

CITY OF AUBURN

Department of Municipal Utilities

Subject: Addendum #3, Biosolids Processing and Dryer Design

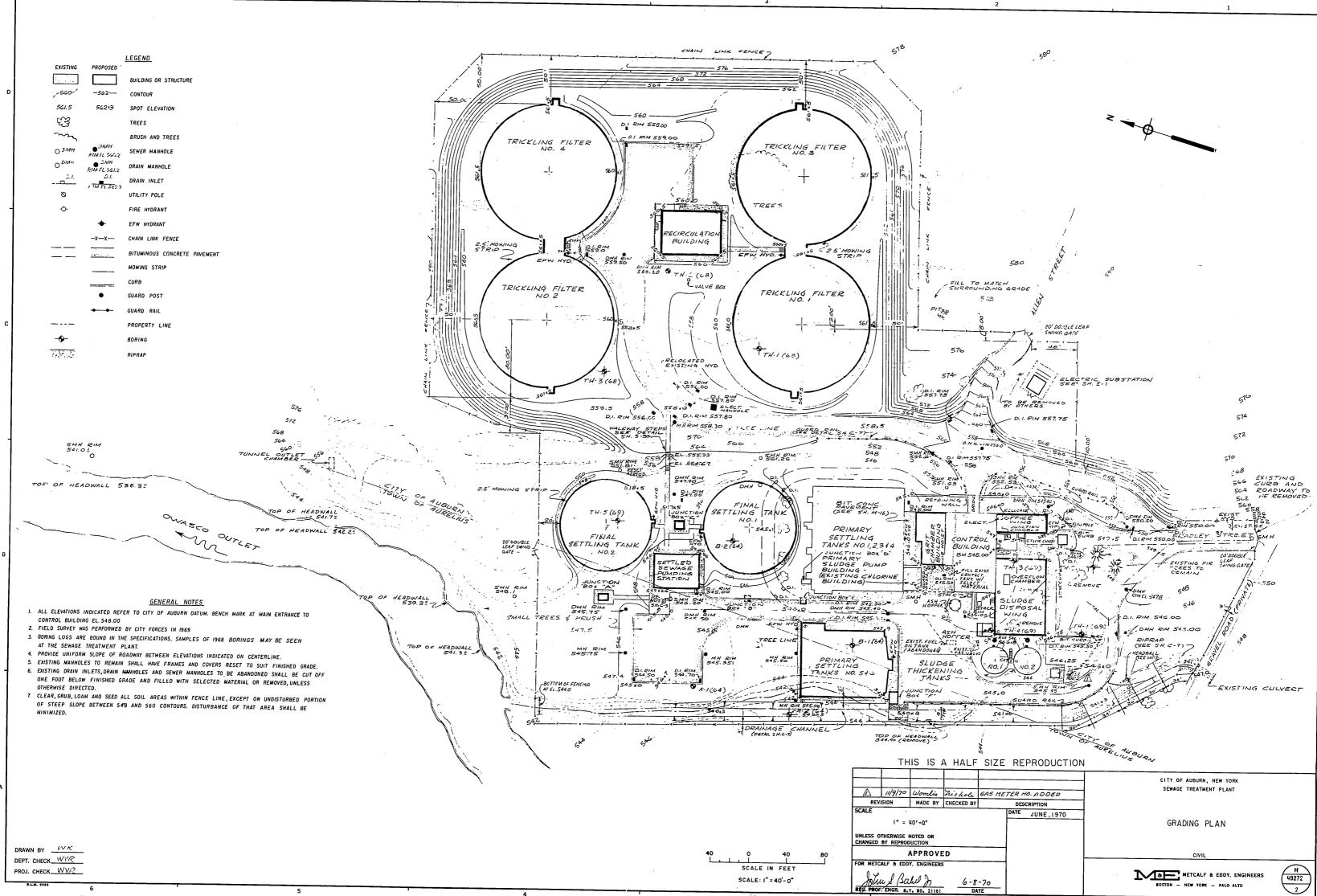
Date: June 11, 2020

To All Prospective Bidders:

Item #1: The bid documents for construction will be included in Future Services (Task 7). Final NYSDEC approval documents and final bid documents shall be added to Task 7 by way of addendum.

Item #2: Competitive procurement bidding of equipment shall be added to Task 7 by way of addendum. Bidding criteria and development of the selection criteria is in Task 2.

Item #3: Geotechnical reports and soil boring data from past projects in 1968 and 1994 are provided as an attachment to this addendum.



CONTRACT 70-I





TE T HOLE A: B-I DEPTH BLOWS TOP SOIL SOIL SILT, TRACE MEDILITTLE MEDIUM TO FINE GRAVEL, TRACE MEDIUM TO FIN AND GRAVEL; CL, CLAY (GRAY, BROWN, MOIST, SLIGHTLY PLASTIC) DAMP, SLIGHTLY GLACIAL TILL - C(BROWN, DAMP, NON PLASTIC) MPOSED SHALE AND LITTLE MEDIUM TO FINE 83/6" IL (BLACK, MOIST, SLIGHTLY PLASTIC) DECOMPOSED SHA (GRAY, WET, SLIG '20['] 100/5" MPOSE SHALE, TRACE SHALE (GRAY, 521,0 +25 FT 100/1" (, MOIST, SLIGHTLY PLASTIC) SHALE AND LIME 30 2" SAMPLE SPOON - 140 Ib HA O Ib HAMMER - 30" FALL 40 TEST HOLE A-2 B-2 DEPTH BLOWS SILT, LITTLE MEE MATERIAL TRACE CLAY (BRO TRACE MEDIUM TO FINE SAND AND GRAVEL, 17 MEDIUM TO FINE (BROWN, DAMP, SLIGHTLY PLASTIC) SILT AND MEDIUM CLAY (GRAY, WET, AL TILL - COMPACT SILT, LITTLE ROCK FRAGMENTS & MEDI SAND, TRACE CLAY (BROWN, DAMP, NON PLASTIC) CORED II'-6" 528.0 WEATHERED SHAL) FROM 16'-0" TO 21'-0" - LIMESTON 20' 100/1" SAMPLE NOT DES MPOSED SHALE (BLACK, DAMP, SLIGHTLY PLASTIC) 100/1" MEDIUM HARD SE, LIMESTONE W/SEL

2" SAMPLE SPOON - 250 Ib HAID Ib HAMMER - 30" FALL

40'1

SUBSUNTACE SURVEYS

BST. 550

5972 COURT ST. RD.

SYRACUSE, N. Y. 13205

JOB NO L-3825

HOLE NO TH-5 (69)

TITLE PROPOSED SECONDARY TREATMENT PLANT, AUBURN, NEW YORK

CLIENT 'WITCALF & EDDY, CONSULTING ENGINEERS , NEW YORK, NEW YORK

ELEV. AT GROUND SURFACE D. CLATER

DATE STARTED_JULY 28, 1969 JULY 28, 1969

GROUND WATER 8'6" BELOW SURFACE AT COMPLETION

			Ø. **			
		8.0	N N			" "-ATECATION AND A DEPARTMENT OF THEMES
υ≱⊤			WS ON IPLER	ш	DEPTH	CLASSIFICATION
P () A	С		ı	SAMPL	OF	Q.
DEP1 BELC URF/		0 - 6	G"-18"	4	SAMPLE	REMARKS
S			Ν	01		
	3		i		90 H 30 SE	LOOSE MEDIUM TO FINE SAND, LITTLE SIL
	3	3	:3-3	1	1'0"-2'6"	
	3					(BROWN, DAMP, NON PLASTIC)
	5					
5."	/					
	11 21	8	9-11	2	5'0"-6'6"	(BROWN, DAMP, NON PLASTIC)
	15			2 //		
	8	*("		® 1		9'0
10'	12	*		/ 100		
	14	6	6-17	3	10'-11'6"	COMPACT SILT & FINE SAND, LITTLE MEDIUM TO FINE GRAVEL, TRACE ORGANIC
1	25					MATTER (POSSIBLE FILL)
	38					(DARK BROWN, DAMP, NON PLASTIC)
761	78			((t))	5 35.5	14 '6
15'	106=6			*×	ر بدر ر	
	* 1	- 68		He Colored		THIN BEDDED, GRAY, LIMESTONE, MEDIUM
						HARD (SKANEATELES FORMATION)
į	' I	2000	-		į	201
20'		203119			= = 1	BORING TERMINATED AT 19'6"
	į	741				BORING TERMINATED AT 19 6
		55				NOTE: CORE DRILLED FROM 14'6" TO 19'6
i	9			180		REC. 33" (55%)
				14		(001)
i	9			12. 2		
	1	(T) (S)				•
- 1						
1	ä	19	= 4	- 1	H	
ĺ	9					
ļ			-		1	
1	1			4 8	1	
ŀ	Î				9	
Ĭ.	1	9	s l		112 11 127	AVAMENTE FOR BY OF BY STANFOR

NOTE: N : NO. BLOWS TO DRIVE 2" SPOON 12" WITH 140 LB, WT, 30" PER BLOW C = NO. BLOWS TO DRIVE EN" CABING 12" WITH 200 LB. WT. 24" PER BLOW UBSURFACE SURVEYS.

EST.

546

Charles Coll Tooling Ing. Subsurface Investigation

5972 COURT ST. RD.

SYRACUSE, N. Y. 13206

463-4595

100 NO TH 3819

HOLE NO TH-4 (69)

CLIENT NETCALE & EDDY CONSULTING ENGINEERS, NEW YORK, NEW YORK

ELEV. AT GROUND SURFACE TECHNICIAN D. SLATER

DATE STARTED JULY 23, 1969 COMPLETED JULY 23, 1969

GROUND WATER 4'6" BELOW SURFACE AT COMPLETION

	1 9 9	€ #		v	· · · · · · · · · · · · · · · · · · ·	
π≯Ω	k D		WS ON APLER	Щ	DEPTH	CLASSIFICATION
EPT CLO	c		Ĭ	S 0	OF	&
98 80 80 8	Ī	0 6'	6" 18"	SA	SAMPLE	REMARKS
	10	Ġ.	!	F. w		
	15 17 21	23	10-6	1	1'0"-2'6"	MISCELLANEOUS FILL CONSISTING OF: SILT SAND, GRAVEL, CINDERS, ETC. (BROWN, BLACK, DAMP, NON PLASTIC)
5'	49 53 108	7	10-7	2	5'0"-6'6"	(BROWN, BLACK, DAMP, NON PLASTIC) 6'5" VERY DENSE GLACIAL TILL CONSISTING CF:
10'		50=5"		3_	10'-10'5"	MEDIUM TO FINE SAND, SOME SILT & MEDIU: TO FINE GRAVEL, ROCK FRAGMENTS (GRAY, WET, NON PLASTIC)
2		* *	- 65.2	THE STATE OF	4	٨.
		1				13'6"
15'	* 10	-		22	532.5	
		e a	7			THIN BEDDED, GRAY, LIMESTONE, MEDIUM HARD (SKANEATELES FORMATION)
:311				96		
20'				20 75 9 1 951 5		BORING TERMINATED AT 18'6"
) 441 (0 (0) 20		9
			#041 ¥	2 14 4		NOTE: CORE DRILLED FROM 13'6" TO 18'6" REC. 42" (70%)
	8				i	
	1					
	8	i				y 8
	72		3.00			
	2 3	1	800.00	, ,	į	
			- 107 S		4	
1 1		1			¥.	
1	9	İ	10 000	2 800		
	e. 3	į	535	=		
	10	į	1	. !	6	
		= 1		1		T PARTITION OF PARTITION OF THE PARTY OF THE

NOTE: N = NO BLOWS TO DRIVE 2" SPOON 12" WITH 140 LB, WT, 30" PER BLOW G = NO, BLOWS TO DRIVE 2%" CABING 12" WITH 250 LB, WT, 24" PER BLOW

Sir to identifie in

SURFACE SURVEYS

Onuniaga Cell Tooling, Edua Ballandase Incontinations

5972 COURT ST. RD.

SYRACUSE, N. Y. 13206

463.459

JOH NO. 6-1819

HOLE NO. TI -3 (69)

TITLE PROPOSED SECONDARY TREATMENT PLANT, AUBURN, NEW YORK

CLIENT METCALF & EDDY, CONSULTING ENGINEERS, NEW YORK, NEW YORK

EST. 548

ELEV. AT GROUND SURFACE TECHNICIAN D. SLATER

DATE STARTED JULY 28, 1969

COMPLETED JULY 28, 1969

GROUND WATER 2'3" RELOW SURFACE AT COMPLETION

Ξ.	ř	ğ x ⁽¹⁾	- 15	1		
T ≩ U			WS ON IPLER	ш	DEPTH	CLASSIFICATION
DEPTH BELOW URFACE	С	•	1	AMPL	OF	₿.
3 E E	8	0.6	6"-18 N	SAN	SAMPLE	REMARKS
U)	1					
	4	4:	•			FIRM SILT, SOME MEDIUM TO FINE SAND,
	9	3	8-8	[1	1'0"-2'6"	LITTLE MEDIUM TO FINE GRAVEL (BROWN,
	100	ř	1			GRAY, DAMP, NON PLASTIC)
j '	100	Ř			544.0	
			0.0400			THIN BEDDED, GRAY, LIMESTONE, MEDIUM
	i.	1 8				HARD (SKANEATELES FORMATION)
	e e	E 6 8				9 1 0 "
10'		¥0 18 290				BORING TERMINATED AT 9'0"
~	1					
	1		330.00	1200		NOTE: CORE DRILLED FROM 4'0" TO 9'0"
		E 6	100	х.	1	REC. 3'0" (5%)
		= -	***	P.		REC. 3 0 (3%)
	-	Ü		0 0		
				W 11		
						2
				51	(60	
	1 25	i .	9 10	# ×		3
				1000 0		
			11 650			
				==		
					į	
			į	Con		
	7					
					1	
					į	
i				(A	į	
1						Y.
				-	1	
	i į	i	2000	i	ava a	1 1960 KG 1960 KG 1960 KG 1860

OTE: N = NO BLOWS TO DRIVE 2" SPOON 12" WITH 140 LB WT 30" FER SLOW

C = NO BLOWS TO DRIVE 2½" CABING 12" WITH 250 LB, WT 24" PER BLOW

SURFACE SURVEYS.

108 NO 11 1819

HOLE NO TH-2 (69)

TITLE PROPOSED SECONDARY TREATMENT PLANT, AUBURN, NEW YORK

CLIENT METCALF & EDDY, CONSULTING ENGINEERS, NEW YORK, NEW YORK

ELEV. AT GROUND SURFACE

DATE STARTED JULY 23, 1969

JULY 23, 1969

GROUND WATER. 1'2" BELOW SURFACE AT COMPLETION

DEPTH CLASSIFICATION OF REMARKS SAMPLE FIRM, MEDIUM TO FINE SAND, LITTLE SILT 1'0"-2'6" MEDIUM TO FINE GRAVEL(POSSIBLE BILL) (BROWN, DAMP, NON PLASTIC) 5495 THIN BEDDED, GRAY, LIMESTONE, MEDIUM HARD (SKANEATELES FORMATION) BORING TERMINATED AT 8'6'

NOTE: CORE DRILLED FROM 3'6" TO 8'6" * REC. 43" (71.6%)

NOTE: H = NO BLOWS TO DRIVE 2" SPOON 12" WITH 140 LB, WT. 30" FER BLOW

C NO BLOWS TO DRIVE 21" CASING 12" WITH 200 LB, WT 24" PER BLOW

```
463.4555
                                         SYRACUSE, N. Y. 13206
                                                      HOLE NO. TH-(69)
            * PARTHEON DARY TREATMENT PLANT, MULTER, NEW YORK
       LAND WALL & EDDY, CONSULTING ENGINEERS, NEW YORK, NEW YORK
EST 546 V. A. GROUND SURPACE
       JULY 23, 1969
                 " 5'1" BELOW SURFACE AT COMPLETION
       SROUND WATER L. .. ______
                                                CLASSIFICATION
               SAMPLER
                               OF
                                                  REMARKS
                              SAMPLE
                            MISCELLANGOUS FILL CONSISTING OF: SILT, 1'0"-2'6" SAND, GRAVEL, CINDERS, ETC.
                                       (BROWN, DAMP, NON PLASTIC)
                              541.5
                                       THIN BEDDED, GRAY, LIMESTONE, MEDIUM
                                       HARD (SKANEATELES FORMATION)
                                       BORING TERMINATED AT 9'6'
                                       NOTE: CORE DETLLED FALL 4'6" TO 9'6"
                                        FEC. 43" (71.6%,
```

HOTE IN HIS DIOWS TO BRIVE 2 SPC. 12" WITH 140 LB WT. 30" PER BLOW

ORIGINIPACIA

SP72 COURT ST. RD. SYRACUSE. N. Y. 13206 . 463.4595

SP72 COURT ST. RD. SYRACUSE. N. Y. 13206 . 463.4595

HOLE NO. TH-3 (68)

HOLE NO. TH-3 (68)

HOLE NO. TH-3 (68)

TITLE

DEPARTMENT OF ENGINEERING, AUBURN, NEW YORK

CLIENT

DEPARTMENT OF ENGINEERING, AUBURN, NEW YORK

CLIENT

AT GROUND SURFACE

TECHNICIAN

R. BUSH

NOVEMBER 26, 1968

COMPLETED

NOVEMBER 26, 1968

GROUND WATER

O'6" BELOW SURFACE AT COMPLETION

		WS ON APLER	Д. П	рертн .	CLASSIFICATION
С	0.6"	6"-18" N	SAMPL NO.	OF SAMPLE	æ REMARKS
	5	16	I	1'0"-2'6"	TOP SOIL SOFT SILT, SOME MEDIUM TO FINE GRAVEL LITTLE FINE SAND (BROWN, MOIST, PLASTIC) 4'0"
	21	108	2	5'0"-6'6"	GLACIAL TILL CONSISTING OF: SILT, COARS' TO FINE GRAVEL, LITTLE CLAY, TRACE FINE SAND, BOULDER FRAGMENTS (BROWN, MOIST, SLIGHTLY PLASTIC)
	44	86	3	10'-11'6"	(BROWN, MOIST, NON PLASTIC)
	,			*	
	-	93=67	_4	15'-15'6"	(GRAY, DAMP, NON PLASTIC)
					** * * * * * * * * * * * * * * * * * *
		141=6"	5	20'-20'6"	(GRAY, DAMP, NON PLASTIC)
	-				
		175=4"	6	25'-25'4"	(GRAY, WET, NON PLASTIC)
-1-					ž.,
		200=2"	7	30'-30'2"	(GRAY, DAMP, NON PLASTIC) 30'2' BORING TERMINATED AT 30'2"
					i •

NUL RHOW 546

NOTE: N = NO, BLOWS TO DRIVE 3" BPOON 13" WITH 140 LB, WT, 30" PSR BLOW

डांशा			COUR	T ST. RD.	• SYRACUSE, N. Y. 13200 . • 463.459
	SURVEYS		¥ .		
BOL	NO.K-3	3576	- 4	31°	HOLE NO
TITL	SEC		EWAC	SE TREATMEN	T PLANT, AUBURN, NEW YORK
\$		PARTMENT	OF	ENGINEERIN	IG, AUBURN, NEW YORK
		GROUND			
					TECHNICIAN R. BUSH NOVEMBER 25, 1962
DAT	E START			P	NOVEMBER 25, 1968 COMPLETED BELOW SURFACE
GRO	AW GNU	TER			
	-		OURS	AFTER COM	PLETION
		OWS ON AMPLER). E	DEPTH :	CLASSIFICATION
C	0 - 6	6"-18"	SAMPLE NO.	OF SAMPLE	. & REMARKS
<u> </u>		N	V3	SAMPLE	
	5	9	1	1'0"-2'6"	TOP SOIL 1
					FINE SAND, ORGANIC MATTER (BROWN, DAMP, SLIGHTLY PLASTIC)
	31	150	2	5'0" - 6'6"	DENSE SILT, SOME COARSE TO FINE GRAV
		130		5 0 -0 0	LITTLE FINE SAND, BOULDER FRAGMENTS (BROWN, MOIST, NON PLASTIC)
	-				*
	4.7	0.0			DENSE SANDY SILT, FINE TO MEDIUM SAN
	41	99	_3	1011.6.	(BROWN, MOIST, NON PLASTIC)
-	1				GLACIAL TILL CONSISTATING OF: DENSE
	125	150=3"	4	15'-15'9"	SOME FINE TO MEDIUM GRAVEL AND SAND, SHALE FRAGMENTS (GRAY, DAMP, NON 1987)
					PLASTIC)
-					
	100	150=4"		201.271708	(
	122	150=4"	5	20'-21'10"	(GRAY, DAMP, NON PLASTIC)
					e
				s	
		200=3"	6	25'-25'3"	(GRAY, WET, NON PLASTIC)
				•	
	-	1250=2"	7	30'-30'2"	(GRAY, DAMP, NON PLASTIC) 3
				*	BORING TERMINATED AT 30'2"
	!				•

1	S.C. 11 (F.	/	5972 C	OURT	ST. RD.	SYRACUSE, N. Y. 13206 •	53:4545
	URIACES	URVEYS	- 5	0.		w w	
ľ		o. <u>K-35</u>				HOLE NOTH-1 (68)) 54
	TITLE	SECOND	ARY SEW	NGE	TREATMENT	PLANT, AUBURN, NEW YORK	
	CLIE	AT DEDY	RTMENT	OF I	ENGINEERING	G, AUBURN, NEW YORK	
- 5						TECHNICIAND. ROWE	
יין כי ופי	PELEV		OCTOR	ER	29. 1968	NOVEMBER 4, 1968	
	DATE	STARTED.				COMPLETED	'ACE
1	GROU	ND WATE	R 48 HC	שמ	AFTER COM	PLETION	Ž
G	E 1 OF		15 ON 1				
in the second			VS ON PLER	SAMPLE NO.	DEPTH	CLASSIFICATION &	
HAND	С	0.6"	0"-18"	SAM N(SAMPLE	REMARKS	
700	114					MOD COTT	014
A STANDARY	28	3, 2	50	1	1'0"-2'6"	TOP SOIL SEE NOTE "A"	310
	63					VERY DENSE FINE TO MEDIUM SAND,	
-		65	142	2	5'0"-6'6"	SILT, LITTLE FINE GRAVEL (GRAY, DAMP, NON PLASTIC)	
				- 2		(Grant's Dina)	s ž
					× .	- W 20 8	
Ī		70	345	3	10'-11'6"	(GRAY, DAMP, NON PLASTIC)	
						BOULDERS NOTED	
	-					•	
		140	450	4	15'-16'6"	(GRAY, DAMP, NON PLASTIC)	
Ī				ti.		·VERY DENSE SILT, LITTLE FINE SAN	<u> 18'</u>
I			(3)		1 .	VARVES STIFF CLAY	
	3	ļ	20.0	5	20'-20'6"	(GRAY, DAMP, NON PLASTIC)	•
I	1 1 1					,	241
I			150=2"	6	25!-25!2"	VERY DENSE GLACIAL TILL CONSISTE	ng of:
			130-2			SILT, LITTLE SAND AND GRAVEL (GEAR BROWN, DAMP, NON PLASTIC)	1.511
- -						,	
	1		100=4"	7	30'-30'4"	(GREYISH BROWN, DAMP, NON PLASTIC)	35 %3
V V		(250#	HAMMER	l		BORING TERMINATED AT 30'4"	,
6		-			-	* 3	

	URVEYS	5972 -		RT ST. RD.	SYRACUSE, N. Y. 13206	463.459
	10. K-3	0			HOLE NO. TII-	1 (68)
TITLE	SECO	NDARY S	EWAG	SE TREATMEN	IT PLANT, AUBURN, NEW YORK	1
CLIE	NT DEP	ARTMENT	OF	ENGINEERIN	IG, AUBURN, NEW YORK	
		GROUND			_TECHNICIAND. ROWE	093: (i)
DATE	STARTE	OCTO	BER	29, 1968	COMPLETED NOVEMBER 4, 1968	8
					E AT COMPLETION-14'2" BELOW S	URFACE
E 2 0	F 2	48 H	OURS	AFTER COM	PLETION	
	BLO'	WS ON IPLER	щ	DEPTH	CLASSIFICATION	ine e
С	0 - 6"	6"-18"	SAMPLE NO.	OF	& a	(i):
İ		N	ဖြ	SAMPLE	REMARKS	9 6
				5	NOTE ADVANCED TEST HOLE WIT BIT FROM 3'0" TO 30'0", NO CONTROL OF THE BIT FROM 3'0" TO 30'0", NO CONTROL OF THE BIT FROM T	ASING USE
		5		5	BIT FROM 3'0" TO 30'0", NO C	ASING USE
7				5	NOTE "A" DENSE GLACIAL TILL OF: CLAY, SOME SILT, TRACE F	ASING USE
				5	NOTE "A" DENSE GLACIAL TILL OF: CLAY, SOME SILT, TRACE F	ASING USE
					NOTE "A" DENSE GLACIAL TILL OF: CLAY, SOME SILT, TRACE F	ASING USE
				5	NOTE "A" DENSE GLACIAL TILL OF: CLAY, SOME SILT, TRACE F	ASING USE
				5	NOTE "A" DENSE GLACIAL TILL OF: CLAY, SOME SILT, TRACE F	ASING USE
				5	NOTE "A" DENSE GLACIAL TILL OF: CLAY, SOME SILT, TRACE F	ASING USE
					NOTE "A" DENSE GLACIAL TILL OF: CLAY, SOME SILT, TRACE F	ASING USE
					NOTE "A" DENSE GLACIAL TILL OF: CLAY, SOME SILT, TRACE F	ASING USE:
					NOTE "A" DENSE GLACIAL TILL OF: CLAY, SOME SILT, TRACE F	ASING USE:
					NOTE "A" DENSE GLACIAL TILL OF: CLAY, SOME SILT, TRACE F	ASING USE

NOTE: N \simeq NO. BLOWS TO DRIVE 2" SPOON 12" WITH 140 LE, WT. 30" PER ELOW



APPENDIX A
Boring Logs
1968

le vinitary SUBSURFACE SURVEYS

DATE STARTED_

5972 COURT ST. RD.

SYRACUSE, N. Y. 13208

JOB NO. K-3576	HOLE NO. TH-1 (68)
TITLE SECONDARY SEWAGE TREATMENT PLANT, AUBURN,	NEW YORK
CLIENT DEPARTMENT OF ENGINEERING, AUBURN, NEW	YORK
ELEV. AT GROUND SURFACE TECHNICIAN D.	
OCTOBER 29, 1968 COMPLETED NO	VEMBER 4, 1968
DATE STARTED COMPLETED	

PAGE	GROUN 1 OF	ND WATE	R_48 HC	URS	AFTER COM	E AT COMPLETION- 14'2" BELOW SURFACE	
ACE			VS ON PLER	AMPLE NO.	DEPTH OF	CLASSIFICATION	
DEPTH BELOW SURFACE	С	0.6*	0"-18" N	SAN	SAMPLE	REMARKS	
	14	12	50	1	1'0"-2'6"	TOP SOIL	0 44"
	65					SEE NOTE "A"	3'0"
5 '		65	142	2	5'0"-6'6"	VERY DENSE FINE TO MEDIUM SAND, SON SILT, LITTLE FINE GRAVEL (GRAY, DAMP, NON PLASTIC)	فنه
					*		*
10'	- i,	70	345	3	10'-11'6"	(GRAY, DAMP, NON PLASTIC)	
15'			3			BOULDERS NOTED	
		140	450	4	15'-16'6"	(GRAY, DAMP, NON PLASTIC)	18'6
				it		VERY DENSE SILT, LITTLE FINE SAND,	100
20'			20.0	5	20'-20'6"	VARVES STIFF CLAY	
£)							2410
25'			150=2	6		VERY DENSE GLACIAL TILL CONSISTING SILT, LITTLE SAND AND GRAVEL (GRAYIS BROWN, DAMP, NON PLASTIC)	op: H
30'		(250	100=4'		30'-30'4"	(GREYISH BROWN, DAMP, NON PLASTIC) BORING TERMINATED AT 30'4"	30.4
					_		-

NOTE: H = NO, BLOWS TO DRIVE 2" SPOON 12" WITH 140 LT. WT. 30" PER BLOW TOWN THE BLOW



	4	
1	126756	17(G/7)
(इन्हेरिक	
SUE	SURFACE S	URVEYS

Onondaga Scii Testing, Inc. Subsurface Investigation

	376,8667	/	5972	COUR	T ST. RD.	• SYRACUSE, N. Y. 13206 • 46	3.4595
SUBSI	JRFACE SL	JR VEYS:		e e			5
					9		
e =		o. <u>K-35</u>				HOLE NO. TII-1 (68)	
	TITLE	SECON	IDARY SI	EWAG.	E TREATMEN	T PLANT, AUBURN, NEW YORK	
	CLIEN	T DEP	RTMENT	OF :	ENGINEERIN	G, AUBURN, NEW YORK	
	ELEV	AT C	ROUND :	SURF.	ACE	TECHNICIAN D. ROWE	, u
	DATE	STARTED	OCTO	BER	29, 1968	COMPLETED NOVEMBER 4, 1968	
			1217	ישם וו	ר או כנוסטארי	E AU COMPLEMION 1412" DELON CHERO	!E
210	GROUNE 2 0	ND WATE	48 H	OURS	AFTER COM	PLETION	.2
	<u> </u>	BLO	WS ON	Ш.	DEPTH	CLASSIFICATION	
PAP	c	SAMPLER		SAMPL NO.	OF	&	ŭ.
BELOW	Ĭ	0.6"	6"-18" N	SAI	SAMPLE	REMARKS	
					Α.	NOTE ADVANCED TEST HOLE WITH ROT	ARV
						BIT FROM 3'0" TO 30'0", NO CASING	
					3		
					2	NOTE "A" DENSE GLACIAL TILL CONS	TSPING
1						OF: CLAY, SOME SILT, TRACE FINE G	
•						(BROWN, DAMP, NON PLASTIC)	•
Ļ			1		a Te	** * * * * * * * * * * * * * * * * * *	70
Ì					196		
Ì	1	/			1 No. 10		
ļ							2.5
-					ar a		£ \$7
ŀ							
					- 1		
-					*		
		-					
-			•				
ŀ					, in , i		
							(à)
_					922		
							10
-	i						
T	1					e ky	
						a a	
				* .	W	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	- 5
-							0.00 Si
-							%
-	-					* · · ·	

NOTE: N = NO. BLOWS TO DRIVE 2" SPOON 12" WITH 140 LB. WT. 30" PER BLOW

Š			
=			
-			
D.			
\:\C			
NG L			
75.0°s			
t.;			
š			
=			



Onondaga 2011 Tollaga Ing. Subsurface Investigation

5972 COURT ST RD.

SYRACUSE, N. Y. 13200 . .

