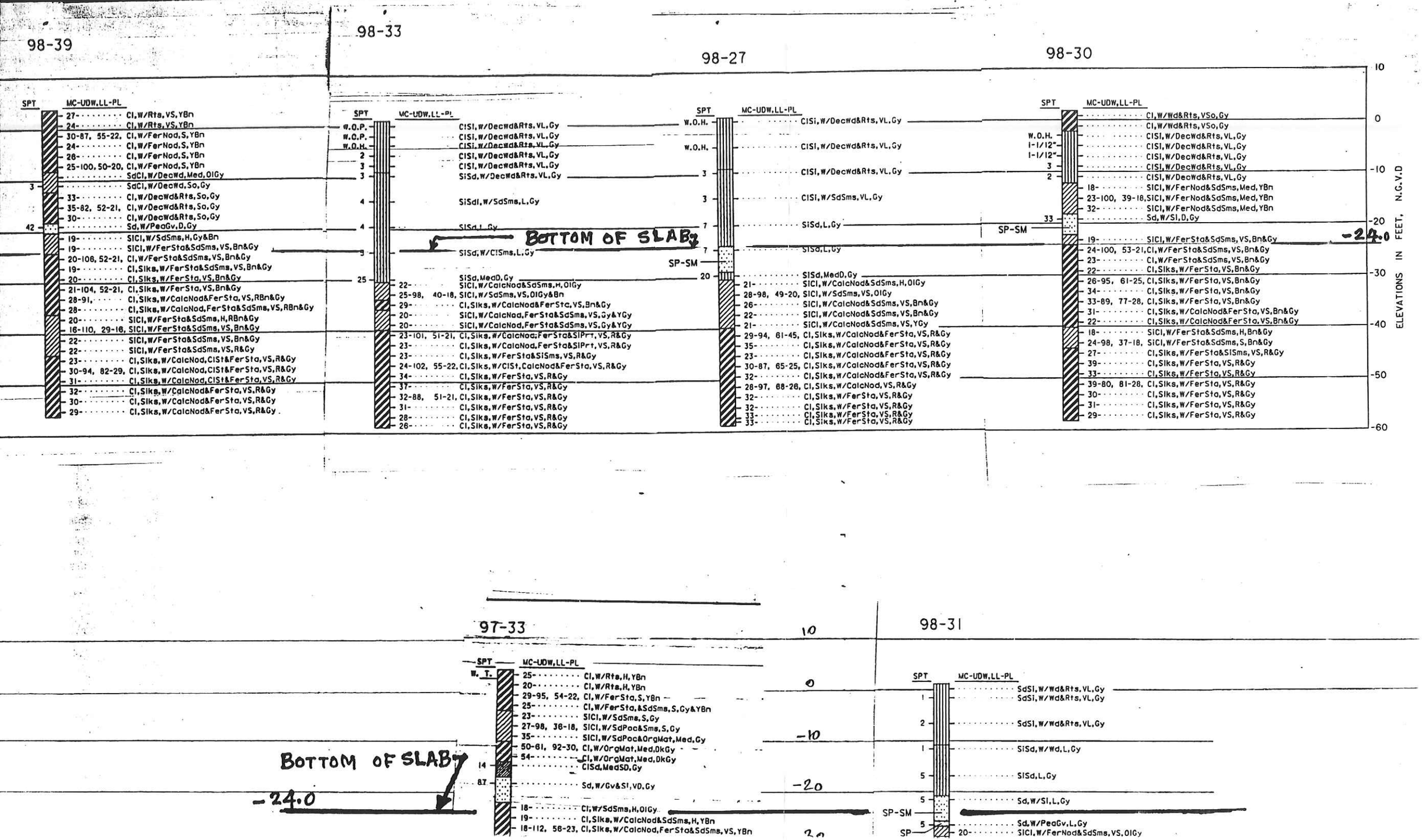
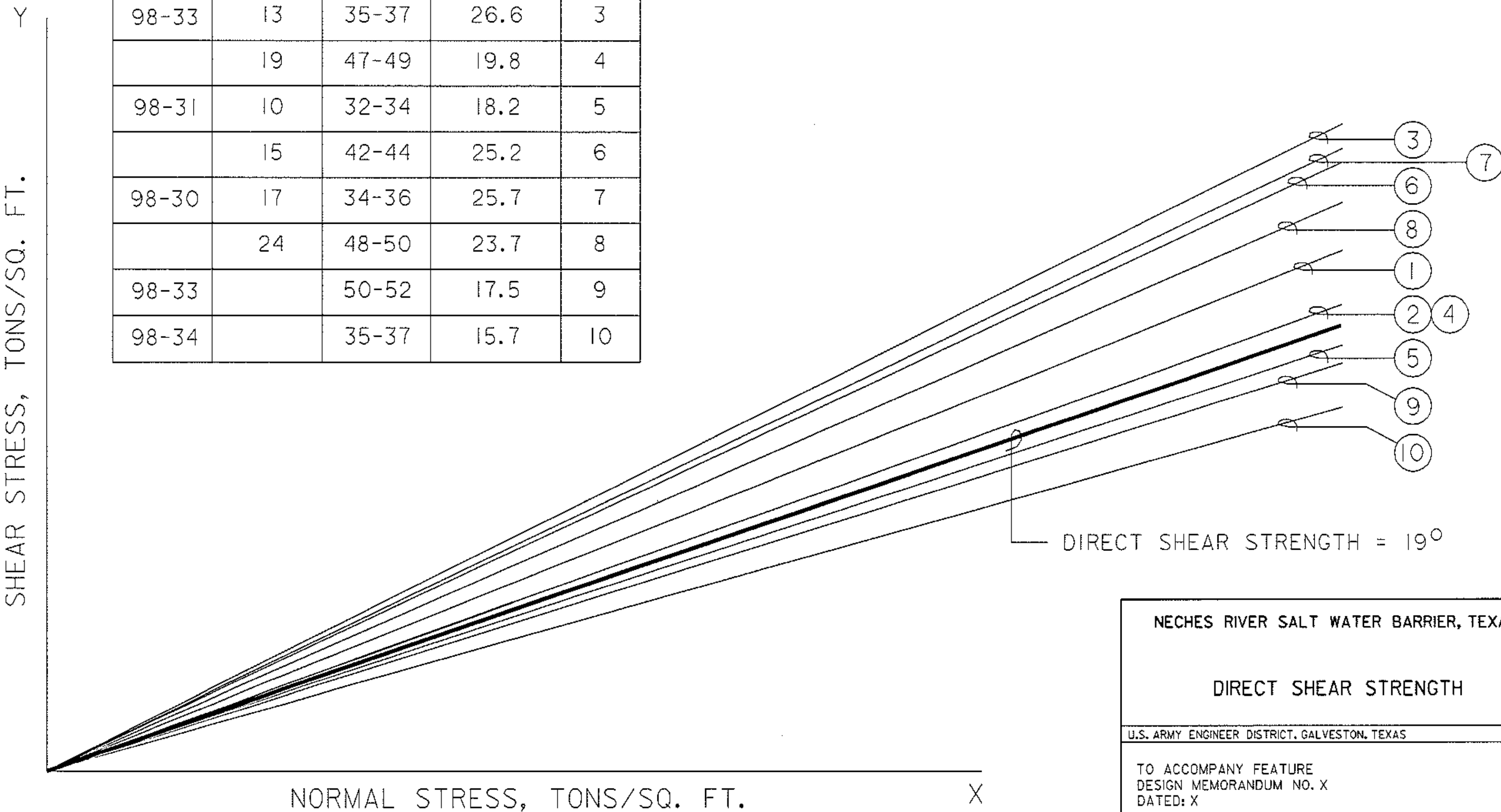
SUMMARY OF UNCONFINED COMPRESSION TEST RESULTS
NECHES RIVER SALT WATER BARRIER
BEAUMONT, TEXAS
TABLE-

