21 22					100	100	19.0 to 23.0': RUN RECOVERY 4.0/4.0 RQD = 4.0/4.0 CLAYSTONE: light olive gray (5Y 5/2) stained dark yellowish orange (10YR 6/6); blocky; trace to some silt; iron staining with iron nodules in fractures; medium to high plasticity; soft to firm; damp to moist.	19.4': 90 deg.; Healed; Fe 19.4 - 19.5': 15 deg.; Healed/Open; Fe 19.6': 90 deg.; Healed; Fe PACKER TEST: 20.0 to 23.0' 20.1': 75 deg.; Healed/Open; Fe nodules 20.4': 80 deg.; Healed; Fe 21.5': 85 deg.; Healed/Open; Fe nodules

GROUNDWATER

	DEPTH	HOUR	DATE
▽			
▼			

WESTON

GEOLOGIC LOG	Rocky Flats: 881 Hillside	Project Number: 2029-33-09-0020	PAGE: 4 of 4

Borehole/Well Id: B303890

Depth (ft)	Graphic Log	Sample T	Sample ID	SPT N-Val	REC %	RQD %	Lithologic Description	Notes:
23					43	43	23.0 to 26.0': RUN RECOVERED 1.3/3.0' RQD = 1.3/3.0' CLAYSTONE: olive gray (5Y 3/2); dusky yellow (5Y 6/4); mottled; trace to some silt; iron and manganese staining; medium to high plasticity; firm to soft; damp.	PACKER TEST: 23.0 to 28.0'
24								
25								
26					110	110	26.0 to 28.0': RUN RECOVERED 2.2/2.0' RQD = 2.2/2.0' CLAYSTONE: medium gray (N 5/0); yellowish orange (5Y 7/2); blocky; trace to some silt; silty at 27.3 to 27.8; iron to manganese staining; medium to high plasticity; firm; damp.	Note: expansive claystone 26.5 to 27.7': SAMPLE (GEOTECHNICAL) B303890265277 26.4': 55 deg.; Healed; Fe 26.4 - 26.5': 30 deg.; Healed; Fe/Mn 26.5': 35 deg.; Healed; Fe/Mn 27.1 - 27.3': 20 deg.; Healed; Fe/Mn 27.2 - 27.5': 50 deg.; Healed; Fe/Mn 27.3 - 27.6': 25 deg.; Healed; Fe/Mn
27								
28							TOTAL BOREHOLE DEPTH = 28.0'.	
29								
30								

GROUNDWATER

	DEPTH	HOUR	DATE
∇			
▼			

WESTON

GEOLOGIC LOG	Rocky Flats: 881 Hillside	Project Number: 2029-33-09-0020	PAGE: 1 of 3

Borehole/Well Id:	B303990	**Drilling Company:**	Boyles Bros.
Northing (ft):	34829.1	**Driller:**	DVStyles
Easting (ft):	21728.2	**Helper:**	KParker
Ground Surface Elev (ft):	5893.3	**Rig Type:**	B-57
Total Depth (ft):	15.4	**Drilling Method:**	HS Auger
Logged By:	RWeed	**Drilling Fluid:**	None
Checked By SM:		**Date Started:**	7/17/90
Checked By PM:		**Date Completed:**	7/17/90
QA By / Date:	JDL 07/26/90	**Well Type:**	BH

Comments: French drain geotechnical study. Alluviual geotechnical samples collected. French drain alignment.

Depth (ft)	Graphic Log	Sample T	Sample ID	SPT N-Val	REC %	RQD %	Lithologic Description	Notes:
0–1					50		**TOPSOIL** 0.0 to 2.0': RUN RECOVERED 1.0/2.0 SILTY CLAY: olive gray (5Y 3/2); nonstratified; some fine to coarse sand; trace gravel; quartzose; subangular; no plasticity; grass and roots throughout; very stiff; damp.	Monitoring Instrument Background Levels: HNu: 0.0 units All readings inside auger; in breathing zone; on cuttings; and on core at background unless otherwise noted below. TRIP BLANK SAMPLE TB071790
2–3					100		**COLLUVIUM** 2.0 to 3.7': RUN RECOVERED 1.7/1.7' SILTY CLAY: light olive gray (5Y 5/2) grading to olive gray (5Y 3/2); nonstratified; trace sand; trace gravel; medium plasticity; more calcareous nodules and flecks than above; fine roots throughout; very stiff; damp.	2.0 to 3.7': SAMPLE (VOA'S ONLY) B3039900204 0.0 to 3.7': SAMPLE B3039900004
4–5				13 21 50	80		3.7 to 5.2': RUN RECOVERED 1.2/1.5' SILTY CLAY: dusky yellow (5Y 6/4) and olive gray (5Y 3/2); nonstratified to locally laminated; some fine to coarse grained sand; trace gravel; medium plasticity; calcareous veins and flecks; small nodules; very stiff; damp.	3.7 to 5.2': SAMPLE (GEOTECHNICAL) B3039900405
5–6					0		5.2 to 10.7': RUN Center bit run. No sample taken.	

GROUNDWATER

	DEPTH	HOUR	DATE
▽			
▼			

WESTON

GEOLOGIC LOG

Rocky Flats: 881 Hillside

Project Number: 2029-33-09-0020

Borehole/Well Id: B303990

Depth (ft)	Graphic Log	Sample T	Sample ID	SPT N-Val	REC %	RQD %	Lithologic Description	Notes:
7								
8								
9								
10								10.7 to 11.3': LITHOLOGY Field interpretation change from SILTY CLAYEY SAND to CLAYEY SILT based on grain size analysis.
11				>50 23 26 45	100 60		10.7 to 11.2': RUN RECOVERED 0.5/0.5 CLAYEY SILT: pale yellowish brown (10YR 6/2) with light brown (5YR 5/6) stain; poorly laminated; fine to medium grained sand; moderately well sorted; no plasticity; calcareous; hard; dry.	10.7 to 11.2': SAMPLE (GEOTECHNICAL) B3039901011
12					0		11.2 to 12.7': RUN RECOVERED 0.9/1.5' SANDY CLAY: moderate yellowish brown (10YR 5/4); yellowish gray (5Y 7/2); lenses of light olive brown (5YR 5/6); nonstratified to locally laminated; fine to medium sand with sandier lenses; no plasticity; calcareous matrix; stiff to very stiff; damp.	11.2 to 12.1': SAMPLE (GEOTECHNICAL) B3039901112
13							12.7 to 13.9': RUN *Center bit run.* No sample taken.	
14								

GROUNDWATER

	DEPTH	HOUR	DATE
▽			
▼			

WESTON

GEOLOGIC LOG	Rocky Flats: 881 Hillside	Project Number: 2029-33-09-0020	PAGE: 3 of 3

Borehole/Well Id: B303990

Depth (ft)	Graphic Log	Sample T	Sample ID	SPT N-Val	REC %	RQD %	Lithologic Description	Notes:
				33 50 .23 X	33		**BEDROCK** 13.9 to 15.4': RUN RECOVERED 0.5/1.5' SILTY CLAYSTONE: light olive gray (5Y 5/6) with light brown (5Y 5/2) on partings; blocky; medium plasticity; calcareous veins; very stiff; moist.	13.9 to 14.4': SAMPLE (GEOTECHNICAL) B3039901415
15								
							TOTAL BOREHOLE DEPTH = 15.4'.	
16								
17								
18								
19								
20								
21								
22								

GROUNDWATER

	DEPTH	HOUR	DATE
▽			
▼			

WESTON

GEOLOGIC LOG	Rocky Flats: 881 Hillside	Project Number: 2029-33-09-0020	PAGE: 1 of 2

Borehole/Well Id:	B304090	Drilling Company:	Boyles Bros.
Northing (ft):	34772.3	Driller:	DVStyles
Easting (ft):	21235.6	Helper:	KParker
Ground Surface Elev (ft):	5918.0	Rig Type:	B-57
Total Depth (ft):	10.8	Drilling Method:	HS Auger
Logged By:	RWeed	Drilling Fluid:	None
Checked By SM:		Date Started:	7/18/90
Checked By PM:		Date Completed:	7/18/90
QA By / Date:	JDL 07/26/90	Well Type:	BH

Comments: French drain geotechnical study. Alluvial geotechnical samples collected. French drain alignment.

Depth (ft)	Graphic Log	Sample T	Sample ID	SPT N-Val	REC %	RQD %	Lithologic Description	Notes:
0–1					80		**TOPSOIL** 0.0 to 2.0': RUN RECOVERED 1.6/2.0 SILTY CLAY: olive gray (5YR 3/2); nonstratified; trace gravel, sand; no plasticity; grass and roots; soft grading to firm; dry grading to damp.	Monitoring Instrument Background Levels: HNu: 0.0 units All readings inside auger; in breathing zone; on cuttings; and on core at background unless otherwise noted below. TRIP BLANK SAMPLE TB071890
2–4					64		**COLLUVIUM** 2.0 to 4.5': RUN RECOVERED 1.6/2.5' SILTY CLAY: light olive gray (5Y 5/2); nonstratified; trace gravels, sand; medium plasticity; trace calcareous nodules, flecks; fine roots 2.0 to 2.6'; trace limonite mottles; stiff grading to very stiff; damp.	2.0 to 3.6': SAMPLE (VOA'S ONLY) B3040900204 0.0 to 3.6': SAMPLE B3040900004
5–6				9 21 32	67		4.5 to 6.0': RUN RECOVERED 1.0/1.5' SILTY CLAY: as above; light olive gray (5Y 5/2); to moderate yellowish brown (10YR 5/4); very stiff.	4.5 to 5.5': SAMPLE (GEOTECHNICAL) B3040900405

GROUNDWATER

	DEPTH	HOUR	DATE
▽			
▼			

WESTON

GEOLOGIC LOG	Rocky Flats: 881 Hillside	Project Number: 2029-33-09-0020	PAGE: 2 of 2

Borehole/Well Id: B304090

Depth (ft)	Graphic Log	Sample T	Sample ID	SPT N-Val	REC %	RQD %	Lithologic Description	Notes:
					0		6.0 to 9.4': RUN Center bit run. No sample taken.	
7								
8								
9								9.4 to 10.0': SAMPLE (GEOTECHNICAL) B3040901011
				27 6 50	43		BEDROCK 9.4 to 10.8': RUN RECOVERED 0.6/1.4' SILTY CLAYSTONE: light olive gray (5Y 5/2); blocky; medium plasticity; limonite in fractures; very stiff; damp.	
10								
11							TOTAL BOREHOLE DEPTH = 10.8'.	
12								
13								
14								

GROUNDWATER

	DEPTH	HOUR	DATE
▽			
▼			

WESTON

GEOLOGIC LOG

Rocky Flats: 881 Hillside

Project Number: 2029-33-09-0020

Borehole/Well Id:	B304190	Drilling Company:	Boyles Bros.
Northing (ft):	34730.5	Driller:	DVStyles
Easting (ft):	20749.7	Helper:	KParker
Ground Surface Elev (ft):	5933.3	Rig Type:	B-57
Total Depth (ft):	17.9	Drilling Method:	HS Auger
Logged By:	RWeed	Drilling Fluid:	None
Checked By SM:		Date Started:	7/18/90
Checked By PM:		Date Completed:	7/18/90
QA By / Date:	JDL 07/26/90	Well Type:	BH

Comments: French drain geotechnical study. Alluvial geotechnical samples collected. French drain aligment.

Depth (ft)	Graphic Log	Sample T	Sample ID	SPT N-Val	REC %	RQD %	Lithologic Description	Notes:
0–1					60		**TOPSOIL** 0.0 to 2.0': RUN RECOVERED 1.2/2.0 SILTY CLAY: light olive gray (5Y 5/2) and light brown (5YR 5/6) grading to olive gray (5Y 3/2); nonstratified; trace gravel; trace to some sand; subangular to subrounded; quartzose; granitic; no plasticity; grass and roots; calcareous flecks; firm to stiff; damp.	Monitoring Instrument Background Levels: HNu: 0.0 units All readings inside auger; in breathing zone; on cuttings; and on core at background unless otherwise noted below. TRIP BLANK SAMPLE TB071890
2–3					45		**COLLUVIUM** 2.0 to 4.0': RUN RECOVERED 0.9/2.0' SILTY CLAY: as above; olive gray (5Y 3/2) and moderate brown (5YR 3/4); no gravel; fine roots throughout.	2.0 to 2.9': SAMPLE (VOA'S ONLY) B3041900204 0.0 to 3.6': SAMPLE B3041900004
4–5				11 15 19	33		4.0 to 5.5': RUN RECOVERED 0.5/1.5' SILTY SANDY CLAY: moderate brown (5YR 3/4); nonstratified; fine to coarse sand; trace gravel; poorly sorted; medium plasticity; calcareous veins; fine roots; very stiff; damp.	4.0 to 4.5': SAMPLE (GEOTECHNICAL) B3041900405
5–6					0		5.5 to 8.0': RUN Center bit run. No sample taken.	

GROUNDWATER

DEPTH	HOUR	DATE

WESTON

GEOLOGIC LOG

Rocky Flats: 881 Hillside

Project Number: 2029-33-09-0020

Borehole/Well Id: B304190

Depth (ft)	Graphic Log	Sample T	Sample ID	SPT N-Val	REC %	RQD %	Lithologic Description	Notes:
7								
8				10 16 22	67		8.0 to 9.5': RUN RECOVERED 1.0/1.5' SILTY CLAY: moderate yellowish brown (10YR 5/4); nonstratified; trace gravel, sand; medium plasticity; calcareous veins; carbonaceous fragments; soft to firm; moist.	8.0 to 9.0': SAMPLE (GEOTECHNICAL) B3041900809
9								
10					0		9.5 to 12.7': RUN Center bit run. No sample taken.	
11								
12								
13				15 23 37	53		12.7 to 14.2': RUN RECOVERED 0.8/1.5' SILTY CLAY: moderate yellowish brown (10YR 5/4); nonstratified; trace sand and gravel up to 2 cm; subrounded; granitic; quartzose; medium plasticity; calcareous nodules, flecks; stiff; moist.	12.7 to 13.5': SAMPLE (GEOTECHNICAL) B3041901314
14								

GROUNDWATER

	DEPTH	HOUR	DATE
▽			
▼			

WESTON

GEOLOGIC LOG	Rocky Flats: 881 Hillside	Project Number: 2029-33-09-0020	PAGE: 3 of 3

Borehole/Well Id: B304190

Depth (ft)	Graphic Log	Sample T	Sample ID	SPT N-Val	REC %	RQD %	Lithologic Description	Notes:
15							14.2 to 16.4': RUN Center bit run. No sample taken.	
16								
17				13 23 30	47		BEDROCK 16.4 to 17.9': RUN RECOVERED 0.7/1.5' SILTY CLAYSTONE: light olive gray (5Y 5/2); blocky; medium plasticity; very slight limonite stain; very stiff; moist.	16.4 to 17.1': SAMPLE (GEOTECHNICAL) B3041901617 HNu: 20 in hole
18							TOTAL BOREHOLE DEPTH = 17.9'.	
19								
20								
21								
22								

GROUNDWATER

	DEPTH	HOUR	DATE
▽			
▼			

WESTON

GEOLOGIC LOG	Rocky Flats: 881 Hillside	Project Number: 2029-33-09-0020	PAGE: 1 of 4

Borehole/Well Id:	B304290	Drilling Company:	Boyles Bros.
Northing (ft):	34948.4	Driller:	DVStyles
Easting (ft):	20469.6	Helper:	KParker
Ground Surface Elev (ft):	5976.3	Rig Type:	B-57
Total Depth (ft):	28.4	Drilling Method:	HS Auger
Logged By:	RWeed	Drilling Fluid:	None
Checked By SM:	Janet Elwart	Date Started:	7/19/90
Checked By PM:		Date Completed:	7/19/90
QA By / Date:	JDL 07/26/90	Well Type:	BH
Comments:	French drain geotechnical study. Alluvial geotechnical samples collected. French drain aligment.		

Depth (ft)	Graphic Log	Sample T	Sample ID	SPT N-Val	REC %	RQD %	Lithologic Description	Notes:
0					60		**TOPSOIL** 0.0 to 2.0': RUN RECOVERED 1.2/2.0' GRAVELLY SANDY CLAY: moderate brown (5YR 4/4); nonstratified; gravels to 3 cm; subangular; quartzose; feldspathic; calcareous; low plasticity; roots and grass; trace calcareous nodules; limonite stain; many voids; very stiff; damp.	Monitoring Instrument Background Levels: HNu: 0.2 units All readings inside auger; in breathing zone; on cuttings; and on core at background unless otherwise noted below. TRIP BLANK SAMPLE TB071990 0.0 to 5.1': SAMPLE B3042900006
1								
2					24		**ARTIFICAL FILL** 2.0 to 4.5': RUN RECOVERED 0.6/2.5' GRAVELLY CLAYEY SAND: moderate yellowish brown (10YR 5/4); nonstratified; gravels as above; fine to coarse sand; poor to moderate calcareous cementation; abundant non-uniform limonite stain; very stiff; dry.	2.0 to 2.6': SAMPLE (VOA'S ONLY) B3042900204
3								
4								
5				20 27 29	40		4.5 to 6.0': RUN RECOVERED 0.6/1.5' 4.5 to 4.9': GRAVELLY CLAYEY SAND: as above. 4.9 to 5.1': SILTY CLAY: light olive gray (5Y 5/2) with abundant dark yellowish orange (10YR 6/6); trace to some sand; low plasticity; very stiff; dry to damp.	
6								

GROUNDWATER

	DEPTH	HOUR	DATE
∇			
▼			

WESTON

GEOLOGIC LOG

Rocky Flats: 881 Hillside

Project Number: 2029-33-09-0020

Borehole/Well Id: B304290

Depth (ft)	Graphic Log	Sample T	Sample ID	SPT N-Val	REC %	RQD %	Lithologic Description	Notes:
					0		6.0 to 8.8': RUN Center bit run. No sample taken.	
7								
8								
9				14 26 36	47		8.8 to 10.3': RUN RECOVERED 0.7/1.5' SILTY CLAY: light olive gray (5Y 5/2) with dark yellowish orange (10YR 6/6); nonstratified; trace to some sand; trace gravel; medium plasticity; limonite on partings and clasts; calcareous coatings; very stiff; moist.	8.8 to 9.5': SAMPLE (GEOTECHNICAL) B3042900910
10								
					0		10.3 to 12.7': RUN Center bit run. No sample taken.	
11								
12								
13				9 10 14	47		12.7 to 14.2': RUN RECOVERED 0.7/1.5' SILTY CLAY: as above.	12.7 to 13.4': SAMPLE (GEOTECHNICAL) B3042901314
14								

GROUNDWATER

	DEPTH	HOUR	DATE
∇			
▼			

WESTON

GEOLOGIC LOG	Rocky Flats: 881 Hillside	Project Number: 2029-33-09-0020	PAGE: 3 of 4

Borehole/Well Id: B304290

Depth (ft)	Graphic Log	Sample T	Sample ID	SPT N-Val	REC %	RQD %	Lithologic Description	Notes:
15, 16					0		14.2 to 16.7': RUN Center bit run. No sample taken.	16.7 to 17.6': SAMPLE (GEOTECHNICAL) B3042901718
17, 18				12 20 33	60		COLLUVIUM 16.7 to 18.2': RUN RECOVERED 0.9/1.5' SANDY CLAY: (BURIED TOPSOIL): olive gray (5Y 3/2) with dark yellowish orange (10YR 6/6); nonstratified to locally laminated; trace gravel up to 1 cm; rounded; trace sand; medium plasticity; very stiff; moist.	16.7 to 18.2': LITHOLOGY Field interpretation chanege from SILTY CLAY to SANDY CLAY based on grain size analysis.
19, 20					0		18.2 to 20.8': RUN Center bit run. No sample taken.	20.8 to 21.7': SAMPLE (GEOTECHNICAL) B3042902122
21, 22				14 34 36	60		20.8 to 22.3': RUN RECOVERED 0.9/1.5' SILTY CLAY: dark yellowish orange (10YR 6/6) and light olive gray (5Y 5/2); locally laminated; non-planar; trace sand and gravel < 1 cm; rounded; stiff; moist.	

GROUNDWATER

	DEPTH	HOUR	DATE
▽			
▼			

WESTON

GEOLOGIC LOG

Rocky Flats: 881 Hillside

Project Number: 2029-33-09-0020

Borehole/Well Id: B304290

Depth (ft)	Graphic Log	Sample T	Sample ID	SPT N-Val	REC %	RQD %	Lithologic Description	Notes:
					0		22.3 to 24.9': RUN Center bit run. No sample taken.	
23								
24								
25				14 29 40	47		BEDROCK 24.9 to 26.4': RUN RECOVERED 0.7/1.5' SILTY CLAYSTONE: light olive gray (5Y 5/2); blocky; medium to high plasticity; limonite on some partings; stiff; moist.	24.9 to 25.6': SAMPLE (GEOTECHNICAL) B3042902526
26								
					0		26.4 to 28.4': RUN Center bit run. No sample taken.	26.4 to 28.4': SAMPLE (VOA'S ONLY) B3042902628 B3042902628D
27								
28								
							TOTAL BOREHOLE DEPTH = 28.4'.	
29								
30								

GROUNDWATER

	DEPTH	HOUR	DATE
∇			
▼			

WESTON

GEOLOGIC LOG	Rocky Flats: 881 Hillside	Project Number: 2029-33-09-0020	PAGE: 1 of 2

Borehole/Well Id:	P302390	Drilling Company:	Boyles Bros.
Northing (ft):	35425.0	Driller:	DVStyles
Easting (ft):	21319.8	Helper:	ALBoday
Ground Surface Elev (ft):	5993.6	Rig Type:	B-57
Total Depth (ft):	12.7	Drilling Method:	HS Auger
Logged By:	DKWittenhagen	Drilling Fluid:	NA
Checked By SM:		Date Started:	6/27/90
Checked By PM:		Date Completed:	6/28/90
QA By / Date:	JEM 07/10/90	Well Type:	BH
Comments:	French drain geotechnical study. Influent - effluent line.		

Depth (ft)	Graphic Log	Sample T	Sample ID	SPT N-Val	REC %	RQD %	Lithologic Description	Notes:
0					10		ROCKY FLATS ALLUVIAL 0.0 to 2.0': RUN RECOVERED 0.2/2.0' SILTY SANDY CLAY: moderate yellowish brown (10YR 5/4); some iron staining; some coarse sand; poorly sorted; moist from wetting the ground prior to drilling (dust suppression).	Monitoring Instrument Background Levels: HNu: 0.0 units Ba: 100 CPM GM: 160 CPM All readings inside auger; in breathing zone; on cuttings; and on core at background unless otherwise noted below. TRIP BLANK SAMPLE TB062790
1								
2					17		2.0 to 3.5': RUN RECOVERED 0.25/1.5' SANDY CLAY: as above; moderate yellowish brown (10YR 5/4); organics (roots); dry. Note: poor recovery due to rock in end of core barrel.	0.0 to 6.2': SAMPLE P3023900007 HNu: 7.0 units in auger HNu: 0.0 units in breathing zone
3								
4					0		3.5 to 5.5': RUN Center bit run. No sample taken.	
5								
6					35		5.5 to 7.5': RUN RECOVERED 07./2.0' 5.5 to 5.8': GRAVELLY SILTY SANDY CLAY: light	5.5 to 6.2': SAMPLE (VOA'S ONLY) P3023900507

GROUNDWATER

	DEPTH	HOUR	DATE
▽			
▼			

WESTON

GEOLOGIC LOG

Rocky Flats: 881 Hillside

Project Number: 2029-33-09-0020

Borehole/Well Id: P302390

Depth (ft)	Graphic Log	Sample T	Sample ID	SPT N-Val	REC %	RQD %	Lithologic Description	Notes:
7							brown (5YR 5/6); dry. 5.8 to 6.0': GRAVELLY CLAY: light brown (5YR 5/6). 6.0 to 6.2': SAND: fine grained; compressed; moist.	Note: drilled to 7.7 ft on 06/27/90. Pulled auger hole caved 2 ft./90
8				40 17	100		7.7 to 8.7': RUN RECOVERED 1.0/1.0' No lithology: sample collected for geotechnical testing; placed in sealed containers to retain moisture.	8.45 to 8.7': SAMPLE (GEOTECHNICAL) P3023900708-3
9 10 11					0		8.7 to 11.7': RUN Center bit run. No sample taken.	
12				5 8	70	70	BEDROCK 11.7 to 12.7': RUN RECOVERED 0.7/1.0 RQD = 0.7/1.0' CLAYSTONE to SILTY CLAYSTONE: light brownish gray (5Y 6/1); iron staining.	
13 14							TOTAL BOREHOLE DEPTH = 12.7'.	

GROUNDWATER

	DEPTH	HOUR	DATE
▽			
▼			

WESTON

GEOLOGIC LOG	Rocky Flats: 881 Hillside	Project Number: 2029-33-09-0020	PAGE: 1 of 2

Borehole/Well Id:	P302390R	Drilling Company:	Boyles Bros.
Northing (ft):		Driller:	DVStyles
Easting (ft):		Helper:	
Ground Surface Elev (ft):	5993.6	Rig Type:	B-57
Total Depth (ft):	10.0	Drilling Method:	HS Auger
Logged By:	RWeed	Drilling Fluid:	None
Checked By SM:		Date Started:	7/5/90
Checked By PM:		Date Completed:	7/5/90
QA By / Date:		Well Type:	BH

Comments: French drain geotechnical study. ~8' west of P302390, redrilled to collect California Sample. Influent - effluent line.

Depth (ft)	Graphic Log	Sample T	Sample ID	SPT N-Val	REC %	RQD %	Lithologic Description	Notes:
0					0		**ROCKY FLATS COLLUVIUM** 0.0 to 8.5': RUN Center bit run. No sample taken.	Monitoring Instrument Background Levels: HNu: 0.0 units Ba: 100CPM GM: 160 CPM All readings inside auger; in breathing zone; on cuttings; and on core at background unless otherwise noted below.
1								
2								
3								
4								Note: rocks encountered prevented sampling with California sampler between 4.0 to 6.0'.
5								
6								

GROUNDWATER

	DEPTH	HOUR	DATE
▽			
▼			

WESTON

GEOLOGIC LOG	Rocky Flats: 881 Hillside	Project Number: 2029-33-09-0020	PAGE: 2 of 2

Borehole/Well Id: P302390R

Depth (ft)	Graphic Log	Sample T	Sample ID	SPT N-Val	REC %	RQD %	Lithologic Description	Notes:
7								
8								
9				19 31 46	80		8.5 to 10.0': RUN RECOVERED 1.2/1.5' SANDY CLAYEY GRAVEL: moderate yellowish brown (10YR 5/4); gravels up to 15 cm; poorly cemented; abundant limonite; calcareous coatings; damp.	8.5 to 9.7': SAMPLE (GEOTECHNICAL) P3023900809RB
10							TOTAL BOREHOLE DEPTH = 10.0'.	
11								
12								
13								
14								

GROUNDWATER

	DEPTH	HOUR	DATE
▽			
▼			

WESTON

GEOLOGIC LOG	Rocky Flats: 881 Hillside	Project Number: 2029-33-09-0020	PAGE: 1 of 4

Borehole/Well Id:	P302490	Drilling Company:	Boyles Bros.
Northing (ft):	35381.9	Driller:	DVStyles
Easting (ft):	21223.5	Helper:	ALBoday
Ground Surface Elev (ft):	5992.6	Rig Type:	B-57
Total Depth (ft):	22.1	Drilling Method:	HS Auger
Logged By:	DKWittenhagen	Drilling Fluid:	None
Checked By SM:		Date Started:	6/28/90
Checked By PM:		Date Completed:	6/28/90
QA By / Date:	JEM 07/10/90	Well Type:	BH
Comments:	French drain geotechnical study. Influent - effluent line.		

Depth (ft)	Graphic Log	Sample T	Sample ID	SPT N-Val	REC %	RQD %	Lithologic Description	Notes:
0					90		**TOPSOIL** 0.0 to 2.0': RUN RECOVERED 1.8/2.0' 0.0 to 0.5': SAND with GRAVEL: light brownish gray (5Y 6/1); sandy; organics (roots); caliche; dry. 0.5 to 1.8': SAND WITH GRAVEL: light brownish gray (5YR 6/1); caliche; very poorly sorted; dry.	Monitoring Instrument Background Levels: HNu: 0.24 units Ba: 100 CPM GM: 160 CPM All readings inside auger; in breathing zone; on cuttings; and on core at background unless otherwise noted below. TRIP BLANK SAMPLE TB062890
1								
2					42		**ROCKY FLATS ALLUVIUM** 2.0 to 4.4': RUN RECOVERED 1.0/2.4' SAND WITH GRAVEL: same as above.	2.0 to 3.0': SAMPLE (VOA'S ONLY) P3024900204 P3024900204D
3								
4								0.0 to 5.4': SAMPLE P3024900005
					100		4.4 to 5.4': RUN RECOVERED 1.0/1.0' SILTY SANDY CLAY: moderate yellowish brown (10YR 5/4) to light olive gray (5Y 6/1); mottled; iron staining throughout; grading to SILTY CLAY; caliche; damp to moist.	
5								
				4 35	100		5.4 to 6.4': RUN RECOVERED 1.0/1.0' SILTY SANDY CLAY: same as above; mottled; broken gravel; very poorly sorted; caliche.	
6								

GROUNDWATER

	DEPTH	HOUR	DATE
▽			
▼			

WESTON

GEOLOGIC LOG

Rocky Flats: 881 Hillside

Project Number: 2029-33-09-0020

Borehole/Well Id: P302490

Depth (ft)	Graphic Log	Sample T	Sample ID	SPT N-Val	REC %	RQD %	Lithologic Description	Notes:
7					0		6.4 to 7.9': RUN Center bit run. No samples taken. Gravel encountered.	Drilled to beneath the rock at 7.9'.
8				9 11	100		7.9 to 8.9': RUN RECOVERED 1.0/1.0' SANDY SILTY CLAY: moderate brown (5YR4/4) to moderately reddish brown (10R 4/6); oxidized; grading to red clay with sand and silt; broken quartzite pebbles; moist.	8.23 to 8.57': SAMPLE (GEOTECHNICAL) P3024900809-2
9 10 11 12					0		8.9 to 12.3': RUN Center bit run. No sample taken.	
13				5 6	100		12.3 to 13.3': RUN RECOVERED 1.0/1.0' SANDY GRAVELLY CLAY: grayish orange (10YR 7/4); pieces of gravel; very poorly sorted; angular; some quartzite; some iron staining; moist.	
14					0		13.3 to 16.05': RUN Center bit run. No sample taken.	

GROUNDWATER

	DEPTH	HOUR	DATE
▽			
▼			

WESTON

GEOLOGIC LOG	Rocky Flats: 881 Hillside	Project Number: 2029-33-09-0020	PAGE: 3 of 4

Borehole/Well Id: P302490

Depth (ft)	Graphic Log	Sample T	Sample ID	SPT N-Val	REC %	RQD %	Lithologic Description	Notes:
15								
16				4 7	100		16.05 to 17.05': RUN RECOVERED 1.0/1.0' SILTY CLAY: yellowish gray (5Y 7/2); mottled; some iron staining; moist.	
17					0		17.05 to 21.1': RUN Center bit run. No sample taken.	
18								
19								
20								
21				11 18	100	100	BEDROCK 21.1 to 22.1': RUN RECOVERED 1.0/1.0' RQD = 1.0/1.0' SILTY CLAYSTONE: light olive gray (5Y 6/1); some iron staining; moist.	
22								

GROUNDWATER

	DEPTH	HOUR	DATE
▽			
▼			

WESTON

GEOLOGIC LOG	Rocky Flats: 881 Hillside	Project Number: 2029-33-09-0020	PAGE: 4 of 4

Borehole/Well Id: P302490

Depth (ft)	Graphic Log	Sample T	Sample ID	SPT N-Val	REC %	RQD %	Lithologic Description	Notes:
							TOTAL BOREHOLE DEPTH = 22.1'.	
23								
24								
25								
26								
27								
28								
29								
30								

GROUNDWATER

	DEPTH	HOUR	DATE
▽			
▼			

WESTON

GEOLOGIC LOG	Rocky Flats: 881 Hillside	Project Number: 2029-33-09-0020	PAGE: 1 of 1

Borehole/Well Id:	P302490R	**Drilling Company:**	Boyles Bros.
Northing (ft):		**Driller:**	DVStyles
Easting (ft):		**Helper:**	
Ground Surface Elev (ft):	5992.6	**Rig Type:**	B-57
Total Depth (ft):	5.5	**Drilling Method:**	HS Auger
Logged By:	RWeed	**Drilling Fluid:**	None
Checked By SM:	[illegible]	**Date Started:**	7/5/90
Checked By PM:		**Date Completed:**	7/5/90
QA By / Date:		**Well Type:**	BH

Comments: French drain geotechnical study. ~4' south of P302490, redrilled to collect California Sample.

Depth (ft)	Graphic Log	Sample T	Sample ID	SPT N-Val	REC %	RQD %	Lithologic Description	Notes:
0					0		**ROCKY FLATS COLLUVIUM** 0.0 to 4.0': RUN Center bit run. No sample taken.	Monitoring Instrument Background Levels: HNu: 0.0 units All readings inside auger; in breathing zone; on cuttings; and on core at background unless otherwise noted below.
1								
2								
3								
4				5 5 8	53		4.0 to 5.5': RUN RECOVERED 0.8/1.5' GRAVELLY SILTY CLAY: moderate yellowish brown (10YR 5/4); medium plasticity; calcareous coatings; nodules; moist.	4.0 to 4.8': SAMPLE (GEOTECHNICAL) P302490405RM
5								
6							TOTAL BOREHOLE DEPTH = 5.5'.	

GROUNDWATER

	DEPTH	HOUR	DATE
▽			
▼			

WESTON

GEOLOGIC LOG	Rocky Flats: 881 Hillside	Project Number: 2029-33-09-0020	PAGE: 1 of 3

Borehole/Well Id:	P302590	**Drilling Company:**	Boyles Bros.
Northing (ft):	35349.7	**Driller:**	DVStyles
Easting (ft):	21173.1	**Helper:**	ALBoday
Ground Surface Elev (ft):	5984.0	**Rig Type:**	B-57
Total Depth (ft):	14.1	**Drilling Method:**	HS Auger
Logged By:	RWeed	**Drilling Fluid:**	None
Checked By SM:		**Date Started:**	6/29/90
Checked By PM:		**Date Completed:**	6/29/90
QA By / Date:	JDL 07/25/90	**Well Type:**	BH
Comments:	French drain geotechnical study. Influent - effluent line.		

Depth (ft)	Graphic Log	Sample T	Sample ID	SPT N-Val	REC %	RQD %	Lithologic Description	Notes:
0					57		**ARTIFICIAL FILL** 0.0 to 3.0': RUN RECOVERED 1.7/3.0' 0.0 to 0.3': GRAVEL: road gravel. 0.3 to 1.7': SILTY SANDY GRAVEL: dark yellowish brown (10YR 4/2); nonstratified; gravel up to 10 cm; quartzose; granitic; sandstone; poorly sorted; subangular; calcareous coatings; uncemented; dry.	Monitoring Instrument Background Levels: HNu: 0.2 units Ba: 100 CPM GM: 160 CPM All readings inside auger; in breathing zone; on cuttings; and on core at background unless otherwise noted below. TRIP BLANK SAMPLE TB0625990 FIELD BLANK SAMPLE P3025900014FB
1								
2								
3					45		**ROCKY FLATS ALLUVIUM** 3.0 to 5.0': RUN RECOVERED 0.9/2.0' CLAYEY SANDY GRAVEL: light olive gray (5Y 5/2) with moderate reddish brown (10R 4/6); nonstratified; gravel as above to 15 cm; poorly sorted; poorly cemented; damp.	3.0 to 3.9': SAMPLE (VOA'S ONLY) P3025900305 0.0 to 5.0': SAMPLE P3025900004
4								
5					0		5.0 to 6.0': RUN Center bit run. No sample taken.	
6								

GROUNDWATER

	DEPTH	HOUR	DATE
▽			
▼			

WESTON

GEOLOGIC LOG

Rocky Flats: 881 Hillside

Project Number: 2029-33-09-0020

Borehole/Well Id: P302590

Depth (ft)	Graphic Log	Sample T	Sample ID	SPT N-Val	REC %	RQD %	Lithologic Description	Notes:
				13 15	100		6.0 to 7.0': RUN RECOVERED 1.0/1.0' CLAYEY SANDY GRAVEL: as above.	6.0 to 7.0': SAMPLE (GEOTECHNICAL) P3025900607-B
7					0		7.0 to 10.0': RUN Center bit run. No sample taken.	
8								
9								
10				4 6	100		BEDROCK 10.0 to 11.0': RUN RECOVERED 1.0/1.0' SILTY CLAYSTONE: except loose gravel at 10.0 to 10.1'; light olive gray (5Y 5/2) and light brown (5Y 6/4); nonstratified; blocky; trace sand; limonite mottling; stiff; damp to moist.	
11					0		11.0 to 14.1': RUN Center bit run. No sample taken.	
12								
13				9 17	100		13.0 to 14.1': RUN RECOVERY 1.1/1.1' SILTY CLAYSTONE: as above; less iron stain; very stiff; damp.	
14								

GROUNDWATER

	DEPTH	HOUR	DATE
▽			
▼			

WESTON

GEOLOGIC LOG	Rocky Flats: 881 Hillside	Project Number: 2029-33-09-0020	PAGE: 3 of 3

Borehole/Well Id: P302590

Depth (ft)	Graphic Log	Sample T	Sample ID	SPT N-Val	REC %	RQD %	Lithologic Description	Notes:
							TOTAL BOREHOLE DEPTH = 14.1'.	
15								
16								
17								
18								
19								
20								
21								
22								

GROUNDWATER

	DEPTH	HOUR	DATE
▽			
▼			

WESTON

GEOLOGIC LOG	Rocky Flats: 881 Hillside	Project Number: 2029-33-09-0020	PAGE: 1 of 4

Borehole/Well Id:	P302690	Drilling Company:	Boyles Bros.
Northing (ft):	35237.2	Driller:	DVStyles
Easting (ft):	21130.4	Helper:	ALBoday
Ground Surface Elev (ft):	5966.9	Rig Type:	B-57
Total Depth (ft):	27.0	Drilling Method:	HS Auger
Logged By:	RWeed	Drilling Fluid:	None
Checked By SM:		Date Started:	7/2/90
Checked By PM:		Date Completed:	7/2/90
QA By / Date:	JDL 07/25/90	Well Type:	BH
Comments:	French drain geotechnical study. Influent - effluent line.		

Depth (ft)	Graphic Log	Sample T	Sample ID	SPT N-Val	REC %	RQD %	Lithologic Description	Notes:
0					100		**ARTIFICIAL FILL** 0.0 to 2.0': RUN RECOVERED 2.0/2.0' 0.0 to 0.6': CLAYEY GRAVELLY SAND: moderate olive brown (5Y 4/4); nonstratified; gravels to 6 cm; poorly sorted; moderate cement; moist. 0.6 to 2.0': SILTY CLAY: moderate brown (5YR 4/4); nonstratified; trace fine to coarse sand; poorly sorted; stiff; damp to moist. **COLLUVIUM**	Monitoring Instrument Background Levels: HNu: 0.0 units Ba: 100 CPM GM: 160 CPM All readings inside auger; in breathing zone; on cuttings; and on core at background unless otherwise noted below. TRIP BLANK SAMPLE TB070290
1								
2					59		**TOPSOIL (BURIED)** 2.0 to 4.7': RUN RECOVERED 1.6/2.7' SILTY CLAY: dusky brown (5YR 2/2); nonstratified; trace sand and gravel; medium to high plasticity; calcareous veining; stiff; moist.	2.0 to 3.6': SAMPLE (VOA'S ONLY) P3026900204
3								0.0 to 3.6': SAMPLE P3026900004
4								4.7 to 4.96': SAMPLE P3026900506
5				7 15	26		4.7 to 5.7': RUN RECOVERED 0.26/1.0' SILTY SANDY CLAY: olive gray (5Y 3/2); nonstratified; trace gravel; calcareous coatings; limonite stain; stiff; moist.	
6					0		5.7 to 8.7': RUN	

GROUNDWATER

	DEPTH	HOUR	DATE
▽			
▼			

WESTON

GEOLOGIC LOG	Rocky Flats: 881 Hillside	Project Number: 2029-33-09-0020	PAGE: 2 of 4

Borehole/Well Id: P302690

Depth (ft)	Graphic Log	Sample T	Sample ID	SPT N-Val	REC %	RQD %	Lithologic Description	Notes:
7 8							Center bit run. No sample taken.	
9				7 10	30		8.7 to 9.7': RUN RECOVERED 0.3/1.0' SILTY CLAY: dark yellowish brown (10YR 4/2); nonstratified; trace sand and gravel; up to 5 cm; medium plasticity; limonite stain; stiff; moist.	
10				7 11	100		9.7 to 10.7': RUN RECOVERED 1.0/1.0' SILTY CLAY: as above.	9.7 to 10.7': SAMPLE (GEOTECHNICAL) P3026901011-M P3026901011-B
11					0		10.7 to 11.7: RUN Center bit run. No sample taken.	
12				4 4	100		11.7 to 12.7': RUN RECOVERED 1.0/1.0' SILTY CLAY: as above; subrounded gravels; quartzose.	
13 14					0		12.7 to 14.2': RUN Center bit run. No sample taken.	

GROUNDWATER

	DEPTH	HOUR	DATE
▽			
▼			

WESTON

GEOLOGIC LOG

Rocky Flats: 881 Hillside

Project Number: 2029-33-09-0020

Borehole/Well Id: P302690

Depth (ft)	Graphic Log	Sample T	Sample ID	SPT N-Val	REC %	RQD %	Lithologic Description	Notes:
15				4 4	100		14.2 to 15.7': RUN RECOVERED 1.5/1.5' SILTY SANDY CLAY: light olive gray (5YR 5/6); nonstratified; fine to coarse grained sand; abundant mica; limonite mottling; stiff; wet.	
16					0		15.7 to 16.7': RUN Center bit run. No sample taken.	
17 18				4 5	87		16.7 to 18.2': RUN RECOVERED 1.3/1.5' SILTY CLAY: nonstratified; trace sand and gravel; up to 1 cm; subrounded; quartzose; medium plasticity; stiff; wet.	
19 20 21 22					0		18.2 to 22.2': RUN Center bit run. No sample taken.	

GROUNDWATER

	DEPTH	HOUR	DATE
▽			
▼			

WESTON

GEOLOGIC LOG

Rocky Flats: 881 Hillside

Project Number: 2029-33-09-0020

Borehole/Well Id: P302690

Depth (ft)	Graphic Log	Sample T	Sample ID	SPT N-Val	REC %	RQD %	Lithologic Description	Notes:
				28 50	40		22.2 to 23.2': RUN RECOVERED 0.4/1.0' SILTY SANDY GRAVEL: moderate yellowish brown (10YR 5/4); nonstratified; gravels up to 10 cm; subangular; quartzose and feldspathic; uncemented; wet.	
23					0		23.2 to 26.0': RUN Center bit run. No sample taken.	
24								
25								
26					60		BEDROCK 26.0 to 27.0': RUN RECOVERED 0.6/1.0' SILTY CLAYSTONE: light olive gray (5Y 5/2) and olive gray (5Y 3/2); blocky; low plasticity; very stiff; moist.	
27							TOTAL BOREHOLE DEPTH = 27.0'.	
28								
29								
30								

GROUNDWATER

	DEPTH	HOUR	DATE
▽			
▼			

WESTON

GEOLOGIC LOG

Rocky Flats: 881 Hillside

Project Number: 2029-33-09-0020

Borehole/Well Id:	P302790	**Drilling Company:**	Boyles Bros.
Northing (ft):	35139.6	**Driller:**	DVStyles
Easting (ft):	21108.0	**Helper:**	ALBoday
Ground Surface Elev (ft):	5963.9	**Rig Type:**	B-57
Total Depth (ft):	20.1	**Drilling Method:**	HS Auger
Logged By:	RWeed	**Drilling Fluid:**	None
Checked By SM:	[signature]	**Date Started:**	7/2/90
Checked By PM:		**Date Completed:**	7/3/90
QA By / Date:	JDL 07/25/90	**Well Type:**	BH
Comments:	French drain geotechnical study. Influent - effluent line.		

Depth (ft)	Graphic Log	Sample T	Sample ID	SPT N-Val	REC %	RQD %	Lithologic Description	Notes:
0–1					95		**ARTIFICIAL FILL** 0.0 to 2.0': RUN RECOVERED 1.9/2.0' GRAVELLY SANDY CLAY: light olive gray (5Y 5/2); and light brown (5Y 5/6); nonstratified; gravels to 4 cm; poorly sorted; subangular; quartzose feldspathic; calcareous; limonite stain; calcareous nodules; well cemented; moist.	Monitoring Instrument Background Levels: HNu: 0.2 units Ba: 100 CPM GM: 160 CPM All readings inside auger; in breathing zone; on cuttings; and on core at background unless otherwise noted below. TRIP BLANK SAMPLE TB070290
2–3					76		2.0 to 3.7': RUN RECOVERED 1.3/1.7' GRAVELLY SANDY CLAY: as above; more sand; moderate cementation. **COLLUVIUM**	2.0 to 3.3': SAMPLE (VOA'S ONLY) P3027900204 0.0 to 3.3': SAMPLE P3027900004
4				3 4	90		**TOPSOIL (BURIED)** 3.7 to 4.7': RUN RECOVERED 0.9/1.0' SILTY CLAY: grayish brown (5Y 3/2); nonstratified; trace sand and gravel; medium plasticity; roots; stiff; moist.	3.7 to 4.6': SAMPLES (GEOTECHNICAL) P3027900405-M P3027900405-B
5–6				2 5 7	100		4.7 to 6.2': RUN RECOVERED 1.5/1.5' SILTY CLAY: dark yellowish brown (10Y 4/2); nonstratified; trace sand; medium plasticity; roots; firm; moist to wet.	4.7 to 6.2': SAMPLE (GEOTECHNICAL) P3027900506-M P3027900506-B

GROUNDWATER

	DEPTH	HOUR	DATE
▽	8.2		
▼			

WESTON

GEOLOGIC LOG

Rocky Flats: 881 Hillside

Project Number: 2029-33-09-0020

Borehole/Well Id: P302790

Depth (ft)	Graphic Log	Sample T	Sample ID	SPT N-Val	REC %	RQD %	Lithologic Description	Notes:
					0		6.2 to 8.2': RUN Center bit run. No sample taken.	
7								
8								
▽				4 6 7	60		8.2 to 9.7': RUN RECOVERED 0.9/1.5' SILTY CLAY: moderate yellowish brown (10YR 5/4); nonstratified; trace fine to coarse grained sand; trace gravel; subrounded; quartzose; limonite nodules; calcareous veining; iron and manganese stain on partings.	
9								
					0		9.7 to 11.4': RUN Center bit run. No sample taken.	
10								
11								
				9 6 5	73		11.4 to 12.9': RUN RECOVERED 1.1/1.5' 11.4 to 12.1': GRAVELLY CLAYEY SAND moderate yellowish brown (10YR 5/4); nonstratified; fine to coarse sand; gravels up to 0.5 cm; quartzose and feldspathic; iron and manganese stain; uncemented; wet. BEDROCK 12.1 to 12.5': SILTY CLAYSTONE: blocky; very stiff; wet.	
12								
13					0		12.9 to 16.5': RUN Center bit run. No sample taken.	
14								

GROUNDWATER

	DEPTH	HOUR	DATE
▽	8.2		
▼			

WESTON

GEOLOGIC LOG

Rocky Flats: 881 Hillside

Project Number: 2029-33-09-0020

Borehole/Well Id: P302790

Depth (ft)	Graphic Log	Sample T	Sample ID	SPT N-Val	REC %	RQD %	Lithologic Description	Notes:
15								
16								
17				3 7 10	80		16.5 to 18.0': RUN RECOVERED 1.2/1.5' SILTY CLAYSTONE: light olive gray (5Y 5/2) and light brown (5Y 5/6) mottling; as above.	
18					0		18.0 to 19.1': RUN Center bit run. No sample taken.	
19				8 9	100		19.1 to 20.1': RUN RECOVERED 1.0/1.0' SILTY CLAYSTONE: as above.	
20							TOTAL BOREHOLE DEPTH 20.1'.	
21								
22								

GROUNDWATER

	DEPTH	HOUR	DATE
▽	8.2		
▼			

WESTON

GEOLOGIC LOG	Rocky Flats: 881 Hillside	Project Number: 2029-33-09-0020	PAGE: 1 of 3

Borehole/Well Id:	P302890	**Drilling Company:**	Boyles Bros.
Northing (ft):	35084.7	**Driller:**	KParker
Easting (ft):	21084.2	**Helper:**	BO'Connor
Ground Surface Elev (ft):	5962.3	**Rig Type:**	B-57
Total Depth (ft):	20.8	**Drilling Method:**	HS Auger
Logged By:	RWeed	**Drilling Fluid:**	None
Checked By SM:		**Date Started:**	7/5/90
Checked By PM:		**Date Completed:**	7/5/90
QA By / Date:	JDL 07/25/90	**Well Type:**	BH
Comments:	French drain geotechnical study. Influent - effluent line.		

Depth (ft)	Graphic Log	Sample T	Sample ID	SPT N-Val	REC %	RQD %	Lithologic Description	Notes:
0					100		**ARTIFICIAL FILL** 0.0 to 2.0': RUN RECOVERED 2.0/2.0' SILTY CLAY: light olive gray (5Y 5/2); and light olive brown (5Y 5/6); nonstratified; trace gravel to 10 cm; subangular to subrounded; limonite nodules; calcareous flecks; stiff; moist.	Monitoring Instrument Background Levels: HNu: 0.0 units All readings inside auger; in breathing zone; on cuttings; and on core at background unless otherwise noted below. TRIP BLANK SAMPLE TB070590
1								
2					60		2.0 to 4.0': RUN RECOVERED 1.2/2.0' SILTY CLAY: pale olive gray (10YR 6/2) and light olive brown (5Y 5/6); nonstratified; medium plasticity; trace fine to coarse grained sand; limonite stains; fine roots; stiff; moist.	2.0 to 3.2': SAMPLE (VOA'S ONLY) P3028900204 0.0 to 3.2': SAMPLE P3028900004
3								
4				3 6	80		4.0 to 5.0': RUN RECOVERED 0.8/1.0' 4.0 to 4.7': SILTY CLAY: as above. **COLLUVIUM** **TOPSOIL (BURIED)** 4.7 to 4.8': SILTY CLAY: dusty yellowish brown (10Y 2/2); nonstratified; trace sand and gravel; medium plasticity; fine roots; stiff; moist.	4.0 to 4.7': SAMPLES (GEOTECHNICAL) P3028900405-B P3028900405-M
5					0		5.0 to 8.4': RUN Center bit run. No sample taken.	
6								

GROUNDWATER

	DEPTH	HOUR	DATE
▽			
▼			

WESTON

GEOLOGIC LOG

Rocky Flats: 881 Hillside

Project Number: 2029-33-09-0020

Borehole/Well Id: P302890

Depth (ft)	Graphic Log	Sample T	Sample ID	SPT N-Val	REC %	RQD %	Lithologic Description	Notes:
7								
8								
9				2 4 5	73		8.4 to 9.9': RUN RECOVERED 1.1/1.5' SILTY CLAY: light olive brown (5YR 5/6); nonstratified; trace sand and gravel; subangular to subrounded; medium plasticity; soft; moist.	
10					0		9.9 to 12.4': RUN Center bit run. No sample taken.	
11								
12								
13				3 9 11	67		12.4 to 13.9': RUN RECOVERED 1.0/1.5' SILTY CLAY: as above; light olive gray (5Y 5/2); and light olive brown (5Y 5/6).	
14								

GROUNDWATER

	DEPTH	HOUR	DATE
∇			
▼			

WESTON

GEOLOGIC LOG

Rocky Flats: 881 Hillside

Project Number: 2029-33-09-0020

Borehole/Well Id: P302890

Depth (ft)	Graphic Log	Sample T	Sample ID	SPT N-Val	REC %	RQD %	Lithologic Description	Notes:
15					0		13.9 to 16.0': RUN Center bit run. No sample taken.	
16					100		16.0 to 17.5': RUN RECOVERED 1.5/1.5' 16.0 to 16.4': SANDY GRAVELLY CLAY: yellowish gray (5Y 8/1); nonstratified; gravels 3 - 4 mm; angular; calcareous; poorly sorted; medium plasticity; firm; moist. 16.4 to 17.5': SILTY CLAY: light olive gray (5Y 5/2) and light olive brown (5Y 5/6); nonstratified; trace gravel and sand; subrounded; quartzose; medium plasticity; calcareous nodules; trace manganese oxide; firm; moist.	
17								
18					0		17.5 to 19.3': RUN Center bit run. No sample taken.	
19								
20					100		BEDROCK 19.3 to 20.8': RUN RECOVERED 1.5/1.5' SILTY CLAYSTONE: light olive gray (5Y 5/2) and light olive brown (5Y 5/6); blocky; manganese oxide on partings; slight limonite stain; very stiff; damp.	
21							TOTAL BOREHOLE DEPTH = 20.8'.	
22								

GROUNDWATER

	DEPTH	HOUR	DATE
▽			
▼			

WESTON

APPENDIX B

GEOTECHNICAL TEST RESULTS

1990 FRENCH DRAIN

GEOTECHNICAL INVESTIGATION

APPENDIX B-1

GRAIN SIZE/HYDROMETER ANALYSIS

MECHANICAL ANALYSIS - SIEVE TEST DATA

CLIENT Weston

JOB NO. 2066-01

BORING NO.	GTB3001901	SAMPLED	2-22-90
DEPTH	10.5-10.8'	DATE TESTED	4-11-90 TNW
SAMPLE NO.	--	WASH SIEVE	Yes
SOIL DESCR.	--	DRY SIEVE	No

MOISTURE DATA

HYGROSCOPIC	Yes	
NATURAL	No	
Wt. Wet Soil & Pan	(g)	25.13
Wt. Dry Soil & Pan	(g)	24.63
Wt. Lost Moisture	(g)	0.50
Wt. of Pan Only	(g)	3.67
Wt. of Dry Soil	(g)	20.96
Moisture Content	%	2.4
Wt. Hydrom. Sample Wet	(g)	50.97
Wt. Hydrom. Sample Dry	(g)	49.78

WASH SIEVE ANALYSIS

Wt. Total Sample Wet (g)	50.97
Weight of + #10 Before Washing (g)	0.00
Weight of + #10 After Washing (g)	0.00
Weight of - #10 Wet (g)	50.97
Weight of - #10 Dry (g)	49.78
Wt. Total Sample Dry (g)	49.78
Calc. Wt. "W" (g)	49.78
Calc. Mass + #10	0.00

Sieve Number (Size)	Pan Weight (g)	Indiv. Wt. + Pan (g)	Indiv. Wt. Retain.	Cum. Wt. Retain.	Cum. % Retain.	% Finer By Wt.
1 1/2"	0.00	0.00	0.00	0.00	0.0	100.0
3/4"	0.00	0.00	0.00	0.00	0.0	100.0
3/8"	0.00	0.00	0.00	0.00	0.0	100.0
#4	0.00	0.00	0.00	0.00	0.0	100.0
#10	0.00	0.00	0.00	0.00	0.0	100.0
#20	0.00	0.00	0.00	0.00	0.0	100.0
#40	0.00	0.01	0.01	0.01	0.0	100.0
#60	0.00	0.04	0.04	0.05	0.1	99.9
#100	0.00	1.62	1.62	1.67	3.4	96.6
#200	0.00	17.99	17.99	19.66	39.5	60.5
#230	0.00	3.36	3.36	23.02	46.2	53.8

ADVANCED TERRA TESTING, INC.

HYDROMETER ANALYSIS - SEDIMENTATION DATA

CLIENT Weston

JOB NO. 2066-01

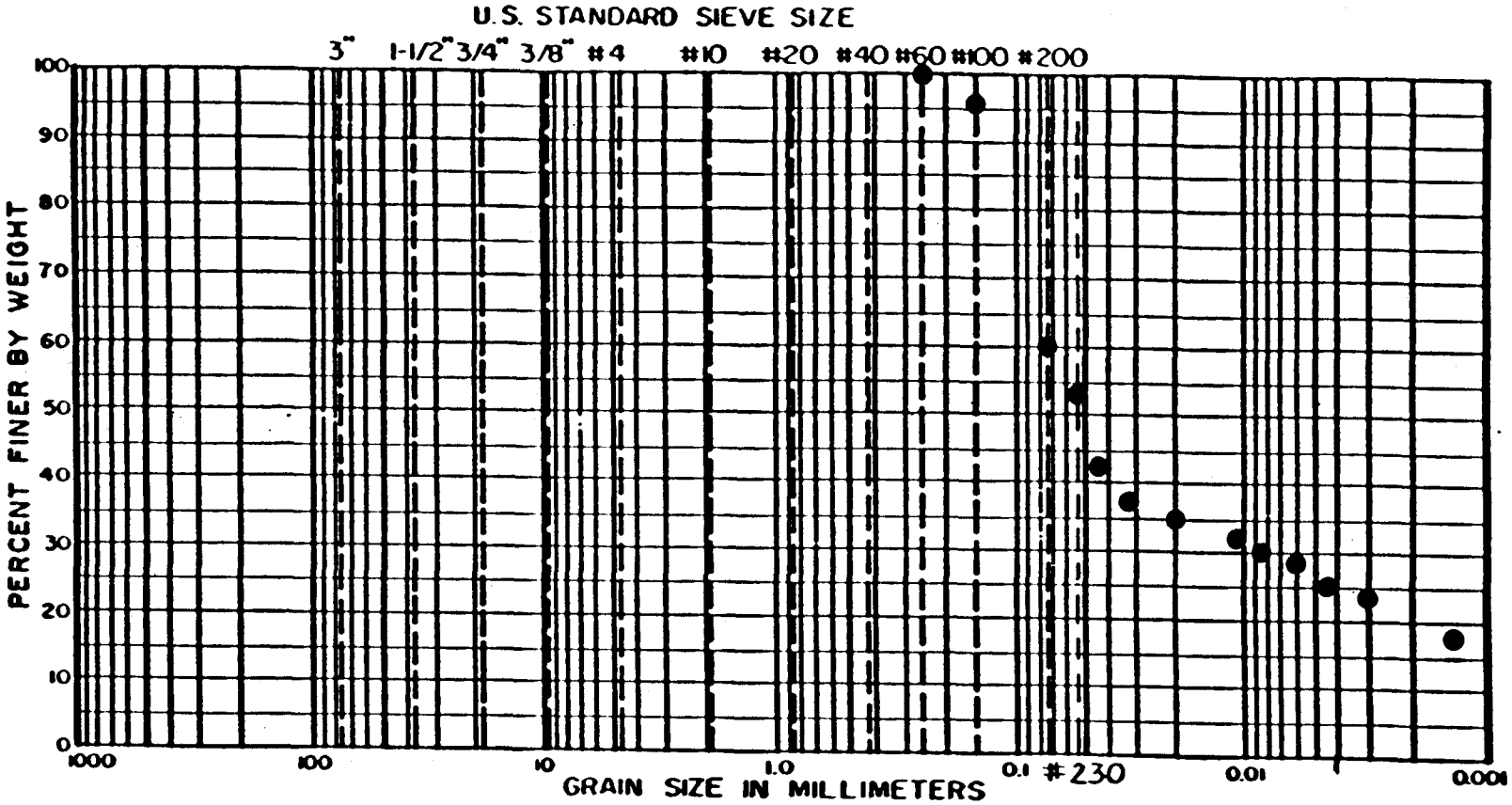
BORING NO.	GTB3001901	SAMPLED	2-22-90
DEPTH	10.5-10.8'	DATE TESTED	4-11-90 TNW
SAMPLE NO.	--	WASH SIEVE	Yes
SOIL DESCR.	--	DRY SIEVE	No

Hydrometer #	ASTM 152 H	Temp., Deg. C	22.5
Sp. Gr. of Soil	2.72	Temp. Coef. K	0.01298
Value of "a"	0.99	Wt. Dry Sample "W"	49.783
Deflocculant	Sodium Hexametaphosphate	% of Total Sample	100.0
Defloc. Corr'n	4.5		
Meniscus Corr'n	-1.0		

T Elapsed Time (min)	Hydrometer Reading Original	Corrected "R"	100Ra/W	% Total Sample	Effecitve Depth L	Grain Diameter (mm)
0.0	--	--	--	--	--	--
0.5	33.00	27.50	54.5	54.5	10.88	0.0605
1.0	27.50	22.00	43.6	43.6	11.78	0.0446
2.0	25.00	19.50	38.6	38.6	12.19	0.0320
5.0	23.50	18.00	35.7	35.7	12.44	0.0205
15.0	22.00	16.50	32.7	32.7	12.68	0.0119
30.0	21.00	15.50	30.7	30.7	12.85	0.0085
60.0	20.00	14.50	28.7	28.7	13.01	0.0060
120.0	18.50	13.00	25.7	25.7	13.26	0.0043
250.0	18.00	12.50	24.8	24.8	13.34	0.0030
1440.0	15.00	9.50	18.8	18.8	13.83	0.0013

Grain Diameter = K*(SQRT(L/T))

ADVANCED TERRA TESTING, INC.



COBBLES	GRAVEL	SAND	SILT OR CLAY

LOCATION	DEPTH	CLASSIFICATION
GTB3001901	10.5 - 10.8'	

MECHANICAL ANALYSIS - SIEVE TEST DATA

CLIENT Weston

JOB NO. 2066-01

BORING NO.	GTB3002902	SAMPLED	2-22-90
DEPTH	19.9-20.5'	DATE TESTED	4-11-90 TNW
SAMPLE NO.	--	WASH SIEVE	Yes
SOIL DESCR.	--	DRY SIEVE	No

MOISTURE DATA

HYGROSCOPIC	Yes	
NATURAL	No	
Wt. Wet Soil & Pan	(g)	30.39
Wt. Dry Soil & Pan	(g)	29.40
Wt. Lost Moisture	(g)	0.99
Wt. of Pan Only	(g)	3.67
Wt. of Dry Soil	(g)	25.73
Moisture Content	%	3.8
Wt. Hydrom. Sample Wet	(g)	62.64
Wt. Hydrom. Sample Dry	(g)	60.32

WASH SIEVE ANALYSIS

Wt. Total Sample Wet (g)	330.23
Weight of + #10 Before Washing (g)	8.13
Weight of + #10 After Washing (g)	5.34
Weight of - #10 Wet (g)	322.10
Weight of - #10 Dry (g)	312.85
Wt. Total Sample Dry (g)	318.19
Calc. Wt. "W" (g)	61.35
Calc. Mass + #10	1.03

Sieve Number (Size)	Pan Weight (g)	Indiv. Wt. + Pan (g)	Indiv. Wt. Retain.	Cum. Wt. Retain.	Cum. % Retain.	% Finer By Wt.
1 1/2"	0.00	0.00	0.00	0.00	0.0	100.0
3/4"	0.00	0.00	0.00	0.00	0.0	100.0
3/8"	0.00	0.00	0.00	0.00	0.0	100.0
#4	0.00	2.85	2.85	2.85	0.9	99.1
#10	0.00	2.49	2.49	5.34	1.7	98.3
#20	0.00	0.06	0.06	0.06	1.8	98.2
#40	0.00	0.01	0.01	0.07	1.8	98.2
#60	0.00	0.01	0.01	0.08	1.8	98.2
#100	0.00	0.06	0.06	0.14	1.9	98.1
#200	0.00	3.40	3.40	3.54	7.4	92.6
#230	0.00	2.57	2.57	6.11	11.6	88.4

ADVANCED TERRA TESTING, INC.

HYDROMETER ANALYSIS - SEDIMENTATION DATA

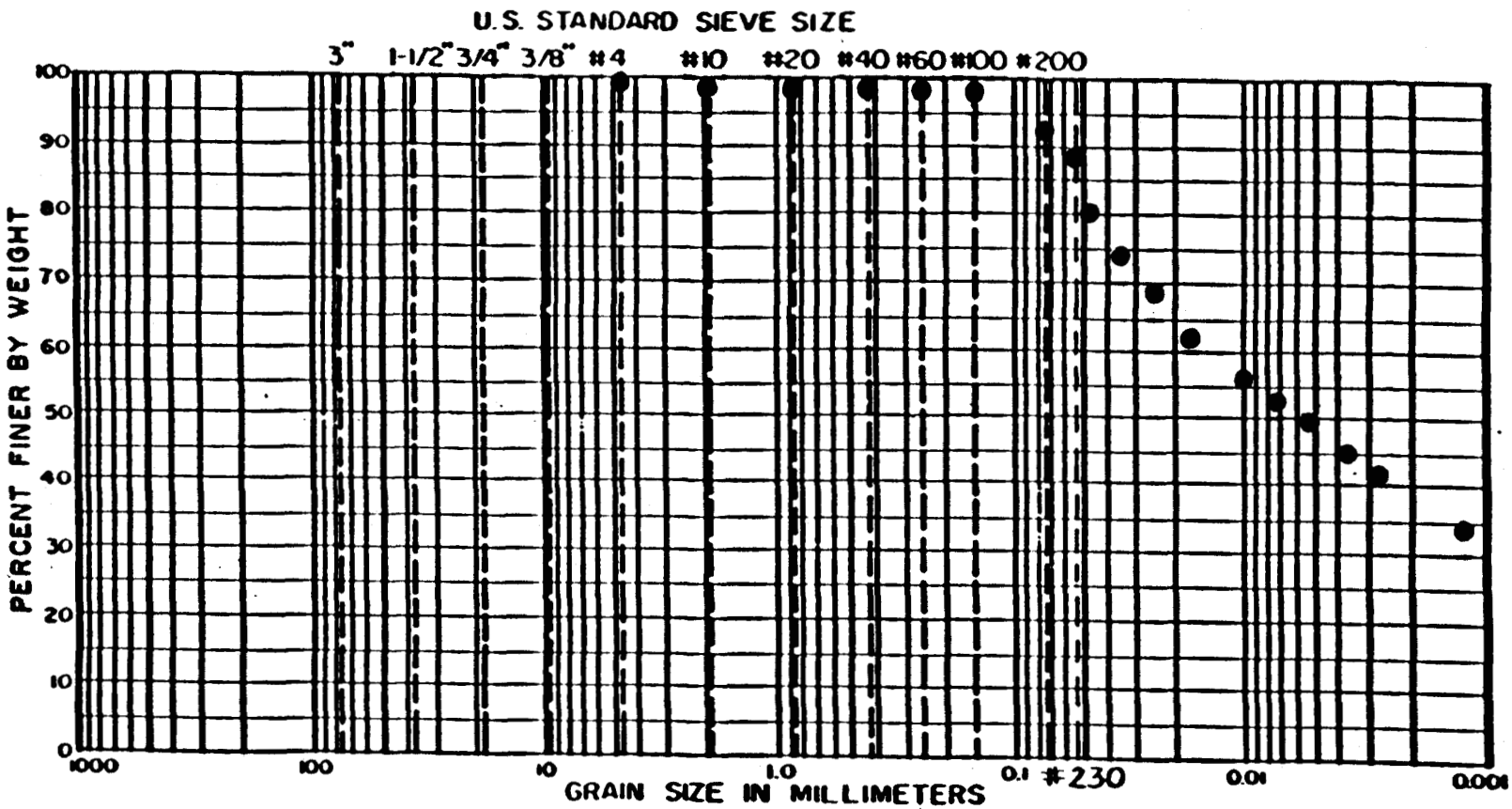
CLIENT	Weston	JOB NO.	2066-01
BORING NO.	GTB3002902	SAMPLED	2-22-90
DEPTH	19.9-20.5'	DATE TESTED	4-11-90 TNW
SAMPLE NO.	--	WASH SIEVE	Yes
SOIL DESCR.	--	DRY SIEVE	No

Hydrometer #	ASTM 152 H	Temp., Deg. C	22.5
Sp. Gr. of Soil	2.76	Temp. Coef. K	0.01283
Value of "a"	0.98	Wt. Dry Sample "W"	61.346
Deflocculant	Sodium Hexametaphosphate	% of Total Sample	100.0
Defloc. Corr'n	4.5		
Meniscus Corr'n	-1.0		

T Elapsed Time (min)	Hydrometer Reading Original	Corrected "R"	100Ra/W	% Total Sample	Effecitve Depth L	Grain Diameter (mm)
0.0	--	--	--	--	--	--
0.5	56.00	50.50	80.5	80.5	7.11	0.0484
1.0	52.00	46.50	74.1	74.1	7.76	0.0357
2.0	48.50	43.00	68.6	68.6	8.34	0.0262
5.0	44.50	39.00	62.2	62.2	8.99	0.0172
15.0	41.00	35.50	56.6	56.6	9.57	0.0102
30.0	39.00	33.50	53.4	53.4	9.89	0.0074
60.0	36.50	31.00	49.4	49.4	10.30	0.0053
120.0	34.00	28.50	45.4	45.4	10.71	0.0038
250.0	32.00	26.50	42.2	42.2	11.04	0.0027
1440.0	27.00	21.50	34.3	34.3	11.86	0.0012

Grain Diameter = K*(SQRT(L/T))

ADVANCED TERRA TESTING, INC.



COBBLES	GRAVEL	SAND	SILT OR CLAY

LOCATION	DEPTH	CLASSIFICATION
GTB3002902	19.9 - 20.5'	

MECHANICAL ANALYSIS - SIEVE TEST DATA

CLIENT Weston

JOB NO. 2066-01

BORING NO.	B3-005-90	SAMPLED	3-2-90
DEPTH	10.6-11.3'	DATE TESTED	4-9-90 TNW
SAMPLE NO.	--	WASH SIEVE	Yes
SOIL DESCR.	--	DRY SIEVE	No

MOISTURE DATA

HYGROSCOPIC Yes

NATURAL No

Wt. Wet Soil & Pan	(g)	18.27
Wt. Dry Soil & Pan	(g)	17.74
Wt. Lost Moisture	(g)	0.53
Wt. of Pan Only	(g)	3.70
Wt. of Dry Soil	(g)	14.04
Moisture Content	%	3.8

Wt. Hydrom. Sample Wet (g)	60.67
Wt. Hydrom. Sample Dry (g)	58.46

WASH SIEVE ANALYSIS

Wt. Total Sample Wet (g)	280.87
Weight of + #10 Before Washing (g)	24.16
Weight of + #10 After Washing (g)	1.71
Weight of - #10 Wet (g)	256.71
Weight of - #10 Dry (g)	269.01
Wt. Total Sample Dry (g)	270.72
Calc. Wt. "W" (g)	58.46
Calc. Mass + #10	0.00

Sieve Number (Size)	Pan Weight (g)	Indiv. Wt. + Pan (g)	Indiv. Wt. Retain.	Cum. Wt. Retain.	Cum. % Retain.	% Finer By Wt.
1 1/2"	0.00	0.00	0.00	0.00	0.0	100.0
3/4"	0.00	0.00	0.00	0.00	0.0	100.0
3/8"	0.00	0.00	0.00	0.00	0.0	100.0
#4	0.00	0.00	0.00	0.00	0.0	100.0
#10	0.00	0.00	0.00	0.00	0.0	100.0
#20	0.00	0.90	0.90	0.90	1.5	98.5
#40	0.00	1.66	1.66	2.56	4.4	95.6
#60	0.00	2.25	2.25	4.81	8.2	91.8
#100	0.00	3.32	3.32	8.13	13.9	86.1
#200	0.00	5.46	5.46	13.59	23.2	76.8
#230	0.00	0.97	0.97	14.56	24.9	75.1

ADVANCED TERRA TESTING, INC.

HYDROMETER ANALYSIS - SEDIMENTATION DATA

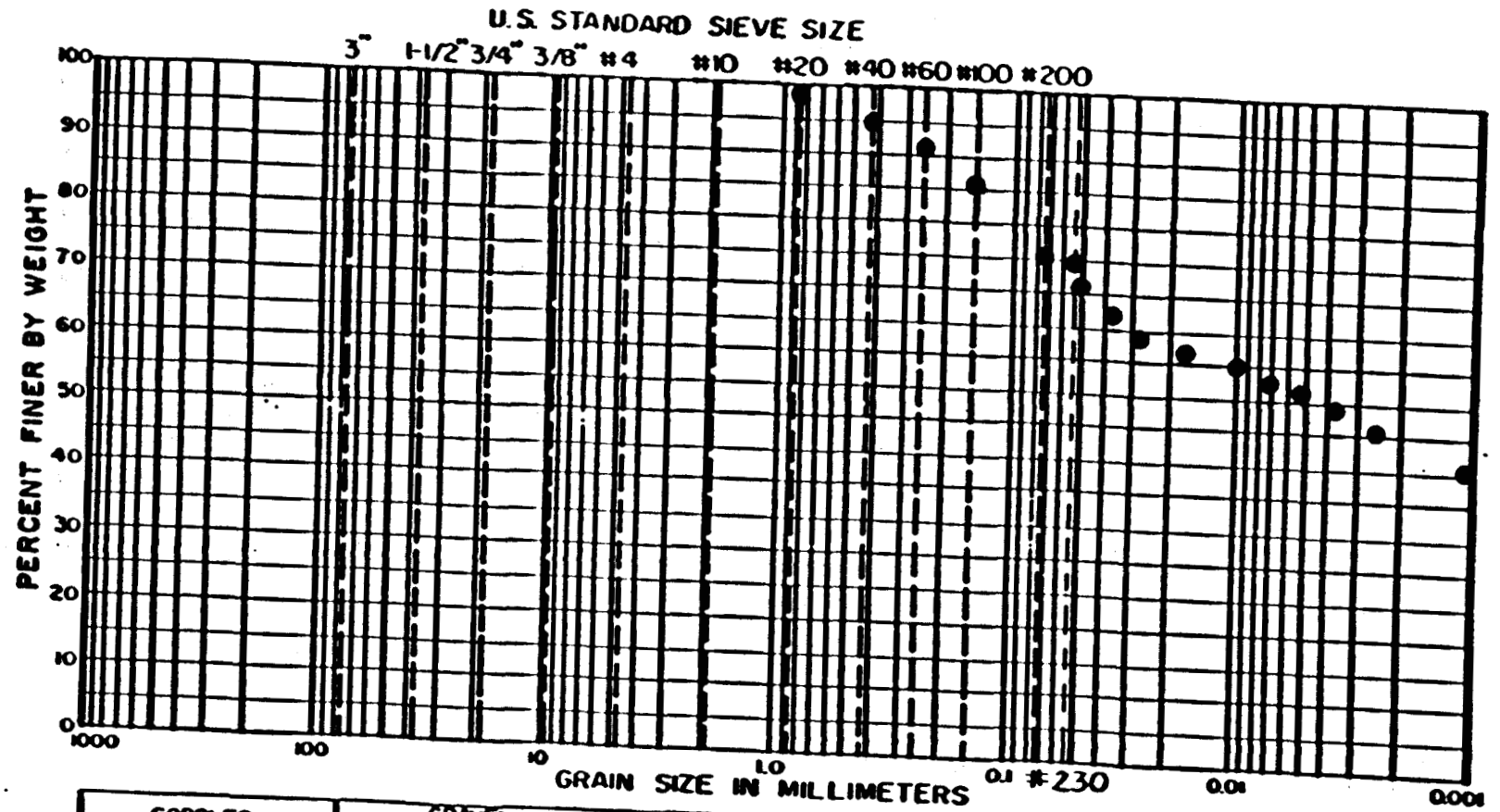
CLIENT	Weston	JOB NO.	2066-01
BORING NO.	B3-005-90	SAMPLED	3-2-90
DEPTH	10.6-11.3'	DATE TESTED	4-9-90 TNW
SAMPLE NO.	--	WASH SIEVE	Yes
SOIL DESCR.	--	DRY SIEVE	No

Hydrometer #	ASTM 152 H	Temp., Deg. C	22.5
Sp. Gr. of Soil	2.74	Temp. Coef. K	0.01295
Value of "a"	0.98	Wt. Dry Sample "W"	58.460
Deflocculant	Sodium Hexametaphosphate	% of Total Sample	100.0
Defloc. Corr'n	4.5		
Meniscus Corr'n	-1.0		

T Elapsed Time (min)	Hydrometer Reading Original	Corrected "R"	100Ra/W	% Total Sample	Effecitve Depth L	Grain Diameter (mm)
0.0	--	--	--	--	--	--
0.5	48.00	42.50	71.4	71.4	8.42	0.0531
1.0	45.50	40.00	67.2	67.2	8.83	0.0385
2.0	44.00	38.50	64.7	64.7	9.07	0.0276
5.0	43.00	37.50	63.0	63.0	9.24	0.0176
15.0	41.50	36.00	60.5	60.5	9.48	0.0103
30.0	40.50	35.00	58.8	58.8	9.65	0.0073
60.0	39.50	34.00	57.1	57.1	9.81	0.0052
120.0	38.00	32.50	54.6	54.6	10.06	0.0037
250.0	36.00	30.50	51.2	51.2	10.39	0.0026
1440.0	33.00	27.50	46.2	46.2	10.88	0.0011

Grain Diameter = K*(SQRT(L/T))

ADVANCED TERRA TESTING, INC.



COBBLES	GRAVEL	SAND	SILT OR CLAY

LOCATION	DEPTH	CLASSIFICATION
B3-005-90	10.6-11.3'	

MECHANICAL ANALYSIS - SIEVE TEST DATA

CLIENT Weston

JOB NO. 2066-01

BORING NO.	B3-005-90
DEPTH	21.2-21.9'
SAMPLE NO.	--
SOIL DESCR.	--

SAMPLED	3-2-90
DATE TESTED	4-10-90 TNW
WASH SIEVE	Yes
DRY SIEVE	No

MOISTURE DATA

HYGROSCOPIC Yes

NATURAL No

Wt. Wet Soil & Pan	(g)	20.61
Wt. Dry Soil & Pan	(g)	19.85
Wt. Lost Moisture	(g)	0.76
Wt. of Pan Only	(g)	3.70
Wt. of Dry Soil	(g)	16.15
Moisture Content	%	4.7

Wt. Hydrom. Sample Wet (g)	56.05
Wt. Hydrom. Sample Dry (g)	53.53

WASH SIEVE ANALYSIS

Wt. Total Sample Wet (g)	56.05
Weight of + #10 Before Washing (g)	0.00
Weight of + #10 After Washing (g)	0.00
Weight of - #10 Wet (g)	56.05
Weight of - #10 Dry (g)	53.53
Wt. Total Sample Dry (g)	53.53
Calc. Wt. "W" (g)	53.53
Calc. Mass + #10	0.00

Sieve Number (Size)	Pan Weight (g)	Indiv. Wt. + Pan (g)	Indiv. Wt. Retain.	Cum. Wt. Retain.	Cum. % Retain.	% Finer By Wt.
1 1/2"	0.00	0.00	0.00	0.00	0.0	100.0
3/4"	0.00	0.00	0.00	0.00	0.0	100.0
3/8"	0.00	0.00	0.00	0.00	0.0	100.0
#4	0.00	0.00	0.00	0.00	0.0	100.0
#10	0.00	0.00	0.00	0.00	0.0	100.0
#20	0.00	0.01	0.01	0.01	0.0	100.0
#40	0.00	0.06	0.06	0.07	0.1	99.9
#60	0.00	0.10	0.10	0.17	0.3	99.7
#100	0.00	0.10	0.10	0.27	0.5	99.5
#200	0.00	0.19	0.19	0.46	0.9	99.1
#230	0.00	0.08	0.08	0.54	1.0	99.0

ADVANCED TERRA TESTING, INC.

HYDROMETER ANALYSIS - SEDIMENTATION DATA

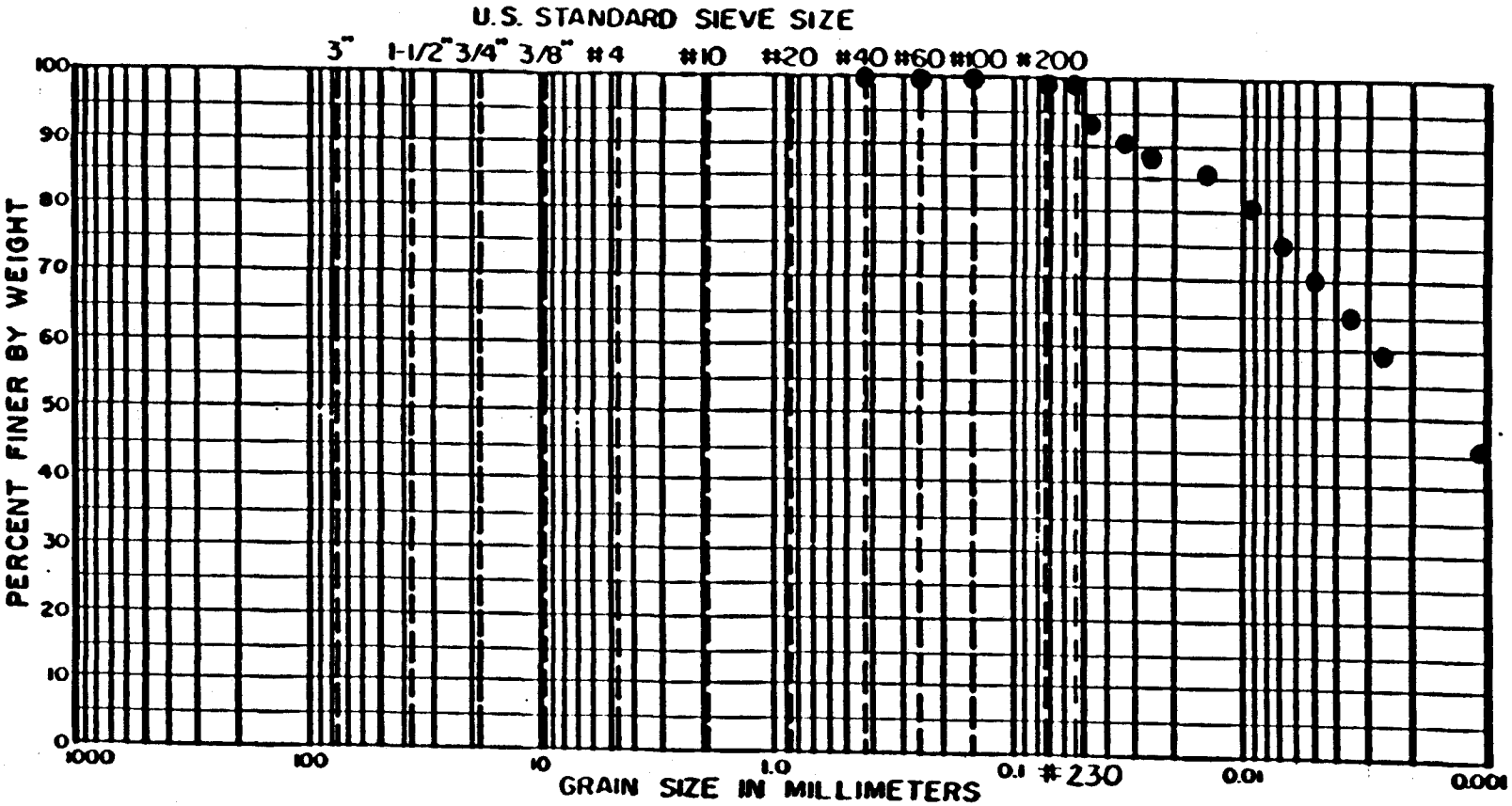
CLIENT	Weston	JOB NO.	2066-01
BORING NO.	B3-005-90	SAMPLED	3-2-90
DEPTH	21.2-21.9'	DATE TESTED	4-10-90 TNW
SAMPLE NO.	--	WASH SIEVE	Yes
SOIL DESCR.	--	DRY SIEVE	No

Hydrometer #	ASTM 152 H	Temp., Deg. C	22.5
Sp. Gr. of Soil	2.76	Temp. Coef. K	0.01283
Value of "a"	0.98	Wt. Dry Sample "W"	53.527
Deflocculant	Sodium Hexametaphosphate	% of Total Sample	100.0
Defloc. Corr'n	4.5		
Meniscus Corr'n	-1.0		

T Elapsed Time (min)	Hydrometer Reading Original	Corrected "R"	100Ra/W	% Total Sample	Effecitve Depth L	Grain Diameter (mm)
0.0	--	--	--	--	--	--
0.5	56.50	51.00	93.2	93.2	7.02	0.0481
1.0	55.50	50.00	91.4	91.4	7.19	0.0344
2.0	54.00	48.50	88.6	88.6	7.43	0.0247
5.0	53.00	47.50	86.8	86.8	7.60	0.0158
15.0	50.00	44.50	81.3	81.3	8.09	0.0094
30.0	47.00	41.50	75.8	75.8	8.58	0.0069
60.0	44.00	38.50	70.3	70.3	9.07	0.0050
120.0	41.00	35.50	64.9	64.9	9.57	0.0036
250.0	38.00	32.50	59.4	59.4	10.06	0.0026
1440.0	31.00	25.50	46.6	46.6	11.21	0.0011

Grain Diameter = K*(SQRT(L/T))

ADVANCED TERRA TESTING, INC.



COBBLES	GRAVEL	SAND	SILT OR CLAY

LOCATION	DEPTH	CLASSIFICATION
B3-005-90	21.2 - 21.9'	

ADVANCED TERRA TESTING

MECHANICAL ANALYSIS - SIEVE TEST DATA

CLIENT Weston

JOB NO. 2066-01

BORING NO.	B3-006-90
DEPTH	19.0-19.5'
SAMPLE NO.	--
SOIL DESCR.	--

SAMPLED	3-2-90
DATE TESTED	4-11-90 TNW
WASH SIEVE	Yes
DRY SIEVE	No

MOISTURE DATA

HYGROSCOPIC Yes

NATURAL No

Wt. Wet Soil & Pan	(g)	23.89
Wt. Dry Soil & Pan	(g)	23.27
Wt. Lost Moisture	(g)	0.62
Wt. of Pan Only	(g)	3.72
Wt. of Dry Soil	(g)	19.55
Moisture Content	%	3.2

Wt. Hydrom. Sample Wet (g)	63.11
Wt. Hydrom. Sample Dry (g)	61.17

WASH SIEVE ANALYSIS

Wt. Total Sample Wet (g)	63.11
Weight of + #10 Before Washing (g)	0.00
Weight of + #10 After Washing (g)	0.00
Weight of - #10 Wet (g)	63.11
Weight of - #10 Dry (g)	61.17
Wt. Total Sample Dry (g)	61.17
Calc. Wt. "W" (g)	61.17
Calc. Mass + #10	0.00

Sieve Number (Size)	Pan Weight (g)	Indiv. Wt. + Pan (g)	Indiv. Wt. Retain.	Cum. Wt. Retain.	Cum. % Retain.	% Finer By Wt.
1 1/2"	0.00	0.00	0.00	0.00	0.0	100.0
3/4"	0.00	0.00	0.00	0.00	0.0	100.0
3/8"	0.00	0.00	0.00	0.00	0.0	100.0
#4	0.00	0.00	0.00	0.00	0.0	100.0
#10	0.00	0.00	0.00	0.00	0.0	100.0
#20	0.00	0.00	0.00	0.00	0.0	100.0
#40	0.00	0.00	0.00	0.00	0.0	100.0
#60	0.00	0.00	0.00	0.00	0.0	100.0
#100	0.00	0.01	0.01	0.01	0.0	100.0
#200	0.00	4.73	4.73	4.74	7.7	92.3
#230	0.00	4.93	4.93	9.67	15.8	84.2

ADVANCED TERRA TESTING, INC.

HYDROMETER ANALYSIS - SEDIMENTATION DATA

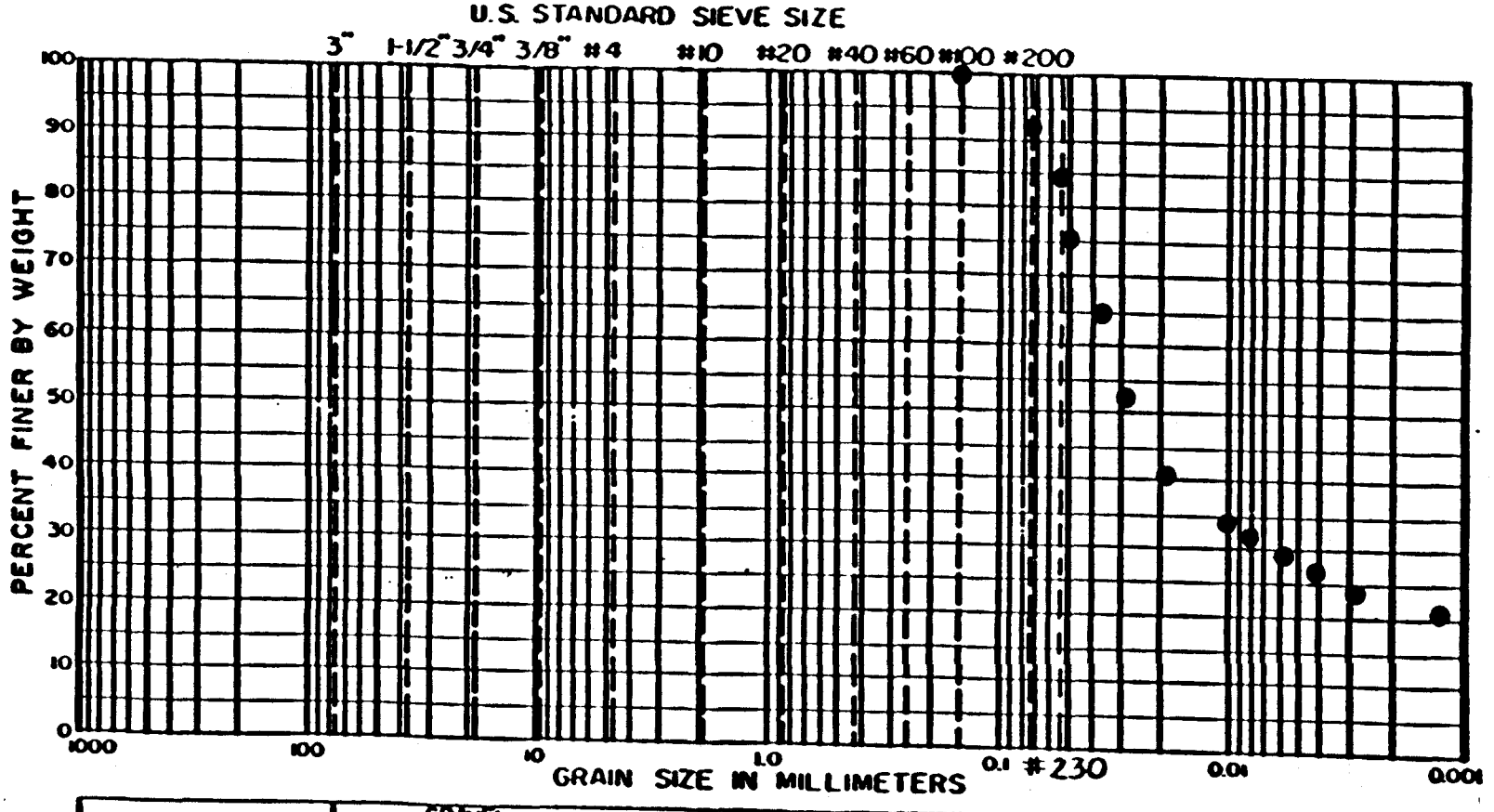
CLIENT	Weston	JOB NO.	2066-01
BORING NO.	B3-006-90	SAMPLED	3-2-90
DEPTH	19.0-19.5'	DATE TESTED	4-11-90 TNW
SAMPLE NO.	--	WASH SIEVE	Yes
SOIL DESCR.	--	DRY SIEVE	No

Hydrometer #	ASTM 152 H	Temp., Deg. C	22.5
Sp. Gr. of Soil	2.74	Temp. Coef. K	0.01295
Value of "a"	0.98	Wt. Dry Sample "W"	61.165
Deflocculant	Sodium Hexametaphosphate	% of Total Sample	100.0
Defloc. Corr'n	4.5		
Meniscus Corr'n	-1.0		

T Elapsed Time (min)	Hydrometer Reading Original	Corrected "R"	100Ra/W	% Total Sample	Effecitve Depth L	Grain Diameter (mm)
0.0	--	--	--	--	--	--
0.5	53.00	47.50	76.3	76.3	7.60	0.0505
1.0	46.00	40.50	65.0	65.0	8.75	0.0383
2.0	38.00	32.50	52.2	52.2	10.06	0.0290
5.0	31.00	25.50	40.9	40.9	11.21	0.0194
15.0	27.00	21.50	34.5	34.5	11.86	0.0115
30.0	25.50	20.00	32.1	32.1	12.11	0.0082
60.0	24.00	18.50	29.7	29.7	12.35	0.0059
120.0	22.50	17.00	27.3	27.3	12.60	0.0042
250.0	21.00	15.50	24.9	~~24.9~~	12.85	0.0029
1440.0	19.00	13.50	21.7	21.7	13.17	0.0012

Grain Diameter = K*(SQRT(L/T))

ADVANCED TERRA TESTING, INC.



COBBLES	GRAVEL	SAND	SILT OR CLAY

LOCATION	DEPTH	CLASSIFICATION
B3-006-90	19.0-19.5'	

MECHANICAL ANALYSIS - SIEVE TEST DATA

CLIENT Weston

JOB NO. 2066-01

BORING NO.	B3-007-90
DEPTH	6.0-6.3'
SAMPLE NO.	--
SOIL DESCR.	--

SAMPLED	3-2-90
DATE TESTED	4-9-90 TNW
WASH SIEVE	Yes
DRY SIEVE	No

MOISTURE DATA

HYGROSCOPIC Yes

NATURAL No

Wt. Wet Soil & Pan	(g)	21.24
Wt. Dry Soil & Pan	(g)	20.80
Wt. Lost Moisture	(g)	0.44
Wt. of Pan Only	(g)	3.77
Wt. of Dry Soil	(g)	17.03
Moisture Content	%	2.6

Wt. Hydrom. Sample Wet (g)	63.41
Wt. Hydrom. Sample Dry (g)	61.81

WASH SIEVE ANALYSIS

Wt. Total Sample Wet (g)	63.41
Weight of + #10 Before Washing (g)	0.00
Weight of + #10 After Washing (g)	0.00
Weight of - #10 Wet (g)	63.41
Weight of - #10 Dry (g)	61.81
Wt. Total Sample Dry (g)	61.81
Calc. Wt. "W" (g)	61.81
Calc. Mass + #10	0.00

Sieve Number (Size)	Pan Weight (g)	Indiv. Wt. + Pan (g)	Indiv. Wt. Retain.	Cum. Wt. Retain.	Cum. % Retain.	% Finer By Wt.
1 1/2"	0.00	0.00	0.00	0.00	0.0	100.0
3/4"	0.00	0.00	0.00	0.00	0.0	100.0
3/8"	0.00	0.00	0.00	0.00	0.0	100.0
#4	0.00	0.00	0.00	0.00	0.0	100.0
#10	0.00	0.00	0.00	0.00	0.0	100.0
#20	0.00	0.00	0.00	0.00	0.0	100.0
#40	0.00	0.01	0.01	0.01	0.0	100.0
#60	0.00	0.01	0.01	0.02	0.0	100.0
#100	0.00	0.02	0.02	0.04	0.1	99.9
#200	0.00	5.33	5.33	5.37	8.7	91.3
#230	0.00	2.57	2.57	7.94	12.8	87.2

ADVANCED TERRA TESTING, INC.

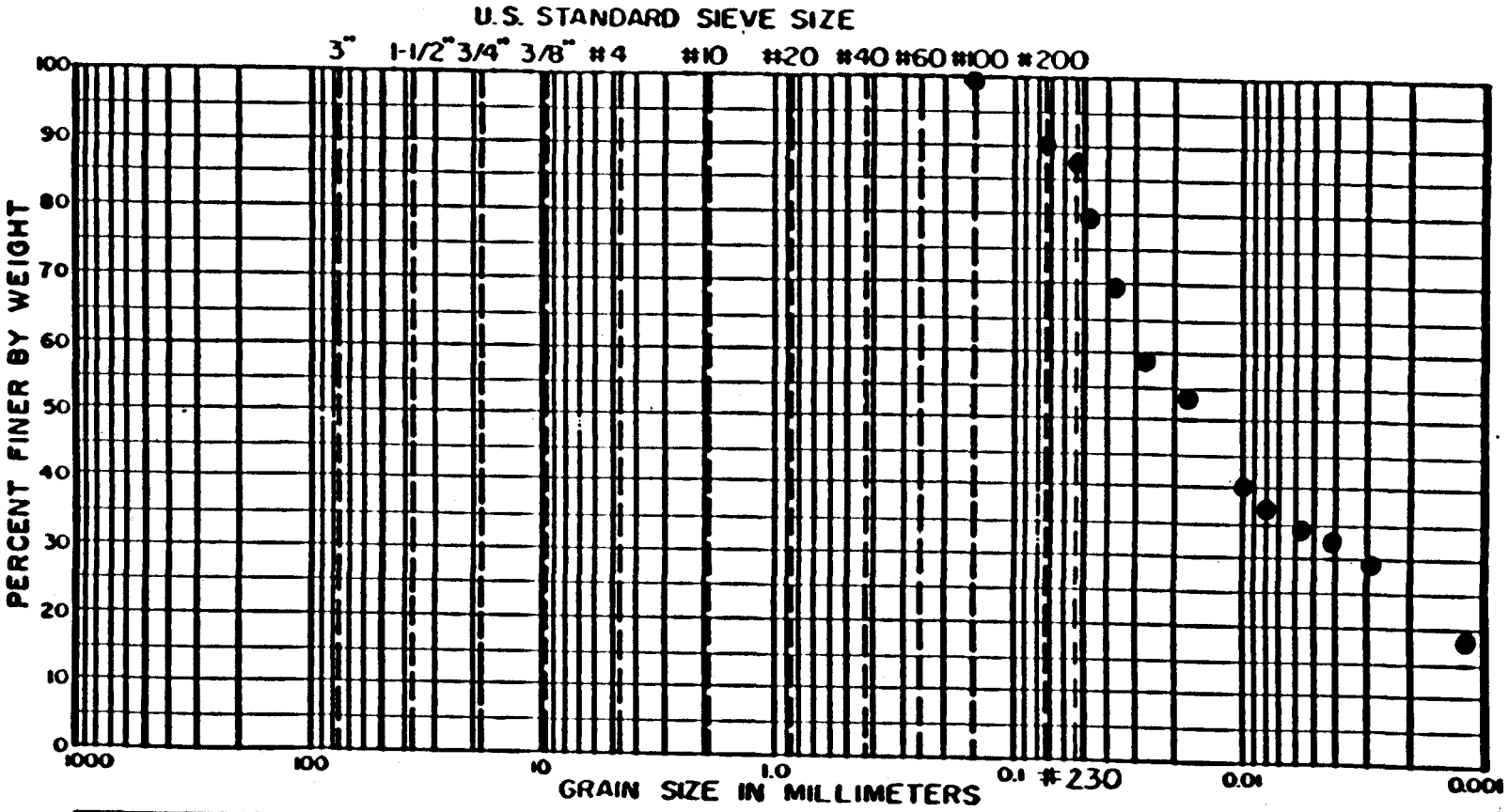
HYDROMETER ANALYSIS - SEDIMENTATION DATA

CLIENT	Weston	JOB NO.	2066-01
BORING NO.	B3-007-90	SAMPLED	3-2-90
DEPTH	6.0-6.3'	DATE TESTED	4-9-90 TNW
SAMPLE NO.	--	WASH SIEVE	Yes
SOIL DESCR.	--	DRY SIEVE	No

Hydrometer #	ASTM 152 H	Temp., Deg. C	22.5
Sp. Gr. of Soil	2.72	Temp. Coef. K	0.01298
Value of "a"	0.99	Wt. Dry Sample "W"	61.812
Deflocculant	Sodium Hexametaphosphate	% of Total Sample	100.0
Defloc. Corr'n	4.5		
Meniscus Corr'n	-1.0		

T Elapsed Time (min)	Hydrometer Reading Original	Corrected "R"	100Ra/W	% Total Sample	Effecitve Depth L	Grain Diameter (mm)
0.0	--	--	--	--	--	--
0.5	55.00	49.50	79.0	79.0	7.27	0.0495
1.0	49.00	43.50	69.4	69.4	8.25	0.0373
2.0	42.00	36.50	58.2	58.2	9.40	0.0281
5.0	35.50	30.00	47.9	47.9	10.47	0.0188
15.0	31.00	25.50	40.7	40.7	11.21	0.0112
30.0	29.00	23.50	37.5	37.5	11.53	0.0080
60.0	27.00	21.50	34.3	34.3	11.86	0.0058
120.0	26.00	20.50	32.7	32.7	12.03	0.0041
250.0	24.00	18.50	29.5	29.5	12.35	0.0029
1440.0	20.00	14.50	23.1	23.1	13.01	0.0012

Grain Diameter = K*(SQRT(L/T))



COBBLES	GRAVEL	SAND	SILT OR CLAY

LOCATION	DEPTH	CLASSIFICATION
B3-007-90	6.0 - 6.3'	

MECHANICAL ANALYSIS - SIEVE TEST DATA

CLIENT Weston

JOB NO. 2066-01

BORING NO.	B3-007-90	SAMPLED	3-2-90
DEPTH	16.0-16.8'	DATE TESTED	4-9-90 TNW
SAMPLE NO.	--	WASH SIEVE	Yes
SOIL DESCR.	--	DRY SIEVE	No

MOISTURE DATA

HYGROSCOPIC Yes

NATURAL No

Wt. Wet Soil & Pan	(g)	23.14
Wt. Dry Soil & Pan	(g)	22.27
Wt. Lost Moisture	(g)	0.87
Wt. of Pan Only	(g)	3.70
Wt. of Dry Soil	(g)	18.57
Moisture Content	%	4.7

Wt. Hydrom. Sample Wet (g)	60.51
Wt. Hydrom. Sample Dry (g)	57.80

WASH SIEVE ANALYSIS

Wt. Total Sample Wet (g)	60.51
Weight of + #10 Before Washing (g)	0.00
Weight of + #10 After Washing (g)	0.00
Weight of - #10 Wet (g)	60.51
Weight of - #10 Dry (g)	57.80
Wt. Total Sample Dry (g)	57.80
Calc. Wt. "W" (g)	57.80
Calc. Mass + #10	0.00

Sieve Number (Size)	Pan Weight (g)	Indiv. Wt. + Pan (g)	Indiv. Wt. Retain.	Cum. Wt. Retain.	Cum. % Retain.	% Finer By Wt.
1 1/2"	0.00	0.00	0.00	0.00	0.0	100.0
3/4"	0.00	0.00	0.00	0.00	0.0	100.0
3/8"	0.00	0.00	0.00	0.00	0.0	100.0
#4	0.00	0.00	0.00	0.00	0.0	100.0
#10	0.00	0.00	0.00	0.00	0.0	100.0
#20	0.00	0.00	0.00	0.00	0.0	100.0
#40	0.00	0.01	0.01	0.01	0.0	100.0
#60	0.00	0.02	0.02	0.03	0.1	99.9
#100	0.00	0.04	0.04	0.07	0.1	99.9
#200	0.00	0.14	0.14	0.21	0.4	99.6
#230	0.00	0.03	0.03	0.24	0.4	99.6

ADVANCED TERRA TESTING, INC.

HYDROMETER ANALYSIS - SEDIMENTATION DATA

CLIENT Weston

JOB NO. 2066-01

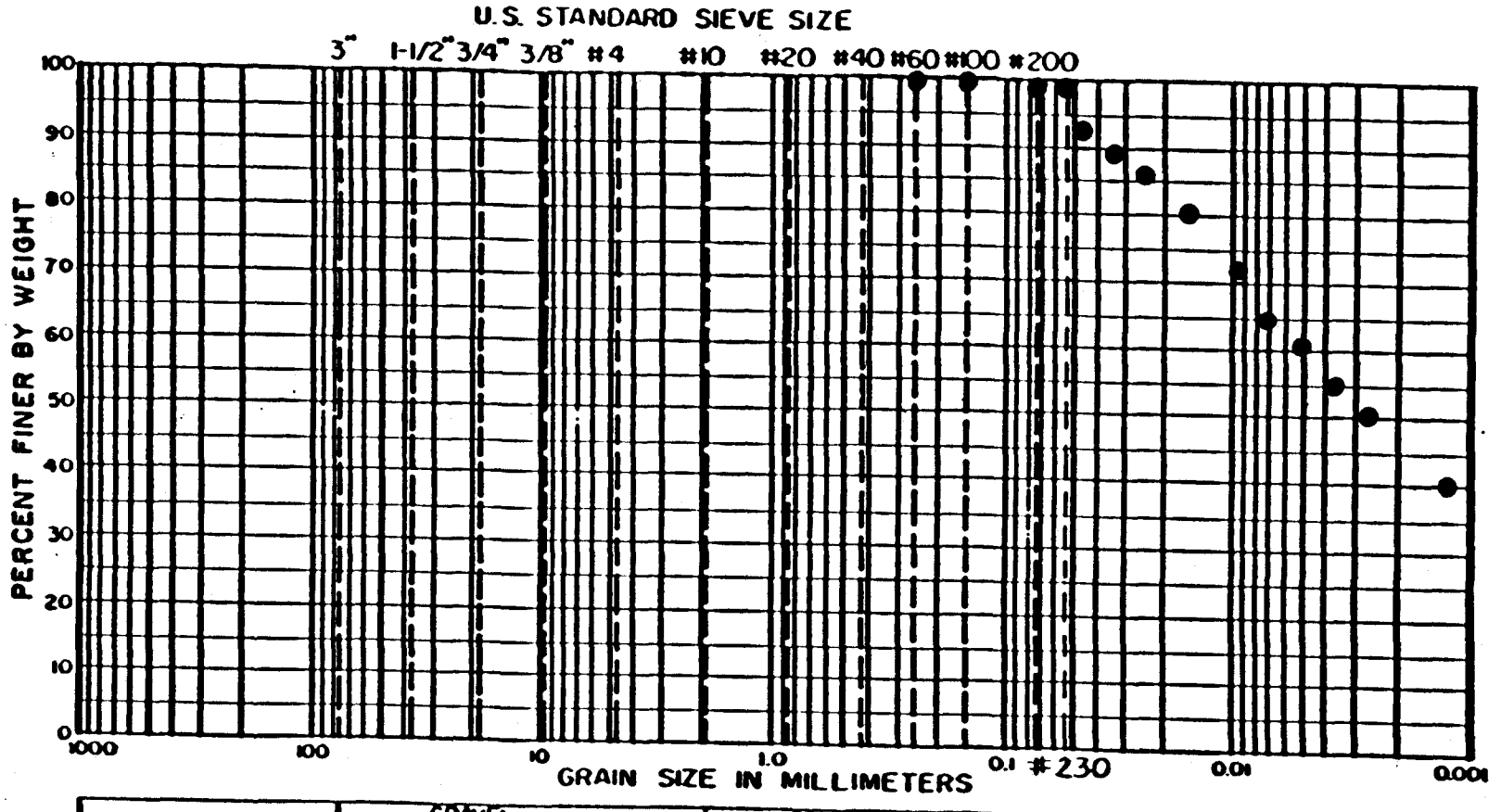
BORING NO.	B3-007-90	SAMPLED	3-2-90
DEPTH	16.0-16.8'	DATE TESTED	4-9-90 TNW
SAMPLE NO.	--	WASH SIEVE	Yes
SOIL DESCR.	--	DRY SIEVE	No

Hydrometer #	ASTM 152 H	Temp., Deg. C	22.5
Sp. Gr. of Soil	2.73	Temp. Coef. K	0.01294
Value of "a"	0.98	Wt. Dry Sample "W"	57.798
Deflocculant	Sodium Hexametaphosphate	% of Total Sample	100.0
Defloc. Corr'n	4.5		
Meniscus Corr'n	-1.0		

T Elapsed Time (min)	Hydrometer Reading Original	Corrected "R"	100Ra/W	% Total Sample	Effecitve Depth L	Grain Diameter (mm)
0.0	--	--	--	--	--	--
0.5	60.00	54.50	92.8	92.8	6.45	0.0465
1.0	58.00	52.50	89.4	89.4	6.78	0.0337
2.0	56.00	50.50	86.0	86.0	7.11	0.0244
5.0	53.00	47.50	80.9	80.9	7.60	0.0160
15.0	48.00	42.50	72.4	72.4	8.42	0.0097
30.0	44.00	38.50	65.5	65.5	9.07	0.0071
60.0	41.50	36.00	61.3	61.3	9.48	0.0051
120.0	38.00	32.50	55.3	55.3	10.06	0.0037
250.0	35.00	29.50	50.2	50.2	10.55	0.0027
1440.0	29.00	23.50	40.0	40.0	11.53	0.0012

Grain Diameter = K*(SQRT(L/T))

ADVANCED TERRA TESTING, INC.



COBBLES	GRAVEL	SAND	SILT OR CLAY

LOCATION	DEPTH	CLASSIFICATION
B3-007-90	16.0 - 16.8'	

MECHANICAL ANALYSIS - SIEVE TEST DATA

CLIENT Weston

JOB NO. 2066-01

BORING NO.	B3-007-90	SAMPLED	3-2-90
DEPTH	20.8-21.5'	DATE TESTED	4-11-90 TNW
SAMPLE NO.	--	WASH SIEVE	Yes
SOIL DESCR.	--	DRY SIEVE	No

MOISTURE DATA

HYGROSCOPIC Yes

NATURAL No

Wt. Wet Soil & Pan	(g)	20.88
Wt. Dry Soil & Pan	(g)	20.18
Wt. Lost Moisture	(g)	0.70
Wt. of Pan Only	(g)	3.77
Wt. of Dry Soil	(g)	16.41
Moisture Content	%	4.3

Wt. Hydrom. Sample Wet (g)	58.40
Wt. Hydrom. Sample Dry (g)	56.01

WASH SIEVE ANALYSIS

Wt. Total Sample Wet (g)	58.40
Weight of + #10 Before Washing (g)	0.00
Weight of + #10 After Washing (g)	0.00
Weight of - #10 Wet (g)	58.40
Weight of - #10 Dry (g)	56.01
Wt. Total Sample Dry (g)	56.01
Calc. Wt. "W" (g)	56.01
Calc. Mass + #10	0.00

Sieve Number (Size)	Pan Weight (g)	Indiv. Wt. + Pan (g)	Indiv. Wt. Retain.	Cum. Wt. Retain.	Cum. % Retain.	% Finer By Wt.
1 1/2"	0.00	0.00	0.00	0.00	0.0	100.0
3/4"	0.00	0.00	0.00	0.00	0.0	100.0
3/8"	0.00	0.00	0.00	0.00	0.0	100.0
#4	0.00	0.00	0.00	0.00	0.0	100.0
#10	0.00	0.00	0.00	0.00	0.0	100.0
#20	0.00	0.00	0.00	0.00	0.0	100.0
#40	0.00	0.01	0.01	0.01	0.0	100.0
#60	0.00	0.01	0.01	0.02	0.0	100.0
#100	0.00	0.01	0.01	0.02	0.0	100.0
#200	0.00	0.18	0.18	0.20	0.4	99.6
#230	0.00	0.26	0.26	0.46	0.8	99.2

ADVANCED TERRA TESTING, INC.

HYDROMETER ANALYSIS - SEDIMENTATION DATA

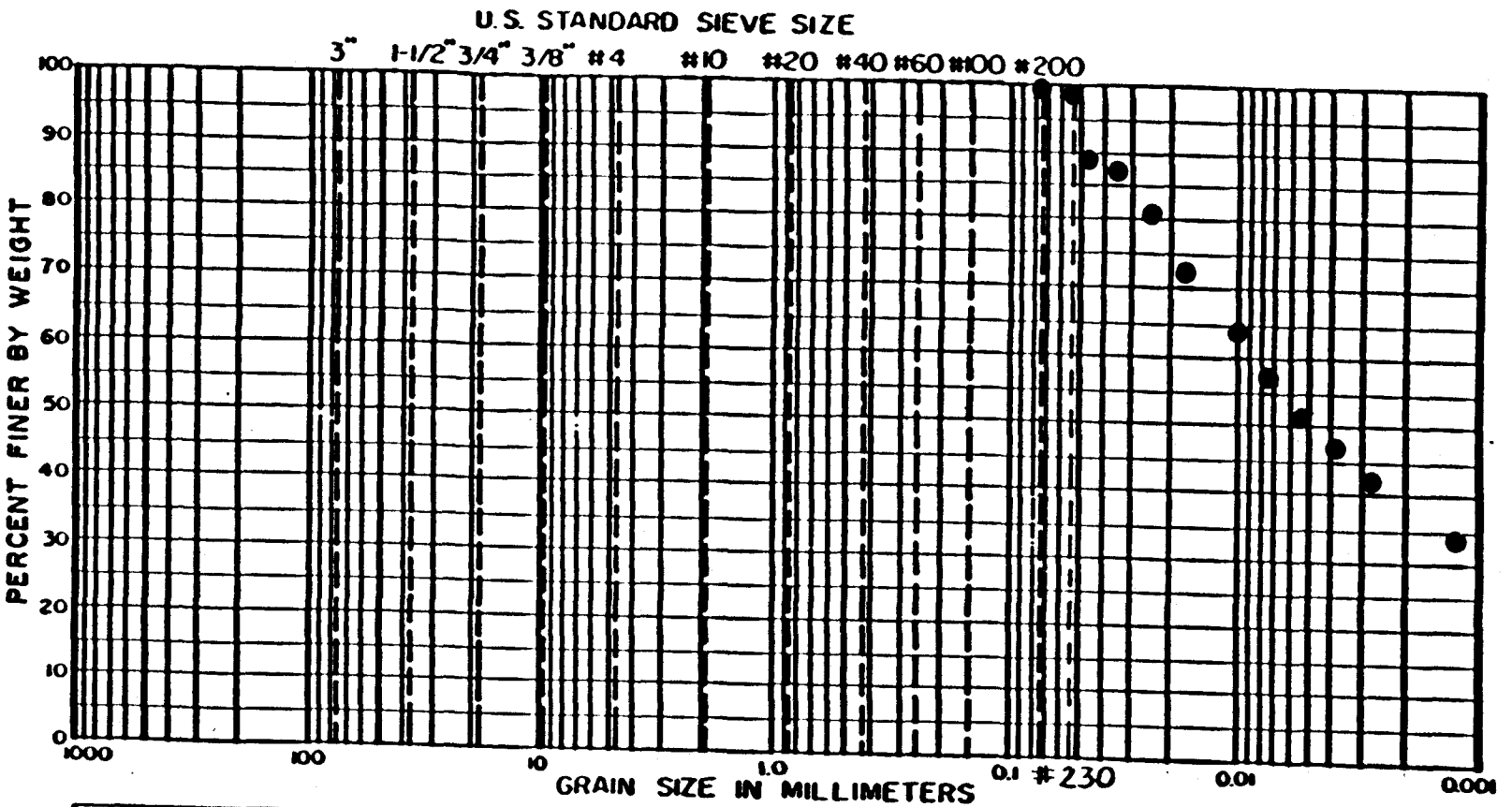
CLIENT	Weston	JOB NO.	2066-01
BORING NO.	B3-007-90	SAMPLED	3-2-90
DEPTH	20.8-21.5'	DATE TESTED	4-11-90 TNW
SAMPLE NO.	--	WASH SIEVE	Yes
SOIL DESCR.	--	DRY SIEVE	No

Hydrometer #	ASTM 152 H	Temp., Deg. C	22.5
Sp. Gr. of Soil	2.72	Temp. Coef. K	0.01298
Value of "a"	0.99	Wt. Dry Sample "W"	56.012
Deflocculant	Sodium Hexametaphosphate	% of Total Sample	100.0
Defloc. Corr'n	4.5		
Meniscus Corr'n	-1.0		

T Elapsed Time (min)	Hydrometer Reading Original	Corrected "R"	100Ra/W	% Total Sample	Effecitve Depth L	Grain Diameter (mm)
0.0	--	--	--	--	--	--
0.5	56.50	51.00	89.8	89.8	7.02	0.0487
1.0	55.00	49.50	87.1	87.1	7.27	0.0350
2.0	52.00	46.50	81.9	81.9	7.76	0.0256
5.0	47.00	41.50	73.1	73.1	8.58	0.0170
15.0	42.00	36.50	64.3	64.3	9.40	0.0103
30.0	38.00	32.50	57.2	57.2	10.06	0.0075
60.0	35.00	29.50	51.9	51.9	10.55	0.0054
120.0	32.50	27.00	47.5	47.5	10.96	0.0039
250.0	30.00	24.50	43.1	43.1	11.37	0.0028
1440.0	25.00	19.50	34.3	34.3	12.19	0.0012

Grain Diameter = K*(SQRT(L/T))

ADVANCED TERRA TESTING, INC.



COBBLES	GRAVEL	SAND	SILT OR CLAY

LOCATION	DEPTH	CLASSIFICATION
B3-007-90	20.8 - 21.5'	

MECHANICAL ANALYSIS - SIEVE TEST DATA

CLIENT Weston

JOB NO. 2066-01

BORING NO.	B3-010-90	SAMPLED	3-2-90
DEPTH	31.1-31.5'	DATE TESTED	4-10-90 TNW
SAMPLE NO.	--	WASH SIEVE	Yes
SOIL DESCR.	--	DRY SIEVE	No

MOISTURE DATA

HYGROSCOPIC Yes

NATURAL No

Wt. Wet Soil & Pan	(g)	22.11
Wt. Dry Soil & Pan	(g)	21.10
Wt. Lost Moisture	(g)	1.01
Wt. of Pan Only	(g)	3.67
Wt. of Dry Soil	(g)	17.43
Moisture Content	%	5.8

Wt. Hydrom. Sample Wet (g)	49.59
Wt. Hydrom. Sample Dry (g)	46.88

WASH SIEVE ANALYSIS

Wt. Total Sample Wet (g)	49.59
Weight of + #10 Before Washing (g)	0.00
Weight of + #10 After Washing (g)	0.00
Weight of - #10 Wet (g)	49.59
Weight of - #10 Dry (g)	46.88
Wt. Total Sample Dry (g)	46.88
Calc. Wt. "W" (g)	46.88
Calc. Mass + #10	0.00

Sieve Number (Size)	Pan Weight (g)	Indiv. Wt. + Pan (g)	Indiv. Wt. Retain.	Cum. Wt. Retain.	Cum. % Retain.	% Finer By Wt.
1 1/2"	0.00	0.00	0.00	0.00	0.0	100.0
3/4"	0.00	0.00	0.00	0.00	0.0	100.0
3/8"	0.00	0.00	0.00	0.00	0.0	100.0
#4	0.00	0.00	0.00	0.00	0.0	100.0
#10	0.00	0.00	0.00	0.00	0.0	100.0
#20	0.00	0.00	0.00	0.00	0.0	100.0
#40	0.00	0.00	0.00	0.00	0.0	100.0
#60	0.00	0.00	0.00	0.01	0.0	100.0
#100	0.00	0.01	0.01	0.02	0.0	100.0
#200	0.00	0.06	0.06	0.08	0.2	99.8
#230	0.00	0.04	0.04	0.12	0.2	99.8

ADVANCED TERRA TESTING, INC.

HYDROMETER ANALYSIS - SEDIMENTATION DATA

CLIENT Weston

JOB NO. 2066-01

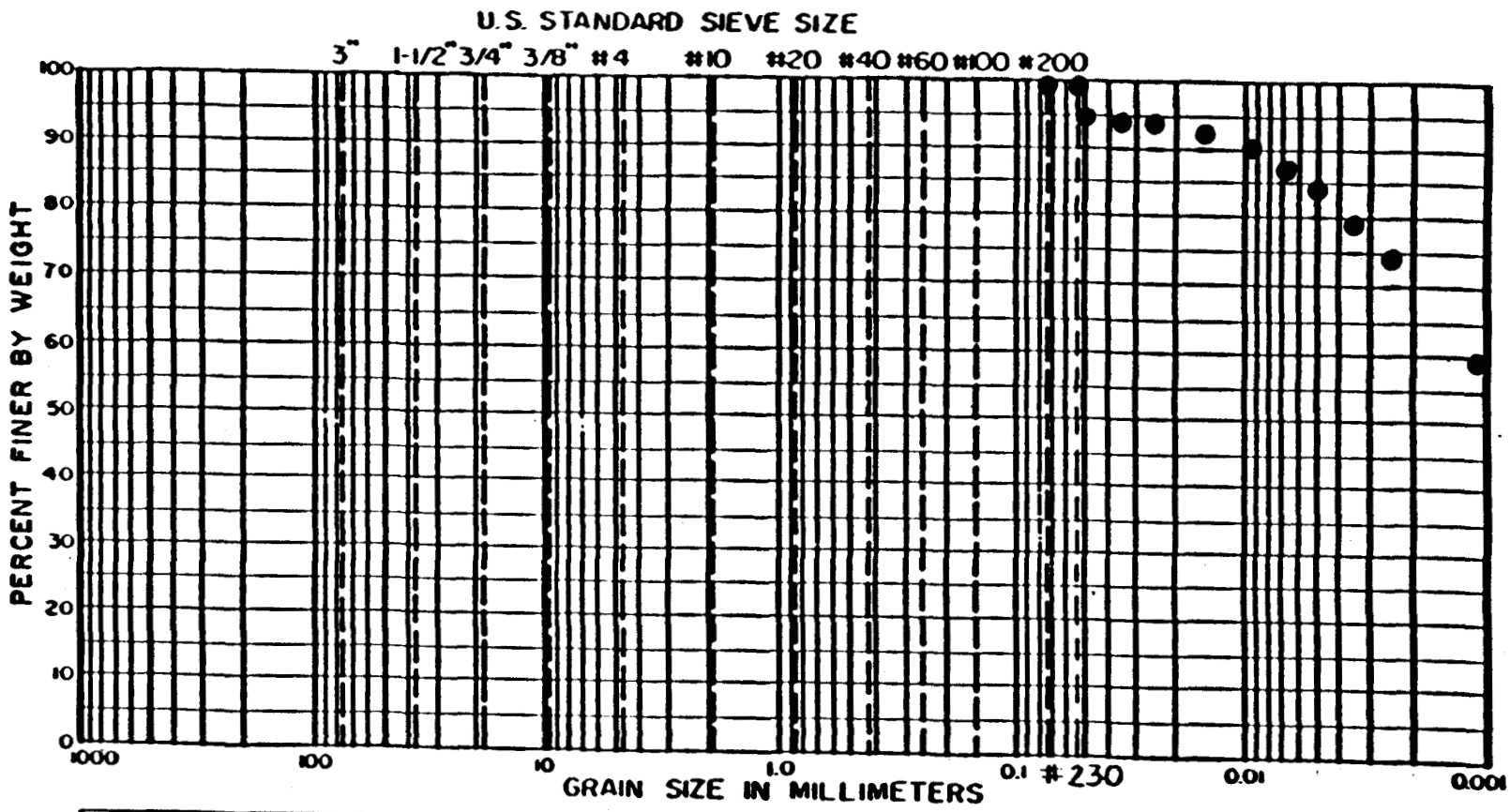
BORING NO.	B3-010-90	SAMPLED	3-2-90
DEPTH	31.1-31.5'	DATE TESTED	4-10-90 TNW
SAMPLE NO.	--	WASH SIEVE	Yes
SOIL DESCR.	--	DRY SIEVE	No

Hydrometer #	ASTM 152 H	Temp., Deg. C	22.5
Sp. Gr. of Soil	2.73	Temp. Coef. K	0.01294
Value of "a"	0.98	Wt. Dry Sample "W"	46.876
Deflocculant	Sodium Hexametaphosphate	% of Total Sample	100.0
Defloc. Corr'n	4.5		
Meniscus Corr'n	-1.0		

T Elapsed Time (min)	Hydrometer Reading Original	Corrected "R"	100Ra/W	% Total Sample	Effecitve Depth L	Grain Diameter (mm)
0.0	--	--	--	--	--	--
0.5	51.00	45.50	95.5	95.5	7.93	0.0515
1.0	50.50	45.00	94.5	94.5	8.01	0.0366
2.0	50.50	45.00	94.5	94.5	8.01	0.0259
5.0	50.00	44.50	93.4	93.4	8.09	0.0165
15.0	49.00	43.50	91.3	91.3	8.25	0.0096
30.0	47.00	41.50	87.1	87.1	8.58	0.0069
60.0	45.50	40.00	84.0	84.0	8.83	0.0050
120.0	43.50	38.00	79.8	79.8	9.16	0.0036
250.0	41.00	35.50	74.5	74.5	9.57	0.0025
1440.0	34.00	28.50	59.8	59.8	10.71	0.0011

Grain Diameter = K*(SQRT(L/T))

ADVANCED TERRA TESTING, INC.