463.459

3085U	REACE SI	URVEYS.		27		
	1 BOL			** 9 18		HOLE NO. TH-2 (68)
	TITLE	SECO	NDARY S	EWAC	GE TREATMEN	IT PLANT, AUBURN, NEW YORK
						IG, AUBURN, NEW YORK
		AT	GROUND		77.00	TECHNICIAN R. BUSH
	ELEV		NOVE	MBEI		NOVEMBER 25, 1968
	DATE	STARTE				COMPLETED
	GROU	IND WAT	ER		S AFTER COM	Harris Barrer Committee Co
· W		BLO	WS ON			
PAC	c	SAN	MPLER	SAMPLE NO.	DEPTH OF	CLASSIFICATION &
DEPTH BELOW SURFACE		0.6*	6"-18" N	SA	5AMPLE	REMARKS
-						TOP SOIL 110"
		5	9	1	1'0"-2'6"	GOFT SILT, TRACE MEDIUM TO FINE GRAVEL FINE SAND, ORGANIC MATTER (BROWN, DAMP,
-	-				Fa7	SLIGHTLY PLASTIC) 4'0" DENSE SILT, SOME COARSE TO FINE GRAVEL
		31	150	2	5'0"-6'6"	LITTLE FINE SAND, BOULDER FRAGMENTS (BROWN, MOIST, NON PLASTIC)
						(BROWN, MOIST, NOW I BRISTIO)
'		<u> </u>				DENSE SANDY SILT, FINE TO MEDIUM SAND
		41	99	3	10'-11'6"	(BROWN, MOIST, NON PLASTIC)
	:	1			-	GLACIAL TILL CONSISTSTING OF: DENSE SIL
		125	150=3"	4	15'-15'9"	SOME FINE TO MEDIUM GRAVEL AND SAND, SHALE FRAGMENTS (GRAY, DAMP, NON PLASTIC)
		122	150=4"	5	20'-21'10"	(CDAN DAND MON DIAGMIC)
		122	130=4	2	20 -21 10	(GRAY, DAMP, NON PLASTIC)
					-	
54			200=3"	6	25'-25'3"	(GRAY, WET, NON PLASTIC)
ا_نــــ			250=2"	7	30'-30'2"	(GRAY, DAMP, NON PLASTIC) 30'2
			230-2		30 30 2	BORING TERMINATED AT 30'2"

NOTE: N = NO. BLOWS TO DRIVE I SPOON IN WITH 140 LR. WT. 30" PER BLOW

+1			
#1 15			
5 /1			
-r-0,11			
/EL			
4 0 "			
TO" VEL H'O" VEL			
•			
² VD			
13'6 SIL.			
SIL.			
e 3 000			
8			
8			
30'2			
====			

COLORO NOE SURVEYS

CHOTICE Soll Totaling Ind. Subserface Developation

5972 COURT ST. RD.

SYRACUSE, N. Y. 13206

463.45

/			
JOB NO. K-3570	<u> </u>		HOLE NO. TH-3 (68)
SECOND!	ARY SEWAGE TREAT	PMENT PLANT, A	AUBURN, NEW YORK
CLIENTDEPA	RTMENT OF ENGIR	NEERING, AUBUR	RN, NEW YORK
ELEV. AT GF	OUND SURFACE	TECHNICIA	R. BUSH
DATE STARTED_	NOVEMBER 26, 19	968	NOVEMBER 26, 1968
	0'6" BELOW SUI		

REMARKS OP SOIL OFT SILT, SOME MEDIUM TO FINE GRAVEL ITTLE FINE SAND (BROWN, MOIST, PLASTIC) 4'0" LACIAL TILL CONSISTING OF: SILT, COARSE OF INE GRAVEL, LITTLE CLAY, TRACE FINE
OFT SILT, SOME MEDIUM TO FINE GRAVEL SITTLE FINE SAND (BROWN, MOIST, PLASTIC) 4'0" LACIAL TILL CONSISTING OF: SILT, COARSE O FINE GRAVEL, LITTLE CLAY, TRACE FINE
LACIAL TILL CONSISTING OF: SILT, COARSE OF FINE GRAVEL, LITTLE CLAY, TRACE FINE
AND, BOULDER FRAGMENTS (BROWN, MOIST, LIGHTLY PLASTIC)
BROWN, MOIST, NON PLASTIC)
GRAY, DAMP, NON PLASTIC)
GRAY, DAMP, NON PLASTIC)
GRAY, WET, NON PLASTIC)
GRAY, DAMP, NON PLASTIC) 30'2" DRING TERMINATED AT 30'2"

NOTE: N = NO. ELOWS TO DRIVE A SPOON 12" WITH 140 LB, WT. 30" FER RLOW

	F1(J. J. W.	tae Grist	
5972 COURT ST. RD.	٥	SYRACUSE, N	_v Y. 13206	•	463.4535

Old NO (69)

N. HARRING AND TREATMENT PLACE, MILITELL, NEW YORK

E .EXT S .AAT & EDDY, CONSULTING ENGINEERS, LOW YORK, NEW YORK

A. GROWN SURFACE __TECHNICIAN_

	V.	CIC Live	12 V 3 V 1	10.1	TECHNICIAN
	257XRTE	JULY	23,	1969	JGDN 23, 1935
	3,4310		1.11 my 1.11	tora superaci	E AT COMPLETION
1500	LAW GAL		بطائد پر سامادهای		B 111 COM BUTTLE.
				- ten - ten	. galaga eng al gertaken et <u>e</u> ena sa er
		DWS ON MPLLE	1s.	DEPTH	CLASSIFICATION
350			F G	OF	Ē.
75.	0 - 0	6"- '8	SAMPLE	SAMPLE	REMARKS
2 1 1 22 2004	, 5 7	15-14	1	3 '0"-2'6"	MISCELLANEOUS FULL CONSISTING OF: SILE, SAND, GRAVEL, CINDERS, ETC. (BROWN, DAMP, NON PLASTIC)
1 7 0			и п		\$ 1.5 m
	#0 IO	63	9 3 9	1	THIN BEDDED, GRAY, LIMESTONE, MEDIUM HARD (SKANEATELES FORMATION)
		¥	30	•	9 " 6 "
			190 9		BORING TERMINATED AT 9'8"
		n *	W)		BORING TEXMENHIED AT 5 0
	•		100		MOTE: CORE DRILLED FAX. 4'8" TO 9'6" REC. 43" (71.6),
			42		
		0.00	\$2 ×	·	
				4	a s
			*	*	
			Œ.		0
			() () ()		
			.04	3	

1 12" WITH ISO LE WY 24" PER BLOW

SUBSURFACE SURVEYS.

Openfage Col. Tolling Ing. Saldrenface Inwestigations

5972 COURT ST. RD.

SYRACUSE, N. Y. 13206

463.4595

10 KNO 11 0814

HOLE NO TH-2 (69)

DATE STARTED JULY 23, 1969

GROUND WATER.

DATE OF COMPLETED JULY 23, 1969

GROUND WATER.

1 2 BRLOW SURFACE AT COMPLETION

	20			. · · · · · · · · · · · · · · · · · · ·		
ш			VS ON	w I	DEPTH	CLASSIFICATION
DEPTH BELOW SURFACE		SAM	PLER	SAMPLE	OF	&
F 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	C	0 - 6	6" - 18	Z Z	SAMPLE	REMARKS
0 8 3			Ν	Ŋ	SAMPLE	NEMATICAL SECTION OF THE PROPERTY OF THE PROPE
	11 17	6	7-7	1	1'0"-2'6"	
	128					(BROWN, DAMP, NON PLASTIC) 3'6"
5 '	1					THIN BEDDED, GRAY, LIMESTONE, MEDIUM HARD (SKANEATELES FORMATION)
	Ĭ.		6 6 8			e ' 6 "
			1			BORING TERMINATED AT 8'6"
10'		. 45		22		BORING TERMINATED AT 0 0
			. 11.2			NOTE: CORE DRILLED FROM 3'6" TO 8'6"
						REC. 43" (71.6%)
			i	_ :		
- E	2					
	- 5		=			
	- 6 3					
		100 00 11		2000		
	1			1	1	
	1 1	,		in .	1 10	
	39		-		İ	
56	1 8		La s	1. 54	1	
			;	-		
				##		
				14		
(4)	†		1 7 7	-		
	12	15174	100 E	=7		
		E 000	3.00			
	-	1				
	i		į.	1	1	

NOTE: N = NO BLOWS TO DRIVE 2" SPOON 12" WITH 140 LB, WT, 30" PER BLOW

C : NO BLOWS TO DRIVE 2½" CASING 12" WITH 250 LB, WT, 24" PER BLOW

SYRACUSE, N. Y. 13206 5972 COURT ST. RD. V E Y S

NO. 4-3819

HOLE NO. 711-3 (69)

PROPOSED SECONDARY TREATMENT PLANT, AUBURN, NEW YORK

ENT METCALF & EDDY, CONSULTING ENGINEERS, NEW YORK, NEW YORK

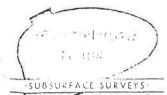
TECHNICIAN D. SLATER v. AT GROUND SURFACE ___COMPLETED____JULY 28, 1969 E STARTED JULY 28, 1969

UND WATER 2'3" RELOW SURFACE AT COMPLETION

2)					
1	40.00	(1) I			- de montre est and a line in the artist is an estade
		VS ON PLER	เป	DEPTH	CLASSIFICATION
	37111		AMPL.	OF	8x
;	0 - 6		A Z	SAMPLE	REMARKS
	3	N	. 01		
- 6	j		**** /3		FIRM SILT, SOME MEDIUM TO FINE SAND,
	3	8-8	1	1'0"-2'6"	LITTLE MEDIUM TO FINE GRAVEL (BROWN,
*1	10	n:			GRAY, DAMP, NON PLASTIC)
6					4.0.
6	ji Ji				THIN BEDDED, GRAY, LIMESTONE, MEDIUM
- 2	4	E #80	(C -1)=		HARD (SKANEATELES FORMATION)
	¥ 9				· ·
B	10/04				9 '0"
9	8 8 8				BORING TERMINATED AT 9'0"
E L					
	1				NOTE: CORE DRILLED FROM 4'0" TO 9'0"
	2.9	80 80	- /		REC. 3'0" (5%)
		E 200 E	=		MGC: 3 0 (30)
- 10			n - 1		
	-	8 8			
		12.50			
	- 1	2.3.		9.	
	1			•	
8					
	9	ga war			9
	Y				
H	vi 9		1000		
- 8					
6	9	E O	* =		
			1= 1+		
	^				
- 8					
- 5		10	10.00		
	Î				
- 6	4				
- 8		-	Ot		
8	19		A	E state total	. The fire which is the fire of the second section of the second

NOTE: NE NO BLOWS TO DRIVE 2"APOON 12" WITH 140 LB. WT. 30" FER BLOW C = NO BLOWS TO DRIVE 2%" CABING 12" WITH 250 LB. WT 24" PER BLOW

%) 5:			
×			
i i			



Could J. Sil Tooling Ing. Subscripce Investigation

5972 COURT ST. RD.

SYRACUSE, N. Y. 1320

463.45

186 NO - 15 35; 9

HOLE NO TH-4 (69)

CLIENT MUTCALE & EDDY, CONSULTING ENGINEERS, NEW YORK, NEW MORK

ELEV AT GROUND SURFACE TECHNICIAN D. SLATER

DATE STARTED JULY 23, 1969 COMPLETED JULY 23, 1969

GROUND WATER 4 6 BELOW SURFACE AT COMPLETION

6 8,		ic.			remersiy or comen	C TEST STATES NO. COMPRESSED NO. 1 (1971) MANAGEMENT CONTROL STATES NO. 1 (1971) NO
ш <			AS ON	نت:	DEPTH	CLASSIFICATION
PTF	C.	2,7,7,1		12.0	OF	ಷ
0 8 E E		0 6	6" 18"	A A	SAMPLE	REMARKS
ຶ້ນ			ir Pt	٠,		
	10		N o		,	MISCELLANEOUS FILL CONSISTING OF: SILT,
	15	23	10-6	1	1 0 - 2 6	Diane, Gidivell, Citibelie, Bio.
22	21	P.				(BROWN, BLACK, DAMP, NON PLASTIC)
5'	49					
	5 3	7	10-7	2	5'0"-6'6"	(BROWN, BLACK, DAMP, NON PLASTIC) 6'5"
	108	8				VERY DENSE GLACIAL TILL CONSISTING OF:
		e = 0 = 0				MEDIUM TO FINE SAND, SOME SILT & MEDIUM
10'		50=5"		3	10'-10'5"	TO FINE GRAVEL, ROCK FRAGMENTS
	•	5	-	e Hawen		(GRAY, WET, NON PLASTIC)
		報 記	m = 1	31 5		
		8 10				13*6"
15'	-	6 6 6		22		
N .	1	ki		G-07-1		THIN BEDDED, GRAY, LIMESTONE, MEDIUM HARD (SKANEATELES FORMATION)
		8 .	6	22 22	(#4)	HARD (SKANDAIDLES FORMATION)
		2		No V		18'6"
20'		£		1 =		BORING TERMINATED AT 18'6"
20		2/;		1883.11		NOTE
	ŀ			attotil.		NOTE: CORE DRILLED FROM 13'6" TO 18'6" REC. 42" (70%)
		1				100. 12 (700)
		411		1 5 5		
35.	: :	¥	=	9	j	
12	•			5 35	1	
			D IS	1000		
				IC E300		
	1	¥ - 2 2	e sin	10.000		
		*	2	21		
		£:	(C)	7) 55		
		*: *:	1.00			
	1	i .	Figure 11 to 12 to	OLC MACH	3	the approximation of the control of

NOTE: N = NO. BLOWS TO DRIVE 2" SPOON 12" WITH 140 LE, WT, 30" PER BLOW C = NO. BLOWS TO DRIVE 2%" CABING 12" WITH 250 LB, WT, 24" PER BLOW

SUBSUAFACE SURVEYS

CHORLEGO CART Ter Inda Subsumface Demostrations

5972 COURT ST. RD.

SYRACUSE, N. Y. 13206

463.459

JCH VO 1.-3825

HOLE NO TH-5 (69)

TITLE PROPOSED SECONDARY TREATMENT PLANT, AUBURN, NEW YORK

CLIENT MUTCALF & HDDY, CONSULTING ENGINEERS, NEW YORK, NEW YORK

ELEV. AT GROUND SURFACE TECHNICIAN D. CLASTIR

DATE STARTED JULY 28, 1969 COMPLETED JULY 26, 1969

GROUND WATER 8'6" BELOW SURFACE AT COMPLETION

ul.	T	l BLO	WS ON	11		producer some and a residual encourage
Ξ ≷ Q		SAN	MPLER	ш	DEPTH	CLASSIFICATION
DEP1 BELO URF/	С	0.00		SAME	OF	Q:
S B C		0 - 6	6'-18	SA	SAMPLE	REMARKS
g.	0 10 m	3	3-3	1	1'0"-2'6"	LOOSE MEDIUM TO FINE SAND, LITTLE SILT (POSSIBLE FILL) (BROWN, DAMP, NON PLASTIC)
5.1	7 11 21 15	8	9-11	2 -	5'0"-6'6"	(BROWN, DAMP, NON PLASTIC)
101	8		-	1		9 1 0 11
10"	12 14 25	; 6	6-17	3	10'-11'6"	COMPACT SILT & FINE SAND, LITTLE MEDIUM TO FINE GRAVEL, TRACE ORGANIC
15'	38 78 106=6	n	**	- 3		MATTER (POSSIBLE FILL) (DARK BROWN, DAMP, NON PLASTIC) 14'6"
		=		944	360 g	THIN BEDDED, GRAY, LIMESTONE, MEDIUM HARD (SKANEATELES FORMATION)
20'						BORING TERMINATED AT 19'6"
						NOTE: CORE DRILLED FROM 14'6" TO 19'6" - REC. 33" (55%)
					į	
	***		=			
			8 18 1	*	î	
i	1 2 3 4		<i>s</i> .			
	i				Ì	

NOTE: N E NO BLOWS TO DRIVE 2" SPOON 12" WITH 140 LB. WT 30" PER BLOW C - NO BLOWS TO DRIVE 2½" CABING 12" WITH 250 LB. WT 24" PER BLOW

NOTES

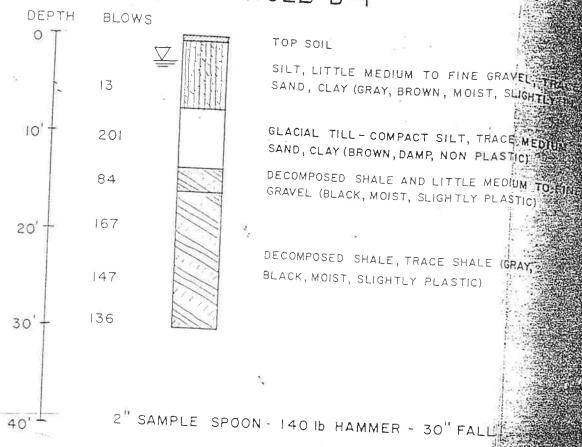
WATER SURFACE

BLOWS INDICATES NUMBER REQUIRED TO DRIVE SPOON 12 INCHES UNLESS NOTED OTHERWISE

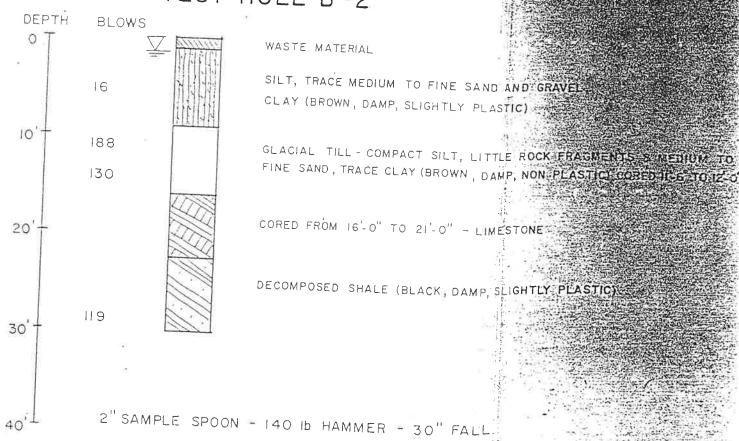
THE DATA HEREON WERE TRANSPOSED FROM LOGS OF BORINGS MADE BY ONONDAGA SOIL TESTING. INC. IN 1964. NO SAMPLES ARE AVAILABLE.

SOIL BORINGS

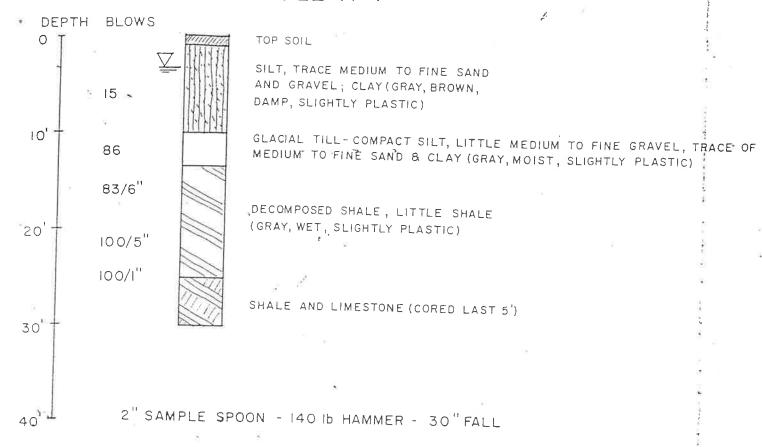
TEST HOLE B-1



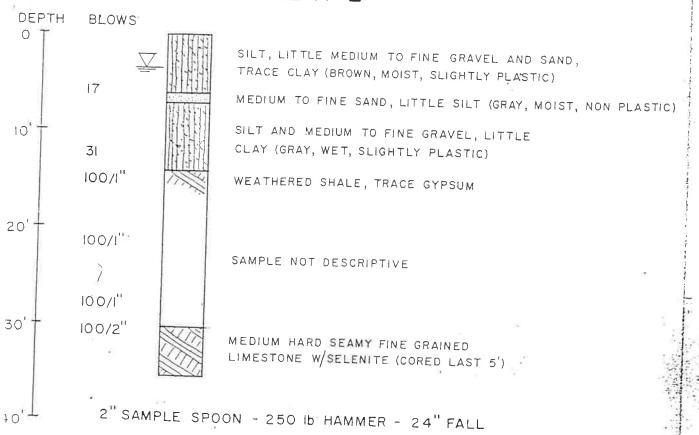
TEST HOLE B-2



TEST HOLE A-I



TEST HOLE A-2









November 17, 1977

City of Auburn Memorial City Hall 24 South Street Auburn, New York 13021

Attention: Mrs. Lupien

Re: 75111

Site Investigation Allen Street Auburn, New York

Gentlemen:

Enclosed are copies of the logs and the cover letter for the above referenced project.

Very truly yours,

PARRATT - WOLFF, INC.

Linda N. Callahan Secretary LNC

encs:



Necember 8, 1975

City of Aubern 24 Controller Creek Aubern, ew York 13021

Attention: Tr. Marge Govern City angineer

Re: Fill

"ite Investigation Wilen frest Suburn, No Work

Contlegen:

Enclosed are the logs of ich last borings made for you for the above project.

this date under operate cover.

The Boring - Germande of mints indicated on the enclosed plot plan and were drilled is a cordance with 1974 method D 1546.

Subsurface soil as the site consist generally of hard silt and medium dense to the site consist generally of hard silt and discovered. The half hard horing 3, which has loose sand to a denth of eight foot below existing ground surface, boring 41, loose sand to an enth of ext and boring 49 which revealed a loose silt and the foot feet and boring 49 which revealed feet, although the from ground surface to twenty two in this hole are sailt. No other apparent problem areas were noted.

Ground vater deprits varied from four feet below ground surface to below seventh a feet, so no generalizations can be drawn concerning a ground water table at the site. If high ground water would be a problem for a specific structure at a specific spot on the site, it is suggested that a test pit or another boring be made to accurately determine ground water.

Thank you for this opportunity to work with you.

Yary truly yours,

PARRATT - WOLFE, INC.

Steffen Wolff St/lo encs:



FISHER ROAD EAST SYRACUSE, N.Y. 13057

TEST BORING LOG

PROJECT

Site Investigation Allon Stroot

HOLE NO. B-1

LOCATION

Auburn, New York

SURF. ELEV.

JOB NO.