BORING NO.	DEPTH (FT.)	DENSITY DATA Moisture Cont. %	DENSITY DATA Dry Wt (pcf)	MECHANICAL ANALYSIS Gvl.	MECHANICAL ANALYSIS Sand	MECHANICAL ANALYSIS Fine	ATTERBURG LIMITS L.L.	ATTERBURG LIMITS P.L.	% STRAIN @ MAX. STRESS	UNCON. COMP. STR (pcf)	CLASSIFICATION
98-21	24-26	18.2	106.6	0	18	82	24.0	13.0	3.9	630	Sandy Clay, Medium stiff, Gray
98-21	30-32	18.9	105.0	0	16	84	32.0	16.0	4.6	2090	Sandy Clay, Very stiff, Gray & yellowish gray
98-22	24-26	16.9	110.0	0	16	84	31.0	16.0	6	1980	Silty Clay, W / silt & sand seams,Very stiff, Gray & yellowish gray
98-23	16-18	27.9	84.9	0	14	86	47.0	24.0	4.3	1270	Silty Clay, W / sand seams & sand pockets, Stiff, Gray
98-24	10-12	41.7	77.8	0	1	99	134.0	47.0	3.6	90	Clay, W / decayed wood & roots, Very soft, Gray
98-24	28-30	14.7	114.1	0	8	92	25.0	14.0	10.5	2170	Silty Clay, W / sand seams, Very stiff, Gray
98-24	44.5-46	17.0	107.0	0	12	88	39.0	18.0	7.5	2000	Silty Clay, W / sand seams, Very stiff, Red & Gray
98-25	32-34	19.0	104.8	-	-	-	65.0	24.0	3.2	2220	Clay, W / calc nod & fer stains, slks, Very stiff, Brown & gray
98-25	40-42	15.3	111.4	-	-	-	-	-	3.4	3660	Clay, W / calc nod, fer stains, & sd sms, Very stiff, Reddish brown & gray
98-26	25-27	19.5	104.4	0	2	98	25.0	15.0	5	560	Silty Clay, W / sand seams, Medium stiff, Gray
98-26	35-37	16.8	106.6	0	7	93	41.0	18.0	4	2010	Silty Clay, W / sand seams, stiff, Gray
98-35	6.5-8	17.5	111.7	-	-	-	33.0	17.0	6.8	1370	Silty Clay, Stiff, Gray
98-40	14-16	76.4	43.9	-	-	-	-	-	2.1	70	Clay, W / decayed wood roots & organic material, Very soft, Gray
98-40	22-24	20.5	102.2	0	3	97	47.0	20.0	3.6	2030	Silty Clay, W / sand seams, Very stiff, Olive gray
98-40	32-34	25.5	94.5	-	-	-	-	-	3.3	2190	Clay, W / fer stains, slks,Very stiff, Reddish brown & gray
98-42	14-16	37.6	81.0	0	4	95	63.0	25.0	2.5	1060	Clay, W / fer nod & fer stains, Stiff,Yellowish brown