COBBLES	GRAVEL	SAND	SILT OR CLAY

LOCATION	DEPTH	CLASSIFICATION
B3-010-90	31.1 - 31.5'	

MECHANICAL ANALYSIS - SIEVE TEST DATA

CLIENT Weston

JOB NO. 2066-01

BORING NO.	B3-011-90	SAMPLED	3-2-90
DEPTH	23.6-24.0'	DATE TESTED	5-2-90 CW
SAMPLE NO.	--	WASH SIEVE	Yes
SOIL DESCR.	--	DRY SIEVE	No

MOISTURE DATA

HYGROSCOPIC	Yes
NATURAL	No

Wt. Wet Soil & Pan	(g)	46.15
Wt. Dry Soil & Pan	(g)	45.60
Wt. Lost Moisture	(g)	0.55
Wt. of Pan Only	(g)	3.66
Wt. of Dry Soil	(g)	41.94
Moisture Content	%	1.3

Wt. Hydrom. Sample Wet (g)	59.52
Wt. Hydrom. Sample Dry (g)	58.75

WASH SIEVE ANALYSIS

Wt. Total Sample Wet (g)	59.52
Weight of + #10 Before Washing (g)	0.00
Weight of + #10 After Washing (g)	0.00
Weight of - #10 Wet (g)	59.52
Weight of - #10 Dry (g)	58.75
Wt. Total Sample Dry (g)	58.75
Calc. Wt. "W" (g)	58.75
Calc. Mass + #10	0.00

Sieve Number (Size)	Pan Weight (g)	Indiv. Wt. + Pan (g)	Indiv. Wt. Retain.	Cum. Wt. Retain.	Cum. % Retain.	% Finer By Wt.
1 1/2"	0.00	0.00	0.00	0.00	0.0	100.0
3/4"	0.00	0.00	0.00	0.00	0.0	100.0
3/8"	0.00	0.00	0.00	0.00	0.0	100.0
#4	0.00	0.00	0.00	0.00	0.0	100.0
#10	0.00	0.00	0.00	0.00	0.0	100.0
#20	0.00	0.00	0.00	0.00	0.0	100.0
#40	0.00	0.00	0.00	0.00	0.0	100.0
#60	0.00	0.02	0.02	0.02	0.0	100.0
#100	0.00	0.04	0.04	0.06	0.1	99.9
#230	0.00	24.08	24.08	24.14	41.1	58.9

ADVANCED TERRA TESTING, INC.

HYDROMETER ANALYSIS - SEDIMENTATION DATA

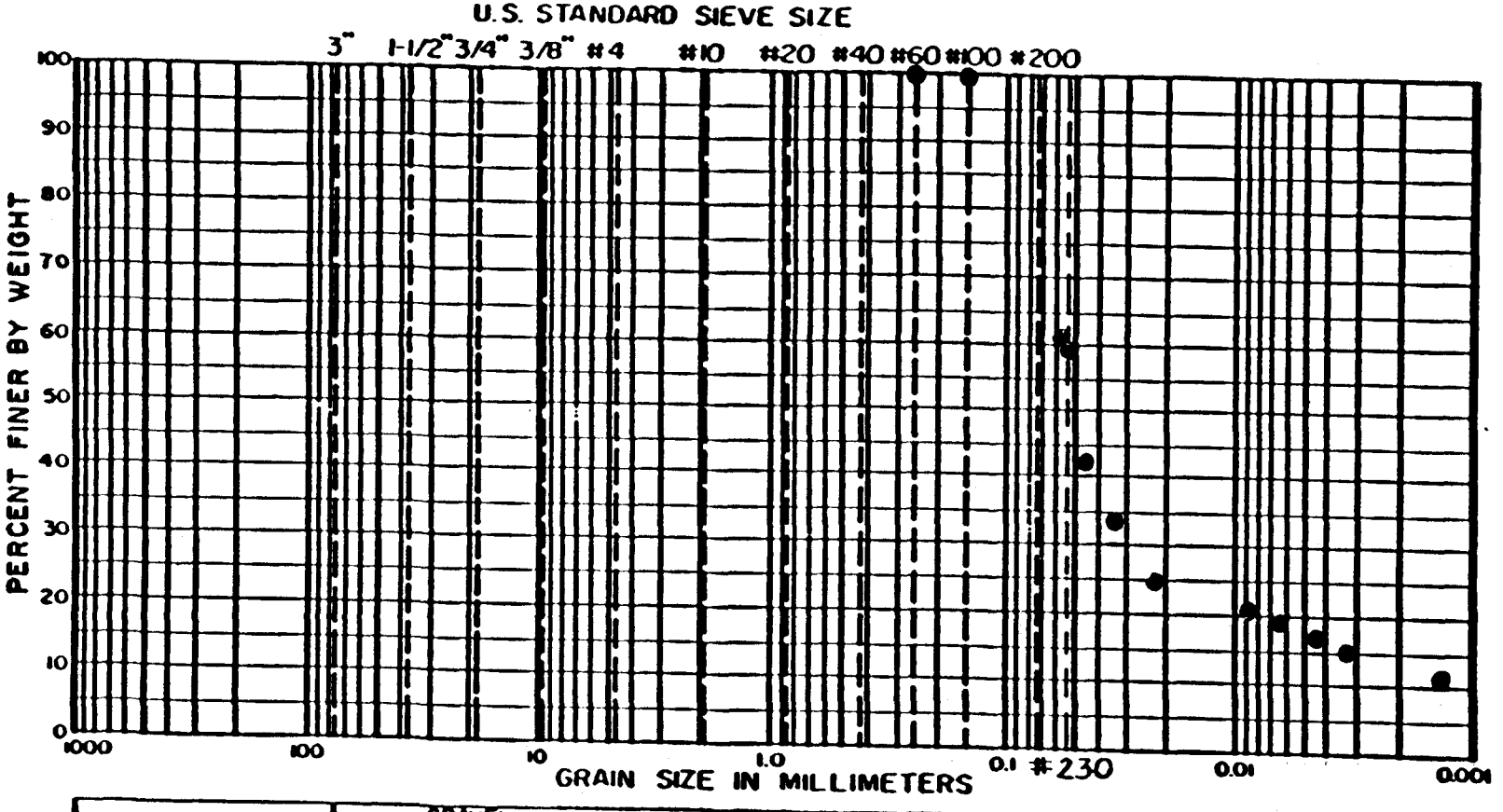
CLIENT	Weston	JOB NO.	2066-01
BORING NO.	B3-011-90	SAMPLED	3-2-90
DEPTH	23.6-24.0'	DATE TESTED	5-2-90 CW
SAMPLE NO.	--	WASH SIEVE	Yes
SOIL DESCR.	--	DRY SIEVE	No

Hydrometer #	ASTM 152 H	Temp., Deg. C	22.5
Sp. Gr. of Soil	2.63	Temp. Coef. K	0.01337
Value of "a"	1.01	Wt. Dry Sample "W"	58.748
Deflocculant	Sodium Hexametaphosphate	% of Total Sample	100.0
Defloc. Corr'n	5.0		
Meniscus Corr'n	-1.0		

T Elapsed Time (min)	Hydrometer Reading Original	Corrected "R"	100Ra/W	% Total Sample	Effecitve Depth L	Grain Diameter (mm)
0.0	--	--	--	--	--	--
0.5	42.00	36.00	61.6	61.6	9.40	0.0580
1.0	31.00	25.00	42.8	42.8	11.21	0.0448
2.0	25.50	19.50	33.4	33.4	12.11	0.0329
5.0	20.50	14.50	24.8	24.8	12.93	0.0215
15.0	19.50	13.50	23.1	23.1	13.09	0.0125
30.0	18.50	12.50	21.4	21.4	13.26	0.0089
60.0	17.00	11.00	18.8	18.8	13.50	0.0063
120.0	16.00	10.00	17.1	17.1	13.67	0.0045
250.0	15.00	9.00	15.4	15.4	13.83	0.0031
1440.0	12.50	6.50	11.1	11.1	14.24	0.0013

Grain Diameter = K*(SQRT(L/T))

ADVANCED TERRA TESTING, INC.



COBBLES	GRAVEL	SAND	SILT OR CLAY

LOCATION	DEPTH	CLASSIFICATION
B3-011-90	23.6-24.0'	

ADVANCED TERRA TESTING

MECHANICAL ANALYSIS - SIEVE TEST DATA

CLIENT Weston

JOB NO. 2066-01

BORING NO.	B3-011-90
DEPTH	23.6-24.0'
SAMPLE NO.	--
SOIL DESCR.	--

SAMPLED	3-2-90
DATE TESTED	4-11-90 TNW
WASH SIEVE	Yes
DRY SIEVE	No

MOISTURE DATA

HYGROSCOPIC Yes

NATURAL No

Wt. Wet Soil & Pan	(g)	23.00
Wt. Dry Soil & Pan	(g)	22.19
Wt. Lost Moisture	(g)	0.81
Wt. of Pan Only	(g)	3.68
Wt. of Dry Soil	(g)	18.51
Moisture Content	%	4.4

Wt. Hydrom. Sample Wet (g)	63.10
Wt. Hydrom. Sample Dry (g)	60.45

WASH SIEVE ANALYSIS

Wt. Total Sample Wet (g)	63.10
Weight of + #10 Before Washing (g)	0.00
Weight of + #10 After Washing (g)	0.00
Weight of - #10 Wet (g)	63.10
Weight of - #10 Dry (g)	60.45
Wt. Total Sample Dry (g)	60.45
Calc. Wt. "W" (g)	60.45
Calc. Mass + #10	0.00

Sieve Number (Size)	Pan Weight (g)	Indiv. Wt. + Pan (g)	Indiv. Wt. Retain.	Cum. Wt. Retain.	Cum. % Retain.	% Finer By Wt.
1 1/2"	0.00	0.00	0.00	0.00	0.0	100.0
3/4"	0.00	0.00	0.00	0.00	0.0	100.0
3/8"	0.00	0.00	0.00	0.00	0.0	100.0
#4	0.00	0.00	0.00	0.00	0.0	100.0
#10	0.00	0.00	0.00	0.00	0.0	100.0
#20	0.00	0.02	0.02	0.02	0.0	100.0
#40	0.00	0.03	0.03	0.05	0.1	99.9
#60	0.00	0.06	0.06	0.11	0.2	99.8
#100	0.00	0.65	0.65	0.76	1.3	98.7
#200	0.00	6.02	6.02	6.78	11.2	88.8
#230	0.00	2.97	2.97	9.75	16.1	83.9

ADVANCED TERRA TESTING, INC.

HYDROMETER ANALYSIS - SEDIMENTATION DATA

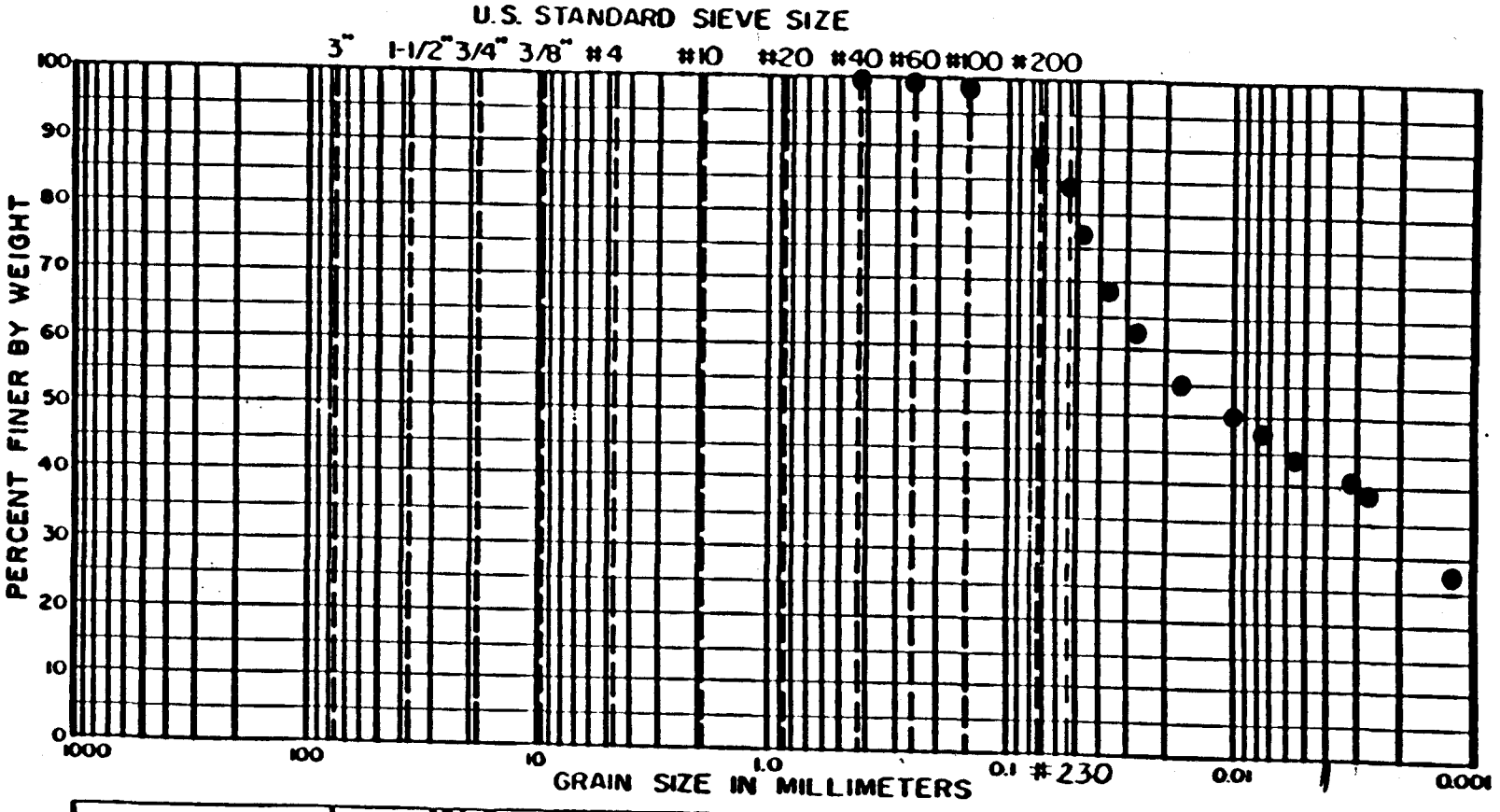
CLIENT	Weston	JOB NO.	2066-01
BORING NO.	B3-011-90	SAMPLED	3-2-90
DEPTH	23.6-24.0'	DATE TESTED	4-11-90 TNW
SAMPLE NO.	--	WASH SIEVE	Yes
SOIL DESCR.	--	DRY SIEVE	No

Hydrometer #	ASTM 152 H	Temp., Deg. C	22.5
Sp. Gr. of Soil	2.77	Temp. Coef. K	0.01280
Value of "a"	0.98	Wt. Dry Sample "W"	60.452
Deflocculant	Sodium Hexametaphosphate	% of Total Sample	100.0
Defloc. Corr'n	4.5		
Meniscus Corr'n	-1.0		

T Elapsed Time (min)	Hydrometer Reading Original	Corrected "R"	100Ra/W	% Total Sample	Effecitve Depth L	Grain Diameter (mm)
0.0	--	--	--	--	--	--
0.5	53.00	47.50	76.7	76.7	7.60	0.0499
1.0	48.00	42.50	68.6	68.6	8.42	0.0371
2.0	44.00	38.50	62.2	62.2	9.07	0.0273
5.0	40.00	34.50	55.7	55.7	9.73	0.0179
15.0	37.00	31.50	50.9	50.9	10.22	0.0106
30.0	35.00	29.50	47.6	47.6	10.55	0.0076
60.0	33.00	27.50	44.4	44.4	10.88	0.0055
120.0	31.00	25.50	41.2	41.2	11.21	0.0039
250.0	29.50	24.00	38.7	38.7	11.45	0.0027
1440.0	26.00	20.50	33.1	33.1	12.03	0.0012

Grain Diameter = K*(SQRT(L/T))

ADVANCED TERRA TESTING, INC.



COBBLES	GRAVEL	SAND	SILT OR CLAY

LOCATION	DEPTH	CLASSIFICATION
B3-011-90	23.6 - 24.0'	

MECHANICAL ANALYSIS - SIEVE TEST DATA

CLIENT Weston

JOB NO. 2066-01

BORING NO.	B3-011-90
DEPTH	31.1-32.0'
SAMPLE NO.	--
SOIL DESCR.	--

SAMPLED	3-2-90
DATE TESTED	4-11-90 TNW
WASH SIEVE	Yes
DRY SIEVE	No

MOISTURE DATA

HYGROSCOPIC	Yes
NATURAL	No

Wt. Wet Soil & Pan	(g)	25.72
Wt. Dry Soil & Pan	(g)	25.23
Wt. Lost Moisture	(g)	0.49
Wt. of Pan Only	(g)	3.70
Wt. of Dry Soil	(g)	21.53
Moisture Content	%	2.3

Wt. Hydrom. Sample Wet (g)	61.47
Wt. Hydrom. Sample Dry (g)	60.10

WASH SIEVE ANALYSIS

Wt. Total Sample Wet (g)	61.47
Weight of + #10 Before Washing (g)	0.00
Weight of + #10 After Washing (g)	0.00
Weight of - #10 Wet (g)	61.47
Weight of - #10 Dry (g)	60.10
Wt. Total Sample Dry (g)	60.10
Calc. Wt. "W" (g)	60.10
Calc. Mass + #10	0.00

Sieve Number (Size)	Pan Weight (g)	Indiv. Wt. + Pan (g)	Indiv. Wt. Retain.	Cum. Wt. Retain.	Cum. % Retain.	% Finer By Wt.
1 1/2"	0.00	0.00	0.00	0.00	0.0	100.0
3/4"	0.00	0.00	0.00	0.00	0.0	100.0
3/8"	0.00	0.00	0.00	0.00	0.0	100.0
#4	0.00	0.00	0.00	0.00	0.0	100.0
#10	0.00	0.00	0.00	0.00	0.0	100.0
#20	0.00	0.00	0.00	0.00	0.0	100.0
#40	0.00	0.01	0.01	0.01	0.0	100.0
#60	0.00	0.05	0.05	0.06	0.1	99.9
#100	0.00	0.26	0.26	0.32	0.5	99.5
#200	0.00	14.46	14.46	14.78	24.6	75.4
#230	0.00	4.42	4.42	19.20	31.9	68.1

ADVANCED TERRA TESTING, INC.

HYDROMETER ANALYSIS - SEDIMENTATION DATA

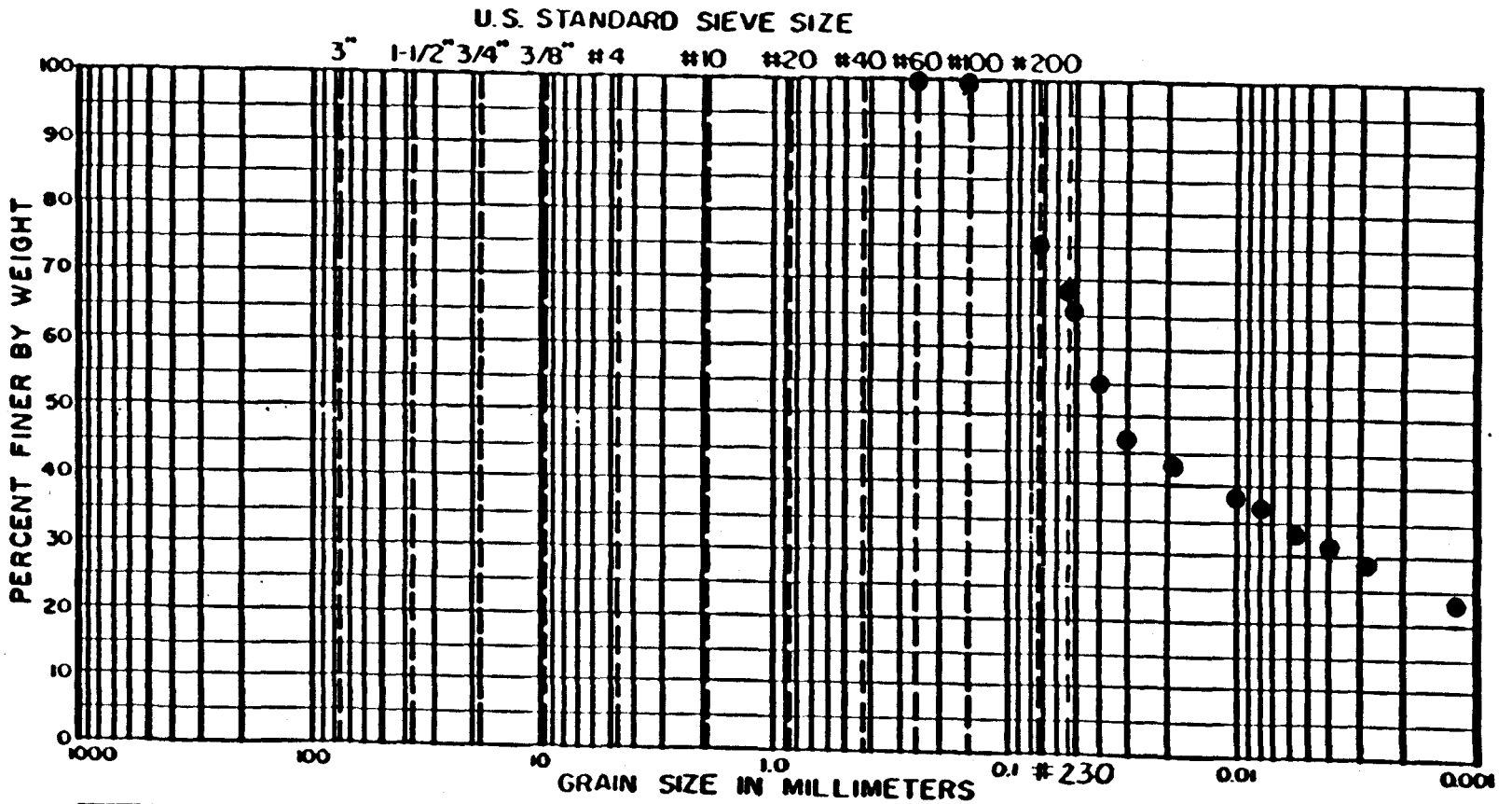
CLIENT	Weston	JOB NO.	2066-01
BORING NO.	B3-011-90	SAMPLED	3-2-90
DEPTH	31.1-32.0'	DATE TESTED	4-11-90 TNW
SAMPLE NO.	--	WASH SIEVE	Yes
SOIL DESCR.	--	DRY SIEVE	No

Hydrometer #	ASTM 152 H	Temp., Deg. C	22.5
Sp. Gr. of Soil	2.70	Temp. Coef. K	0.01305
Value of "a"	0.99	Wt. Dry Sample "W"	60.100
Deflocculant	Sodium Hexametaphosphate	% of Total Sample	100.0
Defloc. Corr'n	4.5		
Meniscus Corr'n	-1.0		

T Elapsed Time (min)	Hydrometer Reading Original	Corrected "R"	100Ra/W	% Total Sample	Effecitve Depth L	Grain Diameter (mm)
0.0	--	--	--	--	--	--
0.5	46.00	40.50	66.7	66.7	8.75	0.0546
1.0	39.00	33.50	55.2	55.2	9.89	0.0410
2.0	34.00	28.50	46.9	46.9	10.71	0.0302
5.0	32.00	26.50	43.7	43.7	11.04	0.0194
15.0	29.00	23.50	38.7	38.7	11.53	0.0114
30.0	28.00	22.50	37.1	37.1	11.70	0.0081
60.0	26.00	20.50	33.8	33.8	12.03	0.0058
120.0	25.00	19.50	32.1	32.1	12.19	0.0042
250.0	23.50	18.00	29.7	29.7	12.44	0.0029
1440.0	19.50	14.00	23.1	23.1	13.09	0.0012

Grain Diameter = K*(SQRT(L/T))

ADVANCED TERRA TESTING, INC.



COBBLES	GRAVEL	SAND	SILT OR CLAY

LOCATION	DEPTH	CLASSIFICATION
B3 011-90	31.1 - 32.0'	

MECHANICAL ANALYSIS - SIEVE TEST DATA

CLIENT Weston

JOB NO. 2066-01

BORING NO.	B3-011-90
DEPTH	35-35.5'
SAMPLE NO.	--
SOIL DESCR.	--

SAMPLED	3-2-90
DATE TESTED	4-10-90 TNW
WASH SIEVE	Yes
DRY SIEVE	No

MOISTURE DATA

HYGROSCOPIC	Yes
NATURAL	No

Wt. Wet Soil & Pan	(g)	21.24
Wt. Dry Soil & Pan	(g)	20.82
Wt. Lost Moisture	(g)	0.42
Wt. of Pan Only	(g)	3.67
Wt. of Dry Soil	(g)	17.15
Moisture Content	%	2.4

Wt. Hydrom. Sample Wet (g)	69.10
Wt. Hydrom. Sample Dry (g)	67.45

WASH SIEVE ANALYSIS

Wt. Total Sample Wet (g)	69.10
Weight of + #10 Before Washing (g)	0.00
Weight of + #10 After Washing (g)	0.00
Weight of - #10 Wet (g)	69.10
Weight of - #10 Dry (g)	67.45
Wt. Total Sample Dry (g)	67.45
Calc. Wt. "W" (g)	67.45
Calc. Mass + #10	0.00

Sieve Number (Size)	Pan Weight (g)	Indiv. Wt. + Pan (g)	Indiv. Wt. Retain.	Cum. Wt. Retain.	Cum. % Retain.	% Finer By Wt.
1 1/2"	0.00	0.00	0.00	0.00	0.0	100.0
3/4"	0.00	0.00	0.00	0.00	0.0	100.0
3/8"	0.00	0.00	0.00	0.00	0.0	100.0
#4	0.00	0.00	0.00	0.00	0.0	100.0
#10	0.00	0.00	0.00	0.00	0.0	100.0
#20	0.00	0.00	0.00	0.00	0.0	100.0
#40	0.00	0.00	0.00	0.00	0.0	100.0
#60	0.00	0.01	0.01	0.01	0.0	100.0
#100	0.00	0.01	0.01	0.02	0.0	100.0
#200	0.00	8.95	8.95	8.97	13.3	86.7
#230	0.00	5.38	5.38	14.35	21.3	78.7

ADVANCED TERRA TESTING, INC.

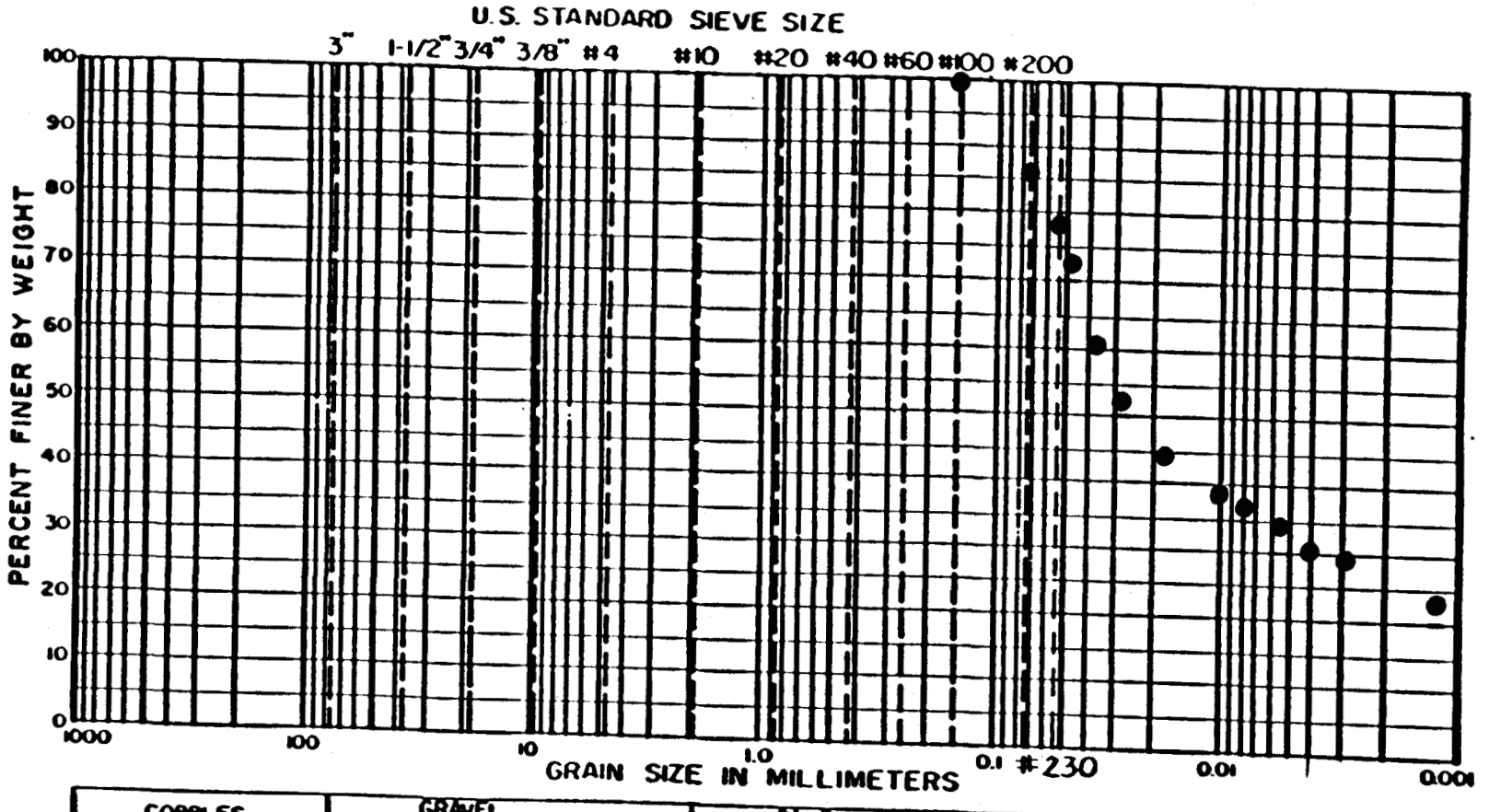
HYDROMETER ANALYSIS - SEDIMENTATION DATA

CLIENT	Weston	JOB NO.	2066-01
BORING NO.	B3-011-90	SAMPLED	3-2-90
DEPTH	35-35.5'	DATE TESTED	4-10-90 TNW
SAMPLE NO.	--	WASH SIEVE	Yes
SOIL DESCR.	--	DRY SIEVE	No

Hydrometer #	ASTM 152 H	Temp., Deg. C	22.5
Sp. Gr. of Soil	2.71	Temp. Coef. K	0.01301
Value of "a"	0.99	Wt. Dry Sample "W"	67.447
Deflocculant	Sodium Hexametaphosphate	% of Total Sample	100.0
Defloc. Corr'n	4.5		
Meniscus Corr'n	-1.0		

T Elapsed Time (min)	Hydrometer Reading Original	Corrected "R"	100Ra/W	% Total Sample	Effecitve Depth L	Grain Diameter (mm)
0.0	--	--	--	--	--	--
0.5	55.00	49.50	72.5	72.5	7.27	0.0496
1.0	47.50	42.00	61.5	61.5	8.50	0.0379
2.0	41.00	35.50	52.0	52.0	9.57	0.0285
5.0	36.00	30.50	44.7	44.7	10.39	0.0188
15.0	32.00	26.50	38.8	38.8	11.04	0.0112
30.0	31.00	25.50	37.4	37.4	11.21	0.0080
60.0	29.00	23.50	34.4	34.4	11.53	0.0057
120.0	27.00	21.50	31.5	31.5	11.86	0.0041
250.0	25.50	20.00	29.3	29.3	12.11	0.0029
1440.0	21.50	16.00	23.4	23.4	12.76	0.0012

Grain Diameter = K*(SQRT(L/T))



COBBLES	GRAVEL	SAND	SILT OR CLAY

LOCATION	DEPTH	CLASSIFICATION
B3-011-90	35.0 - 35.5'	

ADVANCED TERRA TESTING

MECHANICAL ANALYSIS - SIEVE TEST DATA

CLIENT Weston

JOB NO. 2066-01

BORING NO.	B-13	SAMPLED	-
DEPTH	23.8-24.4'	DATE TESTED	7-31-90 TNU
SAMPLE NO.	B301390238244	WASH SIEVE	Yes
SOIL DESCR.	EG&G	DRY SIEVE	No

MOISTURE DATA

HYGROSCOPIC Yes

NATURAL No

Wt. Wet Soil & Pan	(g)	35.98
Wt. Dry Soil & Pan	(g)	34.56
Wt. Lost Moisture	(g)	1.42
Wt. of Pan Only	(g)	3.67
Wt. of Dry Soil	(g)	30.89
Moisture Content	%	4.6

Wt. Hydrom. Sample Wet (g)	64.80
Wt. Hydrom. Sample Dry (g)	61.96

WASH SIEVE ANALYSIS

Wt. Total Sample Wet (g)	64.80
Weight of + #10 Before Washing (g)	0.00
Weight of + #10 After Washing (g)	0.00
Weight of - #10 Wet (g)	64.80
Weight of - #10 Dry (g)	61.96
Wt. Total Sample Dry (g)	61.96
Calc. Wt. "W" (g)	61.96
Calc. Mass + #10	0.00

Sieve Number (Size)	Pan Weight (g)	Indiv. Wt. + Pan (g)	Indiv. Wt. Retain.	Cum. Wt. Retain.	Cum. % Retain.	% Finer By Wt.
1 1/2"	0.00	0.00	0.00	0.00	0.0	100.0
3/4"	0.00	0.00	0.00	0.00	0.0	100.0
3/8"	0.00	0.00	0.00	0.00	0.0	100.0
#4	0.00	0.00	0.00	0.00	0.0	100.0
#10	0.00	0.00	0.00	0.00	0.0	100.0
#20	0.00	0.03	0.03	0.03	0.0	100.0
#40	0.00	0.02	0.02	0.05	0.1	99.9
#60	0.00	0.04	0.04	0.09	0.1	99.9
#100	0.00	0.32	0.32	0.41	0.7	99.3
#230	0.00	7.40	7.40	7.81	12.6	87.4

ADVANCED TERRA TESTING, INC.

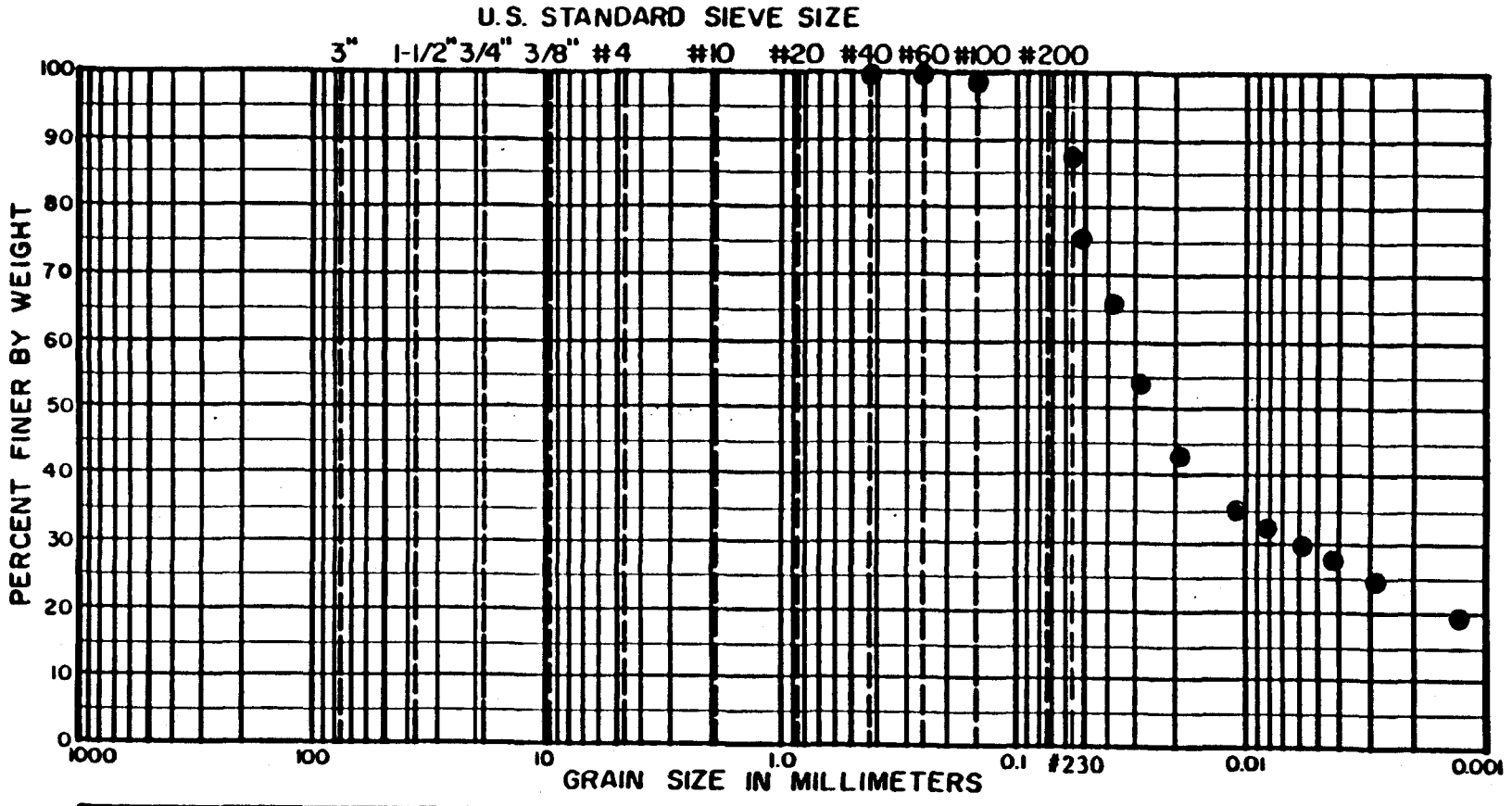
HYDROMETER ANALYSIS - SEDIMENTATION DATA

CLIENT	Weston	JOB NO.	2066-01
BORING NO.	B-13	SAMPLED	-
DEPTH	23.8-24.4'	DATE TESTED	7-31-90 TNU
SAMPLE NO.	B301390238244	WASH SIEVE	Yes
SOIL DESCR.	EG&G	DRY SIEVE	No

Hydrometer #	ASTM 152 H	Temp., Deg. C	24.0
Sp. Gr. of Soil	2.73	Temp. Coef. K	0.01293
Value of "a"	0.98	Wt. Dry Sample "W"	61.956
Deflocculant	Sodium Hexametaphosphate	% of Total Sample	100.0
Defloc. Corr'n	4.0		
Meniscus Corr'n	-1.0		

T Elapsed Time (min)	Hydrometer Reading Original	Corrected "R"	100Ra/W	% Total Sample	Effecitve Depth L	Grain Diameter (mm)
0.0	--	--	--	--	--	--
0.5	53.00	48.00	76.2	76.2	7.60	0.0504
1.0	47.00	42.00	66.7	66.7	8.58	0.0379
2.0	39.00	34.00	54.0	54.0	9.89	0.0288
5.0	32.00	27.00	42.9	42.9	11.04	0.0192
15.0	27.50	22.50	35.7	35.7	11.78	0.0115
30.0	26.00	21.00	33.4	33.4	12.03	0.0082
60.0	24.00	19.00	30.2	30.2	12.35	0.0059
120.0	23.00	18.00	28.6	28.6	12.52	0.0042
250.0	21.00	16.00	25.4	25.4	12.85	0.0029
1440.0	17.50	12.50	19.9	19.9	13.42	0.0012

Grain Diameter = K*(SQRT(L/T))



COBBLES	GRAVEL	SAND	SILT OR CLAY

LOCATION	DEPTH	CLASSIFICATION
B-13	23.8 - 24.4'	

MECHANICAL ANALYSIS - SIEVE TEST DATA

CLIENT Weston

JOB NO. 2066-01

BORING NO.	B301590	SAMPLED	--
DEPTH	26.75-27.1'	DATE TESTED	09-12-90 TNU
SAMPLE NO.	B3015902675271	WASH SIEVE	Yes
SOIL DESCR.	Rock Core	DRY SIEVE	No

MOISTURE DATA

HYGROSCOPIC Yes

NATURAL No

Wt. Wet Soil & Pan	(g)	30.00
Wt. Dry Soil & Pan	(g)	29.64
Wt. Lost Moisture	(g)	0.36
Wt. of Pan Only	(g)	3.71
Wt. of Dry Soil	(g)	25.93
Moisture Content	%	1.4

Wt. Hydrom. Sample Wet (g)	48.84
Wt. Hydrom. Sample Dry (g)	48.17

WASH SIEVE ANALYSIS

Wt. Total Sample Wet (g)	48.84
Weight of + #10 Before Washing (g)	0.00
Weight of + #10 After Washing (g)	0.00
Weight of - #10 Wet (g)	48.84
Weight of - #10 Dry (g)	48.17
Wt. Total Sample Dry (g)	48.17
Calc. Wt. "W" (g)	48.17
Calc. Mass + #10	0.00

Sieve Number (Size)	Pan Weight (g)	Indiv. Wt. + Pan (g)	Indiv. Wt. Retain.	Cum. Wt. Retain.	Cum. % Retain.	% Finer By Wt.
1 1/2"	0.00	0.00	0.00	0.00	0.0	100.0
3/4"	0.00	0.00	0.00	0.00	0.0	100.0
3/8"	0.00	0.00	0.00	0.00	0.0	100.0
#4	0.00	0.00	0.00	0.00	0.0	100.0
#10	0.00	0.00	0.00	0.00	0.0	100.0
#20	0.00	0.00	0.00	0.00	0.0	100.0
#40	0.00	0.02	0.02	0.02	0.0	100.0
#60	0.00	0.01	0.01	0.03	0.1	99.9
#100	0.00	0.16	0.16	0.19	0.4	99.6
#230	0.00	19.96	19.96	20.15	41.8	58.2

ADVANCED TERRA TESTING, INC.

HYDROMETER ANALYSIS - SEDIMENTATION DATA

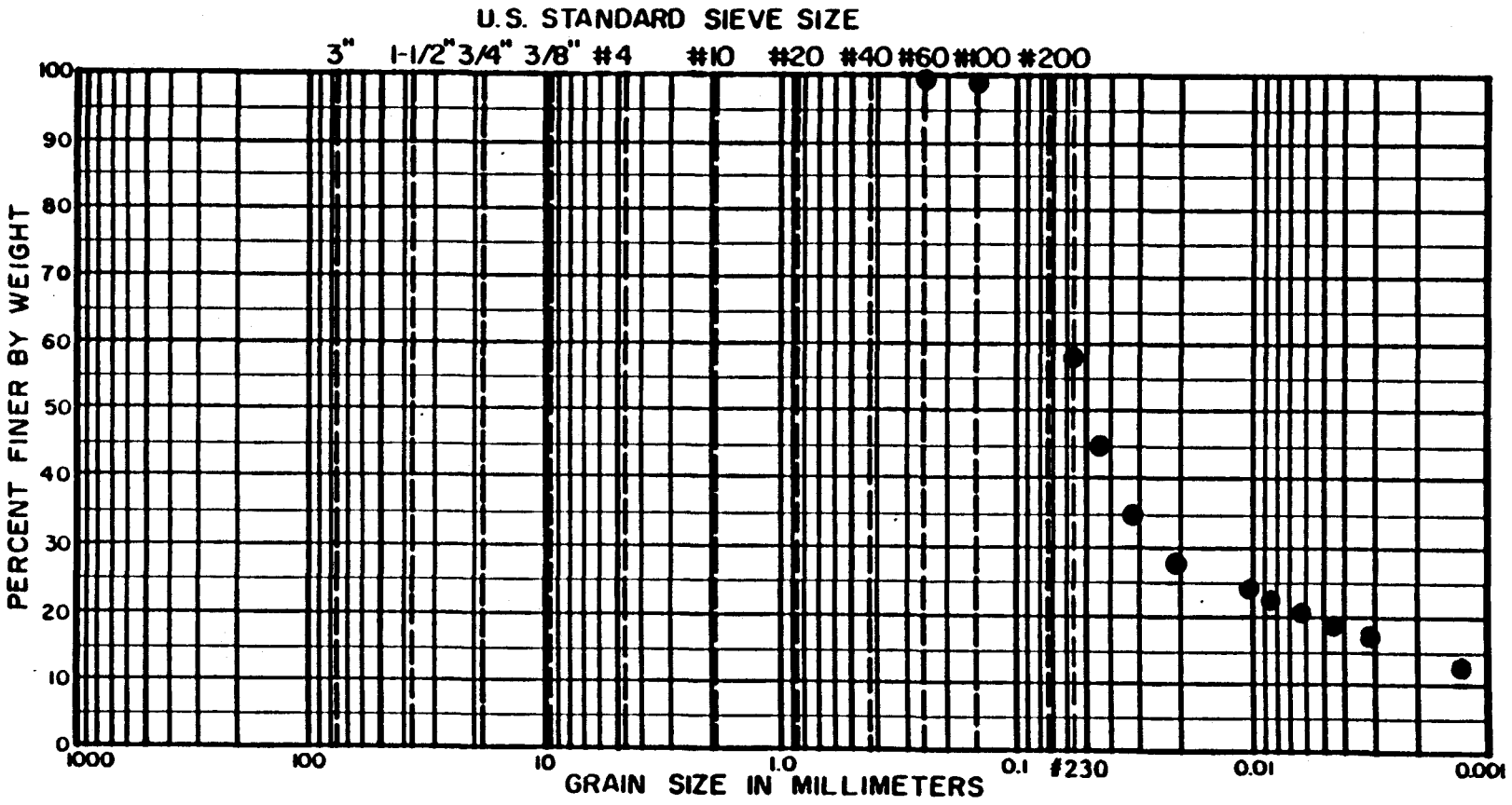
CLIENT	Weston	JOB NO.	2066-01
BORING NO.	B301590	SAMPLED	--
DEPTH	26.75-27.1'	DATE TESTED	09-12-90 TNU
SAMPLE NO.	B3015902675271	WASH SIEVE	Yes
SOIL DESCR.	Rock Core	DRY SIEVE	No

Hydrometer #	ASTM 152 H	Temp., Deg. C	24.0
Sp. Gr. of Soil	2.67	Temp. Coef. K	0.01293
Value of "a"	1.00	Wt. Dry Sample "W"	48.171
Deflocculant	Sodium Hexametaphosphate	% of Total Sample	100.0
Defloc. Corr'n	4.0		
Meniscus Corr'n	-1.0		

T Elapsed Time (min)	Hydrometer Reading Original	Corrected "R"	100Ra/W	% Total Sample	Effecitve Depth L	Grain Diameter (mm)
0.0	--	--	--	--	--	--
0.5	34.00	29.00	60.0	60.0	10.71	0.0599
1.0	27.00	22.00	45.5	45.5	11.86	0.0445
2.0	22.00	17.00	35.1	35.1	12.68	0.0326
5.0	18.50	13.50	27.9	27.9	13.26	0.0211
15.0	17.00	12.00	24.8	24.8	13.50	0.0123
30.0	16.00	11.00	22.7	22.7	13.67	0.0087
60.0	15.50	10.50	21.7	21.7	13.75	0.0062
120.0	14.00	9.00	18.6	18.6	13.99	0.0044
250.0	13.50	8.50	17.6	17.6	14.08	0.0031
1440.0	11.50	6.50	13.4	13.4	14.40	0.0013

Grain Diameter = K*(SQRT(L/T))

ADVANCED TERRA TESTING, INC.



COBBLES	GRAVEL	SAND	SILT OR CLAY

LOCATION	DEPTH	CLASSIFICATION
B301590	26.75 - 27.1'	

ADVANCED TERRA TESTING

MECHANICAL ANALYSIS - SIEVE TEST DATA

CLIENT Weston

JOB NO. 2066-01

BORING NO.	B301690	SAMPLED	--
DEPTH	29.6-30'	DATE TESTED	09-12-90 TNU
SAMPLE NO.	B301690296300	WASH SIEVE	Yes
SOIL DESCR.	Rock Core	DRY SIEVE	No

MOISTURE DATA

HYGROSCOPIC Yes

NATURAL No

Wt. Wet Soil & Pan	(g)	33.65
Wt. Dry Soil & Pan	(g)	32.15
Wt. Lost Moisture	(g)	1.50
Wt. of Pan Only	(g)	3.61
Wt. of Dry Soil	(g)	28.54
Moisture Content	%	5.3

Wt. Hydrom. Sample Wet (g)	54.46
Wt. Hydrom. Sample Dry (g)	51.74

WASH SIEVE ANALYSIS

Wt. Total Sample Wet (g)	54.46
Weight of + #10 Before Washing (g)	0.00
Weight of + #10 After Washing (g)	0.00
Weight of - #10 Wet (g)	54.46
Weight of - #10 Dry (g)	51.74
Wt. Total Sample Dry (g)	51.74
Calc. Wt. "W" (g)	51.74
Calc. Mass + #10	0.00

Sieve Number (Size)	Pan Weight (g)	Indiv. Wt. + Pan (g)	Indiv. Wt. Retain.	Cum. Wt. Retain.	Cum. % Retain.	% Finer By Wt.
1 1/2"	0.00	0.00	0.00	0.00	0.0	100.0
3/4"	0.00	0.00	0.00	0.00	0.0	100.0
3/8"	0.00	0.00	0.00	0.00	0.0	100.0
#4	0.00	0.00	0.00	0.00	0.0	100.0
#10	0.00	0.00	0.00	0.00	0.0	100.0
#20	0.00	0.00	0.00	0.00	0.0	100.0
#40	0.00	0.00	0.00	0.00	0.0	100.0
#60	0.00	0.01	0.01	0.01	0.0	100.0
#100	0.00	0.01	0.01	0.02	0.0	100.0
#230	0.00	5.14	5.14	5.16	10.0	90.0

ADVANCED TERRA TESTING, INC.

HYDROMETER ANALYSIS - SEDIMENTATION DATA

CLIENT Weston

JOB NO. 2066-01

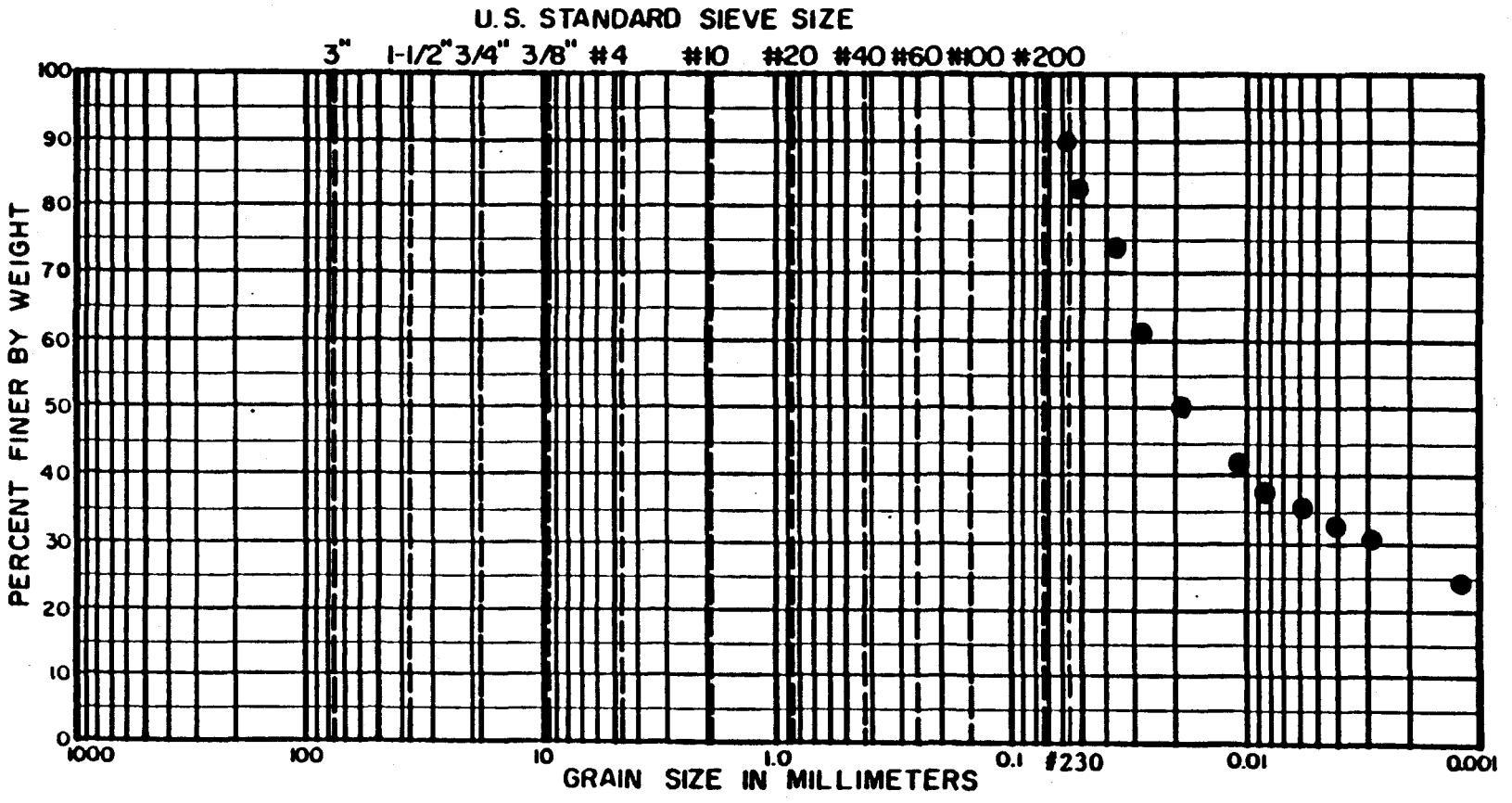
BORING NO.	B301690	SAMPLED	--
DEPTH	29.6-30'	DATE TESTED	09-12-90 TNU
SAMPLE NO.	B301690296300	WASH SIEVE	Yes
SOIL DESCR.	Rock Core	DRY SIEVE	No

Hydrometer #	ASTM 152 H	Temp., Deg. C	24.0
Sp. Gr. of Soil	2.69	Temp. Coef. K	0.01286
Value of "a"	0.99	Wt. Dry Sample "W"	51.741
Deflocculant	Sodium Hexametaphosphate	% of Total Sample	100.0
Defloc. Corr'n	4.0		
Meniscus Corr'n	-1.0		

T Elapsed Time (min)	Hydrometer Reading Original	Corrected "R"	100Ra/W	% Total Sample	Effecitve Depth L	Grain Diameter (mm)
0.0	--	--	--	--	--	--
0.5	48.00	43.00	82.4	82.4	8.42	0.0528
1.0	43.50	38.50	73.8	73.8	9.16	0.0389
2.0	37.00	32.00	61.4	61.4	10.22	0.0291
5.0	31.00	26.00	49.8	49.8	11.21	0.0193
15.0	27.00	22.00	42.2	42.2	11.86	0.0114
30.0	25.00	20.00	38.3	38.3	12.19	0.0082
60.0	24.00	19.00	36.4	36.4	12.35	0.0058
120.0	22.00	17.00	32.6	32.6	12.68	0.0042
250.0	21.50	16.50	31.6	31.6	12.76	0.0029
1440.0	18.00	13.00	24.9	24.9	13.34	0.0012

Grain Diameter = K*(SQRT(L/T))

ADVANCED TERRA TESTING, INC.



COBBLES	GRAVEL	SAND	SILT OR CLAY

LOCATION	DEPTH	CLASSIFICATION
B301690	29.6 - 30'	

ADVANCED TERRA TESTING

MECHANICAL ANALYSIS - SIEVE TEST DATA

CLIENT Weston

JOB NO. 2066-01

BORING NO.	B3~~0~~01690	SAMPLED	--
DEPTH	32.4-32.7'	DATE TESTED	09-12-90 TNU
SAMPLE NO.	B301690324327	WASH SIEVE	Yes
SOIL DESCR.	Rock Core	DRY SIEVE	No

MOISTURE DATA

HYGROSCOPIC	Yes
NATURAL	No

Wt. Wet Soil & Pan	(g)	10.56
Wt. Dry Soil & Pan	(g)	10.49
Wt. Lost Moisture	(g)	0.07
Wt. of Pan Only	(g)	3.69
Wt. of Dry Soil	(g)	6.80
Moisture Content	%	1.0

Wt. Hydrom. Sample Wet (g)	41.79
Wt. Hydrom. Sample Dry (g)	41.36

WASH SIEVE ANALYSIS

Wt. Total Sample Wet (g)	41.79
Weight of + #10 Before Washing (g)	0.00
Weight of + #10 After Washing (g)	0.00
Weight of - #10 Wet (g)	41.79
Weight of - #10 Dry (g)	41.36
Wt. Total Sample Dry (g)	41.36
Calc. Wt. "W" (g)	41.36
Calc. Mass + #10	0.00

Sieve Number (Size)	Pan Weight (g)	Indiv. Wt. + Pan (g)	Indiv. Wt. Retain.	Cum. Wt. Retain.	Cum. % Retain.	% Finer By Wt.
1 1/2"	0.00	0.00	0.00	0.00	0.0	100.0
3/4"	0.00	0.00	0.00	0.00	0.0	100.0
3/8"	0.00	0.00	0.00	0.00	0.0	100.0
#4	0.00	0.00	0.00	0.00	0.0	100.0
#10	0.00	0.00	0.00	0.00	0.0	100.0
#20	0.00	0.00	0.00	0.00	0.0	100.0
#40	0.00	0.00	0.00	0.00	0.0	100.0
#60	0.00	0.03	0.03	0.03	0.1	99.9
#100	0.00	0.18	0.18	0.21	0.5	99.5
#230	0.00	14.89	14.89	15.10	36.5	63.5

ADVANCED TERRA TESTING, INC.

HYDROMETER ANALYSIS - SEDIMENTATION DATA

CLIENT Weston

JOB NO. 2066-01

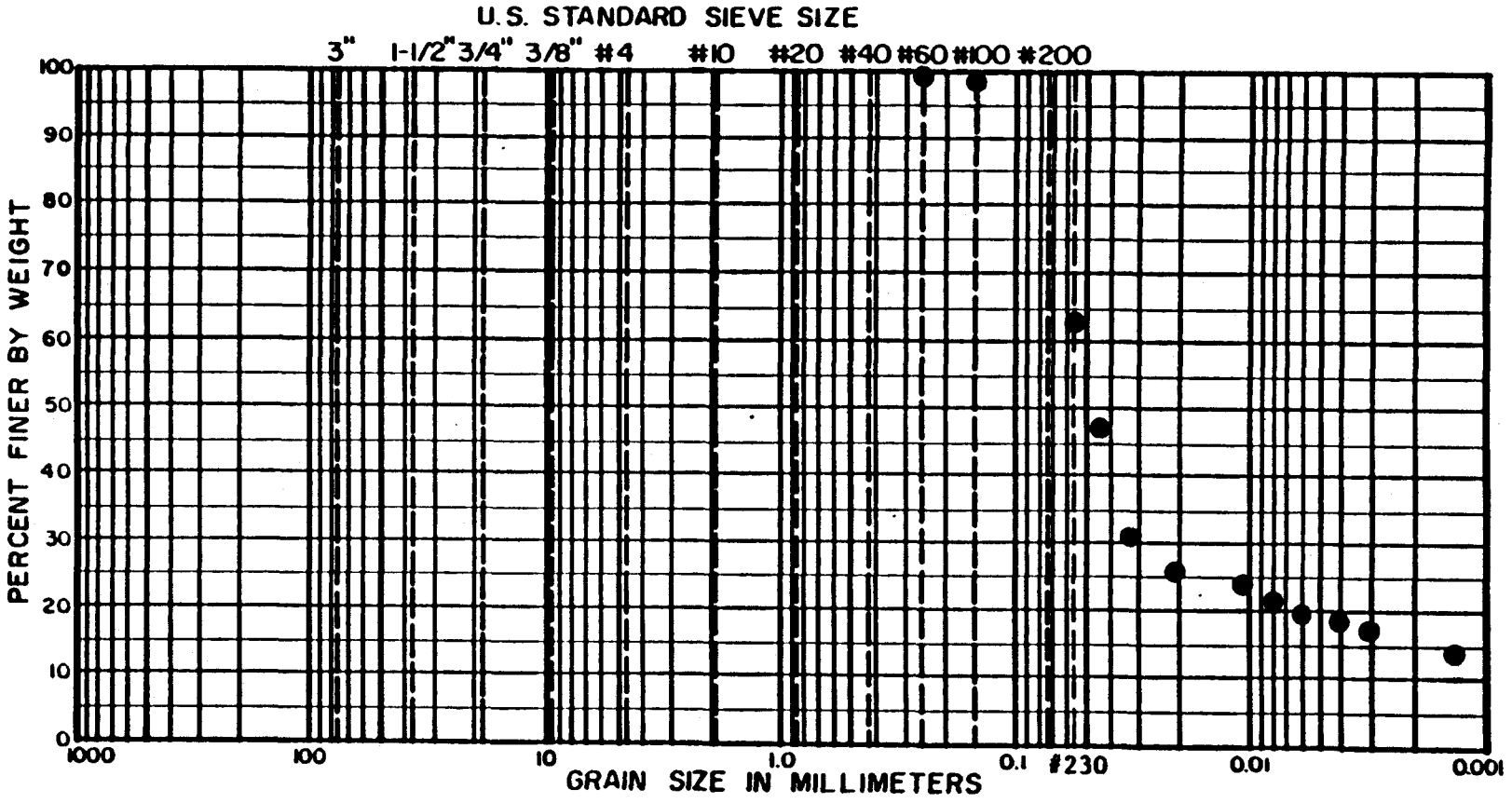
BORING NO.	B3001690	SAMPLED	--
DEPTH	32.4-32.7'	DATE TESTED	09-12-90 TNU
SAMPLE NO.	B301690324327	WASH SIEVE	Yes
SOIL DESCR.	Rock Core	DRY SIEVE	No

Hydrometer #	ASTM 152 H	Temp., Deg. C	24.0
Sp. Gr. of Soil	2.70	Temp. Coef. K	0.01282
Value of "a"	0.99	Wt. Dry Sample "W"	41.364
Deflocculant	Sodium Hexametaphosphate	% of Total Sample	100.0
Defloc. Corr'n	4.0		
Meniscus Corr'n	-1.0		

T Elapsed Time (min)	Hydrometer Reading Original	Corrected "R"	100Ra/W	% Total Sample	Effecitve Depth L	Grain Diameter (mm)
0.0	--	--	--	--	--	--
0.5	31.00	26.00	62.2	62.2	11.21	0.0607
1.0	24.50	19.50	46.7	46.7	12.27	0.0449
2.0	18.00	13.00	31.1	31.1	13.34	0.0331
5.0	16.00	11.00	26.3	26.3	13.67	0.0212
15.0	15.00	10.00	23.9	23.9	13.83	0.0123
30.0	14.00	9.00	21.5	21.5	13.99	0.0088
60.0	13.50	8.50	20.3	20.3	14.08	0.0062
120.0	13.00	8.00	19.1	19.1	14.16	0.0044
250.0	12.00	7.00	16.8	16.8	14.32	0.0031
1440.0	11.00	6.00	14.4	14.4	14.49	0.0013

Grain Diameter = K*(SQRT(L/T))

ADVANCED TERRA TESTING, INC.



COBBLES	GRAVEL	SAND	SILT OR CLAY

LOCATION	DEPTH	CLASSIFICATION
B3001690	32.4 - 32.7'	

ADVANCED TERRA TESTING

MECHANICAL ANALYSIS - SIEVE TEST DATA

CLIENT Weston

JOB NO. 2066-01

BORING NO.	B301690	SAMPLED	--
DEPTH	37-37.3'	DATE TESTED	09-12-90 TNU
SAMPLE NO.	B301690370373	WASH SIEVE	Yes
SOIL DESCR.	Rock Core	DRY SIEVE	No

MOISTURE DATA

HYGROSCOPIC	Yes
NATURAL	No

Wt. Wet Soil & Pan	(g)	35.63
Wt. Dry Soil & Pan	(g)	34.21
Wt. Lost Moisture	(g)	1.42
Wt. of Pan Only	(g)	3.71
Wt. of Dry Soil	(g)	30.50
Moisture Content	%	4.7

Wt. Hydrom. Sample Wet (g)	57.24
Wt. Hydrom. Sample Dry (g)	54.69

WASH SIEVE ANALYSIS

Wt. Total Sample Wet (g)	57.24
Weight of + #10 Before Washing (g)	0.00
Weight of + #10 After Washing (g)	0.00
Weight of - #10 Wet (g)	57.24
Weight of - #10 Dry (g)	54.69
Wt. Total Sample Dry (g)	54.69
Calc. Wt. "W" (g)	54.69
Calc. Mass + #10	0.00

Sieve Number (Size)	Pan Weight (g)	Indiv. Wt. + Pan (g)	Indiv. Wt. Retain.	Cum. Wt. Retain.	Cum. % Retain.	% Finer By Wt.
1 1/2"	0.00	0.00	0.00	0.00	0.0	100.0
3/4"	0.00	0.00	0.00	0.00	0.0	100.0
3/8"	0.00	0.00	0.00	0.00	0.0	100.0
#4	0.00	0.00	0.00	0.00	0.0	100.0
#10	0.00	0.00	0.00	0.00	0.0	100.0
#20	0.00	0.02	0.02	0.02	0.0	100.0
#40	0.00	0.11	0.11	0.13	0.2	99.8
#60	0.00	0.18	0.18	0.31	0.6	99.4
#100	0.00	0.19	0.19	0.50	0.9	99.1
#230	0.00	0.37	0.37	0.87	1.6	98.4

ADVANCED TERRA TESTING, INC.

HYDROMETER ANALYSIS - SEDIMENTATION DATA

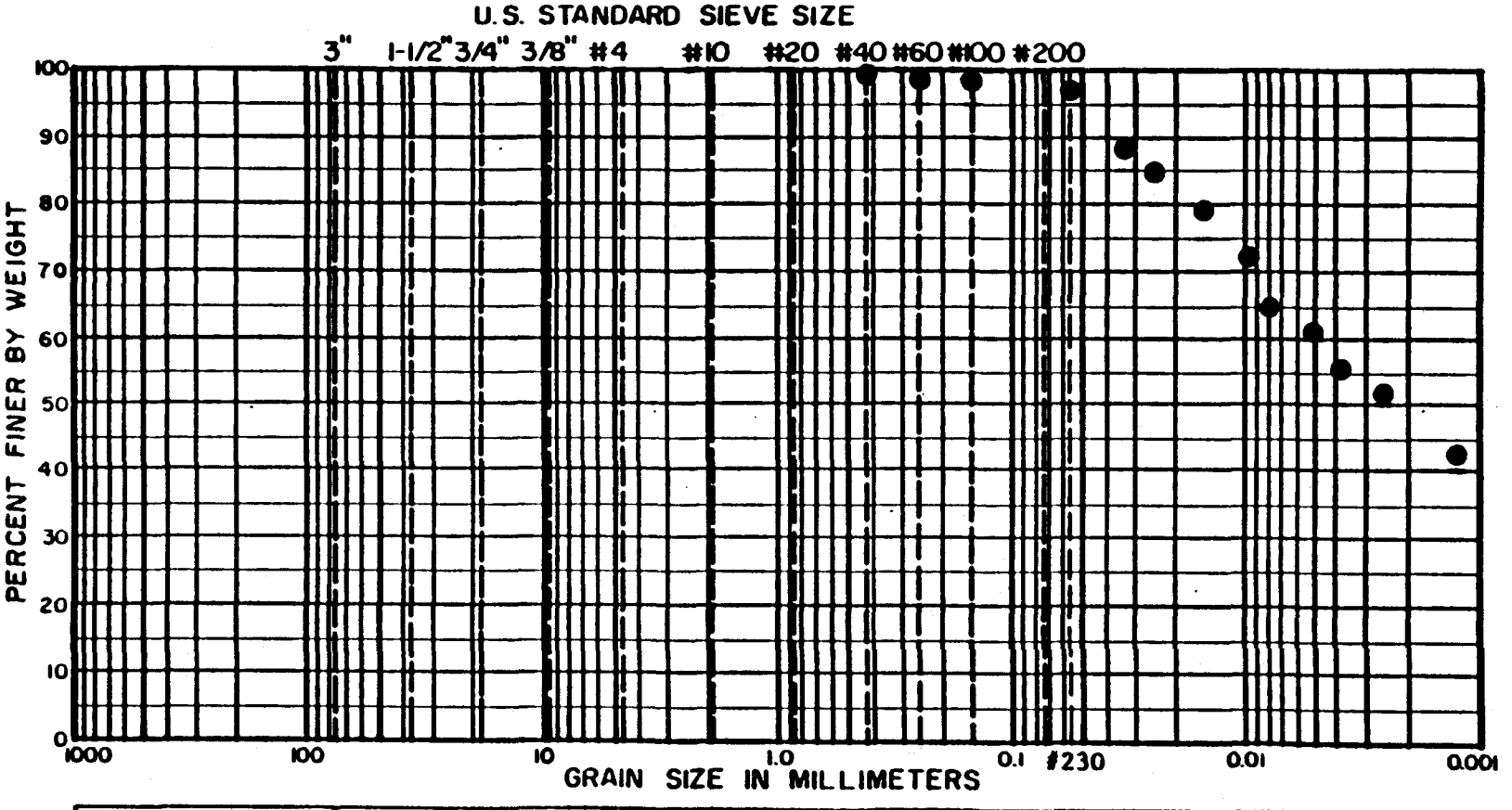
CLIENT	Weston	JOB NO.	2066-01
BORING NO.	B301690	SAMPLED	--
DEPTH	37-37.3'	DATE TESTED	09-12-90 TNU
SAMPLE NO.	B301690370373	WASH SIEVE	Yes
SOIL DESCR.	Rock Core	DRY SIEVE	No

Hydrometer #	ASTM 152 H	Temp., Deg. C	24.0
Sp. Gr. of Soil	2.72	Temp. Coef. K	0.01275
Value of "a"	0.99	Wt. Dry Sample "W"	54.694
Deflocculant	Sodium Hexametaphosphate	% of Total Sample	100.0
Defloc. Corr'n	4.0		
Meniscus Corr'n	-1.0		

T Elapsed Time (min)	Hydrometer Reading Original	Corrected "R"	100Ra/W	% Total Sample	Effecitve Depth L	Grain Diameter (mm)
0.0	--	--	--	--	--	--
0.5	56.00	51.00	91.9	91.9	7.11	0.0481
1.0	54.00	49.00	88.3	88.3	7.43	0.0348
2.0	52.00	47.00	84.7	84.7	7.76	0.0251
5.0	49.00	44.00	79.3	79.3	8.25	0.0164
15.0	45.00	40.00	72.1	72.1	8.91	0.0098
30.0	41.50	36.50	65.8	65.8	9.48	0.0072
60.0	39.00	34.00	61.3	61.3	9.89	0.0052
120.0	36.00	31.00	55.9	55.9	10.39	0.0038
250.0	34.00	29.00	52.3	52.3	10.71	0.0026
1440.0	29.00	24.00	43.3	43.3	11.53	0.0011

Grain Diameter = K*(SQRT(L/T))

ADVANCED TERRA TESTING, INC.



COBBLES	GRAVEL	SAND	SILT OR CLAY

LOCATION	DEPTH	CLASSIFICATION
B301690	37 - 37.3'	

ADVANCED TERRA TESTING

MECHANICAL ANALYSIS - SIEVE TEST DATA

CLIENT Weston

JOB NO. 2066-01

BORING NO.	B-18	SAMPLED	-
DEPTH	28.9-29.3'	DATE TESTED	7-31-90 TNU
SAMPLE NO.	B301890289293	WASH SIEVE	Yes
SOIL DESCR.	EG&G	DRY SIEVE	No

MOISTURE DATA

HYGROSCOPIC Yes

NATURAL No

Wt. Wet Soil & Pan	(g)	33.08
Wt. Dry Soil & Pan	(g)	31.96
Wt. Lost Moisture	(g)	1.12
Wt. of Pan Only	(g)	3.74
Wt. of Dry Soil	(g)	28.22
Moisture Content	%	4.0

Wt. Hydrom. Sample Wet (g)	62.18
Wt. Hydrom. Sample Dry (g)	59.81

WASH SIEVE ANALYSIS

Wt. Total Sample Wet (g)	62.18
Weight of + #10 Before Washing (g)	0.00
Weight of + #10 After Washing (g)	0.00
Weight of - #10 Wet (g)	62.18
Weight of - #10 Dry (g)	59.81
Wt. Total Sample Dry (g)	59.81
Calc. Wt. "W" (g)	59.81
Calc. Mass + #10	0.00

Sieve Number (Size)	Pan Weight (g)	Indiv. Wt. + Pan (g)	Indiv. Wt. Retain.	Cum. Wt. Retain.	Cum. % Retain.	% Finer By Wt.
1 1/2"	0.00	0.00	0.00	0.00	0.0	100.0
3/4"	0.00	0.00	0.00	0.00	0.0	100.0
3/8"	0.00	0.00	0.00	0.00	0.0	100.0
#4	0.00	0.00	0.00	0.00	0.0	100.0
#10	0.00	0.00	0.00	0.00	0.0	100.0
#20	0.00	0.01	0.01	0.01	0.0	100.0
#40	0.00	0.02	0.02	0.03	0.1	99.9
#60	0.00	0.01	0.01	0.04	0.1	99.9
#100	0.00	0.04	0.04	0.08	0.1	99.9
#230	0.00	11.57	11.57	11.65	19.5	80.5

ADVANCED TERRA TESTING, INC.

HYDROMETER ANALYSIS - SEDIMENTATION DATA

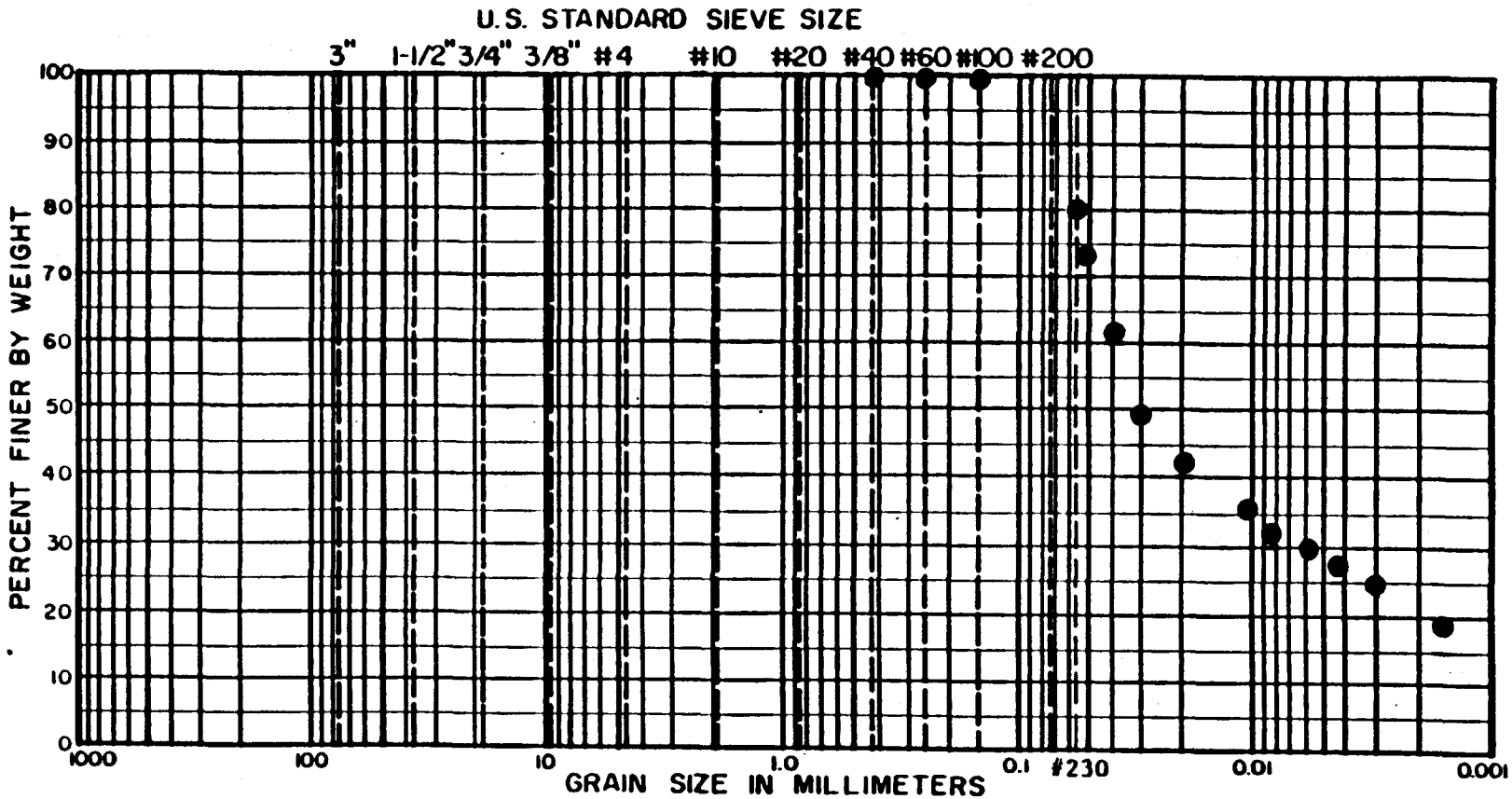
CLIENT	Weston	JOB NO.	2066-01
BORING NO.	B-18	SAMPLED	-
DEPTH	28.9-29.3'	DATE TESTED	7-31-90 TNU
SAMPLE NO.	B301890289293	WASH SIEVE	Yes
SOIL DESCR.	EG&G	DRY SIEVE	No

Hydrometer #	ASTM 152 H	Temp., Deg. C	24.0
Sp. Gr. of Soil	2.65	Temp. Coef. K	0.01301
Value of "a"	1.00	Wt. Dry Sample "W"	59.808
Deflocculant	Sodium Hexametaphosphate	% of Total Sample	100.0
Defloc. Corr'n	4.0		
Meniscus Corr'n	-1.0		

T Elapsed Time (min)	Hydrometer Reading Original	Corrected "R"	100Ra/W	% Total Sample	Effecitve Depth L	Grain Diameter (mm)
0.0	--	--	--	--	--	--
0.5	49.00	44.00	73.6	73.6	8.25	0.0529
1.0	42.00	37.00	61.9	61.9	9.40	0.0399
2.0	34.50	29.50	49.3	49.3	10.63	0.0300
5.0	30.50	25.50	42.6	42.6	11.29	0.0195
15.0	26.50	21.50	35.9	35.9	11.94	0.0116
30.0	24.50	19.50	32.6	32.6	12.27	0.0083
60.0	23.00	18.00	30.1	30.1	12.52	0.0059
120.0	21.50	16.50	27.6	27.6	12.76	0.0042
250.0	20.00	15.00	25.1	25.1	13.01	0.0030
1440.0	16.50	11.50	19.2	19.2	13.58	0.0013

Grain Diameter = K*(SQRT(L/T))

ADVANCED TERRA TESTING, INC.



COBBLES	GRAVEL	SAND	SILT OR CLAY

LOCATION	DEPTH	CLASSIFICATION
B-18	28.9 - 29.3'	

ADVANCED TERRA TESTING

MECHANICAL ANALYSIS - SIEVE TEST DATA

CLIENT Weston

JOB NO. 2066-01

BORING NO.	B-18	SAMPLED	-
DEPTH	33.3-33.7'	DATE TESTED	7-31-90 TNU
SAMPLE NO.	B301890333337	WASH SIEVE	Yes
SOIL DESCR.	EG&G	DRY SIEVE	No

MOISTURE DATA

HYGROSCOPIC Yes

NATURAL No

Wt. Wet Soil & Pan	(g)	23.68
Wt. Dry Soil & Pan	(g)	22.76
Wt. Lost Moisture	(g)	0.92
Wt. of Pan Only	(g)	3.72
Wt. of Dry Soil	(g)	19.04
Moisture Content	%	4.8

Wt. Hydrom. Sample Wet (g)	62.24
Wt. Hydrom. Sample Dry (g)	59.37

WASH SIEVE ANALYSIS

Wt. Total Sample Wet (g)	62.24
Weight of + #10 Before Washing (g)	0.00
Weight of + #10 After Washing (g)	0.00
Weight of - #10 Wet (g)	62.24
Weight of - #10 Dry (g)	59.37
Wt. Total Sample Dry (g)	59.37
Calc. Wt. "W" (g)	59.37
Calc. Mass + #10	0.00

Sieve Number (Size)	Pan Weight (g)	Indiv. Wt. + Pan (g)	Indiv. Wt. Retain.	Cum. Wt. Retain.	Cum. % Retain.	% Finer By Wt.
1 1/2"	0.00	0.00	0.00	0.00	0.0	100.0
3/4"	0.00	0.00	0.00	0.00	0.0	100.0
3/8"	0.00	0.00	0.00	0.00	0.0	100.0
#4	0.00	0.00	0.00	0.00	0.0	100.0
#10	0.00	0.00	0.00	0.00	0.0	100.0
#20	0.00	0.03	0.03	0.03	0.1	99.9
#40	0.00	0.03	0.03	0.06	0.1	99.9
#60	0.00	0.02	0.02	0.08	0.1	99.9
#100	0.00	0.03	0.03	0.11	0.2	99.8
#230	0.00	6.92	6.92	7.03	11.8	88.2

ADVANCED TERRA TESTING, INC.

HYDROMETER ANALYSIS - SEDIMENTATION DATA

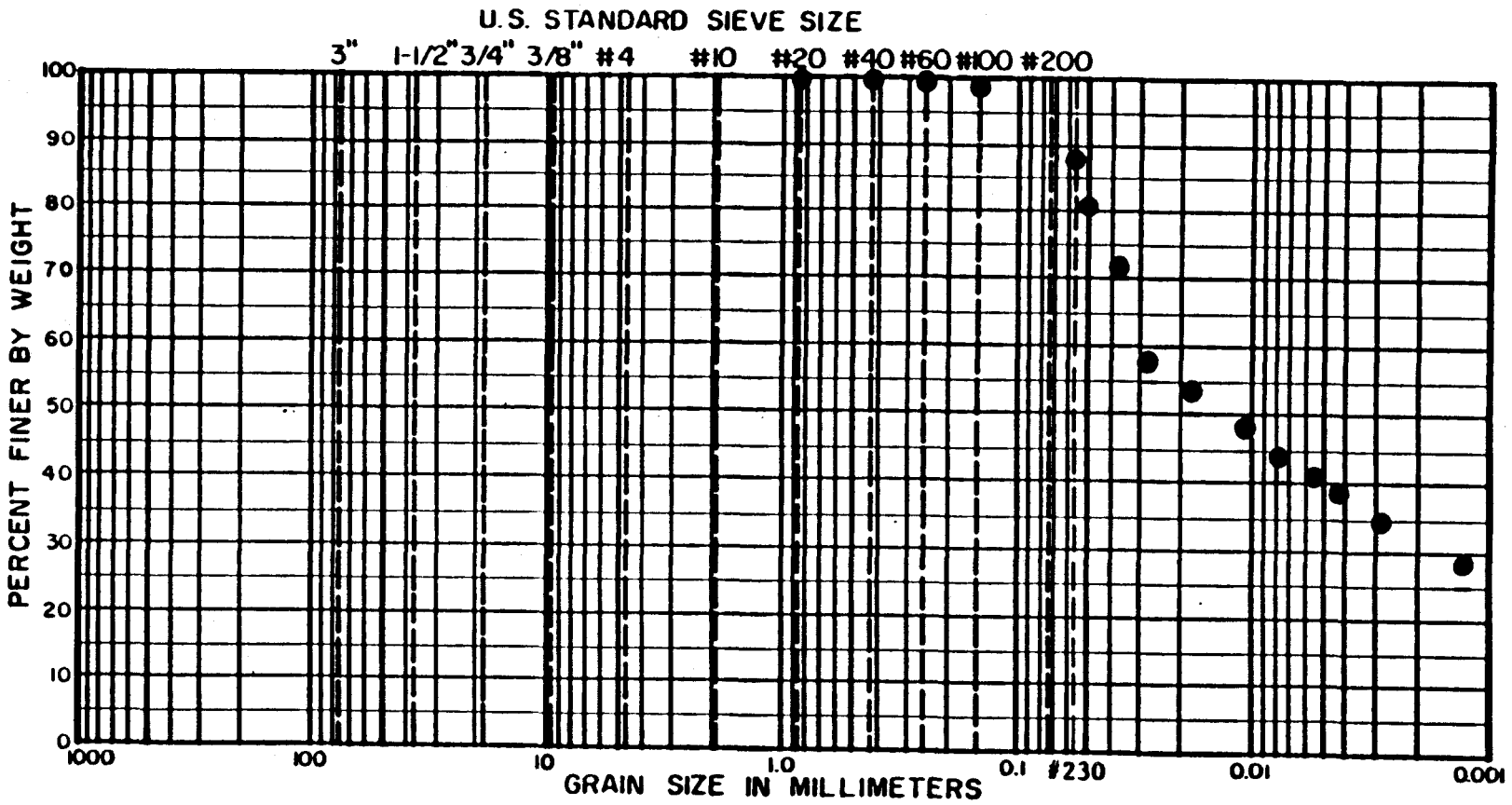
CLIENT	Weston	JOB NO.	2066-01
BORING NO.	B-18	SAMPLED	-
DEPTH	33.3-33.7'	DATE TESTED	7-31-90 TNU
SAMPLE NO.	B301890333337	WASH SIEVE	Yes
SOIL DESCR.	EG&G	DRY SIEVE	No

Hydrometer #	ASTM 152 H	Temp., Deg. C	24.0
Sp. Gr. of Soil	2.65	Temp. Coef. K	0.01301
Value of "a"	1.00	Wt. Dry Sample "W"	59.369
Deflocculant	Sodium Hexametaphosphate	% of Total Sample	100.0
Defloc. Corr'n	4.0		
Meniscus Corr'n	-1.0		

T Elapsed Time (min)	Hydrometer Reading Original	Corrected "R"	100Ra/W	% Total Sample	Effecitve Depth L	Grain Diameter (mm)
0.0	--	--	--	--	--	--
0.5	53.00	48.00	80.8	80.8	7.60	0.0507
1.0	48.00	43.00	72.4	72.4	8.42	0.0377
2.0	39.50	34.50	58.1	58.1	9.81	0.0288
5.0	37.00	32.00	53.9	53.9	10.22	0.0186
15.0	33.50	28.50	48.0	48.0	10.80	0.0110
30.0	31.50	26.50	44.6	44.6	11.12	0.0079
60.0	29.50	24.50	41.3	41.3	11.45	0.0057
120.0	28.00	23.00	38.7	38.7	11.70	0.0041
250.0	26.00	21.00	35.4	35.4	12.03	0.0029
1440.0	22.00	17.00	28.6	28.6	12.68	0.0012

Grain Diameter = K*(SQRT(L/T))

ADVANCED TERRA TESTING, INC.



COBBLES	GRAVEL	SAND	SILT OR CLAY

LOCATION	DEPTH	CLASSIFICATION
B-18	33.3 - 33.7'	

MECHANICAL ANALYSIS - SIEVE TEST DATA

CLIENT Weston

JOB NO. 2066-01

BORING NO.	B301990
DEPTH	26.8-27.7'
SAMPLE NO.	B301990268277
SOIL DESCR.	Rock Core

SAMPLED	--
DATE TESTED	09-12-90 TNU
WASH SIEVE	Yes
DRY SIEVE	No

MOISTURE DATA

HYGROSCOPIC Yes

NATURAL No

Wt. Wet Soil & Pan	(g)	34.12
Wt. Dry Soil & Pan	(g)	32.93
Wt. Lost Moisture	(g)	1.19
Wt. of Pan Only	(g)	3.67
Wt. of Dry Soil	(g)	29.26
Moisture Content	%	4.1

Wt. Hydrom. Sample Wet (g)	54.84
Wt. Hydrom. Sample Dry (g)	52.70

WASH SIEVE ANALYSIS

Wt. Total Sample Wet (g)	54.84
Weight of + #10 Before Washing (g)	0.00
Weight of + #10 After Washing (g)	0.00
Weight of - #10 Wet (g)	54.84
Weight of - #10 Dry (g)	52.70
Wt. Total Sample Dry (g)	52.70
Calc. Wt. "W" (g)	52.70
Calc. Mass + #10	0.00

Sieve Number (Size)	Pan Weight (g)	Indiv. Wt. + Pan (g)	Indiv. Wt. Retain.	Cum. Wt. Retain.	Cum. % Retain.	% Finer By Wt.
1 1/2"	0.00	0.00	0.00	0.00	0.0	100.0
3/4"	0.00	0.00	0.00	0.00	0.0	100.0
3/8"	0.00	0.00	0.00	0.00	0.0	100.0
#4	0.00	0.00	0.00	0.00	0.0	100.0
#10	0.00	0.00	0.00	0.00	0.0	100.0
#20	0.00	0.02	0.02	0.02	0.0	100.0
#40	0.00	0.05	0.05	0.07	0.1	99.9
#60	0.00	0.04	0.04	0.11	0.2	99.8
#100	0.00	0.12	0.12	0.23	0.4	99.6
#230	0.00	21.01	21.01	21.24	40.3	59.7

ADVANCED TERRA TESTING, INC.

HYDROMETER ANALYSIS - SEDIMENTATION DATA

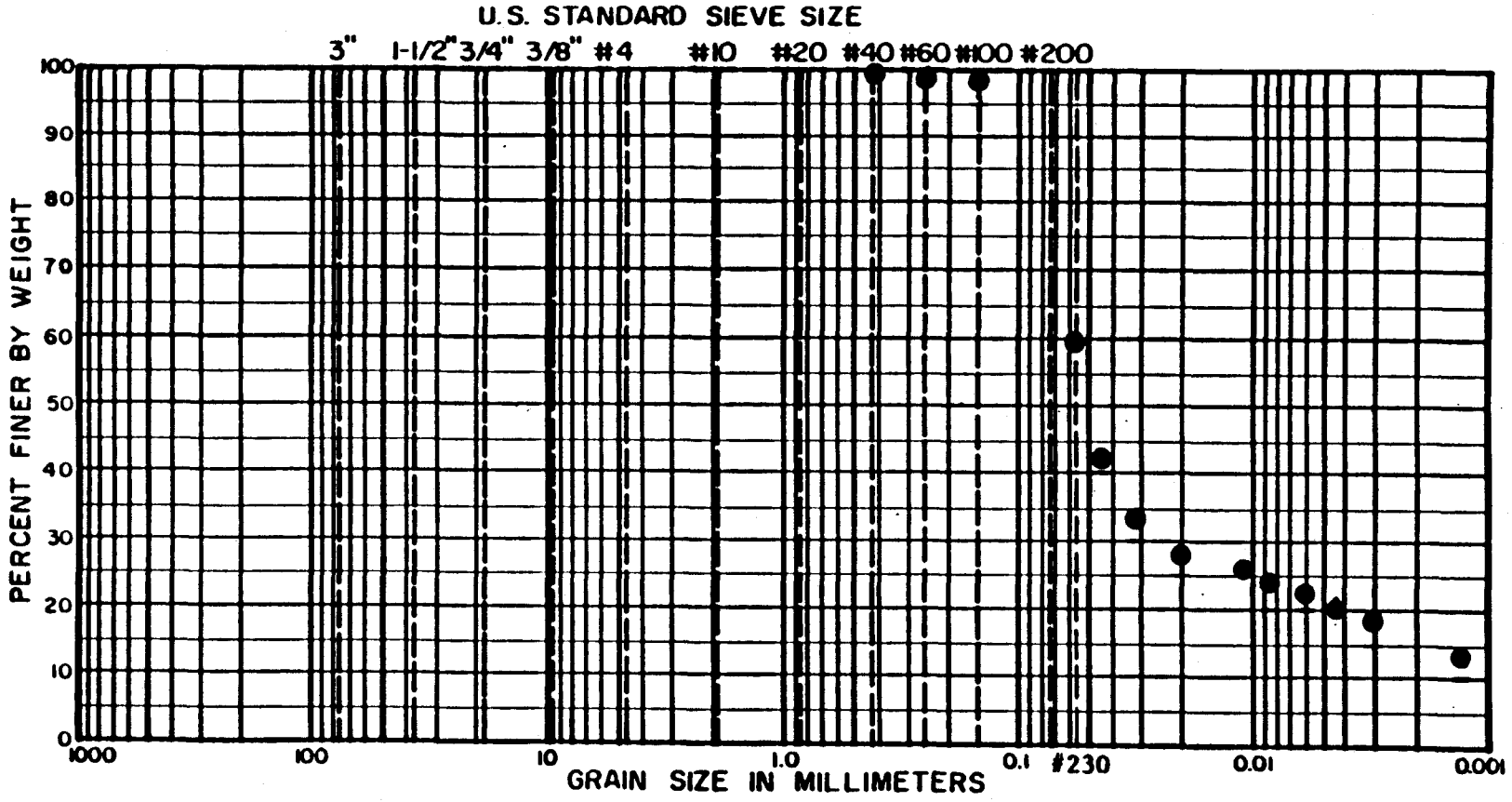
CLIENT	Weston	JOB NO.	2066-01
BORING NO.	B301990	SAMPLED	--
DEPTH	26.8-27.7'	DATE TESTED	09-12-90 TNU
SAMPLE NO.	B301990268277	WASH SIEVE	Yes
SOIL DESCR.	Rock Core	DRY SIEVE	No

Hydrometer #	ASTM 152 H	Temp., Deg. C	24.0
Sp. Gr. of Soil	2.68	Temp. Coef. K	0.01290
Value of "a"	0.99	Wt. Dry Sample "W"	52.697
Deflocculant	Sodium Hexametaphosphate	% of Total Sample	100.0
Defloc. Corr'n	4.0		
Meniscus Corr'n	-1.0		

T Elapsed Time (min)	Hydrometer Reading Original	Corrected "R"	100Ra/W	% Total Sample	Effecitve Depth L	Grain Diameter (mm)
0.0	--	--	--	--	--	--
0.5	34.50	29.50	55.6	55.6	10.63	0.0595
1.0	27.50	22.50	42.4	42.4	11.78	0.0443
2.0	23.00	18.00	34.0	34.0	12.52	0.0323
5.0	20.00	15.00	28.3	28.3	13.01	0.0208
15.0	19.00	14.00	26.4	26.4	13.17	0.0121
30.0	18.00	13.00	24.5	24.5	13.34	0.0086
60.0	17.00	12.00	22.6	22.6	13.50	0.0061
120.0	15.50	10.50	19.8	19.8	13.75	0.0044
250.0	15.00	10.00	18.9	18.9	13.83	0.0030
1440.0	12.50	7.50	14.1	14.1	14.24	0.0013

Grain Diameter = K*(SQRT(L/T))

ADVANCED TERRA TESTING, INC.



COBBLES	GRAVEL	SAND	SILT OR CLAY

LOCATION	DEPTH	CLASSIFICATION
B301990	26.8 - 27.7'	

ADVANCED TERRA TESTING

MECHANICAL ANALYSIS - SIEVE TEST DATA

CLIENT Weston

JOB NO. 2066-01

BORING NO.	B30199296303
DEPTH	29.6-30.3'
SAMPLE NO.	--
SOIL DESCR.	--

SAMPLED	--
DATE TESTED	08-29-90 TNU
WASH SIEVE	Yes
DRY SIEVE	No

MOISTURE DATA

HYGROSCOPIC Yes

NATURAL No

Wt. Wet Soil & Pan	(g)	40.39
Wt. Dry Soil & Pan	(g)	39.60
Wt. Lost Moisture	(g)	0.79
Wt. of Pan Only	(g)	3.71
Wt. of Dry Soil	(g)	35.89
Moisture Content	%	2.2

Wt. Hydrom. Sample Wet (g)	66.83
Wt. Hydrom. Sample Dry (g)	65.39

WASH SIEVE ANALYSIS

Wt. Total Sample Wet (g)	305.08
Weight of + #10 Before Washing (g)	0.00
Weight of + #10 After Washing (g)	0.00
Weight of - #10 Wet (g)	305.08
Weight of - #10 Dry (g)	298.51
Wt. Total Sample Dry (g)	298.51
Calc. Wt. "W" (g)	65.39
Calc. Mass + #10	0.00

Sieve Number (Size)	Pan Weight (g)	Indiv. Wt. + Pan (g)	Indiv. Wt. Retain.	Cum. Wt. Retain.	Cum. % Retain.	% Finer By Wt.
1 1/2"	0.00	0.00	0.00	0.00	0.0	100.0
3/4"	0.00	0.00	0.00	0.00	0.0	100.0
3/8"	0.00	0.00	0.00	0.00	0.0	100.0
#4	0.00	0.00	0.00	0.00	0.0	100.0
#10	0.00	0.00	0.00	0.00	0.0	100.0
#20	0.00	0.07	0.07	0.07	0.1	99.9
#40	0.00	0.07	0.07	0.14	0.2	99.8
#60	0.00	0.05	0.05	0.19	0.3	99.7
#100	0.00	0.20	0.20	0.39	0.6	99.4
#230	0.00	17.84	17.84	18.23	27.9	72.1

ADVANCED TERRA TESTING, INC.

HYDROMETER ANALYSIS - SEDIMENTATION DATA

CLIENT Weston

JOB NO. 2066-01

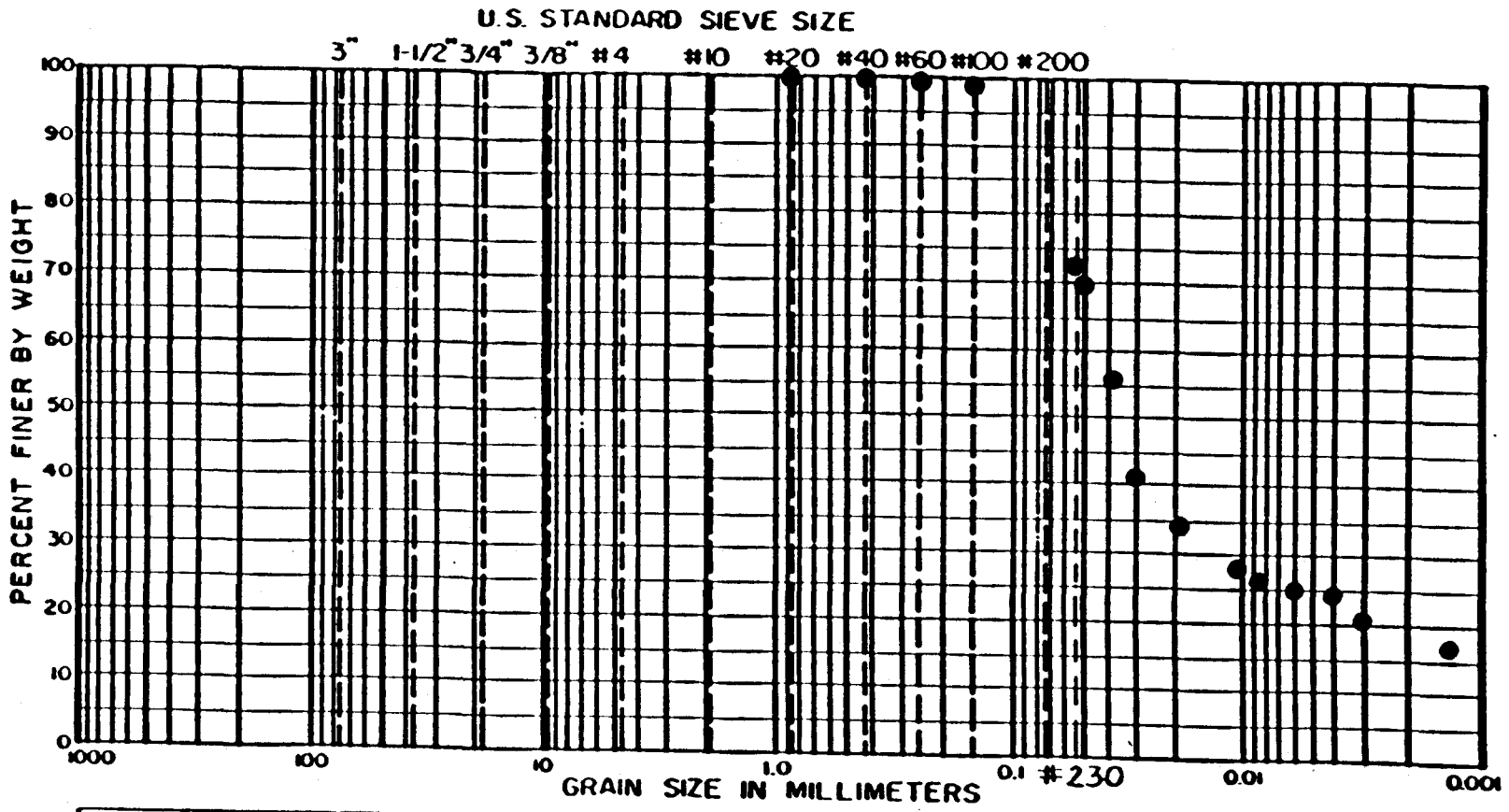
BORING NO.	B30199296303	SAMPLED	--
DEPTH	29.6-30.3'	DATE TESTED	08-29-90 TNU
SAMPLE NO.	--	WASH SIEVE	Yes
SOIL DESCR.	--	DRY SIEVE	No

Hydrometer #	ASTM 152 H	Temp., Deg. C	23.0
Sp. Gr. of Soil	2.70	Temp. Coef. K	0.01297
Value of "a"	0.99	Wt. Dry Sample "W"	65.392
Defloccullant	Sodium Hexametaphosphate	% of Total Sample	100.0
Defloc. Corr'n	4.0		
Meniscus Corr'n	-1.0		

T Elapsed Time (min)	Hydrometer Reading Original	Corrected "R"	100Ra/W	% Total Sample	Effecitve Depth L	Grain Diameter (mm)
0.0	--	--	--	--	--	--
0.5	51.50	46.50	70.4	70.4	7.84	0.0514
1.0	42.00	37.00	56.0	56.0	9.40	0.0398
2.0	32.50	27.50	41.6	41.6	10.96	0.0304
5.0	28.00	23.00	34.8	34.8	11.70	0.0198
15.0	23.50	18.50	28.0	28.0	12.44	0.0118
30.0	22.50	17.50	26.5	26.5	12.60	0.0084
60.0	22.00	17.00	25.7	25.7	12.68	0.0060
120.0	21.00	16.00	24.2	24.2	12.85	0.0042
250.0	19.00	14.00	21.2	21.2	13.17	0.0030
1440.0	16.00	11.00	16.7	16.7	13.67	0.0013

Grain Diameter = K*(SQRT(L/T))

ADVANCED TERRA TESTING, INC.



COBBLES	GRAVEL	SAND	SILT OR CLAY

LOCATION	DEPTH	CLASSIFICATION
B301099296303		

ADVANCED TERRA TESTING

MECHANICAL ANALYSIS - SIEVE TEST DATA

CLIENT Weston

JOB NO. 2066-01

BORING NO.	B302190400403	SAMPLED	--
DEPTH	-- 40.0-40.3	DATE TESTED	08-29-90 TNU
SAMPLE NO.	--	WASH SIEVE	Yes
SOIL DESCR.	--	DRY SIEVE	No

MOISTURE DATA

HYGROSCOPIC Yes

NATURAL No

Wt. Wet Soil & Pan	(g)	55.07
Wt. Dry Soil & Pan	(g)	53.41
Wt. Lost Moisture	(g)	1.66
Wt. of Pan Only	(g)	3.69
Wt. of Dry Soil	(g)	49.72
Moisture Content	%	3.3

Wt. Hydrom. Sample Wet (g)	65.59
Wt. Hydrom. Sample Dry (g)	63.47

WASH SIEVE ANALYSIS

Wt. Total Sample Wet (g)	283.07
Weight of + #10 Before Washing (g)	0.00
Weight of + #10 After Washing (g)	0.00
Weight of - #10 Wet (g)	283.07
Weight of - #10 Dry (g)	273.92
Wt. Total Sample Dry (g)	273.92
Calc. Wt. "W" (g)	63.47
Calc. Mass + #10	0.00

Sieve Number (Size)	Pan Weight (g)	Indiv. Wt. + Pan (g)	Indiv. Wt. Retain.	Cum. Wt. Retain.	Cum. % Retain.	% Finer By Wt.
1 1/2"	0.00	0.00	0.00	0.00	0.0	100.0
3/4"	0.00	0.00	0.00	0.00	0.0	100.0
3/8"	0.00	0.00	0.00	0.00	0.0	100.0
#4	0.00	0.00	0.00	0.00	0.0	100.0
#10	0.00	0.00	0.00	0.00	0.0	100.0
#20	0.00	9.45	9.45	9.45	14.9	85.1
#40	0.00	5.46	5.46	14.91	23.5	76.5
#60	0.00	3.47	3.47	18.38	29.0	71.0
#100	0.00	4.08	4.08	22.46	35.4	64.6
#230	0.00	9.45	9.45	31.91	50.3	49.7

ADVANCED TERRA TESTING, INC.

HYDROMETER ANALYSIS - SEDIMENTATION DATA

CLIENT Weston

JOB NO. 2066-01

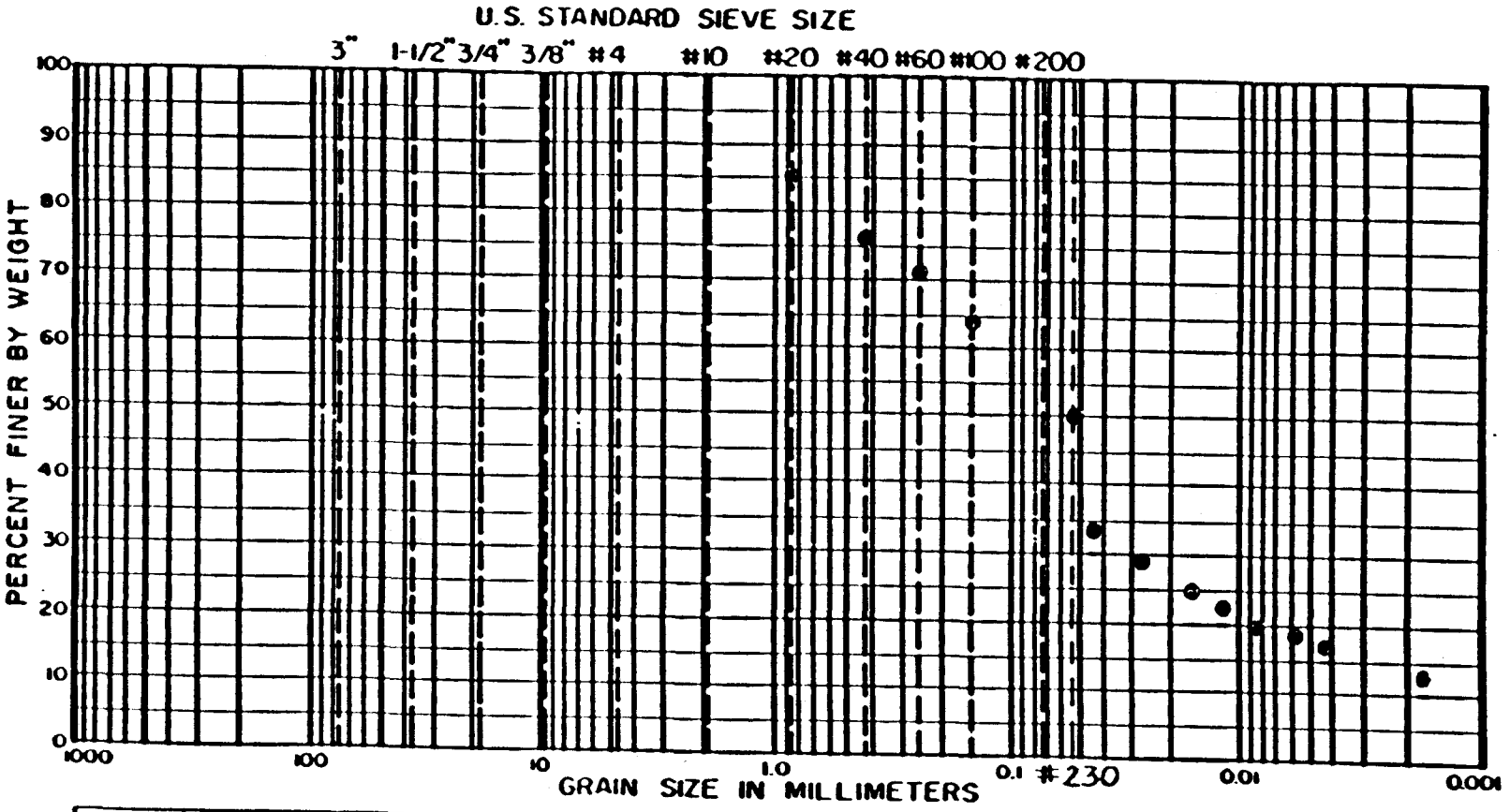
BORING NO.	B302190400403	SAMPLED	--
DEPTH	--	DATE TESTED	08-29-90 TNU
SAMPLE NO.	--	WASH SIEVE	Yes
SOIL DESCR.	--	DRY SIEVE	No

Hydrometer #	ASTM 152 H	Temp., Deg. C	23.0
Sp. Gr. of Soil	3.03	Temp. Coef. K	0.01770
Value of "a"	0.93	Wt. Dry Sample "W"	63.471
Deflocculant	Sodium Hexametaphosphate	% of Total Sample	100.0
Defloc. Corr'n	4.0		
Meniscus Corr'n	-1.0		

T Elapsed Time (min)	Hydrometer Reading Original	Corrected "R"	100Ra/W	% Total Sample	Effecitve Depth L	Grain Diameter (mm)
0.0	--	--	--	--	--	--
0.5	35.00	30.00	44.0	44.0	10.55	0.0813
1.0	32.00	27.00	39.6	39.6	11.04	0.0588
2.0	28.00	23.00	33.7	33.7	11.70	0.0428
5.0	25.00	20.00	29.3	29.3	12.19	0.0276
15.0	22.00	17.00	24.9	24.9	12.68	0.0163
30.0	20.50	15.50	22.7	22.7	12.93	0.0116
60.0	19.00	14.00	20.5	20.5	13.17	0.0083
120.0	18.00	13.00	19.0	19.0	13.34	0.0059
250.0	17.00	12.00	17.6	17.6	13.50	0.0041
1440.0	14.00	9.00	13.2	13.2	13.99	0.0017

Grain Diameter = K*(SQRT(L/T))

ADVANCED TERRA TESTING, INC.



COBBLES	GRAVEL	SAND	SILT OR CLAY

LOCATION	DEPTH	CLASSIFICATION
B302190400403		

ADVANCED TERRA TESTING

MECHANICAL ANALYSIS - SIEVE TEST DATA

CLIENT Weston

JOB NO. 2066-01

BORING NO.	B3037900507	SAMPLED	--
DEPTH	5.3-6.3	DATE TESTED	09-10-90 TNU
SAMPLE NO.	--	WASH SIEVE	Yes
SOIL DESCR.	Soil	DRY SIEVE	No

MOISTURE DATA

HYGROSCOPIC	Yes
NATURAL	No

Wt. Wet Soil & Pan	(g)	56.70
Wt. Dry Soil & Pan	(g)	53.99
Wt. Lost Moisture	(g)	2.71
Wt. of Pan Only	(g)	3.70
Wt. of Dry Soil	(g)	50.29
Moisture Content	%	5.4

Wt. Hydrom. Sample Wet (g)	99.25
Wt. Hydrom. Sample Dry (g)	94.18

WASH SIEVE ANALYSIS

Wt. Total Sample Wet (g)	563.53
Weight of + #10 Before Washing (g)	138.94
Weight of + #10 After Washing (g)	87.23
Weight of - #10 Wet (g)	424.59
Weight of - #10 Dry (g)	451.95
Wt. Total Sample Dry (g)	539.18
Calc. Wt. "W" (g)	112.35
Calc. Mass + #10	18.18

Sieve Number (Size)	Pan Weight (g)	Indiv. Wt. + Pan (g)	Indiv. Wt. Retain.	Cum. Wt. Retain.	Cum. % Retain.	% Finer By Wt.
1 1/2"	0.00	0.00	0.00	0.00	0.0	100.0
3/4"	0.00	10.24	10.24	10.24	1.9	98.1
3/8"	0.00	46.04	46.04	56.28	10.4	89.6
#4	0.00	12.75	12.75	69.03	12.8	87.2
#10	0.00	18.20	18.20	87.23	16.2	83.8
#20	0.00	3.49	3.49	3.49	19.3	80.7
#40	0.00	3.38	3.38	6.87	22.3	77.7
#60	0.00	4.48	4.48	11.35	26.3	73.7
#100	0.00	7.41	7.41	18.76	32.9	67.1
#200	0.00	9.05	9.05	27.81	40.9	59.1

ADVANCED TERRA TESTING, INC.

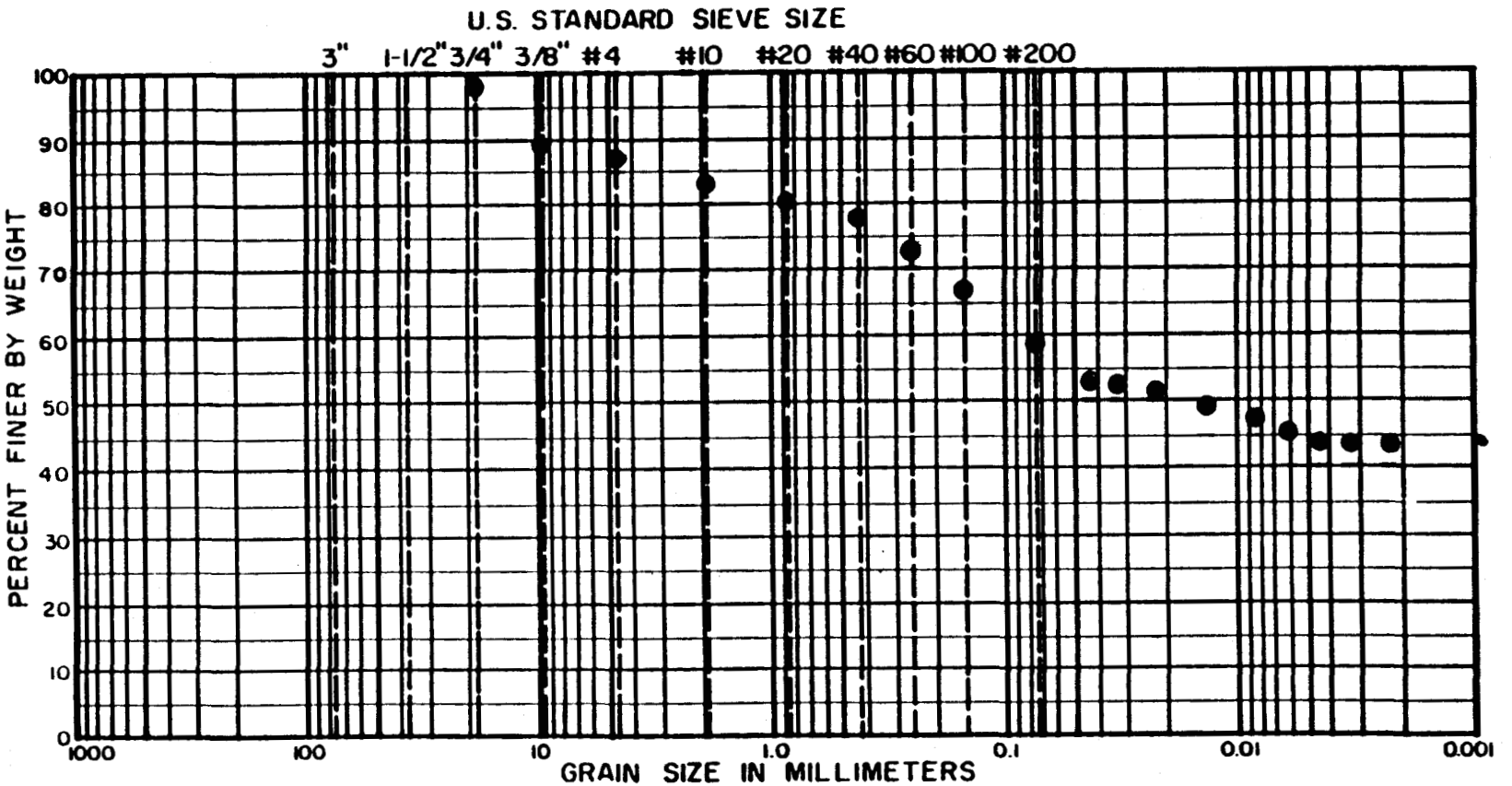
HYDROMETER ANALYSIS - SEDIMENTATION DATA

CLIENT	Weston	JOB NO.	2066-01
BORING NO.	B3037900507	SAMPLED	--
DEPTH	6.5-7'	DATE TESTED	09-10-90 TNU
SAMPLE NO.	--	WASH SIEVE	Yes
SOIL DESCR.	Soil	DRY SIEVE	No

Hydrometer #	ASTM 152 H	Temp., Deg. C	24.0
Sp. Gr. of Soil	2.71	Temp. Coef. K	0.01278
Value of "a"	0.99	Wt. Dry Sample "W"	112.352
Deflocculant	Sodium Hexametaphosphate	% of Total Sample	100.0
Defloc. Corr'n	4.0		
Meniscus Corr'n	-1.0		

T Elapsed Time (min)	Hydrometer Reading Original	Corrected "R"	100Ra/W	% Total Sample	Effecitve Depth L	Grain Diameter (mm)
0.0	--	--	--	--	--	--
0.5	65.00	60.00	52.8	52.8	5.63	0.0429
1.0	65.00	60.00	52.8	52.8	5.63	0.0303
2.0	64.00	59.00	51.9	51.9	5.79	0.0218
5.0	61.00	56.00	49.2	49.2	6.29	0.0143
15.0	60.00	55.00	48.4	48.4	6.45	0.0084
30.0	58.00	53.00	46.6	46.6	6.78	0.0061
60.0	56.00	51.00	44.8	44.8	7.11	0.0044
120.0	55.50	50.50	44.4	44.4	7.19	0.0031
250.0	55.50	50.50	44.4	44.4	7.19	0.0022
1440.0	56.00	51.00	44.8	44.8	7.11	0.0009

Grain Diameter = K*(SQRT(L/T))



COBBLES	GRAVEL		SAND			SILT OR CLAY
	COARSE	FINE	COARSE	MEDIUM	FINE	

LOCATION	DEPTH	CLASSIFICATION
B303790	6.5 - 7'	

ADVANCED TERRA TESTING

MECHANICAL ANALYSIS - SIEVE TEST DATA

CLIENT Weston

JOB NO. 2066-01

BORING NO.	B303790308315	SAMPLED	--
DEPTH	30.8-31.5'	DATE TESTED	09-12-90 TNU
SAMPLE NO.	B303790308315	WASH SIEVE	Yes
SOIL DESCR.	Rock Core	DRY SIEVE	No

MOISTURE DATA

HYGROSCOPIC Yes

NATURAL No

Wt. Wet Soil & Pan	(g)	40.50
Wt. Dry Soil & Pan	(g)	39.45
Wt. Lost Moisture	(g)	1.05
Wt. of Pan Only	(g)	3.68
Wt. of Dry Soil	(g)	35.77
Moisture Content	%	2.9

Wt. Hydrom. Sample Wet (g)	53.40
Wt. Hydrom. Sample Dry (g)	51.88

WASH SIEVE ANALYSIS

Wt. Total Sample Wet (g)	53.40
Weight of + #10 Before Washing (g)	0.00
Weight of + #10 After Washing (g)	0.00
Weight of - #10 Wet (g)	53.40
Weight of - #10 Dry (g)	51.88
Wt. Total Sample Dry (g)	51.88
Calc. Wt. "W" (g)	51.88
Calc. Mass + #10	0.00

Sieve Number (Size)	Pan Weight (g)	Indiv. Wt. + Pan (g)	Indiv. Wt. Retain.	Cum. Wt. Retain.	Cum. % Retain.	% Finer By Wt.
1 1/2"	0.00	0.00	0.00	0.00	0.0	100.0
3/4"	0.00	0.00	0.00	0.00	0.0	100.0
3/8"	0.00	0.00	0.00	0.00	0.0	100.0
#4	0.00	0.00	0.00	0.00	0.0	100.0
#10	0.00	0.00	0.00	0.00	0.0	100.0
#20	0.00	0.02	0.02	0.02	0.0	100.0
#40	0.00	0.01	0.01	0.03	0.1	99.9
#60	0.00	0.01	0.01	0.04	0.1	99.9
#100	0.00	0.11	0.11	0.15	0.3	99.7
#230	0.00	10.02	10.02	10.17	19.6	80.4

ADVANCED TERRA TESTING, INC.

