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US Army Corps
of Engineers
Fort Worth District

FOUNDATION REPORT

COMPLETION OF EMBANKMENT, SPILLWAY AND OUTLET WORKS RAY ROBERTS LAKE ELM FORK, TRINITY RIVER, TEXAS

August 1990

CORPS OF ENGINEERS
FORT WORTH DISTRICT, TEXAS

FOUNDATION REPORT
COMPLETION OF EMBANKMENT AND SPILLWAY

RAY ROBERTS LAKE

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PLATES

RAY ROBERTS LAKE FOUNDATION REPORT

1. INTRODUCTION.

a. Project Location and Description. Ray Roberts Dam and Lake project is situated in northern Denton, south-central Cooke and western Grayson Counties. The Dam is at river mile 60.0 on Elm Fork of the Trinity River, approximately 30 river miles north of Lewisville Dam. The location of the project is shown on Plate 1. The principal features of the project include (1) a rolled earthfill embankment approximately 14,980 feet long; (2) a limited service spillway consisting of an uncontrolled trapezoidal broad-crested weir; the spillway crest length is 100 feet; and (3) the outlet works, consisting of an excavated approach channel, intake structure and service bridge, a 708-foot long by 13-foot diameter cut and cover conduit, stilling basin and excavated discharge channel (see Plate 2). For the future addition of hydropower, a separate steel-lined concrete 5-foot diameter low flow conduit was constructed beneath the main flood control conduit. (SDN)

b. Construction Authority. Congressional authority for construction of Aubrey Lake (now Ray Roberts Lake) is contained in the Public Works - Rivers and Harbor Act approved 27 October 1965 (Public Law 89-298) in accordance with the plan of improvement as outlined in House Document No. 276 (89th Congress, 1st Session).

c. Purpose of the Report. This report was prepared in accordance with requirements as set forth by the Office, Chief of Engineers in ER 1110-1-1801.

The purpose of this report is to provide a complete record of foundation conditions encountered during construction. Information contained in this report will be valuable when evaluating (1) necessary remedial action required to prevent or repair any problems resulting from foundation deficiencies; (2) contractor claims related to foundation conditions or alleged change of condition; and (3) planning and design of future comparable construction projects.

A copy of this report should be included in the permanent records maintained at the project office.

d. Project History. Four dam site locations were studied prior to final site selection. Site No. 1, the project document site, is at river mile 60.0. Sites 2, 3, and 4 are at river miles 55.9, 51.2, and 64.0, respectively. Three holes were drilled at Site 2 in 1970. No subsurface explorations were done at Sites 3 and 4.

Site No. 4, located upstream of the confluence of the Elm Fork and Isle du Bois Creek would require two embankments and in effect form two lakes. Site No. 4 would also require two outlet facilities or an equalizer channel. This was the uppermost site considered. Sites downstream from Site 3 would be in the flood pool of Lewisville Lake and would require a major railroad relocation.

Based on studies that included an appraisal of the physical, historic, economic, and social impacts at each site, and the results from a public meeting held in April 1971, Site No. 1 was selected as the recommended site. By Public Law 96-384, dated 6 October 1980, the

project name was officially changed from Aubrey Lake to Ray Roberts Lake.

Seven locations, designated A through G, for the spillway were investigated. Cost estimates were made for gated, broadcrested, and uncontrolled ogee spillways. Consideration was also given to a perched spillway with the crest elevation at 5 feet, and at 10 feet above the top of the flood control pool.

Site A was used for the gated spillway estimate for site selection. It was in the steep slope of the east abutment and proved to be undesirable from the standpoint of stability and excessive excavation. Site B, the recommended site, was used for the uncontrolled spillway estimate for site selection, and for various other plans. Site B proved to be the most economical spillway location regardless of type of spillway. Site E at Culp Branch on the west abutment was investigated, but spillways here were too costly because of excessive channel excavation and downstream land requirements. Sites C, D, F, and G were eliminated by inspection because of excessive excavation and additional land requirements.

Studies showed that a gated spillway had a higher first cost than the uncontrolled spillways. Annual operating and maintenance costs for a gated spillway would also be appreciably greater. Several studies were made of various plans with both broadcrested and ogee uncontrolled spillways, in order to optimize size and type of structure.

Studies were made for uncontrolled spillways with widths varying

from 100 feet to 1,000 feet. These studies indicated that the most economical project would be one with the narrowest spillway and highest embankment. A width of 100 feet was judged to be the practical minimum and was, therefore, selected for the recommended plan.

e. **Contractors Supervision and Quality Control Organization.** The embankment, spillway, and outlet works for Ray Roberts Lake were constructed under one contract. Pertinent data related to the contract are listed below:

Contractor: Phillips and Jordan, Inc., Knoxville, TN

Contract No.: DACW63-82-C-0083

Contractor's Bid: $48,657,799

Notice to Proceed: 31 May 1982

Completion Date: 9 October 1986

Total Payment Including Modifications: $51,491,731.27

(1) **Quality Control.** The quality control organization was furnished and compensated by the contractor.

(2) **Contract Supervision.** Construction was under the immediate supervision of the District Engineer, U.S. Army Engineer District, Fort Worth, Texas. The contracting officer's representative for administration of the contract was Mr. Webb Boland. The following personnel participated in administering the contract: Mr. Mark Gibson, outlet works construction, and Mr. David Bowie, embankment and spillway construction.

2. **FOUNDATION EXPLORATIONS.**

a. **Investigations Prior to Construction.** Dam Site No. 1 was first explored in 1939. Eight combination auger and core borings numbered C-1 through C-8 were drilled near the present alignment. The borings ranged from 67 to 217 feet in depth. In December 1960, three additional combination auger and core holes, numbered 9 through 11, were drilled on the right abutment slope, ranging in total depth from 30.6 to 106 feet. There are no testing records on either the overburden materials or the rock cores and the borings were not pressure tested. Boring locations are shown on Plates 4 through 7. Logs of boring are shown on Plates 8 through 39.

Twenty-two additional holes were drilled in 1971 and 1972 during the General Design Memo Study Phase. These holes were numbered 12 through 27, and B, C, D, E, F, J, and K. The following table shows the location, total footage, and purpose for these holes.

Location	Number Drilled	Total Footage	Purpose
Right (West) Abutment	6	292.0	Embankment Foundation
Left (East) Abutment	1	51.0	" "
Valley Section	4	296.4	" "
Spillway	7	476.3	Spillway Location & Foundation
Right Abutment Outlet Works	2	95.2	Intake & Stilling Basin Foundation
*Left Abutment Outlet Works	2	105.8	Intake & Stilling Basin Foundation

*Alternate location considered for outlet works.

In late 1972 and 1973, 37 additional holes were drilled. These holes were numbered 28 through 77. Holes 41 through 49 were 3-inch

Shelby tube holes, drilled along the axis of the uncontrolled spillway. Holes 3S-52 through 3S-57 were 3-inch shelby tube holes drilled along the centerline of the outlet works discharge channel. The other 22 holes were drilled in the embankment foundation.

In 1975 and 1976, holes 83 through 99 were drilled in the outlet works area, with the exception of hole 3F-86, which was drilled on the left abutment.

In late 1975, nine 8A6C holes, designated 301 through 309, were drilled at Site E for spillway site selection. This site was was not selected.

In October 1980, holes 310 through 316 were drilled, and in April 1981, holes 358 through 366 were drilled, all in the outlet works area.

One calyx hole (42-inch auger) was drilled in March 1975, to a depth of 46.5 feet to investigate soft clay seams in the embankment foundation. The hole was located at Station 120+70, 130 feet upstream.

A total of 113 foundation borings were drilled at the project.

b. **Investigations During Construction.** No problems requiring additional subsurface explorations were encountered during construction.

3. **GEOLOGY.**

a. **Physiography.** Ray Roberts Dam and Reservoir lie within the Gulf Coastal Plain physiographic province. The coastal plain of Texas is characterized by a broad rolling landform extending from the outcrop of the basal Cretaceous sands to the northwest to the Gulf of Mexico on

the southeast. It has developed upon a sequence of sedimentary rock units which dip gently southeastward, resulting in successively younger formations cropping out Gulfward. The outcrop of each formation or group in the coastal plain of Texas has distinctive soil, vegetation, and erosion characteristics which are the basis for further physiographic subdivision. Ray Roberts Dam and Reservoir lie within two such subdivisions; the Grand Prairie and the Eastern Cross Timbers. Damsite Geology is shown on Plate 3. The Grand Prairie, a subdivision which has developed on the outcrop of the Washita Group of Lower Cretaceous age, occurs generally west of the Elm Fork of the Trinity River. It is characterized by a rolling to hilly topography supported by limestone, marl, clay shale, and sandy shale. Typically, it is a grassy country, the uplands being given largely to grazing, the valleys being important agriculturally. Situated east of the Elm Fork, the Eastern Cross Timbers has developed on the outcrop of the Woodbine Formation of Upper Cretaceous geologic age. The Eastern Cross Timbers is characterized by a rolling to moderately rugged topography which supports a prolific growth of post oak trees.

b. **Site Geology.**

(1) **Overburden.** Overburden on the abutments consisted of predominantly residual clay and clayey materials generally ranging from 25 to 35 feet in thickness. The embankment is founded on these materials. In the spillway area, 2 to 11 feet of clay and silty clay with scattered gravel were removed and this structure is founded on

weathered clay shale. Overburden materials in the floodplain consist of 35 to 45 feet of alluvial clays, silts, sands, and gravels, comprising the floodplain embankment foundation. In the outlet works area about 20 to 30 feet of alluvial clays, silts, sands, and gravels were removed and the outlet works is founded in unweathered clay shale of the Pawpaw Formation.

(2) **Structure.** Subsurface investigations and subsequent foundation mapping during construction of the dam, outlet works and spillway have not revealed faulting or any other structural anomalies that would adversely affect the foundation of these structures. Correlation of marker beds encountered in the foundation borings show that the strata strike northeast and dip about 60 feet per mile to the southeast. Locally, minor undulations occur within the strata.

(3) **Stratigraphy.** Primary materials at the site from oldest to youngest are Pawpaw shale, Main Street limestone and Grayson marl of Lower Cretaceous age, and the Woodbine Formation of Upper Cretaceous age. The broad Elm Fork River valley is partially filled with Recent floodplain alluvium, while the uplands bordering the valley are often covered with Quaternary age terrace deposits.

a. **Pawpaw Shale.** Except for some isolated remnants of Main Street limestone, the Pawpaw shale comprises the primary strata beneath the embankment between station 0+00 to the base of the left abutment, the outlet works, and spillway (see Plates 44 through 48). The formation is composed of a soft to moderately hard, gray to black,

medium bedded clay shale, often sandy with sand laminations and lenses up to several inches thick. Thin, limy, fossiliferous zones occur throughout the formation.

b. Main Street Limestone. The Main Street limestone conformably overlies the Pawpaw shale. A full section is present in the left abutment. Erosional remnants occur in the central part of the embankment foundation and on the right abutment slope above elevation 640. The limestone is about 12 feet thick, moderately hard to hard, gray, fossiliferous, massive at its base, and becomes shaly as it grades into the overlying Grayson marl.

c. Grayson Marl. The Grayson marl occurs only in the left abutment at the dam site. It is represented by a soft to moderately hard, gray, highly calcareous, thick bedded, fossiliferous shale, that becomes increasingly marly at its base. Often a thin shaly limestone bed caps the formation separating it from the unconformably overlying Woodbine Formation. The Grayson and Main Street Formations are usually mapped as one geologic unit. At the dam site, their combined thickness is about 30 feet.

d. Woodbine Formation. The left abutment, above approximate elevation 565, is comprised of sediments belonging to the Woodbine Formation. Core borings made for the embankment reveal a fine-to-coarse-grained sand with scattered ironstone concretions and thin, poorly cemented sandstone seams to approximate elevation 600. In the basal portion of the Woodbine, a soft to moderately hard, gray to

brown, sandy clay shale predominates, although sand and sandstone can occur. Carbonaceous fragments are often noted. These inclusions, along with the generally noncalcareous nature of the shale, distinguish the material from the underlying Grayson Formation. The Woodbine exhibits gradational changes, both laterally and vertically, in its lithologic composition that make correlation between even closely spaced borings very difficult. The most detailed description of the Woodbine was developed after excavation of the inspection trench of the left abutment. Plate 58 is a geologic section of the plan of the inspection trench along the left abutment prior to placement of the fill.

(4) **Weathering.** Chemical weathering (oxidation and hydration) has affected the primary strata at the dam site to varying degrees. The shale and sandy shale of the Pawpaw Formation that comprise the primary strata for most of the embankment section have been only slightly altered. Staining (oxidation) is present to a maximum depth of about 14 feet below the top of primary strata that underlie the upland soils of the right abutment, while the Pawpaw shale beneath the alluvium in the valley section is fresh. In contrast, the sand, soft sandstone and shale of the Woodbine Formation that comprise the left abutment are deeply weathered. The relatively permeable sands and sandstones receptive to percolating waters are generally weathered throughout to the top of the first significant shale beds. Weathering in the shale occurs primarily as oxidation along joints and bedding

planes.

(5) **Ground Water.** Water levels are shown on Plates 44 through 48. Significant quantities of ground water are found in the floodplain alluvium and in the basal sands and gravels of the low level terrace deposits. Lesser quantities occur in joints and fractures in the weathered section of the Pawpaw shale and in the basal portion of the Woodbine Formation near its contact with the underlying Grayson in the left abutment. Prior to impoundment, ground water in the floodplain alluvium occurred at depths of 20-25 feet. During excavation of the inspection trench in the left abutment, water seeps were encountered at the contacts of the more pervious sands and sandstones with the underlying clays (see Plate 58).

c. **Engineering Characteristics of the Overburden Materials.**

(1) **Outlet Works.** Overburden in the outlet works area was investigated using auger, Denison and Shelby tube samplers. The materials consist of sandy clays (CL and CH) with zones of clayey sands (SC) and gravels (GC-GP). The gravelly zones generally overlay the primary materials. Overburden thickness varies from about 5 to 25 feet along the approach channel, from 8 to 20 feet along the conduit, and from 12 to 45 feet along the discharge channel. Classification and index testing were performed on jar samples taken from various depths in the overburden.

