

[Data]. Part II

[Green Bay, Wisconsin]: [Soil Testing Services of Wisconsin], [s.d.]

<https://digital.library.wisc.edu/1711.dl/74X2CRTZOFOUN8B>

<http://rightsstatements.org/vocab/InC/1.0/>

For information on re-use see:

<http://digital.library.wisc.edu/1711.dl/Copyright>

The libraries provide public access to a wide range of material, including online exhibits, digitized collections, archival finding aids, our catalog, online articles, and a growing range of materials in many media.

When possible, we provide rights information in catalog records, finding aids, and other metadata that accompanies collections or items. However, it is always the user's obligation to evaluate copyright and rights issues in light of their own use.

SOIL REPORT
PART II
PROPOSED FLAMBEAU PROJECT
LADYSMITH, WISCONSIN

SOIL TESTING SERVICES, OF WISCONSIN INC.

TD
194.66
.W62
F55
1972
v.2

Consulting Soil and Foundation Engineers

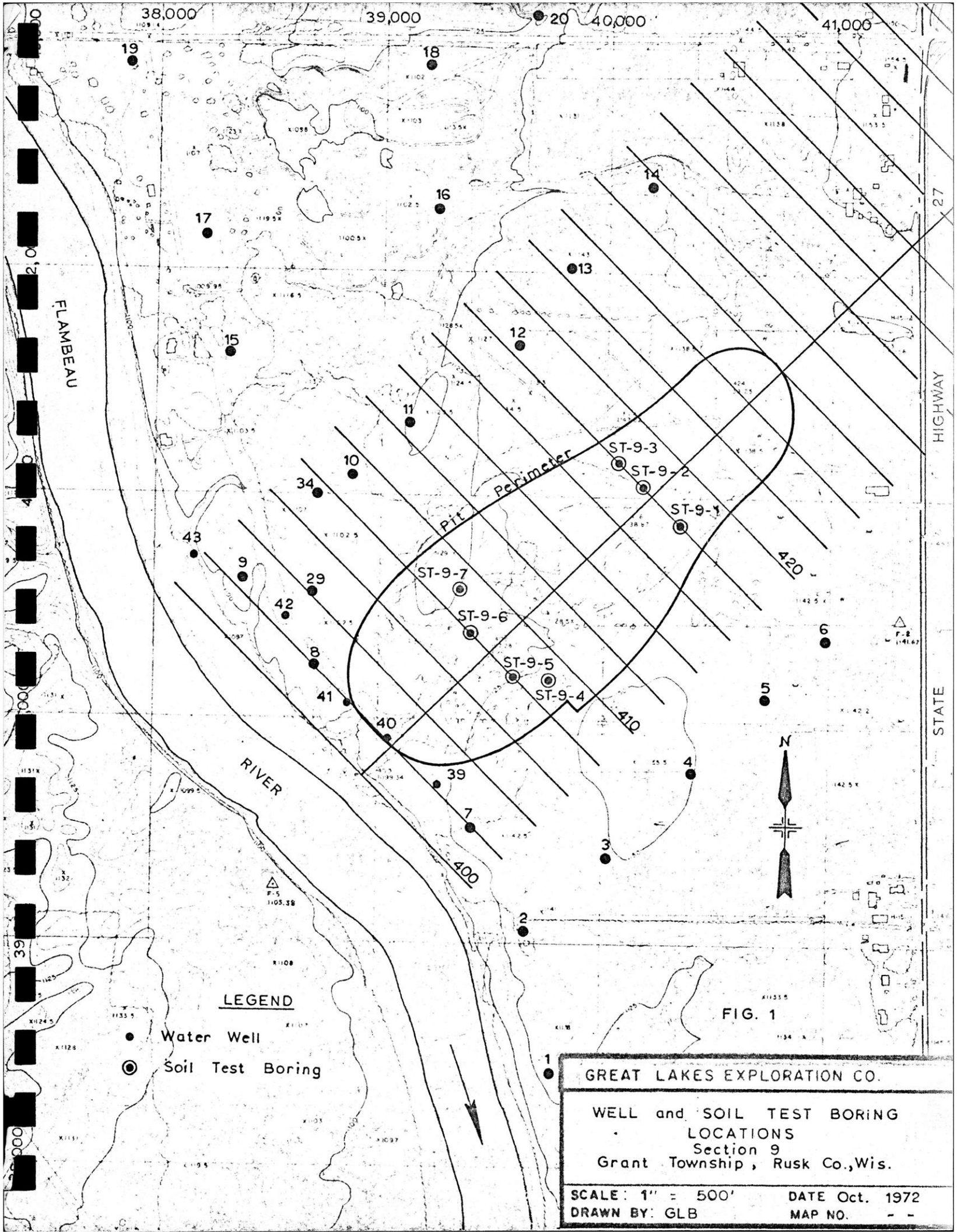
TD
194.66
W6.2
F55
1972
v. 2

UNIVERSITY LIBRARY
UW-STEVENS POINT

SOIL REPORT
PART II
PROPOSED FLAMBEAU PROJECT
LADYSMITH, WISCONSIN

TABLE OF CONTENTS

Figure 1, Location Plan, Mine Area	Page 1
Figure 2, Location Plan, Solid Waste Disposal Area	2
Figure 3, Location Plan, Waste Haul Road	3
Borings ST9-1 through ST9-7 (Mine Area)	4 through 10
Borings ST9-12 through ST9-13 (Plant Area)	11 and 12
Borings ST16-1 through ST16-11, ST9-8 through ST9-11, and ST21-60 (Waste Haul Road)	13 through 28
Borings ST21-9 through ST21-67 (Solid Waste Disposal Area)	29 through 87
Laboratory Permeability Tests, Undisturbed Samples from Solid Waste Disposal Area	88 through 105
Laboratory Permeability Tests, Compacted Samples of soils from Mine Area	106 through 113
Laboratory Permeability Tests of Tailings	114 and 115
Laboratory Moisture - Density Relationship Tests (Proctor tests) of soils from Mine Area	116 through 123
CBR Tests of Compacted Samples from Mine Area	124 and 125
Consolidation Test - Boring ST 15A, Sample 3, 4'-6	126
Triaxial Test-Consolidated Undrained Boring ST9-7, 44' to 56' and ST9-1, 52.5' to 58'	127 through 130
Grain Size Distribution Curves - Soils from Mine Area	131 and 132
Grain Size Distribution Curves - Soils from Solid Waste Disposal Area	133 through 153

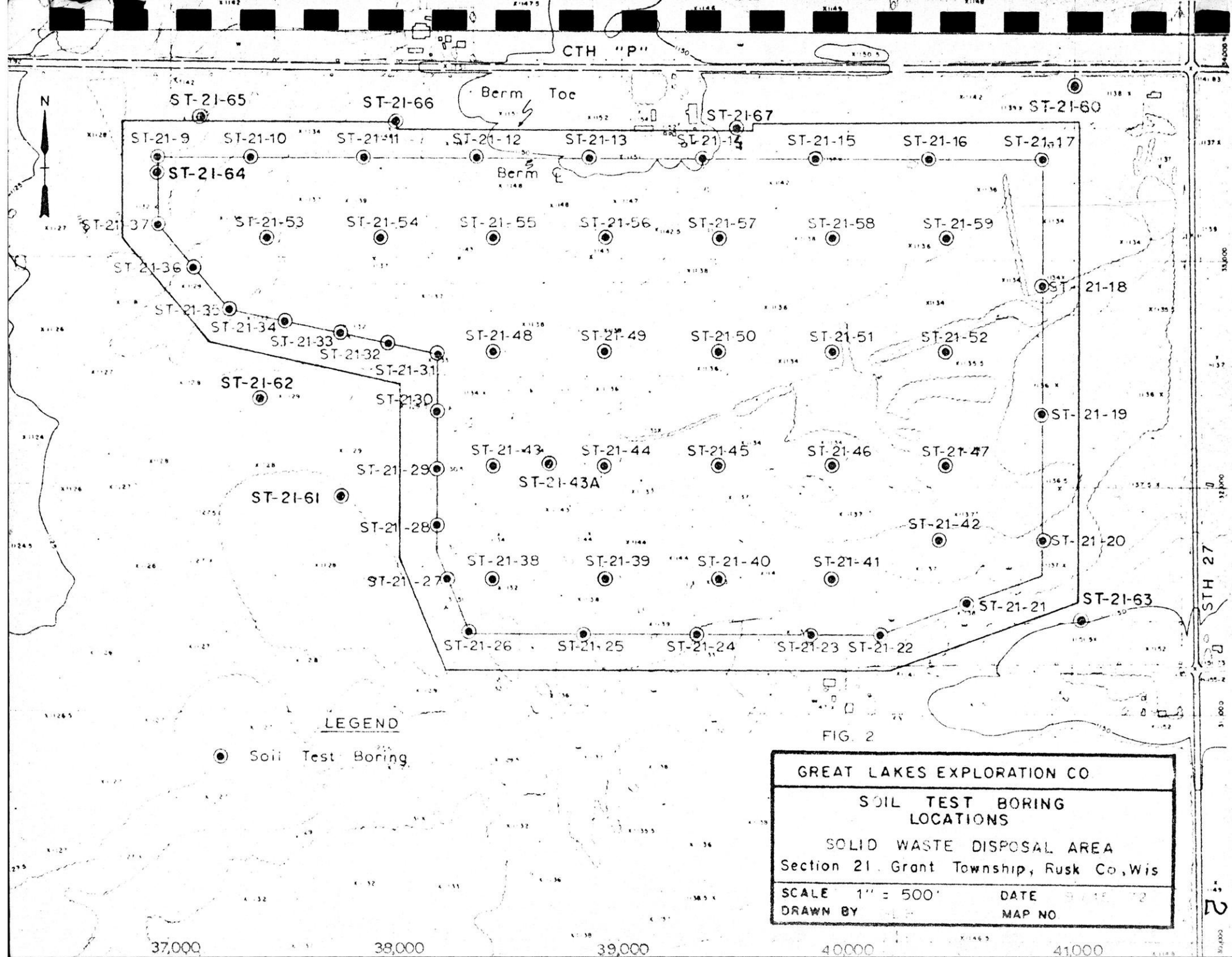


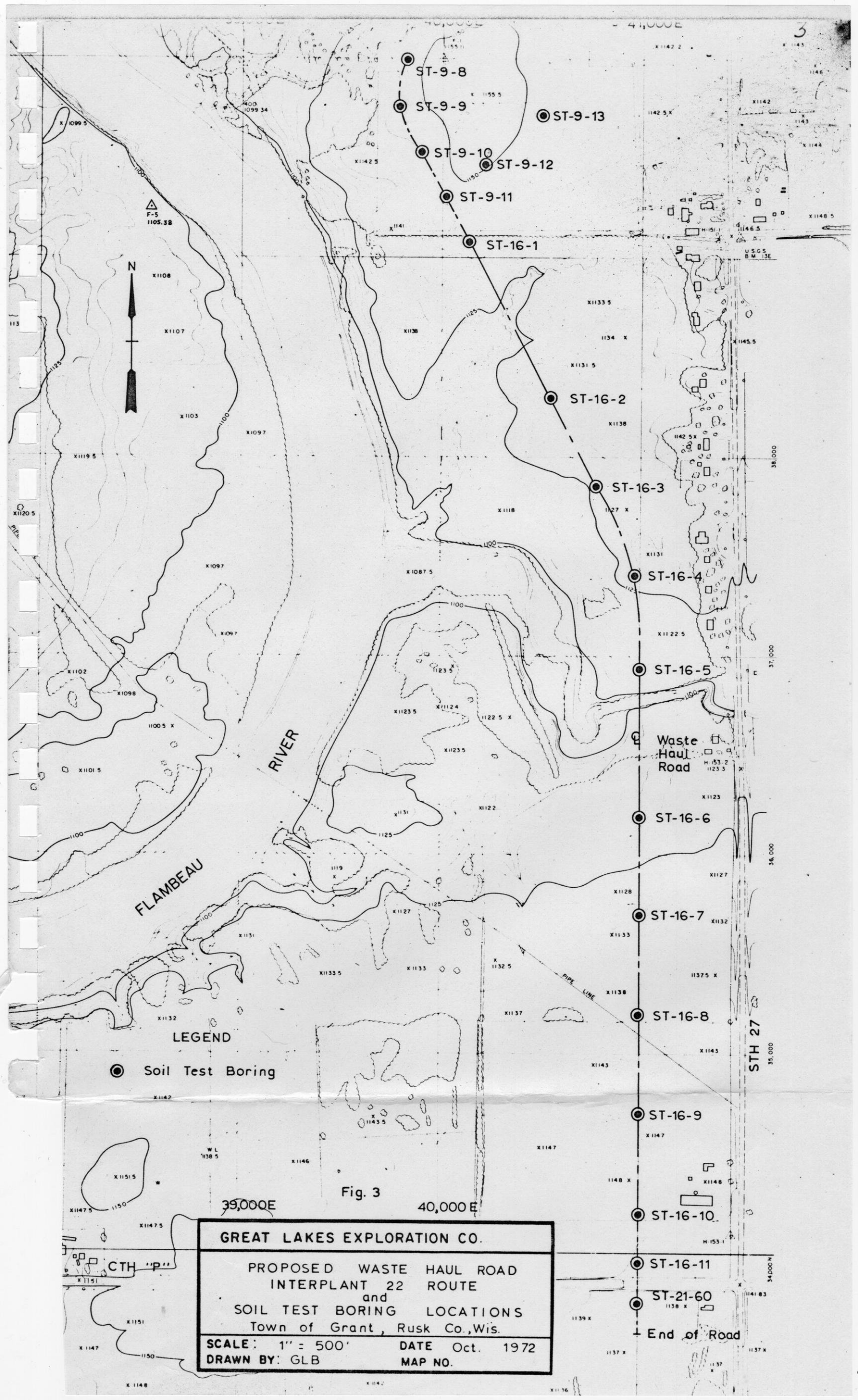
LEGEND

- Water Well
- ⊙ Soil Test Boring

FIG. 1

GREAT LAKES EXPLORATION CO.	
WELL and SOIL TEST BORING LOCATIONS Section 9 Grant Township, Rusk Co., Wis.	
SCALE: 1" = 500'	DATE Oct. 1972
DRAWN BY: GLB	MAP NO. - -





GENERAL NOTES

1950 Chicago Building Code Soil Classifications are Used Except Where Noted

DRILLING & SAMPLING SYMBOLS

SS : Split-Spoon — 1½" I.D., 2" O.D., except where noted
ST : Shelby Tube — 2" O.D., except where noted
PA : Power Auger Sample
DB : Diamond Bit — NX: BX: AX:
CB : Carboley Bit — NX: BX: AX:
OS : Osterberg Sampler — 3" Shelby Tube
HS : Housel Sampler
WS : Wash Sample
FT : Fish Tail
RB : Rock Bit
WO : Wash Out

Standard "N" Penetration: Blows per foot of a 140 pound hammer falling 30 inches on a 2 inch OD split spoon, except where noted.

WATER LEVEL MEASUREMENT SYMBOLS

WL : Water Level
WCI : Wet Cave In
DCI : Dry Cave In
WS : While Sampling
WD : While Drilling
BCR : Before Casing Removal
ACR : After Casing Removal
AB : After Boring

Water levels indicated on the boring logs are the levels measured in the boring at the times indicated. In pervious soils, the indicated elevations are considered reliable ground water levels. In impervious soils, the accurate determination of ground water elevations is not possible in even several days observation, and additional evidence on ground water elevations must be sought.

CLASSIFICATION

COHESIONLESS SOILS

"Trace"	:	1% to 10%	
"Trace to some"	:	10% to 20%	
"Some"	:	20% to 35%	
"And"	:	35% to 50%	
Loose	:	0 to 9 Blows	} or equivalent
Medium Dense	:	10 to 29 Blows	
Dense	:	30 to 59 Blows	
Very Dense	:	≥ 60 Blows	

COHESIVE SOILS

If clay content is sufficient so that clay dominates soil properties, then clay becomes the principle noun with the other major soil constituent as modifier; i.e., silty clay. Other minor soil constituents may be added according to classification breakdown for cohesionless soils; i.e., silty clay, trace to some sand, trace gravel.

Soft	:	0.00 — 0.59 tons/ft ²
Stiff	:	0.60 — 0.99 tons/ft ²
Tough	:	1.00 — 1.99 tons/ft ²
Very tough	:	2.00 — 3.99 tons/ft ²
Hard	:	≥ 4.00 tons/ft ²

GENERAL NOTES

STS

SOIL TESTING SERVICES OF WISCONSIN, INC.

LOG OF BORING NO. ST 9-1

OWNER Great Lakes Exploration Company				ARCHITECT-ENGINEER					
SITE Ladysmith, Wisconsin				PROJECT NAME Proposed Copper Mine Development					
DEPTH ELEVATION	SAMPLE NO.	TYPE SAMPLE	RECOVERY	DESCRIPTION OF MATERIAL	UNIT DRY WT. LB./FT. 3	UNCONFINED COMPRESSIVE STRENGTH TONS/FT. 2			
						1 PLASTIC LIMIT %	2 WATER CONTENT %	3 LIQUID LIMIT %	4 STANDARD "N" PENETRATION (BLOWS/FT.)
				SURFACE ELEVATION 1137.5					
	1	SS		Dark brown willy and sandy top soil (OL)					
	1A	SS		Silty fine sand-trace gravel-brown (SM)					
	2	SS		Silty fine medium sand-trace to some gravel-brown (SM)					
10	3	SS		Fine coarse sand-some fine coarse subangular gravel-trace silt-brown (SW)					
	4	SS		Silty fine sand-trace to some gravel-brown-slightly cemented (SM)					
20	5	SS		Fine-medium sand-some fine coarse gravel-trace silt and coarse sand-brown (SW)					
	6	SS							
30	7	RB							
40	8	RB		Poorly cemented sandstone					
	9	SS		Saprolite-gray to rusty brown to orangish brown-silt-trace clay and angular rock fragments (ML)					
	10	SS							
	11	SS							
60	12	SS							
	13	SS							
	14	SS							
	15	SS		Saprolite-reddish brown trace light brown-hit darker purple at 65'-silt trace clay and angular rock fragments-more rock fragments starting at 67.5'					
70	16	SS							
	17	SS							
	18	SS							
77.7	19	SS		End of Boring 50' of 4" Casing 30' of 5" Casing					

WATER LEVEL OBSERVATIONS

W.L.	45	W.A. ON W.D.
W.L.	16.2' B.G.R.	17' A.G.R.
W.L.		

SOIL TESTING SERVICES

OF WIS. INC.
GREEN BAY, WISCONSIN
540 LAMBEAU STREET

BORING STARTED 2 13 72

BORING COMPLETED 9 14 72

REG. 1000

DRAWN 4H

JOB # 4970

APPROVED W.P.

SHEET

LOG OF BORING NO. ST 9-2

OWNER Great Lakes Exploration Company					ARCHITECT-ENGINEER				
SITE Ladysmith, Wisconsin					PROJECT NAME Proposed Copper Mine Development				
DEPTH ELEVATION	SAMPLE NO.	TYPE SAMPLE	RECOVERY	DESCRIPTION OF MATERIAL	UNIT DRY WT. LBS./FT. 3	UNCONFINED COMPRESSIVE STRENGTH TONS/FT. 2			
						1 PLASTIC LIMIT %	2 WATER CONTENT %	3 LIQUID LIMIT %	
						STANDARD "N" PENETRATION (BLOWS/FT.)			
						10	20	30	40
				SURFACE ELEVATION 1135.5					
	1	SS		Dark brown silty and sandy topsoil (DL)					
	2	SS		Fine coarse sand-some fine medium gravel-trace silt- medium dark brown (SW)					
10	3	SS		Silty fine sand-trace to some fine-coarse gravel-brown (SM)					
	4	SS		Fine sand-trace to some silt- trace gravel-brown (SP-SM)					
20	5	SS							
	6	SS		Fine sand-trace silt-brown- moist to wet (SP)					
30	7	SS							
	8	SS		Fine sand-trace to some silt- brown (SM)					
40	9	SS		Silty very fine sand-brown (SM)					
	10	SS							
50	11	WS		Fine coarse sand-some fine medium gravel-trace silt- dark brown to rusty brown- wet (SW)					
	12	WS							
60	13	WS							
	14	SS							
70	15	SS		Saprolite-gray and white with rusty brown streaks only to 66'-talcy feel-silt with fine coarse angular rock fragments rock fragments platy at 75'					
	16	SS							
	17	SS							
	18	PS							
79	19	DB		Gray and white highly weath- ered schist					
				End of Boring					
				65' of 5" Casing					

WATER LEVEL OBSERVATIONS

W.L. 4' W.T. DRWD

W.L. B.G.R. 35' A.G.R.

W.L.

SOIL TESTING SERVICES

OF WIS. INC.

GREEN BAY, WISCONSIN

540 LAMBLAU STREET

BORING STARTED 11/15/71

BORING COMPLETED 11/26/71

DRAWN BY W.L.

JOB # 6070

APPROVED W.L.

SHEET

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

LOG OF BORING NO. ST 9 - 3

OWNER Great Lakes Exploration Company					ARCHITECT-ENGINEER					
SITE Ladysmith, Wisconsin					PROJECT NAME Proposed Copper Mine Development					
DEPTH ELEVATION	SAMPLE NO.	TYPE SAMPLE	SAMPLE DIST. RECOVERY	DESCRIPTION OF MATERIAL	UNIT WT. LB./FT. ³	UNCONFINED COMPRESSIVE STRENGTH TONS/FT. ²				
						1	2	3	4	5
						PLASTIC LIMIT % WATER CONTENT % LIQUID LIMIT % STANDARD "N" PENETRATION (BLOWS/FT.)				
						10	20	30	40	50
1	1	SS		Surface Elevation 1136.5 Dark brown sandy topsoil (CL)						
2	2	SS		Fine sand and silt-brown (SM-ML)						
3	3	SS								
4	4	SS								
5	5	SS		Silty fine-medium sand-trace to some fine coarse gravel-trace clay-brown-trace rusty brown to 16' - dense slightly cemented (SM)						
6	6	SS								
7	7	SS								
8	8	SS		Fine-coarse sand-some fine-coarse gravel-trace silt-rusty brown to brown (SW) 1 1/2" very fine sandy silt seams @ 36'						
9	9	SS								
10	10	SS		Silty fine-medium sand-trace to some gravel-reddish brown-dense-slightly cemented (SM)						
11	11	SS								
12	12	SS		Poorly cemented light brown sandstone						
13	13	SS		Saprolite-rusty brown-trace orange brown and brown silty fine-coarse angular sand and fragments (SAPROLITE)						
14	14	SS		Saprolite-gray and white-trace orange brown-talcyl feel-silt with fine-coarse angular rock fragments						
15	15	SS								
16	16	SS		Saprolite-orange brown-trace light brown silt with angular rock fragments						
17	17	SS								
18	18	SS		Saprolite-gray and white-trace orange brown-talcyl feel-silt with angular rock fragments						
19	19	SS								
20	20	SS								
21	21	SS								
22	22	SS								
23	23	SS								
24	24	SS								
25	25	SS								
26	26	SS								
27	27	SS								
28	28	SS								
29	29	SS								
30	30	SS								
31	31	SS								
32	32	SS								
33	33	SS								
34	34	SS								
35	35	SS								
36	36	SS								
37	37	SS								
38	38	SS								
39	39	SS								
40	40	SS								
41	41	SS								
42	42	SS								
43	43	SS								
44	44	SS								
45	45	SS								
46	46	SS								
47	47	SS								
48	48	SS								
49	49	SS								
50	50	SS								
51	51	SS								
52	52	SS								
53	53	SS								
54	54	SS								
55	55	SS								
56	56	SS								
57	57	SS								
58	58	SS								
59	59	SS								
60	60	SS								
61	61	SS								
62	62	SS								
63	63	SS								
64	64	SS								
65	65	SS								
66	66	SS								
67	67	SS								
68	68	SS								
69	69	SS								
70	70	SS								
71	71	SS								
72	72	SS								
73	73	SS								
74	74	SS								
75	75	SS								
76	76	SS								
77	77	SS								
78	78	SS								
79	79	SS								
80	80	SS								
81	81	SS								
82	82	SS								
83	83	SS								
84	84	SS								
85	85	SS								
86	86	SS								
87	87	SS								
88	88	SS								
89	89	SS								
90	90	SS								
91	91	SS								
92	92	SS								
93	93	SS								
94	94	SS								
95	95	SS								
96	96	SS								
97	97	SS								
98	98	SS								
99	99	SS								
100	100	SS								
101	101	SS								
102	102	SS								
103	103	SS								
104	104	SS								
105	105	SS								
106	106	SS								
107	107	SS								
108	108	SS								
109	109	SS								
110	110	SS								
111	111	SS								
112	112	SS								
113	113	SS								
114	114	SS								
115	115	SS								
116	116	SS								
117	117	SS								
118	118	SS								
119	119	SS								
120	120	SS								
121	121	SS								
122	122	SS								
123	123	SS								
124	124	SS								
125	125	SS								
126	126	SS								
127	127	SS								
128	128	SS								
129	129	SS								
130	130	SS								
131	131	SS								
132	132	SS								
133	133	SS								
134	134	SS								
135	135	SS								
136	136	SS								
137	137	SS								
138	138	SS								
139	139	SS								
140	140	SS								
141	141	SS								
142	142	SS								
143	143	SS								
144	144	SS								
145	145	SS								
146	146	SS								
147	147	SS								
148	148	SS								
149	149	SS								
150	150	SS								
151	151	SS								
152	152	SS								
153	153	SS								
154	154	SS								
155	155	SS								
156	156	SS								
157	157	SS								
158	158	SS								
159	159	SS								
160	160	SS								
161	161	SS								
162	162	SS								
163	163	SS								
164	164	SS								
165	165	SS								

LOG OF BORING NO. ST 9-4

OWNER Great Lakes Exploration Company				ARCHITECT-ENGINEER					
SITE Ladysmith, Wisconsin				PROJECT NAME Proposed Copper Mine Development					
DEPTH ELEVATION	SAMPLE NO.	TYPE SAMPLE	RECOVERY	DESCRIPTION OF MATERIAL	UNIT WEIGHT LB./FT. ³	UNCONFINED COMPRESSIVE STRENGTH TONS/FT. ²			
						PLASTIC LIMIT %	WATER CONTENT %	LIQUID LIMIT %	STANDARD "N" PENETRATION (BLOWS/FT.)
				SURFACE ELEVATION → 1126.1					
	1	SS		Dark brown sandy topsoil (OL)					
	2	SS		Silty fine sand-brown-wet (SM)					
	3	SS		Fine coarse sand-trace gravel and cobbles-brown (SW)					
	4	SS		Silty fine medium sand-trace to some gravel-slightly reddish brown-slightly cemented hardpan-very dense (SM)					
	5	SS							
	6	SS		Fine medium sand-trace gravel and silt-brown and yellowish brown (SP)					
	7	SS							
	8	RB		Saprolite-greenish gray-silt-trace clay and angular rock fragments (ML)					
	9	SS							
	10	SS							
	11	SS		Saprolite-gray to dark gray and light brown-silt-trace to some angular sand and rock fragments (ML)					
				hard drilling from 42.5 to 45'					
				End of Boring					
				30' of 4" Casing					

WATER LEVEL OBSERVATIONS

W.L. 5'-6"	W.S. ON B.O.
W.L. 7' B.G.R.	A.G.R.
W.L. WET CAVE IN B.S. A.G.R.	

SOIL TESTING SERVICES

OF WIS. INC.

GREEN BAY, WISCONSIN

540 LAMBEAU STREET

BORING STARTED	9-21-72
BORING COMPLETED	9-21-72
BY W. J. S.	FOREMAN R.R.
DRAWN	APPROVED W.J.S.
JOB # 4970	SHIFT

LOG OF BORING NO. ST 9 - 5

OWNER Great Lakes Exploration Company				ARCHITECT-ENGINEER	
SITE Ladysmith, Wisconsin				PROJECT NAME Proposed Copper Mine Development	
DEPTH ELEVATION	SAMPLE NO.	TYPE SAMPLE SAMPLE D.S.T. RECOVERY	DESCRIPTION OF MATERIAL	UNIT DRY WT. LB./FT.	UNCONFINED COMPRESSIVE STRENGTH TONS/FT.²
					PLASTIC LIMIT % WATER CONTENT % LIQUID LIMIT % STANDARD "N" PENETRATION (BLOWS/FT.)
			SURFACE ELEVATION 1124.1		
1	SS		Black sandy topsoil (OL)		
2	SS		Silty fine-medium sand-trace gravel and clay-brown (SH)		
3	SS		Silty fine-medium sand-trace to some gravel-brown-dense-slightly cemented (SM)		
4	SS				
5	SS				
6	SS		Poorly cemented sandstone		
7	CS		Saprolite-brown and gray to grayish brown-silt with angular rock fragments		
8	CS				
9	CS				
10	CS		Saprolite-gray-talcu feel-silt with angular rock fragments		
11	CS				
12	CS				
13	CS		Saprolite-brown and gray-silt with angular rock fragments		
14	CS				
15	CS				
16	CS				
17	CS				
18	CS				
19	CS				
20	CS				
21	CS				
22	CS				
23	CS				
24	CS				
25	CS				
26	CS				
27	CS				
28	CS				
29	CS				
30	CS				
31	CS				
32	CS				
33	CS				
34	CS				
35	CS				
36	CS				
37	CS				
38	CS				
39	CS				
40	CS				
41	CS				
42	CS				
43	CS				
44	CS				
45	CS				
46	CS				
47	CS				
48	CS				
49	CS				
50	CS				
51	CS				
52	CS				
53	CS				
54	CS				
55	CS				
56	CS				
57	CS				
58	CS				
59	CS				
60	CS				
61	CS				
62	CS				
63	CS				
64	CS				
65	CS				
66	CS				
67	CS				
68	CS				
69	CS				
70	CS				
71	CS				
72	CS				
73	CS				
74	CS				
75	CS				
76	CS				
77	CS				
78	CS				
79	CS				
80	CS				
81	CS				
82	CS				
83	CS				
84	CS				
85	CS				
86	CS				
87	CS				
88	CS				
89	CS				
90	CS				
91	CS				
92	CS				
93	CS				
94	CS				
95	CS				
96	CS				
97	CS				
98	CS				
99	CS				
100	CS				
101	CS				
102	CS				
103	CS				
104	CS				
105	CS				
106	CS				
107	CS				
108	CS				
109	CS				
110	CS				
111	CS				
112	CS				
113	CS				
114	CS				
115	CS				
116	CS				
117	CS				
118	CS				
119	CS				
120	CS				
121	CS				
122	CS				
123	CS				
124	CS				
125	CS				
126	CS				
127	CS				
128	CS				
129	CS				
130	CS				
131	CS				
132	CS				
133	CS				
134	CS				
135	CS				
136	CS				
137	CS				
138	CS				
139	CS				
140	CS				
141	CS				
142	CS				
143	CS				
144	CS				
145	CS				
146	CS				
147	CS				
148	CS				
149	CS				
150	CS				
151	CS				
152	CS				
153	CS				
154	CS				
155	CS				
156	CS				
157	CS				
158	CS				
159	CS				
160	CS				
161	CS				
162	CS				
163	CS				
164	CS				
165	CS				
166	CS				
167	CS				
168	CS				
169	CS				
170	CS				
171	CS				
172	CS				
173	CS				
174	CS				
175	CS				
176	CS				
177	CS				
178	CS				
179	CS				
180	CS				
181	CS				
182	CS				
183	CS				
184	CS				
185	CS				
186	CS				
187	CS				
188	CS				
189	CS				
190	CS				
191	CS				
192	CS				
193	CS				
194	CS				
195	CS				
196	CS				
197	CS				
198	CS				
199	CS				
200	CS				
201	CS				
202	CS				
203	CS				
204	CS				
205	CS				
206	CS				
207	CS				
208	CS				
209	CS				
210	CS				
211	CS				
212	CS				
213	CS				
214	CS				
215	CS				
216	CS				
217	CS				
218	CS				
219	CS				
220	CS				
221	CS				
222	CS				
223	CS				
224	CS				
225	CS				
226	CS				
227	CS				
228	CS				
229	CS				
230	CS				
231	CS				
232	CS				
233	CS				
234	CS				
235	CS				
236	CS				
237	CS				
238	CS				
239	CS				
240	CS				
241	CS				
242	CS				
243	CS				
244	CS				
245	CS				
246	CS				
247	CS				
248	CS				
249	CS				
250	CS				
251	CS				
252	CS				
253	CS				
254	CS				
255	CS				
256	CS				
257	CS				
258	CS				
259	CS				
260	CS				
261	CS				
262	CS				
263	CS				
264	CS				
265	CS				
266	CS				
267	CS				
268	CS				
269	CS				
270	CS				
271	CS				
272	CS				
273	CS				
274	CS				
275	CS				
276	CS				
277	CS				
278	CS				
279	CS			</	

LOG OF BORING NO. ST 9-6

OWNER Great Lakes Exploration Company				ARCHITECT-ENGINEER						
SITE Ladysmith, Wisconsin				PROJECT NAME Proposed Copper Mine Development						
DEPTH ELEVATION	SAMPLE NO.	TYPE SAMPLE	RECOVERY	DESCRIPTION OF MATERIAL	UNIT DRY WT. LBS./FT. ³	UNCONFINED COMPRESSIVE STRENGTH TONS/FT. ²				
						1 PLASTIC LIMIT %	2 WATER CONTENT %	3 STANDARD "N" PENETRATION (BLOWS/FT.)	4 LIQUID LIMIT %	
				SURFACE ELEVATION 1113.6		10	20	30	40	50
1	SS			Silty fine sand-dark rusty brown-wet (SM)						
5	2	WS		Fine coarse sand-some fine medium gravel-trace silt-brown-wet (SW)						30 1/2"
10	3	WS		Fine medium sand-trace silt-brown (SP)						50 1/2"
15	4	SS								
20	5	WS		White and light brown poorly cemented sandstone						66
25										
30	6	SS		Saprolite-orange brown trace light brown and dark gray fine sand and silt-some angular rock fragments						
30	7	SS		Saprolite-reddish brown with white seams-clayey silt some platy rock fragments and sandstone pieces		19.9% X		26.2% Δ		
35	8	DB		Harder rock-dark purple with yellow brown schist						
35	9	SS		Saprolite-reddish brown trace light brown clayey silt some fine coarse angular rock fragments (CL-GC)		15.6% X		19.1% Δ		
40	10	DB		Dark purple, trace yellow brown and brown highly weathered schist-platy structure near vertical						100
				End of Boring						
				30' of 5" Casing						7 1/2"

WATER LEVEL OBSERVATIONS

W.L.	W.S. OR W.D.
W.L. 2' B.C.R.	1' A.C.R.
W.L.	

SOIL TESTING SERVICES

OF WIS., INC.
GREEN BAY, WISCONSIN
540 LAMBEAU STREET

BORING STARTED 10-2-72

BORING COMPLETED 10-4-72

RIG W 10

DRAWN J.M.

JOB # 4770

FOREMAN R.B.

APPROVED W.M.

SHEET

OWNER				ARCHITECT-ENGINEER			
Green Lakes Exploration Company							
SITE				PROJECT NAME			
Ladysmith, Wisconsin				Proposed Copper Mine Development			
DEPTH	ELEVATION	SAMPLE NO.	TYPE SAMPLE	DESCRIPTION OF MATERIAL	UNIT DRY WT. LBS./FT. 3	UNCONFINED COMPRESSIVE STRENGTH TONS/FT. 2	
						PLASTIC LIMIT %	WATER CONTENT %
							LIQUID LIMIT %
						STANDARD "N" PENETRATION (BLOWS/FT.)	
						10	20
						30	40
						50	
0		SS		SURFACE ELEVATION 1117.1			
		1A SS		Black sandy topsoil (UL)			
				Silty fine sand-brown (SM)			
5		2 SS		Fine medium sand-trace to some gravel and silt-brown (SM)			
10		3 SS					
		3A SS					
15		4 SS		Fine coarse sand-trace to some fine medium gravel-trace silt-brown-wet (SW)			
20		5 SS					
25		6 SS		Fine coarse sand and fine coarse subangular gravel-trace silt-brown (SW-GW)			
30		7 SS					
35		8 RB		Light brown poorly cemented sandstone			
40		9 SS					
		10 SS		Saprolite-white to greenish gray and pink-clayey silt-trace angular rock fragments (CL-ML)			
45		11 SS					
		11A SS					
		12 RB					
		12A SS					
		12B SS					
		13 RB					
		14 SS					
		15 SS		Saprolite-light reddish brown to reddish brown-silty clay-trace sand and angular rock fragments (CH)			
50		16 RB					
		17 SS					
		18 SS					
		19 ST					
55		20 3" Ube					
56				End of Boring 49' of 4" Casing	104		

WATER LEVEL OBSERVATIONS			
W.L.	W.S. OR W.D.		
W.L. 35'	B.C.R.	8'	A.C.R.
W.L.			

SOIL TESTING SERVICES
OF WIS., INC.
ROUTE NO. 7—BAETEN ROAD
GREEN BAY, WISCONSIN

BORING STARTED	9-22-72
BORING COMPLETED	9-22-72
RIS	W-15
DRAWN	FORNAN RR
APPROVED	UMP
JOB #	4970
SHEET	

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

OWNER Great Lakes Exploration Company					ARCHITECT-ENGINEER				
SITE Ladysmith, Wisconsin					PROJECT NAME Proposed Copper Mine Development				
DEPTH ELEVATION	SAMPLE NO.	TYPE SAMPLE	SAMPLE DIST.	RECOVERY	DESCRIPTION OF MATERIAL	UNIT DRY WT. LBS./FT. 3	UNCONFINED COMPRESSIVE STRENGTH TONS/FT. 2		
							1 PLASTIC LIMIT %	2 WATER CONTENT %	3 LIQUID LIMIT %
							STANDARD "N" PENETRATION (BLOWS/FT.)		
							10	20	30
1	1A	ST			SURFACE ELEVATION → Dark brown silty and sandy topsoil (CL)	84			
2	2	ST			Silt and very fine sand brown to rusty brown (SM)	125			
3	3	SS			Silty and clayey fine sand brown (SC)				
4	4	SS							
10	5	SS			Fine-medium sand-trace gravel and silt-brown-dense-moist to wet (SP)				
	6	SS			Fine sand-trace to some silt-brown-dense (SM)				
20	7	SS							
	8	SS			Silty and sandy clay-trace gravel-brown trace gray and rusty brown-hard (CL)				
30	9	ST				120			
	10A	ST			Silty clay-mottled dark brown and light brown-hard (CL)				
	10A	ST			Silty and clayey sand-trace gravel-dark-rusty brown (SC)	114			
40	11	SS			Silty and sandy clay-trace gravel-brown (CL)	116			
	12	SS							
50	13	SS			Silty and clayey sand-trace gravel-brown-very dense (SC)				
	14	SS							
56.5	15	SS			Poorly cemented sandstone				
					Saprolite-white and gray with reddish brown streaks-silt with angular rock fragments-talcy feel (ML)				
End of Boring 20' NX Casing						*Calibrated Penetrometer			

WATER LEVEL OBSERVATIONS			
W.L.	4'-5.5'	W.S. OR XXX	
W.L.	15'	B.C.R.	7' A.C.R.
W.L.			

