(A0007131)

BURK AND ASSOCIATES, INC.
ENGINEERS, PLANNERS, ENVIRONMENTAL SCIENTISTS
4176 CANAL STREET
NEW ORLEANS, LOUISIANA 70119-5994
(504) 486-5901
P. O. BOX 19087 - NEW ORLEANS, LA. 70179

June 6, 1986

Mr. Larry Bodet
Sewerage and Water Board
Room 5W02 - City Hall
New Orleans, LA 70165

RE: 1986 Additions to Drainage Pumping Station No. 6
Contract No. 5097
B&A Job No. 8133

Dear Mr. Bodet:

Transmitted herewith is a copy of the Eustis Engineering Soils Report dated December 1, 1982, along with a copy of a meeting report at Southern Railroad on June 4, 1986 as you requested.

We also submit the following information regarding the proposed location of the I-wall on the discharge side of Station 6 along the east levee. This I-wall consists of a steel sheet pile with a concrete cap top of wall elevation 36.5; elevation of levee at base of wall elevation 28.5; location of wall is approximately 16-1/2 feet on the flood side of the existing earthen levee elevation 34.0.

Specific location of the wall is as follows:

Station 50+57 - 70' west of baseline B
Station 51+12.95 - 60' west of baseline B
Station 52+43.72 - 78' west from baseline B

Total length of proposed I-wall is 188'-10" long as indicated on Drawing C-3 of the Contract Plans.

Please give us a call if you require any additional information regarding this proposed floodwall.

Sincerely,

BURK AND ASSOCIATES, INC.
Engineers, Planners and
Environmental Scientists

Michael G. Jackson
Associate

MGJ/ptb
Enclosures

GEOTECHNICAL INVESTIGATION

SEWERAGE AND WATER BOARD OF NEW ORLEANS

PROPOSED ADDITIONS TO DRAINAGE PUMPING STATION NO. 6

NEW ORLEANS, LOUISIANA

FOR
BURK AND ASSOCIATES, INC.
ENGINEERS, PLANNERS AND ENVIRONMENTAL SCIENTISTS
NEW ORLEANS, LOUISIANA

By
Eustis Engineering Company
Metairie, Louisiana

1 December 1982

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EUSTIS ENGINEERING COMPANY
SOIL AND FOUNDATION CONSULTANTS
BORINGS • TESTS • ANALYSES
3011 28TH STREET
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LLOYD A. HELD, JR.

1 December 1982

Burk and Associates, Inc.
Engineers, Planners and Environmental Scientists
4176 Canal Street
New Orleans, Louisiana 70119

Attention Mr. Jens Nielsen

Gentlemen:

Geotechnical Investigation
Sewerage and Water Board of New Orleans
Proposed Additions to Drainage Pumping Station No. 6
New Orleans, Louisiana

Transmitted is our engineering report covering the geotechnical investigation performed in connection with the subject project.

Thank you for asking us to perform this investigation.

Yours very truly,

EUSTIS ENGINEERING COMPANY

By Lloyd A. Held, Jr.
Lloyd A. Held, Jr.

Analyses for the additions to PS #6 on the south end of the canal.

GEOTECHNICAL INVESTIGATION

SEWERAGE AND WATER BOARD OF NEW ORLEANS

PROPOSED ADDITIONS TO DRAINAGE PUMPING STATION NO. 6

NEW ORLEANS, LOUISIANA

FOR
BURK AND ASSOCIATES, INC.
ENGINEERS, PLANNERS AND ENVIRONMENTAL SCIENTISTS
NEW ORLEANS, LOUISIANA

By
Eustis Engineering Company
Metairie, Louisiana

1 December 1982

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GEOTECHNICAL INVESTIGATION
SEWERAGE AND WATER BOARD OF NEW ORLEANS
PROPOSED ADDITIONS TO DRAINAGE PUMPING STATION NO. 6
NEW ORLEANS, LOUISIANA

INTRODUCTION

1. This report contains the results of a geotechnical investigation performed for proposed additions to Drainage Pumping Station No. 6 located in New Orleans, Louisiana. Written authorization to proceed with the investigation was received on 9 August 1982 from Mr. Jens Nielsen representing Burk and Associates, Engineers for the project. The scope of work was modified in October and authorization for the additional scope of work was received on 7 October 1982 by Mr. Thomas L. Jackson.

2. This report has been prepared in accordance with generally accepted soil and foundation engineering practice for the exclusive use of the Sewerage and Water Board of New Orleans and their representatives for specific application to the proposed additions to Drainage Pumping Station No. 6 located in New Orleans, Louisiana. In the event that any changes in the nature, design or location of the structures are planned, the conclusions and recommendations contained in this report shall not be considered valid unless the changes are reviewed

and conclusions of this report are modified or verified in writing.

3. The analyses and recommendations submitted in this report are based in part on data obtained from the soil borings. The nature and extent of variations that may exist between boring locations may not become evident until construction. If variations then appear evident, it will be necessary to re-evaluate the recommendations contained in this report.

SCOPE

4. The scope of the investigation included the drilling of undisturbed soil borings to determine the subsoil conditions and stratification and to obtain samples of the various strata encountered. Soil mechanics laboratory tests were performed on selected samples to evaluate the physical properties of the subsoils. Engineering analyses were made to determine estimated allowable capacities for Class "B" timber piles and steel "H" piles, the recommended sheetpile penetration, required anchor force and maximum bending moments for the various proposed bulkheads, and estimates of settlement.

SOIL BORINGS

5. Five (5) undisturbed sample type soil test borings were drilled during the period 16-19 August 1982. Subsequently, the scope of work was expanded to include construction on the

intake side of the pumping station and two (2) additional borings were drilled during the period 14-19 October 1982. All of the borings were drilled using a truck mounted rotary type drill rig to depths ranging between 60 and 100 feet below the existing ground surface at the location shown on Figure 1. The results of the borings are shown graphically in the form of subsoil profiles on Figures 2 and 3 and detailed descriptive logs of the individual borings are shown in both tabular and graphical form on Figures 4 through 10.

6. Undisturbed samples of all cohesive and semi-cohesive soils were obtained at close intervals or at a change in stratum using a 3-in. diameter Shelby tube sampling barrel. The samples were extruded in the field, inspected and visually classified by Eustis Engineering Company's soil technician. Representative portions were placed in moisture proof containers and sealed with paraffin for preservation prior to laboratory testing.

7. Cohesionless or semi-cohesive soils that could not be satisfactorily recovered with a Shelby tube sampling barrel were sampled during the performance of in situ Standard Penetration Tests. This test provides a measure of the relative density of cohesionless soils and gives an indication of the consistency of semi-cohesive soils. The Standard Penetration Test consists of counting the number of blows required to drive a 2-in. diameter sampler one foot after first seating it six inches using a 140-lb weight dropped 30 inches. The results of these tests are shown on the individual boring logs under

the column headed "Standard Penetration Test," and are shown on the subsoil profiles at the depths these tests were performed. Samples obtained during the performance of these tests were placed in glass jars for preservation.

LABORATORY TESTS

8. Soil mechanics laboratory tests consisting principally of natural water content, unit weight and either unconfined compression or unconsolidated undrained triaxial compression shear were performed on selected undisturbed samples. Atterberg liquid and plastic limit tests were performed on selected representative samples of cohesive and semi-cohesive soils. Results of all these tests are summarized and shown in tabular form on Figures 11 through 16.

DESCRIPTION OF SUBSOIL CONDITIONS

9. The natural ground surface is covered by 3.5 to 17 feet of fill material consisting primarily of medium stiff to very stiff gray and tan clay with pockets of sand and miscellaneous fill which is overlain with sand and shells at some locations. The natural subsoils consist primarily of soft to stiff gray and tan clay and very soft to medium stiff gray clay to depths ranging between 21 and 35 feet below ground surface. Beneath this is a stratum of very loose to very dense gray sand, silty sand and clayey sand that continues to depths

of 48 to 58 feet. Following this are strata of soft to medium stiff gray clay and sandy clay and very loose gray clayey sand to depths of 67 and 76 feet, except at Borings 2 and 4 which are terminated at the 60-ft depth. Beginning at depths of 67 to 76 feet at Borings 1, 3, 5, 6 and 7 is the Pleistocene formation which consists primarily of medium stiff to very stiff greenish-gray and tan and gray clay, silty clay and sandy clay interspersed with strata of loose to medium compact tan and gray clayey silt. All of these borings are terminated in the Pleistocene formation at depths of 85 to 100 feet below the existing ground surface.

Ground Water Conditions

10. Because the borings were filled after drilling operations, no ground water measurements were made for this investigation. However, recent measurements taken for a nearby project indicate the ground water surface may vary between 10 and 12 feet below the existing ground surface. The depth to ground water will vary due to climatic conditions and other factors. Therefore, it should be verified immediately prior to initiation of construction operations.

FOUNDATION ANALYSIS

11. Furnished information indicates that the proposed additions to Pumping Station No. 6 will include:

a) Installation of new discharge pipes at Pumps 1 through 4;

b) Installation of a new pump ("H") and discharge tube, and construction of foundations for a future pump ("I") and discharge tube;

c) Enlargement of the intake basin on the east and west sides of the canal and;

d) Enlargement of the discharge basin on the west side of the canal.

Sheetpile Analyses

12. Analyses to determine recommended sheetpile penetrations, required anchor forces and maximum bending moments in the sheets considered of using both short-term and long-term soil shear strengths. A factor of safety of 1.5 was applied to the estimated soil shear strengths to determine recommended sheetpile penetrations. Considering that building codes require an adequate factor of safety in the working stresses of all structural members, a factor of safety was not applied to the estimated soil shear strengths to determine the required anchor force and maximum bending moment in the sheetpiles. The computations were performed using drawings, conditions and cross-sections furnished by representatives of Burk and Associates.

13. Cofferdam for New Discharge Pipes. Furnished plans for installation of new discharge pipes at Pumps 1 through 4 include construction of a cofferdam in the discharge basin. Because the sequence of construction operations is important to the stability of the sheetpiles and new concrete floodwall, a three-stage construction operation is recommended as shown on Figure 17.

14. A granular material such as river sand should be used for the initial backfill behind the inner row of sheetpiles. After the area between the pump station and inner row of sheetpiles is dewatered, a cohesive soil may be used to complete the backfilling operations. It may be necessary to place a 6-inch layer of shells on the surface of the backfill to provide a stable working platform. The sheetpiles will extend into the clay beneath the sand stratum. Therefore, it may not be necessary to install a well point dewatering system to provide stability. If a well point dewatering system is used, the tip elevation of the sheetpile can be reduced. Additional analyses can be performed to determine the sheetpile penetration if necessary.

15. After completion of the new concrete floodwall, a strut should be intalled between the base of the floodwall and the outer row of sheetpiles. Design of the strut, floodwall and outer row of sheetpiles should be based on a horizontal force of 2.6 kips per linear foot. The water level between the inner and outer rows of sheetpiles can then be lowered to el 16.0 C.D. to complete installation of the discharge pipes.

16. After the water level is allowed to equalize, the strut can be removed and the outer row of sheetpiles can be driven to a deeper depth. This additional driving may cause vibrations and jetting may be required. It is important that the design of the concrete floodwall for hurricane conditions include a horizontal force of 1 kip per linear foot applied at el 22.5, due to the water pressure acting on the inner row of sheetpiles.

17. New/Future Pumps and Discharge Tubes. Furnished plans show that, on the west side of the pump station, a new pump and discharge tube will be installed and provisions will be made for a future pump and discharge tube. Excavation for construction of these foundations will require installation of a sheetpile bulkhead and a well point dewatering system for stability of the excavation. It is understood that the ground surface behind the bulkhead will be degraded to el 24 C.D. for a distance of at least 40 feet from the bulkhead and a temporary sheetpile floodwall will be installed to provide flood protection during the construction period. Results of the bulkhead and floodwall analyses are shown on Figures 18 and 19, respectively. It should be noted that a concrete slab placed at the bottom of the excavation should be designed to resist a horizontal force of 2.5 kips per linear foot that may be subsequently imposed by the sheetpiles.

18. Enlargement of the Intake Basin. Planned enlargement of the intake basin will require construction of new

bulkheads on the east and west sides of the basin and extension of the pile-supported concrete bottom slab. A well point dewatering system should be installed behind the new bulkheads to prevent a blow-out and/or heaving of the bottom of the basin. Results of the analyses of the bulkhead along the east side of the intake basin are shown on Figure 20. Results of analyses for two alternate configurations of the bulkhead along the west side of the intake basin are shown on Figures 21 and 22. It should be noted that the sheetpiles may impose a horizontal force against the bottom slab and, therefore, the slab should be designed to resist this horizontal force.

19. Enlargement of the Discharge Basin. Plans for enlargement of the discharge basin show that construction is confined to the west side. Considering that the normal water level will be maintained during installation of the new bulkhead, dewatering of the underlying sand stratum is not required. Results of the computations are shown on Figure 23.

Pile Foundations

20. Treated Class "B" timber piles may be used to support the new concrete floodwall (see Figure 17) and untreated Class "B" timber piles may be used to support the extension of the concrete bottom in the intake basin. A minimum butt and tip diameter of 12 and 7 inches, respectively, should be specified for timber piles. Steel "H" piles should be selected as anchor piles for support of all new bulkheads (see Figures 18 through 23).

21. Estimated allowable pile load capacities are based on a soil-pile relationship. The structural capacity of piles and/or connections to transmit the loads must be determined by others. Particular consideration should be given to the connection between steel "H" anchor piles and the sheet-piles (or walers) to transmit the required tension loads.

22. Allowable Pile Load Capacity. It is understood that treated Class "B" timber piles driven vertically and on a batter will be used to support the new concrete floodwall (see Figure 17). An allowable axial pile load capacity of 15 tons may be used for piles driven vertically and an allowable vertical component of 15 tons may be used for piles driven on a batter. Assuming these piles can be driven without the aid of jeeting to reduce vibrations, they should be driven to a resistance of 25 to 30 blows per foot in the underlying dense sand. It is estimated that the required driving resistance may be encountered at approximately el -8 C.D. If jetting is necessary to reduce vibrations during driving operations, vertical and battered timber piles should be driven to a tip embedment to el -13 C.D., to compensate for the effects of jetting. Estimated allowable pile load capacities for various lengths of untreated Class "B" timber piles for support of the new bottom slab are shown in the form of pile capacity curves on Figure 24. The estimated allowable vertical component of steel "H" piles driven on a batter are shown in the form of pile capacity curves on Figure 25. Steel "H" piles should be

used to provide the necessary anchor force to support the new bulkheads shown on Figures 18 through 23. All estimated pile load capacities include a factor of safety of approximately 2 against actual failure of the pile through the soil.

23. Capacity and Spacing of Pile Groups. Except for treated Class "B" timber piles supporting the new concrete floodwall, all piles will derive a majority of their supporting capacity through skin friction. When skin friction piles are driven in groups or clusters, a reduction of the single pile load capacity for group action may be necessary. The supporting value of individual piles in a group can be determined by use of the group perimeter shear formula shown on Figure 26. The maximum center to center spacing between piles in a group should be determined by the formula shown on Figure 26 but should not be less than 3 pile diameters. Greater spacing than the minimum may be required to satisfy group perimeter shear.

24. Estimated Settlement. It is estimated that settlement of pile supported foundations should be small and should not exceed 0.25 to 0.5 of an inch.

25. Pile Driving. Timber piles, steel "H" piles and steel sheetpiles should be driven with a steam or air hammer delivering 15,000 ft-lb of energy per blow. Timber piles should not be driven to a resistance greater than 25 to 30 blows per foot to minimize the possibility of damage to the piles. Preboring and/or jetting will probably be required to reduce the level of vibration transmitted during driving operations.