(2) **Embankment.** The overburden materials in the embankment foundation consist of alluvial clays, sands, and gravel strata.

Classification tests, Q, R, and S strength tests, and consolidation tests were performed on Denison barrel samples taken at varying depths in the clay. Classification and index tests were performed on jar samples taken from auger borings and Denison barrel samples obtained from the overburden in the floodplain. The following properties were used for overburden materials in the floodplain:

Moisture content 20%

Dry density 107.5 pcf

Type Test	c tsf	0 Degrees
Q	0.8	3
R	0.1	14
S	0	26

(3) **Weak Stratum.** The following soil parameters were used for the weak, sandy clay stratum which is located in the foundation near the base of the overburden beneath the floodplain embankment.

Moisture content 23%

Dry density 102.0 pcf

Type Test	c tsf	0 Degrees
Q	0.35 and 0.40	2.5
R	0.1	14
S	0	26

The low, undrained shear strength of this weak stratum is the controlling factor in the stability of the floodplain embankment.

(4) **Spillway.** The broadcrested weir is founded in weathered shale. Overburden along the centerline of the spillway increases from 2 feet in the area of the weir to 7 feet in the approach channel and 4 to 6 feet in the discharge channel. The overburden consists of principally silty clay with some fine sand and locally scattered fine gravels.

d. **Engineering Characteristics of the Bedrock Materials.**

(1) **Outlet Works.** The primary materials in the outlet works area were investigated using Denison, Shelby tube and core barrel samplers. Boring locations are shown on Plate . Primary foundation materials consist of unweathered clay shales of the Pawpaw Formation. The shales contain interbedded sandstone seams and beds that vary from a few inches to approximately 4 feet in thickness. From station 27+00 to 34+00, a near surface limestone layer was encountered which varied from about 2 to 7 feet in thickness. Laboratory testing was performed on selected samples of primary materials taken from borings along the centerline of the outlet works. Tests performed were classification, index grain size, unconfined compression and Q-triaxial compression tests. The approach channel structure, intake tower, and stilling basin was founded in unweathered shale for which the following parameters were used:

Allowable bearing pressure	8.0 ksf
Shear Strength, 0	20°
Cohesion	0

(2) **Embankment.** Laboratory strength tests conducted on samples of primary materials indicate that the shale stratum underlying the overburden through the floodplain has a low to moderately low strength, but its strength increases with depth. Although the strength of the shale is relatively low in the upper portion of the stratum, its strength is greater than that of the overburden; therefore, it is not the governing factor in the stability of the embankment.

(3) **Spillway.** The spillway is founded on interbedded silty shale and soft sandstone of the Pawpaw Formation. The materials are adequate to support the light loads to be imposed.

e. **Unusual or Unanticipated Geologic Conditions Encountered During Construction.** No unusual or unanticipated geologic conditions were encountered during construction.

4. EXCAVATION PROCEDURES

a. **Excavation Grades.** Foundation conditions encountered during excavation of the outlet works, inspection trench, cutoff trench, and emergency spillway were about the same as described in the subsurface data in the plans and specifications. The design slopes were achieved without any problems. The only deviation from designed grade lines was overexcavation in the primary materials. In February 1984, overexcavation occurred in the area adjacent to the outlet works conduit, between stations 28+90 and 29+80. The maximum depth of overexcavation was 2 feet. Contractor backfilled the overexcavation with concrete.

b. **Dewatering Provisions.** No ground-water problems of a serious nature were experienced in the outlet works, inspection trench, cutoff trench, or spillway excavations. On occasion, heavy rains partially filled the excavations. Small seeps were present in all the excavations except the spillway and are noted on the drawings. Surface water and the small amount of ground-water seepage experienced were handled by pump and sump operations. See Figures 1 through 6. All concrete and impervious backfill placements were on foundations free of water.

c. **Overburden Excavation.** Overburden materials excavated consisted of residual clay and other clayey materials on the abutments; alluvial clays, silts, sands, and gravels in the floodplain inspection trench and outlet works; and clay and sandy clay with scattered gravel in the spillway area. See Figures 7 through 12. Bulk excavation was done by Caterpillar scrapers. Finished grades were achieved with motor graders. Overburden materials considered suitable were used as random and semicompacted fill.

d. **Rock Excavation.** All rock excavation was accomplished using rippers and scrapers. Much of the weathered shale was used in a manner similar to the overburden; as random or semicompacted fill. Excavation methods were also similar. After bulk excavations of weathered shale by caterpillar scrapers, final grade was accomplished using motor graders. Exposure of weathered or unweathered shale of the Pawpaw Formation was limited to 3 days. See Figures 13 through 20. When this limit was exceeded, the contractor was required to clean the exposed

Figure 1. Outlet Works excavation showing peripheral ditches controlling ground water.

Figure 2. Same as above

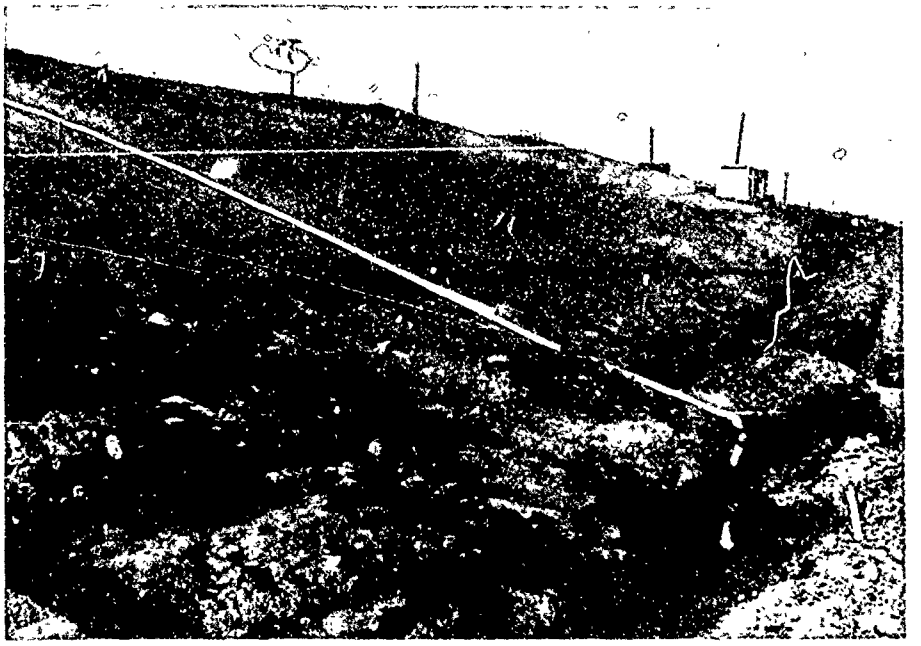


Figure 3. Outlet Works excavation showing peripheral ditches controlling ground water.

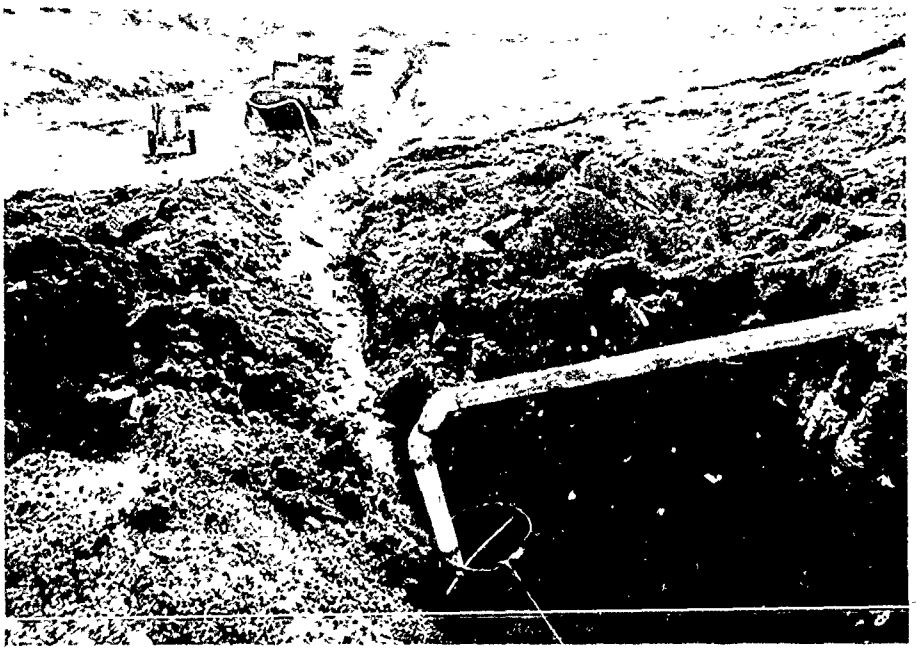


Figure 4. Same as above.

Figure 5. Outlet Works excavation showing peripheral ditches controlling ground water.

Figure 6. Same as above.

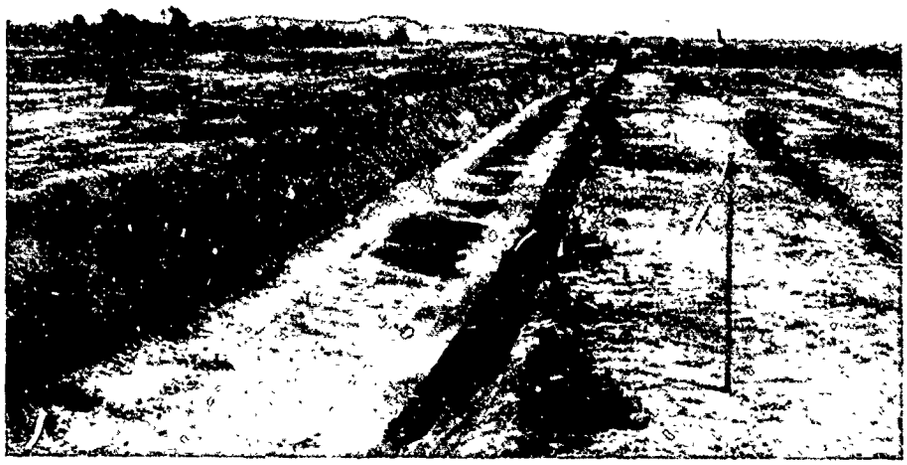


Figure 7. Right Abutment inspection trench looking east (Upstation)

Figure 8. Left Abutment looking east.

Figure 9. Downstream face of right abutment inspection trench approx. sta. 66+50 to 69+00, looking east (Upstation).

Figure 10. Upstream face of right abutment inspection trench Approx. sta. 66+50 to 69+00, looking east.

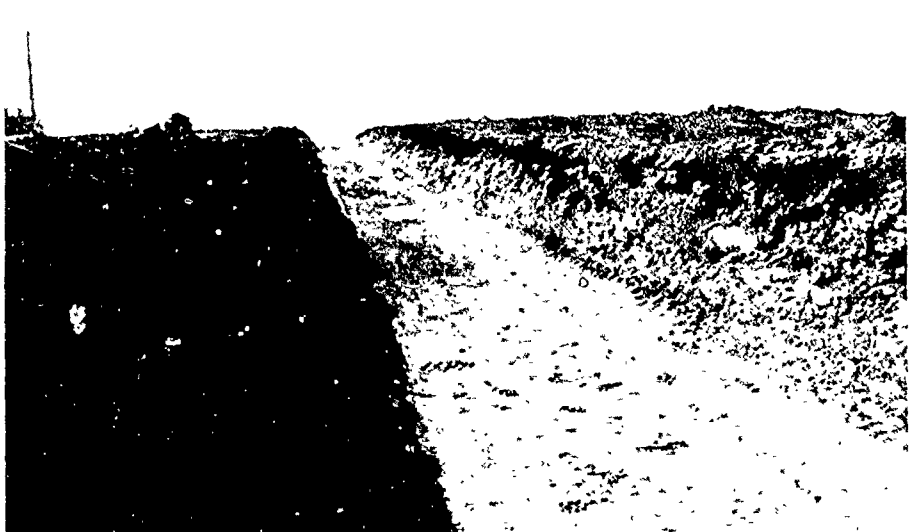


Figure 11. Right abutment inspection trench, looking west (downstream).

Figure 12. Same as above.

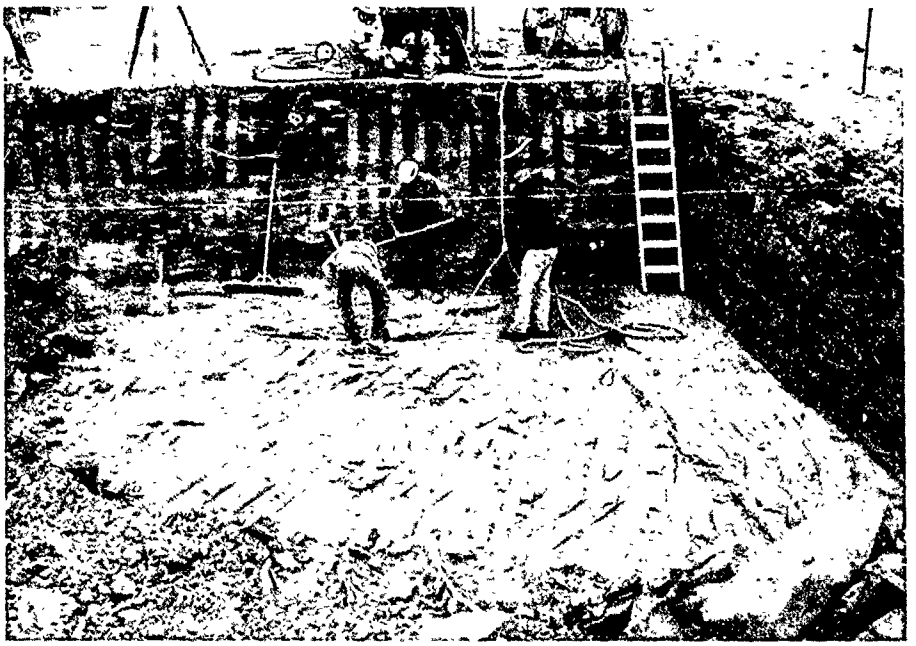


Figure 13. Intake Structure, hand cleaning shale foundation.

