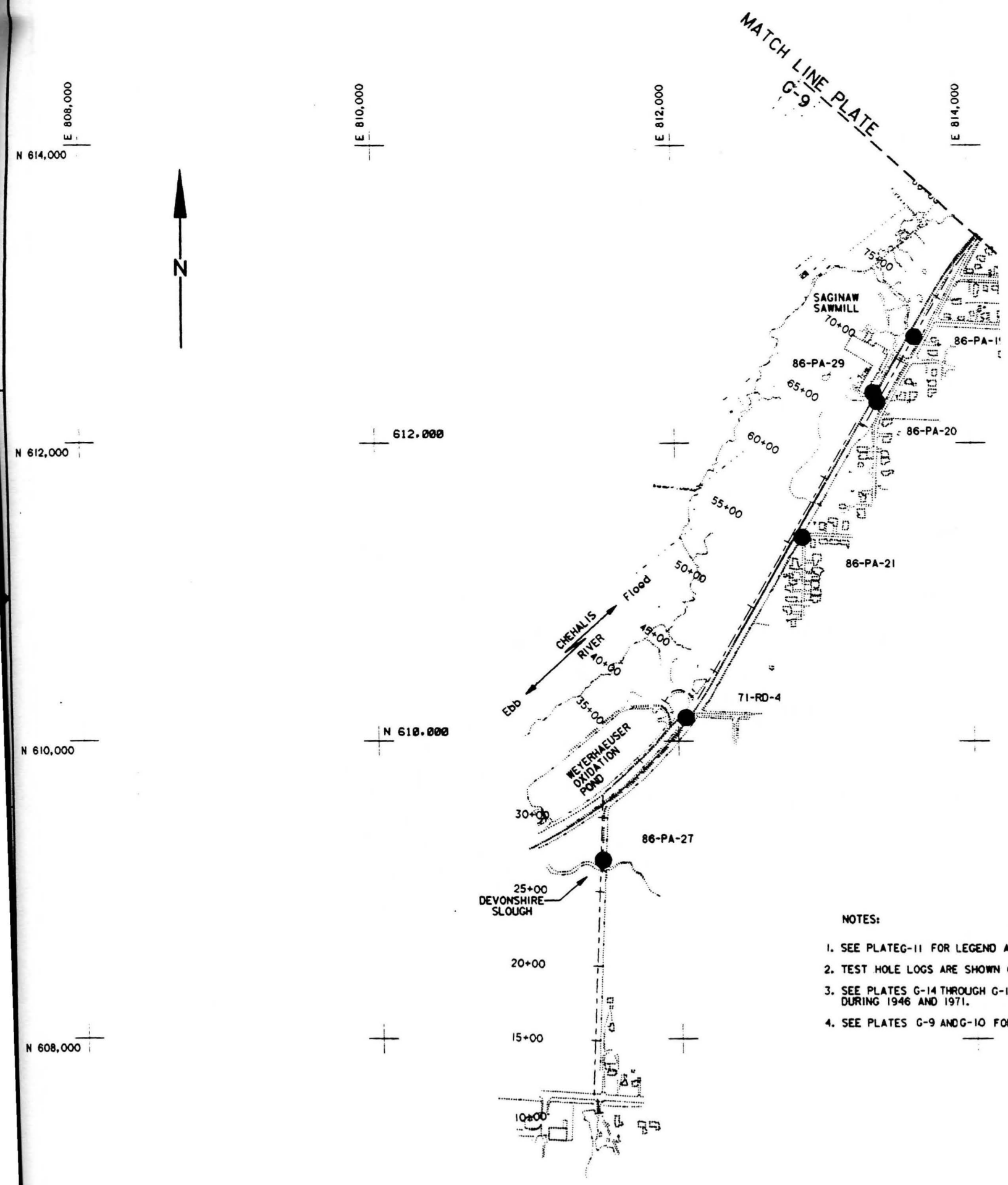


NOTES:

1. SEE PLATEG-11 FOR LEGEND A
2. TEST HOLE LOGS ARE SHOWN
3. SEE PLATES G-14 THROUGH G-1 DURING 1946 AND 1971.
4. SEE PLATES G-9 ANDG-10 FO

REVISIONS				
SYMBOL	ZONE	DESCRIPTION	DATE	BY

E 814,000

E 816,000

86-PA-19

20

MATCH LINE PLATE G-9

R LEGEND AND ADDITIONAL NOTES.

RE SHOWN ON PLATESG-11 THROUGH G-13 .

HROUGH G-16 FOR FOUNDATION EXPLORATION PERFORMED
971.

NDG-10 FOR ADDITIONAL TEST HOLE LOCATIONS.

1" = 400' 400' 200' 0 400' 800'