DATE STARTED

12/3/75

COMPLETED

12/3/75

75111

GROUND WATER

Dry on completion

N= NO. OF BLOWS TO DRIVE 2" SAMPLER 6" W/140 LB. WEIGHT FALLING 30"

C= NO. OF BLOWS TO DRIVE

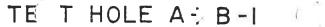
CASING 12" W/300 LB. WEIGHT FALLING 24"

SHEET ____OF ___1

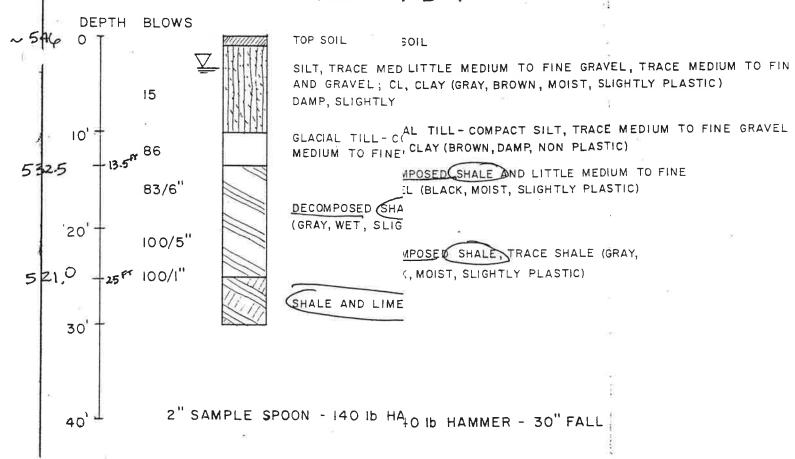
BORING MA	DE WI	TH HOLL		EM AUGER	CASING SHEETOF
DEPTH	C.	N.	SAMPLE		DESCRIPTION OF MATERIAL
		6/8	1	0.0'- 1.5'	TOPSOIL 0.5' Brown moist medium dense fine SAND, some silt, trace fine gravel 3.0'
5.0		11/20	2	5.0'- 6.5'	Red-brown moist hard SILT, little fine sand, trace fine gravel
10.0		14/24	3	10.0'- 11.5'	
15.0		11/21	4	15.0'- 16.5'	Gray wet dense fine SAND, little silt, trace fine to medium gravel Bottom of Boring 16.5'
20.0				*	10.5
					<u> </u>
		344			*



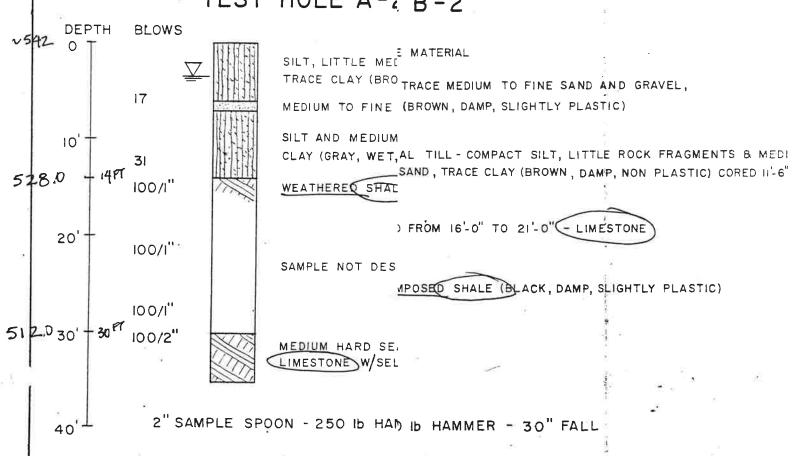




2585.1



TEST HOLE A- B-2



replaces y

SUBSULLACE SURVEYS

Cultinga Call Tel - Lan Subjection becausing aline

5972 COURT ST. RD.

SYRACUSE, N. Y. 13206

463.4595

IOB NO L-3825

HOLE NO TH-5 (69)

PROPOSED SECONDARY TREATMENT PLANT, AUBURN, NEW YORK

CLIENT 'ETCALF & EDDY, CONSULTING ENGINEERS, NEW YORK, HOW YORK

BST. 550

ELEV. AT GROUND SURFACE TECHNICIAN D. SLATER

DATE STARTED JULY 28, 1969 COMPLETED JULY 28, 1969

GROUND WATER 8'6" BELOW SURFACE AT COMPLETION

		==	8 8			The second sections during the second contract of responses
U≷I			WS ON IPLER	ш	DEPTH	CLASSIFICATION
DEPTH BELOW URFACE	С		1	NO	OF	Q;
8.8 8.0 8.0 E		0 - 6	6" - 18" N	SA	SAMPLE	REMARKS
3	3 3 3 5	3	3-3	1	1'0"-2'6"	LOOSE MEDIUM TO FINE SAND, LITTLE SIL' (POSSIBLE FILL) (BROWN, DAMP, NON PLASTIC)
5'	7 11 21 15	8	9-11	2 .	5'0"-6'6"	(BROWN, DAMP, NON PLASTIC)
	8	30 H				9'0
10'	12 14 25 38	6	6-17	3		COMPACT SILT & FINE SAND, LITTLE MEDIUM TO FINE GRAVEL, TRACE ORGANIC MATTER (POSSIBLE FILL)
161	78 106=6	÷			5 35.5	(DARK BROWN, DAMP, NON PLASTIC) 14 '6
15'	100=0	1881			ر د.در ر	THIN BEDDED, GRAY, LIMESTONE, MEDIUM HARD (SKANEATELES FORMATION)
20'	-	2000		12		19';
20			8.5	Is		BORING TERMINATED AT 19'6"
	1			*** ***	-	NOTE: CORE DRILLED FROM 14'6" TO 19'6' REC. 33" (55%)
.n	Ī			5		
		1				STANDER STANDER STANDER STANDER STANDERS

NOTE: N "NO, BLOWETO DRIVE 2" SPOON 12" WITH 140 LE, WT. 30" PER BLOW
C = NO, BLOWS TO DRIVE 23" CABING 12" WITH 250 LB, WT. 24" PER BLOW

UBSURFACE SURVEYS

EST.

5972 COURT ST. RD.

SYRACUSE, N. Y. 13206

100 NO FE 3819

HOLE NO TH-4 (69)

TITLE PROPERED EECONDARY TREATMENT PLANT, AUBURN, NEW YORK CLIENT METCALIN & EDDY CONSULTING ENGINEERS, NEW YORK, MEW YORK

ELEV AT GROUND SURFACE TECHNICIAN D. SLATER

DATE STARTED JULY 23, 1969 COMPLETED JULY 23, 1969

GROUND WATER 4'6" BELOW SURFACE AT COMPLETION

22 A		1			/*. ** *********************************	E CANADA TO A MENTENERS S. S. S. S. S. S. S. S. S. S. S. S. S.
∓≯Ω	i i		WS ON IPLER	Щ	DEPTH	CLASSIFICATION
EPT CLO	С		1	AMPLE	OF	&
DE BE	<u>k</u>	0 6	6" 18 N	SA	SAMPLE	REMARKS
	10	23	10-6	1	1'0"-2'6"	MISCELLANEOUS FILL CONSISTING OF: SILT SAND, GRAVEL, CINDERS, ETC.
5 '	17 21 49 53	7	10-7	2	5'0"-6'6"	(BROWN, BLACK, DAMP, NON PLASTIC) (BROWN, BLACK, DAMP, MON PLASTIC) 615"
10'	108	50=5"		3		VERY DENSE GLACIAL TILL CONSISTING CF: MEDIUM TO FINE SAND, SOME SILT & MEDIUM TO FINE GRAVEL, ROCK FRAGMENTS (GRAY, WET, NON PLASTIC)
. }			en sala Sin de	e //	1	4
			×	*	532.5	13'6'
15'			illi i	n		THIN BEDDED, GRAY, LIMESTONE, MEDIUM HARD (SKANEATELES FORMATION)
						18'6'
20'						BORING TERMINATED AT 18'6"
			2 00 240 3 x			NOTE: CORE DRILLED FROM 13'6" TO 18'6" REC. 42" (70%)
			2.0			
	39		am		1	
	8 8					
	1				- 1	
		į	3.6	-		

NOTE: N = NO BLOWS TO DRIVE 2"ISPOON 12" WITH 140 LB: WT. 30" PER BLOW

Straight offers

SURFACE SURVEYS

Ontoninga Coll Tooling, Inda Salawayasa Inwastigation

5972 COURT ST. RD.

SYRACUSE, N. Y. 13206

463.45

JOH NO. 6-3819

HOLE NO. TH-3 (69)

TITLE PROPOSED SECONDARY TREATMENT PLANT, AUBURN, NEW YORK

CLIENT METCALF & EDDY, CONSULTING ENGINEERS, NEW YORK, NEW YORK

35T. 548

ELEV. AT GROUND SURFACE TECHNICIAN D. SLATER

DATE STARTED JULY 28, 1969

COMPLETED JULY 28, 1969

GROUND WATER 2'3" RELOW SURFACE AT COMPLETION

2 -	i est		· ····································	464		
US€I			WS ON IPLER	w	DEPTH	CLASSIFICATION
P.T. (0.1) (P.A.H.)	С			7 O	OF	&
DEPTH BELOW SURFACI	1:	0 - 6	6"-18" N	SAMPLE	SAMPLE	REMARKS
0)	B					
	# 4 # 2			n_		FIRM SILT, SOME MEDIUM TO FINE SAND,
	9	. 3	8-8	1	1'0"-2'6"	LITTLE MEDIUM TO FINE GRAVEL (BROWN,
	100					GRAY, DAMP, NON PLASTIC)
5 *	100			9.6	544.0	
				_		THIN BEDDED, GRAY, LIMESTONE, MEDIUM
				• 1		HARD (SKANEATELES FORMATION)
	Pi E	6.86	* * 9			9 10 11
10 '		- Sec. +		11-21		BORING TERMINATED AT 9'0"
34						DONLING IDICITIVITIED III 9 0
				**		NOTE: CORE DRILLED FROM 4'0" TO 9'0"
						777
			1914: IF	_		REC. 3'0" (5%)
				e (e		
	1			N 10000		
		***	14 1	52 H 12		
		5.5		100		
				3 17		
	1		5.00	0088 000		
	-	-	11.000			8
				100.00	1	
	30.0				1	
		,	100 mi m		l	
		į		į	1	
i i	1	1	41 8	- 1		
1			(+2+)	147	1	
		- 1	1		1	
	1	į		-	Ī	
	. 4	- 1	130 20		2002 F S	a constraint and a constraint of the constraint

C = NO BLOWS TO DRIVE 2" SPOON 12" WITH 140 LB, WT, 30" PER BLOW

C = NO BLOWS TO DRIVE 2½" CASING 12" WITH 250 LB, WT 24" PER BLOW

SURFACE SURVEYS

SYRACUSE, N. Y. 13206

HOLE NO TH-2 (69) 108 NO 1: 38 M TIPLE PROPOSED SECONDARY TREATMENT PLANT, AUBURN, NEW YORK CLIENT METCALF & EDDY, CONSULTING ENGINDERS, NEW YORK, NEW YORK ELEV. AT GROUND SUIGACE DATE STARTED JULY 23, 1969 COMPLETED JULY 23, 1969 GROUND WATER 1'2" BELOW SURFACE AT COMPLETION

	e ege org	7282	s a	e		
E W		BLOW!		ш	DEPTH	CLASSIFICATION
€Ó.¥	· c	JAMI	i i i i	191	OF	&
900 100 100 100 100 100 100 100 100 100	Ŭ	0.6	6"-18	SAMPLE	SAMPLE	REMARKS
e S S S S S	į	,	N			2 70 5
	11					FIRM, MEDIUM TO FINE SAND, LITTLE SILT
1	17	6 7	7-7	1	1'0"-2'6"	
	128			D 0	- 4 0 -	(BROWN, DAMP, NON PLASTIC)
],	1	1		-	544.5	THIN BEDDED, GRAY, LIMESTONE, MEDIUM
September 1		İ		9		HARD (SKANEATELES FORMATION)
						,
						3 ' 6 ''
0'				.0000		BORING TERMINATED AT 2'6"
10				Set 12		
		1	96181	- Ster		NOTE: CORE DRILLED FROM 3'6" TO 8'6"
				- 303/999		REC. 43" (71.6%)
				i		
nier e				-		
				- 15 5		
	- ×					
	541		***	- 330000		
	2	+		-0.00000		
	1			1 0212		٩
	r 00					el
	3					×
]			(4) 10 0		5
	17	1	i i	1000		
	1			6		
	ĺ			- V		
			***	5		
58	†					
			395 (==	19		
	3	-	Y-1	. 0		

C NO SLOWS TO DRIVE 21/1" CASING 12" WITH 250 LB. WT 24" PER \$LOW

SYRACUSE, N. Y. 13206 HOLE NO. TH-(69) * 1 THE SPECKBARY TREATMENT PLANT, AUDUPA, NEW YORK & LEVE WALL & EDDY, CONSULTING ENGINEERS, NEW YORK, NEW YORK EST 546 .V. A. GROUND SURPACE JULY 23, 1969 EN E STARTEDAL MO. " 5'1" BELOW SURFACE AT COMPLETION SKOUND WATER _ ____ BLOWS ON SAMPLER ĉ OF REMARKS 6 : 13 SAMPLE MISCELLANEOUS FILL CONSISTING OF: SILT, 1'0"-2'6" SAND, GRAVEL, CINDERS, ETC. (BROWN, DAMP, NON PLASTIC) 541.5 THIN BEDDED, GRAY, LIMESTONE, MEDIUM HARD (SKANEATELES FORMATION) BORING TERMINATED AT 9'6 MOTE: CORE DRILLED FACE 4'6" TO 9'6"

FEC. 43" (71.60,

OFF BORN STORE TO DRIVE A SPC. WITH 140 LB. WT. 30" PER BLOW TO THE STOR

OR COLONALOZA SCOLO BSUR-ACE SURVEYS JOB NO. K-35

FST. 576

Chonica Sal Talling, Ind. Subsurface Description

5972 COURT ST. RD. • SYRACUSE, N. Y. 13206

463.4595

REACE SURVEYS
JOB NO. TH-3 (68)
SECONDARY SEWAGE TREATMENT PLANT, AUBURN, NEW YORK
CLIENTDEPARTMENT OF ENGINEERING, AUBURN, NEW YORK
AT GROUND SURFACE TECHNICIAN R. BUSH
NOVEMBER 26, 1968 NOVEMBER 26, 1968 COMPLETED NOVEMBER 26, 1968
GROUND WATERO'6" BELOW SURFACE AT COMPLETION

=					-	
O F			WS ON IPLER	i.il	DEPTH	CLASSIFICATION
FA	C	-	T	MPL	OF	د د
SUF		0.6"	6"-18" N	SAMI	SAMPLE	REMARKS
-			<u> </u>			TOP SOIL 170"
		5	6	1	1'0"-2'6"	SOFT SILT, SOME MEDIUM TO FINE GRAVEL
						LITTLE FINE SAND (BROWN, MOIST, PLASTIC) 4'0"
1		<u> </u>			-	GLACIAL TILL CONSISTING OF: SILT, COARSE
-		21	108	2	5'0"-6'6"	TO FINE GRAVEL, LITTLE CLAY, TRACE FINE
						SAND, BOULDER FRAGMENTS (BROWN, MOIST,
	<u> </u>				-	SLIGHTLY PLASTIC)
ŀ					1	
1		44	86	3	10'-11'6"	(BROWN, MOIST, NON PLASTIC)
		-				
		<u> </u>				•
į'		i				
			93=6"	4	15'-15'6"	(GRAY, DAMP, NON PLASTIC)
		-				- to
		i ·				we see a see
1			7.47 611		20'-20'6"	
		1	141=6"	5	20 - 20 6	(GRAY, DAMP, NON PLASTIC)
Ì.						*
P -			175=4"	6	25' - 25'4"	(GRAY, WET, NON PLASTIC)
	X		173-4		2,5 1,	(
		1-1-			4	
		7	200=2"	7	30'-30'2"	(GRAY, DAMP, NON PLASTIC) 30'2"
						BORING TERMINATED AT 30'2"
-						,
3		1			J	

DUL PASON 5460

NOTE: N = NO, ELOWS TO DRIVE &" SPOON 12" WITH 140 LB. WT. 20" PER BLOW

WAFACE SURVEYS

5972 COURT ST. RD.

SYRACUSE, N. Y. 13200 . .

SECONDARY SEWAGE TREATMENT PLANT, AUBURN, NEW YORK

CLIENT DEPARTMENT OF ENGINEERING, AUBURN, NEW YORK

AT GROUND SURFACE

NOVEMBER 25, 1968

NOVEMBER 25, 1968 DATE STARTED_

3'6" BELOW SURFACE AT COMPLETION-0'2" BELOW SURFACE

GROUND WATER_

12 HOURS AFTER COMPLETION

2		BLOWS ON SAMPLER				DEPTH .	CLASSIFICATION		
C	0-6"	6"-18" N	SAMPLE NO.	OF SAMPLE	REMARKS				
	5	9	1	1'0"-2'6"	TOP SOIL 1'0" SOFT SILT, TRACE MEDIUM TO FINE GRAVEL FINE SAND, ORGANIC MATTER (BROWN, DAMP, SLIGHTLY PLASTIC) 4'0"				
6	31	150	2	5'0"-6'6"	DENSE SILT, SOME COARSE TO FINE GRAVEL LITTLE FINE SAND, BOULDER FRAGMENTS (BROWN, MOIST, NON PLASTIC)				
	41	99	3	10'-11'6"	DENSE SANDY SILT, FINE TO MEDIUM SAND (BROWN, MOIST, NON PLASTIC)				
	125	150=3"	4	15'-15'9"	GLACIAL TILL CONSISTATING OF: DENSE SIL SOME FINE TO MEDIUM GRAVEL AND SAND, SHALE FRAGMENTS (GRAY, DAMP, NON PLASTIC)				
	122	150=4"	5	20'-21'10"	(GRAY, DAMP, NON PLASTIC)				
		200=3"	6	25'-25'3"	(GRAY, WET, NON PLASTIC)				
		250=2"	7	30'-30'2"	(GRAY, DAMP, NON PLASTIC) 30'2 BORING TERMINATED AT 30'2"				
- 22°									

pour BULOD 547

1			-
h	. 11	15/2	Q.',
1/3	از زا	;: ³	
51	RIAC	ESU	RVEYS
	JOE	NC	K-

20UK SELON Onondaga Sch William Bubsurface Dewestigation

5972 COURT ST. RD. . SYRACUSE, N. Y. 13206

			2		
10B NO. K-3576			HOLE NO	TH-1	(68)
ITLE SECONDARY SEWAGE TREATMEN	IT PLANT,	AUBURN,	NEW YORK		•
LIENT DEPARTMENT OF ENGINEERI	NG, AUBUR	N, NEW	YORK		
LEV, AT GROUND SURFACE					39
ATE STARTED OCTOBER 29, 1968					. 10.
12'7" BELOW SURFA	ACE AT COM	PLETION.			
ROUTE THE PERSON AND PROPERTY OF	IMPLETION				

		OWS ON		DEPTH	CLASSIFICATION _	
C	0.6*	G" - 19" N	SAMPLE NO.	OF SAMPLE	REMARKS	
14_28	j. <u>2</u>	50	1	1'0"-2'6"	TOP SOIL 0	14"
6.5					SEE NOTE "A" 3 VERY DENSE FINE TO MEDIUM SAND, SOME	0"
	65	142	2	5'0"-6'6"	SILT, LITTLE FINE GRAVEL (GRAY, DAMP, NON PLASTIC)	
				e e	a a	•
	70	345	3	10'-11'6"	(GRAY, DAMP, NON PLASTIC)	
				и и ж ²	BOULDERS NOTED	
	140	450	4	15'-16'6"	(GRAY, DAMP, NON PLASTIC)	
			•			<u>8'6</u>
	<u>; </u>	200	5	20'-20'6"	VERY DENSE SILT, LITTLE FINE SAME, VARVES STIFF CLAY (GRAY, DAMP, NON PLASTIC)	
					2	410
		150=2"	6	25'-25'2"	VERY DENSE GLACIAL TILL COMSISTING C SILT, LITTLE SAND AND GRAVEL (GRAYISH BROWN, DAMP, NON PLASTIC)	₽:
				1		
	(250#	100=4" HAMMER		30'-30'4"	(GREYISH BROWN, DAMP, NON PLASTIC) 3. BORING TERMINATED AT 30'4"	5 ' 4

NOTE: N = NO, BLOWS TO DRIVE 2" SPOON 12" WITH 140 LD. WT. 30" PER BLOW

estigation			
463,4595			
(68)			

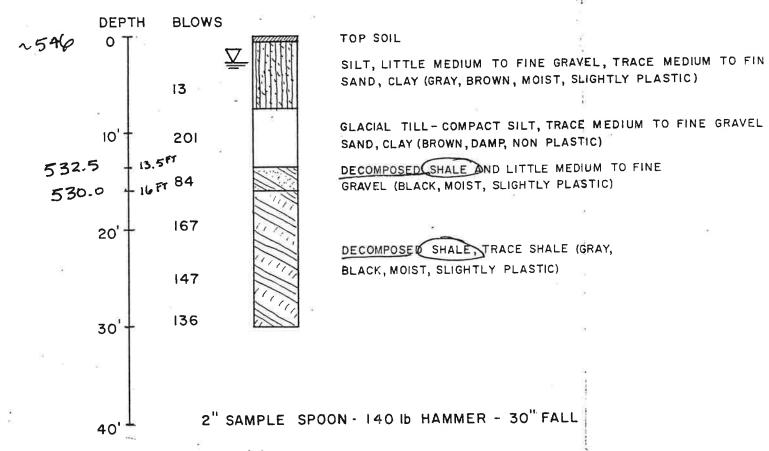
38			
186 M			
SURFACE			
* # # · · · · ·			
4			
0 1 4 "			
3'0"			
ND, SOME			
1			
,			
(f			
18'6 SAND,			
_≈ }}			
2410 TOTANG OFF			
isting or: (GRAYISH			
710) 30'4			
*			
a a area and a second s			
4			

ELVOIX EXTENT STORENCE SURVEYS	Onc	Mdag	14 011 ST. RD.	COLLEG DIG. Subscripte In	vestigation 463.4595
JOB NO. K-35	IDARY SI			HOLE NO. TH-1	- : : : : : : : : : : : : : : : : : : :
ELEV. AT G	ROUND S	URFAC	E	_TECHNICIAND. ROWE	
DATE STARTED GROUND WATE			¥0	NOVEMBER 4, 1968 E AT COMPLETION-14'2" BELOW ST	URFACE
SAM C	0"-18"	SAMPLE NO.	DEPTH OF SAMPLE	CLASSIFICATION & REMARKS	** * * * * * * * * * * * * * * * * * *
				NOTE ADVANCED TEST HOLE WITH BIT FROM 3'0" TO 30'0", NO CANDE STATE OF STAT	ASING USÉD. CONSISTING

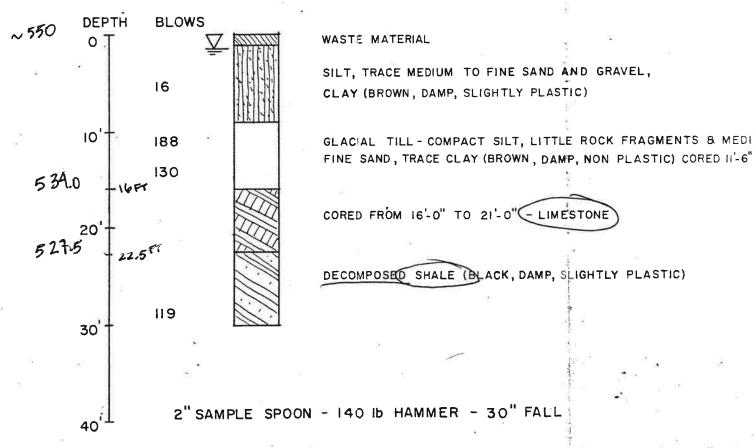
NOTE: N = NO. BLOWS TO DRIVE 2" SPOON 12" WITH 140 LB, WT. 30" PER ELOW



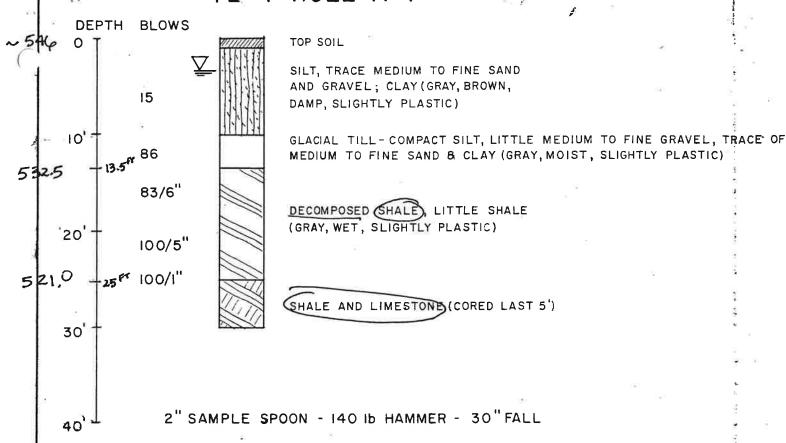
TOT HOLE B-I



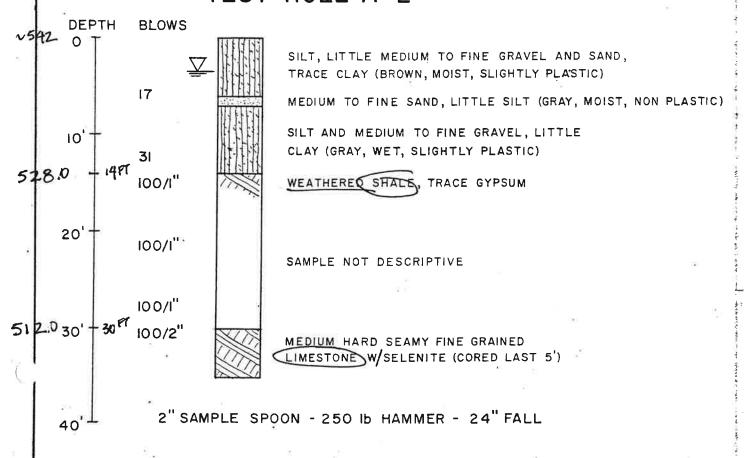
TEST HOLE B-2



TE T HOLE A-I



TEST HOLE A-2



ACTIVITIES.