It is important that monitoring devices be established on all adjacent structures to monitor the intensity and effect of vibrations throughout all pile driving operations.

26. It will be necessary to prebore all untreated timber piles for support of the bottom slab constructed in the intake basin to reduce vibrations and to obtain the required embedment. Preboring should be accomplished using a "fishtail" bit and wet rotary methods. The diameter of the prebored hole should not exceed 6 inches and the hole should extend only to the elevation necessary to penetrate the underlying sand stratum.

27. The contractor should be prepared to "jet" all treated timber piles for support of the new concrete floodwall, all steel "H" anchor piles and all steel sheetpiles to reduce the intensity of vibrations during driving operations. If required, jetting operations should be concurrent with pile driving and should be only that which is necessary to reduce the intensity of vibrations to a permissible level. Jetting and/or the effects of jetting should not extend below the pile tip elevation at any time during or after completion of pile driving operations.

Dewatering

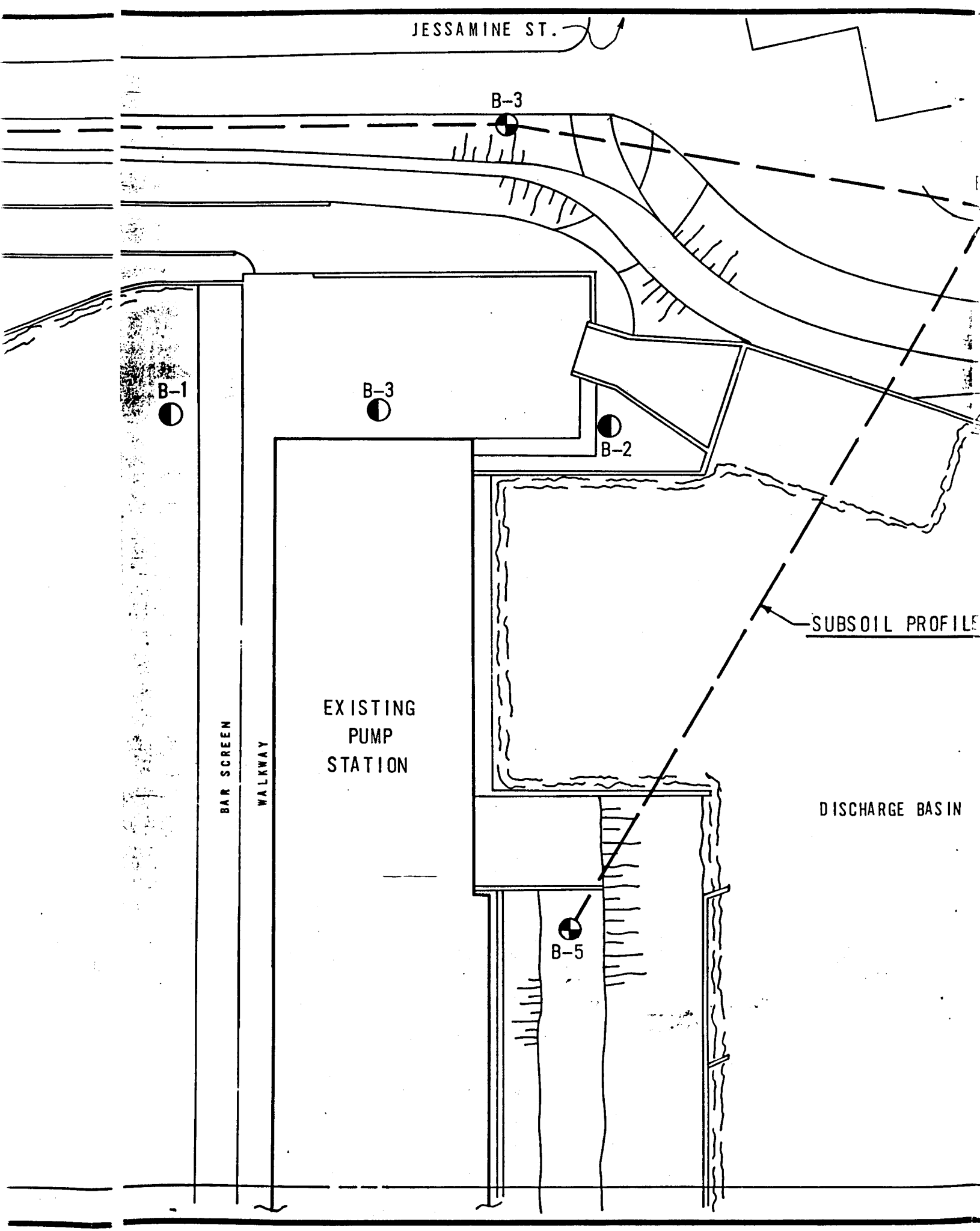
28. A well point dewatering system is required to prevent heaving and/or a blowout of the excavation adjacent to the new sheetpiles along the intake basin and pump station (see Figures 18, 20, 21 and 22). The system should be designed

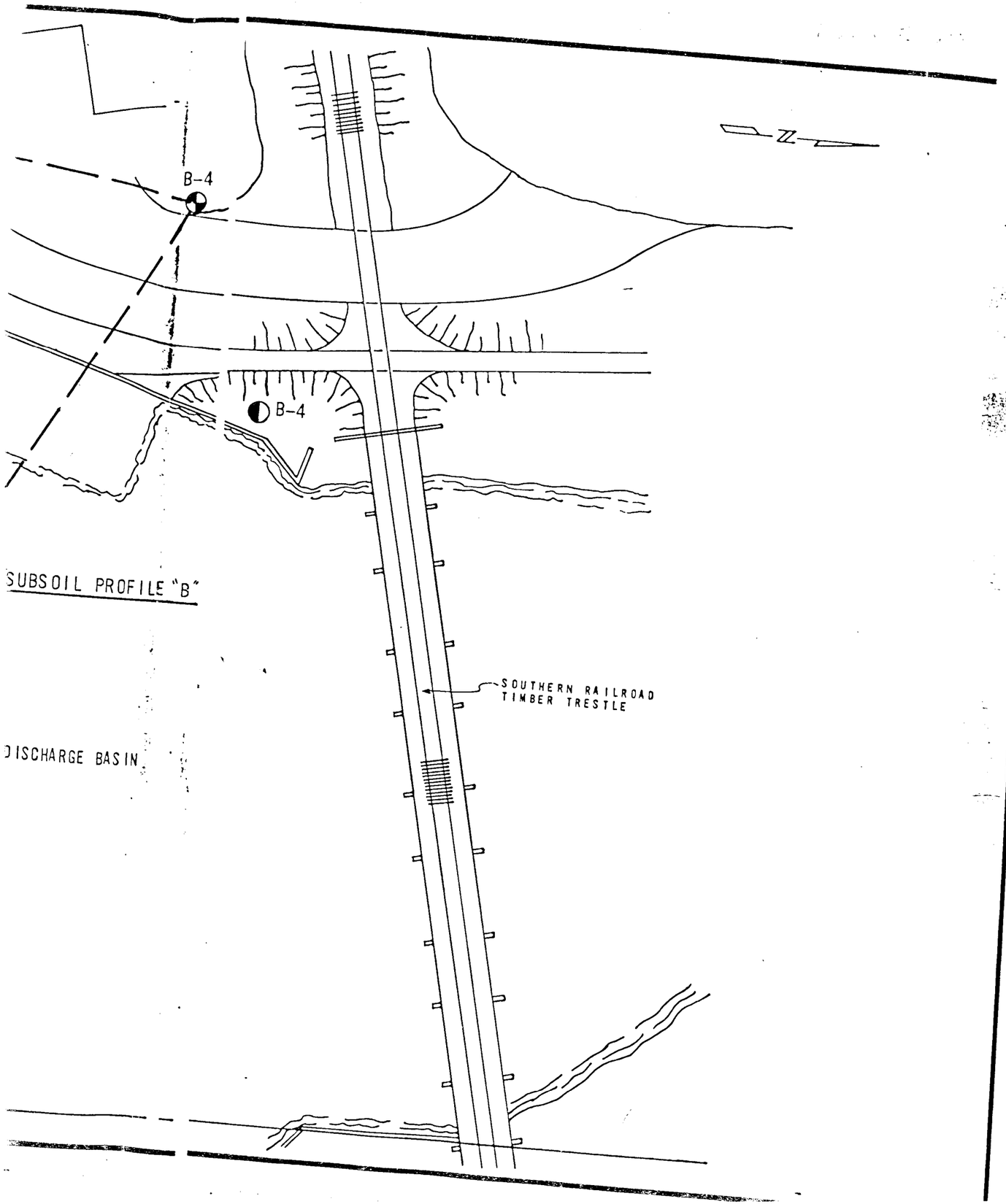
and installed by a contractor qualified and experienced in the field.

EUSTIS ENGINEERING COMPANY

By _____
Lloyd A. Held, Jr.

L. J. Napolitano:ea


JESSAMINE ST.
B-3
B-1
B-3
B-2
SUBSOIL PROFILE
EXISTING
PUMP
STATION
BAR SCREEN
WALKWAY
DISCHARGE BASIN
B-5



SCALE: 1"=30'

LEGEND

◒ DENOTES BORINGS DRILLED 16-19 AUGUST & 14-19 OCTOBER 1982.

◐ DENOTES BORINGS DRILLED PREVIOUS INVESTIGATION.

GEOTECHNICAL INVESTIGATION
SEWERAGE AND WATER BOARD OF NEW ORLEANS
PROPOSED ADDITIONS TO DRAINAGE PUMPING STATION NO.6
ORLEANS PARISH, LOUISIANA

LOCATION OF BORINGS

FOR
BURK & ASSOCIATES, INC.
ENGINEERS, PLANNERS, ENVIRONMENTAL SCIENTISTS
NEW ORLEANS, LOUISIANA

EUSTIS ENGINEERING COMPANY
SOIL AND FOUNDATION

℄ NARSISUS ST.

℄ HYACINTH ST.

373.3'

ORPHEUM AVE.

B-6

EXISTING LEVEE

ORPHEUM AVE.

B-2

B-1

SHELL ROAD

B-1

INTAKE BASIN

LIFT SCREEN

BRIDGE

BAR SCREEN

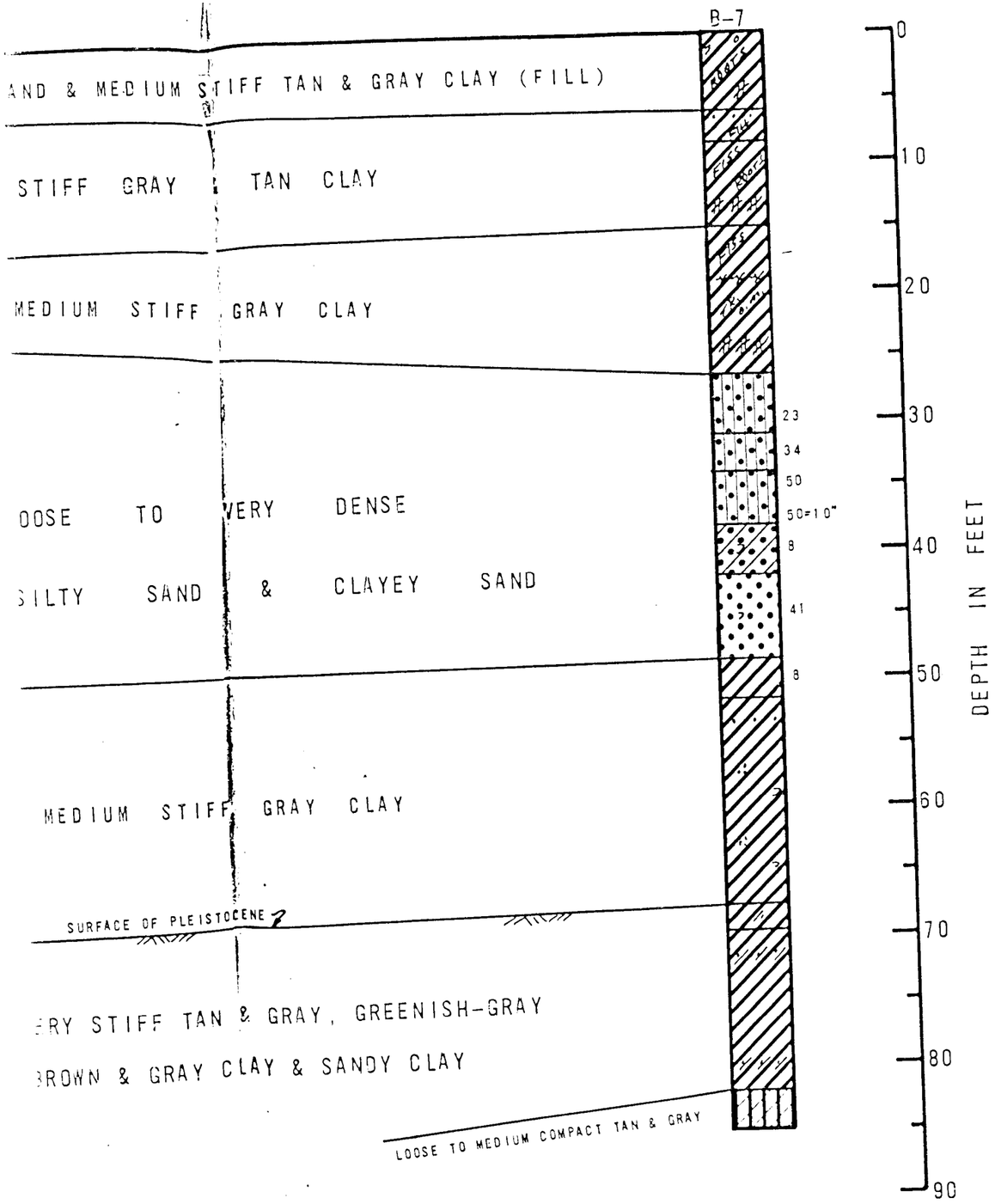
SUBSOIL PROFILE 'A'

METAIRIE RELIEF CANAL

B-7

JEFFERSON PARISH

ORLEANS PARISH



SOIL PROFILE "A"

R. SCALE: 1"=60'

GENERAL NOTES

WHILE THE INDIVIDUAL LOGS OF BORINGS ARE CONSIDERED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT THEIR RESPECTIVE LOCATIONS ON THE DATES SHOWN, IT IS NOT WARRANTED THAT THEY ARE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES. THEREFORE, THE SUBSOIL STRATIFICATION SHOWN ON THIS PROFILE IS NOT WARRANTED BUT IS ESTIMATED BASED ON ACCEPTED SOIL ENGINEERING PRINCIPLES AND PRACTICES.