SOIL TESTING SERVICES
OF WIS., INC.
ROUTE NO. 7—BAETEN ROAD
GREEN BAY, WISCONSIN

BORING STARTED	10-5-72
BORING COMPLETED	10-5-72
RIG	W-15
FOREMAN	RR
DRAWN	RM
APPROVED	WMP
JOB #	4970
SHEET	

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

OWNER Great Lakes Exploration Company					ARCHITECT-ENGINEER					
SITE Ladysmith, Wisconsin					PROJECT NAME Proposed Copper Mine Development					
DEPTH ELEVATION	SAMPLE NO.	TYPE SAMPLE	SAMPLE DIST. RECOVERY	DESCRIPTION OF MATERIAL	UNIT DRY WT. LBS./FT. 3	UNCONFINED COMPRESSIVE STRENGTH TONS/FT. 2				
						1 PLASTIC LIMIT % X 2 WATER CONTENT % ● 3 LIQUID LIMIT % △				
						STANDARD "N" PENETRATION (BLOWS/FT.)				
						10	20	30	40	50
	1	SS		Dark brown silty and sandy topsoil (OL)						
	2	SS		Silty very fine sand-brown trace rusty brown (SM-ML)						
	3	SS		Silty fine sand-trace gravel-brown-wet (SM)						
	4	SS								
10	5	SS		Fine-coarse sand-trace to some gravel-trace silt-brown (SW)						
	6	SS								
20	7	SS		Clayey sand-trace gravel-brown-dense (SC)						
	8	SS		Silty and sandy clay-trace gravel-brown (CL)						
30	9	ST		Silty clay-trace sand and gravel-gray to rusty brown-very tough (CL)	107					
	10	ST		Silty fine-coarse sand-trace clay and rock fragments rusty brown (SC)						
40	11	SS		Silty fine-medium sand-trace gravel-rusty brown (SM)						
	12	SS		Silty very fine sand-brown and gray-very dense (SM)						
50	13	SS		Fine-medium sand-trace to some fine medium gravel-trace silt-brown-wet-dense (SP)						
	14	SS		Fine-coarse sand-some fine coarse gravel-trace silt-grayish brown-wet -dense (SW)						
60	15	SS		Saprolite-white and greenish gray silt						
61.5				End of Boring 60' NX Casing						

WATER LEVEL OBSERVATIONS			
W.L.	W.S. OR W.D.		
W.L.	17.8'	B.C.R.	16' A.C.R.
W.L.			

SOIL TESTING SERVICES

OF WIS., INC.
ROUTE NO. 7—BAETEN ROAD
GREEN BAY, WISCONSIN

BORING STARTED		10-5-72	
BORING COMPLETED		10-5-72	
RIG	W-15	FOREMAN	RR
DRAWN	RM	APPROVED	WMP
JOB #	4970	SHEET	

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

LOG OF BORING NO. ST 16-1

OWNER Great Lakes Exploration Company					ARCHITECT-ENGINEER						
SITE Ladysmith, Wisconsin					PROJECT NAME Proposed Haul Road						
DEPTH ELEVATION	SAMPLE NO.	TYPE SAMPLE	SAMPLE DIST.	RECOVERY	DESCRIPTION OF MATERIAL	UNIT DRY WT. LBS./FT. 3	UNCONFINED COMPRESSIVE STRENGTH TONS/FT. 2				
							1	2	3	4	5
							PLASTIC LIMIT %	WATER CONTENT %	LIQUID LIMIT %		
							STANDARD "N" PENETRATION (BLOWS/FT.)				
							10	20	30	40	50
1	AS				Dark brown silty topsoil (OL)						
2	AS				Silty fine sand-brown (SM)						
3	AS				Silty fine sand-trace clay-brown-wet (SM-SC)						
4											
5											
6											
					End of Boring						

WATER LEVEL OBSERVATIONS

W.L.	W.S. OR W.D.	
W.L.	B.C.R.	A.C.R.
W.L.	4.4' AB	

SOIL TESTING SERVICES
OF WIS., INC.
540 LAMBEAU STREET
GREEN BAY, WIS. 54303

BORING STARTED	10-25-72
BORING COMPLETED	10-25-72
RIG Bomb.	FOREMAN TM
DRAWN HH	APPROVED WMP
JOB # 4970	SHEET

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

LOG OF BORING NO. ST 16-2

OWNER Great Lakes Exploration Company				ARCHITECT-ENGINEER						
SITE Ladysmith, Wisconsin				PROJECT NAME Proposed Haul Road						
DEPTH ELEVATION	SAMPLE NO.	TYPE SAMPLE	SAMPLE DIST. RECOVERY	DESCRIPTION OF MATERIAL	UNIT DRY WT. lbs./ft. 3	UNCONFINED COMPRESSIVE STRENGTH TONS/FT. 2				
						1 2 3 4 5 PLASTIC LIMIT % WATER CONTENT % LIQUID LIMIT % STANDARD "N" PENETRATION (BLOWS/FT.) 10 20 30 40 50				
1	AS			SURFACE ELEVATION → Black silty topsoil (OL)						
2	AS			Silt-trace fine sand and clay-brown (ML)						
5 6.0	3	AS		Silty fine sand-trace gravel-brown-clay (SM)						
				End of Boring						

WATER LEVEL OBSERVATIONS				SOIL TESTING SERVICES OF WIS., INC. 540 LAMBEAU STREET GREEN BAY, WIS. 54303		BORING STARTED 10-25-72	
W.L.	W.S. OR W.D.					BORING COMPLETED 10-25-72	
W.L.	B.C.R.	A.C.R.				RIG Bomb.	FOREMAN TM
W.L.	Dry AB					DRAWN HH	APPROVED WMP
						JOB # 4970	SHEET
				The stratification lines represent the approximate boundary between soil types and the transition may be gradual.			

LOG OF BORING NO. ST 16-3

OWNER Great Lakes Exploration Company					ARCHITECT - ENGINEER				
SITE Ladysmith, Wisconsin					PROJECT NAME Proposed Haul Road				
DEPTH ELEVATION	SAMPLE NO.	TYPE SAMPLE	SAMPLE DIST.	RECOVERY	DESCRIPTION OF MATERIAL	UNIT DRY WT. LBS./FT. 3	UNCONFINED COMPRESSIVE STRENGTH TONS/FT. 2 		
X	1	AS			SURFACE ELEVATION → Black silty topsoil (OL)				
	2	AS			Silty very fine sand-brown (SM)				
5									
6	3	AS			Silty fine sand-trace clay-brown (SM)				
					End of Boring				

WATER LEVEL OBSERVATIONS

W.L.	Dry	W.S. XXXXXX	
W.L.	B.C.R.	A.C.R.	
W.L.			

SOIL TESTING SERVICES

OF WIS., INC.
540 LAMBEAU STREET
GREEN BAY, WIS. 54303

BORING STARTED 10-25-72

BORING COMPLETED 10-25-72

RIG Bomb.

FOREMAN TM

DRAWN HH

APPROVED WMP

JOB # 4970

SHEET

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

LOG OF BORING NO. ST 16-4

OWNER Great Lakes Exploration Company					ARCHITECT-ENGINEER				
SITE Ladysmith, Wisconsin					PROJECT NAME Proposed Haul Road				
DEPTH	ELEVATION	SAMPLE NO.	TYPE SAMPLE	SAMPLE DIST.	RECOVERY	DESCRIPTION OF MATERIAL	UNIT DRY WT. LBS./FT. 3	UNCONFINED COMPRESSIVE STRENGTH TONS/FT. 2 	
X		1	AS			SURFACE ELEVATION → Black silty topsoil (OL)			
		2	AS			Silty very fine sand-brown (SM)			
		3	AS			Silty very fine sand-trace clay-brown (SM)			
						End of Boring			

WATER LEVEL OBSERVATIONS

W.L.		W.S. OR W.D.	
W.L.	B.C.R.	A.C.R.	
W.L.	5.5' AB		

SOIL TESTING SERVICES
 OF WIS., INC.
 540 LAMBEAU STREET
 GREEN BAY, WIS. 54303

BORING STARTED 10-25-72	
BORING COMPLETED 10-25-72	
RIG Bomb.	FOREMAN TM
DRAWN HH	APPROVED WMP
JOB # 4970	SHEET

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

LOG OF BORING NO. ST 16-5

OWNER
Great Lakes Exploration Company

ARCHITECT-ENGINEER

SITE
Ladysmith, WisconsinPROJECT NAME
Proposed Haui Road

DEPTH ELEVATION	SAMPLE NO.	TYPE SAMPLE	SAMPLE DIST.	RECOVERY	DESCRIPTION OF MATERIAL	UNIT DRY WT. LBS./FT. 3	UNCONFINED COMPRESSIVE STRENGTH TONS/FT. 2				
							1	2	3	4	5
					SURFACE ELEVATION →		10	20	30	40	50
	1	AS			Topsoil						
	2	AS			Silty fine sand-rusty brown (SM)						
					Silty very fine sand-trace clay-brown (SM)						
5	3	AS			Silt-trace sand and clay-brown (ML)						
6.0					End of Boring						

WATER LEVEL OBSERVATIONS

W.L.	Dry	W.S. XXXX
W.L.	B.C.R.	A.C.R.
W.L.	Dry AB	

SOIL TESTING SERVICES
OF WIS., INC.
540 LAMBEAU STREET
GREEN BAY, WIS. 54303

BORING STARTED 10-25-72	
BORING COMPLETED 10-25-72	
RIG HA	FOREMAN EV
DRAWN HH	APPROVED WMP
JOB # 4970	SHEET

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

LOG OF BORING NO. ST-16-6

OWNER Great Lakes Exploration Company					ARCHITECT-ENGINEER						
SITE Ladysmith, Wisconsin					PROJECT NAME Proposed Haul Road						
DEPTH ELEVATION	SAMPLE NO.	TYPE SAMPLE	SAMPLE DIST.	RECOVERY	DESCRIPTION OF MATERIAL	UNIT DRY WT. LB./FT. 3	UNCONFINED COMPRESSIVE STRENGTH TONS/FT. 2				
SURFACE ELEVATION →											
	1	AS			Black silty topsoil(OL)						
	2	AS			Silt-trace sand and clay-brown (ML)						
5	3	AS			Silty fine medium sand-trace gravel-reddish brown(SM)						
6.0					End of Boring						

WATER LEVEL OBSERVATIONS

W.L.	W.S. OR W.D.	
W.L.	B.C.R.	A.C.R.
W.L.	Dry AB	

SOIL TESTING SERVICES

OF WIS., INC.
540 LAMBEAU STREET
GREEN BAY, WIS. 54303

BORING STARTED	10-25-72
BORING COMPLETED	10-25-72
RIG Bomb.	FOREMAN TM
DRAWN HH	APPROVED WMP
JOB # 4970	SHEET

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

LOG OF BORING NO. ST 16-7

OWNER Great Lakes Exploration Company	ARCHITECT-ENGINEER
SITE Ladysmith, Wisconsin	PROJECT NAME Proposed Hau! Road

DEPTH ELEVATION	SAMPLE NO.	TYPE SAMPLE	SAMPLE DIST. RECOVERY	DESCRIPTION OF MATERIAL	UNIT DRY WT. LBS./FT. 3	UNCONFINED COMPRESSIVE STRENGTH TONS/FT. 2				
						1	2	3	4	5
						PLASTIC LIMIT %		WATER CONTENT %		LIQUID LIMIT %
						X		●		△
						STANDARD "N" PENETRATION (BLOWS/FT.)				
						10	20	30	40	50
1	AS			Medium dark brown silty topsoil (OL)						
2	AS			Silt-trace fine sand and clay- brown (ML)						
3	AS			Silt and clayey sand-trace gravel-reddish brown (SC)						
5										
6.0										
				End of Boring						

WATER LEVEL OBSERVATIONS			SOIL TESTING SERVICES OF WIS., INC. 540 LAMBEAU STREET GREEN BAY, WIS. 54303	BORING STARTED 10-25-72	
W.L.	W.S. OR W.D.			BORING COMPLETED 10-25-72	
W.L.	B.C.R.	A.C.R.		RIG Bomb.	FOREMAN TM
W.L.	5.4' AB			DRAWN HH	APPROVED WMP
				JOB # 4970	SHEET

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

LOG OF BORING NO. ST 16-8

OWNER

Great Lakes Exploration Company

ARCHITECT-ENGINEER

SITE

Ladysmith, Wisconsin

PROJECT NAME

Proposed Haul Road

DEPTH ELEVATION	SAMPLE NO.	TYPE SAMPLE	SAMPLE DIST.	RECOVERY	DESCRIPTION OF MATERIAL	UNIT DRY WT. LBS./FT. 3	UNCONFINED COMPRESSIVE STRENGTH TONS/FT. 2							
							1 PLASTIC LIMIT % X	2 WATER CONTENT % ●	3 STANDARD "N" PENETRATION (BLOWS/FT.) ⊗	4 LIQUID LIMIT % △	5			
1	AS				SURFACE ELEVATION → Dark brown silty topsoil (OL)									
2	AS				Clayey silt-trace sand-brown (CL-ML)									
3	AS				Silty and clayey sand-trace gravel-light reddish brown (SC)									
5														
6.0														
					End of Boring									

WATER LEVEL OBSERVATIONS

W.L.	W.S. OR W.D.	
W.L.	B.C.R.	A.C.R.
W.L.	Dry AB	

SOIL TESTING SERVICES

OF WIS., INC.

540 LAMBEAU STREET
GREEN BAY, WIS. 54303

BORING STARTED 10-25-72

BORING COMPLETED 10-25-72

RIG Bomb. FOREMAN TM

DRAWN HH APPROVED WMP

JOB # 4970 SHEET

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

LOG OF BORING NO. ST 16-9

OWNER Great Lakes Exploration Company					ARCHITECT-ENGINEER					
SITE Ladysmith, Wisconsin					PROJECT NAME Proposed Haul Road					
DEPTH ELEVATION	SAMPLE NO.	TYPE SAMPLE	SAMPLE DIST. RECOVERY	DESCRIPTION OF MATERIAL	UNIT DRY WT. LBS./FT. 3	UNCONFINED COMPRESSIVE STRENGTH TONS/FT. 2				
						1 2 3 4 5 PLASTIC LIMIT % WATER CONTENT % LIQUID LIMIT % STANDARD "N" PENETRATION (BLOWS/FT.) 10 20 30 40 50				
☒				SURFACE ELEVATION →						
	1	AS		Dark brown silty topsoil (OL)						
	2	AS		Silt-trace fine sand and clay-brown (ML)						
	3	AS		Silty fine medium sand-trace gravel-reddish brown (SM)						
5										
6.0										
				End of Boring						

WATER LEVEL OBSERVATIONS

W.L.	W.S. OR W.D.	
W.L.	B.C.R.	A.C.R.
W.L.	Dry AB	

SOIL TESTING SERVICES
OF WIS., INC.
540 LAMBEAU STREET
GREEN BAY, WIS. 54303

BORING STARTED	10-25-72
BORING COMPLETED	10-25-72
RIG Bomb.	FOREMAN TM
DRAWN HH	APPROVED WMP
JOB # 4970	SHEET

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

LOG OF BORING NO. ST 16-10

OWNER Great Lakes Exploration Company					ARCHITECT-ENGINEER						
SITE Ladysmith, Wisconsin					PROJECT NAME Proposed Haul Road						
DEPTH ELEVATION	SAMPLE NO.	TYPE SAMPLE	SAMPLE DIST.	RECOVERY	DESCRIPTION OF MATERIAL	UNIT DRY WT. LBs./FT. 3	UNCONFINED COMPRESSIVE STRENGTH TONS/FT. 2				
SURFACE ELEVATION ↓											
	1	AS			Dark brown silty topsoil (OL)						
	2	AS			Silt-trace fine sand and clay-brown (ML)						
5.0	3	AS			Fine sandy silt-trace clay and gravel-brown (ML)						
6.0	4	AS			Silty and clayey fine medium sand-trace gravel-reddish brown (SC)						
					End of Boring						

WATER LEVEL OBSERVATIONS

W.L.	Dry	W.S. OR W.D.	XXXXX
W.L.	B.C.R.	A.C.R.	
W.L.	Dry AB		

SOIL TESTING SERVICES

OF WIS., INC.

540 LAMBEAU STREET
GREEN BAY, WIS. 54303

BORING STARTED 10-12-72

BORING COMPLETED 10-12-72

RIG HA FOREMAN TM

DRAWN HH APPROVED WMP

JOB # 4970 SHEET

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

LOG OF BORING NO. ST 16-11

OWNER Great Lakes Exploration Company				ARCHITECT-ENGINEER						
SITE Ladysmith, Wisconsin				PROJECT NAME Proposed Haul Road						
DEPTH ELEVATION	SAMPLE NO.	TYPE SAMPLE	SAMPLE DIST. RECOVERY	DESCRIPTION OF MATERIAL	UNIT DRY WT. LBS./FT. 3	UNCONFINED COMPRESSIVE STRENGTH TONS/FT. 2				
						PLASTIC LIMIT % WATER CONTENT % LIQUID LIMIT % STANDARD "N" PENETRATION (BLOWS/FT.)				
				SURFACE ELEVATION ↓		10	20	30	40	50
	1	AS		Black silty topsoil(OL)						
	2	AS		Silt-trace fine sand, clay and gravel-brown to rusty brown (ML)						
5	3	AS		Silty fine medium sand-trace gravel-brown trace reddish brown-						
6.0	4	AS		reddish brown zones more clayey (SM)						
				End of Boring						

WATER LEVEL OBSERVATIONS

W.L.	Dry	W.S.	XXXX.
W.L.	B.C.R.	A.C.R.	
W.L.	Dry AB		

SOIL TESTING SERVICES

OF WIS., INC.
540 LAMBEAU STREET
GREEN BAY, WIS. 54303

BORING STARTED 10-12-72	
BORING COMPLETED 10-12-72	
RIG HA	FOREMAN TM
DRAWN HH	APPROVED WMP
JOB # 4970	SHEET

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

LOG OF BORING NO. ST 9-8

OWNER Great Lakes Exploration Company					ARCHITECT - ENGINEER						
SITE Ladysmith, Wisconsin					PROJECT NAME Proposed Haul Road						
DEPTH ELEVATION	SAMPLE NO.	TYPE SAMPLE	SAMPLE DIST.	RECOVERY	DESCRIPTION OF MATERIAL	UNIT DRY WT. LBS./FT. 3	UNCONFINED COMPRESSIVE STRENGTH TONS/FT. 2				
SURFACE ELEVATION →											
1	AS				Black silty topsoil (OL)						
2	AS				Silty fine sand-trace clay-brown-sample 3 wet (SM)						
3	AS										
4											
5											
6											
					End of Boring						

WATER LEVEL OBSERVATIONS

W.L.	W.S. OR W.D.	
W.L.	B.C.R.	A.C.R.
W.L.	4.9' AB	

SOIL TESTING SERVICES

OF WIS., INC.

 540 LAMBEAU STREET
 GREEN BAY, WIS. 54303

BORING STARTED 10-25-72

BORING COMPLETED 10-25-72

RIG Bomb.	FOREMAN TM
DRAWN HH	APPROVED WMP
JOB # 4970	SHEET

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

LOG OF BORING NO. ST 9-9

OWNER Great Lakes Exploration Company				ARCHITECT - ENGINEER						
SITE Ladysmith, Wisconsin				PROJECT NAME Proposed Haul Road						
DEPTH ELEVATION	SAMPLE NO.	TYPE SAMPLE	SAMPLE DIST. RECOVERY	DESCRIPTION OF MATERIAL	UNIT DRY WT. LBs./FT. 3	UNCONFINED COMPRESSIVE STRENGTH TONS/FT. 2				
☒				SURFACE ELEVATION →						
	1	AS		Dark brown sandy topsoil (OL-SM)						
	2	AS		Silty very fine sand-brown-wet (SM)						
5	3	AS		Silty fine sand-trace clay-brown (SM-SC)						
6.0				End of Boring						

WATER LEVEL OBSERVATIONS

W.L.	W.S. OR W.D.	
W.L.	B.C.R.	A.C.R.
W.L.	5.0'	AB

SOIL TESTING SERVICES
OF WIS., INC.
540 LAMBEAU STREET
GREEN BAY, WIS. 54303

BORING STARTED	10-25-72
BORING COMPLETED	10-25-72
RIG Bcmb.	FOREMAN TM
DRAWN HH	APPROVED WMP
JOB # 4970	SHEET

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

LOG OF BORING NO. ST 9-10

OWNER Great Lakes Exploration Company				ARCHITECT-ENGINEER			
SITE Ladysmith, Wisconsin				PROJECT NAME Proposed Haui Road			
DEPTH ELEVATION	SAMPLE NO.	TYPE SAMPLE	SAMPLE DIST.	RECOVERY	DESCRIPTION OF MATERIAL	UNIT DRY WT. LBS./FT. 3	UNCONFINED COMPRESSIVE STRENGTH TONS/FT. 2
							PLASTIC LIMIT % X WATER CONTENT % ● LIQUID LIMIT % △ STANDARD "N" PENETRATION (BLOWS/FT.) ⊗ 10 20 30 40 50
					SURFACE ELEVATION ↓		
	1	AS			Black silty topsoil(OL)		
	2	AS			Silty very fine sand-brown (SM)		
	3	AS			Silty fine sand-trace clay-brown(SM-SC)		
	4	AS			Silty fine sand-brown-wet (SM)		
					End of Boring		

WATER LEVEL OBSERVATIONS

W.L.	W.S. OR W.D.	
W.L.	B.C.R.	A.C.R.
W.L.	4.2'	AB

SOIL TESTING SERVICES

OF WIS., INC.
540 LAMBEAU STREET
GREEN BAY, WIS. 54303

BORING STARTED	10-25-72
BORING COMPLETED	10-25-72
RIG Bomb.	FOREMAN TM
DRAWN HH	APPROVED WMP
JOB # 4970	SHEET

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

LOG OF BORING NO. ST 9-11

OWNER Great Lakes Exploration Company	ARCHITECT - ENGINEER
SITE Ladysmith, Wisconsin	PROJECT NAME Proposed Haul Road

DEPTH ELEVATION	SAMPLE NO.	TYPE SAMPLE	SAMPLE DIST. RECOVERY	DESCRIPTION OF MATERIAL	UNIT DRY WT. LBS./FT. 3	UNCONFINED COMPRESSIVE STRENGTH TONS/FT. 2				
						1	2	3	4	5
						PLASTIC LIMIT %		WATER CONTENT %		LIQUID LIMIT %
						X		●		△
						STANDARD "N" PENETRATION (BLOWS/FT.)				
						10	20	30	40	50
	1	AS		Dark brown sandy topsoil (OL)						
	2	AS		Silty fine sand-brown (SM)						
5	3	AS		Clayey fine sand-brown-wet (SC)						
				End of Boring						

WATER LEVEL OBSERVATIONS

W.L.	W.S. OR W.D.	
W.L.	B.C.R.	A.C.R.
W.L.	5.5' AB	

SOIL TESTING SERVICES

OF WIS., INC.
540 LAMBEAU STREET
GREEN BAY, WIS. 54303

BORING STARTED	10-25-72
BORING COMPLETED	10-25-72
RIG Bomb.	FOREMAN TM
DRAWN HH	APPROVED WMP
JOB # 4970	SHEET

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

LOG OF BORING NO. ST 21-60

OWNER Great Lakes Exploration Company					ARCHITECT-ENGINEER						
SITE Ladysmith, Wisconsin					PROJECT NAME Proposed Solid Waste Disposal Area						
DEPTH ELEVATION	SAMPLE NO.	TYPE SAMPLE	SAMPLE DIST.	RECOVERY	DESCRIPTION OF MATERIAL	UNIT DRY WT. LB./FT. 3	UNCONFINED COMPRESSIVE STRENGTH TONS/FT. 2				
☒					SURFACE ELEVATION ↓						
	1	AS			Topsoil						
	2	AS			Silty clay-trace fine sand-brown (CL)						
	3	AS			Clayey silt-trace fine sand-brown (CL-ML)						
5											
6.0											
					End of Boring						

WATER LEVEL OBSERVATIONS

W.L.	Dry	W.S. OR W.D.	XXXXXX
W.L.		B.C.R.	A.C.R.
W.L.	Dry		

SOIL TESTING SERVICES
OF WIS., INC.
540 LAMBEAU STREET
GREEN BAY, WIS. 54303

BORING STARTED 10-24-72	
BORING COMPLETED 10-24-72	
RIG Bomb.	FOREMAN TM
DRAWN HH	APPROVED WMP
JOB # 4970	SHEET

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

LOG OF BORING NO. ST 21-9

OWNER Great Lakes Exploration Company					ARCHITECT - ENGINEER						
SITE Ladysmith, Wisconsin					PROJECT NAME Proposed Solid Waste Disposal Area						
DEPTH ELEVATION	SAMPLE NO.	TYPE SAMPLE	SAMPLE DIST.	RECOVERY	DESCRIPTION OF MATERIAL	UNIT DRY WT. LBS./FT. 3	UNCONFINED COMPRESSIVE STRENGTH TONS/FT. 2				
					SURFACE ELEVATION →						
	1	ST			Black topsoil (OL)						
	1A	ST			Clayey silt-trace fine sand-material grayish brown & rusty brown - (CL-ML)	105					
	2	ST			Fine sandy silt-tan-slightly cemented-(ML)	120					
5	3	SS			Fine to medium sand-trace to some gravel & silt-brown-dense - (SM)					40	
	4	SS								41	
10	5	SS			Fine to medium sand-trace to some gravel-trace silt-brown-(SP-SW)						70
15					Silty fine to medium sand-trace gravel & clay-slightly reddish brown-dense-(SM)						
16.5	6	SS								41	
					End of boring						

WATER LEVEL OBSERVATIONS

W.L.	14.4'	W.S. OR W/D./
W.L.	B.C.R.	A.C.R.
W.L.	14.4' AB	

SOIL TESTING SERVICES
OF WIS., INC.
540 LAMBEAU STREET
GREEN BAY, WIS. 54303

BORING STARTED 10-19-72

BORING COMPLETED 10-19-72

RIG Bomb.	FOREMAN TM
DRAWN HH	APPROVED WMP
JOB # 4970	SHEET

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

LOG OF BORING NO. ST 21-10

OWNER					ARCHITECT - ENGINEER						
Great Lakes Exploration Company											
SITE					PROJECT NAME						
Ladysmith, Wisconsin					Proposed Solid Waste Disposal Area						
DEPTH ELEVATION	SAMPLE NO.	TYPE SAMPLE	SAMPLE DIST.	RECOVERY	DESCRIPTION OF MATERIAL	UNIT DRY WT. LBS./FT. 3	UNCONFINED COMPRESSIVE STRENGTH TONS/FT. 2				
							1	2	3	4	5
							PLASTIC LIMIT %				
							WATER CONTENT %				
							LIQUID LIMIT %				
							STANDARD "N" PENETRATION (BLOWS/FT.)				
							10	20	30	40	50
1	ST				Topsoil						
1A	ST				Silty very fine sand-brown & rusty brown-(SM)	110					
2	ST				Silty fine sand-trace gravel-reddish brown-dense-(SM)	121					
5	3	SS			Fine to medium sand-trace to some gravel-trace silt-brown-dense-(SP)						
4	SS										
10					Silty fine to medium sand-trace gravel-reddish brown-dense (SM) seams of brown fine to medium sand to 11.5'						
5	SS										
15					Silty & sandy clay-trace gravel-grayish brown-(CL)						
6	SS										
20					End of boring						
21.5											

WATER LEVEL OBSERVATIONS

W.L.	10'	W.S. OR W.D.
W.L.	B.C.R.	A.C.R.
W.L.	Dry to 21' AB	

SOIL TESTING SERVICES
OF WIS., INC.
540 LAMBEAU STREET
GREEN BAY, WIS. 54303

BORING STARTED 10-19-72

BORING COMPLETED 10-19-72

RIG	Bomb.	FOREMAN	TM
DRAWN	HH	APPROVED	WMP
JOB #	4970	SHEET	

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

LOG OF BORING NO. ST-21-12

OWNER

Great Lakes Exploration Company

ARCHITECT - ENGINEER

SITE

Ladysmith, Wisconsin

PROJECT NAME

Proposed Solid Waste Disposal Area

DEPTH ELEVATION	SAMPLE NO.	TYPE SAMPLE	SAMPLE DIST.	RECOVERY	DESCRIPTION OF MATERIAL	UNIT DRY WT. LBS./FT. 3	UNCONFINED COMPRESSIVE STRENGTH TONS/FT. 2				
							1	2	3	4	5
							PLASTIC LIMIT %		WATER CONTENT %		LIQUID LIMIT %
							X				△
							STANDARD "N" PENETRATION (BLOWS/FT.)				
							10	20	30	40	50
	1	ST			Dark brown silty topsoil (OL)	95					
	1A				Silt-trace very fine sand-brown (ML)						
	2	SS			Silty clay-trace sand-brown-trace rusty brown and grayish brown-tough (CL)						
	3	SS			Silty fine-coarse sand-trace gravel-brown (SM) dark reddish brown silt lenses						
	4	SS			Fine-medium sand-trace to some silt-trace gravel-brown (SM)						
	5	SS			Silty fine-medium sand-trace to some gravel-brown (SM)						
	6	SS			End of Boring						

WATER LEVEL OBSERVATIONS

W.L.	dry	W.S. OR W.D.X
W.L.	B.C.R.	A.C.R.
W.L.	dry AB	

SOIL TESTING SERVICES
OF WIS., INC.
540 LAMBEAU STREET
GREEN BAY, WIS. 54303

BORING STARTED 9-20-72

BORING COMPLETED 9-20-72

RIG V-15

FOREMAN RR

DRAWN DM

APPROVED WMP

JOB # 4070

SHEET

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

LOG OF BORING NO. ST 21-13

OWNER Great Lakes Exploration Company					ARCHITECT - ENGINEER						
SITE Ladysmith, Wisconsin					PROJECT NAME Proposed Solid Waste Disposal Area						
DEPTH ELEVATION	SAMPLE NO.	TYPE SAMPLE	SAMPLE DIST.	RECOVERY	DESCRIPTION OF MATERIAL	UNIT DRY WT. LBS./FT. 3	UNCONFINED COMPRESSIVE STRENGTH TONS/FT. 2				
							1 PLASTIC LIMIT %	2 WATER CONTENT %	3 LIQUID LIMIT %	4	5
					SURFACE ELEVATION →		STANDARD "N" PENETRATION (BLOWS/FT.)				
							10	20	30	40	50
	1	ST			Dark brown silty topsoil (OL)						
	1A	ST			Silt-trace very fine sand, clay, and roots-mottled brown, grayish brown, and rusty brown (ML)						
	2	SS			Fine sandy silt-brown (ML)						
	2A	SS									
5	3	SS									
	4	SS			Silty fine coarse sand-trace to some gravel-brown (SM)						
10											
	5	SS									
	5A	SS			Fine medium sand-trace silt and fine medium gravel-light brown-dry (SP)						
15											
16	6	SS			Silty fine medium sand-trace to some gravel-brown-very dense (SM)						
					End of Boring						

WATER LEVEL OBSERVATIONS

W.L.	Dry	W.S.	XXXXXX
W.L.	B.C.R.	A.C.R.	
W.L.	Dry AB		

SOIL TESTING SERVICES
OF WIS., INC.
540 LAMBEAU STREET
GREEN BAY, WIS. 54303

BORING STARTED 9-20-72

BORING COMPLETED 9-20-72

RIG W-15 FOREMAN RR

DRAWN RM APPROVED WMP

JOB # 4970 SHEET

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

LOG OF BORING NO. ST 21-14

OWNER Great Lakes Exploration Company					ARCHITECT-ENGINEER					
SITE Ladysmith, Wisconsin					PROJECT NAME Proposed Solid Waste Disposal Area					
DEPTH ELEVATION	SAMPLE NO.	TYPE SAMPLE	SAMPLE DIST. RECOVERY	DESCRIPTION OF MATERIAL	UNIT DRY WT. LBS./FT. 3	UNCONFINED COMPRESSIVE STRENGTH TONS/FT. 2				
						1 PLASTIC LIMIT % X	2 WATER CONTENT % ●	3 LIQUID LIMIT % △	4 STANDARD "N" PENETRATION (BLOWS/FT.) X	5
				SURFACE ELEVATION →		10	20	30	40	50
	1	SS		Dark brown silty topsoil (OL)						
	2	SS		Silt-trace clay and fine sand-trace gravel at 4'-brown (ML)						
5	3	SS		Silty fine medium sand-trace gravel-reddish brown (SM)		4 1/2"				
	3A	SS								
	4	SS								
10				Fine sand-trace to some silt and gravel-brown-dense-dry (SM-SP)						
	5	SS								
15				Silty fine sand-trace to some gravel-brown-moist-dense (SM)						
16.5	6	SS								50 1/2"
				End of Boring						

WATER LEVEL OBSERVATIONS

W.L.	Dry	W.S.	OK XXX
W.L.	B.C.R.	A.C.R.	
W.L.	Dry AB		

SOIL TESTING SERVICES

OF WIS., INC.

540 LAMBEAU STREET
GREEN BAY, WIS. 54303

BORING STARTED 9-19-72

BORING COMPLETED 9-19-72

RIG W-15 FOREMAN RR

DRAWN RM APPROVED MP

JOB # 4970 SHEET

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

LOG OF BORING NO. B - ST 21-15

OWNER Great Lakes Exploration Company					ARCHITECT-ENGINEER						
SITE Ladysmith, Wisconsin					PROJECT NAME Proposed Solid Waste Disposal Area						
DEPTH ELEVATION	SAMPLE NO.	TYPE SAMPLE	SAMPLE DIST.	RECOVERY	DESCRIPTION OF MATERIAL	UNIT DRY WT. LBS./FT. 3	UNCONFINED COMPRESSIVE STRENGTH TONS/FT. 2				
							1	2	3	4	5
						PLASTIC LIMIT % WATER CONTENT % LIQUID LIMIT % X ● △ STANDARD "N" PENETRATION (BLOWS/FT.) 10 20 30 40 50					
					SURFACE ELEVATION →						
	1	SS			Black silty topsoil (OL)						
	2	SS									
5	3	SS			Organic clay-black to dark gray (OH)						
	4	SS									
10											
	5	SS			Silty fine medium sand-trace gravel-gray-medium dense to very dense (SM)						
15											
	6	SS									
20					Silty and sandy clay-trace gravel-gray-tough (CL)						
21.5	7	SS									
					End of Boring						

*Calibrated Penetrometer

WATER LEVEL OBSERVATIONS

W.L.	2'-4'	W.X.X.X W.D.
W.L.	B.C.R.	A.C.R.
W.L.	3' AB	

SOIL TESTING SERVICES
OF WIS., INC.
540 LAMBEAU STREET
GREEN BAY, WIS. 54303

BORING STARTED 9-19-72

BORING COMPLETED 9-20-72

RIG W-15

FOREMAN RR

DRAWN RM

APPROVED WMP

JOB # 4970

SHEET

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

LOG OF BORING NO. ST 21-15A

OWNER Great Lakes Exploration Company					ARCHITECT-ENGINEER					
SITE Ladysmith, Wisconsin					PROJECT NAME Proposed Solid Waste Disposal Area					
DEPTH ELEVATION	SAMPLE NO.	TYPE SAMPLE	SAMPLE DIST. RECOVERY	DESCRIPTION OF MATERIAL	UNIT DRY WT. LBS./FT. 3	UNCONFINED COMPRESSIVE STRENGTH TONS/FT. 2				
						1 PLASTIC LIMIT % X	2 WATER CONTENT % ●	3 STANDARD "N" PENETRATION (BLOWS/FT.) X	4 LIQUID LIMIT % △	5
				SURFACE ELEVATION →		10	20	30	40	50
	1	ST		Black silty topsoil (OL)						
	2	ST		Black peat (PT)						
	2A	ST			106					
5	3	3" Tube		Silt -trace very fine sand and clay-gray-(ML) few light brown seams at 3'	81					
	4	ST			104					
8										
				End of Boring						

WATER LEVEL OBSERVATIONS			SOIL TESTING SERVICES OF WIS., INC. 540 LAMBEAU STREET GREEN BAY, WIS. 54303	BORING STARTED 9-19-72	
W.L.	Dry	W.S. OK XXX		BORING COMPLETED 9-20-72	
W.L.	B.C.R.	A.C.R.		RIG W-15	FOREMAN RR
W.L.				DRAWN RM	APPROVED WMP
				JOB # 4970	SHEET

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

BB S-81471

LOG OF BORING NO. ST 21-16

OWNER Great Lakes Exploration Company					ARCHITECT-ENGINEER						
SITE Ladysmith, Wisconsin					PROJECT NAME Proposed Solid Waste Disposal Area						
DEPTH ELEVATION	SAMPLE NO.	TYPE SAMPLE	SAMPLE DIST.	RECOVERY	DESCRIPTION OF MATERIAL	UNIT DRY WT. LBS./FT. 3	UNCONFINED COMPRESSIVE STRENGTH TONS/FT. 2				
							1	2	3	4	5
							PLASTIC LIMIT %	WATER CONTENT %	LIQUID LIMIT %		
							STANDARD "N" PENETRATION (BLOWS/FT.)				
							10	20	30	40	50
					SURFACE ELEVATION →						
					Dark gray clayey topsoil (OH)	95					
	1	ST			Silt-trace fine sand & gravel - brown to rusty brown (ML)	108					
	2	ST									
5	3	ST			Fine sandy silt-grayish brown (ML) - few irregular seams of brown sand	121					
	4	ST			Silty & clayey sand-trace gravel-reddish brown (SC) - few sand seams	130					
10											
	5	ST			Silty fine to medium sand-trace to some gravel-trace clay starting @ 15' - brown-medium dense to dense (SM)						
15											
	6	ST									
20											
					Silty & clayey fine to medium sand-trace gravel-dark grayish brown-dense (SM-SC)						
21.5	7	ST									
					End of boring						

WATER LEVEL OBSERVATIONS

W.L.	0.2'	W.S. OR W.D.
W.L.	B.C.R.	A.C.R.
W.L.	wet cavein @ 3.2' AB	

SOIL TESTING SERVICES

OF WIS., INC.
540 LAMBEAU STREET
GREEN BAY, WIS. 54303

BORING STARTED 10-24-72

BORING COMPLETED 10-24-72

RIG Bomb. FOREMAN TM

DRAWN HH APPROVED WMP

JOB # 4970 SHEET

BB S-81471

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

LOG OF BORING NO. ST 21-17

OWNER Great Lakes Exploration Company					ARCHITECT - ENGINEER						
SITE Ladysmith, Wisconsin					PROJECT NAME Proposed Solid Waste Disposal Area						
DEPTH ELEVATION	SAMPLE NO.	TYPE SAMPLE	SAMPLE DIST.	RECOVERY	DESCRIPTION OF MATERIAL	UNIT DRY WT. LBS./FT. 3	UNCONFINED COMPRESSIVE STRENGTH TONS/FT. 2				
							1	2	3	4	5
							PLASTIC LIMIT %	WATER CONTENT %	LIQUID LIMIT %		
							STANDARD "N" PENETRATION (BLOWS/FT.)				
							10	20	30	40	50
	1	ST			Black clayey topsoil (OH)	76					
	1A	ST			See Note A	82					
	2	ST			Fine sandy silt-grayish brown to dark gray-trace vertical root holes-(ML)-½" sand seam @ 2'-few irregular sand lenses @ 4'-6'.	105					
5						121					
	3	ST									
	4	ST			Fine to medium sand-trace to some silt & gravel-gray brown to dark brown (SM)	116					
10											
	5	SS									
15											
	6	SS			Silt-trace fine sand & clay-dark reddish brown (ML)						
16.5	6A	SS									
					End of boring						
					Note A: Clayey silt-mottled gray & brown-tough-very slightly organic (CL-ML)						

*Calibrated Penetrometer

WATER LEVEL OBSERVATIONS

W.L.	4'	W.S. OR W/D.
W.L.	B.C.R.	A.C.R.
W.L.	0.8' AB	

SOIL TESTING SERVICES
OF WIS., INC.
540 LAMBEAU STREET
GREEN BAY, WIS. 54303

BORING STARTED 10-23-72

BORING COMPLETED 10-23-72

RIG Bomb. FOREMAN TM

DRAWN HH APPROVED WMP

JOB # 4970 SHEET

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

LOG OF BORING NO. ST 21-18

OWNER Great Lakes Exploitation Company					ARCHITECT - ENGINEER					
SITE Ladysmith, Wisconsin					PROJECT NAME Proposed Solid Waste Disposal Area					
DEPTH ELEVATION	SAMPLE NO.	TYPE SAMPLE	SAMPLE DIST. RECOVERY	DESCRIPTION OF MATERIAL	UNIT DRY WT. LBS./FT. 3	UNCONFINED COMPRESSIVE STRENGTH TONS/FT. 2				
SURFACE ELEVATION →										
44	1	ST		Black peat (PT)	44					
95	1A	ST		See Note A	95					
106	2	ST		Silt-trace very fine sand-mottled light brown & grayish green to grayish brown (ML)	106					
117	3	ST			117					
118	4	ST		Silty very fine sand-dark greenish gray to dark grayish brown @ 15'-medium dense (SM)-very slightly organic-laminated @ 15'.	118					
111	5	ST			111					
109	6	ST			109					
End of boring										
Note A: Clayey silt-mottled grayish brown & rusty brown-slightly organic-soft (CL-ML)						* Calibrated Penetrometer				

WATER LEVEL OBSERVATIONS

W.L.	2'	W.S. OR W.D.
W.L.	B.C.R.	A.C.R.
W.L.	4' AB	

SOIL TESTING SERVICES
OF WIS., INC.
540 LAMBEAU STREET
GREEN BAY, WIS. 54303

BORING STARTED 10-23-72

BORING COMPLETED 10-23-72

RIG	Bomb.	FOREMAN	TM
DRAWN	HH	APPROVED	WMP
JOB #	4970	SHEET	

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

LOG OF BORING NO. ST 21-20

OWNER Great Lakes Exploration Company				ARCHITECT-ENGINEER						
SITE Ladysmith, Wisconsin				PROJECT NAME Proposed Solid Waste Disposal Area						
DEPTH ELEVATION	SAMPLE NO.	TYPE SAMPLE	SAMPLE DIST. RECOVERY	DESCRIPTION OF MATERIAL	UNIT DRY WT. LBS./FT. 3	UNCONFINED COMPRESSIVE STRENGTH TONS/FT. 2				
☒				SURFACE ELEVATION →						
	1	AS		Black clayey topsoil (OH)						
	2	AS		Silty clay- gray (CL)						
				Coarse sand-trace gravel (could not sample)						
5				End of boring						

WATER LEVEL OBSERVATIONS

W.L.	0.0'	W.S. OR $\frac{1}{4}$ D.
W.L.	B.C.R.	A.C.R.
W.L.		

