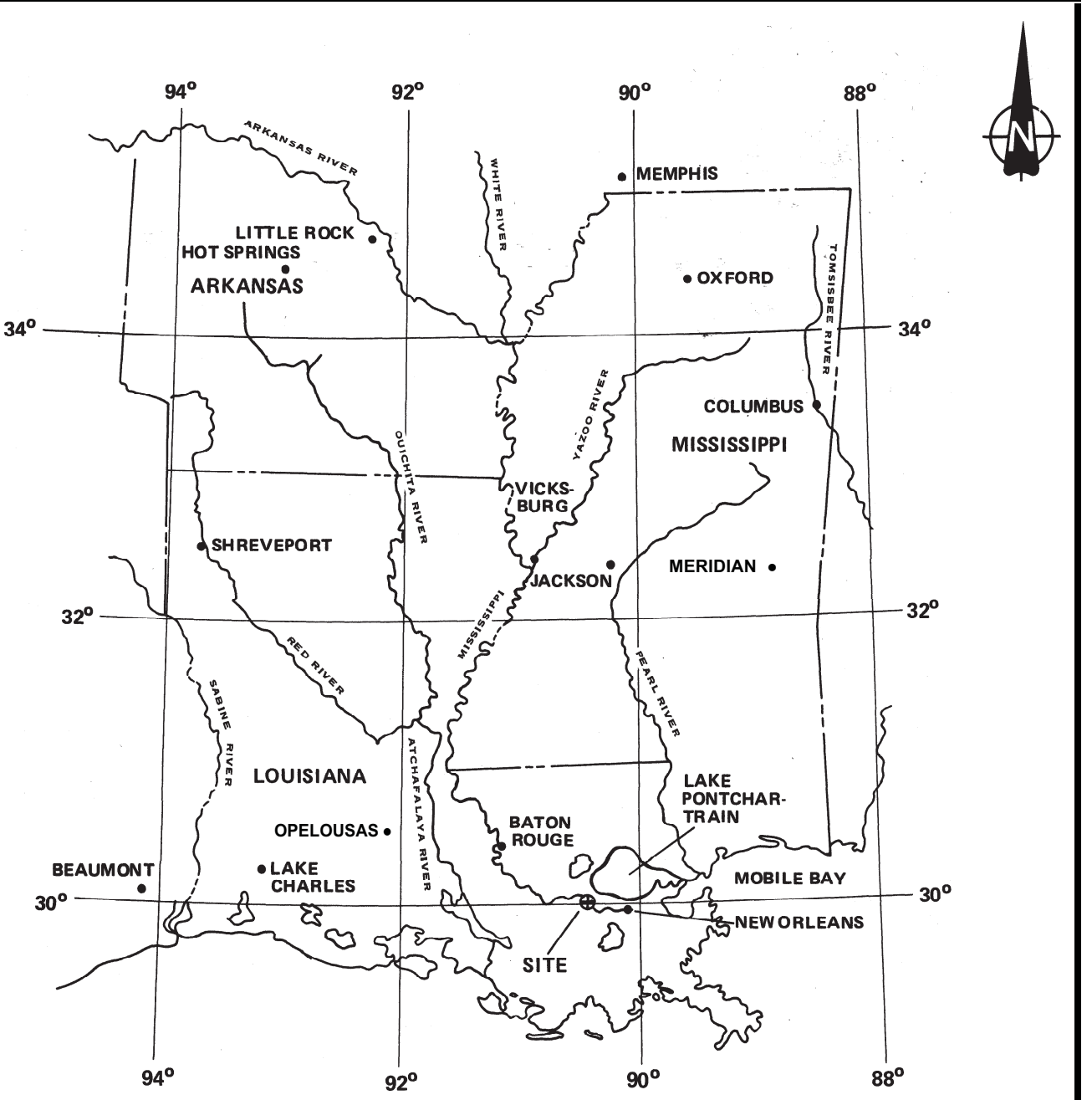


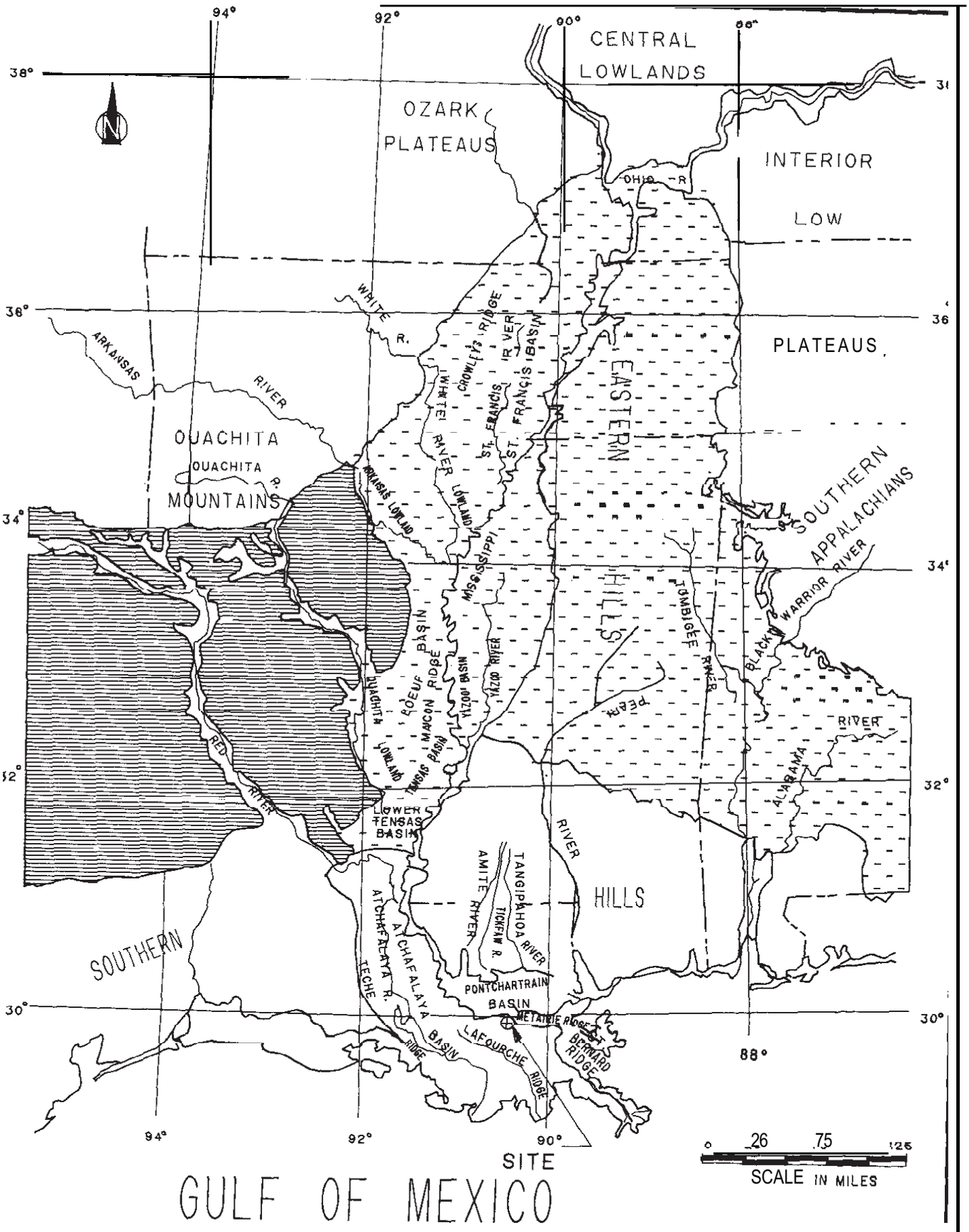
GULF OF MEXICO

0 . 40 80 160 240

SCALE IN MILES

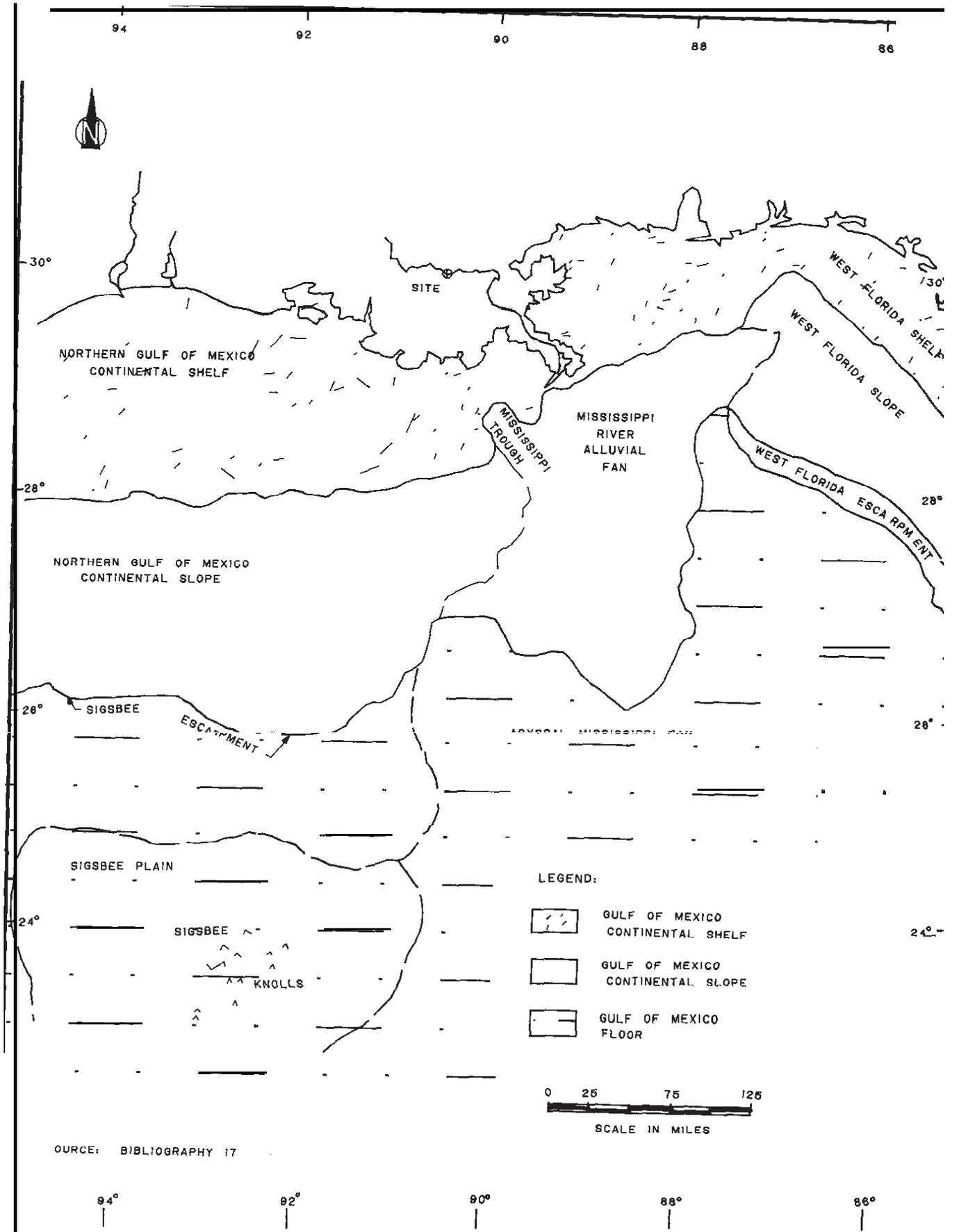
SOURCE: REF. 1

LOUISIANA POWER & LIGHT CO. Waterford Steam Electric Station	**SITE LOCATION MAP**	Figure **2.5-I**



SOURCE: REF. 2.5.1

LOUISIANA POWER & LIGHT CO. Waterford Steam Electric Station #3	REGIONAL PHYSIOGRAPHIC MAP (LAND)	Figure 2.5-2



LOUISIANA
POWER & LIGHT CO.
Waterford Steam
Electric Station #3

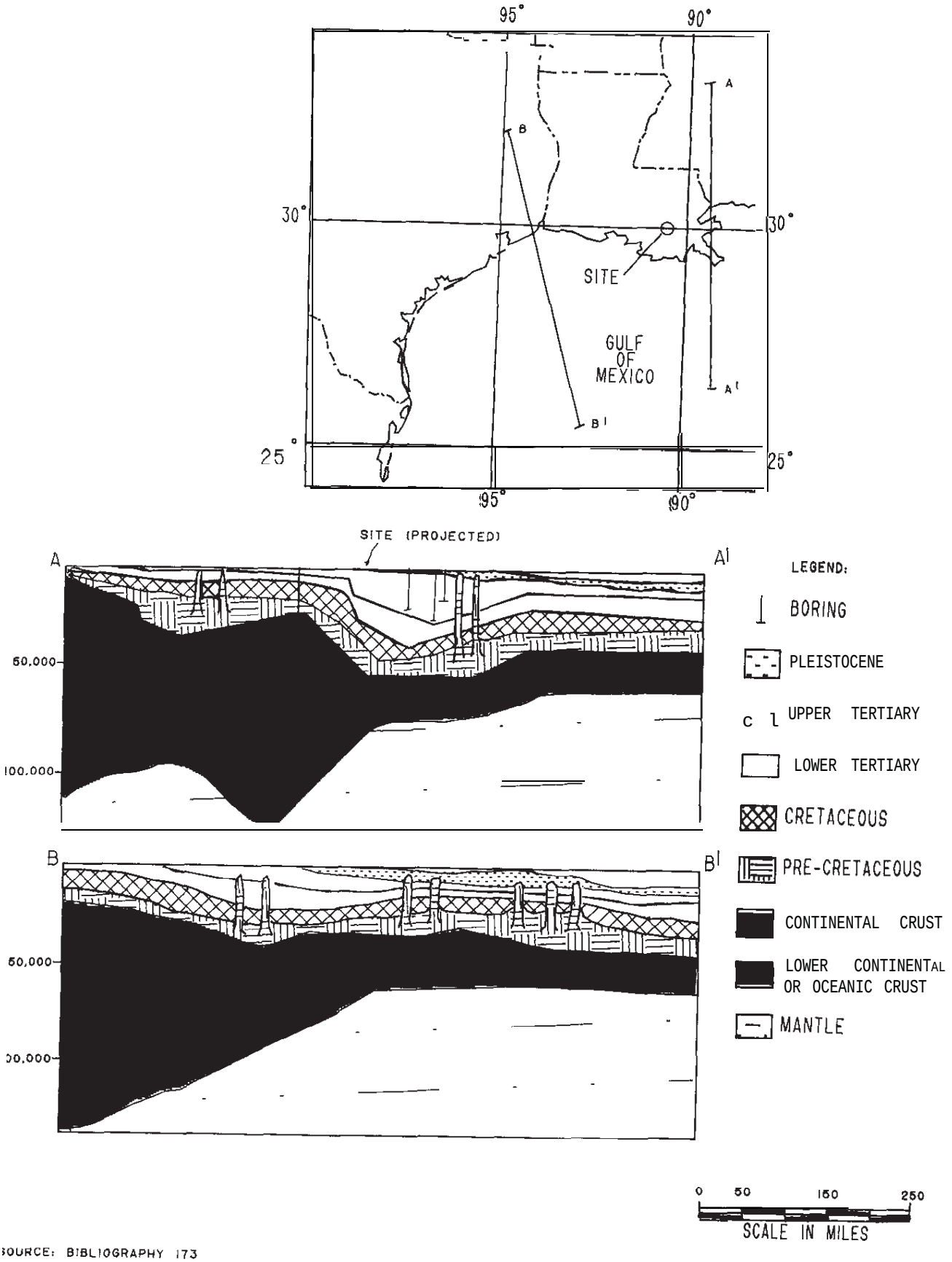
REGIONAL PHYSIOGRAPHIC (SUBMARINE)

Figure
2.5-3

LOUISIANA
WER & LIGHT CO.
Waterford Steam
Electric Station

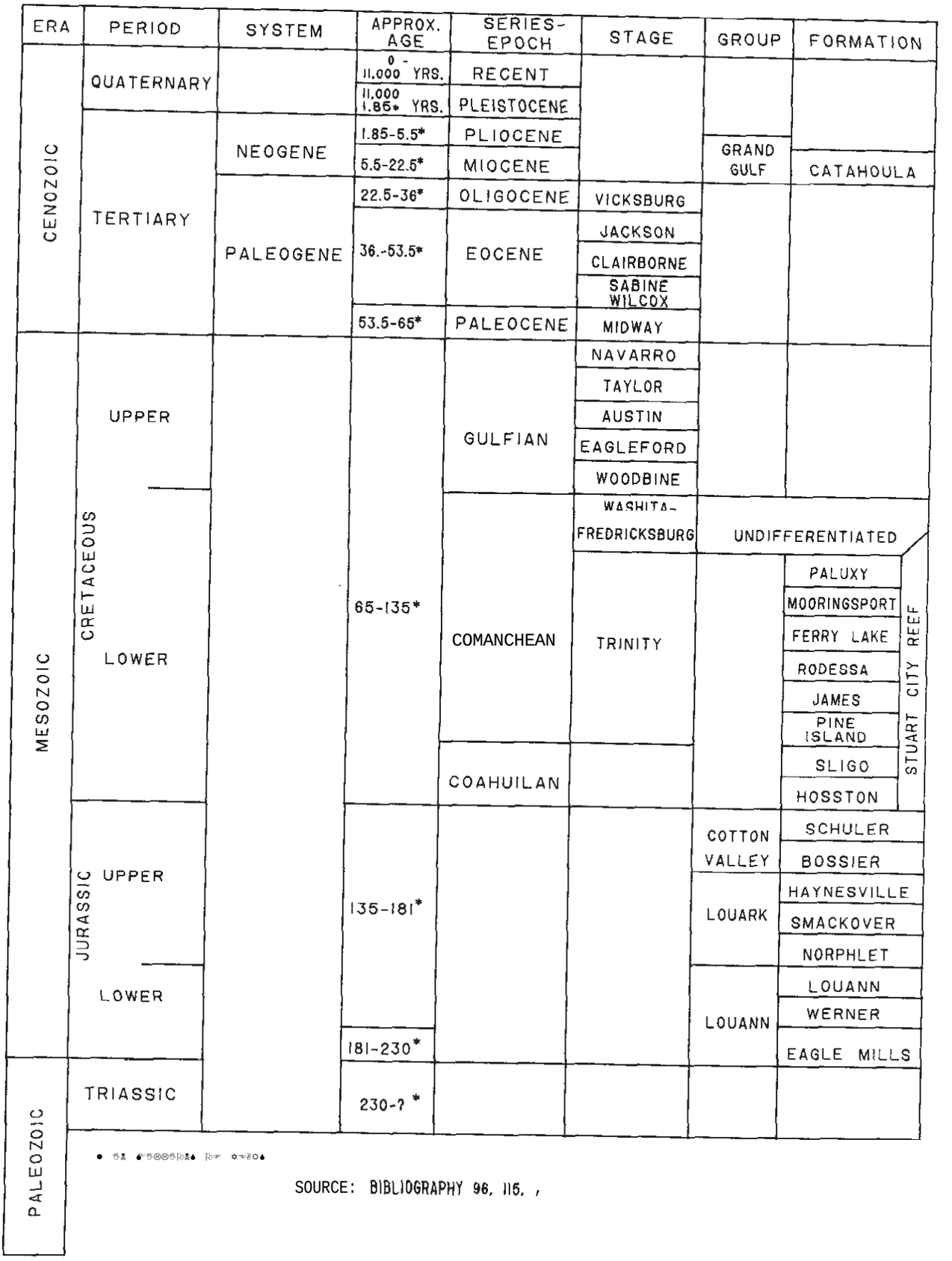
DELTAS OF THE MISSISSIPPI RIVER

Figure
2.5-4



SOURCE: BIBLIOGRAPHY 173

LOUISIANA OWER 8 LIGHT CO. Waterford Steam lectrlc Stotlon #3	GENERALIZED REGIONAL CROSS-SECTIONS	Flgure 2.5-5

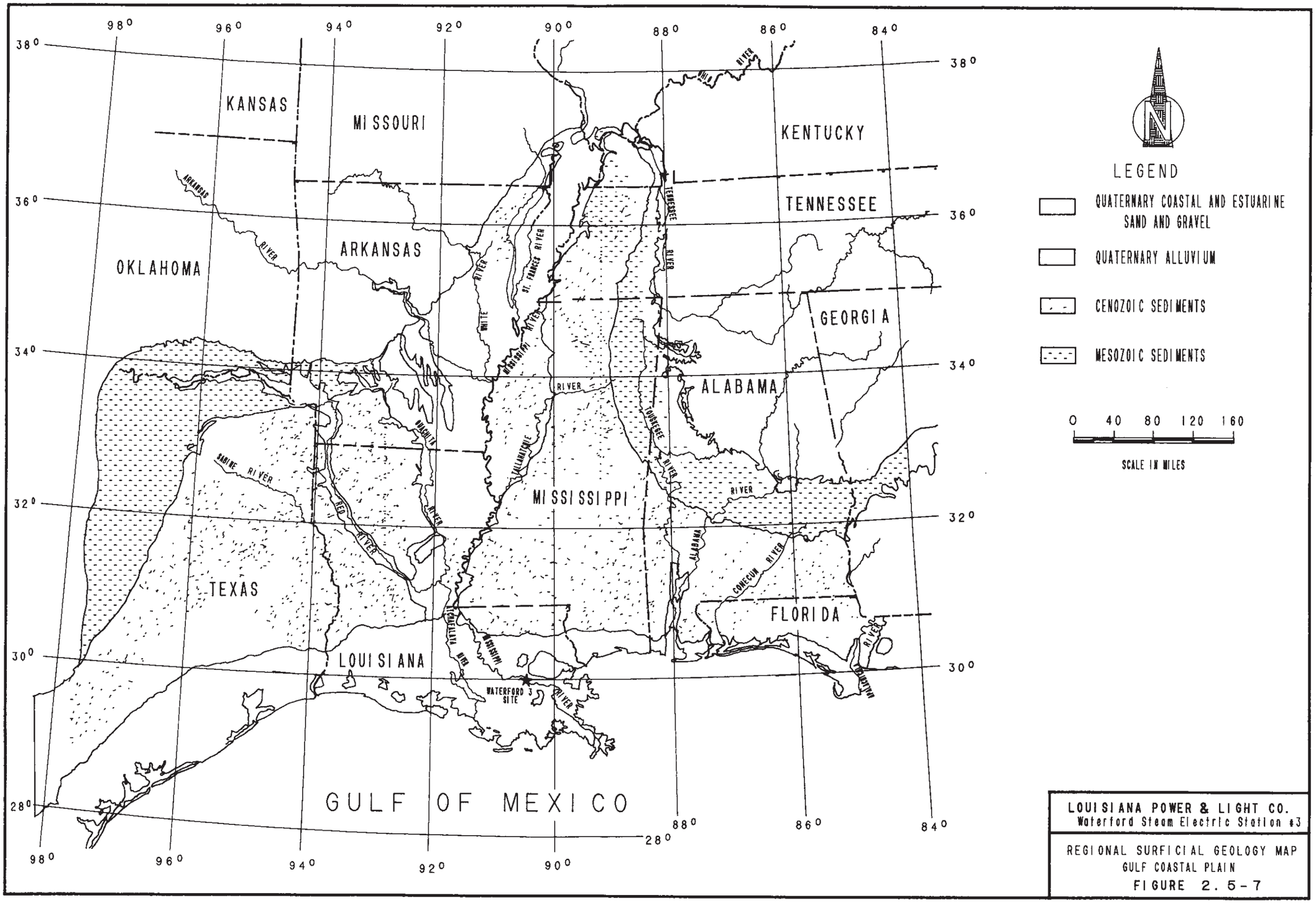


SOURCE: BIBLIOGRAPHY 96, 115. ,

LOUISIANA POWER & LIGHT CO.
Waterford Steam Electric Station #3

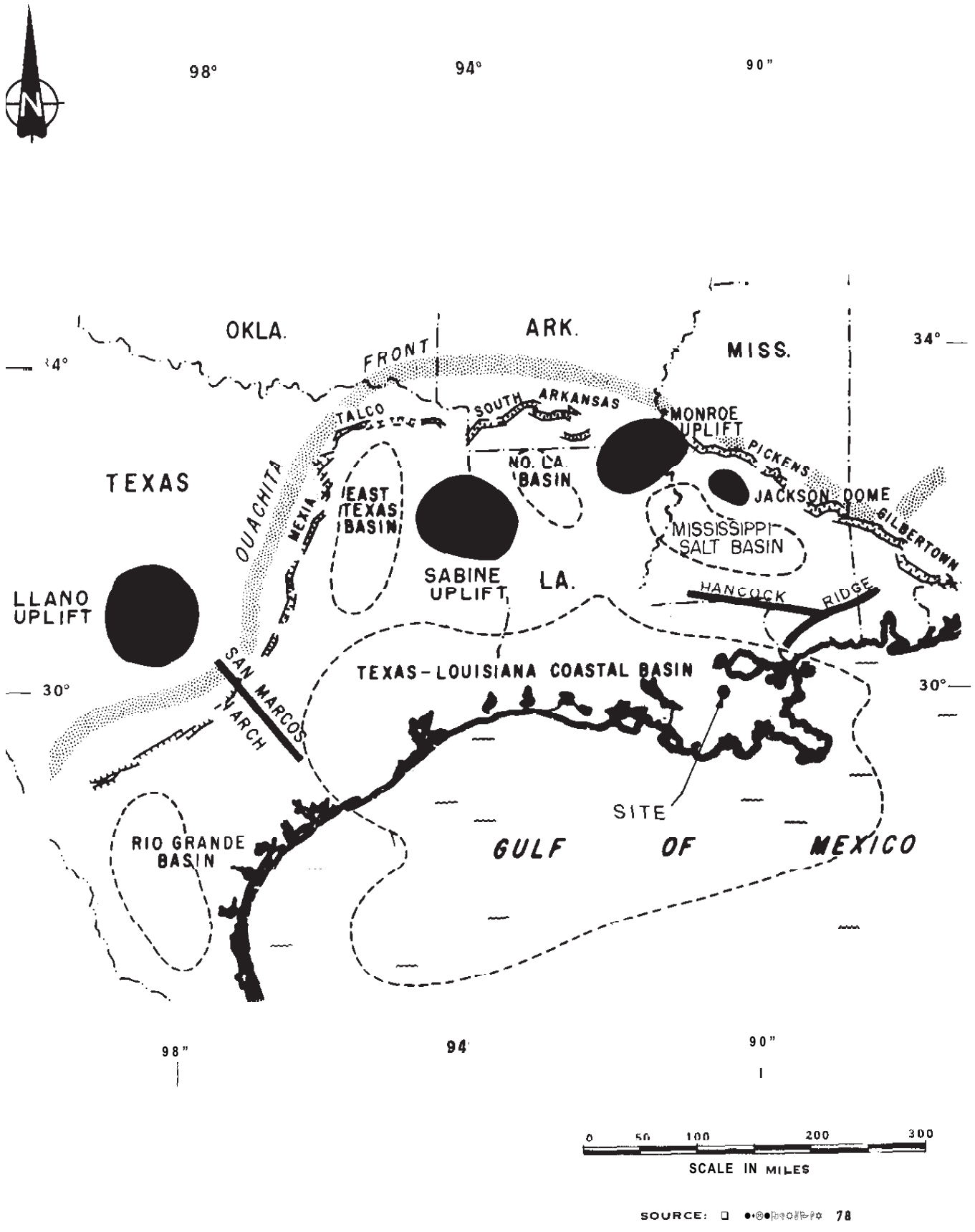
REGIONAL STRATIGRAPHIC COLUMN

Figure 2.5-6

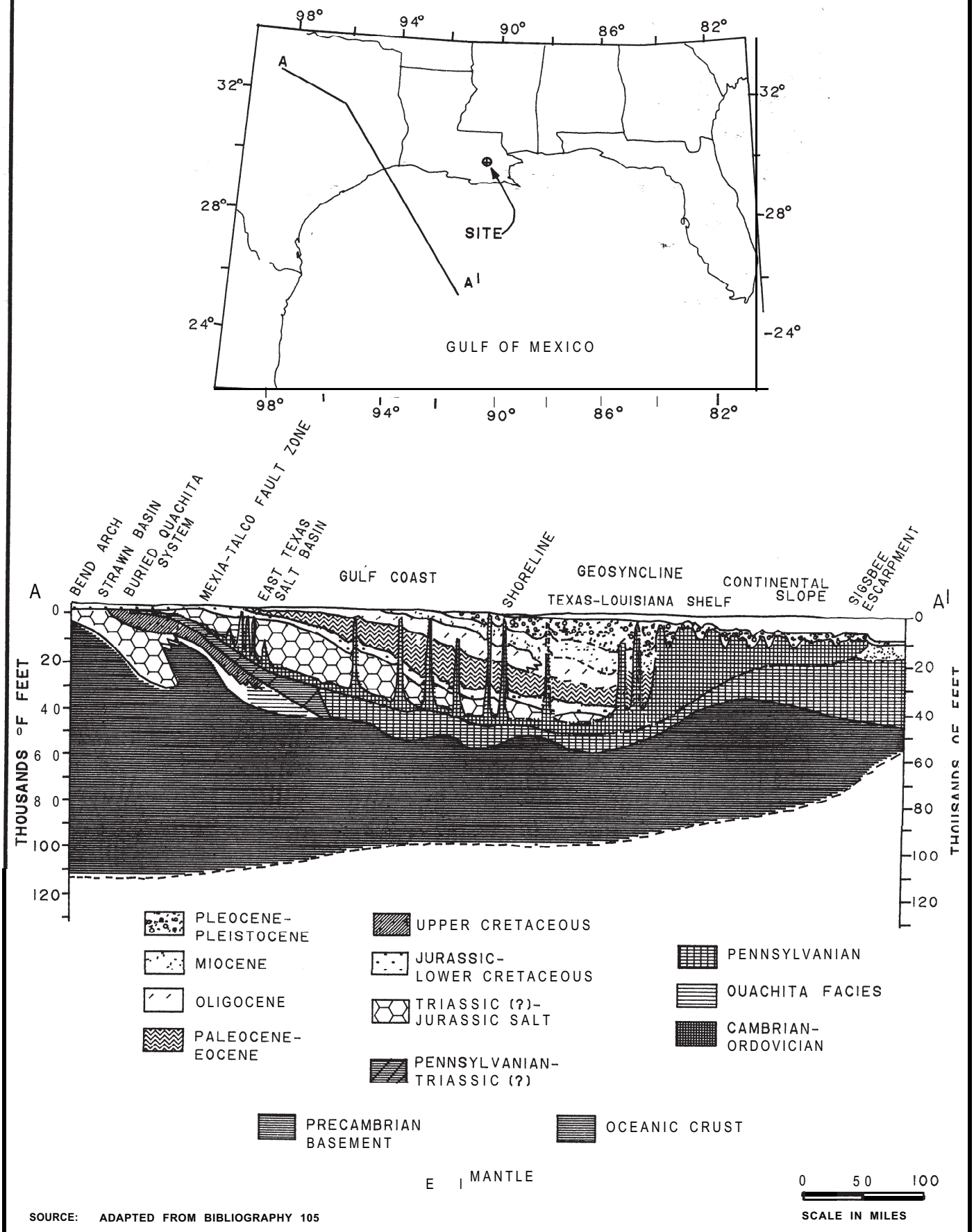


LOUISIANA POWER & LIGHT CO.
Waterford Steam Electric Station #3

REGIONAL SURFICIAL GEOLOGY MAP
GULF COASTAL PLAIN
FIGURE 2.5-7

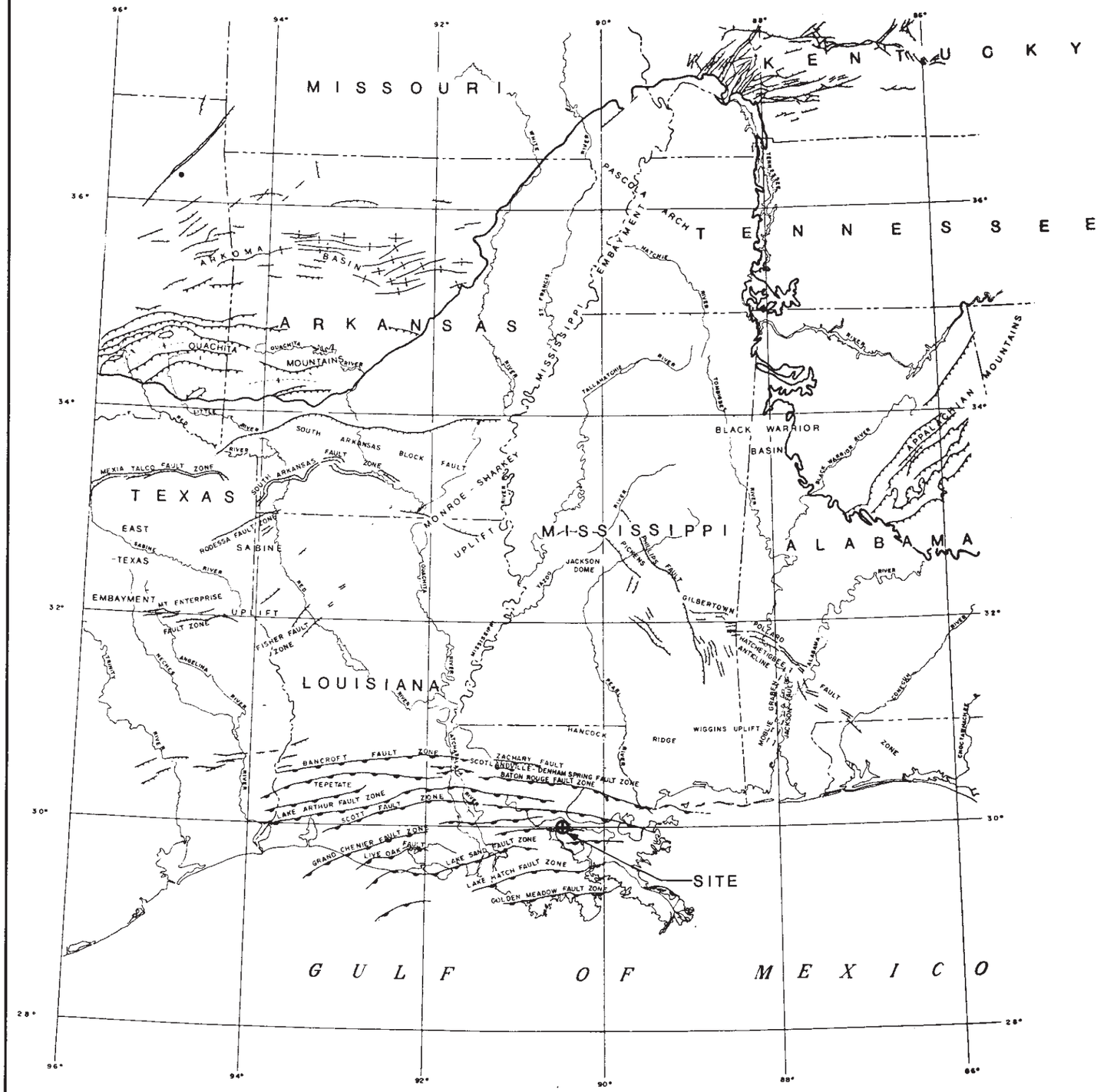


LOUISIANA POWER & LIGHT CO. Waterford Steam Electric Station	SALT BASIN LOCATIONS (GENERALIZED)	Figure 2.5-8



SOURCE: ADAPTED FROM BIBLIOGRAPHY 105

LOUISIANA POWER 8 LIGHT CO. Waterford Steam Electric Station #3	GENERALIZED REGIONAL GROSS-SECTIONS	Figure 2.5-9



LEGEND

ANTICLINE

SYNCLINE

THRUST FAULT
SAW TEETH ON UPTHROWN SIDE

NORMAL FAULT
HATCHURES ON DOWNTHROWN SIDE

BOUNDARY OF GULF COASTAL PROVINCE

GROWTH FAULT
WITH SYMBOLS ON LOWER SIDE

0 40 80 120 160

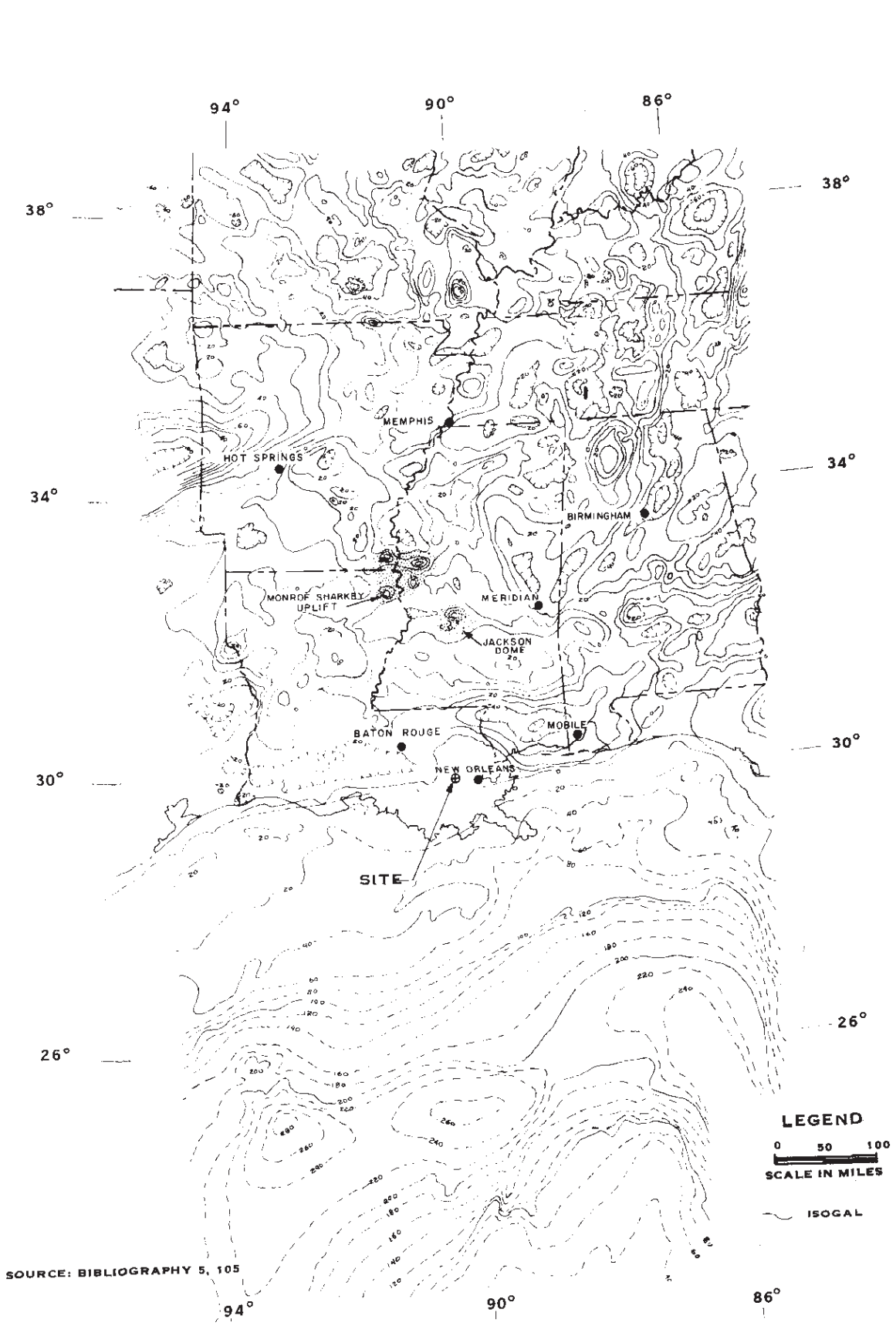
SCALE IN MILES

SOURCE: BIBLIOGRAPHY 78, 115, 140, 154

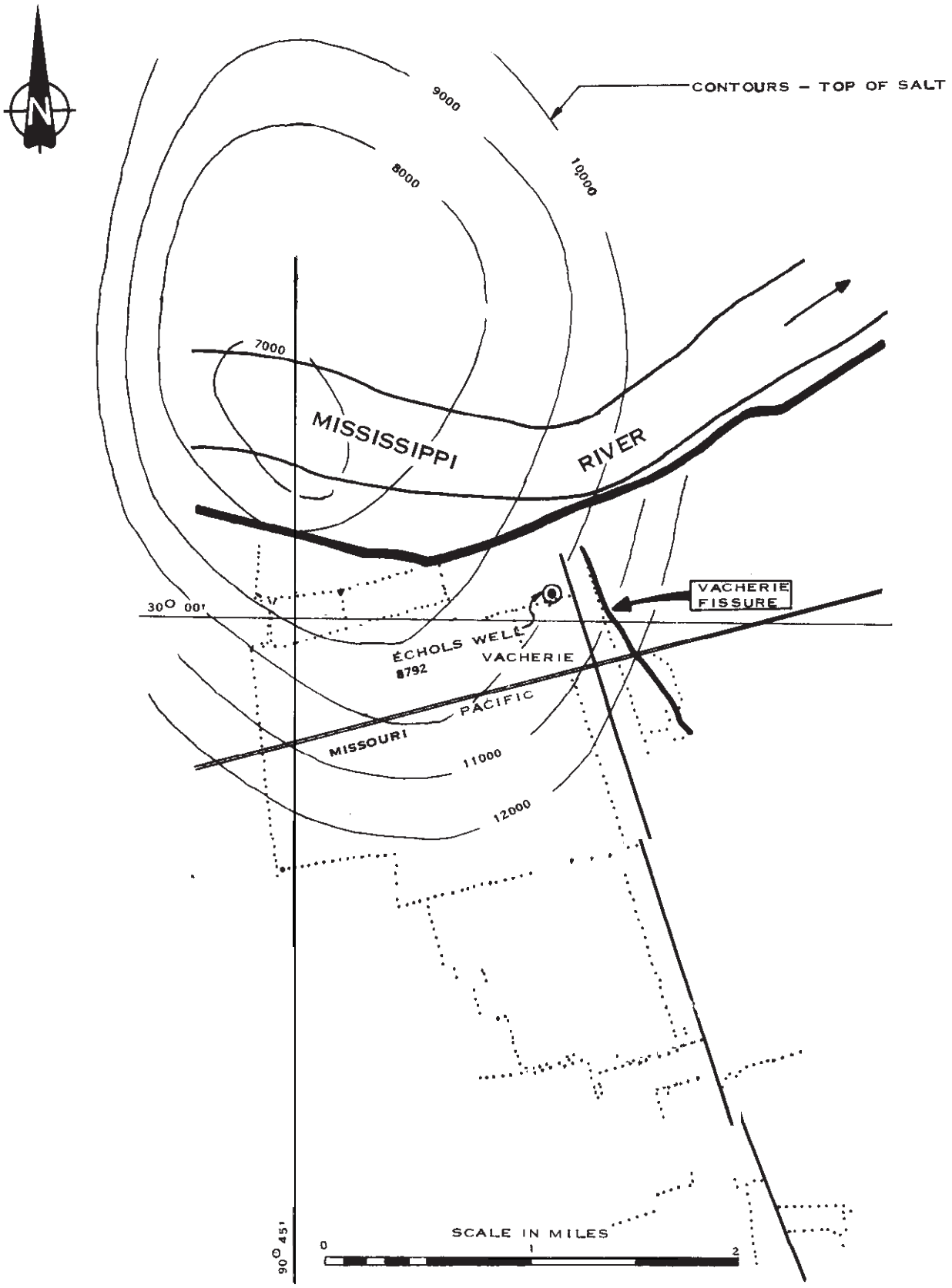
LOUISIANA POWER & LIGHT CO.
Waterford Steam Electric Station

REGIONAL STRUCTURE MAP

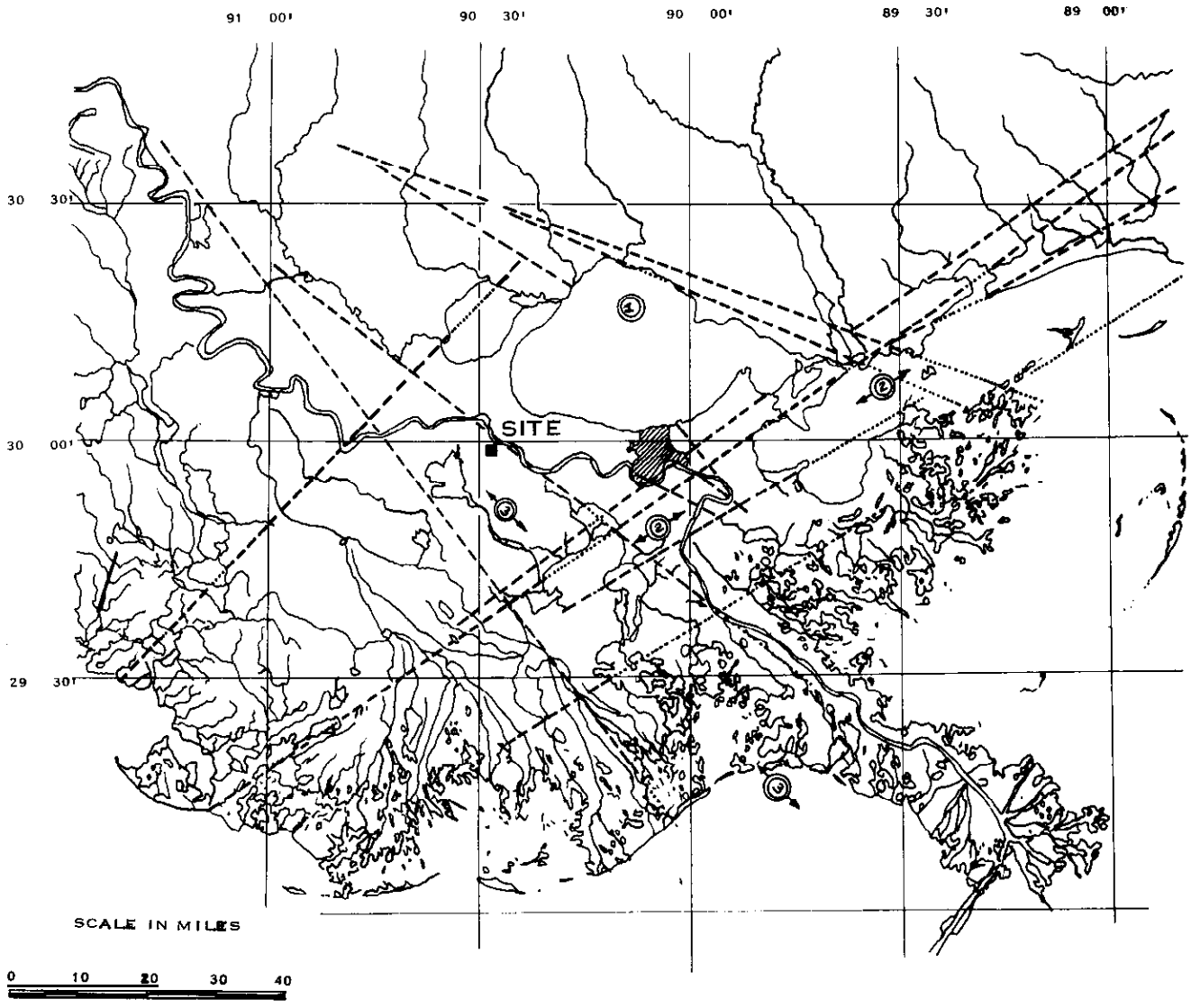
FIGURE 2.5-10



LOUISIANA POWER & LIGHT CO. Waterford Steam Electric Station	**REGIONAL BOUGUER GRAVITY ANOMALY MAP**	**Figure 2.5-I 1**

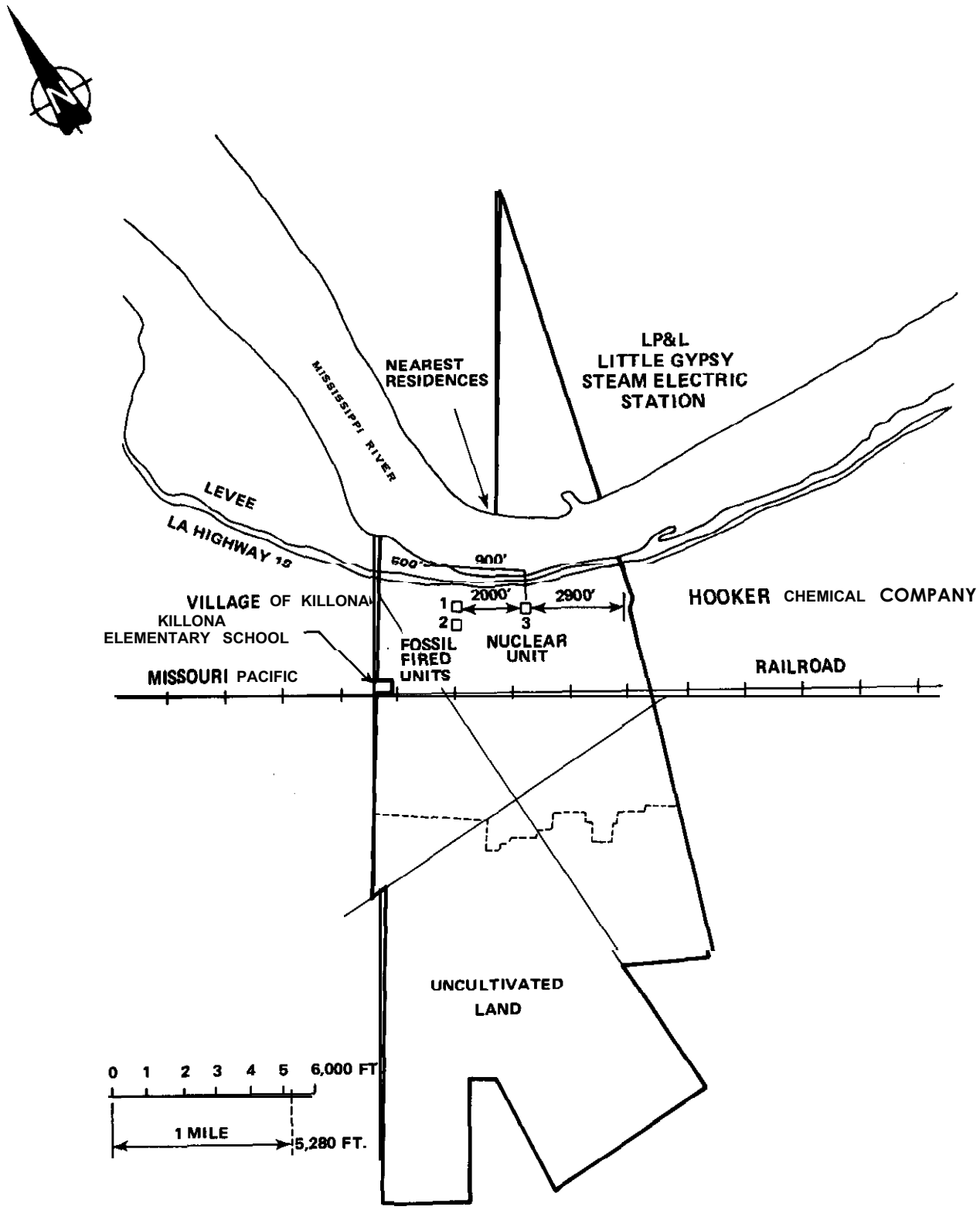


LOUISIANA POWER & LIGHT CO. Waterford Steam **Electric Station**	**VACHERIE FISSURE**	**Figure 2.5-12**

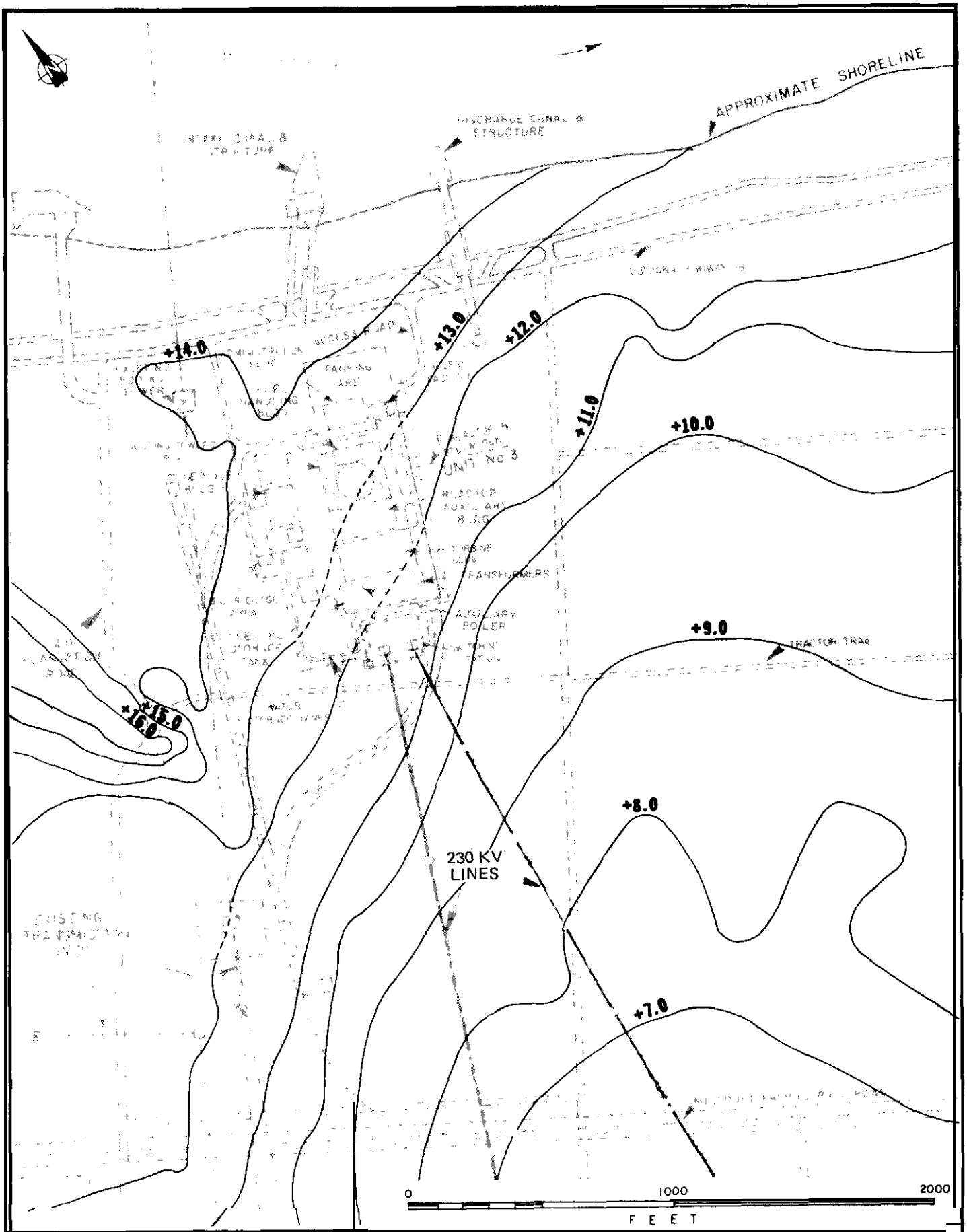


NOTE: POSITION OF FAULT ZONES DETERMINED FROM THEIR PHYSIOGRAPHIC EXPRESSION (AFTER FISK, 1944)

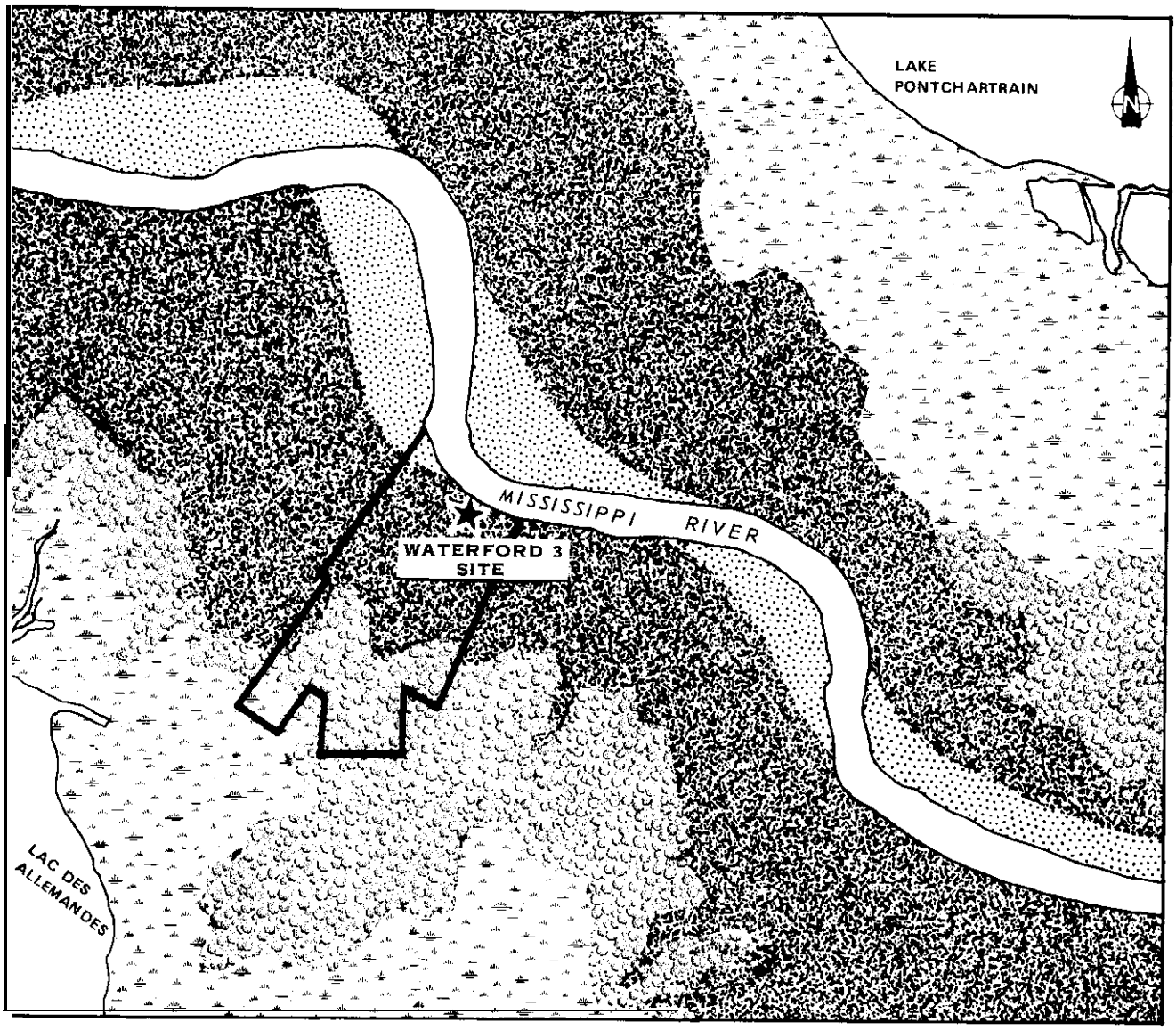
LOUISIANA POWER & LIGHT CO. Waterford Steam Electric Station	FISK'S FEATURES OF THE DELTAIC PLAIN	Figure 2.5–13



LOUISIANA POWER & LIGHT CO. Waterford Steam Electric Station	WATERFORD SITE BOUNDARIES	Figure 2.5-14



LOUISIANA POWER & LIGHT CO. Waterford Steam Electric Station	TOPOGRAPHIC MAP OF SITE AND VICINITY	Figure 2.5-15



LEGEND:

RECENT DEPOSITS LESS THAN 5,500 YEARS OLD

POINT BAR DEPOSITS -- POORLY GRADED FINE SANDS AND SILTS. THESE DEPOSITS ARE PRESENTLY COVERED BY NATURAL LEVEE.

NATURAL LEVEE -- FIRM TO STIFF SILTY CLAYS, WELL OXIDIZED. GRAIN SIZE DECREASES WITH INCREASING DISTANCE FROM RIVER

SWAMP

MARSH

SOFT, HIGHLY ORGANIC, WET CLAYS WITH SOME SILT AND PEAT LENSES.

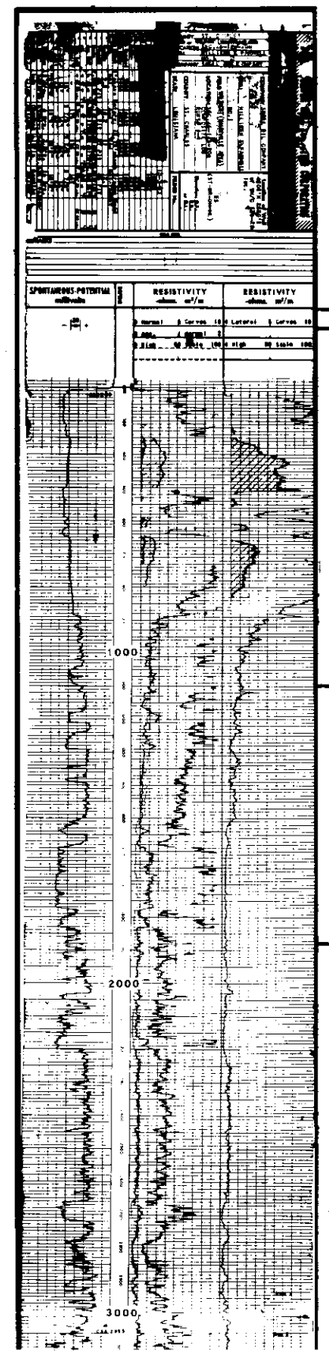
0 1 2

SCALE IN MILES

LOUISIANA POWER & LIGHT CO.
Waterford Steam Electric Station

SURFACE GEOLOGY IN THE SITE AREA

Figure 2.5-16



WELL NO. 26:
SHELL OIL COMPANY,
MILLIKEN AND FARWELL,
NO. 1
(700 FEET NORTHWEST OF UNIT III)

(0')
(50')

RECENT

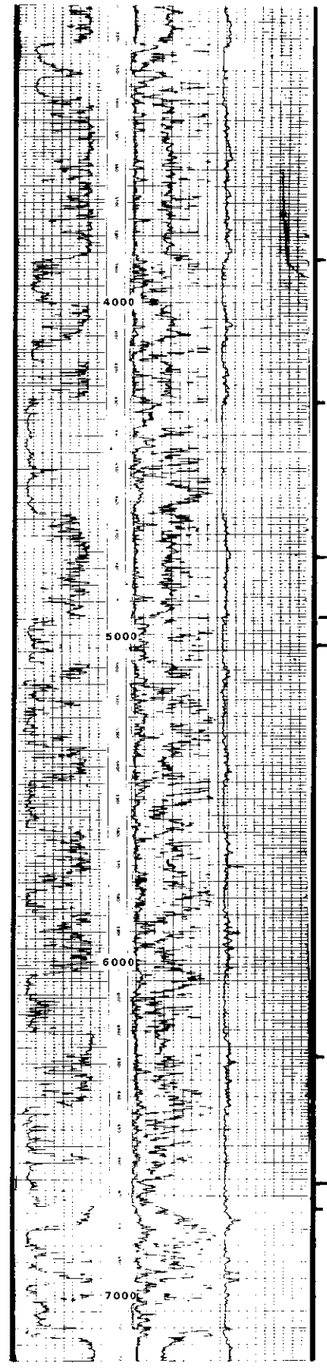
PLEISTOCENE

PLIO – PLEISTOCENE

(CITRONELLE FORMATION)

PLIOCENE

NOTE: ALL STRATIGRAPHIC BOUNDARIES ARE APPROXIMATED BASED ON PALEONTOLOGIC MARKERS OR CORRELATION FROM OTHER STUDIES IN THE VICINITY, WITH THE EXCEPTION OF THE RECENT - PLEISTOCENE BOUNDARY, WHICH IS BASED ON SITE BORINGS



PLIOCENE

ELECTRIC LOG MARKER NO. 1 TOP OF 130 FT. - THICK SAND UNIT. SEE SITE STRUCTURE HORIZON 1 (FIG. 2.5-19)

ELECTRIC LOG MARKER NO. 2 TOP OF 350 FT. - THICK SAND UNIT. SEE SITE STRUCTURE HORIZON 2 (FIG. 2.5-20)

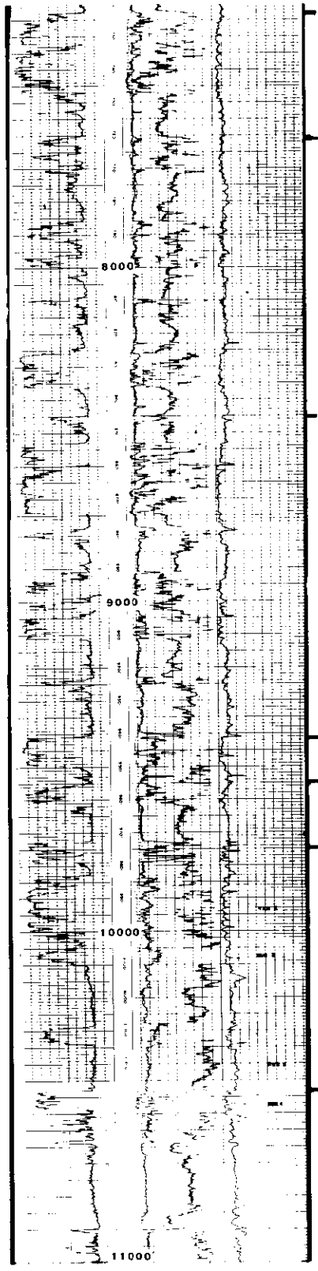
ELECTRIC LOG MARKER NO. 3 NEAR MIDDLE OF 320 FT. - THICK CLAY UNIT. SEE SITE STRUCTURE HORIZON 3 (FIG.2.5-21)

OCCURRENCE OF PALEONTOLOGICAL MARKER RANGIA CUNEATA AND RANGIA JOHNSONI. SUGGESTS TOP OF MIOCENE.

UPPER MIOCENE

ELECTRIC LOG MARKER NO. 4 TOP OF 10 FT. - THICK SAND LAYER AT BASE OF 60 FT. - THICK CLAY UNIT. SEE SITE STRUCTURE HORIZON 4. (FIG. 2.5-22)

OCCURRENCE OF PALEONTOLOGICAL MARKER BIGENERINA HUMBELI OCCURS AT TOP OF MIDDLE MIOCENE.



ELECTRIC LOG MARKER USED IN SITE STRUCTURAL CROSS SECTIONS (FIGS. 2.5-24 THROUGH 2.5-26)

ELECTRIC LOG MARKER USED IN SITE STRUCTURAL CROSS SECTIONS (FIGS. 2.5-24 THROUGH 2.5-26)

MIDDLE MIOCENE

ELECTRIC LOG MARKER USED IN SITE STRUCTURAL CROSS SECTIONS (FIGS. 2.5-24 THROUGH 2.5-26)

OCCURRENCE OF PALEONTOLOGICAL MARKER OPERCULINOIDES SUGGESTS LOWER PORTION OF MIDDLE MIOCENE.

ELECTRIC LOG MARKER NO. 5 CORRESPONDS TO RIDGEFIELD SAND.

SEE SITE STRUCTURE HORIZON 5 (FIG. 2.5-23)

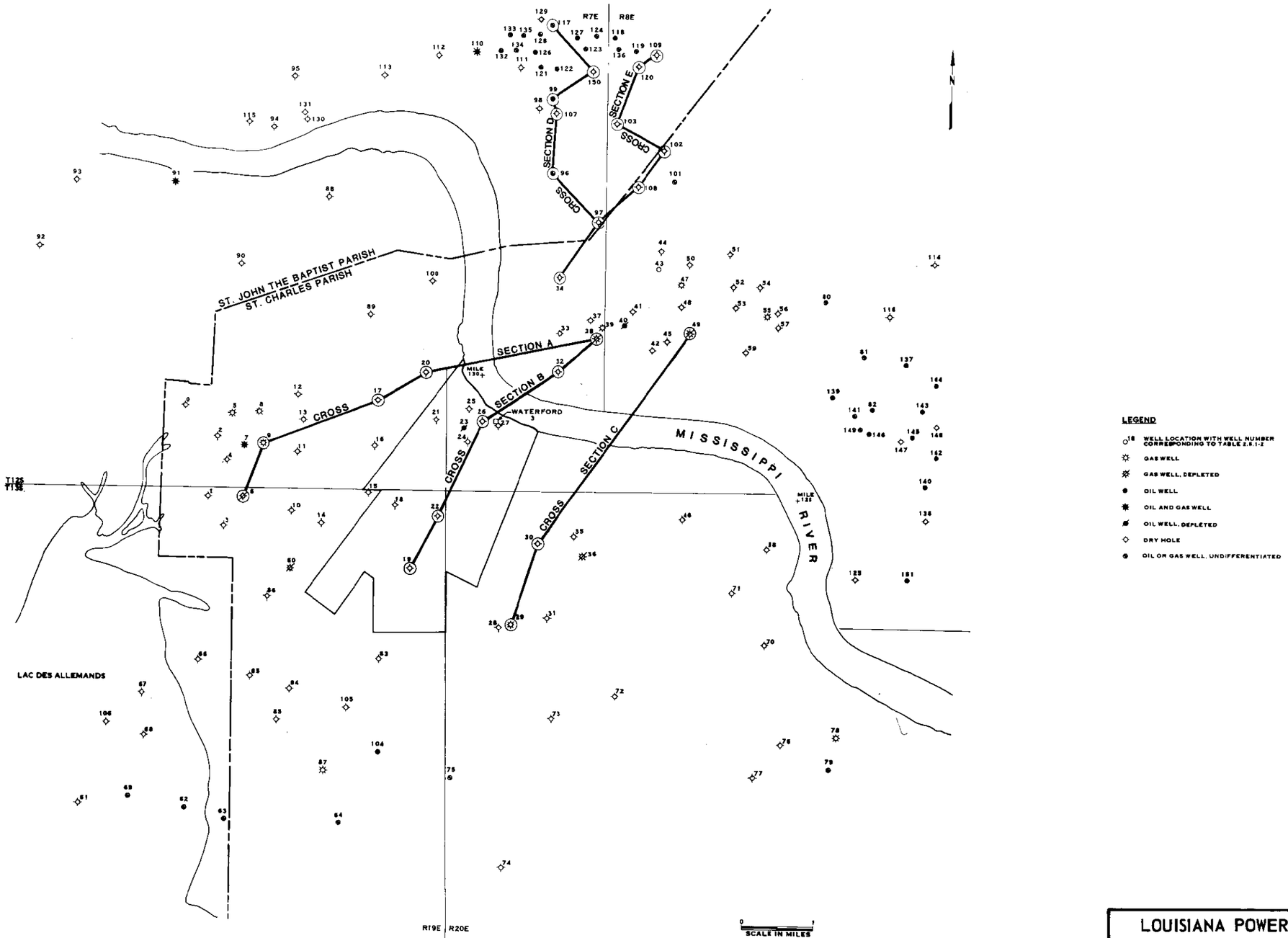
LOWER MIOCENE

ELECTRIC LOG MARKER USED IN SITE STRUCTURAL CROSS SECTION CORRESPONDS TO LUCY SAND

(FIGS. 2.5-24 THROUGH 2.5-26)

LOUISIANA POWER & LIGHT CO.
Waterford Steam Electric Station

EXAMPLE PETROLEUM TEST WELL
ELECTRIC LOG SHOWING SITE AREA
STRATIGRAPHY AND MARKER HORIZONS
FIGURE 2.5-17

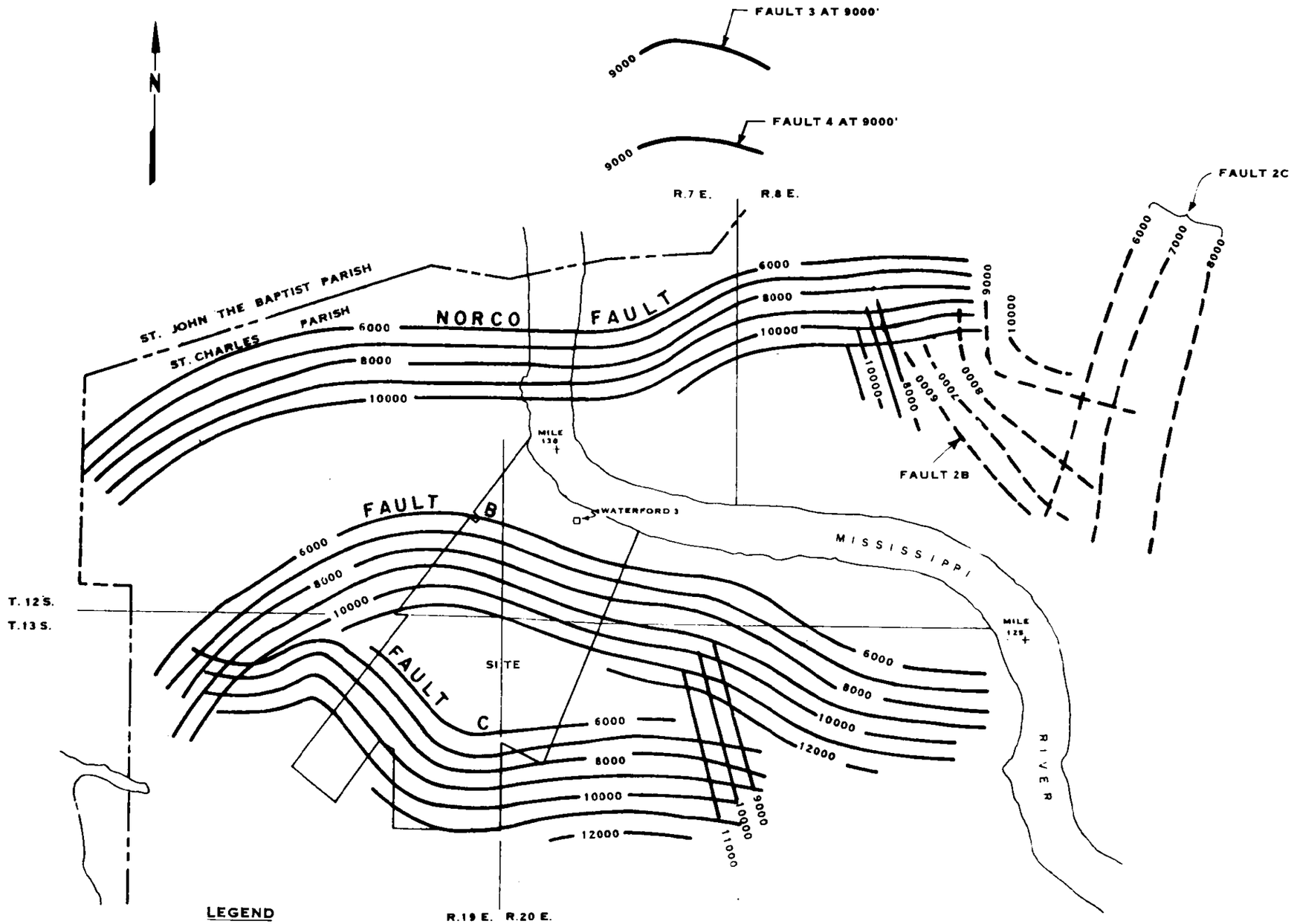


LOUISIANA POWER & LIGHT CO.