REDUCED TO 50% OF FULL SIZE

U.S. ARMY ENGINEER DISTRICT, SEATTLE
CORPS OF ENGINEERS
SEATTLE, WASHINGTON

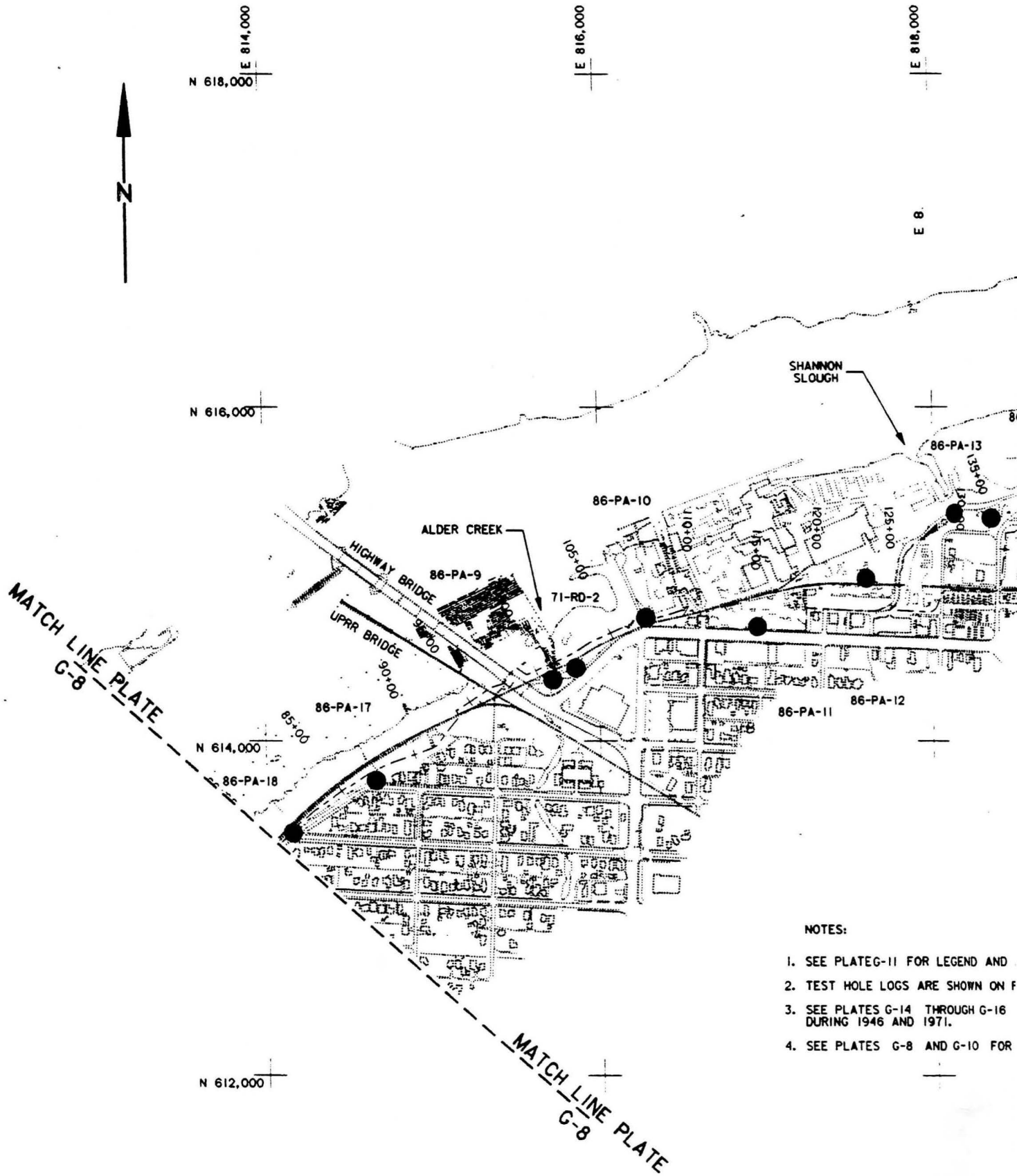
CHEHALIS RIVER
FOUNDATION EXPLORATION

LOCATION OF 1971 AND 1986 HOLES
STA. 10+00 TO 80+00

FLOOD CONTROL PROJECT

SOUTH ABERDEEN - COSMOPOLIS WASHINGTON

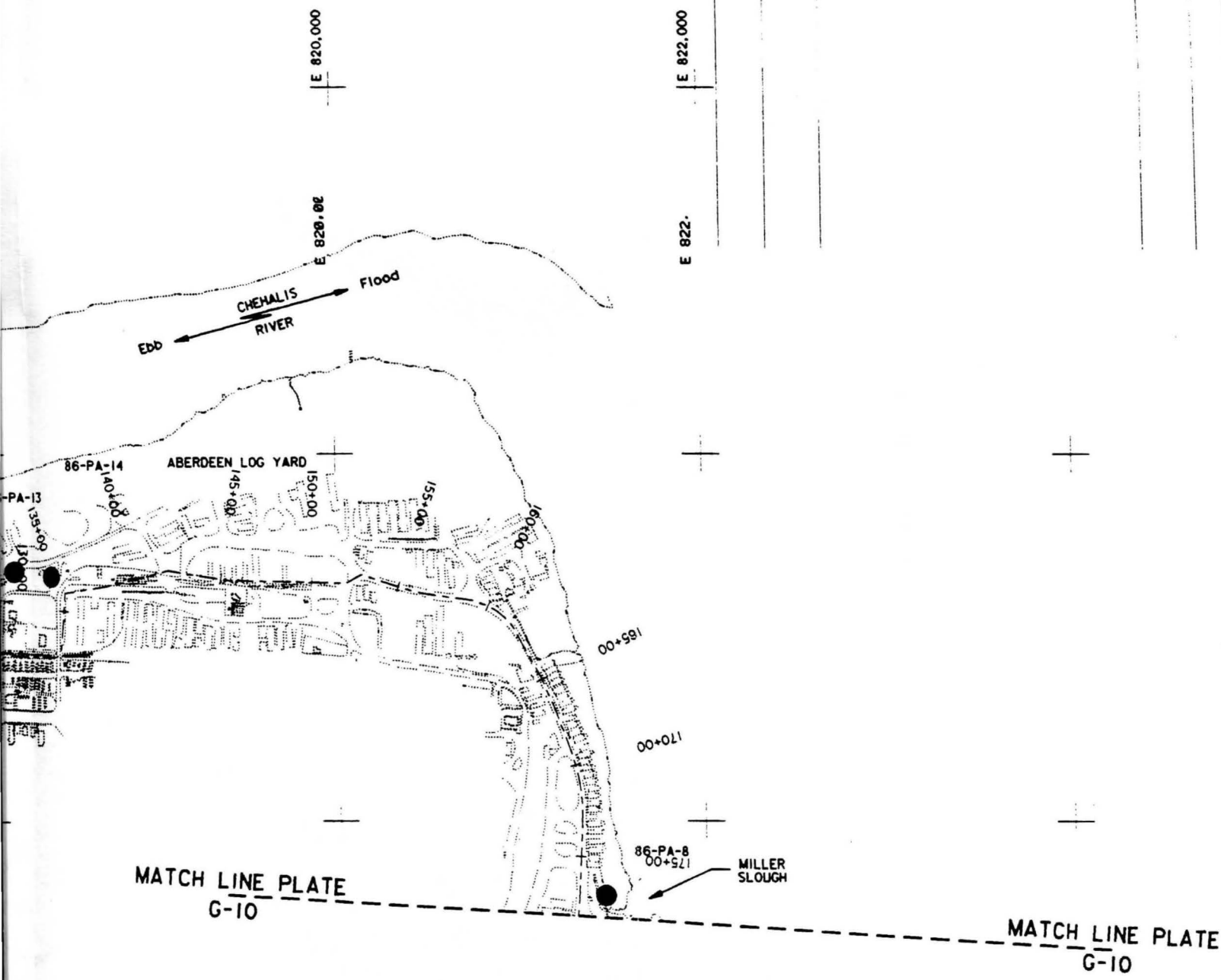
REVIEWED:	SIZE	INVITATION NO.	FILE NO.	DATE	PLATE
	D		E-5-14-190	93NOV30	G-8
	DSGN. GKK		CHK.	SHEET 8	



NOTES:

1. SEE PLATE G-11 FOR LEGEND AND
2. TEST HOLE LOGS ARE SHOWN ON F
3. SEE PLATES G-14 THROUGH G-16 DURING 1946 AND 1971.
4. SEE PLATES G-8 AND G-10 FOR

REVISIONS				
SYMBOL	ZONE	DESCRIPTION	DATE	BY



EGEND AND ADDITIONAL NOTES.

SHOWN ON PLATES G-11 THROUGH G-13 .

OUGH G-16 FOR FOUNDATION EXPLORATION PERFORMED

G-10 FOR ADDITIONAL TEST HOLE LOCATIONS.

1" = 400' 400' 200' 0 400' 800'

REDUCED TO 50% OF FULL SIZE

U.S. ARMY ENGINEER DISTRICT, SEATTLE
CORPS OF ENGINEERS
SEATTLE, WASHINGTON

CHEHALIS RIVER
FOUNDATION EXPLORATION

LOCATION OF 1971 AND 1986 HOLES
STA. 80+00 TO 180+00

FLOOD CONTROL PROJECT

SOUTH ABERDEEN - COSMOPOLIS WASHINGTON

REVIEWED	SIZE	INVITATION NO.	FILE NO.	DATE	PLATE
	D		E-5-14-190	93NOV30	G-9
	DSGN. GKK		CHK.	SHEET 9	

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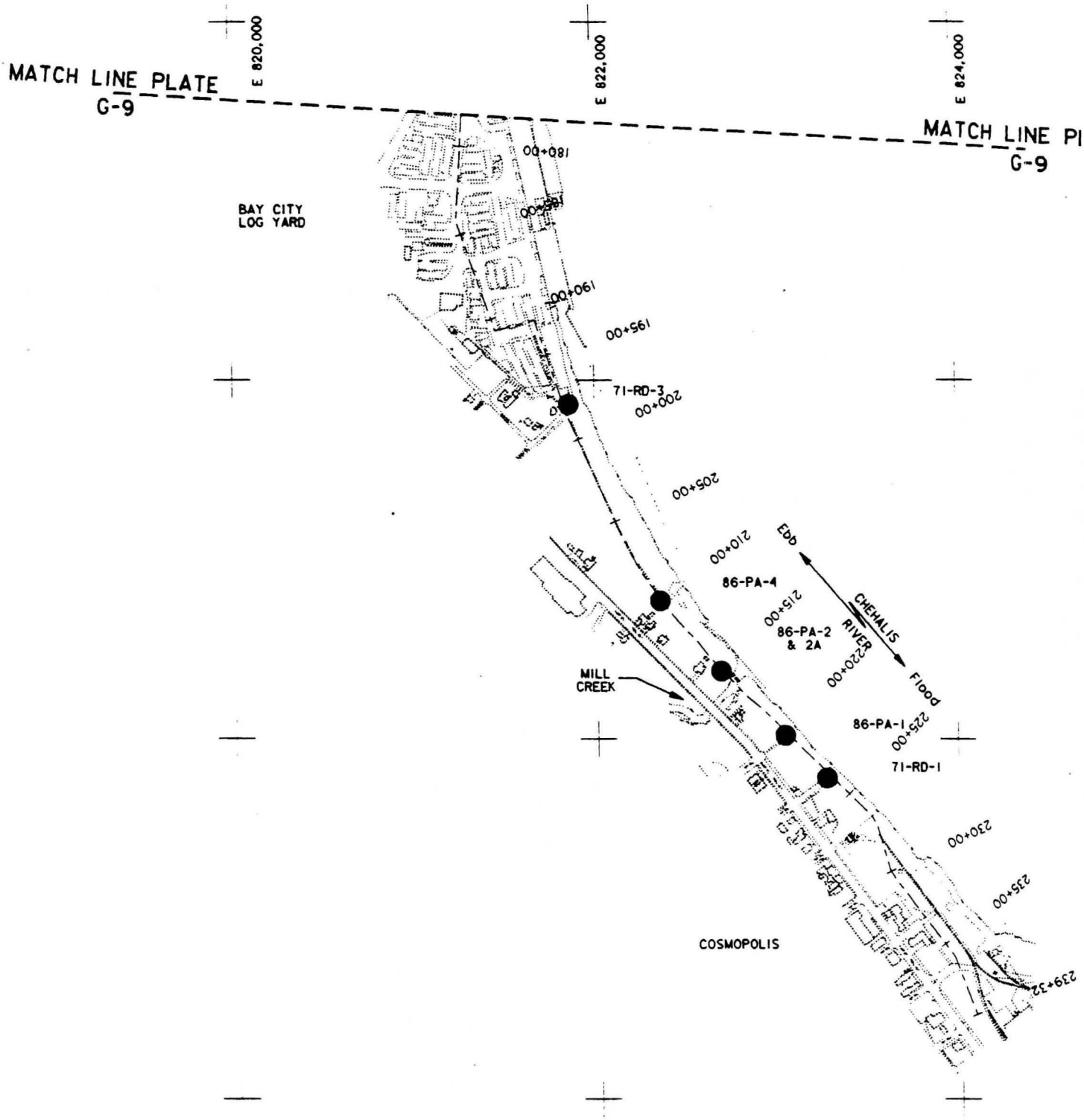
MATCH LINE PLATE
G-9
E 820,000
E 822,000
E 824,000
MATCH LINE PI
G-9
BAY CITY
LOG YARD
180+00
190+00
195+00
71-RD-3
200+00
205+00
210+00
Ebb
86-PA-4
215+00
86-PA-2
& 2A
CHEHALIS
RIVER
220+00
Flood
MILL
CREEK
86-PA-1
225+00
71-RD-1
230+00
235+00
COSMOPOLIS
239+32

2 1

REVISIONS				
SYMBOL	ZONE	DESCRIPTION	DATE	BY

E 826,000

E 828,000

INE PLATE
G-9

N

NOTES:

1. SEE PLATE G-11 FOR LEGEND AND ADDITIONAL NOTES.
2. TEST HOLE LOGS ARE SHOWN ON PLATES G-11 THROUGH G-13 .
3. SEE PLATES G-14 THROUGH G-16 FOR FOUNDATION EXPLORATION PERFORMED DURING 1946 AND 1971.
4. SEE PLATES G-8 AND G-9 FOR ADDITIONAL TEST HOLE LOCATIONS.