SOIL TESTING SERVICES
OF WIS., INC.
540 LAMBEAU STREET
GREEN BAY, WIS. 54303

BORING STARTED 10-19-72	
BORING COMPLETED 10-19-72	
RIG H.A.	FOREMAN CF
DRAWN HH	APPROVED WMP
JOB # 4970	SHEET

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

OWNER Great Lakes Exploration Company					ARCHITECT-ENGINEER					
SITE Ladysmith, Wisconsin					PROJECT NAME Proposed Solid Waste Disposal Area					
DEPTH ELEVATION	SAMPLE NO.	TYPE SAMPLE	SAMPLE DIST. RECOVERY	DESCRIPTION OF MATERIAL	UNIT DRY WT. LBS./FT. 3	UNCONFINED COMPRESSIVE STRENGTH TONS/FT. 2				
						1	2	3	4	5
						PLASTIC LIMIT %		WATER CONTENT %		LIQUID LIMIT %
						STANDARD "N" PENETRATION (BLOWS/FT.)				
						10	20	30	40	50
				SURFACE ELEVATION $\downarrow$ Topsoil						
	1	ST		Silty and sandy clay-grayish brown to rusty brown (CL)	111					
	2	ST								
5	3	SS								
	4	SS								
10				Silty fine-medium sand-trace to some gravel-dark reddish brown-medium dense (SM)						
	5	SS								
15										
	6	SS								
20				Silty clay-brown (CL)	105					
	7	ST								
25										
	8	SS		Silty fine-coarse sand-trace gravel-brown-wet-dense (SM)						
30										
31.5	9	SS								
				End of Boring 30' NX Casing						

WATER LEVEL OBSERVATIONS				SOIL TESTING SERVICES		BORING STARTED 10-3-72	
W.L.	8'	XW X OR W.D.		OF WIS., INC.		BORING COMPLETED 10-3-72	
W.L.	4.5' B.C.R.	0.5'	A.C.R.	GREEN BAY, WISCONSIN		RIG W - 22	FOREMAN TM
W.L.				540 LAMBEAU STREET		DRAWN HH	APPROVED WMP
						JOB # 4970	SHEET

OWNER Great Lakes Exploration Company					ARCHITECT - ENGINEER				
SITE Ladysmith, Wisconsin					PROJECT NAME Proposed Solid Waste Disposal Area				
DEPTH ELEVATION	SAMPLE NO.	TYPE SAMPLE	SAMPLE DIST.	RECOVERY	DESCRIPTION OF MATERIAL	UNIT DRY WT. LBS./FT. 3	UNCONFINED COMPRESSIVE STRENGTH TONS/FT. 2		
							1 PLASTIC LIMIT % X	2 WATER CONTENT % ●	5 LIQUID LIMIT % △
							STANDARD "N" PENETRATION (BLOWS/FT.)		
							10	20	30
					SURFACE ELEVATION →				
	1	ST			Dark brown silty topsoil (OL)				
	1A	ST			Fine sandy silt-grayish brown (ML) lenses of fine sand	113			
						116			
	2	ST			Fine sand and silt-trace clay and fine gravel-reddish brown wet (SM-ML)				
	2A	ST							
5	3	SS							
	4	SS							
					Silty and gravelly fine medium sand-brown to medium dark brown-medium dense to dense (SM)silt lenses at 5'				
10	5	SS							
15	6	SS			Fine medium sand-trace gravel, coarse sand, and silt-gray-wet (SP) 1" seam of sandy clay				
20	7	SS			Fine coarse sand-trace gravel and silt-gray-wet (SW)				
25	8	SS			Silty and sandy clay-trace gravel-dark gray-very tough (CL)				
	9	SS							
30									
31.5	10	SS			Silty fine medium sand-trace gravel-brown-wet (SM)				
					End of Boring 25' of NX Casing				

WATER LEVEL OBSERVATIONS			SOIL TESTING SERVICES OF WIS., INC. ROUTE NO. 7—BAETEN ROAD GREEN BAY, WISCONSIN	BORING STARTED 9-22-72	
W.L.	3.5'	W.S. XXXX.		BORING COMPLETED 9-22-72	
W.L.	B.C.R.	A.C.R.		RIG W-15	FOREMAN RR
W.L.				DRAWN RM	APPROVED WMP
W.L.				JOB # 4970	SHEET

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

LOG OF BORING NO. ST-21-23

OWNER Great Lakes Exploration Company	ARCHITECT - ENGINEER
SITE Ladysmith, Wisconsin	PROJECT NAME Proposed Solid Waste Disposal Area

DEPTH ELEVATION	SAMPLE NO.	TYPE SAMPLE	SAMPLE DIST.	RECOVERY	DESCRIPTION OF MATERIAL	UNIT DRY WT. LBS./FT. 3	UNCONFINED COMPRESSIVE STRENGTH TONS/FT. 2
					SURFACE ELEVATION →		
	1	SS			Black silty topsoil (CL)		
	1A	SS			Silt-trace clay-brown to rusty brown (ML)		
	2	SS			Silty and sandy clay-mottled grayish brown and rusty brown (CL)		
5	3	ST			Silty fine-medium sand-trace to some fine medium gravel-reddish brown-wet (SM)		
	4	SS					
10	5	SS			Silty and clayey sand-trace gravel-reddish brown (SC)		
	6	SS			Silty fine sand-trace fine coarse gravel-gray (SM)		
15							
20	7	SS			Silty fine-medium sand-trace gravel and clay-gray (SM)		
21.5					End of Boring		

WATER LEVEL OBSERVATIONS

W.L.	5.3'	W.S. OR W.D.XX
W.L.	B.C.R.	A.C.R.
W.L.	5.2'	AB

SOIL TESTING SERVICES
OF WIS., INC.
540 LAMBEAU STREET
GREEN BAY, WIS. 54303

BORING STARTED 9-22-72

BORING COMPLETED 9-22-72

RIG V-22 FOREMAN TM

DRAWN DM APPROVED WHP

JOB # 4070 SHEET

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

LOG OF BORING NO.

ST-21-25

OWNER

Great Lakes Exploration Company

ARCHITECT-ENGINEER

SITE

Ladysmith, Wisconsin

PROJECT NAME

Proposed Solid Waste Disposal Area

DEPTH ELEVATION	SAMPLE NO.	TYPE SAMPLE	SAMPLE DIST.	RECOVERY	DESCRIPTION OF MATERIAL	UNIT DRY WT. LBS./FT. ³	UNCONFINED COMPRESSIVE STRENGTH TONS/FT. ²				
							1	2	3	4	5
							PLASTIC LIMIT %		WATER CONTENT %		LIQUID LIMIT %
							STANDARD "N" PENETRATION (BLOWS/FT.)				
							10	20	30	40	50
×					SURFACE ELEVATION →						
	1	ST			Dark brown silty topsoil (CL)						
	1A	ST			Fine sandy silt-trace clay- rusty brown (ML)	105					
	2	SS			Silty and sandy clay-trace gravel-reddish brown (CL-SC)						
5	3	SS			Fine-medium sand-trace to some silt-trace gravel-brown (SM) 2'-3" seams of clayey sand						
	4	SS			Silty fine-medium sand-trace gravel-brown (SM)						
10											
	5	SS									
					Silty fine-coarse sand-trace to some gravel-brown-wet- loose (SM)						
15											
	6	SS									
20											
21.5	7	SS									
					End of Boring						

WATER LEVEL OBSERVATIONS

W.L.	5.5'	W.S. OR W.D.	xxx
W.L.	B.C.R.	A.C.R.	
W.L.	5.2'	AB	

SOIL TESTING SERVICES

OF WIS., INC.

540 LAMBEAU STREET
GREEN BAY, WIS. 54303

BORING STARTED

9-25-72

BORING COMPLETED

9-25-72

RIG W-22

FOREMAN TM

DRAWN DM

APPROVED VMP

JOB # 4970

SHEET

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

OWNER Great Lakes Exploration Company					ARCHITECT - ENGINEER						
SITE Ladysmith, Wisconsin					PROJECT NAME Proposed Solid Waste Disposal Area						
DEPTH ELEVATION	SAMPLE NO.	TYPE SAMPLE	SAMPLE DIST.	RECOVERY	DESCRIPTION OF MATERIAL	UNIT DRY WT. LBS./FT. 3	UNCONFINED COMPRESSIVE STRENGTH TONS/FT. 2				
							1	2	3	4	5
							PLASTIC LIMIT % WATER CONTENT % LIQUID LIMIT % STANDARD "N" PENETRATION (BLOWS/FT.)				
							10	20	30	40	50
	1	ST			Black silty topsoil (OL)	50					
	2	ST			Fine sandy silt-grayish brown (ML)						
	2A				Fine sand-trace to some silt-reddish brown (SM)						
5	3	SS			Silty and clayey fine-medium sand-trace to some fine-coarse gravel-dark reddish brown-wet (SM-SC)						
	4	SS			Silty fine-medium sand-trace gravel-medium dark brown-medium dense-wet (SM)						
10											
	5	SS			Silty and sandy clay-trace fine gravel-medium dark brown (CL)						
15											
	6	SS			Fine-medium sand-trace to some silt-fine coarse angular and sub-angular gravel-medium dark brown (SM)						
20											
	7	SS			Silty fine-medium sand-trace fine gravel and coarse sand-dark gray (SM)						
25											
	8	SS			Silty and clayey fine-medium sand-trace gravel-dark gray-dense (SM-SC)						
30											
31.0	9	SS			End of Boring 30' NX Casing						

WATER LEVEL OBSERVATIONS

W.L.	Surface	W.S. OR W.D.	xxxx
W.L.	0.5' B.C.R.	0.3' A.C.R.	
W.L.			

SOIL TESTING SERVICES

OF WIS., INC.
ROUTE NO. 7—BAETEN ROAD
GREEN BAY, WISCONSIN

BORING STARTED 8-20-72

BORING COMPLETED 9-20-72

RIG V-22

FOREMAN TM

DRAWN BY

APPROVED UMD

JOB # 1070

SHEET

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

LOG OF BORING NO. ST 21-27

OWNER Great Lakes Exploration Company					ARCHITECT-ENGINEER					
SITE Ladysmith, Wisconsin					PROJECT NAME Proposed Solid Waste Disposal Area					
DEPTH ELEVATION	SAMPLE NO.	TYPE SAMPLE	SAMPLE DIST. RECOVERY	DESCRIPTION OF MATERIAL	UNIT DRY WT. LBS./FT. 3	UNCONFINED COMPRESSIVE STRENGTH TONS/FT. 2				
						1 PLASTIC LIMIT %	2 WATER CONTENT %	3 LIQUID LIMIT %	4	5
SURFACE ELEVATION →						STANDARD "N" PENETRATION (BLOWS/FT.)				
						10	20	30	40	50
				Dark brown silty-topsoil (OL)						
	1	ST		Silt-trace clay and fine sand-brown and gray (ML)	122					
	2	ST								
	3	ST		Silty fine sand-trace gravel-brown (SM) layers of reddish brown sandy silt (ML)	128					
	4	ST								
10										
	5	SS		Silty fine-medium sand-trace to some gravel-brown-very dense-hardpan (SM)						
15										
16.3	6	SS								
				End of Boring						

⊗ 92

⊗ 66

WATER LEVEL OBSERVATIONS

W.L.	W.S. OR W.D.
W.L.	B.C.R. A.C.R.
W.L.	4.5' AB

SOIL TESTING SERVICES
OF WIS., INC.
540 LAMBEAU STREET
GREEN BAY, WIS. 54303

BORING STARTED 9-27-72

BORING COMPLETED 9-27-72

RIG W-22 FOREMAN TM

DRAWN HH APPROVED WMP

JOB # 4970 SHEET

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

LOG OF BORING NO. ST-21-28

OWNER Great Lakes Exploration Company					ARCHITECT - ENGINEER	
SITE Ladysmith, Wisconsin					PROJECT NAME Proposed Solid Waste Disposal Area	
DEPTH ELEVATION	SAMPLE NO.	TYPE SAMPLE	SAMPLE DIST. RECOVERY	DESCRIPTION OF MATERIAL	UNIT DRY WT. LBS./FT. 3	UNCONFINED COMPRESSIVE STRENGTH TONS/FT. 2 1 2 3 4 5 PLASTIC LIMIT % WATER CONTENT % LIQUID LIMIT % X STANDARD "N" PENETRATION (BLOWS/FT.) 10 20 30 40 50
				SURFACE ELEVATION ∇		
	1	ST		Topsoil		
	2	ST		Silt-trace clay and fine sand-brown and gray (ML)		
5	3	ST		Fine sand and silt-trace gravel and clay-reddish brown (SM-ML)		
	4	ST		Fine-medium sand-trace silt and gravel-brown (SP)		
10						
	5	SS		Silty fine-medium sand-trace to some gravel-grayish brown very dense hardpan-grayish brown (SM) lense of fine-coarse sand @ 15'		
15						
16.0	6	SS				
				End of Boring		*Calibrated Penetrometer

WATER LEVEL OBSERVATIONS			SOIL TESTING SERVICES OF WIS., INC. 540 LAMBEAU STREET GREEN BAY, WIS. 54303	BORING STARTED 9-27-72	
W.L.	3.5'	W.S. OR W.D.		BORING COMPLETED 9-27-72	
W.L.	B.C.R.	A.C.R.		RIG W-22	FOREMAN TM
W.L.	0.5'	AB		DRAWN DM	APPROVED VMP
				JOB # 4970	SHEET

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

WATER LEVEL OBSERVATIONS			SOIL TESTING SERVICES OF WIS., INC. ROUTE NO. 7—BAETEN ROAD GREEN BAY, WISCONSIN	BORING STARTED	9-26-72		
W.L.	4.5'	W.S. OR W.D.X		BORING COMPLETED	9-26-72		
W.L.	4.5'	B.C.R.		2.0'	A.C.R.	RIG W-22	FOREMAN TM
W.L.				DRAWN	RM	APPROVED WMP	
				JOB #	4970	SHEET	
			The stratification lines represent the approximate bound-				
			ary between soil types and the transition may be gradual				

LOG OF BORING NO. ST 21-30

OWNER Great Lakes Exploration Company					ARCHITECT - ENGINEER						
SITE Ladysmith, Wisconsin					PROJECT NAME Proposed Solid Waste Disposal Area						
DEPTH ELEVATION	SAMPLE NO.	TYPE SAMPLE	SAMPLE DIST.	RECOVERY	DESCRIPTION OF MATERIAL	UNIT DRY WT. LBS./FT. 3	UNCONFINED COMPRESSIVE STRENGTH TONS/FT. 2				
1		ST			SURFACE ELEVATION →						
	1A	ST			Dark brown silty topsoil (OL) Clayey silt-trace fine sand- grayish brown (CL-ML)	97					
	2	ST			Silt-trace sand and gravel-brown to rusty brown and dark rusty brown (ML)						
5	3	SS									
	4	SS									
					Silty fine medium sand-trace gravel and clay-brown-medium dense to very dense @ 10'- brown (SM)						
10											
	5	SS									
					Fine medium sand-trace to gravel and silt-brown-dense (SM)						
15											
16.5	6	SS									
					End of Boring						

WATER LEVEL OBSERVATIONS			SOIL TESTING SERVICES OF WIS., INC. 540 LAMBEAU STREET GREEN BAY, WIS. 54303	BORING STARTED 10-17-72	
W.L.	4'	W.S. OR W.D.		BORING COMPLETED 10-17-72	
W.L.	B.C.R.	A.C.R.		RIG Bomb.	
W.L.	9' AB			FOREMAN TM	
				APPROVED WMP	
				DRAWN HH	
				JOB #970	
				SHEET	

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

LOG OF BORING NO. ST 21-31

OWNER Great Lakes Exploration Company					ARCHITECT - ENGINEER						
SITE Ladysmith, Wisconsin					PROJECT NAME Proposed Solid Waste Disposal Area						
DEPTH ELEVATION	SAMPLE NO.	TYPE SAMPLE	SAMPLE DIST.	RECOVERY	DESCRIPTION OF MATERIAL	UNIT DRY WT. LBS./FT. 3	UNCONFINED COMPRESSIVE STRENGTH TONS/FT. 2				
							1 PLASTIC LIMIT %	2 WATER CONTENT %	3 LIQUID LIMIT %	4	5
SURFACE ELEVATION →						STANDARD "N" PENETRATION (BLOWS/FT.)					
							10	20	30	40	50
	1	ST			Topsoil	106					
	1A	ST			Silt-trace very fine sand and clay-light brown to rusty brown (ML)						
	2	ST			Silty fine sand-trace gravel and clay-brown (SM)	121					
5	3	SS									
	4	SS									
10											
	5	SS			Silty fine medium sand-trace to some gravel-reddish brown to brown (SM) reddish brown zones more clayey						
15											
16.5	6	SS									
					End of Boring						

WATER LEVEL OBSERVATIONS			
W.L.	7'	W.S. ON XXXX	
W.L.		B.C.R.	A.C.R.
W.L.	7' AB		

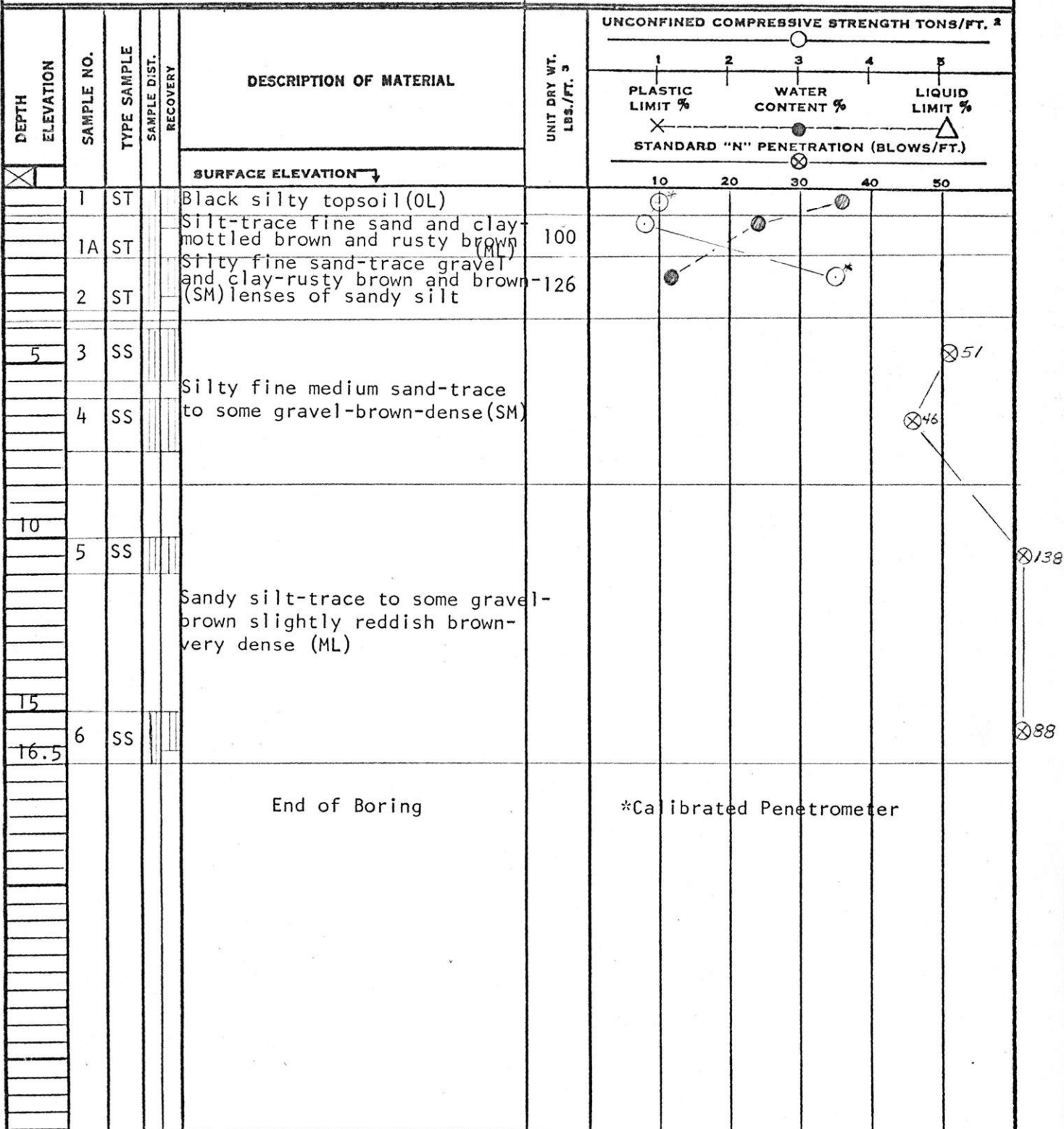
SOIL TESTING SERVICES
OF WIS., INC.
540 LAMBEAU STREET
GREEN BAY, WIS. 54303

BORING STARTED	10-18-72
BORING COMPLETED	10-18-72
RIG Bomb.	FOREMAN TM
DRAWN HH	APPROVED WMP
JOB # 4970	SHEET

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

LOG OF BORING NO. ST 21-32

OWNER Great Lakes Exploration Company	ARCHITECT - ENGINEER
SITE Ladysmith, Wisconsin	PROJECT NAME Proposed Solid Waste Disposal Area



WATER LEVEL OBSERVATIONS			SOIL TESTING SERVICES OF WIS., INC. 540 LAMBEAU STREET GREEN BAY, WIS. 54303	BORING STARTED 10-18-72	
W.L.	12.5'	W.S. OR W.D. XXXXX		BORING COMPLETED 10-18-72	
W.L.	B.C.R.	A.C.R.		RIG Bomb.	FOREMAN TM
W.L.	12.5' AB			DRAWN HH	APPROVED WMP
				JOB # 4970	SHEET

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

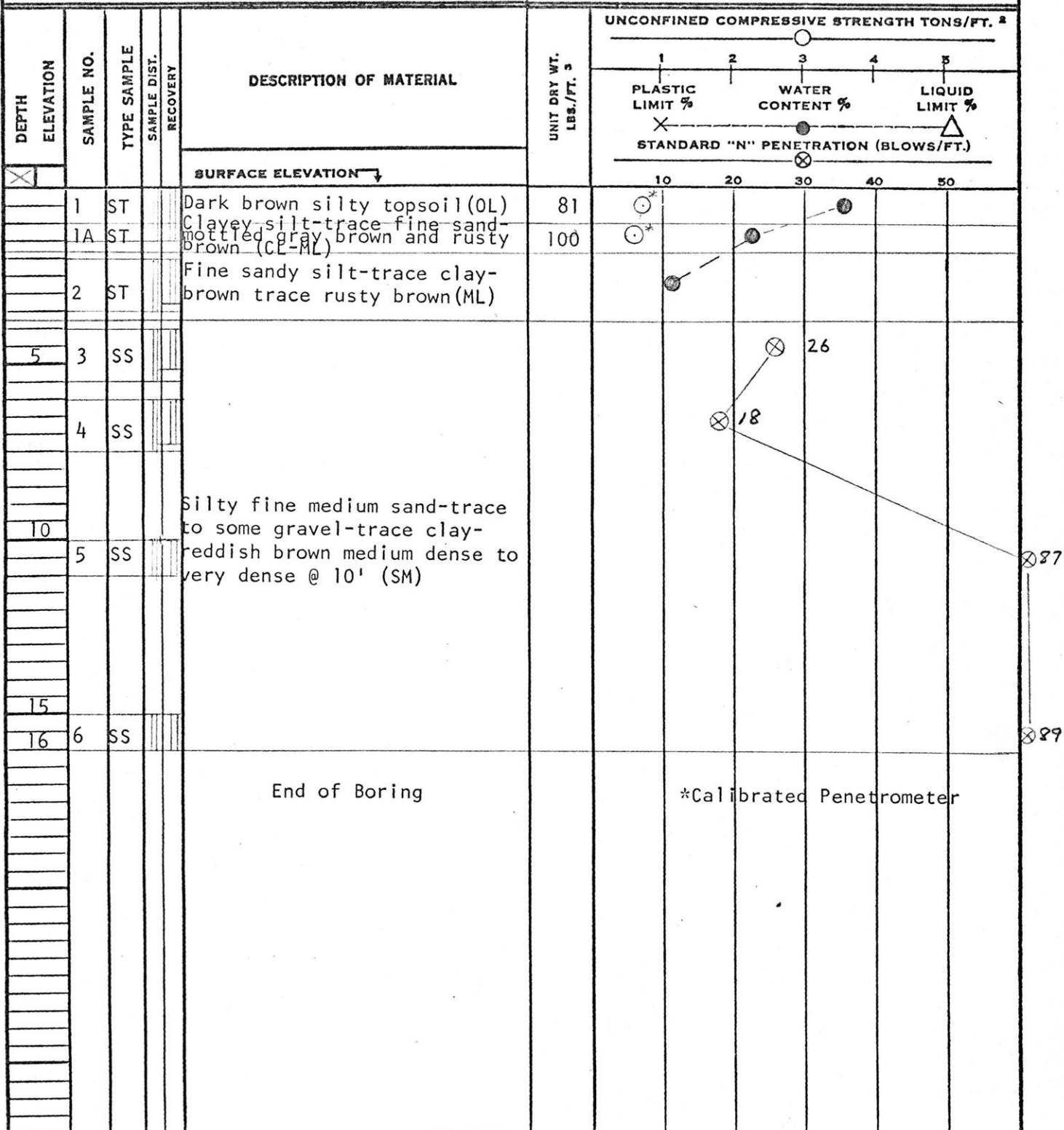
LOG OF BORING NO. ST 21-33

OWNER
Great Lakes Exploration Company

ARCHITECT - ENGINEER

SITE Ladysmith, Wisconsin

PROJECT NAME
Proposed Solid Waste Disposal Area



WATER LEVEL OBSERVATIONS		
W.L.	4'	W.S. OR W.D.
W.L.	B.C.R.	A.C.R.
W.L.	4' AB	

SOIL TESTING SERVICES
OF WIS., INC.
540 LAMBEAU STREET
GREEN BAY, WIS. 54303

BORING STARTED		11-24-72
BORING COMPLETED		11-24-72
RIG	BOMB.	FOREMAN TM
DRAWN	RM	APPROVED WMP
JOB #	4970	SHEET

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

LOG OF BORING NO. ST-21-34

OWNER Great Lakes Exploration Company				ARCHITECT-ENGINEER						
SITE Ladysmith, Wisconsin				PROJECT NAME Proposed Solid Waste Disposal Area						
DEPTH ELEVATION	SAMPLE NO.	TYPE SAMPLE	SAMPLE DIST. RECOVERY	DESCRIPTION OF MATERIAL	UNIT DRY WT. LBS./FT. 3	UNCONFINED COMPRESSIVE STRENGTH TONS/FT. 2				
						1 PLASTIC LIMIT %	2 WATER CONTENT %	3 LIQUID LIMIT %		
SURFACE ELEVATION →						STANDARD "N" PENETRATION (BLOWS/FT.)				
						10	20	30	40	50
1	ST			Black silty topsoil (OL)	100					
2	SS			Clayey silt-mottled-grayish brown and rusty brown (CL-HL)						
2A	SS			Silty fine-medium sand-trace gravel-reddish brown to brown (SM)						
3	SS									
4	SS			Silty and gravelly fine-medium sand-grayish brown (SM)						
5	SS									
6	SS			Fine-coarse sand-trace to some silt-trace gravel and cobbles slightly reddish brown-very dense (SM)						
7	SS									
8	SS			Silty fine-medium sand-trace to some gravel-trace clay-dark gray-dense (SM)						
End of Boring										

WATER LEVEL OBSERVATIONS

W.L.	6 - 7.5'	W.S. OR W.B.X.
W.L.	4'	B.C.R. 2' A.C.R.
W.L.		

SOIL TESTING SERVICES
OF WIS., INC.
540 LAMBEAU STREET
GREEN BAY, WIS. 54303

BORING STARTED 9-20-72

BORING COMPLETED 9-20-72

RIG W-15

FOREMAN RR

DRAWN RM

APPROVED WMP

JOB # 4970

SHEET

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

LOG OF BORING NO. ST 21-35

OWNER Great Lakes Exploration Company	ARCHITECT-ENGINEER
SITE Ladysmith, Wisconsin	PROJECT NAME Proposed Solid Waste Disposal Area

DEPTH ELEVATION	SAMPLE NO.	TYPE SAMPLE	SAMPLE DIST.	RECOVERY	DESCRIPTION OF MATERIAL	UNIT DRY WT. LBS./FT. 3	UNCONFINED COMPRESSIVE STRENGTH TONS/FT. 2
					SURFACE ELEVATION →		
	1	ST			Topsoil		
	1A	ST			Silt-trace very fine sand and clay-grayish brown (ML)		
					See Note "A"		
	2	ST			Silty fine medium sand-trace gravel and clay-brown and reddish brown-medium dense (SM)	106	
5	3	SS			reddish brown zones more clayey		26
	4	SS					30
					Fine medium sand-trace to some gravel and silt-brown-dense (SM)		
10							
	5	SS					
					Silty fine medium sand-trace gravel-brown-wet (SM)		
15							
16.5	6	SS					26
					End of Boring		
					Note "A" Fine sandy silt-trace gravel and clay-brown (ML)		

WATER LEVEL OBSERVATIONS

W.L.	6'	W.S. XXXXX
W.L.	B.C.R.	A.C.R.
W.L.	4.5' AB	

SOIL TESTING SERVICES

OF WIS., INC.

540 LAMBEAU STREET
GREEN BAY, WIS. 54303

BORING STARTED 10-18-72

BORING COMPLETED 10-18-72

RIG Bomb. FOREMAN TM

DRAWN HH APPROVED WMP

JOB # 4970 SHEET

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

LOG OF BORING NO. ST 21-36

OWNER Great Lakes Exploration Company	ARCHITECT-ENGINEER
SITE Ladysmith, Wisconsin	PROJECT NAME Proposed Solid Waste Disposal Area

DEPTH ELEVATION	SAMPLE NO.	TYPE SAMPLE	SAMPLE DIST.	RECOVERY	DESCRIPTION OF MATERIAL	UNIT DRY WT. LBS./FT. 3	UNCONFINED COMPRESSIVE STRENGTH TONS/FT. 2
							1 2 3 4 5 PLASTIC LIMIT % WATER CONTENT % LIQUID LIMIT % X ———— • ———— Δ STANDARD "N" PENETRATION (BLOWS/FT.) 10 20 30 40 50
0					SURFACE ELEVATION →		
					Topsoil		
	1	ST			Silt-trace very fine sand and clay-brown trace rusty brown (ML)		⊗*
	2	SS			Silty and clayey sand-trace gravel-reddish brown-medium dense (SC)		⊗23
5	3	SS			Fine medium sand-trace to some gravel and silt-brown-wet (SM-SP)		⊗24
	4	SS			Fine coarse sand-trace to some fine medium gravel-trace silt-brown-wet (SW)		⊗43
10	5	SS					⊗42
15	6	SS					⊗55
16.5					End of Boring		*Calibrated Penetrometer

WATER LEVEL OBSERVATIONS		SOIL TESTING SERVICES OF WIS., INC. 540 LAMBEAU STREET GREEN BAY, WIS. 54303		BORING STARTED 10-18-72	
W.L.	4-5.5'	W.S.	XXXXXX	BORING COMPLETED 10-18-72	
W.L.	B.C.R.	A.C.R.		RIG	Bomb.
W.L.	2' AB			FOREMAN	TM
				DRAWN	HH
				APPROVED	WMP
				JOB #	4970
				SHEET	

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

LOG OF BORING NO. ST 21-37

OWNER Great Lakes Exploration Company					ARCHITECT-ENGINEER						
SITE Ladysmith, Wisconsin					PROJECT NAME Proposed Solid Waste Disposal Area						
DEPTH ELEVATION	SAMPLE NO.	TYPE SAMPLE	SAMPLE DIST.	RECOVERY	DESCRIPTION OF MATERIAL	UNIT DRY WT. LBS./FT. 3	UNCONFINED COMPRESSIVE STRENGTH TONS/FT. 2				
							1	2	3	4	5
							PLASTIC LIMIT %	WATER CONTENT %	LIQUID LIMIT %		
							STANDARD "N" PENETRATION (BLOWS/FT.)				
							10	20	30	40	50
0					SURFACE ELEVATION →						
	1	ST			Dark brown silty topsoil (OL)	108					
	2	ST			Silt-trace very fine sand and clay-mottled grayish brown and rusty brown (ML)	118					
5	3	SS			Silty fine sand-brown-medium dense (SM)				12		
	4	SS							30		
10	5	SS			Fine medium sand-trace to some gravel and silt-brown-dense (SM) zones of sandy silt						32
	6	SS			Silty and clayey sand-trace gravel-reddish brown-dense (SC)				34		
15					End of Boring						

WATER LEVEL OBSERVATIONS

W.L.	6-7.5'	W.S. OR W.D.	XXXXXX
W.L.	B.C.R.	A.C.R.	
W.L.	6' AB		

SOIL TESTING SERVICES
OF WIS., INC.
540 LAMBEAU STREET
GREEN BAY, WIS. 54303

BORING STARTED 10-18-72

BORING COMPLETED 10-18-72

RIG Bomb. FOREMAN TM

DRAWN HH APPROVED WMP

JOB # 4970 SHEET

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

LOG OF BORING NO.

ST 21-38

OWNER Great Lakes Exploration Company					ARCHITECT - ENGINEER						
SITE Ladysmith, Wisconsin					PROJECT NAME Proposed Solid Waste Disposal Area						
DEPTH ELEVATION	SAMPLE NO.	TYPE SAMPLE	SAMPLE DIST.	RECOVERY	DESCRIPTION OF MATERIAL	UNIT DRY WT. LBS./FT. 3	UNCONFINED COMPRESSIVE STRENGTH TONS/FT. 2				
							1	2	3	4	5
							PLASTIC LIMIT %	WATER CONTENT %	LIQUID LIMIT %		
							STANDARD "N" PENETRATION (BLOWS/FT.)				
							10	20	30	40	50
5	1	ST			Black silty topsoil						
	2	ST			Fine sandy silt-brown to yellowish brown-trace black spots (ML)			16.7	17.6		
	3	ST									
	4	ST			Silty fine-medium sand-trace gravel-reddish brown (SM)						
10											
11.5	5										52
					End of Boring						

WATER LEVEL OBSERVATIONS

W.L.	4.6'	W.S. OR XXXXX
W.L.	B.C.R.	A.C.R.
W.L.	4.6'	AB

SOIL TESTING SERVICES

OF WIS., INC.

540 LAMBEAU STREET
GREEN BAY, WIS. 54303

BORING STARTED 9-27-72

BORING COMPLETED 9-27-72

RIG W-22

FOREMAN TM

DRAWN HH

APPROVED WMP

JOB # 4970

SHEET

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

LOG OF BORING NO. ST 21-39

OWNER Great Lakes Exploration Company					ARCHITECT-ENGINEER						
SITE Ladysmith, Wisconsin					PROJECT NAME Proposed Solid Waste Disposal Area						
DEPTH ELEVATION	SAMPLE NO.	TYPE SAMPLE	SAMPLE DIST.	RECOVERY	DESCRIPTION OF MATERIAL	UNIT DRY WT. LBS./FT. 3	UNCONFINED COMPRESSIVE STRENGTH TONS/FT. 2				
							1 PLASTIC LIMIT % X	2 WATER CONTENT % ●	3 LIQUID LIMIT % △	4	5
					SURFACE ELEVATION →		STANDARD "N" PENETRATION (BLOWS/FT.) 10 20 30 40 50				
					Black silty topsoil (OL)						
	1	PA			Clayey silt-trace sand-brown (CL-ML)						
5	2	PA			Fine sandy silt-trace clay and gravel-reddish brown (ML)						
	3	PA			Silty fine sand-trace gravel and clay-reddish brown (SM)						
8.0					End of Boring						

WATER LEVEL OBSERVATIONS

W.L.	W.S. OR W.D.	
W.L.	B.C.R.	A.C.R.
W.L.	Dry to 8'	

SOIL TESTING SERVICES
OF WIS., INC.GREEN BAY, WIS. 54304
540 LAMBEAU ST.