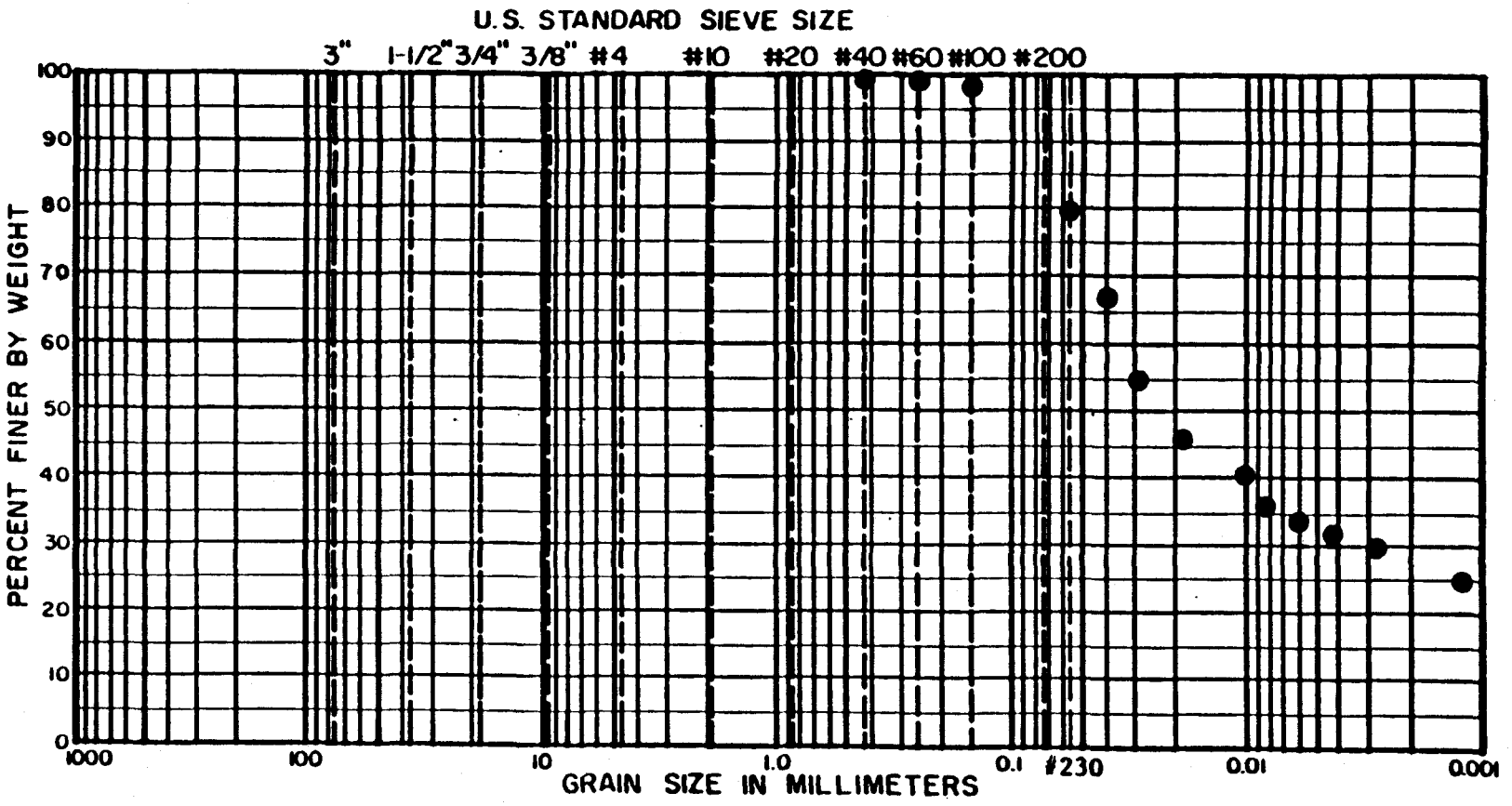
HYDROMETER ANALYSIS - SEDIMENTATION DATA

CLIENT	Weston	JOB NO.	2066-01
BORING NO.	B303790308315	SAMPLED	--
DEPTH	30.8-31.5'	DATE TESTED	09-12-90 TNU
SAMPLE NO.	B303790308315	WASH SIEVE	Yes
SOIL DESCR.	Rock Core	DRY SIEVE	No

Hydrometer #	ASTM 152 H	Temp., Deg. C	24.0
Sp. Gr. of Soil	2.67	Temp. Coef. K	0.01293
Value of "a"	1.00	Wt. Dry Sample "W"	51.877
Deflocculant	Sodium Hexametaphosphate	% of Total Sample	100.0
Defloc. Corr'n	4.0		
Meniscus Corr'n	-1.0		

T Elapsed Time (min)	Hydrometer Reading Original	Corrected "R"	100Ra/W	% Total Sample	Effecitve Depth L	Grain Diameter (mm)
0.0	--	--	--	--	--	--
0.5	44.00	39.00	74.9	74.9	9.07	0.0551
1.0	40.00	35.00	67.2	67.2	9.73	0.0403
2.0	34.00	29.00	55.7	55.7	10.71	0.0299
5.0	29.00	24.00	46.1	46.1	11.53	0.0196
15.0	26.00	21.00	40.3	40.3	12.03	0.0116
30.0	24.00	19.00	36.5	36.5	12.35	0.0083
60.0	23.00	18.00	34.6	34.6	12.52	0.0059
120.0	22.00	17.00	32.6	32.6	12.68	0.0042
250.0	21.00	16.00	30.7	30.7	12.85	0.0029
1440.0	18.00	13.00	25.0	25.0	13.34	0.0012

Grain Diameter = K*(SQRT(L/T))



COBBLES	GRAVEL	SAND	SILT OR CLAY

LOCATION	DEPTH	CLASSIFICATION
B303790308315	30.8 - 31.5'	

ADVANCED TERRA TESTING

MECHANICAL ANALYSIS - SIEVE TEST DATA

CLIENT Weston

JOB NO. 2066-01

BORING NO.	B3039901011	SAMPLED	--
DEPTH	-- 10.7-11.2	DATE TESTED	08-29-90 TNU
SAMPLE NO.	--	WASH SIEVE	Yes
SOIL DESCR.	--	DRY SIEVE	No

MOISTURE DATA

HYGROSCOPIC Yes

NATURAL No

Wt. Wet Soil & Pan	(g)	43.02
Wt. Dry Soil & Pan	(g)	42.30
Wt. Lost Moisture	(g)	0.72
Wt. of Pan Only	(g)	3.74
Wt. of Dry Soil	(g)	38.56
Moisture Content	%	1.9

Wt. Hydrom. Sample Wet (g)	60.01
Wt. Hydrom. Sample Dry (g)	58.91

WASH SIEVE ANALYSIS

Wt. Total Sample Wet (g)	337.35
Weight of + #10 Before Washing (g)	0.00
Weight of + #10 After Washing (g)	0.00
Weight of - #10 Wet (g)	337.35
Weight of - #10 Dry (g)	331.17
Wt. Total Sample Dry (g)	331.17
Calc. Wt. "W" (g)	58.91
Calc. Mass + #10	0.00

Sieve Number (Size)	Pan Weight (g)	Indiv. Wt. + Pan (g)	Indiv. Wt. Retain.	Cum. Wt. Retain.	Cum. % Retain.	% Finer By Wt.
1 1/2"	0.00	0.00	0.00	0.00	0.0	100.0
3/4"	0.00	0.00	0.00	0.00	0.0	100.0
3/8"	0.00	0.00	0.00	0.00	0.0	100.0
#4	0.00	0.00	0.00	0.00	0.0	100.0
#10	0.00	0.00	0.00	0.00	0.0	100.0
#20	0.00	0.90	0.90	0.90	1.5	98.5
#40	0.00	1.04	1.04	1.94	3.3	96.7
#60	0.00	0.63	0.63	2.57	4.4	95.6
#100	0.00	1.16	1.16	3.73	6.3	93.7
#230	0.00	7.38	7.38	11.11	18.9	81.1

ADVANCED TERRA TESTING, INC.

HYDROMETER ANALYSIS - SEDIMENTATION DATA

CLIENT Weston

JOB NO. 2066-01

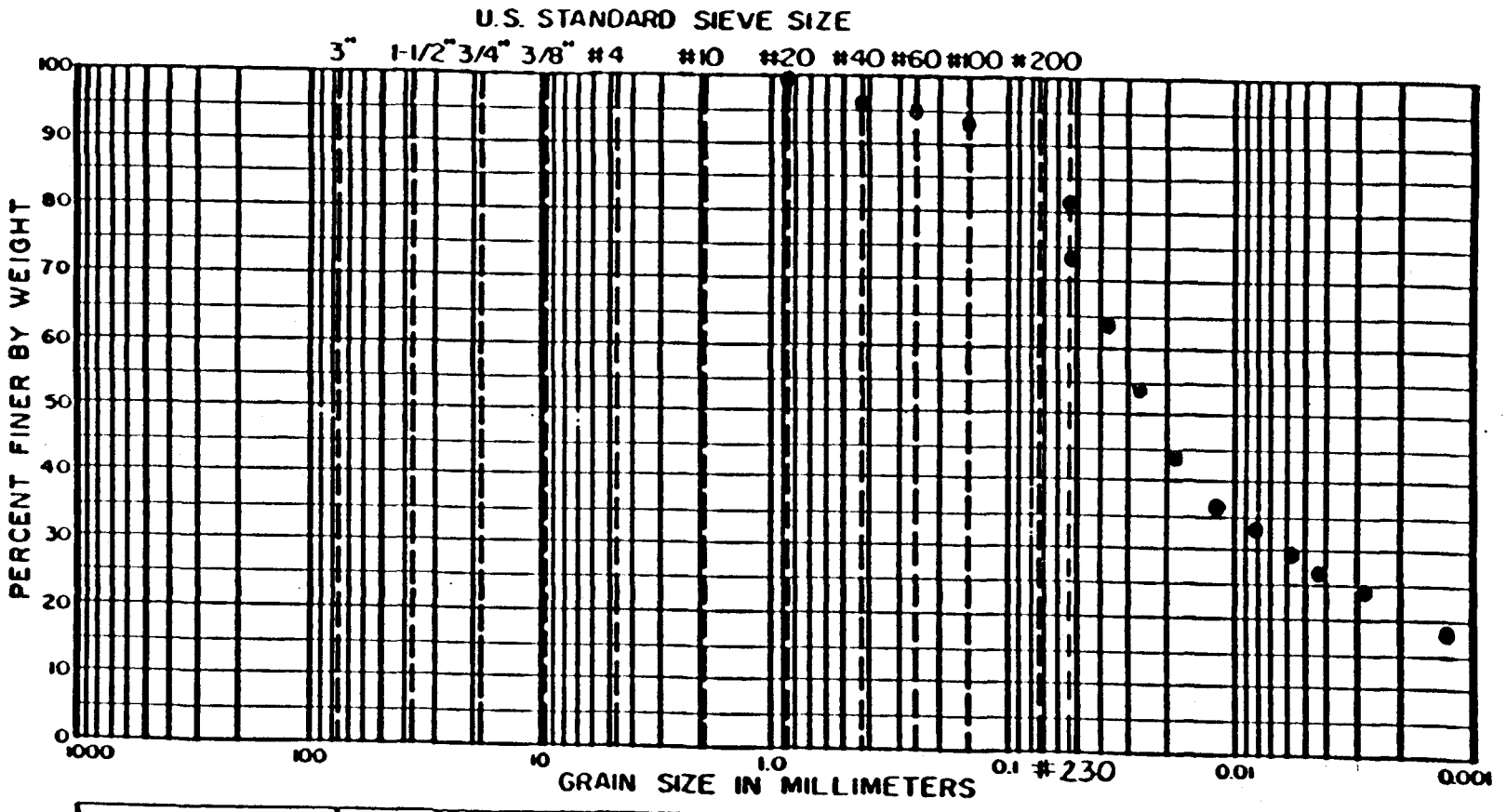
BORING NO.	B3039901011	SAMPLED	--
DEPTH	--	DATE TESTED	08-29-90 TNU
SAMPLE NO.	--	WASH SIEVE	Yes
SOIL DESCR.	--	DRY SIEVE	No

Hydrometer #	ASTM 152 H	Temp., Deg. C	23.0
Sp. Gr. of Soil	2.80	Temp. Coef. K	0.01261
Value of "a"	0.97	Wt. Dry Sample "W"	58.908
Deflocculant	Sodium Hexametaphosphate	% of Total Sample	100.0
Defloc. Corr'n	4.0		
Meniscus Corr'n	-1.0		

T Elapsed Time (min)	Hydrometer Reading Original	Corrected "R"	100Ra/W	% Total Sample	Effecitve Depth L	Grain Diameter (mm)
0.0	--	--	--	--	--	--
0.5	49.50	44.50	73.3	73.3	8.17	0.0510
1.0	43.50	38.50	63.4	63.4	9.16	0.0382
2.0	37.50	32.50	53.5	53.5	10.14	0.0284
5.0	31.50	26.50	43.6	43.6	11.12	0.0188
15.0	27.00	22.00	36.2	36.2	11.86	0.0112
30.0	25.00	20.00	32.9	32.9	12.19	0.0080
60.0	23.00	18.00	29.6	29.6	12.52	0.0058
120.0	21.50	16.50	27.2	27.2	12.76	0.0041
250.0	20.00	15.00	24.7	24.7	13.01	0.0029
1440.0	16.50	11.50	18.9	18.9	13.58	0.0012

Grain Diameter = K*(SQRT(L/T))

ADVANCED TERRA TESTING, INC.



COBBLES	GRAVEL	SAND	SILT OR CLAY

LOCATION	DEPTH	CLASSIFICATION
B3039901011		

ADVANCED TERRA TESTING -

MECHANICAL ANALYSIS - SIEVE TEST DATA

CLIENT Weston

JOB NO. 2066-01

BORING NO.	B3040900405	SAMPLED	--
DEPTH	4.5-5.5	DATE TESTED	09-10-90 TNU
SAMPLE NO.	--	WASH SIEVE	Yes
SOIL DESCR.	Soil	DRY SIEVE	No

MOISTURE DATA

HYGROSCOPIC Yes

NATURAL No

Wt. Wet Soil & Pan	(g)	42.92
Wt. Dry Soil & Pan	(g)	40.96
Wt. Lost Moisture	(g)	1.96
Wt. of Pan Only	(g)	3.70
Wt. of Dry Soil	(g)	37.26
Moisture Content	%	5.3

Wt. Hydrom. Sample Wet (g)	68.67
Wt. Hydrom. Sample Dry (g)	65.24

WASH SIEVE ANALYSIS

Wt. Total Sample Wet (g)	68.67
Weight of + #10 Before Washing (g)	0.00
Weight of + #10 After Washing (g)	0.00
Weight of - #10 Wet (g)	68.67
Weight of - #10 Dry (g)	65.24
Wt. Total Sample Dry (g)	65.24
Calc. Wt. "W" (g)	65.24
Calc. Mass + #10	0.00

Sieve Number (Size)	Pan Weight (g)	Indiv. Wt. + Pan (g)	Indiv. Wt. Retain.	Cum. Wt. Retain.	Cum. % Retain.	% Finer By Wt.
1 1/2"	0.00	0.00	0.00	0.00	0.0	100.0
3/4"	0.00	0.00	0.00	0.00	0.0	100.0
3/8"	0.00	0.00	0.00	0.00	0.0	100.0
#4	0.00	0.00	0.00	0.00	0.0	100.0
#10	0.00	0.00	0.00	0.00	0.0	100.0
#20	0.00	0.40	0.40	0.40	0.6	99.4
#40	0.00	0.30	0.30	0.70	1.1	98.9
#60	0.00	0.23	0.23	0.93	1.4	98.6
#100	0.00	0.27	0.27	1.20	1.8	98.2
#200	0.00	0.82	0.82	2.02	3.1	96.9

ADVANCED TERRA TESTING, INC.

HYDROMETER ANALYSIS - SEDIMENTATION DATA

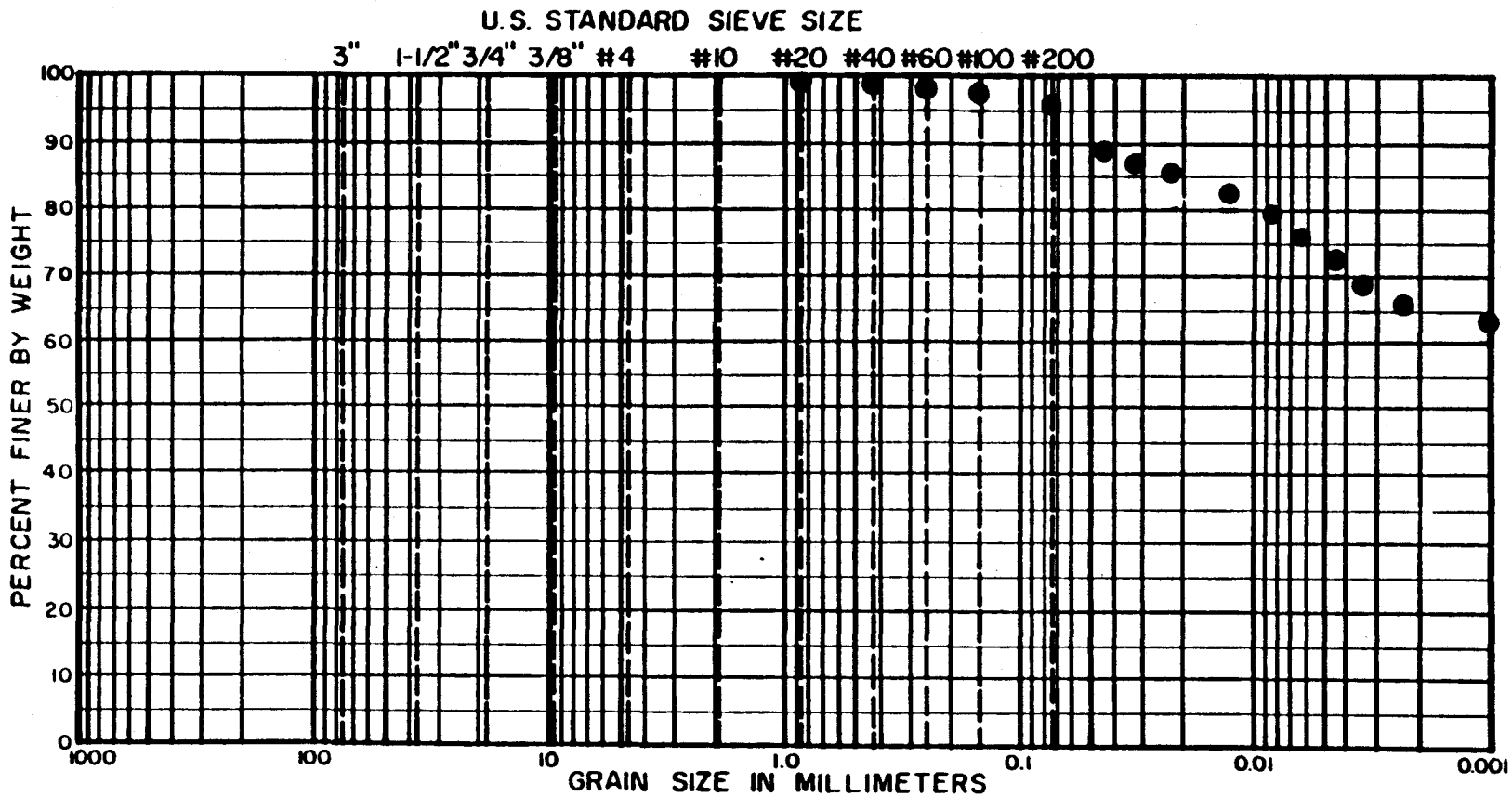
CLIENT	Weston	JOB NO.	2066-01
BORING NO.	B3040900405	SAMPLED	--
DEPTH	4-5'	DATE TESTED	09-10-90 TNU
SAMPLE NO.	--	WASH SIEVE	Yes
SOIL DESCR.	Soil	DRY SIEVE	No

Hydrometer #	ASTM 152 H	Temp., Deg. C	24.0
Sp. Gr. of Soil	2.73	Temp. Coef. K	0.01275
Value of "a"	0.98	Wt. Dry Sample "W"	65.236
Deflocculant	Sodium Hexametaphosphate	% of Total Sample	100.0
Defloc. Corr'n	4.0		
Meniscus Corr'n	-1.0		

T Elapsed Time (min)	Hydrometer Reading Original	Corrected "R"	100Ra/W	% Total Sample	Effecitve Depth L	Grain Diameter (mm)
0.0	--	--	--	--	--	--
0.5	64.00	59.00	89.0	89.0	5.79	0.0434
1.0	63.00	58.00	87.5	87.5	5.96	0.0311
2.0	62.00	57.00	86.0	86.0	6.12	0.0223
5.0	60.50	55.50	83.7	83.7	6.37	0.0144
15.0	58.00	53.00	79.9	79.9	6.78	0.0086
30.0	56.00	51.00	76.9	76.9	7.11	0.0062
60.0	53.50	48.50	73.2	73.2	7.52	0.0045
120.0	51.00	46.00	69.4	69.4	7.93	0.0033
250.0	49.00	44.00	66.4	66.4	8.25	0.0023
1440.0	48.00	43.00	64.9	64.9	8.42	0.0010

Grain Diameter = K*(SQRT(L/T))

ADVANCED TERRA TESTING, INC.



COBBLES	GRAVEL		SAND			SILT OR CLAY
	COARSE	FINE	COARSE	MEDIUM	FINE	

LOCATION	DEPTH	CLASSIFICATION
B304090	4 - 5'	

ADVANCED TERRA TESTING

MECHANICAL ANALYSIS - SIEVE TEST DATA

CLIENT Weston

JOB NO. 2066-01

BORING NO.	B3041900405	SAMPLED	--
DEPTH	-- 4.0-4.5	DATE TESTED	08-29-90 TNU
SAMPLE NO.	--	WASH SIEVE	Yes
SOIL DESCR.	--	DRY SIEVE	No

MOISTURE DATA

HYGROSCOPIC Yes

NATURAL No

Wt. Wet Soil & Pan	(g)	38.57
Wt. Dry Soil & Pan	(g)	36.87
Wt. Lost Moisture	(g)	1.70
Wt. of Pan Only	(g)	3.70
Wt. of Dry Soil	(g)	33.17
Moisture Content	%	5.1

Wt. Hydrom. Sample Wet (g)	74.71
Wt. Hydrom. Sample Dry (g)	71.07

WASH SIEVE ANALYSIS

Wt. Total Sample Wet (g)	409.36
Weight of + #10 Before Washing (g)	4.08
Weight of + #10 After Washing (g)	3.63
Weight of - #10 Wet (g)	405.28
Weight of - #10 Dry (g)	385.95
Wt. Total Sample Dry (g)	389.58
Calc. Wt. "W" (g)	71.07
Calc. Mass + #10	0.00

Sieve Number (Size)	Pan Weight (g)	Indiv. Wt. + Pan (g)	Indiv. Wt. Retain.	Cum. Wt. Retain.	Cum. % Retain.	% Finer By Wt.
1 1/2"	0.00	0.00	0.00	0.00	0.0	100.0
3/4"	0.00	0.00	0.00	0.00	0.0	100.0
3/8"	0.00	0.00	0.00	0.00	0.0	100.0
#4	0.00	0.00	0.00	0.00	0.0	100.0
#10	0.00	0.00	0.00	0.00	0.0	100.0
#20	0.00	1.09	1.09	1.09	1.5	98.5
#40	0.00	1.45	1.45	2.54	3.6	96.4
#60	0.00	2.18	2.18	4.72	6.6	93.4
#100	0.00	3.55	3.55	8.27	11.6	88.4
#230	0.00	6.82	6.82	15.09	21.2	78.8

ADVANCED TERRA TESTING, INC.

HYDROMETER ANALYSIS - SEDIMENTATION DATA

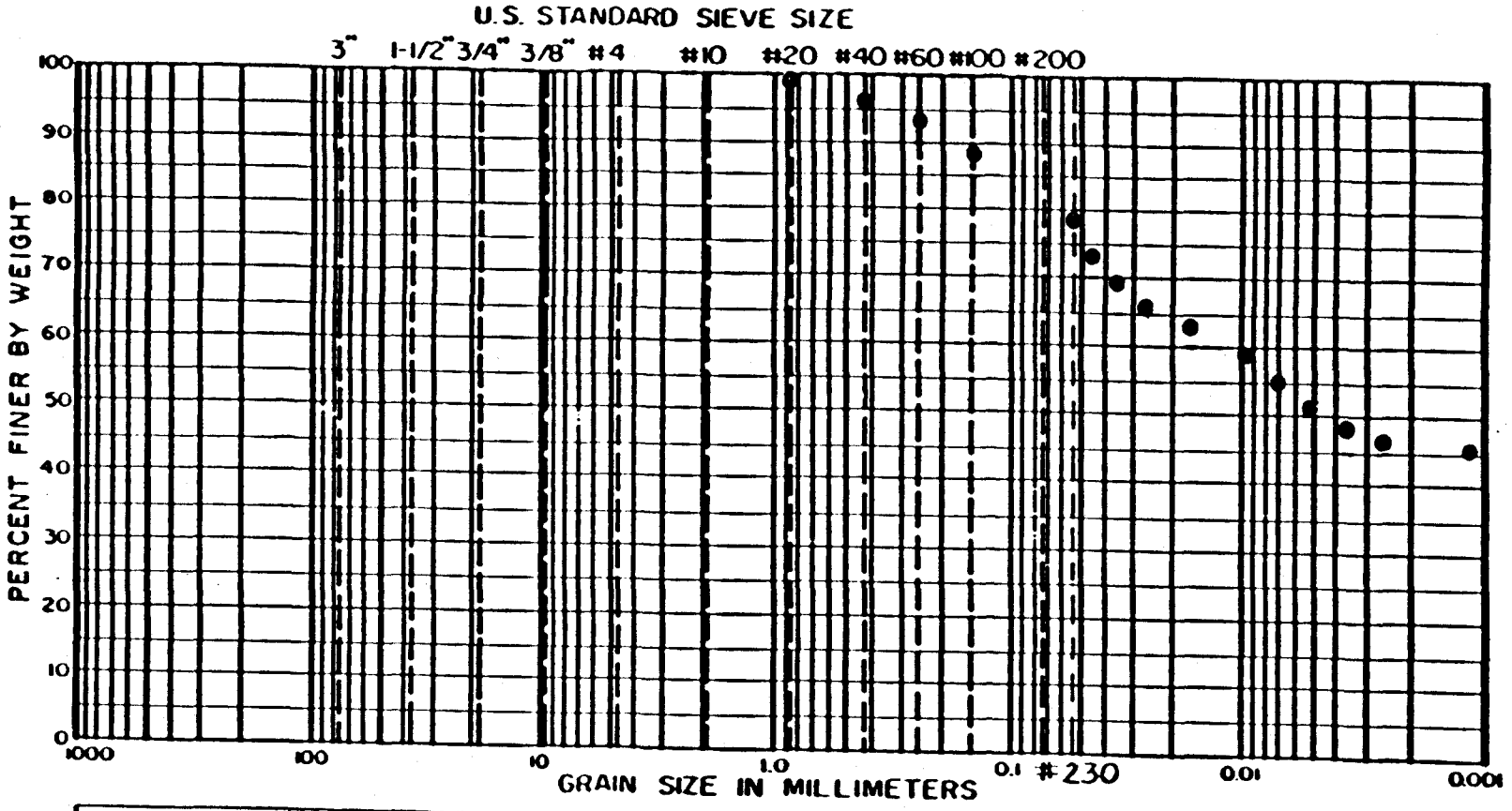
CLIENT	Weston	JOB NO.	2066-01
BORING NO.	B3041900405	SAMPLED	--
DEPTH	--	DATE TESTED	08-29-90 TNU
SAMPLE NO.	--	WASH SIEVE	Yes
SOIL DESCR.	--	DRY SIEVE	No

Hydrometer #	ASTM 152 H	Temp., Deg. C	23.0
Sp. Gr. of Soil	2.74	Temp. Coef. K	0.01283
Value of "a"	0.98	Wt. Dry Sample "W"	71.068
Deflocculant	Sodium Hexametaphosphate	% of Total Sample	100.0
Defloc. Corr'n	4.0		
Meniscus Corr'n	-1.0		

T Elapsed Time (min)	Hydrometer Reading Original	Corrected "R"	100Ra/W	% Total Sample	Effecitve Depth L	Grain Diameter (mm)
0.0	--	--	--	--	--	--
0.5	58.00	53.00	73.2	73.2	6.78	0.0472
1.0	55.50	50.50	69.8	69.8	7.19	0.0344
2.0	53.00	48.00	66.3	66.3	7.60	0.0250
5.0	51.00	46.00	63.6	63.6	7.93	0.0162
15.0	47.00	42.00	58.0	58.0	8.58	0.0097
30.0	45.00	40.00	55.3	55.3	8.91	0.0070
60.0	42.00	37.00	51.1	51.1	9.40	0.0051
120.0	40.00	35.00	48.4	48.4	9.73	0.0037
250.0	39.00	34.00	47.0	47.0	9.89	0.0026
1440.0	38.50	33.50	46.3	46.3	9.98	0.0011

Grain Diameter = K*(SQRT(L/T))

ADVANCED TERRA TESTING, INC.



COBBLES	GRAVEL	SAND	SILT OR CLAY

LOCATION	DEPTH	CLASSIFICATION
B3041900405		

ADVANCED TERRA TESTING

MECHANICAL ANALYSIS - SIEVE TEST DATA

CLIENT Weston

JOB NO. 2066-01

BORING NO.	B3042900910	SAMPLED	--
DEPTH	-- 8.8-9.5	DATE TESTED	08-29-90 TNU
SAMPLE NO.	--	WASH SIEVE	Yes
SOIL DESCR.	--	DRY SIEVE	No

MOISTURE DATA

HYGROSCOPIC	Yes
NATURAL	No

Wt. Wet Soil & Pan	(g)	43.98
Wt. Dry Soil & Pan	(g)	41.63
Wt. Lost Moisture	(g)	2.35
Wt. of Pan Only	(g)	3.69
Wt. of Dry Soil	(g)	37.94
Moisture Content	%	6.2

Wt. Hydrom. Sample Wet (g)	65.82
Wt. Hydrom. Sample Dry (g)	61.98

WASH SIEVE ANALYSIS

Wt. Total Sample Wet (g)	423.28
Weight of + #10 Before Washing (g)	0.00
Weight of + #10 After Washing (g)	0.00
Weight of - #10 Wet (g)	423.28
Weight of - #10 Dry (g)	398.59
Wt. Total Sample Dry (g)	398.59
Calc. Wt. "W" (g)	61.98
Calc. Mass + #10	0.00

Sieve Number (Size)	Pan Weight (g)	Indiv. Wt. + Pan (g)	Indiv. Wt. Retain.	Cum. Wt. Retain.	Cum. % Retain.	% Finer By Wt.
1 1/2"	0.00	0.00	0.00	0.00	0.0	100.0
3/4"	0.00	0.00	0.00	0.00	0.0	100.0
3/8"	0.00	0.00	0.00	0.00	0.0	100.0
#4	0.00	0.00	0.00	0.00	0.0	100.0
#10	0.00	0.00	0.00	0.00	0.0	100.0
#20	0.00	0.39	0.39	0.39	0.6	99.4
#40	0.00	0.26	0.26	0.65	1.0	99.0
#60	0.00	0.15	0.15	0.80	1.3	98.7
#100	0.00	0.29	0.29	1.09	1.8	98.2
#230	0.00	3.40	3.40	4.49	7.2	92.8

ADVANCED TERRA TESTING, INC.

HYDROMETER ANALYSIS - SEDIMENTATION DATA

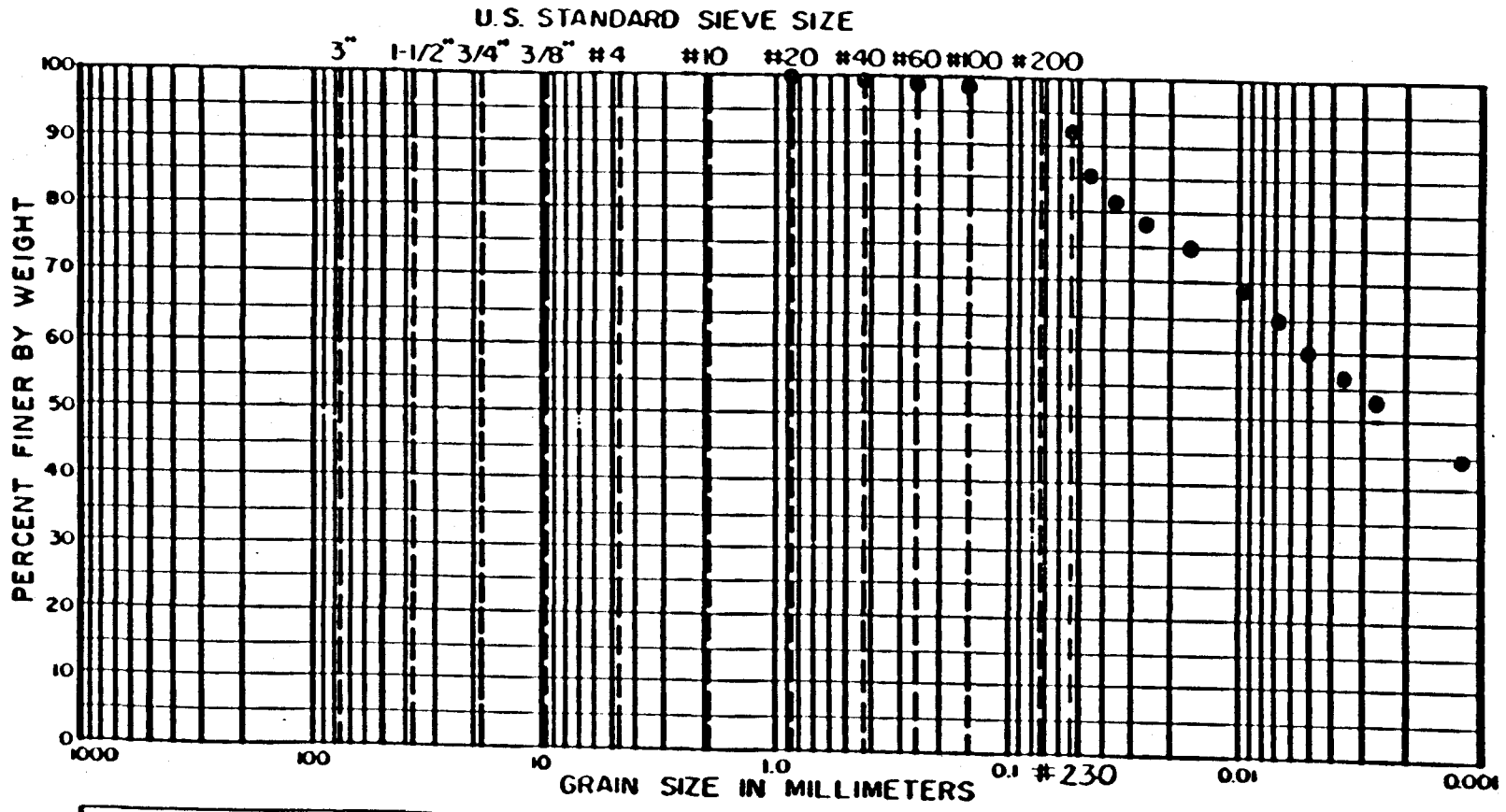
CLIENT	Weston	JOB NO.	2066-01
BORING NO.	B3042900910	SAMPLED	--
DEPTH	--	DATE TESTED	08-29-90 TNU
SAMPLE NO.	--	WASH SIEVE	Yes
SOIL DESCR.	--	DRY SIEVE	No

Hydrometer #	ASTM 152 H	Temp., Deg. C	23.0
Sp. Gr. of Soil	2.73	Temp. Coef. K	0.01286
Value of "a"	0.98	Wt. Dry Sample "W"	61.980
Deflocculant	Sodium Hexametaphosphate	% of Total Sample	100.0
Defloc. Corr'n	4.0		
Meniscus Corr'n	-1.0		

T Elapsed Time (min)	Hydrometer Reading Original	Corrected "R"	100Ra/W	% Total Sample	Effecitve Depth L	Grain Diameter (mm)
0.0	--	--	--	--	--	--
0.5	59.00	54.00	85.7	85.7	6.61	0.0468
1.0	56.50	51.50	81.8	81.8	7.02	0.0341
2.0	54.00	49.00	77.8	77.8	7.43	0.0248
5.0	52.00	47.00	74.6	74.6	7.76	0.0160
15.0	48.50	43.50	69.1	69.1	8.34	0.0096
30.0	46.00	41.00	65.1	65.1	8.75	0.0069
60.0	43.00	38.00	60.3	60.3	9.24	0.0050
120.0	41.00	36.00	57.2	57.2	9.57	0.0036
250.0	38.50	33.50	53.2	53.2	9.98	0.0026
1440.0	33.00	28.00	44.5	44.5	10.88	0.0011

Grain Diameter = K*(SQRT(L/T))

ADVANCED TERRA TESTING, INC.



COBBLES	GRAVEL	SAND	SILT OR CLAY

LOCATION	DEPTH	CLASSIFICATION
B3042900910		

ADVANCED TERRA TESTING

MECHANICAL ANALYSIS - SIEVE TEST DATA

CLIENT Weston

JOB NO. 2066-01

BORING NO.	B3042901718	SAMPLED	--
DEPTH	16.7-17.6	DATE TESTED	09-10-90 TNU
SAMPLE NO.	--	WASH SIEVE	Yes
SOIL DESCR.	Soil	DRY SIEVE	No

MOISTURE DATA

HYGROSCOPIC Yes

NATURAL No

Wt. Wet Soil & Pan	(g)	53.09
Wt. Dry Soil & Pan	(g)	48.01
Wt. Lost Moisture	(g)	5.08
Wt. of Pan Only	(g)	3.74
Wt. of Dry Soil	(g)	44.27
Moisture Content	%	11.5

Wt. Hydrom. Sample Wet (g)	70.07
Wt. Hydrom. Sample Dry (g)	62.86

WASH SIEVE ANALYSIS

Wt. Total Sample Wet (g)	231.53
Weight of + #10 Before Washing (g)	30.56
Weight of + #10 After Washing (g)	23.73
Weight of - #10 Wet (g)	200.97
Weight of - #10 Dry (g)	186.41
Wt. Total Sample Dry (g)	210.14
Calc. Wt. "W" (g)	70.86
Calc. Mass + #10	8.00

Sieve Number (Size)	Pan Weight (g)	Indiv. Wt. + Pan (g)	Indiv. Wt. Retain.	Cum. Wt. Retain.	Cum. % Retain.	% Finer By Wt.
1 1/2"	0.00	0.00	0.00	0.00	0.0	100.0
3/4"	0.00	0.00	0.00	0.00	0.0	100.0
3/8"	0.00	15.11	15.11	15.11	7.2	92.8
#4	0.00	4.60	4.60	19.71	9.4	90.6
#10	0.00	4.02	4.02	23.73	11.3	88.7
#20	0.00	1.63	1.63	1.63	13.6	86.4
#40	0.00	2.15	2.15	3.78	16.6	83.4
#60	0.00	2.46	2.46	6.24	20.1	79.9
#100	0.00	3.42	3.42	9.66	24.9	75.1
#200	0.00	5.02	5.02	14.68	32.0	68.0

ADVANCED TERRA TESTING, INC.

HYDROMETER ANALYSIS - SEDIMENTATION DATA

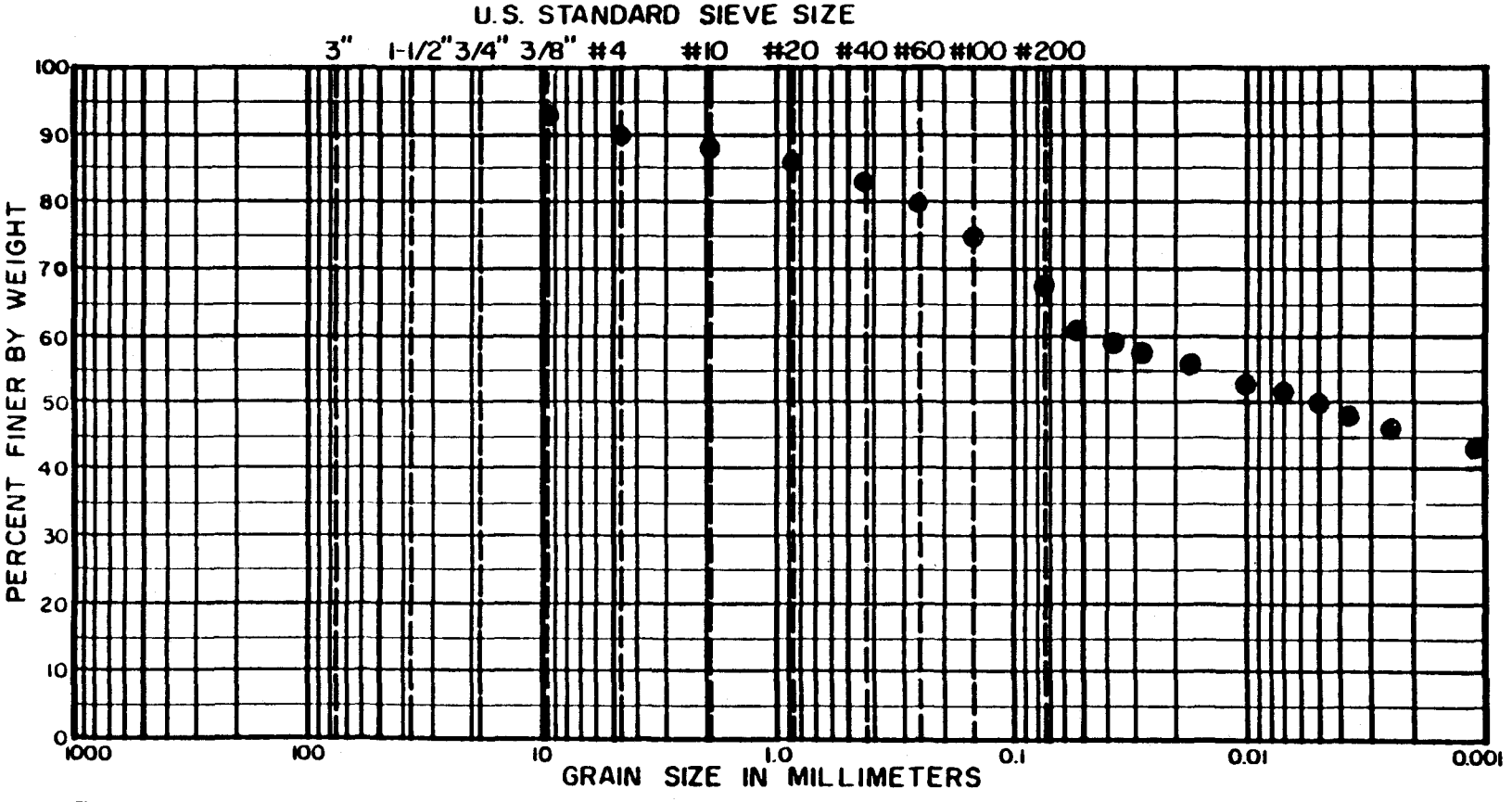
CLIENT	Weston	JOB NO.	2066-01
BORING NO.	B3042901718	SAMPLED	--
DEPTH	17-18'	DATE TESTED	09-10-90 TNU
SAMPLE NO.	--	WASH SIEVE	Yes
SOIL DESCR.	Soil	DRY SIEVE	No

Hydrometer #	ASTM 152 H	Temp., Deg. C	24.0
Sp. Gr. of Soil	2.67	Temp. Coef. K	0.01290
Value of "a"	1.00	Wt. Dry Sample "W"	70.857
Deflocculant	Sodium Hexametaphosphate	% of Total Sample	100.0
Defloc. Corr'n	4.0		
Meniscus Corr'n	-1.0		

T Elapsed Time (min)	Hydrometer Reading Original	Corrected "R"	100Ra/W	% Total Sample	Effecitve Depth L	Grain Diameter (mm)
0.0	--	--	--	--	--	--
0.5	49.00	44.00	61.8	61.8	8.25	0.0524
1.0	47.00	42.00	59.0	59.0	8.58	0.0378
2.0	46.00	41.00	57.6	57.6	8.75	0.0270
5.0	45.00	40.00	56.2	56.2	8.91	0.0172
15.0	43.00	38.00	53.4	53.4	9.24	0.0101
30.0	42.00	37.00	52.0	52.0	9.40	0.0072
60.0	41.00	36.00	50.6	50.6	9.57	0.0052
120.0	39.50	34.50	48.5	48.5	9.81	0.0037
250.0	38.00	33.00	46.4	46.4	10.06	0.0026
1440.0	35.50	30.50	42.9	42.9	10.47	0.0011

Grain Diameter = K*(SQRT(L/T))

ADVANCED TERRA TESTING, INC.



COBBLES	GRAVEL		SAND			SILT OR CLAY
	COARSE	FINE	COARSE	MEDIUM	FINE	

LOCATION	DEPTH	CLASSIFICATION
B334290	17 -18'	

ADVANCED TERRA TESTING INC

MECHANICAL ANALYSIS - SIEVE TEST DATA

CLIENT Weston

JOB NO. 2066-01

BORING NO.	B3042902122	SAMPLED	--
DEPTH	20.8-21.7	DATE TESTED	09-10-90 TNU
SAMPLE NO.	--	WASH SIEVE	Yes
SOIL DESCR.	Soil	DRY SIEVE	No

MOISTURE DATA

HYGROSCOPIC	Yes
NATURAL	No

Wt. Wet Soil & Pan	(g)	48.45
Wt. Dry Soil & Pan	(g)	46.55
Wt. Lost Moisture	(g)	1.90
Wt. of Pan Only	(g)	3.63
Wt. of Dry Soil	(g)	42.92
Moisture Content	%	4.4

Wt. Hydrom. Sample Wet (g)	70.93
Wt. Hydrom. Sample Dry (g)	67.92

WASH SIEVE ANALYSIS

Wt. Total Sample Wet (g)	70.93
Weight of + #10 Before Washing (g)	0.00
Weight of + #10 After Washing (g)	0.00
Weight of - #10 Wet (g)	70.93
Weight of - #10 Dry (g)	67.92
Wt. Total Sample Dry (g)	67.92
Calc. Wt. "W" (g)	67.92
Calc. Mass + #10	0.00

Sieve Number (Size)	Pan Weight (g)	Indiv. Wt. + Pan (g)	Indiv. Wt. Retain.	Cum. Wt. Retain.	Cum. % Retain.	% Finer By Wt.
1 1/2"	0.00	0.00	0.00	0.00	0.0	100.0
3/4"	0.00	0.00	0.00	0.00	0.0	100.0
3/8"	0.00	0.00	0.00	0.00	0.0	100.0
#4	0.00	0.00	0.00	0.00	0.0	100.0
#10	0.00	0.00	0.00	0.00	0.0	100.0
#20	0.00	0.64	0.64	0.64	0.9	99.1
#40	0.00	0.40	0.40	1.04	1.5	98.5
#60	0.00	0.28	0.28	1.32	1.9	98.1
#100	0.00	0.36	0.36	1.68	2.5	97.5
#200	0.00	4.21	4.21	5.89	8.7	91.3

ADVANCED TERRA TESTING, INC.

HYDROMETER ANALYSIS - SEDIMENTATION DATA

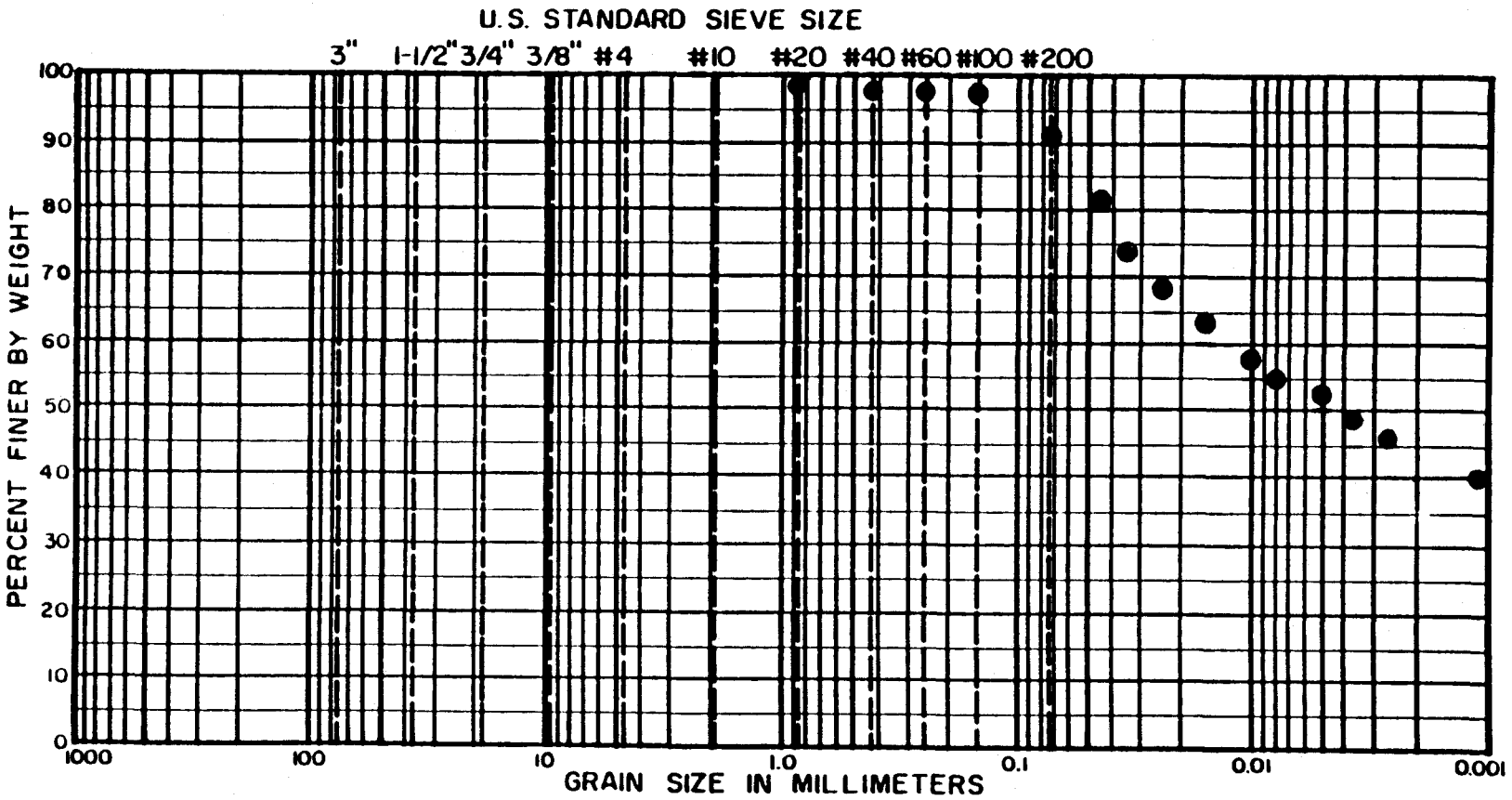
CLIENT	Weston	JOB NO.	2066-01
BORING NO.	B3042902122	SAMPLED	--
DEPTH	21-22'	DATE TESTED	09-10-90 TNU
SAMPLE NO.	--	WASH SIEVE	Yes
SOIL DESCR.	Soil	DRY SIEVE	No

Hydrometer #	ASTM 152 H	Temp., Deg. C	24.0
Sp. Gr. of Soil	2.70	Temp. Coef. K	0.01282
Value of "a"	0.99	Wt. Dry Sample "W"	67.923
Deflocculant	Sodium Hexametaphosphate	% of Total Sample	100.0
Defloc. Corr'n	4.0		
Meniscus Corr'n	-1.0		

T Elapsed Time (min)	Hydrometer Reading Original	Corrected "R"	100Ra/W	% Total Sample	Effecitve Depth L	Grain Diameter (mm)
0.0	--	--	--	--	--	--
0.5	61.00	56.00	81.6	81.6	6.29	0.0455
1.0	56.00	51.00	74.3	74.3	7.11	0.0342
2.0	52.00	47.00	68.5	68.5	7.76	0.0253
5.0	48.50	43.50	63.4	63.4	8.34	0.0166
15.0	45.00	40.00	58.3	58.3	8.91	0.0099
30.0	43.00	38.00	55.4	55.4	9.24	0.0071
60.0	41.00	36.00	52.5	52.5	9.57	0.0051
120.0	39.00	34.00	49.6	49.6	9.89	0.0037
250.0	36.50	31.50	45.9	45.9	10.30	0.0026
1440.0	32.50	27.50	40.1	40.1	10.96	0.0011

Grain Diameter = K*(SQRT(L/T))

ADVANCED TERRA TESTING, INC.



COBBLES	GRAVEL		SAND			SILT OR CLAY
	COARSE	FINE	COARSE	MEDIUM	FINE	

LOCATION	DEPTH	CLASSIFICATION
B3X4290	21 - 22'	

ADVANCED TERRA TESTING

APPENDIX B-2

MOISTURE-DENSITY ANALYSIS

MOISTURE AND DENSITY DETERMINATIONS

CLIENT WESTON - EG&G

LOCATION

JOB NO. 2066-01

PAGE 1 OF 2

SAMPLE & SOIL TYPE	BORING	B3-005-90	B3-005-90	B3-007-90	B3-006-90	B3-006-90	GTB 3001904	GTB 3002902	GTB 3002904
	SAMPLE NO.								
	SAMPLE DEPTH	21.2'-21.9'	10.6'-11.3'	6.0'-6.3'	19.5'-19.9'	19.0'-19.5'	26.1'-26.7'	19.9'-20.5'	26.7'-27.0'
	DATE SAMPLED BY								
	DATE TESTED BY	4-7-90 DEW	4-7-90 DEW	4-7-90 DEW	4-9-90 DEW	4-9-90 DEW	4-9-90 DEW	4-9-90 DEW	4-9-90 DEW
	SOIL TYPE								
	LABORATORY IDENTIFICATION								
DENSITY	NO. OF RINGS	L_o=3.739 D_o=1.762	L_o=3.999 D_o=1.796	L_o=2.088 D_o=1.684	L_o=3.248 D_o=1.732		L_o=3.997 D_o=1.859	L_o=4.000 D_o=1.846	L_o=2.993 D_o=1.764
	WT. OF WET SOIL & RINGS								
	WT. OF RINGS								
	WT. OF WET SOIL	316.10g	350.08g	166.45g	274.90g		392.75g	369.53g	259.81g
	WET DENSITY (LBS./CU.FT.)	132.0	131.6	136.3	136.8		137.9	131.5	135.3
	DRY DENSITY (LBS./CU.FT.)	111.3	112.6	119.3	111.6		120.5	113.4	116.5
MOISTURE CONTENT	DISH NO.	41	50	43	51	80	536	42	83
	WT. OF WET SOIL & DISH	136.24g	171.74g	67.89g	164.36g	66.96g	204.65g	195.87g	148.41g
	WT. OF DRY SOIL & DISH	115.45g	147.42g	59.86g	134.67g	55.58g	179.32g	169.37g	128.24g
	NET LOSS OF MOISTURE	20.79g	24.32g	8.03g	29.69g	11.38g	25.33g	26.50g	20.17g
	WT. OF DISH	3.63g	3.67g	3.69g	3.71g	3.64g	3.69g	3.66g	3.68g
	WT. OF DRY SOIL	111.82g	143.75g	56.17g	130.96g	51.94g	175.63g	165.71g	124.56g
	MOISTURE CONTENT (% DRY WT.)	18.6	16.9	14.3	22.7	21.9	14.4	16.0	16.2

757.4 (9-82)

MOISTURE AND DENSITY DETERMINATIONS

CLIENT Weston - EG&G

JOB NO. 2066-01

LOCATION

PAGE 2 OF 2

SAMPLE & SOIL TYPE	BORING	GTB 3003901	GTB 3003902	GTB 3001901																											
	SAMPLE NO.																														
	SAMPLE DEPTH	15.2 - 15.8'	29.5 - 30.0'	10.5 - 10.8'																											
	DATE SAMPLED BY																														
	DATE TESTED BY	4-10-90 (Ow)	4-10-90 (Ow)	4-10-90 (Ow)																											
	SOIL TYPE																														
	LABORATORY IDENTIFICATION																														
DENSITY	NO. OF RINGS	L_o = 4.006 D_o = 1.859	L_o = 3.997 D_o = 1.889	L_o = 2.089 D_o = 1.856																											
	WT. OF WET SOIL & RINGS																														
	WT. OF RINGS																														
	WT. OF WET SOIL	379.60g	379.67g	195.47g																											
	WET DENSITY (LBS./CU.FT.)	133.0	129.1	131.8																											
	DRY DENSITY (LBS./CU.FT.)	113.2	107.9	114.9																											
MOISTURE CONTENT	DISH NO.	47	602	520																											
	WT. OF WET SOIL & DISH	165.93g	184.85g	53.69g																											
	WT. OF DRY SOIL & DISH	141.83g	155.06g	47.29g																											
	NET LOSS OF MOISTURE	24.10g	29.79g	6.40g																											
	WT. OF DISH	3.65g	3.74g	3.76g																											
	WT. OF DRY SOIL	138.18g	151.32g	43.53g																											
	MOISTURE CONTENT (% DRY WT.)	17.4	19.7	14.7																											

757.4 (9-62)

MOISTURE AND DENSITY DETERMINATIONS

CLIENT WESTON

LOCATION FG + G

JOB NO. 2066-01

PAGE OF

SAMPLE & SOIL TYPE	BORING	B3-014-90	B3-014-90						
	SAMPLE NO.								
	SAMPLE DEPTH	23.7-23.9'	20.7-20.9'						
	DATE SAMPLED BY								
	DATE TESTED BY	4-27-90 DPW	5-2-90 DPW						
	SOIL TYPE								
	LABORATORY IDENTIFICATION								
DENSITY	NO. OF RINGS	L_o = 2.488 D_o = 1.802	L_o = 2.504 D_o = 1.728						
	WT. OF WET SOIL & RINGS								
	WT. OF RINGS								
	WT. OF WET SOIL	213.82g	202.95g						
	WET DENSITY (LBS./CU.FT.)	128.4	131.7						
	DRY DENSITY (LBS./CU.FT.)	110.6	113.9						
MOISTURE CONTENT	DISH NO.	600	577						
	WT. OF WET SOIL & DISH	64.11g	206.62g						
	WT. OF DRY SOIL & DISH	55.74g	179.17g						
	NET LOSS OF MOISTURE	8.37g	27.45g						
	WT. OF DISH	3.71g	3.67g						
	WT. OF DRY SOIL	52.03g	175.50g						
	MOISTURE CONTENT (% DRY WT.)	16.1	15.6						

TST-4 (10-82)

* Specific Gravity = $W_o / [W_o + (W_a - W$

BORING NO.	B3-01A-90					
DEPTH	23.7-23.9'					
Sample # SAS Tag #						
Sampled BY:						
Tested BY:	5-2-90 CJ					
Checked BY:						
Specific Gravity Flask #	2	2	2	2	2	2
Weight of Specific Gravity Flask (g)	62.4465	62.4465	62.4465	62.4465	62.4465	62.4465
Weight of soil (Oven dry)(W_o)	25.677g					
Weight of flask 1, soil, and water (W_b)	177.928g					
Temperature °C, (T_x)	23.9					
Weight of water and flask at T_x (from cal. curve) (W_a)	162.044g					
Specific Gravity = *	2.62					

JOB NO. 2066-01 NAME WESTON - EG&G

ADVANCED TERRA TESTING
SPECIFIC GRAVITY TESTS

MOISTURE AND DENSITY DETERMINATIONS

CLIENT WESTON

LOCATION EG&G

JOB NO. 2066-01

PAGE 1 OF

SAMPLE & SOIL TYPE	BORING	B-18	B-18	B-13					
	SAMPLE NO.	B3018903 33337	B3018902 89293	B3013903 08312					
	SAMPLE DEPTH	33.3 - 33.7	28.9 - 29.3'	30.8 - 31.2'					
	DATE SAMPLED BY								
	DATE TESTED BY								
	SOIL TYPE								
	LABORATORY IDENTIFICATION								
DENSITY	NO. OF RINGS	L_o = 3.984 D_o = 1.829	L_o = 3.208 D_o = 1.695	L_o = 2.622 D_o = 1.638					
	WT. OF WET SOIL & RINGS								
	WT. OF RINGS								
	WT. OF WET SOIL	364.20g	255.57g	195.93g					
	WET DENSITY (LBS./CU.FT.)	132.5	134.5	135.1					
	DRY DENSITY (LBS./CU.FT.)	116.5	115.2	119.3					
MOISTURE CONTENT	DISH NO.	53	569	203					
	WT. OF WET SOIL & DISH	101.53g	68.47g	199.56g					
	WT. OF DRY SOIL & DISH	81.75g	59.19g	176.75g					
	NET LOSS OF MOISTURE	11.78g	9.28g	22.81g					
	WT. OF DISH	3.73g	3.81g	3.61g					
	WT. OF DRY SOIL	86.02g	55.38g	173.14g					
	MOISTURE CONTENT (% DRY WT.)	13.7	16.8	13.2					

757.4 (9-62)

MOISTURE AND DENSITY DETERMINATIONS

CLIENT Weston

LOCATION

JOB NO. 2066-01

PAGE OF

		Poor Samp.							
SAMPLE & SOIL TYPE	BORING	29	30	27	24				
	SAMPLE NO.	B30299 00405-M	[illegible]	P30279 00506 M	P30249 00405-M				
	SAMPLE DEPTH								
	DATE SAMPLED BY	7/6/90 ZR	7/6/90 ZR	7/3/90 ZR	7/5/90 ZR				
	DATE TESTED BY	8/14/90 (W)	→	→	→				
	SOIL TYPE								
	LABORATORY IDENTIFICATION								
DENSITY	NO. OF RINGS	Lo=1.815" Do=1.919"	Lo=3.109" Do=1.919	Lo=3.985" Do=1.908"	Lo=3.893" Do=1.918				
	WT. OF WET SOIL & RINGS	161.53g	292.49g	371.51g	374.50g				
	WT. OF RINGS								
	WT. OF WET SOIL								
	WET DENSITY (LBS./CU.FT.)	117.2	123.9	124.2	129.8				
	DRY DENSITY (LBS./CU.FT.)	95.7	102.4	96.8	113.5				
MOISTURE CONTENT	DISH NO.	537	023	505	503				
	WT. OF WET SOIL & DISH	169.62g	302.20g	379.53g	382.65g				
	WT. OF DRY SOIL & DISH	139.98g	247.45g	297.50g	335.41g				
	NET LOSS OF MOISTURE	29.64g	50.75g	82.03g	47.24g				
	WT. OF DISH	8.09g	7.71g	8.02g	8.15g				
	WT. OF DRY SOIL	131.89g	241.76g	289.48g	327.26g				
	MOISTURE CONTENT (% DRY WT.)	22.5	21.0	28.3	14.4				

757.4 (9-62)

MOISTURE AND DENSITY DETERMINATIONS

CLIENT Weston

JOB NO. 2066-01

LOCATION

PAGE OF

*= Disturbed Sample - Moisture Content only.

			*	Poor Samp.	*				*
SAMPLE & SOIL TYPE	BORING	32	23	24	25	27	26	28	231
	SAMPLE NO.	B30329 00405-M	P30239 00708-3	P30249 00809-2	P3025 007 -B	P30279 00405-M	P30269 01011-M	P30289 00405-M	P30239 00809-BB
	SAMPLE DEPTH								
	DATE SAMPLED BY	7/10/90 ZR	6/28/90	6/28/90	6/29/90 ZR	7/12/90 ZR	7/3/90 ZR	7/5/90 ZR	7/5/90 ZR
	DATE TESTED BY	8/14/90 D.J.	8/14/90 D.J. →						→
	SOIL TYPE								
	LABORATORY IDENTIFICATION								
DENSITY	NO. OF RINGS	Lo = 3.334" Do = 1.788"		Lo = 2.473" Do = 1.891"		Lo = 4.014" Do = 1.903"	Lo = 3.674" Do = 1.922"	Lo = [illegible] Do = 1.874"	
	WT. OF WET SOIL & ~~RINGS~~	315.45 g		203.21 g		379.47 g	343.95 g	334.44	
	WT. OF RINGS								
	WT. OF WET SOIL								
	WET DENSITY (LBS./CU.FT.)	123.8		111.5		126.6	122.9	124.8	
	DRY DENSITY (LBS./CU.FT.)	105.8		96.4		102.5	100.1	97.7	
MOISTURE CONTENT	DISH NO.	567	569	562	030	561	03	07	536
	WT. OF WET SOIL & DISH	324.55 g	275.10 g	212.24 g	239.73 g	388.57 g	352.21 g	342.37 g	235.56 g
	WT. OF DRY SOIL & DISH	278.60 g	260.30 g	184.73 g	218.80 g	316.15 g	288.39 g	269.58 g	221.03 g
	NET LOSS OF MOISTURE	45.95 g	14.80 g	27.51 g	20.93 g	72.42 g	63.82 g	72.79 g	14.48 g
	WT. OF DISH	9.10 g	9.11 g	9.03 g	7.77 g	9.10 g	3.26 g	7.93 g	3.43 g
	WT. OF DRY SOIL	269.50 g	251.19 g	175.70 g	211.03 g	307.05 g	280.13 g	261.65 g	212.65 g
	MOISTURE CONTENT (% DRY WT.)	17.1	5.9	15.7	9.9	23.6	22.8	27.8	6.8

757-4 (9-62)

* Sample disturbed - moisture content only

MOISTURE AND DENSITY DETERMINATIONS

CLIENT Weston

LOCATION

JOB NO. 2066-01

PAGE OF

SAMPLE & SOIL TYPE	BORING	B3039 901011 *	B3042 900910	B3041 900405	B304290 2122				
	SAMPLE NO.	2.41" LINER	→	→	→				
	SAMPLE DEPTH	10-11'	9-10'	4-5'	21-22'				
	DATE SAMPLED BY	7/17/90 ZR	7/19/90 KH	7/18/90 ZR	7/19-90 RW				
	DATE TESTED BY	8/27/90 GW	→	→	9-8-90 W				
	SOIL TYPE								
	LABORATORY IDENTIFICATION								
DENSITY	NO. OF RINGS		[illegible]	[illegible]	L_o = 4.00" D_o = 2.410"				
	WT. OF WET SOIL & RINGS		714.36g	595.11g	809.40g				
	WT. OF RINGS		183.60g	136.89g	186.40g				
	WT. OF WET SOIL		530.76g	458.22g	623.00g				
	WET DENSITY (LBS./CU.FT.)		110.8	127.6	130.1				
	DRY DENSITY (LBS./CU.FT.) g/cc		1.54 95.92	1.74 108.78	1.78 110.9				
MOISTURE CONTENT	DISH NO.	60	83	40	451				
	WT. OF WET SOIL & DISH	47.95	107.79g	58.59g	157.40g				
	WT. OF DRY SOIL & DISH	42.98g	93.80g	50.51g	134.74g				
	NET LOSS OF MOISTURE	4.97g	13.99g	8.08g	22.66g				
	WT. OF DISH	3.70g	3.70g	3.71g	3.70g				
	WT. OF DRY SOIL	39.28g	90.10g	46.80g	131.04g				
	MOISTURE CONTENT (% DRY WT.)	12.7	15.5	17.3	17.3				

757-4 (9-62)

APPENDIX B-3

DIRECT SHEAR STRENGTH TEST DATA

DIRECT SHEAR TEST / UU

_____ FRICTION TEST

DATA SHEET

OWNER WESTON LOCATION EG&G JOB # 2066-01

SOIL TYPE _____ BORING B3-008-90

LAB IDENT. _____ DEPTH 15.1-15.4

SAMPLED _____ / / SET-UP CJ 5/4/90 TESTED CJ 5/4/90 (____ OFFICE)

MOISTURE & DENSITY	FIELD	TEST
WT. SOIL & ____ RINGS		685.42g
WT. 2 RINGS		490.04g
NET WT. SOIL		195.38g
WET DENSITY LBS./CU./FT.		129.9
WT. DISH # 451 & SOIL		198.59g
DRY WT. SOIL & DISH		167.02g
NET LOSS OF MOISTURE		31.57g
WT. DISH		3.69g
NET WT. OF DRY SOIL		163.33g

TEST SET-UP		
LOAD		DEFLECTION
CONTINUOUS		INCREMENT
INCREASE		DECREASE
INCREMENT INTERVAL		MIN.
RECORDING INTERVAL		MIN.
LOAD INCREMENT		LBS./SQ. FT.
DEFLECTION INCREMENT		INCHES
LOADING SPEED		LBS./SQ.FT./MIN.
DEFLECTING SPEED	.019	INCHES/MIN.

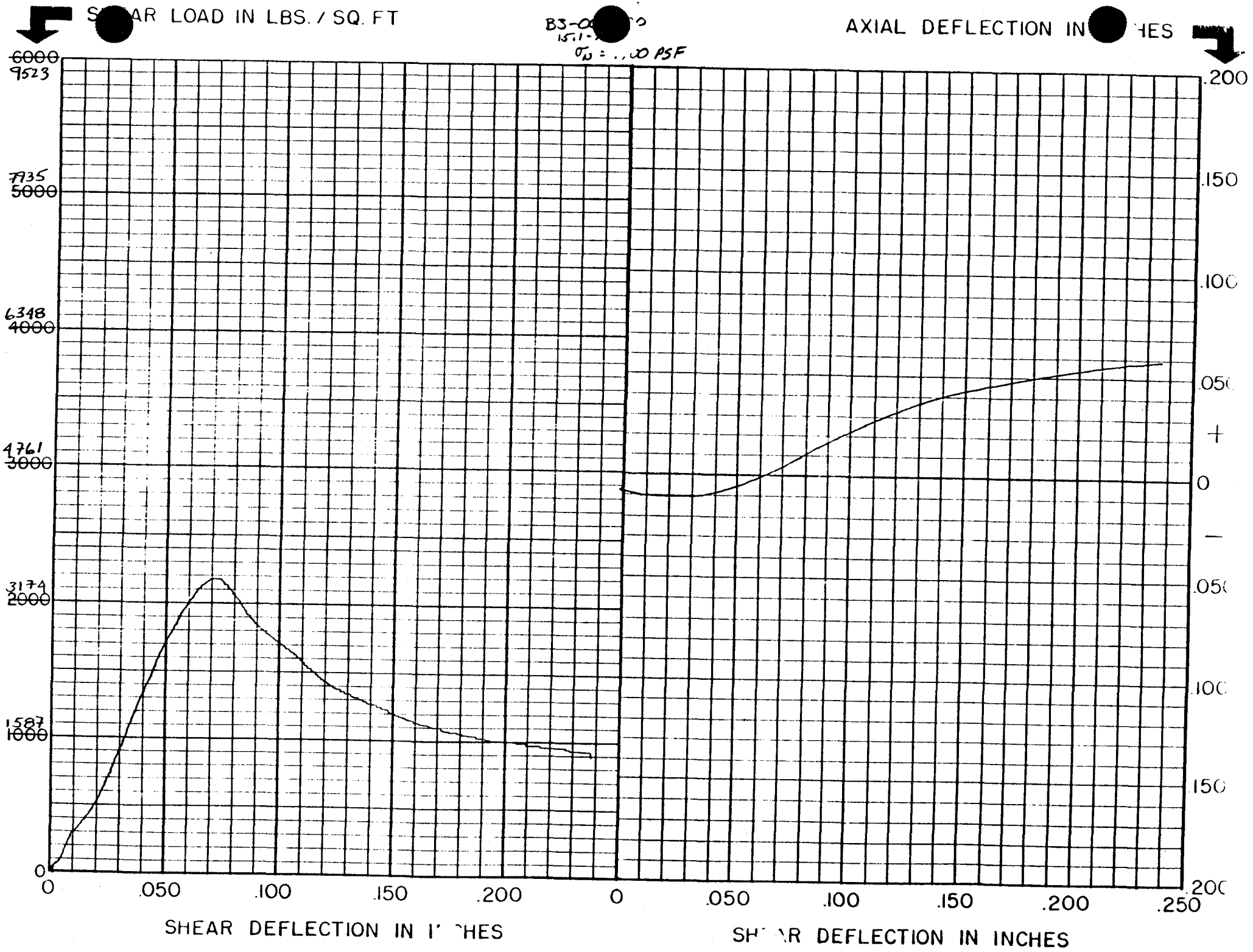
TEST SUMMARY	
NORMAL PRESS. 1700 LBS./SQ. FT.	YIELD STRENGTH ____ LBS./SQ. FT.
DRY DENSITY 108.8 LBS./CU. FT.	PEAK STRENGTH 3460 LBS./SQ. FT.
FIELD MOISTURE 19.3 % OF DRY WT.	ULTIMATE STR. ____ LBS./SQ. FT.
TEST MOISTURE ____ % OF DRY WT.	FRICTION STR. ____ LBS./SQ. FT.

NOTES:

$D_o = 1.91''$ $A_o = 2.874\ in^2$

$L_o = 2.00''$

FORM #857.34 (SA)


S[redacted]AR LOAD IN LBS. / SQ. FT
B3-0[redacted]
15.1-[redacted]
σ_D = ,,00 PSF
AXIAL DEFLECTION IN[redacted]HES
6000
9523
7935
5000
6348
4000
4761
3000
3174
2000
1587
1000
0
.200
.150
.100
.050
+
0
−
.050
.100
.150
.200
0
.050
.100
.150
.200
.250
SHEAR DEFLECTION IN I' HES
SH' R DEFLECTION IN INCHES

DIRECT SHEAR TEST/UU OWNER WESTON LOCATION EG&G JOB # 2066-01

FRICTION TEST SOIL TYPE BORING B3-012-90

DATA SHEET LAB IDENT. DEPTH 9.7-9.9

SAMPLED / / SET-UP CJ 5/1/90 TESTED CJ 5/1/90 (OFFICE)

MOISTURE & DENSITY	FIELD	TEST
WT. SOIL & RINGS		684.09g
WT. 2 RINGS		490.09g
NET WT. SOIL		194.05g
WET DENSITY LBS./CU./FT.		129.0
WT. DISH # 47 & SOIL		197.26g
DRY WT. SOIL & DISH		165.74g
NET LOSS OF MOISTURE		31.52g
WT. DISH		3.66g
NET WT. OF DRY SOIL		162.08g

TEST SET-UP		
LOAD	☐	DEFLECTION
CONTINUOUS	☐	INCREMENT
INCREASE	☐	DECREASE
INCREMENT INTERVAL		MIN.
RECORDING INTERVAL		MIN.
LOAD INCREMENT		LBS./SQ. FT.
DEFLECTION INCREMENT		INCHES
LOADING SPEED		LBS./SQ.FT./MIN.
DEFLECTING SPEED	.019	INCHES/MIN.

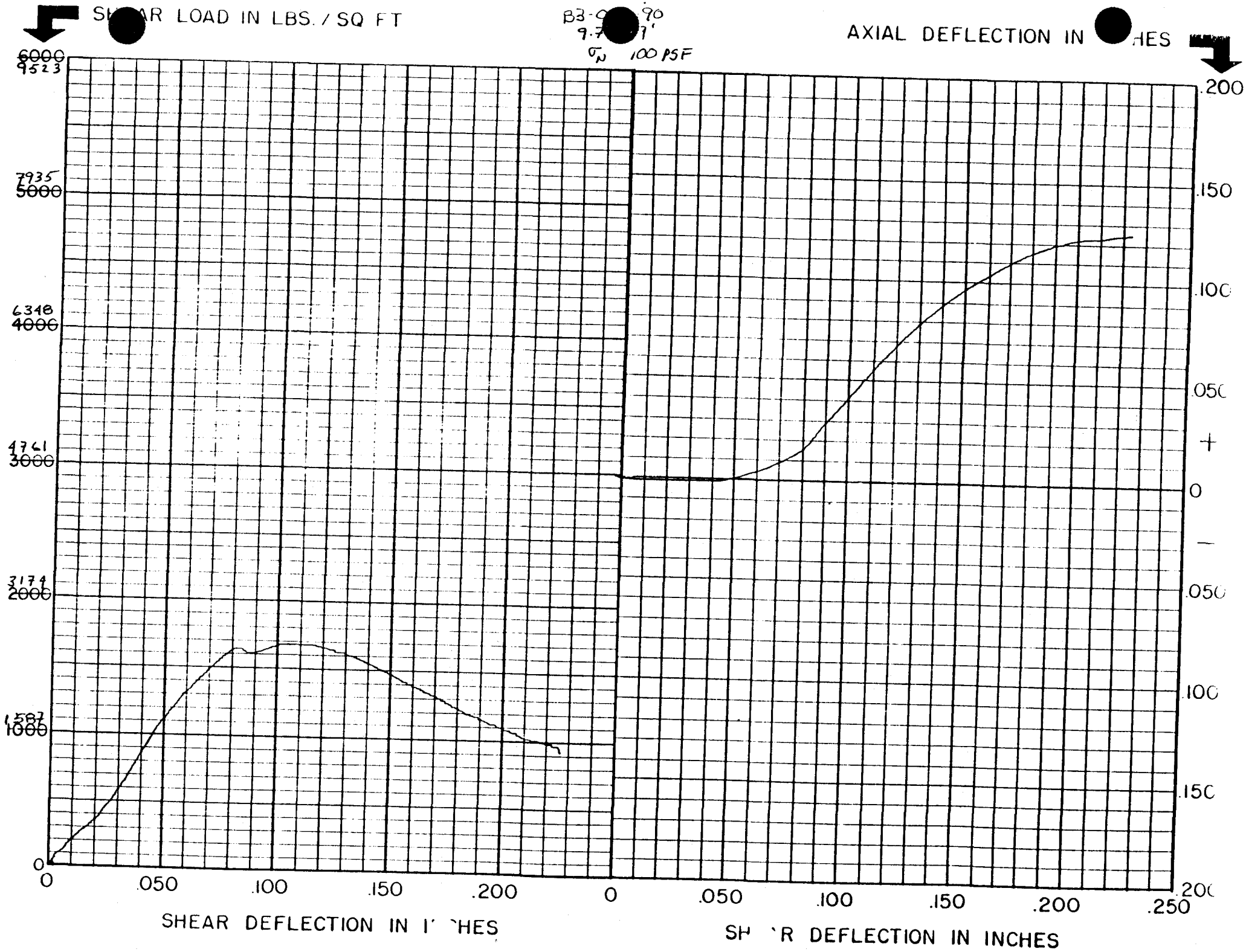
TEST SUMMARY	
NORMAL PRESS. 900 LBS./SQ. FT.	YIELD STRENGTH LBS./SQ. FT.
DRY DENSITY 108.0 LBS./CU. FT.	PEAK STRENGTH 2650 LBS./SQ. FT.
FIELD MOISTURE 19.4 % OF DRY WT.	ULTIMATE STR. LBS./SQ. FT.
TEST MOISTURE % OF DRY WT.	FRICTION STR. LBS./SQ. FT.

NOTES:

$D_o = 1.91''$ $A_o = 2.874 \text{ in}^2$

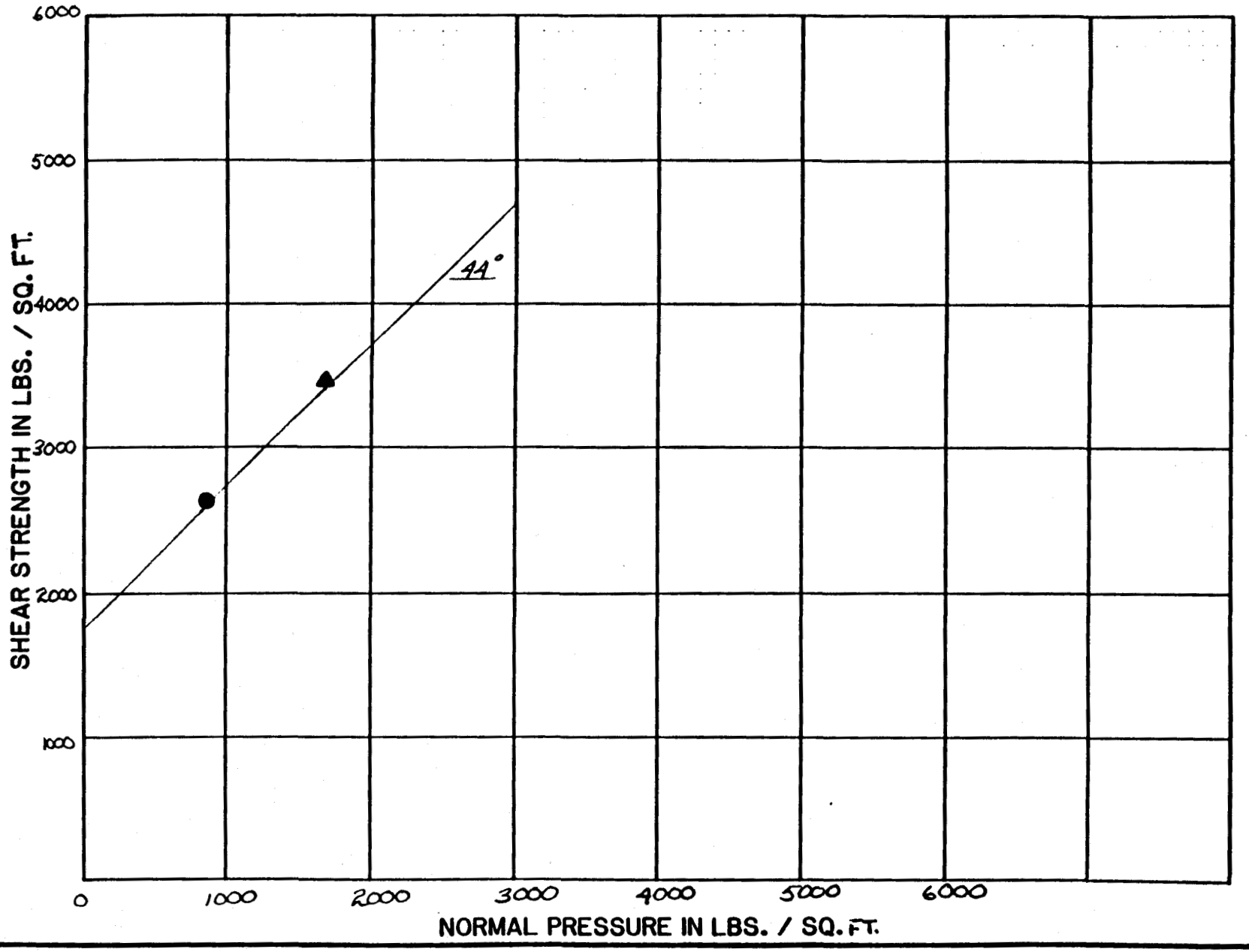
$L_o = 2.00''$

FORM #857.34 (SA)



SHEAR LOAD IN LBS. / SQ FT
B3-9 90
9.7 9'
σ_N 100 PSF
AXIAL DEFLECTION IN INCHES
6000
9523
7935
5000
6348
4000
4761
3000
3174
2000
1587
1000
0
.200
.150
.100
.050
+
0
−
.050
.100
.150
.200
0
.050
.100
.150
.200
.250
SHEAR DEFLECTION IN INCHES
SHEAR DEFLECTION IN INCHES

DIRECT SHEAR TEST DATA



● — B3-008-90 @ 15.1-15.4'

▲ — B3-012-90 @ 9.7-9.9'

DIRECT SHEAR TEST / UU
_____ **FRICTION TEST**

DATA SHEET

OWNER Weston LOCATION EG&G JOB # 2066-01

SOIL TYPE _____ BORING B3-009-90

LAB IDENT. # A DEPTH 19.3-20.1

SAMPLED _____ / / SET-UP _____ / / TESTED _____ / / (_____ OFFICE)

MOISTURE & DENSITY	FIELD	TEST
WT. SOIL & _____ RINGS		687.82g
WT. 2 RINGS		490.01g
NET WT. SOIL		197.78g
WET DENSITY LBS./CU./FT.		131.5
WT. DISH # 603 & SOIL		200.71g
DRY WT. SOIL & DISH		172.93g
NET LOSS OF MOISTURE		27.78g
WT. DISH		3.74g
NET WT. OF DRY SOIL		169.19g

TEST SET-UP		
LOAD	☐	DEFLECTION
CONTINUOUS	☒	INCREMENT
INCREASE	☒	DECREASE
INCREMENT INTERVAL		MIN.
RECORDING INTERVAL		MIN.
LOAD INCREMENT		LBS./SQ. FT.
DEFLECTION INCREMENT		INCHES
LOADING SPEED		LBS./SQ.FT./MIN.
DEFLECTING SPEED	.019	INCHES/MIN.

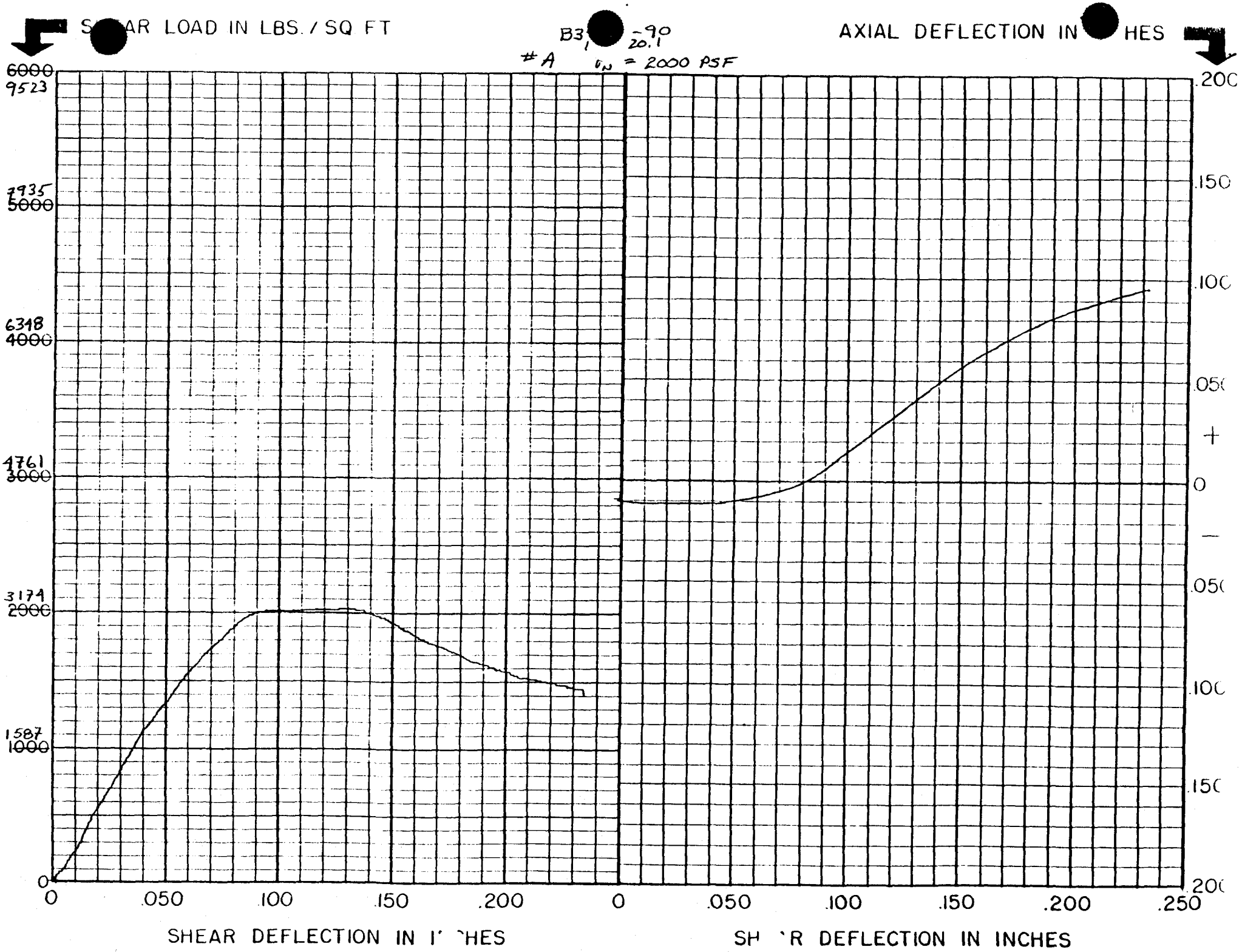
TEST SUMMARY	
NORMAL PRESS. 2000 LBS./SQ. FT.	YIELD STRENGTH _____ LBS./SQ. FT.
DRY DENSITY 112.9 LBS./CU. FT.	PEAK STRENGTH 3220 LBS./SQ. FT.
FIELD MOISTURE 16.4 % OF DRY WT.	ULTIMATE STR. _____ LBS./SQ. FT.
TEST MOISTURE _____ % OF DRY WT.	FRICTION STR. _____ LBS./SQ. FT.

NOTES:

$D_o = 1.91''$ $A_o = 2.871 in^2$

$L_o = 2.00''$

FORM #857.34 (SA)


S AR LOAD IN LBS. / SQ FT
B3 -90
20.1
#A
= 2000 PSF
AXIAL DEFLECTION IN HES
6000
9523
7935
5000
6348
4000
4761
3000
3174
2000
1587
1000
0
.200
.150
.100
.050
+
0
—
.050
.100
.150
.200
0
.050
.100
.150
.200
.250
SHEAR DEFLECTION IN I' 'HES
SH 'R DEFLECTION IN INCHES

DIRECT SHEAR TEST/UU
_____FRICTION TEST
DATA SHEET

OWNER WESTON LOCATION EG&G JOB # 2066-01
SOIL TYPE _____ BORING B3-009-90
LAB IDENT. #B DEPTH 19.3-20.1

SAMPLED _____ / / SET-UP _____ / / TESTED _____ / / (_____OFFICE)

MOISTURE & DENSITY	FIELD	TEST
WT. SOIL & _____ RINGS		690.01g
WT. 2 RINGS		490.04g
NET WT. SOIL		199.97g
WET DENSITY LBS./CU./FT.		132.9
WT. DISH # 53 & SOIL		204.01g
DRY WT. SOIL & DISH		174.99g
NET LOSS OF MOISTURE		29.02g
WT. DISH		3.72g
NET WT. OF DRY SOIL		176.27g

TEST SET-UP		
LOAD	☐	DEFLECTION
CONTINUOUS	☐	INCREMENT
INCREASE	☐	DECREASE
INCREMENT INTERVAL		MIN
RECORDING INTERVAL		MIN
LOAD INCREMENT		LBS./SQ. FT.
DEFLECTION INCREMENT		INCHES
LOADING SPEED		LBS./SQ.FT./MIN.
DEFLECTING SPEED	.019	INCHES/MIN.

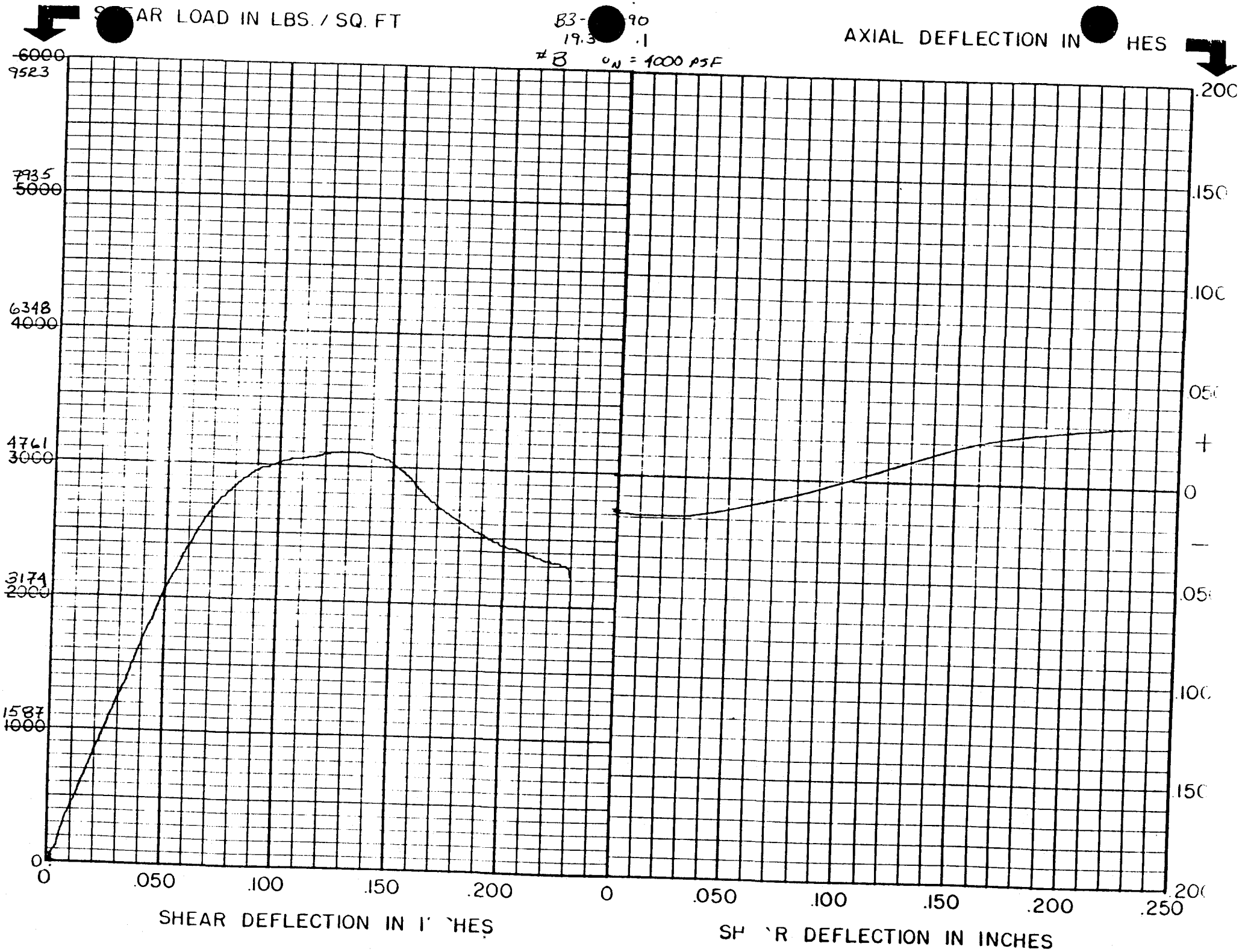
TEST SUMMARY	
NORMAL PRESS. 4000 LBS./SQ. FT.	YIELD STRENGTH _____ LBS./SQ. FT.
DRY DENSITY 114.1 LBS./CU. FT.	PEAK STRENGTH 4920 LBS./SQ. FT.
YIELD MOISTURE 16.5 % OF DRY WT.	ULTIMATE STR. _____ LBS./SQ. FT.
TEST MOISTURE _____ % OF DRY WT.	FRICTION STR. _____ LBS./SQ. FT.

NOTES:

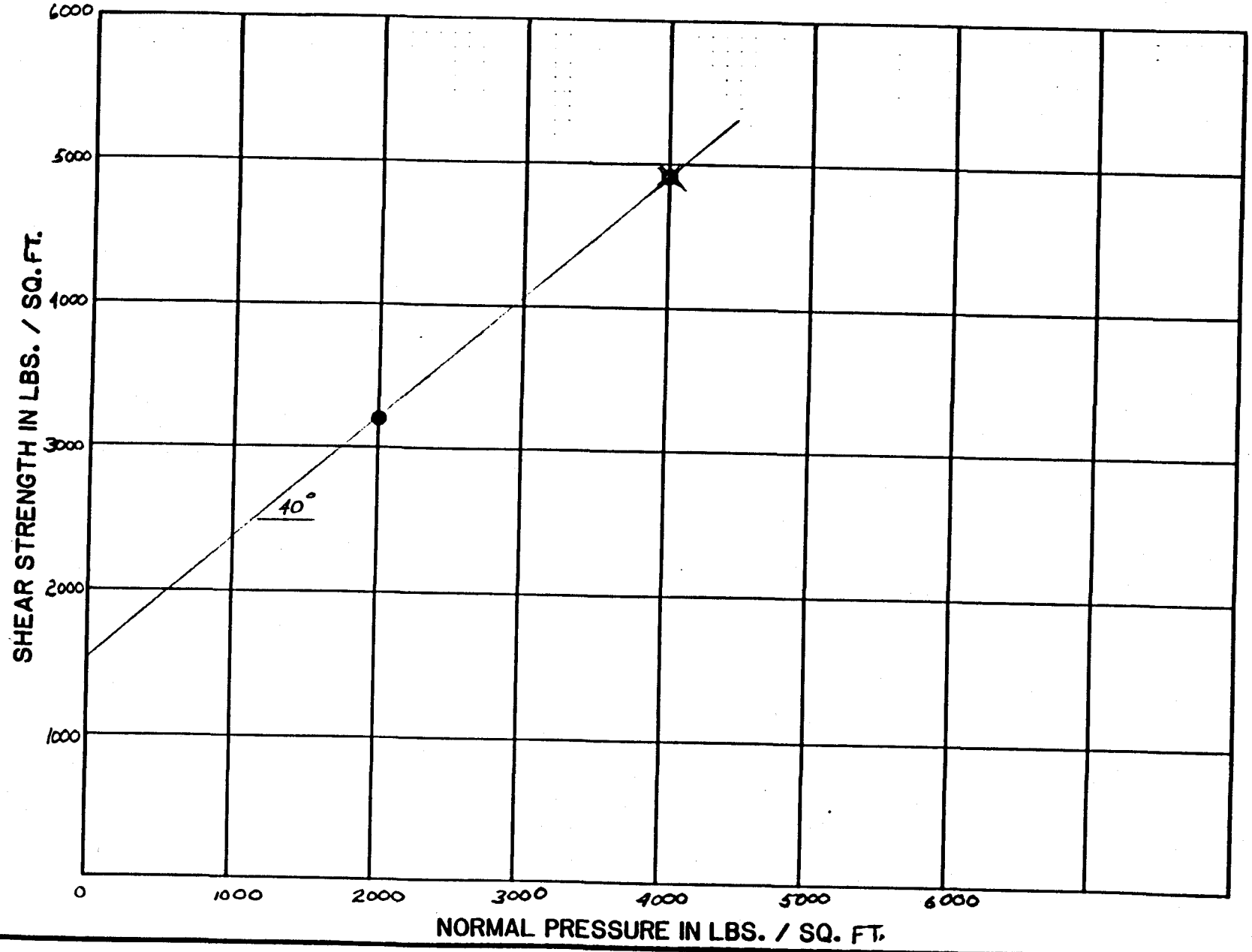
$D_o = 1.91''$ $A_o = 2.874 \text{ in}^2$

$L_o = 2.00''$

FORM #857.34 (SA)


SHEAR LOAD IN LBS. / SQ. FT
B3-[redacted]90
19.3[redacted].1
#B
σN = 4000 PSF
AXIAL DEFLECTION IN [redacted] HES
~~6000~~ 9523
7935 ~~5000~~
6348 4000
4761 3000
3174 2000
1587 1000
0
0
.050
.100
.150
.200
SHEAR DEFLECTION IN I' 'HES
0
.050
.100
.150
.200
.250
SH 'R DEFLECTION IN INCHES
.200
.150
.100
.050
+
0
−
.050
.100
.150
.200

DIRECT SHEAR TEST DATA



● — B3-009-90 @ 19.3-20.1' A

✕ — B3-001-90 @ 19.3-20.1' B

DIRECT SHEAR TEST/UU _____ FRICTION TEST

DATA SHEET

OWNER WESTON LOCATION EG&G JOB # 2066-01

SOIL TYPE _____ BORING B3-009-90

LAB IDENT. A DEPTH 24.3 - 25.1

SAMPLED ____ / / SET-UP ____ / / TESTED ____ / / (____ OFFICE)

MOISTURE & DENSITY	FIELD	TEST
WT. SOIL & ____ RINGS		687.26g
WT. 2 RINGS		490.04g
NET WT. SOIL		197.22g
WET DENSITY LBS./CU./FT.		131.1
WT. DISH # 438 & SOIL		199.78g
DRY WT. SOIL & DISH		166.71g
NET LOSS OF MOISTURE		33.07g
WT. DISH		3.68g
NET WT. OF DRY SOIL		163.03g

TEST SET-UP		
LOAD		DEFLECTION
CONTINUOUS		INCREMENT
INCREASE		DECREASE
INCREMENT INTERVAL		MIN.
RECORDING INTERVAL		MIN.
LOAD INCREMENT		LBS./SQ. FT.
DEFLECTION INCREMENT		INCHES
LOADING SPEED		LBS./SQ.FT./MIN.
DEFLECTING SPEED	.019	INCHES/MIN.

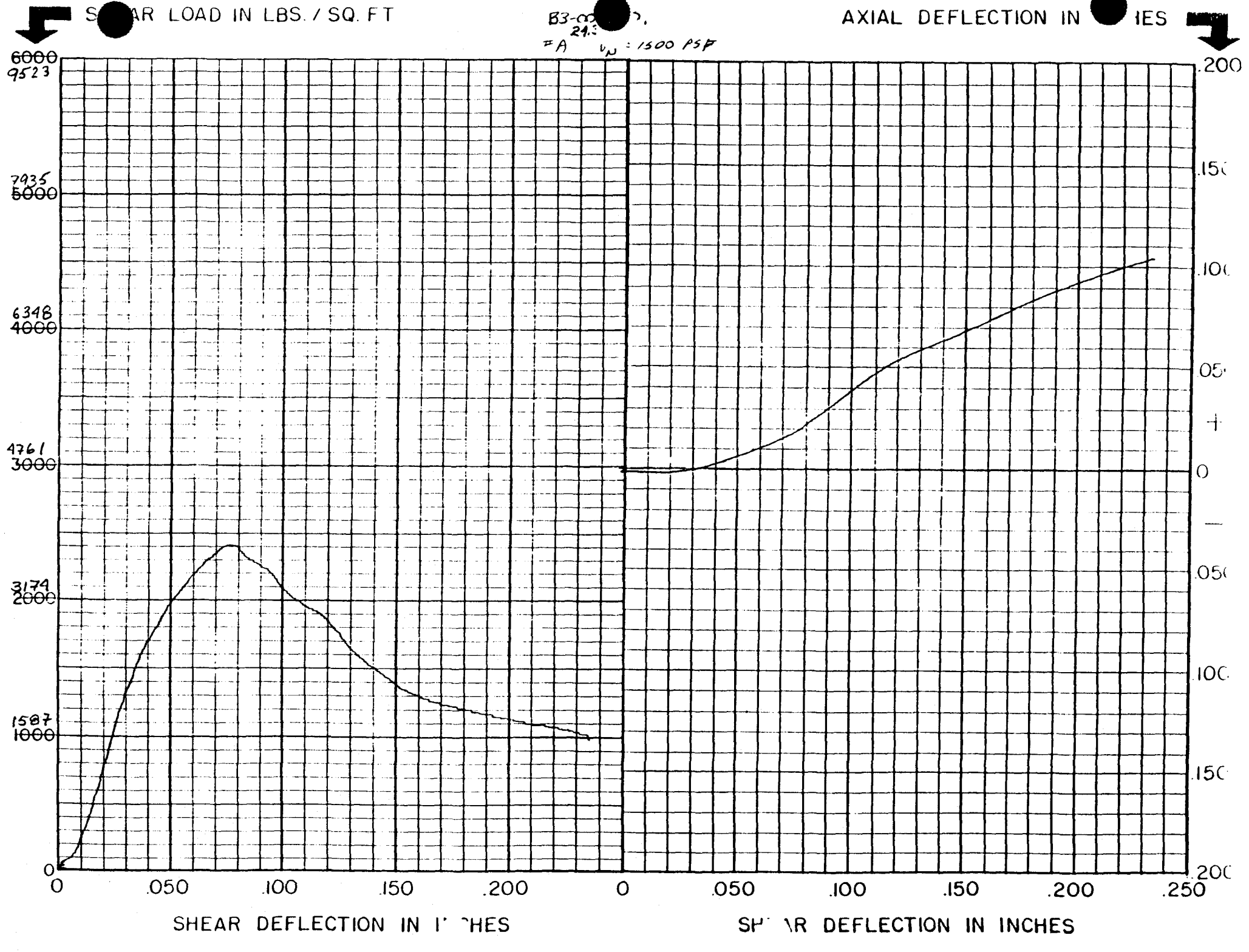
TEST SUMMARY	
NORMAL PRESS. 1500 LBS./SQ. FT.	YIELD STRENGTH ____ LBS./SQ. FT.
DRY DENSITY 109.0 LBS./CU. FT.	PEAK STRENGTH 3820 LBS./SQ. FT.
FIELD MOISTURE 20.3 % OF DRY WT.	ULTIMATE STR. ____ LBS./SQ. FT.
TEST MOISTURE ____ % OF DRY WT.	FRICTION STR. ____ LBS./SQ. FT.

NOTES:

$D_o = 1.91''$ $A_o = 2.874\ in^2$

$L_o = 2.00''$

FORM #857.34 (SA)



S AR LOAD IN LBS. / SQ. FT
B3-00
24.
#A
v_N = 1500 PSF
AXIAL DEFLECTION IN IES
6000
9523
7935
5000
6348
4000
4761
3000
3174
2000
1587
1000
0
.200
.150
.100
.050
+
0
—
.050
.100
.150
.200
0
.050
.100
.150
.200
0
.050
.100
.150
.200
.250
SHEAR DEFLECTION IN I HES
SH AR DEFLECTION IN INCHES

DIRECT SHEAR TEST/UU

FRICTION TEST

DATA SHEET

OWNER Weston LOCATION EG&G JOB # 2066-01

SOIL TYPE BORING B3-009-90

LAB IDENT. #B DEPTH 24.3-25.1'

SAMPLED / / SET-UP / / TESTED / / (OFFICE)

MOISTURE & DENSITY	FIELD	TEST
WT. SOIL & RINGS		682.64g
WT. 2 RINGS		490.04g
NET WT. SOIL		192.60g
WET DENSITY LBS./CU./FT.		128.0
WT. DISH # 35 & SOIL		195.42g
DRY WT. SOIL & DISH		163.81g
NET LOSS OF MOISTURE		31.61g
WT. DISH		3.70
NET WT. OF DRY SOIL		160.11

TEST SET-UP		
LOAD		DEFLECTION
CONTINUOUS		INCREMENT
INCREASE		DECREASE
INCREMENT INTERVAL		MIN
RECORDING INTERVAL		MIN.
LOAD INCREMENT		LBS./SQ. FT.
DEFLECTION INCREMENT		INCHES
LOADING SPEED		LBS./SQ.FT.. MIN.
DEFLECTING SPEED	.019	INCHES/MIN.

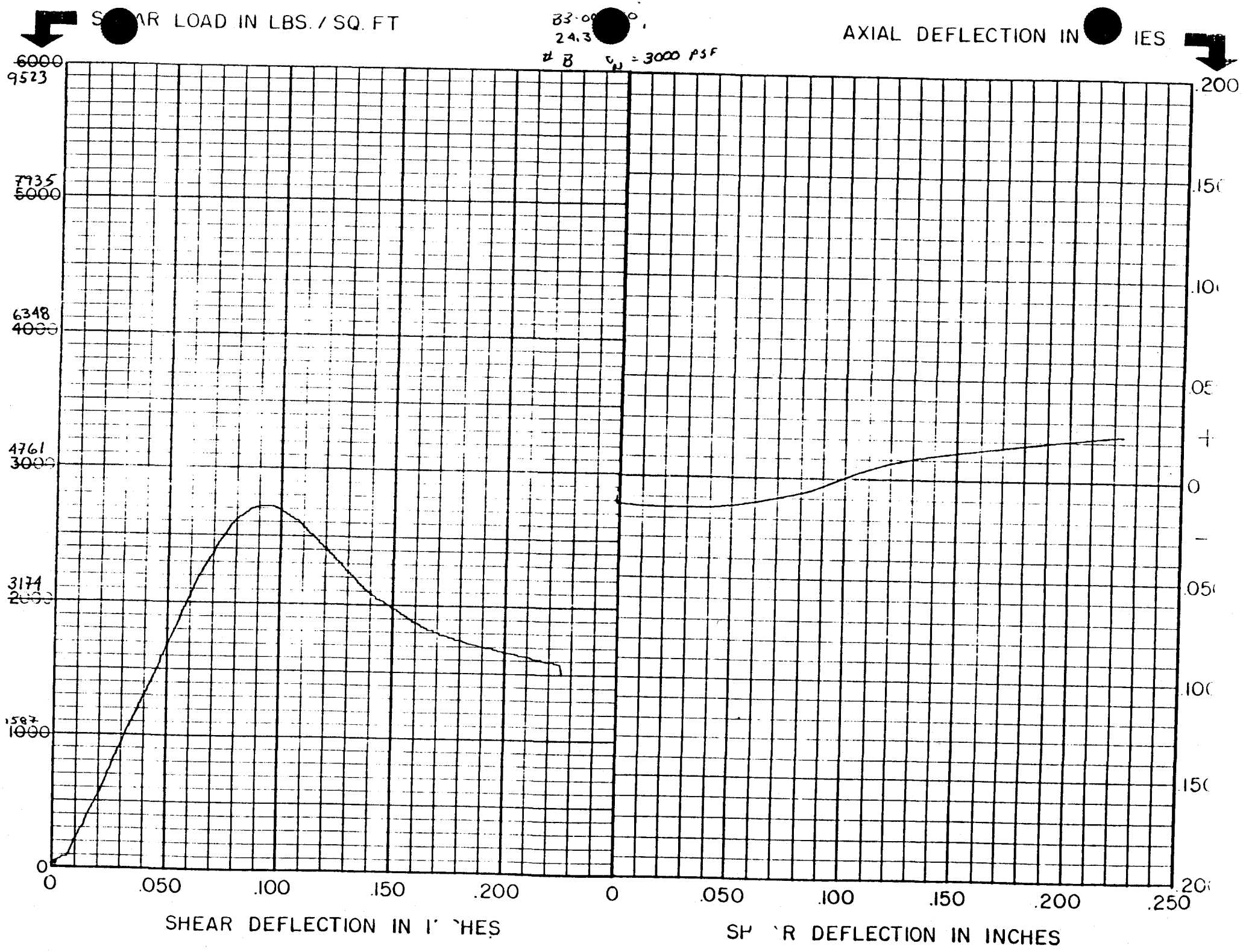
TEST SUMMARY	
NORMAL PRESS. 3000 LBS./SQ. FT.	YIELD STRENGTH LBS./SQ. FT.
DRY DENSITY 106.9 LBS./CU. FT.	PEAK STRENGTH 4320 LBS./SQ. FT.
FIELD MOISTURE 19.7 % OF DRY WT.	ULTIMATE STR. LBS./SQ. FT.
TEST MOISTURE % OF DRY WT.	FRICTION STR. LBS./SQ. FT.

NOTES:

D_0 = 1.91" A_0 = 2.874 in²

L_0 = 2.00"

FORM #857.34 (SA)



S AR LOAD IN LBS. / SQ. FT
B3-0 0,
24.3
B
= 3000 PSF
AXIAL DEFLECTION IN IES
6000
9523
7935
5000
6348
4000
4761
3000
3174
2000
1587
1000
0
.200
.150
.100
.05
+
0
−
.050
.100
.150
.200
0
.050
.100
.150
.200
.250
SHEAR DEFLECTION IN I HES
SH R DEFLECTION IN INCHES

DIRECT SHEAR TEST/UU
_____FRICTION TEST
DATA SHEET

OWNER WESTON LOCATION EG&G JOB # 2066-01
SOIL TYPE _____ BORING B3-009-90
LAB IDENT. #C DEPTH 24.3 -25.1

SAMPLED _____ / / SET-UP _____ / / TESTED _____ / / (_____OFFICE)

MOISTURE & DENSITY	FIELD	TEST
WT. SOIL & _____ RINGS		686.1g
WT. 2 RINGS		490.0g
NET WT. SOIL		196.1g
WET DENSITY LBS./CU./FT.		130.4
WT. DISH # 93 & SOIL		196.15g
DRY WT. SOIL & DISH		165.18g
NET LOSS OF MOISTURE		30.97g
WT. DISH		3.67g
NET WT. OF DRY SOIL		161.51g

TEST SET-UP		
LOAD		DEFLECTION
CONTINUOUS		INCREMENT
INCREASE		DECREASE
INCREMENT INTERVAL		MIN
RECORDING INTERVAL		MIN.
LOAD INCREMENT		LBS./SQ. FT.
DEFLECTION INCREMENT		INCHES
LOADING SPEED		LBS./SQ.FT./MIN.
DEFLECTING SPEED	.019	INCHES/MIN.

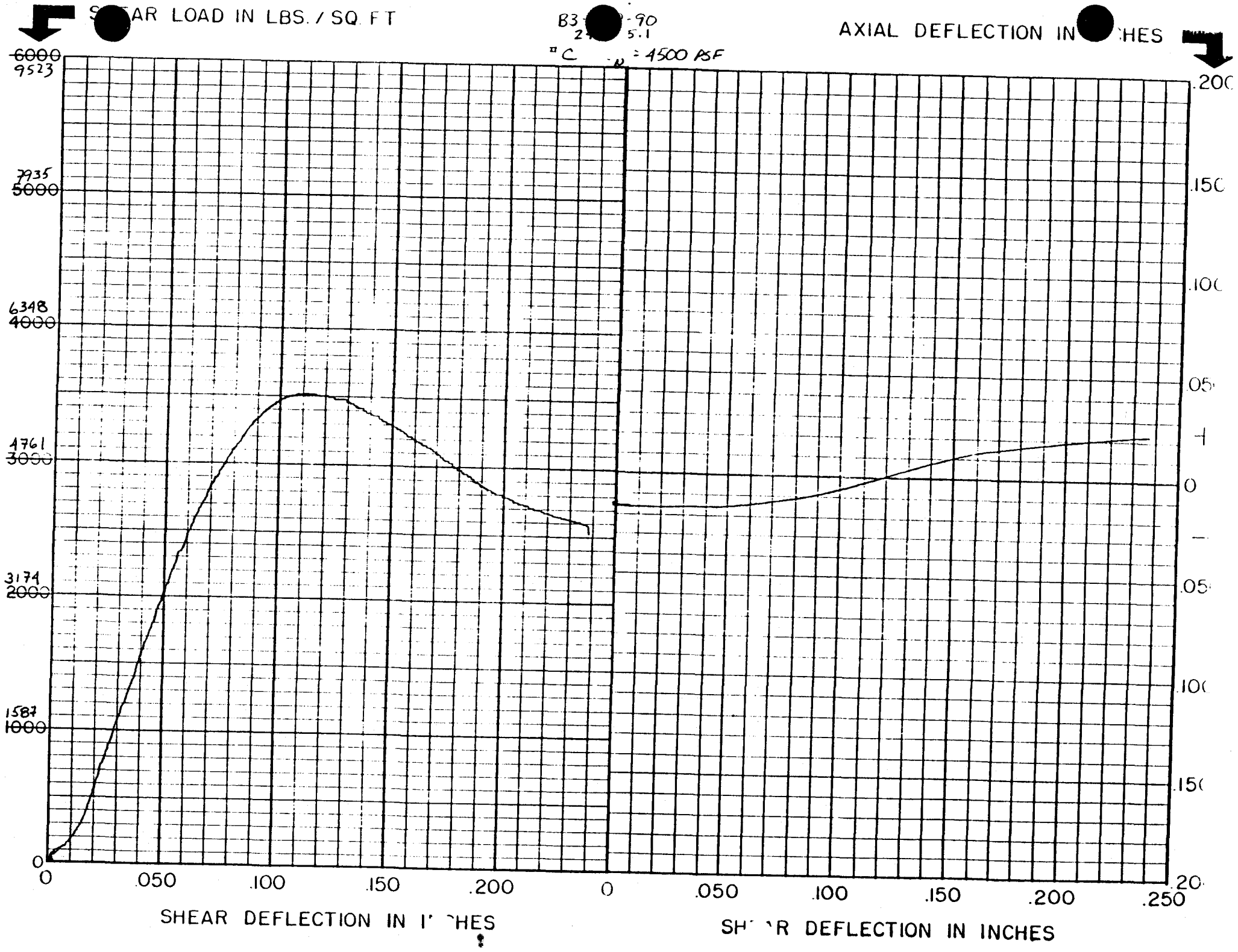
TEST SUMMARY	
NORMAL PRESS. 4500 LBS./SQ. FT.	YIELD STRENGTH _____ LBS./SQ. FT.
DRY DENSITY 109.4 LBS./CU. FT.	PEAK STRENGTH 5590 LBS./SQ. FT.
FIELD MOISTURE 19.2 % OF DRY WT.	ULTIMATE STR. _____ LBS./SQ. FT.
TEST MOISTURE _____ % OF DRY WT.	FRICTION STR. _____ LBS./SQ. FT.

NOTES:

$D_o = 1.91''$ $A_o = 2.871''$

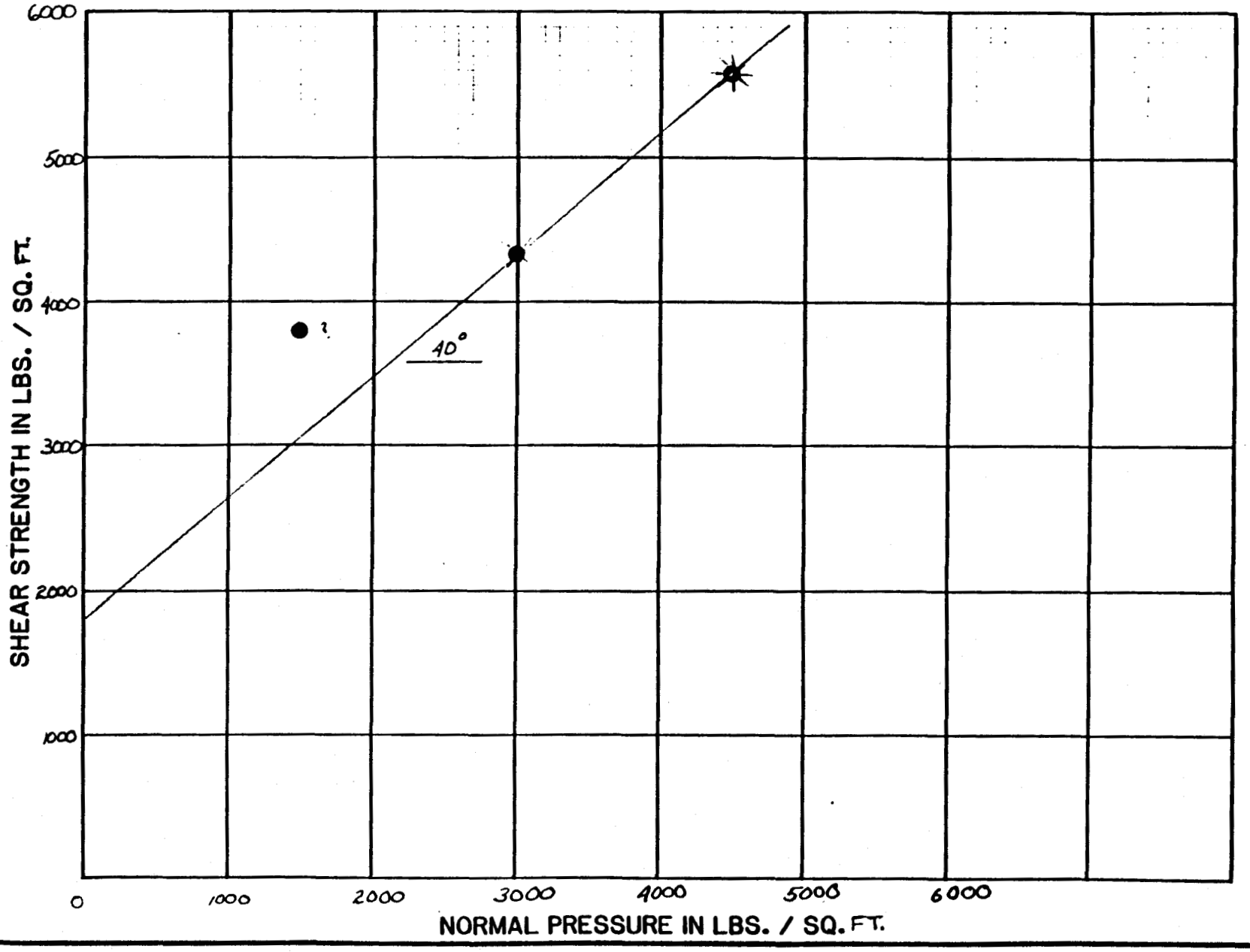
$L_o = 2.00''$

FORM #857.34 (SA)



S[illegible]AR LOAD IN LBS. / SQ. FT
B3-[illegible]-90
2[illegible] 5.1
"C [illegible] = 4500 PSF
AXIAL DEFLECTION IN [illegible]HES
6000
9523
7935
5000
6348
4000
4761
3000
3174
2000
1587
1000
0
.200
.150
.100
.05
0
.05
.100
.150
.20
0
.050
.100
.150
.200
0
.050
.100
.150
.200
.250
SHEAR DEFLECTION IN I[illegible]HES
SH[illegible]R DEFLECTION IN INCHES

DIRECT SHEAR TEST DATA



● – B3-009-90 @ 24.3-25.1'

DIRECT SHEAR TEST

FRICTION TEST

DATA SHEET

OWNER Weston LOCATION Rocky Flats JOB # 2066-01

SOIL TYPE Rotary Core E6&6 BORING B3019902682 7

LAB IDENT. #A DEPTH 26.8-27.7'

SAMPLED ____ / / SET-UP (2) 9/12/90 TESTED (2) 9/12/90 (____ OFFICE)

MOISTURE & DENSITY	FIELD	TEST
WT. SOIL & 2 RINGS	672.92g	
WT. 2 RINGS	501.07g	
NET WT. SOIL	171.85g	
WET DENSITY LBS./CU./FT.	123.8	
WT. DISH # 91 & SOIL	174.79g	
DRY WT. SOIL & DISH	159.59g	
NET LOSS OF MOISTURE	15.20g	
WT. DISH	3.66g	
NET WT. OF DRY SOIL	155.93g	

TEST SET-UP		
LOAD		DEFLECTION
CONTINUOUS		INCREMENT
INCREASE		DECREASE
INCREMENT INTERVAL		MIN.
RECORDING INTERVAL		MIN.
LOAD INCREMENT		LBS./SQ. FT.
DEFLECTION INCREMENT		INCHES
LOADING SPEED		LBS./SQ.FT./MIN.
DEFLECTING SPEED	.018	INCHES/MIN.

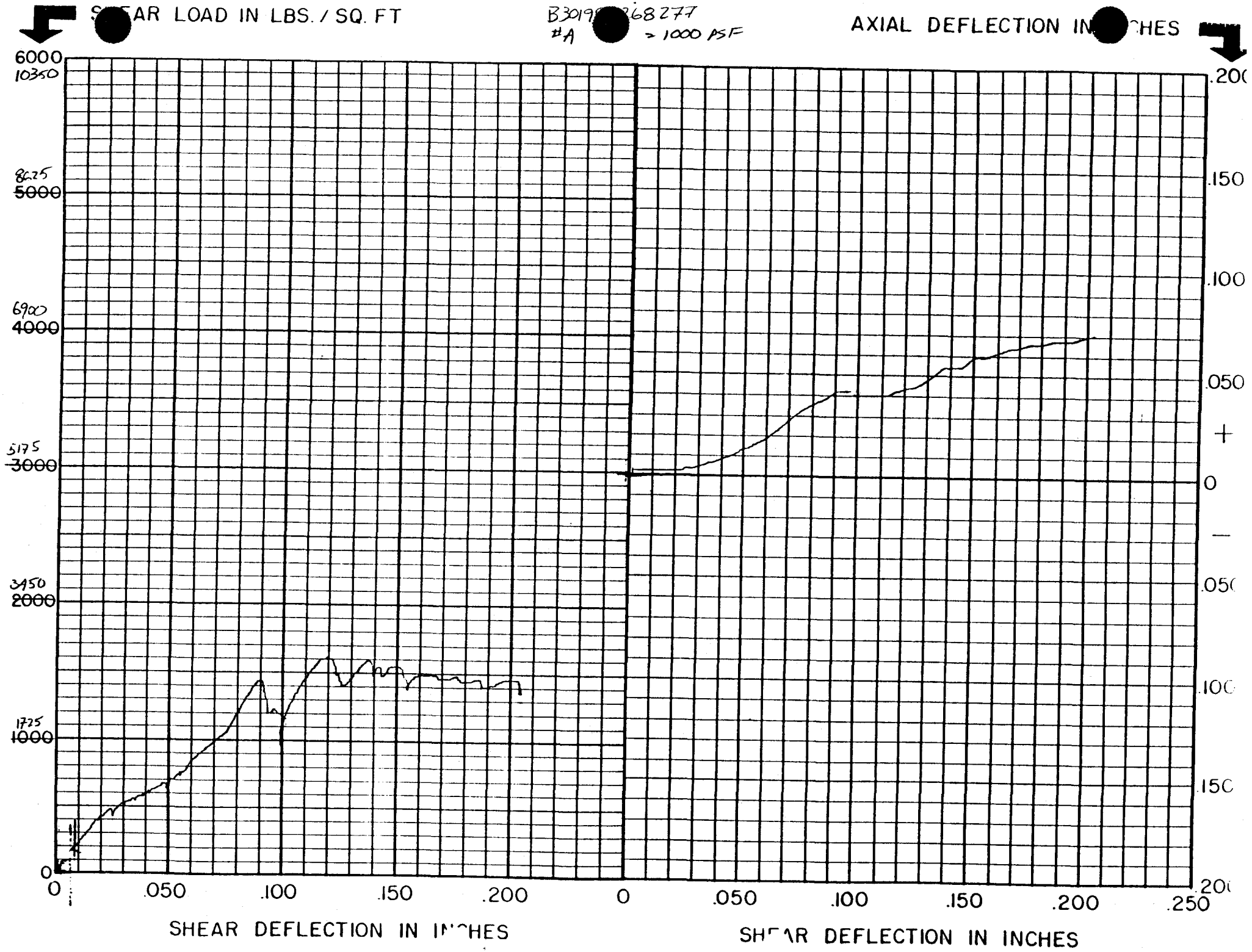
TEST SUMMARY	
NORMAL PRESS. 1000 LBS./SQ. FT.	YIELD STRENGTH ____ LBS./SQ. FT.
DRY DENSITY 112.8 LBS./CU. FT.	PEAK STRENGTH 2760 LBS./SQ. FT.
FIELD MOISTURE 9.7 % OF DRY WT.	ULTIMATE STR. 2500 LBS./SQ. FT.
TEST MOISTURE ____ % OF DRY WT.	FRICTION STR. ____ LBS./SQ. FT.