LEGEND

CLAY SILT SAND HUMUS OR ORGANIC

PREDOMINATE TYPE SHOWN HEAVY.
MODIFYING TYPE SHOWN LIGHT

FIGURES BESIDE BORINGS INDICATE NUMBER OF BLOWS OF 140-LB. HAMMER DROPPED 30-INCHES REQUIRED TO DRIVE A 2-INCH DIA. SPLIT-SPOON SAMPLER 1-FOOT AFTER FIRST BEING SEATED 6-INCHES (STANDARD PENETRATION TEST)

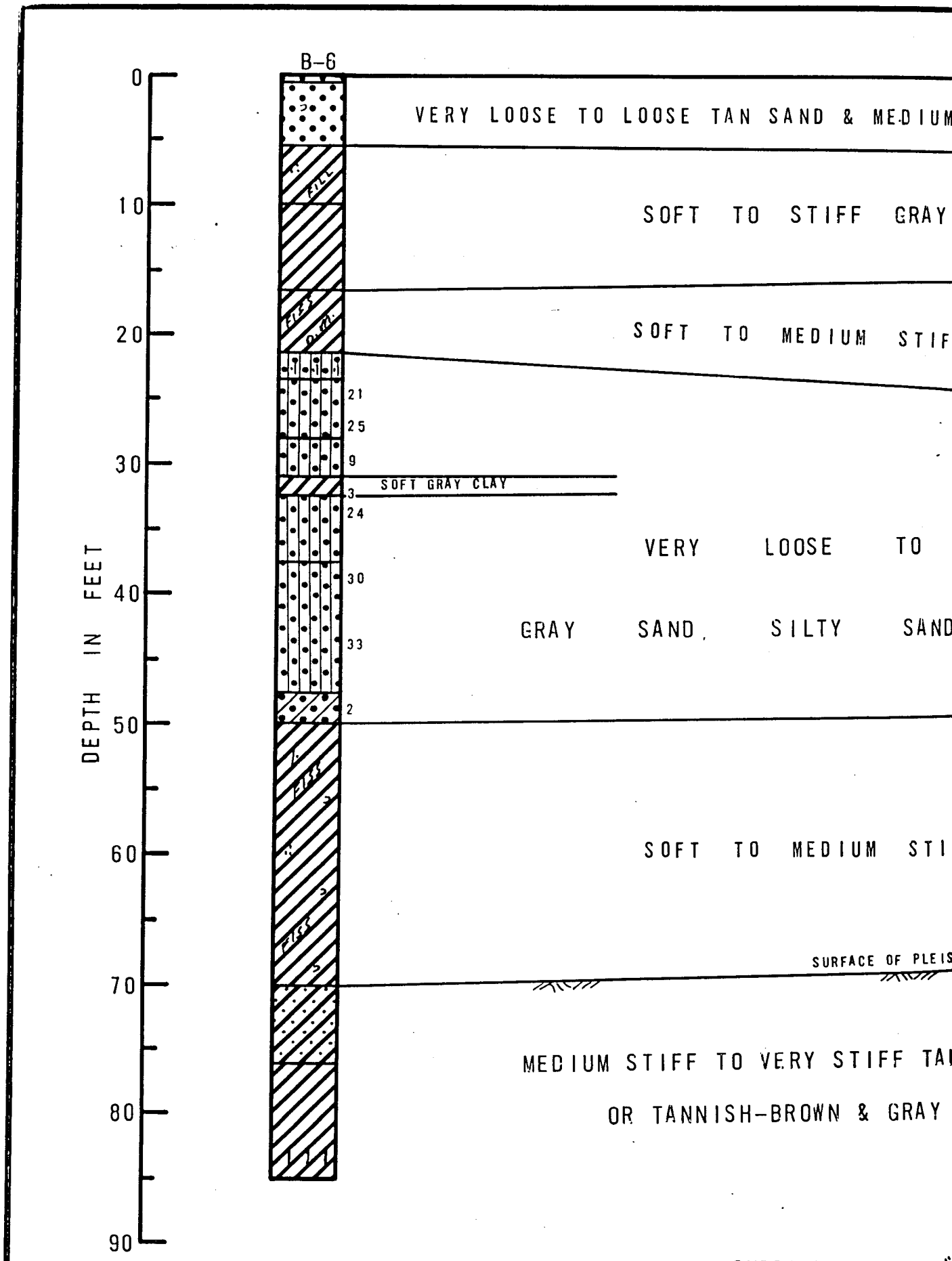
GEOTECHNICAL INVESTIGATION
SEWERAGE AND WATER BOARD OF NEW ORLEANS
PROPOSED ADDITIONS TO DRAINAGE PUMPING STATION NO.6
ORLEANS PARISH, LOUISIANA

SUBSOIL PROFILE

FOR
BURK & ASSOCIATES, INC.
ENGINEERS, PLANNERS, ENVIRONMENTAL SCIENTISTS
NEW ORLEANS, LOUISIANA

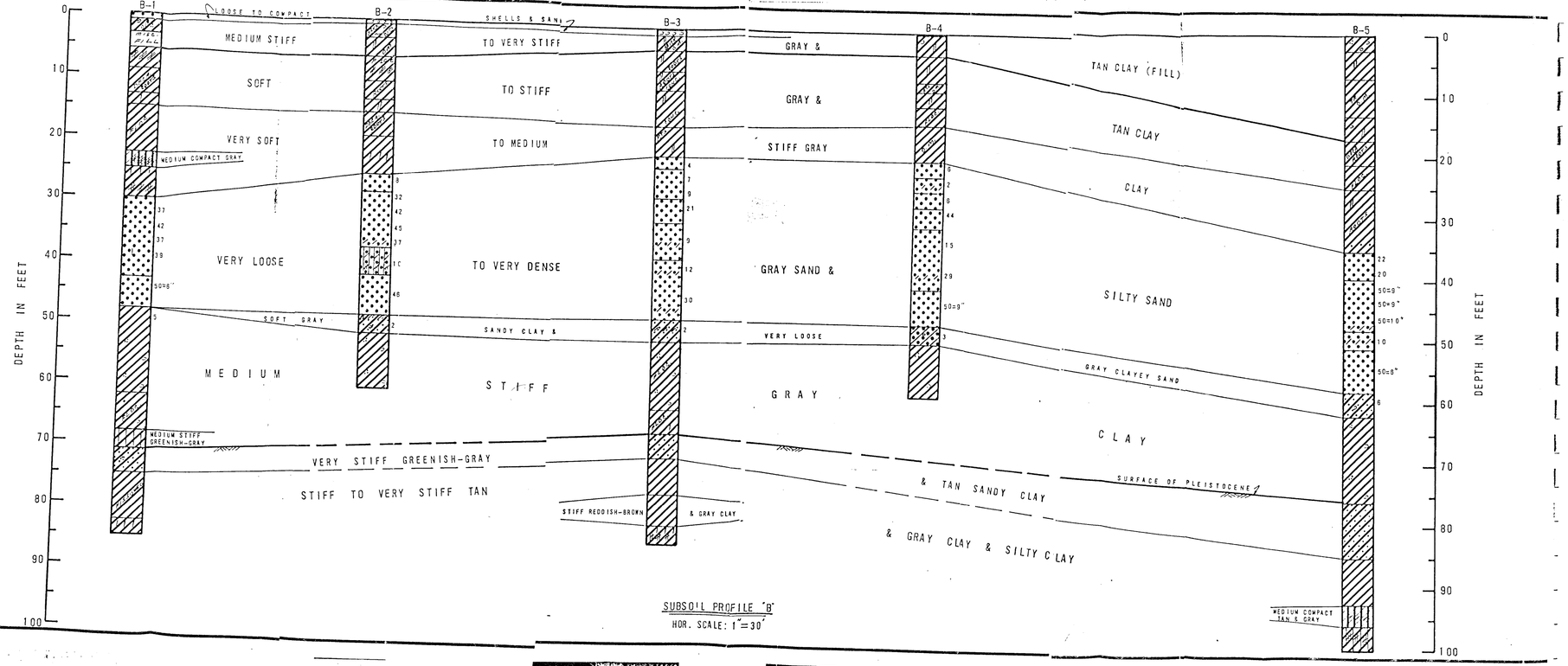
EUSTIS ENGINEERING COMPANY
SOIL AND FOUNDATION CONSULTANTS
NOVEMBER 1982 METAIRIE LA.

FIGURE 2



SUBSOIL PROFILE "

HOR. SCALE: 1"=60'



SUBSOIL PROFILE "B"
HOR. SCALE: 1"=30'

GENERAL NOTES

WHILE THE INDIVIDUAL LOGS OF BORINGS ARE CONSIDERED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT THEIR RESPECTIVE LOCATIONS ON THE DATES SHOWN, IT IS NOT WARRANTED THAT THEY ARE REPRESENTATIVE OF SUB-SURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES. THEREFORE, THE SUBSOIL STRATIFICATION SHOWN ON THIS PROFILE IS NOT WARRANTED BUT IS ESTIMATED BASED ON ACCEPTED SOIL ENGINEERING PRINCIPLES AND PRACTICES.

LEGEND

CLAY SILT SAND HUMUS OR ORGANIC

PREDOMINATE TYPE SHOWN HEAVY.
MODIFYING TYPE SHOWN LIGHT.

FIGURES BESIDE BORINGS INDICATE NUMBER OF BLOWS OF 140-LB. HAMMER DROPPED 30-INCHES REQUIRED TO DRIVE A 2-INCH DIA. SPLIT-SPOON SAMPLER 1-FOOT AFTER FIRST BEING SEATED 6-INCHES (STANDARD PENETRATION TEST)

GEOTECHNICAL INVESTIGATION
SEWERAGE AND WATER BOARD OF NEW ORLEANS
PROPOSED ADDITIONS TO DRAINAGE PUMPING STATION NO.6
ORLEANS PARISH, LOUISIANA

SUBSOIL PROFILE

FOR
BURK & ASSOCIATES, INC.
ENGINEERS, PLANNERS, ENVIRONMENTAL SCIENTISTS
NEW ORLEANS, LOUISIANA

EUSTIS ENGINEERING COMPANY
SOIL AND FOUNDATION CONSULTANTS
NOVEMBER 1982 METAIRIE, LA.

LOG OF BORING

EUSTIS ENGINEERING COMPANY
SOIL AND FOUNDATION CONSULTANTS
METAIRIE LA

Sheet 1 of 2

Name of Project: Sewerage & Water Board of New Orleans
Proposed Additions to Drainage Pumping Station No. 6, New Orleans, La.
For: Burk & Associates, Inc.
Engineers, Planners & Environmental Scientists, New Orleans, Louisiana

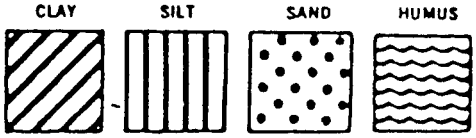
Boring No. 1 Soil Technician George Hardee Date 18 August 1982
Ground Elev. 22.5 (est.) Datum Cairo Gr. Water Depth See Text

Sample No.	SAMPLE Depth — Feet From	To	DEPTH STRATUM Feet From	To	VISUAL CLASSIFICATION	*STANDARD PENETRATION TEST	
			0.0	1.0	Loose gray fine sand		
1	2.0	2.5	1.0	3.0	Stiff to very stiff gray & tan clay w/shells, organic matter & sand pockets		
2	5.0	5.5	3.0	5.5	Miscellaneous fill (Shells, cinders, clay pockets, silt, etc.)		
3	8.0	8.5	5.5	9.0	Stiff gray & tan clay w/silty clay layers		
4	11.0	11.5	9.0	13.0	Medium stiff gray & tan clay w/decayed roots		
5	14.0	14.5	13.0	15.0	Medium stiff gray & tan clay w/trace of silt		
6	18.5	19.0	15.0	22.5	Very soft gray flocculated clay		
7	23.5	24.0	22.5	25.0	Medium compact gray clayey silt w/silty clay layers		
8	28.5	29.0	25.0	30.0	Soft gray clay w/silt & clayey silt lenses		
9	31.0	32.5	30.0		Dense gray fine sand	8	37
10	33.5	35.0			Ditto	9	42
11	36.0	37.5			Ditto	8	37
12	38.5	40.0		43.0	Dense gray fine sand w/silt	12	39
13	43.5	45.0	43.0	48.0	Very dense gray fine sand	18	50=6"
14	48.5	50.0	48.0	52.0	Medium stiff gray clay	1	5
15	53.5	54.0	52.0		Medium stiff gray clay w/sand pockets & shell fragments		
16	58.5	59.0		62.0	Ditto		

*Number in first column indicates number of blows of 140-lb. hammer dropped 30 in. required to seat 2-in. O. D. splitspoon sampler 6 in. Number in second column indicates number of blows of 140-lb. hammer dropped 30 in. required to drive 2-in. O. D. splitspoon sampler 1 ft. after seating 6 in.

WHILE THIS LOG OF BORING IS CONSIDERED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT ITS RESPECTIVE LOCATION ON THE DATE SHOWN, IT IS NOT WARRANTED THAT IT IS REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

Remarks:



Predominant type shown heavy. Modifying type shown light.

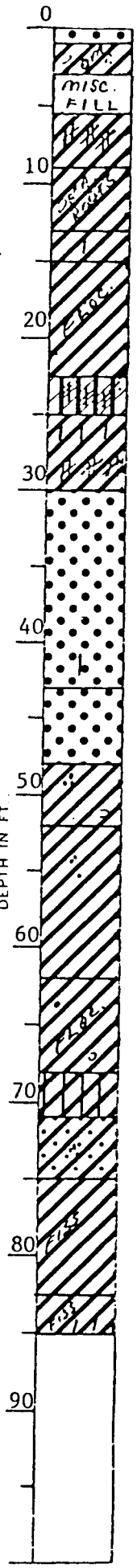


Fig. 4

LOG OF BORING

EUSTIS ENGINEERING COMPANY
SOIL AND FOUNDATION CONSULTANTS
METAIRIE, LA

Name of Project: Sewerage & Water Board of New Orleans
Proposed Additions to Drainage Pumping Station No. 6, New Orleans, La.
For: Burk & Associates, Inc.
Engineers, Planners & Environmental Scientists, New Orleans, Louisiana

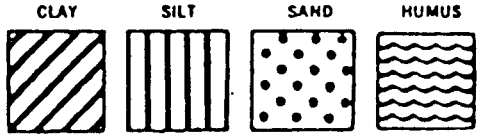
Boring No. 1 (Cont'd) Soil Technician George Hardee Date 18 August 1982
Ground Elev. 22.5 (est.) Datum Cairo Gr. Water Depth See Text

Sample No.	SAMPLE Depth — Feet From	To	DEPTH STRATUM Feet From	To	VISUAL CLASSIFICATION	*STANDARD PENETRATION TEST	
17	63.5	64.0	62.0	68.0	Medium stiff gray flocculated clay		
					w/trace of sand & shell fragments		
18	68.5	69.0	68.0	71.0	Medium stiff greenish-gray silty clay		
19	73.5	74.0	71.0	75.0	Very stiff greenish-gray & tan sandy		
					clay w/sand pockets		
20	78.5	79.0	75.0	82.5	Very stiff tan & gray fissured clay		
21	83.5	84.0	82.5	85.0	Stiff gray & tan fissured clay w/silt		
					lenses		

DEPTH IN FT

*Number in first column indicates number of blows of 140-lb. hammer dropped 30 in. required to seat 2-in. O. D. splitspoon sampler 6 in. Number in second column indicates number of blows of 140-lb. hammer dropped 30 in. required to drive 2-in O. D. splitspoon sampler 1 ft. after seating 6 in.

WHILE THIS LOG OF BORING IS CONSIDERED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT ITS RESPECTIVE LOCATION ON THE DATE SHOWN, IT IS NOT WARRANTED THAT IT IS REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.



Predominant type shown heavy. Modifying type shown light.