BORING STARTED 9-27-72

BORING COMPLETED 9-27-72

RIG 22 FOREMAN TM

DRAWN HH APPROVED WMP

JOB # 4970 SHEET

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

LOG OF BORING NO. ST 21-40

OWNER Great Lakes Exploration Company					ARCHITECT-ENGINEER					
SITE Ladysmith, Wisconsin					PROJECT NAME Proposed Solid Waste Disposal Area					
DEPTH ELEVATION	SAMPLE NO.	TYPE SAMPLE	SAMPLE DIST. RECOVERY	DESCRIPTION OF MATERIAL	UNIT DRY WT. LBS./FT. 3	UNCONFINED COMPRESSIVE STRENGTH TONS/FT. 2				
						1 2 3 4 5 PLASTIC LIMIT % WATER CONTENT % LIQUID LIMIT % X STANDARD "N" PENETRATION (BLOWS/FT.)				
				SURFACE ELEVATION →		10 20 30 40 50				
	1	ST		Silt-trace very fine sand-trace clay starting @2'-mottled brown and rusty brown (ML)	111	*Calibrated Penetrometer				
	2	ST								
	3	ST			127					
	4	ST		Silty fine medium sand-trace to some gravel-trace clay-reddish brown (SM)						
	5	ST			120					
				End of Boring						

WATER LEVEL OBSERVATIONS

W.L.	9.5'	W.S.	XXXXX.
W.L.	B.C.R.	A.C.R.	
W.L.	9.7' AB		

SOIL TESTING SERVICES

OF WIS., INC.
540 LAMBEAU STREET
GREEN BAY, WIS. 54303

BORING STARTED 10-2-72

BORING COMPLETED 10-2-72

RIG 22

FOREMAN TM

DRAWN HH

APPROVED WMP

JOB # 4970

SHEET

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

WATER LEVEL OBSERVATIONS			SOIL TESTING SERVICES OF WIS., INC. 540 LAMBEAU STREET GREEN BAY, WIS. 54303	BORING STARTED 10-2-72	
W.L.	W.S. OR W.D.			BORING COMPLETED 10-2-72	
W.L.	B.C.R.	A.C.R.		RIG W-22	FOREMAN TM
W.L.	Dry to 8'			DRAWN HH	APPROVED WMP
				JOB # 4970	SHEET
			The stratification lines represent the approximate boundary between soil types and the transition may be gradual.		

SOIL TESTING SERVICES
OF WIS., INC.
540 LAMBEAU STREET
GREEN BAY, WIS. 54303

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

BB S-81471

LOG OF BORING NO. 21-42

OWNER Great Lakes Exploration Company	ARCHITECT-ENGINEER
SITE Ladysmith, Wisconsin	PROJECT NAME Proposed Solid Waste Disposal Area

DEPTH ELEVATION	SAMPLE NO.	TYPE SAMPLE	SAMPLE DIST.	RECOVERY	DESCRIPTION OF MATERIAL	UNIT DRY WT. LBS./FT. 3	UNCONFINED COMPRESSIVE STRENGTH TONS/FT. 2		
							PLASTIC LIMIT %	WATER CONTENT %	LIQUID LIMIT %
					SURFACE ELEVATION ↓		10 20 30 40 50 STANDARD "N" PENETRATION (BLOWS/FT.)		
	1	ST			Black clayey topsoil-trace peat lenses (OH)				
	2	ST			Silt-trace very fine sand and clay-grayish brown trace rusty brown (ML)	120			
5	3	ST			Silty and clayey sand-trace gravel-reddish brown (SC) brown sand lenses @7'				
	4	ST							
10					Fine sand-trace silt-brown- wet dense (SP)				
11.5	5	SS							
					End of Boring				*Calibrated Penetrometer

WATER LEVEL OBSERVATIONS W.L. 6' W.S. OXWD. W.L. B.C.R. A.C.R. W.L. 2.5' AB		SOIL TESTING SERVICES OF WIS., INC. 540 LAMBEAU STREET GREEN BAY, WIS. 54303	BORING STARTED 10-16-72 BORING COMPLETED 10-16-72	
			RIG Bomb. DRAWN HH JOB # 4970	FOREMAN TM APPROVED WMP SHEET

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

BBS-81471

LOG OF BORING NO. ST 21-43

OWNER Great Lakes Exploration Company					ARCHITECT-ENGINEER						
SITE Ladysmith, Wisconsin					PROJECT NAME Proposed Solid Waste Disposal Area						
DEPTH ELEVATION	SAMPLE NO.	TYPE SAMPLE	SAMPLE DIST.	RECOVERY	DESCRIPTION OF MATERIAL	UNIT DRY WT. LBS./FT. 3	UNCONFINED COMPRESSIVE STRENGTH TONS/FT. 2				
							1 2 3 4 5 PLASTIC LIMIT % WATER CONTENT % LIQUID LIMIT % X ———— O ———— Δ STANDARD "N" PENETRATION (BLOWS/FT.) 10 20 30 40 50				
					SURFACE ELEVATION →						
					Black silty topsoil (OL)						
	1	PA			Clayey silt-trace to some sand-brown (CL-ML)						
	2	PA									
5											
	3	PA			Silty fine medium sand-trace gravel and clay-reddish brown (SM)						
8.0											
					End of Boring						

WATER LEVEL OBSERVATIONS

W.L.	5.5'	W.X.X OR W.D.
W.L.	B.C.R.	A.C.R.
W.L.	5.5' AB	

SOIL TESTING SERVICES
OF WIS., INC.GREEN BAY, WIS. 54304
540 LAMBEAU ST.

BORING STARTED 9-27-72

BORING COMPLETED 9-27-72

RIG 22

FOREMAN TM

DRAWN HH

APPROVED WMP

JOB # 4970

SHEET

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

LOG OF BORING NO. ST 21-43A

OWNER Great Lakes Exploration Company	ARCHITECT-ENGINEER
SITE Ladysmith, Wisconsin	PROJECT NAME Proposed Solid Waste Disposal Area

DEPTH ELEVATION	SAMPLE NO.	TYPE SAMPLE	SAMPLE DIST. RECOVERY	DESCRIPTION OF MATERIAL	UNIT DRY WT. LBS./FT. 3	UNCONFINED COMPRESSIVE STRENGTH TONS/FT. 2				
						1	2	3	4	5
						PLASTIC LIMIT %	WATER CONTENT %		LIQUID LIMIT %	
						STANDARD "N" PENETRATION (BLOWS/FT.)				
						10	20	30	40	50
SURFACE ELEVATION →										
Topsoil										
	1	ST		Silt-trace very fine sand- light gray (ML)	146					
	2	ST		Very fine sandy silt-trace clay-brown to rusty brown (ML)	116					
5										
	3	ST		Silty fine medium sand-trace gravel-grayish brown-dense (SM)	134					
10										
11	4	ST			135					
				End of Boring						

WATER LEVEL OBSERVATIONS			SOIL TESTING SERVICES OF WIS., INC. 540 LAMBEAU STREET GREEN BAY, WIS. 54303			BORING STARTED 10-17-72	
W.L.	4'	W.S. OR W.O.				BORING COMPLETED 10-17-72	
W.L.		B.C.R.				RIG Bomb.	FOREMAN TM
W.L.	4' AB	A.C.R.				DRAWN HH	APPROVED WMP
						JOB # 4970	SHEET

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

LOG OF BORING NO. ST 21-45

OWNER Great Lakes Exploration Company				ARCHITECT-ENGINEER						
SITE Ladysmith, Wisconsin				PROJECT NAME Proposed Solid Waste Disposal Area						
DEPTH ELEVATION	SAMPLE NO.	TYPE SAMPLE	SAMPLE DIST. RECOVERY	DESCRIPTION OF MATERIAL	UNIT DRY WT. LBS./FT. 3	UNCONFINED COMPRESSIVE STRENGTH TONS/FT. 2				
						1	2	3	4	5
						○ 1 2 3 4 5 PLASTIC LIMIT % WATER CONTENT % LIQUID LIMIT % × ● △ STANDARD "N" PENETRATION (BLOWS/FT.) 10 20 30 40 50				
☒				SURFACE ELEVATION →						
				Topsoil						
	1	AS		Silty clay-trace sand-brown (CL)						
	2	AS		Fine sand and silt-trace clay-brown (SM-ML)						
5	3	AS		Sandy silt-trace clay-brown changing to gray-wet (ML)						
	4	AS								
8.0	5	AS								
				End of Boring						

WATER LEVEL OBSERVATIONS			SOIL TESTING SERVICES OF WIS., INC. 540 LAMBEAU STREET GREEN BAY, WIS. 54303	BORING STARTED 10-1-72	
W.L.	W.S. OR W.D.			BORING COMPLETED 10-1-72	
W.L.	B.C.R.	A.C.R.		RIG W-22	FOREMAN TM
W.L.	1.0'	AB		DRAWN HH	APPROVED WMP
				JOB # 4970	SHEET
			The stratification lines represent the approximate boundary between soil types and the transition may be gradual.		

LOG OF BORING NO. ST 21-46

OWNER Great Lakes Exploration Company	ARCHITECT-ENGINEER
SITE Ladysmith, Wisconsin	PROJECT NAME Proposed Solid Waste Disposal Area

DEPTH ELEVATION	SAMPLE NO.	TYPE SAMPLE	SAMPLE DIST.	RECOVERY	DESCRIPTION OF MATERIAL	UNIT DRY WT. LBS./FT. 3	UNCONFINED COMPRESSIVE STRENGTH TONS/FT. 2				
							1	2	3	4	5
							PLASTIC LIMIT %		WATER CONTENT %		LIQUID LIMIT %
							×		●		△
							STANDARD "N" PENETRATION (BLOWS/FT.)				
							10	20	30	40	50
1	1	HA	AS		Black fine fibrous peat(Pt)						
2	2	HA	AS		Silty clay-gray (CL)						
5											
8	3	HA	AS		Silty very fine sand-dark gray brown-wet (SM)						
10					End of Boring						

WATER LEVEL OBSERVATIONS

W.L.	0.0'	W.S. XXXXXX
W.L.	B.C.R.	A.C.R.
W.L.	0.0' AB	

SOIL TESTING SERVICES
OF WIS., INC.
540 LAMBEAU STREET
GREEN BAY, WIS. 54303

BORING STARTED 10-17-72

BORING COMPLETED 10-17-72

RIG HA FOREMAN TM

DRAWN HH APPROVED WMP

JOB # 4970 SHEET

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

LOG OF BORING NO. ST 21-47

OWNER

Great Lakes Exploration Company

ARCHITECT - ENGINEER

SITE

Ladysmith, Wisconsin

PROJECT NAME.

PROPOSED NAME: Proposed Solid Waste Disposal Area

[illegible]

WATER LEVEL OBSERVATIONS

W.L.	7.5'	W.S. XXXXXX
------	------	------------------------

W.L.	B.C.R.	A.C.R.
------	--------	--------

W.L.	0.0' AB
------	---------

SOIL TESTING SERVICES

OF WIS., INC.

540 LAMBEAU STREET
GREEN BAY, WIS. 54303

BORING STARTED 10-12-72

BORING COMPLETED 10-12-72

RIG	HA	FOREMAN	TM
-----	----	---------	----

DRAWN	HH	APPROVED WMP.
-------	----	---------------

JOB # 4970	SHEET
------------	-------

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

LOG OF BORING NO. ST 21-48

OWNER Great Lakes Exploration Company	ARCHITECT-ENGINEER
SITE Ladysmith, Wisconsin	PROJECT NAME Proposed Solid Waste Disposal Area

DEPTH ELEVATION	SAMPLE NO.	TYPE SAMPLE	SAMPLE DIST.	RECOVERY	DESCRIPTION OF MATERIAL	UNIT DRY WT. LBS./FT. 3	UNCONFINED COMPRESSIVE STRENGTH TONS/FT. 2
							1 2 3 4 5 PLASTIC LIMIT % WATER CONTENT % LIQUID LIMIT % X ● △ STANDARD "N" PENETRATION (BLOWS/FT.) 10 20 30 40 50
					SURFACE ELEVATION →		
	1	ST			Dark brown silty and clayey topsoil (OL-OH)	89	
	1A				Silt-trace fine sand-brown (ML)		
	2	ST				123	
5	3	ST			Sandy silt-trace gravel and clay-brown to reddish brown (ML)	132	
	4	ST					
10					Silty fine to coarse sand-trace to some gravel-brown (SM)		
11.05	5	ST					

WATER LEVEL OBSERVATIONS

W.L.	7.5'	W.S. OR W.D.
W.L.	B.C.R.	A.C.R.
W.L.	7.5' AB	

SOIL TESTING SERVICES
OF WIS., INC.
540 LAMBEAU STREET
GREEN BAY, WIS. 54303

BORING STARTED		10-18-72	
BORING COMPLETED		10-18-72	
RIG BOMB.		FOREMAN TM	
DRAWN HH		APPROVED WMP	
JOB # 4970		SHEET	

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

LOG OF BORING NO. ST 21-49

OWNER Great Lakes Exploration Company	ARCHITECT - ENGINEER
SITE Ladysmith, Wisconsin	PROJECT NAME Proposed Solid Waste Disposal Area

DEPTH ELEVATION	SAMPLE NO.	TYPE SAMPLE	SAMPLE DIST. RECOVERY	DESCRIPTION OF MATERIAL	UNIT DRY WT. LBS./FT. 3	UNCONFINED COMPRESSIVE STRENGTH TONS/FT. 2				
						1	2	3	4	5
X						PLASTIC LIMIT %		WATER CONTENT %		LIQUID LIMIT %
						STANDARD "N" PENETRATION (BLOWS/FT.)				
						10	20	30	40	50
	1	PA	AS	Topsoil						
	2	PA	AS	Silty clay-trace fine sand-brown (CL)						
5	3	PA	AS	Fine sandy silt-trace clay-brown (ML)						
	4	PA	AS	Silty and clayey sand-trace gravel-reddish brown and brown (SC)						
10				End of Boring						

WATER LEVEL OBSERVATIONS			SOIL TESTING SERVICES OF WIS., INC. 540 LAMBEAU STREET GREEN BAY, WIS. 54303	BORING STARTED 10-17-72	
W.L.	5.4'	W.S. OK WXX		BORING COMPLETED 10-17-72	
W.L.		B.C.R.		RIG Bomb.	FOREMAN TM
W.L.	5.4' AB	A.C.R.		DRAWN HH	APPROVED WMP
				JOB # 4970	SHEET

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

BB S-81471

LOG OF BORING NO. ST 21-50

OWNER Great Lakes Exploration Company					ARCHITECT-ENGINEER							
SITE Ladysmith, Wisconsin					PROJECT NAME Proposed Solid Waste Disposal Area							
DEPTH ELEVATION	SAMPLE NO.	TYPE SAMPLE	SAMPLE DIST.	RECOVERY	DESCRIPTION OF MATERIAL	UNIT DRY WT. LBS./FT. 3	UNCONFINED COMPRESSIVE STRENGTH TONS/FT. 2					
SURFACE ELEVATION →												
1	1	ST			Black silty topsoil (OL)	114						
2	2	ST			Silt-trace clay and fine sand mottled gray and rusty brown (ML) few small lenses of fine sand	112						
5	3	ST				117						
4	4	ST			Fine sand-trace silt-medium dark brown (SP)	119						
10	5	ST										
12.0												
End of Boring							*Calibrated Penetrometer					

WATER LEVEL OBSERVATIONS

W.L.	W.S. OR W.D.	
W.L.	B.C.R.	A.C.R.
W.L.	0.0' AB	

SOIL TESTING SERVICES
OF WIS., INC.
540 LAMBEAU STREET
GREEN BAY, WIS. 54303

BORING STARTED 10-23-72

BORING COMPLETED 10-23-72

RIG Bomb.

FOREMAN TM

DRAWN HH

APPROVED WMP

JOB # 4970

SHEET

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

LOG OF BORING NO. ST 21-51

OWNER Great Lakes Exploration Company	ARCHITECT-ENGINEER
SITE Ladysmith, Wisconsin	PROJECT NAME Proposed Solid Waste Disposal Area

DEPTH ELEVATION	SAMPLE NO.	TYPE SAMPLE	SAMPLE DIST.	RECOVERY	DESCRIPTION OF MATERIAL	UNIT DRY WT. LBS./FT. 3	UNCONFINED COMPRESSIVE STRENGTH TONS/FT. 2				
							1	2	3	4	5
							PLASTIC LIMIT %	WATER CONTENT %	LIQUID LIMIT %		
							×	●	△		
							STANDARD "N" PENETRATION (BLOWS/FT.)				
							10	20	30	40	50
×					SURFACE ELEVATION ↓						
					Black fine fibrous peat(Pt)						
	1	AS			Silty clay-gray (CL)						
5											
	2	AS			Silty very fine sand-dark gray-wet (SM)						
	3	AS									
8.0											
					End of Boring						

WATER LEVEL OBSERVATIONS W.L. 0.0' W.S. or W.D. XXXX W.L. B.C.R. A.C.R. W.L.	SOIL TESTING SERVICES OF WIS., INC. 540 LAMBEAU STREET GREEN BAY, WIS. 54303	BORING STARTED 10-23-72 BORING COMPLETED 10-23-72 RIG Bomb. FOREMAN TM DRAWN HH APPROVED WMP JOB # 4970 SHEET
---	--	---

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

BB S-81471

LOG OF BORING NO. ST 21-52

OWNER Great Lakes Exploration Company	ARCHITECT-ENGINEER
SITE Ladysmith, Wisconsin	PROJECT NAME Proposed Solid Waste Disposal Area

DEPTH ELEVATION	SAMPLE NO.	TYPE SAMPLE	SAMPLE DIST. RECOVERY	DESCRIPTION OF MATERIAL	UNIT DRY WT. LBS./FT. 3	UNCONFINED COMPRESSIVE STRENGTH TONS/FT. 2				
						1 PLASTIC LIMIT % X	2 WATER CONTENT % ●	3 LIQUID LIMIT % △		
						STANDARD "N" PENETRATION (BLOWS/FT.) X				
						10	20	30	40	50
	1	AS		Black peat (Pt)						
	2	ST		Fine sandy and clayey silt-						
	2A	ST		light gray (CL-ML)						
5	3	ST			114					
	4	ST		Very fine sandy silt-trace mica-dark gray (ML)	119					
10										
	5	ST			102					
12.0										
				End of Boring						

WATER LEVEL OBSERVATIONS W.L. 0.0' W.S. OK XXX W.L. B.C.R. A.C.R. W.L. 0.0' AB		SOIL TESTING SERVICES OF WIS., INC. 540 LAMBEAU STREET GREEN BAY, WIS. 54303	BORING STARTED 10-23-72 BORING COMPLETED 10-23-72	
			RIG Bomb. DRAWN HH JOB # 4970	FOREMAN TM APPROVED WMP SHEET

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

BB S-81471

LOG OF BORING NO. ST 21-53

OWNER Great Lakes Exploration Company	ARCHITECT-ENGINEER
SITE Ladysmith, Wisconsin	PROJECT NAME Proposed Solid Waste Disposal Area

DEPTH ELEVATION	SAMPLE NO.	TYPE SAMPLE	SAMPLE DIST. RECOVERY	DESCRIPTION OF MATERIAL	UNIT DRY WT. LBS./FT. 3	UNCONFINED COMPRESSIVE STRENGTH TONS/FT. 2				
						1	2	3	4	5
						PLASTIC LIMIT %		WATER CONTENT %		LIQUID LIMIT %
						X		●		△
						STANDARD "N" PENETRATION (BLOWS/FT.)				
						10	20	30	40	50
⊗				SURFACE ELEVATION →						
				Black silty topsoil (OL)						
	1	ST		Silt trace very fine sand- brown trace rusty brown (ML)						
	2	ST		Fine sandy silt-trace gravel- brown (ML)						
	3	ST		Silty fine coarse sand-trace gravel-reddish brown (SM)						
	4	ST		Fine medium sand-trace to some gravel-trace silt-brown (SP)	●					
	5	SS							⊗ 43	
10										
11.5	6	SS		Silty fine medium sand-trace gravel-dark reddish brown (SM) lenses of brown fine medium sand trace silt						
13.0										
				End of Boring						
				13' NX Casing						

2110

WATER LEVEL OBSERVATIONS			
W.L.	9.5'	W.S. XXXX.	
W.L.	B.C.R.	A.C.R.	
W.L.	9.3' AB		

SOIL TESTING SERVICES
OF WIS., INC.
540 LAMBEAU STREET
GREEN BAY, WIS. 54303

BORING STARTED	10-20-72
BORING COMPLETED	10-20-72
RIG BOMB.	FOREMAN TM
DRAWN HH	APPROVED WMP
JOB # 4970	SHEET

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

LOG OF BORING NO. ST 21-54

OWNER Great Lakes Exploration Company					ARCHITECT-ENGINEER					
SITE Ladysmith, Wisconsin					PROJECT NAME Proposed Solid Waste Disposal Area					
DEPTH ELEVATION	SAMPLE NO.	TYPE SAMPLE	SAMPLE DIST. RECOVERY	DESCRIPTION OF MATERIAL	UNIT DRY WT. LBS./FT. 3	UNCONFINED COMPRESSIVE STRENGTH TONS/FT. 2				
☒				SURFACE ELEVATION →		10	20	30	40	50
	1	AS		Topsoil						
	1A	AS		Silty clay-trace sand and gravel-brown (CL)						
	2	AS								
	3	AS		Silt and fine medium sand-trace gravel-reddish brown (SM-ML)						
5										
	4	AS		Silty fine sand-trace gravel-grayish brown-moist (SM)						
8.0'										
				End of Boring						

WATER LEVEL OBSERVATIONS

W.L.	W.S. OR W.D.	
W.L.	B.C.R.	A.C.R.
W.L.	Dry AB	

SOIL TESTING SERVICES
OF WIS., INC.
540 LAMBEAU STREET
GREEN BAY, WIS. 54303

BORING STARTED	10-17-72
BORING COMPLETED	10-17-72
RIG Bomb.	FOREMAN TM
DRAWN HH	APPROVED WMP
JOB # 4970	SHEET

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

LOG OF BORING NO. ST 21-55

OWNER Great Lakes Exploration Company					ARCHITECT - ENGINEER						
SITE Ladysmith, Wisconsin					PROJECT NAME Proposed Solid Waste Disposal Area						
DEPTH ELEVATION	SAMPLE NO.	TYPE SAMPLE	SAMPLE DIST.	RECOVERY	DESCRIPTION OF MATERIAL	UNIT DRY WT. LBS./FT. 3	UNCONFINED COMPRESSIVE STRENGTH TONS/FT. 2				
							1	2	3	4	5
							PLASTIC LIMIT %	WATER CONTENT %	LIQUID LIMIT %		
							STANDARD "N" PENETRATION (BLOWS/FT.)				
							10	20	30	40	50
8.0'	1	AS			Topsoil						
	1A	AS			Silt-trace clay and fine sand-brown (ML)						
	2	AS			Clayey silt-trace fine sand-brown (CL-ML)						
5	3	AS			Silt and sand-trace gravel and clay-brown (SM-ML)						
	4	AS									
	End of Boring										

WATER LEVEL OBSERVATIONS			SOIL TESTING SERVICES OF WIS., INC. 540 LAMBEAU STREET GREEN BAY, WIS. 54303	BORING STARTED 10-17-72	
W.L.	W.S. OR W.D.			BORING COMPLETED 10-17-72	
W.L.	B.C.R.	A.C.R.		RIG Bomb.	FOREMAN TM
W.L.	Dry AB			DRAWN HH	APPROVED WMP
				JOB # 4970	SHEET

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

LOG OF BORING NO. ST 21-56

OWNER Great Lakes Exploration Company					ARCHITECT-ENGINEER						
SITE Ladysmith, Wisconsin					PROJECT NAME Proposed Solid Waste Disposal Area						
DEPTH ELEVATION	SAMPLE NO.	TYPE SAMPLE	SAMPLE DIST.	RECOVERY	DESCRIPTION OF MATERIAL	UNIT DRY WT. LBS./FT. 3	UNCONFINED COMPRESSIVE STRENGTH TONS/FT. 2				
SURFACE ELEVATION →											
	1	ST			Dark brown silty topsoil (OL)						
	1A	ST			Silt-trace very fine sand and clay-mottled brown and rusty brown (ML)						
	2	ST				118					
	3	ST				133					
5											
	4	ST			Silty fine medium sand-trace to some gravel-trace clay-reddish brown-dense (SM)	125					
10											
11.5	5	SS									⊗ 57
					End of Boring						*Calibrated Penetrometer

WATER LEVEL OBSERVATIONS			SOIL TESTING SERVICES OF WIS., INC. 540 LAMBEAU STREET GREEN BAY, WIS. 54303	BORING STARTED 10-17-72	
W.L.	W.S. OR W.D.			BORING COMPLETED 10-17-72	
W.L.	B.C.R.	A.C.R.		RIG Bomb.	FOREMAN TM
W.L.	Dry AB			DRAWN HH	APPROVED WMP
				JOB # 4970	SHEET

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

LOG OF BORING NO. ST 21-57

OWNER Great Lakes Exploration Company					ARCHITECT-ENGINEER						
SITE Ladysmith, Wisconsin					PROJECT NAME Proposed Solid Waste Disposal Area						
DEPTH ELEVATION	SAMPLE NO.	TYPE SAMPLE	SAMPLE DIST.	RECOVERY	DESCRIPTION OF MATERIAL	UNIT DRY WT. LBS./FT. 3	UNCONFINED COMPRESSIVE STRENGTH TONS/FT. 2				
☒					SURFACE ELEVATION →						
	1	AS			Topsoil						
	2	AS			Silty fine sand-trace clay-brown (SM)						
5					Sandy silt-trace gravel-brown (ML)						
8.0'	3	AS			Silty fine coarse sand-trace gravel-brown-wet (SM)						
					End of Boring						

WATER LEVEL OBSERVATIONS

W.L.	6.5'	W.S. OR W.D.	XXXXX
W.L.		B.C.R.	A.C.R.
W.L.	6.5' AB		

SOIL TESTING SERVICES

OF WIS., INC.
540 LAMBEAU STREET
GREEN BAY, WIS. 54303

BORING STARTED 10-23-72

BORING COMPLETED 10-23-72

RIG Bomb. FOREMAN TM

DRAWN HH APPROVED WMP

JOB # 4970 SHEET

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

LOG OF BORING NO. ST 21-58

OWNER Great Lakes Exploration Company					ARCHITECT-ENGINEER						
SITE Ladysmith, Wisconsin					PROJECT NAME Proposed Solid Waste Disposal Area						
DEPTH ELEVATION	SAMPLE NO.	TYPE SAMPLE	SAMPLE DIST.	RECOVERY	DESCRIPTION OF MATERIAL	UNIT DRY WT. LBS./FT. 3	UNCONFINED COMPRESSIVE STRENGTH TONS/FT. 2				
							1 2 3 4 5 PLASTIC LIMIT % WATER CONTENT % LIQUID LIMIT % STANDARD "N" PENETRATION (BLOWS/FT.) 10 20 30 40 50				
					SURFACE ELEVATION →						
	1	ST			Silty clay-trace roots-mottled gray and rusty brown (CL)	101					
	1A	ST			Silty fine sand-laminated gray brown and rusty brown (SM)						
	2	ST			Fine sandy silt-gray and rusty brown (ML) few irregular fine sand seams	112					
5	3	ST			Fine sand-trace silt-grayish brown to gray (SP)	114					
	4	ST			Silt-trace very fine sand and clay-gray brown to rusty brown (M)	110					
					Fine sand-trace silt-gray brown (SP)	125					
10											
	5	ST			Silty fine sand-dark gray-wet (SM) few clay seams						
12'		PA		LS							
					End of Boring						

WATER LEVEL OBSERVATIONS

W.L.	W.S. OR W.D.	
W.L.	B.C.R.	A.C.R.
W.L.	0.6' AB	

SOIL TESTING SERVICES
OF WIS., INC.
540 LAMBEAU STREET
GREEN BAY, WIS. 54303

BORING STARTED 10-23-72

BORING COMPLETED 10-23-72

RIG Bomb.

FOREMAN TM

DRAWN HH

APPROVED WMP

JOB # 4970

SHEET

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

LOG OF BORING NO. ST 21-59

OWNER

Great Lakes Exploration Company

ARCHITECT-ENGINEER

SITE

Ladysmith, Wisconsin

PROJECT NAME

Proposed Solid Waste Disposal Area

DEPTH ELEVATION	SAMPLE NO.	TYPE SAMPLE	SAMPLE DIST.	RECOVERY	DESCRIPTION OF MATERIAL	UNIT DRY WT. LBS./FT. 3	UNCONFINED COMPRESSIVE STRENGTH TONS/FT. 2				
							1	2	3	4	5
							PLASTIC LIMIT %	WATER CONTENT %	LIQUID LIMIT %		
							X	●	△		
							STANDARD "N" PENETRATION (BLOWS/FT.)				
							10	20	30	40	50
1	AS				Black silty and clayey top-soil (OL-OH)						
2	AS				Silty clay-trace fine sand-gray (CL)						
3	AS				Silt-trace fine sand and clay-dark gray-very slightly organic (ML)						
4	AS										
5											
8.0											
					End of Boring						

WATER LEVEL OBSERVATIONS

W.L.	0.0'	W.S. XXXXXX
------	------	-------------

W.L.	B.C.R.	A.C.R.
------	--------	--------

W.L.	0.1' AB
------	---------

SOIL TESTING SERVICES

OF WIS., INC.

540 LAMBEAU STREET
GREEN BAY, WIS. 54303

BORING STARTED 10-23-72

BORING COMPLETED 10-23-72

RIG Bomb.

FOREMAN TM

DRAWN HH

APPROVED WMP

JOB # 4970

SHEET

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

LOG OF BORING NO. ST 21-63

OWNER Great Lakes Exploration Company		ARCHITECT-ENGINEER	
SITE Ladysmith, Wisconsin		PROJECT NAME Proposed Solid Waste Disposal Area	

DEPTH ELEVATION	SAMPLE NO.	TYPE SAMPLE	SAMPLE DIST.	RECOVERY	DESCRIPTION OF MATERIAL	UNIT DRY WT. LBS./FT. 3	UNCONFINED COMPRESSIVE STRENGTH TONS/FT. 2				
							1	2	3	4	5
							PLASTIC LIMIT %		WATER CONTENT %		LIQUID LIMIT %
							X				
							STANDARD "N" PENETRATION (BLOWS/FT.)				
							10	20	30	40	50
	1	ST			Black silty topsoil (OL)	84					
	1A	ST			Sandy and silty clay-mottled gray brown and rusty brown (CL)	116					
					Silty and clayey sand-trace gravel-mottled brown and red-dish brown (SC)	120					
	2	ST			Fine sandy silt-trace clay-gray to dark gray-very slightly organic (ML)	106					
5	3	ST				122					
	4	SS									
10											
	5	SS			Silty and clayey sand-trace gravel-dark grayish brown-loose to medium dense (SC) slightly more clay @ 15'						
15											
16.5	6	SS									
					End of Boring						

⊗ 4

⊗ 7

⊗ 10

*Calibrated Penetrometer

WATER LEVEL OBSERVATIONS			SOIL TESTING SERVICES OF WIS., INC. 540 LAMBEAU STREET GREEN BAY, WIS. 54303			BORING STARTED 10-24-72	
W.L.	4-5.5'	W.S. XXXX.				BORING COMPLETED 10-24-72	
W.L.	B.C.R.	A.C.R.				RIG Bomb.	FOREMAN TM
W.L.	6.2' AB					DRAWN HH	APPROVED WMP
						JOB # 4970	SHEET

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

LOG OF BORING NO. St 21-65

OWNER Great Lakes Exploration Company					ARCHITECT - ENGINEER				
SITE Ladysmith, Wisconsin					PROJECT NAME Proposed Solid Waste Disposal Area				
DEPTH ELEVATION	SAMPLE NO.	TYPE SAMPLE	SAMPLE DIST.	RECOVERY	DESCRIPTION OF MATERIAL	UNIT DRY WT. LBS./FT. 3	UNCONFINED COMPRESSIVE STRENGTH TONS/FT. 2		
							12345 PLASTIC LIMIT %WATER CONTENT %LIQUID LIMIT % X●△ STANDARD "N" PENETRATION (BLOWS/FT.) 1020304050		
X					SURFACE ELEVATION →				
	1	ST			Black silty topsoil (OL)	769	○		
	1A	ST			Silt-trace very fine sand and clay-brown and rusty brown (ML) few thin sand seams	104	○ ●		
	2	ST							
5	3	SS			Silty fine sand-trace fine gravel and medium sand-brown-moist medium dense to dense (SM)		⊗ 19		
	4	SS			seams of reddish brown silt @ 7'		⊗ 37		
10	5	SS			Fine coarse sand-trace gravel and silt-brown-dense (SW)		⊗ 46		
15	6	SS			Fine medium sand-trace to some gravel and silt-brown-moist dense (SM)		⊗ 34		
20	7	SS			Silty and sandy clay-trace gravel-brown (CL) silty sand lenses		⊗ 38		
25	8	SS			Silty and clayey sand-trace gravel-reddish brown-medium dense wet (SC)		⊗ 31		
26.5					End of Boring 20'NX Casing		*Calibrated Penetrometer		

WATER LEVEL OBSERVATIONS			SOIL TESTING SERVICES OF WIS., INC. 540 LAMBEAU STREET GREEN BAY, WIS. 54303		BORING STARTED 10-26-72	
W.L.	W.S. OR W.D.				BORING COMPLETED 10-26-72	
W.L. 5.7'	B.C.R.	9.9' A.C.R.			RIG 22	FOREMAN TM
W.L. Dry WA to 16.5'					DRAWN HH	APPROVED WMP
					JOB # 4970	SHEET

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

LOG OF BORING NO. ST 21-66

OWNER Great Lakes Exploration Company					ARCHITECT - ENGINEER					
SITE Ladysmith, Wisconsin					PROJECT NAME Proposed Solid Waste Disposal Area					
DEPTH ELEVATION	SAMPLE NO.	TYPE SAMPLE	SAMPLE DIST. RECOVERY	DESCRIPTION OF MATERIAL	UNIT DRY WT. LBS./FT. 3	UNCONFINED COMPRESSIVE STRENGTH TONS/FT. 2				
						1	2	3	4	5
						PLASTIC LIMIT %	WATER CONTENT %	LIQUID LIMIT %		
						STANDARD "N" PENETRATION (BLOWS/FT.)				
						10	20	30	40	50
0	1	ST		Black silty topsoil (OL)						
	1A	ST		Silt-trace clay and fine sand - brown and rusty brown (ML)	100					
	2	ST		Fine sand and silt-trace gravel, clay, and coarse sand-reddish brown (SM-ML)						
5	3	SS		Sandy and clayey silt-trace gravel-reddish brown (ML-CL)						
	4	SS								
10	5	SS		Fine sand-trace gravel, coarse sand, and silt-more gravel @ 10'-brown-dense (SP)						
	6	SS								
15				Silty fine sand-trace gravel-reddish brown (SM)						
	7	SS								
20				Silty and clayey sand-trace gravel-reddish brown-medium dense to dense (SC)						
25	8	SS								
26.5										
End of Boring					20' NX Casing	*Calibrated Penetrometer				

WATER LEVEL OBSERVATIONS

W.L.	W.S. OR W.D.	
W.L. 10'	B.C.R.	4.9' A.C.R.
W.L.	Dry WS to 16.5'	

SOIL TESTING SERVICES
OF WIS., INC.
540 LAMBEAU STREET
GREEN BAY, WIS. 54303

BORING STARTED	10-26-72
BORING COMPLETED	10-26-72
RIG 22	FOREMAN TM
DRAWN HH	APPROVED WMP
JOB #4970	SHEET

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

LOG OF BORING NO. ST 21-67

OWNER Great Lakes Exploration Company					ARCHITECT-ENGINEER						
SITE Ladysmith, Wisconsin					PROJECT NAME Proposed Solid Waste Disposal Area						
DEPTH ELEVATION	SAMPLE NO.	TYPE SAMPLE	SAMPLE DIST.	RECOVERY	DESCRIPTION OF MATERIAL	UNIT DRY WT. LBS./FT. 3	UNCONFINED COMPRESSIVE STRENGTH TONS/FT. 2				
							1	2	3	4	5
							PLASTIC LIMIT %	WATER CONTENT %	LIQUID LIMIT %		
							STANDARD "N" PENETRATION (BLOWS/FT.)				
							10	20	30	40	50
0	1	ST			Black silty topsoil (OL)	69					
	1A	ST			Silt-trace very fine sand and clay-brown to rusty brown (ML)	106					
	2	ST									
5	3	SS			Silty and clayey sand-trace gravel-reddish brown (SC)						
	4	SS									
					Silty fine sand-trace gravel-brown-slightly cemented (SM)						
10	5	SS									
15	6	SS									
					Silty fine medium sand-trace gravel and clay-reddish brown-dense (SM)						
20	7	SS									
25	8	SS			Silty and clayey sand-trace gravel-reddish brown-medium dense (SC)						
26.5											
End of Boring						20' NX Casing	*Calibrated Penetrometer				

WATER LEVEL OBSERVATIONS

W.L.	W.S. OR W.D.	
W.L.	5.9' B.C.R.	2.0' A.C.R.
W.L.		

SOIL TESTING SERVICES
OF WIS., INC.
540 LAMBEAU STREET
GREEN BAY, WIS. 54303

BORING STARTED	10-26-72
BORING COMPLETED	10-26-72
RIG 22	FOREMAN TM
DRAWN HH	APPROVED WMP
JOB # 4970	SHEET

The stratification lines represent the approximate boundary between soil types and the transition may be gradual.

SOIL TESTING SERVICES, OF WIS., INC.

PERMEABILITY TEST

Constant Head

Project No. 88

STS Job No. 4970

Date 10-24-72

Report No. _____

Sample ST 21-27 Sample 4 6' - 7'

Soil Description Silty fine sand(SM) layers of sandy silt (ML)

Mark No. _____

Compacted Dry Density = Natural

% Compaction = _____

Sample Diameter = 1 7/8 inch

Sample Height = 6.5 inch

Run No.	Head, inches	Duration, seconds	Permeability cm/sec	Remarks
1	322	41,700	6.6×10^{-7}	
2	322	25,800	6.4×10^{-7}	Sample blew out of tube after Run #2
Avg. =			6.5×10^{-7}	

SOIL TESTING SERVICES, OF WIS., INC.

PERMEABILITY TEST

Constant Head

Project No. 89

STS Job No. 4970

Date 11-7-72

Report No. _____

Sample Boring ST 21-33 Sample 2 2'-3.5'

Soil Description Fine sandy silt-trace clay-brown trace rusty brown (ML)

Mark No. _____

Compacted Dry Density = Natural

Compaction = _____

Sample Diameter = 1 7/8 inch

Sample Height = 9.0 inch

Run No.	Head, inches	Duration, seconds	Permeability cm/sec	Remarks
1	609.8	112,800	4.5×10^{-7}	
2	"	62,700	1.0×10^{-6}	
3	"	45,900	5.5×10^{-7}	
4	"	3,600	2.4×10^{-6}	

Avg. = 1.1×10^{-6}

SOIL TESTING SERVICES, OF WIS., INC.