NOTES:

$D_o = 1.835''$ $A_o = 2.6446 \text{ in}^2$

Scale Reduction Factor = 1.7249

FORM #857.34 (SA)


SHEAR LOAD IN LBS. / SQ. FT
B3019 268277
#A = 1000 PSF
AXIAL DEFLECTION IN INCHES
6000
10350
8625
5000
6900
4000
5175
3000
3450
2000
1725
1000
0
.050
.100
.150
.200
0
.050
.100
.150
.200
.250
.150
.100
.050
+
0
—
SHEAR DEFLECTION IN INCHES
SHEAR DEFLECTION IN INCHES

DIRECT SHEAR TEST

_____ FRICTION TEST

DATA SHEET

OWNER WESTON LOCATION ROCKY FLATS JOB # 2066-01

SOIL TYPE ROTARY CORE EG&G BORING B301990268 27

LAB IDENT. #B DEPTH 26.8-27.7'

SAMPLED _____ / / SET-UP CW 9/12/90 TESTED CW 9/12/90 (____ OFFICE)

MOISTURE & DENSITY	FIELD	TEST
WT. SOIL & 2 RINGS	671.51g	
WT. 2 RINGS	501.07g	
NET WT. SOIL	170.44g	
WET DENSITY LBS./CU./FT.	122.8	
WT. DISH # 521 & SOIL	167.83g	
DRY WT. SOIL & DISH	154.77g	
NET LOSS OF MOISTURE	13.06g	
WT. DISH	3.69g	
NET WT. OF DRY SOIL	157.08g	

TEST SET-UP		
LOAD	☐	DEFLECTION
CONTINUOUS	☒	INCREMENT
INCREASE	☒	DECREASE
INCREMENT INTERVAL		MIN.
RECORDING INTERVAL		MIN.
LOAD INCREMENT		LBS./SQ. FT.
DEFLECTION INCREMENT		INCHES
LOADING SPEED		LBS./SQ.FT./MIN.
DEFLECTING SPEED	.018	INCHES/MIN.

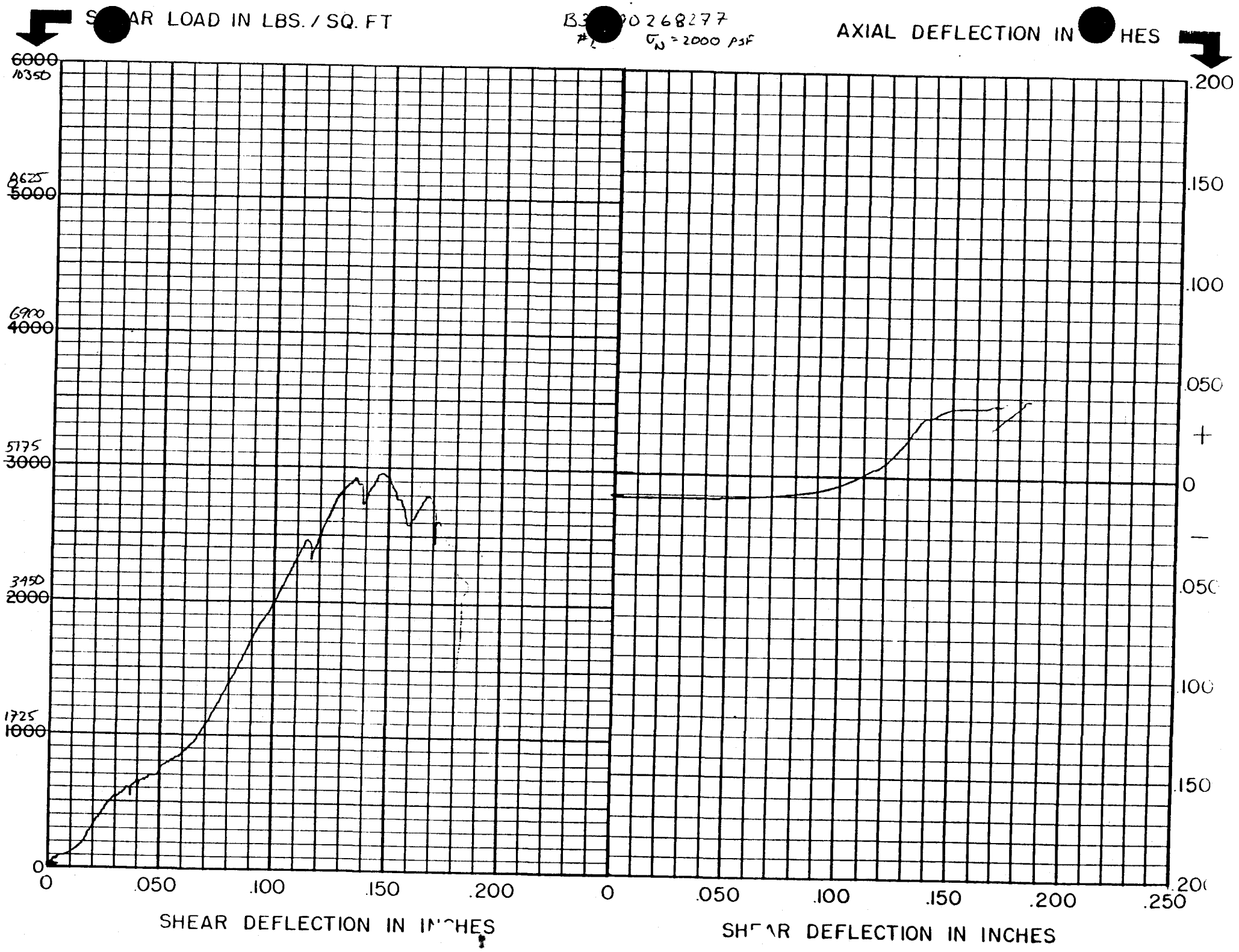
TEST SUMMARY	
NORMAL PRESS. 2000 LBS./SQ. FT.	YIELD STRENGTH ___ LBS./SQ. FT.
DRY DENSITY 113.0 LBS./CU. FT.	PEAK STRENGTH 5088 LBS./SQ. FT.
FIELD MOISTURE 8.6 % OF DRY WT.	ULTIMATE STR. ___ LBS./SQ. FT.
TEST MOISTURE ___ % OF DRY WT.	FRICTION STR. ___ LBS./SQ. FT.

NOTES:

$D_o = 1.835''$ $A_o = 2.6446 in^2$

SCALE REDUCTION FACTOR = 1.7249

FORM #857.34 (SA)


SHEAR LOAD IN LBS. / SQ. FT
B3 0268277
#2 σ_N = 2000 psf
AXIAL DEFLECTION IN HES
6000
10350
8625
5000
6900
4000
5175
3000
3450
2000
1725
1000
0
0
.050
.100
.150
.200
SHEAR DEFLECTION IN INCHES
0
.050
.100
.150
.200
.250
SHEAR DEFLECTION IN INCHES
.200
.150
.100
.050
+
0
—
.050
.100
.150
.200

DIRECT SHEAR TEST

_____FRICTION TEST

DATA SHEET

OWNER Weston LOCATION Rocky Flats JOB # 2066-01

SOIL TYPE Rotary Core EG&G BORING B30A9026827

LAB IDENT. #C DEPTH 26.8-27.7'

SAMPLED _____ / / SET-UP W 9/12/90 TESTED W 9/12/90 (____OFFICE)

MOISTURE & DENSITY	FIELD	TEST
WT. SOIL & 2 RINGS	679.44g	
WT. 2 RINGS	501.07g	
NET WT. SOIL	178.37g	
WET DENSITY LBS./CU./FT.	128.5	
WT. DISH # 582 & SOIL	146.01g	
DRY WT. SOIL & DISH	131.06g	
NET LOSS OF MOISTURE	14.95g	
WT. DISH	3.61g	
NET WT. OF DRY SOIL	127.45g	

TEST SET-UP		
LOAD	☐ ☒	DEFLECTION
CONTINUOUS	☒ ☐	INCREMENT
INCREASE	☒ ☐	DECREASE
INCREMENT INTERVAL		MIN.
RECORDING INTERVAL		MIN.
LOAD INCREMENT		LBS./SQ. FT.
DEFLECTION INCREMENT		INCHES
LOADING SPEED		LBS./SQ.FT./MIN.
DEFLECTING SPEED	.018	INCHES/MIN.

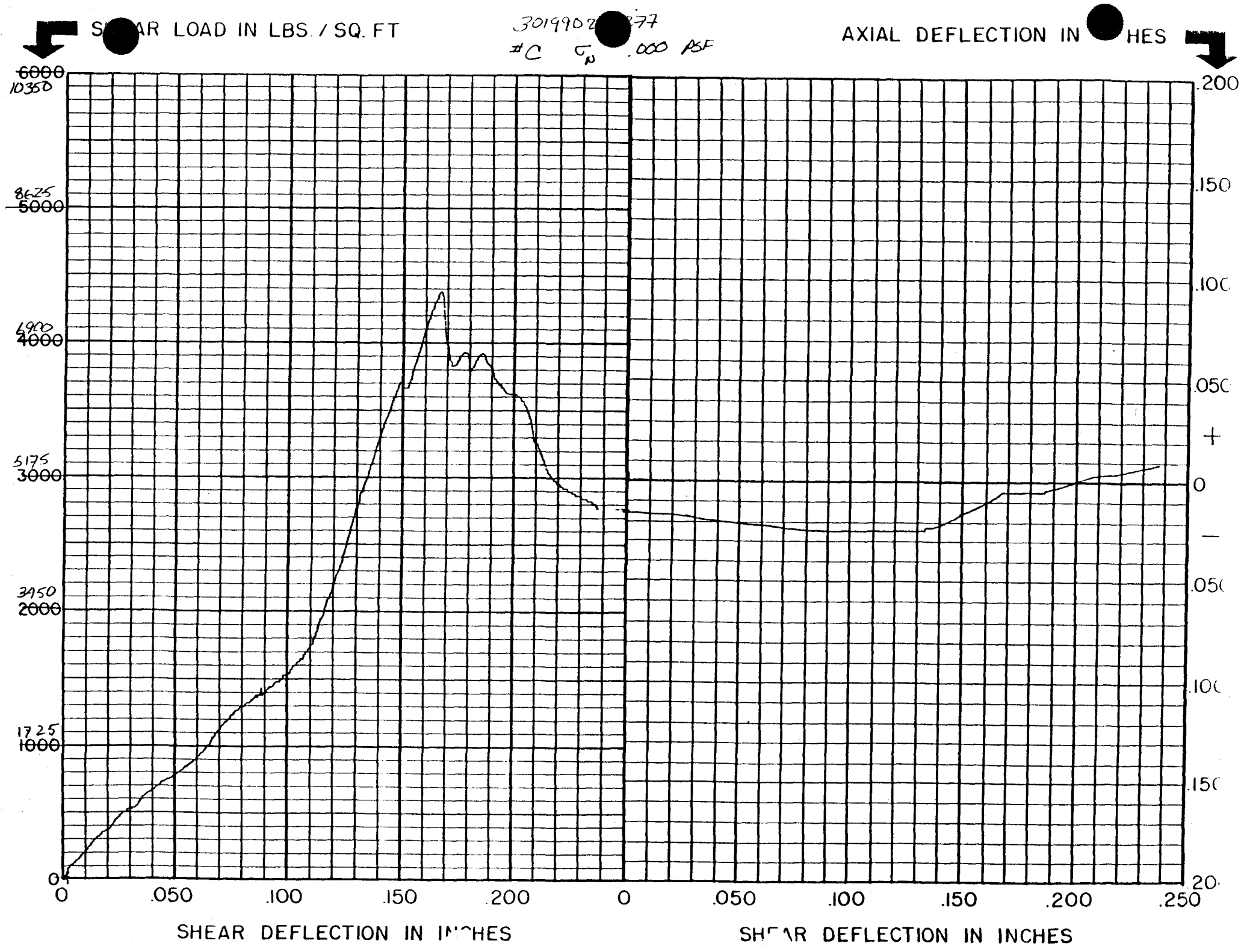
TEST SUMMARY	
NORMAL PRESS. 4000 LBS./SQ. FT.	YIELD STRENGTH ____ LBS./SQ. FT.
DRY DENSITY 115.0 LBS./CU. FT.	PEAK STRENGTH 7555 LBS./SQ. FT.
FIELD MOISTURE 11.7 % OF DRY WT.	ULTIMATE STR. ____ LBS./SQ. FT.
TEST MOISTURE ____ % OF DRY WT.	FRICTION STR. ____ LBS./SQ. FT.

NOTES:

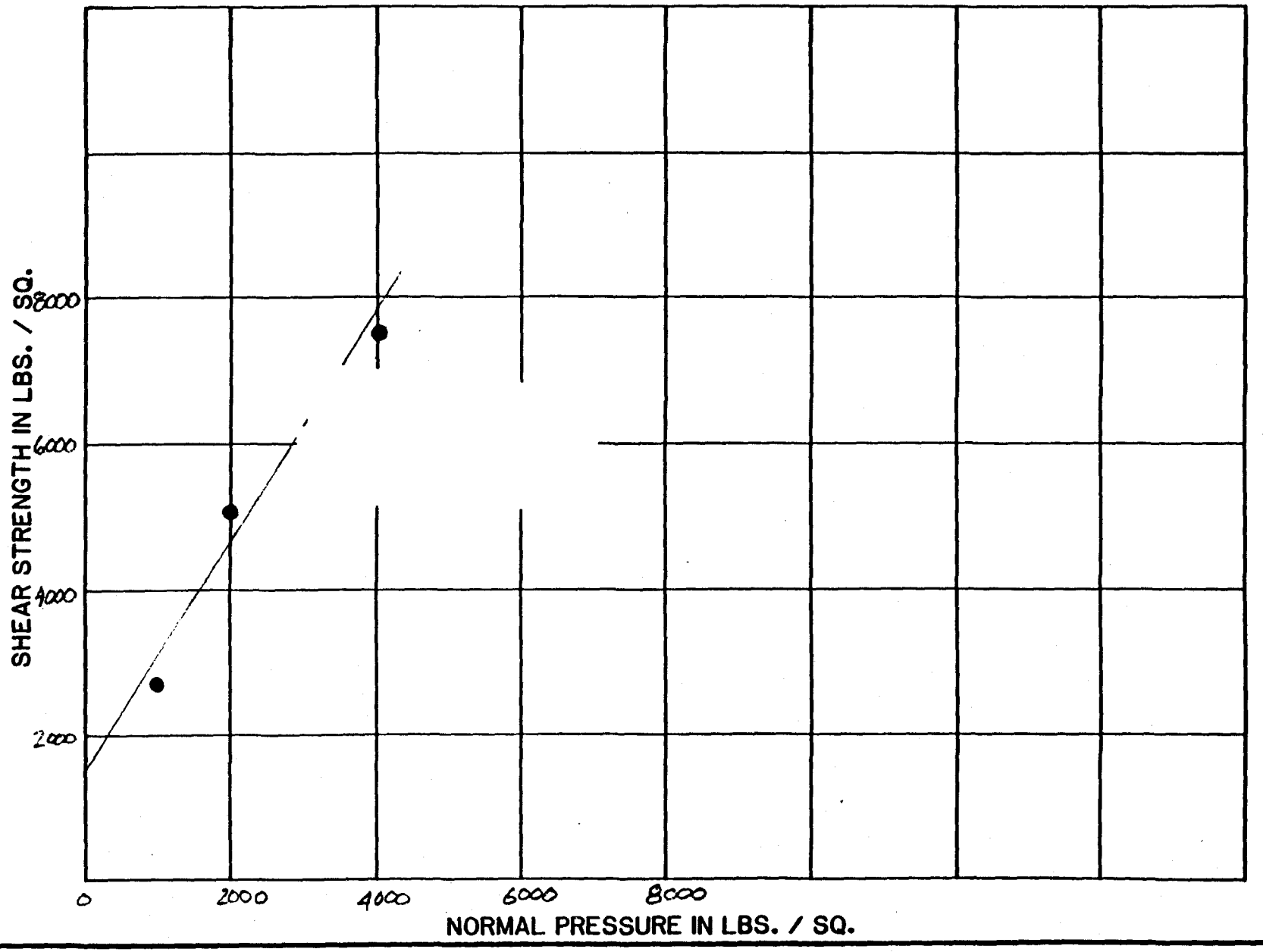
$D_o = 1.835''$ $A_o = 2.6446\ in^2$

SCALE REDUCTION FACTOR = 1.7219

FORM #857.34 (SA)


SHEAR LOAD IN LBS. / SQ. FT
AXIAL DEFLECTION IN INCHES
3019902 377
#C σn .000 PSF
6000
10350
8625
5000
6900
4000
5175
3000
3450
2000
1725
1000
0
.200
.150
.100
.050
+
0
—
.050
.100
.150
.200
0
.050
.100
.150
.200
.250
SHEAR DEFLECTION IN INCHES
SHEAR DEFLECTION IN INCHES

DIRECT SHEAR TEST DATA



B301990268277
PLOTTED @ PEAK SHEAR STRESS

DIRECT SHEAR TEST

FRICTION TEST

DATA SHEET

OWNER Weston LOCATION Rocky Flats JOB # 2066-01

SOIL TYPE Rotary Core EG4 G BORING 3037903083

LAB IDENT. #A DEPTH 30.8-31.5'

SAMPLED / / SET-UP CW 9/11/90 TESTED CW 9/11/90 (OFFICE)

MOISTURE & DENSITY	FIELD	TEST
WT. SOIL & 2 RINGS	698.57g	
WT. 2 RINGS	501.07g	
NET WT. SOIL	197.50g	
WET DENSITY LBS./CU./FT.	142.2	
WT. DISH # 516 & SOIL	46.63g	
DRY WT. SOIL & DISH	41.29g	
NET LOSS OF MOISTURE	5.34g	
WT. DISH	3.70g	
NET WT. OF DRY SOIL	37.59g	

TEST SET-UP		
LOAD	☐ ☒	DEFLECTION
CONTINUOUS	☒ ☐	INCREMENT
INCREASE	☒ ☐	DECREASE
INCREMENT INTERVAL		MIN.
RECORDING INTERVAL		MIN.
LOAD INCREMENT		LBS./SQ. FT.
DEFLECTION INCREMENT		INCHES
LOADING SPEED		LBS./SQ.FT./MIN.
DEFLECTING SPEED	.018	INCHES/MIN.

TEST SUMMARY	
NORMAL PRESS. 1000 LBS./SQ. FT.	YIELD STRENGTH LBS./SQ. FT.
DRY DENSITY 124.6 LBS./CU. FT.	PEAK STRENGTH 3780 LBS./SQ. FT.
FIELD MOISTURE 14.2 % OF DRY WT.	ULTIMATE STR. 2070 LBS./SQ. FT.
TEST MOISTURE % OF DRY WT.	FRICTION STR. LBS./SQ. FT.

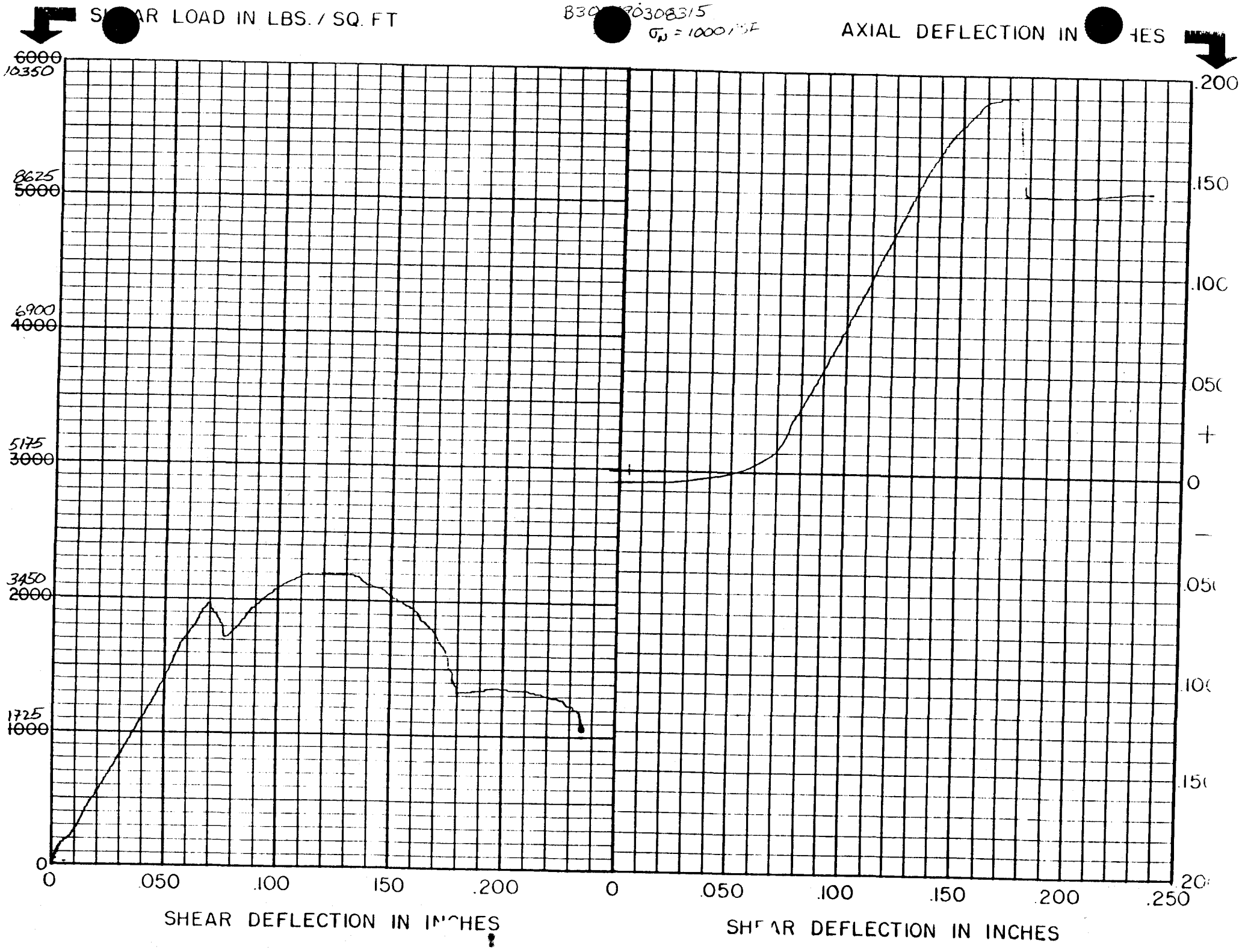
NOTES:

$D_o = 1.835''$ $A_o = 2.6446 in^2$

REDUCTION FACTOR = 1.7249

2-POINT TEST

FORM #857.34 (SA)


SHEAR LOAD IN LBS. / SQ. FT
B30 20308315
σ_N = 1000 PSF
AXIAL DEFLECTION IN INCHES
6000
10350
8625
5000
6900
4000
5175
3000
3450
2000
1725
1000
0
0
.050
.100
.150
.200
SHEAR DEFLECTION IN INCHES
0
.050
.100
.150
.200
.250
SHEAR DEFLECTION IN INCHES
.200
.150
.100
.050
+
0
−
.050
.100
.150
.200

DIRECT SHEAR TEST OWNER WESTON LOCATION ROCKY FLATS JOB # 2066-01

FRICTION TEST SOIL TYPE ROTARY CORE EG46 BORING 30379030831S

DATA SHEET LAB IDENT. #B DEPTH 30.8-31.5'

SAMPLED / / SET-UP 9/11/90 TESTED 9/11/90 (OFFICE)

MOISTURE & DENSITY	FIELD	TEST
WT. SOIL & 2 RINGS	691.61g	
WT. 2 RINGS	501.07g	
NET WT. SOIL	190.54g	
WET DENSITY LBS./CU./FT.	137.2	
WT. DISH # B1 & SOIL	43.86g	
DRY WT. SOIL & DISH	38.83g	
NET LOSS OF MOISTURE	5.03g	
WT. DISH	3.66g	
NET WT. OF DRY SOIL	35.17g	

TEST SET-UP		
LOAD		DEFLECTION
CONTINUOUS		INCREMENT
INCREASE		DECREASE
INCREMENT INTERVAL		MIN.
RECORDING INTERVAL		MIN.
LOAD INCREMENT		LBS./SQ. FT.
DEFLECTION INCREMENT		INCHES
LOADING SPEED		LBS./SQ.FT./MIN.
DEFLECTING SPEED	.018	INCHES/MIN.

TEST SUMMARY	
NORMAL PRESS. 1000 LBS./SQ. FT.	YIELD STRENGTH LBS./SQ. FT.
DRY DENSITY 120.1 LBS./CU. FT.	PEAK STRENGTH 6590 LBS./SQ. FT.
FIELD MOISTURE 14.3 % OF DRY WT.	ULTIMATE STR. 4175 LBS./SQ. FT.
TEST MOISTURE % OF DRY WT.	FRICTION STR. LBS./SQ. FT.

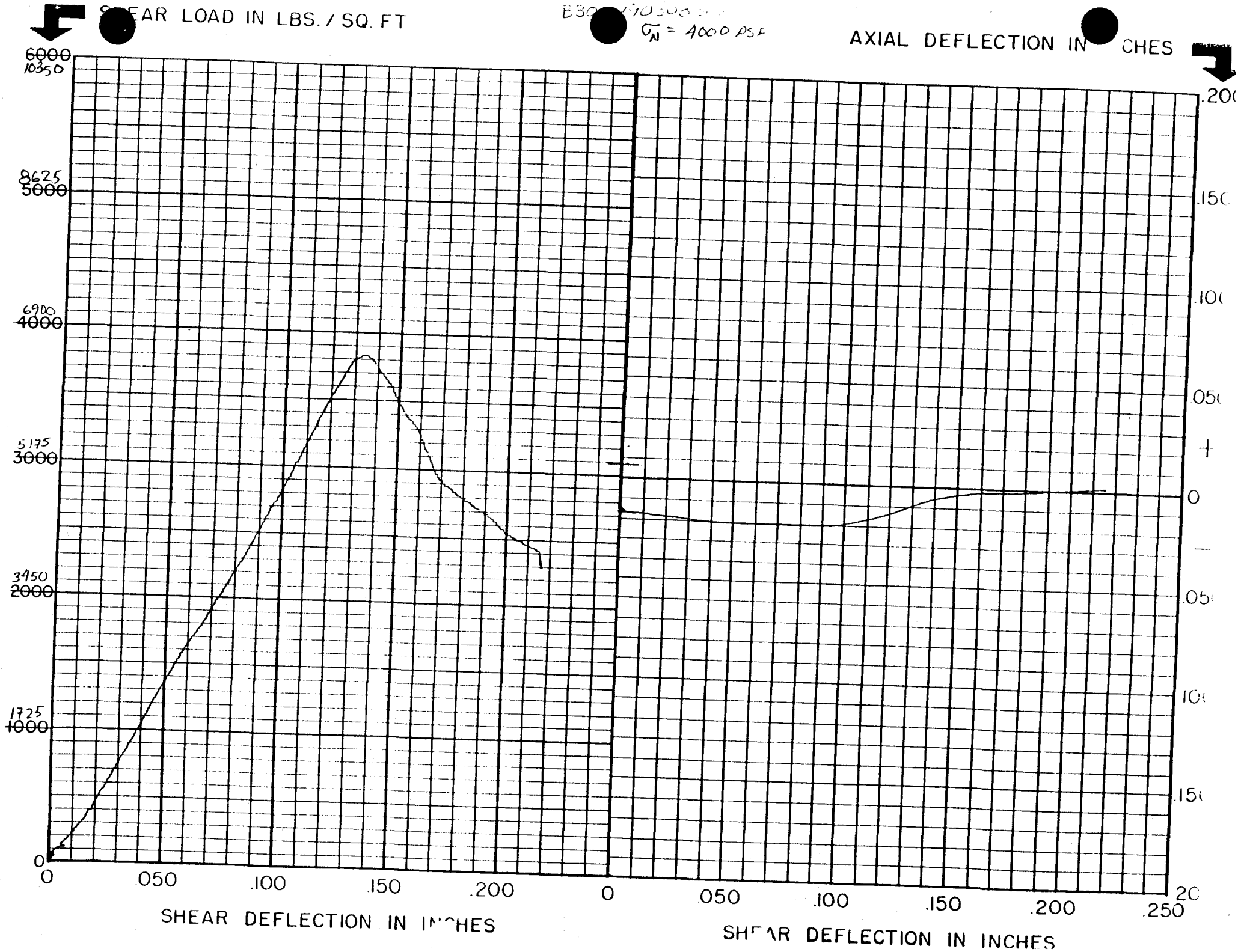
NOTES:

$D_0 = 1.835''$ $A_0 = 2.6446 in^2$

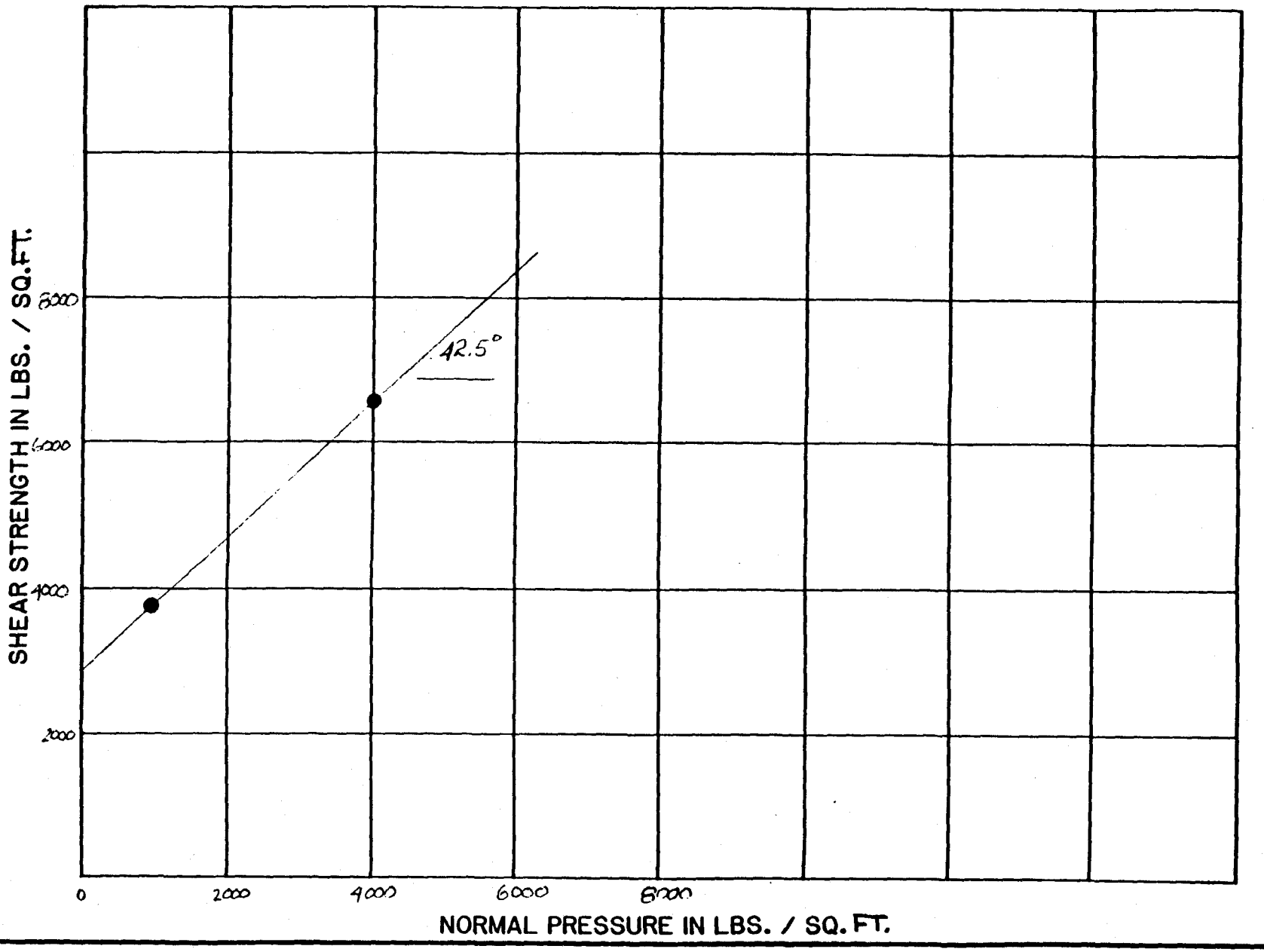
SCALE REDUCTION FACTOR = 1.7249

2-POINT TEST

FORM #857.34 (SA)


SHEAR LOAD IN LBS. / SQ. FT
σ_N = 4000 PSF
AXIAL DEFLECTION IN CHES
6000
10350
8625
5000
6900
4000
5175
3000
3450
2000
1725
1000
0
0
.050
.100
.150
.200
SHEAR DEFLECTION IN INCHES
0
.050
.100
.150
.200
.250
SHEAR DEFLECTION IN INCHES
.200
.150
.100
.050
+
0
—
.050
.100
.150
.200

DIRECT SHEAR TEST DATA



B 303790308315

PLOTTED @ PEAK SHEAR STRESS

DIRECT SHEAR TEST OWNER Weston LOCATION Rocky Flats JOB # 2066-01

FRICTION TEST SOIL TYPE 2.41" Liner EG&G BORING B303990141

DATA SHEET LAB IDENT. #A DEPTH 14-15'

SAMPLED ZR 7/17/90 SET-UP CW 9/8/90 TESTED CW 9/13/90 (OFFICE)

MOISTURE & DENSITY	FIELD	TEST
WT. SOIL & 2 RINGS	390.08g	
WT. 2 RINGS	92.32g	
NET WT. SOIL	297.76g	
WET DENSITY LBS./CU./FT.	124.3	
WT. DISH # 47 & SOIL	76.08g	
DRY WT. SOIL & DISH	64.71g	
NET LOSS OF MOISTURE	11.37g	
WT. DISH	3.66g	
NET WT. OF DRY SOIL	61.05g	

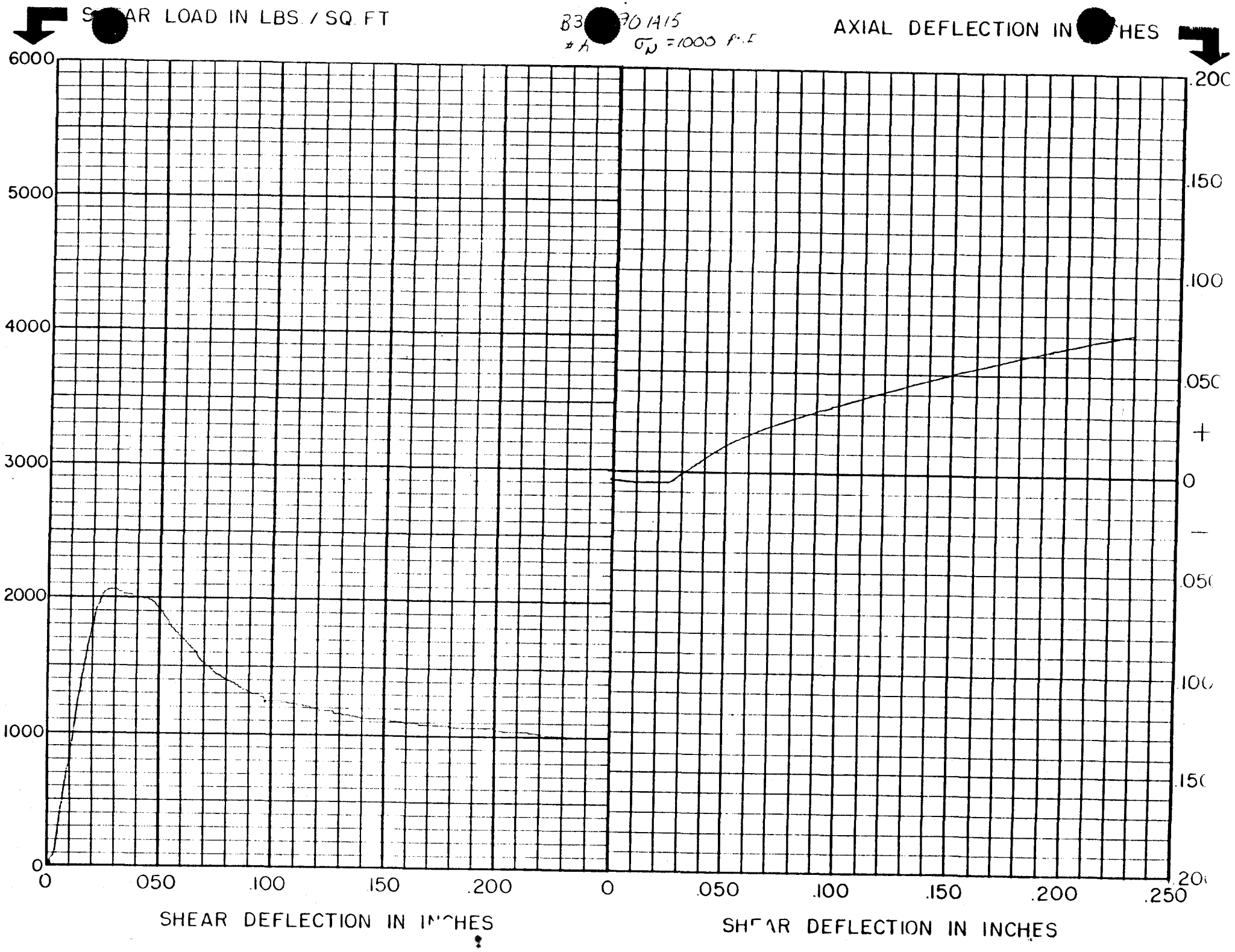
TEST SET-UP		
LOAD	☐ ☒	DEFLECTION
CONTINUOUS	☒ ☐	INCREMENT
INCREASE	☒ ☐	DECREASE
INCREMENT INTERVAL		MIN.
RECORDING INTERVAL		MIN.
LOAD INCREMENT		LBS./SQ. FT.
DEFLECTION INCREMENT		INCHES
LOADING SPEED		LBS./SQ.FT./MIN.
DEFLECTING SPEED	.02	INCHES/MIN.

TEST SUMMARY	
NORMAL PRESS. 1000 LBS./SQ. FT.	YIELD STRENGTH LBS./SQ. FT.
DRY DENSITY 104.8 LBS./CU. FT.	PEAK STRENGTH 2050 LBS./SQ. FT.
FIELD MOISTURE 18.6 % OF DRY WT.	ULTIMATE STR. 1000 LBS./SQ. FT.
TEST MOISTURE % OF DRY WT.	FRICTION STR. LBS./SQ. FT.

NOTES:

2-Point Test

FORM #857.34 (SA)


SHEAR LOAD IN LBS. / SQ. FT
AXIAL DEFLECTION IN INCHES
6000
5000
4000
3000
2000
1000
0
0
.050
.100
.150
.200
0
.050
.100
.150
.200
.250
.200
.150
.100
.050
+
0
−
.050
.100
.150
.200
SHEAR DEFLECTION IN INCHES
SHEAR DEFLECTION IN INCHES

DIRECT SHEAR TEST OWNER WESTON LOCATION ROCKY FLATS JOB # 2066-01

FRICTION TEST SOIL TYPE 2.41" LINER EG&G BORING B303990 14.15

DATA SHEET LAB IDENT. #B DEPTH 14-15'

SAMPLED ZR 7/17/90 SET-UP CJ 9/8/90 TESTED CJ 9/8/90 (OFFICE)

MOISTURE & DENSITY	FIELD	TEST
WT. SOIL & 2 RINGS	390.92g	
WT. 2 RINGS	93.01g	
NET WT. SOIL	297.91g	
WET DENSITY LBS./CU./FT.	124.3	
WT. DISH # 456 & SOIL	73.64g	
DRY WT. SOIL & DISH	61.84g	
NET LOSS OF MOISTURE	11.80g	
WT. DISH	3.72g	
NET WT. OF DRY SOIL	58.12g	

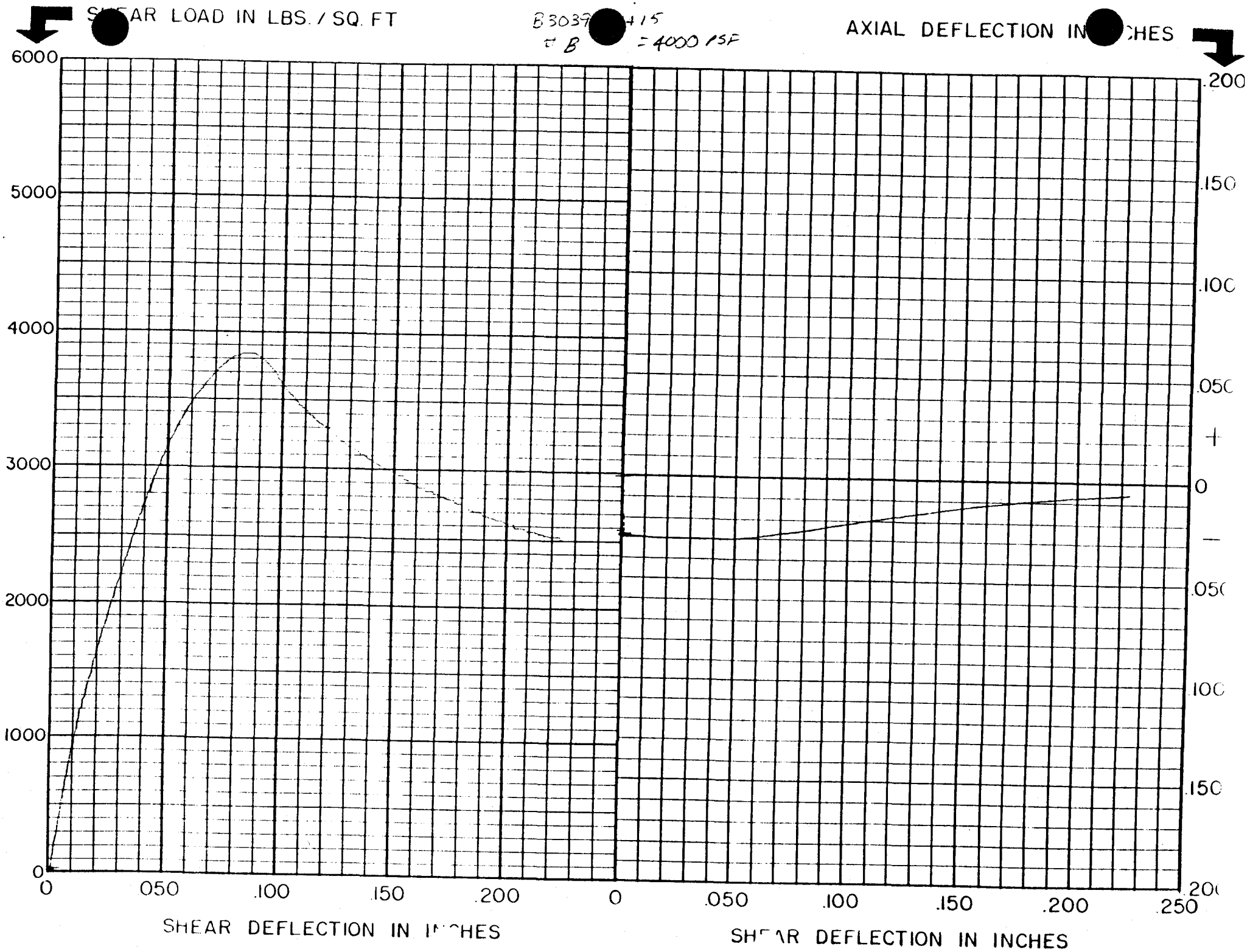
TEST SET-UP		
LOAD	☐ ☒	DEFLECTION
CONTINUOUS	☒ ☐	INCREMENT
INCREASE	☒ ☐	DECREASE
INCREMENT INTERVAL		MIN.
RECORDING INTERVAL		MIN.
LOAD INCREMENT		LBS./SQ. FT.
DEFLECTION INCREMENT		INCHES
LOADING SPEED		LBS./SQ.FT./MIN.
DEFLECTING SPEED	.02	INCHES/MIN.

TEST SUMMARY	
NORMAL PRESS. 4000 LBS./SQ. FT.	YIELD STRENGTH LBS./SQ. FT.
DRY DENSITY 103.3 LBS./CU. FT.	PEAK STRENGTH 2830 LBS./SQ. FT.
FIELD MOISTURE 20.3 % OF DRY WT.	ULTIMATE STR. 2530 LBS./SQ. FT.
TEST MOISTURE % OF DRY WT.	FRICTION STR. LBS./SQ. FT.

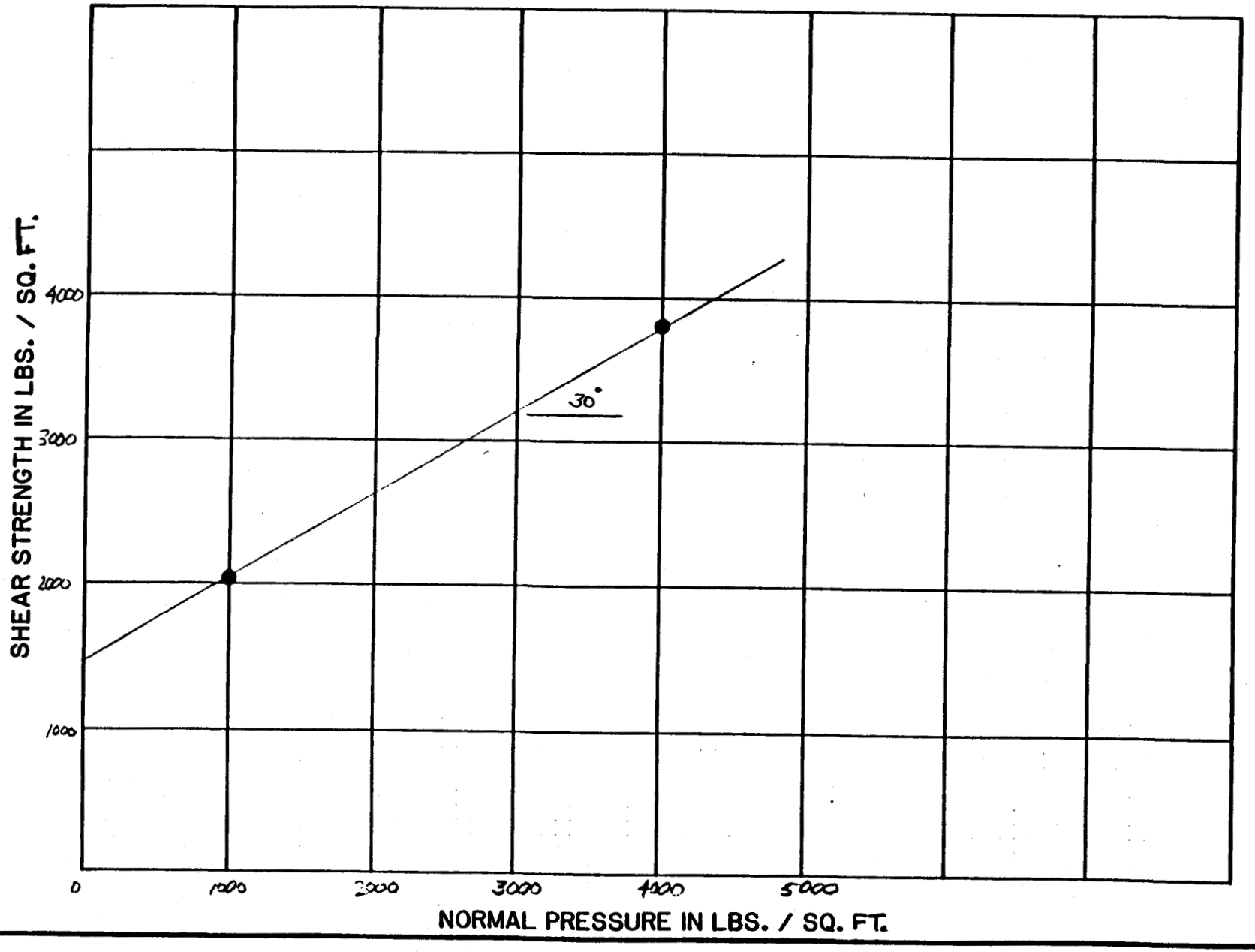
NOTES:

2-POINT TEST

FORM #857.34 (SA)


SHEAR LOAD IN LBS. / SQ. FT
B3039 415
τ B = 4000 PSF
AXIAL DEFLECTION IN INCHES
6000
5000
4000
3000
2000
1000
0
0
.050
.100
.150
.200
SHEAR DEFLECTION IN INCHES
0
.050
.100
.150
.200
.250
SHEAR DEFLECTION IN INCHES
.200
.150
.100
.050
+
0
−
.050
.100
.150
.200

DIRECT SHEAR TEST DATA



B3039901415

PLOTTED @ MAXIMUM SHEAR STRESS

DIRECT SHEAR TEST OWNER (WESTON) LOCATION ROCKY FLATS JOB # 2066-01

FRICTION TEST SOIL TYPE EG&G 2.41" LINER BORING B303790050

DATA SHEET LAB IDENT. #A DEPTH 6.5-7'

SAMPLED ZR 7/16/90 SET-UP CJ 9/3/90 TESTED CJ 9/3/90 (OFFICE)

MOISTURE & DENSITY	FIELD	TEST
WT. SOIL & 2 RINGS	352.29g	
WT. 2 RINGS	92.52g	
NET WT. SOIL	259.77g	
WET DENSITY LBS./CU./FT.	108.5	
WT. DISH # E67 & SOIL	78.95g	
DRY WT. SOIL & DISH	69.56g	
NET LOSS OF MOISTURE	9.39g	
WT. DISH	3.82g	
NET WT. OF DRY SOIL	65.74g	

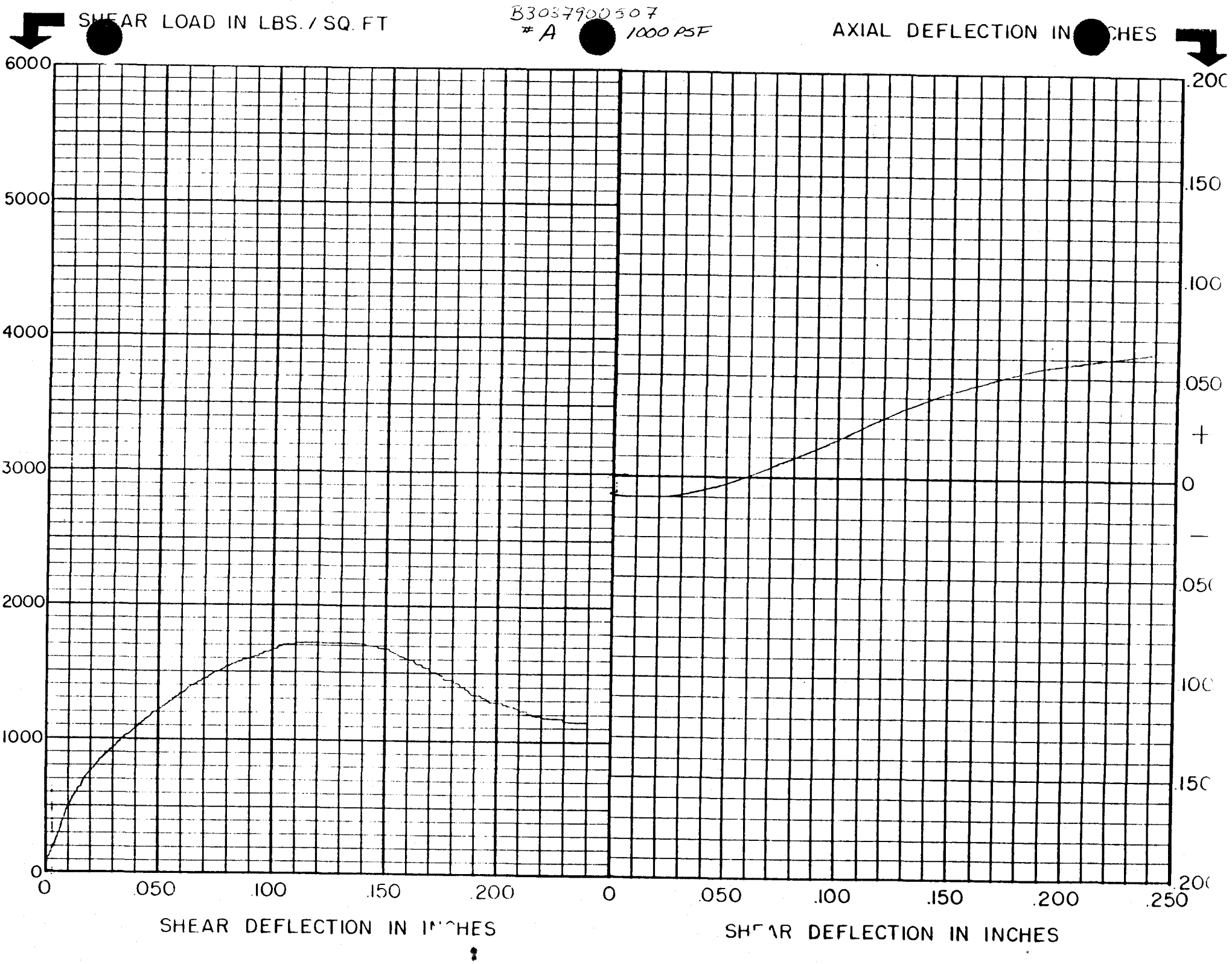
TEST SET-UP		
LOAD		DEFLECTION
CONTINUOUS		INCREMENT
INCREASE		DECREASE
INCREMENT INTERVAL		MIN.
RECORDING INTERVAL		MIN.
LOAD INCREMENT		LBS./SQ. FT.
DEFLECTION INCREMENT		INCHES
LOADING SPEED		LBS./SQ.FT./MIN.
DEFLECTING SPEED	.02	INCHES/MIN.

TEST SUMMARY	
NORMAL PRESS. 1000 LBS./SQ. FT.	YIELD STRENGTH LBS./SQ. FT.
DRY DENSITY 94.9 LBS./CU. FT.	PEAK STRENGTH 1720 LBS./SQ. FT.
FIELD MOISTURE 14.3 % OF DRY WT.	ULTIMATE STR. 1140 LBS./SQ. FT.
TEST MOISTURE % OF DRY WT.	FRICTION STR. LBS./SQ. FT.

NOTES:

GRAVELLY CLAY SAMPLE, SOME VOIDS PRESENT

FORM #857.34 (SA)


SHEAR LOAD IN LBS. / SQ. FT
B3037900307
#A
1000 PSF
AXIAL DEFLECTION IN INCHES
6000
5000
4000
3000
2000
1000
0
.200
.150
.100
.050
+
0
—
.050
.100
.150
.200
0
.050
.100
.150
.200
.250
SHEAR DEFLECTION IN INCHES
SHEAR DEFLECTION IN INCHES

DIRECT SHEAR TEST

_____FRICTION TEST

DATA SHEET

OWNER WESTON LOCATION ROCKY FLATS JOB # 2066-01

SOIL TYPE 2.41" LINER EGAG BORING B303790050

LAB IDENT. #B DEPTH 6.5-7'

SAMPLED ZR 7/16/90 SET-UP CW 9/3/90 TESTED CW 9/3/90 (____OFFICE)

MOISTURE & DENSITY	FIELD	TEST
WT. SOIL & 2 RINGS	370.81g	
WT. 2 RINGS	92.62g	
NET WT. SOIL	278.22g	
WET DENSITY LBS./CU./FT.	116.2	
WT. DISH # 202 & SOIL	62.37g	
DRY WT. SOIL & DISH	53.72g	
NET LOSS OF MOISTURE	8.65g	
WT. DISH	3.63g	
NET WT. OF DRY SOIL	50.09	

TEST SET-UP		
LOAD	☐ ☒	DEFLECTION
CONTINUOUS	☒ ☐	INCREMENT
INCREASE	☒ ☐	DECREASE
INCREMENT INTERVAL		MIN.
RECORDING INTERVAL		MIN.
LOAD INCREMENT		LBS./SQ. FT.
DEFLECTION INCREMENT		INCHES
LOADING SPEED		LBS./SQ.FT./MIN.
DEFLECTING SPEED	.02	INCHES/MIN.

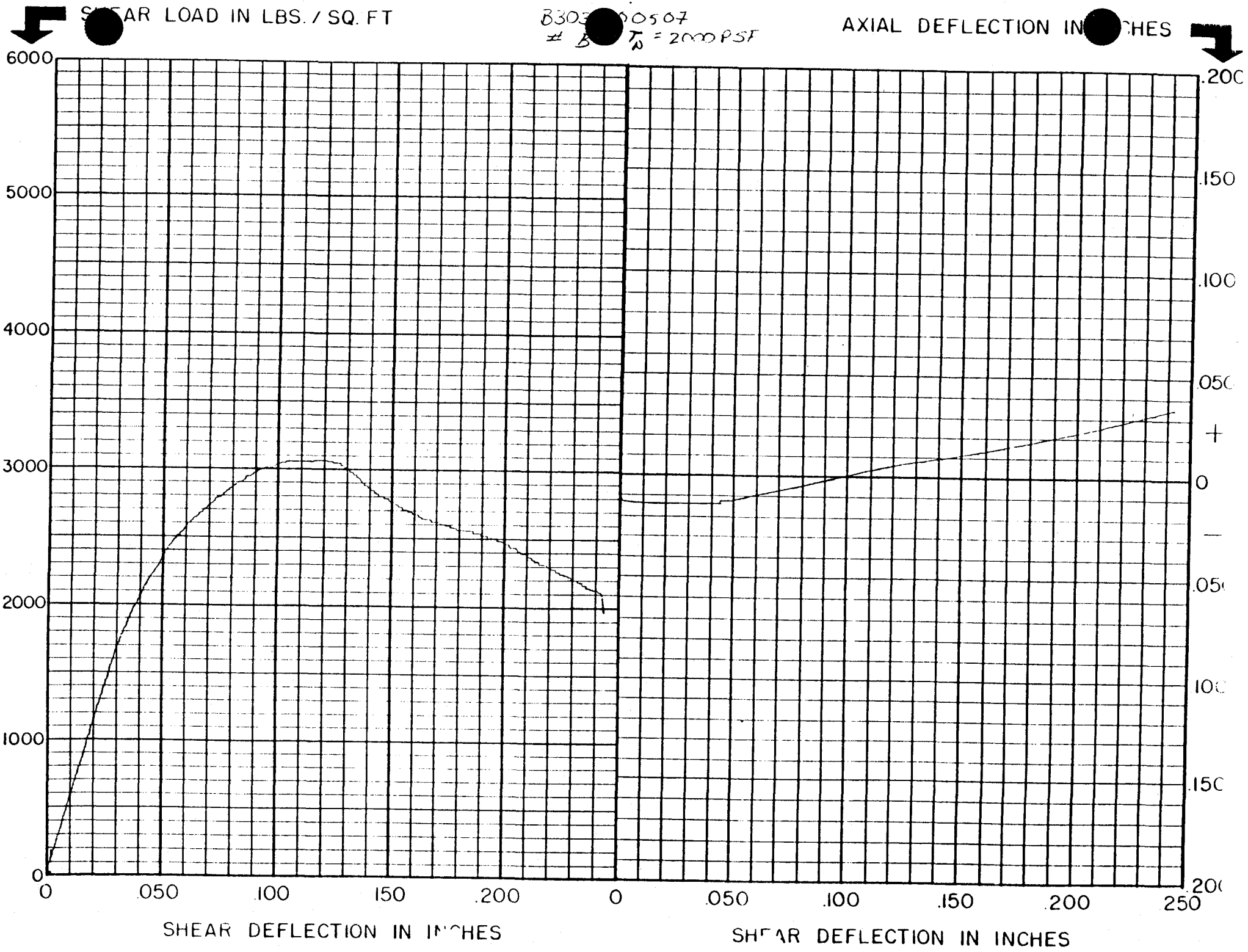
TEST SUMMARY	
NORMAL PRESS. 2000 LBS./SQ. FT.	YIELD STRENGTH ____ LBS./SQ. FT.
DRY DENSITY 99.1 LBS./CU. FT.	PEAK STRENGTH 3060 LBS./SQ. FT.
FIELD MOISTURE 17.3 % OF DRY WT.	ULTIMATE STR. 2120 LBS./SQ. FT.
TEST MOISTURE ____ % OF DRY WT.	FRICTION STR. ____ LBS./SQ. FT.

NOTES:

GRAVELLY CLAY SPECIMEN

VOIDS PRESENT

FORM #857.34 (SA)


SHEAR LOAD IN LBS. / SQ. FT
B303 0507
B τ_D = 2000 PSF
AXIAL DEFLECTION IN INCHES
6000
5000
4000
3000
2000
1000
0
0
.050
.100
.150
.200
0
.050
.100
.150
.200
250
.200
.150
.100
.050
+
0
—
.050
.100
.150
.200
SHEAR DEFLECTION IN INCHES
SHEAR DEFLECTION IN INCHES

DIRECT SHEAR TEST OWNER Weston LOCATION Rocky Flats JOB # 2066-01

FRICTION TEST SOIL TYPE 2.41" Liner E G & G BORING B303790050

DATA SHEET LAB IDENT. #C DEPTH 6.5-7'

SAMPLED ZR 7/16/90 SET-UP CJ 9/3/90 TESTED CJ 9/3/90 (OFFICE)

MOISTURE & DENSITY	FIELD	TEST
WT. SOIL & 2 RINGS	371.84g	
WT. 2 RINGS	92.92g	
NET WT. SOIL	278.92g	
WET DENSITY LBS./CU./FT.	116.5	
WT. DISH # 575 & SOIL	66.53g	
DRY WT. SOIL & DISH	57.73g	
NET LOSS OF MOISTURE	8.80g	
WT. DISH	3.72g	
NET WT. OF DRY SOIL	54.01g	

TEST SET-UP		
LOAD	☐ ☐	DEFLECTION
CONTINUOUS	☐ ☐	INCREMENT
INCREASE	☐ ☐	DECREASE
INCREMENT INTERVAL		MIN.
RECORDING INTERVAL		MIN.
LOAD INCREMENT		LBS./SQ. FT.
DEFLECTION INCREMENT		INCHES
LOADING SPEED		LBS./SQ.FT./MIN.
DEFLECTING SPEED	.02	INCHES/MIN.

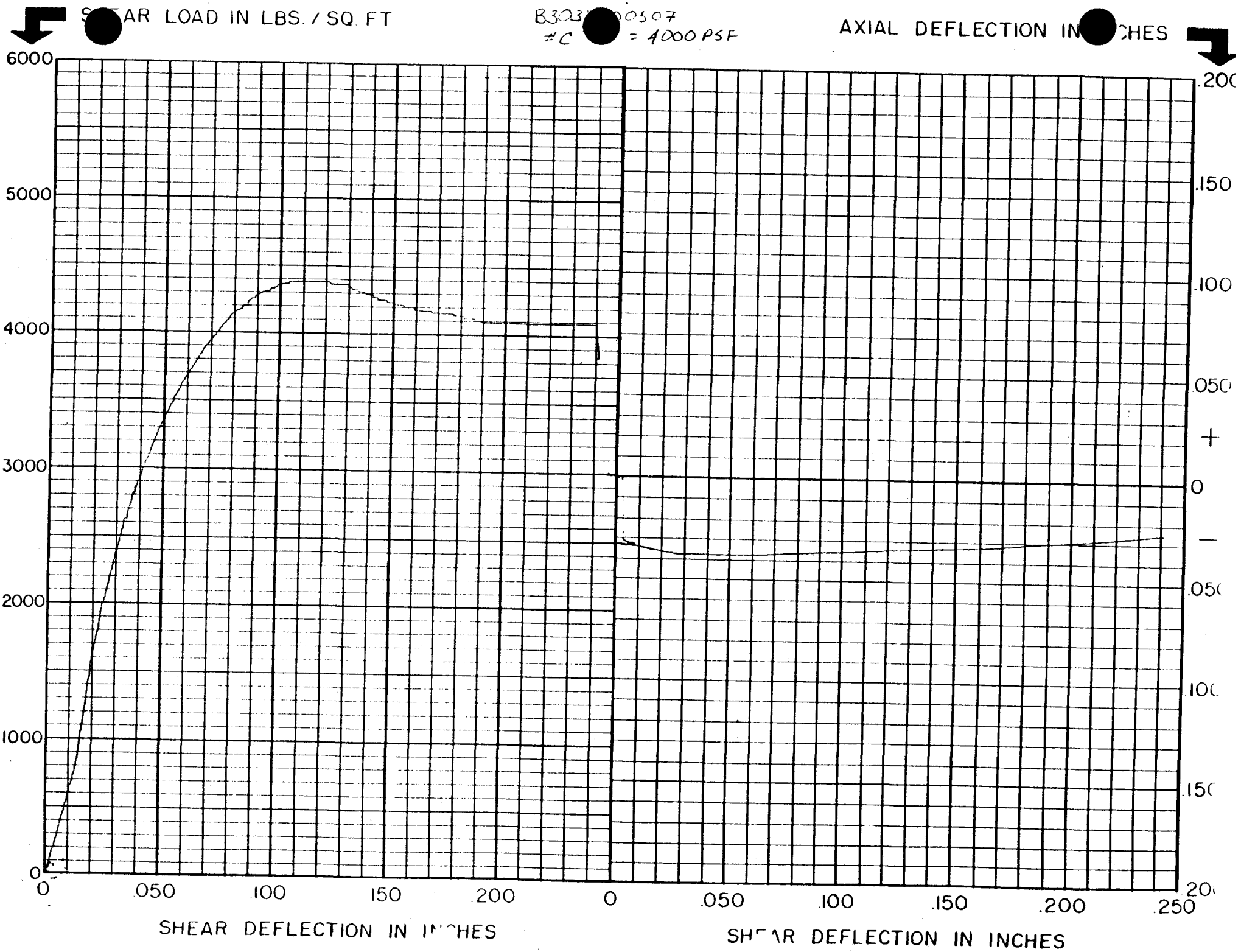
TEST SUMMARY	
NORMAL PRESS. 4000 LBS./SQ. FT.	YIELD STRENGTH LBS./SQ. FT.
DRY DENSITY 100.1 LBS./CU. FT.	PEAK STRENGTH 4380 LBS./SQ. FT.
FIELD MOISTURE 16.3 % OF DRY WT.	ULTIMATE STR. 4080 LBS./SQ. FT.
TEST MOISTURE % OF DRY WT.	FRICTION STR. LBS./SQ. FT.

NOTES:

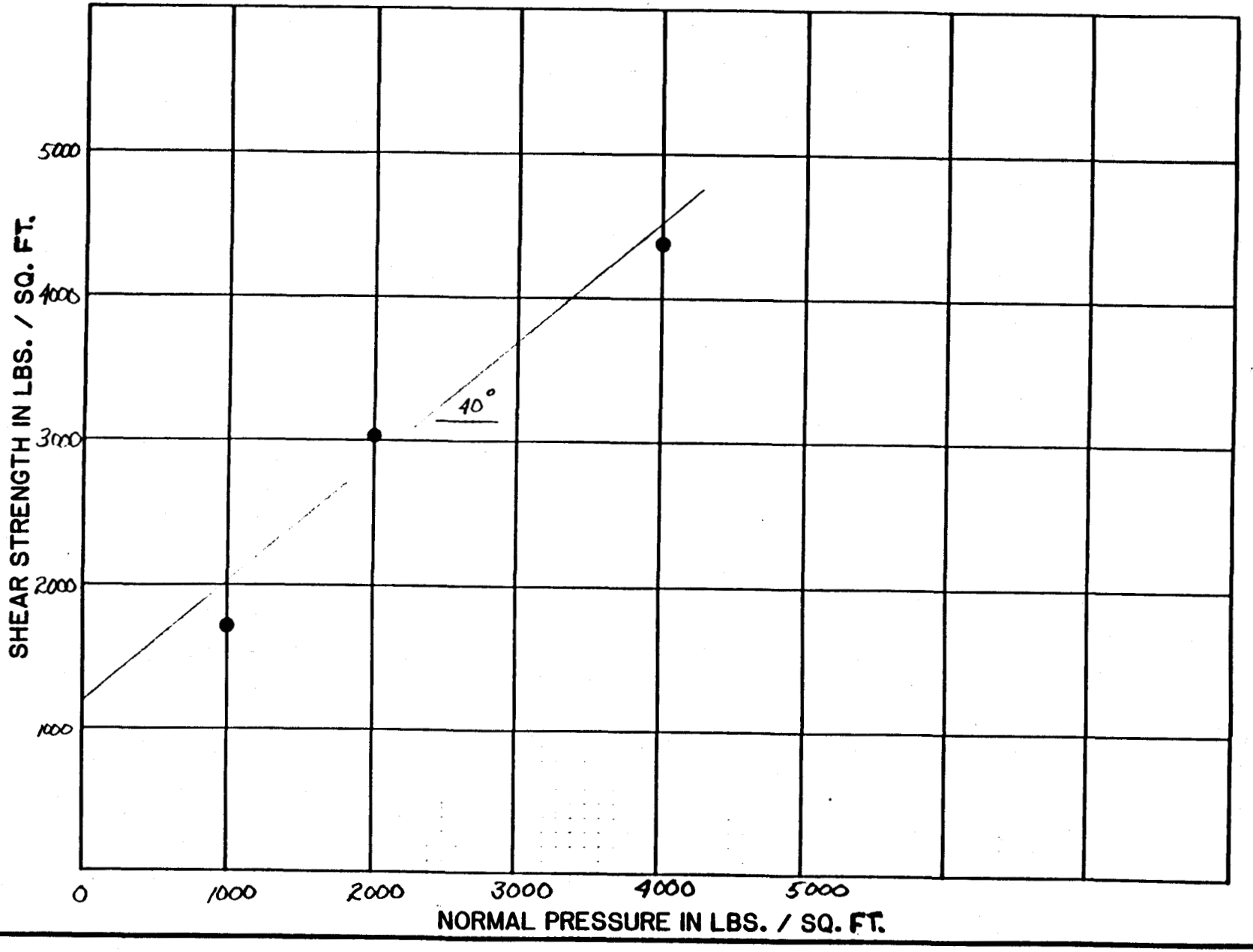
Gravelly Clay Specimen

Voids Present

FORM #857.34 (SA)


SHEAR LOAD IN LBS. / SQ. FT
B303 00507
#C = 4000 PSF
AXIAL DEFLECTION IN INCHES
6000
5000
4000
3000
2000
1000
0
0
.050
.100
.150
.200
SHEAR DEFLECTION IN INCHES
0
.050
.100
.150
.200
.250
SHEAR DEFLECTION IN INCHES
.200
.150
.100
.050
+
0
−
.050
.100
.150
.200

DIRECT SHEAR TEST DATA



B3037900507

PLOTTED @ MAXIMUM SHEAR STRESS

DIRECT SHEAR TEST OWNER WESTON LOCATION ROCKY FLATS JOB # 2066-01

FRICTION TEST SOIL TYPE CAL. LINER EG 1G BORING B303990405

DATA SHEET LAB IDENT. #A DEPTH 4-5'

SAMPLED ZR 7/17/90 SET-UP CJ 9/9 90 TESTED CJ 9/9 90 (OFFICE)

MOISTURE & DENSITY	FIELD	TEST
WT. SOIL & 2 RINGS	702.58g	
WT. 2 RINGS	501.07g	
NET WT. SOIL	201.51g	
WET DENSITY LBS./CU./FT.	130.1	
WT. DISH # 160 & SOIL	209.96g	
DRY WT. SOIL & DISH	173.49g	
NET LOSS OF MOISTURE	31.47g	
WT. DISH	3.83	
NET WT. OF DRY SOIL	169.66g	

TEST SET-UP		
LOAD		DEFLECTION
CONTINUOUS		INCREMENT
INCREASE		DECREASE
INCREMENT INTERVAL		MIN.
RECORDING INTERVAL		MIN.
LOAD INCREMENT		LBS./SQ. FT.
DEFLECTION INCREMENT		INCHES
LOADING SPEED		LBS./SQ.FT./MIN.
DEFLECTING SPEED	.019	INCHES/MIN.

TEST SUMMARY	
NORMAL PRESS. 1000 LBS./SQ. FT.	YIELD STRENGTH LBS./SQ. FT.
DRY DENSITY 109.8 LBS./CU. FT.	PEAK STRENGTH 4963 LBS./SQ. FT.
FIELD MOISTURE 18.5 % OF DRY WT.	ULTIMATE STR. 4963 LBS./SQ. FT.
TEST MOISTURE % OF DRY WT.	FRICTION STR. LBS./SQ. FT.

NOTES:

TRIMMED TO CALIFORNIA SIZE

REDUCTION FACTOR = 1.5464

ROCK IN SHEAR ZONE

FORM #857.34 (SA)

S[illegible]AR LOAD IN LBS / SQ. FT
B303[illegible]0405
A [illegible] =1000 PSF
AXIAL DEFLECTION IN [illegible]HES
6000
9279
7732
5000
6185
4000
4639
3000
3092
2000
1546
1000
0
.200
.150
.100
.050
+
0
−
.050
.100
.150
.200
0
.050
.100
.150
.200
SHEAR DEFLECTION IN IN[illegible]HES
0
.050
.100
.150
.200
.250
SH[illegible]AR DEFLECTION IN INCHES

DIRECT SHEAR TEST OWNER Weston LOCATION Rocky Flats JOB # 2066-01

FRICTION TEST SOIL TYPE Cal. Liner EG&G BORING B303990 0405

DATA SHEET LAB IDENT. #B DEPTH 4-5'

SAMPLED ZR 7/17/90 SET-UP CJ 9/9/90 TESTED CJ 9/9/90 (OFFICE)

MOISTURE & DENSITY	FIELD	TEST
WT. SOIL & 2 RINGS	707.80g	
WT. 2 RINGS	501.07g	
NET WT. SOIL	206.73g	
WET DENSITY LBS./CU./FT.	133.5	
WT. DISH # 94 & SOIL	210.9g	
DRY WT. SOIL & DISH	179.88g	
NET LOSS OF MOISTURE	30.13g	
WT. DISH	3.67g	
NET WT. OF DRY SOIL	176.21g	

TEST SET-UP		
LOAD	☐ ☒	DEFLECTION
CONTINUOUS	☒ ☐	INCREMENT
INCREASE	☒ ☐	DECREASE
INCREMENT INTERVAL		MIN.
RECORDING INTERVAL		MIN.
LOAD INCREMENT		LBS./SQ. FT.
DEFLECTION INCREMENT		INCHES
LOADING SPEED		LBS./SQ.FT./MIN.
DEFLECTING SPEED	.019	INCHES/MIN.

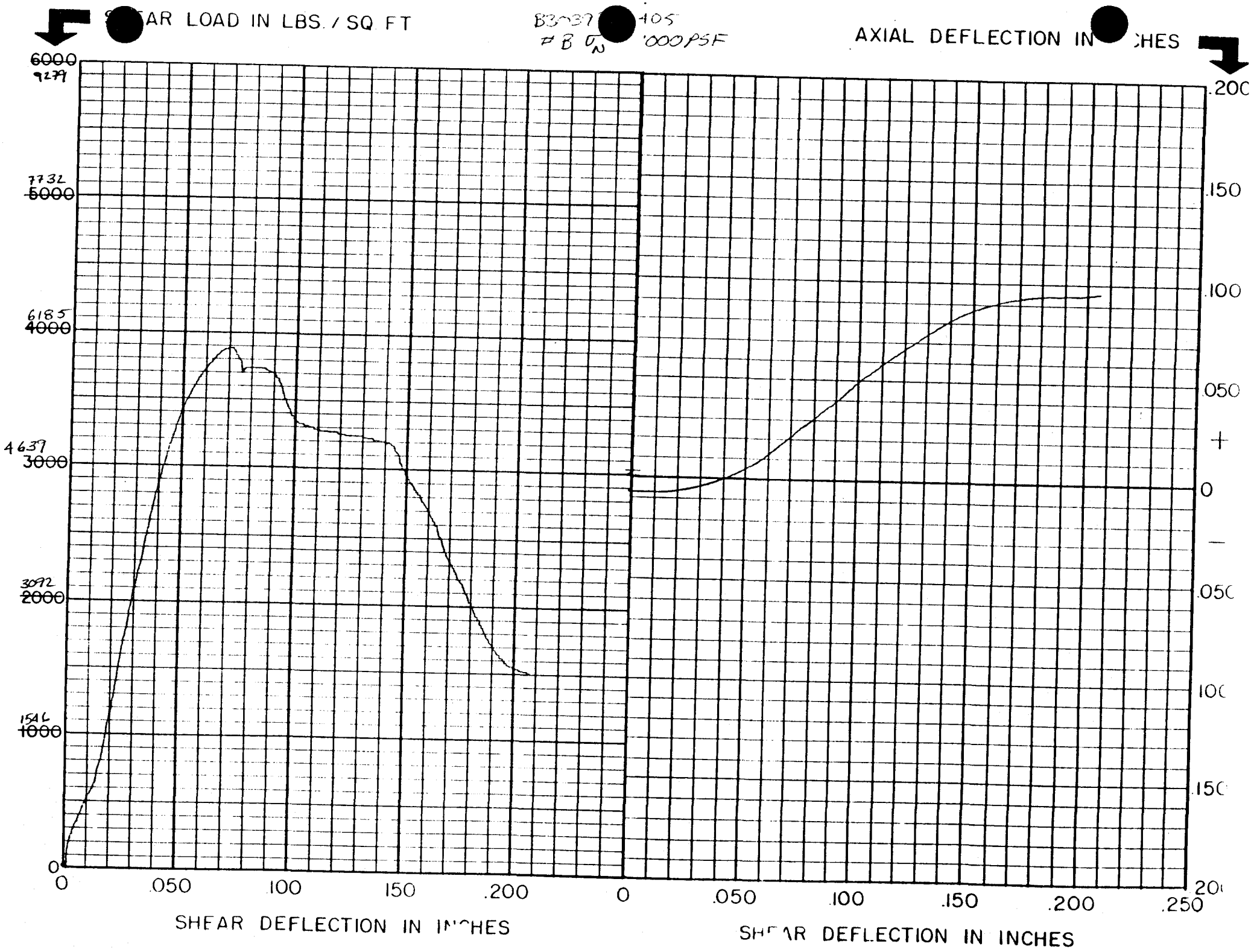
TEST SUMMARY	
NORMAL PRESS. 2000 LBS./SQ. FT.	YIELD STRENGTH ___ LBS./SQ. FT.
DRY DENSITY 114.0 LBS./CU. FT.	PEAK STRENGTH 601.5 LBS./SQ. FT.
FIELD MOISTURE 17.1 % OF DRY WT.	ULTIMATE STR. 231.9 LBS./SQ. FT.
TEST MOISTURE ___ % OF DRY WT.	FRICTION STR. ___ LBS./SQ. FT.

NOTES:

TRIMMED TO CALIFORNIA SIZE

REDUCTION FACTOR = 1.5464

FORM #857.34 (SA)


SHEAR LOAD IN LBS. / SQ. FT
B3037 405
#B σ_N 1000PSF
AXIAL DEFLECTION IN INCHES
6000
9279
7732
5000
6185
4000
4639
3000
3092
2000
1546
1000
0
.050
.100
.150
.200
SHEAR DEFLECTION IN INCHES
.200
.150
.100
.050
+
0
−
.050
.100
.150
.200
.250
SHEAR DEFLECTION IN INCHES

DIRECT SHEAR TEST OWNER WESTON LOCATION ROCKY FLATS JOB # 2066-01

FRICTION TEST SOIL TYPE CAL. LINER EG&G BORING B303990C40

DATA SHEET LAB IDENT. #C DEPTH 4-5'

SAMPLED ZR 7/17/90 SET-UP CW 9/9/90 TESTED CW 9/9/90 (OFFICE)

MOISTURE & DENSITY	FIELD	TEST
WT. SOIL & 2 RINGS	701.96g	
WT. 2 RINGS	501.07g	
NET WT. SOIL	200.89g	
WET DENSITY LBS./CU./FT.	129.7	
WT. DISH # 80 & SOIL	204.02g	
DRY WT. SOIL & DISH	175.81g	
NET LOSS OF MOISTURE	28.21g	
WT. DISH	3.67g	
NET WT. OF DRY SOIL	172.14g	

TEST SET-UP		
LOAD	☐ ☒	DEFLECTION
CONTINUOUS	☒ ☐	INCREMENT
INCREASE	☒ ☐	DECREASE
INCREMENT INTERVAL		MIN.
RECORDING INTERVAL		MIN.
LOAD INCREMENT		LBS./SQ. FT.
DEFLECTION INCREMENT		INCHES
LOADING SPEED		LBS./SQ.FT./MIN.
DEFLECTING SPEED		INCHES/MIN.

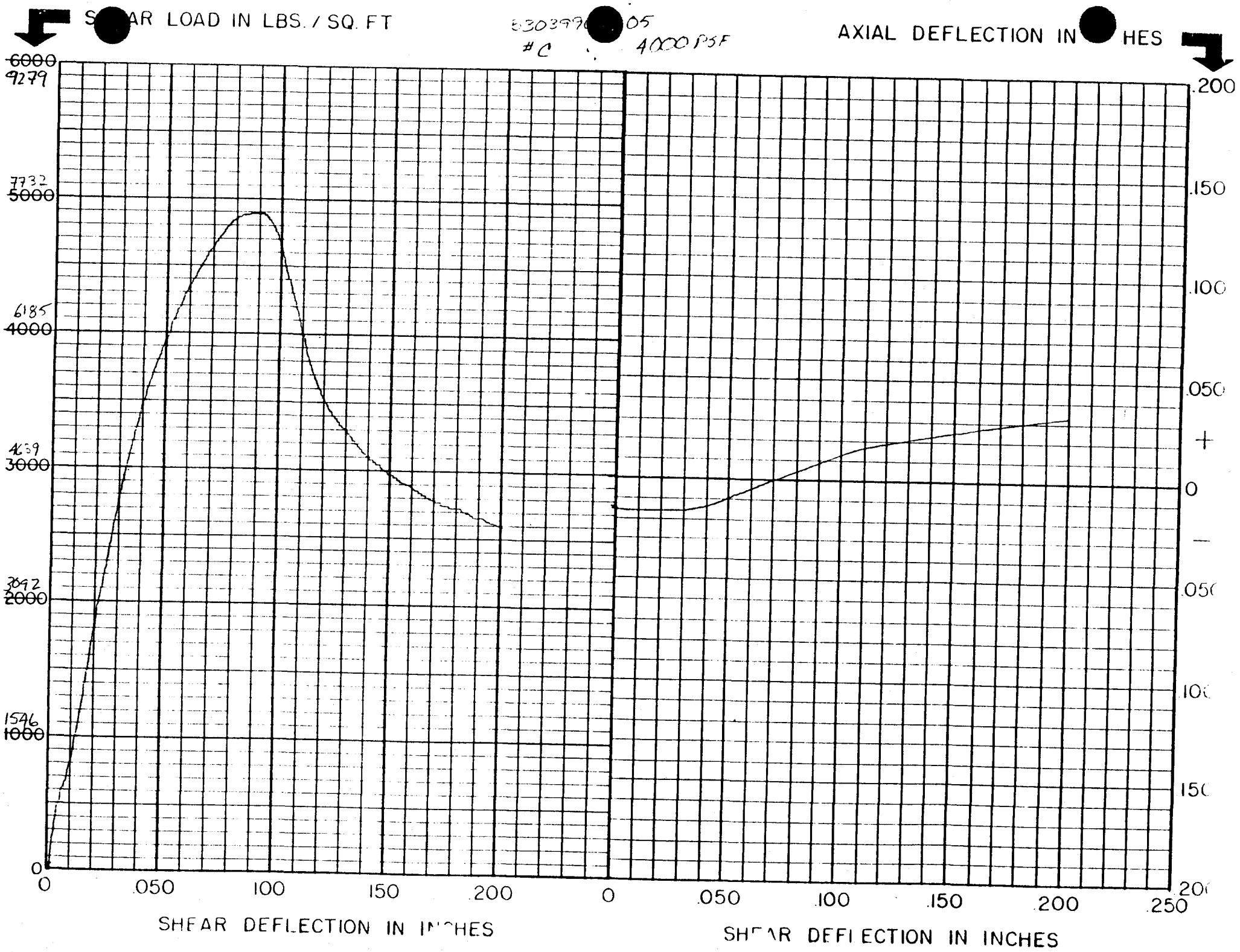
TEST SUMMARY	
NORMAL PRESS. 4000 LBS./SQ. FT.	YIELD STRENGTH LBS./SQ. FT.
DRY DENSITY 111.4 LBS./CU. FT.	PEAK STRENGTH 3577 LBS./SQ. FT.
FIELD MOISTURE 16.4 % OF DRY WT.	ULTIMATE STR. 4020 LBS./SQ. FT.
TEST MOISTURE % OF DRY WT.	FRICTION STR. LBS./SQ. FT.

NOTES:

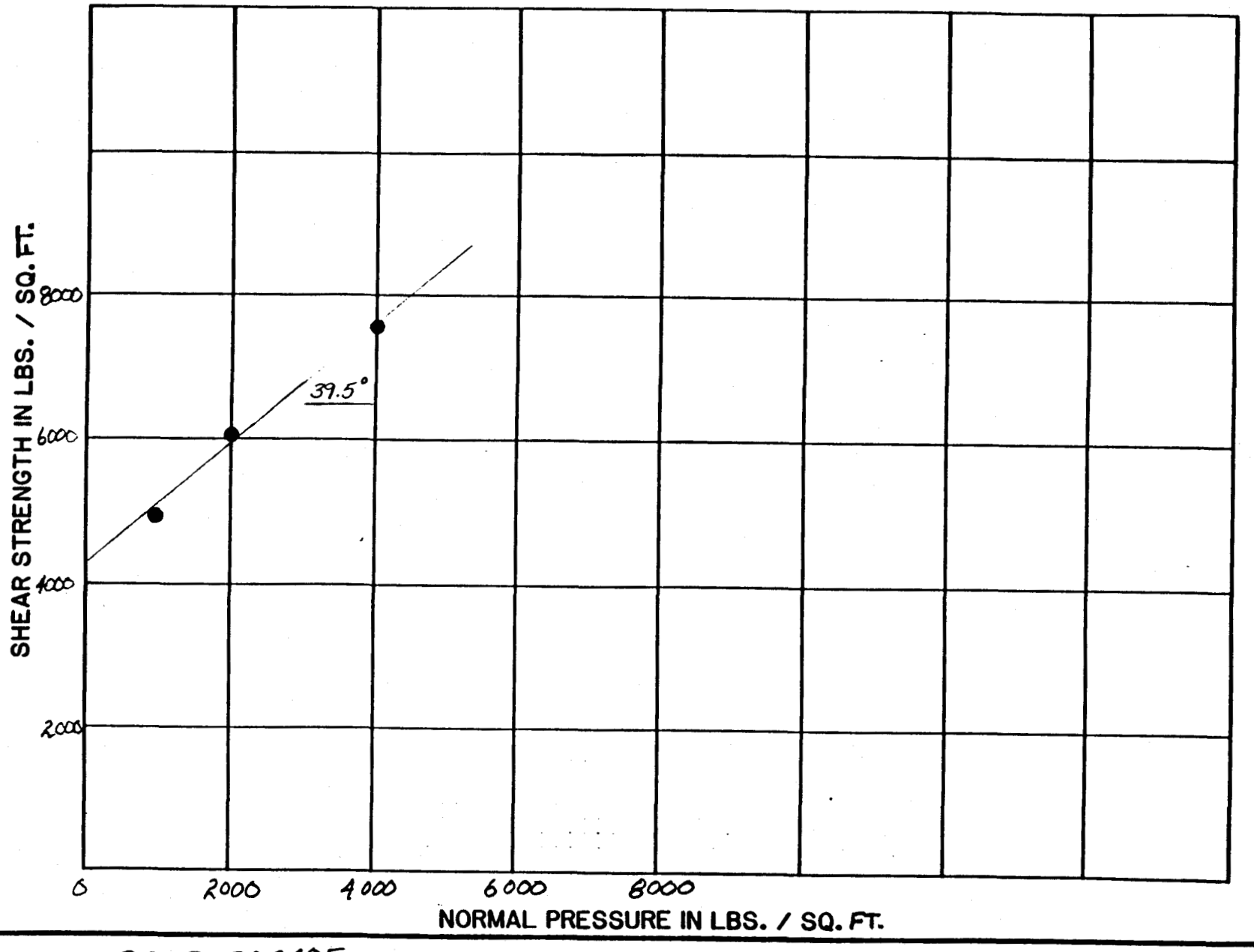
TRIMMED TO CALIFORNIA SIZE

REDUCTION FACTOR = 1.5164

FORM #857.34 (SA)


SHEAR LOAD IN LBS. / SQ. FT
830397 05
#C
4000 PSF
AXIAL DEFLECTION IN HES
6000
9279
7732
5000
6185
4000
4639
3000
3092
2000
1546
1000
0
0
.050
100
150
.200
SHEAR DEFLECTION IN INCHES
0
.050
.100
.150
.200
.250
SHEAR DEFLECTION IN INCHES
.200
.150
.100
.050
+
0
—
.050
100
150
200

DIRECT SHEAR TEST DATA



B3039900405
PLOTTED @ MAXIMUM SHEAR STRESS

DIRECT SHEAR TEST

_____ FRICTION TEST

DATA SHEET

OWNER: WESTON LOCATION: ROCKY FLATS JOB #: 2066-01

SOIL TYPE: 2.41" LINER BORING: B303790111 2

LAB IDENT.: #A DEPTH: 11-12'

SAMPLED: ZR 7/17/90 SET-UP: CJ 9/8/90 TESTED: CJ 9/8/90 (____ OFFICE)

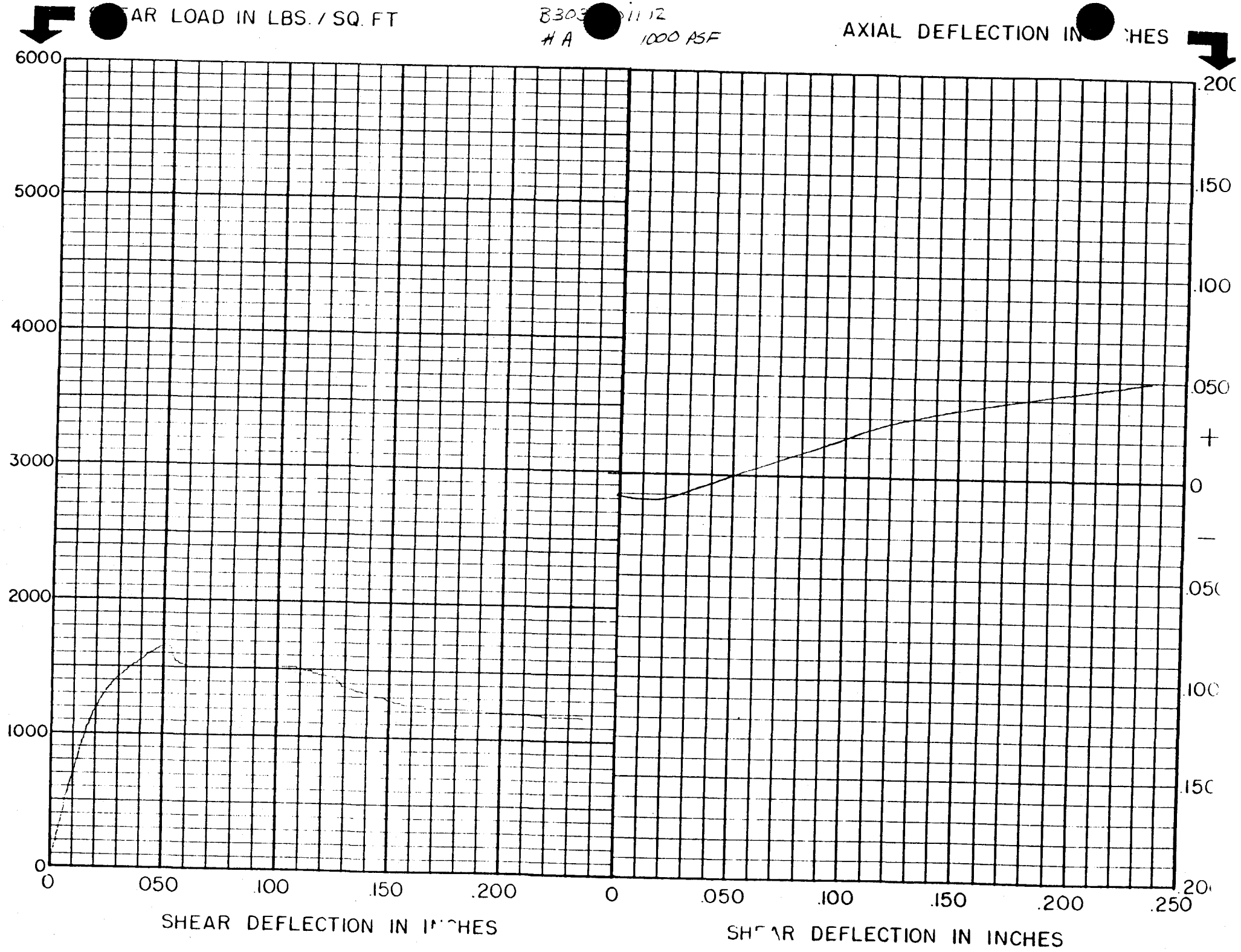
MOISTURE & DENSITY	FIELD	TEST
WT. SOIL & 2 RINGS	393.77g	
WT. 2 RINGS	91.78g	
NET WT. SOIL	301.99g	
WET DENSITY LBS./CU./FT.	126.1	
WT. DISH # 977 & SOIL	70.54g	
DRY WT. SOIL & DISH	61.57g	
NET LOSS OF MOISTURE	8.97g	
WT. DISH	3.70g	
NET WT. OF DRY SOIL	57.87g	

TEST SET-UP		
LOAD		DEFLECTION
CONTINUOUS		INCREMENT
INCREASE		DECREASE
INCREMENT INTERVAL		MIN.
RECORDING INTERVAL		MIN.
LOAD INCREMENT		LBS./SQ. FT.
DEFLECTION INCREMENT		INCHES
LOADING SPEED		LBS./SQ.FT./MIN.
DEFLECTING SPEED	.02	INCHES/MIN.

TEST SUMMARY	
NORMAL PRESS. 1000 LBS./SQ. FT.	YIELD STRENGTH ____ LBS./SQ. FT.
DRY DENSITY 109.2 LBS./CU. FT.	PEAK STRENGTH 1660 LBS./SQ. FT.
FIELD MOISTURE 15.5 % OF DRY WT.	ULTIMATE STR. 1180 LBS./SQ. FT.
TEST MOISTURE ____ % OF DRY WT.	FRICTION STR. ____ LBS./SQ. FT.

NOTES:

FORM #857.34 (SA)


AR LOAD IN LBS. / SQ. FT
B303 11 12
A 1000 PSF
AXIAL DEFLECTION IN CHES
6000
5000
4000
3000
2000
1000
0
0
050
.100
.150
.200
SHEAR DEFLECTION IN INCHES
0
.050
.100
.150
.200
.250
SHEAR DEFLECTION IN INCHES
.200
.150
.100
.050
+
0
—
.050
.100
.150

DIRECT SHEAR TEST

_____ FRICTION TEST

DATA SHEET

OWNER WESTON LOCATION ROCKY FLATS JOB # 2066-01

SOIL TYPE 2.41" LINER EG&G BORING B3039901112

LAB IDENT. #B DEPTH 11-12'

SAMPLED ZR 7/17/90 SET-UP CW 9/8/90 TESTED DJ 9/8/90 (____ OFFICE)

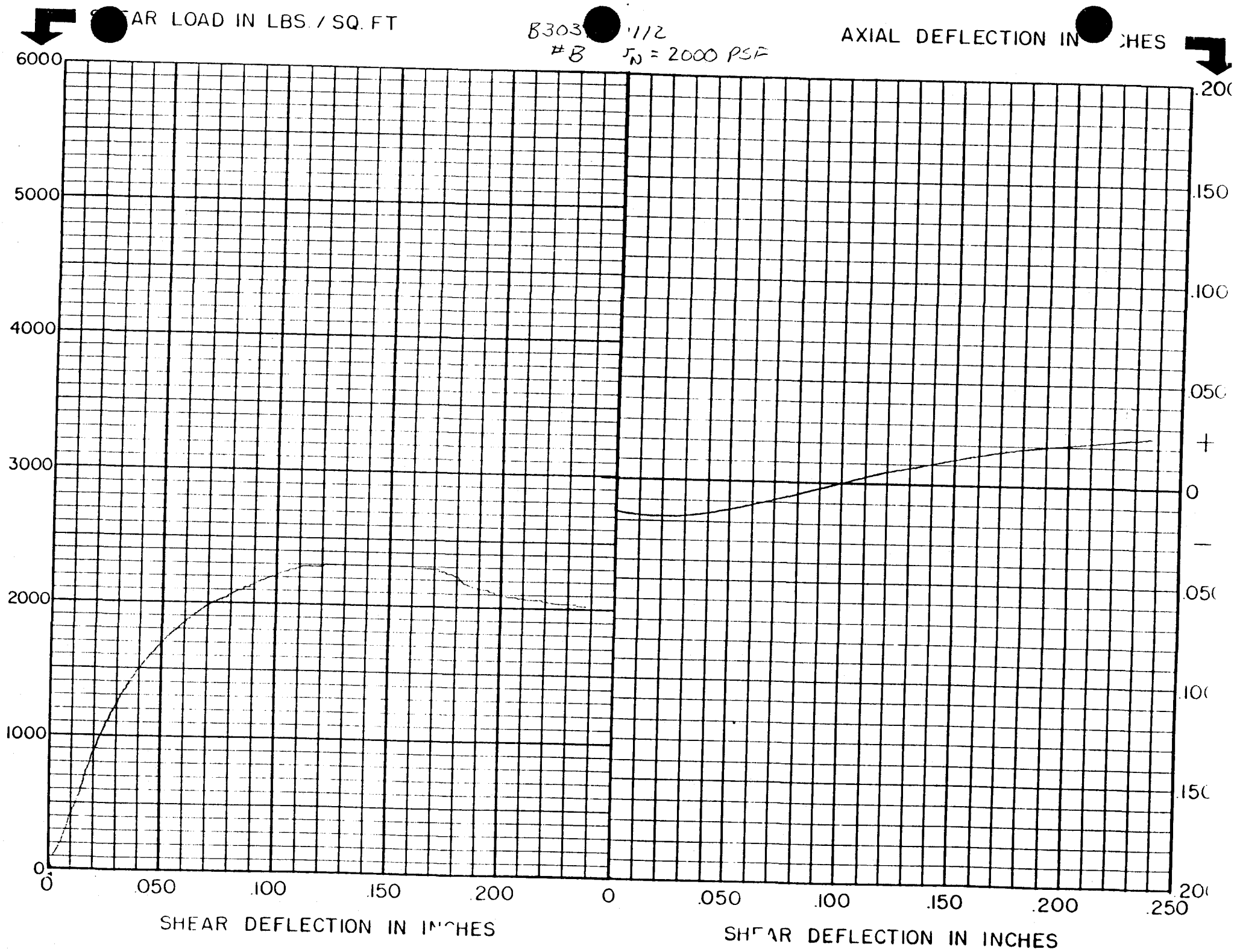
MOISTURE & DENSITY	FIELD	TEST
WT. SOIL & 2 RINGS	380.08g	
WT. 2 RINGS	91.45g	
NET WT. SOIL	288.63g	
WET DENSITY LBS./CU./FT.	120.5	
WT. DISH # 602 & SOIL	85.90g	
DRY WT. SOIL & DISH	74.39g	
NET LOSS OF MOISTURE	11.51g	
WT. DISH	3.74g	
NET WT. OF DRY SOIL	70.65g	

TEST SET-UP		
LOAD	☐ ☒	DEFLECTION
CONTINUOUS	☒ ☐	INCREMENT
INCREASE	☒ ☐	DECREASE
INCREMENT INTERVAL		MIN.
RECORDING INTERVAL		MIN.
LOAD INCREMENT		LBS./SQ. FT.
DEFLECTION INCREMENT		INCHES
LOADING SPEED		LBS./SQ.FT./MIN.
DEFLECTING SPEED	.02	INCHES/MIN.

TEST SUMMARY	
NORMAL PRESS. 2000 LBS./SQ. FT.	YIELD STRENGTH ____ LBS./SQ. FT.
DRY DENSITY 103.6 LBS./CU. FT.	PEAK STRENGTH 2300 LBS./SQ. FT.
FIELD MOISTURE 16.3 % OF DRY WT.	ULTIMATE STR. 2020 LBS./SQ. FT.
TEST MOISTURE ____ % OF DRY WT.	FRICTION STR. ____ LBS./SQ. FT.

NOTES:

FORM #857.34 (SA)


SHEAR LOAD IN LBS. / SQ. FT
B303 1/2
#B
σ_N = 2000 PSF
AXIAL DEFLECTION IN CHES
6000
5000
4000
3000
2000
1000
0
.200
.150
.100
.050
+
0
−
.050
.100
.150
.200
0
.050
.100
.150
.200
0
.050
.100
.150
.200
.250
SHEAR DEFLECTION IN INCHES
SHEAR DEFLECTION IN INCHES

DIRECT SHEAR TEST OWNER Weston LOCATION Rocky Flats JOB # 2066-01

FRICTION TEST SOIL TYPE 2.41" Liner EG&G BORING B303990 11/12

DATA SHEET LAB IDENT. #C DEPTH 11-12'

SAMPLED ZR 7/17/90 SET-UP DJ 9/8/90 TESTED DJ 9/8/90 (OFFICE)

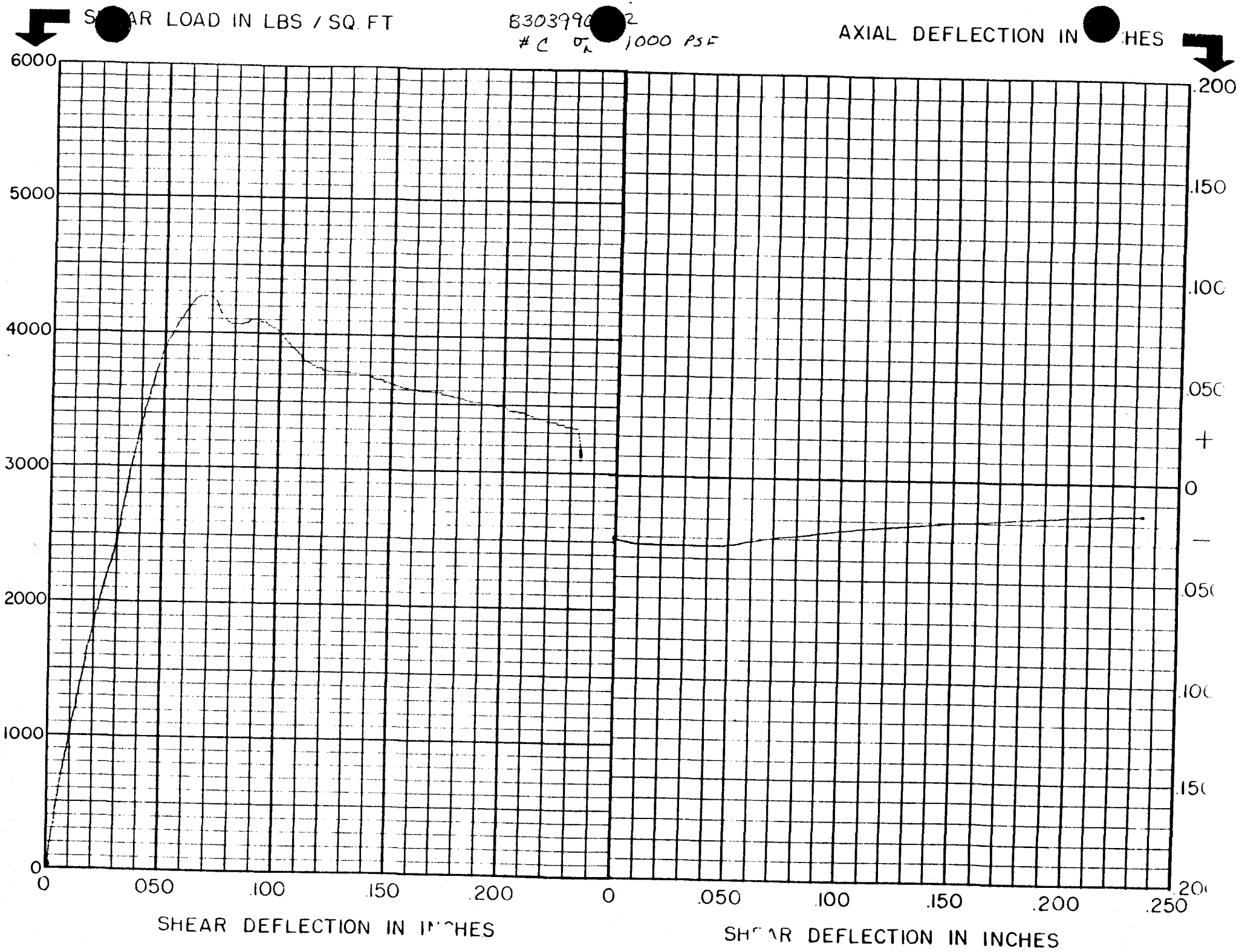
MOISTURE & DENSITY	FIELD	TEST
WT. SOIL & 2 RINGS	400.71g	
WT. 2 RINGS	92.53g	
NET WT. SOIL	308.18g	
WET DENSITY LBS./CU./FT.	128.7	
WT. DISH # 528 & SOIL	70.75g	
DRY WT. SOIL & DISH	61.11g	
NET LOSS OF MOISTURE	9.64g	
WT. DISH	3.68g	
NET WT. OF DRY SOIL	57.43g	

TEST SET-UP		
LOAD	☐ ☐	DEFLECTION
CONTINUOUS	☐ ☐	INCREMENT
INCREASE	☐ ☐	DECREASE
INCREMENT INTERVAL		MIN.
RECORDING INTERVAL		MIN.
LOAD INCREMENT		LBS./SQ. FT.
DEFLECTION INCREMENT		INCHES
LOADING SPEED		LBS./SQ.FT./MIN.
DEFLECTING SPEED	.02	INCHES/MIN.

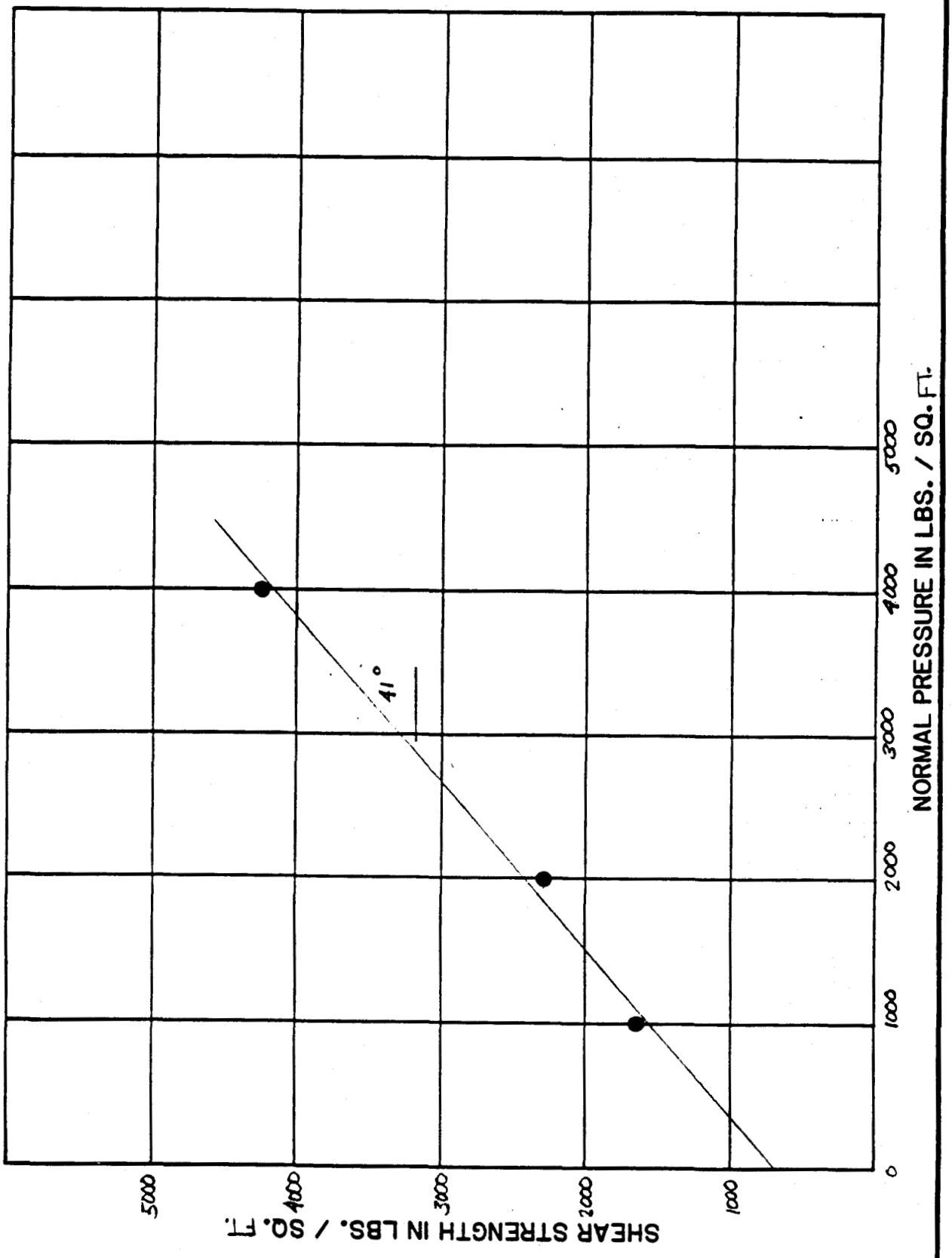
TEST SUMMARY	
NORMAL PRESS. 4000 LBS./SQ. FT.	YIELD STRENGTH LBS./SQ. FT.
DRY DENSITY 110.2 LBS./CU. FT.	PEAK STRENGTH 4260 LBS./SQ. FT.
FIELD MOISTURE 16.9 % OF DRY WT.	ULTIMATE STR. 3350 LBS./SQ. FT.
TEST MOISTURE % OF DRY WT.	FRICTION STR. LBS./SQ. FT.

NOTES:

FORM #857.34 (SA)


SHEAR LOAD IN LBS / SQ. FT
B303990
#C σn 1000 PSF
AXIAL DEFLECTION IN INCHES
6000
5000
4000
3000
2000
1000
0
0
.050
.100
.150
.200
SHEAR DEFLECTION IN INCHES
0
.050
.100
.150
.200
.250
SHEAR DEFLECTION IN INCHES
.200
.150
.100
.050
+
0
−
.050
.100
.150
.200

DIRECT SHEAR TEST DATA



B3039901112

PLOTTED @ MAXIMUM SHEAR STRESS

DIRECT SHEAR TEST

FRICTION TEST

DATA SHEET

OWNER Weston LOCATION Rocky Flats JOB # 2066-01

SOIL TYPE 2.41" Liner EG&G BORING B304090040

LAB IDENT. #A DEPTH 4-5

SAMPLED ZP 7/18/90 SET-UP W 9/2/90 TESTED W 9/2/90 (OFFICE)

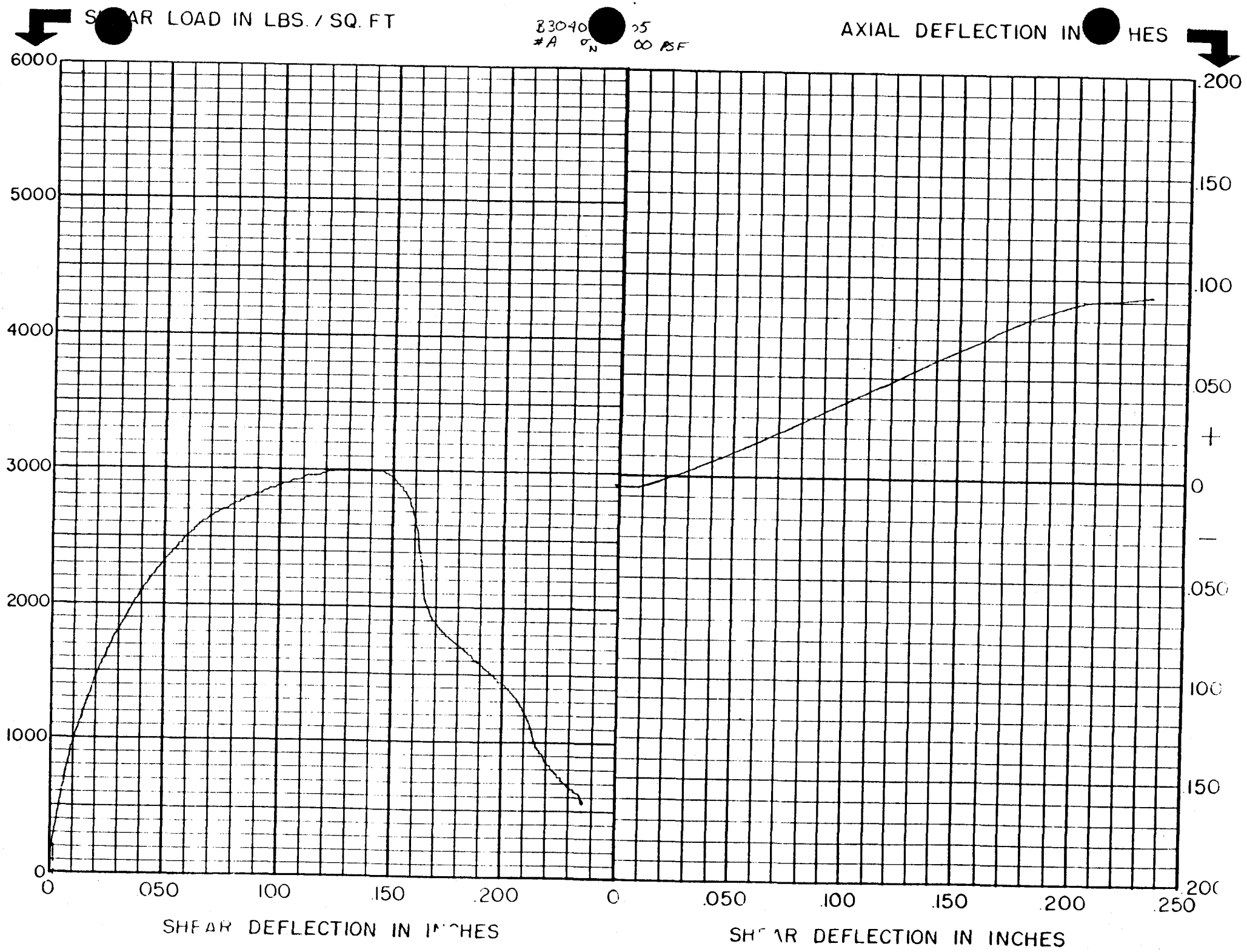
MOISTURE & DENSITY	FIELD	TEST
WT. SOIL & 2 RINGS	395.50g	
WT. 2 RINGS	89.95g	
NET WT. SOIL	305.65g	
WET DENSITY LBS./CU./FT.	127.6	
WT. DISH # 42 & SOIL	131.87g	
DRY WT. SOIL & DISH	110.62g	
NET LOSS OF MOISTURE	21.25g	
WT. DISH	3.61g	
NET WT. OF DRY SOIL	107.01	

TEST SET-UP		
LOAD	☐ ☒	DEFLECTION
CONTINUOUS	☒ ☐	INCREMENT
INCREASE	☒ ☐	DECREASE
INCREMENT INTERVAL		MIN.
RECORDING INTERVAL		MIN.
LOAD INCREMENT		LBS./SQ. FT.
DEFLECTION INCREMENT		INCHES
LOADING SPEED		LBS./SQ.FT./MIN.
DEFLECTING SPEED	.02	INCHES/MIN.

TEST SUMMARY	
NORMAL PRESS. 1000 LBS./SQ. FT.	YIELD STRENGTH LBS./SQ. FT.
DRY DENSITY 106.5 LBS./CU. FT.	PEAK STRENGTH 3000 LBS./SQ. FT.
FIELD MOISTURE 19.9 % OF DRY WT.	ULTIMATE STR. 630 LBS./SQ. FT.
TEST MOISTURE % OF DRY WT.	FRICTION STR. LBS./SQ. FT.

NOTES:

FORM #857.34 (SA)


SHEAR LOAD IN LBS. / SQ. FT
AXIAL DEFLECTION IN HES
6000
5000
4000
3000
2000
1000
0
0
.050
.100
.150
.200
SHEAR DEFLECTION IN INCHES
0
.050
.100
.150
.200
.250
SHEAR DEFLECTION IN INCHES
.200
.150
.100
.050
+
0
—
.050
100
150

DIRECT SHEAR TEST OWNER WESTON LOCATION ROCKY FLATS JOB # 2066-01

FRICTION TEST SOIL TYPE E6 & G 2.41" LINER BORING B3040900405

DATA SHEET LAB IDENT. #B DEPTH 4-5'

SAMPLED ZR 7/18/90 SET-UP CJ 9/2/90 TESTED CJ 9/2/90 (OFFICE)

MOISTURE & DENSITY	FIELD	TEST
WT. SOIL & 2 RINGS	402.05g	
WT. 2 RINGS	90.19g	
NET WT. SOIL	311.86g	
WET DENSITY LBS./CU./FT.	130.2	
WT. DISH # 545 & SOIL	77.59g	
DRY WT. SOIL & DISH	64.92g	
NET LOSS OF MOISTURE	12.13g	
WT. DISH	3.66g	
NET WT. OF DRY SOIL	61.26	

TEST SET-UP		
LOAD	☐ ☒	DEFLECTION
CONTINUOUS	☒ ☐	INCREMENT
INCREASE	☒ ☐	DECREASE
INCREMENT INTERVAL		MIN.
RECORDING INTERVAL		MIN.
LOAD INCREMENT		LBS./SQ. FT.
DEFLECTION INCREMENT		INCHES
LOADING SPEED		LBS./SQ.FT./MIN.
DEFLECTING SPEED		INCHES/MIN.

TEST SUMMARY	
NORMAL PRESS. 2000 LBS./SQ. FT.	YIELD STRENGTH LBS./SQ. FT.
DRY DENSITY 108.7 LBS./CU. FT.	PEAK STRENGTH 3740 LBS./SQ. FT.
FIELD MOISTURE 19.8 % OF DRY WT.	ULTIMATE STR. 1180 LBS./SQ. FT.
TEST MOISTURE % OF DRY WT.	FRICTION STR. LBS./SQ. FT.

NOTES:

FORM #857.34 (SA)

SHEAR LOAD IN LBS. / SQ. FT
AXIAL DEFLECTION IN INCHES
6000
5000
4000
3000
2000
1000
0
.200
.150
.100
.050
+
0
—
.050
.100
.150
.200
0
.050
.100
.150
.200
.250
SHEAR DEFLECTION IN INCHES
SHEAR DEFLECTION IN INCHES

DIRECT SHEAR TEST OWNER _____ LOCATION Rocky Flats JOB # 2066-01

FRICTION TEST SOIL TYPE 2.41" Liner E6&6 BORING B30909004C

DATA SHEET LAB IDENT. #C DEPTH 4-5'

SAMPLED ZR 7/18/90 SET-UP CJ 9/2/90 TESTED CJ 9/2/90 (____ OFFICE)

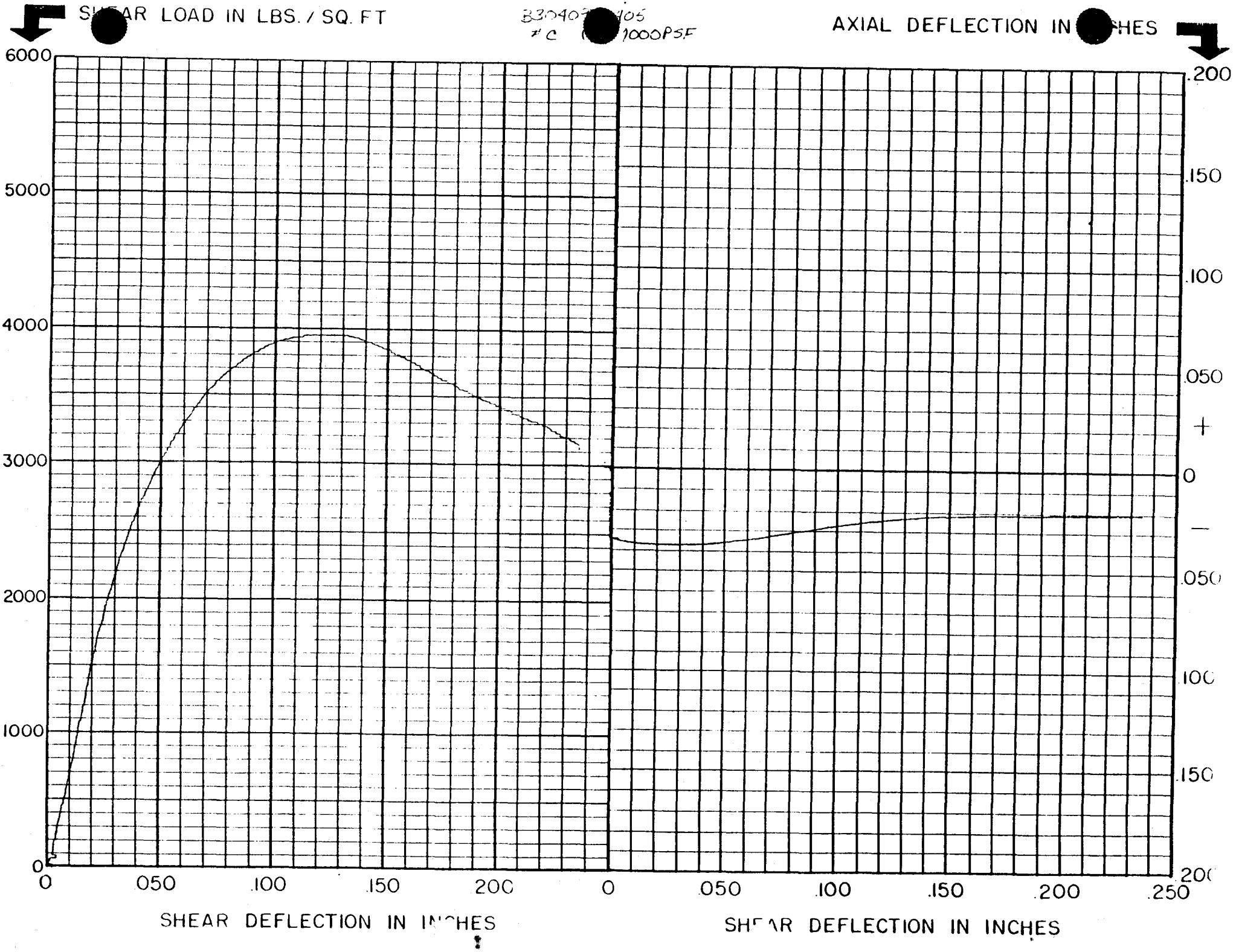
MOISTURE & DENSITY	FIELD	TEST
WT. SOIL & 2 RINGS	396.19g	
WT. 2 RINGS	92.35g	
NET WT. SOIL	303.84g	
WET DENSITY LBS./CU./FT.	126.9	
WT. DISH # 541 & SOIL	306.75g	
DRY WT. SOIL & DISH	256.08g	
NET LOSS OF MOISTURE	50.67g	
WT. DISH	3.74g	
NET WT. OF DRY SOIL	252.34g	

TEST SET-UP		
LOAD	☐ ☒	DEFLECTION
CONTINUOUS	☒ ☐	INCREMENT
INCREASE	☒ ☐	DECREASE
INCREMENT INTERVAL		MIN.
RECORDING INTERVAL		MIN.
LOAD INCREMENT		LBS./SQ. FT.
DEFLECTION INCREMENT		INCHES
LOADING SPEED		LBS./SQ.FT./MIN.
DEFLECTING SPEED	.02	INCHES/MIN.