98-39
SPT
MC-UDW,LL-PL
27- Cl,W/Rts,VS,YBn
24- Cl,W/Rts,VS,YBn
30-87, 55-22, Cl,W/FerNod,S,YBn
24- Cl,W/FerNod,S,YBn
26- Cl,W/FerNod,S,YBn
25-100, 50-20, Cl,W/FerNod,S,YBn
SdCl,W/DecWd,Med,OlGy
3 SdCl,W/DecWd,So,Gy
33- Cl,W/DecWd&Rts,So,Gy
35-82, 52-21, Cl,W/DecWd&Rts,So,Gy
30- Cl,W/DecWd&Rts,So,Gy
42 Sd,W/PeaGv,D,Gy
19- SICl,W/SdSms,H,Gy&Bn
19- SICl,W/FerSta&SdSms,VS,Bn&Gy
20-106, 52-21, Cl,W/FerSta&SdSms,VS,Bn&Gy
19- Cl,Slks,W/FerSta&SdSms,VS,Bn&Gy
20- Cl,Slks,W/FerSta,VS,Bn&Gy
21-104, 52-21, Cl,Slks,W/FerSta,VS,Bn&Gy
28-91, Cl,Slks,W/CalcNod&FerSta,VS,RBn&Gy
28- Cl,Slks,W/CalcNod,FerSta&SdSms,VS,RBn&Gy
20- SICl,W/FerSta&SdSms,H,RBn&Gy
16-110, 29-16, SICl,W/FerSta&SdSms,VS,Bn&Gy
22- SICl,W/FerSta&SdSms,VS,Bn&Gy
22- SICl,W/FerSta&SdSms,VS,R&Gy
23- Cl,Slks,W/CalcNod,ClSt&FerSta,VS,R&Gy
30-94, 82-29, Cl,Slks,W/CalcNod,ClSt&FerSta,VS,R&Gy
31- Cl,Slks,W/CalcNod,ClSt&FerSta,VS,R&Gy
32- Cl,Slks,W/CalcNod&FerSta,VS,R&Gy
30- Cl,Slks,W/CalcNod&FerSta,VS,R&Gy
29- Cl,Slks,W/CalcNod&FerSta,VS,R&Gy
98-33
SPT
MC-UDW,LL-PL
W.O.P. ClSI,W/DecWd&Rts,VL,Gy
W.O.P. ClSI,W/DecWd&Rts,VL,Gy
W.O.H. ClSI,W/DecWd&Rts,VL,Gy
2 ClSI,W/DecWd&Rts,VL,Gy
3 ClSI,W/DecWd&Rts,VL,Gy
3 SiSd,W/DecWd&Rts,VL,Gy
4 SiSdI,W/SdSms,L,Gy
4 SiSd,L,Gy
BOTTOM OF SLAB
9 SiSd,W/ClSms,L,Gy
25 SiSd,MedD,Gy
22- SICl,W/CalcNod&SdSms,H,OlGy
25-98, 40-18, SICl,W/SdSms,VS,OlGy&Bn
29- Cl,Slks,W/CalcNod&FerSta,VS,Bn&Gy
20- SICl,W/CalcNod,FerSta&SdSms,VS,Gy&YGy
20- SICl,W/CalcNod,FerSta&SdSms,VS,Gy&YGy
23-101, 51-21, Cl,Slks,W/CalcNod,FerSta&SlPrt,VS,R&Gy
23- Cl,Slks,W/CalcNod,FerSta&SlPrt,VS,R&Gy
23- Cl,Slks,W/FerSta&SlSms,VS,R&Gy
24-102, 55-22, Cl,Slks,W/ClSt,CalcNod&FerSta,VS,R&Gy
34- Cl,Slks,W/FerSta,VS,R&Gy
37- Cl,Slks,W/FerSta,VS,R&Gy
32-88, 51-21, Cl,Slks,W/FerSta,VS,R&Gy
31- Cl,Slks,W/FerSta,VS,R&Gy
28- Cl,Slks,W/FerSta,VS,R&Gy
26- Cl,Slks,W/FerSta,VS,R&Gy
98-27
SPT
MC-UDW,LL-PL
W.O.H. ClSI,W/DecWd&Rts,VL,Gy
W.O.H. ClSI,W/DecWd&Rts,VL,Gy
3 ClSI,W/DecWd&Rts,VL,Gy
3 ClSI,W/SdSms,VL,Gy
7 SiSd,L,Gy
7 SiSd,L,Gy
SP-SM
20 SISd,MedD,Gy
21- SICl,W/CalcNod&SdSms,H,OlGy
28-98, 49-20, SICl,W/SdSms,VS,OlGy
26- SICl,W/CalcNod&SdSms,VS,Bn&Gy
