WESTWEGO TO HARVEY CANAL, LA.
HURRICANE PROTECTION PROJECT

DESIGN MEMORANDUM NO. 1
GENERAL DESIGN
SUPPLEMENT NO. 2

APPENDIX F
FOUNDATION INVESTIGATIONS

VOLUME II

US Army Corps of Engineers
New Orleans District

DEPARTMENT OF THE ARMY
NEW ORLEANS DISTRICT, CORPS OF ENGINEERS
NEW ORLEANS, LOUISIANA

FEBRUARY 1990

SERIAL NO.

WESTWEGO TO HARVEY CANAL LA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

APPENDIX F

FOUNDATION INVESTIGATIONS

INDEX OF PLATES

Volume 2

INDEX OF PLATES

Volume 2 (Continued)

INDEX OF PLATES

Volume 2 (Continued)

INDEX OF PLATES

Volume 2 (Continued)

INDEX OF PLATES

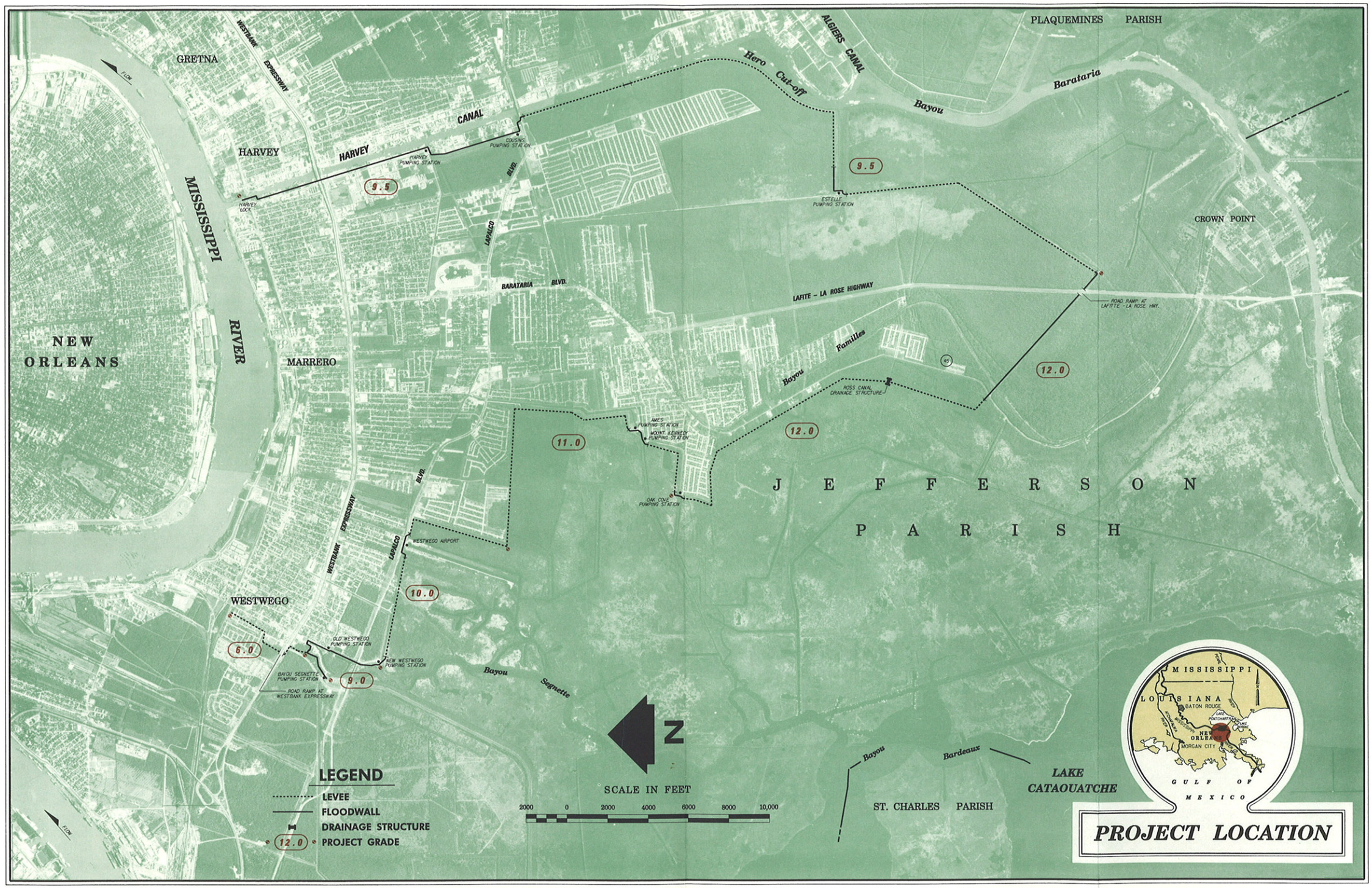
Volume 2 (Continued)

INDEX OF PLATES

Volume 2 (Continued)

INDEX OF PLATES

Volume 2 (Continued)



WESTWEGO TO HARVEY CANAL, LA.

HURRICANE PROTECTION PROJECT

JEFFERSON PARISH, LOUISIANA

C·A·D

WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT

DESIGN MEMORANDUM NO. 1, GENERAL DESIGN
SUPPLEMENT NO. 2

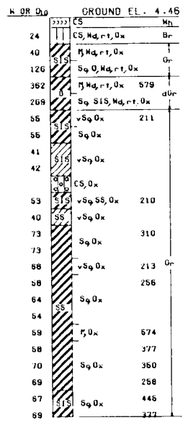
PLAN OF PROTECTION

U. S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS
NEW ORLEANS, LOUISIANA

DATE:	DESIGN FILE:	PLOT SCALE:	FILE NO.
FEBRUARY 1990	306IBSA45.DGN	1	H-2-30618

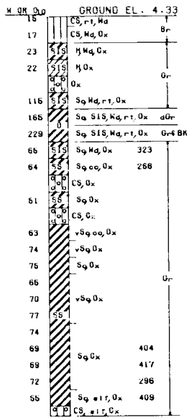
BOR. WWL-1
STA. 4+19
ON C/L

04APR89



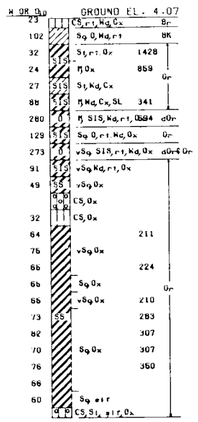
BOR. WWL-2
STA. 15+74
C/L LEVEE

12APR89



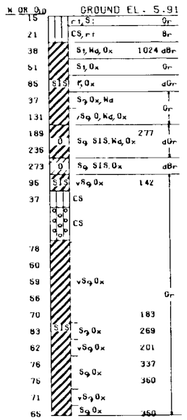
BOR. WWL-4
STA. 36+57
C/L LEVEE

03APR89



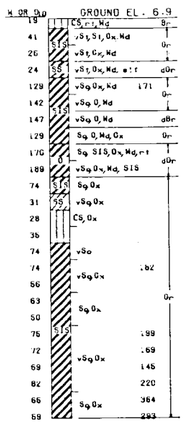
BOR. WWL-5
STA. 45+77
C/L LEVEE

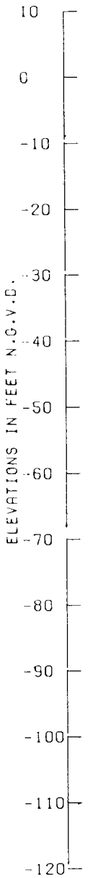
28MAR89

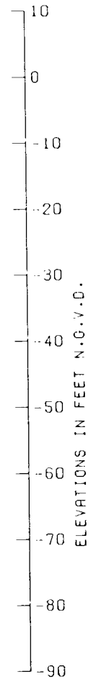


BOR. WWL-6
STA. 55+94
C/L LEVEE

27MAR89







WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

WESTWEGO TO WESTMINSTER LEVEE
GENERAL BORINGS

U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

DATE: FEB. 90

FILE NO. H-2-30618

PLATE FI

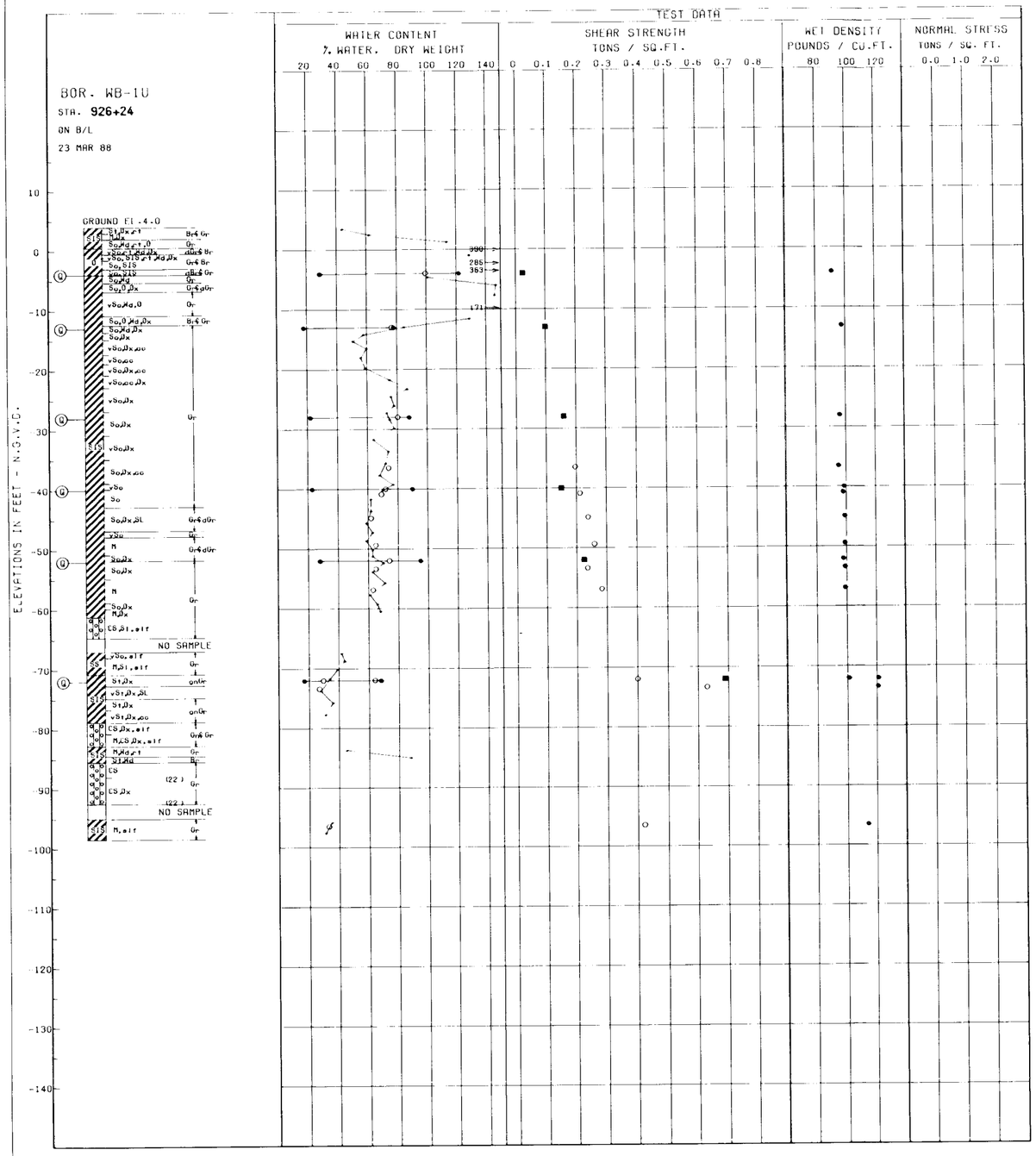
BOR. WB-IU

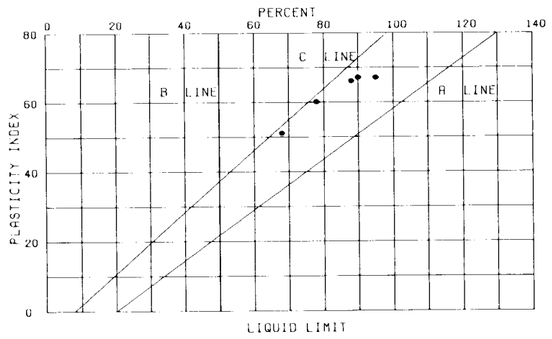
STA. 926+24

ON B/L

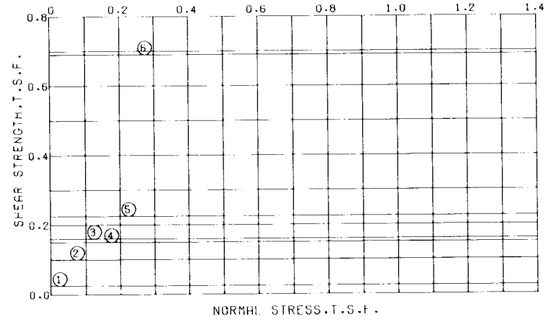
23 MAR 88

TEST DATA



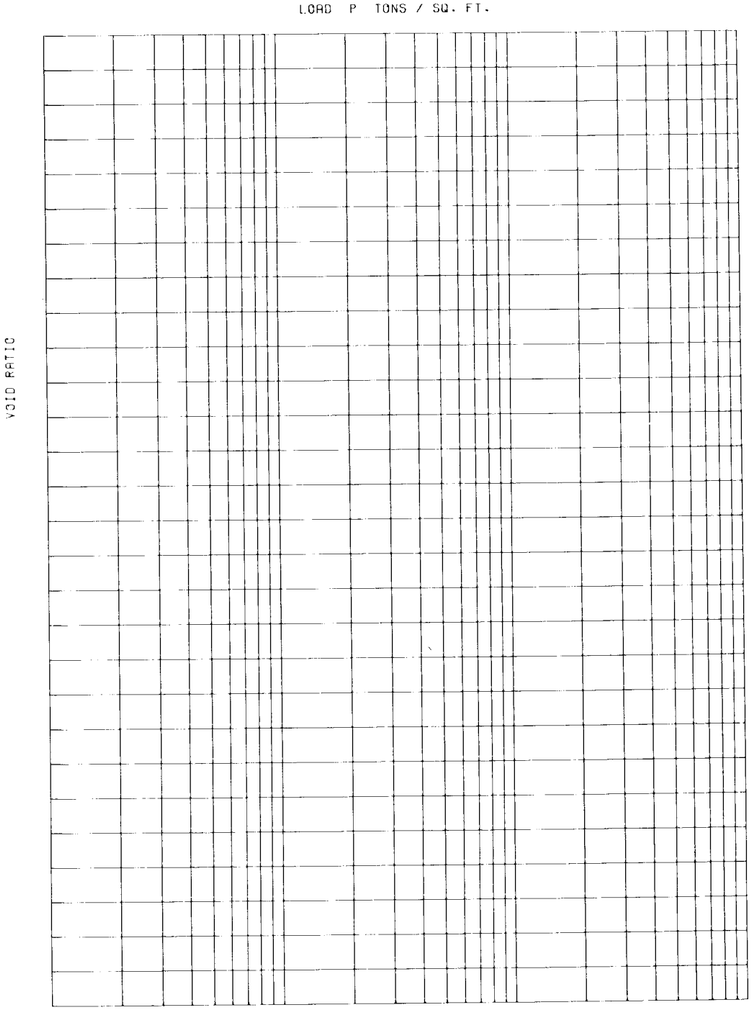


PLASTICITY CHART



SHEAR STRENGTH DATA

ENVELOPE NO.	ENVELOPE EL.	TYPE	STRENGTH Φ	STRENGTH C - TSF	CLASS
1	-4.00	Q	0.0	0.025	CH
2	-13.00	Q	0.0	0.100	CH
3	-28.00	Q	0.0	0.160	CH
4	-40.00	Q	0.0	0.150	CH
5	-52.00	Q	0.0	0.225	CH
6	-72.00	Q	0.0	0.690	CH



CONSOLIDATION DATA

○ - (UC) UNCONFINED COMPRESSION TEST
■ - (Q) UNCONSOLIDATED - UNDRAINED SHEAR TEST
▲ - (R) CONSOLIDATED - UNDRAINED SHEAR TEST
▣ - (S) CONSOLIDATED - DRAINED SHEAR TEST

BORINGS WERE TAKEN WITH A 5 INCH DIAMETER STEEL TUBE PISTON TYPE SAMPLER

FOR SOIL BORING LEGEND SEE PLATE A

FOR LOCATION OF BORING SEE PLATE 55

WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

BORING WB-IU

U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

DATE: FEBRUARY 1990

FILE NO.: H-2-30618

PLATE FIA

BOR. WB-2U

STA. 778+88

ON B/L

13 APR 88

GROUND EL. 5.0

ELEVATIONS IN FEET - N.G.V.D.

TEST DATA

WATER CONTENT
% WATER, DRY WEIGHT
20 40 60 80 100 120 140

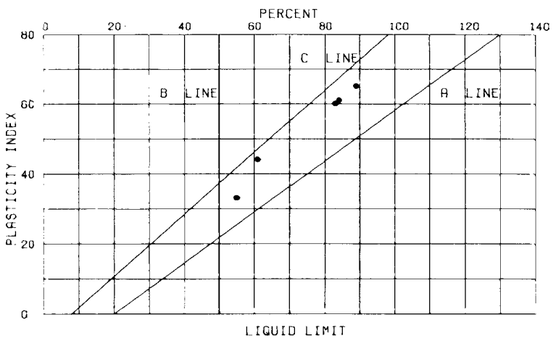
SHEAR STRENGTH
TONS / SQ.FT.
0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8

WET DENSITY
POUNDS / CU.FT.
80 100 120

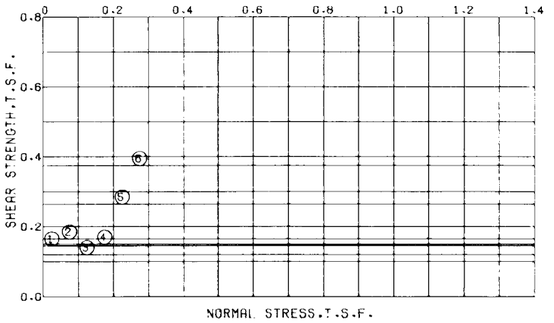
NORMAL STRESS
TONS / SQ. FT.
0.0 1.0 2.0

413
211
170
186
176

NO SAMPLE

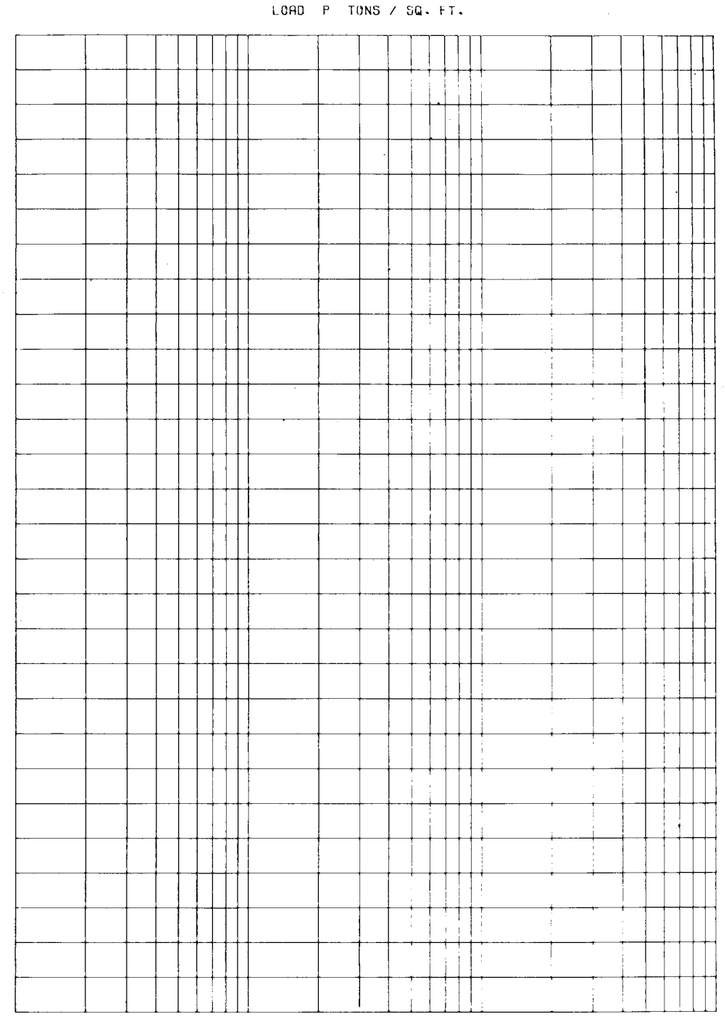


PLASTICITY CHART



SHEAR STRENGTH DATA

ENVELOPE NO.	ENVELOPE EL.	TYPE	STRENGTH Φ	STRENGTH C - TSF	CLASS
1	-28.00	Q	0.0	0.145	CH
2	-35.00	Q	0.0	0.165	CH
3	-43.00	Q	0.0	0.120	CH
4	-52.00	Q	0.0	0.150	CH
5	-60.00	Q	0.0	0.265	CH
6	-88.00	Q	0.0	0.375	CH



CONSOLIDATION DATA

○ - (UC) UNCONFINED COMPRESSION TEST
■ - (Q) UNCONSOLIDATED - UNDRAINED SHEAR TEST
▲ - (R) CONSOLIDATED - UNDRAINED SHEAR TEST
⊡ - (S) CONSOLIDATED - DRAINED SHEAR TEST

BORINGS WERE TAKEN WITH A 6 INCH DIAMETER STEEL TUBE PISTON TYPE SAMPLER

FOR SOIL BORING LEGEND SEE PLATE A

FOR LOCATION OF BORING SEE PLATE

WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

BORING WB-2U

U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

DATE: FEBRUARY 1990 FILE NO.: H-2-30618

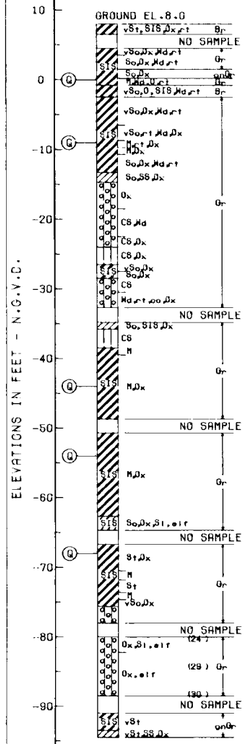
PLATE F1B

BOR. WB-3U

STA. 622+28

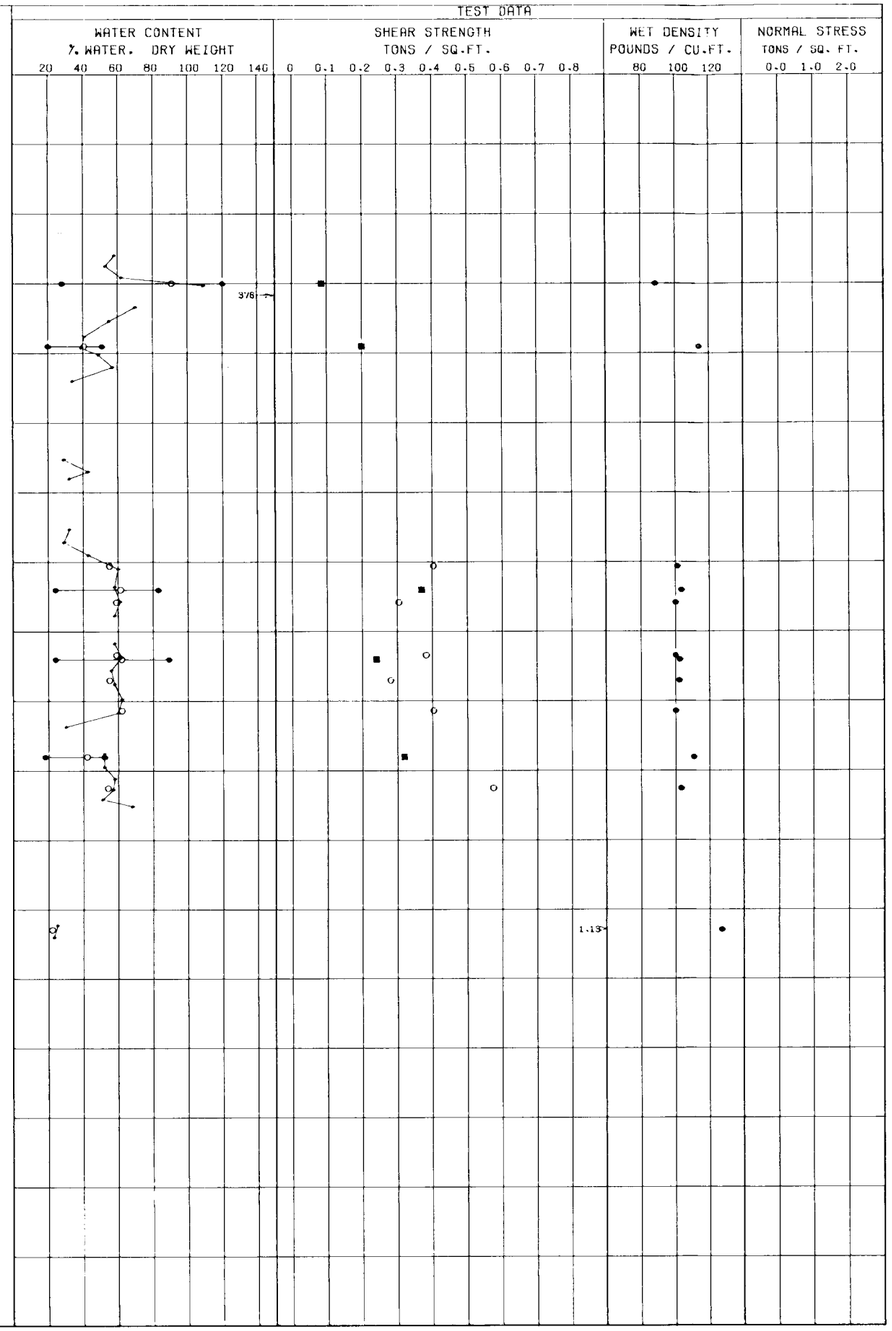
ON B/L

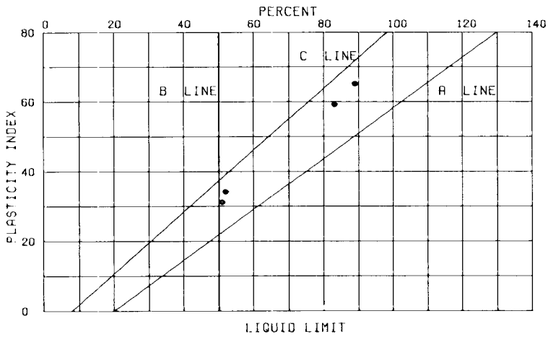
4 APR 88



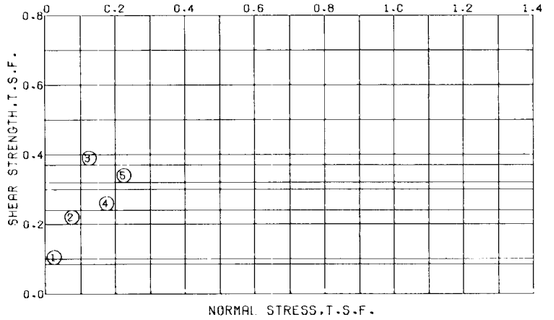
ELEVATIONS IN FEET - N.G.V.D.

TEST DATA





PLASTICITY CHART



SHEAR STRENGTH DATA

ENVELOPE NO.	ENVELOPE EL.	TYPE	STRENGTH Φ	STRENGTH C - TSF	CLASS
1	0.00	Q	0.0	0.085	CH
2	-9.00	Q	0.0	0.200	CL
3	-44.00	Q	0.0	0.370	CH
4	-54.00	Q	0.0	0.240	CH
5	-68.00	Q	0.0	0.320	CH

LOAD P TONS / SQ. FT.

VOID RATIO

CONSOLIDATION DATA

○ - (UC) UNCONFINED COMPRESSION TEST
■ - (Q) UNCONSOLIDATED - UNDRAINED SHEAR TEST
▲ - (R) CONSOLIDATED - UNDRAINED SHEAR TEST
⊡ - (S) CONSOLIDATED - DRAINED SHEAR TEST

BORINGS WERE TAKEN WITH A 6 INCH DIAMETER STEEL TUBE PISTON TYPE SAMPLER

FOR SOIL BORING LEGEND SEE PLATE A

FOR LOCATION OF BORING SEE PLATE

WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

BORING WB-3U

U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

DATE: FEBRUARY 1990

FILE NO: H-2-30618

PLATE FIC

BOR. WB-4U

STA. 473+20

ON B/L

5 APR 88

GROUND EL.1.0

NO SAMPLE

NO SAMPLE

NO SAMPLE

ELEVATIONS IN FEET - N.G.V.D.

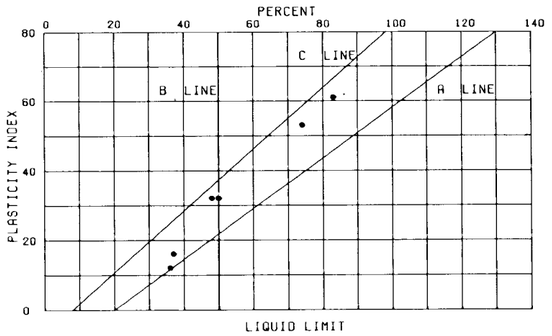
TEST DATA

WATER CONTENT
% WATER, DRY WEIGHT

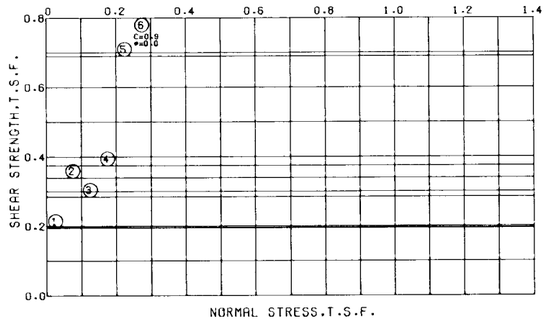
SHEAR STRENGTH
TONS / SQ.FT.

WET DENSITY
POUNDS / CU.FT.

NORMAL STRESS
TONS / SQ. FT.



PLASTICITY CHART



SHEAR STRENGTH DATA

ENVELOPE NO.	ENVELOPE EL.	TYPE	STRENGTH Φ	STRENGTH C - TSF	CLASS
1	-13.00	Q	0.0	0.195	CH
2	-20.00	Q	0.0	0.340	CL
3	-36.00	Q	0.0	0.285	CL
4	-48.00	Q	0.0	0.375	CH
5	-71.00	Q	0.0	0.690	CH
6	-83.00	Q	0.0	0.950	CH

LOAD P TONS / SQ. FT.

VOID RATIO

CONSOLIDATION DATA

○ - (UC) UNCONFINED COMPRESSION TEST
■ - (Q) UNCONSOLIDATED - UNDRAINED SHEAR TEST
▲ - (R) CONSOLIDATED - UNDRAINED SHEAR TEST
⊡ - (S) CONSOLIDATED - DRAINED SHEAR TEST

BORINGS WERE TAKEN WITH A 5 INCH DIAMETER STEEL TUBE PISTON TYPE SAMPLER

FOR SOIL BORING LEGEND SEE PLATE A

FOR LOCATION OF BORING SEE PLATE 34

WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

BORING WB-4U

U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

DATE : FEBRUARY 1990 FILE NO. H-2-30618

PLATE FID

BOR. WB-5U

STA. 337+17

ON B/L

29 MAR 88

GROUND EL. 7.5

ELEVATIONS IN FEET - N.G.V.D.

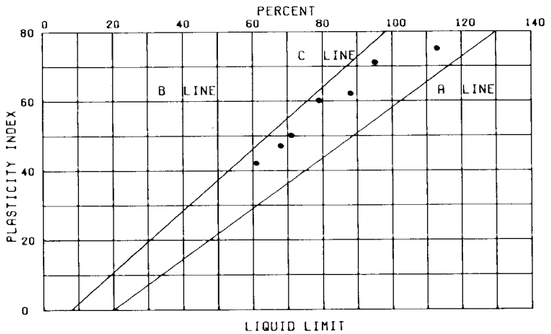
TEST DATA

WATER CONTENT
% WATER, DRY WEIGHT
20 40 60 80 100 120 140

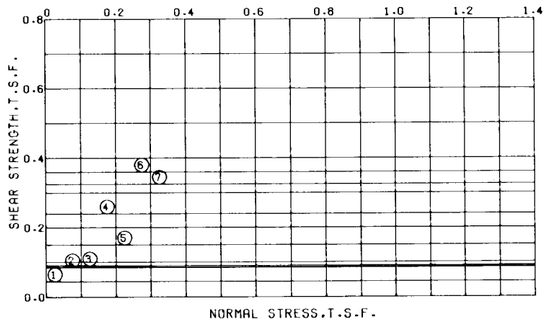
SHEAR STRENGTH
TONS / SQ.FT.
0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8

WET DENSITY
POUNDS / CU.FT.
80 100 120

NORMAL STRESS
TONS / SQ. FT.
0.0 1.0 2.0



PLASTICITY CHART



SHEAR STRENGTH DATA

ENVELOPE NO.	ENVELOPE EL.	TYPE	STRENGTH Φ	STRENGTH C - TSF	CLASS
1	-4.00	Q	0.0	0.045	CH
2	-12.30	Q	0.0	0.085	CH
3	-21.50	Q	0.0	0.090	CH
4	-32.50	Q	0.0	0.240	CH
5	-44.50	Q	0.0	0.150	CH
6	-52.50	Q	0.0	0.360	CH
7	-61.50	Q	0.0	0.325	CH

LOAD P TONS / SQ. FT.

VOID RATIO

CONSOLIDATION DATA

○ - (UC) UNCONFINED COMPRESSION TEST
■ - (Q) UNCONSOLIDATED - UNDRAINED SHEAR TEST
▲ - (R) CONSOLIDATED - UNDRAINED SHEAR TEST
⊡ - (S) CONSOLIDATED - DRAINED SHEAR TEST

BORINGS WERE TAKEN WITH A 5 INCH DIAMETER STEEL TUBE PISTON TYPE SAMPLER

FOR SOIL BORING LEGEND SEE PLATE A

FOR LOCATION OF BORING SEE PLATE 2G

WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

BORING WB-5U

U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

DATE : FEBRUARY 1990

FILE NO. H-2-30618

PLATE FIE

Boring WB-6U
STA. 213+57
ON B.L
26 MAR 88

TEST DATA

WATER CONTENT
% WATER, DRY WEIGHT
20 40 60 80 100 120 140

SHEAR STRENGTH
TONS / SQ.FT.
0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8

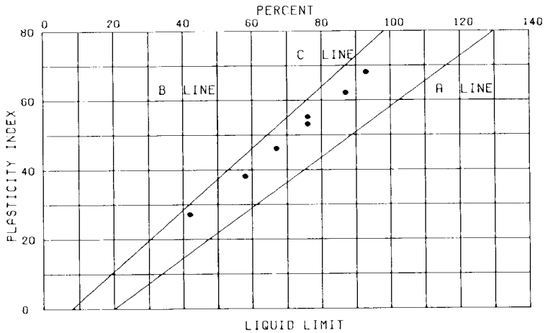
WET DENSITY
POUNDS / CU.FT.
80 100 120

NORMAL STRESS
TONS / SQ. FT.
0.0 1.0 2.0

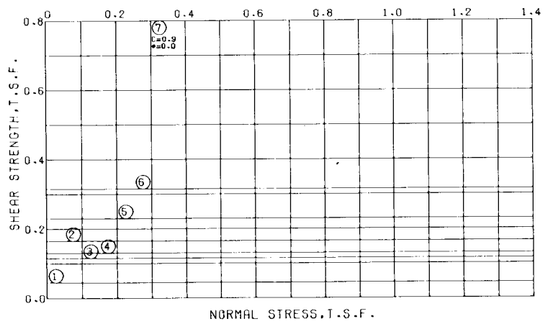
ELEVATIONS IN FEET - N.G.V.D.

GROUND EL. -0.5

NO SAMPLE



PLASTICITY CHART



SHEAR STRENGTH DATA

ENVELOPE NO.	EL.	TYPE	STRENGTH Φ	STRENGTH C - TSF	CLASS
1	-24.50	Q	0.0	0.045	CH
2	-37.50	Q	0.0	0.165	CH
3	-45.50	Q	0.0	0.115	CH
4	-56.50	Q	0.0	0.130	CH
5	-69.30	Q	0.0	0.230	CH
6	-77.50	Q	0.0	0.315	CH
7	-100.50	Q	0.0	0.930	CL

LOAD P TONS / SQ. FT.

VOID RATIO

CONSOLIDATION DATA

○ - (UC) UNCONFINED COMPRESSION TEST
■ - (Q) UNCONSOLIDATED - UNDRAINED SHEAR TEST
▲ - (R) CONSOLIDATED - UNDRAINED SHEAR TEST
⊡ - (S) CONSOLIDATED - DRAINED SHEAR TEST

BORINGS WERE TAKEN WITH A 5 INCH DIAMETER STEEL TUBE PISTON TYPE SAMPLER

FOR SOIL BORING LEGEND SEE PLATE A

FOR LOCATION OF BORING SEE PLATE 19

WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

BORING WB-6U

U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

DATE : FEBRUARY 1990

FILE NO. H-2-30618

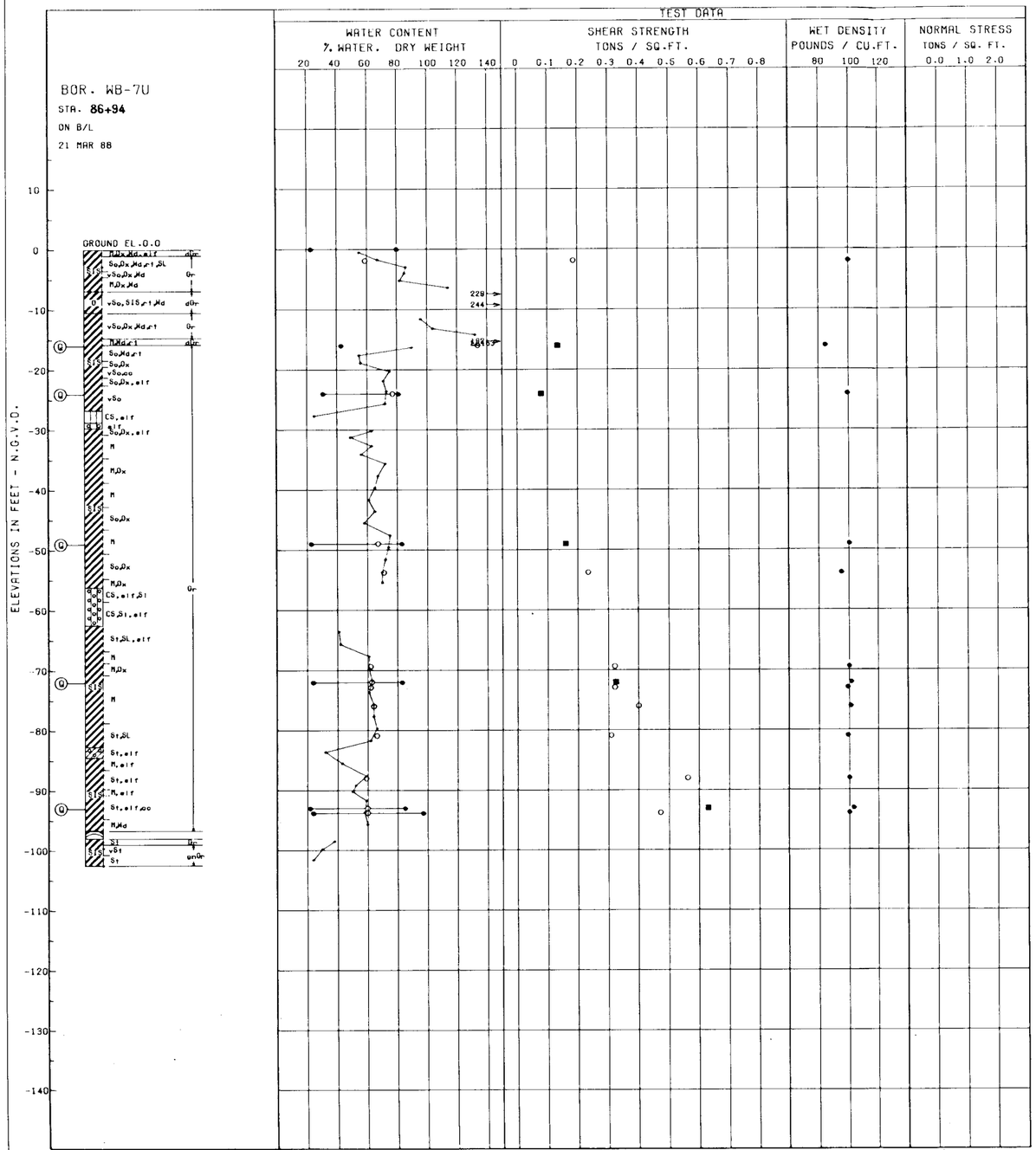
PLATE FIF

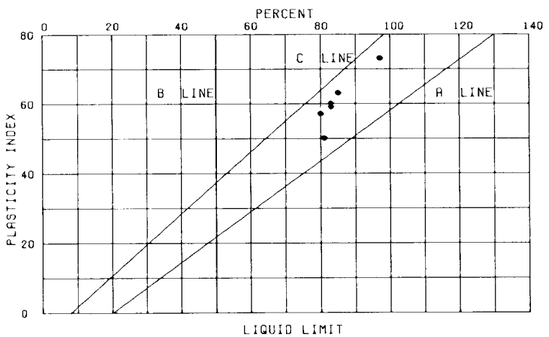
BOR. WB-7U

STA. 86+94

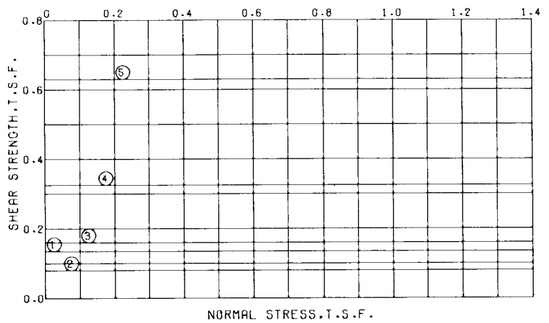
ON B/L

21 MAR 88



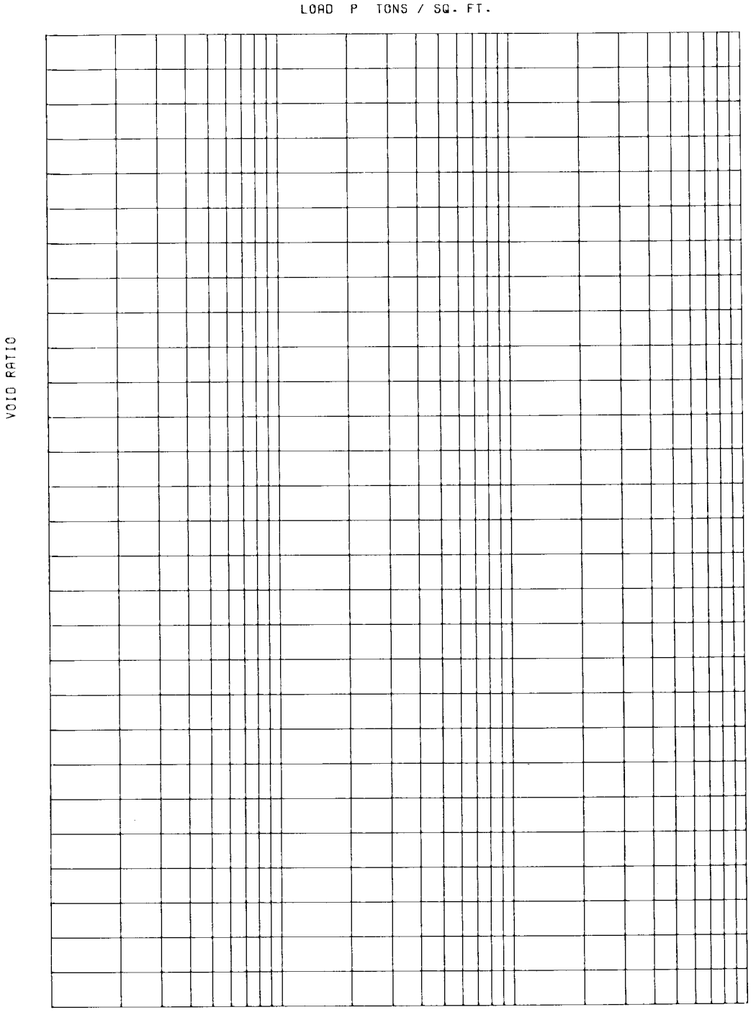


PLASTICITY CHART



SHEAR STRENGTH DATA

ENVELOPE NO.	ENVELOPE EL.	TYPE	STRENGTH Φ	STRENGTH C - TSF	CLASS
1	-16.00	Q	0.0	0.135	CH
2	-24.00	Q	0.0	0.080	CH
3	-49.00	Q	0.0	0.160	CH
4	-72.00	Q	0.0	0.325	CH
5	-93.00	Q	0.0	0.630	CH



CONSOLIDATION DATA

○ - (UC) UNCONFINED COMPRESSION TEST

■ - (Q) UNCONSOLIDATED - UNDRAINED SHEAR TEST

▲ - (R) CONSOLIDATED - UNDRAINED SHEAR TEST

⊡ - (S) CONSOLIDATED - DRAINED SHEAR TEST

BORINGS WERE TAKEN WITH A 5 INCH DIAMETER STEEL TUBE PISTON TYPE SAMPLER

FOR SOIL BORING LEGEND SEE PLATE A

FOR LOCATION OF BORING SEE PLATE II

WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

BORING WB-7U

U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

DATE : FEBRUARY 1990

FILE NO. H-2-30618

PLATE FIG

BOR. WWLU-3

STA. 26+85

C/L LEVEE

13 APR 89

GROUND EL. 3.5

ELEVATIONS IN FEET - N.G.V.D.

TEST DATA

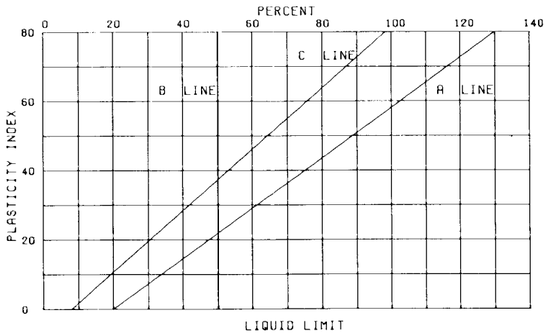
WATER CONTENT
% WATER. DRY WEIGHT

SHEAR STRENGTH
TONS / SQ.FT.

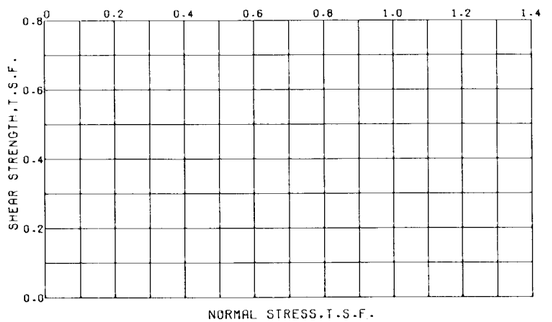
WET DENSITY
POUNDS / CU.FT.

NORMAL STRESS
TONS / SQ. FT.

NO SAMPLE

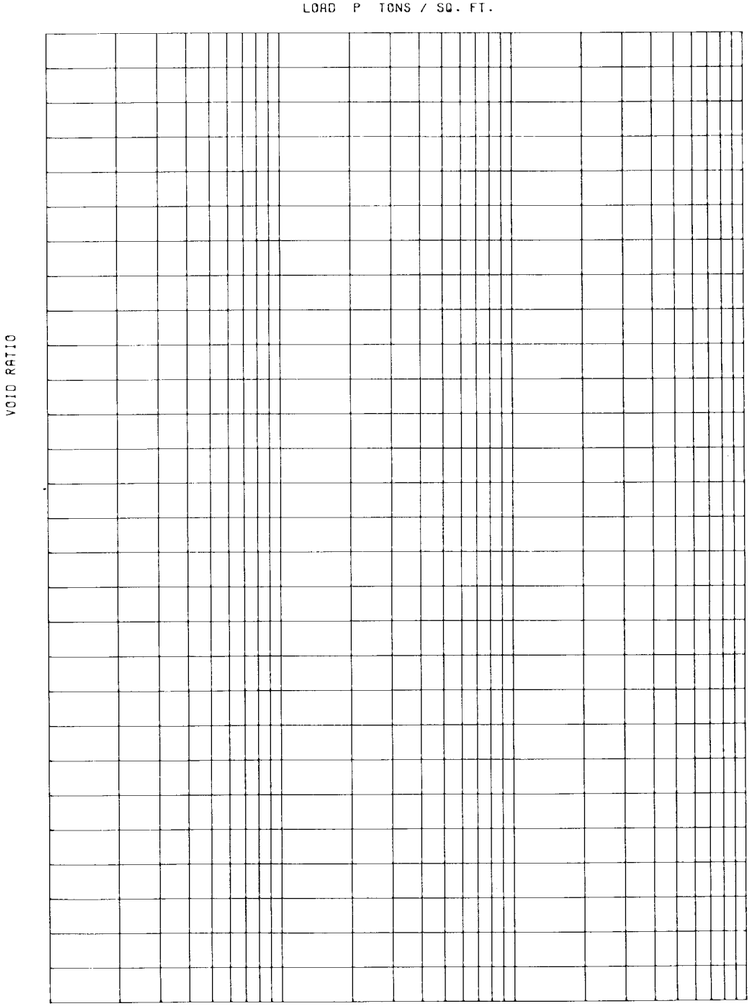


PLASTICITY CHART



SHEAR STRENGTH DATA

ENVELOPE NO.	ENVELOPE EL.	TYPE	STRENGTH Φ	STRENGTH C - TSF	CLASS



CONSOLIDATION DATA

○ - (UC) UNCONFINED COMPRESSION TEST
■ - (Q) UNCONSOLIDATED - UNDRAINED SHEAR TEST
▲ - (R) CONSOLIDATED - UNDRAINED SHEAR TEST
⊡ - (S) CONSOLIDATED - DRAINED SHEAR TEST

BORINGS WERE TAKEN WITH A 5 INCH DIAMETER STEEL TUBE PISTON TYPE SAMPLER

FOR SOIL BORING LEGEND SEE PLATE A

FOR LOCATION OF BORING SEE PLATE 4

WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

BORING WWLU - 3

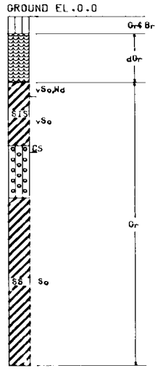
U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

DATE : FEB. 90

FILE NO. H-2-30618

PLATE F2

BOR. WL-1
STA. 65+94
30 FT. LT B/L
4 FEB. '86
GROUND EL. 0.0



ELEVATIONS IN FEET - N.G.V.D.

TEST DATA

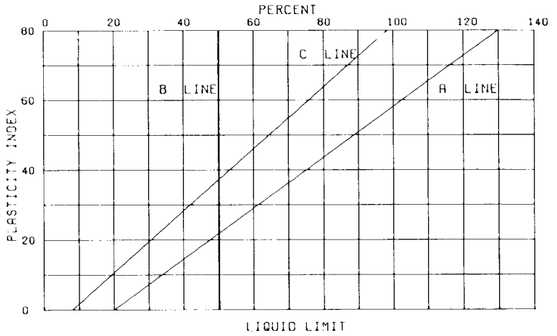
WATER CONTENT
% WATER. DRY WEIGHT
20 40 60 80 100 120 140

SHEAR STRENGTH
TONS / SQ.FT.
0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8

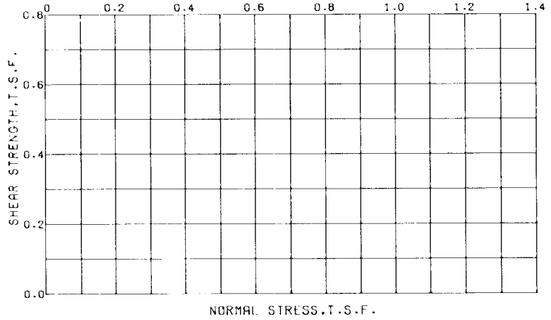
340
286

WET DENSITY
POUNDS / CU.FT.
80 100 120

NORMAL STRESS
TONS / SQ. FT.
0.0 1.0 2.0



PLASTICITY CHART



SHEAR STRENGTH DATA

ENVELOPE NO.	ENVELOPE EL.	TYPE	STRENGTH Φ	STRENGTH C - TSF	CLASS

LOAD P TONS / SQ. FT.

VOID RATIO

CONSOLIDATION DATA

○ - (UC) UNCONFINED COMPRESSION TEST
■ - (Q) UNCONSOLIDATED - UNDRAINED SHEAR TEST
▲ - (R) CONSOLIDATED - UNDRAINED SHEAR TEST
▯ - (S) CONSOLIDATED - DRAINED SHEAR TEST

BORINGS WERE TAKEN WITH A 3 INCH DIAMETER STEEL TUBE PISTON TYPE SAMPLER

FOR SOIL BORING LEGEND SEE PLATE A

FOR LOCATION OF BORING SEE PLATE F

WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

BORING WL-1

U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

DATE: FEB. 90

FILE NO H-2-30618

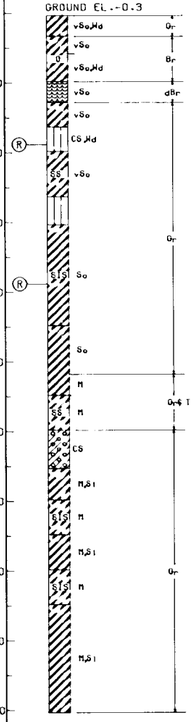
BOR. WL-2

STA. 69+10

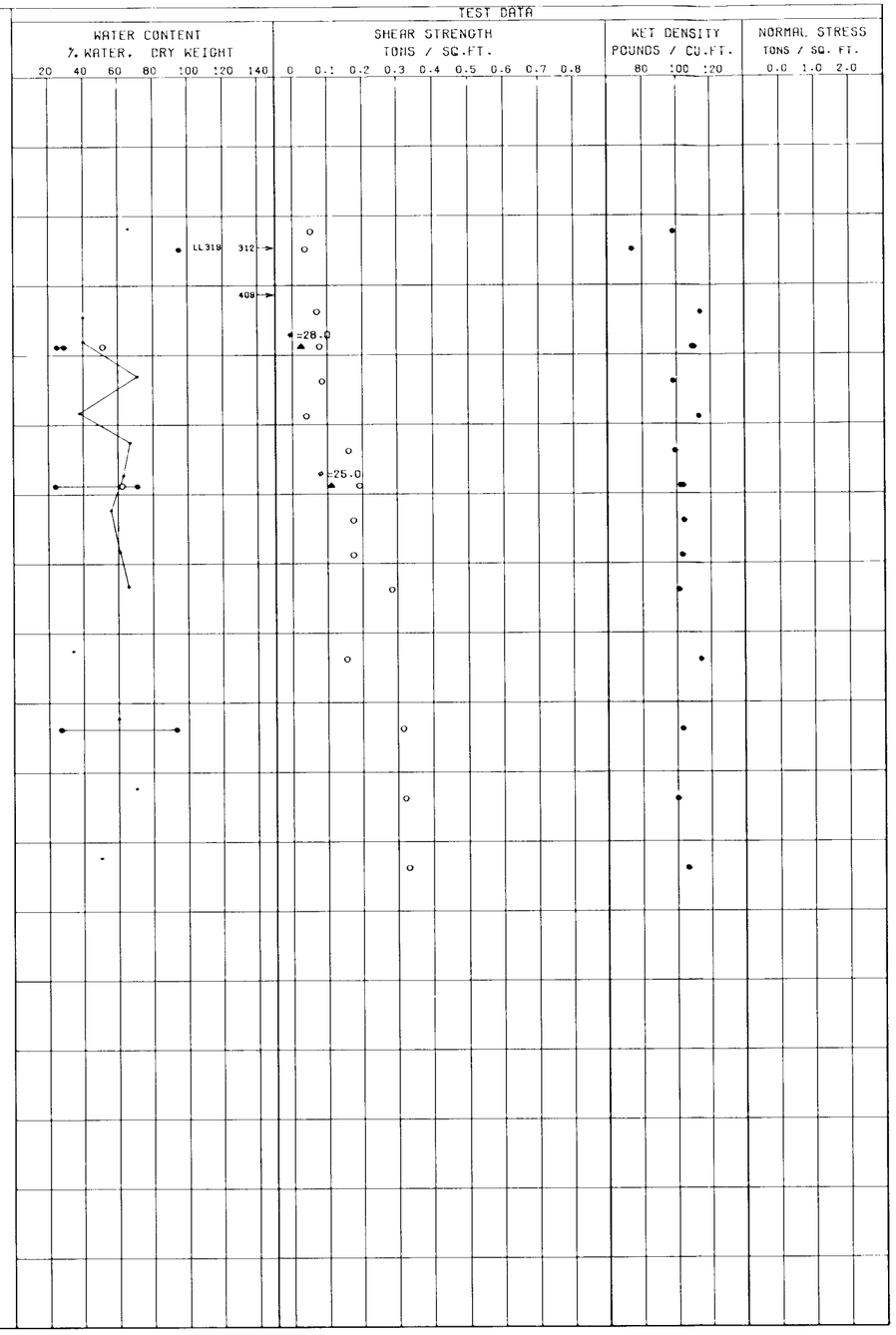
250 FT. RT. B/L

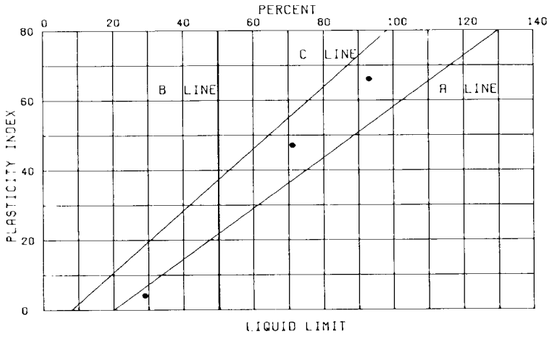
27-28 JAN. '86

GROUND EL. -0.3

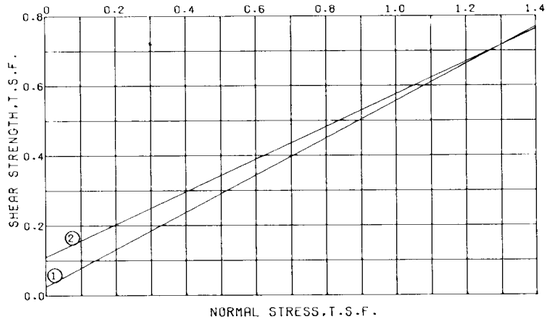


TEST DATA





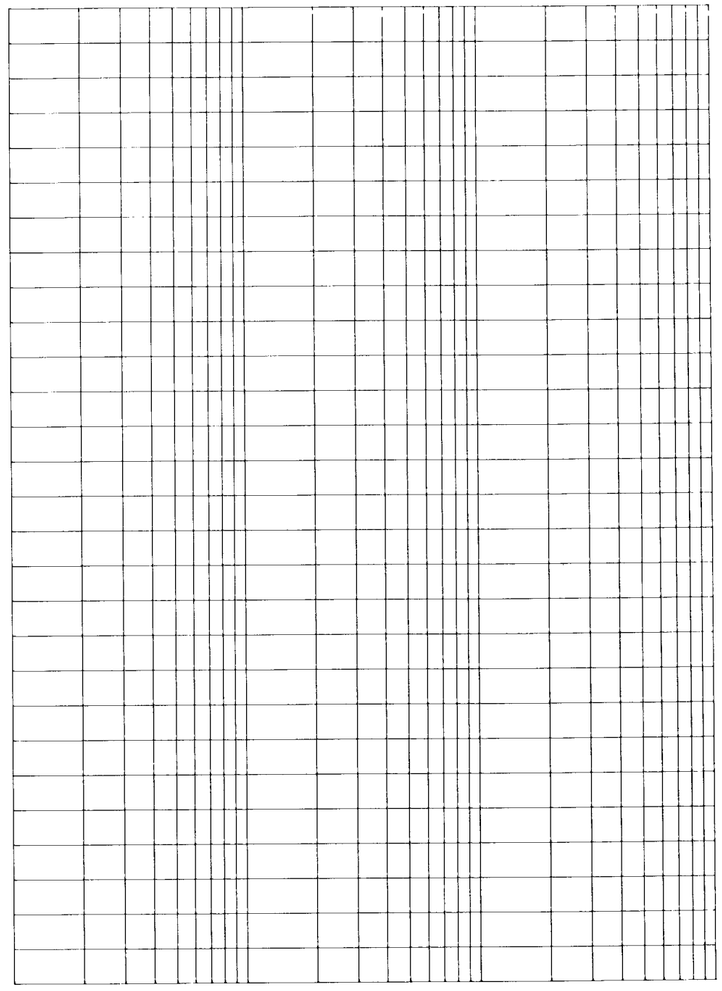
PLASTICITY CHART



SHEAR STRENGTH DATA

ENVELOPE NO.	ENVELOPE EL.	TYPE	STRENGTH Φ	STRENGTH C - TSF	CLASS
1	18.00	R	28.0	0.025	ML
2	38.00	R	25.0	0.110	CH

LOAD P TONS / SQ. FT.



CONSOLIDATION DATA

○ - (UC) UNCONFINED COMPRESSION TEST
■ - (Q) UNCONSOLIDATED - UNDRAINED SHEAR TEST
▲ - (R) CONSOLIDATED - UNDRAINED SHEAR TEST
⊡ - (S) CONSOLIDATED - DRAINED SHEAR TEST

BORINGS WERE TAKEN WITH A 5 INCH DIAMETER STEEL TUBE PISTON TYPE SAMPLER

FOR SOIL BORING LEGEND SEE PLATE A

FOR LOCATION OF BORING SEE PLATE 5

WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

BORING WL-2

U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

DATE FEB. 90

FILE NO H-2-30618

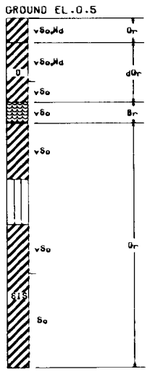
PLATE F4

BOR. WL-3
STA. 77+91

110 FT. RT. B/L

23 JAN. '86

GROUND EL. 0.5



ELEVATIONS IN FEET - N.G.V.D.

TEST DATA

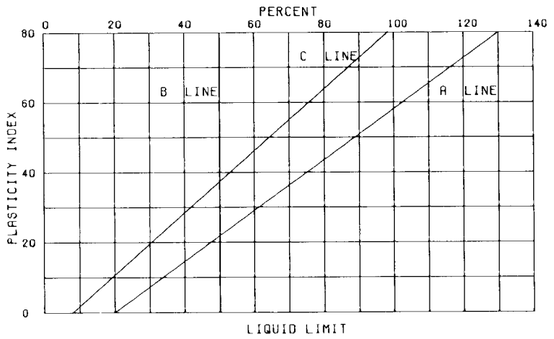
WATER CONTENT
% WATER, DRY WEIGHT
20 40 60 80 100 120 140

SHEAR STRENGTH
TONS / SQ.FT.
0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8

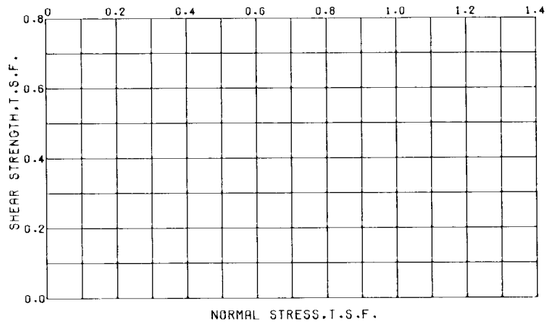
287
349
190
343

WET DENSITY
POUNDS / CU.FT.
80 100 120

NORMAL STRESS
TONS / SQ. FT.
0.0 1.0 2.0



PLASTICITY CHART



SHEAR STRENGTH DATA

ENVELOPE NO.	ENVELOPE EL.	TYPE	STRENGTH Φ	STRENGTH C - TSF	CLASS

LOAD P TONS / SQ. FT.

VOID RATIO

CONSOLIDATION DATA

○ - (UC) UNCONFINED COMPRESSION TEST
■ - (Q) UNCONSOLIDATED - UNDRAINED SHEAR TEST
▲ - (R) CONSOLIDATED - UNDRAINED SHEAR TEST
▽ - (S) CONSOLIDATED - DRAINED SHEAR TEST

BORINGS WERE TAKEN WITH A 3 INCH DIAMETER STEEL TUBE PISTON TYPE SAMPLER

FOR SOIL BORING LEGEND SEE PLATE A

FOR LOCATION OF BORING SEE PLATE II

WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO.1 GENERAL DESIGN
SUPPLEMENT NO.2

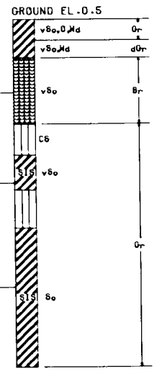
BORING WL-3

US ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

DATE FEB 90

FILE NO. H-2-30618

BOR. WL-4
STA. 88+64
157 FT. RT. B/L
22-23 JAN. '86
GROUND EL. 0.5



ELEVATIONS IN FEET - N.G.V.D.

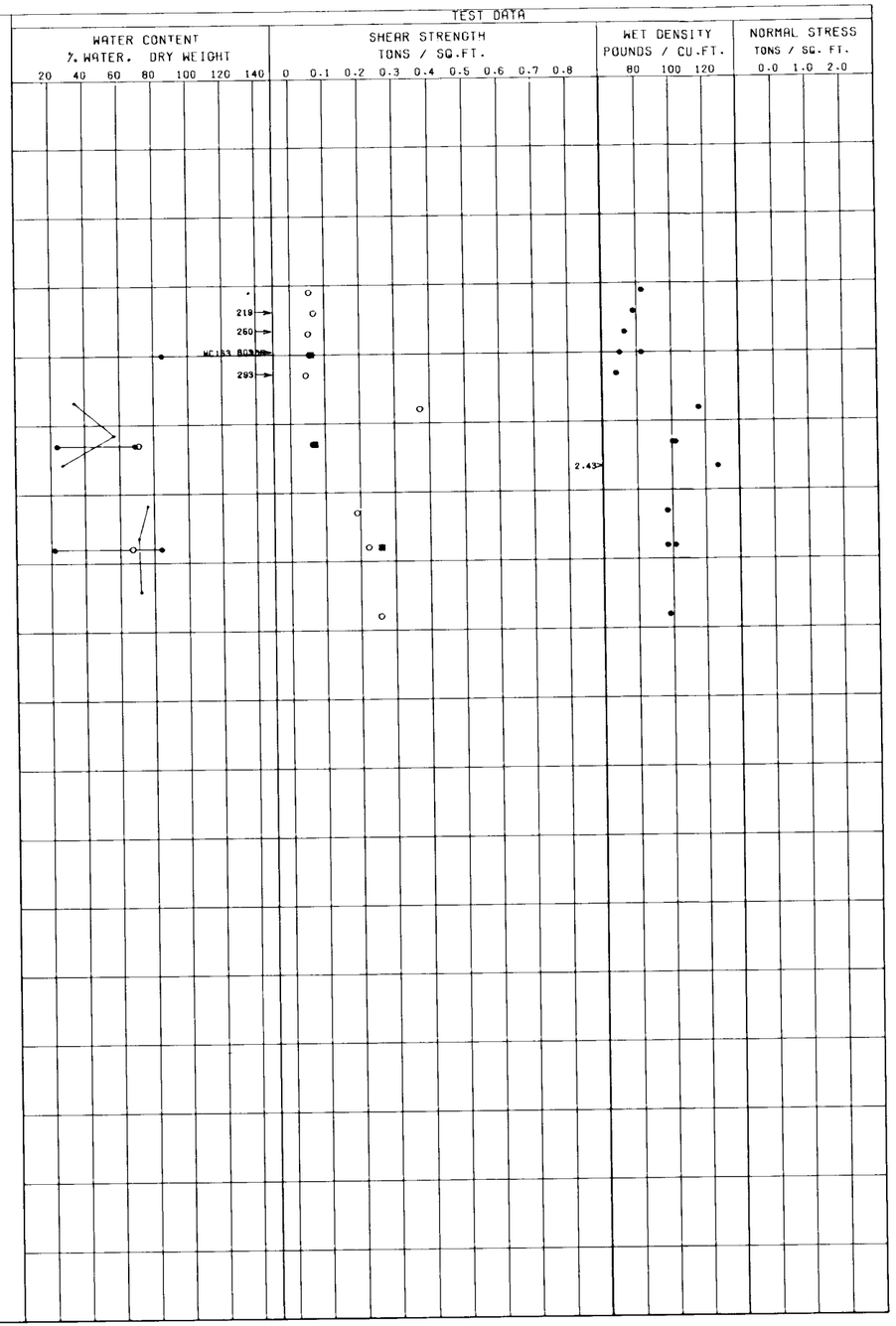
TEST DATA

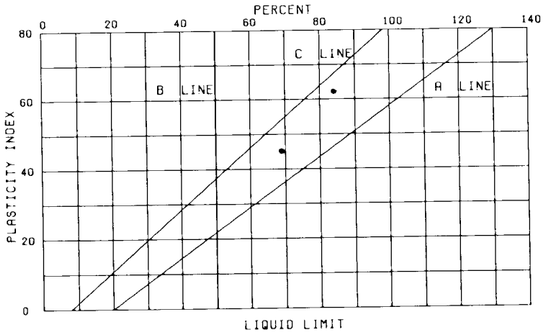
WATER CONTENT
% WATER. DRY WEIGHT
20 40 60 80 100 120 140

SHEAR STRENGTH
TONS / SQ.FT.
0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8

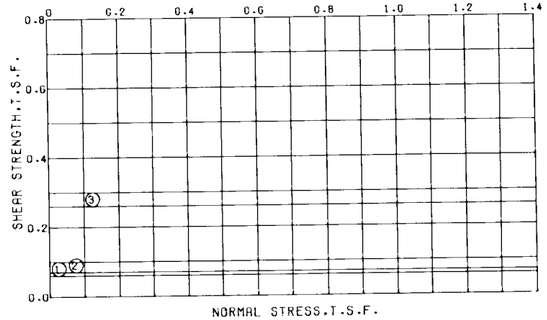
WET DENSITY
POUNDS / CU.FT.
80 100 120

NORMAL STRESS
TONS / SQ. FT.
0.0 1.0 2.0





PLASTICITY CHART

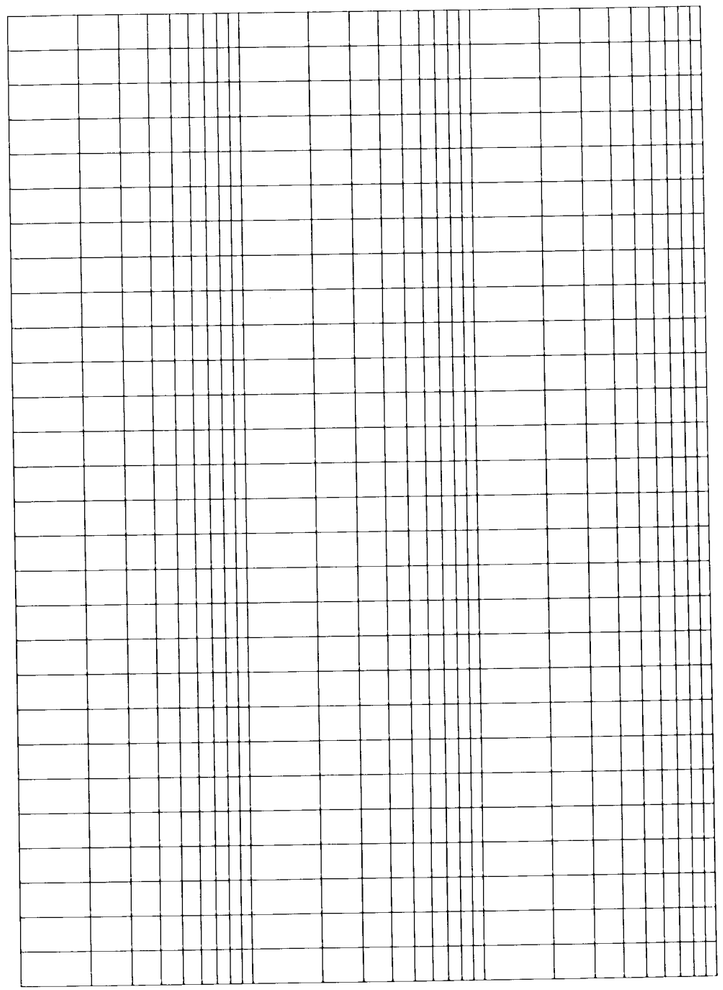


SHEAR STRENGTH DATA

ENVELOPE NO.	ENVELOPE EL.	TYPE	STRENGTH Φ	STRENGTH C - TSF	CLASS
1	10.00	Q	0.0	0.060	CH
2	23.00	Q	0.0	0.070	CH
3	38.00	Q	0.0	0.260	CH

LOAD P TONS / SQ. FT.

VOID RATIO



CONSOLIDATION DATA

○ - (UC) UNCONFINED COMPRESSION TEST
■ - (Q) UNCONSOLIDATED - UNDRAINED SHEAR TEST
▲ - (R) CONSOLIDATED - UNDRAINED SHEAR TEST
⊡ - (S) CONSOLIDATED - DRAINED SHEAR TEST

BORINGS WERE TAKEN WITH A 5 INCH DIAMETER STEEL TUBE PISTON TYPE SAMPLER

FOR SOIL BORING LEGEND SEE PLATE A

FOR LOCATION OF BORING SEE PLATE II

WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

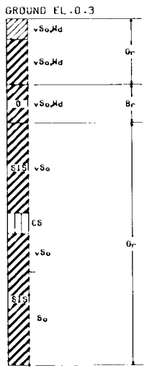
BORING WL-4

U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

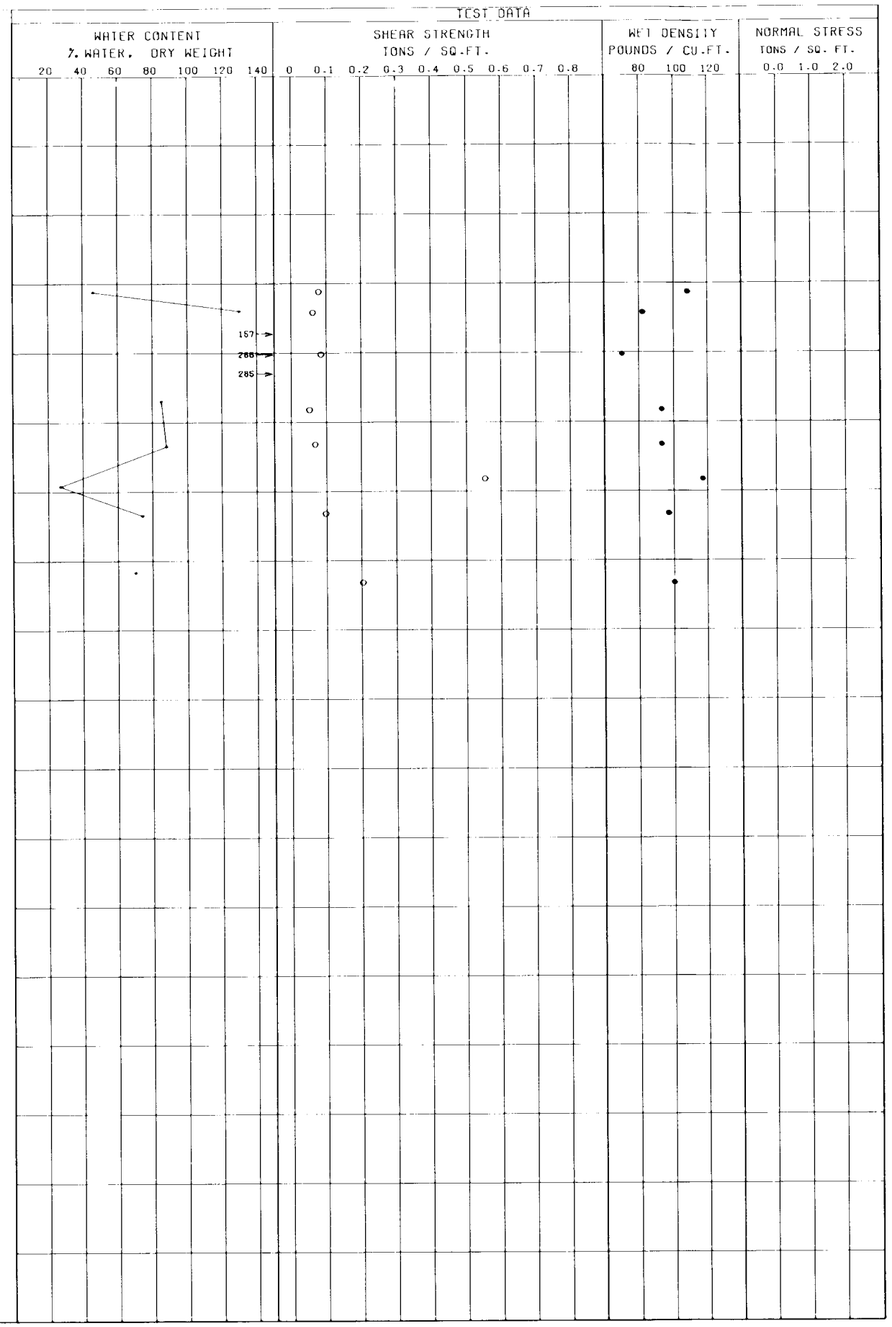
DATE FEB. 90

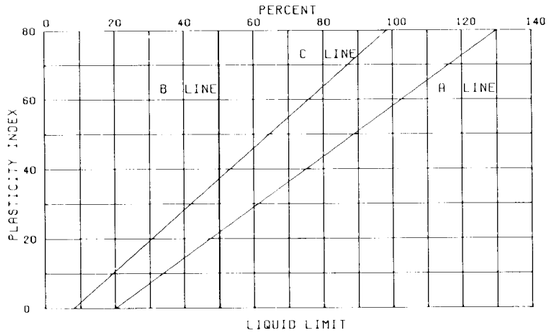
FILE NO. H-2-30618

BOR. WL-5
STA. 98+39
255 FT. RT. B/L
22 JAN. '86
GROUND EL. 0.3

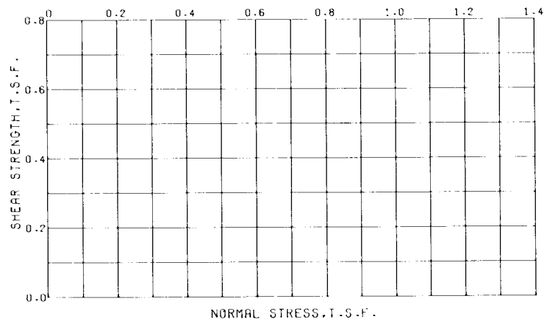


TEST DATA





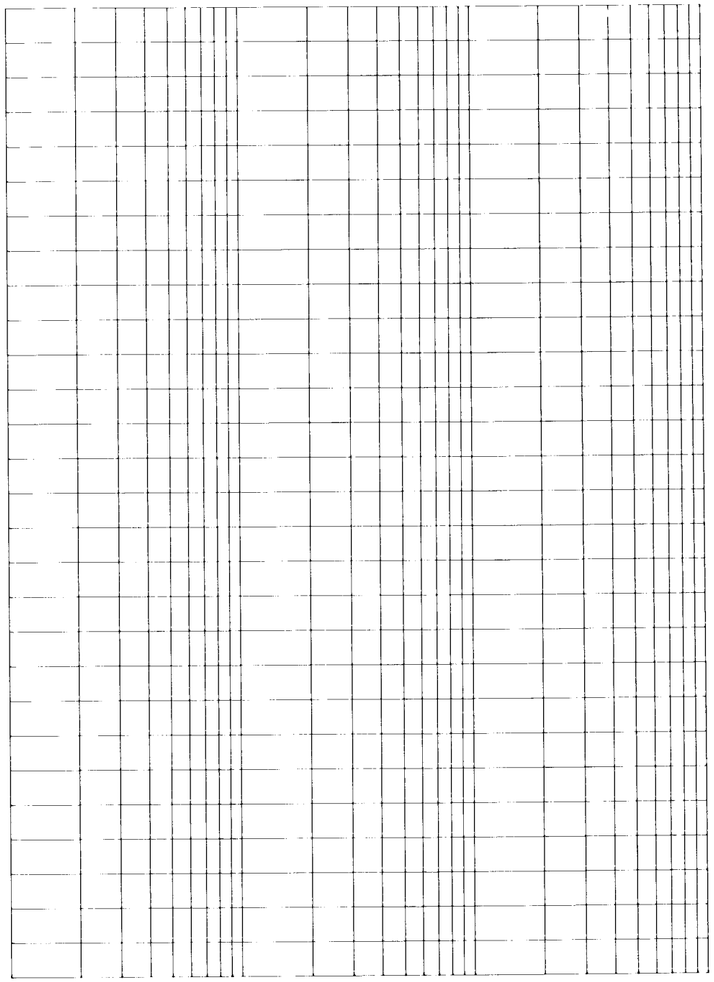
PLASTICITY CHART



SHEAR STRENGTH DATA

ENVELOPE NO.	ENVELOPE EL.	TYPE	STRENGTH Φ	STRENGTH C - TSF	CLASS

LOAD P TONS / SQ. FT.



CONSOLIDATION DATA

○ - (UC) UNCONFINED COMPRESSION TEST
■ - (Q) UNCONSOLIDATED - UNDRAINED SHEAR TEST
▲ - (R) CONSOLIDATED - UNDRAINED SHEAR TEST
⊡ - (S) CONSOLIDATED - DRAINED SHEAR TEST

BORINGS WERE TAKEN WITH A 3 INCH DIAMETER STEEL TUBE PISTON TYPE SAMPLER

FOR SOIL BORING LEGEND SEE PLATE A

FOR LOCATION OF BORING SEE PLATE 12

WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

BORING WL-5

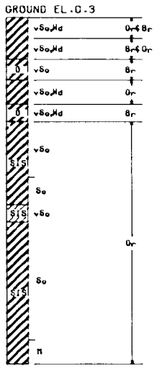
U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

DATE FEB. 90

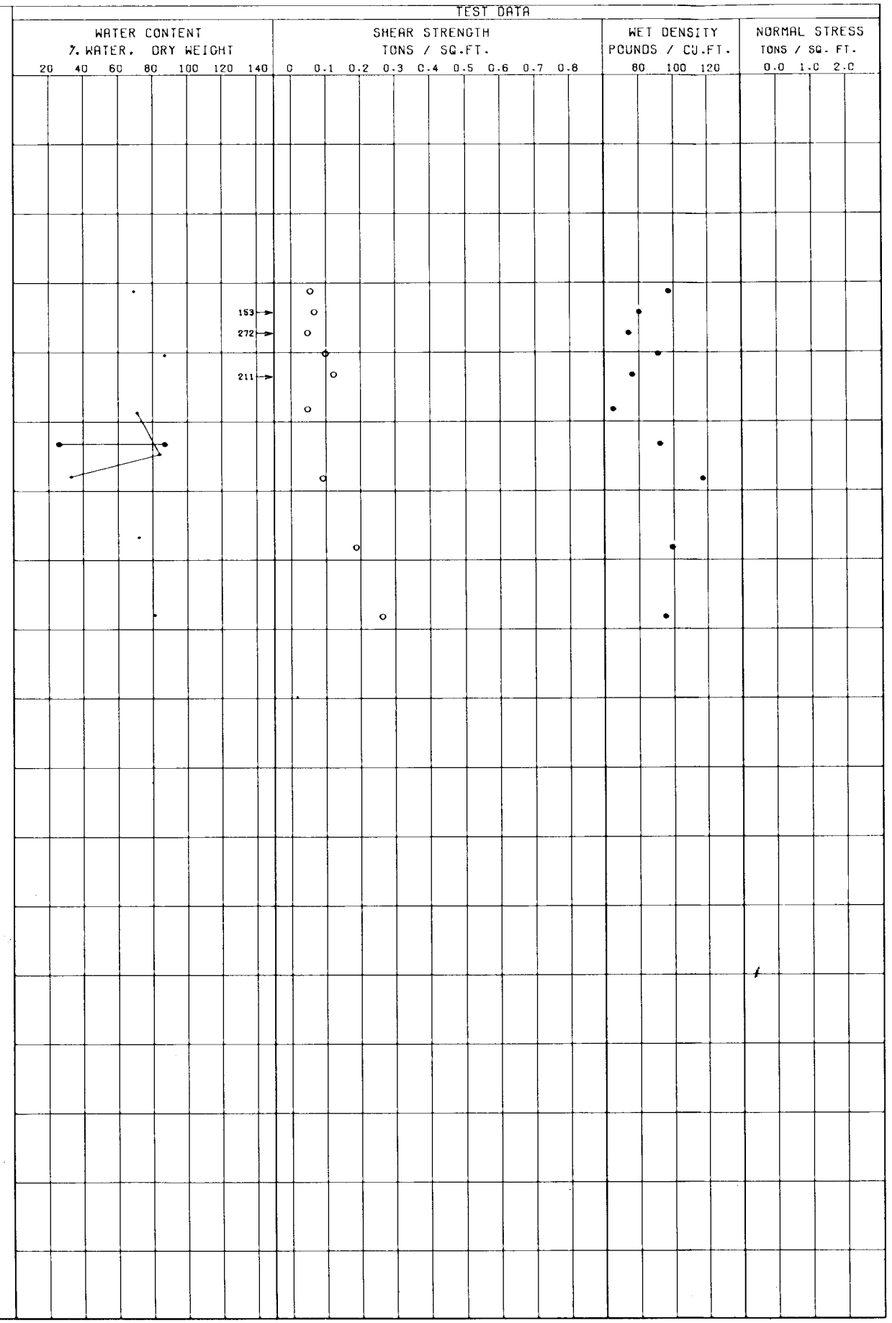
FILE NO H-2-30618

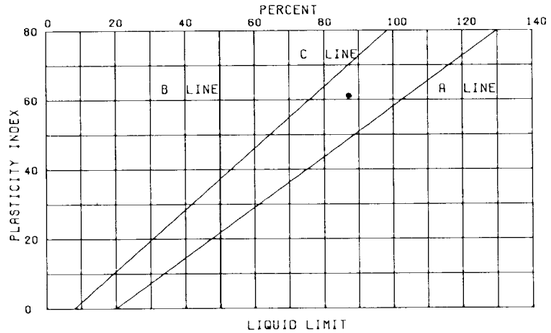
PLATE F7

BOR. WL-6
STA. 188+18
160 FT. RT. B/L
21-22 JAN. '86
GROUND EL. 0.3

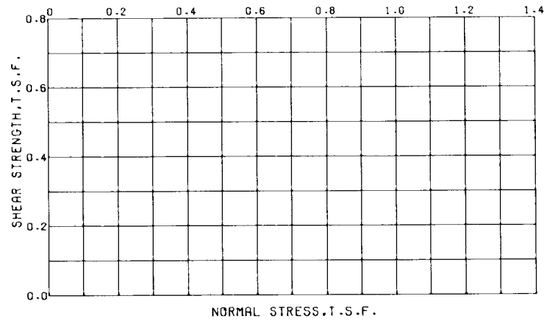


TEST DATA



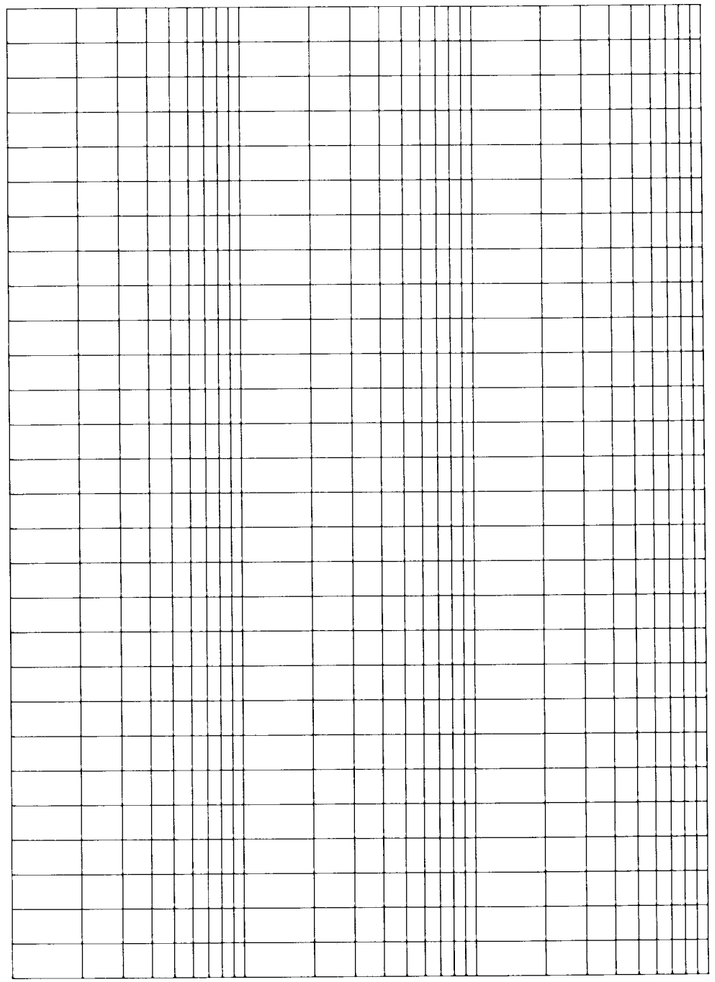


PLASTICITY CHART



SHEAR STRENGTH DATA

ENVELOPE NO.	ENVELOPE EL.	TYPE	STRENGTH Φ	STRENGTH C - TSF	CLASS



CONSOLIDATION DATA

○ - (UC) UNCONFINED COMPRESSION TEST
■ - (Q) UNCONSOLIDATED - UNDRAINED SHEAR TEST
▲ - (R) CONSOLIDATED - UNDRAINED SHEAR TEST
⊡ - (S) CONSOLIDATED - DRAINED SHEAR TEST

BORINGS WERE TAKEN WITH A 5 INCH DIAMETER STEEL TUBE PISTON TYPE SAMPLER

FOR SOIL BORING LEGEND SEE PLATE A

FOR LOCATION OF BORING SEE PLATE 12

WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

BORING WL-6

U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

DATE FEB. 90 FILE NO. H-2-30618

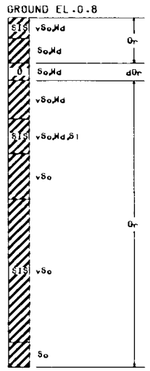
PLATE F8

BOR. WL-7
STA. 118+61

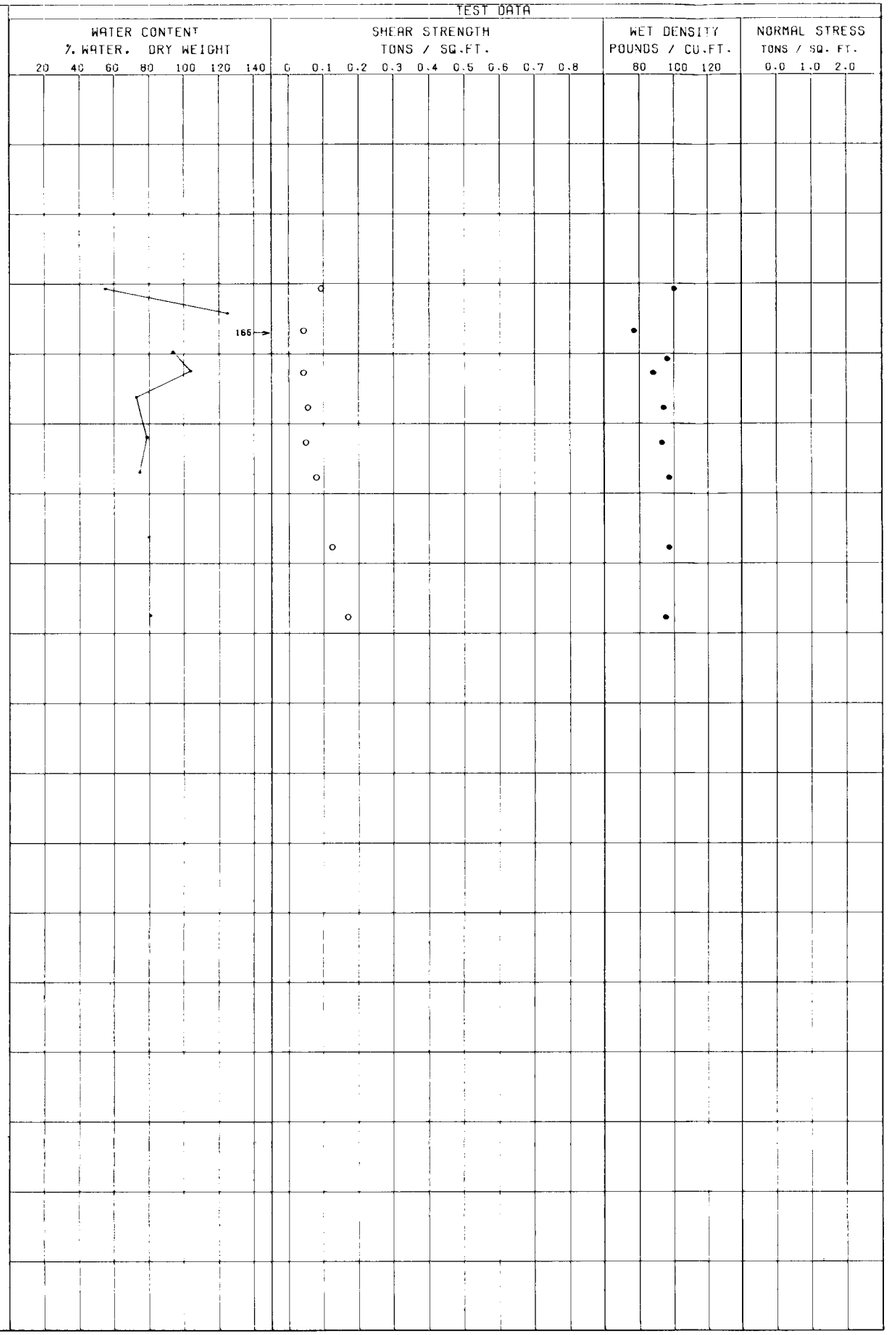
148 FT. RT. B/L

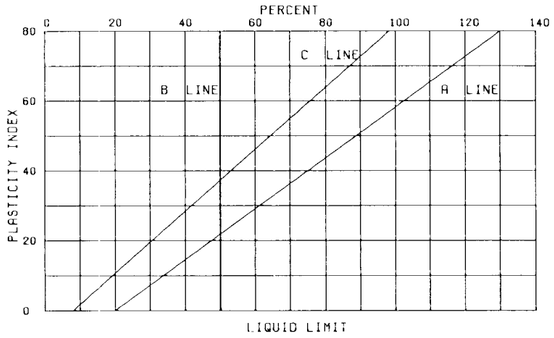
21 JAN. '86

GROUND EL. 0.8

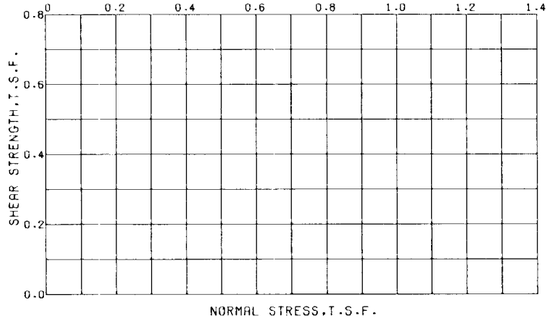


TEST DATA





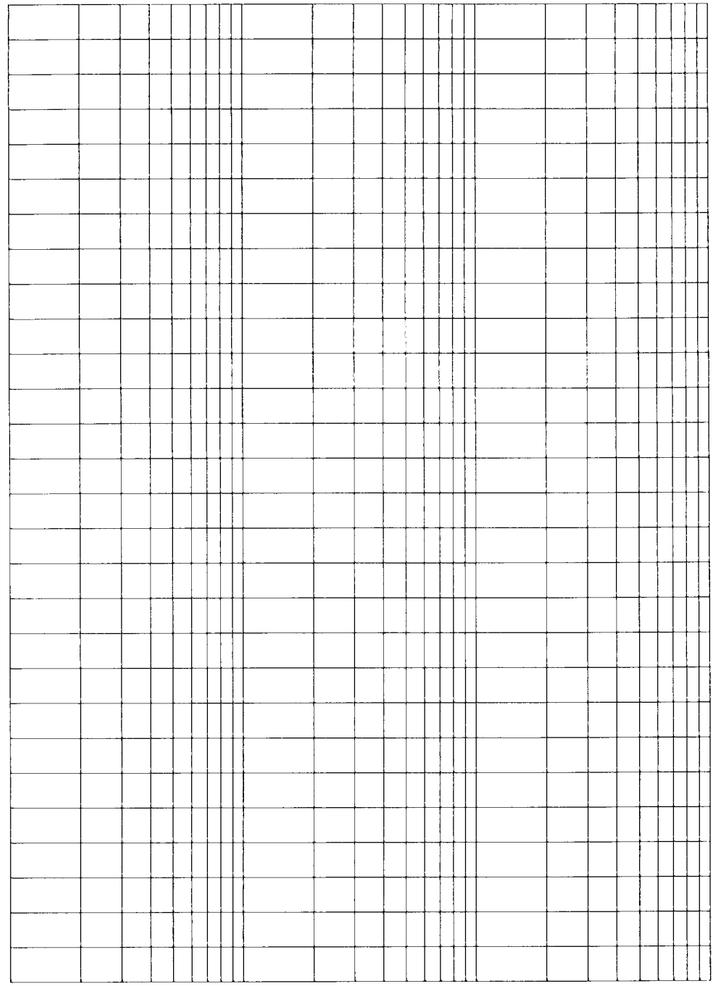
PLASTICITY CHART



SHEAR STRENGTH DATA

ENVELOPE NO.	ENVELOPE EL.	TYPE	STRENGTH Φ	STRENGTH C - TSF	CLASS

LOAD P TONS / SQ. FT.



VOID RATIO

CONSOLIDATION DATA

○ - (UC) UNCONFINED COMPRESSION TEST
■ - (Q) UNCONSOLIDATED - UNDRAINED SHEAR TEST
▲ - (R) CONSOLIDATED - UNDRAINED SHEAR TEST
⊡ - (S) CONSOLIDATED - DRAINED SHEAR TEST

BORINGS WERE TAKEN WITH A 3 INCH DIAMETER STEEL TUBE PISTON TYPE SAMPLER

FOR SOIL BORING LEGEND SEE PLATE A

FOR LOCATION OF BORING SEE PLATE 12

WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

BORING WL-7

U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

DATE FEB. 90

FILE NO. H-2-30618

BOR. WL-8
STA. 127+74
20 FT. RT. B/L
3 FEB. '86
GROUND EL. 0.0

ELEVATIONS IN FEET - N.G.V.D.

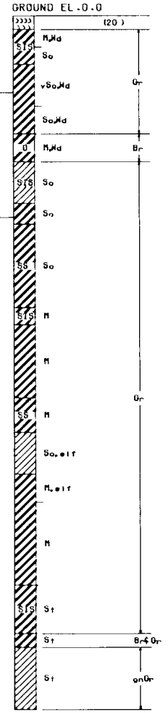
TEST DATA

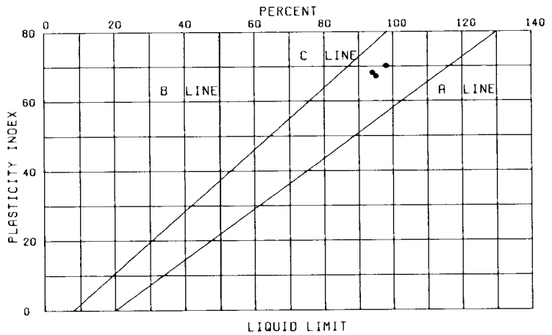
WATER CONTENT
% WATER, DRY WEIGHT
20 40 60 80 100 120 140

SHEAR STRENGTH
TONS / SQ.FT.
0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8

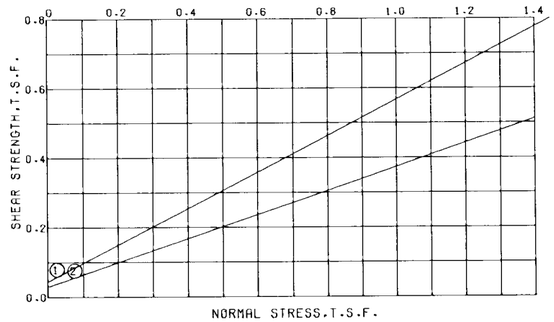
WET DENSITY
POUNDS / CU.FT.
80 100 120

NORMAL STRESS
TONS / SQ. FT.
0.0 1.0 2.0





PLASTICITY CHART



SHEAR STRENGTH DATA

ENVELOPE NO.	ENVELOPE EL.	TYPE	STRENGTH Φ	STRENGTH C - TSF	CLASS
1	11.00	R	29.0	0.045	CH
2	29.00	R	19.0	0.030	CH

LOAD P TONS / SQ. FT.

VOID RATIO

CONSOLIDATION DATA

○ - (UC) UNCONFINED COMPRESSION TEST
■ - (Q) UNCONSOLIDATED - UNDRAINED SHEAR TEST
▲ - (R) CONSOLIDATED - UNDRAINED SHEAR TEST
⊡ - (S) CONSOLIDATED - DRAINED SHEAR TEST

BORINGS WERE TAKEN WITH A 5 INCH DIAMETER STEEL TUBE PISTON TYPE SAMPLER

FOR SOIL BORING LEGEND SEE PLATE A

FOR LOCATION OF BORING SEE PLATES 13 & 14

WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

BORING WL-8

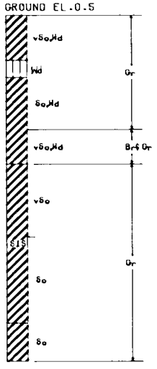
U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

DATE FEB. 90

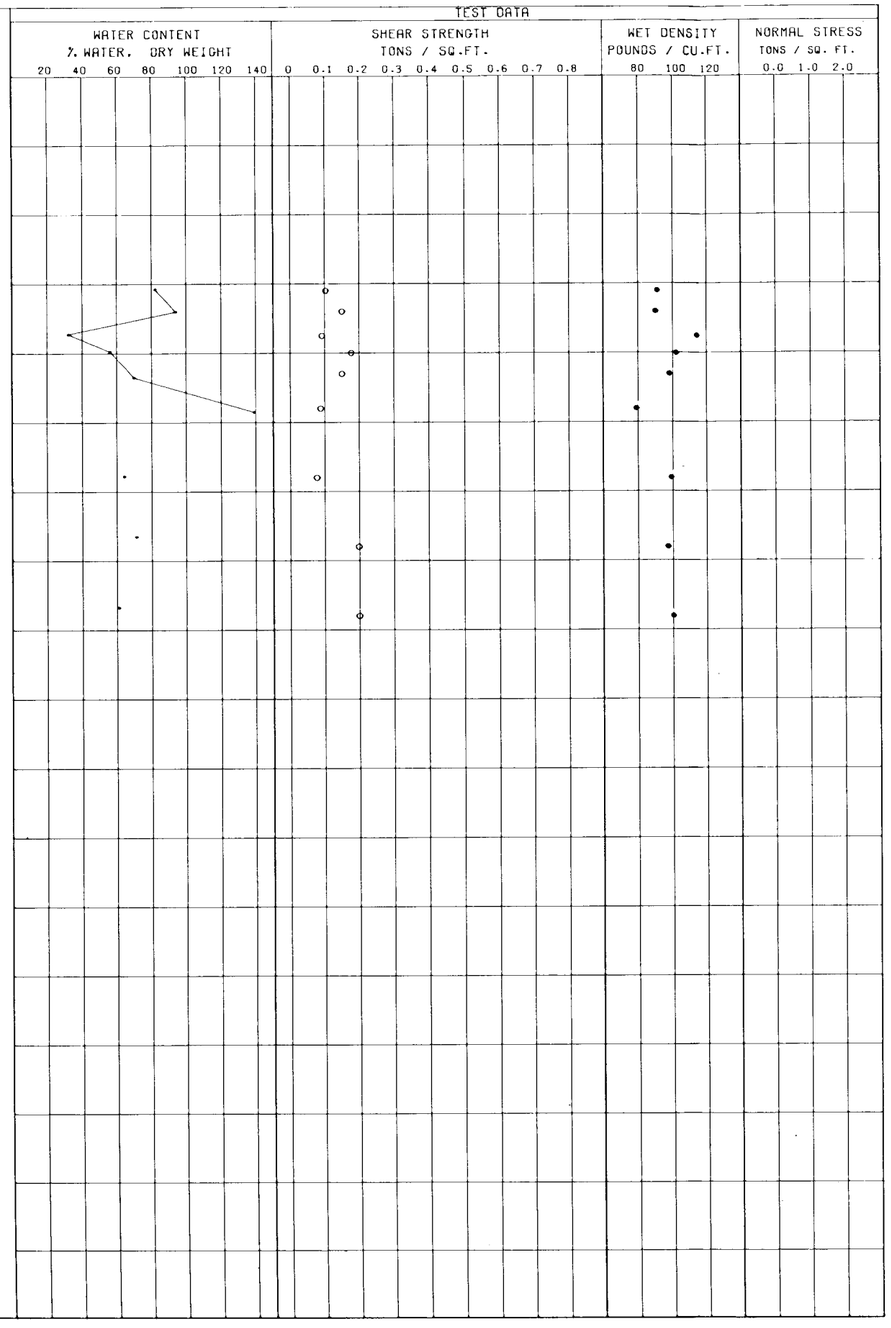
FILE NO. H-2-30618

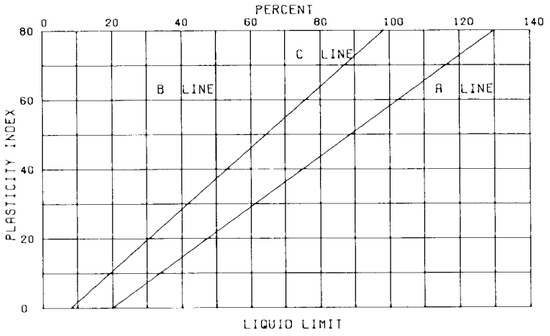
PLATE F10

BOR. WL-9
STA. 138+00
145 FT. RT. B/L
20 JAN. '86
GROUND EL. 0.5

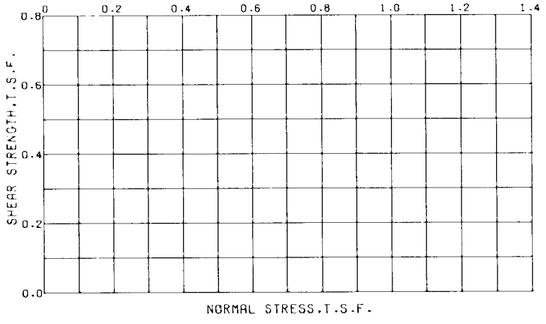


TEST DATA



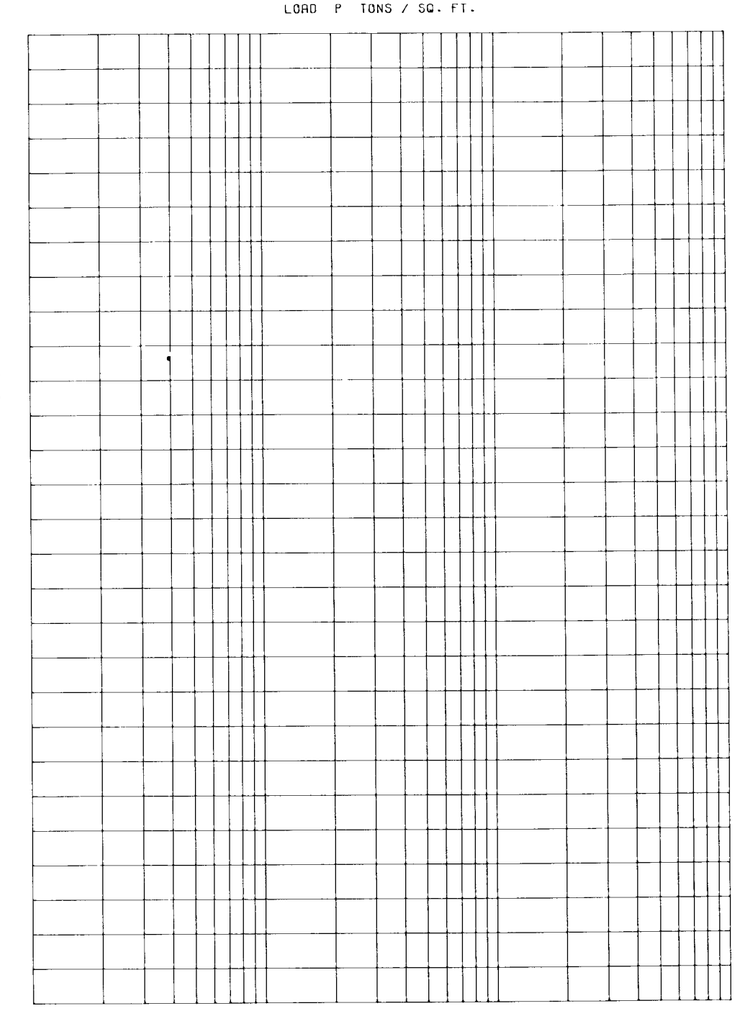


PLASTICITY CHART



SHEAR STRENGTH DATA

ENVELOPE NO.	ENVELOPE EL.	TYPE	STRENGTH Φ	STRENGTH C - TSF	CLASS



CONSOLIDATION DATA

○ - (UC) UNCONFINED COMPRESSION TEST
■ - (Q) UNCONSOLIDATED - UNDRAINED SHEAR TEST
▲ - (R) CONSOLIDATED - UNDRAINED SHEAR TEST
⊡ - (S) CONSOLIDATED - DRAINED SHEAR TEST

BORINGS WERE TAKEN WITH A 3 INCH DIAMETER STEEL TUBE PISTON TYPE SAMPLER

FOR SOIL BORING LEGEND SEE PLATE A

FOR LOCATION OF BORING SEE PLATE 1D

WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

BORING WL-9

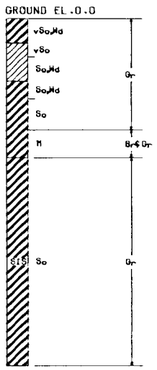
U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

DATE FEB. 90

FILE NO H-2-30618

PLATE F11

BOR. WL-10
STA. 148+58
218 FT. RT. B/L
17-20 JAN. '86
GROUND EL. 0.0



TEST DATA

WATER CONTENT
% WATER. DRY WEIGHT
20 40 60 80 100 120 140

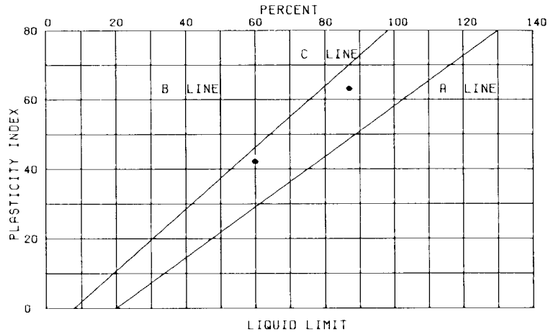
SHEAR STRENGTH
TONS / SQ.FT.
0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8

WET DENSITY
POUNDS / CU.FT.
80 100 120

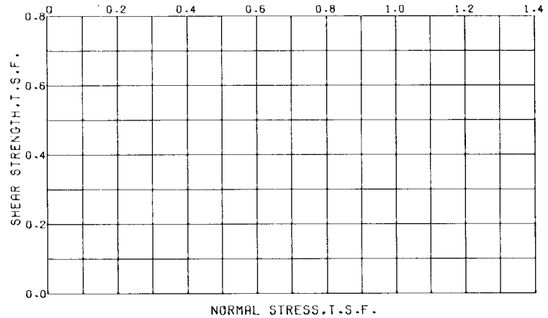
NORMAL STRESS
TONS / SQ. FT.
0.0 1.0 2.0

LL 368 227

ELEVATIONS IN FEET - N.G.V.D.
10 0 -10 -20 -30 -40 -50 -60 -70 -80 -90 -100 -110 -120 -130 -140



PLASTICITY CHART



SHEAR STRENGTH DATA

ENVELOPE NO.	ENVELOPE EL.	TYPE	STRENGTH Φ	STRENGTH C - TSF	CLASS

LOAD P TONS / SQ. FT.

VOID RATIO

CONSOLIDATION DATA

○ - (UC) UNCONFINED COMPRESSION TEST
■ - (Q) UNCONSOLIDATED - UNDRAINED SHEAR TEST
▲ - (R) CONSOLIDATED - UNDRAINED SHEAR TEST
⊡ - (S) CONSOLIDATED - DRAINED SHEAR TEST

BORINGS WERE TAKEN WITH A 5 INCH DIAMETER STEEL TUBE PISTON TYPE SAMPLER
FOR SOIL BORING LEGEND SEE PLATE A
FOR LOCATION OF BORING SEE PLATE 16

WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

BORING WL-10

U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

DATE: FEB. 90
FILE NO. H-2-30618

PLATE F12

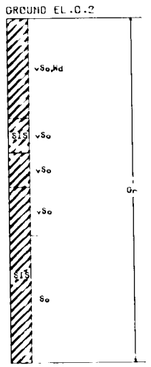
BOR. WL-11

STA. 158+16

245 FT. RT. B/L

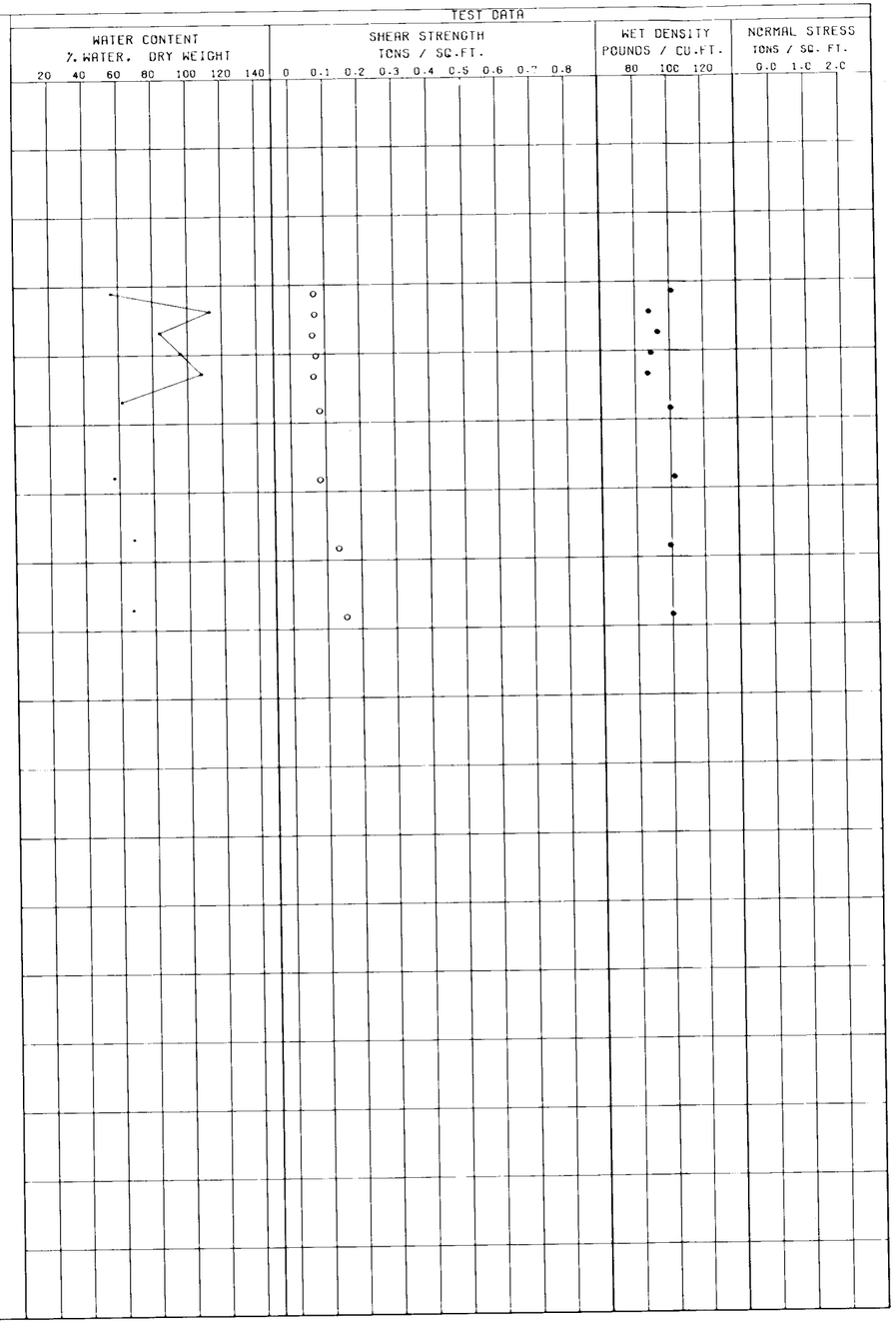
17 JAN. '86

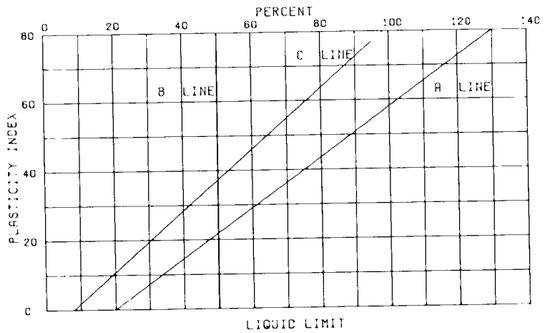
GROUND EL. C.2



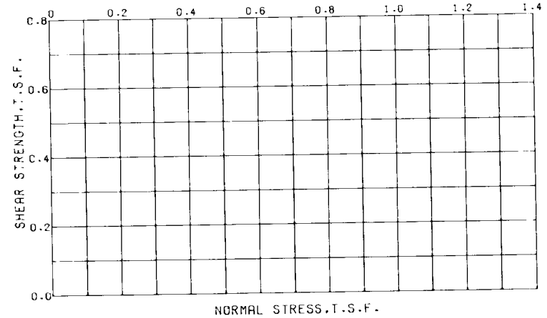
ELEVATIONS IN FEET - N.G.V.D.

TEST DATA





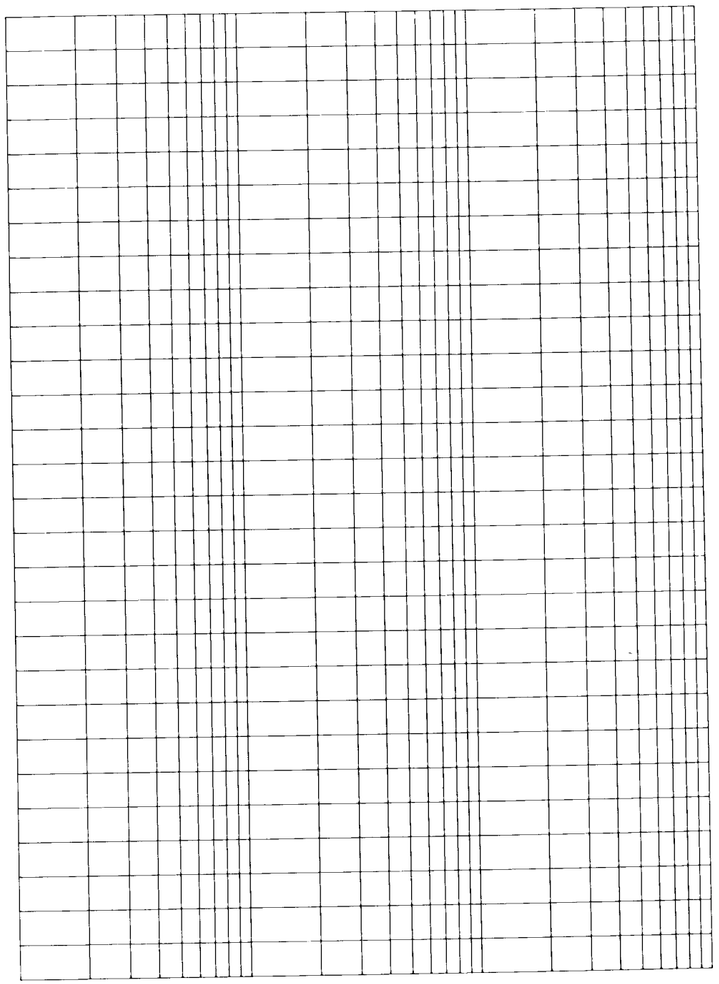
PLASTICITY CHART



SHEAR STRENGTH DATA

ENVELOPE NO.	ENVELOPE EL.	TYPE	STRENGTH Φ	STRENGTH C - TSF	CLASS

LOAD P TONS / SQ. FT.



CONSOLIDATION DATA

○ - (UC) UNCONFINED COMPRESSION TEST
■ - (C) UNCONSOLIDATED - UNDRAINED SHEAR TEST
▲ - (R) CONSOLIDATED - UNDRAINED SHEAR TEST
⊡ - (S) CONSOLIDATED - DRAINED SHEAR TEST

BORINGS WERE TAKEN WITH A 3 INCH DIAMETER STEEL TUBE PISTON TYPE SAMPLER

FOR SOIL BORING LEGEND SEE PLATE A

FOR LOCATION OF BORING SEE PLATE 1@

WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

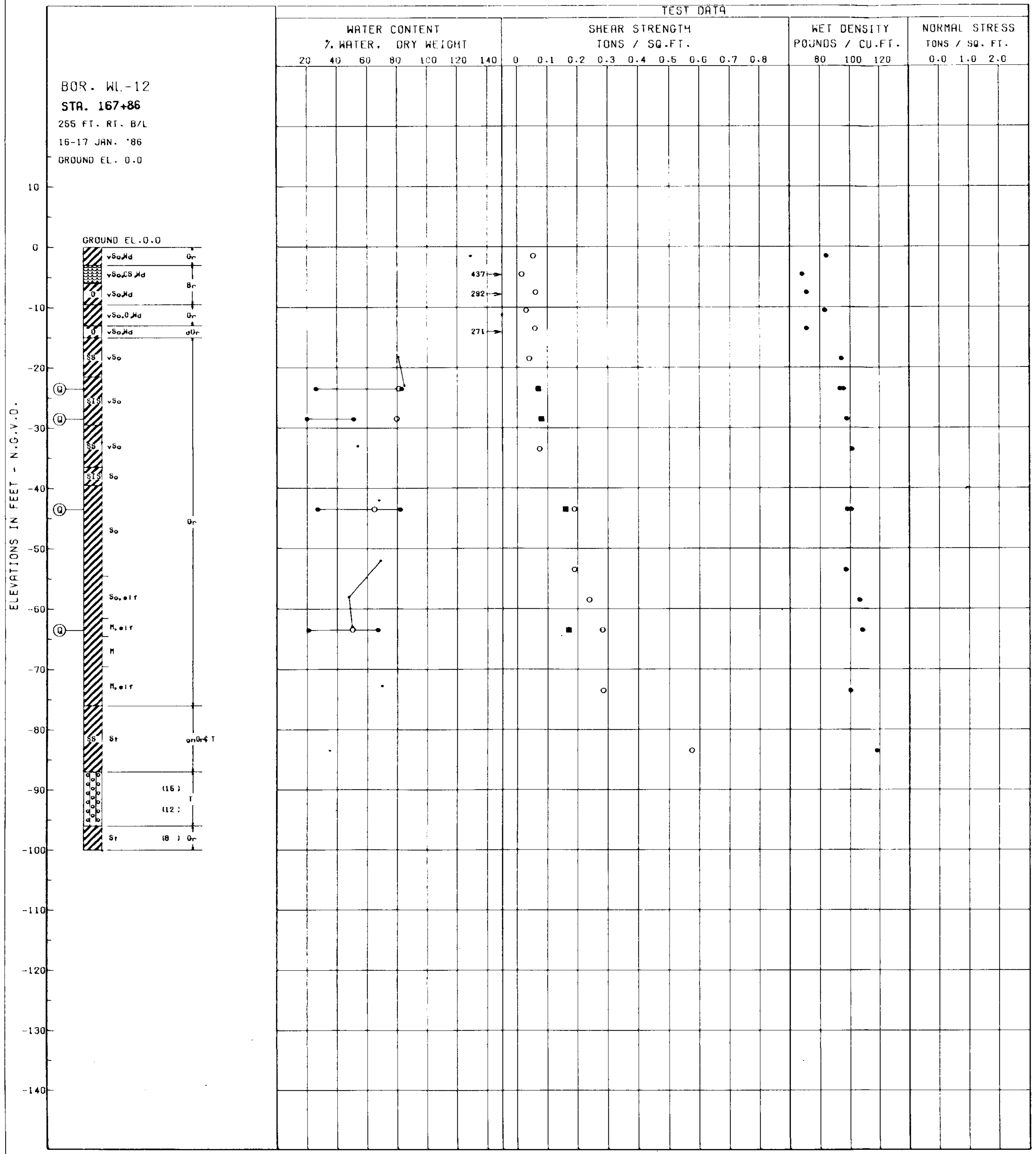
BORING WL-11

U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

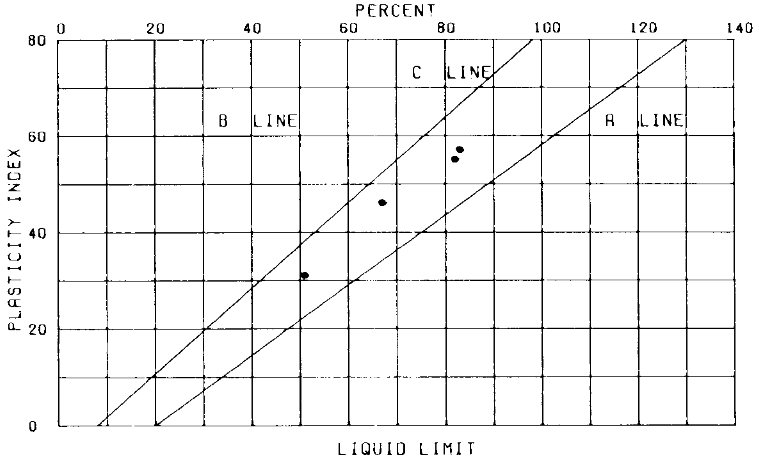
DATE FEB. 90

FILE NO H-2-30618

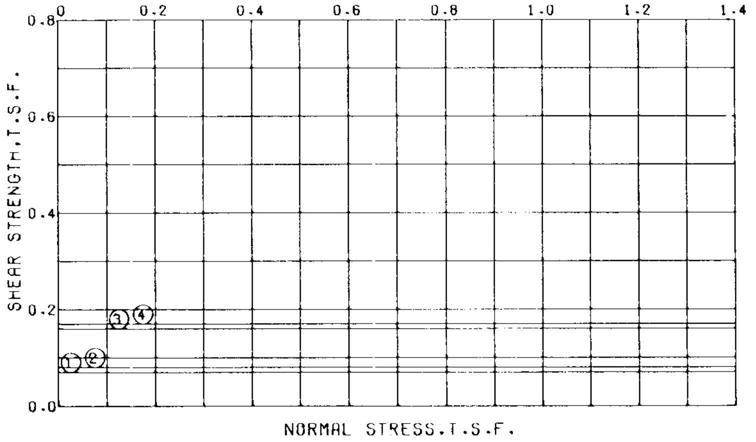
PLATE F13



PERCENT



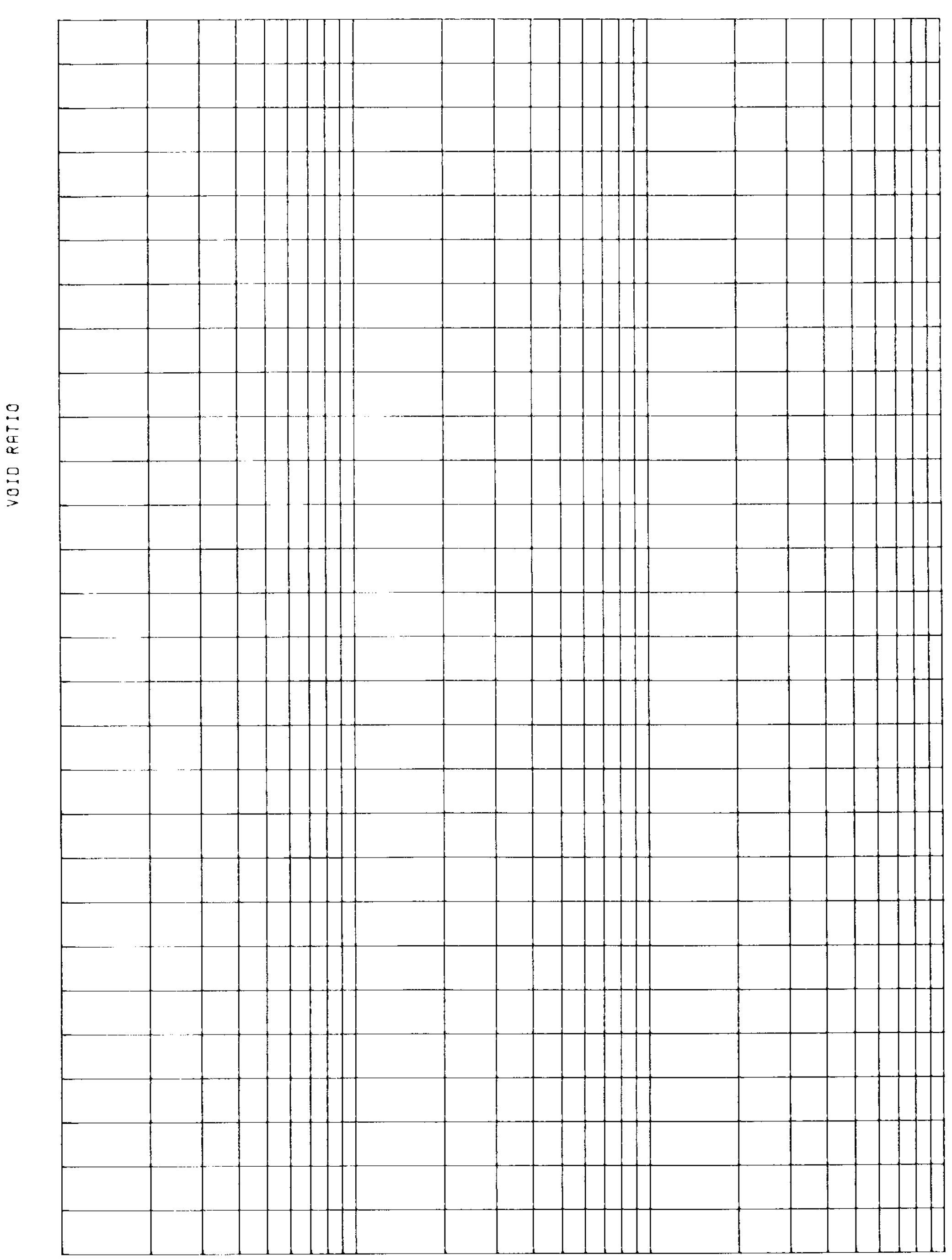
PLASTICITY CHART



SHEAR STRENGTH DATA

ENVELOPE		TYPE	STRENGTH		CLASS
NO.	EL.		Φ	C - TSF	
1	23.50	Q	0.0	0.070	CH
2	28.50	Q	0.0	0.080	CH
3	43.50	Q	0.0	0.160	CH
4	63.50	Q	0.0	0.170	CH

LOAD P TONS / SQ. FT.



CONSOLIDATION DATA

○ - (UC) UNCONFINED COMPRESSION TEST
■ - (Q) UNCONSOLIDATED - UNDRAINED SHEAR TEST
▲ - (R) CONSOLIDATED - UNDRAINED SHEAR TEST
◫ - (S) CONSOLIDATED - DRAINED SHEAR TEST

BORINGS WERE TAKEN WITH A 5 INCH DIAMETER STEEL TUBE PISTON TYPE SAMPLER

FOR SOIL BORING LEGEND SEE PLATE A

FOR LOCATION OF BORING SEE PLATE 10

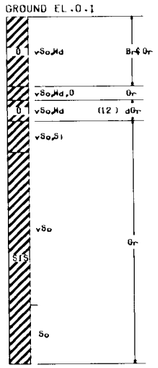
WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

BORING WL-12

U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

DATE: FEB. 90 FILE NO. H-2-30618

BOR. WL-13
STA. 178+86
290 FT. RT. B/L
15 JAN 86
GROUND EL. 0.1



ELEVATIONS IN FEET - N.G.V.D.

TEST DATA

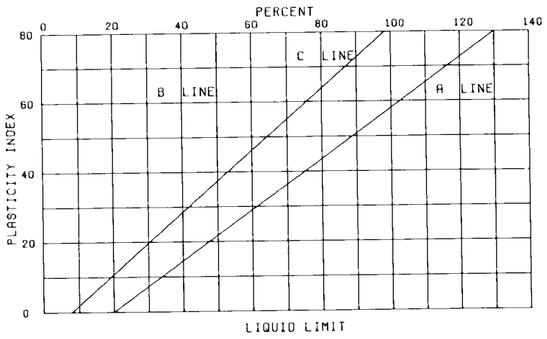
WATER CONTENT
% WATER, DRY WEIGHT
20 40 60 80 100 120 140

SHEAR STRENGTH
TONS / SQ.FT.
0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8

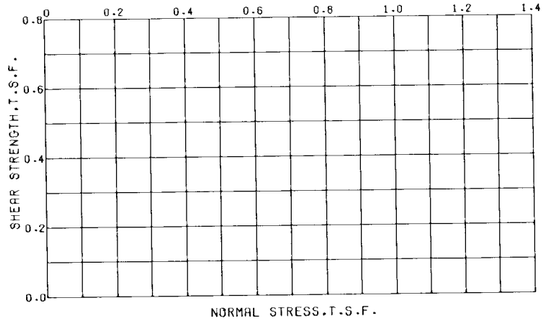
WET DENSITY
POUNDS / CU.FT.
80 100 120

NORMAL STRESS
TONS / SQ. FT.
0.0 1.0 2.0

166
238
171
218



PLASTICITY CHART



SHEAR STRENGTH DATA

ENVELOPE NO.	ENVELOPE EL.	TYPE	STRENGTH Φ	STRENGTH C - TSF	CLASS

LOAD P TONS / SQ. FT.

VOID RATIO

CONSOLIDATION DATA

○ - (UC) UNCONFINED COMPRESSION TEST
■ - (Q) UNCONSOLIDATED - UNDRAINED SHEAR TEST
▲ - (R) CONSOLIDATED - UNDRAINED SHEAR TEST
⊡ - (S) CONSOLIDATED - DRAINED SHEAR TEST

BORINGS WERE TAKEN WITH A 3 INCH DIAMETER STEEL TUBE PISTON TYPE SAMPLER

FOR SOIL BORING LEGEND SEE PLATE A

FOR LOCATION OF BORING SEE PLATE 17

WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

BORING WL-13

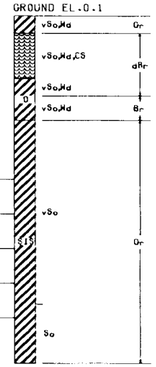
U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

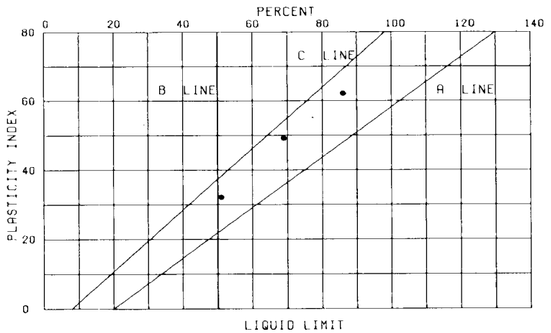
DATE: FEB. 90

FILE NO. H-2-30618

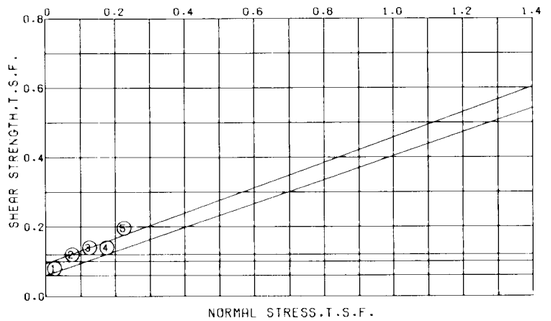
PLATE F15

BOR. WL-14
STA. 188+72
200 FT. RT. B/L
15 JAN. '86
GROUND EL. 0.1



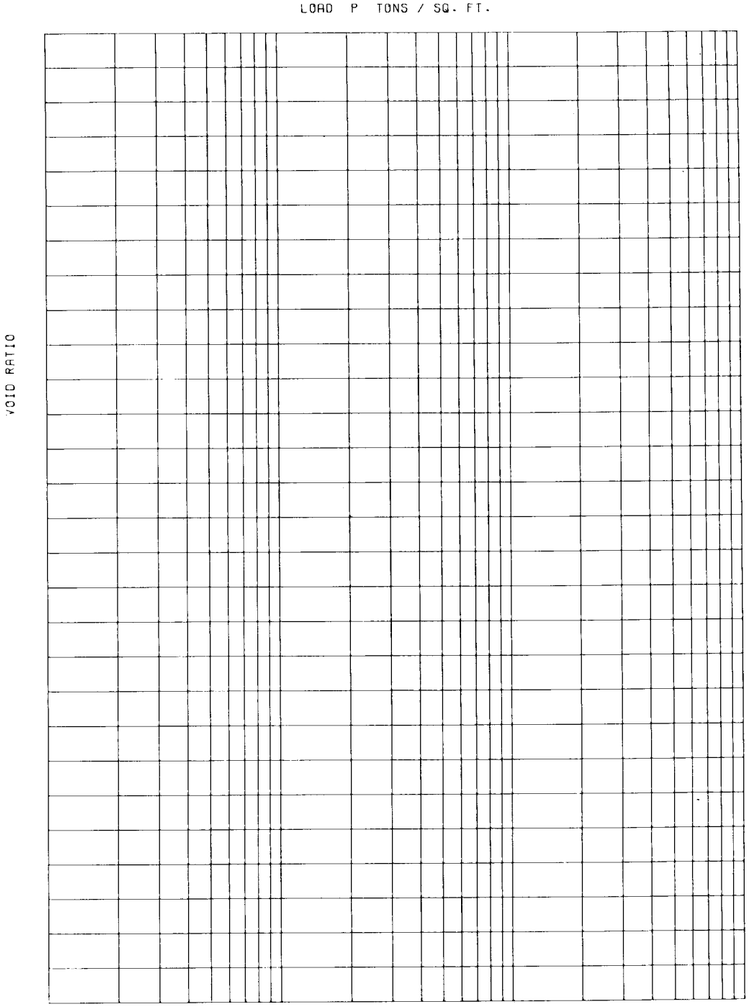


PLASTICITY CHART



SHEAR STRENGTH DATA

ENVELOPE NO.	ENVELOPE EL.	TYPE	STRENGTH Φ	STRENGTH C - TSF	CLASS
1	23.40	Q	0.0	0.060	CH
2	33.40	Q	0.0	0.100	CH
3	38.40	Q	0.0	0.120	CH
4	28.40	R	19.0	0.060	CH
5	43.40	R	20.0	0.094	CH



CONSOLIDATION DATA

○ - (UC) UNCONFINED COMPRESSION TEST
■ - (Q) UNCONSOLIDATED - UNDRAINED SHEAR TEST
▲ - (R) CONSOLIDATED - UNDRAINED SHEAR TEST
⊡ - (S) CONSOLIDATED - DRAINED SHEAR TEST

BORINGS WERE TAKEN WITH A 5 INCH DIAMETER STEEL TUBE PISTON TYPE SAMPLER
FOR SOIL BORING LEGEND SEE PLATE A
FOR LOCATION OF BORING SEE PLATE 17

WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

BORING WL-14

U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

DATE: FEB. 90 FILE NO. H-2-30618

PLATE F16

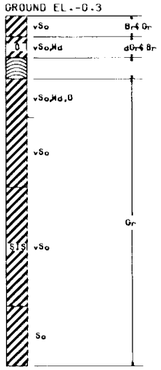
BOR. WL-15

STA. 198+46

208 FT. RT. B/L

14 JAN. '86

GROUND EL. -0.3



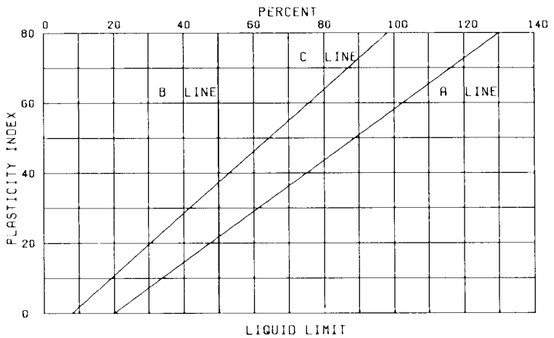
ELEVATIONS IN FEET - N.G.V.D.

0 -10 -20 -30 -40 -50 -60 -70 -80 -90 -100 -110 -120 -130 -140 -150

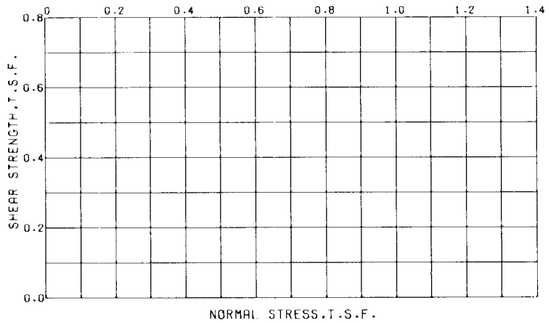
TEST DATA

WATER CONTENT % WATER. DRY WEIGHT	SHEAR STRENGTH TONS / SQ.FT.	WET DENSITY POUNDS / CU.FT.	NORMAL STRESS TONS / SQ. FT.
20 40 60 80 100 120 140	0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8	80 100 120	0.0 1.0 2.0

177 → 314 → 241 →



PLASTICITY CHART



SHEAR STRENGTH DATA

ENVELOPE NO.	ENVELOPE EL.	TYPE	STRENGTH Φ	STRENGTH C - TSF	CLASS

LOAD P TONS / SQ. FT.