PERMEABILITY TEST

Constant Head

Sample ST 21 - 38 Sample 1 0 '1-2'

Soil Description black silty topsoil (OL)

Mark No.

Compacted Dry Density = Natural

% Compaction = Natural

Sample Diameter = 1 7/8 inch

Sample Height = 6.0 inch

Project No. 90

STS Job No. 4970

Date 10-9-72

Report No.

Run No.	Head, inches	Duration, seconds	Permeability cm/sec	Remarks
1	326	14,700	1.6×10^{-6}	
2	326	49,200	1.2×10^{-6}	
3	326	96,300	1.1×10^{-6}	

Avg. = 1.3×10^{-6}

SOIL TESTING SERVICES, OF WIS., INC.

PERMEABILITY TEST

Constant Head

Project No. 91

STS Job No. 4970

Date 10-11-72

Report No. _____

Sample Boring ST 21-38 Sample 2 2' - 4'

Soil Description Grayish brown silt and very fine sand (ML-SM)

Mark No. _____

Compacted Dry Density = Natural

Compaction = Natural

Sample Diameter = 1 7/8 inch

Sample Height = 10 inches

Run No.	Head, inches	Duration, seconds	Permeability cm/sec	Remarks
1	326	24,000	1.5×10^{-6}	
2	326	57,000	1.5×10^{-6}	
	326	25,800	1.5×10^{-6}	
4	326	48,600	1.6×10^{-6}	
			Avg. 1.5×10^{-6}	

SOIL TESTING SERVICES, OF WIS., INC.

PERMEABILITY TEST

Constant Head

Project No. 92

STS Job No. 4970

Date 9-29-72

Report No. _____

Sample ST 21-38 Sample 3 4' - 6'

Soil Description Reddish brown silty fine medium sand-trace to some gravel (SM)

Mark No.

Compacted Dry Density = Natural

% Compaction = Natural

Sample Diameter = 1 7/8

Sample Height = 12.5 inch

Run No.	Head, inches	Duration, seconds	Permeability cm/sec	Remarks
1	601	91,500	2.70×10^{-6}	
2	601	69,300	2.3×10^{-6}	

Avg. = 2.5×10^{-6}

SOIL TESTING SERVICES, OF WIS., INC.

PERMEABILITY TEST

Constant Head

Sample ST 21 - 38 Sample 4 6' - 8'

Soil Description Reddish brown silty fine medium sand-trace to some gravel (SM)

Mark No.

Compacted Dry Density = Natural

% Compaction = Natural

Sample Diameter = 1 7/8 inch

Sample Height = 7.0 inch -

Run No.	Head, inches	Duration, seconds	Permeability cm/sec	Remarks
1	459.0	67,500	1.9×10^{-6}	
2	403.6	30,000	1.5×10^{-6}	
3	459.0	72,000	1.9×10^{-6}	
			Avg. = 1.8×10^{-6}	

Project No. 93

STS Job No. 4970

Date 9-29-72

Report No.

SOIL TESTING SERVICES, OF WIS., INC.

PERMEABILITY TEST

Constant Head

Project No. 94

STS Job No. 4970

Date _____

Report No. _____

Sample Boring ST 21-40 Sample 1 0'-2'

Soil Description Silt-trace very fine sand-mottled brown and rusty brown (ML)

Mark No.

Compacted Dry Density = Natural

% Compaction = Natural

Sample Diameter = 1 7/8 inch

Sample Height = 5.5 inch

Run No.	Head, inches	Duration, seconds	Permeability cm/sec	Remarks
---------	--------------	-------------------	------------------------------	---------

1	43.5	261,300	1.2×10^{-6}	
---	------	---------	----------------------	--

2	43.5	71,700	6.1×10^{-7}	
---	------	--------	----------------------	--

3	43.5	100,800	5.9×10^{-7}	
---	------	---------	----------------------	--

4	43.5	346,980	6.9×10^{-8}	
---	------	---------	----------------------	--

Avg. = 6.2×10^{-7}

SOIL TESTING SERVICES, OF WIS., INC.

Project No. _____ 95

PERMEABILITY TEST

STS Job No. _____ 4970

Constant Head

Date _____

Report No. _____

Sample ST 21-40 Sample 2 2'-4'

Soil Description Silt-trace very fine sand and clay-mottled brown and rusty brown (ML)

Mark No. _____

Natural Dry Density = 111 PCF Natural-water content = 13.9%

% Compaction = _____

Sample Diameter = 1 7/8 inch

Sample Height = 3 inch

Run No.	Head, inches	Duration, seconds	Permeability cm/sec	Remarks
1	736	598,500	2.0×10^{-8}	
2	736	71,700	4.8×10^{-8}	
3	736	100,800	1.1×10^{-8}	
4	736	346,980	8.4×10^{-9}	

Avg. = 2.2×10^{-8}

SOIL TESTING SERVICES, OF WIS., INC.

PERMEABILITY TEST

Constant Head

Project No. 96

STS Job No. 4970

Date 10-24-72

Report No. _____

Sample ST 21-40 Sample 5 10' - 11.5'

Soil Description Silty fine medium sand - trace to some gravel-trace clay (SM)

Mark No. _____

Compacted Dry Density = Natural

% Compaction = _____

Sample Diameter = 1 7/8 inch

Sample Height = 8.75 inch

Run No.	Head, inches	Duration, seconds	Permeability cm/sec	Remarks
1	320	52,200	1.8×10^{-6}	
2	320	30,600	1.5×10^{-6}	
3	320	60,600	2.2×10^{-6}	
4	320	75,600	2.9×10^{-6}	
Avg. =			2.1×10^{-6}	

SOIL TESTING SERVICES, OF WIS., INC.

Project No. 97

PERMEABILITY TEST

STS Job No. 4970

Falling Head

Date 11-11-72

Report No. _____

Sample Boring ST 21-48 Sample 1 0-2

Soil Description Top 6" - Topsoil Bottom 5 1/4" Silt-trace fine sand (ML)

Mark No.

Natural Dry Density = 89.4 PCF Water content = 31.7%

% Compaction =

Sample Diameter = 1 7/8 inch

Sample Height = 11.25 inch

Run No.	Head, inches	Duration, seconds	Permeability cm/sec	Remarks
1	48½ to 36	3780	2.2×10^{-3}	
2	48.5 to 37.5	3900	1.9×10^{-3}	
3	48.5 to 33.25	8100	1.3×10^{-3}	
4	48.5 to 41.25	4680	9.8×10^{-4}	Possible leak along side of tube

Avg. $= 1.6 \times 10^{-3}$

SOIL TESTING SERVICES, OF WIS., INC.

PERMEABILITY TEST

Constant Head

Project No. 98

STS Job No. 4970

Date 11-2-72

Report No. _____

Sample Boring ST 21-48 Sample 2 2' - 3.5'

Soil Description Fine sandy silt-trace gravel and clay-brown-ML

Mark No. _____

Natural Dry Density = 123.0 PCF

Water content = 15.1%

Compaction = --

Sample Diameter = 1 7/8 inch

Sample Height = 6.0 inch

Run No.	Head, inches	Duration, seconds	Permeability cm/sec	Remarks
1	1014	75,900	1.8×10^{-7}	
2	1014	17,700	2.6×10^{-7}	
3	1014	9,300	1.8×10^{-7}	
4	1014	111,300	2.1×10^{-7}	
5	1014	68,400	2.6×10^{-7}	
6	1014	63,600	2.2×10^{-7}	

Avg. = 2.2×10^{-7}

SOIL TESTING SERVICES, OF WIS., INC.

PERMEABILITY TEST

Constant Head

Sample Boring ST 21-48 Sample 3 4' - 5.5'

Soil Description Fine sandy silt-trace gravel and clay-reddish brown (ML)

Mark No.

Natural Dry Density = 132.0 PCF (dense) water content = 10.7%

% Compaction =

Sample Diameter = 1 7/8 inch

Sample Height = 8.5 inch

Run No.	Head, inches	Duration, seconds	Permeability cm/sec	Remarks
---------	--------------	-------------------	------------------------------	---------

1	428	119,100	3.1×10^{-8}	
---	-----	---------	----------------------	--

2	428	27,300	2.8×10^{-8}	
---	-----	--------	----------------------	--

3	428	54,000	3.1×10^{-8}	
---	-----	--------	----------------------	--

Avg. = 3.0×10^{-8}

Project No. 99

STS Job No. 4970

Date 11-2-72

Report No.

SOIL TESTING SERVICES, OF WIS., INC.

PERMEABILITY TEST

Constant Head

Sample Boring ST 21-48 Sample 4 6' - 7'

Soil Description Silty fine to coarse sand-trace to some gravel-brown (SM)

Mark No.

Compacted Dry Density = Natural

Compaction =

Sample Diameter = 1 7/8 inch

Sample Height = 8.5 inch

Project No. 100

STS Job No. 4970

Date 11-3-72

Report No.

Run No.	Head, inches	Duration, seconds	Permeability cm/sec	Remarks
1	188	111,300	3.2×10^{-6}	
2	"	68,400	2.3×10^{-6}	
3	"	12,000	4.2×10^{-6}	
4	"	55,200	3.0×10^{-6}	
Avg. =			3.1×10^{-6}	

SOIL TESTING SERVICES, OF WIS., INC.

PERMEABILITY TEST

Constant Head

Project No. 101

STS Job No.

Date

Report No.

Sample Boring ST 21-48 Sample 5 10'-11'

Soil Description Silty fine to coarse sand-trace to some gravel-brown (SM)

Mark No.

Compacted Dry Density = Natural

Compaction =

Sample Diameter = 1 7/8 inch

Sample Height = 3.5 inch

Run No.	Head, inches	Duration, seconds	Permeability cm/sec	Remarks
---------	--------------	-------------------	------------------------------	---------

1	41	12,000	5.5×10^{-6}	
---	----	--------	----------------------	--

2	41	55,200	7.3×10^{-6}	
---	----	--------	----------------------	--

3	41	7,200	3.4×10^{-6}	
---	----	-------	----------------------	--

Avg. = 5.4×10^{-6}

SOIL TESTING SERVICES, OF WIS., INC.

PERMEABILITY TEST

Constant Head

Sample Boring ST 21-53 Sample 2 2'-4'

Soil Description Brown fine sandy silt-trace gravel (ML)

Mark No.

Natural Dry Density = 133 PCF Water Content 11.8%

Compaction =

Sample Diameter = 1 7/8 inch

Sample Height = 7.0 inch

Project No. 102

STS Job No. 4970

Date 11-7-72

Report No.

Run No.	Head, inches	Duration, seconds	Permeability cm/sec	Remarks
1	877	67,800	9.7×10^{-8}	
2	"	92,400	7.0×10^{-8}	
3	"	158,700	5.9×10^{-8}	
4	"	113,400	5.0×10^{-8}	
5	"	62,700	5.5×10^{-8}	
Avg. =			6.6×10^{-8}	

SOIL TESTING SERVICES, OF WIS., INC.

Project No. 103

PERMEABILITY TEST

STS Job No. 4970

Constant Head

Date 11-7-72

Report No. _____

Sample Boring ST 21-53 Sample 3 4'-5'

Soil Description Reddish brown silty fine to coarse sand-trace gravel (SM)

Mark No.

Compacted Dry Density = Natural

Compaction =

Sample Diameter = 1 7/8 inch

Sample Height = 5.0 inch

Run No.	Head, inches	Duration, seconds	Permeability cm/sec	Remarks
1	48	24,600	6.6×10^{-5}	
2	48	9,000	8.6×10^{-5}	
3	48	9,120	1.7×10^{-4}	
4	48	12,600	1.1×10^{-4}	

Avg. = 1.1×10^{-4}

SOIL TESTING SERVICES, OF WIS., INC.

PERMEABILITY TEST

Constant Head

Project No. 104

STS Job No. 4970

Date 11-11-72

Report No.

Sample Boring ST 21-65 Sample 2 2' - 3.5'

Soil Description Brown trace rusty brown silt-trace very fine sand and clay (ML)

Mark No.

Compacted Dry Density = Natural

Compaction =

Sample Diameter = 1 7/8 inch

Sample Height = 2.0 inch

Run No.	Head, inches	Duration, seconds	Permeability cm/sec	Remarks
1	314	24,300	1.6×10^{-7}	
2	"	59,100	1.1×10^{-7}	
3	"	22,500	9.0×10^{-8}	
4	"	9,600	2.4×10^{-7}	
Avg. =			1.5×10^{-7}	

SOIL TESTING SERVICES, OF WIS., INC.

PERMEABILITY TEST

Constant Head

Project No. 105

STS Job No.

Date

Report No.

Sample Boring ST 21-66 Sample 2 2' - 4'

Soil Description Fine sand and silt-trace gravel, clay, and coarse sand-SM-ML

Mark No.

Compacted Dry Density = Natural

Compaction =

Sample Diameter = 1 7/8 inch

Sample Height = 8.0 inch

Run No.	Head, inches	Duration, seconds	Permeability cm/sec	Remarks
1	47.5	3600	1.8×10^{-5}	
2	47.5	6300	2.7×10^{-5}	
3	47.5	49200	1.8×10^{-5}	

Avg. = 2.1×10^{-5}

SOIL TESTING SERVICES, OF WIS., INC.

PERMEABILITY TEST

Constant Head

Project No. 106

STS Job No. 4970

Date 10-4-72

Report No. _____

Sample ST 9-1 Sample 9, 10 & 11 Combined

Soil Description Saprolite-gray to rusty brown and orangish brown silt-trace clay and rock fragments (ML)

Mark No.

Compacted Dry Density = 105.8 PCF

Water Content = 14.6% Liquid Limit = 28.4%
Plastic Limit = Non-Plastic

% Compaction = 94.8% of ASTM D698-70

Sample Diameter = 3.0 inch

Sample Height = 6.0 inch

Run No.	Head, inches	Duration, seconds	Permeability cm/sec	Remarks
1	194.6	69,300	1.0×10^{-6}	
2	333	13,200	1.0×10^{-6}	
3	333	8,700	1.2×10^{-6}	
			Avg. = 1.1×10^{-6}	

SOIL TESTING SERVICES, OF WIS., INC.

PERMEABILITY TEST

Constant Head

Project No. 107

STS Job No. 4970

Date 10-24-72

Report No. _____

Sample Boring ST 9-2 Combined Samples 14,15,16,17 & 18 65' to 77'

Soil Description Saprolite-gray and white with rusty brown streaks-silt with angular rock fragments-talcy feel (sericite) ML

Mark No.

Compacted Dry Density = 128.9 PCF

% Compaction = 95.8%

Sample Diameter = 3 1/16 inch

Sample Height = 6.0 inch

Run No.	Head, inches	Duration, seconds	Permeability cm/sec	Remarks
1	56	30,600	4.4×10^{-6}	
2	56	60,600	5.5×10^{-6}	
3	56	75,600	5.4×10^{-6}	

Avg. = 5.0×10^{-6}

SOIL TESTING SERVICES, OF WIS., INC.

PERMEABILITY TEST

Constant Head

Project No. 108

STS Job No. 4970

Date 10-21-72

Report No. _____

Sample Boring ST 9-3 Combined Samples 14,15,16, & 18 65' to 75' ..

Soil Description Saprolite-gray and white traces orange brown-silt with fine to coarse angular rock fragments

Mark No.

Compacted Dry Density = 110.7 PCF

% Compaction = 88.5%

Sample Diameter = 3 1/6 inch

Sample Height = 6.0 inch

Run No.	Head, inches	Duration, seconds	Permeability cm/sec	Remarks
1	56	79,200	6.7×10^{-6}	
2	56	76,200	6.8×10^{-6}	
3	56	36,000	5.8×10^{-6}	
4	56	69,000	6.3×10^{-6}	
5	56	71,700	6.2×10^{-6}	
			Avg = 6.4×10^{-6}	

SOIL TESTING SERVICES, OF WIS., INC.

PERMEABILITY TEST

Constant Head

Project No. 109

STS Job No. 4970

Date 11-9-72

Report No. _____

Sample Combined borings ST 9-4 Sample 1 & 2, ST9-5 Sample 2, ST9-6 Sample 1, ST9-7 Sample 1A

Soil Description Silty fine sand-trace gravel

Mark No.

Compacted Dry Density = 116.6 PCF

Compaction = 89.4%

Sample Diameter = 3 1/6 inch

Sample Height = 6.0 inch

Run No.	Head, inches	Duration, seconds	Permeability cm/sec	Remarks
1	17 7/8	8460	1.5×10^{-4}	
2	"	9000	1.4×10^{-4}	
3	"	6600	1.3×10^{-4}	
4	"	3600	1.3×10^{-4}	

Avg. = 1.4×10^{-4}

SOIL TESTING SERVICES, OF WIS., INC.

PERMEABILITY TEST

Constant Head

Project No. 110

STS Job No. 4970

Date 11-4-72

Report No. _____

Sample Boring ST9-4 Combined sample 7,9,10, & 11 32' to 43' ..

Soil Description Saprolite-greenish gray-silt trace clay and angular rock fragments (ML)

Liquid limit = 25.1%

Plastic limit 20.8%

Mark No.

Compacted Dry Density = 115.8 PCF

Compaction = 95.4%

Sample Diameter = 3 1/16 inch

Sample Height = 6.0 inch

Run No.	Head, inches	Duration, seconds	Permeability cm/sec	Remarks
1	173	63,300	1.0×10^{-6}	
2	118	20,400	1.1×10^{-6}	
3	173	12,900	1.2×10^{-6}	
4	35	54,600	1.1×10^{-6}	
5	118	82,800	7.2×10^{-7}	
			Ave. $= 1.1 \times 10^{-6}$	

SOIL TESTING SERVICES, OF WIS., INC.

PERMEABILITY TEST

Constant Head

Project No. 111
 STS Job No. 4970
 Date 10-26-72
 Report No. _____

Sample Boring ST9-5 Combined samples 7, 8, 9, 12 & 13 31' to 41'

Soil Description Saprolite - brown and gray-silt with angular rock fragments (ML)

Mark No.

Compacted Dry Density = 103.9 PCF

% Compaction = 94.1%

Sample Diameter = 3 1/16 inch

Sample Height = 6.0 inch

Run No.	Head, inches	Duration, seconds	Permeability cm/sec	Remarks
1	22.5	4140	6.4×10^{-5}	
2	22.5	11,700	5.9×10^{-5}	
3	22.5	4,680	6.1×10^{-5}	

Avg. = 6.1×10^{-5}

SOIL TESTING SERVICES, OF WIS., INC.

PERMEABILITY TEST

Constant Head

Project No. 112

STS Job No. 4970

Date

Report No.

Sample Boring ST9-7 Combined samples 2,3,3A,4 and 5 5' to 23'

Soil Description Fine to coarse sand with gravel SW

Mark No.

Compacted Dry Density = 123.2 PCF

Compaction = 95.0%

Sample Diameter = 3 1/16 inch

Sample Height = 6.0 inch

Run No.	Head, inches	Duration, seconds	Permeability cm/sec	Remarks
1	20	1800	5.1×10^{-4}	
2	20	1200	4.3×10^{-4}	
3	20	3600	4.1×10^{-4}	
4	20	3900	4.0×10^{-4}	

Avg. $= 4.3 \times 10^{-4}$

SOIL TESTING SERVICES, OF WIS., INC.

PERMEABILITY TEST

Constant Head

Sample ST 9-7 Samples 12B, 15, 18 & 19 Combined

Soil Description Saprolite - light reddish brown silty clay-trace sand size and angular rock fragments (CH)

Mark No.

Compacted Dry Density = 119.8 PCF Water Content = 24.9% Liquid Limit = 56.0%
Plastic Limit = 30.4%

% Compaction = 98% of ASTM D698-70

Sample Diameter = 3.0 inch

Sample Height = 6.0 inch

Run No.	Head, inches	Duration, seconds	Permeability cm/sec	Remarks
1	328	67,500	2.4×10^{-8}	
2	328	36,000	2.5×10^{-8}	
3	328	72,000	2.6×10^{-8}	
			Avg. = 2.5×10^{-8}	Sample swelled about 1/2" at top after test

SOIL TESTING SERVICES, OF WIS., INC.

PERMEABILITY TEST

Constant Head

Project No. 114

STS Job No. 4970

Date 11-18-72

Report No. _____

Sample As received from A. W. Last, Manager, Minerals Processing Department

Soil Description Tailings from core from the Flambeau Deposit · 93% passing #200 mesh
60% passing #400 mesh

Mark No.

Compacted Dry Density = 82.0 PCF

Compaction = -

Sample Diameter = 8.0 inch

Sample Height = 4.5 inch

Run No.	Head, inches	Duration, seconds	Permeability cm/sec	Remarks
1	35.25	1500	8.1×10^{-5}	All runs done with vertical confining pressure of 800 PSI Dry density changed from 82.0 PCF to 84.0 PCF during test
2	35.25	1200	8.3×10^{-5}	
3	35.25	1560	8.2×10^{-5}	
4	35.25	1500	6.9×10^{-5}	

Avg. $k = 7.9 \times 10^{-5}$

SOIL TESTING SERVICES, OF WIS., INC.

PERMEABILITY TEST

Constant Head

Project No. 115

STS Job No. 4970

Date 11-22-72

Report No. _____

Sample As received from A. W. Last, Manager, Minerals Processing Department

Soil Description Tailings from core from the Flambeau Deposit 93% passing #200 mesh
60% passing #400 mesh

Mark No. _____

Compacted Dry Density = 111.0 PCF

Compaction = -

Sample Diameter = 8.0 inch

Sample Height = 4.5 inch

Run No.	Head, inches	Duration, seconds	Permeability cm/sec	Remarks
1	35.25	1800	3.3×10^{-5}	All runs done with vertical confining pressure of 800 PSF Dry density changed from 111.0 PCF to 112.2 PCF during test
2	35.25	1920	4.2×10^{-5}	
3	35.25	4500	2.9×10^{-5}	
4	35.25	3480	3.6×10^{-5}	

Ave. = 3.5×10^{-5}

SOIL TESTING SERVICES OF WISCONSIN, INC.

540 LAMBEAU ST., GREEN BAY, WIS. 54303

PHONE (414) 494-9656

Date 10-3-72

Job No. 4970

COMPACTION CONTROL REPORT

1. Laboratory Compaction Test Data

A. Description of Soil: Saprolite-Gray to rusty brown and orangish brown silt
(sericite) trace clay and angular rock fragments

Material Mark _____ Classification ML

AASHO
BPR

Source of Material Boring ST 9-1 Samples 9, 10 and 11 combined

Natural Water Content 13.1-16.1 % Natural Dry Density _____ PCF Specific Gravity _____

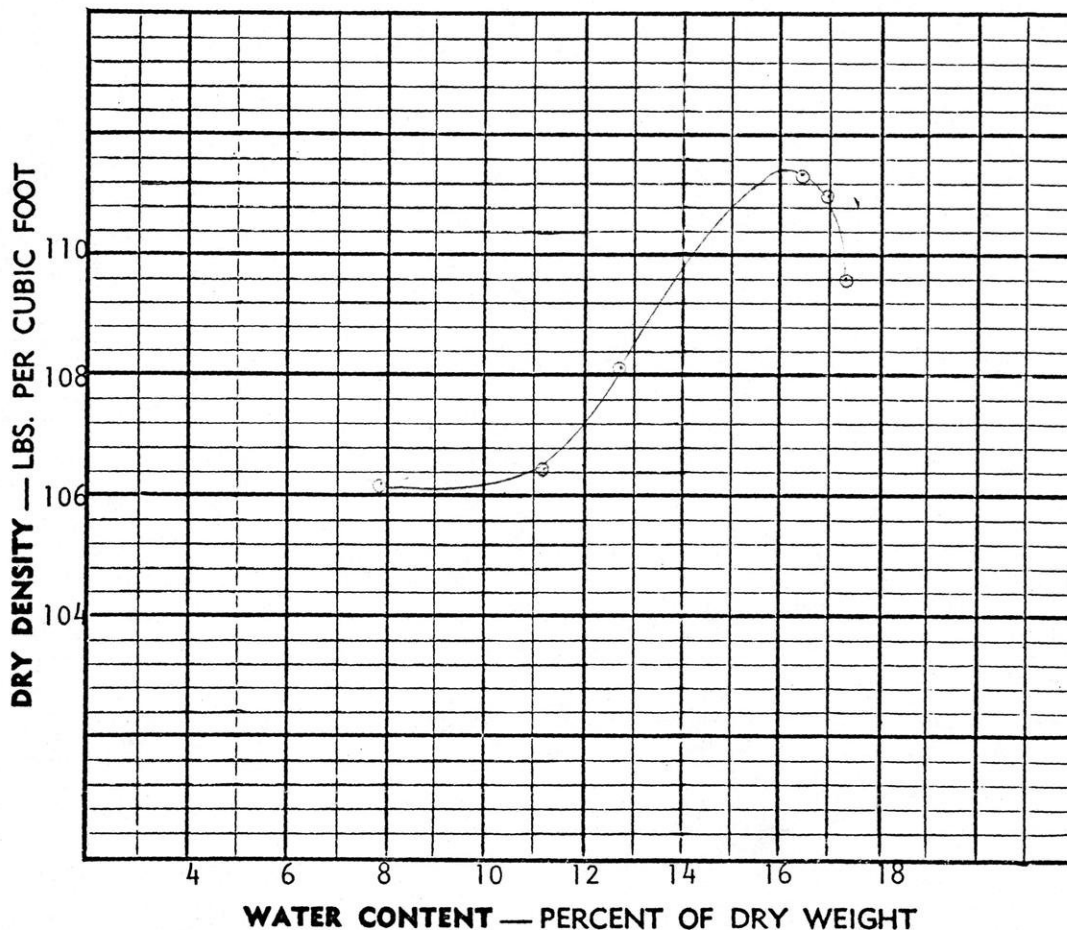
Liquid Limit 28.4 % Plastic Limit Non-plastic % Plasticity Index _____

B. Test Procedure Used: ASTM D-698-70 Method C

C. Test Results:

Optimum Water Content 16.0 %

Maximum Dry Density 111.4 PCF (at a Wet Density of _____ PCF)



SOIL TESTING SERVICES OF WISCONSIN, INC.

540 LAMBEAU ST., GREEN BAY, WIS. 54303

PHONE (414) 494-9656

Date _____

Job No. 4970

COMPACTION CONTROL REPORT

1. Laboratory Compaction Test Data

A. Description of Soil: Saprolite-gray and white with rusty brown streaks-silt with angular rock fragments-talcy feel (sericite)

Material Mark Boring ST 9-2 Classification ML AASHTO

Source of Material Boring ST 9-2 Combined samples 14, 15, 16, 17, and 18, 65' - 77' BPR

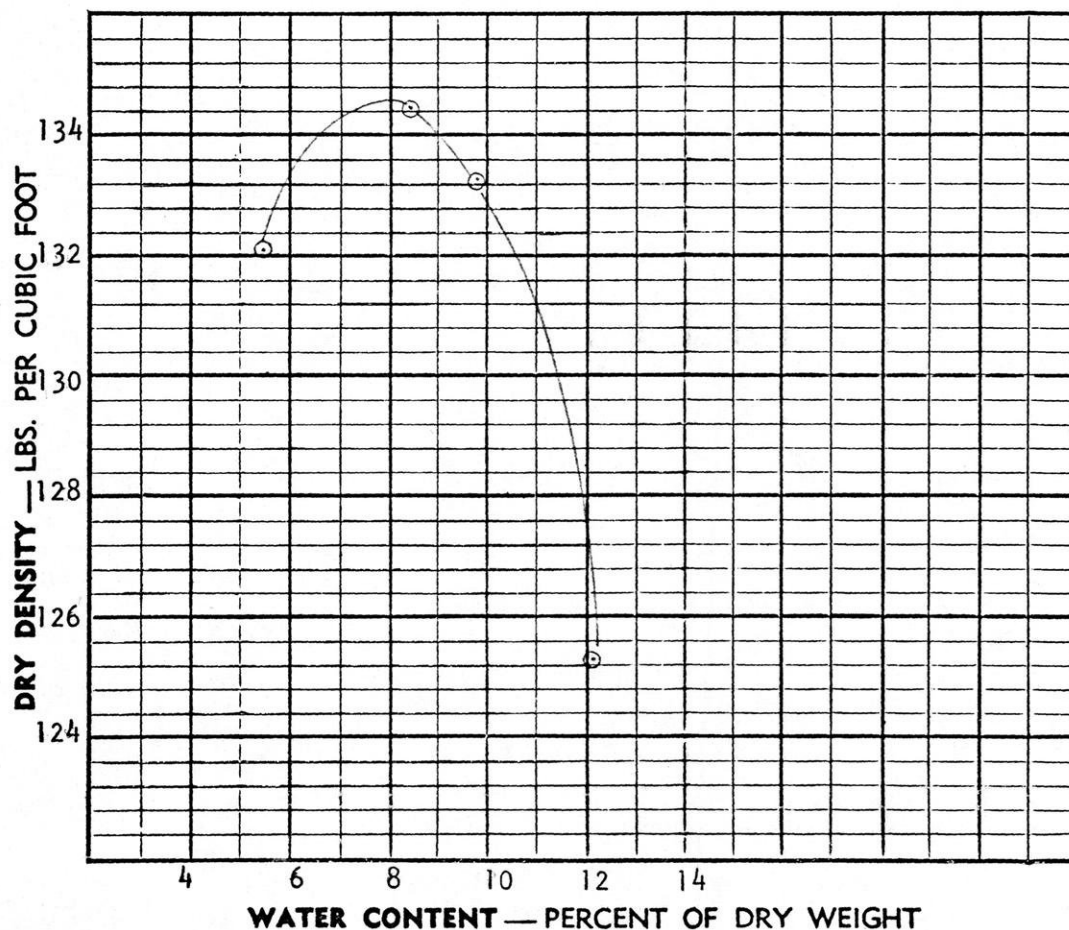
Natural Water Content 8.2-10.4 % Natural Dry Density _____ PCF Specific Gravity _____

Liquid Limit _____ % Plastic Limit _____ % Plasticity Index _____

B. Test Procedure Used: ASTM D-698-70 Method A

C. Test Results: Optimum Water Content 8.0 %

Maximum Dry Density 134.6 PCF (at a Wet Density of _____ PCF)



SOIL TESTING SERVICES OF WISCONSIN, INC.

540 LAMBEAU ST., GREEN BAY, WIS. 54303

PHONE (414) 494-9656

Date 10-31-72

Job No. 4970

COMPACTION CONTROL REPORT

1. Laboratory Compaction Test Data

A. Description of Soil: Brown silty fine sand trace gravel

Material Mark _____ Classification SM AASHTO

Source of Material Borings: St9-4, Sample 1 & 2; St9-5, Sample 2; ST9-6, Sample 1; ST9-7, Sample 1A BPR

Natural Water Content _____ % Natural Dry Density _____ PCF Specific Gravity _____

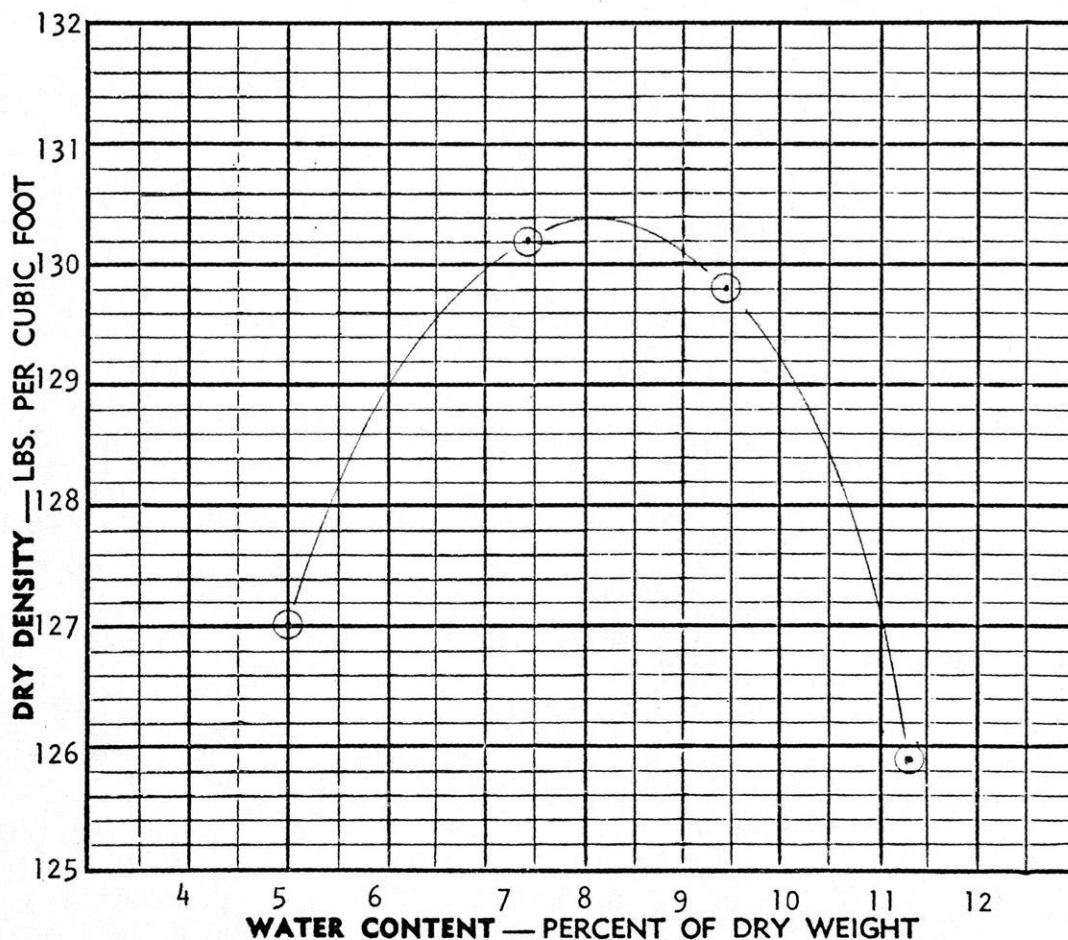
Liquid Limit _____ % Plastic Limit Non-plastic % Plasticity Index _____

B. Test Procedure Used: ASTM D1557-70 Method C

C. Test Results:

Optimum Water Content 8.1 %

Maximum Dry Density 130.4 PCF (at a Wet Density of _____ PCF)



SOIL TESTING SERVICES OF WISCONSIN, INC.

540 LAMBEAU ST., GREEN BAY, WIS. 54303

PHONE (414) 494-9656

Date _____

Job No. 4970

COMPACTION CONTROL REPORT

1. Laboratory Compaction Test Data

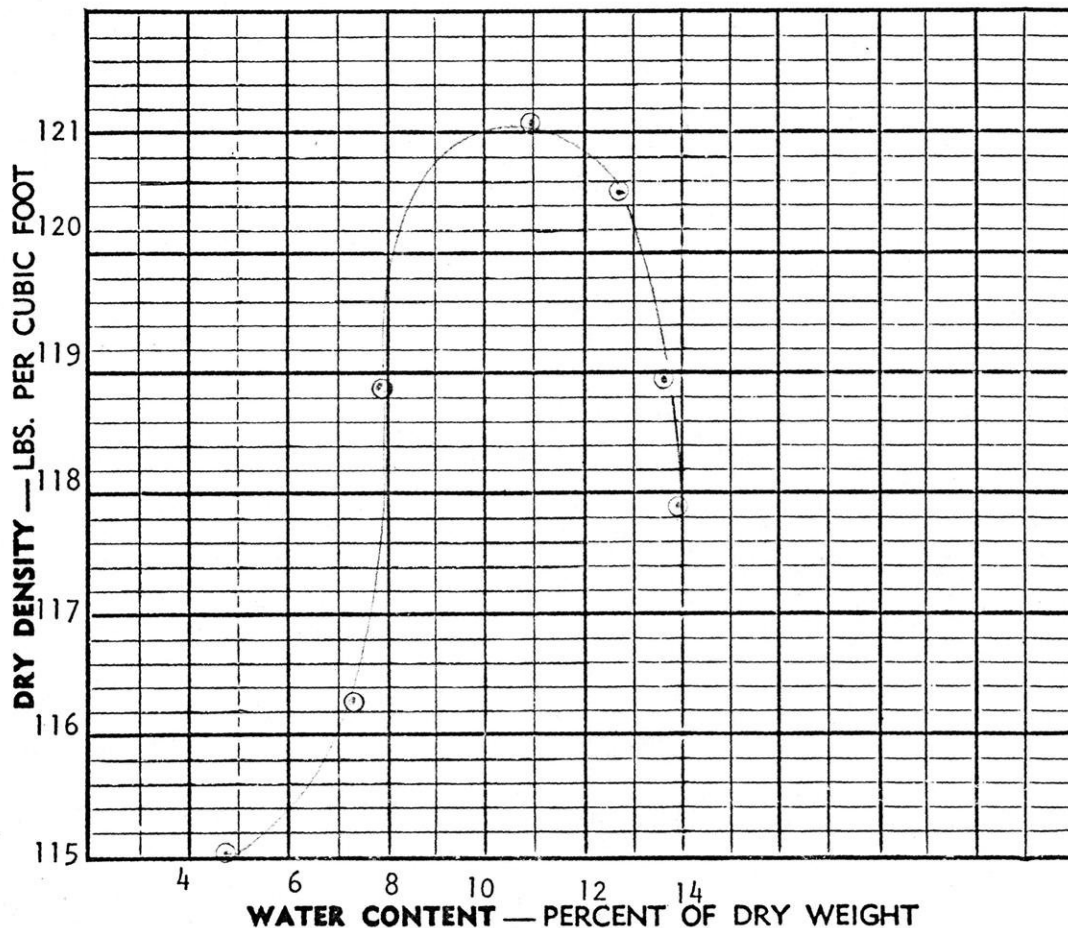
A. Description of Soil: Saprolite - greenish gray-silt-trace clay & angular rock
fragments

Material Mark _____ Classification ML AASHO
 Source of Material ST 9-4 S 7, 9, 10, 11 32' to 43' BPR

Natural Water Content _____ % Natural Dry Density _____ PCF Specific Gravity _____
 Liquid Limit 25.1 % Plastic Limit 20.8 % Plasticity Index 4.3

B. Test Procedure Used: ASTM D-698-70 Method C

C. Test Results: Optimum Water Content 10.5 %
 Maximum Dry Density 121.2 PCF (at a Wet Density of _____ PCF)



SOIL TESTING SERVICES OF WISCONSIN, INC.