Figure 14. Intake Structure, placing re-bar for slab.

Figure 15. Looking Upstream from valve vault, showing fresh shale surface prior to placement of impervious material.

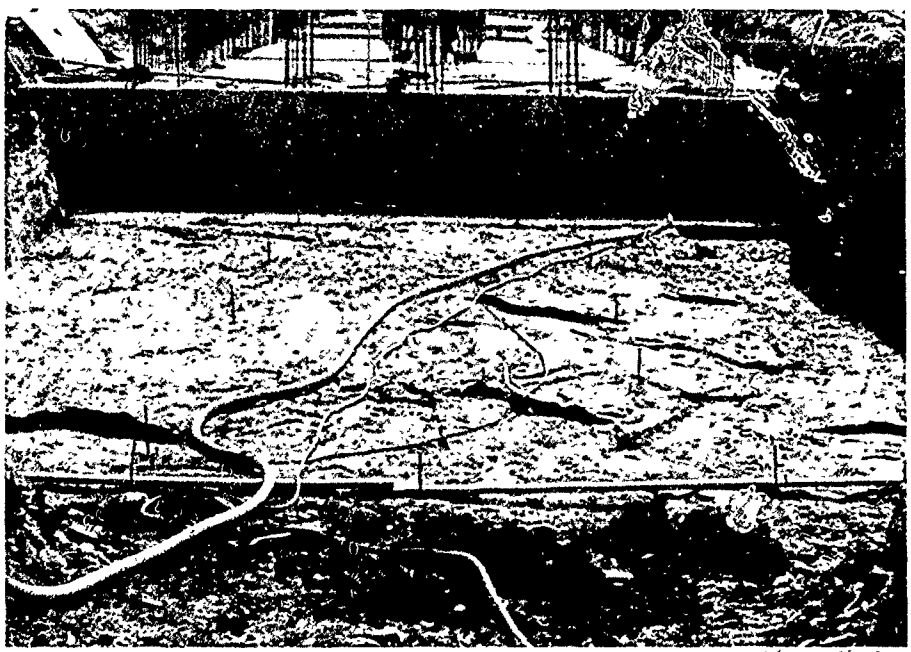


Figure 16. Foundation for approach slab.

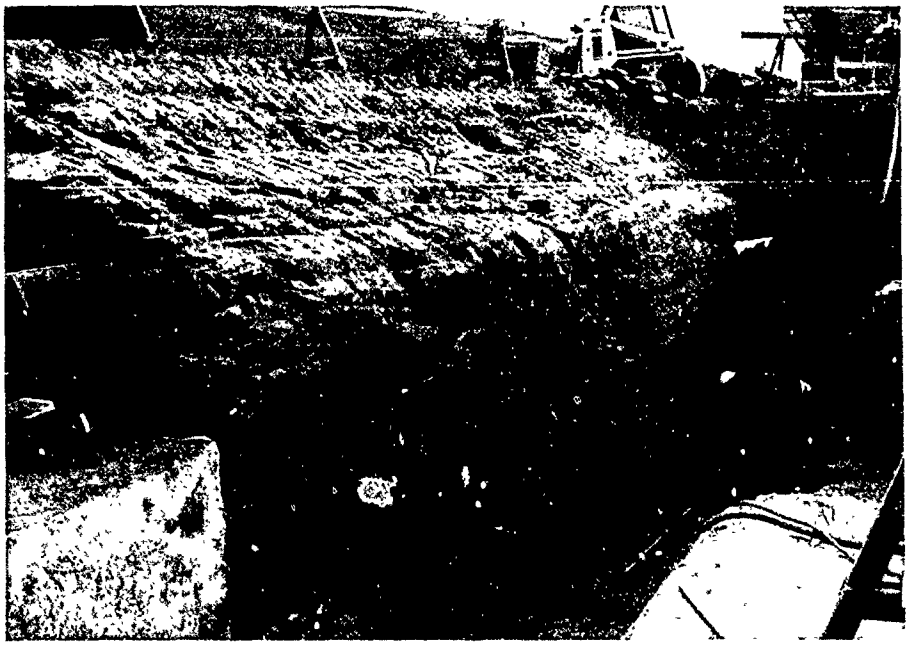


Figure 17. Excavation for intake for hydropower conduit at intake structure slab - looking downstream.

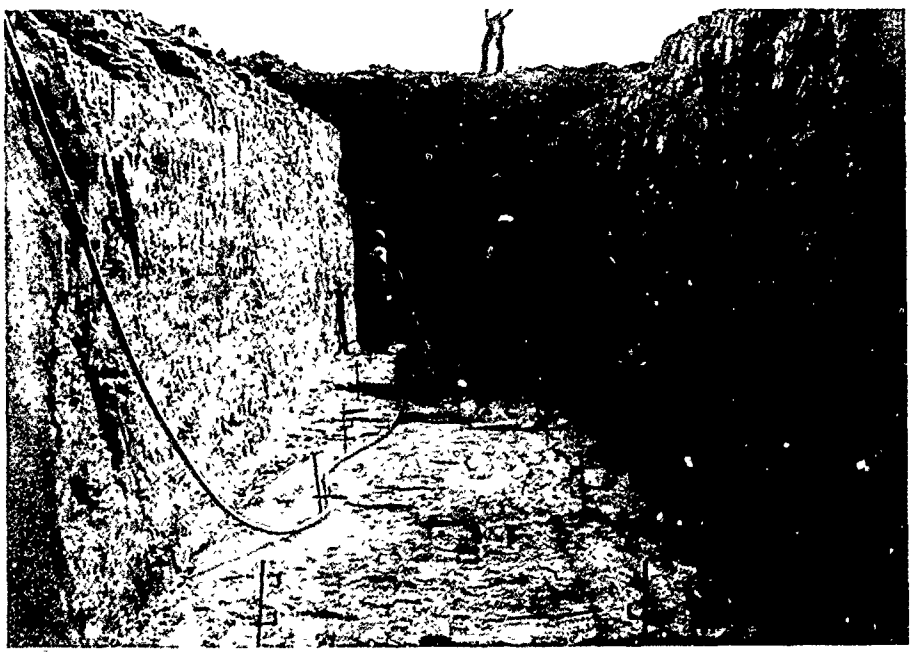


Figure 18. Hydropower conduit - placing gunite, Sta. 29+50-30+00.

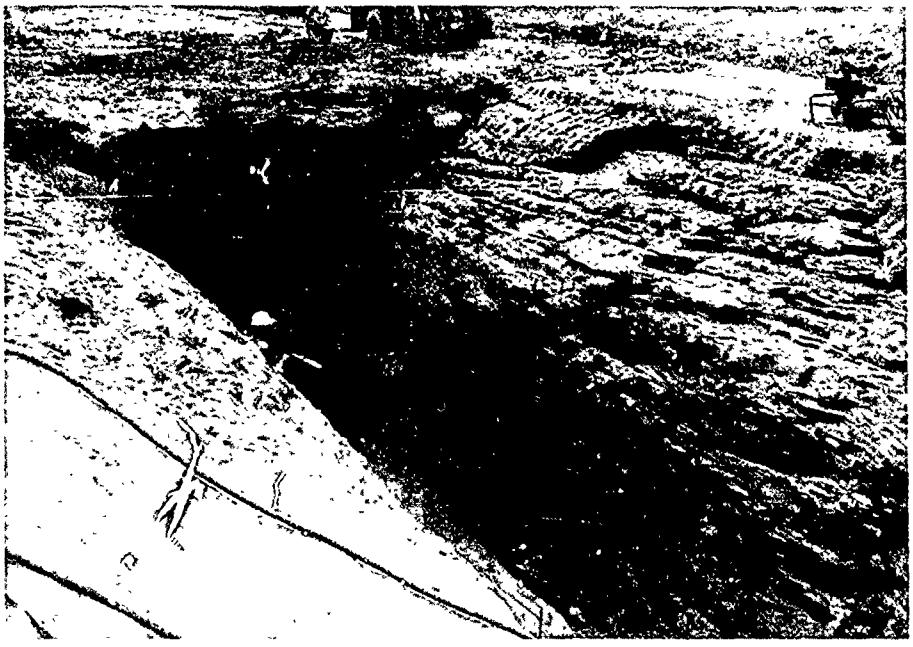


Figure 19. Hydropower conduit, looking downstream, Sta. 29+20.

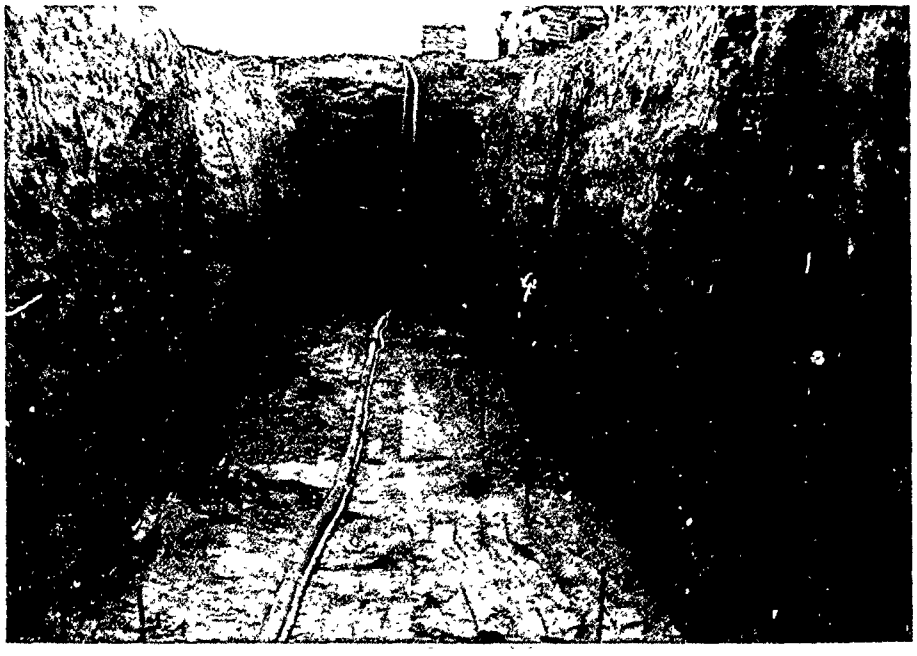


Figure 20. Hydropower conduit, looking downstream, Sta. 30+10.

face by jackhammer and/or air jetting before protective concrete was placed.

e. **Line Drilling, Presplitting, and Contour Blasting.** No line drilling, presplitting, or contour blasting were performed during the course of construction.

f. **Foundation Preparation.** Clay shale of the Pawpaw Formation forms the majority of the foundation in the outlet works excavation and in the excavation for the sill of the limited-use spillway. See Figures 21 through 29. Primary materials in general were not exposed in cutoff or inspection trench excavations. See Figures 30 and 31. The most predominant material exposed was clay, especially CH clays. Since the clay shale deteriorates upon exposure to air, usually very noticeable within about 3 days, protective sealant or lean concrete (Gunite) were specified for exposed shale surfaces. See Figures 34, 35, 36, 41, and 42.

g. **Gunite in Conduit Excavation Walls.** Problems with Gunite (protective concrete) developed in November 1982 in the hydropower conduit section between Stations 26+63 and 30+85. Excavation of the trench was done between 10 November 1982 and 23 November 1982. Gunite was applied, as excavation progressed, on the floor and nearly vertical walls of the trench. Inspection on 24 November 1982 revealed numerous horizontal cracks, circular areas where Gunite has fallen off the wall, and evidence that voids existed behind the Gunite face. Inspection on 30 November 1982 revealed that deterioration of the Gunite had greatly

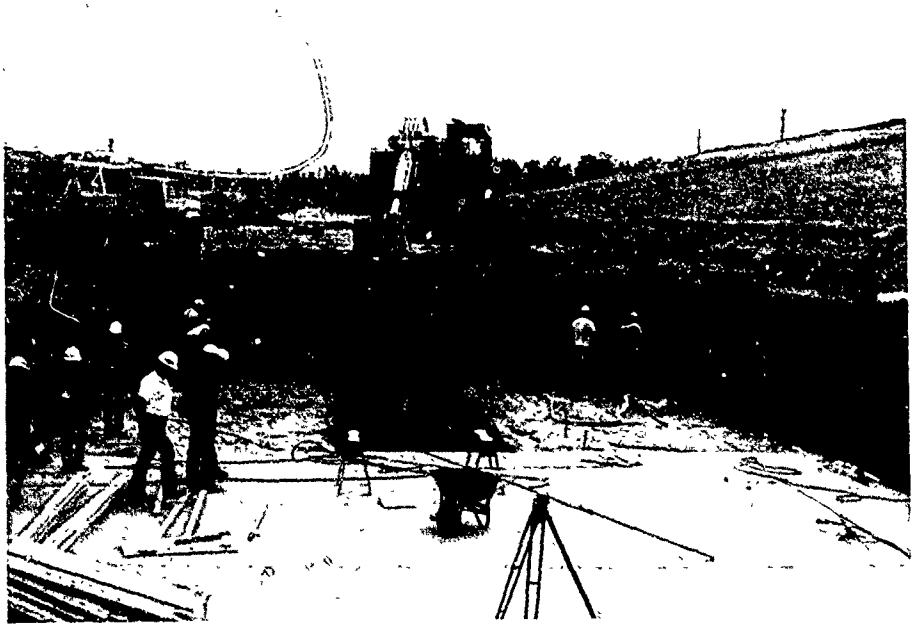


Figure 21. Excavation for hydropower conduit at intake structure slab.

Figure 22. Same as above.