VOID RATIO

CONSOLIDATION DATA

○ - (UC) UNCONFINED COMPRESSION TEST
■ - (Q) UNCONSOLIDATED - UNDRAINED SHEAR TEST
▲ - (R) CONSOLIDATED - UNDRAINED SHEAR TEST
▽ - (S) CONSOLIDATED - DRAINED SHEAR TEST

BORINGS WERE TAKEN WITH A 3 INCH DIAMETER STEEL TUBE PISTON TYPE SAMPLER

FOR SOIL BORING LEGEND SEE PLATE A

FOR LOCATION OF BORING SEE PLATE *

WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

BORING WL-15

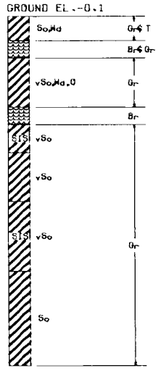
U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

DATE: FEB. 90

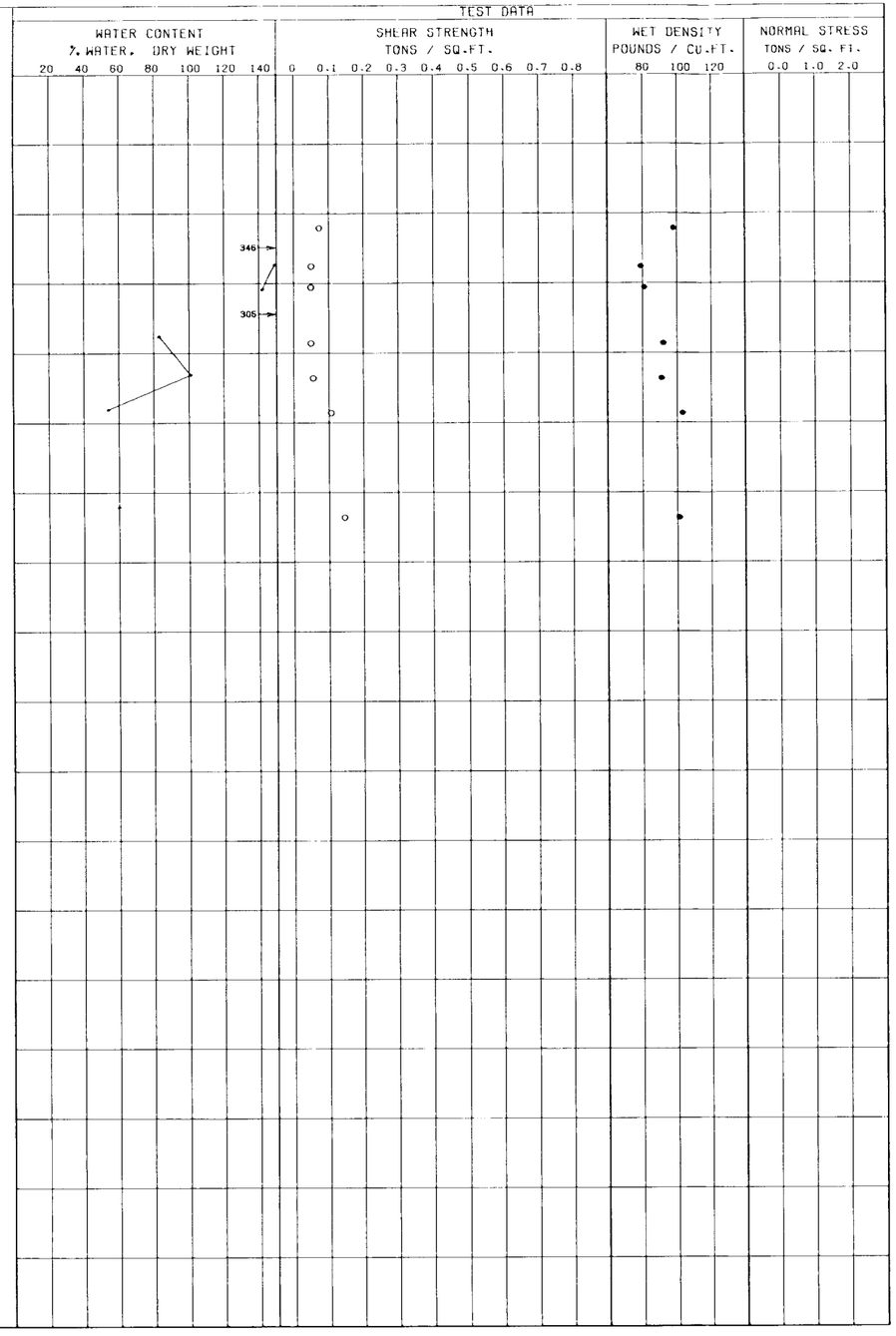
FILE NO. H-2-30618

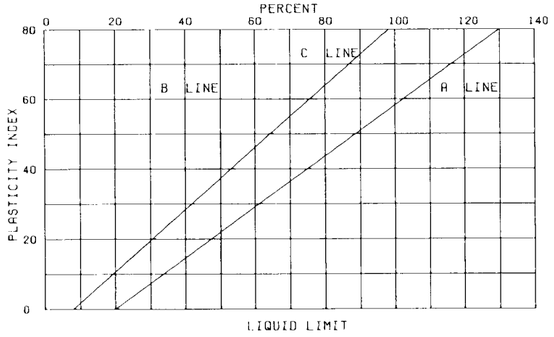
PLATE F17

BOR. WL-16
STA. 288+11
225 FT. RT. B/L
14 JAN. '86
GROUND EL. -0.1

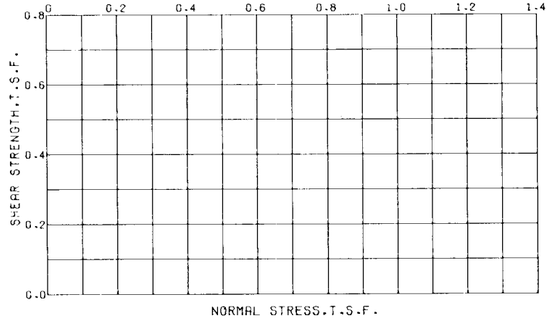


TEST DATA





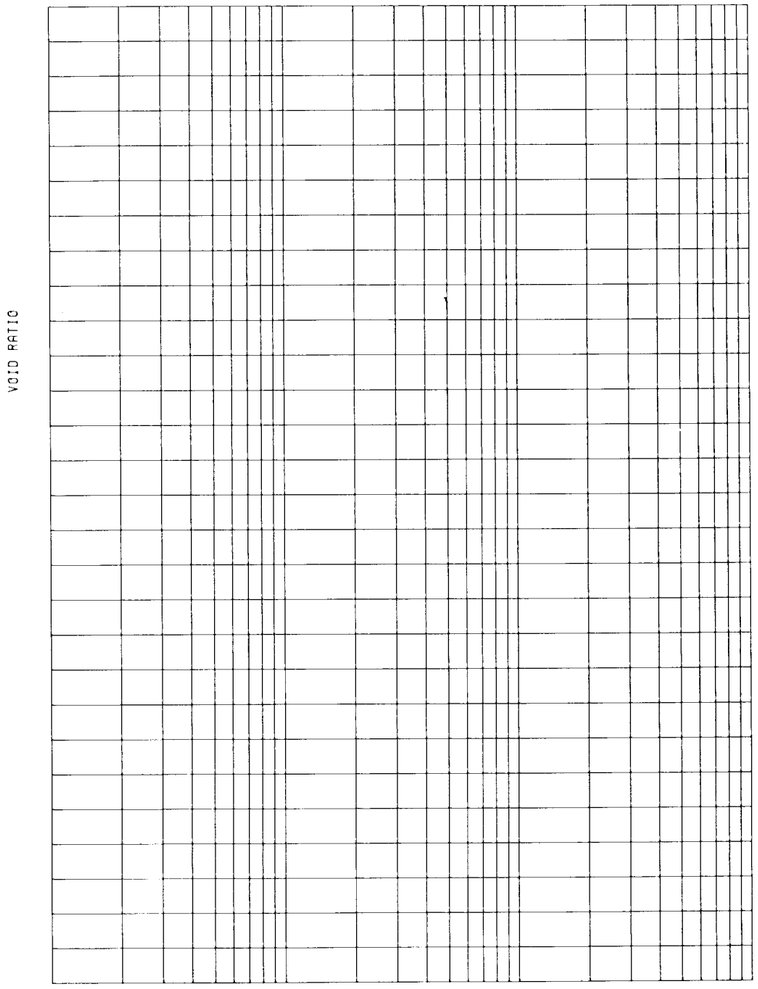
PLASTICITY CHART



SHEAR STRENGTH DATA

ENVELOPE NO.	ENVELOPE EL.	TYPE	STRENGTH Φ	STRENGTH C - TSF	CLASS

LOAD P TONS / SQ. FT.



CONSOLIDATION DATA

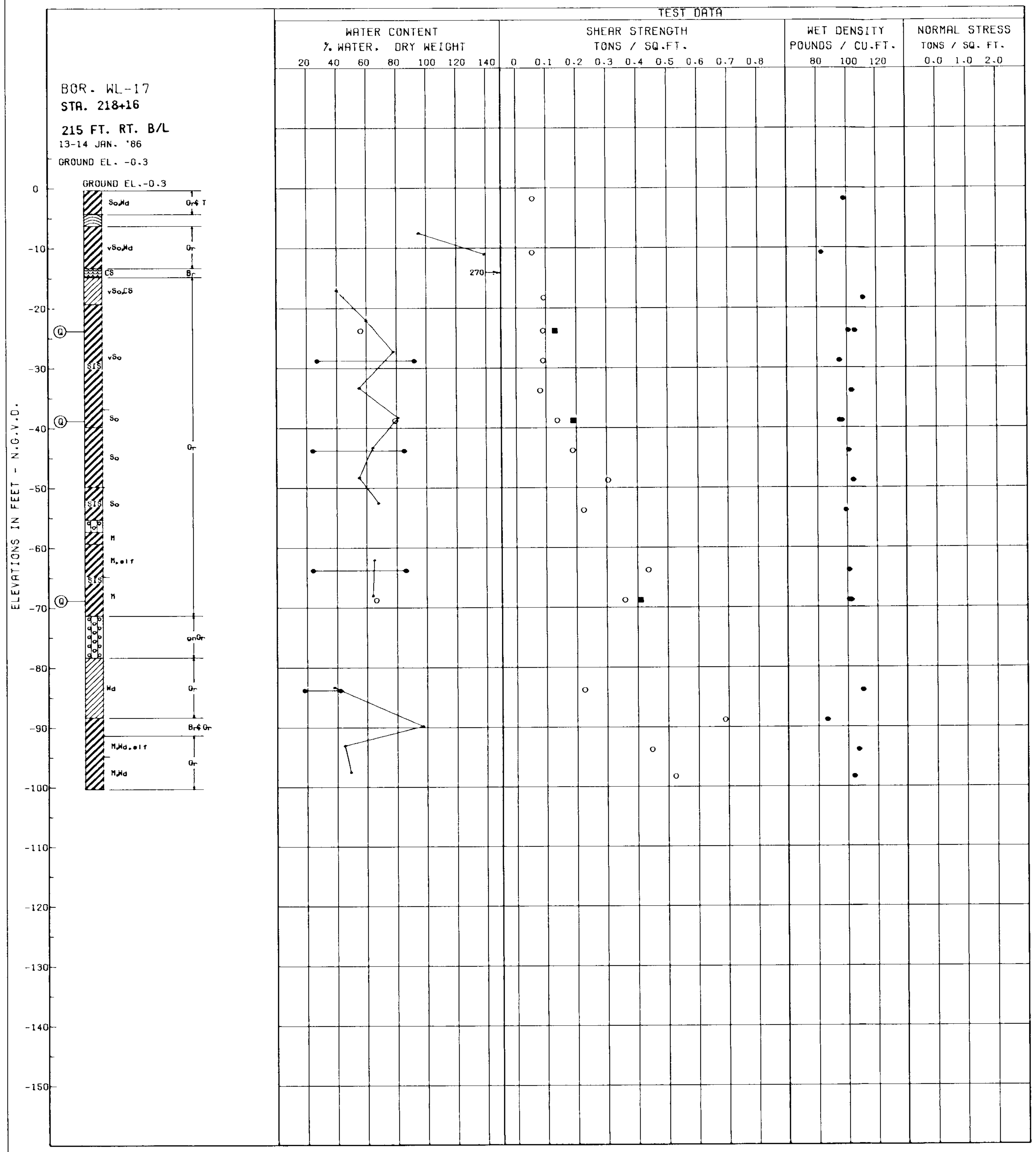
○ - (UC) UNCONFINED COMPRESSION TEST
■ - (Q) UNCONSOLIDATED - UNDRAINED SHEAR TEST
▲ - (R) CONSOLIDATED - UNDRAINED SHEAR TEST
⊡ - (S) CONSOLIDATED - DRAINED SHEAR TEST
BORINGS WERE TAKEN WITH A 3 INCH DIAMETER STEEL TUBE PISTON TYPE SAMPLER
FOR SOIL BORING LEGEND SEE PLATE A
FOR LOCATION OF BORING SEE PLATE 18

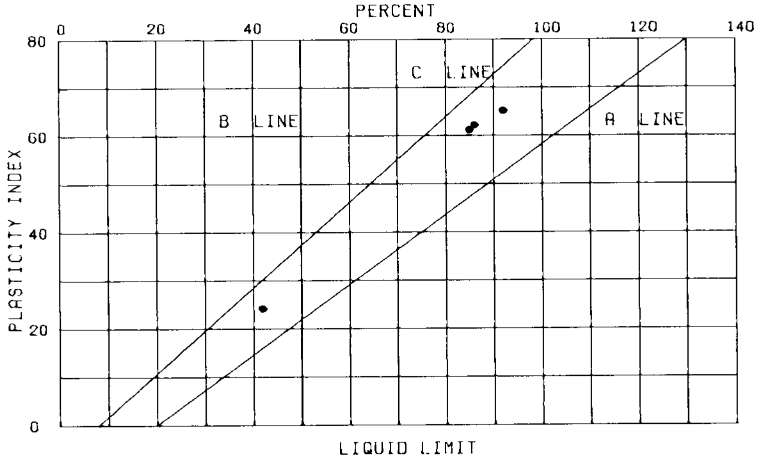
WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

BORING WL-16

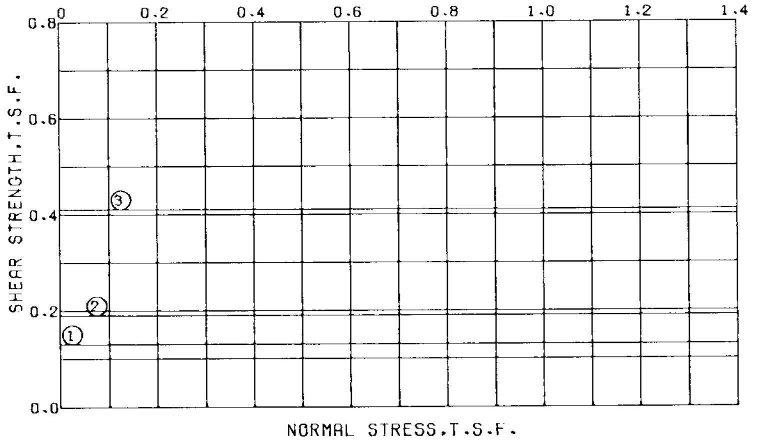
U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS
DATE: FEB. 90
FILE NO. H-2-30618

PLATEF18



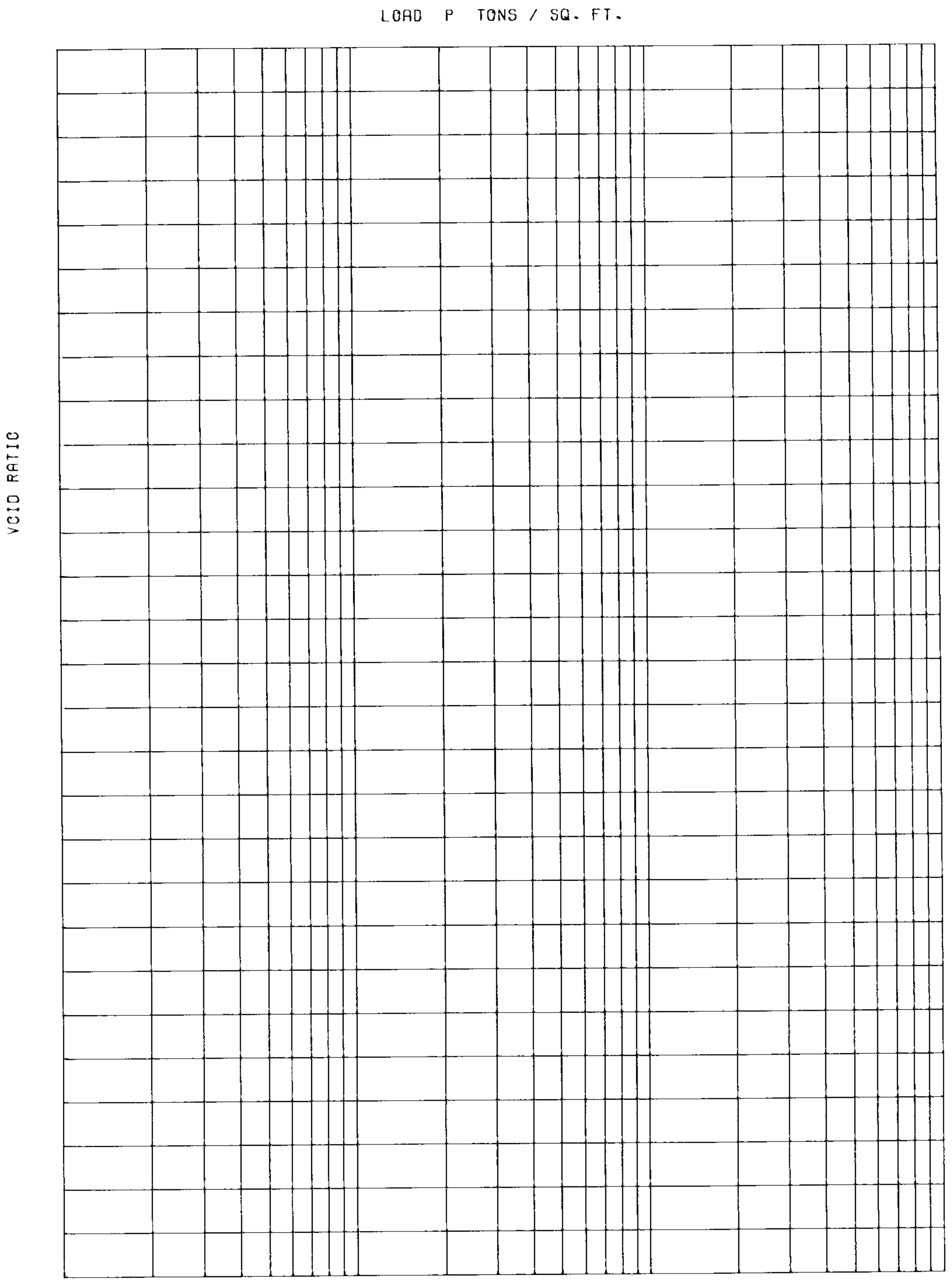


PLASTICITY CHART



SHEAR STRENGTH DATA

ENVELOPE NO.	EL.	TYPE	STRENGTH Φ	C - TSF	CLASS
1	23.20	Q	0.0	0.130	CH
2	38.20	Q	0.0	0.190	CH
3	68.20	Q	0.0	0.410	CH



CONSOLIDATION DATA

○ - (UC) UNCONFINED COMPRESSION TEST
■ - (Q) UNCONSOLIDATED - UNDRAINED SHEAR TEST
▲ - (R) CONSOLIDATED - UNDRAINED SHEAR TEST
◫ - (S) CONSOLIDATED - DRAINED SHEAR TEST

BORINGS WERE TAKEN WITH A 5 INCH DIAMETER STEEL TUBE PISTON TYPE SAMPLER

FOR SOIL BORING LEGEND SEE PLATE A

FOR LOCATION OF BORING SEE PLATE 19

WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. I GENERAL DESIGN
SUPPLEMENT NO. 2

BORING WL-17

U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

DATE: FEB. 90 FILE NO. H-2-30618

PLATE F19

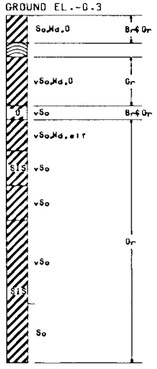
BOR. WL-18

STA. 226+46

332 FT. RT. B/L

13 JAN. '86

GROUND EL. -0.3

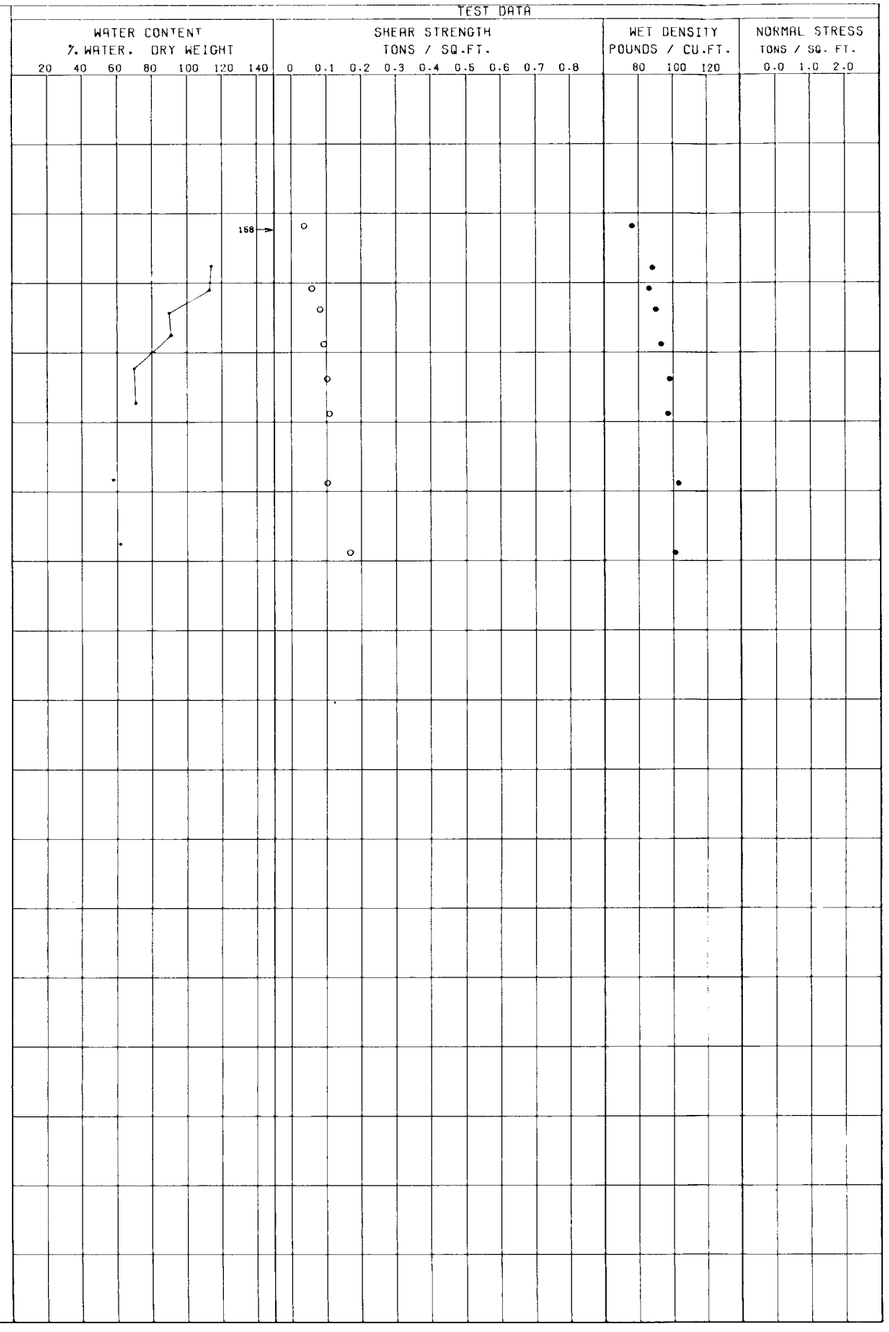


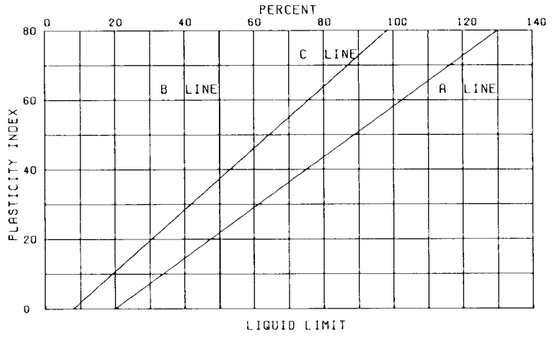
ELEVATIONS IN FEET - N.G.V.D.

0 -10 -20 -30 -40 -50 -60 -70 -80 -90 -100 -110 -120 -130 -140 -150

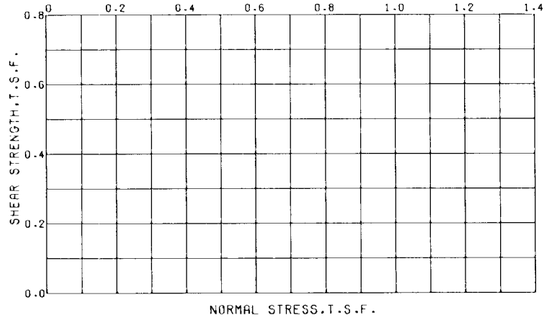
TEST DATA

WATER CONTENT % WATER, DRY WEIGHT	SHEAR STRENGTH TONS / SQ.FT.	WET DENSITY POUNDS / CU.FT.	NORMAL STRESS TONS / SQ. FT.
20 40 60 80 100 120 140	0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8	80 100 120	0.0 1.0 2.0



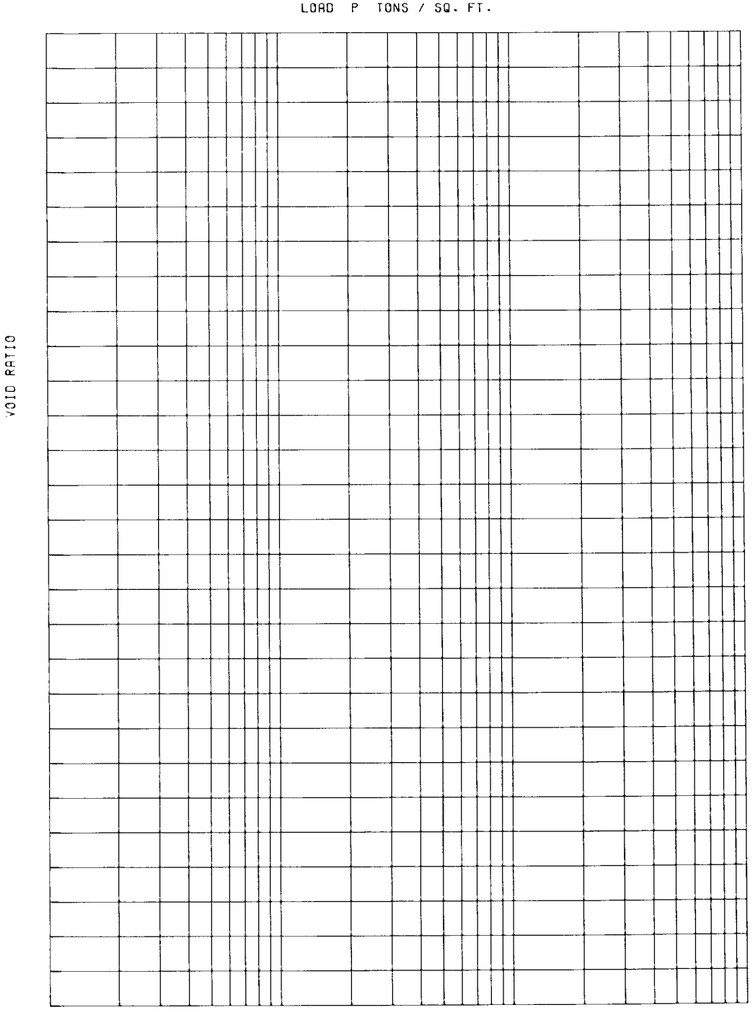


PLASTICITY CHART



SHEAR STRENGTH DATA

ENVELOPE NO.	ENVELOPE EL.	TYPE	STRENGTH Φ	STRENGTH C - TSF	CLASS



CONSOLIDATION DATA

○ - (UC) UNCONFINED COMPRESSION TEST
■ - (Q) UNCONSOLIDATED - UNDRAINED SHEAR TEST
▲ - (R) CONSOLIDATED - UNDRAINED SHEAR TEST
⊡ - (S) CONSOLIDATED - DRAINED SHEAR TEST

BORINGS WERE TAKEN WITH A 3 INCH DIAMETER STEEL TUBE PISTON TYPE SAMPLER

FOR SOIL BORING LEGEND SEE PLATE A

FOR LOCATION OF BORING SEE PLATE 20

WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

BORING WL-18

U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

DATE: FEB. 90

FILE NO. H-2-30618

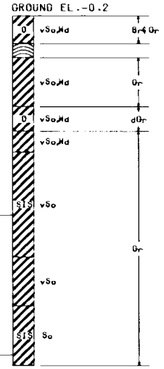
BOR. WL-19

STA. 238+19

330 FT. RT. B/L

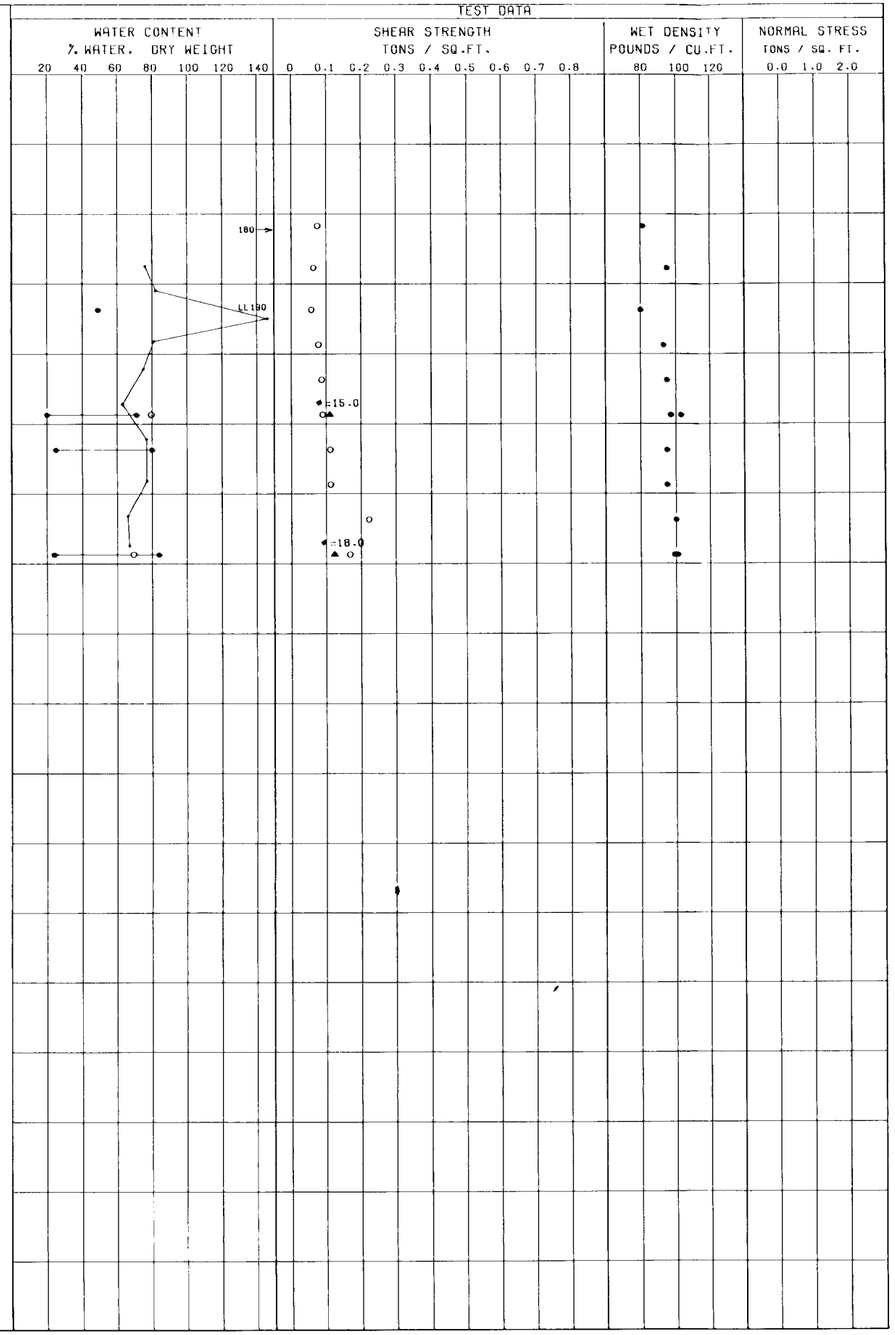
10 JAN. '86

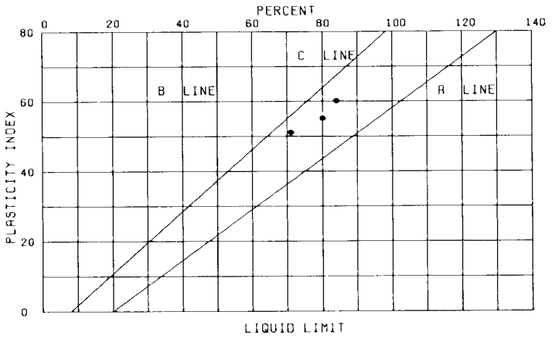
GROUND EL. -0.2



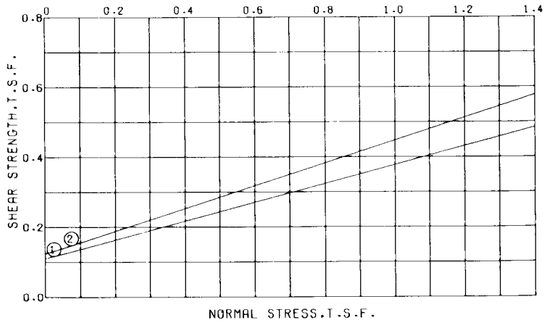
ELEVATIONS IN FEET - N.G.V.D.

TEST DATA





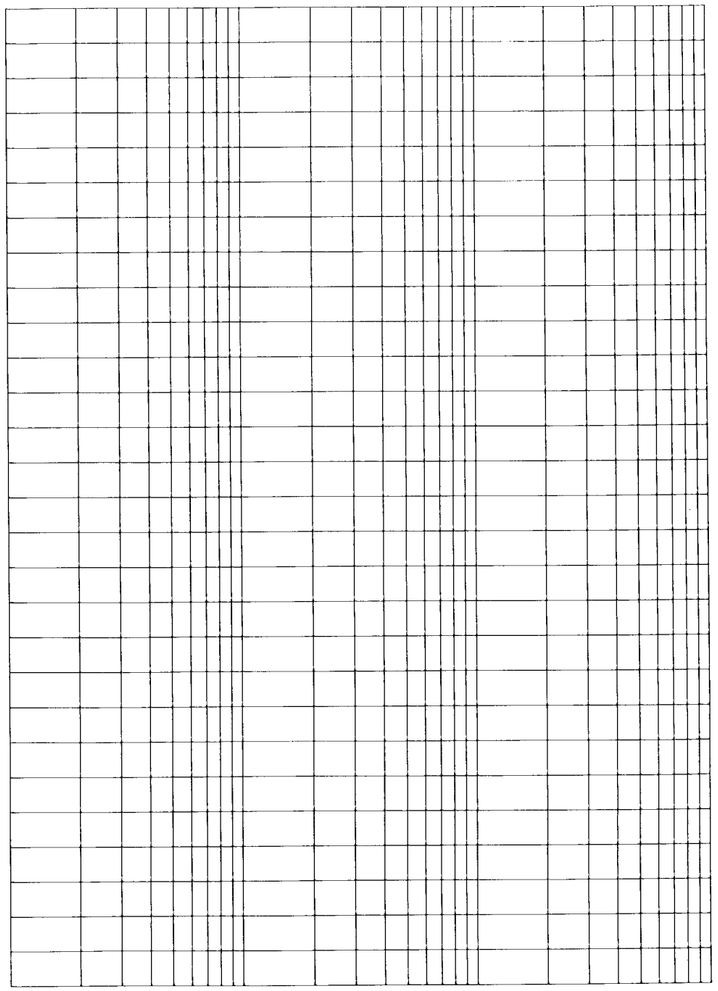
PLASTICITY CHART



SHEAR STRENGTH DATA

ENVELOPE NO.	ENVELOPE EL.	TYPE	STRENGTH Φ	STRENGTH C - TSF	CLASS
1	28.70	R	15.0	0.110	CH
2	48.70	R	18.0	0.123	CH

LOAD P TONS / SQ. FT.



VOID RATIO

CONSOLIDATION DATA

○ - (UC) UNCONFINED COMPRESSION TEST

■ - (Q) UNCONSOLIDATED - UNDRAINED SHEAR TEST

▲ - (R) CONSOLIDATED - UNDRAINED SHEAR TEST

▽ - (S) CONSOLIDATED - DRAINED SHEAR TEST

BORINGS WERE TAKEN WITH A 5 INCH DIAMETER STEEL TUBE PISTON TYPE SAMPLER

FOR SOIL BORING LEGEND SEE PLATE A

FOR LOCATION OF BORING SEE PLATE 1

WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

BORING WL-19

U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

DATE: FEB. 90

FILE NO. H-2-30618

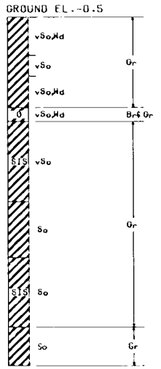
BOR. WL-20

STA. 248+36

286 FT. RT. B/L

10 JAN. '86

GROUND EL. -0.5



ELEVATIONS IN FEET - N.G.V.D.

TEST DATA

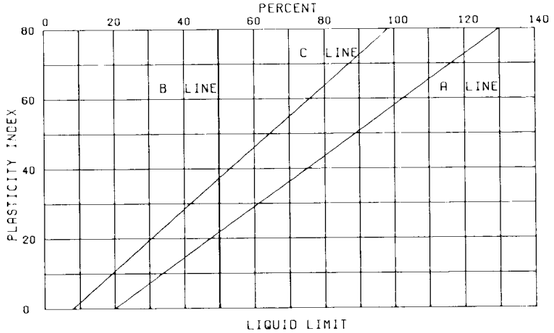
WATER CONTENT
% WATER, DRY WEIGHT
20 40 60 80 100 120 140

SHEAR STRENGTH
TONS / SQ.FT.
0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8

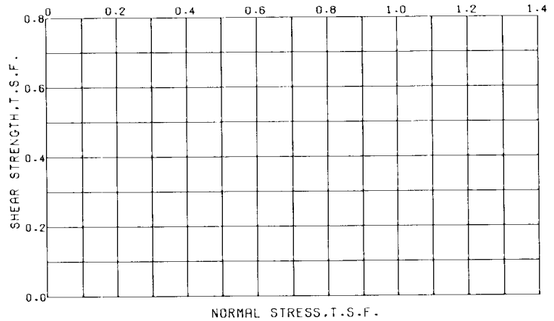
WET DENSITY
POUNDS / CU.FT.
80 100 120

NORMAL STRESS
TONS / SQ. FT.
0.0 1.0 2.0

188



PLASTICITY CHART

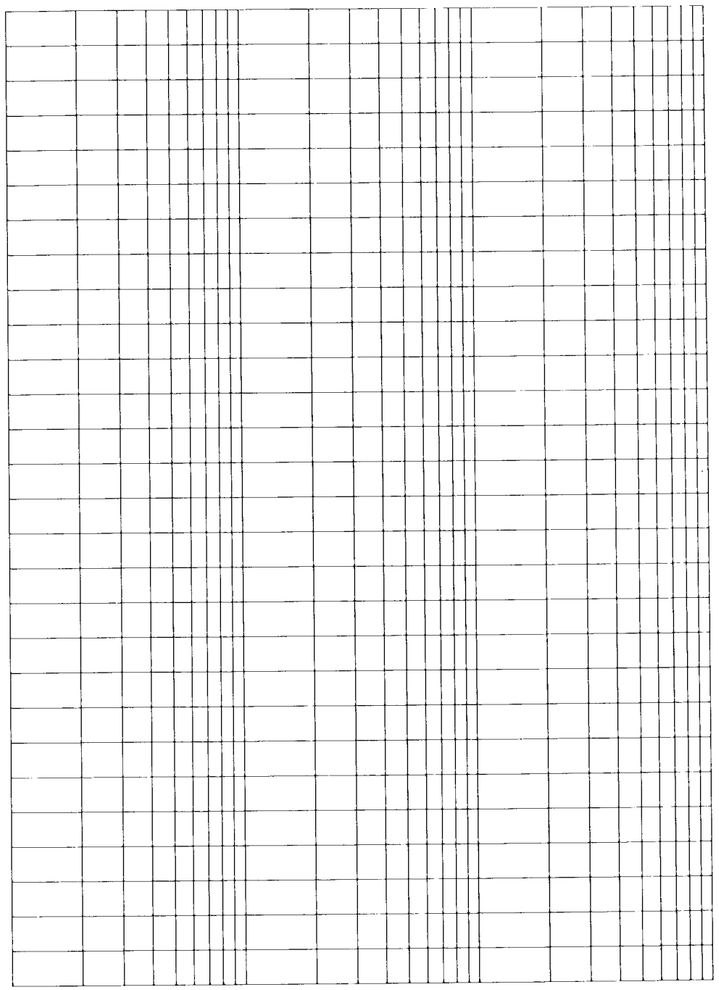


SHEAR STRENGTH DATA

ENVELOPE NO.	ENVELOPE EL.	TYPE	STRENGTH Φ	STRENGTH C - TSF	CLASS

VOID RATIO

LOAD P TONS / SQ. FT.



CONSOLIDATION DATA

○ - (UC) UNCONFINED COMPRESSION TEST
■ - (Q) UNCONSOLIDATED - UNDRAINED SHEAR TEST
▲ - (R) CONSOLIDATED - UNDRAINED SHEAR TEST
⊡ - (S) CONSOLIDATED - DRAINED SHEAR TEST

BORINGS WERE TAKEN WITH A 3 INCH DIAMETER STEEL TUBE PISTON TYPE SAMPLER

FOR SOIL BORING LEGEND SEE PLATE A

FOR LOCATION OF BORING SEE PLATE 20

WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

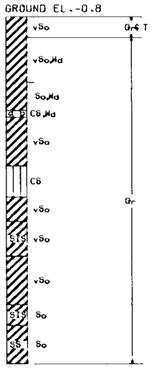
BORING WL-20

U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

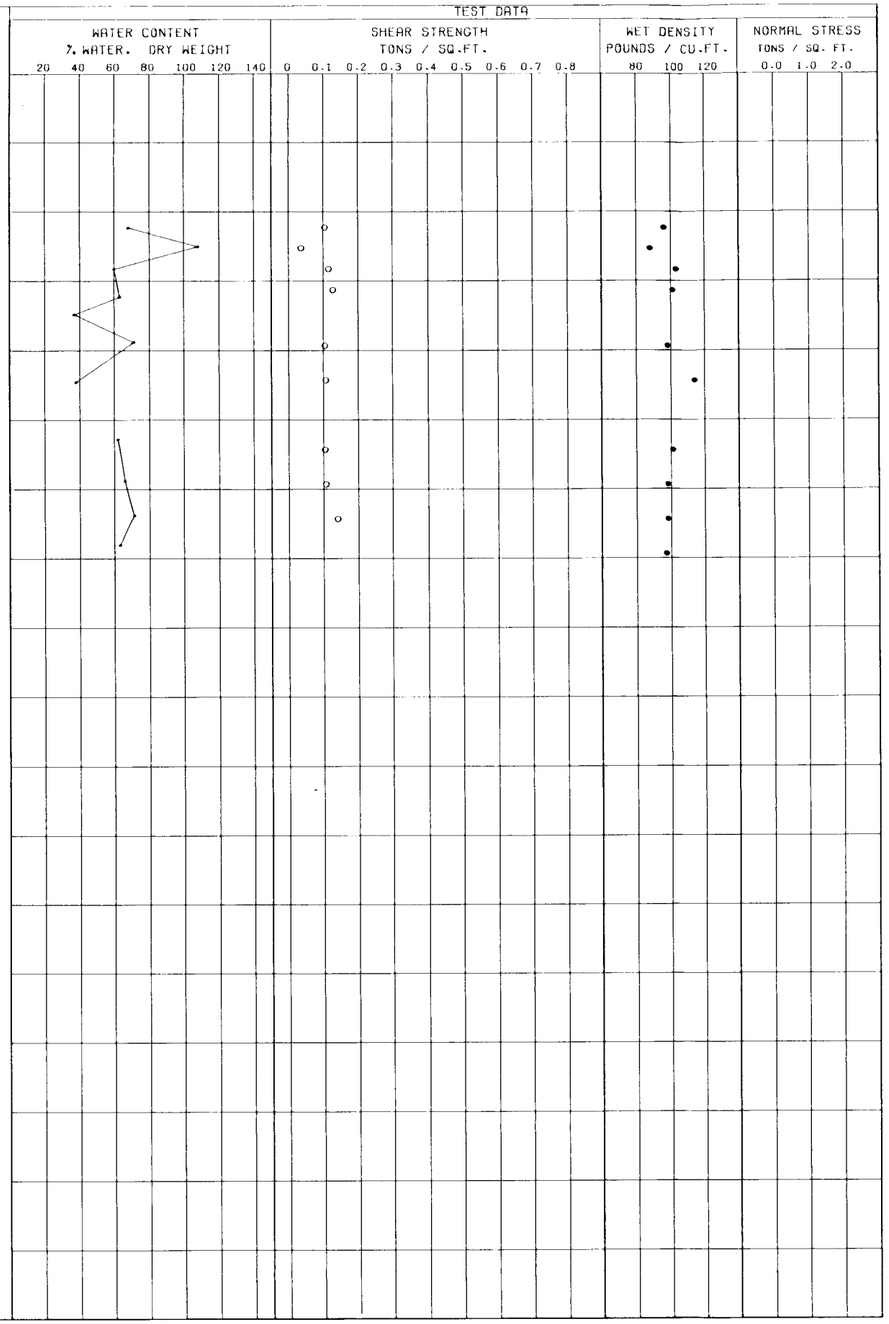
DATE FEB. 90

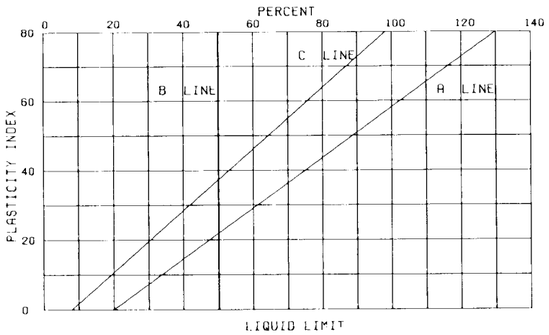
FILE NO. H-2-30618

BOR. WL-21
STA. 256+16
313 FT. RT. B/L
9 JAN. '86
GROUND EL. -0.8

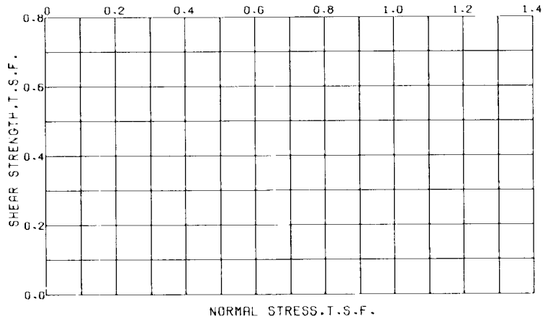


TEST DATA





PLASTICITY CHART

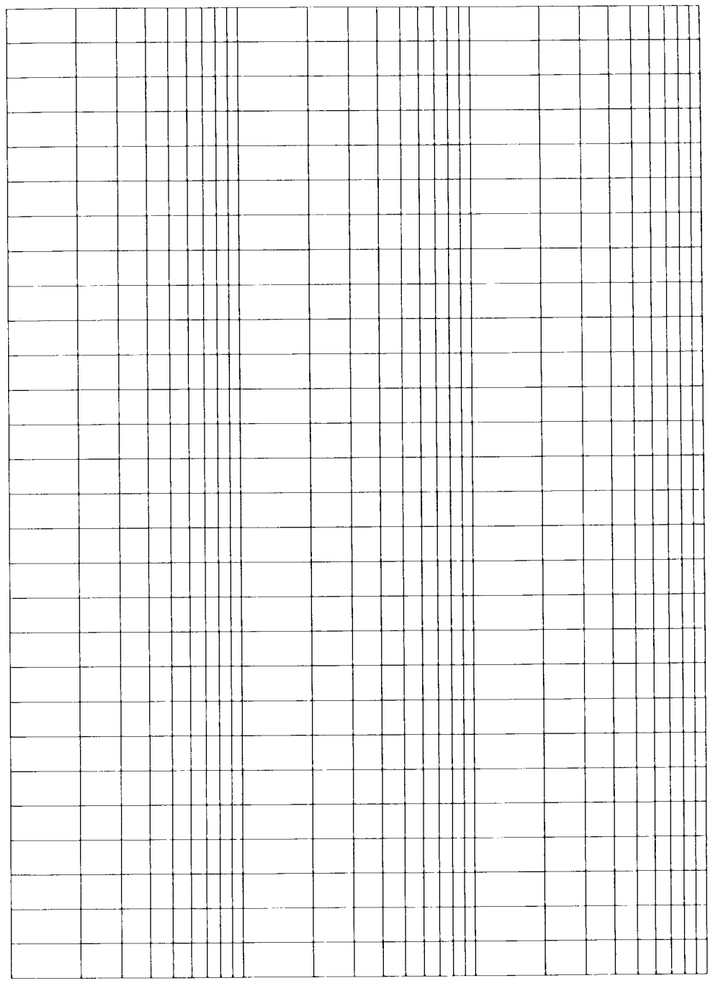


SHEAR STRENGTH DATA

ENVELOPE NO.	ENVELOPE EL.	TYPE	STRENGTH Φ	STRENGTH C - TSF	CLASS

VOID RATIO

LOAD P TONS / SQ. FT.



CONSOLIDATION DATA

○ - (UC) UNCONFINED COMPRESSION TEST
■ - (Q) UNCONSOLIDATED - UNDRAINED SHEAR TEST
▲ - (R) CONSOLIDATED - UNDRAINED SHEAR TEST
⊡ - (S) CONSOLIDATED - DRAINED SHEAR TEST
BORINGS WERE TAKEN WITH A 3 INCH DIAMETER STEEL TUBE PISTON TYPE SAMPLER
FOR SOIL BORING LEGEND SEE PLATE A
FOR LOCATION OF BORING SEE PLATE 20

WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

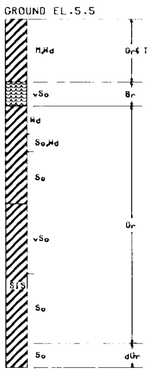
BORING WL-21

U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS
DATE: FEB. 90
FILE NO. H-2-30618

BOR. OC-1

STA. 267+55
ON C/L
29 AUG 1986

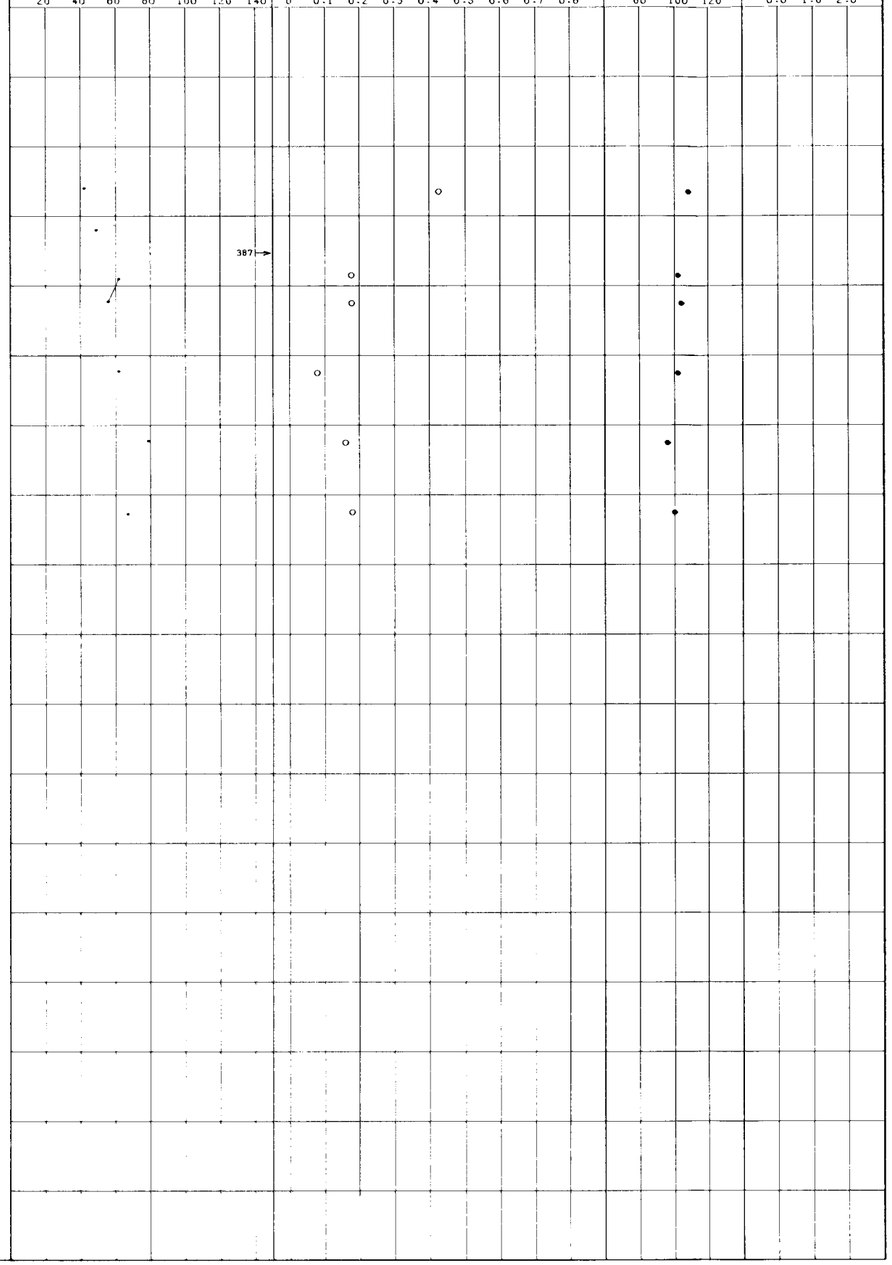
GROUND EL. 5.5

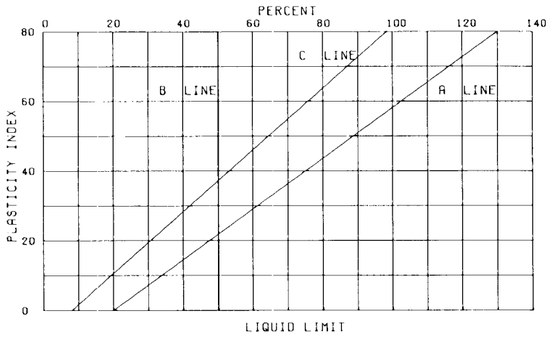


ELEVATIONS IN FEET - N.G.V.D.

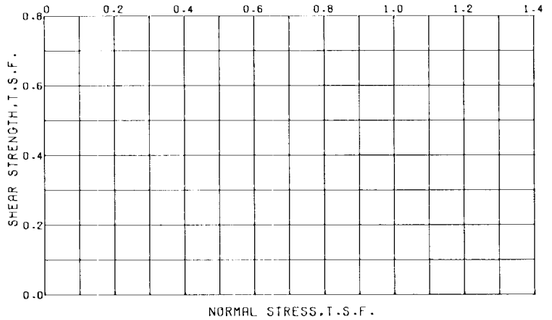
TEST DATA

WATER CONTENT % WATER, DRY WEIGHT	SHEAR STRENGTH TONS / SQ.FT.	WET DENSITY POUNDS / CU.FT.	NORMAL STRESS TONS / SQ. FT.
20 40 60 80 100 120 140	0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8	80 100 120	0.0 1.0 2.0



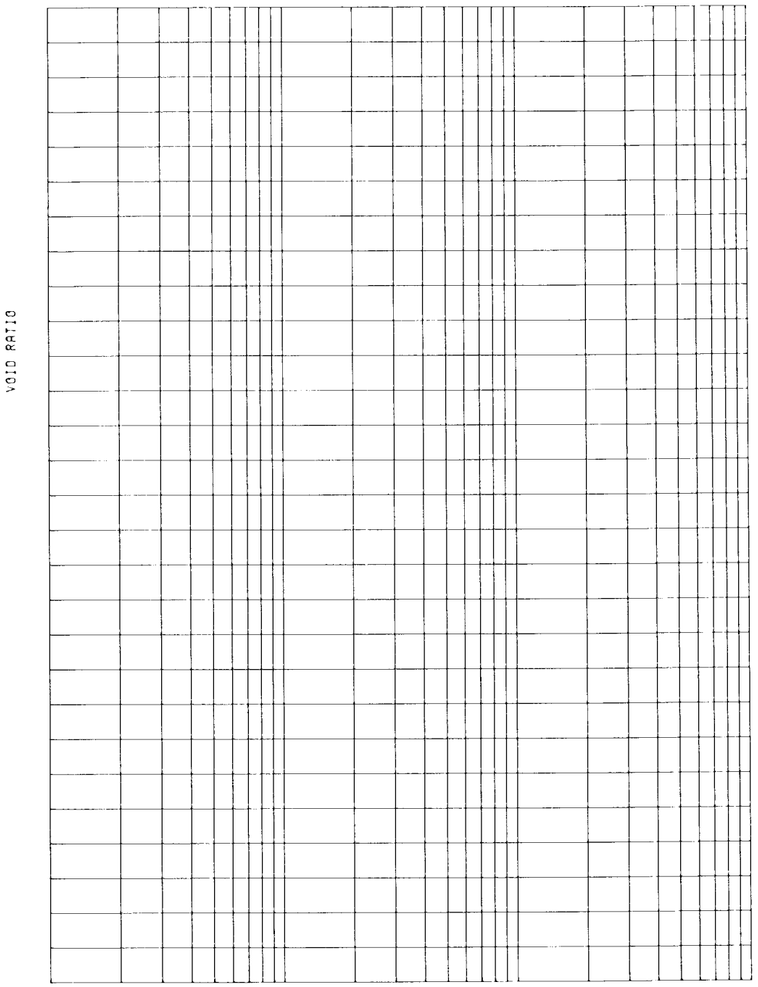


PLASTICITY CHART



SHEAR STRENGTH DATA

ENVELOPE NO.	ENVELOPE EL.	TYPE	STRENGTH Φ	STRENGTH C - TSF	CLASS



CONSOLIDATION DATA

○ - (UC) UNCONFINED COMPRESSION TEST
■ - (Q) UNCONSOLIDATED - UNDRAINED SHEAR TEST
▲ - (R) CONSOLIDATED - UNDRAINED SHEAR TEST
▣ - (S) CONSOLIDATED - DRAINED SHEAR TEST

BORINGS WERE TAKEN WITH A 3 INCH DIAMETER STEEL TUBE PISTON TYPE SAMPLER

FOR SOIL BORING LEGEND SEE PLATE A

FOR LOCATION OF BORING SEE PLATE 21

WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

UNDISTURBED BORING OC-1

U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

DATE FEB. 90

FILE NO. H-2-30618

PLATE F24

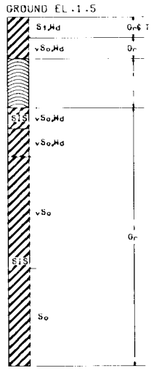
BOR. OC-2

STA. 277+70

24 FT. LEFT B/L

2 SEPT. 1986

GROUND EL. 1.5



ELEVATIONS IN FEET - N.G.V.D.

TEST DATA

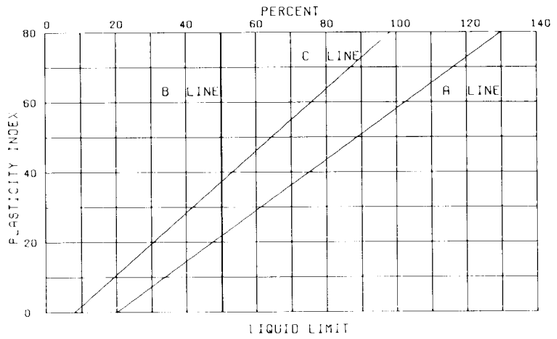
WATER CONTENT
% WATER, DRY WEIGHT
20 40 60 80 100 120 140

SHEAR STRENGTH
TONS / SQ.FT.
0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8

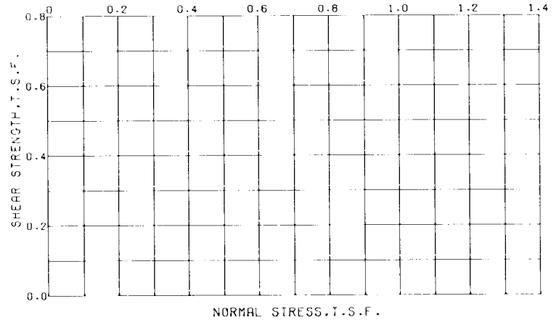
WET DENSITY
POUNDS / CU.FT.
80 100 120

NORMAL STRESS
TONS / SQ. FT.
0.0 1.0 2.0

10 0 -10 -20 -30 -40 -50 -60 -70 -80 -90 -100 -110 -120 -130 -140



PLASTICITY CHART



SHEAR STRENGTH DATA

ENVELOPE NO.	ENVELOPE EL.	TYPE	STRENGTH Φ	STRENGTH C - TSF	CLASS

LOAD P TONS / SQ. FT.

VOID RATIO

CONSOLIDATION DATA

○ - (UC) UNCONFINED COMPRESSION TEST
■ - (Q) UNCONSOLIDATED - UNDRAINED SHEAR TEST
▲ - (R) CONSOLIDATED - UNDRAINED SHEAR TEST
⊡ - (S) CONSOLIDATED - DRAINED SHEAR TEST

BORINGS WERE TAKEN WITH A 3 INCH DIAMETER STEEL TUBE PISTON TYPE SAMPLER

FOR SOIL BORING LEGEND SEE PLATE A

FOR LOCATION OF BORING SEE PLATE 2J

WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

UNDISTURBED BORING OC-2

U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

DATE FEB. 90

FILE NO H-2-30618

PLATE F25

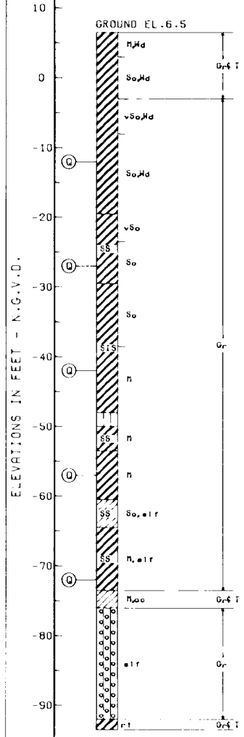
BOR. OC-3

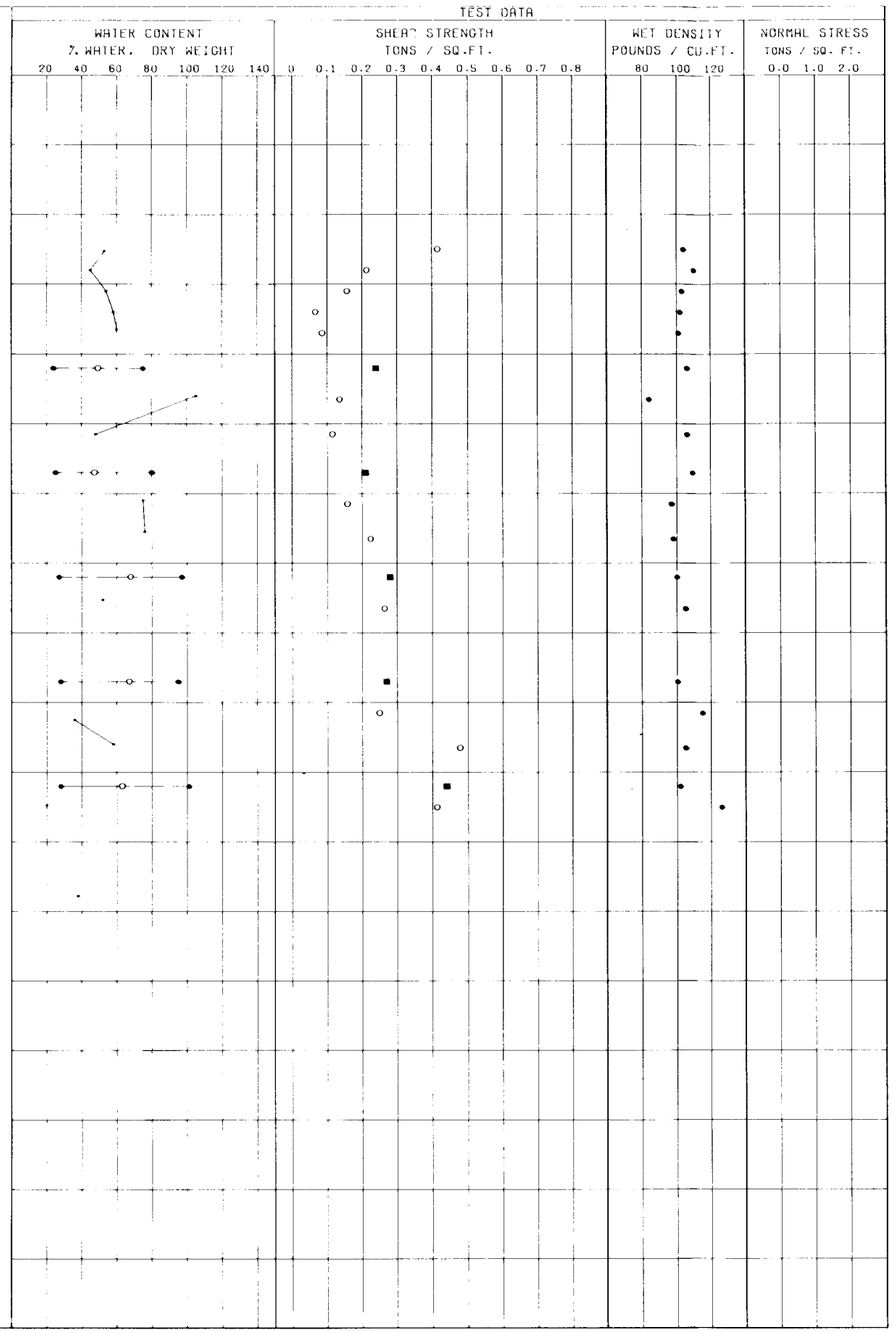
STA. 287+95

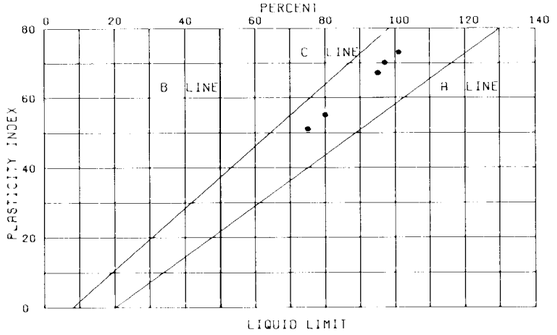
14 FT. RIGHT B/L

3 SEPT. 1986

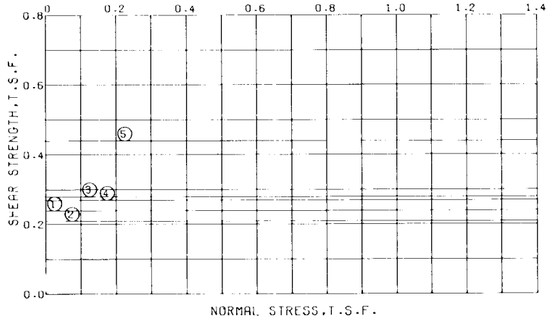
GROUND EL. 6.5





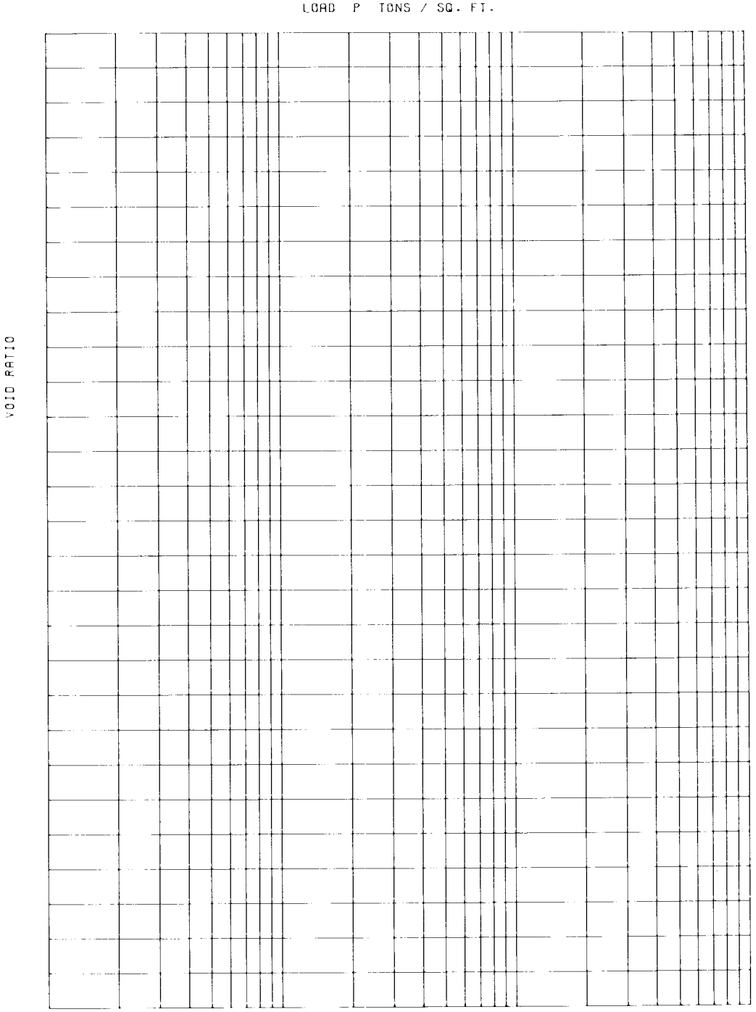


PLASTICITY CHART



SHEAR STRENGTH DATA

ENVELOPE NO.	ENVELOPE EL.	TYPE	STRENGTH Φ	STRENGTH C - TSF	CLASS
1	12.00	Q	0.0	0.240	CH
2	27.00	Q	0.0	0.210	CH
3	42.00	Q	0.0	0.280	CH
4	57.00	Q	0.0	0.270	CH
5	72.00	Q	0.0	0.440	CH



CONSOLIDATION DATA

○ - (UC) UNCONFINED COMPRESSION TEST

■ - (Q) UNCONSOLIDATED - UNDRAINED SHEAR TEST

▲ - (R) CONSOLIDATED - UNDRAINED SHEAR TEST

□ - (S) CONSOLIDATED - DRAINED SHEAR TEST

BORINGS WERE TAKEN WITH A 5 INCH DIAMETER STEEL TUBE PISTON TYPE SAMPLER

FOR SOIL BORING LEGEND SEE PLATE A

FOR LOCATION OF BORING SEE PLATE 22

WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

UNDISTURBED BORING OC-3

U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

DATE: FEB. 90

FILE NO. H-2-30618

PLATE F26

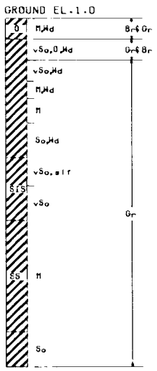
BOR. OC-4

STA. 297+98

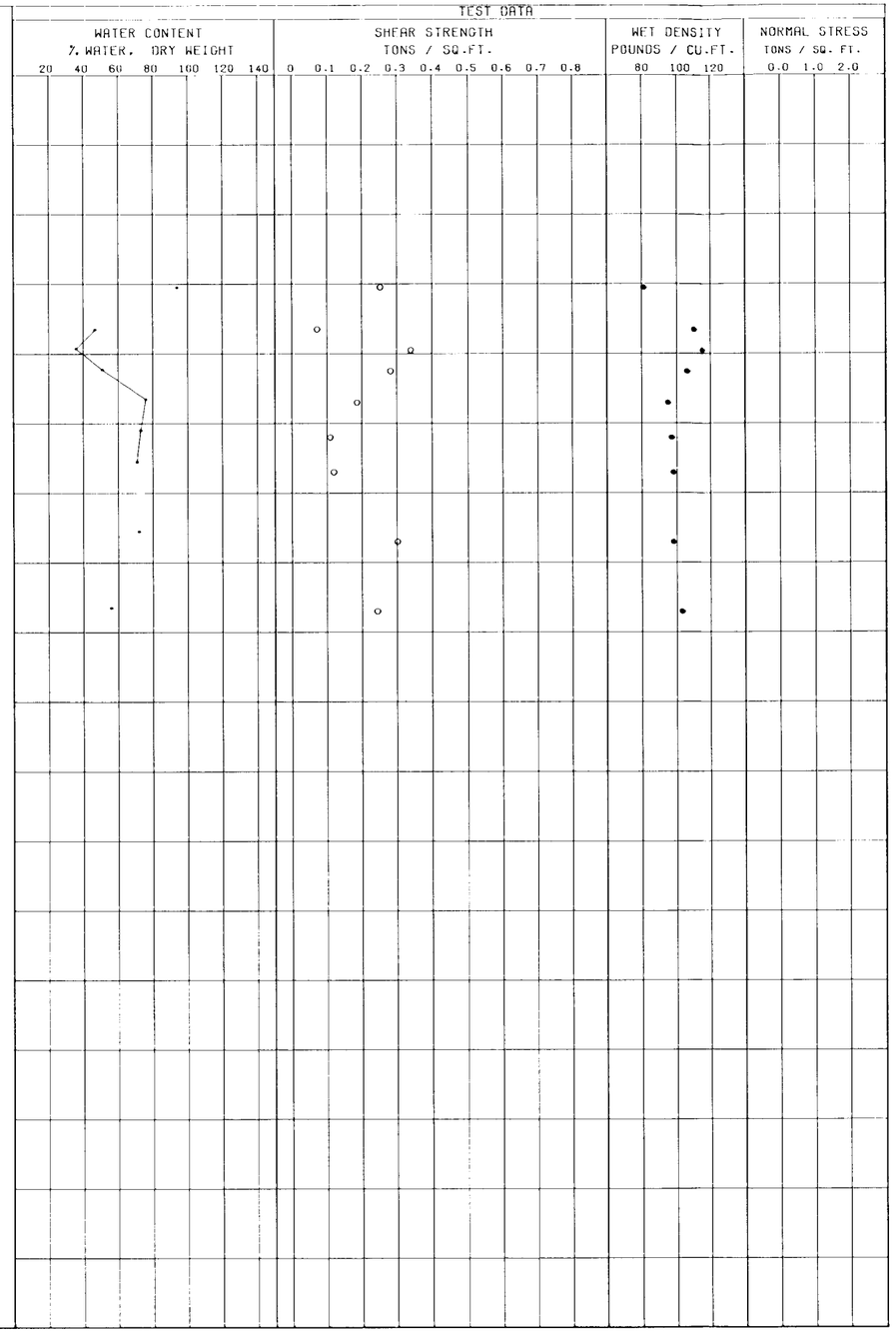
42 FT. RIGHT B/L

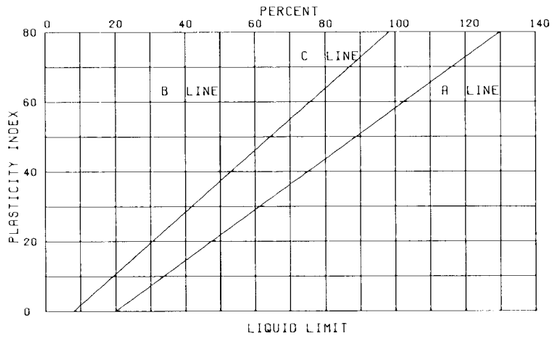
2 SEPT. 1986

GROUND EL. 1.0

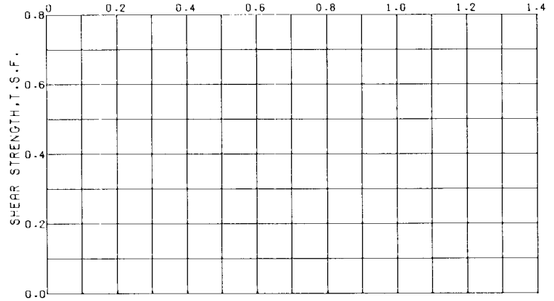


TEST DATA





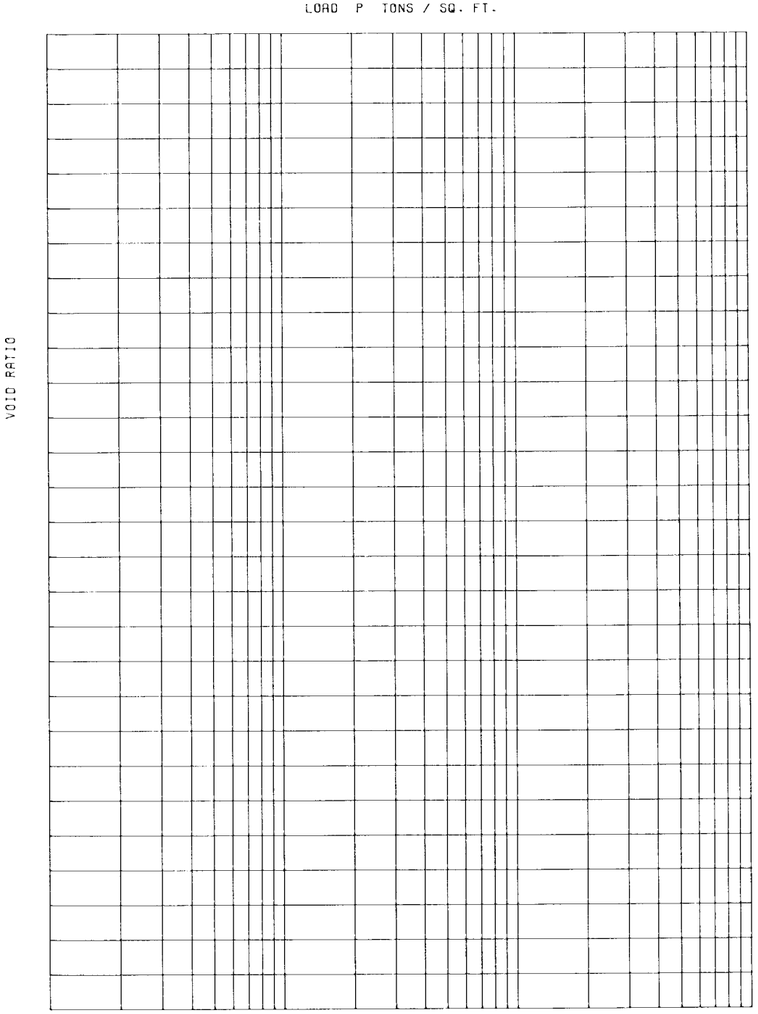
PLASTICITY CHART



SHEAR STRENGTH DATA

ENVELOPE NO.	ENVELOPE EL.	TYPE	STRENGTH Φ	STRENGTH C - TSF	CLASS

LOAD P TONS / SQ. FT.



CONSOLIDATION DATA

○ - (UC) UNCONFINED COMPRESSION TEST

■ - (Q) UNCONSOLIDATED - UNDRAINED SHEAR TEST

▲ - (R) CONSOLIDATED - UNDRAINED SHEAR TEST

[1] - (S) CONSOLIDATED - DRAINED SHEAR TEST

BORINGS WERE TAKEN WITH A 3 INCH DIAMETER STEEL TUBE PISTON TYPE SAMPLER

FOR SOIL BORING LEGEND SEE PLATE A

FOR LOCATION OF BORING SEE PLATE 22

WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

UNDISTURBED BORING OC-4

U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

DATE: FEB. 90

FILE NO. H-2-30618

PLATE F27

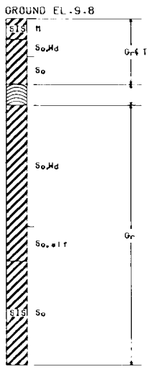
BOR. OC-5

STA. 388+25

5 FT. RIGHT B/L

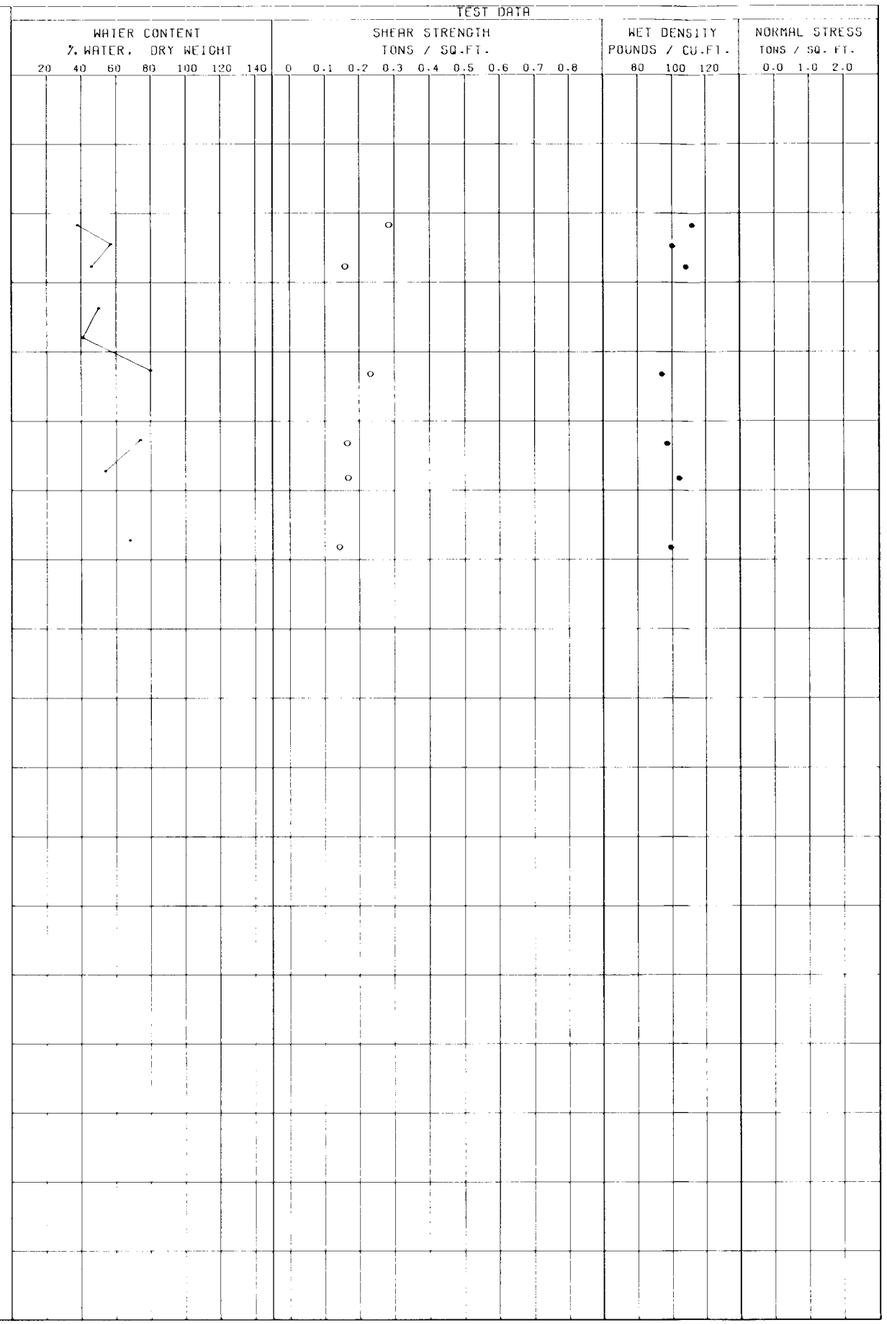
2 SEPT. 1986

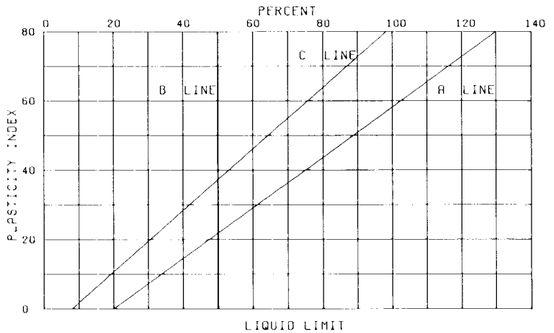
GROUND EL. 9.8



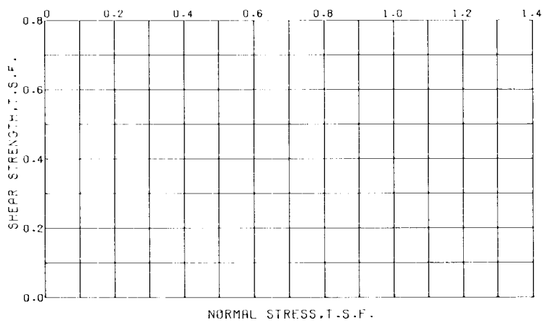
ELEVATIONS IN FEET - N.G.V.D.

TEST DATA



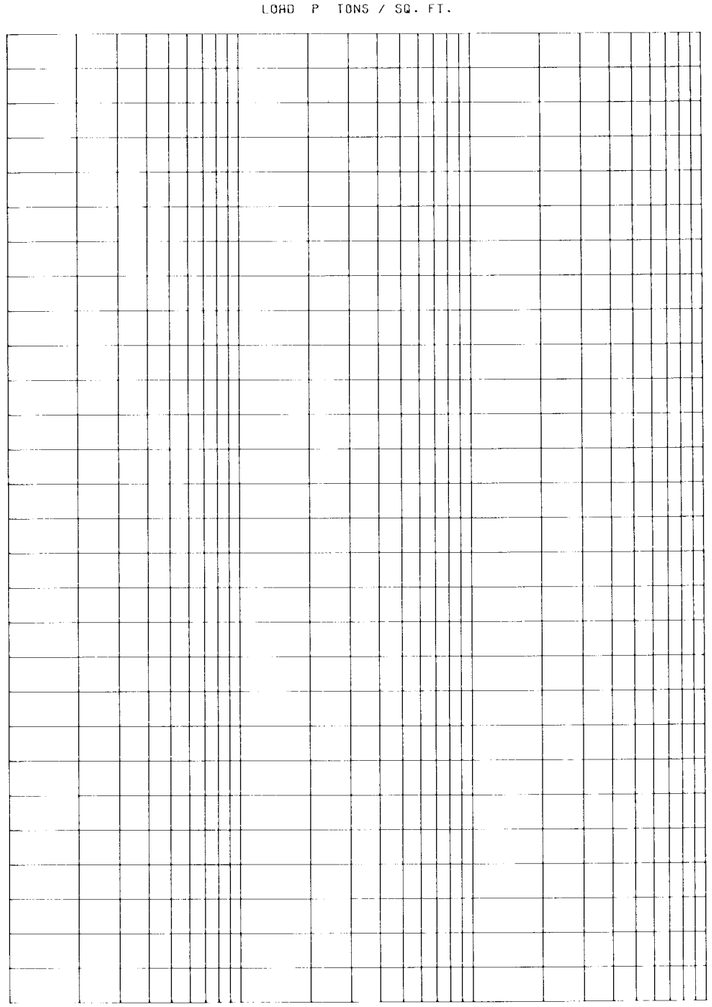


PLASTICITY CHART



SHEAR STRENGTH DATA

ENVELOPE NO.	ENVELOPE EL.	TYPE	STRENGTH Φ	STRENGTH C - TSF	CLASS



CONSOLIDATION DATA

○ - (UC) UNCONFINED COMPRESSION TEST

■ - (Q) UNCONSOLIDATED - UNDRAINED SHEAR TEST

▲ - (R) CONSOLIDATED - UNDRAINED SHEAR TEST

⊡ - (S) CONSOLIDATED - DRAINED SHEAR TEST

BORINGS WERE TAKEN WITH A 3 INCH DIAMETER STEEL TUBE PISTON TYPE SAMPLER

FOR SOIL BORING LEGEND SEE PLATE A

FOR LOCATION OF BORING SEE PLATE 23

WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

UNDISTURBED BORING OC-5

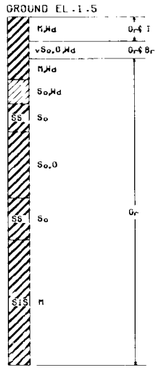
U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

DATE FEB. 90

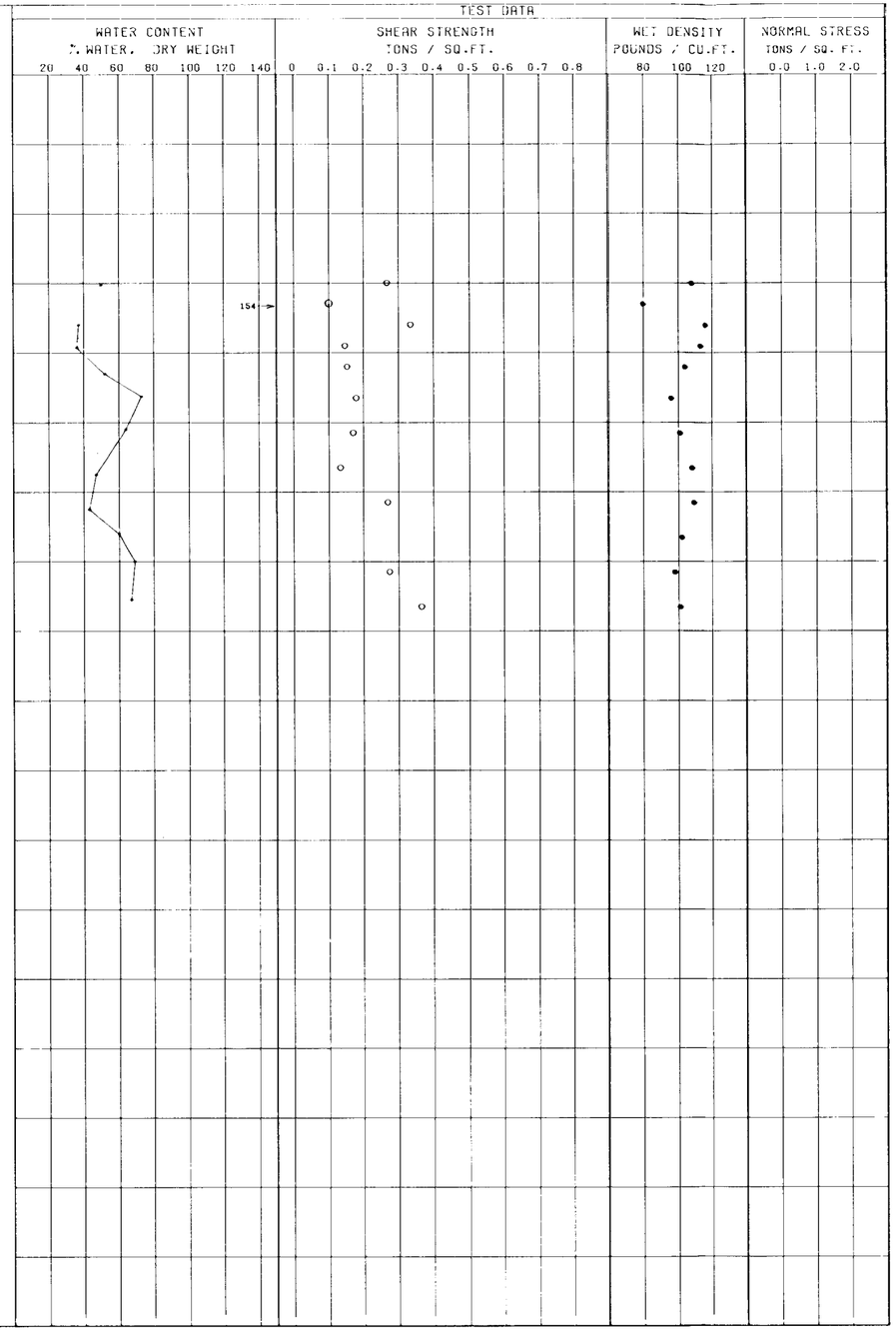
FILE NO. H-2-30618

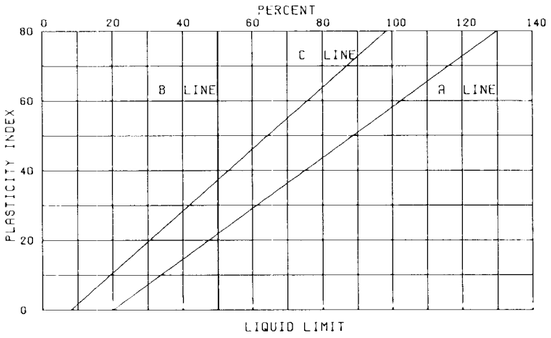
PLATE F28

BOR. OC-6
STA. 318+98
46 FT. RIGHT B/L
3-4 SEPT. 1986
GROUND EL. 1.5

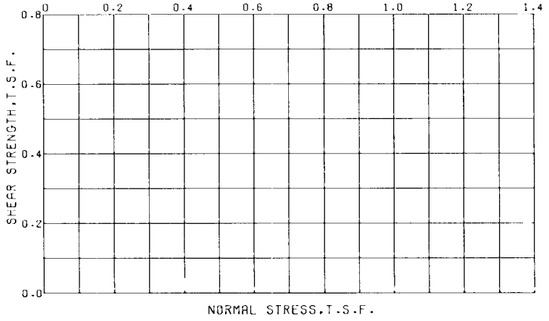


TEST DATA



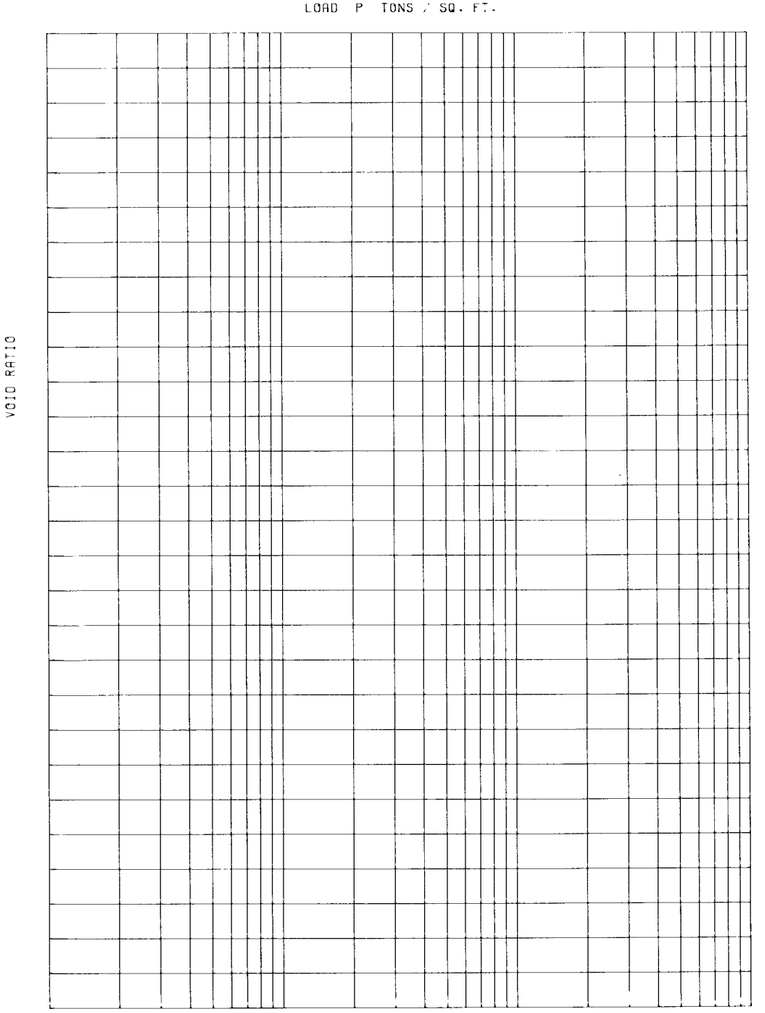


PLASTICITY CHART



SHEAR STRENGTH DATA

ENVELOPE NO.	ENVELOPE EL.	TYPE	STRENGTH Φ	STRENGTH C - TSF	CLASS



CONSOLIDATION DATA

○ - (UC) UNCONFINED COMPRESSION TEST
■ - (Q) UNCONSOLIDATED - UNDRAINED SHEAR TEST
▲ - (R) CONSOLIDATED - UNDRAINED SHEAR TEST
⊡ - (S) CONSOLIDATED - DRAINED SHEAR TEST

BORINGS WERE TAKEN WITH A 5 INCH DIAMETER STEEL TUBE PISTON TYPE SAMPLER

FOR SOIL BORING LEGEND SEE PLATE A

FOR LOCATION OF BORING SEE PLATES 23 & 24

WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

UNDISTURBED BORING OC-6

U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

DATE: FEB. 90

FILE NO. H-2-30618

PLATE F29

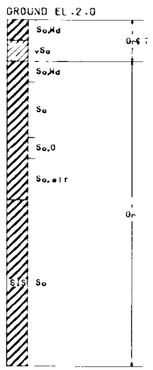
BOR. OC-7

STA. 329+45

26 FT. RIGHT B/L

4 SEPT. 1986

GROUND EL. 2.0



TEST DATA

WATER CONTENT
% WATER, DRY WEIGHT
20 40 60 80 100 120 140

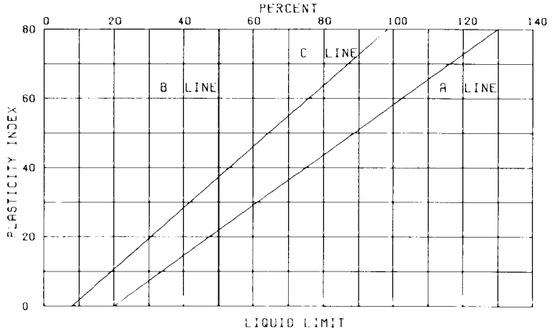
SHEAR STRENGTH
TONS / SQ.FT.
0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8

WET DENSITY
POUNDS / CU.FT.
80 100 120

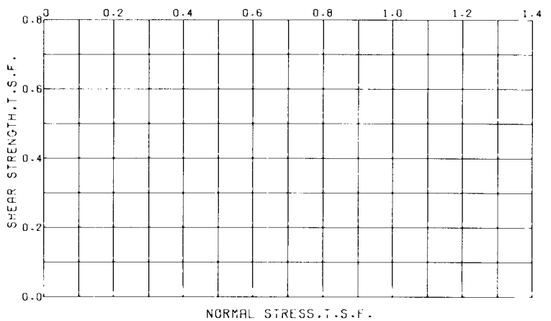
NORMAL STRESS
TONS / SQ. FT.
0.0 1.0 2.0

ELEVATIONS IN FEET - N.G.V.D.

10 0 -10 -20 -30 -40 -50 -60 -70 -80 -90 -100 -110 -120 -130 -140



PLASTICITY CHART



SHEAR STRENGTH DATA

ENVELOPE NO.	ENVELOPE EL.	TYPE	STRENGTH Φ	STRENGTH C - TSF	CLASS

LOAD P TONS / SQ. FT.

VOID RATIO

CONSOLIDATION DATA

○ - (UC) UNCONFINED COMPRESSION TEST
■ - (Q) UNCONSOLIDATED - UNDRAINED SHEAR TEST
▲ - (R) CONSOLIDATED - UNDRAINED SHEAR TEST
⊡ - (S) CONSOLIDATED - DRAINED SHEAR TEST

BORINGS WERE TAKEN WITH A 3 INCH DIAMETER STEEL TUBE PISTON TYPE SAMPLER

FOR SOIL BORING LEGEND SEE PLATE A

FOR LOCATION OF BORING SEE PLATES 23 & 24

WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

UNDISTURBED BORING OC-7

U.S ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

DATE: FEB. 90

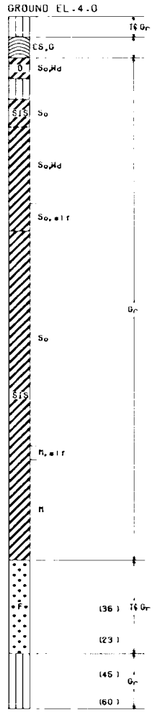
FILE NO. H-2-30618

PLATE F30

BOR. OC-8

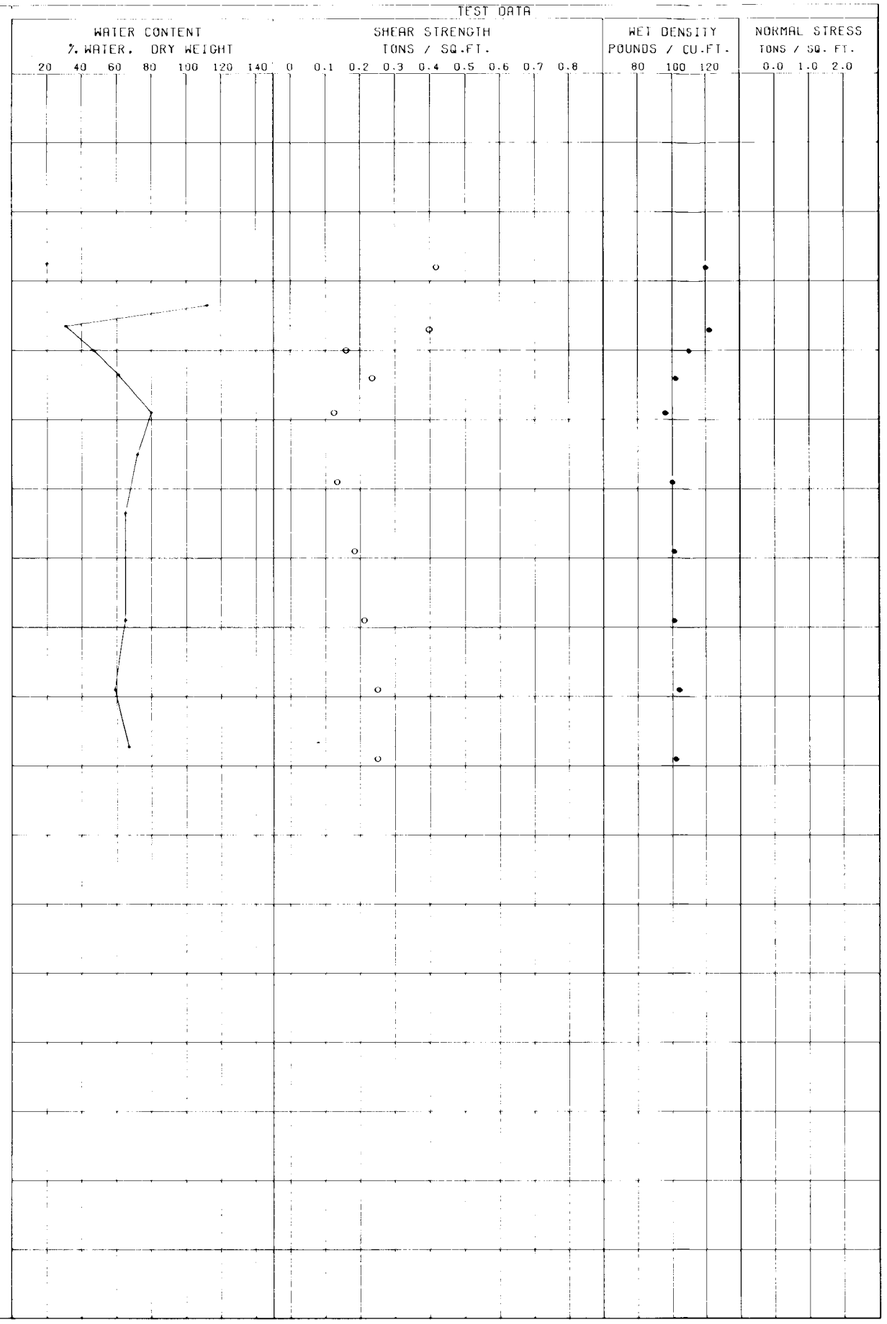
STA. 337+48
ON C/L
28 MAY 1987

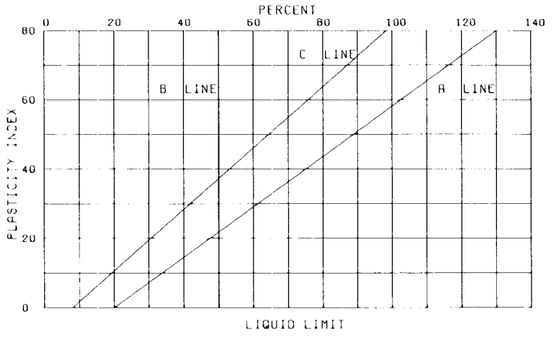
GROUND EL. 4.0



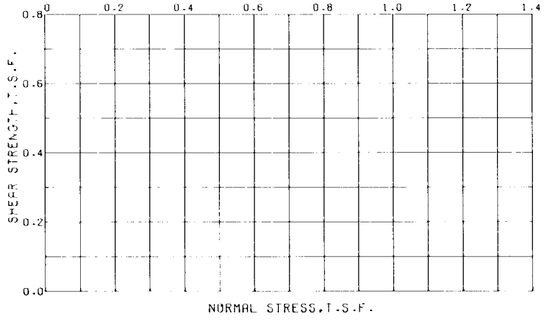
ELEVATIONS IN FEET - N.G.V.D.

TEST DATA



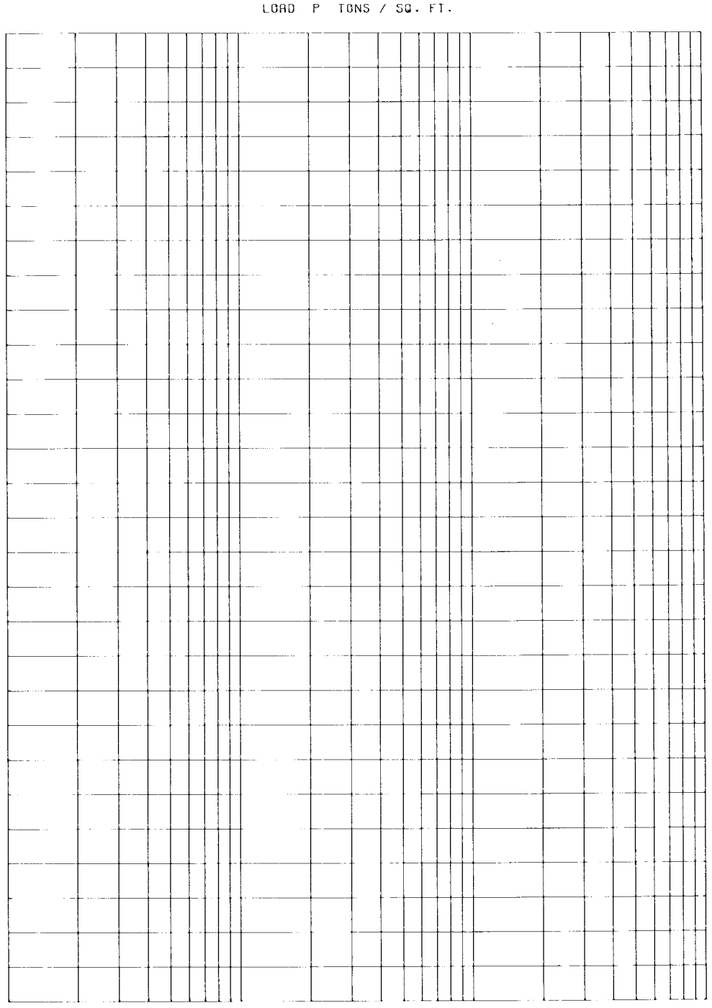


PLASTICITY CHART



SHEAR STRENGTH DATA

ENVELOPE NO.	ENVELOPE EL.	TYPE	STRENGTH Φ	STRENGTH C - TSF	CLASS



CONSOLIDATION DATA

○ - (UC) UNCONFINED COMPRESSION TEST
■ - (Q) UNCONSOLIDATED - UNDRAINED SHEAR TEST
▲ - (R) CONSOLIDATED - UNDRAINED SHEAR TEST
⊡ - (S) CONSOLIDATED - DRAINED SHEAR TEST

BORINGS WERE TAKEN WITH A 3 INCH DIAMETER STEEL TUBE PISTON TYPE SAMPLER

FOR SOIL BORING LEGEND SEE PLATE A

FOR LOCATION OF BORING SEE PLATE 24

WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

UNDISTURBED BORING OC-8

U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

DATE: FEB. 90

FILE NO. H-2-30618

PLATE F31

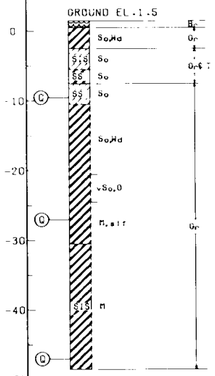
BOR. OC-9

STA. 347+55

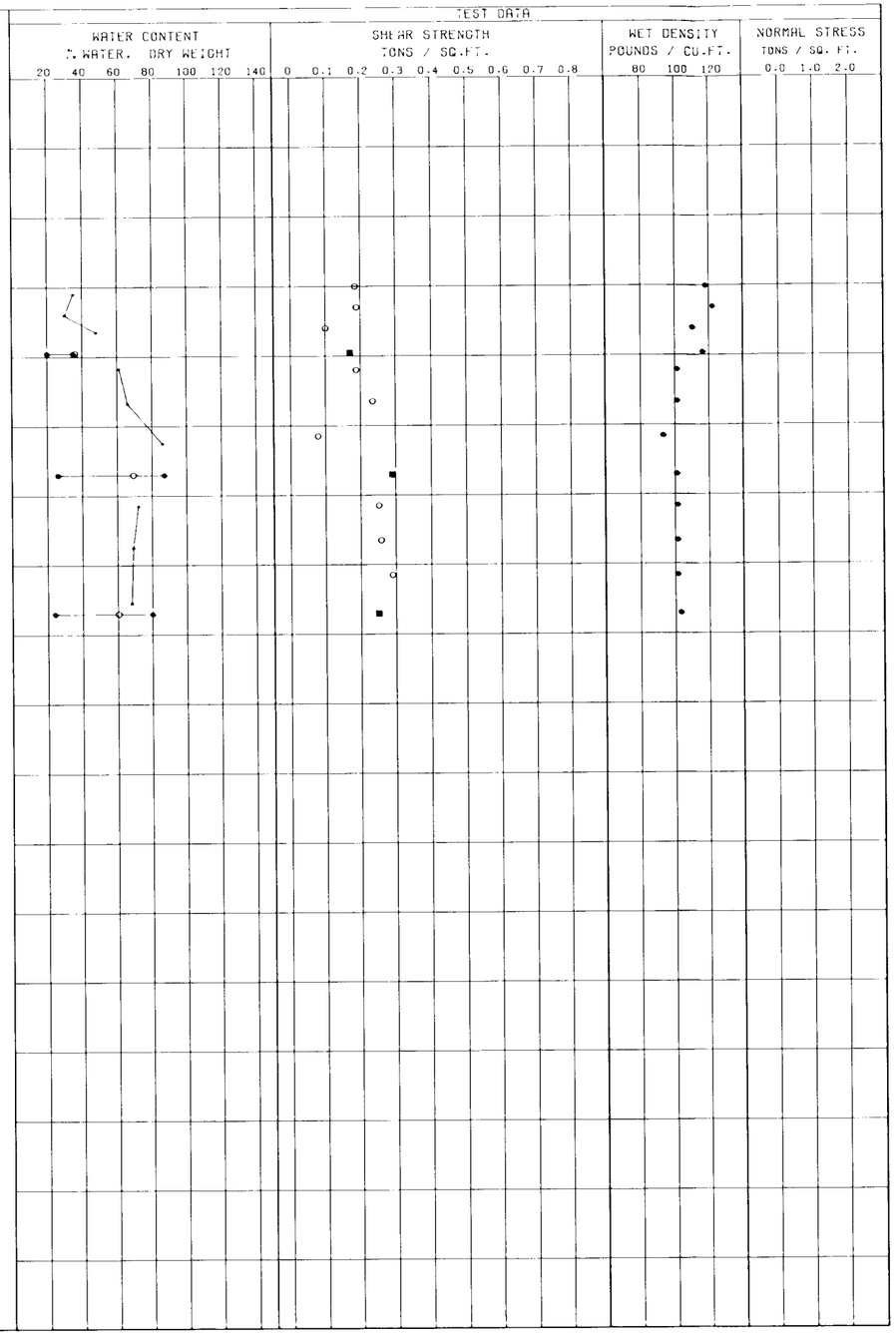
36 FT. RIGHT B/L

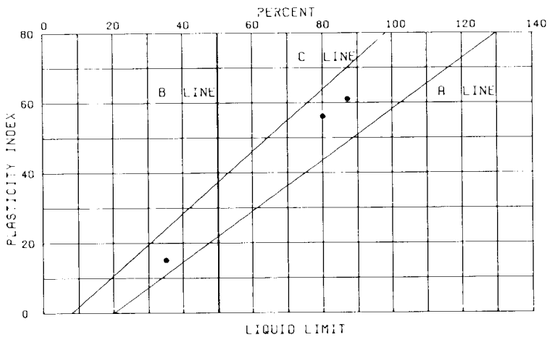
27 APRIL 1987

GROUND EL. 1.5

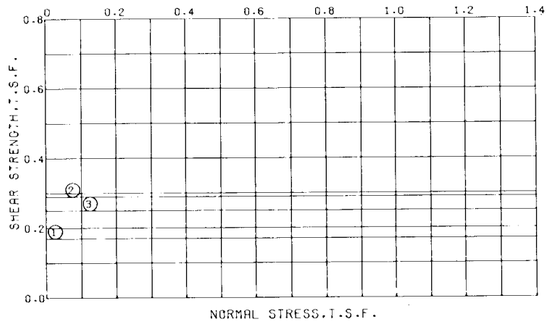


TEST DATA





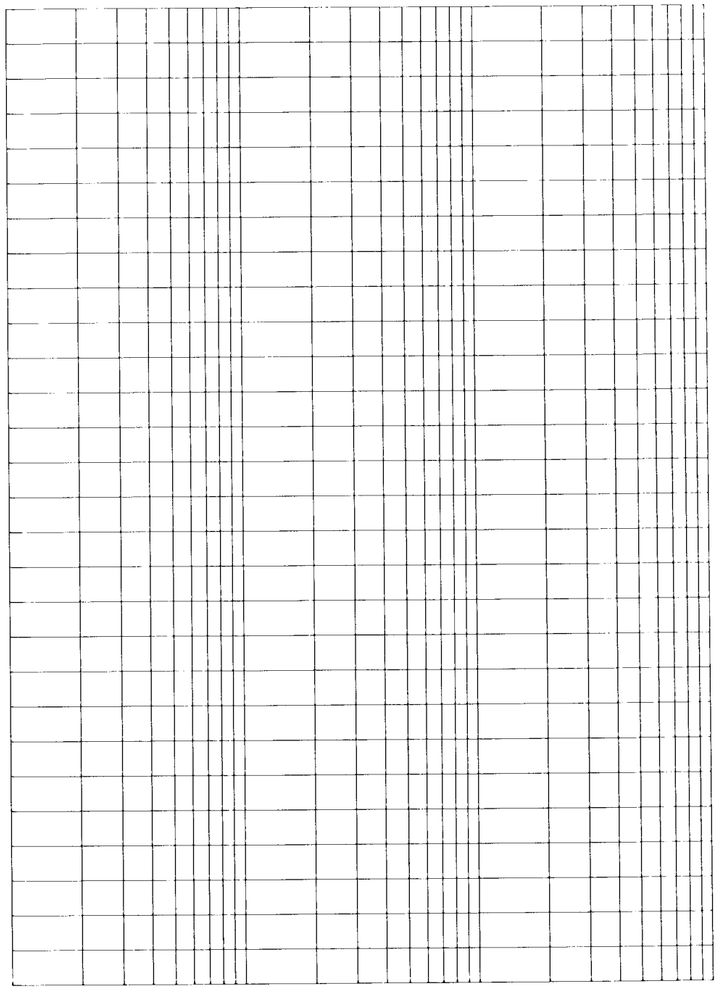
PLASTICITY CHART



SHEAR STRENGTH DATA

ENVELOPE NO.	ENVELOPE EL.	TYPE	STRENGTH Φ	STRENGTH C - TSF	CLASS
1	9.50	Q	0.0	0.170	CL
2	27.00	Q	0.0	0.290	CH
3	47.00	Q	0.0	0.250	CH

LOAD P TONS / SQ. FT.



CONSOLIDATION DATA

○ - (UC) UNCONFINED COMPRESSION TEST

■ - (Q) UNCONSOLIDATED - UNDRAINED SHEAR TEST

▲ - (R) CONSOLIDATED - UNDRAINED SHEAR TEST

⊡ - (S) CONSOLIDATED - DRAINED SHEAR TEST

BORINGS WERE TAKEN WITH A 5 INCH DIAMETER STEEL TUBE PISTON TYPE SAMPLER

FOR SOIL BORING LEGEND SEE PLATE A

FOR LOCATION OF BORING SEE PLATE 26

WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

UNDISTURBED BORING OC-9

U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

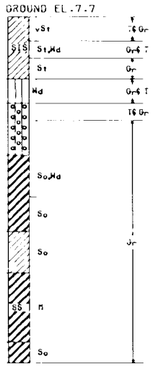
DATE: FEB. 90

FILE NO H-2-30618

BOR. OC-10

STA. 357+75
ON C/L
28 MAY 1987

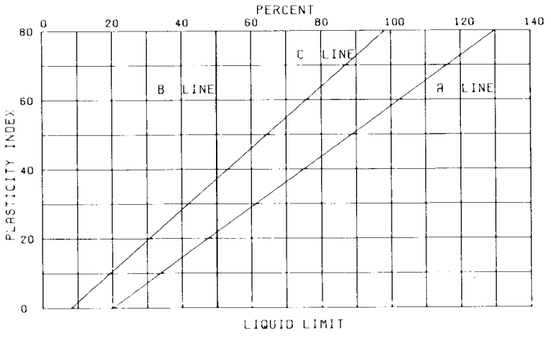
GROUND EL. 7.7



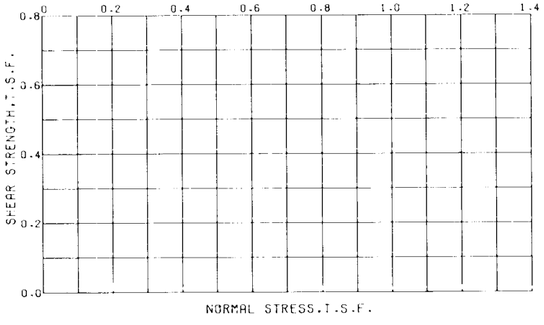
ELEVATIONS IN FEET - N.G.V.D.

TEST DATA

WATER CONTENT % WATER, DRY WEIGHT	SHEAR STRENGTH TONS / SQ.FT.	WET DENSITY POUNDS / CU.FT.	NORMAL STRESS TONS / SQ. FT.
20 40 60 80 100 120 140	0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8	80 100 120	0.0 1.0 2.0



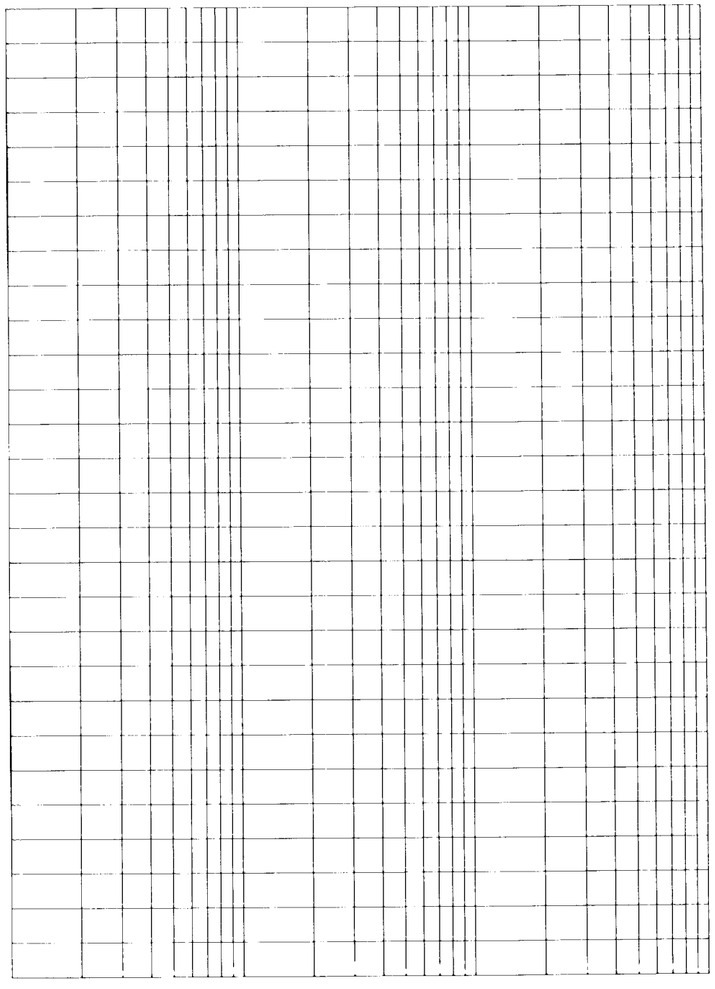
PLASTICITY CHART



SHEAR STRENGTH DATA

ENVELOPE NO.	ENVELOPE E..	TYPE	STRENGTH Φ	STRENGTH C - TSF	CLASS

LOAD P TONS / SQ. FT.



CONSOLIDATION DATA

○ - (UC) UNCONFINED COMPRESSION TEST
■ - (Q) UNCONSOLIDATED - UNDRAINED SHEAR TEST
▲ - (R) CONSOLIDATED - UNDRAINED SHEAR TEST
⊡ - (S) CONSOLIDATED - DRAINED SHEAR TEST

BORINGS WERE TAKEN WITH A 3 INCH DIAMETER STEEL TUBE PISTON TYPE SAMPLER

FOR SOIL BORING LEGEND SEE PLATE A.

FOR LOCATION OF BORING SEE PLATE 26

WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

UNDISTURBED BORING OC-10

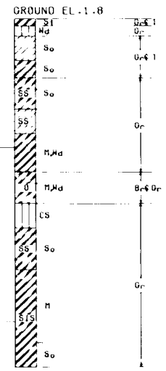
U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

DATE: FEB. 90

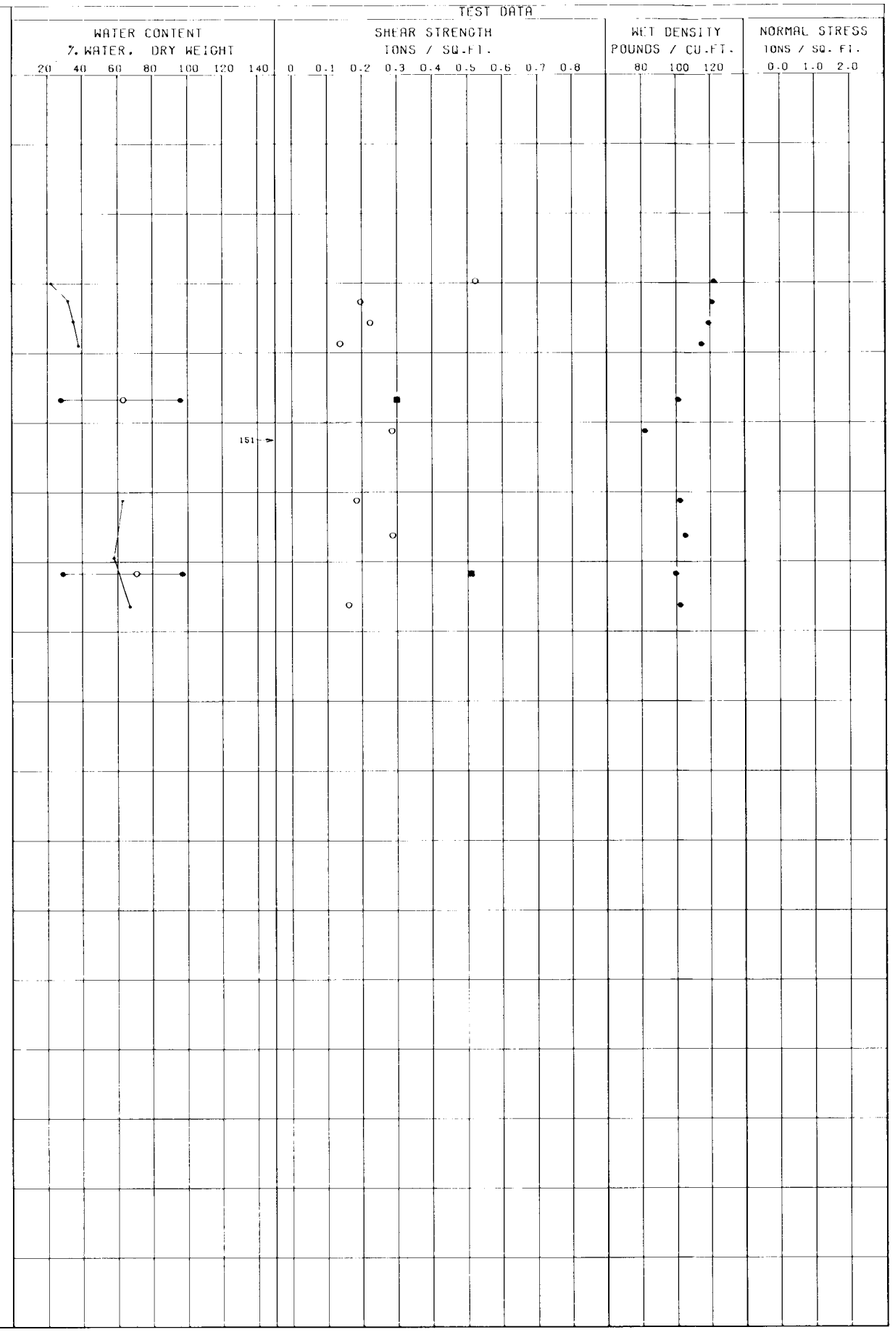
FILE NO. H-2-30618

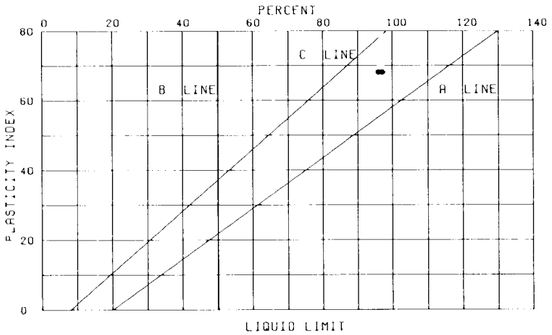
PLATE F33

BOR. OC-11
STA. 367+95
16 FT. RIGHT B/L
29 APR 87
GROUND EL. 1.8

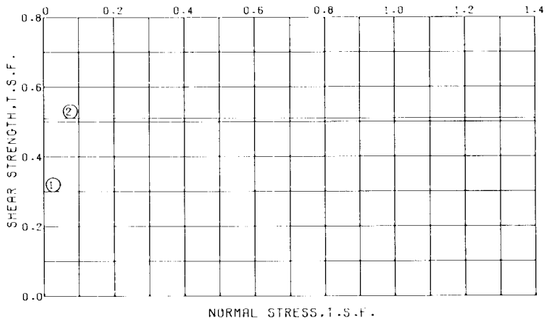


TEST DATA



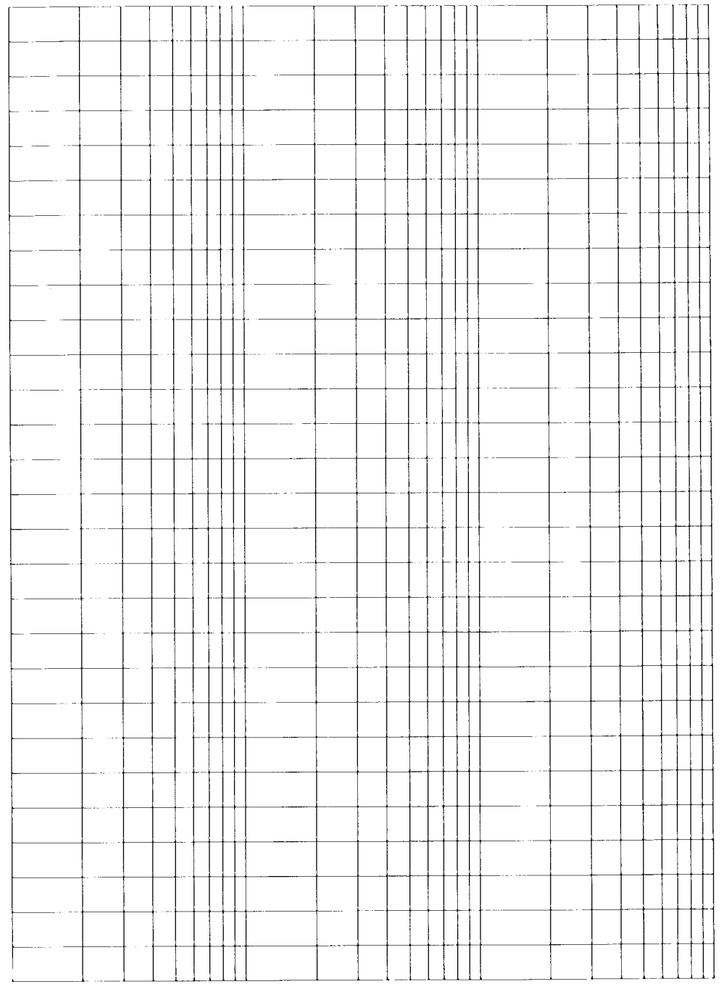


PLASTICITY CHART



SHEAR STRENGTH DATA

ENVELOPE NO.	ENVELOPE EL.	TYPE	STRENGTH Φ	STRENGTH C - TSF	CLASS
1	16.70	Q	0.0	0.300	CH
2	41.70	Q	0.0	0.510	CH



CONSOLIDATION DATA

○ - (UC) UNCONFINED COMPRESSION TEST
■ - (Q) UNCONSOLIDATED - UNDRAINED SHEAR TEST
▲ - (R) CONSOLIDATED - UNDRAINED SHEAR TEST
⊡ - (S) CONSOLIDATED - DRAINED SHEAR TEST

BORINGS WERE TAKEN WITH A 5 INCH DIAMETER STEEL TUBE PISTON TYPE SAMPLER

FOR SOIL BORING LEGEND SEE PLATE A

FOR LOCATION OF BORING SEE PLATES 27&28

WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

UNDISTURBED BORING OC-11

U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

DATE FEB. 90

FILE NO. M-2-30618

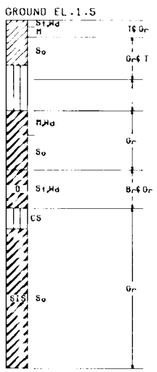
BOR. OC-12

STA. 378+85

31 FT. RIGHT B/L

29 APRIL 1987

GROUND EL. 1.5

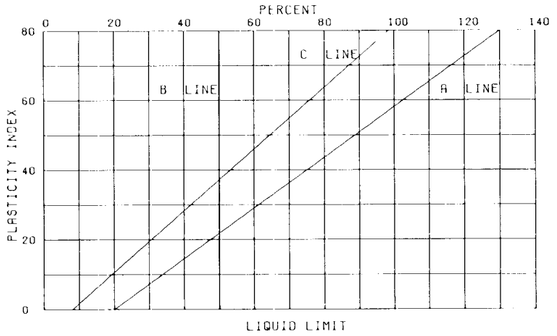


TEST DATA

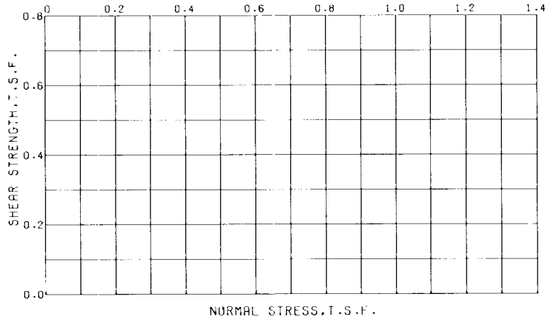
WATER CONTENT % WATER, DRY WEIGHT	SHEAR STRENGTH TONS / SQ.FT.	WET DENSITY POUNDS / CU.FT.	NORMAL STRESS TONS / SQ. FT.
20 40 60 80 100 120 140	0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8	80 100 120	0.0 1.0 2.0

ELEVATIONS IN FEET - N.G.V.D.

10 0 -10 -20 -30 -40 -50 -60 -70 -80 -90 -100 -110 -120 -130 -140

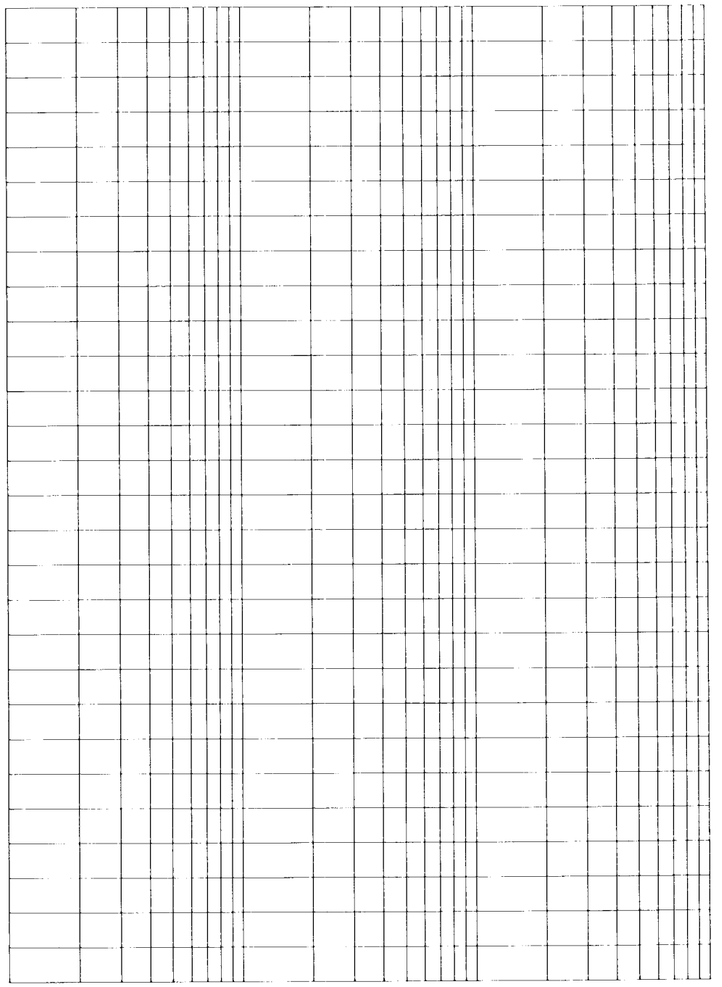


PLASTICITY CHART



SHEAR STRENGTH DATA

ENVELOPE NO.	ENVELOPE EL.	TYPE	STRENGTH Φ	STRENGTH C - TSF	CLASS



CONSOLIDATION DATA

○ - (UC) UNCONFINED COMPRESSION TEST

■ - (Q) UNCONSOLIDATED - UNDRAINED SHEAR TEST

▲ - (R) CONSOLIDATED - UNDRAINED SHEAR TEST

⊡ - (S) CONSOLIDATED - DRAINED SHEAR TEST

BORINGS WERE TAKEN WITH A 3 INCH DIAMETER STEEL TUBE PISTON TYPE SAMPLER

FOR SOIL BORING LEGEND SEE PLATE A

FOR LOCATION OF BORING SEE PLATES 2 AND 30

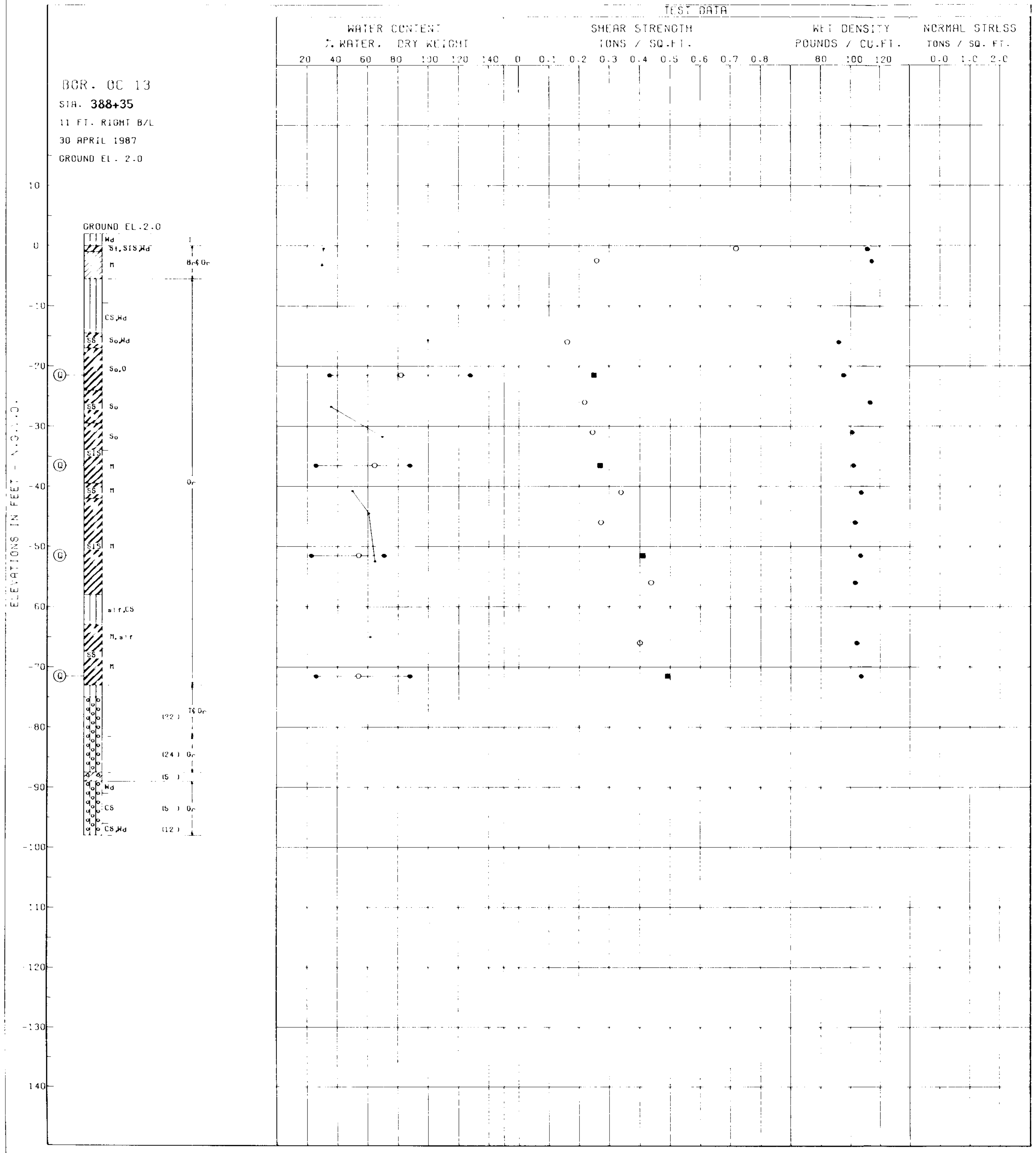
WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

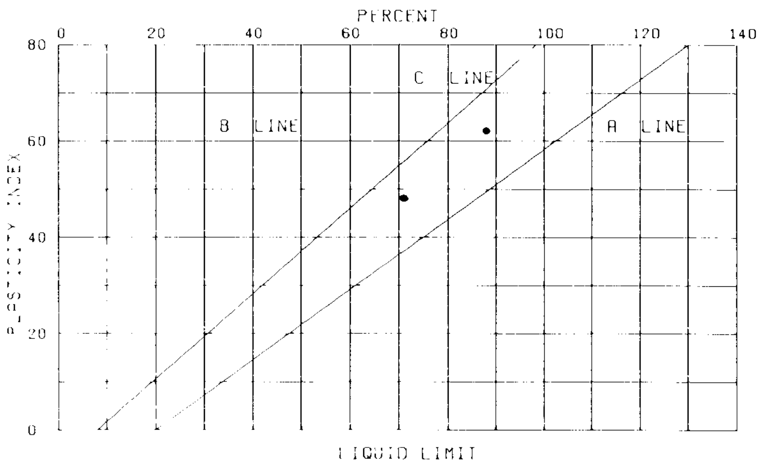
UNDISTURBED BORING OC-12

U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

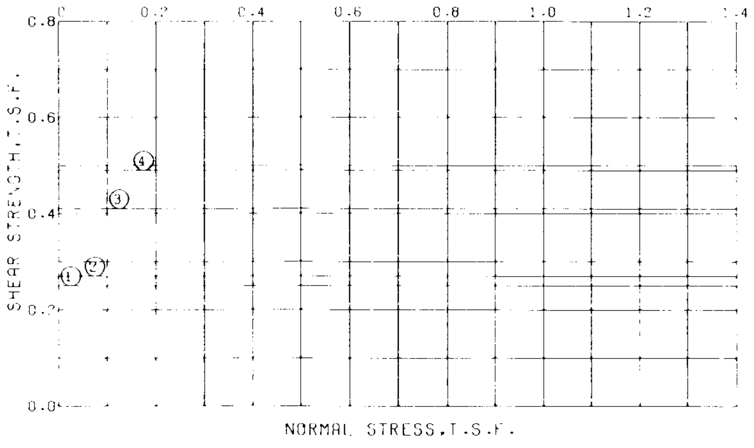
DATE: FEB. 90

FILE NO. H-2-30618



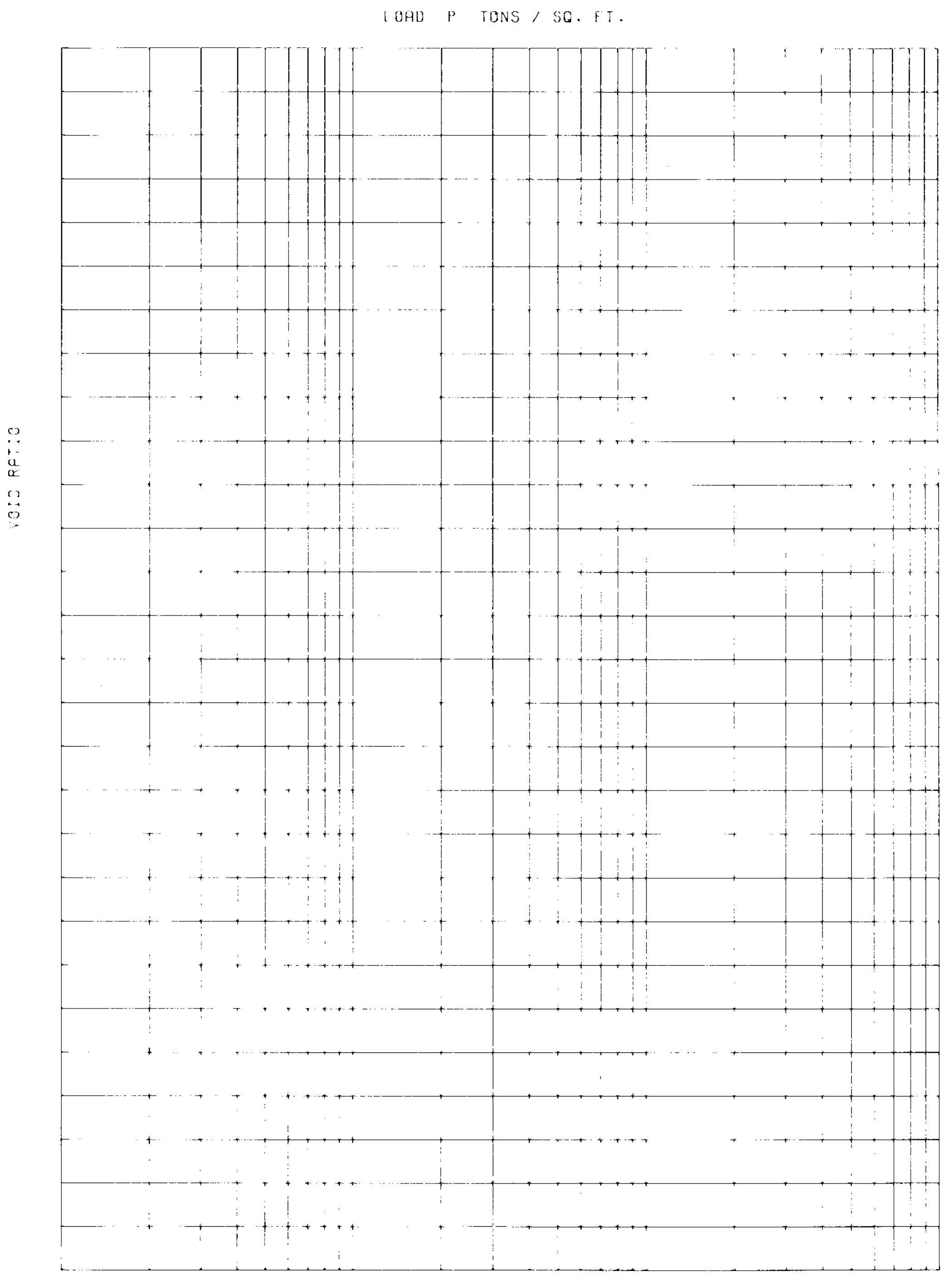


PLASTICITY CHART



SHEAR STRENGTH DATA

ENVELOPE		TYPE	STRENGTH		CLASS
NO.	EL.		Φ	C - TSF	
1	21.50	Q	0.0	0.250	CH
2	36.50	Q	0.0	0.270	CH
3	51.50	Q	0.0	0.410	CH
4	71.50	Q	0.0	0.490	CH



CONSOLIDATION DATA

○ - (UC) UNCONFINED COMPRESSION TEST
■ - (Q) UNCONSOLIDATED - UNDRAINED SHEAR TEST
▲ - (R) CONSOLIDATED - UNDRAINED SHEAR TEST
m - (S) CONSOLIDATED DRAINED SHEAR TEST

BORINGS WERE TAKEN WITH A 5 INCH DIAMETER STEEL TUBE PISTON TYPE SAMPLER

FOR SOIL BORING LEGEND SEE PLATE A

FOR LOCATION OF BORING SEE PLATES 28&30

WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. I GENERAL DESIGN
SUPPLEMENT NO. 2

UNDISTURBED BORING OC-13

U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

DATE FEB. 90. FILE NO. H-2-30618

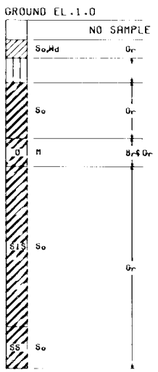
BOR. OC-14

STA. 398+50

12 FT. RIGHT B/L

1 MAY 1987

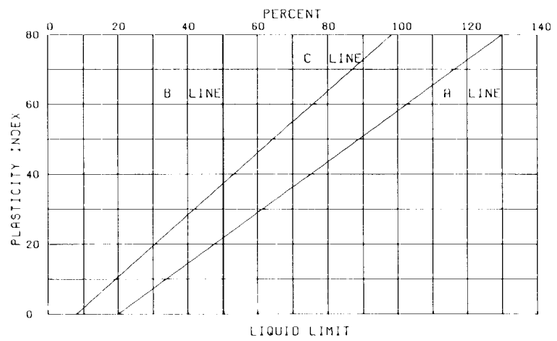
GROUND EL. 1.0



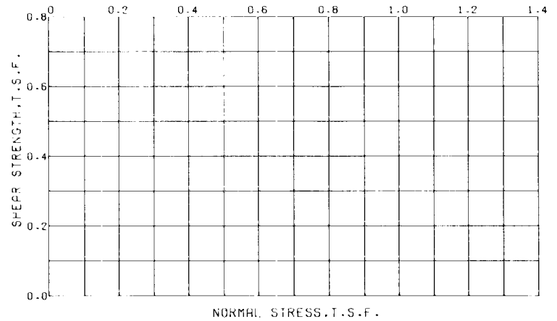
ELEVATIONS IN FEET - N.G.V.D.