SUBSURFACE SURVEYS

BST. 550

Onontago Coll Tel To Lan Subsumpeo Successiones

5972 COURT ST, RD.

SYRACUSE. N. Y. 13205

463.4595

f.=3826

108 40 L-3835

HOLENO TH-5 (69

PROPOSED SECONDARY TREATMENT PLANT, AUBURN, NEW YORK

CLIENT MUTCALF & HDDY, CONSULTING ENGINEERS, NEW YORK, MEW YORK

ELEV. AT GROUND SURFACE TECHNICIAN D. SLATER

DATE STARTED JULY 28, 1969 COMPLETED JULY 28, 1969

GROUND WATER 8'6" BELOW SURFACE AT COMPLETION

			520		हा जिल्ला १८३० छ। । । ।	and the sufficient rate of such as the contrast of the same of the such as the
~>:\ Ш			WS ON	ш	DEPTH	CLASSIFICATION
1.0.4 V V V	c	DAN.	I	Ē. 0	OF	&
OEF JRF		0 - 6"	6" - 18"	AMPL NO.	SAMPLE	REMARKS
S			И	Ś	SAMPLE	REMARKS
	13		1	# 4		LOOSE MEDIUM TO FINE SAND, LITTLE SIL'
	3	3	3-3	1 "	1'0"-2'6"	
	3			-	- 0 - 0	(BROWN, DAMP, NON PLASTIC)
	5					
5'	7					
i	11	8	9-11	2 .	5'0"-6'6"	(BROWN, DAMP, NON PLASTIC)
1	21	8				
	15	9 2 2 1				
10'	8 12	5	9 9			9'0
10	14	6	6-17	3	10'-11'6"	COMPACT SILT & FINE SAND, LITTLE
	25	U	0.117	7 - 1	10 -11 0	PEDION TO FINE GRAVEL, TRACE ORGANIC
	38	E21			!	MATTER (POSSIBLE FILL)
i	78	•				(DARK BROWN, DAMP, NON PLASTIC)
15'	106=6		ī.		5 35.5	14 6
1			n nen			THIN BEDDED, GRAY, LIMESTONE, MEDIUM
			s s:		•	HARD (SKANEATELES FORMATION)
1		e	** ×	60.00	1	(
20'						19 1
20			58.07	+		BORING TERMINATED AT 19'5"
	•	*	120 1201			
	1			5.5		NOTE: CORE DRILLED FROM 14'6" TO 19'6'
				*		REC. 33" (55%)
	1				1	
					ĺ	
	i		· ·	1	ĺ	
1.	1				e: N	
	1	72	(14)	1	Y	
	1		2.5		1	
		1			i	
	l y	į	8	0.00	•	
		1				
the other par		1	f		E.	COURT OF THE TWO SHARMS AND A STATE OF THE
	12	ķ	8 1		ಚರದ ಕರ್	all matter a set to the first of the section of the

NOTE: N \odot NO. BLOWS TO DRIVE 2" SPOON 12" WITH 140 LB, WT. 30" PER BLOW C \odot NO. BLOWS TO DRIVE 2½" CASING 12" WITH 250 LB, WT. 24" PER BLOW

in this

BSURFACE SURVEYS.

Charles Toll Tooling, Inc. Sulsurface Investigation

5972 COURT ST. RD.

SYRACUSE, N. Y. 13206

105 NO TO 3819

HOLE NO TH-4 (69)

TITLE PROPERED SECONDARY TREATMENT PLANT, AUBURN, NEW YORK CLIENT MUTCALF & EDDY, CONSULTING ENGINEERS, NEW YORK, MEW YORK

EST.

ELEV AT GROUND SURFACE TECHNICIAN D. SLATER DATE STARTED JULY 23, 1969 COMPLETED JULY 23, 1969 GROUND WATER 4'6" BELOW SURFACE AT COMPLETION

			12	s 52	j~~~,	THE STATE OF THE SECURITIES STATE OF THE SECURITIES OF THE SECURIT
π≯Ü	i.		WS ON IPLER	144 d	DEPTH	CLASSIFICATION
EPT LO	c		1	SAMPLE NO.	OF	&
DEPT BELO SURFA		0.6	6" 18'	SA	SAMPLE	REMARKS
.		20 21	10	î s		
	10 15 17 21	23	10-6	1	1'0"-2'6"	MISCELLANEOUS FILL CONSISTING OF: SILT SAND, GRAVEL, CINDERS, ETC. (BROWN, BLACK, DAMP, NON PLASTIC)
5	49					
	53	. 7	10-7	2	5'0"-6'6"	(BROWN, BLACK, DAMP, NON PLASTIC) 6'5"
	108			i-		VERY DENSE GLACIAL TILL CONSISTING OF:
10'		50=5"		3	10'-10'5"	MEDIUM TO FINE SAND, SOME SILT & MEDIUM TO FINE GRAVEL, ROCK FRAGMENTS (GRAY, WET, NON PLASTIC)
	1.72	Ì	- 11990	See		Â.
i.						13'6'
15'	3.5	= = 1		4	532.5	13.0
			#			THIN BEDDED, GRAY, LIMESTONE, MEDIUM HARD (SKANEATELES FORMATION)
			S 2			HARD (SKANEATELES FORMATION)
				7 (e+) =		18'6'
20'			•3 •••	or io n se		BORING TERMINATED AT 18'6"
			# 544 546 5 656			NOTE: CORE DRILLED FROM 13'6" TO 18'6"
			2mm 2 11			REC. 42" (70%)
			9 9			
		7.	x 2		1	
				* "		
			200	000	¥.	
	. :		5697 R		1	
1 1		1	24 225		- 1	
1 1			3 30 30			
			2			
1				* ***		
1 !		29	KIR T	-	5	
1. !		1			Programmer of	an annual and the same way of the contraction to the same series
1	8 €	255			e a suidi al Vella-li	The state of the s

S. LORIGINA.

SURFACE SURVEYS

Onesiaga Coll Ticling, Ind. Suitedase Investigations

5972 COURT ST. RD.

SYRACUSE, N. Y. 13206

463-4595

JOS NO. 4-3819

HOLE NO. TH-3 (69)

TITLE PROPOSED SECONDARY TREATMENT PLANT, AUBURN, NEW YORK

CLIENT METCALF & EDDY, CONSULTING ENGINEERS, NEW YORK, NEW YORK

EST. 548

ELEV. AT GROUND SURFACE

AN D. SLATER

DATE STARTED JULY 28, 1969

JULY 28, 1969

GROUND WATER 2'3" RELOW SURFACE AT COMPLETION

*	2****	er 92.00	50 515 00 1009	P 11.2	protestante de la constante	production of the second section is a second
H≯O.			WS ON IPLER	Щ	DEPTH	CLASSIFICATION
DEPTH BELOW URFAC	С	0.6"	6"-18"	SAMPLE NO.	OF	8.
BB	ì	0.0	N	, v	SAMPLE	REMARKS
	4	Š				FIRM SILT, SOME MEDIUM TO FINE SAND,
	9	. 8	8-8	1	1'0"-2'6"	LITTLE MEDIUM TO FINE GRAVEL (BROWN,
	11 100	i ·	l .		-14 -	GRAY, DAMP, NON PLASTIC)
j '	1200			***	544.0	
			n n em		i	THIN BEDDED, GRAY, LIMESTONE, MEDIUM HARD (SKANEATELES FORMATION)
			8	* *		
10.5				n(m)		9 ' 0 "
10'	į ,	ie ie		1000		BORING TERMINATED AT 9'0"
	!		9908/980 FEST			NOTE: CORE DRILLED FROM 4'0" TO 9'0"
			3 70 00			Application of the second of t
	-	e .	50 EUS			REC. 3'0" (5%)
a . X			T 8	: :		
			3 5 1 3 50			
		6				80
		48	£ 7		, '	
	- 1		E (F) (F)	to the	7.1	¥.
			2.2.00		41	g
			2 2 000			
				20.00		
		×			ì	
	į	ļ		- 14		
1	. 1					
	i	14	30 E S			
			000		į	
	- 1	}	*)	į	İ	
1 0	f	21				
1			1967	. 1	į	47 \$7m 80 8 8 378 4 4 5 4 7 4
1	· · · · ·		: a : "a∈ad	(a)	ees food	entrodition contribitions accorded to place with the produced in

NOTE: N ... NO BLOWS TO DRIVE 2" SPOON 12" WITH 140 LB. WT. 30" PER BLOW G ... NO BLOWS TO DRIVE 2" CABING 12" WITH 250 LB. WT. 24' PER BLOW

Cognitive \$2 strongs

SURFACE SURVEYS

Cabildage Call Tacility Inc. Subtenfree Inwestigation

5972 COURT ST. RD.

SYRACUSE, N. Y. 13206

463.4593

108 NO 11 1819	HOLE NO TH-2 (69)
TITLE PROPOSED SECONDARY TREATMENT PLANT, AUBURN	, NEW YORK
CLIENT METCALF & EDDY, CONSULTING ENGINEERS, NE	W YORK, NEW YORK
ELEV AT GROUND SURFACE TECHNICIAN D.	SLATER
JULY 23, 1969 COMPLETED JULY	23, 1969
GROUND WATER 1'2" BELOW SURFACE AT COMPLETION	

1		BLO	WS ON			r 1942 - N. Corress Colosian (Corres Color
£3Ü			PLER	Ы. Ы.	DEPTH	CLASSIFICATION
FOR	С	14	1	SAMPLE NO.	OF	&
SUR		0 - 6"	6" - 18 N	SA	SAMPLE	REMARKS
1 "			1		3 20 106 - 201	8 3 30 3
	11 17	6	7-7	1	1'0"-2'6"	FIRM, MEDIUM TO FINE SAND, LITTLE SILT MEDIUM TO FINE GRAVEL (POSSIBLE BILL)
	128	O	1 - 7	1	1020	(REOWN DAME NOW DILETTO)
	1	!	İ	11122	5495	316"
ľ			Î	ľ.,	2112	THIN BEDDED, GRAY, LIMESTONE, MEDIUM
		1	i			HARD (SKANEATELES FORMATION)
1	i					28
1			-			8'6"
0'.				ľ		BORING TERMINATED AT 8'6"
i						NOTE: CORE DRILLED FROM 3'6" TO 8'6"
			1			REC. 43" (71.6%)
		ia .	1 -			
10-30		ì		-		
1			100			
-						
		l ======				
		4 +	30 - 2003			
			-	la en		9
	-		155 an			
			A1 6 6			8
		•				
		i !	1			E E
						4
		3600				
		2 202	**			
		2 202				
	5					
		į		-		
			1	1	1	

NOTE: H = NO BLOWS TO DRIVE 2" SPOON 12" WITH 140 LB. WT. 30" PER ELOW C NO. BLOWS TO DRIVE 2"," CASING 12" WITH 250 LB. WT. 24" PER BLOW

```
972 COURT ST. RD. • SYRACUSE, N. Y. 13206 • 463.4505
```

HOLE NO. TH-(69) A SHE SECONDARY TREATMENT PLANT, AGENERA, NEW YORK C LINE W. AVALT & EDDY, CONSULTING ENGINEERS, NEW YORK, NEW YORK EST 546 ... A. GROUND SURPACE JULY 23, 1969 DALE STARTED THE NEW STATES 5 1" BELOW SURFACE AT COMPLETION SKOUND WATER _____ BLOWS ON CLASSIFICATION SAMPLE REMARKS MISCELLANEOUS FILL CONSISTING OF: SILT, 1'0"-2'6" SAND, GRAVEL, CINDERS, ETC. (BROWN, DAMP, NON PLASTIC) 541.5 THIN BEDDED, GRAY, LIMESTONE, MEDIUM HARD (SKANEATELES FORMATION) BORING TERMINATED AT 9'6" NOTE: CORE DRILLED FACE 4'6" TO 9'6" PEC. 43" (71.6%)

OFF N ST BLOWS TO DRIVER SPECIFIC 12" WITH 140 LS. WT. 30" PER BLOW ... * 10 DE TO TO TO TO THE SECOND

615/615/617/677 150000 5972 COURT ST. RD. SYRACUSE, N. Y. 13206 463.4595 SURFACE SURVEYS JOB NO. K-3576 SECONDARY SEWAGE TREATMENT PLANT, AUBURN, NEW YORK CLIENT DEPARTMENT OF ENGINEERING, AUBURN, NEW YORK AT GROUND SURFACE R. BUSH TECHNICIAN_ NOVEMBER 26, 1968 NOVEMBER 26, 1968 0'6" BELOW SURFACE AT COMPLETION GROUND WATER_ BLOWS ON DEPTH CLASSIFICATION SAMPLER Ĉĸ 6"-18" REMARKS SAMPLE TOP SOIL 1 1'0"-2'6"

SOFT SILT, SOME MEDIUM TO FINE GRAVEL LITTLE FINE SAND (BROWN, MOIST, PLASTIC) GLACIAL TILL CONSISTING OF: SILT, COARSE TO FINE GRAVEL, LITTLE CLAY, TRACE FINE 2 5'0"-6'6" SAND, BOULDER FRAGMENTS (BROWN, MOIST, SLIGHTLY PLASTIC) 3 10'-11'6" (BROWN, MOIST, NON PLASTIC) 15'-15'6" (GRAY, DAMP, NON PLASTIC) |20'-20'6" (GRAY, DAMP, NON PLASTIC) (GRAY, WET, NON PLASTIC) 175=4" 6 25'-25'4" (GRAY, DAMP, NON PLASTIC) 200=2" 7 30'-30'2" BORING TERMINATED AT 30'2"

DUL PHION 546 NOTE: N = NO. XLOWS TO DRIVE A" SPOON 12" WITH 140 LE, WT. 30" PER BLOW

poul Buon 547

Onomidaga Dell Testing Inc. Subsurface Investigation

6	URFACE SURVE	5972	COURT ST. RE		• SYRACUSE, N. Y. 13206	
(JOB NO.	-3576	Si N: 1 42	8°	HOLE NO. TH-2 (68)	,
					NT PLANT, AUBURN, NEW YORK	¥
	9				NG, AUBURN, NEW YORK	
BST. 5:					TECHNICIAN R. BUSH	e ş
	DATE STA	RTEDNOVE	MBER 25,	1968	NOVEMBER 25, 1968	98
	GROUND	3'6"	BELOW SU	JRFACE	E AT COMPLETION-0'2" BELOW SURFACE	
		12 H	OURS AFTE	ER CON	APLETION	
		BLOWS ON SAMPLER	DE	ртн	CLASSIFICATION	
	G 0	-6" 6"-18" N	34	OF MPLE	& REMARKS	
				ī.,	TOP SOIL	170"
	5	9	1 1'0"-	2'6"	SOFT SILT, TRACE MEDIUM TO FINE OF FINE SAND, ORGANIC MATTER (BROWN, DA	RAVEL
(No. 1)	31	150	2 5'0"-	6'6"	SLIGHTLY PLASTIC) DENSE SILT, SOME COARSE TO FINE OF LITTLE FINE SAND, BOULDER FRAGMEN (BROWN, MOIST, NON PLASTIC)	RAVEL
- Employed All Mary	41	99	3 10'-1	.1'6"	DENSE SANDY SILT, FINE TO MEDIUM (BROWN, MOIST, NON PLASTIC)	SAND
				TR.	GLACIAL TILL CONSISTSTING OF: DEN	13'6"
	125	5 150=3"	15'-1	.519"	SOME FINE TO MEDIUM GRAVEL AND SA SHALE FRAGMENTS (GRAY, DAMP, NON PLASTIC)	MD,
						8
	122	2 150=4"	5 20'-2	1'10"	(GRAY, DAMP, NON PLASTIC)	
						84
		200=3"	6 25'-2	513"	(GRAY, WET, NON PLASTIC)	
9					(GIGIT) HOLL FUNDITIO)	
		250=2"	7 30'-3	0'2"	(GRAY, DAMP, NON PLASTIC)	30'2'
(250-2		(2)	BORING TERMINATED AT 30'2"	• • • • • • • • • • • • • • • • • • •

NOTE: N =: NO. BLOWS TO DRIVE 2" SPOON 12" WITH 140 LB. WT. 30" PER BLOW

C = NO. BLOWS TO ORIVE 3\" CABING 12" WITH 250 LB. WT. 24" PER BLOW

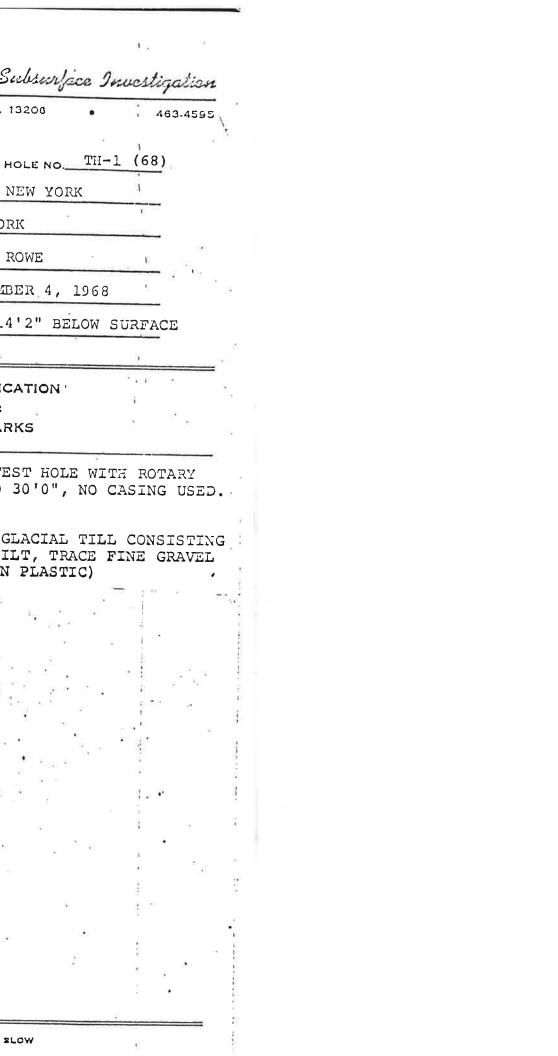
	SURFACE S		5972	COURT	r ST. RD.	SYRACUSE, N. Y. 13206 • 46	3.4595
			76	96		HOLE NO. TH-1 (68)	. s
		10. K-35			mmm a magratifi		
						PLANT, AUBURN, NEW YORK	
						G, AUBURN, NEW YORK	
ST. 5	ELEV	/AT (GROUND S	SURF.	ACE	TECHNICIAN D. ROWE	
	DATE	STARTED	OCTO	3ER	29, 1968	COMPLETEDNOVEMBER 4, 1968	
	Ę.	9.8	1217	म म	LOW SURFACE	E AT COMPLETION- 14'2" BELOW SURF	ACE
	GE 1 01	ਦ 2	48 H	JUKS	AFTER COM	PLETION	
ĺ			WS ON	Ш	DEPTH	CLASSIFICATION	
I	c	0.6*	07-187	SAMPLE NO.	OF SAMPLE	& REMARKS	
	<u> </u>		N	v)			
	28	3.2	50	1	1'0"-2'6"	TOP SOIL	0141
	6.5					SEE NOTE "A" VERY DENSE FINE TO MEDIUM SAND, S	3'0' SOME
		65	142	2	=101-6161	SILT, LITTLE FINE GRAVEL (GRAY, DAMP, NON PLASTIC)	
9					2. s		9.48
		70	345	3	10'-11'6"	(GRAY, DAMP, NON PLASTIC)	
		_	395				
						BOULDERS NOTED	
		140	450	4	15'-16'6"	(GRAY, DAMP, NON PLASTIC)	
							1816
						VERY DENSE SILT, LITTLE FINE SAME VARVES STIFF CLAY) ,
Ī	in a decision of the second		200	5.	20'-20'6"	(GRAY, DAMP, NON PLASTIC)	
						OF:	2410
			<u> </u>			VERY DENSE GLACIAL TILL CONSIST:	ic or:
			150=2"	6	2525.2	SILT, LITTLE SAND AND GRAVEL (GIAN) BROWN, DAMP, NON PLASTIC)	/ISH
*						DIMD NON PLASTICA	35'4
K		(250#	100=4' HAMMET		30'-30'4"	(GREYISH BROWN, DAMP, NON PLASTIC; BORING TERMINATED AT 30 4	

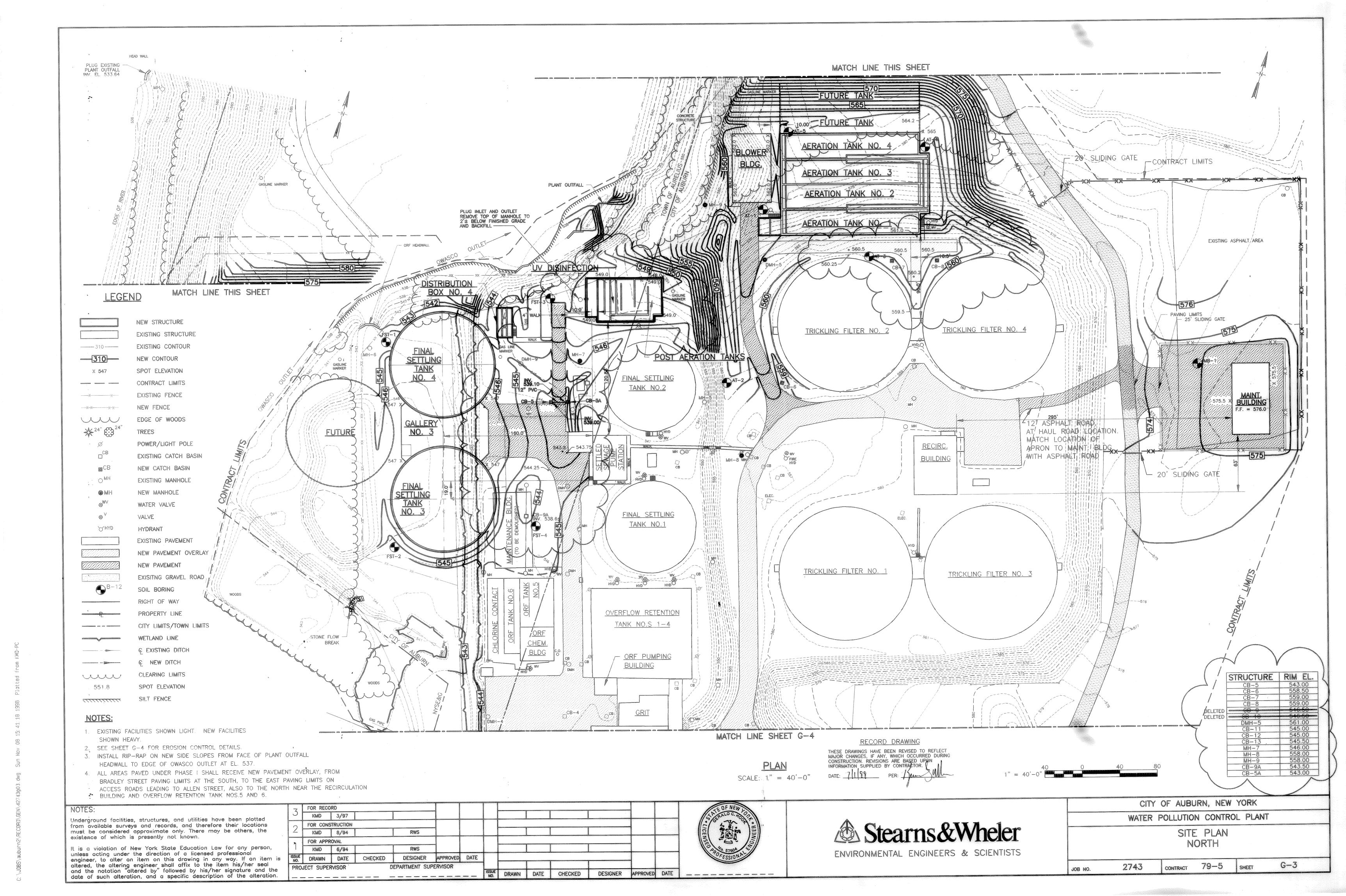
NOTE: N = NO. REGWS TO DRIVE 2" SPOON 12" WITH 140 LS. WT. 30" PER BLOW

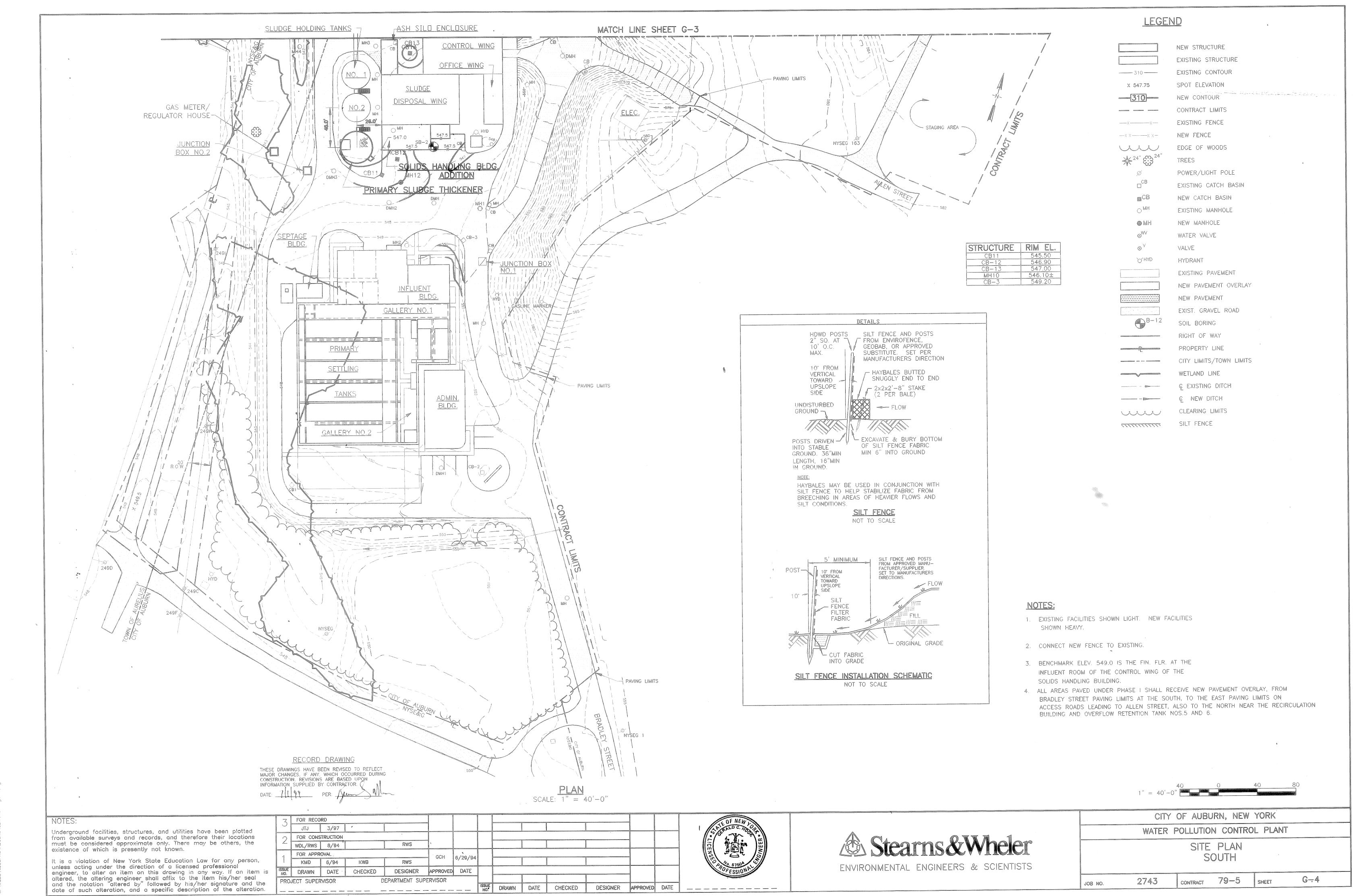
	Ekokekea Onondaga Soil Teoling, Ind	e. Subsi
- 1	BSURFACE SURVEYS SYRACUSE	. N. Y. 13206
78	JOB NO. K-3576	HOLE
	CLIENT DEPARTMENT OF ENGINEERING, AUBURN, NE	
	ELEV. AT GROUND SURFACE TECHNICIAN_	
: 15	0.0000000000000000000000000000000000000	OVEMBER
	GROUND WATER 12'7" BELOW SURFACE AT COMPLETI	ON-14'2"
	AGE 2 OF 2	

BLOWS ON SAMPLER SAMPLE NO. CLASSIFICATION ' DEPTH OF 82 6" - 18" N 0 - 6" SAMPLE REMARKS

4, 1968 BELOW SURFACE NOTE ADVANCED TEST HOLE WITH ROTARY BIT FROM 3'0" TO 30'0", NO CASING USED. NOTE "A" DENSE GLACIAL TILL CONSISTING OF: CLAY, SOME SILT, TRACE FINE GRAVEL (BROWN, DAMP, NON PLASTIC) NOTE: N = NO. BLOWS TO DRIVE 2" SPOON 12" WITH 140 LM, WT. 30" PER BLOW







C:\.INBS\aibirp2\BFCDBD\GFN\42743a04.dwg Sun Nov 08 14:32:52 1998 Plotted from KMD-

Stearns & Wheler, LLC

LETTER OF TRANSMITTAL

Senior Associate

Environmental Engineers and Scientists One Remington Park Drive Date: September 29, 2005 File No.: Cazenovia, NY 13035 Tel: (315) 655-8161 Fax: (315) 655-4180 Mr. Frank DeOrio Attn: www.stearnswheler.com To: City of Auburn Re: Auburn WWTP Memorial City Hall 24 South Street 2005 OCT Auburn, NY 13021 We are sending you the following items: ✓ Attached ☐ Under separate cover via ☐ ☐ Prints □ Plans ☐ Shop Drawings ☐ Samples ☐ Specifications ☐ Copy of Letter ☐ Change Order ☐ Invoices ○ Other COPIES DATE NO. DESCRIPTION 1 Soil Borings Phase 1 WWTP Soil Borings Phase II WWTP 1 --These are transmitted: ☐ For approval ☐ Approved as submitted ☐ Resubmit ____ copies for approval ☐ Submit _____ copies for distribution ☐ Approved as noted ☐ For your use □ Return ____ corrected prints ☐ Returned for corrections ☐ For review and comment ☐ For bids due ☐ For review and remittance REMARKS:

If enclosures are not as noted, kindly notify us at once.

cc:



FISHER ROAD

EAST SYRACUSE, N.Y. 13057

PROJECT

Waste Water Treatment Plant

Auburn, New York

HOLE NO. SB-1

SURF. EL.