1" = 400' 400' 200' 0 400' 800'

REDUCED TO 50% OF FULL SIZE

U.S. ARMY ENGINEER DISTRICT, SEATTLE
CORPS OF ENGINEERS
SEATTLE, WASHINGTON

CHEHALIS RIVER
FOUNDATION EXPLORATION

LOCATION OF 1971 AND 1986 HOLES
STA. 180+00 TO 239+80

FLOOD CONTROL PROJECT
SOUTH ABERDEEN - COSMOPOLIS WASHINGTON

REVIEWED:	SIZE	INVITATION NO.	FILE NO.	DATE:	PLATE
	D		E-5-14-190	93NOV30	G-10
	DSGN. GKK		CHK.	SHEET 10	

Computer Aided Design & Drafting

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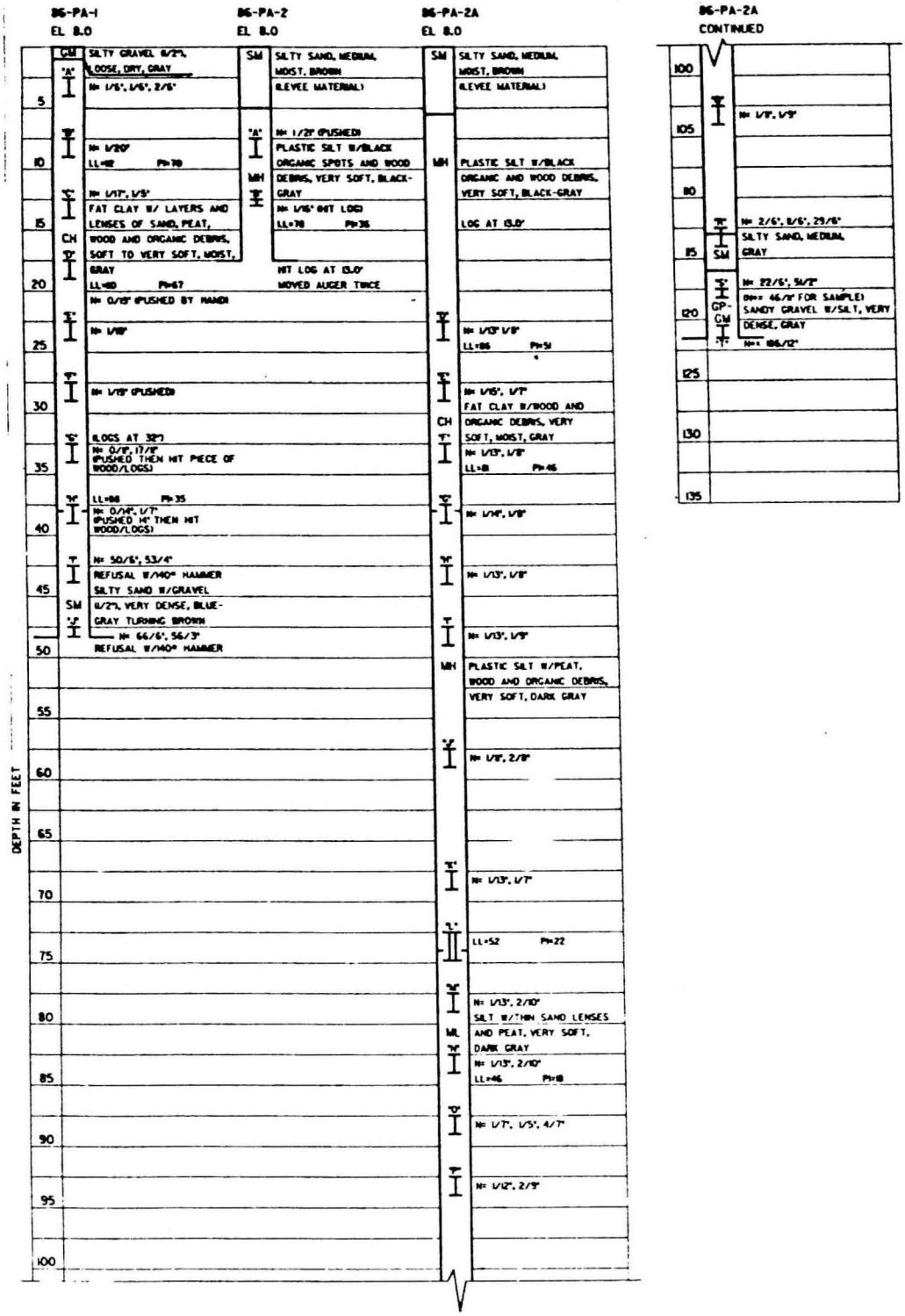
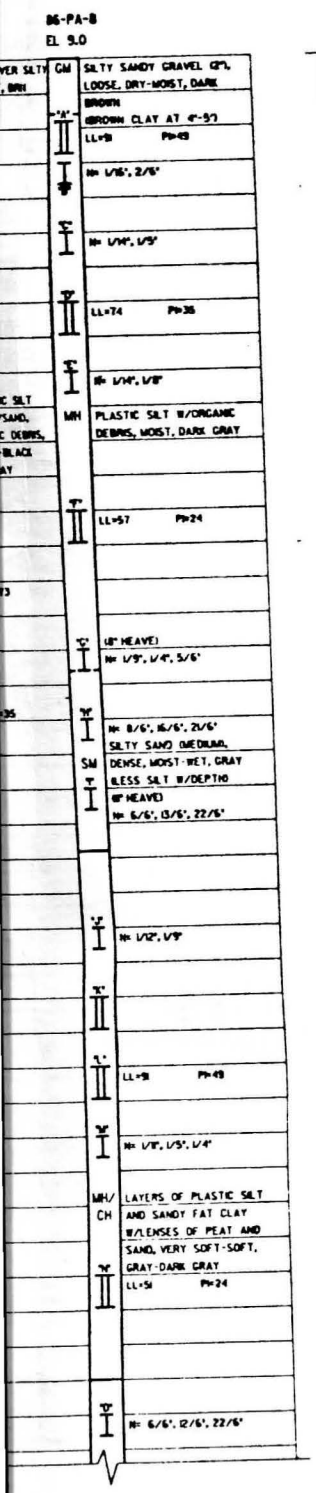
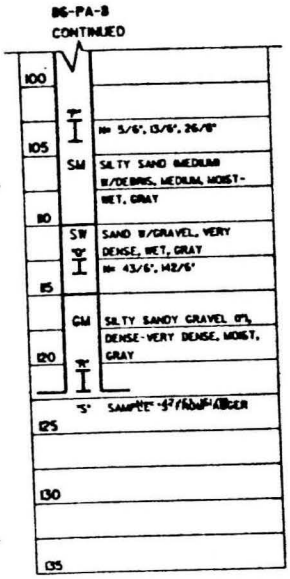

B6-PA-1
EL 8.0
GM SILTY GRAVEL 0/2", LOOSE, DRY, GRAY
N= 1/5", 1/6", 2/8"
N= 1/20"
LL=42 PI=20
N= 1/17", 1/9"
CH FAT CLAY W/ LAYERS AND LENSES OF SAND, PEAT, WOOD AND ORGANIC DEBRIS, SOFT TO VERY SOFT, MOIST, GRAY
LL=60 PI=67
N= 0/18" (PUSHED BY HAND)
N= 1/10"
N= 1/10" (PUSHED)
(LOGS AT 32')
N= 0/18", 17/18" (PUSHED THEN HIT PIECE OF WOOD/LOGS)
LL=88 PI=35
N= 0/14", 1/7" (PUSHED 14" THEN HIT WOOD/LOGS)
N= 50/6", 53/4"
REFUSAL W/140# HAMMER
SM SILTY SAND W/GRAVEL 0/2", VERY DENSE, BLUE-GRAY TURNING BROWN
N= 66/6", 56/3"
REFUSAL W/140# HAMMER
B6-PA-2
EL 8.0
SM SILTY SAND, MEDIUM, MOIST, BROWN (LEVEE MATERIAL)
N= 1/29" (PUSHED)
MH PLASTIC SILT W/BLACK ORGANIC SPOTS AND WOOD DEBRIS, VERY SOFT, BLACK-GRAY
N= 1/16" (HIT LOG)
LL=78 PI=36
HIT LOG AT 13.0'
MOVED AUGER TWICE
B6-PA-2A
EL 8.0
SM SILTY SAND, MEDIUM, MOIST, BROWN (LEVEE MATERIAL)
MH PLASTIC SILT W/BLACK ORGANIC AND WOOD DEBRIS, VERY SOFT, BLACK-GRAY
LOG AT 13.0'
N= 1/13" 1/8"
LL=86 PI=51
N= 1/15", 1/7"
CH FAT CLAY W/WOOD AND ORGANIC DEBRIS, VERY SOFT, MOIST, GRAY
N= 1/13", 1/8"
LL=81 PI=46
N= 1/14", 1/8"
N= 1/13", 1/8"
N= 1/13", 1/9"
MH PLASTIC SILT W/PEAT, WOOD AND ORGANIC DEBRIS, VERY SOFT, DARK GRAY
N= 1/8", 2/8"
N= 1/13", 1/7"
LL=52 PI=22
N= 1/13", 2/10"
ML SILT W/THIN SAND LENSES AND PEAT, VERY SOFT, DARK GRAY
N= 1/13", 2/10"
LL=46 PI=18
N= 1/7", 1/5", 4/7"
N= 1/12", 2/9"
B6-PA-2A
CONTINUED
N= 1/8", 1/9"
N= 2/6", 8/6", 29/6"
SM SILTY SAND, MEDIUM, GRAY
N= 22/6", 54/2"
(N= 46/8" FOR SAMPLE)
GP-GM SANDY GRAVEL W/SILT, VERY DENSE, GRAY
N= 106/12"
B6-PA-4
EL 8.0
GP CRUSHED GRAVEL OVER SILTY SAND, MEDIUM, MOIST, BRN
N= 1/14", 2/8"
LL=42 PI=67
N= 1/16", 1/8"
LL=74 PI=36
N= 1/14", 1/8"
MH/CH LAYERS OF PLASTIC SILT AND FAT CLAY W/SAND, PEAT AND ORGANIC DEBRIS, VERY SOFT, GRAY-BLACK TURNING DARK GRAY
N= 1/8", 1/8"
LL=69 PI=73
N= 1/10", 1/8"
LL=72 PI=35
B6-PA-8
EL 9.0
GM
MH
SM
MH/CH
DEPTH IN FEET
A
B
C
DATE 4:0 TIME PLOTTED: 14 JUL 1993 07:02
DESIGN FILE: /canos/designs/acfp/geotech/acfpgl0d.dgn