TEST DATA

WATER CONTENT % WATER, DRY WEIGHT	SHEAR STRENGTH TONS / SQ.FT.	WET DENSITY POUNDS / CU.FT.	NORMAL STRESS TONS / SQ. FT.
20 40 60 80 100 120 140	0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8	80 100 120	0.0 1.0 2.0



PLASTICITY CHART



SHEAR STRENGTH DATA

ENVELOPE NO.	ENVELOPE EL.	TYPE	STRENGTH Φ	STRENGTH C - TSF	CLASS

VOID RATIO

LOAD P TONS / SQ. FT.

CONSOLIDATION DATA

○ - (UC) UNCONFINED COMPRESSION TEST

■ - (Q) UNCONSOLIDATED - UNDRAINED SHEAR TEST

▲ - (R) CONSOLIDATED - UNDRAINED SHEAR TEST

⊡ - (S) CONSOLIDATED - DRAINED SHEAR TEST

BORINGS WERE TAKEN WITH A 3 INCH DIAMETER STEEL TUBE PISTON TYPE SAMPLER

FOR SOIL BORING LEGEND SEE PLATE A

FOR LOCATION OF BORING SEE PLATE 5

WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

UNDISTURBED BORING OC-14

U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

DATE: FEB. 90

FILE NO. H-2-30618

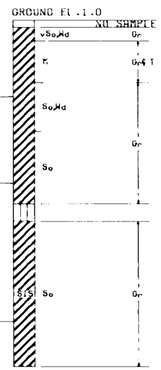
BOR. OC-15

STA. 488+65

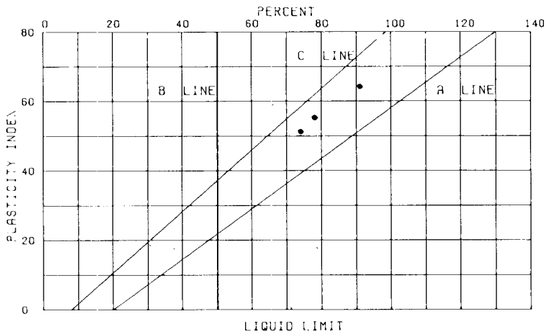
10 FT. RIGHT B/L

1-4 MAY 1987

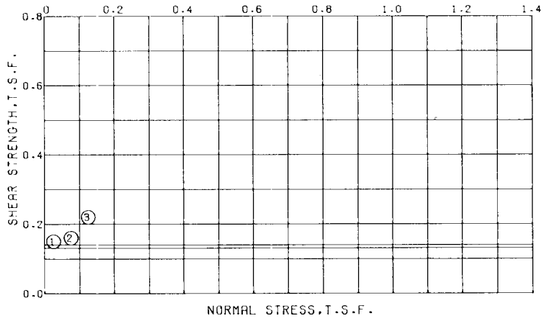
GROUND EL. 1.0



TEST DATA

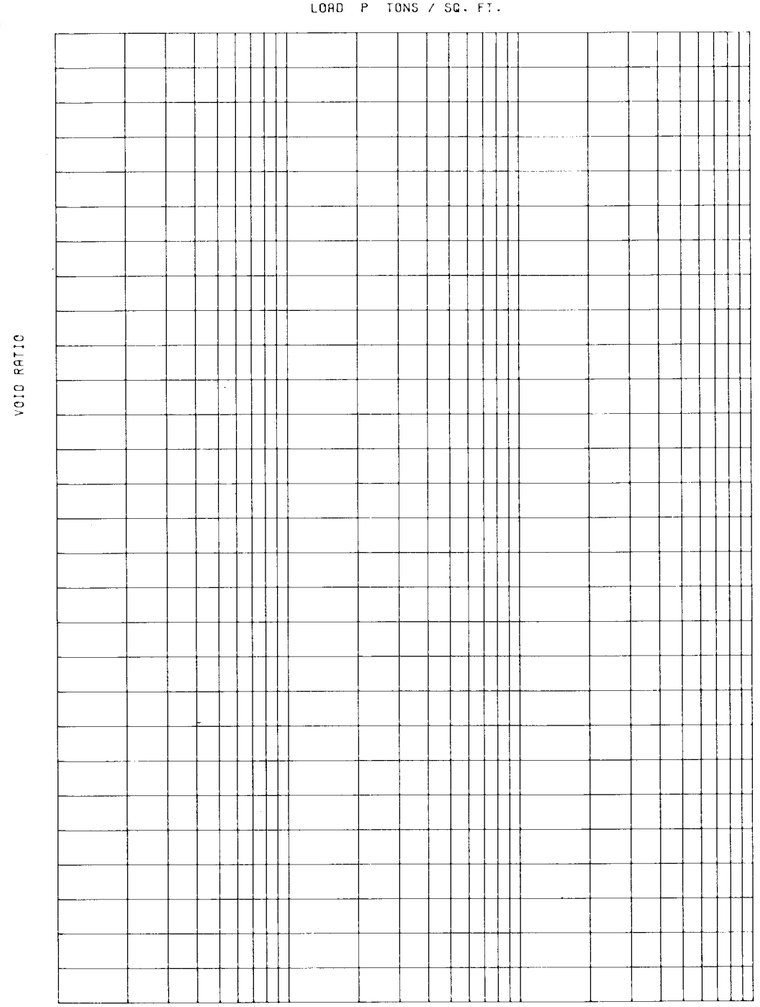


PLASTICITY CHART



SHEAR STRENGTH DATA

ENVELOPE NO.	ENVELOPE EL.	TYPE	STRENGTH Φ	STRENGTH C - TSF	CLASS
1	10.00	Q	0.0	0.130	CH
2	22.50	Q	0.0	0.140	CH
3	42.50	Q	0.0	0.200	CH



CONSOLIDATION DATA

○ - (UC) UNCONFINED COMPRESSION TEST

■ - (Q) UNCONSOLIDATED - UNDRAINED SHEAR TEST

▲ - (R) CONSOLIDATED - UNDRAINED SHEAR TEST

⊡ - (S) CONSOLIDATED - DRAINED SHEAR TEST

BORINGS WERE TAKEN WITH A 5 INCH DIAMETER STEEL TUBE PISTON TYPE SAMPLER

FOR SOIL BORING LEGEND SEE PLATE A

FOR LOCATION OF BORING SEE PLATE 31

WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

UNDISTURBED BORING OC-15

U.S. ARMY ENGINEER DISTRICT NEW ORLEANS
CORPS OF ENGINEERS

DATE FEB. 90

FILE NO H-2-30618

PLATE F38

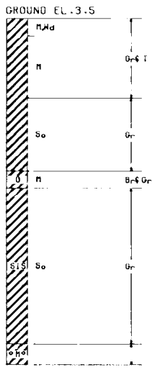
BOR. OC-16

STA. 418+98

8 FT. RIGHT B/L

5 MAY 1987

GROUND EL. 3.5



TEST DATA

WATER CONTENT
% WATER, DRY WEIGHT
20 40 60 80 100 120 140

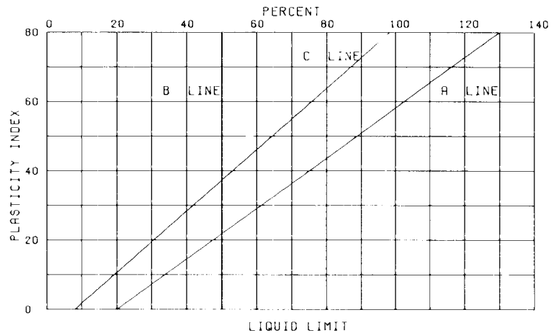
SHEAR STRENGTH
TONS / SQ.FT.
0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8

WET DENSITY
POUNDS / CU.FT.
80 100 120

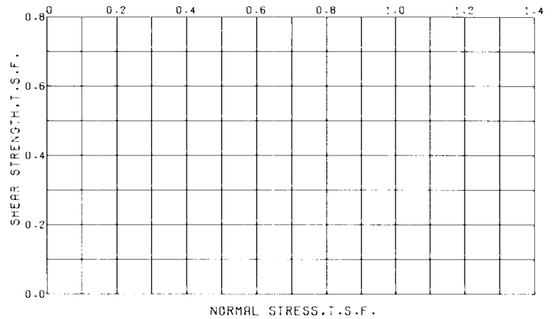
NORMAL STRESS
TONS / SQ. FT.
0.0 1.0 2.0

ELEVATIONS IN FEET - N.G.V.D.

10 0 -10 -20 -30 -40 -50 -60 -70 -80 -90 -100 -110 -120 -130 -140

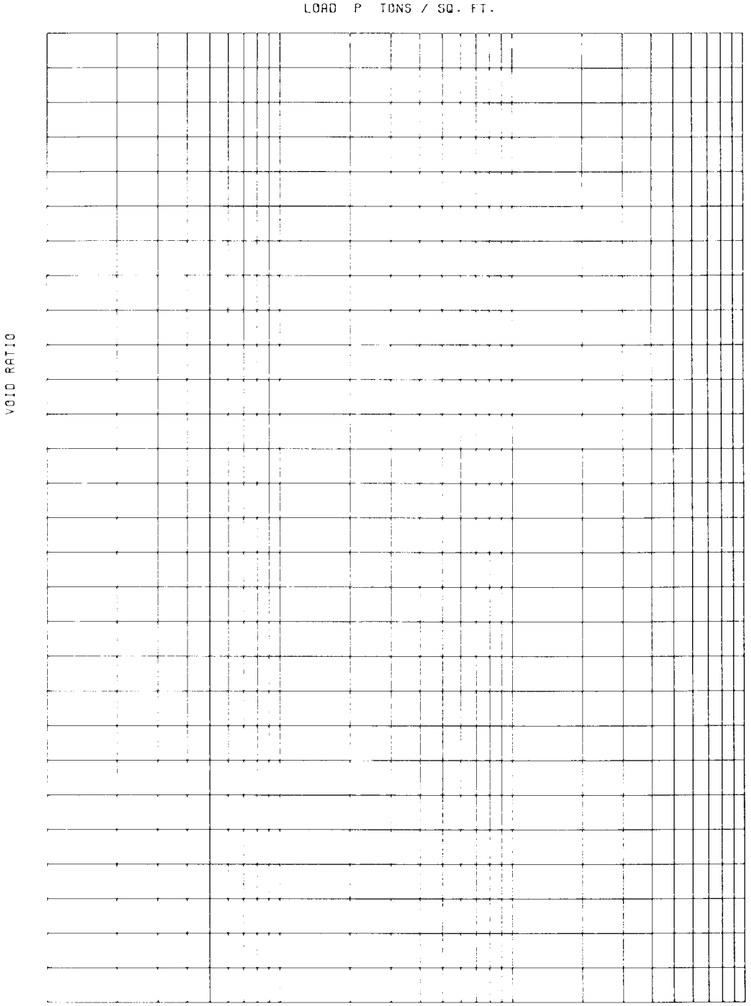


PLASTICITY CHART



SHEAR STRENGTH DATA

ENVELOPE NO.	ENVELOPE EL.	TYPE	STRENGTH Φ	STRENGTH C - TSF	CLASS



CONSOLIDATION DATA

○ - (UC) UNCONFINED COMPRESSION TEST

■ - (Q) UNCONSOLIDATED - UNDRAINED SHEAR TEST

▲ - (R) CONSOLIDATED - UNDRAINED SHEAR TEST

▣ - (S) CONSOLIDATED - DRAINED SHEAR TEST

BORINGS WERE TAKEN WITH A 3 INCH DIAMETER STEEL TUBE PISTON TYPE SAMPLER

FOR SOIL BORING LEGEND SEE PLATE A

FOR LOCATION OF BORING SEE PLATE 32

WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

UNDISTURBED BORING OC-16

U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

DATE: FEB. 90

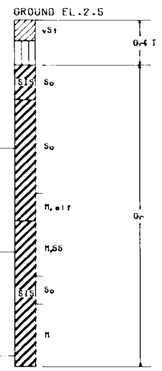
FILE NO. H-2-30618

BOR. OC-17
STA. 420+96

450 FT. EAST OF P.I.

6 MAY 1987

GROUND EL. 2.5



ELEVATIONS IN FEET - N.G.V.D.

TEST DATA

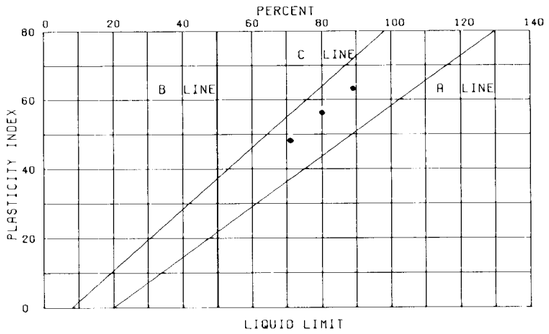
WATER CONTENT
% WATER, DRY WEIGHT
20 40 60 80 100 120 140

SHEAR STRENGTH
TONS / SQ.FT.
0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8

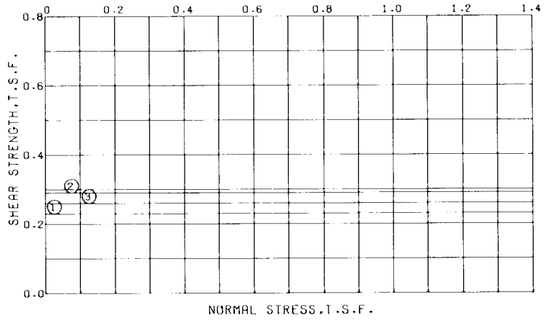
WET DENSITY
POUNDS / CU.FT.
80 100 120

NORMAL STRESS
TONS / SQ. FT.
0.0 1.0 2.0

10 0 -10 -20 -30 -40 -50 -60 -70 -80 -90 -100 -110 -120 -130 -140



PLASTICITY CHART



SHEAR STRENGTH DATA

ENVELOPE NO.	ENVELOPE EL.	TYPE	STRENGTH Φ	STRENGTH C - TSF	CLASS
1	16.00	Q	0.0	0.230	CH
2	31.00	Q	0.0	0.290	CH
3	46.00	Q	0.0	0.260	CH

VOID RATIO

LOAD P TONS / SQ. FT.

CONSOLIDATION DATA

○ - (UC) UNCONFINED COMPRESSION TEST
■ - (Q) UNCONSOLIDATED - UNDRAINED SHEAR TEST
▲ - (R) CONSOLIDATED - UNDRAINED SHEAR TEST
⍑ - (S) CONSOLIDATED - DRAINED SHEAR TEST

BORINGS WERE TAKEN WITH A 5 INCH DIAMETER STEEL TUBE PISTON TYPE SAMPLER

FOR SOIL BORING LEGEND SEE PLATE A

FOR LOCATION OF BORING SEE PLATE

WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

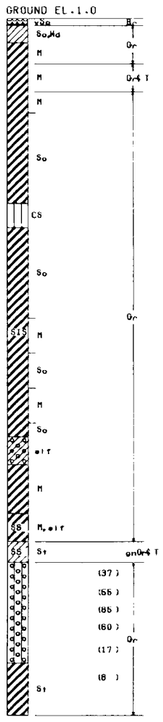
UNDISTURBED BORING OC-17

U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

DATE FEB. 90 FILE NO H-2-30618

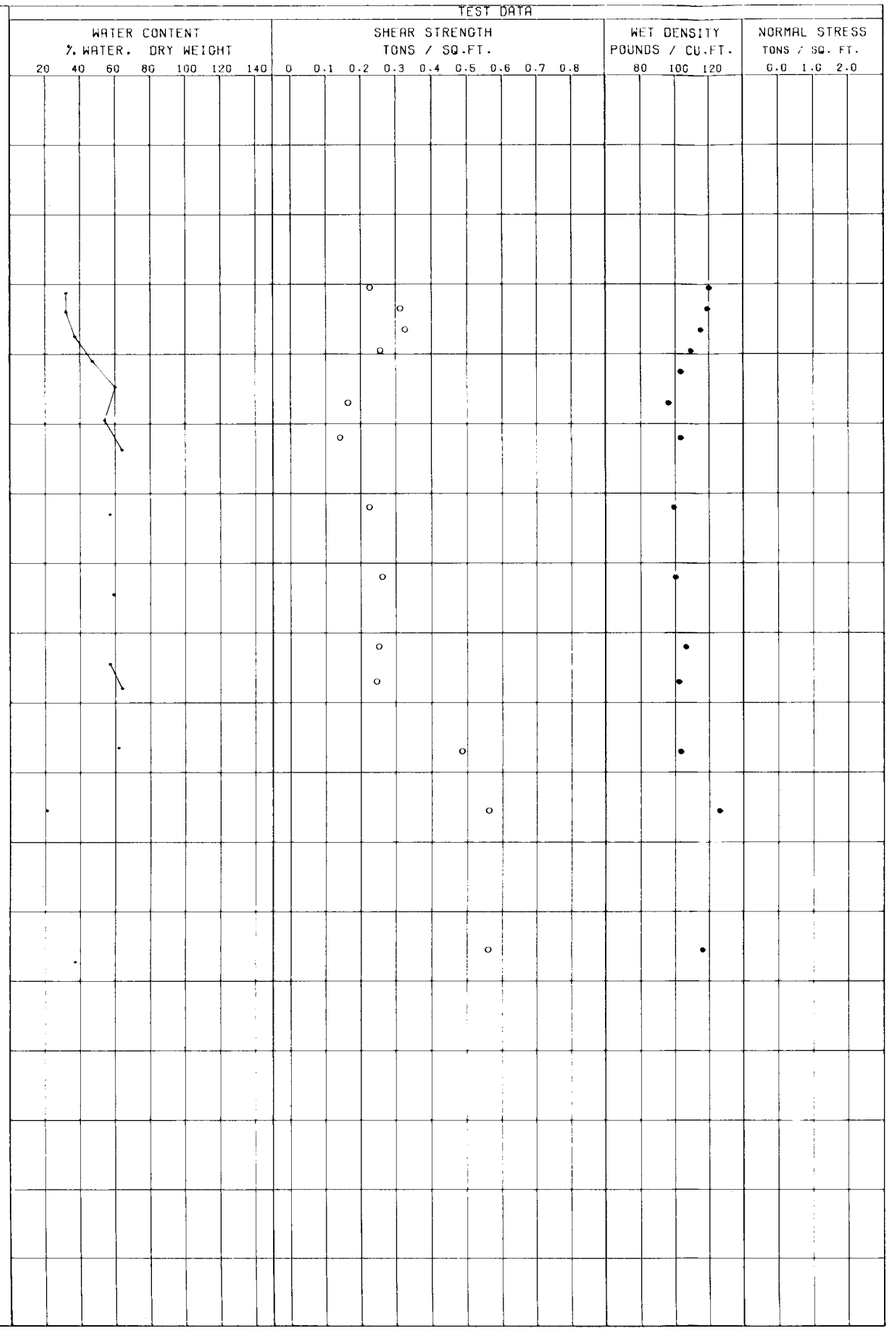
PLATE F40

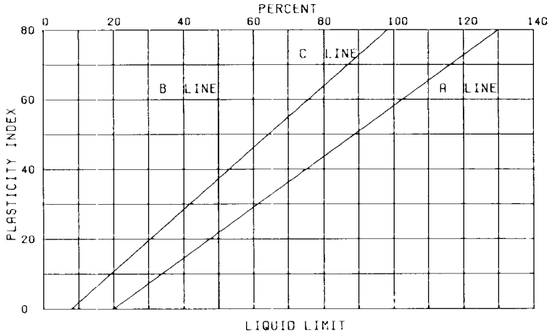
BOR. HL-1
STA. 431+80
ON B/L
7 MAY 87



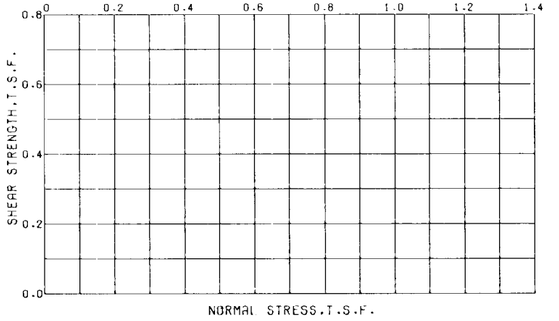
ELEVATIONS IN FEET - N.G.V.D.

TEST DATA





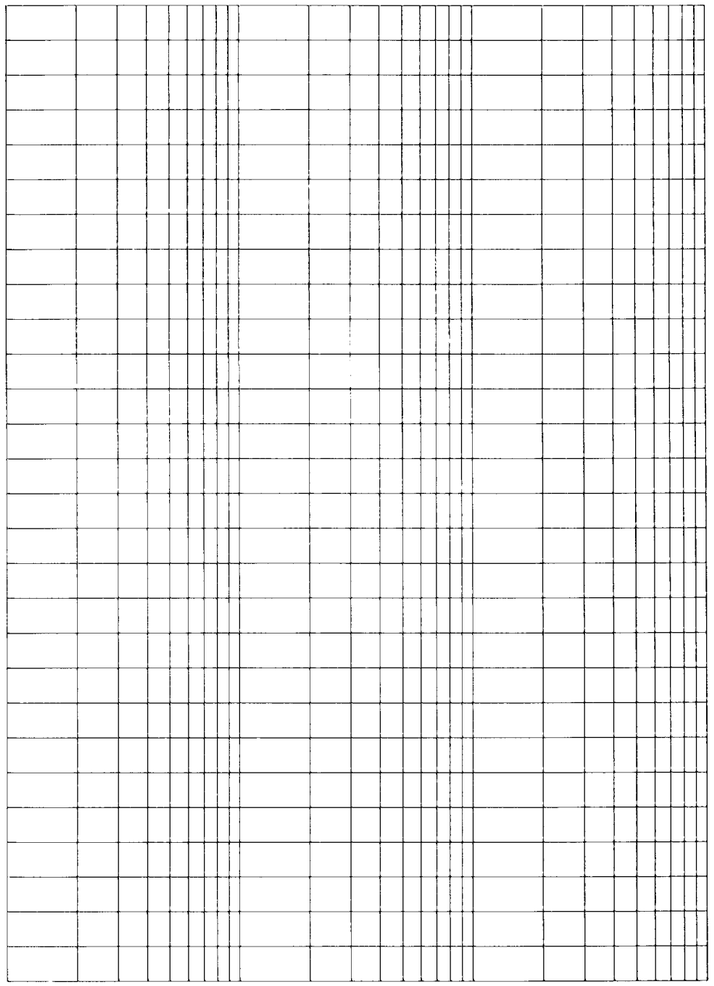
PLASTICITY CHART



SHEAR STRENGTH DATA

ENVELOPE NO.	ENVELOPE EL.	TYPE	STRENGTH Φ	STRENGTH C - TSF	CLASS

VOID RATIO



CONSOLIDATION DATA

○ - (UC) UNCONFINED COMPRESSION TEST
■ - (Q) UNCONSOLIDATED - UNDRAINED SHEAR TEST
▲ - (R) CONSOLIDATED - UNDRAINED SHEAR TEST
▯ - (S) CONSOLIDATED - DRAINED SHEAR TEST

BORINGS WERE TAKEN WITH A 5 INCH DIAMETER STEEL TUBE PISTON TYPE SAMPLER

FOR SOIL BORING LEGEND SEE PLATE A

FOR LOCATION OF BORING SEE PLATE 32

WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

UNDISTURBED BORING HL-1

U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

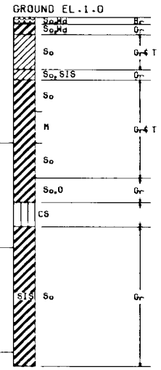
DATE: FEB. 90 FILE NO. H-2-30618

BOR. HL-2

STA. 441+35

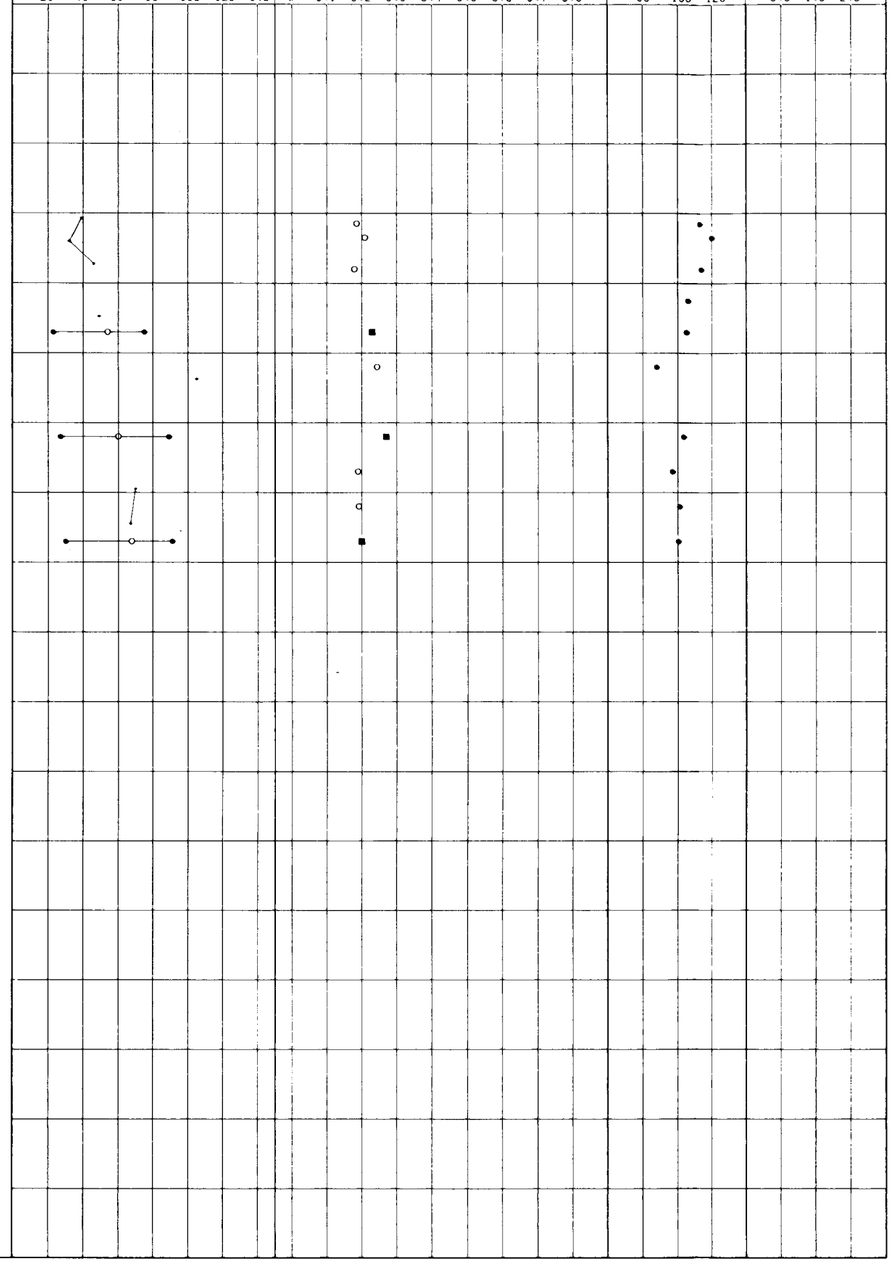
ON B/L

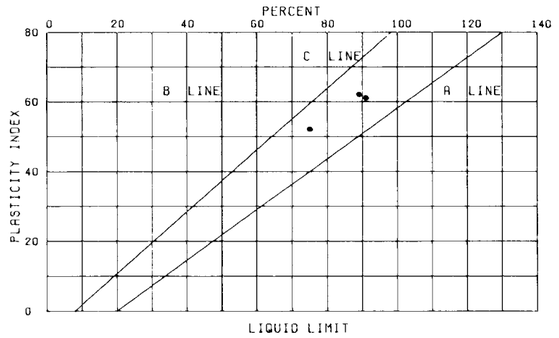
8 MAY 1987



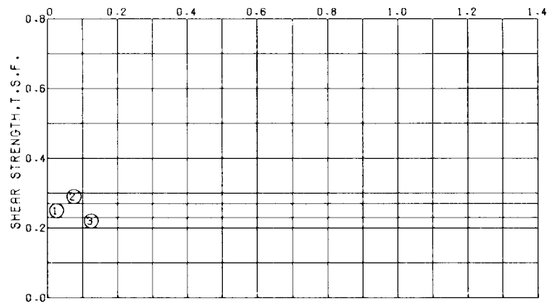
ELEVATIONS IN FEET - N.G.V.D.

TEST DATA





PLASTICITY CHART



SHEAR STRENGTH DATA

ENVELOPE NO.	ENVELOPE EL.	TYPE	STRENGTH Φ	STRENGTH C - TSF	CLASS
1	-17.00	Q	0.0	0.230	CH
2	-32.00	Q	0.0	0.270	CH
3	-47.00	Q	0.0	0.200	CH

VOID RATIO

LOAD P TONS / SQ. FT.

CONSOLIDATION DATA

○ - (UC) UNCONFINED COMPRESSION TEST

■ - (Q) UNCONSOLIDATED - UNDRAINED SHEAR TEST

▲ - (R) CONSOLIDATED - UNDRAINED SHEAR TEST

⊡ - (S) CONSOLIDATED - DRAINED SHEAR TEST

BORINGS WERE TAKEN WITH A 5 INCH DIAMETER STEEL TUBE PISTON TYPE SAMPLER

FOR SOIL BORING LEGEND SEE PLATE A

FOR LOCATION OF BORING SEE PLATE 32

WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

UNDISTURBED BORING HL-2

U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

DATE: FEB. 90

FILE NO. H-2-30618

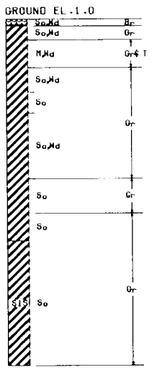
PLATE F44

BOR. HL-3

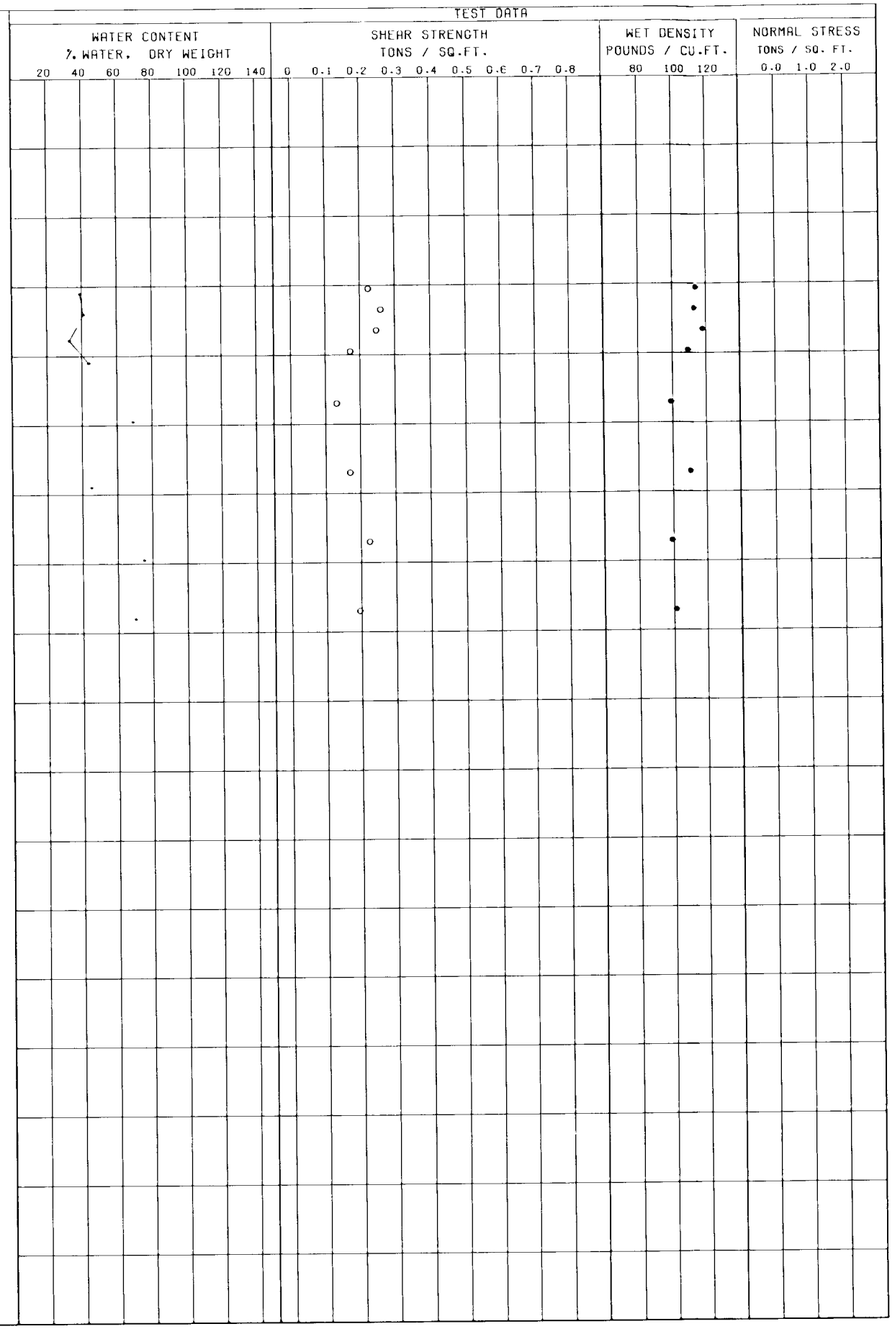
STA. 451+35

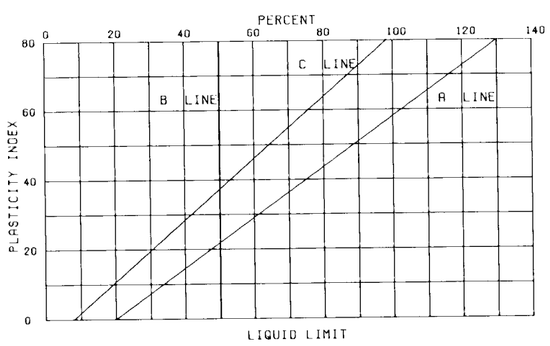
ON B/L

8-11 MAY 87

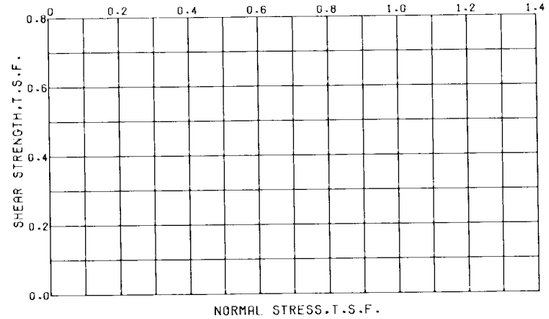


TEST DATA



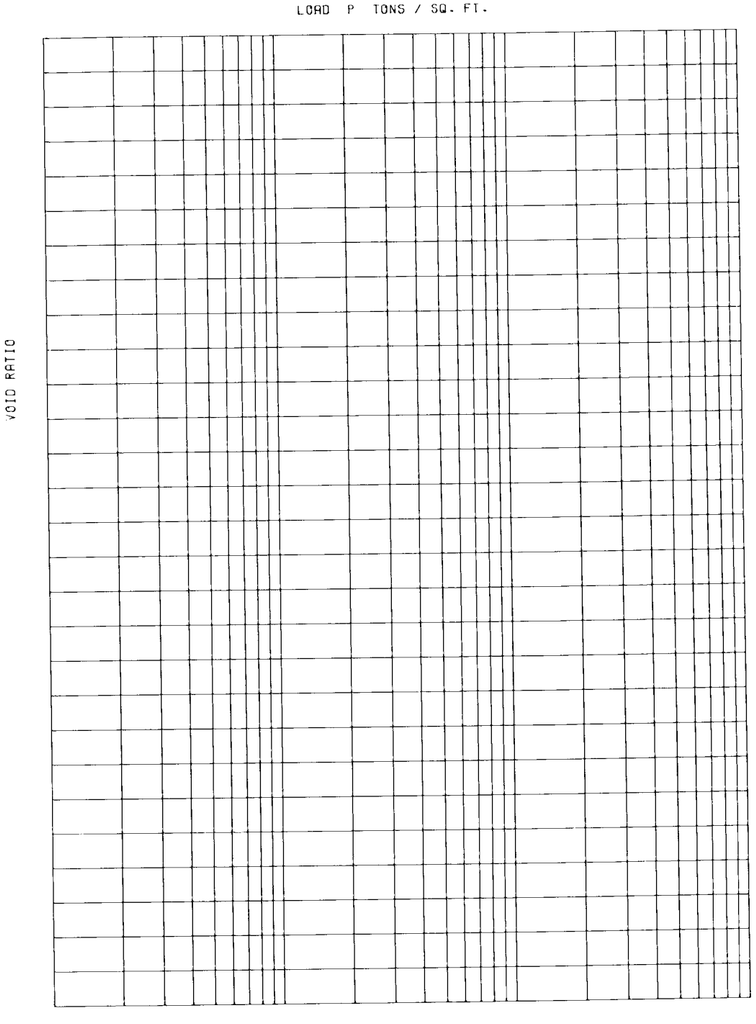


PLASTICITY CHART



SHEAR STRENGTH DATA

ENVELOPE NO.	ENVELOPE EL.	TYPE	STRENGTH Φ	STRENGTH C - TSF	CLASS



CONSOLIDATION DATA

○ - (UC) UNCONFINED COMPRESSION TEST
■ - (Q) UNCONSOLIDATED - UNDRAINED SHEAR TEST
▲ - (R) CONSOLIDATED - UNDRAINED SHEAR TEST
▽ - (S) CONSOLIDATED - DRAINED SHEAR TEST

BORINGS WERE TAKEN WITH A 6 INCH DIAMETER STEEL TUBE PISTON TYPE SAMPLER

FOR SOIL BORING LEGEND SEE PLATE A

FOR LOCATION OF BORING SEE PLATE 33

WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

UNDISTURBED BORING HL - 3

U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

DATE: FEB. 90

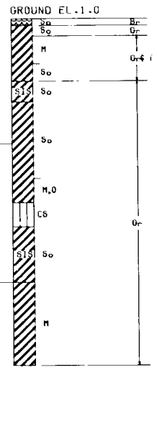
FILE NO. H-2-30618

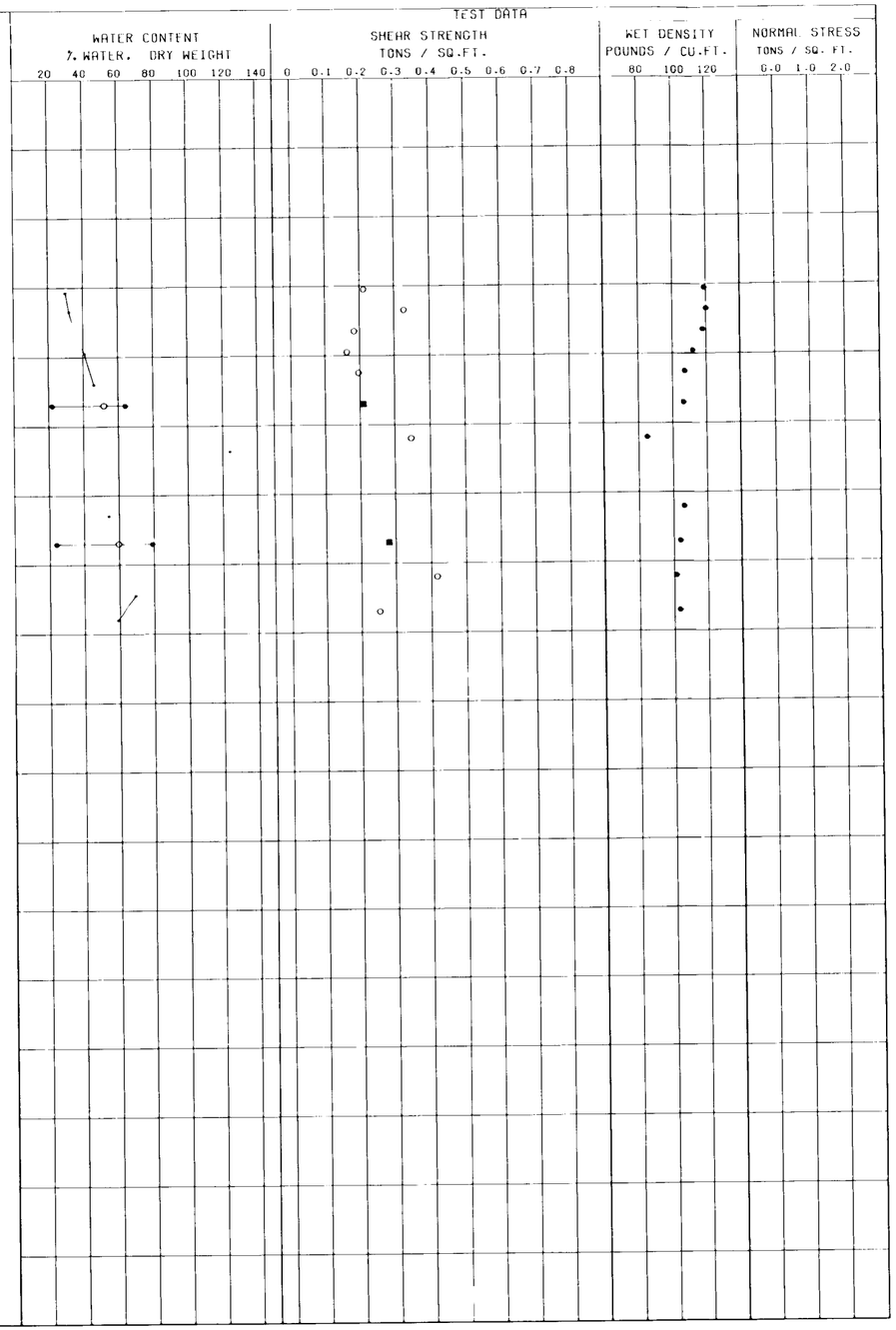
BOR. HL-4

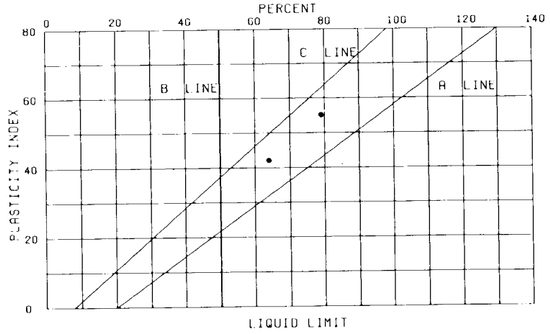
STA. 461+35

ON B/L

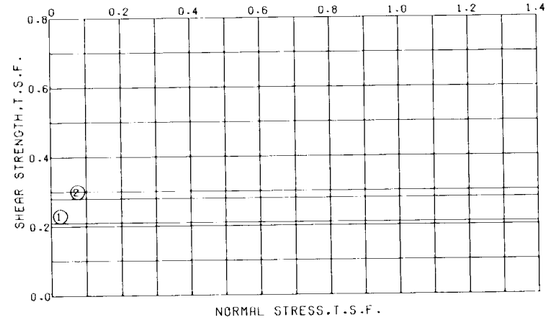
11-12 MAY 87





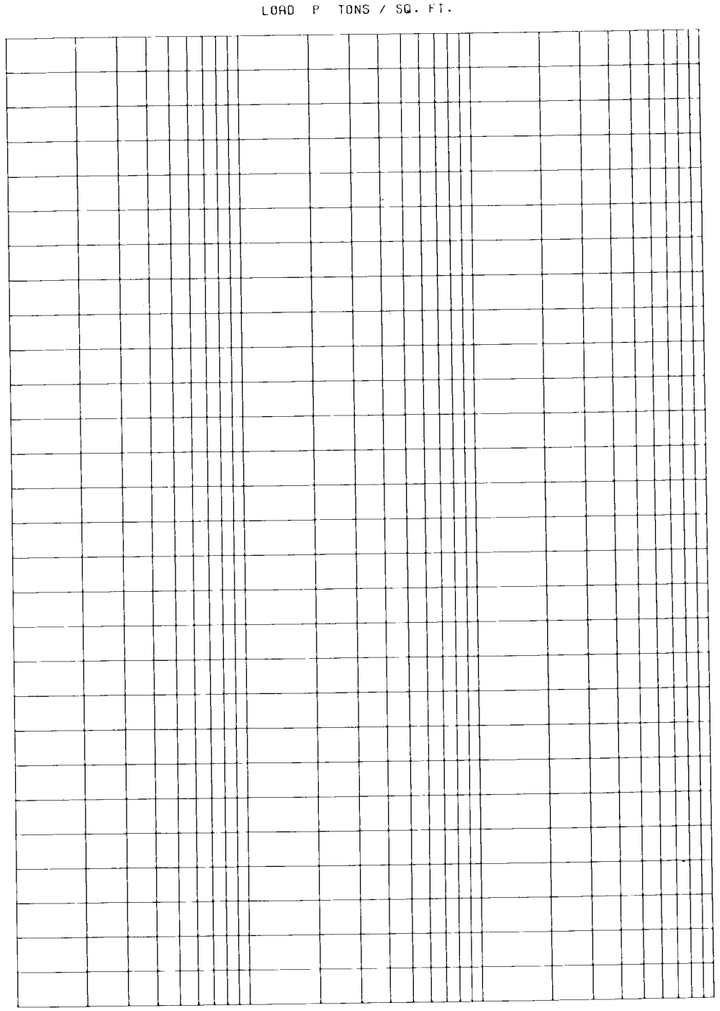


PLASTICITY CHART



SHEAR STRENGTH DATA

ENVELOPE NO.	EL.	TYPE	STRENGTH Φ	STRENGTH C - TSF	CLASS
1	-17.00	Q	0.0	0.210	CH
2	-37.00	Q	0.0	0.280	CH



CONSOLIDATION DATA

○ - (UC) UNCONFINED COMPRESSION TEST
■ - (Q) UNCONSOLIDATED - UNDRAINED SHEAR TEST
▲ - (R) CONSOLIDATED - UNDRAINED SHEAR TEST
⊡ - (S) CONSOLIDATED - DRAINED SHEAR TEST

BORINGS WERE TAKEN WITH A 5 INCH DIAMETER STEEL TUBE PISTON TYPE SAMPLER

FOR SOIL BORING LEGEND SEE PLATE A

FOR LOCATION OF BORING SEE PLATE **33**

WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

UNDISTURBED BORING HL - 4

U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

DATE: FEB. 90

FILE NO. H-2-30618

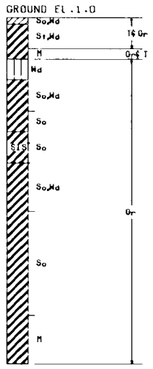
PLATE F46

BOR. HL-5

STA. 471+35

ON B/L

12 MAY 87

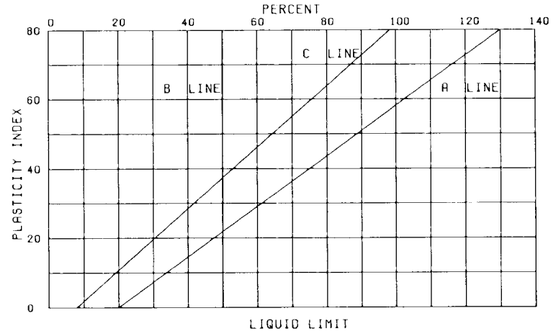


ELEVATIONS IN FEET - N.G.V.D.

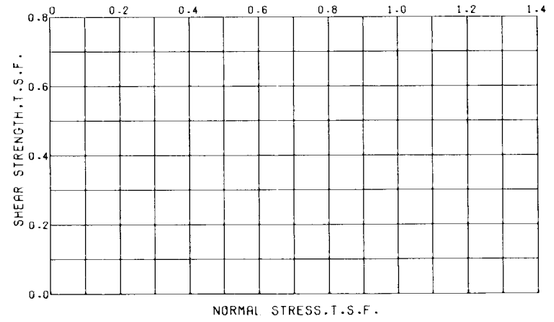
10 0 -10 -20 -30 -40 -50 -60 -70 -80 -90 -100 -110 -120 -130 -140

TEST DATA

WATER CONTENT % WATER, DRY WEIGHT	SHEAR STRENGTH TONS / SQ.FT.	WET DENSITY POUNDS / CU.FT.	NORMAL STRESS TONS / SQ. FT.
20 40 60 80 100 120 140	0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8	80 100 120	0.0 1.0 2.0



PLASTICITY CHART



SHEAR STRENGTH DATA

ENVELOPE NO.	ENVELOPE EL.	TYPE	STRENGTH Φ	STRENGTH C - TSF	CLASS

LOAD P TONS / SQ. FT.

VOID RATIO

CONSOLIDATION DATA

○ - (UC) UNCONFINED COMPRESSION TEST
■ - (Q) UNCONSOLIDATED - UNDRAINED SHEAR TEST
▲ - (R) CONSOLIDATED - UNDRAINED SHEAR TEST
⊡ - (S) CONSOLIDATED - DRAINED SHEAR TEST

BORINGS WERE TAKEN WITH A 5 INCH DIAMETER STEEL TUBE PISTON TYPE SAMPLER

FOR SOIL BORING LEGEND SEE PLATE A

FOR LOCATION OF BORING SEE PLATE 34

WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

UNDISTURBED BORING HL - 5

U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

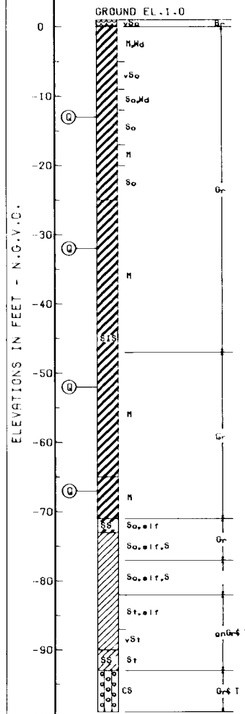
DATE: FEB. 90 FILE NO. H-2-30618

BOR. HL-6

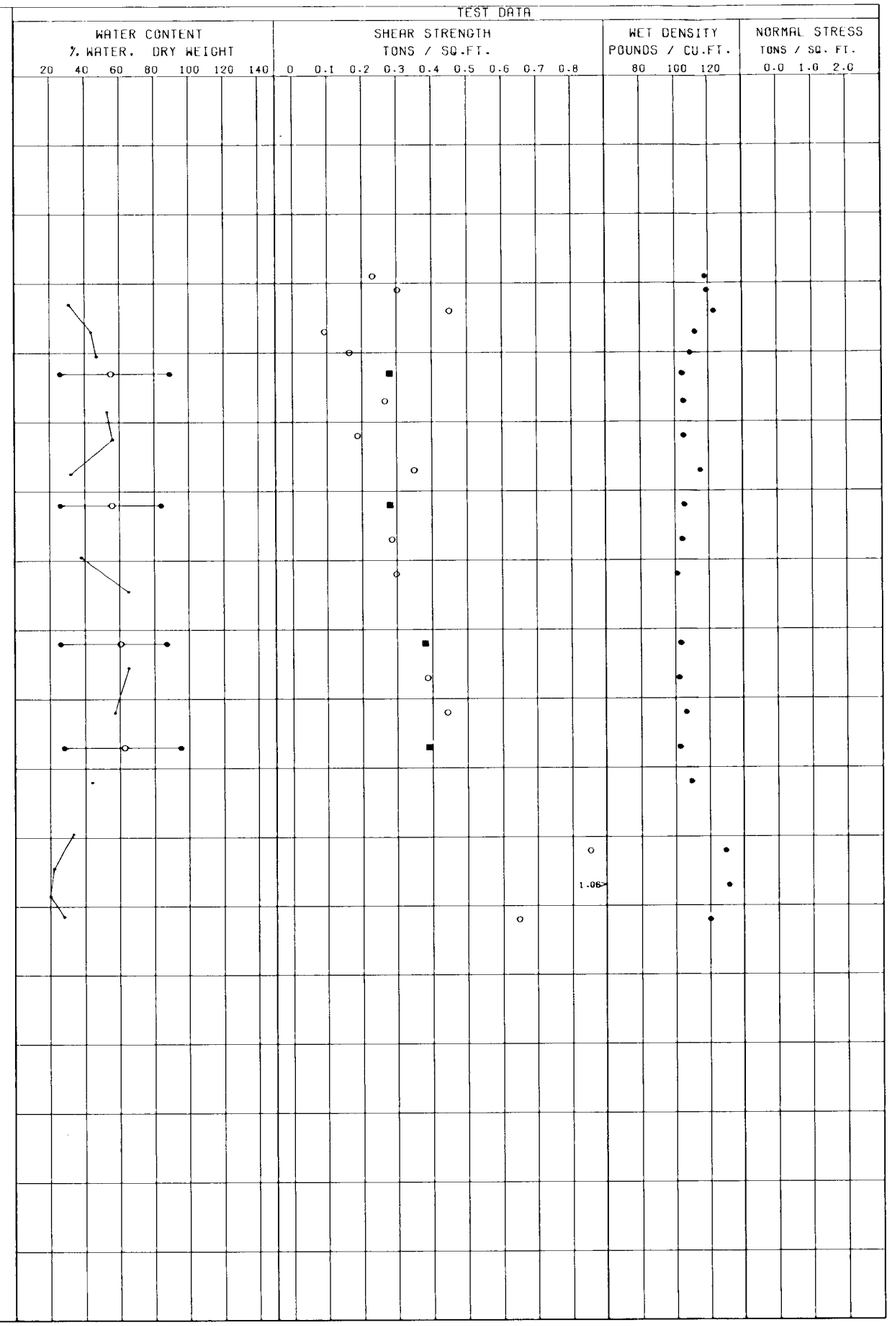
STA. 481+35

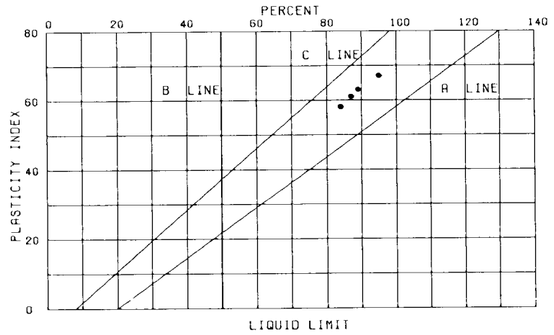
ON B/L

13-14 MAY 87

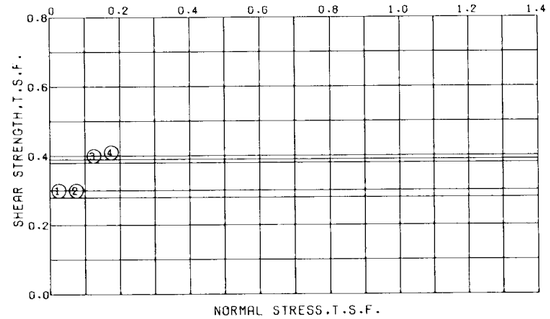


TEST DATA





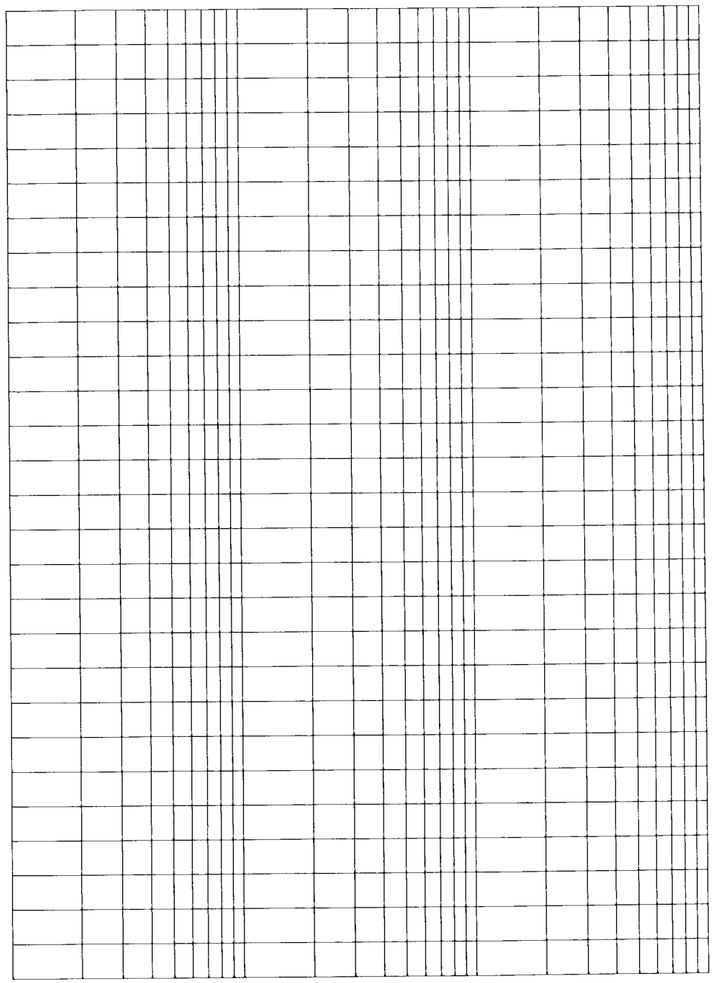
PLASTICITY CHART



SHEAR STRENGTH DATA

ENVELOPE NO.	ENVELOPE EL.	TYPE	STRENGTH Φ	STRENGTH C - TSF	CLASS
1	-13.00	Q	0.0	0.280	CH
2	-32.00	Q	0.0	0.280	CH
3	-52.00	Q	0.0	0.380	CH
4	-67.00	Q	0.0	0.390	CH

LOAD P TONS / SQ. FT.



CONSOLIDATION DATA

○ - (UC) UNCONFINED COMPRESSION TEST
■ - (Q) UNCONSOLIDATED - UNDRAINED SHEAR TEST
▲ - (R) CONSOLIDATED - UNDRAINED SHEAR TEST
⊡ - (S) CONSOLIDATED - DRAINED SHEAR TEST

BORINGS WERE TAKEN WITH A 5 INCH DIAMETER STEEL TUBE PISTON TYPE SAMPLER

FOR SOIL BORING LEGEND SEE PLATE A

FOR LOCATION OF BORING SEE PLATE 34

WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

UNDISTURBED BORING HL - 6

U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

DATE: FEB. 90

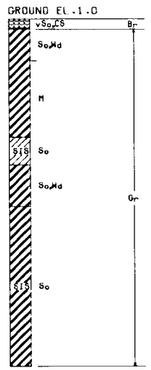
FILE NO. H-2-30618

BOR. HL-7

STA. 491+35

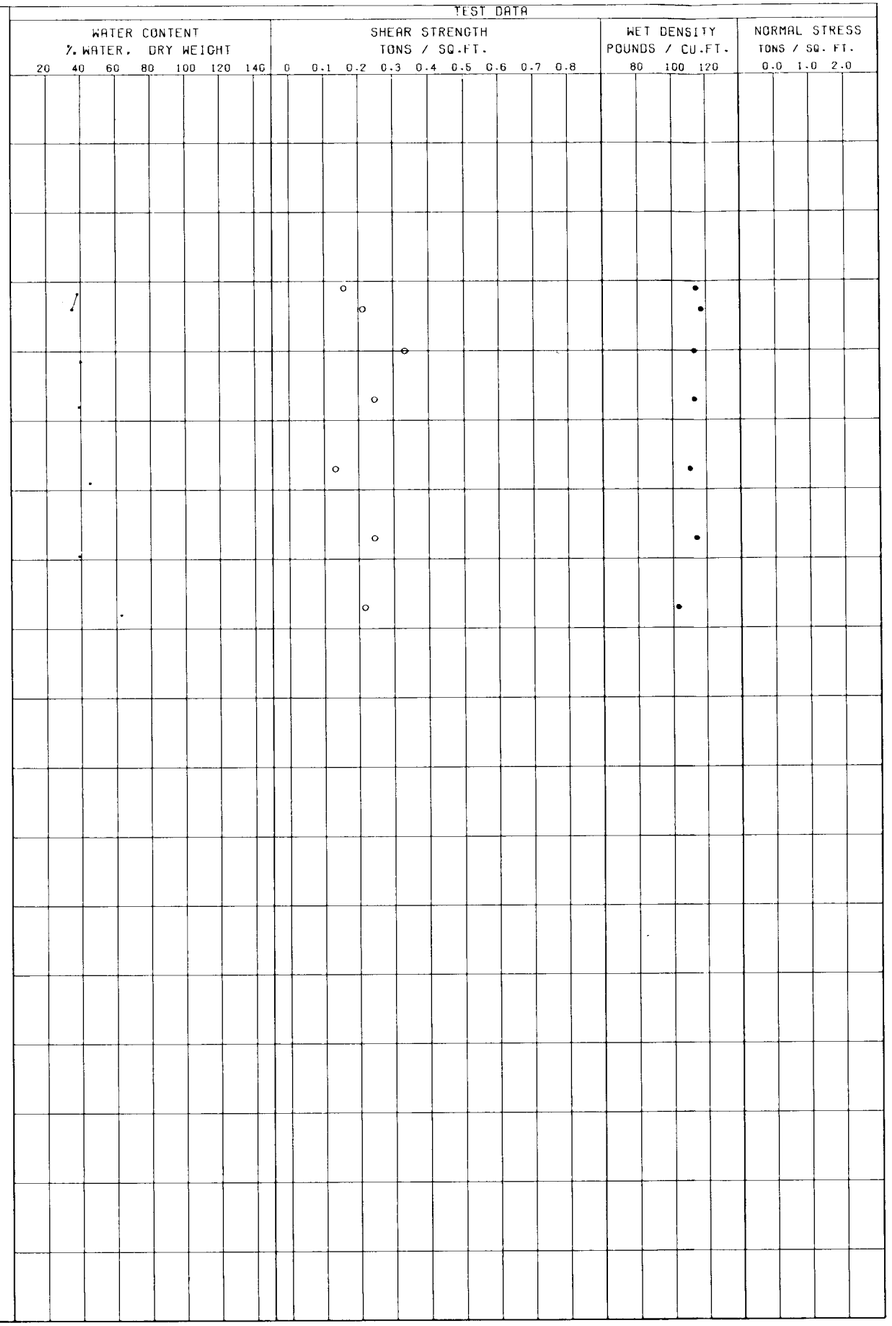
ON B/L

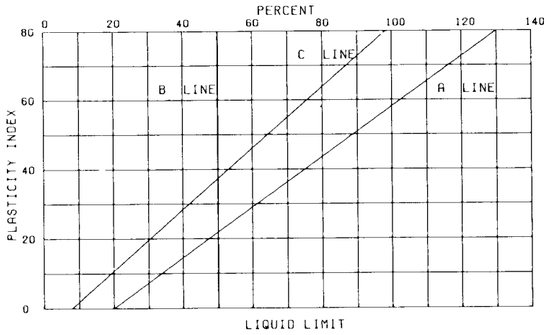
14 MAY 87



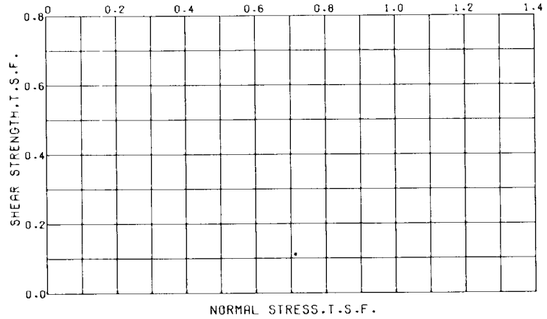
ELEVATIONS IN FEET - N.G.V.D.

TEST DATA





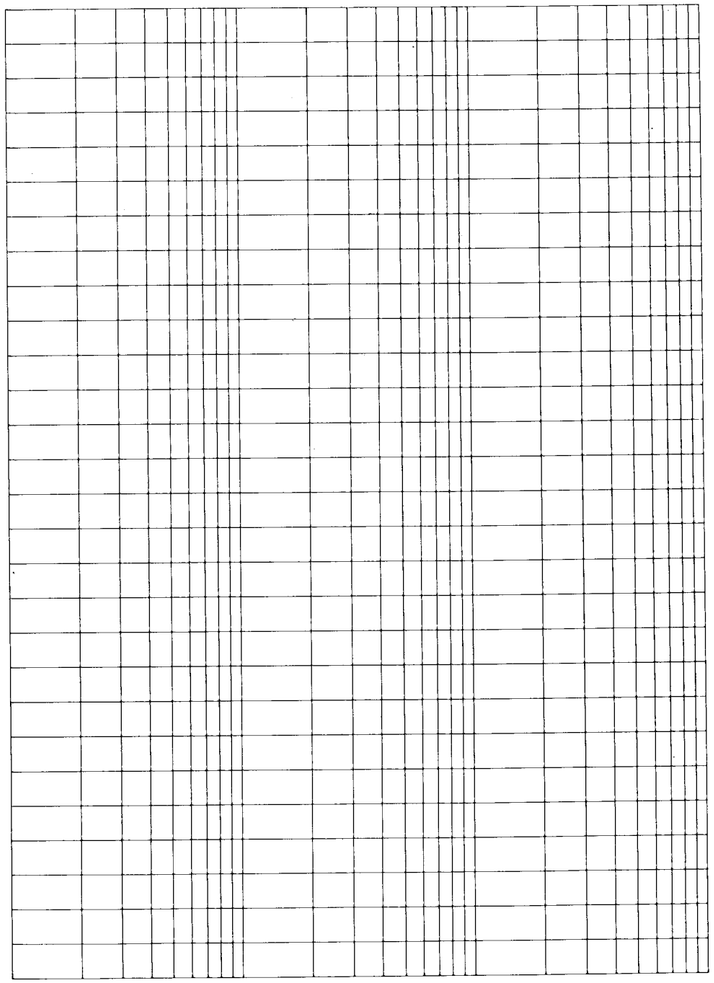
PLASTICITY CHART



SHEAR STRENGTH DATA

ENVELOPE NO.	ENVELOPE EL.	TYPE	STRENGTH ϕ	STRENGTH C - TSF	CLASS

LOAD P TONS / SQ. FT.



VOID RATIO

CONSOLIDATION DATA

○ - (UC) UNCONFINED COMPRESSION TEST
■ - (Q) UNCONSOLIDATED - UNDRAINED SHEAR TEST
▲ - (R) CONSOLIDATED - UNDRAINED SHEAR TEST
⊡ - (S) CONSOLIDATED - DRAINED SHEAR TEST

BORINGS WERE TAKEN WITH A 5 INCH DIAMETER STEEL TUBE PISTON TYPE SAMPLER

FOR SOIL BORING LEGEND SEE PLATE A

FOR LOCATION OF BORING SEE PLATE 35

WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

UNDISTURBED BORING HL - 7

U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

DATE: FEB. 90

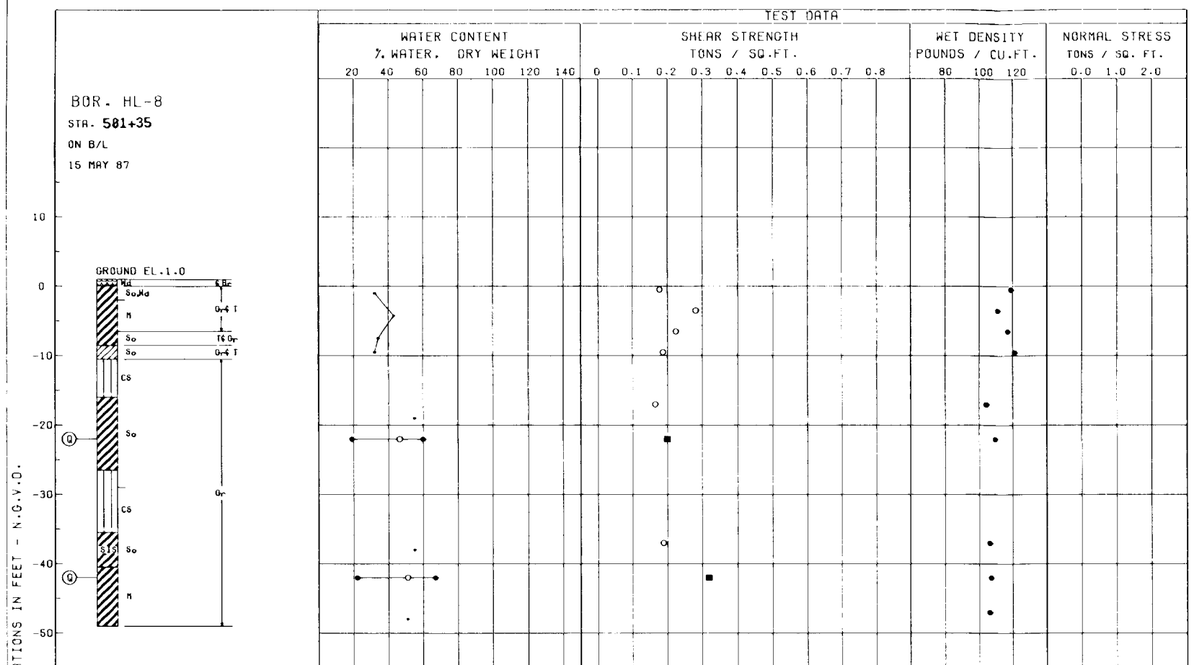
FILE NO. H-2-30618

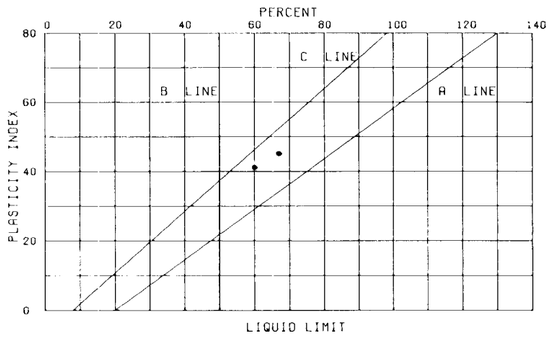
BOR. HL-8

STA. 581+35

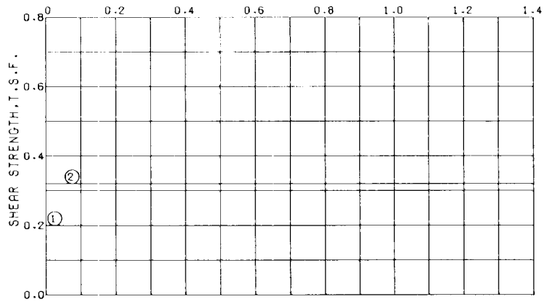
ON B/L

15 MAY 87



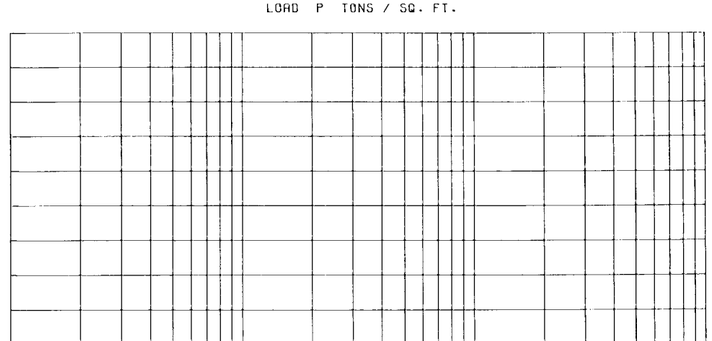


PLASTICITY CHART



SHEAR STRENGTH DATA

ENVELOPE NO.	ENVELOPE EL.	TYPE	STRENGTH Φ	STRENGTH C - TSF	CLASS
1	-22.00	Q	0.0	0.200	CH
2	-42.00	Q	0.0	0.320	CH



CONSOLIDATION DATA

○ - (UC) UNCONFINED COMPRESSION TEST
■ - (Q) UNCONSOLIDATED - UNDRAINED SHEAR TEST
▲ - (R) CONSOLIDATED - UNDRAINED SHEAR TEST
⊡ - (S) CONSOLIDATED - DRAINED SHEAR TEST

BORINGS WERE TAKEN WITH A 5 INCH DIAMETER STEEL TUBE PISTON TYPE SAMPLER

FOR SOIL BORING LEGEND SEE PLATE A

FOR LOCATION OF BORING SEE PLATE 35

WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

UNDISTURBED BORING HL - 8

U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

DATE: FEB. 90

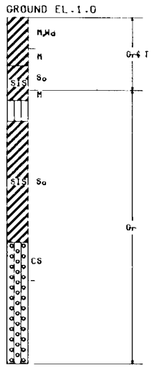
FILE NO. H-2-30618

BOR. HL-9

STA. 511+35

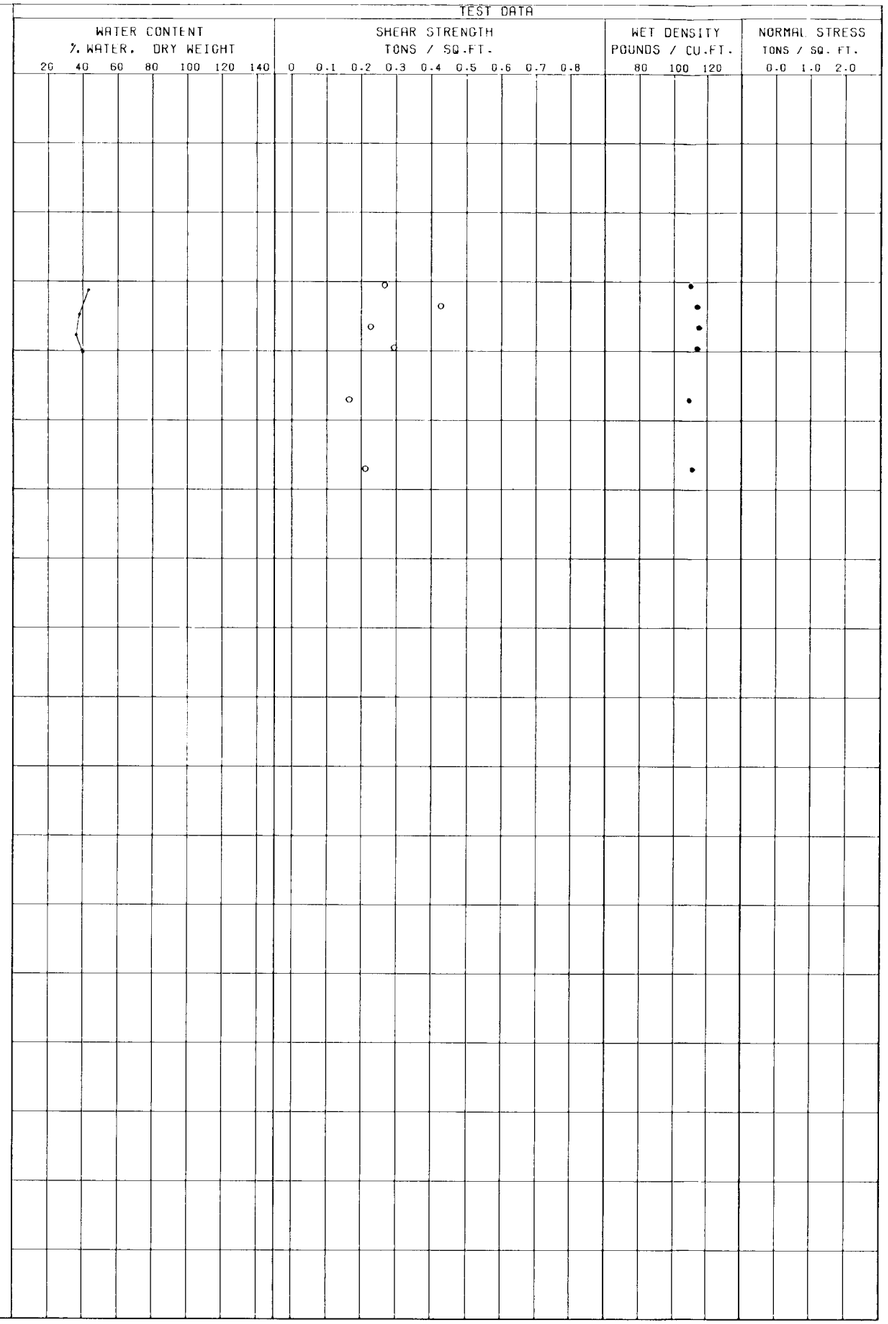
ON B/L

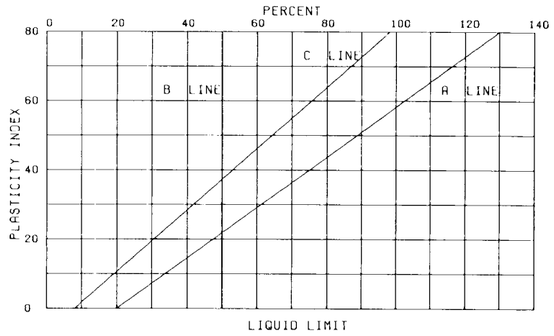
18 MAY 87



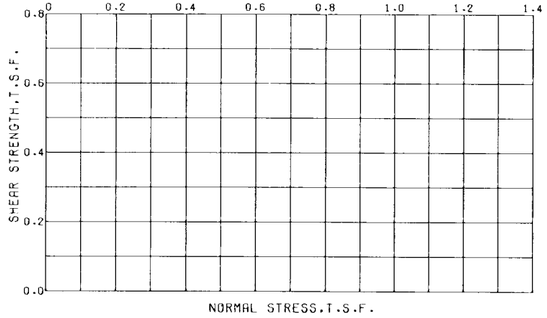
ELEVATIONS IN FEET - N.G.V.D.

TEST DATA





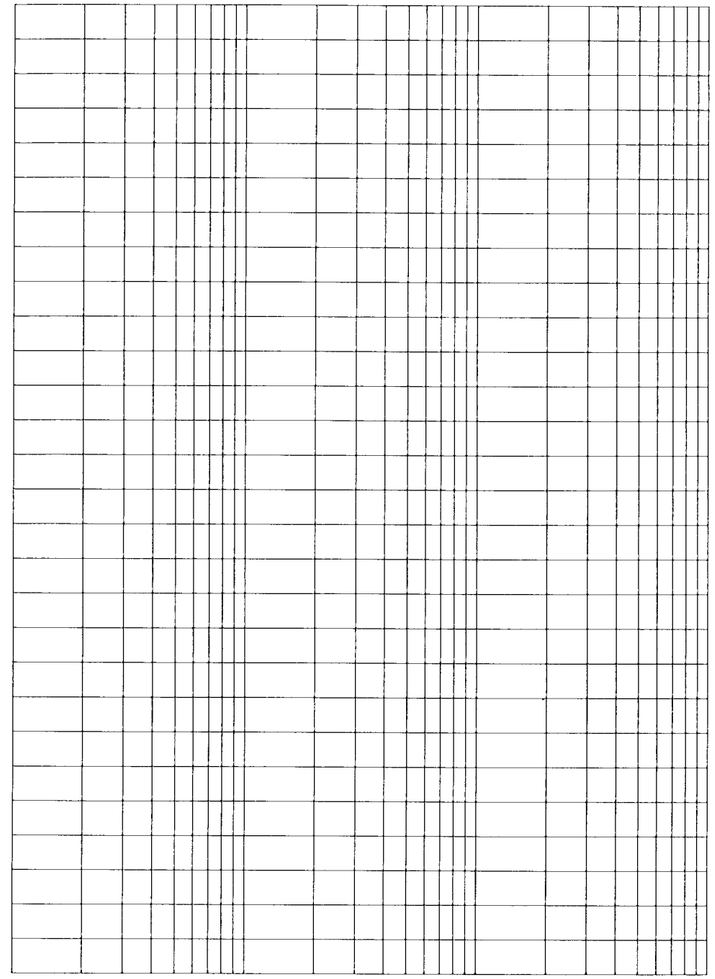
PLASTICITY CHART



SHEAR STRENGTH DATA

ENVELOPE NO.	ENVELOPE EL.	TYPE	STRENGTH Φ	STRENGTH C - TSF	CLASS

LOAD P TONS / SQ. FT.



CONSOLIDATION DATA

○ - (UC) UNCONFINED COMPRESSION TEST

■ - (Q) UNCONSOLIDATED - UNDRAINED SHEAR TEST

▲ - (R) CONSOLIDATED - UNDRAINED SHEAR TEST

⊡ - (S) CONSOLIDATED - DRAINED SHEAR TEST

BORINGS WERE TAKEN WITH A 5 INCH DIAMETER STEEL TUBE PISTON TYPE SAMPLER

FOR SOIL BORING LEGEND SEE PLATE A

FOR LOCATION OF BORING SEE PLATE 35

WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

UNDISTURBED BORING HL - 9

U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

DATE: FEB. 90 FILE NO. H-2-30618

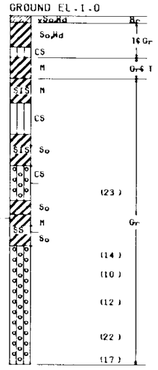
PLATE F51

BOR. HL-10

STA. 521+35

ON B/L

18 MAY 87



ELEVATIONS IN FEET - N.G.V.D.

TEST DATA

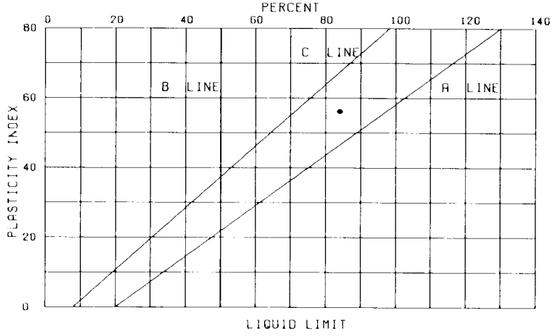
WATER CONTENT
% WATER. DRY WEIGHT
20 40 60 80 100 120 140

SHEAR STRENGTH
TONS / SQ.FT.
0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8

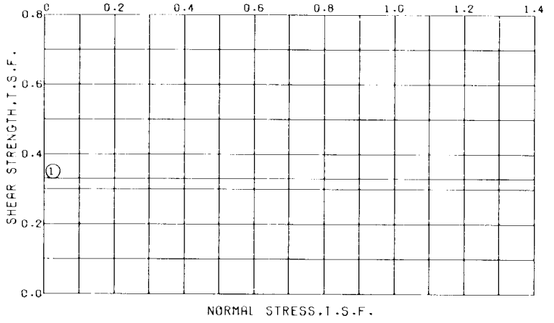
WET DENSITY
POUNDS / CU.FT.
80 100 120

NORMAL STRESS
TONS / SQ. FT.
0.0 1.0 2.0

10 0 -10 -20 -30 -40 -50 -60 -70 -80 -90 -100 -110 -120 -130 -140



PLASTICITY CHART



SHEAR STRENGTH DATA

ENVELOPE NO.	ENVELOPE EL.	TYPE	STRENGTH Φ	STRENGTH C - TSF	CLASS
1	-28.00	Q	0.0	0.330	CH

LOAD P TONS / SQ. FT.

VOID RATIO

CONSOLIDATION DATA

○ - (UC) UNCONFINED COMPRESSION TEST
■ - (Q) UNCONSOLIDATED - UNDRAINED SHEAR TEST
▲ - (R) CONSOLIDATED - UNDRAINED SHEAR TEST
▯ - (S) CONSOLIDATED - DRAINED SHEAR TEST

BORINGS WERE TAKEN WITH A 5 INCH DIAMETER STEEL TUBE PISTON TYPE SAMPLER

FOR SOIL BORING LEGEND SEE PLATE A

FOR LOCATION OF BORING SEE PLATE 36

WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

UNDISTURBED BORING HL - 10

U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

DATE: FEB. 90

FILE NO. H-2-30618

PLATE F52

BOR. HL-11

STA. 531+35

ON B/L

19 MAY 87

GROUND EL. 1.0

ELEVATIONS IN FEET - N.G.V.D.

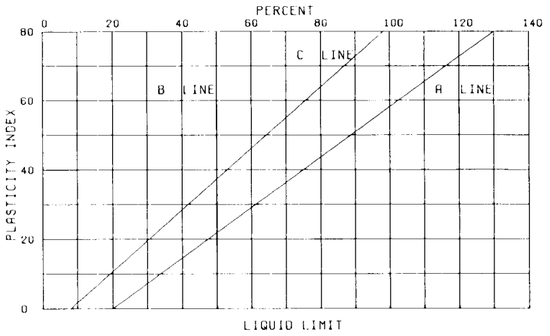
TEST DATA

WATER CONTENT
% WATER. DRY WEIGHT
20 40 60 80 100 120 140

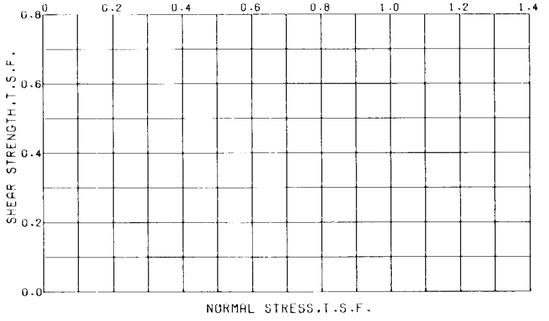
SHEAR STRENGTH
TONS / SQ.FT.
0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8

WET DENSITY
POUNDS / CU.FT.
80 100 120

NORMAL STRESS
TONS / SQ. FT.
0.0 1.0 2.0



PLASTICITY CHART



SHEAR STRENGTH DATA

ENVELOPE NO.	ENVELOPE EL.	TYPE	STRENGTH Φ	STRENGTH C - TSF	CLASS

LOAD P TONS / SQ. FT.

VOID RATIO

CONSOLIDATION DATA

○ - (UC) UNCONFINED COMPRESSION TEST
■ - (Q) UNCONSOLIDATED - UNDRAINED SHEAR TEST
▲ - (R) CONSOLIDATED - UNDRAINED SHEAR TEST
⊡ - (S) CONSOLIDATED - DRAINED SHEAR TEST

BORINGS WERE TAKEN WITH A 5 INCH DIAMETER STEEL TUBE PISTON TYPE SAMPLER

FOR SOIL BORING LEGEND SEE PLATE A

FOR LOCATION OF BORING SEE PLATE 36

WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

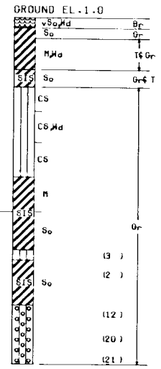
UNDISTURBED BORING HL - 11

U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

DATE: FEB. 90

FILE NO. H-2-30618

BOR. HL-12
STA. 541+35
ON B/L
20 MAY 87



TEST DATA

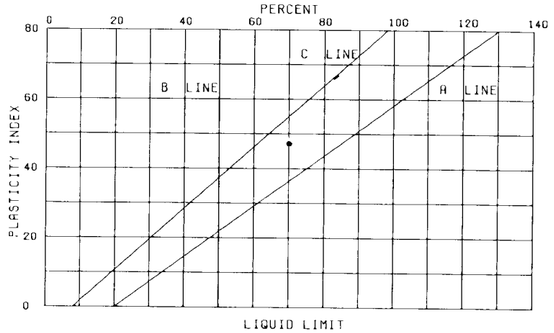
WATER CONTENT
% WATER, DRY WEIGHT
20 40 60 80 100 120 140

SHEAR STRENGTH
TONS / SQ.FT.
0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8

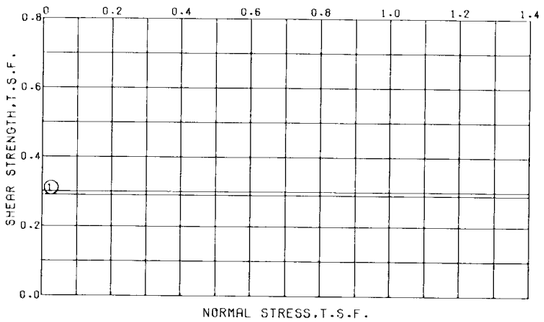
WET DENSITY
POUNDS / CU.FT.
80 100 120

NORMAL STRESS
TONS / SQ. FT.
0.0 1.0 2.0

ELEVATIONS IN FEET - N.G.V.D.
10 0 -10 -20 -30 -40 -50 -60 -70 -80 -90 -100 -110 -120 -130 -140



PLASTICITY CHART



SHEAR STRENGTH DATA

ENVELOPE NO.	ENVELOPE EL.	TYPE	STRENGTH Φ	STRENGTH C - TSF	CLASS
1	-27.00	Q	0.0	0.290	CH

LOAD P TONS / SQ. FT.

VOID RATIO

CONSOLIDATION DATA

○ - (UC) UNCONFINED COMPRESSION TEST
■ - (Q) UNCONSOLIDATED - UNDRAINED SHEAR TEST
▲ - (R) CONSOLIDATED - UNDRAINED SHEAR TEST
⊡ - (S) CONSOLIDATED - DRAINED SHEAR TEST
BORINGS WERE TAKEN WITH A 5 INCH DIAMETER STEEL TUBE PISTON TYPE SAMPLER
FOR SOIL BORING LEGEND SEE PLATE A
FOR LOCATION OF BORING SEE PLATE 37

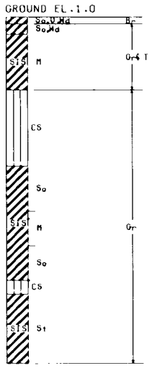
WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

UNDISTURBED BORING HL - 12

U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

DATE: FEB. 90
FILE NO. H-2-30618

BOR. HL-13
STA. 551+35
ON B.L.
21 MAY 87



ELEVATIONS IN FEET - N.G.V.D.

TEST DATA

WATER CONTENT
% WATER. DRY WEIGHT
20 40 60 80 100 120 140

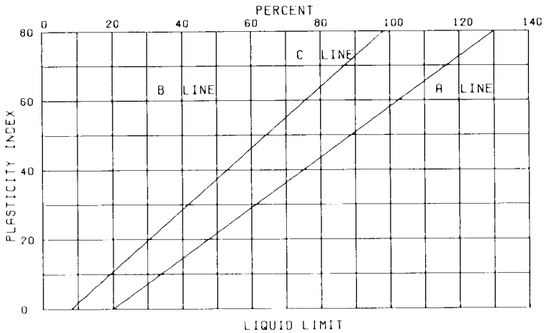
SHEAR STRENGTH
TONS / SQ.FT.
0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8

WET DENSITY
POUNDS / CU.FT.
80 100 120

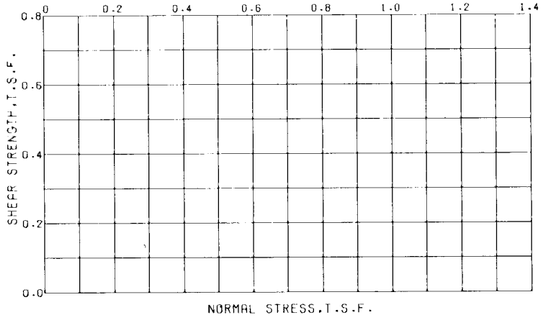
NORMAL STRESS
TONS / SQ. FT.
0.0 1.0 2.0

10 0 -10 -20 -30 -40 -50 -60 -70 -80 -90 -100 -110 -120 -130 -140

141.0



PLASTICITY CHART



SHEAR STRENGTH DATA

ENVELOPE NO.	ENVELOPE EL.	TYPE	STRENGTH Φ	STRENGTH C - TSF	CLASS

LOAD P TONS / SQ. FT.

VOID RATIO

CONSOLIDATION DATA

○ - (UC) UNCONFINED COMPRESSION TEST
■ - (Q) UNCONSOLIDATED - UNDRAINED SHEAR TEST
▲ - (R) CONSOLIDATED - UNDRAINED SHEAR TEST
⊡ - (S) CONSOLIDATED - DRAINED SHEAR TEST
BORINGS WERE TAKEN WITH A 5 INCH DIAMETER STEEL TUBE PISTON TYPE SAMPLER
FOR SOIL BORING LEGEND SEE PLATE A
FOR LOCATION OF BORING SEE PLATE 37

WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

UNDISTURBED BORING HL - 13

U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

DATE: FEB. 90 FILE NO. H-2-30618

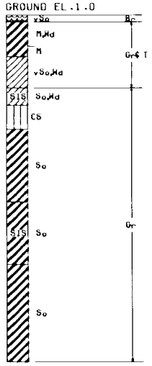
BOR. HL-14

STA. 561+35

ON BASELINE

25-26 MAY 87

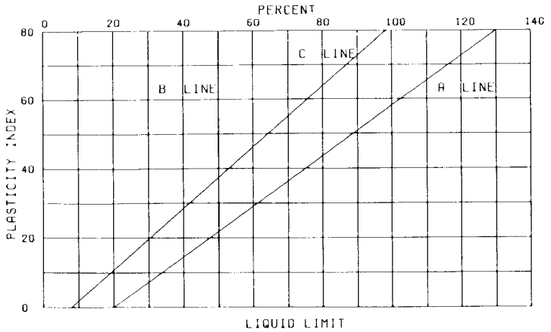
GROUND EL.1.0



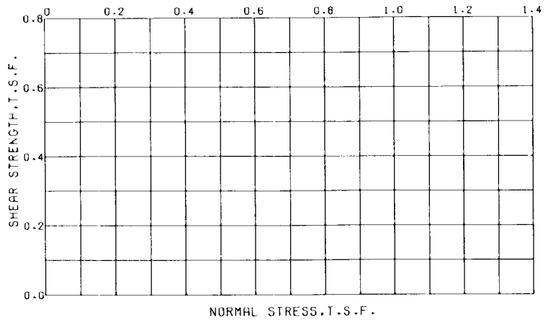
ELEVATIONS IN FEET - N.G.V.D.

TEST DATA

WATER CONTENT % WATER, DRY WEIGHT	SHEAR STRENGTH TONS / SQ.FT.	WET DENSITY POUNDS / CU.FT.	NORMAL STRESS TONS / SQ. FT.
20 40 60 80 100 120 140	0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8	80 100 120	0.0 1.0 2.0



PLASTICITY CHART



SHEAR STRENGTH DATA

ENVELOPE NO.	ENVELOPE EL.	TYPE	STRENGTH Φ	STRENGTH C - TSF	CLASS

LOAD P TONS / SQ. FT.

VOID RATIO

CONSOLIDATION DATA

○ - (UC) UNCONFINED COMPRESSION TEST

■ - (Q) UNCONSOLIDATED - UNDRAINED SHEAR TEST

▲ - (R) CONSOLIDATED - UNDRAINED SHEAR TEST

⊡ - (S) CONSOLIDATED - DRAINED SHEAR TEST

BORINGS WERE TAKEN WITH A 5 INCH DIAMETER STEEL TUBE PISTON TYPE SAMPLER

FOR SOIL BORING LEGEND SEE PLATE A

FOR LOCATION OF BORING SEE PLATE 36

WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

UNDISTURBED BORING HL - 14

U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

DATE: FEB. 90

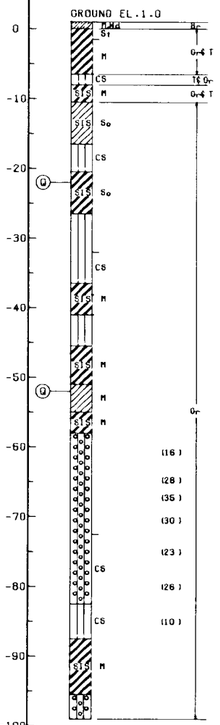
FILE NO. H-2-30618

BOR. HL-15

STA. 571+35

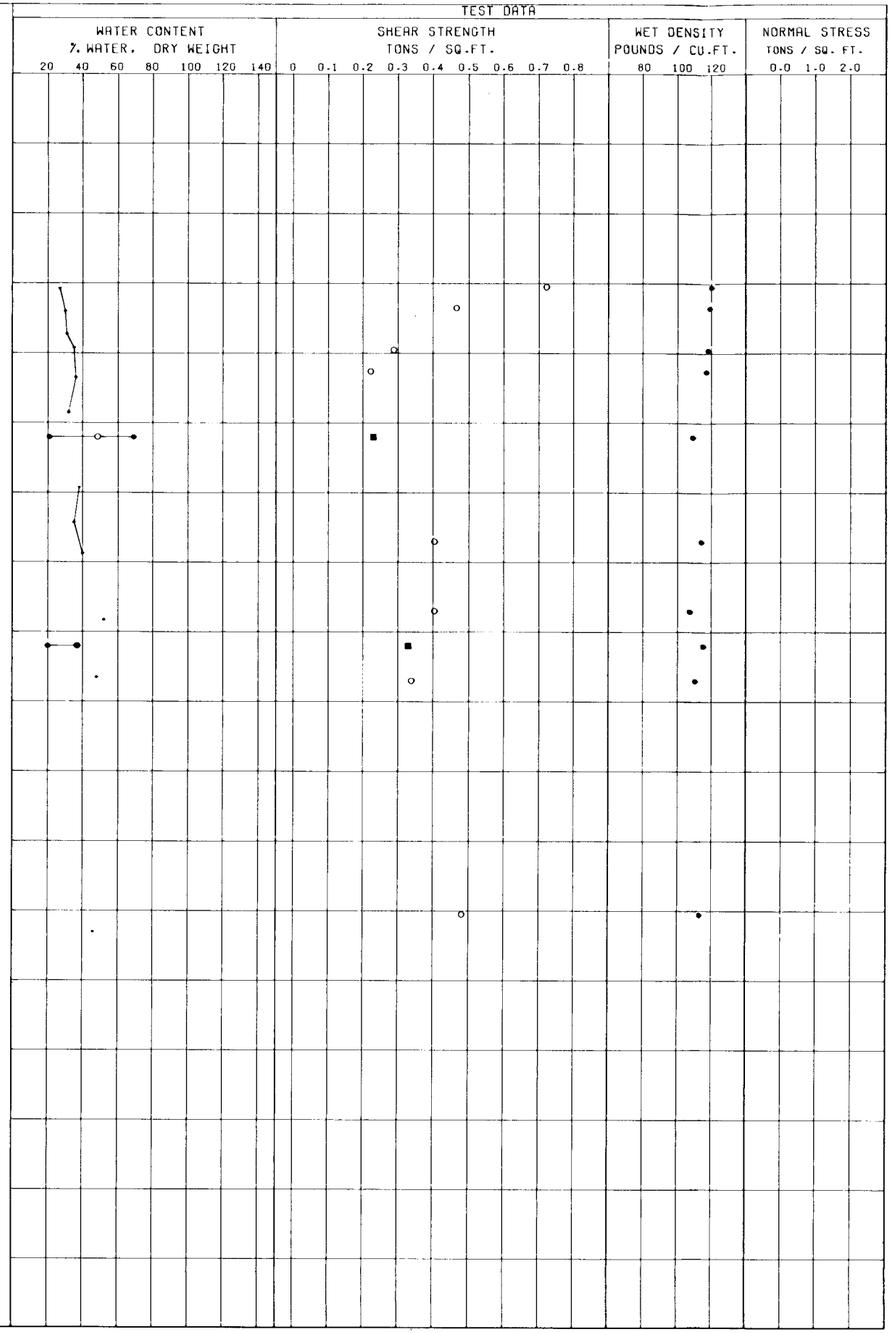
ON BASELINE

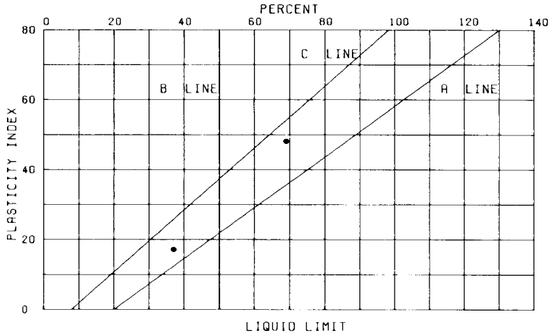
25-26 MAY 87



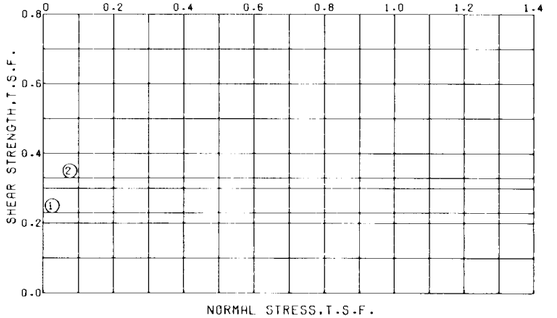
ELEVATIONS IN FEET - N.G.V.D.

TEST DATA





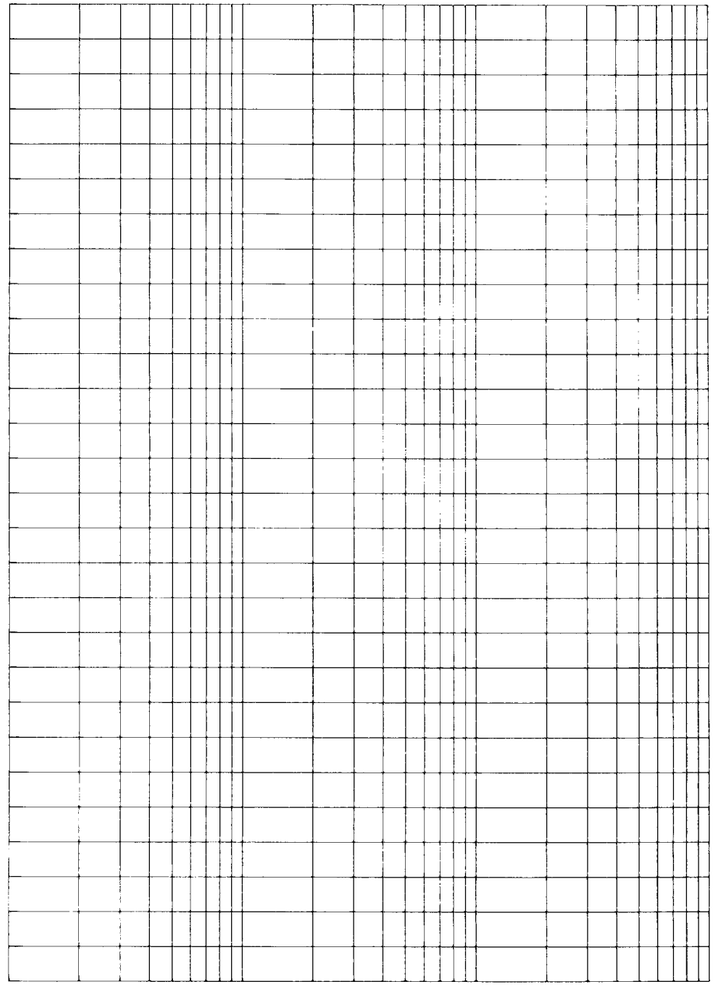
PLASTICITY CHART



SHEAR STRENGTH DATA

ENVELOPE NO.	ENVELOPE EL.	TYPE	STRENGTH Φ	STRENGTH C - TSF	CLASS
1	-22.00	Q	0.0	0.230	CH
2	-52.00	Q	0.0	0.330	CL

LOAD P TONS / SQ. FT.



CONSOLIDATION DATA

○ - (UC) UNCONFINED COMPRESSION TEST

■ - (Q) UNCONSOLIDATED - UNDRAINED SHEAR TEST

▲ - (R) CONSOLIDATED - UNDRAINED SHEAR TEST

[1] - (S) CONSOLIDATED - DRAINED SHEAR TEST

BORINGS WERE TAKEN WITH A 5 INCH DIAMETER STEEL TUBE PISTON TYPE SAMPLER

FOR SOIL BORING LEGEND SEE PLATE A

FOR LOCATION OF BORING SEE PLATE 38

WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

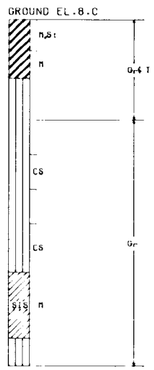
UNDISTURBED BORING HL - 15

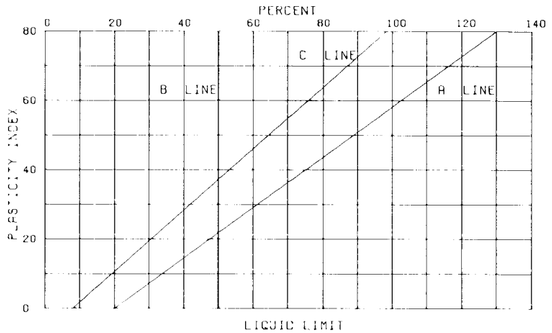
U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

DATE: FEB. 90

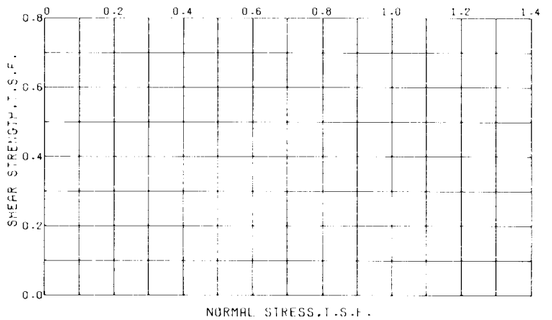
FILE NO. H-2-30618

BOR. HV-1
STA. 577+45
5 FT. LT. B/L
10 MAR '86



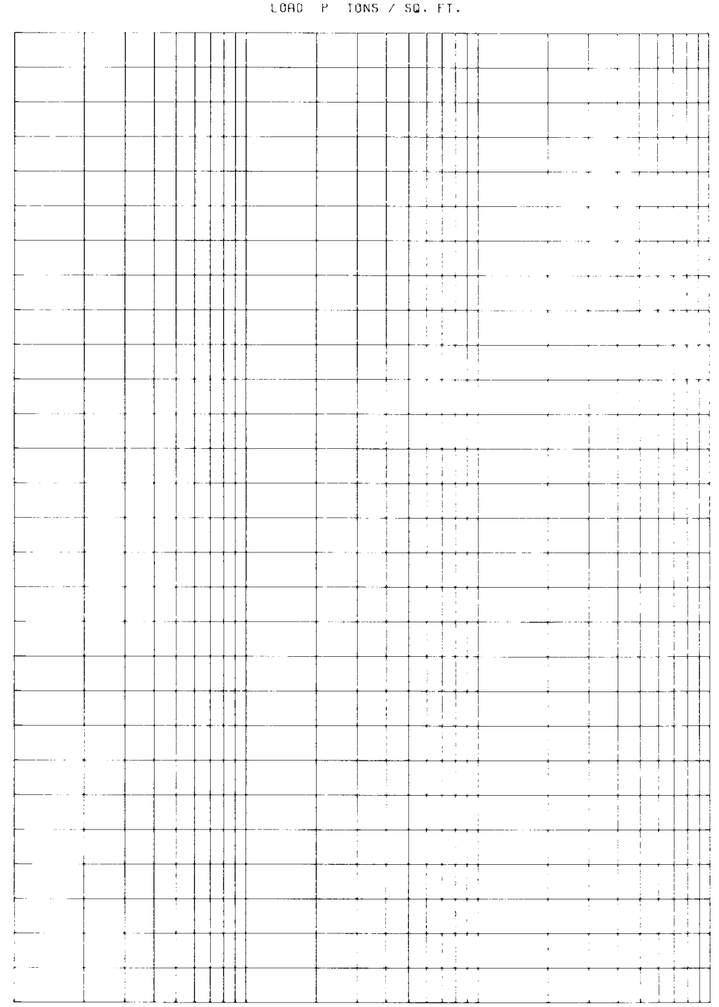


PLASTICITY CHART



SHEAR STRENGTH DATA

ENVELOPE NO.	ENVELOPE EL.	TYPE	STRENGTH Φ	STRENGTH C - TSF	CLASS



CONSOLIDATION DATA

○ - (UC) UNCONFINED COMPRESSION TEST
■ - (CU) UNCONSOLIDATED - UNDRAINED SHEAR TEST
▲ - (R) CONSOLIDATED - UNDRAINED SHEAR TEST
▣ - (S) CONSOLIDATED - DRAINED SHEAR TEST
BORINGS WERE TAKEN WITH A ' INCH DIAMETER
STEEL TUBE PISTON TYPE SAMPLER
FOR SOIL BORING LEGEND SEE PLATE A
FOR LOCATION OF BORING SEE PLATE 39

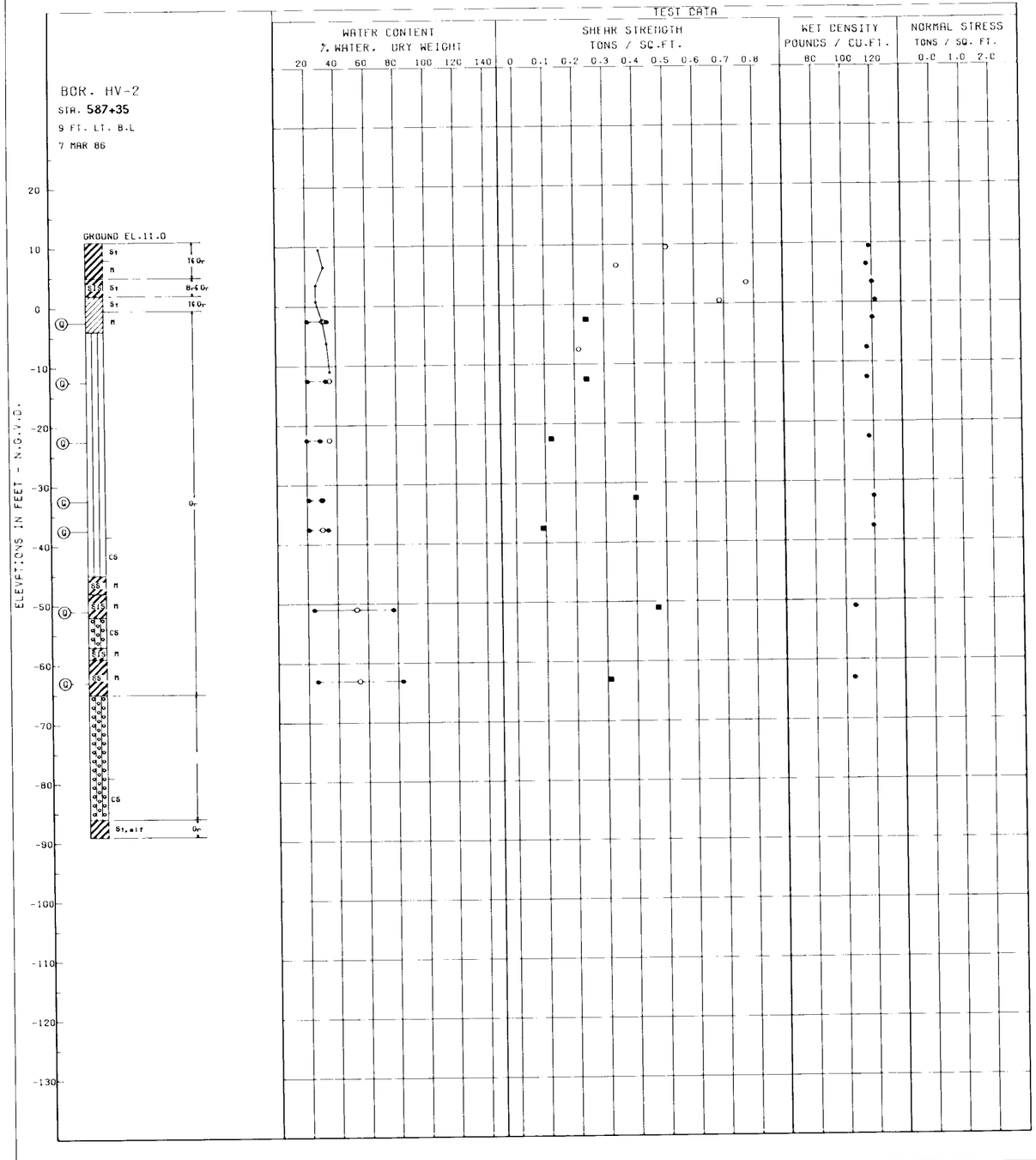
WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

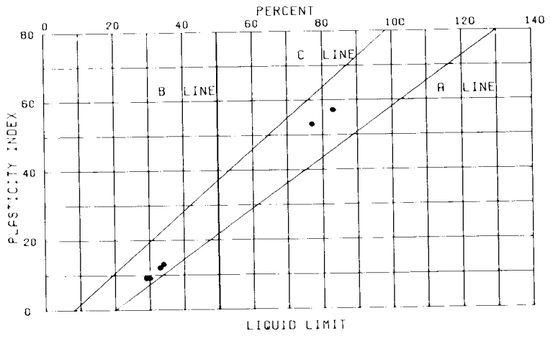
UNDISTURBED BORING HV-1

U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

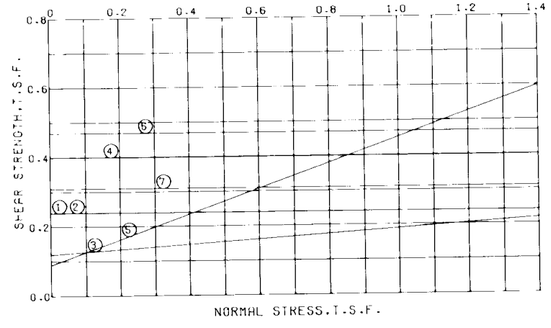
DATE FEB. 90 FILE NO. H-2-30618

BOR. HV-2
STA. 587+35
9 FT. LT. B.L
7 MAR 86



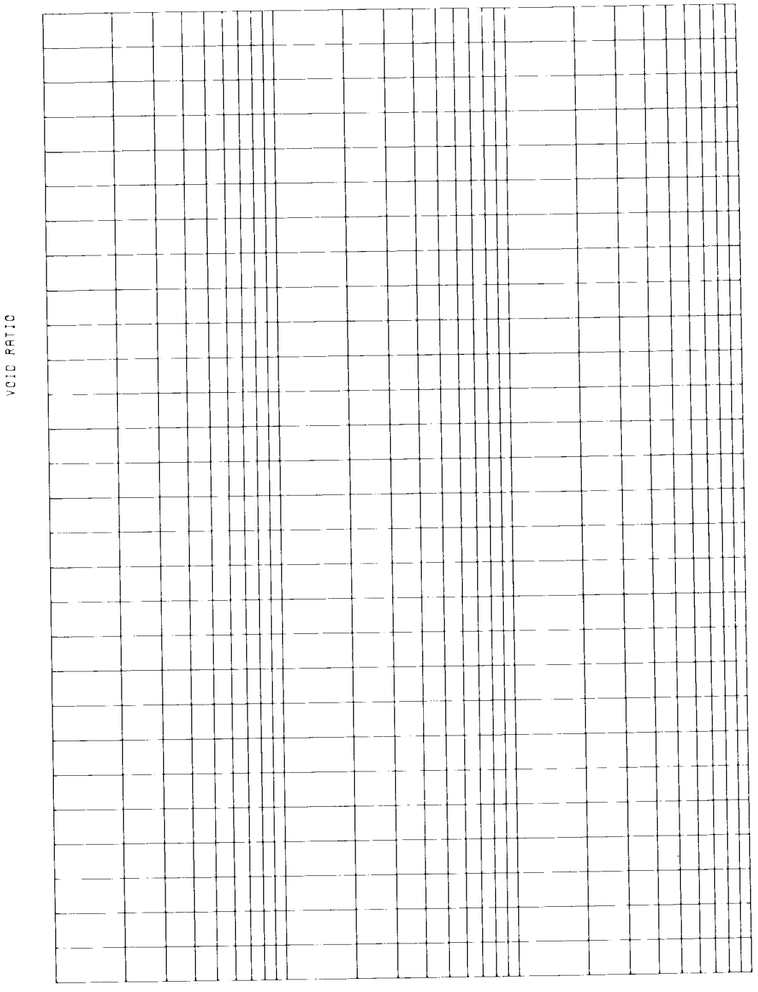


PLASTICITY CHART



SHEAR STRENGTH DATA

ENVELOPE NO.	EL.	TYPE	STRENGTH Φ	STRENGTH C - TSF	CLASS
1	-2.50	Q	0.0	0.240	CL
2	-12.50	Q	0.0	0.240	ML
3	-22.50	Q	4.0	0.120	ML
4	-32.50	Q	0.0	0.400	ML
5	-37.50	Q	20.0	0.090	ML
6	-51.00	Q	0.0	0.470	CH
7	-63.00	Q	0.0	0.310	CH



CONSOLIDATION DATA

○ - (UC) UNCONFINED COMPRESSION TEST
■ - (Q) UNCONSOLIDATED - UNDRAINED SHEAR TEST
▲ - (R) CONSOLIDATED - UNDRAINED SHEAR TEST
◫ - (S) CONSOLIDATED - DRAINED SHEAR TEST

BORINGS WERE TAKEN WITH A 5 INCH DIAMETER STEEL TUBE PISTON TYPE SAMPLER

FOR SOIL BORING LEGEND SEE PLATE A

FOR LOCATION OF BORING SEE PLATE 39

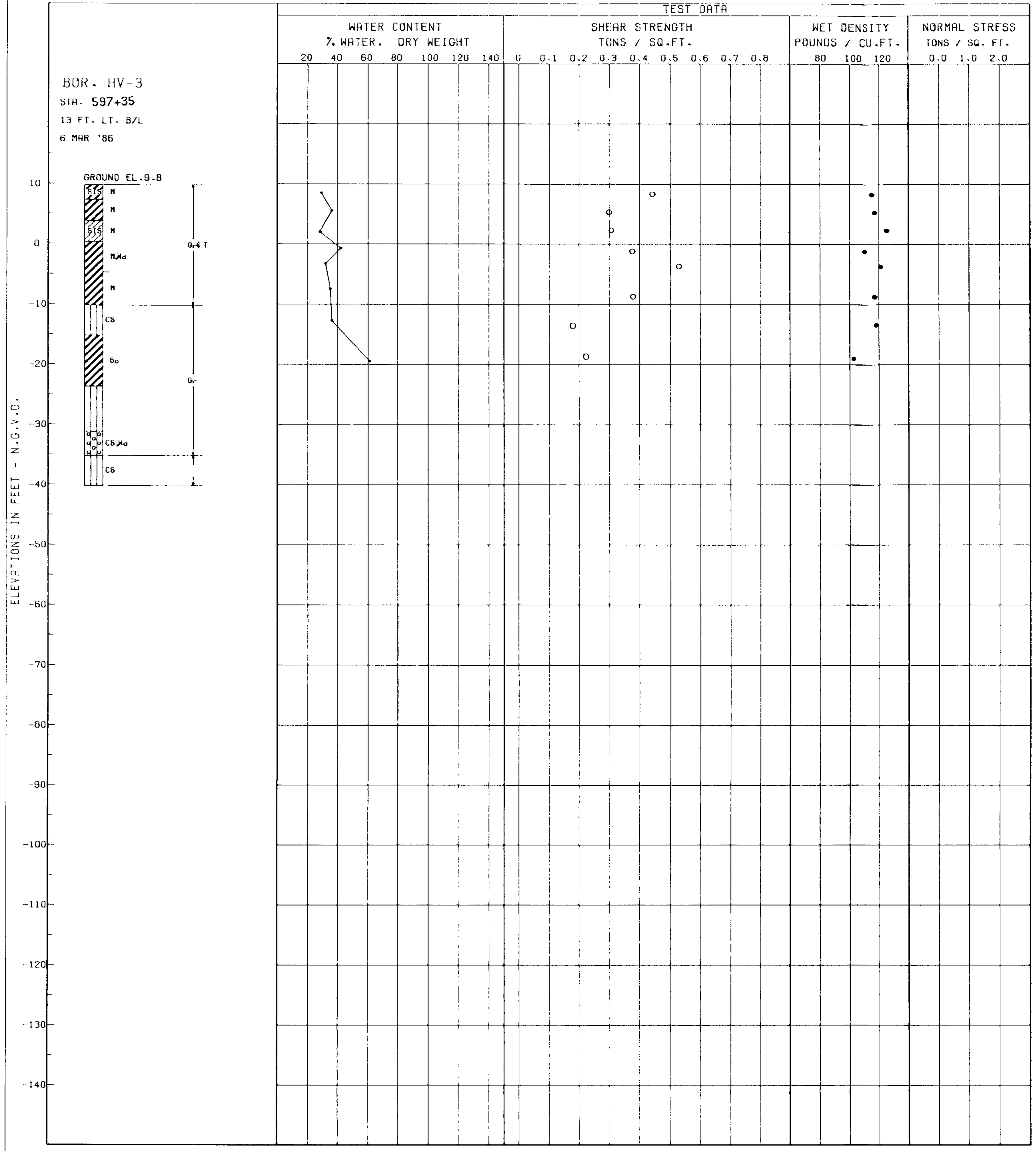
WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

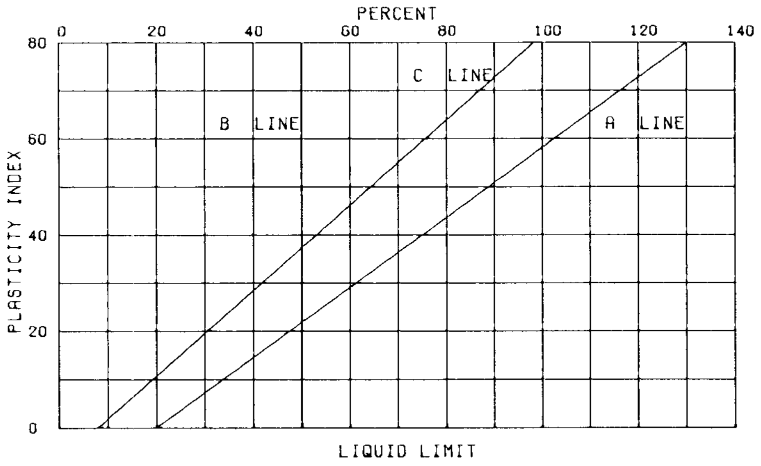
UNDISTURBED BORING HV-2

U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

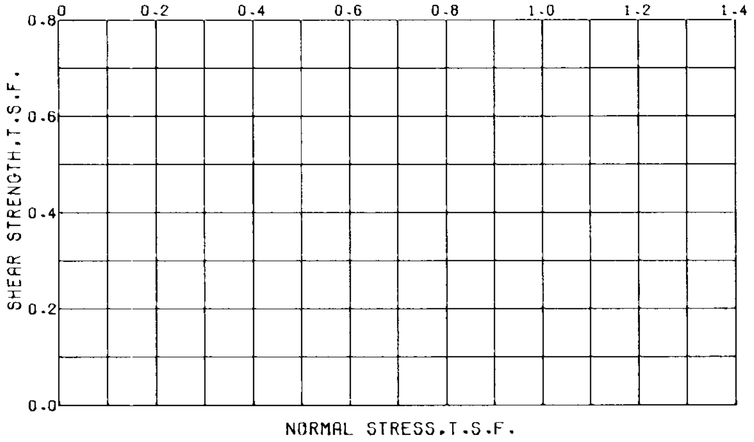
DATE: FEB. 90

FILE NO H-2- 30618



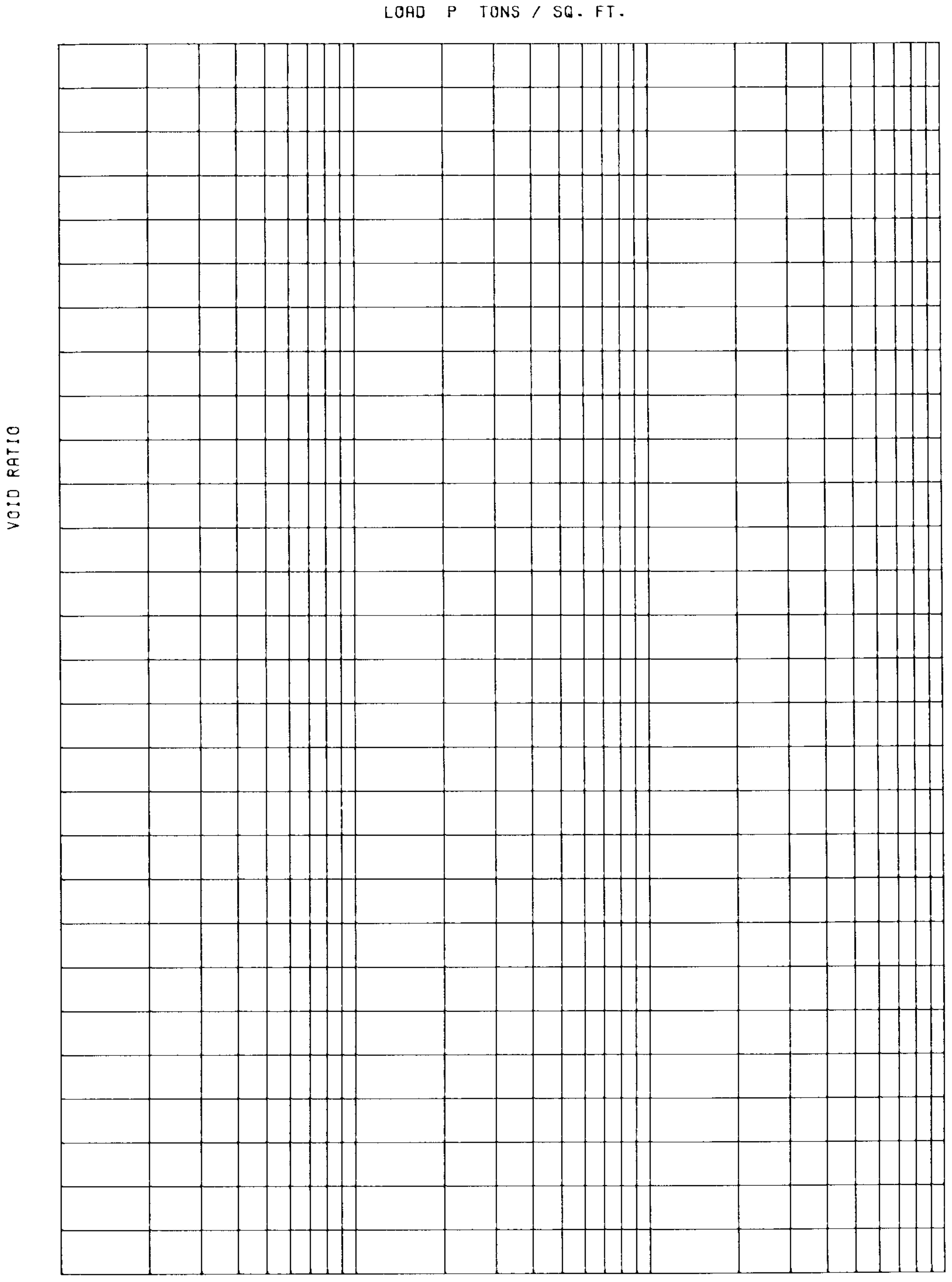


PLASTICITY CHART



SHEAR STRENGTH DATA

ENVELOPE NO.	ENVELOPE EL.	TYPE	STRENGTH Φ	STRENGTH C - TSF	CLASS



CONSOLIDATION DATA

○ - (UC) UNCONFINED COMPRESSION TEST
■ - (Q) UNCONSOLIDATED - UNDRAINED SHEAR TEST
▲ - (R) CONSOLIDATED - UNDRAINED SHEAR TEST
⊡ - (S) CONSOLIDATED - DRAINED SHEAR TEST

BORINGS WERE TAKEN WITH A 3 INCH DIAMETER STEEL TUBE PISTON TYPE SAMPLER

FOR SOIL BORING LEGEND SEE PLATE A

FOR LOCATION OF BORING SEE PLATE 39

WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

UNDISTURBED BORING HV-3

U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

DATE: FEB. 90 FILE NO. H-2-30618

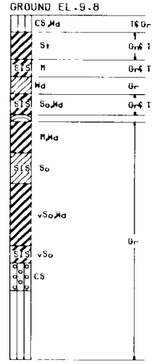
BOR. HV-4

STA. 607+50

6 FT. LT. B/L

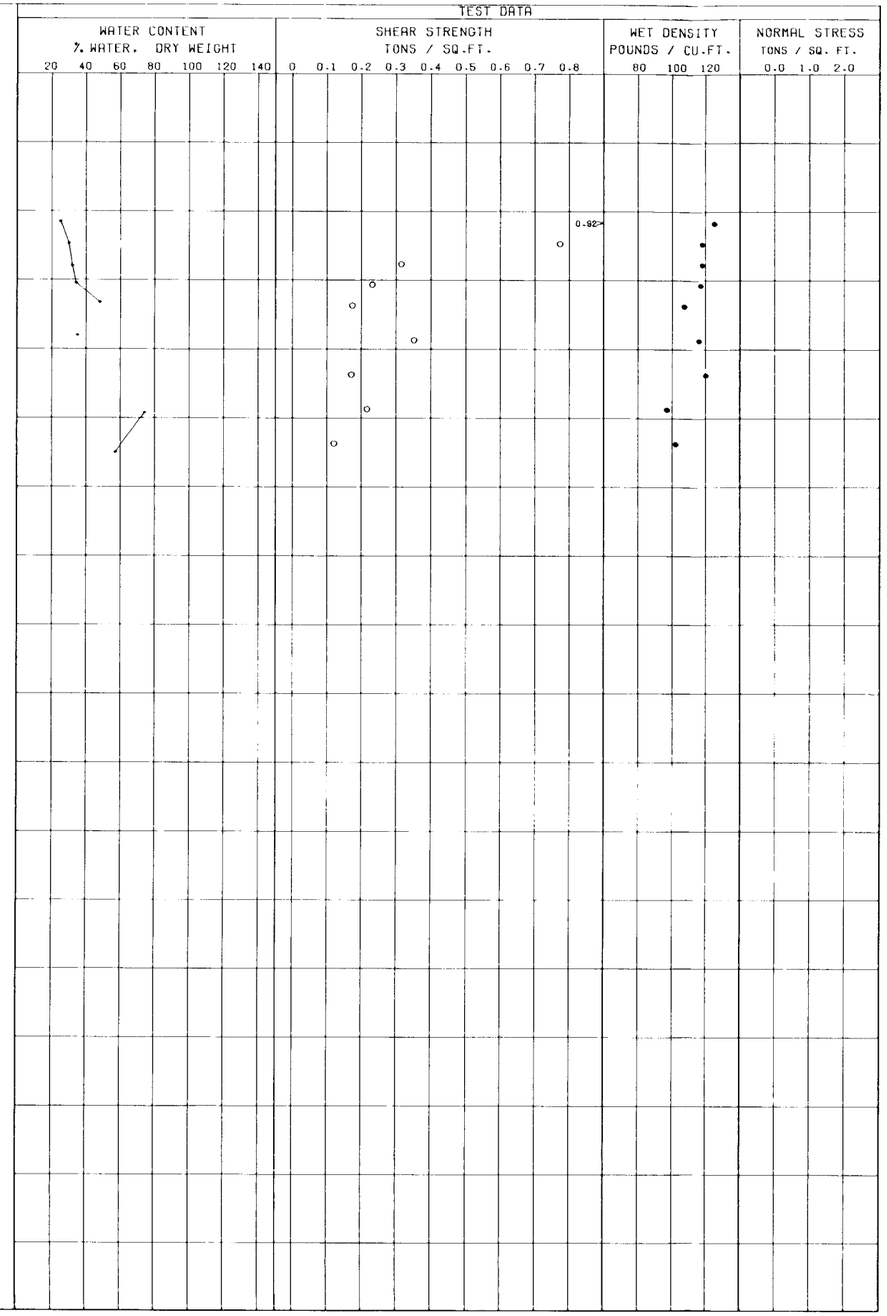
6 MAR '86

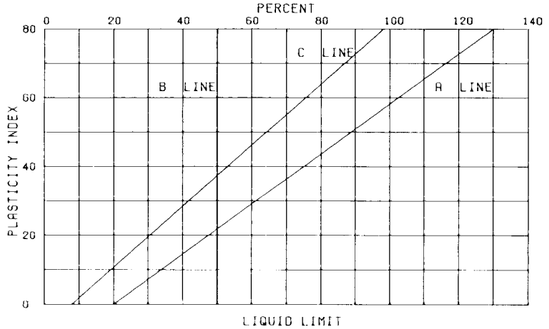
GROUND EL. 9.8



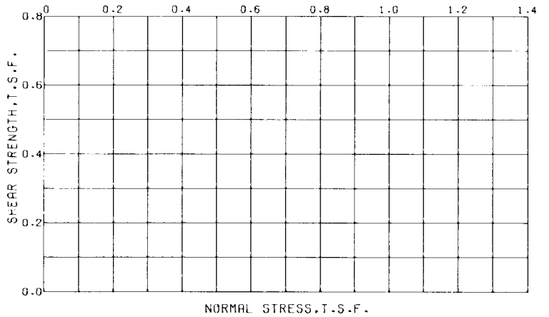
ELEVATIONS IN FEET - N.G.V.D.

TEST DATA



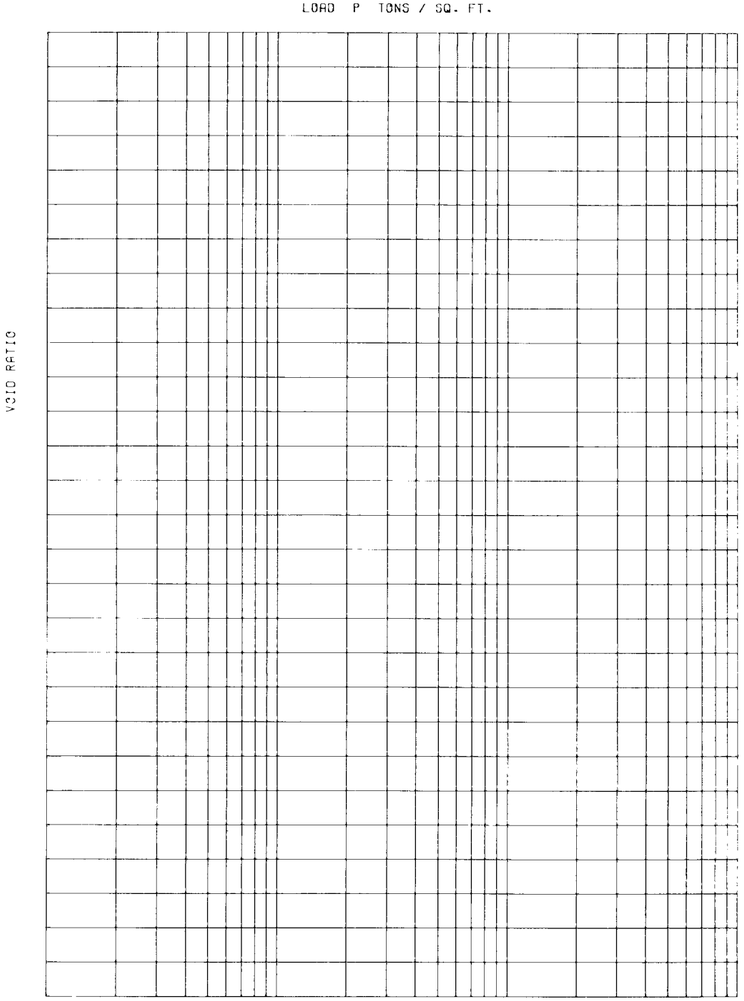


PLASTICITY CHART



SHEAR STRENGTH DATA

ENVELOPE NO.	ENVELOPE EL.	TYPE	STRENGTH Φ	STRENGTH C - TSF	CLASS



CONSOLIDATION DATA

○ - (UC) UNCONFINED COMPRESSION TEST

■ - (Q) UNCONSOLIDATED - UNDRAINED SHEAR TEST

▲ - (R) CONSOLIDATED - UNDRAINED SHEAR TEST

⊡ - (S) CONSOLIDATED - DRAINED SHEAR TEST

BORINGS WERE TAKEN WITH A 3 INCH DIAMETER STEEL TUBE PISTON TYPE SAMPLER

FOR SOIL BORING LEGEND SEE PLATE A

FOR LOCATION OF BORING SEE PLATE 4G

WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

UNDISTURBED BORING HV-4

U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

DATE: FEB. 90

FILE NO. H-2-30618

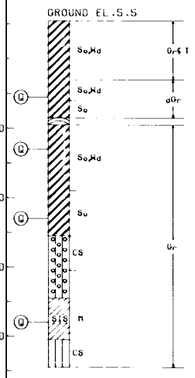
PLATE F61

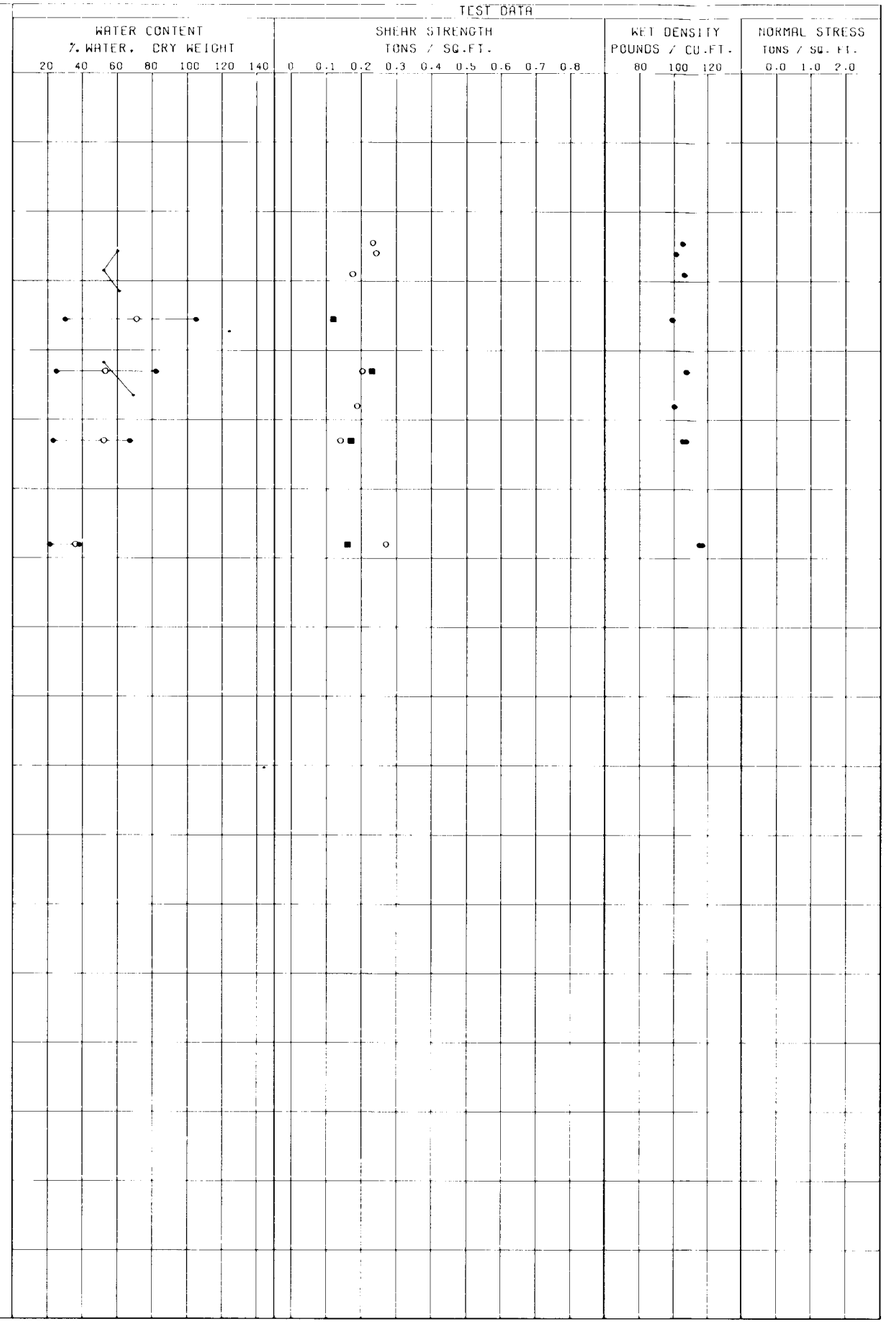
BOR. HV-5

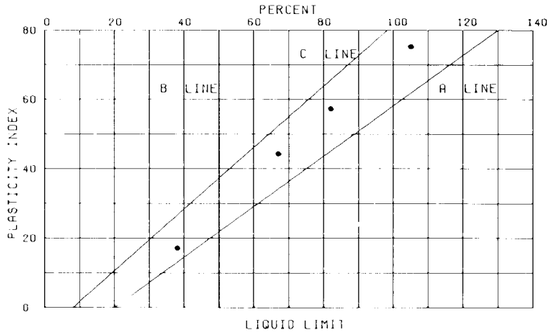
STA. 617+50

12 FT. LT. B/L

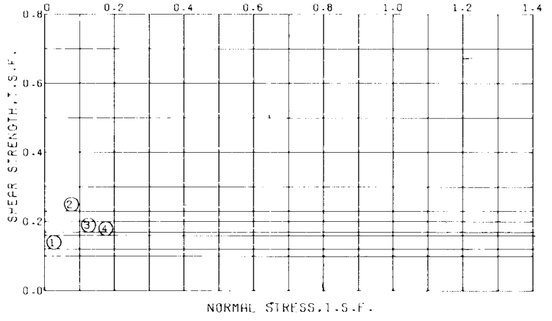
6 MAR 86





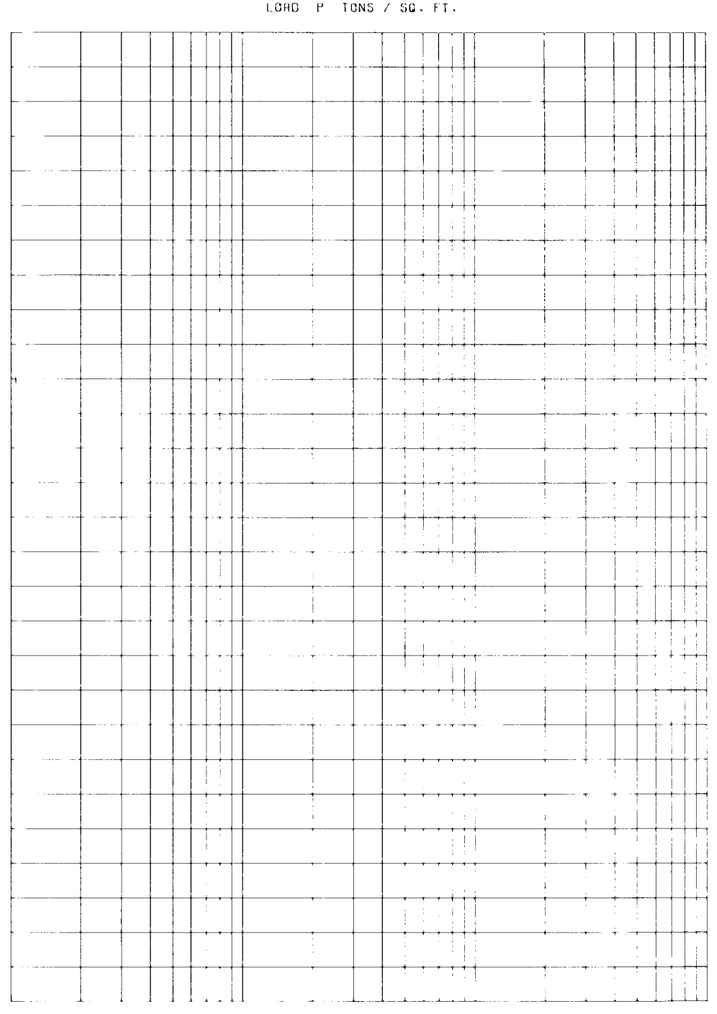


PLASTICITY CHART



SHEAR STRENGTH DATA

ENVELOPE NO.	ENVELOPE EL.	TYPE	STRENGTH Φ	STRENGTH C - TSF	CLASS
1	-5.50	Q	0.0	0.120	CH
2	-13.00	Q	0.0	0.230	CH
3	-23.00	Q	0.0	0.170	CH
4	-38.00	Q	0.0	0.160	CL



CONSOLIDATION DATA

○ - (UC) UNCONFINED COMPRESSION TEST
■ - (C) UNCONSOLIDATED - UNDRAINED SHEAR TEST
▲ - (R) CONSOLIDATED - UNDRAINED SHEAR TEST
⊡ - (S) CONSOLIDATED - DRAINED SHEAR TEST

BORINGS WERE TAKEN WITH A 5 INCH DIAMETER STEEL TUBE PISTON TYPE SAMPLER

FOR SOIL BORING LEGEND SEE PLATE A

FOR LOCATION OF BORING SEE PLATE 40

WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

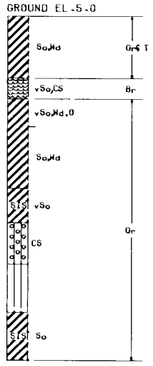
UNDISTURBED BORING HV-5

U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

DATE: FEB. 90

FILE NO. H-2-30618

BOR. HV-6
STA. 627+45
13 FT. LT. B/L
14 FEB '86



ELEVATIONS IN FEET - N.G.V.D.