LOCATION

DATE STARTED 4/6/94

DATE COMPLETED

4/6/94 JOB NO.

93285

N — NO. OF BLOWS TO DRIVE SAMPLER 12" W/140# HAMMER FALLING

30" — ASTM D-1586, STANDARD PENETRATION TEST

GROUND WATER DEPTH WHILE DRILLING Dry

Added Water

BEFORE CASING REMOVED

To Core

AFTER CASING

REMOVED

C — NO. OF BLOWS TO DRIVE CASING 12" W "/OR — % CORE RECOVERY

HAMMER FALLING

CASING TYPE - HOLLOW STEM AUGER TO 7.0', NX CORE TO 20.0'

DEPTH	SAMPLE DEPTH	SAMPLE NUMBER	С	SAMPLE DRIVE RECORD PER 6"	N	DESCRIPTION OF MATERIAL	STRATA CHANGE DEPTH
	0.5'-	1		9		ASPHALT	0.21
	2.01			10/10	20	Brown moist medium dense fine to	0.2'
						coarse GRAVEL and fine to coarse	
						SAND	2 01
5.0						Brown moist hard SILT and fine	3.0'
	5.01-	2		3/3		SAND, trace organics, trace clay	
	6.11			501		Top of Rock	7 01
	7.0'-	R-1	Rec	NX Cor	e	Gray thin bedded LIMESTONE,	7.01
	10.0			3-4MPF		moderately hard, slightly weathered,	
10.0			1009			close fractured (2"-12")	
			RQI) - 82%			
	10.0'-	R-2					
	15.01			2-3MPF			
			1009			DI	13.5
15.0				- 89%		Black-gray very thinly interbedded	
	RQD	13.	5'-15	51 - 08		LIMESTONE and SHALE, moderatly	
	15.0'-	R-3	Rec			soft, highly weathered, very close	
	20.0'			2-3MPF		fractures (<1")	
			100%				
20.0			RQD) - 0%			
						Bottom of Boring	20 01
				11		or borning	20.0
						Note: Boring wad backfilled with	
						cuttings to surface.	
						outings to surface.	
-							
						9	1. 12
1							
1							
1	1						
						12	
							1.0
							1



FISHER ROAD

EAST SYRACUSE, N.Y. 13057

PROJECT LOCATION Waste Water Treatment Plant

Auburn, New York

HOLE NO. MB-1

SURF. EL.

DATE STARTED

4/6/94

DATE COMPLETED

4/6/94

JOB NO. 93285

GROUND WATER DEPTH

WHILE DRILLING 10.8'

N — NO. OF BLOWS TO DRIVE SAMPLER 12" W/140# HAMMER FALLING 30" — ASTM D-1586, STANDARD PENETRATION TEST

C -- NO. OF BLOWS TO DRIVE CASING 12" W/ "/OR -- % CORE RECOVERY

HAMMER FALLING

BEFORE CASING

REMOVED

9.0

AFTER CASING

Hole caved @

REMOVED

6.0' - Dry

CASING TYPE - HOLLOW STEM AUGER

DEPTH	SAMPLE DEPTH	SAMPLE NUMBER	С	SAMPLE DRIVE RECORD PER 6"	N	DESCRIPTION OF MATERIAL	STRATA CHANGE DEPTH
						ASPHALT	0.5
	1.0'-	1		7/11		Brown moist hard to very stiff SILT,	0.5
	3.01			20/16	31	some fine to coarse gravel, little fine	
	3.0'-	2		2/10		to coarse sand	4.0'
5.0	5.0			8/2	18	Brown-black moist stiff SILT, trace	4.0
	5.0'-	3		4/6		clay, trace roots, trace gravel	5.0'
	7.0			7/8	13	Brown moist stiff SILT, little clay,	3.0
	7.0'-	4		7/8		trace brick fragments, trace fine to	
4197 NO	9.01			9/4	17	coarse sand	7.5'
10.0	9.0'-	_ 5		8/9		Brown moist very stiff SILT, little	7.5
WL	11.0'			23/36	32	clay, little fine sand, trace fine	
	11.0'-	6		11/13		gravel	10.01
	13.0			10/10	23	Red-brown moist hard SILT, some clay	10.0'
	13.0'-	7		15/13		Brown wet medium dense fine SAND,	10.8'
15.0	15.0'			12/12	25	little silt	411
						Red-brown moist very stiff SILT,	14.5'
						some clay	
						Bottom of Boring	
						Bottom of Boring	15.0'
						Note: Boring was backfilled to	
						surface with cuttings.	
1						surface with cuttings.	
						<i>p</i>	
					_		
1 1							
1							
1							
1 1							
			_				
1 1							
1 1						19	
1 1							
1							



FISHER ROAD

EAST SYRACUSE, N.Y. 13057

PROJECT

Waste Water Treatment Plant

HOLE NO. AT-1

LOCATION

Auburn, New York

SURF. EL.

DATE STARTED

4/6/94

DATE COMPLETED

4/6/94

JOB NO.

93285

WHILE DRILLING

GROUND WATER DEPTH 10.0

N — NO. OF BLOWS TO DRIVE SAMPLER 12" W/140# HAMMER FALLING 30" — ASTM D-1586, STANDARD PENETRATION TEST

BEFORE CASING

REMOVED

C — NO. OF BLOWS TO DRIVE CASING 12" W/ "/OR -- % CORE RECOVERY

HAMMER FALLING

AFTER CASING **REMOVED**

CASING TYPE - HOLLOW STEM AUGER

DEPTH	SAMPLE DEPTH	SAMPLE	С	SAMPLE DRIVE RECORD PER 6"	N	DESCRIPTION OF MATERIAL	STRATA CHANGE DEPTH
	0.0'- 2.0'	1		4/8 13/14	21	Brown moist very stiff SILT, little fine gravel, trace fine to coarse sand	
5.0							5 01
	5.0'- 6.5'	2		11/15	28	Brown moist very stiff SILT and fine SAND, trace coarse gravel, trace medium to coarse sand	5.0'
V10.0 WL	10.0'- 10.4'	3		5041		Gray wet hard SILT and fine SAND, little fine gravel, trace medium to coarse sand	9.0'
15.0	15.0'-	4		40/504			
	15.9'			10750 . 1		*	
20.0						Bottom of Boring	19.5
						Note: Apparent top of rock at 19.5'.	
						:-	
	,						
						<i>3</i>	<4



FISHER ROAD

EAST SYRACUSE, N.Y. 13057

PROJECT

Waste Water Treatment Plant

HOLE NO. AT-2

LOCATION

Auburn, New York

30" — ASTM D-1586, STANDARD PENETRATION TEST

SURF. EL.

DATE STARTED

4/1/94

DATE COMPLETED

4/1/94

JOB NO.

93285

N — NO. OF BLOWS TO DRIVE SAMPLER 12" W/140# HAMMER FALLING

GROUND WATER DEPTH WHILE DRILLING 15.0

BEFORE CASING Added Water

REMOVED

To Core

AFTER CASING **REMOVED**

C -- NO. OF BLOWS TO DRIVE CASING 12" W/ "/OR — % CORE RECOVERY

HAMMER FALLING

CASING TYPE - HOLLOW STEM AUGER TO 4.0', 4" FLUSH JOINT CASING TO 22.0', NX CORE TO 37.0'

		T					
DEPTH	SAMPLE DEPTH	SAMPLE	С	SAMPLE DRIVE RECORD PER 6"	N	DESCRIPTION OF MATERIAL	STRATA CHANGE DEPTH
	0.0'-	1		2/2		Brown moist soft SILT, some clay,	
	2.0'			2/8	4	trace roots, trace fine gravel	
						trace inte graver	
5.0							5.01
	5.0'-	2		5021		Brown moist hard SILT and fine	3.0
	5.21					SAND, trace fine gravel, trace clay,	
				88		trace medium to coarse sand	
						trace mediani to coarse sand	
10.0							
	10.01-	3		5041			
	10.4						
15.0							15.01
WL	15.0'-	4		5041		Brown wet hard SILT and fine SAND	15.0'
	15.41					Brown wet hard SIL1 and time SAND	
1 8							
20.0							
	20.0'-	5		75			
	20.5'					Tow of Doub	22.01
1 1	22.0'-	R-1	Rec	NX Cor	e	Top of Rock Gray thin bedded LIMESTONE,	22.0'
1 1	27.0'		4.4			slightly worthoused based well as	
25.0			89%		_	slightly weathered, hard, moderately close fractures (4")	
) - 50%		close fractures (4")	
1 1							
1 1	27.0'-	R-2	Rec				
	32.0'		5.0				
30.0			100	,			
) - 70%			
				, , , ,			
1 1	32.0'-	R-3	Rec			Curry this hadded the control of	32.0'
	37.0		3.9		-	Gray thin bedded LIMESTONE, highly	
35.0	57,0		78%			weathered, hard, very close fractured	I
) - 7%	-	(4")	36.01
			NQL	/ / 7		Black soft LIMESTONE, highly	
						weathered	
1		-				Bottom of Boring	37.0
40.0							
10.0							



FISHER ROAD

EAST SYRACUSE, N.Y. 13057

PROJECT

Waste Water Treatment Plant

LOCATION

Auburn, New York

SURF. EL.

DATE STARTED

4/5/94

DATE COMPLETED

4/5/94 JOB NO.

93285

N -- NO. OF BLOWS TO DRIVE SAMPLER 12" W/140# HAMMER FALLING 30" — ASTM D-1586, STANDARD PENETRATION TEST

GROUND WATER DEPTH WHILE DRILLING

HOLE NO. AT-3

BEFORE CASING

Added Wate

C — NO. OF BLOWS TO DRIVE CASING 12" W/ "/OR — % CORE RECOVERY

HAMMER FALLING

REMOVED

To Core

Dry

AFTER CASING **REMOVED**

CASING TYPE - HOLLOW STEM AUGER TO 12.0', 4" FLUSH JOINT CASING TO 13.5', NX CORE TO 40.0'

(4)	DEPTH	SAMPLE DEPTH	SAMPLE	С	SAMPLE DRIVE RECORD PER 6"	N	DESCRIPTION OF MATERIAL	STRATA CHANGE DEPTH
		0.01-	1		2/4		Brown moist stiff SILT and fine	
		2.0'			10/9	14	SAND, trace fine to medium gravel	
							, is meanin g, a ve.	
	5.0							
	5.0	F 01	_	-				5.5'
		5.0'-	2	-	14/504	1	Gray dry hard SILT, trace fine to	2.2.
		5.9				-	coarse sand, trace fine gravel	
						-	graver	
	10.0							
		10.0'-	3		57			
		10.51						
							Top of Rock	12.5'
		13.5'-	R-1	Rec	NX Cor	e	Gray thin bedded LIMESTONE,	
	15.0	18.5'		4.8			slightly weathered, hard,	
				96%			moderately close fractured (2"-12")	
				RQI	O - 90%			
		18.51-	R-2					
	20.0	23.5'		4.0				
				80용			<u>«</u>	
				RQI	O - 70%			
			- 72					
	25.0	23.5'-	K-3				Note: Soil filled void from 24.5' to	
1	25.0	28.5		5.0			25.0'.	
				100			23.0.	
				KŲ	O - 82%			
		28.51-	R_#	Pos				
	30.0	33.5	17-4	2.8			6	29.01
Ī		55.5		56%			Gray thin bedded LIMESTONE, highly	
					D - 10%		weathered (cobble sized pieces), hard,	
							close fractured (1"-4")	33.5'
		33.5¹-	R-5	Rec			Gray thin bedded LIMESTONE,	3
	35.0	38.5		4.2			slightly weathered, hard, moderately	
				848			close fractured (1"-4")	
				RQI	O - 47%		Note: Soil filled void from 33.7' to 35.2' and 37.8' to 38.2'.	
- 1							33.2° and 37.8° to 38.2°.	
			R-6	Rec				
- 1	40.0	40.0'		0'				



FISHER ROAD

EAST SYRACUSE, N.Y. 13057

PROJECT

Waste Water Treatment Plant

HOLE NO. AT-4

LOCATION

Auburn, New York

SURF. EL.

DATE STARTED

4/11/94

DATE COMPLETED

4/12/94

JOB NO.

93285 **GROUND WATER DEPTH**

N — NO. OF BLOWS TO DRIVE SAMPLER 12" W/140# HAMMER FALLING

30" — ASTM D-1586, STANDARD PENETRATION TEST

BEFORE CASING Added Water REMOVED

WHILE DRILLING 5.0'

To Core

C — NO. OF BLOWS TO DRIVE CASING 12" W/ "/OR — % CORE RECOVERY

HAMMER FALLING

AFTER CASING

CASING TYPE - HOLLOW STEM AUGER TO 33.01, NX CORE TO 40.0'

SHEET 1 OF 1

REMOVED

		-			_		
DEPTH	SAMPLE DEPTH	SAMPLE	С	SAMPLE DRIVE RECORD PER 6"	N	DESCRIPTION OF MATERIAL	STRATA CHANG DEPTH
	0.0'-	1		1/2		Brown moist medium stiff SILT, some	
	1.5		-	2	4	clay, trace fine sand	
						day, dade inte sand	
5.0							5.0
WL	5.01-	2		4/6		Brown wet very stiff SILT, little clay,	5.0
	6.5			10	16	little fine to coarse sand, little fine	
					-	to coarse gravel	
						to coarse graver	
10.0							
	10.01-	3		12/504	ı	Due to the total of the total o	10.0
	10.9		_	12/30		Brown moist hard SILT, some fine	
	1015					sand, little fine to coarse gravel,	
			-			trace medium to coarse sand, few	
15.0					-	cobbles	
13.0	15.0'-	4		32/46		W	
	16.2		E		-		
8	10.2			502	-	Note: Advanced first attempt to 11.0'.	
						Refusal on boulder, offset 5.0'	
00.0						and continued sampling at 10.0'	l
20.0	20.01						
	20.0'-	5		58			
	20.5						
25.0							
	25.0'-	6		61			
	25.5						
30.0						ą.	
	30.0'-	7		49/503			
	30.8						
						Top of Dools	22.0
	33.0'-	R-1	Rec	NX Cor	e	Top of Rock Gray thin bedded LIMESTONE, hard,	33.0
35.0	35.0			4-5 MP		moderately close fractured (1"-4")	
			808		_	moderatery close tractured (1"-4")	
l	35.0'-	R-2	Rec		0	Note: Soil filled void from 34.0' to	
	40.0'	212.		5-6 MP	=	34.41.	
			968	5 5 1411			
40.0				O - 47%			
		1	111	7/0			1



FISHER ROAD

EAST SYRACUSE, N.Y. 13057

PROJECT

Waste Water Treatment Plant

HOLE NO. AT-5

LOCATION

Auburn, New York

SURF. EL.

DATE STARTED 4/12/94

DATE COMPLETED

4/12/94

JOB NO. 93285

GROUND WATER DEPTH WHILE DRILLING 15.0¹

N — NO. OF BLOWS TO DRIVE SAMPLER 12" W/140# HAMMER FALLING 30" — ASTM D-1586, STANDARD PENETRATION TEST

BEFORE CASING

Added Water

C -- NO. OF BLOWS TO DRIVE CASING 12" W/

HAMMER FALLING

REMOVED

To Core

"/OR — % CORE RECOVERY

AFTER CASING

REMOVED

CASING TYPE - HOLLOW STEM AUGER TO 37.0', NX CORE TO SHEET 1 OF 1 40.0

		_					
DEPTH	SAMPLE DEPTH	SAMPLE NUMBER	С	SAMPLE DRIVE RECORD PER 6"	N	DESCRIPTION OF MATERIAL	STRAT. CHANG DEPTH
	0.0'-	1		1/1		Brown moist soft SILT, little clay,	
	1.51			3	4	trace roots	
						11 400 1 0015	
						}	4.0
5.0						Gray-brown moist hard SILT, some	4.0
	5.0'-	2		5/17		fine sand, little fine to coarse gravel,	
	6.51			31	48	trace medium to coarse sand	
				8		trace medium to coarse same	
10.0							
	10.01-	3		24/36			
	11.5'			31	67		
-							
15.0							
WL	15.0 ¹ -	4		504			
	15.41						
_							
20.0							20.0
	20.0'-	5		46/501		Brown moist hard SILT, little fine to	
	20.6					coarse gravel, trace fine to coarse	
						sand	
25.0							
	25.0'-	6	No	501'			
	25.11		Rec				
20.0							
30.0	20.01	-					
	30.01-	7	-	7521			
	30.21						
		-	-				
25.0		-					
35.0	25 01	_	-				
	35.0'-	8		7531		Top of Rock	37.0
	35.31	_				Gray thin bedded LIMESTONE, hard,	
	37.0'-	R-1		NX Cor		moderately close fractured (1"-4")	
	40.01		3.0	4-5 MP	F	, ,	
40.0				RQD-72			



FISHER ROAD

EAST SYRACUSE, N.Y. 13057

PROJECT

Waste Water Treatment Plant

HOLE NO. FST-1

LOCATION

Auburn, New York

SURF. EL.

DATE STARTED

4/13/94

DATE COMPLETED

4/14/94

JOB NO. 93285

GROUND WATER DEPTH WHILE DRILLING 5.0'

N — NO. OF BLOWS TO DRIVE SAMPLER 12" W/140# HAMMER FALLING 30" — ASTM D-1586, STANDARD PENETRATION TEST

BEFORE CASING

Added Water

C — NO. OF BLOWS TO DRIVE CASING 12" W/

HAMMER FALLING

REMOVED

To Core

"/OR — % CORE RECOVERY

AFTER CASING REMOVED

CASING TYPE - HOLLOW STEM AUGER TO 15.0', NX CORE TO SHEET 1 OF 2 45.0'

DEPTH	SAMPLE DEPTH	SAMPLE	С	SAMPLE DRIVE RECORD PER 6"	N	DESCRIPTION OF MATERIAL	STRATA CHANG DEPTH
	0.0'-	1		2/2		Brown moist medium stiff SILT and	
	1.5'			3	5	fine SAND, trace roots	
						Time SAND, trace roots	
5.0							5.0
WL	5.0'-	2		4/6		Brown-gray wet medium dense fine	3.0
	6.5'			13	19	SAND, some silt	7.0
				7		Gray moist hard SILT, little fine to	/.(
						coarse gravel, little fine sand, trace	
10.0						medium to coarse sand	
	10.01-	3		32/49		meanam to course saila	
	11.21			5021			
							13.5
15.0	14.0'-	4		501'		Gray hard very dense weathered	
	14.1'					LIMESTONE Top of Rock	15.0
		R-1	Rec	NX Cor	ρ_	Gray-black thin bedded LIMESTONE,	-
	20.0			5-6 MP		slightly weathered, moderately hard,	
			100%			close fractured (1"-4")	8
20.0) - 55%			
	20.0'-	R-2	Rec	, ,,,			
	25.0'	1, 2		' 5-6 MF	E		
			97%	3 0 1411	•		
) - 82%			
25.0			NO	020			
	25.0'-	R-3	Roc				
	30.0'	11.3		5-6 MP			
	50.0		100%				
				73%			
30.0			NQL	736			
	30.01-	R-4	Rec		-		
	35.0'	1 7		5-6 MP	=		
	3310		100%				
				- 87%			
35.0		-	1.QL	01.0			
30.0	35.0'-	R-5	Rec			R	
	40.0'	17-2		2-5 MP		BI	36.0
	70.0		82%	Z-5 W.P.		Black LIMESTONE, very soft, highly	
				0.0		weathered, about 75% of recovery is	
40.0			RUD) - 0%		decomposed rock-silt, clay and	
70.0		ļ				limestone fragments	



FISHER ROAD

EAST SYRACUSE, N.Y. 13057

PROJECT LOCATION

Waste Water Treatment Plant

Auburn, New York

HOLE NO. FST-1 SURF. EL.

DATE STARTED

4/13/94

DATE COMPLETED

4/14/94

JOB NO. 93285

GROUND WATER DEPTH WHILE DRILLING 5.0'

N — NO. OF BLOWS TO DRIVE SAMPLER 12" W/140# HAMMER FALLING

30" — ASTM D-1586, STANDARD PENETRATION TEST

C — NO. OF BLOWS TO DRIVE CASING 12" W/

"/OR — % CORE RECOVERY

HAMMER FALLING

BEFORE CASING

Added Water

REMOVED

To Core

AFTER CASING

REMOVED

CASING TYPE - HOLLOW STEM AUGER TO 15.0', NX CORE TO SHEET 2 OF 2 45.01

DEPTH	SAMPLE DEPTH	SAMPLE NUMBER	С	SAMPLE DRIVE RECORD PER 6"	N	DESCRIPTION OF MATERIAL	STRATA CHANGE DEPTH
	40.01-	R-6	Rec			Black-gray very thinly bedded	
	45.0'			3-4 MPI	7	Black-gray very thinly bedded LIMESTONE, highly weathered,	
			80%			moderately soft, very close fractured	
) - 0%		(<1")	
45.0				- 00		Light	42.0
						Light gray thin bedded LIMESTONE,	
						weathered, moderately soft, close	
						fractured (1"-4")	
						Bottom of Boring	45.0
							1
							1
			-				
							1
							1
							1
	**						
					-		
1							
1							



FISHER ROAD

EAST SYRACUSE, N.Y. 13057

PROJECT

Waste Water Treatment Plant

HOLE NO. FST-2

LOCATION

Auburn, New York

SURF. EL.

DATE STARTED

4/13/94

DATE COMPLETED

4/13/94

JOB NO. 93285

GROUND WATER DEPTH WHILE DRILLING 3.01

N -- NO. OF BLOWS TO DRIVE SAMPLER 12" W/140# HAMMER FALLING 30" — ASTM D-1586, STANDARD PENETRATION TEST

BEFORE CASING

Added Water

C — NO. OF BLOWS TO DRIVE CASING 12" W/ "/OR — % CORE RECOVERY

HAMMER FALLING

REMOVED

To Core

AFTER CASING **REMOVED**

CASING TYPE - HOLLOW STEM AUGER TO 15.5', NX CORE TO 45.0'

		_					
DEPTH	SAMPLE DEPTH	SAMPLE	С	SAMPLE DRIVE RECORD PER 6"	N	DESCRIPTION OF MATERIAL	STRATA CHANGI DEPTH
	0.0'-	1		WH/2		Brown moist soft SILT and fine SAND	
	1.5			2	4	and the state of t	
WL 🔻					-		3.0
						Brown wet medium dense fine to	3.0
5.0							
	5.0'-	2		4/6	-	coarse GRAVEL, little silt, little fine	
	6.5			10	1.0	to coarse sand	
	0.5			10	16		
			-				8.0
10.0		-	-			Brown-red moist very stiff CLAY,	
10.0	10.01	-		10/10	_	some silt	
	10.0'-	3		10/12			
	11.51	ļ		16	28		
15.0							14.5
	15.0'-	4		68		Gray dry hard SILT, little weathered	
	15.5'					shale, little clay Top of Rock	15.5
		R-1	Rec	NX Cor	Α.	Black very soft highly weathered	
	20.01			3-4MPF		LIMESTONE, Much of core is de-	
20.0	20.0		93%		-	composed into silt, clay and fine	
20.0		-) - 0%		gravel sized limestone fragments	
	20.01-	D_2				graver sized ninestone tragments	
	25.01	K-2			-		
	25.0	-		3-4MPF	1		
25.0			84%				
25.0		_) - 0%			
	25.0'-	R-3					
	30.01			3-4 MP	F		
			24%				
	A		RQ) - 0%			
30.0							
	30.0'-	R-4	No				
	35.0'		Rec				
			1				
35.0							
	35.0'-	D. F	Das			1	35.0
	40.0	17-2		2-3MPF		Gray very thinly bedded LIMESTONE,	
	70.0			Z-21/17F		highly weathered moderately soft,	
			92%			very close fractured (<1")	
110 0			KUL) - 0%			
40.0							



FISHER ROAD

EAST SYRACUSE, N.Y. 13057

PROJECT

Waste Water Treatment Plant

HOLE NO.

FST-2

LOCATION

Auburn, New York

SURF. EL.