Remarks: _____

Fig. 4

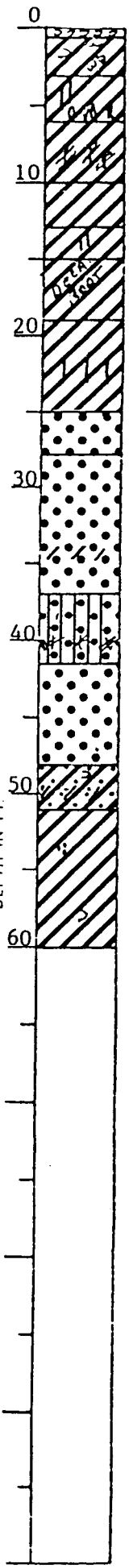
LOG OF BORING

EUSTIS ENGINEERING COMPANY
SOIL AND FOUNDATION CONSULTANTS
METAIRIE, LA

Name of Project: Sewerage & Water Board of New Orleans
Proposed Additions to Drainage Pumping Station No. 6, New Orleans, La.
For: Burk & Associates, Inc.
Engineers, Planners & Environmental Scientists, New Orleans, Louisiana

Boring No. 2 Soil Technician George Hardee Date 19 August 1982
Ground Elev. 22.5 (est.) Datum Cairo Gr. Water Depth See Text

Sample No.	SAMPLE Depth — Feet From	To	DEPTH STRATUM Feet From	To	VISUAL CLASSIFICATION	*STANDARD PENETRATION TEST	
			0.0	0.7	Compact shells w/sand & clay pockets		
1	2.5	3.0	0.7	3.0	Stiff gray clay w/bricks, shells, humus & wood		
2	5.0	5.5	3.0	6.0	Medium stiff gray clay w/silt pockets & organic matter		
3	8.0	8.5	6.0	10.0	Medium stiff gray & tan flocculated clay w/silty clay layers		
4	11.0	11.5	10.0	13.0	Medium stiff gray & tan clay w/roots		
5	14.0	14.5	13.0	15.0	Stiff gray & tan clay w/silt pockets		
6	18.5	19.0	15.0	19.0	Medium stiff gray clay w/decayed roots		
7	23.5	24.0	19.0	25.0	Soft gray clay w/silt lenses		
8	25.0	26.5	25.0	28.0	Loose gray fine sand	2	8
9	27.5	29.0	28.0		Dense gray fine sand	6	32
10	30.0	31.5			Ditto	8	42
11	32.5	34.0			Ditto	10	45
12	35.0	36.5		37.0	Dense gray fine sand w/clay layers	5	37
13	38.5	40.0	37.0	41.5	Loose gray silty sand w/clay & clayey silt layers	3	10
14	43.5	45.0	41.5	48.0	Dense gray fine sand	15	46
15	48.5	50.0	48.0	51.0	Soft gray sandy clay w/clayey sand layers & shell fragments	1	2
16	53.5	54.0	51.0		Medium stiff gray clay w/sand pockets & shell fragments		
17	58.5	59.0		60.0	Ditto		



*Number in first column indicates number of blows of 140-lb. hammer dropped 30 in. required to seat 2-in. O. D. splitspoon sampler 6 in. Number in second column indicates number of blows of 140-lb. hammer dropped 30 in. required to drive 2-in. O. D. splitspoon sampler 1 ft. after seating 6 in.

WHILE THIS LOG OF BORING IS CONSIDERED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT ITS RESPECTIVE LOCATION ON THE DATE SHOWN, IT IS NOT WARRANTED THAT IT IS REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

CLAY SILT SAND HUMUS

Predominant type shown heavy. Modifying type shown light.

Remarks:

Fig. 5

LOG OF BORING

EUSTIS ENGINEERING COMPANY

SOIL AND FOUNDATION CONSULTANTS

METAIRIE, LA

Name of Project: Sewerage & Water Board of New Orleans

Proposed Additions to Drainage Pumping Station No. 6, New Orleans, La.

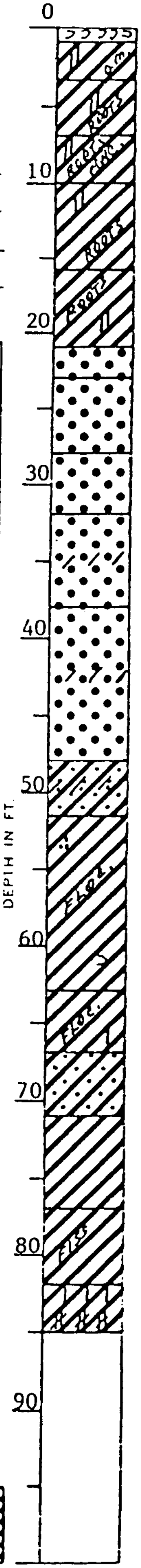
For: Burk & Associates, Inc.

Engineers, Planners & Environmental Scientists, New Orleans, Louisiana

Boring No. 3 Soil Technician George Hardee Date 17 August 1982

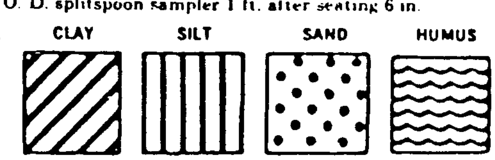
Ground Elev. 22.5 (est.) Datum Cairo Gr. Water Depth See Text

Sample No.	SAMPLE Depth — Feet From	To	DEPTH STRATUM Feet From	To	VISUAL CLASSIFICATION	*STANDARD PENETRATION TEST	
			0.0	1.0	Medium compact shells w/sand & clay pockets		
1	2.0	2.5	1.0	3.5	Stiff tan & gray clay w/silt pockets, brick fragments & organic matter		
2	5.0	5.5	3.5	7.0	Soft gray & tan clay w/silt pockets & roots		
3	8.0	8.5	7.0	10.0	Medium stiff gray & tan clay w/silt pockets, roots & concretions		
4	11.0	11.5	10.0		Medium stiff gray & tan clay w/silt pockets		
5	14.0	14.5		16.0	Medium stiff gray & tan clay w/large roots		
6	18.5	19.0	16.0	21.0	Soft gray clay w/roots & silt pockets		
7	21.0	22.5	21.0	23.0	Very loose gray fine sand	2	4
8	23.5	25.0	23.0		Loose gray fine sand	4	7
9	26.0	27.5		28.0	Ditto	3	9
10	28.5	30.0	28.0	32.0	Medium dense gray fine sand	7	21
11	33.5	35.0	32.0	38.0	Loose gray fine sand w/clay layers	4	9
12	38.5	40.0	38.0		Medium dense gray fine sand w/clay layers	5	12
13	43.5	45.0		48.0	Medium dense gray fine sand	12	30
14	48.5	50.0	48.0	51.5	Soft gray sandy clay w/clayey sand layers	1	2
15	53.5	54.0	51.5		Medium stiff gray flocculated clay w/sand pockets & shell fragments		
16	58.5	59.0		63.0	Ditto		



*Number in first column indicates number of blows of 140-lb. hammer dropped 30 in. required to seat 2-in. O. D. splitspoon sampler 6 in. Number in second column indicates number of blows of 140-lb. hammer dropped 30 in. required to drive 2-in. O. D. splitspoon sampler 1 ft. after seating 6 in.

WHILE THIS LOG OF BORING IS CONSIDERED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT ITS RESPECTIVE LOCATION ON THE DATE SHOWN, IT IS NOT WARRANTED THAT IT IS REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.



Remarks:

Predominant type shown heavy. Modifying type shown light.

Fig. 6

LOG OF BORING

EUSTIS ENGINEERING COMPANY
SOIL AND FOUNDATION CONSULTANTS
METAIRIE, LA.

Name of Project: Sewerage & Water Board of New Orleans
Proposed Additions to Drainage Pumping Station No. 6, New Orleans, La.
For: Burk & Associates, Inc.
Engineers, Planners & Environmental Scientists, New Orleans, Louisiana

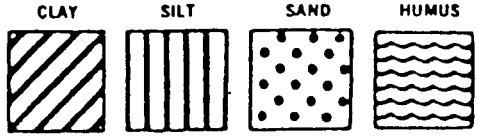
Boring No. 3 Soil Technician George Hardee Date 17 August 1982
Ground Elev. (Cont'd) 22.5 (est.) Datum Cairo Gr. Water Depth See Text

Sample No.	SAMPLE Depth — Feet From	To	DEPTH STRATUM Feet From	To	VISUAL CLASSIFICATION	*STANDARD PENETRATION TEST	
17	63.5	64.0	63.0	67.0	Medium stiff gray flocculated clay		
					w/trace of silt		
18	68.5	69.0	67.0	71.0	Stiff greenish-gray & tan sandy clay		
19	73.5	74.0	71.0	77.0	Very stiff tan & gray clay		
20	78.5	79.0	77.0	82.0	Stiff reddish-brown & gray fissured		
					clay		
21	83.5	84.0	82.0	85.0	Very stiff tan & gray clay w/silt		
					lenses & clayey silt layers		

DEPTH IN FT.

*Number in first column indicates number of blows of 140-lb. hammer dropped 30 in. required to seat 2-in. O. D. splitspoon sampler 6 in. Number in second column indicates number of blows of 140-lb. hammer dropped 30 in. required to drive 2-in. O. D. splitspoon sampler 1 ft. after seating 6 in.

WHILE THIS LOG OF BORING IS CONSIDERED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT ITS RESPECTIVE LOCATION ON THE DATE SHOWN, IT IS NOT WARRANTED THAT IT IS REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.



Predominant type shown heavy. Modifying type shown light.

Remarks:

Fig. 6

LOG OF BORING

EUSTIS ENGINEERING COMPANY
SOIL AND FOUNDATION CONSULTANTS
METAIRIE, LA.

Name of Project: Sewerage & Water Board of New Orleans

Proposed Additions to Drainage Pumping Station No. 6, New Orleans, La.

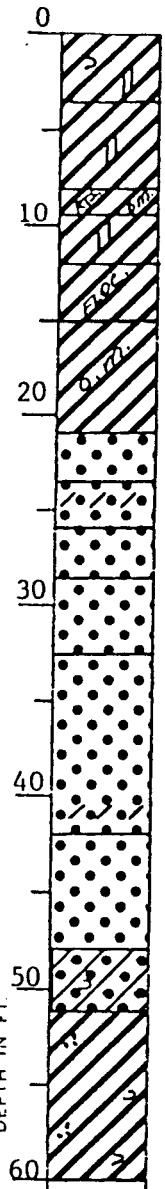
For: Burk & Associates, Inc.

Engineers, Planners & Environmental Scientists, New Orleans, Louisiana

Boring No. 4 Soil Technician George Hardee Date 17 August 1982

Ground Elev. 24.0 (est.) Datum Cairo Gr. Water Depth See Text

Sample No.	SAMPLE Depth — Feet From	To	DEPTH STRATUM Feet From	To	VISUAL CLASSIFICATION	*STANDARD PENETRATION TEST	
1	2.0	2.5	0.0	3.5	Stiff tan & gray clay w/shells & silt pockets		
2	5.0	5.5	3.5	8.0	Medium stiff gray & tan clay w/silt pockets		
3	8.0	8.5	8.0	9.5	Medium stiff gray clay w/roots & organic matter		
4	11.0	11.5	9.5	12.0	Medium stiff gray & tan clay w/silt pockets		
5	14.0	14.5	12.0	15.0	Stiff gray & tan flocculated clay		
6	18.5	19.0	15.0	21.0	Medium stiff gray clay w/organic matter		
7	21.0	22.5	21.0	23.5	Loose gray fine sand	3	6
8	23.5	25.0	23.5	26.0	Very loose gray fine sand w/clay layers	2	2
9	26.0	27.5	26.0	28.5	Loose gray fine sand	2	6
10	28.5	30.0	28.5	32.0	Dense gray fine sand	3	44
11	33.5	35.0	32.0		Medium dense gray fine sand	5	15
12	38.5	40.0		42.0	Medium dense gray fine sand w/clay layers	3	29
13	43.5	45.0	42.0	48.0	Very dense gray fine sand	18	50=9"
14	48.5	50.0	48.0	51.0	Very loose gray clayey sand w/shell fragments	2	3
15	53.5	54.0	51.0		Medium stiff gray clay w/sand pockets & shell fragments		
16	58.5	59.0		60.0	Ditto		



*Number in first column indicates number of blows of 140-lb. hammer dropped 30 in. required to seat 2-in. O. D splitspoon sampler 6 in. Number in second column indicates number of blows of 140-lb. hammer dropped 30 in. required to drive 2-in. O. D. splitspoon sampler 1 ft. after seating 6 in.

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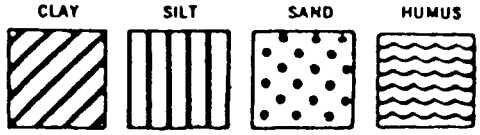


Predominant type shown heavy. Modifying type shown light.

Remarks: _____

Fig. 7

LOG OF BORING

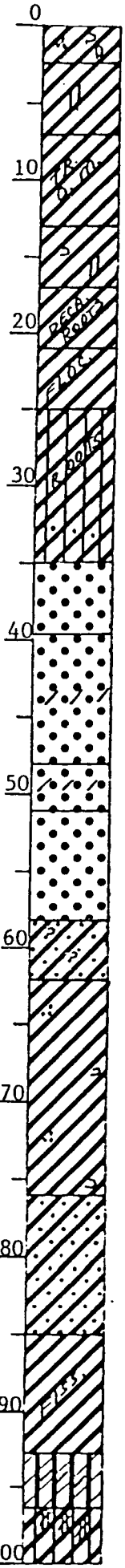
EUSTIS ENGINEERING COMPANY
SOIL AND FOUNDATION CONSULTANTS
METAIRIE, LA

Sheet 1 of 2

Name of Project: Sewerage & Water Board of New Orleans
Proposed Additions to Drainage Pumping Station No. 6, New Orleans, La.
For: Burk & Associates, Inc,
Engineers, Planners & Environmental Scientists, New Orleans, Louisiana

Boring No. 5 Soil Technician George Hardee Date 16 August 1982
Ground Elev. 32.0 (est.) Datum Cairo Gr. Water Depth See Text

Sample No.	SAMPLE Depth — Feet From	To	DEPTH STRATUM Feet From	To	VISUAL CLASSIFICATION	*STANDARD PENETRATION TEST	
1	2.0	2.5	0.0	2.5	Stiff gray & tan clay w/sand pockets,		
					shells & gravel		
2	5.0	5.5	2.5	7.0	Medium stiff gray & tan clay w/silt		
					pockets		
3	8.0	8.5	7.0		Medium stiff gray & tan clay w/trace		
					of organic matter		
4	11.0	11.5		13.0	Ditto		
5	14.0	14.5	13.0	17.0	Medium stiff gray & tan clay w/shell		
					fragments & silt pockets		
6	18.5	19.0	17.0	21.0	Medium stiff gray & tan clay w/decayed		
					roots		
7	23.5	24.0	21.0	25.0	Medium stiff gray & tan flocculated		
					clay		
8	28.5	29.0	25.0		Soft gray silty clay w/roots		
9	33.5	34.0		35.0	Soft gray silty clay w/sand lenses		
10	35.0	36.5	35.0		Medium dense gray fine sand	6	22
11	37.5	39.0		39.5	Ditto	8	20
12	40.0	41.5	39.5		Very dense gray fine sand	19	50=9"
13	42.5	44.0			Ditto	15	50=9"
14	45.0	46.5		48.0	Very dense gray fine sand w/clay layers	5	50=10"
15	48.5	50.0	48.0	51.0	Loose gray fine sand w/clay layers	2	10
16	53.5	55.0	51.0	58.0	Very dense gray fine sand	24	50=6"
17	58.5	60.0	58.0	62.0	Soft gray sandy clay w/shell fragments	1	6
18	63.5	64.0	62.0		Medium stiff gray clay w/sand pockets &		
					shell fragments		
19	68.5	69.0			Ditto		



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WHILE THIS LOG OF BORING IS CONSIDERED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT ITS RESPECTIVE LOCATION ON THE DATE SHOWN, IT IS NOT WARRANTED THAT IT IS REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

CLAY SILT SAND HUMUS

Predominant type shown heavy. Modifying type shown light.

Remarks:

Fig. 8

LOG OF BORING

EUSTIS ENGINEERING COMPANY
SOIL AND FOUNDATION CONSULTANTS
METAIRIE, LA.