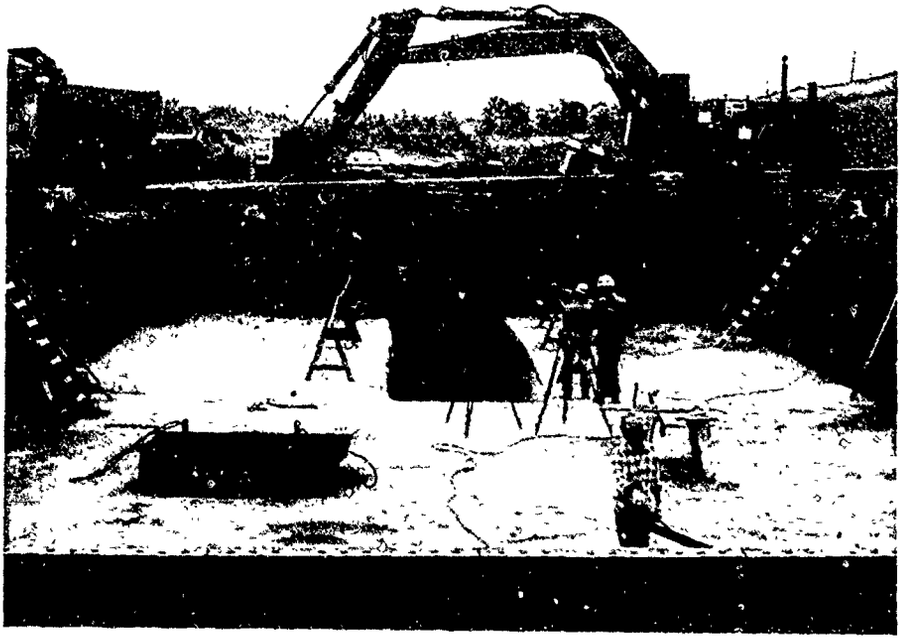


Figure 23. Excavation for hydropower conduit at intake structure slab.

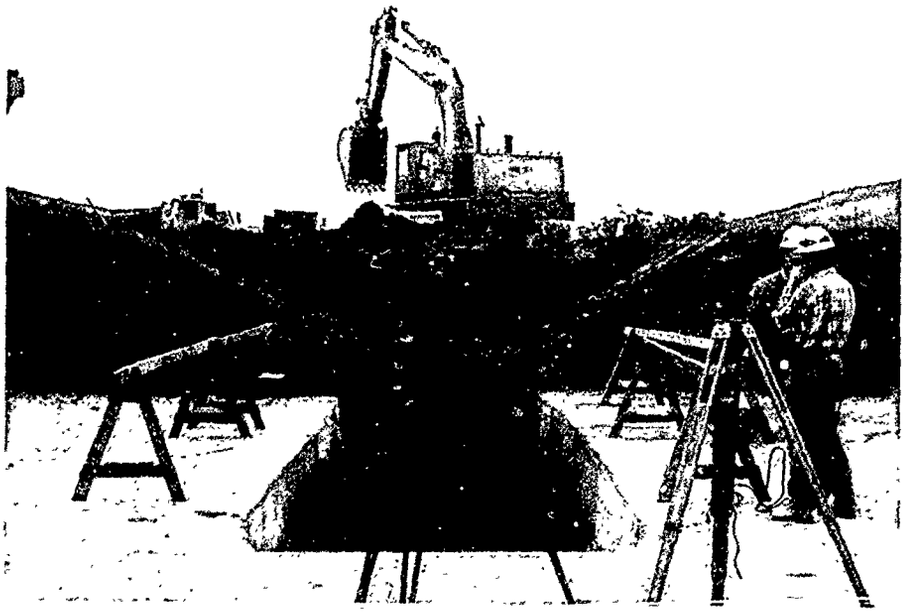


Figure 24. Same as above.

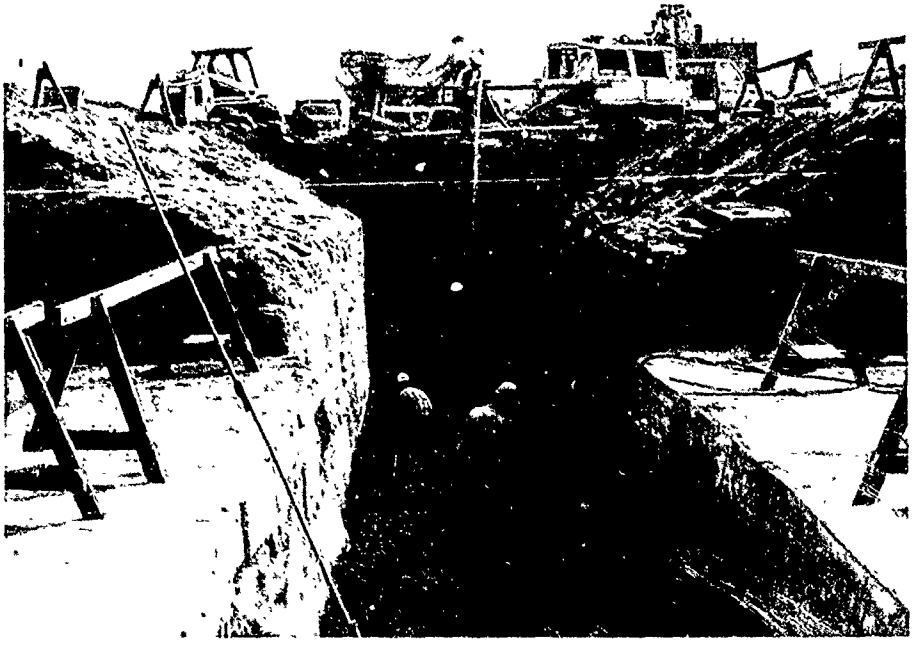


Figure 25. Excavation for hydropower conduit at intake structure slab.

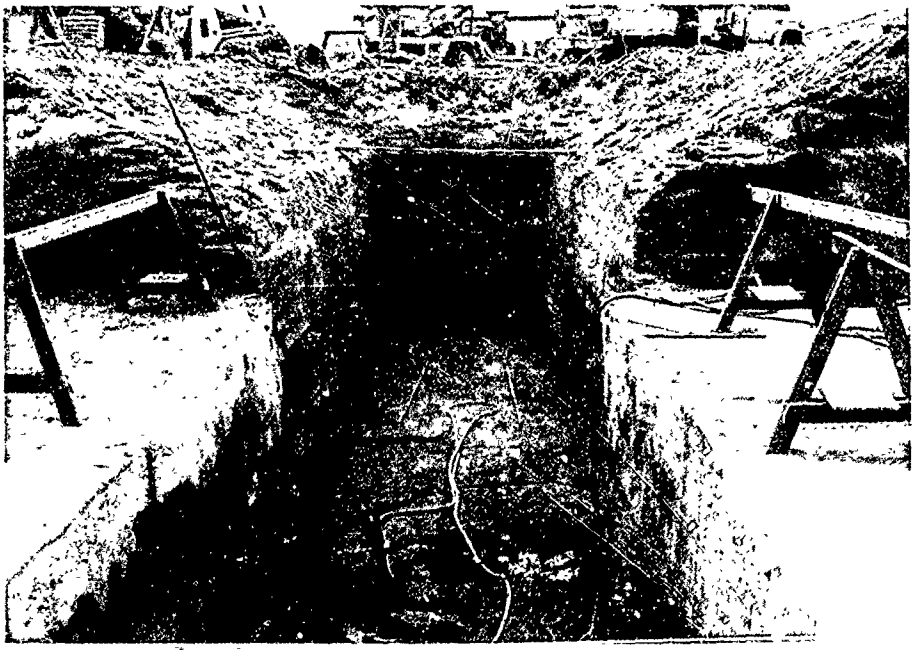


Figure 26. Same as above.

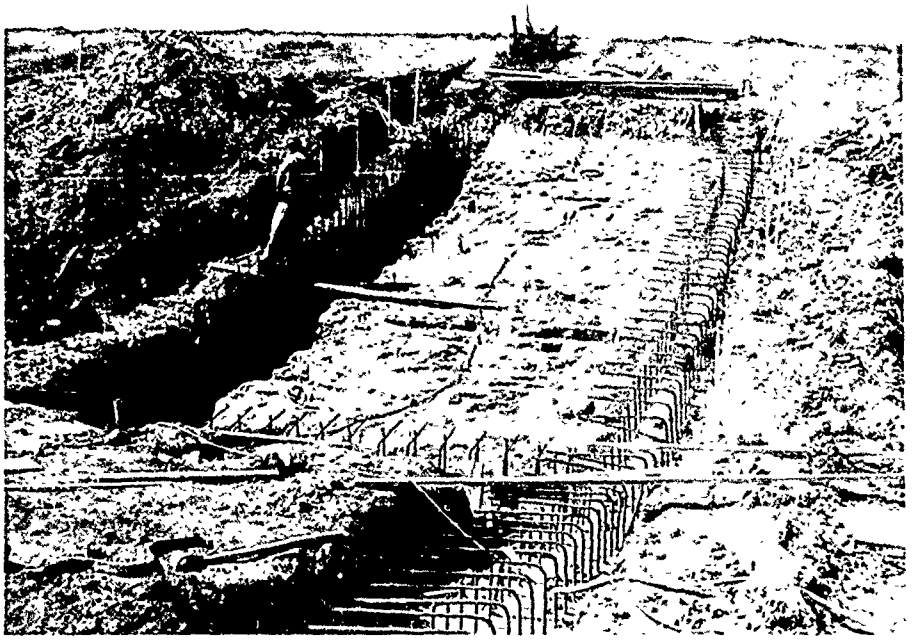


Figure 27. Construction of spillway sill.

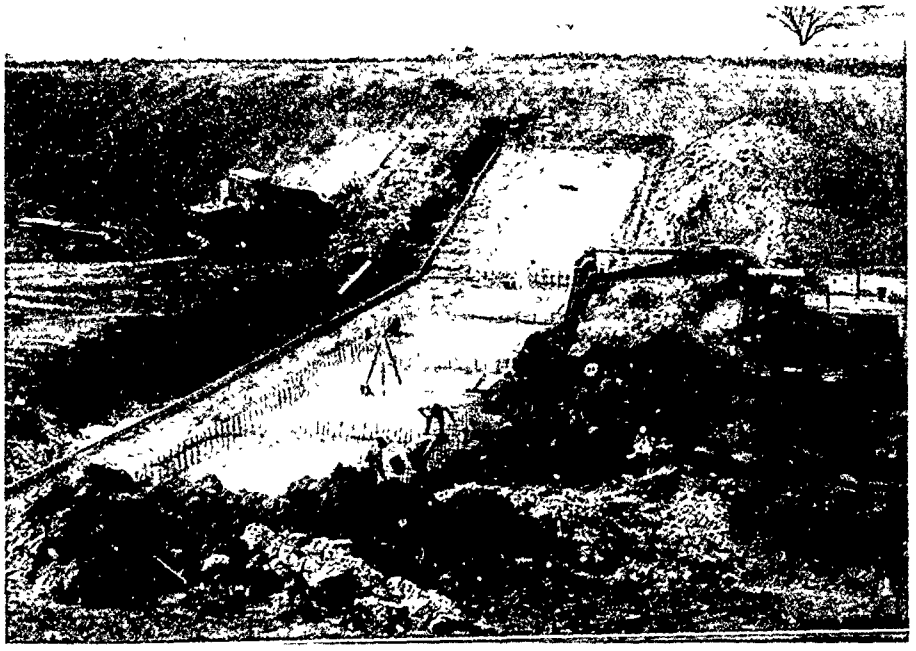


Figure 28. Same as above.

Figure. 29. Spillway - placing concrete footings.

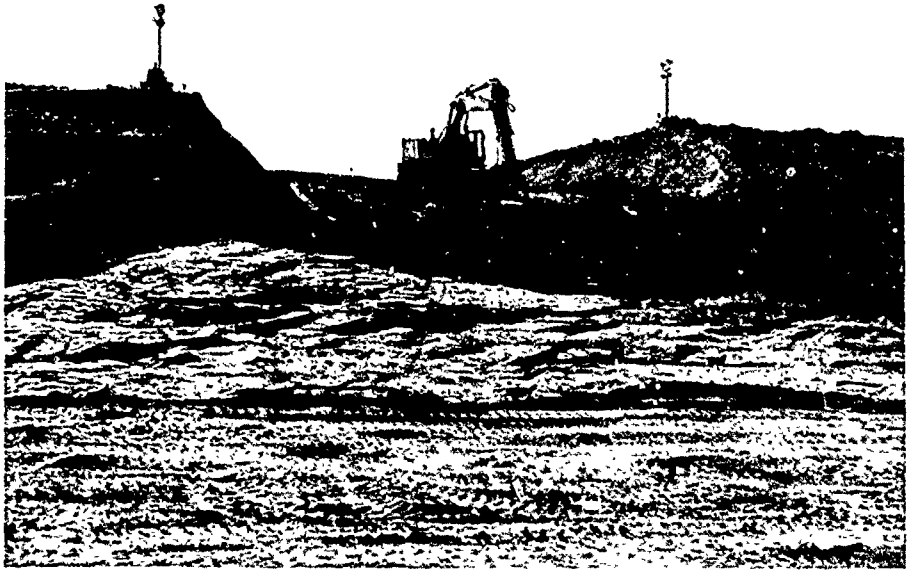


Figure 30. Looking downstation along dam centerline at intersection of embankment centerline and outlet works centerline.

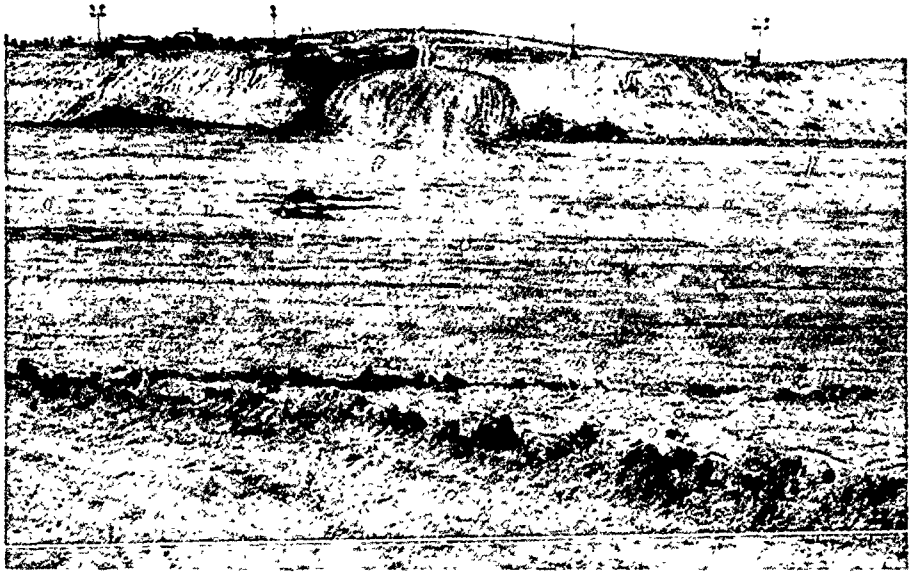


Figure 31. Later view of same area.