REVISIONS				
SYMBOL	ZONE	DESCRIPTION	DATE	BY

LEGEND

GP	POORLY-GRADED GRAVEL
GW	WELL-GRADED GRAVEL
GP-GM	POORLY-GRADED GRAVEL WITH SILT
GM	POORLY-GRADED SILTY GRAVEL
SP	POORLY-GRADED SAND
SW	WELL-GRADED SAND
SP-SM	POORLY-GRADED SAND WITH SILT
SM	POORLY-GRADED SILTY SAND
ML	INORGANIC SILTS OF LOW PLASTICITY
MH	PLASTIC SILTS
CH	FAT CLAYS
PT	PEAT
DB	DEBRIS

BOTTOM OF BORING

86-PA-4 ● POWER AUGER TEST HOLE NUMBER AND LOCATION

N=12/6" NUMBER OF BLOWS TO DRIVE 2-INCH SAMPLER THE INDICATED DISTANCE USING A 140 POUND HAMMER DROPPED 30 INCHES

N=12/4" NUMBER OF BLOWS TO DRIVE 3-INCH SAMPLER THE INDICATED DISTANCE USING A 300 POUND HAMMER DROPPED 30 INCHES

LOCATION OF OSTERBERG SAMPLE TAKEN

NOTES:

1. FOR TEST HOLE LOCATIONS SEE PLATES G-8 THROUGH G-10.
2. SOILS WERE CLASSIFIED VISUALLY AND BY LABORATORY TESTS ACCORDING TO THE "UNIFIED SOIL CLASSIFICATION SYSTEM."
3. TEST HOLE ELEVATIONS ARE TAKEN FROM TOPOGRAPHY DRAWINGS AND ARE APPROXIMATE.
4. TEST HOLES 86-PA-1, 2, 2A, 4, 8, 9, 10, 11, 12, 13, 14, 17, 18, 19, 20, 21, 27, AND 29 WERE DRILLED BETWEEN 7 AUGUST AND 29 SEPTEMBER 1986 BY THE CORPS OF ENGINEERS, SEATTLE DISTRICT USING A 8-INCH DIAMETER MOBILE B-80 POWER AUGER.
5. THE GROUND WATER LEVELS FLUCTUATE WITH TIDAL CHANGES AND ARE NOT SHOWN.
6. RELATIVE DENSITY AND CONSISTENCY (STANDARD PENETRATION TEST=BLOWS/FOOT)
   a. RELATIVE DENSITY FOR SAND OR GRAVEL

0-4	VERY LOOSE	30-50	DENSE
4-10	LOOSE	GREATER THAN 50	VERY DENSE
10-30	MEDIUM		

   b. RELATIONSHIP OF CONSISTENCY FOR FINES

0-2	VERY SOFT	8-15	STIFF
2-4	SOFT	15-30	VERY STIFF
4-8	MEDIUM	GREATER THAN 30	HARD

7. ADDITIONAL TEST HOLE LOGS ARE SHOWN ON PLATES G-12 AND G-13.
8. SEE PLATES G-14 AND G-16 FOR FOUNDATION EXPLORATION PERFORMED DURING 1946 AND 1971.

U.S. ARMY ENGINEER DISTRICT, SEATTLE
CORPS OF ENGINEERS
SEATTLE, WASHINGTON

CHEHALIS RIVER
FOUNDATION EXPLORATION

1986 DRILL HOLE LOGS

FLOOD PROTECTION
SOUTH ABERDEEN - COSMOPOLIS WASHINGTON

REVIEWED	SIZE	INVITATION NO.	FILE NO.	DATE	PLATE
	D				G-11
	DSGN. GKK		CHK.	SHEET	II

DEPTH IN FEET

B6-PA-9
EL 8.5

Depth	Symbol	Description
	GM	SILTY SANDY GRAVEL 0-1/2", LOOSE-MEDIUM, MOIST, BROWN (PARKING AREA, FILL)
5	"A"	N= 12/6", 4/6", 4/6"
10		
	"B"	
15		LL=88 PI=46
	MH "C"	PLASTIC SILT W/MINOR SAND AND DEBRIS, VERY SOFT, MOIST-WET, GRAY
20		N= 1/16", 1/9"
	"D"	
25		LL=63 PI=28
	"E"	
30		N= 3/6", 6/6", 9/6"
	"F"	N= 4/6", 8/6", 17/6"
35	SM/MH	LAYERS OF SILTY SAND, SAND AND PLASTIC SILT, LOOSE-MEDIUM AND VERY SOFT, MOIST, GRAY
	"G"	N= 3/6", 6/6", 12/6"
40		(15" HEAVE AT 42")
45		
	"H"	(4" HEAVE) N= 1/8", 1/6", 1/6"
50		
	"I"	N= 4/6", 6/6", 8/6" LENSE OF GRAVEL 0/4")
55		
60		
	"J"	(8" HEAVE) N= 2/6", 3/6", 12/6" COARSER SAND
65		
	"K"	N= 2/6", 4/6", 9/6"
70		
	"L"	N= 1/7", 1/7", 1/5"
75		
80		
	"M"	N= 1/9", 1/6", 1/5"
85	ML/SP	LENSES OF SILT W/SAND AND SAND, VERY SOFT AND VERY LOOSE, GRAY
90		
	"N"	
95		LL=37 PI=10
100		

B6-PA-9
CONTINUED

Depth	Symbol	Description
100		
	"O"	GRASS AND MINOR DEBRIS
105		N= 1/9", 1/8", 1/4"
110		
	"P"	(MINOR STIFF CLAY)
115		N= 2/6", 1/7", 1/8"
120		
	"Q"	
125		N= 100/18"
	GM	SILTY SANDY GRAVEL 0"L VERY DENSE
130		(LESS SILT W/DEPTH)
	"R"	N= 86/12"
135		SAMPLE "R" ALSO FROM AUGER
140		

B6-PA-10
EL 8.5

Depth	Symbol	Description
	GP-GM	WASTE FILL MAT'L AT SURFACE
5		SANDY GRAVEL W/SILT, MEDIUM, MOIST, GRAY-BLACK
10	"A"	
	"B"	
15		N= 1/14", 1/8"
	MH "C"	SANDY PLASTIC SILT W/ MINOR GRAVEL AND ORGANIC DEBRIS, VERY SOFT, GRAY
20		LL=85 PI=40
	"D"	
25		N= 1/18" (WT. OF HAMMER & PUSHED)
	"E"	
30		
	"F"	N= 5/6", 10/6", 19/6"
35	SM	SILTY SAND (FINE) W/SILT LENSES AND ORGANIC DEBRIS, MEDIUM-DENSE, GRAY
	"G"	N= 12/6", 15/6", 18/6"
40		(COARSE SAND LENSES, HEAVING)
	"H"	
45		N= 8/6", 13/6", 22/6"
	GM "I"	SILTY SANDY GRAVEL 0-1/2", DENSE-VERY DENSE, GRAY
50		N= 16/2" (BOUNCING)
55		
60		
65		
70		
75		
80		
85		
90		
95		
100		

B6-PA-11
EL 7.5

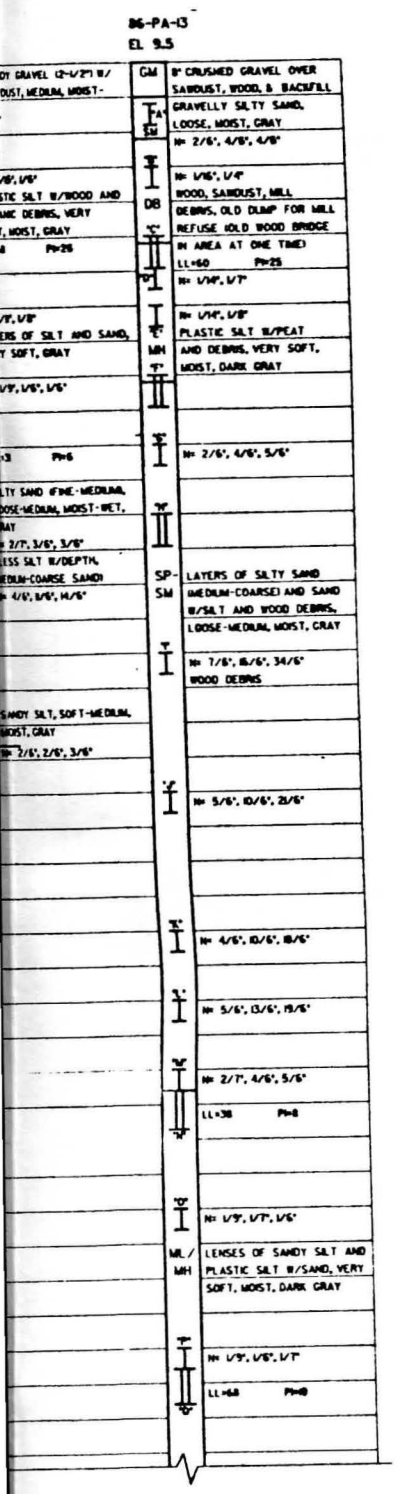
Depth	Symbol	Description
	GM	2"-3" AC PAVEMENT
		SILTY SANDY GRAVEL 0-1/2", MEDIUM-DENSE, MOIST, BLACK
5		
10	"A"	
	"B"	N= 1/8" (PUSHED), 1/9" (WT. OF HAMMER)
15	ML "C"	SILT W/MINOR SAND, ORGANIC AND WOOD DEBRIS, VERY SOFT, MOIST, GRAY
20		
	"D"	
25		N= 1/12", 1/3", 1/6"
	"E"	
30		
	"F"	
35	SM	N= 6/6", 10/6", 8/6" SILTY SAND (FINE-MEDIUM, MEDIUM, WET, GRAY
40		
	"G"	
45		N= 4/6", 2/6", 2/7" SANDY SILT, SOFT, MOIST, GRAY
	ML "H"	
50		N= 1/8", 2/4", 13/6" (RECOVERED 2")
	SM "I"	SILTY SAND (COARSE), MEDIUM, MOIST, GRAY
55		
60		
65		
70		
75		
80		
85		
90		
95		
100		