Waterford Steam Electric Station

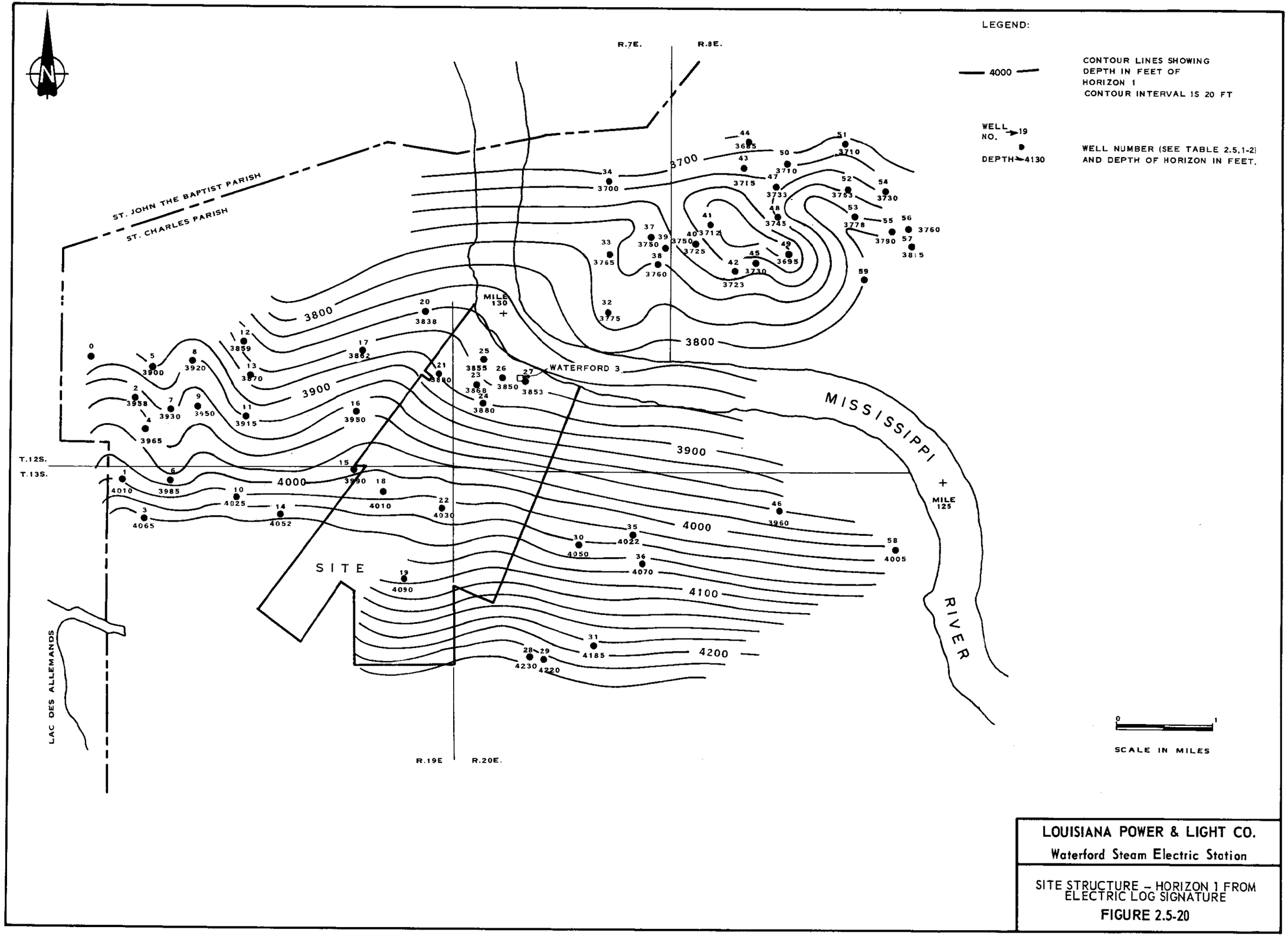
OIL AND GAS TEST WELLS USED IN SITE STRUCTURE STUDY

FIGURE 2.5–18



LOUISIANA POWER & LIGHT CO.
Waterford Steam Electric Station

FAULT SURFACES IN THE SITE AREA
FIGURE 2.5-19

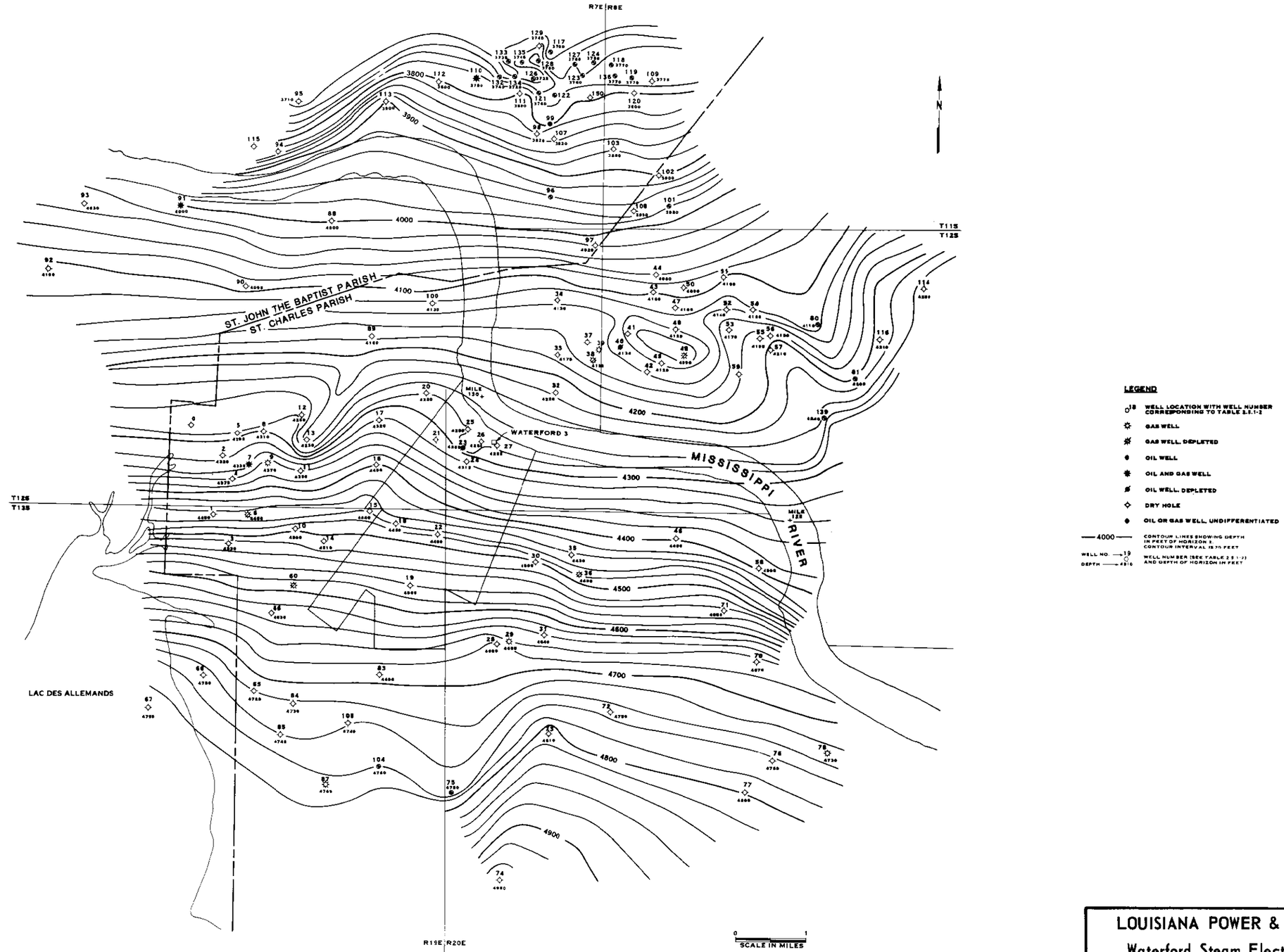


LOUISIANA POWER & LIGHT CO.

Waterford Steam Electric Station

SITE STRUCTURE – HORIZON 1 FROM ELECTRIC LOG SIGNATURE

FIGURE 2.5-20



LEGEND

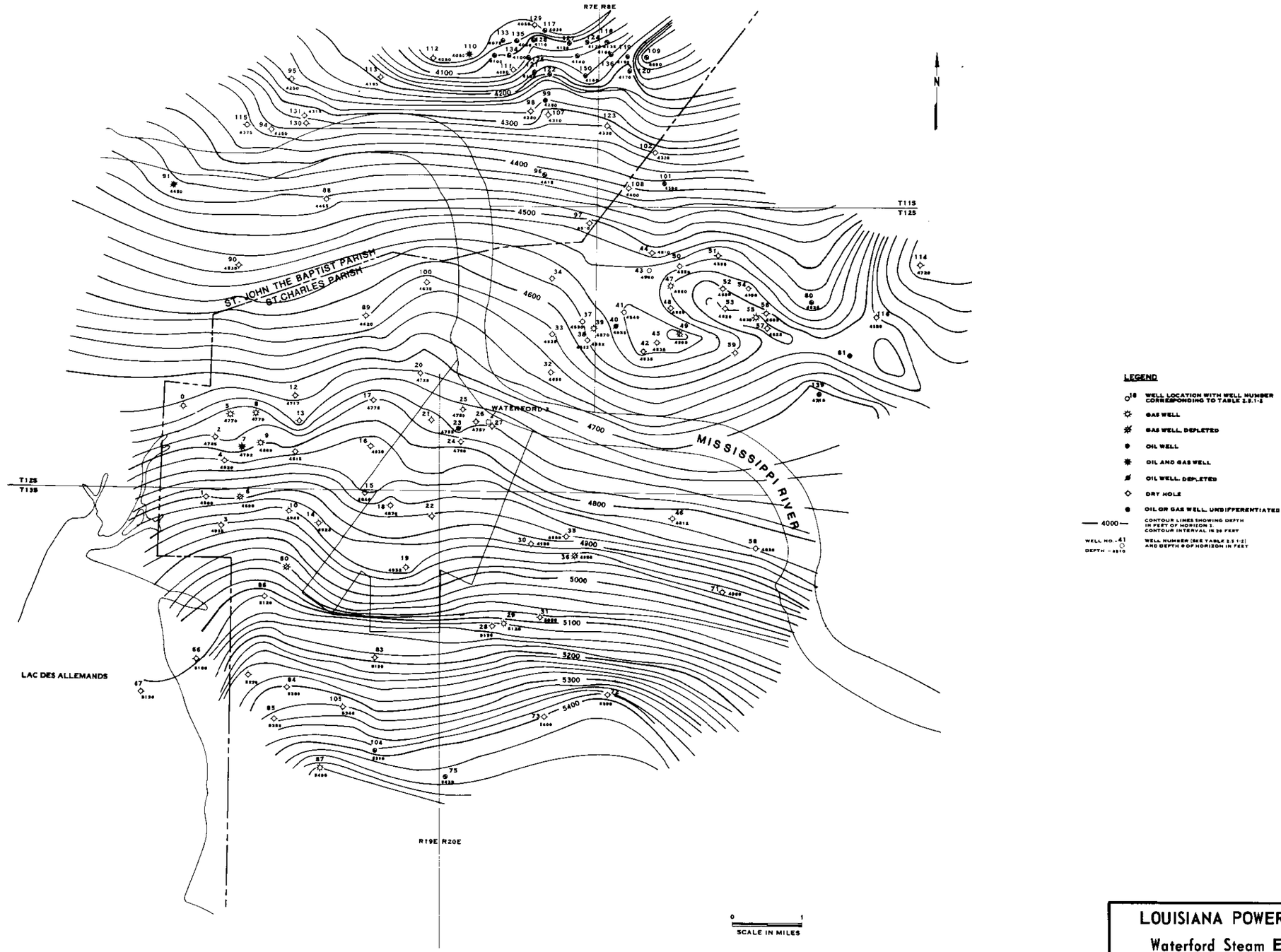
- ○18 WELL LOCATION WITH WELL NUMBER CORRESPONDING TO TABLE 2.5.1-2
- ☼ GAS WELL
- ✱ GAS WELL, DEPLETED
- ● OIL WELL
- ✱ OIL AND GAS WELL
- ✱ OIL WELL, DEPLETED
- ◇ DRY HOLE
- ◆ OIL OR GAS WELL, UNDIFFERENTIATED
- —4000— CONTOUR LINES SHOWING DEPTH IN FEET OF HORIZON 2; CONTOUR INTERVAL IS 50 FEET
- WELL NO. →19 ○ DEPTH →4816 WELL NUMBER (SEE TABLE 2.5.1-2) AND DEPTH OF HORIZON IN FEET

LOUISIANA POWER & LIGHT CO.

Waterford Steam Electric Station

SITE STRUCTURE – HORIZON 2 FROM ELECTRIC LOG SIGNATURE

FIGURE 2.5–21



LEGEND

- 18 — WELL LOCATION WITH WELL NUMBER CORRESPONDING TO TABLE 2.5.1-2
- GAS WELL
- GAS WELL, DEPLETED
- OIL WELL
- OIL AND GAS WELL
- OIL WELL, DEPLETED
- DRY HOLE
- OIL OR GAS WELL, UNDIFFERENTIATED
- 4000 — CONTOUR LINES SHOWING DEPTH IN FEET OF HORIZON 3. CONTOUR INTERVAL IS 20 FEET
- WELL NO. 41, DEPTH – 4819 — WELL NUMBER (SEE TABLE 2.5.1-2) AND DEPTH TO TOP OF HORIZON IN FEET

LOUISIANA POWER & LIGHT CO.

Waterford Steam Electric Station

SITE STRUCTURE – HORIZON 3 FROM ELECTRIC LOG SIGNATURE (LOWEST DATUM WITHOUT FAULTING)

FIGURE 2.5–22

N

R.7E. R.8E.

ST. JOHN THE BAPTIST PARISH

ST. CHARLES PARISH

NORCO FAULT

6100

6200

MILE 130

6300

6400

6500

6560

SITE

WATERFORD 3

FAULT B

FAULT C

MISSISSIPPI RIVER

MILE 125

T.12S.

T.13S.

LAC DES ALLEMANDS

R.19E R.20E.

0 6280 5 6270 8 12 6238 13 6272 17 6270 20 6226 2 6315 7 9 6312 6340 16 6392 21 6265 25 628026 23 6290 24 6303 27 6275 6282 4 6380 1 6460 6 6455 10 6505 14 6540 3 6518 15 6440 18 6435 22 6445 19 6530 32 6150 33 6100 37 39 6080 38 6085 40 6045 6072 41 42 6080 6070 45 6027 48 6040 49 47 6050 6065 43 6052 44 6005 6020 50 6020 51 52 6080 53 6110 54 6065 55 56 6100 57 6082 6103 59 46 6362 30 6500 35 6480 36 6525 58 6345 31 6720 28 29 6800 6795

LEGEND:

9500 — CONTOUR LINES SHOWING DEPTH IN FEET OF HORIZON 4 CONTOUR INTERVAL IS 20 FT.

WELL NO. → 19

DEPTH → 4130 — WELL NUMBER (SEE TABLE 2.5.1-2) AND DEPTH OF HORIZON IN FEET.

(DOWN) — GROWTH FAULT SHOWING DOWNTHROWN SIDE

(UP) (DOWN) — FAULT ASSOCIATED WITH SALT DOME SHOWING DIRECTION OF MOVEMENT

0 1

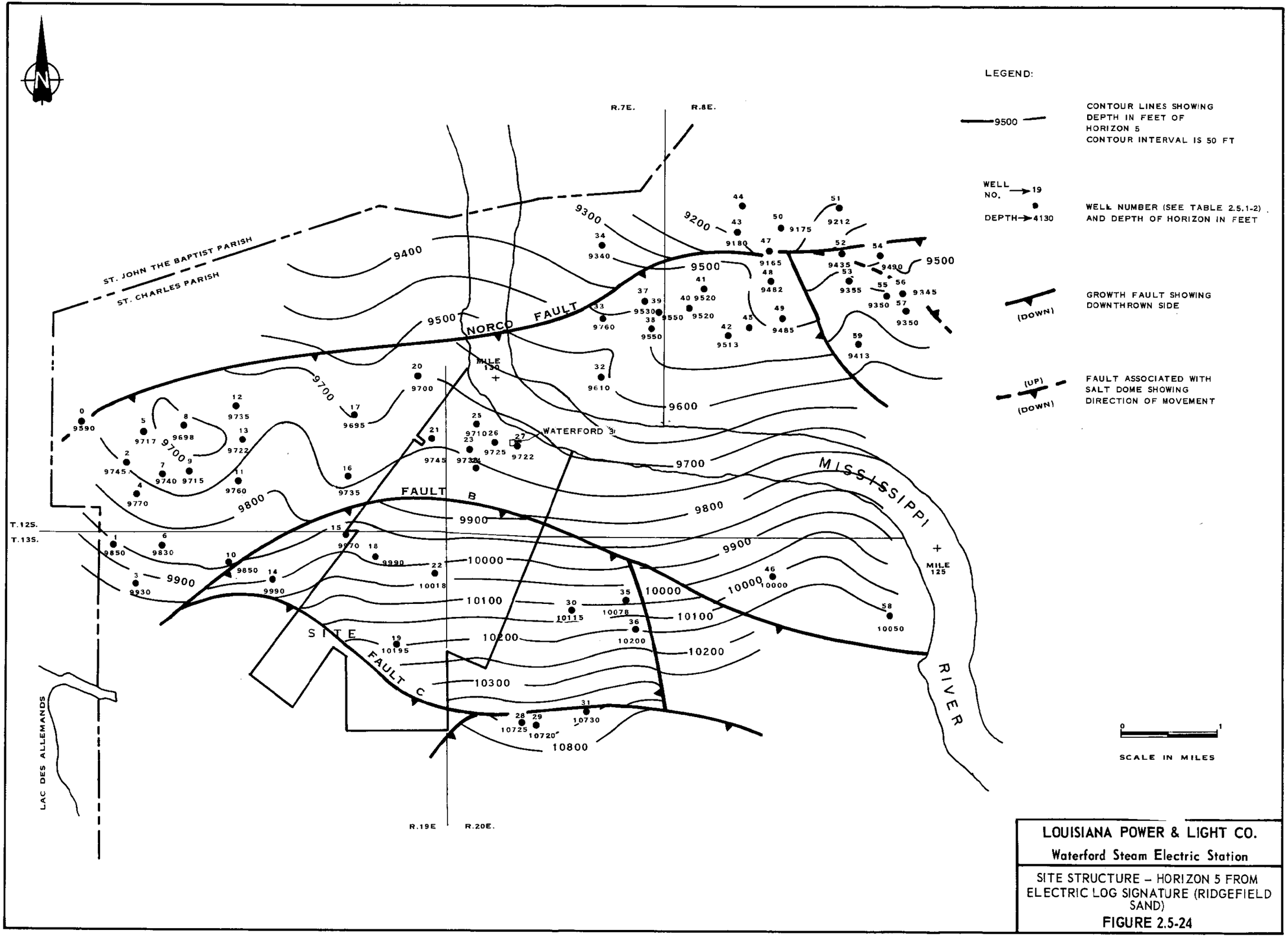
SCALE IN MILES

LOUISIANA POWER & LIGHT CO.

Waterford Steam Electric Station

SITE STRUCTURE – HORIZON 4 FROM ELECTRIC LOG SIGNATURE (HIGHEST DATUM WHICH REFLECTS FAULTING PATTERN)

FIGURE 2.5-23

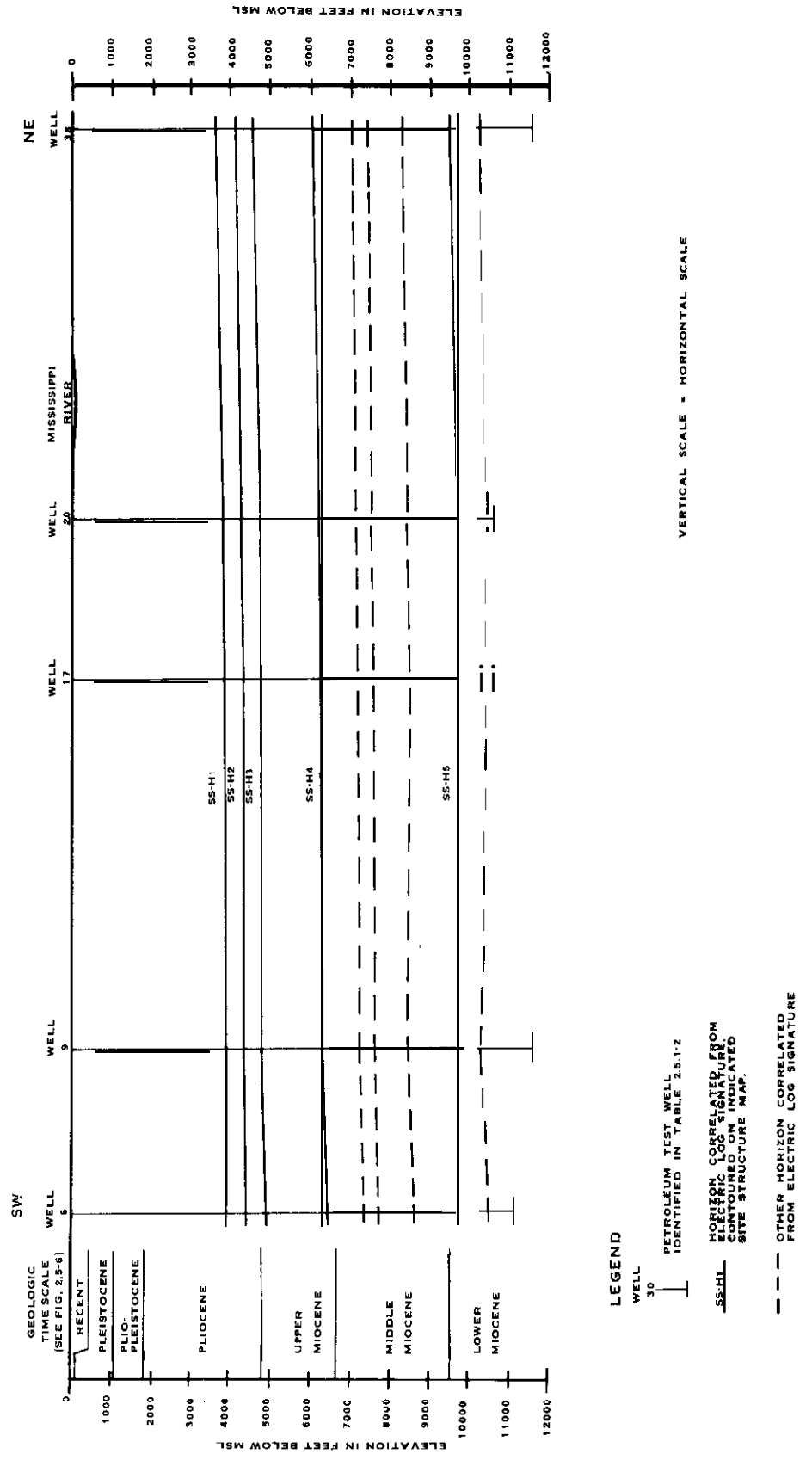


LOUISIANA POWER & LIGHT CO.

Waterford Steam Electric Station

SITE STRUCTURE – HORIZON 5 FROM ELECTRIC LOG SIGNATURE (RIDGEFIELD SAND)

FIGURE 2.5-24

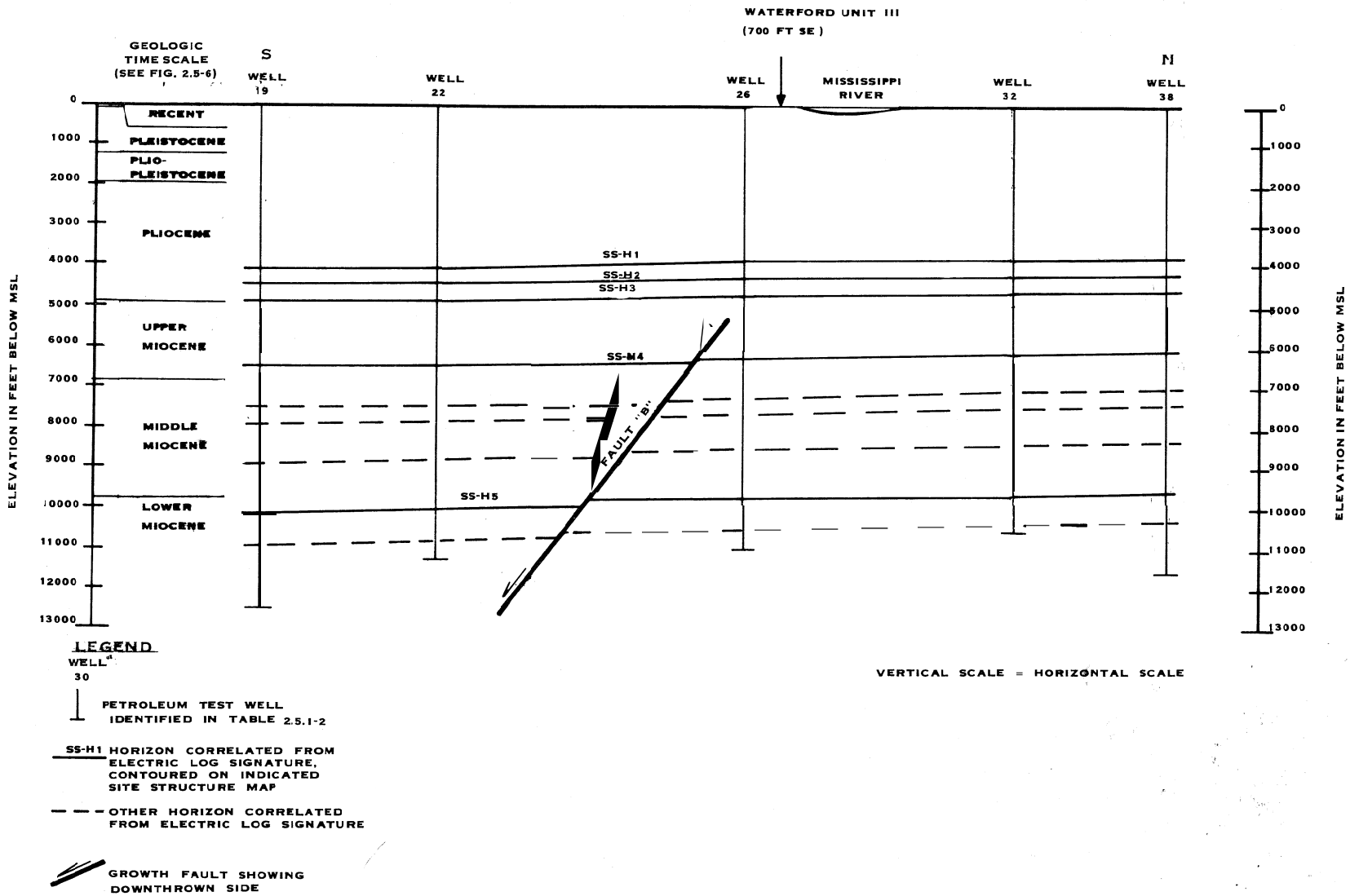


LOUISIANA POWER & LIGHT CO. Waterford Steam Electric Station	SITE STRUCTURAL CROSS SECTION A	**Figure 2.5-25**

LOUISIANA POWER & LIGHT CO.
Waterford Steam Electric Station

SITE STRUCTURAL CROSS SECTION B

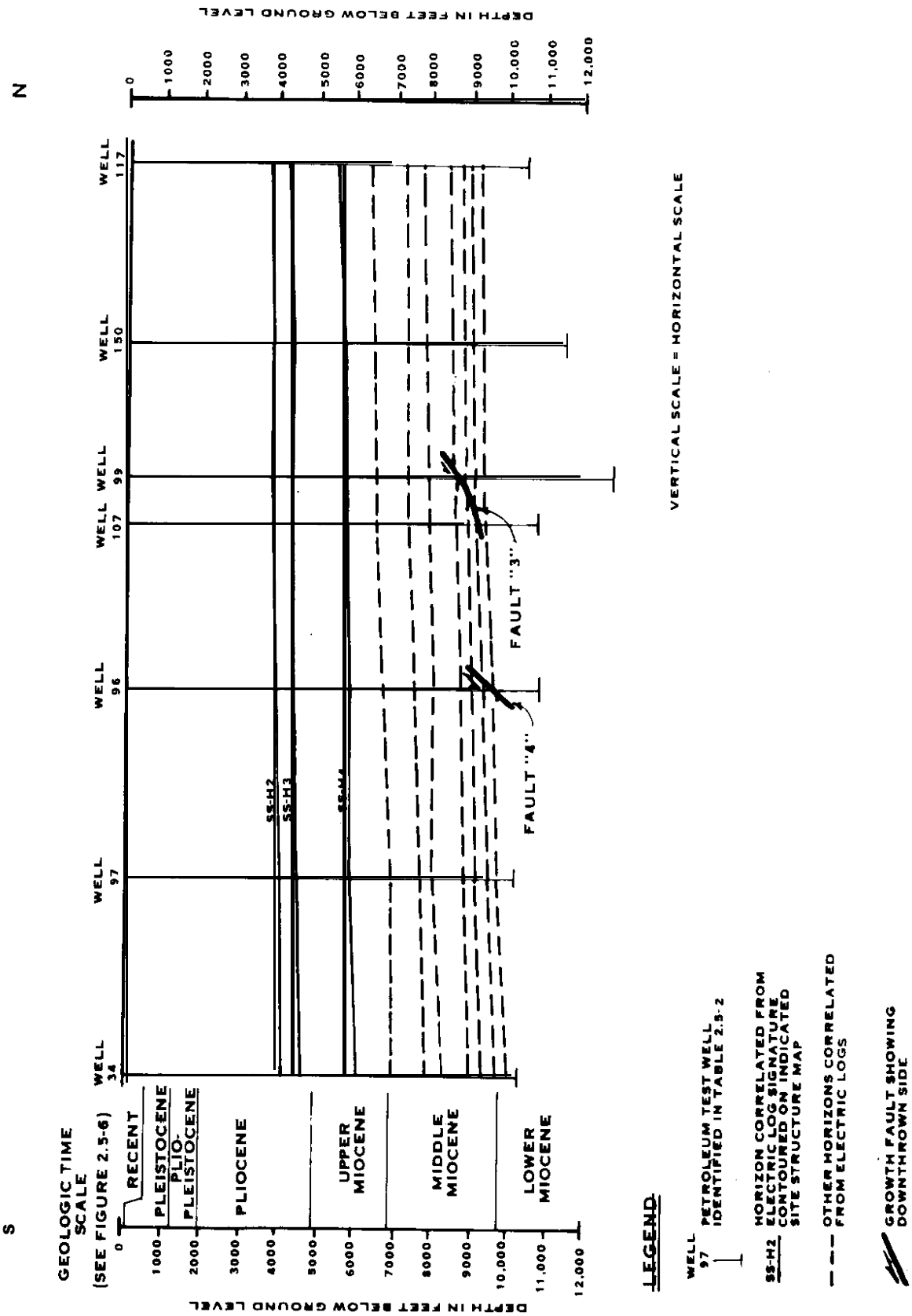
Figure 2.5-26



LOUISIANA POWER & LIGHT CO.
Waterford Steam Electric Station

SITE STRUCTURAL CROSS SECTION C

Figure 2.5-27



POWER & LIGHT CO.
Waterford Steam
Electric Station

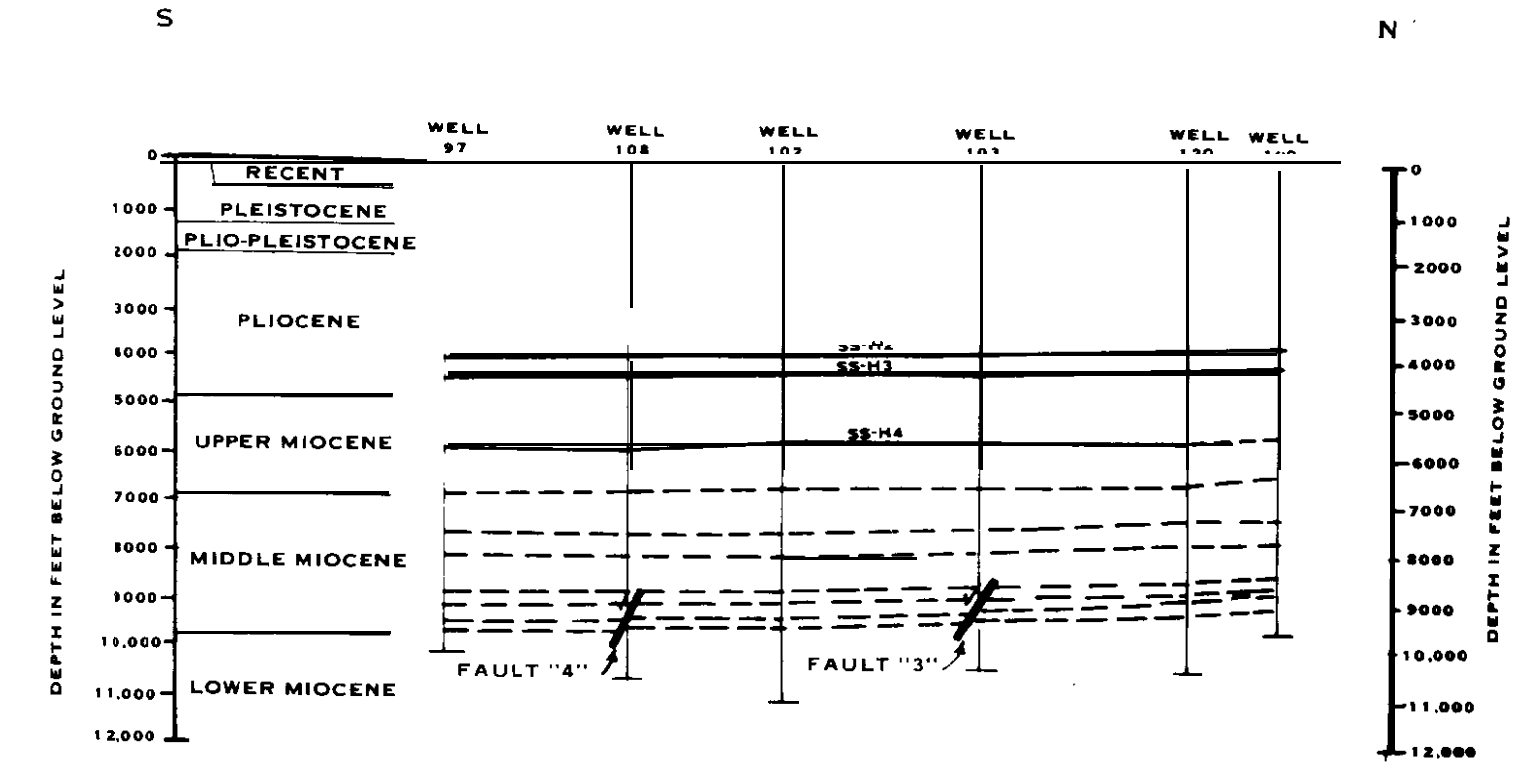
SITE STRUCTURAL CROSS-SECTION D

Figure
2.5-27a

LOUISIANA POWER & LIGHT CO.
Waterford Steam Electric Station

SITE STRUCTURAL CROSS-SECTION E

Figure 2.5-27b



LEGEND

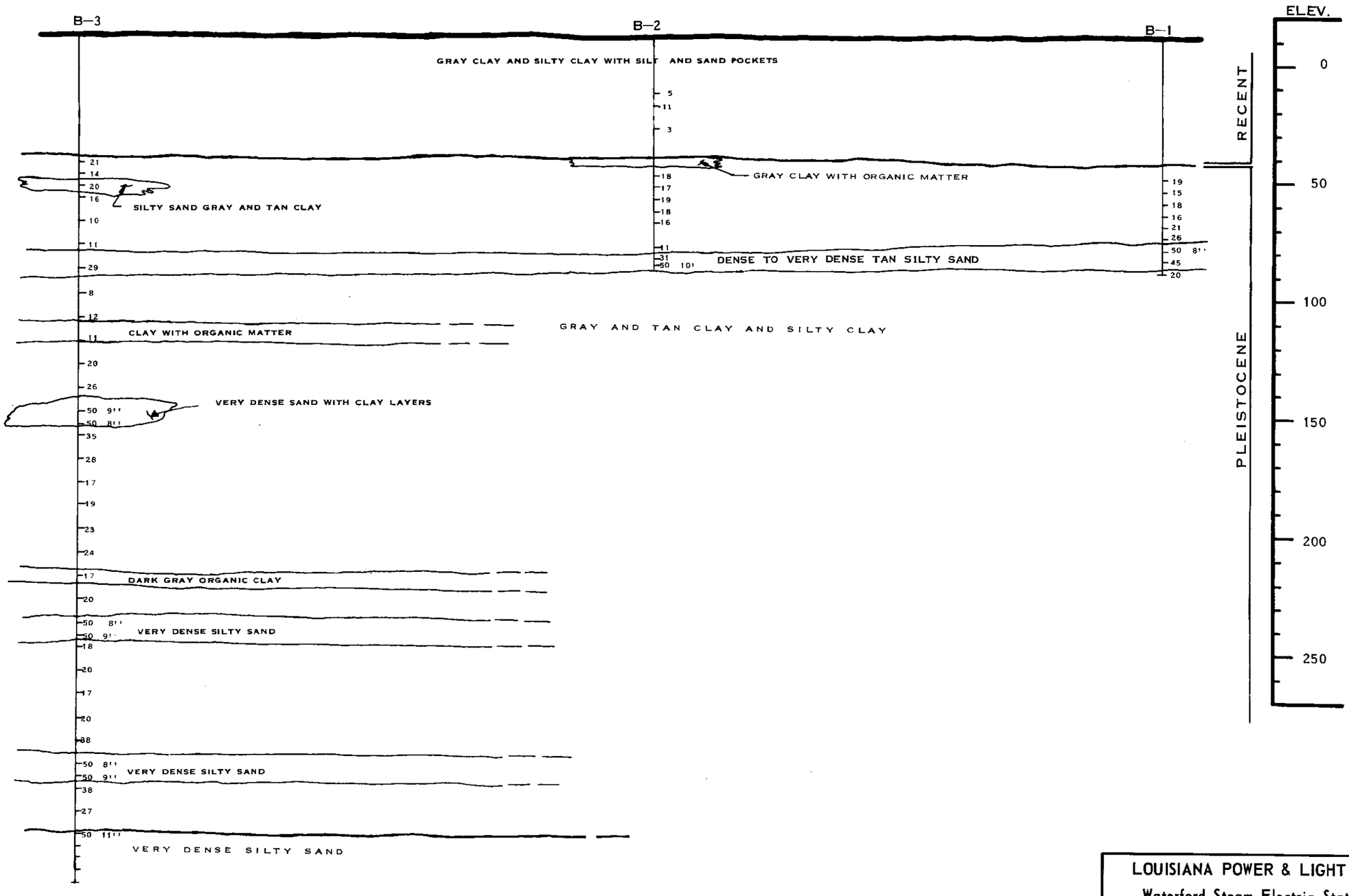
WELL 97 — PETROLEUM TEST WELL IDENTIFIED IN TABLE 2.5-2

SS-H2 — HORIZON CORRELATED FROM ELECTRIC LOG SIGNATURE CONTOURED IN INDICATED SITE STRUCTURE MAP

– – – OTHER HORIZON CORRELATED FROM ELECTRIC LOGS

GROWTH FAULT SHOWING DOWNTHROWN SIDE

VERTICAL SCALE = HORIZONTAL SCALE

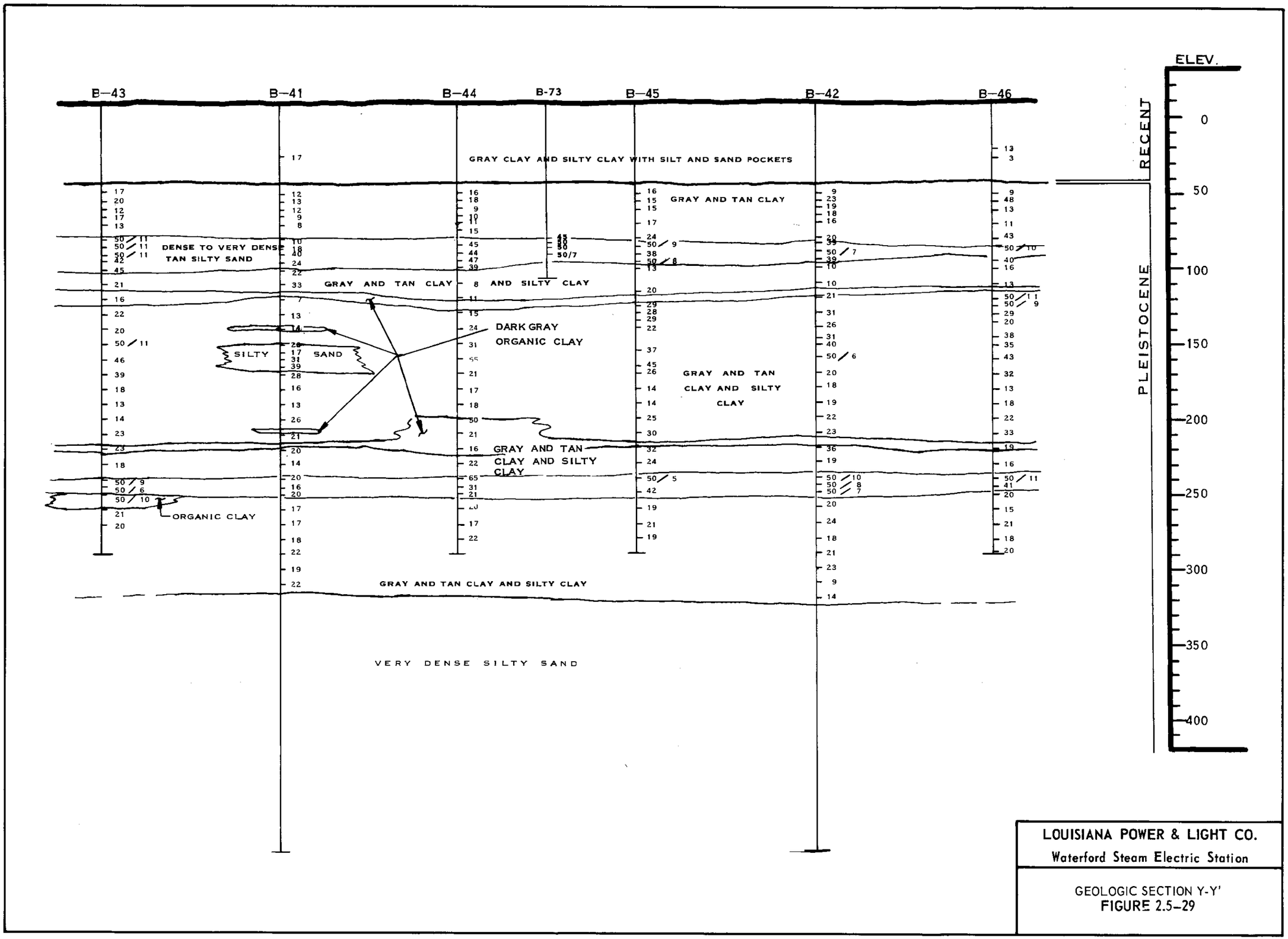


LOUISIANA POWER & LIGHT CO.

Waterford Steam Electric Station

GEOLOGIC SECTION X-X'

FIGURE 2.5–28

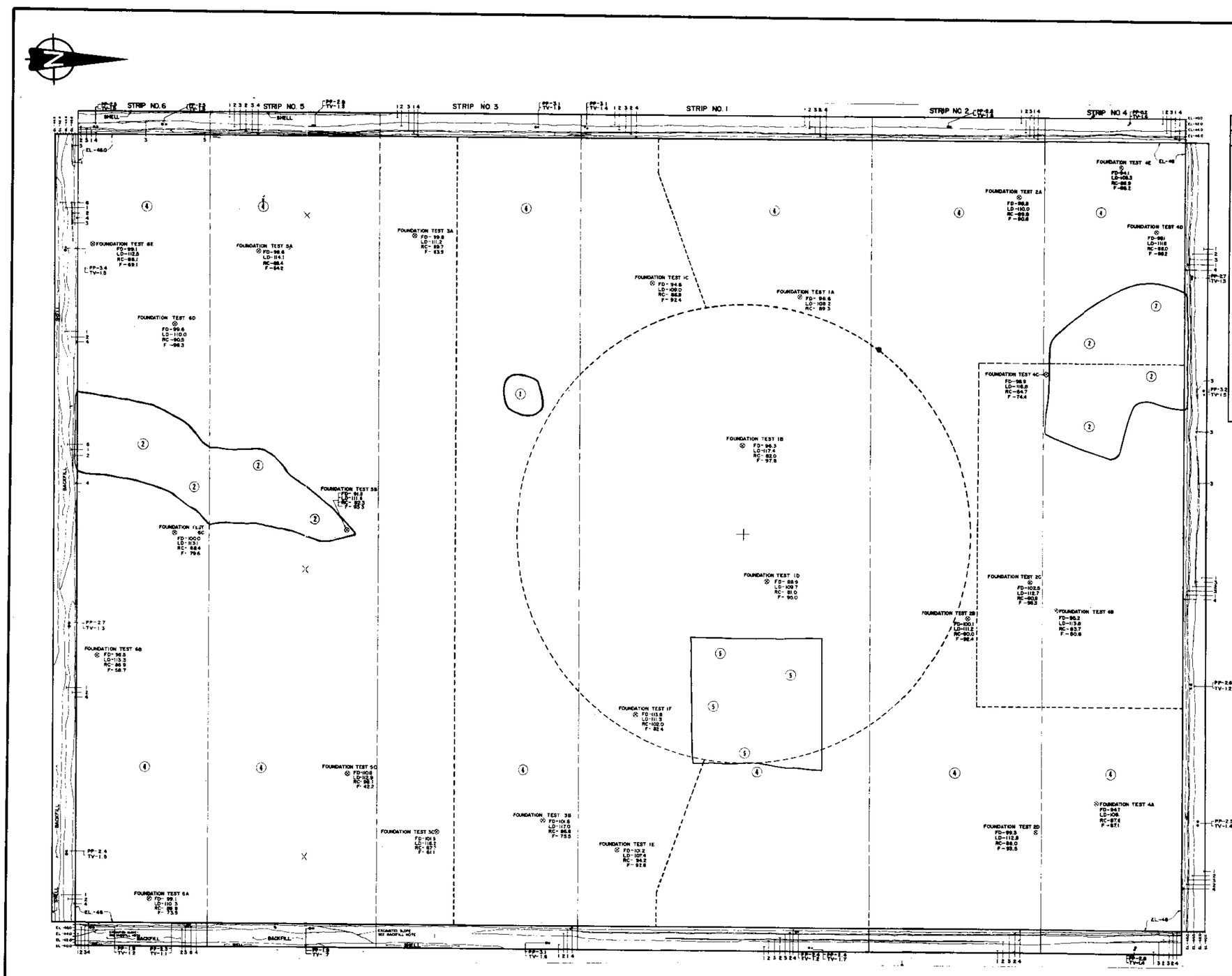


LOUISIANA POWER & LIGHT CO.

Waterford Steam Electric Station

GEOLOGIC SECTION Y-Y'

FIGURE 2.5-29



MATERIAL CLASSIFICATION

MATERIAL NO.	DESCRIPTION
1	CLAY (CH) GREEN GRAY MOTTLED WITH VARIOUS CONCENTRATIONS OF CALCAREOUS NODULES, VERY STIFF, HIGH STRENGTH, HIGH PLASTICITY, MOIST, LENSED, STRONG CEMENTATION IN NODULES.
2	CLAY (CH) TAN BROWN MOTTLED WITH CONCENTRATIONS OF CALCAREOUS NODULES, VERY STIFF, HIGH STRENGTH, MEDIUM PLASTICITY, MOIST, LENSED, STRONG CEMENTATION IN NODULES.
3	CALCAREOUS NODULES; HIGHLY CEMENTED, 1/2" INCH MAXIMUM SIZE, POORLY GRADED, SUBROUNDED, MOIST, DENSE.
4	SILT (ML); TAN BROWN GRAY OCCASIONALLY MOTTLED WITH GREEN, GRAY CLAY, SANDY TO CLAYEY, SLIGHT PLASTICITY, MOIST TO WET LENSED WITH CLAY, MEDIUM STRENGTH.
5	SANDY SILT (ML); TAN BROWN, FINE, POORLY GRADED, NO PLASTICITY, DENSE, SATURATED, LENSED, WITH WEAK CEMENTATION.
6	SILTY CLAY (CL); DARK GRAY, MEDIUM STRENGTH, SLIGHT PLASTICITY, MOIST, HOMOGENOUS WITH WEAK CEMENTATION.
7	CLAY (CH) (ORG) (OH); DARK GRAY TO BLACK WITH HIGH CONCENTRATION OF OYSTER SHELLS, WEAK AND SOFT, HIGH PLASTICITY, MOIST, WITH LENSES OF SHELL.

LEGEND

LOCATIONS
- * POCKET PENETROMETER TEST
- # TORVANE TEST
- ⊗ IN PLACE DENSITY TEST
- ○ PROCTOR TEST & SIEVE ANALYSIS SAMPLE

TEST RESULTS

PP-POCKET PENETROMETER - TSF
TV-TORVANE SHEAR-TSF
RC-% RELATIVE COMPACTION
FD-IN PLACE FIELD DENSITY-PCF
LD-LABORATORY MAXIMUM PROCTOR DENSITY-PCF
F-FINE CONTENT-% PASSING A NO. 200 SIEVE

NOTES

INFORMATION PRESENTED ON THIS MAP WAS DEVELOPED IN ACCORDANCE WITH EBASCO GEOLOGIC MAPPING SPECIFICATION NO. LOU-9564-46.9. DEFINITIONS OF THE TERMINOLOGY USED IN THE MATERIAL CLASSIFICATIONS IN ACCORDANCE WITH ASTM D-2488.

SHELL
LOCATION WHERE THE ELEVATION OF THE VERTICAL FACE WAS CUT BELOW EL. -40 DURING PHASE IB EXCAVATION, AND BACKFILLED WITH CLAM SHELL TO EL. -40.

BACKFILL
LOCATION WHERE SOFT MATERIALS WERE EXCAVATED FROM CONSTRUCTION ROADWAYS AROUND THE PERIMETER OF THE FOUNDATION MAT AND REPLACED WITH TYPE (I) GRADED CLAY COMPACTED TO UNDERLYING CLAY DENSITIES.

STRIP NO.1 - MATERIAL NO.5
THIS APPROXIMATELY SQUARE AREA WAS A TEST PIT COVERED WITH A CLAM SHELL BLANKET, BUNTE FACED, EXCAVATED TO EL. -48 SEVERAL MONTHS PRIOR TO FINAL PHASE IB EXCAVATION DURING FINAL EXCAVATION, THIS AREA WAS ADDITIONALLY EXCAVATED TO EL.-50 TO REACH UNDISTURBED MATERIAL.

EXCAVATION FLOOR (EL. -48.0+)
THE EXCAVATION FLOOR WAS MAPPED AS MATERIAL CLASSIFICATION MATERIAL NUMBER (4) SILT; EXCEPT AS NOTED

STATISTICAL SUMMARY OF FOUNDATION MATERIAL PROPERTIES

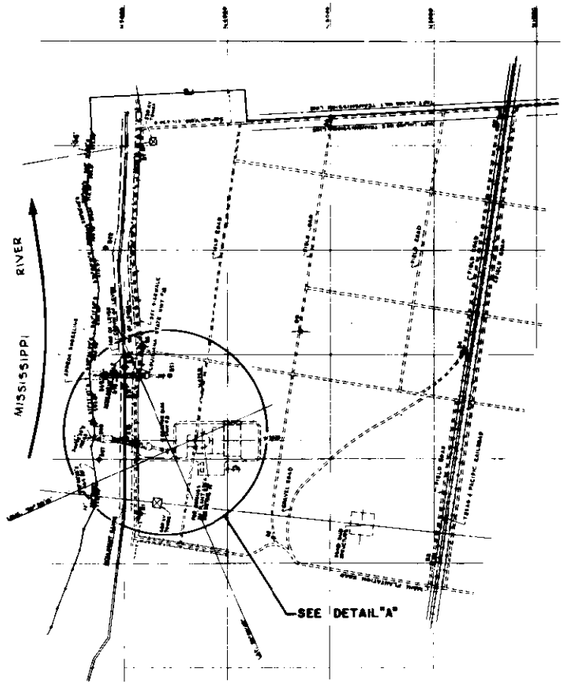
MATERIAL & TEST DESCRIPTION	NUMBER OF TESTS STUDIED N	AVERAGE TEST'S VALUE $\bar{X}$	STANDARD DEVIATION σ	VARIANCE V
1.CLAY FACES				
A.) POCKET PENETROMETER (TSF)*	39	2.8	.50	.25
B.) TORVANE SHEAR (TSF)*	39	1.4	.27	.07
2.FOUNDATION SILTS				
A.) IN PLACE DENSITY (PCF)	27	99.6	5.7	32.8
B.) LABORATORY MAXIMUM DENSITY (MODIFIED PROCTOR - PCF)	27	112.0	2.8	7.5
C.) PER CENT RELATIVE COMPACTION	27	88.9	5.0	5.0
D.) FINE CONTENT (% PASSING #200 SIEVE)	25	85.6	9.6	91.1

NOTE: *THE POCKET PENETROMETER TEST VALUES REPRESENT THE UNCONFINED COMPRESSIVE STRENGTH TO CORRELATE WITH THE TORVANE VALUES THE PENETROMETER VALUE SHOULD BE DIVIDED BY TWO.

LOUISIANA POWER & LIGHT CO.
Waterford Steam Electric Station

GEOLOGIC MAP OF
WATERFORD 3 EXCAVATION

FIGURE 2.5-30

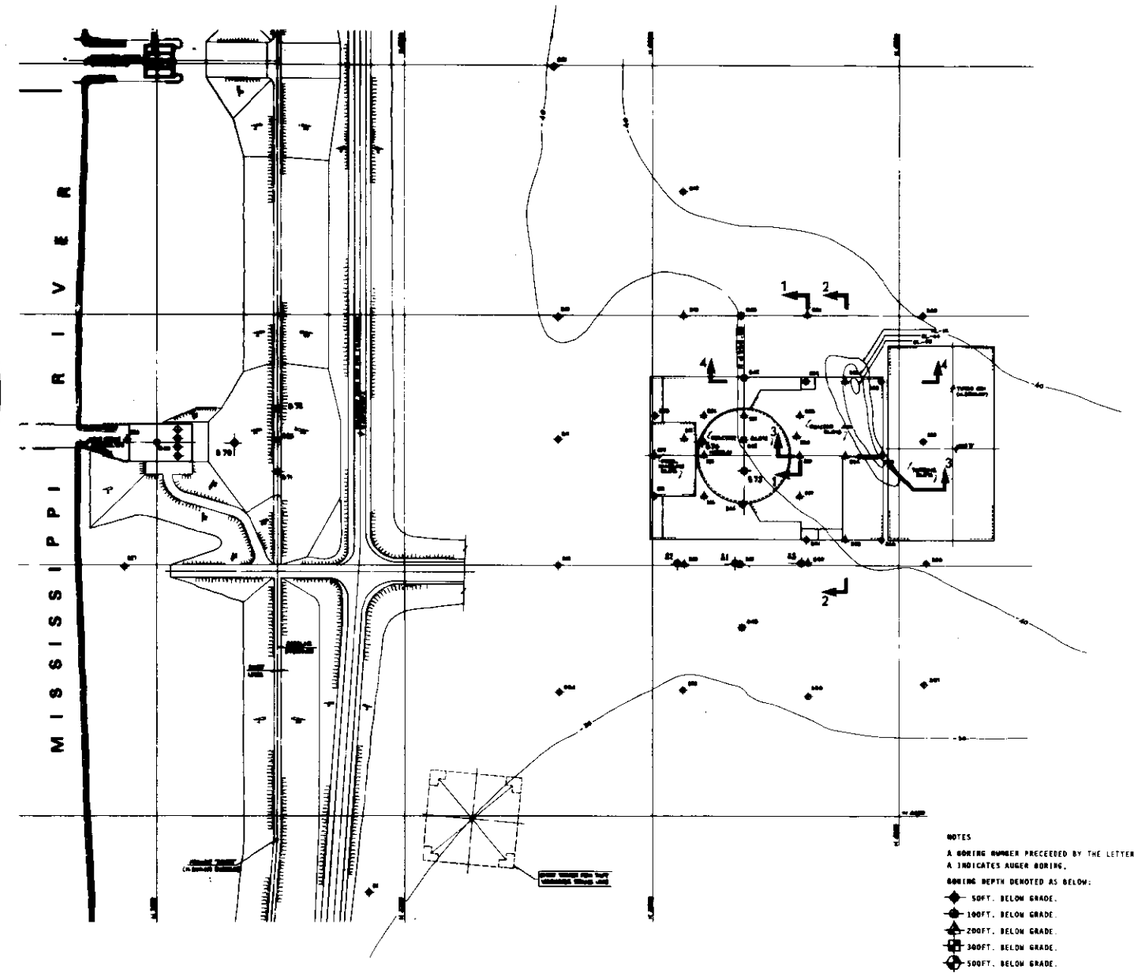


MONUMENT DESCRIPTION

MONUMENT ABLE.
USED LEVEE STA.2499 03.4 (= 2497+80.0 C.S.)
X = 2274627.41, Y = 486486.58
N 6000.00 W 2000.00

MONUMENT BAKER.
USED LEVEE STA.2486+67.2
X = 2272709.5 Y = 488037.42
N 9000.00 W 4438.20

GENERAL PLAN



DETAIL "A"

NOTES

A BORING NUMBER PRECEEDED BY THE LETTER A INDICATES AUGER BORING.

BORING DEPTH DENOTED AS BELOW:

- 50FT. BELOW GRADE.
- 100FT. BELOW GRADE.
- 200FT. BELOW GRADE.
- 300FT. BELOW GRADE.
- 500FT. BELOW GRADE.

B51,B53,B59,B61,B66,B68 AND B73, ARE 5" DIA. UNDISTURBED SAMPLES. ALL OTHER BORE HOLES ARE 3" DIA. UNDISTURBED SAMPLES (SHELBY).

B25, B55, B59, B64 AND B73 ARE CONTINUOUS SAMPLES.

BORING NO.	LOCATION	
B 1	N 4686	W 4866
B 2	N 3861	W 4748
B 3	N 3889	W 3882
B 4	N 1787	W 2984
B 5	N 1946	W 716
B 6	N 2098	W 823
B 7	N 4837	W 1838
B 8	N 4628	W 2928
B 9	N 2366	W 2783
B 10	N 4852	W 3662
B 11	N 4882	W 3798
B 12	N 4851	W 4088
B 13		
B 14		
B 15		
B 16	N 4391	W 3608
B 17	N 4350	W 3797
B 18	N 4350	W 3998
B 19	N 4382	W 3602
B 20		
B 21	N 4899	W 3202
B 22		
B 23		
B 24		
B 25	N 5000	W 3800
B 26	N 5249	W 3798
B 27	N 5252	W 4002
B 28	N 5180	W 1981
B 29	N 4150	W 3895
B 30	N 4167	W 3793
B 31	N 4151	W 3599
B 32		
B 33		
B 34	N 4550	W 4201
B 35	N 4392	W 4200
B 36	N 4150	W 4210
B 37	N 3960	W 4190
B 38	N 3956	W 3997
B 39	N 3960	W 3801
B 40	N 3961	W 3600
B 41	N 4259	W 3999
B 42	N 4253	W 3699
B 43	N 4287	W 4099
B 44	N 4252	W 3902
B 45	N 4250	W 3800
B 46	N 4258	W 3600
B 47		
B 48		
B 49		
B 50		
B 51	N 4397	W 3890
B 52	N 4397	W 3825
B 53	N 4397	W 3760
B 54	N 4315	W 3760
B 55	N 4315	W 3825
B 56	N 4138	W 3897
B 57	N 4250	W 3760
B 58	N 4160	W 3760
B 59	N 4160	W 3825
B 60	N 4160	W 3890
B 61	N 4150	W 3955
B 62	N 4150	W 3705
B 63	N 4090	W 3705
B 64	N 4090	W 3825
B 65	N 4090	W 3953
B 66	N 4030	W 3953
B 67	N 4030	W 3825
B 68	N 4030	W 3705
B 69	N 3200	W 3805
B 70	N 3065	W 3805
B 71	N 3000	W 3859
B 72	N 3000	W 3792
B 73	N 4250	W 3859
B 74	N 4325	W 3800
A 1	N 4268	W 3999
A 2	N 4358	W 3999
A 3	N 4160	W 3995

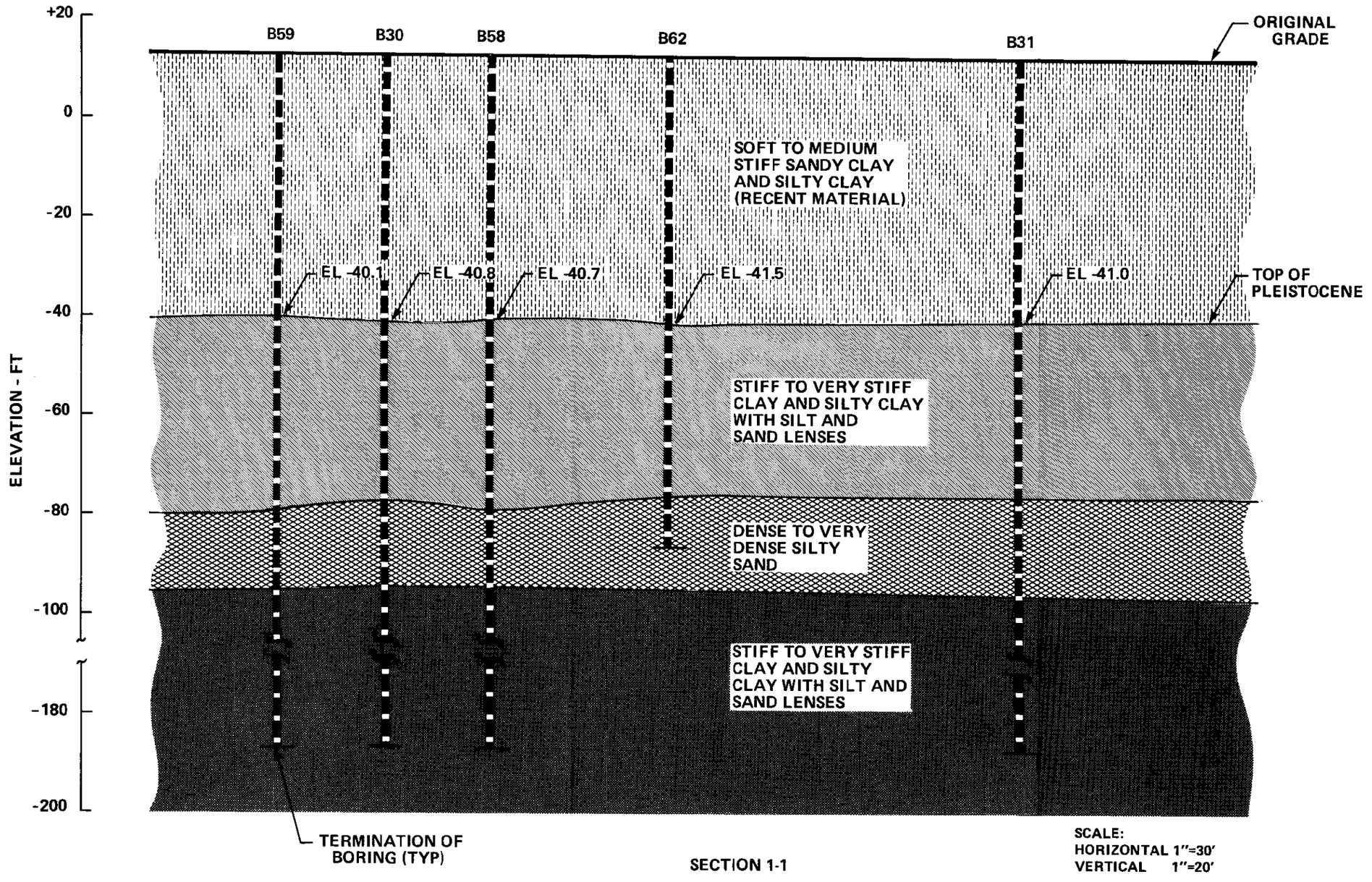
* DENOTES BORING NUMBER NOT USED.

LOUISIANA POWER & LIGHT CO.

Waterford Steam Electric Station

TOP OF PLEISTOCENE CONTOUR MAP

FIGURE 2.5–30a

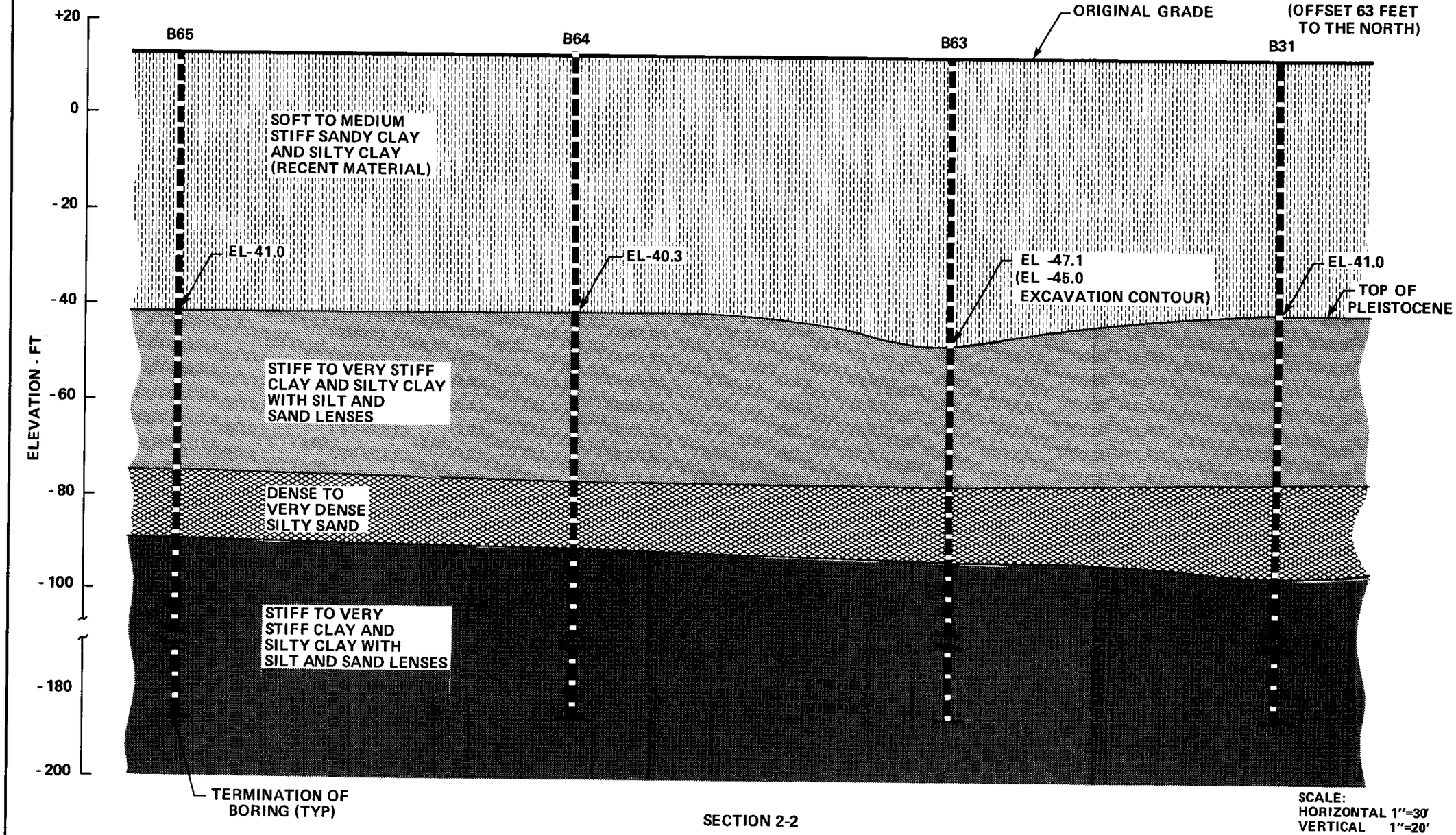


SECTION 1-1

SCALE:
HORIZONTAL 1"=30'
VERTICAL 1"=20'

LOUISIANA POWER & LIGHT CO.
Waterford Steam Electric Station

TOP OF PLEISTOCENE STUDY
SECTION 1-1
FIGURE 2.5-30b



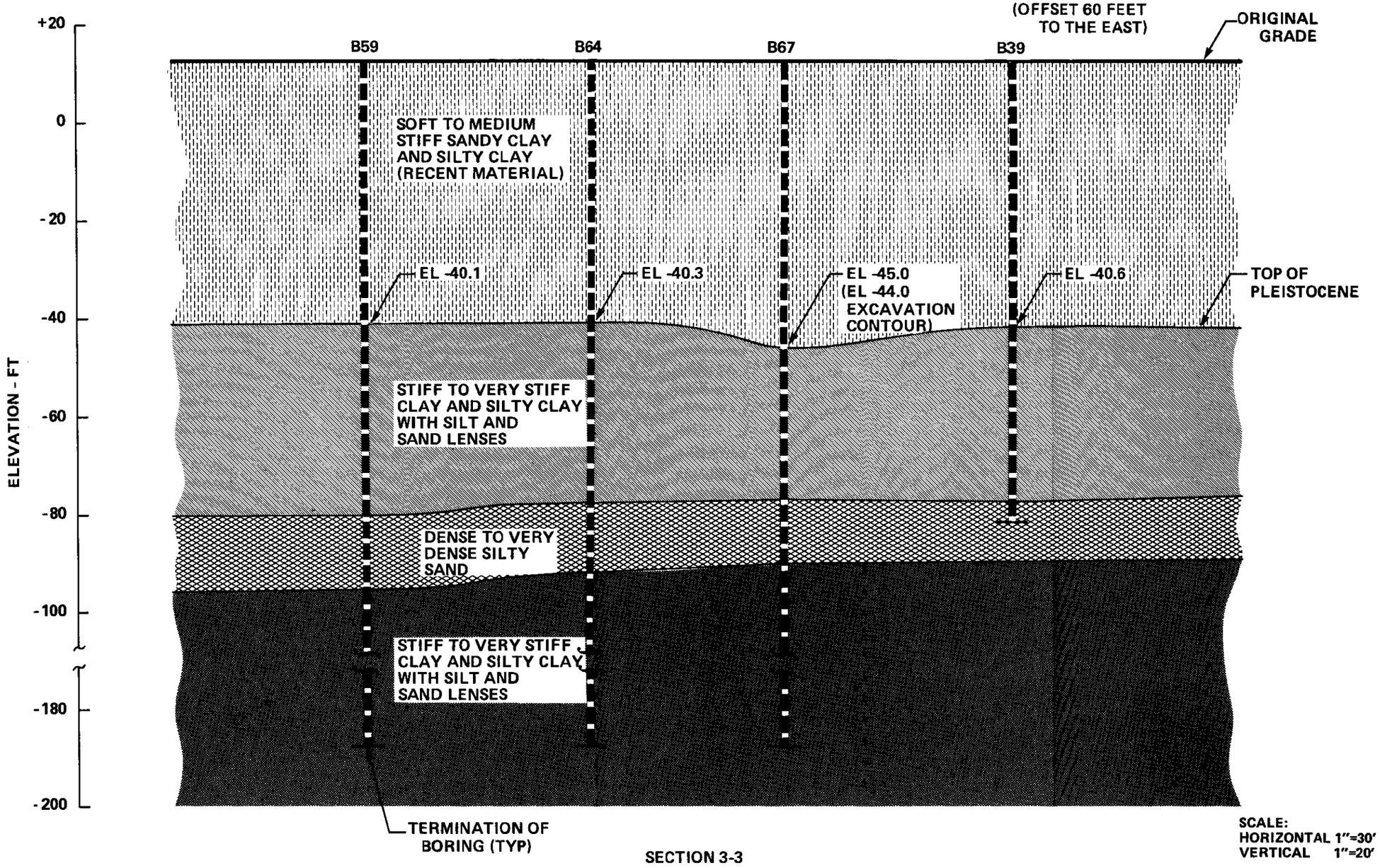
SECTION 2-2

SCALE:
HORIZONTAL 1"=30'
VERTICAL 1"=20'

LOUISIANA POWER & LIGHT CO.
Waterford Steam Electric Station

TOP OF PLEISTOCENE STUDY
SECTION 2-2

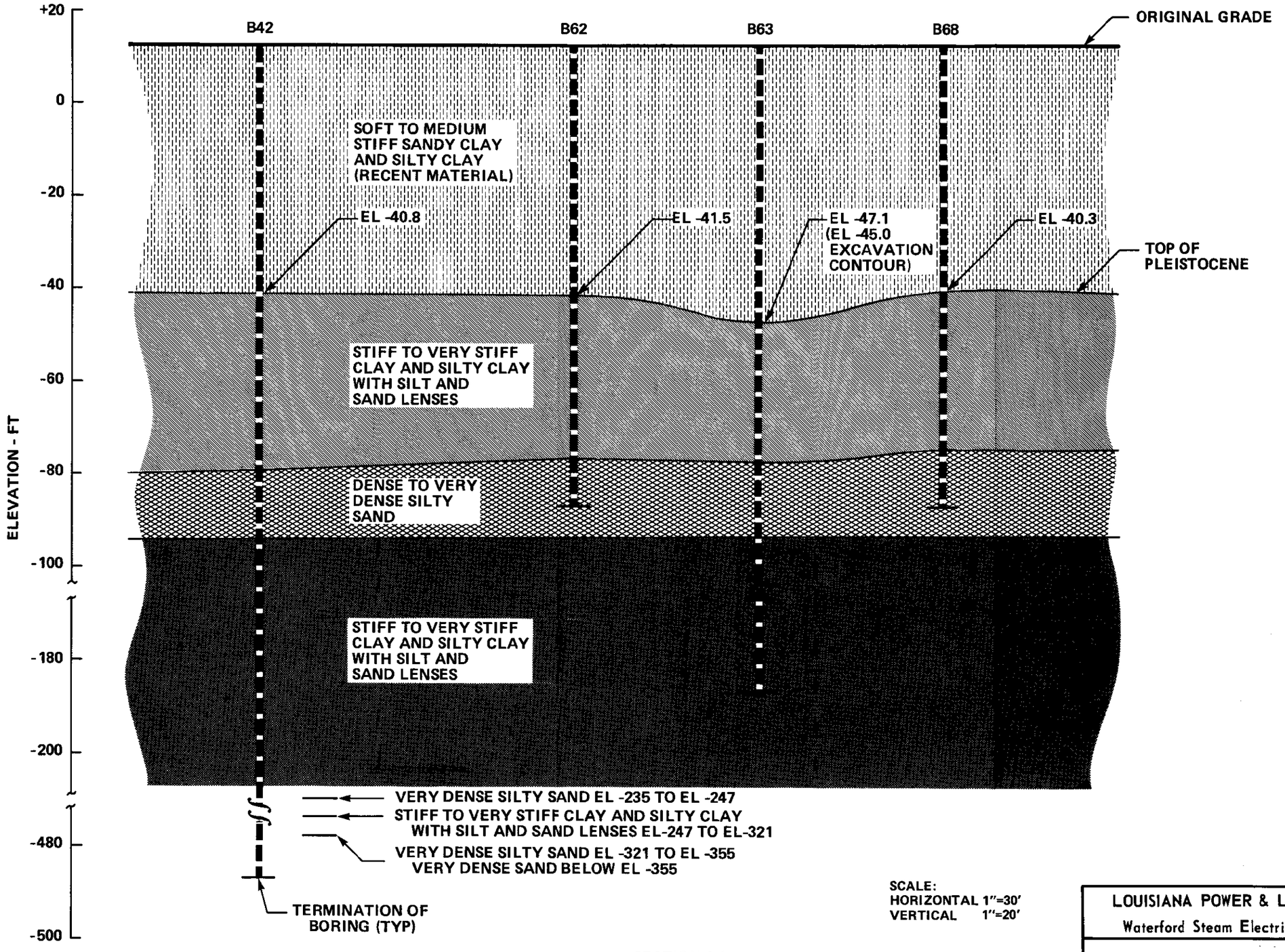
FIGURE 2.5-30c



SECTION 3-3

LOUISIANA POWER & LIGHT CO.
Waterford Steam Electric Station

TOP OF PLEISTOCENE STUDY
SECTION 3-3
FIGURE 2.5-30d

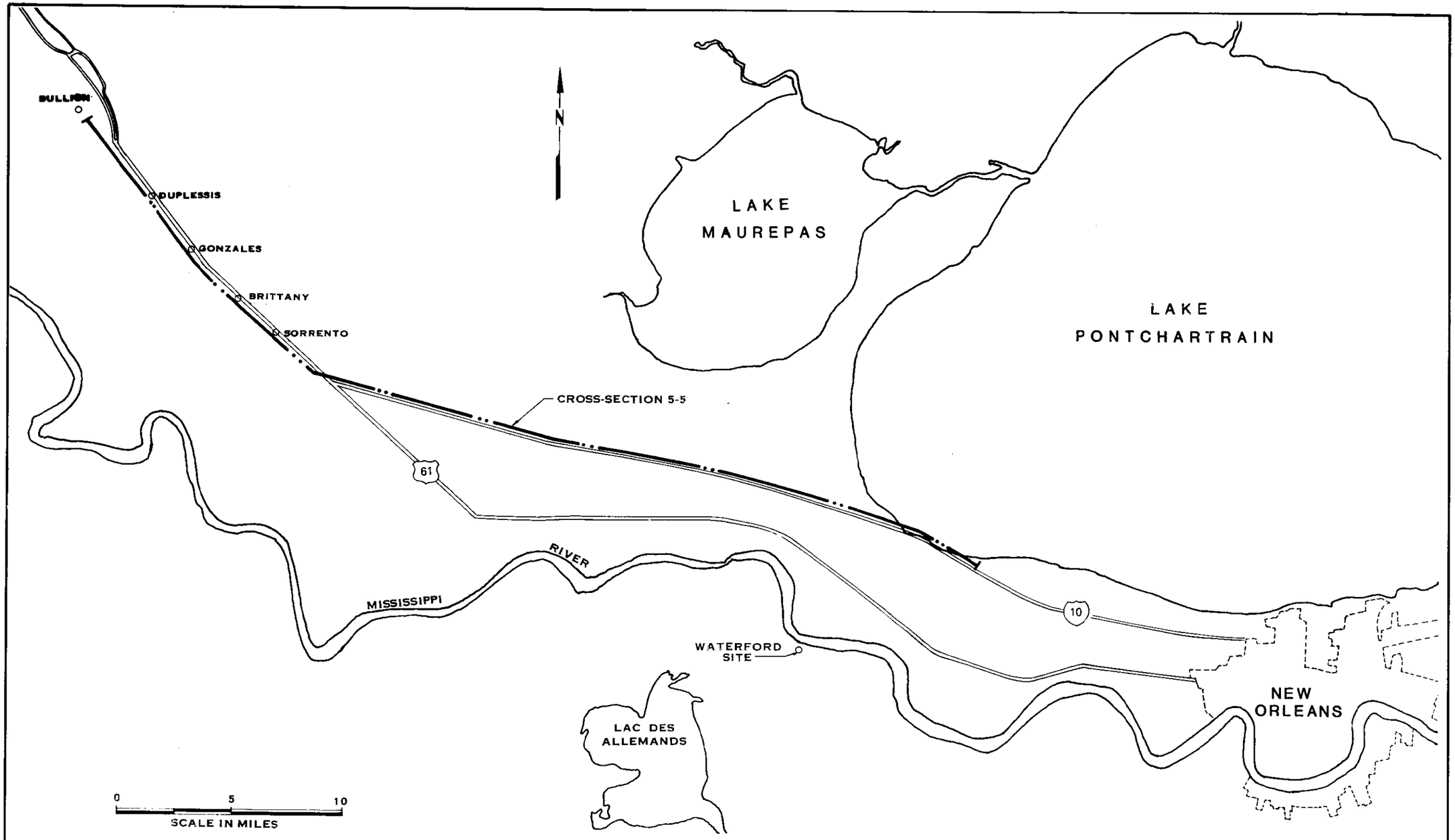


SECTION 4-4

SCALE:
HORIZONTAL 1"=30'
VERTICAL 1"=20'

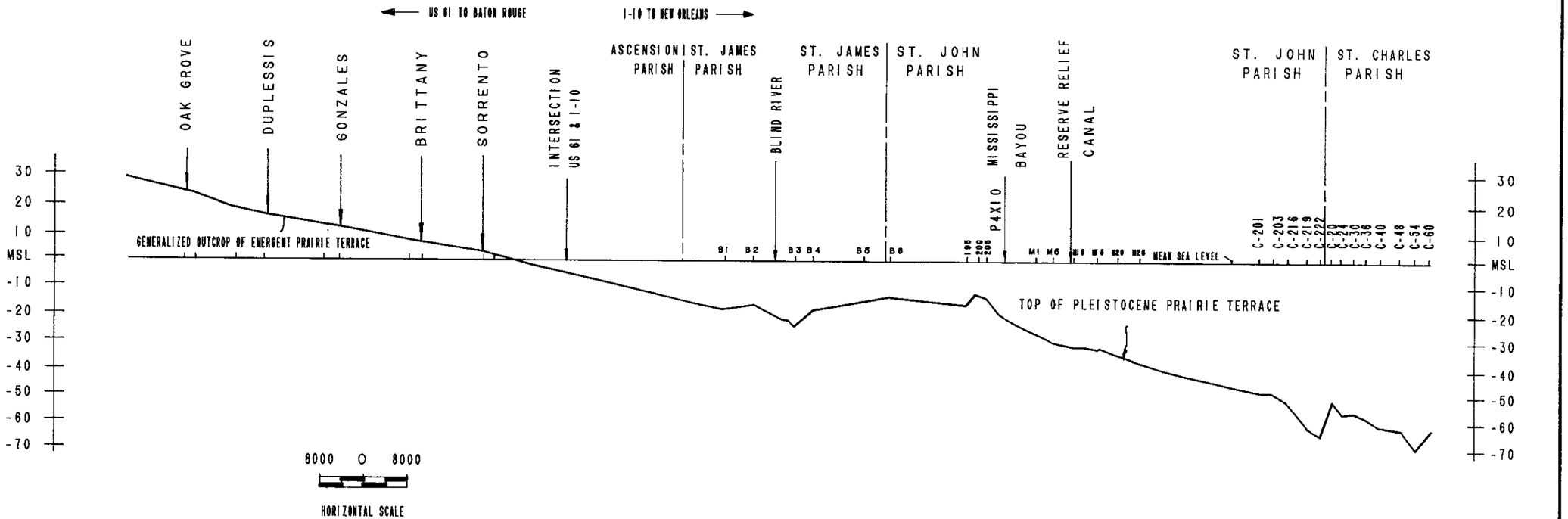
LOUISIANA POWER & LIGHT CO.
Waterford Steam Electric Station

TOP OF PLEISTOCENE STUDY
SECTION 4-4
FIGURE 2.5-30e



LOUISIANA POWER & LIGHT CO.
Waterford Steam Electric Station

LOCATION MAP FOR CROSS-SECTION 5-5
FIGURE 2.5-30 f



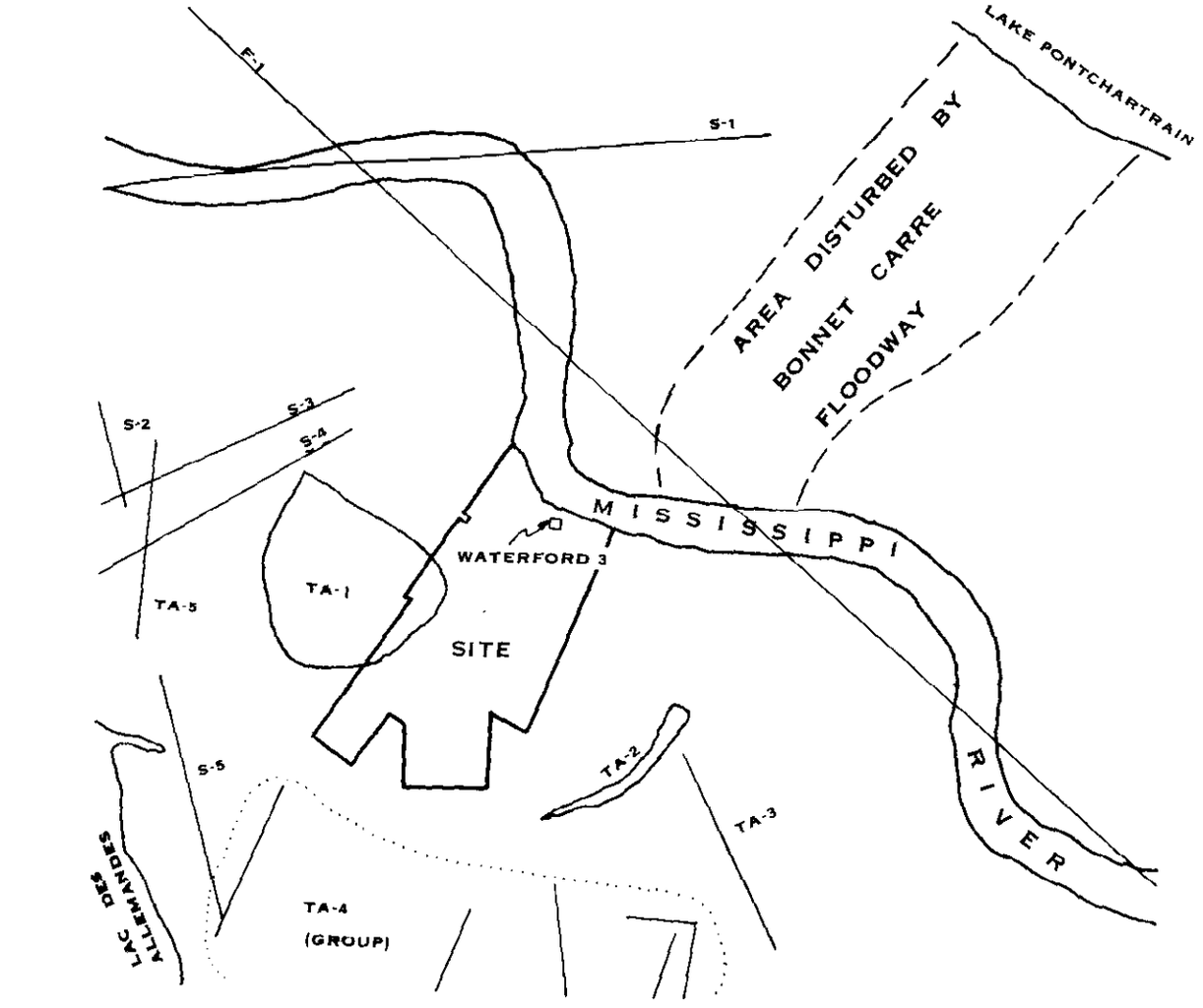
NOTE:

COMPILED FROM LOUISIANA DEPT. OF HIGHWAYS BORE HOLE DATA AND U.S.G.S. DONALDSONVILLE 15' TOPOGRAPHIC QUADRANGLE MAP.