Name of Project: Sewerage & Water Board of New Orleans
Proposed Additions to Drainage Pumping Station No. 6, New Orleans, La.
For: Burk & Associates, Inc.
Engineers, Planners & Environmental Scientists, New Orleans, Louisiana

Boring No. 5 (Cont'd) Soil Technician George Hardee Date 16 August 1982
Ground Elev. 32.0 (est.) Datum Cairo Gr. Water Depth See Text

Sample No.	SAMPLE Depth — Feet From	To	DEPTH STRATUM Feet From	To	VISUAL CLASSIFICATION	*STANDARD PENETRATION TEST	
20	73.5	74.0		76.0	Medium stiff gray clay		
21	78.5	79.0	76.0		Very stiff greenish-gray & tan sandy		
					clay		
22	83.5	84.0		85.0	Ditto		
23	88.5	89.0	85.0	92.5	Stiff tan & gray fissured clay		
24	93.5	94.0	92.5	96.0	Medium compact tan & gray clayey silt		
					w/clay layers		
25	98.5	99.0	96.0	100.0	Stiff tan & gray silty clay w/clayey		
					silt layers		

DEPTH IN FT

*Number in first column indicates number of blows of 140-lb. hammer dropped 30 in. required to seat 2-in. O. D splitspoon sampler 6 in. Number in second column indicates number of blows of 140-lb. hammer dropped 30 in. required to drive 2-in. O. D. splitspoon sampler 1 ft. after seating 6 in.

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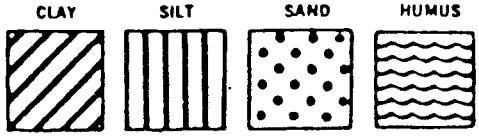

Remarks:

Fig. 8

LOG OF BORING

EUSTIS ENGINEERING COMPANY
SOIL AND FOUNDATION CONSULTANTS
METAIRIE, LA.

Name of Project: Sewerage & Water Board of New Orleans

Proposed Additions to Drainage Pumping Station No. 6, New Orleans, La.

For: Burk & Associates, Inc.

Engineers, Planners & Environmental Scientists, New Orleans, Louisiana

Boring No. 6 Soil Technician A. Croal, Jr. Date 14 October 1982

Ground Elev. 27.0 (est.) Datum Cairo Gr. Water Depth See Text

Sample No.	SAMPLE Depth — Feet From	To	DEPTH STRATUM Feet From	To	VISUAL CLASSIFICATION	*STANDARD PENETRATION TEST	
			0.0	0.6	Bituminous sand surface		
1	0.5	1.0	0.6		Very loose to loose tan sand w/few		
					shells		
2	4.0	4.5		5.5	Ditto		
3	6.5	7.0	5.5		Stiff gray & tan clay w/shell pockets		
					(Fill)		
4	8.5	9.0		10.0	Stiff gray & tan clay		
5	11.0	11.5	10.0		Medium stiff gray & tan clay		
6	14.0	14.5		16.5	Medium stiff gray & tan clay		
7	18.5	19.0	16.5	21.5	Medium stiff gray fissured clay with		
					organic matter		
8	22.5	23.0	21.5	23.5	Very loose to loose gray silty sand		
					w/sandy silt layers		
9	23.5	25.0	23.5		Medium dense gray silty sand	6	21
10	26.0	27.5		28.0	Ditto	9	25
11	28.5	30.0	28.0	31.0	Loose gray silty sand	2	9
12	31.0	32.5	31.0	32.5	Soft gray clay	3	3
13	32.5	34.0	32.5	37.5	Medium dense gray silty sand	6	24
14	37.5	39.0	37.5		Dense gray silty sand	10	30
15	42.5	44.0		47.5	Ditto	3	33
15A	47.5	49.0	47.5	50.0	Very loose gray clayey sand	2	2
16	53.5	54.0	50.0		Medium stiff gray fissured clay w/silty		
					sand pockets & shell fragments		
17	58.5	59.0			Medium stiff gray fissured clay w/few		
					fine sand pockets & shell fragments		
					(Continued)		

*Number in first column indicates number of blows of 140-lb. hammer dropped 30 in. required to seat 2-in. O. D. splitspoon sampler 6 in. Number in second column indicates number of blows of 140-lb. hammer dropped 30 in. required to drive 2-in. O. D. splitspoon sampler 1 ft. after seating 6 in.

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Remarks:

CLAY SILT SAND HUMUS

Predominant type shown heavy. Modifying type shown light.

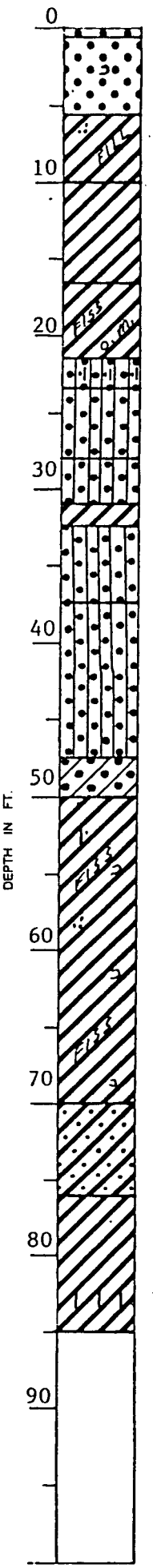

Fig. 9

LOG OF BORING

EUSTIS ENGINEERING COMPANY
SOIL AND FOUNDATION CONSULTANTS
METAIRIE, LA.

Name of Project: Sewerage & Water Board of New Orleans
Proposed Additions to Drainage Pumping Station No. 6, New Orleans, La.
For: Burk & Associates, Inc.
Engineers, Planners & Environmental Scientists, New Orleans, Louisiana

Boring No. 6 (Cont'd) Soil Technician A. Croal, Jr. Date 14 October 1982
Ground Elev. 27.0 (est.) Datum Cairo Gr. Water Depth See Text

Sample No.	SAMPLE Depth — Feet From	To	DEPTH STRATUM Feet From	To	VISUAL CLASSIFICATION	*STANDARD PENETRATION TEST	
18	63.5	64.0			Medium stiff gray fissured clay w/shell		
–					fragments		
19	68.5	69.0		70.0	Medium stiff gray fissured clay		
					w/few shell fragments		
20	73.5	74.0	70.0	76.0	Stiff greenish-gray sandy clay		
21	77.0	77.5	76.0		Very stiff tan-brown & gray clay		
22	82.0	82.5		85.0	Very stiff tan-brown & gray clay w/silt		
					lenses		

DEPTH IN FT.

*Number in first column indicates number of blows of 140-lb. hammer dropped 30 in. required to seat 2-in. O. D. splitspoon sampler 6 in. Number in second column indicates number of blows of 140-lb. hammer dropped 30 in. required to drive 2-in. O. D. splitspoon sampler 1 ft. after seating 6 in.

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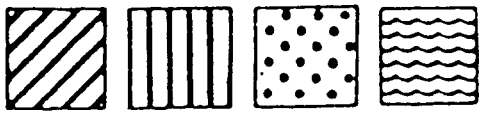
CLAY SILT SAND HUMUS



Predominant type shown heavy. Modifying type shown light.

Remarks:

Fig. 9

LOG OF BORING

EUSTIS ENGINEERING COMPANY
SOIL AND FOUNDATION CONSULTANTS
METAIRIE, LA.

Name of Project: Sewerage & Water Board of New Orleans

Proposed Additions to Drainage Pumping Station No. 6, New Orleans, La.

For: Burk & Associates, Inc.

Engineers, Planners & Environmental Scientists, New Orleans, Louisiana

Boring No. 7 Soil Technician A. Croal, Jr. Date 19 October 1982

Ground Elev. 22.5 (est.) Datum Cairo Gr. Water Depth See Text

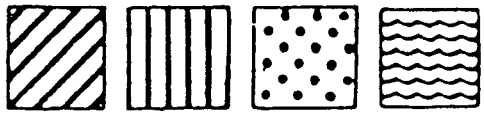
Sample No.	SAMPLE Depth — Feet From	To	DEPTH STRATUM Feet From	To	VISUAL CLASSIFICATION	*STANDARD PENETRATION TEST	
1	0.0	0.5	0.0		Medium stiff gray & tan clay w/shell		
–					fragments & grass roots		
2	2.0	2.5			Medium stiff gray & tan clay w/shell		
					fragments, clayey silt pockets, etc.		
3	5.0	5.5		6.0	Medium stiff gray & tan clay w/clayey		
					silt pockets & trace of gravel		
4	8.0	8.5	6.0	8.5	Soft gray & tan clay w/fine sand layers		
					(Fill)		
5	11.0	11.5	8.5		Medium stiff gray & tan fissured clay		
					w/clayey silt layers & roots		
6	14.0	14.5		15.0	Medium stiff gray & tan fissured clay		
7	18.5	19.0	15.0		Soft gray fissured clay w/thin		
					organic clay layers, trace of organic		
					matter, clay pockets & layers		
8	23.5	24.0		26.5	Soft gray fissured clay w/many clayey		
					silt lenses		
9	28.5	30.0	26.5	31.0	Medium dense gray silty sand	5	23
10	31.0	32.5	31.0	34.0	Dense gray silty sand	7	34
11	33.5	35.0	34.0		Very dense gray silty sand	8	50
12	36.0	37.5		38.0	Ditto	9	50=10"
13	38.5	40.0	38.0	42.0	Loose gray clayey sand w/shell fragments	4	8
14	43.5	45.0	42.0	48.5	Dense gray fine sand w/shell fragments	11	41
14A	48.5	50.0	48.5	51.5	Soft gray clay	2	8
15	53.5	54.0	51.5		Medium stiff gray clay w/fine sand		
					layers, pockets & shell fragments		
					(Continued)		

*Number in first column indicates number of blows of 140-lb. hammer dropped 30 in. required to seat 2-in. O. D. splitspoon sampler 6 in. Number in second column indicates number of blows of 140-lb. hammer dropped 30 in. required to drive 2-in. O. D. splitspoon sampler 1 ft. after seating 6 in.

WHILE THIS LOG OF BORING IS CONSIDERED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT ITS RESPECTIVE LOCATION ON THE DATE SHOWN, IT IS NOT WARRANTED THAT IT IS REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

Remarks:

CLAY SILT SAND HUMUS



Predominant type shown heavy. Modifying type shown light.

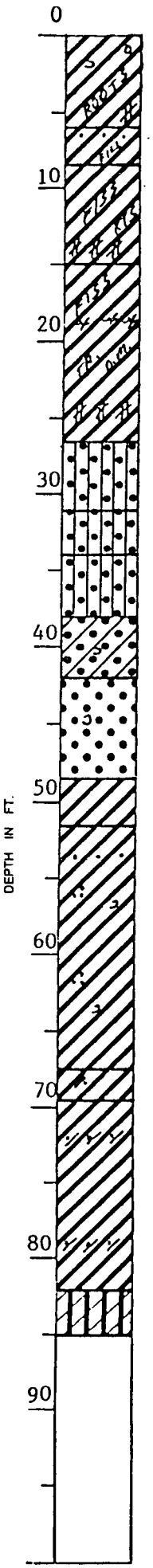


Fig. 10

LOG OF BORING

EUSTIS ENGINEERING COMPANY
SOIL AND FOUNDATION CONSULTANTS
METAIRIE, LA.

Name of Project: Sewerage & Water Board of New Orleans

Proposed Additions to Drainage Pumping Station No. 6, New Orleans, La.

For: Burk & Associates, Inc.

Engineers, Planners & Environmental Scientists, New Orleans, Louisiana

Boring No. 7 (Cont'd) Soil Technician A. Croal, Jr. Date 19 October 1982

Ground Elev. 22.5 (est.) Datum Cairo Gr. Water Depth See Text

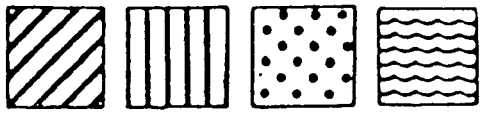
Sample No.	SAMPLE Depth — Feet From	SAMPLE Depth — Feet To	DEPTH STRATUM Feet From	DEPTH STRATUM Feet To	VISUAL CLASSIFICATION	*STANDARD PENETRATION TEST
16	59.5	60.0			Medium stiff gray clay w/shell fragments	
17	63.5	64.0		67.5	Ditto	
18	68.5	69.0	67.5	69.5	Medium stiff tan & gray clay w/clayey	
					sand pockets	
19	72.0	72.5	69.5		Very stiff tan & gray clay w/sandy clay	
					layers	
20	77.0	77.5		82.0	Very stiff tan & gray clay	
21	82.0	82.5	82.0	85.0	Loose to medium compact tan & gray	
					clayey silt	

DEPTH IN FT.

*Number in first column indicates number of blows of 140-lb. hammer dropped 30 in. required to seat 2-in. O. D. splitspoon sampler 6 in. Number in second column indicates number of blows of 140-lb. hammer dropped 30 in. required to drive 2-in. O. D. splitspoon sampler 1 ft. after seating 6 in.

WHILE THIS LOG OF BORING IS CONSIDERED TO BE REPRESENTATIVE OF SUBSURFACE CONDITIONS AT ITS RESPECTIVE LOCATION ON THE DATE SHOWN, IT IS NOT WARRANTED THAT IT IS REPRESENTATIVE OF SUBSURFACE CONDITIONS AT OTHER LOCATIONS AND TIMES.

CLAY SILT SAND HUMUS



Predominant type shown heavy. Modifying type shown light.

Remarks:

Fig. 10

Geotechnical Investigation
Sewerage & Water Board of New Orleans
Proposed Additions to Drainage Pumping Station No. 6
New Orleans, Louisiana

For: Burk & Associates, Inc.
Engineers, Planners & Environmental Scientists, New Orleans, Louisiana

SUMMARY OF LABORATORY TEST RESULTS

BORING 1

Sample No.	Depth in Feet	Classification	Water Content Percent	Density Lb/cu ft Dry	Density Lb/cu ft Wet	Unconfined Compressive Strength Lb/sq ft	Atterberg Limits LL	PL	PI
4	11.0	Medium stiff gray & tan clay with decayed roots	31.1	86.8	113.9	1190			
5	14.0	Medium stiff gray & tan clay with trace of silt	30.2	88.0	114.5	1965			
6	18.5	Very soft gray flocculated clay	57.3	64.2	101.0	490			
7	23.5	Medium compact gray clayey silt w/silty clay layers	34.8	88.4	119.2	1355*			
8	28.5	Soft gray clay with many silt lenses & clayey silt layers	37.8	84.9	116.9	525	32	19	13
15	53.5	Medium stiff gray clay w/sand pockets & shell fragments	48.5	70.4	104.5	1690			
17	63.5	Medium stiff gray flocculated clay w/trace of sand & shell fragments	52.8	68.4	104.5	1820			
19	73.5	Very stiff greenish-gray & tan sandy clay w/sand pockets	19.3	99.2	118.4	4160*			
21	83.5	Stiff gray, tan & yellow fissured clay w/silt lenses	35.6	83.8	113.6	2875			

*Unconsolidated-Undrained Triaxial Compression Test - One Specimen. Confined at the approximate overburden pressure.