540 LAMBEAU ST., GREEN BAY, WIS. 54303

PHONE (414) 494-9656

Date 10-31-72

Job No. 4970

COMPACTION CONTROL REPORT

1. Laboratory Compaction Test Data

A. Description of Soil: Saprolite-brown and gray-silt with angular rock fragments (ML)

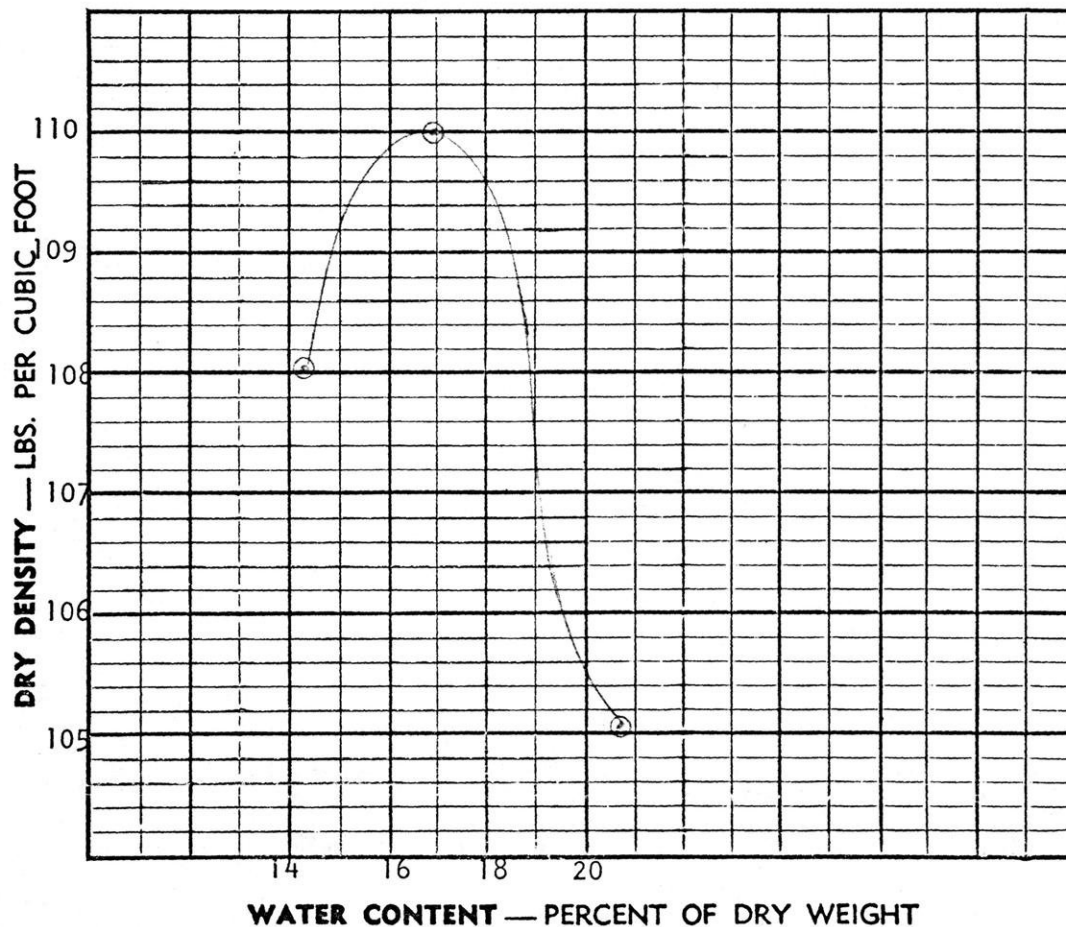
Material Mark _____ Classification ML AASHO
Source of Material ST9-5 Sample 7, 8, 9, 12 & 13 31' to 41' BPR

Natural Water Content _____ % Natural Dry Density _____ PCF Specific Gravity _____
Liquid Limit 34.1 % Plastic Limit 24.7 % Plasticity Index 9.4

B. Test Procedure Used: ASTM D 698-70

C. Test Results:

Optimum Water Content 16.8 %
Maximum Dry Density 110.0 PCF (at a Wet Density of _____ PCF)



SOIL TESTING SERVICES OF WISCONSIN, INC.

540 LAMBEAU ST., GREEN BAY, WIS. 54303

PHONE (414) 494-9656

Date 9-27-72

Job No. 4970

COMPACTION CONTROL REPORT

1. Laboratory Compaction Test Data

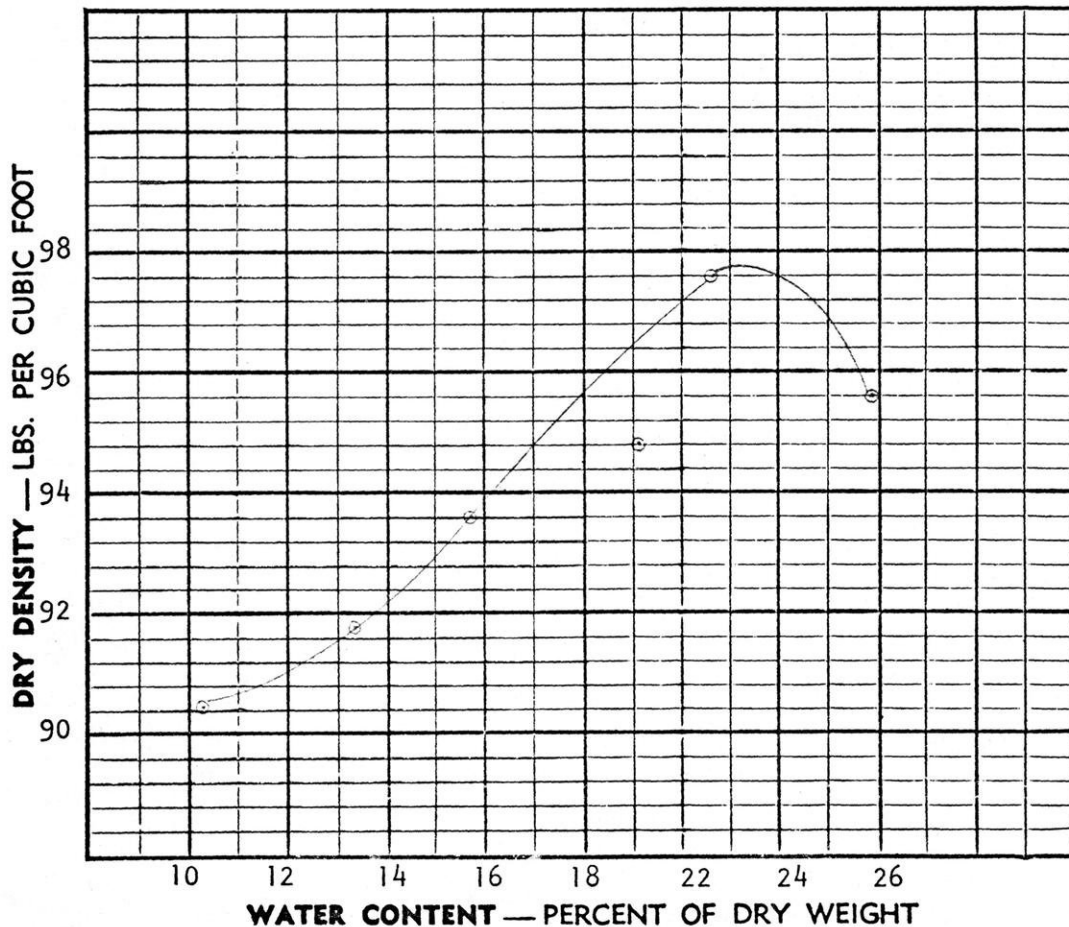
A. Description of Soil: Saprolite - light reddish brown silty clay-trace sand size and angular rock fragments

Material Mark _____ Classification CH AASHO
Source of Material Boring ST 9-7 Samples 12B, 15, 18 & 19 combined BPR

Natural Water Content 33.1-25.1% Natural Dry Density _____ PCF Specific Gravity _____
Liquid Limit 56.0 % Plastic Limit 30.4 % Plasticity Index 25.6

B. Test Procedure Used: ASTM D-698-70 Method C

C. Test Results: Optimum Water Content 23.1 %
Maximum Dry Density 97.8 PCF (at a Wet Density of _____ PCF)



SOIL TESTING SERVICES OF WISCONSIN, INC.

540 LAMBEAU ST., GREEN BAY, WIS. 54303

PHONE (414) 494-9656

Date 10-31-72

Job No. 4970

COMPACTION CONTROL REPORT

1. Laboratory Compaction Test Data

A. Description of Soil: Fine to coarse sand with some gravel

Material Mark _____ Classification _____ AASHO
BPR

Source of Material Boring ST9-7 S-2, 3, 3A, 4, 5 5' to 23'

Natural Water Content _____ % Natural Dry Density _____ PCF Specific Gravity _____

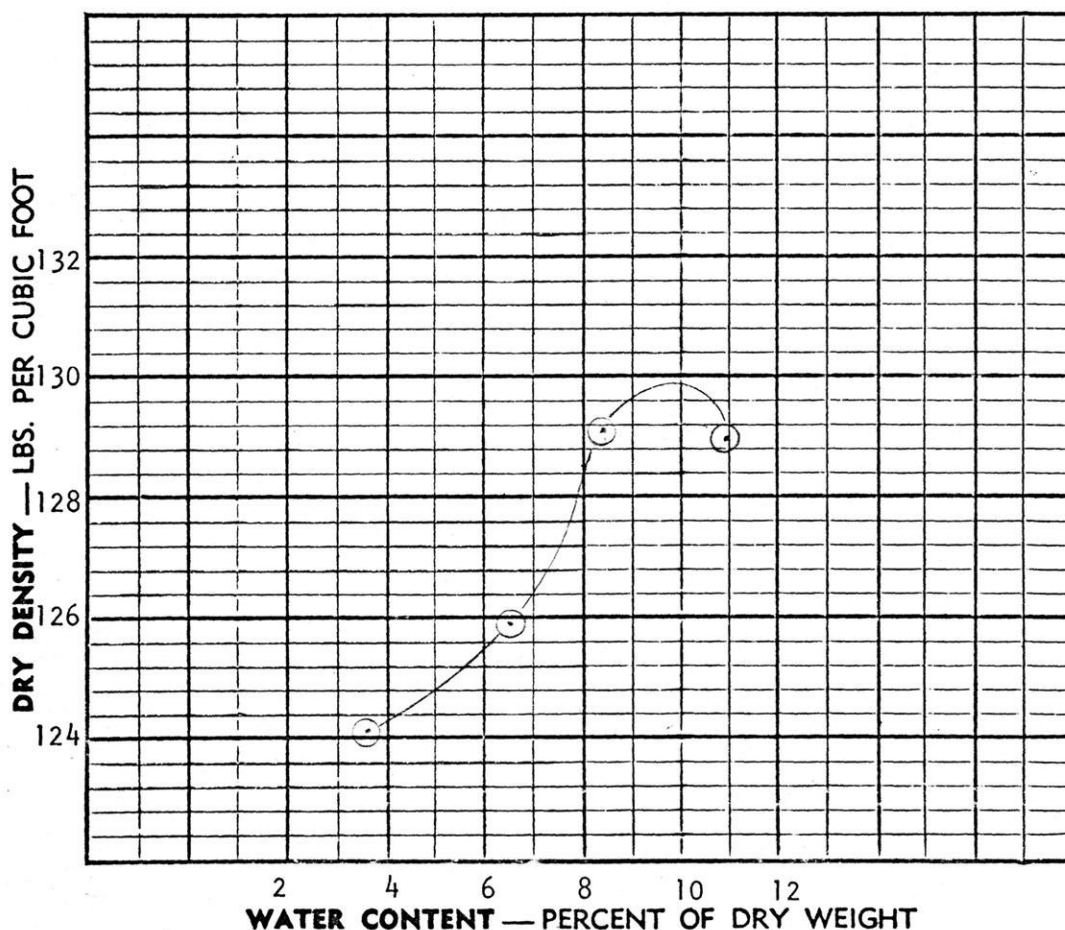
Liquid Limit _____ % Plastic Limit _____ % Plasticity Index _____

B. Test Procedure Used: ASTM D-1557-70 Method C

C. Test Results:

Optimum Water Content 9.8 %

Maximum Dry Density 129.9 PCF (at a Wet Density of _____ PCF)

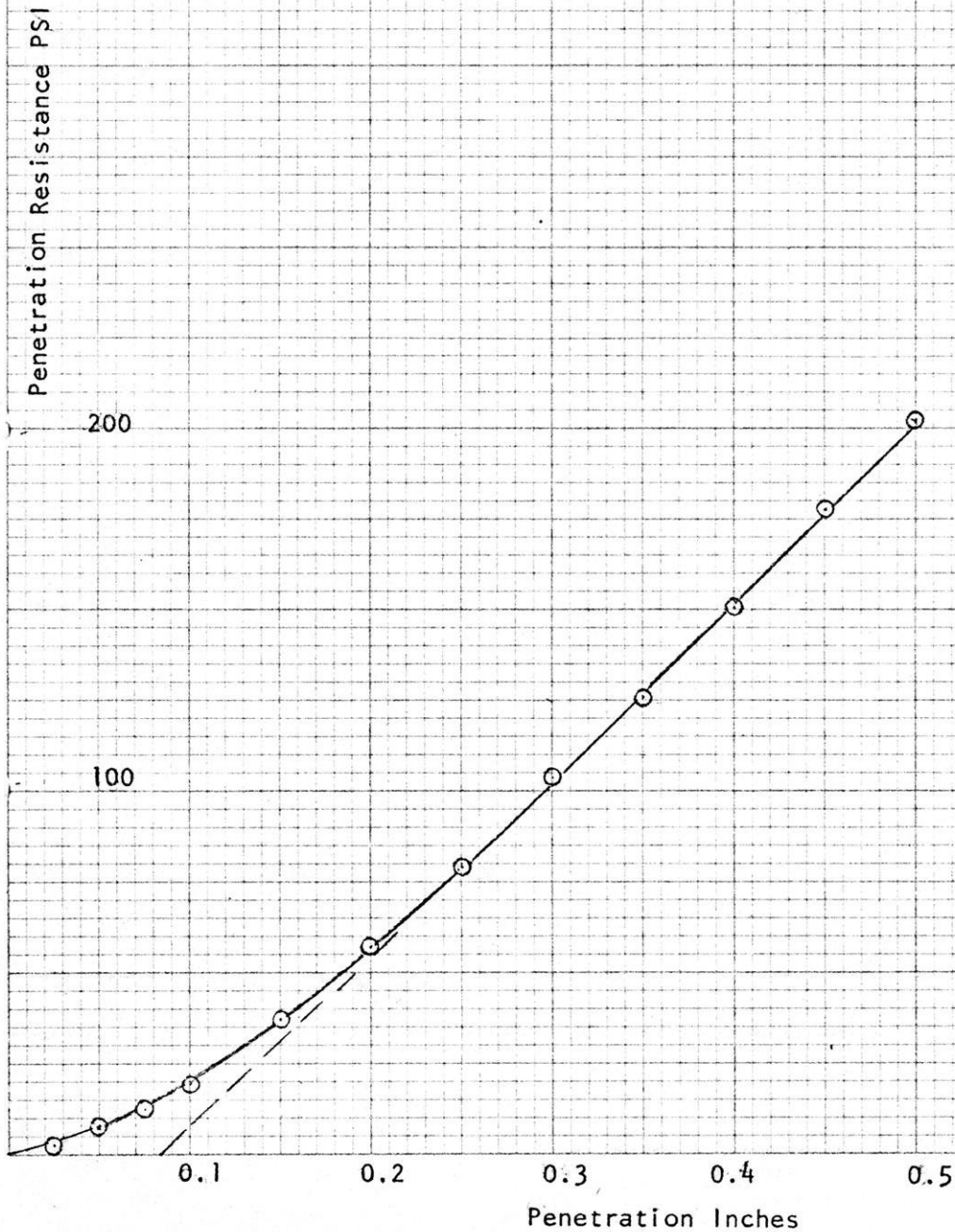


CBR Test

Sample: Combined borings ST9-4 Samples 1&2,
ST9-5 Sample 2, ST9-6 Sample 1,
ST9-7 Sample 1A

Soil Description: Silty fine sand-trace gravel

Compacted dry density	=	125.2 PCF
% compaction	=	96%
Water content	=	5.0%
Soaking period	=	96 hours
% volume change	=	0.4% shrink
Water content after test		
top 1"	=	10.1%
center	=	10.4%
CBR = 4.5% (0.1" penetration)		

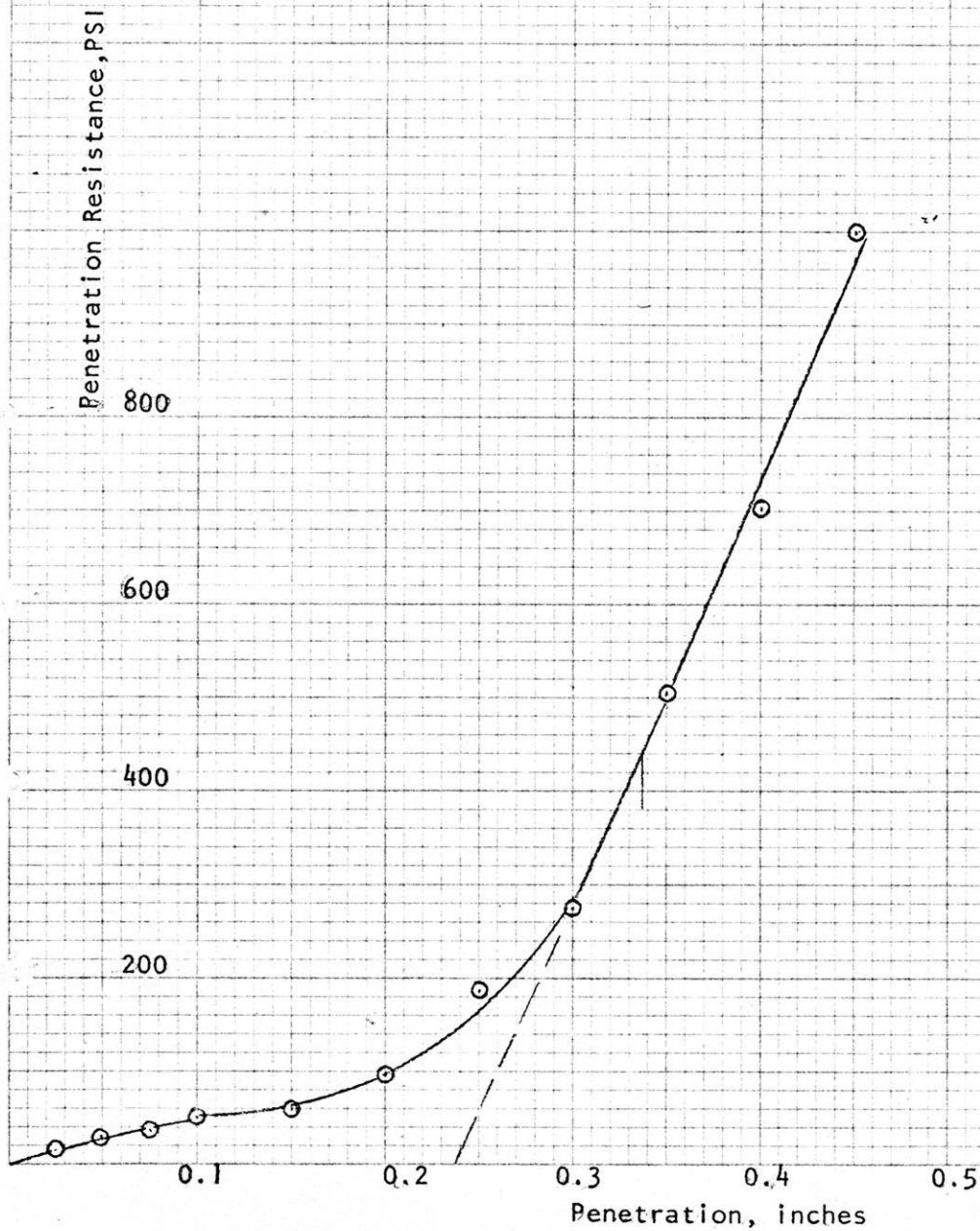


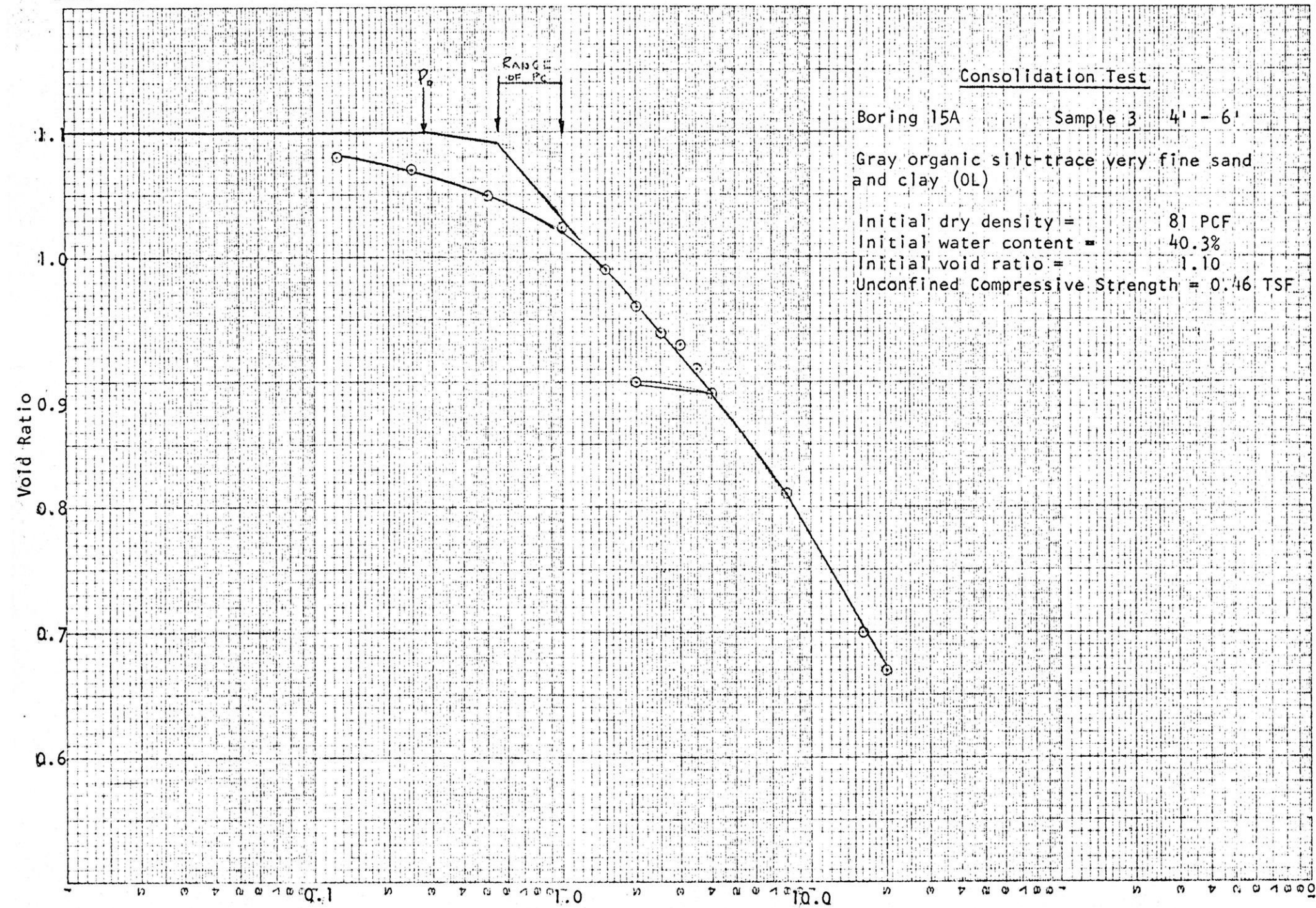
CBR Test

Sample Boring ST9-7 combined samples 2,3,3A,4 & 5
5' to 23'

Soil Description= Fine to coarse sand with gravel (SW)

Compacted dry density	=	123.6
% compaction	=	95%
Water Content	=	10.6%
Soaking period	=	96 hours
% volume change	=	0.02% shrink
Water content after test		
Top 1"	=	
Center	=	
CBR = 44% (0.1" penetration)		



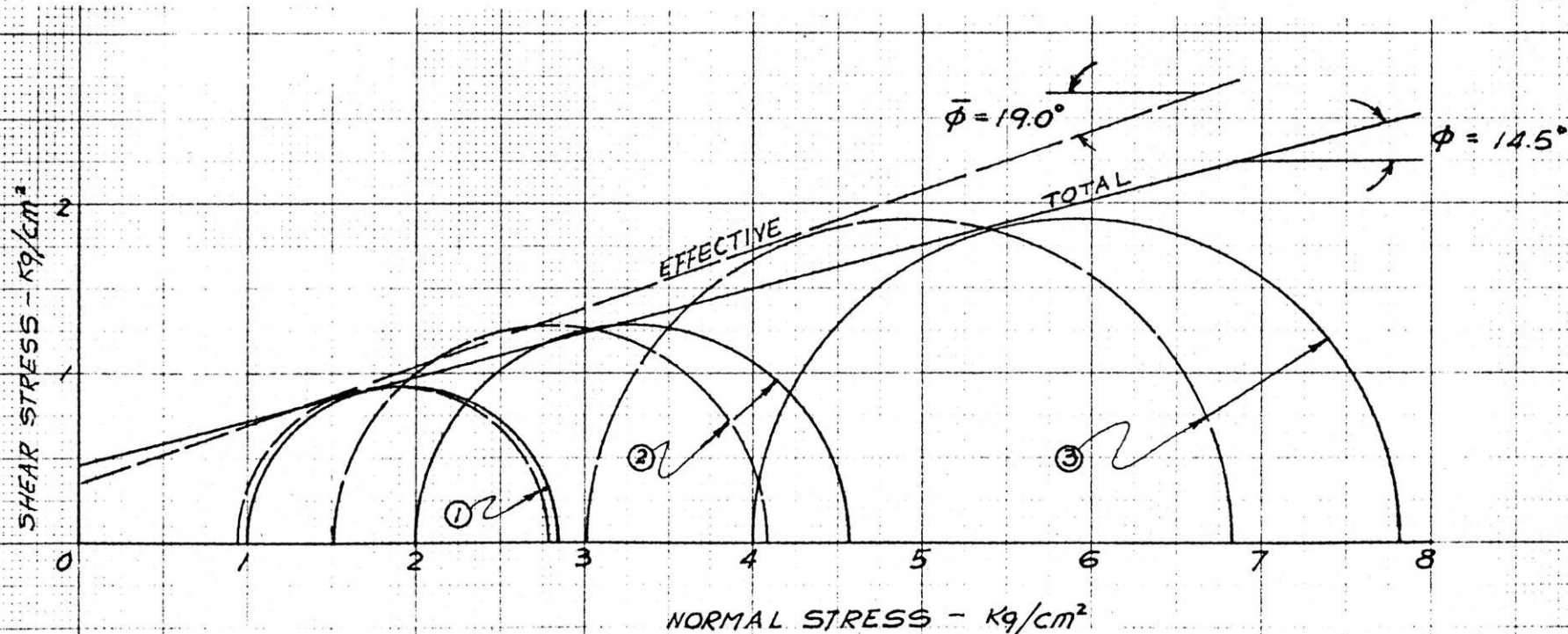


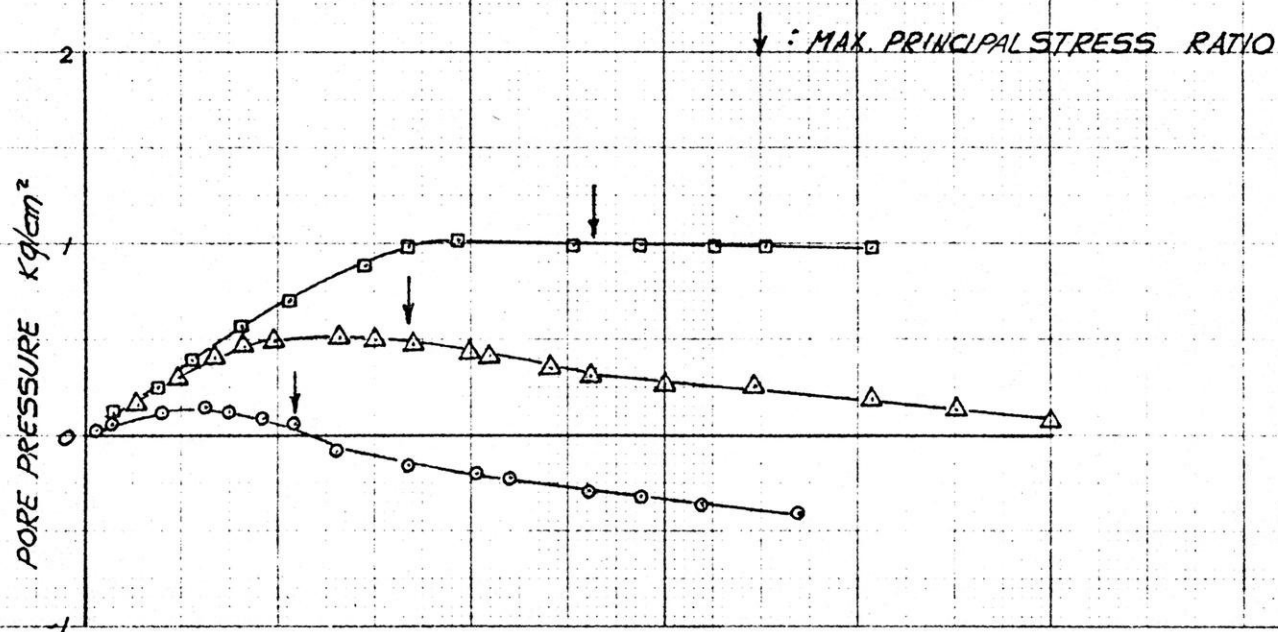
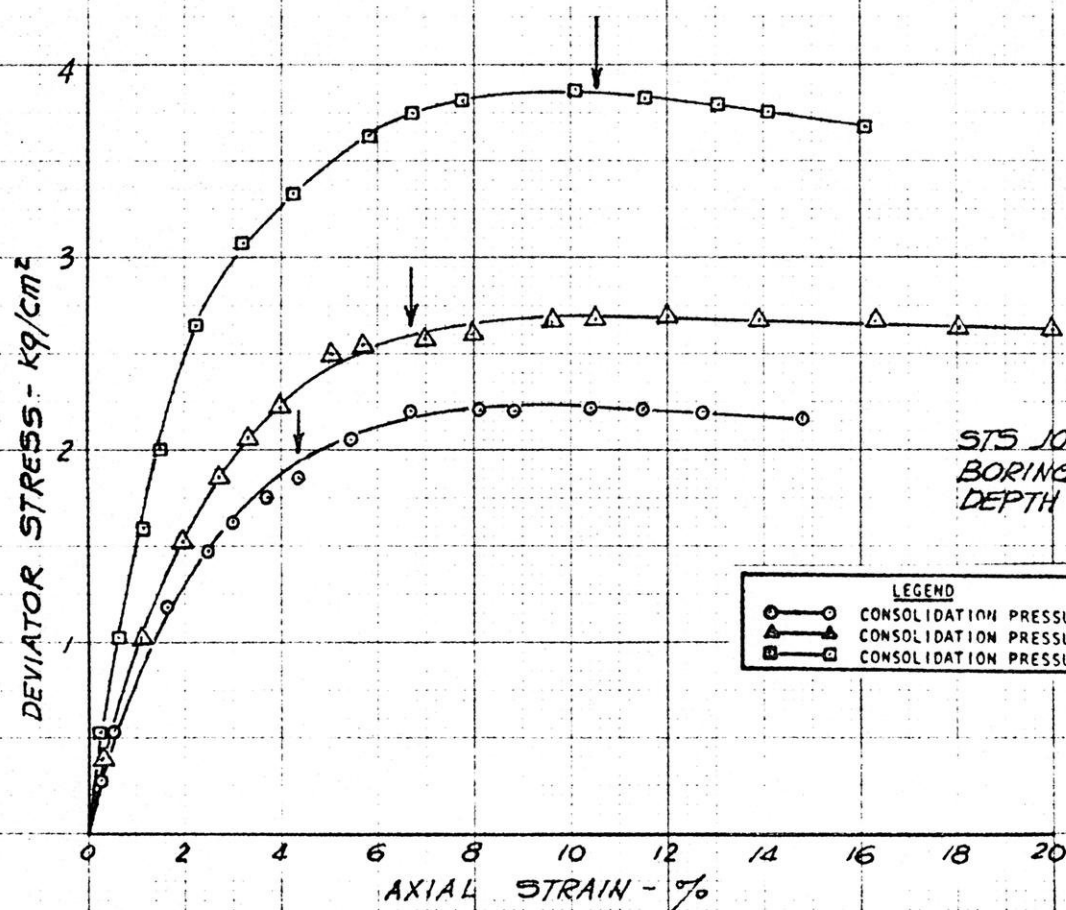
CONSOLIDATED UNDRAINED T-X SHEAR TEST

TEST NO.	INITIAL SAMPLE		DRY DENSITY pcf	WATER CONTENT %		CHAMBER PRESSURE kg/cm ²	CONSOLIDATION PRESSURE kg/cm ²	STRAIN AT MAX. (σ ₁ - σ ₃) %	MAX. DEV. STRESS kg/cm ²	FRICTION ANGLE $\bar{\phi}^{\circ}$	COHESION $\bar{c}$ kg/cm ²
	DIAMETER in.	HEIGHT in.		INITIAL	FINAL						
1	2.000	4.008	98.0	23.1	25.4	3.83	1.00	4.38	1.85	19.0	0.35
2	"	4.000	97.9	23.1	23.6	4.83	2.00	6.70	2.54		
3	"	4.023	97.9	23.1	22.8	6.83	4.00	11.54	3.83		

40 PSI (2.83 kg/cm²) OF BACK PRESSURE USED
 BORING NO. ST9-7
 DEPTH 44'-56'
 SAMPLE : CH

STS JOB NO. 16037
 DATE : 11-7-'72





CONSOLIDATED UNDRAINED T-X SHEAR TEST

TEST NO.	INITIAL SAMPLE		DRY DENSITY pcf	WATER CONTENT %		CHAMBER PRESSURE kg/cm ²	CONSOLIDATION PRESSURE kg/cm ²	STRAIN AT MAX. ($\sigma_1 - \sigma_3$) %	MAX. DEV. STRESS kg/cm ²	FRICTION ANGLE $\bar{\phi}^\circ$	COHESION C kg/cm ²
	DIAMETER in.	HEIGHT in.		INITIAL	FINAL						
1	2.00	3.985	110.4	16.6	20.6	3.83	1.00	8.29	2.49	30.0	0.15
2	"	"	110.5	16.5	20.1	4.83	2.00	10.13	3.49		
3	"	4.000	110.4	16.6	20.3	6.83	4.00	9.29	5.07		

40 PSI (2.83 kg/cm²) of BACK PRESSURE USED

BORING NO. ST9-1

DEPTH : 52.5' - 58.0'

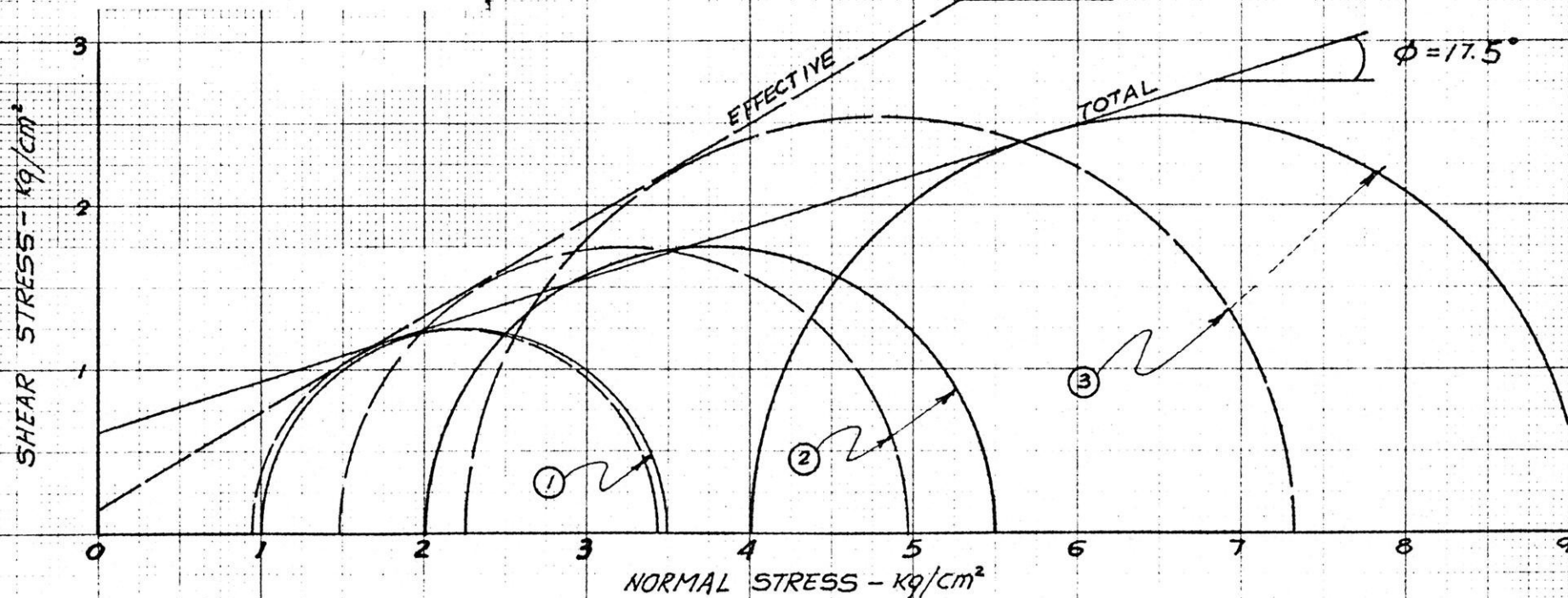
SAMPLE : ML

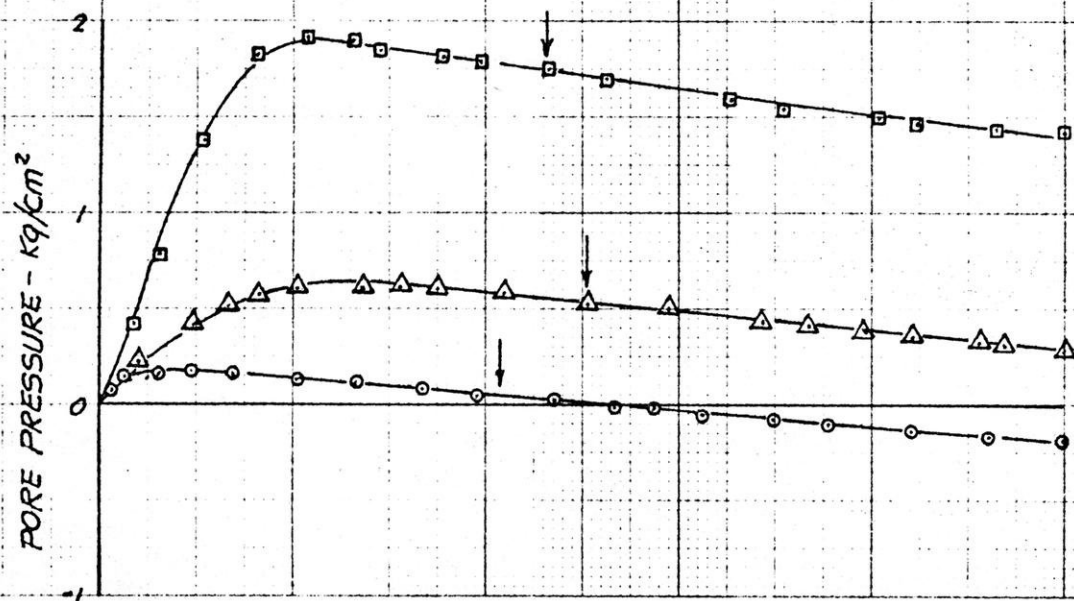
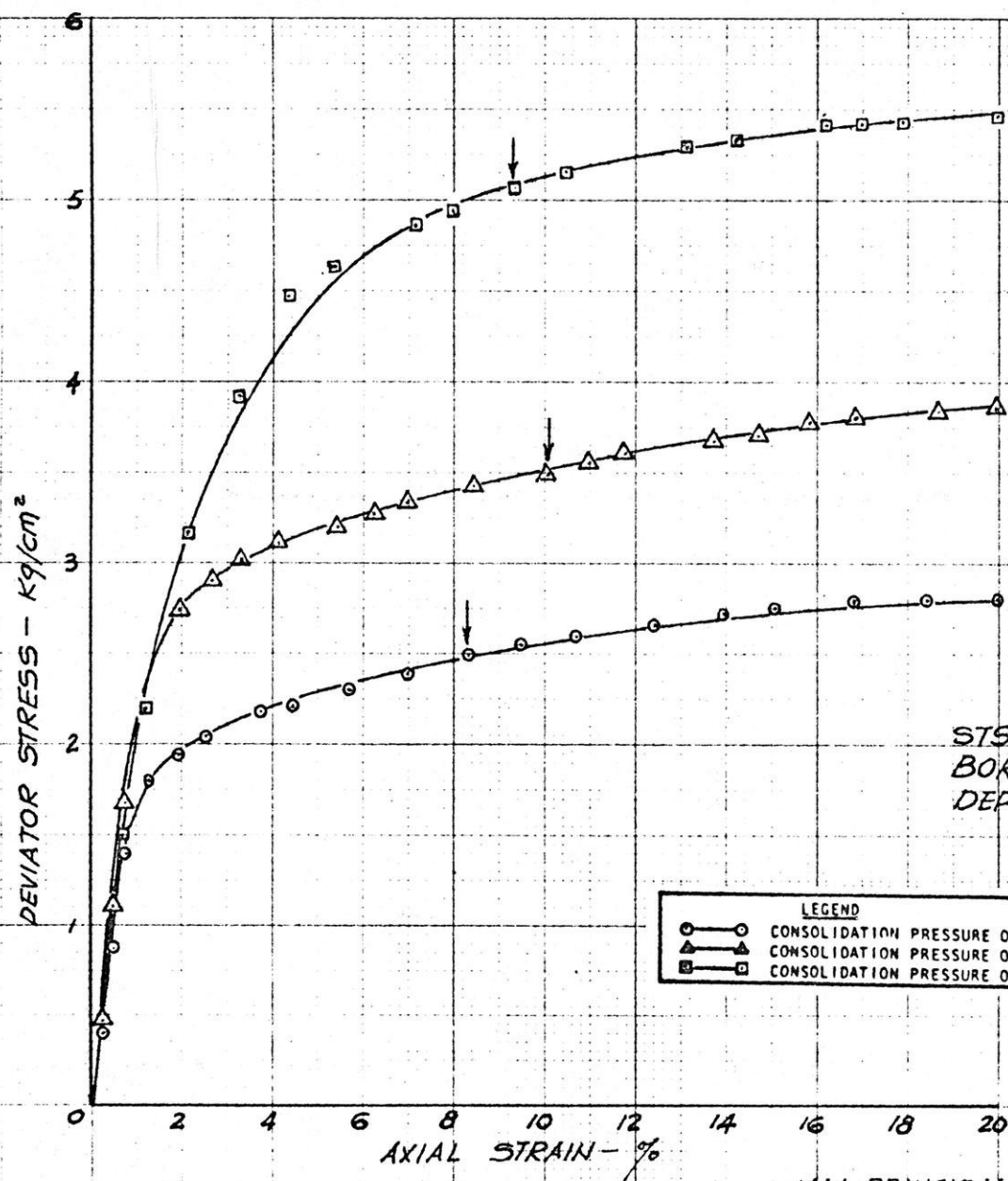
STS JOB NO. 16037