22- SICl,W/CalcNod&SdSms,VS,Bn&Gy
21- SiCl,W/CalcNod&SdSms,VS,YGy
29-94, 61-45, Cl,Slks,W/CalcNod&FerSta,VS,R&Gy
35- Cl,Slks,W/CalcNod&FerSta,VS,R&Gy
23- Cl,Slks,W/CalcNod&FerSta,VS,R&Gy
30-87, 65-25, Cl,Slks,W/CalcNod&FerSta,VS,R&Gy
32- Cl,Slks,W/CalcNod&FerSta,VS,R&Gy
28-97, 68-26, Cl,Slks,W/CalcNod,VS,R&Gy
32- Cl,Slks,W/FerSta,VS,R&Gy
32- Cl,Slks,W/FerSta,VS,R&Gy
33- Cl,Slks,W/FerSta,VS,R&Gy
33- Cl,Slks,W/FerSta,VS,R&Gy
98-30
SPT
MC-UDW,LL-PL
Cl,W/Wd&Rts,VSo,Gy
Cl,W/Wd&Rts,VSo,Gy
W.O.H. ClSI,W/DecWd&Rts,VL,Gy
1-1/12" ClSI,W/DecWd&Rts,VL,Gy
1-1/12" ClSI,W/DecWd&Rts,VL,Gy
3 ClSI,W/DecWd&Rts,VL,Gy
2 ClSI,W/DecWd&Rts,VL,Gy
18- SICl,W/FerNod&SdSms,Med,YBn
23-100, 39-18, SICl,W/FerNod&SdSms,Med,YBn
32- SICl,W/FerNod&SdSms,Med,YBn
33 Sd,W/SI,D,Gy
SP-SM
19- SICl,W/FerSta&SdSms,VS,Bn&Gy
24-100, 53-21, Cl,W/FerSta&SdSms,VS,Bn&Gy
23- Cl,W/FerSta&SdSms,VS,Bn&Gy
22- Cl,Slks,W/FerSta,VS,Bn&Gy
26-95, 61-25, Cl,Slks,W/FerSta,VS,Bn&Gy
34- Cl,Slks,W/FerSta,VS,Bn&Gy
33-89, 77-28, Cl,Slks,W/FerSta,VS,Bn&Gy
31- Cl,Slks,W/CalcNod&FerSta,VS,Bn&Gy
22- Cl,Slks,W/CalcNod&FerSta,VS,Bn&Gy
18- SiCl,W/FerSta&SdSms,H,Bn&Gy
24-98, 37-18, SiCl,W/FerSta&SdSms,S,Bn&Gy
27- Cl,Slks,W/FerSta&SlSms,VS,R&Gy
39- Cl,Slks,W/FerSta,VS,R&Gy
33- Cl,Slks,W/FerSta,VS,R&Gy
39-80, 81-28, Cl,Slks,W/FerSta,VS,R&Gy
30- Cl,Slks,W/FerSta,VS,R&Gy
31- Cl,Slks,W/FerSta,VS,R&Gy
29- Cl,Slks,W/FerSta,VS,R&Gy
-24.0
10
0
-10
-20
-30
-40
-50
-60
ELEVATIONS IN FEET, N.G.V.D
97-33
SPT
MC-UDW,LL-PL
W. T.
25- Cl,W/Rts,H,YBn
20- Cl,W/Rts,H,YBn
29-95, 54-22, Cl,W/FerSta,S,YBn
25- Cl,W/FerSta,&SdSms,S,Gy&YBn
23- SICl,W/SdSms,S,Gy
27-98, 36-18, SICl,W/SdPoc&Sms,S,Gy
35- SICl,W/SdPoc&OrgMat,Med,Gy
50-61, 92-30, Cl,W/OrgMat,Med,DkGy
54- Cl,W/OrgMat,Med,DkGy
14 ClSd,MedSD,Gy
87 Sd,W/Gv&SI,VD,Gy
BOTTOM OF SLAB
-24.0
18- Cl,W/SdSms,H,OlGy
19- Cl,Slks,W/CalcNod&SdSms,H,YBn
18-112, 56-23, Cl,Slks,W/CalcNod,FerSta&SdSms,VS,YBn
10
0
-10
-20
98-31
SPT
MC-UDW,LL-PL
1 SdSI,W/Wd&Rts,VL,Gy
SdSi,W/Wd&Rts,VL,Gy
2 SdSI,W/Wd&Rts,VL,Gy
1 SiSd,W/Wd,L,Gy
5 SISd,L,Gy
5 Sd,W/SI,L,Gy
SP-SM
5 Sd,W/PeaGv,L,Gy
SP 20- SICl,W/FerNod&SdSms,VS,OlGy