Fig. 11

Geotechnical Investigation
Sewerage & Water Board of New Orleans
Proposed Additions to Drainage Pumping Station No. 6
New Orleans, Louisiana

For: Burk & Associates, Inc.
Engineers, Planners & Environmental Scientists, New Orleans, Louisiana

SUMMARY OF LABORATORY TEST RESULTS

BORING 2

Sample No.	Depth in Feet	Classification	Water Content Percent	Density Lb/cu ft Dry	Density Lb/cu ft Wet	Unconfined Compressive Strength Lb/sq ft	Atterberg Limits LL	PL	PI
2	5.0	Medium stiff gray clay w/silt pockets & organic matter	56.4	63.7	99.6	1375			
4	11.0	Medium stiff gray & tan clay with roots	39.3	80.0	111.4	1415			
6	18.5	Medium stiff gray clay w/decayed roots	79.9	52.2	93.9	1335			
7	23.5	Soft gray clay w/many silt lenses	51.6	70.8	107.3	855	60	19	41
15	48.5	Soft gray sandy clay w/clayey sand layers & shell fragments	40.1	----	-----	----	39	16	23
16	53.5	Medium stiff gray clay w/sand pockets & shell fragments	47.0	71.4	104.9	1175			
17	58.5	Ditto	49.1	69.9	104.2	1910	73	19	54

Fig. 12

Geotechnical Investigation
Sewerage & Water Board of New Orleans
Proposed Additions to Drainage Pumping Station No. 6
New Orleans, Louisiana

For: Burk & Associates, Inc.
Engineers, Planners & Environmental Scientists, New Orleans, Louisiana

SUMMARY OF LABORATORY TEST RESULTS

BORING 3

Sample No.	Depth in Feet	Classification	Water Content Percent	Density Lb/cu ft Dry	Density Lb/cu ft Wet	Unconfined Compressive Strength Lb/sq ft	Atterberg Limits LL	Atterberg Limits PL	Atterberg Limits PI
1	2.0	Stiff gray & tan clay w/silt pockets, concretions & decayed roots (Fill)	29.8	86.1	111.7	3835			
2	5.0	Soft gray & tan clay w/large silty sand pockets & roots	38.9	78.6	109.2	960			
3	8.0	Medium stiff gray & tan clay with silt pockets, roots & concretions	38.4	81.5	112.7	1235			
4	11.0	Medium stiff gray & tan clay w/silt pockets	32.8	87.2	115.8	1530			
6	18.5	Soft gray clay with silt pockets, lenses & roots	45.0	74.6	108.2	915	54	20	34
15	53.5	Medium stiff gray flocculated clay w/sand pockets, shell fragments & roots	52.3	67.0	102.1	1530			
17	63.5	Medium stiff gray flocculated clay w/trace of silt	52.2	68.9	104.9	1615			
18	68.5	Stiff greenish-gray & tan sandy clay	18.1	107.8	127.4	3880			
20	78.5	Stiff reddish-brown & gray fissured clay	35.2	84.9	114.8	2395			

Fig. 13

Geotechnical Investigation
Sewerage & Water Board of New Orleans
Proposed Additions to Drainage Pumping Station No. 6
New Orleans, Louisiana

For: Burk & Associates, Inc.
Engineers, Planners & Environmental Scientists, New Orleans, Louisiana

SUMMARY OF LABORATORY TEST RESULTS

BORING 4

Sample No.	Depth in Feet	Classification	Water Content Percent	Density Lb/cu ft Dry	Density Lb/cu ft Wet	Unconfined Compressive Strength Lb/sq ft	Atterberg Limits LL	Atterberg Limits PL	Atterberg Limits PI
2	5.0	Medium stiff gray & tan clay w/silt pockets	38.0	80.2	110.7	1205			
3	8.0	Medium stiff gray clay w/roots & organic clay layers	63.1	59.9	97.7	1150	112	26	86
4	11.0	Medium stiff gray & tan clay w/silt pockets	31.0	89.8	117.7	1860			
6	18.5	Medium stiff gray clay w/organic matter	67.5	58.7	98.3	1100			
16	58.5	Medium stiff gray clay w/sand pockets & shells	52.1	67.9	103.3	1540			

Fig. 14

Geotechnical Investigation
Sewerage & Water Board of New Orleans
Proposed Additions to Drainage Pumping Station No. 6
New Orleans, Louisiana

For: Burk & Associates, Inc.
Engineers, Planners & Environmental Scientists, New Orleans, Louisiana

SUMMARY OF LABORATORY TEST RESULTS

BORING 5

Sample No.	Depth in Feet	Classification	Water Content Percent	Density Lb/cu ft Dry	Density Lb/cu ft Wet	Unconfined Compressive Strength Lb/sq ft	Atterberg Limits LL	Atterberg Limits PL	Atterberg Limits PI
2	5.0	Medium stiff gray & tan clay with silt pockets	33.5	85.7	114.4	1795			
3	8.0	Medium stiff gray & tan clay with trace of organic matter	36.5	81.6	111.4	1625			
5	14.0	Medium stiff gray & tan clay with silt pockets & shell fragments	29.0	89.8	115.9	1040			
6	18.5	Medium stiff gray & tan clay with decayed roots	36.9	81.7	111.9	1700			
7	23.5	Medium stiff gray & tan flocculated clay	37.6	81.8	112.6	1105	71	24	47
8	28.5	Soft gray silty clay w/roots	39.6	80.9	112.9	920	45	19	26
17	58.5	Soft gray sandy clay w/shell fragments	37.4	----	-----	----			
19	68.5	Medium stiff gray clay w/sand pockets & shell fragments	55.7	66.2	103.1	1265			
21	78.5	Very stiff greenish-gray & tan sandy clay	17.8	109.2	128.6	4505			
23	88.5	Stiff tan & gray fissured clay	35.0	85.3	115.2	3685			
25	98.5	Stiff tan & gray silty clay with clayey silt layers	24.3	96.8	120.2	2195			

Fig. 15

Geotechnical Investigation
Sewerage & Water Board of New Orleans
Proposed Additions to Drainage Pumping Station No. 6
New Orleans, Louisiana

For: Burk & Associates, Inc.
Engineers, Planners & Environmental Scientists, New Orleans, Louisiana

SUMMARY OF LABORATORY TEST RESULTS

BORING 6

Sample No.	Depth in Feet	Classification	Water Content Percent	Density Lb/cu ft Dry	Density Lb/cu ft Wet	Unconfined Compressive Strength Lb/sq ft
3	6.5	Stiff gray & tan clay w/shells	29.4	92.8	120.1	2355
5	11.0	Medium stiff gray & tan clay w/silt pockets	31.0	91.1	119.3	1755
7	18.5	Medium stiff gray fissured clay w/trace of organic matter	60.8	63.8	102.6	1030
16	53.5	Medium stiff gray fissured clay w/sand lenses, pockets & shells	43.1	76.8	109.9	1130
18	63.5	Medium stiff gray fissured clay w/shells	58.0	65.6	103.6	1895*
20	73.5	Stiff greenish-gray sandy clay	17.4	111.4	130.7	3200

BORING 7

2	2.0	Medium stiff gray & tan clay w/decayed wood	33.7	82.7	110.6	1355
4	8.0	Soft gray & tan clay w/sand pockets & lenses	27.4	87.5	111.5	645*
6	14.0	Medium stiff gray & tan fissured clay	45.3	76.2	110.8	1280
8	23.5	Soft gray clay w/silt lenses	50.2	72.9	109.6	910
15	53.5	Medium stiff gray clay w/sand pockets & shell fragments	46.1	73.2	106.9	1340
17	63.5	Medium stiff gray fissured clay w/trace of sand	52.6	69.1	105.4	1190*
19	72.0	Very stiff tan & gray clay w/sand pockets	29.6	93.3	120.9	4280

*Unconsolidated-Undrained Triaxial Compression Test - One Specimen. Confined at the approximate overburden pressure.

Fig. 16

NOTES

STAGE I

① INNER ROW OF SHEET PILES SHOULD BE DRIVEN TO AT LEAST EL.-27.5 AND SHOULD BE DESIGNED TO SUSTAIN A MAXIMUM BENDING MOMENT OF 60 FT-KIPS PER LINEAR FOOT. OUTER ROW OF SHEET PILES SHOULD BE DRIVEN TO AT LEAST EL.-11.0 AND SHOULD BE DESIGNED TO SUSTAIN A MAXIMUM BENDING MOMENT OF 21 FT-KIPS PER LINEAR FOOT.

② CANAL BOTTOM SHOULD BE MUCKED TO THE DEPTH NECESSARY TO REMOVE SOFT SEDIMENT ADJACENT TO INNER SHEET PILES.

③ INNER SHEET PILES SHOULD BE BACKFILLED WITH RIVER SAND AS SHOWN PRIOR TO DEWATERING AREA BETWEEN SHEET PILES AND EXISTING PUMP STATION.

④ IMMEDIATELY AFTER DEWATERING, BACKFILLING OF THE WORK AREA BETWEEN THE SHEET PILES AND PUMP STATION SHOULD BE COMPLETED. A COHESIVE SOIL MAY BE USED FOR BACKFILL. COMPACTION OF THE FILL MATERIAL IS NOT REQUIRED.

⑤ PLACE RIP-RAP AS REQUIRED BETWEEN INNER AND OUTER ROWS OF SHEET PILES.

STAGE II

⑥ DRIVE TREATED CLASS B TIMBER PILES AND CONSTRUCT CONCRETE FLOODWALL. TIMBER PILES SHOULD BE DRIVEN TO A RESISTANCE OF 25 TO 30 BLOWS PER FOOT AT A TIP EMBEDMENT OF APPROXIMATELY EL.-13 , USING A STEAM OR AIR HAMMER DELIVERING 15000 FT-LB PER BLOW. A MAXIMUM ALLOWABLE (FACTOR OF SAFETY = 2) AXIAL CAPACITY OF 15 TONS PER PILE SHOULD BE USED FOR DESIGN.

⑦ INSTALL STRUT BETWEEN OUTER ROW OF SHEET PILES AND BASE OF CONCRETE FLOODWALL. STRUT AND FLOODWALL SHOULD BE DESIGNED TO SUSTAIN A HORIZONTAL FORCE OF 2.6 KIPS PER LINEAR FOOT.

⑧ DEWATER AREA BETWEEN INNER AND OUTER ROWS OF SHEET PILES TO EL. 16.0 AND COMPLETE INSTALLATION OF DISCHARGE PIPES.

STAGE III

⑨ ALLOW WATER LEVEL BETWEEN INNER AND OUTER ROWS OF SHEET PILES TO EQUALIZE. REMOVE STRUT AND DRIVE OUTER ROW OF SHEET PILES TO FINAL TIP ELEVATION.

⑩ DESIGN OF THE CONCRETE FLOODWALL SHOULD INCLUDE A HORIZONTAL FORCE OF 1 KIP PER LINEAR FOOT APPLIED AT EL. 22.5 DUE TO WATER PRESSURE ON INNER ROW OF SHEET PILES.

ALL ELEVATIONS REFER TO CAIRO DATUM.

GEOTECHNIACL INVESTIGATION
SEWERAGE AND WATER BOARD OF NEW ORLEANS
PROPOSED ADDITIONS TO DRAINAGE PUMPING STATION NO.6
ORLEANS PARISH, LOUISIANA

PROPOSED COFFERDAM

FOR
BURK & ASSOCIATES, INC.
ENGINEERS, PLANNERS, ENVIRONMENTAL SCIENTISTS
NEW ORLEANS, LOUISIANA

EUSTIS ENGINEERING COMPANY
SOIL AND FOUNDATION CONSULTANTS
NOVEMBER 1982 METAIRIE, LA.

FIGURE 17

STAGE III

EXISTING PUMP STATION

NEW DISCHARGE PIPE

EL. 34.0

HURRICANE CONDITION

LAKE PONTCHARTRAIN

NORMAL CONDITION

EL. 21.5

EL. 23.5

EL. 16.0

EL. 13.0

EL. 10.0

20'

35'

70'

EL.-27.5

STAG

1 I S P L M

2 C S

3

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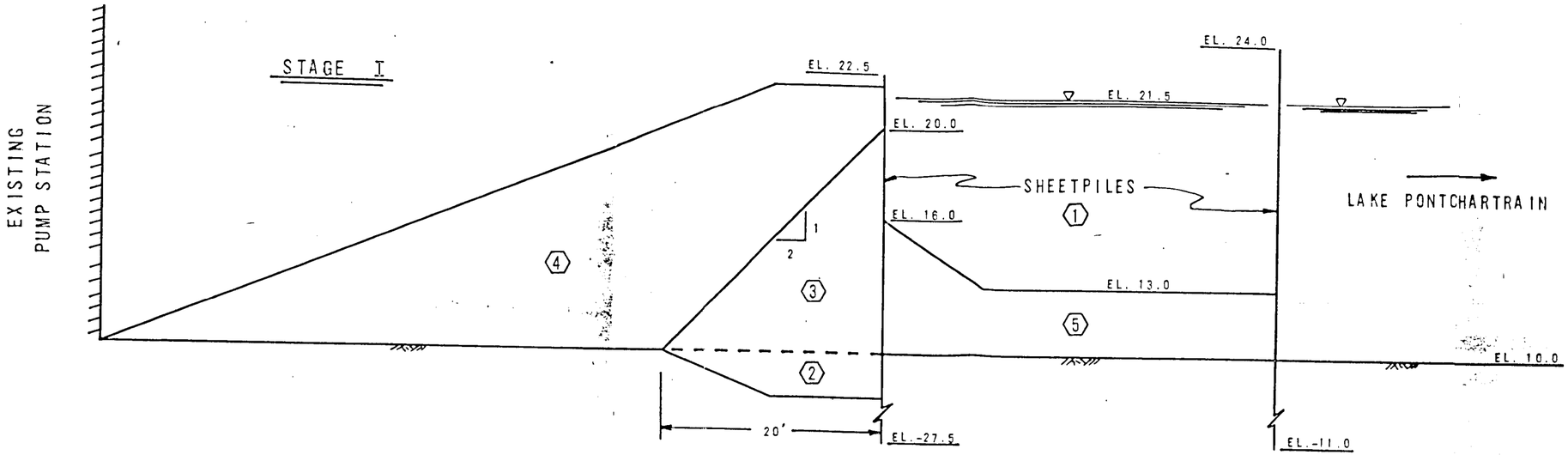

STAGE I
EXISTING PUMP STATION
EL. 22.5
EL. 24.0
EL. 21.5
EL. 20.0
SHEETPILES
LAKE PONTCHARTRAIN
EL. 16.0
1
2
EL. 13.0
EL. 10.0
20'
EL.-27.5
EL.-11.0
EL. 34.0
FLOODWALL
STAGE II
EXISTING PUMP STATION
EL. 23.5
STRUT
EL. 24.0
EL. 21.5
LAKE PONTCHARTRAIN
TREATED CLASS "B" TIMBER PILES
EL. 16.0
EL. 13.0