TEST DATA

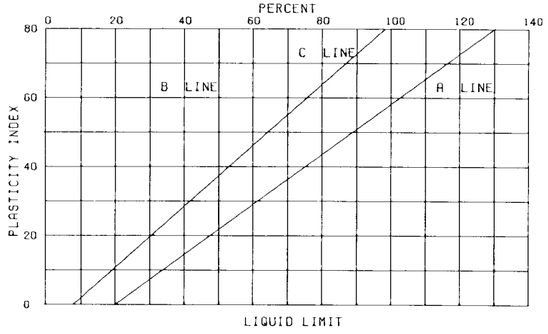
WATER CONTENT
% WATER. DRY WEIGHT
20 40 60 80 100 120 140

SHEAR STRENGTH
TONS / SQ.FT.
0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8

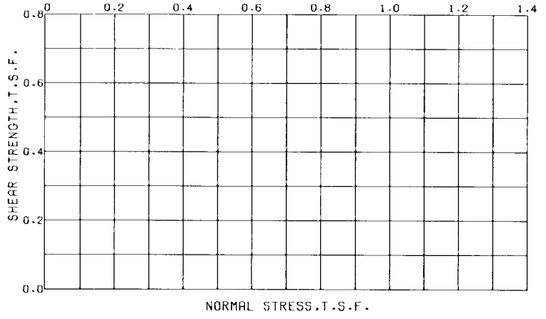
217
184

WET DENSITY
POUNDS / CU.FT.
80 100 120

NORMAL STRESS
TONS / SQ. FT.
0.0 1.0 2.0



PLASTICITY CHART



SHEAR STRENGTH DATA

ENVELOPE NO.	ENVELOPE EL.	TYPE	STRENGTH Φ	STRENGTH C - TSF	CLASS

LOAD P TONS / SQ. FT.

VOID RATIO

CONSOLIDATION DATA

○ - (UC) UNCONFINED COMPRESSION TEST
■ - (Q) UNCONSOLIDATED - UNDRAINED SHEAR TEST
▲ - (R) CONSOLIDATED - UNDRAINED SHEAR TEST
▯ - (S) CONSOLIDATED - DRAINED SHEAR TEST

BORINGS WERE TAKEN WITH A 3 INCH DIAMETER STEEL TUBE PISTON TYPE SAMPLER
FOR SOIL BORING LEGEND SEE PLATE A
FOR LOCATION OF BORING SEE PLATE 40

WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

UNDISTURBED BORING HV-6

U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

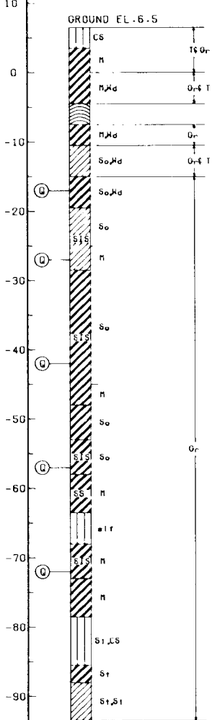
DATE FEB. 90
FILE NO. H-2-30618

BOR. HV-7

STA. 637+58

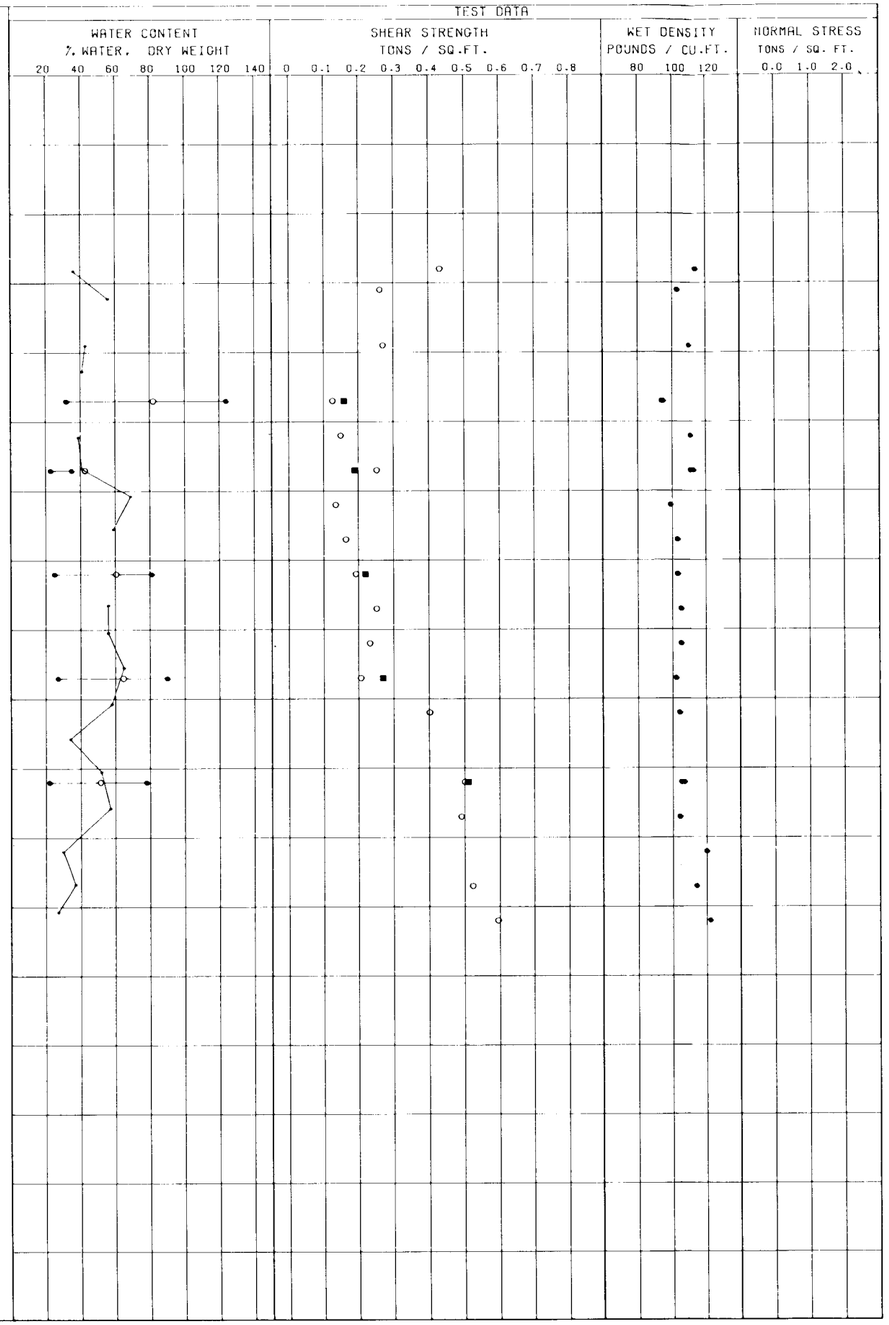
10 FT. LT. B/L

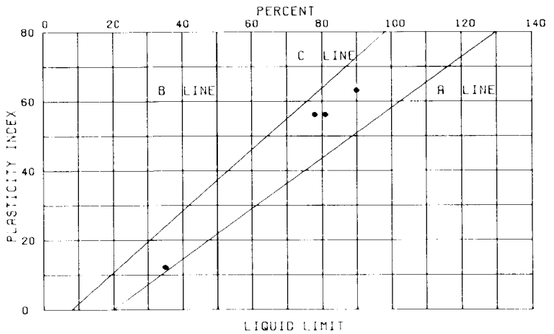
17 FEB '86



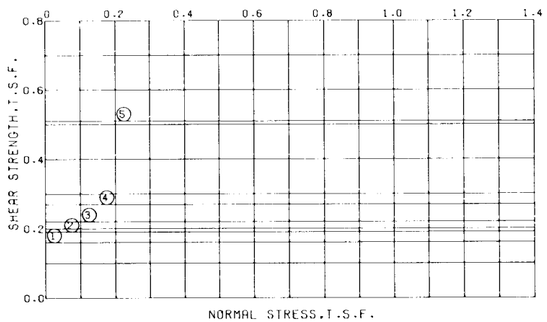
ELEVATIONS IN FEET - N.G.V.D.

TEST DATA





PLASTICITY CHART

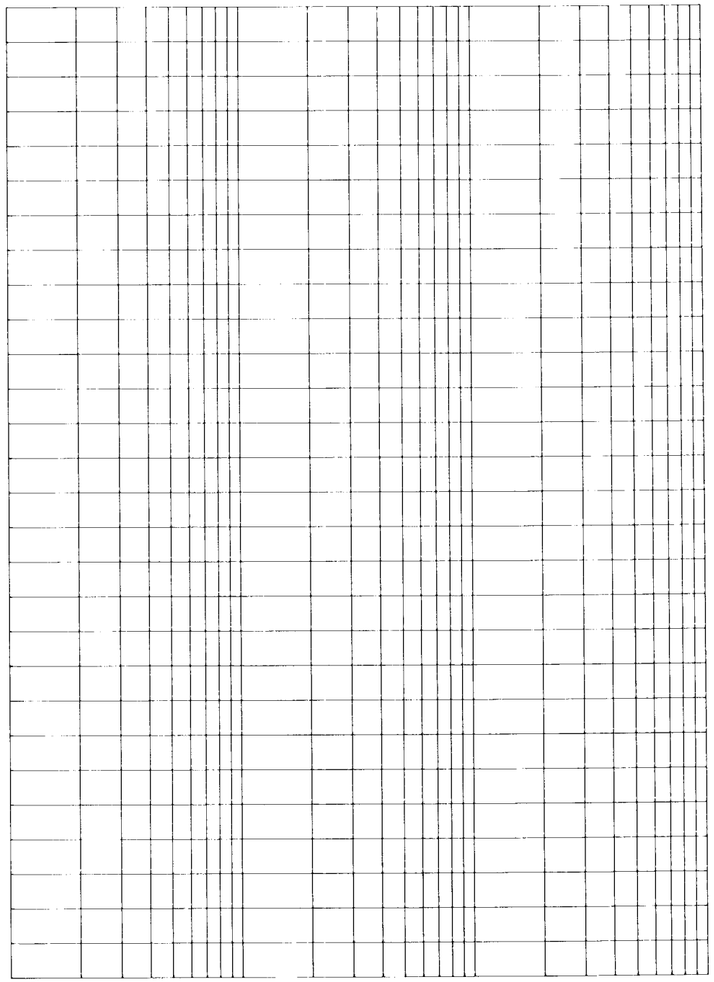


SHEAR STRENGTH DATA

ENVELOPE NO.	ENVELOPE EL.	TYPE	STRENGTH Φ	STRENGTH C - TSF	CLASS
1	-17.00	Q	0.0	0.160	CH
2	-27.00	Q	0.0	0.190	CL
3	-42.00	Q	0.0	0.220	CH
4	-57.00	Q	0.0	0.270	CH
5	-72.00	Q	0.0	0.510	CH

VOID RATIO

LOAD P TONS / SQ. FT.



CONSOLIDATION DATA

○ - (UC) UNCONFINED COMPRESSION TEST
■ - (Q) UNCONSOLIDATED - UNDRAINED SHEAR TEST
▲ - (R) CONSOLIDATED - UNDRAINED SHEAR TEST
⊡ - (S) CONSOLIDATED - DRAINED SHEAR TEST

BORINGS WERE TAKEN WITH A 5 INCH DIAMETER STEEL TUBE PISTON TYPE SAMPLER

FOR SOIL BORING LEGEND SEE PLATE A

FOR LOCATION OF BORING SEE PLATE 40

WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

UNDISTURBED BORING HV-7

U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

DATE: FEB. 90

FILE NO. H-2-30618

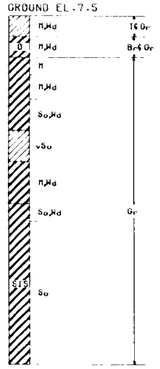
BOR. HV-8

STA. 648+45

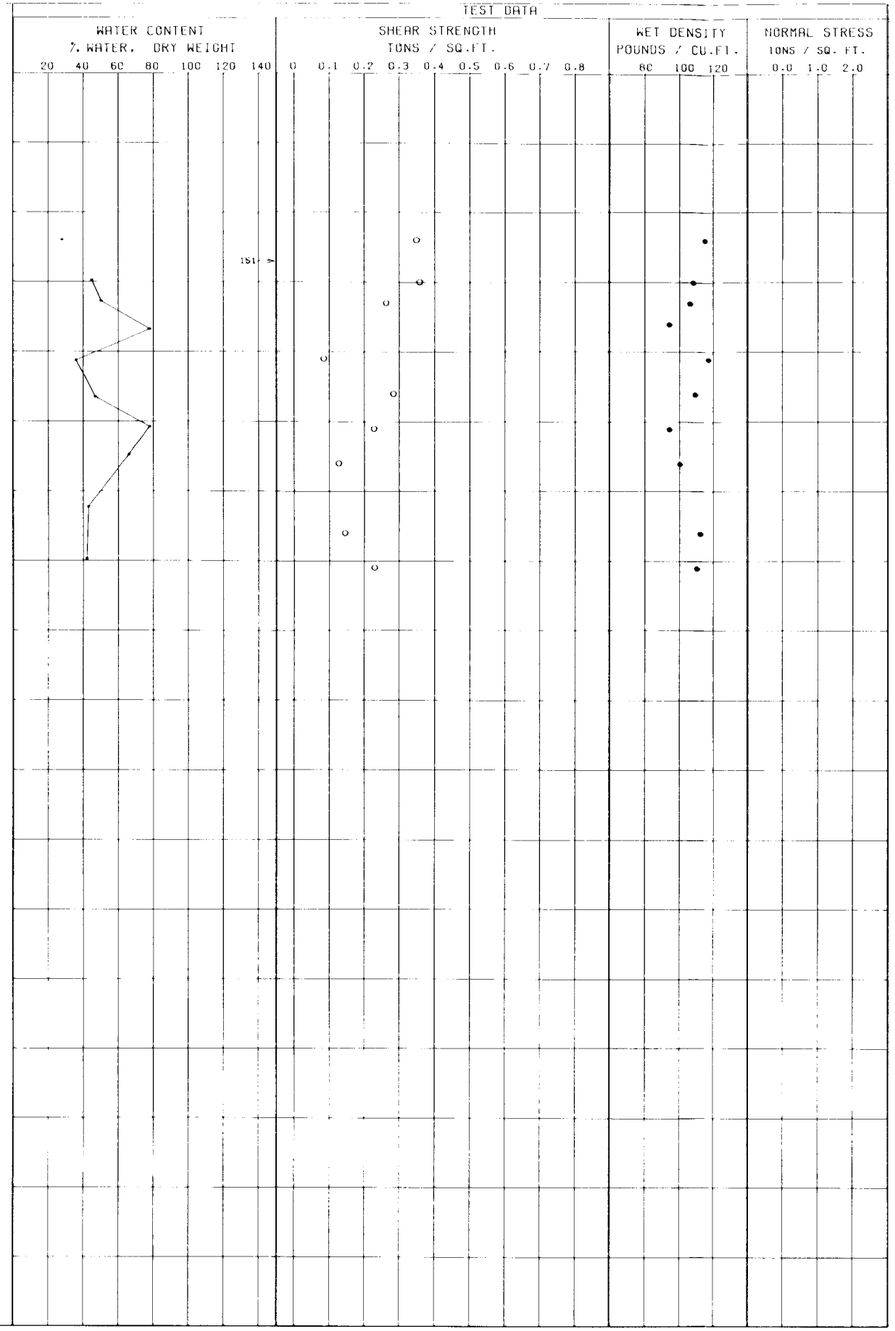
12 FT. LT. B/L

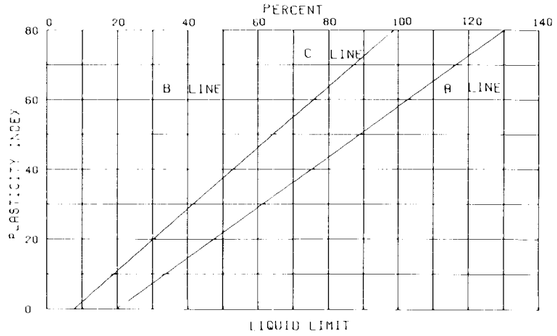
14 FEB '86

GROUND EL. 7.5

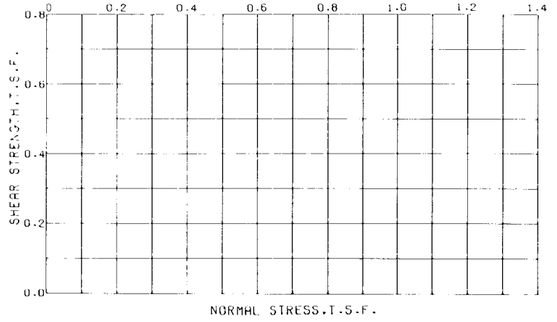


TEST DATA



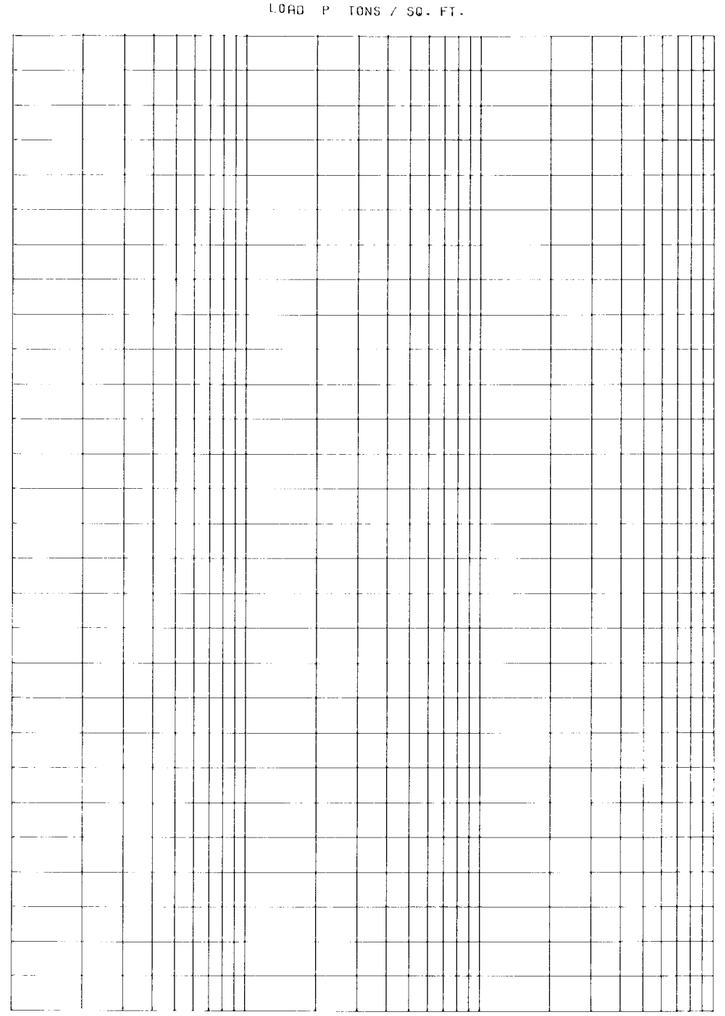


PLASTICITY CHART



SHEAR STRENGTH DATA

ENVELOPE NO.	ENVELOPE EL.	TYPE	STRENGTH Φ	STRENGTH C - TSF	CLASS



CONSOLIDATION DATA

○ - (UC) UNCONFINED COMPRESSION TEST

■ - (Q) UNCONSOLIDATED - UNDRAINED SHEAR TEST

▲ - (R) CONSOLIDATED - UNDRAINED SHEAR TEST

⊡ - (S) CONSOLIDATED - DRAINED SHEAR TEST

BORINGS WERE TAKEN WITH A 3 INCH DIAMETER STEEL TUBE PISTON TYPE SAMPLER

FOR SOIL BORING LEGEND SEE PLATE A

FOR LOCATION OF BORING SEE PLATE 41

WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

UNDISTURBED BORING HV-8

U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

DATE: FEB. 90

FILE NO. H-2-30618

PLATE -F65

BOR. HV-9
STA. 657+97
30 FT. LT. B/L
29-30 JAN '86

GROUND EL. 0.5

TEST DATA

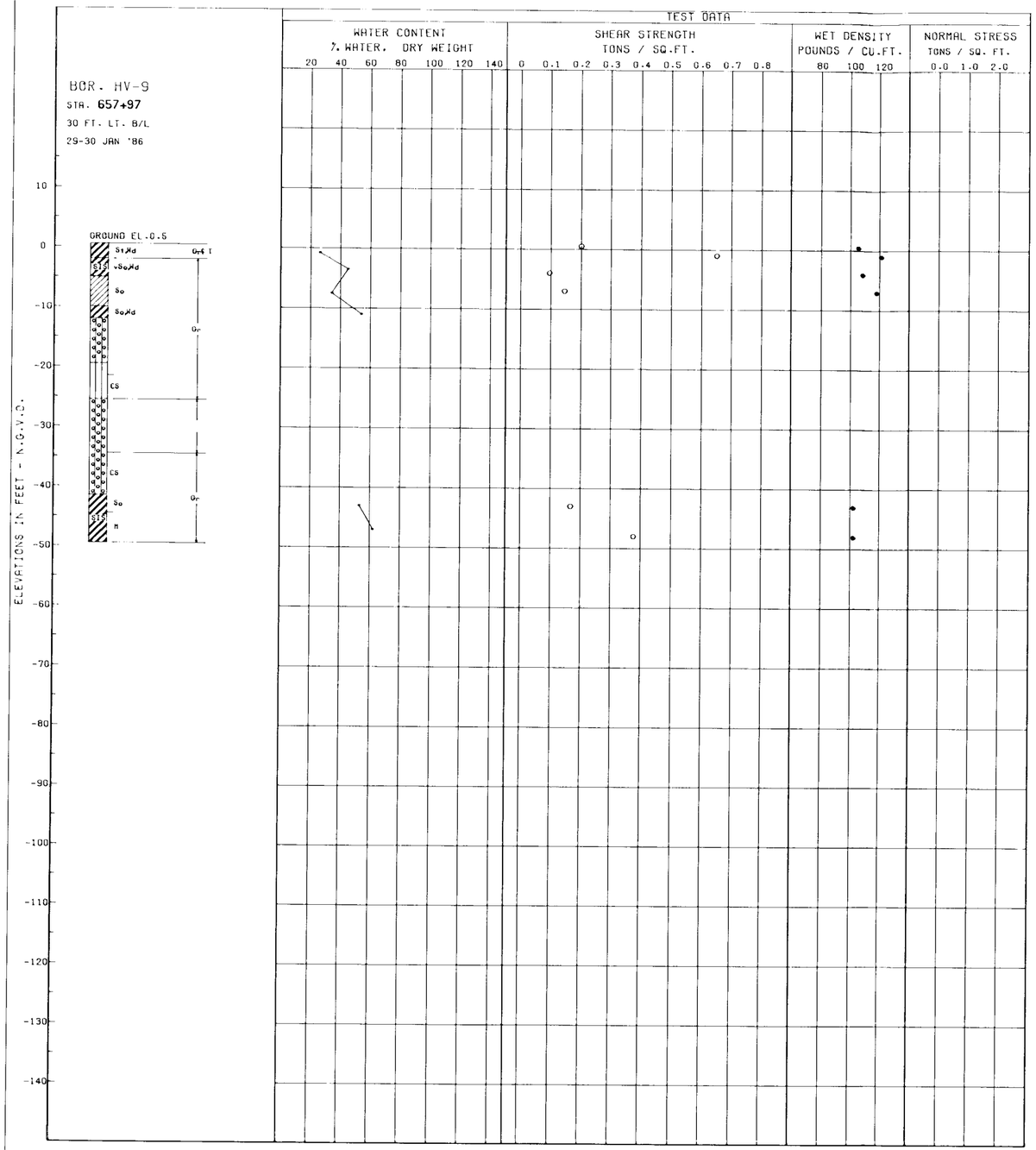
WATER CONTENT
% WATER. DRY WEIGHT
20 40 60 80 100 120 140

SHEAR STRENGTH
TONS / SQ.FT.
0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8

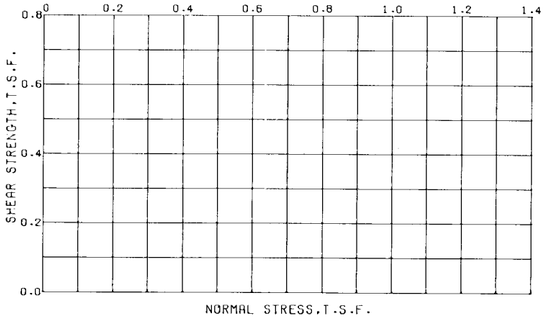
WET DENSITY
POUNDS / CU.FT.
80 100 120

NORMAL STRESS
TONS / SQ. FT.
0.0 1.0 2.0

ELEVATIONS IN FEET - N.G.V.D.
10 0 -10 -20 -30 -40 -50 -60 -70 -80 -90 -100 -110 -120 -130 -140



PLASTICITY CHART



SHEAR STRENGTH DATA

ENVELOPE NO.	ENVELOPE EL.	TYPE	STRENGTH Φ	STRENGTH C - TSF	CLASS

LOAD P TONS / SQ. FT.

VOID RATIO

CONSOLIDATION DATA

○ - (UC) UNCONFINED COMPRESSION TEST
■ - (Q) UNCONSOLIDATED - UNDRAINED SHEAR TEST
▲ - (R) CONSOLIDATED - UNDRAINED SHEAR TEST
▣ - (S) CONSOLIDATED - DRAINED SHEAR TEST

BORINGS WERE TAKEN WITH A 3 INCH DIAMETER STEEL TUBE PISTON TYPE SAMPLER
FOR SOIL BORING LEGEND SEE PLATE A
FOR LOCATION OF BORING SEE PLATE 45

WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

UNDISTURBED BORING HV-9

U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

DATE: FEB. 90 FILE NO. H-2-30618

PLATE F66

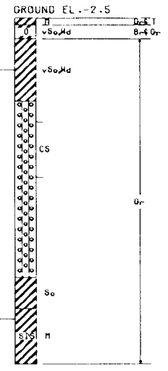
BOR. HV-10

STA. **669+56**

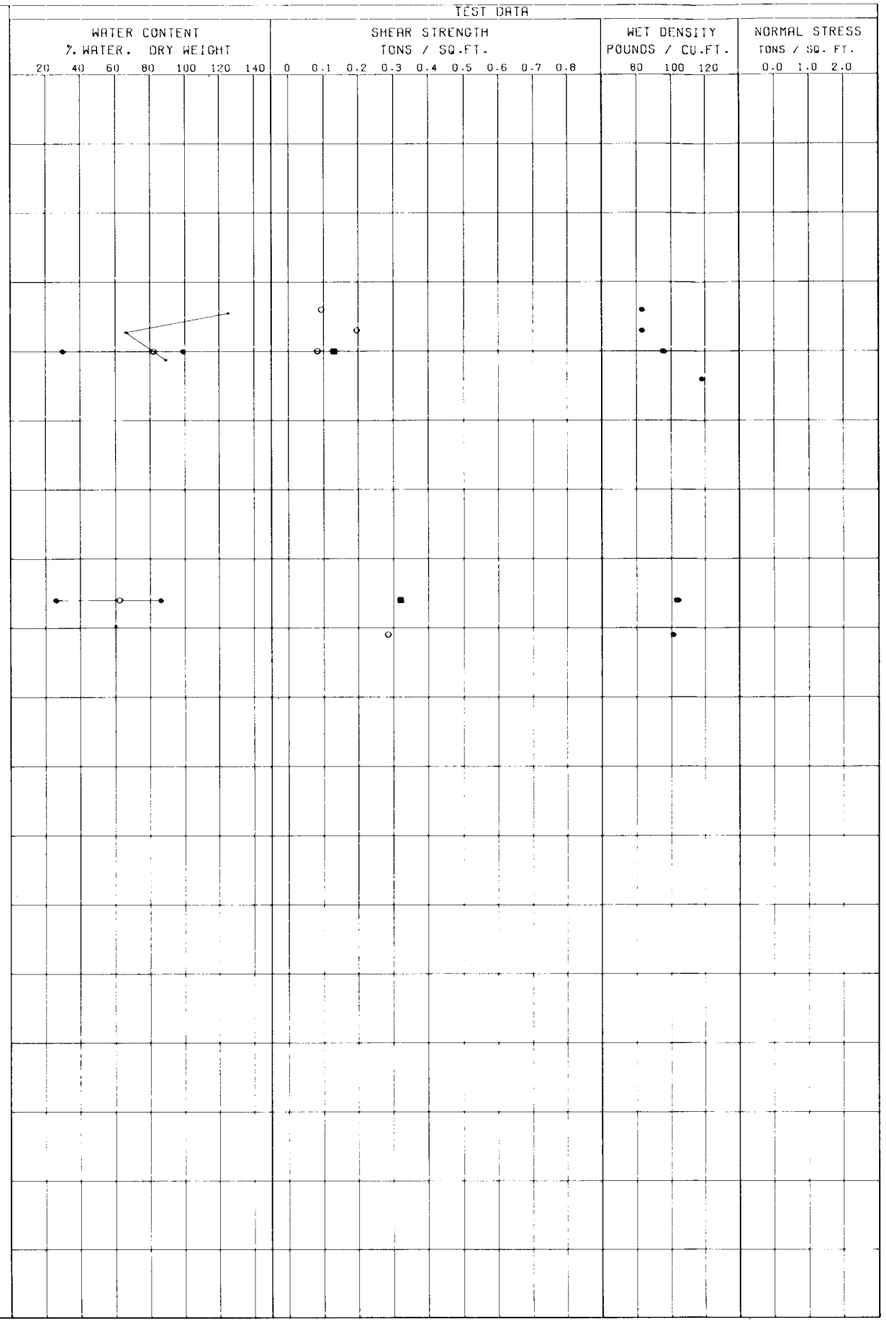
30 FT. LT. B/L

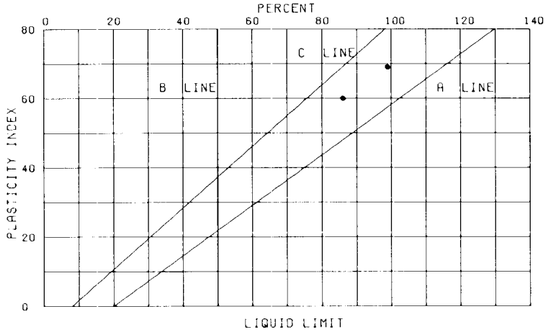
30 JAN '86

GROUND EL -2.5

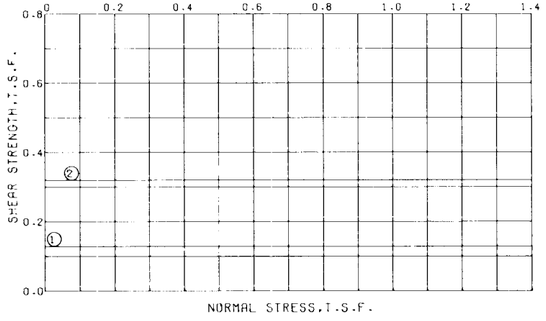


TEST DATA





PLASTICITY CHART

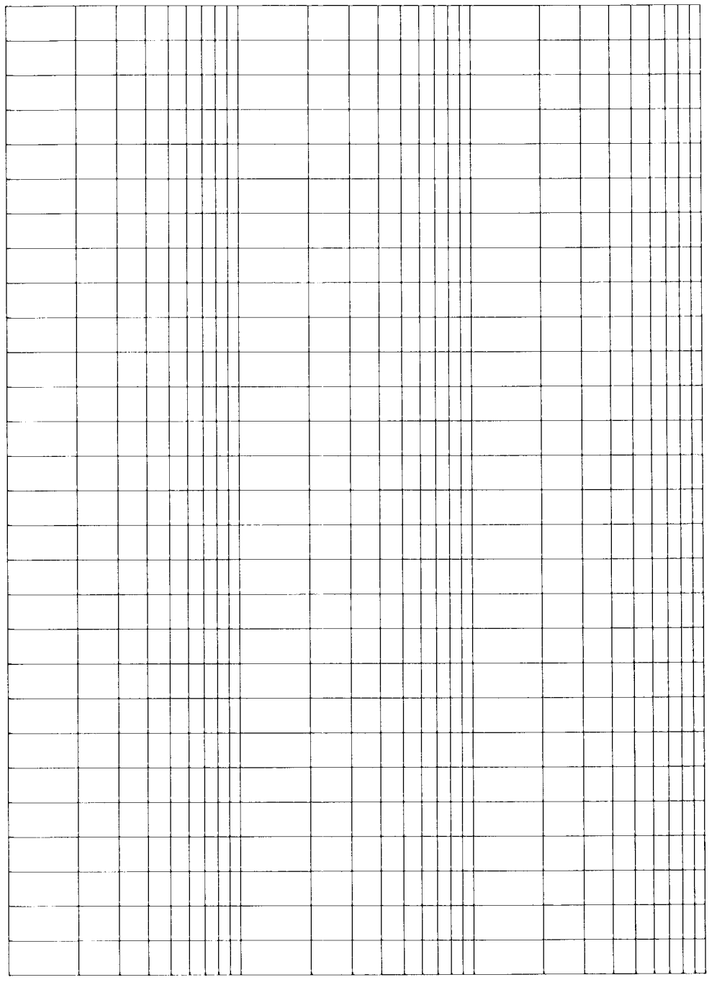


SHEAR STRENGTH DATA

ENVELOPE NO.	ENVELOPE EL.	TYPE	STRENGTH Φ	STRENGTH C - TSF	CLASS
1	-10.00	Q	0.0	0.130	CH
2	-46.00	Q	0.0	0.320	CH

VOID RATIO

LOAD P TONS / SQ. FT.



CONSOLIDATION DATA

○ - (UC) UNCONFINED COMPRESSION TEST
■ - (Q) UNCONSOLIDATED - UNDRAINED SHEAR TEST
▲ - (R) CONSOLIDATED - UNDRAINED SHEAR TEST
▽ - (S) CONSOLIDATED - DRAINED SHEAR TEST

BORINGS WERE TAKEN WITH A 5 INCH DIAMETER STEEL TUBE PISTON TYPE SAMPLER

FOR SOIL BORING LEGEND SEE PLATE A

FOR LOCATION OF BORING SEE PLATE 43

WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

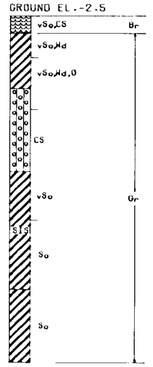
UNDISTURBED BORING HV- 10

U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

DATE: FEB. 90

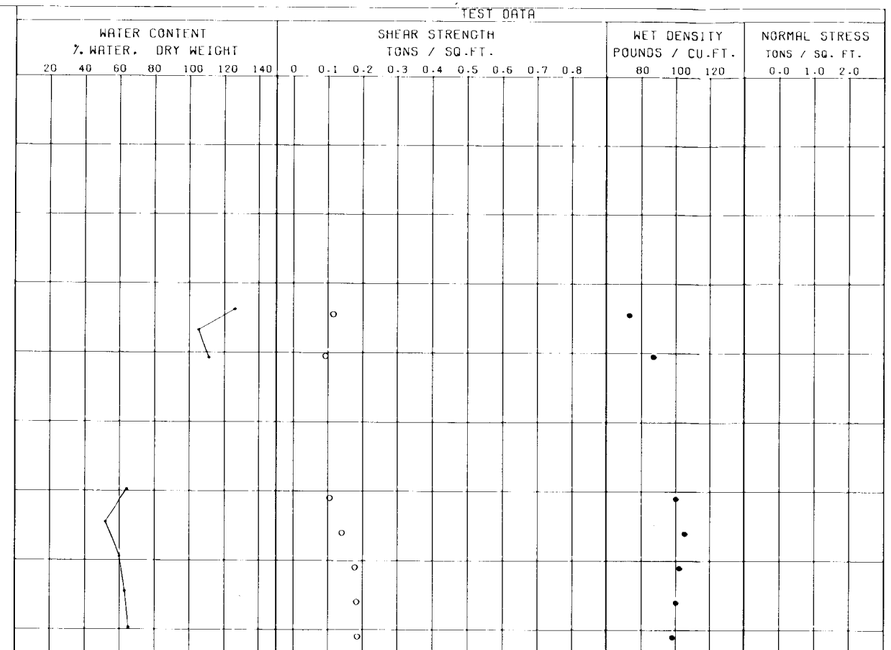
FILE NO. H-2-30618

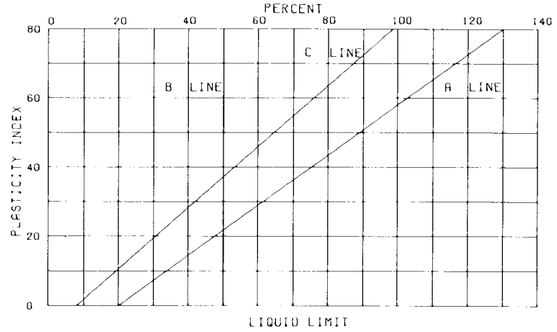
BOR. HV-11
STA. 679+91
28 FT. LT. B/L
30-31 JAN '86
GROUND EL -2.5



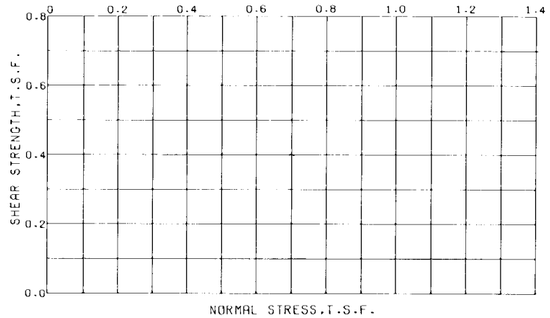
ELEVATIONS IN FEET - N.G.V.D.

TEST DATA





PLASTICITY CHART

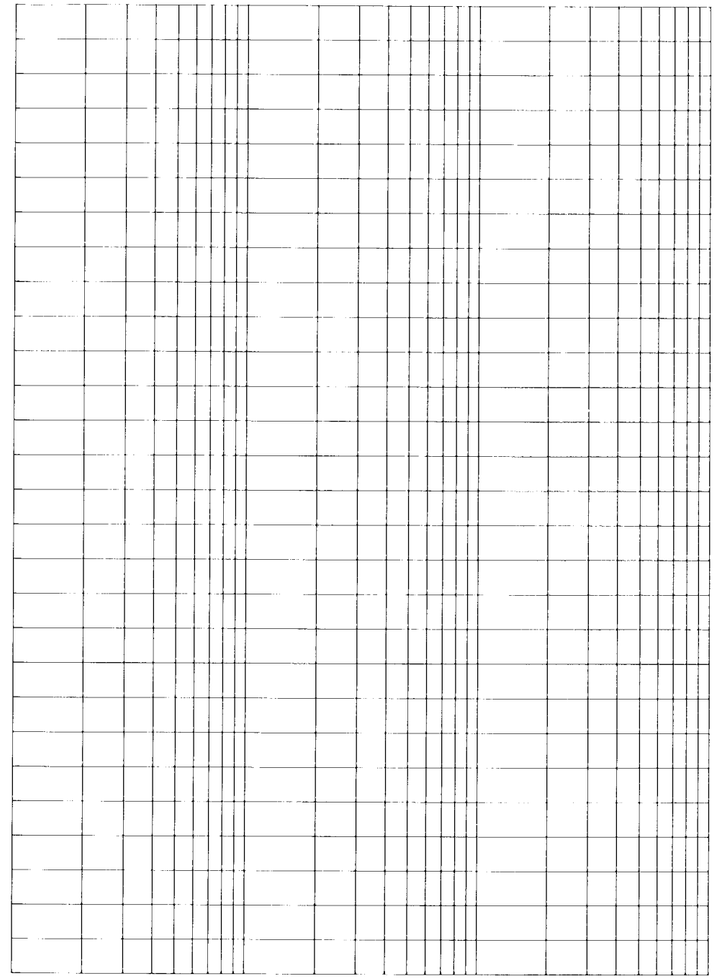


SHEAR STRENGTH DATA

ENVELOPE NO.	ENVELOPE EL.	TYPE	STRENGTH Φ	STRENGTH C - TSF	CLASS

VOID RATIO

LOAD P TONS / SQ. FT.



CONSOLIDATION DATA

○ - (UC) UNCONFINED COMPRESSION TEST
■ - (Q) UNCONSOLIDATED - UNDRAINED SHEAR TEST
▲ - (R) CONSOLIDATED - UNDRAINED SHEAR TEST
⊡ - (S) CONSOLIDATED - DRAINED SHEAR TEST
BORINGS WERE TAKEN WITH A 3 INCH DIAMETER STEEL TUBE PISTON TYPE SAMPLER
FOR SOIL BORING LEGEND SEE PLATE A
FOR LOCATION OF BORING SEE PLATE 43

WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

UNDISTURBED BORING HV-11

U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS
DATE: FEB. 90
FILE NO. H-2-30618

PLATE F68

BOR. HV-12

STA. 689+96

30 FT. LT. B/L

31 JAN-3 FEB '86

GROUND EL. -3.0

ELEVATIONS IN FEET - N.G.V.D.

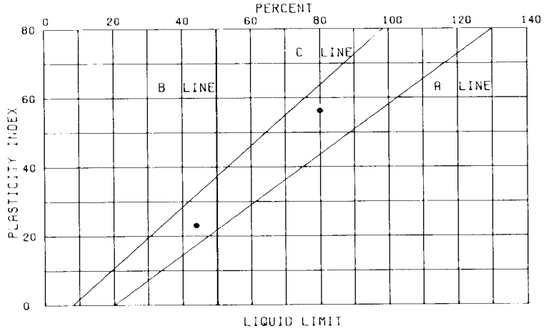
TEST DATA

WATER CONTENT
% WATER. DRY WEIGHT
20 40 60 80 100 120 140

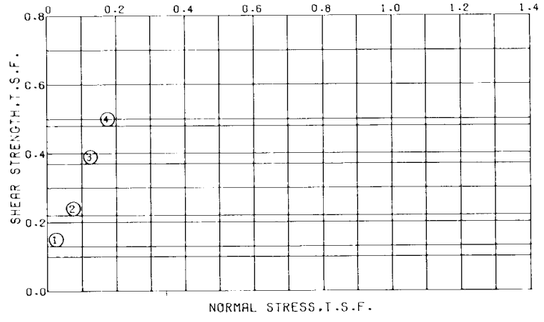
SHEAR STRENGTH
TONS / SQ.FT.
0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8

WET DENSITY
POUNDS / CU.FT.
80 100 120

NORMAL STRESS
TONS / SQ. FT.
0.6 1.0 2.0



PLASTICITY CHART



SHEAR STRENGTH DATA

ENVELOPE NO.	ENVELOPE EL.	TYPE	STRENGTH Φ	STRENGTH C - TSF	CLASS
1	-10.50	Q	0.0	0.130	CH
2	-41.50	Q	0.0	0.220	CH
3	-61.50	Q	0.0	0.370	CH
4	-86.50	Q	0.0	0.480	CL

LOAD P TONS / SQ. FT.

VOID RATIO

CONSOLIDATION DATA

○ - (UC) UNCONFINED COMPRESSION TEST
■ - (Q) UNCONSOLIDATED - UNDRAINED SHEAR TEST
▲ - (R) CONSOLIDATED - UNDRAINED SHEAR TEST
[S] - (S) CONSOLIDATED - DRAINED SHEAR TEST

BORINGS WERE TAKEN WITH A 5 INCH DIAMETER STEEL TUBE PISTON TYPE SAMPLER

FOR SOIL BORING LEGEND SEE PLATE A

FOR LOCATION OF BORING SEE PLATE 44

WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

UNDISTURBED BORING HV-12

U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

DATE FEB. 90

FILE NO. H-2-30618

PLATE F69

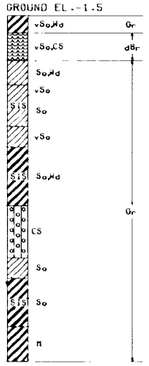
BOR. HV-13

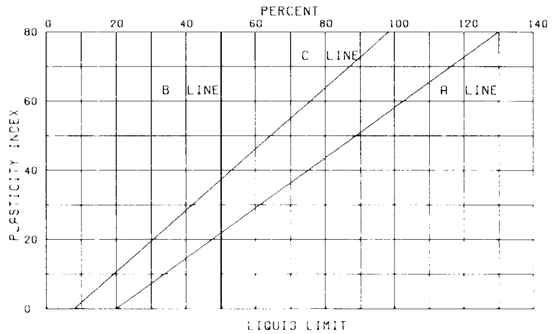
STA. 700+26

38 FT. LT. B/L

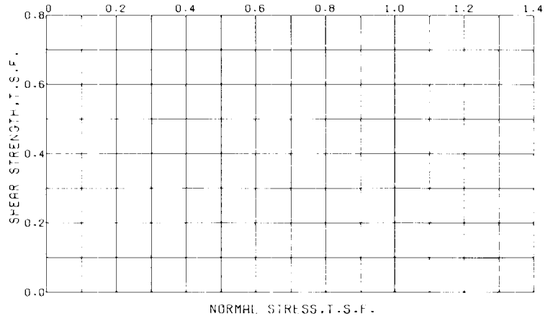
4 FEB '86

GROUND EL -1.5



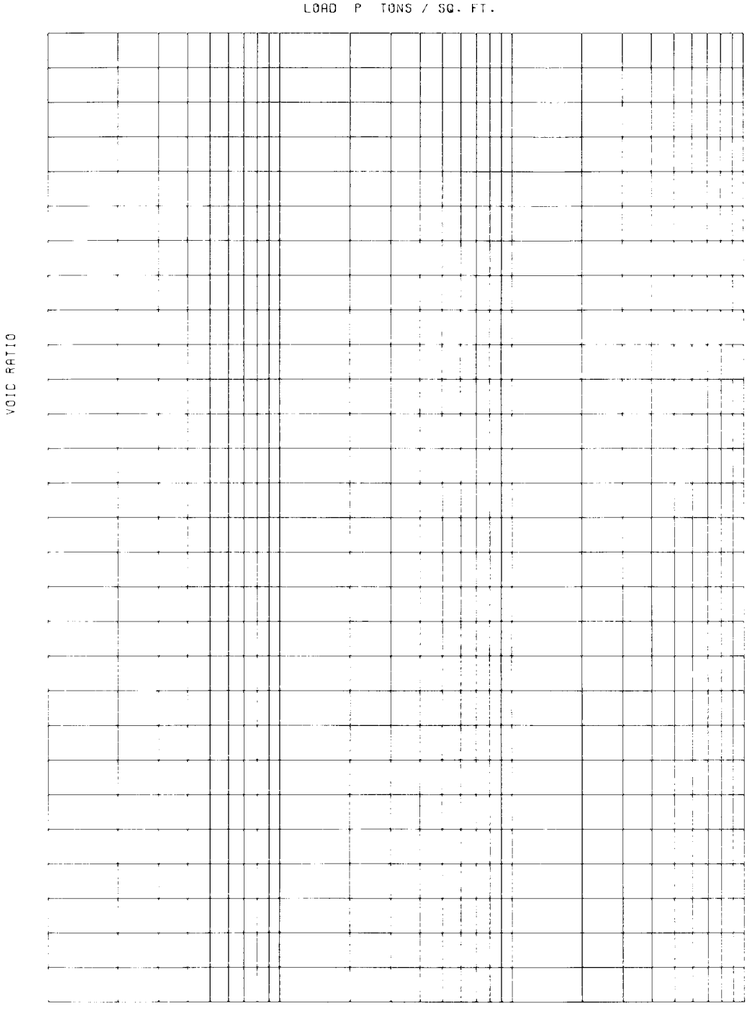


PLASTICITY CHART



SHEAR STRENGTH DATA

ENVELOPE NO.	ENVELOPE EL.	TYPE	STRENGTH Φ	STRENGTH C - TSF	CLASS



CONSOLIDATION DATA

○ - (UC) UNCONFINED COMPRESSION TEST

■ - (Q) UNCONSOLIDATED - UNDRAINED SHEAR TEST

▲ - (R) CONSOLIDATED - UNDRAINED SHEAR TEST

⊡ - (S) CONSOLIDATED - DRAINED SHEAR TEST

BORINGS WERE TAKEN WITH A 3 INCH DIAMETER STEEL TUBE PISTON TYPE SAMPLER

FOR SOIL BORING LEGEND SEE PLATE A

FOR LOCATION OF BORING SEE PLATE 44

WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

UNDISTURBED BORING HV-13

U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

DATE: FEB. 90

FILE NO. H-2-30618

BOR. HV-14
STA. 718+46
21 FT. LT. B/L
3-4 FEB '86
GROUND EL -2.5

TEST DATA

WATER CONTENT
% WATER, DRY WEIGHT
20 40 60 80 100 120 140

SHEAR STRENGTH
TONS / SQ.FT.
0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8

WET DENSITY
POUNDS / CU.FT.
80 100 120

NORMAL STRESS
TONS / SQ. FT.
0.0 1.0 2.0

ELEVATIONS IN FEET - N.G.V.D.
10 0 -10 -20 -30 -40 -50 -60 -70 -80 -90 -100 -110 -120 -130 -140

GROUND EL.-2.5
vSo,Md
vSo,Md
vSo
M,Md
vSo
CS
SS
So
CS
SM
So
M
Gr
Gr

204
252

PERCENT
0 20 40 60 80 100 120 140
80 60 40 20 0
PLASTICITY INDEX
C LINE
B LINE
A LINE
LIQUID LIMIT

PLASTICITY CHART

0 0.2 0.4 0.6 0.8 1.0 1.2 1.4
0.8 0.6 0.4 0.2 0.0
SHEAR STRENGTH, T.S.F.
NORMAL STRESS, T.S.F.

SHEAR STRENGTH DATA

ENVELOPE NO.	ENVELOPE EL.	TYPE	STRENGTH Φ	STRENGTH C - TSF	CLASS

LOAD P TONS / SQ. FT.
VOID RATIO

CONSOLIDATION DATA

○ - (UC) UNCONFINED COMPRESSION TEST
■ - (Q) UNCONSOLIDATED - UNDRAINED SHEAR TEST
▲ - (R) CONSOLIDATED - UNDRAINED SHEAR TEST
⊡ - (S) CONSOLIDATED - DRAINED SHEAR TEST

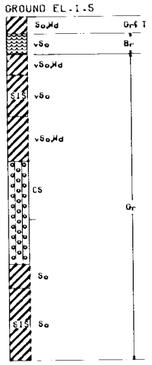
BORINGS WERE TAKEN WITH A 5 INCH DIAMETER STEEL TUBE PISTON TYPE SAMPLER
FOR SOIL BORING LEGEND SEE PLATE A
FOR LOCATION OF BORING SEE PLATE 45

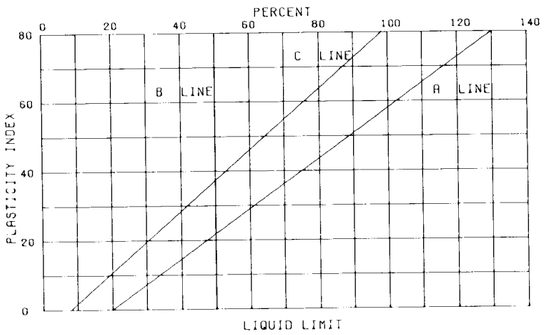
WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

UNDISTURBED BORING HV-14

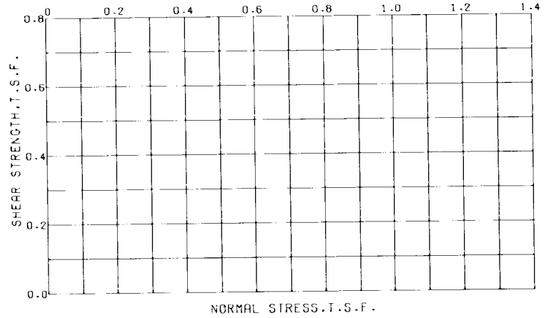
U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS
DATE: FEB. 90
FILE NO. H-2-30618

BOR. HV-15
STA. 720+61
50 FT. RT. B/L
3 FEB '86
GROUND EL 1.5





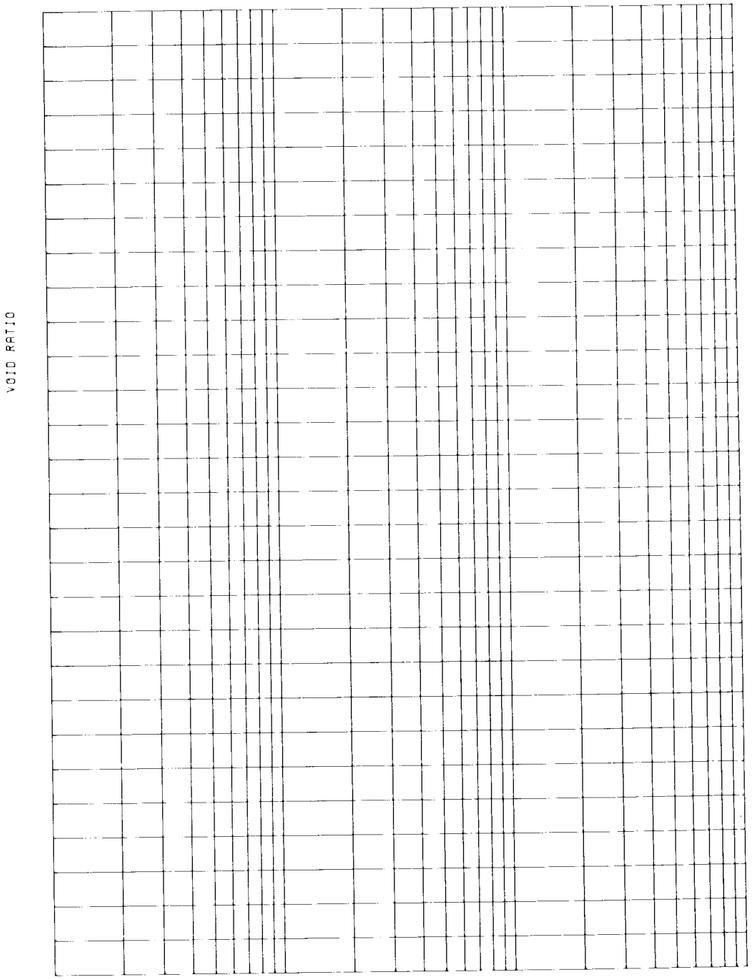
PLASTICITY CHART



SHEAR STRENGTH DATA

ENVELOPE NO.	ENVELOPE EL.	TYPE	STRENGTH Φ	STRENGTH C - TSF	CLASS

LOAD P TONS / SQ. FT.



CONSOLIDATION DATA

○ - (UC) UNCONFINED COMPRESSION TEST
■ - (Q) UNCONSOLIDATED - UNDRAINED SHEAR TEST
▲ - (R) CONSOLIDATED - UNDRAINED SHEAR TEST
⊡ - (S) CONSOLIDATED - DRAINED SHEAR TEST

BORINGS WERE TAKEN WITH A 3 INCH DIAMETER STEEL TUBE PISTON TYPE SAMPLER

FOR SOIL BORING LEGEND SEE PLATE A

FOR LOCATION OF BORING SEE PLATE 45

WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

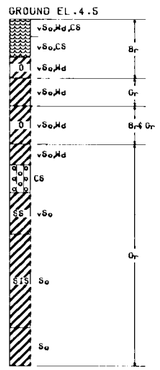
UNDISTURBED BORING HV-15

U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

DATE: FEB. 90

FILE NO. H-2-30618

BOR. HV-16
STA. 730+81
8 FT. LT. B/L
4 FEB '86
GROUND EL 4.5



ELEVATIONS IN FEET - N.G.V.D.

TEST DATA

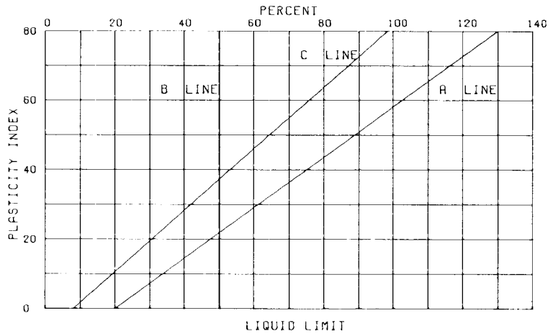
WATER CONTENT
% WATER, DRY WEIGHT
20 40 60 80 100 120 140

SHEAR STRENGTH
TONS / SQ.FT.
0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8

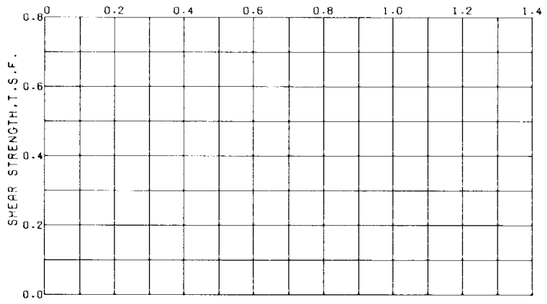
263
210
186

WET DENSITY
POUNDS / CU.FT.
80 100 120

NORMAL STRESS
TONS / SQ. FT.
0.0 1.0 2.0



PLASTICITY CHART



SHEAR STRENGTH DATA

ENVELOPE NO.	ENVELOPE EL.	TYPE	STRENGTH Φ	STRENGTH C - TSF	CLASS

LOAD P TONS / SQ. FT.

VOID RATIO

CONSOLIDATION DATA

○ - (UC) UNCONFINED COMPRESSION TEST
■ - (Q) UNCONSOLIDATED - UNDRAINED SHEAR TEST
▲ - (R) CONSOLIDATED - UNDRAINED SHEAR TEST
◫ - (S) CONSOLIDATED - DRAINED SHEAR TEST

BORINGS WERE TAKEN WITH A 3 INCH DIAMETER STEEL TUBE PISTON TYPE SAMPLER
FOR SOIL BORING LEGEND SEE PLATE A
FOR LOCATION OF BORING SEE PLATE 45

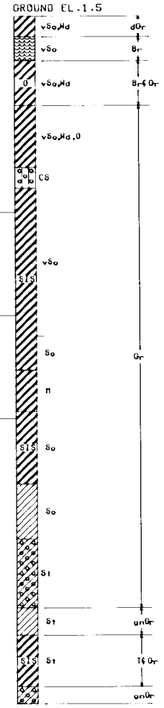
WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

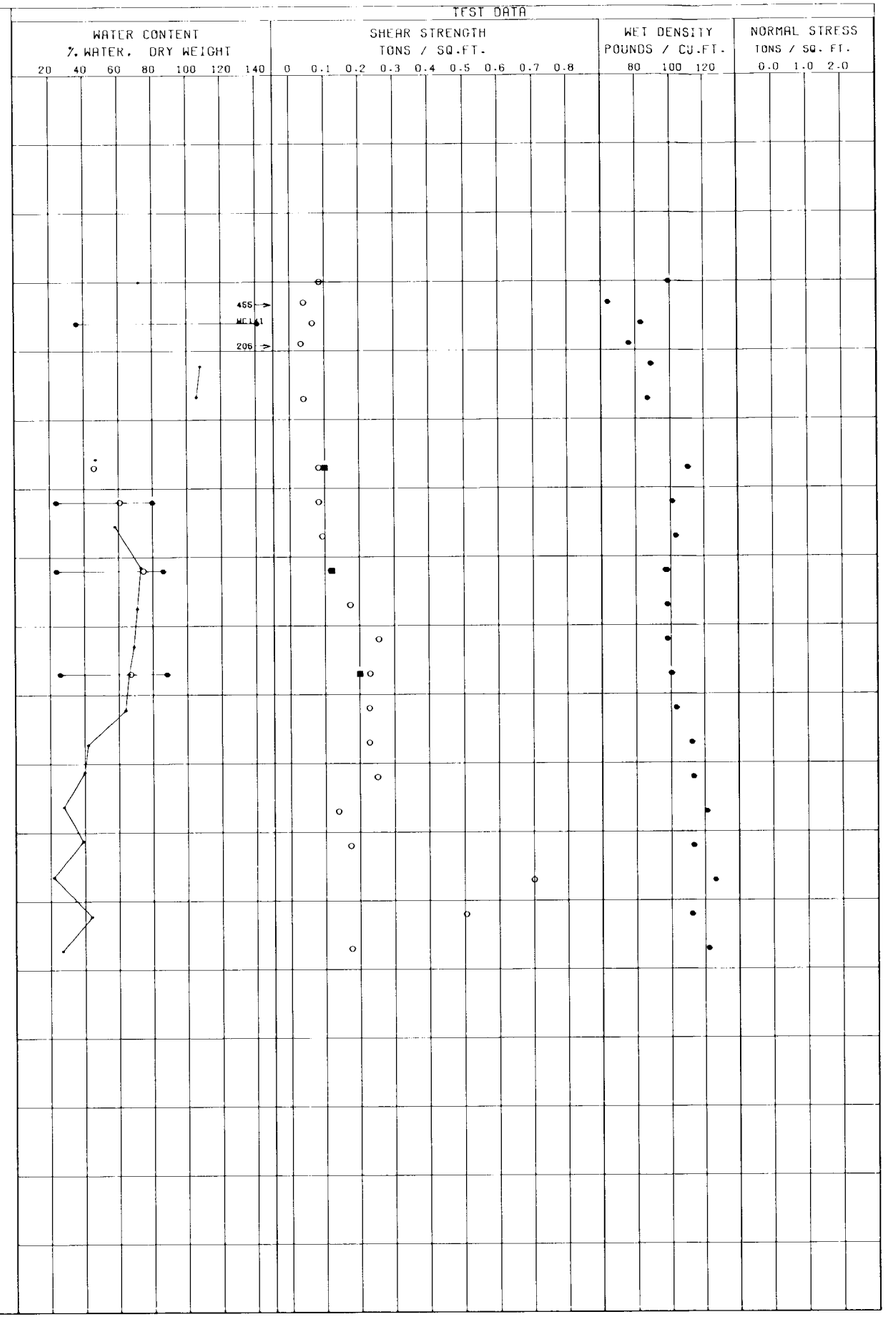
UNDISTURBED BORING HV-16

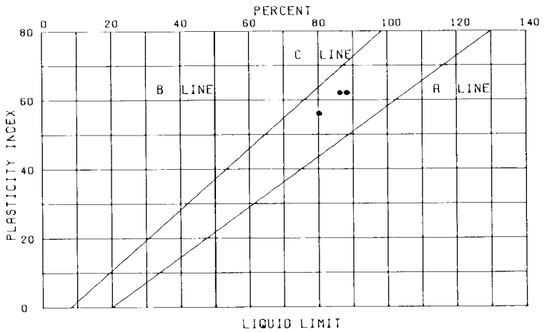
U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

DATE FEB. 90 FILE NO. H-2-30618

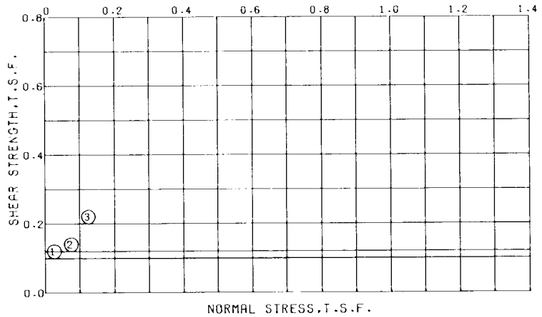
BOR. HV-17
STA. 748+86
21 FT. RT. B/L
5 FEB '86
GROUND EL 1.5





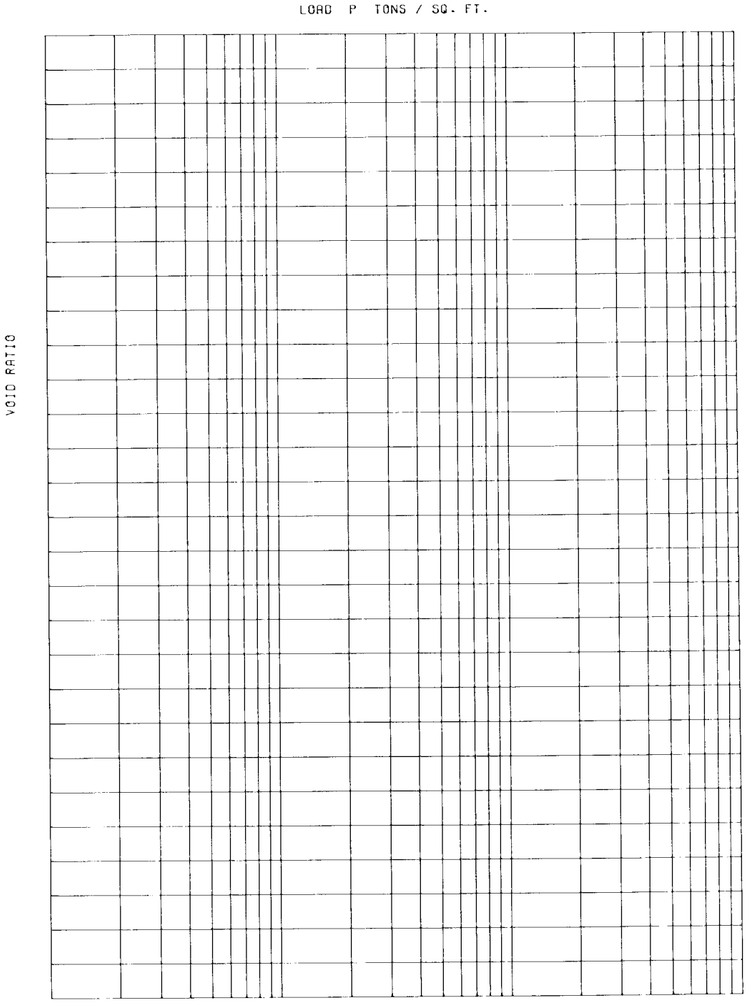


PLASTICITY CHART



SHEAR STRENGTH DATA

ENVELOPE NO.	ENVELOPE EL.	TYPE	STRENGTH Φ	STRENGTH C - TSF	CLASS
1	-27.00	Q	0.0	0.100	CH
2	-42.00	Q	0.0	0.120	CH
3	-57.00	Q	0.0	0.200	CH



CONSOLIDATION DATA

○ - (UC) UNCONFINED COMPRESSION TEST
■ - (Q) UNCONSOLIDATED - UNDRAINED SHEAR TEST
▲ - (R) CONSOLIDATED - UNDRAINED SHEAR TEST
▣ - (S) CONSOLIDATED - DRAINED SHEAR TEST
BORINGS WERE TAKEN WITH A 5 INCH DIAMETER
STEEL TUBE PISTON TYPE SAMPLER
FOR SOIL BORING LEGEND SEE PLATE A
FOR LOCATION OF BORING SEE PLATE 46

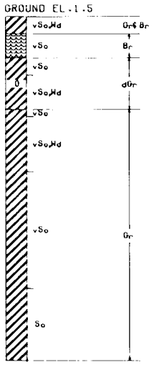
WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

UNDISTURBED BORING HV-17

U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

DATE: FEB. 90 FILE NO. H-2-30618

BOR. HV-18
STA. 751+21
40 FT. RT. B/L
6 FEB '86
GROUND EL 1.5



ELEVATIONS IN FEET - N.G.V.D.

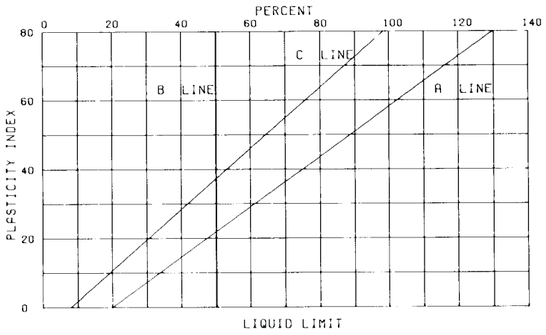
TEST DATA

WATER CONTENT
% WATER, DRY WEIGHT
20 40 60 80 100 120 140

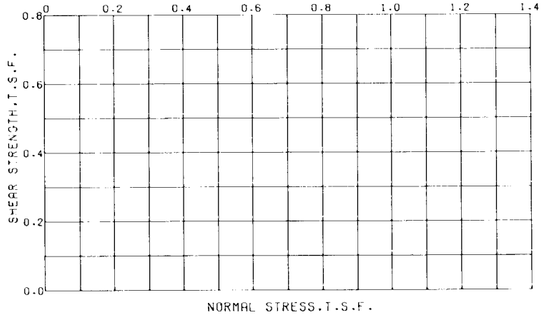
SHEAR STRENGTH
TONS / SQ.FT.
0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8
185
218
244

WET DENSITY
POUNDS / CU.FT.
80 100 120

NORMAL STRESS
TONS / SQ. FT.
0.0 1.0 2.0



PLASTICITY CHART



SHEAR STRENGTH DATA

ENVELOPE NO.	ENVELOPE EL.	TYPE	STRENGTH Φ	STRENGTH C - TSF	CLASS

LOAD P TONS / SQ. FT.

VOID RATIO

CONSOLIDATION DATA

○ - (UC) UNCONFINED COMPRESSION TEST
■ - (Q) UNCONSOLIDATED - UNDRAINED SHEAR TEST
▲ - (R) CONSOLIDATED - UNDRAINED SHEAR TEST
⊡ - (S) CONSOLIDATED - DRAINED SHEAR TEST

BORINGS WERE TAKEN WITH A 3 INCH DIAMETER STEEL TUBE PISTON TYPE SAMPLER
FOR SOIL BORING LEGEND SEE PLATE A
FOR LOCATION OF BORING SEE PLATE 46

WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

UNDISTURBED BORING HV-18

U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS
DATE: FEB. 90
FILE NO. H-2-30618

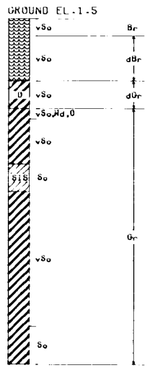
BOR. HV-19

STA. 761+11

52 FT. RT. B/L

6 FEB '86

GROUND EL 1.5



TEST DATA

WATER CONTENT
% WATER, DRY WEIGHT
20 40 60 80 100 120 140

SHEAR STRENGTH
TONS / SQ.FT.
0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8

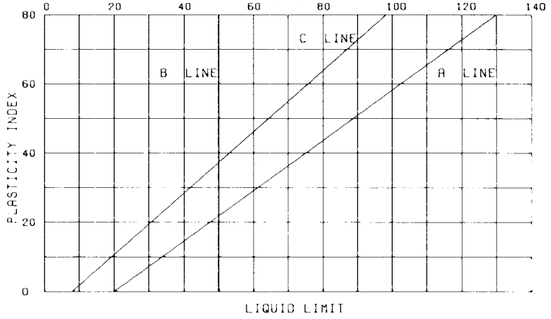
243
238
301
186
160

WET DENSITY
POUNDS / CU.FT.
80 100 120

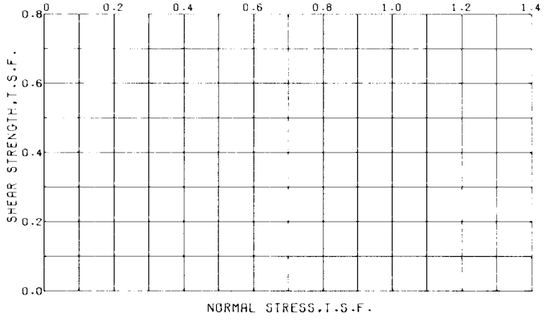
NORMAL STRESS
TONS / SQ. FT.
0.0 1.0 2.0

ELEVATIONS IN FEET - N.G.V.D.

10 0 -10 -20 -30 -40 -50 -60 -70 -80 -90 -100 -110 -120 -130 -140



PLASTICITY CHART



SHEAR STRENGTH DATA

ENVELOPE NO.	ENVELOPE EL.	TYPE	STRENGTH Φ	STRENGTH C - TSF	CLASS

LOAD P TONS / SQ. FT.

VOID RATIO

CONSOLIDATION DATA

○ - (UC) UNCONFINED COMPRESSION TEST
■ - (Q) UNCONSOLIDATED - UNDRAINED SHEAR TEST
▲ - (R) CONSOLIDATED - UNDRAINED SHEAR TEST
▣ - (S) CONSOLIDATED - DRAINED SHEAR TEST

BORINGS WERE TAKEN WITH A 3 INCH DIAMETER STEEL TUBE PISTON TYPE SAMPLER

FOR SOIL BORING LEGEND SEE PLATE A

FOR LOCATION OF BORING SEE PLATE 46

WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

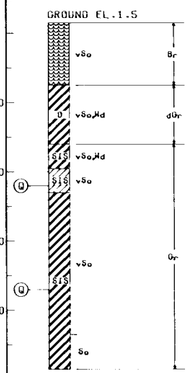
UNDISTURBED BORING HV-19

U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

DATE: FEB. 90

FILE NO. H-2-30618

BOR. HV-20
STA. 771+56
135 FT. RT. B/L
6-7 FEB '86
GROUND EL 1.5



ELEVATIONS IN FEET - N.G.V.D.

TEST DATA

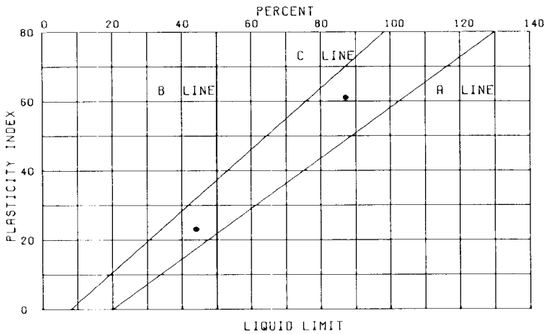
WATER CONTENT
% WATER, DRY WEIGHT
20 40 60 80 100 120 140

SHEAR STRENGTH
TONS / SQ.FT.
0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8

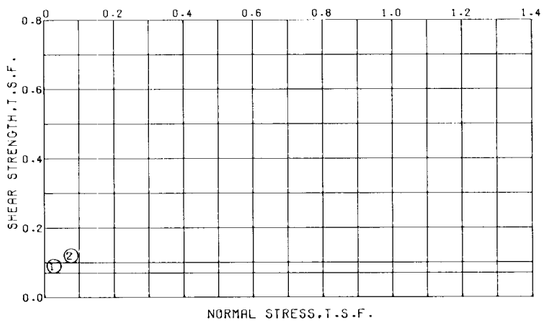
WET DENSITY
POUNDS / CU.FT.
80 100 120

NORMAL STRESS
TONS / SQ. FT.
0.0 1.0 2.0

697
414
252
WC LL PL
170



PLASTICITY CHART



SHEAR STRENGTH DATA

ENVELOPE NO.	ENVELOPE EL.	TYPE	STRENGTH Φ	STRENGTH C - TSF	CLASS
1	-22.00	Q	0.0	0.070	CL
2	-37.00	Q	0.0	0.100	CH

LOAD P TONS / SQ. FT.

VOID RATIO

CONSOLIDATION DATA

○ - (UC) UNCONFINED COMPRESSION TEST
■ - (Q) UNCONSOLIDATED - UNDRAINED SHEAR TEST
▲ - (R) CONSOLIDATED - UNDRAINED SHEAR TEST
⊡ - (S) CONSOLIDATED - DRAINED SHEAR TEST

BORINGS WERE TAKEN WITH A 5 INCH DIAMETER STEEL TUBE PISTON TYPE SAMPLER

FOR SOIL BORING LEGEND SEE PLATE A

FOR LOCATION OF BORING SEE PLATE 46

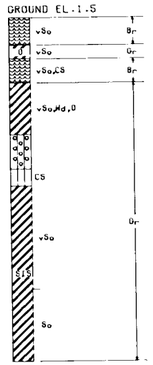
WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

UNDISTURBED BORING HV-20

U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

DATE FEB. 90 FILE NO. H-2-30618

BOR. HV-21
STA. 781+86
130 FT. RT. B/L
7 FEB '86
GROUND EL 1.5



ELEVATIONS IN FEET - N.G.V.D.

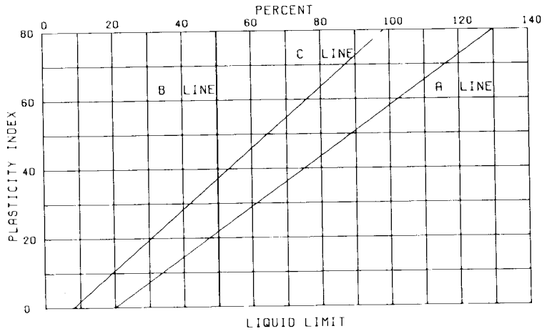
TEST DATA

WATER CONTENT
% WATER, DRY WEIGHT
20 40 60 80 100 120 140

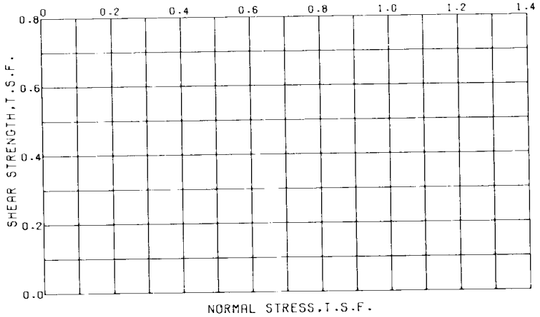
SHEAR STRENGTH
TONS / SQ.FT.
0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8
422
295
214

WET DENSITY
POUNDS / CU.FT.
80 100 120

NORMAL STRESS
TONS / SQ. FT.
0.0 1.0 2.0



PLASTICITY CHART



SHEAR STRENGTH DATA

ENVELOPE NO.	ENVELOPE EL.	TYPE	STRENGTH Φ	STRENGTH C - TSF	CLASS

LOAD P TONS / SQ. FT.

V:1:0 RATIO

CONSOLIDATION DATA

○ - (UC) UNCONFINED COMPRESSION TEST
■ - (Q) UNCONSOLIDATED - UNDRAINED SHEAR TEST
▲ - (R) CONSOLIDATED - UNDRAINED SHEAR TEST
⊡ - (S) CONSOLIDATED - DRAINED SHEAR TEST

BORINGS WERE TAKEN WITH A 3 INCH DIAMETER STEEL TUBE PISTON TYPE SAMPLER

FOR SOIL BORING LEGEND SEE PLATE A

FOR LOCATION OF BORING SEE PLATE 47

WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

UNDISTURBED BORING HV-21

U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

DATE: FEB. 90

FILE NO. H-2- 30618

BOR. HV-22
STA. 792+81
95 FT. RT. B/L
7-12 FEB '86

GROUND EL. 1.0

ELEVATIONS IN FEET - N.G.V.D.

TEST DATA

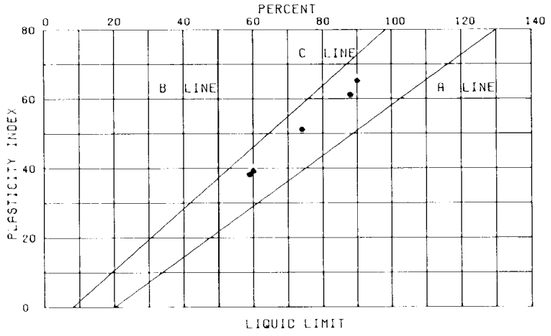
WATER CONTENT
% WATER, DRY WEIGHT
20 40 60 80 100 120 140

SHEAR STRENGTH
TONS / SQ.FT.
0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8

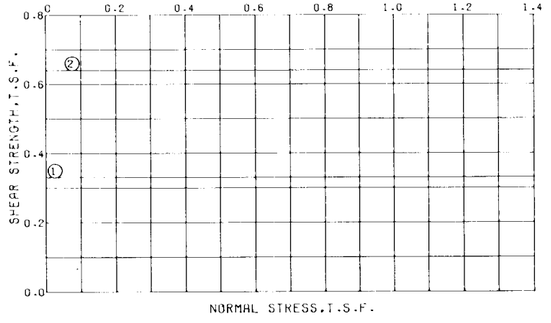
WET DENSITY
POUNDS / CU.FT.
80 100 120

NORMAL STRESS
TONS / SQ. FT.
0.0 1.0 2.0

S41
298
WC348 LL298
231
230
1.00



PLASTICITY CHART



SHEAR STRENGTH DATA

ENVELOPE NO.	ENVELOPE EL.	TYPE	STRENGTH Φ	STRENGTH C - TSF	CLASS
1	-67.50	Q	0.0	0.330	CH
2	-82.50	Q	0.0	0.640	CH

LOAD P TONS / SQ. FT.

VOID RATIO

CONSOLIDATION DATA

○ - (UC) UNCONFINED COMPRESSION TEST
■ - (Q) UNCONSOLIDATED - UNDRAINED SHEAR TEST
▲ - (R) CONSOLIDATED - UNDRAINED SHEAR TEST
⊡ - (S) CONSOLIDATED - DRAINED SHEAR TEST

BORINGS WERE TAKEN WITH A 5 INCH DIAMETER STEEL TUBE PISTON TYPE SAMPLER

FOR SOIL BORING LEGEND SEE PLATE A

FOR LOCATION OF BORING SEE PLATE 47

WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

UNDISTURBED BORING HV-22

U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

DATE: FEB. 90

FILE NO. H-2-30618

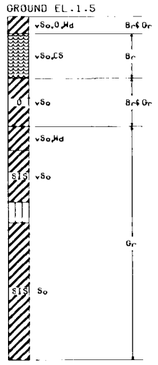
BOR. HV-23

STA. 801+66

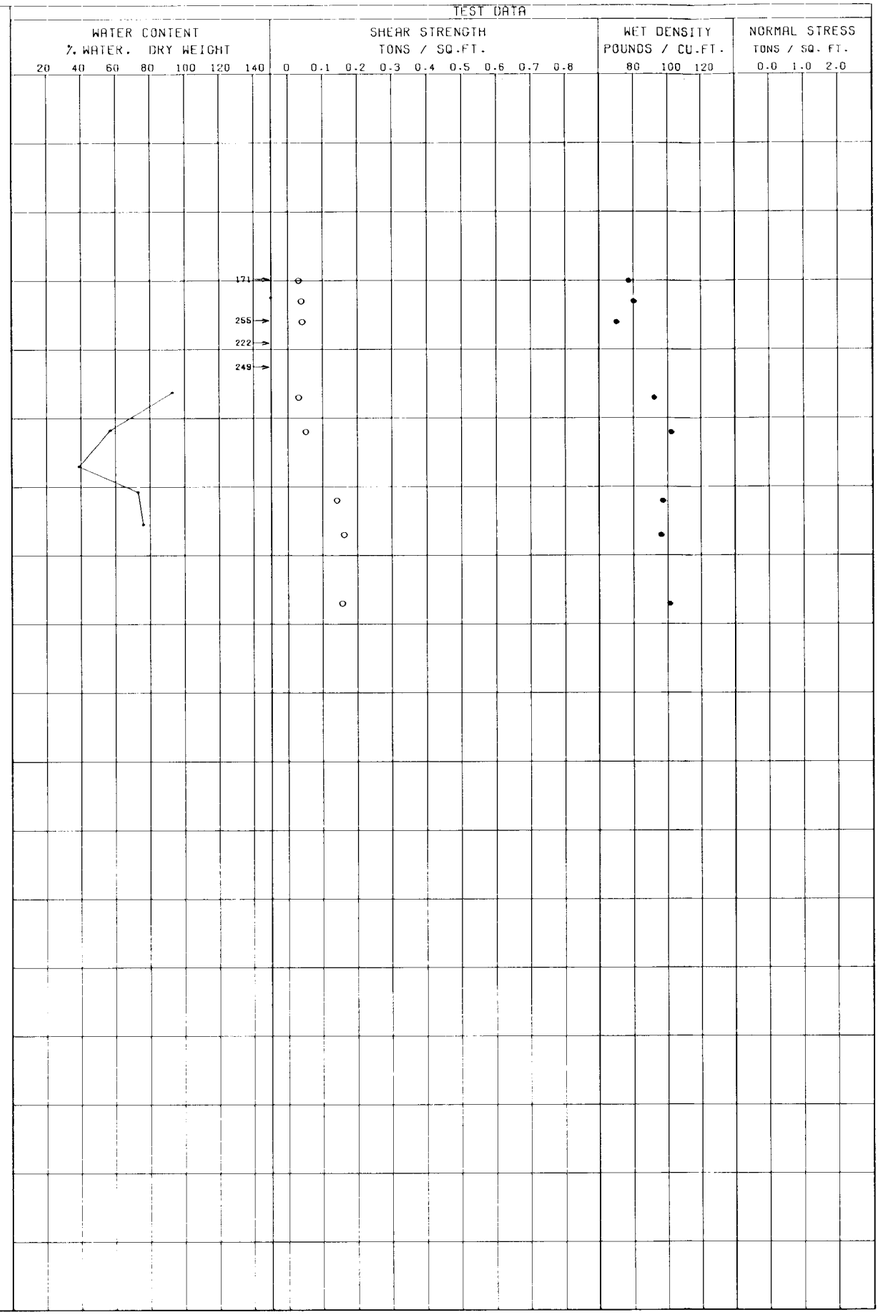
125 FT. RT. B/L

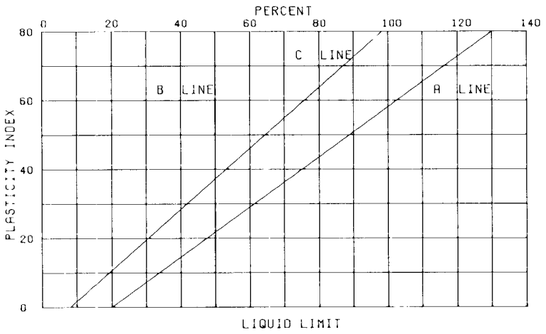
12 FEB '86

GROUND EL 1.5

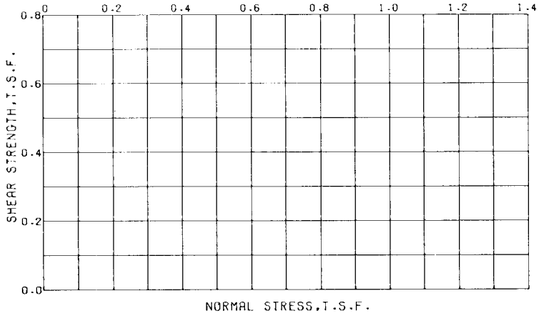


TEST DATA



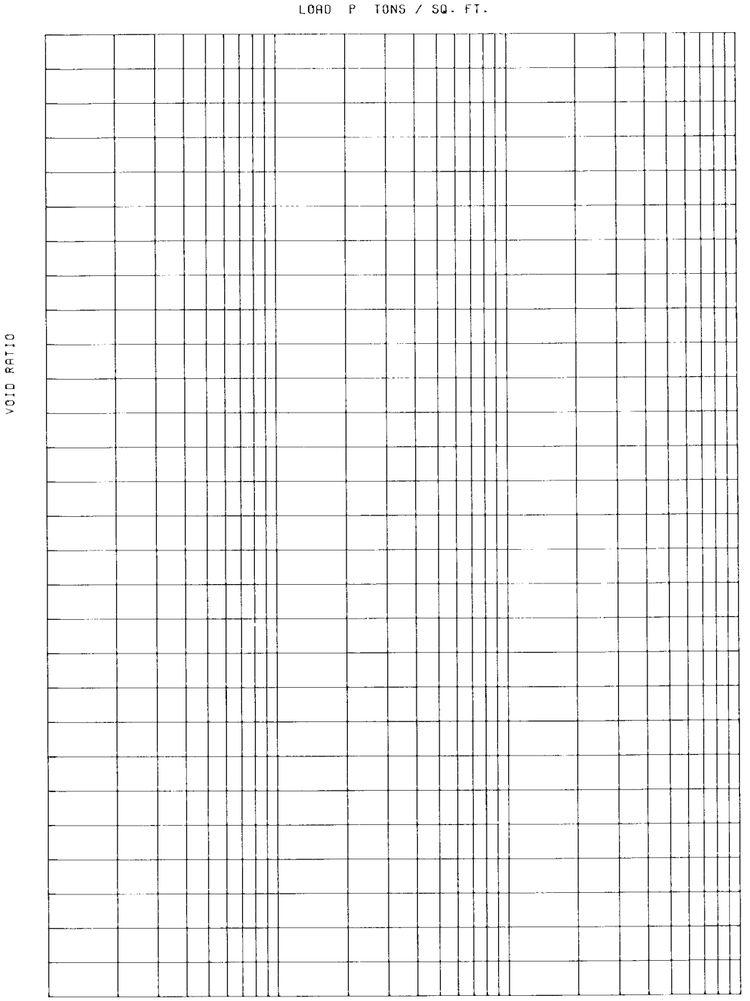


PLASTICITY CHART



SHEAR STRENGTH DATA

ENVELOPE NO.	ENVELOPE EL.	TYPE	STRENGTH Φ	STRENGTH C - TSF	CLASS



CONSOLIDATION DATA

○ - (UC) UNCONFINED COMPRESSION TEST

■ - (Q) UNCONSOLIDATED - UNDRAINED SHEAR TEST

▲ - (R) CONSOLIDATED UNDRAINED SHEAR TEST

⊡ - (S) CONSOLIDATED DRAINED SHEAR TEST

BORINGS WERE TAKEN WITH A 3 INCH DIAMETER STEEL TUBE PISTON TYPE SAMPLER

FOR SOIL BORING LEGEND SEE PLATE A

FOR LOCATION OF BORING SEE PLATE

WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

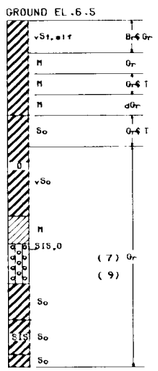
UNDISTURBED BORING HV-23

U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

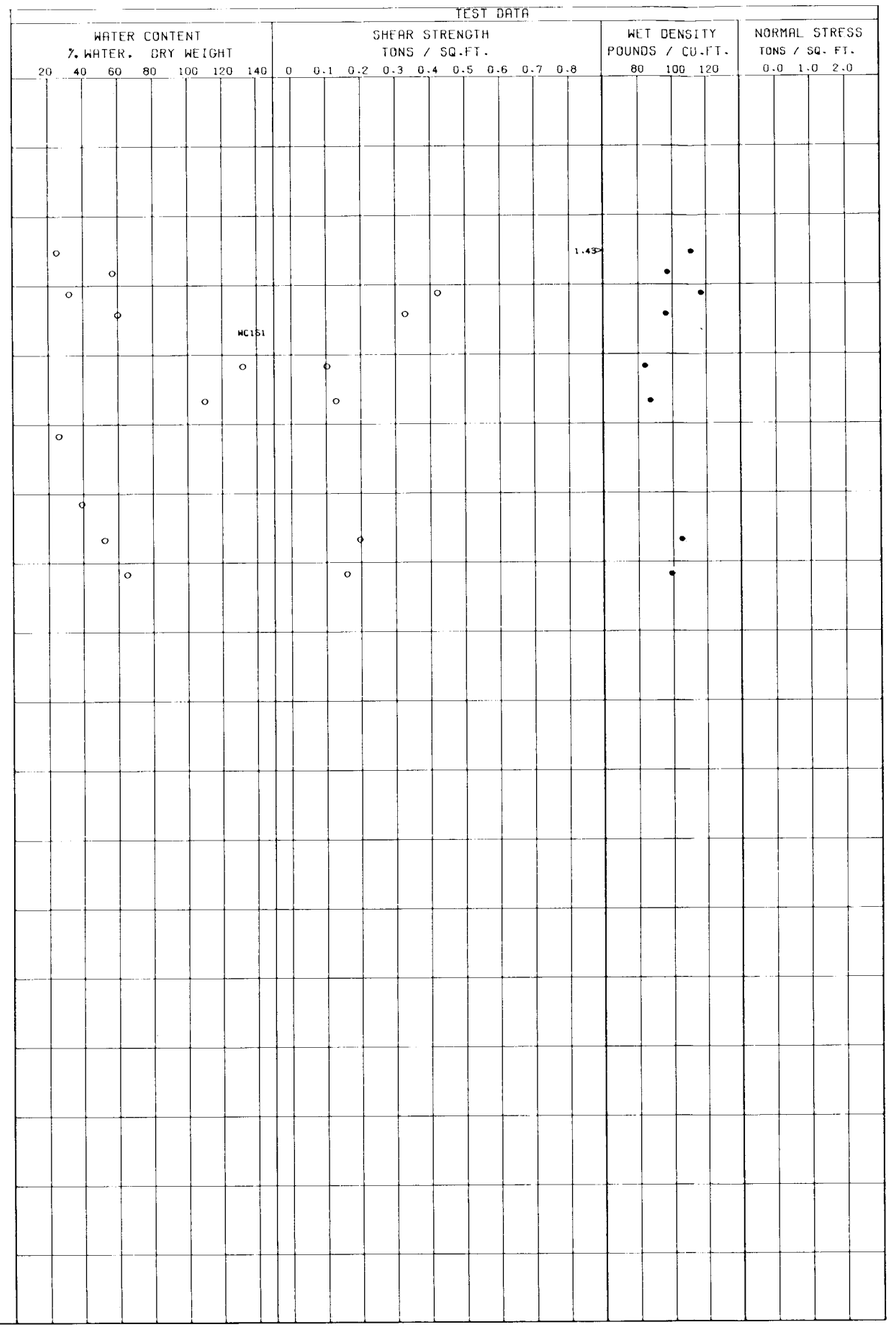
DATE: FEB. 90

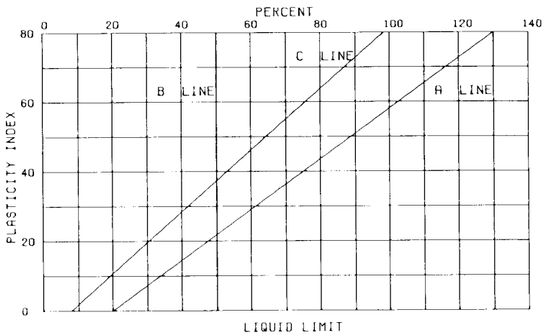
FILE NO. H-2-30618

BOR. HCL-1
STA. 1014+93
ON B/L
7 MAY 1986
GROUND EL. 6.5

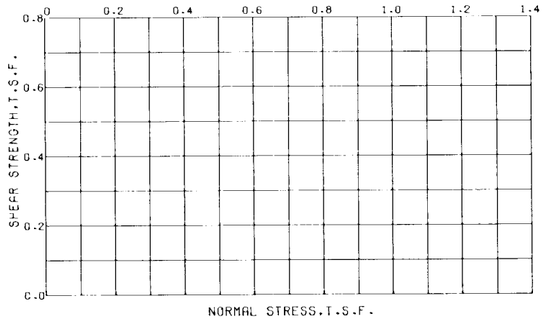


TEST DATA



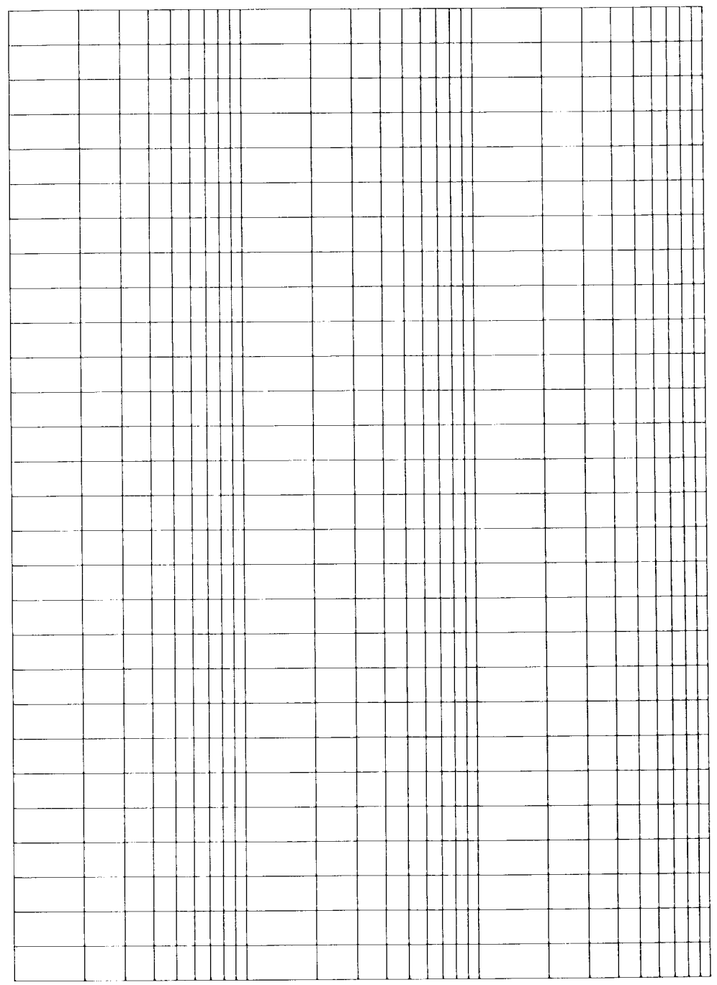


PLASTICITY CHART



SHEAR STRENGTH DATA

ENVELOPE NO.	ENVELOPE EL.	TYPE	STRENGTH Φ	STRENGTH C - TSF	CLASS



CONSOLIDATION DATA

○ - (UC) UNCONFINED COMPRESSION TEST
■ - (Q) UNCONSOLIDATED - UNDRAINED SHEAR TEST
▲ - (R) CONSOLIDATED - UNDRAINED SHEAR TEST
⊡ - (S) CONSOLIDATED - DRAINED SHEAR TEST

BORINGS WERE TAKEN WITH A 3 INCH DIAMETER STEEL TUBE PISTON TYPE SAMPLER
FOR SOIL BORING LEGEND SEE PLATE A
FOR LOCATION OF BORING SEE PLATE 57

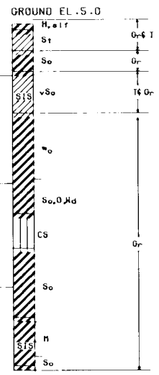
WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

BORING HCL-1

U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS
DATE: FEB. 90
FILE NO. H-2-30618

PLATE F81

BOR. HCL-2
STA. 1084+83
30 FT. LT. B/L
8 MAY 1986
GROUND EL. 5.0



ELEVATIONS IN FEET - N.G.V.D.

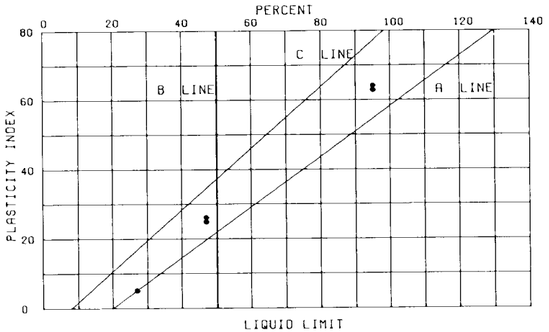
TEST DATA

WATER CONTENT
% WATER. DRY WEIGHT
20 40 60 80 100 120 140

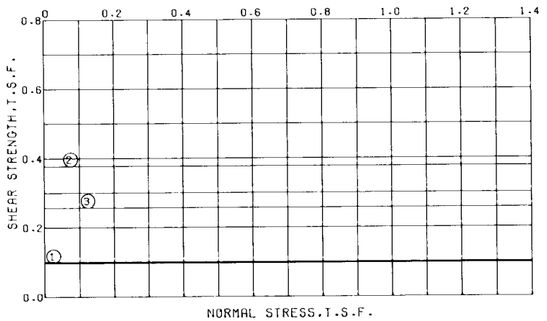
SHEAR STRENGTH
TONS / SQ.FT.
0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8

WET DENSITY
POUNDS / CU.FT.
80 100 120

NORMAL STRESS
TONS / SQ. FT.
0.0 1.0 2.0



PLASTICITY CHART



SHEAR STRENGTH DATA

ENVELOPE NO.	ENVELOPE EL.	TYPE	STRENGTH Φ	STRENGTH C - TSF	CLASS
1	2.50	Q	0.0	0.110	CL
2	18.00	Q	0.0	0.380	CH
3	33.00	Q	0.0	0.270	CH

LOAD P TONS / SQ. FT.

VOID RATIO

CONSOLIDATION DATA

○ - (UC) UNCONFINED COMPRESSION TEST
■ - (Q) UNCONSOLIDATED - UNDRAINED SHEAR TEST
▲ - (R) CONSOLIDATED - UNDRAINED SHEAR TEST
▣ - (S) CONSOLIDATED - DRAINED SHEAR TEST

BORINGS WERE TAKEN WITH A 5 INCH DIAMETER STEEL TUBE PISTON TYPE SAMPLER

FOR SOIL BORING LEGEND SEE PLATE A

FOR LOCATION OF BORING SEE PLATE 59

WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

BORING HCL-2

U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

DATE: FEB. 90

FILE NO. H-2-30618

PLATE F82

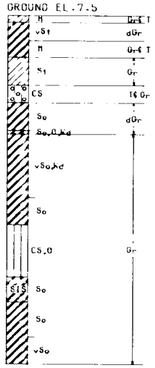
BCR. HCL-3

STA. 994+73

5 FT. RT. B/L

7-8 MAY 1986

GROUND EL. 7.5



ELEVATIONS IN FEET - N.G.V.D.

TEST DATA

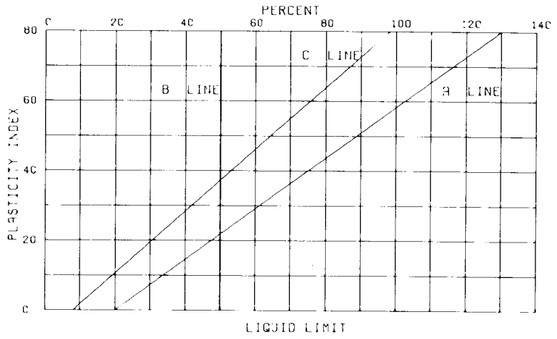
WATER CONTENT
% WATER. DRY WEIGHT
20 40 60 80 100 120 140

SHEAR STRENGTH
TONS / SQ.FT.
0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8

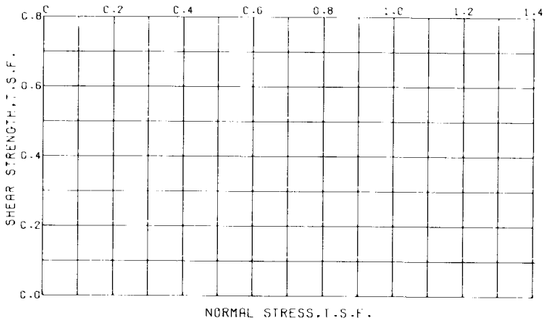
WET DENSITY
POUNDS / CU.FT.
80 100 120

NORMAL STRESS
TONS / SQ. FT.
0.0 1.0 2.0

1.99

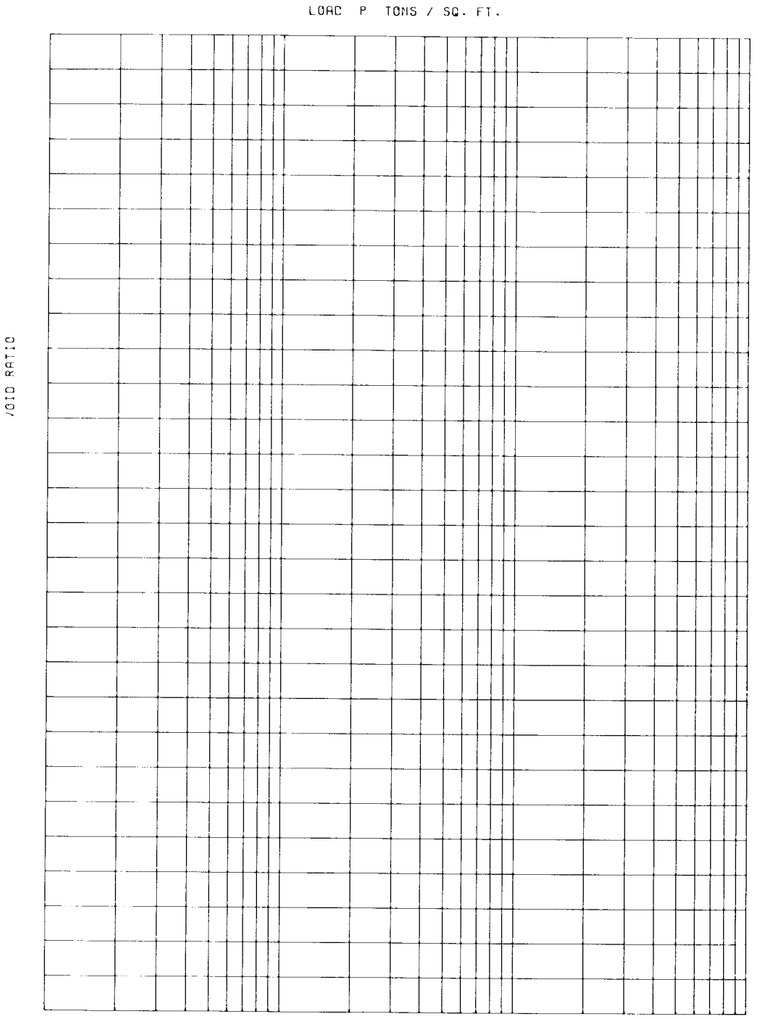


PLASTICITY CHART



SHEAR STRENGTH DATA

ENVELOPE NO.	ENVELOPE EL.	TYPE	STRENGTH Φ	STRENGTH C TSF	CLASS



CONSOLIDATION DATA

○ - (UC) UNCONFINED COMPRESSION TEST
■ - (C) UNCONSOLIDATED - UNDRAINED SHEAR TEST
▲ - (R) CONSOLIDATED - UNDRAINED SHEAR TEST
▯ - (S) CONSOLIDATED - DRAINED SHEAR TEST

BORINGS WERE TAKEN WITH A 3 INCH DIAMETER STEEL TUBE PISTON TYPE SAMPLER

FOR SOIL BORING LEGEND SEE PLATE A

FOR LOCATION OF BORING SEE PLATE 2

WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

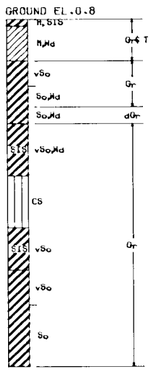
BORING HCL-3

U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

DATE: FEB. 90

FILE NO. H-2-30618

BOR. HCL-4
STA. 984+83
40 FT. RT. B/L
8-9 MAY 1986
GROUND EL. 0.8

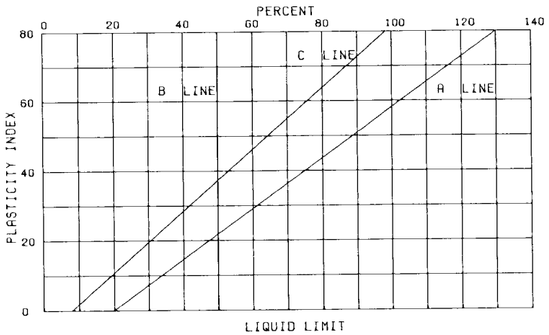


ELEVATIONS IN FEET - N.G.V.D.

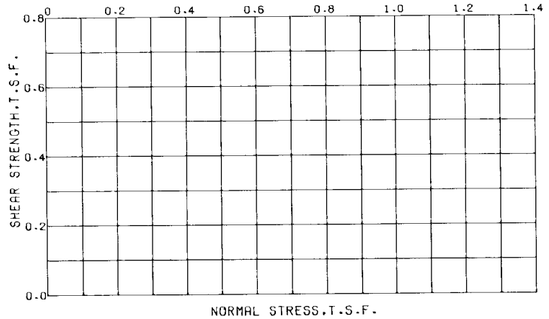
TEST DATA

WATER CONTENT % WATER, DRY WEIGHT	SHEAR STRENGTH TONS / SQ.FT.	WET DENSITY POUNDS / CU.FT.	NORMAL STRESS TONS / SQ. FT.
20 40 60 80 100 120 140	0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8	80 100 120	0.0 1.0 2.0

WC301



PLASTICITY CHART



SHEAR STRENGTH DATA

ENVELOPE NO.	ENVELOPE EL.	TYPE	STRENGTH Φ	STRENGTH C - TSF	CLASS

LOAD P TONS / SQ. FT.

VOID RATIO

CONSOLIDATION DATA

○ - (UC) UNCONFINED COMPRESSION TEST
■ - (Q) UNCONSOLIDATED - UNDRAINED SHEAR TEST
▲ - (R) CONSOLIDATED - UNDRAINED SHEAR TEST
◫ - (S) CONSOLIDATED - DRAINED SHEAR TEST

BORINGS WERE TAKEN WITH A 3 INCH DIAMETER STEEL TUBE PISTON TYPE SAMPLER
FOR SOIL BORING LEGEND SEE PLATE A
FOR LOCATION OF BORING SEE PLATE 56

WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

BORING HCL-4

U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

DATE: FEB. 90
FILE NO. H-2-30618

PLATE F84

BOR. HCL-5
STA. 974+87
6 FT. RT. B/L
21 MAY 1986
GROUND EL. 5.8

ELEVATIONS IN FEET - N.G.V.D.

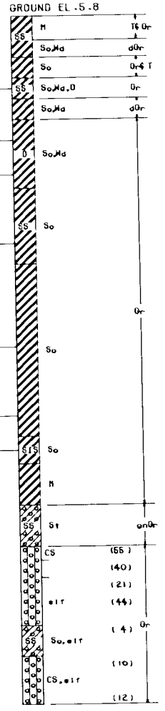
TEST DATA

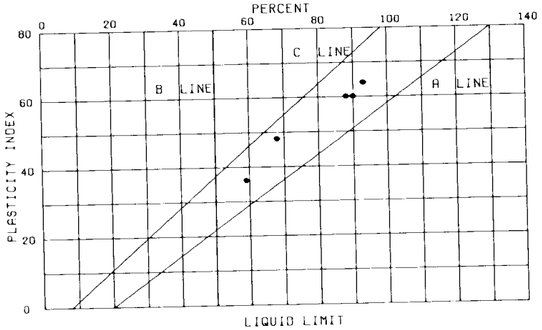
WATER CONTENT
% WATER, DRY WEIGHT
20 40 60 80 100 120 140

SHEAR STRENGTH
TONS / SQ.FT.
0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8

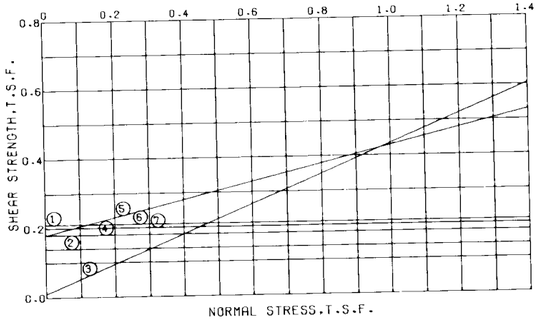
WET DENSITY
POUNDS / CU.FT.
80 100 120

NORMAL STRESS
TONS / SQ. FT.
0.0 1.0 2.0





PLASTICITY CHART



SHEAR STRENGTH DATA

ENVELOPE NO.	ENVELOPE EL.	TYPE	STRENGTH Φ	STRENGTH C - TSF	CLASS
1	4.70	Q	0.0	0.210	CH
2	12.20	Q	0.0	0.140	CH
3	17.20	R	23.0	0.010	CH
4	27.20	Q	0.0	0.180	CH
5	52.20	R	14.0	0.180	CH
6	57.20	Q	0.0	0.210	CH
7	42.20	Q	0.0	0.200	CH

LOAD P TONS / SQ. FT.

VOID RATIO

CONSOLIDATION DATA

○ - (UC) UNCONFINED COMPRESSION TEST
■ - (Q) UNCONSOLIDATED - UNDRAINED SHEAR TEST
▲ - (R) CONSOLIDATED - UNDRAINED SHEAR TEST
▽ - (S) CONSOLIDATED - DRAINED SHEAR TEST
BORINGS WERE TAKEN WITH A 6 INCH DIAMETER STEEL TUBE PISTON TYPE SAMPLER
FOR SOIL BORING LEGEND SEE PLATE A
FOR LOCATION OF BORING SEE PLATE 56

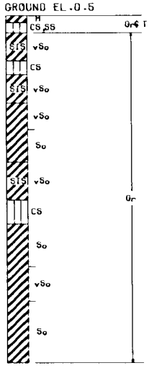
WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

BORING HCL-5

U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS
DATE: FEB. 90
FILE NO. H-2-30618

PLATE F85

BOR. HCL-6
STA. 964+73
23 FT. RT. B/L
9 MAY 1986
GROUND EL. 0.5



ELEVATIONS IN FEET - N.G.V.D.

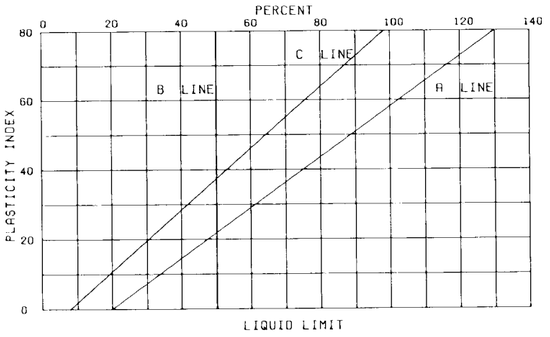
TEST DATA

WATER CONTENT
% WATER, DRY WEIGHT
20 40 60 80 100 120 140

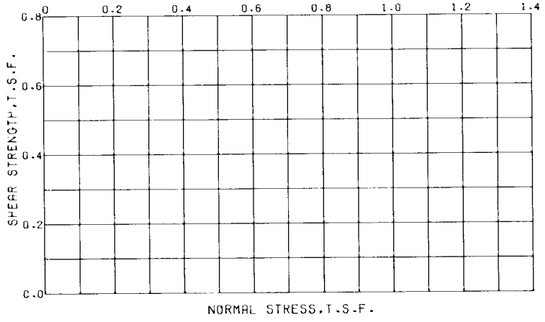
SHEAR STRENGTH
TONS / SQ.FT.
0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8

WET DENSITY
POUNDS / CU.FT.
80 100 120

NORMAL STRESS
TONS / SQ. FT.
0.0 1.0 2.0



PLASTICITY CHART



SHEAR STRENGTH DATA

ENVELOPE NO.	ENVELOPE EL.	TYPE	STRENGTH Φ	STRENGTH C - TSF	CLASS

LOAD P TONS / SQ. FT.

VOID RATIO

CONSOLIDATION DATA

○ - (UC) UNCONFINED COMPRESSION TEST
■ - (Q) UNCONSOLIDATED - UNDRAINED SHEAR TEST
▲ - (R) CONSOLIDATED - UNDRAINED SHEAR TEST
▽ - (S) CONSOLIDATED - DRAINED SHEAR TEST

BORINGS WERE TAKEN WITH A 3 INCH DIAMETER STEEL TUBE PISTON TYPE SAMPLER

FOR SOIL BORING LEGEND SEE PLATE A

FOR LOCATION OF BORING SEE PLATE 5G

WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

BORING HCL-6

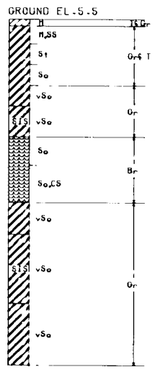
U S ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

DATE: FEB. 90

FILE NO. H-2-30618

PLATE F86

BOR. HCL-7
STA. 954+71
ON B/L
9 MAY 1986
GROUND EL. 5.5



ELEVATIONS IN FEET - N.G.V.D.

TEST DATA

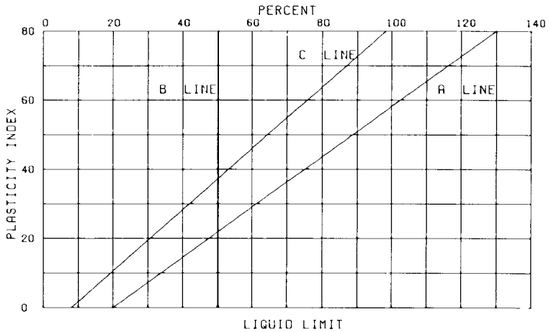
WATER CONTENT
% WATER, DRY WEIGHT
20 40 60 80 100 120 140

SHEAR STRENGTH
TONS / SQ.FT.
0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8

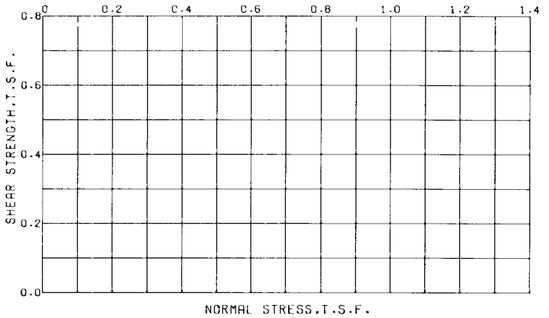
WC317
WC326

WET DENSITY
POUNDS / CU.FT.
80 100 120

NORMAL STRESS
TONS / SQ. FT.
0.0 1.0 2.0



PLASTICITY CHART



SHEAR STRENGTH DATA

ENVELOPE NO.	ENVELOPE EL.	TYPE	STRENGTH Φ	STRENGTH C - TSF	CLASS

LOAD P TONS / SQ. FT.

VOID RATIO

CONSOLIDATION DATA

○ - (UC) UNCONFINED COMPRESSION TEST
■ - (Q) UNCONSOLIDATED - UNDRAINED SHEAR TEST
▲ - (R) CONSOLIDATED - UNDRAINED SHEAR TEST
⊡ - (S) CONSOLIDATED - DRAINED SHEAR TEST

BORINGS WERE TAKEN WITH A 3 INCH DIAMETER STEEL TUBE PISTON TYPE SAMPLER

FOR SOIL BORING LEGEND SEE PLATE A

FOR LOCATION OF BORING SEE PLATE 56

WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

BORING HCL-7

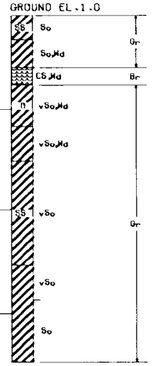
U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

DATE: FEB. 90

FILE NO. H-2-30618

PLATE F87

BOR. HCL-8
STA. 944+36
20 FT. LT. B/L
22 MAY 1986
GROUND EL. 1.0



TEST DATA

WATER CONTENT
% WATER, DRY WEIGHT
20 40 60 80 100 120 140

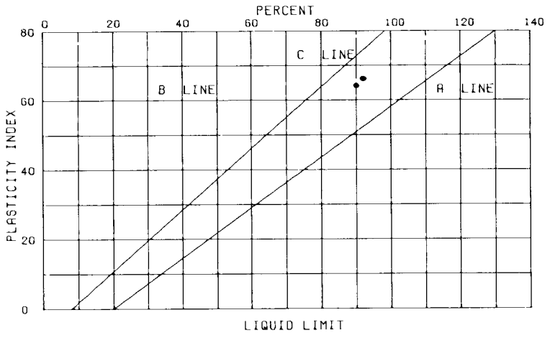
SHEAR STRENGTH
TONS / SQ.FT.
0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8

WC393
WC143
WC214 LL170

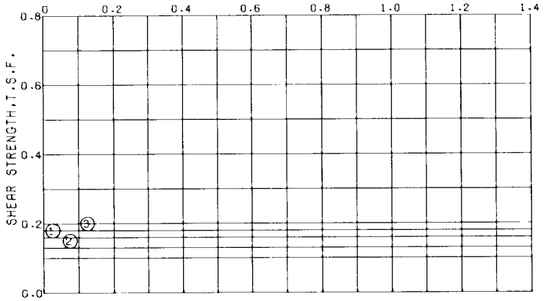
WET DENSITY
POUNDS / CU.FT.
80 100 120

NORMAL STRESS
TONS / SQ. FT.
0.0 1.0 2.0

ELEVATIONS IN FEET - N.G.V.D.
10 0 -10 -20 -30 -40 -50 -60 -70 -80 -90 -100 -110 -120 -130 -140



PLASTICITY CHART



SHEAR STRENGTH DATA

ENVELOPE NO.	ENVELOPE EL.	TYPE	STRENGTH Φ	STRENGTH C - TSF	CLASS
1	12.50	Q	0.0	0.160	CH
2	27.00	Q	0.0	0.130	CH
3	42.00	Q	0.0	0.180	CH

LOAD P TONS / SQ. FT.

VOID RATIO

CONSOLIDATION DATA

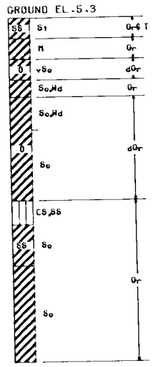
○ - (UC) UNCONFINED COMPRESSION TEST
■ - (Q) UNCONSOLIDATED - UNDRAINED SHEAR TEST
▲ - (R) CONSOLIDATED - UNDRAINED SHEAR TEST
⊡ - (S) CONSOLIDATED - DRAINED SHEAR TEST
BORINGS WERE TAKEN WITH A 5 INCH DIAMETER STEEL TUBE PISTON TYPE SAMPLER
FOR SOIL BORING LEGEND SEE PLATE A
FOR LOCATION OF BORING SEE PLATE 55

WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

BORING HCL-8

U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS
DATE: FEB. 90
FILE NO. H-2-30618

BOR. HCL-9
STA. 934+73
6 FT. LT. B/L
22 MAY 1986
GROUND EL. 5.3



ELEVATIONS IN FEET - N.G.V.D.

TEST DATA

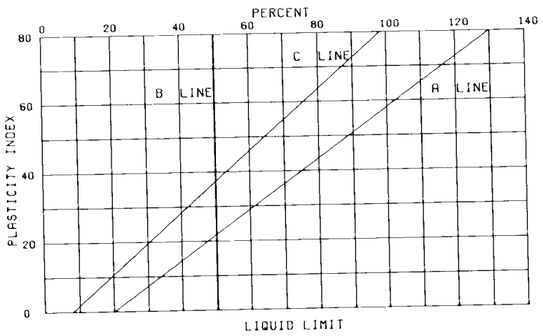
WATER CONTENT
% WATER. DRY WEIGHT
20 40 60 80 100 120 140

SHEAR STRENGTH
TONS / SQ.FT.
0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8

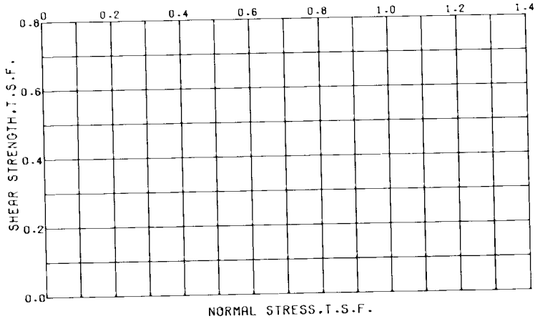
WC231
WC283
WC192

WET DENSITY
POUNDS / CU.FT.
80 100 120

NORMAL STRESS
TONS / SQ. FT.
0.0 1.0 2.0



PLASTICITY CHART



SHEAR STRENGTH DATA

ENVELOPE NO.	ENVELOPE EL.	TYPE	STRENGTH Φ	STRENGTH C - TSF	CLASS

LOAD P TONS / SQ. FT.

VOID RATIO

CONSOLIDATION DATA

○ - (UC) UNCONFINED COMPRESSION TEST
■ - (Q) UNCONSOLIDATED - UNDRAINED SHEAR TEST
▲ - (R) CONSOLIDATED - UNDRAINED SHEAR TEST
▽ - (S) CONSOLIDATED - DRAINED SHEAR TEST
BORINGS WERE TAKEN WITH A 3 INCH DIAMETER STEEL TUBE PISTON TYPE SAMPLER
FOR SOIL BORING LEGEND SEE PLATE A
FOR LOCATION OF BORING SEE PLATE 55

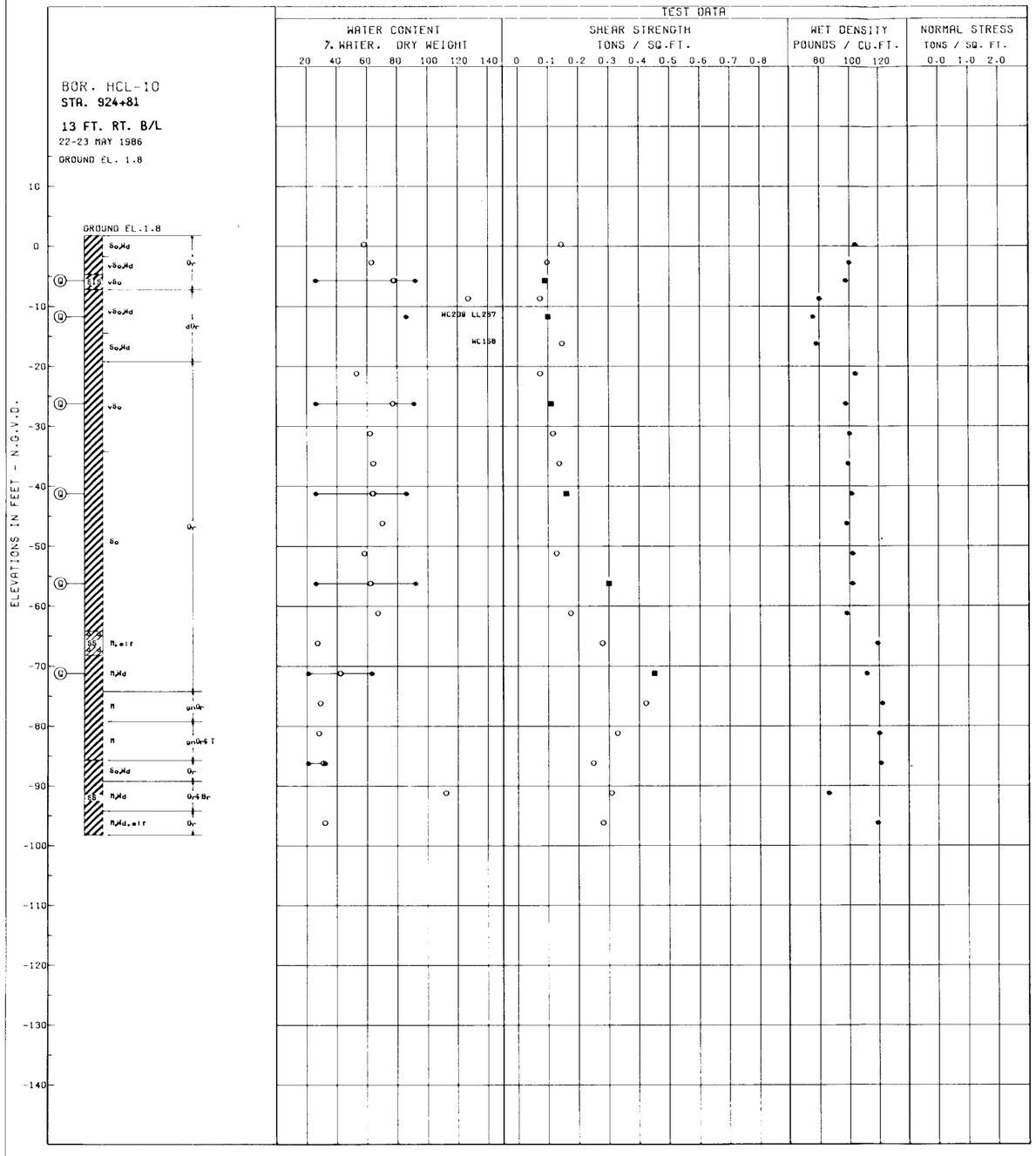
WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

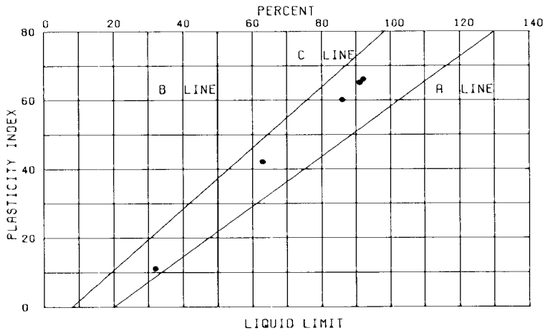
BORING HCL-9

U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS
DATE: FEB. 90
FILE NO. H-2-30618

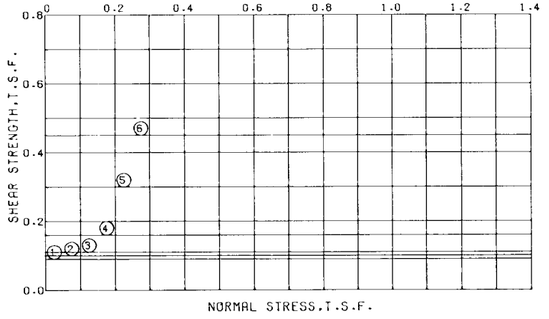
PLATE F89

BOR. HCL-10
STA. 924+81
13 FT. RT. B/L
22-23 MAY 1986
GROUND EL. 1.8



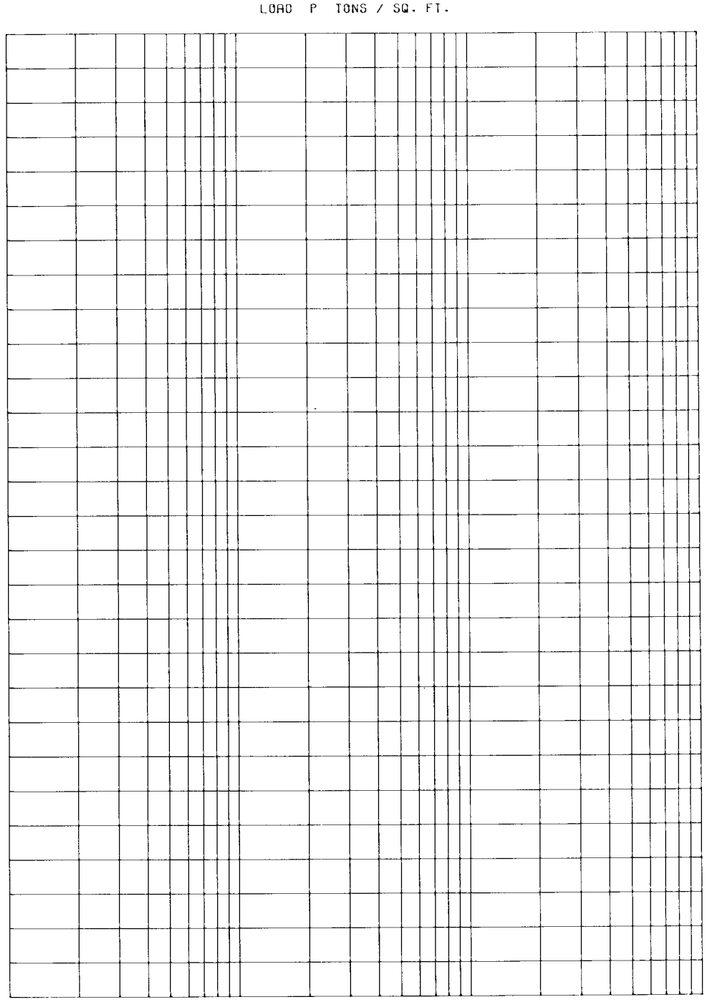


PLASTICITY CHART



SHEAR STRENGTH DATA

ENVELOPE NO.	ENVELOPE EL.	TYPE	STRENGTH Φ	STRENGTH C - TSF	CLASS
1	5.70	Q	0.0	0.090	CH
2	11.70	Q	0.0	0.100	CH
3	26.20	Q	0.0	0.110	CH
4	41.20	Q	0.0	0.160	CH
5	56.20	Q	0.0	0.300	CH
6	71.20	Q	0.0	0.450	CH



CONSOLIDATION DATA

○ - (UC) UNCONFINED COMPRESSION TEST
■ - (Q) UNCONSOLIDATED - UNDRAINED SHEAR TEST
▲ - (R) CONSOLIDATED - UNDRAINED SHEAR TEST
⊡ - (S) CONSOLIDATED - DRAINED SHEAR TEST

BORINGS WERE TAKEN WITH A 5 INCH DIAMETER STEEL TUBE PISTON TYPE SAMPLER

FOR SOIL BORING LEGEND SEE PLATE A

FOR LOCATION OF BORING SEE PLATE 55

WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

BORING HCL-10

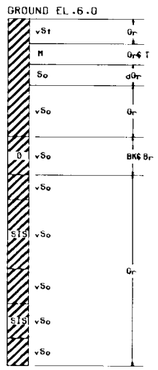
U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

DATE: FEB. 90

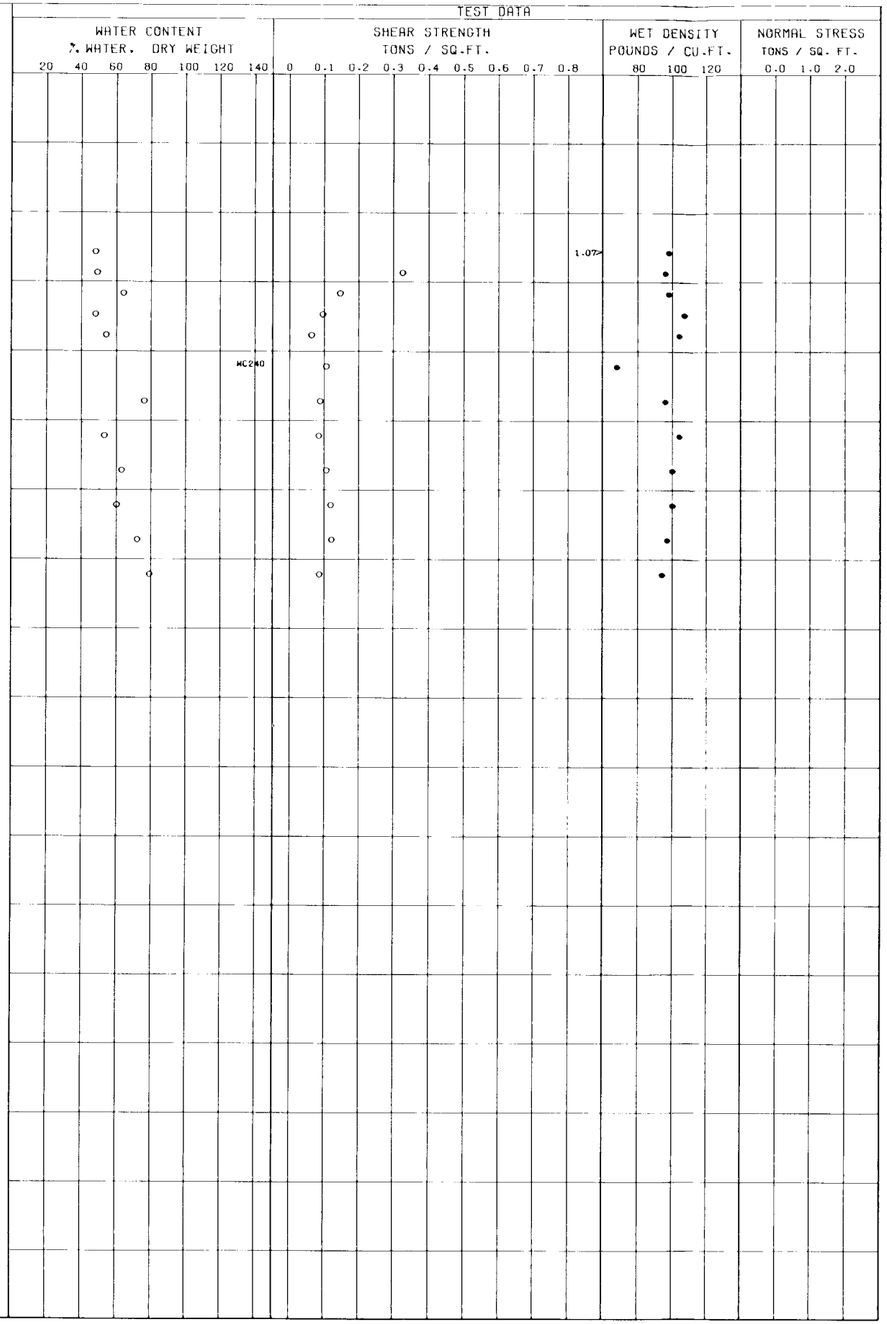
FILE NO. H-2-30618

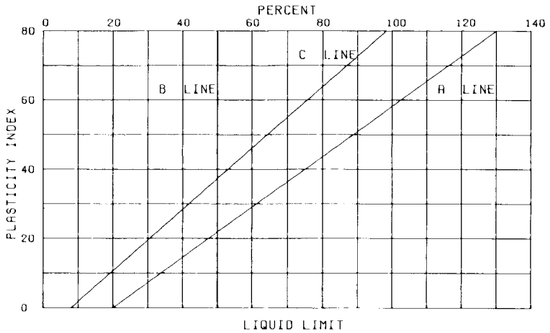
BOR. HCL-11
STA. 914+73

5 FT. LT. B/L
23 MAY 1986
GROUND EL. 6.0

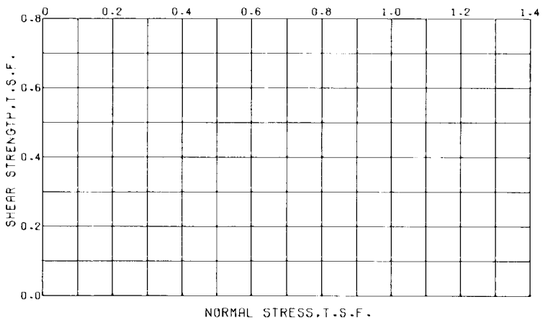


TEST DATA





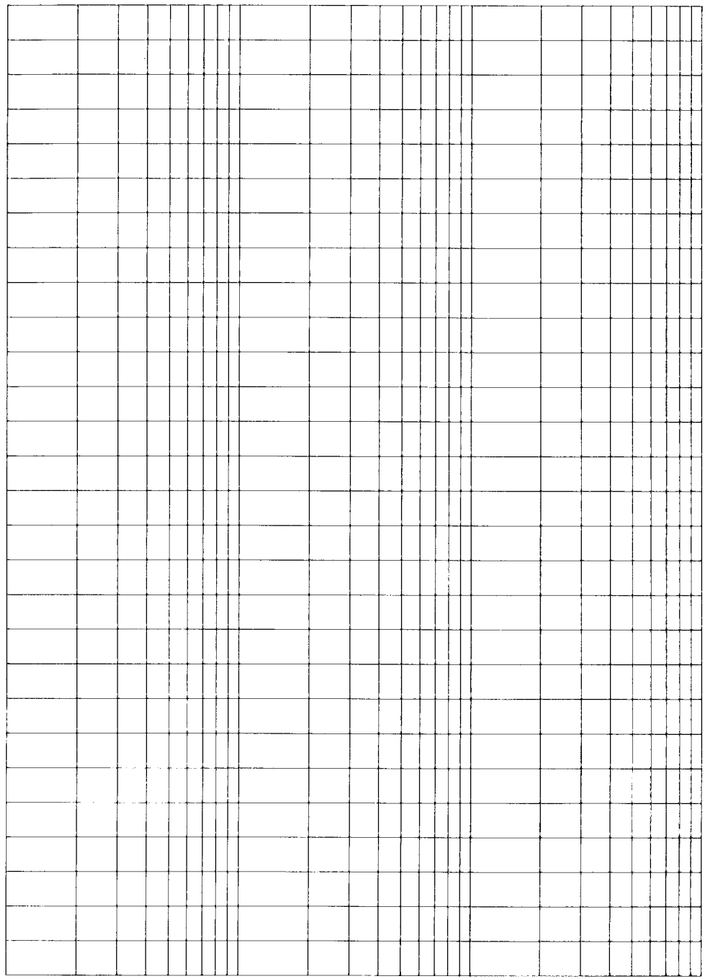
PLASTICITY CHART



SHEAR STRENGTH DATA

ENVELOPE NO.	ENVELOPE EL.	TYPE	STRENGTH Φ	STRENGTH C - TSF	CLASS

LOAD P TONS / SQ. FT.