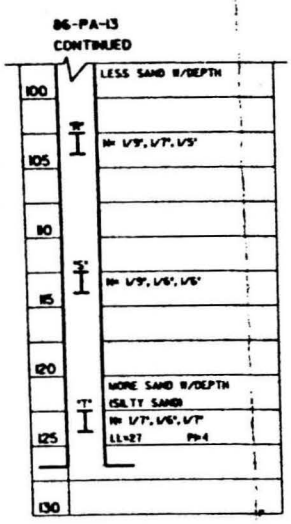
B6-PA-12
EL 8.5

Depth	Symbol	Description
	GP	SANDY GRAV
	"A"	SAWDUST, ME WET
	"B"	
		N= 1/15", 1/6" PLASTIC SIL
	MH "C"	ORGANIC DE SOFT, MOIST LL=58
	"D"	
	ML/SP	N= 1/7", 1/8" LAYERS OF VERY SOFT,
	"E"	N= 1/9", 1/6"
	"F"	LL=31
	SM "G"	SILTY SAND LOOSE-MEDI GRAY
		N= 2/7", 3/
	"H"	(LESS SILT MEDIUM-COA
		N= 4/6", 8/
	ML "I"	SANDY SILT, MOIST, GRAY
		N= 2/6", 2/

DATE AND TIME PLOTTED: 13-JUL-1993 08:48 DESIGN FILE: /cenpa/designs/acfp/geotech/acfpgl06.dgn

REVISIONS				
SYMBOL	ZONE	DESCRIPTION	DATE	BY





NOTES:

1. TEST HOLE LOCATIONS ARE SHOWN ON PLATES G-8 THROUGH G-10.
2. ADDITIONAL TEST HOLE LOGS ARE SHOWN ON PLATES G-11 AND G-13.
3. SEE PLATE G-11 FOR LEGEND AND ADDITIONAL NOTES.
4. SEE PLATES G-14 AND G-16 FOR FOUNDATION EXPLORATION PERFORMED DURING 1946 AND 1971.

U.S. ARMY ENGINEER DISTRICT, SEATTLE
CORPS OF ENGINEERS
SEATTLE, WASHINGTON

CHEHALIS RIVER
FOUNDATION EXPLORATION

1986 DRILL HOLE LOGS

FLOOD PROTECTION
SOUTH ABERDEEN - COSMOPOLIS WASHINGTON

REVIEWED:	SIZE D	INVITATION NO.	FILE NO.	DATE:	PLATE G-2
	SCALE GKK		CHK.	SHEET 12	

DATE AND TIME PLOTTED: 13 JUL-1997 08:48 DESIGN FILE: \\cenps\designs\data\geotech\ddfpg\de.dgn

	86-PA-14 EL 9.5	86-PA-17 EL 7.5	86-PA-18 EL 7.0	86-PA-19 EL 8.0	86-PA-20 EL 7.5	86-PA-21 EL 5.5
	DB SAWDUST, BARK, SOFT, BACKFILL	GM SILTY SANDY GRAVEL (F), MEDIUM, MOIST, BROWN	GM SILTY SANDY GRAVEL (F), MEDIUM, MOIST, BROWN	SM SILTY GRAVELLY SAND, VERY SOFT, MOIST, BROWN-GRAY	GM CRUSHED GRAVEL AND SAWDUST, VERY SOFT	GM CRUSHED GRAVEL (3")
	N= 1/16", 1/7"		N= 1/14", 1/8"			CL CLAY, SOFT, MOIST, BROWN (LEVEE FILL)
5	LL=76 PI=36				WOOD CHIPS	
	MH PLASTIC SILT W/SILT, VERY SOFT-SOFT, GRAY-BROWN		LL=51 PI=15 MINOR DEBRIS	N= 1/8", 1/8"		
10	LL=81 PI=27	N= 1/20" MET/PT LAYERS OF PEAT AND PLASTIC SILT W/MINOR GRAVEL, VERY SOFT, GRAY				
	N= 1/14", 1/7"	LL=72 PI=36	N=1/8", 1/8"	N= 1/8", 1/7"	N= 1/18", 1/5"	N= 1/8", 3/9"
15	ML SILT W/DEBRIS AND MINOR SAND, VERY SOFT, MOIST, DARK GRAY		ML/SM LAYERS OF SILT AND SILTY SAND W/GRAVEL, VERY SOFT, GRAY		(THIN SAND LAYER @ 20'-21', SATURATED	
20	N= 1/18", 1/9"	N= 1/17", 1/7"		N= 1/9", 1/10"	LL=60 PI=32	LL=73 PI=34
				ML/MH SILT AND PLASTIC SILT W/ LENSES OF PEAT AND SAND, VERY SOFT, MOIST-WET, GRAY	N= 1/8", 1/8"	ML/MH SILT AND PLASTIC SILT W/ PEAT, WOOD AND ORGANIC DEBRIS, MOIST-WET, SOFT-VERY SOFT
25	LL=50 PI=30	N= 1/12", 1/9"	N= 1/12", 1/7"			
	N= 2/6", 5/6", 8/6"		N= 1/8", 1/4", 3/6"	N= 1/10", 1/10"	N= 1/14", 1/8"	N= 1/13", 1/8"
30	(HEAVING)	SM SILTY SAND (MEDIUM, MEDIUM, SATURATED, GRAY			ML/MH SILT AND PLASTIC SILT W/ LENSES OF PEAT AND SAND, VERY SOFT, MOIST-WET, GRAY	
35	N= 6/6", 9/6", 25/6"					
		(HEAVING)				
40	N= 5/6", 14/6", 26/6"	N= 2/6", 4/6", 8/6"	SP-SM SAND W/SILT, LOOSE-MEDIUM, GRAY	N= 1/8", 1/10"	N= 1/10", 1/8" SMALL SEA SHELLS	N= 1/14", 1/8"
45	SM SILTY SAND (FINE-MEDIUM, MEDIUM-DENSE, MOIST-WET, GRAY	N= 2/6", 5/6", 8/6"	N= 2/6", 8/6", 12/6"	N= 1/10", 1/9"		
		ML SILT W/MINOR SAND, VERY SOFT, MOIST, GRAY	ML SILT W/MINOR SAND, VERY SOFT, GRAY			
50	N= 6/6", 13/6", 27/6"	N= 1/7", 1/7", 1/5"	T (SAMPLE "T" FROM 3" SPLIT SPOON)	N= 1/9", 1/10"	N= 1/8", 1/8"	N= 1/8", 1/8"
55	(SLTIER AND LESS DENSE BELOW 56')					
60	N= 2/6", 6/6", 13/6"					
65						

DEPTH IN FEET

A

B

C

4 3

DATE AND TIME PLOTTED: 13-JUL-1993 08:49 DESIGN FILE: /cenos/designs/actp/geotech/actpgl01.dgn

4 3

86-PA-27 EL 10.5		86-PA-28 EL 7.0		86-PA-29 EL 7.5	
GM	SILTY GRAVEL, MEDIUM	GM	SILTY SANDY GRAVEL, MEDIUM, MOIST, BROWN	GM	SILTY SANDY GRAVEL W/ COBBLES (6"), MEDIUM, MOIST, BROWN (FILL)
CL	CLAY W/WOOD DEBRIS, SOFT, BROWN				
		ML/MH	SANDY SILT AND PLASTIC SILT W/WOOD AND ORGANIC DEBRIS, VERY SOFT, DARK GRAY (SMELLS)		
	LL=80 PI=40				LL=82 PI=47
				ML/CH	SILT AND FAT CLAY W/PEAT LENSES AND DEBRIS, VERY SOFT, MOIST-WET, GRAY
	N= 1/16", 1/8"		N= 1/14", 1/9"		N=1/16", 1/9"
ML/MH	SILT AND PLASTIC SILT W/ WOOD AND ORGANIC DEBRIS, VERY SOFT, MOIST, GRAY				
	N= 1/1", 2/9", 2/3"		LL=71 PI=32		N= 1/18"
SM	SILTY SAND, LOOSE-MEDIUM, MOIST, GRAY (CLEANER W/DEPTH)		N= 1/12", 1/9"		N= 1/16", 1/7"
	N= 4/6", 9/6", 16/6"		N= 1/9", 1/6", 11/4"		
		SM	SILTY SAND (COARSE-MEDIUM), MEDIUM-DENSE, WET, GRAY		
	N=> 100/8" SILTY SANDY GRAVEL (1/4"), VERY DENSE, DARK GRAY (CONGLOMERATE)				
GM	N= 96/6" (BOUNCING)		N= 10/6", 9/6", 9/6"		
		ML	SANDY SILT W/SAND LENSES, STIFF, GRAY		
			N= 2/6", 3/6", 7/6"		
	RUN 'A', 49.0'-53.1' RECOVERED 3.3'				
	RUN 'B', 53.1'-57.3' RECOVERED 3.6'				
SM	SANDSTONE				
	RUN 'C', 57.3'-61.4' RECOVERED 2.7'				

REVISIONS

SYMBOL	ZONE	DESCRIPTION	DATE	BY

NOTES:

1. TEST HOLE LOCATIONS ARE SHOWN ON PLATES G-~~4~~ 8 THROUGH G-~~6~~ 10
2. ADDTIONAL TEST HOLE LOGS ARE SHOWN ON PLATES G-~~7~~ 11 AND G-~~8~~ 13.
3. SEE PLATE G-~~7~~ 11 FOR LEGEND AND ADDTIONAL NOTES.
4. SEE PLATES G-~~10~~ 14 AND G-~~11~~ 15 FOR FOUNDATION EXPLORATION PERFORMED DURING 1946 AND 1971.