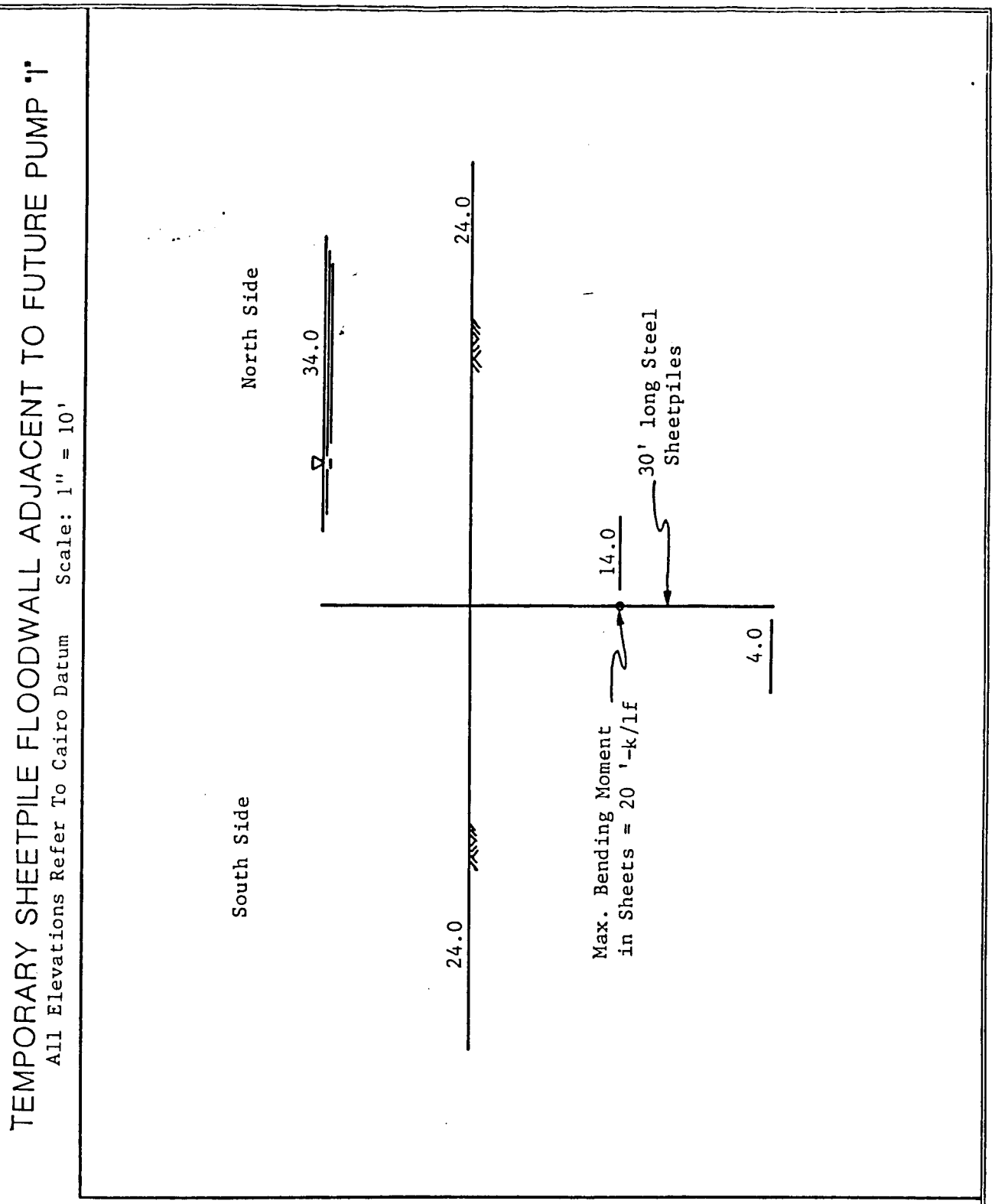
BULKHEAD ADJACENT TO FUTURE PUMP "I" AND DISCHARGE TUBE

All Elevations Refer To Cairo Datum Scale: 1" = 10'

Geotechnical Investigation
Sewerage & Water Board of New Orleans
Proposed Additions to Drainage Pumping Station No. 6
New Orleans, Louisiana

For: Burk & Associates, Inc.
Engineers, Planners & Environmental Scientists, New Orleans, Louisiana

Fig. 18



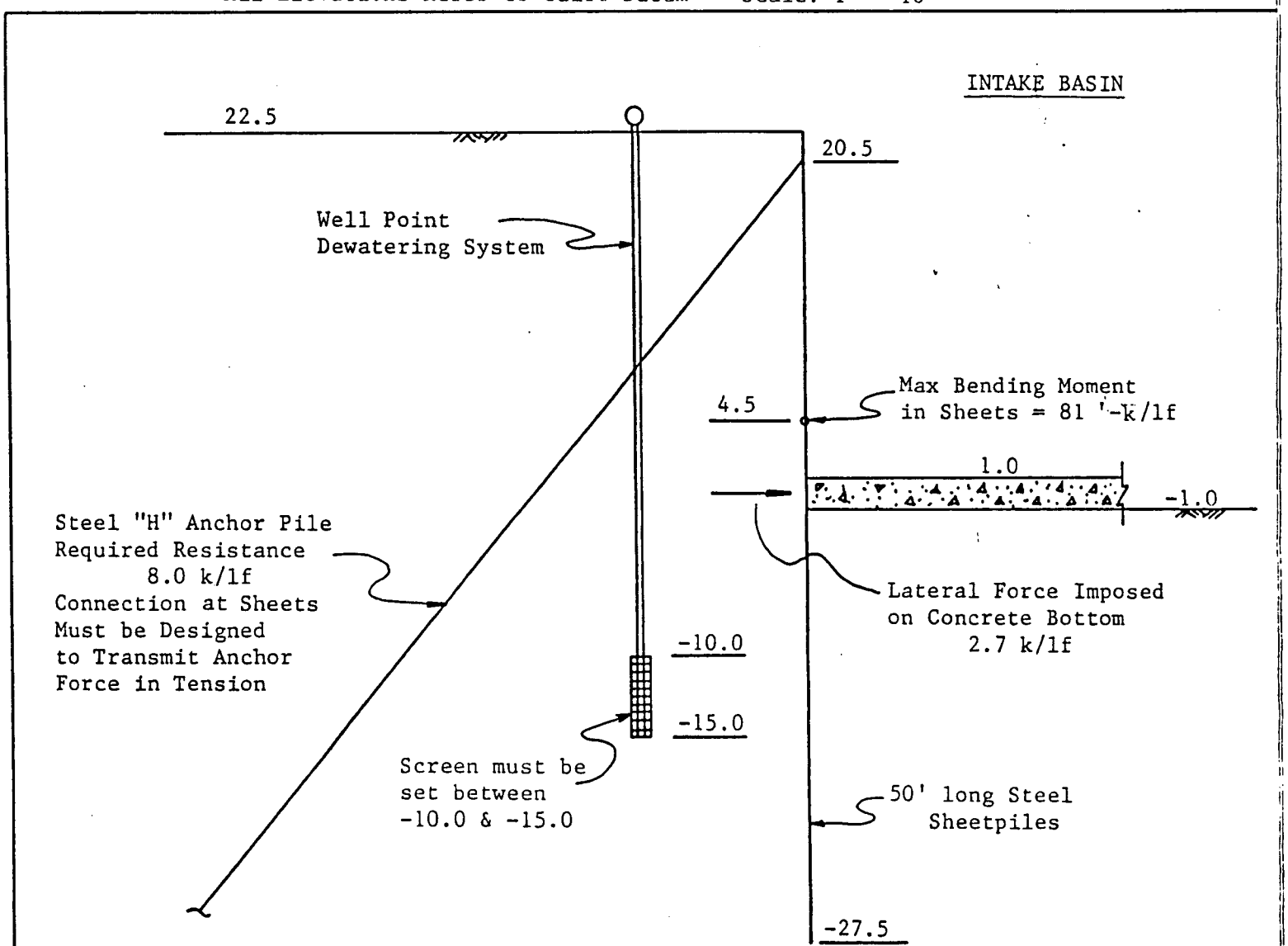
Geotechnical Investigation
Sewerage & Water Board of New Orleans
Proposed Additions to Drainage Pumping Station No. 6
New Orleans, Louisiana

For: Burk & Associates, Inc.
Engineers, Planners & Environmental Scientists, New Orleans, Louisiana

Fig. 19

BULKHEAD ALONG EAST SIDE OF INTAKE BASIN

All Elevations Refer to Cairo Datum Scale: 1" = 10'

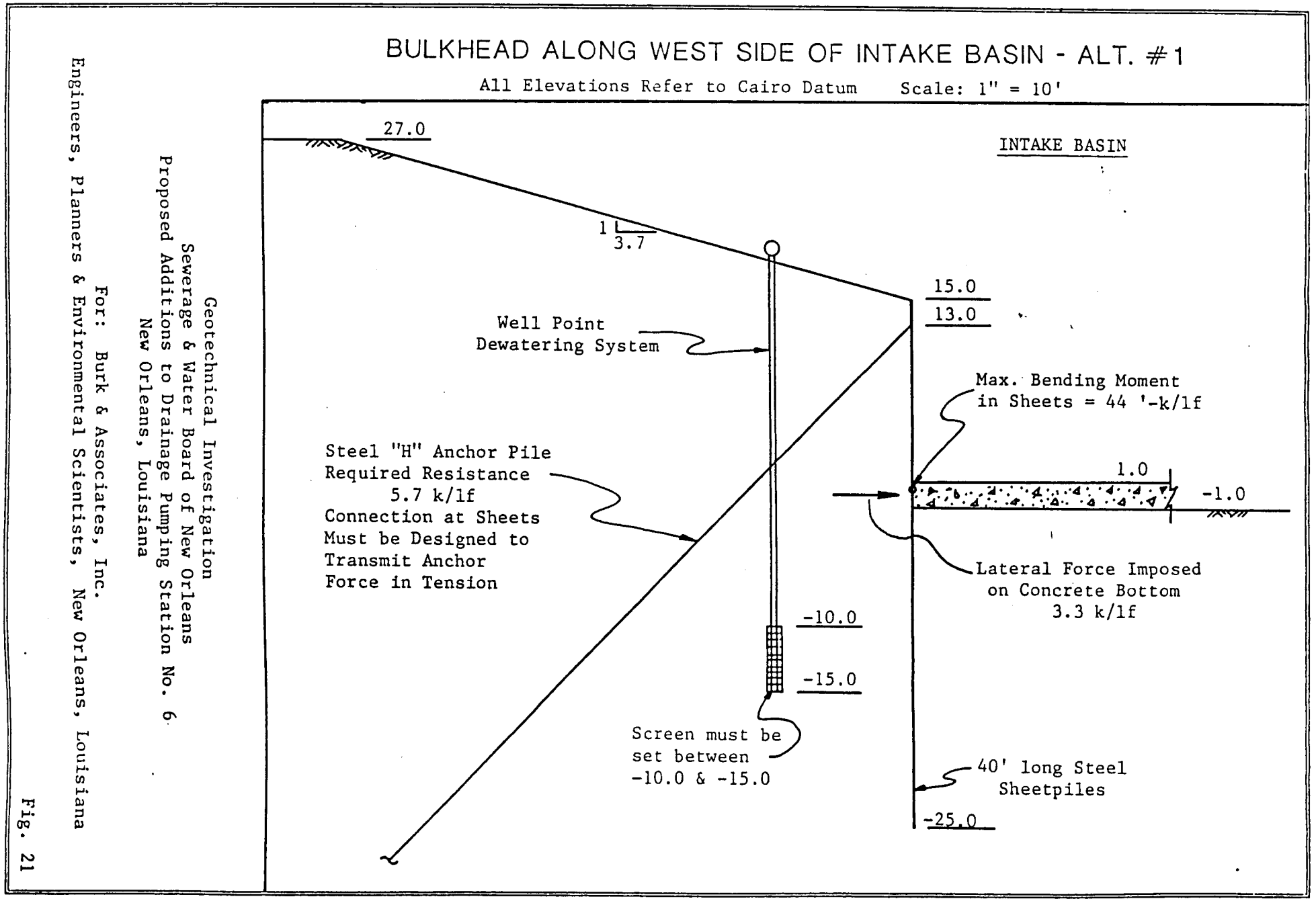


Geotechnical Investigation
Sewerage & Water Board of New Orleans
Proposed Additions to Drainage Pumping Station No. 6
New Orleans, Louisiana

For: Burk & Associates, Inc.
Engineers, Planners & Environmental Scientists, New Orleans, Louisiana

Fig. 20

EUSTIS ENGINEERING COMPANY
SOIL AND FOUNDATION CONSULTANTS
METAIRIE, LOUISIANA



Geotechnical Investigation
Sewerage & Water Board of New Orleans
Proposed Additions to Drainage Pumping Station No. 6
New Orleans, Louisiana

For: Burk & Associates, Inc.
Engineers, Planners & Environmental Scientists, New Orleans, Louisiana

Fig. 21

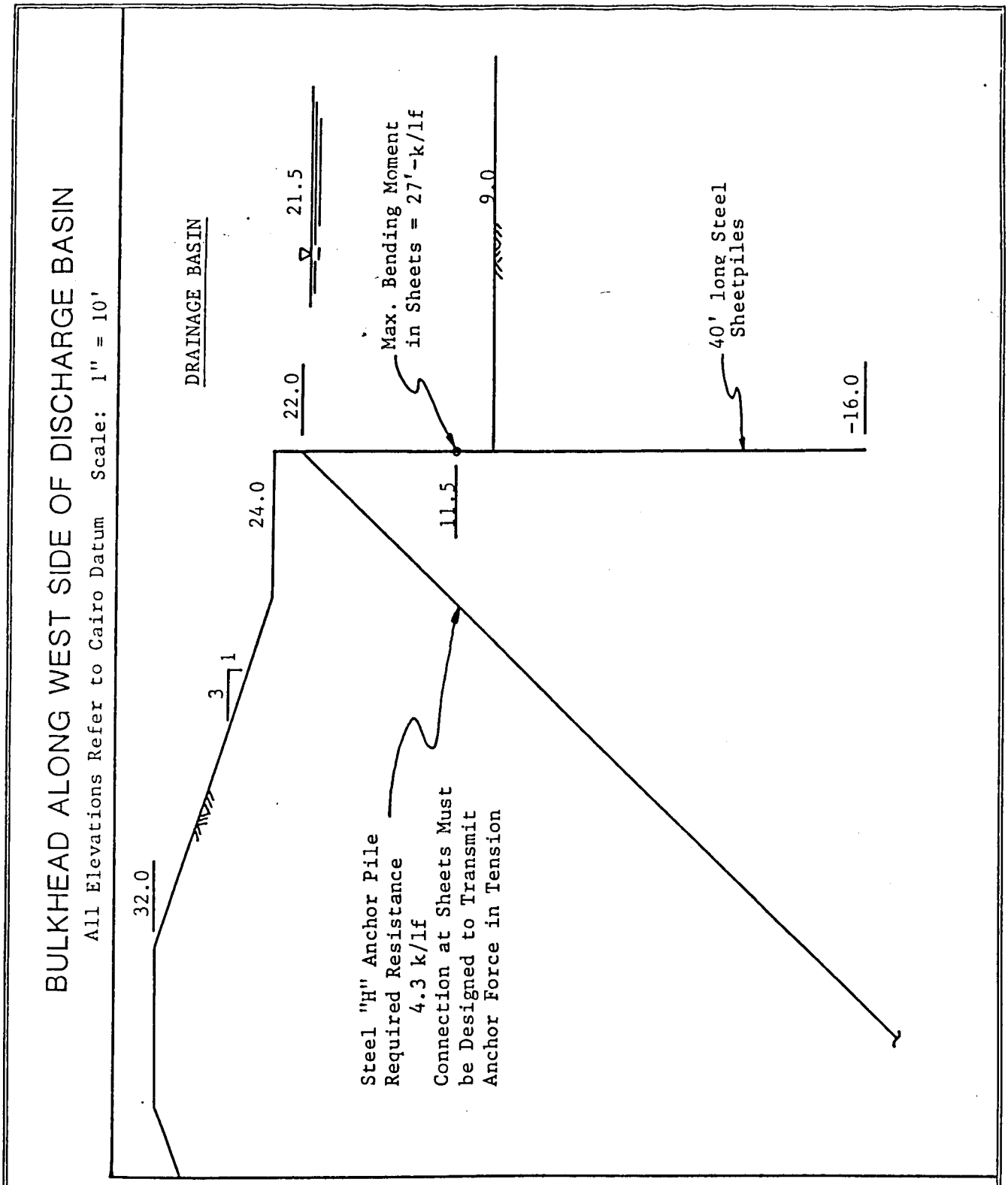
BULKHEAD ALONG WEST SIDE OF INTAKE BASIN - ALT. #2

All Elevations Refer To Cairo Datum Scale: 1" = 10'