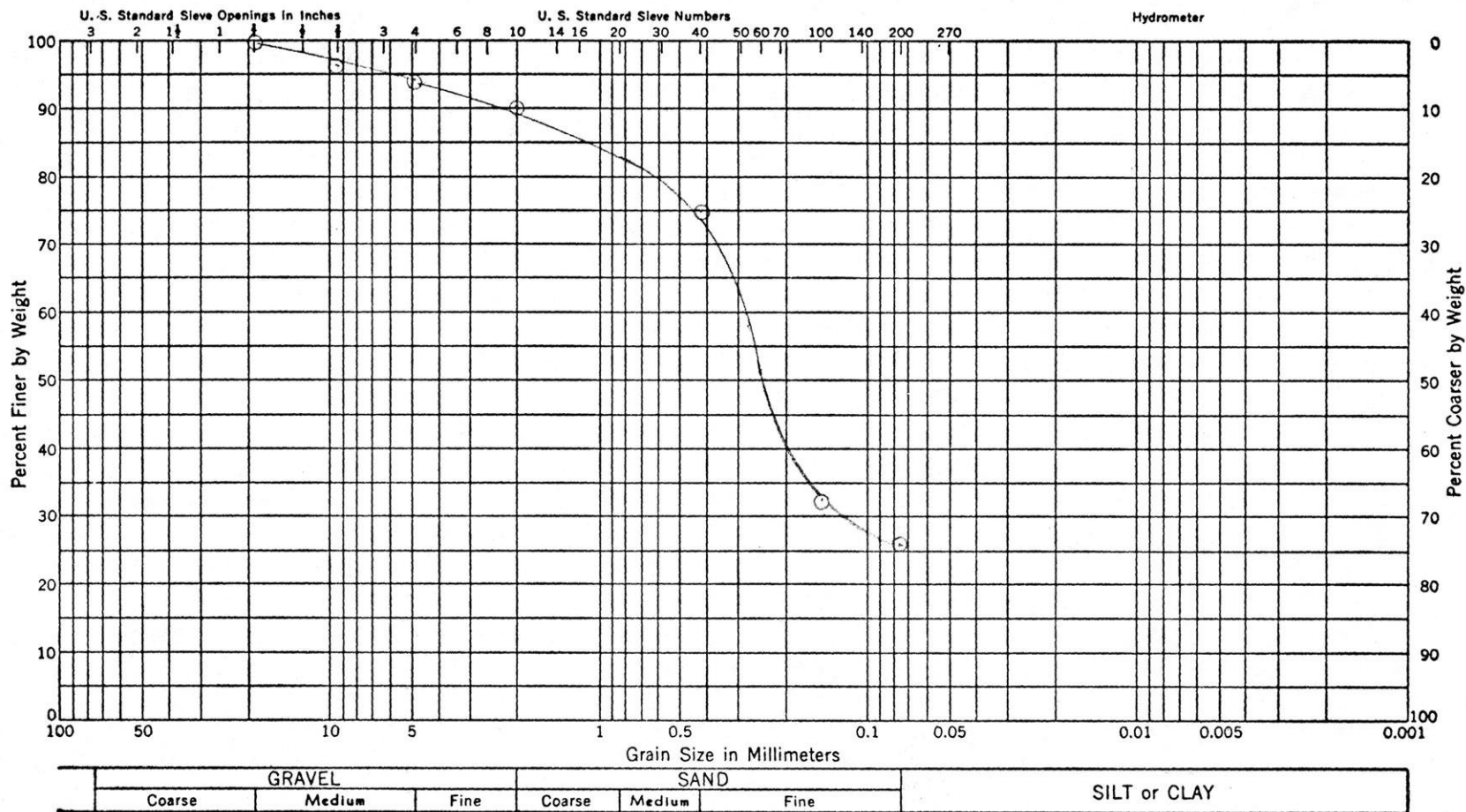
DATE: 10-26-72

$\bar{\phi} = 30.0^\circ$

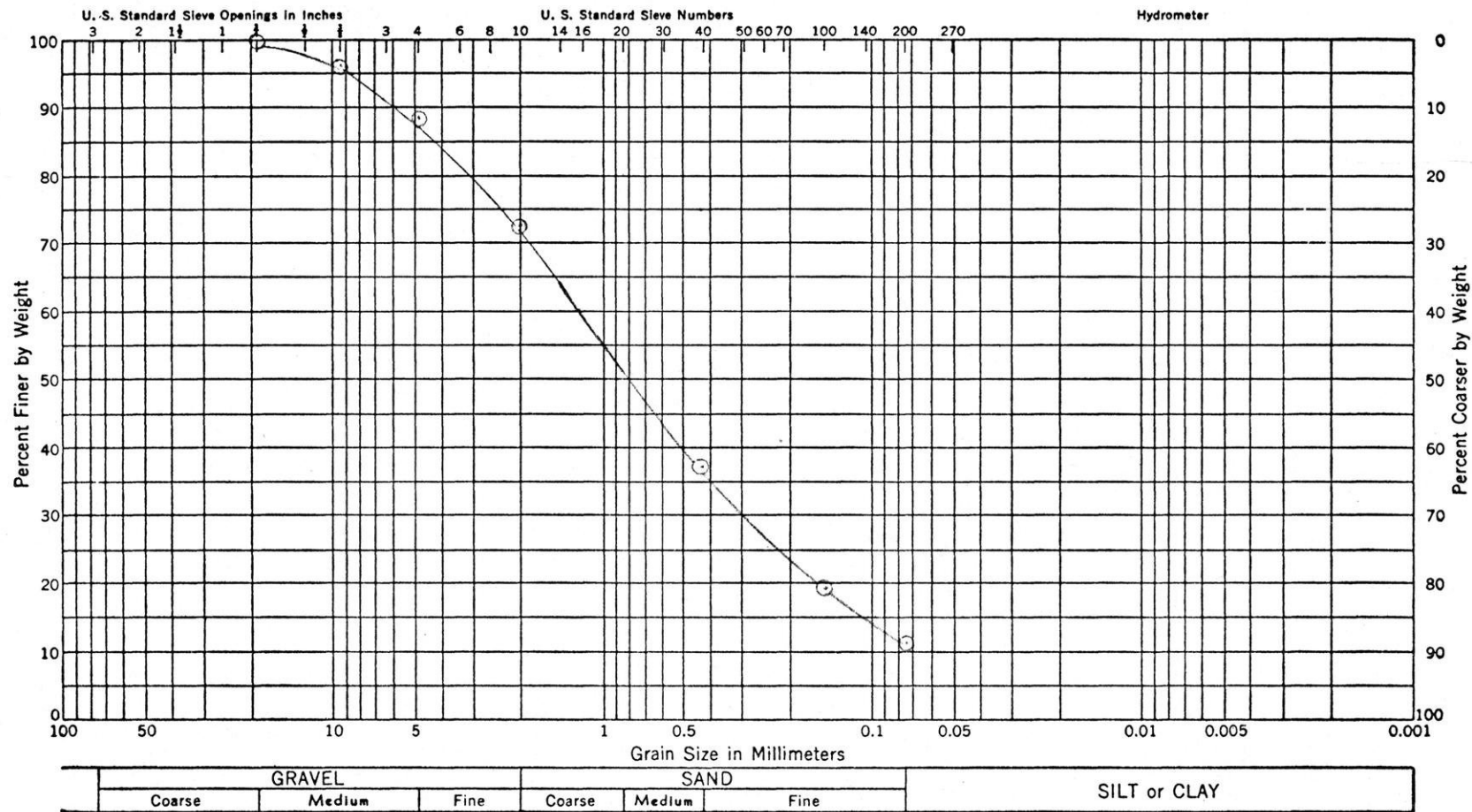
$\phi = 17.5^\circ$

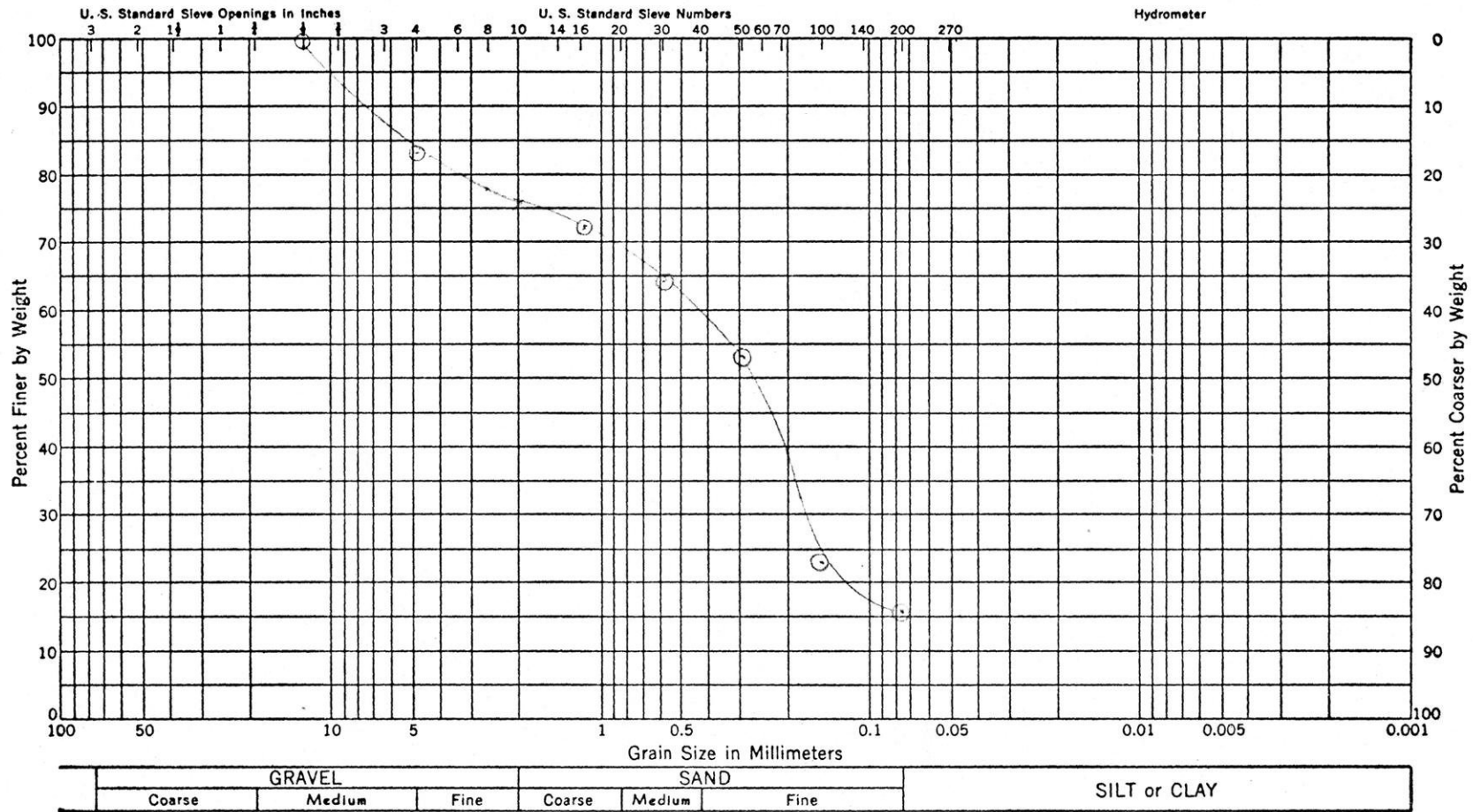


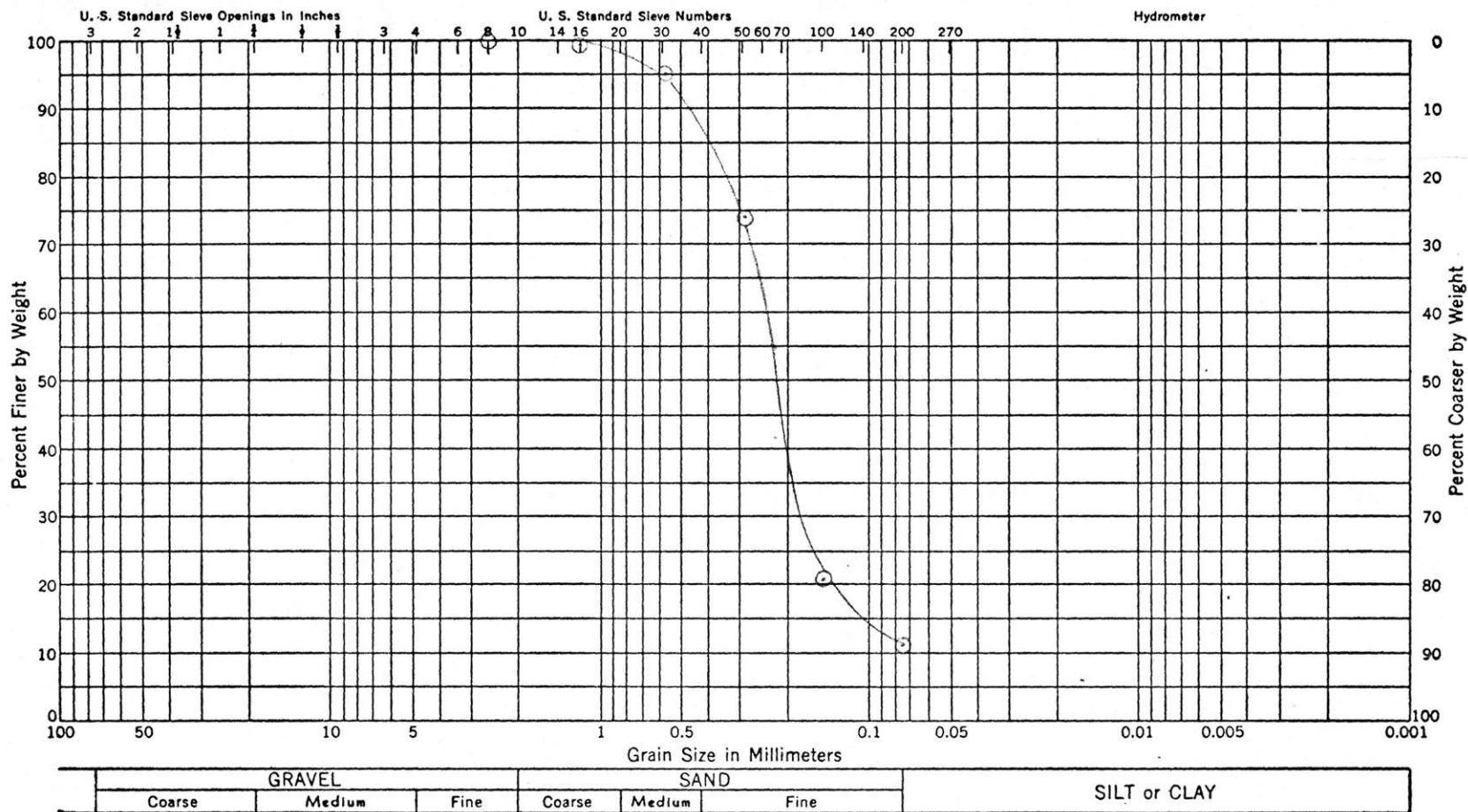




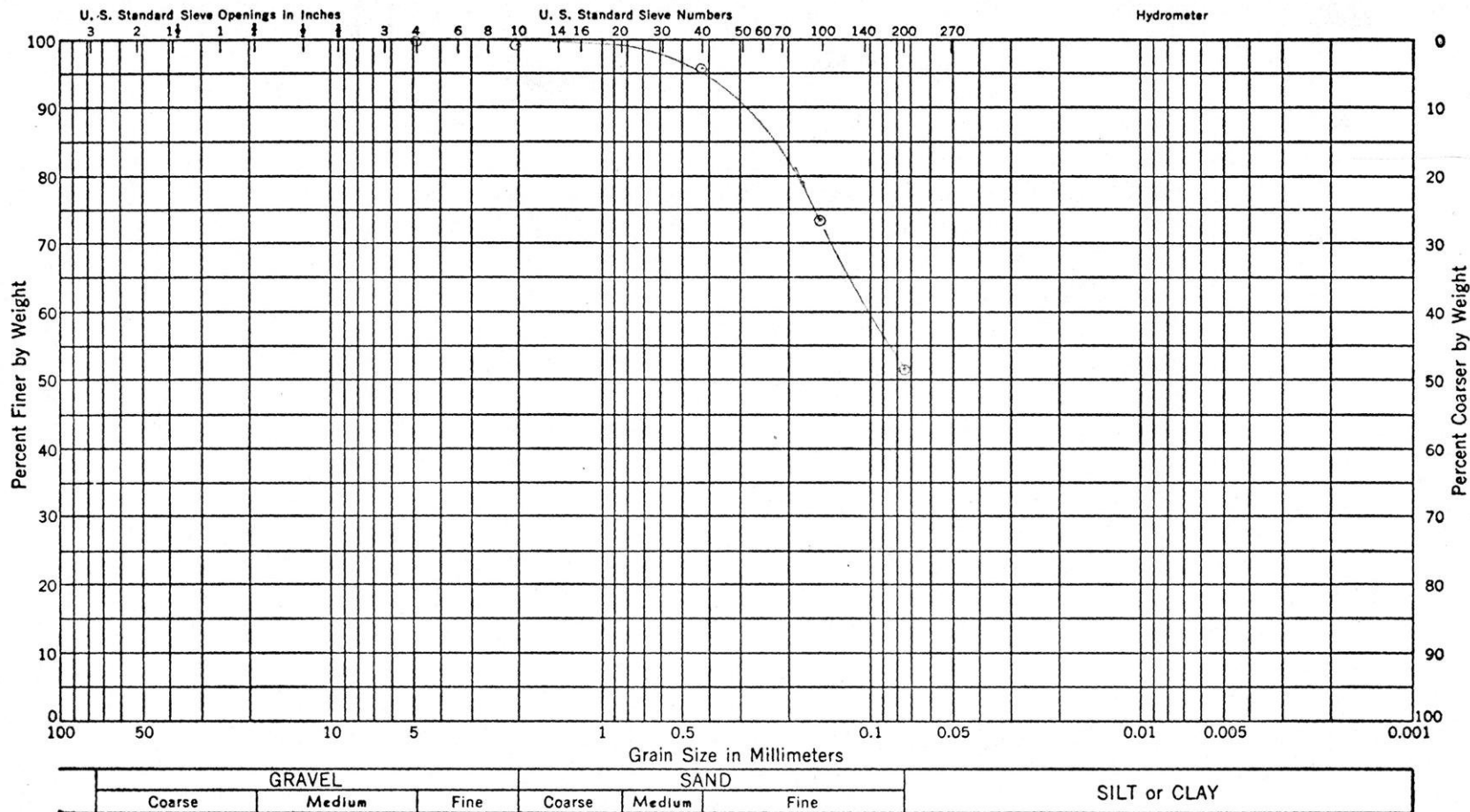
SAMPLE NO.	W.C.	LL	PL	PI	CLASSIFICATION	Combined ST 9-4 Samples 1 & 2 ST 9-5 Sample 2 ST 9-6 Sample 1 ST 9-7 Sample 1A			
					Silty fine to medium sand-trace gravel (SM)				
						CBR = 4.5%			
						DRAWN	APPROVED	DATE	JOB No.



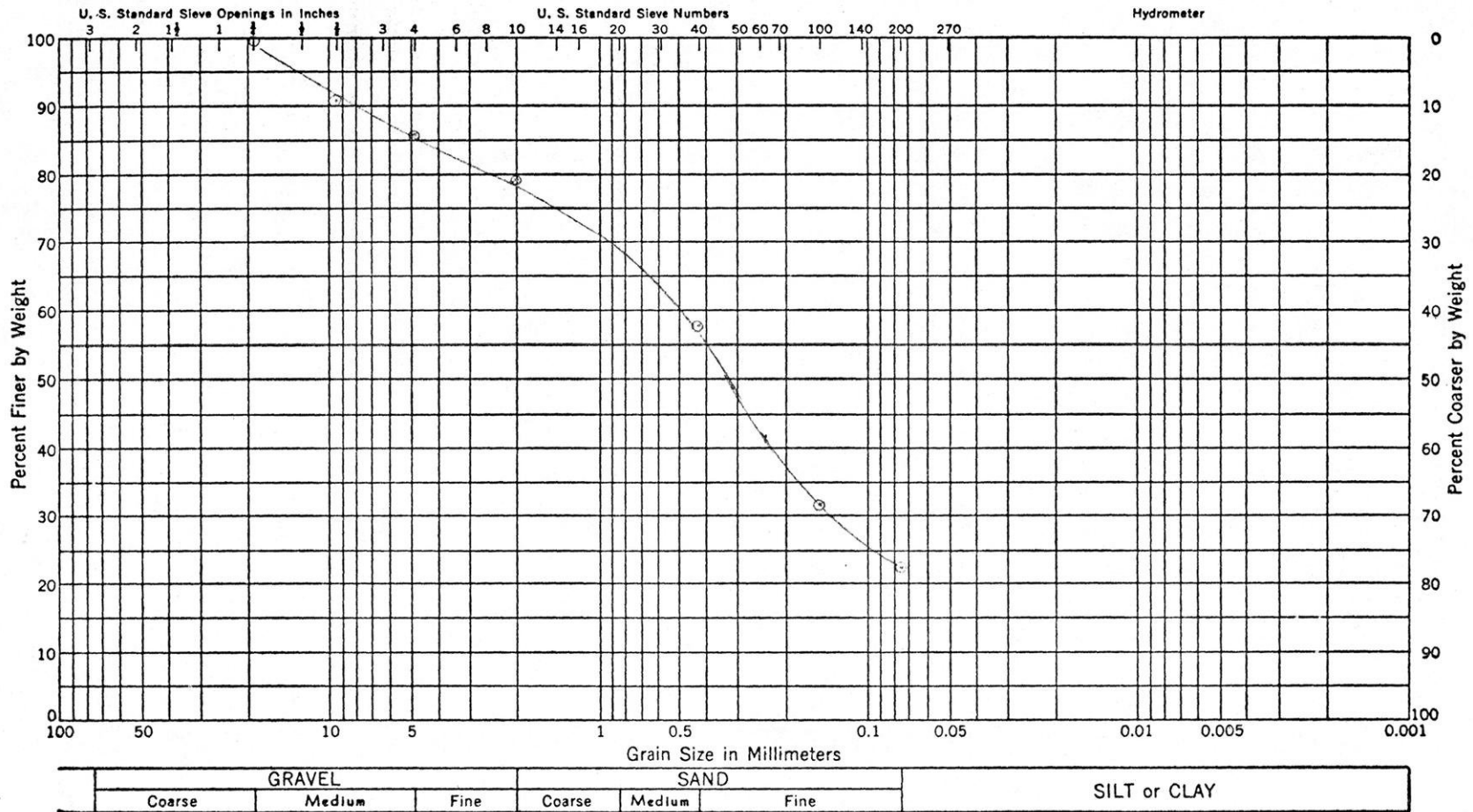


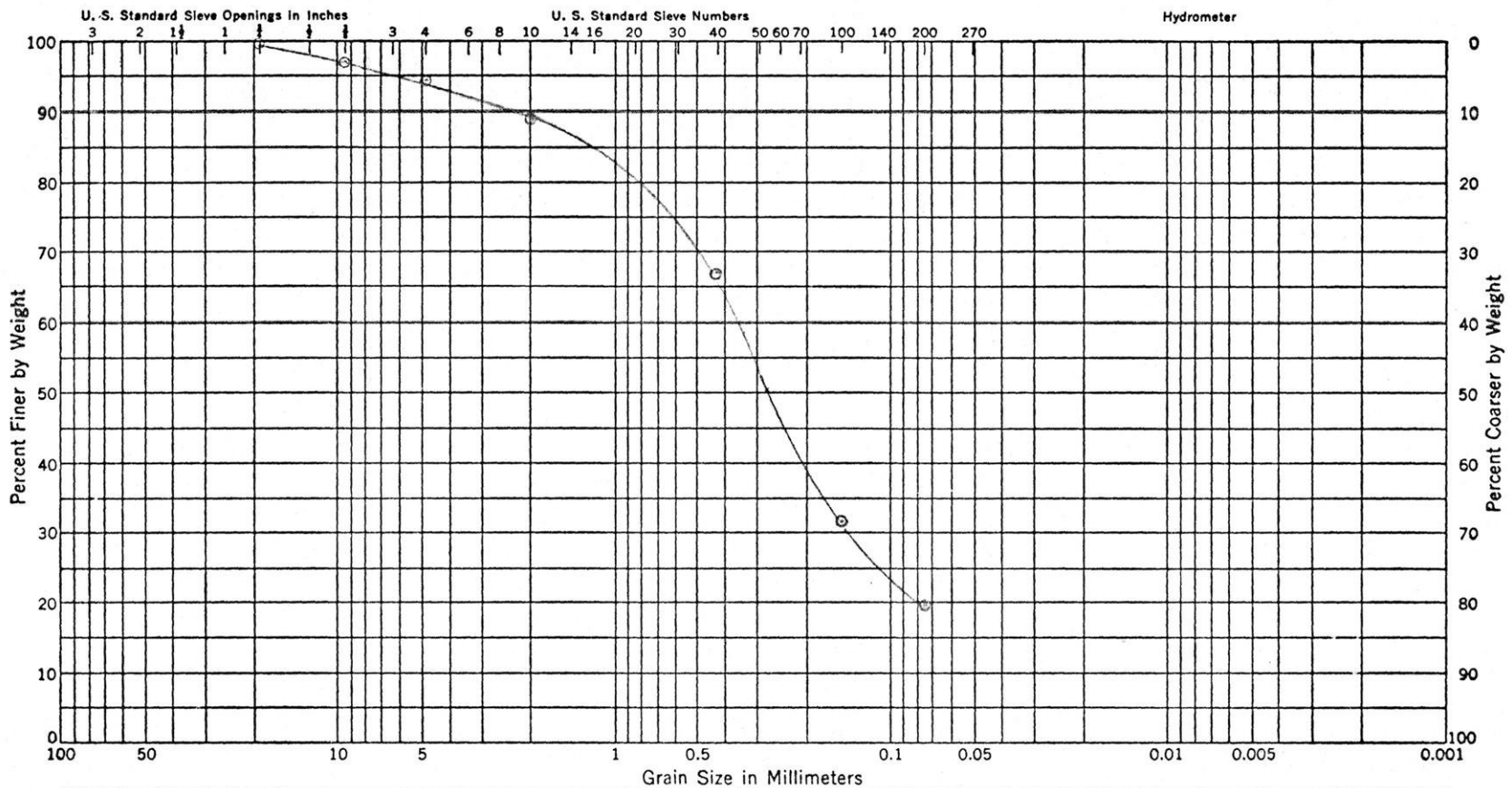


SAMPLE NO.	W.C.	LL	PL	PI	CLASSIFICATION	ST 21 - 11 Sample 5 10' - 11.4'			
					Fine medium sand-trace silt (SP)				
						DRAWN	APPROVED	DATE	JOB No.
									4970



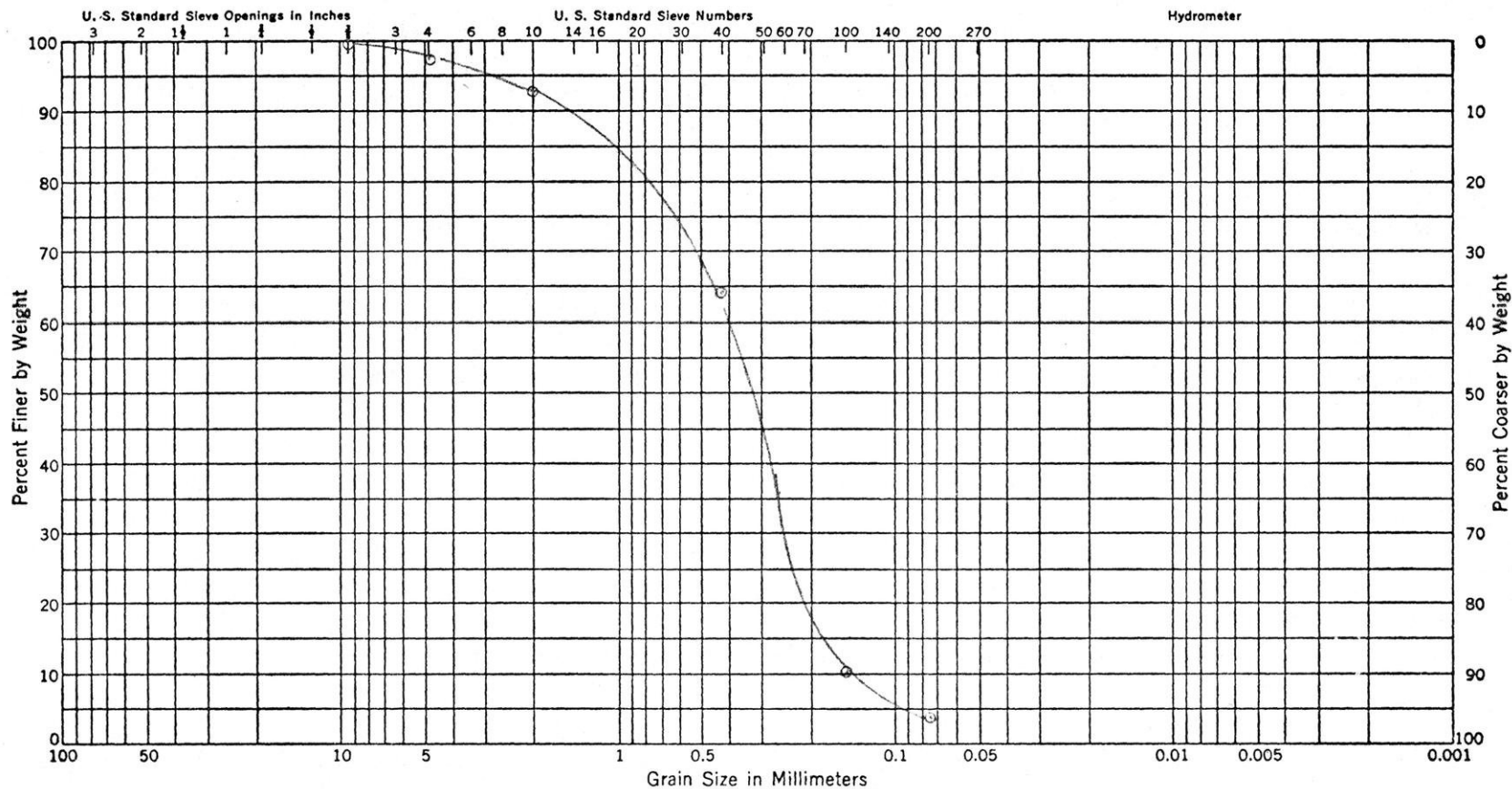
SAMPLE NO.	W.C.	LL	PL	PI	CLASSIFICATION	ST 21 - 13 Sample 2A 2 - 3 1/2			
					Fine sandy silt (ML)				
						DRAWN	APPROVED	DATE	JOB No.
									4970

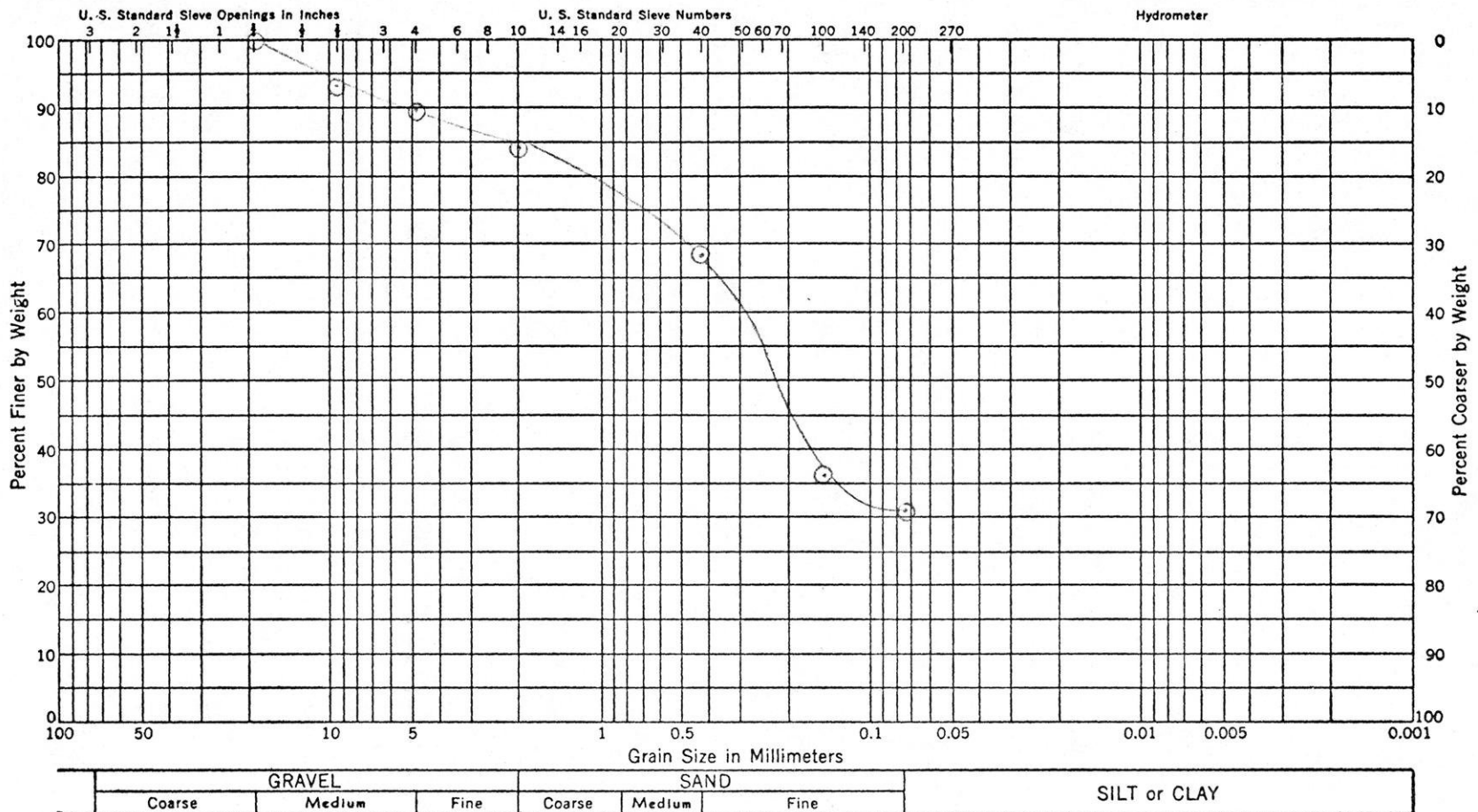




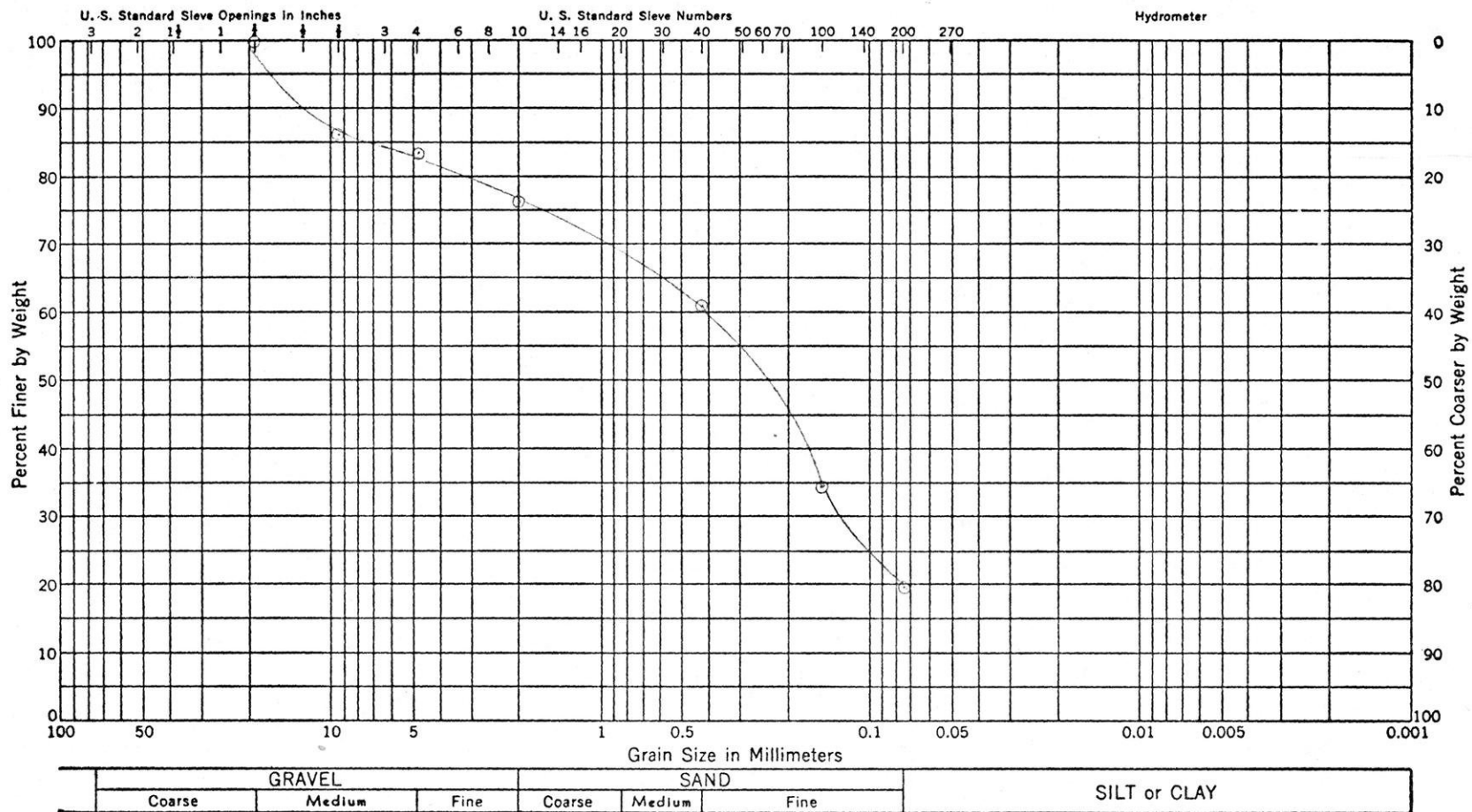
GRAVEL			SAND			SILT or CLAY
Coarse	Medium	Fine	Coarse	Medium	Fine	