U.S. ARMY ENGINEER DISTRICT, SEATTLE
CORPS OF ENGINEERS
SEATTLE, WASHINGTON

CHEHALIS RIVER
FOUNDATION EXPLORATION

1986 DRILL HOLE LOGS

FLOOD PROTECTION
SOUTH ABERDEEN - COSMOPOLIS WASHINGTON

REVIEWED:	SIZE	INVITATION NO.	FILE NO.	DATE:	PLATE
	D				G-13
	DSGN. GKK		CHK.	SHEET 13	

DATE AND TIME PLOTTED: 13-JUL-1993 08:49 DESIGN FILE: /cenps/designs/acfc geotech/acfpg10f.dgn

DATE AND TIME PLOTTED: 14-JUL-1993 07:02 DESIGN FILE: /camps/designs/acfp/geotech/acfpg10g.dgn

4 | 3

S. Aberdeen Levee System PROJECT Chehalis RIVER

DEPTH OF HOLE 50.1 DIAMETER OF HOLE 4"
DEPTH OF O.B. 50.1 DATE STARTED 3 March 1971
ROCK DRILLED - DATE COMPLETED 4 March 1971
% CORE RECOVERED - CONTRACTOR USAED Seattle

SURFACE EL 8.5 MSL HOLE NO 71-RD-1 N 609,128 E 1,183,140

ELEVATIONS	DEPTH	GRAPHIC LOG	CORE %	DESCRIPTION OF MATERIALS	REMARKS
		SM		Gravelly Silty SAND, Moist, Compact, Brown	Drilling w/Tricone bit & 4" Casing
	5	SP		Gravelly SAND, loose, Red-Brown	
		SM		Silty SAND, Loose, Black	N=3/6", 1/6", 5/6" (very little recovery)
	10	SP		Gravelly SAND, Loose, Brown w/wood debris	Casing @ 10' Attempted 3" tube Sample, 10' to 11' (No recovery) N=10/6", 21/6" M=11.6%
	15	GP-GM		Sandy GRAVEL w/Silt, Brown to Gray	N=28/6", 16/6" M=14.8%
				Color rusty-brown to yellow-brown below 17'	
	20				N=25/6", 21/6" M=10.1%
	25				Casing @25' W.L. 6' 3 March 71 W.L. 7' 4 March 71
	30	SM & SP		Alternating layers of Silty Gravelly SAND (Fine), Gray, and SAND (Fine) Red-brown, Moist, Very Dense	N=50/6", 21/1" M=20.6% Casing @30' N=50/2" (No recovery)
	35				N=50/3", M=27.4%
	40	SM		Silty SAND w/Gravel, moist, very dense, Gray	N=50/2", 1 (No recovery)
	45				N=50/3" (No recovery)
	50			Bottom @50.1'	Casing @50' N=50/1", (No recovery)

S. Aberdeen Levee System PROJECT Chehalis RIVER

DEPTH OF HOLE 61.0 DIAMETER OF HOLE 4"
DEPTH OF O.B. 61.0 DATE STARTED 5 March 1971
ROCK DRILLED - DATE COMPLETED 8 March 1971
% CORE RECOVERED - CONTRACTOR USAED, Seattle

SURFACE EL 9.0 MSL HOLE NO 71-RD-2 N 614,475 E 1,175,735

ELEVATIONS	DEPTH	GRAPHIC LOG	CORE %	DESCRIPTION OF MATERIALS	REMARKS
		SM		Gravelly Silty SAND w/wood & Garbage debris, Moist, Black	Drilling w/Tricone bit & 4" Casing
	5	SP		SAND (Fine), w/wood debris, Moist, loose, Red - Brown	N=3/6" 1/6" M=19.6%
	10	GP-GM & MH		Sandy GRAVEL w/Silt, Brown, w/lenses of very soft gray silt	Casing @10' N=1/6", 1/6" (No recovery)
	15	MH		SILT, Moist, very soft, Blue - Gray w/occasional organic debris	Artesian flow from hole @15', w/Casing @ 10'. Pushed 3" tube 15'-17' (No recovery) N=0 (Hand-Pushed) M=83.3, 82.3, 81.8% Torvane - 0.075tsf LL=69, PI=26
	20				N=0 (Hand-pushed) M=75.0% LL=69, PI=25
	25	SM		Silty SAND (Fine), Blue Gray	Casing @20' N=5/6", 3/6" M=42.8%
	30				N=10/6", 6/6", M=43.8% W.L. 12' 5 March 71
					W.L. 8' 6 March 71 Casing @25'
	35				N=14/6", 6/6" M=41.5%
	40				Casing @40'
	45	SM & MH		Silty SAND (Fine), Blue-Gray, w/lenses of SILT, Soft, Dark - Gray	N=4/6", 4/6" M=68.3% LL=61, PI=24 Casing @45' N=3/6", 3/6" M=66.4%
	50				N=7/6", 9/6", M=32.8%
	55				N=8/6", 4/6", M=60.2% Casing @60' N=4/6", 8/6" M=41.0%
	60				W.L. 6' 6 March 71 W.L. 7' 5 March 71
	65			Bottom @61.0'	

S. Aberdeen Levee System PROJECT Chehalis RIVER

DEPTH OF HOLE 51.0 DIAMETER OF HOLE 4"
DEPTH OF O.B. 51.0 DATE STARTED 9 March 1971
ROCK DRILLED - DATE COMPLETED 10 March 1971
% CORE RECOVERED - CONTRACTOR USAED, Seattle

SURFACE EL 6.5 MSL HOLE NO 71-RD-3 N 611,910 E 1,181,730

ELEVATIONS	DEPTH	GRAPHIC LOG	CORE %	DESCRIPTION OF MATERIALS	REMARKS
		SM		Gravelly Silty SAND, Moist, Medium to Compact, Black	Drilling w/Tricone Bit & 4" Casing
	5	MH		SILT w/wood debris, soft to very soft, Gray	Pushed 3" tubes 5'-6' & 10-11' (No recovery) N=0 (Hand-pushed) M=74.7%, 112.0% Torvane - 0.05tsf LL=116, PI=52
	10				N=0 (Hand-pushed) M=81.9, 73.9, 76.8% Torvane, 0.04-0.05tsf
	15				Casing @15' N=1/6", 1/6" M=75.6% LL=68, PI=26
	20				Casing @20' N=1/6", 1/6" M=76.0, 78.7% Torvane - 0.05tsf
	25				N=1 (Hammer-Pushed) M=96.2%
	30	OH & SP		Organic SILT, very soft, Brown to Gray w/lenses of fine SAND	Casing @30' N=2/6", 2/6" M=62.8, 89.3% Torvane 0.01 tsf LL=73, PI=28
	35				Casing @35' N=2/6", 2/6" M=64.8%
	40	ML & SP		SILT, Soft, Blue Gray w/lenses of fine SAND	Casing @40' N=2/6", 2/6" M=71.8, 57.7, 60.5% W. L. 3' 9 Mar 71 W. L. 10' 10 Mar 71 Torvane 0.03-0.04 tsf LL=46, PI -13
	45	SP & ML		SAND (fine), Blue-Gray w/lenses of SILT (Water level at completion of Hole 3' & rising w/tide) Bottom @ 51.0'	Casing @ 40' N=5/6", 5/6" M=30.5% Casing @ 40' N=4/6", 11/6" M=54.1% LL=44, PI=9

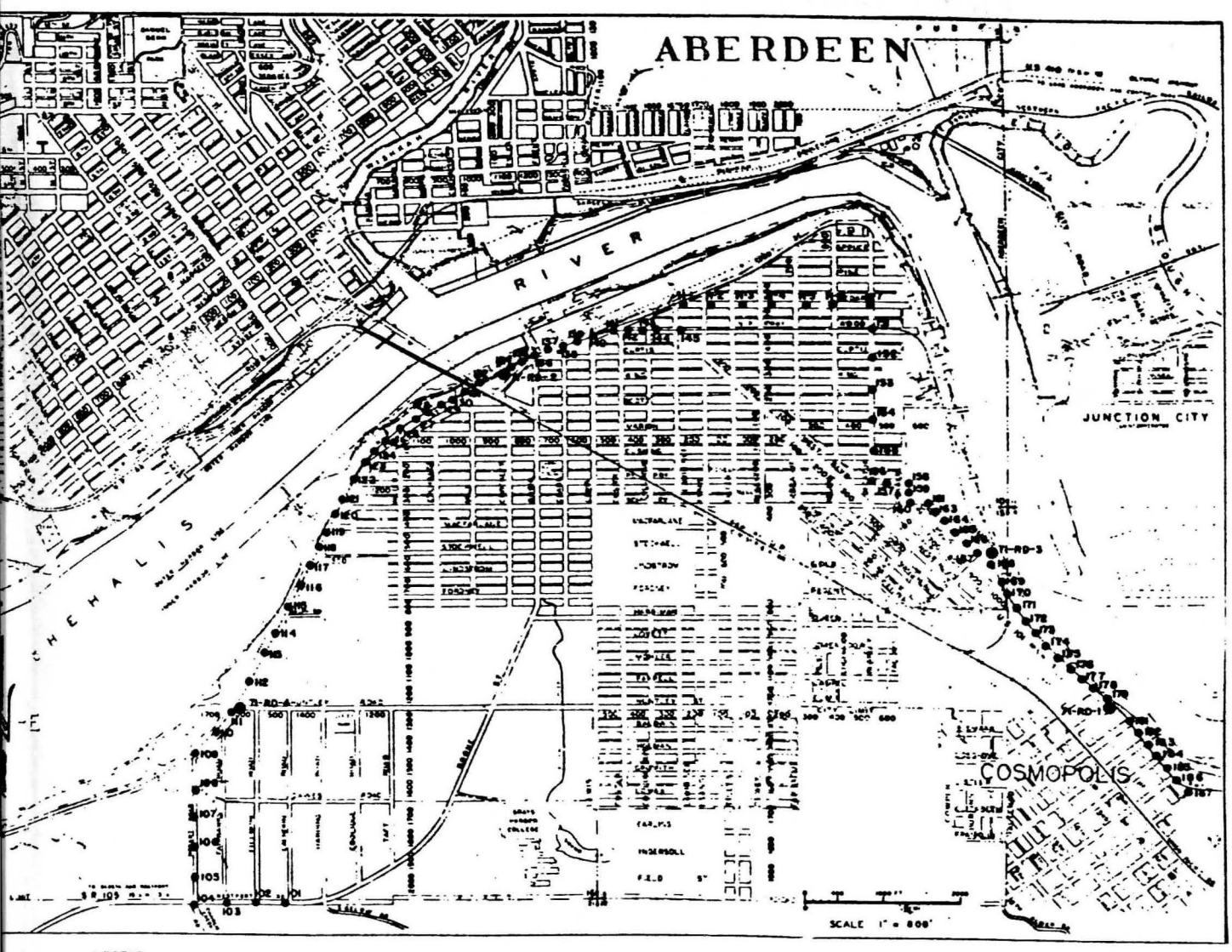
South Aberdeen Levee System PROJECT Chehalis RIVER