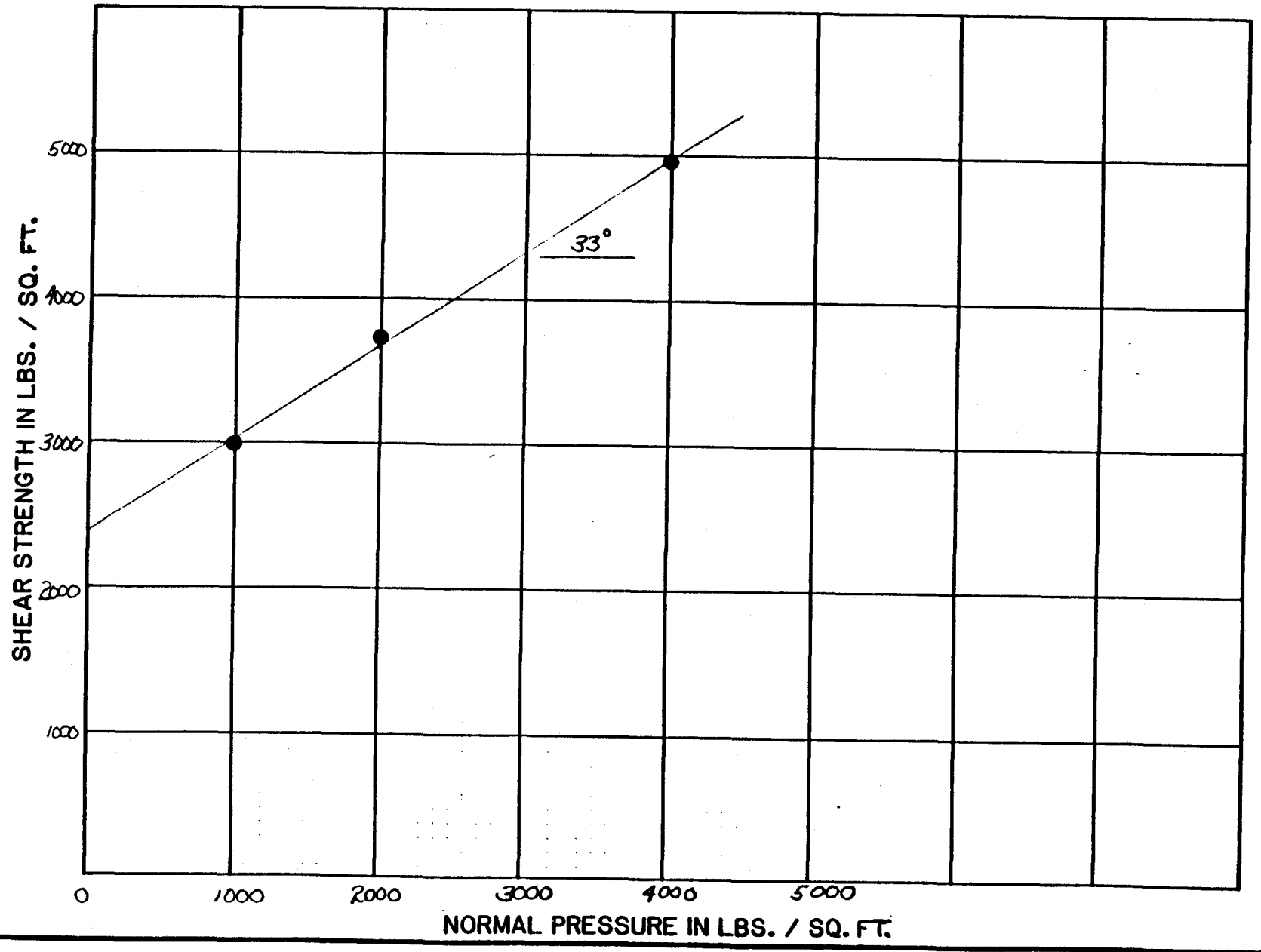
TEST SUMMARY	
NORMAL PRESS. 4000 LBS./SQ. FT.	YIELD STRENGTH ____ LBS./SQ. FT.
DRY DENSITY 105.7 LBS./CU. FT.	PEAK STRENGTH 3950 LBS./SQ. FT.
FIELD MOISTURE 20.1 % OF DRY WT.	ULTIMATE STR. 3150 LBS./SQ. FT.
TEST MOISTURE ____ % OF DRY WT.	FRICTION STR. ____ LBS./SQ. FT.

NOTES:

FORM #857.34 (SA)


SHEAR LOAD IN LBS. / SQ. FT
AXIAL DEFLECTION IN INCHES
6000
5000
4000
3000
2000
1000
0
.200
.150
.100
.050
+
0
—
.050
.100
.150
.200
0
.050
.100
.150
.200
.250
SHEAR DEFLECTION IN INCHES
SHEAR DEFLECTION IN INCHES

DIRECT SHEAR TEST DATA



B3040900405

PLOTTED @ MAXIMUM SHEAR STRESS

DIRECT SHEAR TEST OWNER WESTON LOCATION ROCKY FLATS JOB # 2066-01

FRICTION TEST SOIL TYPE EG&G 2.41' LINER BORING B3041900809

DATA SHEET LAB IDENT. #4 DEPTH 8-9'

SAMPLED ZR 7/18/90 SET-UP CJ 9/5/90 TESTED CJ 9/5/90 (OFFICE)

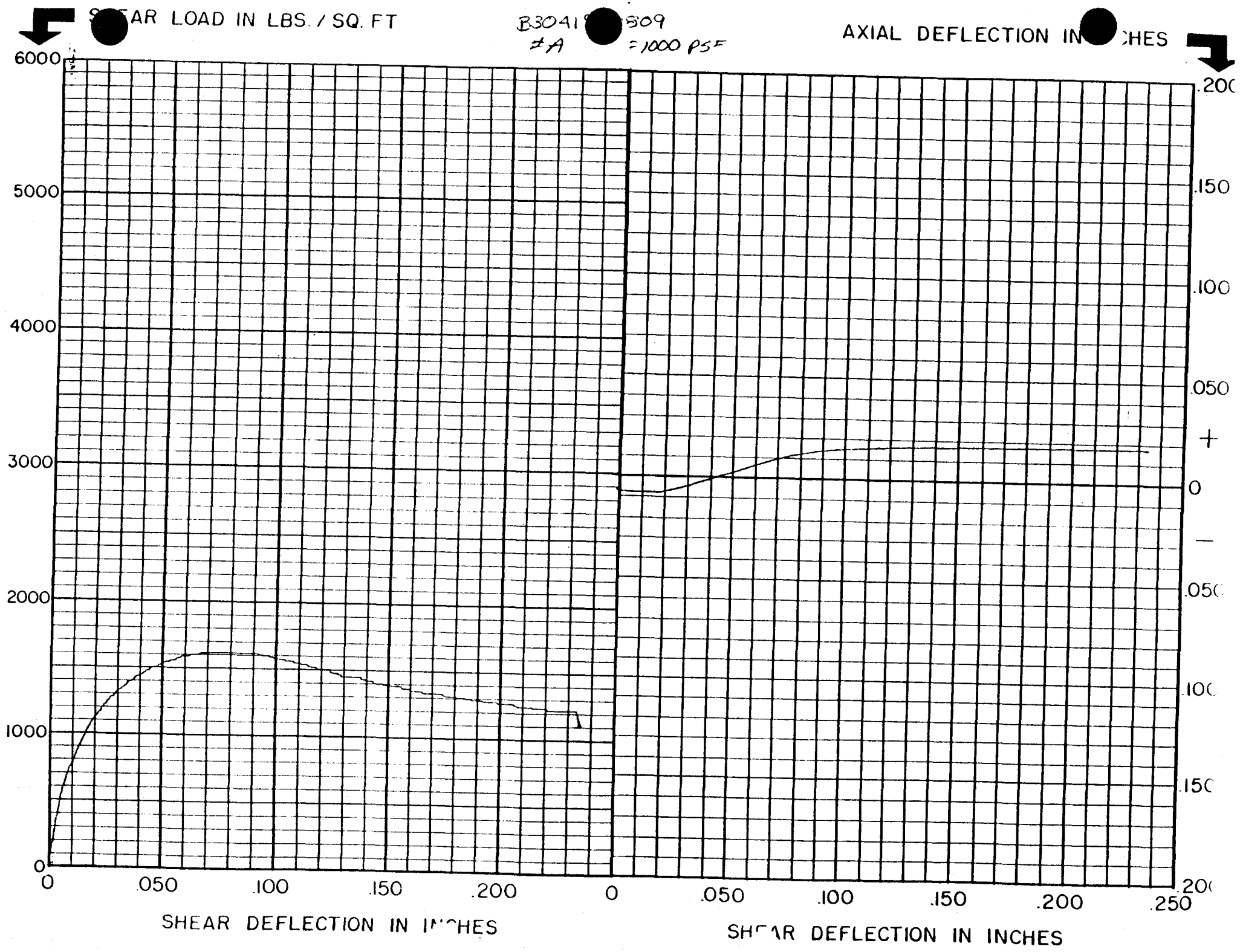
MOISTURE & DENSITY	FIELD	TEST
WT. SOIL & 2 RINGS	397.03	
WT. 2 RINGS	91.83g	
NET WT. SOIL	305.20g	
WET DENSITY LBS./CU./FT.	127.4	
WT. DISH # 408 & SOIL	71.84g	
DRY WT. SOIL & DISH	59.36g	
NET LOSS OF MOISTURE	12.48g	
WT. DISH	3.82g	
NET WT. OF DRY SOIL	55.54g	

TEST SET-UP		
LOAD	☐ ☒	DEFLECTION
CONTINUOUS	☒ ☐	INCREMENT
INCREASE	☒ ☐	DECREASE
INCREMENT INTERVAL		MIN.
RECORDING INTERVAL		MIN.
LOAD INCREMENT		LBS./SQ. FT.
DEFLECTION INCREMENT		INCHES
LOADING SPEED		LBS./SQ.FT./MIN.
DEFLECTING SPEED	.02	INCHES/MIN.

TEST SUMMARY	
NORMAL PRESS. 1000 LBS./SQ. FT.	YIELD STRENGTH LBS./SQ. FT.
DRY DENSITY 104.0 LBS./CU. FT.	PEAK STRENGTH 1620 LBS./SQ. FT.
FIELD MOISTURE 22.5 % OF DRY WT.	ULTIMATE STR. 1220 LBS./SQ. FT.
TEST MOISTURE % OF DRY WT.	FRICTION STR. LBS./SQ. FT.

NOTES:

FORM #857.34 (SA)


SHEAR LOAD IN LBS. / SQ. FT
B3041 309
#A =1000 PSF
AXIAL DEFLECTION IN CHES
6000
5000
4000
3000
2000
1000
0
.200
.150
.100
.050
+
0
—
.050
.100
.150
.200
0
.050
.100
.150
.200
.250
SHEAR DEFLECTION IN INCHES
SHEAR DEFLECTION IN INCHES

DIRECT SHEAR TEST OWNER Weston LOCATION Rocky Flats JOB # 2066-01

FRICTION TEST SOIL TYPE EG&G 2.41" Liner BORING B3041900809

DATA SHEET LAB IDENT. #3 DEPTH 8-9'

SAMPLED ZR 7/18/90 SET-UP CW 9/5/90 TESTED CW 9/5/90 (____ OFFICE)

MOISTURE & DENSITY	FIELD	TEST
WT. SOIL & 2 RINGS	398.53g	
WT. 2 RINGS	90.36g	
NET WT. SOIL	308.17g	
WET DENSITY LBS./CU./FT.	128.7	
WT. DISH # 488 & SOIL	73.71g	
DRY WT. SOIL & DISH	60.71g	
NET LOSS OF MOISTURE	13.03g	
WT. DISH	3.75g	
NET WT. OF DRY SOIL	56.96g	

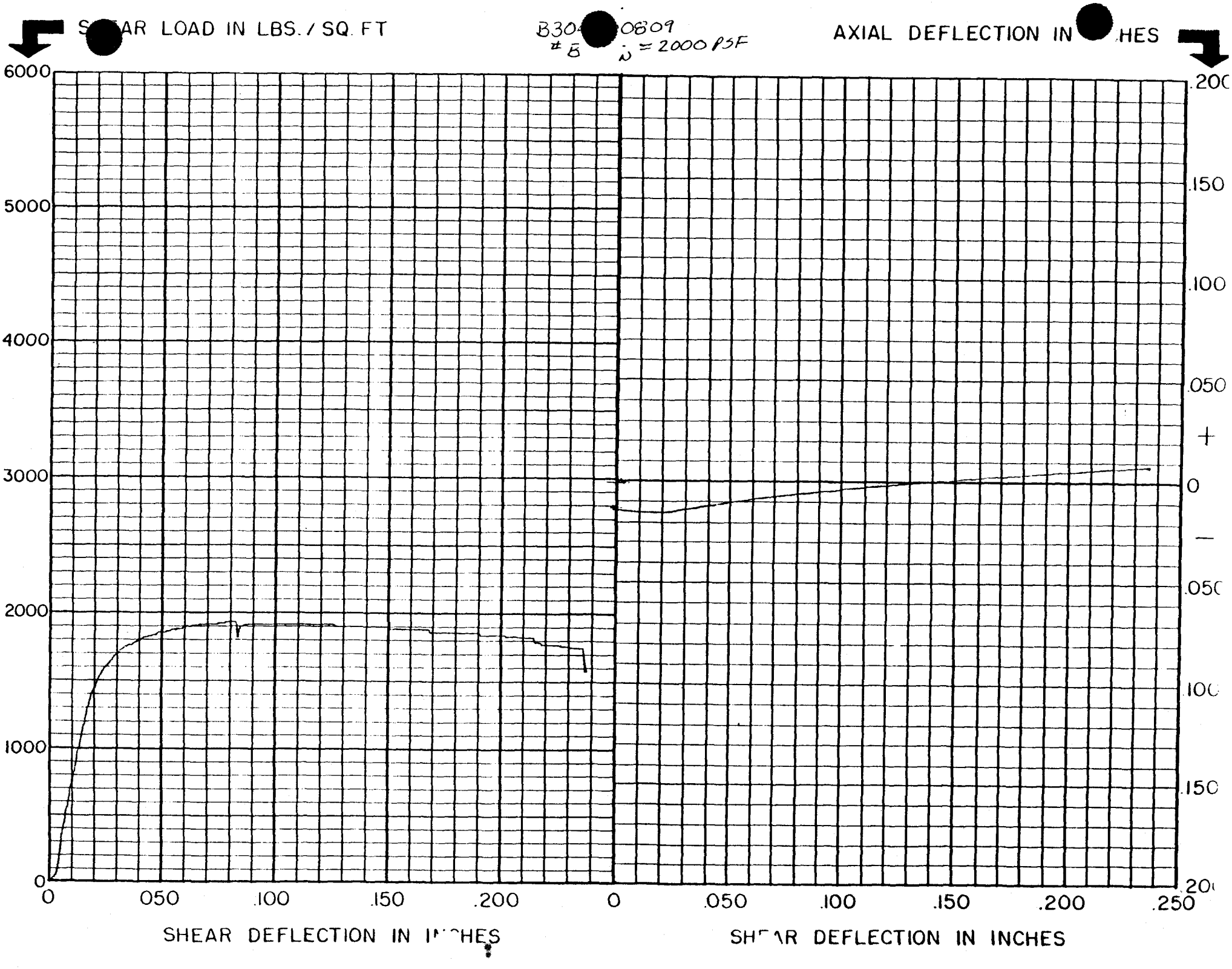
TEST SET-UP		
LOAD	☐	DEFLECTION
CONTINUOUS	☐	INCREMENT
INCREASE	☐	DECREASE
INCREMENT INTERVAL		MIN.
RECORDING INTERVAL		MIN.
LOAD INCREMENT		LBS./SQ. FT.
DEFLECTION INCREMENT		INCHES
LOADING SPEED		LBS./SQ.FT./MIN.
DEFLECTING SPEED	.02	INCHES/MIN.

TEST SUMMARY	
NORMAL PRESS. 2000 LBS./SQ. FT.	YIELD STRENGTH ____ LBS./SQ. FT.
DRY DENSITY 104.7 LBS./CU. FT.	PEAK STRENGTH 1920 LBS./SQ. FT.
FIELD MOISTURE 22.9 % OF DRY WT.	ULTIMATE STR. 1750 LBS./SQ. FT.
TEST MOISTURE ____ % OF DRY WT.	FRICTION STR. ____ LBS./SQ. FT.

NOTES:

Rock in Shear Plane!

FORM #857.34 (SA)


SHEAR LOAD IN LBS./SQ. FT
B304 0809
#5
ν = 2000 PSF
AXIAL DEFLECTION IN INCHES
6000
5000
4000
3000
2000
1000
0
0
.050
.100
.150
.200
0
.050
.100
.150
.200
.250
.200
.150
.100
.050
+
0
−
.050
.100
.150
.200
SHEAR DEFLECTION IN INCHES
SHEAR DEFLECTION IN INCHES

DIRECT SHEAR TEST OWNER WESTON LOCATION ROCKY FLATS JOB # 2066-01

FRICTION TEST SOIL TYPE EG&G 2.41" LINER BORING B304190080 9

DATA SHEET LAB IDENT. #C DEPTH 8-9'

SAMPLED ZR 7/18/90 SET-UP CJ 9/5/90 TESTED CJ 9/5/90 (OFFICE)

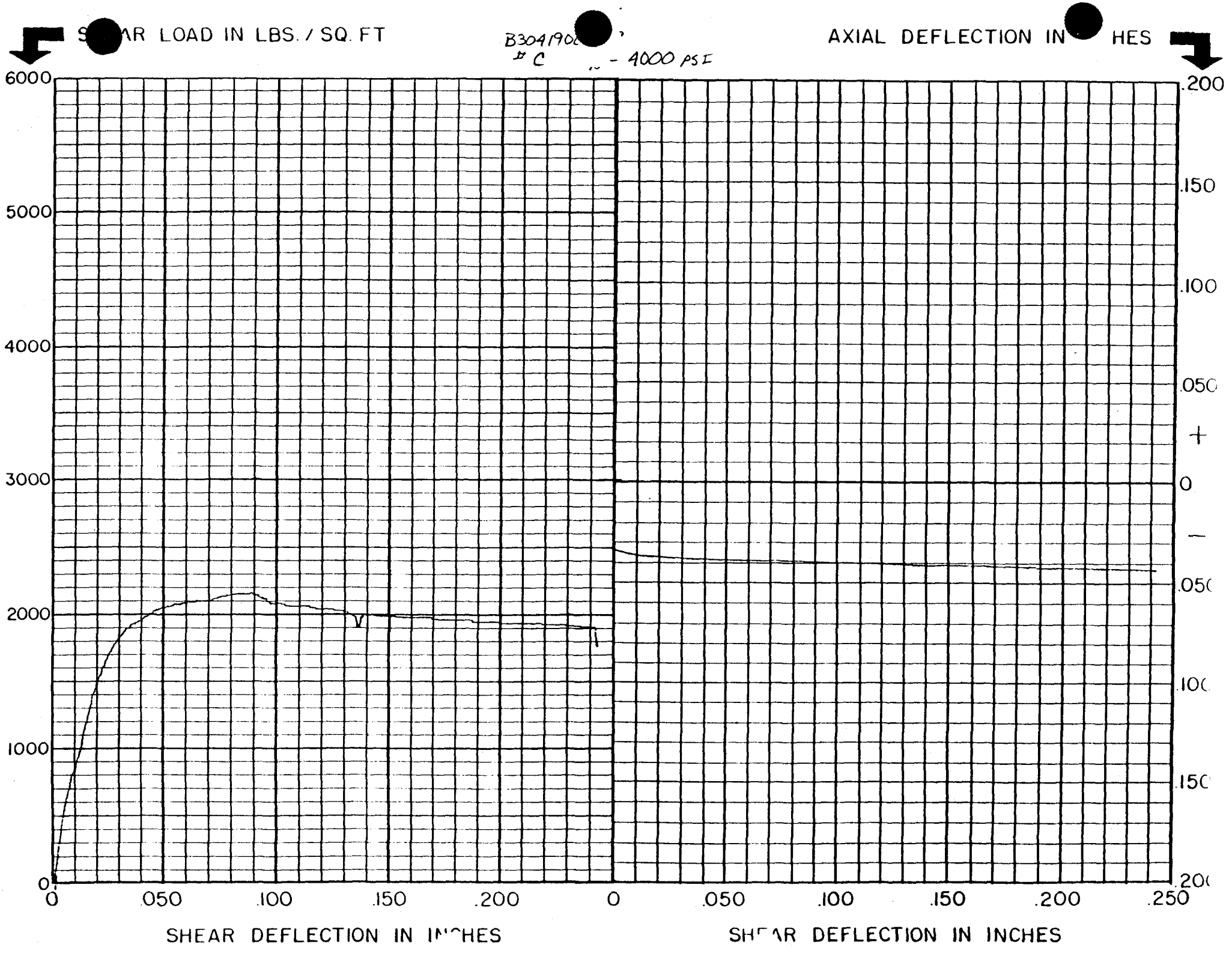
MOISTURE & DENSITY	FIELD	TEST
WT. SOIL & 2 RINGS	405.84g	
WT. 2 RINGS	91.25g	
NET WT. SOIL	314.59g	
WET DENSITY LBS./CU./FT.	131.4	
WT. DISH # 82 & SOIL	64.97g	
DRY WT. SOIL & DISH	53.20g	
NET LOSS OF MOISTURE	11.77g	
WT. DISH	3.67g	
NET WT. OF DRY SOIL	49.53g	

TEST SET-UP		
LOAD		DEFLECTION
CONTINUOUS		INCREMENT
INCREASE		DECREASE
INCREMENT INTERVAL		MIN.
RECORDING INTERVAL		MIN.
LOAD INCREMENT		LBS./SQ. FT.
DEFLECTION INCREMENT		INCHES
LOADING SPEED		LBS./SQ.FT./MIN.
DEFLECTING SPEED	.02	INCHES/MIN.

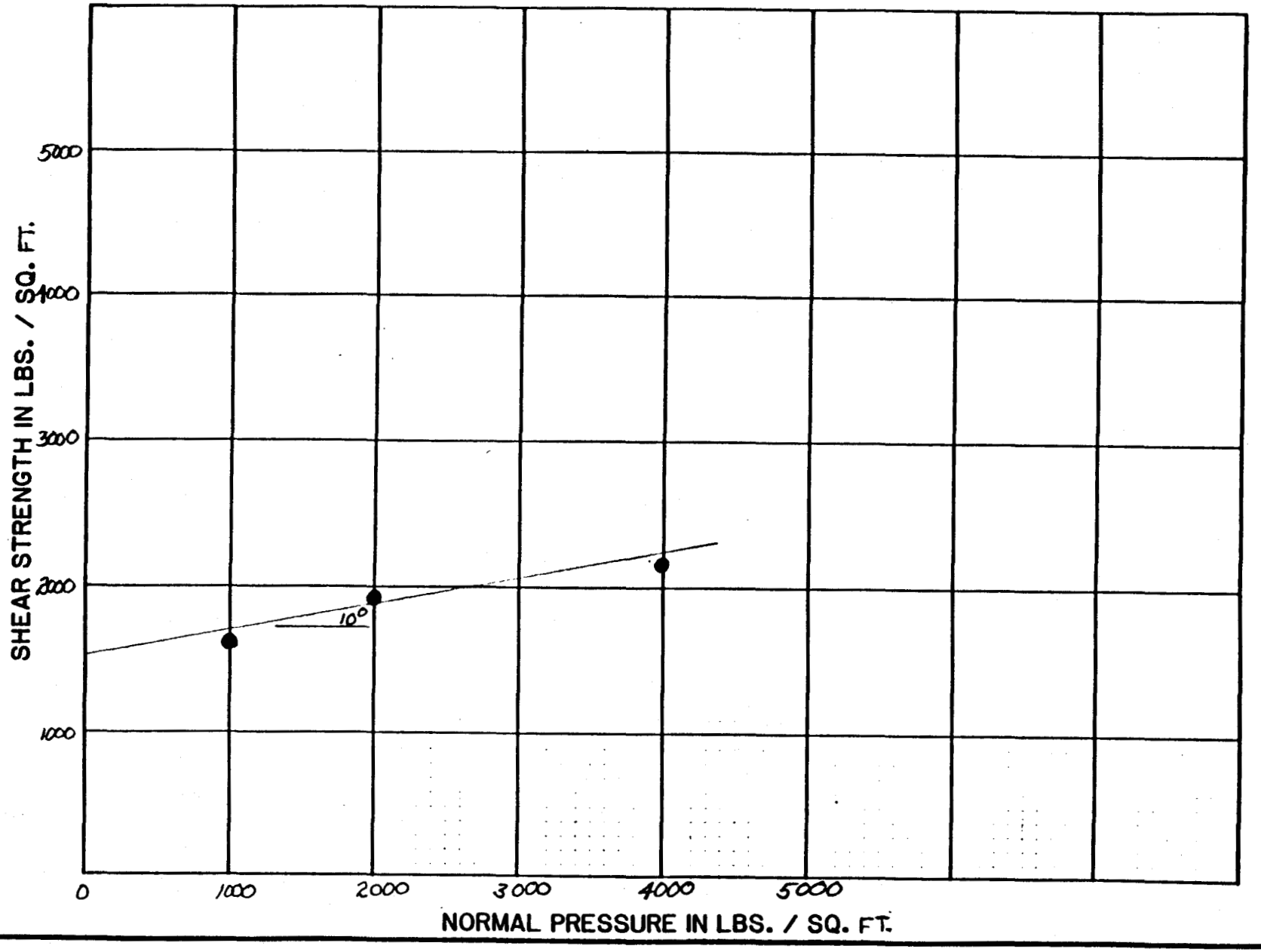
TEST SUMMARY	
NORMAL PRESS. 4000 LBS./SQ. FT.	YIELD STRENGTH LBS./SQ. FT.
DRY DENSITY 106.1 LBS./CU. FT.	PEAK STRENGTH 2150 LBS./SQ. FT.
FIELD MOISTURE 23.8 % OF DRY WT.	ULTIMATE STR. 1900 LBS./SQ. FT.
TEST MOISTURE % OF DRY WT.	FRICTION STR. LBS./SQ. FT.

NOTES:

FORM #857.34 (SA)


SHEAR LOAD IN LBS. / SQ. FT
B304190
C
- 4000 PSI
AXIAL DEFLECTION IN HES
6000
5000
4000
3000
2000
1000
0
.200
.150
.100
.050
+
0
-
.050
.100
.150
.200
0
.050
.100
.150
.200
.250
SHEAR DEFLECTION IN INCHES
SHEAR DEFLECTION IN INCHES

DIRECT SHEAR TEST DATA



B3041900809

PLOTTED @ MAXIMUM SHEAR STRESS

DIRECT SHEAR TEST OWNER Weston LOCATION Rocky Flats JOB # 2066-01

FRICTION TEST SOIL TYPE 2.41" Liner EG&G BORING B304190161

DATA SHEET LAB IDENT. # A DEPTH 16-17'

SAMPLED ZR 7/18/90 SET-UP CJ 9/6/90 TESTED CJ 9/6/90 (OFFICE)

MOISTURE & DENSITY	FIELD	TEST
WT. SOIL & 2 RINGS	392.83g	
WT. 2 RINGS	91.10g	
NET WT. SOIL	301.73g	
WET DENSITY LBS./CU./FT.	126.0	
WT. DISH # 305 & SOIL	82.61g	
DRY WT. SOIL & DISH	67.80g	
NET LOSS OF MOISTURE	14.81g	
WT. DISH	3.67g	
NET WT. OF DRY SOIL	64.14g	

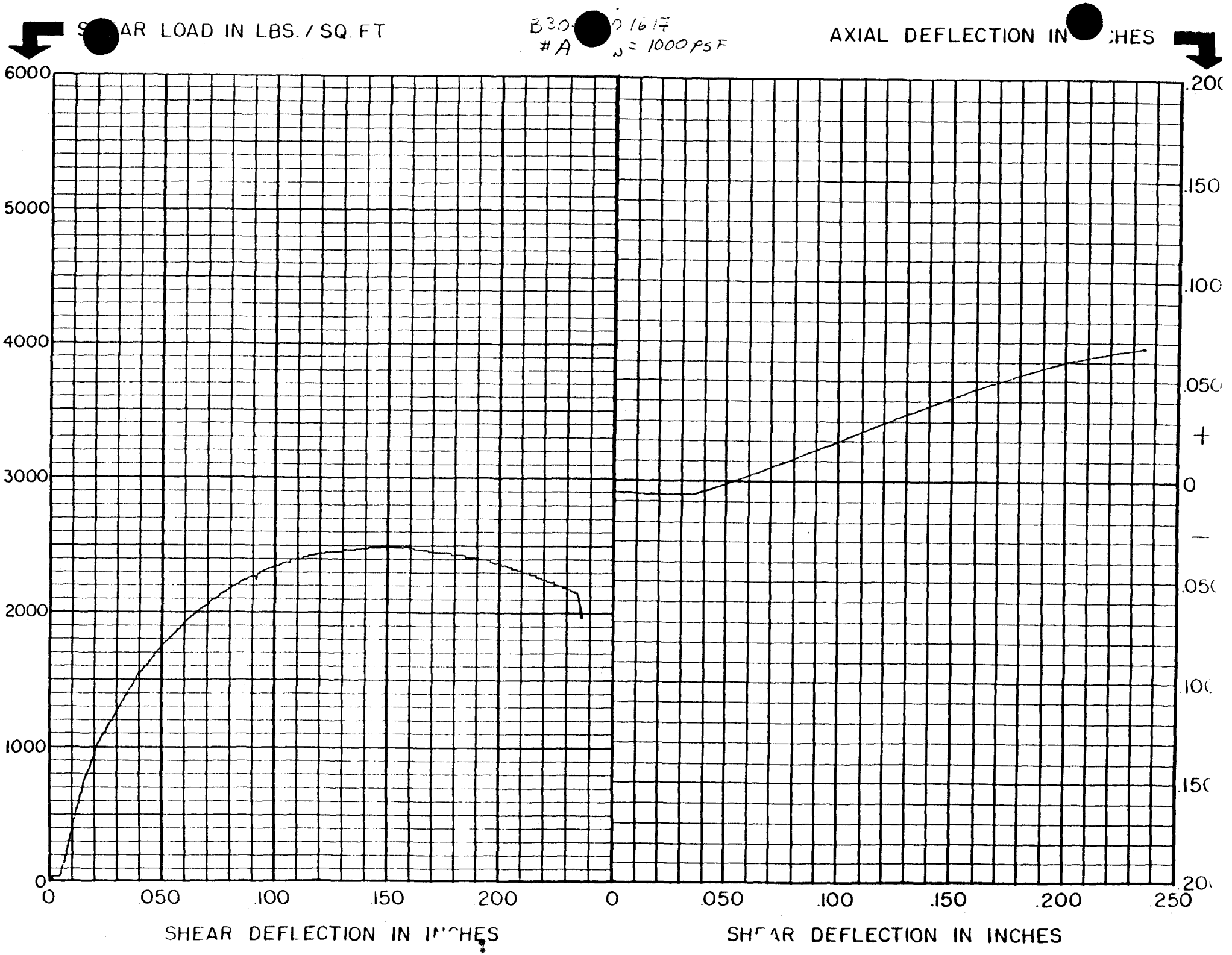
TEST SET-UP		
LOAD	CONTINUOUS / INCREASE	DEFLECTION / INCREMENT / DECREASE
INCREMENT INTERVAL		MIN.
RECORDING INTERVAL		MIN.
LOAD INCREMENT		LBS./SQ. FT.
DEFLECTION INCREMENT		INCHES
LOADING SPEED		LBS./SQ.FT./MIN.
DEFLECTING SPEED	.02	INCHES/MIN.

TEST SUMMARY	
NORMAL PRESS. 1000 LBS./SQ. FT.	YIELD STRENGTH LBS./SQ. FT.
DRY DENSITY 102.4 LBS./CU. FT.	PEAK STRENGTH 2500 LBS./SQ. FT.
FIELD MOISTURE 23.1 % OF DRY WT.	ULTIMATE STR. 2150 LBS./SQ. FT.
TEST MOISTURE % OF DRY WT.	FRICTION STR. LBS./SQ. FT.

NOTES:

2-Point Test

FORM #857.34 (SA)



S AR LOAD IN LBS. / SQ. FT
B30 0 16 17
#A = 1000 PSF
AXIAL DEFLECTION IN CHES
6000
5000
4000
3000
2000
1000
0
.200
.150
.100
.050
+
0
—
.050
.100
.150
.200
0
.050
.100
.150
.200
.250
SHEAR DEFLECTION IN INCHES
SHEAR DEFLECTION IN INCHES

DIRECT SHEAR TEST OWNER WESTON LOCATION ROCKY FLATS JOB # 2066-01

FRICTION TEST SOIL TYPE EGEG 2.41" LINER BORING B304190 16 17

DATA SHEET LAB IDENT. B DEPTH 16-17'

SAMPLED ZR 7/18/90 SET-UP CJ 9/6/90 TESTED CJ 9/6/90 (OFFICE)

MOISTURE & DENSITY	FIELD	TEST
WT. SOIL & 2 RINGS	400.74g	
WT. 2 RINGS	92.24g	
NET WT. SOIL	308.50g	
WET DENSITY LBS./CU./FT.	128.8	
WT. DISH # 504 & SOIL	81.16g	
DRY WT. SOIL & DISH	67.73g	
NET LOSS OF MOISTURE	13.43g	
WT. DISH	3.75g	
NET WT. OF DRY SOIL	63.98g	

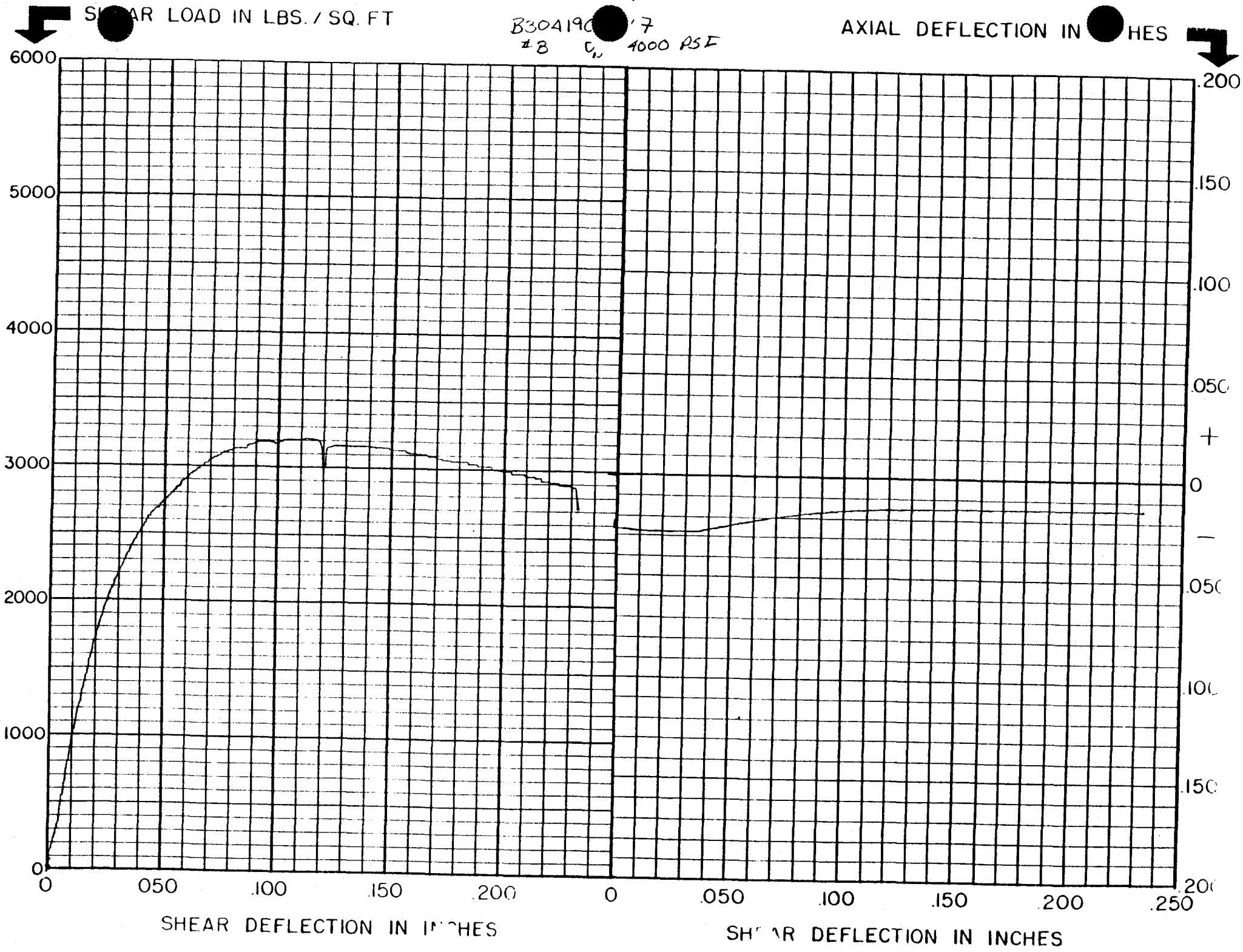
TEST SET-UP		
LOAD	☐ ☒	DEFLECTION
CONTINUOUS	☒ ☐	INCREMENT
INCREASE	☒ ☐	DECREASE
INCREMENT INTERVAL		MIN.
RECORDING INTERVAL		MIN.
LOAD INCREMENT		LBS./SQ. FT.
DEFLECTION INCREMENT		INCHES
LOADING SPEED		LBS./SQ.FT./MIN.
DEFLECTING SPEED	.02	INCHES/MIN.

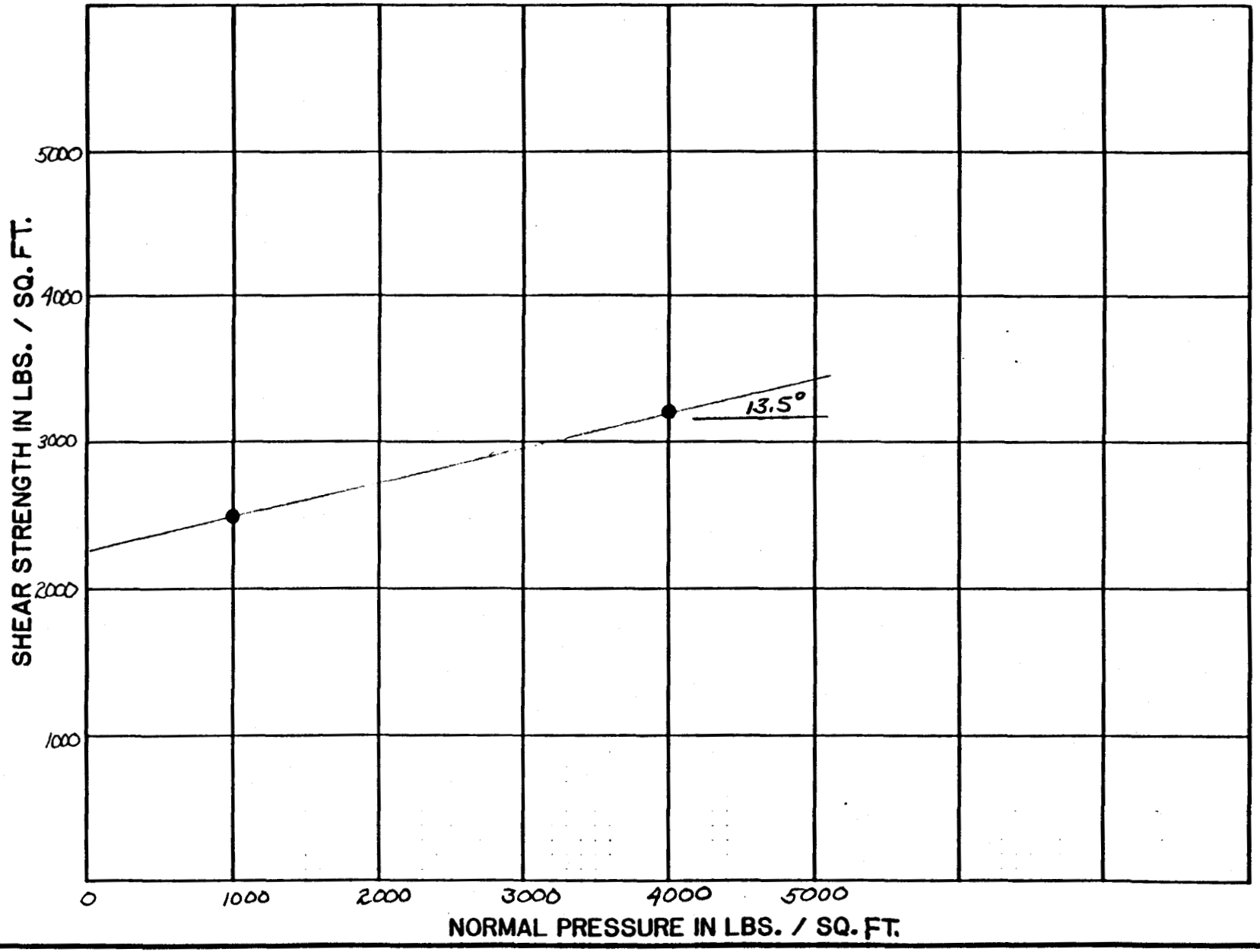
TEST SUMMARY	
NORMAL PRESS. 4000 LBS./SQ. FT.	YIELD STRENGTH LBS./SQ. FT.
DRY DENSITY 106.5 LBS./CU. FT.	PEAK STRENGTH 3210 LBS./SQ. FT.
FIELD MOISTURE 21.0 % OF DRY WT.	ULTIMATE STR. 2880 LBS./SQ. FT.
TEST MOISTURE % OF DRY WT.	FRICTION STR. LBS./SQ. FT.

NOTES:

2-POINT TEST

FORM #857.34 (SA)


SHEAR LOAD IN LBS. / SQ. FT
B304190 7
#8 4000 PSF
AXIAL DEFLECTION IN HES
6000
5000
4000
3000
2000
1000
0
0
050
.100
.150
.200
SHEAR DEFLECTION IN INCHES
0
.050
.100
.150
.200
.250
SHEAR DEFLECTION IN INCHES
.200
.150
.100
.050
+
0
—
.050
.100
.150
.200



DIRECT SHEAR TEST DATA

B3041901617

PLOTTED @ MAXIMUM SHEAR STRESS

DIRECT SHEAR TEST

FRICTION TEST

DATA SHEET

OWNER (WESTON LOCATION ROCKY FLATS JOB # 2066-01

SOIL TYPE 2.41" LWD E646 BORING B304190131

LAB IDENT. #A DEPTH 13-14'

SAMPLED ZR 7/18/90 SET-UP CJ 9/6/90 TESTED CJ 9/6/90 (OFFICE)

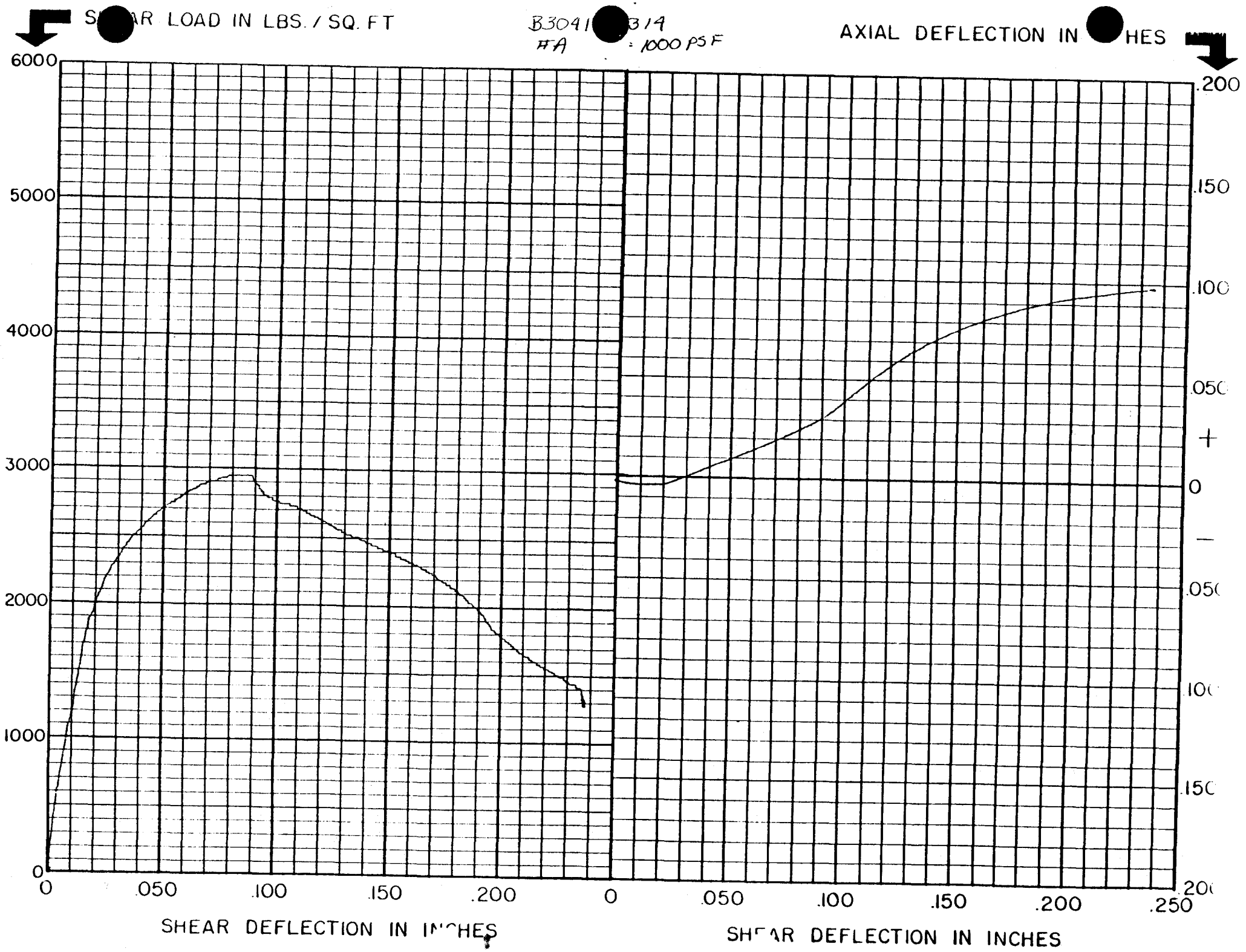
MOISTURE & DENSITY	FIELD	TEST
WT. SOIL & 2 RINGS	390.97g	
WT. 2 RINGS	88.03g	
NET WT. SOIL	302.94g	
WET DENSITY LBS./CU./FT.	126.5	
WT. DISH # 69 & SOIL	79.99g	
DRY WT. SOIL & DISH	66.39g	
NET LOSS OF MOISTURE	13.60g	
WT. DISH	3.65g	
NET WT. OF DRY SOIL	62.65g	

TEST SET-UP		
LOAD	☐ ☒	DEFLECTION
CONTINUOUS	☒ ☐	INCREMENT
INCREASE	☒ ☐	DECREASE
INCREMENT INTERVAL		MIN.
RECORDING INTERVAL		MIN.
LOAD INCREMENT		LBS./SQ. FT.
DEFLECTION INCREMENT		INCHES
LOADING SPEED		LBS./SQ.FT./MIN.
DEFLECTING SPEED	.02	INCHES/MIN.

TEST SUMMARY	
NORMAL PRESS. 1000 LBS./SQ. FT.	YIELD STRENGTH LBS./SQ. FT.
DRY DENSITY 103.9 LBS./CU. FT.	PEAK STRENGTH 2950 LBS./SQ. FT.
FIELD MOISTURE 21.7 % OF DRY WT.	ULTIMATE STR. 1400 LBS./SQ. FT.
TEST MOISTURE % OF DRY WT.	FRICTION STR. LBS./SQ. FT.

NOTES:

FORM #857.34 (SA)


S[redacted]AR LOAD IN LBS. / SQ. FT
B3041[redacted]314
#A
= 1000 PSF
AXIAL DEFLECTION IN [redacted]HES
6000
5000
4000
3000
2000
1000
0
.200
.150
.100
.050
+
0
—
.050
.100
.150
.200
0
.050
.100
.150
.200
.250
SHEAR DEFLECTION IN INCHES
SHEAR DEFLECTION IN INCHES

DIRECT SHEAR TEST OWNER WESTON LOCATION ROCKY FLATS JOB # 2066-01

FRICTION TEST SOIL TYPE 2.41" LINER EG&G BORING B304190/13/14

DATA SHEET LAB IDENT. #B DEPTH 13-14'

SAMPLED ZR 7/18/90 SET-UP D2 9/6/90 TESTED D 9/6/90 (OFFICE)

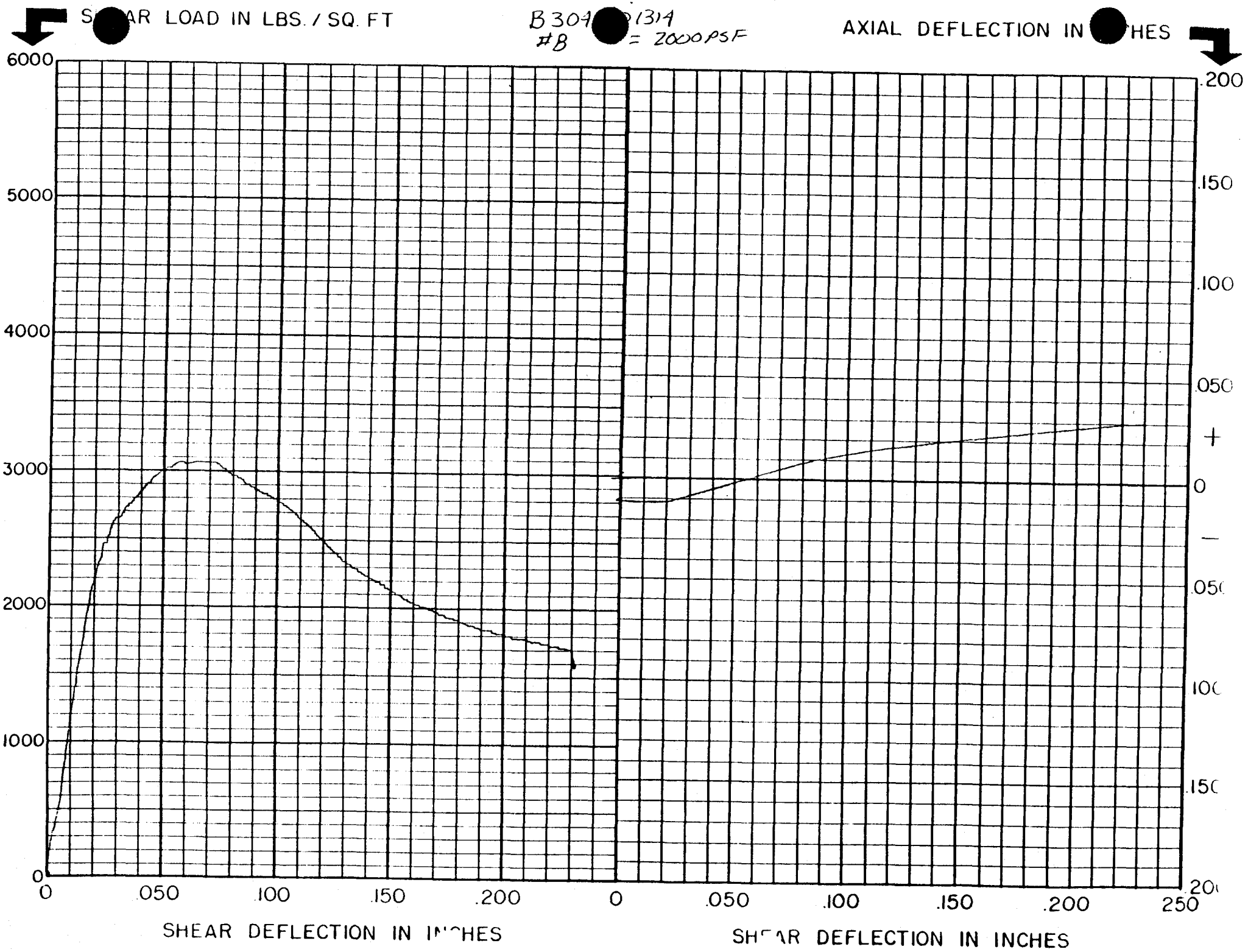
MOISTURE & DENSITY	FIELD	TEST
WT. SOIL & 2 RINGS	396.62g	
WT. 2 RINGS	91.93g	
NET WT. SOIL	304.69g	
WET DENSITY LBS./CU./FT.	127.2	
WT. DISH # 38 & SOIL	85.77g	
DRY WT. SOIL & DISH	70.96g	
NET LOSS OF MOISTURE	14.81g	
WT. DISH	3.70g	
NET WT. OF DRY SOIL	67.26g	

TEST SET-UP		
LOAD	☐ ☒	DEFLECTION
CONTINUOUS	☒ ☐	INCREMENT
INCREASE	☒ ☐	DECREASE
INCREMENT INTERVAL		MIN.
RECORDING INTERVAL		MIN.
LOAD INCREMENT		LBS./SQ. FT.
DEFLECTION INCREMENT		INCHES
LOADING SPEED		LBS./SQ.FT./MIN.
DEFLECTING SPEED	.02	INCHES/MIN.

TEST SUMMARY	
NORMAL PRESS. 2000 LBS./SQ. FT.	YIELD STRENGTH LBS./SQ. FT.
DRY DENSITY 104.3 LBS./CU. FT.	PEAK STRENGTH 3060 LBS./SQ. FT.
FIELD MOISTURE 22.0 % OF DRY WT.	ULTIMATE STR. 1700 LBS./SQ. FT.
TEST MOISTURE % OF DRY WT.	FRICTION STR. LBS./SQ. FT.

NOTES:

FORM #857.34 (SA)


SHEAR LOAD IN LBS. / SQ. FT
B304 1314
#8 = 2000PSF
AXIAL DEFLECTION IN INCHES
6000
5000
4000
3000
2000
1000
0
0
.050
.100
.150
.200
0
.050
.100
.150
.200
250
.200
.150
.100
.050
+
0
−
.050
.100
.150
.200
SHEAR DEFLECTION IN INCHES
SHEAR DEFLECTION IN INCHES

DIRECT SHEAR TEST OWNER WESTON LOCATION ROCKY FLATS JOB # 2066-01

_____ FRICTION TEST SOIL TYPE 2.41" LINER EG&2 BORING B30490131 4

DATA SHEET LAB IDENT. #C DEPTH 13-14'

SAMPLED ZR 7/18/90 SET-UP CJ 9/6/90 TESTED CJ 9/6/90 (____ OFFICE)

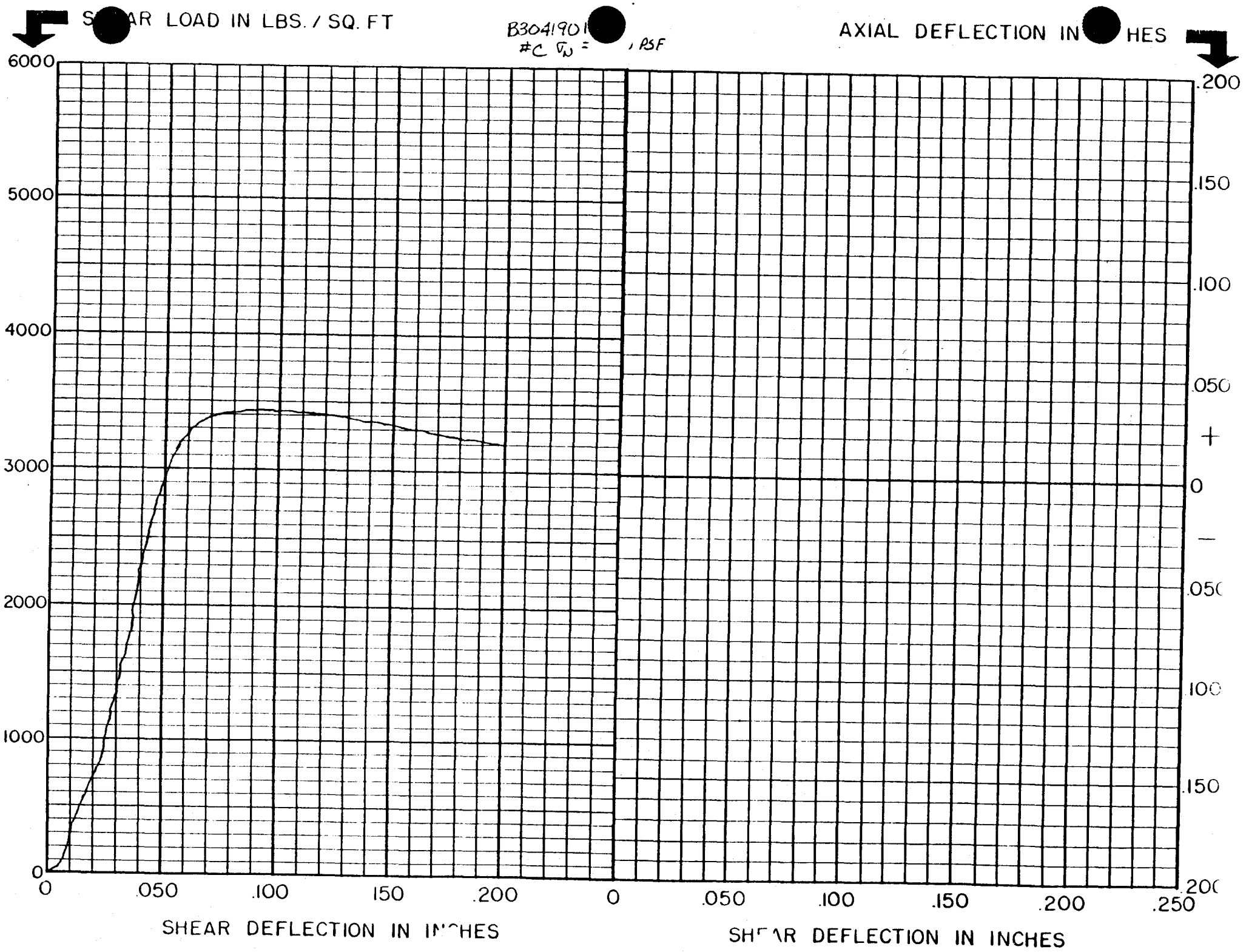
MOISTURE & DENSITY	FIELD	TEST
WT. SOIL & 2 RINGS	394.15g	
WT. 2 RINGS	91.79g	
NET WT. SOIL	302.36g	
WET DENSITY LBS./CU./FT.	126.3	
WT. DISH # 84 & SOIL	83.02g	
DRY WT. SOIL & DISH	68.73g	
NET LOSS OF MOISTURE	14.29g	
WT. DISH	3.67g	
NET WT. OF DRY SOIL	65.06g	

TEST SET-UP		
LOAD		DEFLECTION
CONTINUOUS		INCREMENT
INCREASE		DECREASE
INCREMENT INTERVAL		MIN.
RECORDING INTERVAL		MIN.
LOAD INCREMENT		LBS./SQ. FT.
DEFLECTION INCREMENT		INCHES
LOADING SPEED		LBS./SQ.FT./MIN.
DEFLECTING SPEED	.02	INCHES/MIN.

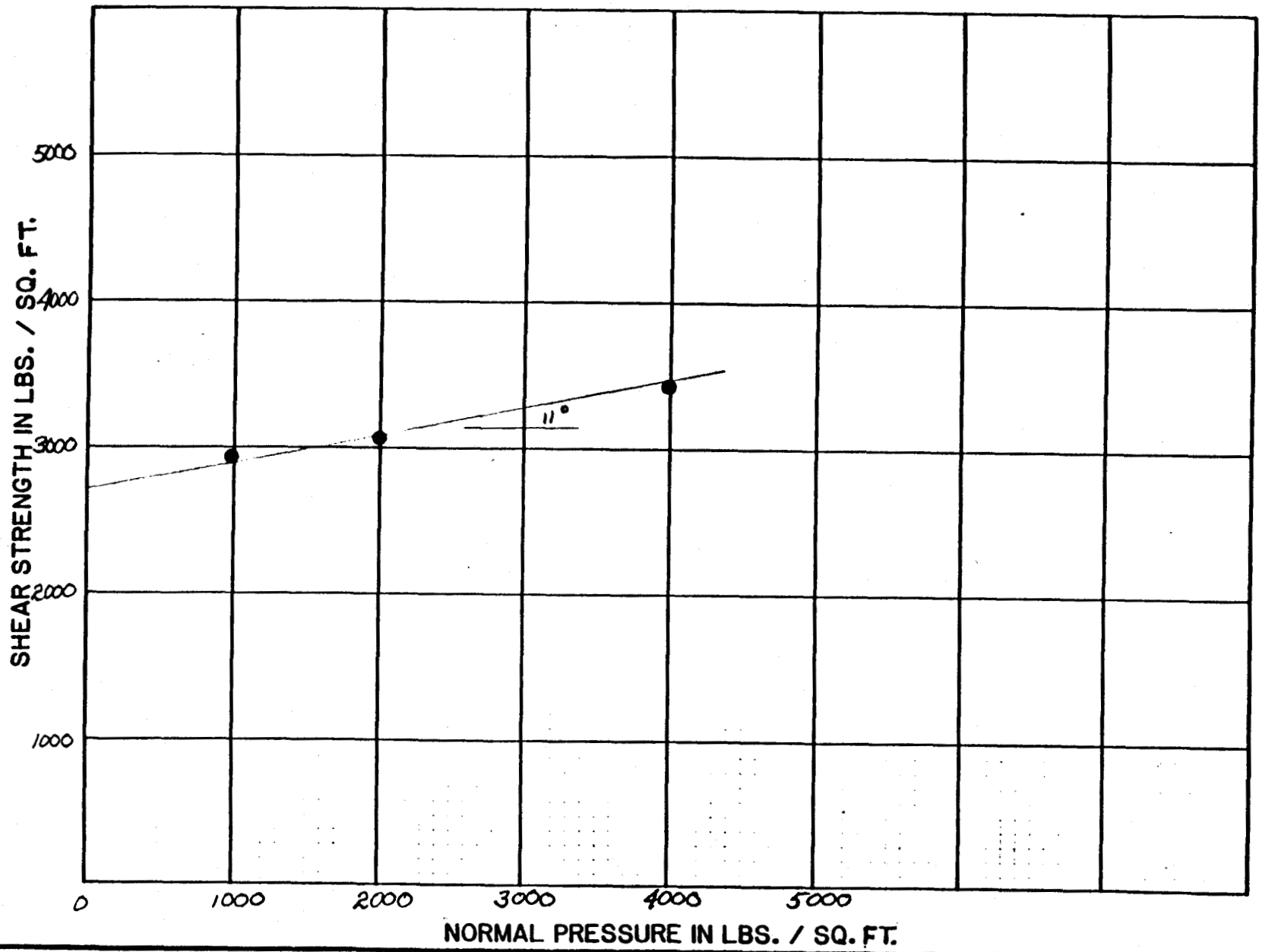
TEST SUMMARY	
NORMAL PRESS. 4000 LBS./SQ. FT.	YIELD STRENGTH ____ LBS./SQ. FT.
DRY DENSITY 103.5 LBS./CU. FT.	PEAK STRENGTH 3130 LBS./SQ. FT.
FIELD MOISTURE 22.0 % OF DRY WT.	ULTIMATE STR. 3200 LBS./SQ. FT.
TEST MOISTURE ____ % OF DRY WT.	FRICTION STR. ____ LBS./SQ. FT.

NOTES:

FORM #857.34 (SA)


S AR LOAD IN LBS. / SQ. FT
B3041901
#C σ_N = , PSF
AXIAL DEFLECTION IN HES
6000
5000
4000
3000
2000
1000
0
.200
.150
.100
.050
+
0
−
.050
.100
.150
.200
0
.050
.100
.150
.200
.250
SHEAR DEFLECTION IN INCHES
SHEAR DEFLECTION IN INCHES

DIRECT SHEAR TEST DATA



B304190131 4

PLOTTED @ MAXIMUM SHEAR STRESS

DIRECT SHEAR TEST OWNER WESTON LOCATION ROCKY FLATS JOB # 2066-01

FRICTION TEST SOIL TYPE 2.41" LINER EG&G BORING B304290 13/14

DATA SHEET LAB IDENT. #A DEPTH 13-14'

SAMPLED KH 7/19/90 SET-UP CJ 9/9/90 TESTED CW 9/9/90 (____ OFFICE)

MOISTURE & DENSITY	FIELD	TEST
WT. SOIL & 2 RINGS	372.10g	
WT. 2 RINGS	92.53g	
NET WT. SOIL	279.87g	
WET DENSITY LBS./CU./FT.	116.9	
WT. DISH # 416 & SOIL	85.82g	
DRY WT. SOIL & DISH	70.83g	
NET LOSS OF MOISTURE	14.99g	
WT. DISH	3.76g	
NET WT. OF DRY SOIL	67.07	

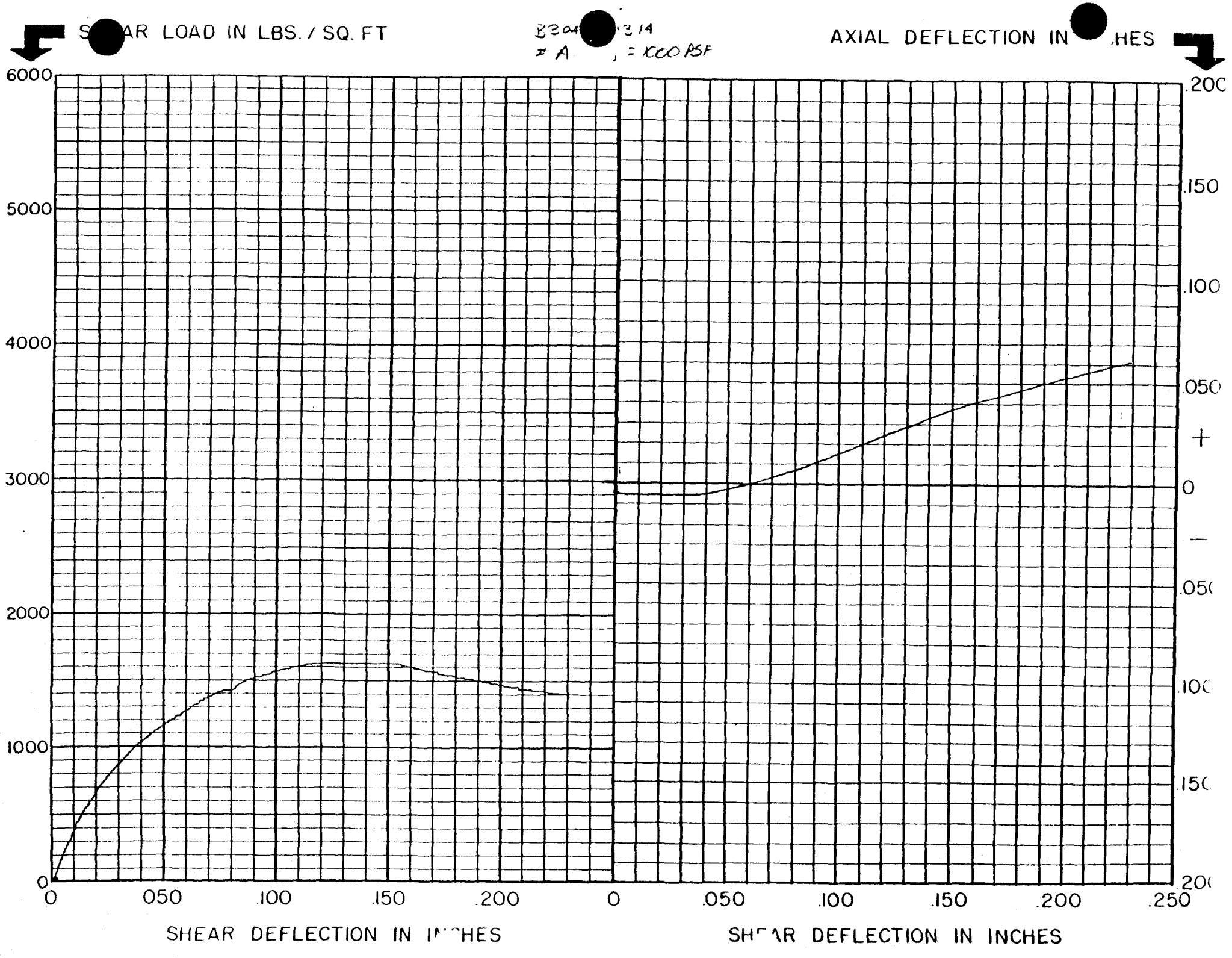
TEST SET-UP		
LOAD	☐ ☒	DEFLECTION
CONTINUOUS	☒ ☐	INCREMENT
INCREASE	☒ ☐	DECREASE
INCREMENT INTERVAL		MIN.
RECORDING INTERVAL		MIN.
LOAD INCREMENT		LBS./SQ. FT.
DEFLECTION INCREMENT		INCHES
LOADING SPEED		LBS./SQ.FT./MIN.
DEFLECTING SPEED	.02	INCHES/MIN.

TEST SUMMARY	
NORMAL PRESS. 1000 LBS./SQ. FT.	YIELD STRENGTH ____ LBS./SQ. FT.
DRY DENSITY 95.5 LBS./CU. FT.	PEAK STRENGTH 1630 LBS./SQ. FT.
FIELD MOISTURE 22.1 % OF DRY WT.	ULTIMATE STR. 1400 LBS./SQ. FT.
TEST MOISTURE ____ % OF DRY WT.	FRICTION STR. ____ LBS./SQ. FT.

NOTES:

2-POINT TEST

FORM #857.34 (SA)


S AR LOAD IN LBS. / SQ. FT
AXIAL DEFLECTION IN HES
6000
5000
4000
3000
2000
1000
0
0
050
.100
.150
.200
0
.050
.100
.150
.200
.250
.200
.150
.100
.050
+
0
—
SHEAR DEFLECTION IN INCHES
SHEAR DEFLECTION IN INCHES

DIRECT SHEAR TEST OWNER Weston LOCATION Rocky Flats JOB # 2066-01

FRICTION TEST SOIL TYPE 2.41" Liner F646 BORING B3012901314

DATA SHEET LAB IDENT. #B DEPTH 13-14'

SAMPLED KH 7/19/90 SET-UP CW 9/9/90 TESTED CW 9/9/90 (OFFICE)

MOISTURE & DENSITY	FIELD	TEST
WT. SOIL & 2 RINGS	372.71g	
WT. 2 RINGS	89.19g	
NET WT. SOIL	283.25g	
WET DENSITY LBS./CU./FT.	118.3g	
WT. DISH # 502 & SOIL	73.50g	
DRY WT. SOIL & DISH	60.68g	
NET LOSS OF MOISTURE	12.82g	
WT. DISH	3.77g	
NET WT. OF DRY SOIL	56.91g	

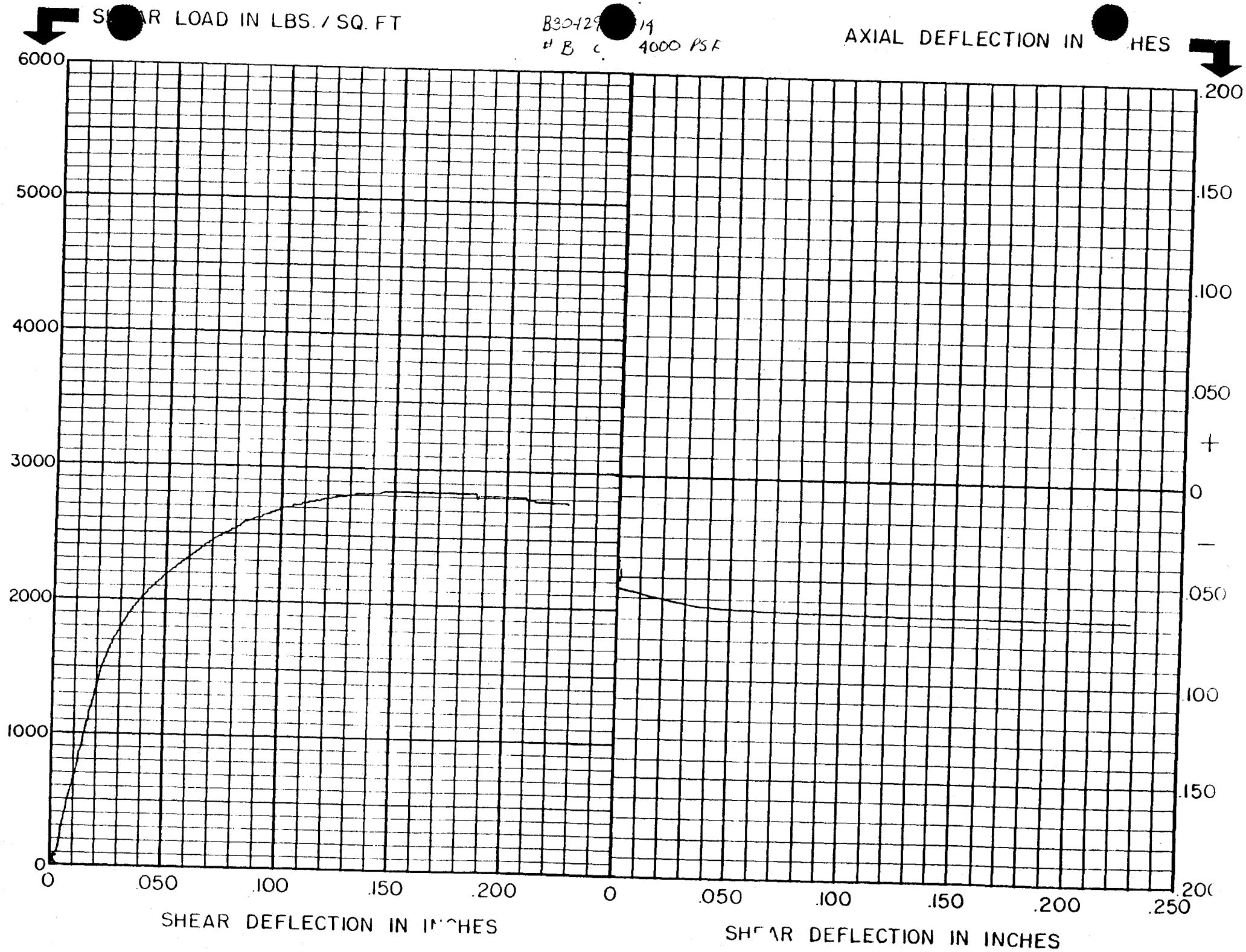
TEST SET-UP		
LOAD	☐ ☒	DEFLECTION
CONTINUOUS	☒ ☐	INCREMENT
INCREASE	☒ ☐	DECREASE
INCREMENT INTERVAL		MIN.
RECORDING INTERVAL		MIN.
LOAD INCREMENT		LBS./SQ. FT.
DEFLECTION INCREMENT		INCHES
LOADING SPEED		LBS./SQ.FT./MIN.
DEFLECTING SPEED	.02	INCHES/MIN.

TEST SUMMARY	
NORMAL PRESS. 4000 LBS./SQ. FT.	YIELD STRENGTH LBS./SQ. FT.
DRY DENSITY 96.5 LBS./CU. FT.	PEAK STRENGTH 2830 LBS./SQ. FT.
FIELD MOISTURE 22.6 % OF DRY WT.	ULTIMATE STR. 2780 LBS./SQ. FT.
TEST MOISTURE % OF DRY WT.	FRICTION STR. LBS./SQ. FT.

NOTES:

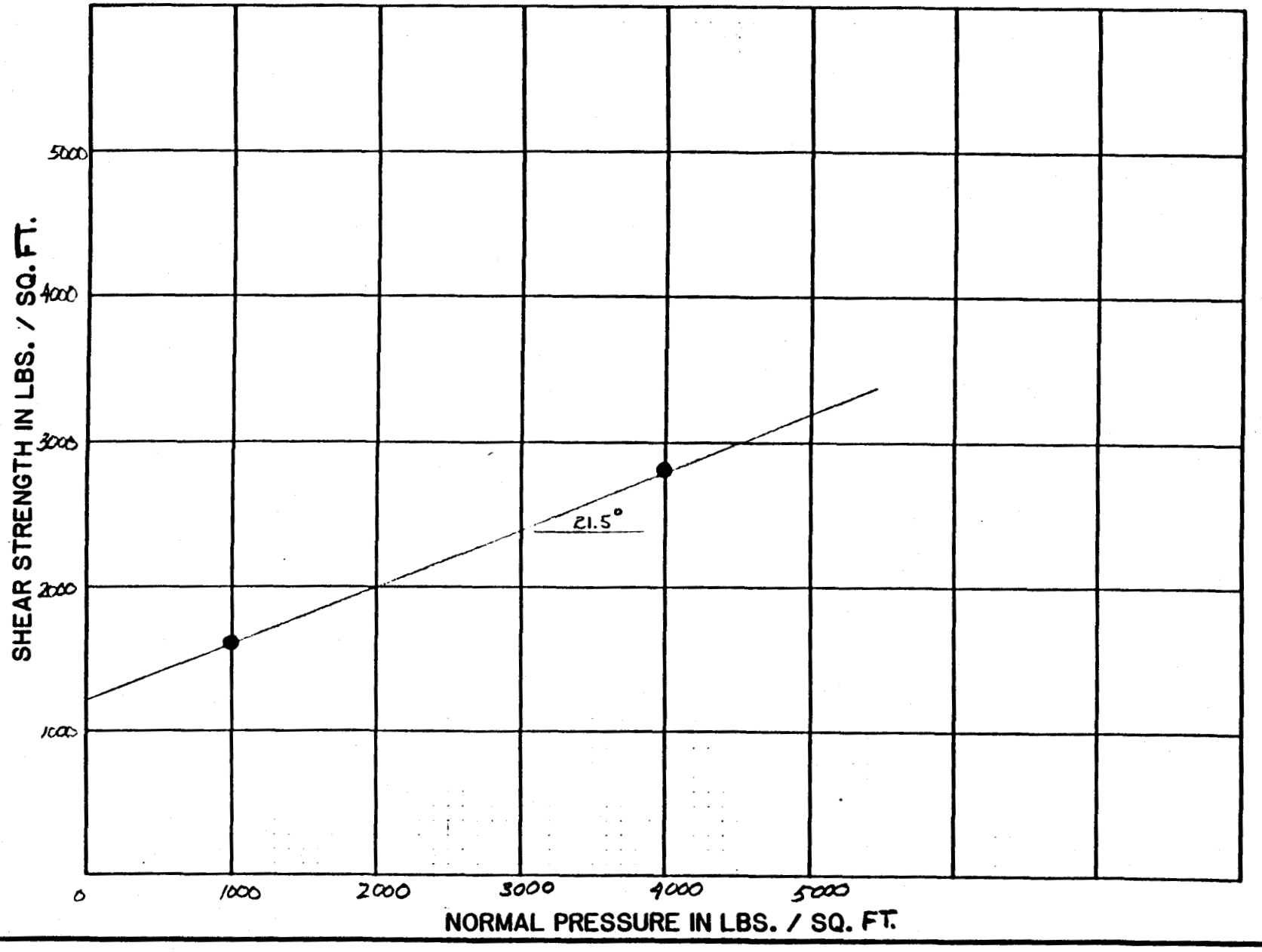
2-Point Test

FORM #857.34 (SA)



SHEAR LOAD IN LBS. / SQ. FT
B30429 14
B c 4000 PSF
AXIAL DEFLECTION IN INCHES
6000
5000
4000
3000
2000
1000
0
.200
.150
.100
.050
+
0
−
.050
.100
.150
.200
0
.050
.100
.150
.200
.250
SHEAR DEFLECTION IN INCHES
SHEAR DEFLECTION IN INCHES

DIRECT SHEAR TEST DATA



B3042901314

PLOTTED @ MAXIMUM SHEAR STRESS

DIRECT SHEAR TEST OWNER Weston LOCATION Rocky Flats JOB # 2066-01

FRICTION TEST SOIL TYPE 2.11" Liner EG&G BORING B304290252

DATA SHEET LAB IDENT. # A DEPTH 25-26'

SAMPLED KH 7/19/90 SET-UP CJ 9/9/90 TESTED CJ 9/19/90 (OFFICE)

MOISTURE & DENSITY	FIELD	TEST
WT. SOIL & 2 RINGS	379.19g	
WT. 2 RINGS	92.08g	
NET WT. SOIL	287.1g	
WET DENSITY LBS./CU./FT.	119.9	
WT. DISH # 45 & SOIL	84.83g	
DRY WT. SOIL & DISH	71.11g	
NET LOSS OF MOISTURE	13.72g	
WT. DISH	3.71g	
NET WT. OF DRY SOIL	67.40g	

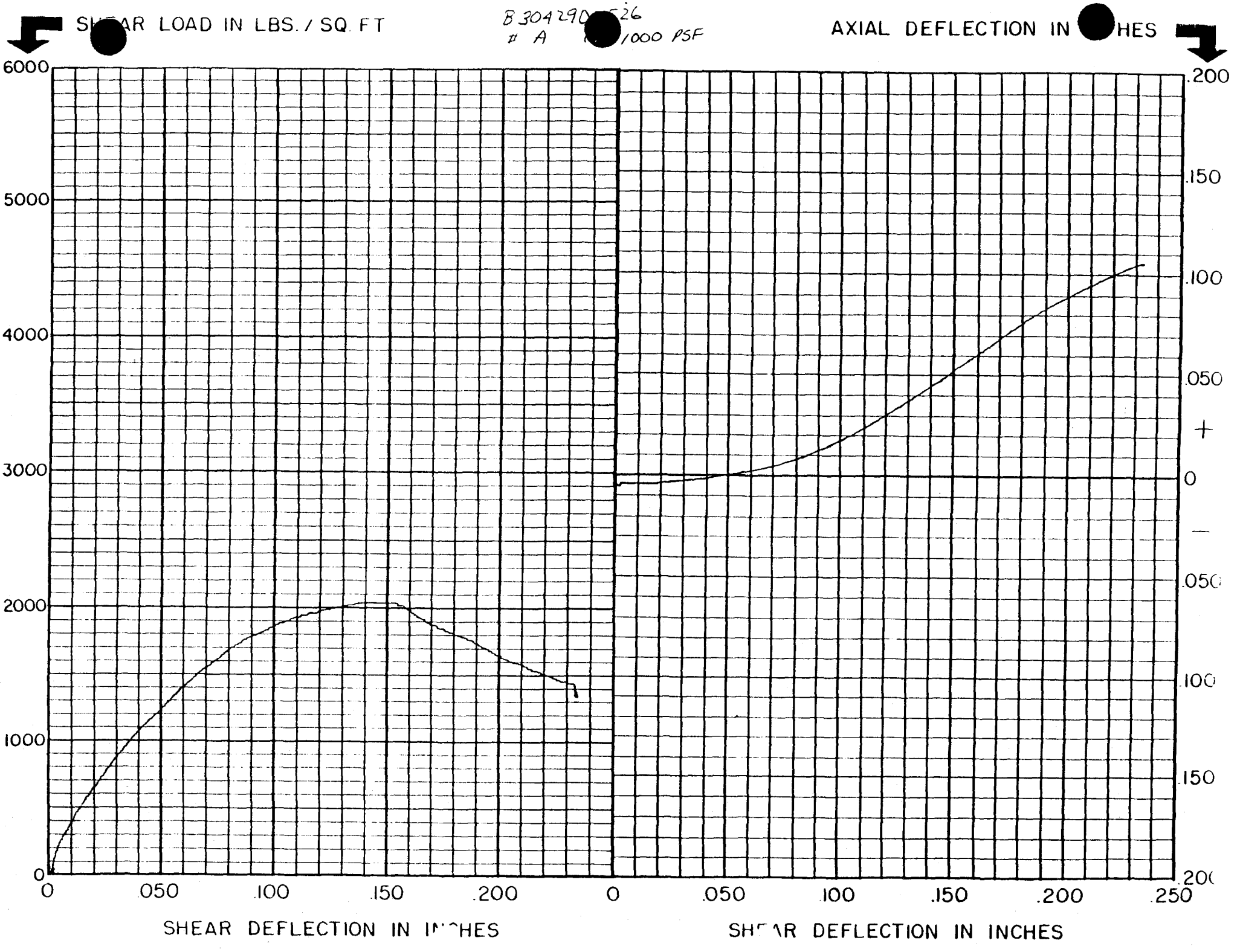
TEST SET-UP		
LOAD	☐ ☒	DEFLECTION
CONTINUOUS	☒ ☐	INCREMENT
INCREASE	☒ ☐	DECREASE
INCREMENT INTERVAL		MIN.
RECORDING INTERVAL		MIN.
LOAD INCREMENT		LBS./SQ. FT.
DEFLECTION INCREMENT		INCHES
LOADING SPEED		LBS./SQ.FT./MIN.
DEFLECTING SPEED	.02	INCHES/MIN.

TEST SUMMARY	
NORMAL PRESS. 1000 LBS./SQ. FT.	YIELD STRENGTH LBS./SQ. FT.
DRY DENSITY 99.6 LBS./CU. FT.	PEAK STRENGTH 2040 LBS./SQ. FT.
FIELD MOISTURE 20.4 % OF DRY WT.	ULTIMATE STR. 1450 LBS./SQ. FT.
TEST MOISTURE % OF DRY WT.	FRICTION STR. LBS./SQ. FT.

NOTES:

2-Point Test

FORM #857.34 (SA)


SHEAR LOAD IN LBS. / SQ. FT
B 304290 526
A
/1000 PSF
AXIAL DEFLECTION IN HES
6000
5000
4000
3000
2000
1000
0
0
.050
.100
.150
.200
SHEAR DEFLECTION IN INCHES
0
.050
.100
.150
.200
.250
SHEAR DEFLECTION IN INCHES
.200
.150
.100
.050
+
0
—
.050
.100
.150
.200

DIRECT SHEAR TEST

_____ FRICTION TEST

DATA SHEET

OWNER Weston LOCATION Rocky Flats JOB # 2066-01

SOIL TYPE 2.41" Liner EG&G BORING B30429025 2(

LAB IDENT. #B DEPTH 25-26'

SAMPLED _____ / / SET-UP _____ / / TESTED _____ / / (_____ OFFICE)

MOISTURE & DENSITY	FIELD	TEST
WT. SOIL & 2 RINGS	387.16g	
WT. 2 RINGS	91.32g	
NET WT. SOIL	295.84g	
WET DENSITY LBS./CU./FT.	123.5	
WT. DISH # 37 & SOIL	81.36g	
DRY WT. SOIL & DISH	67.99g	
NET LOSS OF MOISTURE	13.37g	
WT. DISH	3.73g	
NET WT. OF DRY SOIL	64.26g	

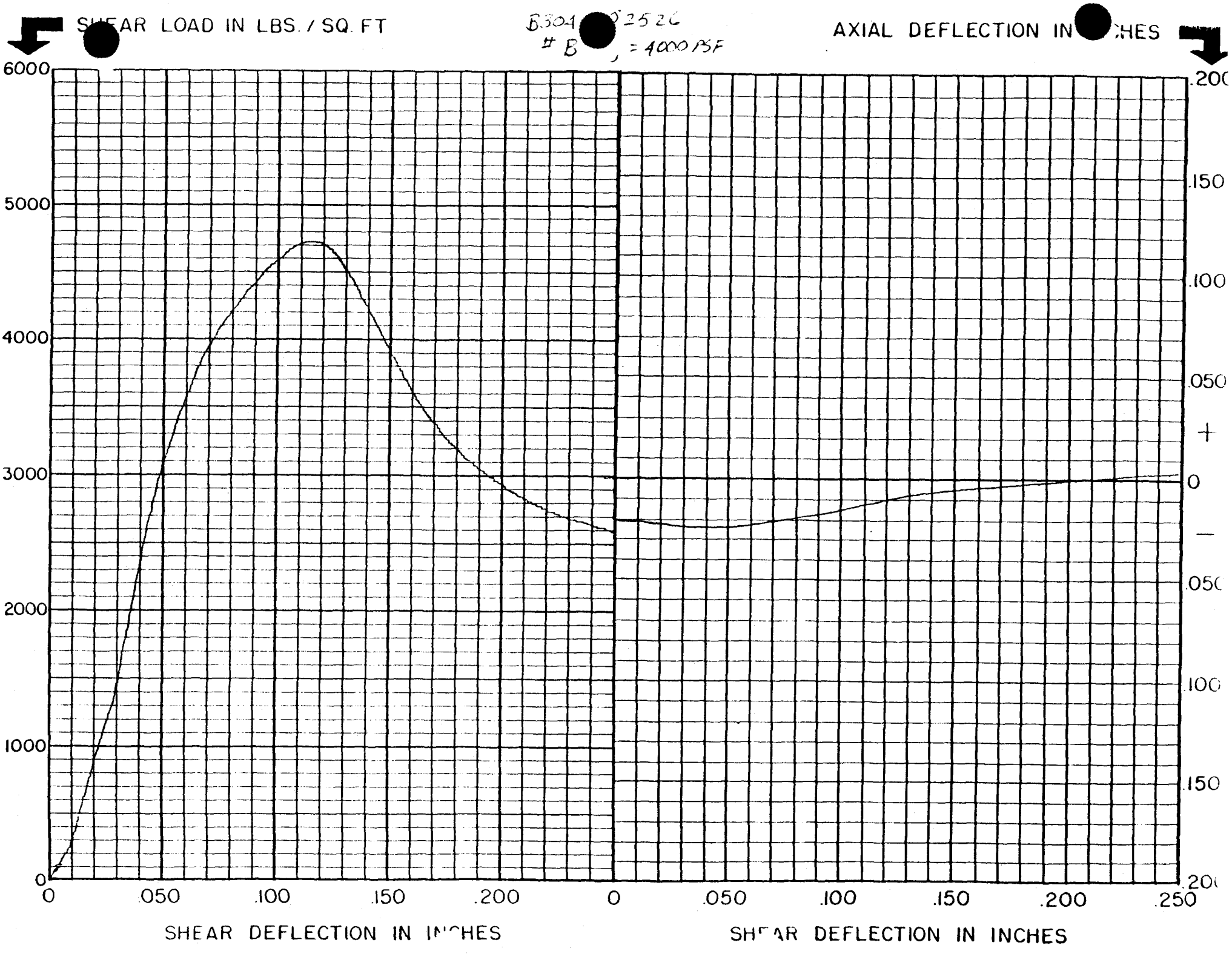
TEST SET-UP		
LOAD	☐ ☒	DEFLECTION
CONTINUOUS	☒ ☐	INCREMENT
INCREASE	☒ ☐	DECREASE
INCREMENT INTERVAL		MIN.
RECORDING INTERVAL		MIN.
LOAD INCREMENT		LBS./SQ. FT.
DEFLECTION INCREMENT		INCHES
LOADING SPEED		LBS./SQ.FT./MIN.
DEFLECTING SPEED	.02	INCHES/MIN.

TEST SUMMARY	
NORMAL PRESS. 4000 LBS./SQ. FT.	YIELD STRENGTH _____ LBS./SQ. FT.
DRY DENSITY 102.3 LBS./CU. FT.	PEAK STRENGTH 4720 LBS./SQ. FT.
FIELD MOISTURE 20.8 % OF DRY WT.	ULTIMATE STR. 2600 LBS./SQ. FT.
TEST MOISTURE _____ % OF DRY WT.	FRICTION STR. _____ LBS./SQ. FT.

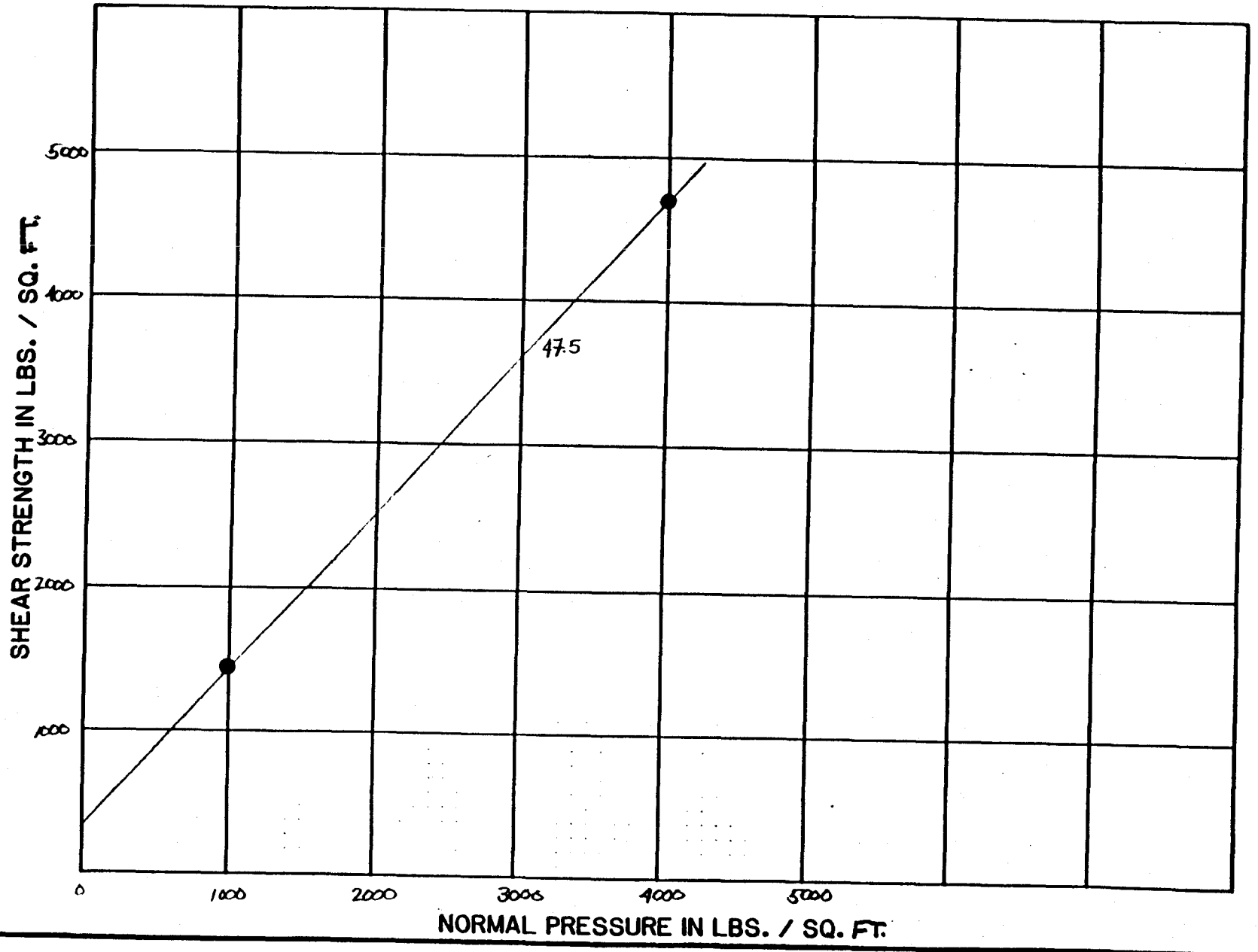
NOTES:

2-Point Test

FORM #857.34 (SA)


SHEAR LOAD IN LBS. / SQ. FT
B304 2526
B = 4000 PSF
AXIAL DEFLECTION IN INCHES
6000
5000
4000
3000
2000
1000
0
.200
.150
.100
.050
+
0
−
.050
.100
.150
.200
0
.050
.100
.150
.200
.250
SHEAR DEFLECTION IN INCHES
SHEAR DEFLECTION IN INCHES

DIRECT SHEAR TEST DATA



B3042902526

PLOTTED @ MAXIMUM SHEAR STRESS

DIRECT SHEAR TEST OWNER Weston LOCATION Rocky Flats JOB # 7066-01

FRICTION TEST SOIL TYPE 2.1" Liner EG&G BORING B304290171B

DATA SHEET LAB IDENT. #A DEPTH 17-18'

SAMPLED KH 7/19/90 SET-UP DJ 9/9/90 TESTED DJ 9/9/90 (OFFICE)

MOISTURE & DENSITY	FIELD	TEST
WT. SOIL & 2 RINGS	367.99g	
WT. 2 RINGS	92.26g	
NET WT. SOIL	275.73g	
WET DENSITY LBS./CU./FT.	115.1	
WT. DISH # 95 & SOIL	75.50g	
DRY WT. SOIL & DISH	60.24g	
NET LOSS OF MOISTURE	15.26g	
WT. DISH	3.67g	
NET WT. OF DRY SOIL	56.57g	

TEST SET-UP		
LOAD		DEFLECTION
CONTINUOUS		INCREMENT
INCREASE		DECREASE
INCREMENT INTERVAL		MIN.
RECORDING INTERVAL		MIN.
LOAD INCREMENT		LBS./SQ. FT.
DEFLECTION INCREMENT		INCHES
LOADING SPEED		LBS./SQ.FT./MIN.
DEFLECTING SPEED	.02	INCHES/MIN.

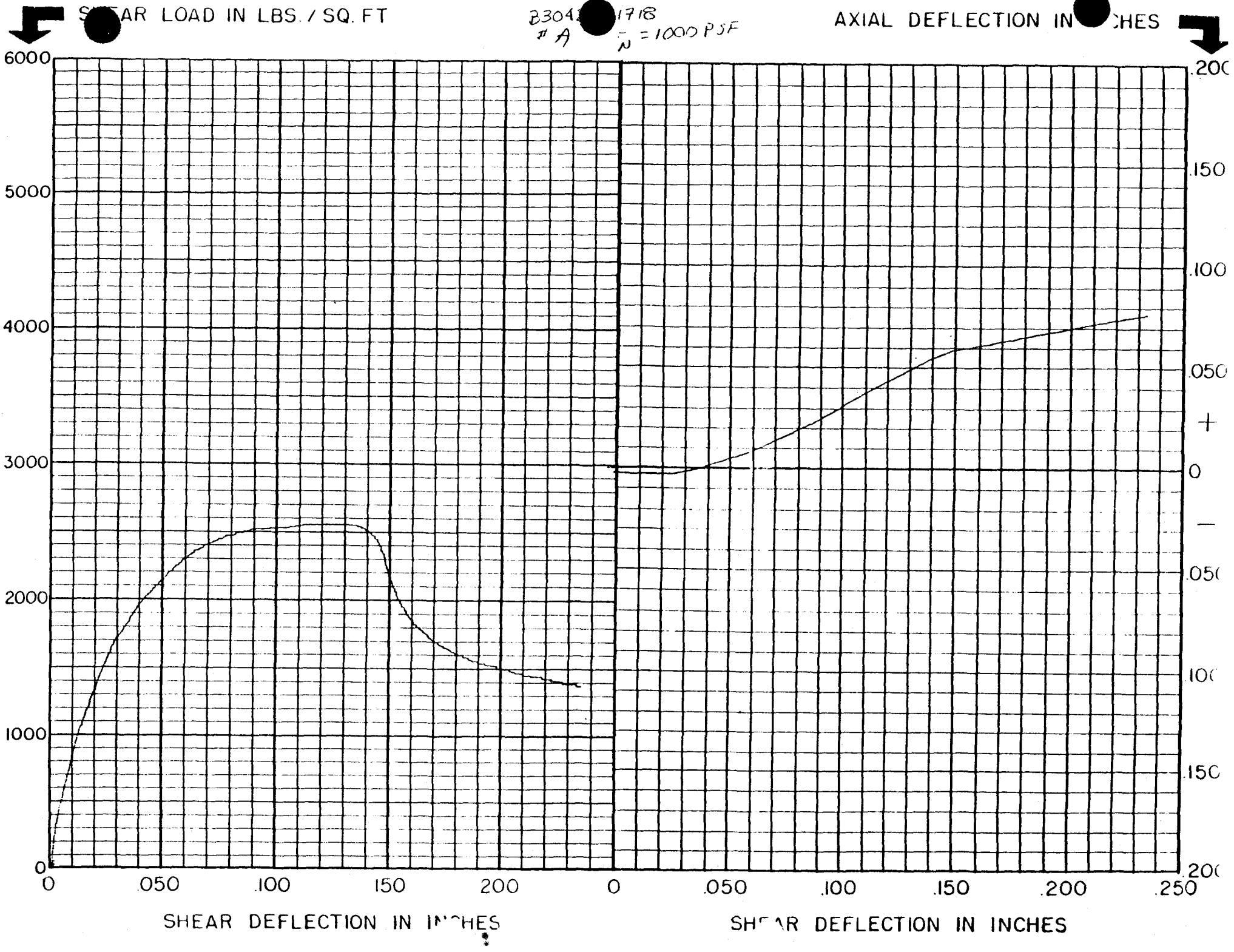
TEST SUMMARY	
NORMAL PRESS. 1000 LBS./SQ. FT.	YIELD STRENGTH LBS./SQ. FT.
DRY DENSITY 90.7 LBS./CU. FT.	PEAK STRENGTH 2550 LBS./SQ. FT.
FIELD MOISTURE 27.0 % OF DRY WT.	ULTIMATE STR. 1380 LBS./SQ. FT.
TEST MOISTURE % OF DRY WT.	FRICTION STR. LBS./SQ. FT.

NOTES:

Gravelly Clay Material

2-Point Test

FORM #857.34 (SA)


SHEAR LOAD IN LBS. / SQ. FT
AXIAL DEFLECTION IN INCHES
6000
5000
4000
3000
2000
1000
0
.050
.100
.150
.200
.250
+
−
SHEAR DEFLECTION IN INCHES
SHEAR DEFLECTION IN INCHES

DIRECT SHEAR TEST OWNER WESTON LOCATION ROCKY FLATS JOB # 2066-01

FRICTION TEST SOIL TYPE 2.41" LINER BORING B301290 17-18

DATA SHEET LAB IDENT. #5 DEPTH 17-18'

SAMPLED KH 7/17/90 SET-UP CW 9/9/90 TESTED CW 9/9/90 (____ OFFICE)

MOISTURE & DENSITY	FIELD	TEST
WT. SOIL & 2 RINGS	382.11g	
WT. 2 RINGS	92.82g	
NET WT. SOIL	289.29g	
WET DENSITY LBS./CU./FT.	120.8	
WT. DISH # 02 & SOIL	71.20g	
DRY WT. SOIL & DISH	57.01g	
NET LOSS OF MOISTURE	14.19g	
WT. DISH	3.64g	
NET WT. OF DRY SOIL	53.37g	

TEST SET-UP		
LOAD	☐ ☒	DEFLECTION
CONTINUOUS	☒ ☐	INCREMENT
INCREASE	☒ ☐	DECREASE
INCREMENT INTERVAL		MIN.
RECORDING INTERVAL		MIN.
LOAD INCREMENT		LBS./SQ. FT.
DEFLECTION INCREMENT		INCHES
LOADING SPEED		LBS./SQ.FT./MIN.
DEFLECTING SPEED	.02	INCHES/MIN.

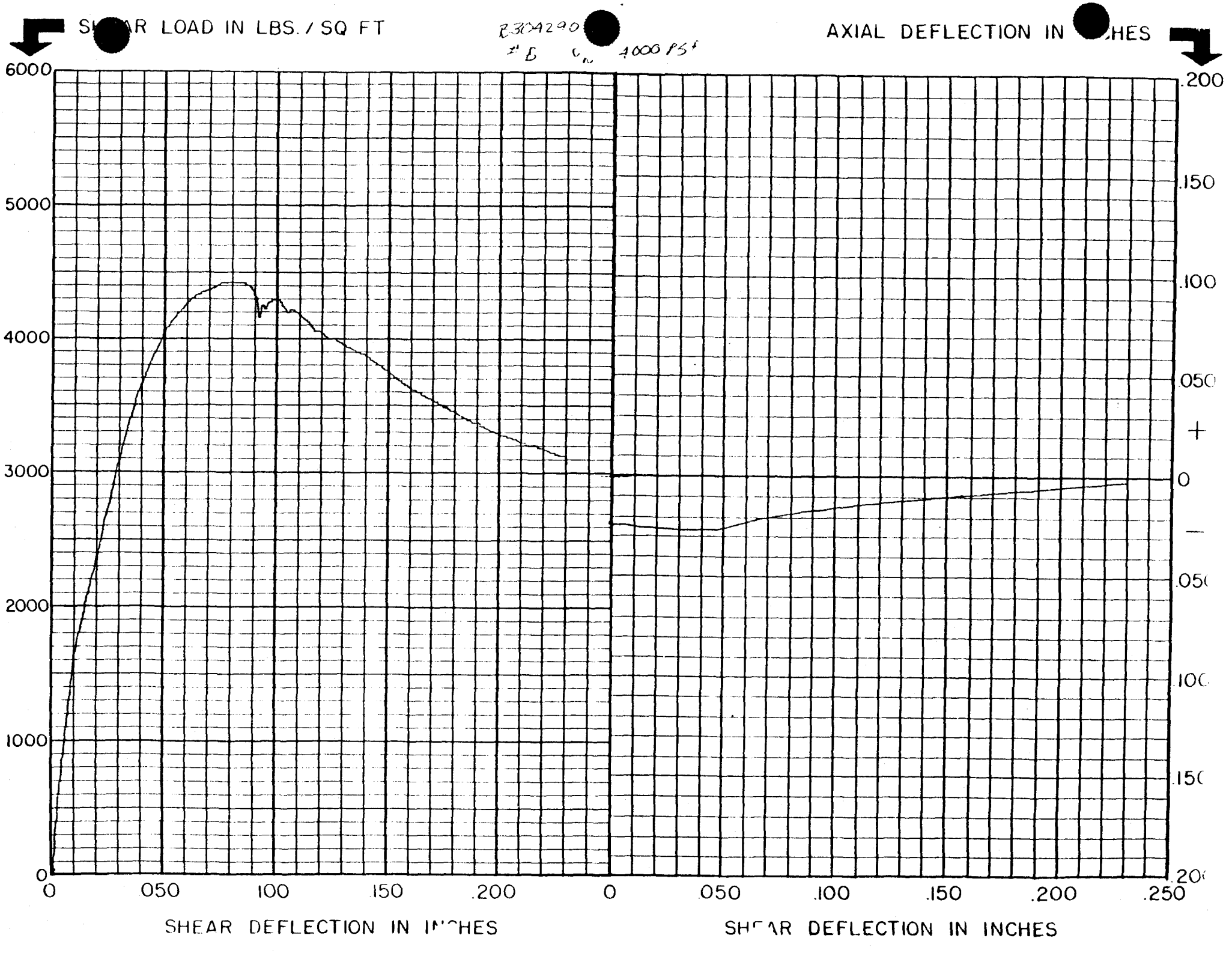
TEST SUMMARY	
NORMAL PRESS. 4000 LBS./SQ. FT.	YIELD STRENGTH ____ LBS./SQ. FT.
DRY DENSITY 95.4 LBS./CU. FT.	PEAK STRENGTH 4420 LBS./SQ. FT.
FIELD MOISTURE 26.6 % OF DRY WT.	ULTIMATE STR. 3130 LBS./SQ. FT.
TEST MOISTURE ____ % OF DRY WT.	FRICTION STR. ____ LBS./SQ. FT.

NOTES:

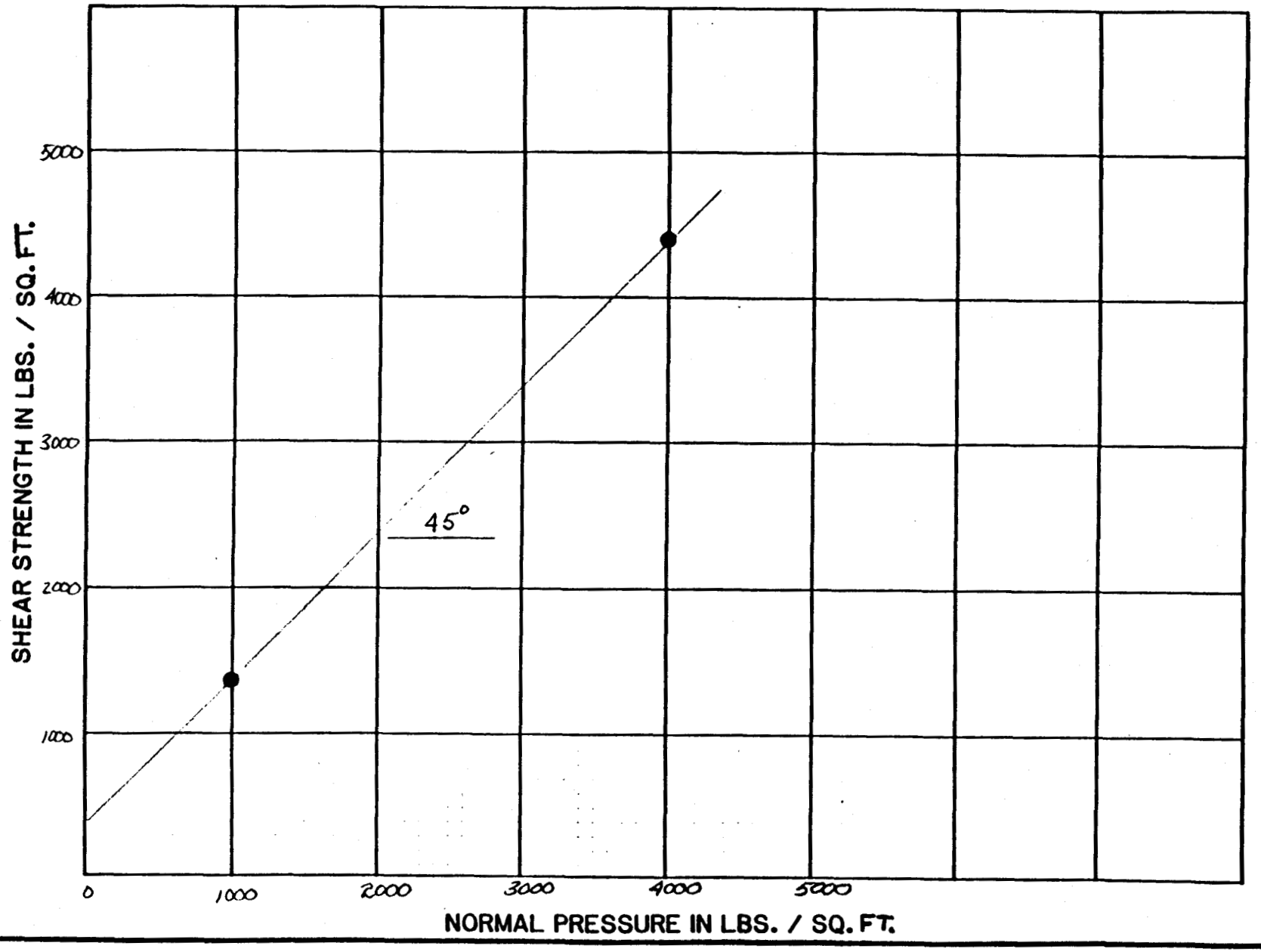
GRAVELLY CLAY MATERIAL

2-POINT TEST

FORM #857.34 (SA)


SHEAR LOAD IN LBS. / SQ FT
AXIAL DEFLECTION IN INCHES
6000
5000
4000
3000
2000
1000
0
.200
.150
.100
.050
+
0
—
.050
.100
.150
.200
0
.050
.100
.150
.200
.250
SHEAR DEFLECTION IN INCHES
SHEAR DEFLECTION IN INCHES

DIRECT SHEAR TEST DATA



B3042901718

PLOTTED @ MAXIMUM SHEAR STRESS

DIRECT SHEAR TEST OWNER Weston LOCATION Rocky Flats JOB # 2066-01

FRICTION TEST SOIL TYPE 2.41" Liner BORING B3040901011

DATA SHEET LAB IDENT. #A DEPTH 10-11'

SAMPLED ZR 7/18/90 SET-UP CJ 9/5/90 TESTED CJ 9/5/90 (OFFICE)

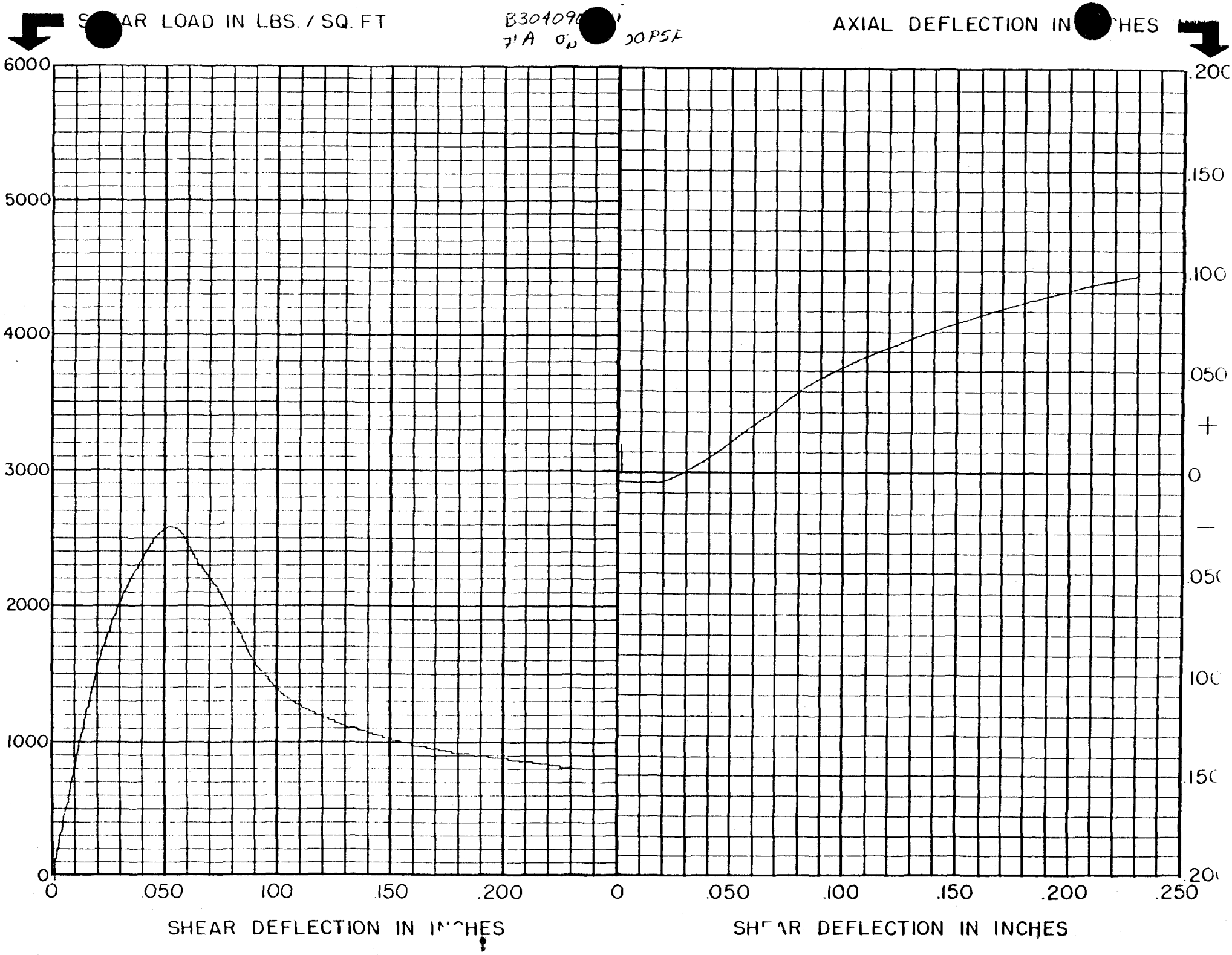
MOISTURE & DENSITY	FIELD	TEST
WT. SOIL & 2 RINGS	385.06g	
WT. 2 RINGS	90.21g	
NET WT. SOIL	294.85g	
WET DENSITY LBS./CU./FT.	123.1	
WT. DISH # D3 & SOIL	72.44g	
DRY WT. SOIL & DISH	61.00g	
NET LOSS OF MOISTURE	11.44g	
WT. DISH	3.66g	
NET WT. OF DRY SOIL	57.34g	

TEST SET-UP		
LOAD	☐ ☒	DEFLECTION
CONTINUOUS	☒ ☐	INCREMENT
INCREASE	☒ ☐	DECREASE
INCREMENT INTERVAL		MIN.
RECORDING INTERVAL		MIN.
LOAD INCREMENT		LBS./SQ. FT.
DEFLECTION INCREMENT		INCHES
LOADING SPEED		LBS./SQ.FT./MIN.
DEFLECTING SPEED	.02	INCHES/MIN.

TEST SUMMARY	
NORMAL PRESS. 1000 LBS./SQ. FT.	YIELD STRENGTH LBS./SQ. FT.
DRY DENSITY 102.6 LBS./CU. FT.	PEAK STRENGTH 2580 LBS./SQ. FT.
FIELD MOISTURE 20.0 % OF DRY WT.	ULTIMATE STR. 700 LBS./SQ. FT.
TEST MOISTURE % OF DRY WT.	FRICTION STR. LBS./SQ. FT.

NOTES:

FORM #857.34 (SA)



S[illegible]AR LOAD IN LBS. / SQ. FT
B304090[illegible]
7'A σN [illegible] 20 PSF
AXIAL DEFLECTION IN [illegible]HES
6000
5000
4000
3000
2000
1000
0
.200
.150
.100
.050
+
0
—
.050
.100
.150
.200
0
.050
.100
.150
.200
0
.050
.100
.150
.200
.250
SHEAR DEFLECTION IN IN[illegible]HES
SH[illegible]AR DEFLECTION IN INCHES

DIRECT SHEAR TEST OWNER Weston LOCATION Rocky Flats JOB # 2066-01

_____ **FRICTION TEST** SOIL TYPE EG&G 2.41" Liner BORING B3040901011

DATA SHEET LAB IDENT. #B DEPTH 10-11'

SAMPLED ZR 7/18/90 SET-UP Q 9/5/90 TESTED Q 9/5/90 (____ OFFICE)

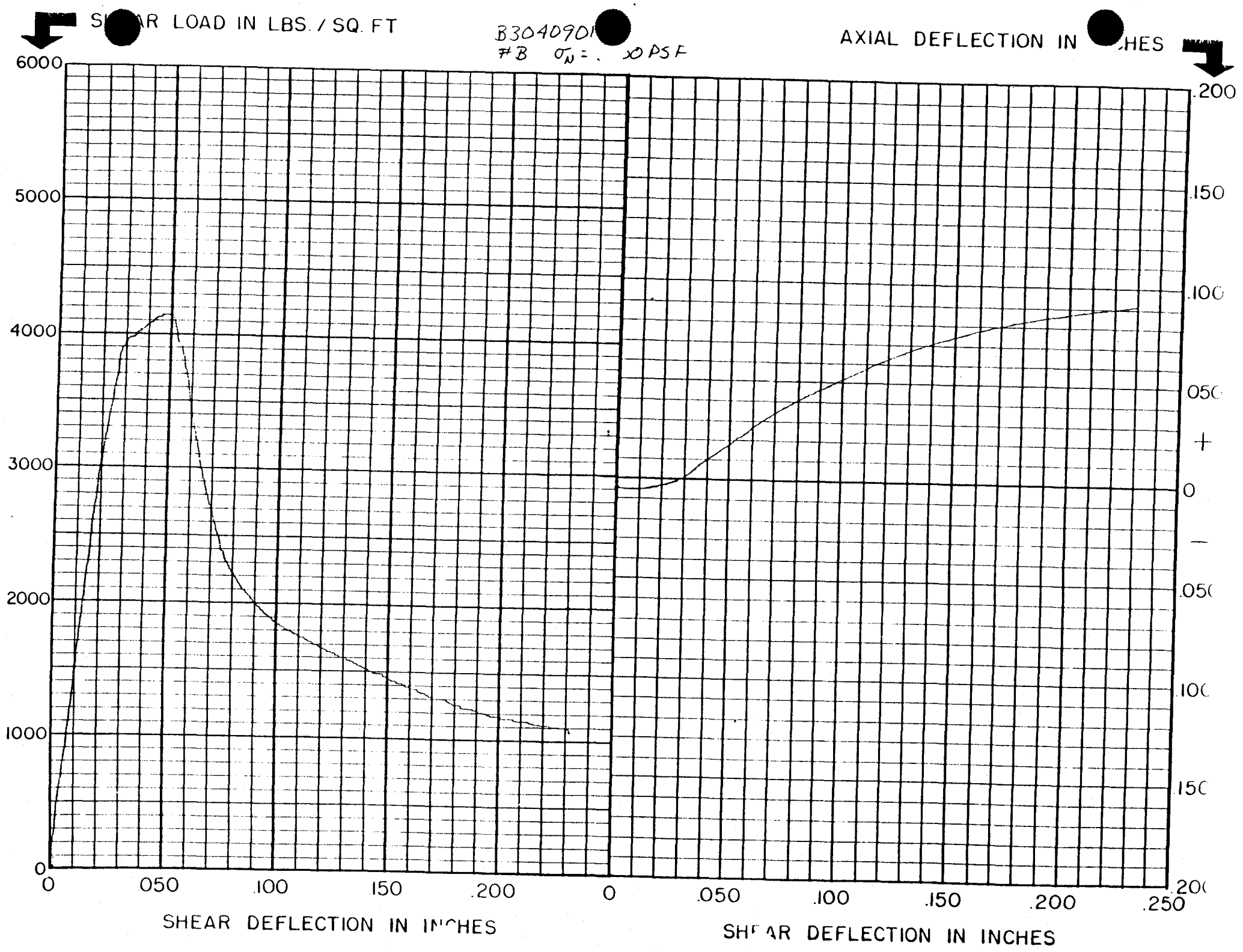
MOISTURE & DENSITY	FIELD	TEST
WT. SOIL & 2 RINGS	392.80g	
WT. 2 RINGS	90.20g	
NET WT. SOIL	302.6g	
WET DENSITY LBS./CU./FT.	126.4	
WT. DISH # 206 & SOIL	71.25g	
DRY WT. SOIL & DISH	58.71g	
NET LOSS OF MOISTURE	12.54g	
WT. DISH	3.74g	
NET WT. OF DRY SOIL	54.97g	

TEST SET-UP		
LOAD		DEFLECTION
CONTINUOUS		INCREMENT
INCREASE		DECREASE
INCREMENT INTERVAL		MIN.
RECORDING INTERVAL		MIN.
LOAD INCREMENT		LBS./SQ. FT.
DEFLECTION INCREMENT		INCHES
LOADING SPEED		LBS./SQ.FT./MIN.
DEFLECTING SPEED	.02	INCHES/MIN.

TEST SUMMARY	
NORMAL PRESS. 2000 LBS./SQ. FT.	YIELD STRENGTH ____ LBS./SQ. FT.
DRY DENSITY 102.9 LBS./CU. FT.	PEAK STRENGTH 4150 LBS./SQ. FT.
FIELD MOISTURE 22.8 % OF DRY WT.	ULTIMATE STR. 1100 LBS./SQ. FT.
TEST MOISTURE ____ % OF DRY WT.	FRICTION STR. ____ LBS./SQ. FT.