LOUISIANA POWER & LIGHT CO.
Waterford Steam Electric Station #3

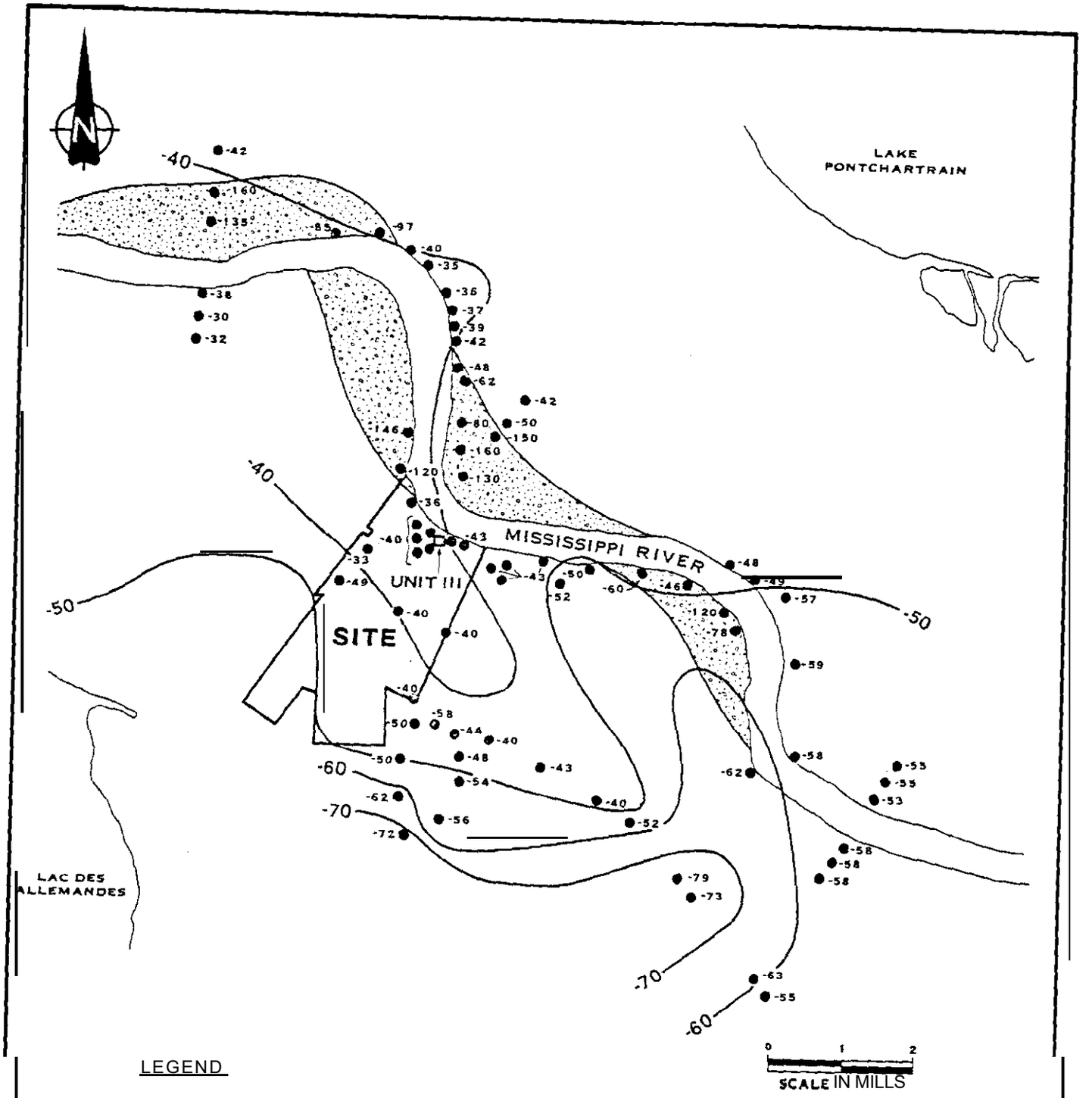
CROSS-SECTION 5-5

FIGURE 2.5-30g



INDIVIDUAL FEATURES ARE DISCUSSED BY NUMBER IN TABLE 2.5-3.

LOUISIANA 'OWER & LIGHT CO. Woterford Steam Electric Station	TONAL ANOMALIES & LINEAR TRENDS IN THE SITE AREA	Figure 2.5-31



LEGEND

POINT BAR DEPOSITS

• DATA

ELEVATIONS MSL

LOUISIANA POWER & LIGHT CO. Waterford Steam Electric Station	**ELEVATION OF** TOP OF **PLEISTOCENE** DEPOSITS	Figure 2.5-31a

→ (DRN 01-360)

Figures 2.5-32(a) through 2.5-32(f) are classified as historical pursuant to Waterford 3 Site Procedure W4.504 and Nuclear Energy Institute (NEI) 98-03. The figures have been physically removed from the UFSAR. However, the figures are incorporated by reference, and thus they continue to be a part of the UFSAR. These figures are available for reference and use in Document Control, and they may be found as record ER-W3-01-0268-00-00 / DRN 01-360.

← (DRN 01-360)

LEGEND

BORING

SEISMIC TRAVERSE

GEOLOGIC SECTION

SCALE: 1" = 1000'

MISSISSIPPI RIVER

U.S.E.D. LEVEE STATION 2520 + 66.0

SEE INSERT

INSERT

SCALE : 1"= 400'

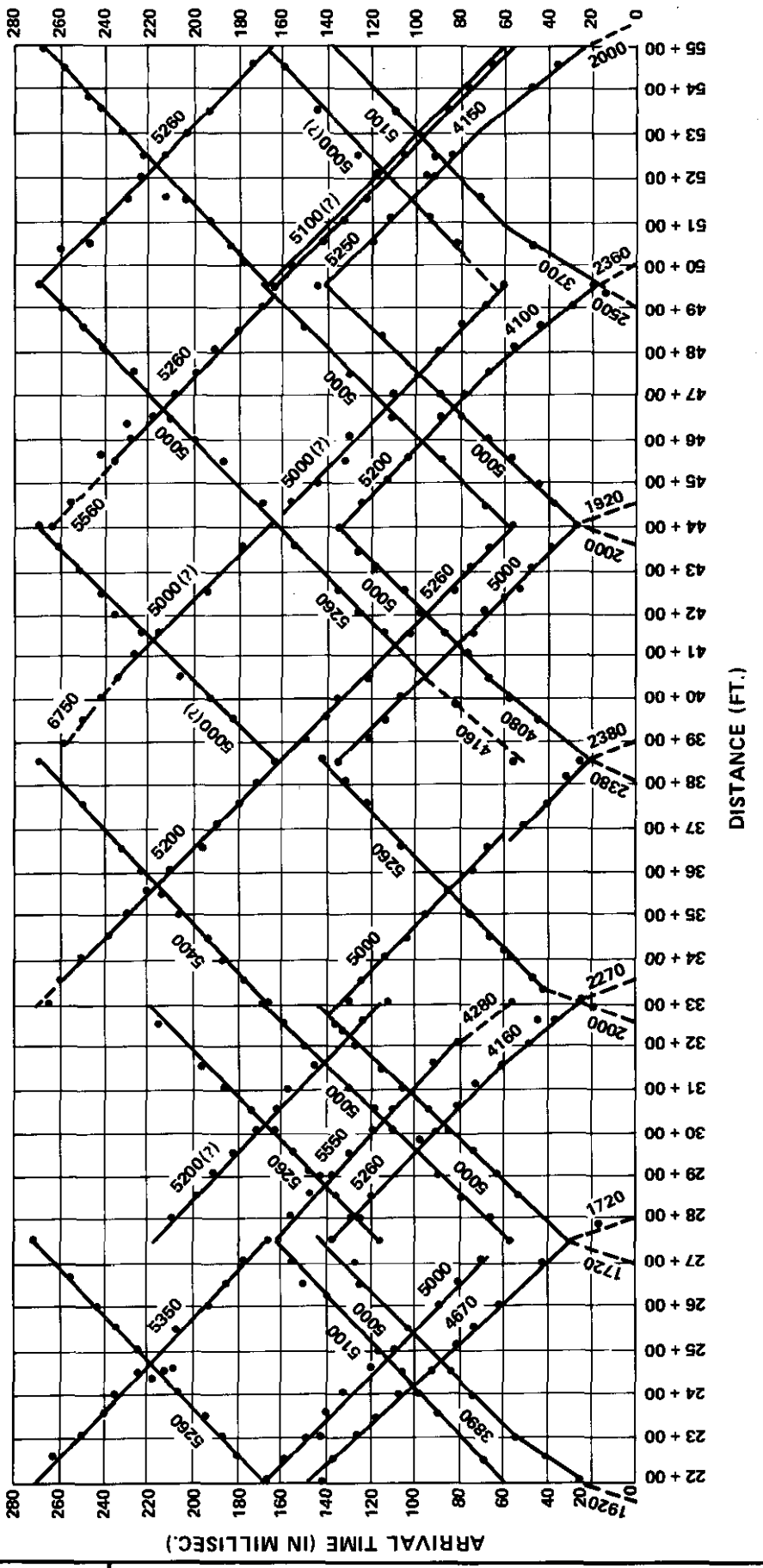
NOTE: THIS SITE PLAN SHOWS ONLY SELECTED BORING LOCATIONS AS REFERENCE POINTS, SEE FIGURE 2.5-3 FOR DETAILED PLAN OF BORING LOCATIONS.

LOUISIANA POWER & LIGHT CO.

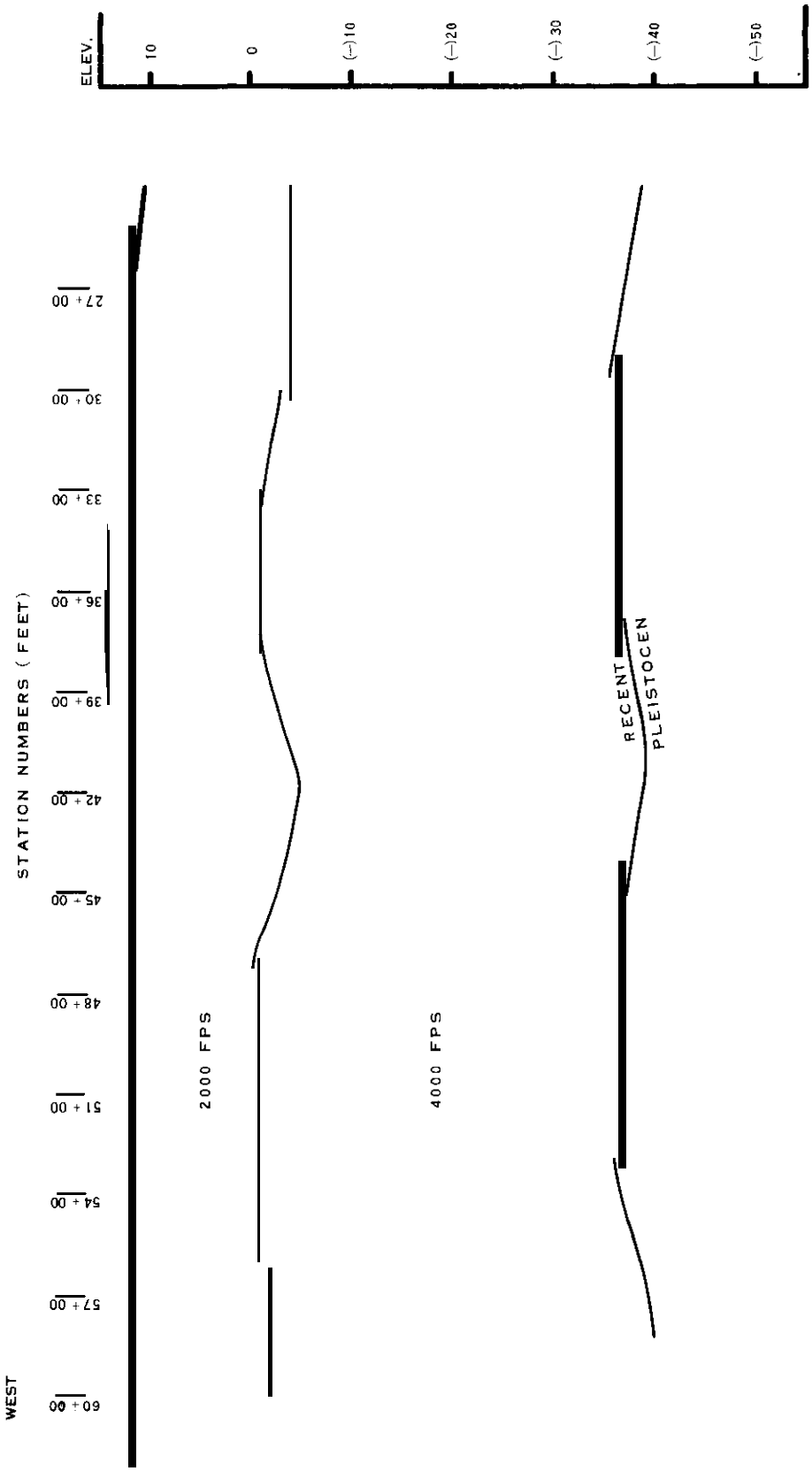
Waterford Steam Electric Station

SITE BORING PLAN

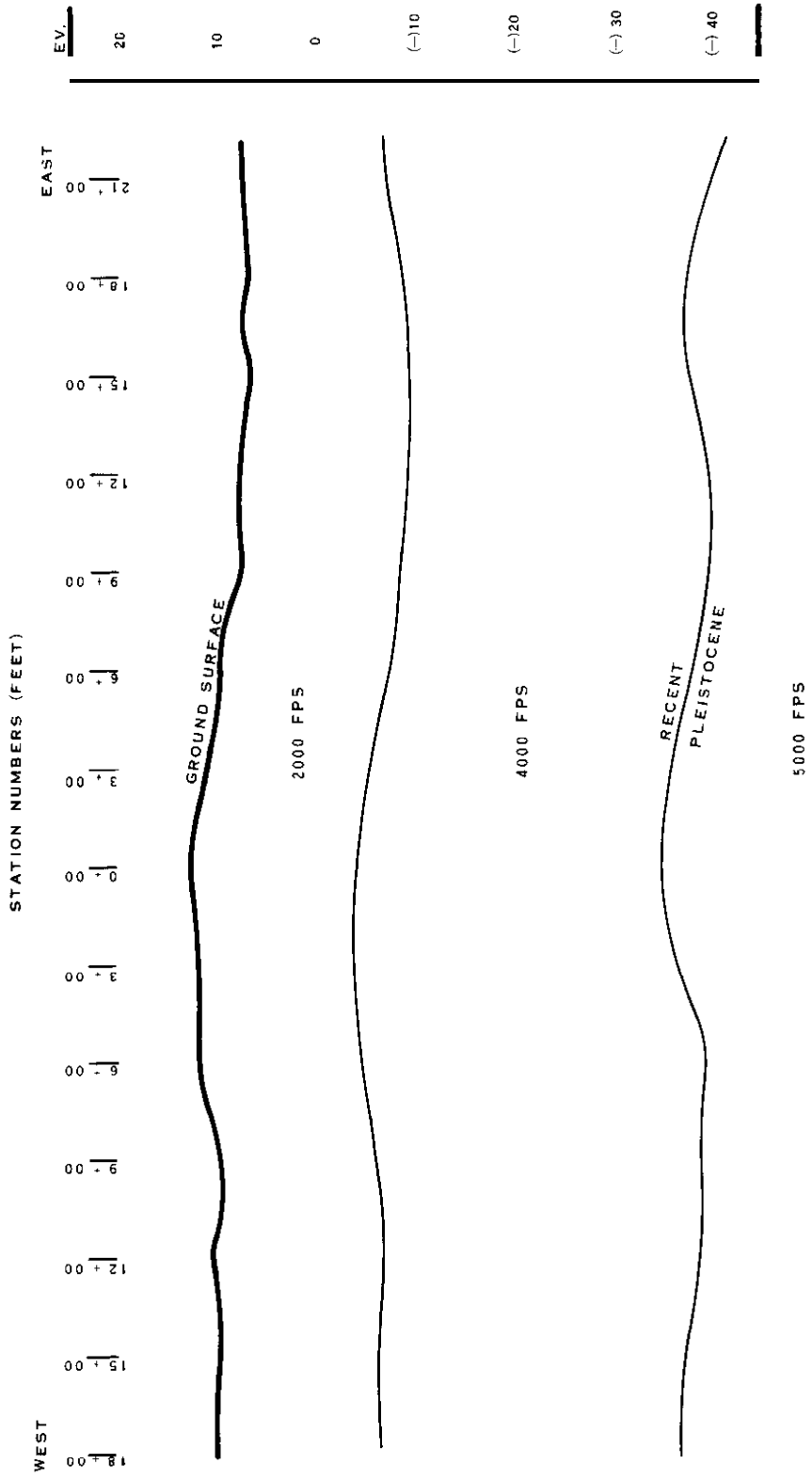
FIGURE 2.5-33



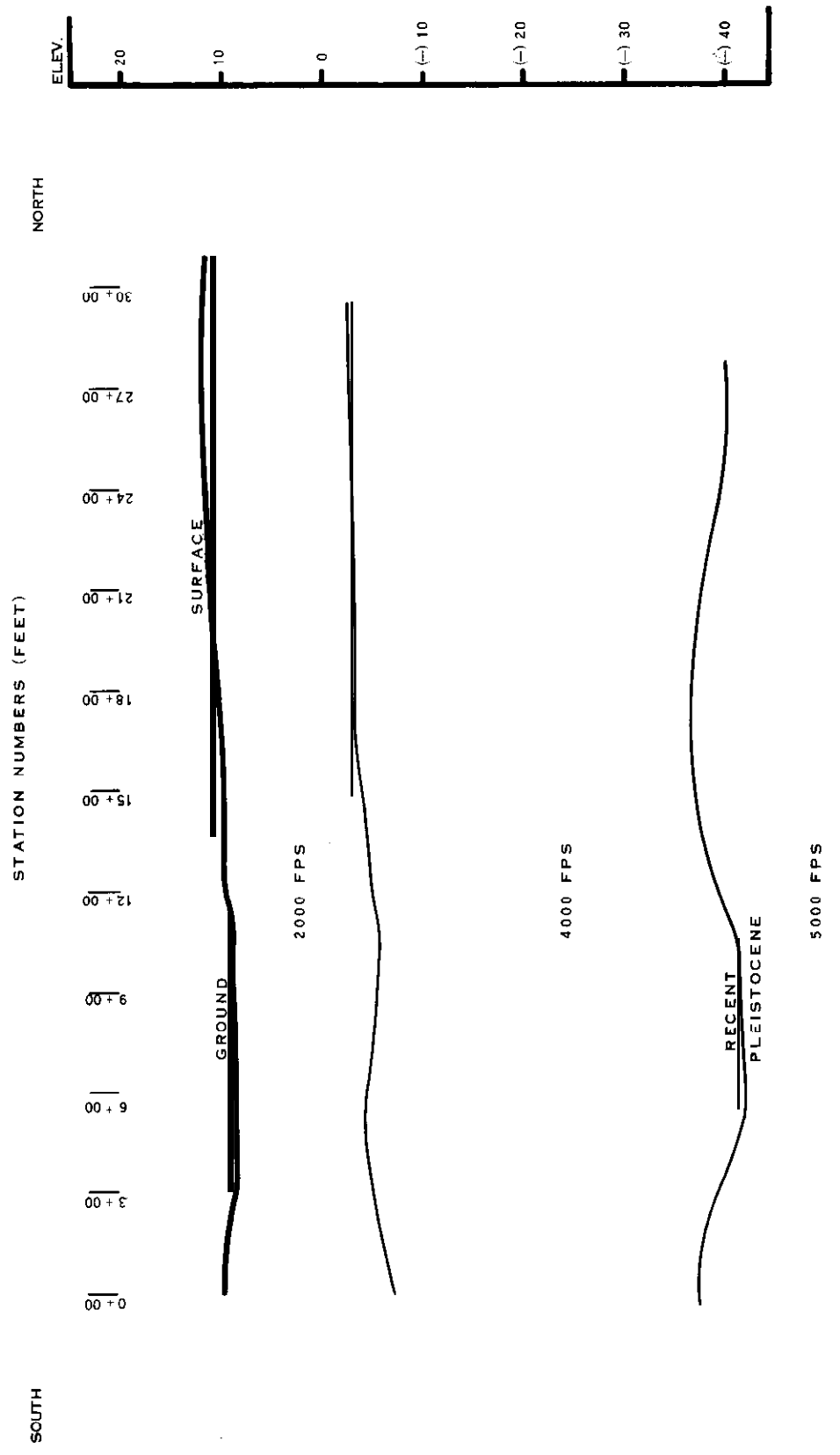
LOUISIANA POWER & LIGHT CO. Waterford Steam Electric Station	TIME-DISTANCE PLOT FOR FIGURE 27 SEISMIC TRAVERSE A-A'	Figure 2.5–34



LOUISIANA POWER & LIGHT CO. Waterford Steam Electric Station	SEISMIC TRAVERSE A-A'	Figure 2.5-35



LOUISIANA POWER & LIGHT CO. Waterford Steam Electric Station	SEISMIC TRAVERSE B-B'	Figure 2.5–36



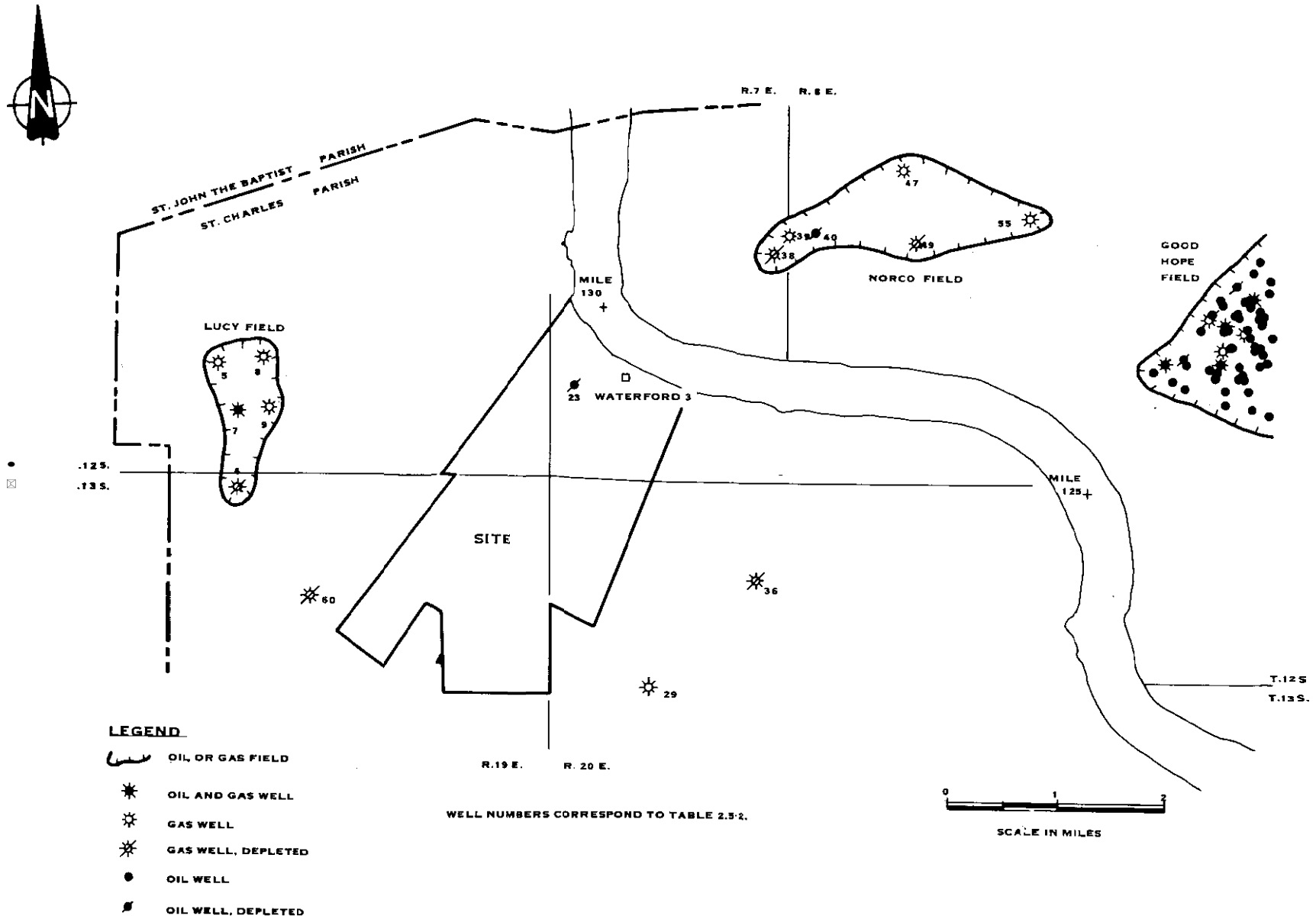
LOUISIANA POWER & LIGHT CO. Waterford Steam Electric Station	SEISMIC TRAVERSE C-C'	Figure 2.5–37

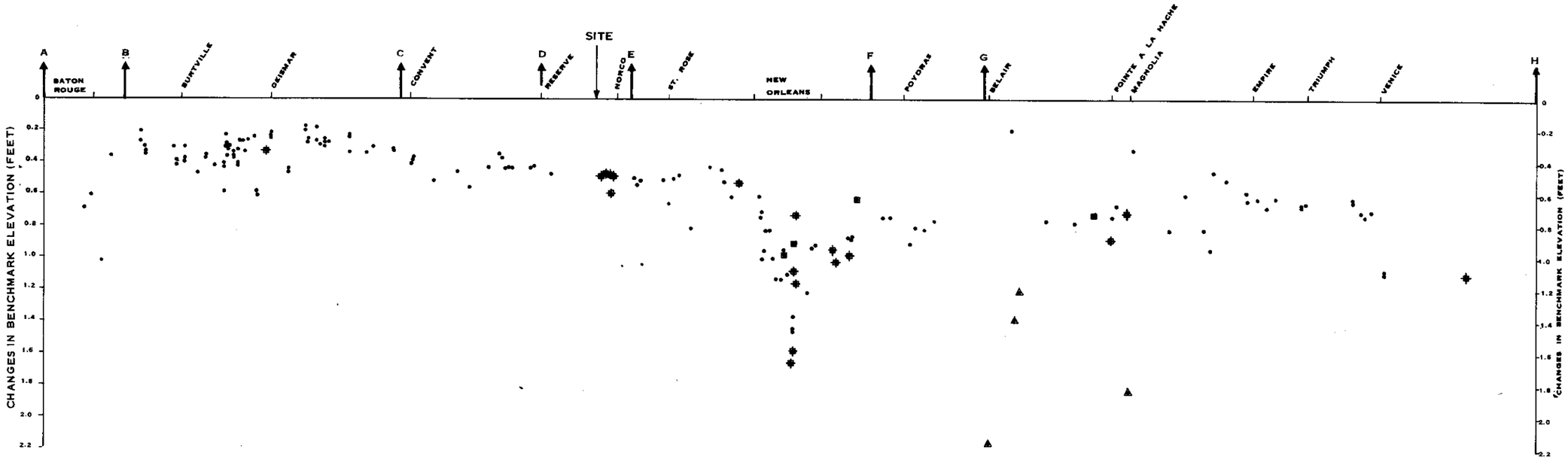
LOUISIANA POWER & LIGHT CO. Waterford **Steam** Electric Station	SEISMIC TRAVERSE D-D'	Figure 2.5-38

LOUISIANA POWER & LIGHT CO.
Waterford Steam Electric Station

OIL & GAS PRODUCTION IN THE SITE AREA

Figure 2.5-39





0 5 10 15 20

HORIZONTAL SCALE IN MILES
ALONG PROFILE LINE A-H
SHOWN ON FIGURE 2.5

LEGEND

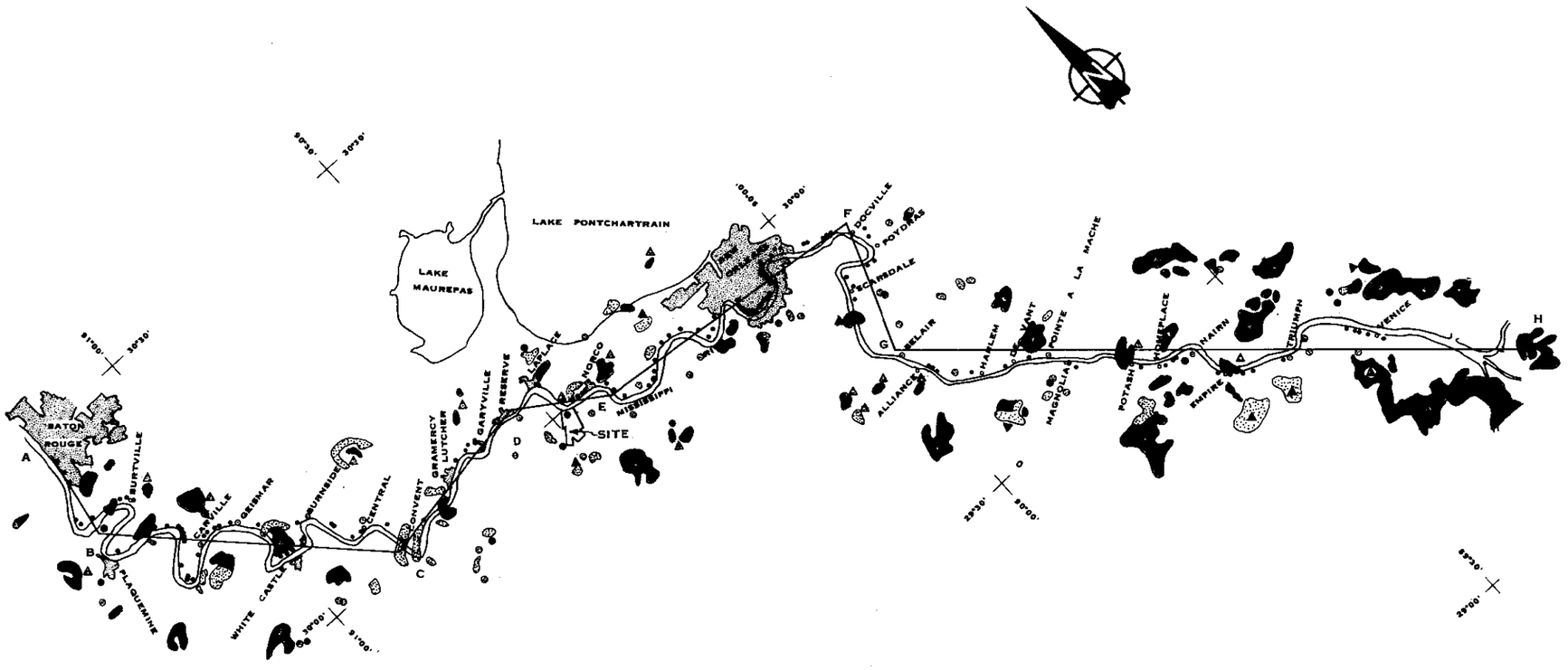
- BENCHMARK LOCATED OFF LEVEE ON SHORT CONCRETE PIPE OR BURIED TILE
- BENCHMARK LOCATED ON LEVEE
- BENCHMARK LOCATED ON DRIVEN PIPE OF UNKNOWN LENGTH
- BENCHMARK LOCATED ON STRUCTURE. FOUNDATION TYPE UNKNOWN

LOUISIANA POWER & LIGHT CO.

Waterford Steam Electric Station

CHANGE IN BENCHMARK ELEVATIONS
1938 – 1964

FIGURE 2.5-40

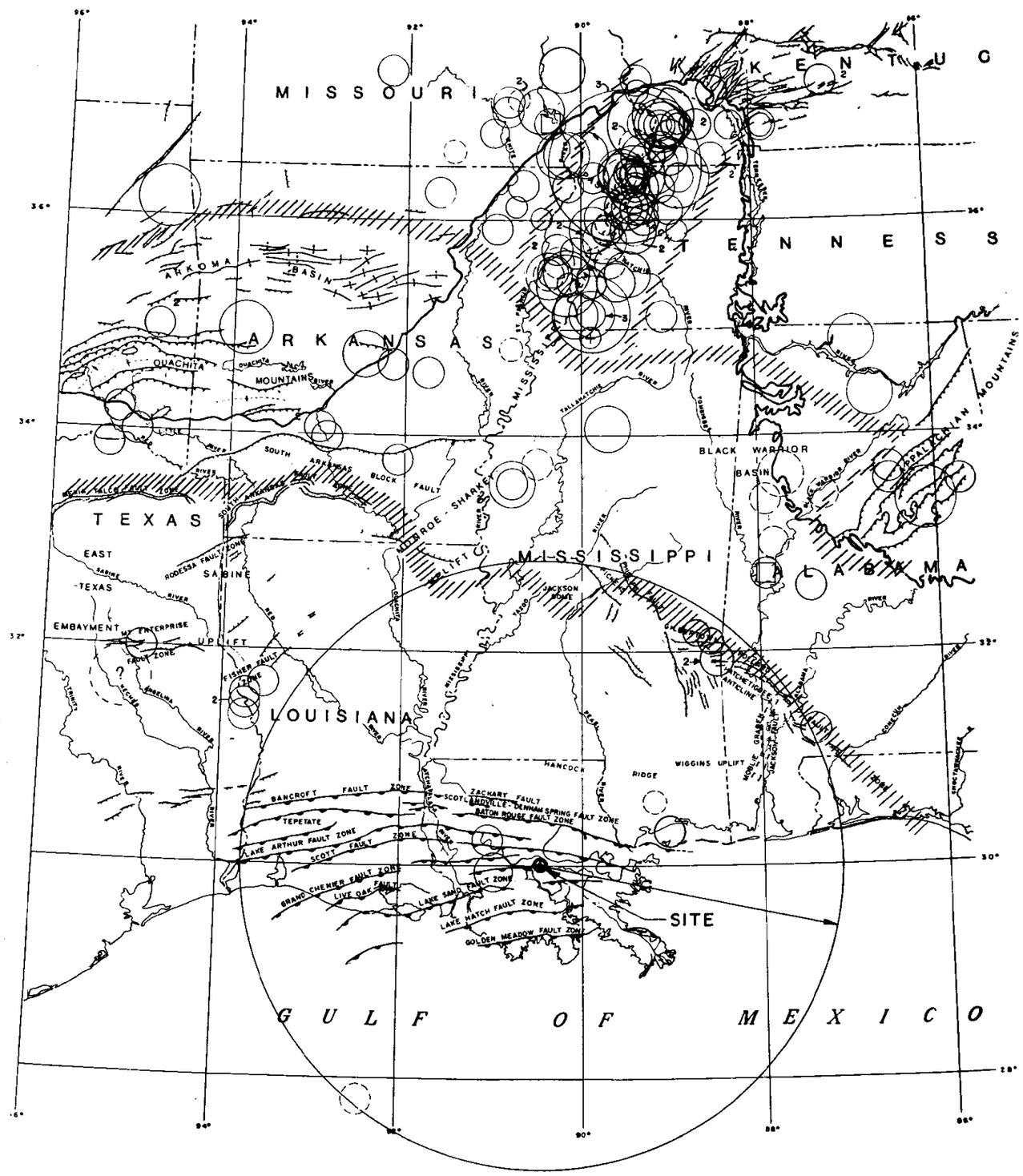


LOUISIANA POWER & LIGHT CO.

Waterford Steam Electric Station

BENCHMARK LOCATION MAP SHOWING
OIL AND GAS PRODUCTION
NEAR MISSISSIPPI RIVER

FIGURE 2.5-41



MODIFIED MERCALLI INTENSITY SCALE

XII

XI

X

IX

VIII

VII

VI-VII

VI

V-VI

V

IV-V

BOUNDARY BETWEEN PROVINCES

NUMBER OF EVENTS WITH SAME EPICENTER AND EPICENTRAL INTENSITY

EVENT WITH REPORTED MAGNITUDE - NO REPORTED EPICENTRAL INTENSITY

EVENT OF UNKNOWN INTENSITY AND MAGNITUDE

RUSK (TEXAS) EARTHQUAKE, INTENSITY QUESTIONED SEE SECTION 2.5.2

LEGEND

ANTICLINE

SYNCLINE

THRUST FAULT
SAW TEETH ON UPTHROWN SIDE

NORMAL FAULT
HATCHURES ON DOWNTHROWN SIDE

BOUNDARY OF GULF COASTAL PROVINCE

GROWTH FAULT
WITH SYMBOLS ON LOWER SIDE

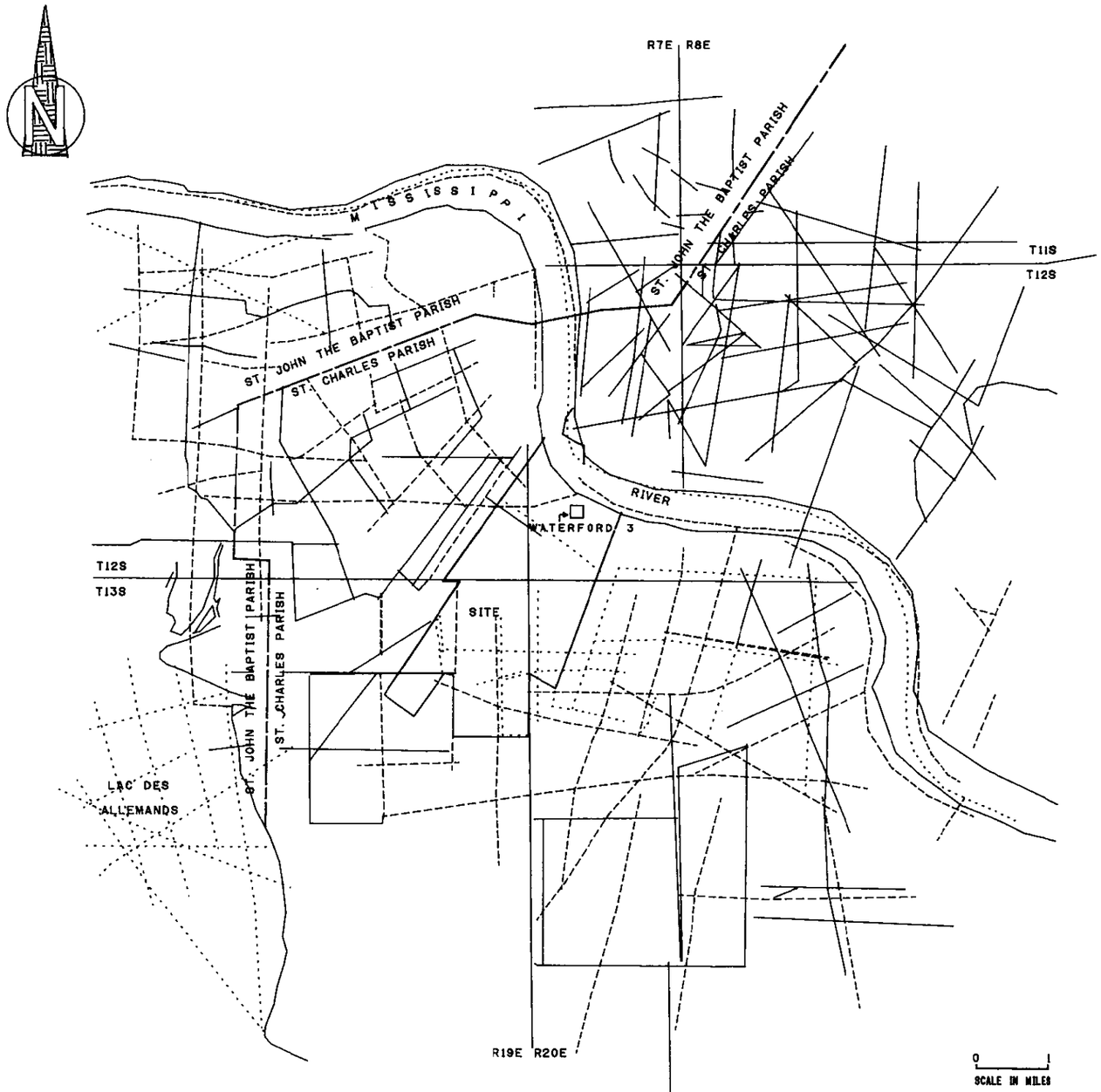
0 40 80 100
SCALE IN MILES

LOUISIANA POWER & LIGHT CO.

Waterford Steam Electric Station

HISTORIC EARTHQUAKE EPICENTERS WITH PROVINCES OF UNIQUE CRUSTAL PATTERNS, GEOLOGIC HISTORY AND EARTHQUAKE HISTORY

FIGURE 2.5-42



LEGEND

SEISMIC REFLECTION LINES AVAILABLE FROM GTS CORP. OF NEW ORLEANS, LOUISIANA AS OF APRIL 1981

SEISMIC REFLECTION LINES AVAILABLE FROM WILLISCO OF NEW ORLEANS, LOUISIANA AS OF APRIL 1981

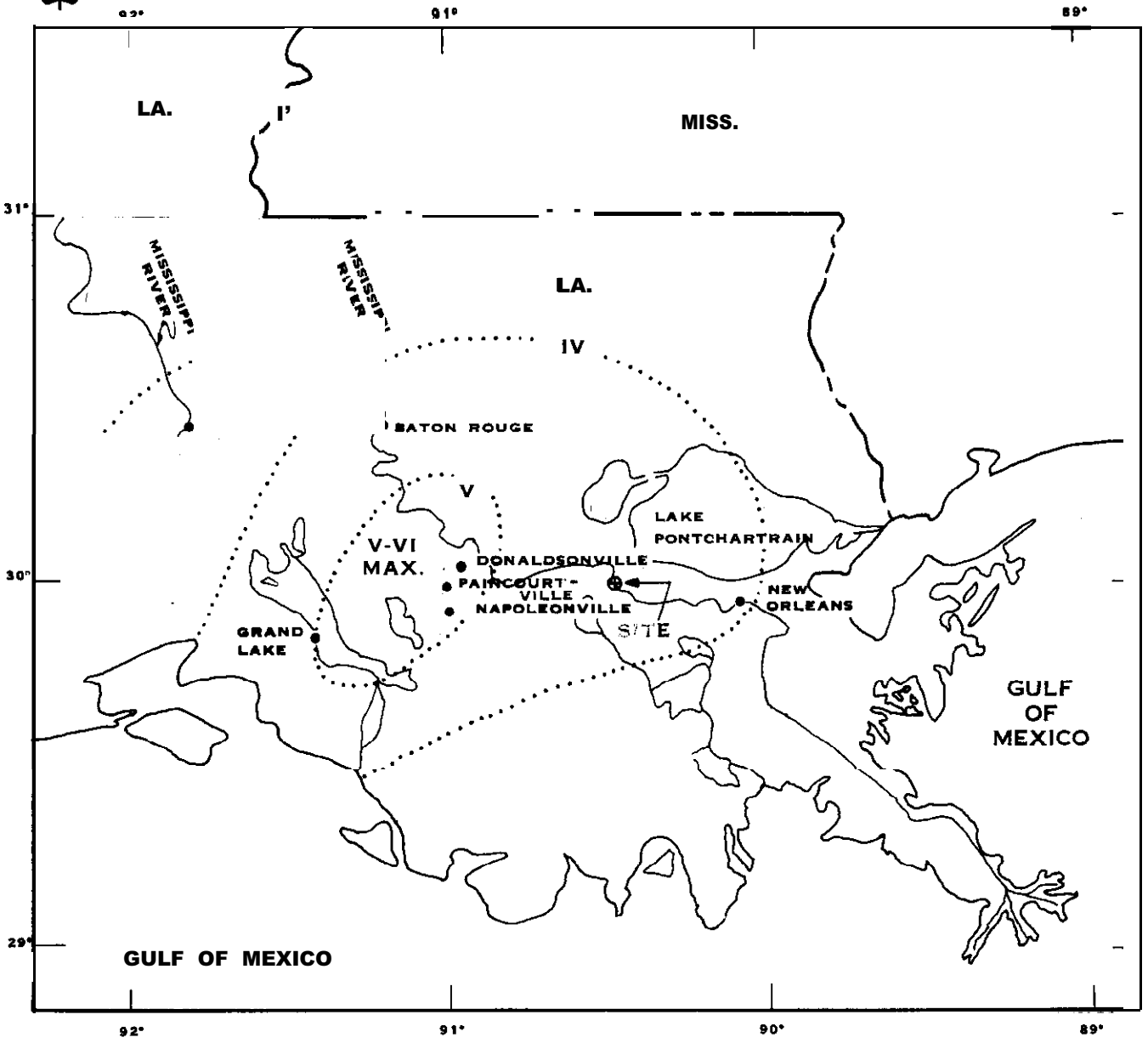
SEISMIC REFLECTION LINES AVAILABLE FROM SEISMIC DATA EXCHANGE INC. OF NEW ORLEANS, LOUISIANA AS OF APRIL 1981

LOUISIANA POWER & LIGHT CO.

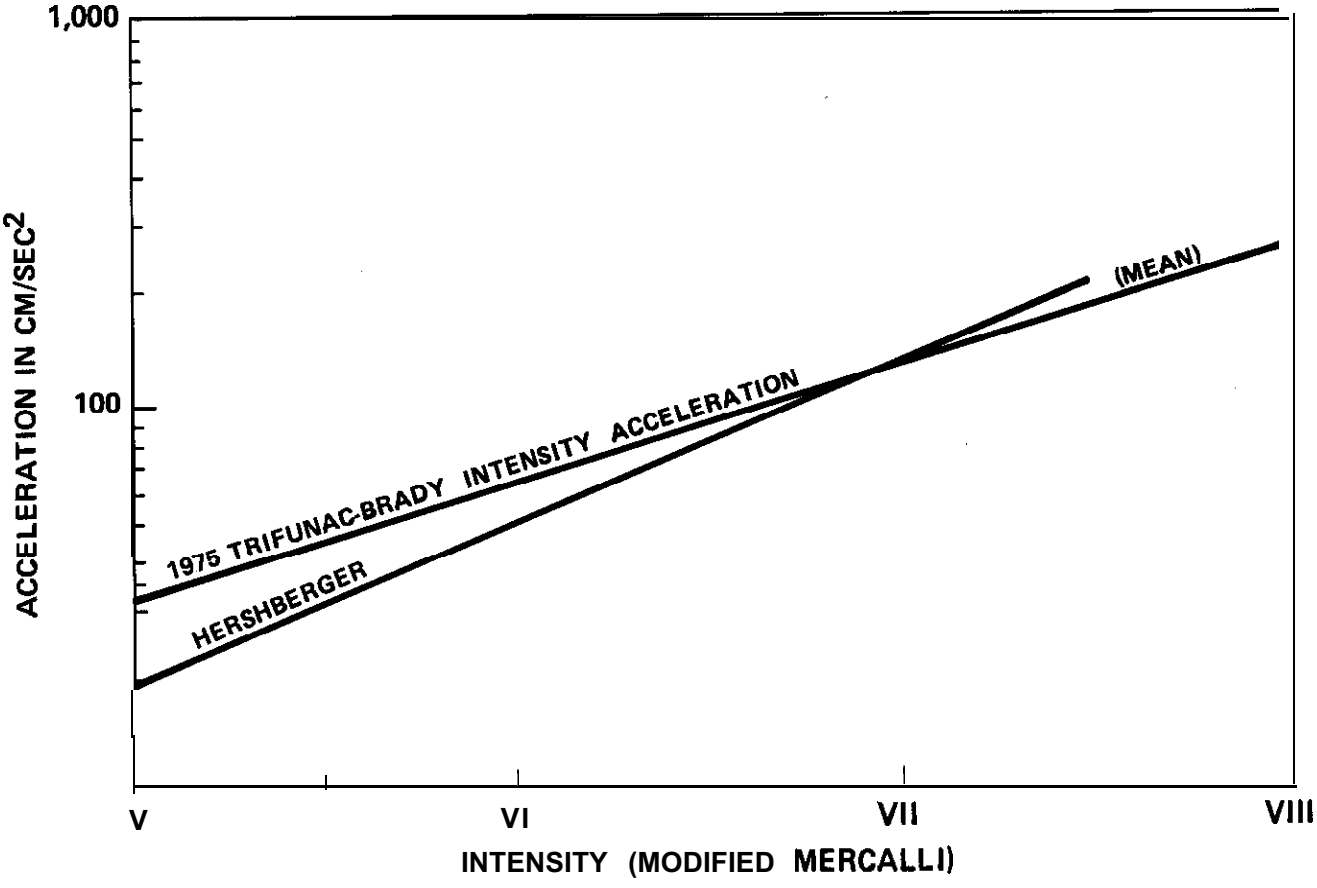
Waterford Steam Electric Station #3

SEISMIC REFLECTION COVERAGE MAP

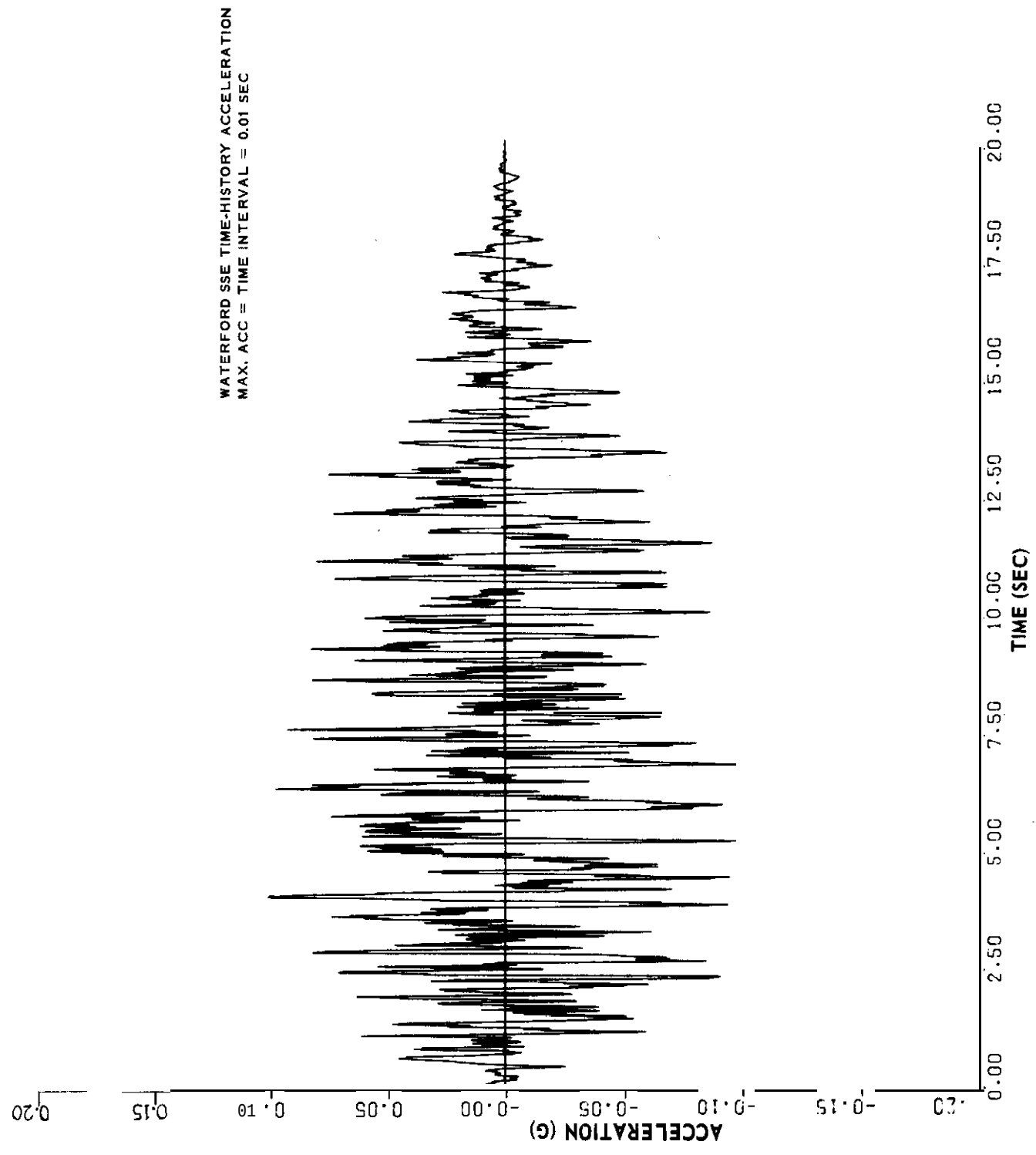
FIGURE 2.5-42A



LOUISIANA POWER & LIGHT CO. Woterford Steom Electric Station	USC&GS ISOSEISMAL MAP OF DONALDSONVILLE EARTHQUAKE - OCTOBER 19, 1930	Figure 2.5-43



LOUISIANA POWER & LIGHT CO. Waterford Steam Electric Station	WATERFORD SITE INTENSITY ACCELERATION RELATIONSHIP	Figure 2.5-44



LOUISIANA POWER & LIGHT CO. Waterford Steam Electric Station	SYNTHETIC EARTHQUAKE TIME – HISTORY	Figure 2.5-45

VACHERIE FISSURE – OCCURRED APRIL 1943

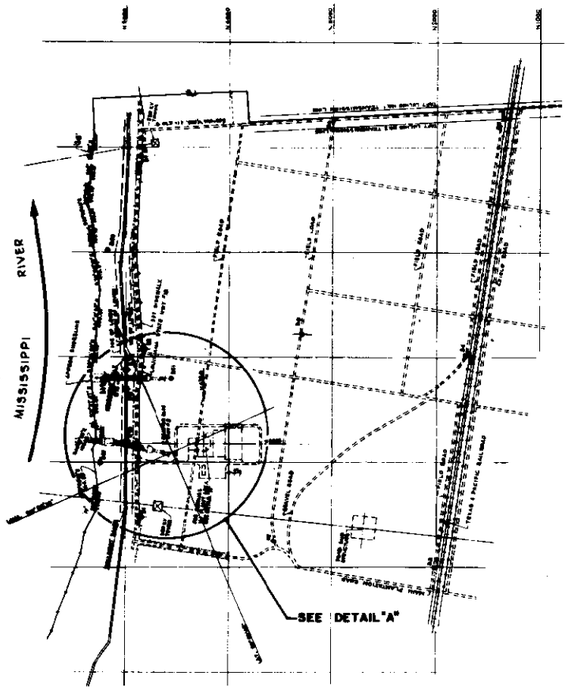
SOURCE: LAW ENGINEERING TEST COMPANY
ATLANTA, GEORGIA
DECEMBER 1970 JOB NO. SA-239

LOUISIANA POWER & LIGHT CO. Waterford Steam Electric Station	VACHERIE FISSURE DISPLACEMENT ACROSS FURROW	Figure 2.5-46

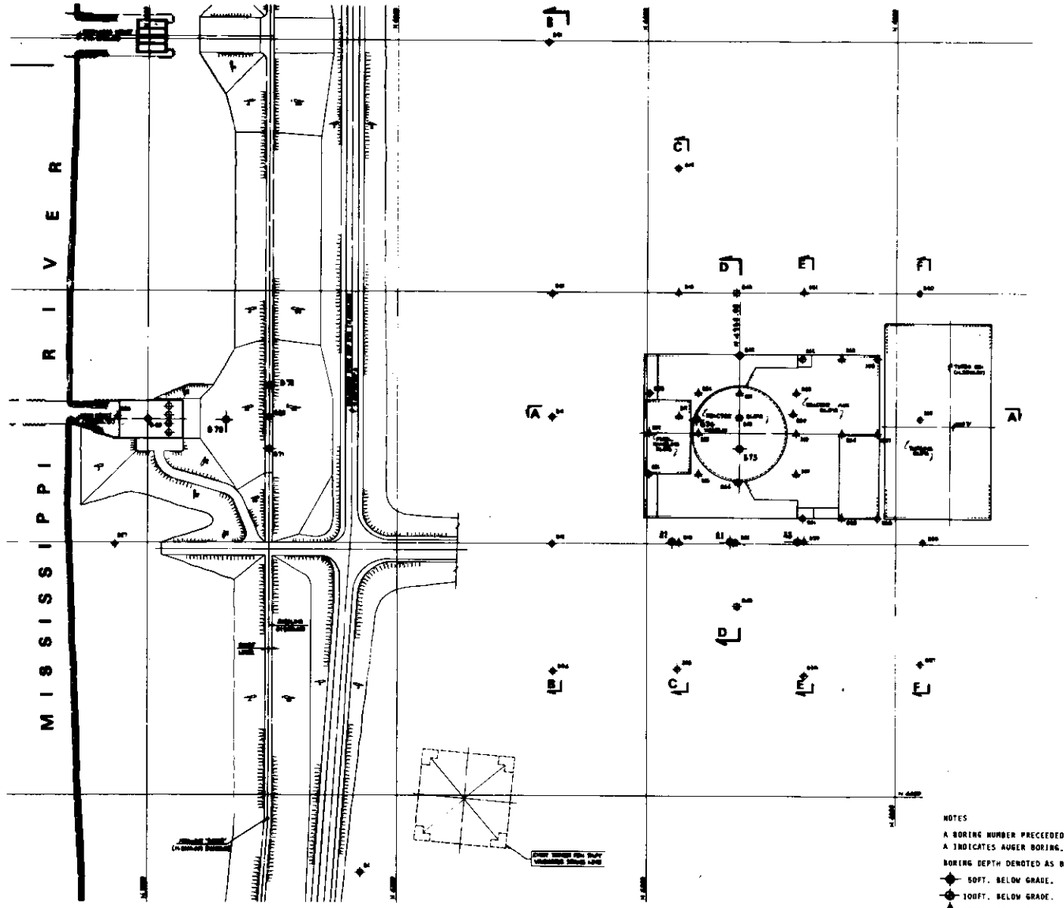
VACHERIE FISSURE-OCCURRED APRIL 1943

SOURCE: LAW ENGINEERING TEST COMPANY
ATLANTA, GEORGIA
DECEMBER 1970 JOB NO. SA-239

LOUISIANA POWER & LIGHT CO. Waterford Steam Electric Station	VACHERIE FISSURE SHAPE OF FISSURE	Figure 2.5-47



GENERAL PLAN



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B25, B55, B59, B64 AND B73 ARE CONTINUOUS SAMPLES.

BORING NO.	LOCATION	
B 1	N 4988	W 4922
B 2	N 3651	W 4799
B 3	N 2020	W 5002
B 4	N 1707	W 2994
B 5	N 1340	W 716
B 6	N 2998	W 823
B 7	N 4827	W 1035
B 8	N 4820	W 2929
B 9	N 3900	W 2783
B 10	N 4882	W 3402
B 11	N 4582	W 3798
B 12	N 4681	W 4000
B 13		
B 14		
B 15		
B 16	N 4351	W 3800
B 17	N 4380	W 3797
B 18	N 4350	W 3999
B 19	N 4352	W 3402
B 20		
B 21	N 4859	W 3202
B 22		
B 23		
B 24		
B 25	N 5000	W 3800
B 26	N 5249	W 3799
B 27	N 5282	W 4002
B 28	N 5280	W 1981
B 29	N 4150	W 3995
B 30	N 4167	W 3793
B 31	N 4151	W 3899
B 32		
B 33		
B 34	N 4550	W 4203
B 35	N 4582	W 4200
B 36	N 4150	W 4210
B 37	N 3960	W 4190
B 38	N 3986	W 3997
B 39	N 3960	W 3801
B 40	N 3981	W 3800
B 41	N 4259	W 3999
B 42	N 4253	W 3699
B 43	N 4257	W 4099
B 44	N 4252	W 3902
B 45	N 4250	W 3800
B 46	N 4258	W 3600
B 47		
B 48		
B 49		
B 50		
B 51	N 4397	W 3890
B 52	N 4397	W 3825
B 53	N 4397	W 3760
B 54	N 4315	W 3740
B 55	N 4315	W 3825
B 56	N 4138	W 3890
B 57	N 4250	W 3760
B 58	N 4160	W 3760
B 59	N 4160	W 3825
B 60	N 4180	W 3890
B 61	N 4150	W 3953
B 62	N 4150	W 3708
B 63	N 4090	W 3705
B 64	N 4092	W 3825
B 65	N 4090	W 3953
B 66	N 4030	W 3953
B 67	N 4090	W 3828
B 68	N 4030	W 3705
B 69	N 4200	W 3805
B 70	N 5069	W 3805
B 71	N 5000	W 3850
B 72	N 5000	W 3750
B 73	N 4350	W 3850
B 74	N 4325	W 3800
A 1	N 4268	W 3899
A 2	N 4388	W 3899
A 3	N 4160	W 3995

* DENOTES BORING NUMBER NOT USED.

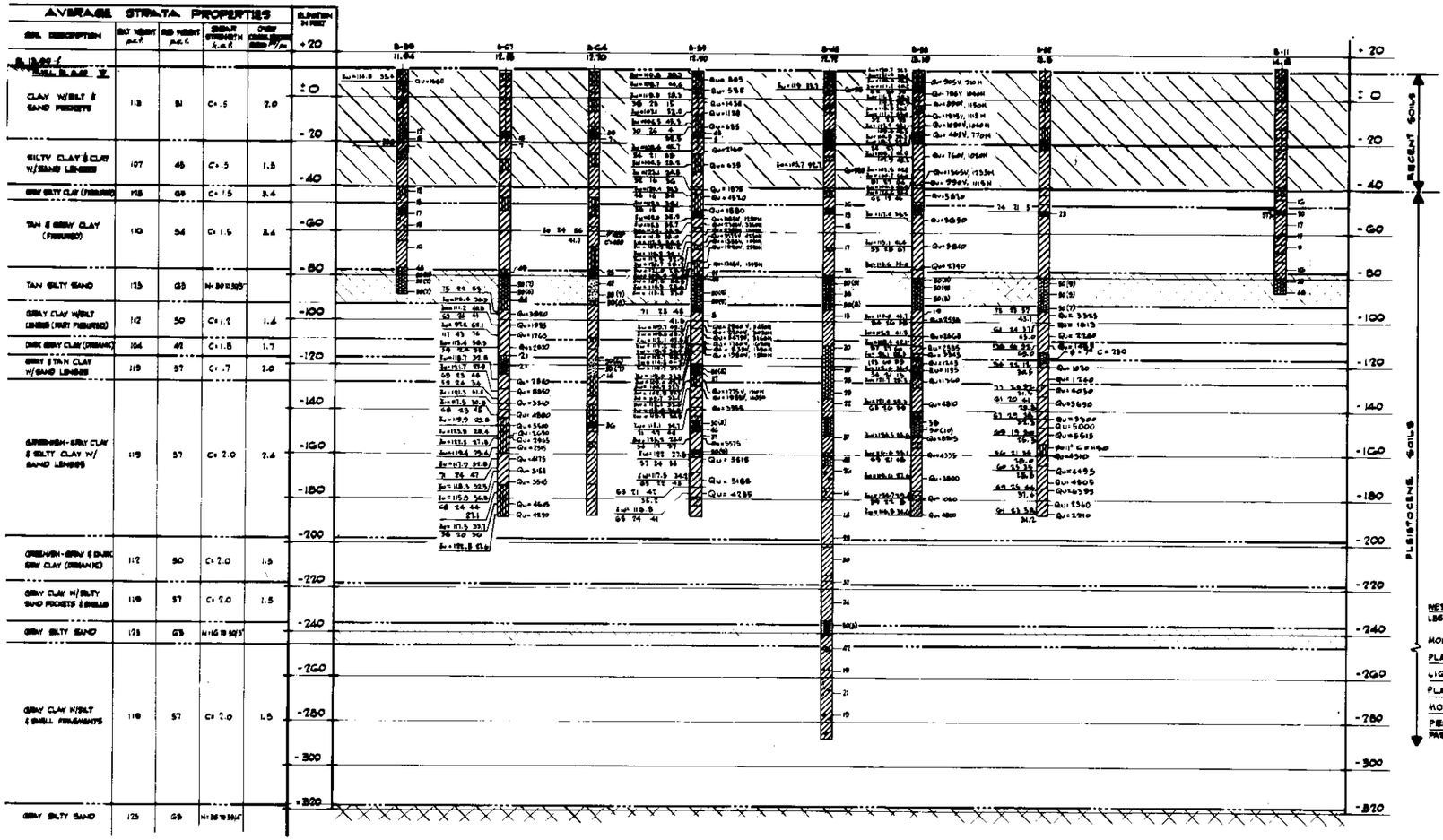
LOUISIANA POWER & LIGHT CO.