DESIGN FILE: DGNSPECIFICATION$$$ CREATED BY: $$$$ ON: $$$DATE$$$$ AT: $TIME

DIRECT SHEAR STRENGTH				
BORING NO.	SAMPLE NO.	DEPTH (FT.)	ϕ (DEGREES)	LINE NO.
98-39	19	36-38	21.9	1
		50-52	19.8	2
98-33	13	35-37	26.6	3
	19	47-49	19.8	4
98-31	10	32-34	18.2	5
	15	42-44	25.2	6
98-30	17	34-36	25.7	7
	24	48-50	23.7	8
98-33		50-52	17.5	9
98-34		35-37	15.7	10



NECHES RIVER SALT WATER BARRIER, TEXAS

DIRECT SHEAR STRENGTH

U.S. ARMY ENGINEER DISTRICT, GALVESTON, TEXAS

TO ACCOMPANY FEATURE
DESIGN MEMORANDUM NO. X
DATED: X

EXHIBIT

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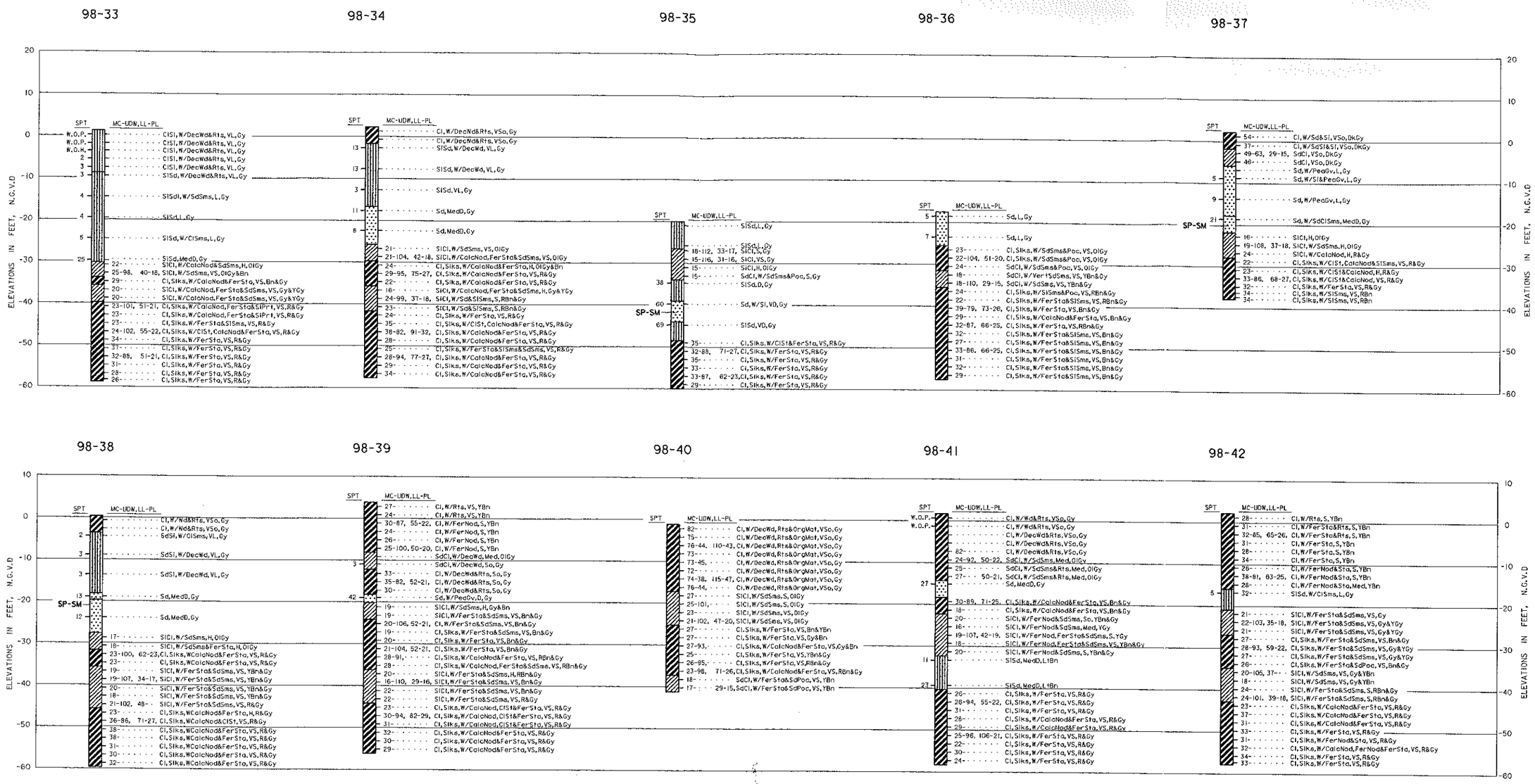

NOTES;