CONSOLIDATION DATA

○ - (UC) UNCONFINED COMPRESSION TEST
■ - (Q) UNCONSOLIDATED - UNDRAINED SHEAR TEST
▲ - (R) CONSOLIDATED - UNDRAINED SHEAR TEST
▯ - (S) CONSOLIDATED - DRAINED SHEAR TEST

BORINGS WERE TAKEN WITH A 3 INCH DIAMETER STEEL TUBE PISTON TYPE SAMPLER

FOR SOIL BORING LEGEND SEE PLATE A

FOR LOCATION OF BORING SEE PLATE 55

WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

BORING HCL-11

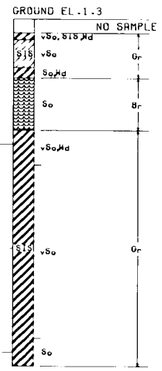
U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

DATE: FEB. 90

FILE NO H-2-30618

PLATE F91

BCR. HCL-12
STA. 904+28
25 FT. LT. B/L
7 JULY 1986
GROUND EL. 1.3



ELEVATIONS IN FEET - N.G.V.D.

TEST DATA

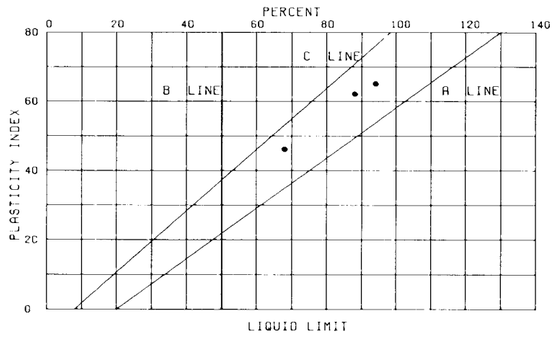
WATER CONTENT
% WATER, DRY WEIGHT
20 40 60 80 100 120 140

SHEAR STRENGTH
TONS / SQ.FT.
0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8

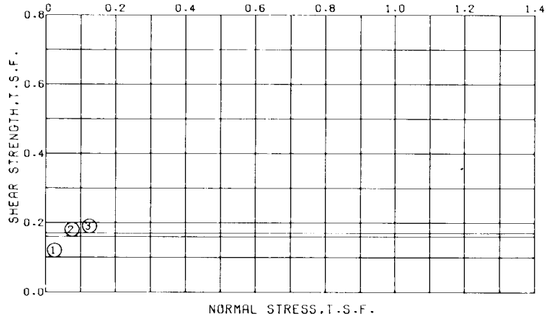
PL 154 LL 394
WC 343

WET DENSITY
POUNDS / CU.FT.
80 100 120

NORMAL STRESS
TONS / SQ. FT.
0.0 1.0 2.0



PLASTICITY CHART



SHEAR STRENGTH DATA

ENVELOPE NO.	ENVELOPE EL.	TYPE	STRENGTH Φ	STRENGTH C - TSF	CLASS
1	16.70	Q	0.0	0.100	CH
2	31.70	Q	0.0	0.160	CH
3	46.70	Q	0.0	0.170	CH

LOAD P TONS / SQ. FT.

VOID RATIO

CONSOLIDATION DATA

○ - (UC) UNCONFINED COMPRESSION TEST
■ - (Q) UNCONSOLIDATED - UNDRAINED SHEAR TEST
▲ - (R) CONSOLIDATED - UNDRAINED SHEAR TEST
⊡ - (S) CONSOLIDATED - DRAINED SHEAR TEST

BORINGS WERE TAKEN WITH A 5 INCH DIAMETER STEEL TUBE PISTON TYPE SAMPLER

FOR SOIL BORING LEGEND SEE PLATE A

FOR LOCATION OF BORING SEE PLATE 54

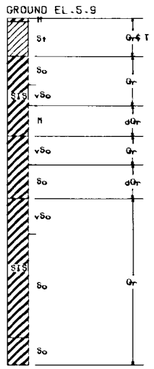
WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

BORING HCL-12

U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

DATE: FEB. 90 FILE NO H-2-30618

BOR. HCL-13
STA. 894+81
ON B/L
23 MAY 1986
GROUND EL. 5.9



TEST DATA

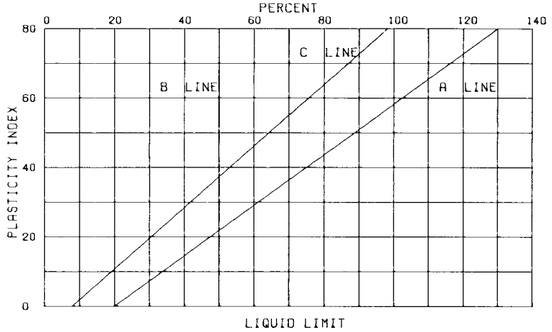
WATER CONTENT
% WATER, DRY WEIGHT
20 40 60 80 100 120 140

SHEAR STRENGTH
TONS / SQ.FT.
0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8

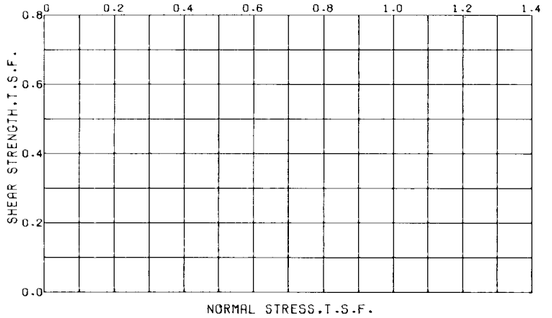
WET DENSITY
POUNDS / CU.FT.
80 100 120

NORMAL STRESS
TONS / SQ. FT.
0.0 1.0 2.0

ELEVATIONS IN FEET - N.G.V.D.
10 0 -10 -20 -30 -40 -50 -60 -70 -80 -90 -100 -110 -120 -130 -140

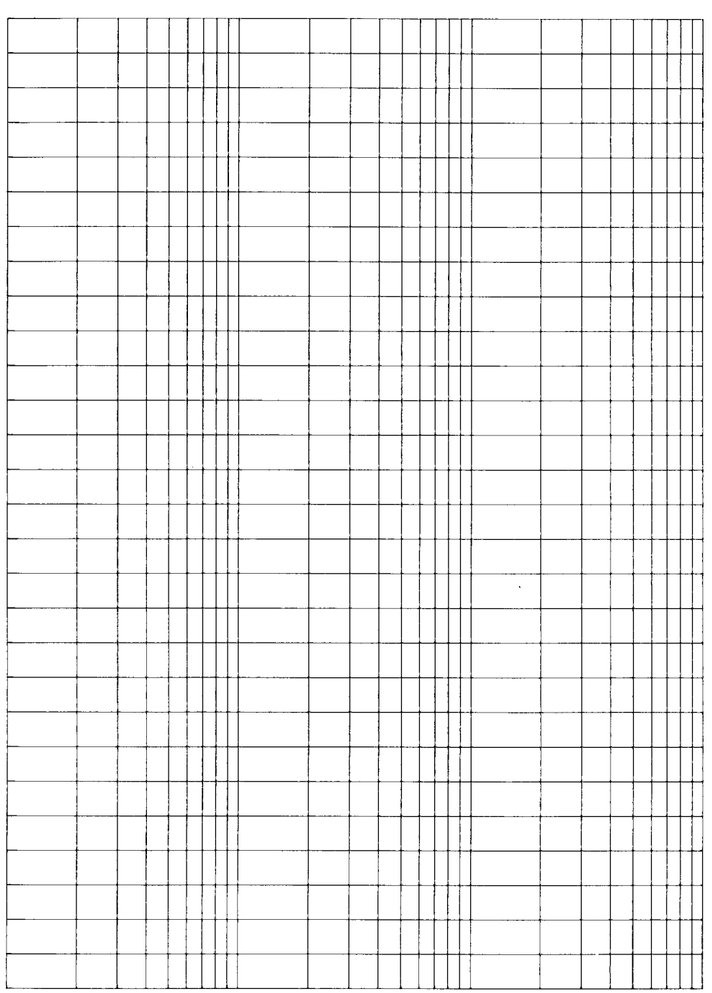


PLASTICITY CHART



SHEAR STRENGTH DATA

ENVELOPE NO.	ENVELOPE EL.	TYPE	STRENGTH Φ	STRENGTH C - TSF	CLASS



CONSOLIDATION DATA

○ - (UC) UNCONFINED COMPRESSION TEST
■ - (Q) UNCONSOLIDATED - UNDRAINED SHEAR TEST
▲ - (R) CONSOLIDATED - UNDRAINED SHEAR TEST
⊡ - (S) CONSOLIDATED - DRAINED SHEAR TEST

BORINGS WERE TAKEN WITH A 3 INCH DIAMETER STEEL TUBE PISTON TYPE SAMPLER

FOR SOIL BORING LEGEND SEE PLATE A

FOR LOCATION OF BORING SEE PLATE 54

WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

BORING HCL-13

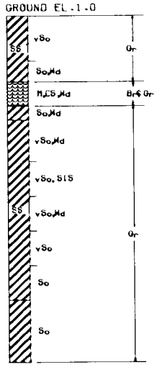
U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

DATE: FEB. 90

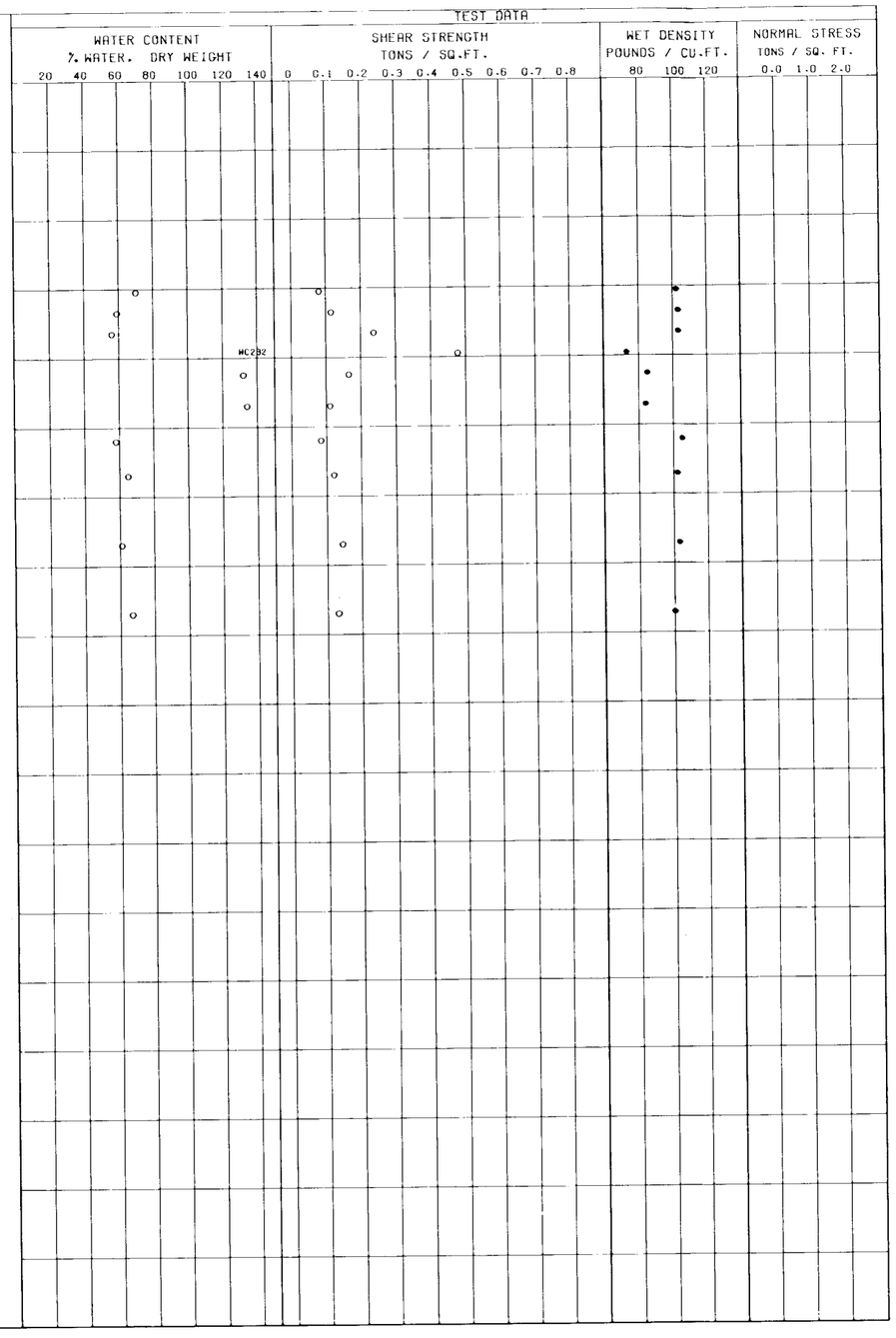
FILE NO. H-2-30618

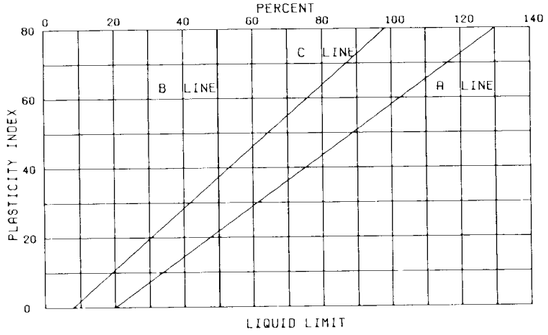
PLATE F93

BOR. HCL-14
STA. 883+81
30 FT. LT. B/L
7 JULY 1986
GROUND EL. 1.0

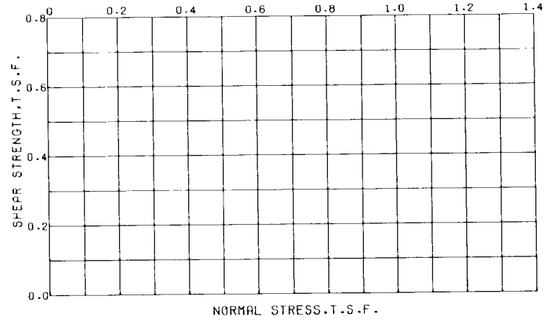


TEST DATA





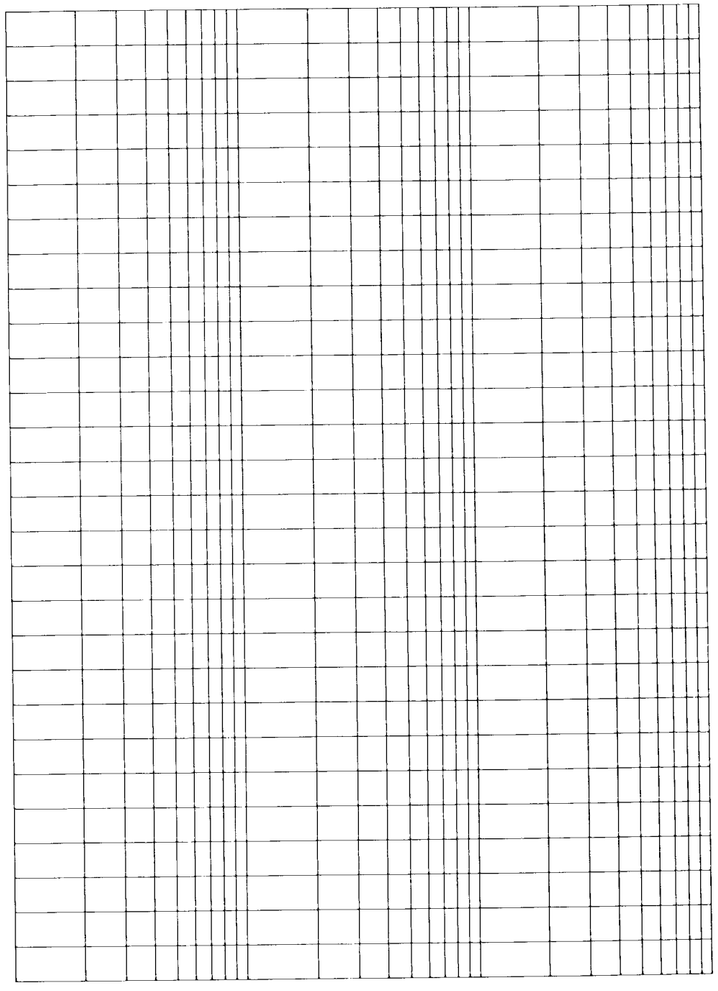
PLASTICITY CHART



SHEAR STRENGTH DATA

ENVELOPE NO.	ENVELOPE EL.	TYPE	STRENGTH Φ	STRENGTH C - TSF	CLASS

LOAD P TONS / SQ. FT.



CONSOLIDATION DATA

○ - (UC) UNCONFINED COMPRESSION TEST
■ - (Q) UNCONSOLIDATED - UNDRAINED SHEAR TEST
▲ - (R) CONSOLIDATED - UNDRAINED SHEAR TEST
⊡ - (S) CONSOLIDATED - DRAINED SHEAR TEST

BORINGS WERE TAKEN WITH A 3 INCH DIAMETER STEEL TUBE PISTON TYPE SAMPLER

FOR SOIL BORING LEGEND SEE PLATE A

FOR LOCATION OF BORING SEE PLATE 53

WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

BORING HCL-14

U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

DATE-FEB. 90

FILE NO. H-2-30618

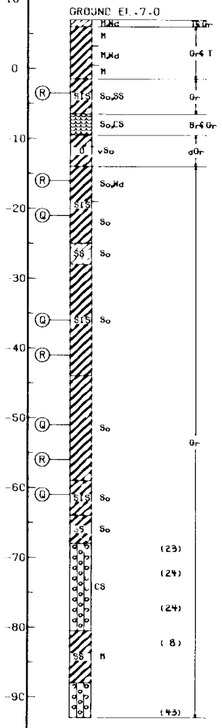
BOR. HCL-15

STA. 873+61

ON B/L

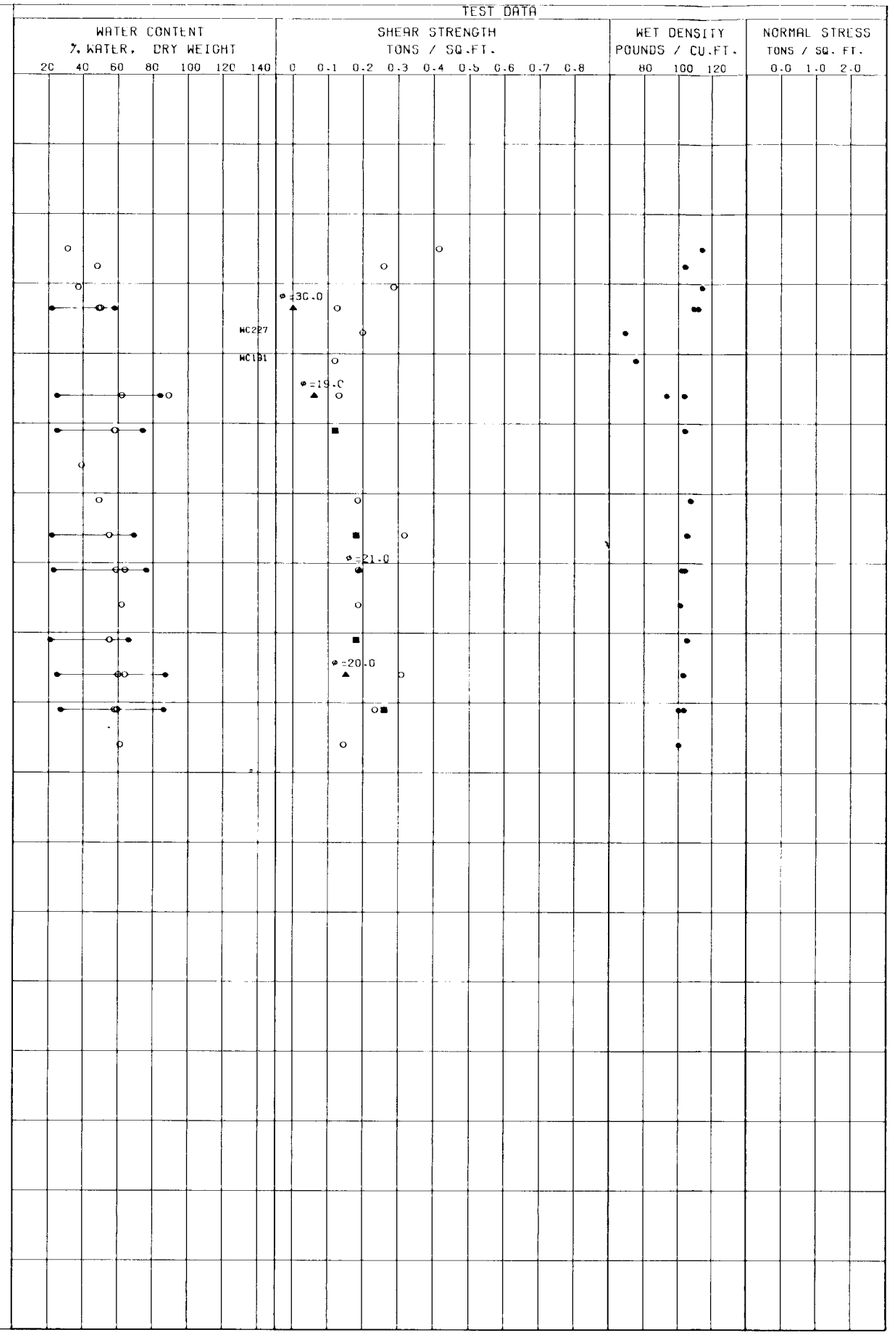
8 JULY 1986

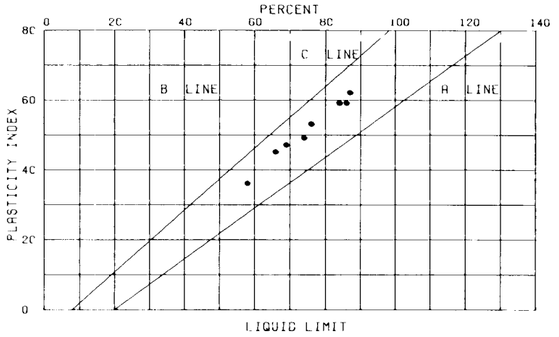
GROUND EL. 7.0



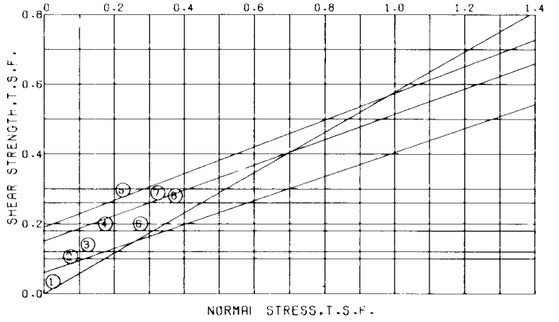
ELEVATIONS IN FEET - N.G.V.D.

TEST DATA





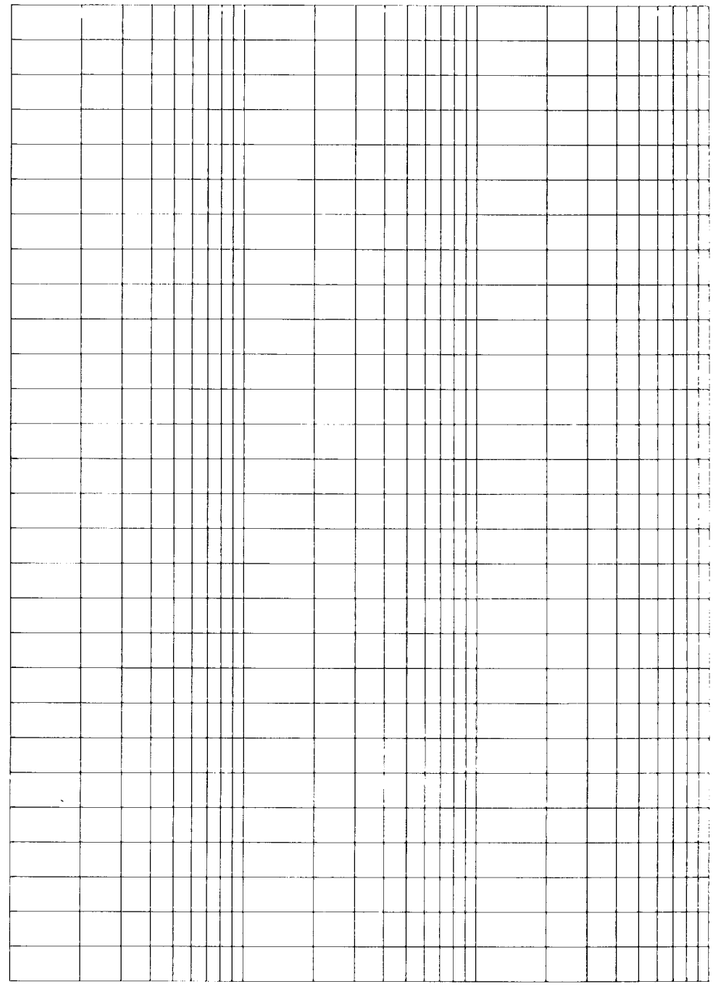
PLASTICITY CHART



SHEAR STRENGTH DATA

ENVELOPE NO.	ENVELOPE EL.	TYPE	STRENGTH Φ	STRENGTH C - TSF	CLASS
1	3.50	R	30.0	0.000	CH
2	16.00	R	19.0	0.060	CH
3	21.00	Q	0.0	0.120	CH
4	36.00	Q	0.0	0.180	CH
5	41.00	R	21.0	0.190	CH
6	51.00	Q	0.0	0.180	CH
7	56.00	R	20.0	0.150	CH
8	61.00	Q	0.0	0.260	CH

LOAD P TONS / SQ. FT.



CONSOLIDATION DATA

○ - (UC) UNCONFINED COMPRESSION TEST
■ - (Q) UNCONSOLIDATED - UNDRAINED SHEAR TEST
▲ - (R) CONSOLIDATED - UNDRAINED SHEAR TEST
▯ - (S) CONSOLIDATED - DRAINED SHEAR TEST

BORINGS WERE TAKEN WITH A 5 INCH DIAMETER STEEL TUBE PISTON TYPE SAMPLER

FOR SOIL BORING LEGEND SEE PLATE A

FOR LOCATION OF BORING SEE PLATE 53

WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

BORING HCL-15

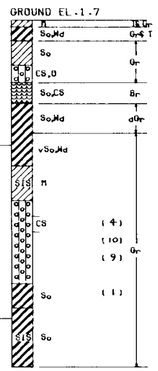
U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

DATE: FEB. 90

FILE NO. H-2-30618

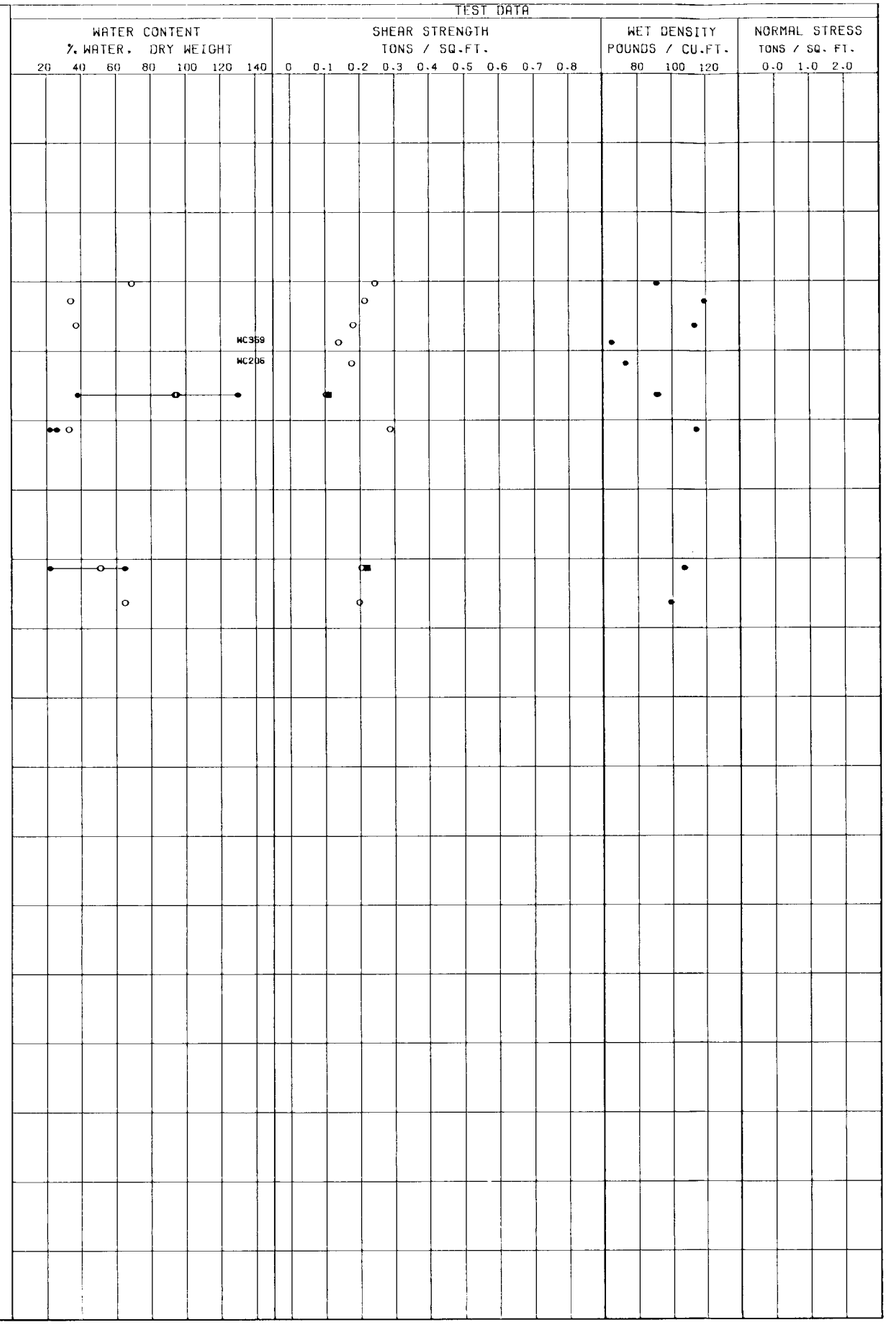
BOR. HCL-16
STA. 863+48

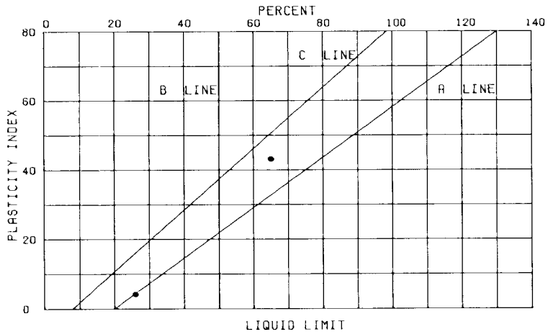
43 FT. LT. B/L
7 JULY 1986
GROUND EL. 1.7



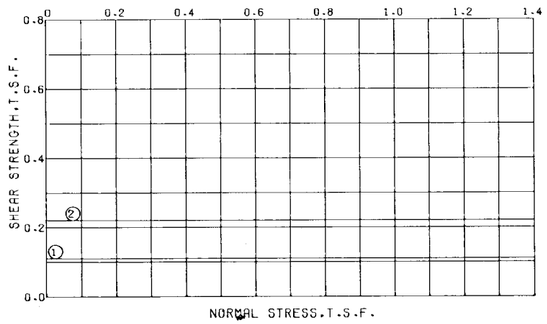
ELEVATIONS IN FEET - N.G.V.D.

TEST DATA





PLASTICITY CHART

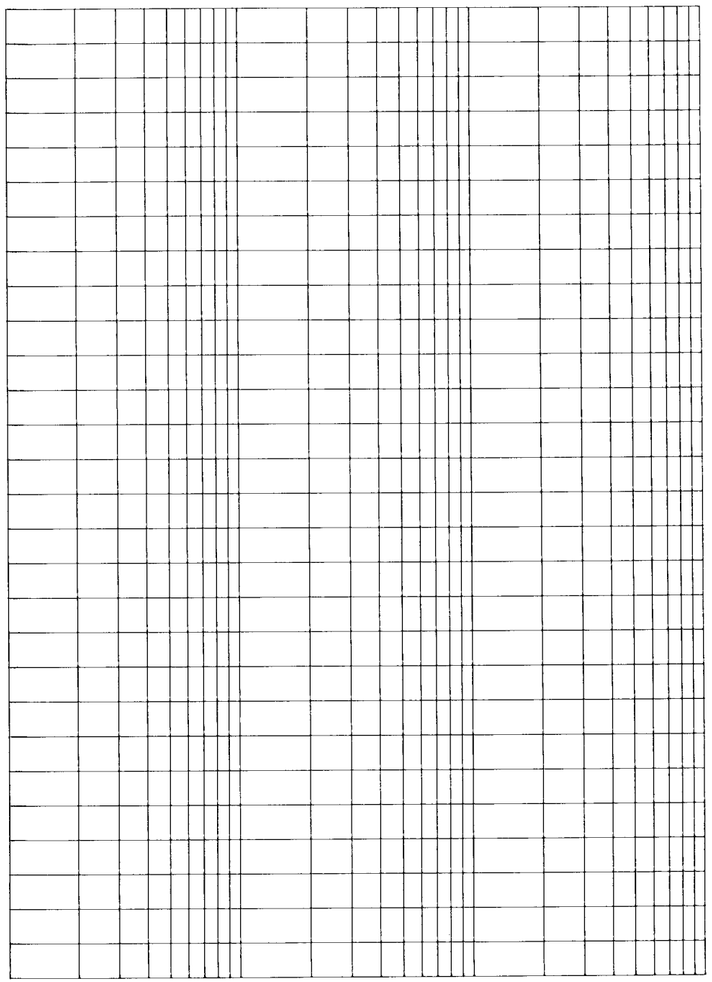


SHEAR STRENGTH DATA

ENVELOPE NO.	ENVELOPE EL.	TYPE	STRENGTH Φ	STRENGTH C - TSF	CLASS
1	16.30	Q	0.0	0.110	CH
2	41.30	Q	0.0	0.220	CH

VOID RATIO

LOAD P TONS / SQ. FT.



CONSOLIDATION DATA

○ - (UC) UNCONFINED COMPRESSION TEST
■ - (Q) UNCONSOLIDATED - UNDRAINED SHEAR TEST
▲ - (R) CONSOLIDATED - UNDRAINED SHEAR TEST
▽ - (S) CONSOLIDATED - DRAINED SHEAR TEST

BORINGS WERE TAKEN WITH A 6 INCH DIAMETER STEEL TUBE PISTON TYPE SAMPLER

FOR SOIL BORING LEGEND SEE PLATE A

FOR LOCATION OF BORING SEE PLATE 52

WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

BORING HCL- 16

U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

DATE: FEB. 90

FILE NO. H-2-30618

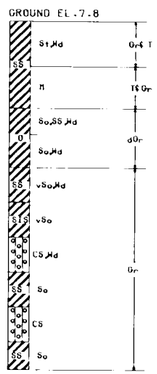
BOR. HCL-17

STA. 853+43

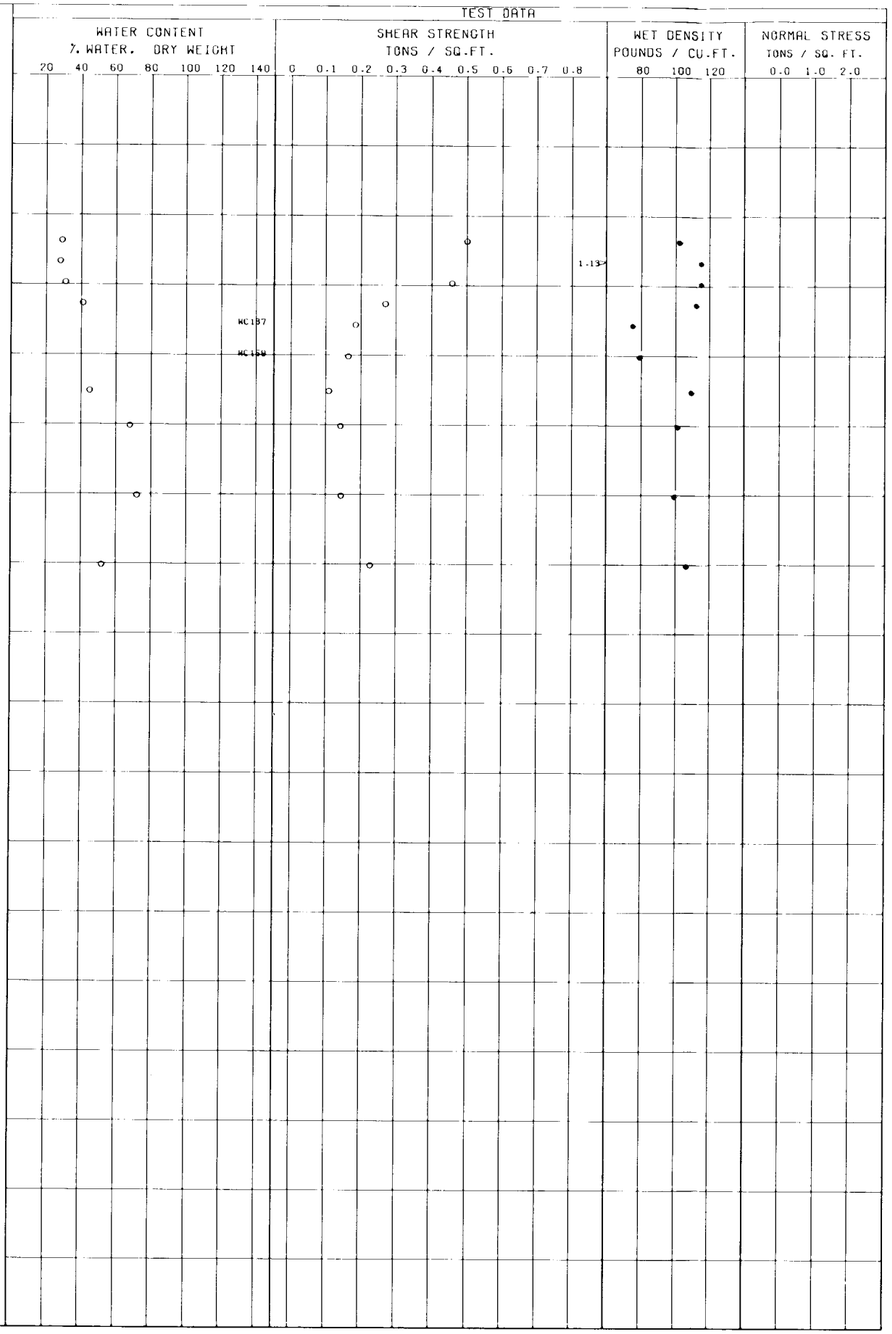
ON B/L

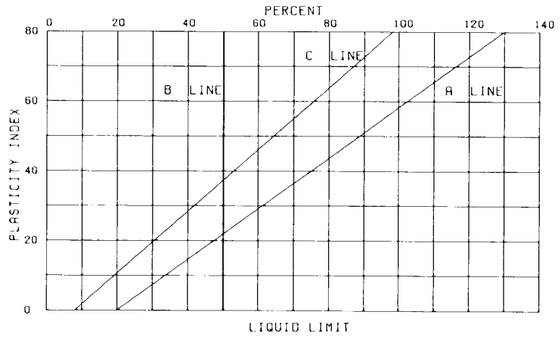
7 JULY 1986

GROUND EL. 7.8

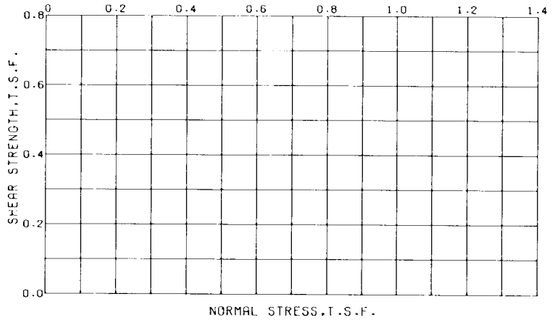


TEST DATA



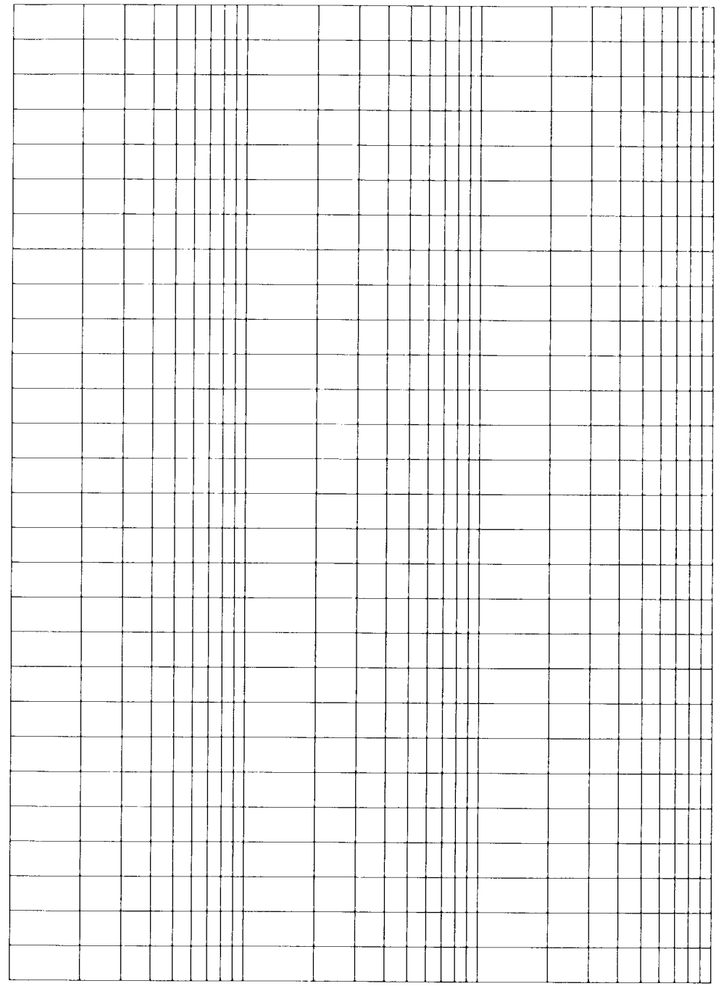


PLASTICITY CHART



SHEAR STRENGTH DATA

ENVELOPE NO.	ENVELOPE EL.	TYPE	STRENGTH Φ	STRENGTH C - TSF	CLASS



CONSOLIDATION DATA

○ - (UC) UNCONFINED COMPRESSION TEST

■ - (Q) UNCONSOLIDATED - UNDRAINED SHEAR TEST

▲ - (R) CONSOLIDATED - UNDRAINED SHEAR TEST

⊡ - (S) CONSOLIDATED - DRAINED SHEAR TEST

BORINGS WERE TAKEN WITH A 3 INCH DIAMETER STEEL TUBE PISTON TYPE SAMPLER

FOR SOIL BORING LEGEND SEE PLATE A

FOR LOCATION OF BORING SEE PLATE 52

WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

BORING HCL-17

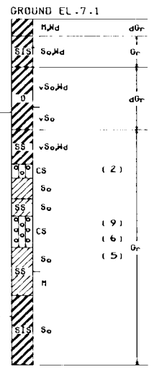
U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

DATE: FEB. 90

FILE NO. H-2-30618

PLATE F97

BOR. HCL-18
STA. 842+43
8 FT. LT. B/L
9 JULY 1986
GROUND EL. 7.1



ELEVATIONS IN FEET - N.G.V.D.

TEST DATA

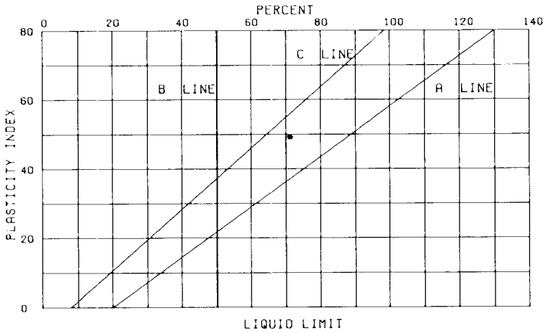
WATER CONTENT
% WATER, DRY WEIGHT
20 40 60 80 100 120 140

WC217
WC294 LL258

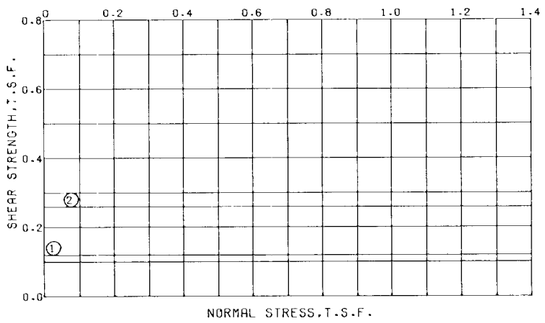
SHEAR STRENGTH
TONS / SQ.FT.
0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8

WET DENSITY
POUNDS / CU.FT.
80 100 120

NORMAL STRESS
TONS / SQ. FT.
0.0 1.0 2.0



PLASTICITY CHART



SHEAR STRENGTH DATA

ENVELOPE NO.	ENVELOPE EL.	TYPE	STRENGTH Φ	STRENGTH C - TSF	CLASS
1	6.40	Q	0.0	0.120	CH
2	35.90	Q	0.0	0.260	CH

LOAD P TONS / SQ. FT.

VOID RATIO

CONSOLIDATION DATA

○ - (UC) UNCONFINED COMPRESSION TEST
■ - (Q) UNCONSOLIDATED - UNDRAINED SHEAR TEST
▲ - (R) CONSOLIDATED - UNDRAINED SHEAR TEST
⊡ - (S) CONSOLIDATED - DRAINED SHEAR TEST

BORINGS WERE TAKEN WITH A 5 INCH DIAMETER STEEL TUBE PISTON TYPE SAMPLER

FOR SOIL BORING LEGEND SEE PLATE A

FOR LOCATION OF BORING SEE PLATE 51

WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

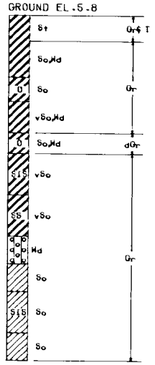
BORING HCL-18

U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

DATE FEB. 90

FILE NO. H-2-30618

BOR. HCL-19
STA. 832+13
ON B/L
9 JULY 1986
GROUND EL. 5.8



ELEVATIONS IN FEET - N.G.V.D.

TEST DATA

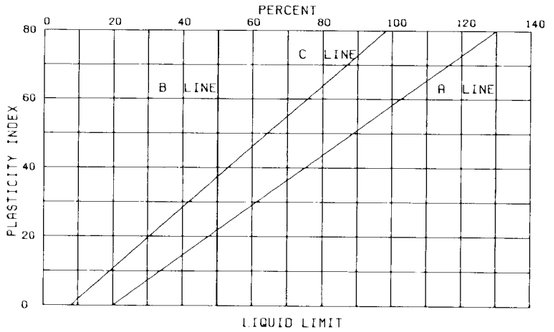
WATER CONTENT
% WATER. DRY WEIGHT
20 40 60 80 100 120 140

SHEAR STRENGTH
TONS / SQ.FT.
0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8

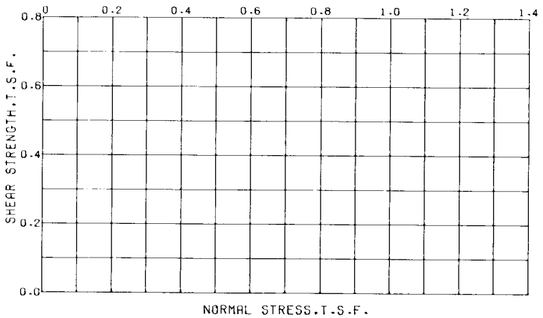
WET DENSITY
POUNDS / CU.FT.
80 100 120

NORMAL STRESS
TONS / SQ. FT.
0.0 1.0 2.0

WC 157
WC 155
0.92



PLASTICITY CHART



SHEAR STRENGTH DATA

ENVELOPE NO.	ENVELOPE EL.	TYPE	STRENGTH Φ	STRENGTH C - TSF	CLASS

LOAD P TONS / SQ. FT.

VOID RATIO

CONSOLIDATION DATA

○ - (UC) UNCONFINED COMPRESSION TEST
■ - (Q) UNCONSOLIDATED - UNDRAINED SHEAR TEST
▲ - (R) CONSOLIDATED - UNDRAINED SHEAR TEST
◫ - (S) CONSOLIDATED - DRAINED SHEAR TEST

BORINGS WERE TAKEN WITH A 3 INCH DIAMETER STEEL TUBE PISTON TYPE SAMPLER

FOR SOIL BORING LEGEND SEE PLATE A

FOR LOCATION OF BORING SEE PLATE 51

WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

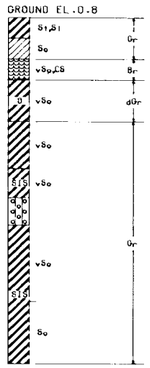
BORING HCL-19

U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

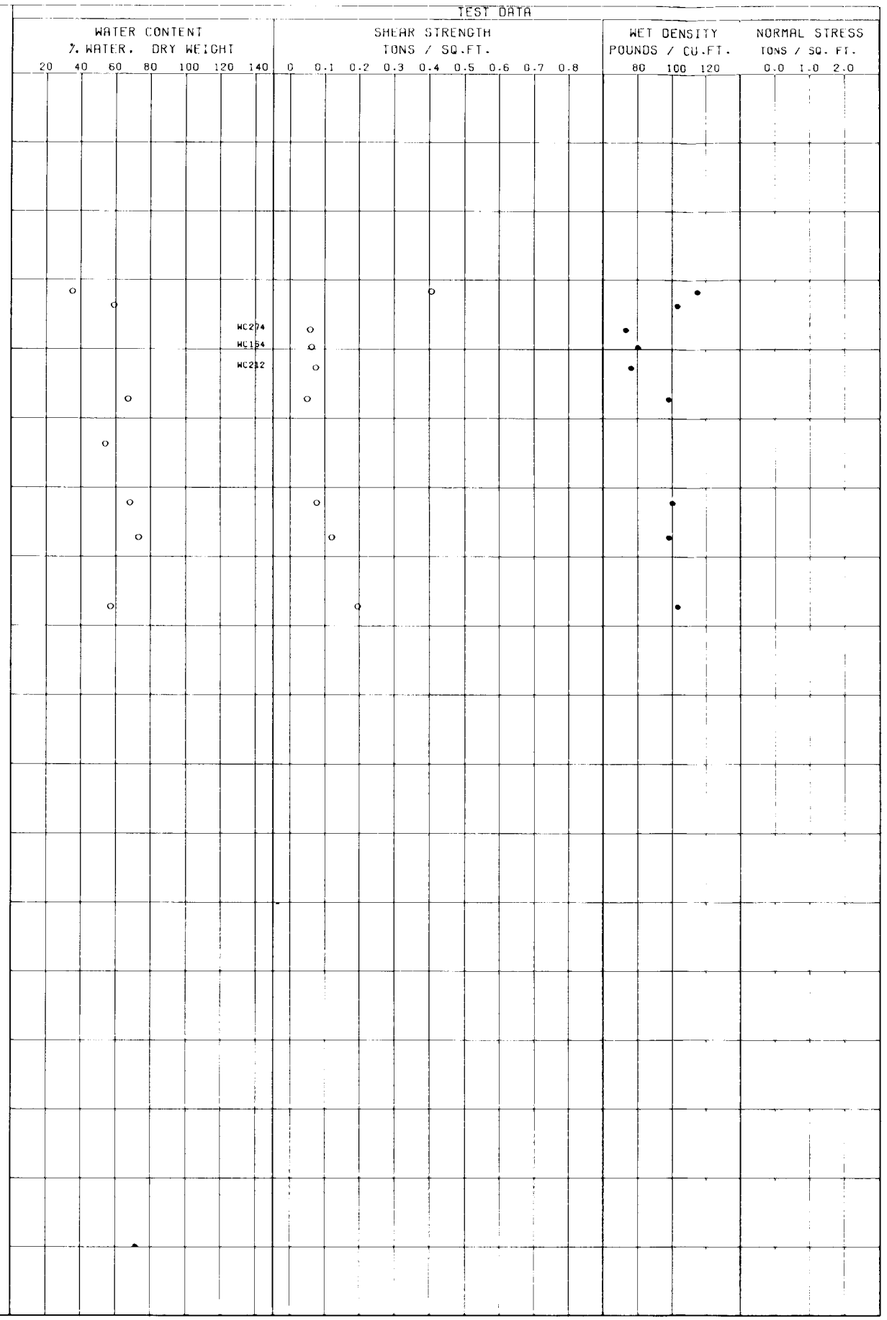
DATE FEB. 90

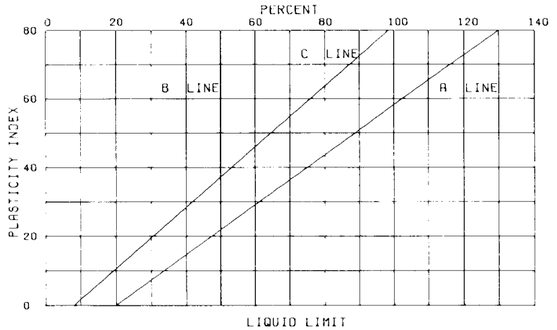
FILE NO. H-2-30618

BOR. HCL-20
STA. 821+93
25 FT. LT. B/L
9 JULY 1986
GROUND EL. 0.8

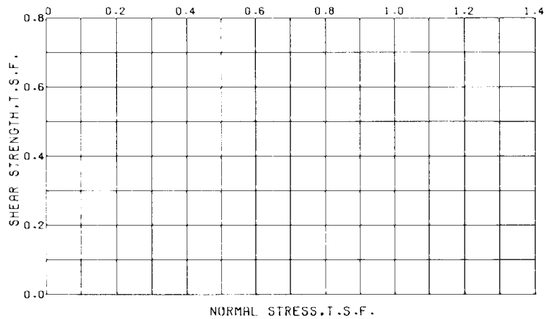


TEST DATA



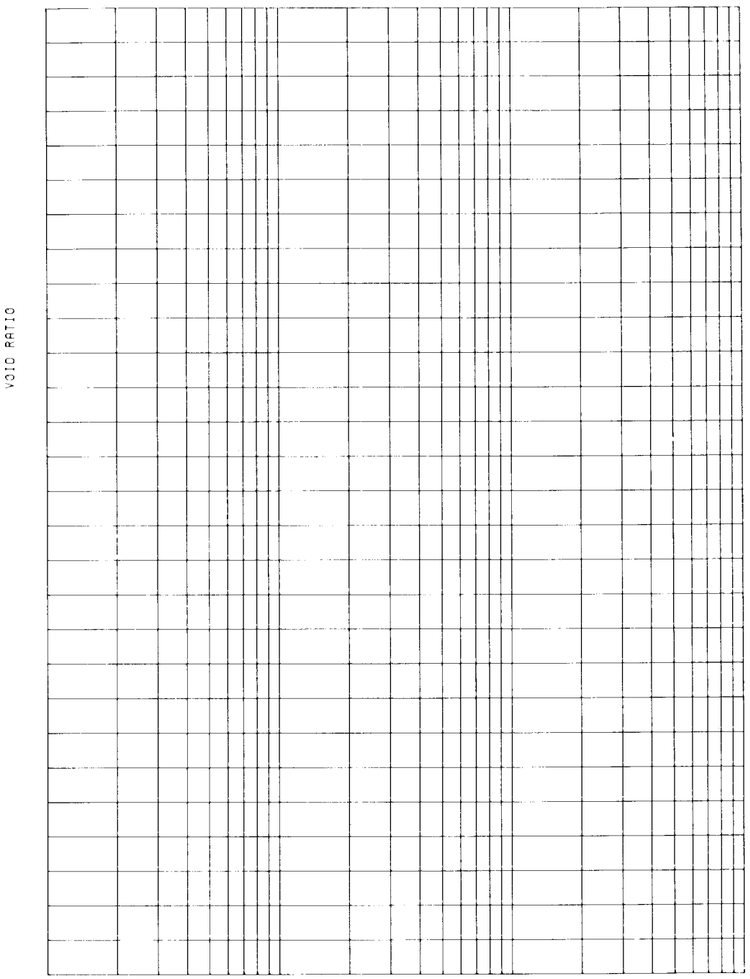


PLASTICITY CHART



SHEAR STRENGTH DATA

ENVELOPE NO.	ENVELOPE EL.	TYPE	STRENGTH Φ	STRENGTH C - TSF	CLASS



CONSOLIDATION DATA

○ - (UC) UNCONFINED COMPRESSION TEST
■ - (Q) UNCONSOLIDATED - UNDRAINED SHEAR TEST
▲ - (R) CONSOLIDATED - UNDRAINED SHEAR TEST
⊡ - (S) CONSOLIDATED - DRAINED SHEAR TEST

BORINGS WERE TAKEN WITH A 3 INCH DIAMETER STEEL TUBE PISTON TYPE SAMPLER

FOR SOIL BORING LEGEND SEE PLATE A

FOR LOCATION OF BORING SEE PLATE 50

WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

BORING HCL-20

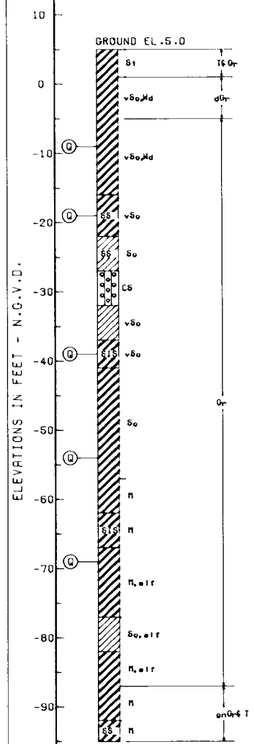
U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

DATE FEB. 90

FILE NO H-2-30618

PLATE F100

BOR. HCL-21
STA. 811+93
ON B/L
8 JULY 1986
GROUND EL. 5.0



ELEVATIONS IN FEET - N.G.V.D.

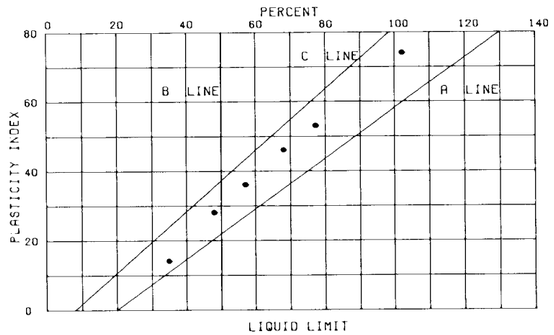
TEST DATA

WATER CONTENT
% WATER, DRY WEIGHT
20 40 60 80 100 120 140

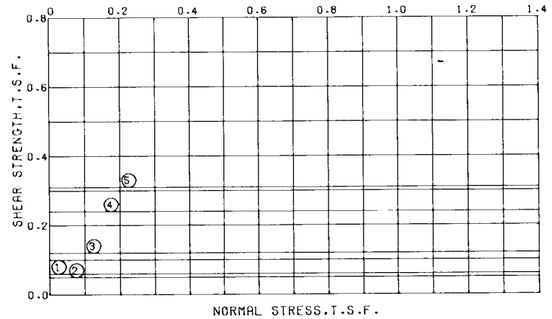
SHEAR STRENGTH
TONS / SQ.FT.
0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8

WET DENSITY
POUNDS / CU.FT.
80 100 120

NORMAL STRESS
TONS / SQ. FT.
0.0 1.0 2.0



PLASTICITY CHART



SHEAR STRENGTH DATA

ENVELOPE NO.	ENVELOPE EL.	TYPE	STRENGTH Φ	STRENGTH C - TSF	CLASS
1	9.00	Q	0.0	0.060	CH
2	19.00	Q	0.0	0.050	CL
3	39.00	Q	0.0	0.120	CH
4	54.00	Q	0.0	0.240	CH
5	69.00	Q	0.0	0.310	CH

LOAD P TONS / SQ. FT.

VOID RATIO

CONSOLIDATION DATA

○ - (UC) UNCONFINED COMPRESSION TEST
■ - (Q) UNCONSOLIDATED - UNDRAINED SHEAR TEST
▲ - (R) CONSOLIDATED - UNDRAINED SHEAR TEST
⊡ - (S) CONSOLIDATED - DRAINED SHEAR TEST

BORINGS WERE TAKEN WITH A 5 INCH DIAMETER STEEL TUBE PISTON TYPE SAMPLER

FOR SOIL BORING LEGEND SEE PLATE A

FOR LOCATION OF BORING SEE PLATE 50

WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

BORING HCL-21

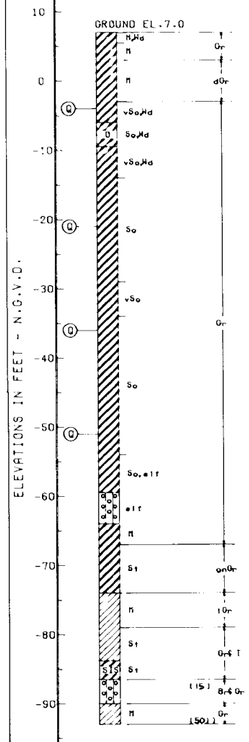
U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

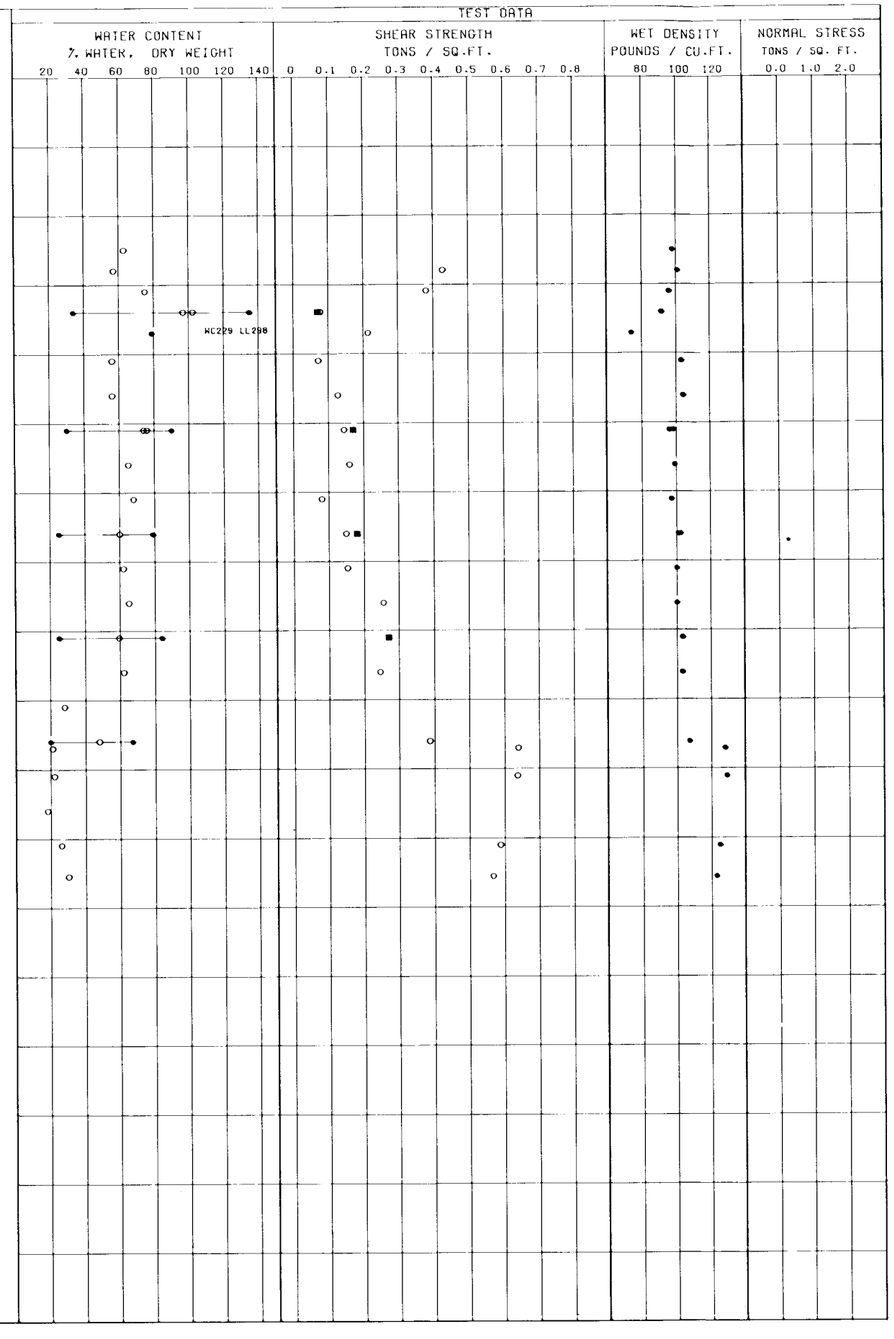
DATE FEB. 90

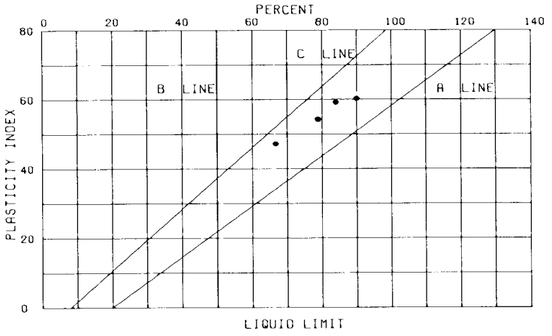
FILE NO. H-2-30618

PLATE F101

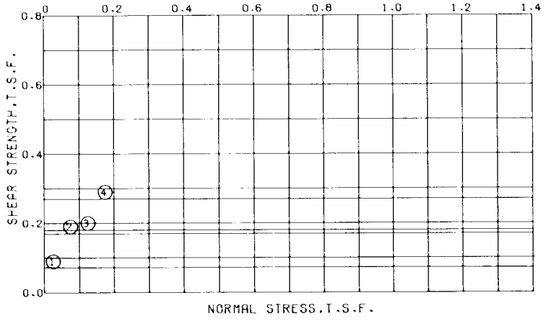
BOR. HCL-22
STA. 1066+34
5 FT. LT. B/L
31 JULY 1986
GROUND EL. 7.0





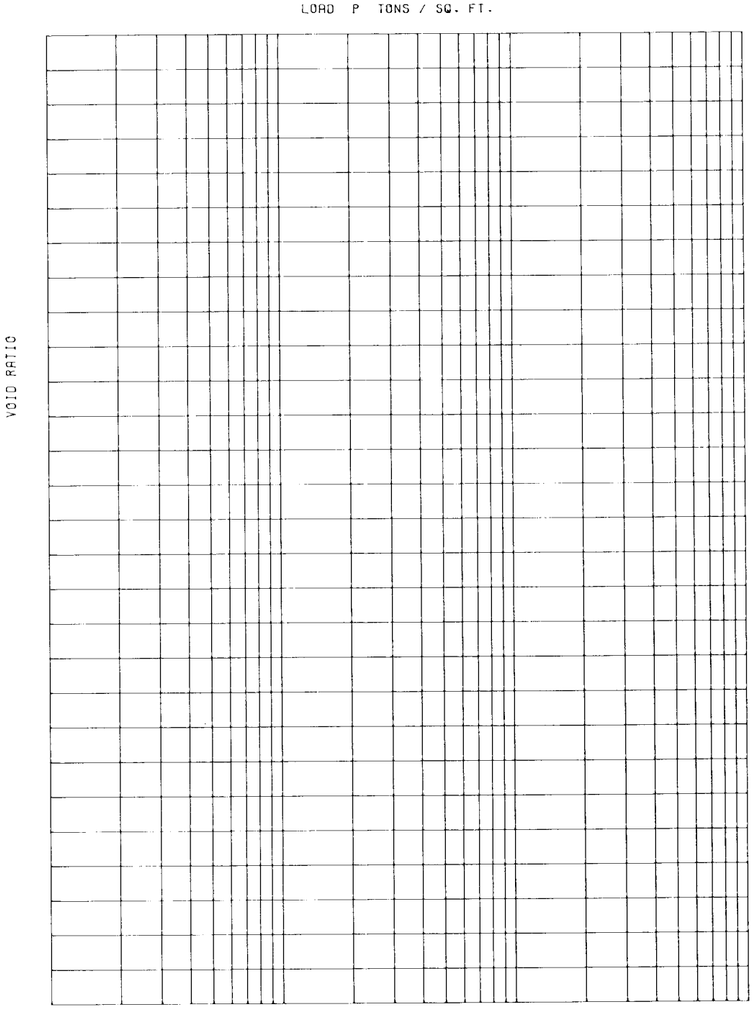


PLASTICITY CHART



SHEAR STRENGTH DATA

ENVELOPE NO.	ENVELOPE EL.	TYPE	STRENGTH Φ	STRENGTH C - TSF	CLASS
1	4.00	Q	0.0	0.070	CH
2	21.00	Q	0.0	0.170	CH
3	36.00	Q	0.0	0.180	CH
4	51.00	Q	0.0	0.270	CH



CONSOLIDATION DATA

○ - (UC) UNCONFINED COMPRESSION TEST
■ - (Q) UNCONSOLIDATED - UNDRAINED SHEAR TEST
▲ - (R) CONSOLIDATED - UNDRAINED SHEAR TEST
⊡ - (S) CONSOLIDATED - DRAINED SHEAR TEST

BORINGS WERE TAKEN WITH A 5 INCH DIAMETER STEEL TUBE PISTON TYPE SAMPLER

FOR SOIL BORING LEGEND SEE PLATE A

FOR LOCATION OF BORING SEE PLATE G3

WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

BORING HCL-22

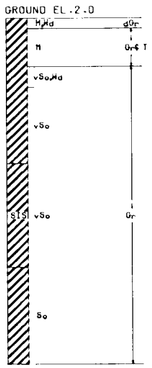
U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

DATE FEB. 90

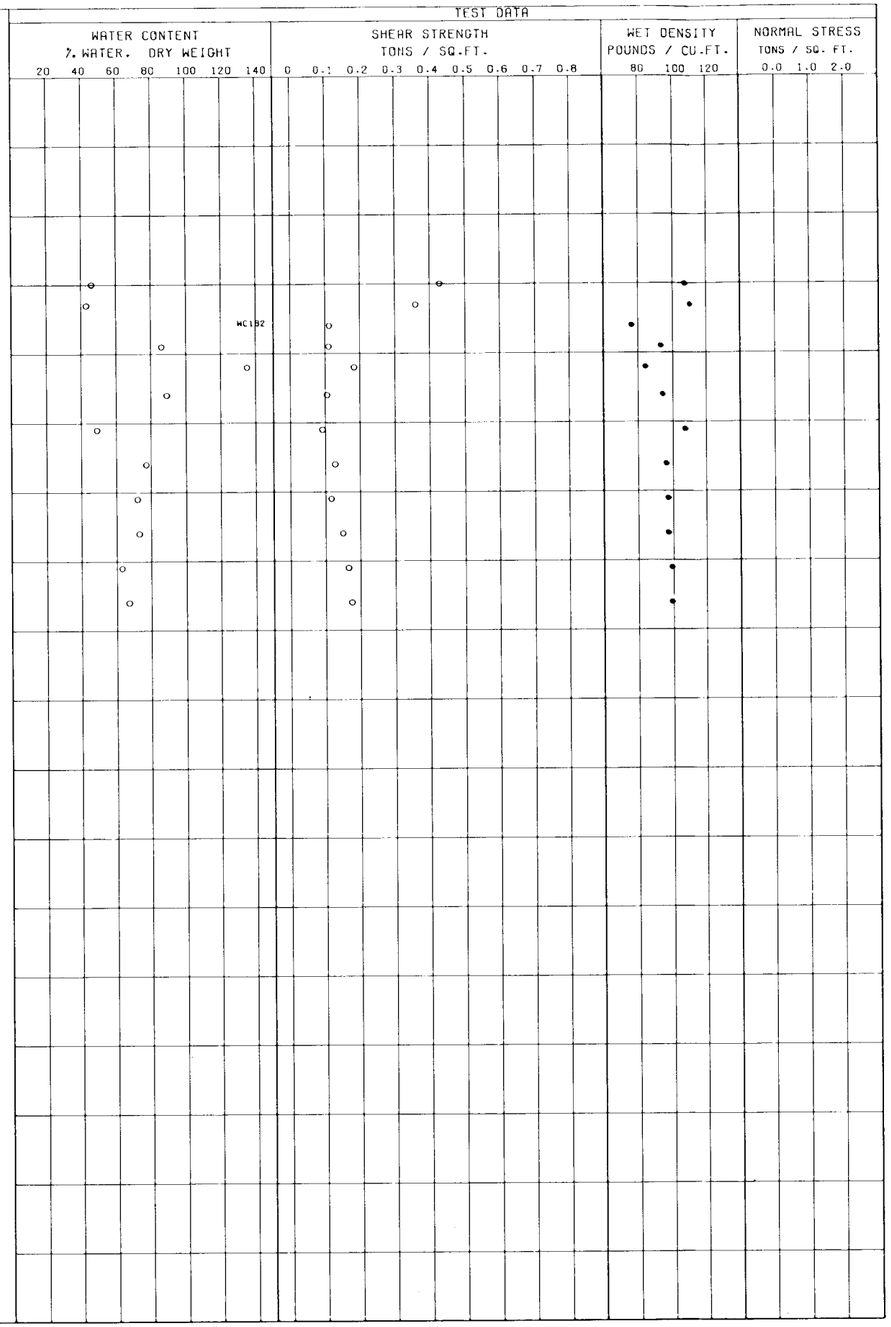
FILE NO H-2-30618

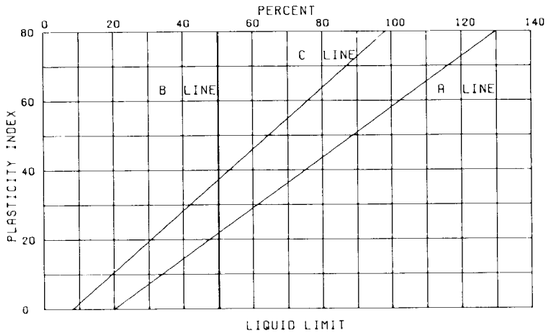
PLATE F102

BOR. HCL-23
STA. 1852+68
18 FT. LT. B/L
18 AUGUST 1986
GROUND EL. 2.0

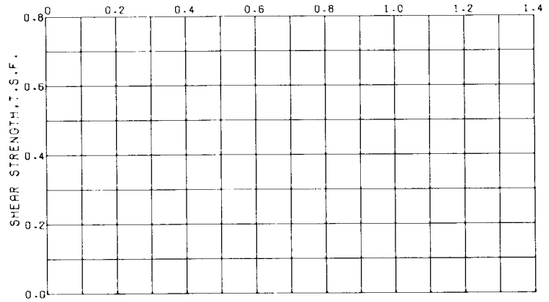


TEST DATA



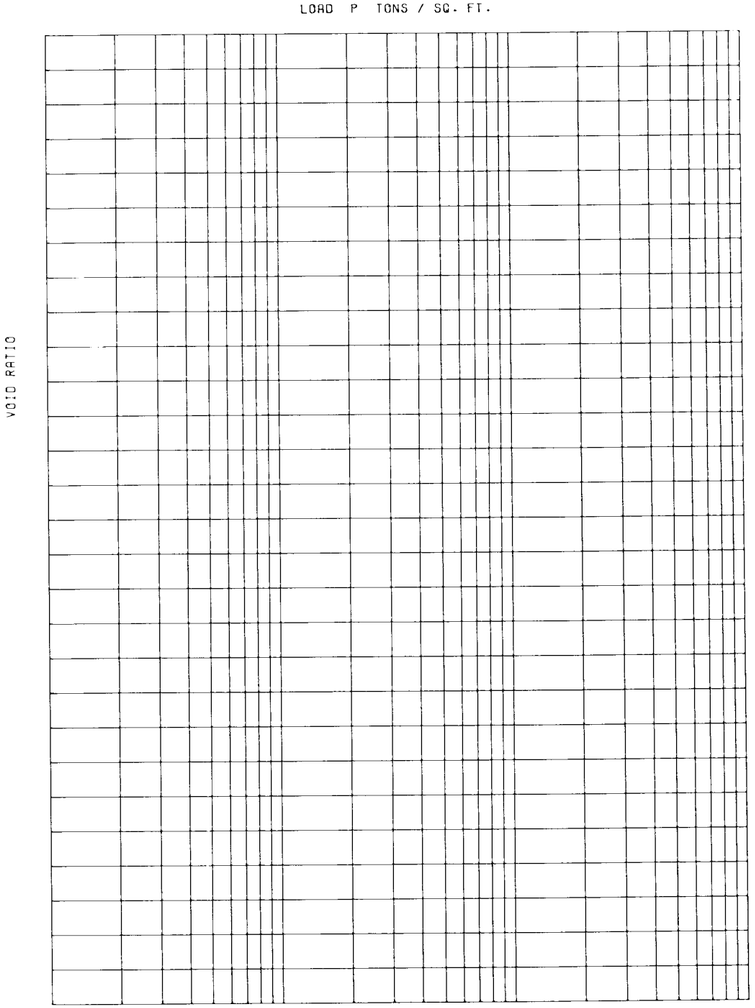


PLASTICITY CHART



SHEAR STRENGTH DATA

ENVELOPE NO.	ENVELOPE EL.	TYPE	STRENGTH Φ	STRENGTH C - TSF	CLASS



CONSOLIDATION DATA

○ - (UC) UNCONFINED COMPRESSION TEST
■ - (Q) UNCONSOLIDATED - UNDRAINED SHEAR TEST
▲ - (R) CONSOLIDATED - UNDRAINED SHEAR TEST
⊡ - (S) CONSOLIDATED - DRAINED SHEAR TEST

BORINGS WERE TAKEN WITH A 3 INCH DIAMETER STEEL TUBE PISTON TYPE SAMPLER

FOR SOIL BORING LEGEND SEE PLATE A

FOR LOCATION OF BORING SEE PLATE

WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

BORING HCL-23

U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

DATE FEB. 90

FILE NO. H-2-30618

PLATE F103

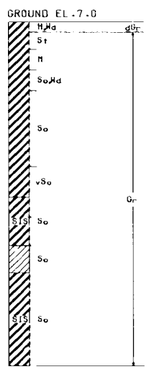
BOR. HCL-24

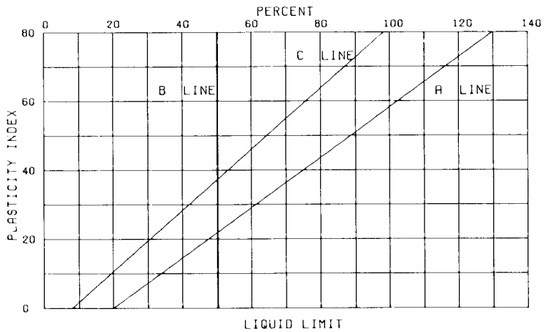
STA. 1843+25

23 FT. LT. B/L

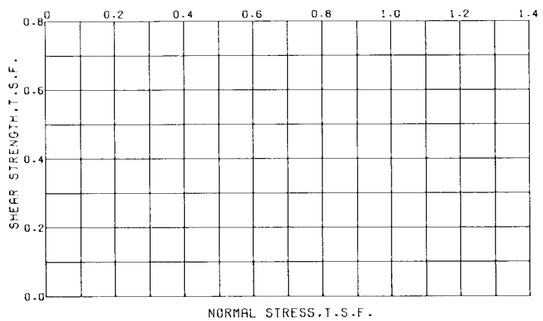
18 AUGUST 1986

GROUND EL. 7.0



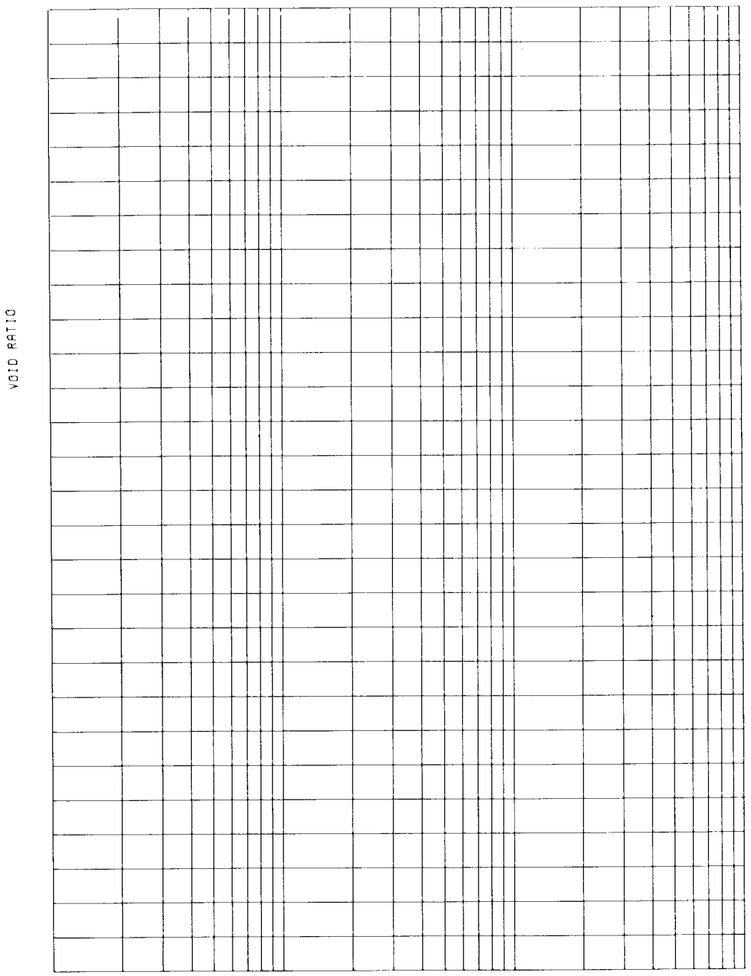


PLASTICITY CHART



SHEAR STRENGTH DATA

ENVELOPE NO.	ENVELOPE EL.	TYPE	STRENGTH Φ	STRENGTH C - TSF	CLASS



CONSOLIDATION DATA

○ - (UC) UNCONFINED COMPRESSION TEST

■ - (Q) UNCONSOLIDATED - UNDRAINED SHEAR TEST

▲ - (R) CONSOLIDATED - UNDRAINED SHEAR TEST

⊡ - (S) CONSOLIDATED - DRAINED SHEAR TEST

BORINGS WERE TAKEN WITH A 3 INCH DIAMETER STEEL TUBE PISTON TYPE SAMPLER

FOR SOIL BORING LEGEND SEE PLATE A

FOR LOCATION OF BORING SEE PLATE 62

WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

BORING HCL-24

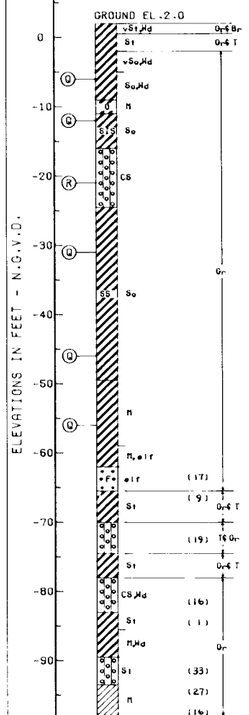
U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

DATE FEB. 90

FILE NO H-2-30618

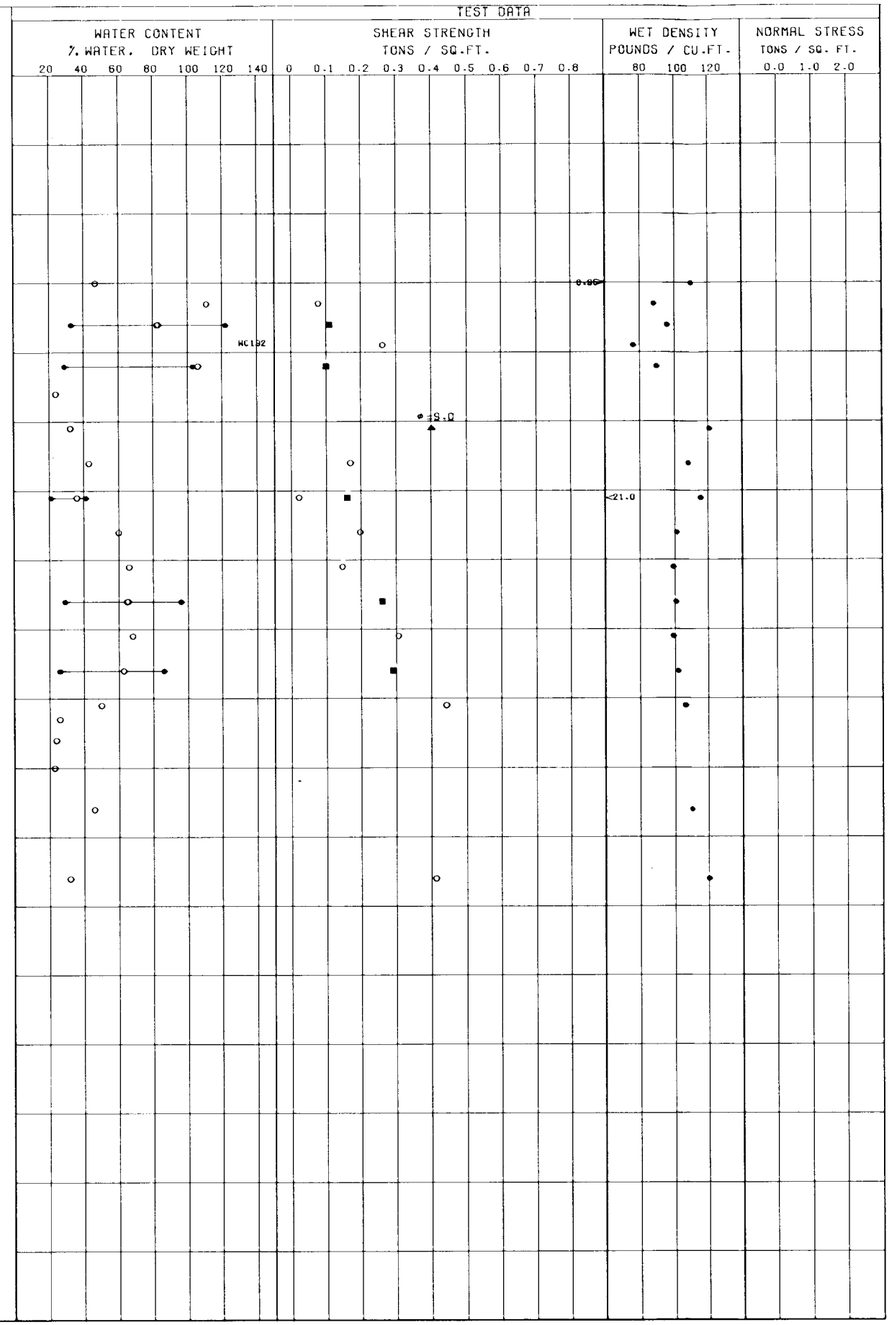
PLATE F104

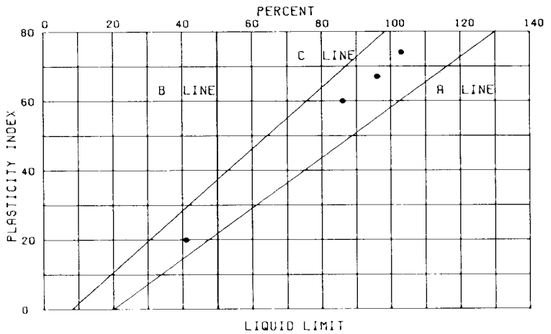
BOR. HCL-25
STA. 1032+70
10 FT. LT. B/L
18-19 AUGUST 1986
GROUND EL. 2.0



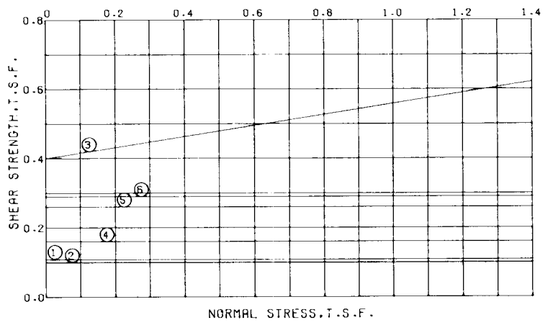
ELEVATIONS IN FEET - N.G.V.D.

TEST DATA





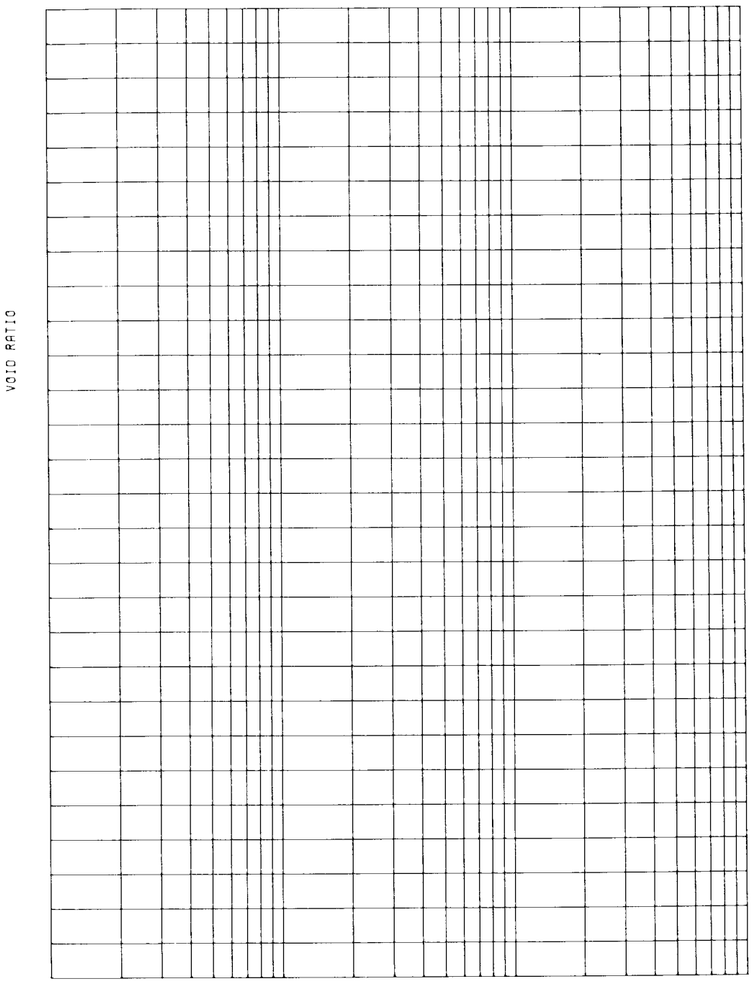
PLASTICITY CHART



SHEAR STRENGTH DATA

ENVELOPE NO.	ENVELOPE EL.	TYPE	STRENGTH Φ	STRENGTH C - TSF	CLASS
1	6.00	Q	0.0	0.110	CH
2	12.00	Q	0.0	0.100	CH
3	21.00	R	9.0	0.400	ML
4	31.00	Q	0.0	0.160	CL
5	46.00	Q	0.0	0.260	CH
6	56.00	Q	0.0	0.290	CH

LOAD P TONS / SQ. FT.



CONSOLIDATION DATA

○ - (UC) UNCONFINED COMPRESSION TEST
■ - (Q) UNCONSOLIDATED - UNDRAINED SHEAR TEST
▲ - (R) CONSOLIDATED - UNDRAINED SHEAR TEST
⊡ - (S) CONSOLIDATED - DRAINED SHEAR TEST

BORINGS WERE TAKEN WITH A 5 INCH DIAMETER STEEL TUBE PISTON TYPE SAMPLER

FOR SOIL BORING LEGEND SEE PLATE A

FOR LOCATION OF BORING SEE PLATE 61

WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

BORING HCL-25

U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

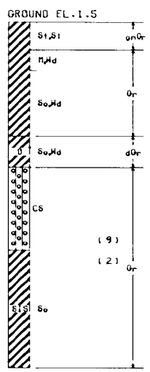
DATE FEB. 90.

FILE NO. H-2-30618

PLATE F105

BOR. HCL-26
STA. 1031+86

184 FT. RT. B/L
24 JULY 1986
GROUND EL. 1.5



ELEVATIONS IN FEET - N.G.V.D.

TEST DATA

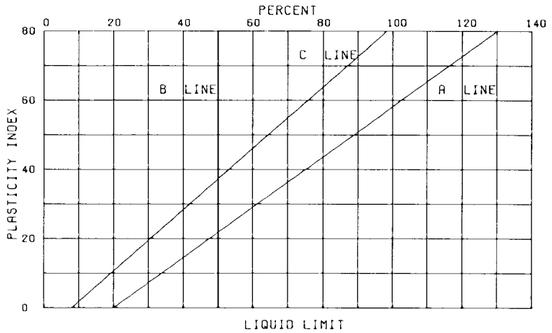
WATER CONTENT
% WATER, DRY WEIGHT
20 40 60 80 100 120 140

SHEAR STRENGTH
TONS / SQ.FT.
0 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8

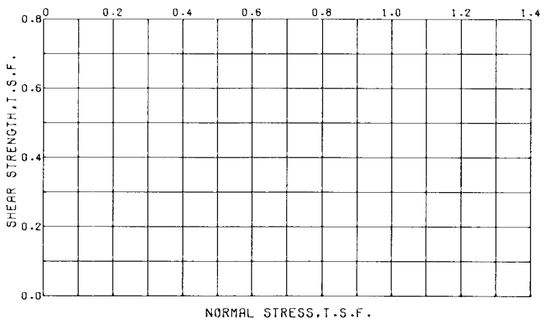
WC224

WET DENSITY
POUNDS / CU.FT.
80 100 120

NORMAL STRESS
TONS / SQ. FT.
0.0 1.0 2.0



PLASTICITY CHART



SHEAR STRENGTH DATA

ENVELOPE NO.	ENVELOPE EL.	TYPE	STRENGTH Φ	STRENGTH C - TSF	CLASS

LOAD P TONS / SQ. FT.

VOID RATIO

CONSOLIDATION DATA

○ - (UC) UNCONFINED COMPRESSION TEST
■ - (Q) UNCONSOLIDATED - UNDRAINED SHEAR TEST
▲ - (R) CONSOLIDATED - UNDRAINED SHEAR TEST
⊡ - (S) CONSOLIDATED - DRAINED SHEAR TEST

BORINGS WERE TAKEN WITH A 3 INCH DIAMETER STEEL TUBE PISTON TYPE SAMPLER

FOR SOIL BORING LEGEND SEE PLATE A

FOR LOCATION OF BORING SEE PLATE 61

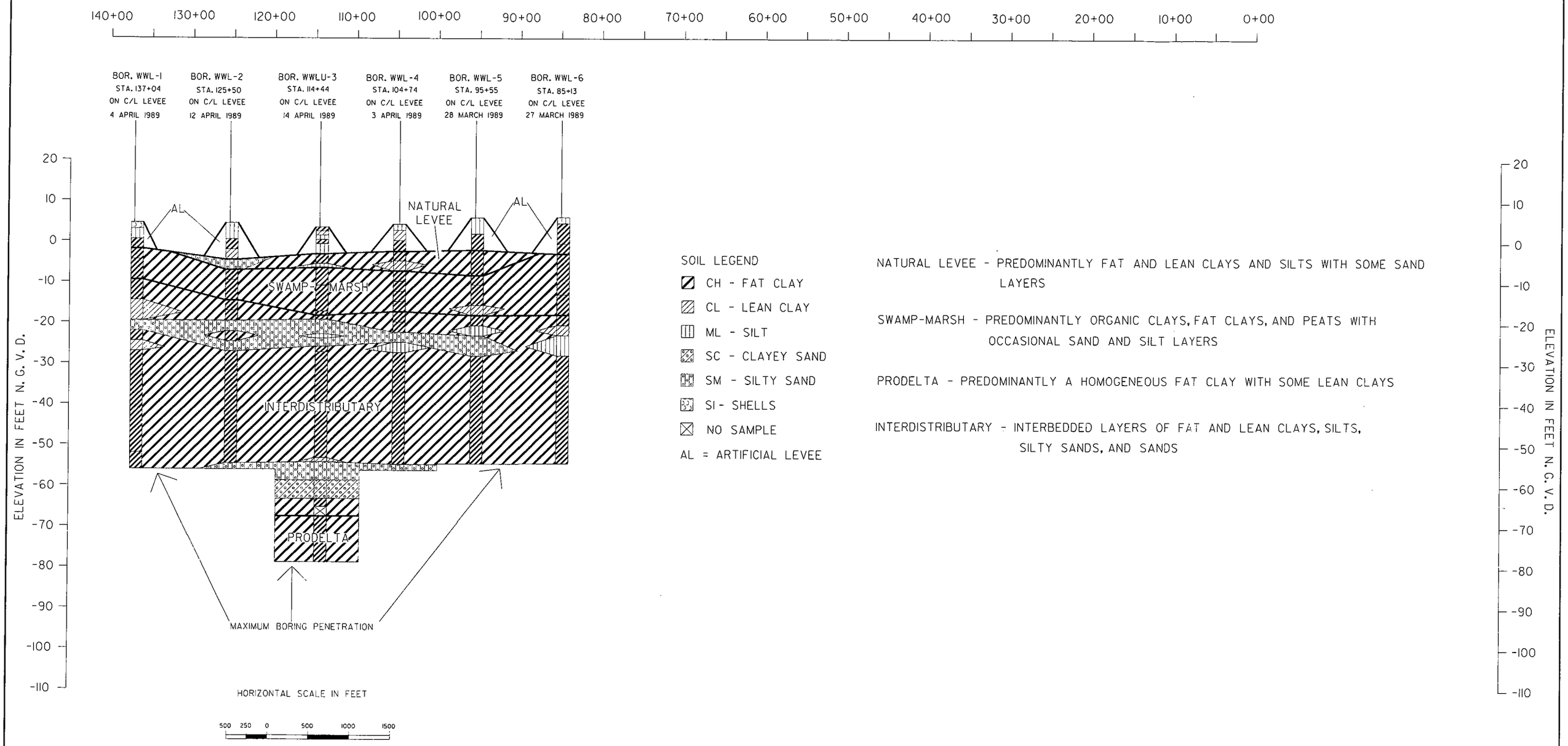
WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

BORING HCL-26

U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

DATE FEB. 90 FILE NO H-2-30618

PLATE F106



WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

WESTWEGO LEVEE
SOIL AND GEOLOGIC PROFILE

U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS
DATE: FEBRUARY 1990 FILE NO. H-2-30618

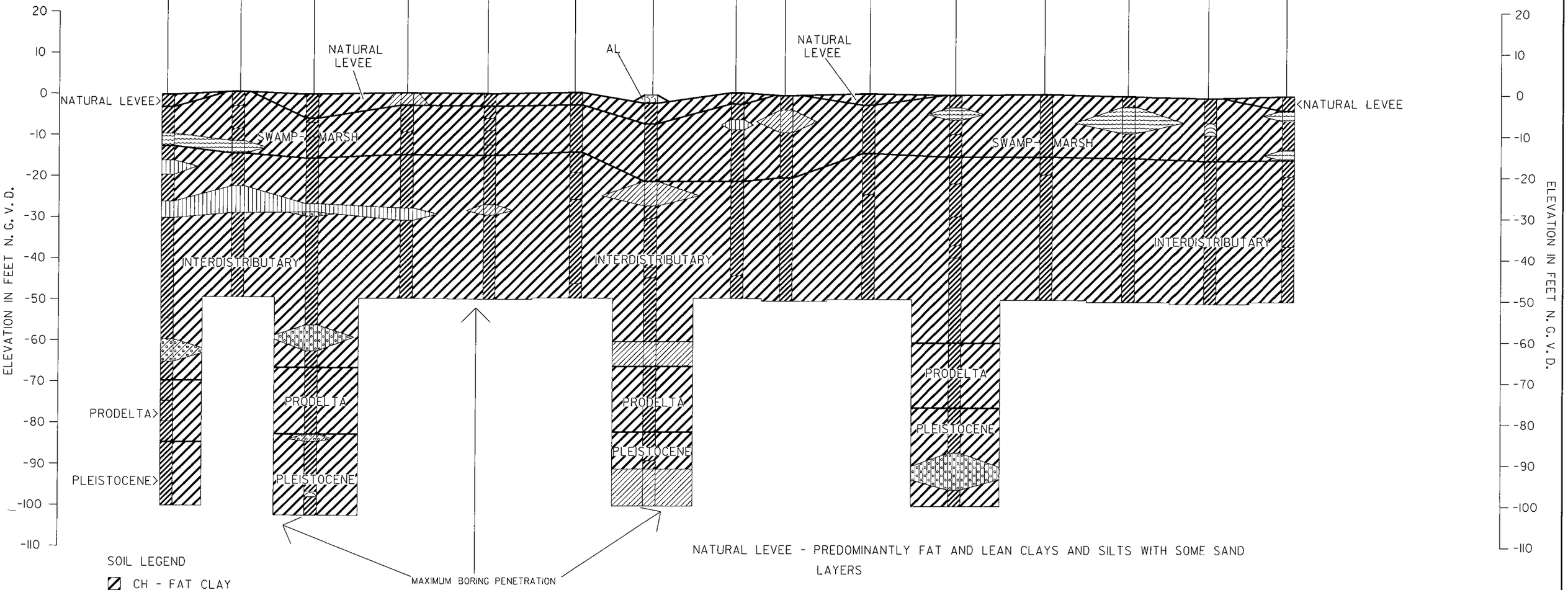
PLATE F 106 A

WESTWEGO LEVEE STATIONS

WESTMINSTER LEVEE STATIONS

80+00 70+00 60+00 50+00 40+00 30+00 20+00 10+00 0+00 20+00 30+00 40+00 50+00 60+00 70+00 80+00 90+00

BOR. WL-2 STA. 71+84 250 FT. LT. B/L 28 JAN. 1986
BOR. WL-3 STA. 63+03 110 FT. LT. B/L 23 JAN. 1986
BOR. WB-7U STA. 54+00 150 FT. LT. B/L 21 MAR. 1988
BOR. WL-5 STA. 42+55 255 FT. LT. B/L 22 JAN. 1986
BOR. WL-6 STA. 32+76 160 FT. LT. B/L 22 JAN. 1986
BOR. WL-7 STA. 22+33 140 FT. LT. B/L 21 JAN. 1986
BOR. WL-8 STA. 13+20 20 FT. LT. B/L 3 FEB. 1986
BOR. WL-9 STA. 2+94 145 FT. LT. B/L 20 JAN. 1986
BOR. WL-10 STA. 16+93 210 FT. RT. B/L 20 JAN. 1986
BOR. WL-11 STA. 26+59 245 FT. RT. B/L 17 JAN. 1986
BOR. WL-12 STA. 36+29 255 FT. RT. B/L 17 JAN. 1986
BOR. WL-13 STA. 47+29 290 FT. RT. B/L 15 JAN. 1986
BOR. WL-14 STA. 57+14 200 FT. RT. B/L 15 JAN. 1986
BOR. WL-15 STA. 66+89 208 FT. RT. B/L 14 JAN. 1986
BOR. WL-16 STA. 76+54 225 FT. RT. B/L 14 JAN. 1986



SOIL LEGEND

- CH - FAT CLAY
- CL - LEAN CLAY
- PT - PEAT
- ML - SILT
- SC - CLAYEY SAND
- SM - SILTY SAND
- Wd - WOOD
- Sl - SHELLS

AL = ARTIFICIAL LEVEE

HORIZONTAL SCALE IN FEET

500 250 0 500 1000 1500

NATURAL LEVEE - PREDOMINANTLY FAT AND LEAN CLAYS AND SILTS WITH SOME SAND LAYERS

PRODELTA - PREDOMINANTLY A HOMOGENEOUS FAT CLAY WITH SOME LEAN CLAYS

INTERDISTRIBUTARY - INTERBEDDED LAYERS OF FAT AND LEAN CLAYS, SILTS, SILTY SANDS, AND SANDS

SWAMP-MARSH - PREDOMINANTLY ORGANIC CLAYS, FAT CLAYS, AND PEATS WITH OCCASIONAL SAND AND SILT LAYERS

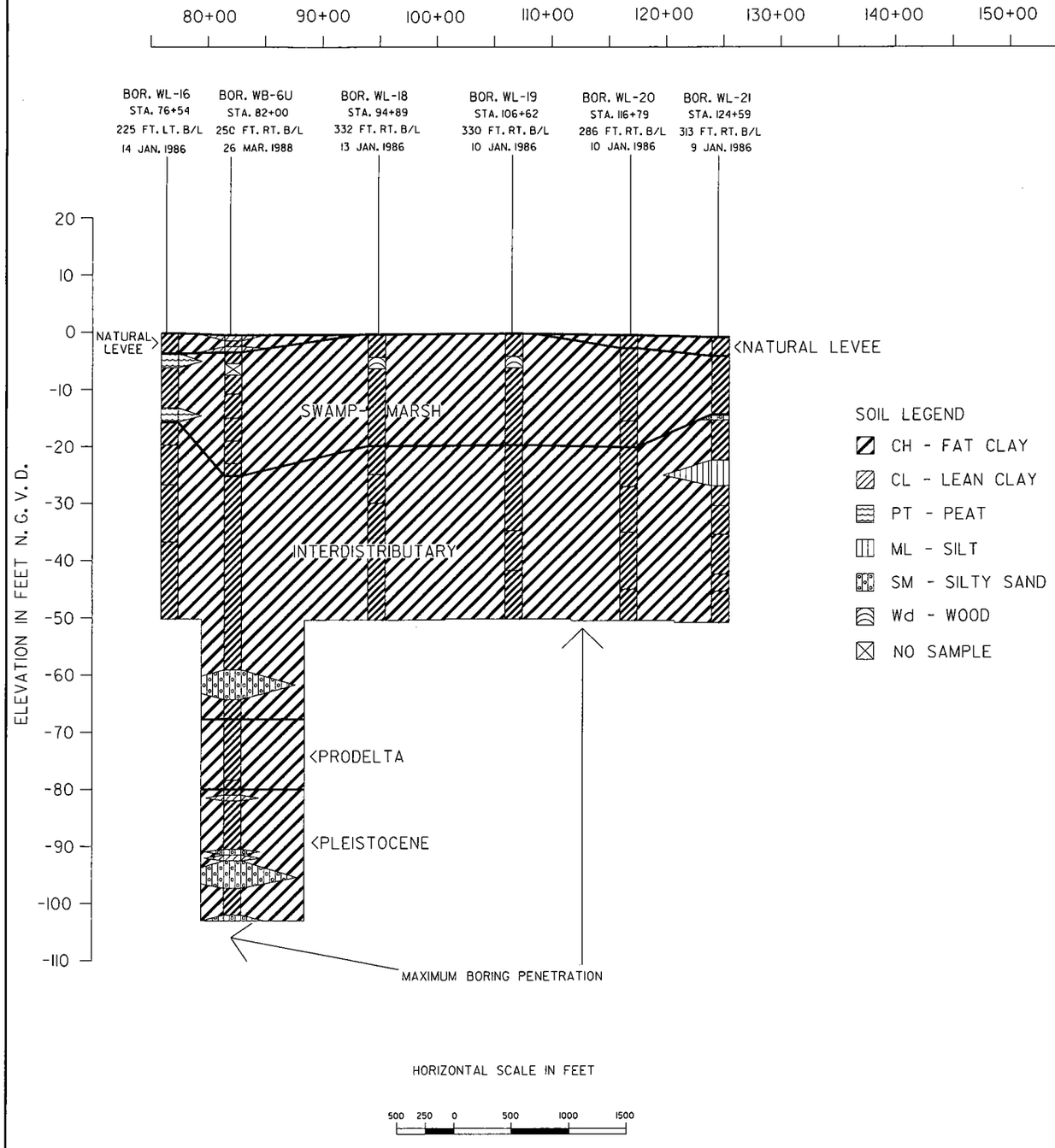
PLEISTOCENE - STIFF TO VERY STIFF, OXIDIZED CLAYS INTERBEDDED WITH LAYERS AND LENSES OF SILTS AND SANDS

WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

WESTWEGO - WESTMINSTER LEVEE SOIL AND GEOLOGIC PROFILE

U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS
DATE: FEBRUARY 1990 FILE NO. H-2-30618

PLATE F 106 B



NATURAL LEVEE - PREDOMINANTLY FAT AND LEAN CLAYS AND SILTS WITH SOME SAND LAYERS

PRODELTA - PREDOMINANTLY A HOMOGENEOUS FAT CLAY WITH SOME LEAN CLAYS

INTERDISTRIBUTARY - INTERBEDDED LAYERS OF FAT AND LEAN CLAYS, SILTS, SILTY SANDS, AND SANDS

SWAMP-MARSH - PREDOMINANTLY ORGANIC CLAYS, FAT CLAYS, AND PEATS WITH OCCASIONAL SAND AND SILT LAYERS

PLEISTOCENE - STIFF TO VERY STIFF, OXIDIZED CLAYS INTERBEDDED WITH LAYERS AND LENSES OF SILTS AND SANDS

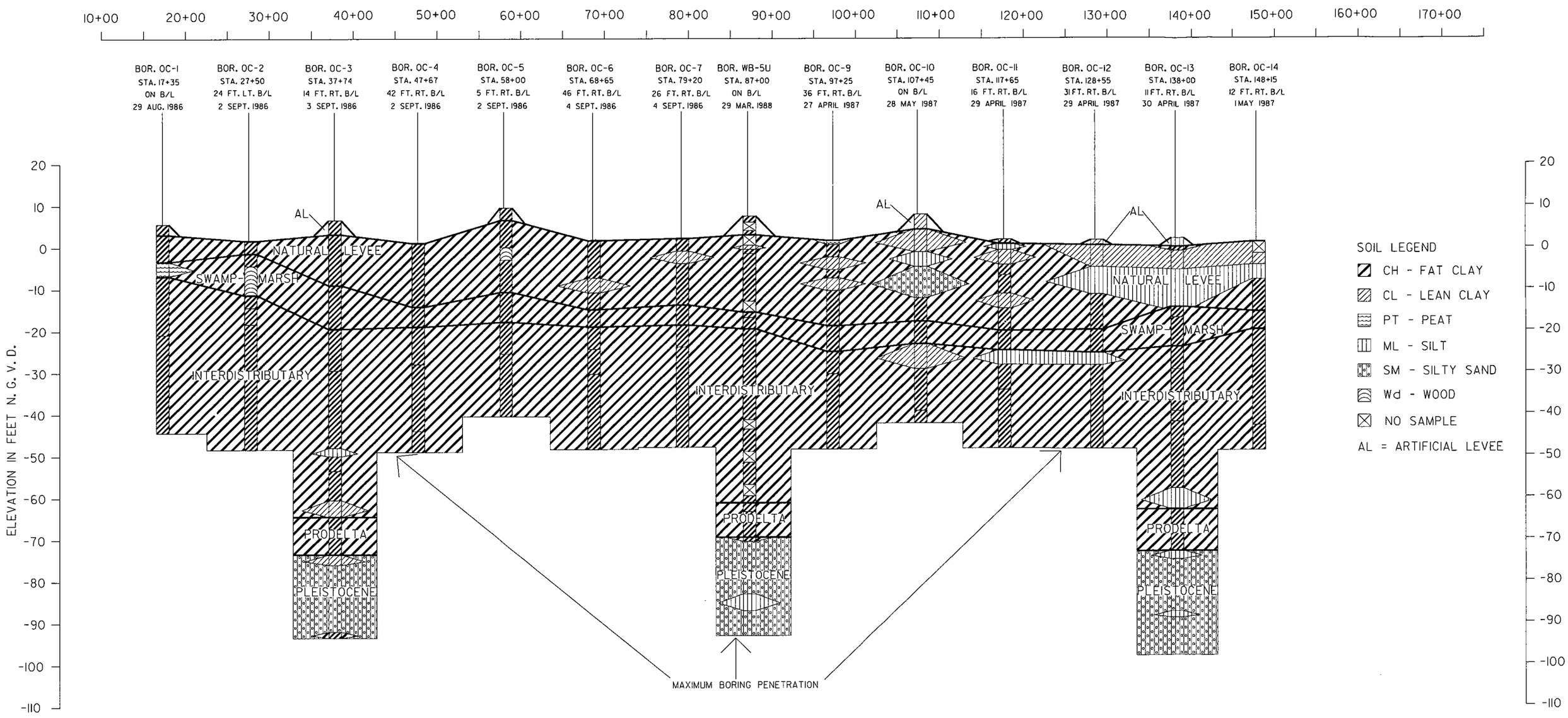
WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

WESTWEGO-WESTMINSTER LEVEE SOIL AND GEOLOGIC PROFILE

U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

DATE: FEBRUARY 1990 FILE NO. H-2-30618

PLATE F 106 C



NATURAL LEVEE - PREDOMINANTLY FAT AND LEAN CLAYS AND SILTS WITH SOME SAND LAYERS

PRODELTA - PREDOMINANTLY A HOMOGENEOUS FAT CLAY WITH SOME LEAN CLAYS

INTERDISTRIBUTARY - INTERBEDDED LAYERS OF FAT AND LEAN CLAYS, SILTS, SILTY SANDS, AND SANDS

SWAMP-MARSH - PREDOMINANTLY ORGANIC CLAYS, FAT CLAYS, AND PEATS WITH OCCASIONAL SAND AND SILT LAYERS

PLEISTOCENE - STIFF TO VERY STIFF, OXIDIZED CLAYS INTERBEDDED WITH LAYERS AND LENSES OF SILTS AND SANDS

HORIZONTAL SCALE IN FEET

500 250 0 500 1000 1500

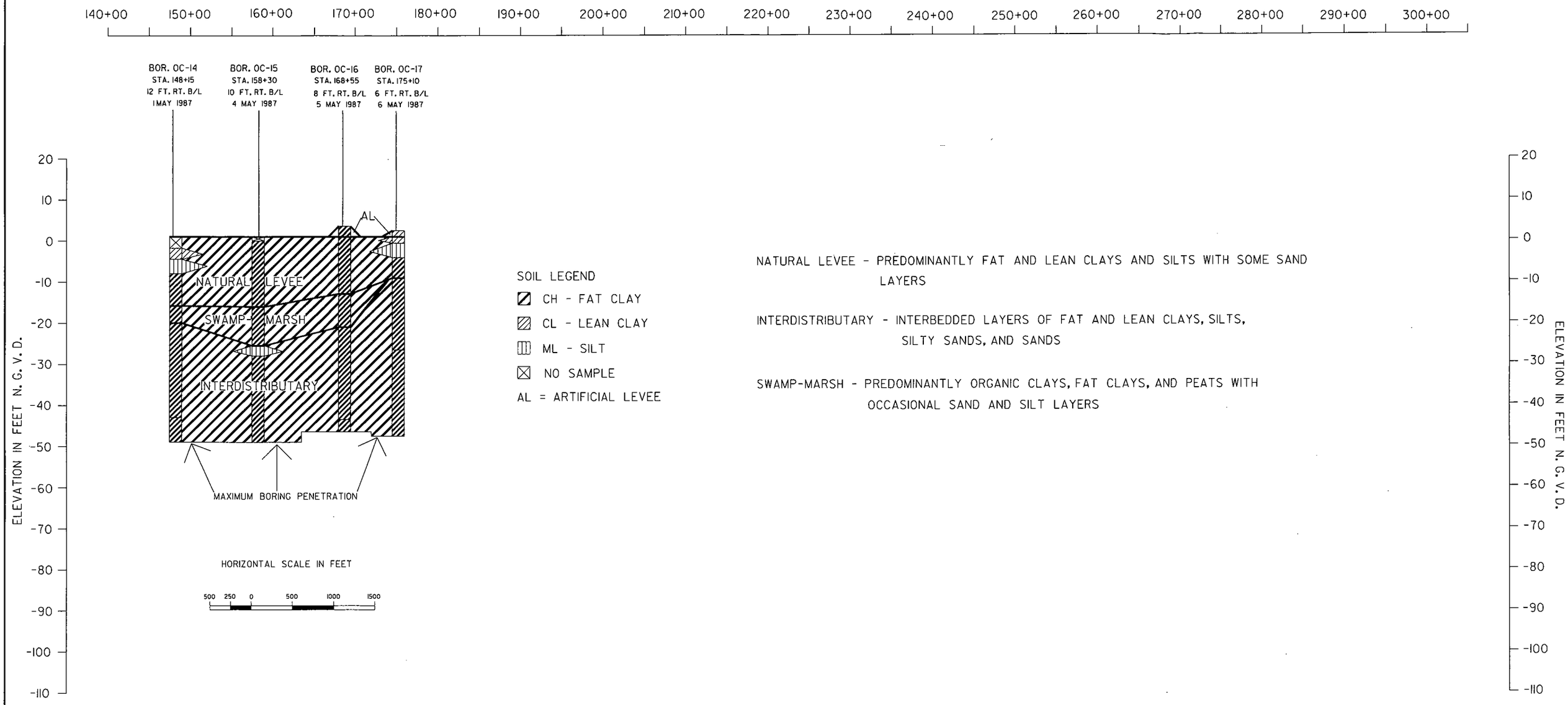
WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

OAK COVE LEVEE
SOIL AND GEOLOGIC PROFILE

U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

DATE: FEBRUARY 1990 FILE NO. H-2-30618

PLATE F 106 D

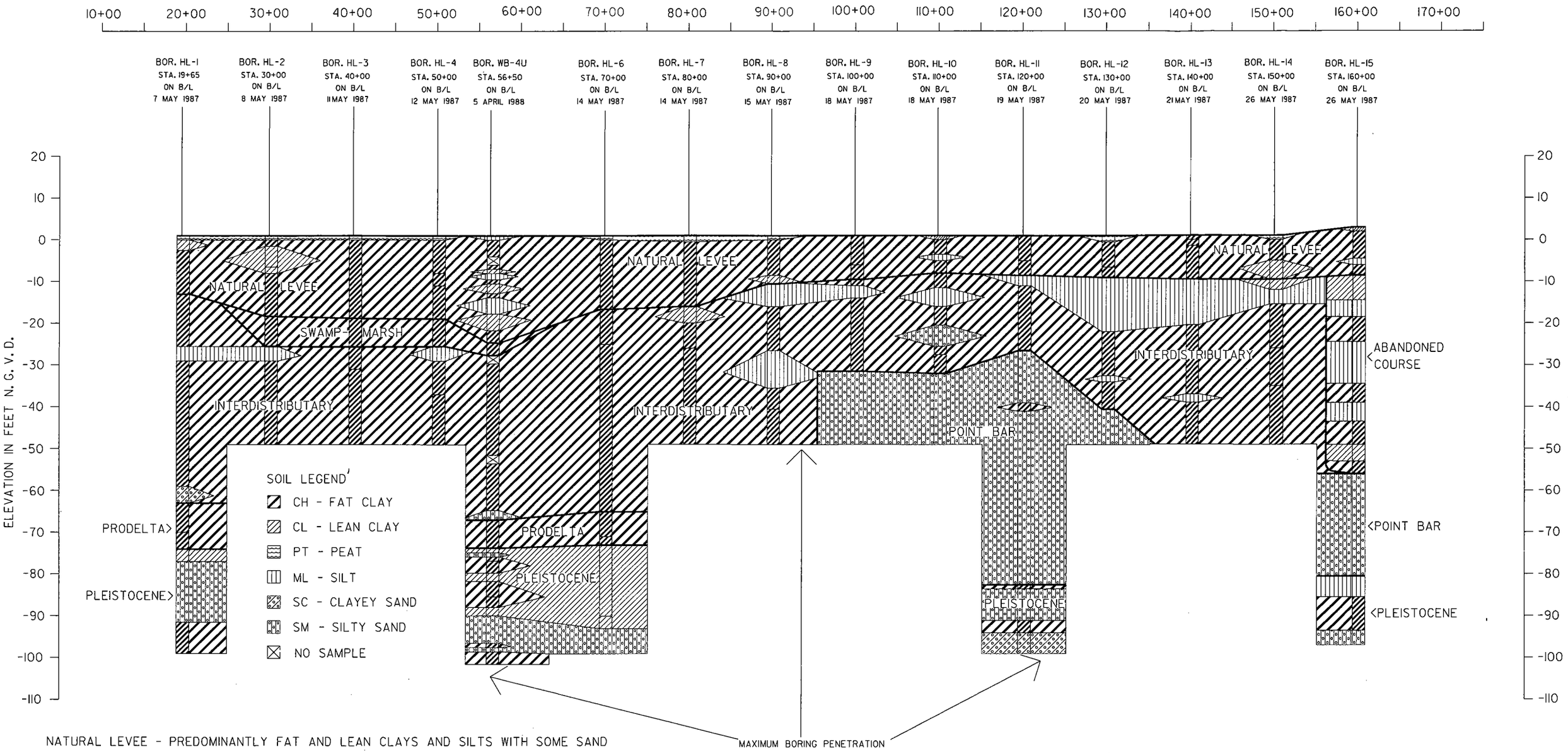


WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

OAK COVE LEVEE
SOIL AND GEOLOGIC PROFILE

U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS
DATE: FEBRUARY 1990 FILE NO. H-2-30618

PLATE F 106 E



NATURAL LEVEE - PREDOMINANTLY FAT AND LEAN CLAYS AND SILTS WITH SOME SAND LAYERS

POINT BAR - PREDOMINANTLY SILTY SANDS, SANDY SILTS, AND SANDS WITH OCCASIONAL CLAY LAYERS

PRODELTA - PREDOMINANTLY A HOMOGENEOUS FAT CLAY WITH SOME LEAN CLAYS

INTERDISTRIBUTARY - INTERBEDDED LAYERS OF FAT AND LEAN CLAYS, SILTS, SILTY SANDS, AND SANDS

ABANDONED COURSE - INTERBEDDED LAYERS OF SANDS, SILTS, AND CLAYS

HORIZONTAL SCALE IN FEET

500 250 0 500 1000 1500

SWAMP-MARSH - PREDOMINANTLY ORGANIC CLAYS, FAT CLAYS, AND PEATS WITH OCCASIONAL SAND AND SILT LAYERS

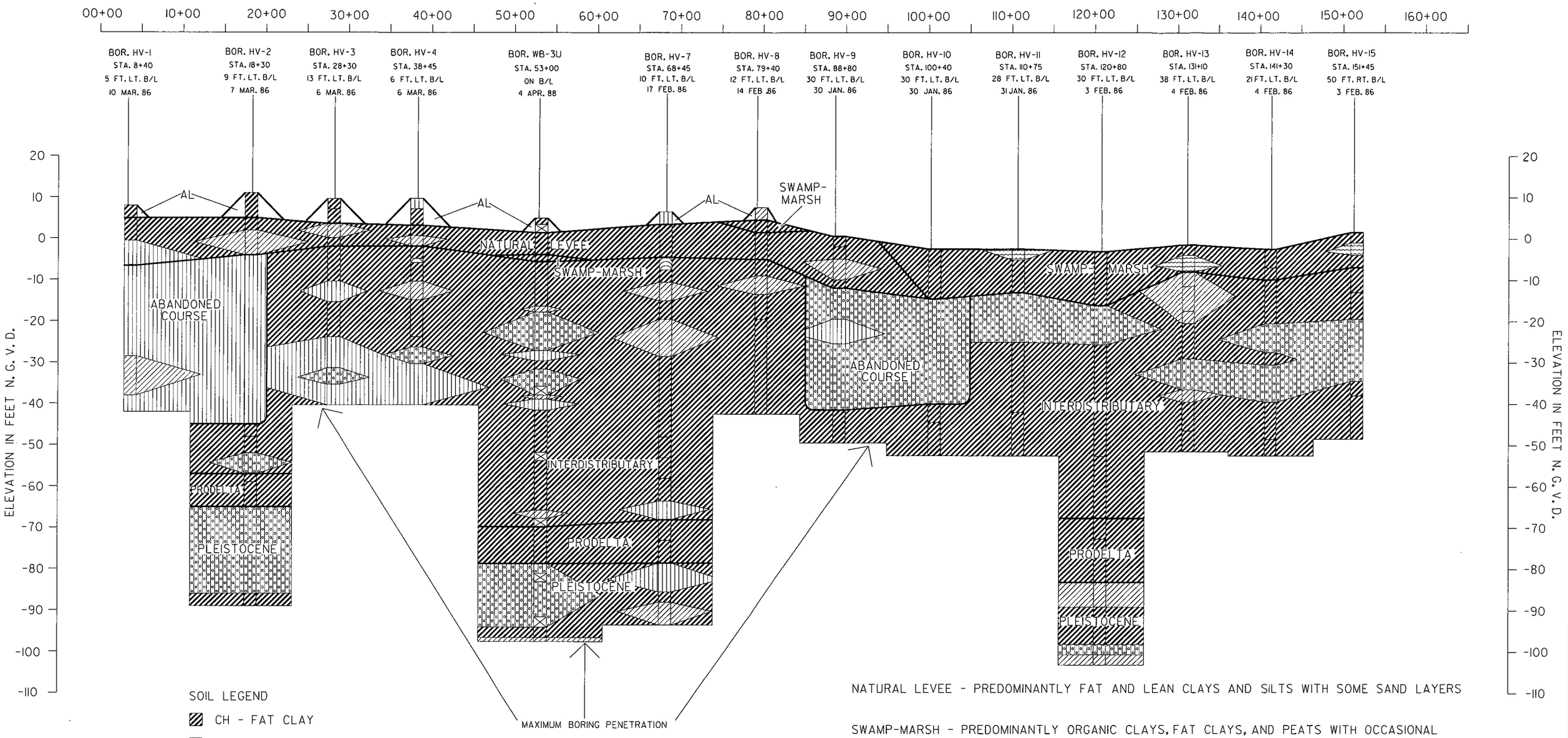
PLEISTOCENE - STIFF TO VERY STIFF, OXIDIZED CLAYS INTERBEDDED WITH LAYERS AND LENSES OF SILTS AND SANDS

WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

HWY. 45 LEVEE
SOIL AND GEOLOGIC PROFILE

U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS
DATE: FEBRUARY 1990 FILE NO. H-2-30618

PLATE F 106 F



NATURAL LEVEE - PREDOMINANTLY FAT AND LEAN CLAYS AND SILTS WITH SOME SAND LAYERS

SWAMP-MARSH - PREDOMINANTLY ORGANIC CLAYS, FAT CLAYS, AND PEATS WITH OCCASIONAL SAND AND SILT LAYERS

INTERDISTRIBUTARY - INTERBEDDED LAYERS OF FAT AND LEAN CLAYS, SILTS, SILTY SANDS, AND SANDS

ABANDONED COURSE - INTERBEDDED LAYERS OF SANDS, SILTS AND CLAYS

PRODELTA - PREDOMINANTLY A HOMOGENEOUS FAT CLAY WITH SOME LEAN CLAYS

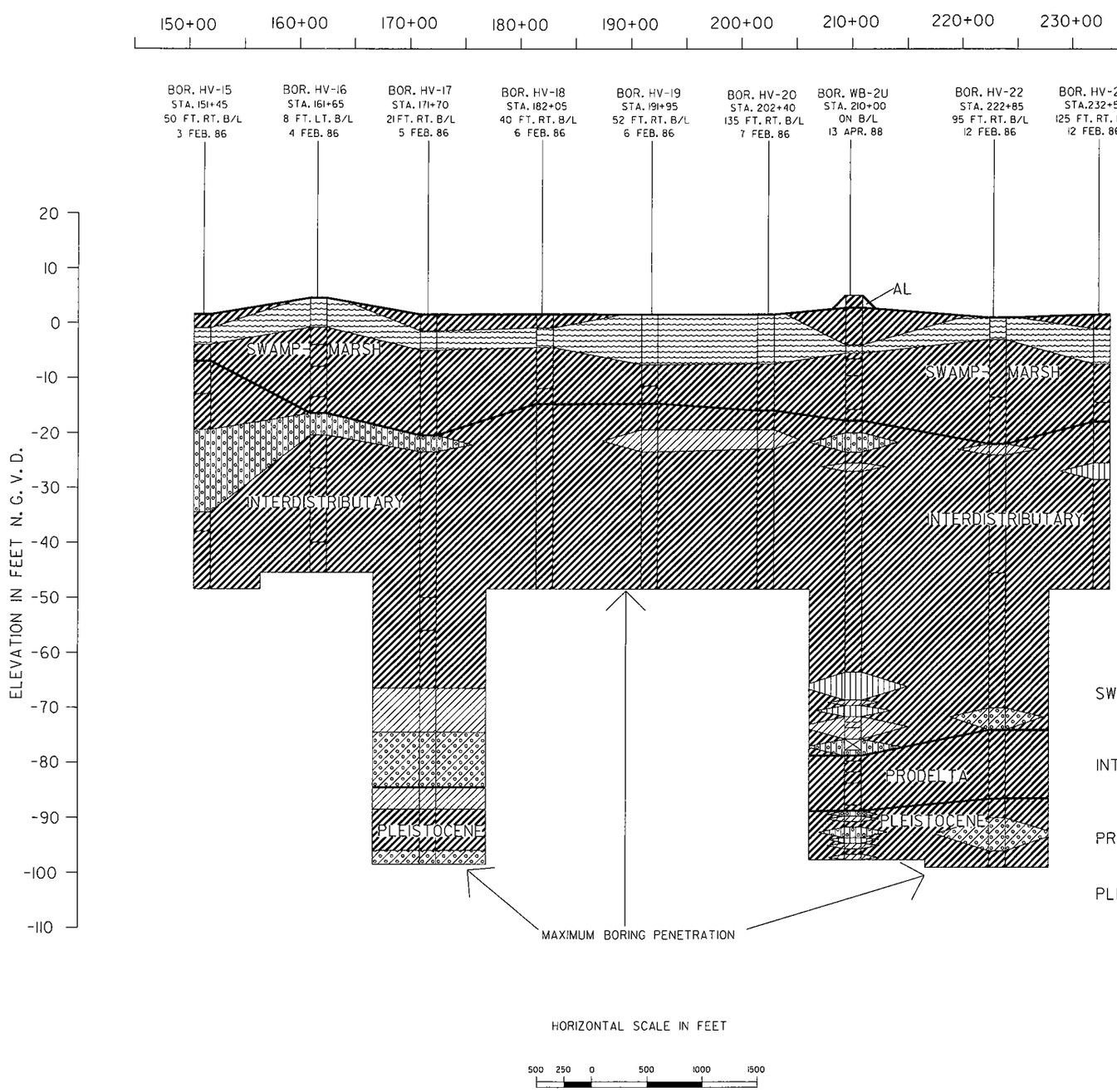
PLEISTOCENE - STIFF TO VERY STIFF, OXIDIZED CLAYS INTERBEDDED WITH LAYERS AND LENSES OF SILTS AND SANDS

WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

"V" LEVEE
SOIL AND GEOLOGIC PROFILE

U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS
DATE: FEBRUARY 1990 FILE NO. H-2-30618

PLATE F 106 G



SOIL LEGEND

- CH - FAT CLAY
- CL - LEAN CLAY
- ML - SILT
- SC - CLAYEY SAND
- SM - SILTY SAND
- PT - PEAT
- AL = ARTIFICIAL LEVEE

SWAMP-MARSH - PREDOMINANTLY ORGANIC CLAYS, FAT CLAYS, AND PEATS WITH OCCASIONAL SAND AND SILT LAYERS

INTERDISTRIBUTARY - INTERBEDDED LAYERS OF FAT AND LEAN CLAYS, SILTS, SILTY SANDS, AND SANDS

PRODELTA - PREDOMINANTLY A HOMOGENEOUS FAT CLAY WITH SOME LEAN CLAYS

PLEISTOCENE - STIFF TO VERY STIFF, OXIDIZED CLAYS INTERBEDDED WITH LAYERS AND LENSES OF SILTS AND SANDS

HORIZONTAL SCALE IN FEET

500 250 0 500 1000 1500

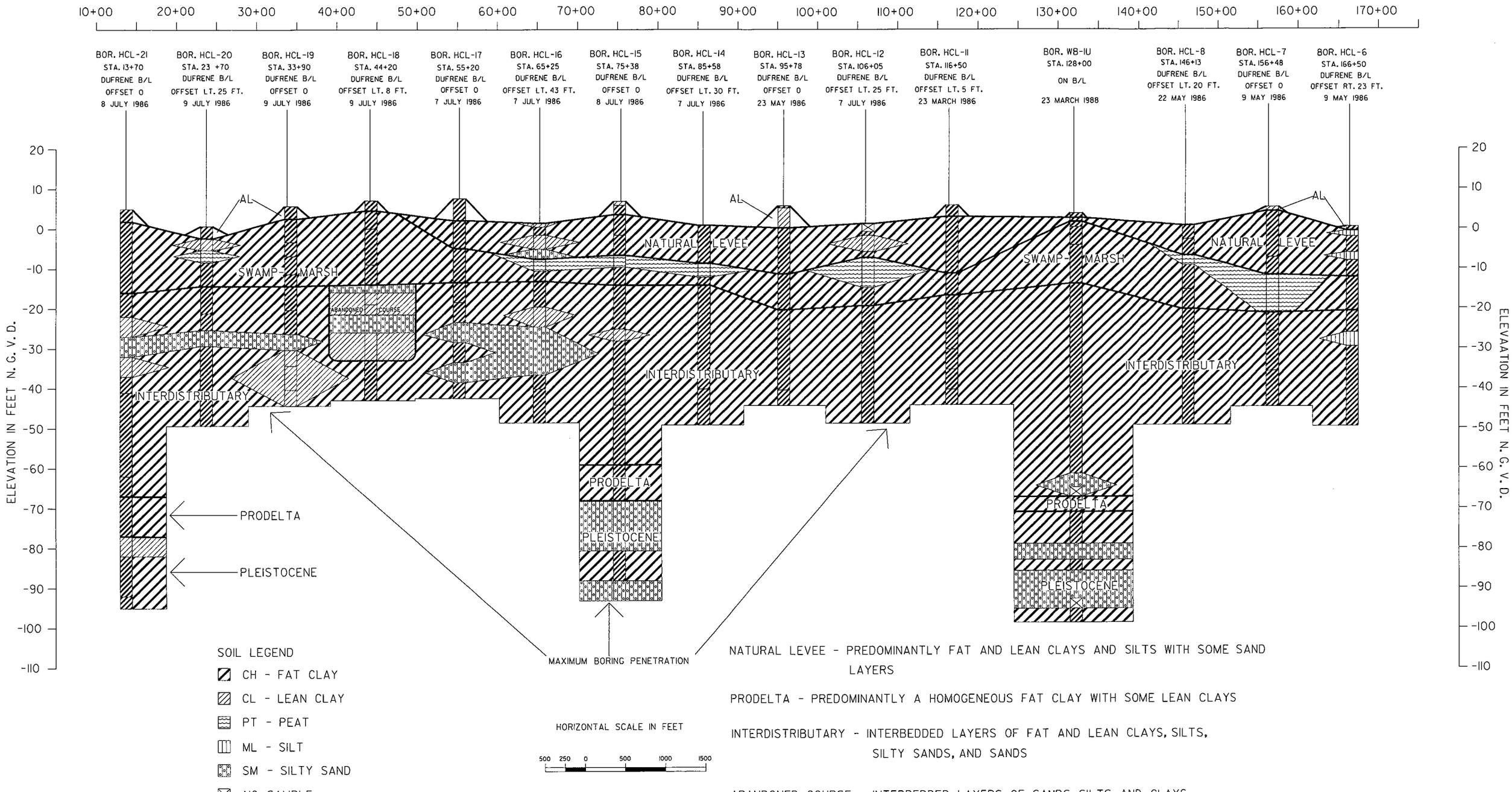
WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

"V" LEVEE
SOIL AND GEOLOGIC PROFILE

U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

DATE: FEBRUARY 1990 FILE NO. H-2-30618

PLATE F 106 H



SOIL LEGEND

- CH - FAT CLAY
- CL - LEAN CLAY
- PT - PEAT
- ML - SILT
- SM - SILTY SAND
- NO SAMPLE

AL = ARTIFICIAL LEVEE

HORIZONTAL SCALE IN FEET

500 250 0 500 1000 1500

NATURAL LEVEE - PREDOMINANTLY FAT AND LEAN CLAYS AND SILTS WITH SOME SAND LAYERS

PRODELTA - PREDOMINANTLY A HOMOGENEOUS FAT CLAY WITH SOME LEAN CLAYS

INTERDISTRIBUTARY - INTERBEDDED LAYERS OF FAT AND LEAN CLAYS, SILTS, SILTY SANDS, AND SANDS

ABANDONED COURSE - INTERBEDDED LAYERS OF SANDS, SILTS, AND CLAYS

SWAMP-MARSH - PREDOMINANTLY ORGANIC CLAYS, FAT CLAYS, AND PEATS WITH OCCASIONAL SAND AND SILT LAYERS

PLEISTOCENE - STIFF TO VERY STIFF, OXIDIZED CLAYS INTERBEDDED WITH LAYERS AND LENSES OF SILTS AND SANDS

WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. I GENERAL DESIGN
SUPPLEMENT NO. 2

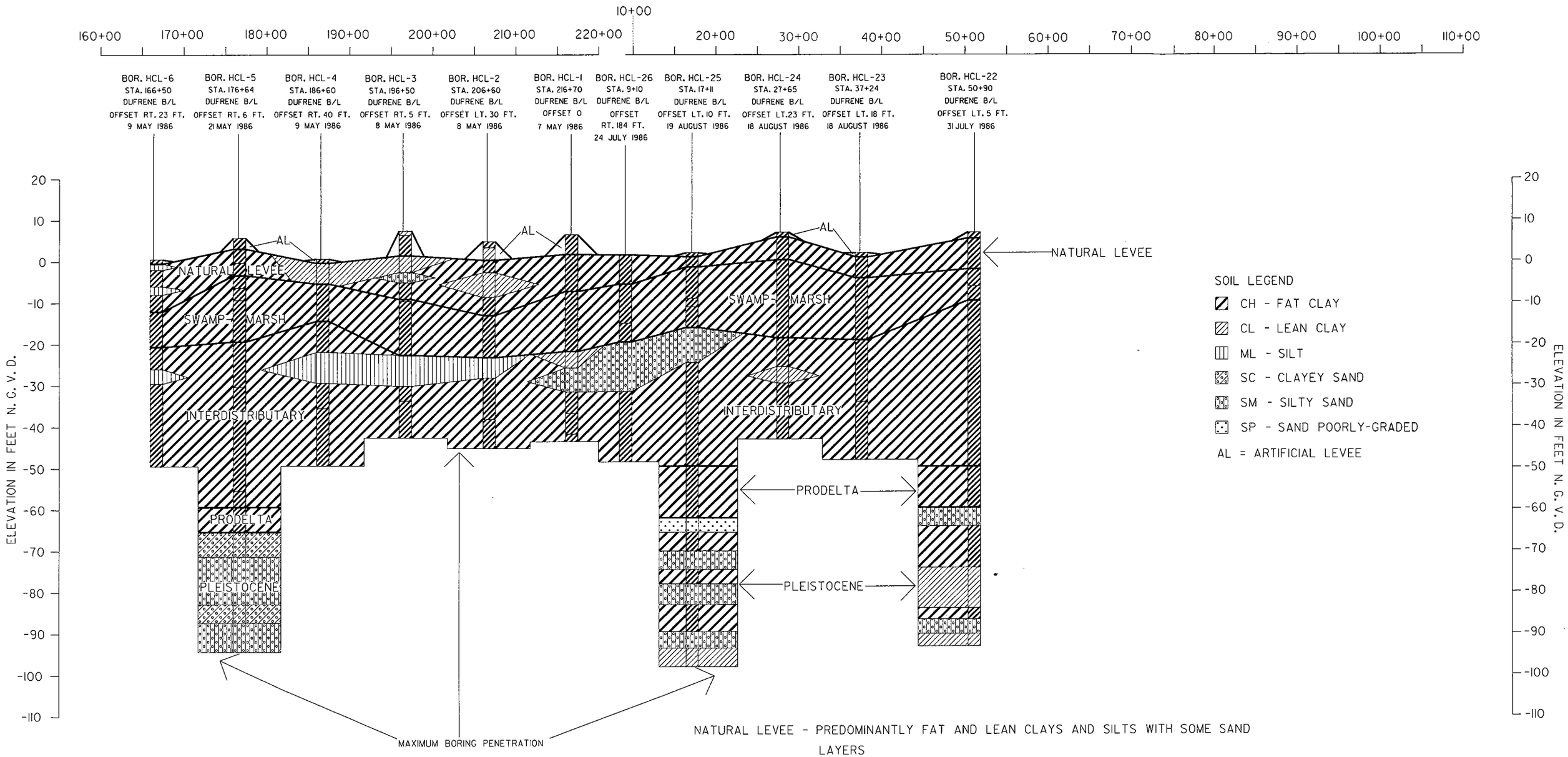
HARVEY CANAL LEVEE SOIL AND GEOLOGIC PROFILE

U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

DATE: FEBRUARY 1990 FILE NO. H-2-30618

PLATE F 106

STATIONS ON THE NORTHERN SECTION OF HARVEY CANAL LEVEE



HORIZONTAL SCALE IN FEET

500 250 0 500 1000 1500

NATURAL LEVEE - PREDOMINANTLY FAT AND LEAN CLAYS AND SILTS WITH SOME SAND LAYERS

PRODELTA - PREDOMINANTLY A HOMOGENEOUS FAT CLAY WITH SOME LEAN CLAYS

INTERDISTRIBUTARY - INTERBEDDED LAYERS OF FAT AND LEAN CLAYS, SILTS, SILTY SANDS, AND SANDS

SWAMP-MARSH - PREDOMINANTLY ORGANIC CLAYS, FAT CLAYS, AND PEATS WITH OCCASIONAL SAND AND SILT LAYERS

PLEISTOCENE - STIFF TO VERY STIFF, OXIDIZED CLAYS INTERBEDDED WITH LAYERS AND LENSES OF SILTS AND SANDS

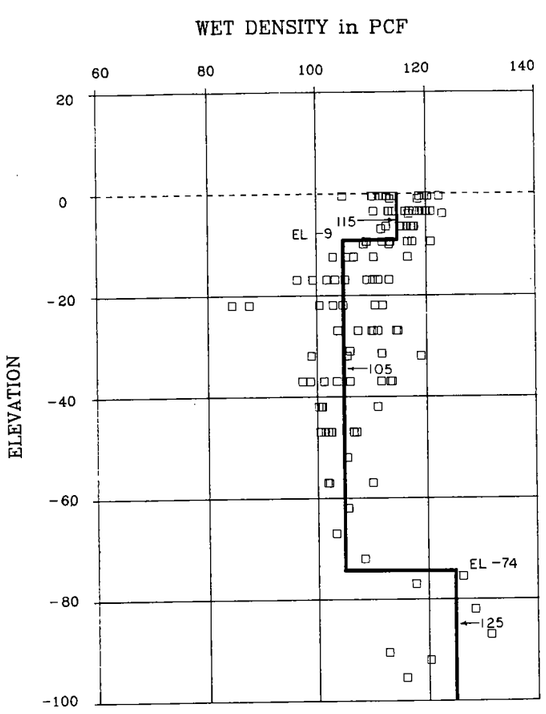
WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