Waterford Steam Electric Station

BORING PLOT PLAN
FIGURE 2.5-48

AVERAGE STRATA PROPERTIES

SOIL DESCRIPTION	DRY WEIGHT p.c.f.	SUB WEIGHT p.c.f.	SHEAR STRENGTH k.s.f.	OVER CONSOLIDATION RATIO
CLAY W/SILT & SAND POCKETS	113	51	C+.5	2.0
SILTY CLAY & CLAY W/SAND LENSES	107	45	C+.5	1.5
GRAY SILTY CLAY (FISSURED)	113	63	C+1.5	3.4
TAN & GRAY CLAY (FISSURED)	110	54	C+1.5	3.4
TAN SILTY SAND	125	63	N=30 TO 50/5"	
GRAY CLAY W/SILT LENSES (PART FISSURED)	112	50	C+1.2	1.6
DARK GRAY CLAY (ORGANIC)	104	41	C+1.8	1.7
GRAY STAN CLAY W/SAND LENSES	119	57	C+.7	2.0
GREENISH-GRAY CLAY & SILTY CLAY W/ SAND LENSES	119	57	C+ 2.0	2.6
GREENISH-GRAY & DARK GRAY CLAY (ORGANIC)	112	50	C+ 2.0	1.5
GRAY CLAY W/SILTY SAND POCKETS & SHELLS	119	57	C+ 2.0	1.5
GRAY SILTY SAND	125	63	N=16 TO 50/5"	
GRAY CLAY W/SILT & SHELL FRAGMENTS	119	57	C+ 2.0	1.5
GRAY SILTY SAND	125	63	N=30 TO 50/4"	



PROFILE A - A

HORIZONTAL 0 10 20 30 60 90 120

VERTICAL 0 10 20 40 60 80

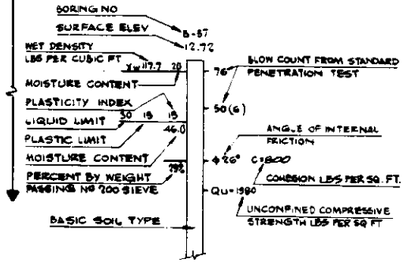
SCALE IN FEET

BORING LEGEND

- DENOTES SAND
- DENOTES SILT
- DENOTES CLAY
- DENOTES SHELLS

PREDOMINANT TYPE SHOWN HEAVY
MODIFYING TYPE SHOWN LIGHT

LABORATORY TEST DATA

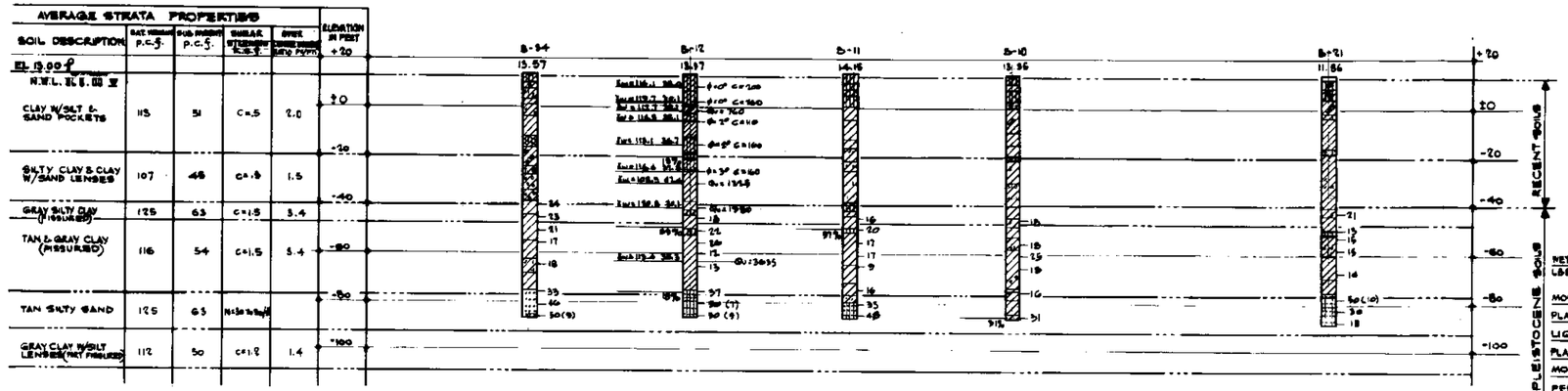


LOUISIANA POWER & LIGHT CO.

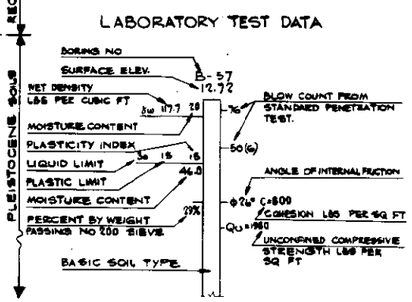
Waterford Steam Electric Station

BORING PROFILE A-A'
FIGURE 2.5-49

AVERAGE STRATA PROPERTIES					
SOIL DESCRIPTION	SAT. WEIGHT p.c.f.	SUB WEIGHT p.c.f.	SHEAR STRENGTH K.S.F.	OVER CONSOLIDATION RATIO (O.C.R.)	ELEVATION IN FEET +20
EL. 13.00 ℄					
N.W.L. EL 8.00 ▽					
CLAY W/SILT & SAND POCKETS	113	51	C=.5	2.0	±0
					-20
SILTY CLAY & CLAY W/SAND LENSES	107	45	C=.5	1.5	
					-40
GRAY SILTY CLAY (FISSURED)	125	63	C=1.5	3.4	
TAN & GRAY CLAY (FISSURED)	116	54	C=1.5	3.4	-80
TAN SILTY SAND	125	63	N=30 to 50		-80
GRAY CLAY W/SILT LENSES (NOT FISSURED)	112	50	C=1.2	1.4	-100



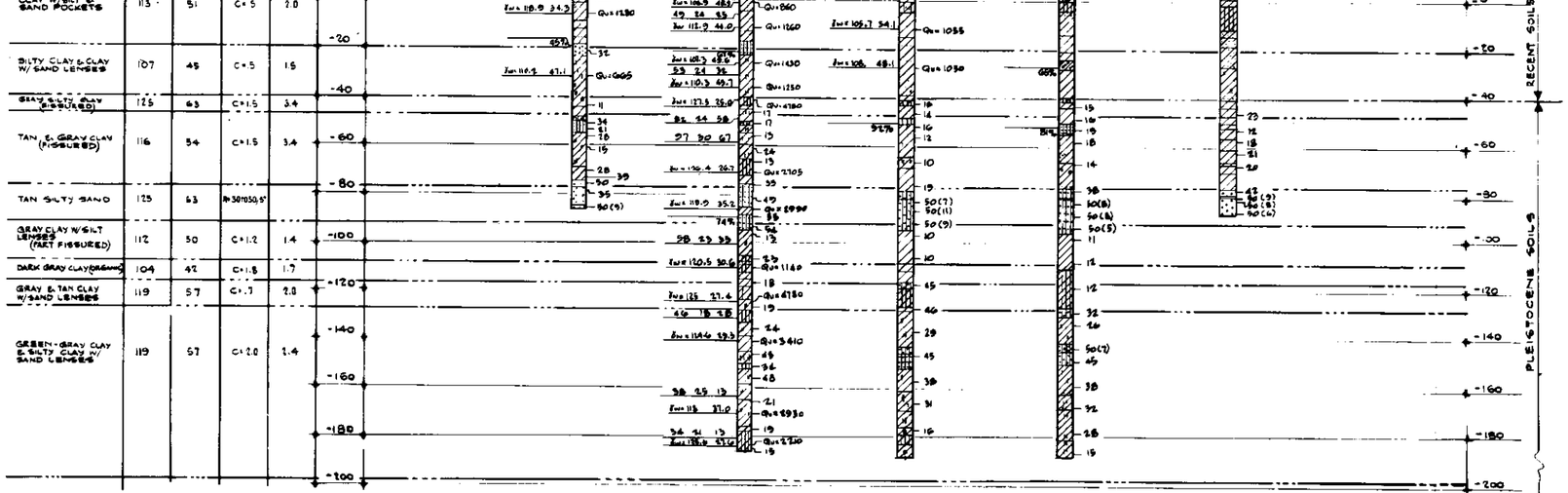
LABORATORY TEST DATA



PROFILE B - B

HORIZONTAL 0 20 40 60 120 180 240
VERTICAL 0 10 20 40 60 80
SCALE IN FEET

AVERAGE STRATA PROPERTIES					
SOIL DESCRIPTION	SAT. WEIGHT p.c.f.	SUB WEIGHT p.c.f.	SHEAR STRENGTH K.S.F.	OVER CONSOLIDATION RATIO (O.C.R.)	ELEVATION IN FEET +20
EL. 13.00 ℄					
N.W.L. EL 8.80 ▽					
CLAY W/SILT & SAND POCKETS	113	51	C=.5	2.0	±0
					-20
SILTY CLAY & CLAY W/SAND LENSES	107	45	C=.5	1.5	
					-40
GRAY SILTY CLAY (FISSURED)	125	63	C=1.5	3.4	
TAN & GRAY CLAY (FISSURED)	116	54	C=1.5	3.4	-60
TAN SILTY SAND	125	63	N=30 to 50		-80
GRAY CLAY W/SILT LENSES (NOT FISSURED)	112	50	C=1.2	1.4	-100
DARK GRAY CLAY (ORGANIC)	104	42	C=.5	1.7	
GRAY & TAN CLAY W/SAND LENSES	119	57	C=.7	2.8	-120
					-140
GREEN-GRAY CLAY & SILTY CLAY W/ SAND LENSES	119	57	C=2.0	3.4	-160
					-180
					-200



BORING LEGEND

- DENOTES SAND
- DENOTES SILT
- DENOTES CLAY
- DENOTES SHELLS

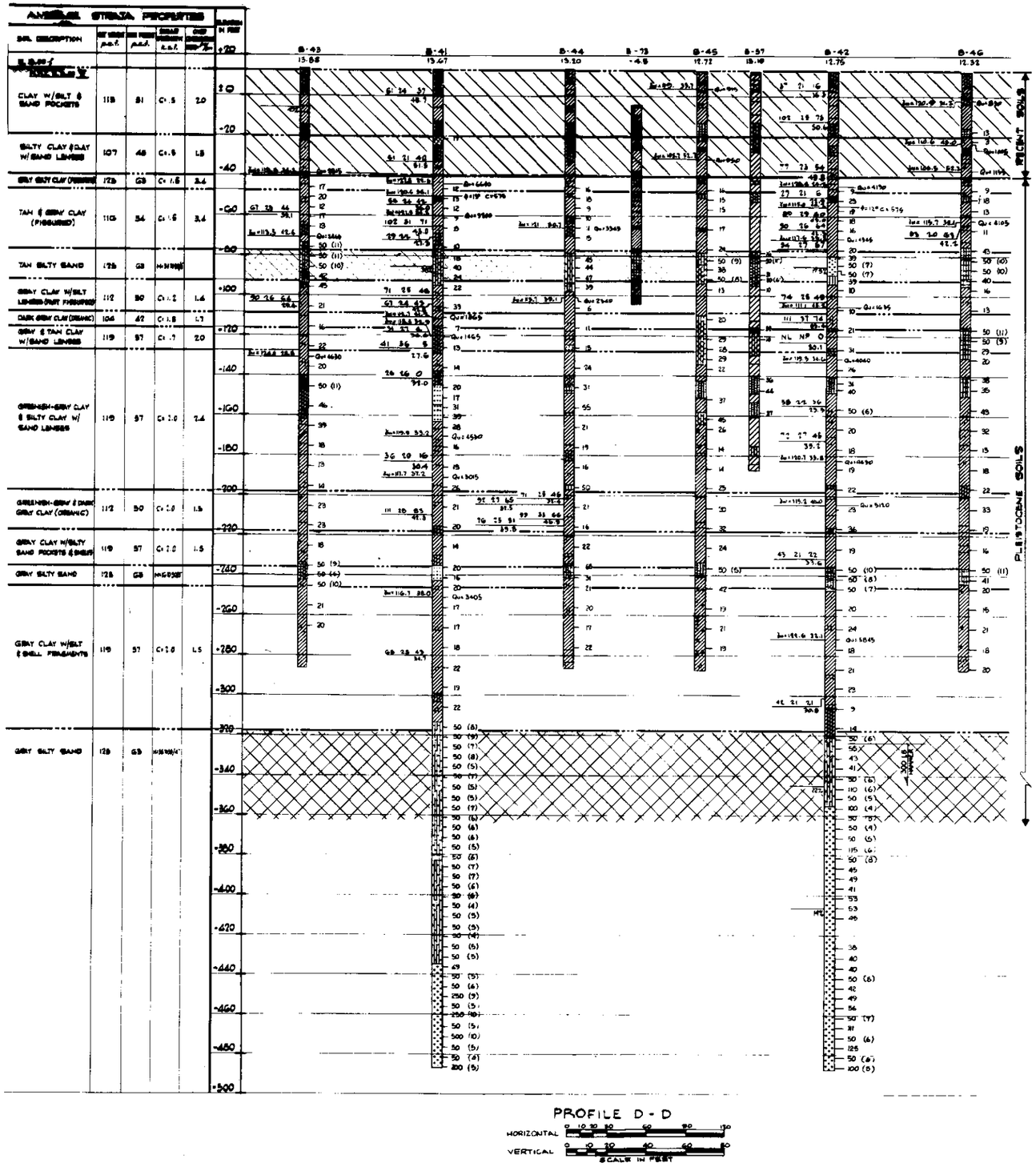
PREDOMINANT TYPE SHOWN HEAVY
MODIFYING TYPE SHOWN LIGHT

PROFILE C - C

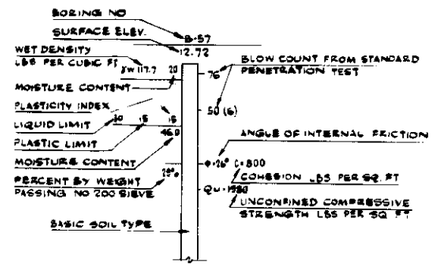
HORIZONTAL 0 20 40 60 120 180 240
VERTICAL 0 10 20 40 60 80
SCALE IN FEET

LOUISIANA POWER & LIGHT CO.
Waterford Steam Electric Station

BORING PROFILE B-B' & C-C'
FIGURE 2.5-50



LABORATORY TEST DATA



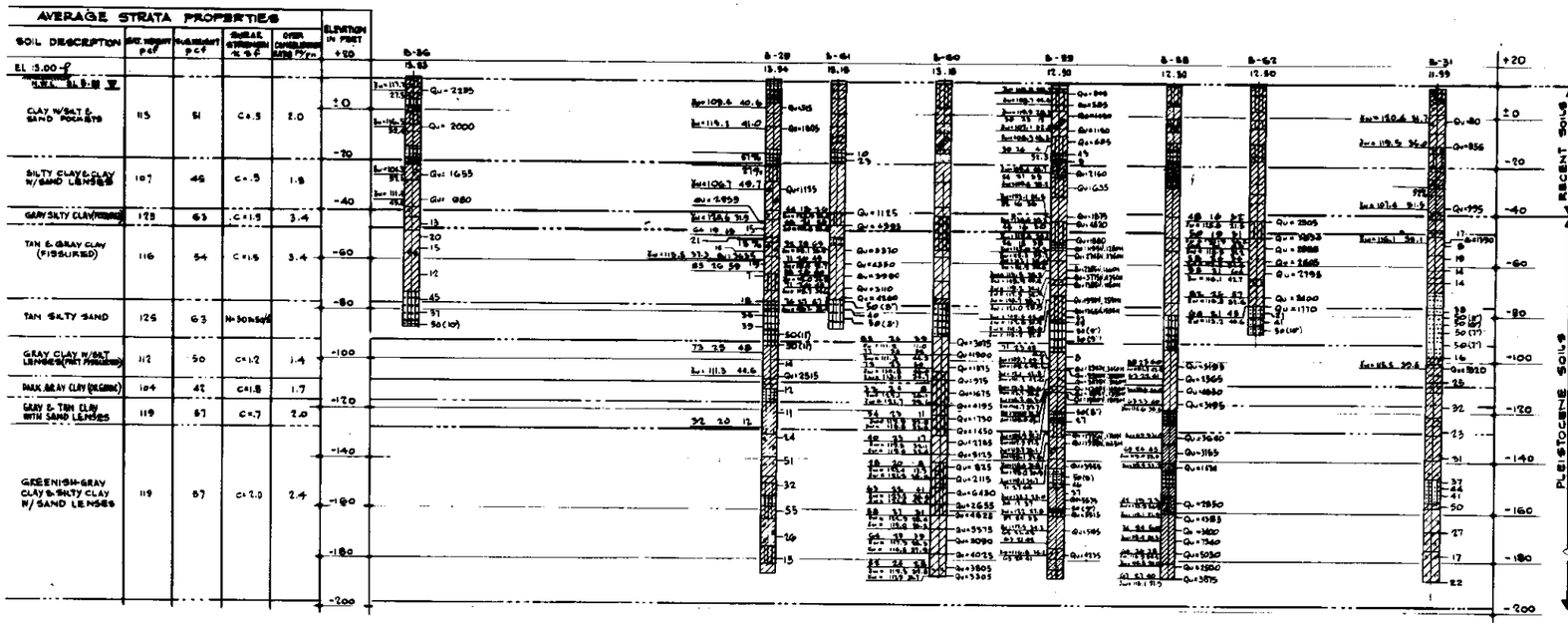
BORING LEGEND

- DENOTES SAND
- DENOTES SILT
- DENOTES CLAY
- DENOTES SHELLS

PREDOMINANT TYPE SHOWN HEAVY
MODIFYING TYPE SHOWN LIGHT

LOUISIANA POWER & LIGHT CO.
Waterford Steam Electric Station

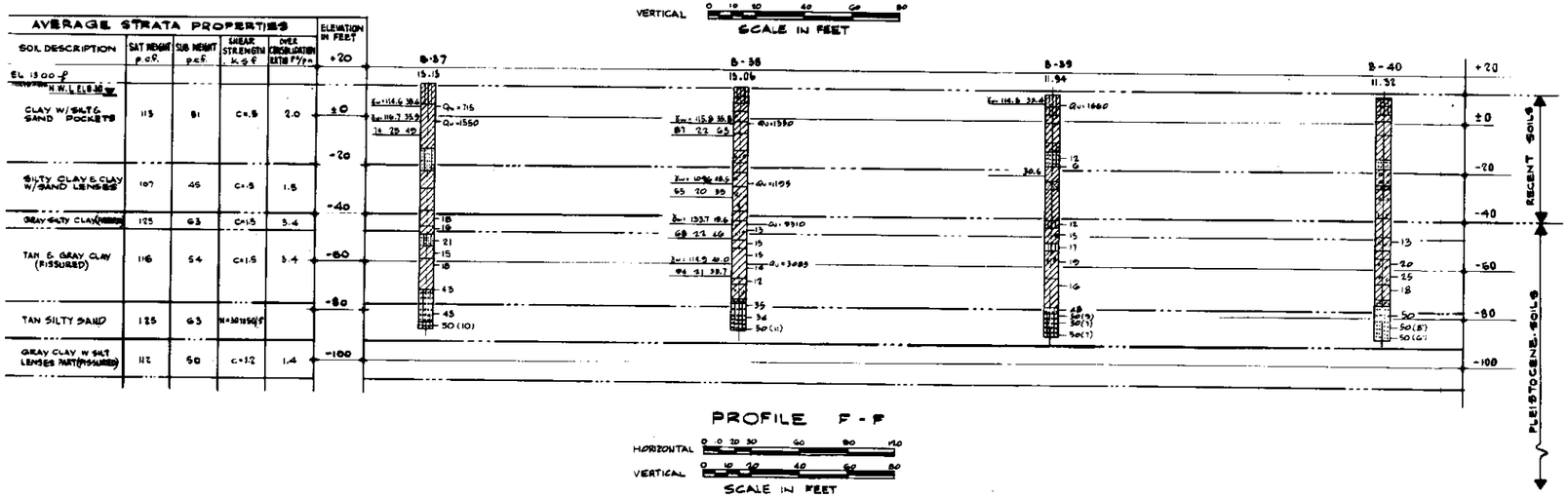
BORING PROFILE D-D'
FIGURE 2.5-51



PROFILE E-E

HORIZONTAL 0 10 20 30 60 90 120
VERTICAL 0 10 30 40 60 80

SCALE IN FEET



PROFILE F-F

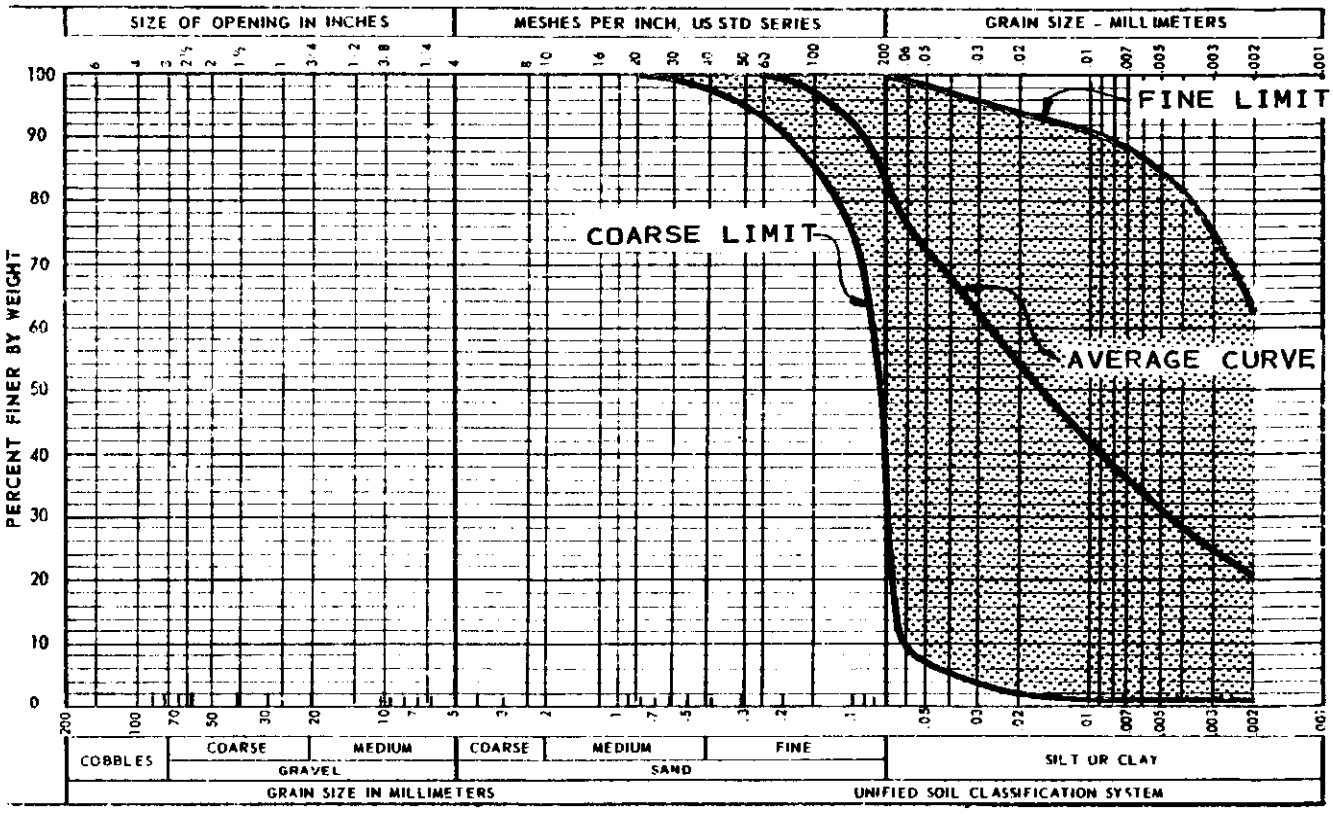
HORIZONTAL 0 10 20 30 60 90 120
VERTICAL 0 10 30 40 60 80

SCALE IN FEET

LOUISIANA POWER & LIGHT CO.
Waterford Steam Electric Station

BORING PROFILE E-E & F-F
FIGURE 2.5-52

GRAIN SIZE DISTRIBUTION RANGE

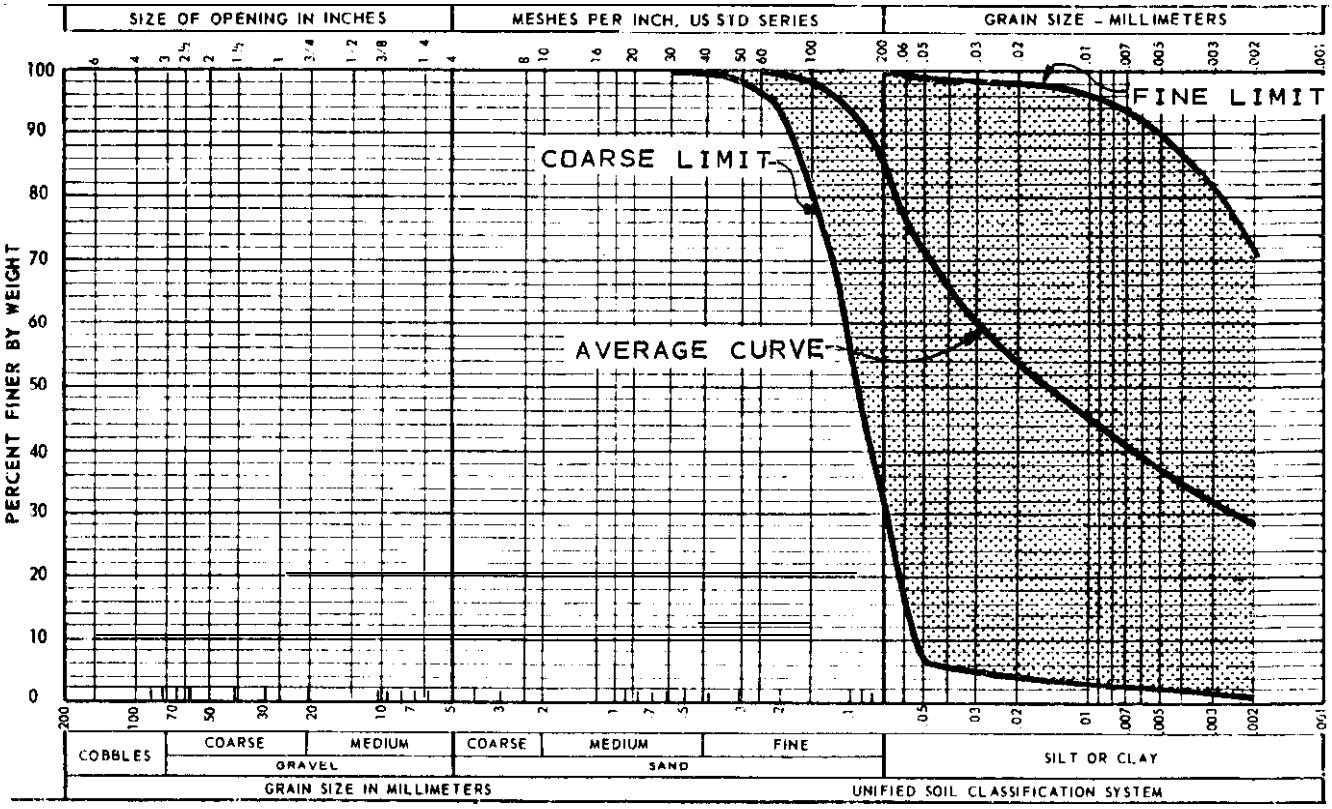


SOIL DESCRIPTION:
CLAY AND SILTY CLAY WITH SILT AND SAND LENSES-(RECENT MATERIAL)

GRADE TO -40FT. MSL

LOUISIANA POWER & LIGHT CO. Waterford Steam Electric Station	**GRAIN SIZE DISTRIBUTION SUMMARY CURVE GRADE TO -40 FT. MSL**	**Figure 2.5–53**

GRAIN SIZE DISTRIBUTION RANGE

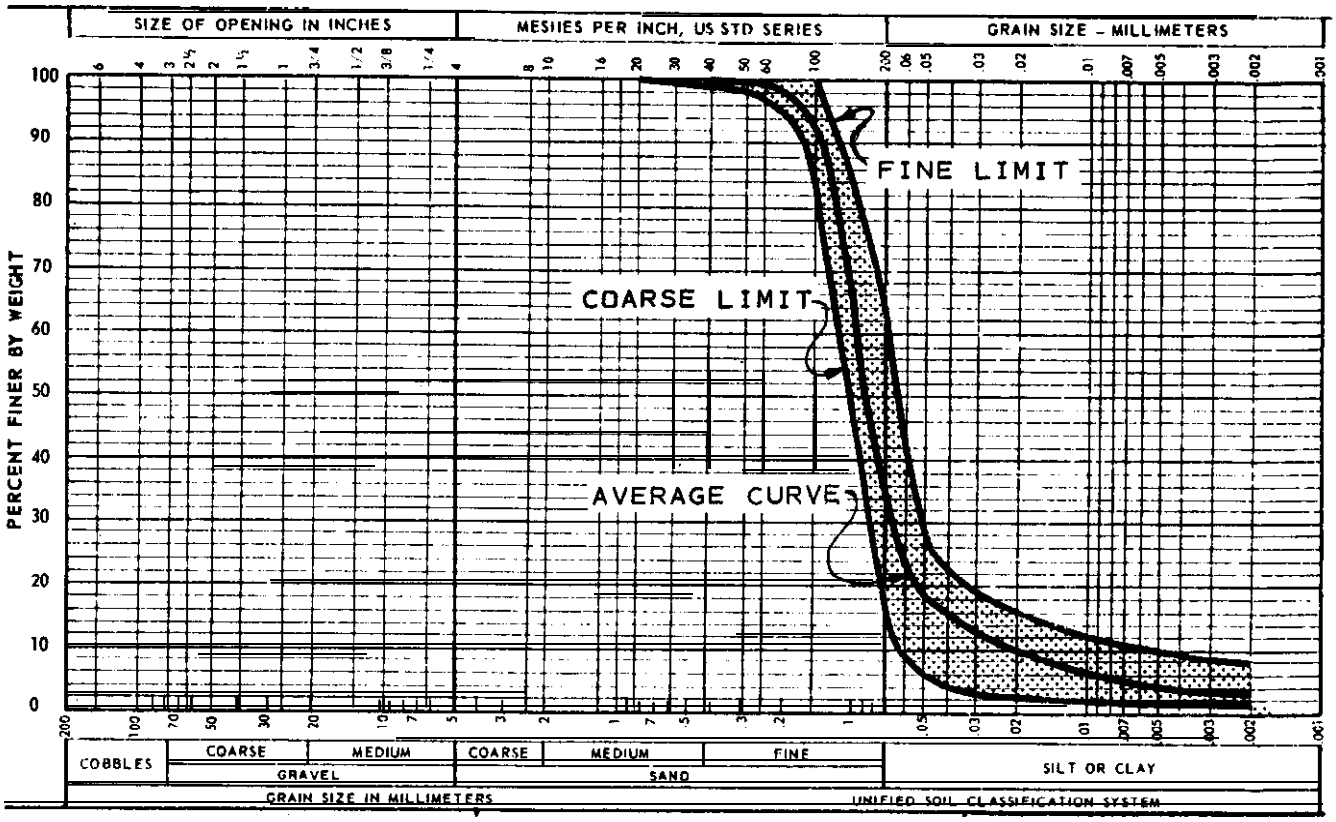


SOIL DESCRIPTION:
STIFF TAN AND GRAY FISSURED CLAY

-40FT. MSL TO -77FT. MSL

LOUISIANA POWER & LIGHT CO. Waterford Steam Electric Station	GRAIN SIZE DISTRIBUTION SUMMARY CURVE -40 FT. MSL TO -77 FT. MSL	**Figure 2.5-54**

GRAIN SIZE DISTRIBUTION RANGE

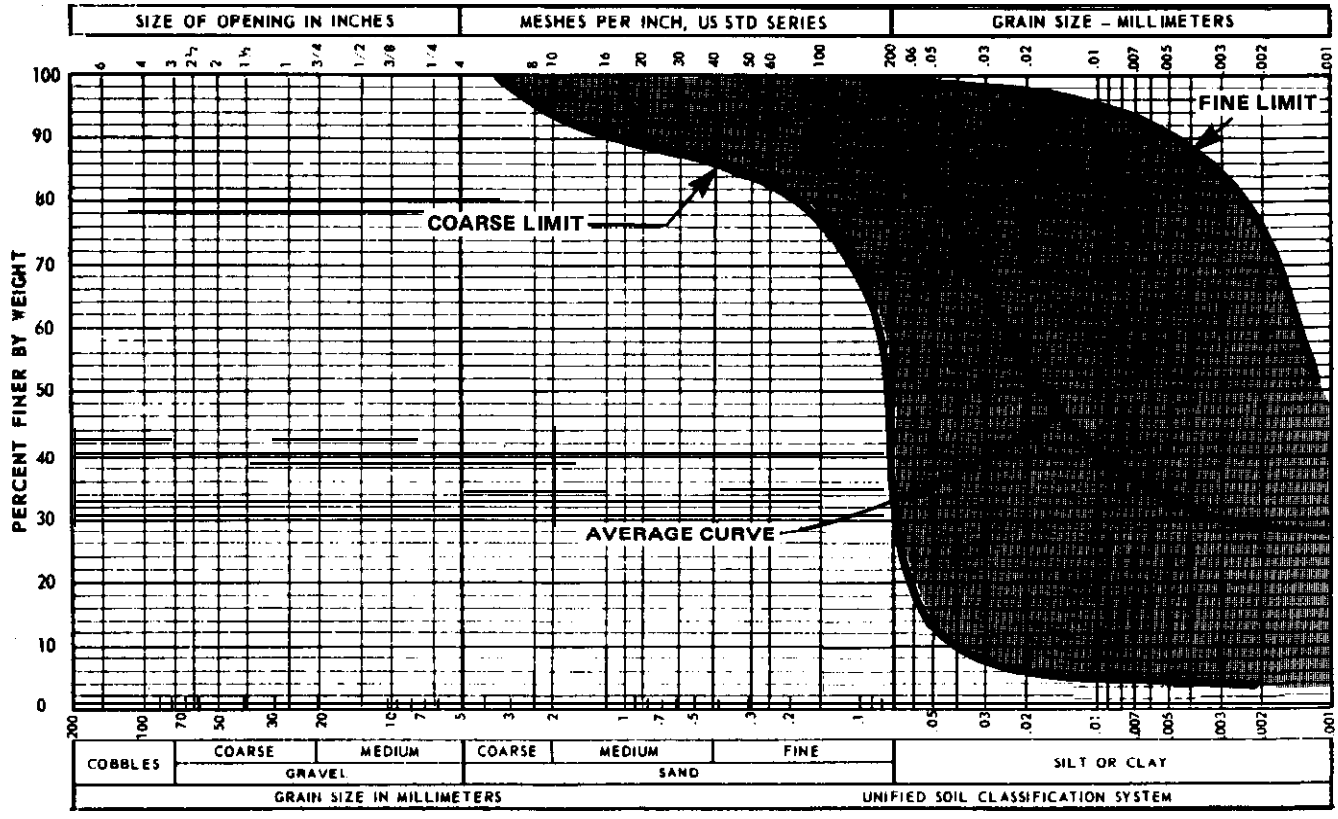


SOIL DESCRIPTION:
VERY DENSE TAN SILTY SAND

-77FT. MSL TO -92FT. MSL

LOUISIANA PBWER & LIGHT CO. Waterford Steam Electric Station	GRAIN SIZE DISTRIBUTION SUMMARY CURVE -77 FT. MSL TO -92 FT. MSL	Figure 2.5-55

GRAIN SIZE DISTRIBUTION RANGE

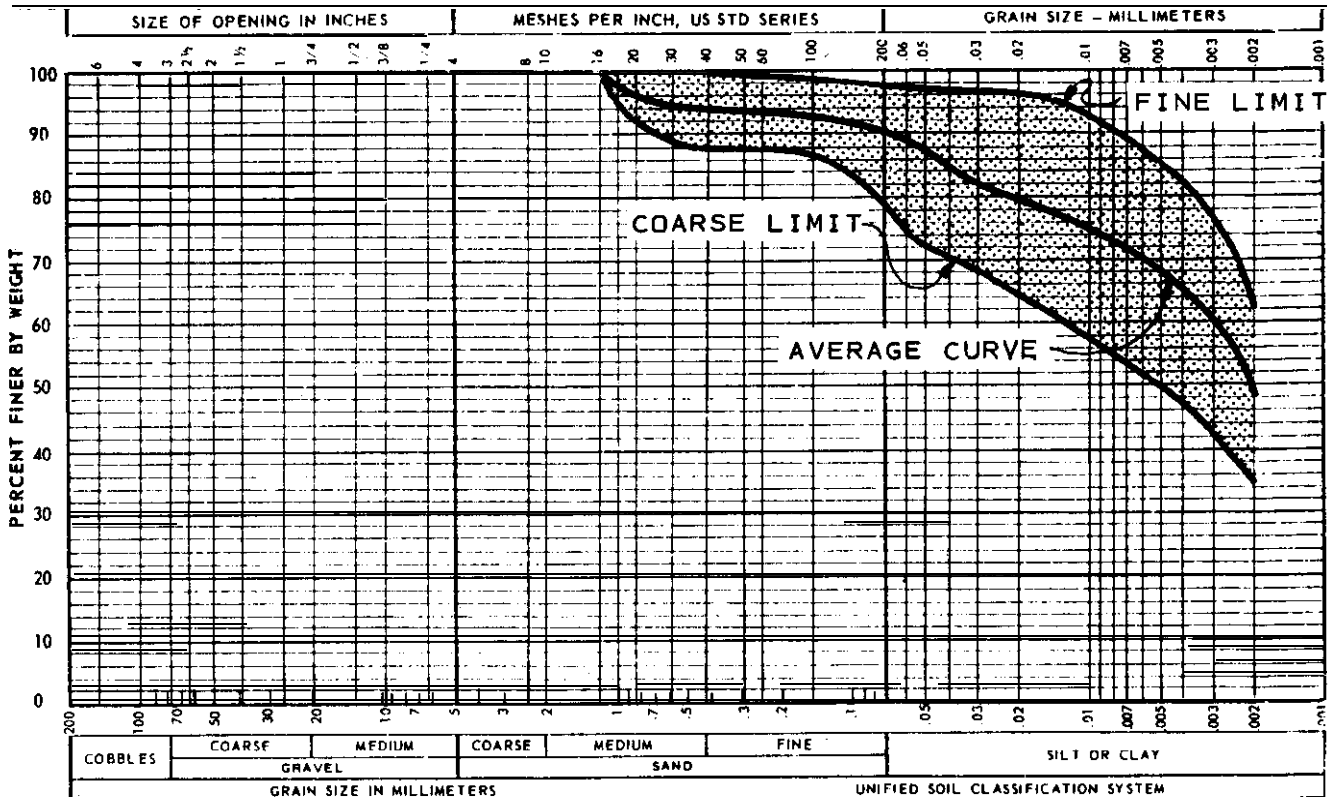


SOIL DESCRIPTION:
MEDIUM STIFF GRAY CLAY WITH SILT LENSES

-92FT. MSL TO -108FT. MSL

LOUISIANA POWER & LIGHT CO. Waterford Steam Electric Station	**GRAIN SIZE DISTRIBUTION SUMMARY CURVE -92 FT. MSL TO -108 FT. MSL**	**Figure 2.5-56**

GRAIN SIZE DISTRIBUTION RANGE

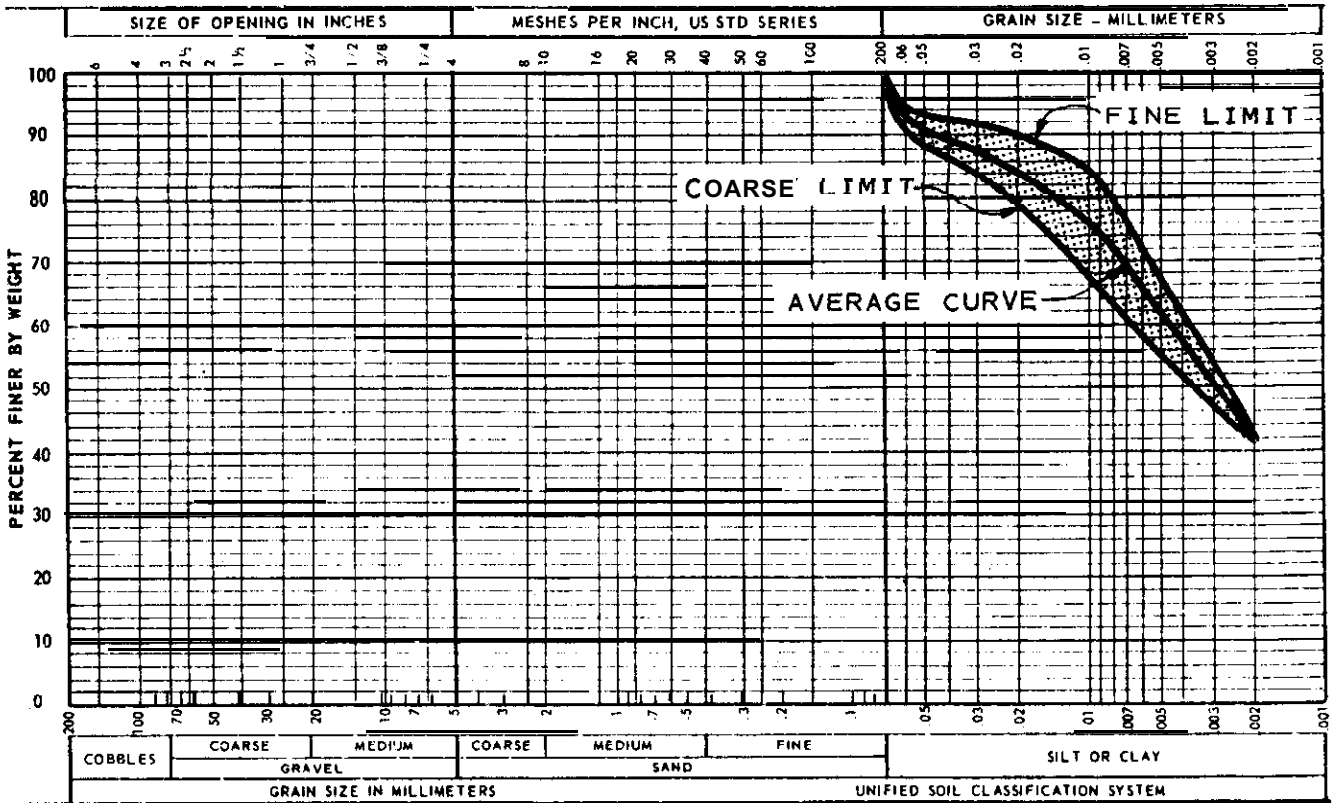


SOIL DESCRIPTION:
STIFF GRAY CLAY, ORGANIC

-108FT. MSL TO -116FT. MSL

LOUISIANA POWER & LIGHT CO. Waterford Steam Electric Station	**GRAIN SIZE DISTRIBUTION SUMMARY CURVE -108 FT. MSL TO -116 FT. MSL**	**Figure 2.5-57**

GRAIN SIZE DISTRIBUTION RANGE

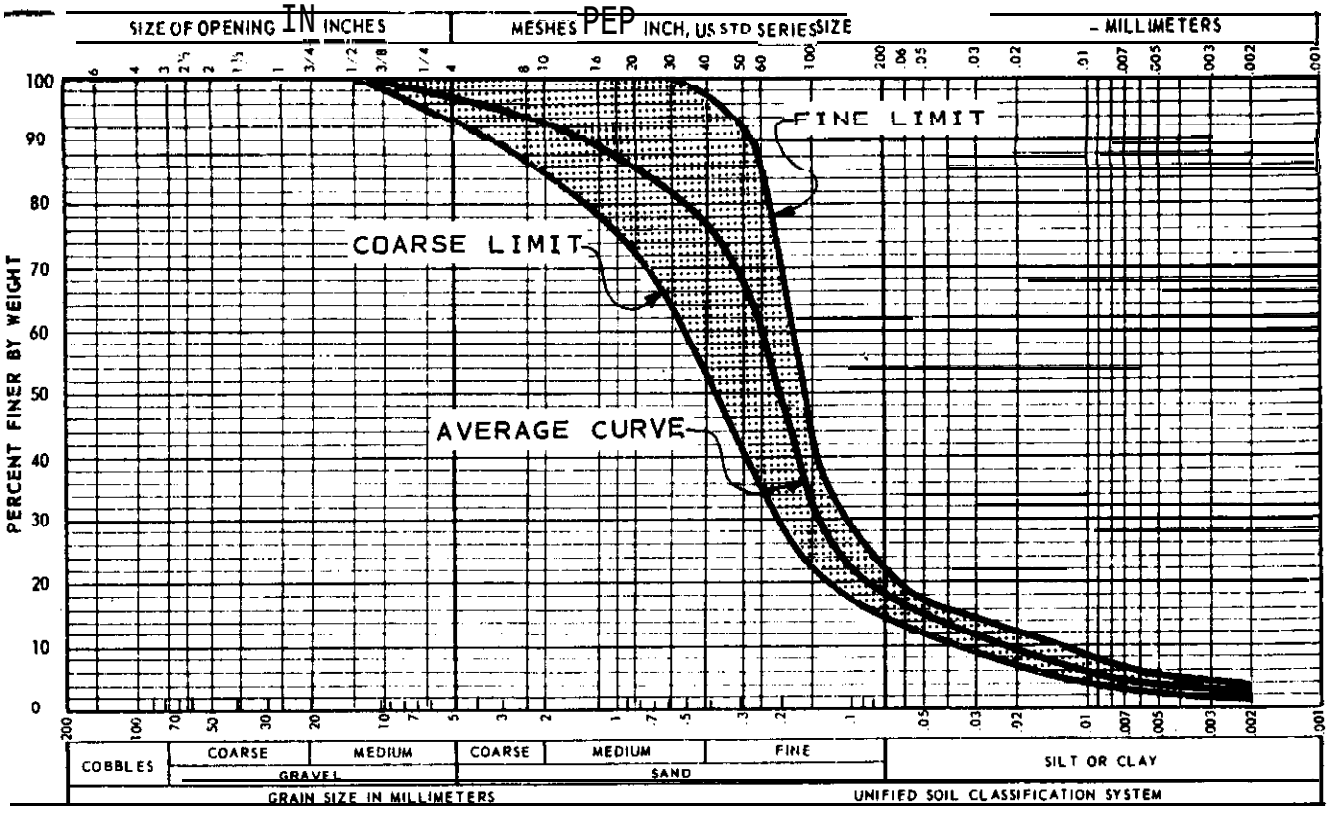


SOIL DESCRIPTION:
VERY STIFF CLAYS WITH SILTS AND SANDS

-127FT. MSL TO -317FT. MSL

LOUISIANA POWER & LIGHT CO. Waterford Steam Electric Station	GRAIN SIZE DISTRIBUTION SUMMARY CURVE -127 FT.MSL TO -317 FT.MSL	Figure 2.5-58

GRAIN SIZE DISTRIBUTION RANGE

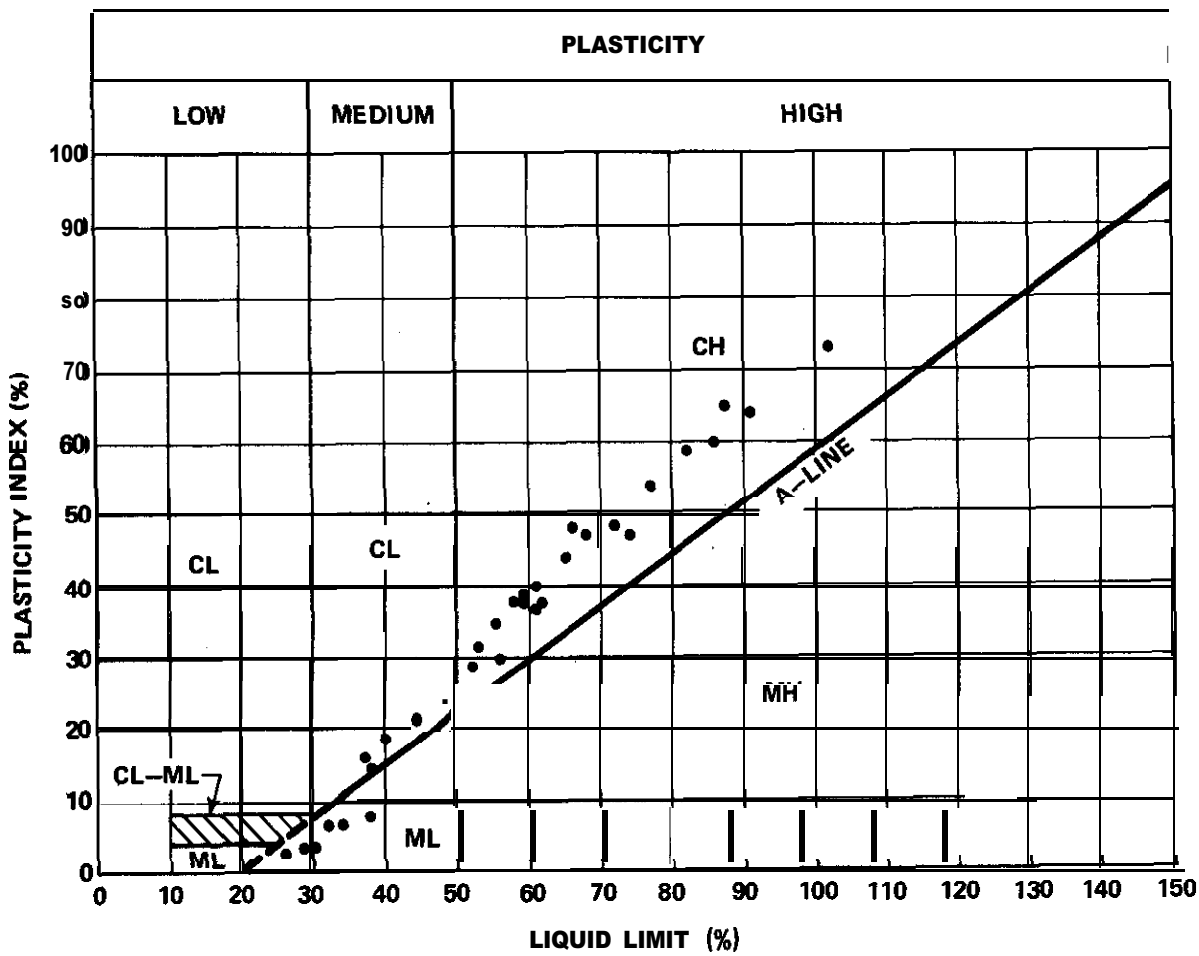


SOIL DESCRIPTION:
VERY DENSE SANDS AND SILTY SANDS

-317FT. MSL TO -500FT. MSL

LOUISIANA POWER & LIGHT CO. Waterford Steam Electric Station	**GRAIN SIZE DISTRIBUTION SUMMARY CURVE -317 FT. MSL TO -500 FT. MSL**	**Figure 2.5-59**

ATTERBERG LIMITS SUMMARY PLOT
UNIFIED SOIL CLASSIFICATION SYSTEM



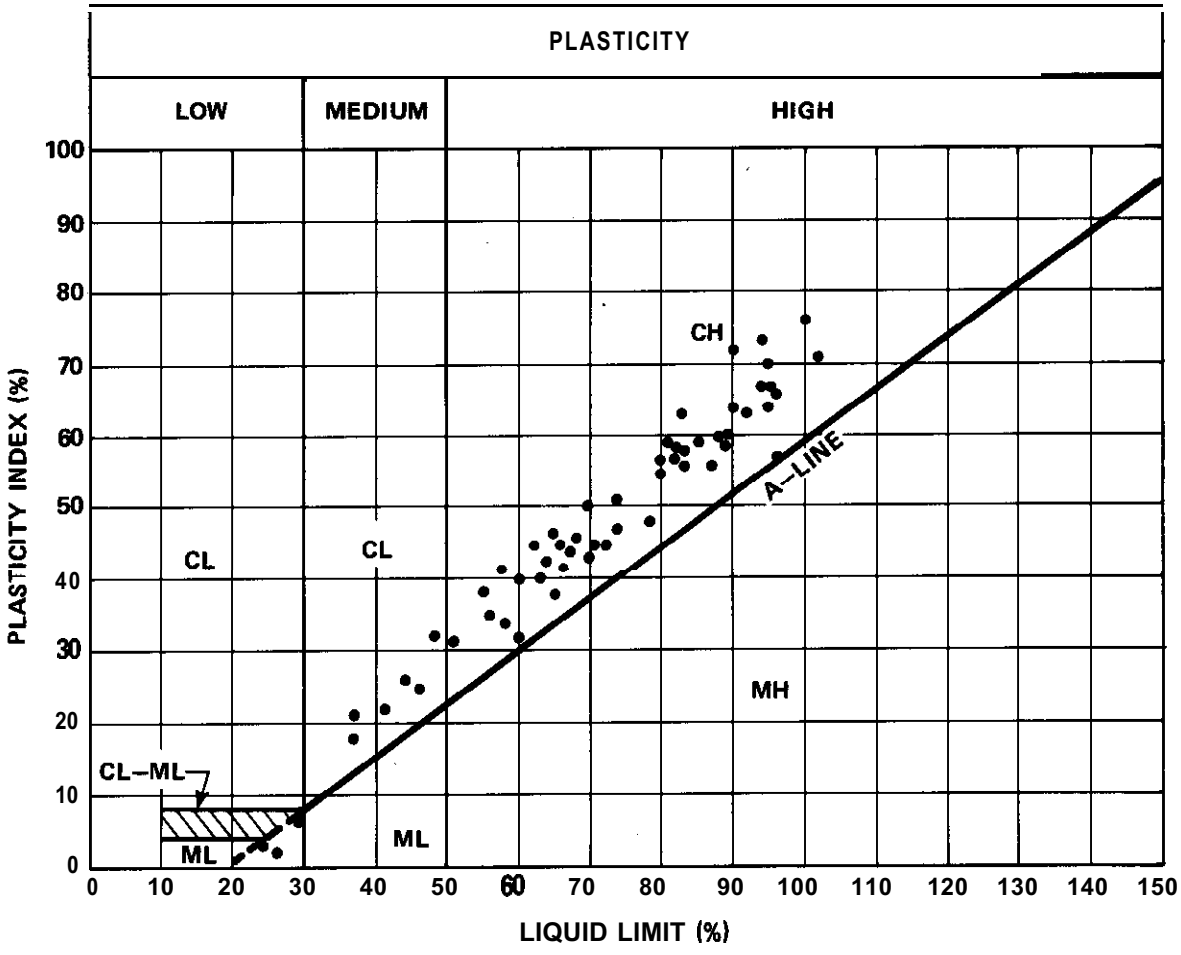
SOIL DESCRIPTION:

CLAY AND SILTY CLAY WITH SILT AND SAND LENSES – (RECENT MATERIAL)

GRADE TO -40 FT. MSL

LOUISIANA POWER & LIGHT CO. Waterford Steam Electric Station	LIQUID LIMIT VS. PLASTICITY INDEX GRADE TO -40 FT. MSL (RECENT MATERIAL)	Figure 2.5–60

ATTERBERG LIMITS SUMMARY PLOT
UNIFIED SOIL CLASSIFICATION SYSTEM



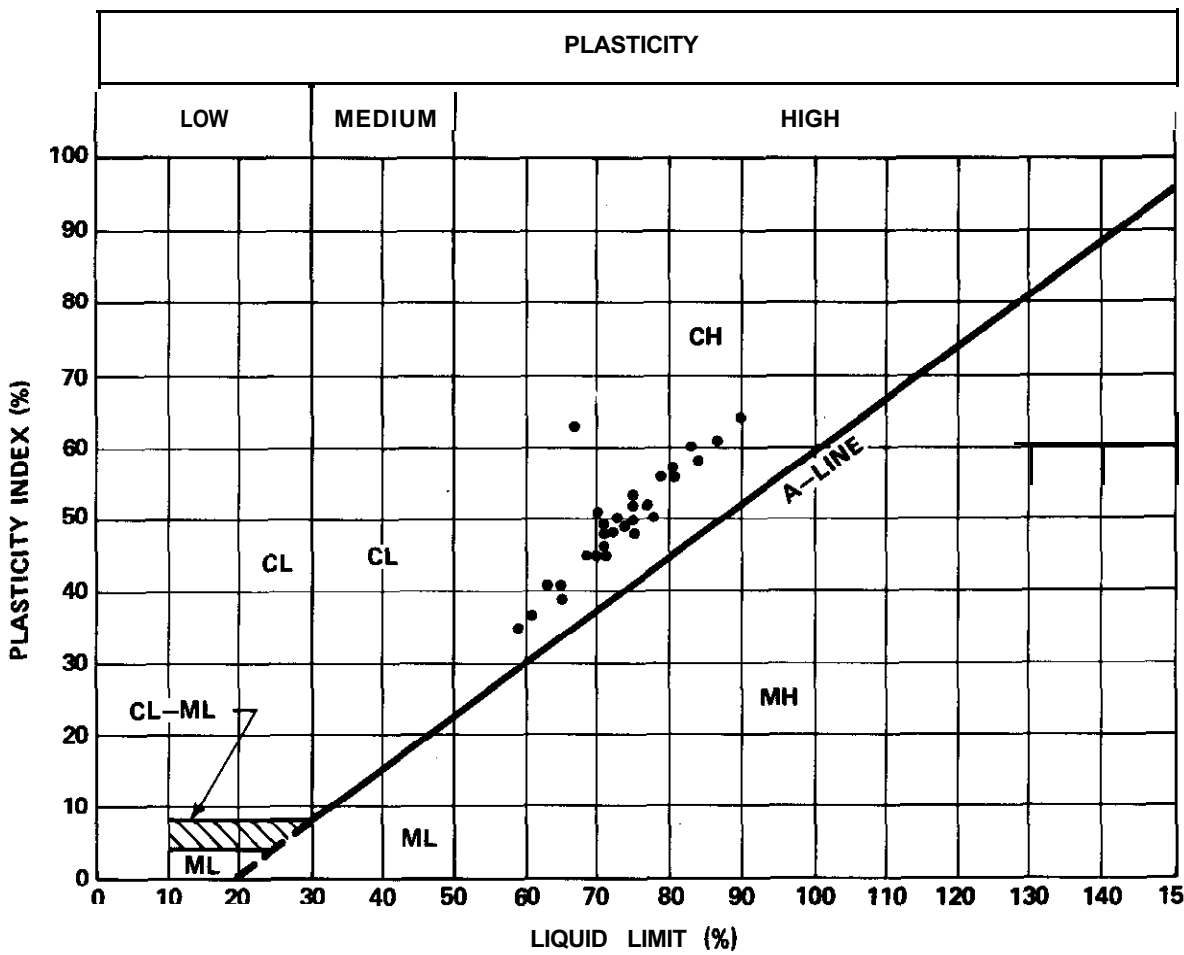
SOIL DESCRIPTION:

STIFF TAN AND GRAY FISSURED CLAY

-40 FT. MSL TO -77 FT. MSL

LOUISIANA POWER & LIGHT CO. Waterford Steam Electric Station	LIQUID LIMIT VS. PLASTICITY INDEX -40 FT. MSL TO -77 FT. MSL	Figure 2.5-61

ATTERBERG LIMITS SUMMARY PLOT
UNIFIED SOIL CLASSIFICATION SYSTEM



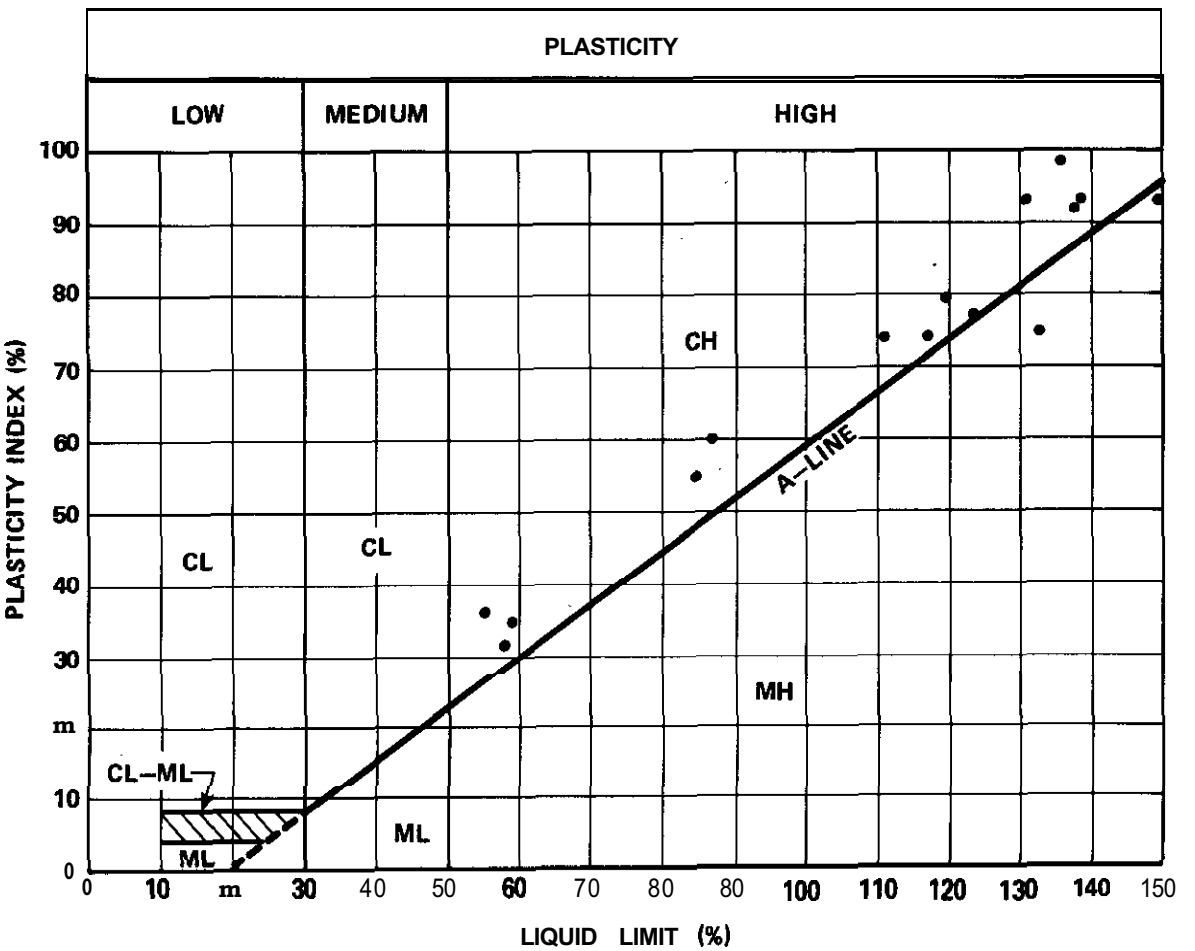
SOIL DESCRIPTION:

MEDIUM STIFF GRAY CLAY WITH SILT LENSES

-92 FT. MSL TO -108 FT. MSL

LOUISIANA POWER & LIGHT CO. Waterford Steam Electric Station	LIQUID LIMIT VS. PLASTICITY INDEX -92 FT.MSL TO -108 FT. MSL	Figure 2.5-62

ATTERBERG LIMITS SUMMARY PLOT
UNIFIED SOIL CLASSIFICATION SYSTEM



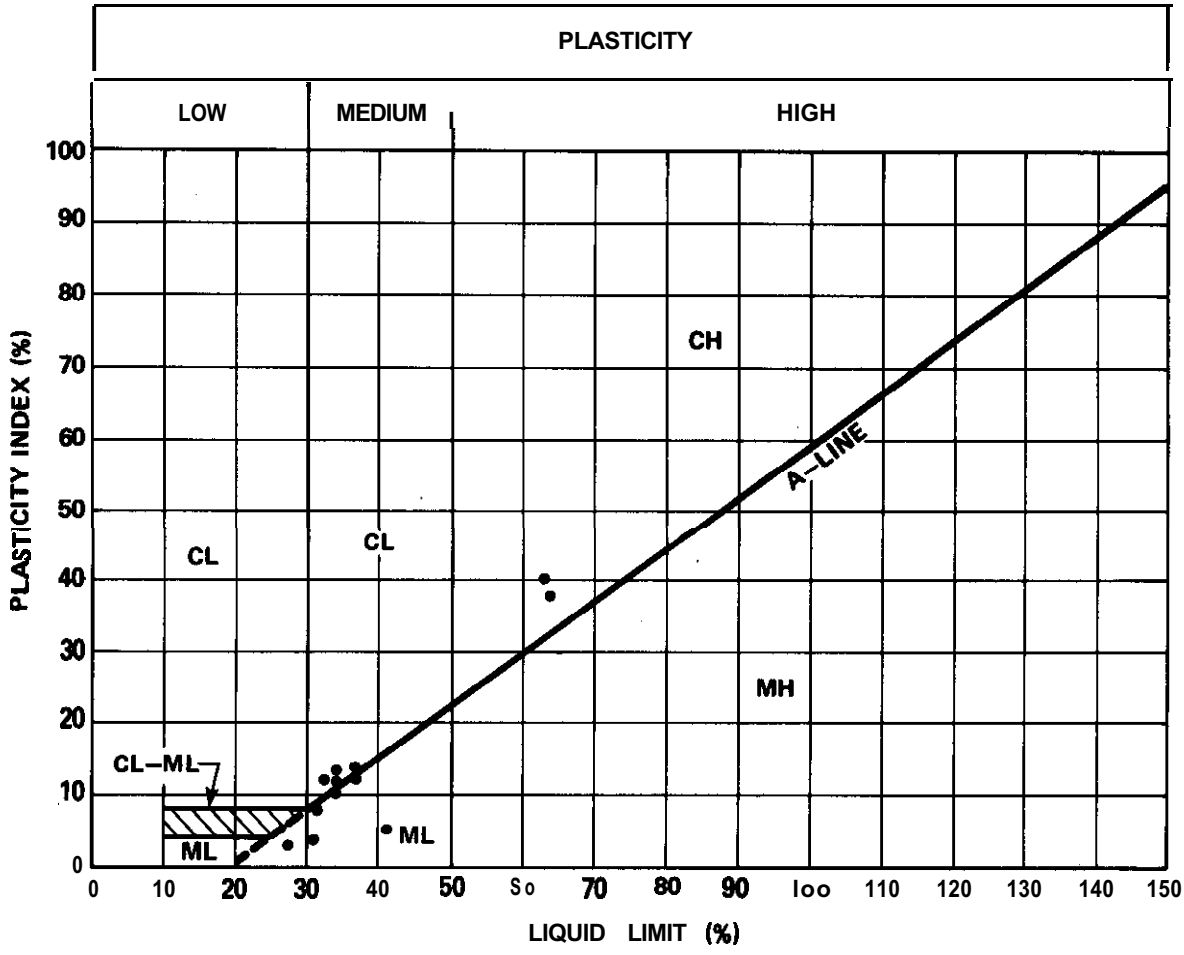
SOIL DESCRIPTION:

STIFF GRAY CLAY, ORGANIC

-108 FT. MSL TO -116 FT. MSL

LOUISIANA POWER & LIGHT CO. Waterford Steam Electric Station	LIQUID LIMIT VS. PLASTICITY INDEX -108 FT. MSL TO -116 FT. MSL	Figure 2.5-63

ATTERBERG LIMITS SUMMARY PLOT
UNIFIED SOIL CLASSIFICATION SYSTEM



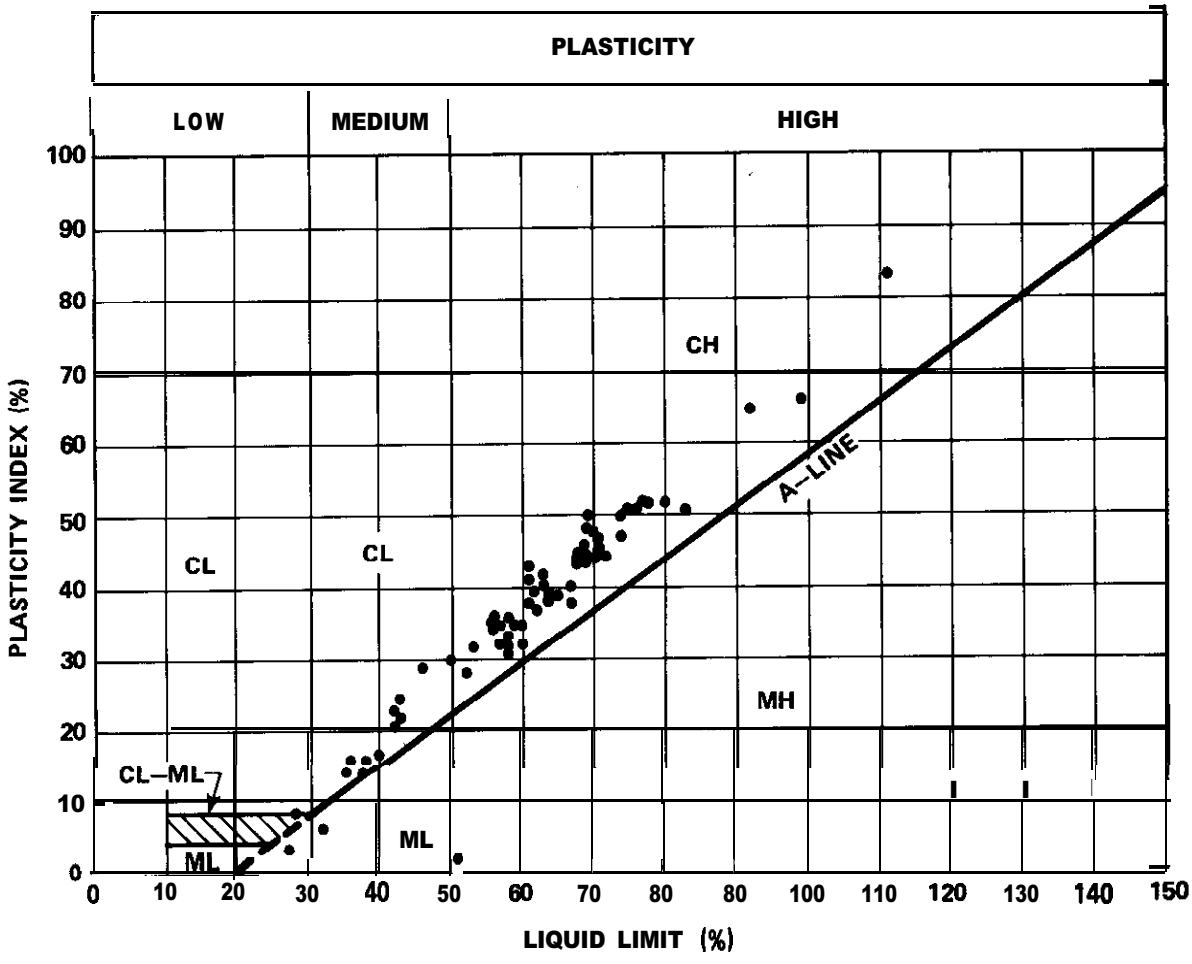
SOIL DESCRIPTION:

SOFT TO MEDIUM STIFF TAN AND GRAY CLAY WITH SAND LENSES

-116 FT. MSL TO -127 FT. MSL

LOUISIANA POWER & LIGHT CO. Waterford Steam Electric Station	LIQUID LIMIT VS. PLASTICITY INDEX -116 FT. MSL TO -127 FT. MSL	Figure 2.5-64

ATTERBERG LIMITS SUMMARY PLOT
UNIFIED BOIL CLASSIFICATION SYSTEM



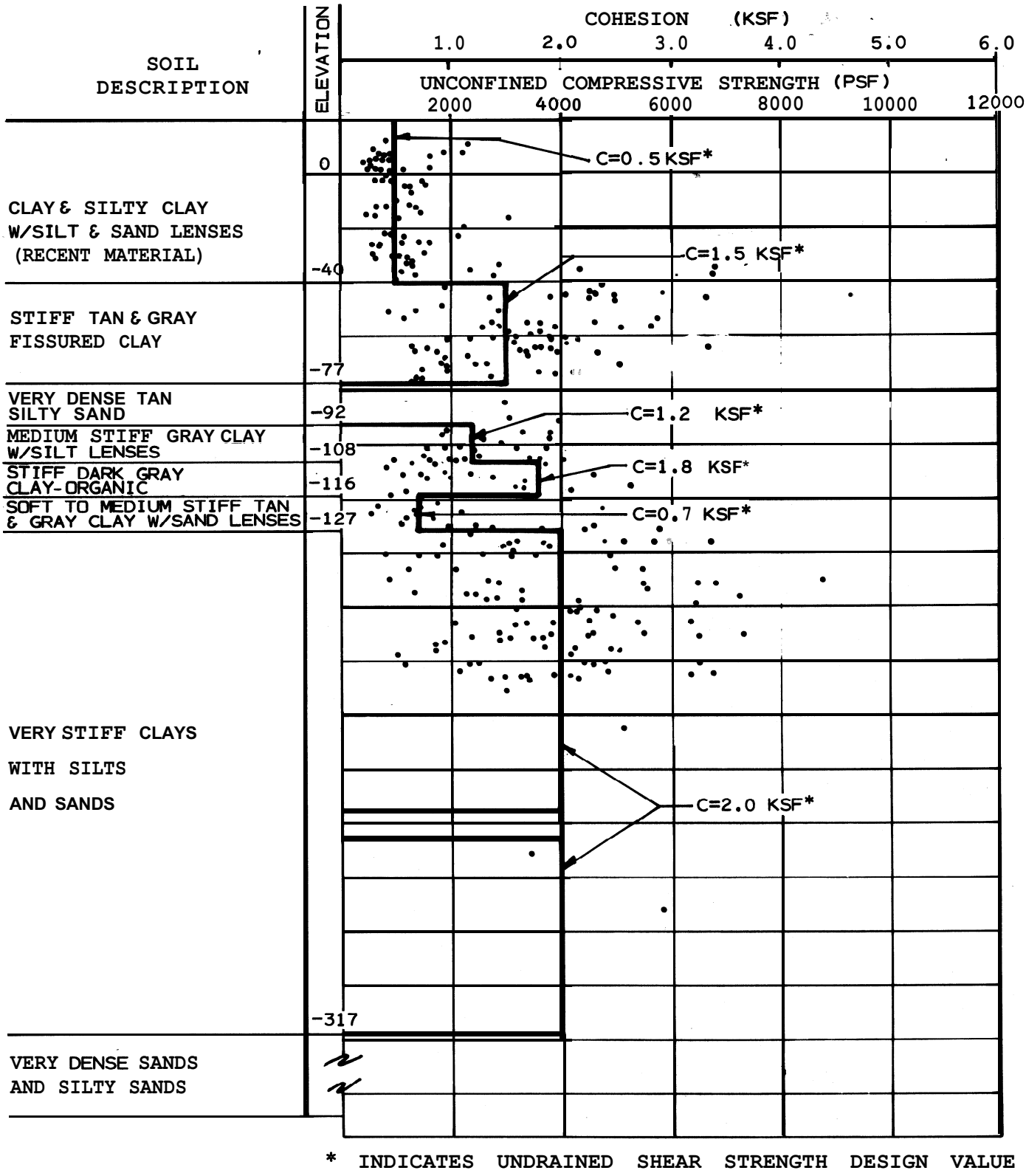
SOIL DESCRIPTION:

VERY STIFF CLAYS WITH SILTS AND SANDS

-127 FT. MSL TO -317 FT. MSL

LOUISIANA POWER & LIGHT CO. Waterford Steam Electric Station	LIQUID LIMIT VS. PLASTICITY INDEX -127 FT. MSL TO -317 FT. MSL	Figure 2.5-65