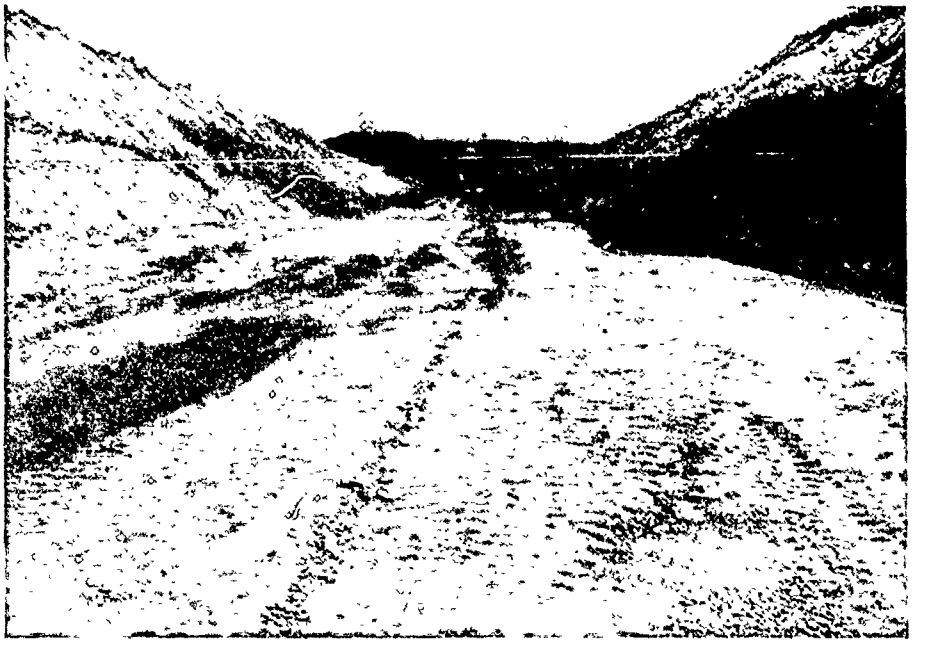


Figure 32. Inspection trench looking upstation (east).

Figure 33. Inspection trench looking upstation.
Sta. 83+00 - 91+00.

Figure 34. Intake structure foundation - spraying aerospray.

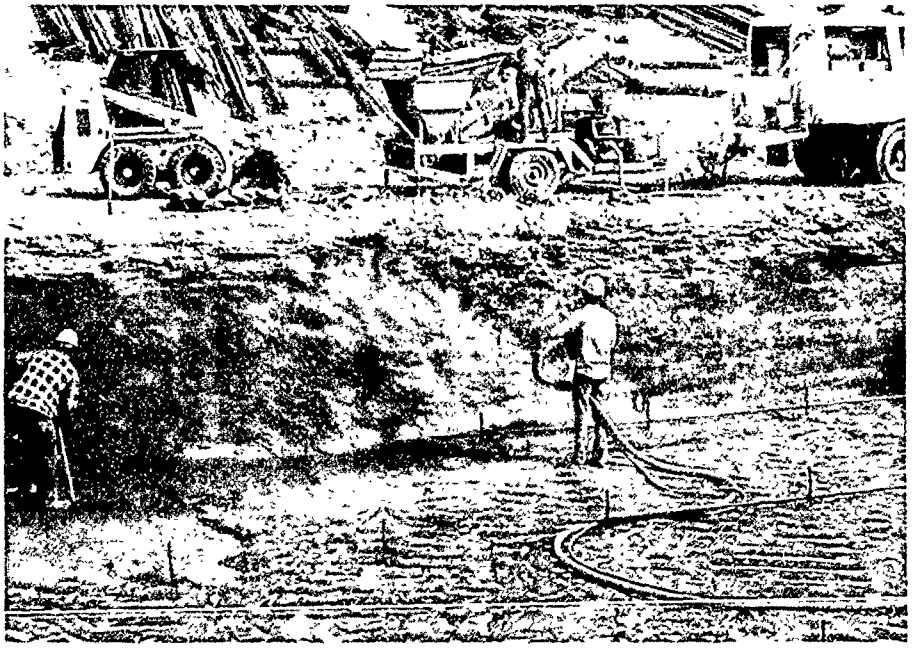


Figure 35. Intake structure foundation - applying gunite.

Figure 36. Intake structure foundation - placing protective concrete.

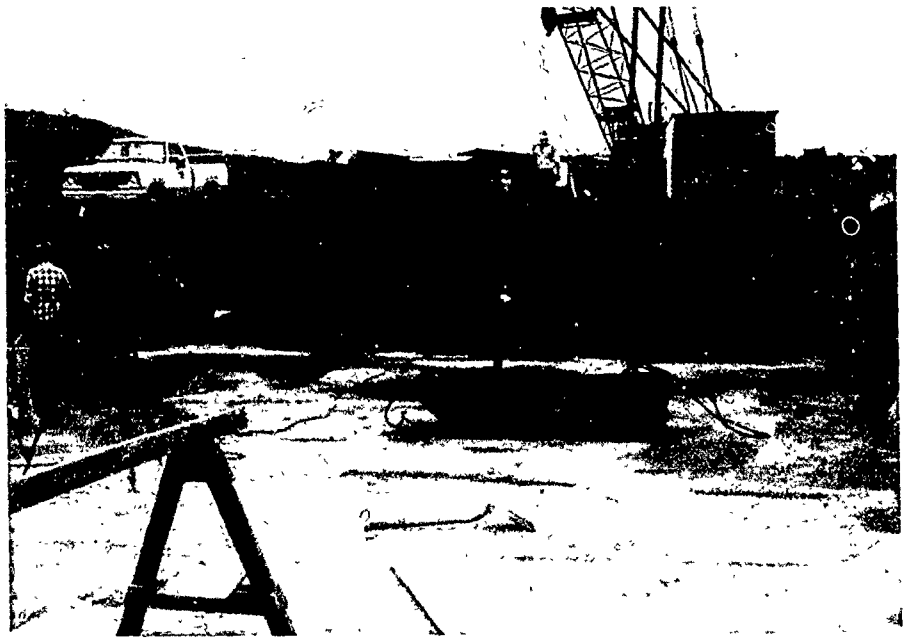


Figure 37. Forms for intake structure.

Figure 38. Outlet works, left side looking downstream at intake structure wing walls showing fresh shale surface.

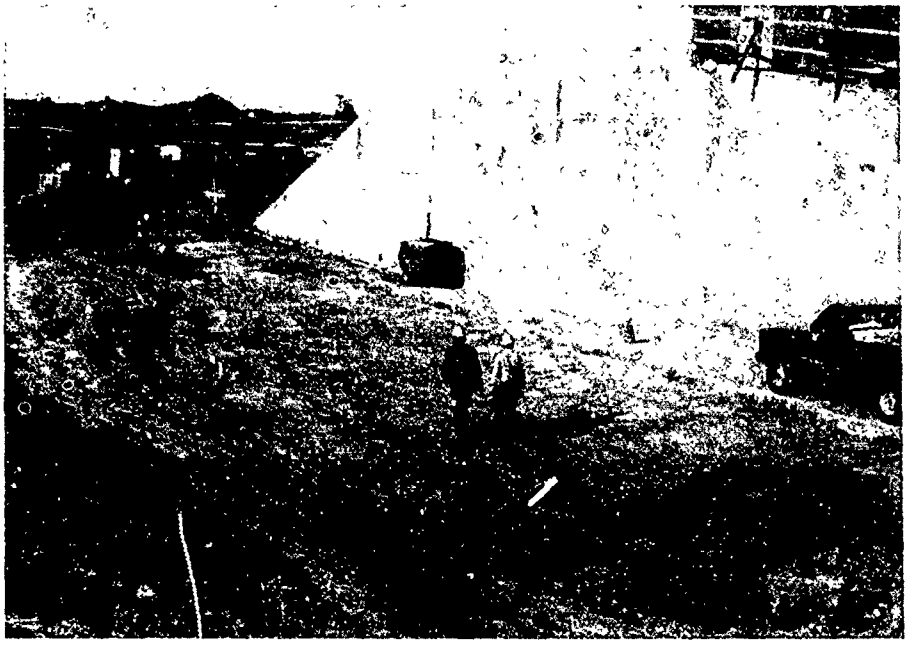


Figure 39. Intake structure, left side looking upstream. Fresh shale surface prior to placement of impervious.

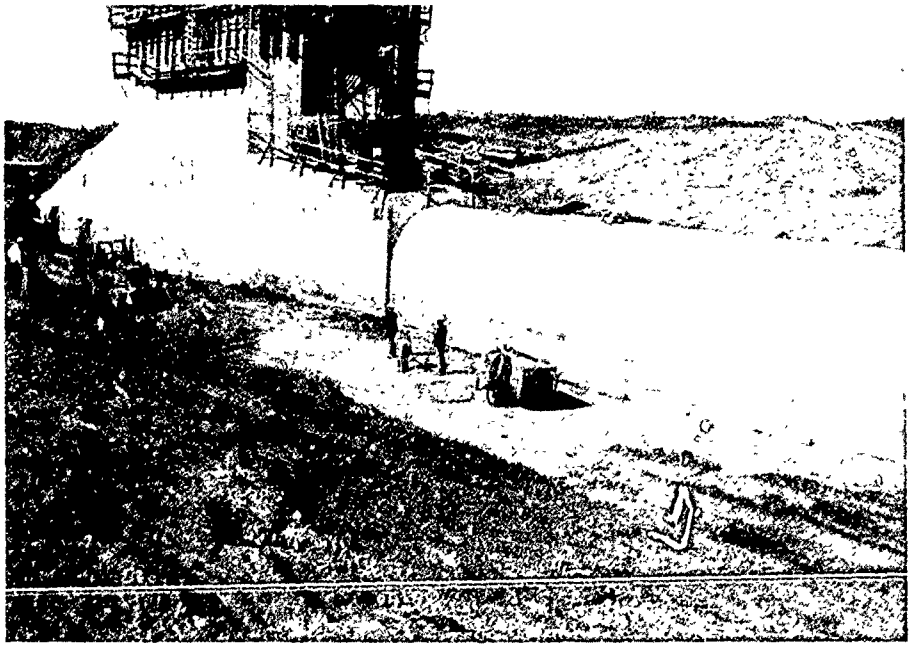


Figure 40. Same as above.

Figure 41. Hydropower conduit excavation showing gunite and aerospray application (looking upstream) Sta. 28+50 - 27+50.

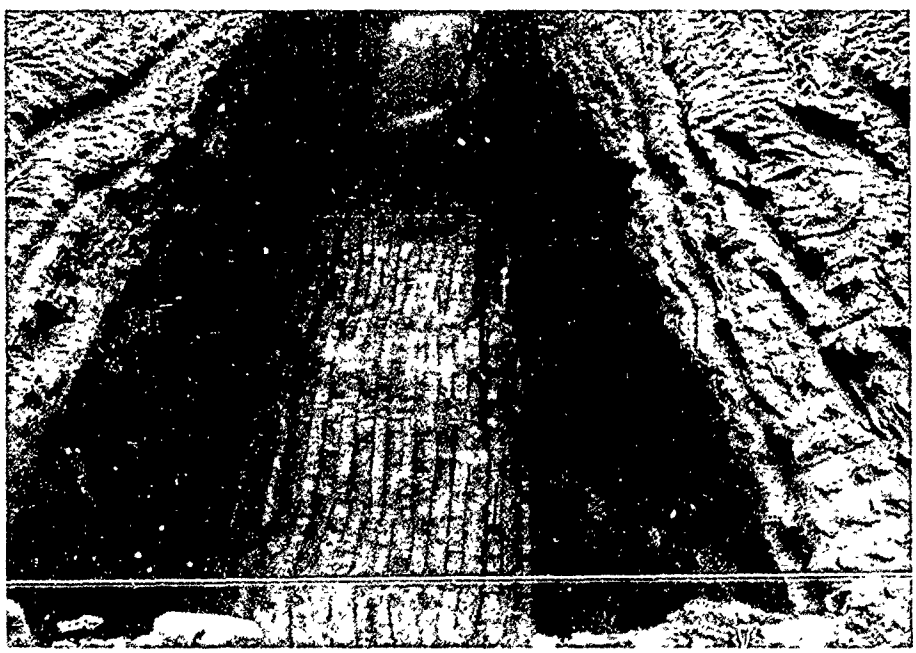


Figure 42. Same as above.

accelerated, apparently because of a heavy rain on 25-26 November 1982. See Figures 43 through 46. From Station 28+25 to 30+85 the Gunite was severely cracked and broken and an estimated 30-foot long section on the east wall of the trench had fallen. Most of the Gunite on both walls in this section appeared loose and ready to fall. Portions of the Gunite, though still in-place, had void space between the Gunite and the rock face. This space could provide a seepage path along the outside of the conduit connected directly to the reservoir pool. A contract modification was signed on 3 December 1982 which stated:

(1) On remainder of penstock excavation (Station 30+85 to Station 34+07), delete pneumatic concrete from the IV: .09 H slopes, and spray these slopes with Aero-spray 70 as often as required to prevent weathering of shale.

(2) Between Stations 28+22 and 30+75 remove <u>all</u> pneumatic concrete which is drummy, cracked, or loose. Spray exposed shale with Aero-spray 70 as often as required to prevent weathering of shale.

(3) All future penstock excavation (Station 30+85 to Station 34+07) and removal of existing pneumatic concrete (Station 28+22 to Station 30+75), will proceed at a rate to accommodate one placement at a time to minimize shale exposure.