NOTES:

FORM #857.34 (SA)


SHEAR LOAD IN LBS. / SQ. FT
B3040901
#B σN = . 30 PSF
AXIAL DEFLECTION IN INCHES
6000
5000
4000
3000
2000
1000
0
0
.050
.100
.150
.200
SHEAR DEFLECTION IN INCHES
0
.050
.100
.150
.200
.250
SHEAR DEFLECTION IN INCHES
.200
.150
.100
.050
+
0
−
.050
.100
.150
.200

DIRECT SHEAR TEST OWNER WESTON LOCATION ROCKY FLATS JOB # 2066-01

_____ FRICTION TEST SOIL TYPE 2.41" LINER EG&G BORING 830409010 11

DATA SHEET LAB IDENT. #C DEPTH 10-11'

SAMPLED ZR 7/18/90 SET-UP CD 9/5/90 TESTED GL 9/5/90 (____ OFFICE)

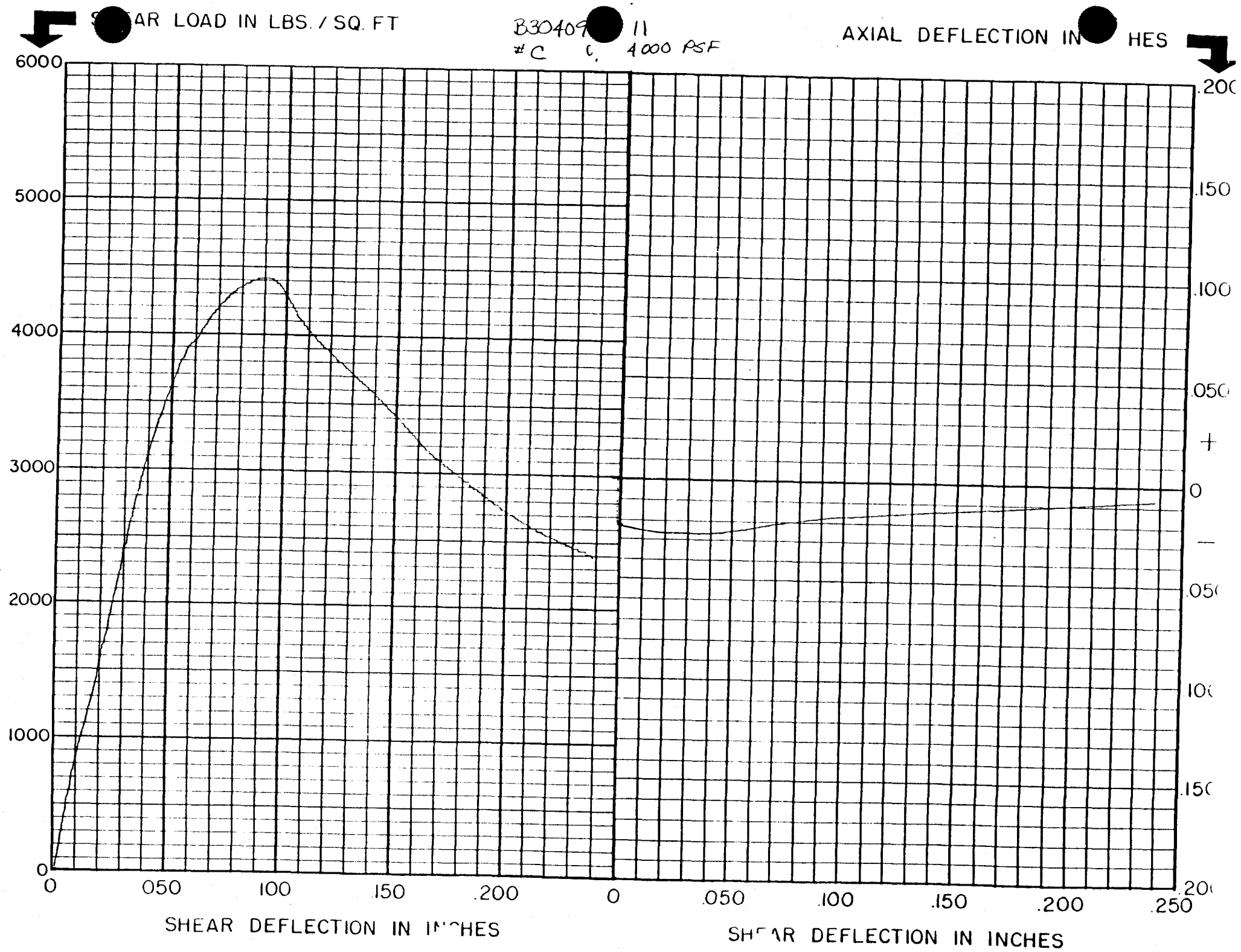
MOISTURE & DENSITY	FIELD	TEST
WT. SOIL & 2 RINGS	379.11g	
WT. 2 RINGS	91.21g	
NET WT. SOIL	287.90g	
WET DENSITY LBS./CU./FT.	120.2	
WT. DISH # 517 & SOIL	64.70g	
DRY WT. SOIL & DISH	53.85g	
NET LOSS OF MOISTURE	10.85g	
WT. DISH	3.74g	
NET WT. OF DRY SOIL	50.11g	

TEST SET-UP		
LOAD	☐ ☒	DEFLECTION
CONTINUOUS	☒ ☐	INCREMENT
INCREASE	☒ ☐	DECREASE
INCREMENT INTERVAL		MIN.
RECORDING INTERVAL		MIN.
LOAD INCREMENT		LBS./SQ. FT.
DEFLECTION INCREMENT		INCHES
LOADING SPEED		LBS./SQ.FT./MIN.
DEFLECTING SPEED	.02	INCHES/MIN.

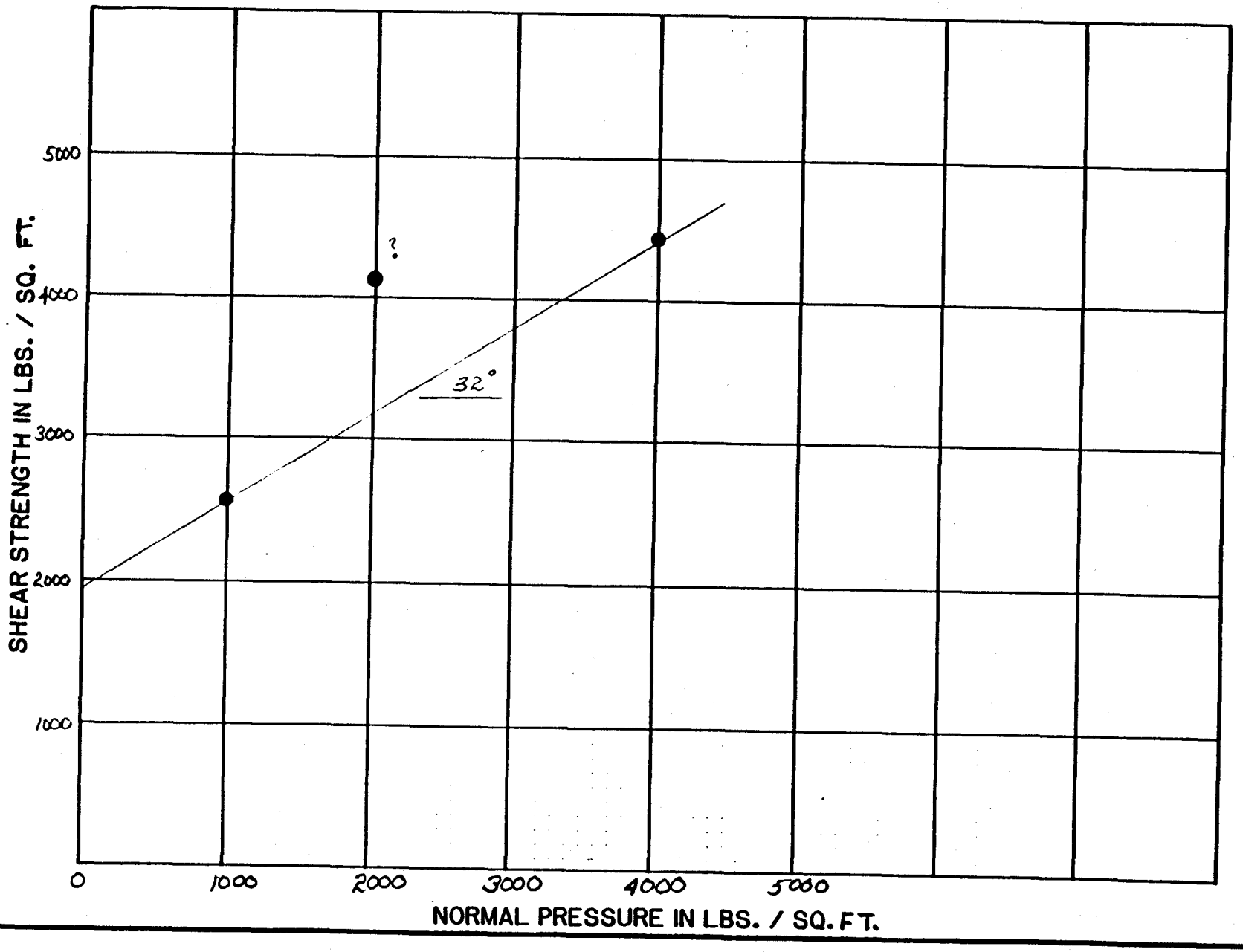
TEST SUMMARY	
NORMAL PRESS. 1000 LBS./SQ. FT.	YIELD STRENGTH ____ LBS./SQ. FT.
DRY DENSITY 98.8 LBS./CU. FT.	PEAK STRENGTH 4420 LBS./SQ. FT.
FIELD MOISTURE 21.7 % OF DRY WT.	ULTIMATE STR. 2400 LBS./SQ. FT.
TEST MOISTURE ____ % OF DRY WT.	FRICTION STR. ____ LBS./SQ. FT.

NOTES:

FORM #857.34 (SA)


SHEAR LOAD IN LBS. / SQ. FT
B30409 11
#C 4000 PSF
AXIAL DEFLECTION IN HES
6000
5000
4000
3000
2000
1000
0
0
050
100
150
.200
0
.050
.100
.150
.200
.250
.200
.150
.100
.050
+
0
—
.050
.100
.150
.200
SHEAR DEFLECTION IN INCHES
SHEAR DEFLECTION IN INCHES

DIRECT SHEAR TEST DATA



B304090/011

PLOTTED @ MAXIMUM SHEAR STRESS

APPENDIX B-4

TRIAXIAL COMPRESSION STRENGTH TEST DATA

TRIAXAL COMPRESSION TEST DATA

CLIENT Weston

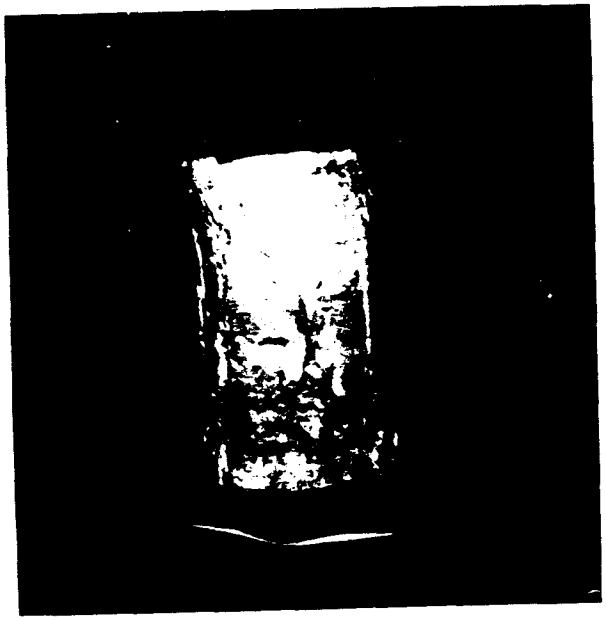
JOB NO. 2066-01

BORING NO.	B3-009-90	SAMPLED	--
DEPTH	19.3-20.1'	TEST STARTED	5-2-90 DCW
SAMPLE NO.	EG&G	TEST FINISHED	5-2-90 DCW
SOIL DESCR.	Rock Core	SETUP NO.	3N
TEST TYPE	TX/UU	SATURATED TEST	No
CONF. PRES. PSF	2000	AT FIELD MOIST.	Yes

MOISTURE/DENSITY DATA		BEFORE TEST	AFTER
Wt. Soil + Moisture	(g)	342	Sec4
Wt. Wet Soil & Pan	(g)	350	
Wt. Dry Soil & Pan	(g)	304	
Wt. Lost Moisture	(g)	46.	
Wt. of Pan Only	(g)	8.	B.4
Wt. of Dry Soil	(g)	296.	
Moisture Content %		15.	
Wet Density PCF		130.5	130.5
Dry Density PCF		112.8	112.8

Init. Diameter	(in)	1.845
Init. Area	(sq in)	2.674
Init. Height	(in)	3.740
Vol. Bef. Consol.	(cu ft)	0.00579
Vol. After Consol.	(cu ft)	0.00579

Notes & Comments:



B3-009-90
19.3 - 20.1'
TX/UU σ_3 = 2,000PSF

ADVANCED TERRA TESTING, INC.

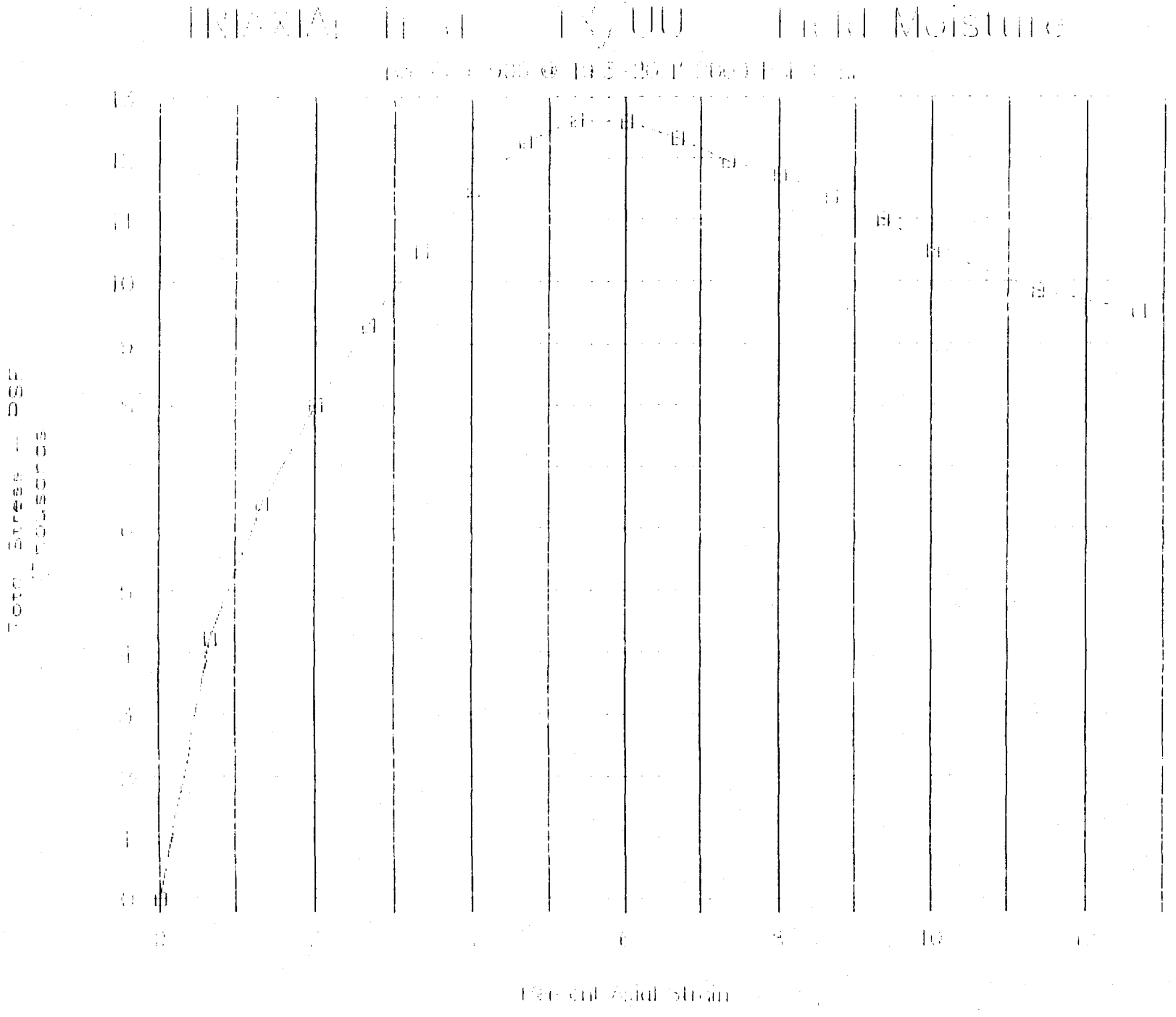
TRIAXAL COMPRESSION TEST DATA

CLIENT	Weston	JOB NO.	2066-01
BORING NO.	B3-009-90	SAMPLED	--
DEPTH	19.3-20.1'	TEST STARTED	5-2-90 DCW
SAMPLE NO.	EG&G	TEST FINISHED	5-2-90 DCW
SOIL DESCR.	Rock Core	SETUP NO.	3N
TEST TYPE	TX/UU	SATURATED TEST	No
CONF. PRES. PSF	2000	AT FIELD MOIST.	Yes

Init. Ht.	(in)	3.740	Init. Area	(sq in)	2.674
Consol. Ht.	(in)	3.740	Consol. Area	(sq in)	2.674
Back Pres.	PSI	0.0	Strain Rate	(in/min)	0.080

Axial Load Lbs.	Axial Load PSF	Delta Ht. In.	Axial % Strain	Area Final Sq In.	Dev. Stress PSF	Pore Pres. PSI	Delta Pres. PSF	Sigma 3 PSF	Sigma 1 PSF	Prin. Stress Ratio
0.0	0	0.00	0.00	2.674	0	0.00	0.0	2000	0	0.00
41.5	2235	0.03	0.67	2.692	2220	0.00	0.0	2000	4220	2.11
83.0	4471	0.05	1.34	2.710	4411	0.00	0.0	2000	6411	3.21
114.0	6140	0.08	2.01	2.728	6017	0.00	0.0	2000	8017	4.01
139.5	7514	0.10	2.67	2.747	7313	0.00	0.0	2000	9313	4.66
163.5	8806	0.13	3.34	2.766	8512	0.00	0.0	2000	10512	5.26
183.5	9884	0.15	4.01	2.785	9487	0.00	0.0	2000	11487	5.74
200.0	10772	0.18	4.68	2.805	10268	0.00	0.0	2000	12268	6.13
208.5	11230	0.20	5.35	2.825	10630	0.00	0.0	2000	12630	6.31
209.5	11284	0.23	6.02	2.845	10605	0.00	0.0	2000	12605	6.30
205.5	11069	0.25	6.68	2.865	10329	0.00	0.0	2000	12329	6.16
199.5	10745	0.28	7.35	2.886	9955	0.00	0.0	2000	11955	5.98
196.5	10584	0.30	8.02	2.907	9735	0.00	0.0	2000	11735	5.87
190.5	10261	0.33	8.69	2.928	9369	0.00	0.0	2000	11369	5.68
184.5	9937	0.35	9.36	2.950	9008	0.00	0.0	2000	11008	5.50
175.5	9453	0.38	10.03	2.971	8505	0.00	0.0	2000	10505	5.25
164.5	8860	0.43	11.36	3.016	7853	0.00	0.0	2000	9853	4.93
160.0	8618	0.48	12.70	3.062	7523	0.00	0.0	2000	9523	4.76

ADVANCED TERRA TESTING, INC.


Total Stress - PSI
Percent Axial Strain

TRIAXAL COMPRESSION TEST DATA

CLIENT Weston

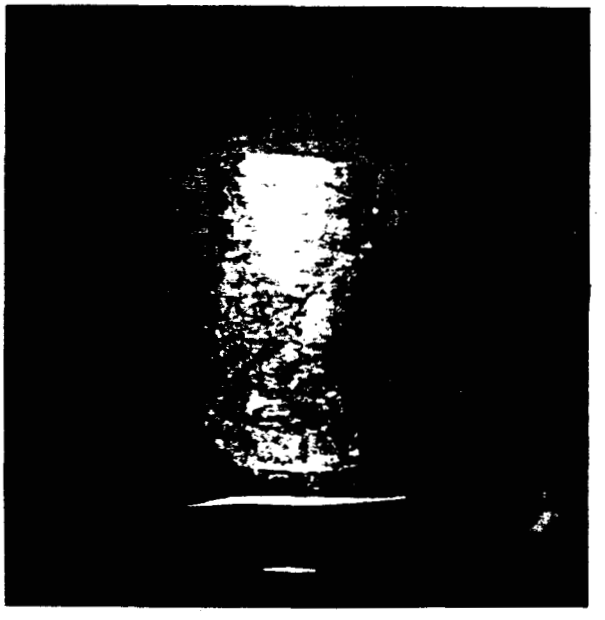
JOB NO. 2066-01

BORING NO.	B3-012-90	SAMPLED	EG&G
DEPTH	18.0-18.5'	TEST STARTED	5-9-90
SAMPLE NO.	Stage 1	TEST FINISHED	5-9-90
SOIL DESCR.	Rock Core	SETUP NO.	1N
TEST TYPE	TX/UU	SATURATED TEST	No
CONF. PRES. PSF	1000	AT FIELD MOIST.	Yes

MOISTURE/DENSITY DATA		BEFORE TEST	AFTER TEST
Wt. Soil + Moisture	(g)	304.0	304.0
Wt. Wet Soil & Pan	(g)	313.1	313.1
Wt. Dry Soil & Pan	(g)	268.8	268.8
Wt. Lost Moisture	(g)	44.3	44.3
Wt. of Pan Only	(g)	9.1	9.1
Wt. of Dry Soil	(g)	259.7	259.7
Moisture Content %		17.1	17.1
Wet Density PCF		133.1	133.1
Dry Density PCF		113.7	113.7

Init. Diameter	(in)	1.722
Init. Area	(sq in)	2.329
Init. Height	(in)	3.737
Vol. Bef. Consol.	(cu ft)	0.00504
Vol. After Consol.	(cu ft)	0.00504

Notes & Comments:



B3-012-90
18.0-18.5'
Staged TX/UU

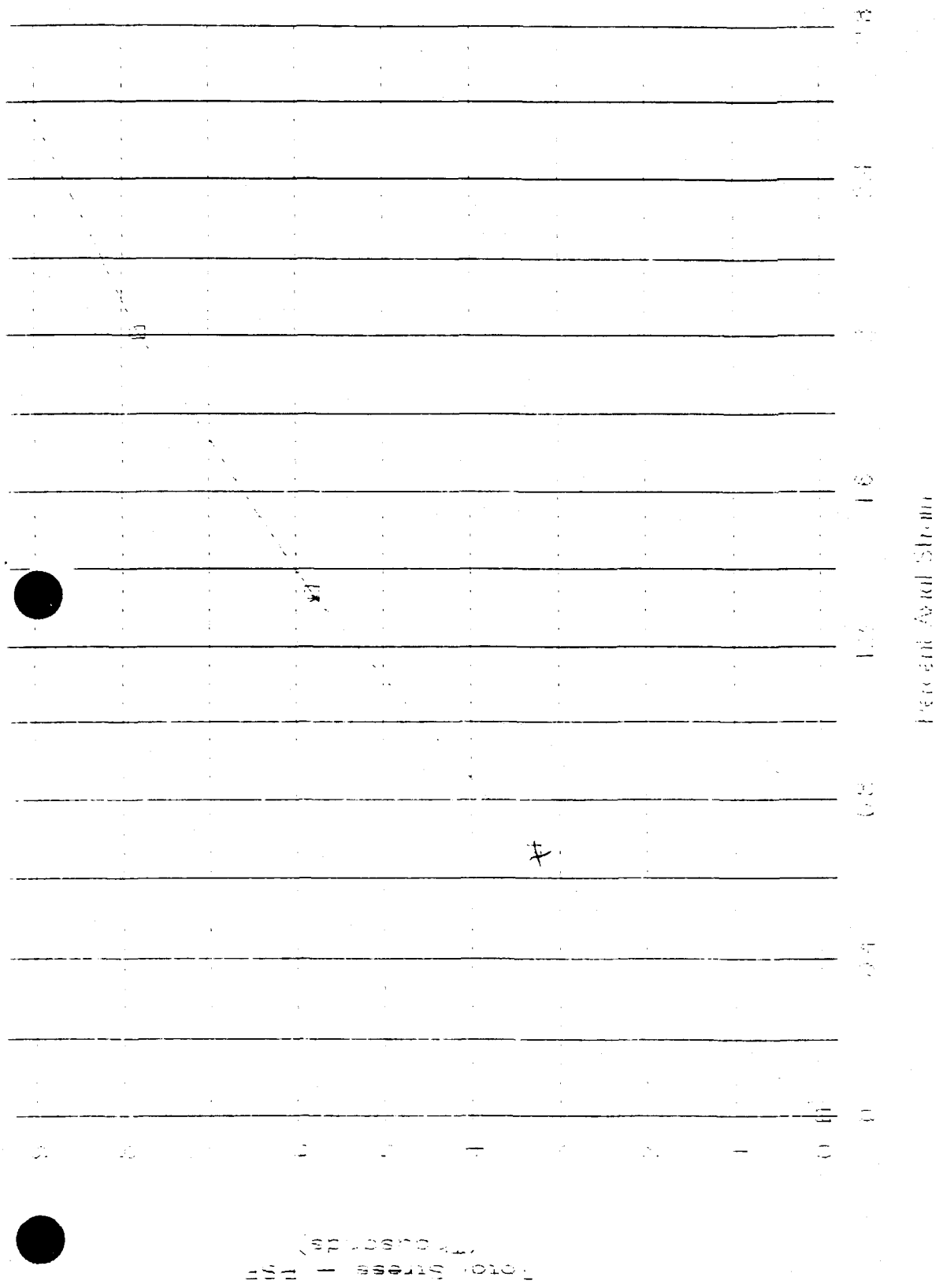
ADVANCED TERRA TESTING, INC.

TRIAXAL COMPRESSION TEST DATA

Weston		JOB NO.	2066-01
	B3-012-90	SAMPLED	EG&G
	18.0-18.5'	TEST STARTED	5-9-90
	Stage 1	TEST FINISHED	5-9-90
	Rock Core	SETUP NO.	1N
	TX/UU	SATURATED TEST	No
PSF	1000	AT FIELD MOIST.	Yes

(in)	3.737	Init. Area (sq in)	2.329
(in)	3.737	Consol. Area (sq in)	2.329
PSI	0.0	Strain Rate (in/min)	0.070

1 Delta Ht. In.	Axial % Strain	Area Final Sq In.	Dev. Stress PSF	Pore Pres. PSI	Delta Pres. PSF	Sigma 3 PSF	Sigma 1 PSF	Prin. Stress Ratio
0.00	0.00	2.329	0	0.00	0.0	1000	0	0.00
19 0.03	0.67	2.345	2303	0.00	0.0	1000	3303	3.30
35 0.05	1.34	2.361	4819	0.00	0.0	1000	5819	5.82
56 0.08	2.01	2.377	6816	0.00	0.0	1000	7816	7.82
49 0.10	2.78	2.396	8506	0.00	0.0	1000	9506	9.51


Percent Axial Strain
Total Stress — PSF
(Thousands)

TRIAXAL COMPRESSION TEST DATA

ston

JOB NO. 2066-01

	B3-012-90	SAMPLED	EG&G
	18.0-18.5'	TEST STARTED	5-9-90
	Stage 2	TEST FINISHED	5-9-90
	Rock Core	SETUP NO.	1N
	TX/UU	SATURATED TEST	No
PSF	2000	AT FIELD MOIST.	Yes

NSITY		BEFORE TEST	AFTER TEST
Moisture	(g)	304.0	304.0
l & Pan	(g)	313.1	313.1
l & Pan	(g)	268.8	268.8
isture	(g)	44.3	44.3
Only	(g)	9.1	9.1
Soil	(g)	259.7	259.7
ntent %		17.1	17.1
PCF		133.0	133.0
PCF		113.6	113.6

	(in)	1.747
	(sq in)	2.397
t	(in)	3.633
onsol.	(cu ft)	0.00504
Consol.	(cu ft)	0.00504

ments:

ADVANCED TERRA TESTING, INC.

TRIAXAL COMPRESSION TEST DATA

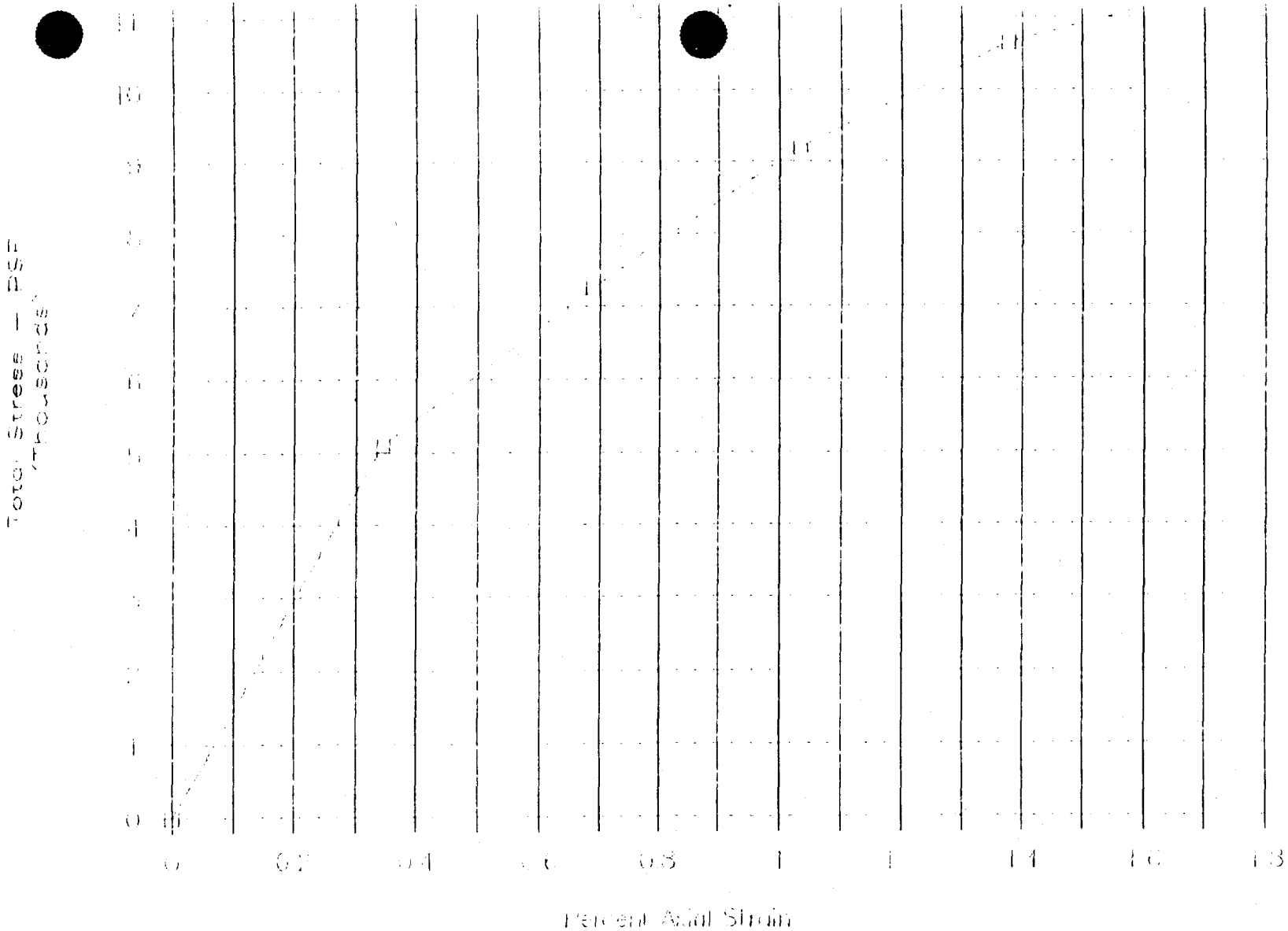
Weston

JOB NO. 2066-01

	B3-012-90	SAMPLED	EG&G
	18.0-18.5'	TEST STARTED	5-9-90
	Stage 2	TEST FINISHED	5-9-90
	Rock Core	SETUP NO.	1N
	TX/UU	SATURATED TEST	No
PSF	2000	AT FIELD MOIST.	Yes

(in)	3.633	Init. Area (sq in)	2.397
(in)	3.633	Consol. Area (sq in)	2.397
PSI	0.0	Strain Rate (in/min)	0.070

1	Delta Ht. In.	Axial % Strain	Area Final Sq In.	Dev. Stress PSF	Pore Pres. PSI	Delta Pres. PSF	Sigma 3 PSF	Sigma 1 PSF	Prin. Stress Ratio
0	0.00	0.00	2.397	0	0.00	0.0	2000	0	0.00
4	0.01	0.34	2.405	3113	0.00	0.0	2000	5113	2.56
7	0.03	0.69	2.414	5250	0.00	0.0	2000	7250	3.63
[illegible]	0.04	1.03	2.422	7194	0.00	0.0	2000	9194	4.60
1	0.05	1.38	2.430	8650	0.00	0.0	2000	10650	5.33
2	0.06	1.72	2.439	9387	0.00	0.0	2000	11387	5.69


Total Stress - PSI
(Thousands)
Percent Axial Strain

TRIAXAL COMPRESSION TEST DATA

ston

JOB NO. 2066-01

	B3-012-90	SAMPLED	EG&G
	18.0-18.5'	TEST STARTED	5-9-90
	Stage 3	TEST FINISHED	5-9-90
	Rock Core	SETUP NO.	1N
	TX/UU	SATURATED TEST	No
PSF	4000	AT FIELD MOIST.	Yes

NSITY		BEFORE TEST	AFTER TEST
Moisture	(g)	304.0	304.0
l & Pan	(g)	313.1	313.1
l & Pan	(g)	268.8	268.8
isture	(g)	44.3	44.3
Only	(g)	9.1	9.1
Soil	(g)	259.7	259.7
ntent %		17.1	17.1
PCF		133.0	133.0
PCF		113.6	113.6

	(in)	1.762
	(sq in)	2.438
t	(in)	3.572
Consol.	(cu ft)	0.00504
Consol.	(cu ft)	0.00504

ments:

ADVANCED TERRA TESTING, INC.

TRIAXAL COMPRESSION TEST DATA

Weston

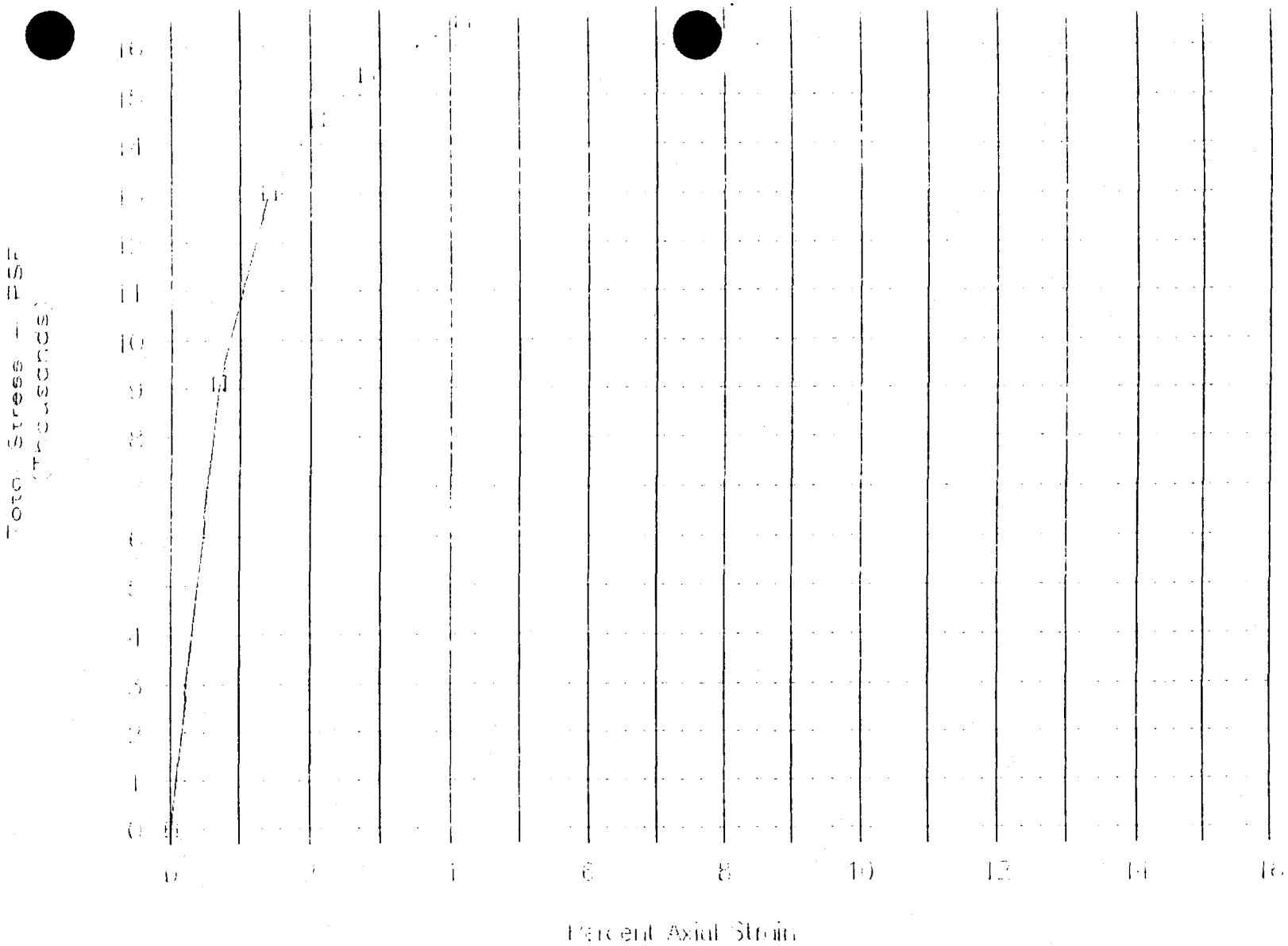
JOB NO. 2066-01

	B3-012-90	SAMPLED	EG&G
	18.0-18.5'	TEST STARTED	5-9-90
	Stage 3	TEST FINISHED	5-9-90
	Rock Core	SETUP NO.	1N
	TX/UU	SATURATED TEST	No
PSF	4000	AT FIELD MOIST.	Yes

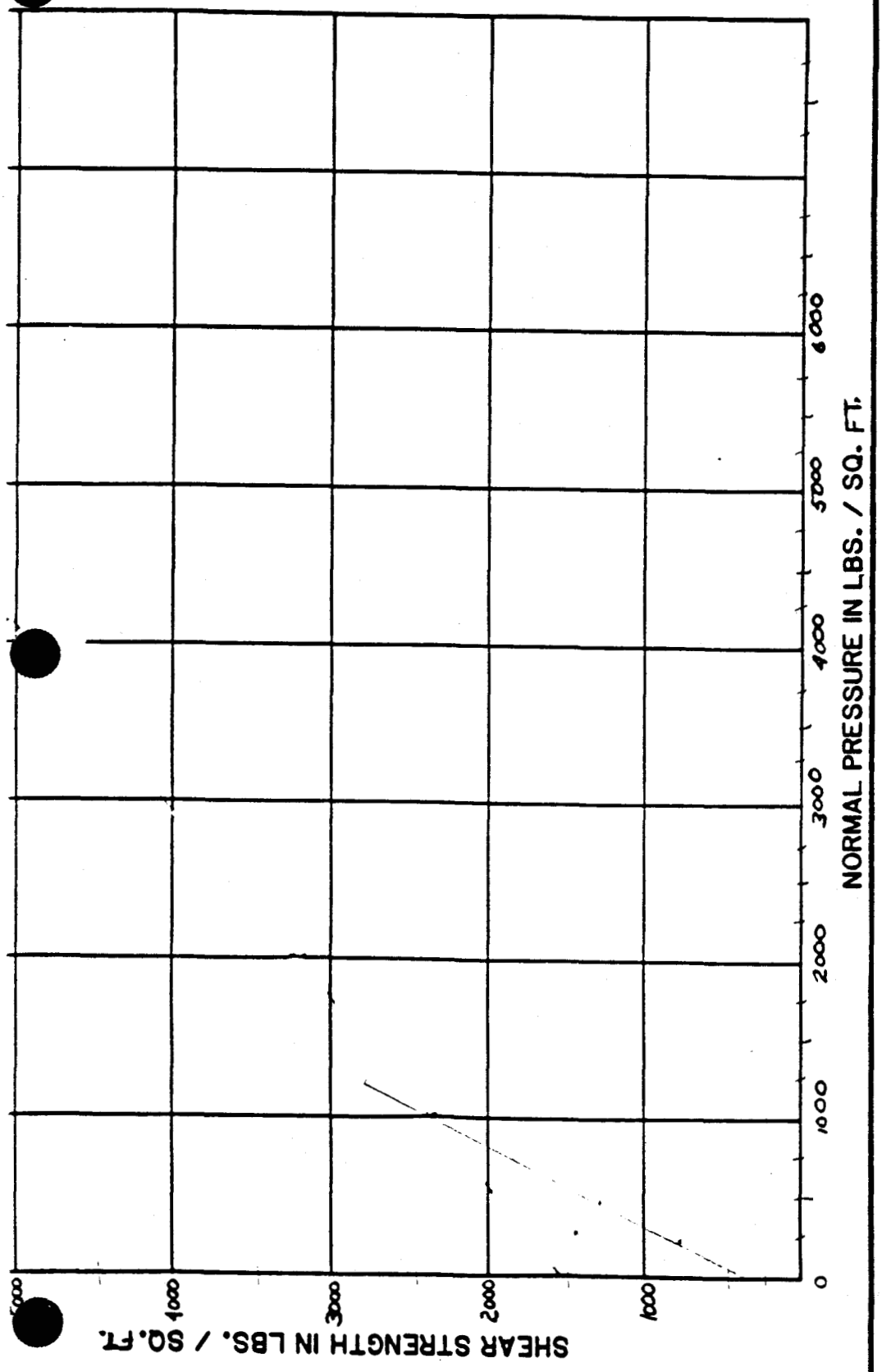
(in)	3.572	Init. Area	(sq in)	2.438
(in)	3.572	Consol. Area	(sq in)	2.438
PSI	0.0	Strain Rate	(in/min)	0.070

Delta Ht. In.	Axial % Strain	Area Final Sq In.	Dev. Stress PSF	Pore Pres. PSI	Delta Pres. PSF	Sigma 3 PSF	Sigma 1 PSF	Prin. Stress Ratio
0.00	0.00	2.438	0	0.00	0.0	4000	0	0.00
0.03	0.70	2.456	5131	0.00	0.0	4000	9131	2.28
0.05	1.40	2.473	9025	0.00	0.0	4000	13025	3.26
0.08	2.10	2.491	10522	0.00	0.0	4000	14522	3.63
0.10	2.80	2.509	11423	0.00	0.0	4000	15423	3.86
0.15	4.20	2.545	12503	0.00	0.0	4000	16503	4.13
0.20	5.60	2.583	13213	0.00	0.0	4000	17213	4.30
0.25	7.00	2.622	13566	0.00	0.0	4000	17566	4.39
0.30	8.40	2.662	13848	0.00	0.0	4000	17848	4.46
0.35	9.80	2.703	13956	0.00	0.0	4000	17956	4.49
0.40	11.20	2.746	13897	0.00	0.0	4000	17897	4.47
0.45	12.60	2.790	13678	0.00	0.0	4000	17678	4.42
0.50	14.00	2.835	13358	0.00	0.0	4000	17358	4.34
0.55	15.40	2.882	12840	0.00	0.0	4000	16840	4.21

ADVANCED TERRA TESTING, INC.


Total Stress - PSI
(Thousands)
Percent Axial Strain

DIRECT SHEAR TEST DATA



TRIAXAL COMPRESSION TEST DATA

CLIENT Weston

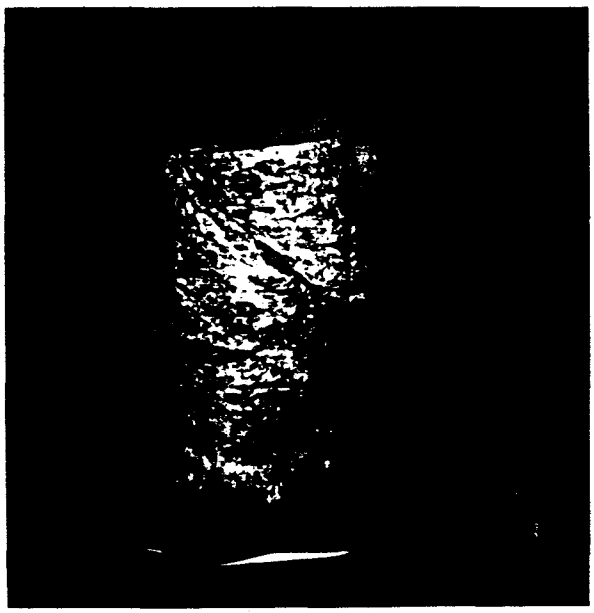
JOB NO. 2066-01

BORING NO.	B3-014-90	SAMPLED	--
DEPTH	30.3-31.3'	TEST STARTED	5-2-90 DCW
SAMPLE NO.	EG&G	TEST FINISHED	5-2-90 DCW
SOIL DESCR.	Rock Core	SETUP NO.	3N
TEST TYPE	TX/UU	SATURATED TEST	No
CONF. PRES. PSF	3100	AT FIELD MOIST.	Yes

MOISTURE/DENSITY DATA		BEFORE TEST	AFTER TEST
Wt. Soil + Moisture	(g)	328.6	328.6
Wt. Wet Soil & Pan	(g)	337.0	337.0
Wt. Dry Soil & Pan	(g)	283.6	283.6
Wt. Lost Moisture	(g)	53.5	53.5
Wt. of Pan Only	(g)	8.5	8.5
Wt. of Dry Soil	(g)	275.1	275.1
Moisture Content %		19.4	19.4
Wet Density PCF		130.2	130.2
Dry Density PCF		109.0	109.0

Init. Diameter	(in)	1.751
Init. Area	(sq in)	2.408
Init. Height	(in)	3.992
Vol. Bef. Consol.	(cu ft)	0.00556
Vol. After Consol.	(cu ft)	0.00556

Notes & Comments:



B3-014-90
30.3-31.3
[illegible] σ_3 = 3,100 PSF

ADVANCED TERRA TESTING, INC.

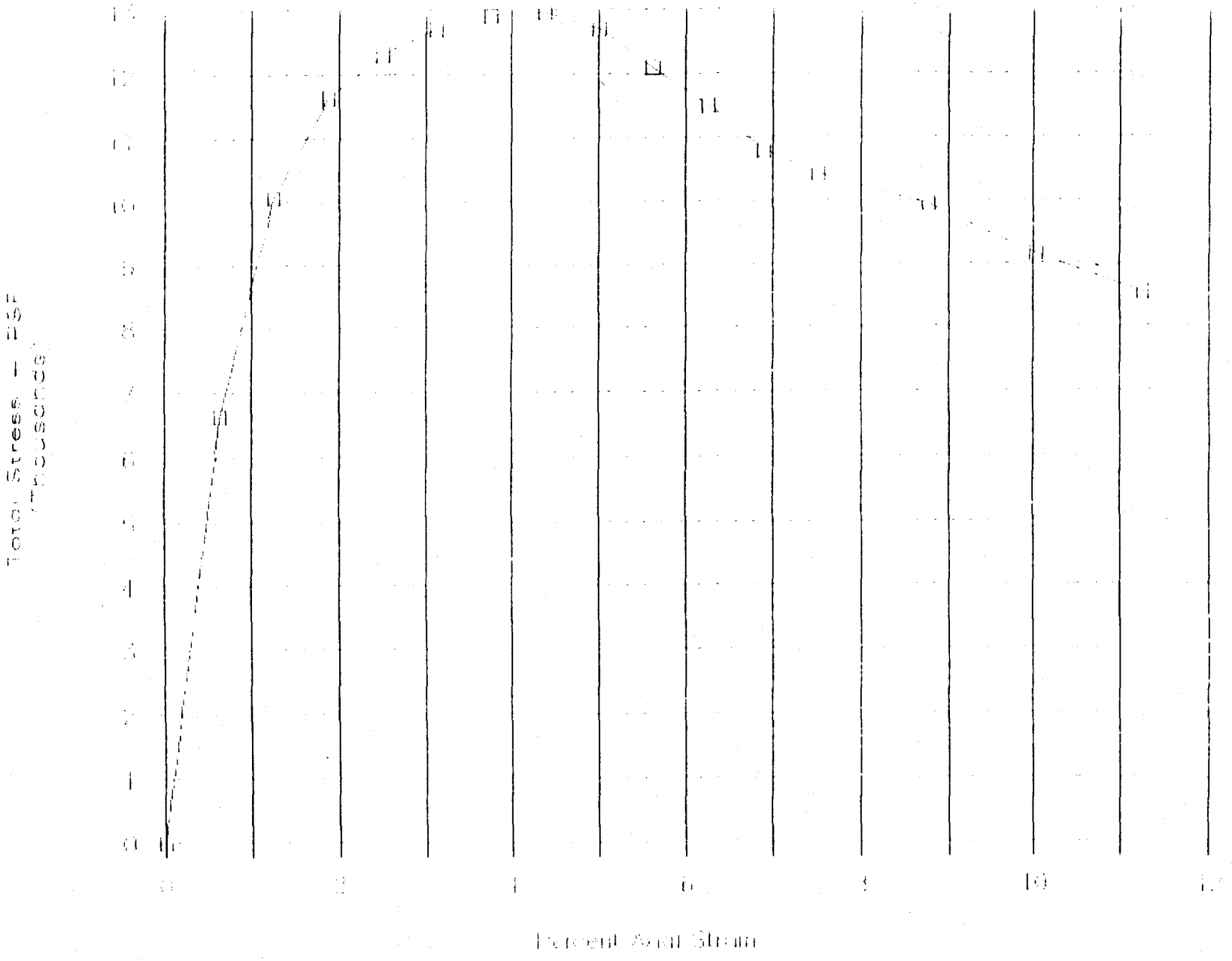
TRIAXAL COMPRESSION TEST DATA

CLIENT	Weston	JOB NO.	2066-01
BORING NO.	B3-014-90	SAMPLED	--
DEPTH	30.3-31.3'	TEST STARTED	5-2-90 DCW
SAMPLE NO.	EG&G	TEST FINISHED	5-2-90 DCW
SOIL DESCR.	Rock Core	SETUP NO.	3N
TEST TYPE	TX/UU	SATURATED TEST	No
CONF. PRES. PSF	3100	AT FIELD MOIST.	Yes

Init. Ht.	(in)	3.992	Init. Area	(sq in)	2.408
Consol. Ht.	(in)	3.992	Consol. Area	(sq in)	2.408
Back Pres.	PSI	0.0	Strain Rate	(in/min)	0.080

Axial Load Lbs.	Axial Load PSF	Delta Ht. In.	Axial % Strain	Area Final Sq In.	Dev. Stress PSF	Pore Pres. PSI	Delta Pres. PSF	Sigma 3 PSF	Sigma 1 PSF	Prin. Stress Ratio
0.0	0	0.00	0.00	2.408	0	0.00	0.0	3100	0	0.00
59.5	3558	0.03	0.63	2.423	3536	0.00	0.0	3100	6636	2.14
118.0	7056	0.05	1.25	2.439	6968	0.00	0.0	3100	10068	3.25
145.5	8701	0.08	1.88	2.454	8537	0.00	0.0	3100	11637	3.75
158.0	9448	0.10	2.51	2.470	9212	0.00	0.0	3100	12312	3.97
166.0	9927	0.13	3.13	2.486	9616	0.00	0.0	3100	12716	4.10
170.5	10196	0.15	3.76	2.502	9813	0.00	0.0	3100	12913	4.17
172.5	10315	0.18	4.38	2.518	9863	0.00	0.0	3100	12963	4.18
169.0	10106	0.20	5.01	2.535	9600	0.00	0.0	3100	12700	4.10
159.5	9538	0.23	5.64	2.552	9000	0.00	0.0	3100	12100	3.90
150.0	8970	0.25	6.26	2.569	8408	0.00	0.0	3100	11508	3.71
138.5	8282	0.28	6.89	2.586	7712	0.00	0.0	3100	10812	3.49
132.5	7923	0.30	7.52	2.604	7328	0.00	0.0	3100	10428	3.36
125.5	7505	0.35	8.77	2.639	6847	0.00	0.0	3100	9947	3.21
112.5	6727	0.40	10.02	2.676	6053	0.00	0.0	3100	9153	2.95
102.5	6129	0.45	11.27	2.714	5439	0.00	0.0	3100	8539	2.75

ADVANCED TERRA TESTING, INC.


Total Stress - PSI
Percent Axial Strain

TRIAXAL COMPRESSION TEST DATA

CLIENT Weston

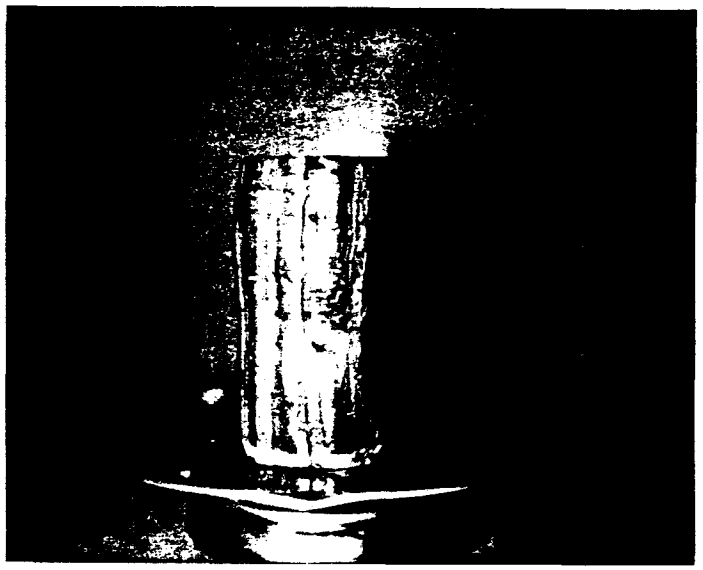
JOB NO. 2066-01

BORING NO.	B301790202209	SAMPLED	Stage 1
DEPTH	20.2-20.9	TEST STARTED	09-13-90 DCW
SAMPLE NO.	#A	TEST FINISHED	09-13-90
SOIL DESCR.	EG&G/Rocky Flats	SETUP NO.	1N
TEST TYPE	Staged TX/UU	SATURATED TEST	No
CONF. PRES. PSF	2000	AT FIELD MOIST.	Yes

MOISTURE/DENSITY DATA		BEFORE TEST	AFTER TEST
Wt. Soil + Moisture	(g)	345.1	345.1
Wt. Wet Soil & Pan	(g)	353.5	353.5
Wt. Dry Soil & Pan	(g)	295.8	295.8
Wt. Lost Moisture	(g)	57.6	57.6
Wt. of Pan Only	(g)	8.3	8.3
Wt. of Dry Soil	(g)	287.5	287.5
Moisture Content %		20.0	20.0
Wet Density PCF		133.2	133.2
Dry Density PCF		110.9	110.9

Init. Diameter	(in)	1.764
Init. Area	(sq in)	2.444
Init. Height	(in)	4.040
Vol. Bef. Consol.	(cu ft)	0.00571
Vol. After Consol.	(cu ft)	0.00571

Notes & Comments:



ADVANCED TERRA TESTING, INC.

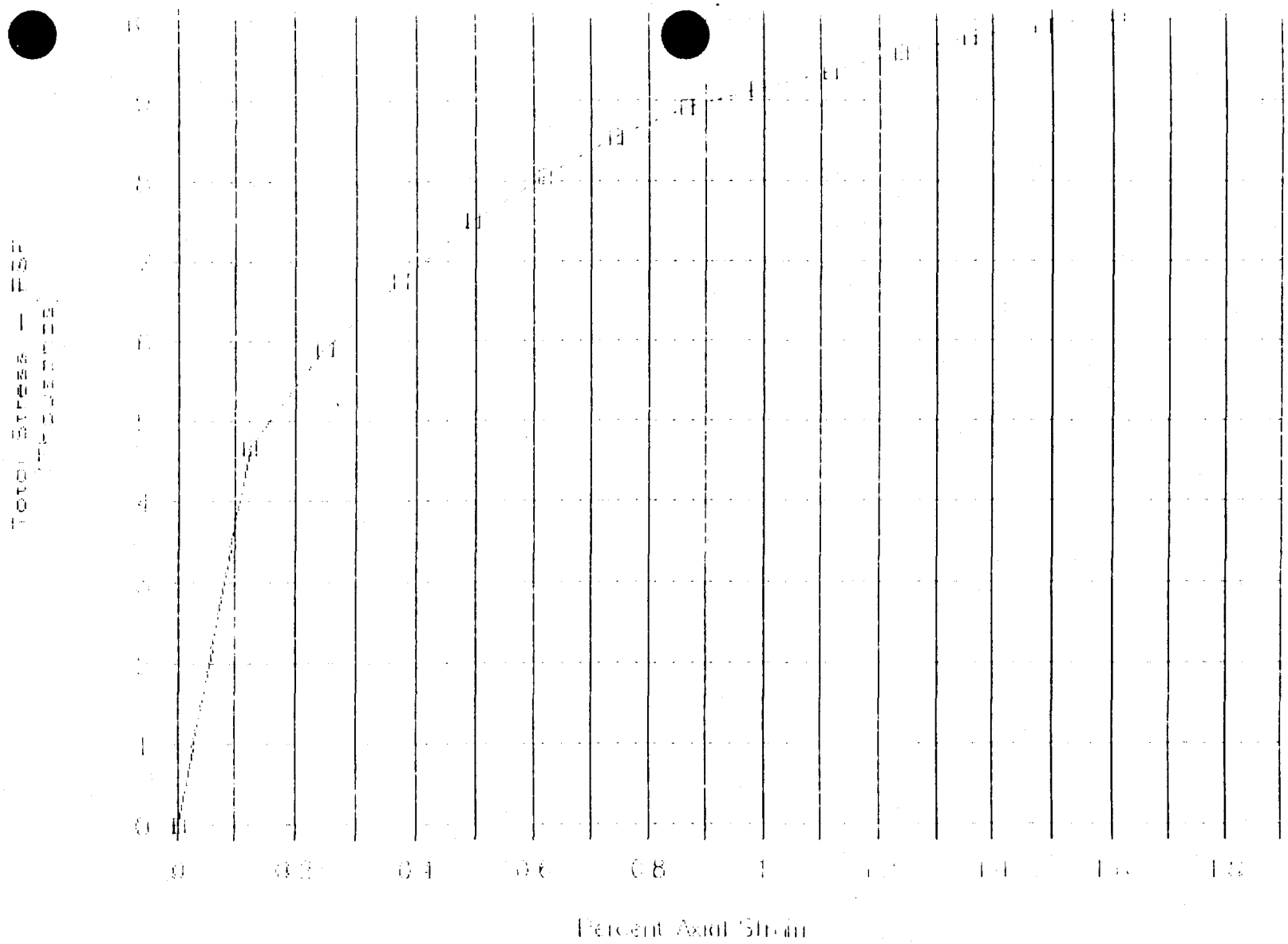
TRIAXAL COMPRESSION TEST DATA

Weston JOB NO. 2066-01

	B301790202209	SAMPLED	Stage 1
	20.2-20.9	TEST STARTED	09-13-90 DCW
	#A	TEST FINISHED	09-13-90
	EG&G/Rocky Flats	SETUP NO.	1N
	Staged TX/UU	SATURATED TEST	No
PSF	2000	AT FIELD MOIST.	Yes

(in)	4.040	Init. Area (sq in)	2.444
(in)	4.040	Consol. Area (sq in)	2.444
PSI	0.0	Strain Rate (in/min)	0.040

Delta Ht. In.	Axial % Strain	Area Final Sq In.	Dev. Stress PSF	Pore Pres. PSI	Delta Pres. PSF	Sigma 3 PSF	Sigma 1 PSF	Prin. Stress Ratio
0.00	0.00	2.444	0	0.00	0.0	2000	0	0.00
0.005	0.12	2.447	2678	0.00	0.0	2000	4678	2.34
0.010	0.25	2.450	3909	0.00	0.0	2000	5909	2.95
015	0.37	2.453	4755	0.00	0.0	2000	6755	3.38
020	0.50	2.456	5511	0.00	0.0	2000	7511	3.76
.025	0.62	2.459	6061	0.00	0.0	2000	8061	4.03
0.030	0.74	2.462	6550	0.00	0.0	2000	8550	4.28
0.035	0.87	2.465	6922	0.00	0.0	2000	8922	4.46
0.040	0.99	2.468	7146	0.00	0.0	2000	9146	4.57
0.045	1.11	2.471	7371	0.00	0.0	2000	9371	4.69
0.050	1.24	2.475	7594	0.00	0.0	2000	9594	4.80
0.055	1.36	2.478	7788	0.00	0.0	2000	9788	4.89
0.060	1.49	2.481	7923	0.00	0.0	2000	9923	4.96
0.065	1.61	2.484	8087	0.00	0.0	2000	10087	5.04
0.070	1.73	2.487	8222	0.00	0.0	2000	10222	5.11
0.075	1.86	2.490	8356	0.00	0.0	2000	10356	5.18


Total Stress - PSI
Percent Axial Strain

TRIAXAL COMPRESSION TEST DATA

ston

JOB NO. 2066-01

	B301790202209	SAMPLED	Stage 2
	20.2-20.9	TEST STARTED	09-13-90 DCW
	#B	TEST FINISHED	09-13-90
	EG&G/Rocky Flats	SETUP NO.	1N
	Staged TX/UU	SATURATED TEST	No
PSF	4000	AT FIELD MOIST.	Yes

SITY		BEFORE TEST	AFTER TEST
oisture	(g)	345.1	345.1
& Pan	(g)	353.5	353.5
& Pan	(g)	295.8	295.8
sture	(g)	57.6	57.6
nly	(g)	8.3	8.3
Soil	(g)	287.5	287.5
tent %		20.0	20.0
PCF		133.2	133.2
PCF		110.9	110.9

	(in)	1.781
	(sq in)	2.490
	(in)	3.965
onsol.	(cu ft)	0.00571
Consol.	(cu ft)	0.00571

ents:

ADVANCED TERRA TESTING, INC.

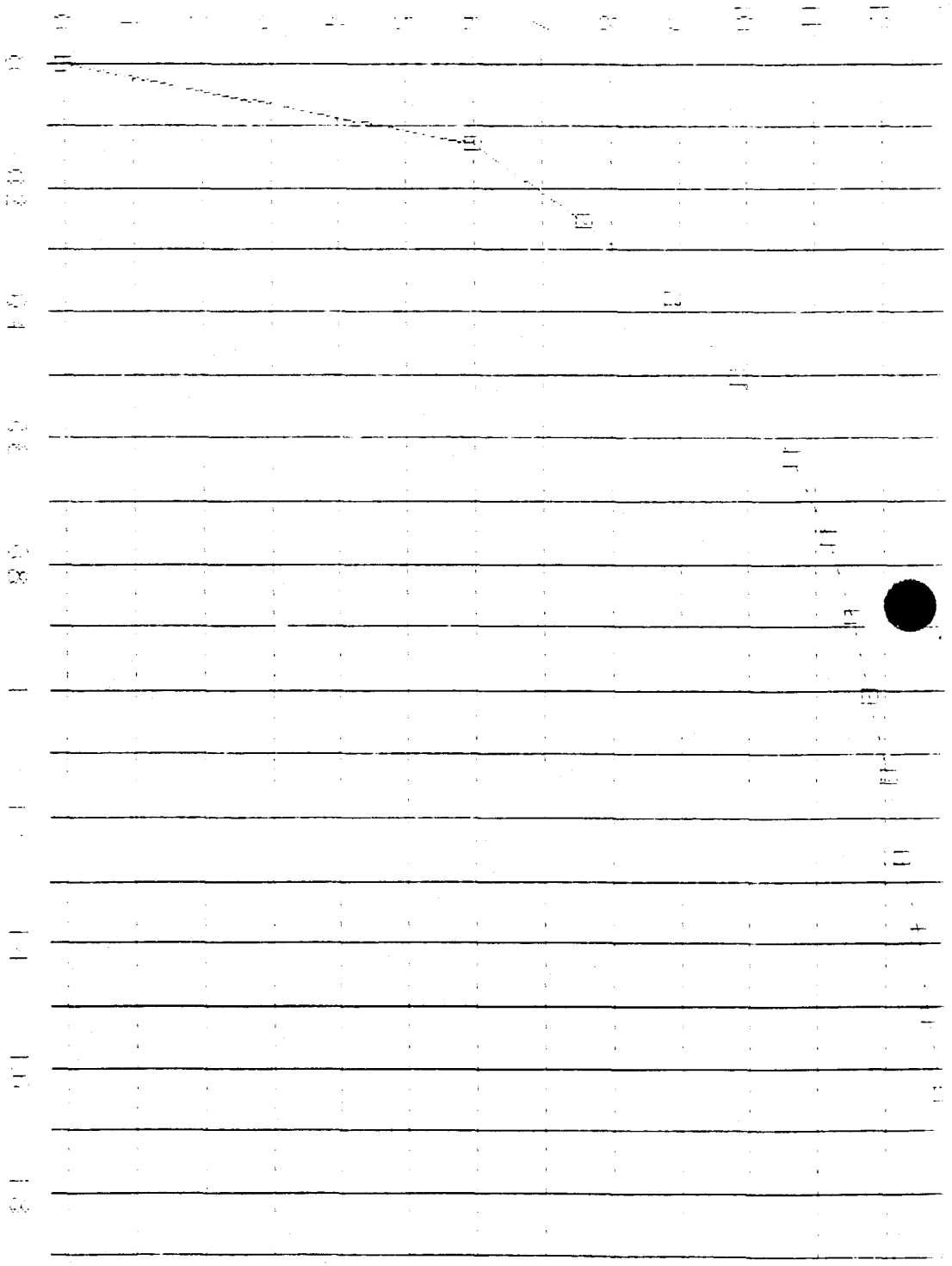
TRIAXAL COMPRESSION TEST DATA

Weston		JOB NO.	2066-01
	B301790202209	SAMPLED	Stage 2
	20.2-20.9	TEST STARTED	09-13-90 DCW
	#B	TEST FINISHED	09-13-90
	EG&G/Rocky Flats	SETUP NO.	1N
	Staged TX/UU	SATURATED TEST	No
PSF	4000	AT FIELD MOIST.	Yes

(in)	3.965	Init. Area (sq in)	2.490
(in)	3.965	Consol. Area (sq in)	2.490
PSI	0.0	Strain Rate (in/min)	0.040

Delta Ht. In.	Axial % Strain	Area Final Sq In.	Dev. Stress PSF	Pore Pres. PSI	Delta Pres. PSF	Sigma 3 PSF	Sigma 1 PSF	Prin. Stress Ratio
0.00	0.00	2.490	0	0.00	0.0	4000	0	0.00
0.005	0.13	2.493	1993	0.00	0.0	4000	5993	1.50
0.010	0.25	2.496	3605	0.00	0.0	4000	7605	1.90
015	0.38	2.499	4897	0.00	0.0	4000	8897	2.22
020	0.50	2.503	5869	0.00	0.0	4000	9869	2.47
0.025	0.63	2.506	6666	0.00	0.0	4000	10666	2.67
0.030	0.76	2.509	7203	0.00	0.0	4000	11203	2.80
0.035	0.88	2.512	7538	0.00	0.0	4000	11538	2.88
0.040	1.01	2.515	7786	0.00	0.0	4000	11786	2.95
0.045	1.13	2.519	8062	0.00	0.0	4000	12062	3.02
0.050	1.26	2.522	8251	0.00	0.0	4000	12251	3.06
0.055	1.39	2.525	8497	0.00	0.0	4000	12497	3.12
0.060	1.51	2.528	8629	0.00	0.0	4000	12629	3.16
0.065	1.64	2.531	8817	0.00	0.0	4000	12817	3.20
0.070	1.77	2.535	9004	0.00	0.0	4000	13004	3.25
0.075	1.89	2.538	9135	0.00	0.0	4000	13135	3.28

Total Stress — PSF
(Thousands)



TRIAXAL COMPRESSION TEST DATA

ston

JOB NO. 2066-01

	B301790202209	SAMPLED	Stage 3
	20.2-20.9	TEST STARTED	09-13-90 DCW
	#C	TEST FINISHED	09-13-90
	EG&G/Rocky Flats	SETUP NO.	1N
	Staged TX/UU	SATURATED TEST	No
PSF	8000	AT FIELD MOIST.	Yes

NSITY		BEFORE TEST	AFTER TEST
Moisture	(g)	345.1	345.1
& Pan	(g)	353.5	353.5
& Pan	(g)	295.8	295.8
isture	(g)	57.6	57.6
nly	(g)	8.3	8.3
Soil	(g)	287.5	287.5
ntent %		20.0	20.0
PCF		133.2	133.2
PCF		110.9	110.9

	(in)	1.798
	(sq in)	2.538
	(in)	3.890
onsol.	(cu ft)	0.00571
Consol.	(cu ft)	0.00571

ments:

ADVANCED TERRA TESTING, INC.

TRIAXAL COMPRESSION TEST DATA

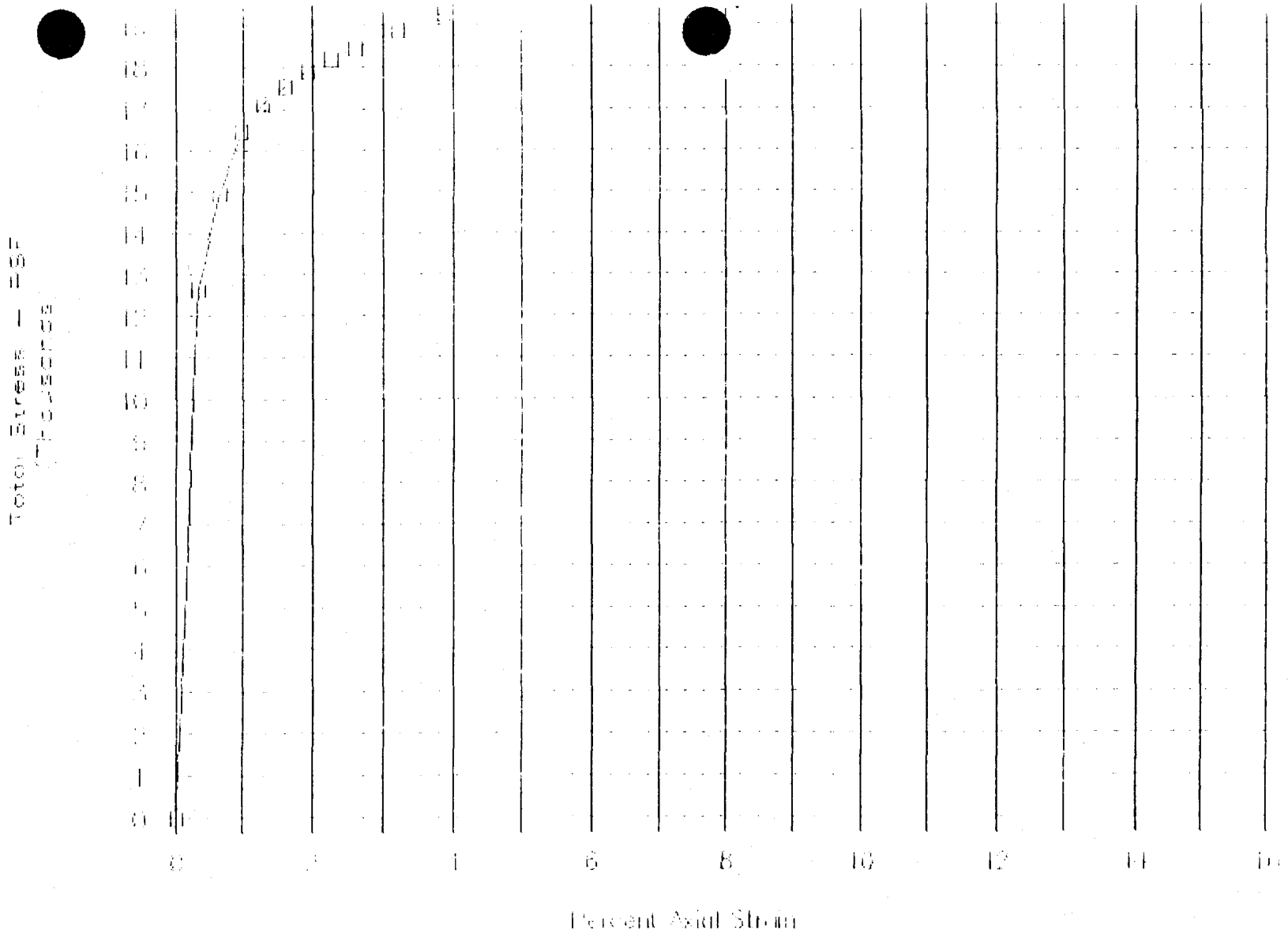
Weston

JOB NO. 2066-01

	B301790202209	SAMPLED	Stage 3
	20.2-20.9	TEST STARTED	09-13-90 DCW
	#C	TEST FINISHED	09-13-90
	EG&G/Rocky Flats	SETUP NO.	1N
	Staged TX/UU	SATURATED TEST	No
PSF	8000	AT FIELD MOIST.	Yes

(in)	3.890	Init. Area (sq in)	2.538
(in)	3.890	Consol. Area (sq in)	2.538
PSI	0.0	Strain Rate (in/min)	0.040

Delta Ht. In.	Axial % Strain	Area Final Sq In.	Dev. Stress PSF	Pore Pres. PSI	Delta Pres. PSF	Sigma 3 PSF	Sigma 1 PSF	Prin. Stress Ratio
0.00	0.00	2.538	0	0.00	0.0	8000	0	0.00
0.013	0.32	2.546	4638	0.00	0.0	8000	12638	1.58
0.025	0.64	2.554	6962	0.00	0.0	8000	14962	1.87
0.038	0.96	2.563	8457	0.00	0.0	8000	16457	2.06
0.050	1.29	2.571	9129	0.00	0.0	8000	17129	2.14
0.063	1.61	2.579	9546	0.00	0.0	8000	17546	2.19
0.075	1.93	2.588	9905	0.00	0.0	8000	17905	2.24
0.088	2.25	2.596	10205	0.00	0.0	8000	18205	2.28
0.100	2.57	2.605	10448	0.00	0.0	8000	18448	2.31
0.125	3.21	2.622	10873	0.00	0.0	8000	18873	2.36
0.150	3.86	2.640	11265	0.00	0.0	8000	19265	2.41
0.200	5.14	2.676	11867	0.00	0.0	8000	19867	2.48
0.250	6.43	2.712	12264	0.00	0.0	8000	20264	2.53
0.300	7.71	2.750	12515	0.00	0.0	8000	20515	2.56
0.350	9.00	2.789	12676	0.00	0.0	8000	20676	2.58
0.400	10.28	2.829	12751	0.00	0.0	8000	20751	2.59
0.500	12.85	2.912	12732	0.00	0.0	8000	20732	2.59
0.600	15.42	3.001	12692	0.00	0.0	8000	20692	2.59
0.700	17.99	3.095	12563	0.00	0.0	8000	20563	2.57
0.800	20.57	3.195	12394	0.00	0.0	8000	20394	2.55


Total Stress - PSF
(Thousands)
Percent Axial Strain

TRIAXAL COMPRESSION TEST DATA

CLIENT Weston

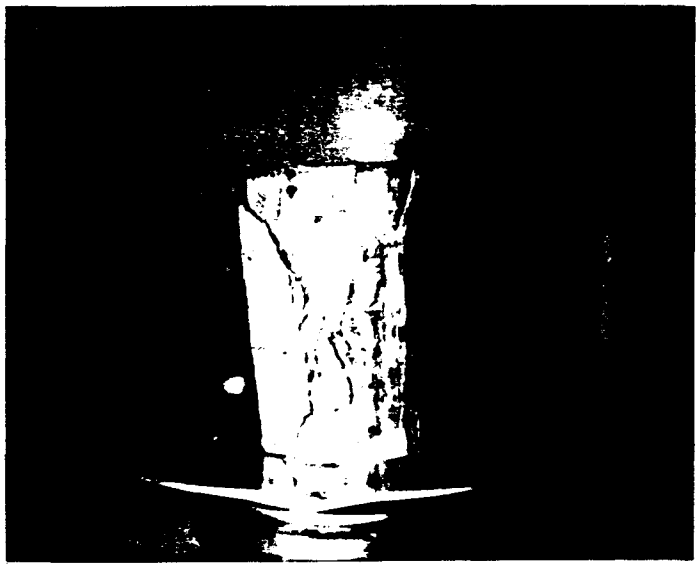
JOB NO. 2066-01

BORING NO.	B301990366375	SAMPLED	--
DEPTH	36.6-37.5'	TEST STARTED	09-13-90 DCW
SAMPLE NO.	#A	TEST FINISHED	09-13-90
SOIL DESCR.	EG&G/Rocky Flats	SETUP NO.	1N
TEST TYPE	TX/UU	SATURATED TEST	No
CONF. PRES. PSF	1000	AT FIELD MOIST.	Yes

MOISTURE/DENSITY DATA		BEFORE TEST	AFTER TEST
Wt. Soil + Moisture	(g)	293.1	293.1
Wt. Wet Soil & Pan	(g)	300.8	300.8
Wt. Dry Soil & Pan	(g)	272.2	272.2
Wt. Lost Moisture	(g)	28.5	28.5
Wt. of Pan Only	(g)	7.7	7.7
Wt. of Dry Soil	(g)	264.5	264.5
Moisture Content %		10.8	10.8
Wet Density PCF		140.7	140.7
Dry Density PCF		127.0	127.0

Init. Diameter	(in)	1.804
Init. Area	(sq in)	2.556
Init. Height	(in)	3.105
Vol. Bef. Consol.	(cu ft)	0.00459
Vol. After Consol.	(cu ft)	0.00459

Notes & Comments:



B301990366375

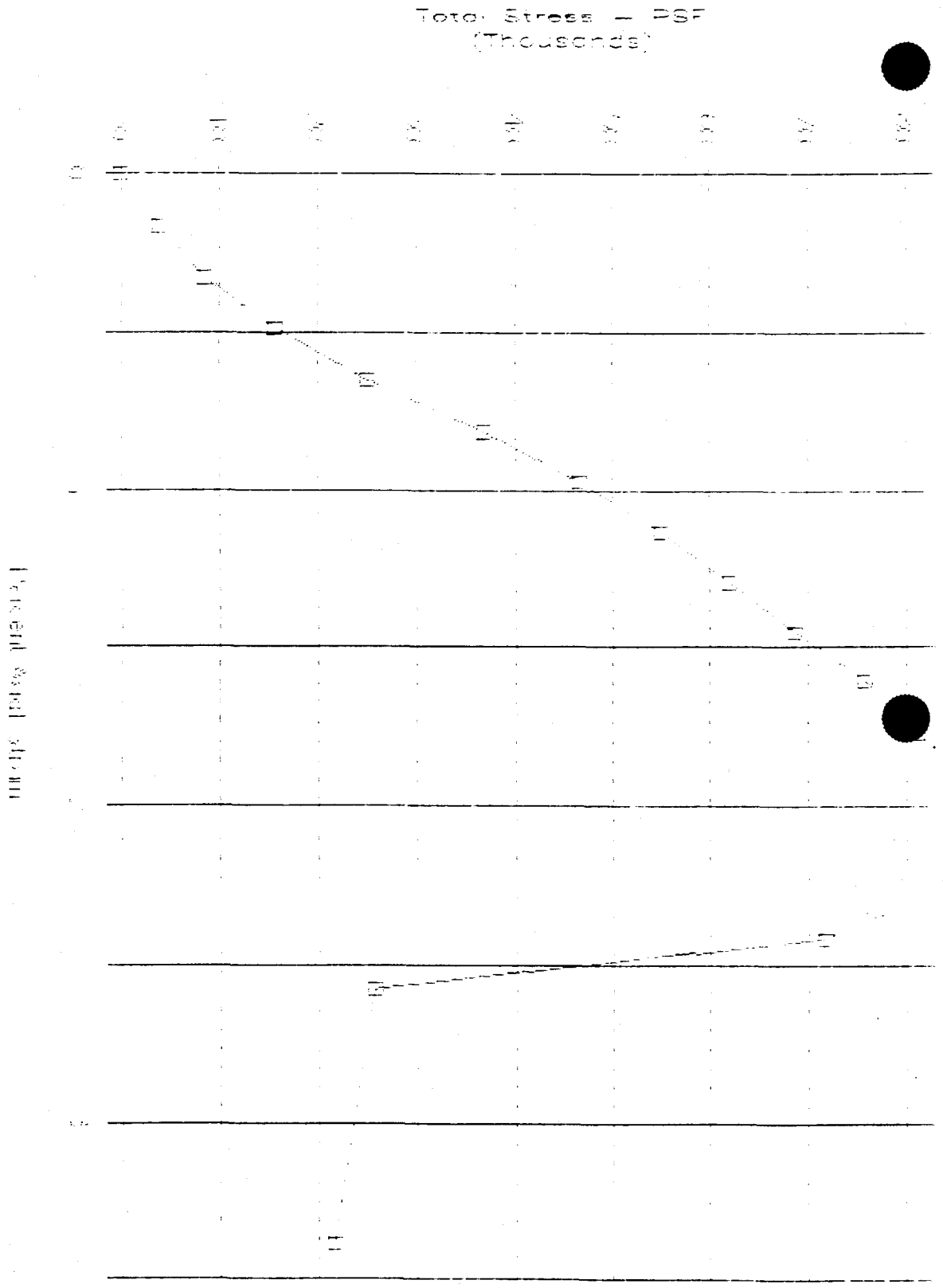
ADVANCED TERRA TESTING, INC.

TRIAXAL COMPRESSION TEST DATA

Weston		JOB NO.	2066-01
	B301990366375	SAMPLED	--
	36.6-37.5'	TEST STARTED	09-13-90 DCW
	#A	TEST FINISHED	09-13-90
	EG&G/Rocky Flats	SETUP NO.	1N
	TX/UU	SATURATED TEST	No
PSF	1000	AT FIELD MOIST.	Yes

(in)	3.105	Init. Area (sq in)	2.556
(in)	3.105	Consol. Area (sq in)	2.556
PSI	0.0	Strain Rate (in/min)	0.040

	Delta Ht. In.	Axial % Strain	Area Final Sq In.	Dev. Stress PSF	Pore Pres. PSI	Delta Pres. PSF	Sigma 3 PSF	Sigma 1 PSF	Prin. Stress Ratio
0	0.00	0.00	2.556	0	0.00	0.0	1000	0	0.00
3	0.01	0.16	2.560	2953	0.00	0.0	1000	3953	3.95
5	0.01	0.32	2.564	7441	0.00	0.0	1000	8441	8.44
4	.02	0.48	2.568	14717	0.00	0.0	1000	15717	15.72
5	0.02	0.64	2.573	24069	0.00	0.0	1000	25069	25.07
7	0.03	0.81	2.577	35906	0.00	0.0	1000	36906	36.91
6	0.03	0.97	2.581	45611	0.00	0.0	1000	46611	46.61
3	0.04	1.13	2.585	54032	0.00	0.0	1000	55032	55.03
1	0.04	1.29	2.589	61034	0.00	0.0	1000	62034	62.03
2	0.05	1.45	2.594	67736	0.00	0.0	1000	68736	68.74
5	0.05	1.61	2.598	74831	0.00	0.0	1000	75831	75.83
1	0.06	1.77	2.602	80381	0.00	0.0	1000	81381	81.38
6	0.06	1.93	2.606	84255	0.00	0.0	1000	85255	85.25
5	0.07	2.09	2.611	85771	0.00	0.0	1000	86771	86.77
7	0.07	2.25	2.615	82601	0.00	0.0	1000	83601	83.60
5	0.08	2.42	2.619	70783	0.00	0.0	1000	71783	71.78
2	0.08	2.58	2.624	24699	0.00	0.0	1000	25699	25.70
3	0.11	3.38	2.645	20684	0.00	0.0	1000	21684	21.68
7	0.13	4.19	2.668	18758	0.00	0.0	1000	19758	19.76


Total Stress — PSF
(Thousands)

TRIAXAL COMPRESSION TEST DATA

CLIENT Weston

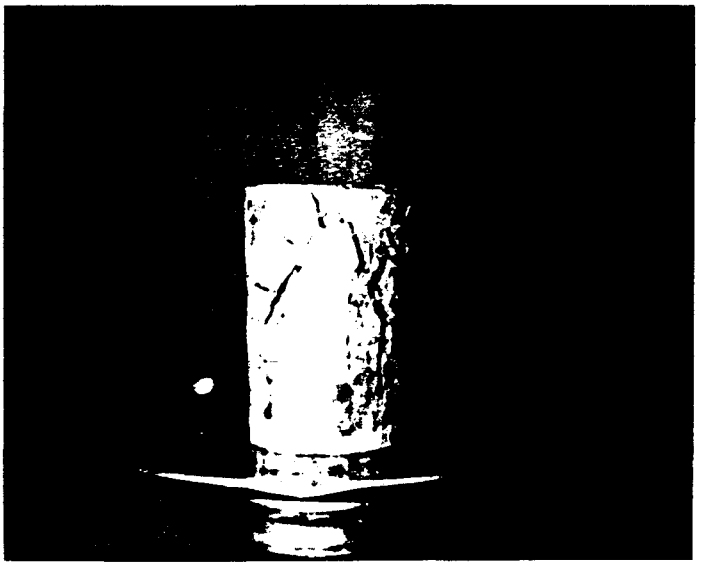
JOB NO. 2066-01

BORING NO.	B301990366375	SAMPLED	--
DEPTH	36.6-37.5'	TEST STARTED	09-13-90 DCW
SAMPLE NO.	#B	TEST FINISHED	09-13-90
SOIL DESCR.	EG&G/Rocky Flats	SETUP NO.	1N
TEST TYPE	TX/UU	SATURATED TEST	No
CONF. PRES. PSF	2000	AT FIELD MOIST.	Yes

MOISTURE/DENSITY DATA		BEFORE TEST	AFTER TEST
Wt. Soil + Moisture	(g)	276.0	276.0
Wt. Wet Soil & Pan	(g)	284.9	284.9
Wt. Dry Soil & Pan	(g)	260.0	260.0
Wt. Lost Moisture	(g)	24.9	24.9
Wt. of Pan Only	(g)	8.8	8.8
Wt. of Dry Soil	(g)	251.1	251.1
Moisture Content	%	9.9	9.9
Wet Density PCF		141.4	141.4
Dry Density PCF		128.7	128.7

Init. Diameter	(in)	1.776
Init. Area	(sq in)	2.477
Init. Height	(in)	3.001
Vol. Bef. Consol.	(cu ft)	0.00430
Vol. After Consol.	(cu ft)	0.00430

Notes & Comments:



B301990366375
36.6 - 37.5'
σ_3 = 2,000PSF

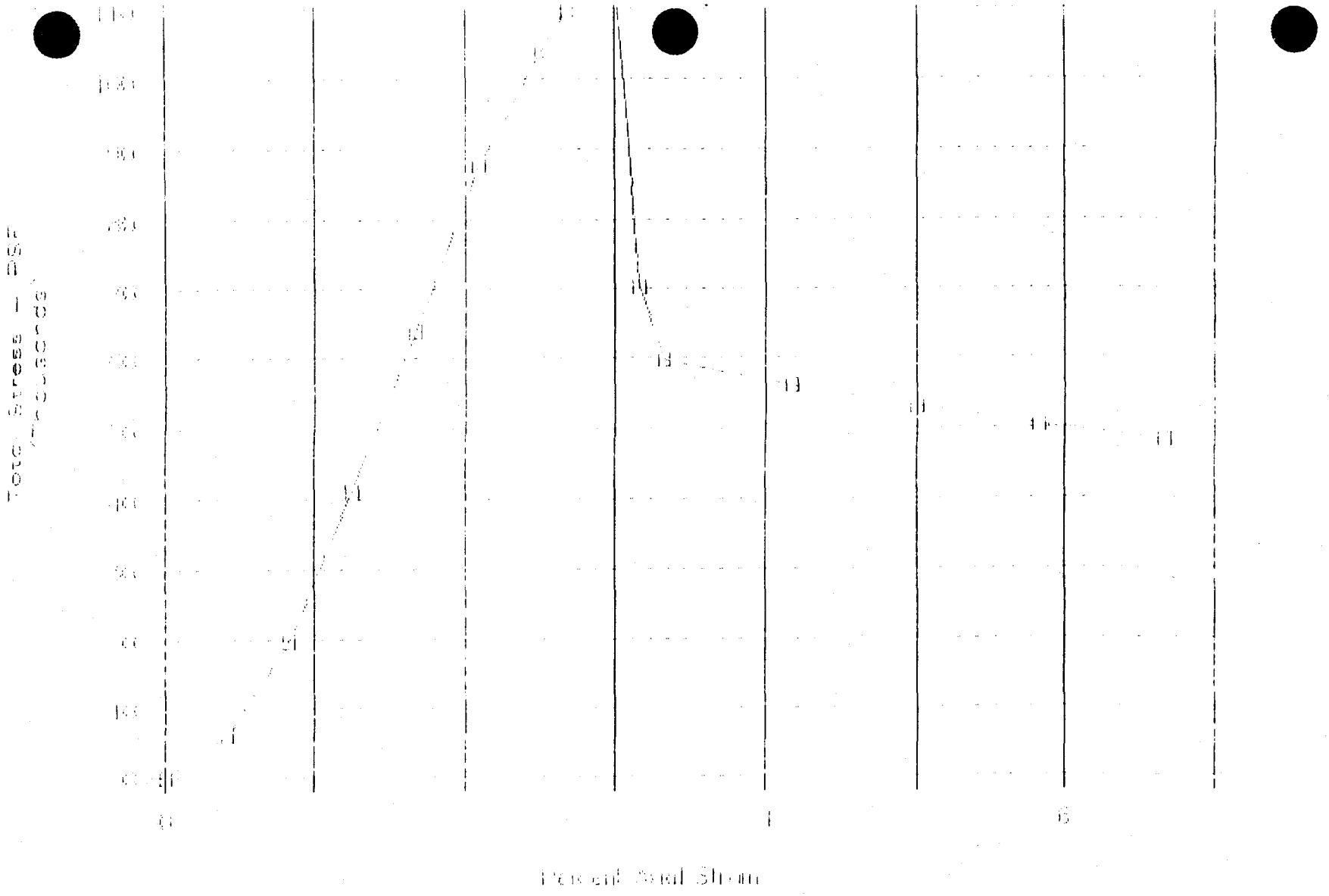
ADVANCED TERRA TESTING, INC.

TRIAXAL COMPRESSION TEST DATA

Weston		JOB NO.	2066-01
	B301990366375	SAMPLED	--
	36.6-37.5'	TEST STARTED	09-13-90 DCW
	#B	TEST FINISHED	09-13-90
	EG&G/Rocky Flats	SETUP NO.	1N
	TX/UU	SATURATED TEST	No
PSF	2000	AT FIELD MOIST.	Yes

(in)	3.00	Init. Area	(sq in)	2.48
(in)	3.00	Consol. Area	(sq in)	2.48
PSI	0.0	Strain Rate	(in/min)	0.04

Delta Ht. In.	Axial % Strain	Area Final Sq In.	Dev. Stress PSF	Pore Pres. PSI	Delta Pres. PSF	Sigma 3 PSF	Sigma 1 PSF	Prin. Stress Ratio
0	0.00	0.00	2.48	0	0.00	0.0	2000	0	0.00
14	0.01	0.42	2.49	4197	0.00	0.0	2000	6197	3.10
74	0.03	0.83	2.50	17726	0.00	0.0	2000	19726	9.86
72	0.04	1.25	2.51	39177	0.00	0.0	2000	41177	20.59
[illegible]	0.05	1.67	2.52	61875	0.00	0.0	2000	63875	31.94
28	0.06	2.08	2.53	85803	0.00	0.0	2000	87803	43.90
31	0.08	2.50	2.54	102016	0.00	0.0	2000	104016	52.01
04	0.08	2.67	2.55	107782	0.00	0.0	2000	109782	54.89
10	0.09	2.83	2.55	114376	0.00	0.0	2000	116376	58.19
19	0.09	3.00	2.55	113898	0.00	0.0	2000	115898	57.95
60	0.10	3.17	2.56	68249	0.00	0.0	2000	70249	35.12
27	0.10	3.33	2.56	57736	0.00	0.0	2000	59736	29.87
34	0.13	4.17	2.58	54036	0.00	0.0	2000	56036	28.02
69	0.15	5.00	2.61	51081	0.00	0.0	2000	53081	26.54
43	0.18	5.83	2.63	48444	0.00	0.0	2000	50444	25.22
54	0.20	6.66	2.65	46252	0.00	0.0	2000	48252	24.13


Torc Stress - PSI
Percent Soil Strain

TRIAXAL COMPRESSION TEST DATA

CLIENT Weston

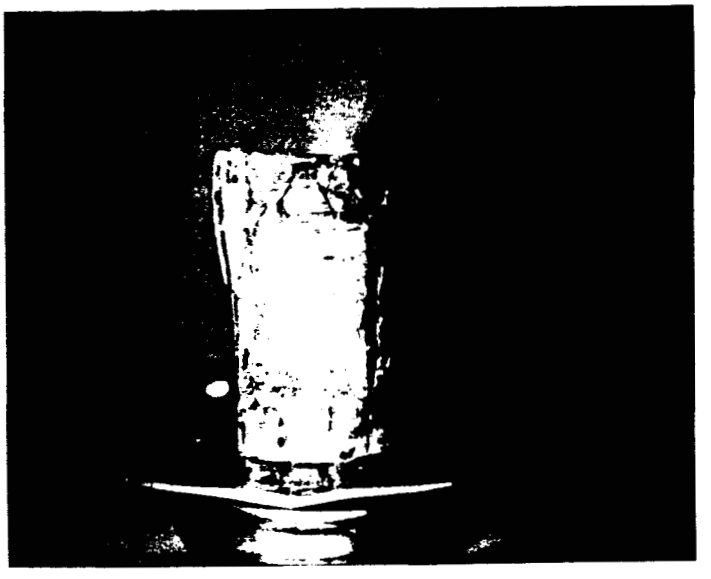
JOB NO. 2066-01

BORING NO.	B301990366375	SAMPLED	--
DEPTH	36.6-37.5'	TEST STARTED	09-13-90 DCW
SAMPLE NO.	#C	TEST FINISHED	09-13-90
SOIL DESCR.	EG&G/Rocky Flats	SETUP NO.	1N
TEST TYPE	TX/UU	SATURATED TEST	No
CONF. PRES. PSF	4000	AT FIELD MOIST.	Yes

MOISTURE/DENSITY DATA		BEFORE TEST	AFTER TEST
Wt. Soil + Moisture	(g)	307.8	307.8
Wt. Wet Soil & Pan	(g)	316.7	316.7
Wt. Dry Soil & Pan	(g)	287.7	287.7
Wt. Lost Moisture	(g)	28.9	28.9
Wt. of Pan Only	(g)	8.9	8.9
Wt. of Dry Soil	(g)	278.9	278.9
Moisture Content %		10.4	10.4
Wet Density PCF		138.5	138.5
Dry Density PCF		125.5	125.5

Init. Diameter	(in)	1.787
Init. Area	(sq in)	2.508
Init. Height	(in)	3.375
Vol. Bef. Consol.	(cu ft)	0.00490
Vol. After Consol.	(cu ft)	0.00490

Notes & Comments:



ADVANCED TERRA TESTING, INC.

TRIAXAL COMPRESSION TEST DATA

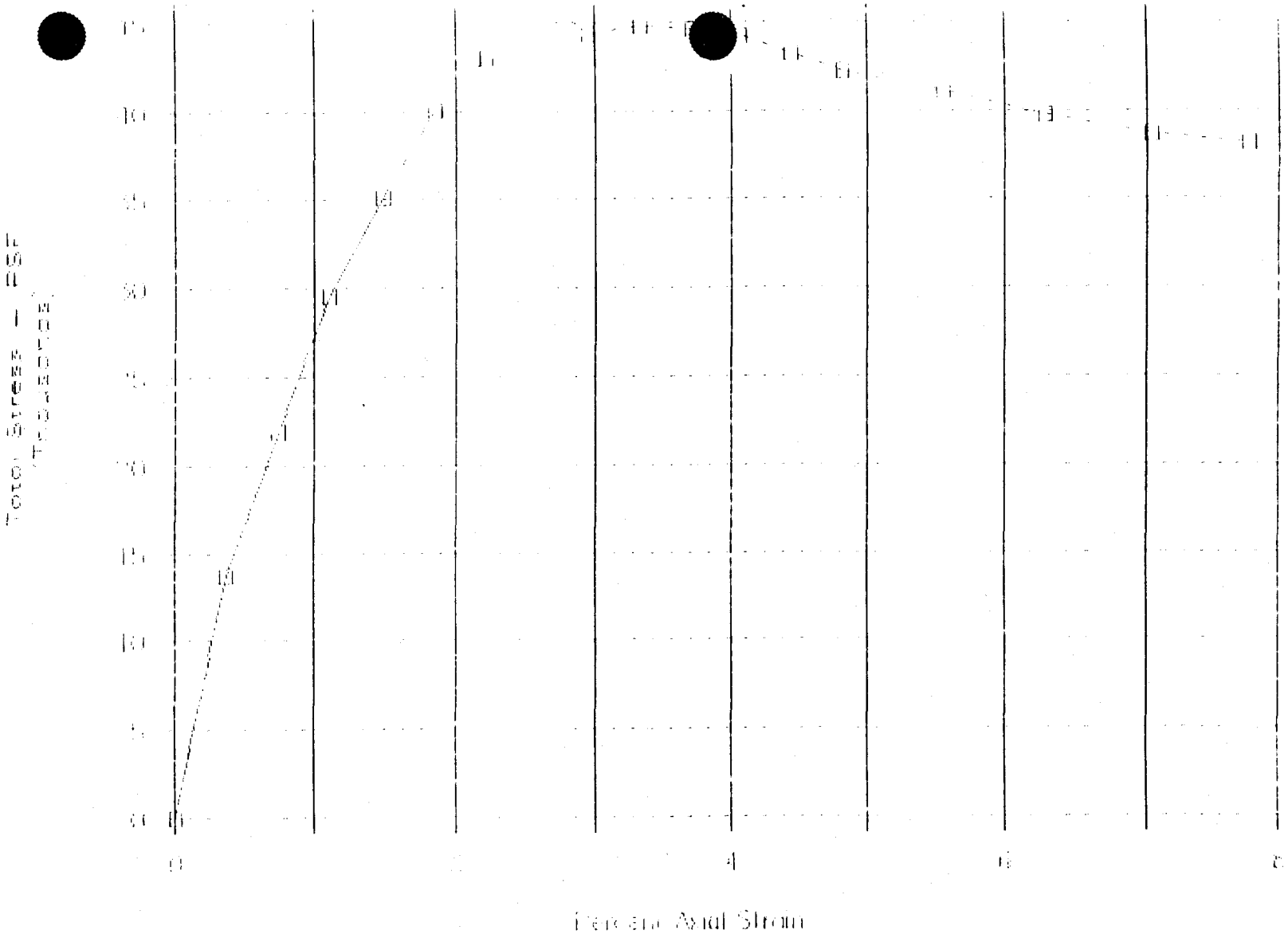
Weston

JOB NO. 2066-01

	B301990366375	SAMPLED	--
	36.6-37.5'	TEST STARTED	09-13-90 DCW
	#C	TEST FINISHED	09-13-90
	EG&G/Rocky Flats	SETUP NO.	1N
	TX/UU	SATURATED TEST	No
PSF	4000	AT FIELD MOIST.	Yes

(in)	3.375	Init. Area (sq in)	2.508
(in)	3.375	Consol. Area (sq in)	2.508
PSI	0.0	Strain Rate (in/min)	0.040

Delta Ht. In.	Axial % Strain	Area Final Sq In.	Dev. Stress PSF	Pore Pres. PSI	Delta Pres. PSF	Sigma 3 PSF	Sigma 1 PSF	Prin. Stress Ratio
0.00	0.00	2.508	0	0.00	0.0	4000	0	0.00
0.01	0.37	2.517	9724	0.00	0.0	4000	13724	3.43
0.03	0.74	2.527	17952	0.00	0.0	4000	21952	5.49
0.04	1.11	2.536	25550	0.00	0.0	4000	29550	7.39
0.05	1.48	2.546	31110	0.00	0.0	4000	35110	8.78
0.06	1.85	2.555	36065	0.00	0.0	4000	40065	10.02
0.08	2.22	2.565	39017	0.00	0.0	4000	43017	10.75
0.09	2.59	2.575	42504	0.00	0.0	4000	46504	11.63
0.10	2.96	2.585	40392	0.00	0.0	4000	44392	11.10
0.11	3.33	2.595	40793	0.00	0.0	4000	44793	11.20
0.13	3.70	2.605	40637	0.00	0.0	4000	44637	11.16
0.14	4.07	2.615	40205	0.00	0.0	4000	44205	11.05
0.15	4.44	2.625	39227	0.00	0.0	4000	43227	10.81
0.16	4.81	2.635	38255	0.00	0.0	4000	42255	10.56
0.19	5.56	2.656	37144	0.00	0.0	4000	41144	10.29
0.21	6.30	2.677	35777	0.00	0.0	4000	39777	9.94
0.24	7.04	2.698	34693	0.00	0.0	4000	38693	9.67
0.26	7.78	2.720	34152	0.00	0.0	4000	38152	9.54


Total Stress - psi
Percent Axial Strain

TRIAXAL COMPRESSION TEST DATA

CLIENT Weston

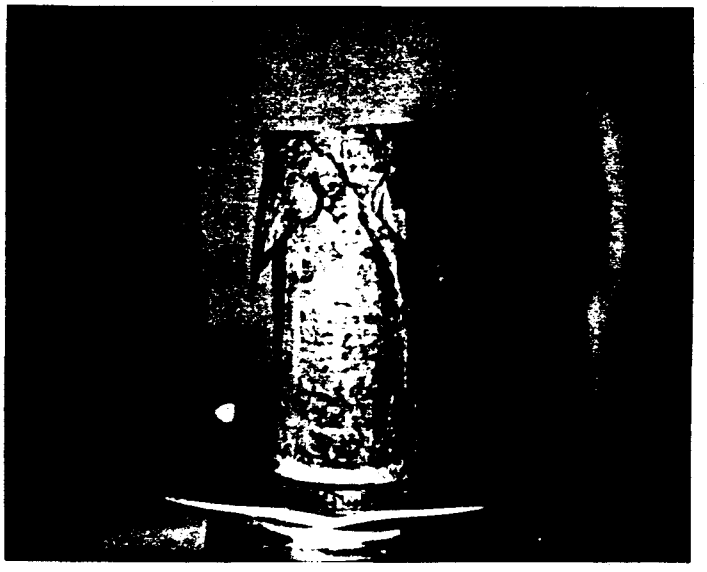
JOB NO. 2066-01

BORING NO.	B302290293304	SAMPLED	--
DEPTH	29.3-30.4'	TEST STARTED	09-13-90 DCW
SAMPLE NO.	#A	TEST FINISHED	09-13-90
SOIL DESCR.	EG&G/Rocky Flats	SETUP NO.	1N
TEST TYPE	TX/UU	SATURATED TEST	No
CONF. PRES. PSF	1000	AT FIELD MOIST.	Yes

MOISTURE/DENSITY DATA		BEFORE TEST	AFTER TEST
Wt. Soil + Moisture	(g)	356.4	356.4
Wt. Wet Soil & Pan	(g)	364.9	364.9
Wt. Dry Soil & Pan	(g)	310.8	310.8
Wt. Lost Moisture	(g)	54.1	54.1
Wt. of Pan Only	(g)	8.6	8.6
Wt. of Dry Soil	(g)	302.3	302.3
Moisture Content %		17.9	17.9
Wet Density PCF		135.2	135.2
Dry Density PCF		114.7	114.7

Init. Diameter	(in)	1.770
Init. Area	(sq in)	2.461
Init. Height	(in)	4.080
Vol. Bef. Consol.	(cu ft)	0.00581
Vol. After Consol.	(cu ft)	0.00581

Notes & Comments:



B302290293304
29.3 - 30.4'
TX/UU

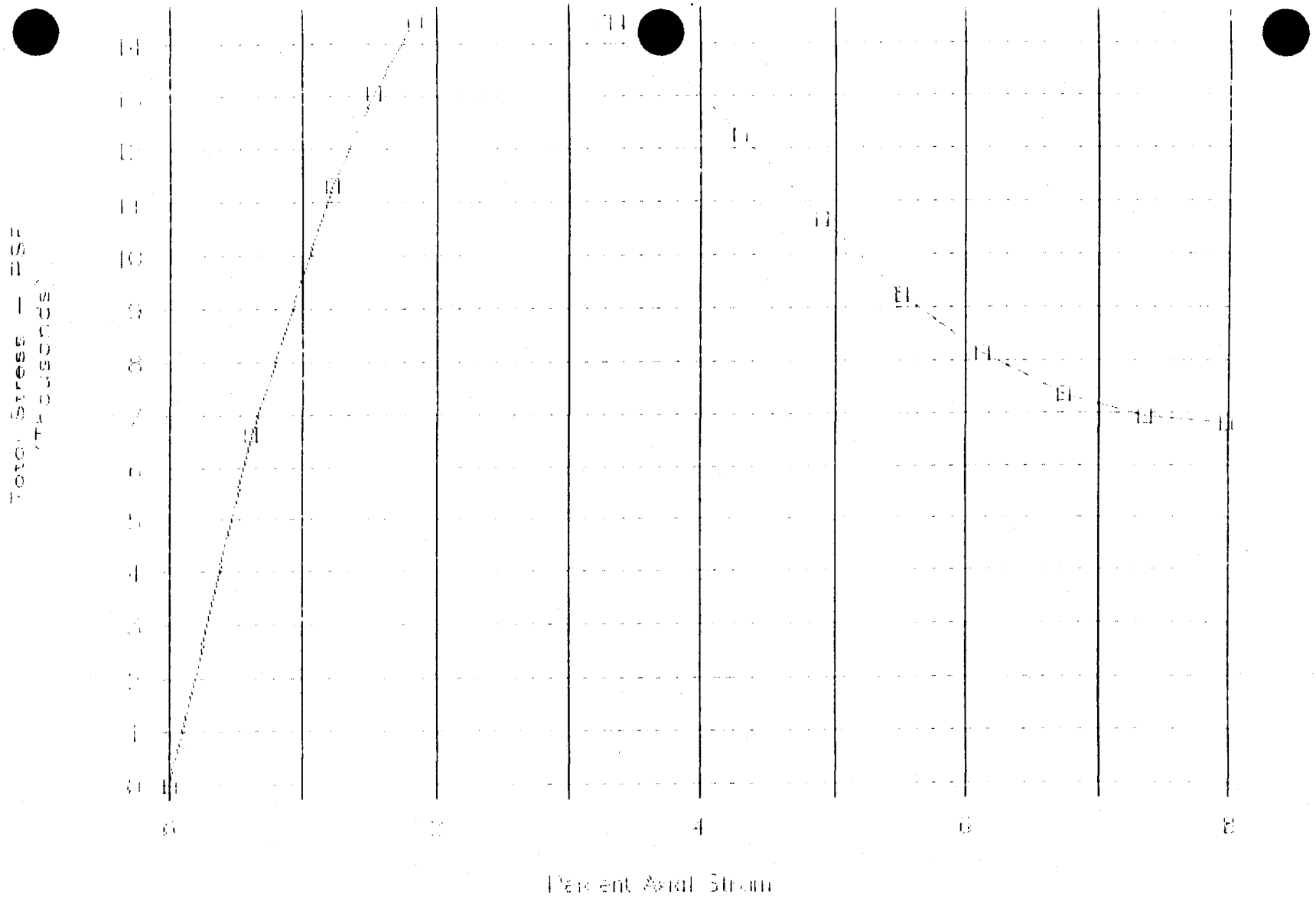
ADVANCED TERRA TESTING, INC.

TRIAXAL COMPRESSION TEST DATA

Weston		JOB NO.	2066-01
	B302290293304	SAMPLED	--
	29.3-30.4'	TEST STARTED	09-13-90 DCW
	#A	TEST FINISHED	09-13-90
	EG&G/Rocky Flats	SETUP NO.	1N
	TX/UU	SATURATED TEST	No
PSF	1000	AT FIELD MOIST.	Yes

(in)	4.080	Init. Area (sq in)	2.461
(in)	4.080	Consol. Area (sq in)	2.461
PSI	0.0	Strain Rate (in/min)	0.040

Delta Ht. In.	Axial % Strain	Area Final Sq In.	Dev. Stress PSF	Pore Pres. PSI	Delta Pres. PSF	Sigma 3 PSF	Sigma 1 PSF	Prin. Stress Ratio
0.00	0.00	2.461	0	0.00	0.0	1000	0	0.00
0.03	0.61	2.476	5642	0.00	0.0	1000	6642	6.64
0.05	1.23	2.491	10318	0.00	0.0	1000	11318	11.32
.06	1.53	2.499	12073	0.00	0.0	1000	13073	13.07
.08	1.84	2.507	13443	0.00	0.0	1000	14443	14.44
0.09	2.14	2.515	14346	0.00	0.0	1000	15346	15.35
0.10	2.45	2.522	14358	0.00	0.0	1000	15358	15.36
0.11	2.76	2.530	14170	0.00	0.0	1000	15170	15.17
0.13	3.06	2.538	13842	0.00	0.0	1000	14842	14.84
0.14	3.37	2.546	13403	0.00	0.0	1000	14403	14.40
0.15	3.68	2.554	12909	0.00	0.0	1000	13909	13.91
0.18	4.29	2.571	11259	0.00	0.0	1000	12259	12.26
0.20	4.90	2.587	9656	0.00	0.0	1000	10656	10.66
0.23	5.51	2.604	8239	0.00	0.0	1000	9239	9.24
0.25	6.13	2.621	7142	0.00	0.0	1000	8142	8.14
0.28	6.74	2.638	6358	0.00	0.0	1000	7358	7.36
0.30	7.35	2.656	5937	0.00	0.0	1000	6937	6.94
0.33	7.97	2.674	5817	0.00	0.0	1000	6817	6.82


Total Stress - PSI
(Thousands)
Percent Axial Strain

TRIAXAL COMPRESSION TEST DATA

CLIENT Weston

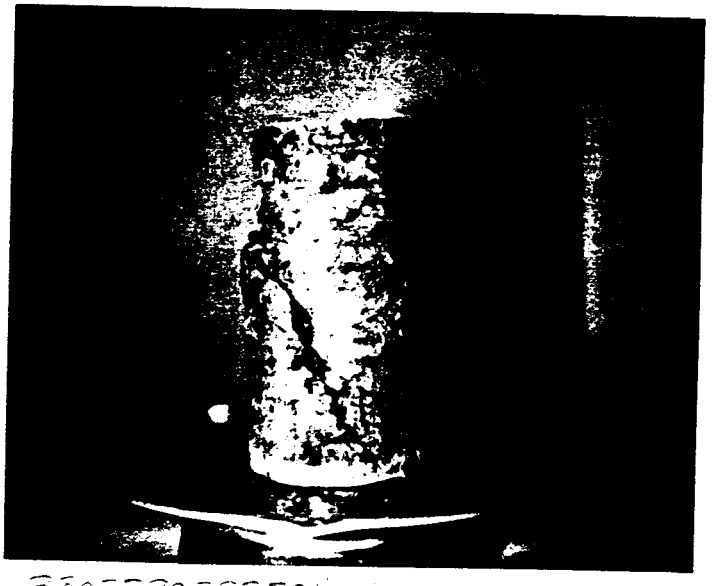
JOB NO. 2066-01

BORING NO.	B302290293304	SAMPLED	--
DEPTH	29.3-30.4'	TEST STARTED	09-13-90 DCW
SAMPLE NO.	#B	TEST FINISHED	09-13-90
SOIL DESCR.	EG&G/Rocky Flats	SETUP NO.	1N
TEST TYPE	TX/UU	SATURATED TEST	No
CONF. PRES. PSF	2000	AT FIELD MOIST.	Yes

MOISTURE/DENSITY DATA		BEFORE TEST	AFTER TEST
Wt. Soil + Moisture	(g)	360.2	360.2
Wt. Wet Soil & Pan	(g)	369.2	369.2
Wt. Dry Soil & Pan	(g)	317.5	317.5
Wt. Lost Moisture	(g)	51.7	51.7
Wt. of Pan Only	(g)	9.0	9.0
Wt. of Dry Soil	(g)	308.5	308.5
Moisture Content %		16.8	16.8
Wet Density PCF		135.6	135.6
Dry Density PCF		116.1	116.1

Init. Diameter	(in)	1.787
Init. Area	(sq in)	2.508
Init. Height	(in)	4.035
Vol. Bef. Consol.	(cu ft)	0.00586
Vol. After Consol.	(cu ft)	0.00586

Notes & Comments:



B302290293304
29.3-30.4'
TX/UU σ_3 = 2000 PSF

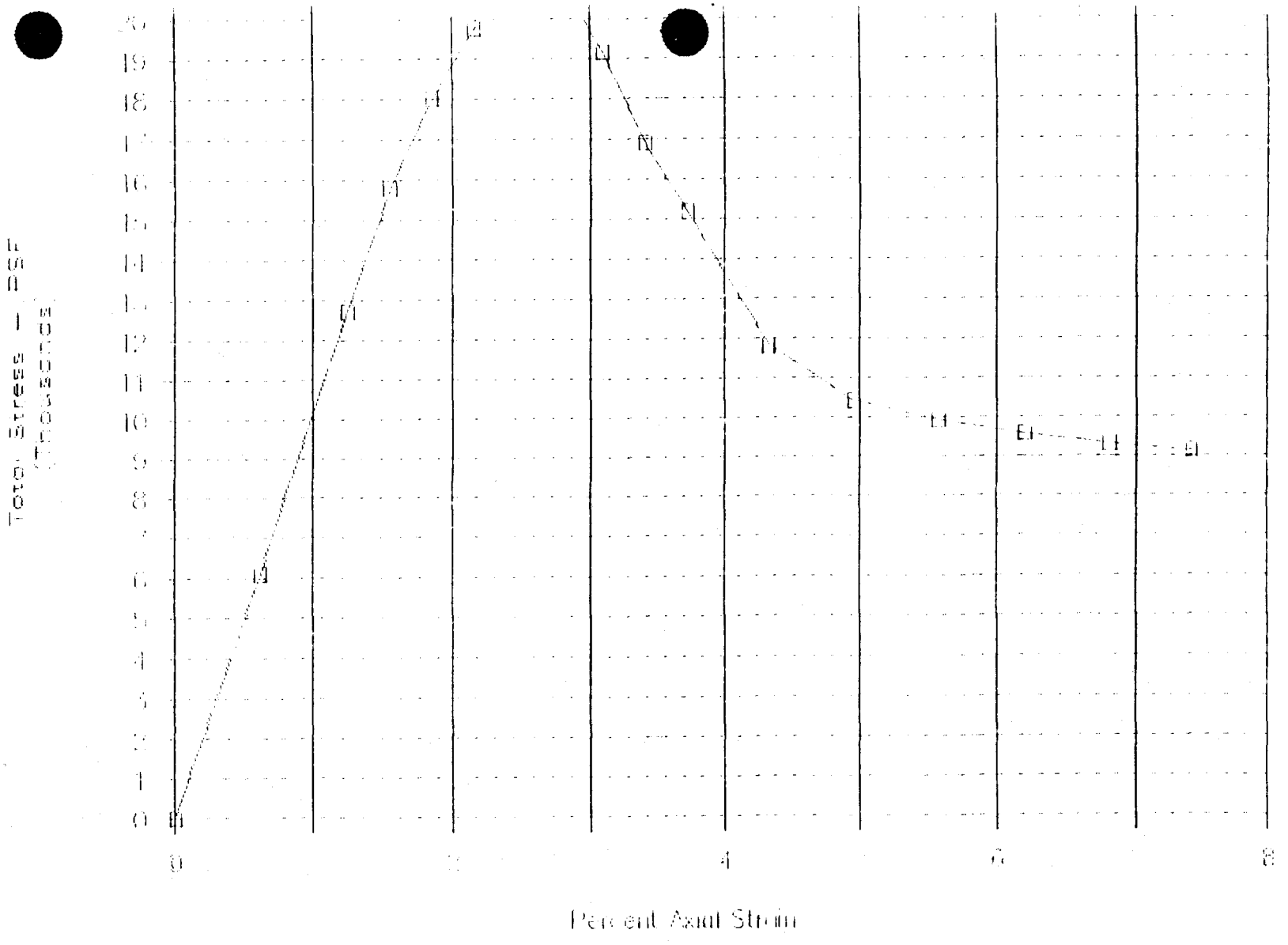
ADVANCED TERRA TESTING, INC.

TRIAXAL COMPRESSION TEST DATA

Weston		JOB NO.	2066-01
	B302290293304	SAMPLED	--
	29.3-30.4'	TEST STARTED	09-13-90 DCW
	#B	TEST FINISHED	09-13-90
	EG&G/Rocky Flats	SETUP NO.	1N
	TX/UU	SATURATED TEST	No
PSF	2000	AT FIELD MOIST.	Yes

(in)	4.035	Init. Area (sq in)	2.508
(in)	4.035	Consol. Area (sq in)	2.508
PSI	0.0	Strain Rate (in/min)	0.040

Delta Ht. In.	Axial % Strain	Area Final Sq In.	Dev. Stress PSF	Pore Pres. PSI	Delta Pres. PSF	Sigma 3 PSF	Sigma 1 PSF	Prin. Stress Ratio
0.00	0.00	2.508	0	0.00	0.0	2000	0	0.00
0.03	0.62	2.524	4108	0.00	0.0	2000	6108	3.05
0.05	1.24	2.540	10717	0.00	0.0	2000	12717	6.36
.06	1.55	2.548	13792	0.00	0.0	2000	15792	7.90
0.08	1.86	2.556	16031	0.00	0.0	2000	18031	9.02
0.09	2.17	2.564	17778	0.00	0.0	2000	19778	9.89
0.10	2.48	2.572	18813	0.00	0.0	2000	20813	10.41
0.11	2.79	2.580	19033	0.00	0.0	2000	21033	10.52
0.13	3.10	2.588	17164	0.00	0.0	2000	19164	9.58
0.14	3.41	2.597	14891	0.00	0.0	2000	16891	8.45
0.15	3.72	2.605	13184	0.00	0.0	2000	15184	7.59
0.18	4.34	2.622	9832	0.00	0.0	2000	11832	5.92
0.20	4.96	2.639	8431	0.00	0.0	2000	10431	5.22
0.23	5.58	2.656	7942	0.00	0.0	2000	9942	4.97
0.25	6.20	2.674	7594	0.00	0.0	2000	9594	4.80
0.28	6.82	2.692	7330	0.00	0.0	2000	9330	4.66
0.30	7.43	2.710	7148	0.00	0.0	2000	9148	4.57


Total Stress - PSF
Percent Axial Strain

TRIAXAL COMPRESSION TEST DATA

CLIENT Weston

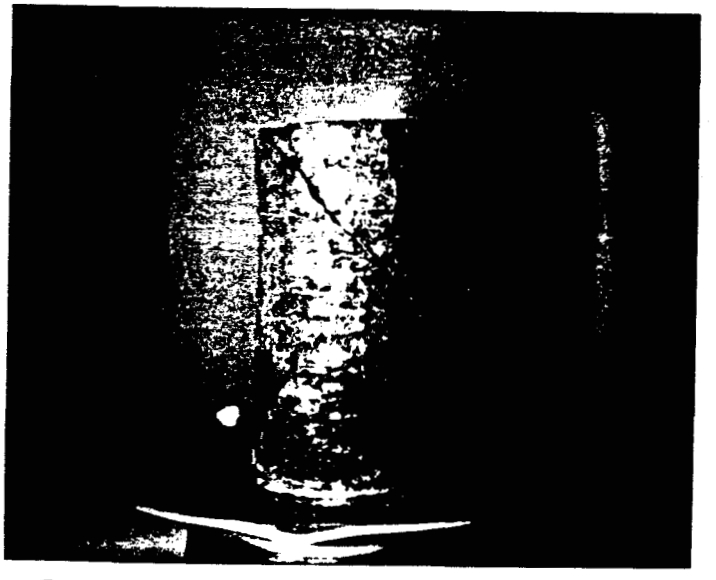
JOB NO. 2066-01

BORING NO.	B302290293304	SAMPLED	--
DEPTH	29.3-30.4'	TEST STARTED	09-13-90 DCW
SAMPLE NO.	#C	TEST FINISHED	09-13-90
SOIL DESCR.	EG&G/Rocky Flats	SETUP NO.	1N
TEST TYPE	TX/UU	SATURATED TEST	No
CONF. PRES. PSF	4000	AT FIELD MOIST.	Yes

MOISTURE/DENSITY DATA		BEFORE TEST	AFTER TEST
Wt. Soil + Moisture	(g)	354.5	354.5
Wt. Wet Soil & Pan	(g)	362.5	362.5
Wt. Dry Soil & Pan	(g)	310.3	310.3
Wt. Lost Moisture	(g)	52.2	52.2
Wt. of Pan Only	(g)	8.0	8.0
Wt. of Dry Soil	(g)	302.3	302.3
Moisture Content %		17.3	17.3
Wet Density PCF		133.9	133.9
Dry Density PCF		114.2	114.2

Init. Diameter	(in)	1.788
Init. Area	(sq in)	2.511
Init. Height	(in)	4.015
Vol. Bef. Consol.	(cu ft)	0.00583
Vol. After Consol.	(cu ft)	0.00583

Notes & Comments:



B302290293304
29.3-30.4
TX/UU $\bar{\sigma}_3$ = 4000 PSF

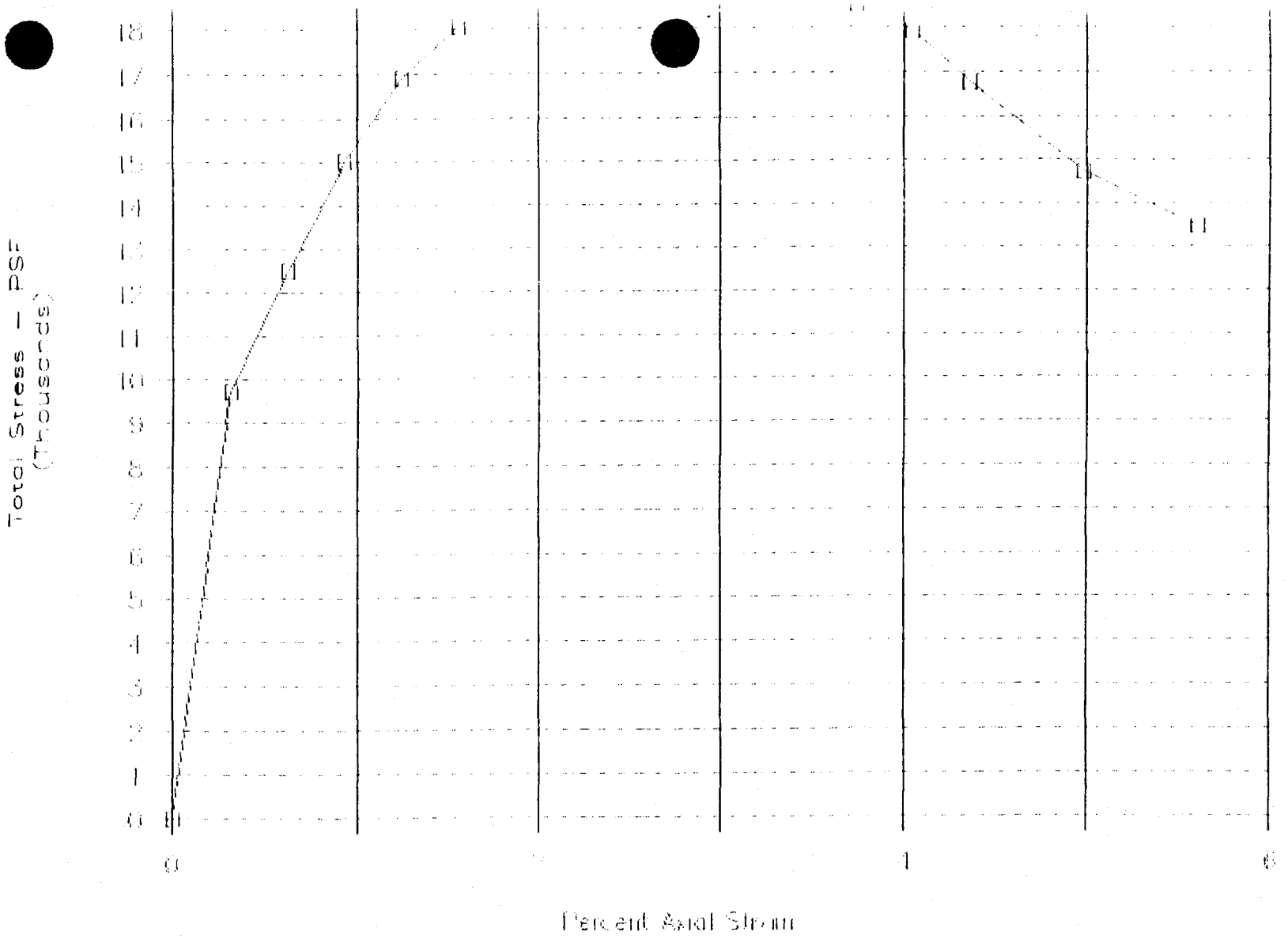
ADVANCED TERRA TESTING, INC.