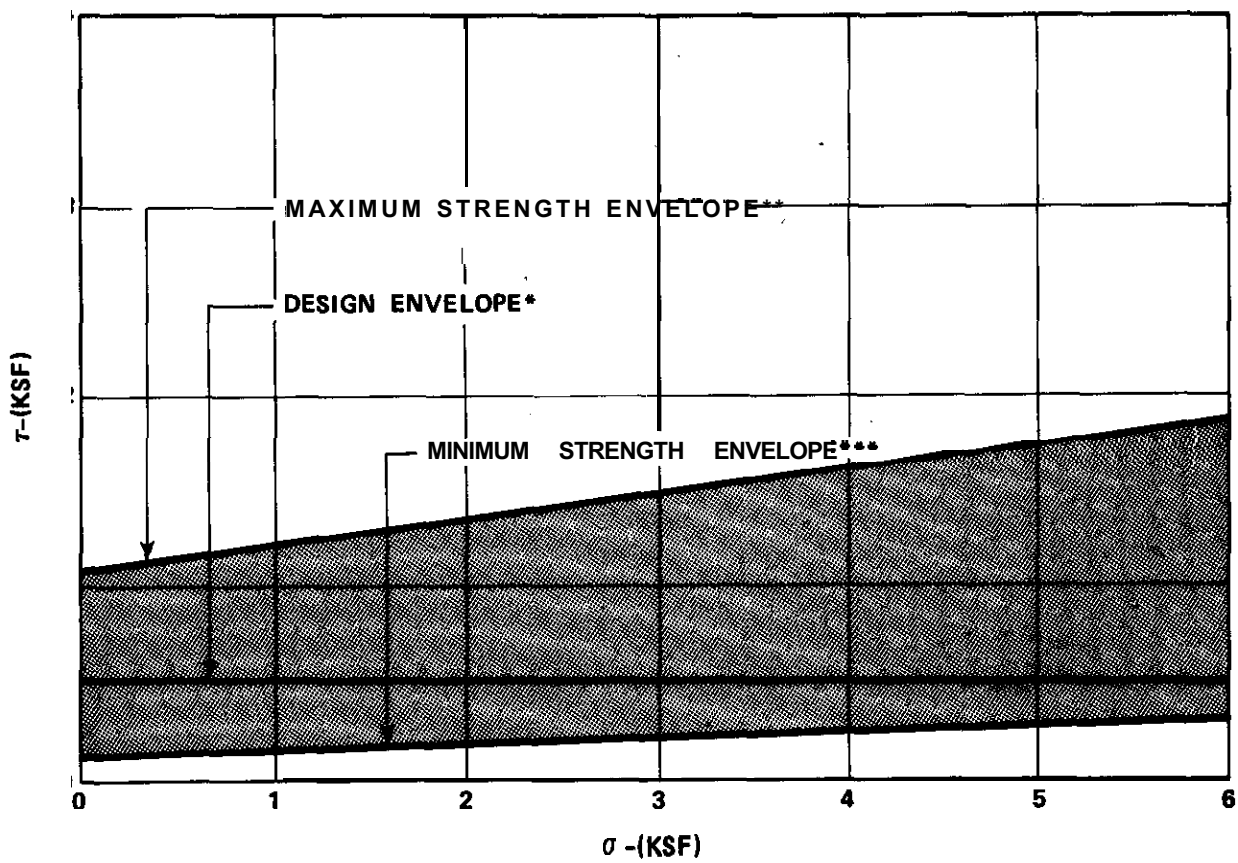
UNCONFINED COMPRESSIVE STRENGTH
TEST RESULTS - SUMMARY PLOT



* INDICATES UNDRAINED SHEAR STRENGTH DESIGN VALUE

LOUISIANA POWER & LIGHT CO. Waterford Steam Electric Station	UNCONFINED COMPRESSIVE STRENGTH & COHESION VS. DEPTH	Figure 2.5-66

UNCONSOLIDATED UNDRAINED SHEAR STRENGTH



- DESIGN ENVELOPE C = 0.5KSF (500PSF) ϕ = 0°
- * MAXIMUM ENVELOPE C = 1.1KSF (1100PSF) ϕ = 8°
- ** MINIMUM ENVELOPE C = 0.1KSF (100PSF) ϕ = 2°

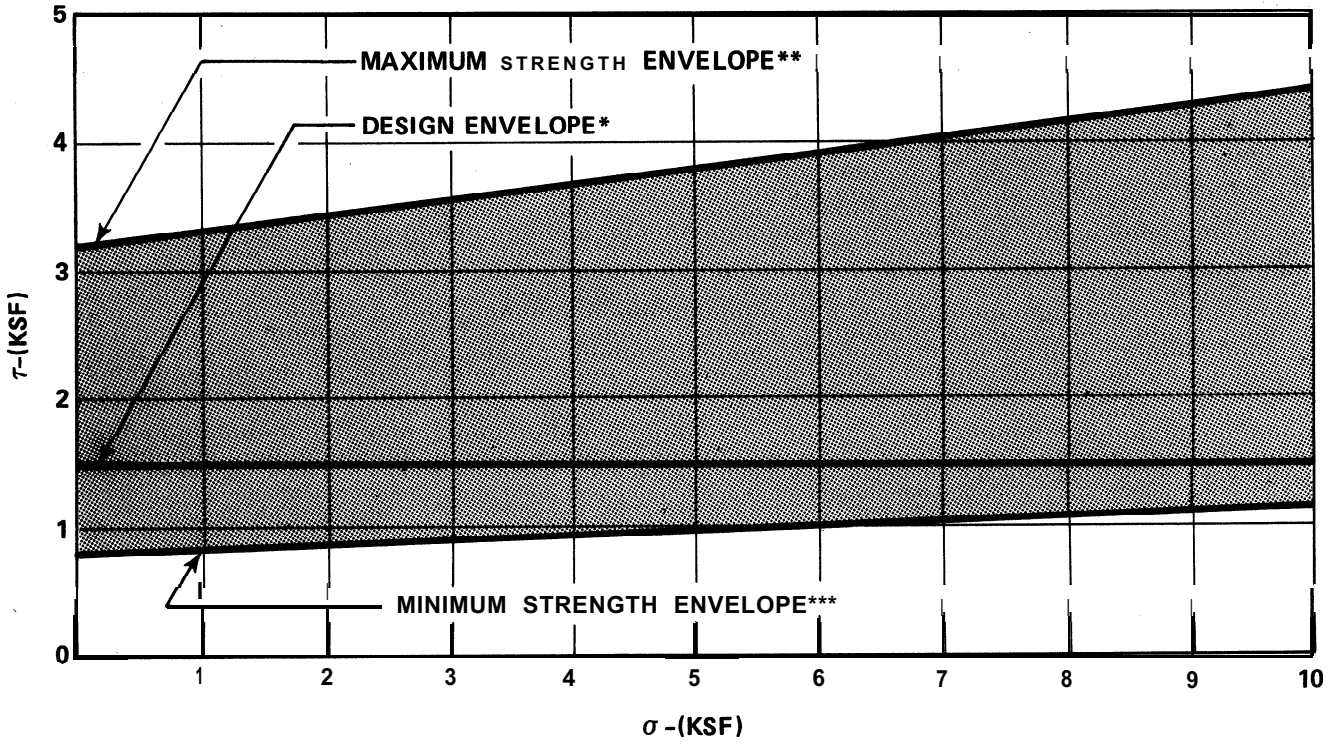
SOIL DESCRIPTION:

CLAY AND SILTY CLAY WITH SILT AND SAND LENSES – (RECENT MATERIAL)

GRADE TO -40 FT. MSL

LOUISIANA POWER & LIGHT CO. Waterford Steam Electric Station	UNCONSOLIDATED UNDRAINED SHEAR STRENGTH GRADE TO -40 FT. MSL (RECENT MATERIAL)	Figure 2.5-67

UNCONSOLIDATED UNDRAINED SHEAR STRENGTH



* DESIGN ENVELOPE C = 1.5KSF (1500PSF) ϕ = 0°

** MAXIMUM ENVELOPE C = 3.2KSF (3200PSF) ϕ = 7°

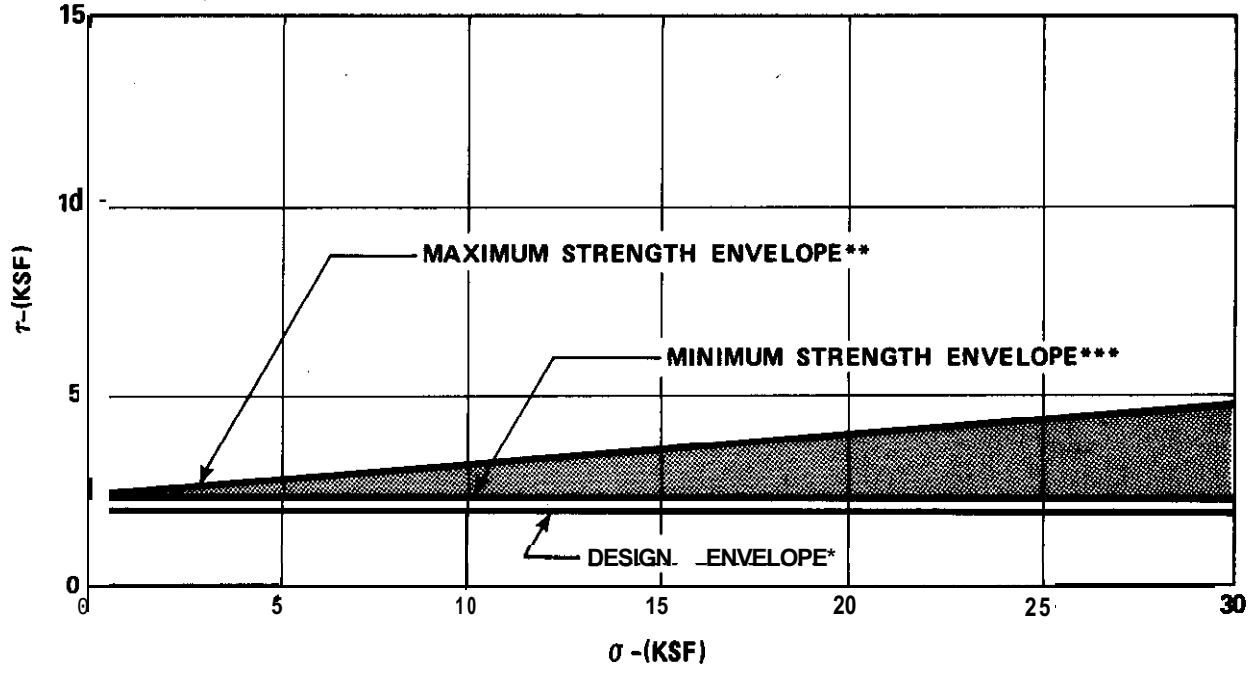
*** MINIMUM ENVELOPE C = 0.8KSF (800PSF) ϕ = 2°

SOIL DESCRIPTION:
STIFF TAN AND GRAY FISSURED CLAY

-40 FT. MSL TO -77 FT. MSL

LOUISIANA POWER & LIGHT CO. Waterford Steam Electric Station	UNCONSOLIDATED UNDRAINED SHEAR STRENGTH -40 FT. MSL TO -77 FT. MSL	Figure 2.5-68

UNCONSOLIDATED UNDRAINED SHEAR STRENGTH



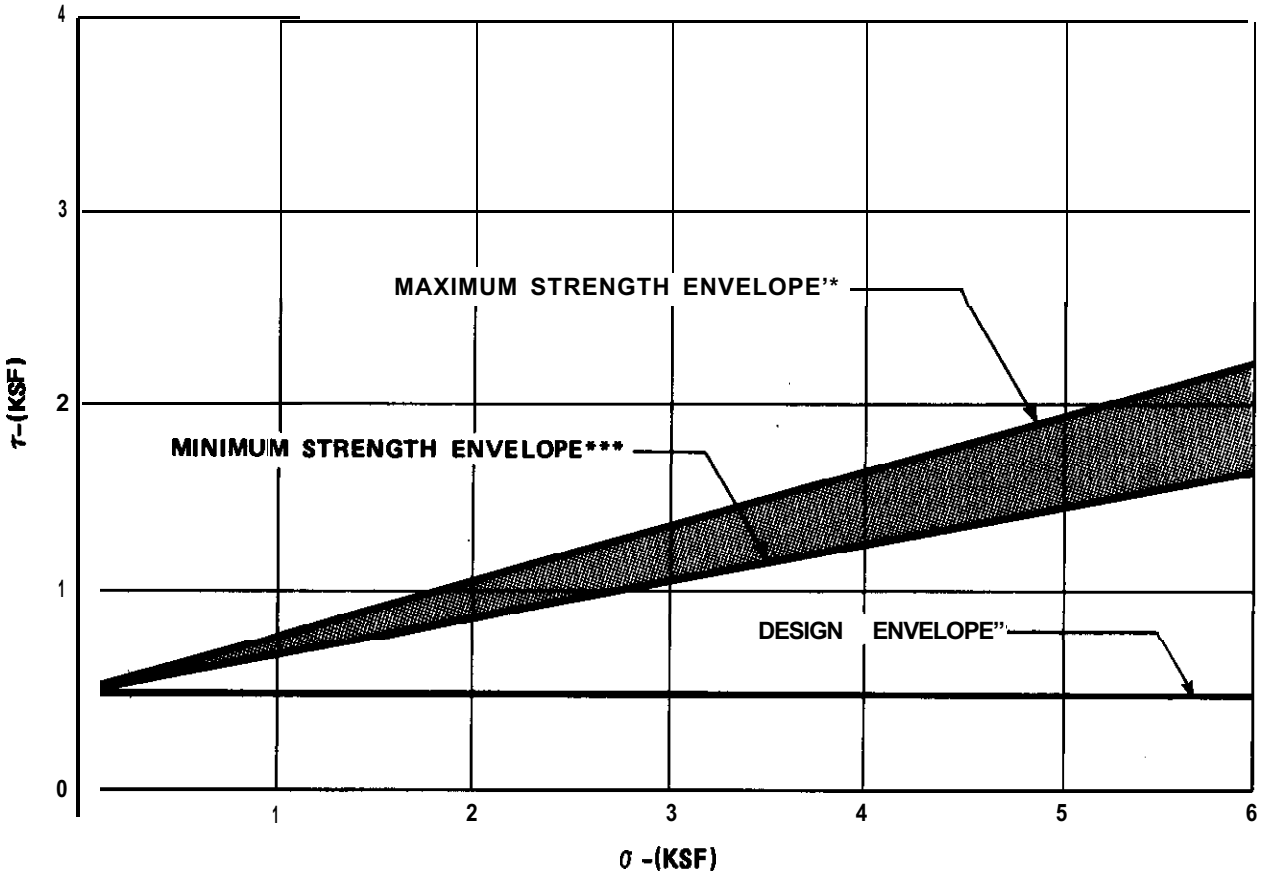
- DESIGN ENVELOPE C = 2.0KSF (2000PSF) ϕ = 0°
- * MAXIMUM ENVELOPE C = 2.2KSF (2200PSF) ϕ = 5°
- ** MINIMUM ENVELOPE C = 2.3KSF (2300PSF) ϕ = 0°

SOIL DESCRIPTION:
VERY STIFF CLAYS WITH SILTS AND SANDS

-127 FT. MSL TO -317 FT. MSL

LOUISIANA POWER & LIGHT CO. Waterford Steam Electric Station	UNCONSOLIDATED UNDRAINED SHEAR STRENGTH -127 FT MSL TO -317 FT MSL	Figure 2.5-69

CONSOLIDATEDUNDRAINED SHEARSTRENGTH



- DESIGN ENVELOPE C = 0.5KSF (500PSF) ϕ = 0°
- * MAXIMUM ENVELOPE C = 0.5KSF (500PSF) ϕ = 16.6°
- ** MINIMUM ENVELOPE C = 0.5KSF (500PSF) ϕ = 11°

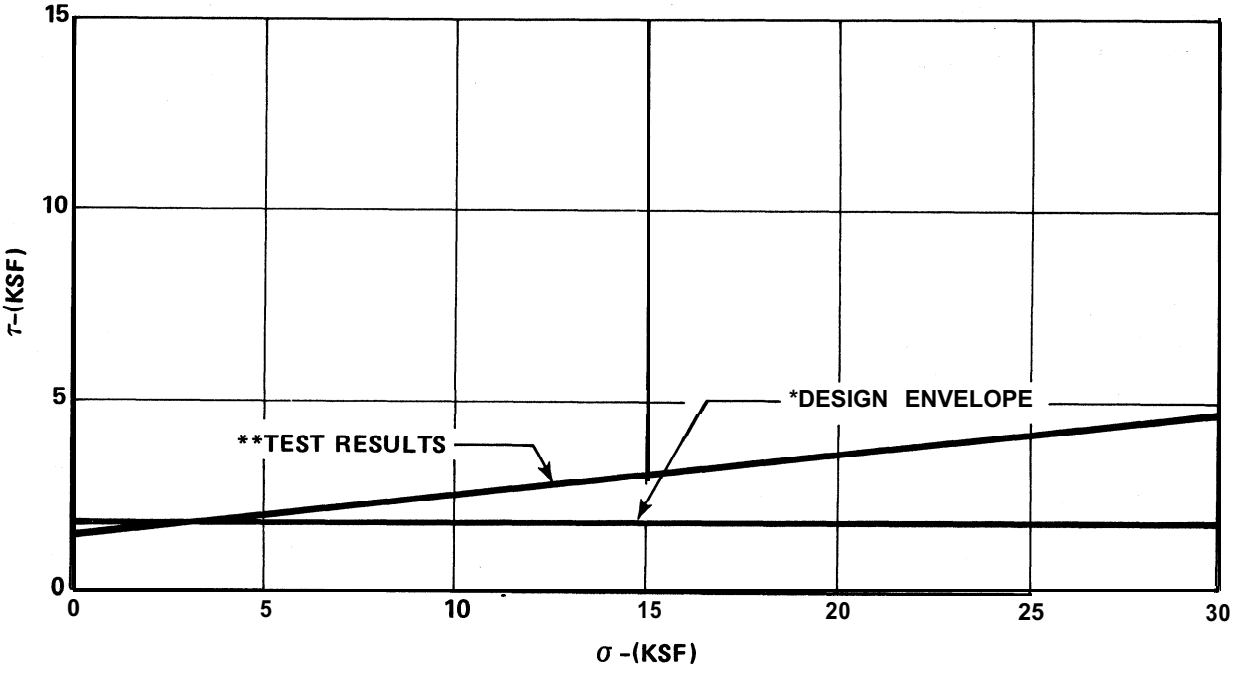
SOIL DESCRIPTION:

CLAY AND SILTY CLAY WITH SILT 'AND SAND LENSES - (RECENT MATERIAL)

GRADE TO -46 FT. MSL

LOUISIANA POWER & LIGHT CO. Waterford Steam Electric Station	CONSOLIDATED UNDRAINED SHEAR STRENGTH GRADE TO -40 FT. MSL (RECENT MATERIAL)	Figure 2.5-70

CONSOLIDATED UNDRAINED SHEAR STRENGTH



* DESIGN ENVELOPE C = 1.8 KSF (1800PSF) $\phi = 0^{\circ}$

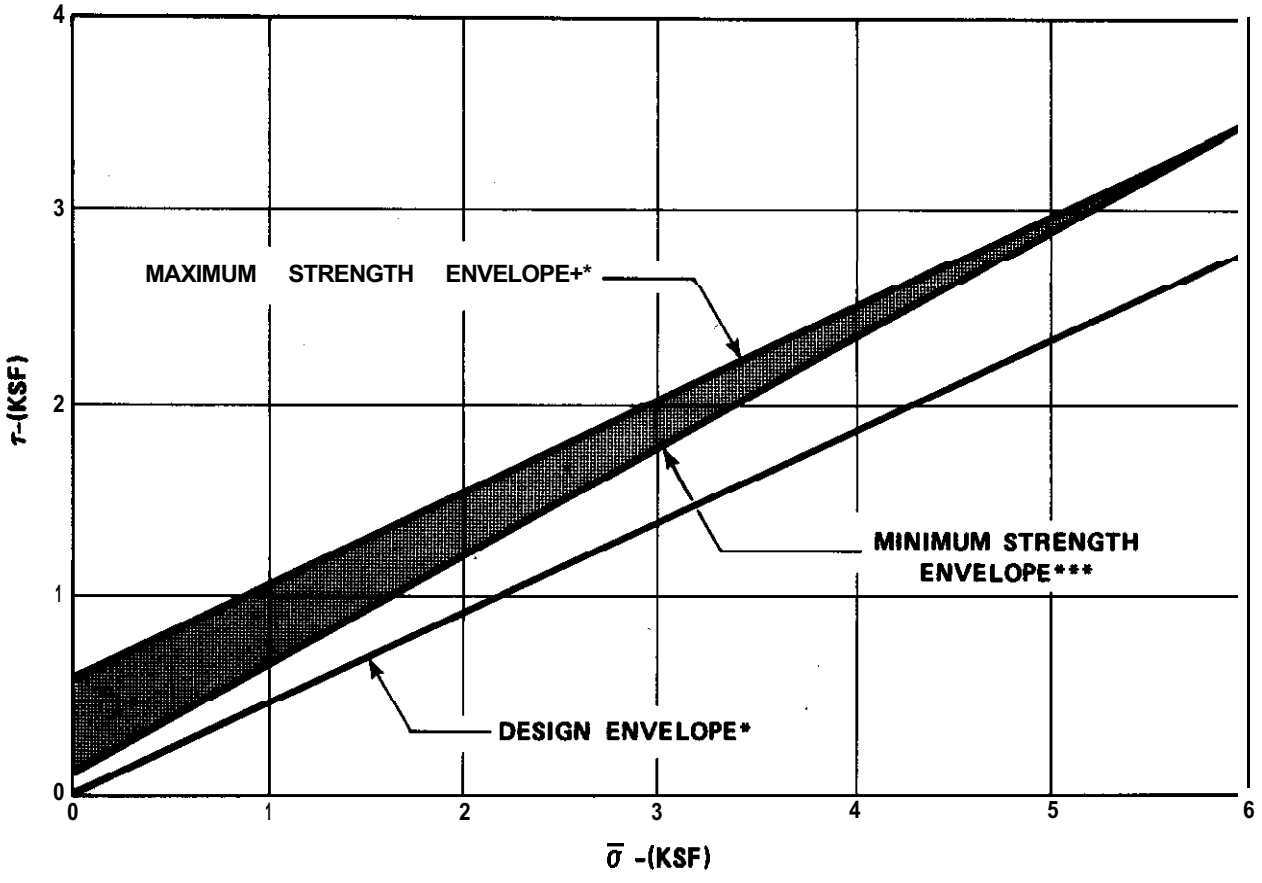
** TEST RESULTS C = 1.5 KSF (1500PSF) $\phi = 6.2^{\circ}$

SOIL DESCRIPTION:
STIFF GRAY CLAY, ORGANIC

-108 FT. MSL TO -116 FT. MSL

LOUISIANA POWER & LIGHT CO. Waterford Steam Electric Station	CONSOLIDATED UNDRAINED SHEAR STRENGTH -108 FT. MSL TO -116 FT. MSL	Figure 2.5-71

DRAINED SHEAR STRENGTH



- DESIGN ENVELOPE C = 0 KSF ϕ = 25°
- * MAXIMUM ENVELOPE C = 0.6KSF (600PSF) ϕ = 25.4"
- ** MINIMUM ENVELOPE C = O.IKSF (100PSF) ϕ = 29.1'

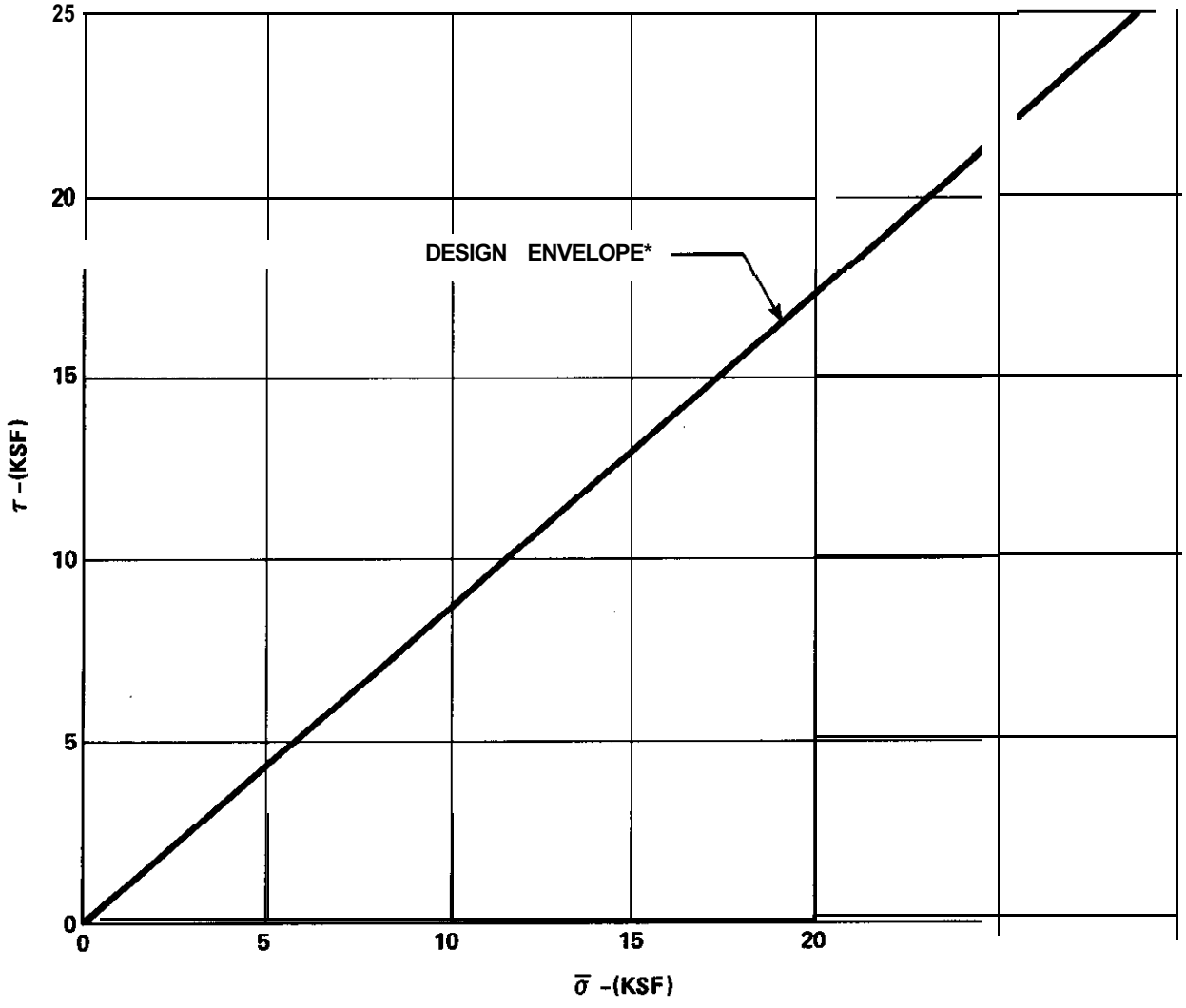
SOIL DESCRIPTION:

CLAY AND SILTY CLAY WITH SILT AND SAND LENSES - (RECENT MATERIAL)

GRADE TO -40 FT. MSL

LOUISIANA POWER & LIGHT CO. Waterford Steam Electric Station	DRAINED SHEAR STRENGTH GRADE TO -40 FT. MSL (RECENT MATERIAL)	Figure 2.5-72

DRAINED SHEAR STRENGTH



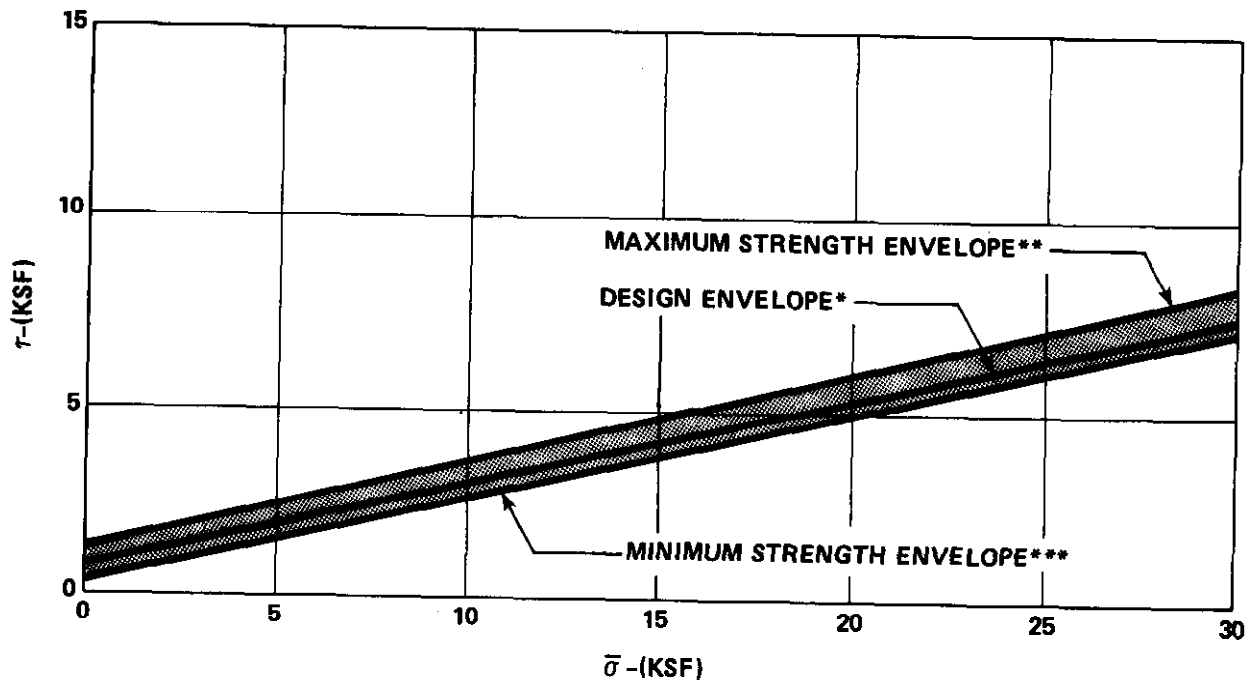
• DESIGN ENVELOPE C' = 0 KSF Ø' = 41°

SOIL DESCRIPTION:
VERY DENSE TAN SILTY SAND

-77 FT. MSL TO -92 FT. MSL

LOUISIANA POWER & LIGHT CO. Waterford Steam Electric Station	DRAINED SHEAR STRENGTH -77 FT. MSL TO -92 FT. MSL	Figure 2.5-73

DRAINED SHEAR STRENGTH



* DESIGN ENVELOPE C' = 0.8KSF (800PSF) ϕ' = 12.5°

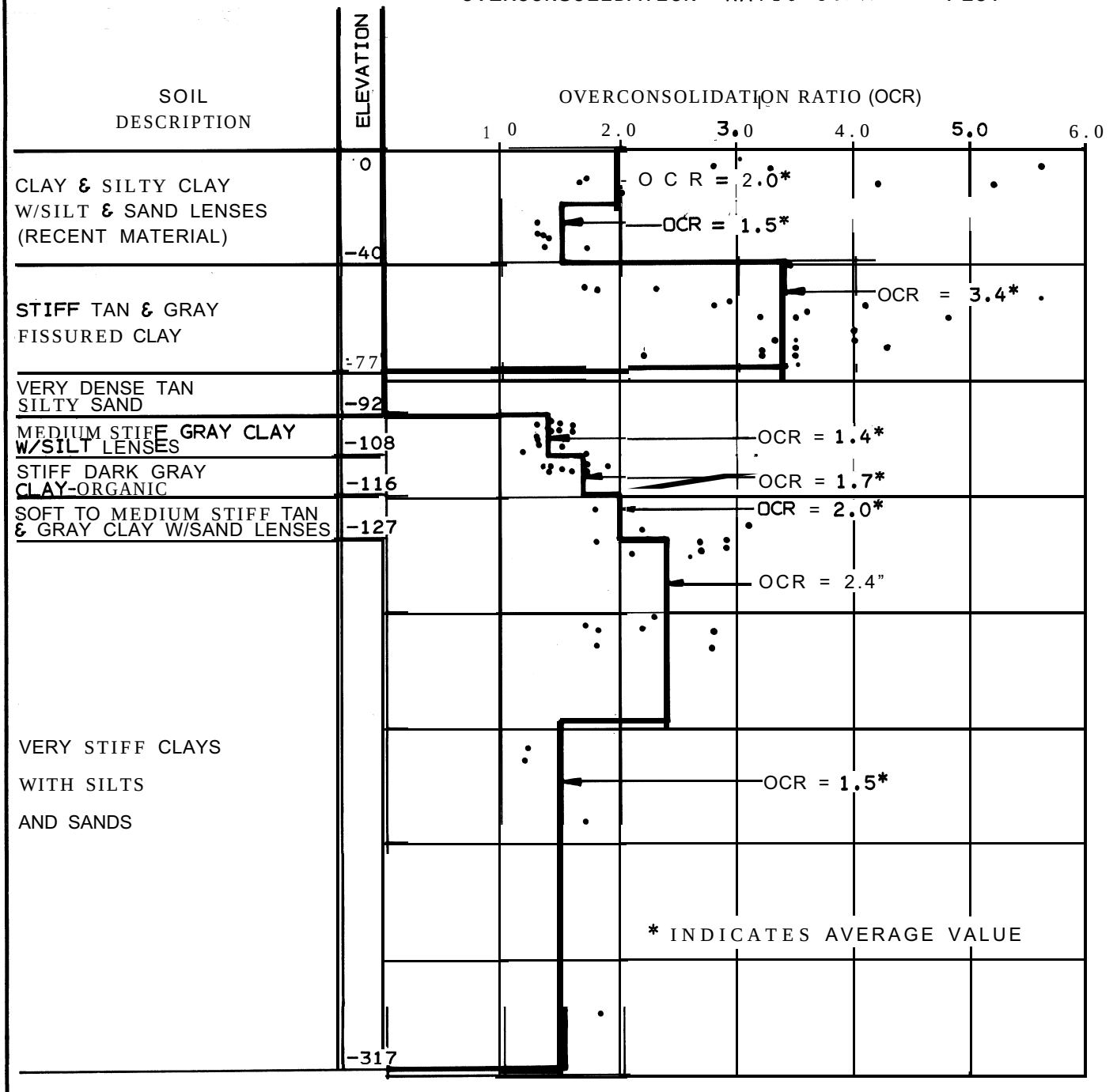
** MAXIMUM ENVELOPE C' = 1.2KSF (1200PSF) ϕ' = 13.5'

*** MINIMUM ENVELOPE C' = 0.5KSF (500PSF) ϕ' = 12.3'

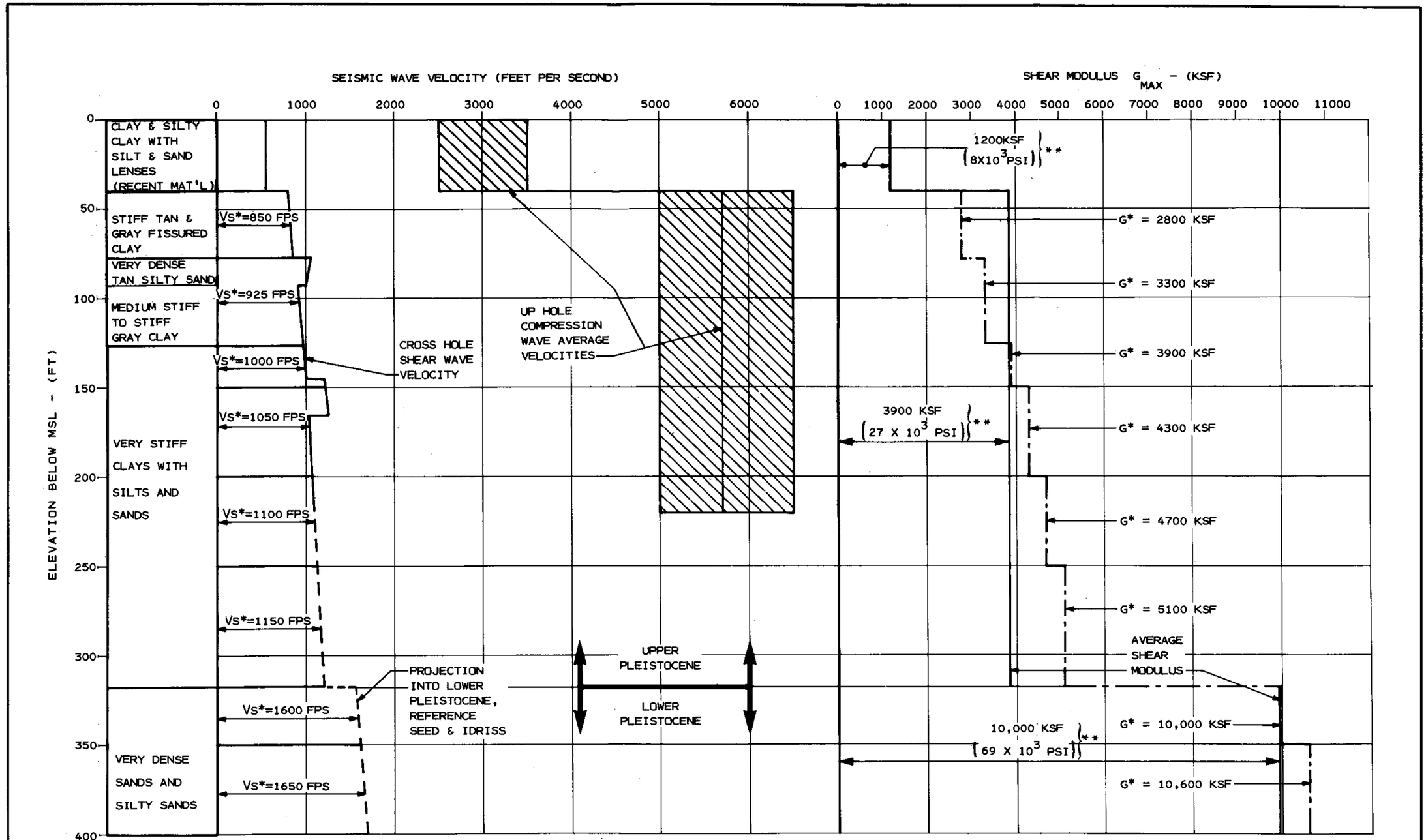
SOIL DESCRIPTION:
PLEISTOCENE CLAYS

LOUISIANA POWER & LIGHT CO. Waterford Steam Electric Station	DRAINED SHEAR STRENGTH — PLEISTOCENE CLAYS	Figure 2.5-74

CONSOLIDATION TEST RESULTS
OVERCONSOLIDATION RATIO-SUMMARY PLOT



LOUISIANA POWER & LIGHT CO. Waterford Steam Electric Station	**OVERCONSOLIDATION RATIO VS. DEPTH**	Figure 2.5-75



* INDICATES VALUES USED IN SEISMIC GROUND MOTION ANALYSIS

** INDICATES AVERAGE SHEAR MODULUS VALUE

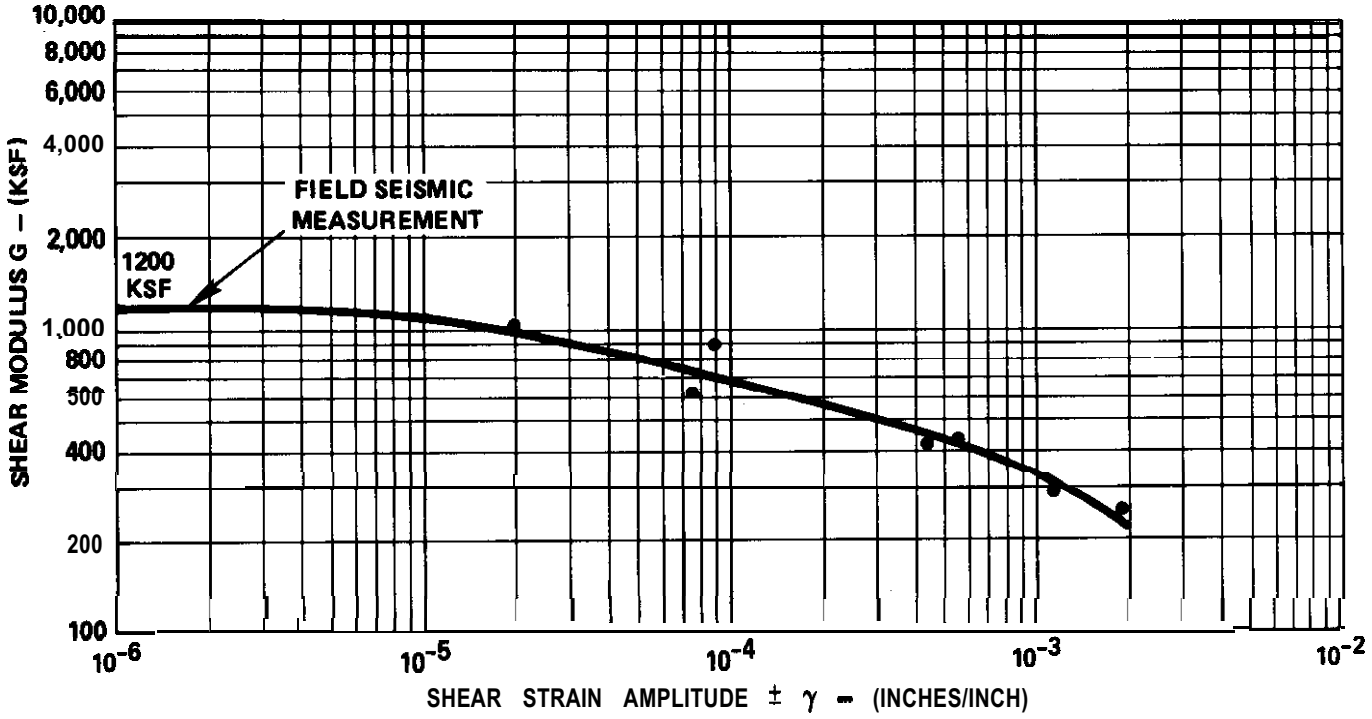
NOTE: THE SHEAR MODULI VALUES ARE OBTAINED FROM FIELD GEOPHYSICAL TESTS AND ARE REPRESENTATIVE ONLY FOR LOW SHEAR STRAINS OF APPROXIMATELY 10^{-6} INCHES/INCH

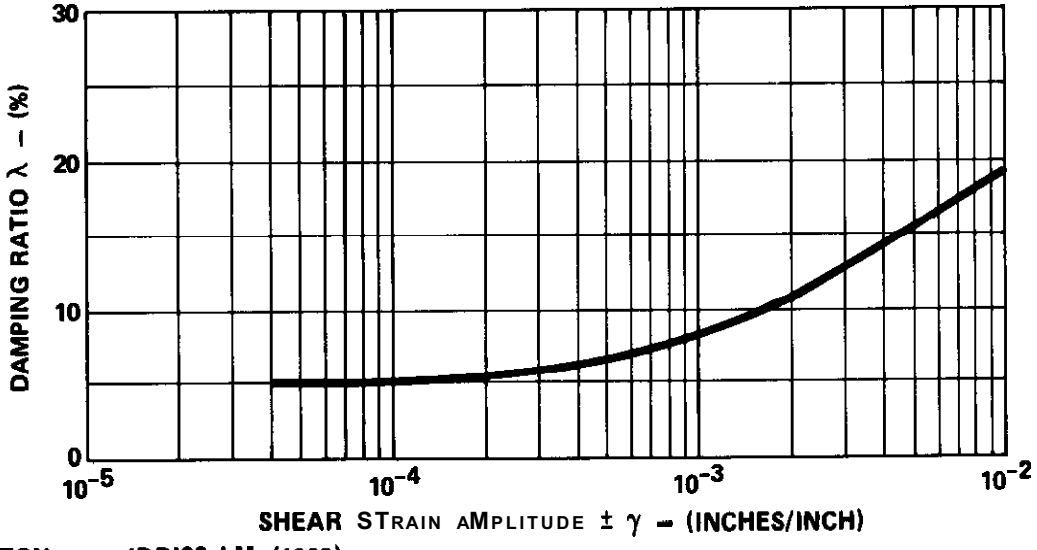
LOUISIANA POWER & LIGHT CO.

Waterford Steam Electric Station

SEISMIC WAVE VELOCITY & SHEAR MODULUS VS. DEPTH

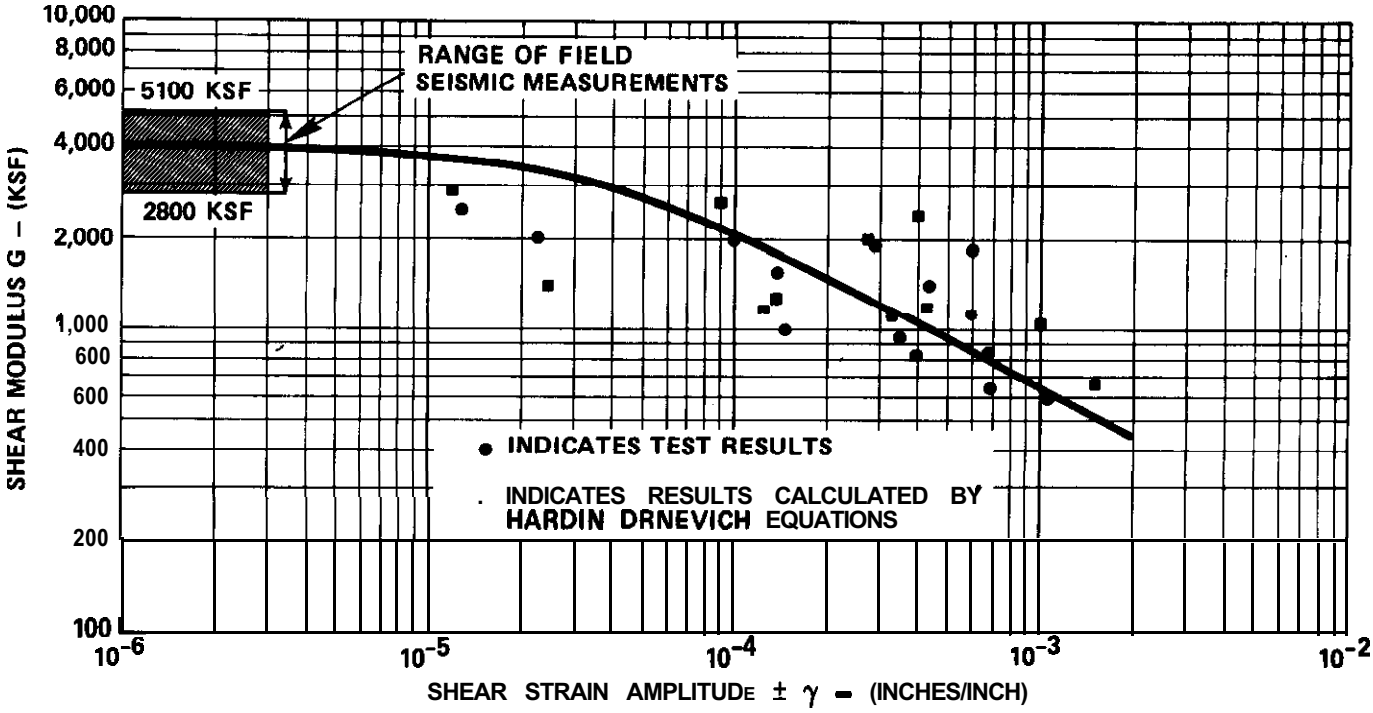
FIGURE 2.5-76

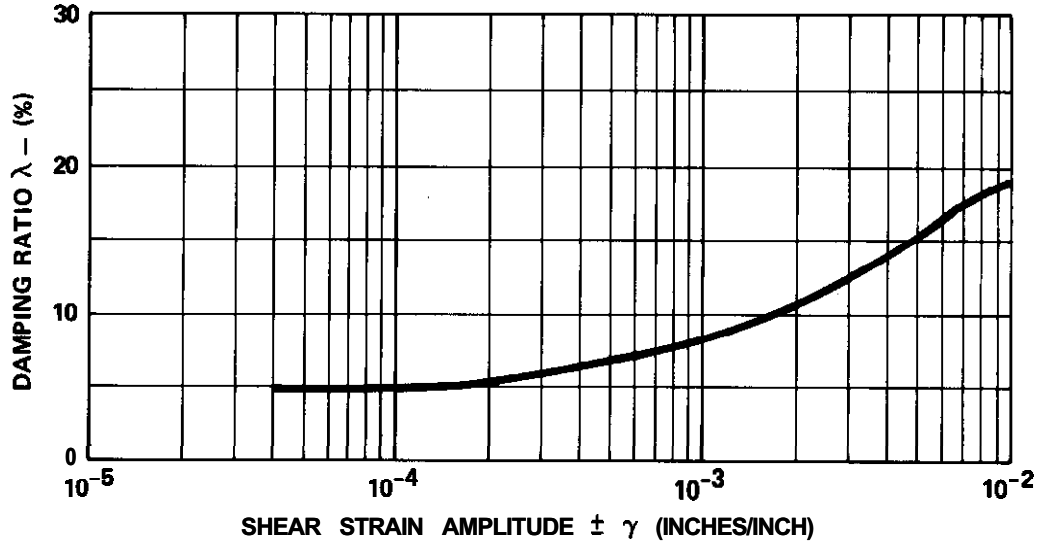




TAKEN FROM SEED, H. BOLTON AND IDRISS I.M. (1969)
"THE INFLUENCE OF SOIL CONDITIONS ON GROUND MOTIONS DURING EARTHQUAKES"

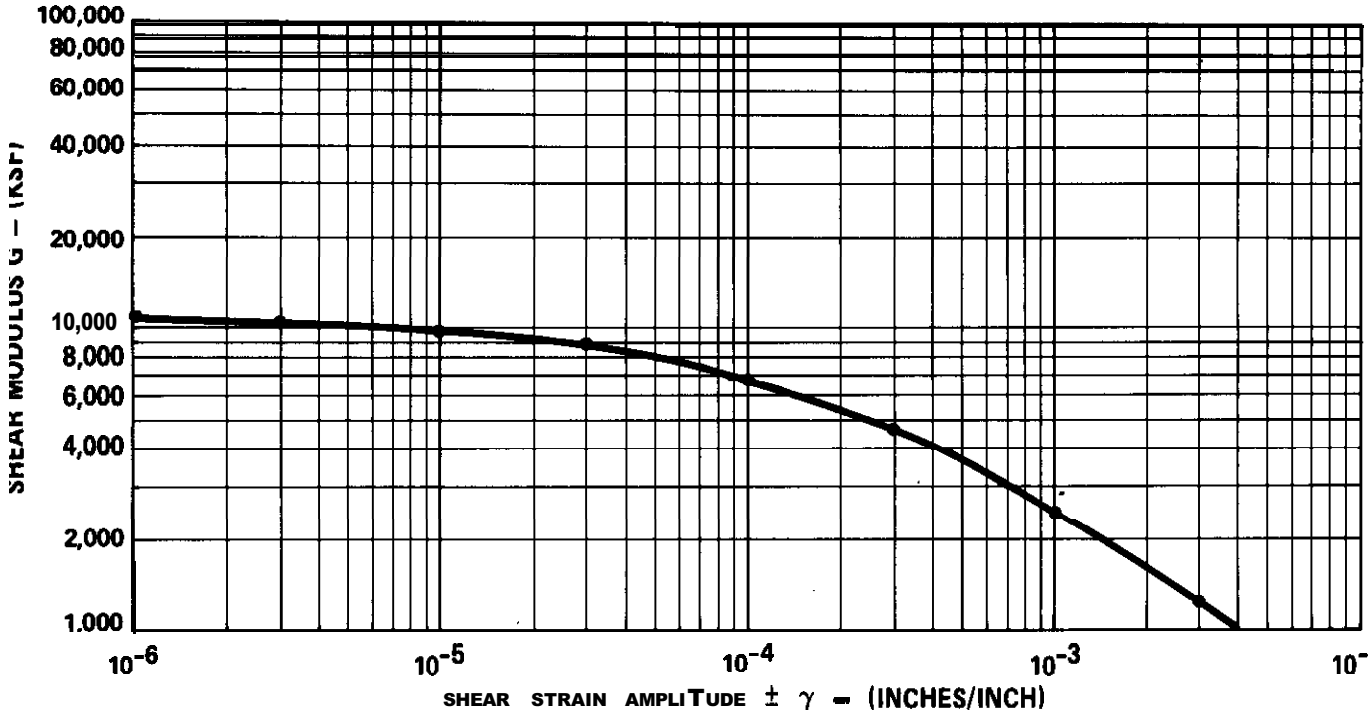
LOUISIANA POWER & LIGHT CO. Waterford Steam Electric Station	SHEAR MODULUS&DAMPING VS STRAIN- RECENT MATERIAL (GRADE TO -40 FT. MSL)	Figure 2.5-77

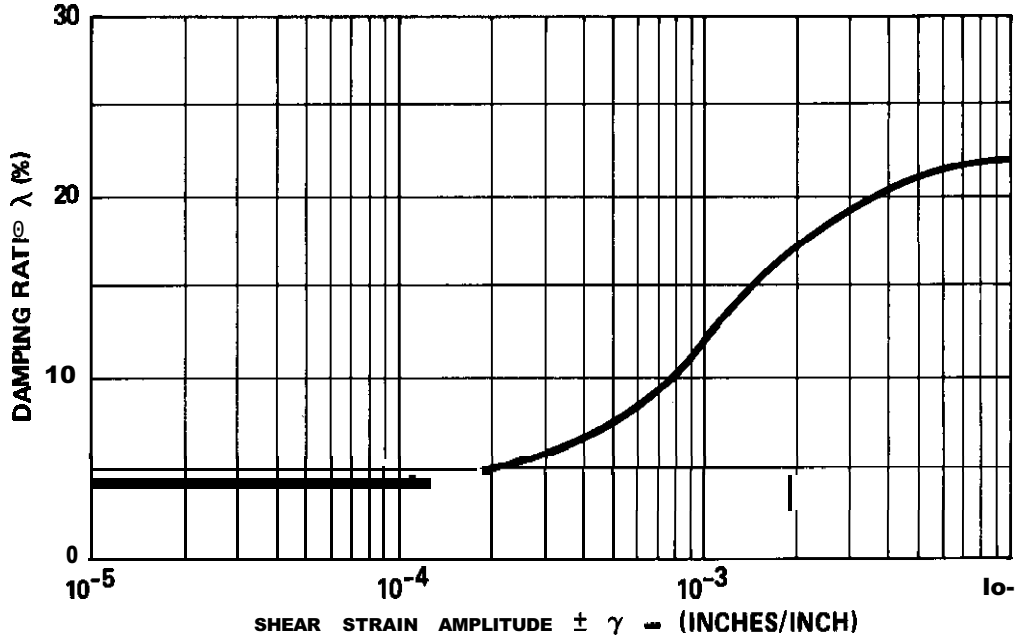




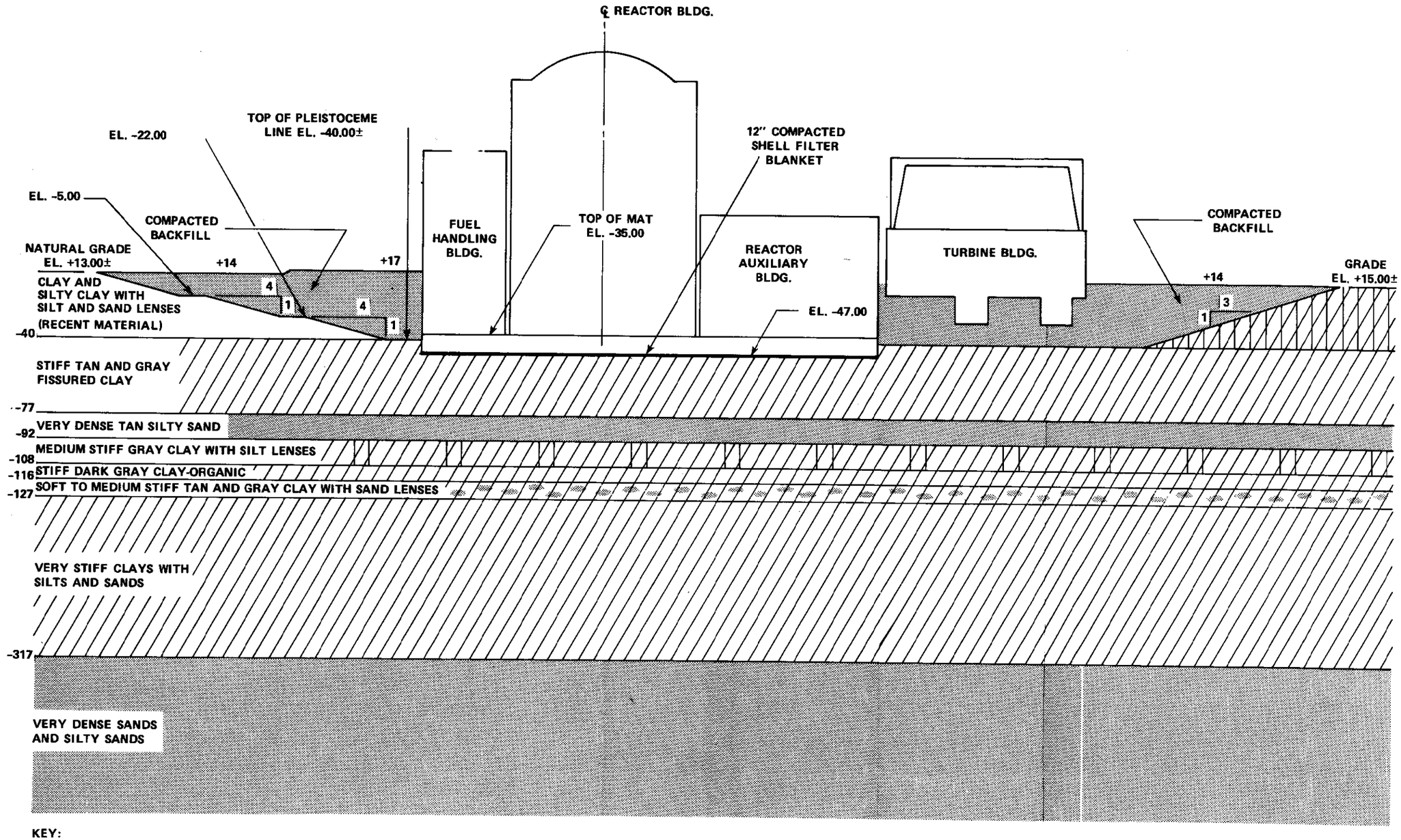
TAKEN FROM SEED, H. BOLTON AND IORISS, I.M. (1967)
"THE INFLUENCE OF SOIL CONDITIONS ON GROUND
MOTIONS DURING EARTHQUAKES"

LOUISIANA POWER & LIGHT CO. Waterford Steam Electric Station	SHEAR MODULUS & DAMPING VS. STRAIN – UPPER PLEISTOCENE (-40 FT. MSL TO –317 FT.MSL)	Figure 2.5–78





LOUISIANA POWER & LIGHT CO. Waterford Steam Electric Station	SHEAR MODULUS & DAMPING VS. STRAIN – LOWER PLEISTOCENE (BELOW –317 FT. MSL)	Figure 2.5-79



KEY:

CLAY SILT SAND

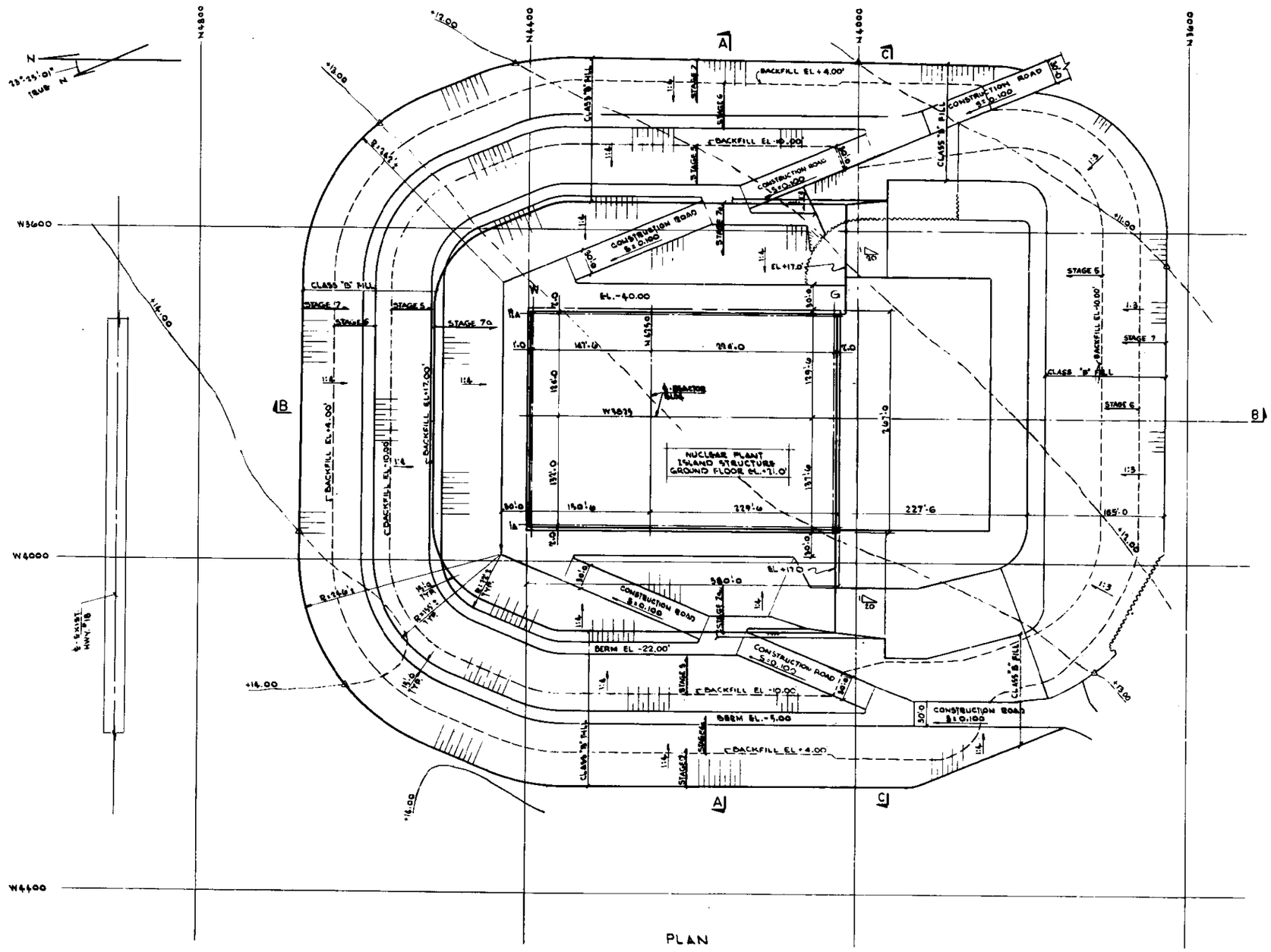
PREDOMINANT TYPE SHOWN HEAVY • MODIFYING TYPE SHOWN LIGHT.

LOUISIANA POWER & LIGHT CO.

Waterford Steam Electric Station

GENERALIZED SITE CROSS SECTION

FIGURE 2.5–80



PLAN

0 10 50 100 150 200
1"=50'

QUANTITIES

CLASS 'A' BACKFILL	652,000 C.Y.
CLASS 'B' BACKFILL	369,000 C.Y.

NOTES

SEE SPECIFICATION LOU-1566.681 FOR COMPLETE BACKFILL MATERIAL SPECS. AND PROCEDURES.

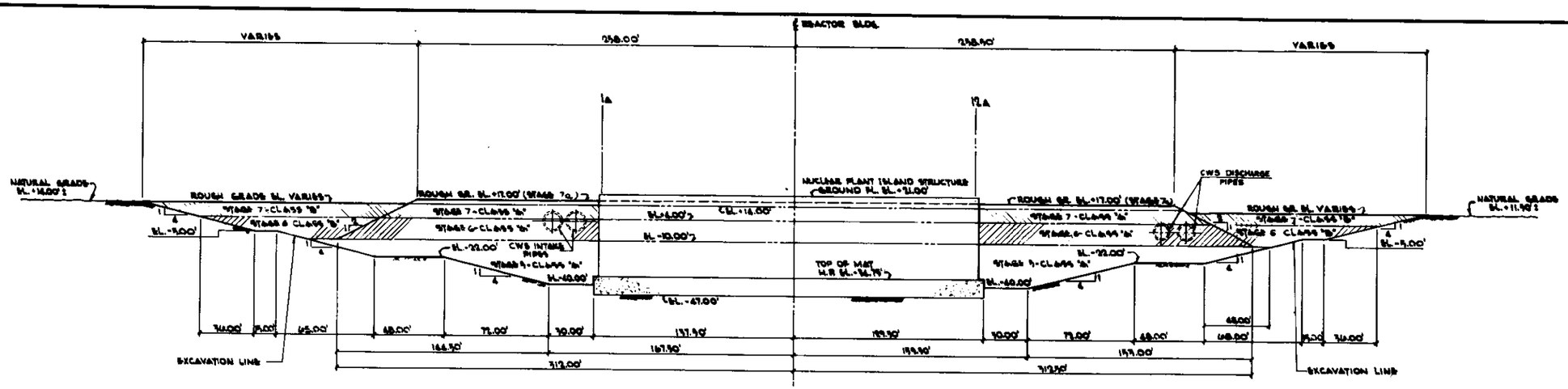
CLASS 'A' BACKFILLING SHALL BE DONE DURING THE CONSTRUCTION OF THE EXTERIOR FOUNDATION WALLS OF THE NUCLEAR PLANT ISLAND STRUCTURE IN PROPER SEQUENCE AS DEFINED BY STAGES 1 THRU 7 ON FIGURE 2.5-112 THRU 2.5-114 AND INDICATED ON THE BACKFILL PLAN.

BACKFILL STAGES ARE INDICATED FROM TOP EDGES OF THE LAYERS. CONSTRUCTION STAGE 1 THRU 8 ARE SHOWN ON FIGURE 2.5-108 THRU 2.5-115.

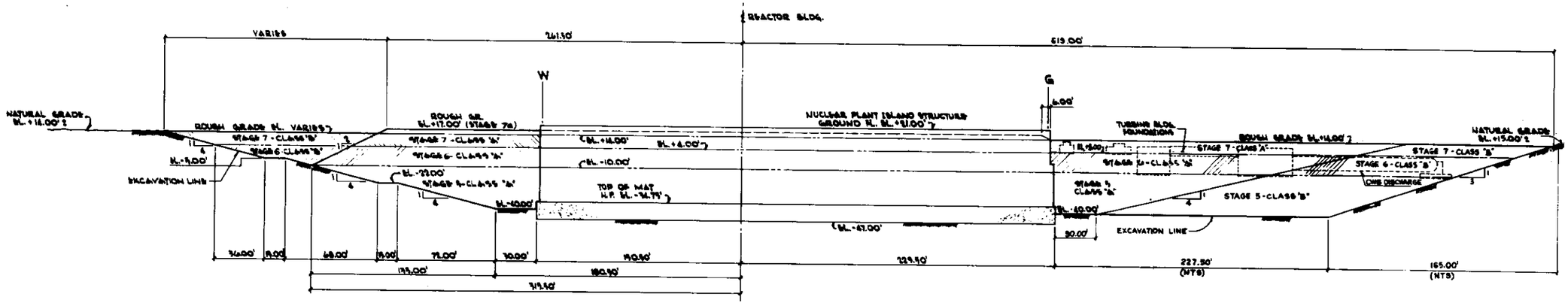
LOUISIANA POWER & LIGHT CO.
Waterford Steam Electric Station

EXCAVATION PLAN

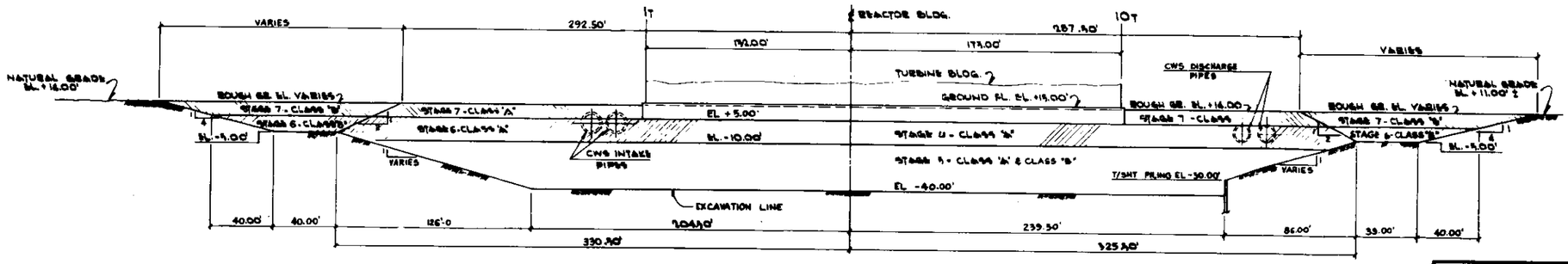
FIGURE 2.5-81



SECT A-A



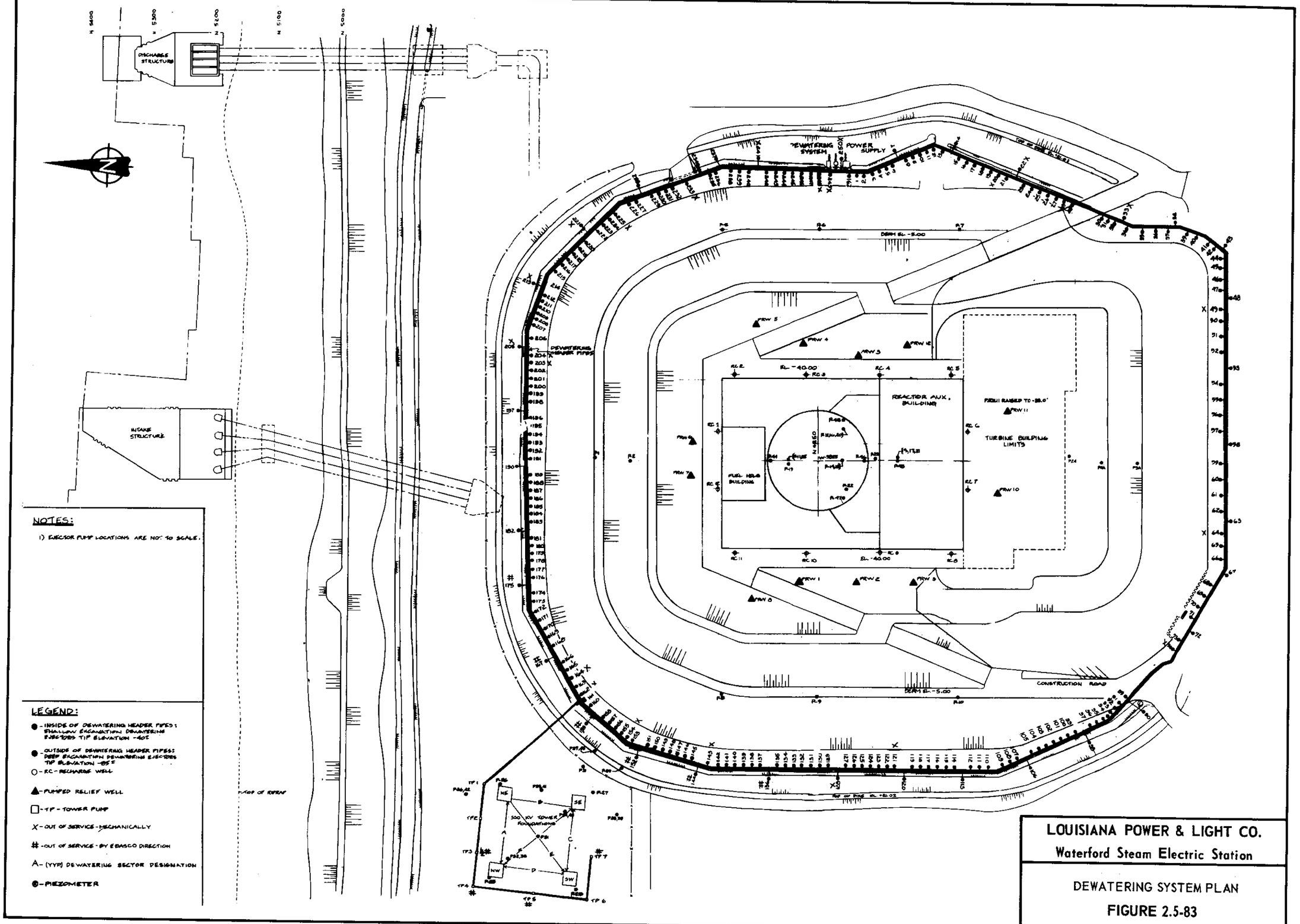
SECT B-B



SECT C-C
("9950" SOUTH OF ℄ OF REACTOR BLDG.)