The contractor agreed that no more than 3 days would pass between exposure of the clay shale and concrete encasement. On occasions when exposure was more than 3 days, deterioration, consisting of severe drying, cracking and checking, was often noted. Contractor was then

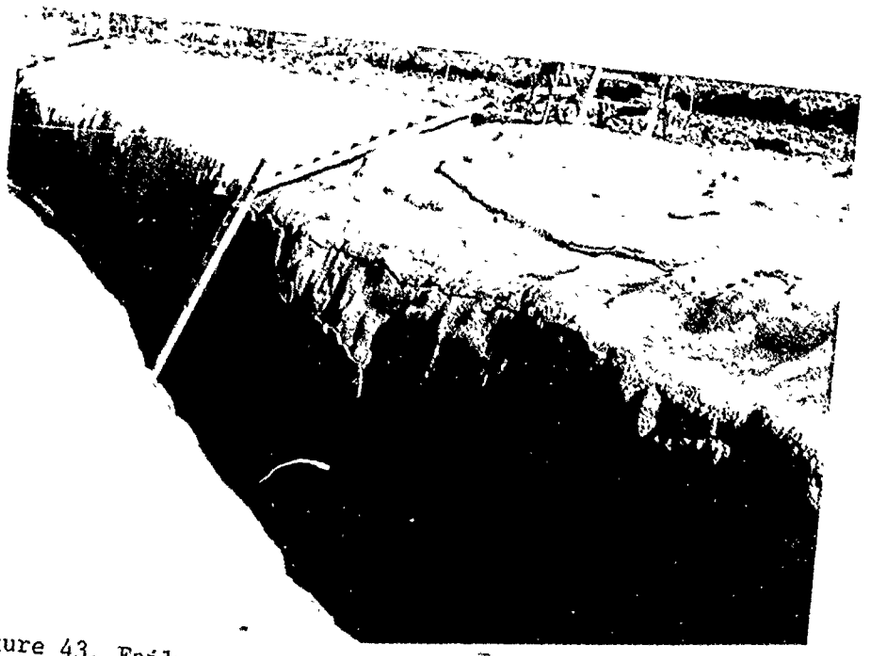


Figure 43. Failure of gunite on hydropower conduit excavation.

Figure 44. Same as above.

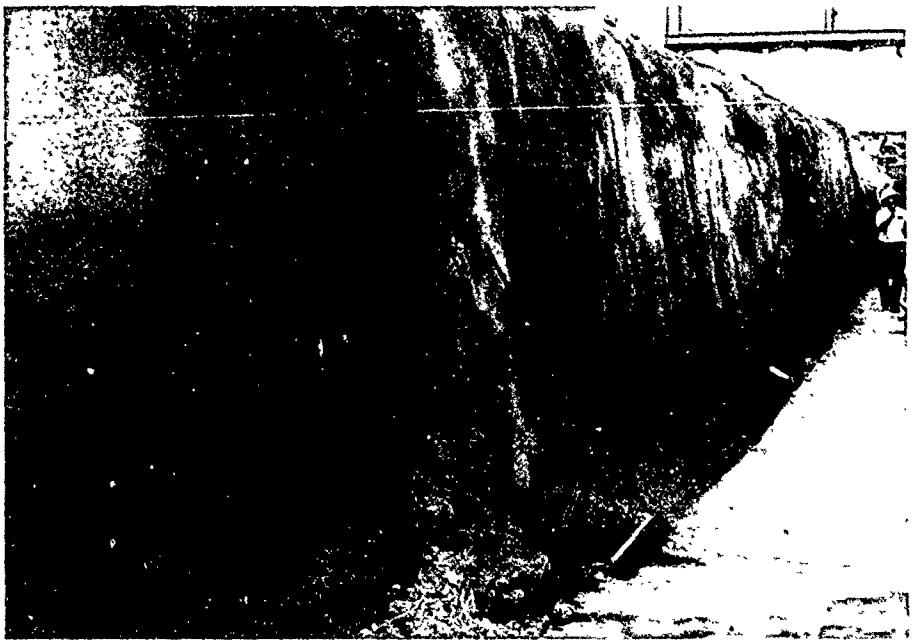


Figure 45. Failure of gunite on hydropower conduit excavation.

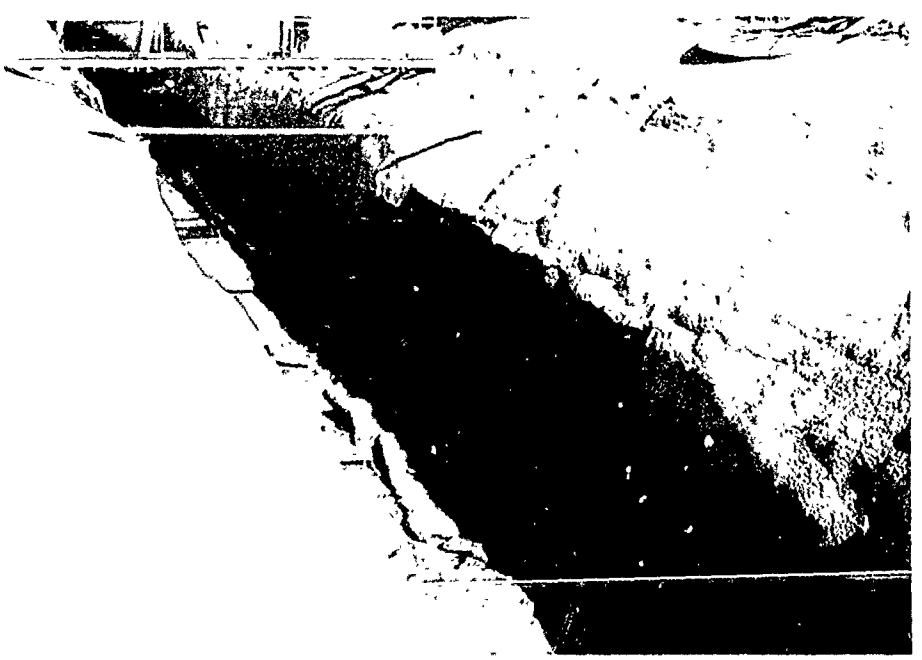


Figure 46. Same as above.

instructed to clean loose and drummy rock by jackhammer and to make final cleanup with compressed air before placement of concrete.

h. **Safety Protection Against Slides and Rock Falls.** Slopes excavated to design grade were generally not steep enough to require special protection against slides and rock falls.

5. **PILE DRIVING AND SPECIAL FOUNDATIONS.** No special foundations, such as driven piles, caissons, or drilled piers were utilized.

6. **TUNNELS, SHAFTS, AND UNDERGROUND STRUCTURES.** The construction of this project did not include any tunnel shafts or underground structures.

7. **FOUNDATION ANCHOR TEST.** A foundation anchor test was performed 4 April 1983 at Station 34+93.5, 5 feet west of outlet works centerline. See Figures 47 through 50. The surface elevation was 531.3. The test was performed in the chute foundation area on a 12-foot anchor with test results shown on pages 19 and 20.

8. **CHARACTER OF FOUNDATION.**

a. **General.** The limited service spillway is founded in weathered clay shale of the Pawpaw Formation of Lower Cretaceous age. The outlet works conduit, chute, and stilling basin are founded on unweathered clay shale of the Pawpaw Formation. Except for the left abutment, the inspection trench was almost entirely in overburden with clays and silty clays predominating. The Woodbine Formation, the basal formation of the Upper Cretaceous, was exposed in the inspection trench in the left abutment. It consists of weathered reddish-brown sands, clays,

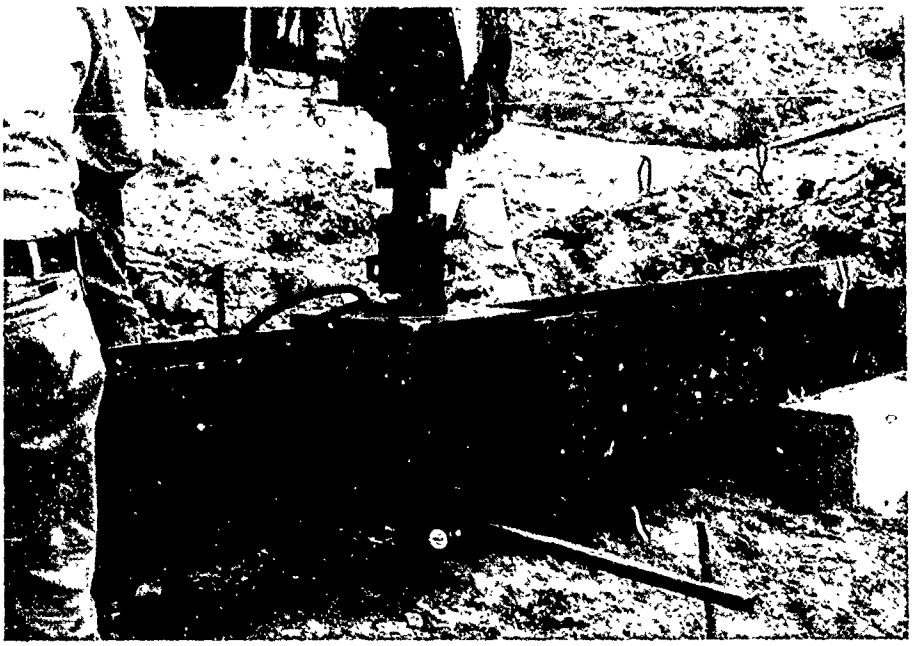


Figure 47. Pullout test. Stilling Basin.

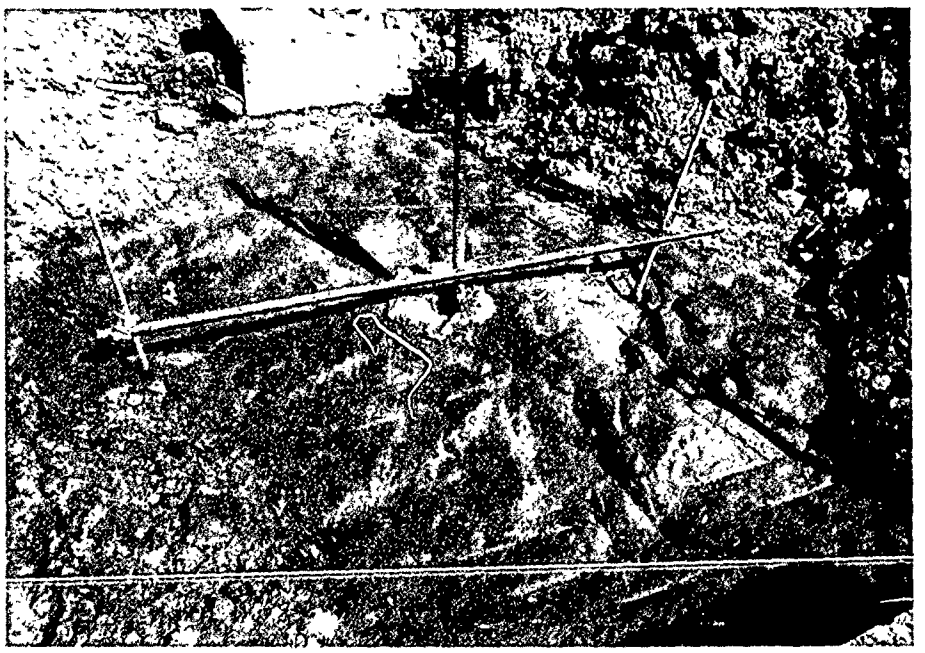


Figure 48. Same as above

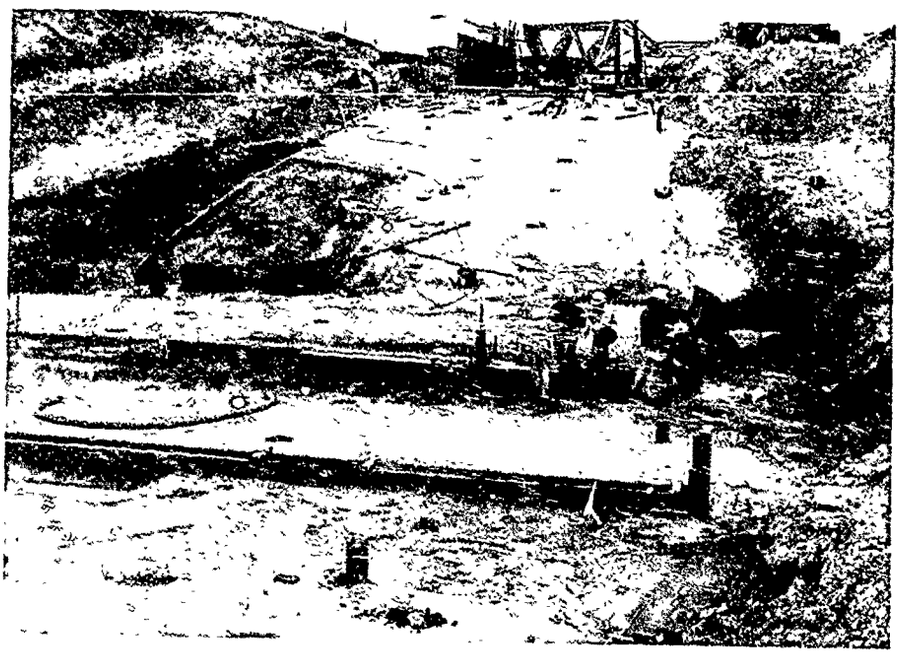


Figure 49. Pullout test. Stilling basin.

Figure 50. Same as above.

TEST NO. 1

Time	Load In Tons	PSI	Deflection In Inches
1044	0	0	.000
1044	5	930	.017
1049	5	930	.017
1050	12.7	2350	.026
1105	12.7	2350	.026
1105	17.7	3150	.035
1110	22.7		.046
1115	22.7		.046
1115	27.7		.059
1120	Stopped test - sag in "I" beam causing deflection in anchor bar.		