1. SOILS HAVE BEEN CLASSIFIED IN ACCORDANCE WITH ASTM 2487-93 "CLASSIFICATION OF SOILS FOR ENGINEERING PURPOSES (UNIFIED SOILS CLASSIFICATION SYSTEM)". CONSISTENCY OF SOILS SUCH AS SOFT, MEDIUM, HARD, LOOSE, DENSE, ETC., ARE RELATIVE TERMS BASED ON ESTIMATED UNDISTURBED SHEAR STRENGTH OF THE MATERIAL AS DETERMINED BY VISUAL CLASSIFICATION POCKET PENETROMETER TESTS AND PENETRATION RESISTANCE DURING SAMPLING.
2. FIGURES TO THE RIGHT OF BORING LOGS ARE WATER CONTENTS IN PERCENT OF THE DRY WEIGHT, DRY DENSITY, LIQUID LIMIT, PLASTIC LIMIT, AND BAR LINEAR SHRINKAGE. (MC-UDW),(LL-PL),(B.L.S.)* FIGURES TO THE LEFT OF BORING LOGS ARE BLOWS PER FOOT OF PENETRATION FROM STANDARD PENETRATION TESTING.
3. BORINGS WERE DRILLED USING WET ROTARY DRILLING TECHNIQUES AND UNDISTURBED SAMPLES WERE RECOVERED WITH A 3-INCH DIAMETER THIN WALL SAMPLER WHERE COHESIVE MATERIALS WERE ENCOUNTERED.WHERE COHESIONLESS MATERIALS WERE ENCOUNTERED, DISTURBED SAMPLES WERE TAKEN WITH A SPLIT SPOON SAMPLER DURING PERFORMANCE OF STANDARD PENETRATION TESTING.
4. WATER TABLE LEVELS SHOWN ON BORING LOGS WERE DETERMINED AFTER DRILLING BORINGS BY MEASURING THE TOP OF FLUID LEVELS IN THE BORINGS. INASMUCH AS WET ROTARY DRILLING TECHNIQUES AND DRILLING MUD WERE USED TO DRILL THE HOLES, THE LEVEL OF DRILLING FLUIDS IN THE BORE HOLES MAY NOT HAVE STABILIZED TO THE LEVEL OF THE ACTUAL WATER TABLE. ADDITIONALLY, WATER TABLES IN THE FIELD ARE LIKELY TO FLUCTUATE DEPENDING ON WEATHER CONDITIONS. THEREFORE, SOME VARIATION SHOULD BE ANTICIPATED BETWEEN WATER TABLES INDICATED AND WATER TABLES ENCOUNTERED IN THE FIELD.

VISUAL CLASSIFICATIONS:

Blk Blackey	Org Organic	Wd Wood(en)
Bn Brown(ish)	Ol Olive	W/ With
Calc Calcareous	Pea Pea	W.O.H.
Cl Clay(ey)	Poc Pockets	W.O.P.
D Dense	R Red(dish)	Y Yellow(ish)
Dec Decay(ed)	Rts Root(s)	
Dk Dark	S Stiff	
Gv Gravel(ly)	Sd Sand(y)	
Gy Gray(ish)	Sh Shell(y)	
H Hard	Sl Silty	
L Loose	Sms Seams	
Ly Layer(s)	So Soft	
Lt Light	St Stone(s)	
Mat Material	Str Structure	
Med Medium	V Very	
Nod Nodules	Vert Vertical	

LABORATORY CLASSIFICATIONS:

CH INORGANIC CLAYS OF HIGH PLASTICITY, FAT CLAYS.

CL INORGANIC CLAYS OF LOW TO MEDIUM PLASTICITY, LEAN CLAYS.

ML INORGANIC SILTS AND VERY FINE SANDS, WITH SLIGHT PLASTICITY.

SC CLAYEY SANDS, SAND-CLAY MIXTURES.

SM SILTY SANDS, SAND-SILT MIXTURES.

SP POORLY GRADED SANDS OR GRAVELLY SANDS, LITTLE OR NO FINES.

NOTES:
SEE PLATE _____ FOR BORING LOCATIONS.
SEE PLATE _____ FOR BORING NOTES AND LEGEND.

REVISION	DATE	DESCRIPTION	BY

OFFICE OF THE DISTRICT ENGINEER
U.S. ARMY ENGINEER DISTRICT, GALVESTON
CORPS OF ENGINEERS
GALVESTON, TEXAS

DRAWN BY: * P.N.
DESIGNED BY: * P.N.
CHECKED BY: * I.S.
SUBMITTED BY: *
CHIEF,
APPROVED: *
CHIEF,
APPROVED: *
CHIEF, ENGINEERING DIVISION
DATE: X
* AS REQUIRED BY ENGINEER REGULATION NO. 1110-1-8021

NECHES RIVER SALT WATER BARRIER, TEXAS
X
X
LOGS OF BORINGS
X

SCALE: AS SHEET
SPEC. DATE:
DRAWING NUMBER: X
SHEET X OF X FILE NO. X

Prepared under the direction of Nicholas J. Buechler, Lt. Col. (P), C.E., District Engineer