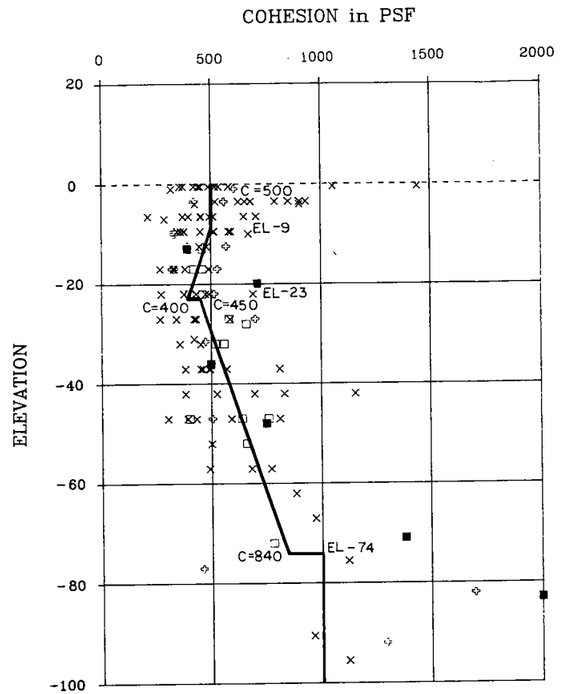
HARVEY CANAL LEVEE SOIL AND GEOLOGIC PROFILE

U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

DATE: FEBRUARY 1990 FILE NO. H-2-30618

HIGHWAY 45 LEVEE





LEGEND

X	UCT TEST
□	(Q) TEST
✣	1-Pt (Q) TEST
■	(Q) TEST – CE Boring

WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. I GENERAL DESIGN
SUPPLEMENT NO. 2

HWY 45 LEVEE
SHEAR STRENGTH AND DENSITY

U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

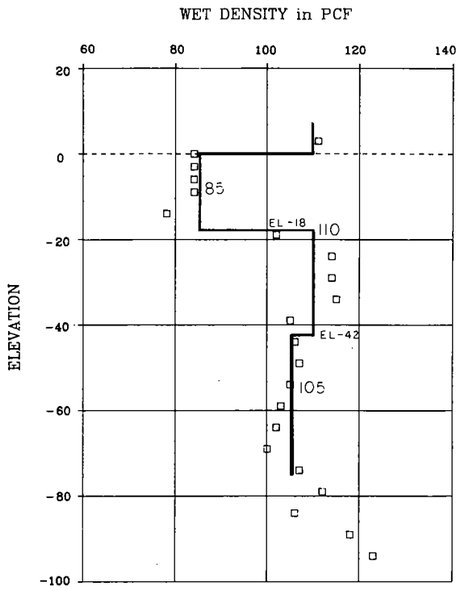
DATE: FEB. 90

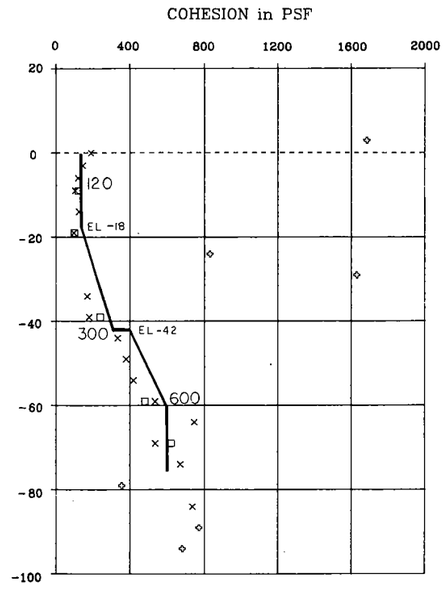
FILE NO. H-2-30618

PLATE F107

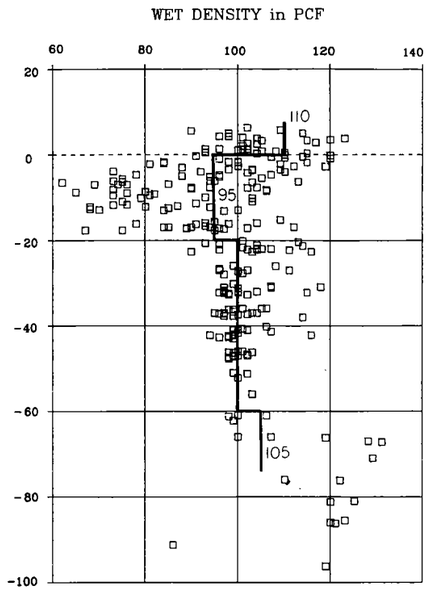
HARVEY CANAL LEVEE

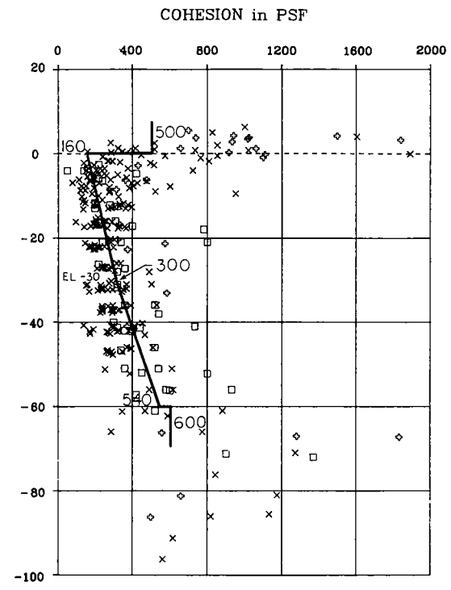
REACH I



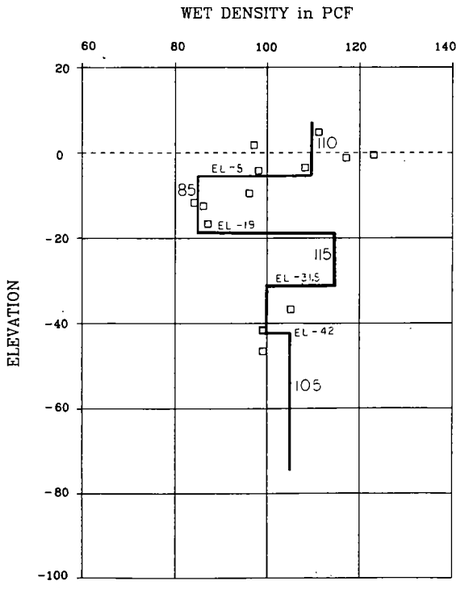


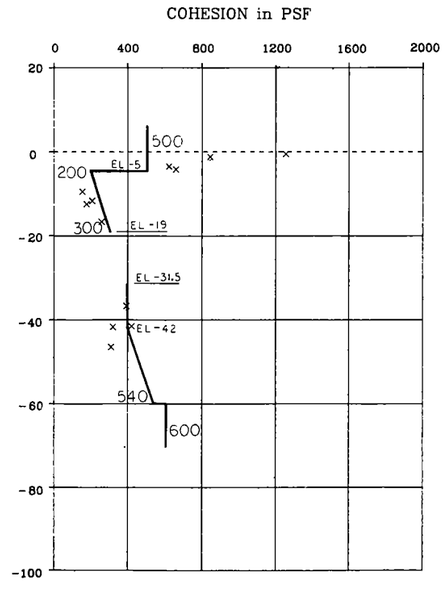
REACH II, IV & VI





REACH V





LEGEND

- X UCT TEST
- □ (Q) TEST
- ✣ 1-Pt (Q) TEST
- ■ (Q) TEST – CE Boring

WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

HARVEY CANAL LEVEE

SHEAR STRENGTH AND DENSITY

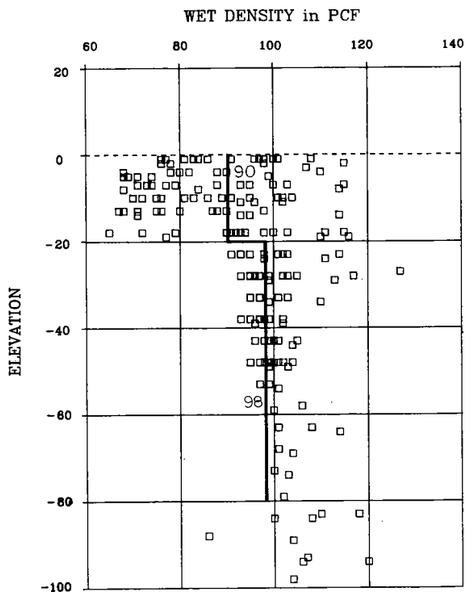
U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

DATE: FEB. 90 FILE NO. H-2-30618

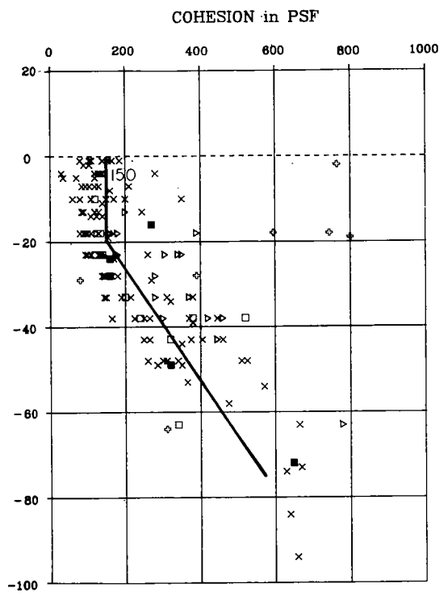
PLATE F108

WESTWEGO LEVEE

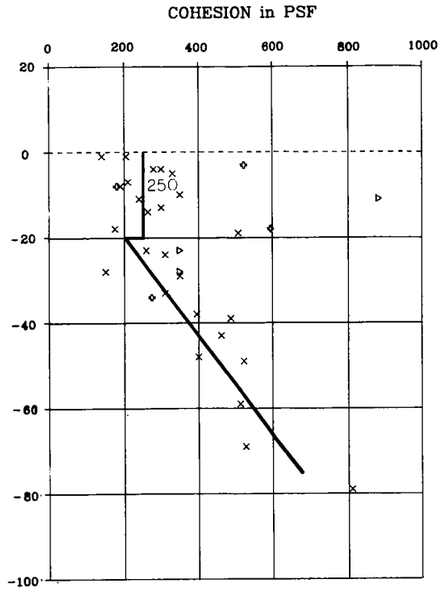
REACH I, II, III & IV



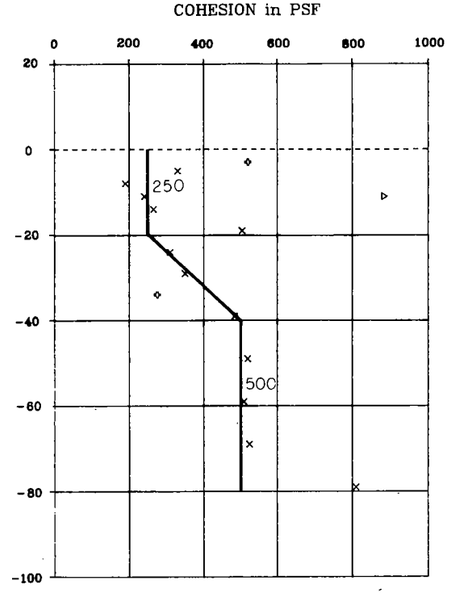
REACH I & III



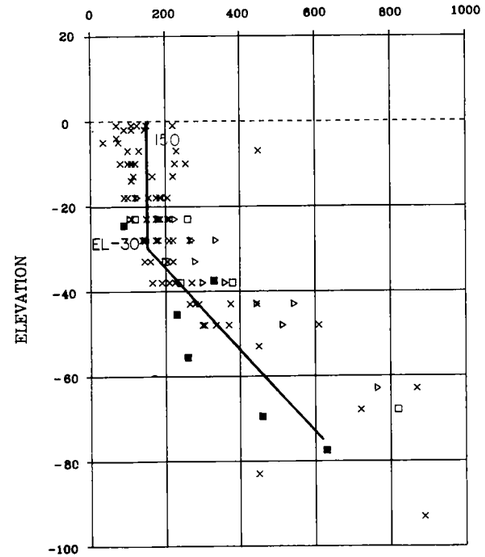
REACH II



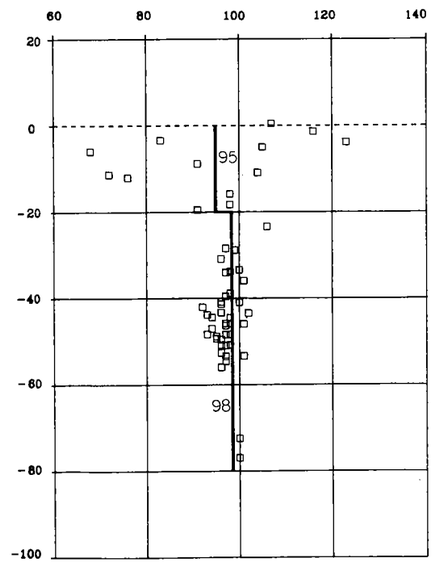
AIRPORT REACH



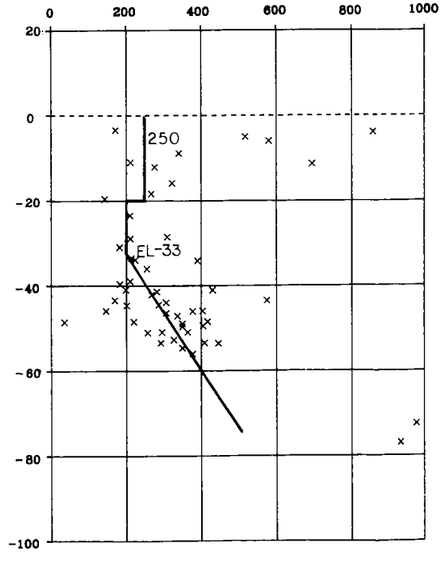
REACH IV



REACH V



REACH V



LEGEND

- X UCT TEST
- □ (Q) TEST
- ✣ 1-Pt (Q) TEST
- ■ (Q) TEST – CE Boring
- ▷ MINI-VANE TEST

WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

WESTWEGO LEVEE
SHEAR STRENGTH AND DENSITY

U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

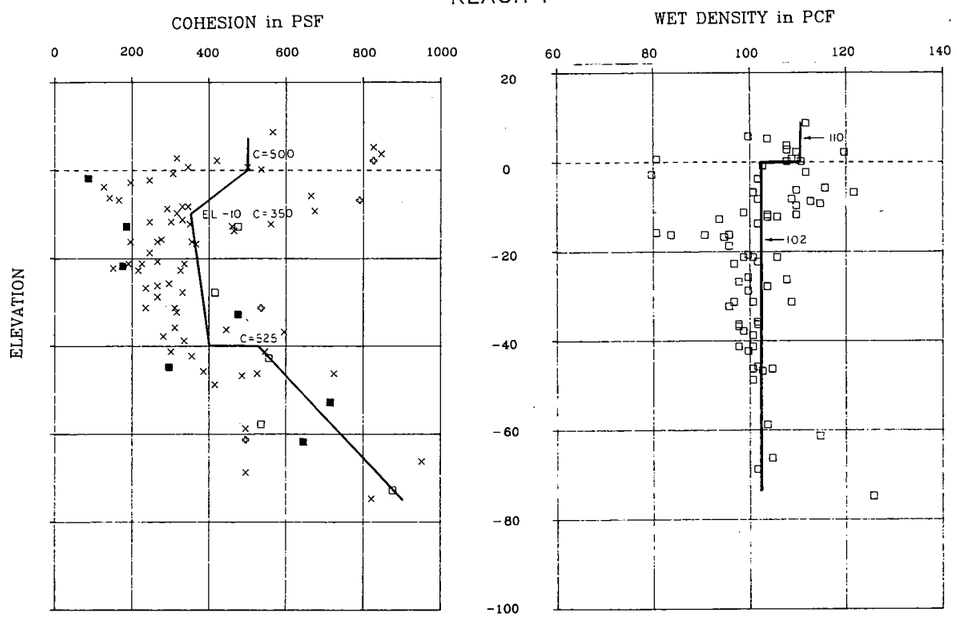
DATE: FEB. 90

FILE NO. H-2-30618

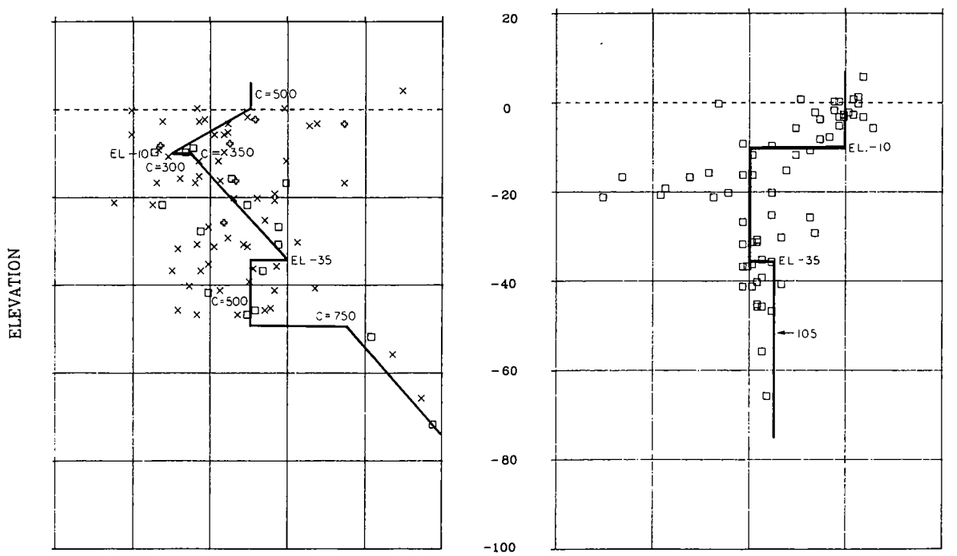
PLATE F109

OAK COVE LEVEE

REACH I



REACH II



LEGEND

- × UCT TEST
- □ (Q) TEST
- ✣ 1-Pt (Q) TEST
- ■ (Q) TEST – CE Boring

WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

OAK COVE LEVEE
SHEAR STRENGTH AND DENSITY

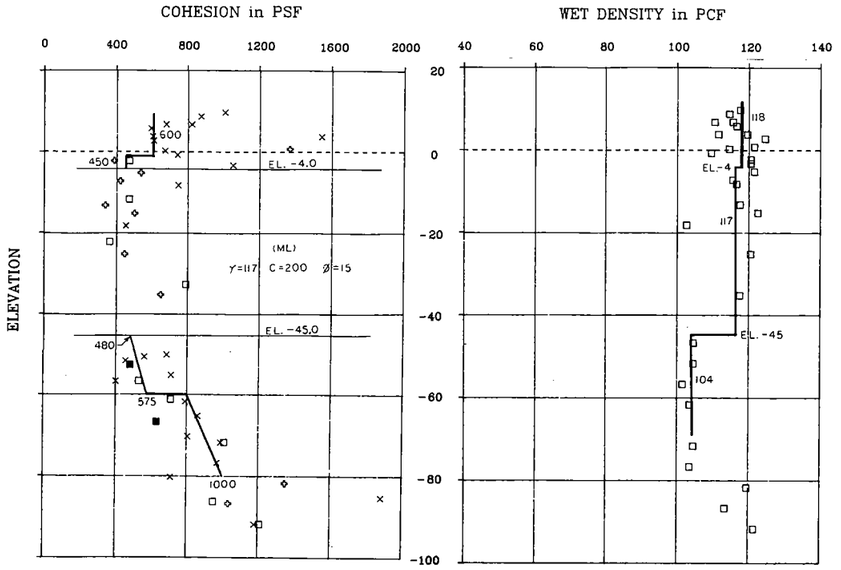
U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

DATE: FEB. 90 FILE NO. H-2-30618

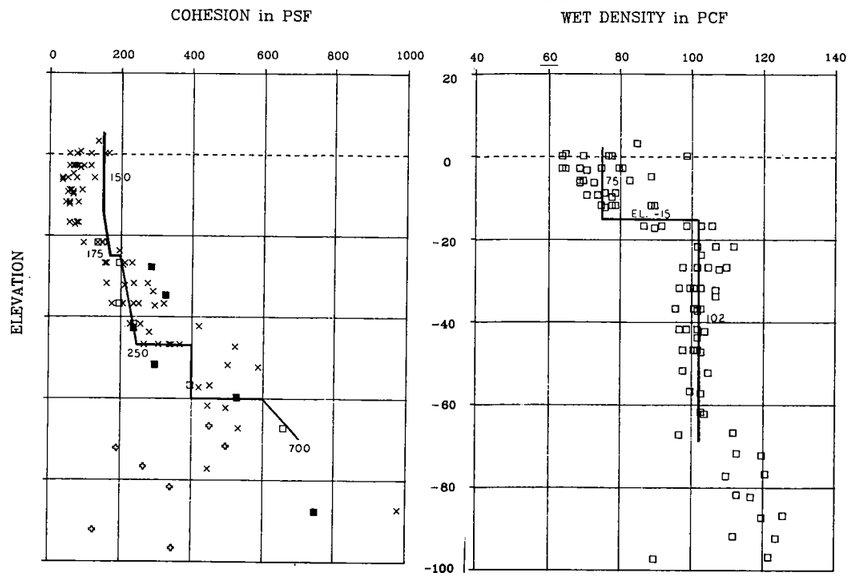
PLATE FII0

V-LEVEE

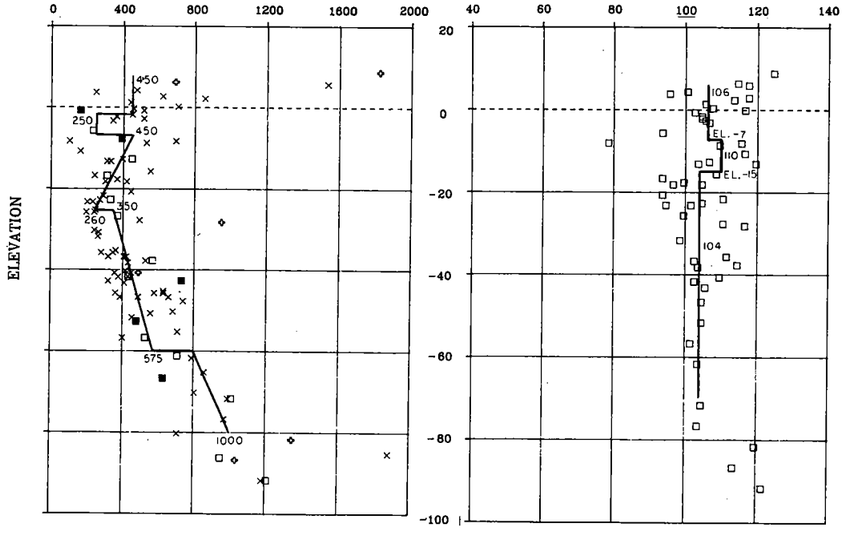
REACH I



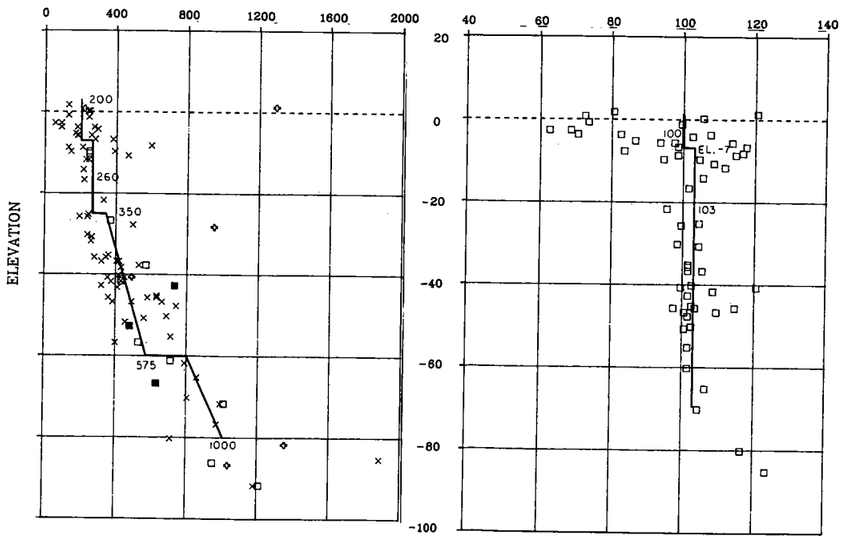
REACH II – Floodside



REACH II – Existing C/L



REACH II – Protected Side



LEGEND

- X UCT TEST
- □ (Q) TEST
- ✣ 1-Pt (Q) TEST
- ■ (Q) TEST – CE Boring

WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. I GENERAL DESIGN
SUPPLEMENT NO. 2

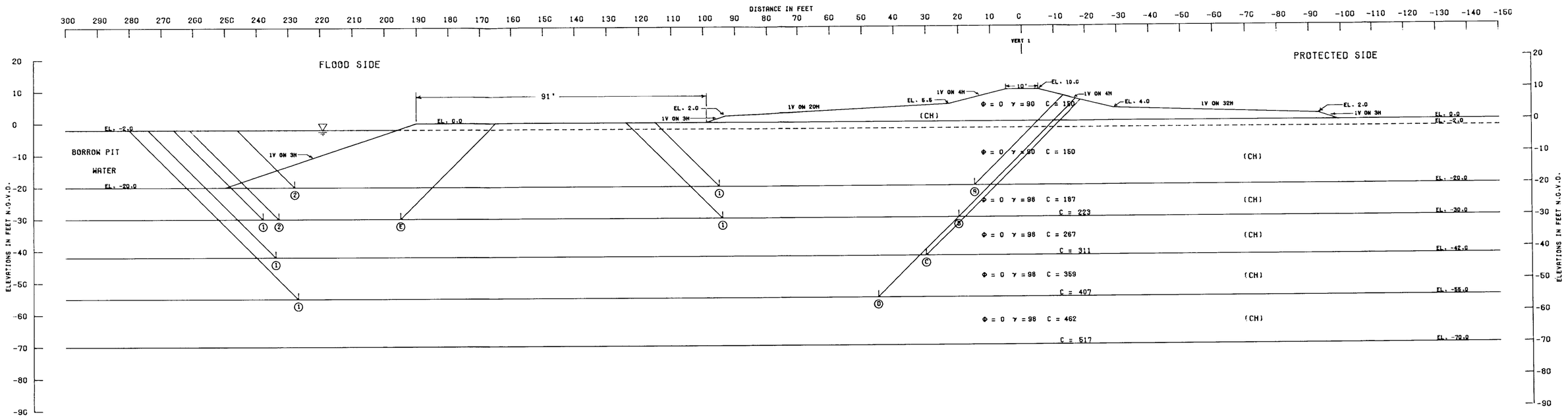
V - LEVEE
SHEAR STRENGTH AND DENSITY

U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

DATE: FEB. 90

FILE NO. H-2-30618

PLATE FIII



GENERAL NOTES:

CLASSIFICATION, STRATIFICATION, SHEAR STRENGTH, AND UNIT WEIGHT OF THE SOIL WERE BASED ON THE RESULTS OF UNDISTURBED BORINGS. SEE BORING DATA PLATES.

ASSUMED FAILURE SURFACE		RESISTING FORCES			DRIVING FORCES		SUMMATION OF FORCES		FACTOR OF SAFETY
NO.	ELEV.	R_A	R_B	R_P	D_A	$-D_P$	RESISTING	DRIVING	
⑨ ①	-20.0	8400	12000	6000	38472	18239	26400	20233	1.30
⑨ ②	-20.0	8400	31850	1650	38472	10679	42000	27793	1.51
Ⓑ ①	-30.0	11830	16502	9730	67840	41273	38062	26567	1.43
Ⓑ ②	-30.0	11830	47499	4255	67840	27430	63584	40410	1.57
Ⓒ ①	-42.0	18118	63444	10138	114420	59762	91700	54658	1.68
Ⓓ ①	-55.0	27672	73983	19472	178348	111946	121027	67402	1.80
Ⓔ ①	-30.0	9729	9589	3880	40517	26920	23198	13597	1.71

NOTES

Φ -- ANGLE OF INTERNAL FRICTION, DEGREES
C -- UNIT COHESION, P.S.F.
▽ -- STATIC WATER SURFACE
D -- HORIZONTAL DRIVING FORCE IN POUNDS
R -- HORIZONTAL RESISTING FORCE IN POUNDS
A -- AS A SUBSCRIPT, REFERS TO ACTIVE WEDGE
B -- AS A SUBSCRIPT, REFERS TO CENTRAL BLOCK
P -- AS A SUBSCRIPT, REFERS TO PASSIVE WEDGE

$$\text{FACTOR OF SAFETY} = \frac{R_A + R_B + R_P}{D_A - D_P}$$

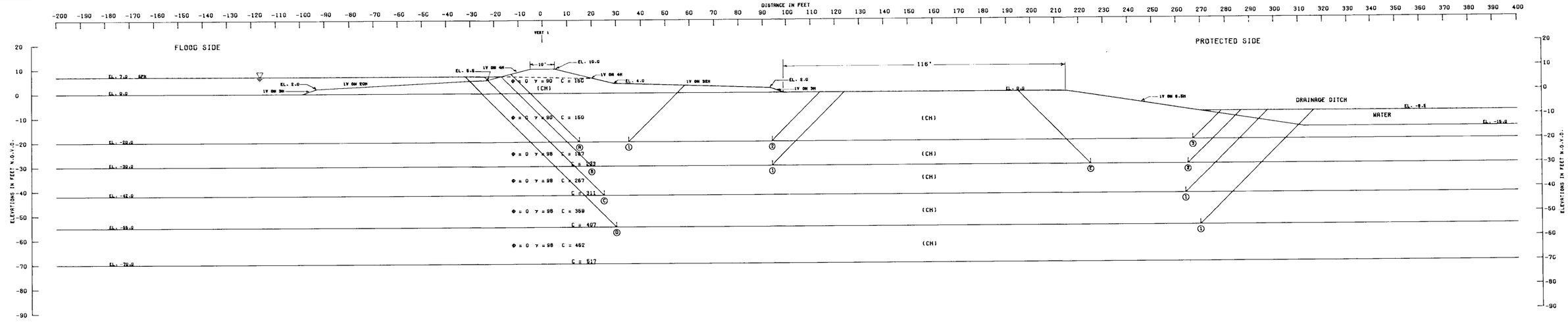
WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

WESTWEGO LEVEE
REACH I & III
STA. 69+95 TO 123+00, 146+55 TO 187+73 B/L
FLOODSIDE ANALYSIS

U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

DATE: FEB. 90 FILE NO. H-2-30618

PLATE F112



GENERAL NOTES:

CLASSIFICATION, STRATIFICATION, SHEAR STRENGTH, AND UNIT WEIGHT OF THE SOIL WERE BASED ON THE RESULTS OF UNDISTURBED BORINGS. SEE BORING DATA PLATES.

ASSUMED FAILURE SURFACE		RESISTING FORCES			DRIVING FORCES		SUMMATION OF FORCES		FACTOR OF SAFETY
NO.	ELEV.	R_A	R_B	R_P	D_B	$-D_A$	RESISTING	DRIVING	
(S) (1)	-20.0	8400	3000	6827	38472	24741	18327	13731	1.33
(S) (2)	-20.0	8400	11850	8000	38472	18374	28250	20098	1.31
(R) (3)	-20.0	8400	37800	3110	38472	5888	49320	32673	1.51
(B) (1)	-30.0	11831	16502	9730	67840	41273	38063	26567	1.43
(R) (2)	-30.0	11831	54635	6530	67840	20805	72996	46935	1.56
(C) (1)	-42.0	17819	74329	12488	115081	51338	104636	63722	1.64
(D) (1)	-55.0	27016	97660	21072	181418	98263	145648	83156	1.75
(E) (1)	-30.0	9730	8920	6530	40206	20805	25180	18300	1.30

NOTES

Φ -- ANGLE OF INTERNAL FRICTION, DEGREES
C -- UNIT COHESION, P.S.F.
∇ -- STATIC WATER SURFACE
D -- HORIZONTAL DRIVING FORCE IN POUNDS
R -- HORIZONTAL RESISTING FORCE IN POUNDS
A -- AS A SUBSCRIPT, REFERS TO ACTIVE WEDGE
B -- AS A SUBSCRIPT, REFERS TO CENTRAL BLOCK
P -- AS A SUBSCRIPT, REFERS TO PASSIVE WEDGE

FACTOR OF SAFETY = $\frac{R_A + R_B + R_P}{D_B - D_A}$

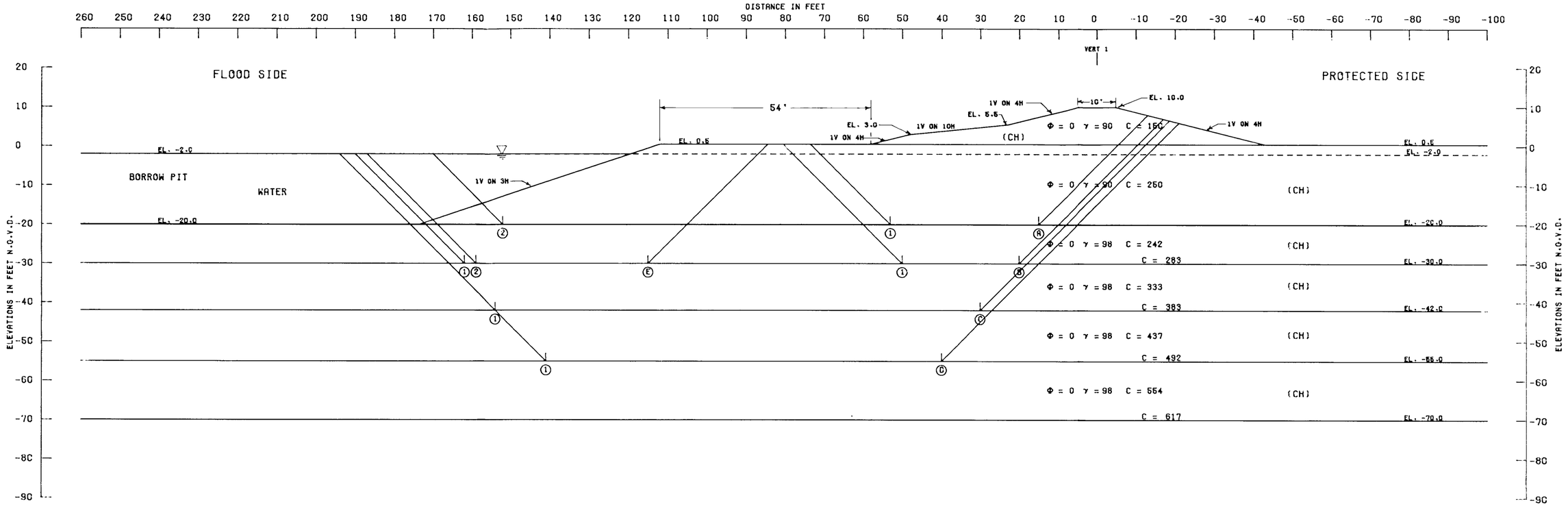
WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

WESTWEGO LEVEE
REACH I & III
STA. 69+95 TO 123+00, 146+55 TO 187+73 B/L
PROTECTED SIDE ANALYSIS

U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

DATE: FEB '80
FILE NO. H-2-30818

PLATE F113



GENERAL NOTES:

CLASSIFICATION, STRATIFICATION, SHEAR STRENGTH, AND UNIT WEIGHT OF THE SOIL WERE BASED ON THE RESULTS OF UNDISTURBED BORINGS. SEE BORING DATA PLATES.

ASSUMED FAILURE SURFACE NO.	ASSUMED FAILURE SURFACE ELEV.	RESISTING FORCES R_A	RESISTING FORCES R_B	RESISTING FORCES R_P	DRIVING FORCES D_A	DRIVING FORCES $-D_P$	SUMMATION OF FORCES RESISTING	SUMMATION OF FORCES DRIVING	FACTOR OF SAFETY
(A) (1)	-20.0	12500	7600	10250	38472	19191	30350	19281	1.57
(A) (2)	-20.0	12500	27400	2687	38472	10640	42587	27832	1.53
(B) (1)	-30.0	17026	8496	15075	67840	42978	40591	24862	1.63
(B) (2)	-30.0	17026	38337	5388	67840	27137	61751	40703	1.52
(C) (1)	-42.0	24898	47482	12818	114309	60282	85208	54027	1.58
(D) (1)	-55.0	36080	49642	24180	179586	114301	109902	65285	1.68
(E) (1)	-30.0	15075	13301	5013	42119	26841	33389	15278	2.19

NOTES

Φ -- ANGLE OF INTERNAL FRICTION, DEGREES
C -- UNIT COHESION, P.S.F.
▽ -- STATIC WATER SURFACE
D -- HORIZONTAL DRIVING FORCE IN POUNDS
R -- HORIZONTAL RESISTING FORCE IN POUNDS
A -- AS A SUBSCRIPT, REFERS TO ACTIVE WEDGE
B -- AS A SUBSCRIPT, REFERS TO CENTRAL BLOCK
P -- AS A SUBSCRIPT, REFERS TO PASSIVE WEDGE

FACTOR OF SAFETY = $\frac{R_A + R_B + R_P}{D_A - D_P}$

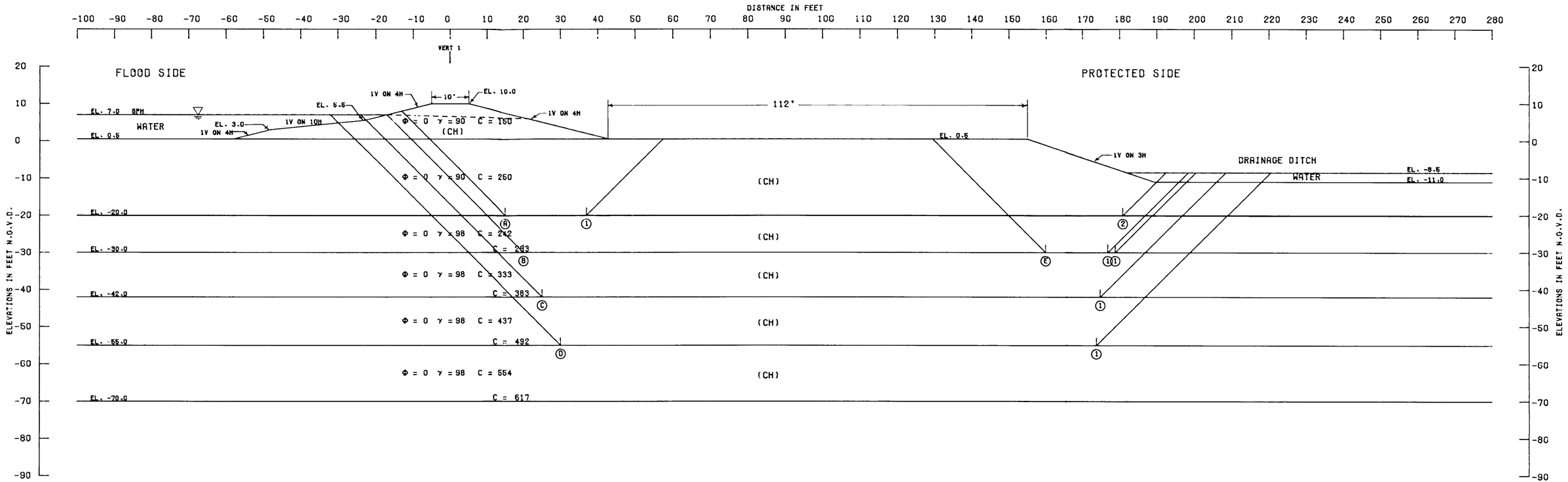
WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

WESTWEGO LEVEE
REACH II
STA. 131+49 TO 146+55 B/L
FLOODSIDE ANALYSIS

U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

DATE: FEB 90 FILE NO. H-2-30918

PLATE FII4



GENERAL NOTES:

CLASSIFICATION, STRATIFICATION, SHEAR STRENGTH, AND UNIT WEIGHT OF THE SOIL WERE BASED ON THE RESULTS OF UNDISTURBED BORINGS. SEE BORING DATA PLATES.

ASSUMED FAILURE SURFACE NO.	ASSUMED FAILURE SURFACE ELEV.	RESISTING FORCES R_A	RESISTING FORCES R_B	RESISTING FORCES R_P	DRIVING FORCES D_A	DRIVING FORCES $-D_P$	SUMMATION OF FORCES RESISTING	SUMMATION OF FORCES DRIVING	FACTOR OF SAFETY
(A) (1)	-20.0	12600	4400	10250	38472	19315	27150	19157	1.42
(A) (2)	-20.0	12600	33200	4600	38472	5686	50200	32886	1.53
(B) (1)	-30.0	17026	44987	9326	67840	20404	71349	47436	1.50
(C) (1)	-42.0	24589	57450	17318	115061	51686	99357	63375	1.57
(D) (1)	-55.0	35726	70776	28680	181375	100846	135182	80529	1.68
(E) (1)	-30.0	15075	4811	9326	41878	20781	29212	21097	1.38

NOTES

Φ -- ANGLE OF INTERNAL FRICTION, DEGREES
C -- UNIT COHESION, P.S.F.
▽ -- STATIC WATER SURFACE
D -- HORIZONTAL DRIVING FORCE IN POUNDS
R -- HORIZONTAL RESISTING FORCE IN POUNDS
A -- AS A SUBSCRIPT, REFERS TO ACTIVE WEDGE
B -- AS A SUBSCRIPT, REFERS TO CENTRAL BLOCK
P -- AS A SUBSCRIPT, REFERS TO PASSIVE WEDGE

$$\text{FACTOR OF SAFETY} = \frac{R_A + R_B + R_P}{D_A - D_P}$$

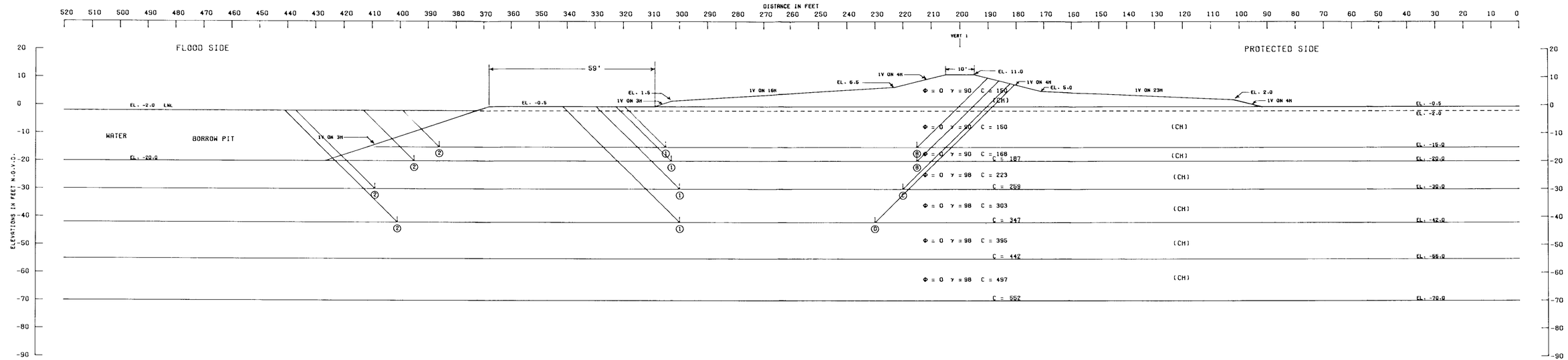
WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

WEST WEGO LEVEE
REACH II
STA. 131+49 TO 146+55 B/L
PROTECTED SIDE ANALYSIS

U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

DATE: FEB 90 FILE NO. H-2-30618

PLATE F115



GENERAL NOTES:

CLASSIFICATION, STRATIFICATION, SHEAR STRENGTH, AND UNIT WEIGHT OF THE SOIL WERE BASED ON THE RESULTS OF UNDISTURBED BORINGS. SEE BORING DATA PLATES.

FAILURE SURFACE NO.		FAILURE SURFACE ELEV.	RESISTING FORCES R_A	R_B	R_P	DRIVING FORCES D_B	$-D_P$	SUMMATION OF FORCES RESISTING	DRIVING	FACTOR OF SAFETY
Ⓡ	①	-16.0	7440	13500	4360	28968	9700	25290	19268	1.31
Ⓡ	②	-16.0	7440	26660	1912	28968	6020	36002	22948	1.63
Ⓑ	①	-20.0	8820	16412	6030	41028	17650	31262	23378	1.34
Ⓑ	②	-20.0	8820	33570	2642	41028	11249	44932	29779	1.51
Ⓒ	①	-30.0	12980	20760	10490	71206	40863	44230	30543	1.45
Ⓒ	②	-30.0	12980	49046	5090	71206	27464	67116	43752	1.53
Ⓓ	①	-42.0	20132	24290	17762	118802	80637	62184	38265	1.63
Ⓓ	②	-42.0	20132	59337	12026	118802	61481	91496	57321	1.60

NOTES

Φ -- ANGLE OF INTERNAL FRICTION, DEGREES
C -- UNIT COHESION, P.S.F.
∇ -- STATIC WATER SURFACE
D -- HORIZONTAL DRIVING FORCE IN POUNDS
R -- HORIZONTAL RESISTING FORCE IN POUNDS
A -- AS A SUBSCRIPT, REFERS TO ACTIVE WEDGE
B -- AS A SUBSCRIPT, REFERS TO CENTRAL BLOCK
P -- AS A SUBSCRIPT, REFERS TO PASSIVE WEDGE

FACTOR OF SAFETY = $\frac{R_A + R_B + R_P}{D_A - D_P}$

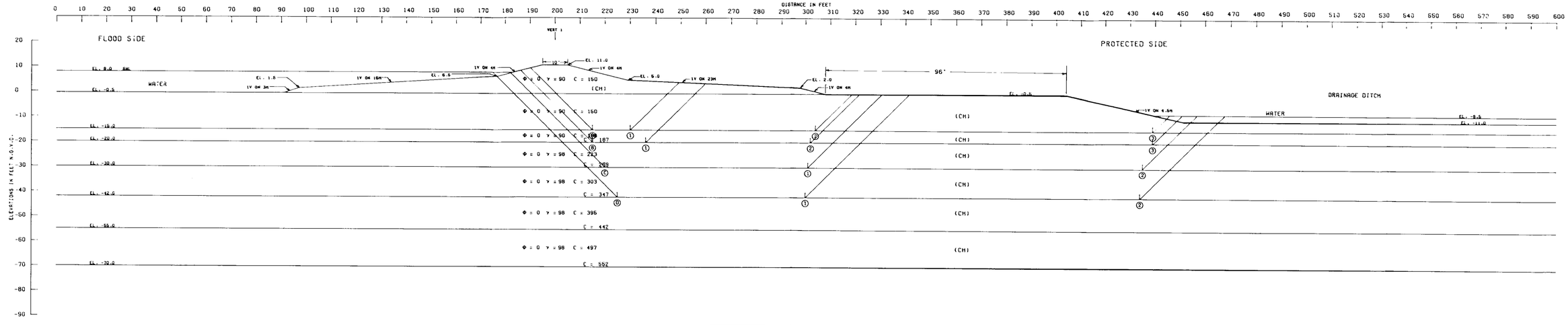
WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

WESTMINSTER LEVEE
REACH IV
STA. 188+73 TO 261+20 B/L
FLOODSIDE ANALYSIS

U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

DATE: FEB '70 FILE NO. M-2-30616

PLATE F116



GENERAL NOTES:

CLASSIFICATION, STRATIFICATION, SHEAR STRENGTH, AND UNIT WEIGHT OF THE SOIL WERE BASED ON THE RESULTS OF UNDISTURBED BORINGS. SEE BORING DATA PLATES.

ASSUMED FAILURE SURFACE		RESISTING FORCES			DRIVING FORCES		SUMMATION OF FORCES		FACTOR OF SAFETY
NO.	ELEV.	R_A	R_B	R_P	D_A	$-D_P$	RESISTING	DRIVING	
(A) (1)	-15.0	7440	2250	6737	28968	17174	16427	11794	1.31
(A) (2)	-15.0	7440	13360	4360	28968	9641	25140	19327	1.30
(A) (3)	-15.0	7440	33600	1650	28968	1835	42690	27133	1.57
(B) (1)	-20.0	8820	3917	7280	41028	26298	20017	14730	1.36
(B) (2)	-20.0	8820	16226	6030	41028	17515	31076	23513	1.32
(B) (3)	-20.0	8820	41776	3057	41028	5684	53663	35344	1.52
(C) (1)	-30.0	12981	21220	10490	71212	40111	44691	31101	1.43
(C) (2)	-30.0	12981	56793	7340	71212	20786	76114	50426	1.51
(D) (1)	-42.0	19854	26026	17762	119475	80164	63641	39321	1.62
(D) (2)	-42.0	19854	72523	14612	119475	81372	106989	68103	1.57

NOTES

Φ -- ANGLE OF INTERNAL FRICTION, DEGREES
C -- UNIT COHESION, P.S.F.
∇ -- STATIC WATER SURFACE
D -- HORIZONTAL DRIVING FORCE IN POUNDS
R -- HORIZONTAL RESISTING FORCE IN POUNDS
A -- RS A SUBSCRIPT, REFERS TO ACTIVE WEDGE
B -- RS B SUBSCRIPT, REFERS TO CENTRAL BLOCK
P -- RS A SUBSCRIPT, REFERS TO PASSIVE WEDGE

$$\text{FACTOR OF SAFETY} = \frac{R_A + R_B + R_P}{D_A - D_P}$$

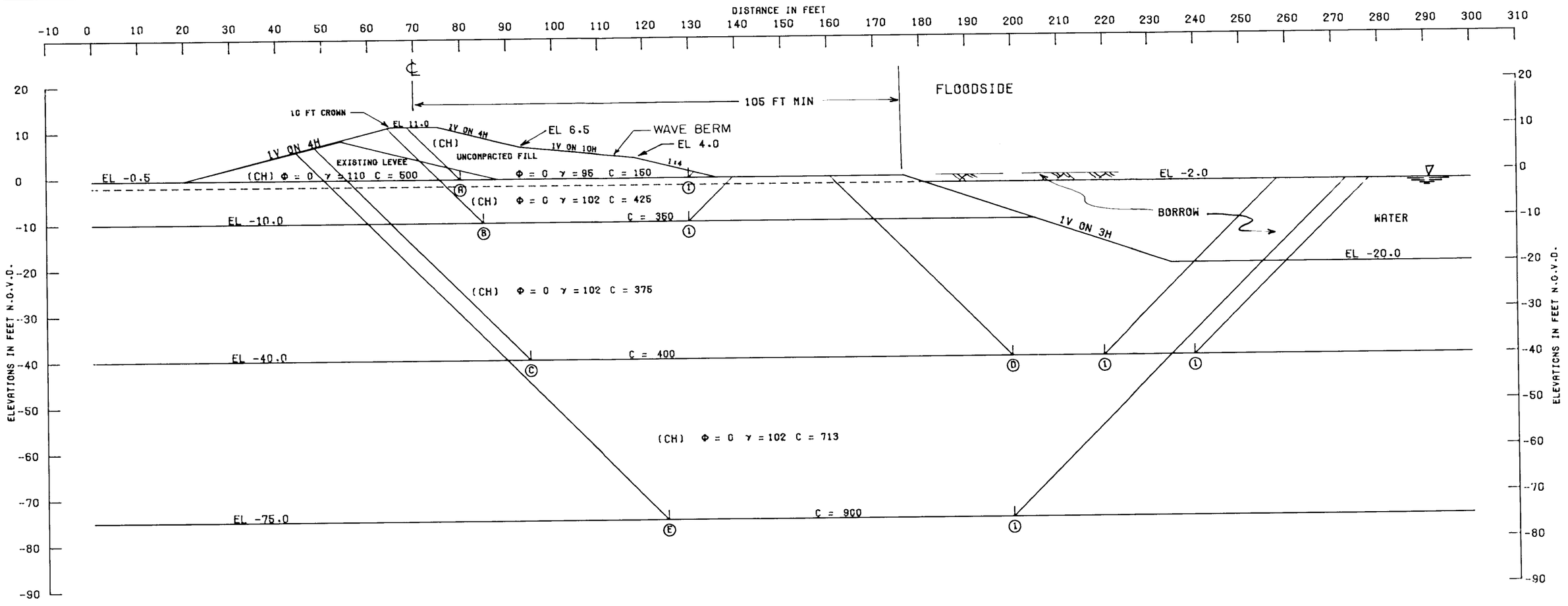
WEAKENING TO PARTLY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

WESTMINSTER LEVEE
REACH IV
STA. 188+73 TO 261+20 B/L
PROTECTED SIDE ANALYSIS

U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

DATE: FEB 90 FILE NO. H-2-30618

PLATE F117



ASSUMED FAILURE SURFACE NO.		ASSUMED FAILURE SURFACE EL.EV.	RESISTING FORCES R_A	RESISTING FORCES R_B	RESISTING FORCES R_P	DRIVING FORCES D_A	DRIVING FORCES $-D_P$	SUMMATION OF FORCES RESISTING	SUMMATION OF FORCES DRIVING	FACTOR OF SAFETY
Ⓐ	①	-0.5	5315	10300	360	6023	86	15975	5938	2.690
Ⓑ	①	-10.0	14378	15750	8075	20436	5030	38204	15406	2.480
Ⓒ	①	-40.0	37700	50000	15000	122462	64504	102700	67958	1.510
Ⓓ	①	-40.0	30674	16000	15000	73936	53023	61674	20913	2.940
Ⓔ	①	-75.0	86572	67500	64875	344384	234331	218947	110053	1.990

NOTES

Φ -- ANGLE OF INTERNAL FRICTION, DEGREES
C -- UNIT COHESION, P.S.F.
▽ -- STATIC WATER SURFACE
D -- HORIZONTAL DRIVING FORCE IN POUNDS
R -- HORIZONTAL RESISTING FORCE IN POUNDS
A -- AS A SUBSCRIPT, REFERS TO ACTIVE WEDGE
B -- AS A SUBSCRIPT, REFERS TO CENTRAL BLOCK
P -- AS A SUBSCRIPT, REFERS TO PASSIVE WEDGE

$$\text{FACTOR OF SAFETY} = \frac{R_A + R_B + R_P}{D_A - D_P}$$

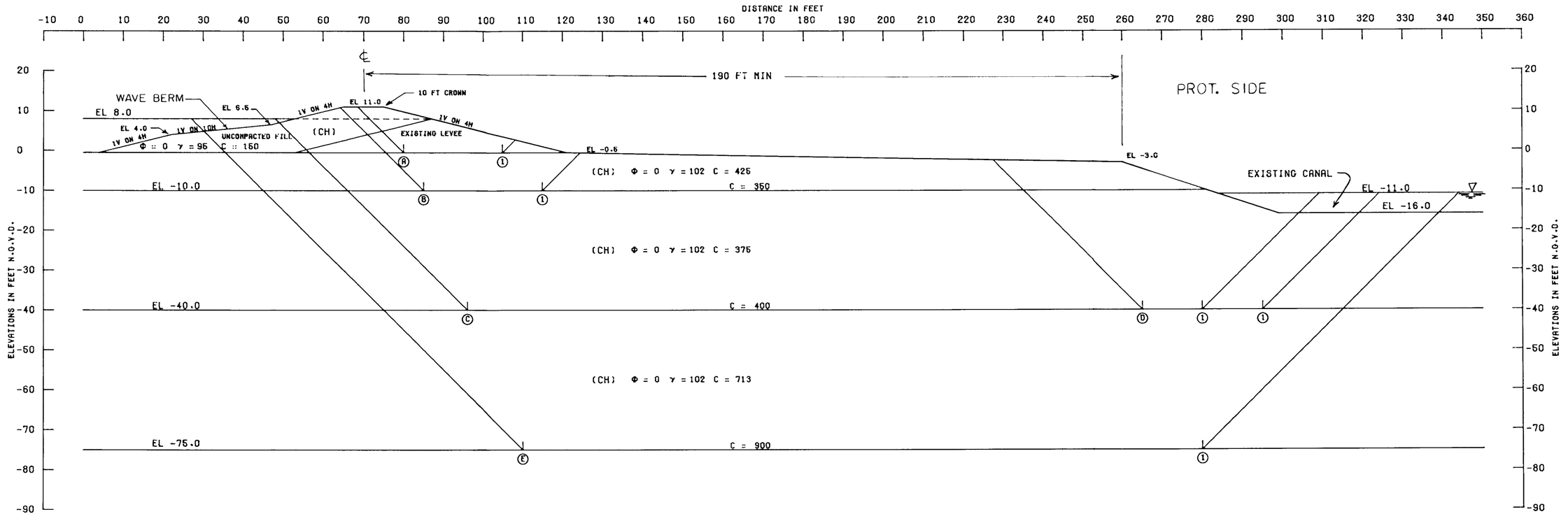
WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

OAK COVE LEVEE
STA. 261+20 TO 321+05 B/L
FLOODSIDE ANALYSIS

U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

DATE: FEB. 90 FILE NO. H-2-30618

PLATE F118



ASSUMED FAILURE SURFACE NO.	ASSUMED FAILURE SURFACE ELEV.	RESISTING FORCES R_A	RESISTING FORCES R_B	RESISTING FORCES R_P	DRIVING FORCES D_A	DRIVING FORCES $-D_P$	SUMMATION OF FORCES RESISTING	SUMMATION OF FORCES DRIVING	FACTOR OF SAFETY
Ⓐ ①	-0.5	7231	12600	3199	6257	704	22930	5553	4.130
Ⓑ ①	-10.0	14616	10500	8022	21224	5086	33138	16138	2.050
Ⓒ ①	-40.0	33317	73600	18000	123267	40198	124917	83068	1.500
Ⓓ ①	-40.0	28946	12000	18000	70338	37761	58946	32577	1.810
Ⓔ ①	-75.0	82046	153000	67874	349148	199286	302920	149863	2.020

NOTES

Φ -- ANGLE OF INTERNAL FRICTION. DEGREES
C -- UNIT COHESION. P.S.F.
▽ -- STATIC WATER SURFACE
D -- HORIZONTAL DRIVING FORCE IN POUNDS
R -- HORIZONTAL RESISTING FORCE IN POUNDS
A -- AS A SUBSCRIPT. REFERS TO ACTIVE WEDGE
B -- AS A SUBSCRIPT. REFERS TO CENTRAL BLOCK
P -- AS A SUBSCRIPT. REFERS TO PASSIVE WEDGE

$$\text{FACTOR OF SAFETY} = \frac{R_A + R_B + R_P}{D_A - D_P}$$

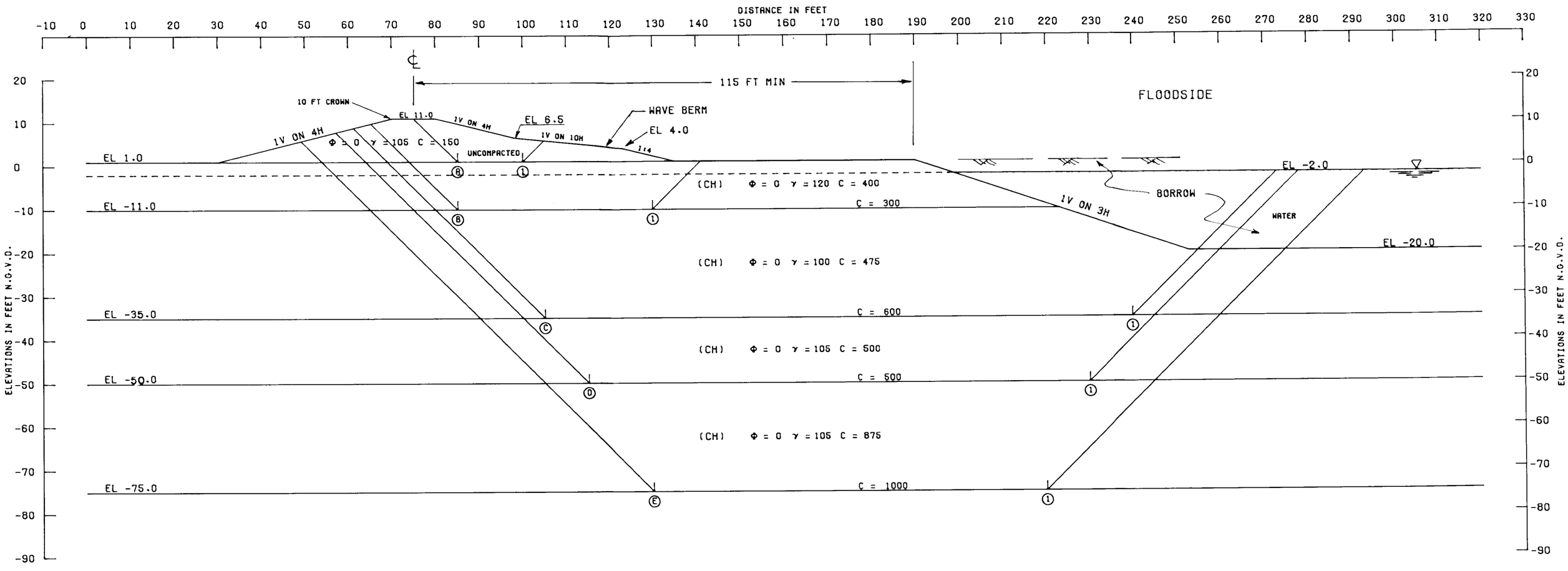
WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

OAK COVE LEVEE
STA. 261+20 TO 321+05 B/L
PROTECTED SIDE ANALYSIS

U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

DATE: FEB. 90 FILE NO. H-2-30618

PLATE F119



ASSUMED FAILURE SURFACE NO.	ASSUMED FAILURE SURFACE ELEV.	RESISTING FORCES R_A	RESISTING FORCES R_B	RESISTING FORCES R_P	DRIVING FORCES D_A	DRIVING FORCES $-D_P$	SUMMATION OF FORCES RESISTING	SUMMATION OF FORCES DRIVING	FACTOR OF SAFETY
Ⓐ ①	1.0	3000	2250	1445	4920	1340	6695	3580	1.870
Ⓑ ①	-10.0	11440	13500	8800	23351	7588	33740	15763	2.140
Ⓒ ①	-35.0	34890	67500	14250	105465	39305	116640	66160	1.760
Ⓓ ①	-50.0	49590	57500	29250	182922	92740	136340	90182	1.510
Ⓔ ①	-75.0	92741	90000	73000	361111	234078	255741	127033	2.010

NOTES

Φ -- ANGLE OF INTERNAL FRICTION, DEGREES
C -- UNIT COHESION, P.S.F.
▽ -- STATIC WATER SURFACE
D -- HORIZONTAL DRIVING FORCE IN POUNDS
R -- HORIZONTAL RESISTING FORCE IN POUNDS
A -- AS A SUBSCRIPT, REFERS TO ACTIVE WEDGE
B -- AS A SUBSCRIPT, REFERS TO CENTRAL BLOCK
P -- AS A SUBSCRIPT, REFERS TO PASSIVE WEDGE

$$\text{FACTOR OF SAFETY} = \frac{R_A + R_B + R_P}{D_A - D_P}$$

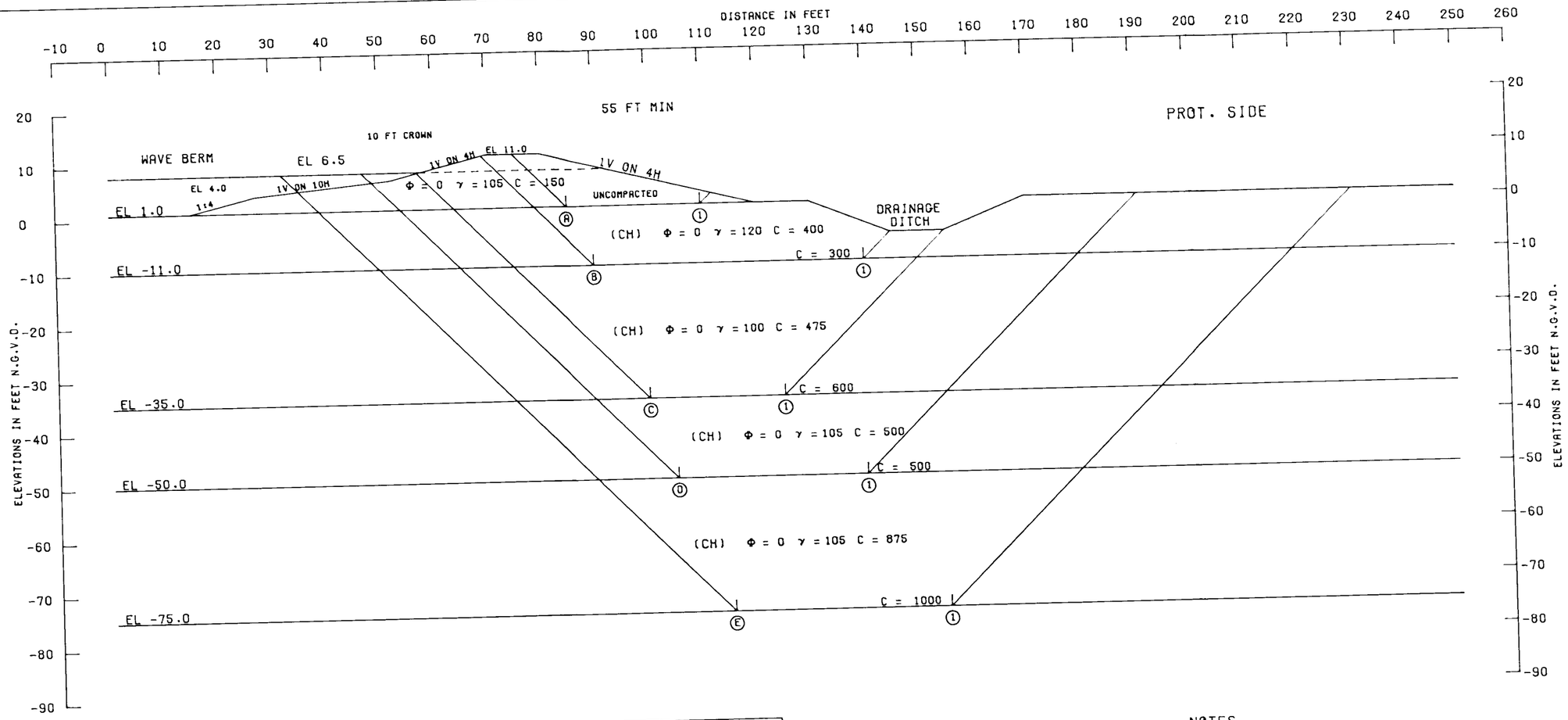
WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

OAK COVE LEVEE
STA. 336+10 TO 376+50 B/L
FLOODSIDE ANALYSIS

U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

DATE: FEB. 90
FILE NO. H-2-30618

PLATE F120



ASSUMED FAILURE SURFACE NO.	ASSUMED FAILURE SURFACE ELEV.	RESISTING FORCES R_A	RESISTING FORCES R_B	RESISTING FORCES R_P	DRIVING FORCES D_A	DRIVING FORCES $-D_P$	SUMMATION OF FORCES RESISTING	SUMMATION OF FORCES DRIVING	FACTOR OF SAFETY
Ⓐ ①	1.0	3000	3750	600	4920	262	7350	4658	1.580
Ⓑ ①	-10.0	11740	15000	4000	22733	2100	30740	20633	1.490
Ⓒ ①	-35.0	34691	12500	27764	106622	56746	74845	49876	1.500
Ⓓ ①	-50.0	49105	17500	47550	184898	125024	114155	59874	1.910
Ⓔ ①	-75.0	92446	40000	91299	364637	302904	223745	61733	3.620

NOTES

Φ -- ANGLE OF INTERNAL FRICTION, DEGREES
C -- UNIT COHESION, P.S.F.
▽ -- STATIC WATER SURFACE
D -- HORIZONTAL DRIVING FORCE IN POUNDS
R -- HORIZONTAL RESISTING FORCE IN POUNDS
A -- AS A SUBSCRIPT, REFERS TO ACTIVE WEDGE
B -- AS A SUBSCRIPT, REFERS TO CENTRAL BLOCK
P -- AS A SUBSCRIPT, REFERS TO PASSIVE WEDGE

$$\text{FACTOR OF SAFETY} = \frac{R_A + R_B + R_P}{D_A - D_P}$$

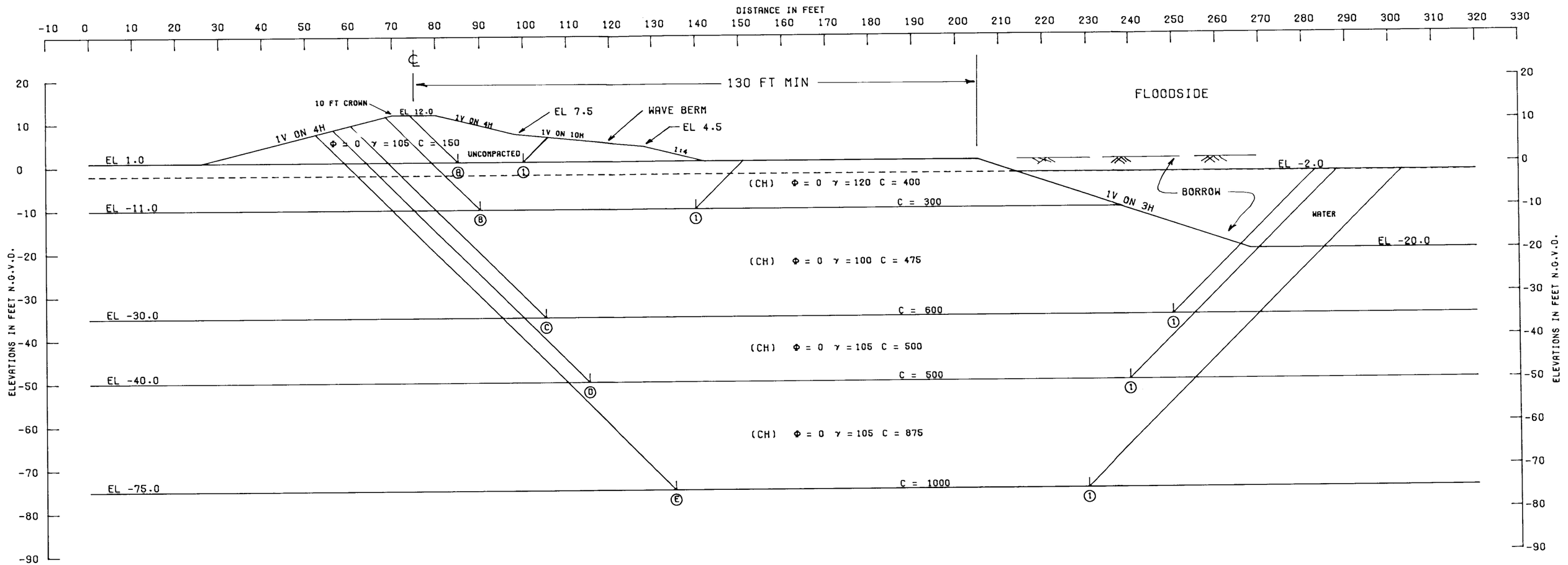
WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

OAK COVE LEVEE
STA. 336+10 TO 376+50 B/L
PROTECTED SIDE ANALYSIS

U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

DATE: FEB. 90 FILE NO. H-2-30618

PLATE F121



ASSUMED FAILURE NO.	ASSUMED SURFACE ELEV.	RESISTING FORCES R_A	R_B	R_P	DRIVING FORCES D_A	$-D_P$	SUMMATION OF FORCES RESISTING	DRIVING	FACTOR OF SAFETY
Ⓐ ①	1.0	3300	2250	1718	6022	1894	7268	4128	1.760
Ⓑ ①	-10.0	11980	15000	8800	24959	7312	35780	17647	2.030
Ⓒ ①	-35.0	35130	72500	14962	110106	40231	122592	69875	1.750
Ⓓ ①	-50.0	49830	62500	29250	189033	94334	141580	94699	1.500
Ⓔ ①	-75.0	93281	95000	73000	368034	236479	261281	131555	1.990

NOTES

Φ -- ANGLE OF INTERNAL FRICTION, DEGREES
C -- UNIT COHESION, P.S.F.
▽ -- STATIC WATER SURFACE
D -- HORIZONTAL DRIVING FORCE IN POUNDS
R -- HORIZONTAL RESISTING FORCE IN POUNDS
A -- AS A SUBSCRIPT, REFERS TO ACTIVE WEDGE
B -- AS A SUBSCRIPT, REFERS TO CENTRAL BLOCK
P -- AS A SUBSCRIPT, REFERS TO PASSIVE WEDGE

$$\text{FACTOR OF SAFETY} = \frac{R_A + R_B + R_P}{D_A - D_P}$$

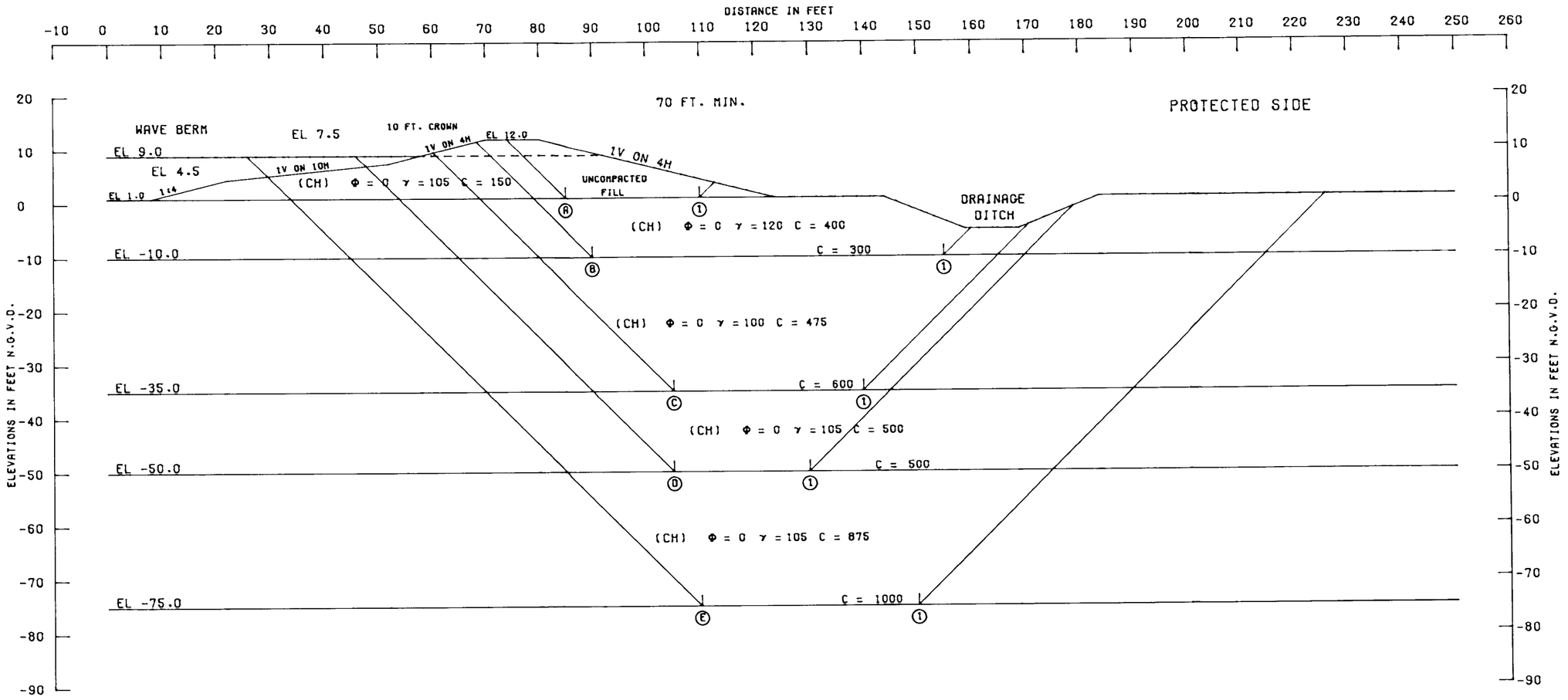
WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

OAK COVE LEVEE
STA. 378+85 TO 425+45 B/L
FLOODSIDE ANALYSIS

U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

DATE: FEB. 90 FILE NO. H-2-30618

PLATE F122



ASSUMED FAILURE SURFACE NO.	ASSUMED FAILURE SURFACE ELEV.	RESISTING FORCES R_A	RESISTING FORCES R_B	RESISTING FORCES R_P	DRIVING FORCES D_A	DRIVING FORCES $-D_P$	SUMMATION OF FORCES RESISTING	SUMMATION OF FORCES DRIVING	FACTOR OF SAFETY
(A) (1)	1.0	3300	3750	840	6022	514	7890	5508	1.430
(B) (1)	-10.0	11980	19500	4000	24959	1884	35480	23075	1.540
(C) (1)	-35.0	35131	17500	28287	109719	56067	80918	53652	1.510
(D) (1)	-50.0	49378	12500	45951	190961	122977	107829	67984	1.590
(E) (1)	-75.0	92582	40000	91300	375215	291169	223882	84046	2.660

NOTES

Φ -- ANGLE OF INTERNAL FRICTION, DEGREES
C -- UNIT COHESION, P.S.F.
▽ -- STATIC WATER SURFACE
D -- HORIZONTAL DRIVING FORCE IN POUNDS
R -- HORIZONTAL RESISTING FORCE IN POUNDS
A -- AS A SUBSCRIPT, REFERS TO ACTIVE WEDGE
B -- AS A SUBSCRIPT, REFERS TO CENTRAL BLOCK
P -- AS A SUBSCRIPT, REFERS TO PASSIVE WEDGE

$$\text{FACTOR OF SAFETY} = \frac{R_A + R_B + R_P}{D_A - D_P}$$

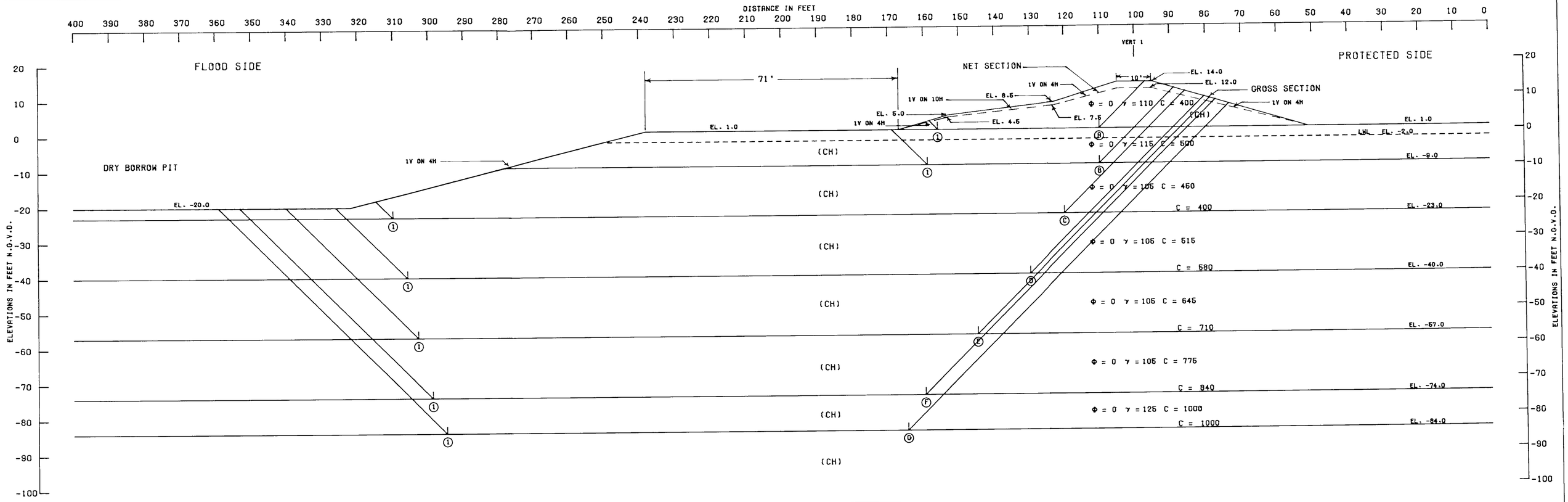
WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

OAK COVE LEVEE
STA. 378+85 TO 425+45 B/L
PROTECTED SIDE ANALYSIS

U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

DATE: FEB. 90 FILE NO. H-2-30618

PLATE F123



GENERAL NOTES:

CLASSIFICATION, STRATIFICATION, SHEAR STRENGTH, AND UNIT WEIGHT OF THE SOIL WERE BASED ON THE RESULTS OF UNDISTURBED BORINGS. SEE BORING DATA PLATES.

ASSUMED FAILURE SURFACE NO.	ASSUMED FAILURE SURFACE ELEV.	RESISTING FORCES R_A	RESISTING FORCES R_B	RESISTING FORCES R_P	DRIVING FORCES D_A	DRIVING FORCES $-D_P$	SUMMATION OF FORCES RESISTING	SUMMATION OF FORCES DRIVING	FACTOR OF SAFETY
Ⓐ ①	1.0	10400	18400	1855	8872	422	30655	8450	3.64
Ⓑ ①	-9.0	18941	19600	10000	28119	6755	48541	21364	2.27
Ⓒ ①	-23.0	30811	76000	4320	70162	1512	111131	68650	1.62
Ⓓ ①	-40.0	47044	102080	20210	145247	24359	169334	120888	1.40
Ⓔ ①	-57.0	68609	112180	42140	246739	76608	222928	170131	1.31
Ⓕ ①	-74.0	94595	116760	68490	376132	160027	279845	215105	1.30
Ⓒ ①	-84.0	113683	130000	88490	465788	225600	332173	240188	1.38

NOTES

Φ -- ANGLE OF INTERNAL FRICTION, DEGREES
C -- UNIT COHESION, P.S.F.
▽ -- STATIC WATER SURFACE
D -- HORIZONTAL DRIVING FORCE IN POUNDS
R -- HORIZONTAL RESISTING FORCE IN POUNDS
A -- AS A SUBSCRIPT, REFERS TO ACTIVE WEDGE
B -- AS A SUBSCRIPT, REFERS TO CENTRAL BLOCK
P -- AS A SUBSCRIPT, REFERS TO PASSIVE WEDGE

FACTOR OF SAFETY = $\frac{R_A + R_B + R_P}{D_A - D_P}$

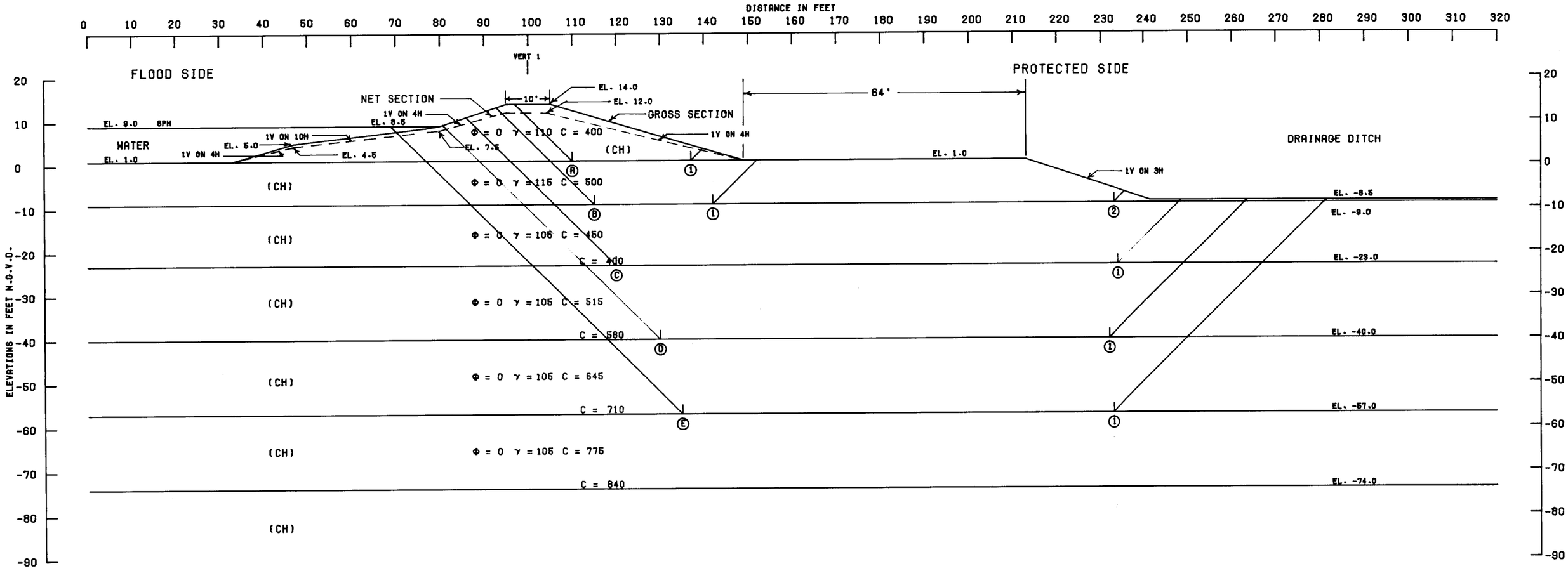
WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

HWY 45 LEVEE
STA. 425+45 TO 575+85 B/L
SEMI-COMPACTED FILL
FLOODSIDE ANALYSIS

U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

DATE: FEB. 90 FILE NO. H-2-30618

PLATE F124



GENERAL NOTES:

CLASSIFICATION, STRATIFICATION, SHEAR STRENGTH, AND UNIT WEIGHT OF THE SOIL WERE BASED ON THE RESULTS OF UNDISTURBED BORINGS. SEE BORING DATA PLATES.

ASSUMED FAILURE SURFACE NO.	ASSUMED FAILURE SURFACE ELEV.	RESISTING FORCES R_A	RESISTING FORCES R_B	RESISTING FORCES R_P	DRIVING FORCES D_A	DRIVING FORCES $-D_P$	SUMMATION OF FORCES RESISTING	SUMMATION OF FORCES DRIVING	FACTOR OF SAFETY
Ⓐ ①	1.0	10400	10800	2189	8886	533	23389	8353	2.80
Ⓑ ①	-9.0	19800	10800	10000	27592	8546	40600	21046	1.93
Ⓑ ②	-9.0	19800	47200	2500	27592	479	69500	27113	2.56
Ⓒ ①	-23.0	30601	45600	13100	70113	12187	89301	57926	1.54
Ⓓ ①	-40.0	46712	59160	30610	144648	53977	136482	90671	1.51
Ⓔ ①	-57.0	67414	69580	52540	247598	125115	189534	122484	1.55

NOTES

Φ -- ANGLE OF INTERNAL FRICTION, DEGREES
C -- UNIT COHESION, P.S.F.
▽ -- STATIC WATER SURFACE
D -- HORIZONTAL DRIVING FORCE IN POUNDS
R -- HORIZONTAL RESISTING FORCE IN POUNDS
A -- AS A SUBSCRIPT, REFERS TO ACTIVE WEDGE
B -- AS A SUBSCRIPT, REFERS TO CENTRAL BLOCK
P -- AS A SUBSCRIPT, REFERS TO PASSIVE WEDGE

FACTOR OF SAFETY = $\frac{R_A + R_B + R_P}{D_A - D_P}$

WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

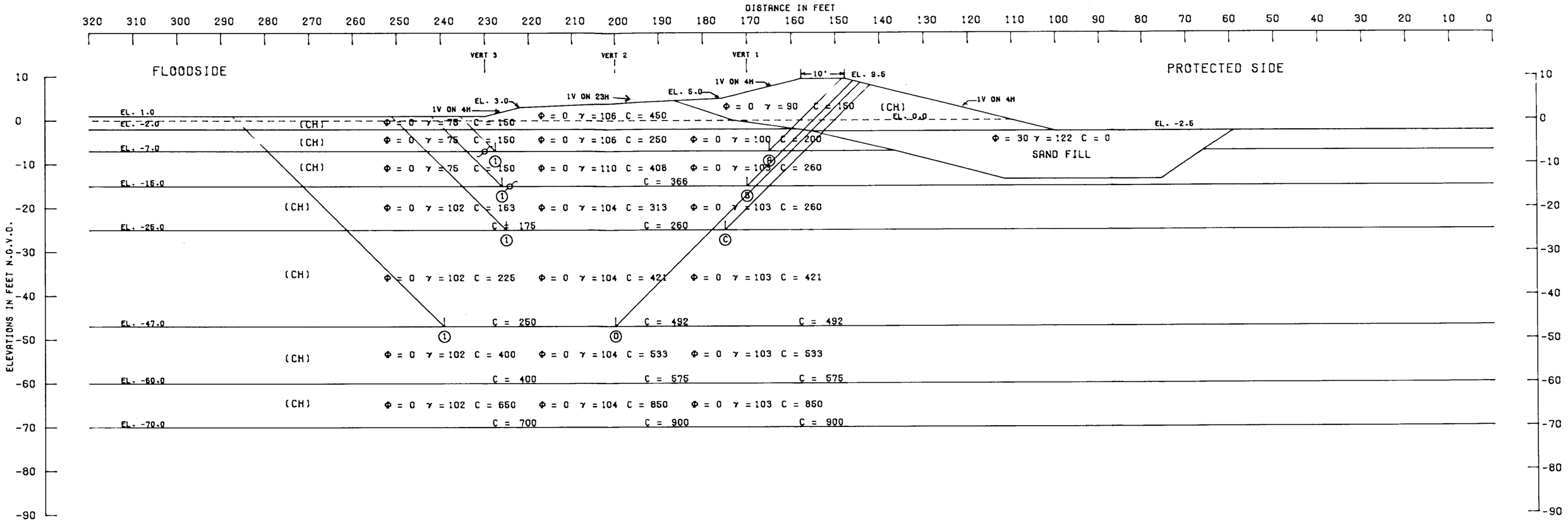
HWY 45 LEVEE
STA. 425+45 TO 575+85 B/L
SEMI - COMPACTED LEVEE
PROTECTED SIDE ANALYSIS

U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

DATE: FEB. 90

FILE NO. H-2-30618

PLATE F125



GENERAL NOTES:

CLASSIFICATION, STRATIFICATION, SHEAR STRENGTH, AND UNIT WEIGHT OF THE SOIL WERE BASED ON THE RESULTS OF UNDISTURBED BORINGS. SEE BORING DATA PLATES.

ASSUMED FAILURE SURFACE NO.	ASSUMED FAILURE SURFACE ELEV.	RESISTING FORCES R_A	RESISTING FORCES R_B	RESISTING FORCES R_P	DRIVING FORCES D_B	DRIVING FORCES $-D_P$	SUMMATION OF FORCES RESISTING	SUMMATION OF FORCES DRIVING	FACTOR OF SAFETY
(R) (1)	-7.0	5463	13376	2400	11848	2456	21239	9393	2.26
(B) (1)	-15.0	9435	13614	4800	26367	9742	27849	16615	1.68
(C) (1)	-25.0	14455	12139	8060	53143	26921	34654	26222	1.32
(D) (1)	-47.0	33120	13452	17960	145052	100220	64532	44832	1.44

NOTES

Φ -- ANGLE OF INTERNAL FRICTION, DEGREES
C -- UNIT COHESION, P.S.F.
▽ -- STATIC WATER SURFACE
D -- HORIZONTAL DRIVING FORCE IN POUNDS
R -- HORIZONTAL RESISTING FORCE IN POUNDS
A -- AS A SUBSCRIPT, REFERS TO ACTIVE WEDGE
B -- AS A SUBSCRIPT, REFERS TO CENTRAL BLOCK
P -- AS A SUBSCRIPT, REFERS TO PASSIVE WEDGE

FACTOR OF SAFETY = $\frac{R_A + R_B + R_P}{D_B - D_P}$

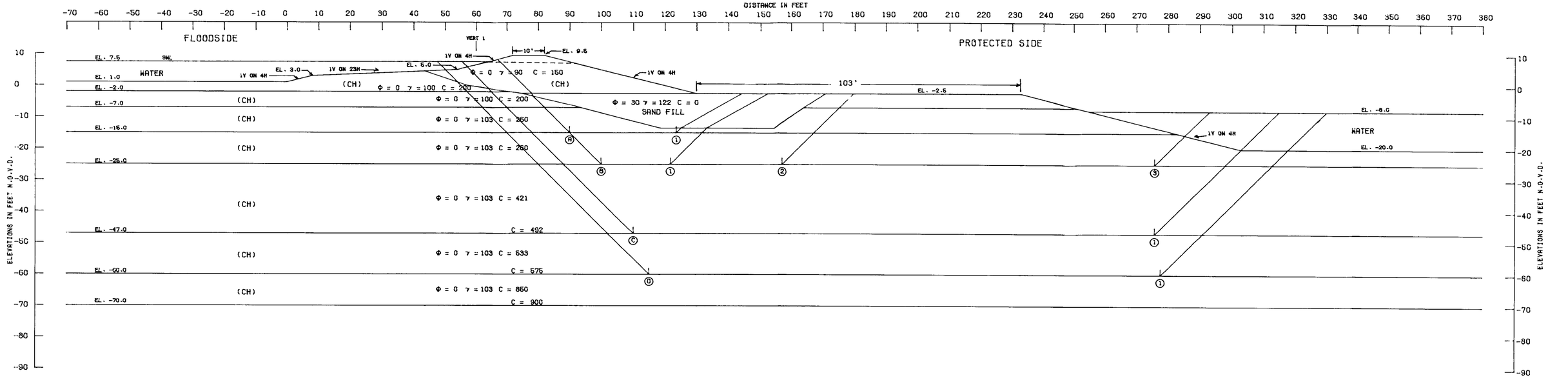
WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

V - LINE LEVEE
STA. 660+70 TO 801+10 B/L
UNCOMPACTED FILL
FLOOD SIDE ANALYSIS

U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

DATE: FEB. 90 FILE NO. H-2-30618

PLATE F126



GENERAL NOTES:

CLASSIFICATION, STRATIFICATION, SHEAR STRENGTH, AND UNIT WEIGHT OF THE SOIL WERE BASED ON THE RESULTS OF UNDISTURBED BORINGS. SEE BORING DATA PLATES.

ASSUMED FAILURE SURFACE		RESISTING FORCES			DRIVING FORCES		SUMMATION OF FORCES		FACTOR OF SAFETY
NO.	ELEV.	R_A	R_B	R_P	D_A	$-D_P$	RESISTING	DRIVING	
Ⓐ ①	-16.0	8131	8749	7452	27427	9851	25332	17576	1.44
Ⓑ ①	-26.0	14331	6646	13178	64252	30396	33155	23856	1.39
Ⓑ ②	-26.0	14331	14865	11160	64252	27122	40356	27130	1.49
Ⓑ ③	-26.0	14331	45707	4909	64252	11286	64947	42966	1.51
Ⓒ ①	-47.0	32326	81488	21145	147812	66037	134958	81775	1.65
Ⓓ ①	-60.0	46087	93569	34982	226720	120129	174638	105591	1.65

NOTES

Φ -- ANGLE OF INTERNAL FRICTION, DEGREES
C -- UNIT COHESION, P.S.F.
▽ -- STATIC WATER SURFACE
D -- HORIZONTAL DRIVING FORCE IN POUNDS
R -- HORIZONTAL RESISTING FORCE IN POUNDS
A -- AS A SUBSCRIPT, REFERS TO ACTIVE WEDGE
B -- AS A SUBSCRIPT, REFERS TO CENTRAL BLOCK
P -- AS A SUBSCRIPT, REFERS TO PASSIVE WEDGE

FACTOR OF SAFETY = $\frac{R_A + R_B + R_P}{D_A - D_P}$

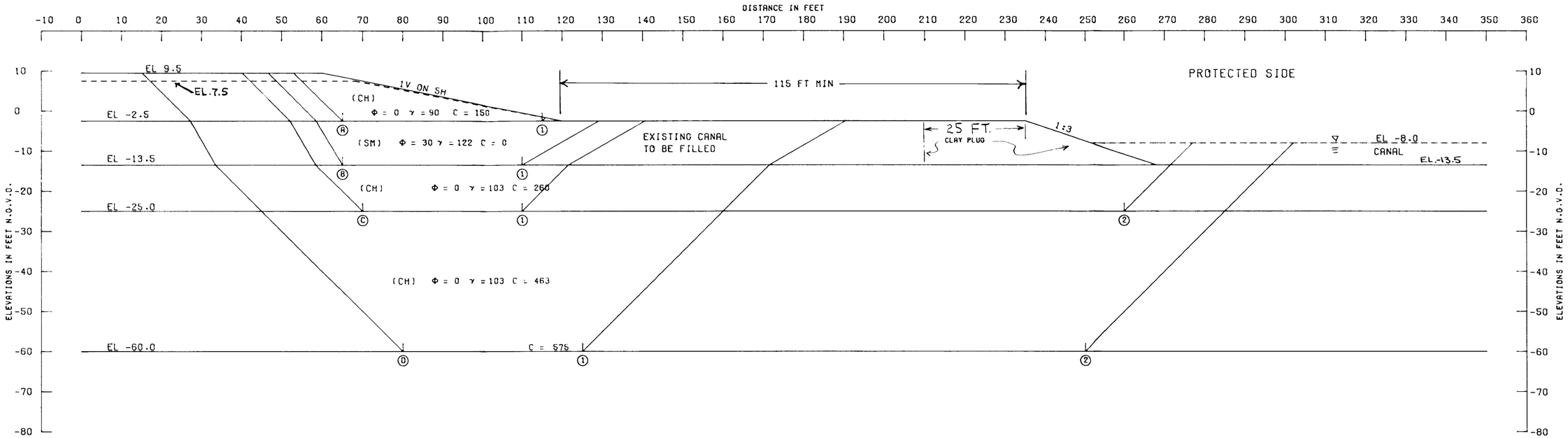
WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

V - LINE LEVEE
STA. 660+70 TO 801+10 B/L
UNCOMPACTED FILL
PROTECTED SIDE ANALYSIS

U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

DATE: FEB. 90 FILE NO. H-2-30618

PLATE F127



ASSUMED FAILURE SURFACE NO.	ASSUMED FAILURE SURFACE ELEV.	RESISTING FORCES R_A	RESISTING FORCES R_B	RESISTING FORCES R_P	DRIVING FORCES D_A	DRIVING FORCES $-D_P$	SUMMATION OF FORCES RESISTING	SUMMATION OF FORCES DRIVING	FACTOR OF SAFETY
Ⓐ ①	-2.5	3600	4946	250	6253	37	8796	6216	1.420
Ⓑ ①	-13.5	9075	11700	6917	25347	7900	27692	17447	1.590
Ⓒ ①	-25.0	15315	10400	13178	59498	30523	38893	28975	1.340
Ⓒ ②	-25.0	16315	49400	5980	59498	12343	70695	47155	1.500
Ⓓ ①	-60.0	47690	25875	45550	246105	181129	119115	64976	1.830
Ⓓ ②	-60.0	47690	97750	38356	246105	131517	183795	114588	1.600

NOTES

Φ -- ANGLE OF INTERNAL FRICTION, DEGREES
C -- UNIT COHESION, P.S.F.
▽ -- STATIC WATER SURFACE
D -- HORIZONTAL DRIVING FORCE IN POUNDS
R -- HORIZONTAL RESISTING FORCE IN POUNDS
A -- AS A SUBSCRIPT, REFERS TO ACTIVE WEDGE
B -- AS A SUBSCRIPT, REFERS TO CENTRAL BLOCK
P -- AS A SUBSCRIPT, REFERS TO PASSIVE WEDGE

$$\text{FACTOR OF SAFETY} = \frac{R_A + R_B + R_P}{D_A - D_P}$$

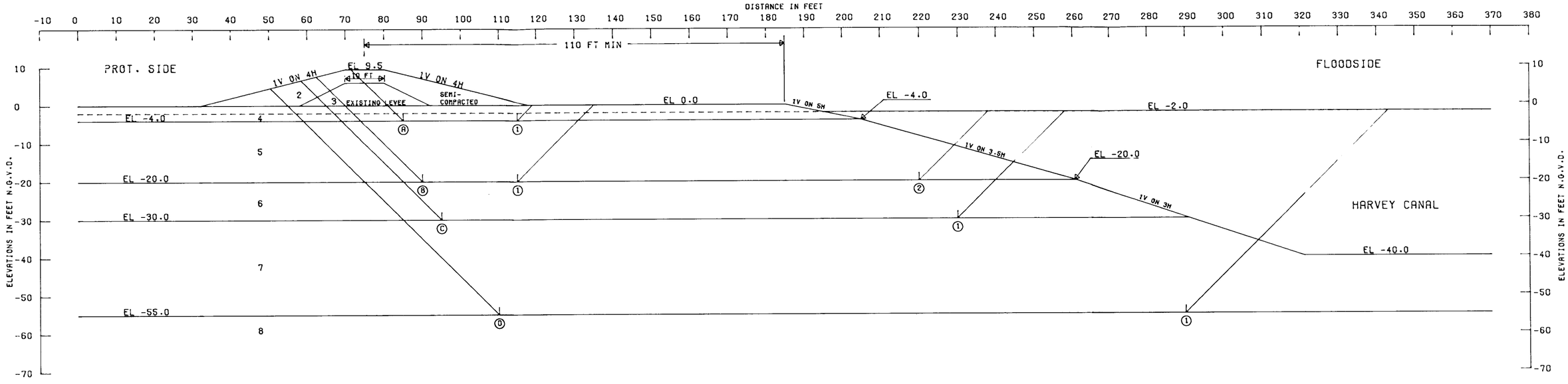
WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

V - LINE LEVEE TRANSITION
APPROX. STA.801+10
PROTECTED SIDE ANALYSIS

U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

DATE: FEB. 90 FILE NO. H-2-30618

PLATE F128



STRATUM NO.	SOIL TYPE	EFFECTIVE UNIT WT. P.C.F. VERT. 1	EFFECTIVE UNIT WT. P.C.F. VERT. 2	C - UNIT COHESION - P.S.F. CENTER OF STRATUM VERT. 1	C - UNIT COHESION - P.S.F. CENTER OF STRATUM VERT. 2	C - UNIT COHESION - P.S.F. BOTTOM OF STRATUM VERT. 1	C - UNIT COHESION - P.S.F. BOTTOM OF STRATUM VERT. 2	FRICTION ANGLE DEGREES
1	WATER	62.5	0.0	0.0	0.0	0.0	0.0	0.0
2	(CH)	110.0	0.0	400.0	0.0	400.0	0.0	0.0
3	(CH)	104.0	0.0	500.0	0.0	500.0	0.0	0.0
4	(CH)	104.0	0.0	170.0	0.0	180.0	0.0	0.0
5	(CH)	95.0	0.0	215.0	0.0	250.0	0.0	0.0
6	(CH)	100.0	0.0	275.0	0.0	300.0	0.0	0.0
7	(CH)	100.0	0.0	400.0	0.0	500.0	0.0	0.0
8	(CH)	100.0	0.0	500.0	0.0	500.0	0.0	0.0

ASSUMED FAILURE SURFACE NO.	ASSUMED FAILURE SURFACE ELEV.	RESISTING FORCES R_A	RESISTING FORCES R_B	RESISTING FORCES R_P	DRIVING FORCES D_A	DRIVING FORCES $-D_P$	SUMMATION OF FORCES RESISTING	SUMMATION OF FORCES DRIVING	FACTOR OF SAFETY
A 1	-4.0	10160	5400	1360	9416	956	16920	8460	2.00
B 1	-20.0	15121	6250	8240	42499	19771	29611	22728	1.30
B 2	-20.0	15121	32500	3917	42499	11858	51538	30641	1.68
C 1	-30.0	19489	40500	7506	74168	29242	67495	44526	1.50
D 1	-55.0	37423	90000	15199	191319	96802	142622	94517	1.51

NOTES

ϕ -- ANGLE OF INTERNAL FRICTION, DEGREES
C -- UNIT COHESION, P.S.F.
∇ -- STATIC WATER SURFACE
D -- HORIZONTAL DRIVING FORCE IN POUNDS
R -- HORIZONTAL RESISTING FORCE IN POUNDS
A -- AS A SUBSCRIPT, REFERS TO ACTIVE WEDGE
B -- AS A SUBSCRIPT, REFERS TO CENTRAL BLOCK
P -- AS A SUBSCRIPT, REFERS TO PASSIVE WEDGE

FACTOR OF SAFETY = $\frac{R_A + R_B + R_P}{D_A - D_P}$

WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT

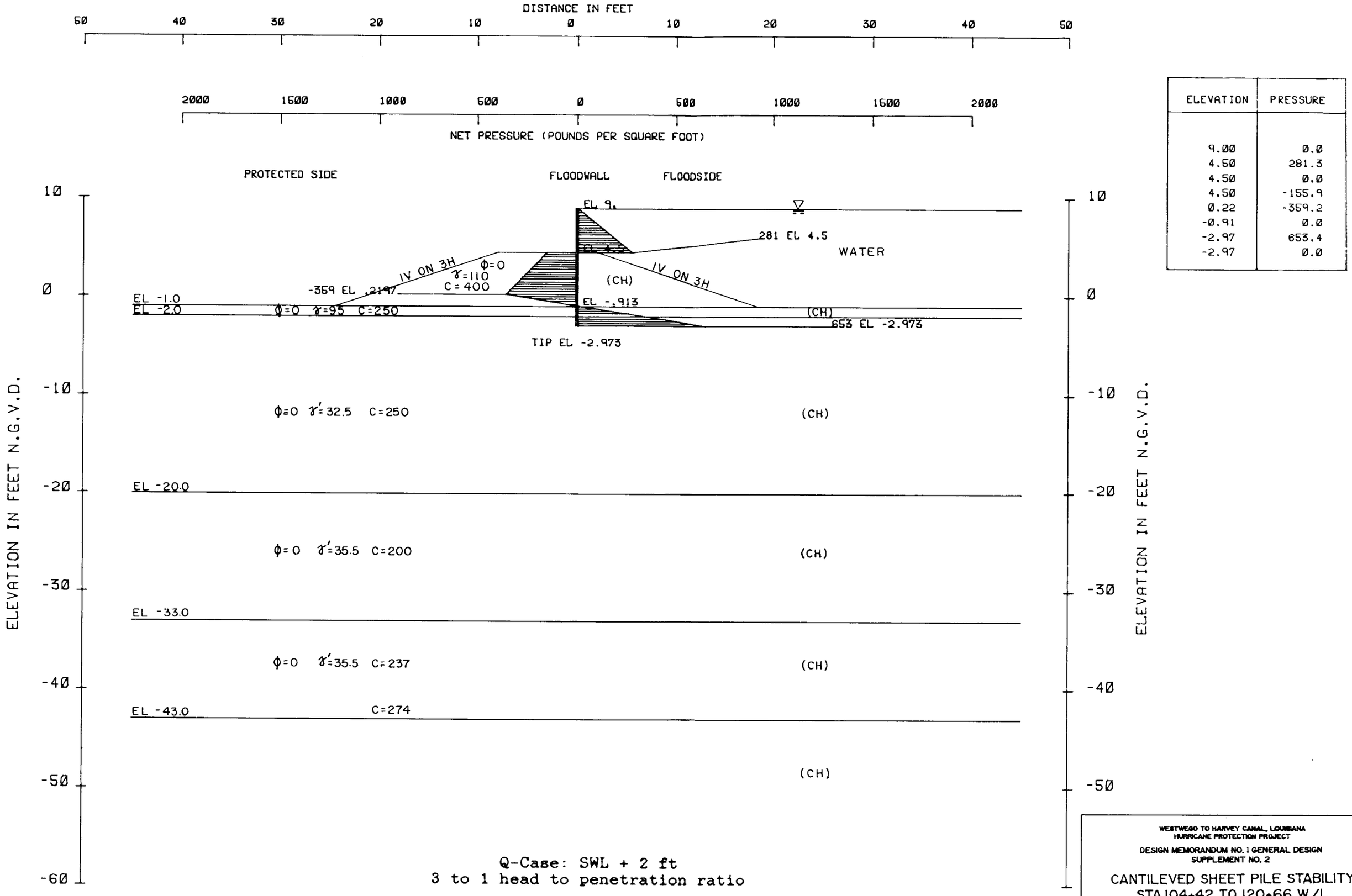
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

HARVEY CANAL LEVEE
STA. 817+20 TO 1014+25 B/L
FLOODSIDE ANALYSIS

U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

DATE: FEB. 90 FILE NO. H-2-30618

PLATE F129



ELEVATION	PRESSURE
9.00	0.0
4.50	281.3
4.50	0.0
4.50	-155.9
0.22	-359.2
-0.91	0.0
-2.97	653.4
-2.97	0.0

Q-Case: SWL + 2 ft
3 to 1 head to penetration ratio

NET DIAGRAM

(Q) CASE F.S.=1.83

WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT

DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

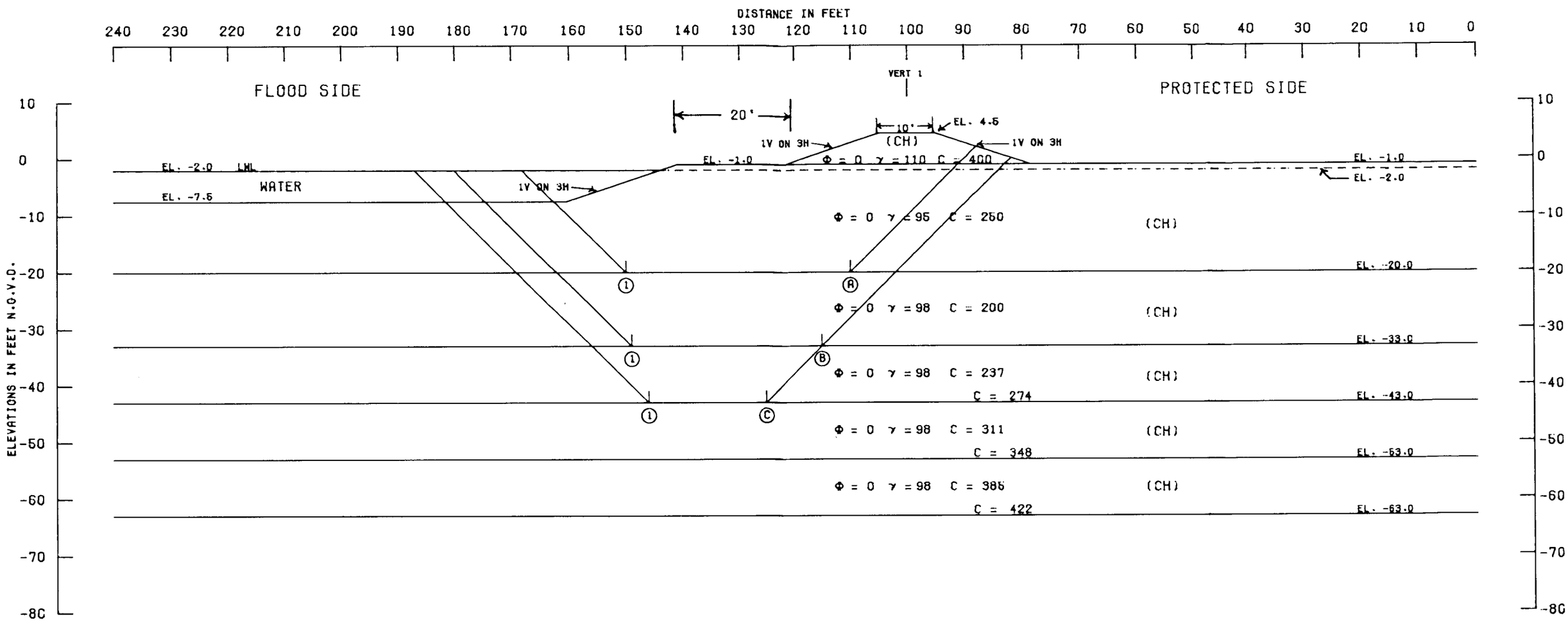
CANTILEVED SHEET PILE STABILITY
STA.104+42 TO 120+66 W/L

U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

DATE: FEB. 90

FILE NO. H-2-30618

PLATE F130



GENERAL NOTES:

CLASSIFICATION, STRATIFICATION, SHEAR STRENGTH, AND UNIT WEIGHT OF THE SOIL WERE BASED ON THE RESULTS OF UNDISTURBED BORINGS. SEE BORING DATA PLATES.

ASSUMED FAILURE SURFACE NO.	ASSUMED FAILURE SURFACE ELEV.	RESISTING FORCES R_A	RESISTING FORCES R_B	RESISTING FORCES R_P	DRIVING FORCES D_A	DRIVING FORCES $-D_P$	SUMMATION OF FORCES RESISTING	SUMMATION OF FORCES DRIVING	FACTOR OF SAFETY
(A) (1)	-20.0	12001	8000	6250	28605	13254	26251	15351	1.71
(B) (1)	-33.0	15602	6800	11450	63870	41553	33852	22317	1.52
(C) (1)	-43.0	20342	5754	16190	100333	74922	42286	25411	1.66

NOTES

Φ -- ANGLE OF INTERNAL FRICTION, DEGREES
C -- UNIT COHESION, P.S.F.
▽ -- STATIC WATER SURFACE
D -- HORIZONTAL DRIVING FORCE IN POUNDS
R -- HORIZONTAL RESISTING FORCE IN POUNDS
A -- AS A SUBSCRIPT, REFERS TO ACTIVE WEDGE
B -- AS A SUBSCRIPT, REFERS TO CENTRAL BLOCK
P -- AS A SUBSCRIPT, REFERS TO PASSIVE WEDGE

$$\text{FACTOR OF SAFETY} = \frac{R_A + R_B + R_P}{D_A - D_P}$$

WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT

DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

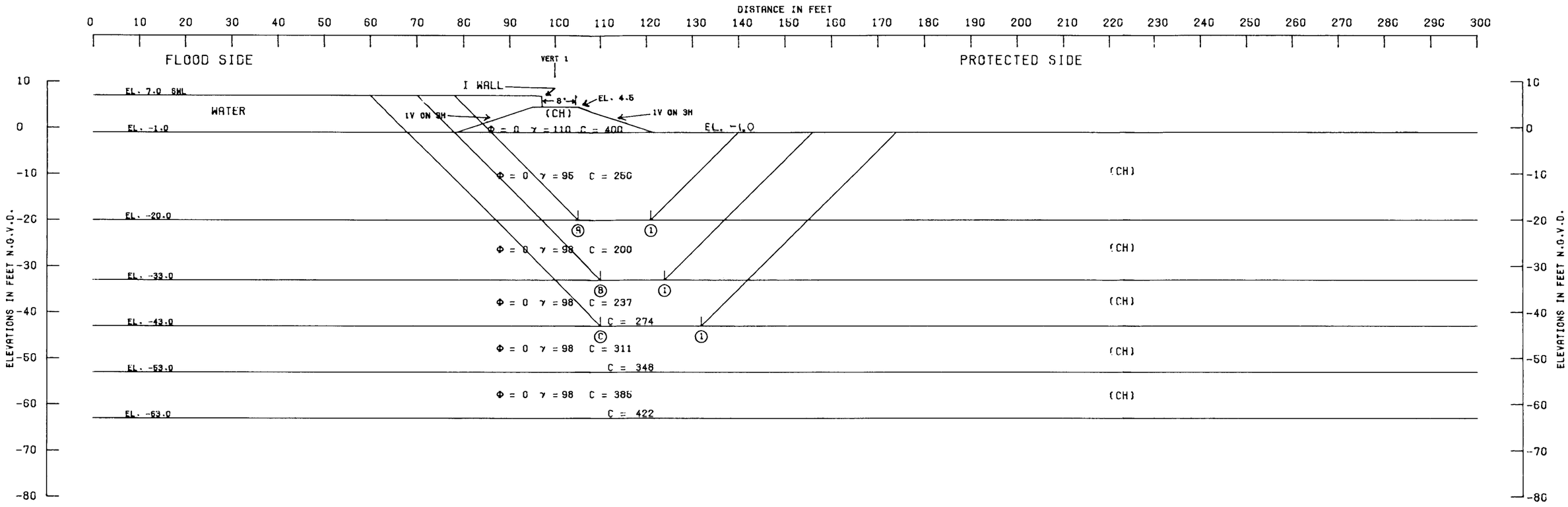
LEVEE / I - WALL ANALYSIS STA.104+42 TO STA.120+66 W/L FLOODSIDE STABILITY

U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

DATE: FEB. 90

FILE NO. H-2-30618

PLATE F131



GENERAL NOTES:

CLASSIFICATION, STRATIFICATION, SHEAR STRENGTH, AND UNIT WEIGHT OF THE SOIL WERE BASED ON THE RESULTS OF UNDISTURBED BORINGS. SEE BORING DATA PLATES.

ASSUMED FAILURE SURFACE NO.	ASSUMED FAILURE SURFACE ELEV.	RESISTING FORCES R_A	R_B	R_P	DRIVING FORCES D_A	$-D_P$	SUMMATION OF FORCES RESISTING	SUMMATION OF FORCES DRIVING	FACTOR OF SAFETY
(A) (1)	-20.0	11001	3200	9500	31816	17152	23701	14664	1.62
(B) (1)	-33.0	14702	2800	14700	70466	48892	32202	21564	1.49
(C) (1)	-43.0	19442	6028	19440	111138	84681	44910	26667	1.69

NOTES

Φ -- ANGLE OF INTERNAL FRICTION, DEGREES
C -- UNIT COHESION, P.S.F.
▽ -- STATIC WATER SURFACE
D -- HORIZONTAL DRIVING FORCE IN POUNDS
R -- HORIZONTAL RESISTING FORCE IN POUNDS
A -- AS A SUBSCRIPT, REFERS TO ACTIVE WEDGE
B -- AS A SUBSCRIPT, REFERS TO CENTRAL BLOCK
P -- AS A SUBSCRIPT, REFERS TO PASSIVE WEDGE

$$\text{FACTOR OF SAFETY} = \frac{R_B + R_A + R_P}{D_A - D_P}$$

DESIGN

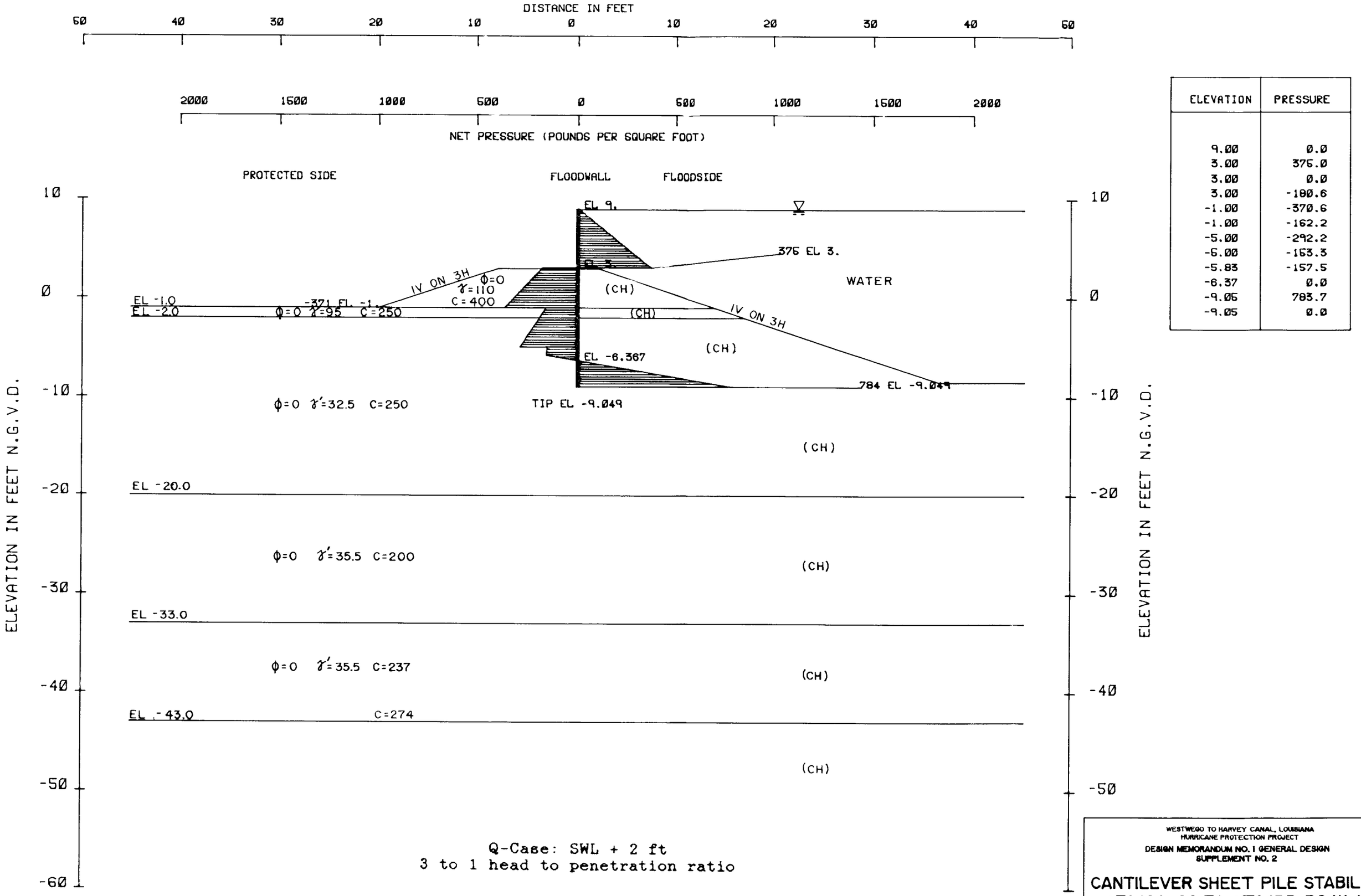
WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

LEVEE / I - WALL ANALYSIS
STA. 104+42 TO 120+66 W/L
PROTECTED SIDE STABILITY

U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

DATE: FEB. 90 FILE NO. H-2-30618

PLATE F132



ELEVATION	PRESSURE
9.00	0.0
3.00	376.0
3.00	0.0
3.00	-180.6
-1.00	-370.6
-1.00	-162.2
-5.00	-292.2
-6.00	-163.3
-5.83	-157.5
-6.37	0.0
-9.05	783.7
-9.05	0.0

Q-Case: SWL + 2 ft
3 to 1 head to penetration ratio

NET DIAGRAM

(Q) CASE F.S.=1.44

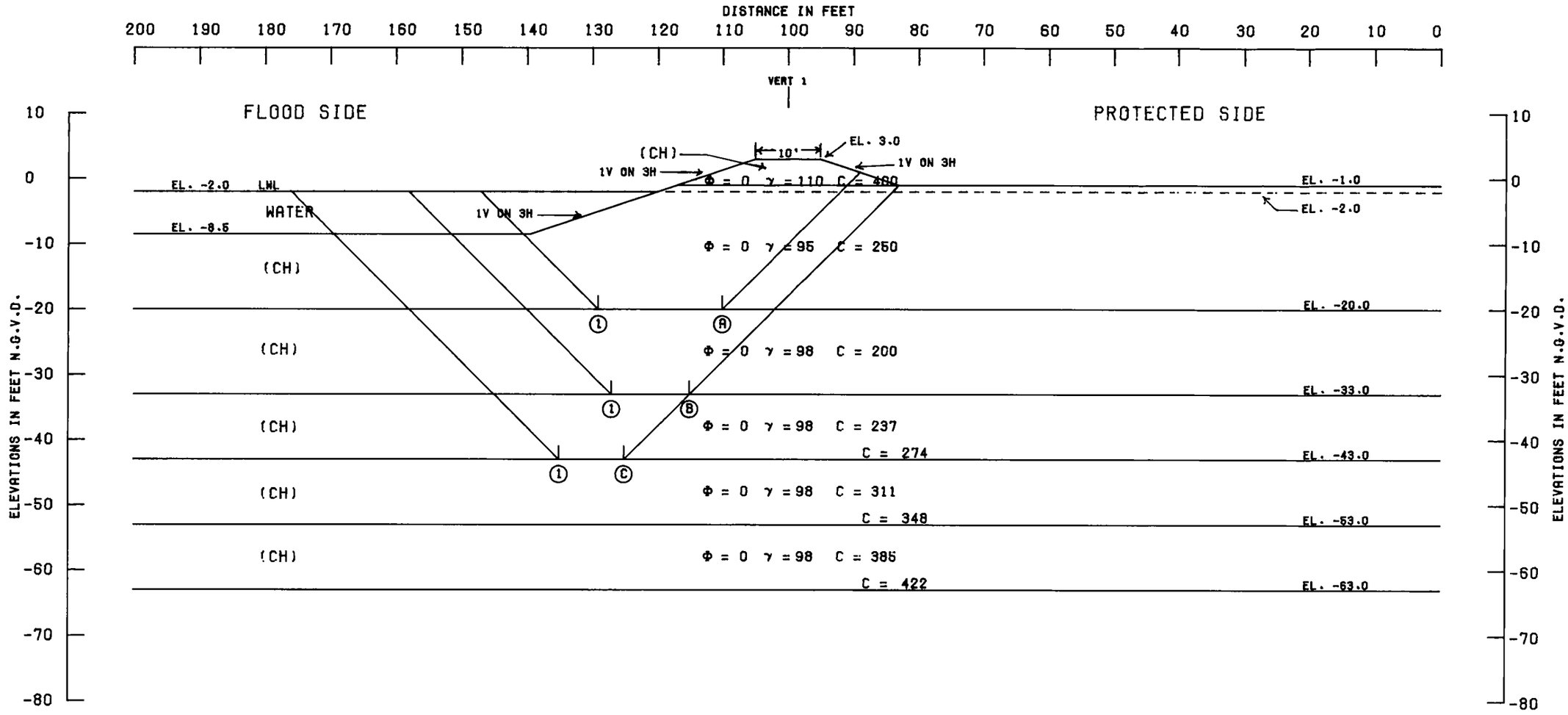
WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

CANTILEVER SHEET PILE STABILITY STA.120+66 TO STA.135+56 W/L

U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

DATE: FEB. 1990 FILE NO. H-2-30618

PLATE F133



GENERAL NOTES:

CLASSIFICATION, STRATIFICATION, SHEAR STRENGTH, AND UNIT WEIGHT OF THE SOIL WERE BASED ON THE RESULTS OF UNDISTURBED BORINGS. SEE BORING DATA PLATES.

ASSUMED FAILURE NO.	ASSUMED SURFACE ELEV.	RESISTING FORCES R_A	R_B	R_P	DRIVING FORCES D_A	$-D_P$	SUMMATION OF FORCES RESISTING	DRIVING	FACTOR OF SAFETY
(A) (1)	-20.0	11101	3800	5750	25047	12863	20651	12184	1.69
(B) (1)	-33.0	14702	2400	10950	58497	40868	28052	17829	1.59
(C) (1)	-43.0	19442	2740	15690	93505	72749	37872	20756	1.82

NOTES

Φ -- ANGLE OF INTERNAL FRICTION, DEGREES
C -- UNIT COHESION, P.S.F.
▽ -- STATIC WATER SURFACE
D -- HORIZONTAL DRIVING FORCE IN POUNDS
R -- HORIZONTAL RESISTING FORCE IN POUNDS
A -- AS A SUBSCRIPT, REFERS TO ACTIVE WEDGE
B -- AS A SUBSCRIPT, REFERS TO CENTRAL BLOCK
P -- AS A SUBSCRIPT, REFERS TO PASSIVE WEDGE

$$\text{FACTOR OF SAFETY} = \frac{R_A + R_B + R_P}{D_A - D_P}$$

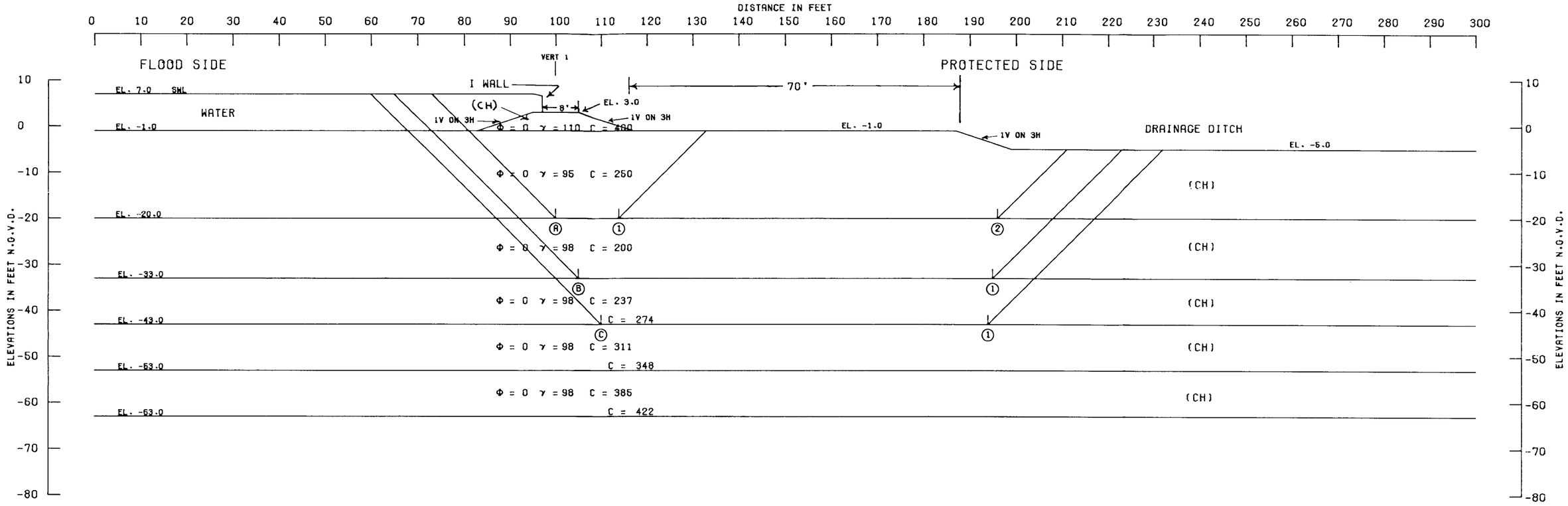
WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

LEVEE / I-WALL ANALYSIS STA.120+66 TO STA.135+56 W/L FLOODSIDE STABILITY

U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

DATE: FEB, 90 FILE NO. H-2-30618

PLATE F134



GENERAL NOTES:

CLASSIFICATION, STRATIFICATION, SHEAR STRENGTH, AND UNIT WEIGHT OF THE SOIL WERE BASED ON THE RESULTS OF UNDISTURBED BORINGS. SEE BORING DATA PLATES.

ASSUMED FAILURE SURFACE NO.		ASSUMED FAILURE SURFACE ELEV.	RESISTING FORCES R_A	RESISTING FORCES R_B	RESISTING FORCES R_P	DRIVING FORCES D_A	DRIVING FORCES $-D_P$	SUMMATION OF FORCES RESISTING	SUMMATION OF FORCES DRIVING	FACTOR OF SAFETY
Ⓐ	①	-20.0	9502	2800	9500	29964	17311	21802	12653	1.72
Ⓐ	②	-20.0	9502	19200	7500	29964	10830	36202	19134	1.89
Ⓑ	①	-33.0	14702	18000	12700	67903	37745	45402	30158	1.51
Ⓒ	①	-43.0	19442	23016	17440	107829	69777	59898	38052	1.57

NOTES

Φ -- ANGLE OF INTERNAL FRICTION, DEGREES
C -- UNIT COHESION, P.S.F.
▽ -- STATIC WATER SURFACE
D -- HORIZONTAL DRIVING FORCE IN POUNDS
R -- HORIZONTAL RESISTING FORCE IN POUNDS
A -- AS A SUBSCRIPT, REFERS TO ACTIVE WEDGE
B -- AS A SUBSCRIPT, REFERS TO CENTRAL BLOCK
P -- AS A SUBSCRIPT, REFERS TO PASSIVE WEDGE

$$\text{FACTOR OF SAFETY} = \frac{R_A + R_B + R_P}{D_A - D_P}$$

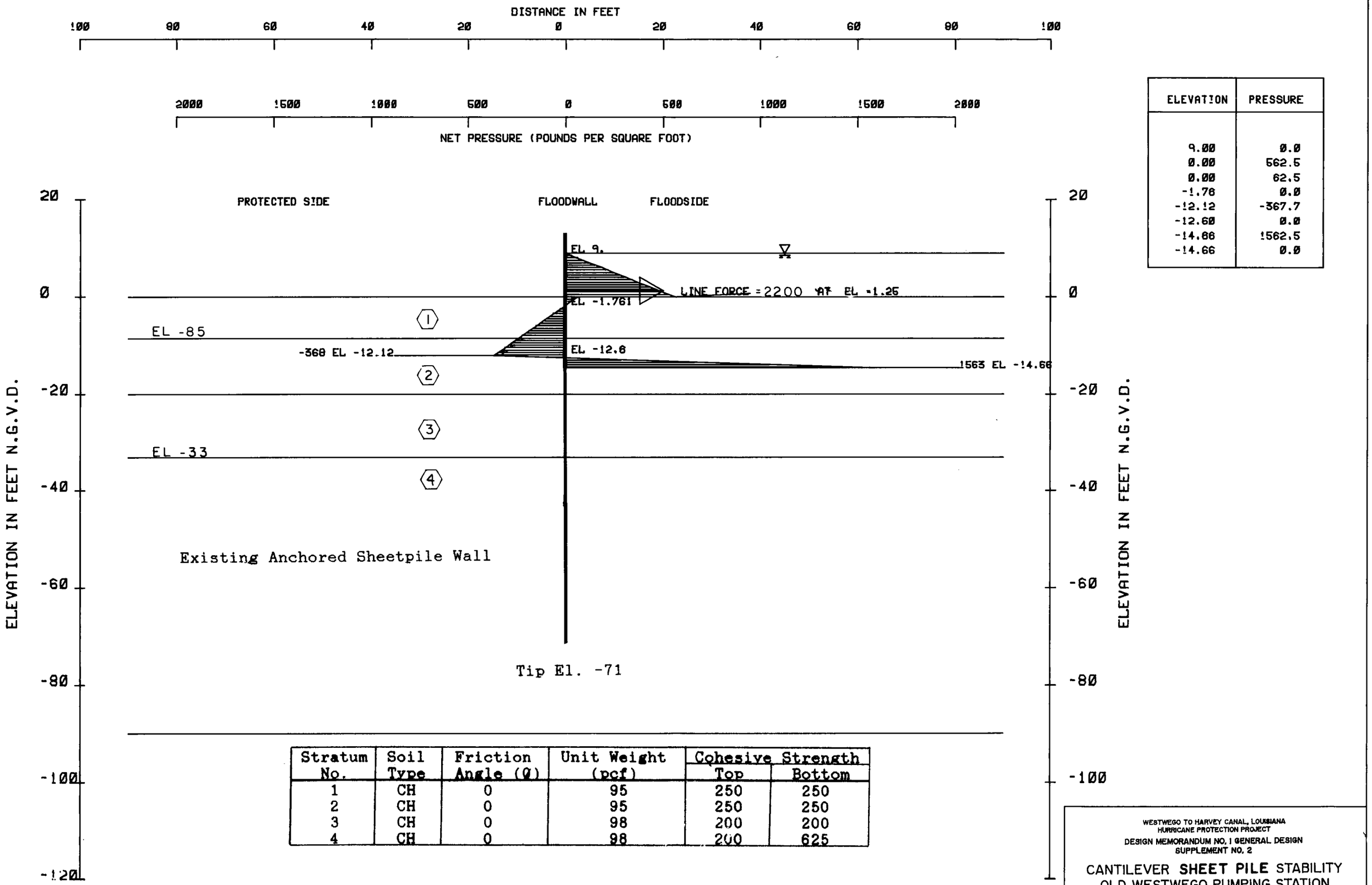
WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

LEVEE / I - WALL ANALYSIS
STA. 120+66 TO 135+56 W/L
PROTECTED SIDE STABILITY

U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

DATE: FEB 90 FILE NO. H-2-30618

PLATE F135



ELEVATION	PRESSURE
9.00	0.0
0.00	562.5
0.00	62.5
-1.76	0.0
-12.12	-367.7
-12.60	0.0
-14.66	1562.5
-14.66	0.0

Stratum No.	Soil Type	Friction Angle (Ø)	Unit Weight (pcf)	Cohesive Strength Top	Cohesive Strength Bottom
1	CH	0	95	250	250
2	CH	0	95	250	250
3	CH	0	98	200	200
4	CH	0	98	200	625

NET DIAGRAM

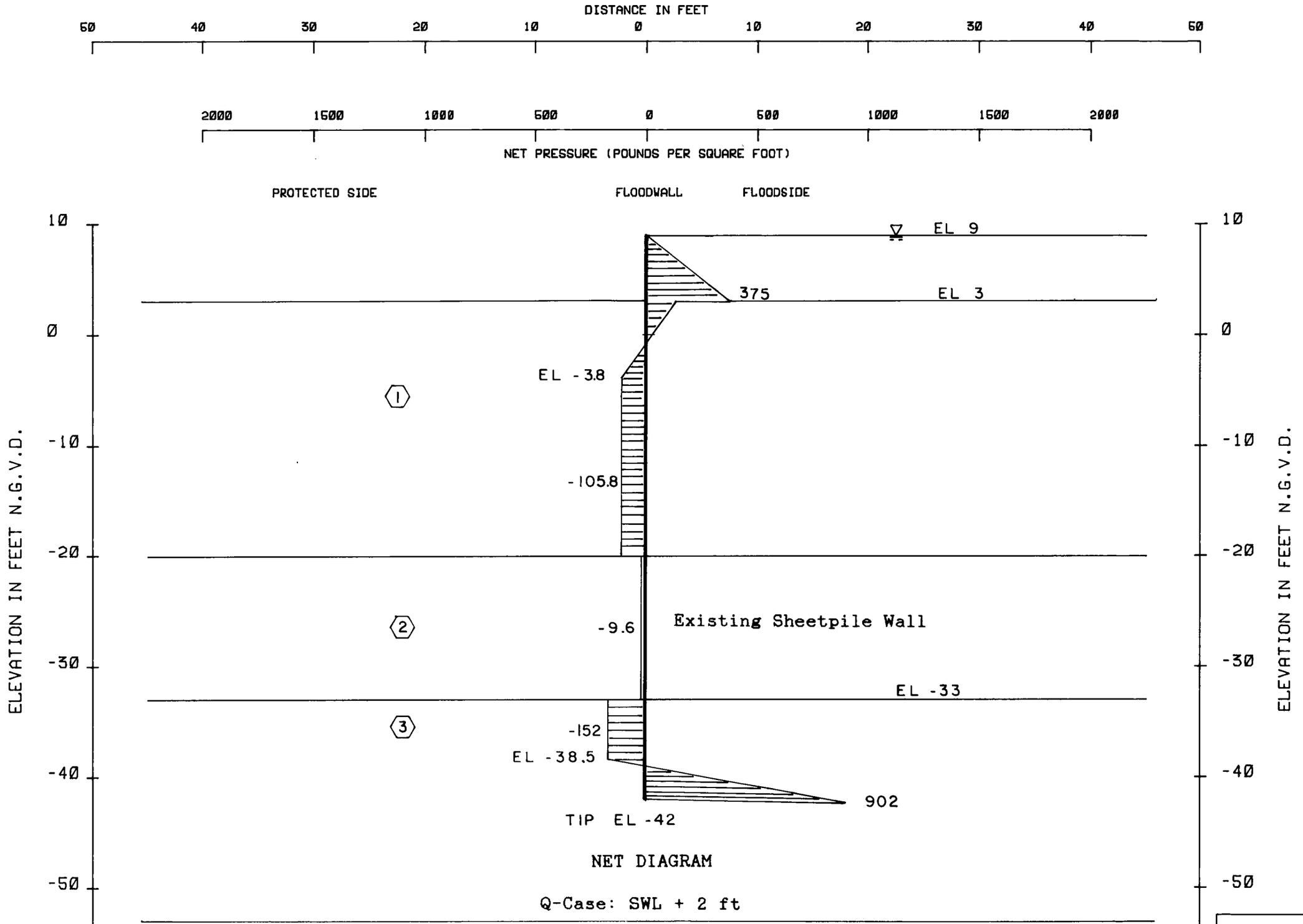
Case: SWL + 2 ft
F.S. = 1.0

WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

CANTILEVER **SHEET PILE** STABILITY
OLD WESTWEGO PUMPING STATION
STA. 137+38 W/L TO STA. 138+04 W/L

U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

DATE: FEB. 90 FILE NO. H-2-30618



NET DIAGRAM

Q-Case: SWL + 2 ft

Stratum No.	Soil Type	Friction Angle (Ø)	Unit Weight (pcf)	Cohesive Strength	
				Top	Bottom
1	CH	0	95	250	250
2	CH	0	98	200	200
3	CH	0	98	200	350

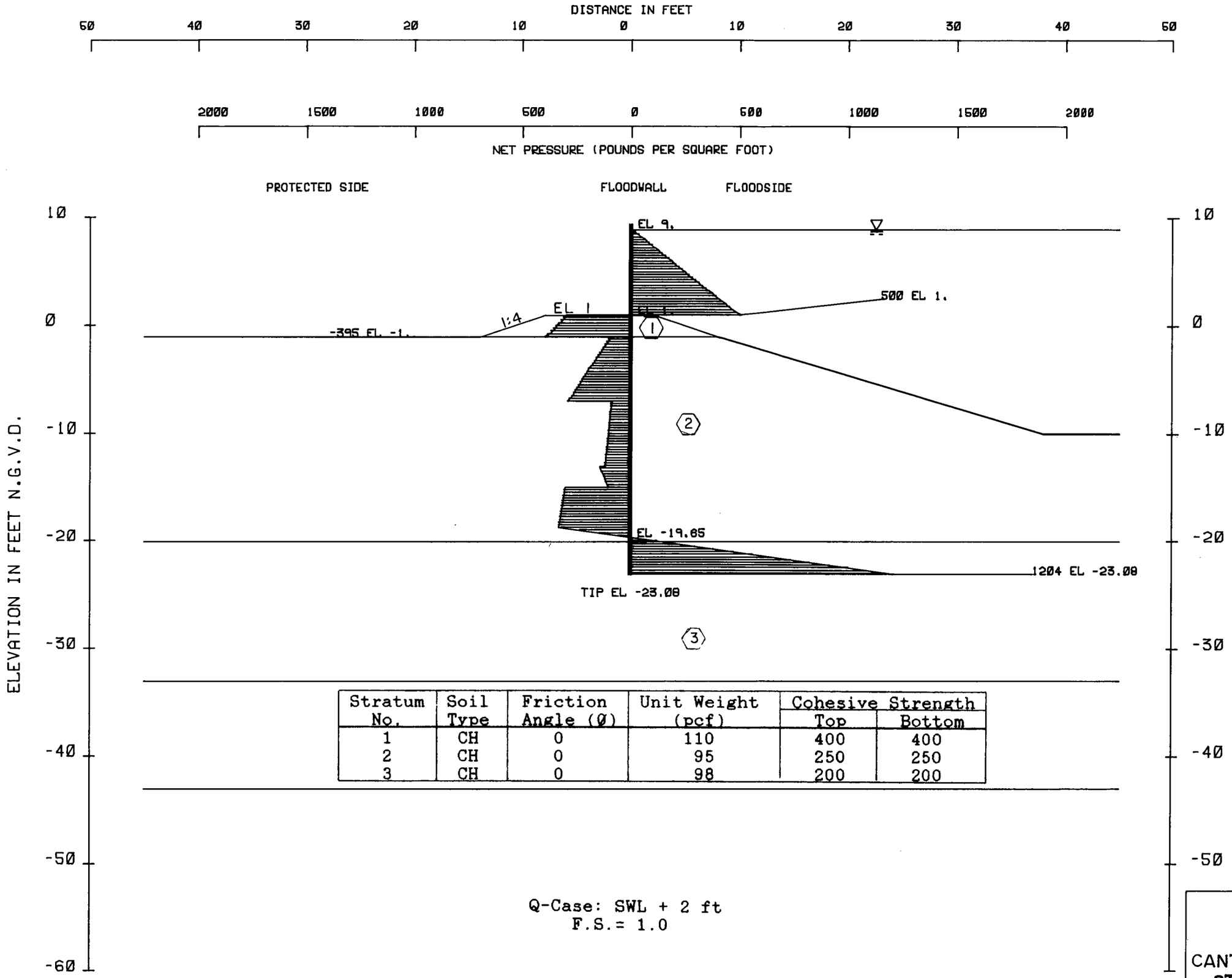
WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

CANTILEVER SHEET PILE STABILITY
OLD WESTWEGO PUMPING STATION
STA.136+76 W/L TO STA.137+38 W/L
STA.138+04 TO STA.138+30 W/L

U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

DATE: FEB. 90 FILE NO. H-2-30618

PLATE F137



ELEVATION	PRESSURE
9.00	0.0
1.00	500.0
1.00	0.0
1.00	-300.0
-1.00	-395.0
-1.00	-95.0
-7.00	-290.0
-7.00	-90.0
-13.08	-120.4
-13.08	-143.0
-15.00	-104.6
-15.00	-304.6
-18.70	-332.4
-19.65	0.0
-23.08	1204.0
-23.08	0.0

Stratum No.	Soil Type	Friction Angle (Ø)	Unit Weight (pcf)	Cohesive Strength	
				Top	Bottom
1	CH	0	110	400	400
2	CH	0	95	250	250
3	CH	0	98	200	200

Q-Case: SWL + 2 ft
F.S.= 1.0

NET DIAGRAM

(Q) CASE F.S.=1.

WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT

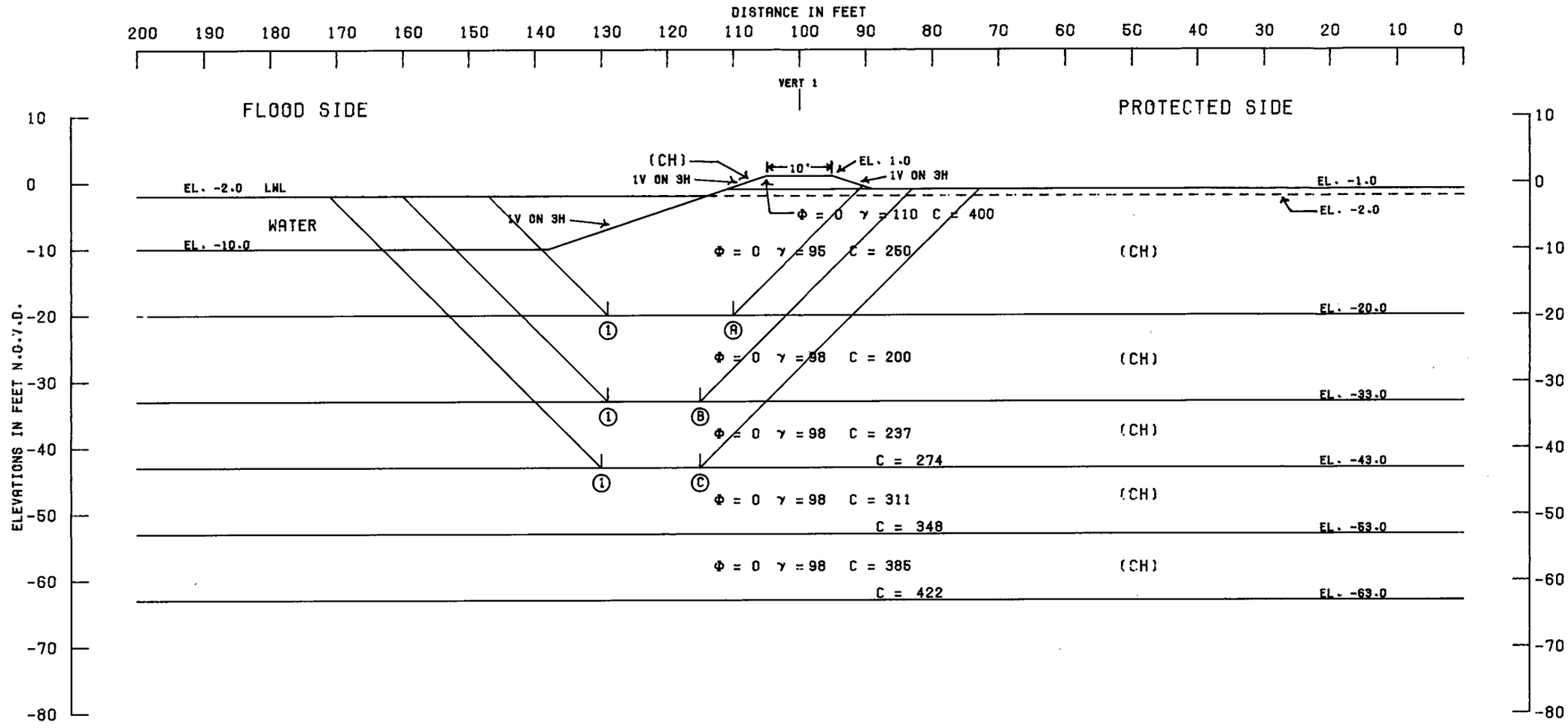
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

CANTILEVER SHEET PILE STABILITY
STA.139+79 TO STA.163+17 W/L

U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

DATE: FEB.90 FILE NO. H-2-30618

PLATE F138



GENERAL NOTES:

CLASSIFICATION, STRATIFICATION, SHEAR STRENGTH, AND UNIT WEIGHT OF THE SOIL WERE BASED ON THE RESULTS OF UNDISTURBED BORINGS. SEE BORING DATA PLATES.

ASSUMED FAILURE SURFACE NO.	ASSUMED FAILURE SURFACE ELEV.	RESISTING FORCES R_A	R_B	R_P	DRIVING FORCES D_A	$-D_P$	SUMMATION OF FORCES RESISTING	DRIVING	FACTOR OF SAFETY
Ⓐ ①	-20.0	9901	3800	5000	20592	12178	18701	8414	2.22
Ⓑ ①	-33.0	14702	2800	10200	52169	39298	27702	12871	2.15
Ⓒ ①	-43.0	19442	4110	14940	87861	71337	38492	16524	2.33

NOTES

Φ -- ANGLE OF INTERNAL FRICTION, DEGREES
C -- UNIT COHESION, P.S.F.
▽ -- STATIC WATER SURFACE
D -- HORIZONTAL DRIVING FORCE IN POUNDS
R -- HORIZONTAL RESISTING FORCE IN POUNDS
A -- AS A SUBSCRIPT, REFERS TO ACTIVE WEDGE
B -- AS A SUBSCRIPT, REFERS TO CENTRAL BLOCK
P -- AS A SUBSCRIPT, REFERS TO PASSIVE WEDGE

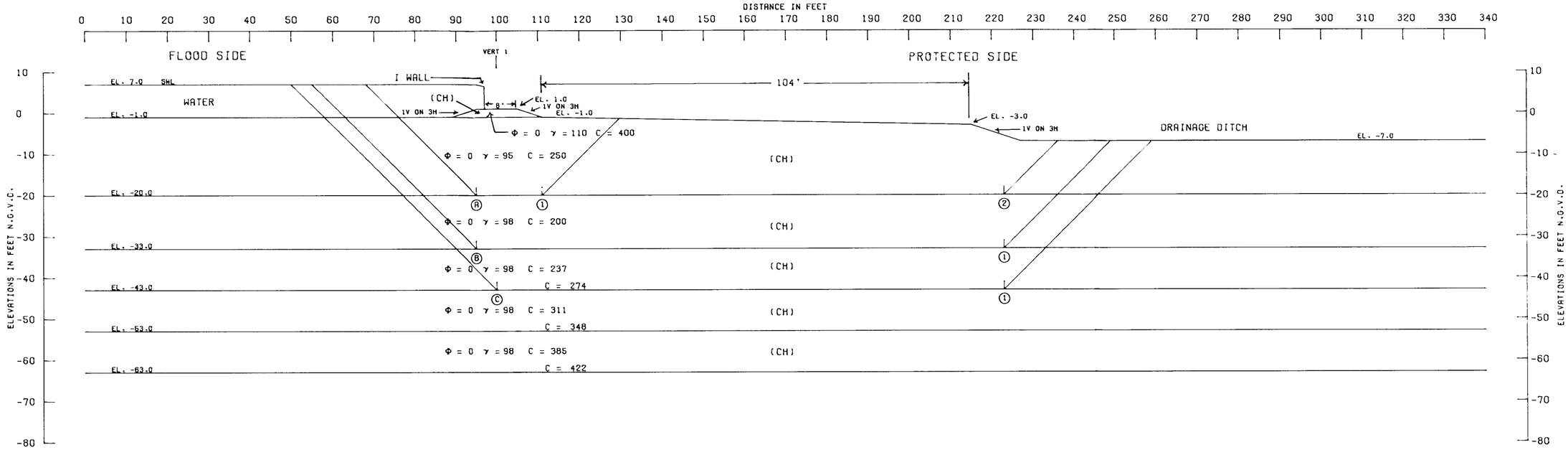
$$\text{FACTOR OF SAFETY} = \frac{R_A + R_B + R_P}{D_A - D_P}$$

WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

LEVEE / I - WALL ANALYSIS STA.139+76 TO STA.163+17 W/L FLOODSIDE STABILITY

U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

DATE: FEB.90 FILE NO.H-2-30618



GENERAL NOTES:

CLASSIFICATION, STRATIFICATION, SHEAR STRENGTH, AND UNIT WEIGHT OF THE SOIL WERE BASED ON THE RESULTS OF UNDISTURBED BORINGS. SEE BORING DATA PLATES.

ASSUMED FAILURE SURFACE		RESISTING FORCES			DRIVING FORCES		SUMMATION OF FORCES		FACTOR OF SAFETY
NO.	ELEV.	R_A	R_B	R_P	D_A	$-D_P$	RESISTING	DRIVING	
Ⓐ ①	-20.0	9502	3200	9320	28916	16823	22022	12093	1.82
Ⓐ ②	-20.0	9502	25600	6500	28916	8280	41602	20636	2.02
Ⓑ ①	-33.0	14702	25600	11700	67152	32616	52002	34536	1.51
Ⓒ ①	-43.0	19442	33702	16440	107170	62605	69584	44565	1.56

NOTES

Φ -- ANGLE OF INTERNAL FRICTION, DEGREES
C -- UNIT COMESION, P.S.F.
▽ -- STATIC WATER SURFACE
D -- HORIZONTAL DRIVING FORCE IN POUNDS
R -- HORIZONTAL RESISTING FORCE IN POUNDS
A -- AS A SUBSCRIPT, REFERS TO ACTIVE WEDGE
B -- AS A SUBSCRIPT, REFERS TO CENTRAL BLOCK
P -- AS A SUBSCRIPT, REFERS TO PASSIVE WEDGE

$$\text{FACTOR OF SAFETY} = \frac{R_A + R_B + R_P}{D_A - D_P}$$

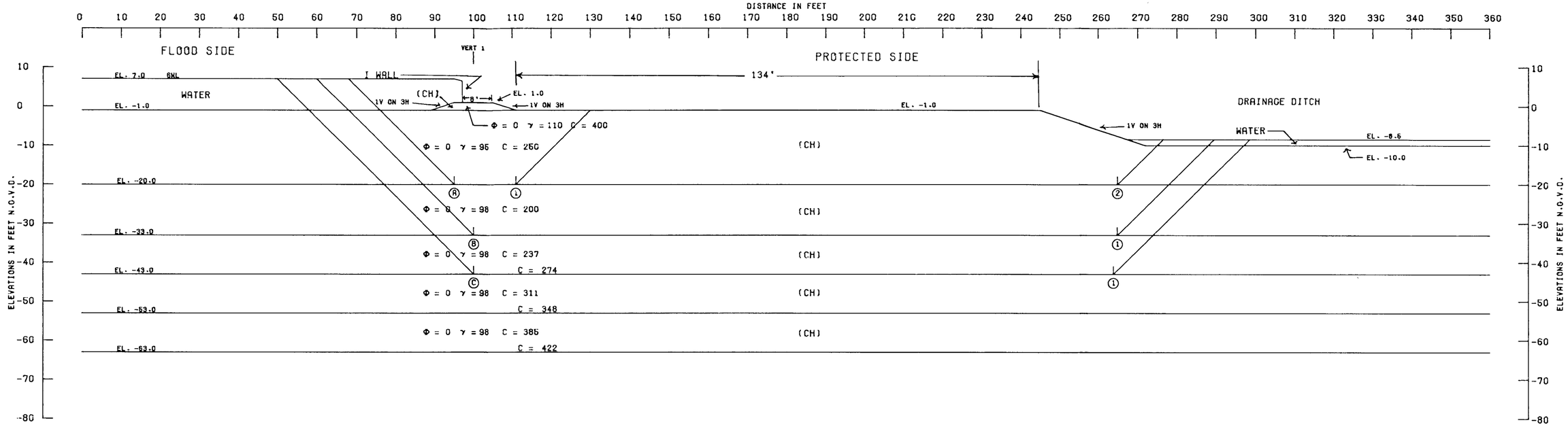
WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

LEVEE / I - WALL ANALYSIS STA. 139+76 TO 150+65 W/L PROTECTED SIDE STABILITY

U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

DATE: FEB. 90 FILE NO. H-2-30618

PLATE F140



GENERAL NOTES:

CLASSIFICATION, STRATIFICATION, SHEAR STRENGTH, AND UNIT WEIGHT OF THE SOIL WERE BASED ON THE RESULTS OF UNDISTURBED BORINGS. SEE BORING DATA PLATES.

ASSUMED FAILURE SURFACE NO.		ASSUMED FAILURE SURFACE ELEV.	RESISTING FORCES R_A	RESISTING FORCES R_B	RESISTING FORCES R_P	DRIVING FORCES D_A	DRIVING FORCES $-D_P$	SUMMATION OF FORCES RESISTING	SUMMATION OF FORCES DRIVING	FACTOR OF SAFETY
A	1	-20.0	9502	3200	9500	28916	17147	22202	11769	1.89
A	2	-20.0	9502	34000	6000	28916	6087	48502	22829	2.12
B	1	-33.0	14702	33000	10200	66488	27934	57902	38554	1.50
C	1	-43.0	18442	44936	14940	107170	56153	79318	51017	1.55

NOTES

Φ -- ANGLE OF INTERNAL FRICTION, DEGREES
C -- UNIT COHESION, P.S.F.
▽ -- STATIC WATER SURFACE
D -- HORIZONTAL DRIVING FORCE IN POUNDS
R -- HORIZONTAL RESISTING FORCE IN POUNDS
A -- AS A SUBSCRIPT, REFERS TO ACTIVE WEDGE
B -- AS A SUBSCRIPT, REFERS TO CENTRAL BLOCK
P -- AS A SUBSCRIPT, REFERS TO PASSIVE WEDGE

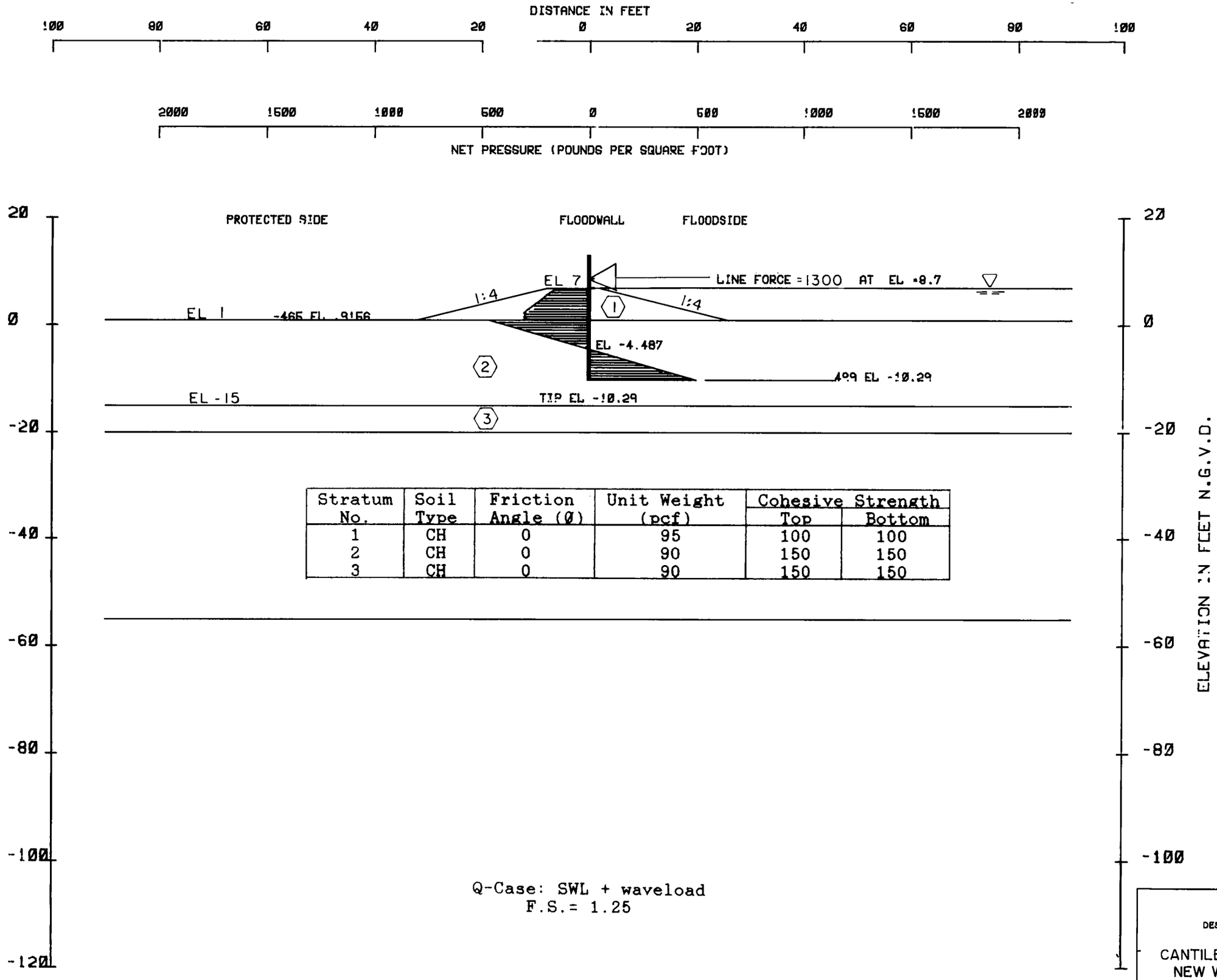
$$\text{FACTOR OF SAFETY} = \frac{R_A + R_B + R_P}{D_A - D_P}$$

WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

LEVEE / I - WALL ANALYSIS
STA. 150+65 TO 163+17 W/L
PROTECTED SIDE STABILITY

U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

DATE: FEB. 90 FILE NO. H-2-30618



ELEVATION	PRESSURE
7.00	0.0
6.90	6.3
6.90	0.0
6.90	-153.8
2.35	-301.6
2.35	-296.5
1.00	-304.6
1.00	-464.6
0.92	-465.2
-4.49	0.0
-10.29	499.4
-10.29	0.0

Stratum No.	Soil Type	Friction Angle (Ø)	Unit Weight (pcf)	Cohesive Strength Top	Cohesive Strength Bottom
1	CH	0	95	100	100
2	CH	0	90	150	150
3	CH	0	90	150	150

Q-Case: SWL + waveload
F.S.= 1.25

NET DIAGRAM

(Q) CASE F.S.=1.25

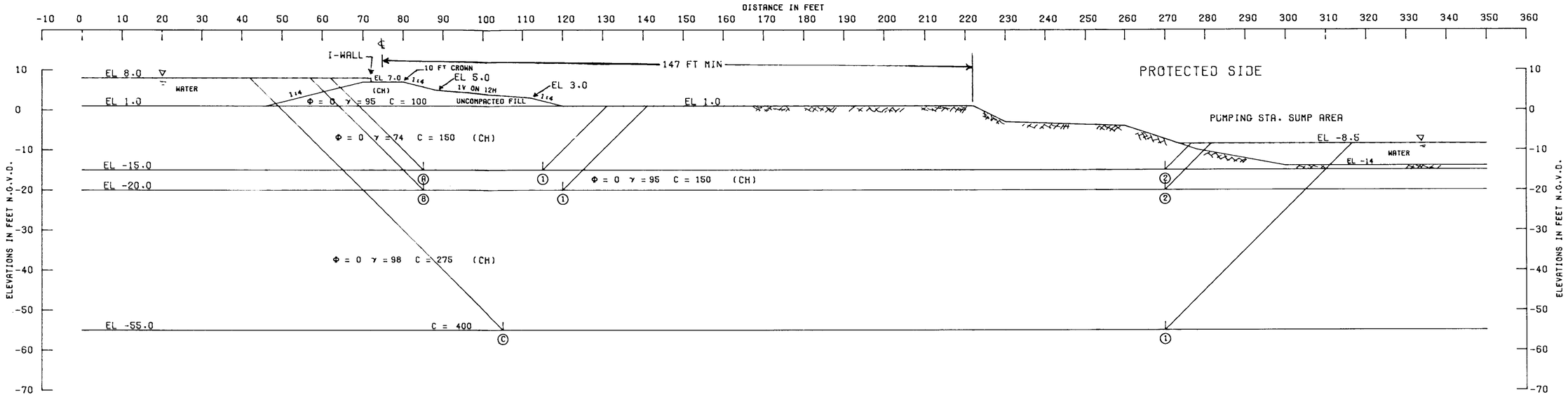
WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

CANTILEVER SHEET PILE STABILITY
NEW WESTWEGO PUMPING STATION
STA.168+03 W/L TO STA.169+54 W/L

U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

DATE: FEB.90 FILE NO. H-2-30618

PLATE F142



ASSUMED FAILURE SURFACE NO.	ASSUMED FAILURE SURFACE ELEV.	RESISTING FORCES R_A	RESISTING FORCES R_B	RESISTING FORCES R_P	DRIVING FORCES D_A	DRIVING FORCES $-D_P$	SUMMATION OF FORCES RESISTING	SUMMATION OF FORCES DRIVING	FACTOR OF SAFETY
Ⓐ ①	-15.0	5720	4500	4800	20429	9768	15020	10661	1.410
Ⓐ ②	-15.0	5720	27750	1724	20429	1701	35194	18728	1.880
Ⓑ ①	-20.0	7020	5250	6300	30390	16578	18570	13812	1.340
Ⓑ ②	-20.0	7020	27750	2907	30390	5217	37677	25173	1.500
Ⓒ ①	-55.0	25670	66000	21050	162624	96995	112720	65629	1.720

NOTES

Φ -- ANGLE OF INTERNAL FRICTION, DEGREES
C -- UNIT COHESION, P.S.F.
▽ -- STATIC WATER SURFACE
D -- HORIZONTAL DRIVING FORCE IN POUNDS
R -- HORIZONTAL RESISTING FORCE IN POUNDS
A -- AS A SUBSCRIPT, REFERS TO ACTIVE WEDGE
B -- AS A SUBSCRIPT, REFERS TO CENTRAL BLOCK
P -- AS A SUBSCRIPT, REFERS TO PASSIVE WEDGE

$$\text{FACTOR OF SAFETY} = \frac{R_A + R_B + R_P}{D_A - D_P}$$

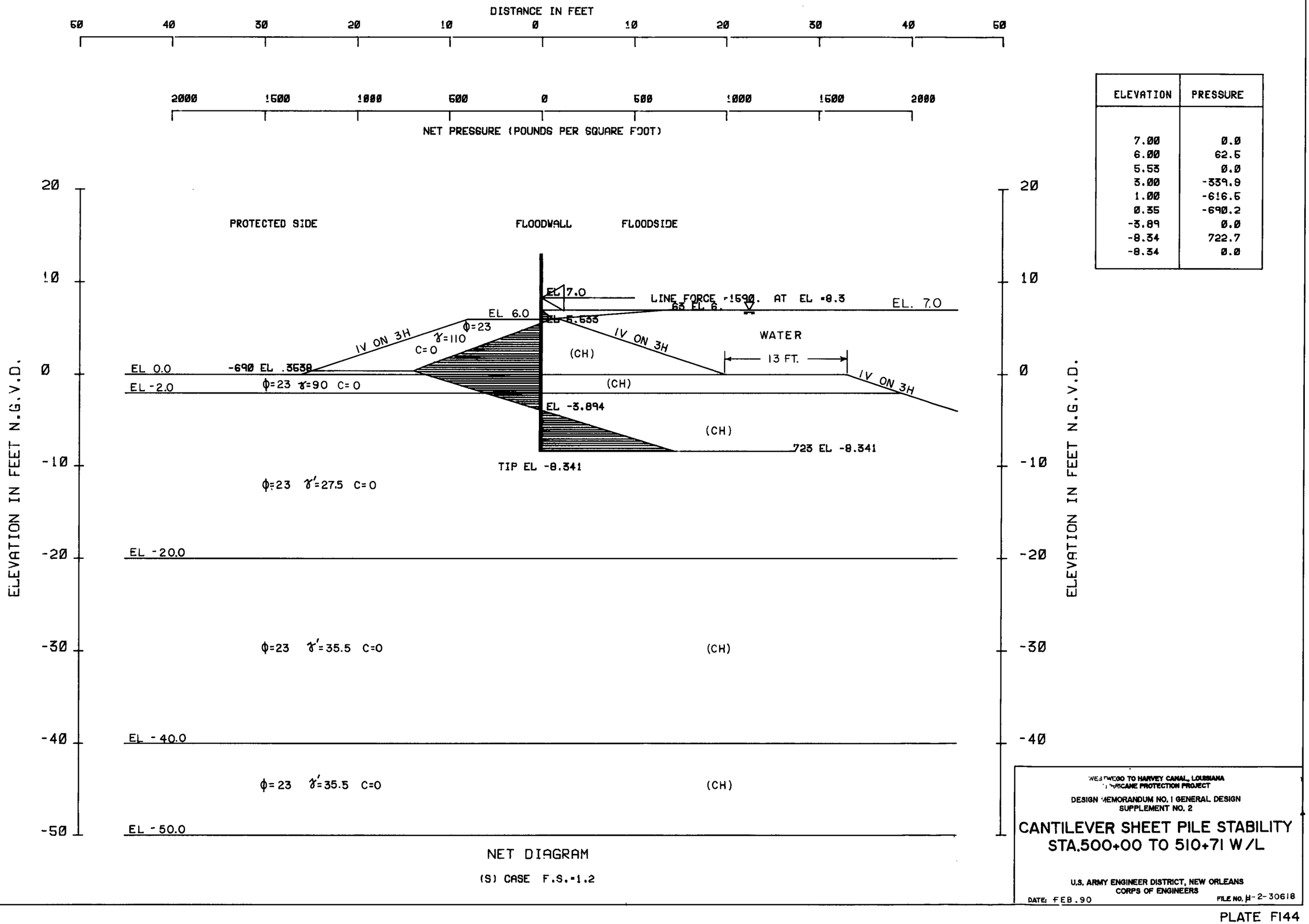
WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

LEVEE / I- WALL STABILITY
NEW WESTWEGO PUMPING STA.
STA. 163+03 TO 169+54 W/L
PROTECTED SIDE ANALYSIS

U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

DATE: FEB. 90 FILE NO. H-2-30618

PLATE F143



ELEVATION	PRESSURE
7.00	0.0
6.00	62.5
5.53	0.0
3.00	-339.9
1.00	-616.5
0.35	-690.2
-3.89	0.0
-8.34	722.7
-8.34	0.0

NET DIAGRAM

(S) CASE F.S.=1.2

WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT

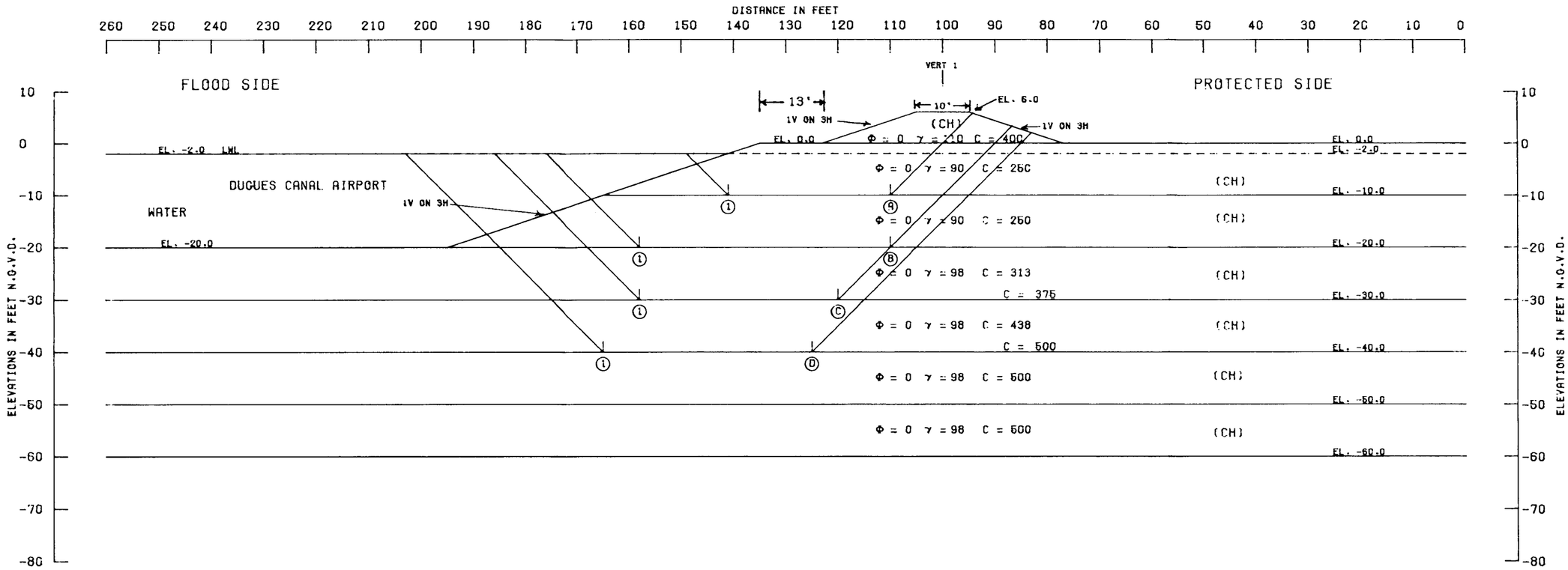
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

CANTILEVER SHEET PILE STABILITY
STA.500+00 TO 510+71 W/L

U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

DATE: FEB. 90 FILE NO. H-2-30618

PLATE F144



GENERAL NOTES:

CLASSIFICATION, STRATIFICATION, SHEAR STRENGTH, AND UNIT WEIGHT OF THE SOIL WERE BASED ON THE RESULTS OF UNDISTURBED BORINGS. SEE BORING DATA PLATES.

ASSUMED FAILURE SURFACE NO.	ASSUMED FAILURE SURFACE ELEV.	RESISTING FORCES R_A	RESISTING FORCES R_B	RESISTING FORCES R_P	DRIVING FORCES D_A	DRIVING FORCES $-D_P$	SUMMATION OF FORCES RESISTING	SUMMATION OF FORCES DRIVING	FACTOR OF SAFETY
(A) (i)	-10.0	9600	7750	2999	12605	2659	20348	9946	2.05
(B) (i)	-20.0	12601	12000	4624	31056	11682	29225	19374	1.51
(C) (i)	-30.0	18851	14250	9624	56887	30021	42725	26866	1.59
(D) (i)	-40.0	26601	20000	16250	91195	55865	62851	35330	1.78

NOTES

Φ --- ANGLE OF INTERNAL FRICTION, DEGREES
C -- UNIT COHESION, P.S.F.
▽--- STATIC WATER SURFACE
D -- HORIZONTAL DRIVING FORCE IN POUNDS
R -- HORIZONTAL RESISTING FORCE IN POUNDS
A -- AS A SUBSCRIPT, REFERS TO ACTIVE WEDGE
B --- AS A SUBSCRIPT, REFERS TO CENTRAL BLOCK
P -- AS A SUBSCRIPT, REFERS TO PASSIVE WEDGE

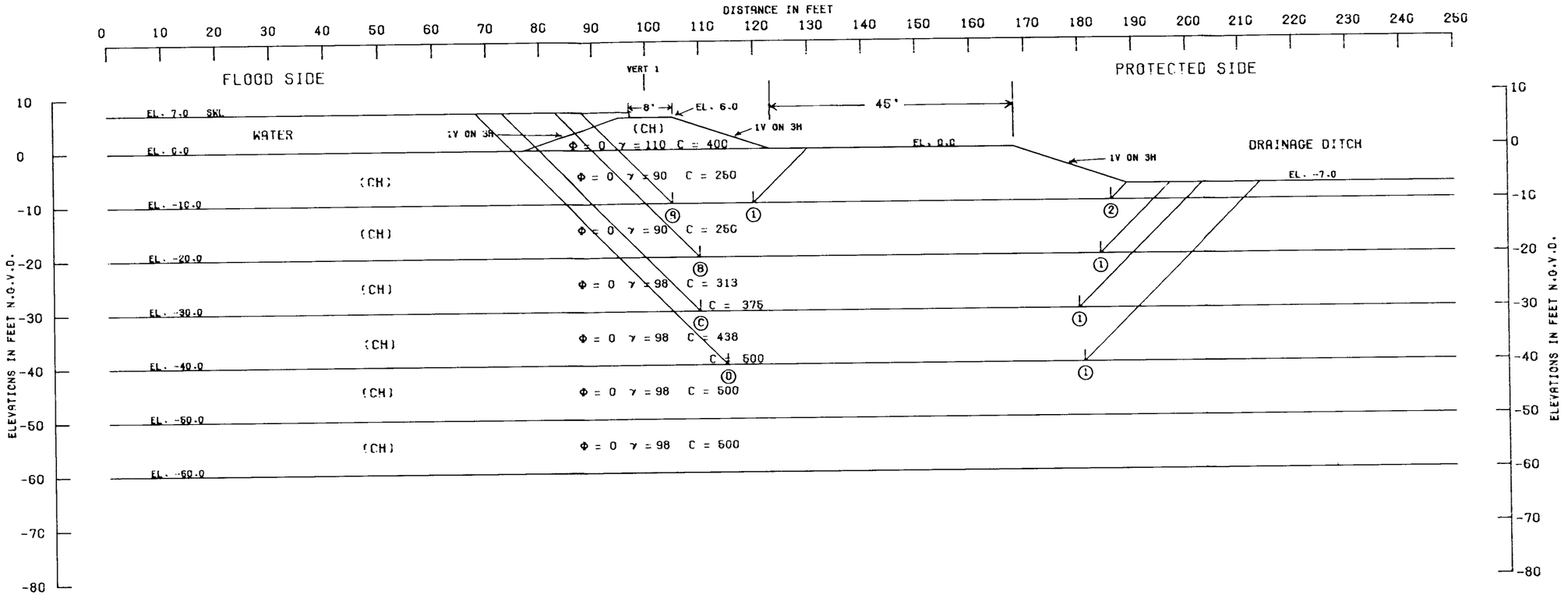
$$\text{FACTOR OF SAFETY} = \frac{R_A + R_B + R_P}{D_A - D_P}$$

WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

LEVEE / I- WALL ANALYSIS STA. 500+00 TO 510+71 W/L FLOODSIDE STABILITY

U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

DATE: FEB. 90 FILE NO. H-2-30618



GENERAL NOTES:

CLASSIFICATION, STRATIFICATION, SHEAR STRENGTH, AND UNIT WEIGHT OF THE SOIL WERE BASED ON THE RESULTS OF UNDISTURBED BORINGS. SEE BORING DATA PLATES.

ASSUMED FAILURE SURFACE NO.	ASSUMED FAILURE SURFACE ELEV.	RESISTING FORCES R_A	RESISTING FORCES R_B	RESISTING FORCES R_P	DRIVING FORCES D_A	DRIVING FORCES $-D_P$	SUMMATION OF FORCES RESISTING	SUMMATION OF FORCES DRIVING	FACTOR OF SAFETY
(A) (1)	-10.0	8601	3756	6000	13392	4666	17361	8727	1.99
(A) (2)	-10.0	8601	20256	1500	13392	540	30361	12852	2.36
(B) (1)	-20.0	12601	18500	6500	32839	7980	37601	24859	1.51
(C) (1)	-30.0	16852	26256	12750	61059	25419	55852	36640	1.57
(D) (1)	-40.0	25002	33000	21500	97920	51563	79502	46357	1.72

NOTES

Φ --- ANGLE OF INTERNAL FRICTION, DEGREES
C --- UNIT COHESION, P.S.F.
▽ --- STATIC WATER SURFACE
D --- HORIZONTAL DRIVING FORCE IN POUNDS
R --- HORIZONTAL RESISTING FORCE IN POUNDS
A --- AS A SUBSCRIPT, REFERS TO ACTIVE WEDGE
B --- AS A SUBSCRIPT, REFERS TO CENTRAL BLOCK
P --- AS A SUBSCRIPT, REFERS TO PASSIVE WEDGE

$$\text{FACTOR OF SAFETY} = \frac{R_A + R_B + R_P}{D_A - D_P}$$

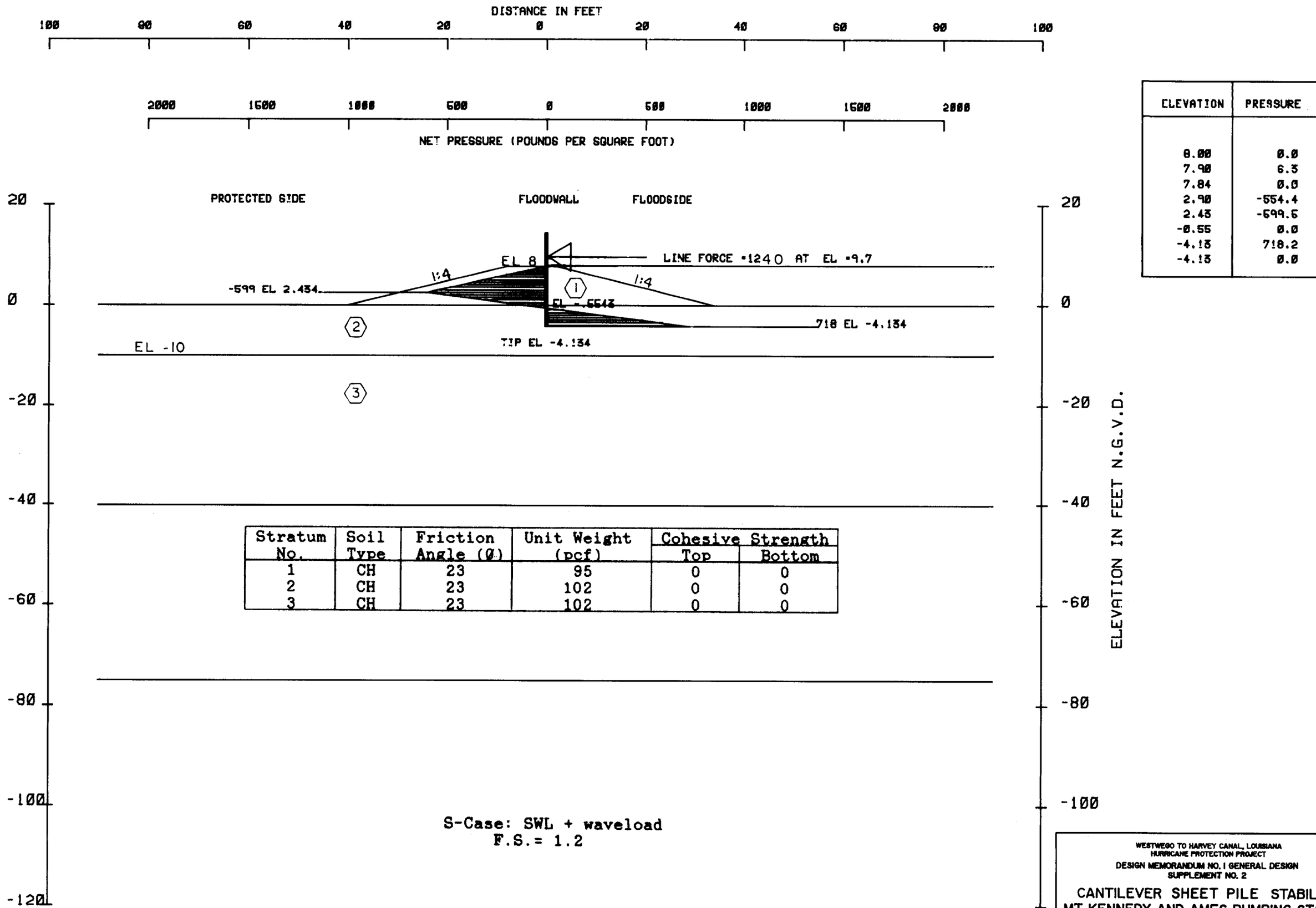
WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

LEVEE / I-WALL ANALYSIS STA. 500+00 TO 510+71 W/L PROTECTED SIDE STABILITY

U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

DATE: FEB. 90

FILE NO. H-2-30618



ELEVATION	PRESSURE
8.00	0.0
7.90	6.3
7.84	0.0
2.90	-554.4
2.45	-599.5
-0.55	0.0
-4.15	718.2
-4.15	0.0

Stratum No.	Soil Type	Friction Angle (Ø)	Unit Weight (pcf)	Cohesive Strength	
				Top	Bottom
1	CH	23	95	0	0
2	CH	23	102	0	0
3	CH	23	102	0	0

S-Case: SWL + waveload
F.S.= 1.2

NET DIAGRAM

(S) CASE F.S.=1.2

S

WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

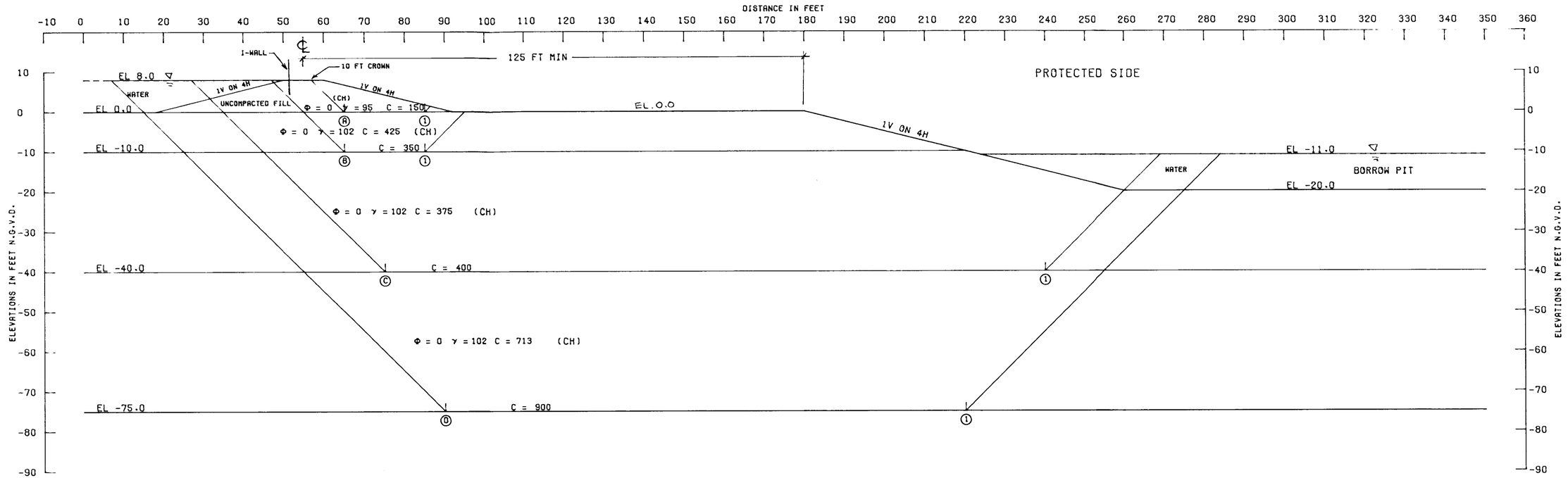
CANTILEVER SHEET PILE STABILITY
MT KENNEDY AND AMES PUMPING STATION
STA.600+00 W/L TO STA.600+40 W/L
STA.610+24 W/L TO STA.610+63 W/L

U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

DATE: FEB. 90

FILE NO. H-2-30640

PLATE F147



ASSUMED FAILURE SURFACE NO.	ASSUMED FAILURE SURFACE ELEV.	RESISTING FORCES R_A	RESISTING FORCES R_B	RESISTING FORCES R_P	DRIVING FORCES D_A	DRIVING FORCES $-D_P$	SUMMATION OF FORCES RESISTING	SUMMATION OF FORCES DRIVING	FACTOR OF SAFETY
Ⓐ ①	0.0	2400	3000	420	2741	116	5820	2625	2.220
Ⓑ ①	-10.0	10720	7000	8500	15411	5681	26220	9730	2.690
Ⓒ ①	-40.0	32020	66000	15000	110642	36155	113020	74487	1.520
Ⓓ ①	-75.0	80876	117000	64875	330235	195782	262751	134473	1.950

NOTES

Φ -- ANGLE OF INTERNAL FRICTION, DEGREES
C -- UNIT COHESION, P.S.F.
▽ -- STATIC WATER SURFACE
D -- HORIZONTAL DRIVING FORCE IN POUNDS
R -- HORIZONTAL RESISTING FORCE IN POUNDS
A -- AS A SUBSCRIPT, REFERS TO ACTIVE WEDGE
B -- AS A SUBSCRIPT, REFERS TO CENTRAL BLOCK
P -- AS A SUBSCRIPT, REFERS TO PASSIVE WEDGE

$$\text{FACTOR OF SAFETY} = \frac{R_A + R_B + R_P}{D_A - D_P}$$

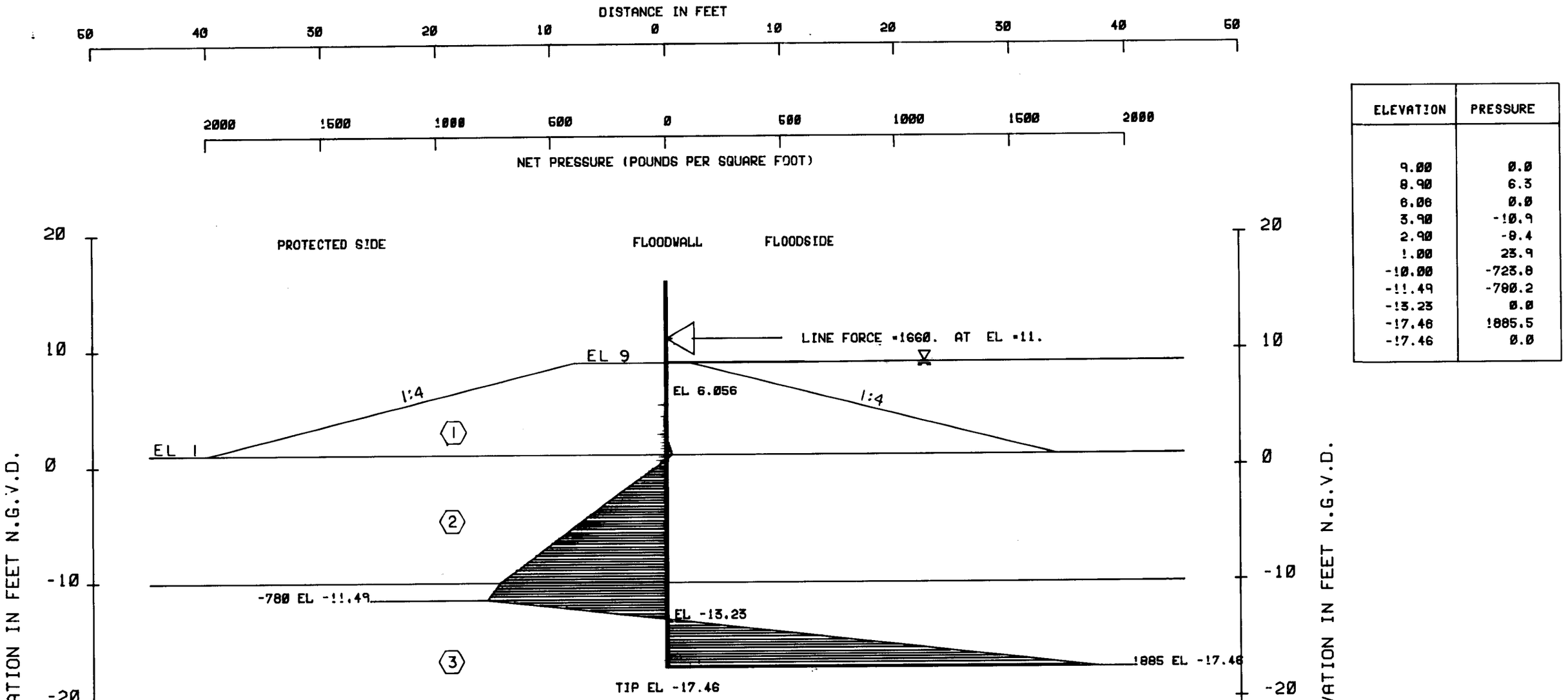
WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

LEVEE / I- WALL STABILITY
MOUNT KENNEDY PUMPING STA.
STA. 610+24 TO 610+63 W/L
PROTECTED SIDE ANALYSIS

U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

DATE: FEB. 90 FILE NO. H-2-30618

PLATE F148



ELEVATION	PRESSURE
9.00	0.0
8.90	6.3
6.06	0.0
3.90	-10.9
2.90	-8.4
1.00	23.9
-10.00	-723.8
-11.49	-780.2
-13.23	0.0
-17.46	1885.5
-17.46	0.0

Stratum No.	Soil Type	Friction Angle (Ø)	Unit Weight (pcf)	Cohesive Strength Top	Cohesive Strength Bottom
1	CH	23	105	0	0
2	CH	23	120	0	0
3	CH	23	100	0	0

S-Case: SWL + waveload
F.S.= 1.2

NET DIAGRAM

(S) CASE F.S.=1.2

WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT

DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

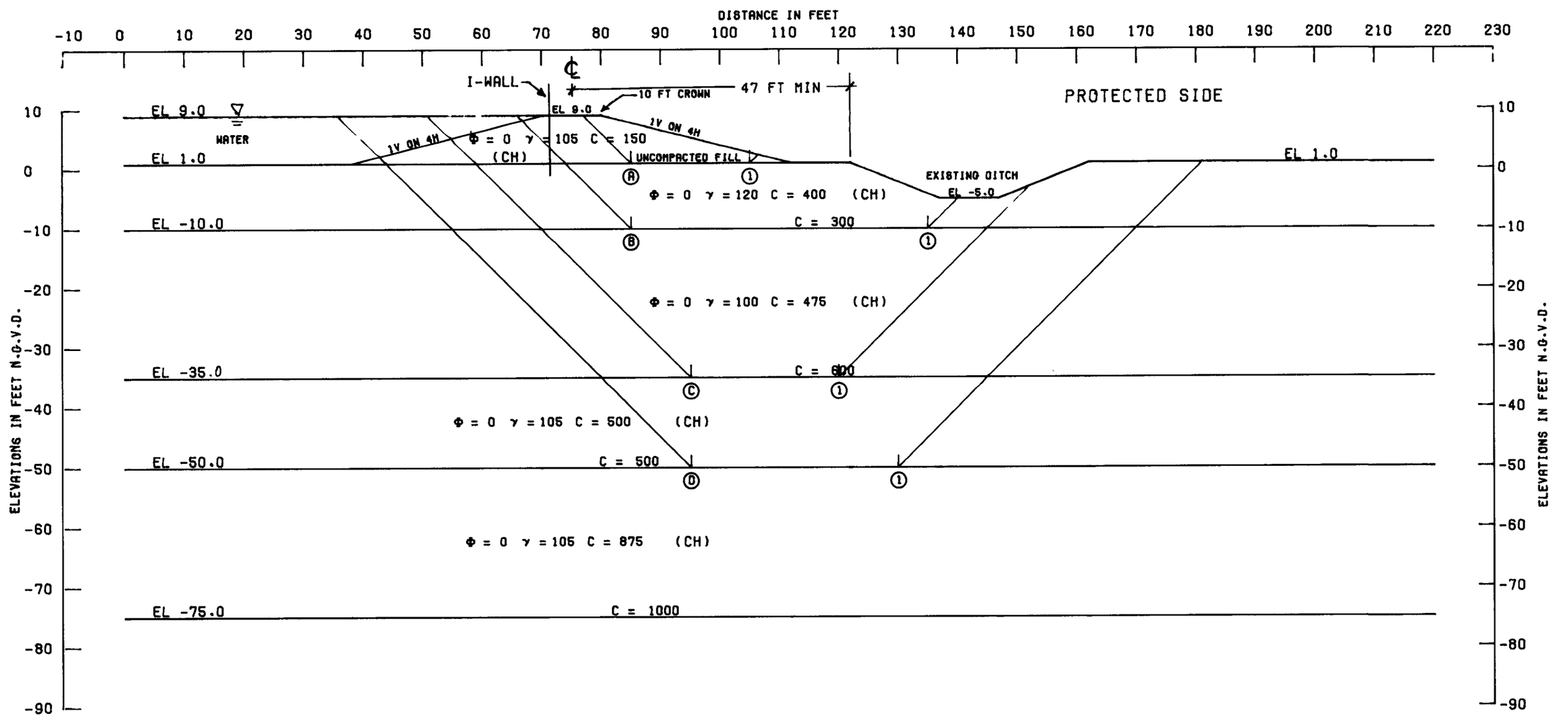
CANTILEVER SHEET PILE STABILITY
OAK COVE PUMPING STATION
STA.700+00 W/L TO STA.701+05 W/L
STA.702+15 W/L TO STA.703+10 W/L
FLOODSIDE ANALYSIS

U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

DATE: FEB. 90

FILE NO. H-2-30618

PLATE F149



ASSUMED FAILURE SURFACE NO.		ASSUMED FAILURE SURFACE ELEV.	RESISTING FORCES R_A	R_B	R_P	DRIVING FORCES D_A	$-D_P$	SUMMATION OF FORCES RESISTING	DRIVING	FACTOR OF SAFETY
Ⓐ	①	1.0	2400	3000	420	3030	129	5820	2901	2.010
Ⓑ	①	-10.0	10960	15000	4001	19461	1596	29961	17865	1.680
Ⓒ	①	-35.0	33810	12500	29353	100617	54949	75663	45868	1.660
Ⓓ	①	-50.0	47911	17500	47550	178949	124159	112961	54790	2.060

NOTES

Φ -- ANGLE OF INTERNAL FRICTION, DEGREES
C -- UNIT COHESION, P.S.F.
▽ -- STATIC WATER SURFACE
D -- HORIZONTAL DRIVING FORCE IN POUNDS
R -- HORIZONTAL RESISTING FORCE IN POUNDS
A -- AS A SUBSCRIPT, REFERS TO ACTIVE WEDGE
B -- AS A SUBSCRIPT, REFERS TO CENTRAL BLOCK
P -- AS A SUBSCRIPT, REFERS TO PASSIVE WEDGE

$$\text{FACTOR OF SAFETY} = \frac{R_A + R_B + R_P}{D_A - D_P}$$

N

WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

LEVEE / I-WALL STABILITY
OAK COVE PUMPING STATION
STA.700+00 TO 701+05 W/L
STA.702+15 TO 703+10 W/L
PROTECTED SIDE ANALYSIS

U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

DATE: FEB. 90 FILE NO. H-2-30618

PLATE F150

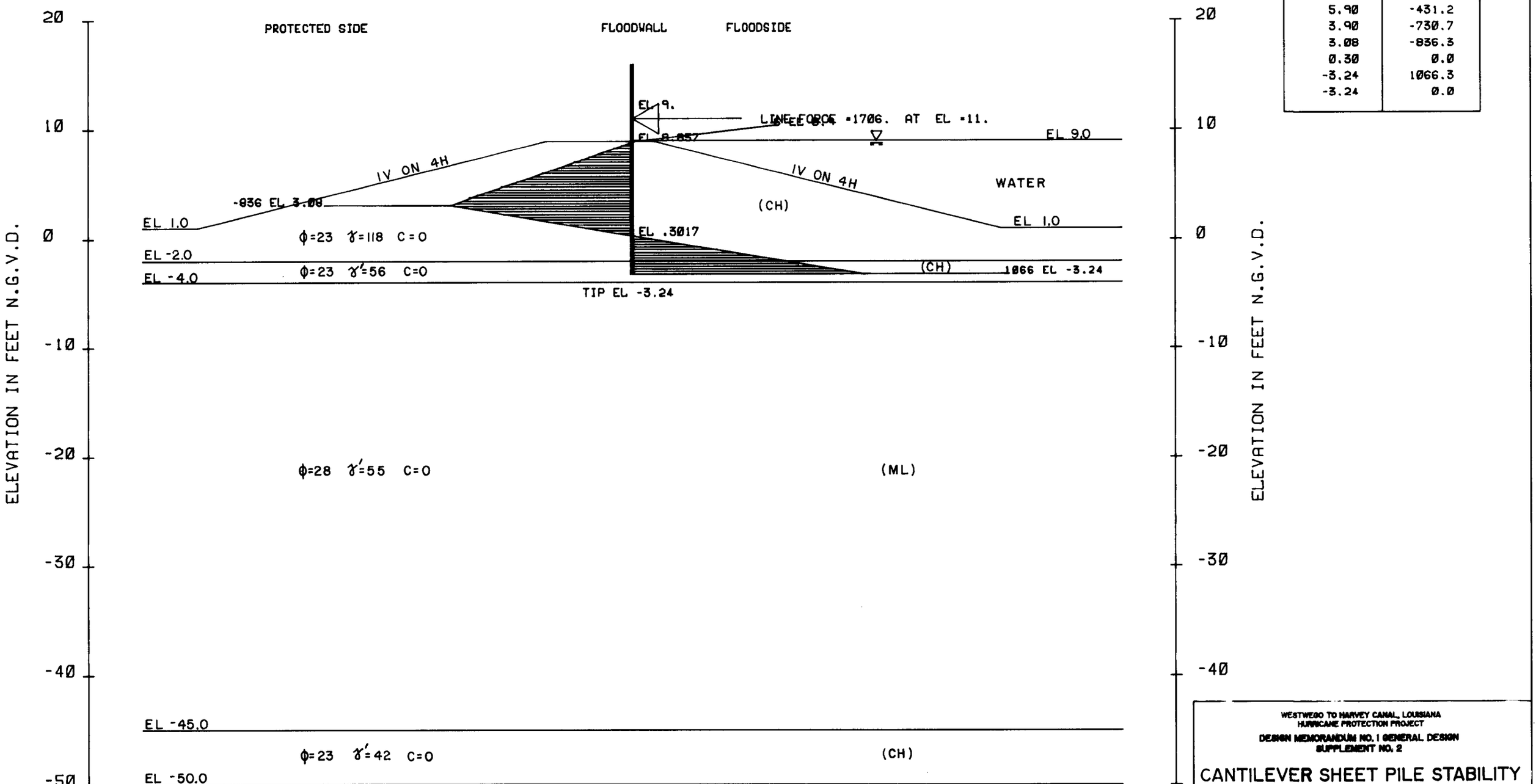
DISTANCE IN FEET

50 40 30 20 10 0 10 20 30 40 50

2000 1500 1000 500 0 500 1000 1500 2000

NET PRESSURE (POUNDS PER SQUARE FOOT)

ELEVATION	PRESSURE
9.00	0.0
8.90	6.3
8.86	0.0
5.90	-431.2
3.90	-730.7
3.08	-836.3
0.30	0.0
-3.24	1066.3
-3.24	0.0



NET DIAGRAM

(S) CASE F.S.=1.2

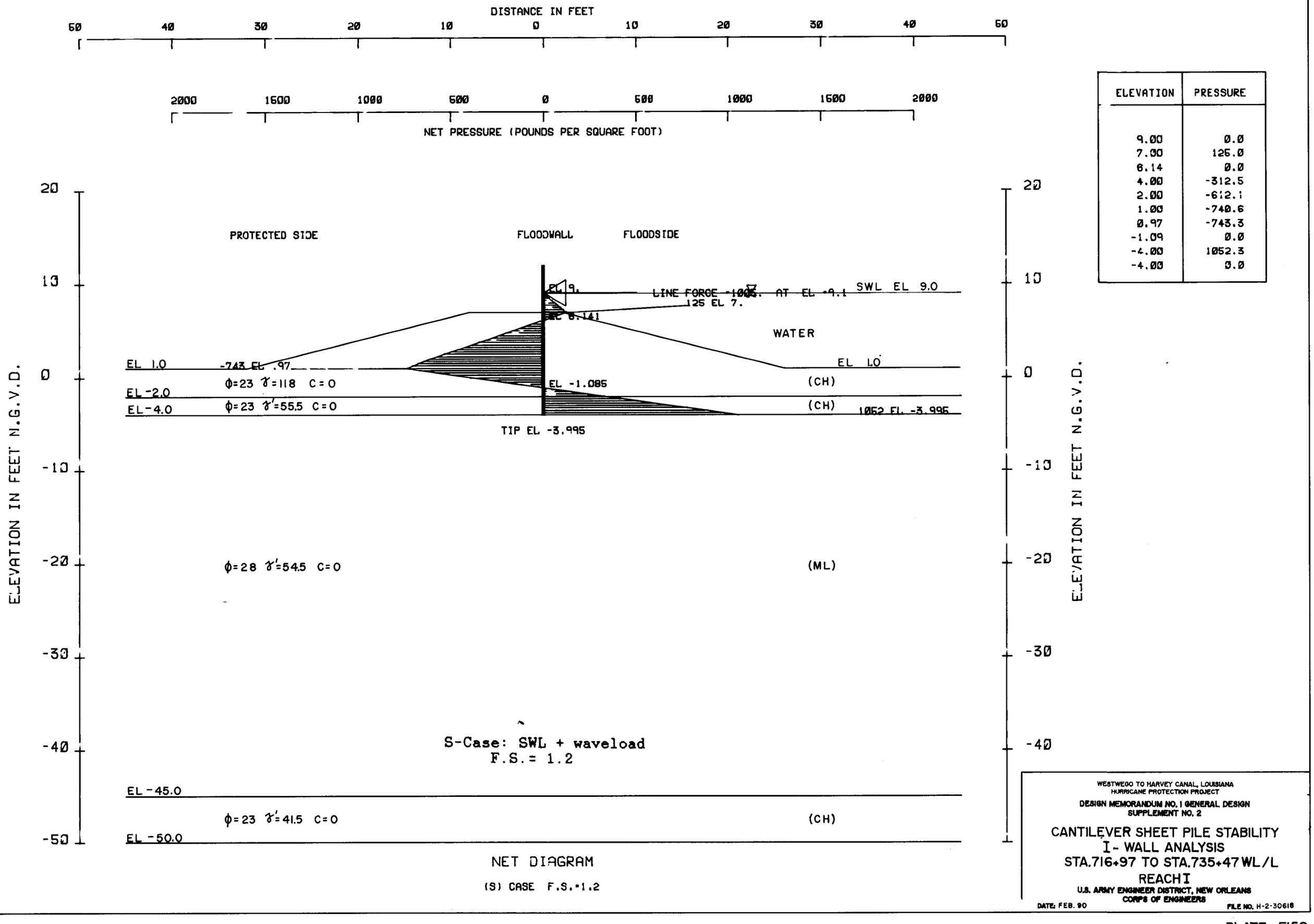
WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

CANTILEVER SHEET PILE STABILITY STA.710+00 TO 710+84 W/L REACH I

U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

DATE: FEB. 90 FILE NO. H-2-30618

PLATE F151



ELEVATION	PRESSURE
9.00	0.0
7.00	125.0
6.14	0.0
4.00	-312.5
2.00	-612.1
1.00	-740.6
0.97	-743.3
-1.09	0.0
-4.00	1052.3
-4.00	0.0

NET DIAGRAM

(S) CASE F.S.=1.2

WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT

DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

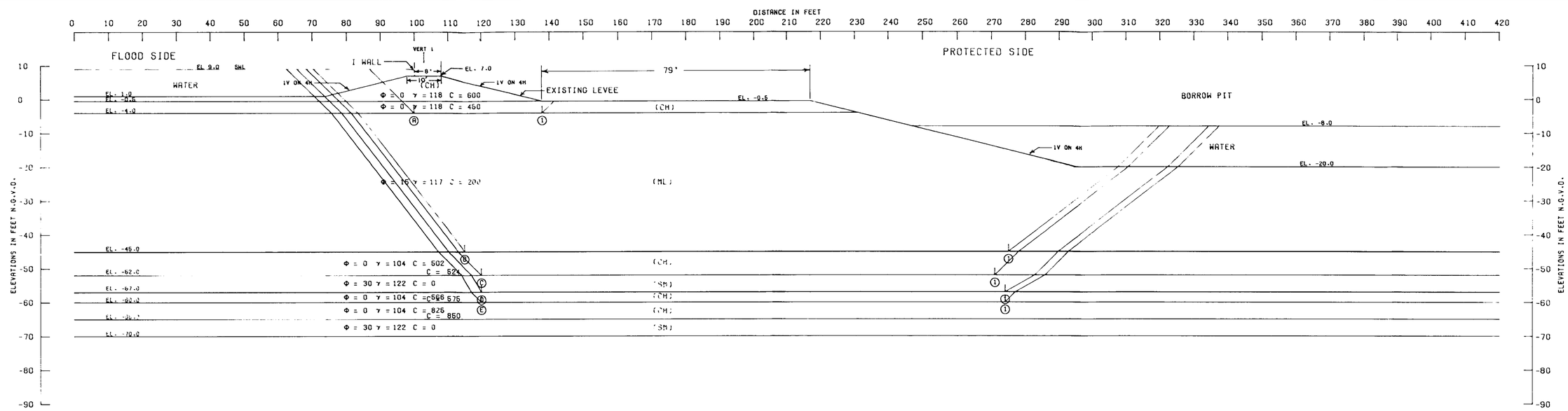
CANTILEVER SHEET PILE STABILITY
I- WALL ANALYSIS
STA.716+97 TO STA.735+47 WL/L
REACH I

U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

DATE: FEB. 90

FILE NO. H-2-30618

PLATE F152



GENERAL NOTES:

CLASSIFICATION, STRATIFICATION, SHEAR STRENGTH, AND UNIT WEIGHT OF THE SOIL WERE BASED ON THE RESULTS OF UNDISTURBED BORINGS. SEE BORING DATA PLATES.

ASSUMED FAILURE SURFACE NO.		ASSUMED FAILURE SURFACE ELEV.	RESISTING FORCES R_A	R_B	R_P	DRIVING FORCES D_A	$-D_P$	SUMMATION OF FORCES RESISTING	DRIVING	FACTOR OF SAFETY
(A)	(1)	-4.0	9991	12142	3150	8175	723	26283	7452	3.39
(B)	(1)	-45.0	47653	76640	26368	157870	61868	160661	96002	1.67
(C)	(1)	-62.0	63920	79124	32978	201394	91609	166022	109785	1.51
(D)	(1)	-67.0	63360	86624	62305	236792	113702	201289	122090	1.65
(E)	(1)	-60.0	66381	88550	66202	257980	129391	210133	128589	1.63

NOTES

Φ -- ANGLE OF INTERNAL FRICTION, DEGREES
C -- UNIT COHESION, P.S.F.
∇ -- STATIC WATER SURFACE
D -- HORIZONTAL DRIVING FORCE IN POUNDS
R -- HORIZONTAL RESISTING FORCE IN POUNDS
A -- AS A SUBSCRIPT, REFERS TO ACTIVE WEDGE
B -- AS A SUBSCRIPT, REFERS TO CENTRAL BLOCK
P -- AS A SUBSCRIPT, REFERS TO PASSIVE WEDGE

FACTOR OF SAFETY = $-\frac{R_A + R_B - R_P}{D_A - D_P}$

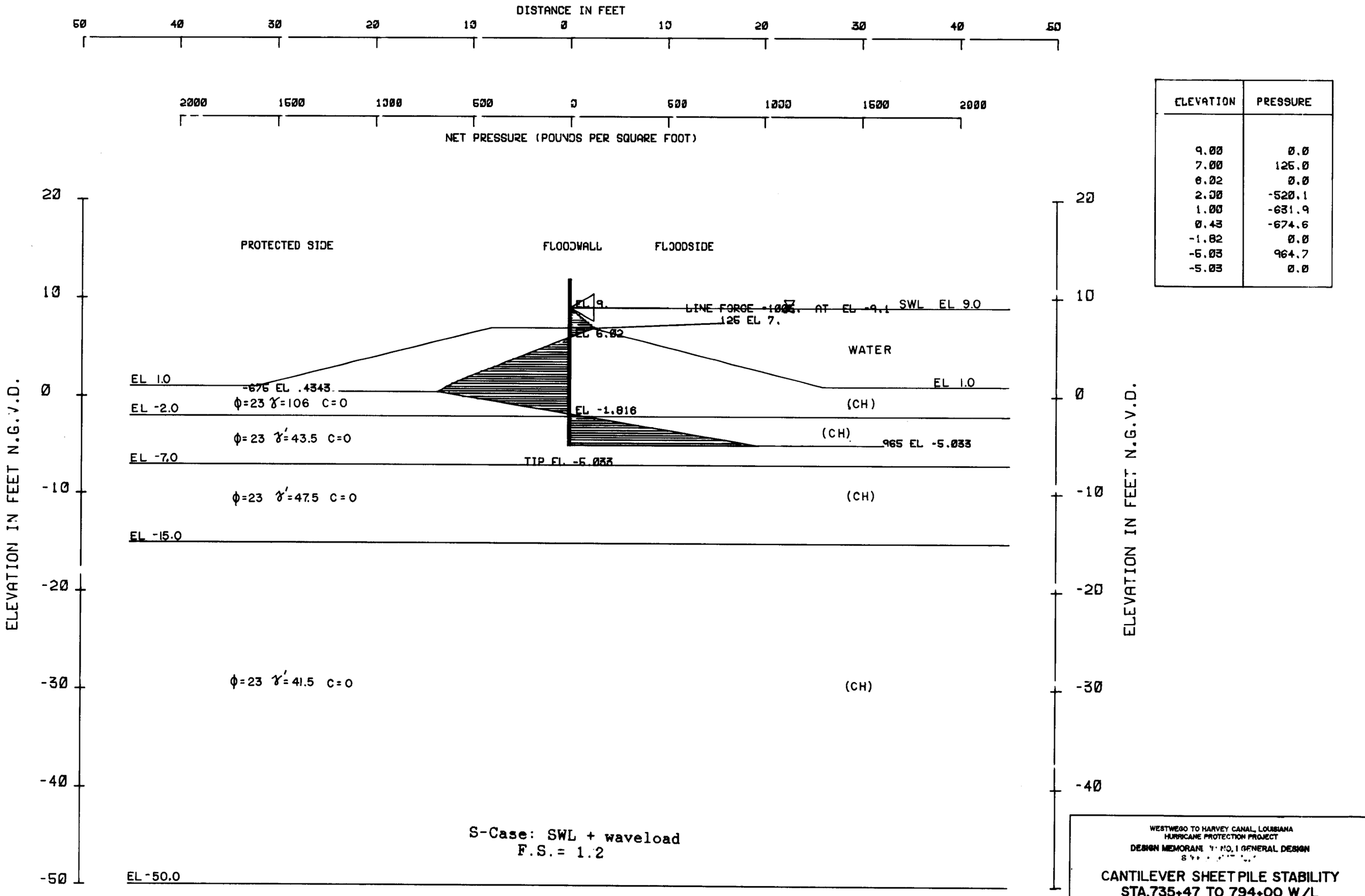
WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

LEVEE / I - WALL ANALYSIS
STA. 116+97 TO 735+47 W/L
REACH I

U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

DATE: FEB. 90 FILE NO. H-2-30618

PLATE F153



ELEVATION	PRESSURE
9.00	0.0
7.00	126.0
6.82	0.0
2.00	-520.1
1.00	-631.9
0.43	-674.6
-1.82	0.0
-5.03	964.7
-5.03	0.0

S-Case: SWL + waveload
F.S.= 1.2

NET DIAGRAM

(S' CASE F.S.=1.2

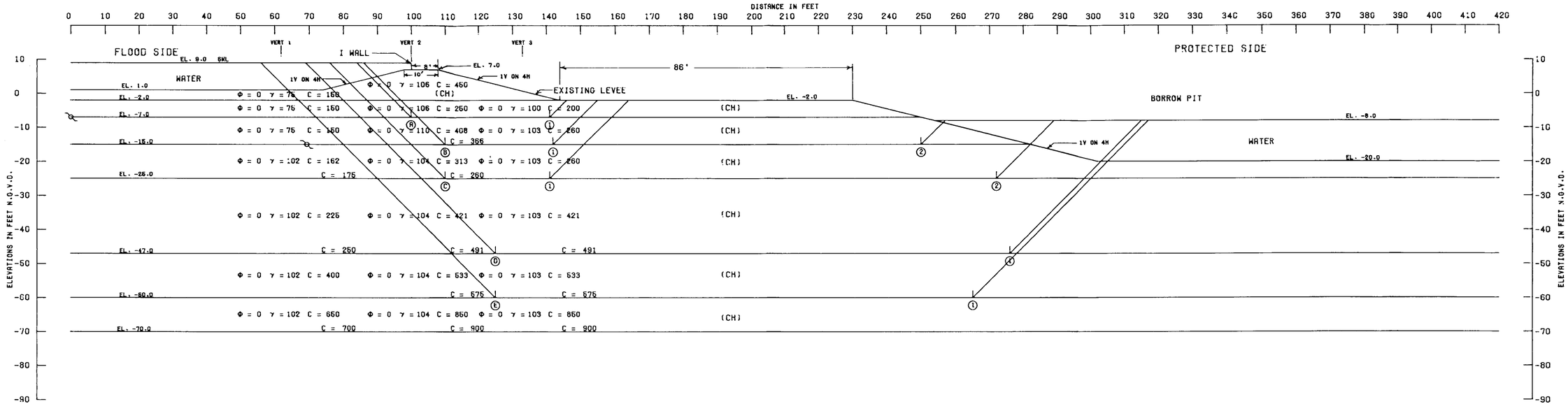
WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN

CANTILEVER SHEET PILE STABILITY
STA.735+47 TO 794+00 W/L
REACH II

U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

DATE: FEB. 90 FILE NO. H-2-30618

PLATE F154



GENERAL NOTES:

CLASSIFICATION, STRATIFICATION, SHEAR STRENGTH, AND UNIT WEIGHT OF THE SOIL WERE BASED ON THE RESULTS OF UNDISTURBED BORINGS. SEE BORING DATA PLATES.

ASSUMED FAILURE SURFACE NO.	ASSUMED FAILURE SURFACE EL.EV.	RESISTING FORCES R_A	RESISTING FORCES R_B	RESISTING FORCES R_P	DRIVING FORCES D_A	DRIVING FORCES $-D_P$	SUMMATION OF FORCES RESISTING	SUMMATION OF FORCES DRIVING	FACTOR OF SAFETY
Ⓡ ①	-7.0	7610	9025	2000	11326	1362	18635	8964	1.86
Ⓑ ①	-15.0	14166	8320	6160	26661	8696	28646	17965	1.55
Ⓑ ②	-15.0	14166	36400	3327	26661	2692	53893	23869	2.26
Ⓒ ①	-25.0	17694	8060	11360	54407	27047	37114	27360	1.36
Ⓒ ②	-25.0	17694	42120	5199	54407	11661	65013	42846	1.52
Ⓓ ①	-47.0	34000	74141	21124	147770	66713	129265	82057	1.58
Ⓔ ①	-60.0	44134	80600	34982	226855	123825	159616	102030	1.56

NOTES

Φ -- ANGLE OF INTERNAL FRICTION, DEGREES
C -- UNIT COHESION, P.S.F.
▽ -- STATIC WATER SURFACE
D -- HORIZONTAL DRIVING FORCE IN POUNDS
R -- HORIZONTAL RESISTING FORCE IN POUNDS
A -- AS A SUBSCRIPT, REFERS TO ACTIVE WEDGE
B -- AS A SUBSCRIPT, REFERS TO CENTRAL BLOCK
P -- AS A SUBSCRIPT, REFERS TO PASSIVE WEDGE

FACTOR OF SAFETY = $\frac{R_A + R_B + R_P}{D_A - D_P}$

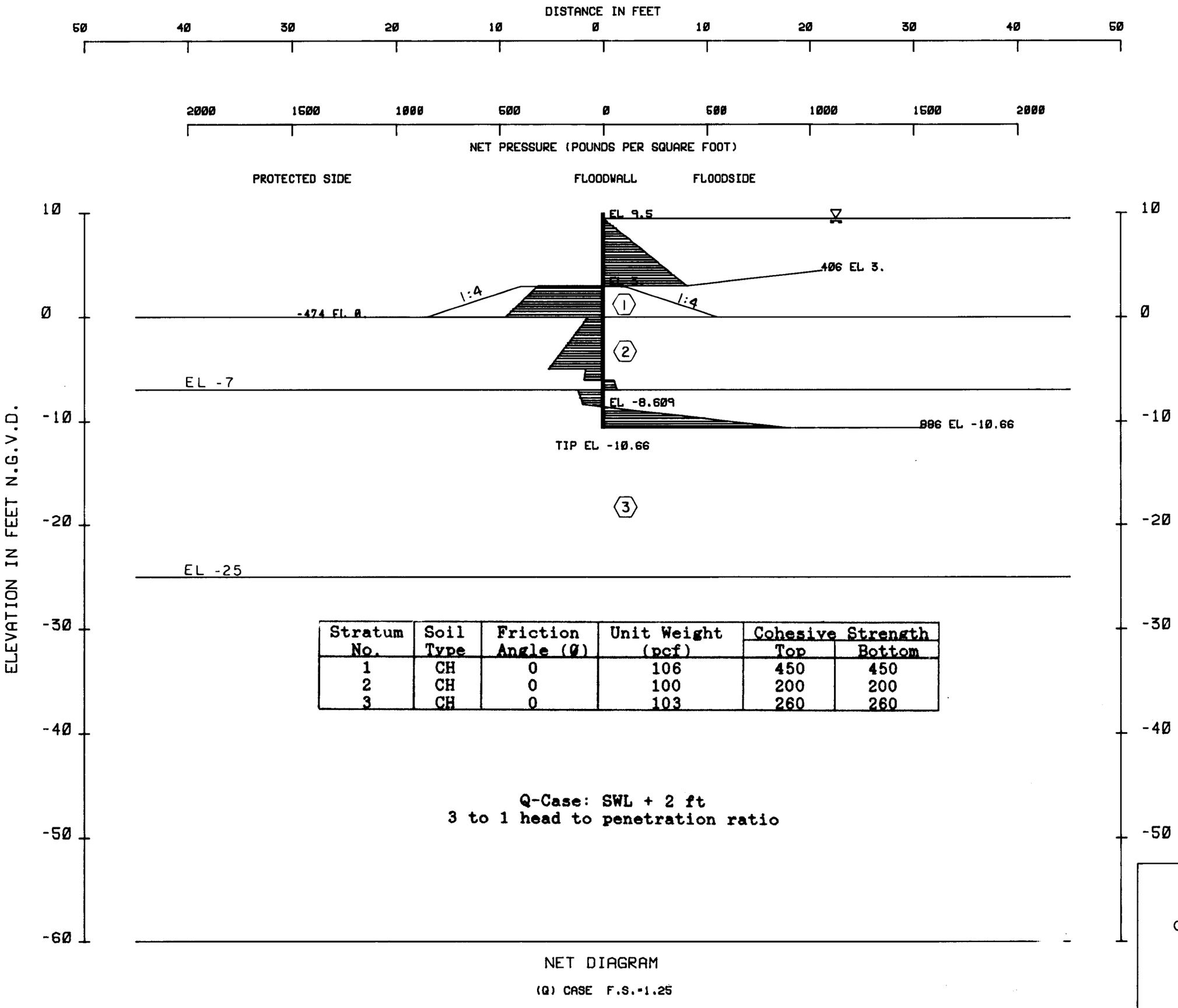
WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

LEVEE / I - WALL ANALYSIS
STA.735 + 47 TO 794 + 00 W/L
REACH II

U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

DATE: FEB.90 FILE NO. H-2-30618

PLATE F155



ELEVATION	PRESSURE
9.50	0.0
3.00	406.3
3.00	0.0
3.00	-313.8
0.00	-474.3
0.00	-74.2
-5.00	-264.2
-5.00	-84.2
-6.02	-93.5
-6.02	50.2
-7.00	67.7
-7.00	-124.2
-8.38	-99.4
-8.61	0.0
-10.66	886.6
-10.66	0.0

Stratum No.	Soil Type	Friction Angle (Ø)	Unit Weight (pcf)	Cohesive Strength Top	Cohesive Strength Bottom
1	CH	0	106	450	450
2	CH	0	100	200	200
3	CH	0	103	260	260

Q-Case: SWL + 2 ft
3 to 1 head to penetration ratio

NET DIAGRAM

(Q) CASE F.S.=1.25

WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

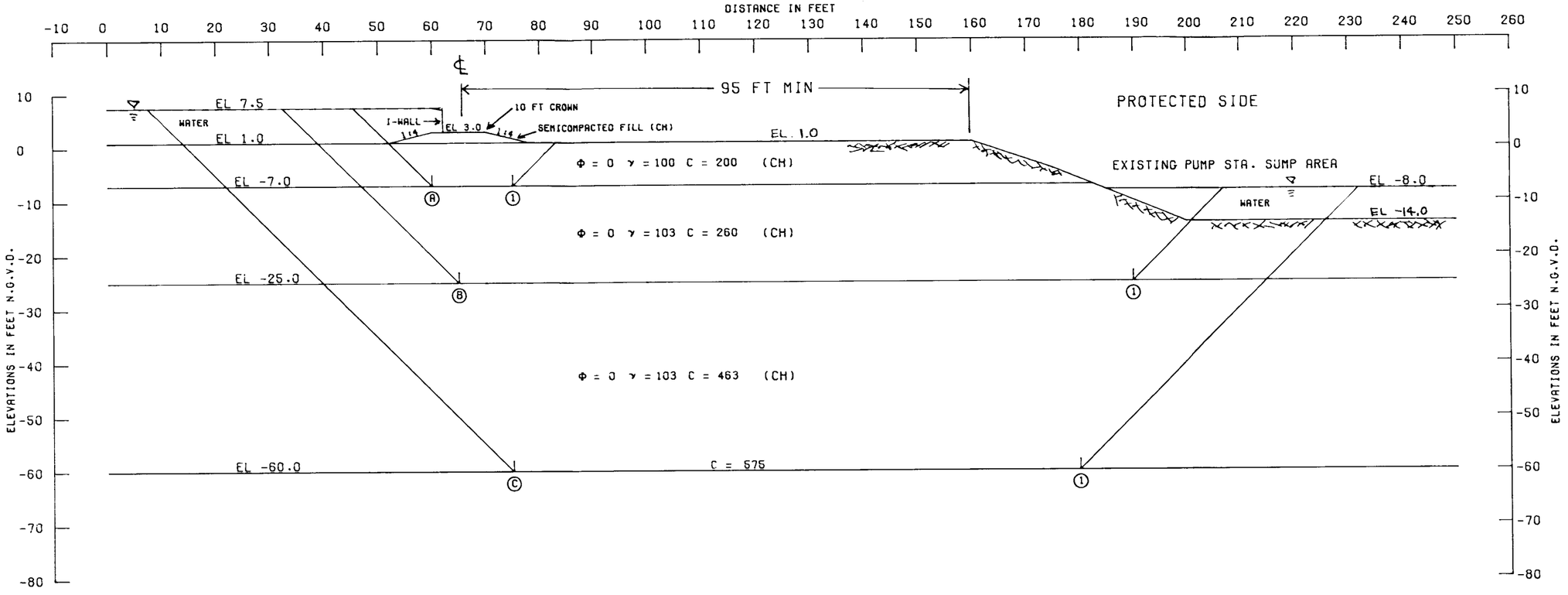
CANTILEVER SHEET PILE STABILITY
ESTELLE PUMPING STATION
STA.800+00 TO STA.802+50 W/L

U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

DATE: FEB. 90

FILE NO. H-2-30618

PLATE F156



ASSUMED FAILURE SURFACE NO.	ASSUMED FAILURE SURFACE ELEV.	RESISTING FORCES R_A	RESISTING FORCES R_B	RESISTING FORCES R_P	DRIVING FORCES D_A	DRIVING FORCES $-D_P$	SUMMATION OF FORCES RESISTING	SUMMATION OF FORCES DRIVING	FACTOR OF SAFETY
Ⓐ ①	-7.0	3202	3000	3200	8119	3319	9402	4800	1.960
Ⓑ ①	-25.0	12662	32500	6720	46096	12291	50782	33805	1.500
Ⓒ ①	-60.0	44936	60375	38095	214013	130891	143406	83122	1.730

NOTES

Φ -- ANGLE OF INTERNAL FRICTION, DEGREES
C -- UNIT COHESION, P.S.F.
▽ -- STATIC WATER SURFACE
D -- HORIZONTAL DRIVING FORCE IN POUNDS
R -- HORIZONTAL RESISTING FORCE IN POUNDS
A -- AS A SUBSCRIPT, REFERS TO ACTIVE WEDGE
B -- AS A SUBSCRIPT, REFERS TO CENTRAL BLOCK
P -- AS A SUBSCRIPT, REFERS TO PASSIVE WEDGE

$$\text{FACTOR OF SAFETY} = \frac{R_A + R_B + R_P}{D_A - D_P}$$

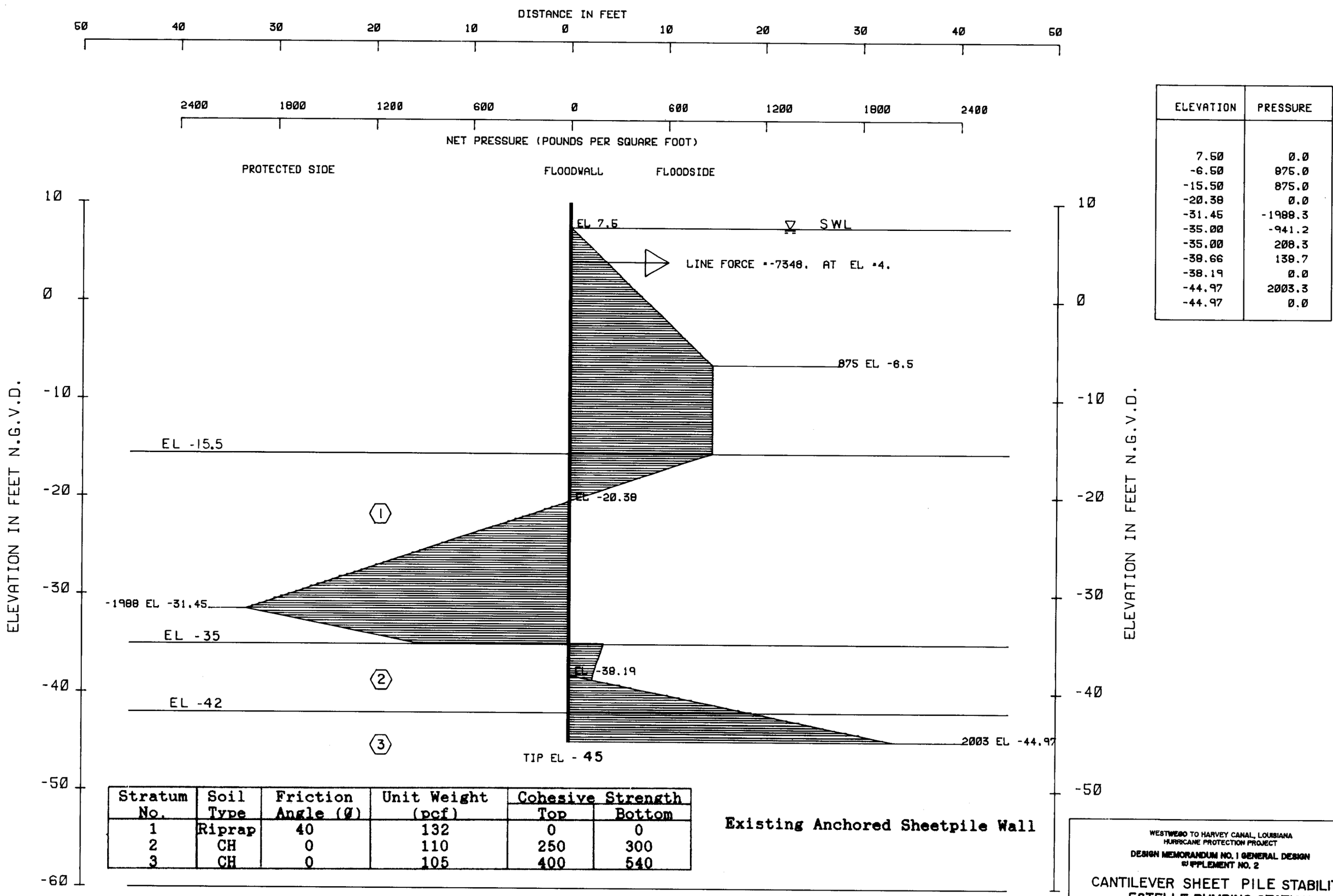
WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

LEVEE / I - WALL STABILITY
STA. 800+00 TO 802+50 W/L
ESTELLE PUMP STATION

U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

DATE: FEB 90 FILE NO. H-2-30618

PLATE F157



ELEVATION	PRESSURE
7.50	0.0
-6.50	875.0
-15.50	875.0
-20.38	0.0
-31.45	-1988.3
-35.00	-941.2
-35.00	208.3
-38.66	139.7
-38.19	0.0
-44.97	2003.3
-44.97	0.0

Stratum No.	Soil Type	Friction Angle (Ø)	Unit Weight (pcf)	Cohesive Strength Top	Cohesive Strength Bottom
1	Riprap	40	132	0	0
2	CH	0	110	250	300
3	CH	0	105	400	540

Existing Anchored Sheetpile Wall

NET DIAGRAM

(Q) CASE F.S.=1.5

WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

CANTILEVER SHEET PILE STABILITY
ESTELLE PUMPING STATION
STA.803+30 W/L TO STA.804+85 W/L

U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

DATE: FEB. 90

FILE NO. H-2-30618

PLATE F158

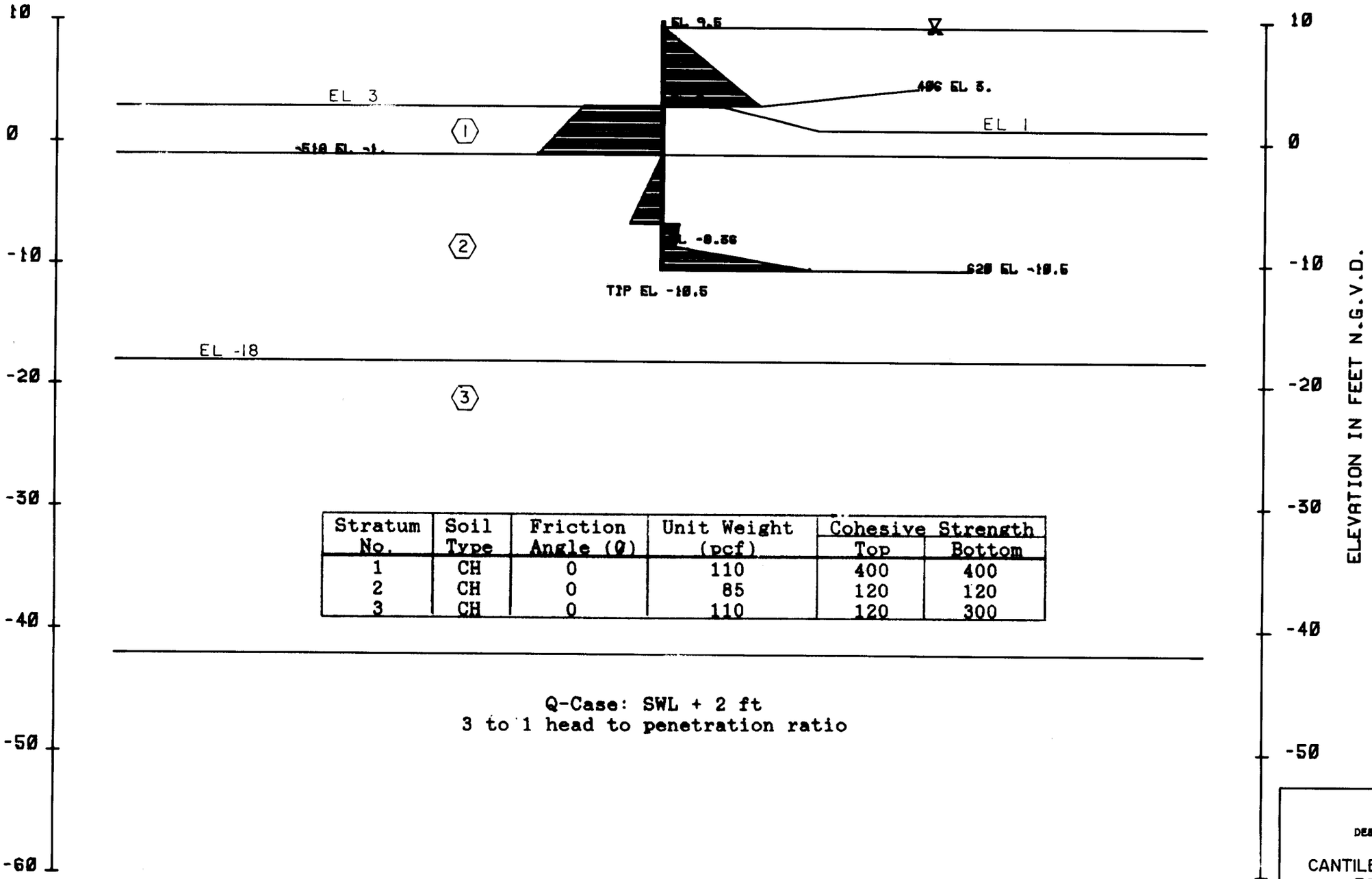
DISTANCE IN FEET

50 40 30 20 10 0 10 20 30 40 50

2000 1500 1000 500 0 500 1000 1500 2000

NET PRESSURE (POUNDS PER SQUARE FOOT)

ELEVATION	PRESSURE
9.50	0.0
3.00	486.3
3.00	0.0
3.00	-527.7
-1.00	-517.7
-1.00	-3.9
-8.71	-135.3
-8.71	69.4
-8.54	51.9
-8.30	0.0
-18.50	620.3
-18.50	0.0



Stratum No.	Soil Type	Friction Angle (Ø)	Unit Weight (pcf)	Cohesive Strength Top	Cohesive Strength Bottom
1	CH	0	110	400	400
2	CH	0	85	120	120
3	CH	0	110	120	300

Q-Case: SWL + 2 ft
3 to 1 head to penetration ratio

NET DIAGRAM

(Q) CASE F.9.-1.89

WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT

DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

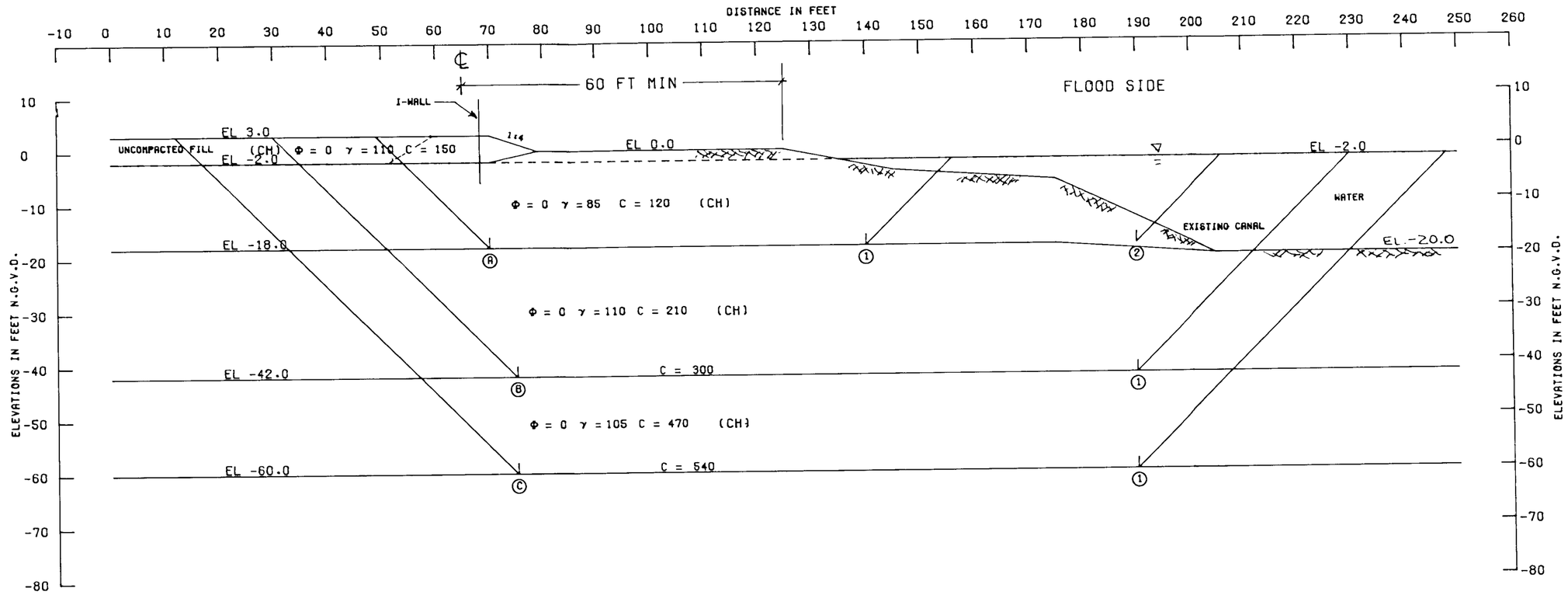
CANTILEVER SHEET PILE STABILITY
ESTELLE PUMPING STATION
STA.805+65 W/L TO STA.807+43 W/L

U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

DATE: FEB. 90

FILE NO. H-2-30618

PLATE F159



ASSUMED FAILURE SURFACE NO.	ASSUMED FAILURE SURFACE ELEV.	RESISTING FORCES R_A	RESISTING FORCES R_B	RESISTING FORCES R_P	DRIVING FORCES D_A	DRIVING FORCES $-D_P$	SUMMATION OF FORCES RESISTING	SUMMATION OF FORCES DRIVING	FACTOR OF SAFETY
Ⓐ ①	-18.0	5340	8400	3225	21053	10204	16965	10849	1.560
Ⓐ ②	-18.0	5340	14400	818	21053	8191	20558	12862	1.600
Ⓑ ①	-42.0	15420	34500	9240	98042	62862	59160	35180	1.680
Ⓒ ①	-60.0	32340	62100	26160	196949	143679	120600	53270	2.260

NOTES

Φ -- ANGLE OF INTERNAL FRICTION, DEGREES
C -- UNIT COHESION, P.S.F.
▽ -- STATIC WATER SURFACE
D -- HORIZONTAL DRIVING FORCE IN POUNDS
R -- HORIZONTAL RESISTING FORCE IN POUNDS
A -- AS A SUBSCRIPT, REFERS TO ACTIVE WEDGE
B -- AS A SUBSCRIPT, REFERS TO CENTRAL BLOCK
P -- AS A SUBSCRIPT, REFERS TO PASSIVE WEDGE

$$\text{FACTOR OF SAFETY} = \frac{R_A + R_B + R_P}{D_A - D_P}$$

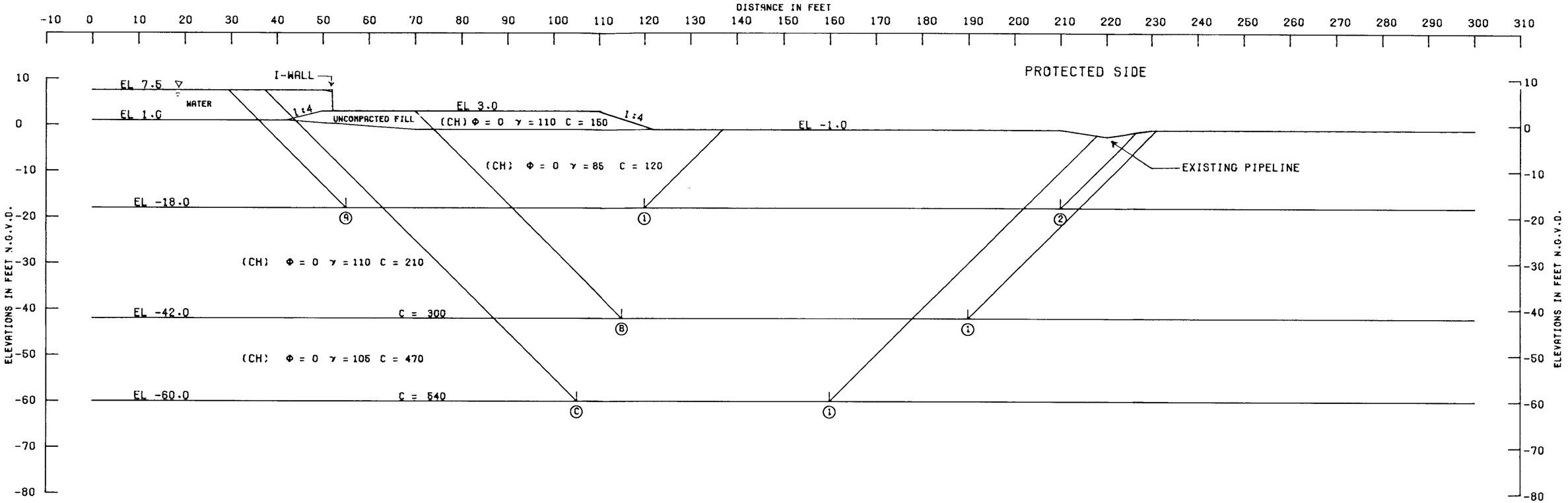
WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

ESTELLE PUMPING STATION
I- WALL / LEVEE STABILITY
STA. 805+65 W/L TO STA. 807+43 W/L
FLOODSIDE ANALYSIS

U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

DATE: FEB. 90 FILE NO. H-2-30618

PLATE F160



ASSUMED FAILURE SURFACE NO.	ASSUMED FAILURE SURFACE ELEV.	RESISTING FORCES R_A	R_B	R_P	DRIVING FORCES D_A	$-D_P$	SUMMATION OF FORCES RESISTING	DRIVING	FACTOR OF SAFETY
Ⓐ ①	-18.0	4661	7800	4080	24632	12355	16441	12177	1.350
Ⓐ ②	-18.0	4661	18600	3953	24632	11075	27114	13457	2.010
Ⓑ ①	-42.0	15360	22500	14160	97094	77366	52020	19728	2.640
Ⓒ ①	-60.0	31690	29700	30799	198588	168729	92189	29859	3.090

NOTES

Φ -- ANGLE OF INTERNAL FRICTION, DEGREES
C -- UNIT COHESION, P.S.F.
▽ -- STATIC WATER SURFACE
D -- HORIZONTAL DRIVING FORCE IN POUNDS
R -- HORIZONTAL RESISTING FORCE IN POUNDS
A -- AS A SUBSCRIPT, REFERS TO ACTIVE WEDGE
B -- AS A SUBSCRIPT, REFERS TO CENTRAL BLOCK
P -- AS A SUBSCRIPT, REFERS TO PASSIVE WEDGE

$$\text{FACTOR OF SAFETY} = \frac{R_A + R_B + R_P}{D_A - D_P}$$

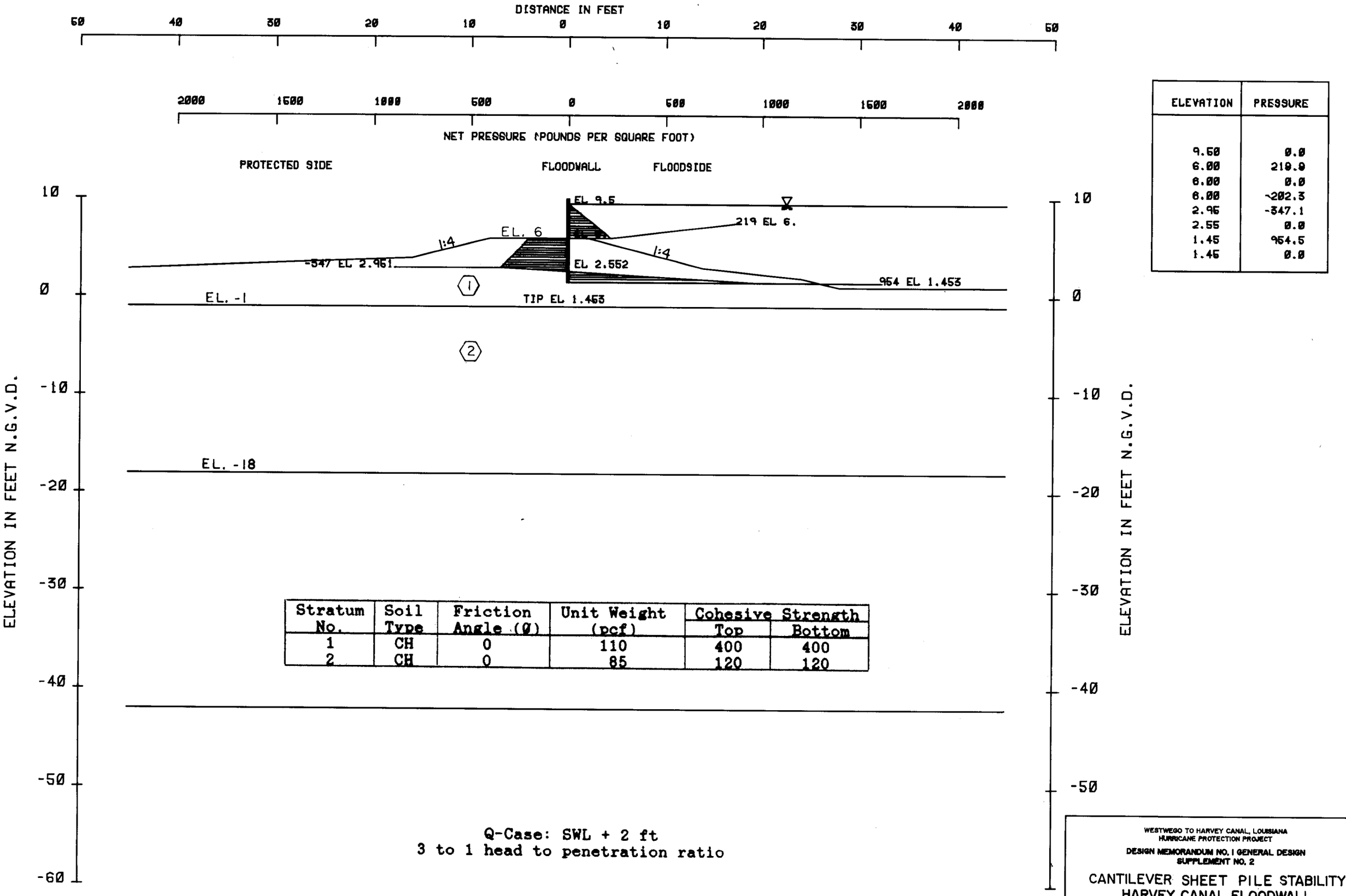
WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

ESTELLE PUMPING STATION
STA. 805+65 TO STA. 807+43 W/L
PROTECTED SIDE ANALYSIS

U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

DATE: FEB. 90 FILE NO. H-2-30618

PLATE F161



ELEVATION	PRESSURE
9.50	0.0
6.00	219.9
6.00	0.0
6.00	-202.3
2.96	-347.1
2.55	0.0
1.45	954.5
1.45	0.0

Stratum No.	Soil Type	Friction Angle (Ø)	Unit Weight (pcf)	Cohesive Strength	
				Top	Bottom
1	CH	0	110	400	400
2	CH	0	85	120	120

Q-Case: SWL + 2 ft
3 to 1 head to penetration ratio

NET DIAGRAM

(Q) CASE F.9.-1.9

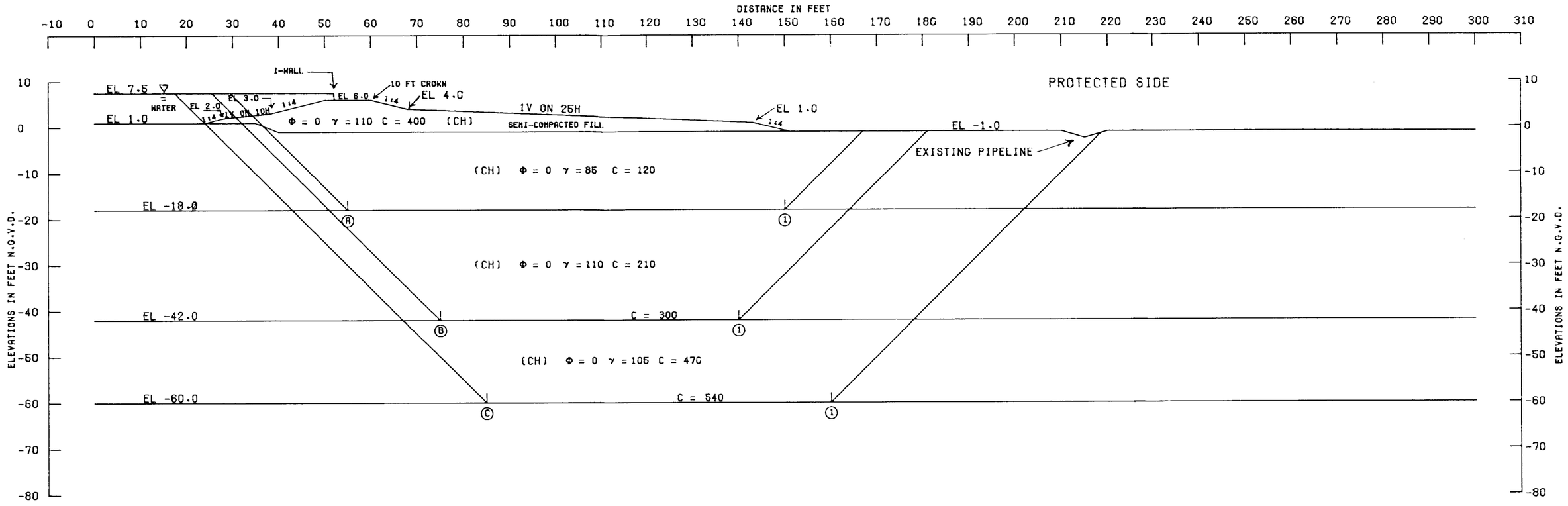
WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

CANTILEVER SHEET PILE STABILITY
HARVEY CANAL FLOODWALL
STA.807+45 W/L TO STA.816+55 W/L

U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

DATE: FEB. 90 FILE NO. H-2-30618

PLATE F162



ASSUMED FAILURE SURFACE		RESISTING FORCES			DRIVING FORCES		SUMMATION OF FORCES		FACTOR OF SAFETY
NO.	ELEV.	R_A	R_B	R_P	D_A	$-D_P$	RESISTING	DRIVING	
Ⓐ ①	-18.0	6247	11400	4080	28396	12295	21727	16101	1.35
Ⓑ ①	-42.0	15660	19500	14160	110215	80197	49320	30018	1.64
Ⓒ ①	-60.0	31562	40500	30977	210615	168553	103039	42062	2.45

NOTES

Φ -- ANGLE OF INTERNAL FRICTION, DEGREES
C -- UNIT COHESION, P.S.F.
▽ -- STATIC WATER SURFACE
D -- HORIZONTAL DRIVING FORCE IN POUNDS
R -- HORIZONTAL RESISTING FORCE IN POUNDS
A -- AS A SUBSCRIPT, REFERS TO ACTIVE WEDGE
B -- AS A SUBSCRIPT, REFERS TO CENTRAL BLOCK
P -- AS A SUBSCRIPT, REFERS TO PASSIVE WEDGE

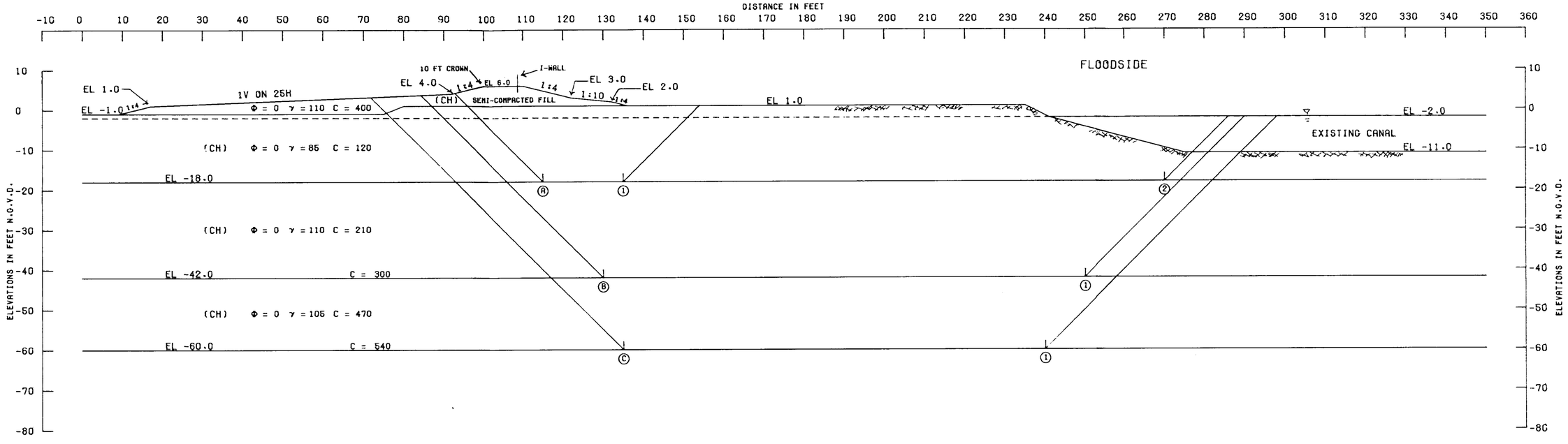
$$\text{FACTOR OF SAFETY} = \frac{R_A + R_B + R_P}{D_A - D_P}$$

WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

LEVEE / I- WALL STABILITY
HARVEY CANAL FLOODWALL
STA. 807+43 TO STA. 816+45 W/L
PROTECTED SIDE ANALYSIS

U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

DATE: FEB. 90 FILE NO. H-2-30618



ASSUMED FAILURE SURFACE NO.	ASSUMED FAILURE SURFACE ELEV.	RESISTING FORCES R_A	RESISTING FORCES R_B	RESISTING FORCES R_P	DRIVING FORCES D_A	DRIVING FORCES $-D_P$	SUMMATION OF FORCES RESISTING	SUMMATION OF FORCES DRIVING	FACTOR OF SAFETY
(A) (1)	-18.0	7121	2400	4560	25931	15365	14081	10576	1.330
(A) (2)	-18.0	7121	18600	1680	25931	8625	27401	17306	1.580
(B) (1)	-42.0	16795	36000	11760	102835	69870	64555	32965	1.960
(C) (1)	-60.0	34273	56700	28680	200602	157038	119653	43464	2.760

NOTES

Φ -- ANGLE OF INTERNAL FRICTION, DEGREES
C -- UNIT COHESION, P.S.F.
▽ -- STATIC WATER SURFACE
D -- HORIZONTAL DRIVING FORCE IN POUNDS
R -- HORIZONTAL RESISTING FORCE IN POUNDS
A -- AS A SUBSCRIPT, REFERS TO ACTIVE WEDGE
B -- AS A SUBSCRIPT, REFERS TO CENTRAL BLOCK
P -- AS A SUBSCRIPT, REFERS TO PASSIVE WEDGE

$$\text{FACTOR OF SAFETY} = \frac{R_A + R_B + R_P}{D_A - D_P}$$

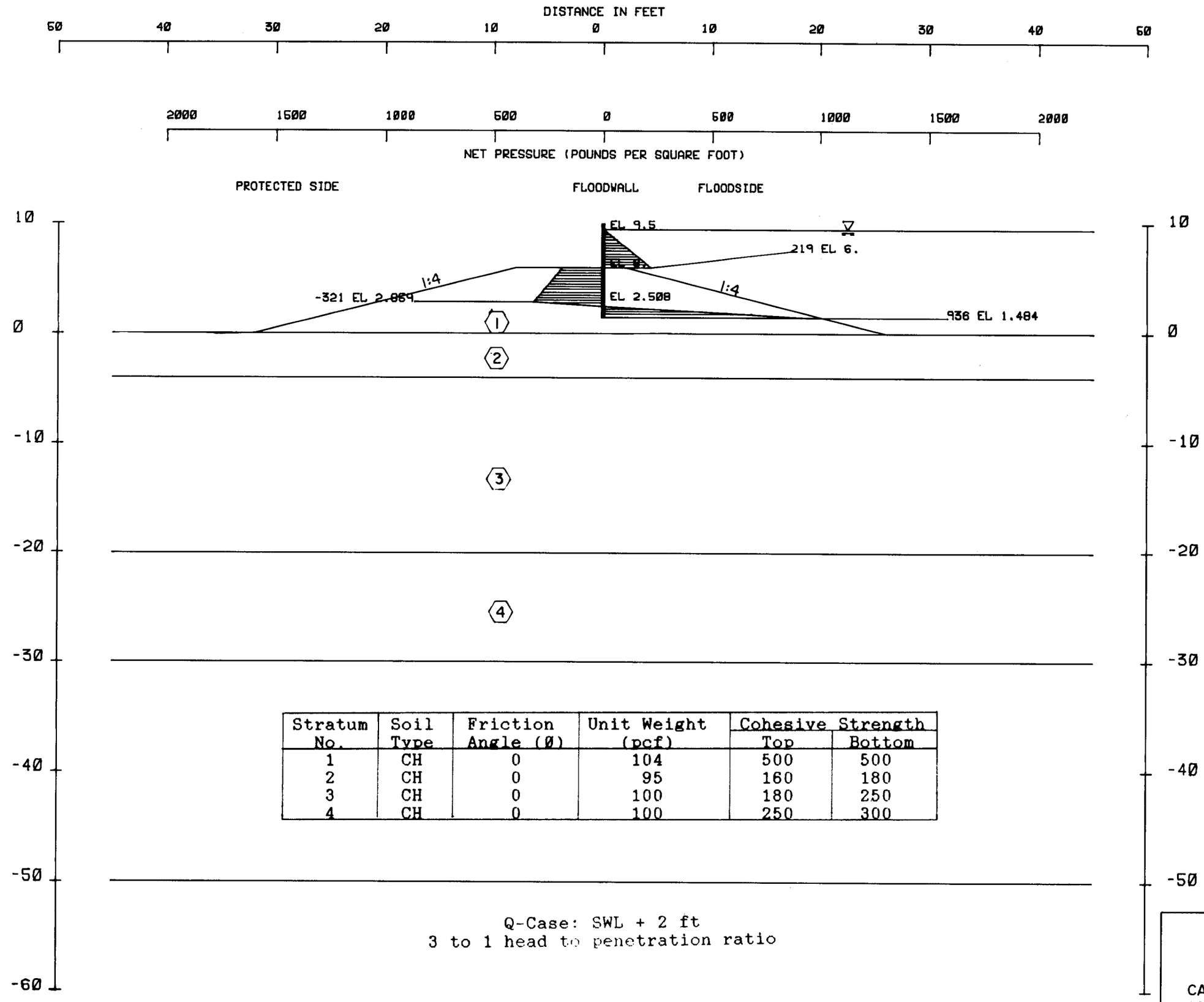
WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

ESTELLE PUMPING STATION
STA. 807+43 TO STA. 816+45 W/L
FLOODSIDE ANALYSIS

U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

DATE: FEB. 90 FILE NO. M-2-30618

PLATE F164



ELEVATION	PRESSURE
9.50	0.0
6.00	218.8
6.00	0.0
6.00	-191.1
2.86	-321.4
2.51	0.0
1.48	935.6
1.48	0.0

Stratum No.	Soil Type	Friction Angle (Ø)	Unit Weight (pcf)	Cohesive Strength Top	Cohesive Strength Bottom
1	CH	0	104	500	500
2	CH	0	95	160	180
3	CH	0	100	180	250
4	CH	0	100	250	300

Q-Case: SWL + 2 ft
3 to 1 head to penetration ratio

NET DIAGRAM

(Q) CASE F.S.=2.44

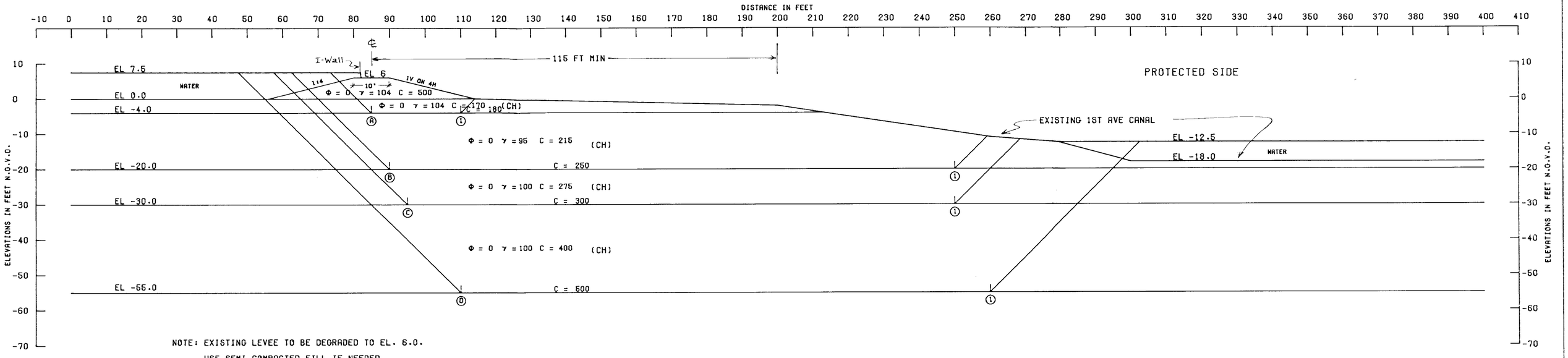
WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

CANTILEVER SHEET PILE STABILITY
COUSINS TO HARVER PUMPING STATION
STA.1014+01 TO STA.1055+04 W/L

U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

DATE: FEB. 90 FILE NO. H-2-30618

PLATE F165



NOTE: EXISTING LEVEE TO BE DEGRADED TO EL. 6.0.
USE SEMI-COMPACTED FILL IF NEEDED

ASSUMED FAILURE NO.	ASSUMED SURFACE ELEV.	RESISTING FORCES R_A	R_B	R_P	DRIVING FORCES D_A	$-D_P$	SUMMATION OF FORCES RESISTING	DRIVING	FACTOR OF SAFETY
Ⓐ ①	-4.0	6360	4500	1360	5818	1040	12220	4778	2.560
Ⓑ ①	-20.0	11041	40000	3926	34690	4548	54967	30142	1.820
Ⓒ ①	-30.0	16541	46600	9094	64664	17830	71135	46834	1.520
Ⓓ ①	-55.0	33742	75000	26634	178818	88442	136376	90376	1.500

NOTES

Φ -- ANGLE OF INTERNAL FRICTION, DEGREES
C -- UNIT COHESION, P.S.F.
▽ -- STATIC WATER SURFACE
D -- HORIZONTAL DRIVING FORCE IN POUNDS
R -- HORIZONTAL RESISTING FORCE IN POUNDS
A -- AS A SUBSCRIPT, REFERS TO ACTIVE WEDGE
B -- AS A SUBSCRIPT, REFERS TO CENTRAL BLOCK
P -- AS A SUBSCRIPT, REFERS TO PASSIVE WEDGE

$$\text{FACTOR OF SAFETY} = \frac{R_A + R_B + R_P}{D_A - D_P}$$

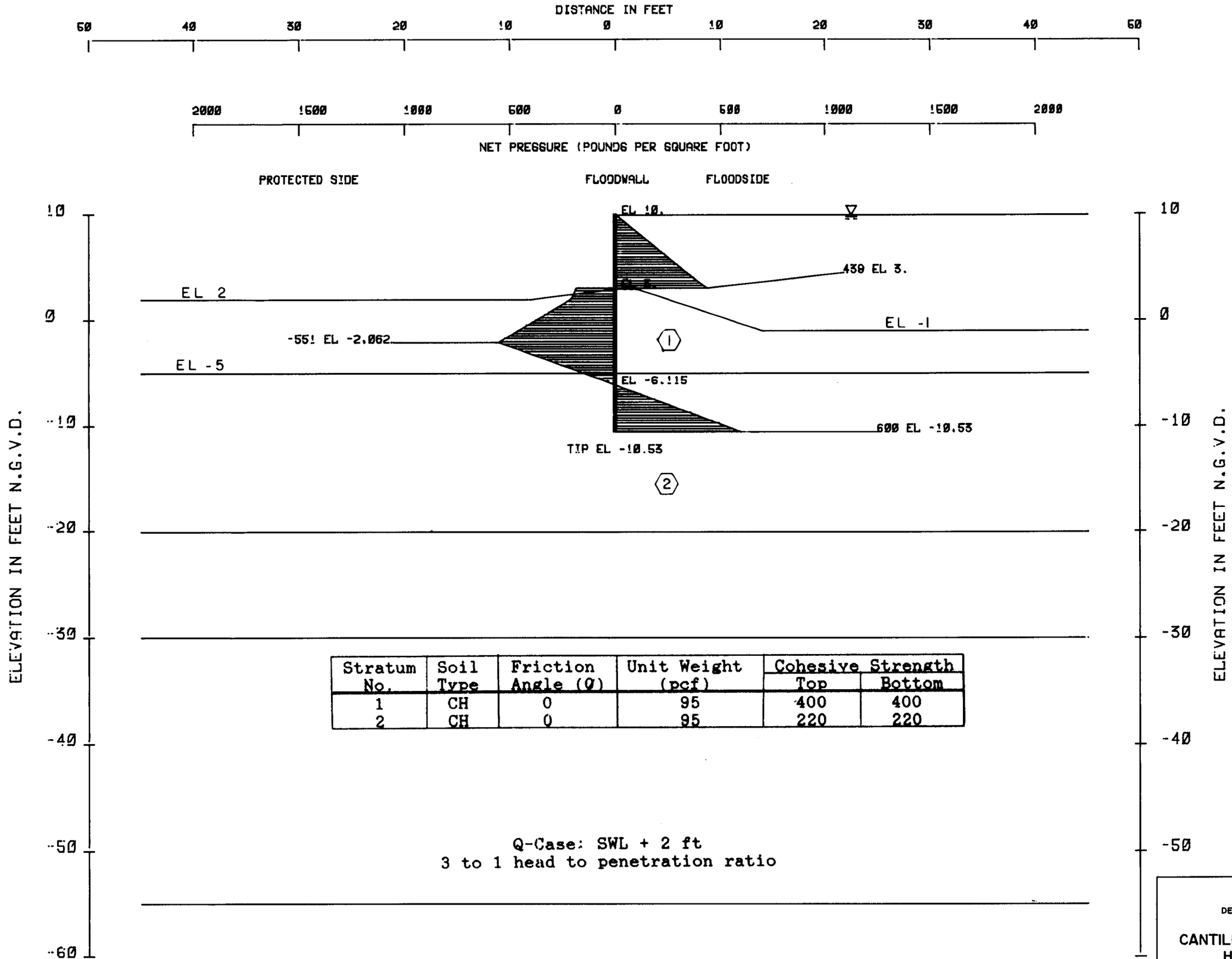
WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

LEVEE / I- WALL STABILITY
COUSIN TO HARVEY PUMPING STATION
STA. 1014+01 TO STA. 1055+04 W/L

U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

DATE: FEB. 90 FILE NO. M-2-30618

PLATE F166



ELEVATION	PRESSURE
10.00	0.0
3.00	437.5
3.00	0.0
3.00	-186.3
2.00	-200.2
-2.06	-551.2
-6.11	0.0
-10.53	600.4
-10.53	0.0

Stratum No.	Soil Type	Friction Angle (Ø)	Unit Weight (pcf)	Cohesive Strength	
				Top	Bottom
1	CH	0	95	400	400
2	CH	0	95	220	220

Q-Case: SWL + 2 ft
3 to 1 head to penetration ratio

NET DIAGRAM

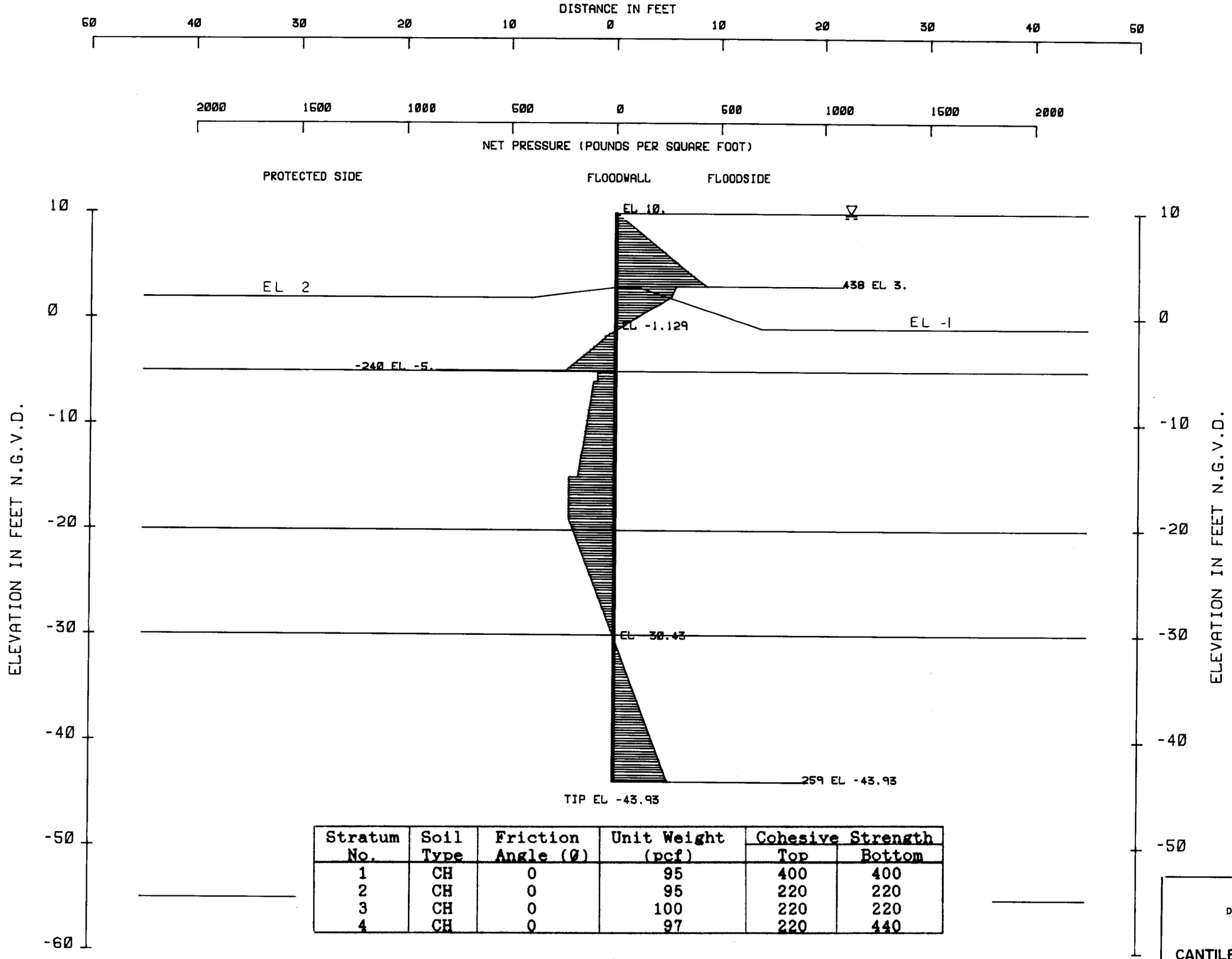
(Q) CASE F.S.=1.14

WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

CANTILEVER SHEET PILE STABILITY
HARVEY PUMPING STATION
STA.1055+04 W/L TO STA.1057+63 W/L

U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

DATE: FEB. 90 FILE NO. H-2-30618



ELEVATION	PRESSURE
10.00	0.0
3.00	437.5
3.00	286.2
2.00	264.3
-1.13	0.0
-1.79	-55.5
-1.79	-48.2
-5.00	-240.0
-5.00	-86.8
-6.00	-84.5
-6.00	-103.4
-15.00	-177.7
-15.00	-220.2
-18.94	-220.2
-30.43	0.0
-43.93	258.6
-43.93	0.0

Stratum No.	Soil Type	Friction Angle (Ø)	Unit Weight (pcf)	Cohesive Strength Top	Cohesive Strength Bottom
1	CH	0	95	400	400
2	CH	0	95	220	220
3	CH	0	100	220	220
4	CH	0	97	220	440

NET DIAGRAM

(Q) CASE F.S.=4.7

Q-Case: SWL + 2 ft
Existing Floodwall

WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

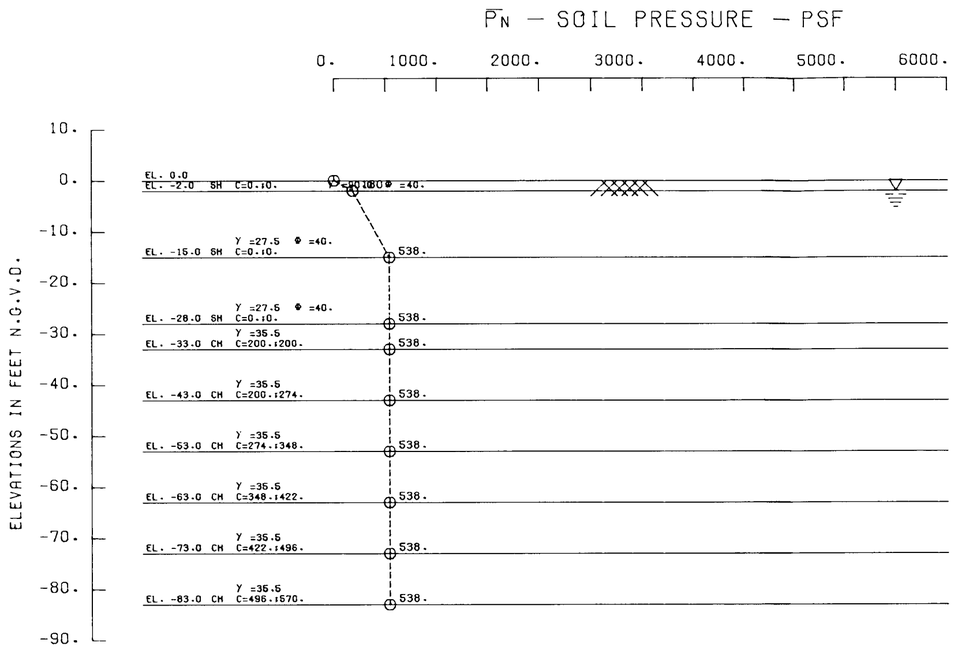
CANTILEVER SHEET PILE STABILITY
HARVEY PUMPING STATION
STA.1059+53 W/L TO STA.1060+90 W/L

U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

DATE: FEB. 90

FILE NO. H-2-30618

PLATE F168



S-CASE

CH,CL- Φ=23°

ML- Φ=28°

SM,SP- Φ=30°

TYPICAL SOIL PROFILE

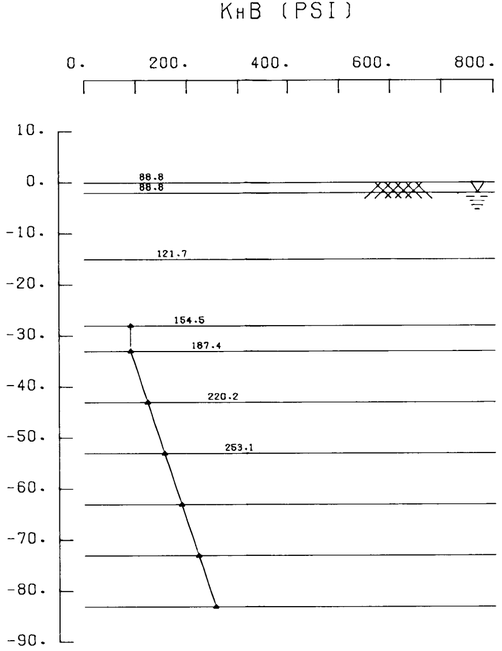
SOIL STRATIFICATION IS BASED ON GEOLOGIC PROFILE

SHEAR STRENGTH AND WET DENSITIES SEE PLATE

SECOND ORDER STATIONS

D	PILE SPACING IN DIRECTION OF LOADING
1.00	8B
0.85	7B
0.70	6B
0.55	5B
0.40	4B
0.25	3B

C	LOADING CONDITION
1.00	INITIAL LOADING
0.30	CYCLIC LOADING



NOTES: $K_H = \alpha K_1/B = (0.2222\, q_u/B)(C)(D)$ COHESIVE

α = 0.4 = Factor of material properties of soil and pile

k_1 = Modulus of subgrade reaction for test plate (pci)

B_1 = Width or diameter of test plate (in)

$K_1 = k_1 B_1 = 80\, q_u$ (psf) = $0.5556\, q_u$ (psi)

$q_u = 2 \cdot c$ = Unconfined compressive strength (psf)

C = Reduction for cyclic loading-not applicable

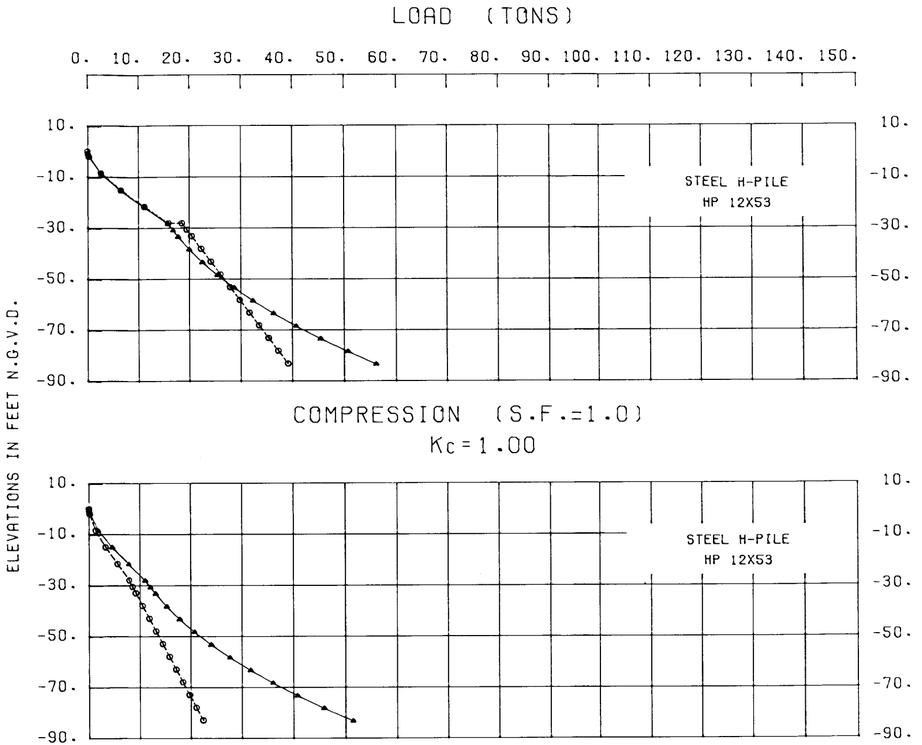
D = Group effect reduction factor

B = Width of pile measured at right angles to the direction of displacement (in)

$K_H = (nh)(Z/B)(C)(D)$ COHESIONLESS

nh = Coefficient of horizontal subgrade reaction (pci)

Z = Depth below equivalent ground surface (in)



THE FACTOR SHOWN. (MODULUS OF HORIZONTAL SUBGRADE K_h. TIMES THE PILE WIDTH IN INCHES (B). MEASURED AT RIGHT ANGLES TO THE DIRECTION OF DISPLACEMENT) MUST BE MODIFIED BY A REDUCTION FACTOR FOR THE EFFECT OF GROUP ACTION (D) AND A REDUCTION FACTOR FOR CYCLIC LOADING (C) EX: $K_h = \frac{0.2222\, q_u (C)(D)}{(B)}$

----- S-CASE

——— Q-CASE

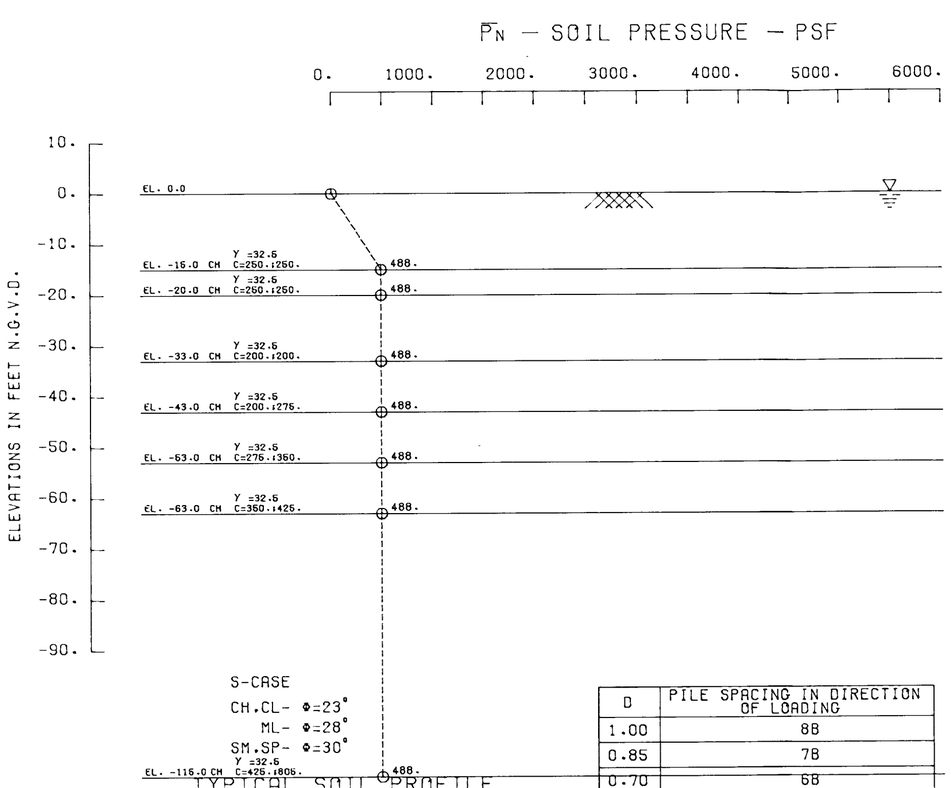
WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