TEST NO. 2

Time	Load In Tons	PSI	Deflection In Inches
1137	5	930	.003
1142	5	930	.003
1142	12.7	2350	.015
1157	12.7	2350	.016
1157	17.7	3150	.023
1201	17.7	3150	.023
1201	22.7	4050	.034
1207	22.7	4050	.034
1207	27.7	4950	.045
1212	27.7	4950	.046
1212	32.7	5850	.060
1216	32.7	5850	.067
1216	36.0	6600	.075
1221	36.0	6600	.085
1222	32.7	5850	.085
1226	32.7	5850	.085
1226	27.7	4950	.078
1231	27.7	4950	.077
1231	22.7	4050	.068
1236	22.7	4050	.068
1236	17.7	3150	.057
1241	17.7	3150	.057
1241	12.7	2350	.043
1246	12.7	2350	.043

TEST NO. 2
(cont'd)

Time	Load In Tons	PSI	Deflection In Inches
1246	5	930	.018
1251	5	930	.018
1251	0	0	.000
1300	0	0	.000
1300	5	930	-.012
1305	5	930	-.012
1305	12.7	2350	.000
1310	0	0	.000
1310	5	930	-.006
1315	5	930	Reset to .000
Bar deflecting downward and horizontal under initial load.			
1320	5	930	.000
1320	12.7	2350	.016
1335	12.7	2350	.016
1335	5	930	.003
1340	5	930	.003
1340	0	0	-.006
1341	5	930	.001
1346	5	930	.001
1346	10	1820	.011
1351	10	1820	.011
1351	15	2750	.021
1356	15	2750	.023
1356	20	3650	.038
1401	20	3650	.038
1401	25	4550	.049
1406	25	4550	.050
1406	30	5450	.064
1411	30	5450	.064
1411	35	6300	.078
1416	35	6300	.083
1416	40	7200	.107
1421	40	7200	.109
Stop Test			

and sandstones ranging from soft and friable to moderately hard.

b. **Character of Overburden Materials.** Overburden materials comprise the foundation for the embankment, in the outlet works approach and discharge channels, and in the approach and discharge channels for the spillway. Overburden materials exposed in the inspection trench and cutoff trench consist of alluvial clays, silts, sands, and gravels in the floodplain between Stations 105+00 and 136+00, and residual overburden on the abutments. Residual overburden consisting of clay and silty clay was exposed in the approach and discharge channels for the spillway. The outlet works approach and discharge channels were excavated in fluviatile terrace and floodplain alluvial materials consisting of clay, sand, silt, and gravel.

c. **Character of Primary Materials.** The Pawpaw Formation comprises much of the foundation and was exposed in the outlet works and the spillway excavation. The Pawpaw is relatively level and finished grade was often on or near bedding planes. See Figures 13, 16, and 18. In the outlet works foundation, the clay shale is generally soft to moderately hard, unweathered, gray to dark gray and thin to medium bedded with scattered sandy seams and occasional sandstone seams north of Station 27+00. South of station 27+00 the clay shale contains up to 50 percent fine-to-medium grained sandstone and sandy seams. The base of the sandy phase was encountered at elevation 523, Station 36+15 in the chute foundation. A 2- to 3-inch thick fossiliferous zone was exposed near the base of the chute at elevation 520.0. Excavation,

cleaning of shale surfaces, and placement of fill are shown in Figures 51 through 64. The stilling basin foundation surface was described as shale, soft, slightly sandy with occasional sandy pockets and zones, fossiliferous, gray. See Figures 63 and 64.

The sill foundation for the limited use spillway was excavated down to a sandy, stiff, yellowish-brown to light gray clay, underlain by about 3 feet of gravelly clay. The edges and narrow sections in the middle, horizontal part of the foundation were keyed into weathered shale of the Pawpaw Formation. The approach and discharge channels were excavated in sandy clay. See Figures 27, 28, and 29.

9. **FOUNDATION TREATMENT.** No grouting was necessary at the project and no dental concrete or broom grouting were utilized.

10. **FOUNDATION INSTRUMENTATION.**

a. **General.** The instrumentation program at Ray Roberts Dam was designed to monitor five basic areas which are discussed below. A plan of instrumentation is shown on Plate 57. The following descriptions are taken from **"Periodic Inspection No. 1, Ray Roberts Lake, July 1987."**

(1) **Initial Embankment and Closure Section.** Nineteen piezometers were installed to monitor pore pressure development in the floodplain foundation during construction of the initial embankment and closure section. Settlement gages (12 deep settlement plates and 3 foundation surface settlement plates) were installed to monitor vertical movement of the foundation in the floodplain, and 8 surface

Figure 51. Outlet works, left side looking upstream. Fresh shale surface prior to placement of impervious material.

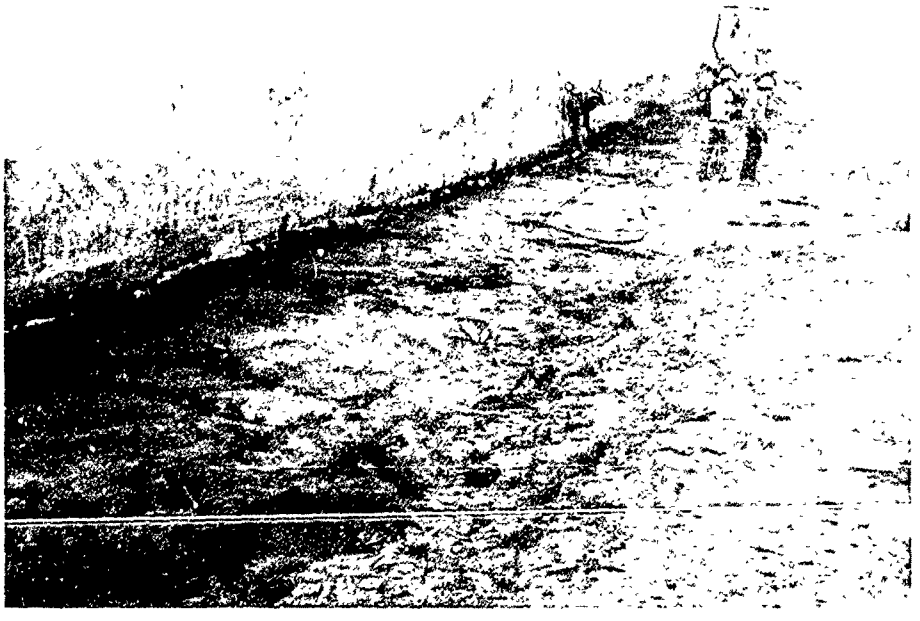


Figure 52. Same as above.

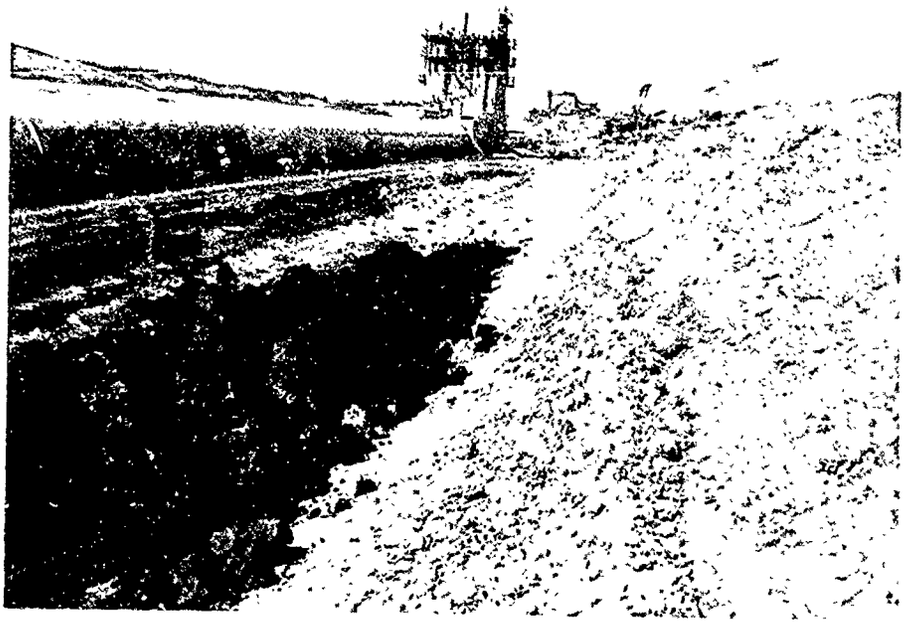


Figure 53. Outlet works conduit, left side, looking upstream. Placing fill on fresh shale surface.

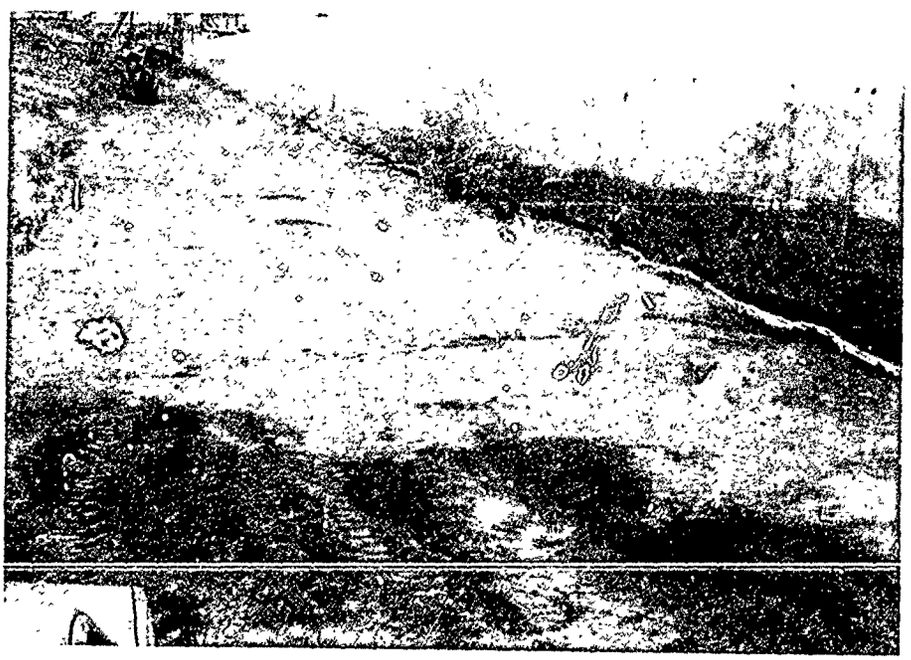


Figure 54. Outlet works conduit, right side, looking upstream. Fresh shale adjacent to conduit.

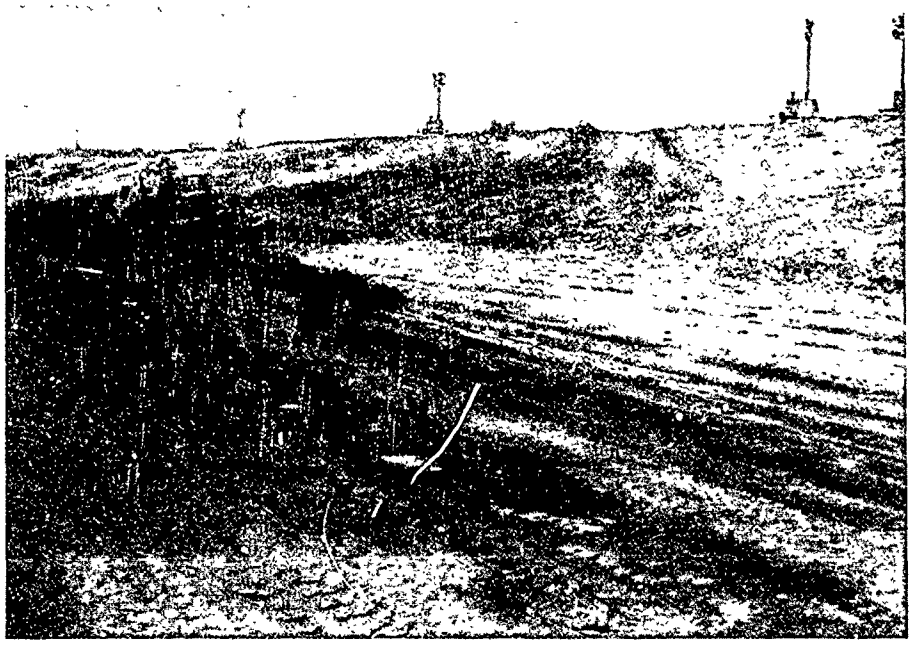


Figure 55. Outlet works excavation, right side looking downstream. Placing fill on fresh shale surface.

Figure 56. Outlet works, right side, looking upstream. Fresh shale surface.

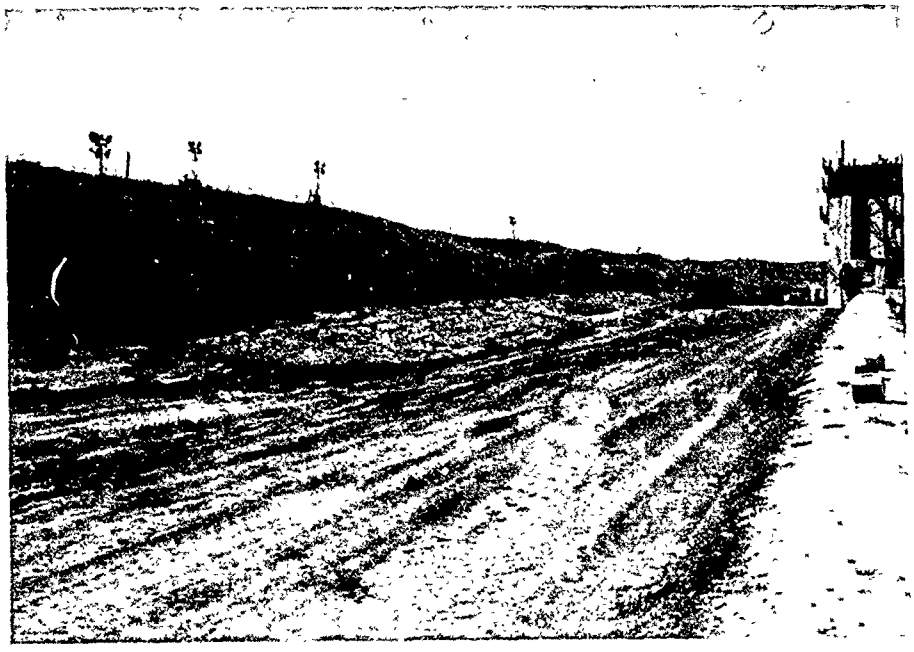


Figure 57. Outlet works, right side looking upstream. Cleaning shale surface in increments prior to placement of fill.