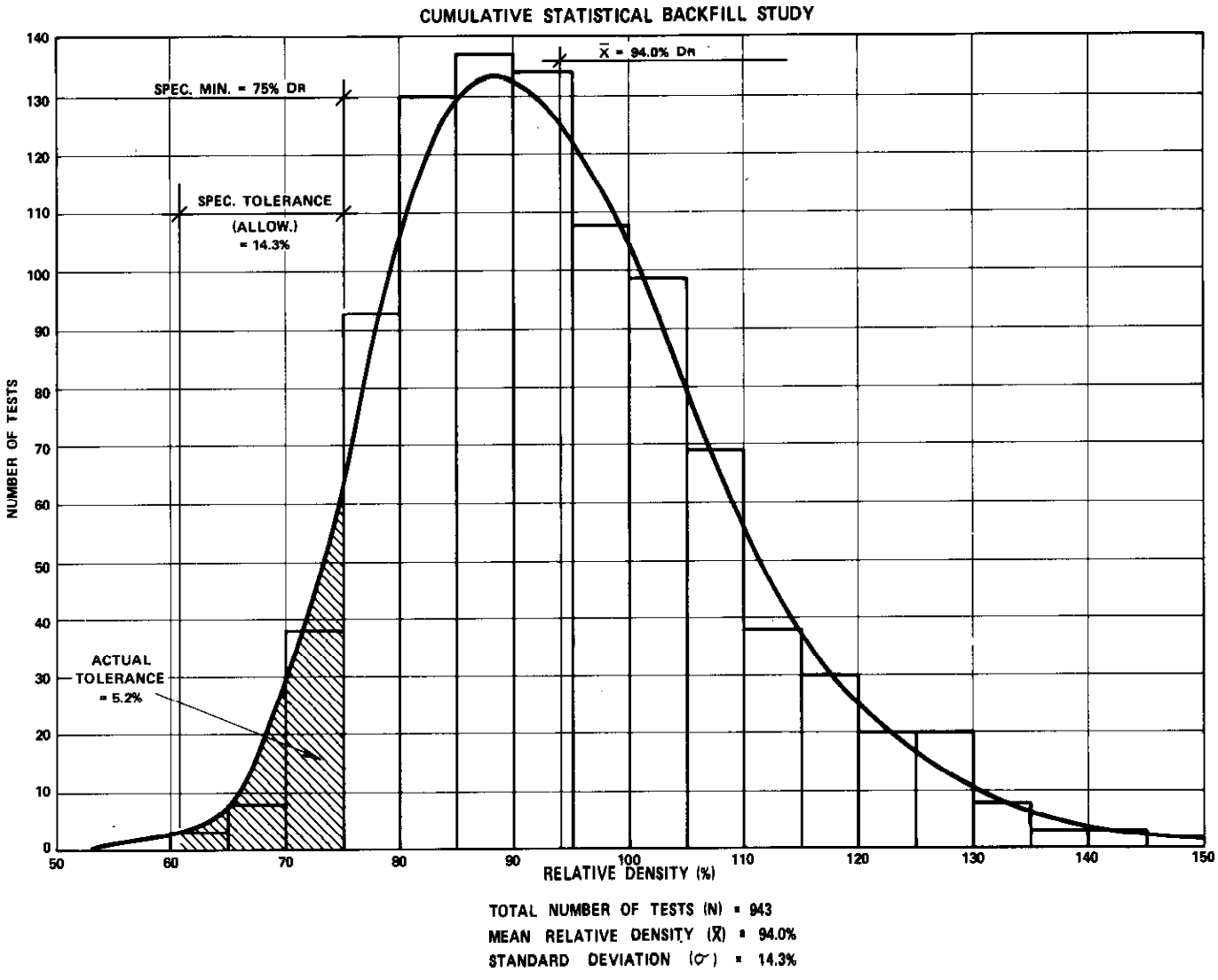
LOUISIANA POWER & LIGHT CO.
Waterford Steam Electric Station

EXCAVATIONS SECTIONS
FIGURE 2.5-82

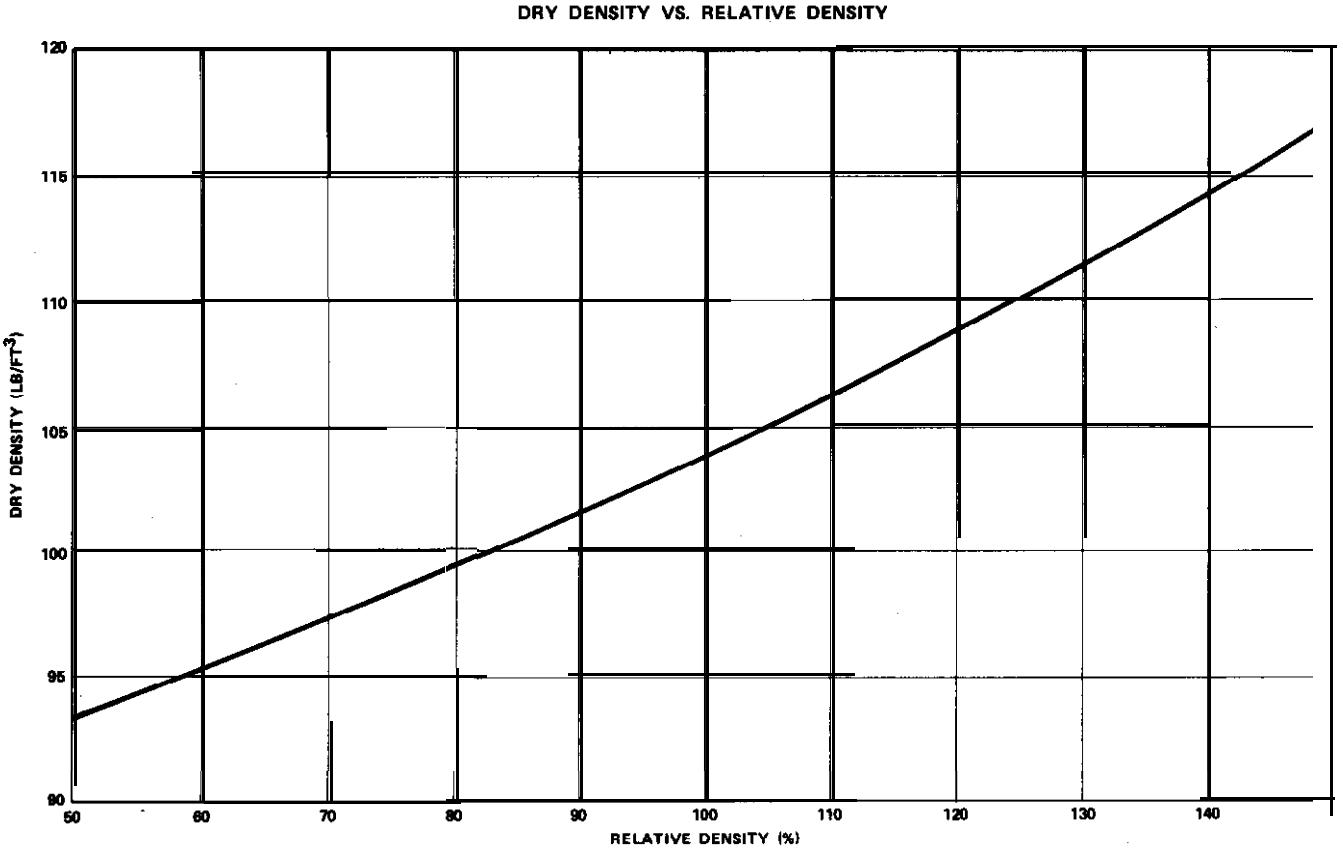


LOUISIANA POWER & LIGHT CO.
Waterford Steam Electric Station

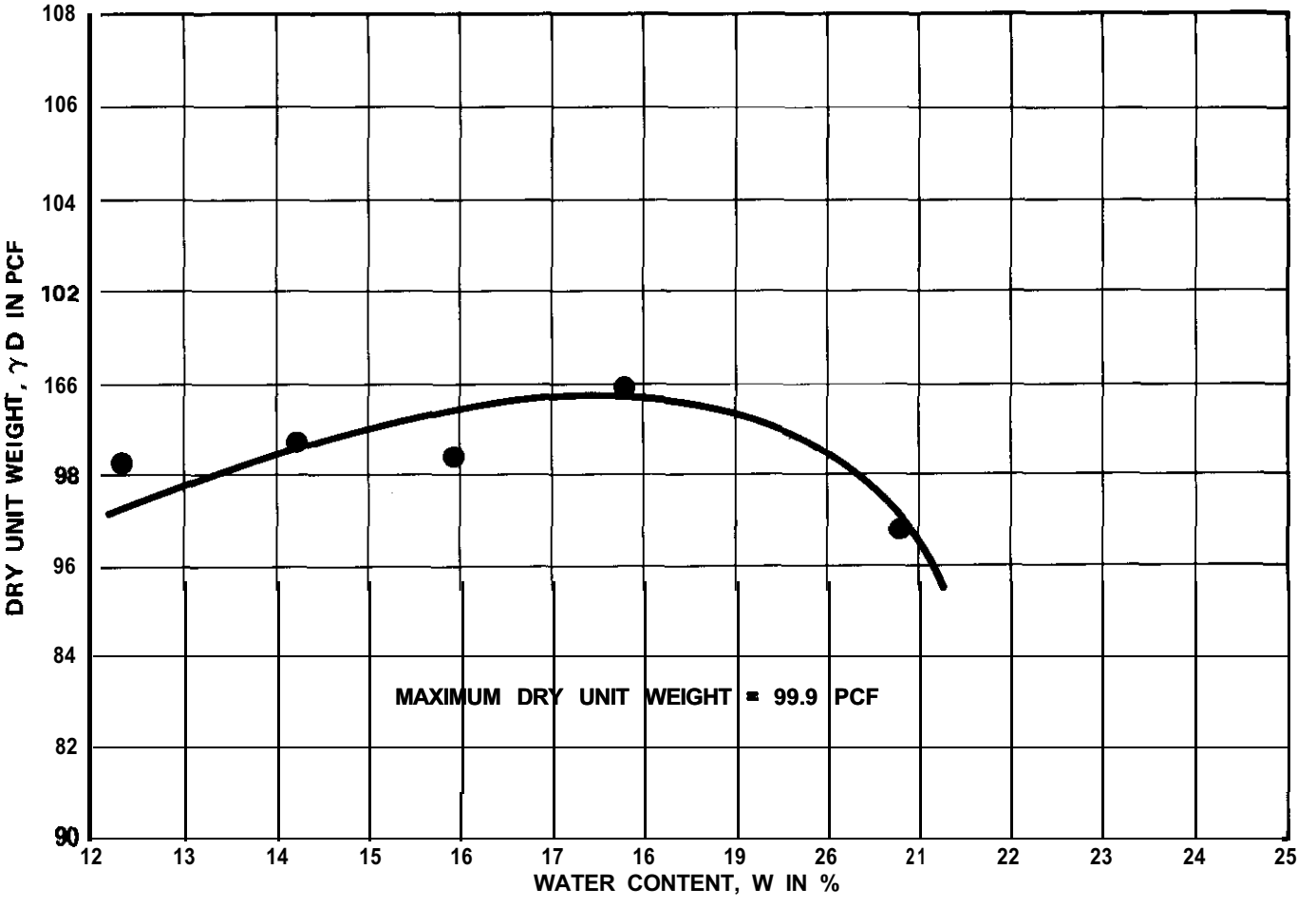
DEWATERING SYSTEM PLAN
FIGURE 2.5-83



LOUISIANA POWER & LIGHT CO. Waterford Steam Electric Station	COMPACTED BACKFILL - STATISTICAL STUDY	Figure 2.5-84



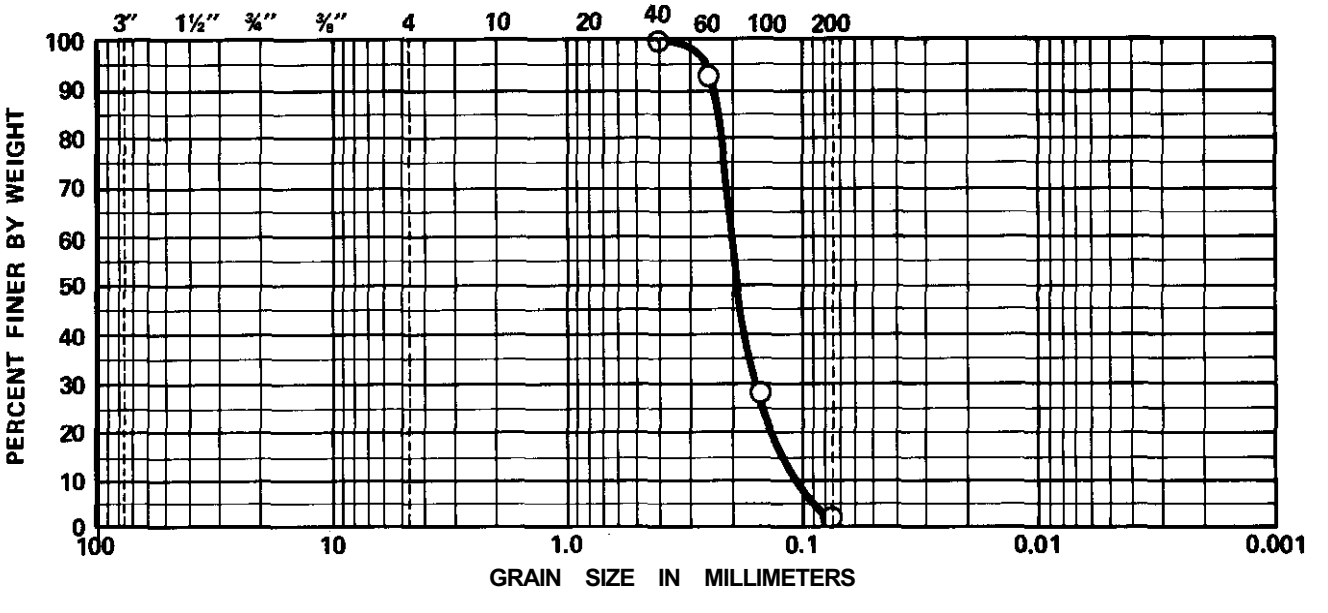
LOUISIANA POWER & LIGHT CO. Waterford Steam Electric Station	COMPACTED BACKFILL – DRY DENSITY VS. RELATIVE DENSITY	Figure 2.5–85



GRAIN SIZE DISTRIBUTION

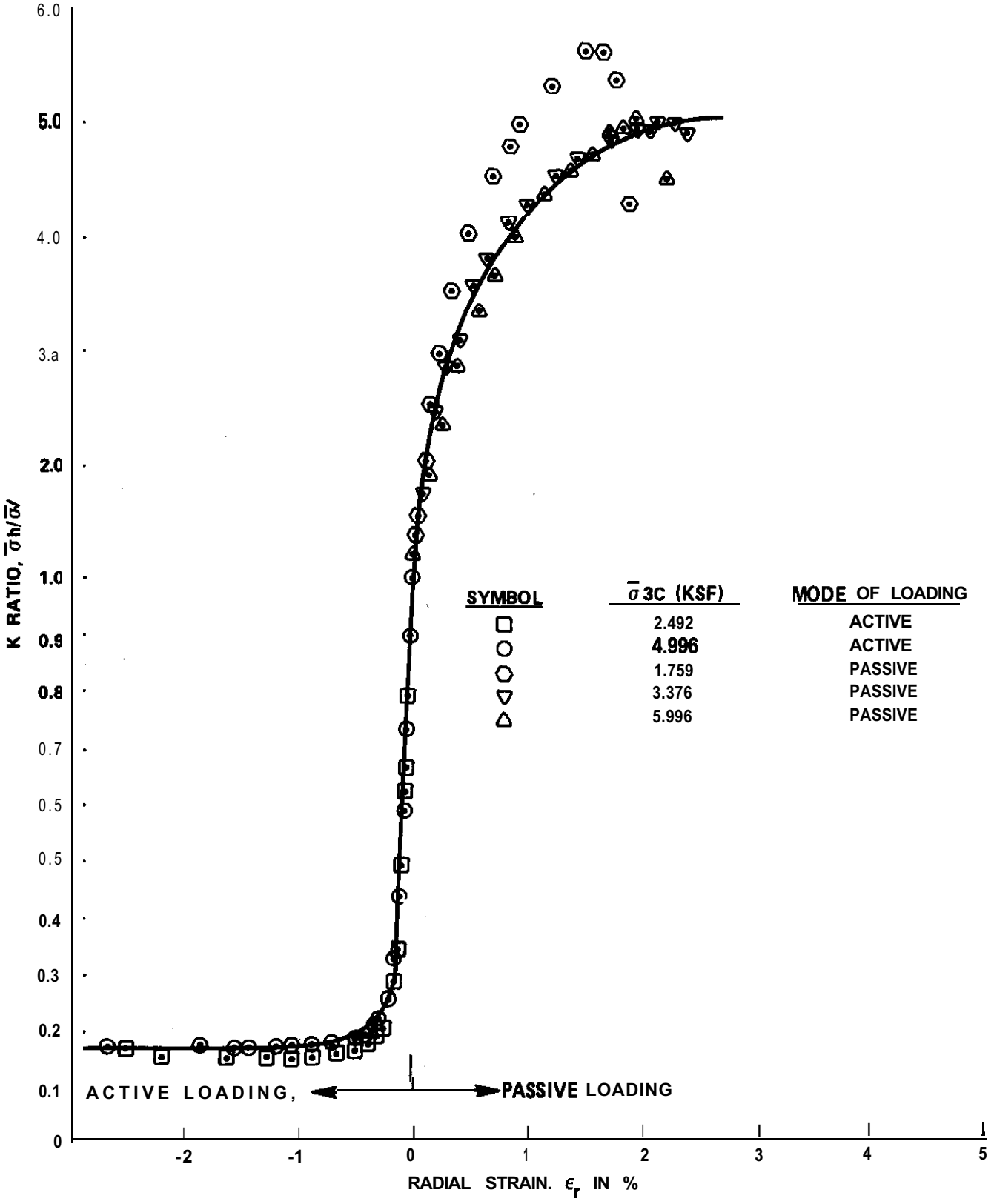
COBBLES	GRAVEL		SAND			SILT OR CLAY
	COARSE	FINE	COARSE	MEDIUM	FINE	

U.S. STANDARD SIEVE SIZE NO. UNIFIED SOIL CLASSIFICATION SYSTEM



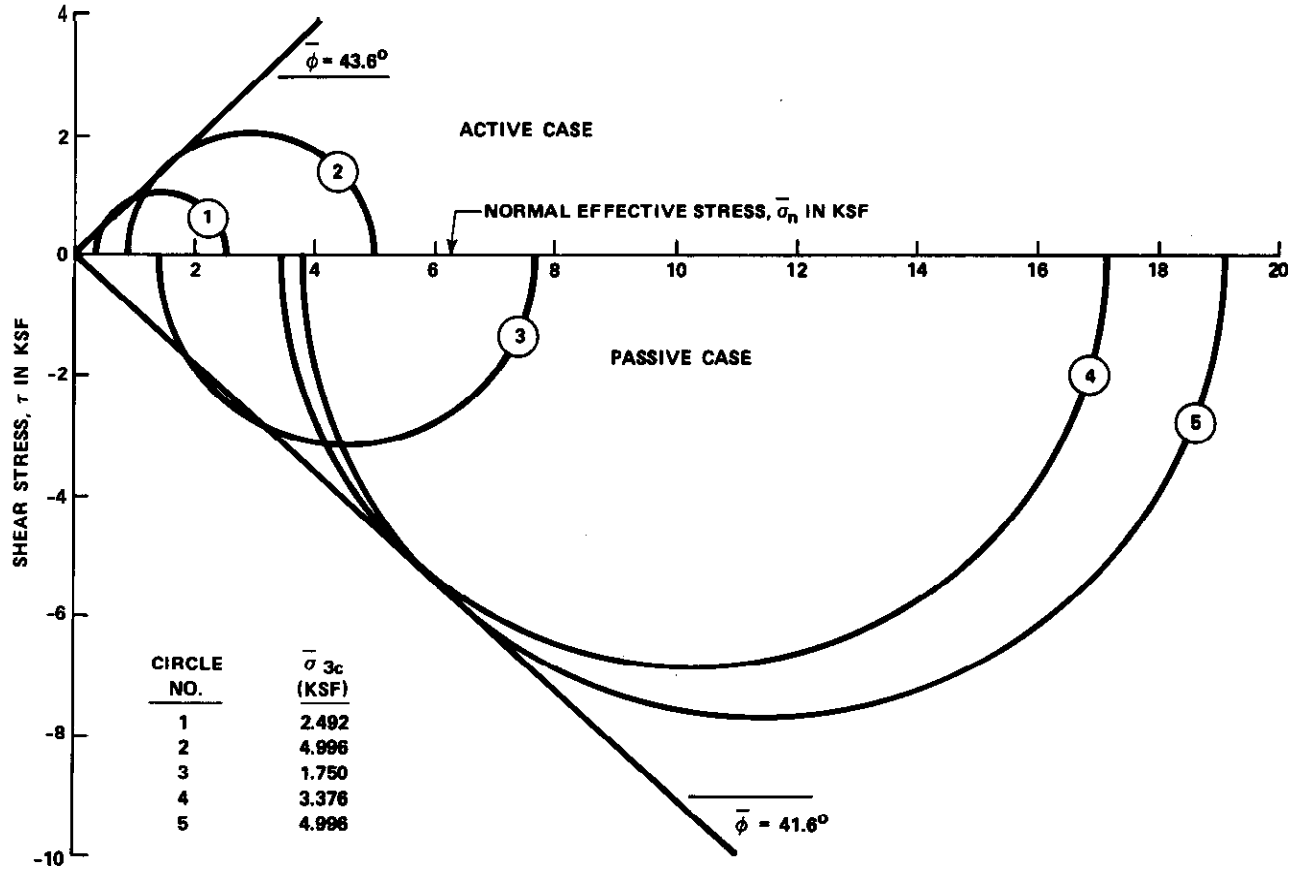
LOUISIANA POWER & LIGHT CO. Waterford Steam Electric Station	COMPACTED BACKFILL - COMPACTION CURVE & GRAIN SIZE DISTRIBUTION CURVE	Figure 2.5–86

CONSOLIDATED ISOTROPICALLY DRAINED TRIAXIAL TESTS



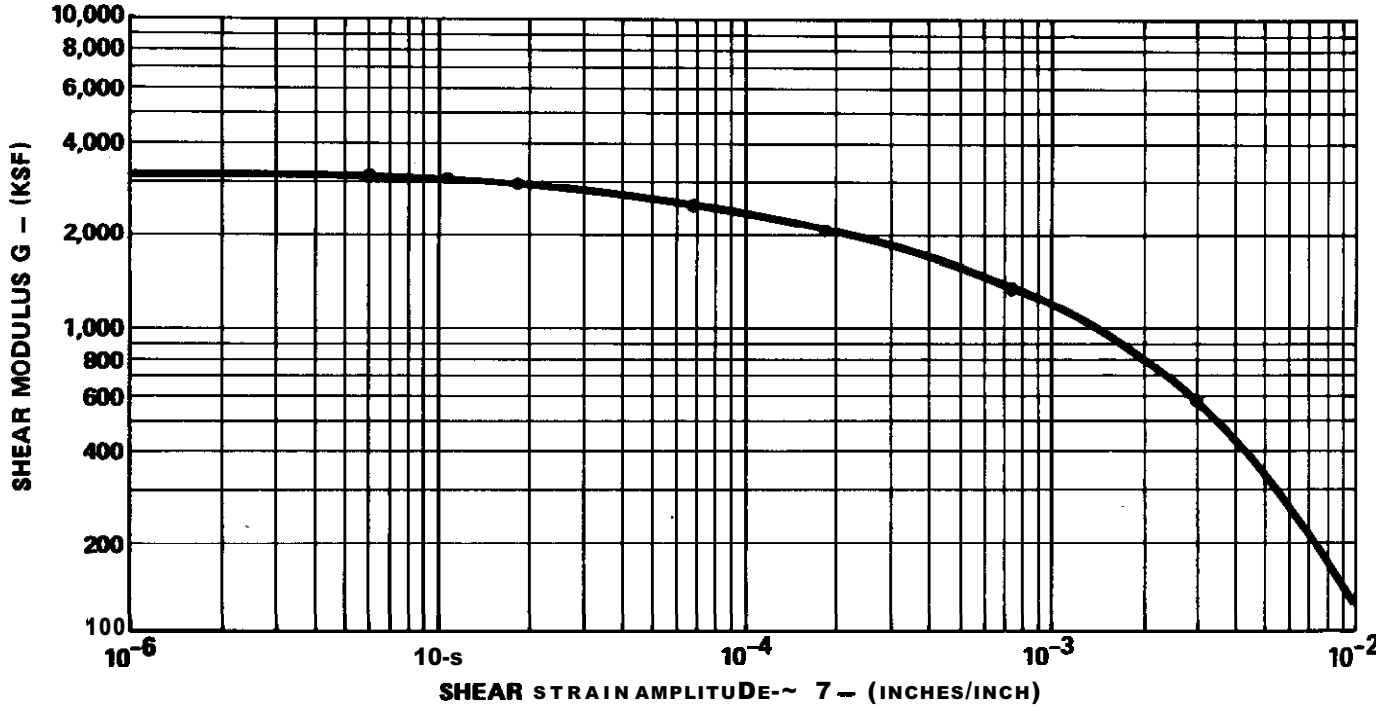
LOUISIANA POWER & LIGHT CO. Waterford Steam Electric Station	COMPACTED BACKFILL - EARTH PRESSURE COEFFICIENT VS. RADIAL STRAIN	Figure 2.5-87

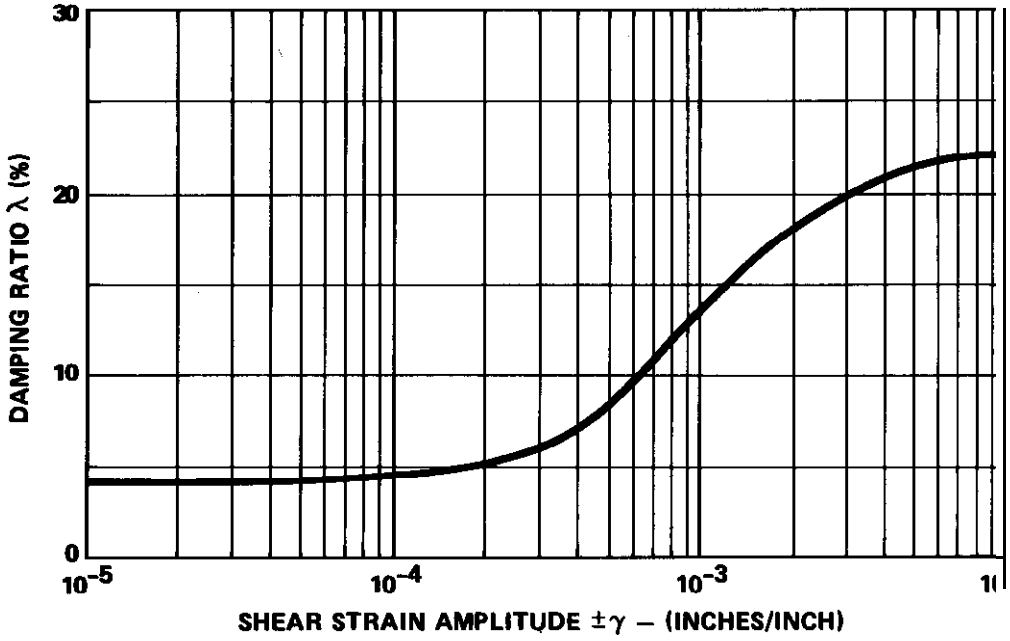
CONSOLIDATED ISOTROPICALLY DRAINED TRIAXIAL TESTS



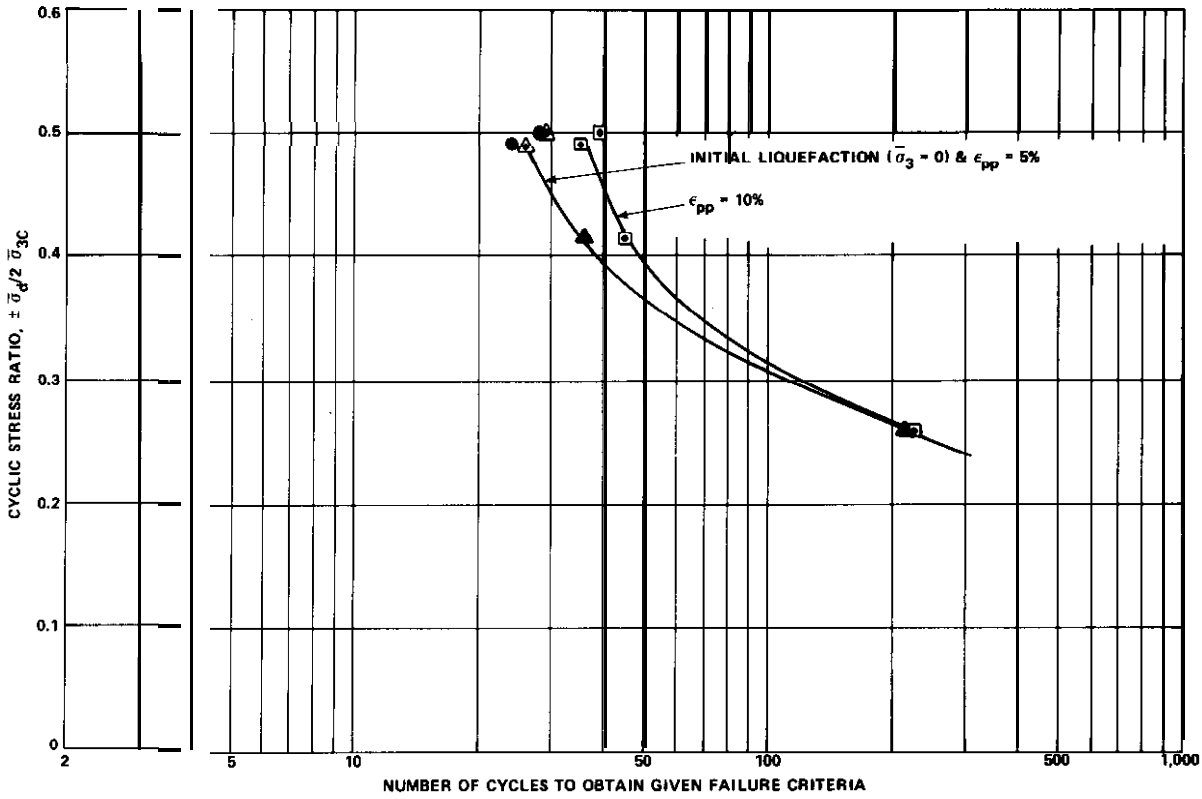
CIRCLE NO.	$\bar{\sigma}_{3c}$ (KSF)
1	2.492
2	4.996
3	1.750
4	3.376
5	4.996

LOUISIANA POWER & LIGHT CO. Waterford Steam Electric Station	COMPACTED BACKFILL – ACTIVE – PASSIVE MOHR'S CIRCLE PLOTS	Figure 2.5-88



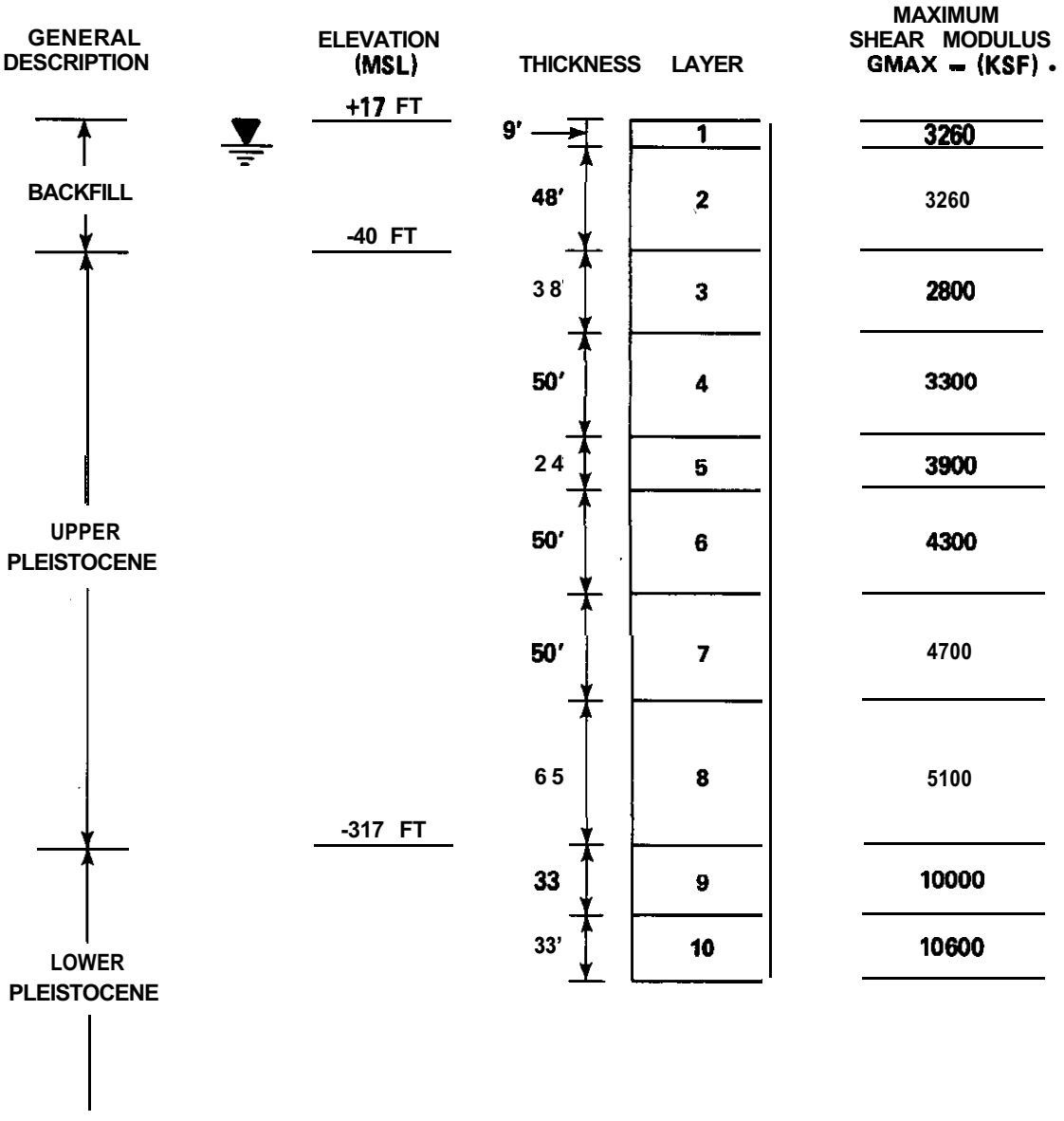


LOUISIANA POWER & LIGHT CO. Waterford Steam Electric Station	SHEAR MODULUS & DAMPING VS. STRAIN – COMPACTED BACKFILL	Figure 2.5–89



SYMBOL	FAILURE CRITERIA
●	INITIAL LIQUEFACTION
△	ϵ_{pp} = 5%
⊡	ϵ_{pp} = 10%

LOUISIANA POWER & LIGHT CO. Waterford Steam Electric Station	CYCLIC SHEAR STRENGTH – COMPACTED BACKFILL	Figure 2.5-90

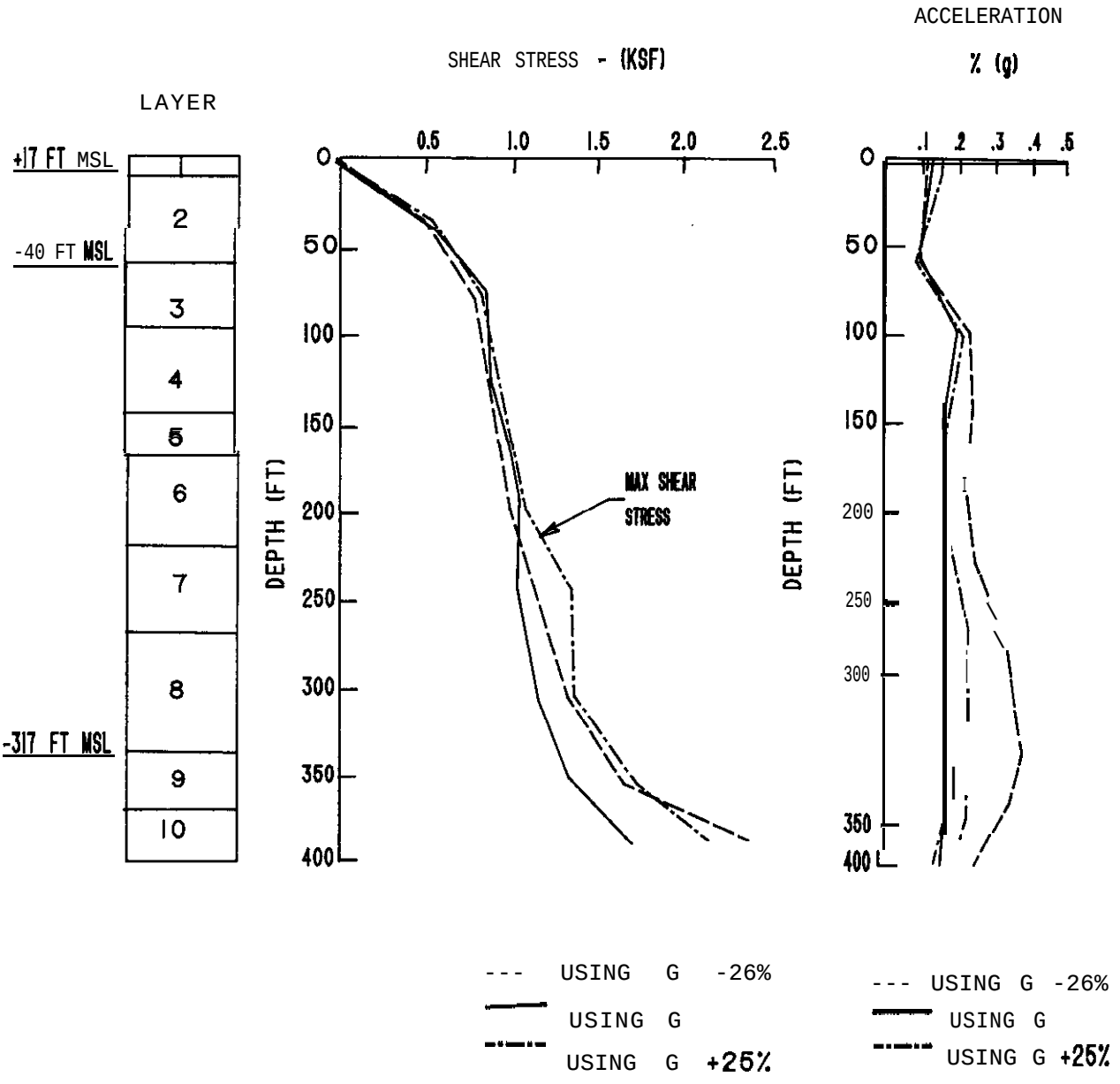


AVERAGE SATURATED SOIL WEIGHT = 120 PCF

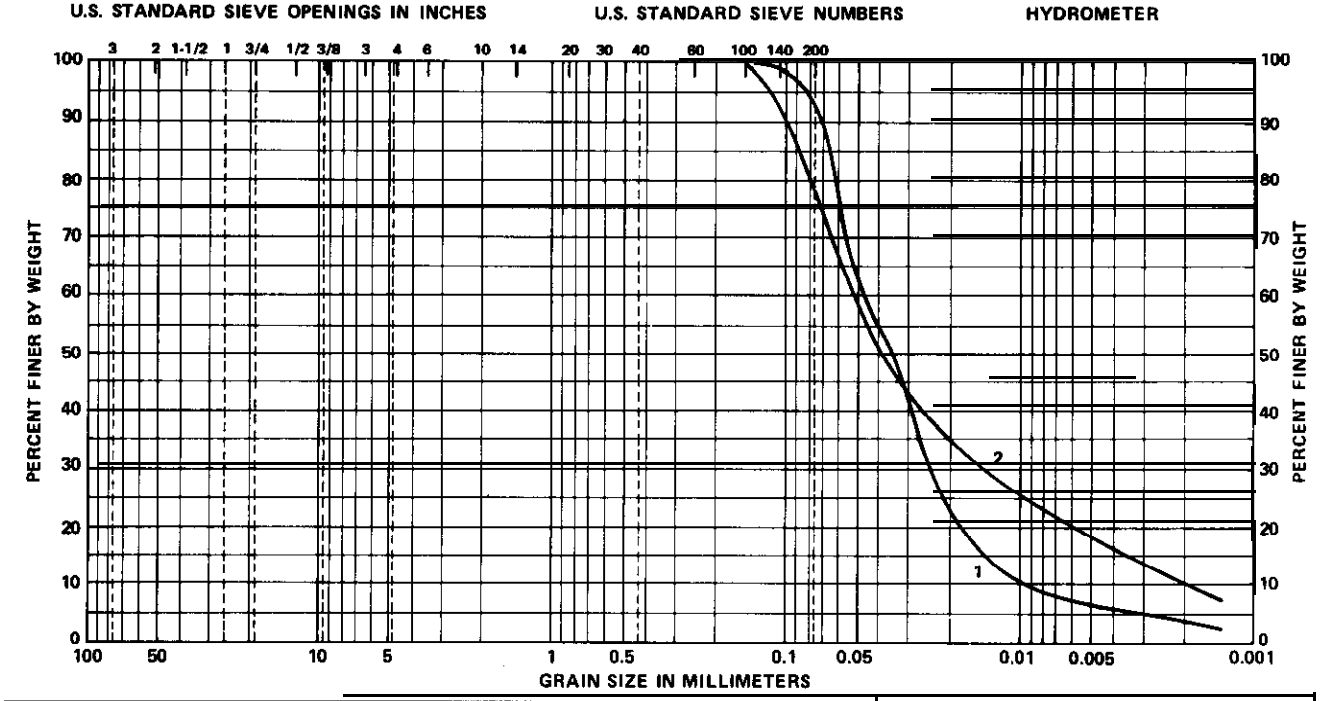
INDICATES GROUND WATER TABLE (+8FT MSL)

• SHEAR MODULUS FROM FIELD GEOPHYSICAL STUDIES

LOUISIANA POWER & LIGHT CO. Waterford Steam Electric Station	RESPONSE ANALYSIS MODEL	Figure 2.5-91



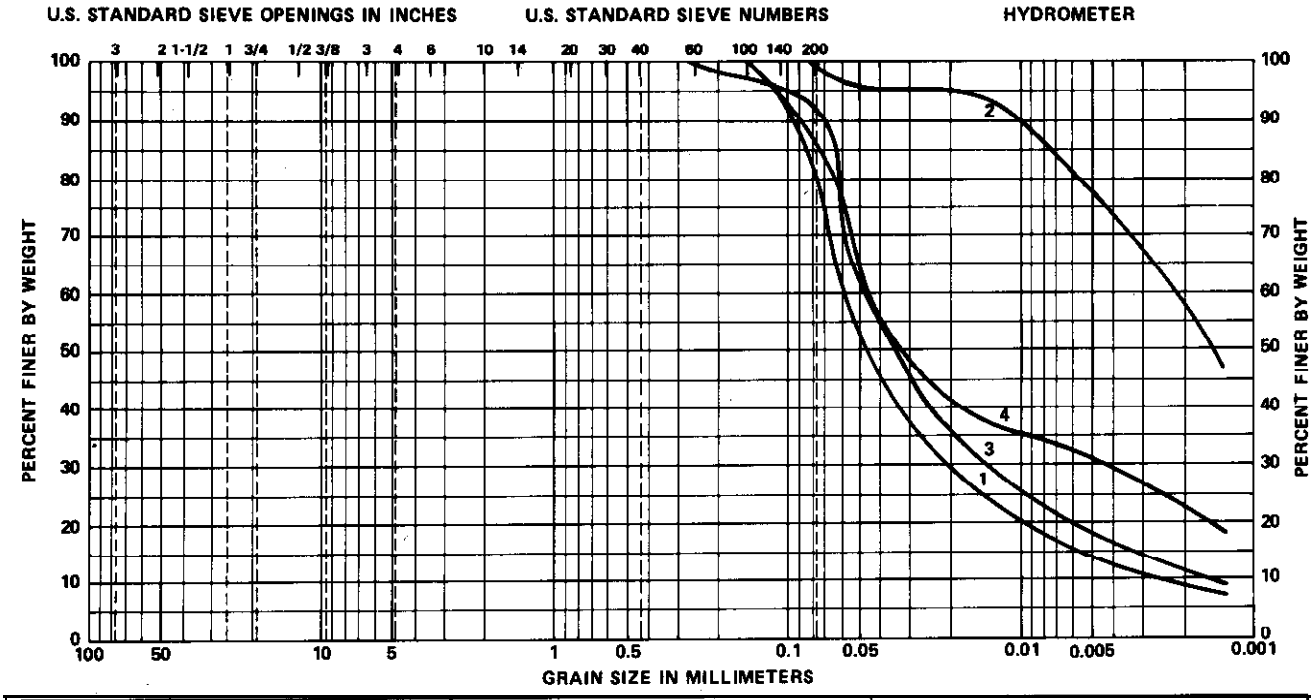
LOUISIANA POWER & LIGHT CO. Waterford Steam Electric Station	SHEAR STRESS AND ACCELERATION VS DEPTH	Figure 2.5-92



GRAIN SIZE ANALYSIS

CURVE NO.	BORING NO.	SAMPLE NO.	DEPTH IN FT.	NATURAL WATER CONTENT	SPT	PERCENT PASSING NO. 200 SIEVE
1	17	17	63.0	28.1		92%
2	19	17	63.0	29.9		79%

LOUISIANA POWER & LIGHT CO. Waterford Steam Electric Station	GRAIN SIZE ANALYSES OF -55 FT.MSL MATERIALS	Figure 2.5-93a



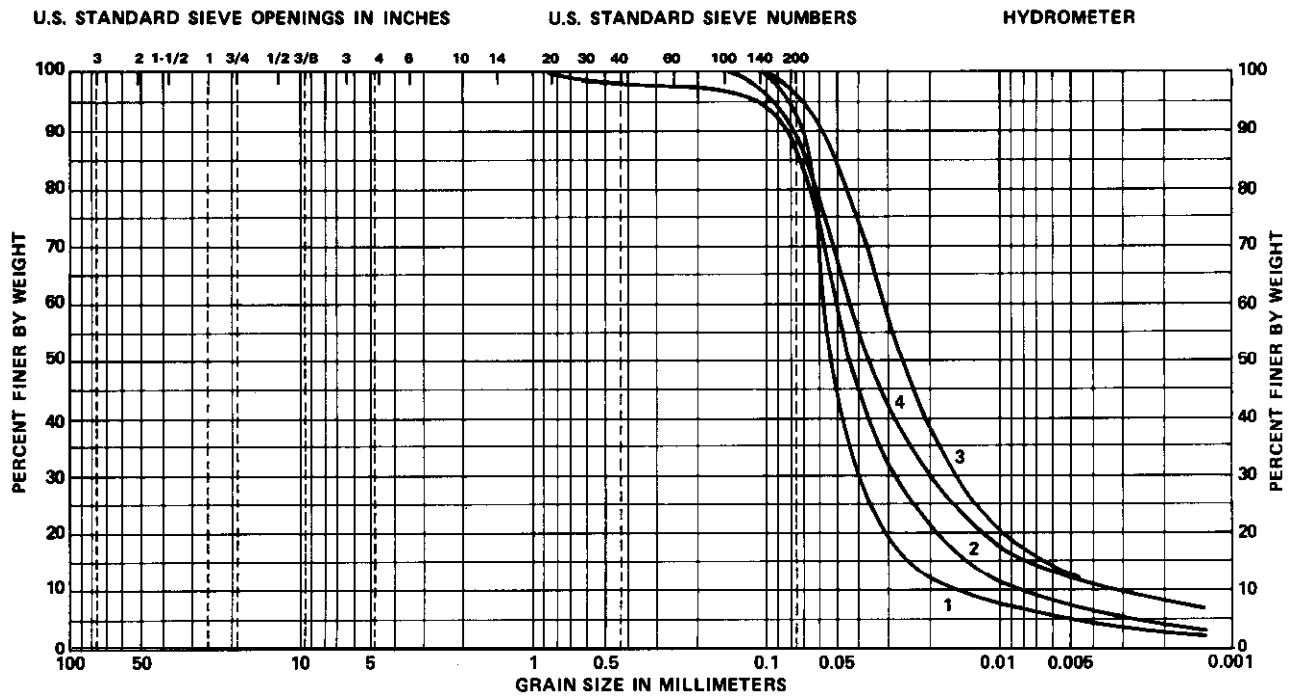
GRAIN SIZE ANALYSIS

CURVE NO.	BORING NO.	SAMPLE NO.	DEPTH IN FT.	NATURAL WATER CONTENT	SPT	PERCENT PASSING NO. 200 SIEVE
1	21	17	63.0	31.5		80%
2	26	19	63.0			99%
3	27	24	74.5			92%
4	34	18	63.0	26.5		87%

LOUISIANA POWER & LIGHT CO.
Waterford Steam Electric Station

GRAIN SIZE ANALYSES OF -55 FT. MSL MATERIALS

Figure 2.5-93b



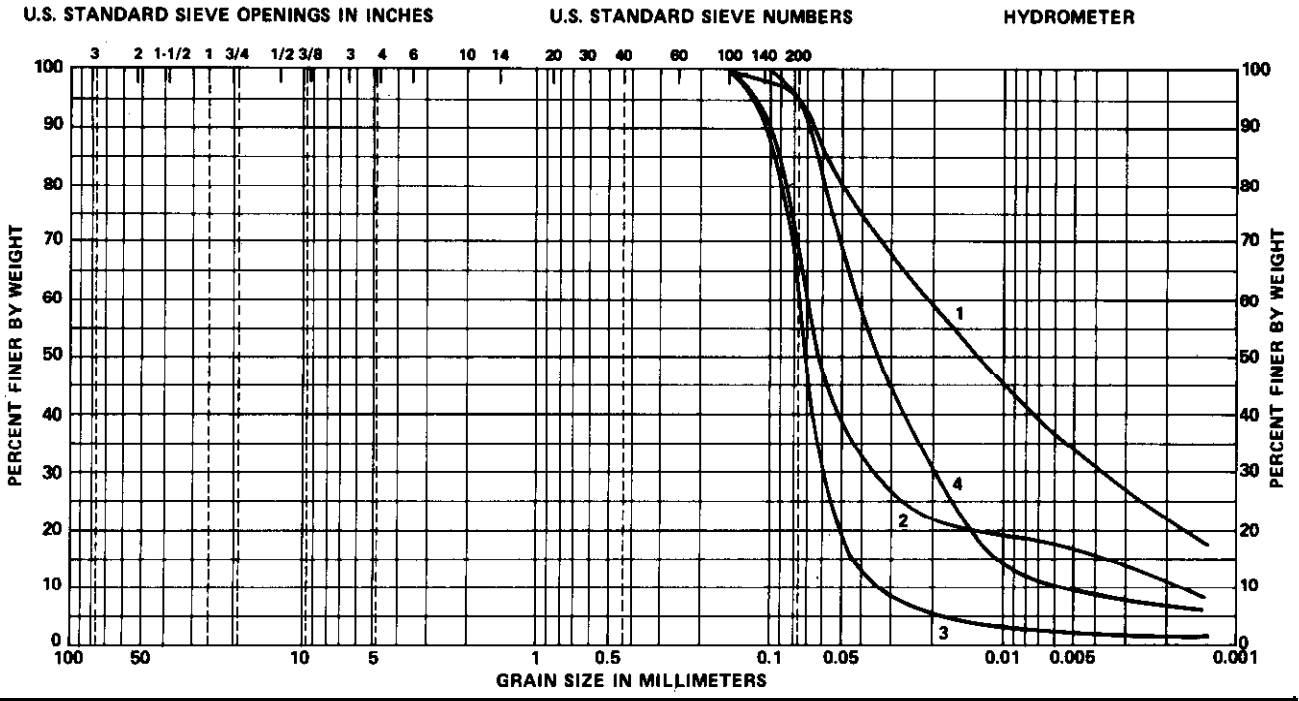
GRAIN SIZE ANALYSIS

CURVE NO.	BORING NO.	SAMPLE NO.	DEPTH IN FT.	NATURAL WATER CONTENT	SPT	PERCENT PASSING NO. 200 SIEVE
1	35	19	63.5		34	93%
2	36	16	63.5		20	87%
3	37	17	63.0			97%
4	37	18	63.5		21	89%

LOUISIANA POWER & LIGHT CO.
Waterford Steam Electric Station

GRAIN SIZE ANALYSES OF -55 FT. MSL MATERIALS

Figure 2.5–93c



UNIFIED	GRAVEL			SAND			SILT OR CLAY	
	COARSE	FINE		COARSE	MEDIUM	FINE		
AASHO	GRAVEL			SAND			SILT	CLAY
	COARSE	MEDIUM	FINE	COARSE		FINE		

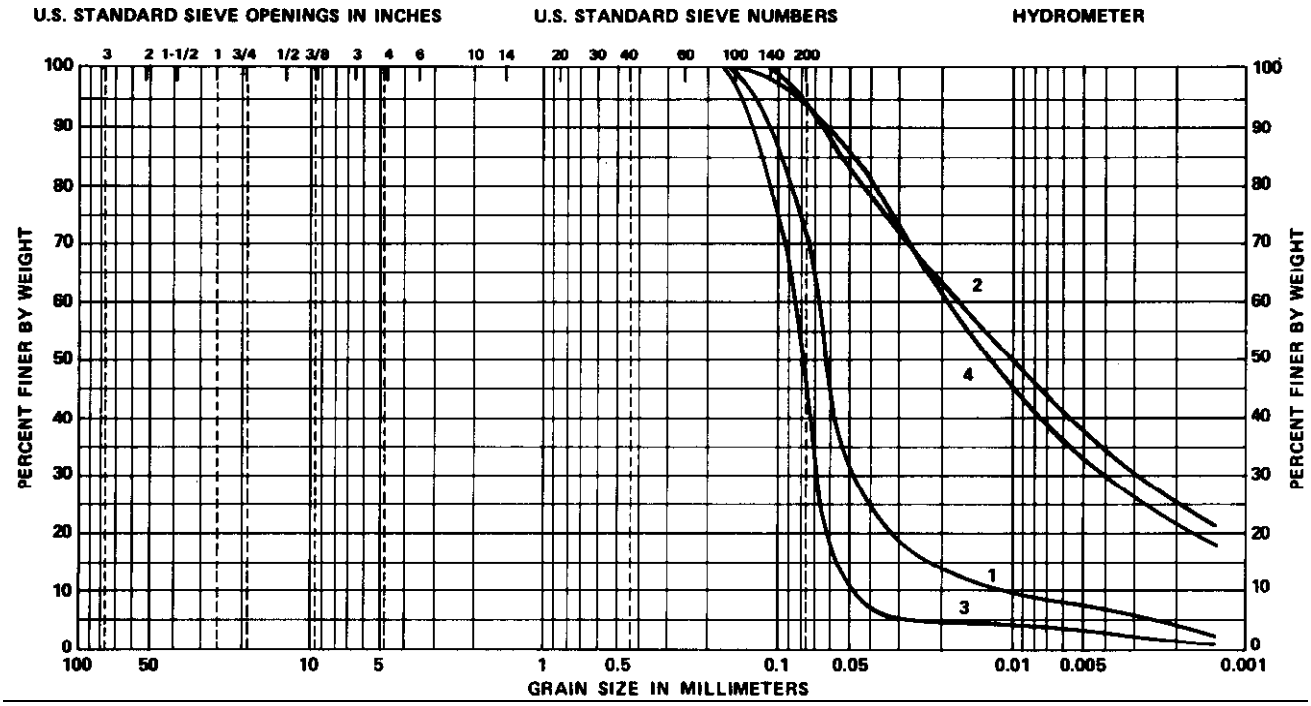
GRAIN SIZE ANALYSIS

CURVE NO.	BORING NO.	SAMPLE NO.	DEPTH IN FT.	NATURAL WATER CONTENT	SPT	PERCENT PASSING NO. 200 SIEVE
1	38	17	63.5		15	95%
2	39	18	63.0	26.7		72%
3	41	17	63.5		13	65%
4	45	17	63.0			95%

LOUISIANA POWER & LIGHT CO.
Waterford Steam Electric Station

GRAIN SIZE ANALYSES OF -55 FT. MSL MATERIALS

Figure 2.5-93d



UNIFIED	GRAVEL			SAND			SILT OR CLAY	
	COARSE		FINE	COARSE	MEDIUM	FINE		
AASHO	GRAVEL			SAND			SILT	CLAY
	COARSE	MEDIUM	FINE	COARSE		FINE		

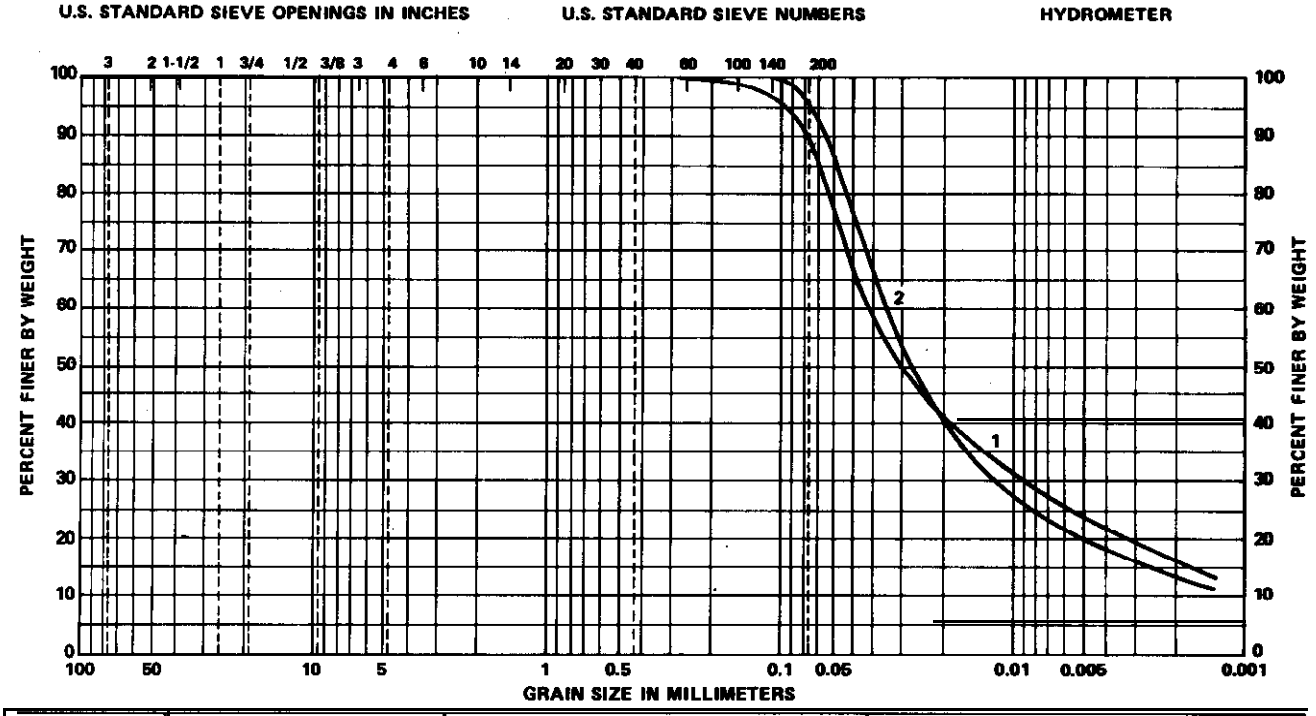
GRAIN SIZE ANALYSIS

CURVE NO.	BORING NO.	SAMPLE NO.	DEPTH IN FT.	NATURAL WATER CONTENT	SPT	PERCENT PASSING NO. 200 SIEVE
1	46	18	62.5	28.0		72%
2	46	19	63.0		18	94%
3	55	43	64.5	22.7		45%
4	57	30	64.0			95%

LOUISIANA POWER & LIGHT CO.
Woterford Steam Electric Station

GRAIN SIZE ANALYSES OF -55 FT. MSL MATERIALS

Figure 2.5-93e

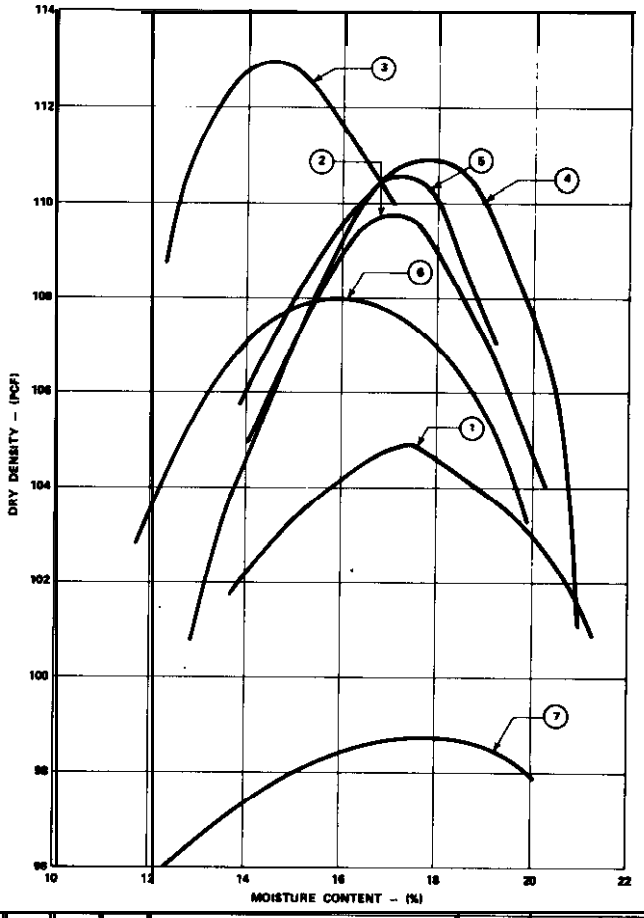


CURVE NO.	BORING NO.	SAMPLE NO.	DEPTH IN FT.	NATURAL WATER CONTENT	SPT	PERCENT PASSING NO. 200 SIEVE
1	60	29	64.5			89%
2	65	29	64.5			96%

LOUISIANA POWER & LIGHT CO.
Waterford Steam Electric Station

GRAIN SIZE ANALYSES OF -55 FT. MSL MATERIALS

Figure 2.5-93f

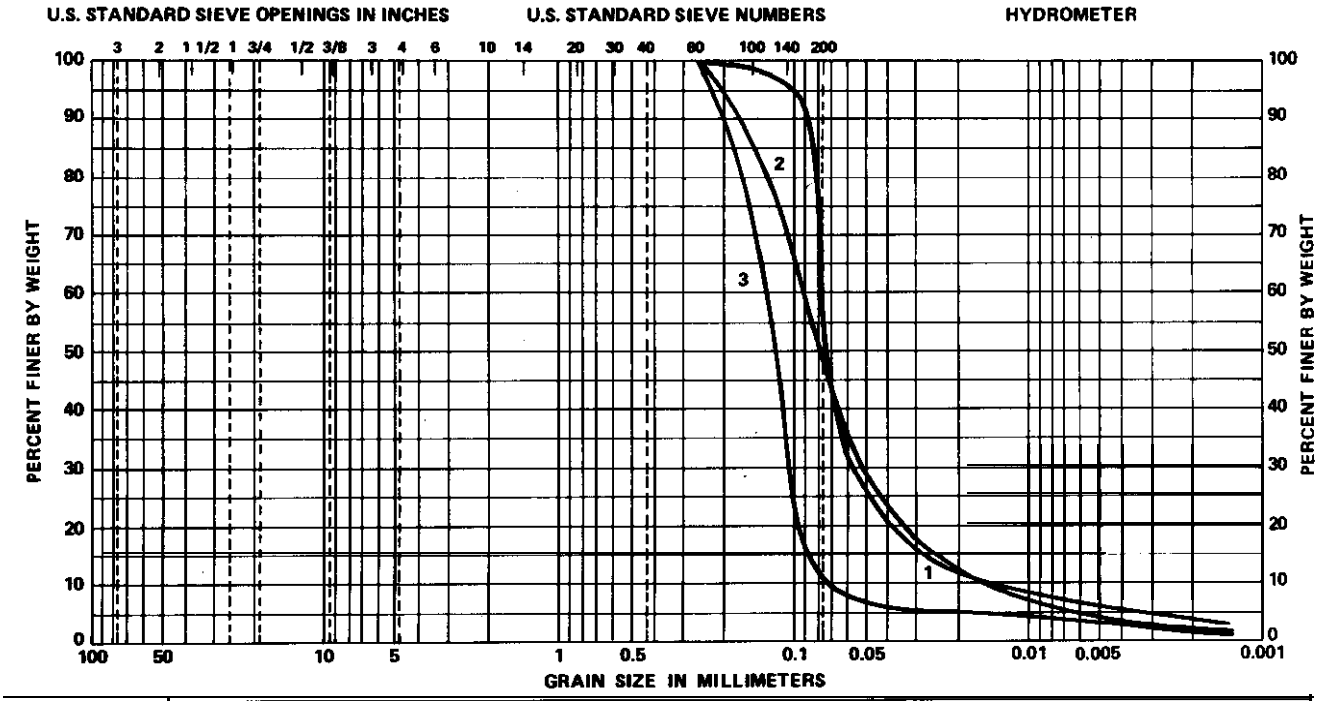


CURVE NO.	BORING NO.	SAMPLE NO.	DEPTH IN FEET	CLASSIFICATION	NATURAL MOISTURE CONTENT (%)	DRY DENSITY (PCF)	PERCENT COMPACTION (%)
1	17	17	63.0	LOOSE TAN SANDY SILT W/SILTY CLAY LAYERS	28.1	94.6	90
2	21	17	63.0	LOOSE TAN SANDY SILT W/CLAY LENSES	31.5	93.5	89
3	19	17	63.0	LOOSE TAN SANDY SILT W/CLAY LAYERS	29.9	95.0	94
4	34	18	63.0	STIFF TAN & GRAY CLAY W/SANDY SILT LAYERS	26.5	98.4	90
5	30	18	63.0	LOOSE TAN SANDY SILT W/CLAY LAYERS	28.7	95.0	90
6	46	18	62.5	LOOSE TAN SANDY SILT W/CLAY LENSES	28.0	96.5	90
7	66	43	64.5	LOOSE TAN SILTY FINE SAND W/CLAY LENSES	22.7	92.6	93

LOUISIANA
POWER & LIGHT CO.
Waterford Steom
Electric Stotion

COMPACTION CURVES FOR = 55 FT MSL MATERIALS

Figure
2.5–94



UNIFIED	GRAVEL			SAND			SILT OR CLAY	
	COARSE	FINE		COARSE	MEDIUM	FINE		
AASHO	GRAVEL			SAND			SILT	CLAY
	COARSE	MEDIUM	FINE	COARSE		FINE		

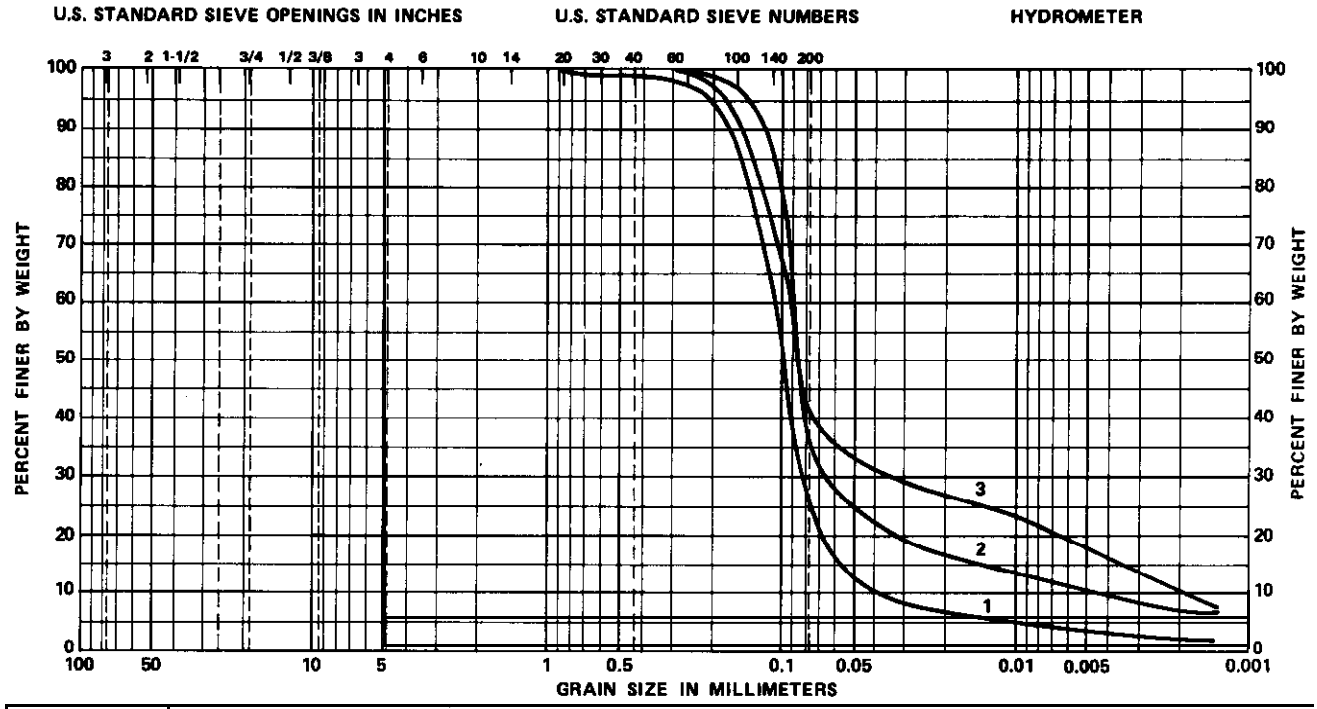
GRAIN SIZE ANALYSIS

CURVE NO.	BORING NO.	SAMPLE NO.	DEPTH IN FT.	NATURAL WATER CONTENT	SPT	PERCENT PASSING NO. 200 SIEVE
1	3	27	98.5		29	50%
2	21	28	98.5		18	48%
3	29	26	88.5		18	11%

LOUISIANA POWER & LIGHT CO.
Waterford Steam Electric Station

GRAIN SIZE ANALYSES OF -77 FT. MSL MATERIALS

Figure 2.5-95a



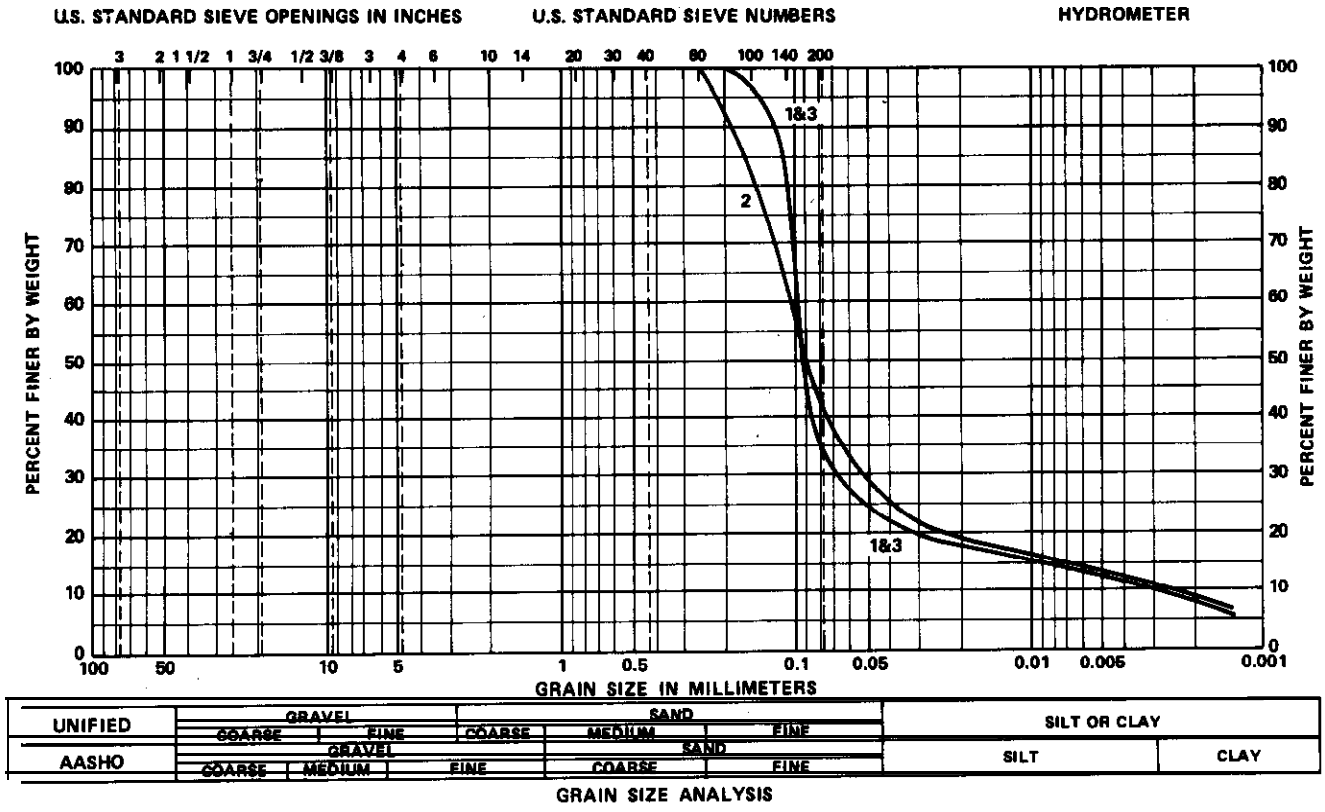
GRAIN SIZE ANALYSIS

CURVE NO.	BORING NO.	SAMPLE NO.	DEPTH IN FT.	NATURAL WATER CONTENT	SPT	PERCENT PASSING NO. 200 SIEVE
1	41	28	98.5		40	26%
2	54	41	90.0		16	35%
3	56	41	90.0		14	42%

LOUISIANA POWER & LIGHT CO.
Waterford Steam Electric Station

GRAIN SIZE ANALYSES OF -77 FT. MSL MATERIALS

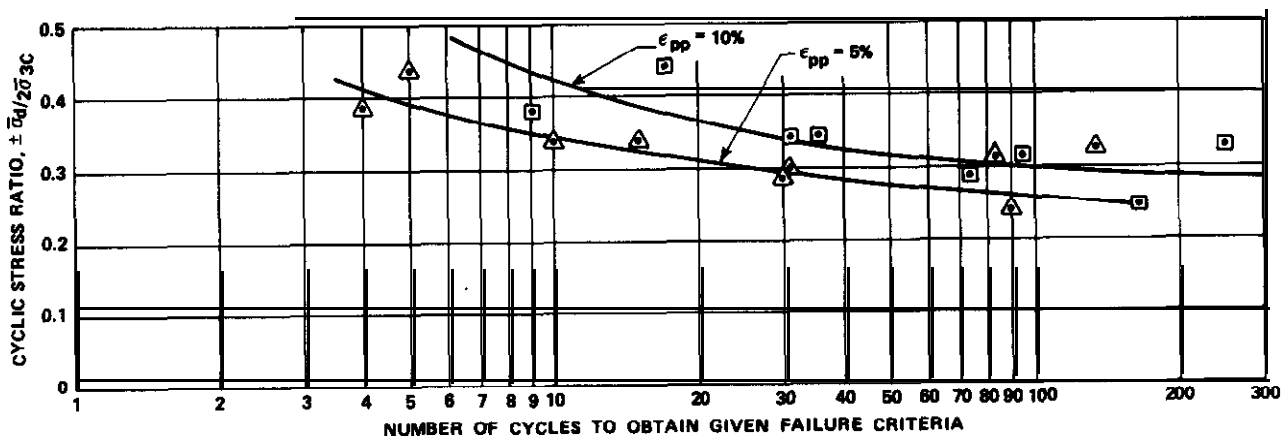
Figure 2.5-95b



GRAIN SIZE ANALYSIS

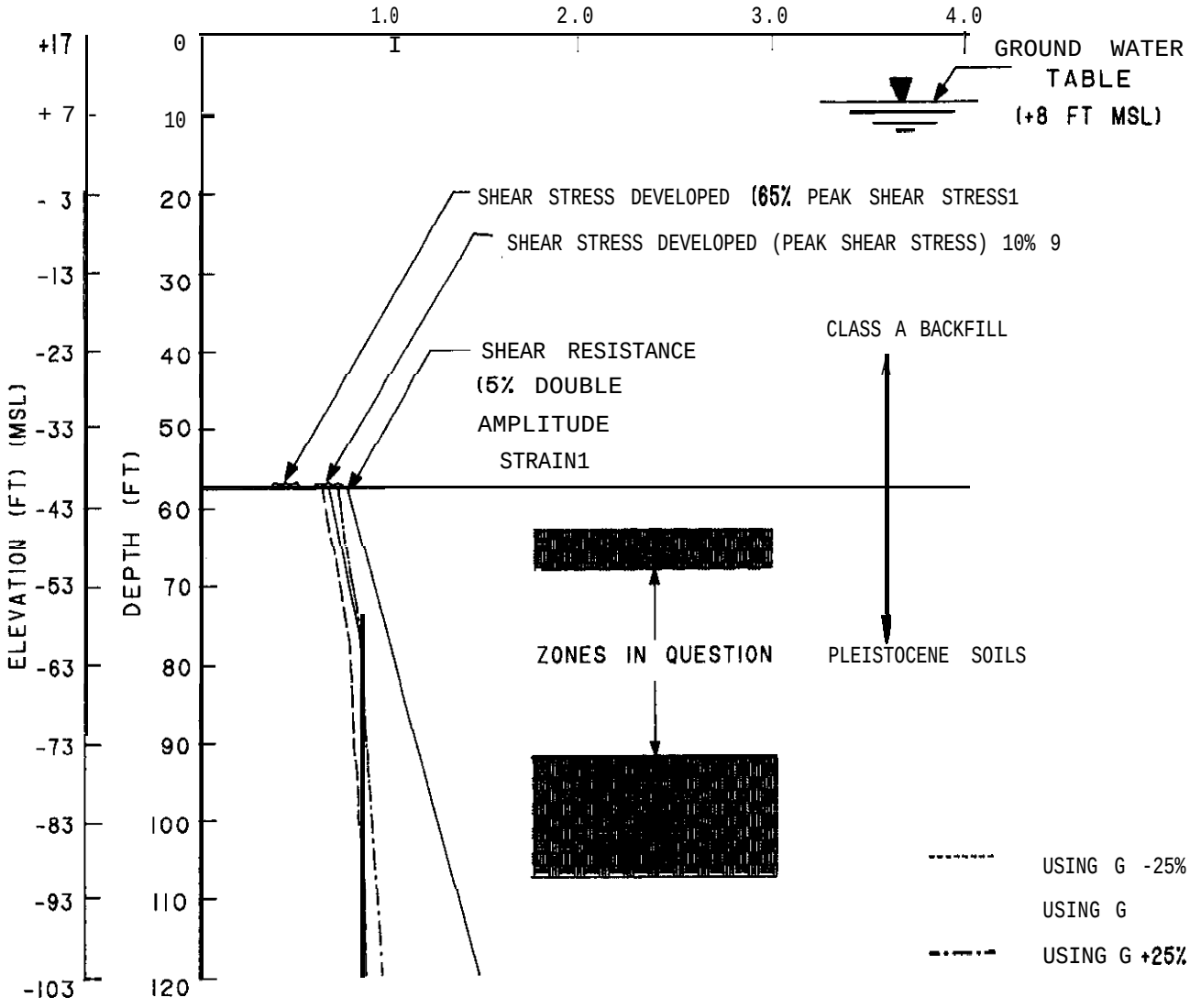
CURVE NO.	BORING NO.	SAMPLE NO.	DEPTH IN FT.	NATURAL WATER CONTENT	SPT	PERCENT PASSING NO. 200 SIEVE
1	57	42	90.0		16	33%
2	62	21	89.0		21	40%
3	68	22	89.0		21	33%

LOUISIANA POWER & LIGHT CO. Waterford Steam Electric Station	GRAIN SIZE ANALYSES OF -77 FT. MSL MATERIALS	Figure 2.5-95c



SYMBOL	FAILURE CRITERIA
△	ϵ_{pp} = 5%
⊡	ϵ_{pp} = 10%

LOUISIANA POWER & LIGHT CO. Waterford Steam Electric Station	CYCLIC SHEAR STRENGTH – IN SITU MATERIAL	Figure 2.5-96