TRIAXAL COMPRESSION TEST DATA

Weston		JOB NO.	2066-01
	B302290293304	SAMPLED	--
	29.3-30.4'	TEST STARTED	09-13-90 DCW
	#C	TEST FINISHED	09-13-90
	EG&G/Rocky Flats	SETUP NO.	1N
	TX/UU	SATURATED TEST	No
PSF	4000	AT FIELD MOIST.	Yes

(in)	4.015	Init. Area (sq in)	2.511
(in)	4.015	Consol. Area (sq in)	2.511
PSI	0.0	Strain Rate (in/min)	0.040

Delta Ht. In.	Axial % Strain	Area Final Sq In.	Dev. Stress PSF	Pore Pres. PSI	Delta Pres. PSF	Sigma 3 PSF	Sigma 1 PSF	Prin. Stress Ratio
0.00	0.00	2.511	0	0.00	0.0	4000	0	0.00
0.01	0.31	2.519	5717	0.00	0.0	4000	9717	2.43
0.03	0.62	2.527	8492	0.00	0.0	4000	12492	3.12
.04	0.93	2.535	11022	0.00	0.0	4000	15022	3.76
0.05	1.25	2.543	12913	0.00	0.0	4000	16913	4.23
0.06	1.56	2.551	14058	0.00	0.0	4000	18058	4.51
0.08	1.87	2.559	15027	0.00	0.0	4000	19027	4.76
0.09	2.18	2.567	15428	0.00	0.0	4000	19428	4.86
0.10	2.49	2.575	15267	0.00	0.0	4000	19267	4.82
0.11	2.80	2.583	15051	0.00	0.0	4000	19051	4.76
0.13	3.11	2.592	14891	0.00	0.0	4000	18891	4.72
0.14	3.42	2.600	14788	0.00	0.0	4000	18788	4.70
0.15	3.74	2.608	14520	0.00	0.0	4000	18520	4.63
0.16	4.05	2.617	13922	0.00	0.0	4000	17922	4.48
0.18	4.36	2.625	12780	0.00	0.0	4000	16780	4.20
0.20	4.98	2.643	10735	0.00	0.0	4000	14735	3.68
0.23	5.60	2.660	9474	0.00	0.0	4000	13474	3.37


Total Stress - PSF
(Thousands)
18
17
16
15
14
13
12
11
10
9
8
7
6
5
4
3
2
1
0
0
1
6
Percent Axial Strain

APPENDIX B-5

UNCONFINED COMPRESSIVE STRENGTH TEST DATA

UNCONFINED COMPRESSIVE STRENGTH TEST DATA

CLIENT Weston

JOB NO. 2066-01

BORING NO.	GTB3001902	SAMPLED	2-22-90 GS
DEPTH	16.8-17.3'	TEST STARTED	4-11-90 DCW
SAMPLE NO.	--	TEST FINISHED	4-11-90
SOIL DESCR.	Core	SETUP NO.	1
TEST TYPE	UCS	SATURATED TEST	No
CONF. PRES. PSF	0	AT FIELD MOIST.	Yes

MOISTURE/DENSITY DATA		BEFORE TEST	AFTER TEST
Wt. Soil + Moisture	(g)	388.0	388.0
Wt. Wet Soil & Pan	(g)	397.1	397.1
Wt. Dry Soil & Pan	(g)	341.8	341.8
Wt. Lost Moisture	(g)	55.3	55.3
Wt. of Pan Only	(g)	9.1	9.1
Wt. of Dry Soil	(g)	332.8	332.8
Moisture Content %		16.6	16.6
Wet Density PCF		133.6	133.6
Dry Density PCF		114.6	114.6

Init. Diameter	(in)	1.879
Init. Area	(sq in)	2.773
Init. Height	(in)	3.990
Vol. Bef. Consol.	(cu ft)	0.00640
Vol. After Consol.	(cu ft)	0.00640

Notes & Comments:

GTB3001902
16.8 - 17.3'

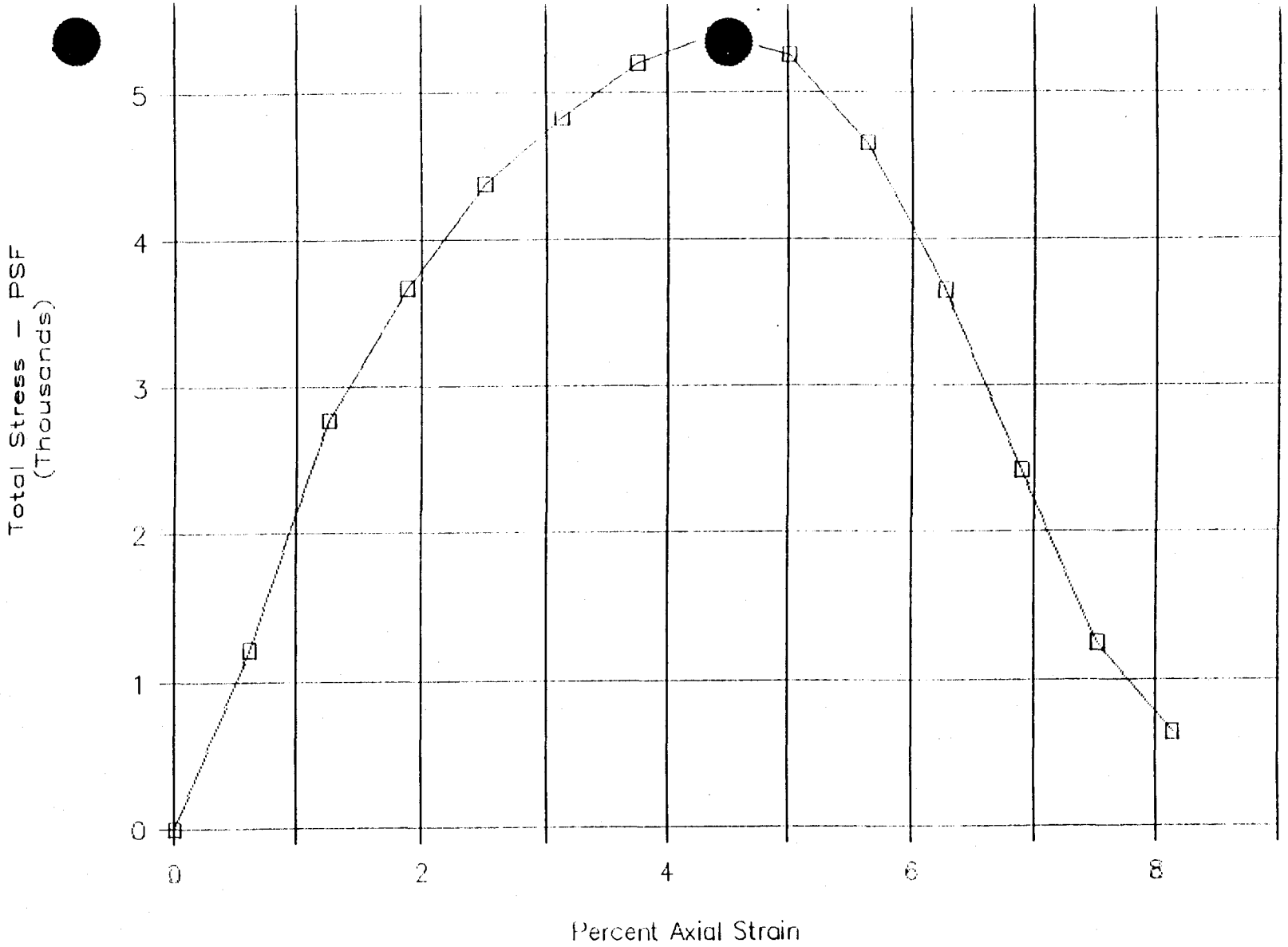
ADVANCED TERRA TESTING, INC.

UNCONFINED COMPRESSIVE STRENGTH TEST DATA

Weston		JOB NO.	2066-01
	GTB3001902	SAMPLED	2-22-90 GS
	16.8-17.3'	TEST STARTED	4-11-90 DCW
	--	TEST FINISHED	4-11-90
	Core	SETUP NO.	1
	UCS	SATURATED TEST	No
PSF	0	AT FIELD MOIST.	Yes

(in)	3.990	Init. Area (sq in)	2.773
(in)	3.990	Consol. Area (sq in)	2.773
PSI	0.0	Strain Rate (in/min)	0.080

al i	Delta Ht. In.	Axial % Strain	Area Final Sq In.	Dev. Stress PSF	Pore Pres. PSI	Delta Pres. PSF	Sigma 3 PSF	Sigma 1 PSF	Prin. Stress Ratio
0	0.00	0.00	2.773	0	0.00	0.0	0	0	0.00
20	0.03	0.63	2.790	1213	0.00	0.0	0	1213	
04	0.05	1.25	2.808	2769	0.00	0.0	0	2769	
39	0.08	1.88	2.826	3669	0.00	0.0	0	3669	
92	0.10	2.51	2.844	4379	0.00	0.0	0	4379	
35	0.13	3.13	2.863	4829	0.00	0.0	0	4829	
01	0.15	3.76	2.881	5198	0.00	0.0	0	5198	
34	0.18	4.39	2.900	5387	0.00	0.0	0	5387	
31	0.20	5.01	2.919	5253	0.00	0.0	0	5253	
33	0.23	5.64	2.939	4655	0.00	0.0	0	4655	
35	0.25	6.27	2.958	3651	0.00	0.0	0	3651	
37	0.28	6.89	2.978	2418	0.00	0.0	0	2418	
50	0.30	7.52	2.998	1249	0.00	0.0	0	1249	
01	0.33	8.15	3.019	644	0.00	0.0	0	644	


Total Stress - PSF
(Thousands)
0
1
2
3
4
5
0
2
4
6
8
Percent Axial Strain

UNCONFINED COMPRESSIVE STRENGTH TEST DATA

CLIENT Weston

JOB NO. 2066-01

BORING NO.	GTB3001903	SAMPLED	2-22-90 GS
DEPTH	23.0-23.4'	TEST STARTED	4-11-90 DCW
SAMPLE NO.	--	TEST FINISHED	4-11-90
SOIL DESCR.	Core	SETUP NO.	1
TEST TYPE	UCS	SATURATED TEST	No
CONF. PRES. PSF	0	AT FIELD MOIST.	Yes

MOISTURE/DENSITY DATA		BEFORE TEST	AFTER TEST
Wt. Soil + Moisture	(g)	386.7	386.7
Wt. Wet Soil & Pan	(g)	394.3	394.3
Wt. Dry Soil & Pan	(g)	343.4	343.4
Wt. Lost Moisture	(g)	51.0	51.0
Wt. of Pan Only	(g)	7.7	7.7
Wt. of Dry Soil	(g)	335.7	335.7
Moisture Content %		15.2	15.2
Wet Density PCF		133.8	133.8
Dry Density PCF		116.2	116.2

Init. Diameter	(in)	1.873
Init. Area	(sq in)	2.755
Init. Height	(in)	3.995
Vol. Bef. Consol.	(cu ft)	0.00637
Vol. After Consol.	(cu ft)	0.00637

Notes & Comments:

GTB 3001903
23.0 - 23.4'

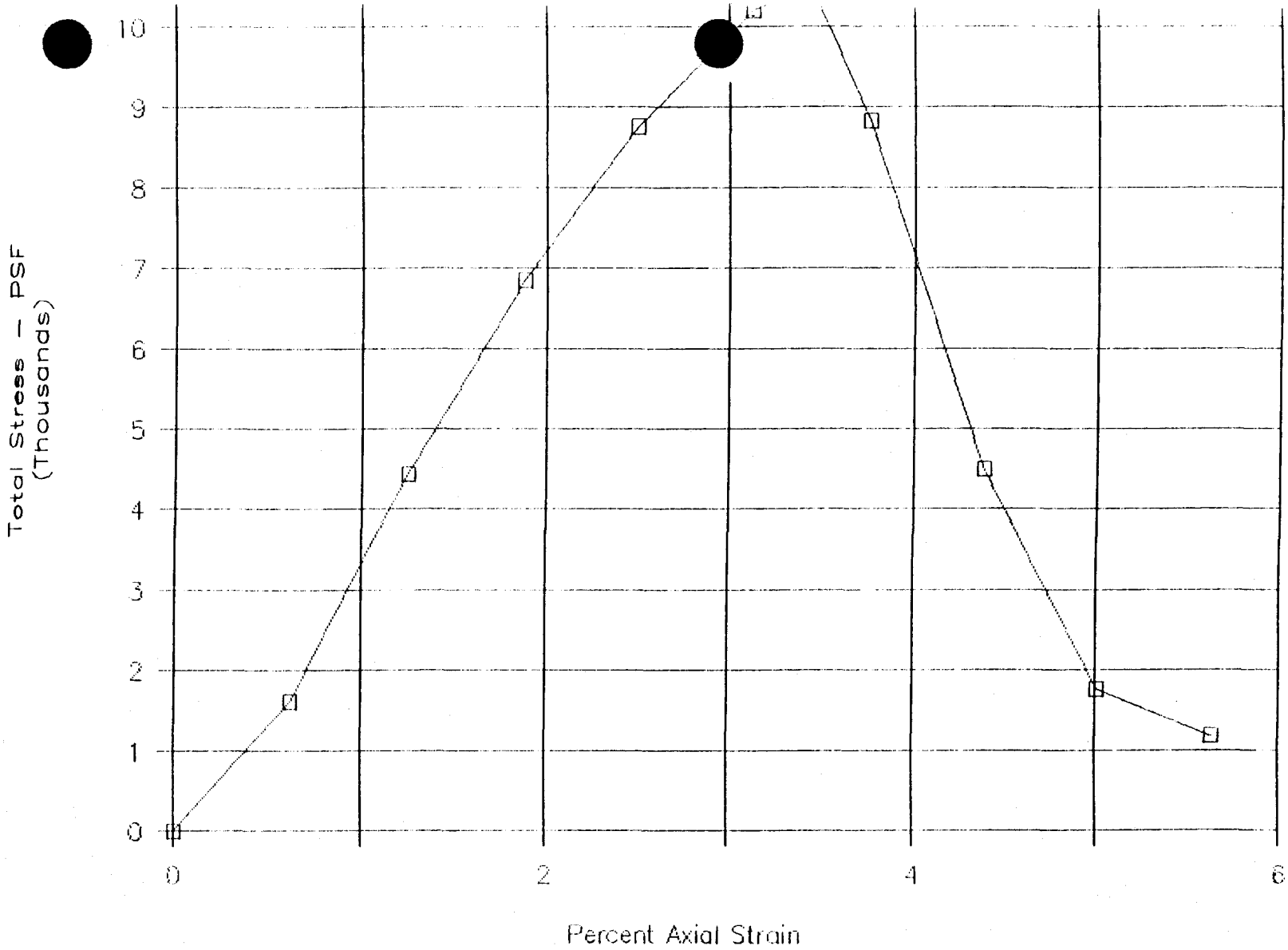
ADVANCED TERRA TESTING, INC.

UNCONFINED COMPRESSIVE STRENGTH TEST DATA

Weston		JOB NO.	2066-01
	GTB3001903	SAMPLED	2-22-90 GS
	23.0-23.4'	TEST STARTED	4-11-90 DCW
	--	TEST FINISHED	4-11-90
	Core	SETUP NO.	1
	UCS	SATURATED TEST	No
PSF	0	AT FIELD MOIST.	Yes

(in)	3.995	Init. Area (sq in)	2.755
(in)	3.995	Consol. Area (sq in)	2.755
PSI	0.0	Strain Rate (in/min)	0.080

1	Delta Ht. In.	Axial % Strain	Area Final Sq In.	Dev. Stress PSF	Pore Pres. PSI	Delta Pres. PSF	Sigma 3 PSF	Sigma 1 PSF	Prin. Stress Ratio
0	0.00	0.00	2.755	0	0.00	0.0	0	0	0.00
0	0.03	0.63	2.773	1610	0.00	0.0	0	1610	
5	.05	1.25	2.790	4438	0.00	0.0	0	4438	
7	.08	1.88	2.808	6846	0.00	0.0	0	6846	
9	0.10	2.50	2.826	8764	0.00	0.0	0	8764	
1	0.13	3.13	2.844	10202	0.00	0.0	0	10202	
1	0.14	3.44	2.853	10497	0.00	0.0	0	10497	
2	0.15	3.75	2.863	8828	0.00	0.0	0	8828	
4	0.18	4.38	2.882	4498	0.00	0.0	0	4498	
5	0.20	5.01	2.900	1762	0.00	0.0	0	1762	
4	0.23	5.63	2.920	1184	0.00	0.0	0	1184	


Total Stress - PSF
(Thousands)
10
9
8
7
6
5
4
3
2
1
0
0
2
4
6
Percent Axial Strain

UNCONFINED COMPRESSIVE STRENGTH TEST DATA

CLIENT Weston

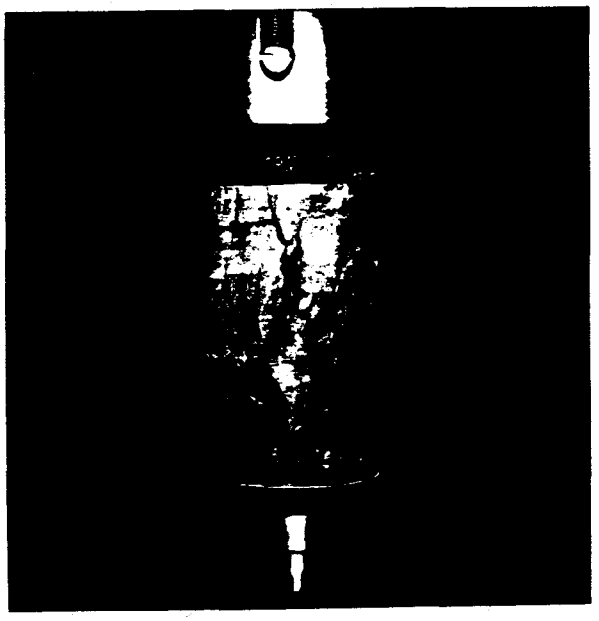
JOB NO. 2066-01

BORING NO.	GTB3002901	SAMPLED	2-22-90 GS
DEPTH	16.9-17.2'	TEST STARTED	4-10-90 DCW
SAMPLE NO.	--	TEST FINISHED	4-10-90
SOIL DESCR.	Core	SETUP NO.	1
TEST TYPE	UCS	SATURATED TEST	No
CONF. PRES. PSF	0	AT FIELD MOIST.	Yes

MOISTURE/DENSITY DATA		BEFORE TEST	AFTER TEST
Wt. Soil + Moisture	(g)	296.5	296.5
Wt. Wet Soil & Pan	(g)	304.2	304.2
Wt. Dry Soil & Pan	(g)	263.7	263.7
Wt. Lost Moisture	(g)	40.5	40.5
Wt. of Pan Only	(g)	7.7	7.7
Wt. of Dry Soil	(g)	256.0	256.0
Moisture Content %		15.8	15.8
Wet Density PCF		133.3	133.3
Dry Density PCF		115.1	115.1

Init. Diameter	(in)	1.821
Init. Area	(sq in)	2.604
Init. Height	(in)	3.252
Vol. Bef. Consol.	(cu ft)	0.00490
Vol. After Consol.	(cu ft)	0.00490

Notes & Comments:



GTB 3002901
16.9-17.2'

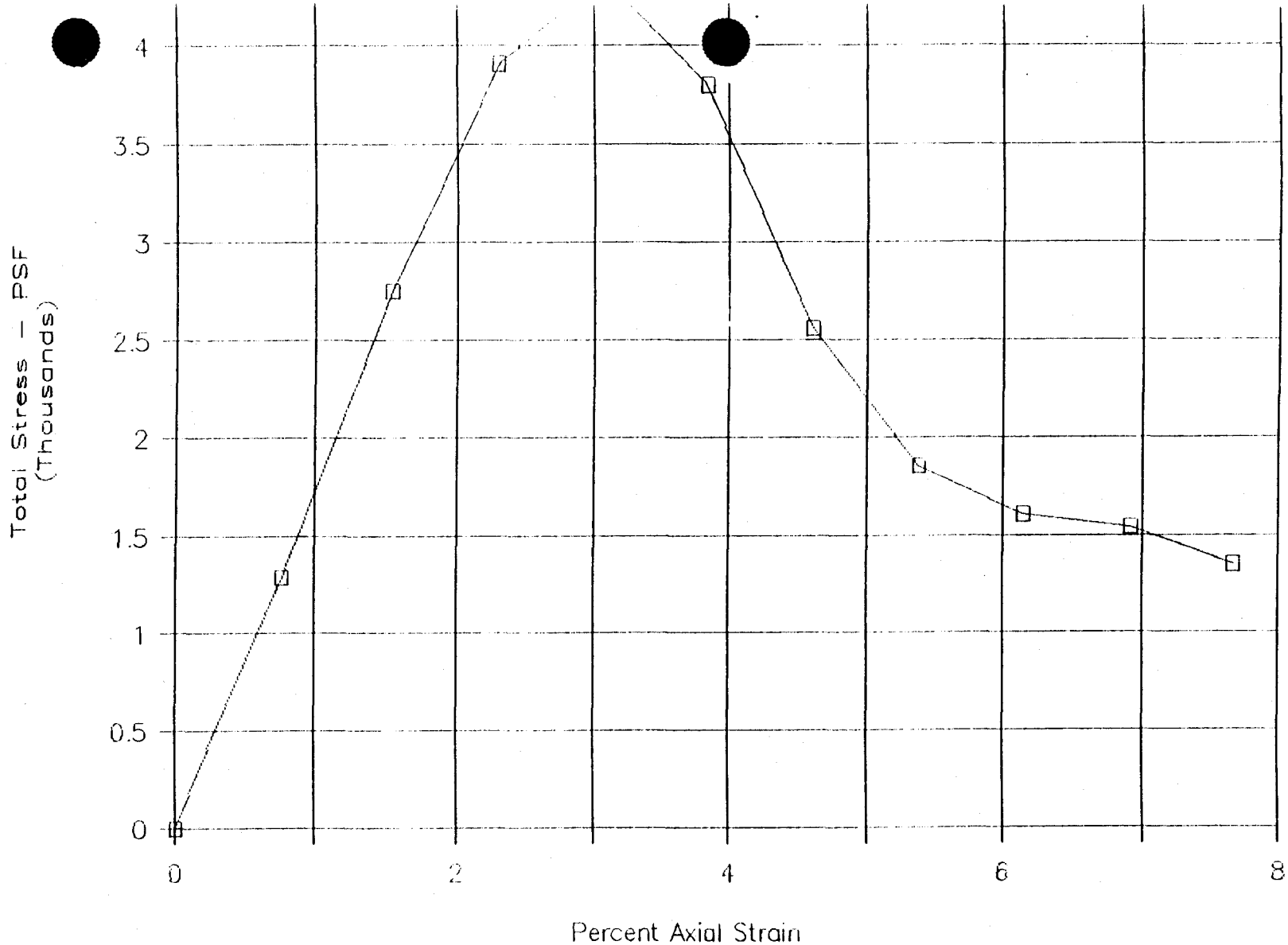
ADVANCED TERRA TESTING, INC.

UNCONFINED COMPRESSIVE STRENGTH TEST DATA

Weston		JOB NO.	2066-01
	GTB3002901	SAMPLED	2-22-90 GS
	16.9-17.2'	TEST STARTED	4-10-90 DCW
	--	TEST FINISHED	4-10-90
	Core	SETUP NO.	1
	UCS	SATURATED TEST	No
PSF	0	AT FIELD MOIST.	Yes

(in)	3.252	Init. Area (sq in)	2.604
(in)	3.252	Consol. Area (sq in)	2.604
PSI	0.0	Strain Rate (in/min)	0.080

;l i	Delta Ht. In.	Axial % Strain	Area Final Sq In.	Dev. Stress PSF	Pore Pres. PSI	Delta Pres. PSF	Sigma 3 PSF	Sigma 1 PSF	Prin. Stress Ratio
0	0.00	0.00	2.604	0	0.00	0.0	0	0	0.00
99	0.03	0.77	2.625	1289	0.00	0.0	0	1289	
92	0.05	1.54	2.645	2749	0.00	0.0	0	2749	
03	0.08	2.31	2.666	3911	0.00	0.0	0	3911	
79	0.10	3.08	2.687	4341	0.00	0.0	0	4341	
53	0.13	3.84	2.709	3801	0.00	0.0	0	3801	
32	0.15	4.61	2.730	2558	0.00	0.0	0	2558	
53	0.18	5.38	2.753	1857	0.00	0.0	0	1857	
14	0.20	6.15	2.775	1609	0.00	0.0	0	1609	
59	0.23	6.92	2.798	1544	0.00	0.0	0	1544	
35	0.25	7.69	2.821	1353	0.00	0.0	0	1353	


Total Stress - PSF
(Thousands)
4
3.5
3
2.5
2
1.5
1
0.5
0
0
2
4
6
8
Percent Axial Strain

UNCONFINED COMPRESSIVE STRENGTH TEST DATA

CLIENT Weston

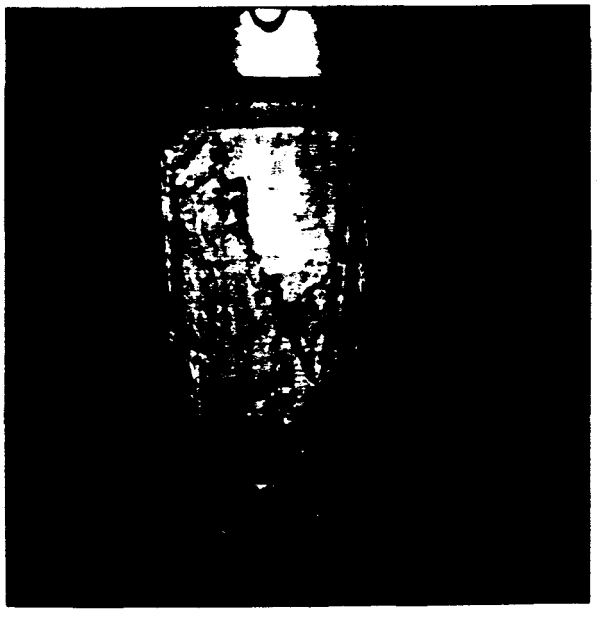
JOB NO. 2066-01

BORING NO.	GTB3002903	SAMPLED	2-22-90 GS
DEPTH	24.5-25'	TEST STARTED	4-11-90 DCW
SAMPLE NO.	--	TEST FINISHED	4-11-90
SOIL DESCR.	Core	SETUP NO.	1
TEST TYPE	UCS	SATURATED TEST	No
CONF. PRES. PSF	0	AT FIELD MOIST.	Yes

MOISTURE/DENSITY DATA		BEFORE TEST	AFTER TEST
Wt. Soil + Moisture	(g)	371.1	371.1
Wt. Wet Soil & Pan	(g)	380.3	380.3
Wt. Dry Soil & Pan	(g)	330.3	330.3
Wt. Lost Moisture	(g)	49.9	49.9
Wt. of Pan Only	(g)	9.1	9.1
Wt. of Dry Soil	(g)	321.2	321.2
Moisture Content %		15.5	15.5
Wet Density PCF		134.0	134.0
Dry Density PCF		116.0	116.0

Init. Diameter	(in)	1.833
Init. Area	(sq in)	2.639
Init. Height	(in)	3.999
Vol. Bef. Consol.	(cu ft)	0.00611
Vol. After Consol.	(cu ft)	0.00611

Notes & Comments:



GTB3002903
24.5 - 25.0'

ADVANCED TERRA TESTING, INC.

UNCONFINED COMPRESSIVE STRENGTH TEST DATA

CLIENT Weston

JOB NO. 2066-01

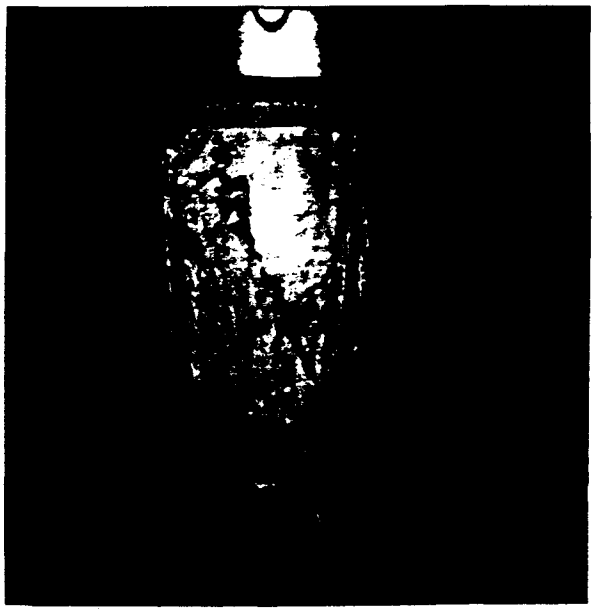
BORING NO.	GTB3002903
DEPTH	24.5-25'
SAMPLE NO.	--
SOIL DESCR.	Core
TEST TYPE	UCS
CONF. PRES. PSF	0

SAMPLED	2-22-90 GS
TEST STARTED	4-11-90 DCW
TEST FINISHED	4-11-90
SETUP NO.	1
SATURATED TEST	No
AT FIELD MOIST.	Yes

MOISTURE/DENSITY DATA		BEFORE TEST	AFTER TEST
Wt. Soil + Moisture	(g)	371.1	371.1
Wt. Wet Soil & Pan	(g)	380.3	380.3
Wt. Dry Soil & Pan	(g)	330.3	330.3
Wt. Lost Moisture	(g)	49.9	49.9
Wt. of Pan Only	(g)	9.1	9.1
Wt. of Dry Soil	(g)	321.2	321.2
Moisture Content %		15.5	15.5
Wet Density PCF		134.0	134.0
Dry Density PCF		116.0	116.0

Init. Diameter	(in)	1.833
Init. Area	(sq in)	2.639
Init. Height	(in)	3.999
Vol. Bef. Consol.	(cu ft)	0.00611
Vol. After Consol.	(cu ft)	0.00611

Notes & Comments:



GTB3002903
24.5 - 25.0'

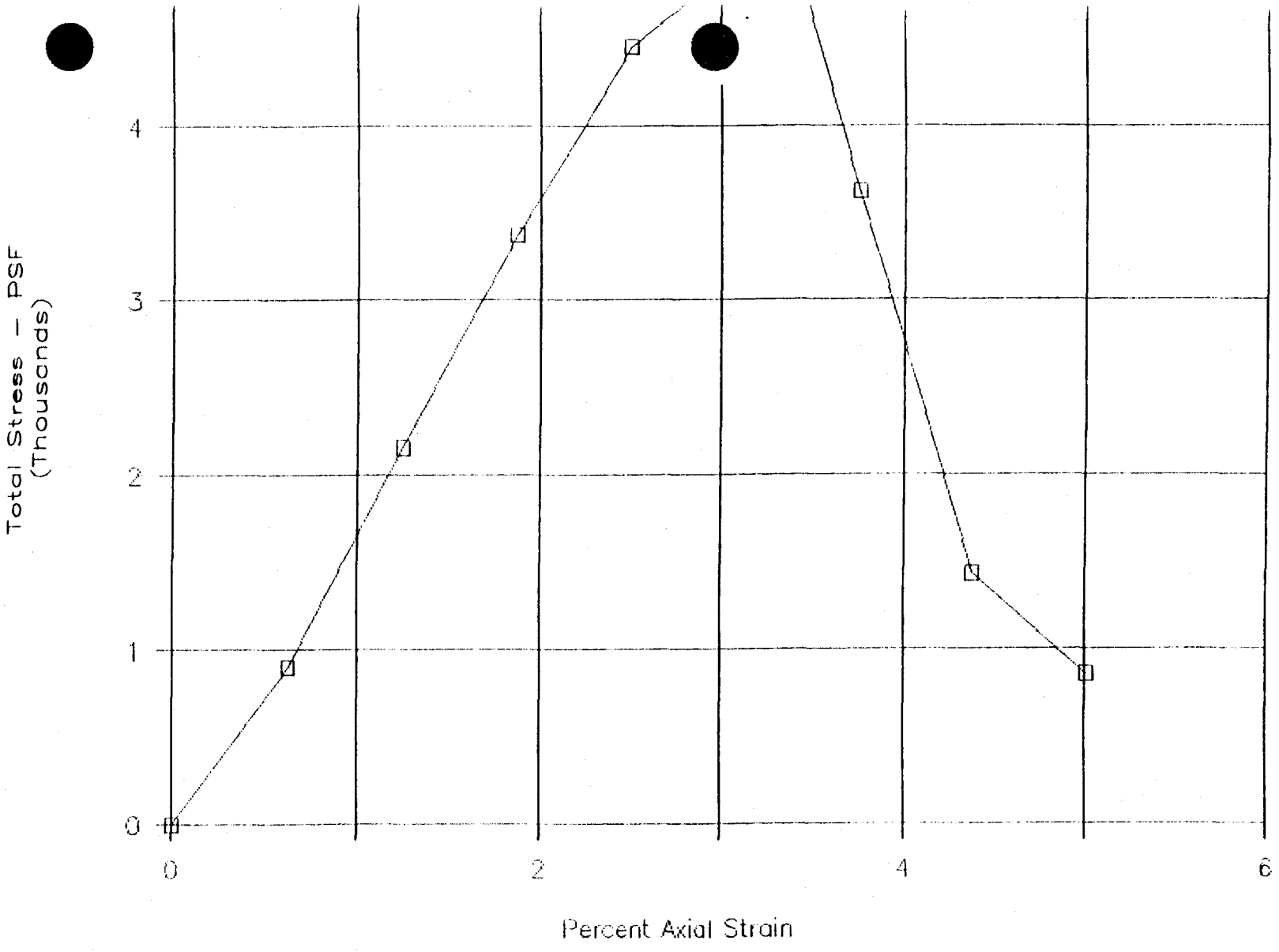
ADVANCED TERRA TESTING, INC.

UNCONFINED COMPRESSIVE STRENGTH TEST DATA

Weston		JOB NO.	2066-01
	GTB3002903	SAMPLED	2-22-90 GS
	24.5-25'	TEST STARTED	4-11-90 DCW
	--	TEST FINISHED	4-11-90
	Core	SETUP NO.	1
	UCS	SATURATED TEST	No
PSF	0	AT FIELD MOIST.	Yes

(in)	3.999	Init. Area (sq in)	2.639
(in)	3.999	Consol. Area (sq in)	2.639
PSI	0.0	Strain Rate (in/min)	0.080

1	Delta Ht. In.	Axial % Strain	Area Final Sq In.	Dev. Stress PSF	Pore Pres. PSI	Delta Pres. PSF	Sigma 3 PSF	Sigma 1 PSF	Prin. Stress Ratio
0	0.00	0.00	2.639	0	0.00	0.0	0	0	0.00
0	0.03	0.63	2.655	895	0.00	0.0	0	895	
3	.05	1.25	2.672	2155	0.00	0.0	0	2155	
8	0.08	1.88	2.689	3373	0.00	0.0	0	3373	
7	0.10	2.50	2.707	4443	0.00	0.0	0	4443	
2	0.13	3.13	2.724	4943	0.00	0.0	0	4943	
3	0.14	3.44	2.733	4821	0.00	0.0	0	4821	
5	0.15	3.75	2.742	3624	0.00	0.0	0	3624	
1	0.18	4.38	2.760	1435	0.00	0.0	0	1435	
0	0.20	5.00	2.778	855	0.00	0.0	0	855	


Total Stress - PSF
(Thousands)
0
1
2
3
4
0
2
4
6
Percent Axial Strain

UNCONFINED COMPRESSIVE STRENGTH TEST DATA

CLIENT Weston

JOB NO. 2066-01

BORING NO.	B3-004-90	SAMPLED	3-2-90 GS
DEPTH	12.6-13.1'	TEST STARTED	4-11-90 DCW
SAMPLE NO.	--	TEST FINISHED	4-11-90
SOIL DESCR.	Core	SETUP NO.	1
TEST TYPE	UCS	SATURATED TEST	No
CONF. PRES. PSF	0	AT FIELD MOIST.	Yes

MOISTURE/DENSITY DATA		BEFORE TEST	AFTER TEST
Wt. Soil + Moisture	(g)	387.7	387.7
Wt. Wet Soil & Pan	(g)	395.4	395.4
Wt. Dry Soil & Pan	(g)	345.8	345.8
Wt. Lost Moisture	(g)	49.6	49.6
Wt. of Pan Only	(g)	7.7	7.7
Wt. of Dry Soil	(g)	338.1	338.1
Moisture Content %		14.7	14.7
Wet Density PCF		139.9	139.9
Dry Density PCF		122.0	122.0

Init. Diameter	(in)	1.835
Init. Area	(sq in)	2.645
Init. Height	(in)	3.993
Vol. Bef. Consol.	(cu ft)	0.00611
Vol. After Consol.	(cu ft)	0.00611

Notes & Comments:

B3-004-90
12.6-13.1'

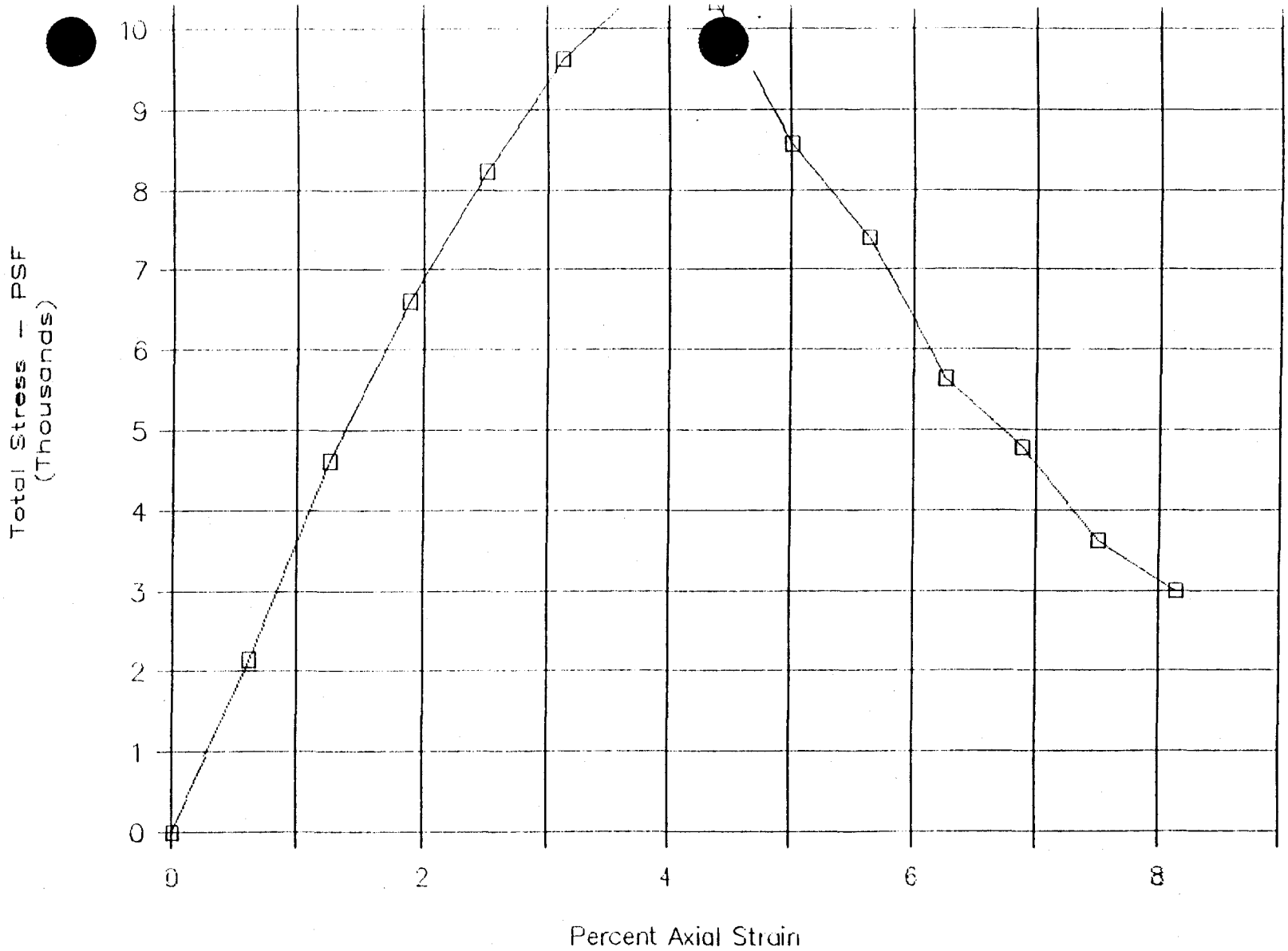
ADVANCED TERRA TESTING, INC.

UNCONFINED COMPRESSIVE STRENGTH TEST DATA

Weston		JOB NO.	2066-01
	B3-004-90	SAMPLED	3-2-90 GS
	12.6-13.1'	TEST STARTED	4-11-90 DCW
	--	TEST FINISHED	4-11-90
	Core	SETUP NO.	1
	UCS	SATURATED TEST	No
PSF	0	AT FIELD MOIST.	Yes

(in)	3.993	Init. Area (sq in)	2.645
(in)	3.993	Consol. Area (sq in)	2.645
PSI	0.0	Strain Rate (in/min)	0.080

al d	Delta Ht. In.	Axial % Strain	Area Final Sq In.	Dev. Stress PSF	Pore Pres. PSI	Delta Pres. PSF	Sigma 3 PSF	Sigma 1 PSF	Prin. Stress Ratio
0	0.00	0.00	2.645	0	0.00	0.0	0	0	0.00
51	0.03	0.63	2.661	2137	0.00	0.0	0	2137	
8	0.05	1.25	2.678	4624	0.00	0.0	0	4624	
25	0.08	1.88	2.695	6598	0.00	0.0	0	6598	
40	0.10	2.50	2.713	8228	0.00	0.0	0	8228	
37	0.13	3.13	2.730	9626	0.00	0.0	0	9626	
90	0.15	3.76	2.748	10481	0.00	0.0	0	10481	
08	0.18	4.38	2.766	10335	0.00	0.0	0	10335	
39	0.20	5.01	2.784	8586	0.00	0.0	0	8586	
41	0.23	5.63	2.803	7399	0.00	0.0	0	7399	
17	0.25	6.26	2.821	5640	0.00	0.0	0	5640	
46	0.28	6.89	2.840	4791	0.00	0.0	0	4791	
20	0.30	7.51	2.859	3626	0.00	0.0	0	3626	
67	0.33	8.14	2.879	3001	0.00	0.0	0	3001	


Total Stress - PSF
(Thousands)
10
9
8
7
6
5
4
3
2
1
0
0
2
4
6
8
Percent Axial Strain

UNCONFINED COMPRESSIVE STRENGTH TEST DATA

CLIENT Weston

JOB NO. 2066-01

BORING NO.	B3-004-90	SAMPLED	3-2-90 GS
DEPTH	18.2-19.1'	TEST STARTED	4-11-90 DCW
SAMPLE NO.	--	TEST FINISHED	4-11-90
SOIL DESCR.	Core	SETUP NO.	1
TEST TYPE	UCS	SATURATED TEST	No
CONF. PRES. PSF	0	AT FIELD MOIST.	Yes

MOISTURE/DENSITY DATA		BEFORE TEST	AFTER TEST
Wt. Soil + Moisture	(g)	370.9	370.9
Wt. Wet Soil & Pan	(g)	379.8	379.8
Wt. Dry Soil & Pan	(g)	317.1	317.1
Wt. Lost Moisture	(g)	62.7	62.7
Wt. of Pan Only	(g)	8.9	8.9
Wt. of Dry Soil	(g)	308.3	308.3
Moisture Content %		20.3	20.3
Wet Density PCF		132.6	132.6
Dry Density PCF		110.2	110.2

Init. Diameter	(in)	1.843
Init. Area	(sq in)	2.668
Init. Height	(in)	3.994
Vol. Bef. Consol.	(cu ft)	0.00617
Vol. After Consol.	(cu ft)	0.00617

Notes & Comments:

B3-004-90
18.2 - 19.1'

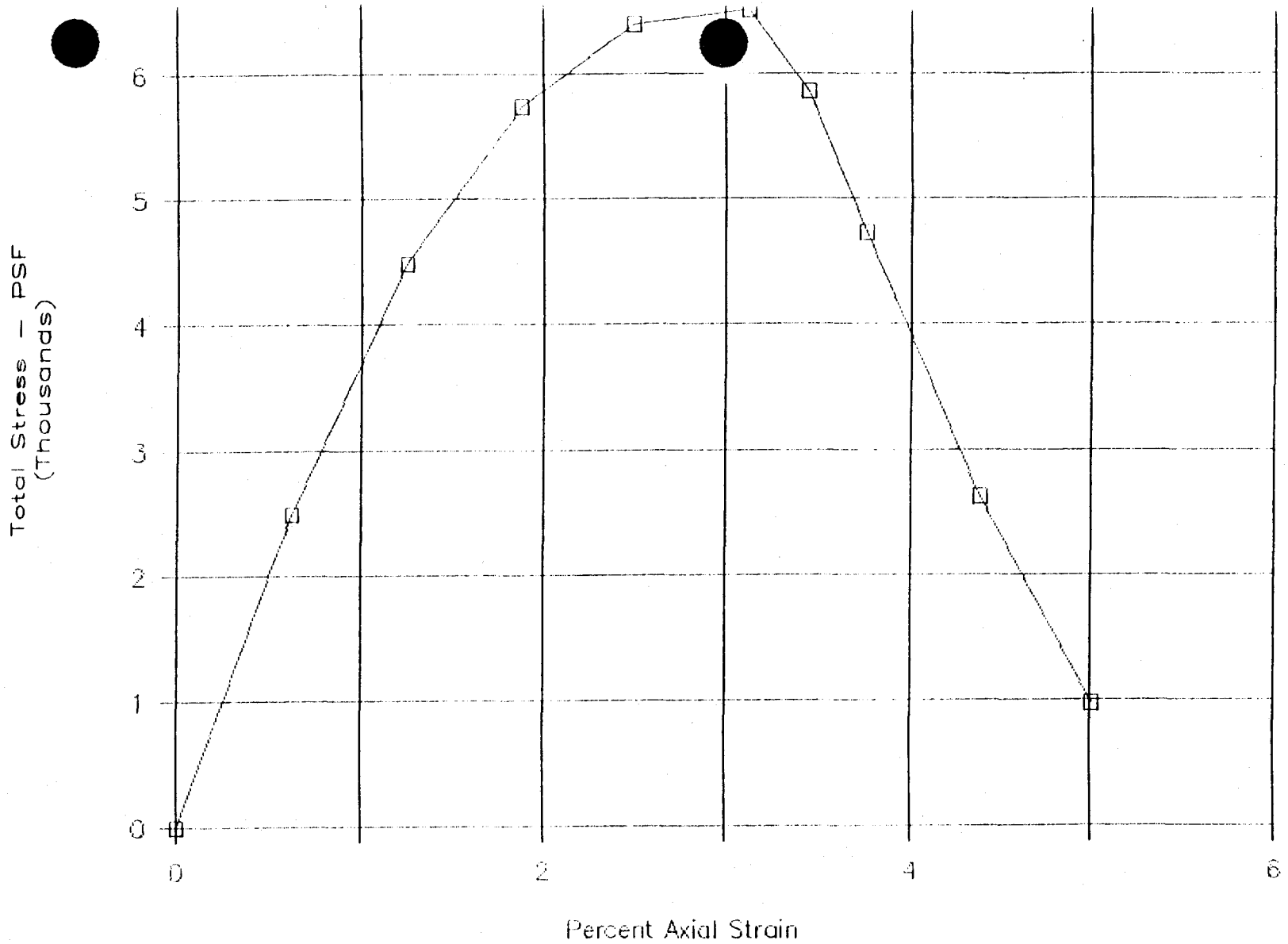
ADVANCED TERRA TESTING, INC.

UNCONFINED COMPRESSIVE STRENGTH TEST DATA

Weston		JOB NO.	2066-01
	B3-004-90	SAMPLED	3-2-90 GS
	18.2-19.1'	TEST STARTED	4-11-90 DCW
	--	TEST FINISHED	4-11-90
	Core	SETUP NO.	1
	UCS	SATURATED TEST	No
PSF	0	AT FIELD MOIST.	Yes

(in)	3.994	Init. Area (sq in)	2.668
(in)	3.994	Consol. Area (sq in)	2.668
PSI	0.0	Strain Rate (in/min)	0.080

al d	Delta Ht. In.	Axial % Strain	Area Final Sq In.	Dev. Stress PSF	Pore Pres. PSI	Delta Pres. PSF	Sigma 3 PSF	Sigma 1 PSF	Prin. Stress Ratio
0	0.00	0.00	2.668	0	0.00	0.0	0	0	0.00
10	0.03	0.63	2.685	2494	0.00	0.0	0	2494	
34	0.05	1.25	2.702	4477	0.00	0.0	0	4477	
5	0.08	1.88	2.719	5747	0.00	0.0	0	5747	
58	0.10	2.50	2.736	6394	0.00	0.0	0	6394	
20	0.13	3.13	2.754	6510	0.00	0.0	0	6510	
73	0.14	3.44	2.763	5864	0.00	0.0	0	5864	
12	0.15	3.76	2.772	4728	0.00	0.0	0	4728	
53	0.18	4.38	2.790	2632	0.00	0.0	0	2632	
26	0.20	5.01	2.808	974	0.00	0.0	0	974	


Total Stress - PSF
(Thousands)
0
1
2
3
4
5
6
0
2
4
6
Percent Axial Strain

UNCONFINED COMPRESSIVE STRENGTH TEST DATA

CLIENT Weston

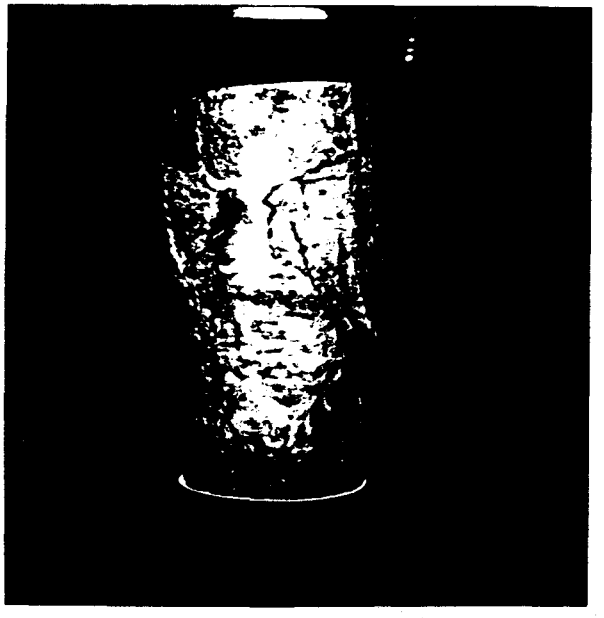
JOB NO. 2066-01

BORING NO.	B3-004-90	SAMPLED	3-2-90 GS
DEPTH	28.0-28.6'	TEST STARTED	4-11-90 DCW
SAMPLE NO.	--	TEST FINISHED	4-11-90
SOIL DESCR.	Core	SETUP NO.	1
TEST TYPE	UCS	SATURATED TEST	No
CONF. PRES. PSF	0	AT FIELD MOIST.	Yes

MOISTURE/DENSITY DATA		BEFORE TEST	AFTER TEST
Wt. Soil + Moisture	(g)	334.3	334.3
Wt. Wet Soil & Pan	(g)	341.9	341.9
Wt. Dry Soil & Pan	(g)	284.6	284.6
Wt. Lost Moisture	(g)	57.3	57.3
Wt. of Pan Only	(g)	7.7	7.7
Wt. of Dry Soil	(g)	277.0	277.0
Moisture Content %		20.7	20.7
Wet Density PCF		129.8	129.8
Dry Density PCF		107.6	107.6

Init. Diameter	(in)	1.769
Init. Area	(sq in)	2.458
Init. Height	(in)	3.991
Vol. Bef. Consol.	(cu ft)	0.00568
Vol. After Consol.	(cu ft)	0.00568

Notes & Comments:



B3-004-90
28.0 - 28.6'

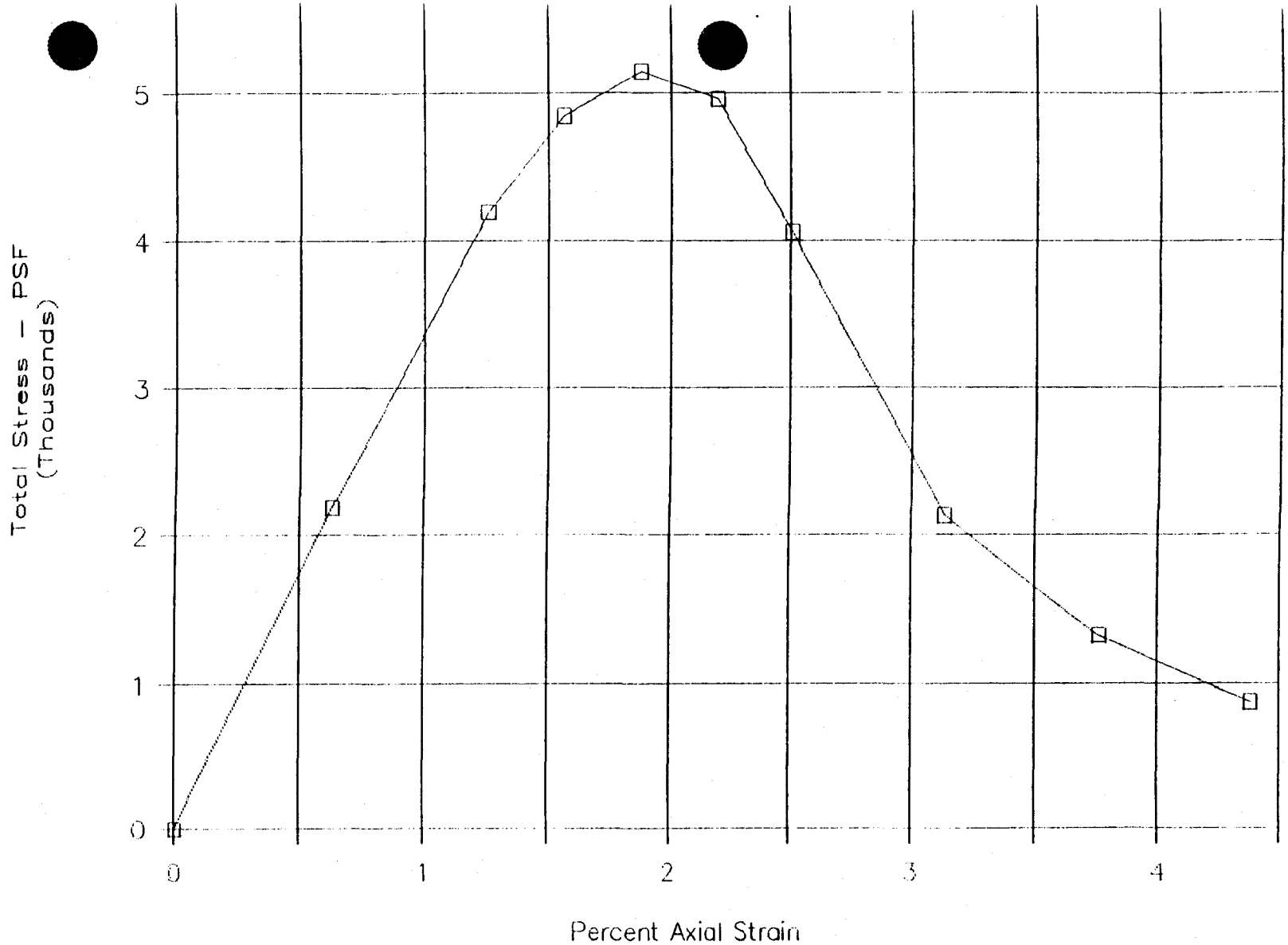
ADVANCED TERRA TESTING, INC.

UNCONFINED COMPRESSIVE STRENGTH TEST DATA

Weston		JOB NO.	2066-01
	B3-004-90	SAMPLED	3-2-90 GS
	28.0-28.6'	TEST STARTED	4-11-90 DCW
	--	TEST FINISHED	4-11-90
	Core	SETUP NO.	1
	UCS	SATURATED TEST	No
PSF	0	AT FIELD MOIST.	Yes

(in)	3.991	Init. Area (sq in)	2.458
(in)	3.991	Consol. Area (sq in)	2.458
PSI	0.0	Strain Rate (in/min)	0.080

al d	Delta Ht. In.	Axial % Strain	Area Final Sq In.	Dev. Stress PSF	Pore Pres. PSI	Delta Pres. PSF	Sigma 3 PSF	Sigma 1 PSF	Prin. Stress Ratio
0	0.00	0.00	2.458	0	0.00	0.0	0	0	0.00
97	0.03	0.63	2.473	2183	0.00	0.0	0	2183	
48	0.05	1.25	2.489	4194	0.00	0.0	0	4194	
2	0.06	1.57	2.497	4844	0.00	0.0	0	4844	
44	0.08	1.88	2.505	5145	0.00	0.0	0	5145	
68	0.09	2.19	2.513	4957	0.00	0.0	0	4957	
60	0.10	2.51	2.521	4056	0.00	0.0	0	4056	
97	0.13	3.13	2.537	2128	0.00	0.0	0	2128	
77	0.15	3.76	2.554	1325	0.00	0.0	0	1325	
08	0.18	4.38	2.571	868	0.00	0.0	0	868	


Total Stress - PSF
(Thousands)
0
1
2
3
4
5
0
1
2
3
4
Percent Axial Strain

UNCONFINED COMPRESSIVE STRENGTH TEST DATA

CLIENT Weston

JOB NO. 2066-01

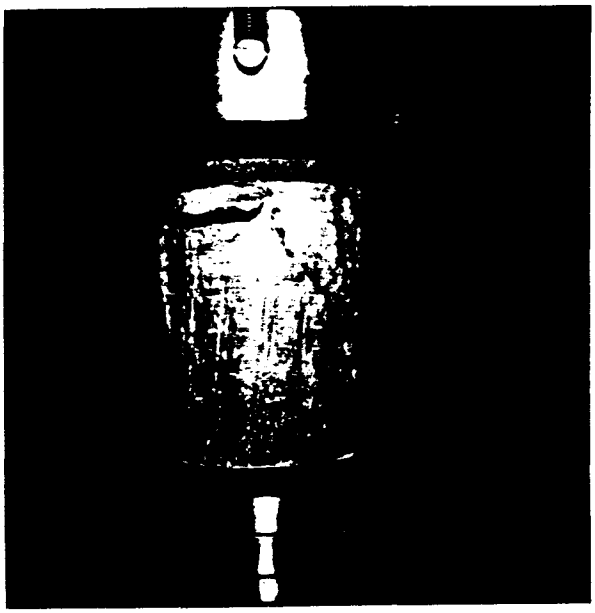
BORING NO.	B3-005-90
DEPTH	14.5-14.8'
SAMPLE NO.	--
SOIL DESCR.	Core
TEST TYPE	UCS
CONF. PRES. PSF	0

SAMPLED	3-2-90 GS
TEST STARTED	4-10-90 DCW
TEST FINISHED	4-10-90
SETUP NO.	1
SATURATED TEST	No
AT FIELD MOIST.	Yes

MOISTURE/DENSITY DATA		BEFORE TEST	AFTER TEST
Wt. Soil + Moisture	(g)	262.4	262.4
Wt. Wet Soil & Pan	(g)	271.4	271.4
Wt. Dry Soil & Pan	(g)	234.0	234.0
Wt. Lost Moisture	(g)	37.4	37.4
Wt. of Pan Only	(g)	9.0	9.0
Wt. of Dry Soil	(g)	225.1	225.1
Moisture Content %		16.6	16.6
Wet Density PCF		129.7	129.7
Dry Density PCF		111.3	111.3

Init. Diameter	(in)	1.815
Init. Area	(sq in)	2.587
Init. Height	(in)	2.978
Vol. Bef. Consol.	(cu ft)	0.00446
Vol. After Consol.	(cu ft)	0.00446

Notes & Comments:



B3-005-90
14.5-14.8'

ADVANCED TERRA TESTING, INC.

UNCONFINED COMPRESSIVE STRENGTH TEST DATA

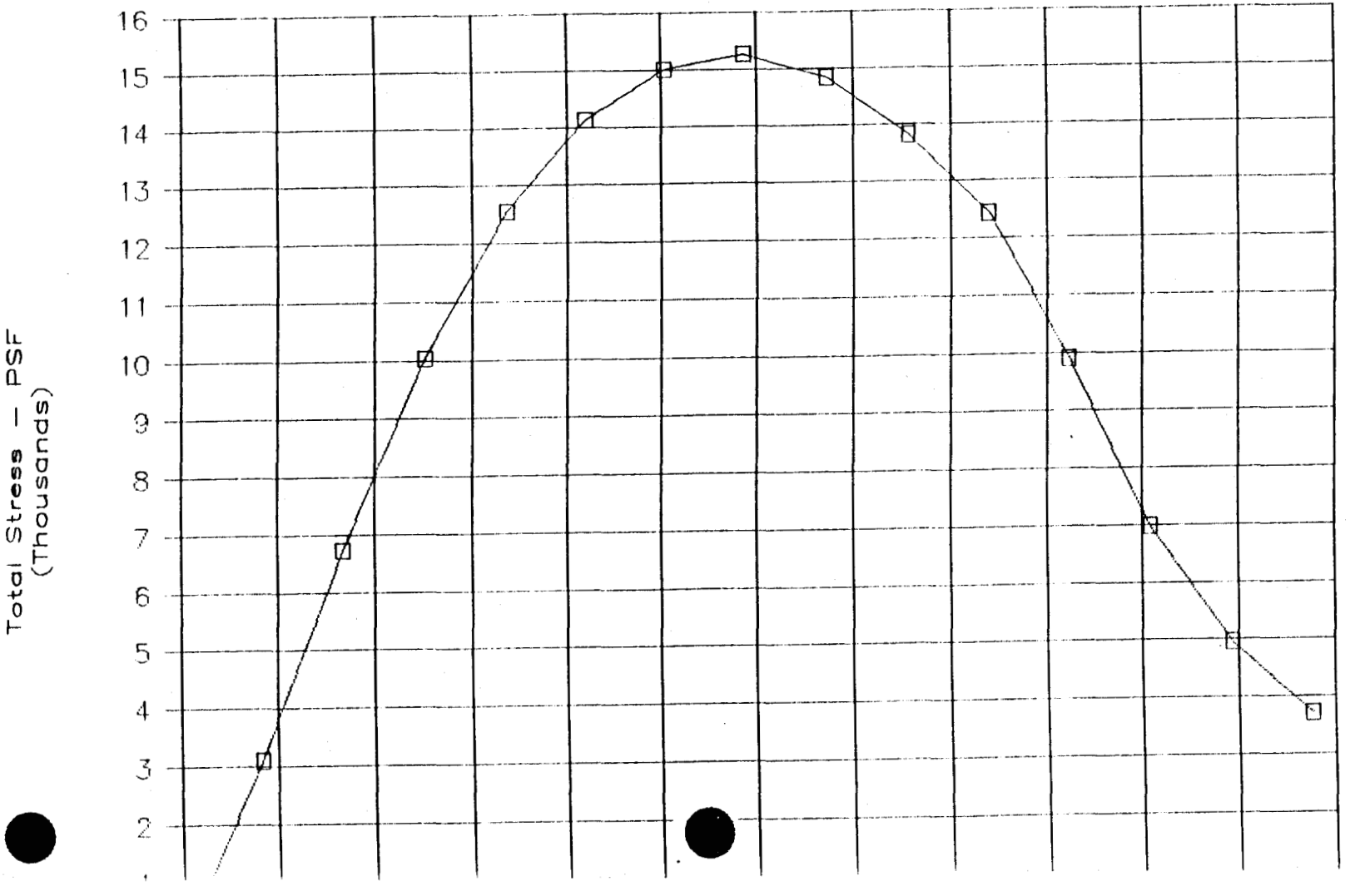
Weston		JOB NO.	2066-01
	B3-005-90	SAMPLED	3-2-90 GS
	14.5-14.8'	TEST STARTED	4-10-90 DCW
	--	TEST FINISHED	4-10-90
	Core	SETUP NO.	1
	UCS	SATURATED TEST	No
PSF	0	AT FIELD MOIST.	Yes

(in)	2.978	Init. Area (sq in)	2.587
(in)	2.978	Consol. Area (sq in)	2.587
PSI	0.0	Strain Rate (in/min)	0.080

1	Delta Ht. In.	Axial % Strain	Area Final Sq In.	Dev. Stress PSF	Pore Pres. PSI	Delta Pres. PSF	Sigma 3 PSF	Sigma 1 PSF	Prin. Stress Ratio
0	0.00	0.00	2.587	0	0.00	0.0	0	0	0.00
17	0.03	0.84	2.609	3091	0.00	0.0	0	3091	
46	0.05	1.68	2.631	6731	0.00	0.0	0	6731	
9	0.08	2.52	2.654	10037	0.00	0.0	0	10037	
96	0.10	3.36	2.677	12559	0.00	0.0	0	12559	
49	0.13	4.20	2.701	14130	0.00	0.0	0	14130	
07	0.15	5.04	2.725	15010	0.00	0.0	0	15010	
24	0.18	5.88	2.749	15271	0.00	0.0	0	15271	
18	0.20	6.72	2.774	14849	0.00	0.0	0	14849	
44	0.23	7.56	2.799	13815	0.00	0.0	0	13815	
30	0.25	8.39	2.824	12440	0.00	0.0	0	12440	
09	0.28	9.23	2.851	9901	0.00	0.0	0	9901	
54	0.30	10.07	2.877	6982	0.00	0.0	0	6982	
56	0.33	10.91	2.904	4958	0.00	0.0	0	4958	
02	0.35	11.75	2.932	3708	0.00	0.0	0	3708	

UNCONFINED COMPRESSIVE STRENGTH TEST

Sample # B3-005-90 @ 14.5-14.8'



UNCONFINED COMPRESSIVE STRENGTH TEST DATA

CLIENT Weston

JOB NO. 2066-01

BORING NO.	B3-006-90	SAMPLED	3-2-90 GS
DEPTH	12.5-13.2'	TEST STARTED	4-10-90 DCW
SAMPLE NO.	--	TEST FINISHED	4-10-90
SOIL DESCR.	Core	SETUP NO.	1
TEST TYPE	UCS	SATURATED TEST	No
CONF. PRES. PSF	0	AT FIELD MOIST.	Yes

MOISTURE/DENSITY DATA		BEFORE TEST	AFTER TEST
Wt. Soil + Moisture	(g)	383.2	383.2
Wt. Wet Soil & Pan	(g)	390.9	390.9
Wt. Dry Soil & Pan	(g)	343.8	343.8
Wt. Lost Moisture	(g)	47.2	47.2
Wt. of Pan Only	(g)	7.7	7.7
Wt. of Dry Soil	(g)	336.1	336.1
Moisture Content %		14.0	14.0
Wet Density PCF		137.5	137.5
Dry Density PCF		120.6	120.6

Init. Diameter	(in)	1.839
Init. Area	(sq in)	2.656
Init. Height	(in)	3.998
Vol. Bef. Consol.	(cu ft)	0.00615
Vol. After Consol.	(cu ft)	0.00615

Notes & Comments:

B3-006-90
12.5-13.2'

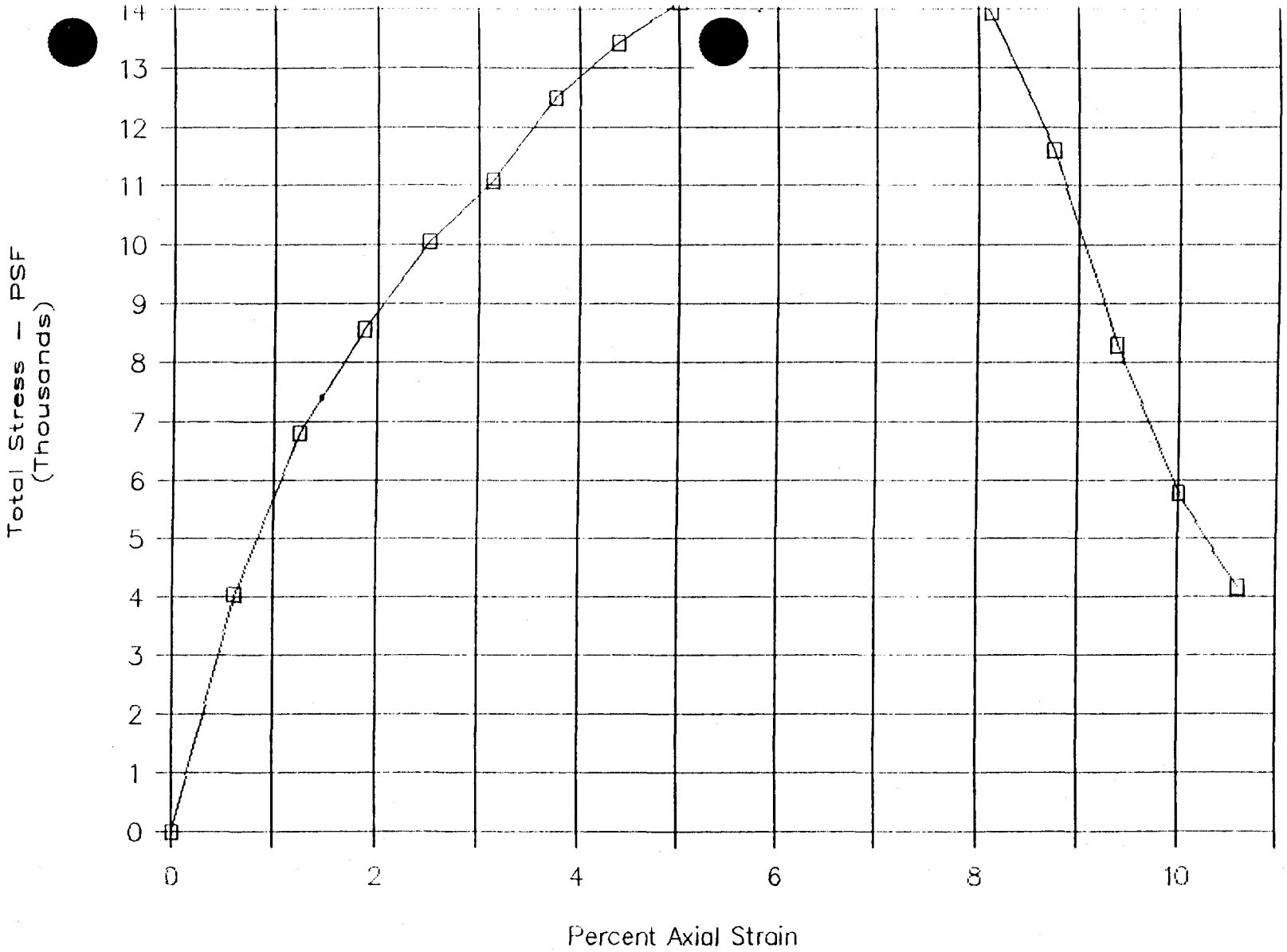
ADVANCED TERRA TESTING, INC.

UNCONFINED COMPRESSIVE STRENGTH TEST DATA

Weston		JOB NO.	2066-01
	B3-006-90	SAMPLED	3-2-90 GS
	12.5-13.2'	TEST STARTED	4-10-90 DCW
	--	TEST FINISHED	4-10-90
	Core	SETUP NO.	1
	UCS	SATURATED TEST	No
PSF	0	AT FIELD MOIST.	Yes

(in)	3.998	Init. Area (sq in)	2.656
(in)	3.998	Consol. Area (sq in)	2.656
PSI	0.0	Strain Rate (in/min)	0.080

1	Delta Ht. In.	Axial % Strain	Area Final Sq In.	Dev. Stress PSF	Pore Pres. PSI	Delta Pres. PSF	Sigma 3 PSF	Sigma 1 PSF	Prin. Stress Ratio
0	0.00	0.00	2.656	0	0.00	0.0	0	0	0.00
56	0.03	0.63	2.673	4041	0.00	0.0	0	4041	
35	0.05	1.25	2.690	6799	0.00	0.0	0	6799	
28	0.08	1.88	2.707	8565	0.00	0.0	0	8565	
01	0.10	2.50	2.724	10043	0.00	0.0	0	10043	
39	0.13	3.13	2.742	11081	0.00	0.0	0	11081	
34	0.15	3.75	2.760	12497	0.00	0.0	0	12497	
41	0.18	4.38	2.778	13427	0.00	0.0	0	13427	
55	0.20	5.00	2.796	14111	0.00	0.0	0	14111	
05	0.23	5.63	2.815	14633	0.00	0.0	0	14633	
39	0.25	6.25	2.833	14942	0.00	0.0	0	14942	
74	0.28	6.88	2.852	14969	0.00	0.0	0	14969	
03	0.30	7.50	2.872	14793	0.00	0.0	0	14793	
30	0.33	8.13	2.891	13946	0.00	0.0	0	13946	
13	0.35	8.75	2.911	11600	0.00	0.0	0	11600	
52	0.38	9.38	2.931	8303	0.00	0.0	0	8303	
24	0.40	10.01	2.951	5782	0.00	0.0	0	5782	
52	0.43	10.63	2.972	4167	0.00	0.0	0	4167	
24	0.45	11.26	2.993	3127	0.00	0.0	0	3127	


Total Stress - PSF
(Thousands)
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
0
2
4
6
8
10
Percent Axial Strain

UNCONFINED COMPRESSIVE STRENGTH TEST DATA

CLIENT Weston

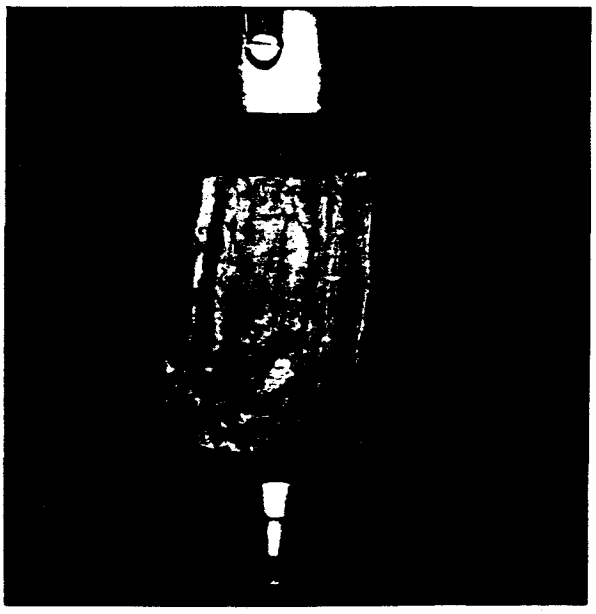
JOB NO. 2066-01

BORING NO.	B3-007-90	SAMPLED	3-2-90 GS
DEPTH	10.0-10.4'	TEST STARTED	4-10-90 DCW
SAMPLE NO.	--	TEST FINISHED	4-10-90
SOIL DESCR.	Core	SETUP NO.	1
TEST TYPE	UCS	SATURATED TEST	No
CONF. PRES. PSF	0	AT FIELD MOIST.	Yes

MOISTURE/DENSITY DATA		BEFORE TEST	AFTER TEST
Wt. Soil + Moisture	(g)	271.6	271.6
Wt. Wet Soil & Pan	(g)	279.8	279.8
Wt. Dry Soil & Pan	(g)	236.3	236.3
Wt. Lost Moisture	(g)	43.6	43.6
Wt. of Pan Only	(g)	8.2	8.2
Wt. of Dry Soil	(g)	228.1	228.1
Moisture Content %		19.1	19.1
Wet Density PCF		134.6	134.6
Dry Density PCF		113.0	113.0

Init. Diameter	(in)	1.813
Init. Area	(sq in)	2.582
Init. Height	(in)	2.977
Vol. Bef. Consol.	(cu ft)	0.00445
Vol. After Consol.	(cu ft)	0.00445

Notes & Comments:



B3-007-90
10.0 -10.4'

ADVANCED TERRA TESTING, INC.

TRIAXAL COMPRESSION TEST DATA

eston

JOB NO. 2066-01

B3-007-90
10.0-10.4'
--
Core
UCS
. PSF 0

SAMPLED	3-2-90 GS
TEST STARTED	4-10-90 DCW
TEST FINISHED	4-10-90
SETUP NO.	1
SATURATED TEST	No
AT FIELD MOIST.	Yes

SATURATION DATA

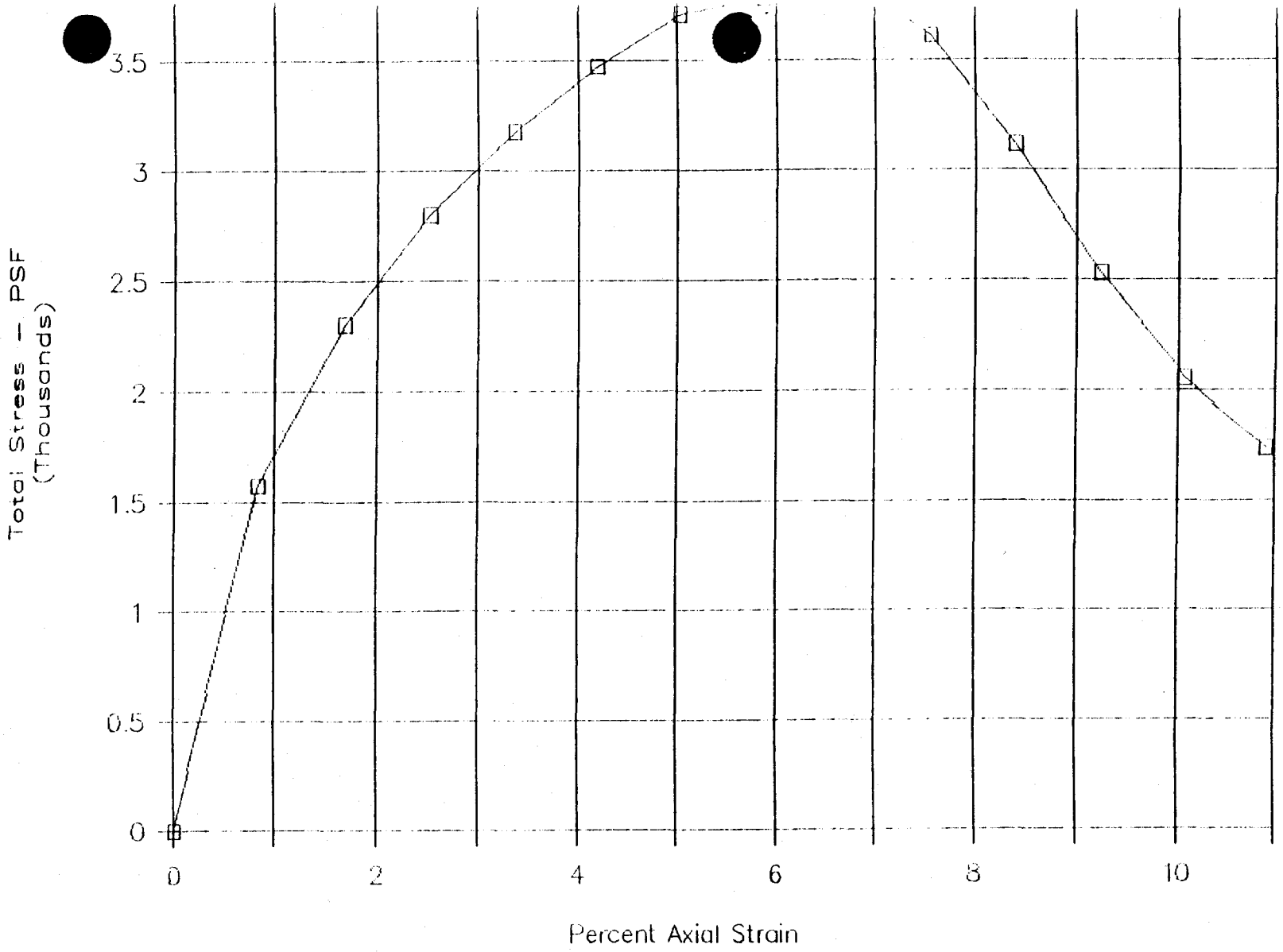
Back Pres. (PSI)	Burette Reading (CC)		Pore Pressure (PSI)		Change	B
	Close	Open	Close	Open		
23.0		18.4				
29.0	18.9	19.7	23.2	26.3	3.1	0.62
34.0	20.9	21.0	29.0	31.7	2.7	0.54
39.0	21.8	22.4	34.0	37.8	3.8	0.76
44.0	23.2	23.7	39.0	43.0	4.0	0.80
.0	24.2	24.7	44.0	48.3	4.3	0.86
	25.0	25.3	48.9	53.8	4.9	0.98

CONSOLIDATION DATA

Elapsed Time (Min)	Burette Reading (CC)
0.00	
0.25	
0.5	
1	
2	
4	
9	
16	
30	
60	
120	
240	
360	

igh+	(in)	2.977	Init. Vol.	(CC)	125.96
n	(in)	0.000	Vol. Change	(CC)	0.00
Con .	(in)	2.977	Cell Exp.	(CC)	0.00
ea	(sq in)	2.582	Net Change	(CC)	0.00
Cons.	(sq in)	2.582	Cons. Vol.	(CC)	125.96

ADVANCED TERRA TESTING, INC.


Total Stress - PSF
(Thousands)
3.5
3
2.5
2
1.5
1
0.5
0
0
2
4
6
8
10
Percent Axial Strain

UNCONFINED COMPRESSIVE STRENGTH TEST DATA

CLIENT Weston

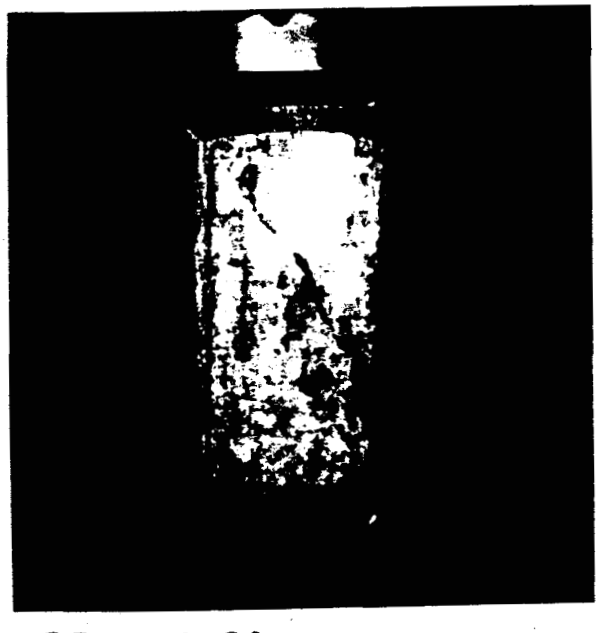
JOB NO. 2066-01

BORING NO.	B3-007-90	SAMPLED	3-2-90 GS
DEPTH	16.0-16.8'	TEST STARTED	4-11-90 DCW
SAMPLE NO.	--	TEST FINISHED	4-11-90
SOIL DESCR.	Core	SETUP NO.	1
TEST TYPE	UCS	SATURATED TEST	No
CONF. PRES. PSF	0	AT FIELD MOIST.	Yes

MOISTURE/DENSITY DATA		BEFORE TEST	AFTER TEST
Wt. Soil + Moisture	(g)	370.5	370.5
Wt. Wet Soil & Pan	(g)	378.3	378.3
Wt. Dry Soil & Pan	(g)	322.3	322.3
Wt. Lost Moisture	(g)	56.0	56.0
Wt. of Pan Only	(g)	7.8	7.8
Wt. of Dry Soil	(g)	314.5	314.5
Moisture Content %		17.8	17.8
Wet Density PCF		137.9	137.9
Dry Density PCF		117.1	117.1

Init. Diameter	(in)	1.805
Init. Area	(sq in)	2.559
Init. Height	(in)	4.000
Vol. Bef. Consol.	(cu ft)	0.00592
Vol. After Consol.	(cu ft)	0.00592

Notes & Comments:



B3-007-90
16.0 - 16.8'

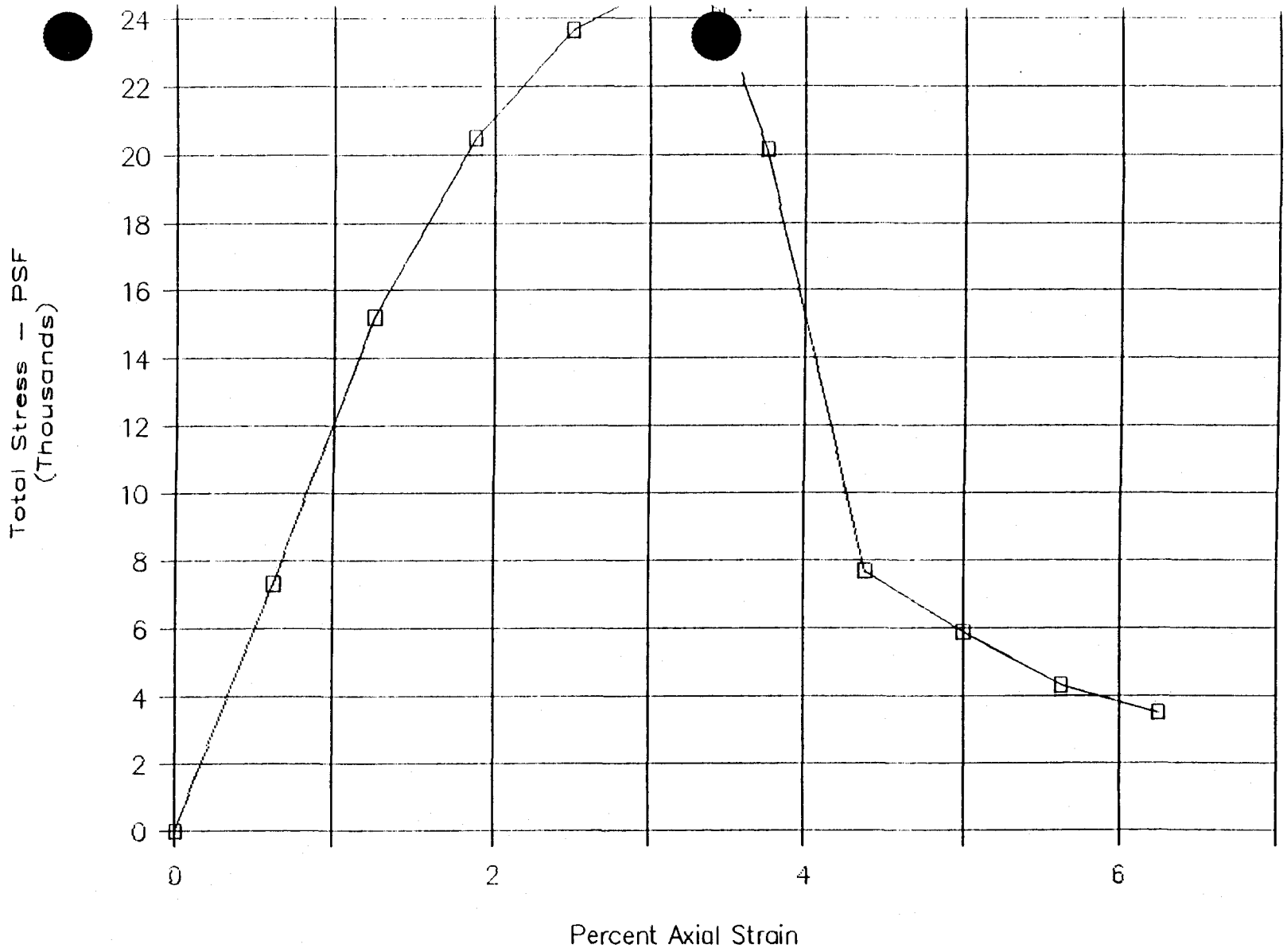
ADVANCED TERRA TESTING, INC.

UNCONFINED COMPRESSIVE STRENGTH TEST DATA

Weston		JOB NO.	2066-01
	B3-007-90	SAMPLED	3-2-90 GS
	16.0-16.8'	TEST STARTED	4-11-90 DCW
	--	TEST FINISHED	4-11-90
	Core	SETUP NO.	1
	UCS	SATURATED TEST	No
PSF	0	AT FIELD MOIST.	Yes

(in)	4.000	Init. Area (sq in)	2.559
(in)	4.000	Consol. Area (sq in)	2.559
PSI	0.0	Strain Rate (in/min)	0.080

al l	Delta Ht. In.	Axial % Strain	Area Final Sq In.	Dev. Stress PSF	Pore Pres. PSI	Delta Pres. PSF	Sigma 3 PSF	Sigma 1 PSF	Prin. Stress Ratio
0	0.00	0.00	2.559	0	0.00	0.0	0	0	0.00
72	0.03	0.63	2.575	7326	0.00	0.0	0	7326	
19	0.05	1.25	2.591	15227	0.00	0.0	0	15227	
06	0.08	1.88	2.608	20514	0.00	0.0	0	20514	
55	0.10	2.50	2.624	23648	0.00	0.0	0	23648	
43	0.13	3.13	2.641	25132	0.00	0.0	0	25132	
99	0.14	3.44	2.650	24236	0.00	0.0	0	24236	
53	0.15	3.75	2.659	20176	0.00	0.0	0	20176	
47	0.18	4.38	2.676	7695	0.00	0.0	0	7695	
18	0.20	5.00	2.694	5908	0.00	0.0	0	5908	
36	0.23	5.63	2.711	4328	0.00	0.0	0	4328	
42	0.25	6.25	2.729	3508	0.00	0.0	0	3508	


Total Stress - PSF
(Thousands)
24
22
20
18
16
14
12
10
8
6
4
2
0
0
2
4
6
Percent Axial Strain

UNCONFINED COMPRESSIVE STRENGTH TEST DATA

CLIENT Weston

JOB NO. 2066-01

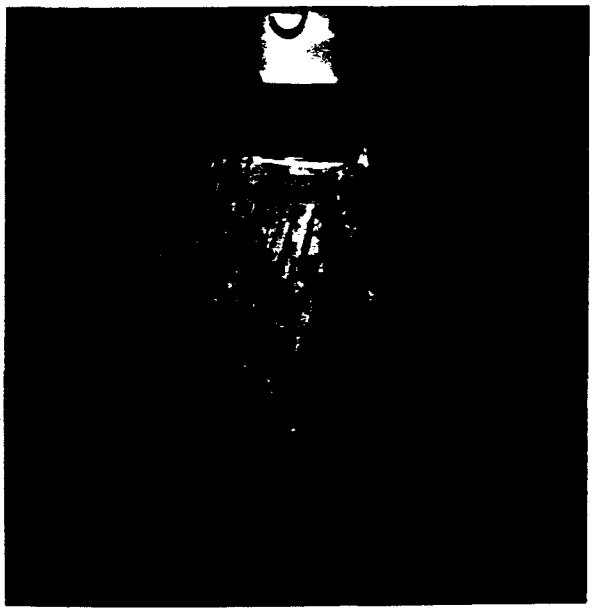
BORING NO.	B3-007-90
DEPTH	20.8-21.5'
SAMPLE NO.	--
SOIL DESCR.	Core
TEST TYPE	UCS
CONF. PRES. PSF	0

SAMPLED	3-2-90 GS
TEST STARTED	4-10-90 DCW
TEST FINISHED	4-10-90
SETUP NO.	1
SATURATED TEST	No
AT FIELD MOIST.	Yes

MOISTURE/DENSITY DATA		BEFORE TEST	AFTER TEST
Wt. Soil + Moisture	(g)	354.7	354.7
Wt. Wet Soil & Pan	(g)	363.7	363.7
Wt. Dry Soil & Pan	(g)	316.8	316.8
Wt. Lost Moisture	(g)	46.9	46.9
Wt. of Pan Only	(g)	9.0	9.0
Wt. of Dry Soil	(g)	307.8	307.8
Moisture Content %		15.3	15.3
Wet Density PCF		133.9	133.9
Dry Density PCF		116.2	116.2

Init. Diameter	(in)	1.793
Init. Area	(sq in)	2.525
Init. Height	(in)	3.998
Vol. Bef. Consol.	(cu ft)	0.00584
Vol. After Consol.	(cu ft)	0.00584

Notes & Comments:



B3-007-90
20.8 - 21.5'

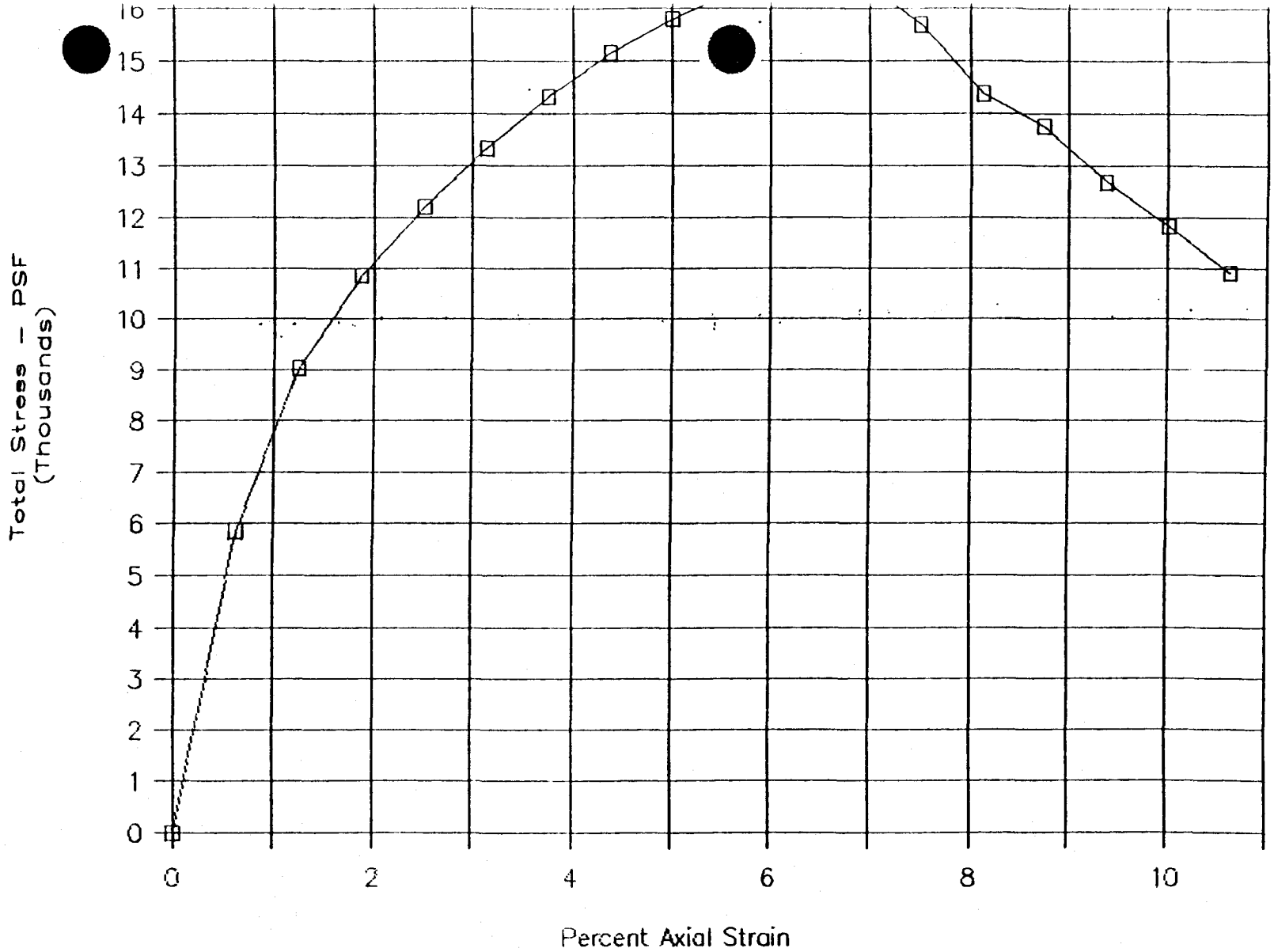
ADVANCED TERRA TESTING, INC.

UNCONFINED COMPRESSIVE STRENGTH TEST DATA

Weston		JOB NO.	2066-01
	B3-007-90	SAMPLED	3-2-90 GS
	20.8-21.5'	TEST STARTED	4-10-90 DCW
	--	TEST FINISHED	4-10-90
	Core	SETUP NO.	1
	UCS	SATURATED TEST	No
PSF	0	AT FIELD MOIST.	Yes

(in)	3.998	Init. Area (sq in)	2.525
(in)	3.998	Consol. Area (sq in)	2.525
PSI	0.0	Strain Rate (in/min)	0.080

1	Delta Ht. In.	Axial % Strain	Area Final Sq In.	Dev. Stress PSF	Pore Pres. PSI	Delta Pres. PSF	Sigma 3 PSF	Sigma 1 PSF	Prin. Stress Ratio
0	0.00	0.00	2.525	0	0.00	0.0	0	0	0.00
3	0.03	0.63	2.541	5866	0.00	0.0	0	5866	
3	0.05	1.25	2.557	9039	0.00	0.0	0	9039	
4	.08	1.88	2.573	10856	0.00	0.0	0	10856	
8	0.10	2.50	2.590	12205	0.00	0.0	0	12205	
3	0.13	3.13	2.606	13342	0.00	0.0	0	13342	
5	0.15	3.75	2.623	14327	0.00	0.0	0	14327	
5	0.18	4.38	2.641	15161	0.00	0.0	0	15161	
5	0.20	5.00	2.658	15793	0.00	0.0	0	15793	
9	0.23	5.63	2.676	16335	0.00	0.0	0	16335	
0	0.25	6.25	2.693	16574	0.00	0.0	0	16574	
2	0.28	6.88	2.711	16596	0.00	0.0	0	16596	
7	0.30	7.50	2.730	15694	0.00	0.0	0	15694	
5	0.33	8.13	2.748	14382	0.00	0.0	0	14382	
5	0.35	8.75	2.767	13764	0.00	0.0	0	13764	
1	0.38	9.38	2.786	12688	0.00	0.0	0	12688	
6	0.40	10.01	2.806	11830	0.00	0.0	0	11830	
5	0.43	10.63	2.825	10907	0.00	0.0	0	10907	
6	0.45	11.26	2.845	10300	0.00	0.0	0	10300	


Total Stress - PSF
(Thousands)
16
15
14
13
12
11
10
9
8
7
6
5
4
3
2
1
0
0
2
4
6
8
10
Percent Axial Strain

UNCONFINED COMPRESSIVE STRENGTH TEST DATA

CLIENT Weston

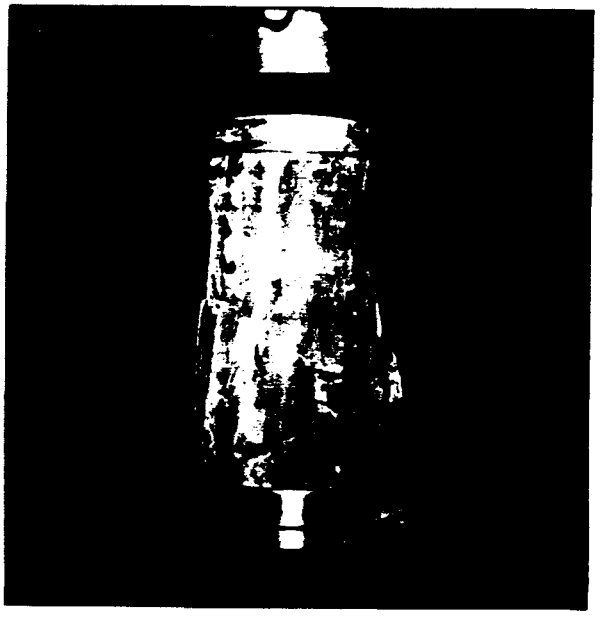
JOB NO. 2066-01

BORING NO.	B3-008-90	SAMPLED	--
DEPTH	26.1-26.7'	TEST STARTED	5-2-90 DCW
SAMPLE NO.	EG&G	TEST FINISHED	5-2-90 DCW
SOIL DESCR.	Rock Core	SETUP NO.	1
TEST TYPE	UCS	SATURATED TEST	No
CONF. PRES. PSF	0	AT FIELD MOIST.	Yes

MOISTURE/DENSITY DATA		BEFORE TEST	AFTER TEST
Wt. Soil + Moisture	(g)	360.4	360.4
Wt. Wet Soil & Pan	(g)	368.3	368.3
Wt. Dry Soil & Pan	(g)	331.6	331.6
Wt. Lost Moisture	(g)	36.7	36.7
Wt. of Pan Only	(g)	7.9	7.9
Wt. of Dry Soil	(g)	323.7	323.7
Moisture Content %		11.3	11.3
Wet Density PCF		138.6	138.6
Dry Density PCF		124.5	124.5

Init. Diameter	(in)	1.836
Init. Area	(sq in)	2.647
Init. Height	(in)	3.742
Vol. Bef. Consol.	(cu ft)	0.00573
Vol. After Consol.	(cu ft)	0.00573

Notes & Comments:



B3-008-90
26.1-26.7'
4C

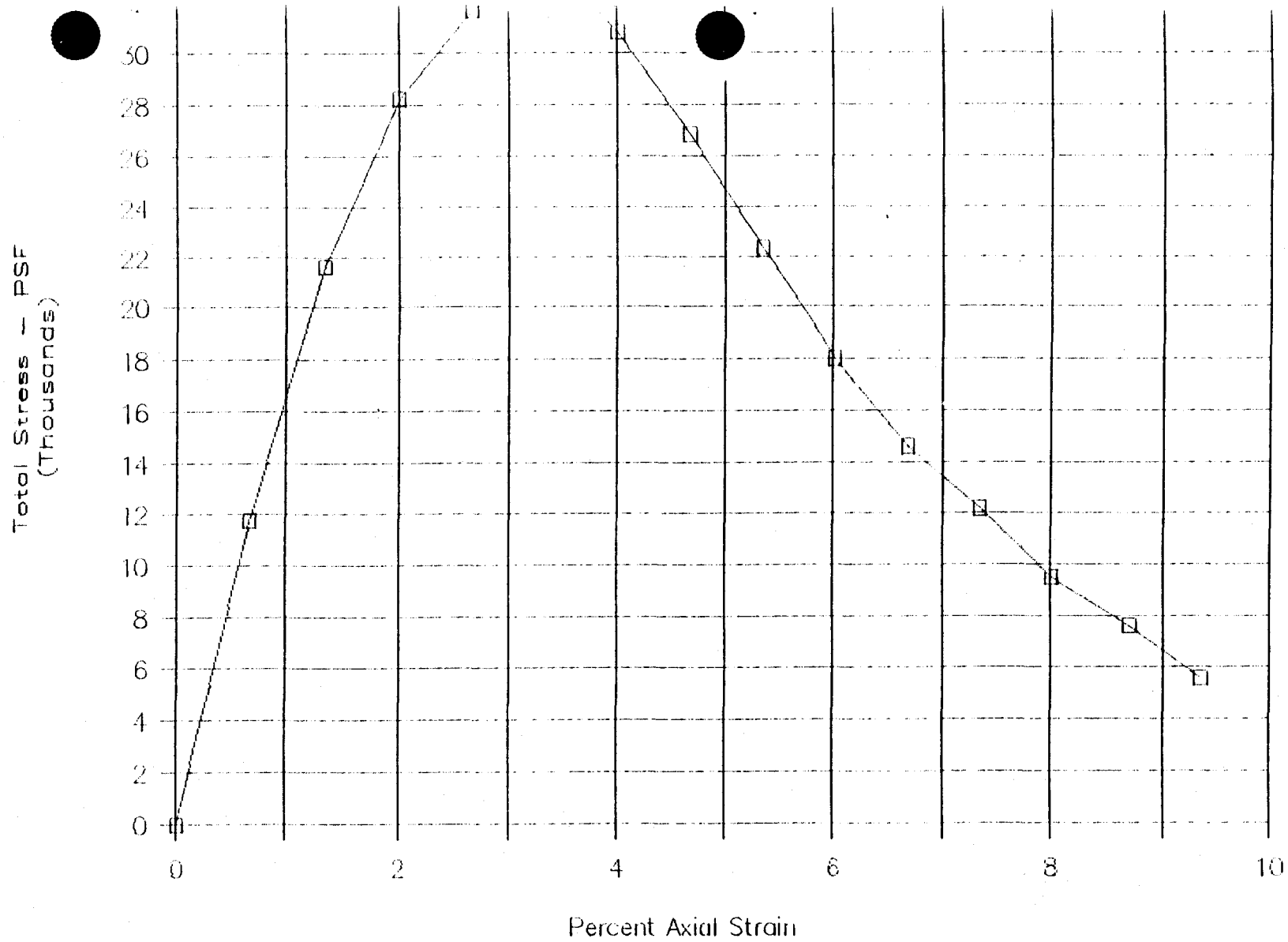
ADVANCED TERRA TESTING, INC.

UNCONFINED COMPRESSIVE STRENGTH TEST DATA

Weston		JOB NO.	2066-01
	B3-008-90	SAMPLED	--
	26.1-26.7'	TEST STARTED	5-2-90 DCW
	EG&G	TEST FINISHED	5-2-90 DCW
	Rock Core	SETUP NO.	1
	UCS	SATURATED TEST	No
PSF	0	AT FIELD MOIST.	Yes

(in)	3.742	Init. Area (sq in)	2.647
(in)	3.742	Consol. Area (sq in)	2.647
PSI	0.0	Strain Rate (in/min)	0.080

al i	Delta Ht. In.	Axial % Strain	Area Final Sq In.	Dev. Stress PSF	Pore Pres. PSI	Delta Pres. PSF	Sigma 3 PSF	Sigma 1 PSF	Prin. Stress Ratio
0	0.00	0.00	2.647	0	0.00	0.0	0	0	0.00
57	0.03	0.67	2.665	11778	0.00	0.0	0	11778	
2[illegible]	0.05	1.34	2.683	21627	0.00	0.0	0	21627	
2[illegible]	0.08	2.00	2.702	28249	0.00	0.0	0	28249	
26	0.10	2.67	2.720	31657	0.00	0.0	0	31657	
59	0.11	3.01	2.730	32550	0.00	0.0	0	32550	
36	0.13	3.34	2.739	32754	0.00	0.0	0	32754	
59	0.14	3.67	2.748	32326	0.00	0.0	0	32326	
91	0.15	4.01	2.758	30804	0.00	0.0	0	30804	
75	0.18	4.68	2.777	26857	0.00	0.0	0	26857	
50	0.20	5.34	2.797	22396	0.00	0.0	0	22396	
46	0.23	6.01	2.817	17994	0.00	0.0	0	17994	
35	0.25	6.68	2.837	14618	0.00	0.0	0	14618	
53	0.28	7.35	2.857	12195	0.00	0.0	0	12195	
34	0.30	8.02	2.878	9506	0.00	0.0	0	9506	
22	0.33	8.69	2.899	7599	0.00	0.0	0	7599	
46	0.35	9.35	2.921	5571	0.00	0.0	0	5571	


Total Stress - PSF
(Thousands)
30
28
26
24
22
20
18
16
14
12
10
8
6
4
2
0
0
2
4
6
8
10
Percent Axial Strain

UNCONFINED COMPRESSIVE STRENGTH TEST DATA

CLIENT Weston

JOB NO. 2066-01

BORING NO.	B3-010-90	SAMPLED	3-12-90 GS
DEPTH	29.4-30'	TEST STARTED	4-11-90 DCW
SAMPLE NO.	--	TEST FINISHED	4-11-90
SOIL DESCR.	Core	SETUP NO.	1
TEST TYPE	UCS	SATURATED TEST	No
CONF. PRES. PSF	0	AT FIELD MOIST.	Yes

MOISTURE/DENSITY DATA		BEFORE TEST	AFTER TEST
Wt. Soil + Moisture	(g)	366.1	366.1
Wt. Wet Soil & Pan	(g)	373.9	373.9
Wt. Dry Soil & Pan	(g)	312.6	312.6
Wt. Lost Moisture	(g)	61.3	61.3
Wt. of Pan Only	(g)	7.8	7.8
Wt. of Dry Soil	(g)	304.8	304.8
Moisture Content %		20.1	20.1
Wet Density PCF		130.7	130.7
Dry Density PCF		108.8	108.8

Init. Diameter	(in)	1.844
Init. Area	(sq in)	2.671
Init. Height	(in)	3.996
Vol. Bef. Consol.	(cu ft)	0.00618
Vol. After Consol.	(cu ft)	0.00618

Notes & Comments:

B3-010-90
29.4-30.0'

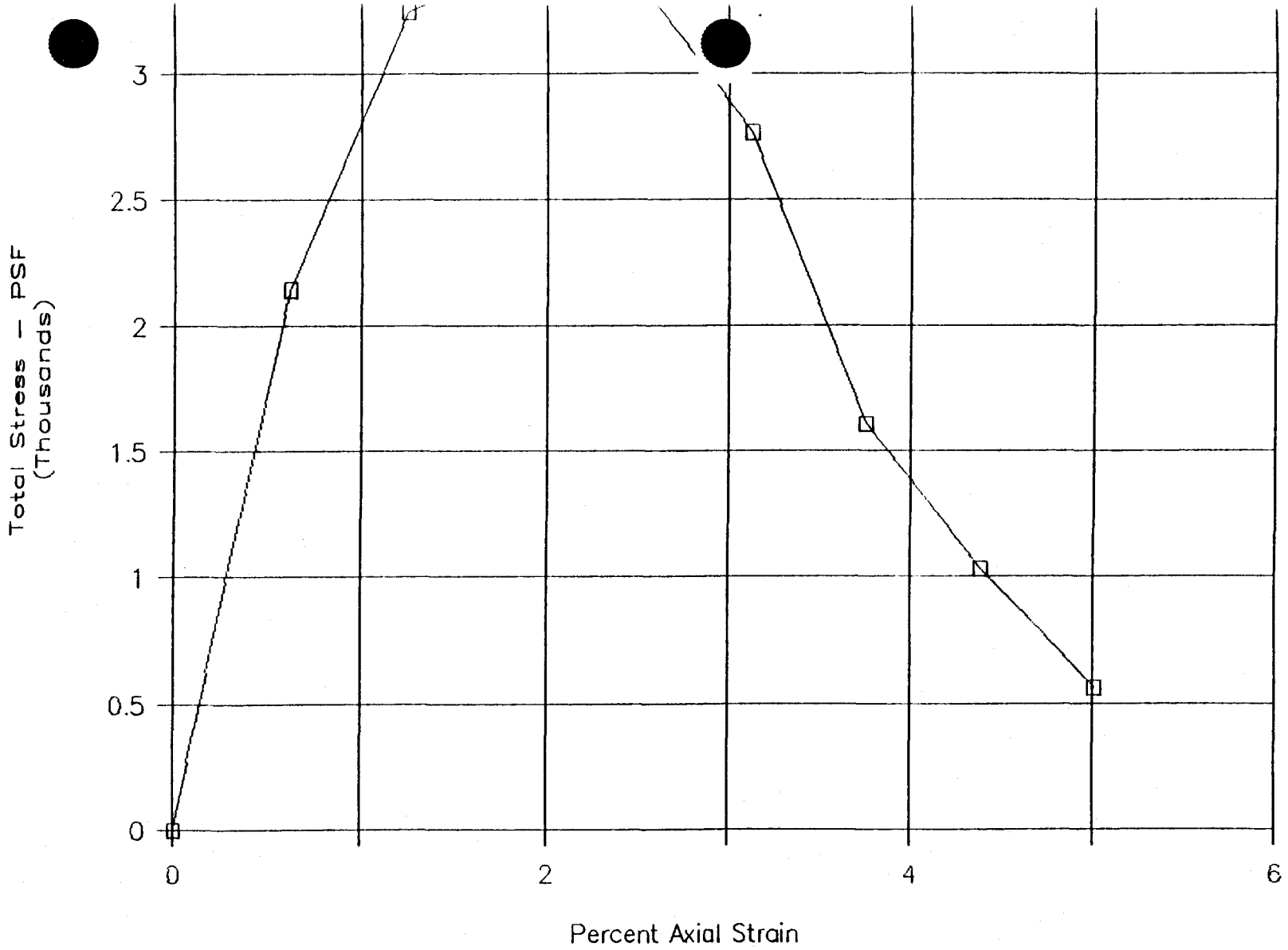
ADVANCED TERRA TESTING, INC.

UNCONFINED COMPRESSIVE STRENGTH TEST DATA

Weston		JOB NO.	2066-01
	B3-010-90	SAMPLED	3-12-90 GS
	29.4-30'	TEST STARTED	4-11-90 DCW
	--	TEST FINISHED	4-11-90
	Core	SETUP NO.	1
	UCS	SATURATED TEST	No
PSF	0	AT FIELD MOIST.	Yes

(in)	3.996	Init. Area (sq in)	2.671
(in)	3.996	Consol. Area (sq in)	2.671
PSI	0.0	Strain Rate (in/min)	0.080

al i	Delta Ht. In.	Axial % Strain	Area Final Sq In.	Dev. Stress PSF	Pore Pres. PSI	Delta Pres. PSF	Sigma 3 PSF	Sigma 1 PSF	Prin. Stress Ratio
0	0.00	0.00	2.671	0	0.00	0.0	0	0	0.00
57	0.03	0.63	2.687	2143	0.00	0.0	0	2143	
39	0.05	1.25	2.704	3248	0.00	0.0	0	3248	
05	0.08	1.88	2.722	3439	0.00	0.0	0	3439	
51	0.10	2.50	2.739	3365	0.00	0.0	0	3365	
58	0.13	3.13	2.757	2768	0.00	0.0	0	2768	
72	0.15	3.75	2.775	1609	0.00	0.0	0	1609	
78	0.18	4.38	2.793	1031	0.00	0.0	0	1031	
93	0.20	5.01	2.811	563	0.00	0.0	0	563	


Total Stress - PSF
(Thousands)
3
2.5
2
1.5
1
0.5
0
0
2
4
6
Percent Axial Strain

UNCONFINED COMPRESSIVE STRENGTH TEST DATA

CLIENT Weston

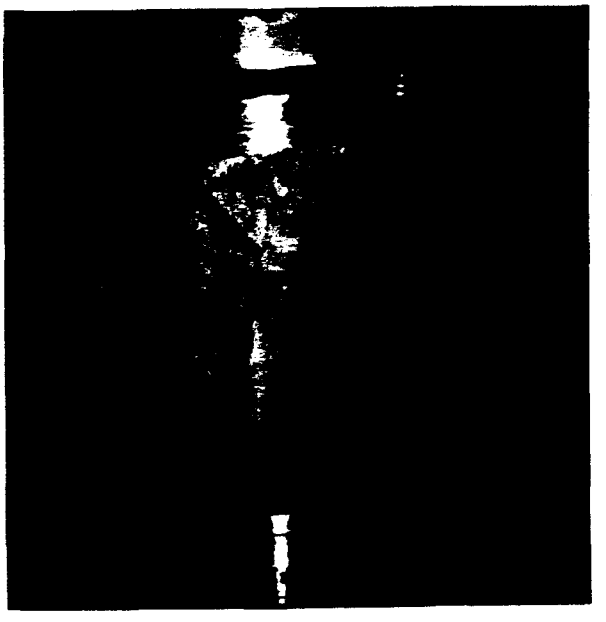
JOB NO. 2066-01

BORING NO.	B3-011-90	SAMPLED	3-2-90 GS
DEPTH	31.1-32.0'	TEST STARTED	4-10-90 DCW
SAMPLE NO.	--	TEST FINISHED	4-10-90
SOIL DESCR.	Core	SETUP NO.	1
TEST TYPE	UCS	SATURATED TEST	No
CONF. PRES. PSF	0	AT FIELD MOIST.	Yes

MOISTURE/DENSITY DATA		BEFORE TEST	AFTER TEST
Wt. Soil + Moisture	(g)	234.2	234.2
Wt. Wet Soil & Pan	(g)	242.1	242.1
Wt. Dry Soil & Pan	(g)	212.4	212.4
Wt. Lost Moisture	(g)	29.7	29.7
Wt. of Pan Only	(g)	7.9	7.9
Wt. of Dry Soil	(g)	204.5	204.5
Moisture Content %		14.5	14.5
Wet Density PCF		133.8	133.8
Dry Density PCF		116.8	116.8

Init. Diameter	(in)	1.559
Init. Area	(sq in)	1.909
Init. Height	(in)	3.494
Vol. Bef. Consol.	(cu ft)	0.00386
Vol. After Consol.	(cu ft)	0.00386

Notes & Comments:



B3-011-90
31.1 - 32.0'

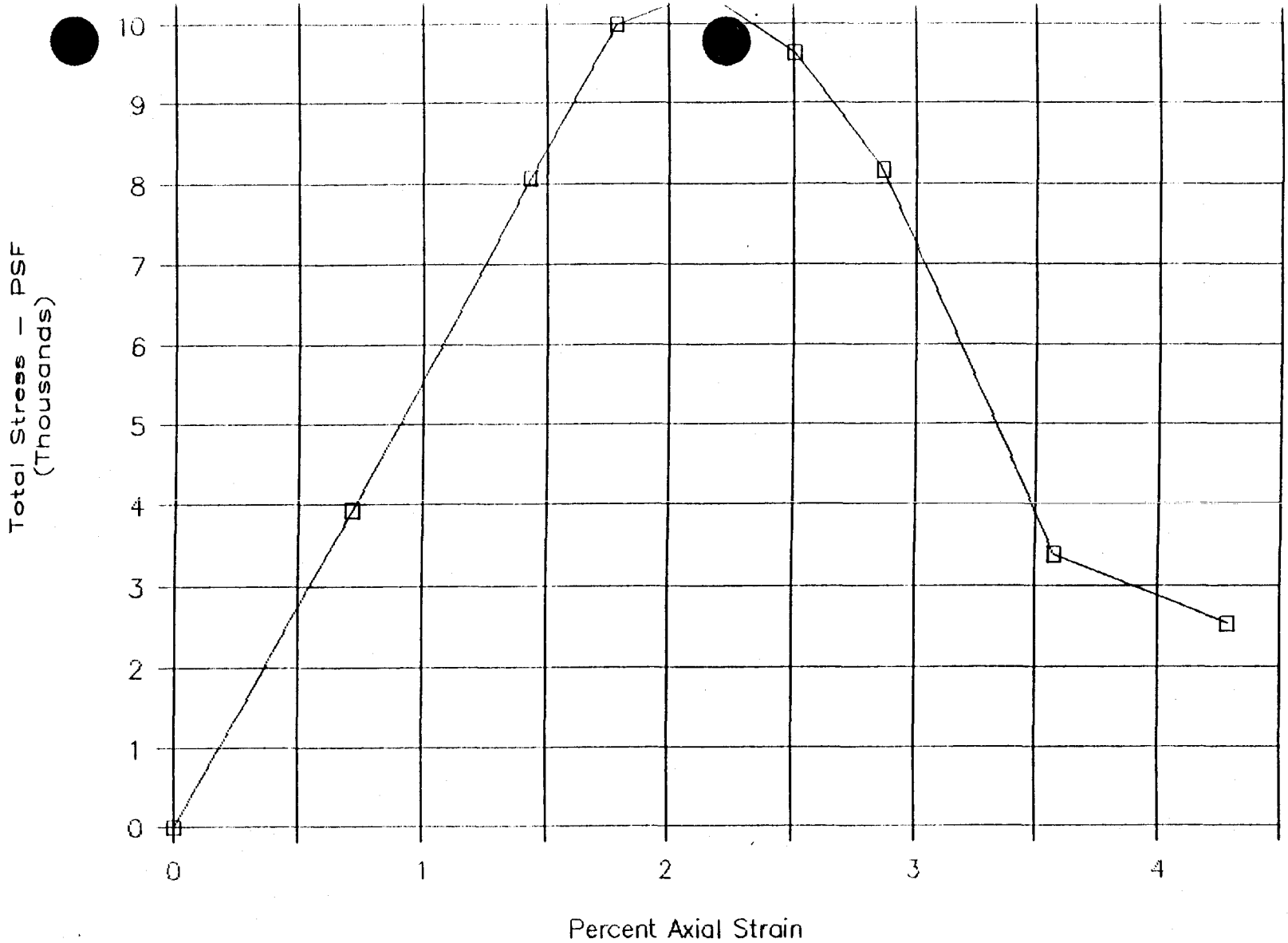
ADVANCED TERRA TESTING, INC.

UNCONFINED COMPRESSIVE STRENGTH TEST DATA

Weston		JOB NO.	2066-01
	B3-011-90	SAMPLED	3-2-90 GS
	31.1-32.0'	TEST STARTED	4-10-90 DCW
	--	TEST FINISHED	4-10-90
	Core	SETUP NO.	1
	UCS	SATURATED TEST	No
PSF	0	AT FIELD MOIST.	Yes

(in)	3.494	Init. Area (sq in)	1.909
(in)	3.494	Consol. Area (sq in)	1.909
PSI	0.0	Strain Rate (in/min)	0.080

al d	Delta Ht. In.	Axial % Strain	Area Final Sq In.	Dev. Stress PSF	Pore Pres. PSI	Delta Pres. PSF	Sigma 3 PSF	Sigma 1 PSF	Prin. Stress Ratio
0	0.00	0.00	1.909	0	0.00	0.0	0	0	0.00
60	0.03	0.72	1.923	3932	0.00	0.0	0	3932	
35	0.05	1.43	1.937	8068	0.00	0.0	0	8068	
34	0.06	1.79	1.944	10002	0.00	0.0	0	10002	
37	0.08	2.15	1.951	10408	0.00	0.0	0	10408	
32	0.09	2.50	1.958	9635	0.00	0.0	0	9635	
11	0.10	2.86	1.965	8170	0.00	0.0	0	8170	
08	0.13	3.58	1.980	3382	0.00	0.0	0	3382	
40	0.15	4.29	1.995	2527	0.00	0.0	0	2527	


Total Stress — PSF
(Thousands)
10
9
8
7
6
5
4
3
2
1
0
0
1
2
3
4
Percent Axial Strain

UNCONFINED COMPRESSIVE STRENGTH TEST DATA

CLIENT Weston

JOB NO. 2066-01

BORING NO.	B301390288294	SAMPLED	07-20-90 ZR
DEPTH	-- 28.8-29.4	TEST STARTED	07-30-90 DCW
SAMPLE NO.	--	TEST FINISHED	07-30-90 DCW
SOIL DESCR.	EG&G	SETUP NO.	1
TEST TYPE	UCS	SATURATED TEST	No
CONF. PRES. PSF	0	AT FIELD MOIST.	Yes

MOISTURE/DENSITY DATA		BEFORE TEST	AFTER TEST
Wt. Soil + Moisture	(g)	365.6	365.6
Wt. Wet Soil & Pan	(g)	373.4	373.4
Wt. Dry Soil & Pan	(g)	317.9	317.9
Wt. Lost Moisture	(g)	55.5	55.5
Wt. of Pan Only	(g)	7.7	7.7
Wt. of Dry Soil	(g)	310.1	310.1
Moisture Content %		17.9	17.9
Wet Density PCF		136.1	136.1
Dry Density PCF		115.4	115.4

Init. Diameter	(in)	1.806
Init. Area	(sq in)	2.562
Init. Height	(in)	3.995
Vol. Bef. Consol.	(cu ft)	0.00592
Vol. After Consol.	(cu ft)	0.00592

Notes & Comments:

B-13 @ 28.8-29.4'
B301390288294
UC

ADVANCED TERRA TESTING, INC.