Geotechnical Investigation
Sewerage & Water Board of New Orleans
Proposed Additions to Drainage Pumping Station No. 6
New Orleans, Louisiana

For: Burk & Associates, Inc.
Engineers, Planners & Environmental Scientists, New Orleans, Louisiana

Fig. 22



Geotechnical Investigation
Sewerage & Water Board of New Orleans
Proposed Additions to Drainage Pumping Station No. 6
New Orleans, Louisiana

For: Burk & Associates, Inc.
Engineers, Planners & Environmental Scientists, New Orleans, Louisiana

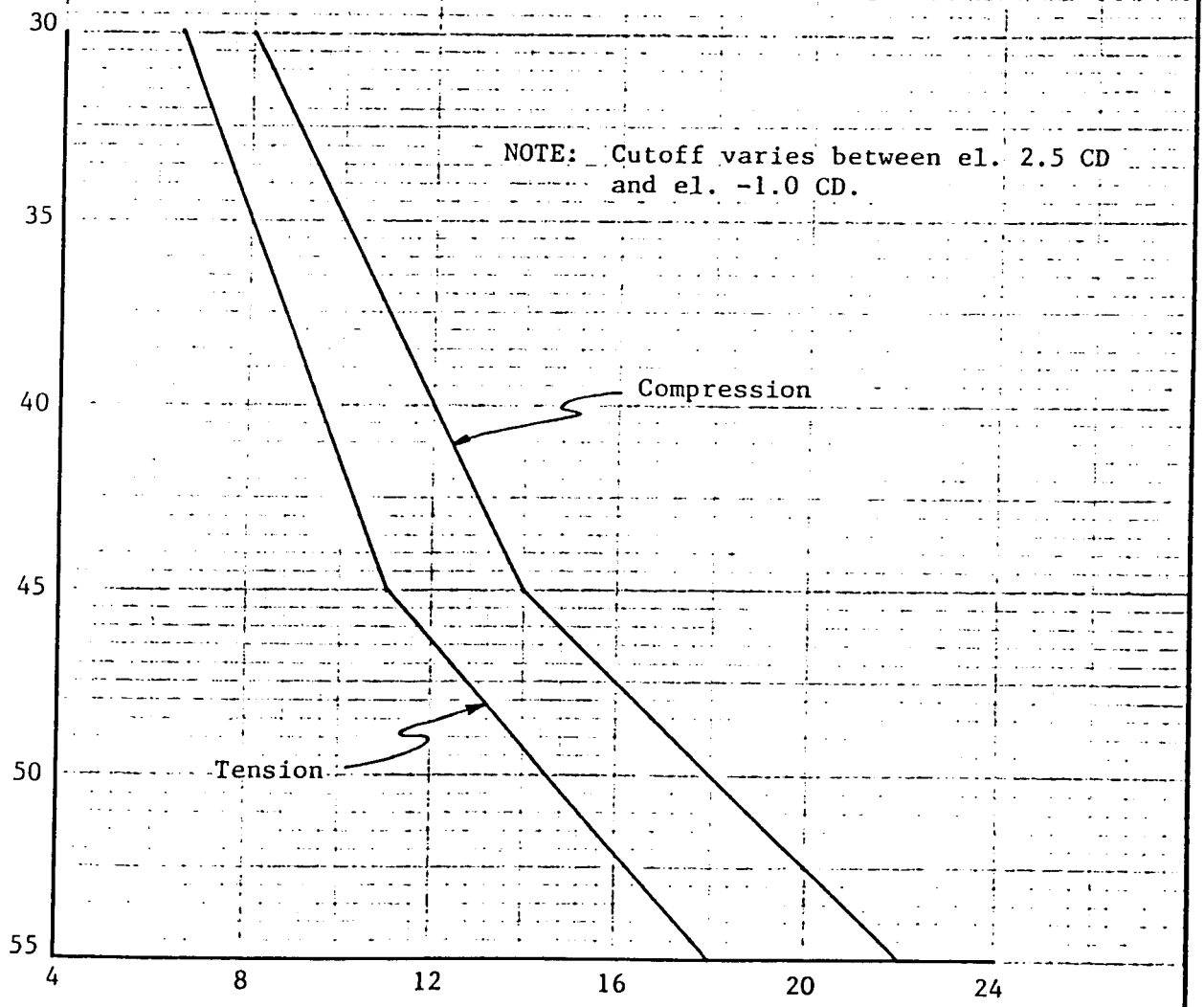
Fig. 23

ALLOWABLE PILE LOAD CAPACITY
VS
PILE EMBEDMENT

For

Untreated Class "B" Timber Piles

Supporting Intake Basin Bottom Slab



Geotechnical Investigation
Sewerage & Water Board of New Orleans
Proposed Additions to Drainage Pumping Station No. 6
New Orleans, Louisiana

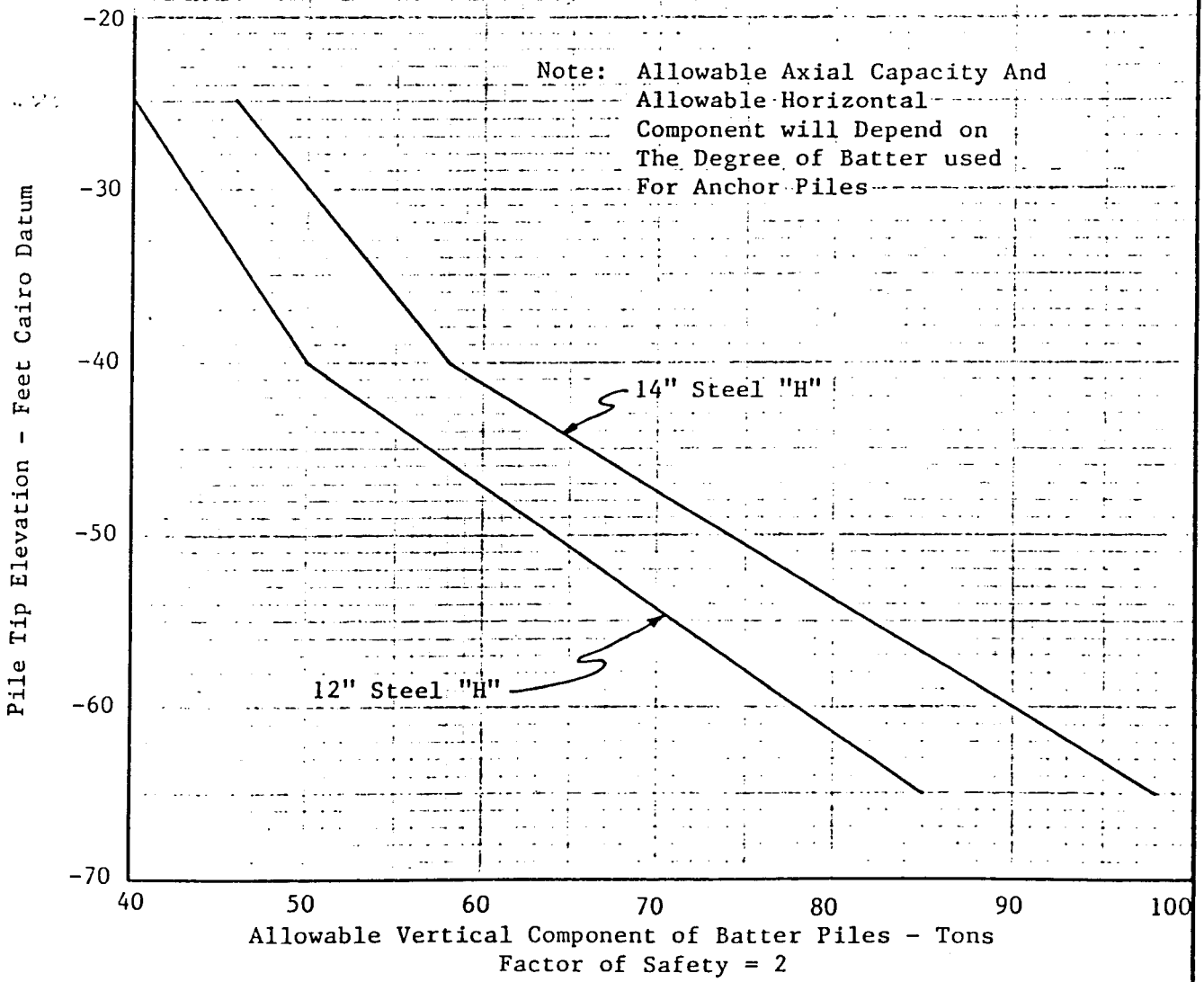
For: Burk & Associates, Inc.
Engineers, Planners & Environmental Scientists, New Orleans, Louisiana

ALLOWABLE VERTICAL COMPONENT
VS
PILE TIP ELEVATION

For

ANCHOR PILES SUPPORTING SHEETPILE BULKHEADS
(Refer to Figures: 18 through 23)

PILES LOADED IN TENSION



Geotechnical Investigation
Sewerage & Water Board of New Orleans
Proposed Additions to Drainage Pumping Station No. 6
New Orleans, Louisiana

For: Burk & Associates, Inc.
Engineers, Planners & Environmental Scientists, New Orleans, Louisiana

CAPACITY OF PILE GROUPS

$$Q_a = \frac{P \times L \times c}{(FSF)} + \frac{2.6\ q_u\ (1 + 0.2\ \frac{w}{b})\ A}{(FSB)}$$

In Which:

Q_a = Allowable load carrying capacity of pile group, lb

P = Perimeter distance of pile group, ft

L = Length of pile, ft

c = Average (weighted) cohesion or shear strength of material between surface and depth of pile tip, psf (c = one-half the unconfined compressive strength)

q_u = Average unconfined compressive strength of material in the zone immediately below pile tips, psf

w = Width of base of pile group, ft

b = Length of base of pile group, ft

A = Base area of pile group, sq ft

(FSF) = Factor of safety for the friction area = 2

(FSB) = Factor of safety for the base area = 3

The values of c and q_u used in this formula should be based on applicable soil data shown on the Summary of Laboratory Test Results tabulations and logs of soil borings for this report. In the application of this formula, the weight of the piles, pile caps and mats, considering the effect of buoyancy, should be included.

SPACING OF PILE GROUPS

$$SPAC = 0.05\ (L_1) + 0.025\ (L_2) + 0.0125\ (L_3)$$

In Which:

SPAC = Center to center of piles, ft

L_1 = Pile penetration up to 100 feet

L_2 = Pile penetration from 101 to 200 feet

L_3 = Pile penetration beyond 200 feet

Note: Minimum pile spacing = 3 pile diameters (center to center)

Fig. 26

BURK AND ASSOCIATES, INC.
Engineers, Planners,
Environmental Scientists

4176 Canal Street
New Orleans, La. 70119
Tel. (504) 486-5901

MEETING REPORT

PROJECT	NO.
Sewerage & Water Board Drainage Pump Station No. 6	8133

PARTICIPANTS

B&A:

See attached list.

OTHER:

SUMMARY

A meeting was held at the Corps of Engineers' engineering conference room to discuss the levee stability at the discharge canal at Drainage Pump Station No. 6. Jorge Romero started the meeting by stating that the Corps of Engineers has reviewed the stability analysis of the proposed I-walls along the discharge basin of the project. The wall on the west side of the project has been reviewed and is accepted by the Corps with one change. The PZ-22 sheet pile needs to be upgraded to a PZ-27 section and when this change is made the concrete cap has to be increased from 18" to 24" on top of this I-wall.

The stability analysis of the existing levee on the east side of the discharge canal was checked and found to be below minimum acceptable factor of safety, using the Corps of Engineers High Level Plan criteria for stability analysis. A redesign of the proposed levee and floodwall on this east levee will have to be performed to satisfy the Corps of Engineers' stability criteria.

Since Eustis Engineering has the only available soils data for this levee and this levee is under contract for construction by

Written by: Michael Jackson

Date: June 17, 1986

Copies to: Larry Bodet
Ed Bailey
Jorge Romero
Lou Napolitano
Gasper Chifici

Atlas Construction, under a Sewerage & Water Board contract, Eustis Engineering, through Burk & Associates, will re-analyze and revise this levee as needed to satisfy Corps criteria. When the Corps reviewed the stability of this levee they did not take into account any lateral stability from the proposed tie-back retaining wall included on the discharge apron. This wall may offer some stability to the levee and needs to be analyzed in conjunction with the remaining criteria under the Corps' High Level Plan flood levee to determine the overall stability of the system. Sewerage & Water Board is only providing the High Level Plan levee from Drainage Pump Station No. 6 up to the southern limits of the Southern Railroad and this is the only portion of the levee which Eustis needs to analyze for Corps High Level Plan criteria.

Larry Bodet mentioned that the Southern Railroad track floodgate being constructed on the west side levee by Atlas could also be constructed at the east levee as well, if the Orleans Levee Board is willing to participate in this part of the contract as a change order. Gasper Chifici will get a cost breakdown from Atlas Construction on a schedule of values for construction of the proposed swing gate on the west levee and submit this to Ed Bailey at the Orleans Levee Board. If the Levee Board wishes to include this floodgate under Sewerage & Water Board's contract, a change order could be prepared for Atlas to include this extra work.

After the stability analysis for the east levee is completed, three copies of all design calculations need to be submitted to Jorge Romero at the Corps for their review.

Jorge Romero commented that the proposed joint detail in the I-wall monoliths could be simplified to delete the metal can and the plastic sealant around the sheet pile interlock, if the construction joints were located such that the centerline of the interlock falls in the centerline of the construction joint. Then in place of the metal can and the plastic sealant, a three bulb rubber waterstop should be placed through this construction joint and this detail would satisfy the Corps of Engineers. This detail should be much simpler and cheaper for the contractor than the proposed detail shown on the B&A drawings.

Larry Bodet mentioned that the USC&GS benchmark being used for construction on this job, which is referenced to Sewerage & Water Board datum, has been updated in the 1985 re-survey by the National Geodetic Survey Department. For construction of the I-walls and levees on the discharge channel, the USC&GS benchmark should be used with the new 1985 mean sea level elevation and these discharge levees and floodwalls should be

built to the new revised datum while the remainder of construction on DPS No. 6 should be built to Sewerage & Water Board datum as indicated on the contract drawings.

MGJ/ptb
Attachment

MEETING 17 JUN 84

17TH ST. CANAL - P. STA. NO. 6 IMPROVEMENTS & HURRICANE PROT. PROJ.

NAME	ORGANIZATION
JORGE ROMERO	COE
PHILIP NAPOLITANO	COE
JIM RICHARDSON	COE
FRANK VOJKOVICH	COE
C.E. BAILEY	Orleans Levee Bd.
JOHN HOLTGREVE	DESIGN ENGINEERING, INC.
LOUIS J NAPOLITANO	EUSTIS ENGINEERING CO.
Michael [illegible]	Baker Associates
GASPER CHIFICI	BURK & ASSOCIATES
MARTHA STERNITZKE	MODJESKI & MASTERS
Barney T. Martin Jr.	" "
LAWRENCE G. BOSET	SWB
D. Vann Stutts	Corps of Engineers
RONALD R ELMER	" " "

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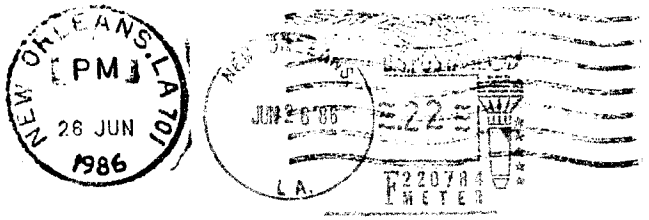

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