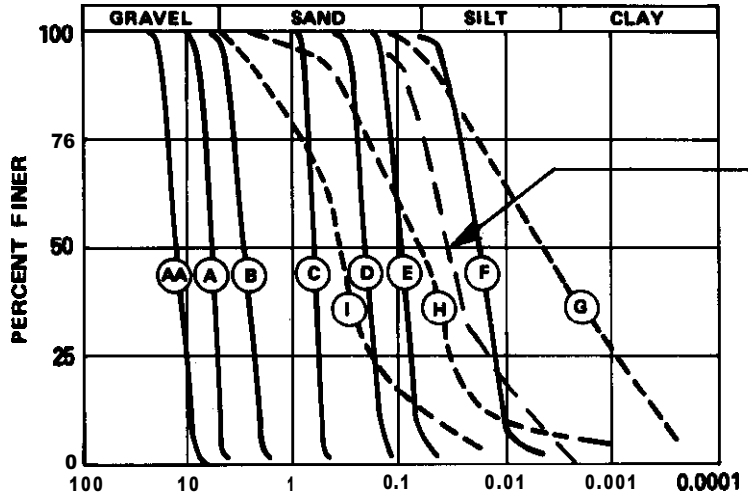


A FACTOR OF SAFETY CAN BE DEFINED FOR 5% STRAIN CONDITIONS AS:

AT -50 FT MSL FS $= \left(\frac{860}{510}\right)_{MIN.} = 1.68. \quad \left(\frac{860}{460}\right)_{MAX} = 1.86$

AT -77 FT MSL FS $= \left(\frac{1150}{600}\right)_{MIN.} = 1.91. \quad \left(\frac{1150}{580}\right)_{MAX} = 1.99$

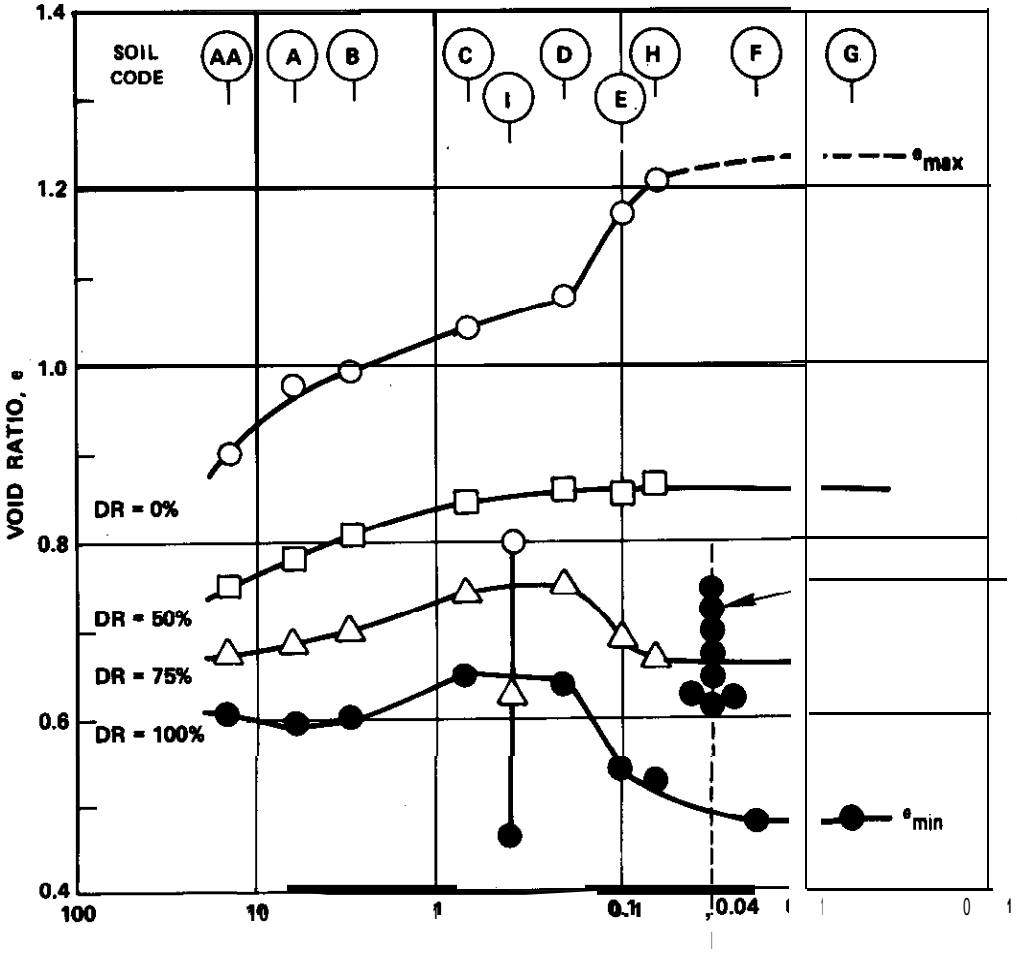
LOUISIANA POWER & LIGHT CO. Waterford Steam Electric Station #3	LIQUEFACTION POTENTIAL FACTOR OF SAFETY PLOT	Flgure 2.5-97



WATERFORD SOILS GRADATIONS

GRAIN DIAMETER - mm

GRAIN-SIZE DISTRIBUTIONS FOR SOILS TESTED

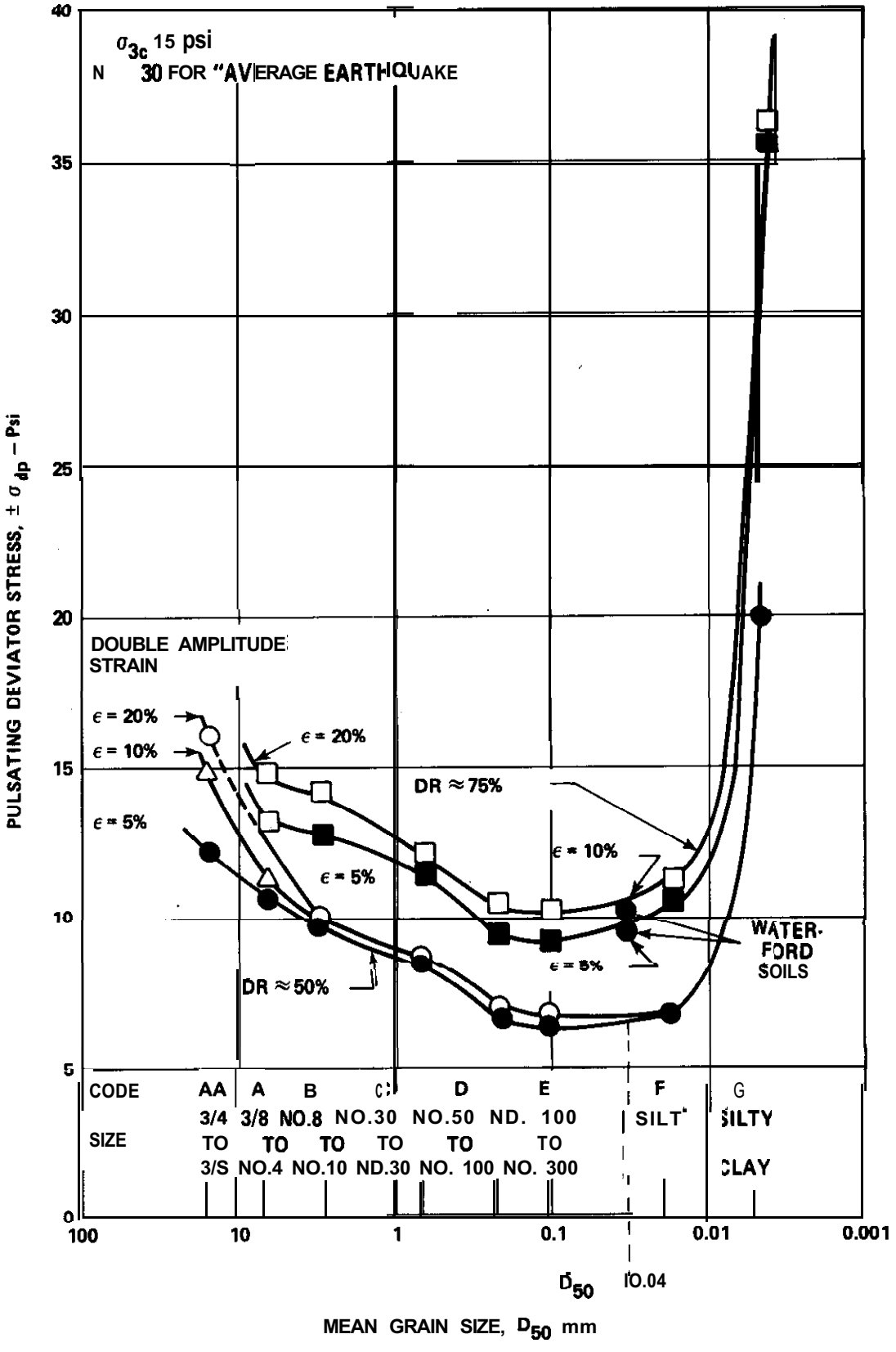


WATERFDRD SOILS VOID RATIOS OF TEST SAMPLES

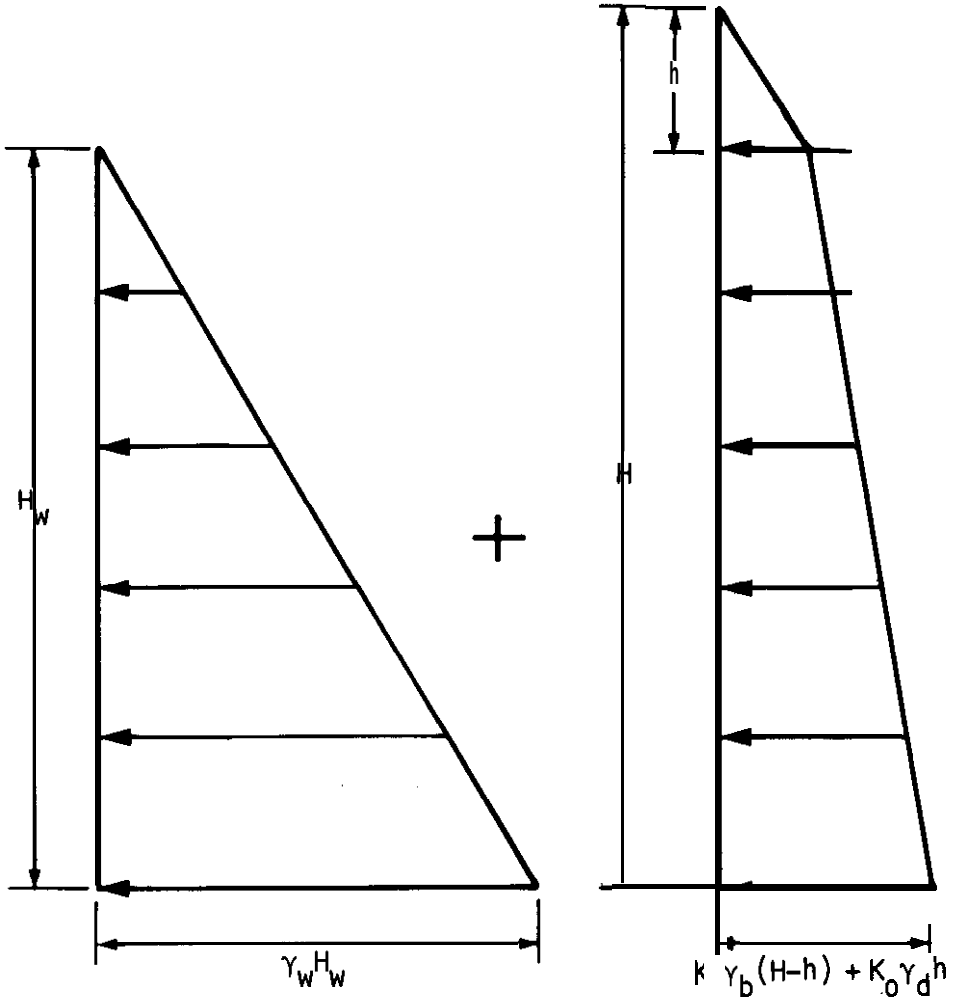
MEAN GRAIN SIZE, D_{50} - mm

RELATIVE DENSITIES OF SOILS TESTED

LOUISIANA POWER & LIGHT CO. Waterford Steam Electric Station	GRAIN SIZE & VOID RATIO COMPARISONS WITH LEE & FITTON	Figure 2.5-98



LOUISIANA POWER & LIGHT CO. Waterford Steam Electric Station	CYCLIC TEST COMPARISONS WITH LEE & FITTON	Figure 2.5-99



HYDROSTATIC PRESSURE

BACKFILL PRESSURE

WHERE,

γ_w = WEIGHT OF WATER, 62.5 PCF

γ_b = BUOYANT WEIGHT OF BACKFILL, USE 65.5 PCF

γ_d = DRY WEIGHT OF BACKFILL, USE 105 PCF

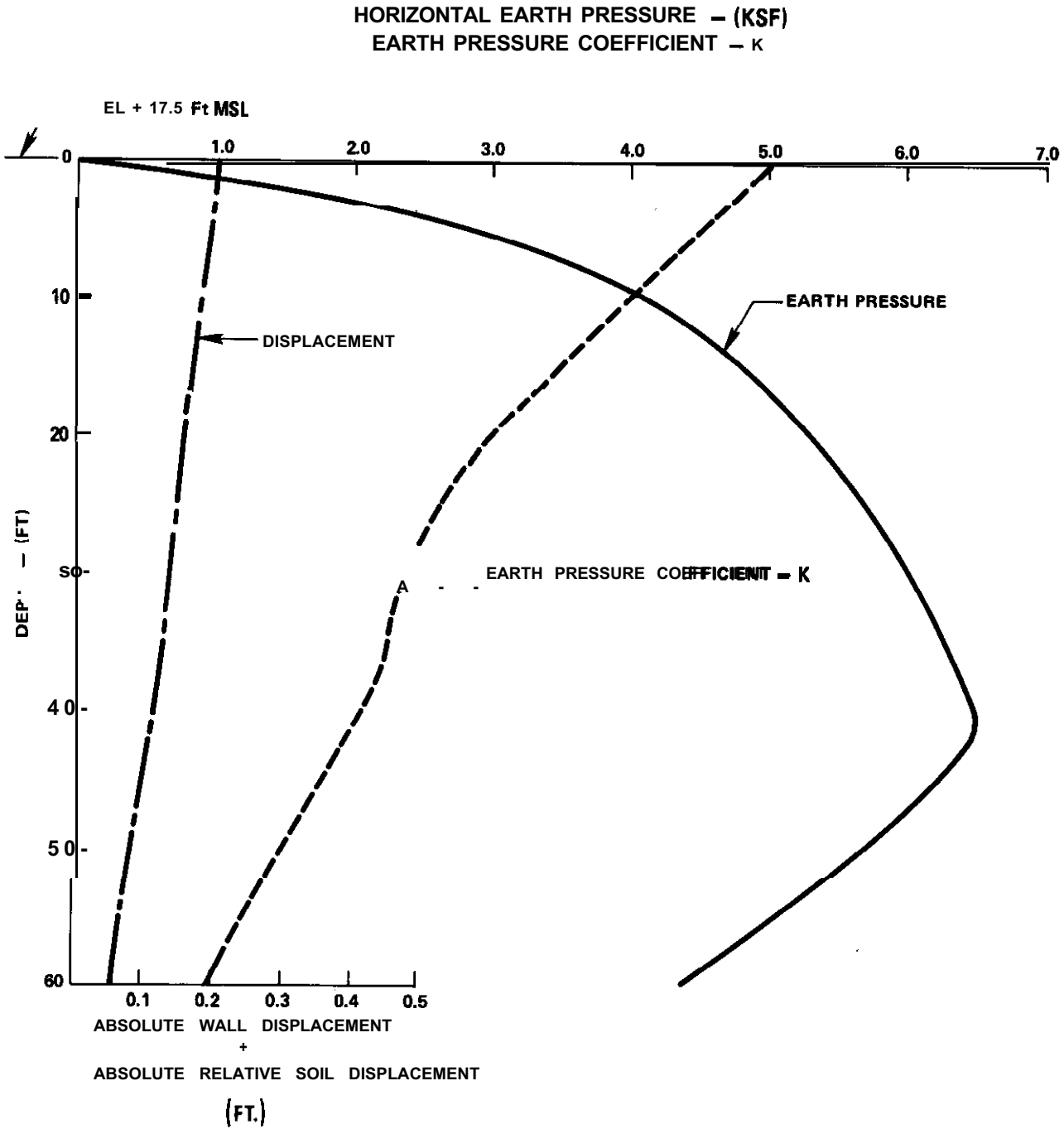
H = DEPTH OF WALL BELOW GRADE

H_w = DEPTH OF WALL BELOW WATER TABLE

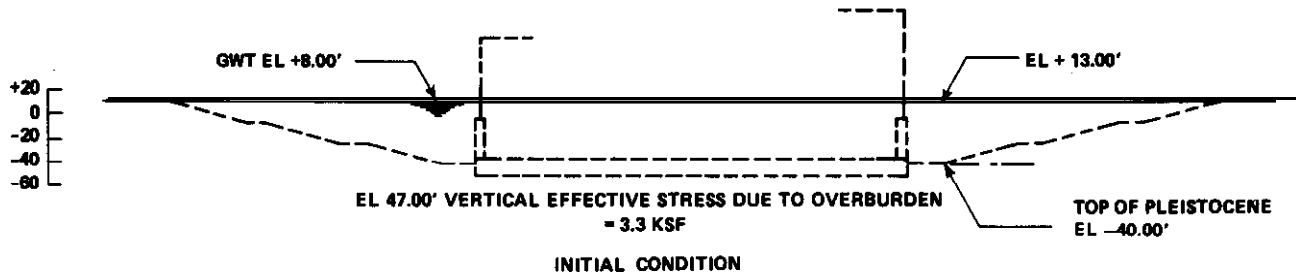
h = DEPTH OF WALL BELOW GRADE TO WATER TABLE

K_o = COEFFICIENT OF AT REST EARTH PRESSURE. USE K_o = 0.5

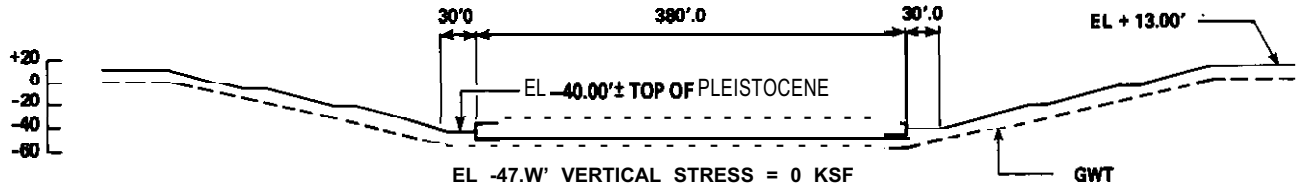
LOUISIANA POWER & LIGHT CO. Waterford Steam Electric Station	**STATIC PRESSURE DIAGRAM**	**Figure 2.5-100**



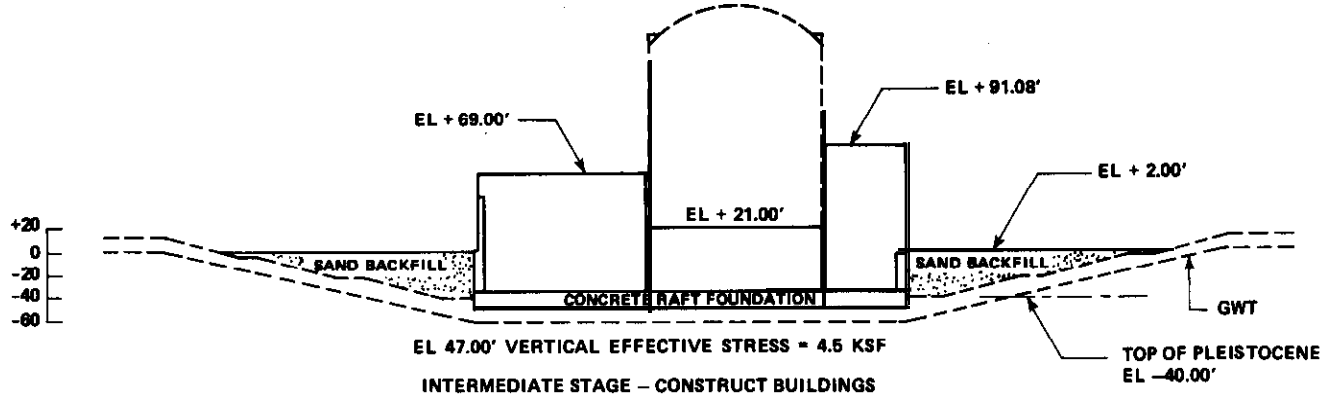
LOUISIANA POWER & LIGHT CO. Waterford Steam Electric Station	DYNAMIC EARTH PRESSURE DIAGRAM	Figure 2.5-101



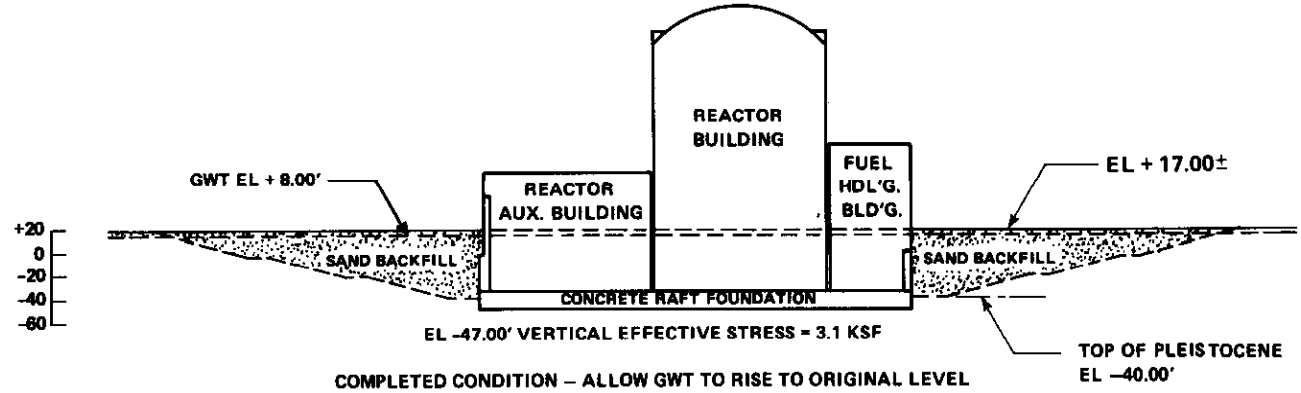
INITIAL CONDITION



EXCAVATION PHASES I THROUGH IV COMPLETED



INTERMEDIATE STAGE – CONSTRUCT BUILDINGS
TO LEVELS SHOWN
BACKFILL WITH COMPACTED SAND
TO EL +20.0' (APPROX.) BEGIN SATURATION



COMPLETED CONDITION – ALLOW GWT TO RISE TO ORIGINAL LEVEL
BY RELEASING DEWATERING & SATURATING BACKFILL
COMPLETE CONSTRUCTION OF STRUCTURES
BACKFILL TO FINAL GRADE

LOUISIANA POWER & LIGHT CO. Waterford Steam Electric Station	DESIGN CONCEPT OUTLINE	Figure 2.5-102

LOUISIANA POWER & LIGHT CO.
Waterford Steam

BEARING PRESSURE HISTORY AT -47 FT. MSL

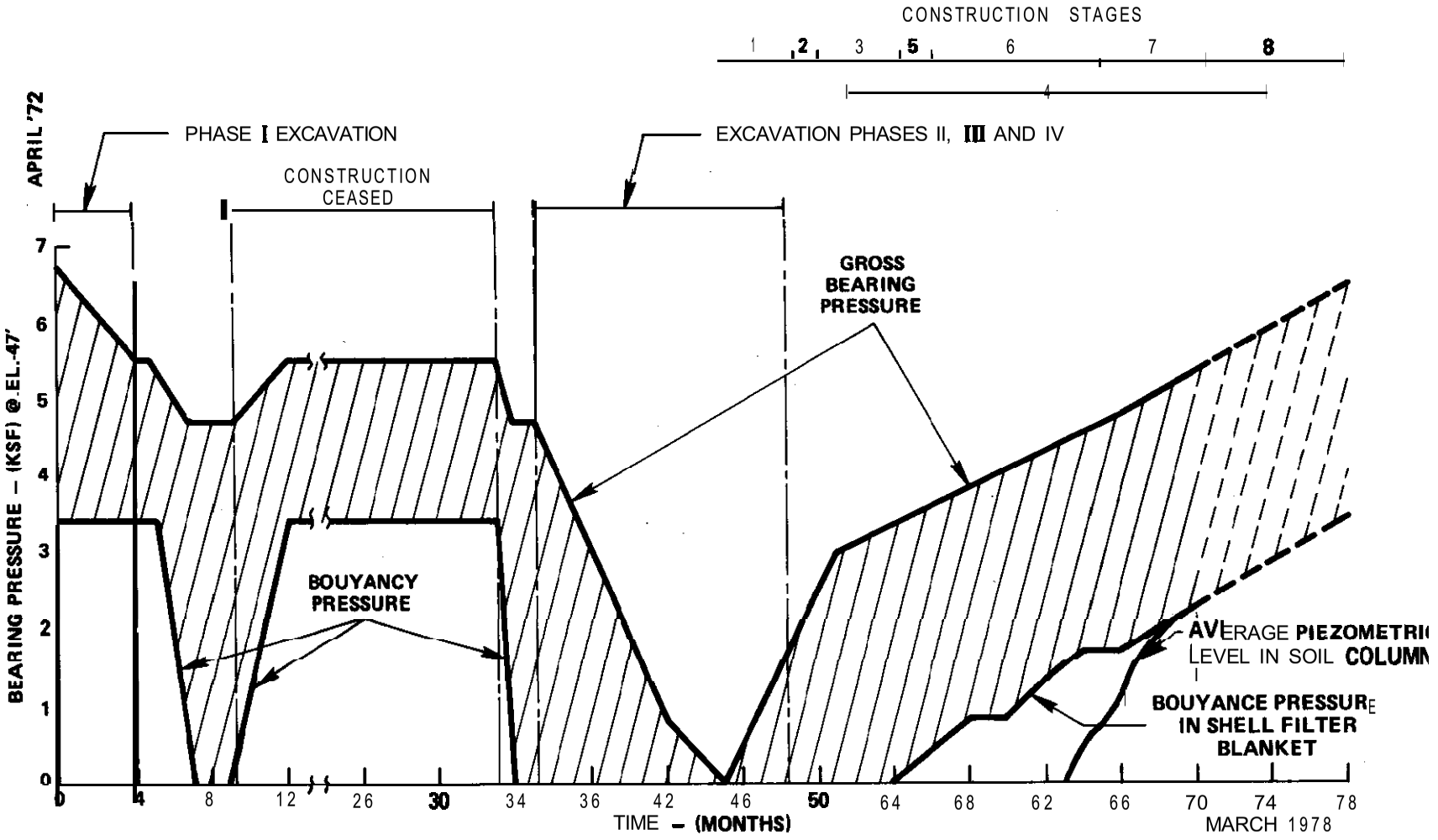
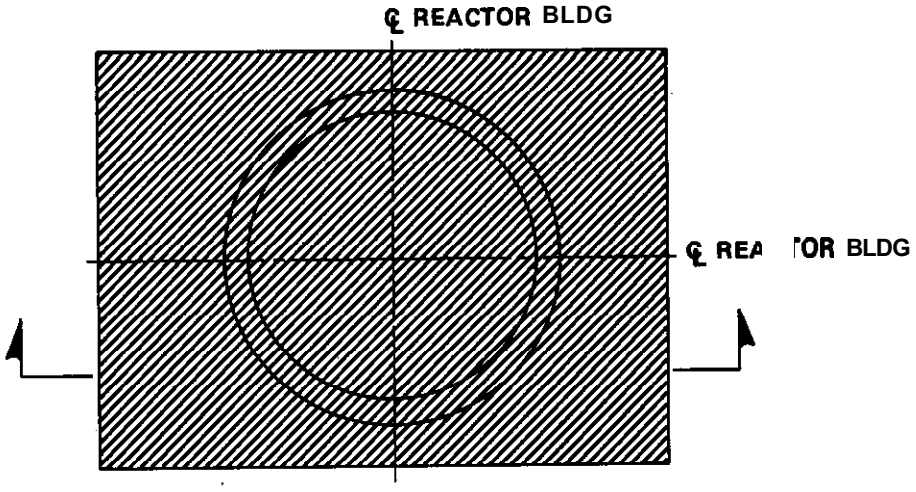
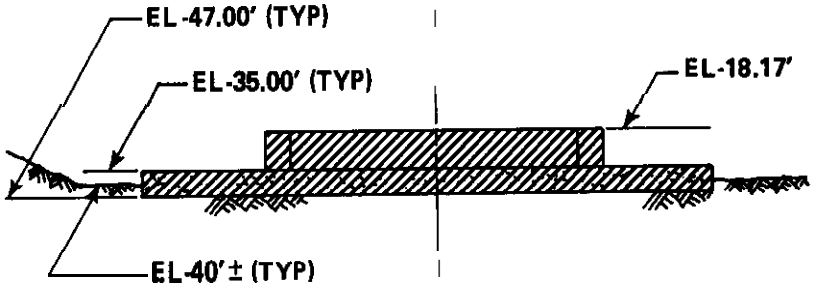


Figure 2.5-103



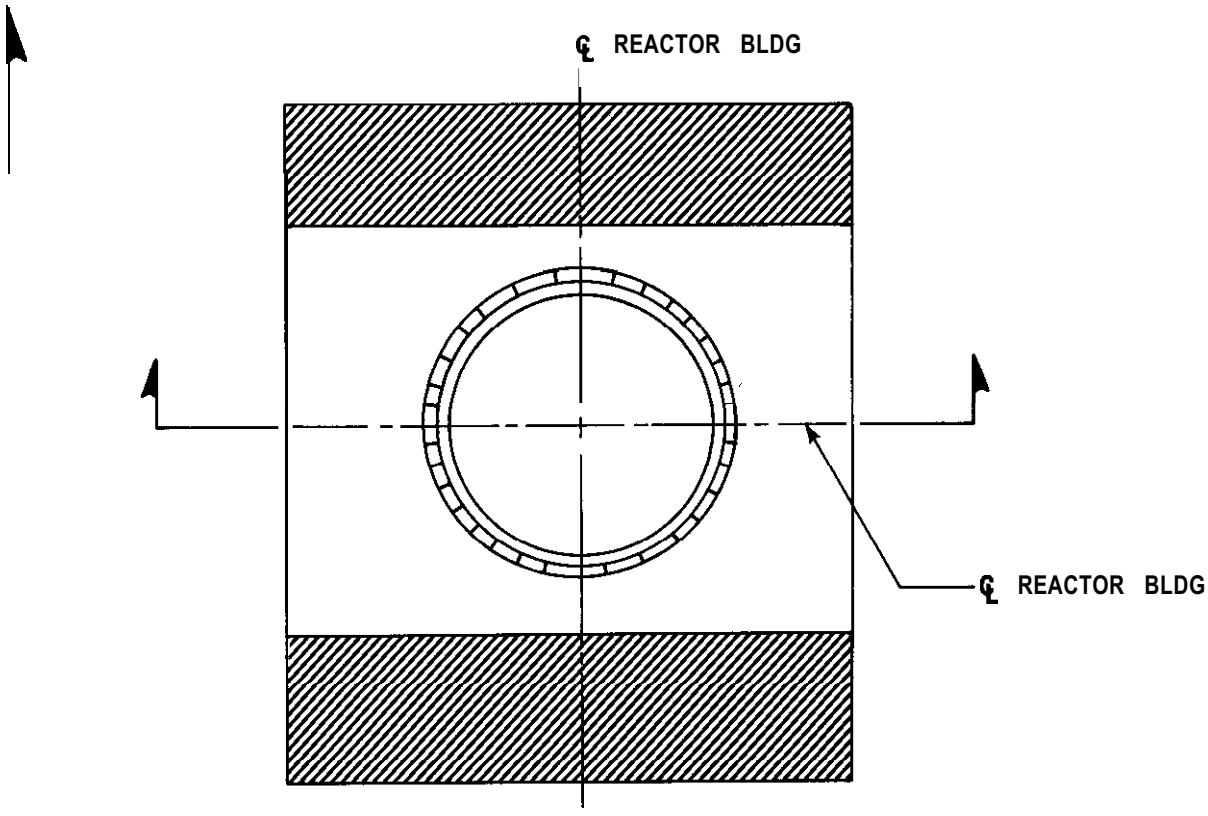
PLAN @ EL-35.00'



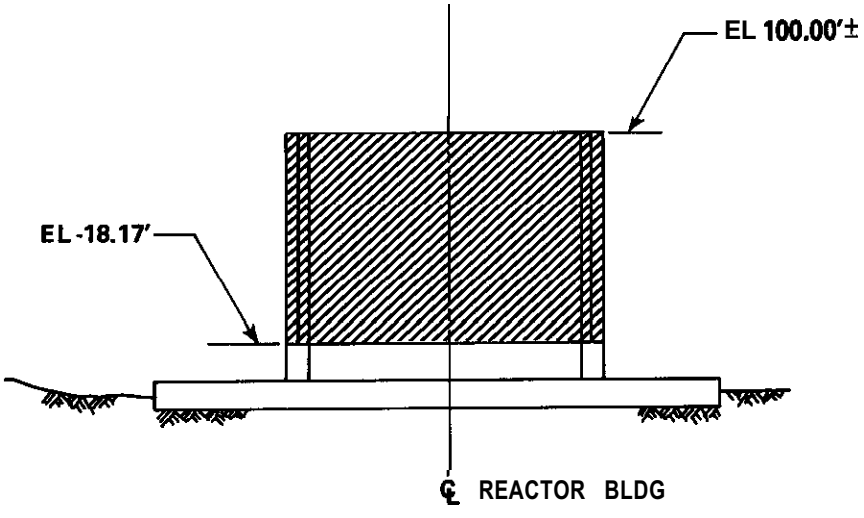
SECTION

INDICATES CONC AND/ OR BACKFILL TO BE PLACED IN PHASE.

LOUISIANA POWER & LIGHT CO. Woterford Steam Electric Station	CONSTRUCTION DIAGRAM • STAGE 1	Figure 2.5–104

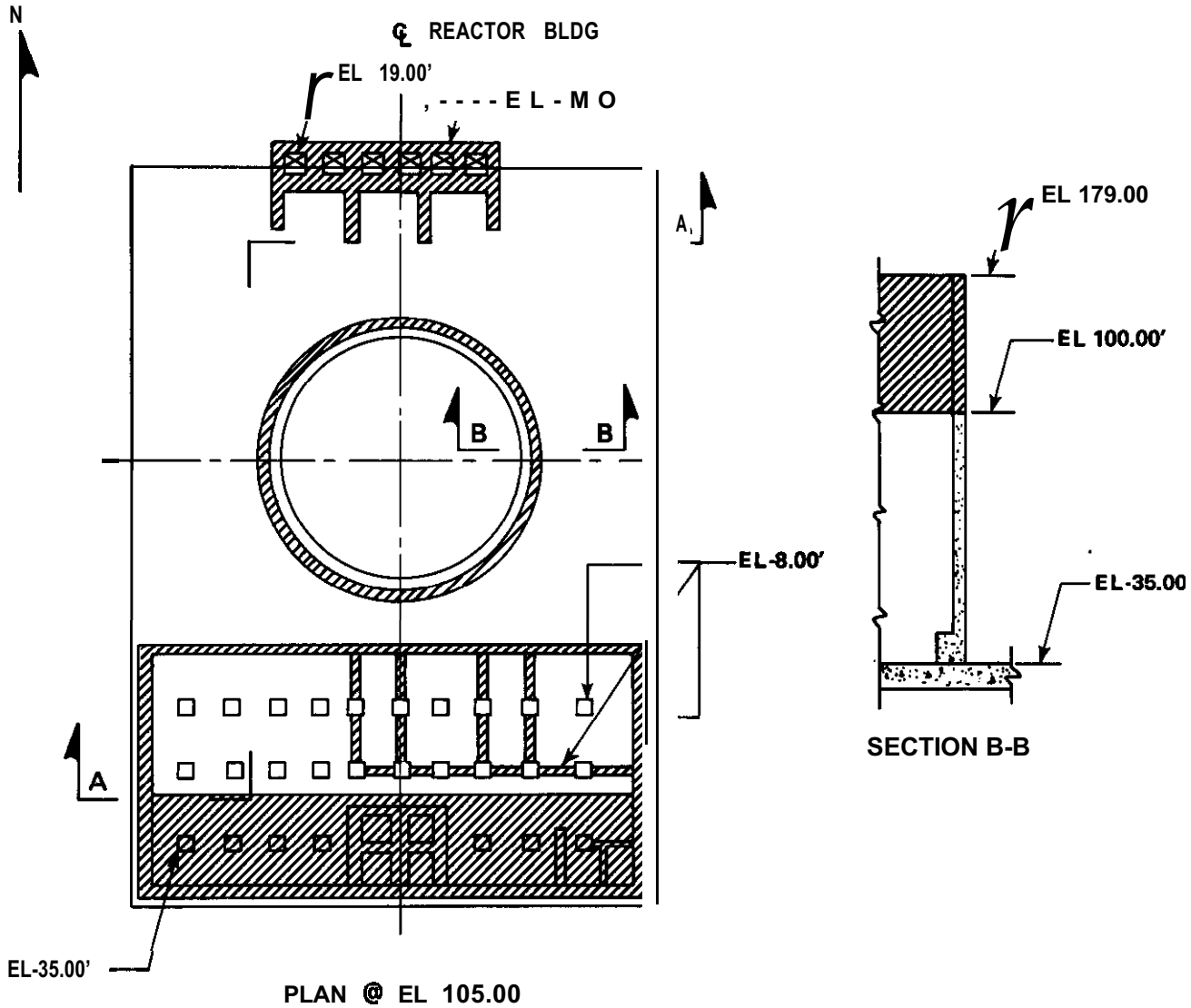


PLAN @ EL-18.17

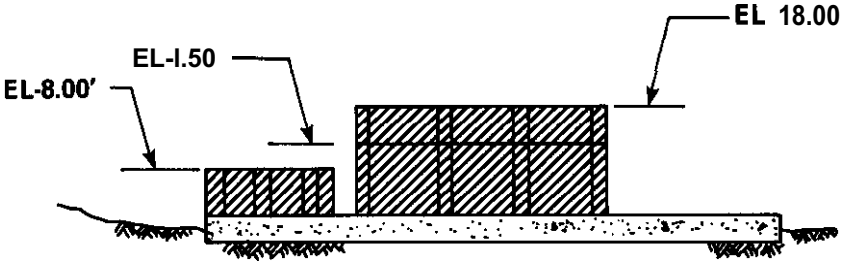


SECTION

LOUISIANA POWER & LIGHT CO. Waterford Steam Electric Station	CONSTRUCTION DIAGRAM - STAGE 2	Figure 2.5-105

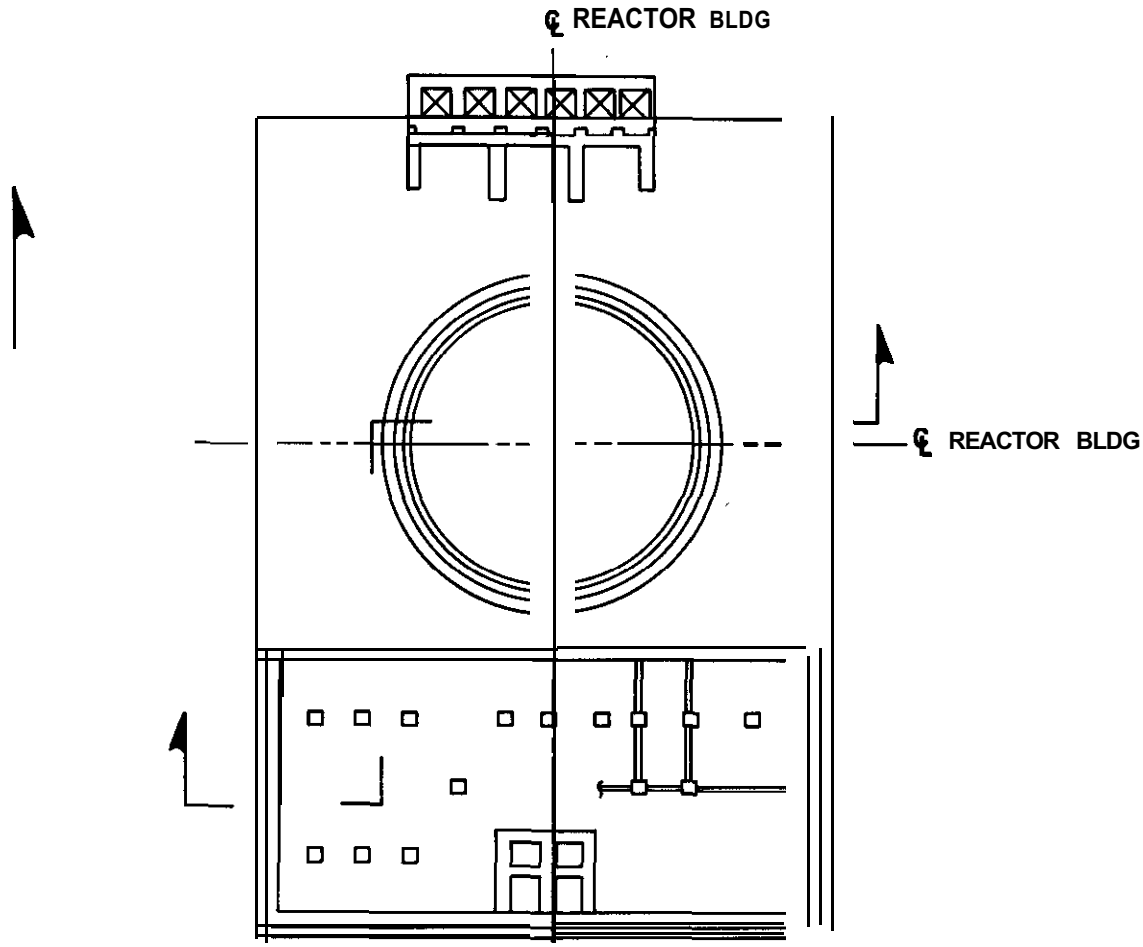


PLAN @ EL 105.00

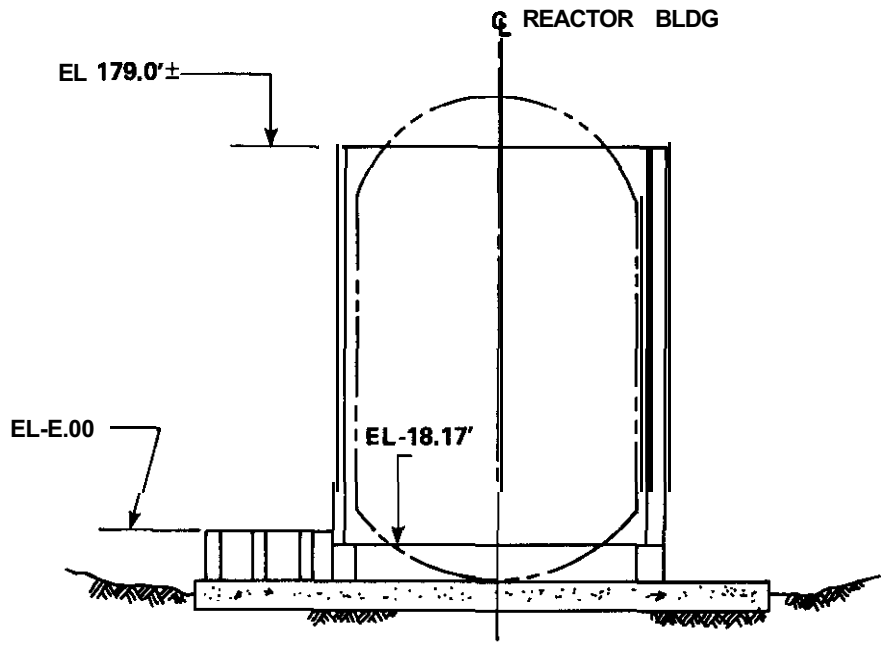


SECTION A-A

LOUISIANA POWER & LIGHT CO. Waterford Steam Electric Station	CONSTRUCTION DIAGRAM • STAGE 3	Figure 2.5-I06

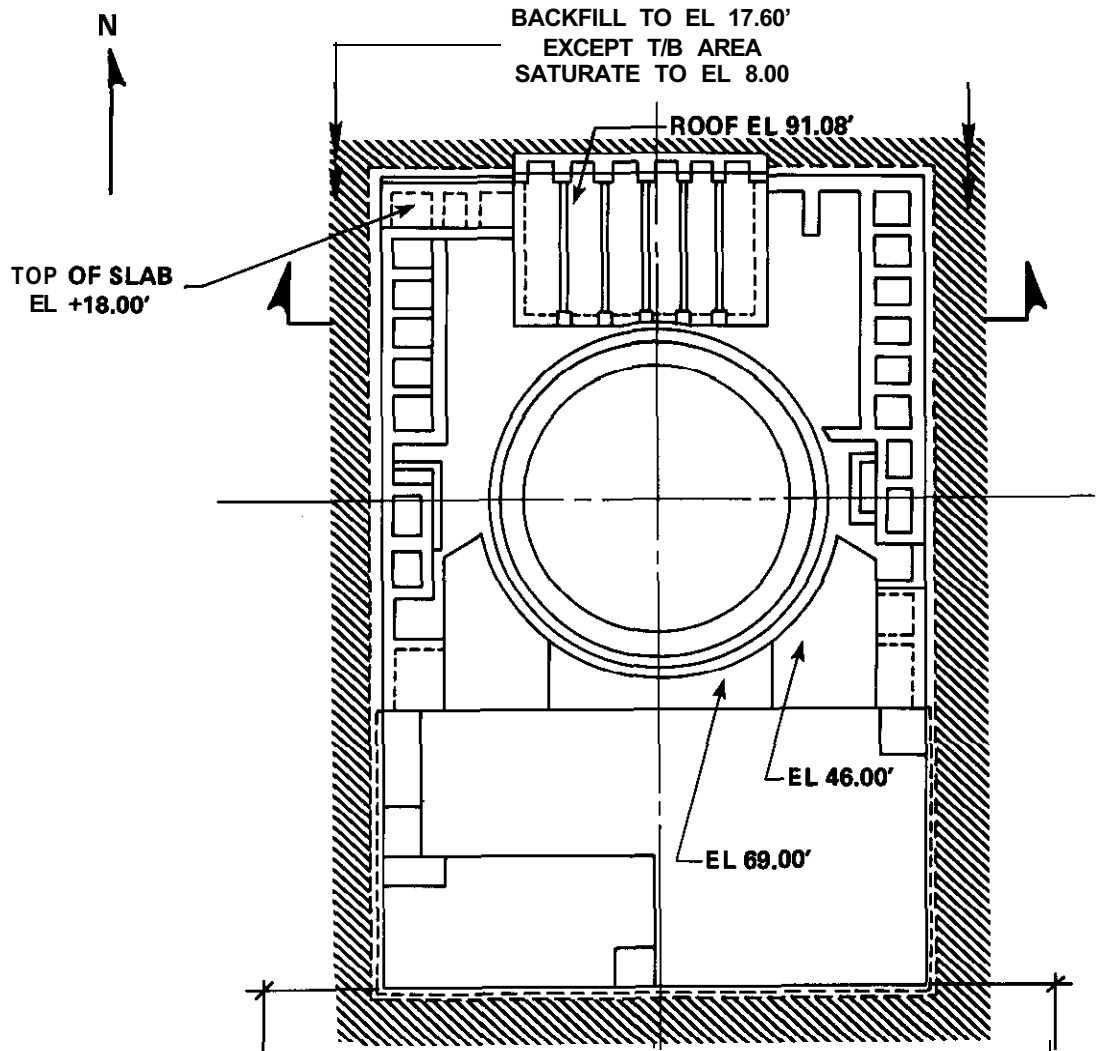


PLAN @ EL 179.90

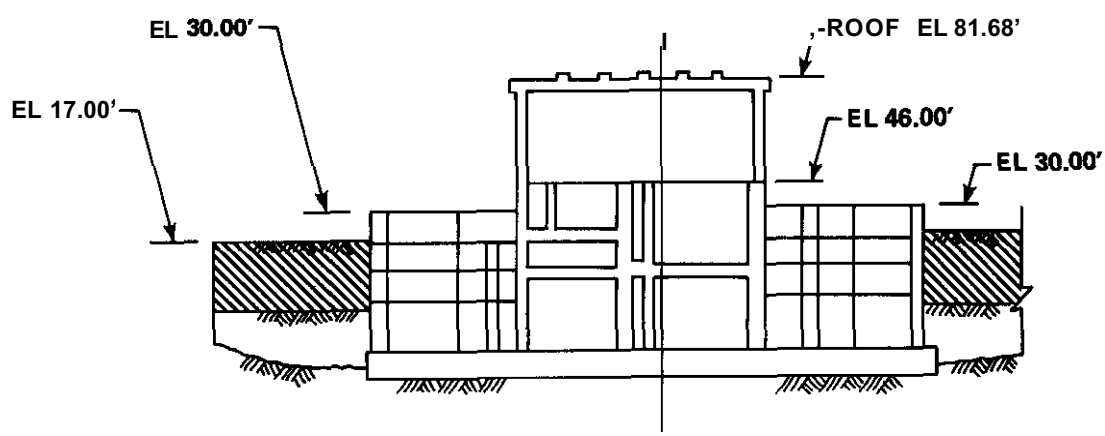


SECTION

LOUISIANA POWER & LIGHT CO. Woterford Steam Electric Station	CONSTRUCTION DIAGRAM - STAGE 4	Figure 2.5–107

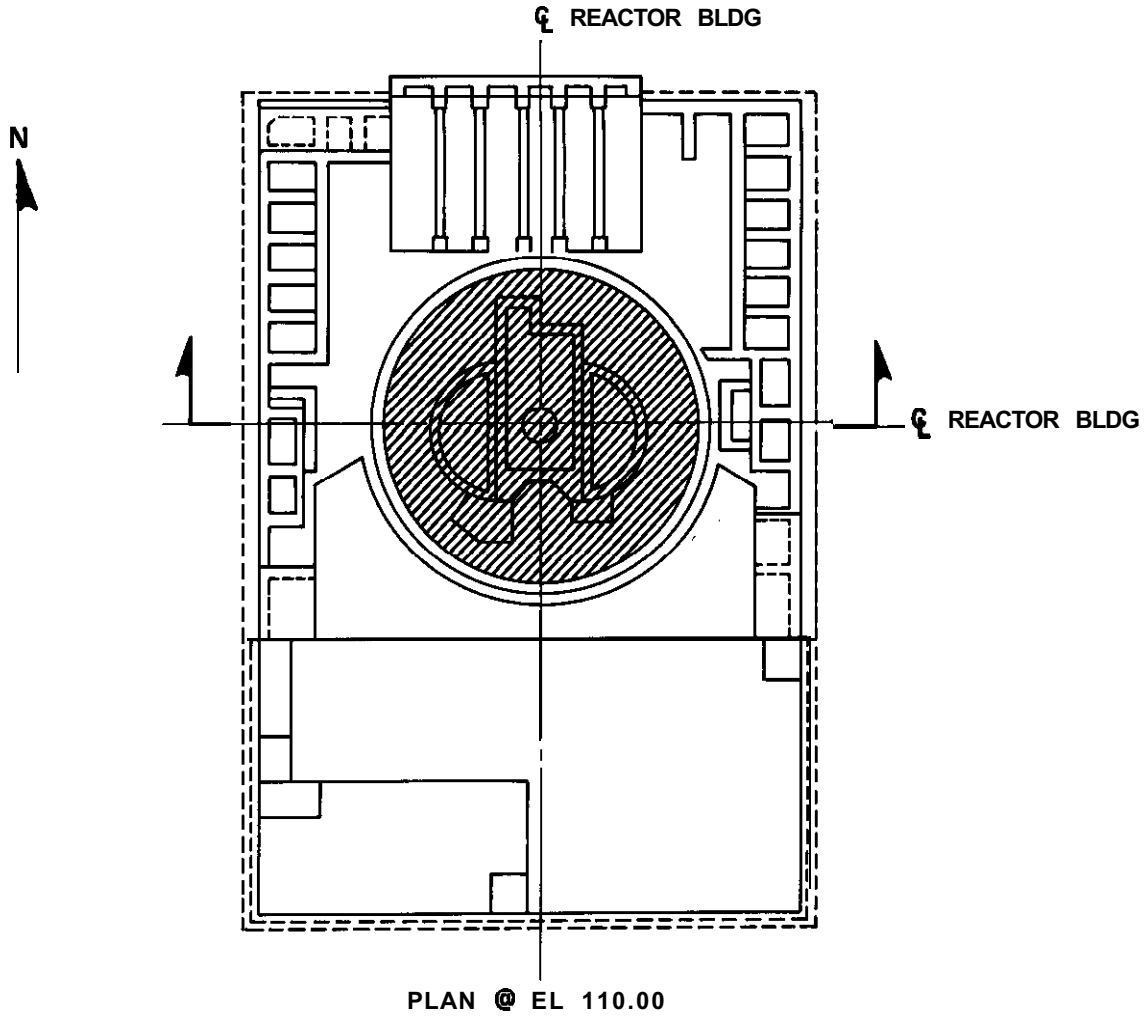


PLAN @ EL 91.06

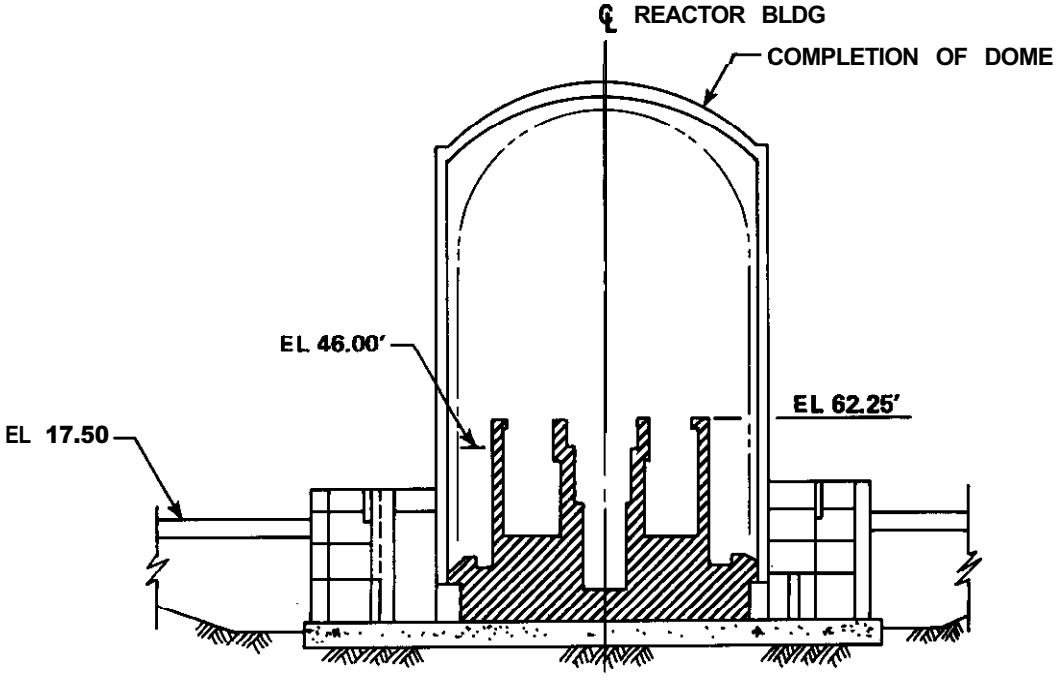


SECTION

LOUISIANA POWER & LIGHT CO. Waterford Steam Electric Station	CONSTRUCTION DIAGRAM - STAGE 5	Figure 2.5-108

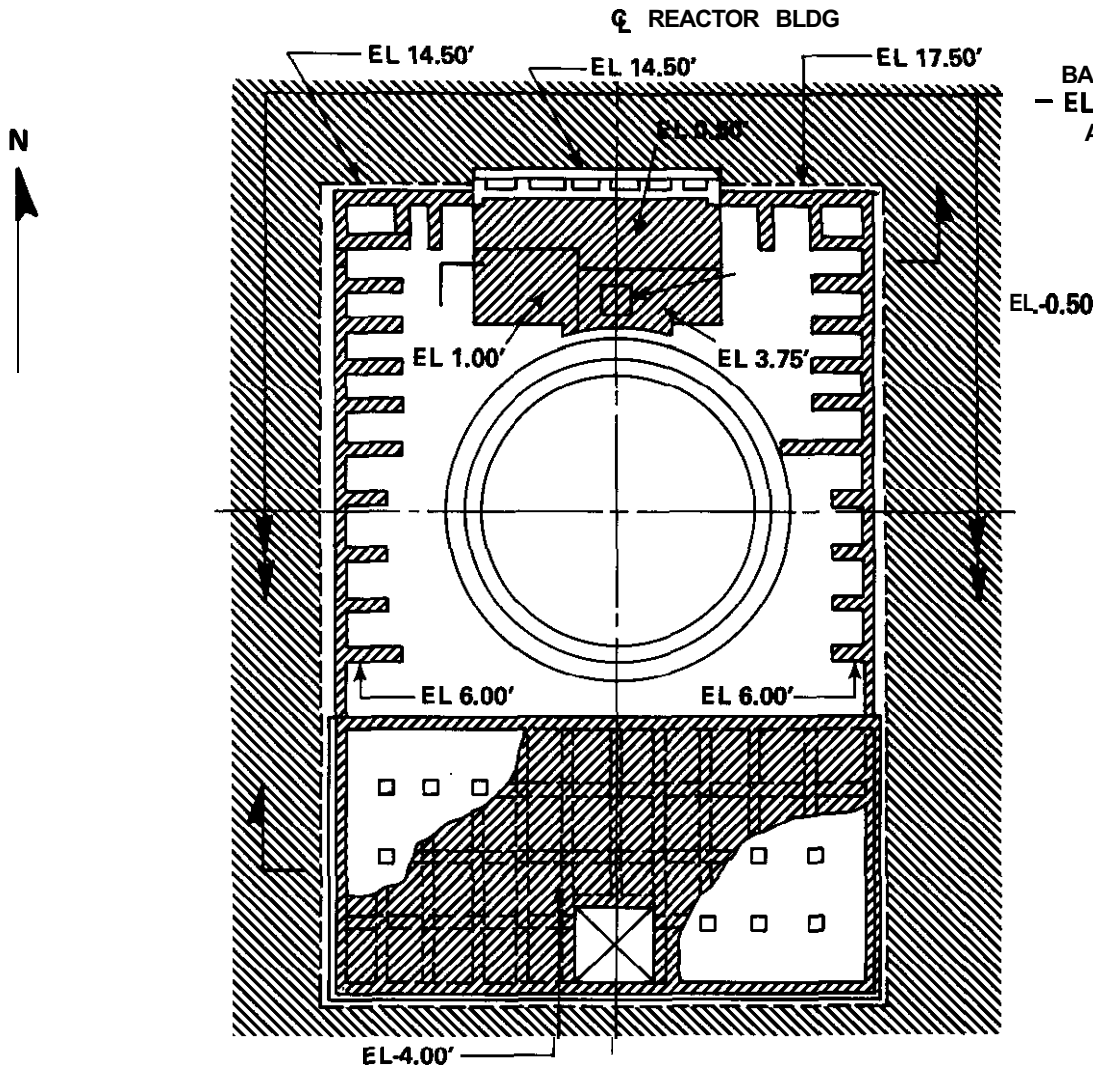


PLAN @ EL 110.00

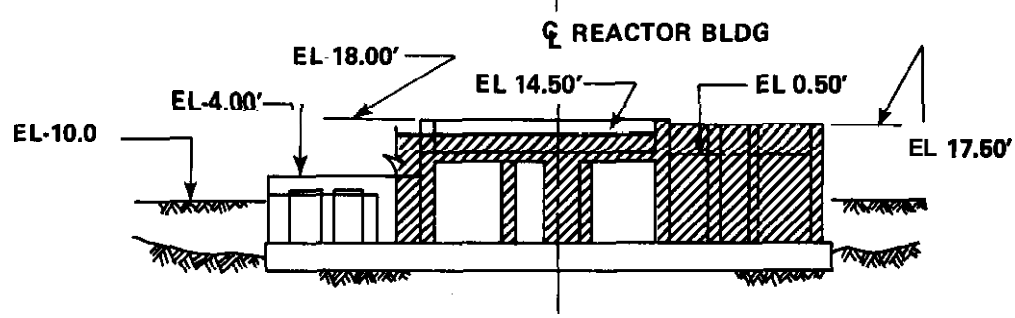


SECTION

LOUISIANA POWER & LIGHT CO. Waterford Steam Electric Station	CONSTRUCTION DIAGRAM ▪ STAGE 6	Figure 2.5–109

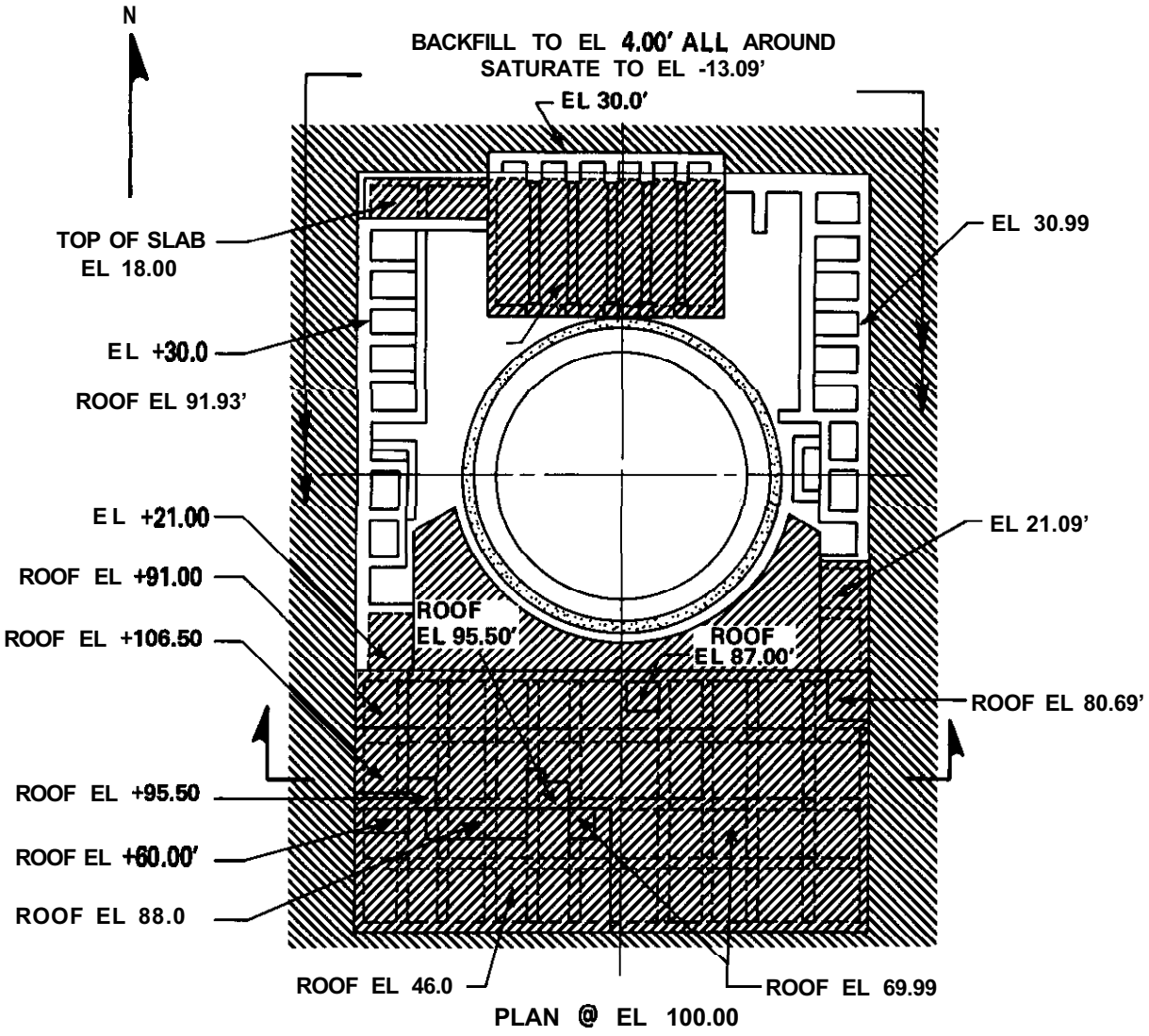


PLAN @ EL-17.50

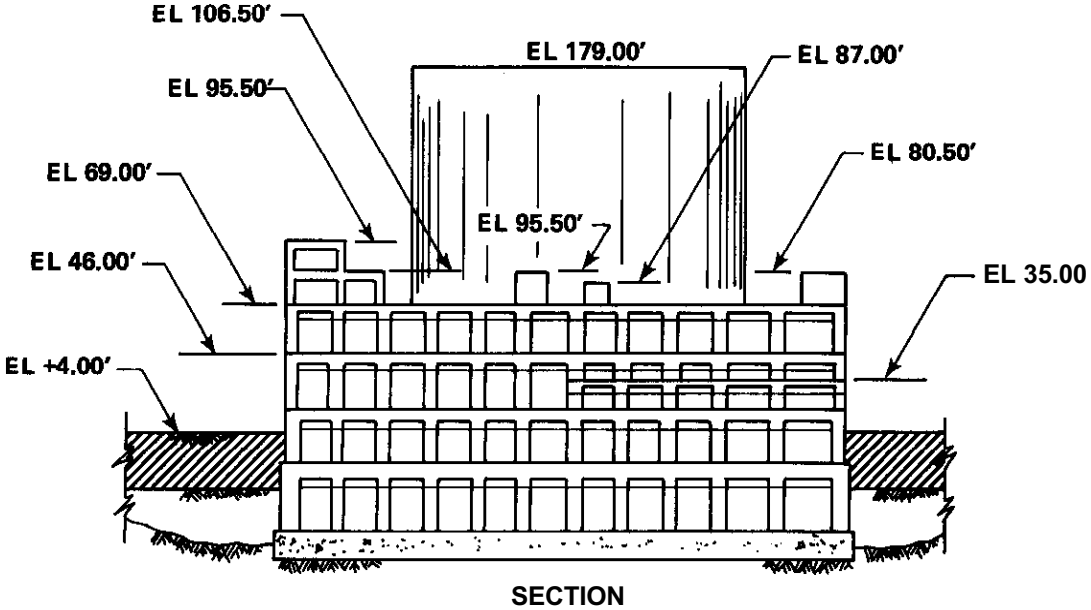


SECTION

LOUISIANA POWER & LIGHT CO. Waterford Steam Electric Station	CONSTRUCTION DIAGRAM - STAGE 7	Figure 2.5-110

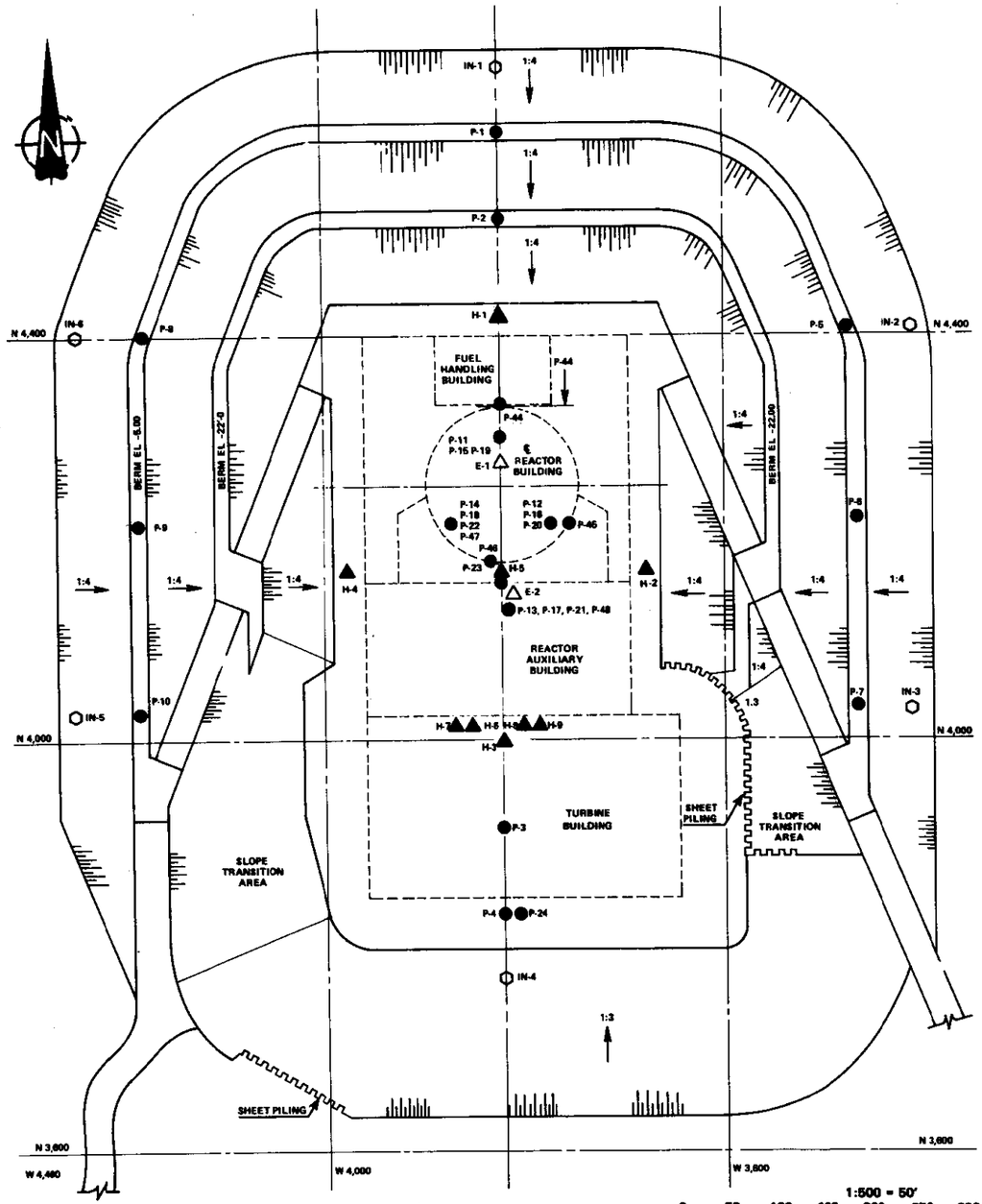


PLAN @ EL 100.00

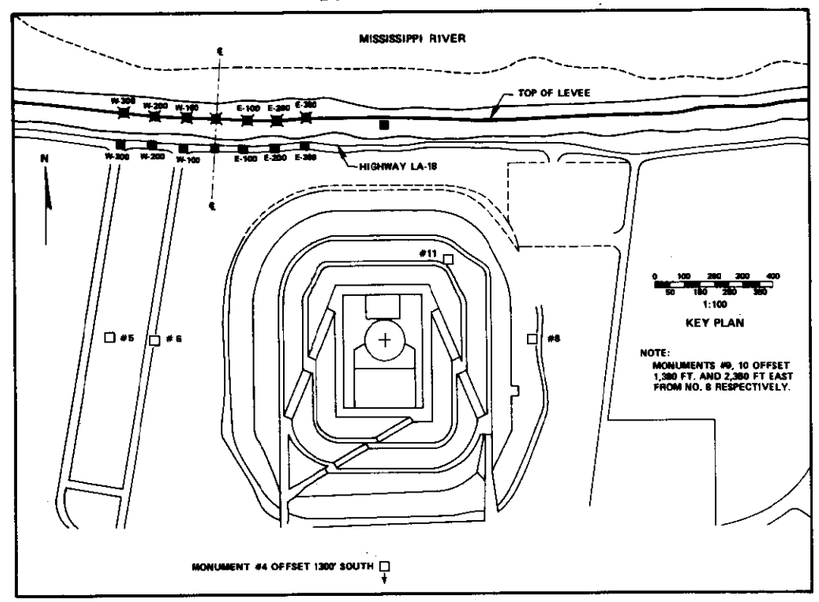


SECTION

LOUISIANA POWER & LIGHT CO. Waterford Steam Electric Station	CONSTRUCTION DIAGRAM - STAGE 8	Figure 2.5-111



COORDINATES OF REACTOR BLDG. ℄: N 4250
W 2835



NOTES

PIEZOMETERS P-1 THRU P-22 ARE PNEUMATIC TYPE PORE PRESSURE INDICATORS.

PIEZOMETERS P-23 & P-24 ARE OPEN HOLE OBSERVATION WELLS WITH SCREENED SECTIONS FROM EL-70 TO EL-90 M.S.L.

DETAILS OF THESE INSTRUMENTS ARE TABULATED AND SHOWN BELOW.