DEPTH OF HOLE 31.0 DIAMETER OF HOLE 4"
DEPTH OF O.B. 31.0 DATE STARTED 11 March 1971
ROCK DRILLED - DATE COMPLETED 12 March 1971
% CORE RECOVERED - CONTRACTOR USAED, Seattle

SURFACE EL 6.5 MSL HOLE NO 71-RD-4 N 610,770 E 1,182,030

ELEVATIONS	DEPTH	GRAPHIC LOG	CORE %	DESCRIPTION OF MATERIALS	REMARKS
		GM		Silty Sandy Gravel with Cobbles, Moist, Compact, Brown (Road Fill)	Drilling w/Tricone Bit & 4" casing.
	5	MH-OH		Organic Silt w/roots, Moist, Very Soft, Gray	Attempted 3" tube Sample (No recovery) N=1/6", 1/6", M=112.0% Torvane -0.02tsf LL=121, PI=56
	10	MH		Silt, Moist, Very Soft, Blue-Gray w/wood debris	N=1 (Hammer Pushed) M=65.0, 77.8% Torvane 0.06tsf LL=83, PI=38
	15			Color Light Gray below 15'	Casing @15' N=1/6", 1/6" M=59.4%, 57.9% Torvane 0.02tsf LL=49, PI=13
	20	SP		SAND (Fine), Light Gray	Casing @20' N=10/6", 19/6" M=43.5%
	25	GP-GM		Sandy GRAVEL w/Silt, Moist, Very Dense, Gray	Casing @25' W. L. 2' 11 March 71 W.L. 2' 12 March 71 N=31/6", 50/3"
	30			Bottom @31.0'	Casing @30' N=18/6", 40/6"
					Note: At depth of 10, w/casing 5.5' water rose to surface of road & crack develop-ed in road surface under drill.

4 | 3



LEGEND

LOCATION AND NO OF TEST HOLE DRILLED IN 1946

LOCATION AND NO OF ROTARY DRILL HOLE DRILLED IN 1971

7.2% MOISTURE CONTENT
LIQUID LIMIT
PLASTICITY INDEX
LOCATION OF 2" SPLITSPOON SAMPLE
WATER LEVEL ON DATE INDICATED
TSF SHEAR STRENGTH AS MEASURED ON SPLITSPOON SAMPLE BY HAND-HELD VANE SHEAR DEVICE
/6" NUMBER OF BLOWS AND DISTANCE THAT 2" SPLITSPOON SAMPLER IS DRIVEN IN "STANDARD PENETRATION TEST" (140 LB HAMMER, 30 INCH DROP)

NOTES:

1. FOR LOGS OF 1946 TEST HOLES SEE PLATE G-16.
2. CLASSIFICATIONS ARE BASED ON THE "UNIFIED SOIL CLASSIFICATON SYSTEM."
3. SEE PLATES G-8 THROUGH G-13 FOR FOUNDATION EXPLORATION PERFORMED DURING 1986.

U.S. ARMY ENGINEER DISTRICT, SEATTLE
CORPS OF ENGINEERS
SEATTLE, WASHINGTON

CHEHALIS RIVER
FOUNDATION EXPLORATION

LOCATION OF 1946 HOLES & 1971 DRILL LOGS

FLOOD PROTECTION
SOUTH ABERDEEN - COSMOPOLIS WASHINGTON

REVIEWED	SIZE	INVITATION NO.	FILE NO.	DATE	PLATE
	D				G-14
	DSGN. GKK		CHK.	SHEET 14	

DATE AND TIME PLOTTED: 14-JUL-1993 07:02 DESIGN FILE: /cenps/designs/actp/geotech/actpg10a.dgn

S. Aberdeen Levee System PROJECT Chehalis RIVER

DEPTH OF HOLE 50.1 DIAMETER OF HOLE 4"
DEPTH OF O.B. 50.1 DATE STARTED 2 March 1971
ROCK DRILLED - DATE COMPLETED 4 March 1971
% CORE RECOVERED - CONTRACTOR USAED Seattle

SURFACE EL 8.5 MSL HOLE NO 71-RD-1 N 609,820 E 1,183,140

ELEVATIONS	DEPTH	GRAPHIC LOG	CORE %	DESCRIPTION OF MATERIALS	REMARKS
		SM		Gravelly Silty SAND, Moist, Compact, Brown	Drilling w/tricone bit & 4" Casing
	5	SP		Gravelly SAND, loose, Red-Brown	
		SM		Silty SAND, Loose, Black	N=3/6", 1/6", 5/6" (very little recovery)
	10	SP		Gravelly SAND, Loose, Brown w/wood debris	Casing @ 10' Attempted 3" tube Sample, 10' to 11' (No recovery)
	15	GP-GM		Sandy GRAVEL w/Silt, Brown to Gray	N=10/6", 21/6" M=11.6% N=28/6", 16/6" M=14.0%
	20			Color rusty-brown to yellow-brown below 17'	N=25/6", 21/6" M=10.1%
	25				Casing @25' W.L. 6' 3 March 71 W.L. 7' 4 March 71
	30	SM & SP		Alternating layers of Silty Gravelly SAND (Fine), Gray, and SAND (fine) Red-brown, Moist, Very Dense	N=50/6", 21/1" M=20.6% Casing @30' N=50/2" (No recovery)
	35				N=50/3", M=27.4%
	40	SM		Silty SAND w/Gravel, moist, very dense, Gray	N=50/2", 1 (No recovery)
	45				N=50/3" (No recovery)
	50			Bottom @50.1'	Casing @30' N=50/1", (No recovery)

S. Aberdeen Levee System PROJECT Chehalis RIVER

DEPTH OF HOLE 61.0 DIAMETER OF HOLE 4"
DEPTH OF O.B. 61.0 DATE STARTED 5 March 1971
ROCK DRILLED - DATE COMPLETED 8 March 1971
% CORE RECOVERED - CONTRACTOR USAED, Seattle

SURFACE EL 8.0 MSL HOLE NO 71-RD-2 N 614,475 E 1,175,735

ELEVATIONS	DEPTH	GRAPHIC LOG	CORE %	DESCRIPTION OF MATERIALS	REMARKS
		SM		Gravelly Silty SAND w/wood & Garbage debris, Moist, Black	Drilling w/tricone bit & 4" Casing
	5	SP		SAND (fine), w/wood debris, Moist, loose, Red - Brown	N=3/6" 1/6" M=19.6%
	10	GP-GM & MH		Sandy GRAVEL w/Silt, Brown, w/lenses of very soft gray silt	Casing @10' N=1/6", 1/6" (No recovery)
	15	MH		SILT, Moist, very soft, Blue - Gray w/occasional organic debris	Artesian flow from hole @15', w/Casing @ 10' Pushed 3" tube 15'-17' (No recovery) N=0 (Hand-Pushed) M=83.3, 82.3, 81.0% Torvane - 0.075tsf LL=69, PI-26
	20				N=0 (Hand-pushed) M=75.0% LL=69, PI-25
	25	SM		Silty SAND (fine), Blue Gray	Casing @20' N=5/6", 3/6" M=42.8% N-10/6", 6/6", M=43.6% W.L. 12' 5 March 71 W.L. 8' 6 March 71 Casing @25'
	30				
	35				N=14/6", 6/6" M=41.5%
	40				Casing @40'
	45	SM & MH		Silty SAND (fine), Blue-Gray, w/lenses of SILT, Soft, Dark - Gray	N=4/6", 4/6" M=60.3% LL=61, PI=24 Casing @45' N=3/6", 3/6" M=66.4%
	50				N=7/6", 9/6", M=32.8%
	55				N=8/6", 4/6", M=48.2% Casing @60'
	60				N=4/6", 8/6" M=41.0% W.L. 6' 6 March 71 W.L. 7' 8 March 71
	65			Bottom @61.0'	

S. Abera
DEPTH
DEPTH
ROCK
% CORE
SURFA
ELEVA-TIONS

LEGEND

MC = 7.2%	MOISTURE CONTENT
LL	LIQUID LIMIT
PI	PLASTICITY INDEX
I	LOCATION OF 2" SPLITSPOON SAMPLE
W.L.	WATER LEVEL ON DATE INDICATED
TORVANE-0.05 TSF	SHEAR STRENGTH AS MEASURED ON SPLITSPOON SAMPLE BY HAND-HELD VANE SHEAR DEVICE
N=2/6"	NUMBER OF BLOWS AND DISTANCE THAT 2" SPLITSPOON SAMPLER IS DRIVEN IN "STANDARD PENETRATION TEST" (140 LB HAMMER, 30 INCH DROP)

NOTES:

1. FOR LOCATIO
2. CLASSIFICATI
3. SEE PLATES DURING 1986.
4. SEE PLATE G-
5. COORDINATES

REVISIONS				
SYMBOL	ZONE	DESCRIPTION	DATE	BY

S. Aberdeen Levee System PROJECT Chehalis RIVER

DEPTH OF HOLE 51.0' DIAMETER OF HOLE 4"
DEPTH OF O.B. 51.0' DATE STARTED 9 March 1971
ROCK DRILLED - DATE COMPLETED 10 March 1971
% CORE RECOVERED - CONTRACTOR USAED, Seattle