DATE STARTED

4/13/94

DATE COMPLETED

4/13/94

JOB NO. 93285

GROUND WATER DEPTH WHILE DRILLING 3.0'

N - NO. OF BLOWS TO DRIVE SAMPLER 12" W/140# HAMMER FALLING 30" -- ASTM D-1586, STANDARD PENETRATION TEST

BEFORE CASING Added Water

C — NO. OF BLOWS TO DRIVE CASING 12" W/

HAMMER FALLING

REMOVED To Core

AFTER CASING **REMOVED**

"/OR — % CORE RECOVERY

CASING TYPE - HOLLOW STEM AUGER TO 15.5', NX CORE TO 45.0'

SHEET 2 OF 2

	DEPTH	SAMPLE DEPTH	SAMPLE NUMBER	С	SAMPLE DRIVE RECORD PER 6"	N	DESCRIPTION OF MATERIAL	STRATA CHANGE DEPTH
		40.0'-	R-6				Gray thin bedded LIMESTONE, slightly	
		45.0		5.01	4-5MPF		weathered, moderately hard,	
				1009	5		moderately close fractured (2"-12")	
				RQD) - 73%		moderatery close tructured (2 12)	
	45.0							
							Dattom of Davis	
						_	Bottom of Boring	45.0
1				_	- s			
-								
							27	
			_					
1								
-								
1								
1								
						-		
	33							
H								
	3							
	,							
	j						=	
							9	
	1							



FISHER ROAD

EAST SYRACUSE, N.Y. 13057

PROJECT

Waste Water Treatment Plant Auburn, New York

HOLE NO.

FST-3

LOCATION

DATE STARTED

4/6/94

DATE COMPLETED

4/11/94

SURF. EL. JOB NO.

93285

N — NO. OF BLOWS TO DRIVE SAMPLER 12" W/140# HAMMER FALLING 30" — ASTM D-1586, STANDARD PENETRATION TEST

WHILE DRILLING

10.01

30" — ASTM D-1586, STANDARD PENETRA

REMO

BEFORE CASING REMOVED

GROUND WATER DEPTH

Added Wate To Core

C — NO. OF BLOWS TO DRIVE CASING 12" W/
"/OR — % CORE RECOVERY

HAMMER FALLING

AFTER CASING REMOVED

CASING TYPE - HOLLOW STEM AUGER TO 5.0', 4" FLUSH
JOINT CASING TO 13.5', NX CORE TO 45.0'

DEPTH	SAMPLE DEPTH	SAMPLE NUMBER	С	SAMPLE DRIVE RECORD PER 6"	N	DESCRIPTION OF MATERIAL	STRATA CHANGE DEPTH
	0.01-	1		2/18		Brown moist hard SILT and fine SAND,	
	2.01			15/27	33	trace fine to coarse sand, trace fine	
						gravel gravel	
F 0							
5.0							
	5.01-	2	No	501			
	5.1'		Rec				
			-				
10.0							10.01
WL	10.01-	3	-	10/20		Brown wet dense fine to coarse SAND	10.0'
	11.5'	3		13	33	and fine to coarse GRAVEL, some silt	
	5			13	33	and the to course dixavel, some site	
	13.5'-	R-1	Rec	NX Core		Top of Rock	13.5
15.0	18.5'			2-5 MPF		Gray hard LIMESTONE	14.5'
			76%			Black soft SILT and CLAY with	
				D-9%		fragments of limestone rock	
	18.5'-	R-2	Rec				
20.0	23.51			2 MPF			
			40%				-
			RQD)-0 %			
25.0	23.5'-		2 2 2 1				
25.0	28.31			2-3 MPF			
			60% RQD	0.0			
			KUU	-06	-	•	
	28.5'-	R-4	Rec		_		
30.0	33.5'			2-3 MPF	_		
	20.0		32%	~ J H11 1			
			RQD	-0%			
	4					ű.	
	33.51-	R-5	Rec				
35.0	38.51			2-3 MPF			
			46응				
			RQD	-0%			
	38.5'-		Rec				39.01
40.0	43.51		3.5	3-5 MPF			



FISHER ROAD

EAST SYRACUSE, N.Y. 13057

PROJECT

Waste Water Treatment Plant

HOLE NO.

FST-3

LOCATION

Auburn, New York

SURF. EL.

DATE STARTED

4/6/94 DATE COMPLETED

4/11/94

93285 JOB NO.

GROUND WATER DEPTH WHILE DRILLING 10.01

N — NO. OF BLOWS TO DRIVE SAMPLER 12" W/140# HAMMER FALLING 30" — ASTM D-1586, STANDARD PENETRATION TEST

BEFORE CASING Added Water REMOVED

To Core

C — NO. OF BLOWS TO DRIVE CASING 12" W/ "/OR -- % CORE RECOVERY

HAMMER FALLING

AFTER CASING REMOVED

CASING TYPE - HOLLOW STEM AUGER TO 5.0', 4" FLUSH JOINT CASING TO 13.5', NX CORE TO 45.0'

SHEET 2 OF 2

DEPTH	SAMPLE DEPTH	SAMPLE		SAMPLE DRIVE RECORD PER 6"	N	DESCRIPTION OF MATERIAL	STRATA CHANGE DEPTH
	43.5'-	R-7	Rec)-45%		Black-gray thin bedded LIMESTONE, weathered, moderately soft, moderately close fractured Black very thin bedded LIMESTONE,	43.01
45.0	45.0'		0.7' 46%	4 MPF		highly weathered, soft, close fractured	
	-		406			Bottom of Boring	45.0
					-		
					-		



FISHER ROAD

EAST SYRACUSE, N.Y. 13057

PROJECT

Waste Water Treatment Plant

HOLE NO. FST-4

LOCATION

Auburn, New York

SURF. EL.

DATE STARTED

4/7/94

DATE COMPLETED

4/8/94

JOB NO. 93285

GROUND WATER DEPTH WHILE DRILLING Dry

N — NO. OF BLOWS TO DRIVE SAMPLER 12" W/140# HAMMER FALLING 30" — ASTM D-1586, STANDARD PENETRATION TEST

BEFORE CASING

Added Water REMOVED To Core

C — NO. OF BLOWS TO DRIVE CASING 12" W/ "/OR -- % CORE RECOVERY

HAMMER FALLING

AFTER CASING REMOVED

CASING TYPE - HOLLOW STEM AUGER TO 16.0', NX CORE TO 46.0'

		lm					
DEPTH	SAMPLE DEPTH	SAMPLE	С	SAMPLE DRIVE RECORD PER 6"	N	DESCRIPTION OF MATERIAL	STRATA CHANGE DEPTH
						Brown moist hard SILT and fine to	
	1.0'-	1		5/15		coarse SAND, few boulders	
	2.51			31	46	course symb, tem bounders	
5.0	,						5.0
	5.0'-	2		3/3		Brown moist loose fine SAND and	3.0
	6.5'			4	7	SILT, little brick	
				1.5		- I - I - I - I - I - I - I - I - I - I	
10.0							
	10.0'-	3		11/8			10.5
	11.5'			8	16	Gray moist medium dense fine SAND	
					1000	and SILT, trace fine to medium	
			1			gravel	
15.0		1					
	15.0'-	4		31/68	-	Cuesa dans heard CU To a G	15.0'
	16.0'			3.700		Gray dry hard SILT and fine	
		R-1	Rec	NX Core		GRAVEL Top of Rock	16.0
20.0	21.0'			3-4 MPF		Black moist SILT and CLAY with	
			78%	3 4 WII I		weathered limestone fragments	17.51
20.0		-	RQD	- R O		Black-gray very thinly interbedded	
	21.0'-	D 2	Rec	0.0		LIMESTONE and SHALE, weathered,	
	26.0	K-Z		b = 1455		moderately soft, close fractures (1"-	
	20.0	-		4-5 MPF		4")	21.5
25.0		-	100%			Gray thin bedded LIMESTONE, slightly	
25.0		-	RQD	-75%		weathered, moderately hard,	
	26 01	D 0				moderately close fractures (2"-12")	
		K-3	Rec				
	31.0'			4-5 MPF		Note: RQD from 26'-28.5' = 100%	
20.0			988			RQD from $28.5'-31' = 0\%$	28.5
30.0						Gray thin bedded LIMESTONE, highly	
	24 01					weathered, moderately soft to soft.	
		R-4	Rec			very close fractured (<1")	31.01
	36.01		5.1	4-5 MPF		Gray thin bedded LIMESTONE,	31.0
			1008			slightly weathered, moderately hard,	
35.0			RQD	-70%		moderately close fractured (2"-1 2")	
				4		January State Hactarda (2 12 2)	×
		R-5					
	41.0'			4-5 MPF			
			90%				
40.0			RQD	-65%			



FISHER ROAD

EAST SYRACUSE, N.Y. 13057

PROJECT

Waste Water Treatment Plant

HOLE NO. FST-4

LOCATION

Auburn, New York

SURF. EL.

DATE STARTED

4/7/94

DATE COMPLETED

4/8/94

JOB NO.

93285 **GROUND WATER DEPTH**

N — NO. OF BLOWS TO DRIVE SAMPLER 12" W/140# HAMMER FALLING 30" — ASTM D-1586, STANDARD PENETRATION TEST

WHILE DRILLING Dry

BEFORE CASING Added Water

C — NO. OF BLOWS TO DRIVE CASING 12" W/

HAMMER FALLING

REMOVED

To Core

"/OR — % CORE RECOVERY

AFTER CASING **REMOVED**

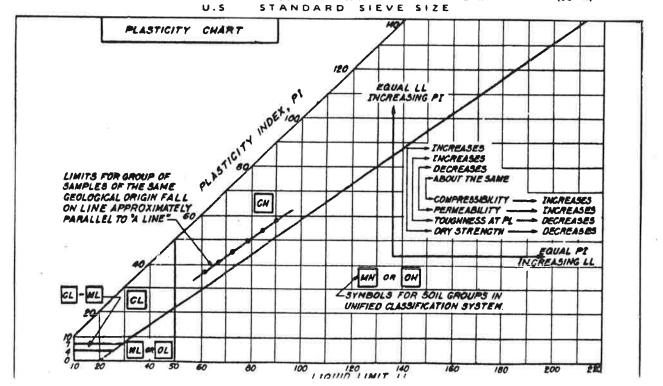
CASING TYPE - HOLLOW STEM AUGER TO 5.0', 4" FLUSH JOINT CASING TO 13.5', NX CORE TO 45.0'

SHEET 2 OF 2

	-						
DEPTH	SAMPLE DEPTH	SAMPLE NUMBER	С	SAMPLE DRIVE RECORD PER 6"	N	DESCRIPTION OF MATERIAL	STRATA CHANGE DEPTH
						Gray thin bedded LIMESTONE,	
	41.0'-	R-6	Rec			slightly wenthered mederately hand	1
	46.0'			4-5 MPF		slightly weathered, moderately hard,	1
	40.0		1000	4-2 14151		moderately close fractured (2"-1 2")	
45 0			100%				
45.0		-	RQL	-82%			
						Bottom of Boring	46.0'
				180			
						Note: Backfilled boring on completion.	
50.0						J	
			1				
			-				
			1		-		
			-				
		-					
					_		
			-				
						r.	
9							
			\vdash				

§ '. CLASSIFICATION SYSTEM

		. OLAGOII					
MA	JOR DIVISIONS		GROUP SYMBOLS		TYPICAL NAMES		
		CLEAN GRAVELS	2.3	GW	Well graded gravels, gravel - sand mixtures, little or no	fines.	
COARSE GRAINED SOILS More than 50% of material is LARGER than No. 200 sieve size)	GRAVELS (More than 50% of coarse fraction is	(Little or no fines)		GP	Poorly graded gravels or gravel - sand mixtures, little or	no fine	
	LARCER than the	GRAVELS WITH FINES	Tentral I	GM	Silty gravels, gravel - sand - silt mixtures,		
	1	(Appreciable amt. of fines)		GC	Clayey gravels, gravel - sand - clay mixtures.		
		CLEAN SANDS		sw	Well graded sands, gravelly sands, little or no fines.		
	SANDS (More than 50% of	(Little or no fines)		SP	Poorly graded sands or gravelly sands, fittle or no fines		
	coarse fraction is SMALLER than the No. 4 sieve size)	SANDS WITH FINES		SM	Silty sands, sand-silt mixtures.		
	5 ()	(Appreciable amt. of fines)		sc	Clayey sands, sand-clay mixtures.		
			\coprod	ML	Inorganic sitts and very fine sands, rock flour, sitty or of fine sands or clayey sitts with slight plasticity.	clayey	
FINE GRAINED	SILTS ANI (Liquid limit Li	· · · -		CL	Inorganic clays of low to medium plasticity, gravelly classified sandy clays, silty clays, lean clays.	lays,	
SOILS (More than 50% of material is SMALLER		4		OL	Organic silts and organic silty clays of low plasticity,		
than No. 200 sieve size)				мн	Inorganic silts, micaceous or diatomaceous fine sandy or silty soils, elastic silts. Inorganic clays of high plasticity, fat clays.		
	SILTS ANI (Liquid limit GRE			СН			
				ОН	Organic clays of medium to high plasticity, organic silts.		
ніс	GHLY ORGANIC SOILS			Pt	Peat and other highly organic soils.		
OUNDARY CLASSIFIC	CATIONS: Soils possessi	ng characteristics of tw	o group	os are	designated by combinations of group symbols.		
	P A	RTICLE	SI	ZE	LIMITS		
SILT OR CLAY	SAN				GRAVEL COBBLES BOULD	DE RS	
	No. 200 No	MEDIUM COA	RSE	o. 4	** In. 3 in. (12 in.)		





FISHER RD., EAST SYRACUSE, N.Y. 13057 TELEPHONE AREA CODE 315/437-1429 800/782-7260 FAX 315/437-1770

GENERAL NOTES

1. Soil boring logs, notes and other data shown are the results of personal observations and interpretations made by Parratt-Wolff, Inc.

Exploration records prepared by our drilling foreman in the field form the basis of all logs, and samples of subsurface materials retained by the driller are observed by technical personnel in our laboratory to check field classifications.

- 2. Explanation of the classifications and terms:
 - a. Bedrock Natural solid mineral matter occurring in great thickness and extent in its natural location. It is classified according to geological type and structure (joints, bedding, etc.) and described as solid, weathered, broken or fragmented depending on its condition.
 - b. Soils Sediments or other unconsolidated accumulations of particles produced by the physical and chemical disintegration of rocks and which may or may not contain organic matter.

PENETRATION RESISTANCE

COHESIONLESS S	SOILS	COHESIVE SOILS				
Blows Per Ft. R	elative Density	Blows Per l	Ft. Consistency			
0 to 4	ery Loose	0 to 2	Very Soft			
4 to 10 Le	oose	2 to 4	Soft			
10 to 30 M	ledium Dense	4 to 8	Medium Stiff			
30 to 50 D	ense	8 to 15	Stiff			
Over 50 V	ery Dense	15 to 30	Very Stiff			
		Over 30	Hard			
Size Compo	nent Terms		Proportion By Weight			
Boulder	8 inches to 3 inches		Major component is shown with all letters capitalized.			
	3 inches to 1 inch 1 inch to 3/8 inch 3/8 inch to 4.76 mm		Minor component percentage terms of total sample are:			
— medium	4.76 mm to 2.00 mm 2.00 mm to 0.42 mm 0.42 mm to 0.074 mm Finer than 0.074 mm	(#10 sieve) (#40 sieve) (#200 sieve)	and 35 to 50 percent some . 20 to 35 percent little 10 to 20 percent trace 1 to 10 percent			

- c. Gradation Terms The terms coarse, medium and fine are used to describe gradation of Sand and Gravel.
- d. The terms used to describe the various soil components and proportions are arrived at by visual estimates of the recovered soil samples. Other terms are used when the recovered samples are not truly representative of the natural materials, such as soil containing numerous cobbles and boulders which cannot be sampled, thinly stratified soils, organic soils, and fills.
- e. Ground water The measurement was made during exploration work or immediately after completion, unless otherwise noted. The depth recorded is influenced by exploration methods, soil type and weather conditions during exploration. Where no water was observed it is so indicated. It is anticipated that the ground water will rise during periods of wet weather. In addition, perched ground water above the water levels indicated (or above the bottom of the hole where no ground water is indicated) may be encountered at changes in soil strata or top of rock.



FISHER RD., EAST SYRACUSE, N.Y. 13057 TELEPHONE AREA CODE 315/437-1429

A BRIEF DESCRIPTION OF THE UNIFIED SOIL SYSTEM

The Unified Classification System is an engineering soil classification that is an outgrowth of the Air-Field classification developed by Casagrande.

The system incorporates the textural characteristics of a soil into the engineering classification. All soils are classified into fifteen groups, each group being designated by two letters. These letters are as follows: G—gravel, S—sand, M—Non plastic or low plasticity fines, C—plastic fines, Pt—peat, humus and swamp soils, O—organic, W—well graded, P—poorly graded, L—low liquid limit, H—high liquid limit.

GW and SW Groups

These groups comprise well graded gravelly and sandy soils which contain less than 5% of non plastic fines passing a #200 sieve. Fines which are present must not noticeably change the strength characteristics of the coarse grain fraction and must not interfere with its free draining characteristics. In areas subject to frost action the material should not contain more than about 3% of soil grains smaller than .02 millimeters in size.

GP and SP Groups

These groups are poorly graded gravels and sands containing less than 5% non plastic fines. They may consist of uniform gravels, uniform sands, or non uniform mixtures of very coarse material and very fine sand with intermediate sizes lacking. Materials of this latter type are sometimes referred to as skip graded, cap graded, or step graded.

GM and SM Groups

In general, these groups include gravels or sands which contain more than 12% of fines having little or no plasticity. The plasticity index and liquid limit of a soil in either of these groups plot below the "A" line on a plasticity chart. Gradation is not important and both low grade and poorly graded materials are included. Some sands and gravels in these groups may have a binder composed of natural cementing agents so proportioned that the mixture shows negligible swelling or shrinkage. Thus, the dry strength is provided by a small amount of soil binder or dry cementation of calcareous materials or iron oxide. A fine fraction of non cemented materials may be composed of silts or rock flour types having little or no plasticity, and the mixture will exhibit no dry strength.

GC and SC Groups

These groups comprise gravelly or sandy soils with more than 12% of fines which exhibit either low or high plasticity. The plasticity index and liquid limit of a soil in either of these groups plot above the "A" line on the plasticity chart. Gradation of these materials is not important. Plasticity of the binder fraction has more influence on the behavior of the soils than does the variation in gradation. A fine fraction is generally composed of clays.

ML and MH Groups

These groups include predominantly silty materials and micaceous or diatomaceous soils. An arbitrary division between the two groups has been established with a liquid limit of 50. Soils in these groups are sandy silts, clayey silts or organic silts with relatively low plasticity. Also included are loessial soils and rock flours. Micaceous and diatomaceous soils generally fall within the MH group, but may extend into the ML group when their liquid limit is less than 50. The same is true for certain types of kaolin clays and some illite clays having relatively low plasticity.

CL and CH Groups

The CL and CH groups embrace clays with low and high liquid limits respectively. They are primarily inorganic clays. Low plasticity clays are classified as CL and are usually lean clays, sandy clays, and silty clays. The medium plasticity and high plasticity clays are classified as CH. These include fat clays, gumbo clays, certain volcanic clays and bentonite.

OL and OH Groups

The soils in these groups are characterized by the presence of organic matter including organic silts and clays. They have a plasticity range that corresponds with the ML and MH groups.

Pt Group

Highly organic solls which are very compressible have undesirable construction characteristics and are classified in one group with the symbol Pt. Peat, humus and swamp soils with a highly organic texture are typical of the group. Particles of leaves, grass, branches of bushes and other fibrous vegetable matter are common components of these soils.

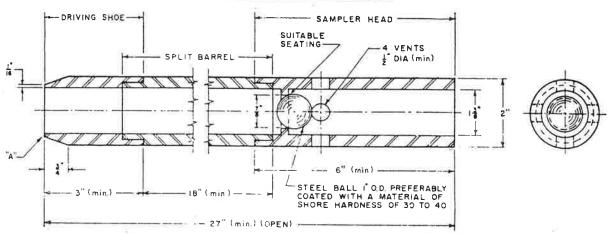
Borderline Classification

Soils in the GW, SW, GP and SP groups are non plastic materials having less than 5% passing the #200 sieve, while GM, SM, GC, and SC soils have more than 12% passing the #200 sieve. When these coarse grain materials contain between 5% and 12% of fines they are classified as borderline, and are designated by the dual symbol such as GW-GM. Similarly coarse grain soils which have less than 5% passing the #200 sieve, but which are not free draining or in which the fine fraction exhibits plasticity are also classed as borderline and are given a dual symbol. Still another type of borderline classification occurs when a liquid limit of a fine grain soil is less than 29 and the plasticity index lies in the range of four to seven. These limits are indicated by the shaded area on the plasticity chart

Silty and Clayey

In the Unified System, these terms are used to describe soils whose Atterberg limits plot below and above the "A" line on the plasticity chart. The adjectives silty and clayey are used to describe soils whose limits plot close to the "A" line.

SOIL SAMPLING-METHODS



Note 1 — Split barrel may be 1-1/2 in. inside diameter provided it contains a liner of 16-gage wall thickness:

Note 2 — Core retainers in the driving shoe $\tau\sigma$ prevent loss of sample are permitted,

Note 3 — The corners at A. may be slightly rounded.

3. Procedure

- 3.1 Clear out the hole to sampling elevation using equipment that will ensure that the material to be sampled is not disturbed by the operation. In saturated sands and silts withdraw the drill bit slowly to prevent loosening of the soil around the hole. Maintain the water level in the hole at or above ground water level.
- 3.2 In no case shall a bottom-discharge bit be permitted. (Side-discharge bits are permissible.) The process of jetting through an open-tube sampler and then sampling when the desired depth is reached shall not be permitted. Where casing is used, "it may not be driven below sampling plevation. Record any loss of circulation or excess pressure in drilling fluid during advancing of holes."
- 3.3 With the sampler resting on the bottom of the hole, drive the sampler with blows from the 140-Ib (63.5 kg) hammer falling 30 in. (0.76 m) until either 18 in. (0.45 m) have been penetrated or 100 blows have been applied.
- 3.4 Repeat this operation at intervals not longer than 5 ft (1.5 m) in homogeneous strata and at every change of strata.
- 3.5 Record the number of blows required to effect each 6 in. (0.15 m) of penetration or fractions thereof. The first 6 in. (0.15 m) is considered to be a seating drive. The number of blows required for the second and third 6 in. (0.15 m) of penetration added is termed the penetration resistance, N. If the sampler is driven less than 18 in. (0.45 m), the penetration resistance is that for the last 1 ft (0.30 m) of penetration (if less than 1 ft (0.30 m) is penetrated, the logs shall state the number of blows and the fraction of 1 ft (0.30 m) penetrated).
- 3.6 Bring the sampler to the surface and open. Describe carefully typical samples of soils recovered as to composition, structure, consistency, color, and condition; then put into jars without ramming. Seal them with wax or hermetically seal to prevent evaporation of the soil moisture. Affix labels to the jar

Table of Metric Equivalents

	In.	Mm	Cm	ln.	Mm	Cm
	1/16 (16 gage)	1.5	200000	2	200	5.08
	1/2	12.7	1808080	3	200	7.62
	3/4	19.0	1.90	6	***	15.24
	7/8	22.2	2.22	18	230	45.72
ı	1+3/8	34.9	3.49	27	68.58	
	1-1/2	38.1	3.81			

Fig. 1 - Standard Split Barrel Sampler Assembly

or make notations on the covers (or both) bearing job designation, boring number, sample number, depth penetration record, and length of recovery. Protect samples against extreme temperature changes.

4. Report

- 4.1 Data obtained in borings shall be recorded in the field and shall include the following:
 - 4.1.1 Name and location of job.
 - 4.1.2 Date of boring start, finish,
 - 4.1.3 Boring number and coordinate, if available,
 - 4.1.4 Surface elevation, if available,
 - 4.1.5 Sample number and depth,
- 4.1.6 Method of advancing sampler, penetration and recovery lengths,
 - 4.1.7 Type and size of sampler,
 - 4.1.8 Description of soil.
 - 4.1.9 Thickness of layer,
- 4.1.10 Depth to water surface; to loss of water; to artesian head; time at which reading was made,
 - 4.1.11 Type and make of machine,
 - 4.1.12 Size of casing, depth of cased hole,
 - 4.1.13 Number of blows per 6 in. (0.15 m)
 - 4.1.14 Names of crewmen, and
 - 4.1.15 Weather, remarks.

Current edition accepted October 20, 1967. Originally issued, 1958. Replaces D-1586-64T.

Under the standardization procedure of the Society, this method is under the jurisdiction of the ASTM Committee D-18 on Soil and Rock for Engineering Purposes. A list of members may be found in the ASTM Year Book.

AI TOURN WUTP PHASE IL

 $\begin{array}{c} BGM \\ = 5 \\ \Delta mH \\ 2793.11 \end{array}$



TEST BORINGS
WASTE WATER TREATMENT PLANT
AUBURN, NEW YORK



April 22, 1994

Mr. Brad Smith Stearns and Wheler One Remington Park Drive Cazenovia, New York 13035

RE: 93285

Waste Water Treatment Plant Auburn, New York Job #2743

Dear Brad:

Enclosed are the logs for eleven test borings made for you for the above project.

Soil samples and rock cores for these borings have already been delivered to your office under separate cover.

The borings were made at points located by you and were drilled in accordance with your instructions.

Note that at all locations cored, the driller reported that he did not lose circulation water.

Thank you for this opportunity to work with you.

Very truly yours,

PARRATT - WOLFF, INC.

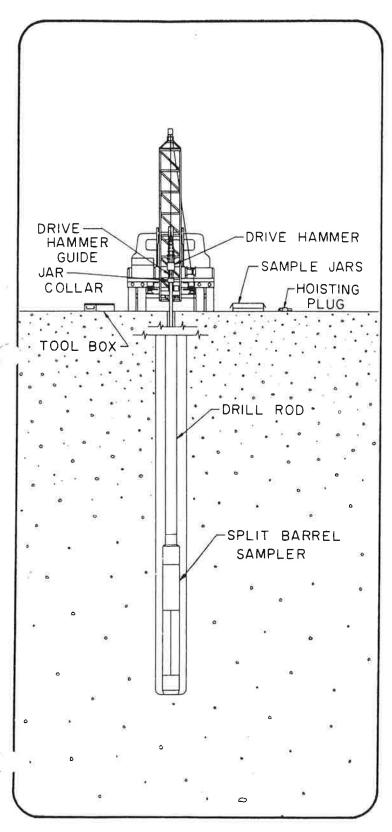
William H. Morrow

WHM/blo encs:

SOIL SAMPLING-METHODS



FISHER RD., EAST SYRACUSE, N.Y. 13057 TELEPHONE AREA CODE 315/437-1429 800/782-7260 FAX 315/437-1770



Split barrel sampling

The following excerpts are from "Standard Method for penetration test and split-barrel sampling of soils." (ASTM designation: D-1586-67 AASHO Designation: T-206-70.)

1. Scope

1.1 This method describes a procedure for using a splitbarrel sampler to obtain respresentative samples of soil for identification purposes and other laboratory tests, and to obtain a measure of the resistance of the soil to penetration of the sampler.