SAMPLE NO.	W.C.	LL	PL	PI	CLASSIFICATION	ST 21 - 13 Sample 4 6 - 7 1/2			
					Silty fine coarse sand-trace gravel (SM)				
						DRAWN	APPROVED	DATE	JOB No.
									4970

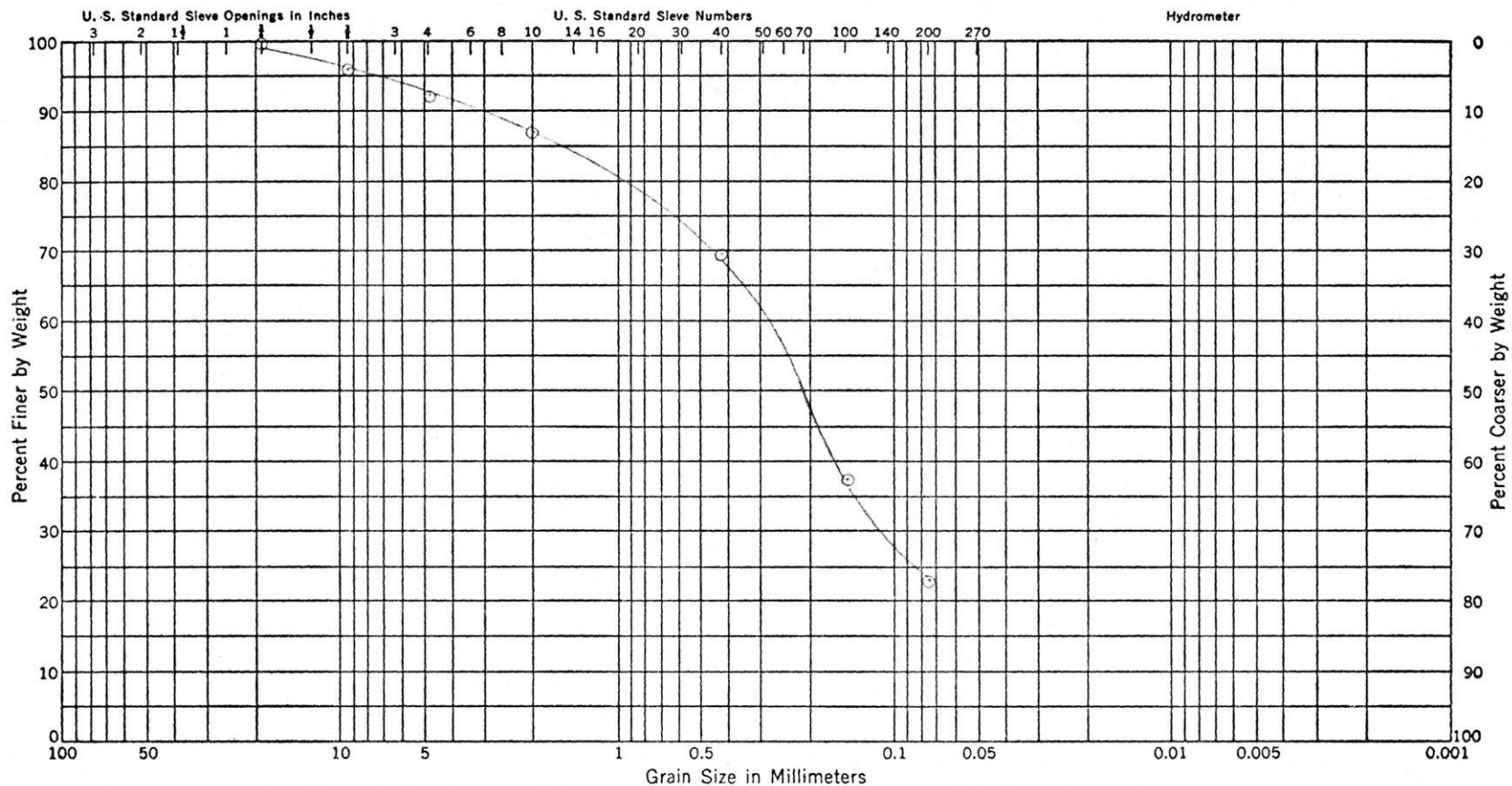




SAMPLE NO.	W.C.	LL	PL	PI	CLASSIFICATION	ST 21 - 21 Sample 4 6' - 7.5'			
					Silty fine medium sand-trace to some gravel (SM)				
						DRAWN	APPROVED	DATE	JOB No.
									4970

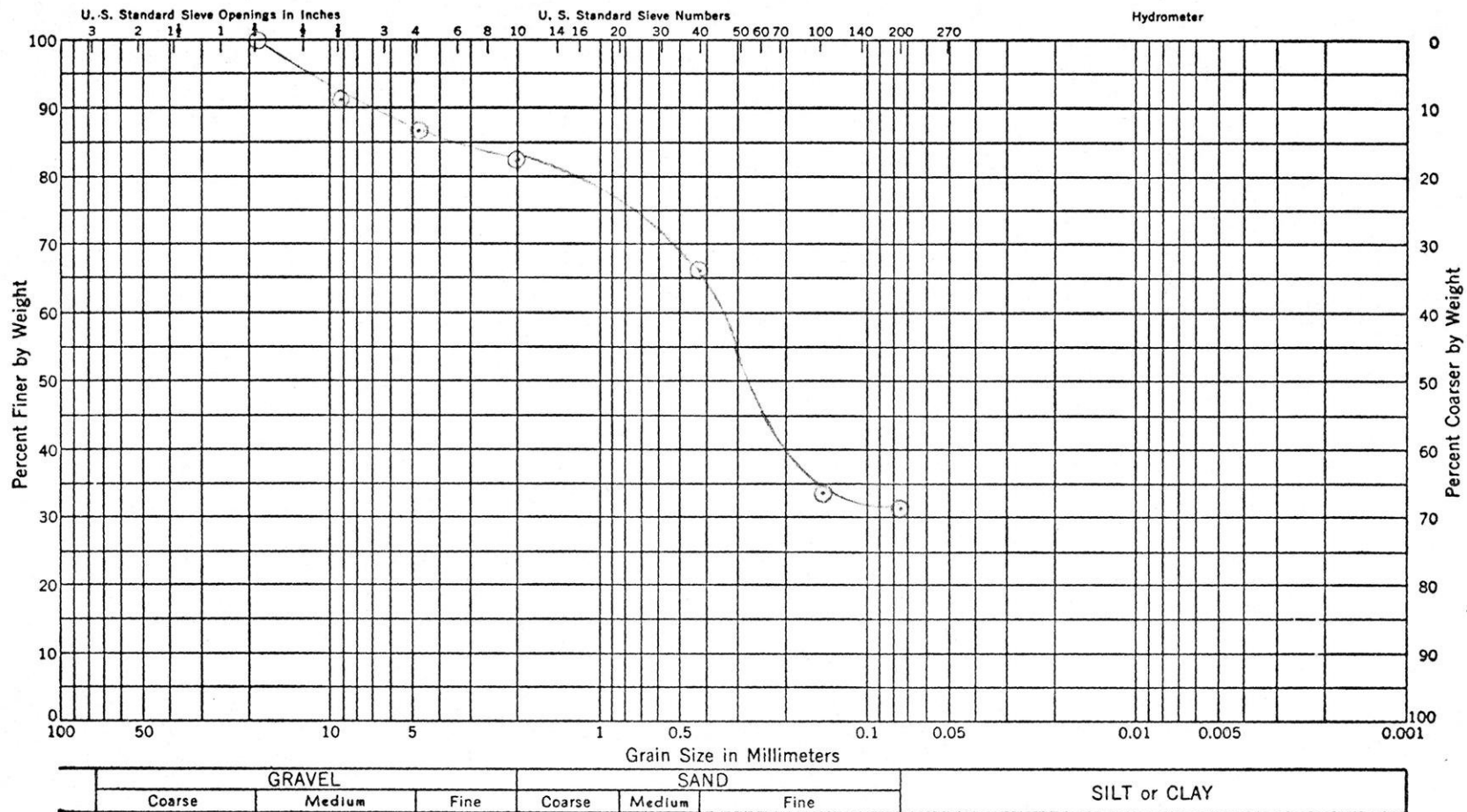


SAMPLE NO.	W.C.	LL	PL	PI	CLASSIFICATION	ST 21 - 22 Sample 3 4 - 5 1/2			
					Silty and gravelly fine medium sand (SM)				
						DRAWN	APPROVED	DATE	JOB No.
									4970

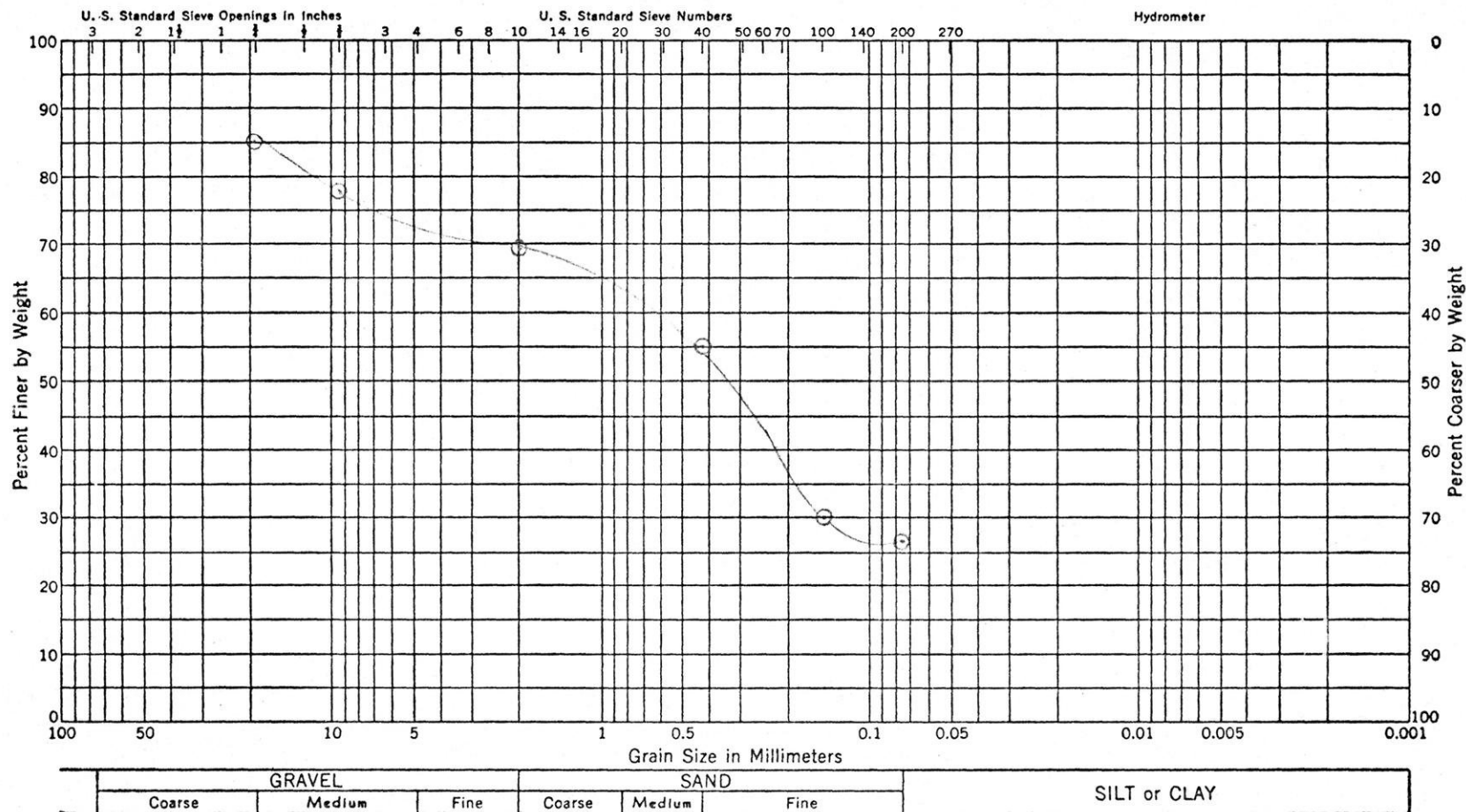


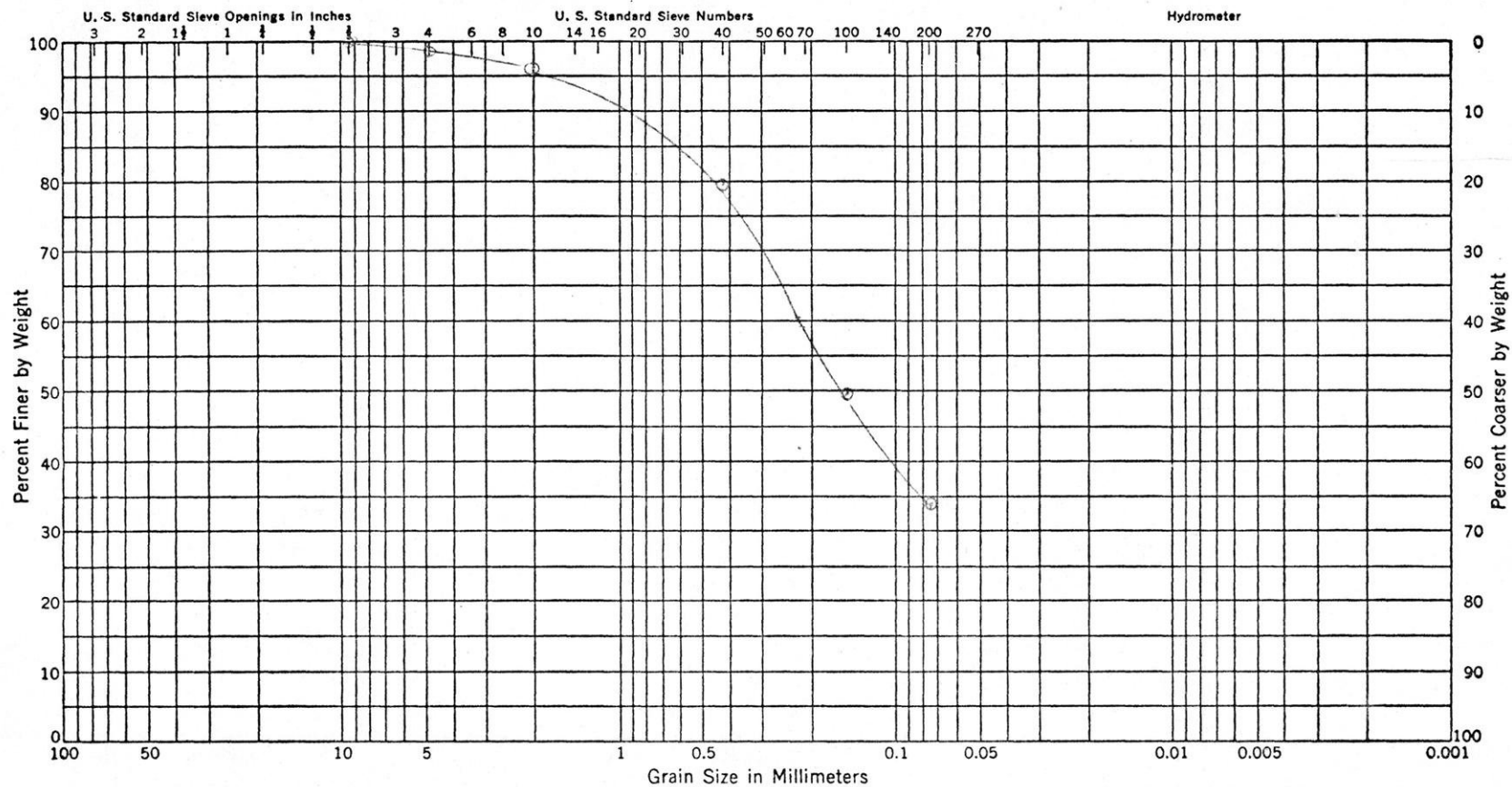
GRAVEL			SAND			SILT or CLAY
Coarse	Medium	Fine	Coarse	Medium	Fine	

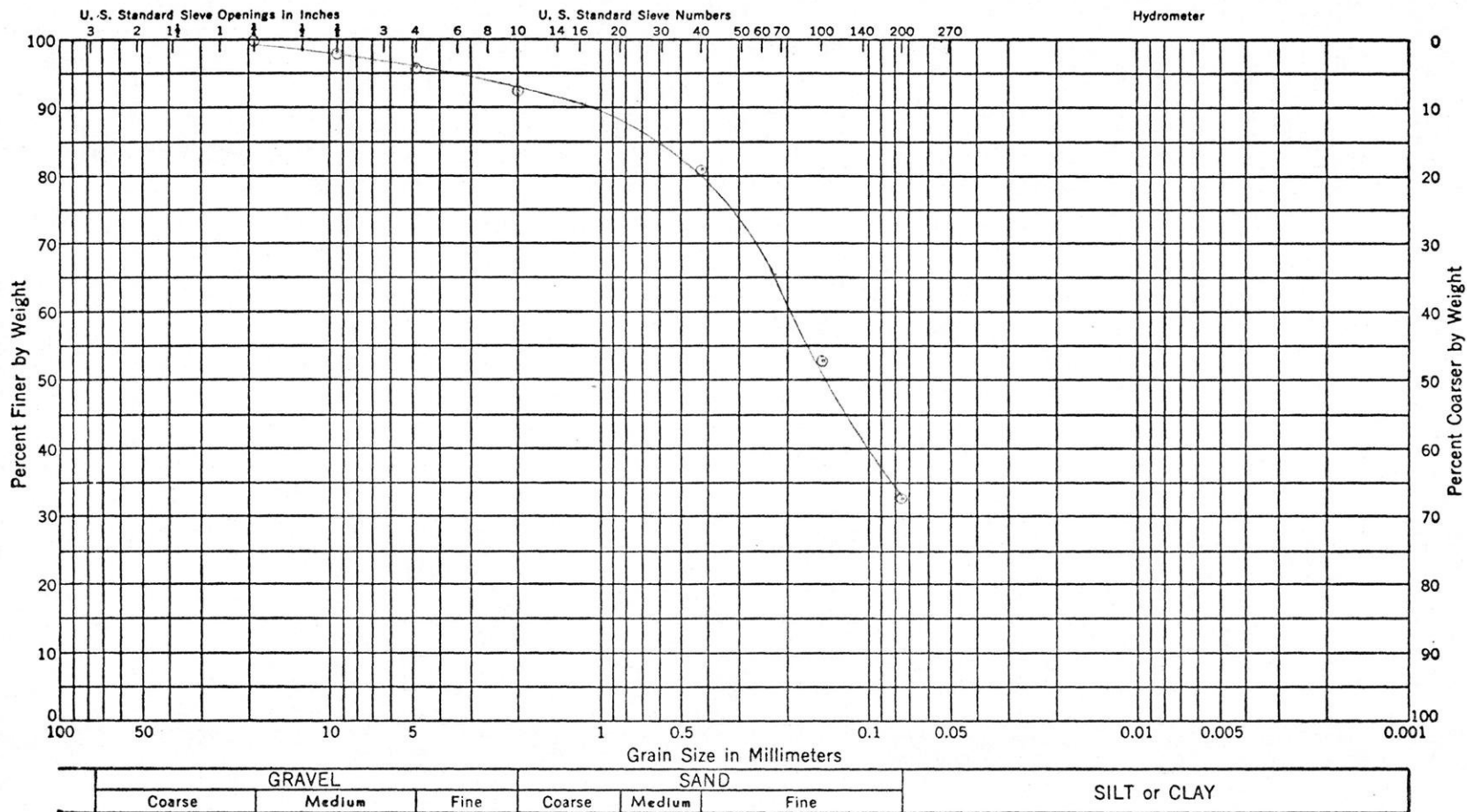
SAMPLE NO.	W.C.	LL	PL	PI	CLASSIFICATION	ST 21 - 23 Sample 4 6 - 7 1/2			
					Silty fine medium sand-trace to some fine medium gravel (SM)				
						DRAWN	APPROVED	DATE	JOB No.
									4970



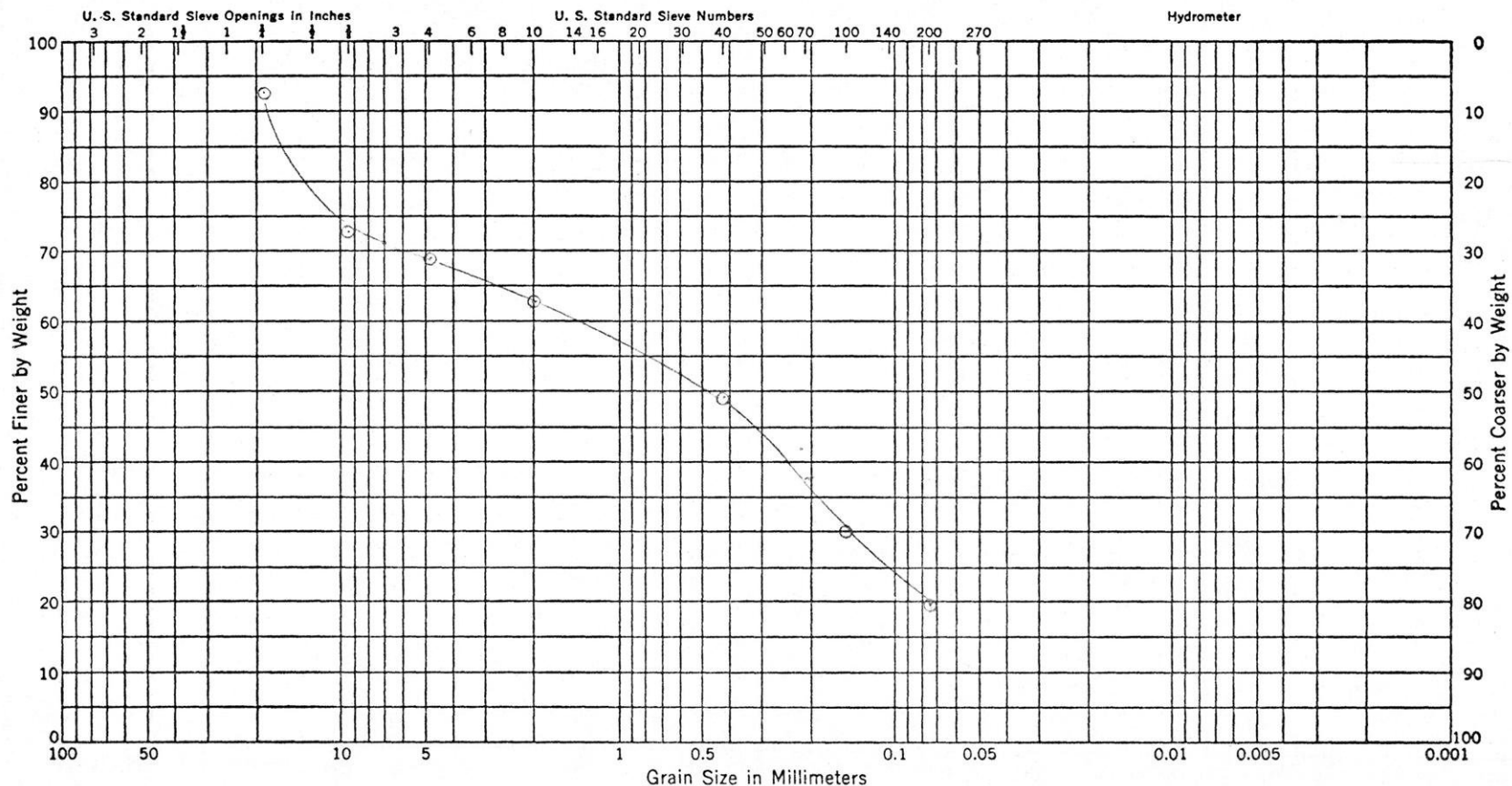
SAMPLE NO.	W.C.	LL	PL	PI	CLASSIFICATION				
						ST 21 - 25 Sample 4 6' - 7.5'			
					Silty fine medium sand-trace to some				
					gravel (SM)				
						DRAWN	APPROVED	DATE	JOB No.
									4970







SAMPLE NO.	W.C.	LL	PL	PI	CLASSIFICATION	ST 21 - 34 Sample 3 4 - 5 1/2			
					Silty fine medium sand-trace gravel (SM)				
						DRAWN	APPROVED	DATE	JOB No.
									4970

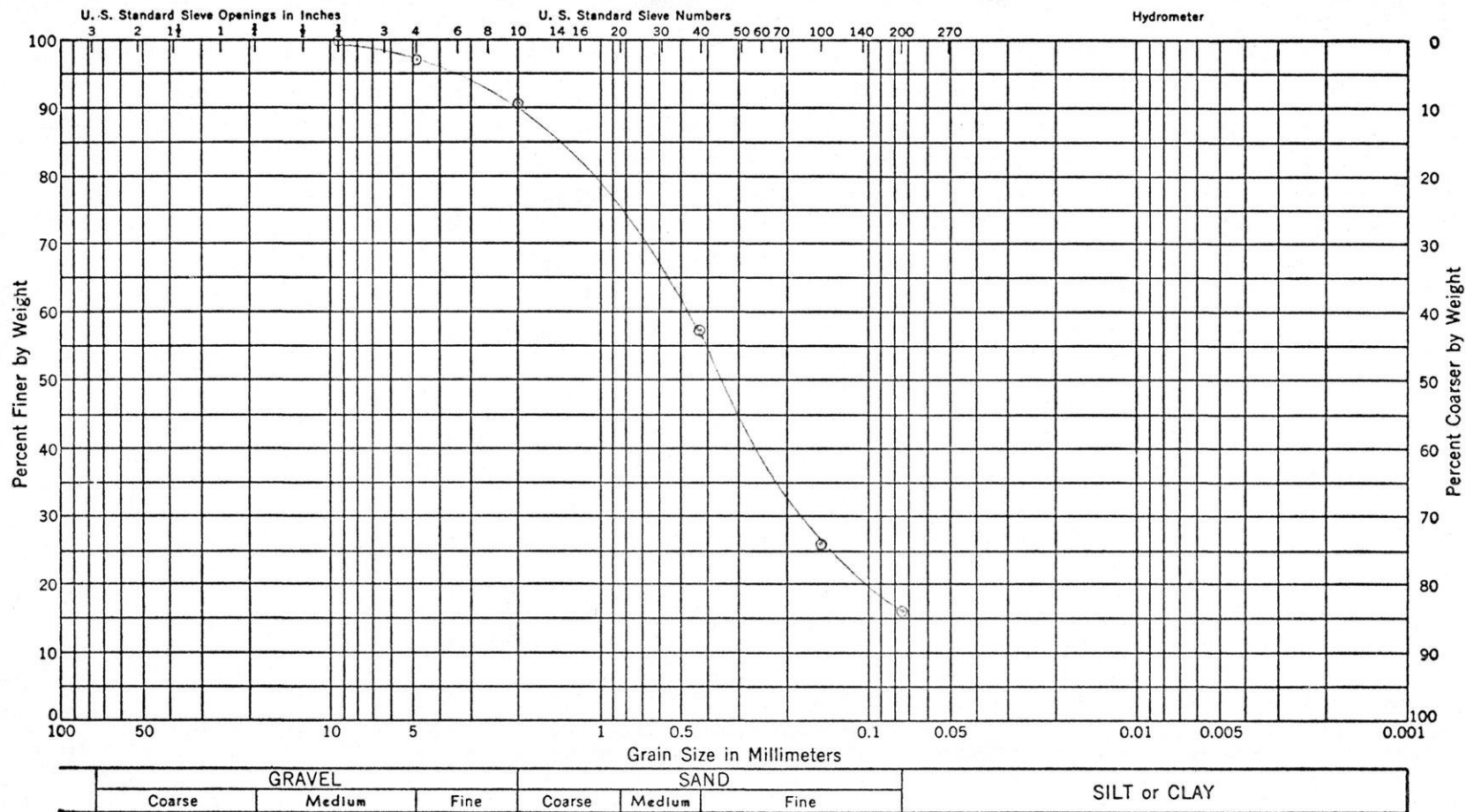


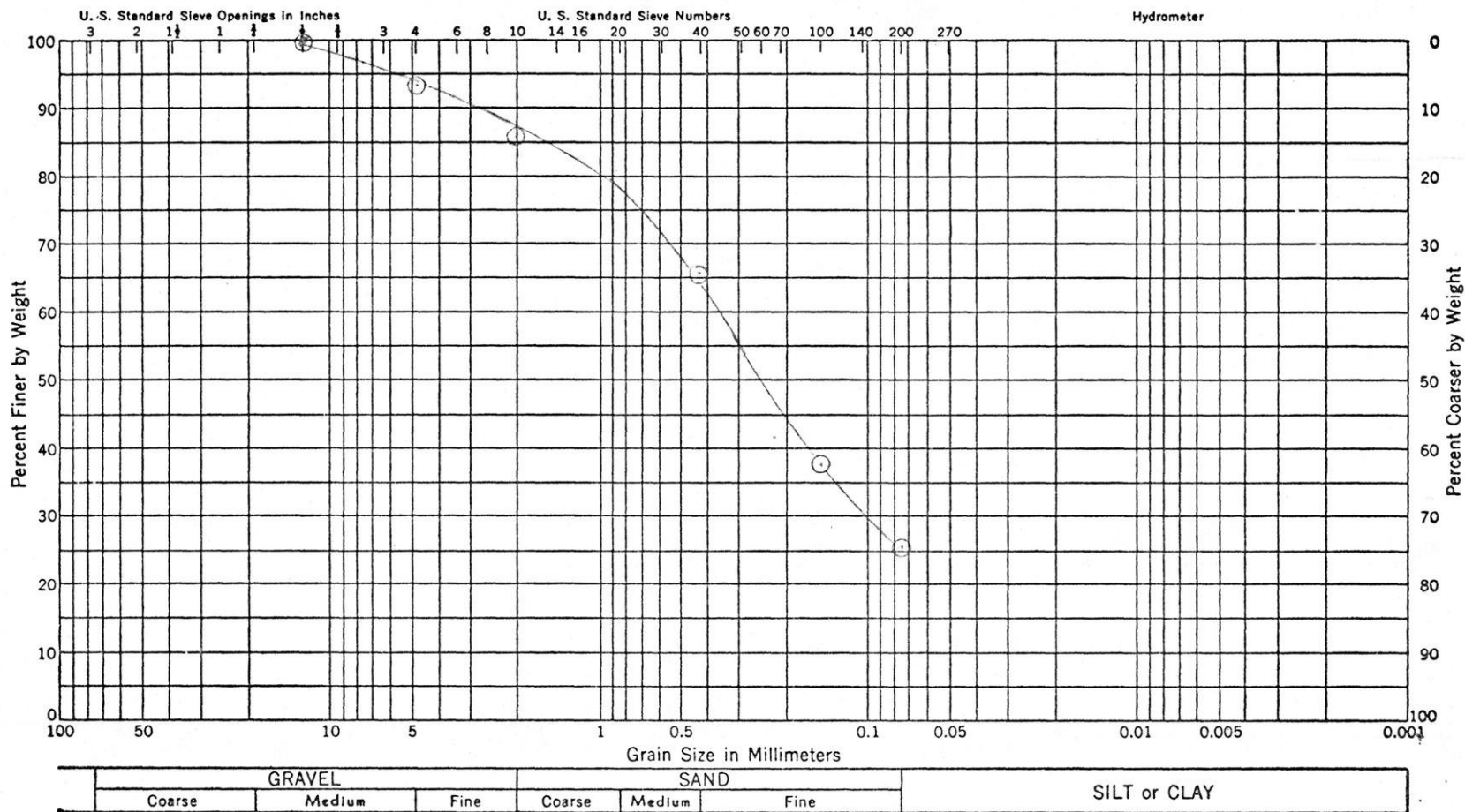
GRAVEL			SAND			SILT or CLAY
Coarse	Medium	Fine	Coarse	Medium	Fine	

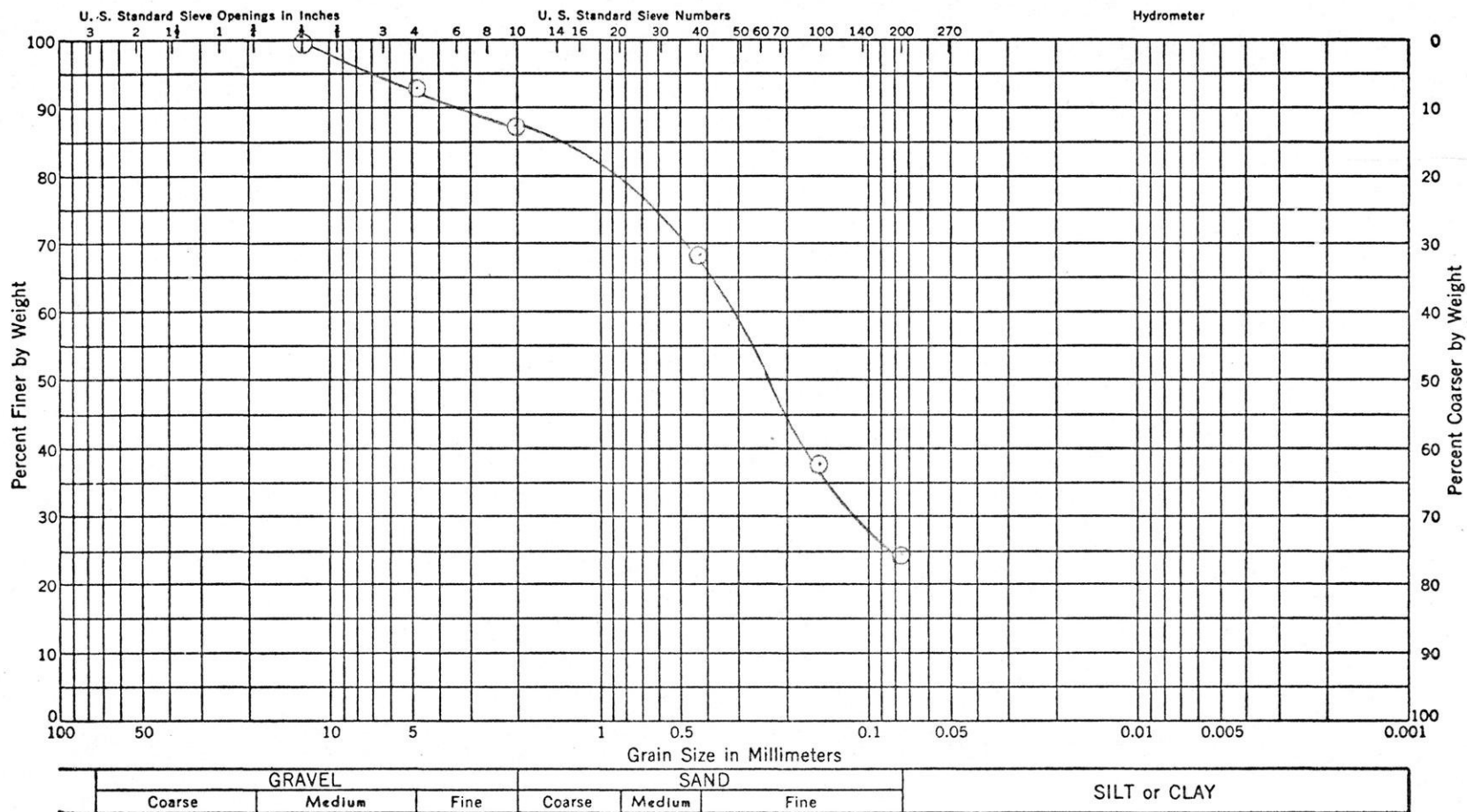
SAMPLE NO.	W.C.	LL	PL	PI	CLASSIFICATION
					Silty and gravelly fine to medium sand (SM)

ST 21 - 34 Sample 4
6 - 7 1/2

DRAWN	APPROVED	DATE	JOB No.
			4970







SAMPLE NO.	W.C.	LL	PL	PI	CLASSIFICATION	Boring ST 21 - 48 Sample 5 10' - 11'			
					Silty fine to coarse sand-trace to				
					some gravel (SM)				
						DRAWN APPROVED DATE JOB No.			
						4970			



UW-STEVENS POINT



3 1775 812622 4