EXHIBIT

DESIGN FILE: #DOMSPECIFICATIONS
CREATED BY: #USERNAME#
DWG: #MONTH#DAY#
PTS: #TIME#

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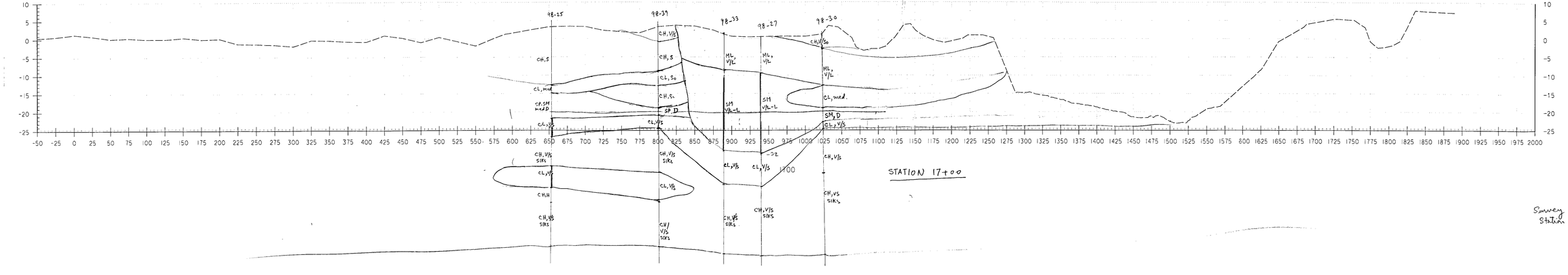
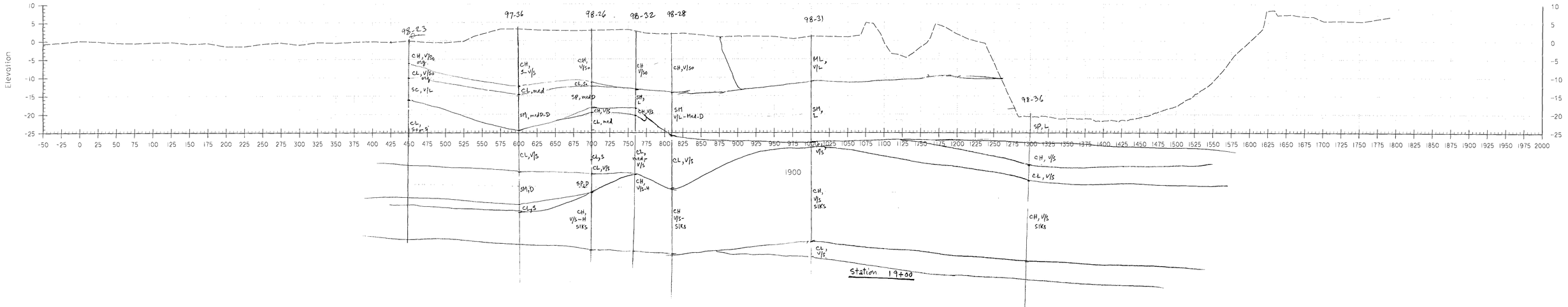
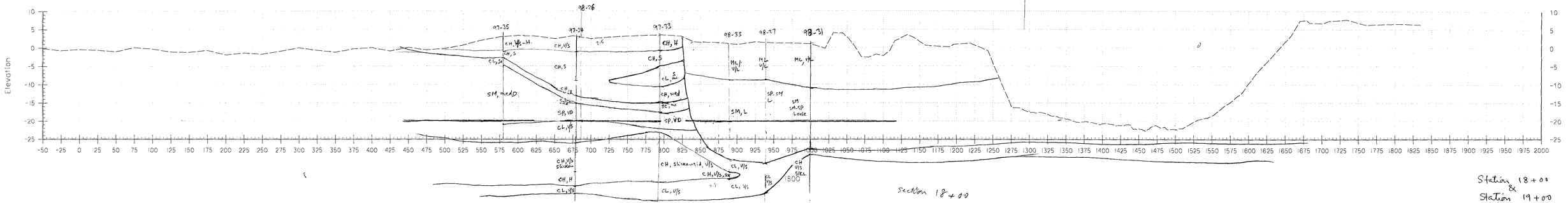
97-31
98-35



Survey Baseline
Station 17+00





Station 18+00
&
Station 19+00