UNCONFINED COMPRESSIVE STRENGTH TEST DATA

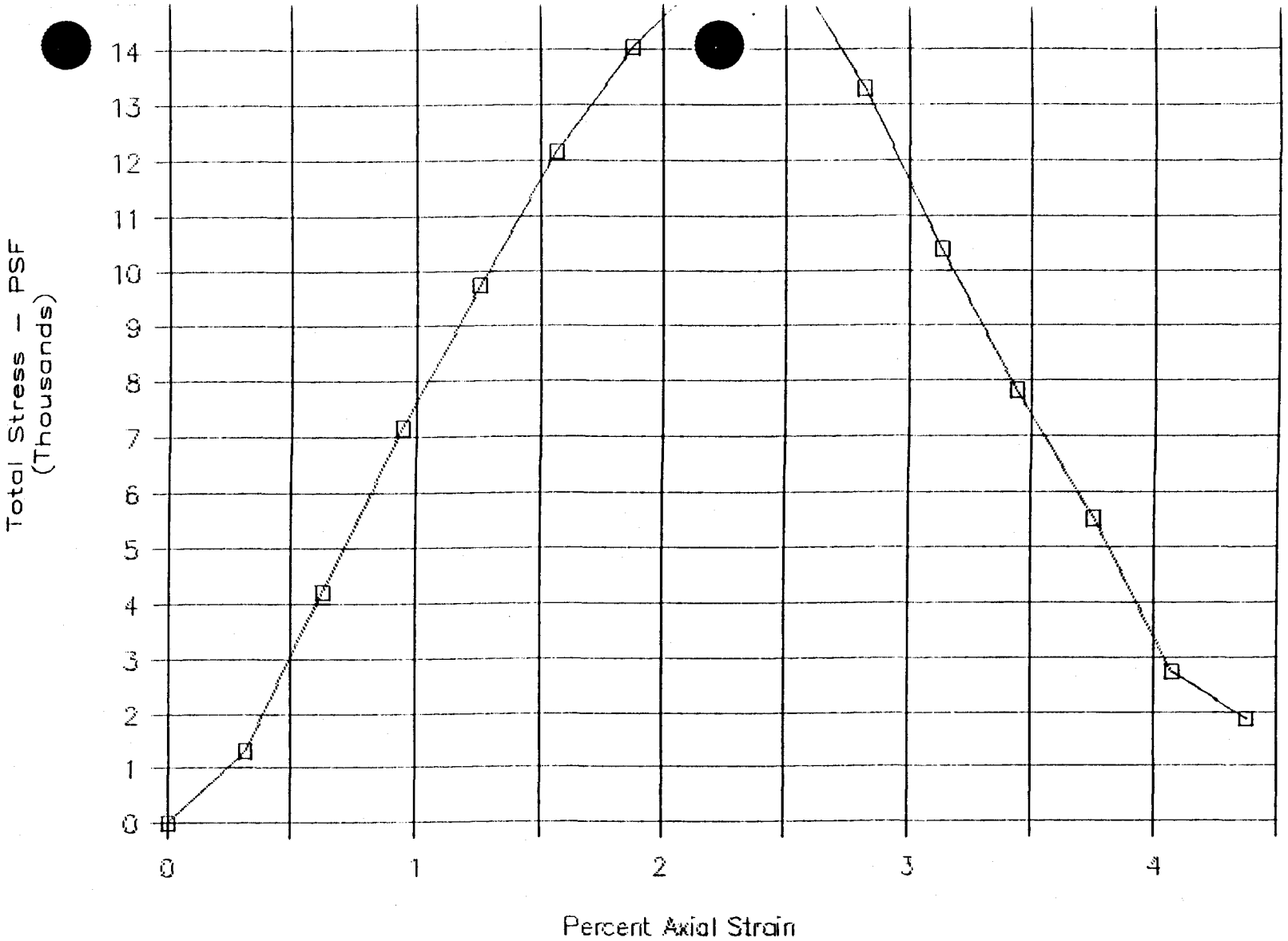
Weston

JOB NO. 2066-01

	B301390288294	SAMPLED	07-20-90 ZR
	28.8-29.4	TEST STARTED	07-30-90 DCW
	--	TEST FINISHED	07-30-90 DCW
	EG&G	SETUP NO.	1
	UCS	SATURATED TEST	No
PSF	0	AT FIELD MOIST.	Yes

(in)	3.995	Init. Area (sq in)	2.562
(in)	3.995	Consol. Area (sq in)	2.562
PSI	0.0	Strain Rate (in/min)	0.080

1	Delta Ht. In.	Axial % Strain	Area Final Sq In.	Dev. Stress PSF	Pore Pres. PSI	Delta Pres. PSF	Sigma 3 PSF	Sigma 1 PSF	Prin. Stress Ratio
0	0.00	0.00	2.562	0	0.00	0.0	0	0	0.00
1	0.01	0.31	2.570	1317	0.00	0.0	0	1317	
4	[illegible].03	0.63	2.578	4218	0.00	0.0	0	4218	
3	0.04	0.94	2.586	7156	0.00	0.0	0	7156	
5	0.05	1.25	2.594	9742	0.00	0.0	0	9742	
7	0.06	1.56	2.602	12173	0.00	0.0	0	12173	
6	0.08	1.88	2.611	14038	0.00	0.0	0	14038	
2	0.09	2.19	2.619	15367	0.00	0.0	0	15367	
5	0.10	2.50	2.627	15565	0.00	0.0	0	15565	
8	0.11	2.82	2.636	13302	0.00	0.0	0	13302	
7	0.13	3.13	2.644	10401	0.00	0.0	0	10401	
5	0.14	3.44	2.653	7816	0.00	0.0	0	7816	
4	0.15	3.75	2.662	5518	0.00	0.0	0	5518	
7	0.16	4.07	2.670	2750	0.00	0.0	0	2750	
7	0.18	4.38	2.679	1881	0.00	0.0	0	1881	


Total Stress - PSF
(Thousands)
0
1
2
3
4
5
6
7
8
9
10
11
12
13
14
0
1
2
3
4
Percent Axial Strain

UNCONFINED COMPRESSIVE STRENGTH TEST DATA

CLIENT Weston

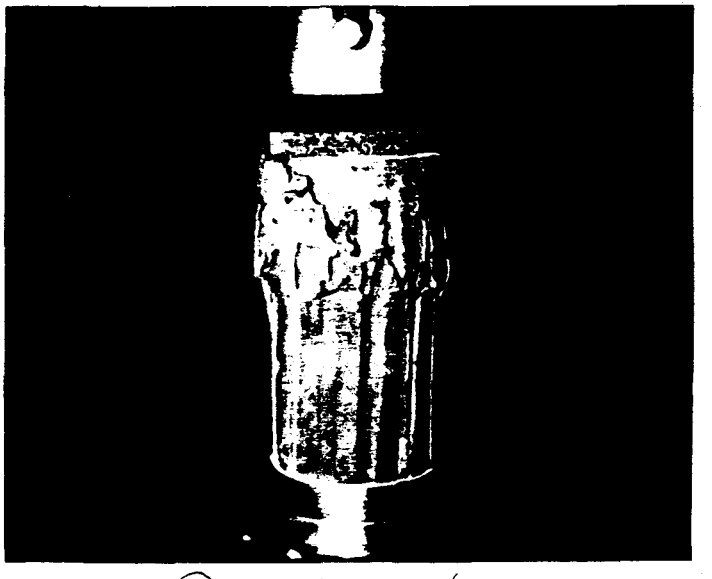
JOB NO. 2066-01

BORING NO.	B301790296299	SAMPLED	07-20-90 ZR
DEPTH	-- 29.6-29.9	TEST STARTED	07-31-90 DCW
SAMPLE NO.	--	TEST FINISHED	07-31-90 DCW
SOIL DESCR.	EG&G	SETUP NO.	1
TEST TYPE	UCS	SATURATED TEST	No
CONF. PRES. PSF	0	AT FIELD MOIST.	Yes

MOISTURE/DENSITY DATA		BEFORE TEST	AFTER TEST
Wt. Soil + Moisture	(g)	346.2	346.2
Wt. Wet Soil & Pan	(g)	353.9	353.9
Wt. Dry Soil & Pan	(g)	302.3	302.3
Wt. Lost Moisture	(g)	51.6	51.6
Wt. of Pan Only	(g)	7.7	7.7
Wt. of Dry Soil	(g)	294.6	294.6
Moisture Content %		17.5	17.5
Wet Density PCF		134.2	134.2
Dry Density PCF		114.2	114.2

Init. Diameter	(in)	1.831
Init. Area	(sq in)	2.633
Init. Height	(in)	3.733
Vol. Bef. Consol.	(cu ft)	0.00569
Vol. After Consol.	(cu ft)	0.00569

Notes & Comments:



B-17 @ 29.6-29.9'
B301790296299
UC

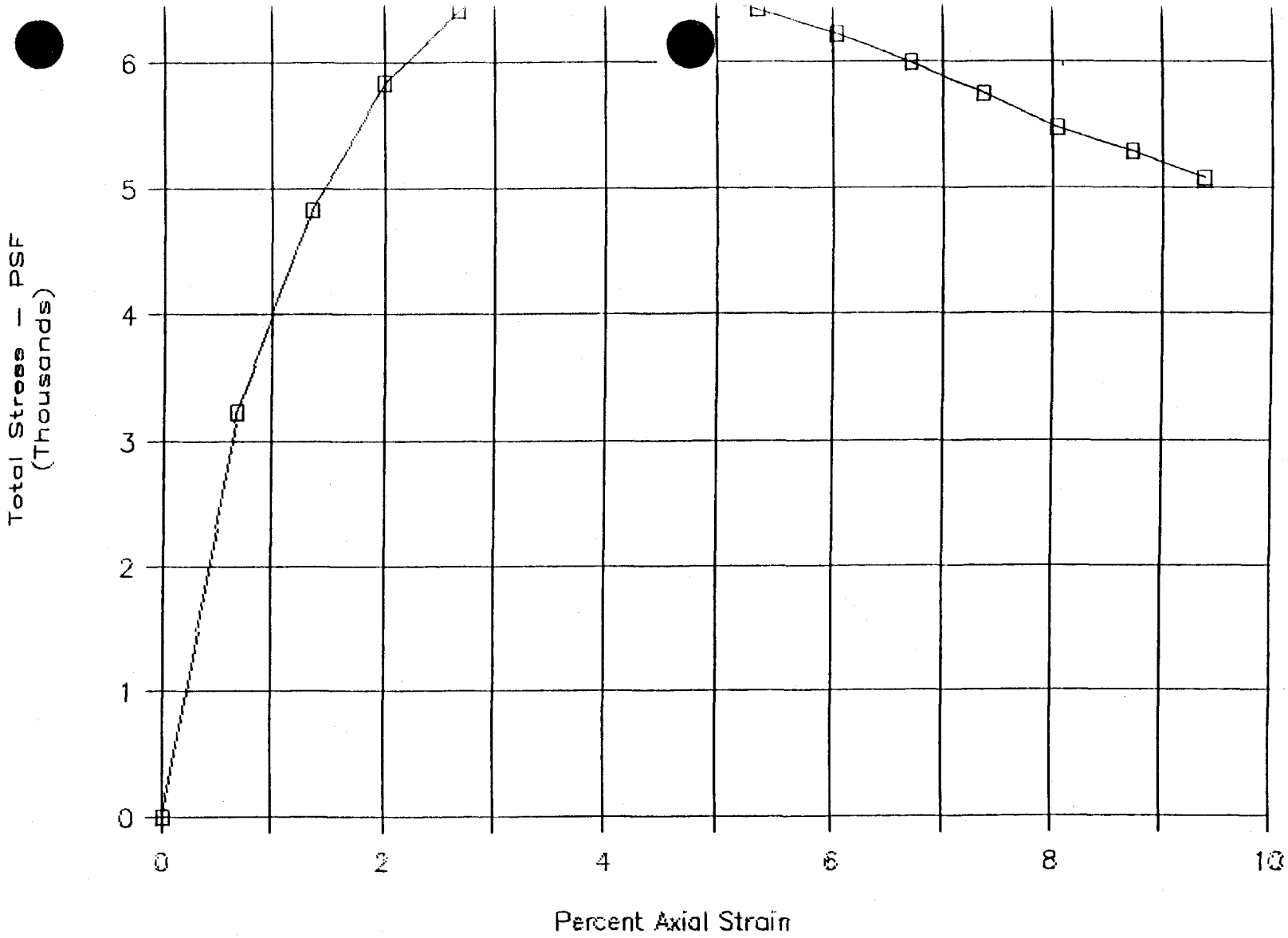
ADVANCED TERRA TESTING, INC.

UNCONFINED COMPRESSIVE STRENGTH TEST DATA

Weston		JOB NO.	2066-01
	B301790296299	SAMPLED	07-20-90 ZR
	--	TEST STARTED	07-31-90 DCW
	--	TEST FINISHED	07-31-90 DCW
	EG&G	SETUP NO.	1
	UCS	SATURATED TEST	No
PSF	0	AT FIELD MOIST.	Yes

(in)	3.733	Init. Area (sq in)	2.633
(in)	3.733	Consol. Area (sq in)	2.633
PSI	0.0	Strain Rate (in/min)	0.080

1	Delta Ht. In.	Axial % Strain	Area Final Sq In.	Dev. Stress PSF	Pore Pres. PSI	Delta Pres. PSF	Sigma 3 PSF	Sigma 1 PSF	Prin. Stress Ratio
0	0.00	0.00	2.633	0	0.00	0.0	0	0	0.00
4	0.03	0.67	2.651	3232	0.00	0.0	0	3232	
5	0.05	1.34	2.669	4829	0.00	0.0	0	4829	
1	.08	2.01	2.687	5841	0.00	0.0	0	5841	
0	.10	2.68	2.706	6413	0.00	0.0	0	6413	
3	0.11	3.01	2.715	6657	0.00	0.0	0	6657	
5	0.15	4.02	2.743	6666	0.00	0.0	0	6666	
8	0.18	4.69	2.763	6594	0.00	0.0	0	6594	
1	0.20	5.36	2.782	6418	0.00	0.0	0	6418	
7	0.23	6.03	2.802	6218	0.00	0.0	0	6218	
6	0.25	6.70	2.822	5996	0.00	0.0	0	5996	
7	0.28	7.37	2.842	5750	0.00	0.0	0	5750	
1	0.30	8.04	2.863	5482	0.00	0.0	0	5482	
7	0.33	8.71	2.884	5292	0.00	0.0	0	5292	
6	0.35	9.38	2.906	5080	0.00	0.0	0	5080	


Total Stress — PSF
(Thousands)
0
1
2
3
4
5
6
0
2
4
6
8
10
Percent Axial Strain

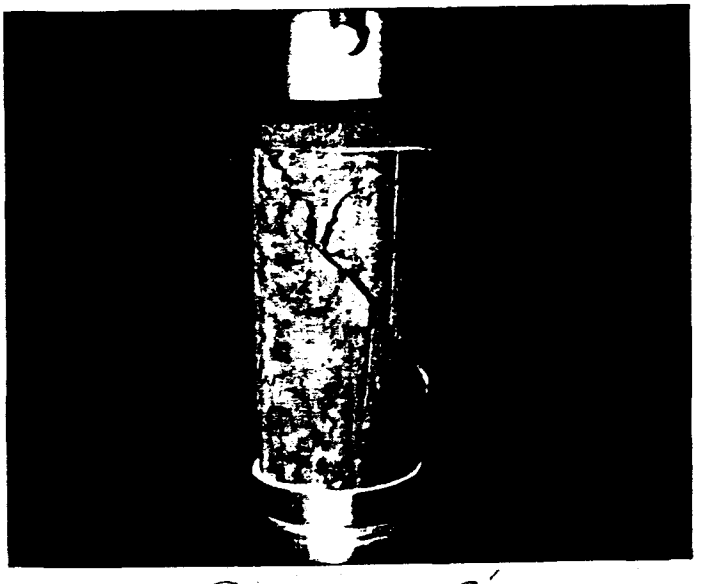
UNCONFINED COMPRESSIVE STRENGTH TEST DATA

CLIENT	Weston	JOB NO.	2066-01
BORING NO.	B301890271279	SAMPLED	07-20-90 ZR
DEPTH	-- 27.1-27.9	TEST STARTED	07-30-90 DCW
SAMPLE NO.	--	TEST FINISHED	07-30-90 DCW
SOIL DESCR.	EG&G	SETUP NO.	1
TEST TYPE	UCS	SATURATED TEST	No
CONF. PRES. PSF	0	AT FIELD MOIST.	Yes

MOISTURE/DENSITY DATA		BEFORE TEST	AFTER TEST
Wt. Soil + Moisture	(g)	333.1	333.1
Wt. Wet Soil & Pan	(g)	340.9	340.9
Wt. Dry Soil & Pan	(g)	288.0	288.0
Wt. Lost Moisture	(g)	53.0	53.0
Wt. of Pan Only	(g)	7.8	7.8
Wt. of Dry Soil	(g)	280.1	280.1
Moisture Content %		18.9	18.9
Wet Density PCF		132.8	132.8
Dry Density PCF		111.7	111.7

Init. Diameter	(in)	1.807
Init. Area	(sq in)	2.565
Init. Height	(in)	3.727
Vol. Bef. Consol.	(cu ft)	0.00553
Vol. After Consol.	(cu ft)	0.00553

Notes & Comments:



B-18 @ 27.1-27.9'
B301890271279
UC

ADVANCED TERRA TESTING, INC.

UNCONFINED COMPRESSIVE STRENGTH TEST DATA

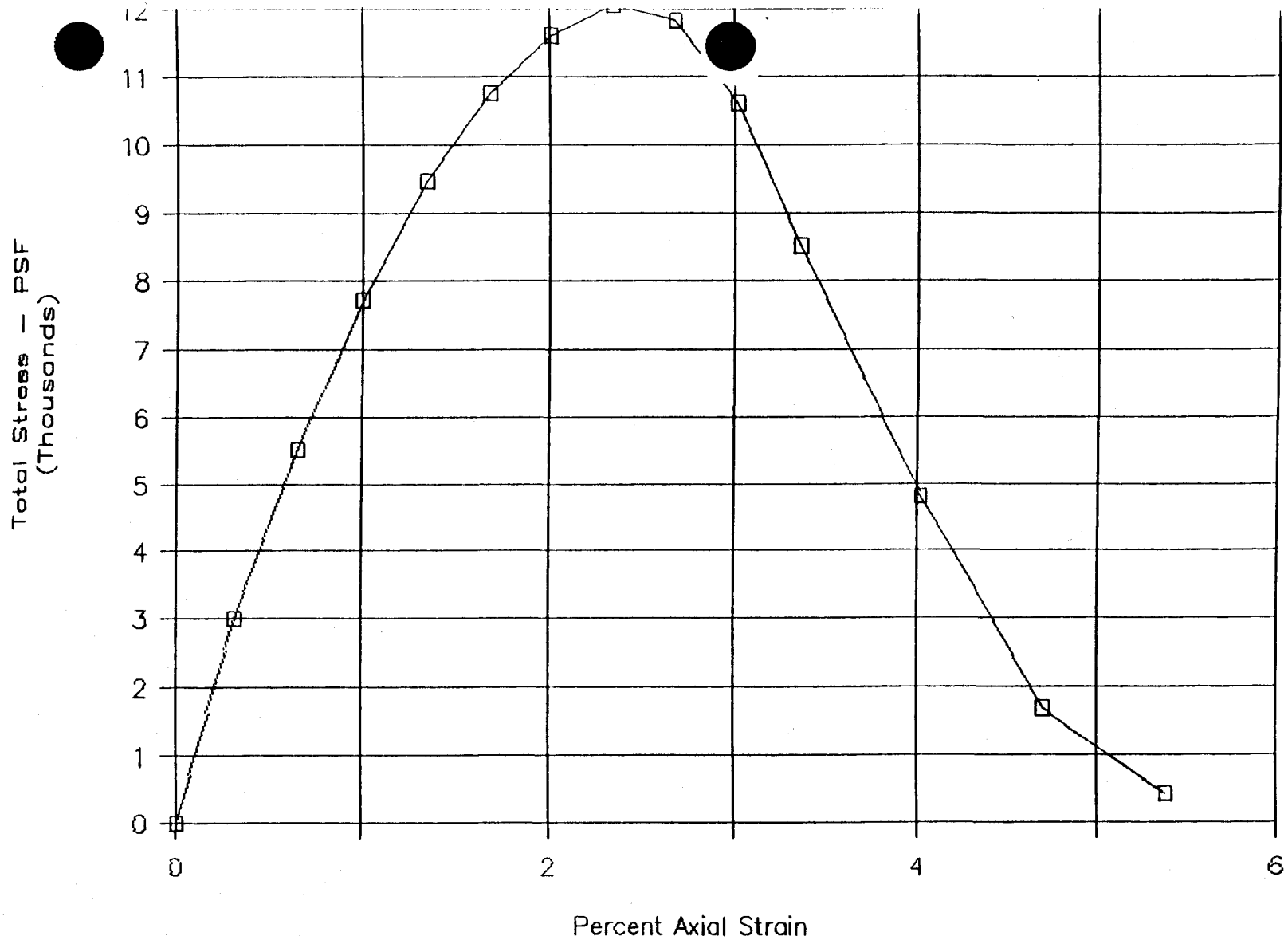
Weston

JOB NO. 2066-01

	B301890271279	SAMPLED	07-20-90 ZR
	--	TEST STARTED	07-30-90 DCW
	--	TEST FINISHED	07-30-90 DCW
	EG&G	SETUP NO.	1
	UCS	SATURATED TEST	No
PSF	0	AT FIELD MOIST.	Yes

(in)	3.727	Init. Area (sq in)	2.565
(in)	3.727	Consol. Area (sq in)	2.565
PSI	0.0	Strain Rate (in/min)	0.080

1	Delta Ht. In.	Axial % Strain	Area Final Sq In.	Dev. Stress PSF	Pore Pres. PSI	Delta Pres. PSF	Sigma 3 PSF	Sigma 1 PSF	Prin. Stress Ratio
0	0.00	0.00	2.565	0	0.00	0.0	0	0	0.00
4	0.01	0.34	2.573	2994	0.00	0.0	0	2994	
9	.03	0.67	2.582	5522	0.00	0.0	0	5522	
5	.04	1.01	2.591	7726	0.00	0.0	0	7726	
2	0.05	1.34	2.599	9473	0.00	0.0	0	9473	
9	0.06	1.68	2.608	10766	0.00	0.0	0	10766	
8	0.08	2.01	2.617	11609	0.00	0.0	0	11609	
3	0.09	2.35	2.626	12063	0.00	0.0	0	12063	
7	0.10	2.68	2.635	11830	0.00	0.0	0	11830	
9	0.11	3.02	2.644	10619	0.00	0.0	0	10619	
6	0.13	3.35	2.654	8520	0.00	0.0	0	8520	
6	0.15	4.02	2.672	4823	0.00	0.0	0	4823	
9	0.18	4.70	2.691	1686	0.00	0.0	0	1686	
9	0.20	5.37	2.710	425	0.00	0.0	0	425	


Total Stress - PSF
(Thousands)
0
1
2
3
4
5
6
7
8
9
10
11
12
0
2
4
6
Percent Axial Strain

UNCONFINED COMPRESSIVE STRENGTH TEST DATA

CLIENT Weston

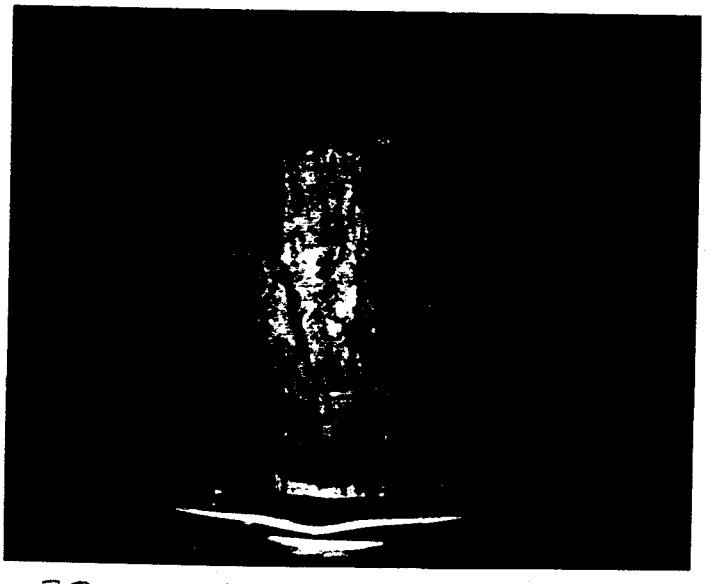
JOB NO. 2066-01

BORING NO.	B302090402415	SAMPLED	--
DEPTH	40.2-41.5'	TEST STARTED	09-12-90 DCW
SAMPLE NO.	EG&G	TEST FINISHED	09-12-90
SOIL DESCR.	Rocky Flats	SETUP NO.	1
TEST TYPE	UCS	SATURATED TEST	No
CONF. PRES. PSF	0	AT FIELD MOIST.	Yes

MOISTURE/DENSITY DATA		BEFORE TEST	AFTER TEST
Wt. Soil + Moisture	(g)	361.3	361.3
Wt. Wet Soil & Pan	(g)	369.4	369.4
Wt. Dry Soil & Pan	(g)	304.8	304.8
Wt. Lost Moisture	(g)	64.6	64.6
Wt. of Pan Only	(g)	8.1	8.1
Wt. of Dry Soil	(g)	296.6	296.6
Moisture Content %		21.8	21.8
Wet Density PCF		128.5	128.5
Dry Density PCF		105.5	105.5

Init. Diameter	(in)	1.845
Init. Area	(sq in)	2.674
Init. Height	(in)	4.006
Vol. Bef. Consol.	(cu ft)	0.00620
Vol. After Consol.	(cu ft)	0.00620

Notes & Comments:



B302090402415
40.2 - 41.5'
UC

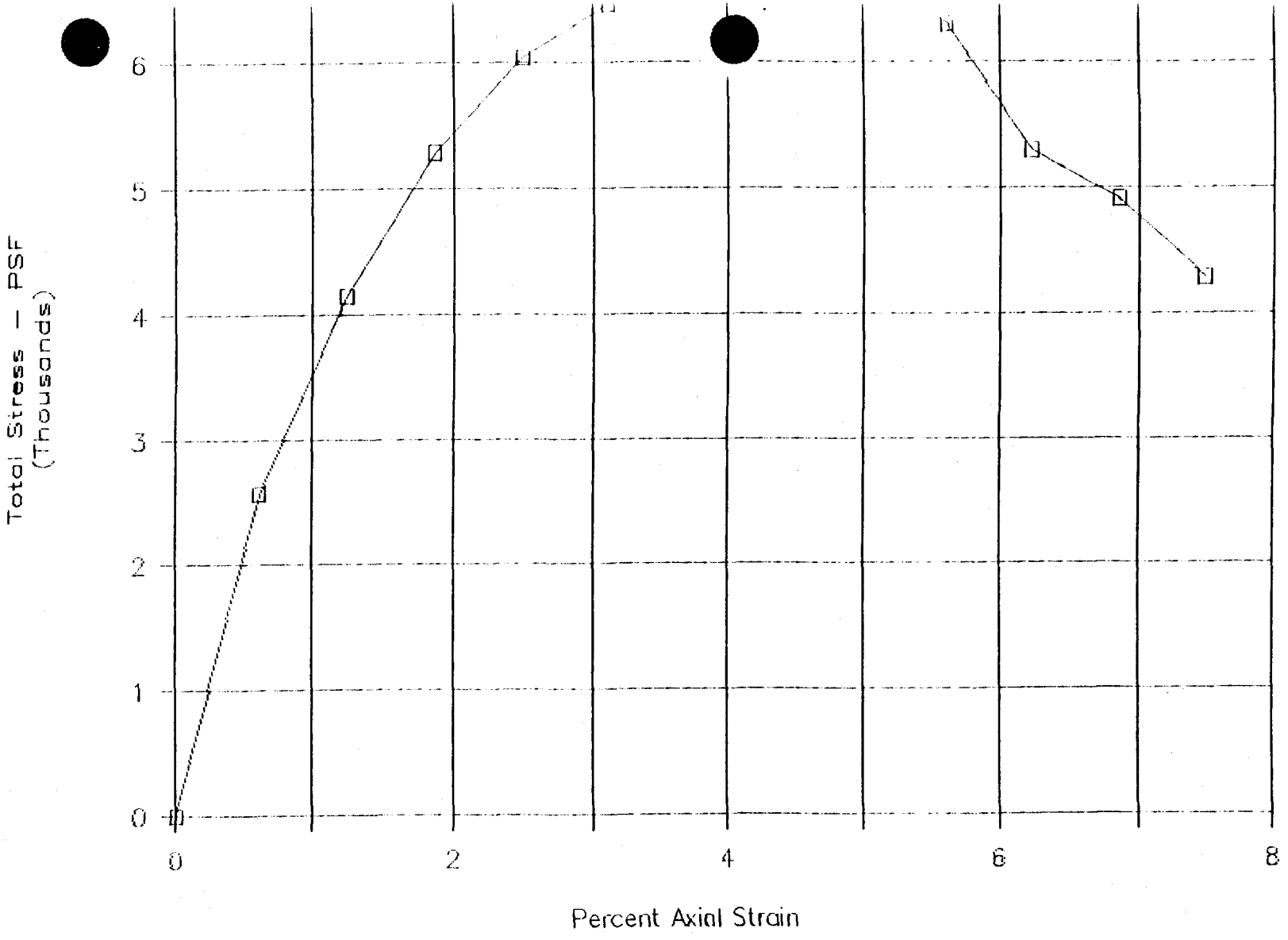
ADVANCED TERRA TESTING, INC.

UNCONFINED COMPRESSIVE STRENGTH TEST DATA

Weston		JOB NO.	2066-01
	B302090402415	SAMPLED	--
	40.2-41.5'	TEST STARTED	09-12-90 DCW
	EG&G	TEST FINISHED	09-12-90
	Rocky Flats	SETUP NO.	1
	UCS	SATURATED TEST	No
PSF	0	AT FIELD MOIST.	Yes

(in)	4.006	Init. Area (sq in)	2.674
(in)	4.006	Consol. Area (sq in)	2.674
PSI	0.0	Strain Rate (in/min)	0.040

1	Delta Ht. In.	Axial % Strain	Area Final Sq In.	Dev. Stress PSF	Pore Pres. PSI	Delta Pres. PSF	Sigma 3 PSF	Sigma 1 PSF	Prin. Stress Ratio
0	0.00	0.00	2.674	0	0.00	0.0	0	0	0.00
5	0.03	0.62	2.690	2569	0.00	0.0	0	2569	
1	.05	1.25	2.707	4149	0.00	0.0	0	4149	
6	.08	1.87	2.725	5285	0.00	0.0	0	5285	
4	0.10	2.50	2.742	6039	0.00	0.0	0	6039	
9	0.13	3.12	2.760	6470	0.00	0.0	0	6470	
6	0.15	3.74	2.778	6792	0.00	0.0	0	6792	
0	0.18	4.37	2.796	6799	0.00	0.0	0	6799	
0	0.20	4.99	2.814	6755	0.00	0.0	0	6755	
9	0.23	5.62	2.833	6304	0.00	0.0	0	6304	
5	0.25	6.24	2.851	5303	0.00	0.0	0	5303	
3	0.28	6.86	2.871	4916	0.00	0.0	0	4916	
2	0.30	7.49	2.890	4285	0.00	0.0	0	4285	


Total Stress - PSF
(Thousands)
0
1
2
3
4
5
6
0
2
4
6
8
Percent Axial Strain

UNCONFINED COMPRESSIVE STRENGTH TEST DATA

CLIENT Weston

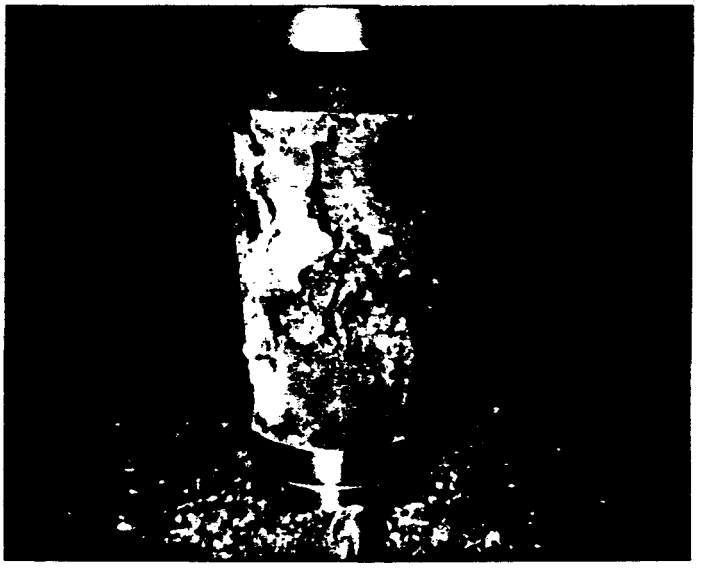
JOB NO. 2066-01

BORING NO.	P3023900809 RM	SAMPLED	07-20-90 ZR
DEPTH	-- 9.5-9.7	TEST STARTED	07-31-90 DCW
SAMPLE NO.	--	TEST FINISHED	07-31-90 DCW
SOIL DESCR.	EG&G	SETUP NO.	1
TEST TYPE	UCS	SATURATED TEST	No
CONF. PRES. PSF	0	AT FIELD MOIST.	Yes

MOISTURE/DENSITY DATA		BEFORE TEST	AFTER TEST
Wt. Soil + Moisture	(g)	350.8	350.8
Wt. Wet Soil & Pan	(g)	359.6	359.6
Wt. Dry Soil & Pan	(g)	335.4	335.4
Wt. Lost Moisture	(g)	24.2	24.2
Wt. of Pan Only	(g)	8.9	8.9
Wt. of Dry Soil	(g)	326.6	326.6
Moisture Content %		7.4	7.4
Wet Density PCF		129.1	129.1
Dry Density PCF		120.2	120.2

Init. Diameter	(in)	1.896
Init. Area	(sq in)	2.823
Init. Height	(in)	3.665
Vol. Bef. Consol.	(cu ft)	0.00599
Vol. After Consol.	(cu ft)	0.00599

Notes & Comments:



P3023900809RM
4C

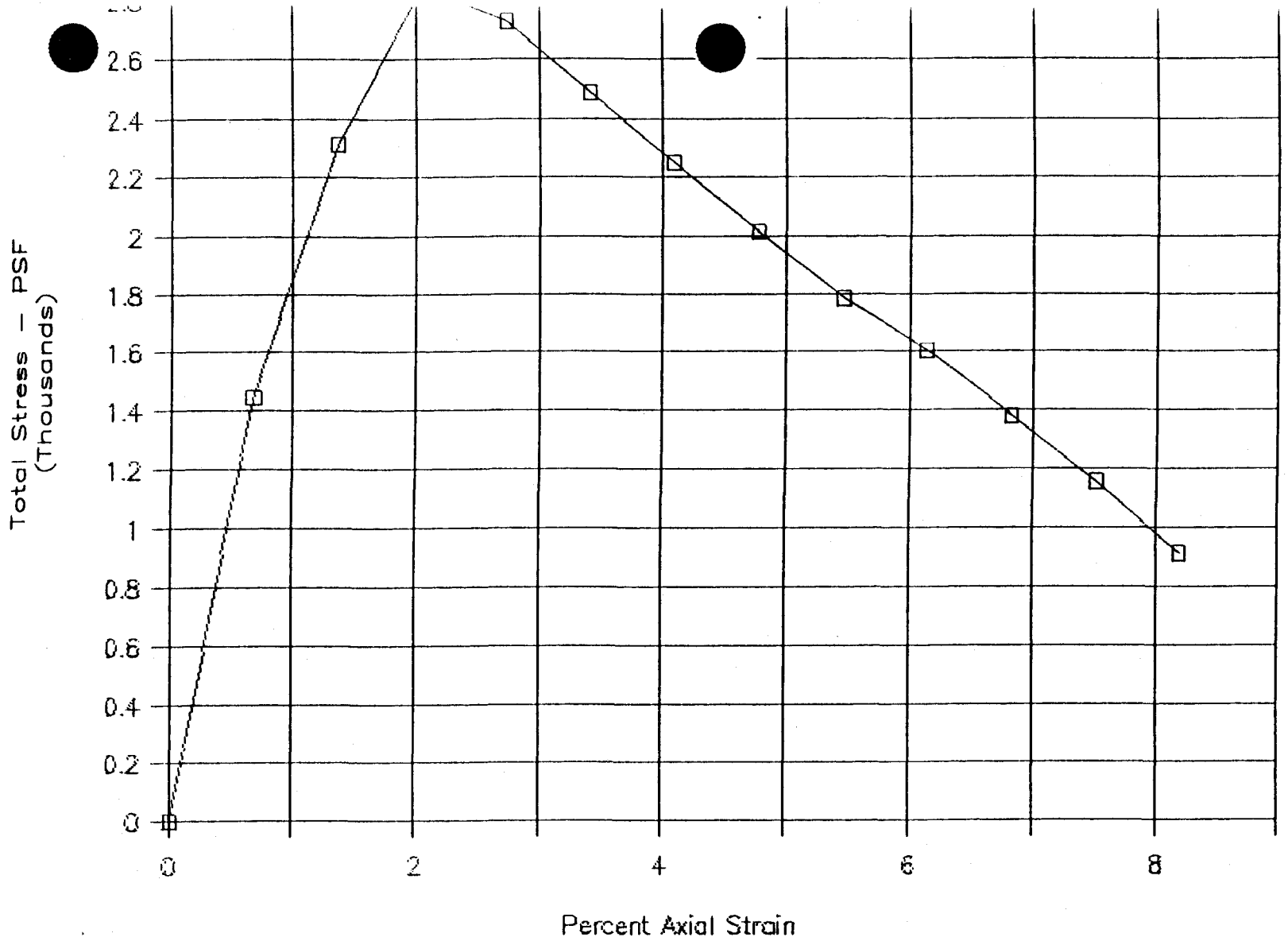
ADVANCED TERRA TESTING, INC.

UNCONFINED COMPRESSIVE STRENGTH TEST DATA

Weston		JOB NO.	2066-01
	P3023900809 RM	SAMPLED	07-20-90 ZR
	--	TEST STARTED	07-31-90 DCW
	--	TEST FINISHED	07-31-90 DCW
	EG&G	SETUP NO.	1
	UCS	SATURATED TEST	No
PSF	0	AT FIELD MOIST.	Yes

(in)	3.665	Init. Area (sq in)	2.823
(in)	3.665	Consol. Area (sq in)	2.823
PSI	0.0	Strain Rate (in/min)	0.080

1	Delta Ht. In.	Axial % Strain	Area Final Sq In.	Dev. Stress PSF	Pore Pres. PSI	Delta Pres. PSF	Sigma 3 PSF	Sigma 1 PSF	Prin. Stress Ratio
0	0.00	0.00	2.823	0	0.00	0.0	0	0	0.00
4	0.03	0.68	2.843	1444	0.00	0.0	0	1444	
6	.05	1.36	2.862	2314	0.00	0.0	0	2314	
7	.08	2.05	2.882	2848	0.00	0.0	0	2848	
5	0.10	2.73	2.903	2729	0.00	0.0	0	2729	
6	0.13	3.41	2.923	2488	0.00	0.0	0	2488	
6	0.15	4.09	2.944	2250	0.00	0.0	0	2250	
7	0.18	4.77	2.965	2016	0.00	0.0	0	2016	
7	0.20	5.46	2.986	1784	0.00	0.0	0	1784	
9	0.23	6.14	3.008	1604	0.00	0.0	0	1604	
9	0.25	6.82	3.030	1378	0.00	0.0	0	1378	
0	0.28	7.50	3.052	1156	0.00	0.0	0	1156	
5	0.30	8.19	3.075	913	0.00	0.0	0	913	


Total Stress - PSF
(Thousands)
2.6
2.4
2.2
2
1.8
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
0
2
4
6
8
Percent Axial Strain

UNCONFINED COMPRESSIVE STRENGTH TEST DATA

CLIENT Weston

JOB NO. 2066-01

BORING NO.	P3024900405 RB	SAMPLED	07-20-90 ZR
DEPTH	-- 4.0-4.8	TEST STARTED	07-31-90 DCW
SAMPLE NO.	--	TEST FINISHED	07-31-90 DCW
SOIL DESCR.	EG&G	SETUP NO.	1
TEST TYPE	UCS	SATURATED TEST	No
CONF. PRES. PSF	0	AT FIELD MOIST.	Yes

MOISTURE/DENSITY DATA		BEFORE TEST	AFTER TEST
Wt. Soil + Moisture	(g)	275.0	275.0
Wt. Wet Soil & Pan	(g)	282.8	282.8
Wt. Dry Soil & Pan	(g)	237.0	237.0
Wt. Lost Moisture	(g)	45.8	45.8
Wt. of Pan Only	(g)	7.9	7.9
Wt. of Dry Soil	(g)	229.1	229.1
Moisture Content %		20.0	20.0
Wet Density PCF		127.1	127.1
Dry Density PCF		105.9	105.9

.nit. Diameter	(in)	1.920
Init. Area	(sq in)	2.895
Init. Height	(in)	2.847
Vol. Bef. Consol.	(cu ft)	0.00477
Vol. After Consol.	(cu ft)	0.00477

Notes & Comments:

P3024900405RB
UC

ADVANCED TERRA TESTING, INC.

UNCONFINED COMPRESSIVE STRENGTH TEST DATA

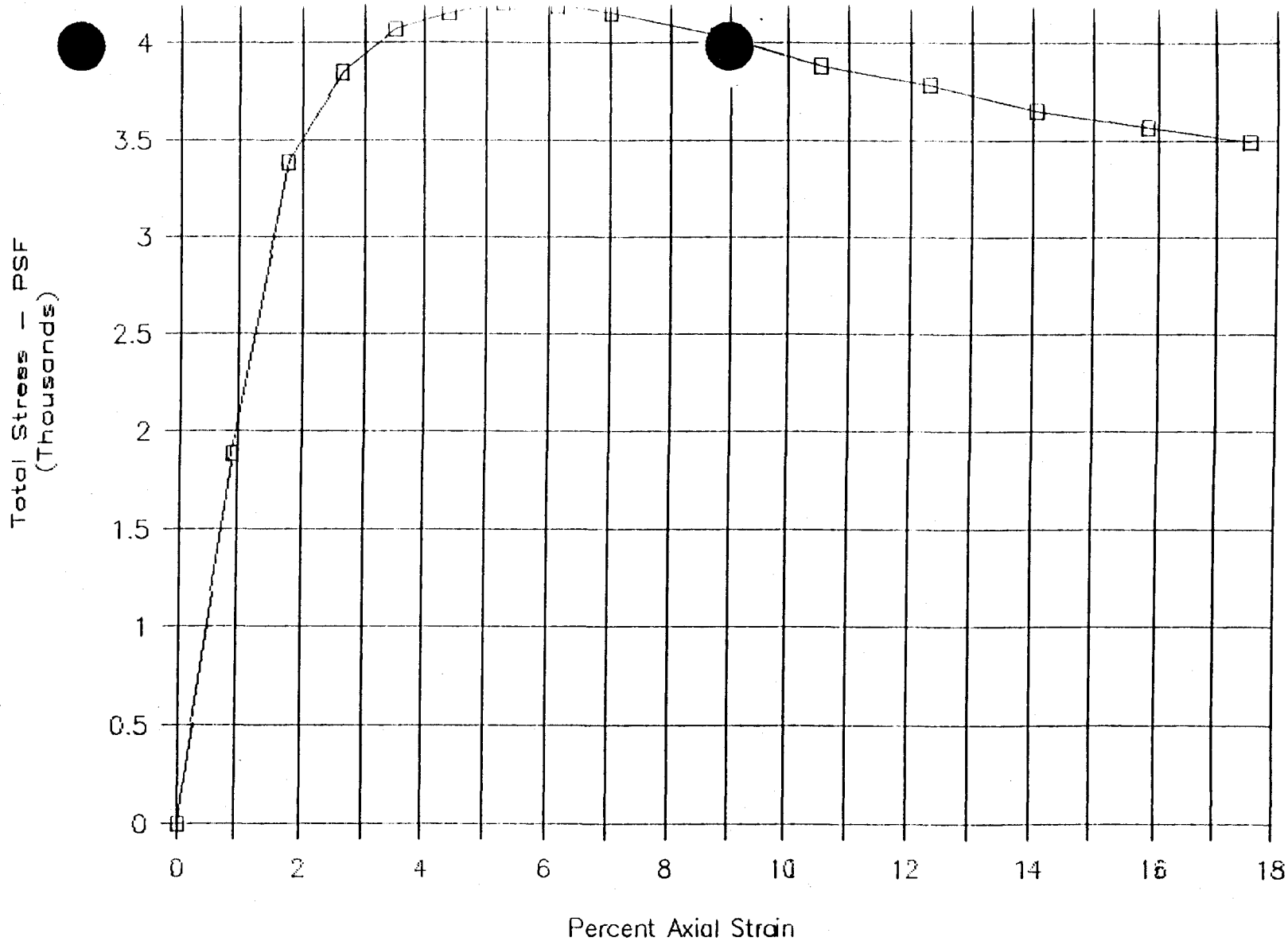
Weston

JOB NO. 2066-01

	P3024900405 RB	SAMPLED	07-20-90 ZR
	--	TEST STARTED	07-31-90 DCW
	--	TEST FINISHED	07-31-90 DCW
	EG&G	SETUP NO.	1
	UCS	SATURATED TEST	No
PSF	0	AT FIELD MOIST.	Yes

(in)	2.847	Init. Area (sq in)	2.895
(in)	2.847	Consol. Area (sq in)	2.895
PSI	0.0	Strain Rate (in/min)	0.080

1	Delta Ht. In.	Axial % Strain	Area Final Sq In.	Dev. Stress PSF	Pore Pres. PSI	Delta Pres. PSF	Sigma 3 PSF	Sigma 1 PSF	Prin. Stress Ratio
0	0.00	0.00	2.895	0	0.00	0.0	0	0	0.00
5	0.03	0.88	2.921	1888	0.00	0.0	0	1888	
7	.05	1.76	2.947	3386	0.00	0.0	0	3386	
4	.08	2.63	2.974	3850	0.00	0.0	0	3850	
3	0.10	3.51	3.001	4069	0.00	0.0	0	4069	
2	0.13	4.39	3.028	4151	0.00	0.0	0	4151	
1	0.15	5.27	3.056	4207	0.00	0.0	0	4207	
6	0.18	6.15	3.085	4192	0.00	0.0	0	4192	
6	0.20	7.02	3.114	4153	0.00	0.0	0	4153	
6	0.25	8.78	3.174	4038	0.00	0.0	0	4038	
2	0.30	10.54	3.236	3884	0.00	0.0	0	3884	
7	0.35	12.29	3.301	3786	0.00	0.0	0	3786	
2	0.40	14.05	3.369	3655	0.00	0.0	0	3655	
2	0.45	15.81	3.439	3572	0.00	0.0	0	3572	
2	0.50	17.56	3.512	3497	0.00	0.0	0	3497	


Total Stress - PSF
(Thousands)
4
3.5
3
2.5
2
1.5
1
0.5
0
0
2
4
6
8
10
12
14
16
18
Percent Axial Strain

UNCONFINED COMPRESSIVE STRENGTH TEST DATA

CLIENT Weston

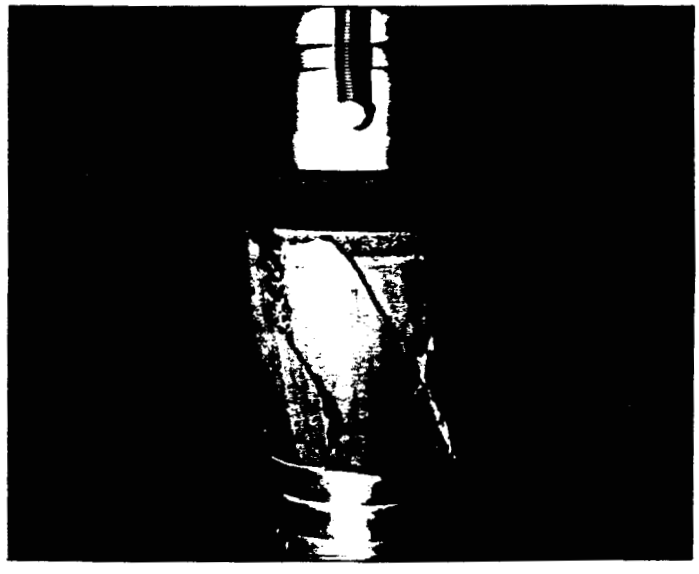
JOB NO. 2066-01

BORING NO.	P3026901011 B	SAMPLED	07-20-90 ZR
DEPTH	-- 9.7-10.7	TEST STARTED	07-31-90 DCW
SAMPLE NO.	--	TEST FINISHED	07-31-90 DCW
SOIL DESCR.	EG&G	SETUP NO.	1
TEST TYPE	UCS	SATURATED TEST	No
CONF. PRES. PSF	0	AT FIELD MOIST.	Yes

MOISTURE/DENSITY DATA		BEFORE TEST	AFTER TEST
Wt. Soil + Moisture	(g)	277.6	277.6
Wt. Wet Soil & Pan	(g)	285.6	285.6
Wt. Dry Soil & Pan	(g)	238.8	238.8
Wt. Lost Moisture	(g)	46.9	46.9
Wt. of Pan Only	(g)	8.0	8.0
Wt. of Dry Soil	(g)	230.8	230.8
Moisture Content %		20.3	20.3
Wet Density PCF		130.0	130.0
Dry Density PCF		108.1	108.1

Init. Diameter	(in)	1.927
Init. Area	(sq in)	2.916
Init. Height	(in)	2.790
Vol. Bef. Consol.	(cu ft)	0.00471
Vol. After Consol.	(cu ft)	0.00471

Notes & Comments:



P3026901011 B
HC

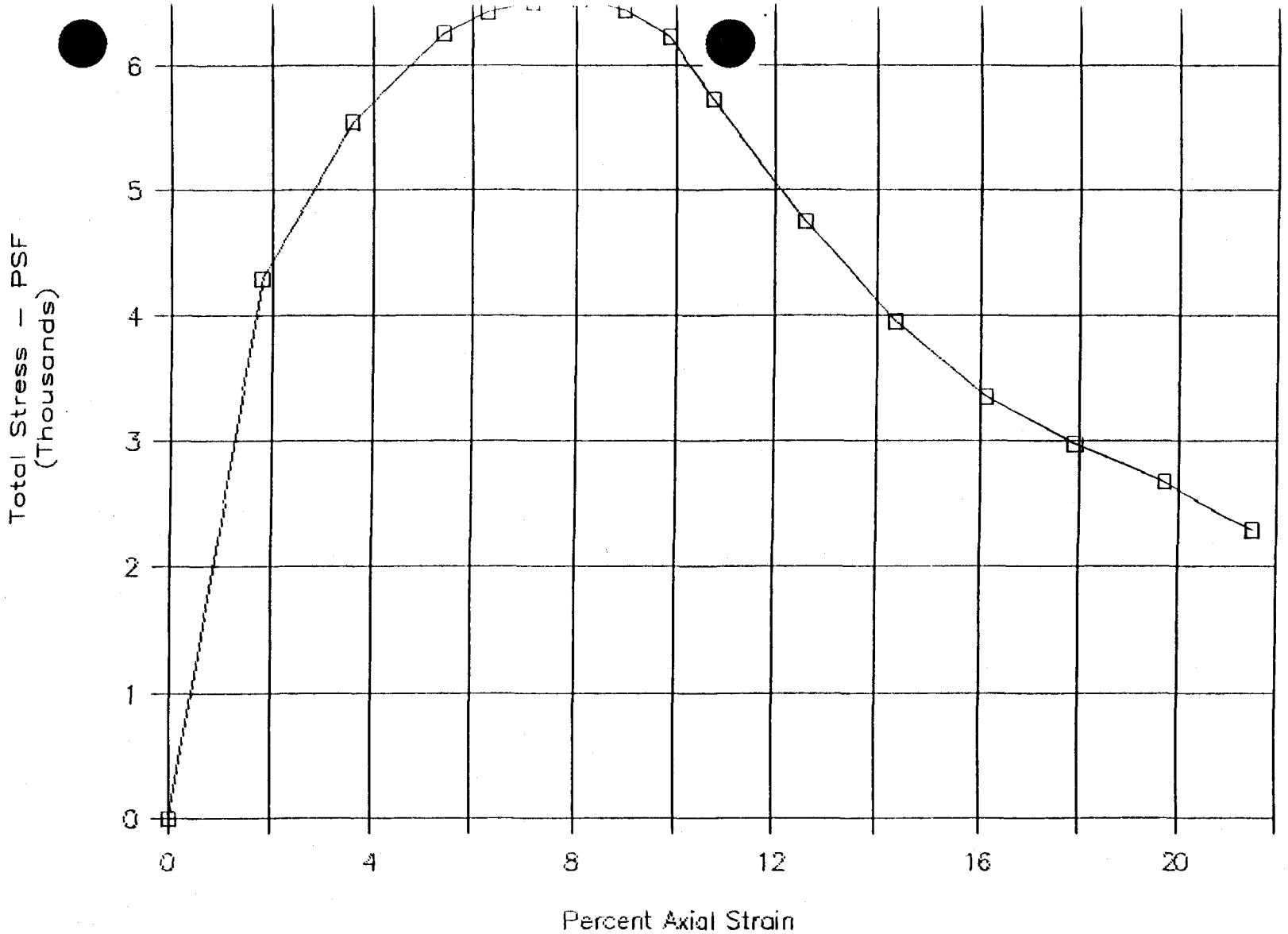
ADVANCED TERRA TESTING, INC.

UNCONFINED COMPRESSIVE STRENGTH TEST DATA

Weston		JOB NO.	2066-01
	P3026901011 B	SAMPLED	07-20-90 ZR
	--	TEST STARTED	07-31-90 DCW
	--	TEST FINISHED	07-31-90 DCW
	EG&G	SETUP NO.	1
	UCS	SATURATED TEST	No
PSF	0	AT FIELD MOIST.	Yes

(in)	2.790	Init. Area (sq in)	2.916
(in)	2.790	Consol. Area (sq in)	2.916
PSI	0.0	Strain Rate (in/min)	0.080

1	Delta Ht. In.	Axial % Strain	Area Final Sq In.	Dev. Stress PSF	Pore Pres. PSI	Delta Pres. PSF	Sigma 3 PSF	Sigma 1 PSF	Prin. Stress Ratio
0	0.00	0.00	2.916	0	0.00	0.0	0	0	0.00
0	0.05	1.79	2.970	4291	0.00	0.0	0	4291	
2	.10	3.58	3.025	5546	0.00	0.0	0	5546	
6	0.15	5.38	3.082	6261	0.00	0.0	0	6261	
3	0.18	6.27	3.112	6433	0.00	0.0	0	6433	
1	0.20	7.17	3.142	6509	0.00	0.0	0	6509	
0	0.23	8.06	3.172	6537	0.00	0.0	0	6537	
5	0.25	8.96	3.203	6450	0.00	0.0	0	6450	
3	0.28	9.86	3.235	6231	0.00	0.0	0	6231	
9	0.30	10.75	3.268	5729	0.00	0.0	0	5729	
1	0.35	12.54	3.335	4750	0.00	0.0	0	4750	
7	0.40	14.34	3.405	3955	0.00	0.0	0	3955	
9	0.45	16.13	3.477	3354	0.00	0.0	0	3354	
9	0.50	17.92	3.553	2979	0.00	0.0	0	2979	
3	0.55	19.71	3.633	2676	0.00	0.0	0	2676	
3	0.60	21.51	3.715	2287	0.00	0.0	0	2287	


Total Stress - PSF
(Thousands)
0
1
2
3
4
5
6
0
4
8
12
16
20
Percent Axial Strain

UNCONFINED COMPRESSIVE STRENGTH TEST DATA

CLIENT Weston

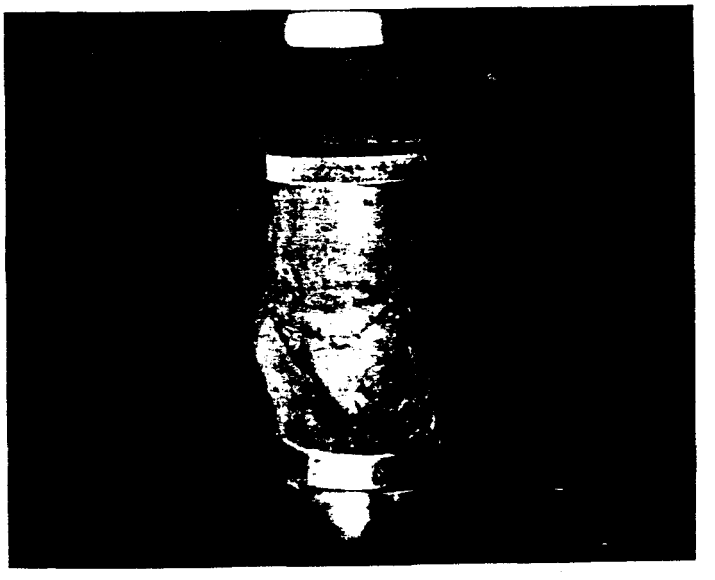
JOB NO. 2066-01

BORING NO.	P3027900405 B	SAMPLED	07-20-90 ZR
DEPTH	-- 3.7-4.6	TEST STARTED	07-31-90 DCW
SAMPLE NO.	--	TEST FINISHED	07-31-90 DCW
SOIL DESCR.	EG&G	SETUP NO.	1
TEST TYPE	UCS	SATURATED TEST	No
CONF. PRES. PSF	0	AT FIELD MOIST.	Yes

MOISTURE/DENSITY DATA		BEFORE TEST	AFTER TEST
Wt. Soil + Moisture	(g)	379.6	379.6
Wt. Wet Soil & Pan	(g)	387.4	387.4
Wt. Dry Soil & Pan	(g)	311.5	311.5
Wt. Lost Moisture	(g)	75.9	75.9
Wt. of Pan Only	(g)	7.8	7.8
Wt. of Dry Soil	(g)	303.7	303.7
Moisture Content %		25.0	25.0
Wet Density PCF		126.1	126.1
Dry Density PCF		100.9	100.9

Init. Diameter	(in)	1.913
Init. Area	(sq in)	2.874
Init. Height	(in)	3.989
Vol. Bef. Consol.	(cu ft)	0.00663
Vol. After Consol.	(cu ft)	0.00663

Notes & Comments:



P3027900405B

4C

ADVANCED TERRA TESTING, INC.

UNCONFINED COMPRESSIVE STRENGTH TEST DATA

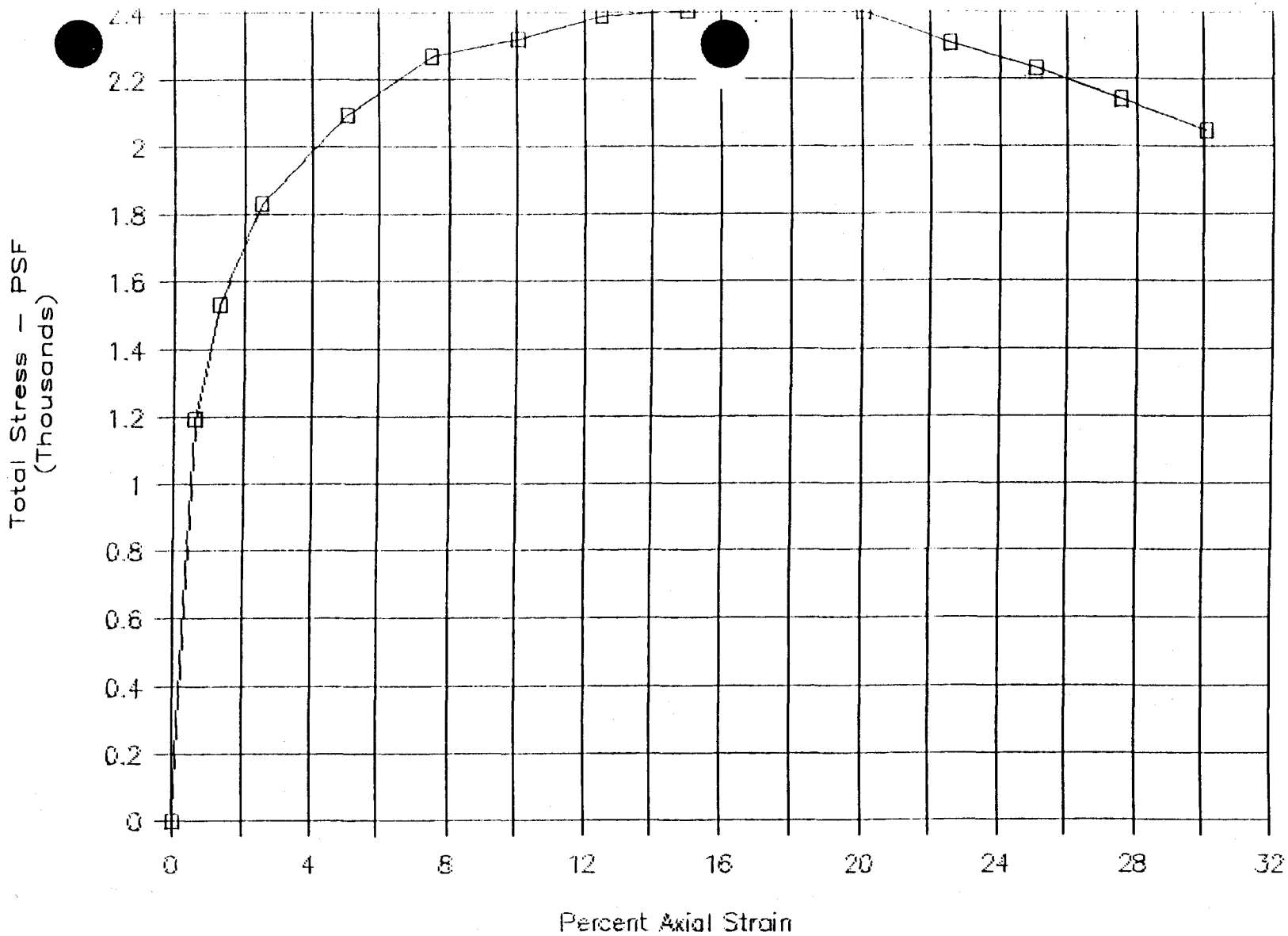
Weston

JOB NO. 2066-01

	P3027900405 B	SAMPLED	07-20-90 ZR
	--	TEST STARTED	07-31-90 DCW
	--	TEST FINISHED	07-31-90 DCW
	EG&G	SETUP NO.	1
	UCS	SATURATED TEST	No
PSF	0	AT FIELD MOIST.	Yes

(in)	3.989	Init. Area (sq in)	2.874
(in)	3.989	Consol. Area (sq in)	2.874
PSI	0.0	Strain Rate (in/min)	0.080

1	Delta Ht. In.	Axial % Strain	Area Final Sq In.	Dev. Stress PSF	Pore Pres. PSI	Delta Pres. PSF	Sigma 3 PSF	Sigma 1 PSF	Prin. Stress Ratio
0	0.00	0.00	2.874	0	0.00	0.0	0	0	0.00
2	0.03	0.63	2.892	1195	0.00	0.0	0	1195	
3	.05	1.25	2.911	1534	0.00	0.0	0	1534	
9	.10	2.51	2.948	1832	0.00	0.0	0	1832	
4	0.20	5.01	3.026	2094	0.00	0.0	0	2094	
5	0.30	7.52	3.108	2270	0.00	0.0	0	2270	
0	0.40	10.03	3.195	2321	0.00	0.0	0	2321	
0	0.50	12.53	3.286	2388	0.00	0.0	0	2388	
1	0.60	15.04	3.383	2405	0.00	0.0	0	2405	
6	0.70	17.55	3.486	2437	0.00	0.0	0	2437	
6	0.80	20.06	3.595	2403	0.00	0.0	0	2403	
1	0.90	22.56	3.712	2308	0.00	0.0	0	2308	
1	1.00	25.07	3.836	2234	0.00	0.0	0	2234	
6	1.10	27.58	3.969	2141	0.00	0.0	0	2141	
1	1.20	30.08	4.111	2049	0.00	0.0	0	2049	


Total Stress - PSF
(Thousands)
2.4
2.2
2
1.8
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
0
4
8
12
16
20
24
28
32
Percent Axial Strain

UNCONFINED COMPRESSIVE STRENGTH TEST DATA

CLIENT Weston

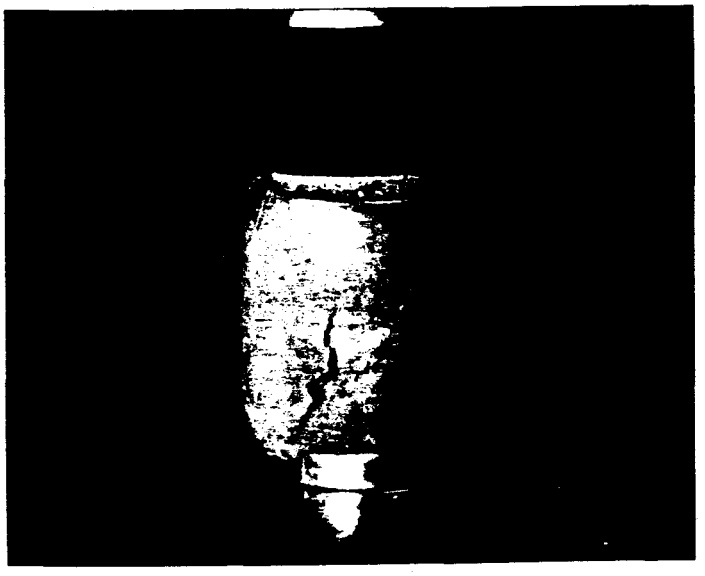
JOB NO. 2066-01

BORING NO.	P3027900506 B	SAMPLED	07-20-90 ZR
DEPTH	-- 4.7-6.2	TEST STARTED	07-31-90 DCW
SAMPLE NO.	--	TEST FINISHED	07-31-90 DCW
SOIL DESCR.	EG&G	SETUP NO.	1
TEST TYPE	UCS	SATURATED TEST	No
CONF. PRES. PSF	0	AT FIELD MOIST.	Yes

MOISTURE/DENSITY DATA		BEFORE TEST	AFTER TEST
Wt. Soil + Moisture	(g)	389.0	389.0
Wt. Wet Soil & Pan	(g)	397.9	397.9
Wt. Dry Soil & Pan	(g)	325.2	325.2
Wt. Lost Moisture	(g)	72.7	72.7
Wt. of Pan Only	(g)	8.9	8.9
Wt. of Dry Soil	(g)	316.3	316.3
Moisture Content %		23.0	23.0
Wet Density PCF		128.3	128.3
Dry Density PCF		104.3	104.3

Init. Diameter	(in)	1.923
Init. Area	(sq in)	2.904
Init. Height	(in)	3.976
Vol. Bef. Consol.	(cu ft)	0.00668
Vol. After Consol.	(cu ft)	0.00668

Notes & Comments:



P3027900506B
UC

ADVANCED TERRA TESTING, INC.

UNCONFINED COMPRESSIVE STRENGTH TEST DATA

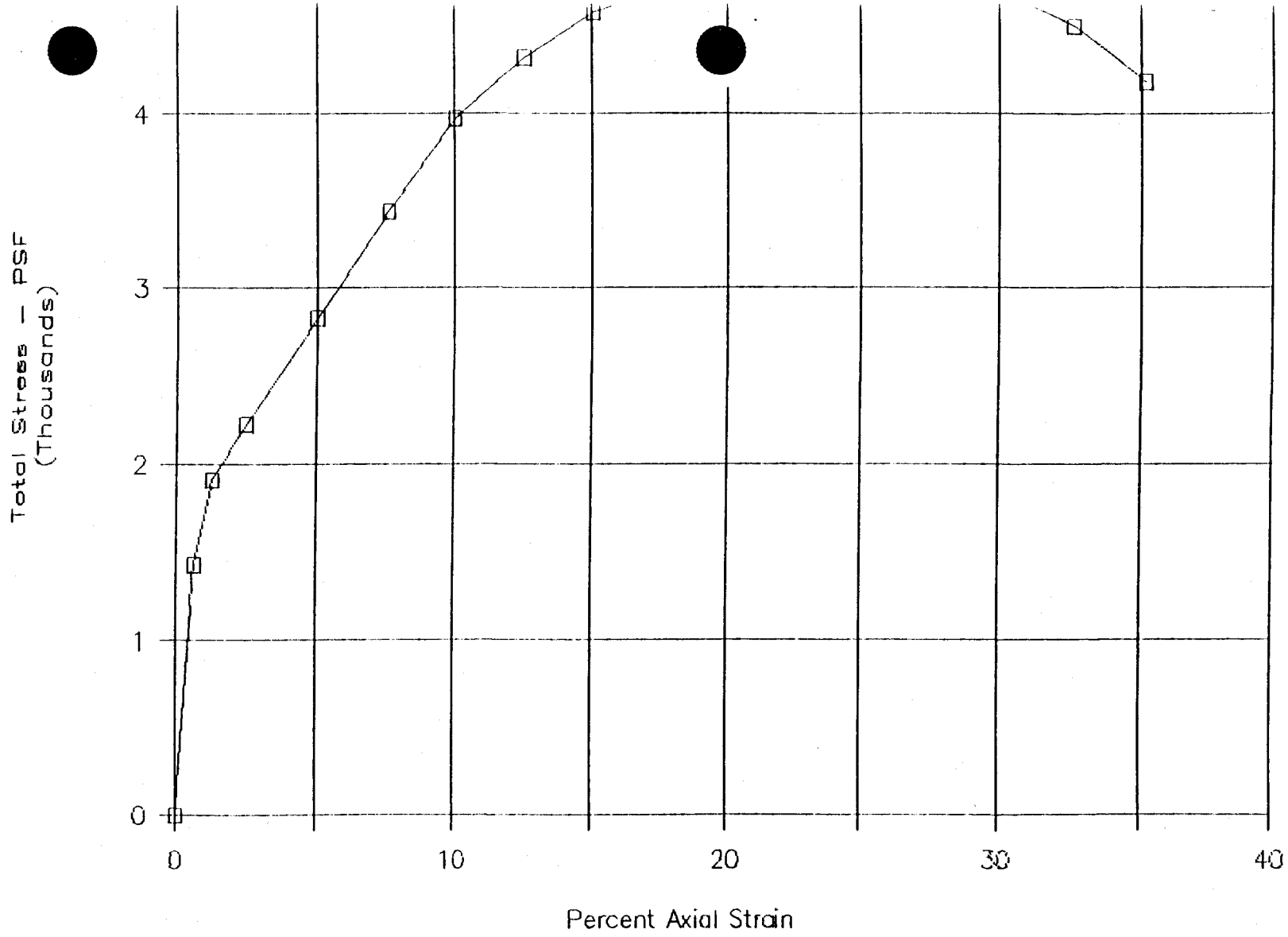
Weston

JOB NO. 2066-01

	P3027900506 B	SAMPLED	07-20-90 ZR
	--	TEST STARTED	07-31-90 DCW
	--	TEST FINISHED	07-31-90 DCW
	EG&G	SETUP NO.	1
	UCS	SATURATED TEST	No
PSF	0	AT FIELD MOIST.	Yes

(in)	3.976	Init. Area (sq in)	2.904
(in)	3.976	Consol. Area (sq in)	2.904
PSI	0.0	Strain Rate (in/min)	0.080

1	Delta Ht. In.	Axial % Strain	Area Final Sq In.	Dev. Stress PSF	Pore Pres. PSI	Delta Pres. PSF	Sigma 3 PSF	Sigma 1 PSF	Prin. Stress Ratio
0	0.00	0.00	2.904	0	0.00	0.0	0	0	0.00
3.	0.03	0.63	2.923	1429	0.00	0.0	0	1429	
4	.05	1.26	2.941	1909	0.00	0.0	0	1909	
1	.10	2.52	2.979	2223	0.00	0.0	0	2223	
5	0.20	5.03	3.058	2825	0.00	0.0	0	2825	
9	0.30	7.55	3.141	3438	0.00	0.0	0	3438	
3	0.40	10.06	3.229	3969	0.00	0.0	0	3969	
3	0.50	12.58	3.322	4313	0.00	0.0	0	4313	
0	0.60	15.09	3.421	4568	0.00	0.0	0	4568	
2	0.70	17.61	3.525	4698	0.00	0.0	0	4698	
9	0.80	20.12	3.636	4792	0.00	0.0	0	4792	
7	0.90	22.64	3.754	4833	0.00	0.0	0	4833	
6	1.00	25.15	3.880	4824	0.00	0.0	0	4824	
9	1.10	27.67	4.015	4788	0.00	0.0	0	4788	
3	1.20	30.18	4.160	4673	0.00	0.0	0	4673	
9	1.30	32.70	4.315	4488	0.00	0.0	0	4488	
6	1.40	35.21	4.483	4176	0.00	0.0	0	4176	


Total Stress - PSF
(Thousands)
0
1
2
3
4
0
10
20
30
40
Percent Axial Strain

UNCONFINED COMPRESSIVE STRENGTH TEST DATA

CLIENT Weston

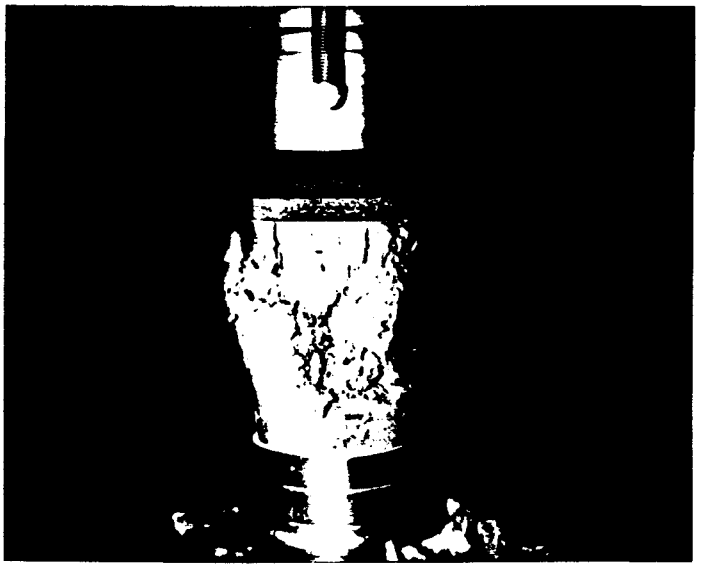
JOB NO. 2066-01

BORING NO.	P3028900405 B	SAMPLED	07-20-90 ZR
DEPTH	--	TEST STARTED	07-31-90 DCW
SAMPLE NO.	--	TEST FINISHED	07-31-90 DCW
SOIL DESCR.	EG&G	SETUP NO.	1
TEST TYPE	UCS	SATURATED TEST	No
CONF. PRES. PSF	0	AT FIELD MOIST.	Yes

MOISTURE/DENSITY DATA		BEFORE TEST	AFTER TEST
Wt. Soil + Moisture	(g)	259.5	259.5
Wt. Wet Soil & Pan	(g)	268.5	268.5
Wt. Dry Soil & Pan	(g)	215.6	215.6
Wt. Lost Moisture	(g)	52.9	52.9
Wt. of Pan Only	(g)	9.0	9.0
Wt. of Dry Soil	(g)	206.6	206.6
Moisture Content %		25.6	25.6
Wet Density PCF		114.1	114.1
Dry Density PCF		90.9	90.9

Init. Diameter	(in)	1.916
Init. Area	(sq in)	2.883
Init. Height	(in)	3.004
Vol. Bef. Consol.	(cu ft)	0.00501
Vol. After Consol.	(cu ft)	0.00501

Notes & Comments:



P3028900405 B

UC

ADVANCED TERRA TESTING, INC.

UNCONFINED COMPRESSIVE STRENGTH TEST DATA

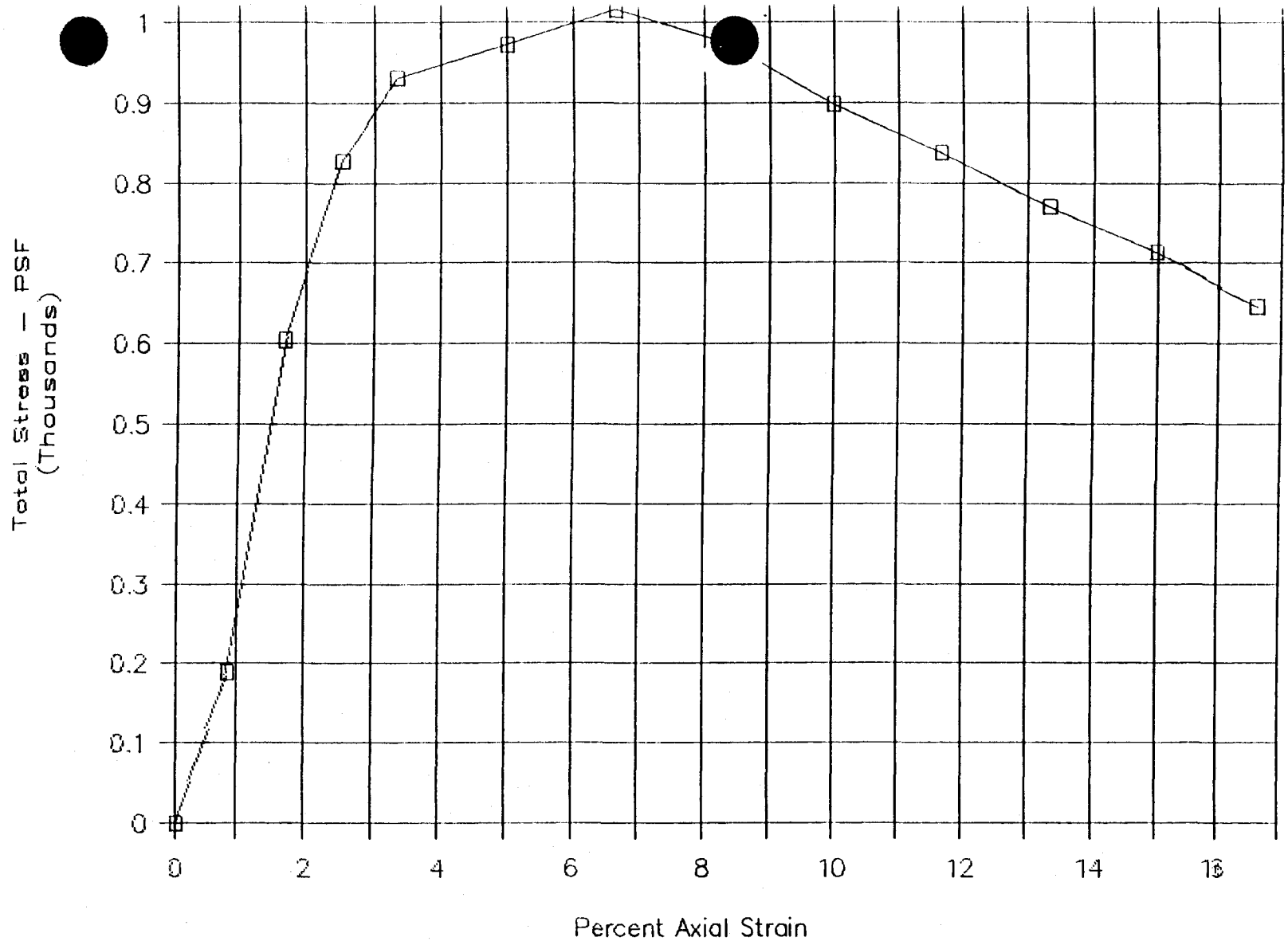
Weston

JOB NO. 2066-01

	P3028900405 B	SAMPLED	07-20-90 ZR
	--	TEST STARTED	07-31-90 DCW
	--	TEST FINISHED	07-31-90 DCW
	EG&G	SETUP NO.	1
	UCS	SATURATED TEST	No
PSF	0	AT FIELD MOIST.	Yes

(in)	3.004	Init. Area (sq in)	2.883
(in)	3.004	Consol. Area (sq in)	2.883
PSI	0.0	Strain Rate (in/min)	0.080

1	Delta Ht. In.	Axial % Strain	Area Final Sq In.	Dev. Stress PSF	Pore Pres. PSI	Delta Pres. PSF	Sigma 3 PSF	Sigma 1 PSF	Prin. Stress Ratio
0	0.00	0.00	2.883	0	0.00	0.0	0	0	0.00
0	0.03	0.83	2.907	188	0.00	0.0	0	188	
4	.05	1.66	2.932	604	0.00	0.0	0	604	
9	.08	2.50	2.957	828	0.00	0.0	0	828	
4	0.10	3.33	2.983	932	0.00	0.0	0	932	
4	0.15	4.99	3.035	973	0.00	0.0	0	973	
9	0.20	6.66	3.089	1016	0.00	0.0	0	1016	
4	0.25	8.32	3.145	975	0.00	0.0	0	975	
9	0.30	9.99	3.203	899	0.00	0.0	0	899	
9	0.35	11.65	3.263	838	0.00	0.0	0	838	
9	0.40	13.32	3.326	771	0.00	0.0	0	771	
9	0.45	14.98	3.391	713	0.00	0.0	0	713	
4	0.50	16.64	3.459	645	0.00	0.0	0	645	


Total Stress - PSF
(Thousands)
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
0
2
4
6
8
10
12
14
16
Percent Axial Strain

UNCONFINED COMPRESSIVE STRENGTH TEST DATA

ston

JOB NO. 2066-01

B3029900405 B
-- 40-55
--
EG&G
UCS
PSF 0

SAMPLED	07-20-90 ZR
TEST STARTED	07-30-90 DCW
TEST FINISHED	07-30-90 DCW
SETUP NO.	1
SATURATED TEST	No
AT FIELD MOIST.	Yes

NSITY		BEFORE TEST	AFTER TEST
Moisture	(g)	217.3	217.3
l & Pan	(g)	225.9	225.9
l & Pan	(g)	184.0	184.0
isture	(g)	41.9	41.9
Only	(g)	8.6	8.6
Soil	(g)	175.4	175.4
ntent %		23.9	23.9
PCF		123.3	123.3
PCF		99.5	99.5

ter	(in)	1.921
	(sq in)	2.898
t	(in)	2.317
onsol.	(cu ft)	0.00389
Consol.	(cu ft)	0.00389

ments:

ADVANCED TERRA TESTING, INC.

UNCONFINED COMPRESSIVE STRENGTH TEST DATA

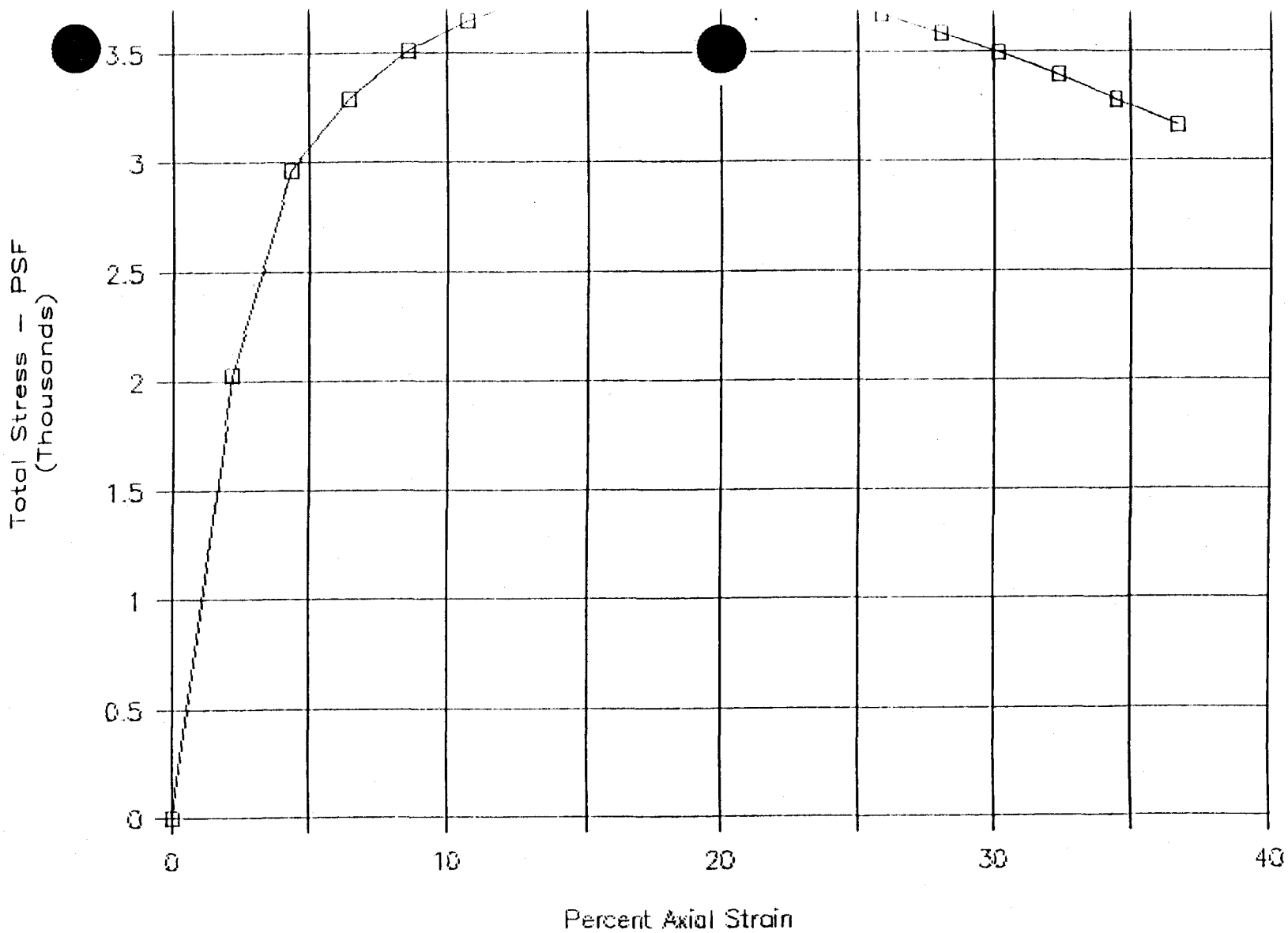
Weston

JOB NO. 2066-01

	B3029900405 B	SAMPLED	07-20-90 ZR
	--	TEST STARTED	07-30-90 DCW
	--	TEST FINISHED	07-30-90 DCW
	EG&G	SETUP NO.	1
	UCS	SATURATED TEST	No
PSF	0	AT FIELD MOIST.	Yes

(in)	2.317	Init. Area (sq in)	2.898
(in)	2.317	Consol. Area (sq in)	2.898
PSI	0.0	Strain Rate (in/min)	0.080

Delta Ht. In.	Axial % Strain	Area Final Sq In.	Dev. Stress PSF	Pore Pres. PSI	Delta Pres. PSF	Sigma 3 PSF	Sigma 1 PSF	Prin. Stress Ratio
0.00	0.00	2.898	0	0.00	0.0	0	0	0.00
0.05	2.16	2.962	2032	0.00	0.0	0	2032	
.10	4.32	3.029	2962	0.00	0.0	0	2962	
.15	6.47	3.099	3290	0.00	0.0	0	3290	
0.20	8.63	3.172	3509	0.00	0.0	0	3509	
0.25	10.79	3.249	3648	0.00	0.0	0	3648	
0.30	12.95	3.329	3754	0.00	0.0	0	3754	
0.35	15.11	3.414	3809	0.00	0.0	0	3809	
0.40	17.26	3.503	3843	0.00	0.0	0	3843	
0.45	19.42	3.597	3843	0.00	0.0	0	3843	
0.50	21.58	3.696	3799	0.00	0.0	0	3799	
0.55	23.74	3.800	3751	0.00	0.0	0	3751	
0.60	25.90	3.911	3674	0.00	0.0	0	3674	
0.65	28.05	4.028	3585	0.00	0.0	0	3585	
0.70	30.21	4.153	3495	0.00	0.0	0	3495	
0.75	32.37	4.286	3394	0.00	0.0	0	3394	
0.80	34.53	4.427	3279	0.00	0.0	0	3279	
0.85	36.69	4.578	3161	0.00	0.0	0	3161	
0.90	38.84	4.739	3048	0.00	0.0	0	3048	


Total Stress - PSF
(Thousands)
3.5
3
2.5
2
1.5
1
0.5
0
0
10
20
30
40
Percent Axial Strain

UNCONFINED COMPRESSIVE STRENGTH TEST DATA

CLIENT Weston

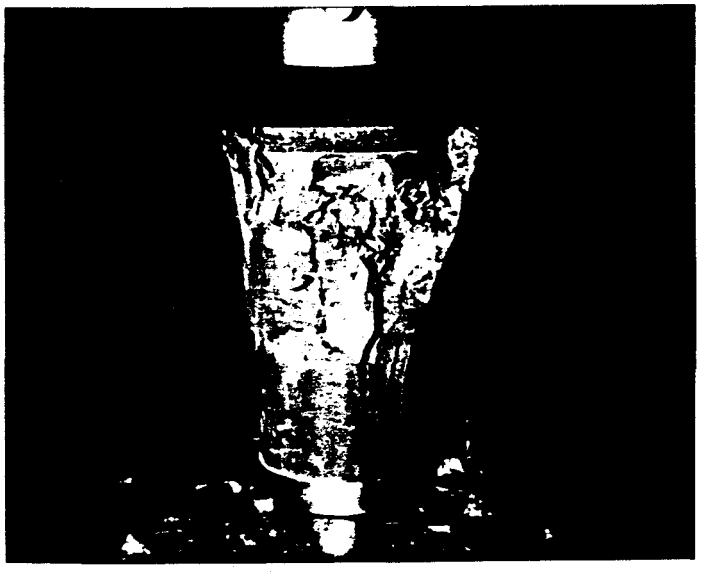
JOB NO. 2066-01

BORING NO.	B3030900405 M	SAMPLED	07-20-90 ZR
DEPTH	--4.2-5.2	TEST STARTED	07-31-90 DCW
SAMPLE NO.	--	TEST FINISHED	07-31-90 DCW
SOIL DESCR.	EG&G	SETUP NO.	1
TEST TYPE	UCS	SATURATED TEST	No
CONF. PRES. PSF	0	AT FIELD MOIST.	Yes

MOISTURE/DENSITY DATA		BEFORE TEST	AFTER TEST
Wt. Soil + Moisture	(g)	388.3	388.3
Wt. Wet Soil & Pan	(g)	397.1	397.1
Wt. Dry Soil & Pan	(g)	335.4	335.4
Wt. Lost Moisture	(g)	61.7	61.7
Wt. of Pan Only	(g)	8.9	8.9
Wt. of Dry Soil	(g)	326.5	326.5
Moisture Content %		18.9	18.9
Wet Density PCF		128.8	128.8
Dry Density PCF		108.3	108.3

Init. Diameter	(in)	1.924
Init. Area	(sq in)	2.907
Init. Height	(in)	3.950
Vol. Bef. Consol.	(cu ft)	0.00665
Vol. After Consol.	(cu ft)	0.00665

Notes & Comments:



B3030900405M

UC

ADVANCED TERRA TESTING, INC.

UNCONFINED COMPRESSIVE STRENGTH TEST DATA

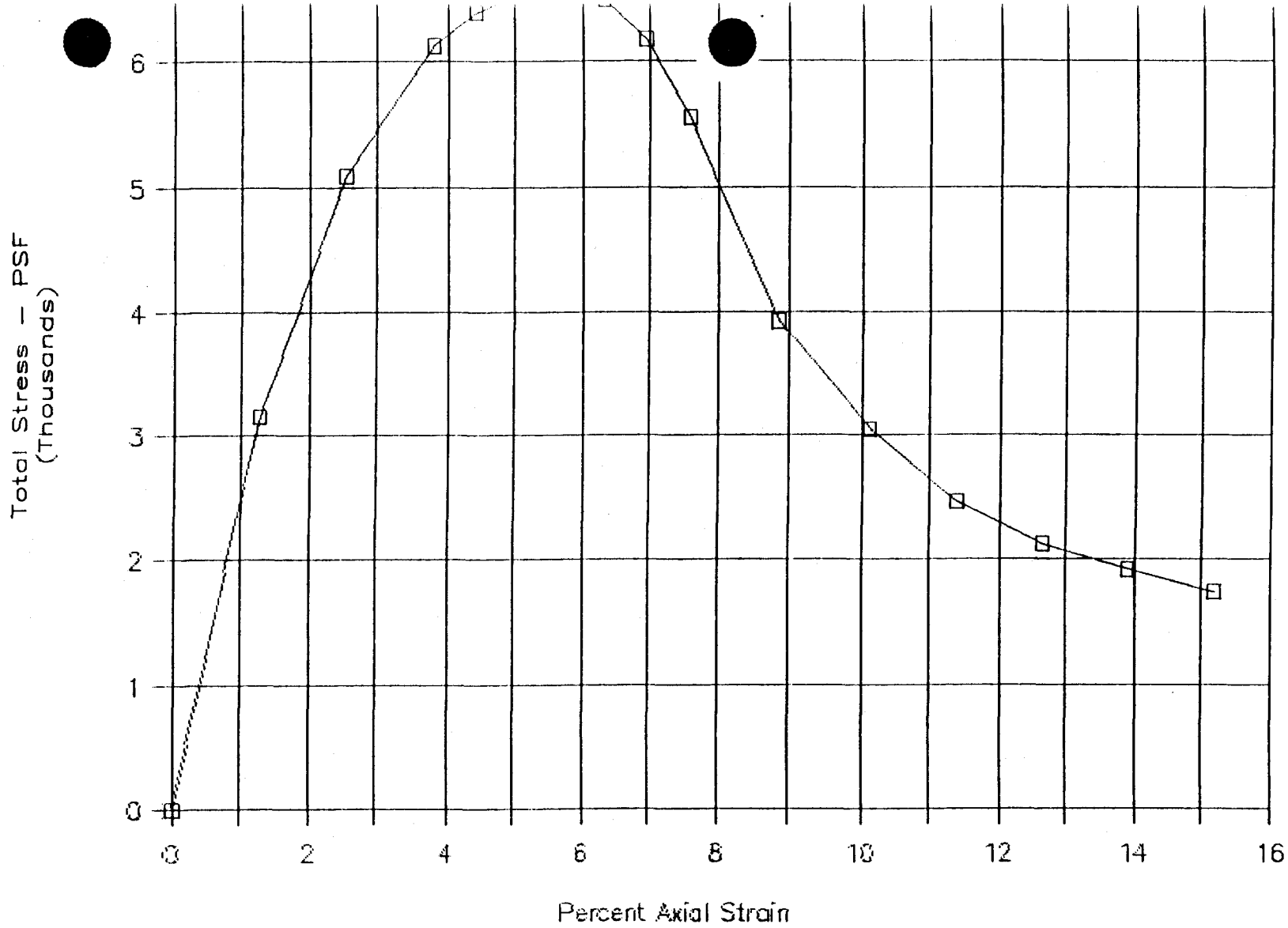
Weston

JOB NO. 2066-01

	B3030900405 M	SAMPLED	07-20-90 ZR
	--	TEST STARTED	07-31-90 DCW
	--	TEST FINISHED	07-31-90 DCW
	EG&G	SETUP NO.	1
	UCS	SATURATED TEST	No
PSF	0	AT FIELD MOIST.	Yes

(in)	3.950	Init. Area (sq in)	2.907
(in)	3.950	Consol. Area (sq in)	2.907
PSI	0.0	Strain Rate (in/min)	0.080

1	Delta Ht. In.	Axial % Strain	Area Final Sq In.	Dev. Stress PSF	Pore Pres. PSI	Delta Pres. PSF	Sigma 3 PSF	Sigma 1 PSF	Prin. Stress Ratio
0	0.00	0.00	2.907	0	0.00	0.0	0	0	0.00
5	0.05	1.27	2.945	3154	0.00	0.0	0	3154	
5	.10	2.53	2.983	5093	0.00	0.0	0	5093	
5	.15	3.80	3.022	6123	0.00	0.0	0	6123	
6	0.18	4.43	3.042	6390	0.00	0.0	0	6390	
5	0.20	5.06	3.062	6536	0.00	0.0	0	6536	
4	0.23	5.70	3.083	6586	0.00	0.0	0	6586	
4	0.25	6.33	3.104	6495	0.00	0.0	0	6495	
7	0.28	6.96	3.125	6175	0.00	0.0	0	6175	
8	0.30	7.59	3.146	5561	0.00	0.0	0	5561	
9	0.35	8.86	3.190	3927	0.00	0.0	0	3927	
3	0.40	10.13	3.235	3049	0.00	0.0	0	3049	
4	0.45	11.39	3.281	2458	0.00	0.0	0	2458	
7	0.50	12.66	3.329	2120	0.00	0.0	0	2120	
9	0.55	13.92	3.378	1918	0.00	0.0	0	1918	
5	0.60	15.19	3.428	1743	0.00	0.0	0	1743	


Total Stress - PSF
(Thousands)
0
1
2
3
4
5
6
0
2
4
6
8
10
12
14
16
Percent Axial Strain

UNCONFINED COMPRESSIVE STRENGTH TEST DATA

CLIENT Weston

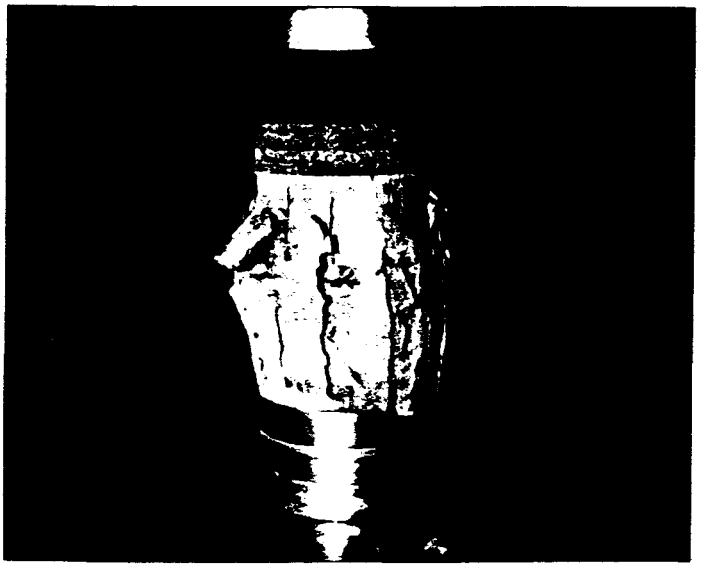
JOB NO. 2066-01

BORING NO.	B3031900506	SAMPLED	07-20-90 ZR
DEPTH	-- 4.85-5.85	TEST STARTED	07-31-90 DCW
SAMPLE NO.	--	TEST FINISHED	07-31-90 DCW
SOIL DESCR.	EG&G	SETUP NO.	1
TEST TYPE	UCS	SATURATED TEST	No
CONF. PRES. PSF	0	AT FIELD MOIST.	Yes

MOISTURE/DENSITY DATA		BEFORE TEST	AFTER TEST
Wt. Soil + Moisture	(g)	271.3	271.3
Wt. Wet Soil & Pan	(g)	279.5	279.5
Wt. Dry Soil & Pan	(g)	223.3	223.3
Wt. Lost Moisture	(g)	56.2	56.2
Wt. of Pan Only	(g)	8.2	8.2
Wt. of Dry Soil	(g)	215.1	215.1
Moisture Content %		26.1	26.1
Wet Density PCF		127.2	127.2
Dry Density PCF		100.8	100.8

Init. Diameter	(in)	1.842
Init. Area	(sq in)	2.665
Init. Height	(in)	3.050
Vol. Bef. Consol.	(cu ft)	0.00470
Vol. After Consol.	(cu ft)	0.00470

Notes & Comments:



B3031900506

UC

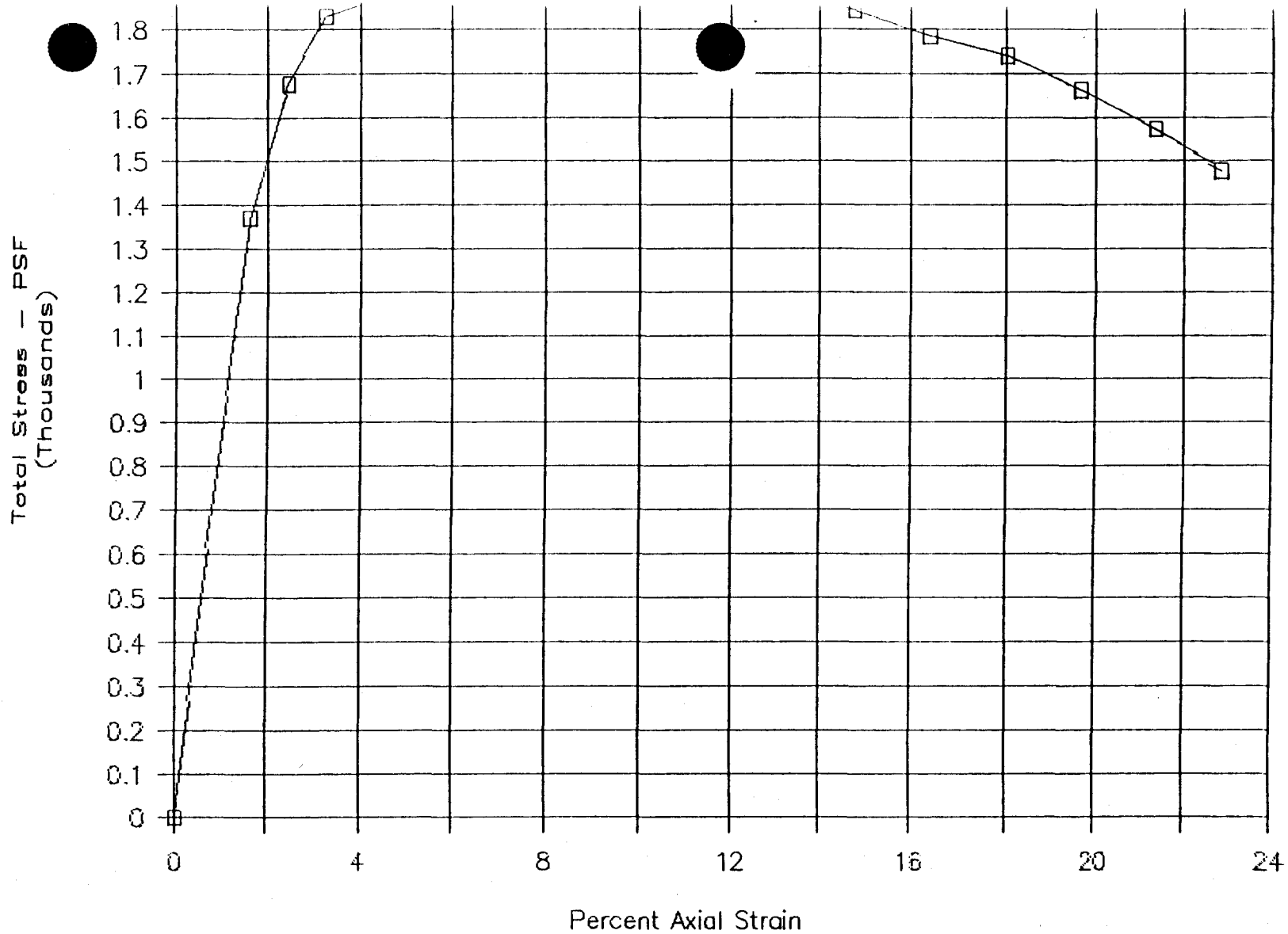
ADVANCED TERRA TESTING, INC.

UNCONFINED COMPRESSIVE STRENGTH TEST DATA

Weston		JOB NO.	2066-01
	B3031900506	SAMPLED	07-20-90 ZR
	--	TEST STARTED	07-31-90 DCW
	--	TEST FINISHED	07-31-90 DCW
	EG&G	SETUP NO.	1
	UCS	SATURATED TEST	No
PSF	0	AT FIELD MOIST.	Yes

(in)	3.050	Init. Area (sq in)	2.665
(in)	3.050	Consol. Area (sq in)	2.665
PSI	0.0	Strain Rate (in/min)	0.080

1	Delta Ht. In.	Axial % Strain	Area Final Sq In.	Dev. Stress PSF	Pore Pres. PSI	Delta Pres. PSF	Sigma 3 PSF	Sigma 1 PSF	Prin. Stress Ratio
0	0.00	0.00	2.665	0	0.00	0.0	0	0	0.00
4	0.05	1.64	2.709	1371	0.00	0.0	0	1371	
8	0.08	2.46	2.732	1676	0.00	0.0	0	1676	
1	.10	3.28	2.755	1829	0.00	0.0	0	1829	
9	0.15	4.92	2.803	1891	0.00	0.0	0	1891	
3	0.20	6.56	2.852	1919	0.00	0.0	0	1919	
4	0.25	8.20	2.903	1950	0.00	0.0	0	1950	
1	0.30	9.84	2.956	1939	0.00	0.0	0	1939	
1	0.35	11.48	3.010	1913	0.00	0.0	0	1913	
8	0.40	13.11	3.067	1892	0.00	0.0	0	1892	
1	0.45	14.75	3.126	1843	0.00	0.0	0	1843	
4	0.50	16.39	3.187	1785	0.00	0.0	0	1785	
4	0.55	18.03	3.251	1741	0.00	0.0	0	1741	
0	0.60	19.67	3.317	1662	0.00	0.0	0	1662	
9	0.65	21.31	3.387	1573	0.00	0.0	0	1573	
8	0.70	22.95	3.459	1478	0.00	0.0	0	1478	


Total Stress - PSF
(Thousands)
1.8
1.7
1.6
1.5
1.4
1.3
1.2
1.1
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
0
4
8
12
16
20
24
Percent Axial Strain

UNCONFINED COMPRESSIVE STRENGTH TEST DATA

CLIENT Weston

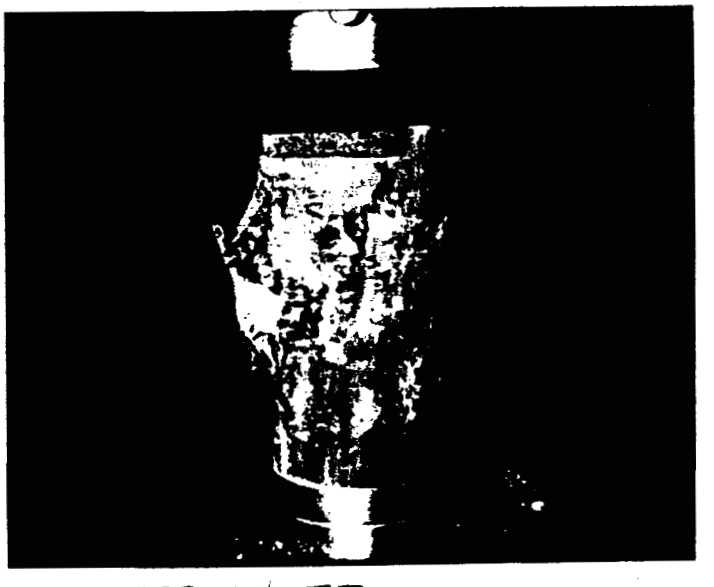
JOB NO. 2066-01

BORING NO.	B3032900405 B	SAMPLED	07-20-90 ZR
DEPTH	-- 40-49	TEST STARTED	07-30-90 DCW
SAMPLE NO.	--	TEST FINISHED	07-30-90 DCW
SOIL DESCR.	EG&G	SETUP NO.	1
TEST TYPE	UCS	SATURATED TEST	No
CONF. PRES. PSF	0	AT FIELD MOIST.	Yes

MOISTURE/DENSITY DATA		BEFORE TEST	AFTER TEST
Wt. Soil + Moisture	(g)	375.1	375.1
Wt. Wet Soil & Pan	(g)	384.1	384.1
Wt. Dry Soil & Pan	(g)	329.3	329.3
Wt. Lost Moisture	(g)	54.8	54.8
Wt. of Pan Only	(g)	9.0	9.0
Wt. of Dry Soil	(g)	320.3	320.3
Moisture Content %		17.1	17.1
Wet Density PCF		127.2	127.2
Dry Density PCF		108.6	108.6

Init. Diameter	(in)	1.894
Init. Area	(sq in)	2.817
Init. Height	(in)	3.987
Vol. Bef. Consol.	(cu ft)	0.00650
Vol. After Consol.	(cu ft)	0.00650

Notes & Comments:



3303290040 5B

HC

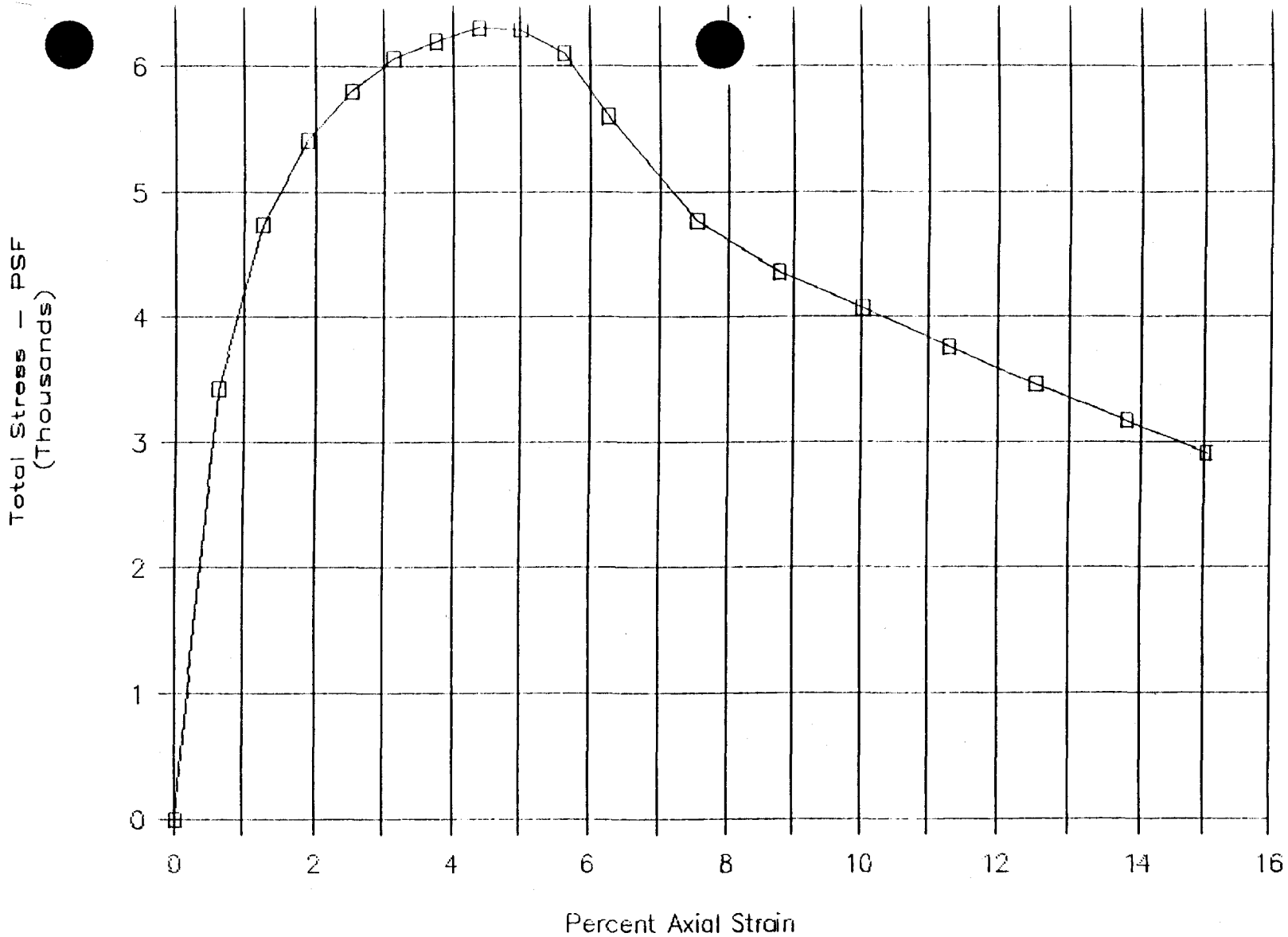
ADVANCED TERRA TESTING, INC.

UNCONFINED COMPRESSIVE STRENGTH TEST DATA

Weston		JOB NO.	2066-01
	B3032900405 B	SAMPLED	07-20-90 ZR
	--	TEST STARTED	07-30-90 DCW
	--	TEST FINISHED	07-30-90 DCW
	EG&G	SETUP NO.	1
	UCS	SATURATED TEST	No
PSF	0	AT FIELD MOIST.	Yes

(in)	3.987	Init. Area (sq in)	2.817
(in)	3.987	Consol. Area (sq in)	2.817
PSI	0.0	Strain Rate (in/min)	0.080

1	Delta Ht. In.	Axial % Strain	Area Final Sq In.	Dev. Stress PSF	Pore Pres. PSI	Delta Pres. PSF	Sigma 3 PSF	Sigma 1 PSF	Prin. Stress Ratio
0	0.00	0.00	2.817	0	0.00	0.0	0	0	0.00
0	0.03	0.63	2.835	3428	0.00	0.0	0	3428	
4	.05	1.25	2.853	4744	0.00	0.0	0	4744	
0	.08	1.88	2.871	5416	0.00	0.0	0	5416	
4	0.10	2.51	2.890	5805	0.00	0.0	0	5805	
1	0.13	3.14	2.909	6065	0.00	0.0	0	6065	
0	0.15	3.76	2.928	6198	0.00	0.0	0	6198	
3	0.18	4.39	2.947	6304	0.00	0.0	0	6304	
9	0.20	5.02	2.966	6287	0.00	0.0	0	6287	
6	0.23	5.64	2.986	6101	0.00	0.0	0	6101	
0	0.25	6.27	3.006	5605	0.00	0.0	0	5605	
2	0.30	7.52	3.047	4774	0.00	0.0	0	4774	
9	0.35	8.78	3.089	4359	0.00	0.0	0	4359	
3	0.40	10.03	3.132	4070	0.00	0.0	0	4070	
2	0.45	11.29	3.176	3763	0.00	0.0	0	3763	
1	0.50	12.54	3.221	3464	0.00	0.0	0	3464	
0	0.55	13.79	3.268	3172	0.00	0.0	0	3172	
4	0.60	15.05	3.317	2909	0.00	0.0	0	2909	


Total Stress — PSF
(Thousands)
0
1
2
3
4
5
6
0
2
4
6
8
10
12
14
16
Percent Axial Strain

UNCONFINED COMPRESSIVE STRENGTH TEST DATA

CLIENT Weston

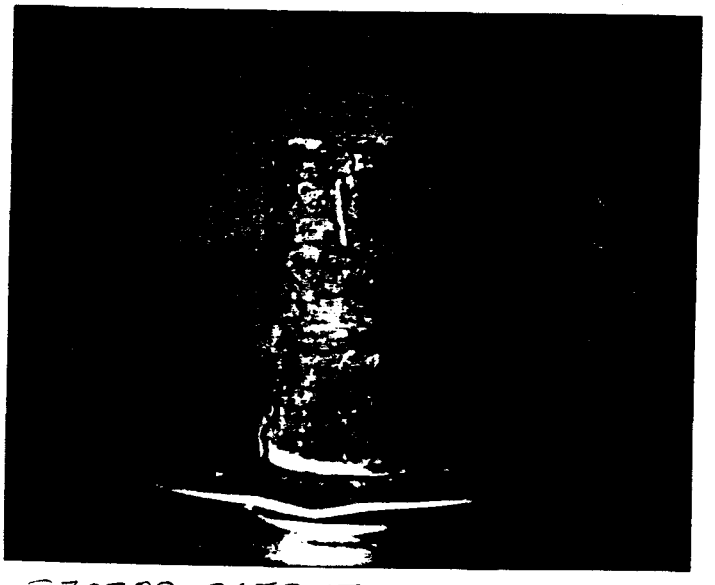
JOB NO. 2066-01

BORING NO.	B303890265277	SAMPLED	--
DEPTH	26.5-27.7'	TEST STARTED	09-12-90 DCW
SAMPLE NO.	EG&G	TEST FINISHED	09-12-90
SOIL DESCR.	Rocky Flats	SETUP NO.	1
TEST TYPE	UCS	SATURATED TEST	No
CONF. PRES. PSF	0	AT FIELD MOIST.	Yes

MOISTURE/DENSITY DATA		BEFORE TEST	AFTER TEST
Wt. Soil + Moisture	(g)	337.1	337.1
Wt. Wet Soil & Pan	(g)	346.0	346.0
Wt. Dry Soil & Pan	(g)	308.2	308.2
Wt. Lost Moisture	(g)	37.7	37.7
Wt. of Pan Only	(g)	8.8	8.8
Wt. of Dry Soil	(g)	299.4	299.4
Moisture Content %		12.6	12.6
Wet Density PCF		141.5	141.5
Dry Density PCF		125.6	125.6

Init. Diameter	(in)	1.754
Init. Area	(sq in)	2.416
Init. Height	(in)	3.757
Vol. Bef. Consol.	(cu ft)	0.00525
Vol. After Consol.	(cu ft)	0.00525

Notes & Comments:



B303890265277
26.5-27.7'
4C

ADVANCED TERRA TESTING, INC.

UNCONFINED COMPRESSIVE STRENGTH TEST DATA

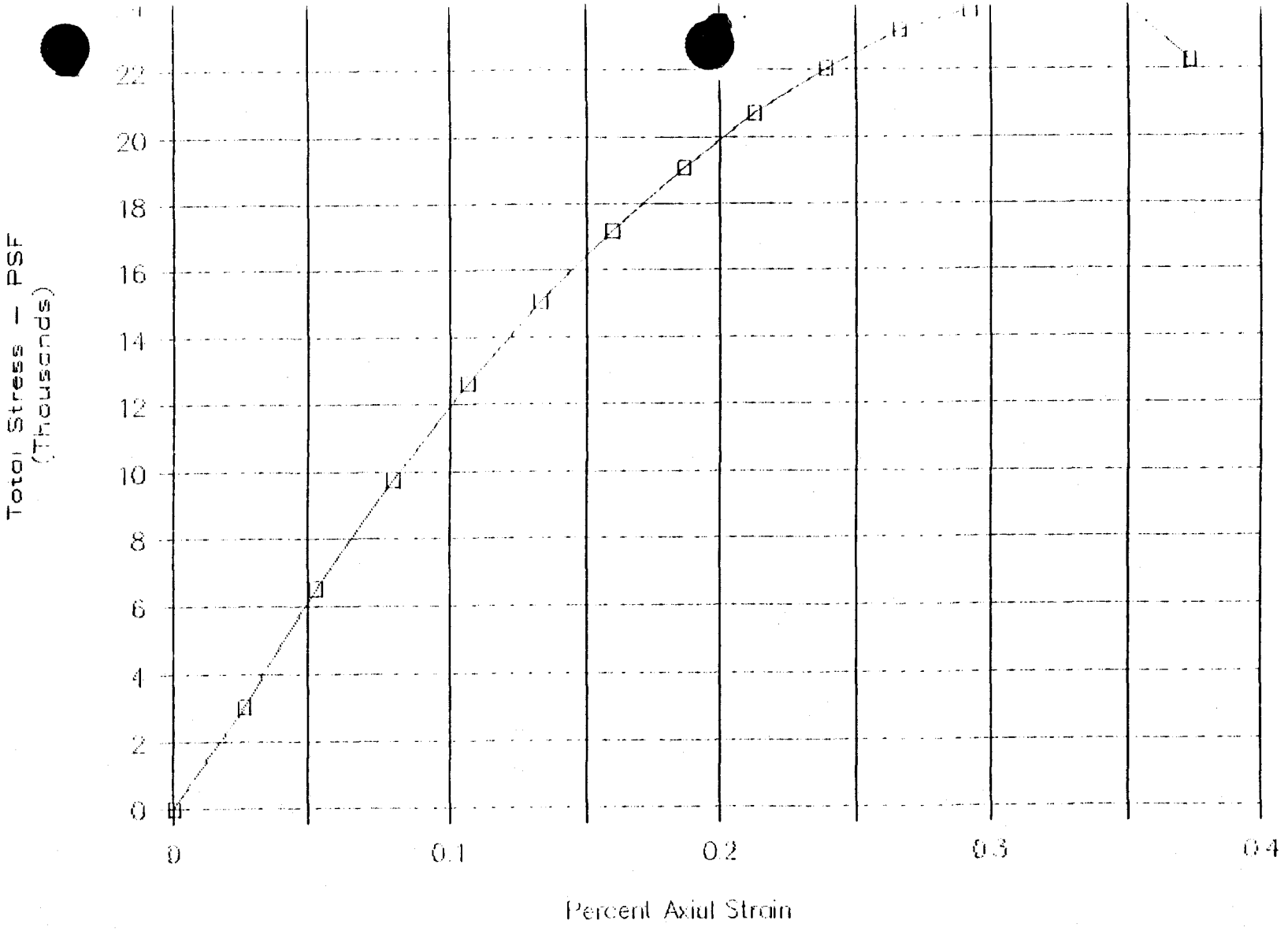
Weston

JOB NO. 2066-01

	B303890265277	SAMPLED	--
	26.5-27.7'	TEST STARTED	09-12-90 DCW
	EG&G	TEST FINISHED	09-12-90
	Rocky Flats	SETUP NO.	1
	UCS	SATURATED TEST	No
PSF	0	AT FIELD MOIST.	Yes

(in)	3.757	Init. Area (sq in)	2.416
(in)	3.757	Consol. Area (sq in)	2.416
PSI	0.0	Strain Rate (in/min)	0.040

1	Delta Ht. In.	Axial % Strain	Area Final Sq In.	Dev. Stress PSF	Pore Pres. PSI	Delta Pres. PSF	Sigma 3 PSF	Sigma 1 PSF	Prin. Stress Ratio
0	0.00	0.00	2.416	0	0.00	0.0	0	0	0.00
9	0.00	0.03	2.417	3039	0.00	0.0	0	3039	
6	.00	0.05	2.418	6522	0.00	0.0	0	6522	
4	.00	0.08	2.418	9766	0.00	0.0	0	9766	
4	0.00	0.11	2.419	12621	0.00	0.0	0	12621	
7	0.01	0.13	2.420	15087	0.00	0.0	0	15087	
3	0.01	0.16	2.420	17196	0.00	0.0	0	17196	
0	0.01	0.19	2.421	19095	0.00	0.0	0	19095	
9	0.01	0.21	2.421	20725	0.00	0.0	0	20725	
0	0.01	0.24	2.422	22057	0.00	0.0	0	22057	
2	0.01	0.27	2.423	23180	0.00	0.0	0	23180	
8	0.01	0.29	2.423	23768	0.00	0.0	0	23768	
4	0.01	0.32	2.424	24416	0.00	0.0	0	24416	
5	0.01	0.35	2.425	24171	0.00	0.0	0	24171	
8	0.01	0.37	2.425	22265	0.00	0.0	0	22265	


Total Stress - PSF
(Thousands)
0
2
4
6
8
10
12
14
16
18
20
22
0
0.1
0.2
0.3
0.4
Percent Axial Strain