BAYOU SEGNETTE PUMPING STATION
HP 12 X 53
PILE CAPACITY CURVES

U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

DATE: FEB. 90 FILE NO. M-2-30618

PLATE FI69



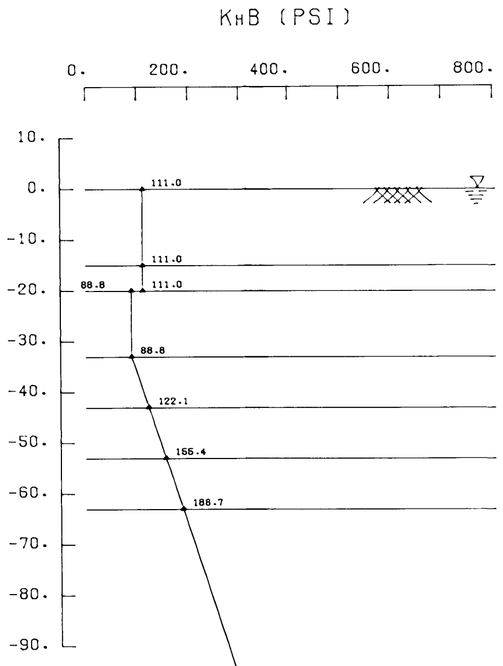
TYPICAL SOIL PROFILE

SOIL STRATIFICATION IS BASED ON GEOLOGIC PROFILE

SHEAR STRENGTH AND WET DENSITIES SEE PLATE

SECOND ORDER STATIONS

D	PILE SPACING IN DIRECTION OF LOADING
1.00	8B
0.85	7B
0.70	6B
0.55	5B
0.40	4B
0.25	3B
C	LOADING CONDITION
1.00	INITIAL LOADING
0.30	CYCLIC LOADING



NOTES: $K_H = \alpha K_1/B = (0.2222\,q_u/B)(C)(D)$ COHESIVE

α = 0.4 = Factor of material properties of soil and pile

k_1 = Modulus of subgrade reaction for test plate (pci)

B_1 = Width or diameter of test plate (in)

$K_1 = k_1 B_1 = 80\,q_u\,(psf) = 0.5556\,q_u\,(psi)$

$q_u = 2 \cdot c$ = Unconfined compressive strength (psf)

C = Reduction for cyclic loading-not applicable

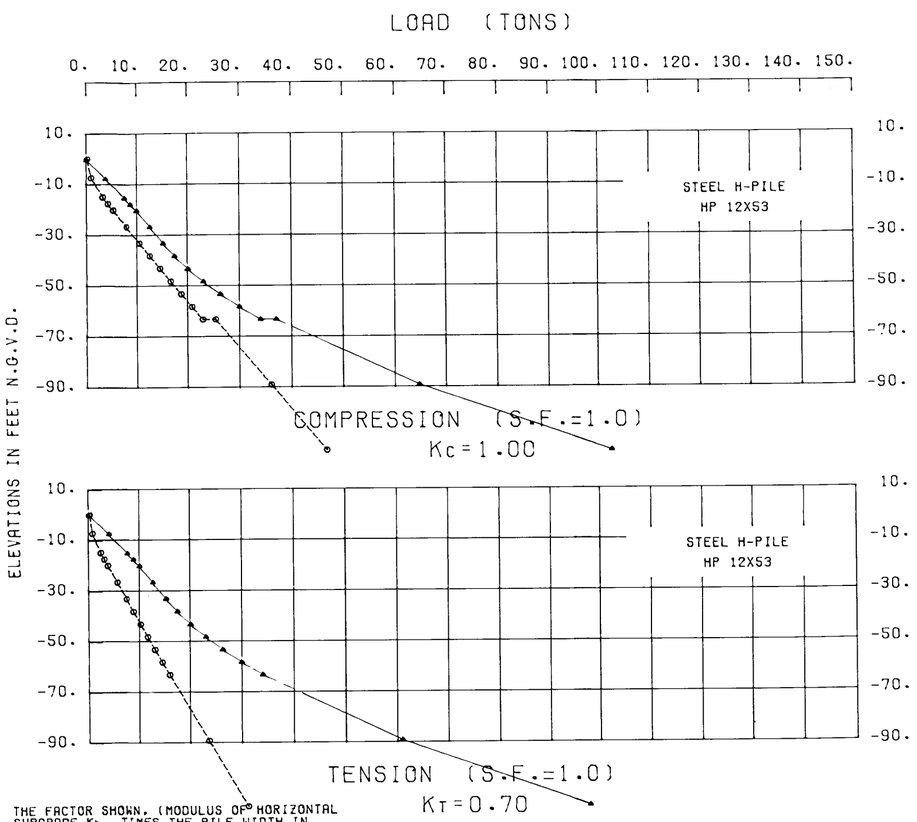
D = Group effect reduction factor

B = Width of pile measured at right angles to the direction of displacement (in)

$K_H = (nh)(Z/B)(C)(D)$ COHESIONLESS

nh = Coefficient of horizontal subgrade reaction (pci)

Z = Depth below equivalent ground surface (in)



THE FACTOR SHOWN, (MODULUS OF HORIZONTAL SUBGRADE K_H, TIMES THE PILE WIDTH IN INCHES (B), MEASURED AT RIGHT ANGLES TO THE DIRECTION OF DISPLACEMENT) MUST BE MODIFIED BY A REDUCTION FACTOR FOR THE EFFECT OF GROUP ACTION (D) AND A REDUCTION FACTOR FOR CYCLIC LOADING (C) EX: $K_H = \frac{0.2222\,q_u\,(C)(D)}{(B)}$

----- S-CASE

——— Q-CASE

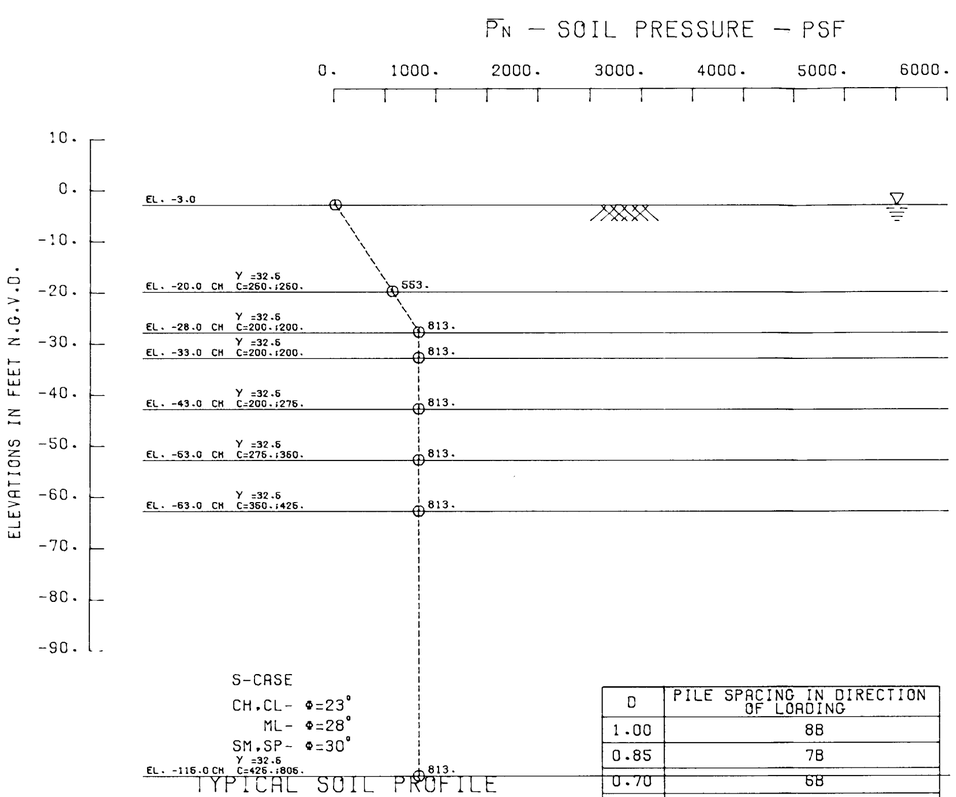
WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

OLD WESWEGO PUMPING STATION
HP 12X53
PILE CAPACITY CURVES

U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

DATE: FEB. 90 FILE NO. H-2-30618

PLATE FI70



S-CASE
CH,CL- ϕ=23°
ML- ϕ=28°
SM,SP- ϕ=30°

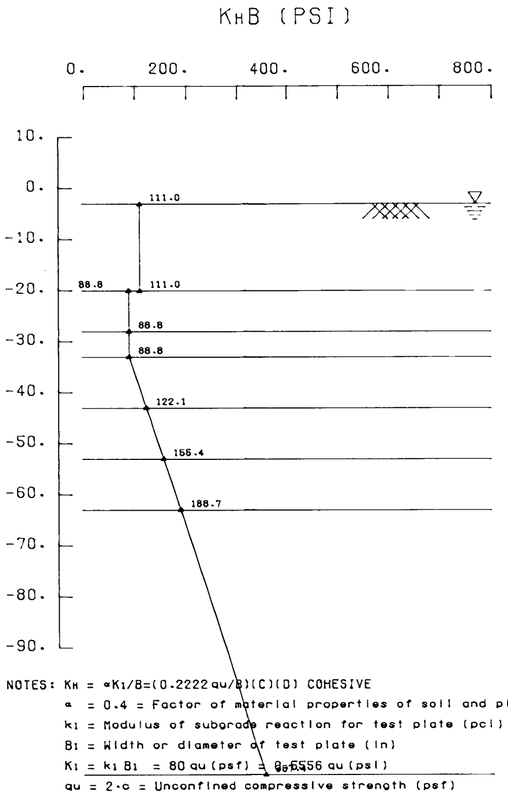
TYPICAL SOIL PROFILE

SOIL STRATIFICATION IS BASED ON GEOLOGIC PROFILE

SHEAR STRENGTH AND WET DENSITIES SEE PLATE

SECOND ORDER STATIONS

D	PILE SPACING IN DIRECTION OF LOADING
1.00	8B
0.85	7B
0.70	6B
0.55	5B
0.40	4B
0.25	3B
C	LOADING CONDITION
1.00	INITIAL LOADING
0.30	CYCLIC LOADING



NOTES: $K_H = \alpha K_1/B = (0.2222\, q_u/B)(C)(D)$ COHESIVE

α = 0.4 = Factor of material properties of soil and pile

k_1 = Modulus of subgrade reaction for test plate (pci)

B_1 = Width or diameter of test plate (in)

$K_1 = k_1 B_1 = 80\, q_u$ (psf) = $0.5556\, q_u$ (psi)

$q_u = 2 \cdot c$ = Unconfined compressive strength (psf)

C = Reduction for cyclic loading-not applicable

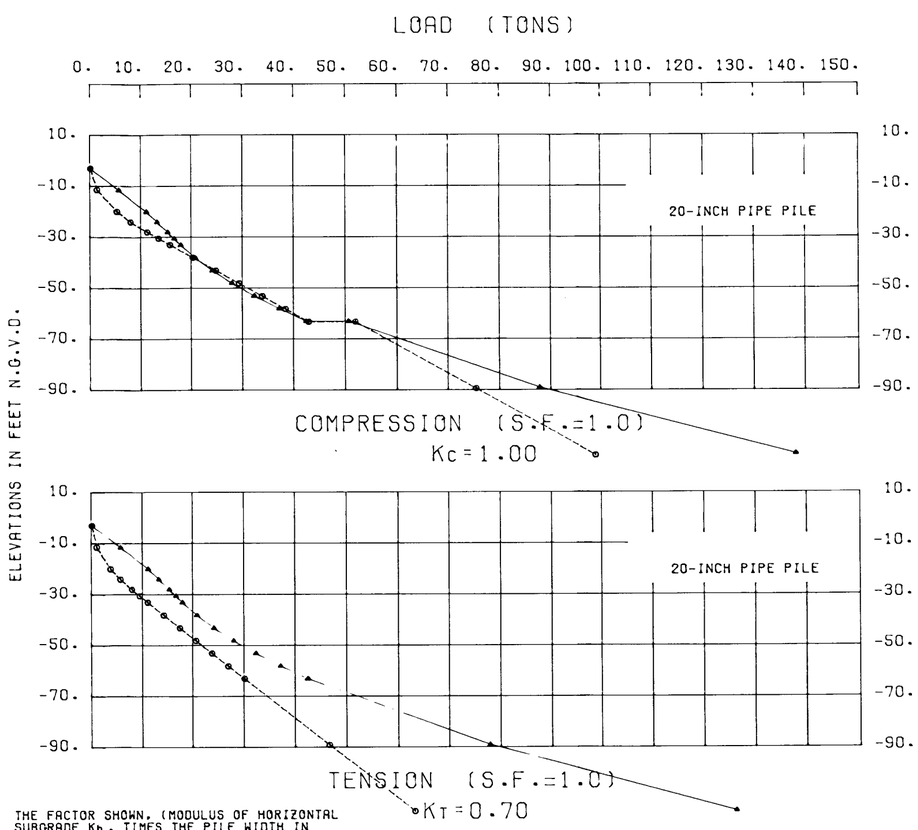
D = Group effect reduction factor

B = Width of pile measured at right angles to the direction of displacement (in)

$K_H = (nh)(Z/B)(C)(D)$ COHESIONLESS

nh = Coefficient of horizontal subgrade reaction (pci)

Z = Depth below equivalent ground surface (in)



THE FACTOR SHOWN, (MODULUS OF HORIZONTAL SUBGRADE K_H, TIMES THE PILE WIDTH IN INCHES (B), MEASURED AT RIGHT ANGLES TO THE DIRECTION OF DISPLACEMENT) MUST BE MODIFIED BY A REDUCTION FACTOR FOR THE EFFECT OF GROUP ACTION (D) AND A REDUCTION FACTOR FOR CYCLIC LOADING (C) EX: $K_h = \frac{0.2222\, q_u\,(C)(D)}{(B)}$

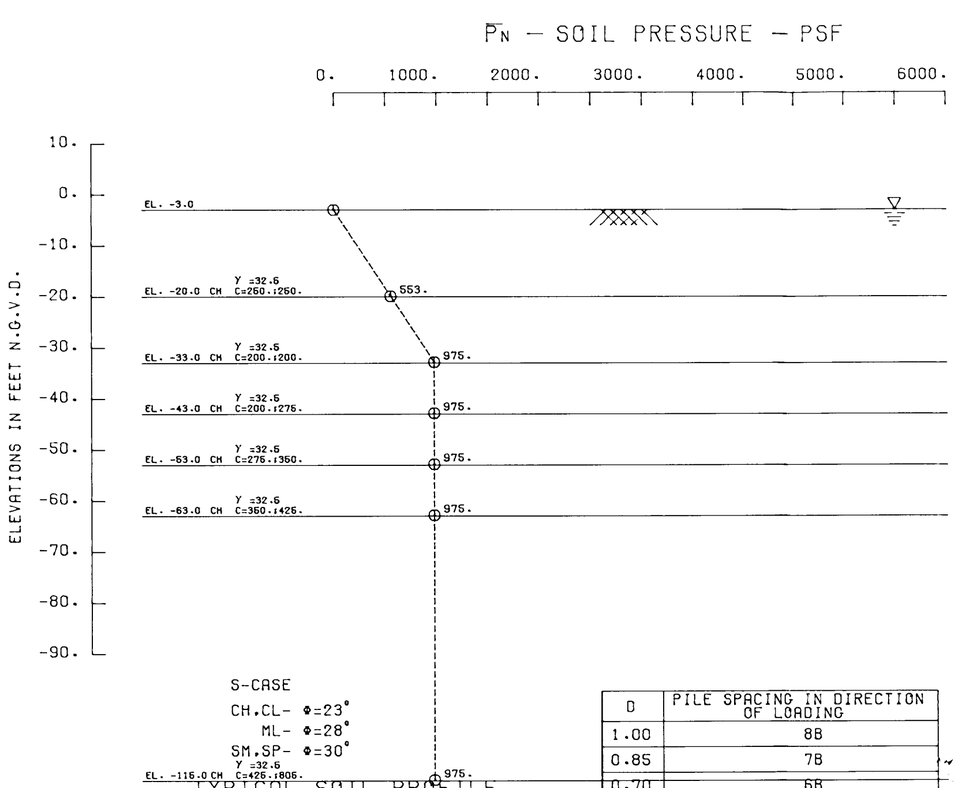
----- S-CASE
——— Q-CASE

WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

OLD WESTWEGO PUMPING STATION
20 - INCH PIPE PILE
PILE CAPACITY

U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS
DATE: FEB. 90 FILE NO. H-2-30618

PLATE F171



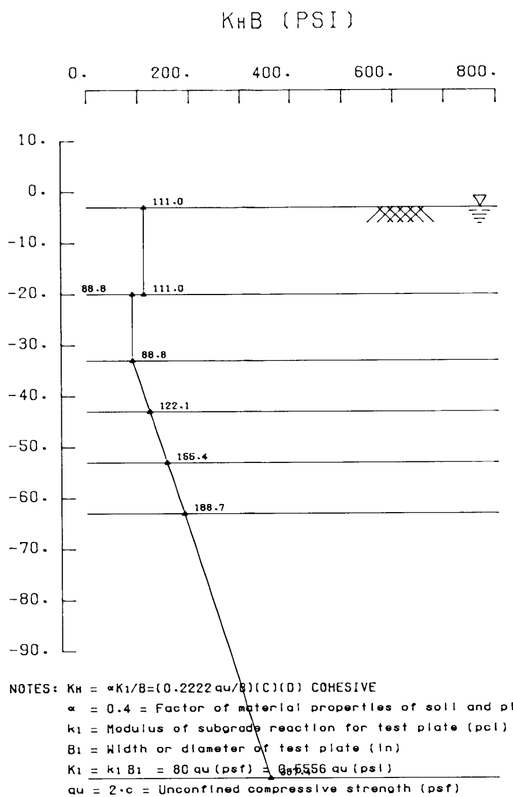
TYPICAL SOIL PROFILE

SOIL STRATIFICATION IS BASED ON GEOLOGIC PROFILE

SHEAR STRENGTH AND WET DENSITIES SEE PLATE

SECOND ORDER STATIONS

D	PILE SPACING IN DIRECTION OF LOADING
1.00	8B
0.85	7B
0.70	6B
0.55	5B
0.40	4B
0.25	3B
C	LOADING CONDITION
1.00	INITIAL LOADING
0.30	CYCLIC LOADING



NOTES: $K_H = \alpha K_1/B = (0.2222\,q_u/B)(C)(D)$ COHESIVE

α = 0.4 = Factor of material properties of soil and pile

k_1 = Modulus of subgrade reaction for test plate (pci)

B_1 = Width or diameter of test plate (in)

$K_1 = k_1 B_1 = 80\,q_u$ (psf) = $0.6556\,q_u$ (psi)

$q_u = 2 \cdot c$ = Unconfined compressive strength (psf)

C = Reduction for cyclic loading-not applicable

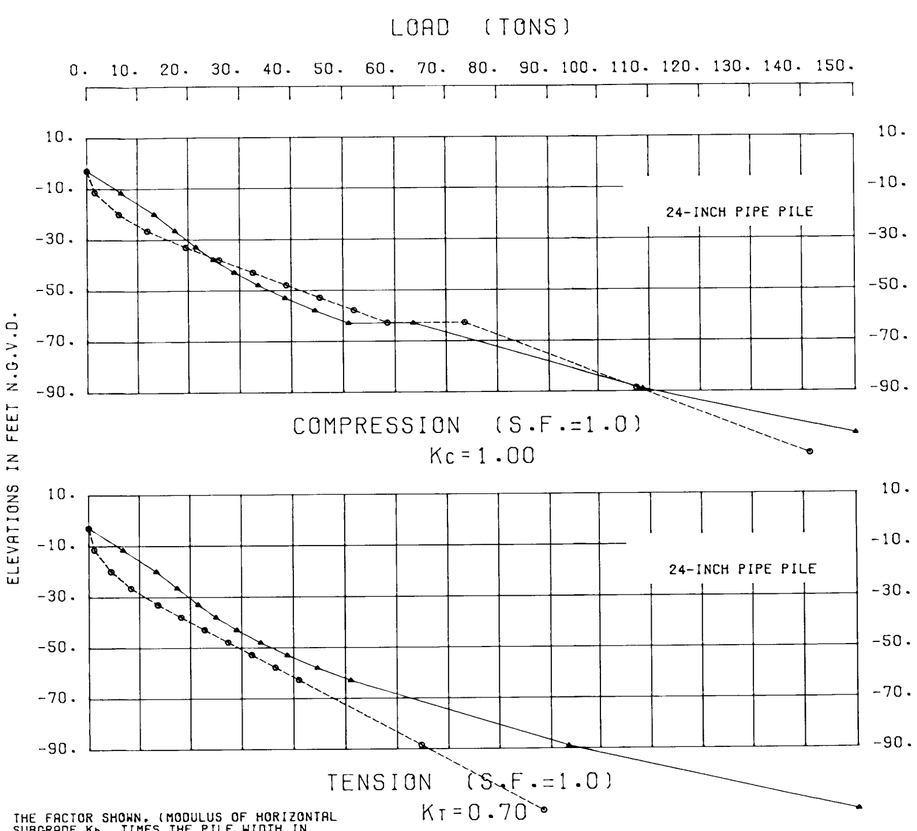
D = Group effect reduction factor

B = Width of pile measured at right angles to the direction of displacement (in)

$K_H = (nh)(Z/B)(C)(D)$ COHESIONLESS

nh = Coeficcient of horizontal subgrade reaction (pci)

Z = Depth below equivalent ground surface (in)



THE FACTOR SHOWN, (MODULUS OF HORIZONTAL SUBGRADE K_h, TIMES THE PILE WIDTH IN INCHES (B), MEASURED AT RIGHT ANGLES TO THE DIRECTION OF DISPLACEMENT) MUST BE MODIFIED BY A REDUCTION FACTOR FOR THE EFFECT OF GROUP ACTION (D) AND A REDUCTION FACTOR FOR CYCLIC LOADING (C) EX: $K_h = \frac{0.2222\,q_u\,(C)(D)}{(B)}$

----- S-CASE

——— Q-CASE

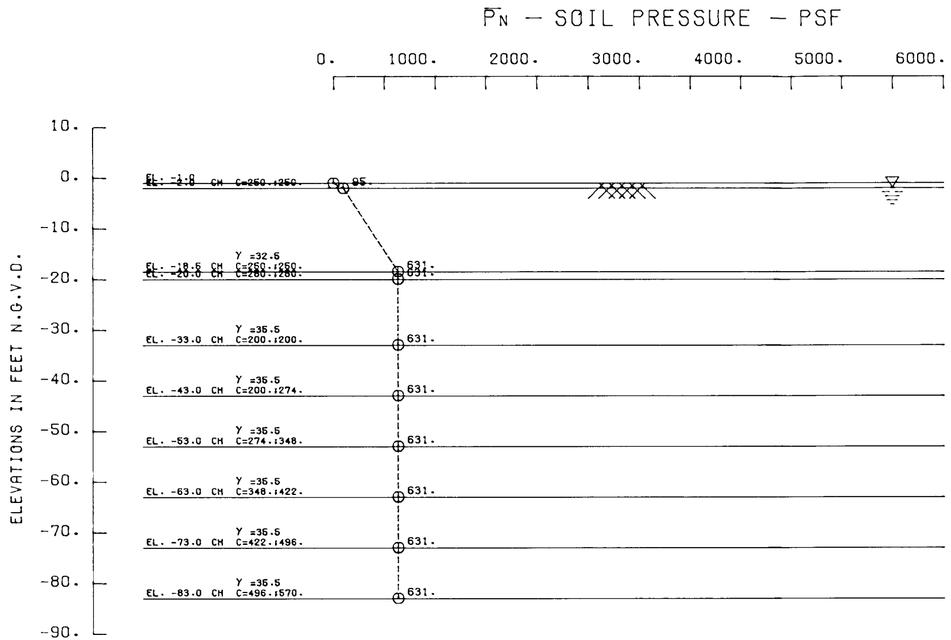
WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

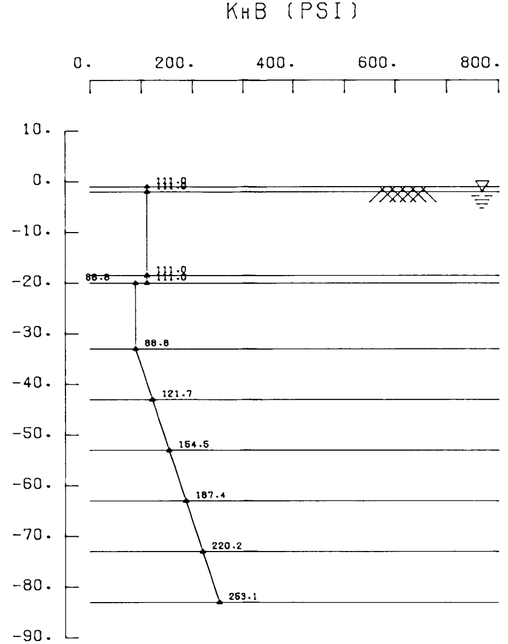
OLD WESTWEGO PUMPING STATION
24 - INCH PIPE PILE
PILE CAPACITY

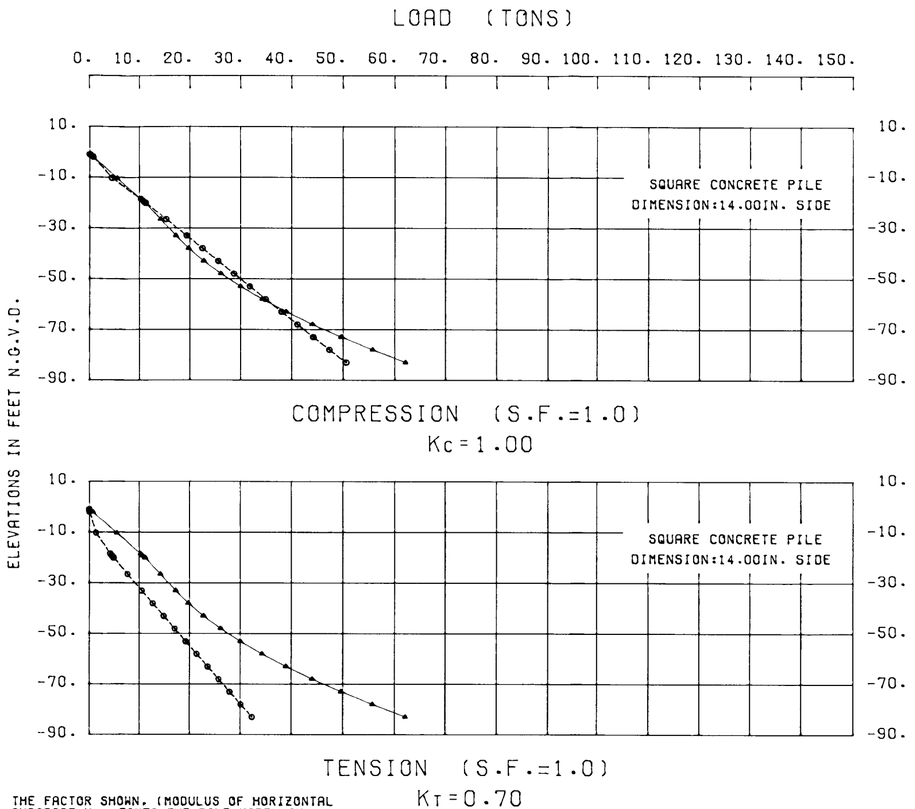
U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

DATE: FEB. 90 FILE NO. H-2-30618

PLATE F172







S-CASE
CH,CL- ϕ=23°
ML- ϕ=28°
SM,SP- ϕ=30°

TYPICAL SOIL PROFILE

SOIL STRATIFICATION IS BASED ON GEOLOGIC PROFILE

SHEAR STRENGTH AND WET DENSITIES SEE PLATE

SECOND ORDER STATIONS

D	PILE SPACING IN DIRECTION OF LOADING
1.00	8B
0.85	7B
0.70	6B
0.55	5B
0.40	4B
0.25	3B
C	LOADING CONDITION
1.00	INITIAL LOADING
0.30	CYCLIC LOADING

NOTES: $K_H = \alpha K_1/B = (0.2222\,q_u/B)(C)(D)$ COHESIVE

- α = 0.4 = Factor of material properties of soil and pile
- k_1 = Modulus of subgrade reaction for test plate (pci)
- B_1 = Width or diameter of test plate (in)
- $K_1 = k_1 B_1 = 80\,q_u$ (psf) = $0.5556\,q_u$ (psi)
- $q_u = 2{\cdot}c$ = Unconfined compressive strength (psf)
- C = Reduction for cyclic loading-not applicable
- D = Group effect reduction factor
- B = Width of pile measured at right angles to the direction of displacement (in)
- $K_H = (nh)(Z/B)(C)(D)$ COHESIONLESS
- nh = Coefficient of horizontal subgrade reaction (pci)
- Z = Depth below equivalent ground surface (in)

THE FACTOR SHOWN, (MODULUS OF HORIZONTAL SUBGRADE K_h, TIMES THE PILE WIDTH IN INCHES (B), MEASURED AT RIGHT ANGLES TO THE DIRECTION OF DISPLACEMENT) MUST BE MODIFIED BY A REDUCTION FACTOR FOR THE EFFECT OF GROUP ACTION (D) AND A REDUCTION FACTOR FOR CYCLIC LOADING (C) EX: $K_h = \frac{0.2222\,q_u\,(C)(D)}{(B)}$

----- S-CASE
——— Q-CASE

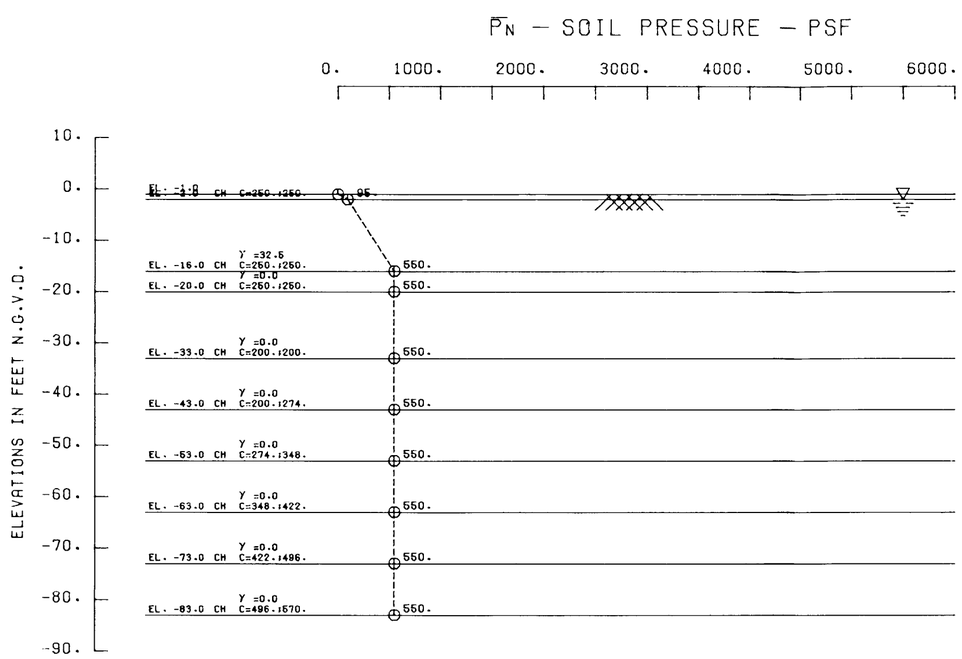
WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

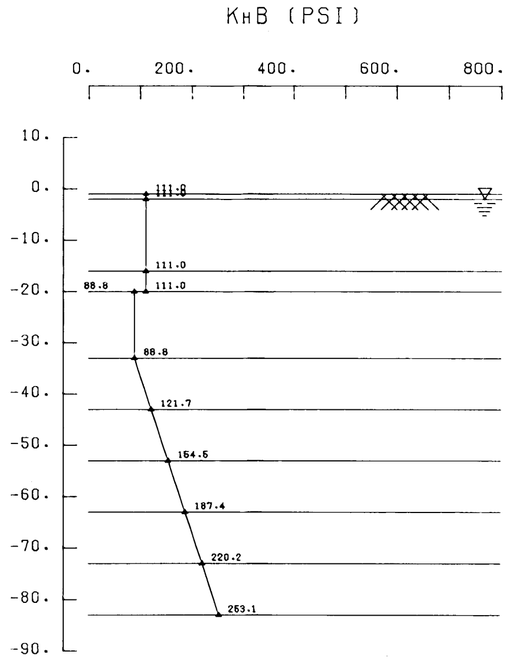
STA. 102+60 W/L THRU
LAPALCO FLOODWALL
14 - INCH CONC. PILE
PILE CAPACITY CURVES

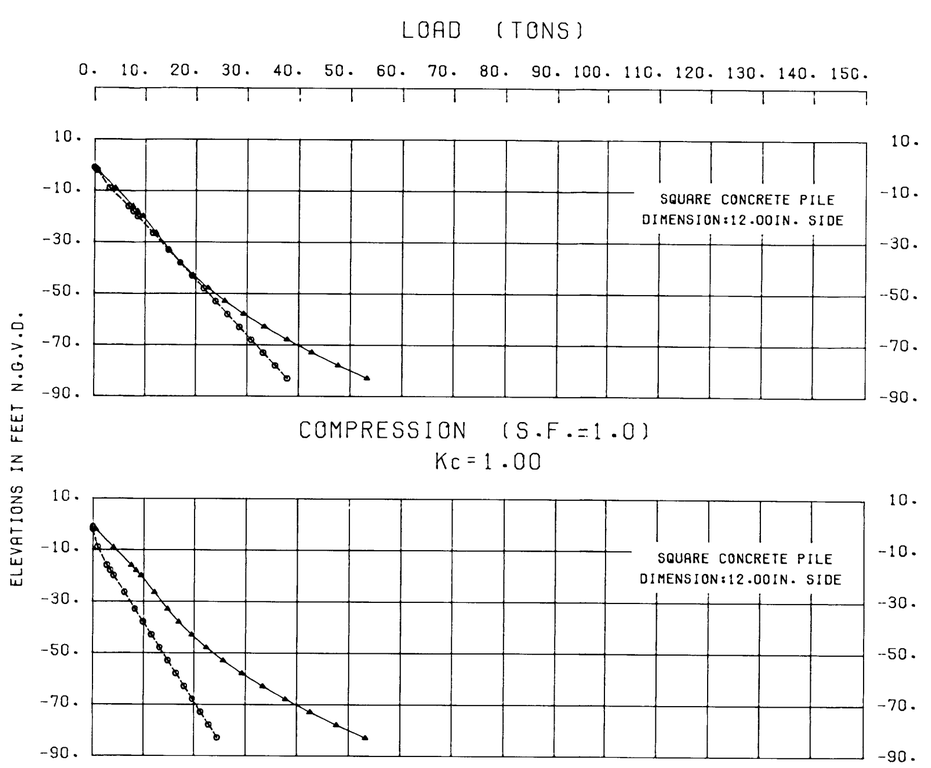
U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

DATE: FEB. 90 FILE NO. H-2-30618

PLATE F173







S-CASE
CH,CL- Φ=23°
ML- Φ=28°
SM,SP- Φ=30°

TYPICAL SOIL PROFILE

SOIL STRATIFICATION IS BASED ON GEOLOGIC PROFILE

SHEAR STRENGTH AND WET DENSITIES SEE PLATE

SECOND ORDER STATIONS

D	PILE SPACING IN DIRECTION OF LOADING
1.00	8B
0.85	7B
0.70	6B
0.55	5B
0.40	4B
0.25	3B
C	LOADING CONDITION
1.00	INITIAL LOADING
0.30	CYCLIC LOADING

NOTES: $K_H = \alpha K_1/B = (0.2222\, q_u/B)(C)(D)$ COHESIVE

α = 0.4 = Factor of material properties of soil and pile

k_1 = Modulus of subgrade reaction for test plate (pci)

B_1 = Width or diameter of test plate (in)

$K_1 = k_1 B_1 = 80\, q_u$ (psf) = $0.5556\, q_u$ (psi)

$q_u = 2 \cdot c$ = Unconfined compressive strength (psf)

C = Reduction for cyclic loading-not applicable

D = Group effect reduction factor

B = Width of pile measured at right angles to the direction of displacement (in)

$K_H = (nh)(Z/B)(C)(D)$ COHESIONLESS

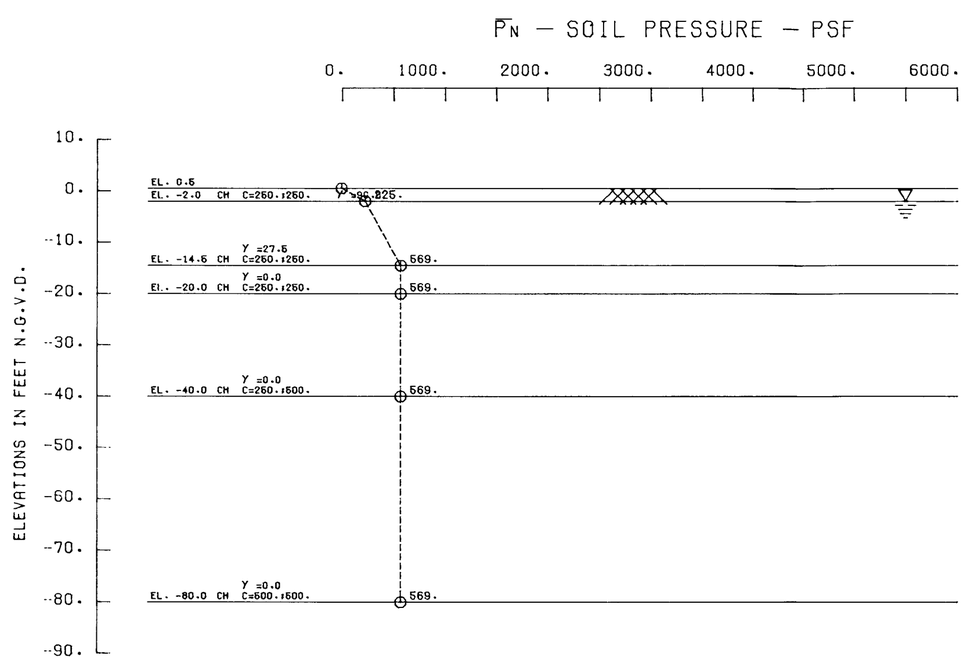
nh = Coefficient of horizontal subgrade reaction (pci)

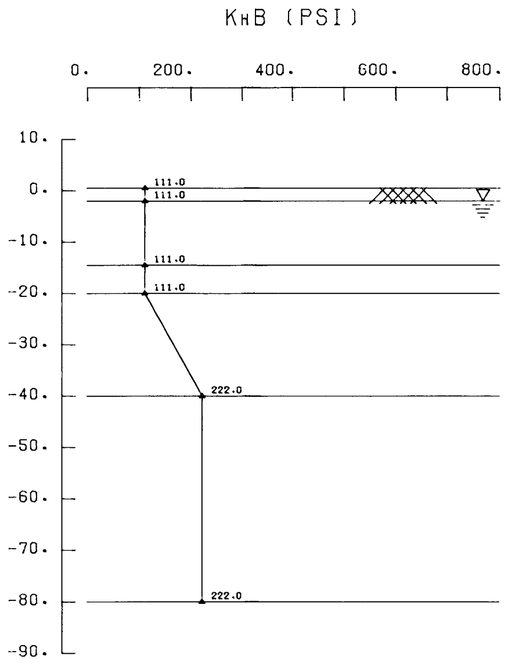
Z = Depth below equivalent ground surface (in)

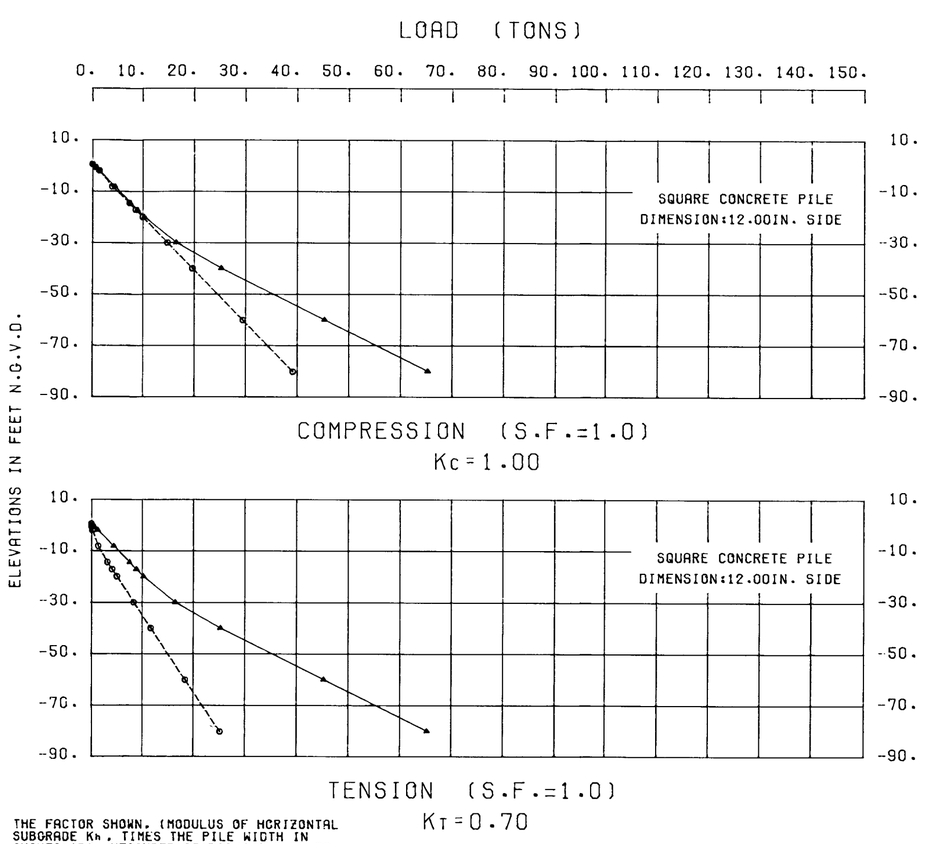
THE FACTOR SHOWN, (MODULUS OF HORIZONTAL SUBGRADE K_h, TIMES THE PILE WIDTH IN INCHES (B), MEASURED AT RIGHT ANGLES TO THE DIRECTION OF DISPLACEMENT) MUST BE MODIFIED BY A REDUCTION FACTOR FOR THE EFFECT OF GROUP ACTION (D) AND A REDUCTION FACTOR FOR CYCLIC LOADING (C) EX; $K_h = \frac{0.2222\, q_u\,(C)(D)}{(B)}$

----- S-CASE
——— Q-CASE

WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2
STA. 102+60 W/L
THRU LAPALCO FLOODWALL
12 - INCH CONC. PILE
PILE CAPACITY CURVES
U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS
DATE: FEB 1990 FILE NO. H-2-30618







S-CASE
CH,CL- Φ=23°
ML- Φ=28°
SM,SP- Φ=30°

TYPICAL SOIL PROFILE

SOIL STRATIFICATION IS BASED ON GEOLOGIC PROFILE

SHEAR STRENGTH AND WET DENSITIES SEE PLATE

SECOND ORDER STATIONS

D	PILE SPACING IN DIRECTION OF LOADING
1.00	8B
0.85	7B
0.70	6B
0.55	5B
0.40	4B
0.25	3B
C	LOADING CONDITION
1.00	INITIAL LOADING
0.30	CYCLIC LOADING

NOTES: $K_H = \alpha K_1/B = (0.2222\,q_u/B)(C)(D)$ COHESIVE

- α = 0.4 = Factor of material properiles of soil and pile
- k_1 = Modulus of subgrade reaction for test plate (pci)
- B_1 = Width or diameter of test plate (in)
- $K_1 = k_1 B_1 = 80\,q_u$ (psf) = $0.5556\,q_u$ (psi)
- $q_u = 2{\cdot}c$ = Unconfined compressive strength (psf)
- C = Reduction for cyclic loading-not applicable
- D = Group effect reduction factor
- B = Width of pile measured at right angles to the direction of displacement (in)
- $K_H = (nh)(Z/B)(C)(D)$ COHESIONLESS
- nh = Coeficient of horizontal subgrade reaction (pci)
- Z = Depth below equivalent ground surface (in)

THE FACTOR SHOWN, (MODULUS OF HORIZONTAL SUBGRADE K_h, TIMES THE PILE WIDTH IN INCHES (B), MEASURED AT RIGHT ANGLES TO THE DIRECTION OF DISPLACEMENT) MUST BE MODIFIED BY A REDUCTION FACTOR FOR THE EFFECT OF GROUP ACTION (D) AND A REDUCTION FACTOR FOR CYCLIC LOADING (C) EX: $K_h = \frac{0.2222\,q_u\,(C)(D)}{(B)}$

----- S-CASE
——— Q-CASE

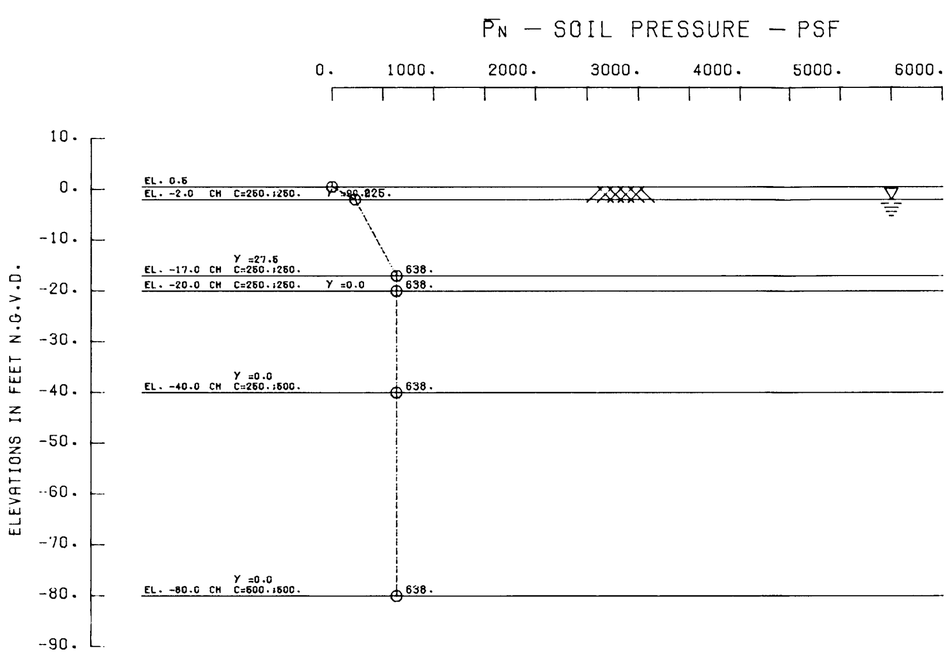
WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

WESTWEGO LEVEE
DUGUES CANAL AIRPORT
12 - INCH CONC. PILE
PILE CAPACITY CURVES

U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

DATE: FEB 1990 FILE NO. M-2-[illegible]

PLATE F175



S-CASE

CH,CL- ϕ=23°

ML- ϕ=28°

SM,SP- ϕ=30°

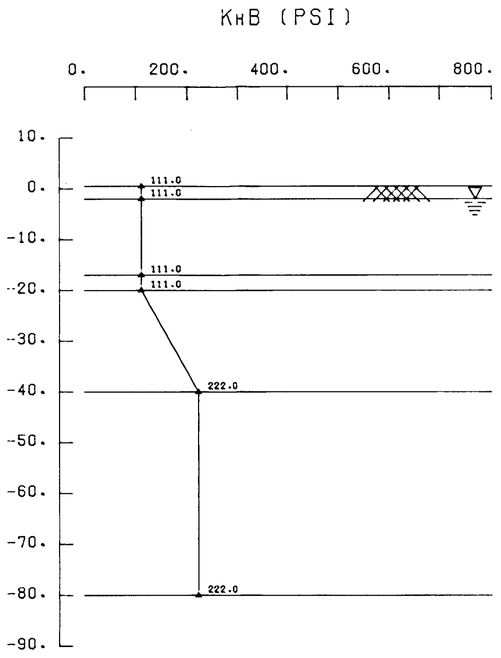
TYPICAL SOIL PROFILE

SOIL STRATIFICATION IS BASED ON GEOLOGIC PROFILE

SHEAR STRENGTH AND WET DENSITIES SEE PLATE

SECOND ORDER STATIONS

D	PILE SPACING IN DIRECTION OF LOADING
1.00	8B
0.85	7B
0.70	6B
0.55	5B
0.40	4B
0.25	3B
C	LOADING CONDITION
1.00	INITIAL LOADING
0.30	CYCLIC LOADING



NOTES: $K_H = \alpha K_1/B = (0.2222\,q_u/B)(C)(D)$ COHESIVE

α = 0.4 = Factor of material properties of soil and pile

k_1 = Modulus of subgrade reaction for test plate (pci)

B_1 = Width or diameter of test plate (in)

$K_1 = k_1 B_1 = 80\,q_u$ (psf) = $0.5556\,q_u$ (psi)

$q_u = 2 \cdot c$ = Unconfined compressive strength (psf)

C = Reduction for cyclic loading-not applicable

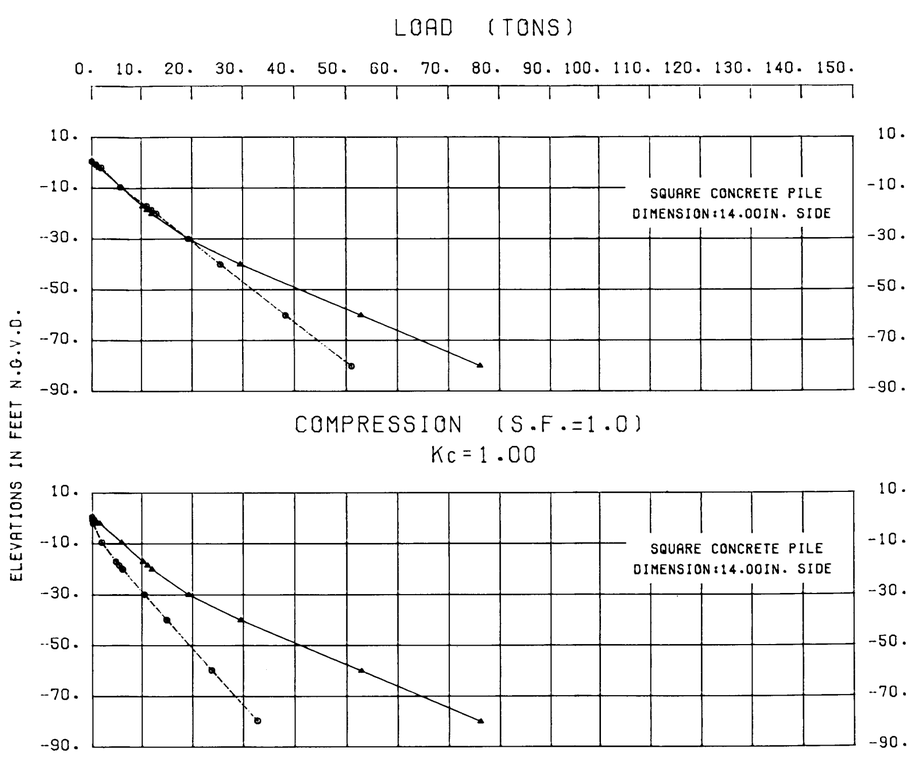
D = Group effect reduction factor

B = Width of pile measured at right angles to the direction of displacement (in)

$K_H = (nh)(Z/B)(C)(D)$ COHESIONLESS

nh = Coefficient of horizontal subgrade reaction (pci)

Z = Depth below equivalent ground surface (in)



THE FACTOR SHOWN, (MODULUS OF HORIZONTAL SUBGRADE K_h, TIMES THE PILE WIDTH IN INCHES (B), MEASURED AT RIGHT ANGLES TO THE DIRECTION OF DISPLACEMENT) MUST BE MODIFIED BY A REDUCTION FACTOR FOR THE EFFECT OF GROUP ACTION (D) AND A REDUCTION FACTOR FOR CYCLIC LOADING (C) EX: $K_h = \frac{0.2222\,q_u\,(C)(D)}{(B)}$

----- S-CASE

——— Q-CASE

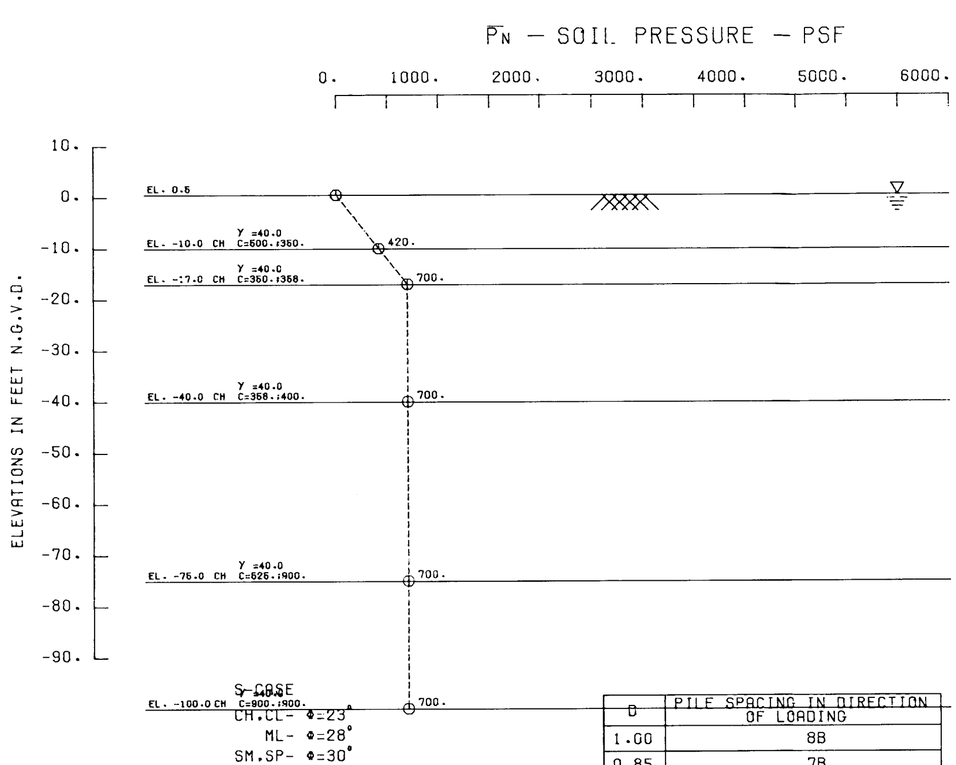
WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

WESTWEGO LEVEE
DUGUES CANAL AIRPORT
14 - INCH CONC. PILE
PILE CAPACITY CURVES

U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

DATE: FEB. 1990 FILE NO. H-2-30618

PLATE F176



TYPICAL SOIL PROFILE

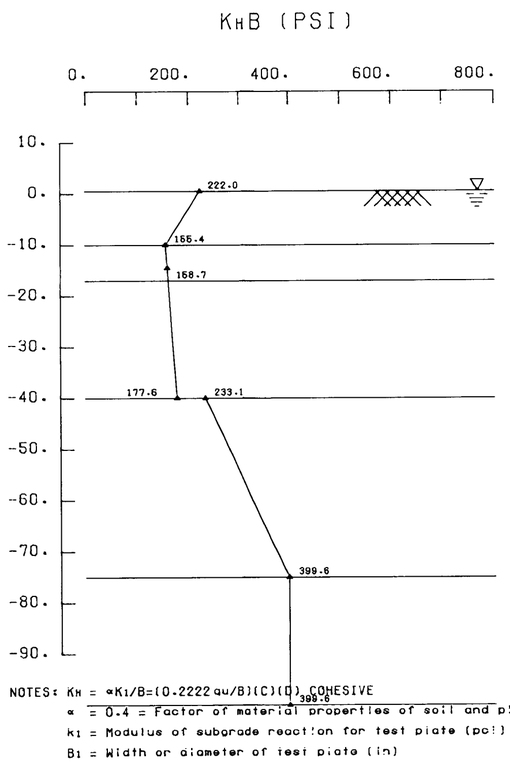
SOIL STRATIFICATION IS BASED ON GEOLOGIC PROFILE

SHEAR STRENGTH AND WET DENSITIES SEE PLATE

SECOND ORDER STATIONS

D	PILE SPACING IN DIRECTION OF LOADING
1.00	8B
0.85	7B
0.70	6B
0.55	5B
0.40	4B
0.25	3B

C	LOADING CONDITION
1.00	INITIAL LOADING
0.30	CYCLIC LOADING



NOTES: $K_H = \alpha K_1/B = (0.2222\,q_u/B)(C)(D)$ COHESIVE

α = 0.4 = Factor of material properties of soil and pile

K_1 = Modulus of subgrade reaction for test plate (pci)

B_1 = Width or diameter of test plate (in)

$K_1 = k_1 B_1 = 80\,q_u$ (psf) $= 0.5556\,q_u$ (psi)

$q_u = 2 \cdot c$ = Unconfined compressive strength (psf)

C = Reduction for cyclic loading-not applicable

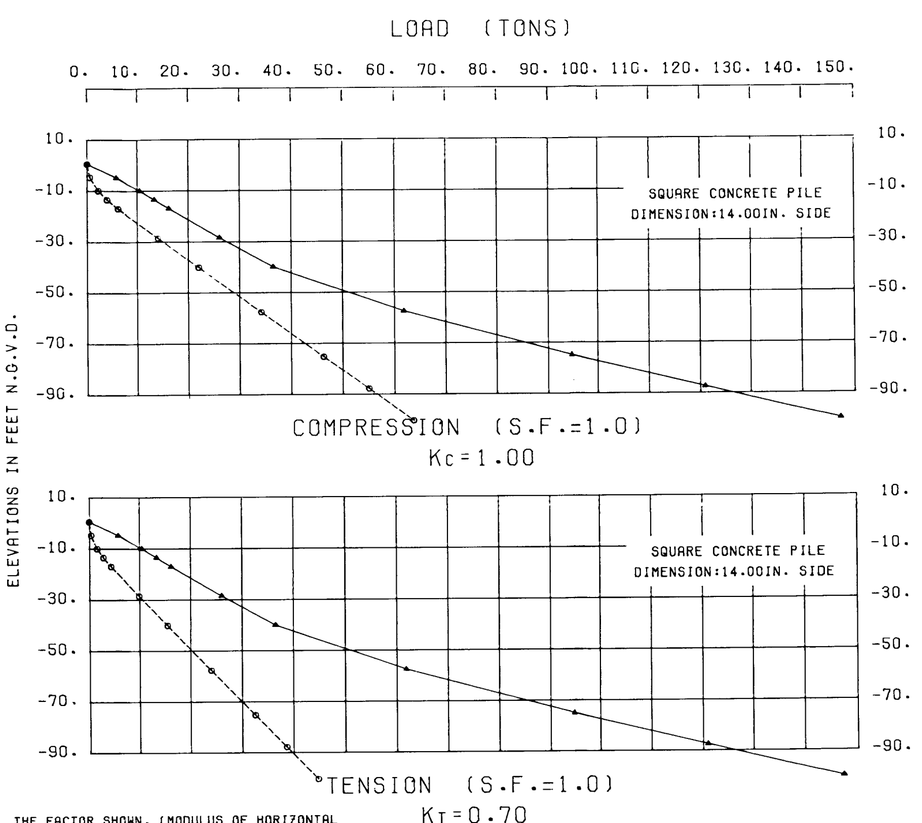
D = Group effect reduction factor

B = Width of pile measured at right angles to the direction of displacement (in)

$K_H = (nh)(Z/B)(C)(D)$ COHESIONLESS

nh = Coefficient of horizontal subgrade reaction (pci)

Z = Depth below equivalent ground surface (in)



THE FACTOR SHOWN, (MODULUS OF HORIZONTAL SUBGRADE K_H, TIMES THE PILE WIDTH IN INCHES (B), MEASURED AT RIGHT ANGLES TO THE DIRECTION OF DISPLACEMENT) MUST BE MODIFIED BY A REDUCTION FACTOR FOR THE EFFECT OF GROUP ACTION (D) AND A REDUCTION FACTOR FOR CYCLIC LOADING (C) EX: $K_h = \frac{0.2222\,q_u\,(C)(D)}{(B)}$

----- S-CASE

——— Q-CASE

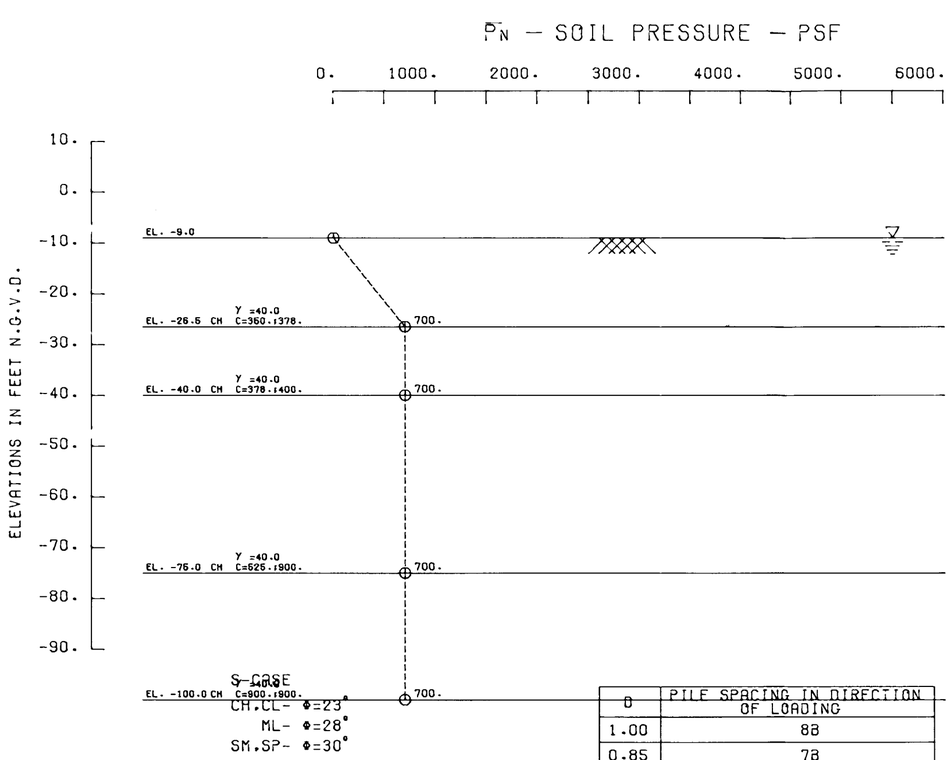
WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

MOUNT KENNEDY AND AMES PUMP STA.
14 - INCH CONC. PILE
PILE CAPACITY CURVES

U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

DATE: FEB. 1990 FILE NO. M-2-[illegible]

PLATE F177



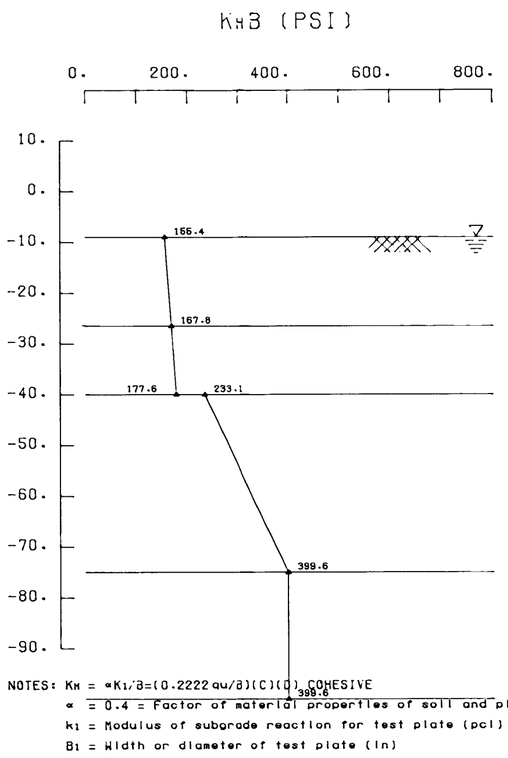
TYPICAL SOIL PROFILE

SOIL STRATIFICATION IS BASED ON GEOLOGIC PROFILE

SHEAR STRENGTH AND WET DENSITIES SEE PLATE

SECOND ORDER STATIONS

D	PILE SPACING IN DIRECTION OF LOADING
1.00	8B
0.85	7B
0.70	6B
0.55	5B
0.40	4B
0.25	3B
C	LOADING CONDITION
1.00	INITIAL LOADING
0.30	CYCLIC LOADING



NOTES: $K_H = \alpha K_1/B = (0.2222\,q_u/B)(C)(D)$ COHESIVE

α = 0.4 = Factor of material properties of soil and pile

k_1 = Modulus of subgrade reaction for test plate (pci)

B_1 = Width or diameter of test plate (in)

$K_1 = k_1 B_1 = 80\,q_u$ (psf) = $0.5556\,q_u$ (psi)

$q_u = 2 \cdot c$ = Unconfined compressive strength (psf)

C = Reduction for cyclic loading-not applicable

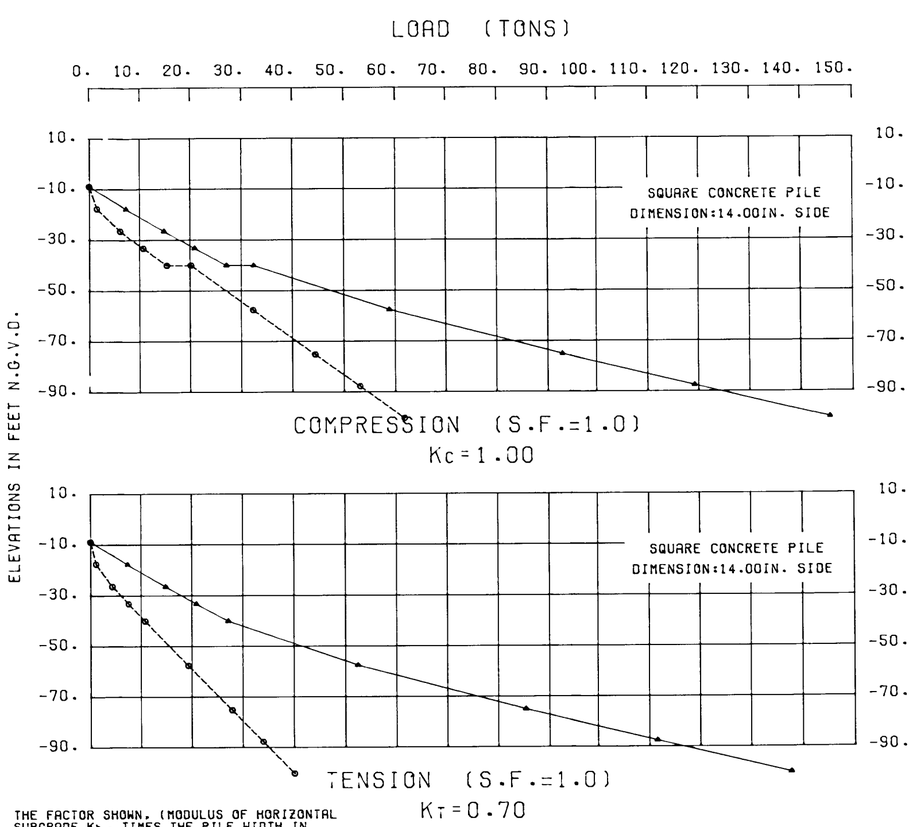
D = Group effect reduction factor

B = Width of pile measured at right angles to the direction of displacement (in)

K_H = (nh)(Z/B)(C)(D) COHESIONLESS

nh = Coefficient of horizontal subgrade reaction (pci)

Z = Depth below equivalent ground surface (in)



THE FACTOR SHOWN, (MODULUS OF HORIZONTAL SUBGRADE K_h, TIMES THE PILE WIDTH IN INCHES (B), MEASURED AT RIGHT ANGLES TO THE DIRECTION OF DISPLACEMENT) MUST BE MODIFIED BY A REDUCTION FACTOR FOR THE EFFECT OF GROUP ACTION (D) AND A REDUCTION FACTOR FOR CYCLIC LOADING (C) EX: $K_h = \frac{0.2222\,q_u\,(C)(D)}{(B)}$

----- S-CASE

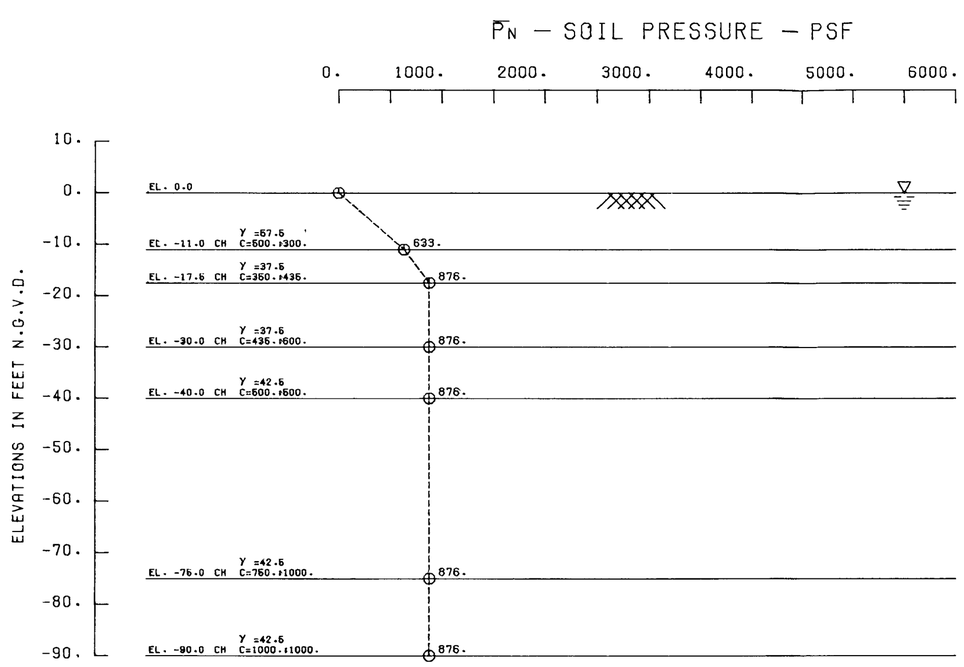
——— Q-CASE

WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

AMES PUMPING STATION
14 - INCH CONC. PILE
SLUICE GATE PILE CAPACITY CURVES

U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

DATE: FEB 90 FILE NO. H-2-30618



S-CASE

CH,CL- Φ=23°

ML- Φ=28°

SM,SP- Φ=30°

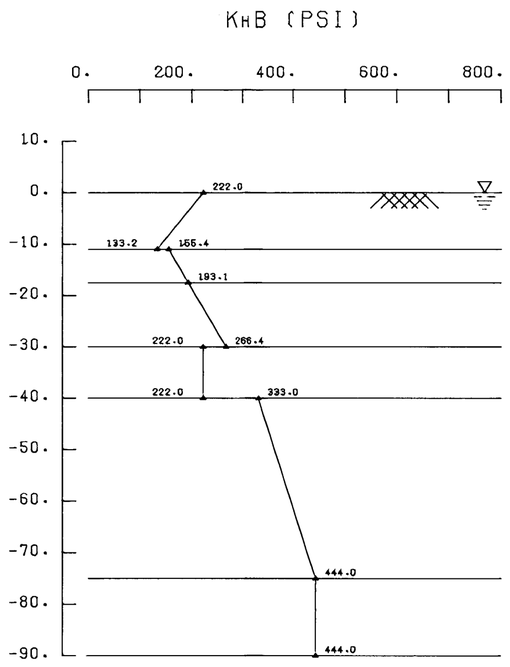
TYPICAL SOIL PROFILE

SOIL STRATIFICATION IS BASED ON GEOLOGIC PROFILE

SHEAR STRENGTH AND WET DENSITIES SEE PLATE

SECOND ORDER STATIONS

D	PILE SPACING IN DIRECTION OF LOADING
1.00	8B
0.85	7B
0.70	6B
0.55	5B
0.40	4B
0.25	3B
C	LOADING CONDITION
1.00	INITIAL LOADING
0.30	CYCLIC LOADING



NOTES: $K_H = \alpha K_1/B = (0.2222\,q_u/B)(C)(D)$ COHESIVE

α = 0.4 = Factor of material properties of soil and pile

k_1 = Modulus of subgrade reaction for test plate (pci)

B_1 = Width or diameter of test plate (in)

$K_1 = k_1 B_1 = 80\,q_u$ (psf) = 0.5556 q_u (psi)

$q_u = 2{\cdot}c$ = Unconfined compressive strength (psf)

C = Reduction for cyclic loading-not applicable

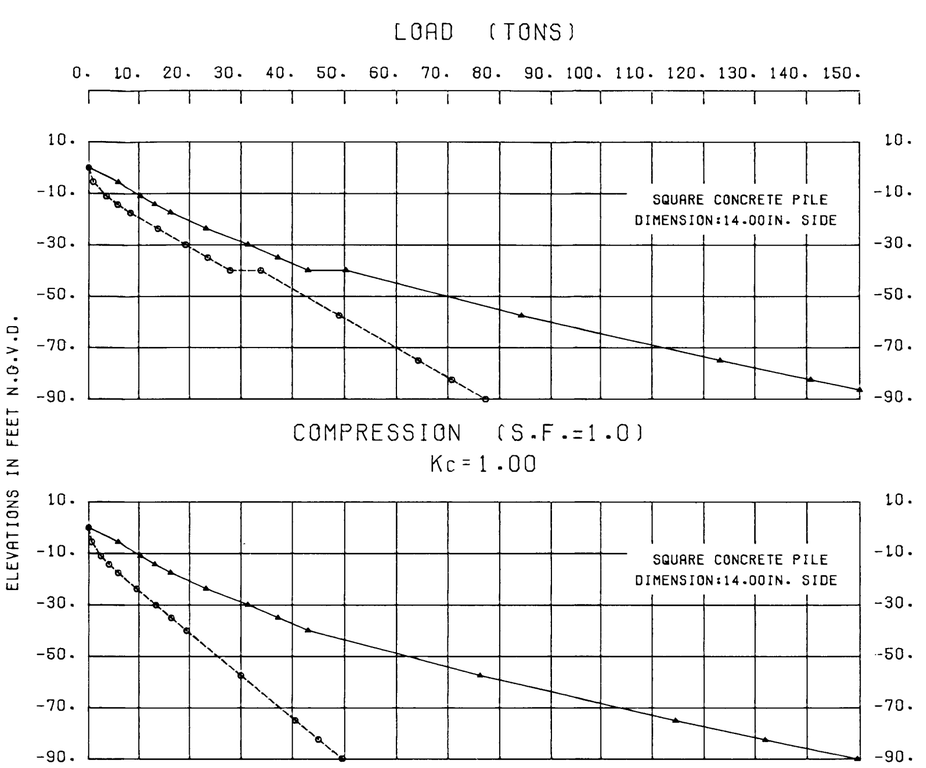
D = Group effect reduction factor

B = Width of pile measured at right angles to the direction of displacement (in)

$K_H = (nh)(Z/B)(C)(D)$ COHESIONLESS

nh = Coefficient of horizontal subgrade reaction (pci)

Z = Depth below equivalent ground surface (in)



THE FACTOR SHOWN, (MODULUS OF HORIZONTAL SUBGRADE K_h, TIMES THE PILE WIDTH IN INCHES (B), MEASURED AT RIGHT ANGLES TO THE DIRECTION OF DISPLACEMENT) MUST BE MODIFIED BY A REDUCTION FACTOR FOR THE EFFECT OF GROUP ACTION (D) AND A REDUCTION FACTOR FOR CYCLIC LOADING (C) EX: $K_h = \frac{0.2222\,q_u\,(C)(D)}{(B)}$

----- S-CASE

——— Q-CASE

WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

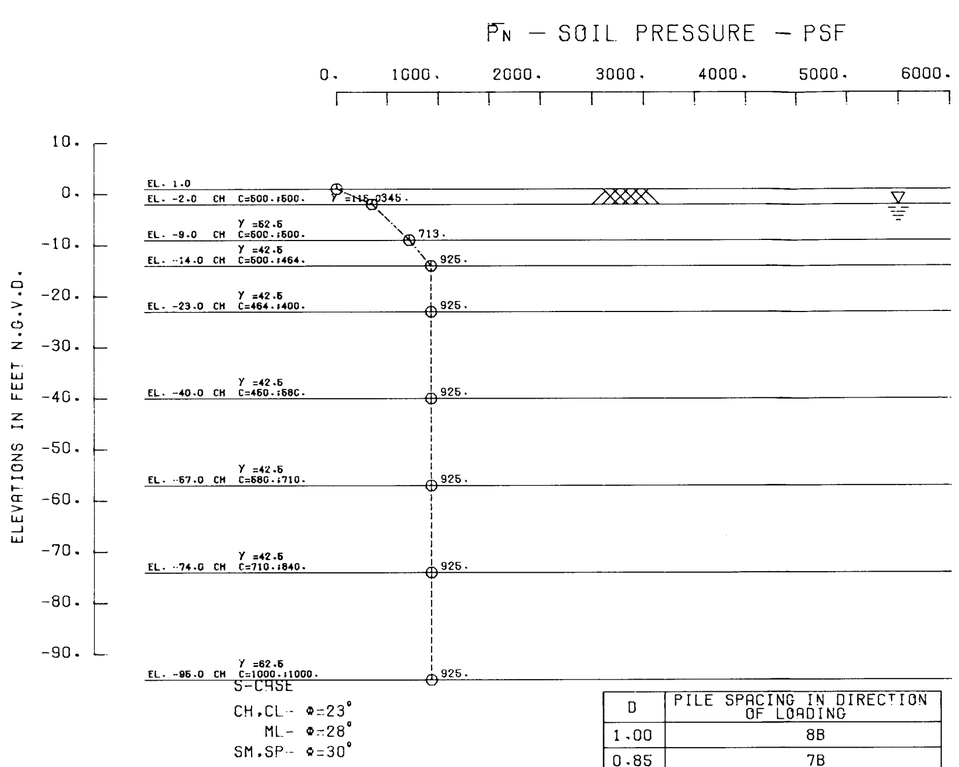
OAK COVE PUMPING STATION
14 - INCH CONC. PILE
PILE CAPACITY CURVES

U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

DATE: FEB 90

FILE NO. M-2-30618

PLATE F179



S-CASE

CH, CL - Φ=23°

ML - Φ=28°

SM, SP - Φ=30°

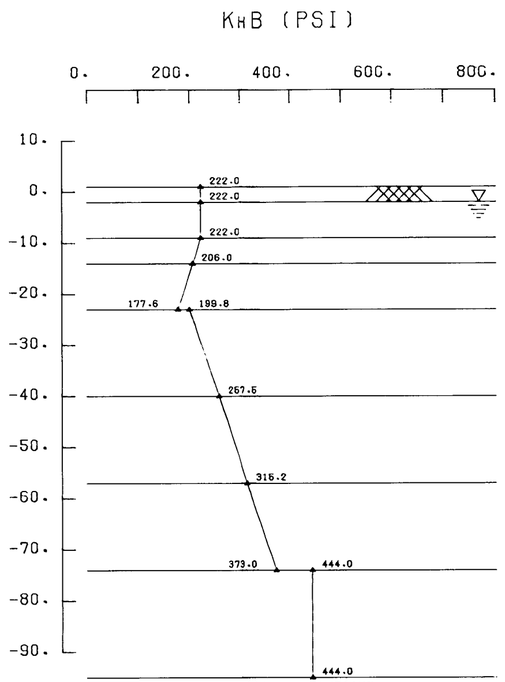
TYPICAL SOIL PROFILE

SOIL STRATIFICATION IS BASED ON GEOLOGIC PROFILE

SHEAR STRENGTH AND WET DENSITIES SEE PLATE

SECOND ORDER STATIONS

D	PILE SPACING IN DIRECTION OF LOADING
1.00	8B
0.85	7B
0.70	6B
0.55	5B
0.40	4B
0.25	3B
C	LOADING CONDITION
1.00	INITIAL LOADING
0.30	CYCLIC LOADING



NOTES: $K_H = \alpha K_1/B = (C.2222\, q_u/B)(C)(D)$ COHESIVE

α = 0.4 = Factor of material properties of soil and pile

K_1 = Modulus of subgrade reaction for test plate (pci)

B_1 = Width or diameter of test plate (in)

$K_1 = k_1 B_1 = 80\, q_u$ (psf) = $C.5556\, q_u$ (psi)

$q_u = 2 \cdot c$ = Unconfined compressive strength (psf)

C = Reduction for cyclic loading-not applicable

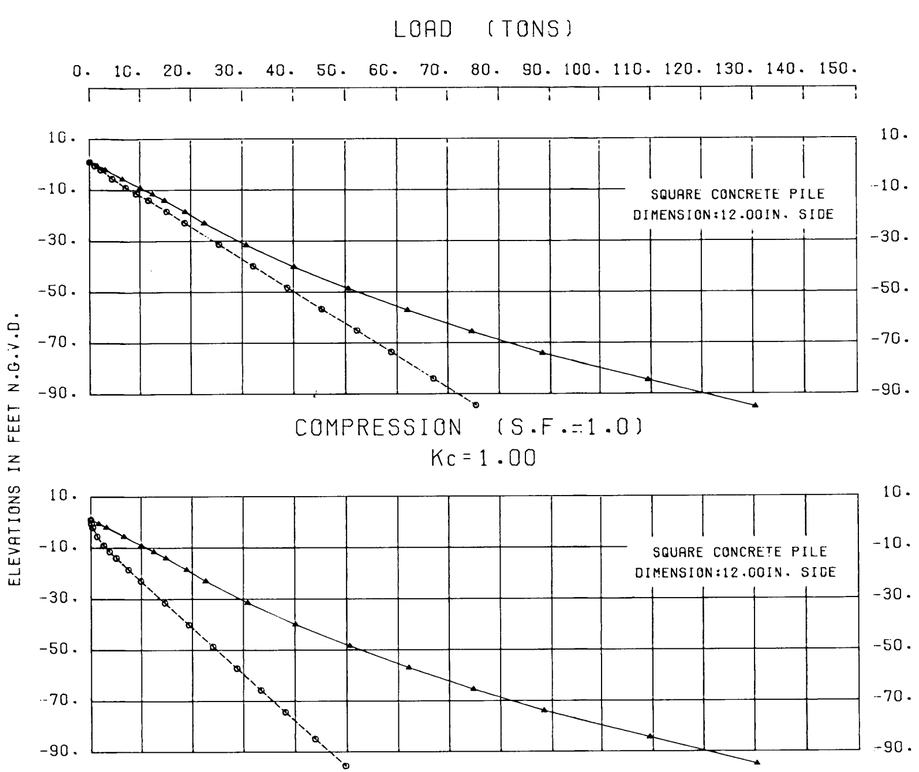
D = Group effect reduction factor

B = Width of pile measured at right angles to the direction of displacement (in)

$K_H = (nh)(Z/B)(C)(D)$ COHESIONLESS

nh = Coefficient of horizontal subgrade reaction (pci)

Z = Depth below equivalent ground surface (in)



THE FACTOR SHOWN, (MODULUS OF HORIZONTAL SUBGRADE K_h, TIMES THE PILE WIDTH IN INCHES (B), MEASURED AT RIGHT ANGLES TO THE DIRECTION OF DISPLACEMENT) MUST BE MODIFIED BY A REDUCTION FACTOR FOR THE EFFECT OF GROUP ACTION (D) AND A REDUCTION FACTOR FOR CYCLIC LOADING (C) EX: $K_h = \frac{0.2222\, q_u (C)(D)}{(B)}$

S-CASE

Q-CASE

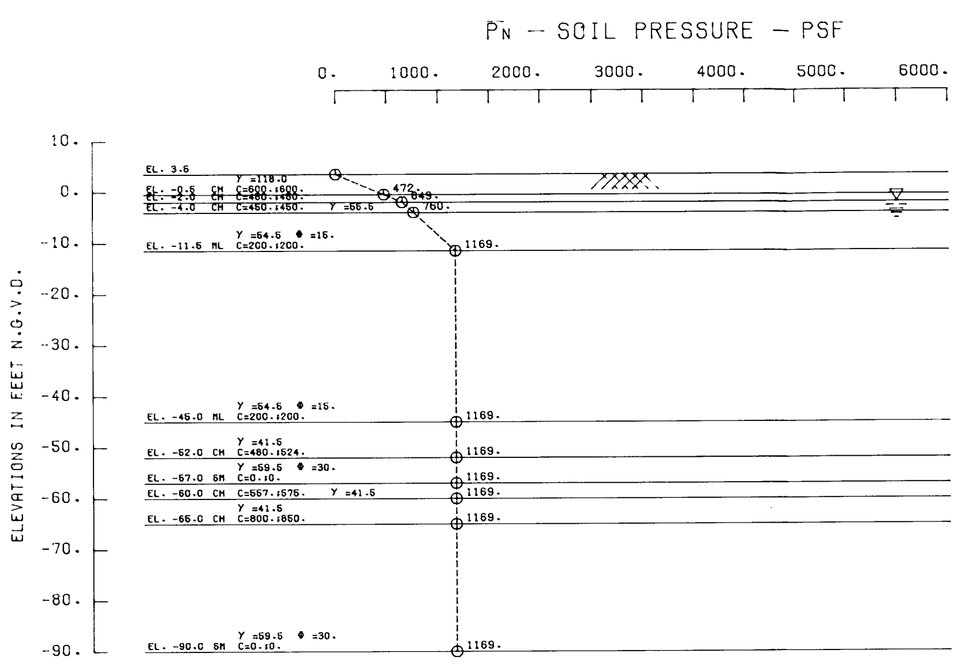
WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

HWY 45
12 - INCH CONC. PILE
PILE CAPACITY CURVE

U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

DATE: FEB 90 FILE NO. H-2-30618

PLATE F180



S-CASE

CH,CL- Φ=23°

ML- Φ=28°

SM,SP- Φ=30°

TYPICAL SOIL PROFILE

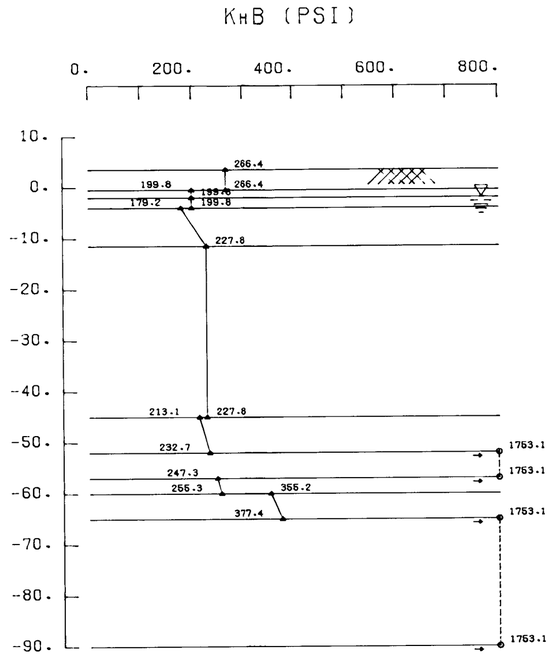
SOIL STRATIFICATION IS BASED ON GEOLOGIC PROFILE

SHEAR STRENGTH AND WET DENSITIES SEE PLATE

SECOND ORDER STATIONS

D	PILE SPACING IN DIRECTION OF LOADING
1.00	8B
0.85	7B
0.70	6B
0.55	5B
0.40	4B
0.25	3B

C	LOADING CONDITION
1.00	INITIAL LOADING
0.30	CYCLIC LOADING



NOTES: $K_H = \alpha K_1/B = (0.2222\,q_u/B)(C)(D)$ COHESIVE

α = 0.4 = Factor of material properties of soil and pile

k_1 = Modulus of subgrade reaction for test plate (pci)

B_1 = Width or diameter of test plate (in)

$K_1 = k_1 B_1 = 80\,q_u$ (psf) $= 0.5556\,q_u$ (psi)

$q_u = 2 \cdot c$ = Unconfined compressive strength (psf)

C = Reduction for cyclic loading-not applicable

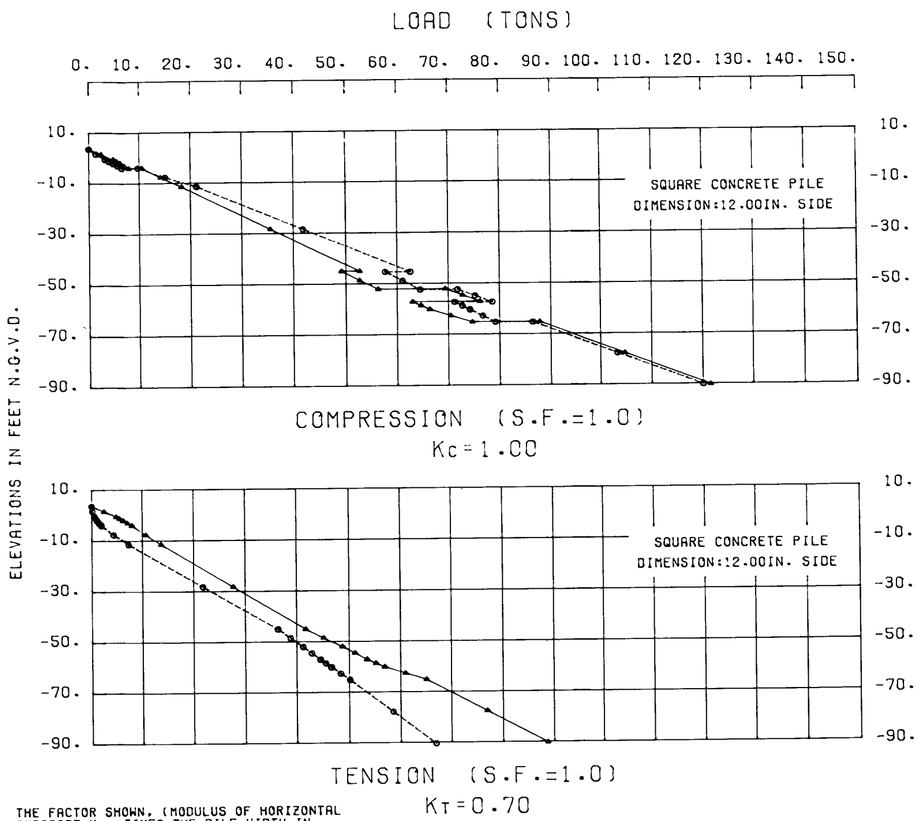
D = Group effect reduction factor

B = Width of pile measured at right angles to the direction of displacement (in)

$K_H = (nh)(Z/B)(C)(D)$ COHESIONLESS

nh = Coefficient of horizontal subgrade reaction (pci)

Z = Depth below equivalent ground surface (in)



THE FACTOR SHOWN, (MODULUS OF HORIZONTAL SUBGRADE K_h, TIMES THE PILE WIDTH IN INCHES (B), MEASURED AT RIGHT ANGLES TO THE DIRECTION OF DISPLACEMENT) MUST BE MODIFIED BY A REDUCTION FACTOR FOR THE EFFECT OF GROUP ACTION (D) AND A REDUCTION FACTOR FOR CYCLIC LOADING (C) EX: $K_h = \frac{0.2222\,q_u\,(C)(D)}{(B)}$

– – – – – S-CASE

——— Q-CASE

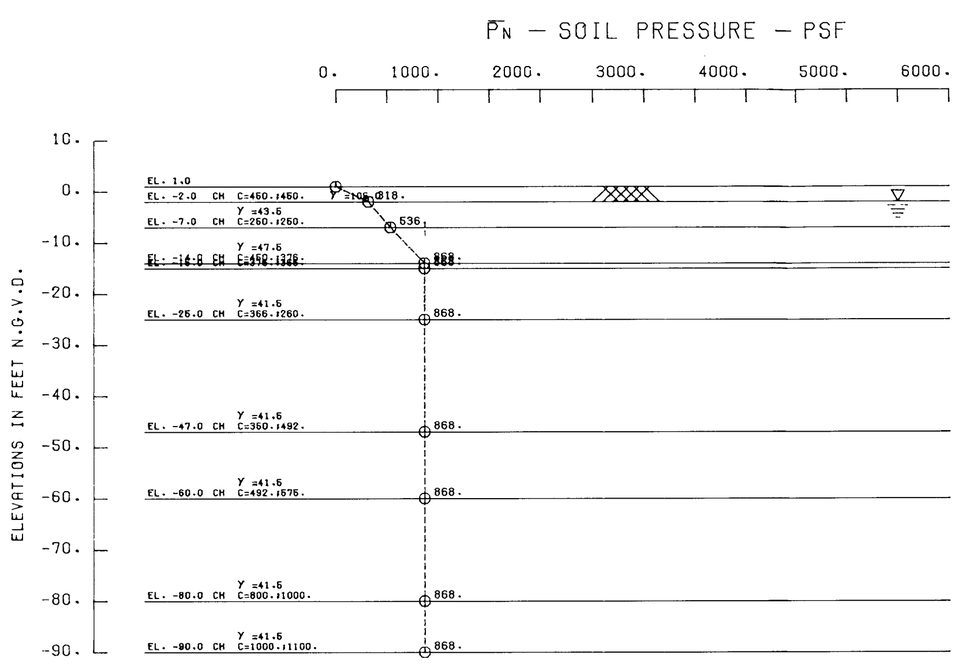
WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

V LINE LEVEE
12 - INCH CONC. PILE
PILE CAPACITY CURVE

U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

DATE: FEB 80 FILE NO. H-2-30618

PLATE F18



S-CASE

CH,CL- Φ=23°

ML- Φ=28°

SM,SP- Φ=30°

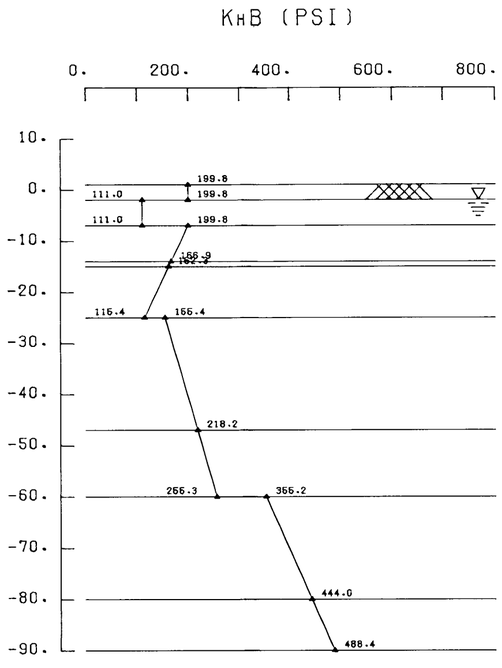
TYPICAL SOIL PROFILE

SOIL STRATIFICATION IS BASED ON GEOLOGIC PROFILE

SHEAR STRENGTH AND WET DENSITIES SEE PLATE

SECOND ORDER STATIONS

D	PILE SPACING IN DIRECTION OF LOADING
1.00	8B
0.85	7B
0.70	6B
0.55	5B
0.40	4B
0.25	3B
C	LOADING CONDITION
1.00	INITIAL LOADING
0.30	CYCLIC LOADING



NOTES: $K_H = \alpha K_1/B = (0.2222\ q_u/B)(C)(D)$ COHESIVE

α = 0.4 = Factor of material properties of soil and pile

k_1 = Modulus of subgrade reaction for test plate (pci)

B_1 = Width or diameter of test plate (in)

$K_1 = k_1 B_1 = 80\ q_u$ (psf) $= 0.5556\ q_u$ (psi)

$q_u = 2 \cdot c$ = Unconfined compressive strength (psf)

C = Reduction for cyclic loading-not applicable

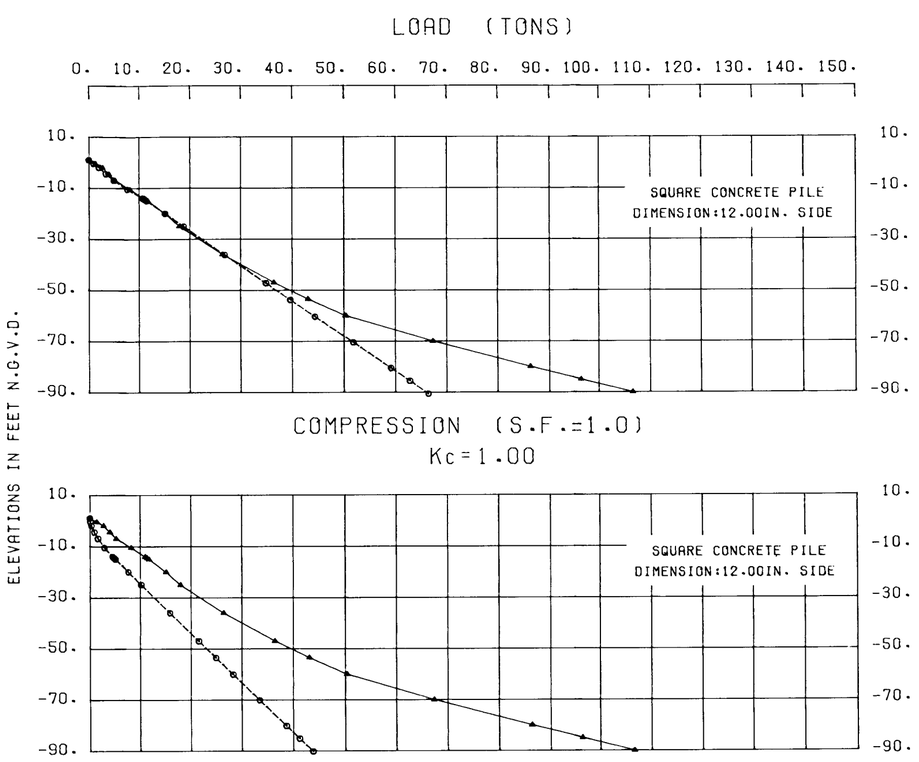
D = Group effect reduction factor

B = Width of pile measured at right angles to the direction of displacement (in)

$K_H = (nh)(Z/B)(C)(D)$ COHESIONLESS

nh = Coefficient of horizontal subgrade reaction (pci)

Z = Depth below equivalent ground surface (in)



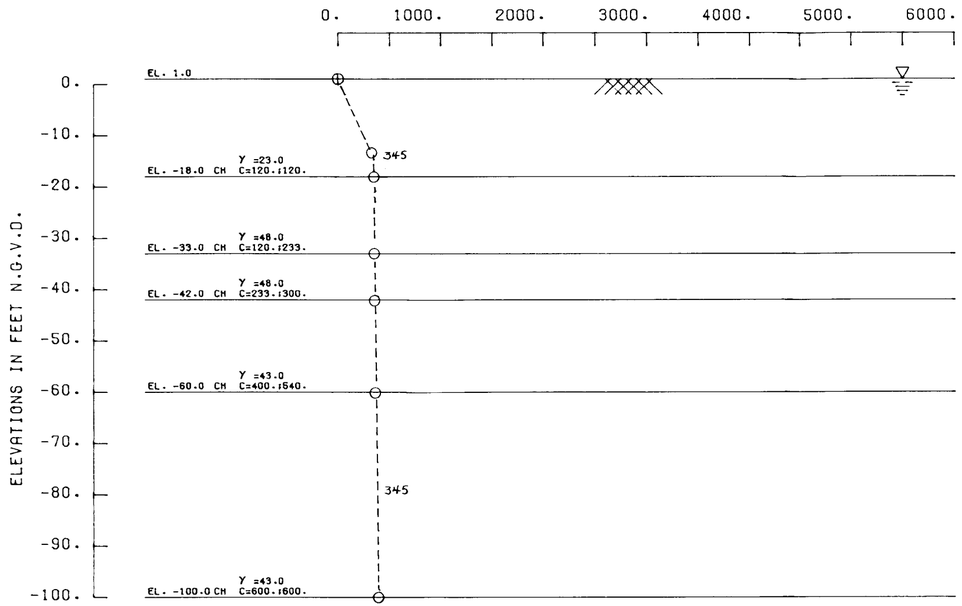
THE FACTOR SHOWN, (MODULUS OF HORIZONTAL SUBGRADE K_h, TIMES THE PILE WIDTH IN INCHES (B), MEASURED AT RIGHT ANGLES TO THE DIRECTION OF DISPLACEMENT) MUST BE MODIFIED BY A REDUCTION FACTOR FOR THE EFFECT OF GROUP ACTION (D) AND A REDUCTION FACTOR FOR CYCLIC LOADING (C) EX: $K_h = \frac{0.2222\ q_u\ (C)(D)}{(B)}$

----- S-CASE

——— Q-CASE

WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2
V-LINE LEVEE
REACH II
12 - INCH CONC. PILE
PILE CAPACITY CURVE
U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS
DATE: FEB 90
FILE NO. H-2-30616

PLATE F182



S-CASE

CH,CL- Φ=23°

ML- Φ=28°

SM,SP- Φ=30°

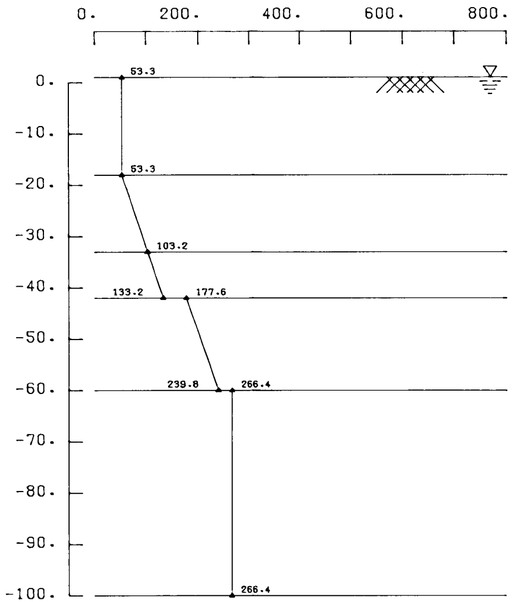
TYPICAL SOIL PROFILE

SOIL STRATIFICATION IS BASED ON GEOLOGIC PROFILE

SHEAR STRENGTH AND WET DENSITIES SEE PLATE

SECOND ORDER STATIONS

D	PILE SPACING IN DIRECTION OF LOADING
1.00	8B
0.85	7B
0.70	6B
0.55	5B
0.40	4B
0.25	3B
C	LOADING CONDITION
1.00	INITIAL LOADING
0.30	CYCLIC LOADING



NOTES: $K_H = \alpha K_1/B = (0.2222\, q_u/B)(C)(D)$ COHESIVE

α = 0.4 = Factor of material properties of soil and pile

k_1 = Modulus of subgrade reaction for test plate (pci)

B_1 = Width or diameter of test plate (in)

$K_1 = k_1 B_1 = 80\, q_u$ (psf) = $0.5556\, q_u$ (psi)

$q_u = 2 \cdot c$ = Unconfined compressive strength (psf)

C = Reduction for cyclic loading-not applicable

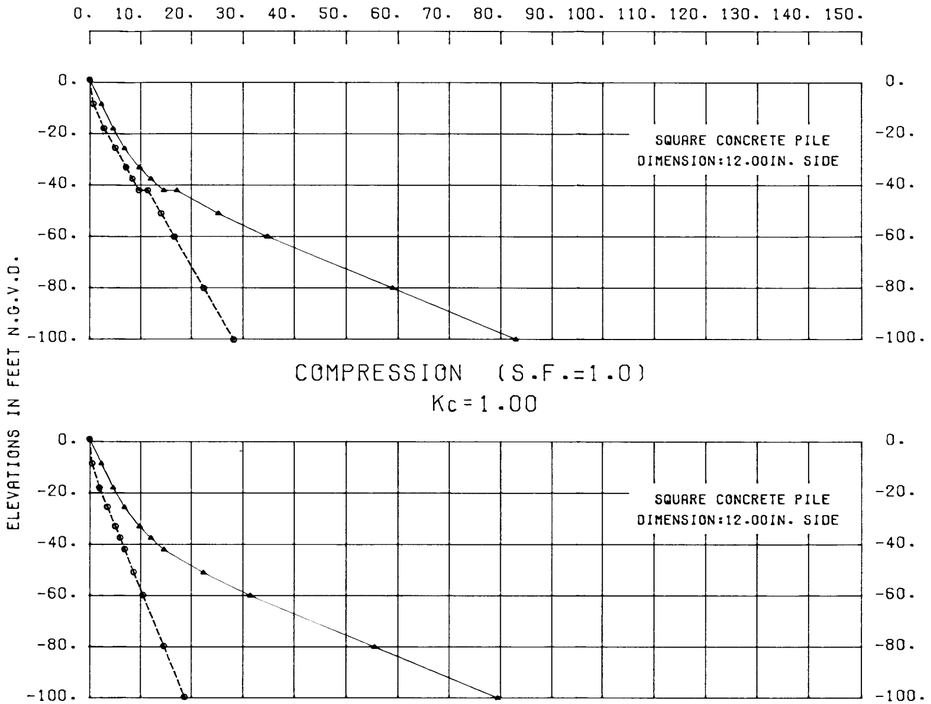
D = Group effect reduction factor

B = Width of pile measured at right angles to the direction of displacement (in)

$K_H = (nh)(Z/B)(C)(D)$ COHESIONLESS

nh = Coefficient of horizontal subgrade reaction (pci)

Z = Depth below equivalent ground surface (in)



THE FACTOR SHOWN, (MODULUS OF HORIZONTAL SUBGRADE K_H , TIMES THE PILE WIDTH IN INCHES (B), MEASURED AT RIGHT ANGLES TO THE DIRECTION OF DISPLACEMENT) MUST BE MODIFIED BY A REDUCTION FACTOR FOR THE EFFECT OF GROUP ACTION (D) AND A REDUCTION FACTOR FOR CYCLIC LOADING (C) EX; $K_H = \frac{0.2222\, q_u (C)(D)}{(B)}$

----- S-CASE

——— Q-CASE

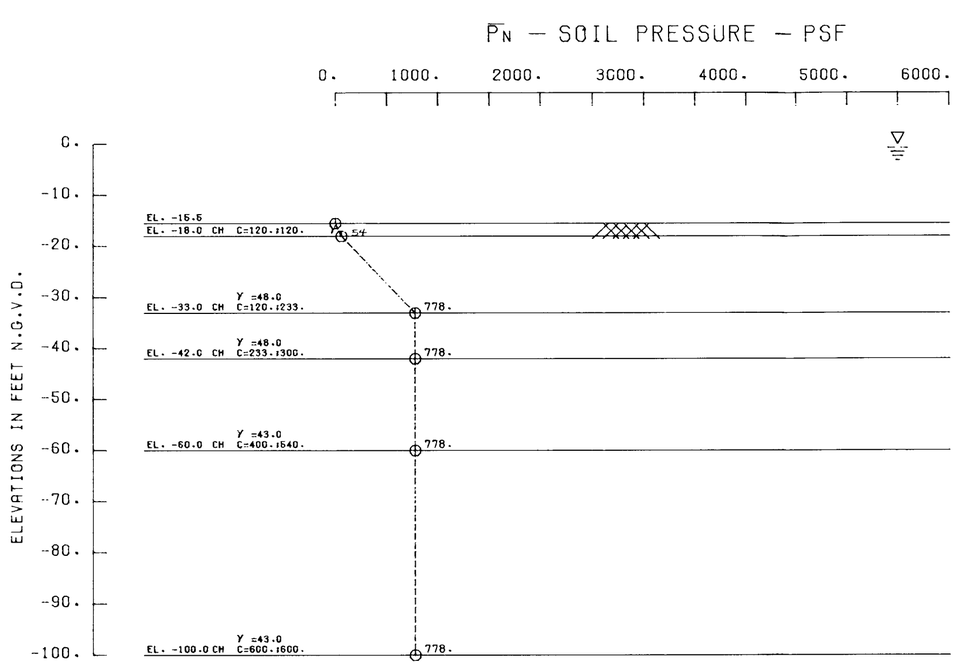
WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

ESTELLE PUMPING STATION
12 - INCH CONC. PILE
PILE CAPACITY CURVE

U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

DATE: FEB 90 FILE NO. M-2-30618

PLATE F183



S-CASE

CH,CL- Φ=23°

ML- Φ=28°

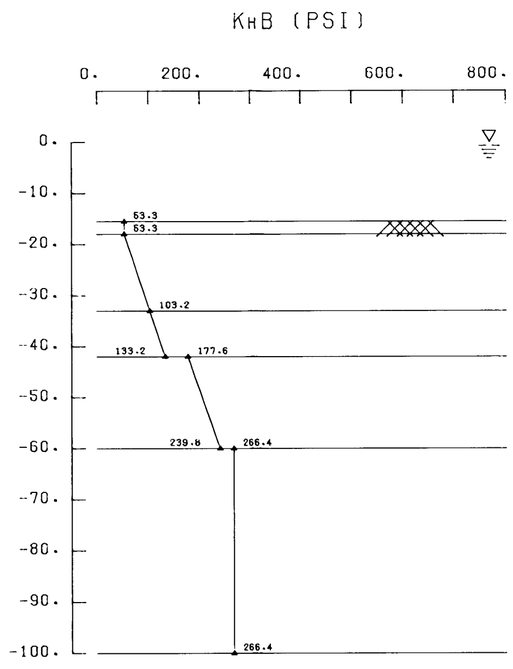
SM,SP- Φ=30°

TYPICAL SOIL PROFILE

SOIL STRATIFICATION IS BASED ON GEOLOGIC PROFILE

SHEAR STRENGTH AND WET DENSITIES SEE PLATE

SECOND ORDER STATIONS



NOTES: $K_H = \alpha K_1/B = (0.2222\,q_u/B)(C)(D)$ COHESIVE

α = 0.4 = Factor of material properties of soil and pile

k_1 = Modulus of subgrade reaction for test plate (pci)

B_1 = Width or diameter of test plate (in)

$K_1 = k_1 B_1 = 80\,q_u$ (psf) = $0.5556\,q_u$ (psi)

$q_u = 2 \cdot c$ = Unconfined compressive strength (psf)

C = Reduction for cyclic loading-not applicable

D = Group effect reduction factor

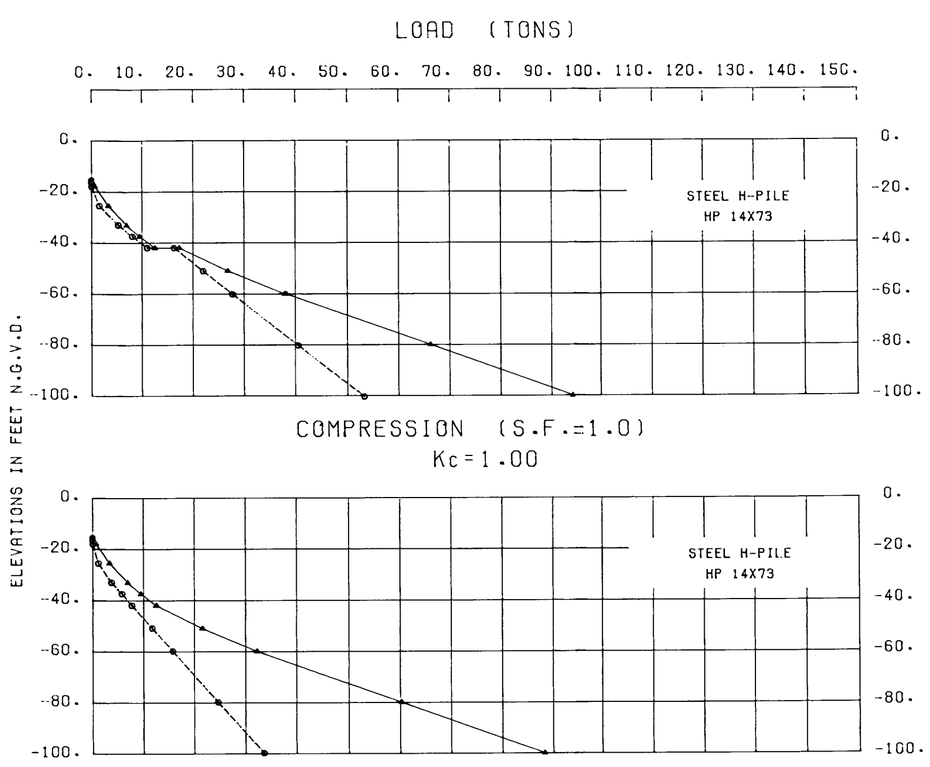
B = Width of pile measured at right angles to the direction of displacement (in)

$K_H = (nh)(Z/B)(C)(D)$ COHESIONLESS

nh = Coefficient of horizontal subgrade reaction (pci)

Z = Depth below equivalent ground surface (in)

D	PILE SPACING IN DIRECTION OF LOADING
1.00	8B
0.85	7B
0.70	6B
0.55	5B
0.40	4B
0.25	3B
C	LOADING CONDITION
1.00	INITIAL LOADING
0.30	CYCLIC LOADING



THE FACTOR SHOWN, (MODULUS OF HORIZONTAL SUBGRADE K_H, TIMES THE PILE WIDTH IN INCHES (B), MEASURED AT RIGHT ANGLES TO THE DIRECTION OF DISPLACEMENT) MUST BE MODIFIED BY A REDUCTION FACTOR FOR THE EFFECT OF GROUP ACTION (D) AND A REDUCTION FACTOR FOR CYCLIC LOADING (C) EX: $K_h = \frac{0.2222\,q_u\,(C)(D)}{(B)}$

----- S-CASE

——— Q-CASE

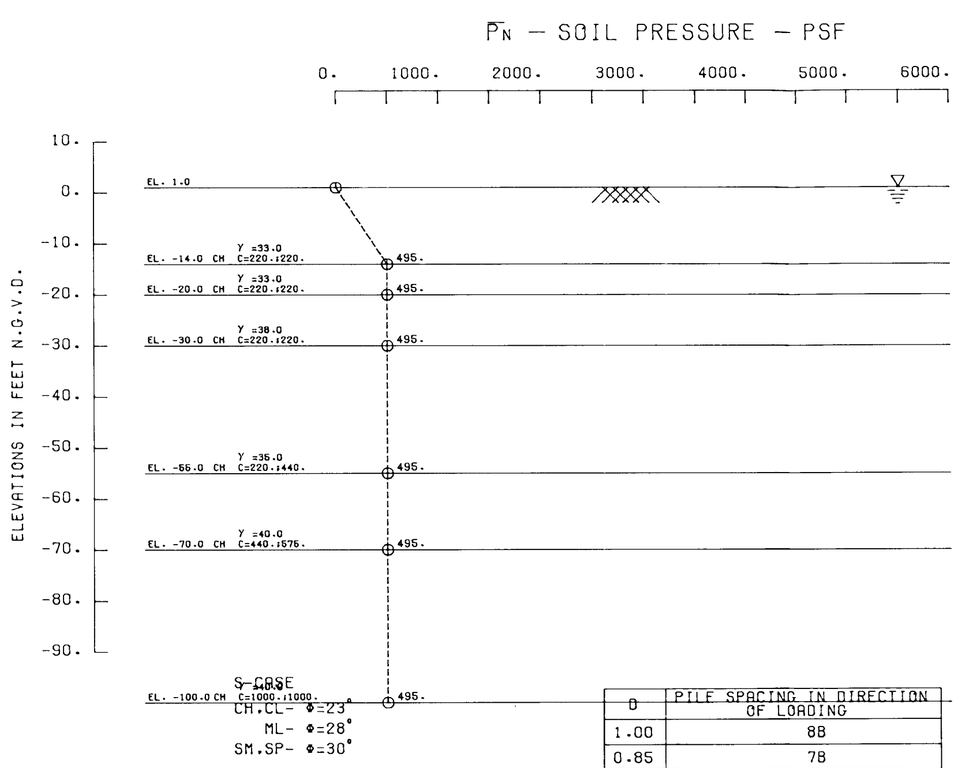
WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

ESTELLE PUMPING STATION
HP 14X73
PILE CAPACITY CURVE

U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

DATE: FEB 90 FILE NO. H-2-30618

PLATE F18



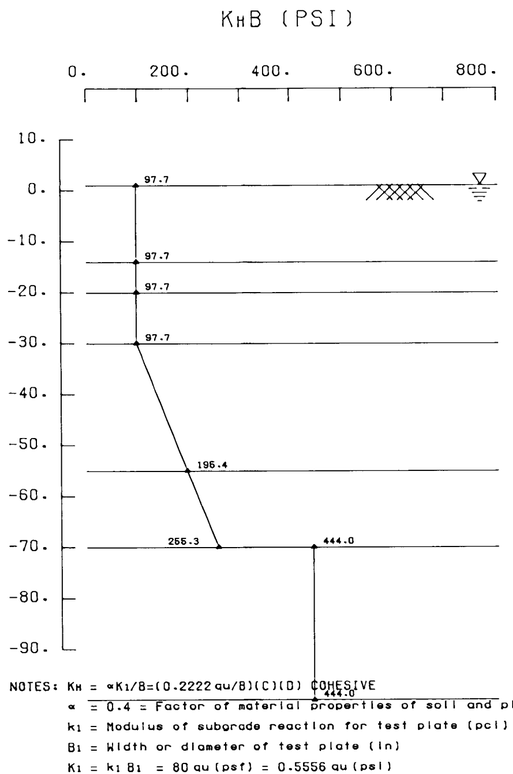
TYPICAL SOIL PROFILE

SOIL STRATIFICATION IS BASED ON GEOLOGIC PROFILE

SHEAR STRENGTH AND WET DENSITIES SEE PLATE

SECOND ORDER STATIONS

D	PILE SPACING IN DIRECTION OF LOADING
1.00	8B
0.85	7B
0.70	6B
0.55	5B
0.40	4B
0.25	3B
C	LOADING CONDITION
1.00	INITIAL LOADING
0.30	CYCLIC LOADING



NOTES: $K_H = \alpha K_1/B = (0.2222\,q_u/B)(C)(D)$ COHESIVE

α = 0.4 = Factor of material properties of soil and pile

k_1 = Modulus of subgrade reaction for test plate (pci)

B_1 = Width or diameter of test plate (in)

$K_1 = k_1 B_1 = 80\,q_u$ (psf) = $0.5556\,q_u$ (psi)

$q_u = 2 \cdot c$ = Unconfined compressive strength (psf)

C = Reduction for cyclic loading-not applicable

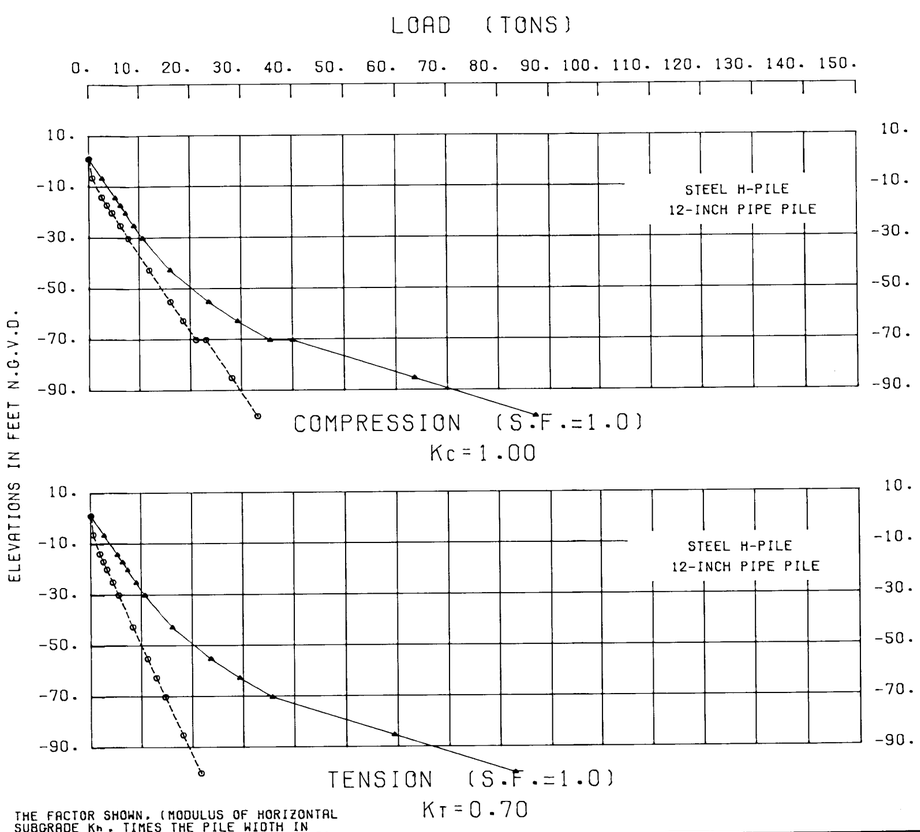
D = Group effect reduction factor

B = Width of pile measured at right angles to the direction of displacement (in)

$K_H = (nh)(Z/B)(C)(D)$ COHESIONLESS

nh = Coefficient of horizontal subgrade reaction (pci)

Z = Depth below equivalent ground surface (in)



THE FACTOR SHOWN, (MODULUS OF HORIZONTAL SUBGRADE K_H, TIMES THE PILE WIDTH IN INCHES (B), MEASURED AT RIGHT ANGLES TO THE DIRECTION OF DISPLACEMENT) MUST BE MODIFIED BY A REDUCTION FACTOR FOR THE EFFECT OF GROUP ACTION (D) AND A REDUCTION FACTOR FOR CYCLIC LOADING (C) EX: $K_h = \frac{0.2222\,q_u(C)(D)}{(B)}$

----- S-CASE

——— Q-CASE

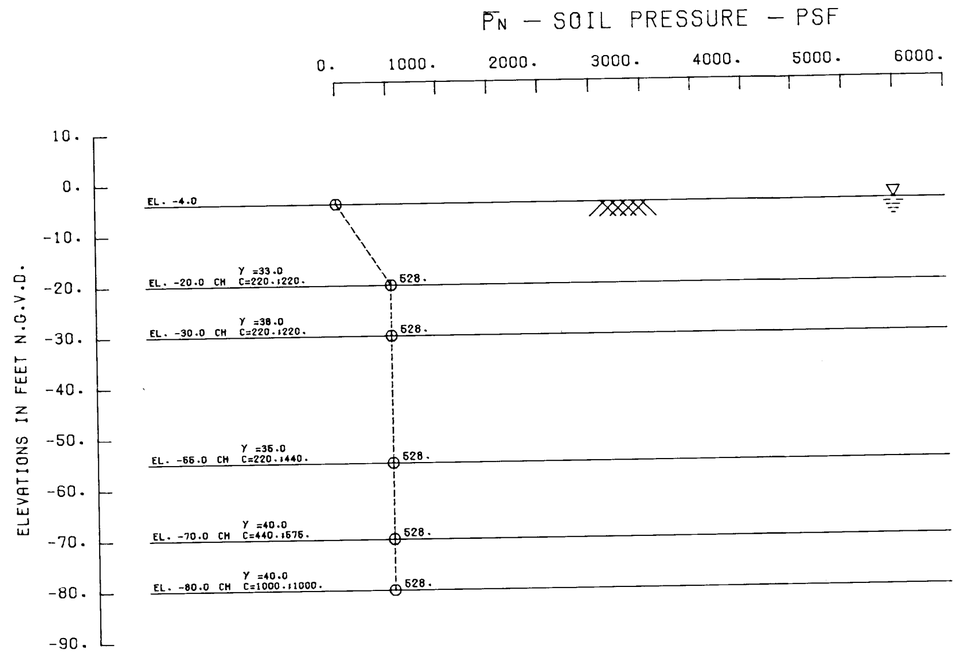
WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

NEW HARVEY PUMPING STATION
12 - INCH PIPE PILE
PILE CAPACITY CURVE

U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

DATE: FEB. 90 FILE NO. M-2-30618

PLATE F188



S-CASE
CH,CL- Φ=23°
ML- Φ=28°
SM,SP- Φ=30°

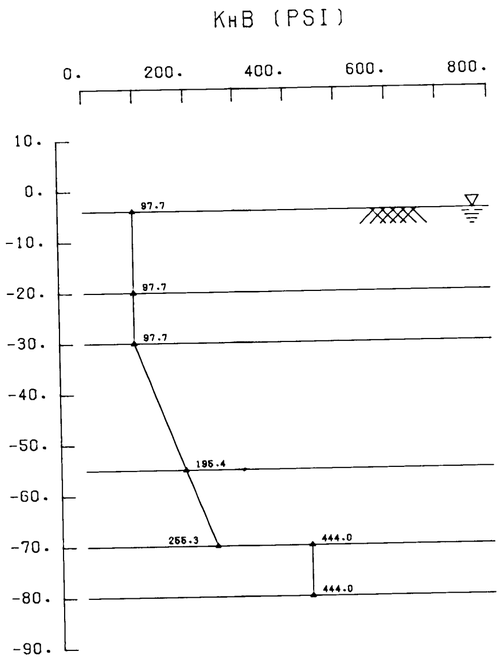
TYPICAL SOIL PROFILE

SOIL STRATIFICATION IS BASED ON GEOLOGIC PROFILE

SHEAR STRENGTH AND WET DENSITIES SEE PLATE

SECOND ORDER STATIONS

D	PILE SPACING IN DIRECTION OF LOADING
1.00	8B
0.85	7B
0.70	6B
0.55	5B
0.40	4B
0.25	3B
C	LOADING CONDITION
1.00	INITIAL LOADING
0.30	CYCLIC LOADING



NOTES: $K_H = \alpha K_1/B = (0.2222\,q_u/B)(C)(D)$ COHESIVE

α = 0.4 = Factor of material properties of soil and pile

k_1 = Modulus of subgrade reaction for test plate (pci)

B_1 = Width or diameter of test plate (in)

$K_1 = k_1 B_1 = 80\,q_u$ (psf) = $0.5556\,q_u$ (psi)

$q_u = 2 \cdot c$ = Unconfined compressive strength (psf)

C = Reduction for cyclic loading-not applicable

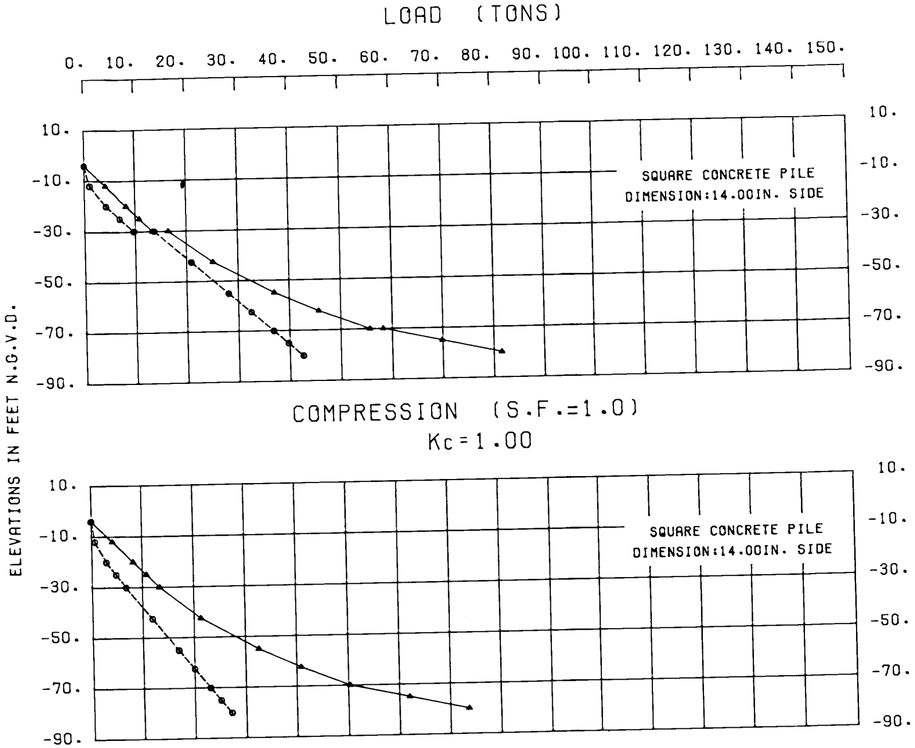
D = Group effect reduction factor

B = Width of pile measured at right angles to the direction of displacement (in)

$K_H = (nh)(Z/B)(C)(D)$ COHESIONLESS

nh = Coefficient of horizontal subgrade reaction (pci)

Z = Depth below equivalent ground surface (in)



THE FACTOR SHOWN, (MODULUS OF HORIZONTAL SUBGRADE K_h), TIMES THE PILE WIDTH IN INCHES (B), MEASURED AT RIGHT ANGLES TO THE DIRECTION OF DISPLACEMENT) MUST BE MODIFIED BY A REDUCTION FACTOR FOR THE EFFECT OF GROUP ACTION (D) AND A REDUCTION FACTOR FOR CYCLIC LOADING (C) EX: $K_h = \frac{0.2222\,q_u\,(C)(D)}{(B)}$

----- S-CASE
——— Q-CASE

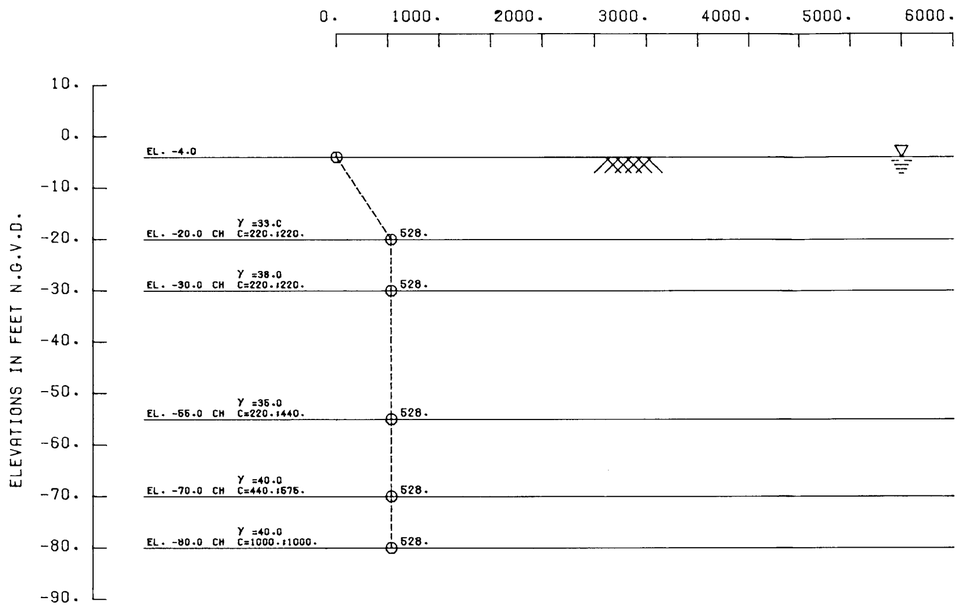
WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2

NEW HARVEY PUMPING STATION
14 - INCH SQ. CONC. PILE
PILE CAPACITY CURVE

U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

DATE: FEB 80 FILE NO. H-2-30618

PLATE F186



S-CASE
CH,CL- Φ=23°
ML- Φ=28°
SM,SP- Φ=30°

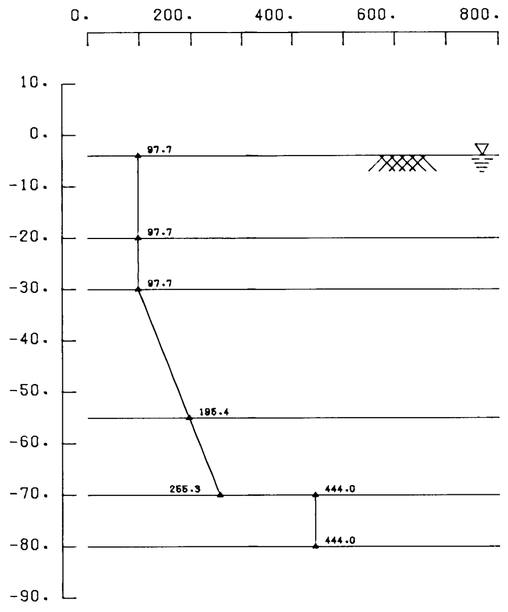
TYPICAL SOIL PROFILE

SOIL STRATIFICATION IS BASED ON GEOLOGIC PROFILE

SHEAR STRENGTH AND WET DENSITIES SEE PLATE

SECOND ORDER STATIONS

D	PILE SPACING IN DIRECTION OF LOADING
1.00	8B
0.85	7B
0.70	6B
0.55	5B
0.40	4B
0.25	3B
C	LOADING CONDITION
1.00	INITIAL LOADING
0.30	CYCLIC LOADING



NOTES: $K_H = \alpha K_1/B = (0.2222\,q_u/B)(C)(D)$ COHESIVE

α = 0.4 = Factor of material properties of soil and pile

k_1 = Modulus of subgrade reaction for test plate (pci)

B_1 = Width or diameter of test plate (in)

$K_1 = k_1 B_1 = 80\,q_u$ (psf) = 0.5556 q_u (psi)

$q_u = 2 \cdot c$ = Unconfined compressive strength (psf)

C = Reduction for cyclic loading-not applicable

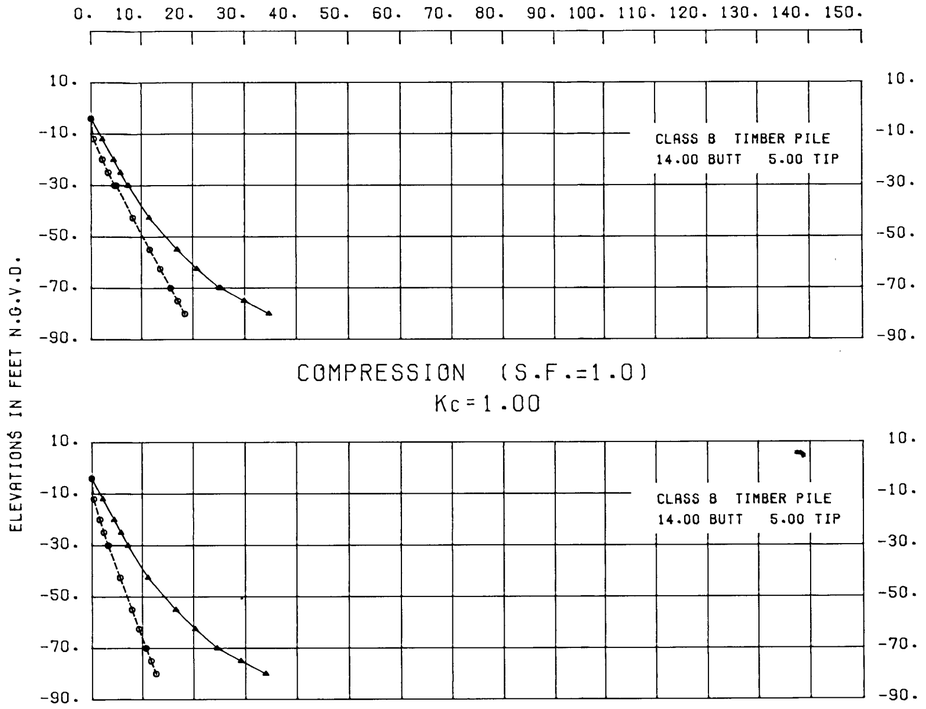
D = Group effect reduction factor

B = Width of pile measured at right angles to the direction of displacement (in)

$K_H = (nh)(Z/B)(C)(D)$ COHESIONLESS

nh = Coefficient of horizontal subgrade reaction (pci)

Z = Depth below equivalent ground surface (in)



THE FACTOR SHOWN, (MODULUS OF HORIZONTAL SUBGRADE K_h, TIMES THE PILE WIDTH IN INCHES (B), MEASURED AT RIGHT ANGLES TO THE DIRECTION OF DISPLACEMENT) MUST BE MODIFIED BY A REDUCTION FACTOR FOR THE EFFECT OF GROUP ACTION (D) AND A REDUCTION FACTOR FOR CYCLIC LOADING (C) EX: $K_h = \frac{0.2222\,q_u\,(C)(D)}{(B)}$

----- S-CASE
——— Q-CASE

WESTWEGO TO HARVEY CANAL, LOUISIANA
HURRICANE PROTECTION PROJECT
DESIGN MEMORANDUM NO. 1 GENERAL DESIGN
SUPPLEMENT NO. 2
NEW HARVEY PUMPING STATION
14 - INCH TIMBER PILE
PILE CAPACITY CURVE

U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

DATE: FEB 90 FILE NO. H-2-30618

UNIFIED SOIL CLASSIFICATION

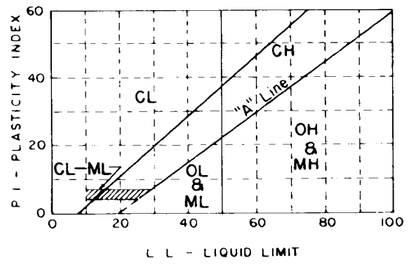
MAJOR DIVISION		TYPE	LETTER SYMBOL	SYMBOL	TYPICAL NAMES
COARSE - GRAINED SOILS More than half of material is larger than No 200 sieve size	GRAVELS More than half of coarse fraction is larger than No 4 sieve size	CLEAN GRAVEL (Little or No Fines)	GW		GRAVEL, Well Graded, gravel-sand mixtures, little or no fines
			GP		GRAVEL, Poorly Graded, gravel-sand mixtures, little or no fines
		GRAVEL WITH FINES (Appreciable Amount of Fines)	GM		SILTY GRAVEL, gravel-sand-silt mixtures
			GC		CLAYEY GRAVEL, gravel-sand-clay mixtures
	SANDS More than half of coarse fraction is smaller than No 4 sieve size	CLEAN SAND (Little or No Fines)	SW		SAND, Well-Graded, gravelly sands
			SP		SAND, Poorly-Graded, gravelly sands
		SANDS WITH FINES (Appreciable Amount of Fines)	SM		SILTY SAND, sand-silt mixtures
			SC		CLAYEY SAND, sand-clay mixtures
FINE - GRAINED SOILS More than half the material is smaller than No. 200 sieve size		SILTS AND CLAYS (Liquid Limit <50)	ML		SILT & very fine sand, silty or clayey fine sand or clayey silt with slight plasticity
			CL		LEAN CLAY; Sandy Clay; Silty Clay, of low to medium plasticity
			OL		ORGANIC SILTS and organic silty clays of low plasticity
		SILTS AND CLAYS (Liquid Limit >50)	MH		SILT, fine sandy or silty soil with high plasticity
			CH		FAT CLAY, inorganic clay of high plasticity
			OH		ORGANIC CLAYS of medium to high plasticity, organic silts
HIGHLY ORGANIC SOILS			Pt		PEAT, and other highly organic soil
WOOD			Wd		WOOD
SHELLS			Sl		SHELLS
NO SAMPLE					

NOTE: Soils possessing characteristics of two groups are designated by combinations of group symbols

DESCRIPTIVE SYMBOLS

COLOR	
COLOR	SYMBOL
TAN	T
YELLOW	Y
RED	R
BLACK	BK
GRAY	Gr
LIGHT GRAY	lGr
DARK GRAY	dGr
BROWN	Br
LIGHT BROWN	lBr
DARK BROWN	dBr
BROWNISH-GRAY	br Gr
GRAYISH-BROWN	gy Br
GREENISH-GRAY	gn Gr
GRAYISH-GREEN	gy Gn
GREEN	Gn
BLUE	Bl
BLUE-GREEN	Bl Gn
WHITE	Wh
MOTTLED	Mot

CONSISTENCY FOR COHESIVE SOILS		
CONSISTENCY	COHESION IN LBS./SQ. FT. FROM UNCONFINED COMPRESSION TEST	SYMBOL
VERY SOFT	< 250	vSo
SOFT	250 - 500	So
MEDIUM	500 - 1000	M
STIFF	1000 - 2000	St
VERY STIFF	2000 - 4000	vSt
HARD	> 4000	H



PLASTICITY CHART
For classification of fine-grained soils

MODIFICATIONS	
MODIFICATION	SYMBOL
Traces	Tr-
Fine	F
Medium	M
Coarse	C
Concretions	cc
Rootlets	rt
Lignite fragments	lg
Shale fragments	sh
Sandstone fragments	sds
Shell fragments	slf
Organic matter	O
Clay strata or lenses	CS
Silt strata or lenses	SIS
Sand strata or lenses	SS
Sandy	S
Gravelly	G
Boulders	B
Slickensides	SL
Wood	Wd
Oxidized	Ox

NOTES:

FIGURES TO LEFT OF BORING UNDER COLUMN "W OR D_{10}"

Are natural water contents in percent dry weight

When underlined denotes D_{10} size in mm*

FIGURES TO LEFT OF BORING UNDER COLUMNS "LL" AND "PL"

Are liquid and plastic limits, respectively

SYMBOLS TO LEFT OF BORING

▽ Ground-water surface and date observed

Ⓒ Denotes location of consolidation test**

Ⓢ Denotes location of consolidated-drained direct shear test**

Ⓡ Denotes location of consolidated-undrained triaxial compression test**

Ⓠ Denotes location of unconsolidated-undrained triaxial compression test**

Ⓣ Denotes location of sample subjected to consolidation test and each of the above three types of shear tests**

FW Denotes free water encountered in boring or sample

FIGURES TO RIGHT OF BORING

Are values of cohesion in lbs./sq. ft. from unconfined compression tests

In parenthesis are driving resistances in blows per foot determined with a standard split spoon sampler ($1\frac{3}{8}$" I.D., 2" O.D.) and a 140 lb. driving hammer with a 30" drop

Where underlined with a solid line denotes laboratory permeability in centimeters per second of undisturbed sample

Where underlined with a dashed line denotes laboratory permeability in centimeters per second of sample remoulded to the estimated natural void ratio

*The D_{10} size of a soil is the grain diameter in millimeters of which 10% of the soil is finer, and 90% coarser than D_{10}

**Results of these tests are available for inspection in the U.S. Army Engineer District Office, if these symbols appear beside the boring logs on the drawings

TYPICAL NOTES

While the borings are representative of subsurface conditions at their respective locations and for their respective vertical reaches, local variations characteristic of the subsurface materials of the region are anticipated and, if encountered, such variations will not be considered as differing materially within the purview of the contract clause entitled "Differing Site Conditions".

Ground-water elevations shown on the boring logs represents ground-water surfaces encountered in such borings on the dates shown. Absence of water surface data on certain borings indicates that no ground-water data are available from the boring but does not necessarily mean that ground-water will not be encountered at the locations or within the vertical reaches of such borings.

Consistency of cohesive soils shown on the boring logs is based on driller's log and visual examination and is approximate, except within those vertical reaches of the borings where shear strengths from unconfined compression tests are shown.

SOIL BORING LEGEND

U S ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS
1 JUNE 1987 FILE NO H-2-21800

PLATE A