SURFACE EL 6.5 MSL HOLE NO 71-RD-3 N 611,910 E 1,181,730

ELEVATIONS	DEPTH	GRAPHIC LOG	CORE %	DESCRIPTION OF MATERIALS	REMARKS
		SM		Gravelly Silty SAND, Moist, Medium to Compact, Black	Drilling w/tricone Bit & 4" Casing
	5	MH		SILT w/wood debris, soft to very soft, Gray	Pushed 3" tubes 5'-6' & 10-11' (No recovery) N=0 (Hand-pushed) M=74.7%, 112.0% torvane -0.05tsf LL=116, PI=52
	10				N=0 (Hand-pushed) M=81.9, 73.9, 76.8% torvane, 0.04-0.05tsf
	15				Casing @15' N=1/6", 1/6" M=75.6% LL=68, PI=26
	20				Casing @20' N=1/6", 1/6" M=76.0, 78.7% Torvane - 0.05tsf
	25				N=1 (Hammer-Pushed) M=96.2%
	30	OH & SP		Organic SILT, very soft, Brown to Gray w/lenses of fine SAND	Casing @30' N=2/6", 2/6" M=62.8, 89.3% Torvane 0.01 tsf LL=73, PI=28
	35				Casing @35' N=2/6", 2/6" M=64.8%
	40	ML & SP		SILT, Soft, Blue Gray w/lenses of fine SAND	Casing @40' N=2/6", 2/6" M=71.8, 57.7, 60.5% W. L. 3' 9 Mar 71 W. L. 10' 10 Mar 71 Torvane 0.03-0.04 tsf LL=46, PI -13
	45 50	SP & ML		SAND (fine), Blue-Gray w/lenses of SILT (Water level at completion of Hole 3' & rising w/tide) Bottom @ 51.0'	Casing @ 40' N=5/6", 5/6" M=50.5% Casing @ 40' N=6/6", 11/6" M=54.1% LL=44, PI-9

South Aberdeen Levee System PROJECT Chehalis RIVER

DEPTH OF HOLE 31.0 DIAMETER OF HOLE 4"
DEPTH OF O.B. 31.0 DATE STARTED 11 March 1971
ROCK DRILLED - DATE COMPLETED 12 March 1971
% CORE RECOVERED - CONTRACTOR USAED, Seattle

SURFACE EL 6.5 MSL HOLE NO 71-RD-4 N 610,220 E 1,172,050

ELEVATIONS	DEPTH	GRAPHIC LOG	CORE %	DESCRIPTION OF MATERIALS	REMARKS
		GM		Silty Sandy Gravel with Cobbles, Moist, Compact, Brown (Road Fill)	Drilling w/tricone Bit & 4" casing.
	5	MH-OH		Organic Silt w/roots, Moist, Very Soft, Gray	Attempted 3" tube Sample (No recovery) N=1/6", 1/6", M=112.0% Torvane-0.02tsf LL=121, PI=56
	10	MH		Silt, Moist, Very Soft, Blue-Gray w/wood debris	N=1 (Hammer Pushed) M=65.0, 77.8% torvane 0.06tsf LL=83, PI-38
	15			Color Light Gray below 15'	Casing @15' N=1/6", 1/6" M=59.4%, 57.9% torvane 0.02tsf LL=49, PI-13
	20	SP		SAND (fine), Light Gray	Casing @20' N=10/6", 19/6" M=43.5%
	25	GP - GM		Sandy GRAVEL w/Silt, Moist, Very Dense, Gray	Casing @25' W.L. 2' 11 March 71 W.L. 2' 12 March 71 N=31/6", 50/3"
	30			Bottom @31.0'	Casing @30' N=18/6", 40/6"
					Note: At depth of 10; w/casing @5' water rose to surface of road & crack developed in road surface under drill.

TES:

R LOCATION OF BORINGS SEE PLATE G-14 .

ASSIFICATIONS ARE BASED ON THE "UNIFIED SOIL CLASSIFICATION SYSTEM."

E PLATES G-8 THROUGH G-13 FOR FOUNDATION EXPLORATION PERFORMED RING 1986.

E PLATE G-16 FOR 1946 TEST HOLE LOGS.

ORDINATES REFER TO NAD 27 STATE PLANE ZONE 4602.

REDUCED TO 50% OF FULL SIZE

U.S. ARMY ENGINEER DISTRICT, SEATTLE
CORPS OF ENGINEERS
SEATTLE, WASHINGTON

CHEHALIS RIVER
FOUNDATION EXPLORATION

1971 DRILL HOLE LOGS

FLOOD CONTROL PROJECT
SOUTH ABERDEEN - COSMOPOLIS WASHINGTON

REVIEWED	SIZE	INVITATION NO.	FILE NO.	DATE	PLATE
	D	CW80016	E-5-14-190	95 JAN 06	G-15
DSGN. GKK			CHK.	SHEET 15	

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10-DEC-1993 13:32

DESIGN FILE: /cenps/designs/acfp/geotech/acfpgl0i.dgn

1946 TEST HOLES - LEGEND

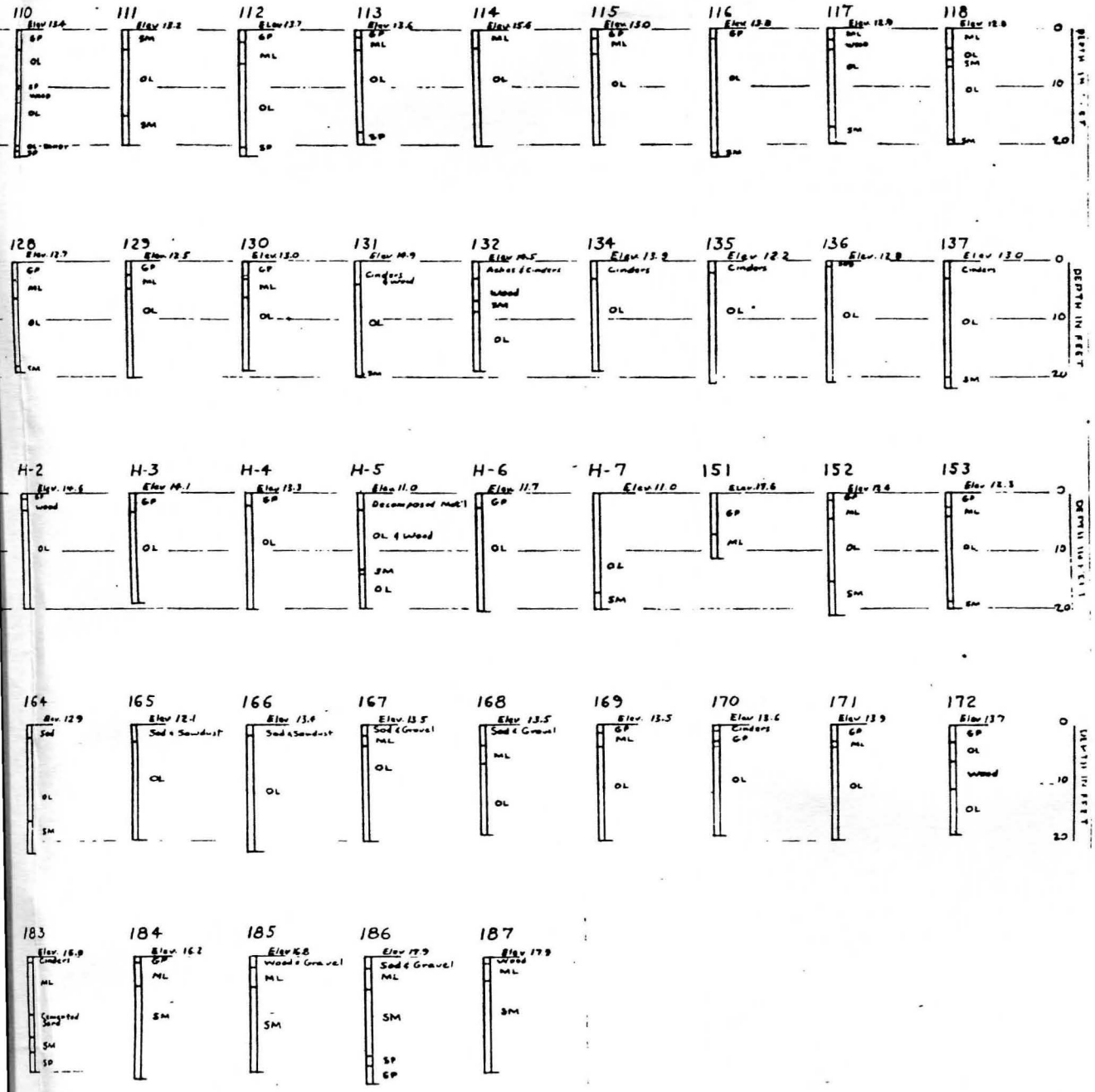
GP	POORLY GRADED GRAVEL
SP	POORLY GRADED SAND
SM	SILTY SAND
ML	SILTY (INORGANIC) OR SANDY OR CLAYEY SILT
OL	ORGANIC SILT

NOTES:

1. FOR LOCCATION OF BORINGS SEE PLA
2. BORING NUMBERS 133, 146 - 150, 162
3. ELEVATIONS OF TEST HOLES BASED C
4. SEE PLATE G-14 FOR 1971 TEST HOLE
5. SEE PLATES G-3 THROUGH G-13 FOR F 1986.

DATE AND TIME PLOTTED: 13-JUL-1993 08:49 DESIGN FILE: /cenps/designs/acfp/geotech/acfpgl0h.dgn

REVISIONS				
SYMBOL	ZONE	DESCRIPTION	DATE	BY



E PLATE G-14.

O, 162, & 180 WERE NOT USED.

SED ON U.S.E.D. 1946 M.L.L.W. DATUM.

HOLE LOCATIONS AND LOGS.

FOR FOUNDATION EXPLORATION PERFORMED DURING

U.S. ARMY ENGINEER DISTRICT, SEATTLE
CORPS OF ENGINEERS
SEATTLE, WASHINGTON

CHEHALIS RIVER
FOUNDATION EXPLORATION

1946 DRILL HOLE LOGS

FLOOD PROTECTION
SOUTH ABERDEEN - COSMOPOLIS WASHINGTON

REVIEWED:	SIZE D	INVITATION NO.	FILE NO.	DATE:	PLATE G-16
	DSGN. GKK	CHK		SHEET 16	