2. Apparatus

- 2.1 Drilling Equipment Any drilling equipment shall be acceptable that provides a reasonably clean hole before insertion of the sampler to ensure that the penetration test is performed on undisturbed soil, and that will permit the driving of the sampler to obtain the sample and penetration record in accordance with the procedure described in 3. Procedure. To avoid "whips" under the blows of the hammer, it is recommended that the drill rod have stiffness equal to or greater than the A-rod. An "A" rod is a hollow drill rod or "steel" having an outside diameter of 1-5/8 in. or 41.2 mm and an inside diameter of 1-1/8 in. or 28.5 mm, through which the rotary motion of drilling is transferred from the drilling motor to the cutting bit. A stiffer drill rod is suggested for holes deeper than 50 ft (15m). The hole shall be limited in diameter to between 2-1/4 and 6 in. (57.2 and 152mm).
- 2.2 Split-Barrel Sampler The sampler shall be constructed with the dimensions indicated (in Fig. 1.) The drive shoe shall be of hardened steel and shall be replaced or repaired when it becomes dented or distorted. The coupling head shall have four 1/2-in. (12.7-mm) (minimum diameter) vent ports and shall contain a ball check valve. If sizes other than the 2-in. (50.8-mm) sampler are permitted, the size shall be conspicuously noted on all penetration records.
- 2.3 Drive Weight Assembly The assembly shall consist of a 140-lb (63.5-kg) weight, a driving head, and a guide permitting a free fall of 30 in. (0.76 m). Special precautions shall be taken to ensure that the energy of the falling weight is not reduced by friction between the drive weight and the guides.
- 2.4 Accessory Equipment Labels, data sheets, sample jars, paraffin, and other necessary supplies should accompany the sampling equipment.



FISHER ROAD

EAST SYRACUSE, N.Y. 13057

PROJECT

Waste Water Treatment Plant

HOLE NO. SB-1

LOCATION

Auburn, New York

SURF. EL.

DATE STARTED

4/6/94

DATE COMPLETED

JOB NO.

93285

N — NO. OF BLOWS TO DRIVE SAMPLER 12" W/140# HAMMER FALLING 30" — ASTM D-1586, STANDARD PENETRATION TEST

GROUND WATER DEPTH WHILE DRILLING Dry

ASTM D-1000, STANDARD PENETRATIO

BEFORE CASING

Added Water To Core

C — NO. OF BLOWS TO DRIVE CASING 12" W/
"/OR — % CORE RECOVERY

HAMMER FALLING

4/6/94

AFTER CASING

REMOVED

REMOVED

CASING TYPE - HOLLOW STEM AUGER TO 7.0', NX CORE TO 20.0'

					_		
DEPTH	SAMPLE DEPTH	SAM	С	SAMPLE DRIVE RECORD PER 6"	N	DESCRIPTION OF MATERIAL	STRATA CHANGE DEPTH
	0.5'-	1		9		ASPHALT	0.01
	2.0'			10/10	20	Brown moist medium dense fine to	0.2
						Coarse CRAVEL and Size I	
						coarse GRAVEL and fine to coarse SAND	
5.0							3.01
	5.0'-	2		3/3		Brown moist hard SILT and fine	
	6.1'	_		501		SAND, trace organics, trace clay	
		P_1	Poo	NX Cor		Top of Rock	7.0'
	10.0'	11	3 0	3-4MPF	е	Gray thin bedded LIMESTONE,	
10.0	10.0	-	1009			moderately hard, slightly weathered,	
10.0) - 82%	-	close fractured (2"-12")	1
	10.0'-	D 2	RUL	, - 828		·	
		K-2					
	15.0'			2-3MPF			1
15.0	505	4.51	100	5		Plack many and the last and the	13.5
15.0	RQD	10'-	13.5	' - 89%		Black-gray very thinly interbedded	
				5' - 0%		LIMESTONE and SHALE, moderatly	1
	15.0'-	R-3				soft, highly weathered, very close	1
	20.0		5.0	2-3MPF		fractures (<1")	
			100	š			
20.0			RQL) - 0%			
						Bottom of Boring	20.01
						Doctom of Borning	20.0
į						Note: Boring wad backfilled with	
Ĺ						cuttings to surface.	
						cuttings to surface.	
1							
1							
t							1
		_					
			-				1
-			_				1
-							
H							
-							
-							
L							
							1



FISHER ROAD

EAST SYRACUSE, N.Y. 13057

PROJECT

Waste Water Treatment Plant

HOLE NO. MB-1

LOCATION

Auburn, New York

SURF. EL.

DATE STARTED

4/6/94

DATE COMPLETED

4/6/94

JOB NO. 93285

GROUND WATER DEPTH WHILE DRILLING 10.8

N — NO. OF BLOWS TO DRIVE SAMPLER 12" W/140# HAMMER FALLING

While Drilling 10.

30" — ASTM D-1586, STANDARD PENETRATION TEST

BEFORE CASING

REMOVED

9.0'

C — NO. OF BLOWS TO DRIVE CASING 12" W/
"/OR — % CORE RECOVERY

CASING TYPE - HOLLOW STEM AUGER

HAMMER FALLING

AFTER CASING REMOVED

Hole caved @ 6.0' - Dry

- 70 GOIL HEGGVENT

DEPTH	SAMPLE DEPTH	SAMPLE NUMBER	С	SAMPLE DRIVE RECORD PER 6"	N	DESCRIPTION OF MATERIAL	STRATA CHANGE DEPTH
	4					ASPHALT	0.51
	1.01-	1		7/11		Brown moist hard to very stiff SILT,	
	3.0'		_	20/16	31	some fine to coarse gravel, little fine	
- 0	3.0'-	2		2/10		to coarse sand	4.0'
5.0	5.0			8/2	18	Brown-black moist stiff SILT, trace	
	5.0'-	3		4/6		clay, trace roots, trace gravel	5.0'
- 1	7.0			7/8	13	Brown moist stiff SILT, little clay,	3.0
	7.0'-	4		7/8		trace brick fragments, trace fine to	
	9.0'			9/4	17	coarse sand	7.5'
10.0	9.0'-	_ 5		8/9		Brown moist very stiff SILT, little	7.5
WL	11.0'			23/36	32	clay, little fine sand, trace fine	
	11.0'-	6		11/13		gravel	10.0
	13.0'			10/10	23	Red-brown moist hard SILT, some clay	10.8
	13.0'-	7		15/13		Brown wet medium dense fine SAND,	10.0
15.0	15.0			12/12	25	little silt	10 -1
						Red-brown moist very stiff SILT,	14.5'
						some clay	
						Bottom of Boring	
						Bottom of Boring	15.0'
						Note: Daving L. 1991	
						Note: Boring was backfilled to	
						surface with cuttings.	
						9	
1							
1							
						5	
1		1					
-							
1					1		



FISHER ROAD

EAST SYRACUSE, N.Y. 13057

PROJECT

Waste Water Treatment Plant

HOLE NO. AT-1

LOCATION

Auburn, New York

SURF. EL.

DATE STARTED

4/6/94

DATE COMPLETED

4/6/94

HAMMER FALLING

JOB NO. 93285

N — NO. OF BLOWS TO DRIVE SAMPLER 12" W/140# HAMMER FALLING

GROUND WATER DEPTH WHILE DRILLING 10.01

30" — ASTM D-1586, STANDARD PENETRATION TEST

BEFORE CASING

C — NO. OF BLOWS TO DRIVE CASING 12" W/

REMOVED

"/OR — % CORE RECOVERY

AFTER CASING

REMOVED

CASING TYPE - HOLLOW STEM AUGER

DEPTH	SAMPLE DEPTH	SAMPLE NUMBER	С	SAMPLE DRIVE RECORD PER 6"	N	DESCRIPTION OF MATERIAL	STRATA CHANGE DEPTH
	0.01-	1		4/8		Brown moist very stiff SILT, little	1
	2.01				21	fine gravel, trace fine to coarse sand	
						The graver, trace file to coarse sand	
5.0	FOI	-	_	44 /411			5.0'
	5.01-	2		11/15		Brown moist very stiff SILT and fine	
9	6.51			13	28	SAND, trace coarse gravel, trace	
						medium to coarse sand	
							9.01
10.0	rangin sala			1819-1815 THE		Gray wet hard SILT and fine SAND,	
WL	10.0	3		504'		little fine gravel, trace medium to	
	10.4					coarse sand	
18714 180							
15.0							
	15.0'-	4		40/504			
	15.9						
						*	
20.0							
20.0						Bottom of Boring	19.5
						No.	
						Note: Apparent top of rock at 19.5'.	
						S.	
			-				
						20	
					-		
			-				
-							
							1



FISHER ROAD

EAST SYRACUSE, N.Y. 13057

PROJECT

Waste Water Treatment Plant Auburn, New York

HOLE NO. AT-2

SURF. EL.

LOCATION DATE STARTED

4/1/94

DATE COMPLETED

4/1/94

JOB NO.

93285

GROUND WATER DEPTH

N — NO. OF BLOWS TO DRIVE SAMPLER 12" W/140# HAMMER FALLING 30" — ASTM D-1586, STANDARD PENETRATION TEST

WHILE DRILLING

15.0

HAMMER FALLING

BEFORE CASING REMOVED

Added Water To Core

C — NO. OF BLOWS TO DRIVE CASING 12" W/ "/OR — % CORE RECOVERY

AFTER CASING REMOVED

CASING TYPE - HOLLOW STEM AUGER TO 4.0', 4" FLUSH JOINT CASING TO 22.0', NX CORE TO 37.0'

DEPTH	SAMPLE DEPTH	SAMPLE	С	SAMPLE DRIVE RECORD PER 6"	N	DESCRIPTION OF MATERIAL	STRATA CHANGE DEPTH
	0.0'-	1		2/2		Brown moist soft SILT, some clay,	
10	2.0'			2/8	4	trace roots, trace fine gravel	
ĵ							
5.0							5.01
-	5.0'- 5.2'	2	_	5021		Brown moist hard SILT and fine	
	5.Z·			1.5		SAND, trace fine gravel, trace clay, trace medium to coarse sand	
						trace medium to coarse sand	
10.0							
8	10.0'-	3		504			
	10.4					а	
15.0							
WL	15.01-	4		5041		Brown wet hand SILT and S. CAND	15.0'
	15.41					Brown wet hard SILT and fine SAND	
9		-					
20.0					-		
	20.01-	5		75			
	20.5'					Top of Rock	22.0'
	22.0'-	R-1		NX Cor	е	Gray thin bedded LIMESTONE,	22.0
25.0	27.0'		4.4 89%			slightly weathered, hard, moderately	
25.0) - 50%		close fractures (4")	
			, , ,	, 500			
	27.01-	R-2				, and the second	
	32.01		5.0			Ĭ	
30.0			100				
		-	RQL) - 70%			
	32.0'-	R-3	Red			Cray thin hadded LIMESTONE	32.0
	37.0 ¹		3.9			Gray thin bedded LIMESTONE, highly	
35.0			78%			weathered, hard, very close fractured (4")	36 01
			RQ) - 7%		Black soft LIMESTONE, highly	36.01
						weathered	
		-				Bottom of Boring	37.0
40.0						-	



FISHER ROAD

EAST SYRACUSE, N.Y. 13057

PROJECT

Waste Water Treatment Plant

HOLE NO. AT-3

LOCATION

Auburn, New York

SURF. EL.

DATE STARTED

4/5/94

DATE COMPLETED

4/5/94

JOB NO.

93285

N — NO. OF BLOWS TO DRIVE SAMPLER 12" W/140# HAMMER FALLING

WHILE DRILLING

GROUND WATER DEPTH Dry

30" — ASTM D-1586, STANDARD PENETRATION TEST

BEFORE CASING REMOVED

Added Wate To Core

C — NO. OF BLOWS TO DRIVE CASING 12" W/ "/OR — % CORE RECOVERY

HAMMER FALLING

AFTER CASING REMOVED

CASING TYPE - HOLLOW STEM AUGER TO 12.0', 4" FLUSH JOINT CASING TO 13.5', NX CORE TO 40.0'

Г			~	1				
2.	DEPTH	SAMPLE DEPTH	SAMPLE	С	SAMPLE DRIVE RECORD PER 6"	N	DESCRIPTION OF MATERIAL	STRATA CHANGE DEPTH
		0.01-	1		2/4		Brown moist stiff SILT and fine	
		2.01			10/9	14	SAND, trace fine to medium gravel	
1							SAND, trace line to medium graver	
	5.0							
t		5.0'-	2		14/504			5.51
1		5.9'			14/504		Gray dry hard SILT, trace fine to	
		J.3					coarse sand, trace fine gravel	
-	9						graver	
	10.0							
ł	10.0	10.0'-	3	_				
1			3		57			
	1	10.51					Ton of Deals	10 51
		40.51		-			Top of Rock Gray thin bedded LIMESTONE,	12.5'
	4- 4	13.5'-	R-1		NX Cor	e		
	15.0	18.51		4.8			slightly weathered, hard,	
				96%			moderately close fractured (2"-12")	
				RQI) - 90%			
		18.5'-	R-2	Rec				
	20.0	23.5'		4.0				
ſ				80%			840	
) - 70%			
					100			
		23.5'-	R-3	Rec				
	25.0	28.51		5.0			Note: Soil filled void from 24.5' to	
				100			25.0'.	
) - 82%			
					028			
		28.5'-	R_/I	Pod				
	30.0	33.51	17-4	2.8				29.0
h	30.0	33.3		56%			Gray thin bedded LIMESTONE, highly	
					O - 10%		weathered (cobble sized pieces), hard,	
				RU	J - 108		close fractured (1"-4")	33.51
		33.5'-	R_F	Rec			Gray thin bedded LIMESTONE,	
	35.0	38.5'	17-2	4.2			slightly weathered, hard, moderately	
1	35.0	20.5		84%		-	close fractured (1"-4")	
) h=0		Note: Soil filled void from 33.7' to	
				KUL	O - 47%		35.2' and 37.8' to 38.2'.	
		20 51	D 6					
	40.0	38.5¹- 40.0¹	K-0	0'				
						. 1		



FISHER ROAD

EAST SYRACUSE, N.Y. 13057

PROJECT

Waste Water Treatment Plant

HOLE NO. AT-4

LOCATION

Auburn, New York

SURF. EL.

DATE STARTED

4/11/94

DATE COMPLETED

4/12/94

HAMMER FALLING

JOB NO. 93285

GROUND WATER DEPTH WHILE DRILLING 5.0'

To Core

STRATA

CHANGE

DEPTH

5.0

10.0

N — NO. OF BLOWS TO DRIVE SAMPLER 12" W/140# HAMMER FALLING 30" — ASTM D-1586, STANDARD PENETRATION TEST

BEFORE CASING Added Water

REMOVED

C — NO. OF BLOWS TO DRIVE CASING 12" W/ "/OR - % CORE RECOVERY

AFTER CASING

TO 40.0'

REMOVED

CASING TYPE - HOLLOW STEM AUGER TO 33.0', NX CORE

SHEET 1 OF 1

SAMPLE NUMBER SAMPLE SAMPLE DRIVE **DEPTH** C Ν **DESCRIPTION OF MATERIAL** RECORD DEPTH **PER 6"** 0.0'-1 1/2 Brown moist medium stiff SILT, some 1.51 2 4 clay, trace fine sand 5.0 WL 5.0'-2 4/6 Brown wet very stiff SILT, little clay, 6.5 10 16 little fine to coarse sand, little fine to coarse gravel 10.0 10.0'-3 12/50-.4 Brown moist hard SILT, some fine 10.91 sand, little fine to coarse gravel, trace medium to coarse sand, few cobbles 15.0 15.0'-4 32/46 16.21 50-.2' Note: Advanced first attempt to 11.0'. Refusal on boulder, offset 5.0' and continued sampling at 10.01 20.0 20.0'-58 20.5 25.0 25.0'-6 61 25.5 30.0 30.0'-7 49/50-.3 30.8 Top of Rock 33.0'- R-1 Rec NX Core Gray thin bedded LIMESTONE, hard, 35.0 35.0' 1.6 4-5 MPF moderately close fractured (1"-4") 808 RQD-80% Note: Soil filled void from 34.0' to 35.01- R-2 Rec 34.41. 40.0 4.8' 5-6 MPF 968 40.0 RQD - 47%

33.01



FISHER ROAD

EAST SYRACUSE, N.Y. 13057

PROJECT

Waste Water Treatment Plant

HOLE NO. AT-5

LOCATION

Auburn, New York

30" — ASTM D-1586, STANDARD PENETRATION TEST

SURF. EL.

DATE STARTED

4/12/94

DATE COMPLETED

4/12/94

JOB NO.

93285

WHILE DRILLING

GROUND WATER DEPTH 15.0

N — NO. OF BLOWS TO DRIVE SAMPLER 12" W/140# HAMMER FALLING

BEFORE CASING

Added Water

REMOVED

To Core

C — NO. OF BLOWS TO DRIVE CASING 12" W/ "/OR — % CORE RECOVERY

HAMMER FALLING

AFTER CASING

REMOVED

CASING TYPE - HOLLOW STEM AUGER TO 37.0', NX CORE TO SHEET 1 OF 1 40.0

DEPTH	SAMPLE DEPTH	SAMPLE NUMBER	С	SAMPLE DRIVE RECORD PER 6"	N	DESCRIPTION OF MATERIAL	STRATA CHANGE DEPTH
	0.0'-	1		1/1		Brown moist soft SILT, little clay,	
	1.5			3	4	trace roots	
							4.01
5.0						Gray-brown moist hard SILT, some	4.0
	5.0¹-	2		5/17		fine sand, little fine to coarse gravel,	
	6.5'			31	48	trace medium to coarse sand	
				0,00		trace medium to coarse sand	
10.0							
	10.0'-	3		24/36			
	11.51			31	67		
	_						
15.0							
WL	15.0'-	4		5041			1
	15.4						
20.0							20.01
	20.0'-	5		46/501		Brown moist hard SILT, little fine to	20.0
	20.6					coarse gravel, trace fine to coarse	
						sand	
\						Satiu	
25.0							
	25.0'-	6	No	501			
	25.1'		Rec			Y .	1
			1,00				ľ
30.0							
	30.0'-	7		752'			
18	30.2'						
						Gr.	
35.0							
	35.0'-	8		7531		T	
	35.3'			13.3		Top of Rock	37.0
		R-1	Rad	NX Cor	_	Gray thin bedded LIMESTONE, hard,	
	40.0'	1 1		4-5 MP		moderately close fractured (1"-4")	
40.0	70.0			RQD-72			
.0.0			UUa	NQD-72	0	Bottom of Boring	40.0'



FISHER ROAD

EAST SYRACUSE, N.Y. 13057

PROJECT

Waste Water Treatment Plant

HOLE NO. FST-1

LOCATION

Auburn, New York

SURF. EL.

DATE STARTED

4/13/94

DATE COMPLETED

4/14/94

JOB NO. 93285

GROUND WATER DEPTH WHILE DRILLING

N — NO. OF BLOWS TO DRIVE SAMPLER 12" W/140# HAMMER FALLING 30" — ASTM D-1586, STANDARD PENETRATION TEST

BEFORE CASING

Added Water To Core

C — NO. OF BLOWS TO DRIVE CASING 12" W/ "/OR — % CORE RECOVERY

HAMMER FALLING

AFTER CASING

REMOVED

REMOVED

CASING TYPE - HOLLOW STEM AUGER TO 15.0', NX CORE TO SHEET 1 OF 2 45.0

		1			T		
DEPTH	SAMPLE DEPTH	SAM	С	SAMPLE DRIVE RECORD PER 6"	N	DESCRIPTION OF MATERIAL	STRATA CHANGE DEPTH
	0.01-	1		2/2		Brown moist medium stiff SILT and	
	1.5'			3	5	fine SAND, trace roots	
						Time State, trace roots	
							L
5.0							F 01
WL	5.0'-	2		4/6		Brown-gray wet medium dense fine	5.01
	6.51	T-		13	19	SAND, some silt	7 01
				13	13	Cray moist hand CH T Will Co.	7.0'
		-				Gray moist hard SILT, little fine to	
10.0		1				coarse gravel, little fine sand, trace	
10.0	10.0'-	3		22/00		medium to coarse sand	
	11.2'	3		32/49			
	11.2			502			
		-					13.5'
15 0	111 01	.		- 11		Gray hard very dense weathered	13.3
15.0	14.0'-	4		501'		LIMESTONE Top of Rock	15.01
	14.1'		_			Gray-black thin bedded LIMESTONE,	15.01
		R-1		NX Cor		slightly weethered civil bedded LIMESTONE,	1
	20.0			5-6 MP	F	slightly weathered, moderately hard,	ľ
			100%	5		close fractured (1"-4")	ì
20.0			RQL) - 55%			
	20.01-	R-2					
	25.0'			5-6 MF	F		
			97%		Ė		
) - 82%			1
25.0				028			
	25.0'-	R_3	Roc		-		
	30.01	15 3		5-6 MPI	_		
	30.0		100%				
		-			-		
30.0			KUL	- 73%			
30.0	30.0'-	D !!	Dos				
	35.0'	17-4		E C MD			
	33.0			5-6 MPI			
			100%	6-2			
25.0		L	KQL	- 87%			
35.0		_					
	35.0'-	R-5					36.0
	40.0'			2-5 MP	=	Black LIMESTONE, very soft, highly	30.0
			82%			weathered, about 75% of recovery is	
			RQD	- 0%		decomposed rock-silt, clay and	1
40.0						limestone fragments	



FISHER ROAD

EAST SYRACUSE, N.Y. 13057

PROJECT

Waste Water Treatment Plant

HOLE NO. FST-1 SURF. EL.

LOCATION

DATE STARTED

4/13/94

DATE COMPLETED

4/14/94

JOB NO. 93285

GROUND WATER DEPTH WHILE DRILLING

N — NO. OF BLOWS TO DRIVE SAMPLER 12" W/140# HAMMER FALLING

30" — ASTM D-1586, STANDARD PENETRATION TEST

Auburn, New York

BEFORE CASING

Added Water To Core

C — NO. OF BLOWS TO DRIVE CASING 12" W/ "/OR — % CORE RECOVERY

HAMMER FALLING

AFTER CASING

REMOVED

REMOVED

CASING TYPE - HOLLOW STEM AUGER TO 15.0', NX CORE TO SHEET 2 OF 2 45.0

DEPTH	SAMPLE DEPTH	SAMPLE NUMBER	С	SAMPLE DRIVE RECORD PER 6"	N	DESCRIPTION OF MATERIAL	STRATA CHANGE DEPTH
	40.01-	R-6	Rec			Black-gray very thinly bedded	
	45.0		4.0	3-4 MP	=	LIMESTONE, highly weathered, moderately soft, very close fractured	
			808			moderately soft, very close fractured	
) - 0%		(<1")	42.0
45.0						Light gray thin bedded LIMESTONE,	42.0
						weathered, moderately soft, close	
						fractured (1"-4")	
				4 3		Bottom of Boring	4F 01
						Bottom of Borning	45.0
						¥	
					-		
					_		
			_				
	7.					a a	
3							
							85
							1



FISHER ROAD

EAST SYRACUSE, N.Y. 13057

PROJECT

Waste Water Treatment Plant

HOLE NO. FST-2

LOCATION

Auburn, New York

SURF. EL.

JOB NO. 93285

DATE STARTED

4/13/94

DATE COMPLETED

GROUND WATER DEPTH

WHILE DRILLING

N — NO. OF BLOWS TO DRIVE SAMPLER 12" W/140# HAMMER FALLING

30" — ASTM D-1586, STANDARD PENETRATION TEST

BEFORE CASING REMOVED

Added Water To Core

C — NO. OF BLOWS TO DRIVE CASING 12" W/ "/OR — % CORE RECOVERY

HAMMER FALLING

4/13/94

AFTER CASING REMOVED

CASING TYPE - HOLLOW STEM AUGER TO 15.5', NX CORE TO 45.0'

DEPTH	SAMPLE DEPTH	SAMPLE	С	SAMPLE DRIVE RECORD PER 6"	N	DESCRIPTION OF MATERIAL	STRATA CHANGE DEPTH
	0.0'-	1		WH/2		Brown moist soft SILT and fine SAND	
-	1.51			2	4	John moist soit sizi and fine skills	
WL_							3.01
						Brown wet medium dense fine to	3.0
5.0						coarse GRAVEL, little silt, little fine	
	5.0'-	2		4/6		to coarse sand	
	6.5			10	16		
				327			8.01
ے جانے						Brown-red moist very stiff CLAY,	
10.0	40.51					some silt	
	10.01-	3		10/12			
	11.51			16	28		
15.0						C	14.5
	15.0'-	4		68		Gray dry hard SILT, little weathered	
	15.5 ¹					shale, little clay Top of Rock	15.5
		R-1		NX Cor		Black very soft highly weathered	
	20.0			3-4MPF		LIMESTONE, Much of core is de-	
20.0			93%			composed into silt, clay and fine	
) - 0%		gravel sized limestone fragments	
	20.0'-	R-2					
	25.0'			3-4MPF	1		
			84%				
25.0) - 0%			
	25.0'-	R-3					
	30.0'			3-4 MP	F		
			248				
			RQL) - 0%			
30.0							
	30.0'-	R-4					
	35.0'		Red				
25.0							
35.0		_					35.0
	35.01-	R-5				Gray very thinly bedded LIMESTONE,	33.0
	40.0'			2-3MPF		highly weathered moderately soft,	
			92%			very close fractured (<1")	
110 0			KQ) - 0%			
40.0							



FISHER ROAD

EAST SYRACUSE, N.Y. 13057

PROJECT

Waste Water Treatment Plant

HOLE NO.

FST-2

LOCATION

Auburn, New York

SURF. EL.

DATE STARTED 4/13/94

DATE COMPLETED

4/13/94

JOB NO.

93285

N — NO. OF BLOWS TO DRIVE SAMPLER 12" W/140# HAMMER FALLING 30" — ASTM D-1586, STANDARD PENETRATION TEST

WHILE DRILLING 3.01

BEFORE CASING Added Water

GROUND WATER DEPTH

To Core

C — NO. OF BLOWS TO DRIVE CASING 12" W/

HAMMER FALLING

AFTER CASING

REMOVED

REMOVED

"/OR — % CORE RECOVERY

CASING TYPE - HOLLOW STEM AUGER TO 15.5', NX CORE TO 45.0'

SHEET 2 OF 2

DEPTH	SAMPLE DEPTH	SAN		SAMPLE DRIVE RECORD PER 6"	N	DESCRIPTION OF MATERIAL	STRATA CHANGE DEPTH
	40.0'-	R-6				Gray thin bedded LIMESTONE, slightly	
	45.01		5.0	4-5MPF		weathered, moderately hard	
			1009	3		weathered, moderately hard, moderately close fractured (2"-12")	
			RQI) - 73%			
45.0							
						Bottom of Boring	45.01
						Doctom of Borning	45.0
				25			
					-		
					-		
			- 1				
					-		
			-				



FISHER ROAD

EAST SYRACUSE, N.Y. 13057

PROJECT

Waste Water Treatment Plant Auburn, New York

HOLE NO.

FST-3

LOCATION

DATE STARTED

4/6/94

DATE COMPLETED

4/11/94

SURF. EL. JOB NO.