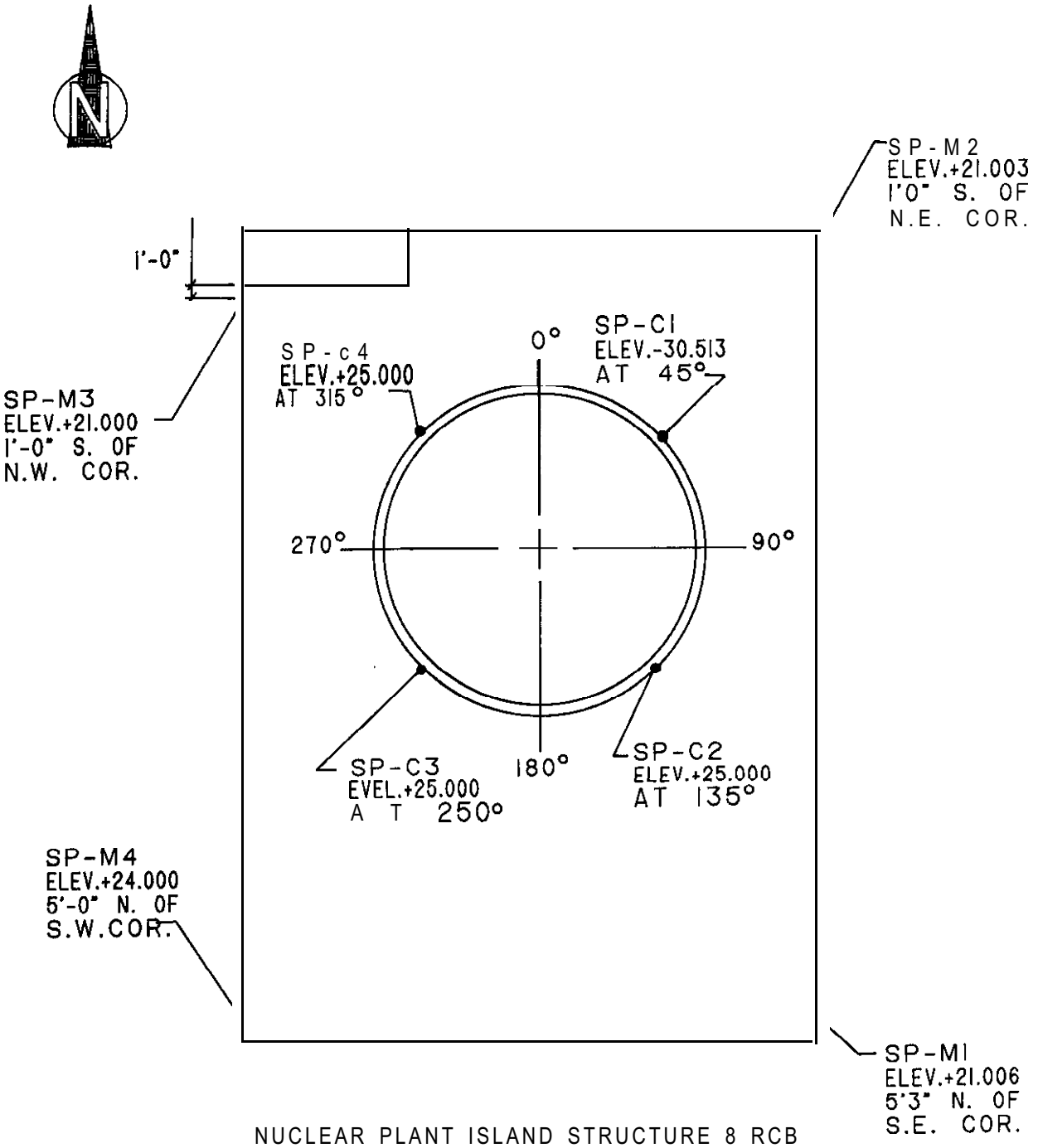
INSTRUMENT TYPE	DESIGNATION	ELEV	INSTALLATION DATE
PIEZOMETERS	P-1 TO P-10	-40	6/72
	P-11 TO P-14	-57	6/72
	P-15	-85	6/72
	P-16	-89	6/72
	P-17	-81	7/72
	P-18	-96	7/72
	P-19 TO P-22	-105	7/72
	P-23 & P-24	-70 TO -90	8/72
SHELL PIEZOMETERS	P-44 TO P-48	-47.50	12/75 TO 4/76
EXTENSOMETER	E-1a	-50.17	8/72
	E-1b	-58.17	8/72
	E-1c	-78.17	8/72
	E-2a	-50.17	8/72
	E-2b	-58.17	8/72
	E-2c	-78.17	8/72
HEAVE POINTS	H-1	-50.165	4/72
	H-2	-50.890	4/72
	H-3	-50.187	4/72
	H-4	-50.240	4/72
	H-5	-50.170	4/72
	H-6	-47.000	4/76
	H-7	-50.500	4/76
	H-8	-47.000	4/76
	H-9	-51.000	4/76

LEGEND

- PIEZOMETERS
- HEAVE POINTS
- EXTENSOMETERS
- INCLINOMETERS
- SETTLEMENT MONUMENTS HIGHWAY
- SETTLEMENT MONUMENTS LEVEE
- SETTLEMENT MONUMENTS PLANT AREA

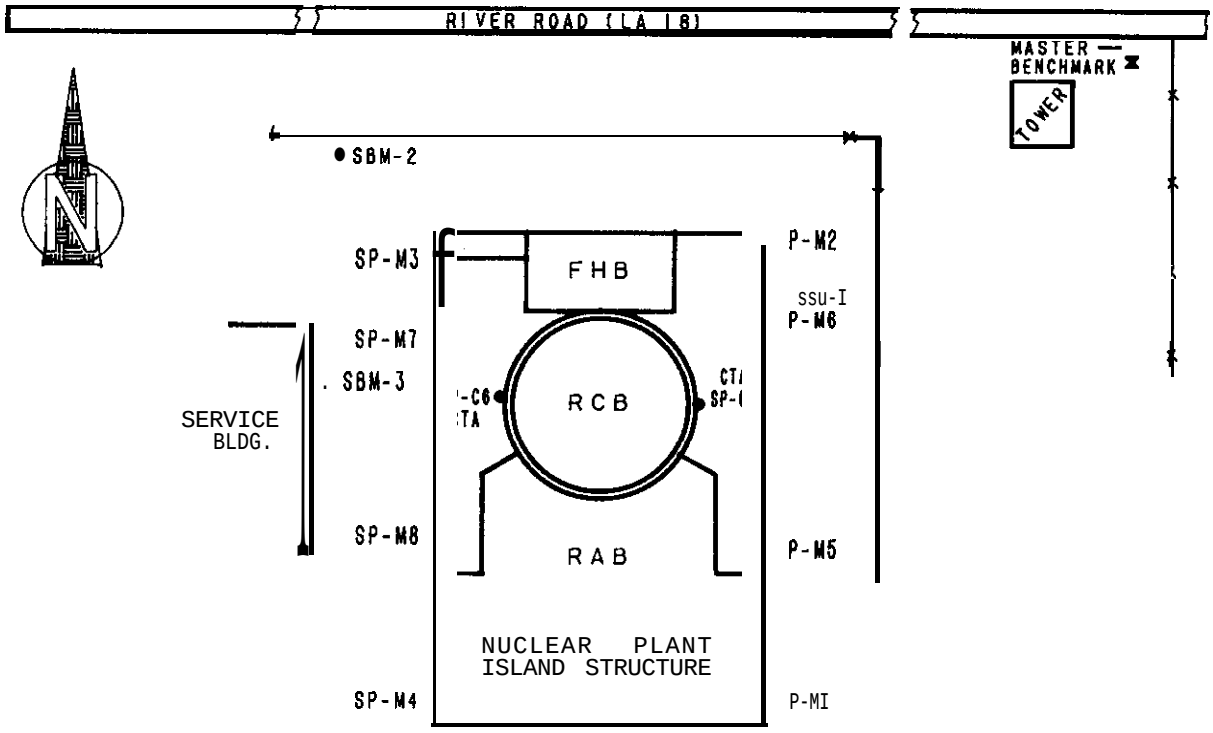
LOUISIANA POWER & LIGHT CO.
Waterford Steam Electric Station

INSTRUMENTATION PLOT PLAN
FIGURE 2.5-112



NUCLEAR PLANT ISLAND STRUCTURE 8 RCB

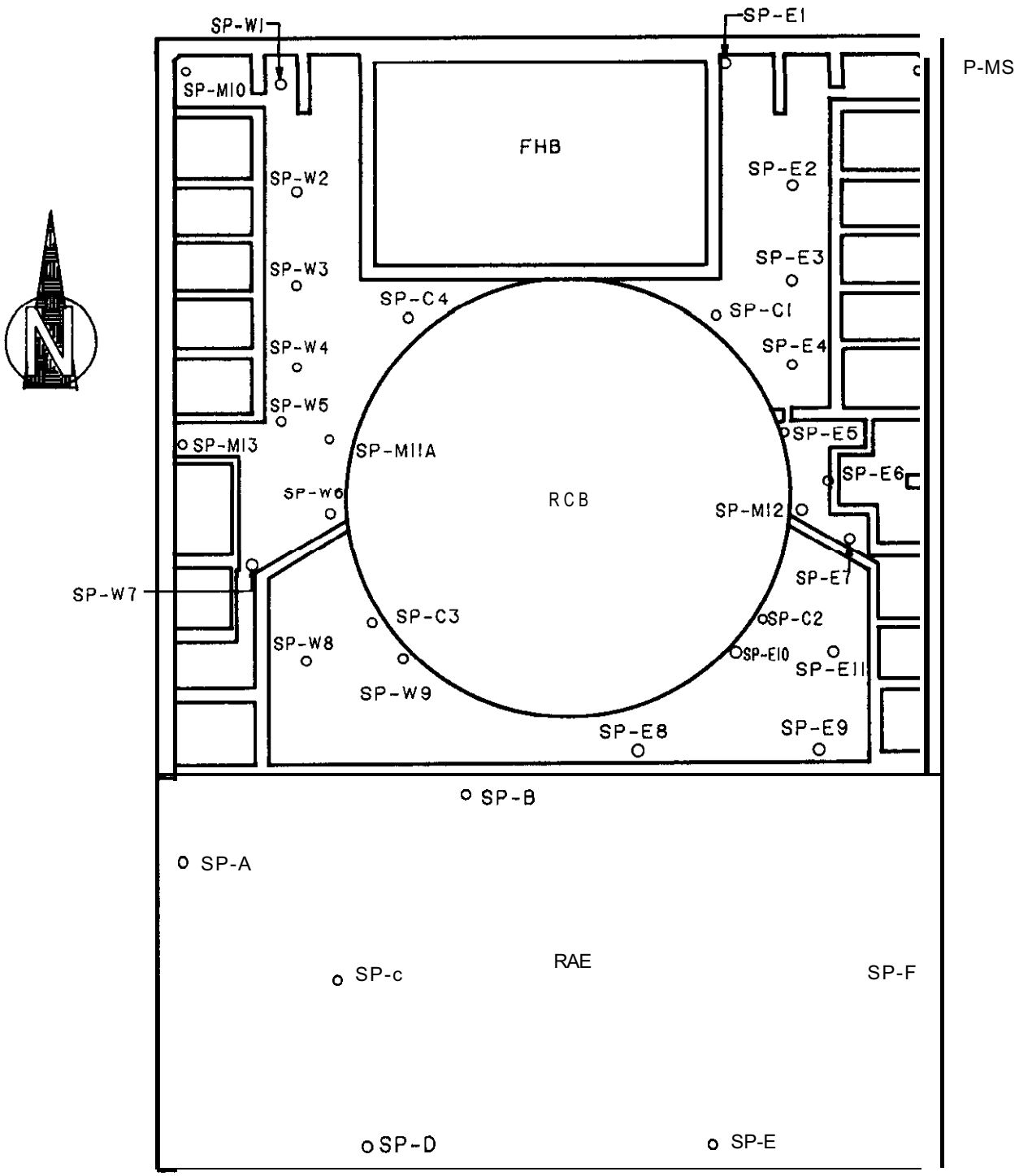
LOUISIANA POWER & LIGHT CO. Waterford Steam Electric Station 1 3	SETTLEMENT MONITORING POINTS (1981-84)	Figure 2.5-112a



NOTE: FOR COORDINATES SEE TABLE 2.5-l6

REVISION 2 (12/88)

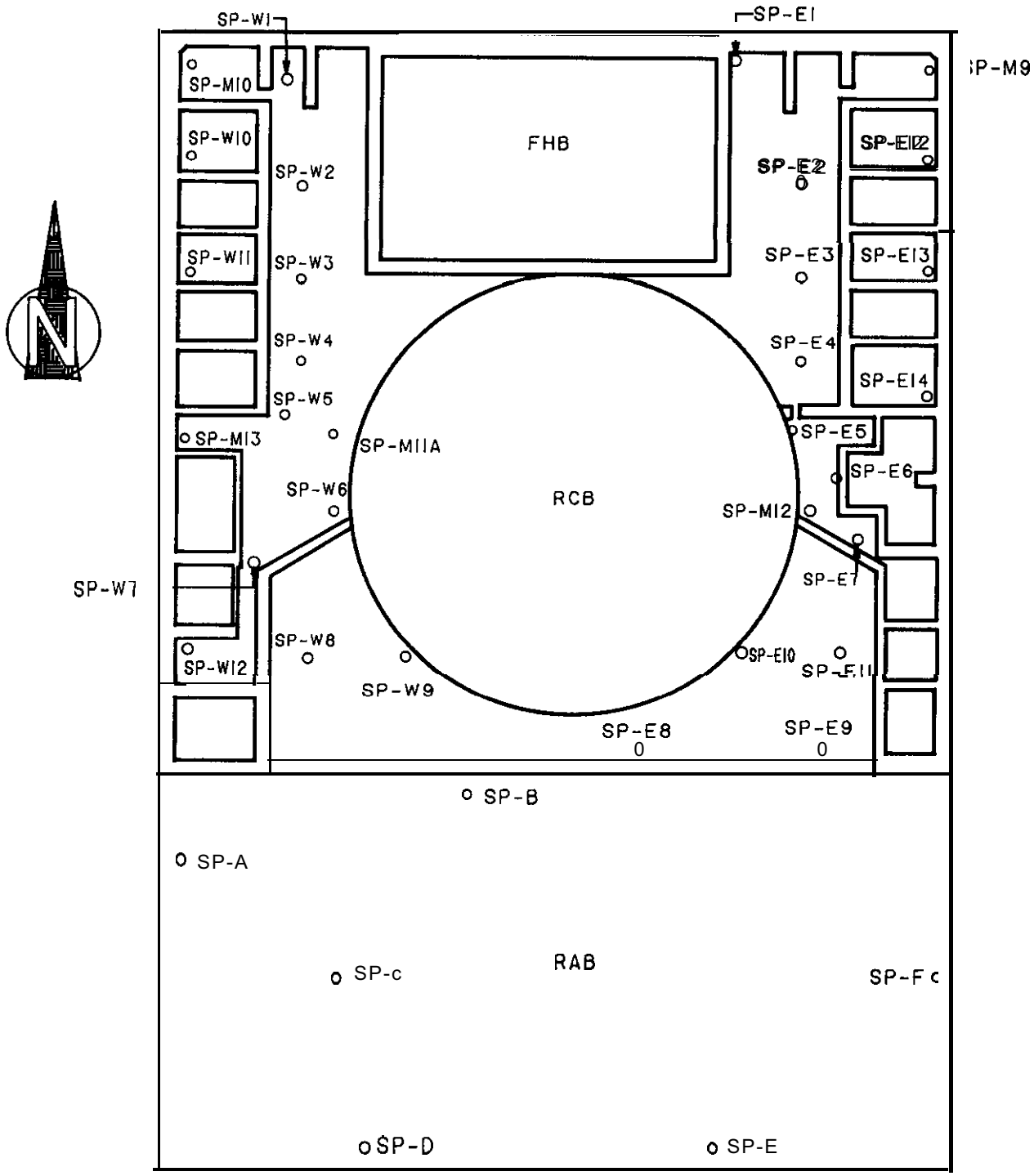
LOUISIANA POWER & LIGHT CO. Waterford Steam Electric Station #3	**PRIMARY SETTLEMENT MONITORING POINT LOCATIONS (1985-1986)**	FIGURE 2.5-l12b



NOTE: FOR COORDINATES SEE TABLE 2.5-16

REVISION 2 (12/88)

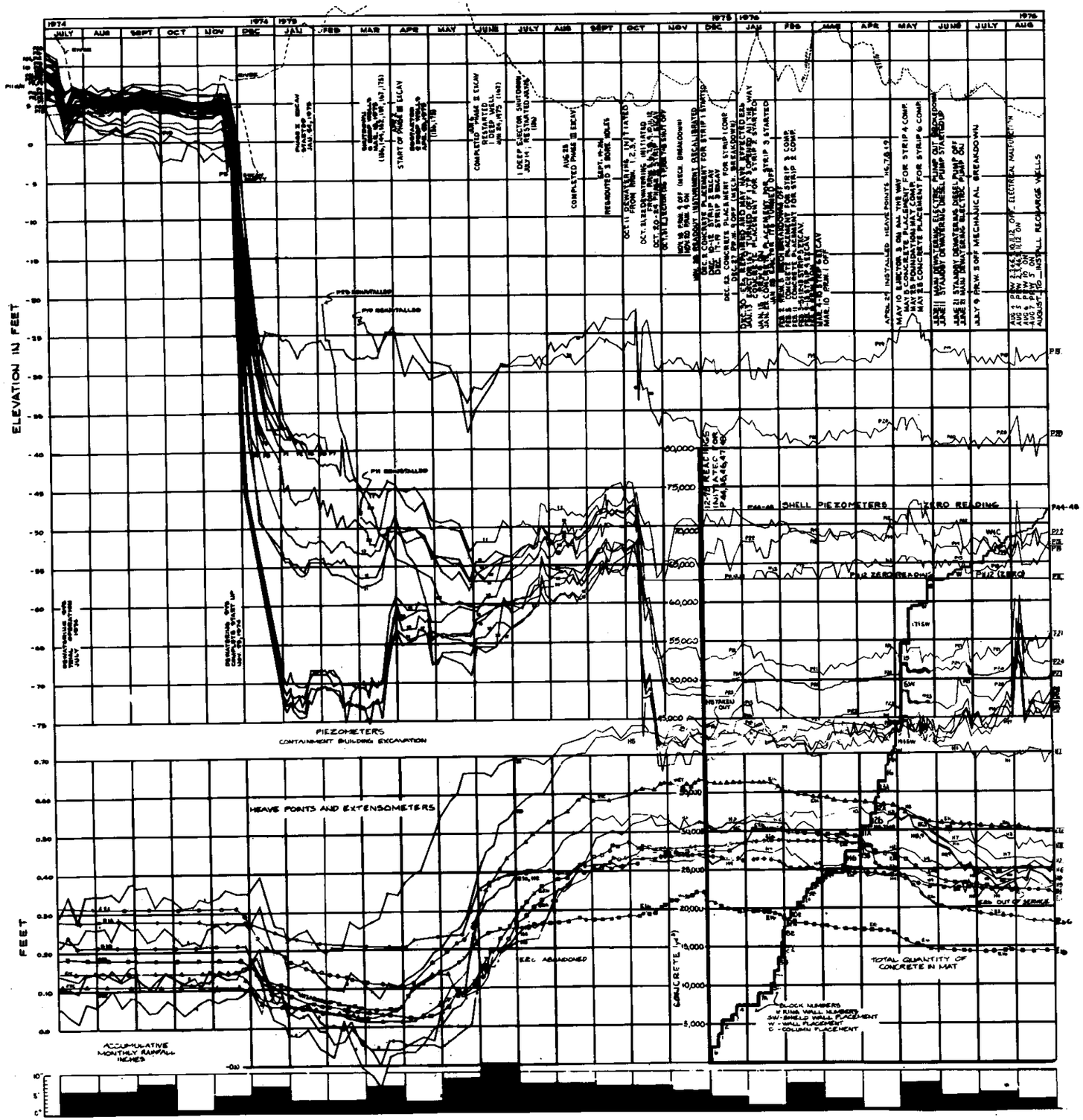
LOUISIANA POWER 8 LIGHT CO. **Waterford Steam Electric Station #3**	**SECONDARY SETTLEMENT MONITORING POINT LOCATIONS (1985-1986)**	FIGURE 2.5-112c



NOTE: FOR COORDINATES SEE TABLE 2.5-I6

REVISION 2 (12/88)

LOUISIANA POWER 8 LIGHT CO. Waterford Steam Electric Station#3	**SETTLEMENT MONITORING POINT LOCATIONS**	FIGURE 2.5-112d

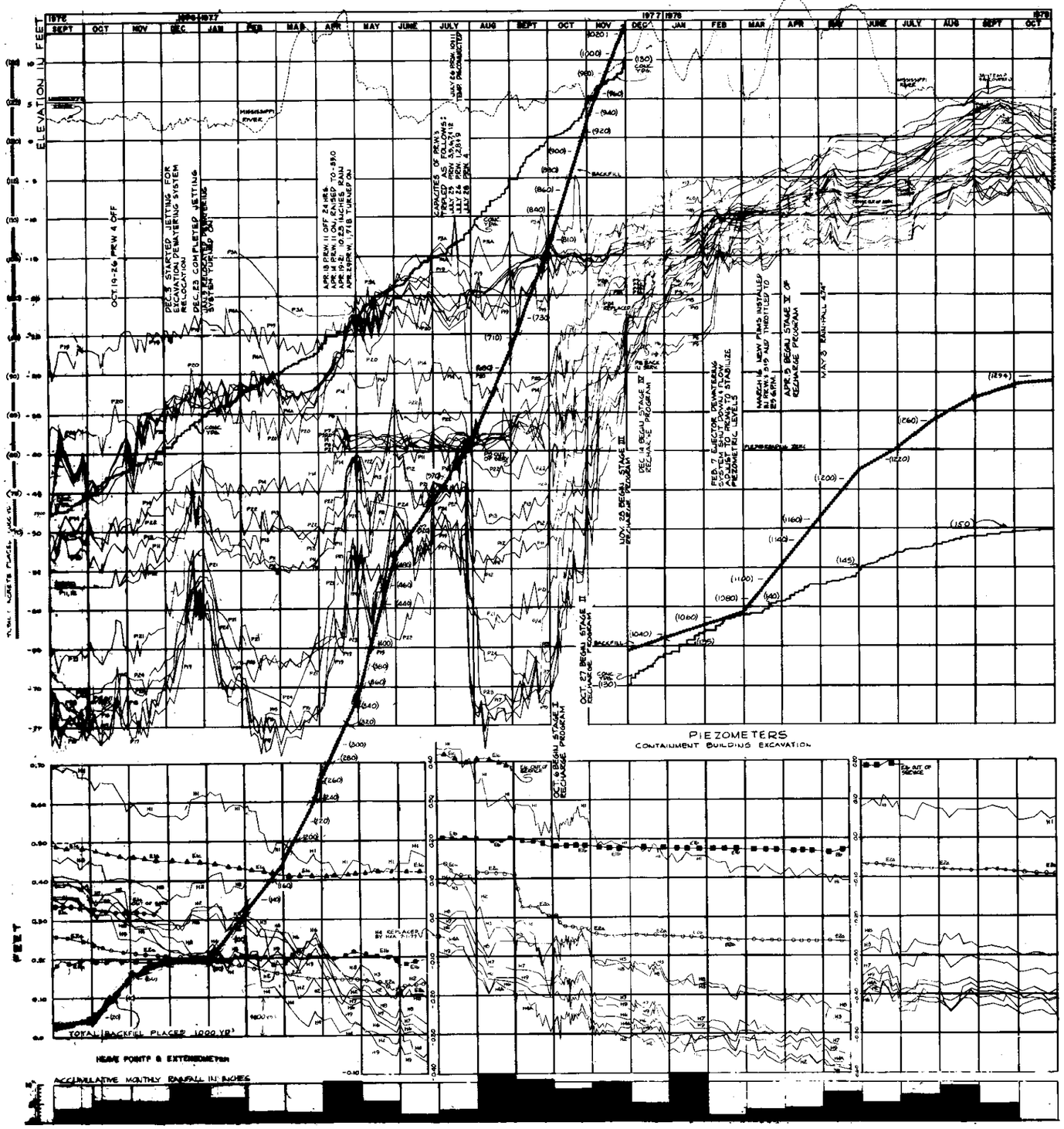


LOUISIANA POWER & LIGHT CO.

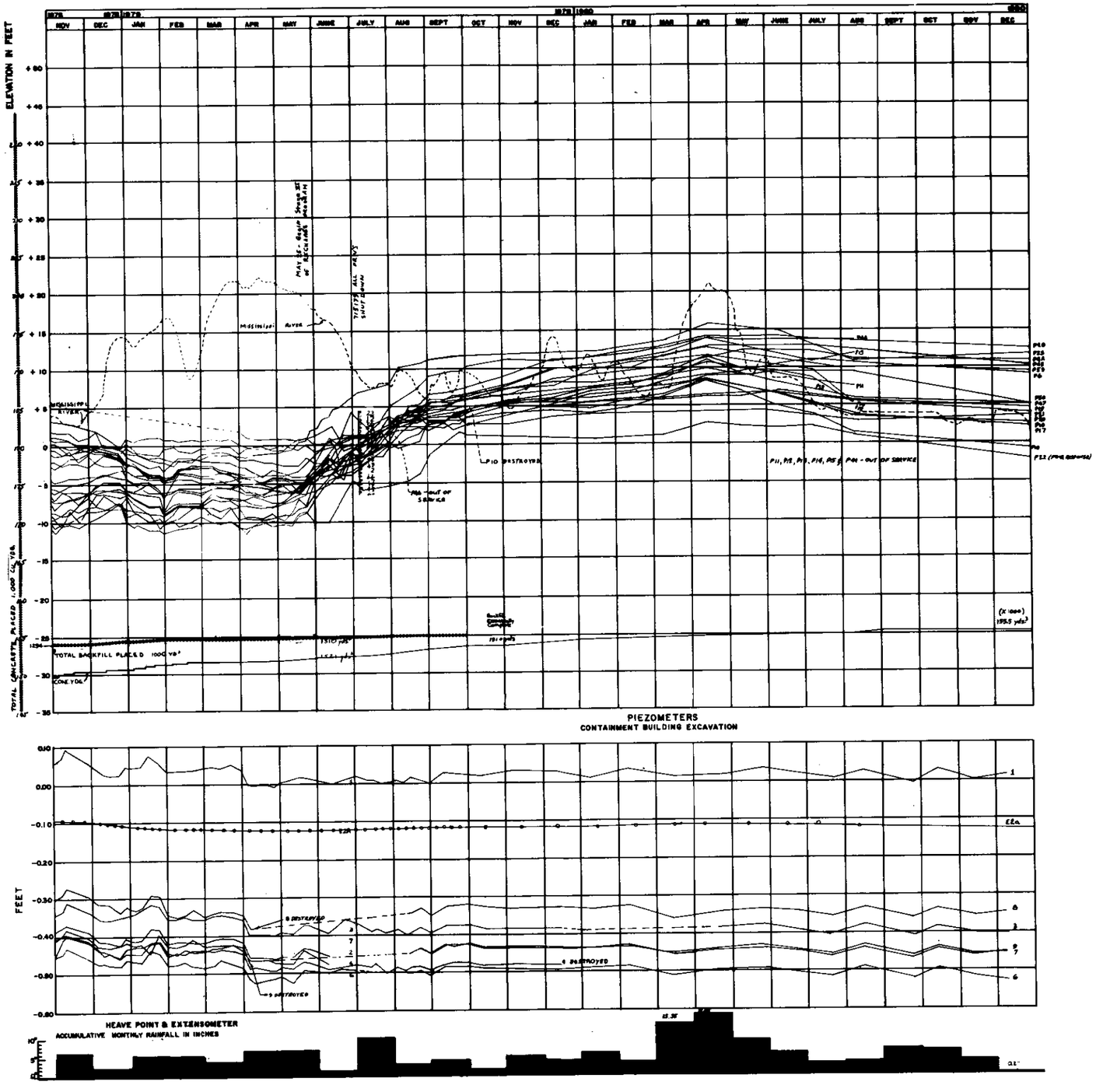
Waterford Steam Electric Station

PIEZOMETER, HEAVE POINT AND EXTENSOMETER RESPONSES
SHEET 2 OF 5

FIGURE 2.5-113



LOUISIANA POWER & LIGHT CO.
Waterford Steam Electric Station
PIEZOMETER, HEAVE POINT AND EXTENSOMETER RESPONSES SHEET 3 OF 5
FIGURE 2.5-113

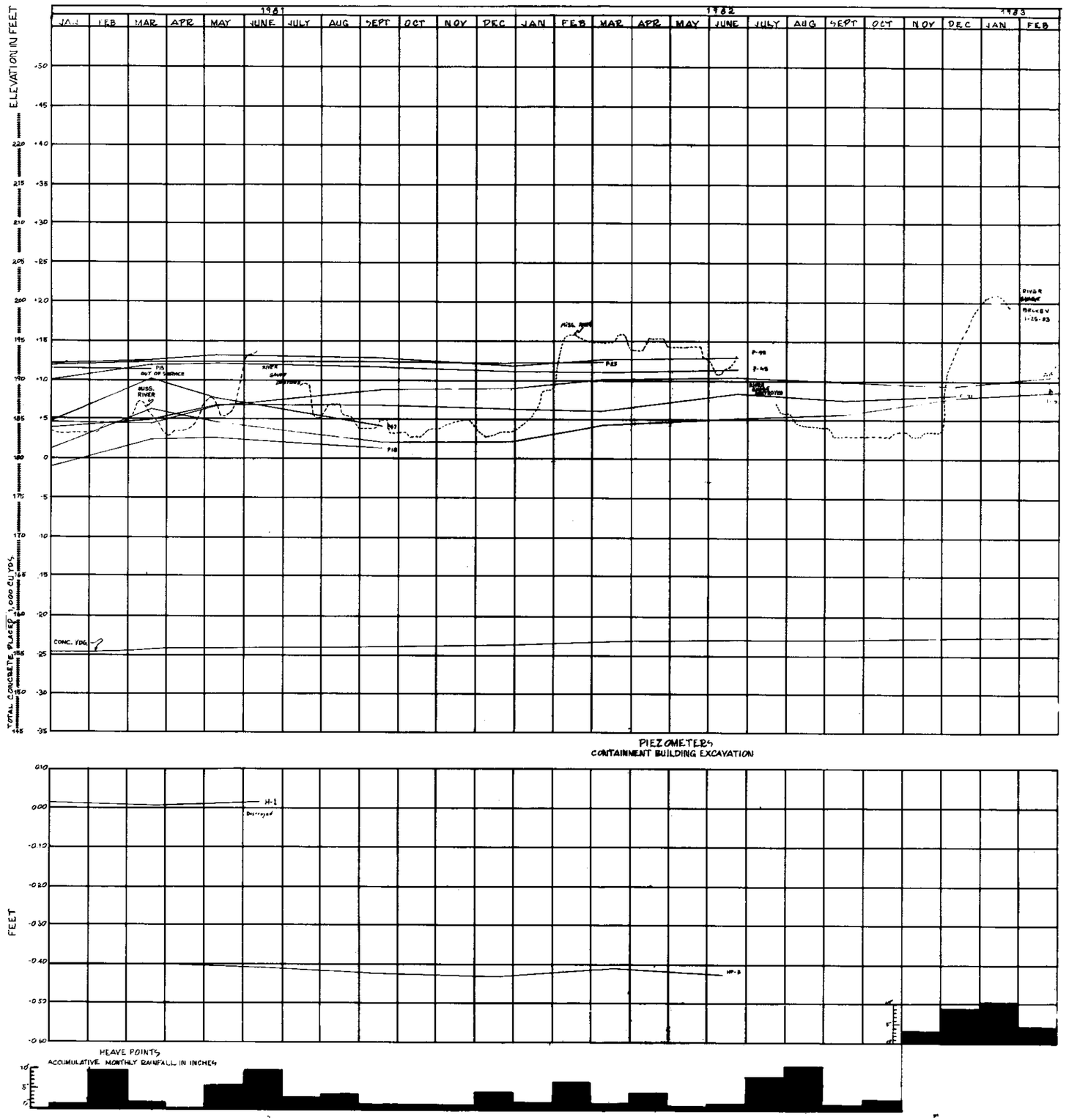


LOUISIANA POWER & LIGHT CO.

Waterford Steam Electric Station

PIEZOMETER, HEAVE POINT AND EXTENSOMETER RESPONSES
SHEET 4 OF 5

FIGURE 2.5-113

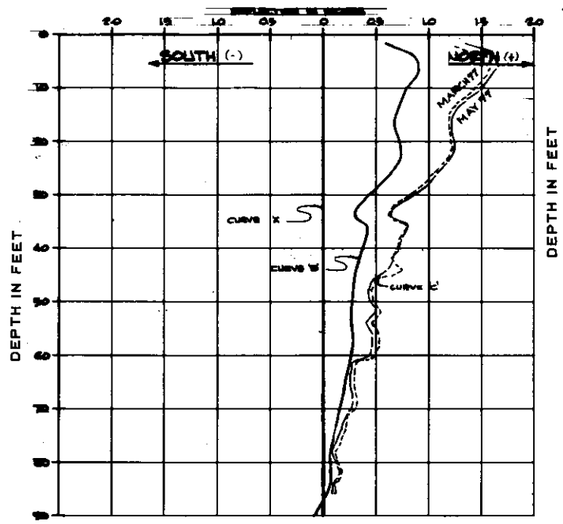


LOUISIANA POWER & LIGHT CO.

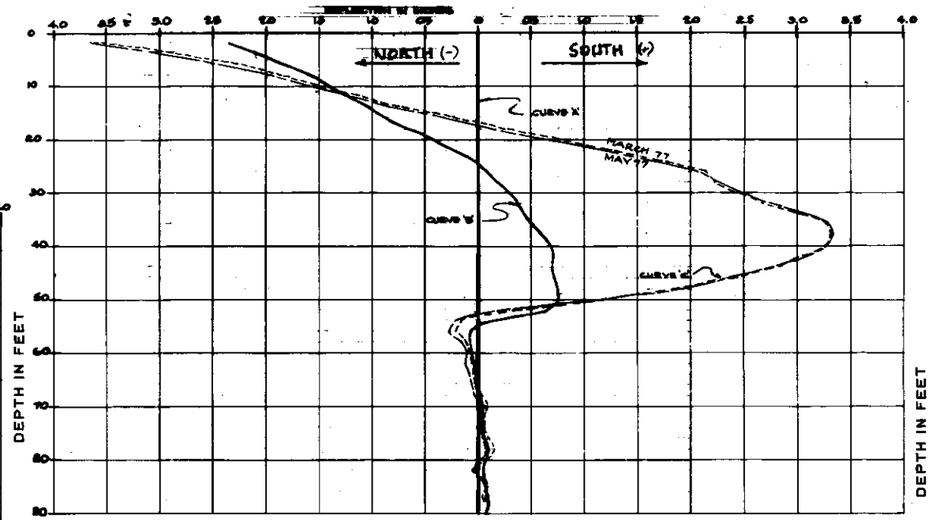
Waterford Steam Electric Station

PIEZOMETER, HEAVE POINT AND EXTENSOMETER RESPONSES (UPDATE)
SHEET 5 OF 5

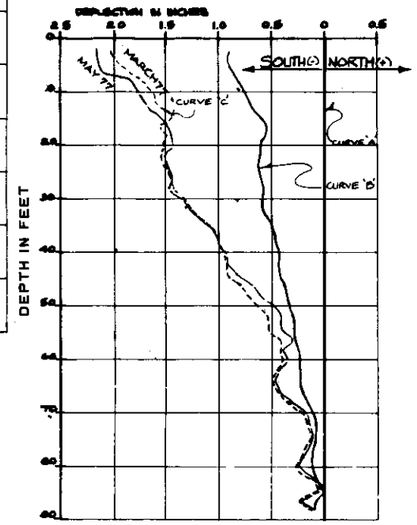
FIGURE 2.5-113



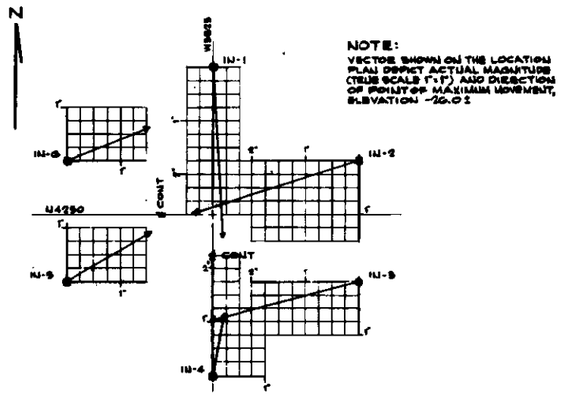
INCLINOMETER NO. 6



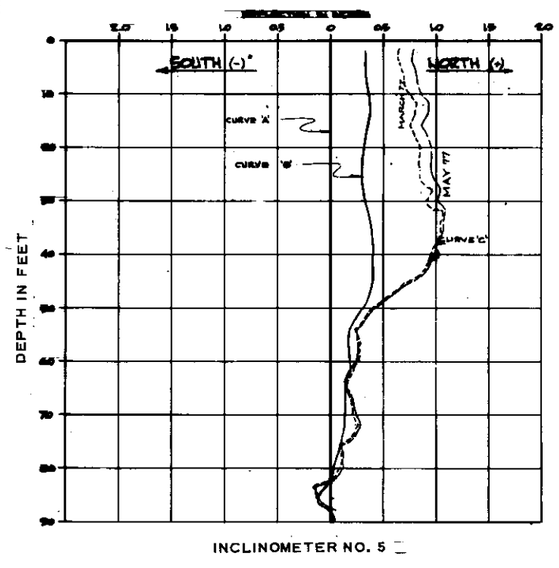
INCLINOMETER NO. 1



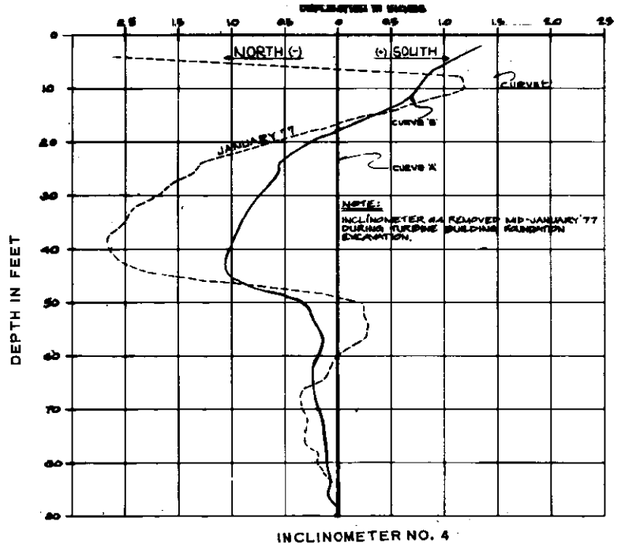
INCLINOMETER NO. 2



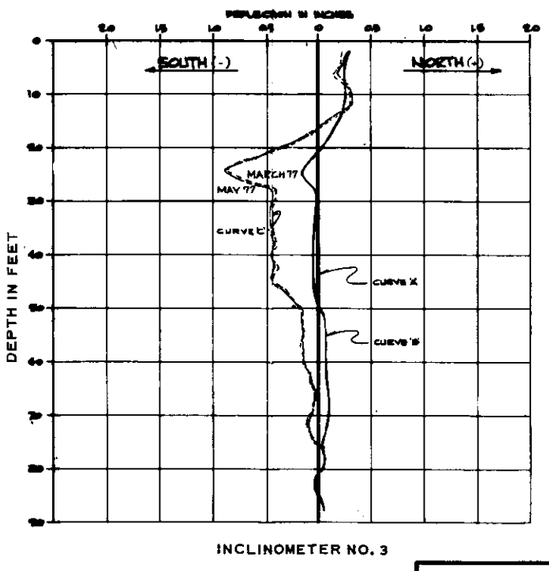
LOCATION PLAN



INCLINOMETER NO. 5



INCLINOMETER NO. 4



INCLINOMETER NO. 3

NOTES

CURVES REPRESENTED REPRESENT THE DEFLECTION OF INCLINOMETER CASING LOCATED AS SHOWN AT THE PERIPHERY OF THE CONTAINMENT BUILDING EXCAVATIONAL TAPE DATA. INDICATES THE DEFLECTION ALONG AN NORTH-SOUTH AXIS ONLY.

CURVE 'A' REPRESENTS THE INITIAL ZERO READING AS ESTABLISHED FOR THE INDIVIDUAL INCLINOMETERS ON THE FOLLOWING DATES: INCL-01 JUNE 19, 1976; INCL-02 JUNE 18, 1976; INCL-03 AUG 16, 1976; INCL-04 AUG 16, 1976; INCL-05 JUNE 22, 1976; INCL-06 JUNE 19, 1976.

CURVE 'B' REPRESENTS THE AVERAGE DEFLECTION OF EACH INCLINOMETER DURING THE PERIOD DEC. 1 THRU DEC. 8th, 1976. THIS CURVE DEPICTS THE MOVEMENT WHICH OCCURED DURING AND IMMEDIATELY AFTER INITIAL EXCAVATION TO ELEVATION -5' (APPROX.).

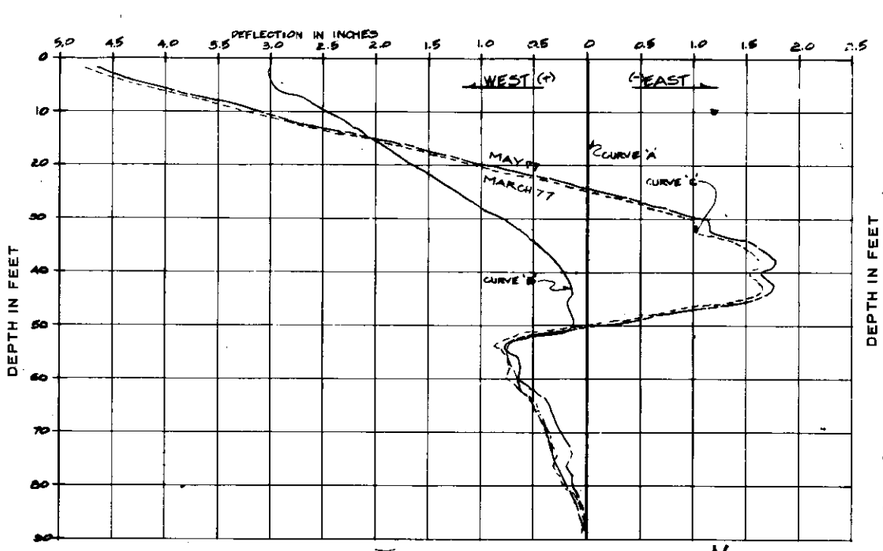
CURVE 'C' REPRESENTS THE AVERAGE DEFLECTION OF EACH INCLINOMETER FOR THE MONTH PRECEDING THE LAST REVISION DATE.

LOUISIANA POWER & LIGHT CO.

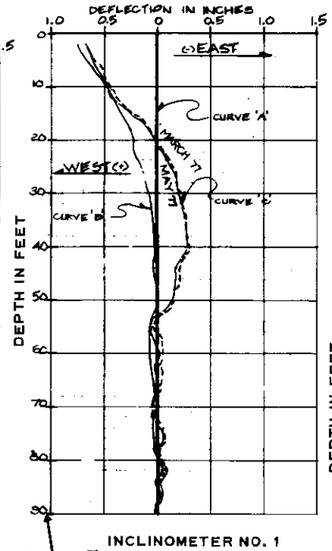
Waterford Steam Electric Station

INCLINOMETER MOVEMENT
NORTH-SOUTH DIRECTION

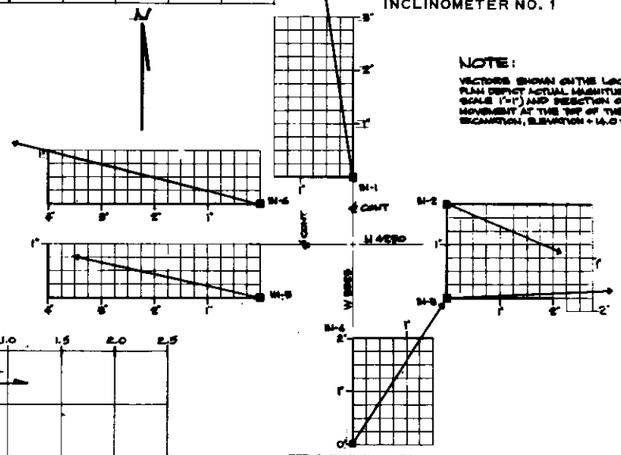
FIGURE 2.5-114



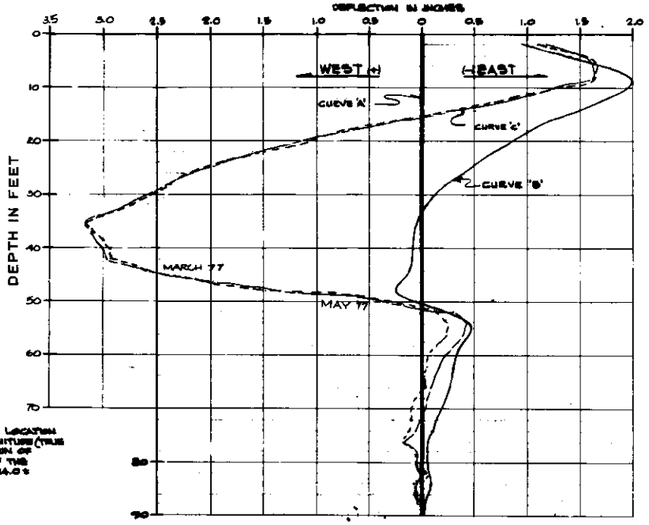
INCLINOMETER NO. 6



INCLINOMETER NO. 1



NOTE:
VECTORS SHOWN ON THE LOCATION PLAN DEPICT NOTIAL MAGNITUDE (TRUE SCALE 1"=1") AND DIRECTION OF MOVEMENT AT THE TOP OF THE EXCAVATION, ELEVATION + 14.0 ft



INCLINOMETER NO. 2

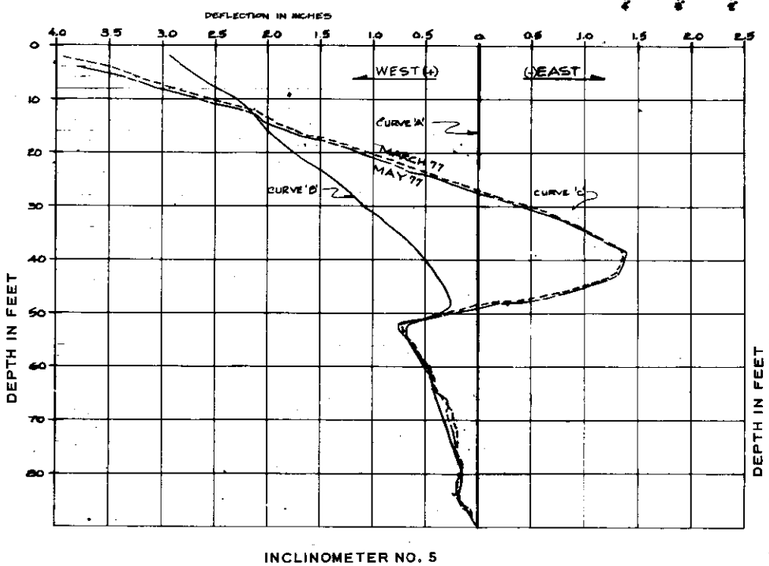
NOTES

CURVES REPRESENTED REPRESENT THE DEFLECTION OF INCLINOMETER CASING LOCATED AS SHOWN AT THE PERIPHERY OF THE CONTAINMENT BUILDING EXCAVATION. THIS DATA INDICATES THE DEFLECTION ALONG AN EAST - WEST AXIS ONLY.

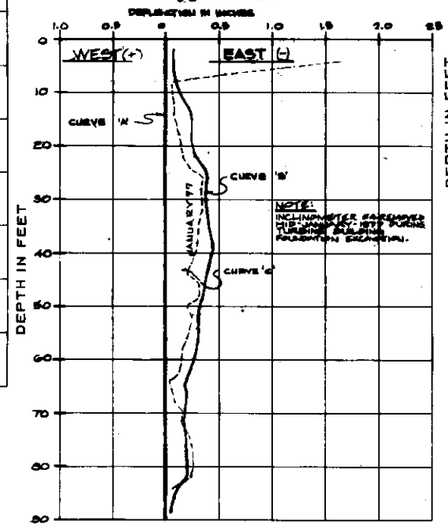
CURVE 'A' REPRESENTS THE INITIAL ZERO READING AS DISTRIBUTED FOR THE INDIVIDUAL INCLINOMETERS ON THE FOLLOWING DATES: INCL #1 JUNE 19, 1976; INCL #2 JUNE 15, 1976; INCL #3 AUG 20, 1976; INCL #4 AUG 16, 1976; INCL #5 JUNE 18, 1976; INCL # 6 JUNE 19, 1976.

CURVE 'B' REPRESENTS THE AVERAGE DEFLECTION OF EACH INCLINOMETER DURING THE PERIOD DEC. 1 THRU DEC 30, 1976. THIS CURVE REFLECTS THE MOVEMENT WHICH OCCURRED DURING AND IMMEDIATELY AFTER INITIAL EXCAVATION TO ELEVATION - 5' (APPROX).

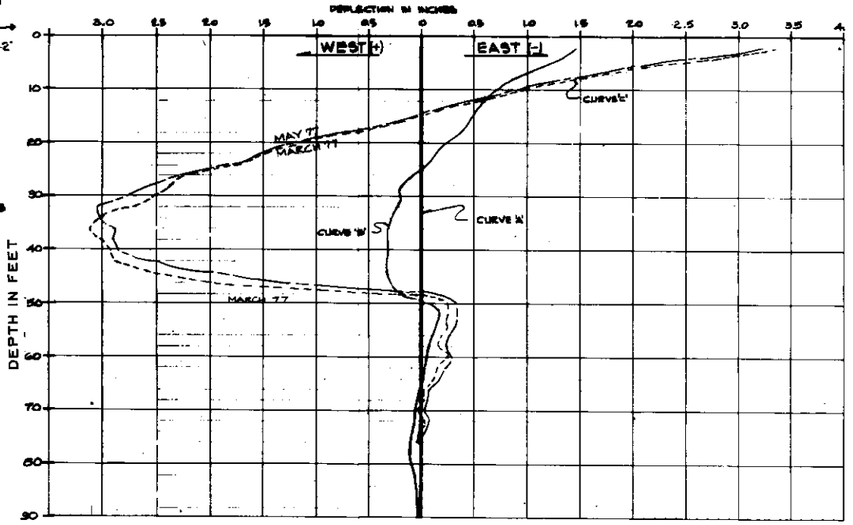
CURVE 'C' REPRESENTS THE AVERAGE DEFLECTION OF EACH INCLINOMETER FOR THE MONTH PRECEDING THE LAST REVISION DATE.



INCLINOMETER NO. 5



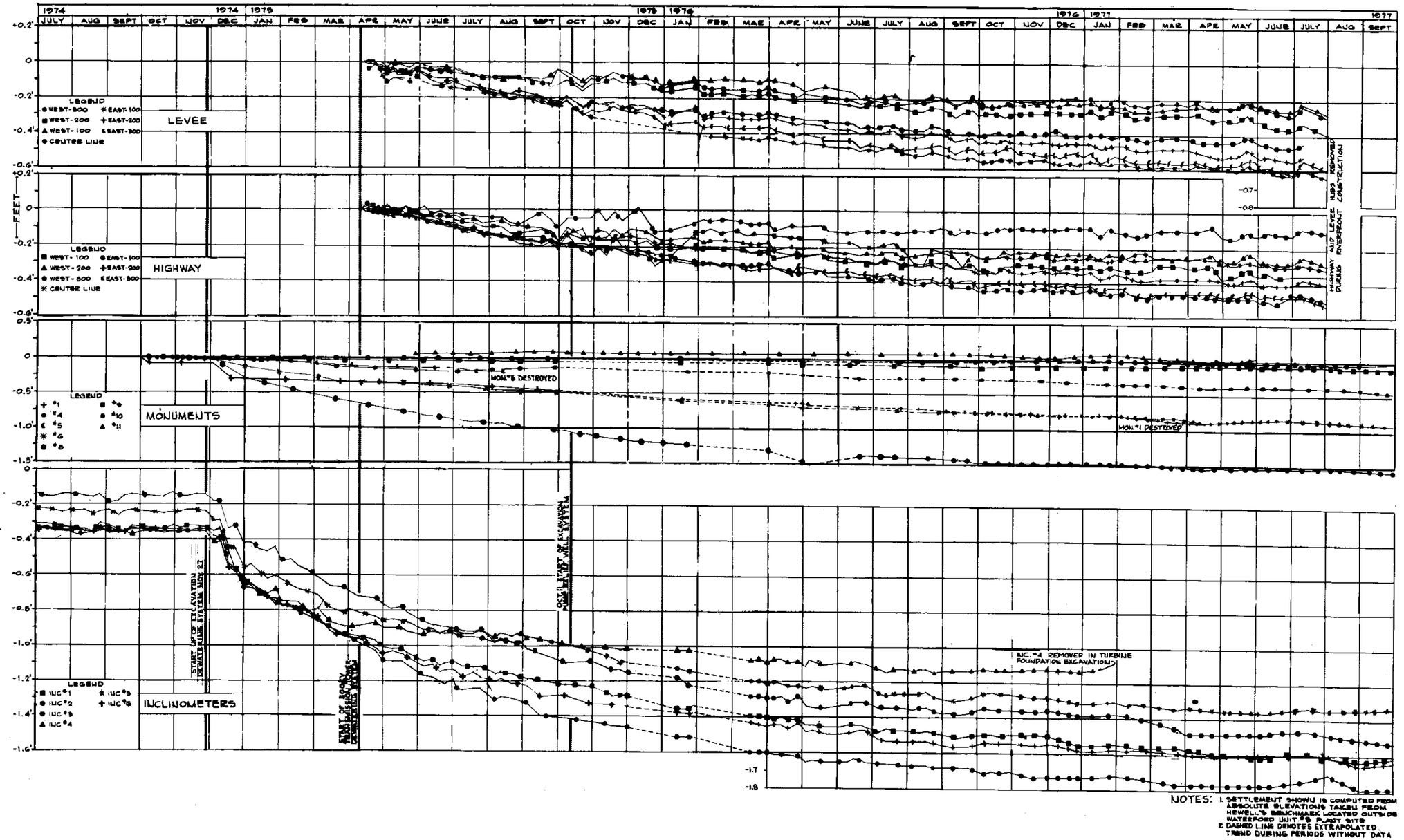
INCLINOMETER NO. 4



INCLINOMETER NO. 3

LOUISIANA POWER & LIGHT CO.
Waterford Steam Electric Station

INCLINOMETER MOVEMENT
EAST-WEST DIRECTION
FIGURE 2.5-115



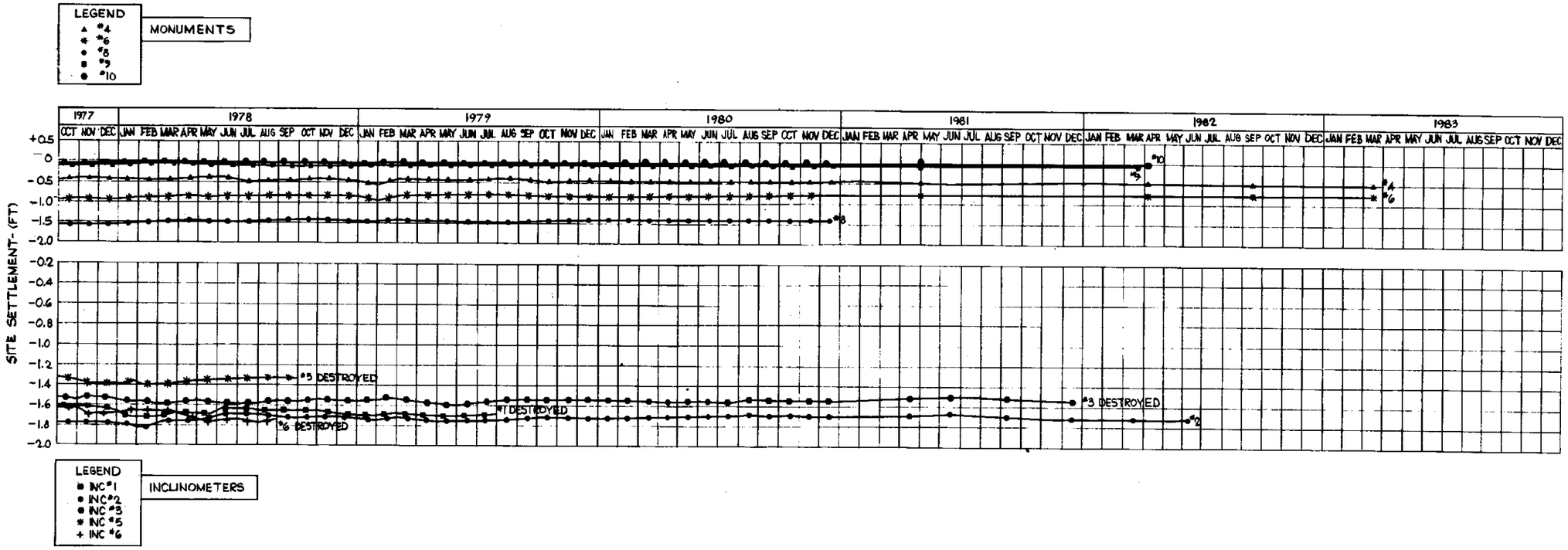
NOTES: 1. SETTLEMENT SHOWN IS COMPUTED FROM ABSOLUTE ELEVATIONS TAKEN FROM HEWELL'S BENCHMARK LOCATED OUTSIDE WATERFORD UNIT 3 & PLANT SITE
2. DASHED LINE DENOTES EXTRAPOLATED TREND DURING PERIODS WITHOUT DATA

LOUISIANA POWER & LIGHT CO.

Waterford Steam Electric Station

SITE AREA SETTLEMENT
SHEET 1 OF 2

FIGURE 2.5-116

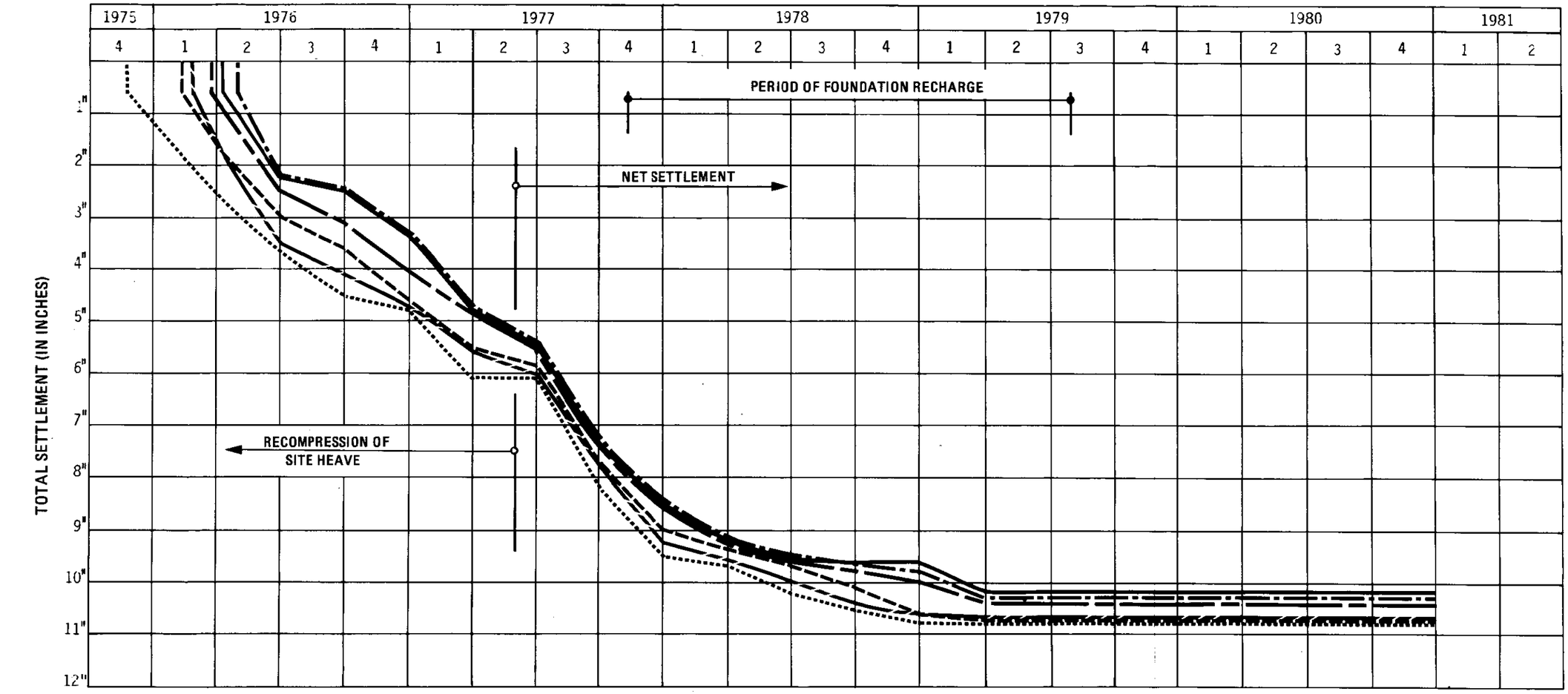


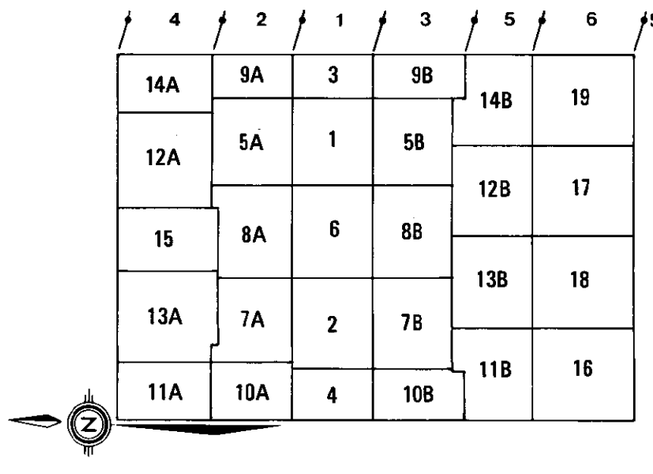
LOUISIANA POWER & LIGHT CO.

Waterford Steam Electric Station

SITE AREA SETTLEMENT
SHEET 2 OF 2

FIGURE 2.5-116





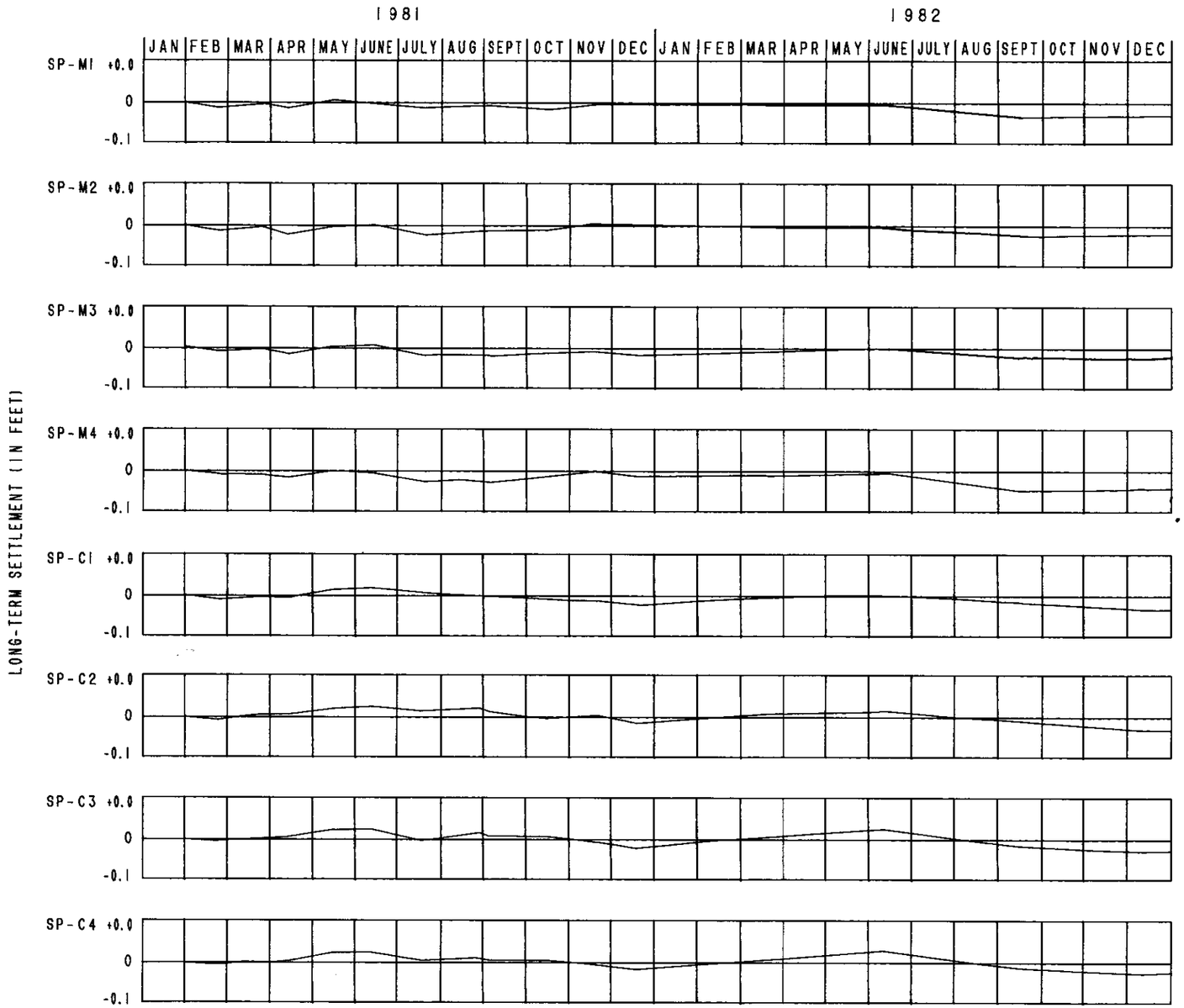
LEGEND	BLOCK NO'S	STRIP NO'S
.....	1 2 3 4 6	1
– – – – –	5A 7A 8A 9A 10A	2
— – —	5B 7B 8B 9B 10B	3
———	11A 12A 13A 14A 15	4
— – —	11B 12B 13B 14B	5
— · — · —	16 17 18 19	6

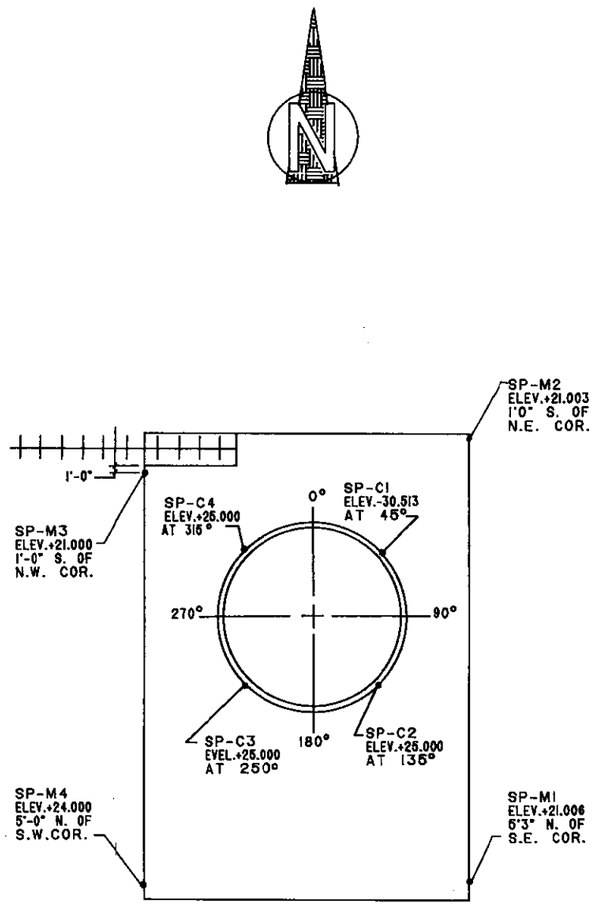
NOTES:
1. THE PLOTS ARE AVERAGES OF THE BLOCK SETTLEMENTS WITHIN EACH STRIP.
2. THE BLOCK SETTLEMENTS ARE AVERAGES OF MEASUREMENTS TAKEN AT THE CORNER POINTS OF EACH BLOCK.
3. INDIVIDUAL BLOCK SETTLEMENT READINGS TERMINATED ON 12-80.

LOUISIANA POWER & LIGHT CO.
Waterford Steam Electric Station

COMPOSITE FOUNDATION MAT SETTLEMENT
SHEET 1 OF 3

FIGURE 2.5-117

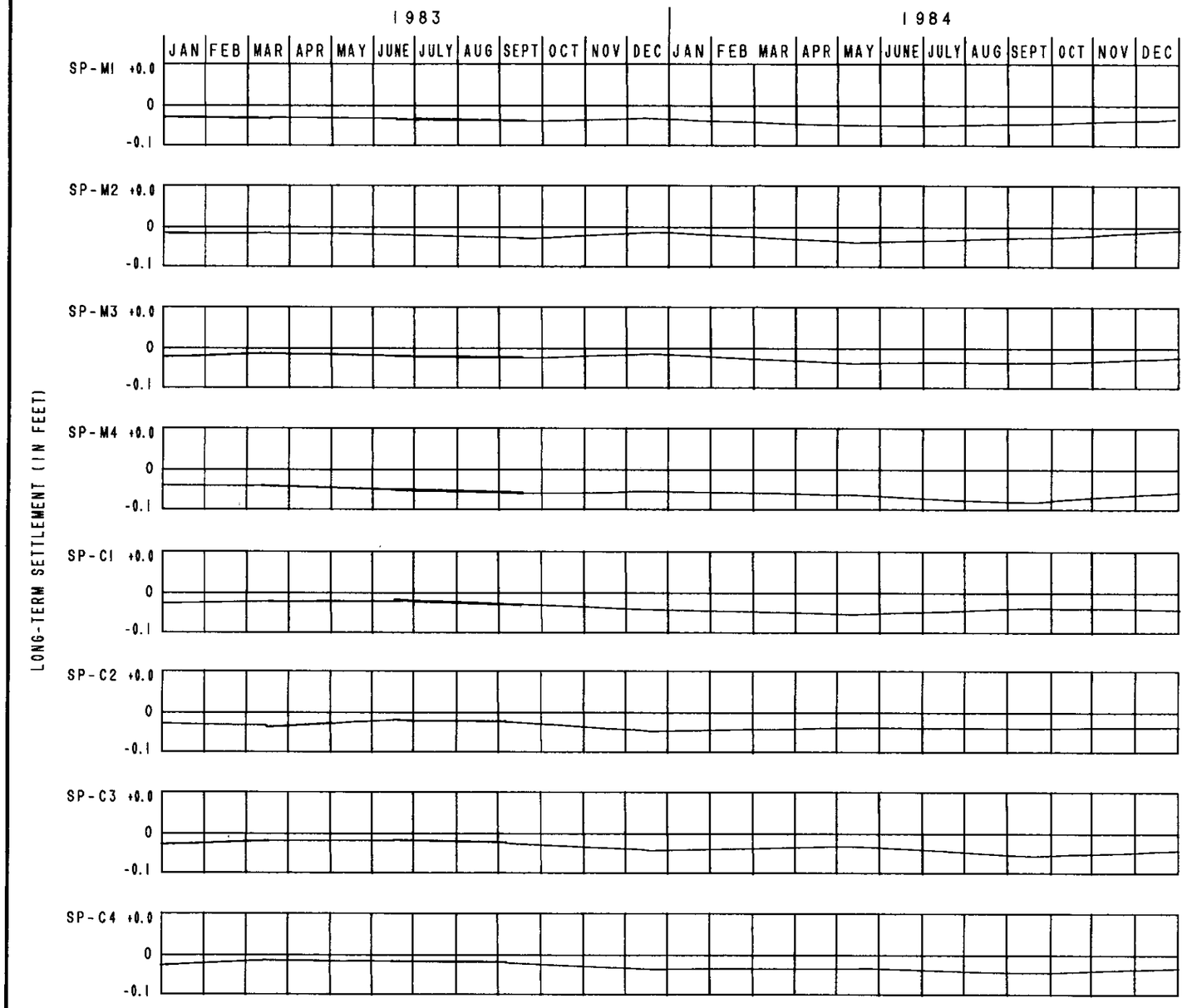


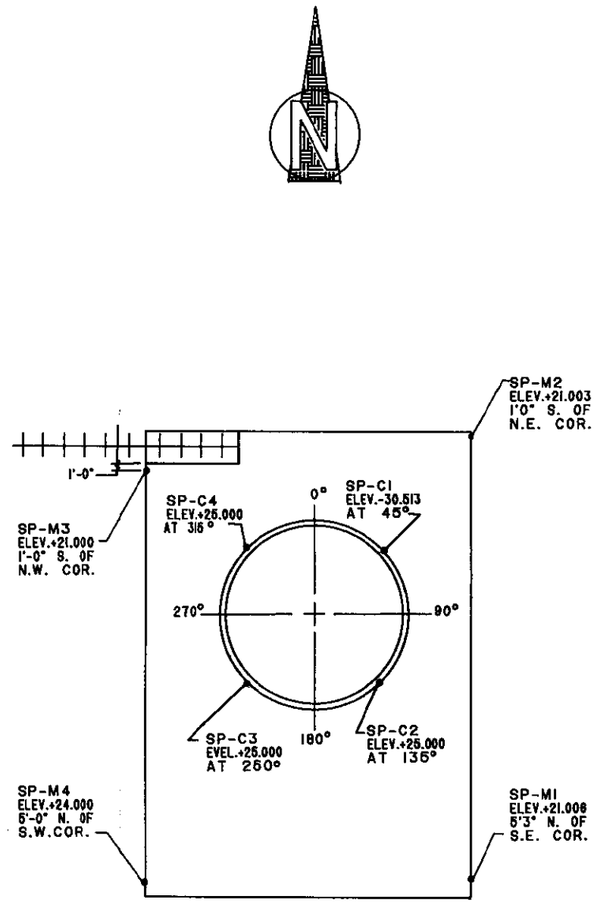


LOCATION PLAN
SETTLEMENT MONITORING POINTS
(1981 - 1984)

LOUISIANA POWER & LIGHT CO.
Waterford Steam Electric Station #3

COMPOSITE FOUNDATION MAT
SETTLEMENT
SHEET 2 OF 3
FIGURE 2.5-117



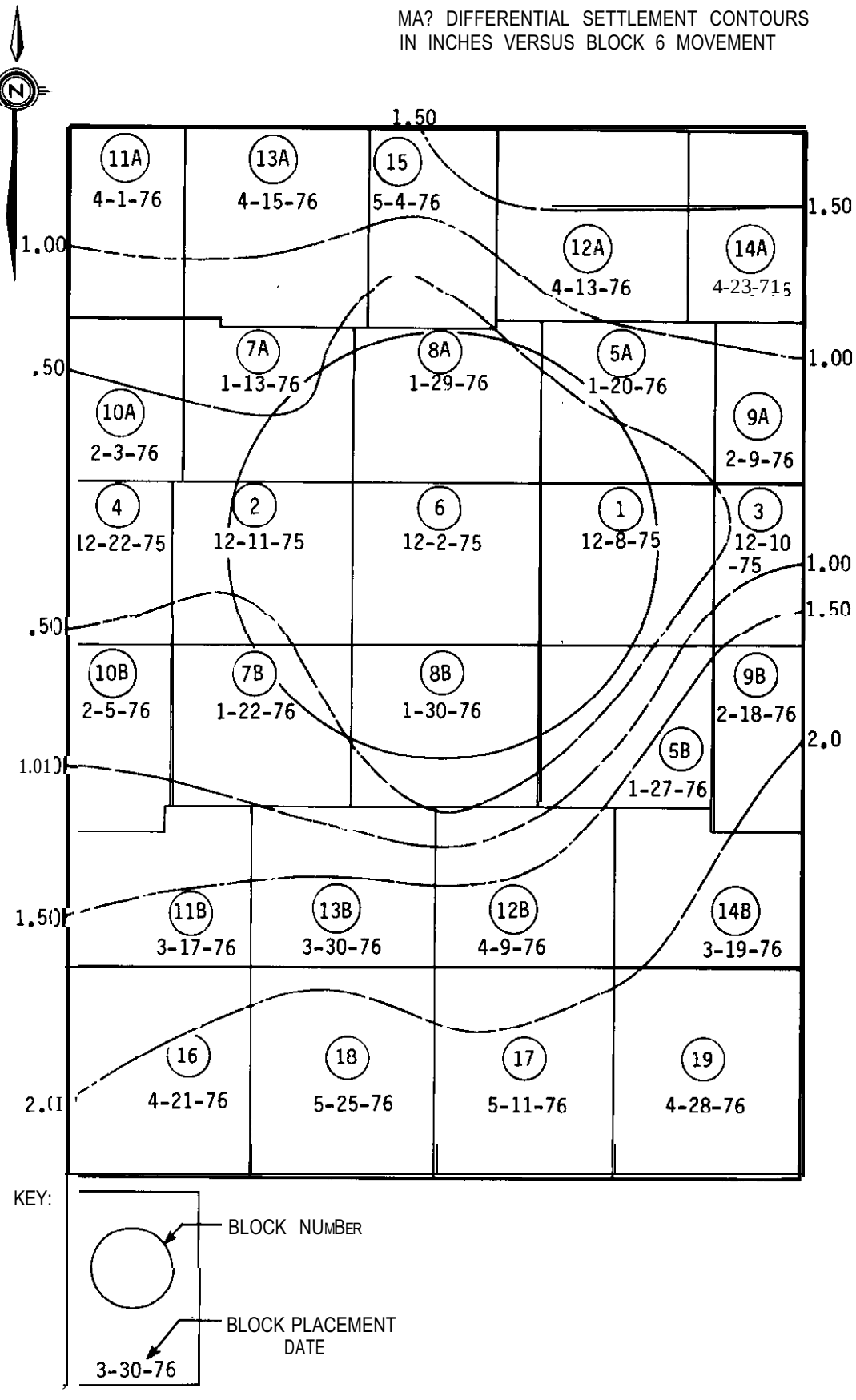


LOCATION PLAN
SETTLEMENT MONITORING POINTS
(1981 - 1984)

LOUISIANA POWER & LIGHT CO.
Waterford Steam Electric Station #3

COMPOSITE FOUNDATION MAT
SETTLEMENT
SHEET 3 OF 3
FIGURE 2.5-117

MA? DIFFERENTIAL SETTLEMENT CONTOURS
IN INCHES VERSUS BLOCK 6 MOVEMENT



LOUISIANA POWER & LIGHT CO. **Waterford Steam Electric Station**	COMPOSITE FOUNDATION MAT DIFFERENTIAL SETTLEMENT CONTOURS	**Figure** **2.5-118**