93285

N — NO. OF BLOWS TO DRIVE SAMPLER 12" W/140# HAMMER FALLING 30" — ASTM D-1586, STANDARD PENETRATION TEST

WHILE DRILLING

GROUND WATER DEPTH 10.0 **BEFORE CASING**

Added Wate

C — NO. OF BLOWS TO DRIVE CASING 12" W/ "/OR — % CORE RECOVERY

HAMMER FALLING

REMOVED

To Core

AFTER CASING **REMOVED**

CASING TYPE - HOLLOW STEM AUGER TO 5.0', 4" FLUSH JOINT CASING TO 13.5', NX CORE TO 45.0'

DEPTH	SAMPLE DEPTH	SAMPLE	С	SAMPLE DRIVE RECORD PER 6"	N	DESCRIPTION OF MATERIAL	STRATA CHANGE DEPTH
	0.01-	1		2/18		Brown moist hard SILT and fine SAND.	
	2.0'			15/27	33		
5.0							
	5.0'-	2	No	501'			
	5.11		Rec				
10.0							
10.0 WL	10.0'-	3		10/20		Prown wet done 6 - 1	10.0'
₩ 1	11.5	3	-	10/20	33	Brown wet dense fine to coarse SAND	
	11.5			13	33	and fine to coarse GRAVEL, some silt	
	13.5'-	R-1	Rec	NX Core		Top of Rock	13.5'
15.0	18.5			2-5 MPF		Gray hard LIMESTONE	14.5'
13.0	10.5		76%	Z-J WIFT		Black soft SILT and CLAY with	
				D-9%		fragments of limestone rock	
			110	5 5 6			
	18.5'-	R-2	Rec				
20.0	23.5'			2 MPF			
			40%				
			RQD	-0%			
	23.5'-	R-3					
25.0	28.3'			2-3 MPF			
			60%				
			RQD	-0%			
20.0	28.5'-						
30.0	33.5'			2-3 MPF			
			32%				
		-	RQD	1-0%			
	33.5'-	D F	Des				
35.0	38.5'			2 2 1400			
JJ. U	30.5		2.3. 46응	2-3 MPF			
			RQD	0.00			
			NUU	-U6			
	38.5'-	R-6	Rec				30.01
40.0	43.5'			3-5 MPF			39.0'



FISHER ROAD

EAST SYRACUSE, N.Y. 13057

PROJECT

Waste Water Treatment Plant Auburn, New York

HOLE NO.

FST-3

LOCATION

DATE STARTED

4/6/94

DATE COMPLETED

4/11/94

SURF. EL. JOB NO.

93285

N — NO. OF BLOWS TO DRIVE SAMPLER 12" W/140# HAMMER FALLING 30" — ASTM D-1586, STANDARD PENETRATION TEST

GROUND WATER DEPTH WHILE DRILLING 10.0'

C - NO. OF BLOWS TO DRIVE CASING 12" WI "/OR — % CORE RECOVERY

HAMMER FALLING

BEFORE CASING Added Water

REMOVED To Core

AFTER CASING REMOVED

CASING TYPE - HOLLOW STEM AUGER TO 5.0', 4" FLUSH JOINT CASING TO 13.5', NX CORE TO 45.0'

SHEET 2 OF 2

DEPTH	SAMPLE DEPTH	SAMPLE NUMBER	С	SAMPLE DRIVE RECORD PER 6"	N	DESCRIPTION OF MATERIAL	STRATA CHANGE DEPTH
			70%			Black-gray thin bedded LIMESTONE,	
				-45%		weathered, moderately soft, moderately	
						close fractured	
	43.5'-	R-7	Rec			Black very thin bedded LIMESTONE,	43.0'
45.0	45.0'		0.7	4 MPF		highly weathered, soft, close fractured	
			46%			Bottom of Boring	45.0'
						Docton or borning	45.0
		_	-				
		_					
			_				



FISHER ROAD

EAST SYRACUSE, N.Y. 13057

PROJECT

Waste Water Treatment Plant

HOLE NO. FST-4

LOCATION

Auburn, New York

SURF. EL.

DATE STARTED

4/7/94

DATE COMPLETED

4/8/94

JOB NO. 93285

GROUND WATER DEPTH WHILE DRILLING Dry

N — NO. OF BLOWS TO DRIVE SAMPLER 12" W/140# HAMMER FALLING 30" — ASTM D-1586, STANDARD PENETRATION TEST

BEFORE CASING REMOVED

Added Water To Core

C — NO. OF BLOWS TO DRIVE CASING 12" W/
"/OR — % CORE RECOVERY

HAMMER FALLING

AFTER CASING REMOVED

CASING TYPE - HOLLOW STEM AUGER TO 16.0', NX CORE TO 46.0'

			10				
DEPTH	SAMPLE DEPTH	SAMPLE	С	SAMPLE DRIVE RECORD PER 6"	N	DESCRIPTION OF MATERIAL	STRATA CHANGE DEPTH
						Brown moist hard SILT and fine to	
	1.0'-	1		5/15		coarse SAND, few boulders	
	2.5'			31	46	course state, lew boulders	
5.0	47						5.01
	5.0'-	2		3/3		Brown moist loose fine SAND and	3.0
	6.51			4	7	SILT, little brick	
				1		, mino stran	
10.0							
	10.0'-	3		11/8			10.5
	11.5'			8	16	Gray moist medium dense fine SAND	
						and SILT, trace fine to medium	
						gravel	
15.0							15.0'
	15.0'-	4		31/68		Gray dry hard SILT and fine	15.0
	16.0						16.01
	16.0'-	R-1	Rec	NX Core		GRAVEL Top of Rock Black moist SILT and CLAY with	16.0'
	21.0			3-4 MPF		weathered limestone fragments	
20.0			78%			Black-gray your thinly interbedded	17.5'
			RQD	-8%		Black-gray very thinly interbedded LIMESTONE and SHALE, weathered,	
	21.0'-	R-2	Rec			moderately soft, close fractures (1"-	
	26.0'	_		4-5 MPF		4")	
			100%				21.51
25.0				-75%		Gray thin bedded LIMESTONE, slightly	
			I. Q.	758		weathered, moderately hard,	
	26.01-	R-3	Rec			moderately close fractures (2"-12")	
	31.0'	- 3		4-5 MPF		Note: DOD 6 and an all area	
	31.0		98%	4-2 MFI		Note: RQD from 26'-28.5' = 100%	
30.0			30%			RQD from 28.5'-31' = 0%	28.5
					-	Gray thin bedded LIMESTONE, highly	
	31.0'-	R_#	Pos			weathered, moderately soft to soft,	
	36.0'	N-4		4-5 MPF		very close fractured (<1")	31.01
	20.0		100%			Gray thin bedded LIMESTONE,	
35.0				-70%		slightly weathered, moderately hard,	
33.0			עטא	-108		moderately close fractured (2"-1 2")	
	36.0'-	R-5	Rec				
	41.0'	, ,		4-5 MPF			
	11.0		90%	אוא כ-ד			
40.0			RQD	650		(10)	
			NUP	-026			



FISHER ROAD

EAST SYRACUSE, N.Y. 13057

PROJECT

Waste Water Treatment Plant Auburn, New York

HOLE NO. FST-4

SURF. EL.

LOCATION

DATE STARTED

4/7/94

DATE COMPLETED

4/8/94

93285 JOB NO.

GROUND WATER DEPTH

N — NO. OF BLOWS TO DRIVE SAMPLER 12" W/140# HAMMER FALLING 30" — ASTM D-1586, STANDARD PENETRATION TEST

BEFORE CASING Added Water

C — NO. OF BLOWS TO DRIVE CASING 12" W/

HAMMER FALLING

REMOVED

WHILE DRILLING Dry

To Core

"/OR - % CORE RECOVERY

AFTER CASING REMOVED

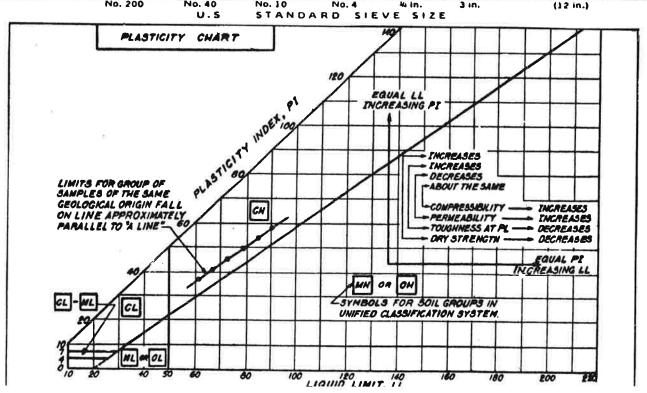
CASING TYPE - HOLLOW STEM AUGER TO 5.0', 4" FLUSH JOINT CASING TO 13.5', NX CORE TO 45.0'

SHEET 2 OF 2

DEPTH	SAMPLE DEPTH	SAMPLE	С	SAMPLE DRIVE RECORD PER 6"	N	DESCRIPTION OF MATERIAL	STRATA CHANGE DEPTH
45.0	41.0'- 46.0'		Rec 5.0' 100%	4-5 MPF		Gray thin bedded LIMESTONE, slightly weathered, moderately hard, moderately close fractured (2"-1 2")	
						Bottom of Boring	46.0
50.0						Note: Backfilled boring on completion.	
						,	
				11			
						9	

§ '. CLASSIFICATION SYSTEM

		. GLASSIF	IUAI	1011	OTOTEM	N.	
MA	JOR DIVISIONS		GRC SYM		TYPICAL NAMES		
		CLEAN Gravels	2.6	GW	Well graded gravels	Nell graded gravels, gravel - sand mixtures, little or no fines Poorly graded gravels or gravel - sand mixtures, little or no f	
<	GRAVELS (More than 50% of coarse fraction is	(Little or no fines)		GP	Poorly graded grave		
COARSE	LARCER than the No. 4 sieve size)	GRAVELS WITH FINES	Terrori.	GM	Silty gravels, gravel - sand - silt mix		15.
GRAINED SOILS (More than 50% of		(Appreciable amt. of fines)	20	GC	Clayey gravels, grav	vel - sand - clay mixt	ures.
material is LARGER than No. 200 sieve size)		CLEAN SANDS		sw	Well graded sands,	gravelly sands, little	or no fines.
3124)	SANDS (More than 50% of	(Little or no fines)		SP	Poorly graded sands or gravelly sands, little or no fines.		
	coarse fraction is SMALLER than the No. 4 sieve size)	SANDS WITH FINES	Ш	SM	Silty sands, sand-sil	It mixtures.	
4		(Appreciable amt. of fines)		sc	Clayey sands, sand-	-clay mixtures.	
***************************************		Ш	ML	Inorganic silts and very fine sands, rock flour, silty or c fine sands or clayey silts with slight plasticity.			
FINE GRAINED	SILTS ANI (Liquid limit L		CL	Inorganic clays of low to medium plasticity, gravelly clays, sandy clays, silty clays, lean clays. Organic silts and organic silty clays of low plasticity.			
SOILS More than 50% of material is SMALLER			OL				
than No. 200 sieve size)			Ш	мн	Inorganic sitts; micaceous or diatomaceous fine sandy or silty soils, elastic sitts. Inorganic clays of high plasticity, fat clays.		
	SILTS ANI (Liquid limit GRE			СН			
		ž.		ОН	Organic clays of medium to high plasticity, organic silts.		
ніс		Pt	Peat and other highly organic soils.				
OUNDARY CLASSIFIC	CATIONS: Soils possessin	ng characteristics of tw	o group		designated by combined to the second		nbols.
	SAN		31	_	GRAVEL		,
SILT OR CLAY	ASE	F	INE COARSE	COBBLES	BOULDERS		





FISHER RD., EAST SYRACUSE, N.Y. 13057 TELEPHONE AREA CODE 315/437-1429 800/782-7260 FAX 315/437-1770

GENERAL NOTES

1. Soil boring logs, notes and other data shown are the results of personal observations and interpretations made by Parratt-Wolff, Inc.

Exploration records prepared by our drilling foreman in the field form the basis of all logs, and samples of subsurface materials retained by the driller are observed by technical personnel in our laboratory to check field classifications.

2. Explanation of the classifications and terms:

Silt and Clay Finer than 0.074 mm

- a. Bedrock Natural solid mineral matter occurring in great thickness and extent in its natural location. It is classified according to geological type and structure (joints, bedding, etc.) and described as solid, weathered, broken or fragmented depending on its condition.
- b. Soils Sediments or other unconsolidated accumulations of particles produced by the physical and chemical disintegration of rocks and which may or may not contain organic matter.

PENETRATION RESISTANCE

	COHESIONLES	SS SOIL	S		DILS	
Blows	Per Ft.	Relati	ve Density	Blows Per	Ft.	Consistency
0	to 4	Very I	Loose	0 to 2	Very Soft	
4 1	to 10	Loose)	2 to 4	Soft	
10	to 30	Mediu	ım Dense	4 to 8		Medium Stiff
30	to 50	Dense	e	8 to 15		Stiff
Ov	er 50	Very [Dense	15 to 30		Very Stiff
				Over 30		Hard
	Size Con	Terms		Proportio	n By Weight	
			Larger than 8 inches 8 inches to 3 inches		•	onent is shown ers capitalized.
Gravel	— medium		3 inches to 1 inch 1 inch to 3/8 inch 3/8 inch to 4.76 mm		•	onent percen- of total sample
Sand	— medium		4.76 mm to 2.00 mm 2.00 mm to 0.42 mm 0.42 mm to 0.074 mm	(#10 sieve) (#40 sieve) (#200 sieve)	some . 20 little 10	to 50 percent to 35 percent to 20 percent o 10 percent

- c. Gradation Terms The terms coarse, medium and fine are used to describe gradation of Sand and Gravel.
- d. The terms used to describe the various soil components and proportions are arrived at by visual estimates of the recovered soil samples. Other terms are used when the recovered samples are not truly representative of the natural materials, such as soil containing numerous cobbles and boulders which cannot be sampled, thinly stratified soils, organic soils, and fills.
- e. Ground water The measurement was made during exploration work or immediately after completion, unless otherwise noted. The depth recorded is influenced by exploration methods, soil type and weather conditions during exploration. Where no water was observed it is so indicated. It is anticipated that the ground water will rise during periods of wet weather. In addition, perched ground water above the water levels indicated (or above the bottom of the hole where no ground water is indicated) may be encountered at changes in soil strata or top of rock.



FISHER RD., EAST SYRACUSE, N.Y.13057 TELEPHONE AREA CODE 315/437-1429

A BRIEF DESCRIPTION OF THE UNIFIED SOIL SYSTEM

The Unified Classification System is an engineering soil classification that is an outgrowth of the Air-Field classification developed by Casagrande.

The system incorporates the textural characteristics of a soil into the engineering classification. All soils are classified into fifteen groups, each group being designated by two letters. These letters are as follows: G—gravel, S—sand, M—Non plastic or low plasticity fines, C—plastic fines, Pt—peat, humus and swamp soils, O—organic, W—well graded, P—poorly graded, L—low liquid limit, H—high liquid limit.

GW and SW Groups

These groups comprise well graded gravelly and sandy soils which contain less than 5% of non plastic fines passing a #200 sieve. Fines which are present must not noticeably change the strength characteristics of the coarse grain fraction and must not interfere with its free draining characteristics. In areas subject to frost action the material should not contain more than about 3% of soil grains smaller than .02 millimeters in size.

GP and SP Groups

These groups are poorly graded gravels and sands containing less than 5% non plastic fines. They may consist of uniform gravels, uniform sands, or non uniform mixtures of very coarse material and very fine sand with intermediate sizes lacking. Materials of this latter type are sometimes referred to as skip graded, cap graded, or step graded.

GM and SM Groups

In general, these groups include gravels or sands which contain more than 12% of fines having little or no plasticity. The plasticity index and liquid limit of a soil in either of these groups plot below the "A" line on a plasticity chart. Gradation is not important and both low grade and poorly graded materials are included. Some sands and gravels in these groups may have a binder composed of natural cementing agents so proportioned that the mixture shows negligible swelling or shrinkage. Thus, the dry strength is provided by a small amount of soil binder or dry cementation of calcareous materials or iron oxide. A fine fraction of non-cemented materials may be composed of silts or rock flour types having little or no plasticity, and the mixture will exhibit no dry strength.

GC and SC Groups

These groups comprise gravelly or sandy soils with more than 12% of fines which exhibit either low or high plasticity. The plasticity index and liquid limit of a soil in either of these groups plot above the "A" line on the plasticity chart. Gradation of these materials is not important. Plasticity of the binder fraction has more influence on the behavior of the soils than does the variation in gradation. A fine fraction is generally composed of clays.

ML and MH Groups

These groups include predominantly silty materials and micaceous or diatomaceous soils. An arbitrary division between the two groups has been established with a liquid limit of 50. Soils in these groups are sandy silts, clayey silts or organic silts with relatively low plasticity. Also included are loessial soils and rock flours. Micaceous and diatomaceous soils generally fall within the MH group, but may extend into the ML group when their liquid limit is less than 50. The same is true for certain types of kaolin clays and some illite clays having relatively low plasticity.

CL and CH Groups

The CL and CH groups embrace clays with low and high liquid limits respectively. They are primarily inorganic clays. Low plasticity clays are classified as CL and are usually lean clays, sandy clays, and silty clays. The medium plasticity and high plasticity clays are classified as CH. These include fat clays, gumbo clays, certain volcanic clays and bentonite.

OL and OH Groups

The soils in these groups are characterized by the presence of organic matter including organic silts and clays. They have a plasticity range that corresponds with the ML and MH groups.

Pt Group

Highly organic soils which are very compressible have undesirable construction characteristics and are classified in one group with the symbol Pt. Peat, humus and swamp soils with a highly organic texture are typical of the group. Particles of leaves, grass, branches of bushes and other fibrous vegetable matter are common components of these soils.

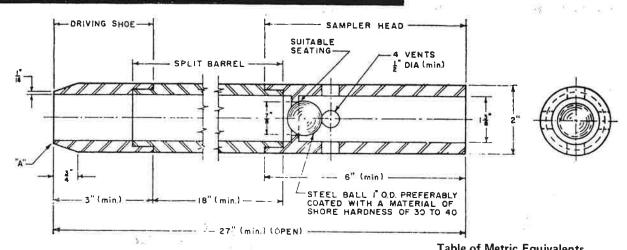
Borderline Classification

Soils in the GW, SW, GP and SP groups are non plastic materials having less than 5% passing the #200 sieve, while GM, SM, GC, and SC soils have more than 12% passing the #200 sieve. When these coarse grain materials contain between 5% and 12% of fines they are classified as borderline, and are designated by the dual symbol such as GW-GM. Similarly coarse grain soils which have less than 5% passing the #200 sieve, but which are not free draining or in which the fine fraction exhibits plasticity are also classed as borderline and are given a dual symbol. Still another type of borderline classification occurs when a liquid limit of a fine grain soil is less than 29 and the plasticity index lies in the range of four to seven. These limits are indicated by the shaded area on the plasticity chart

Silty and Clayey

In the Unified System, these terms are used to describe soils whose Atterberg limits plot below and above the "A" line on the plasticity chart. The adjectives silty and clayey are used to describe soils whose limits plot close to the "A" line.

SOIL SAMPLING-METHODS



Note 1 — Split barrel may be 1-1/2 in, inside diameter provided it contains a liner of 16-gage wall thickness.

Note 2 — Core retainers in the driving shoe $\tau\sigma$ prevent loss of sample are permitted.

Note 3 — The corners at A may be slightly rounded.

3. Procedure

- 3.1 Clear out the hole to sampling elevation using equipment that will ensure that the material to be sampled is not distuibed by the operation. In saturated sands and silts withdraw the drill bit slowly to prevent loosening of the soil around the hole. Maintain the water level in the hole at or above ground water level.
- 3.2 In no case shall a bottom-discharge bit be permitted. (Side-discharge bits are permissible.) The process of jetting through an open-tube sampler and then sampling when the desired depth is reached shall not be permitted. Where casing is used, it may not be driven below sampling elevation. Record any loss of circulation or excess pressure in drilling fluid during advancing of holes.
- 3.3 With the sampler resting on the bottom of the hole, drive the sampler with blows from the 140-lb (63.5 kg) hammer falling 30 in: (0.76 m) until either 18 in. (0.45 m) have been penetrated or 100 blows have been applied.
- 3.4 Repeat this operation at intervals not longer than 5 ft (1.5 m) in homogeneous strata and at every change of strata.
- 3.5 Record the number of blows required to effect each 6 in. (0.15 m) of penetration or fractions thereof. The first 6 in. (0.15 m) is considered to be a seating drive. The number of blows required for the second and third 6 in. (0.15 m) of penetration added is termed the penetration resistance, N. If the sampler is driven less than 18 in. (0.45 m), the penetration resistance is that for the last 1 ft (0.30 m) of penetration (if less than 1 ft (0.30 m) is penetrated, the logs shall state the number of blows and the fraction of 1 ft (0.30 m) penetrated).
- 3.6 Bring the sampler to the surface and open. Describe carefully typical samples of soils recovered as to composition, structure, consistency, color, and condition; then put into jars without ramming. Seal them with wax or hermetically seal to prevent evaporation of the soil moisture. Affix labels to the jar

	able of iv	ietric Eq	uivaien	TS.		
In.	Mm	Cm	In.	Mm	Cm	7
1/16 (16 gage)	1.5	***	2	Grand.	5.08	1
1/2	12.7		3		7.62	١
3/4	19.0	1.90	6		15.24	I
7/8	22.2	2.22	18	1 9890an - 1	45.72	l
1.3/8	34.9	3.49	27	68.58		١
1-1/2	38.1	3.81				١

Fig. 1 - Standard Split Barrel Sampler Assembly

or make notations on the covers (or both) bearing job designation, boring number, sample number, depth penetration record, and length of recovery. Protect samples against extreme temperature changes.

4. Report

- 4.1 Data obtained in borings shall be recorded in the field and shall include the following:
 - 4.1.1 Name and location of job,
 - 4.1.2 Date of boring start, finish,
 - 4.1.3 Boring number and coordinate, if available,
 - 4.1.4 Surface elevation, if available,
 - 4.1.5 Sample number and depth,
- 4.1.6 Method of advancing sampler, penetration and recovery lengths,
 - 4.1.7 Type and size of sampler,
 - 4.1.8 Description of soil.
 - 4.1.9 Thickness of layer,
- 4.1.10 Depth to water surface; to loss of water; to artesian head; time at which reading was made,
 - 4.1.11 Type and make of machine,
 - 4.1.12 Size of casing, depth of cased hole,
 - 4.1.13 Number of blows per 6 in. (0.15 m)
 - 4.1.14 Names of crewmen, and
 - 4.1.15 Weather, remarks.

¹Under the standardization procedure of the Society, this method is under the jurisdiction of the ASTM Committee D-18 on Soil and Rock for Engineering Purposes. A list of members may be found in the ASTM Year Book.

Current edition accepted October 20, 1967. Originally issued, 1958. Replaces D-1586-64T.

APPURN WWTP PHASE IT

BGM ≥ = 5 AMH 2743.11



TEST BORINGS
WASTE WATER TREATMENT PLANT
AUBURN, NEW YORK



April 22, 1994

Mr. Brad Smith Stearns and Wheler One Remington Park Drive Cazenovia, New York 13035

RE: 93285

Waste Water Treatment Plant

Auburn, New York

Job #2743

Dear Brad:

Enclosed are the logs for eleven test borings made for you for the above project.

Soil samples and rock cores for these borings have already been delivered to your office under separate cover.

The borings were made at points located by you and were drilled in accordance with your instructions.

Note that at all locations cored, the driller reported that he did not lose circulation water.

Thank you for this opportunity to work with you.

Very truly yours,

PARRATT - WOLFF, INC.

William H. Morrow

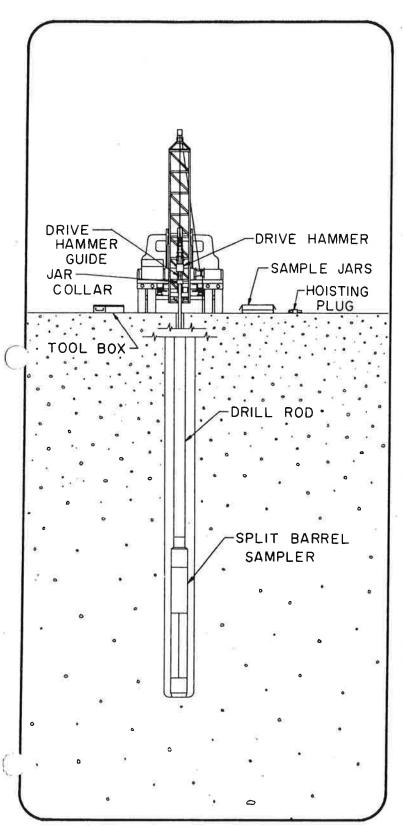
WHM/blo

encs:

SOIL SAMPLING-METHODS



FISHER RD., EAST SYRACUSE, N.Y. 13057 TELEPHONE AREA CODE 315/437-1429 800/782-7260 FAX 315/437-1770



Split barrel sampling

The following excerpts are from "Standard Method for penetration test and split-barrel sampling of soils." (ASTM designation: D-1586-67 AASHO Designation: T-206-70.)

1. Scope

1.1 This method describes a procedure for using a splitbarrel sampler to obtain respresentative samples of soil for identification purposes and other laboratory tests, and to obtain a measure of the resistance of the soil to penetration of the sampler.

2. Apparatus

- 2.1 Drilling Equipment Any drilling equipment shall be acceptable that provides a reasonably clean hole before insertion of the sampler to ensure that the penetration test is performed on undisturbed soil, and that will permit the driving of the sampler to obtain the sample and penetration record in accordance with the procedure described in 3. Procedure. To avoid "whips" under the blows of the hammer, it is recommended that the drill rod have stiffness equal to or greater than the A-rod. An "A" rod is a hollow drill rod or "steel" having an outside diameter of 1-5/8 in. or 41.2 mm and an inside diameter of 1-1/8 in. or 28.5 mm, through which the rotary motion of drilling is transferred from the drilling motor to the cutting bit. A stiffer drill rod is suggested for holes deeper than 50 ft (15m). The hole shall be limited in diameter to between 2-1/4 and 6 in. (57.2 and 152mm).
- 2.2 Split-Barrel Sampler The sampler shall be constructed with the dimensions indicated (in Fig. 1.) The drive shoe shall be of hardened steel and shall be replaced or repaired when it becomes dented or distorted. The coupling head shall have four 1/2-in. (12.7-mm) (minimum diameter) vent ports and shall contain a ball check valve. If sizes other than the 2-in. (50.8-mm) sampler are permitted, the size shall be conspicuously noted on all penetration records.
- 2.3 Drive Weight Assembly The assembly shall consist of a 140-lb (63.5-kg) weight, a driving head, and a guide permitting a free fall of 30 in. (0.76 m). Special precautions shall be taken to ensure that the energy of the falling weight is not reduced by friction between the drive weight and the guides.
- 2.4 Accessory Equipment Labels, data sheets, sample jars, paraffin, and other necessary supplies should accompany the sampling equipment.