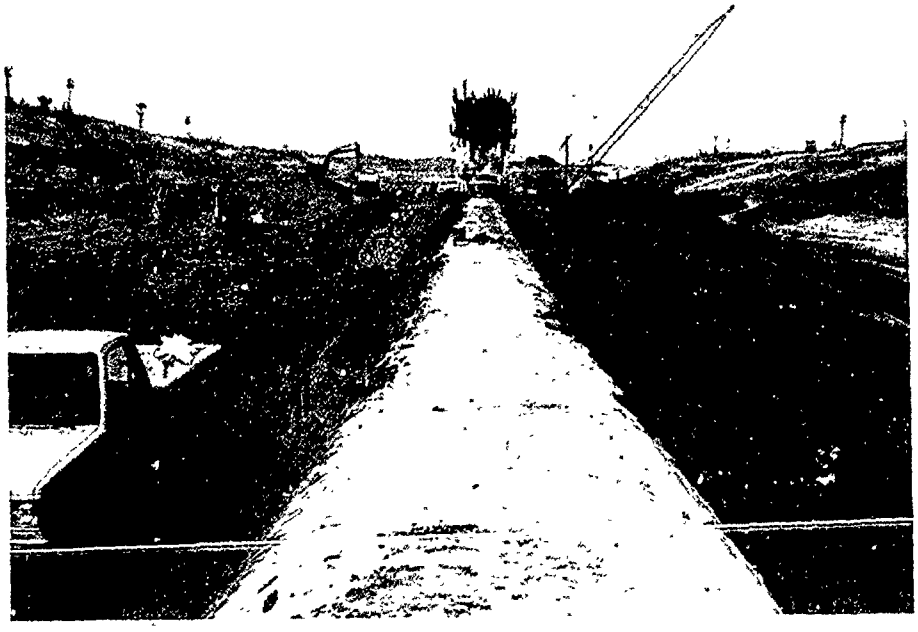


Figure 58. Outlets works conduit, looking upstream.

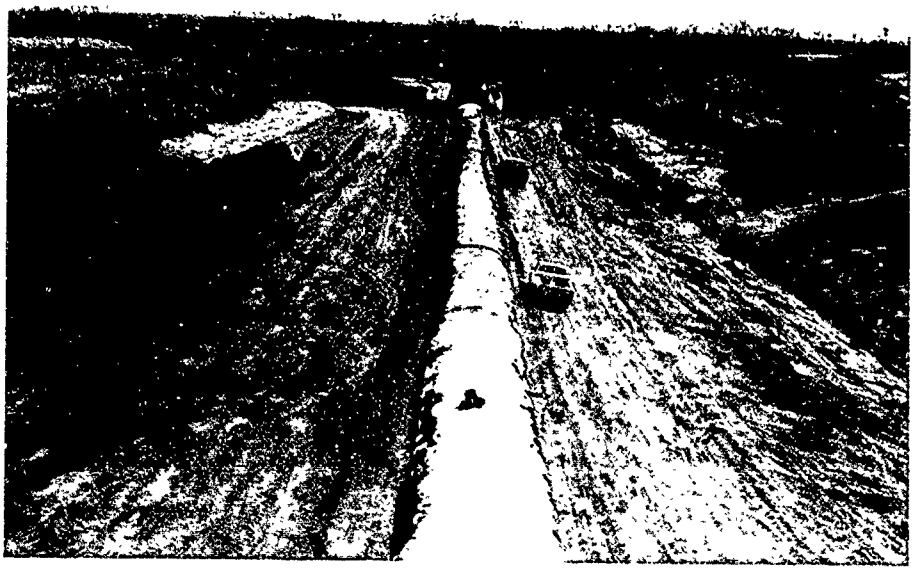


Figure 59. Outlet works looking downstream from tower.

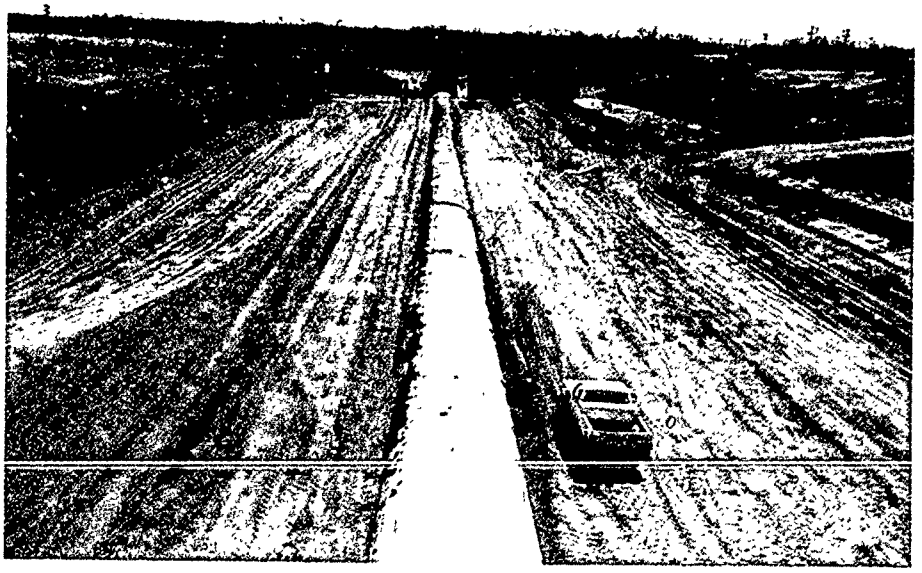


Figure 60. Same as above.

Figure 61. Outlet works, right side, looking downstream. Cleaning shale surface prior to placement of fill.

Figure 62. Same area as above.

Figure 63. Stilling basin. Spraying aerospray.

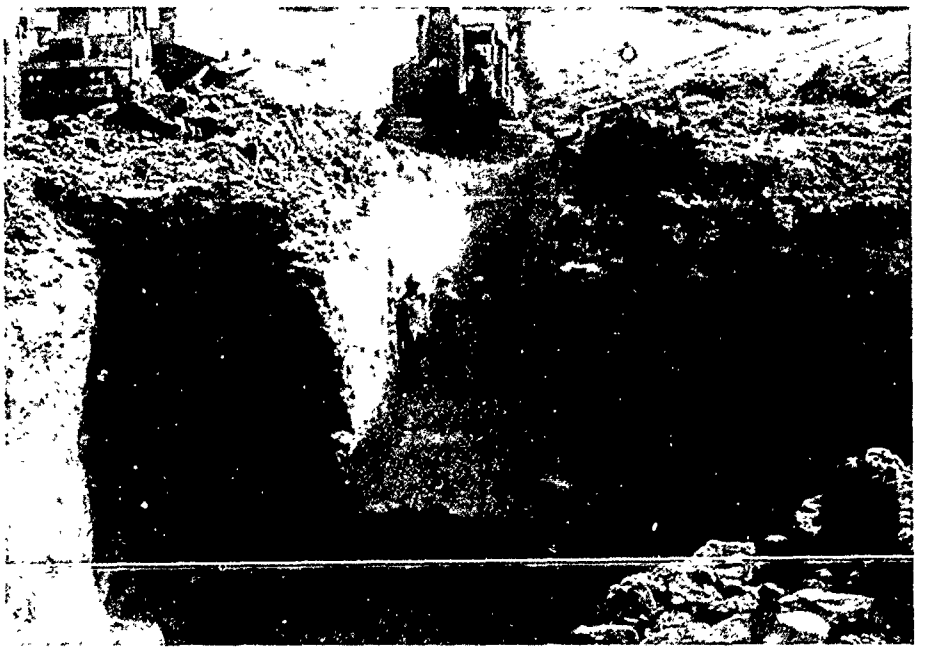


Figure 64. Excavation for discharge from valve vault.

reference marks were provided to monitor embankment movement. Twelve inclinometers were installed to measure lateral displacement of the foundation during construction of the initial embankment and closure section. Of primary concern in planning the instrumentation program was the performance of the initial embankment which was designed to preload and consolidate the floodplain soils.

(2) **Left Abutment.** Nine piezometers were installed to monitor potential seepage effects at the left abutment (the upper portion of the abutment consists of pervious strata) including uplift pressures acting on the downstream portion of the embankment.

(3) **Embankment Underseepage.** Twenty-six seepage piezometers were installed in the embankment foundation to monitor underseepage.

(4) **Outlet Works.** To monitor movement of the outlet work structure, reference pins were installed within the conduit, on the stilling basin walls, and on the service bridge.

(5) **Embankment Crest.** A set of embankment station monuments has been installed along the downstream side of the crest to monitor post-construction settlement.

b. **Schedule of Instrumentation Reading.** Instrumentation located at the project will be read by CESWF-ED-G personnel according to the following schedule, or more frequently, if deemed necessary.

- o Piezometers - quarterly
- o Inclinometers - annually
- o Seepage Interceptor - monthly and when pool reaches 580, 590 600, and 632.5

- o Settlement Gages - quarterly and when pool reaches 580, 590, 600, and 632.5
- o Outlet Works Reference Pins - semiannually
- o Embankment Reference Marks - quarterly

c. **Settlement Plates and Deep Settlement Plates.** Settlement Plates SP-1 through SP-3, and deep settlement Plates DSP-1 through DSP-12 were installed in the floodplain foundation prior to and during initial embankment construction to monitor foundation settlement. Settlement plates consist of a 36-inch square, ¼-inch thick steel plate placed within the foundation materials and welded to a steel riser pipe extended through the embankment fill.

d. **Inclinometers.** I-1 through I-12 were installed within the floodplain embankment foundation prior to construction of the initial embankment to monitor horizontal deflection within the foundation. To provide a fixed frame of reference, all inclinometers were anchored in the primary clay shale. Inclinometers consist of a 3.34-inch diameter grooved ABS casing manufactured by Slope Indicator Company, Seattle Washington. Inclinometers were extended through the fill and steel casing.

e. **Piezometers.** Piezometers P-1 through P-43b have been installed within the embankment foundation materials to monitor foundation performance during construction and after impoundment. Open system piezometers utilizing porous plastic tips as manufactured by Slope Indicator Company, Seattle Washington, were installed using 3/8-inch diameter PVC risers and extended through the fill with steel casing.

Piezometers P-1 through P-19 were installed within the floodplain embankment foundation prior to construction of the initial embankment to monitor excess pore pressure development during construction. After embankment completion, piezometers P-20 through P-36 were installed on the downstream toe and slope within the sands and gravels overlying the shale. Piezometers P-37 through P-43b were installed after embankment completion, within the sandy abutment materials. All Piezometers (P-20 through P-43b) will monitor seepage within the foundation materials during and after reservoir filling.

f. Surface Reference Marks. Reference marks consisting of a brass monument, set into a 6-inch diameter pipe filled with concrete, were installed within the floodplain embankment to a depth of 5 feet to monitor vertical movement.

g. Reference Pins. Reference pins were installed along the outlet works conduit invert, stilling basin monolith walls, and service bridge. Reference pins which consist of bronze bolts embedded in concrete are used to monitor vertical movement of the monolith or slabs, and relative movement between monoliths or slabs.

h. Seepage Interceptor System. A seepage interceptor system has been installed within the left abutment embankment foundation to collect underseepage. The discharge is currently being monitored to record the normal ground-water flow. Flow from the system will be monitored, along with piezometers P-37 through P-43b, during impoundment when the pool reaches elevation 580, 590, 600, 620, and 632.5.

11. **POSSIBLE FUTURE PROBLEMS.** At the time foundations were approved and the dam completed in October 1986, no potential for future problems was apparent. The first periodic inspection was performed in July 1987. By that time several minor skin slides had occurred in the spillway approach channel slope. It was concluded that this problem could be easily remedied. Other minor problems are addressed in **"Periodic Inspection Report No. 1, July 1987."** The dam is considered to be in good general condition.

12. **RECORD OF FOUNDATION APPROVAL.** A record of the date when each section of the outlet works foundation was approved is shown on Plate 58. Records of approval of final foundation grades were kept for all foundations on which concrete was to be placed. The foundation for the emergency spillway was approved as a unit on 11 February 1984.

Figure 65. Outlet works, right side looking downstream. Cleaning shale surface in increments prior to placement of fill.

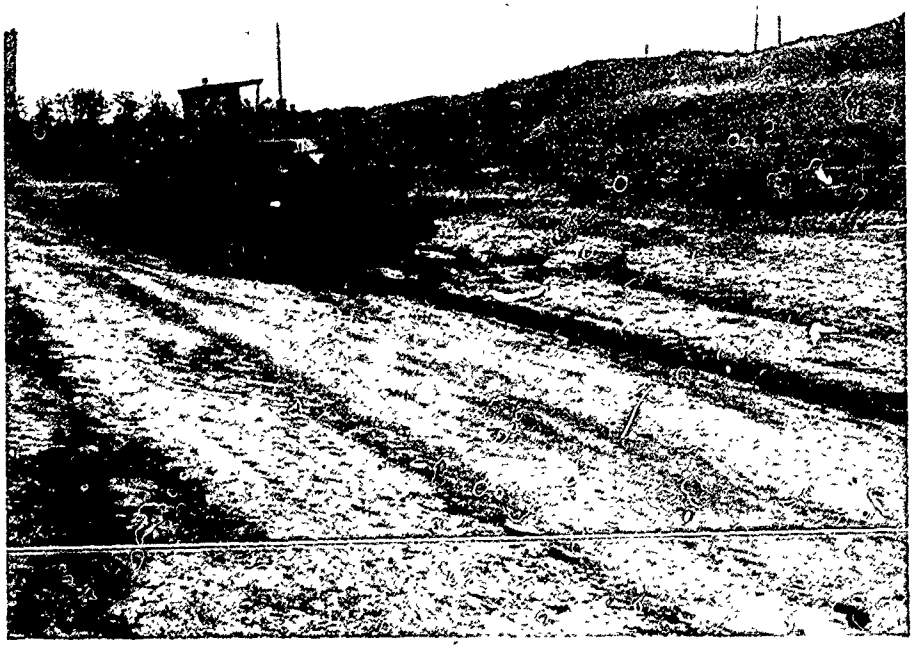


Figure 66. Placing fill.

Figure 67. Outlet works. Placing fill.

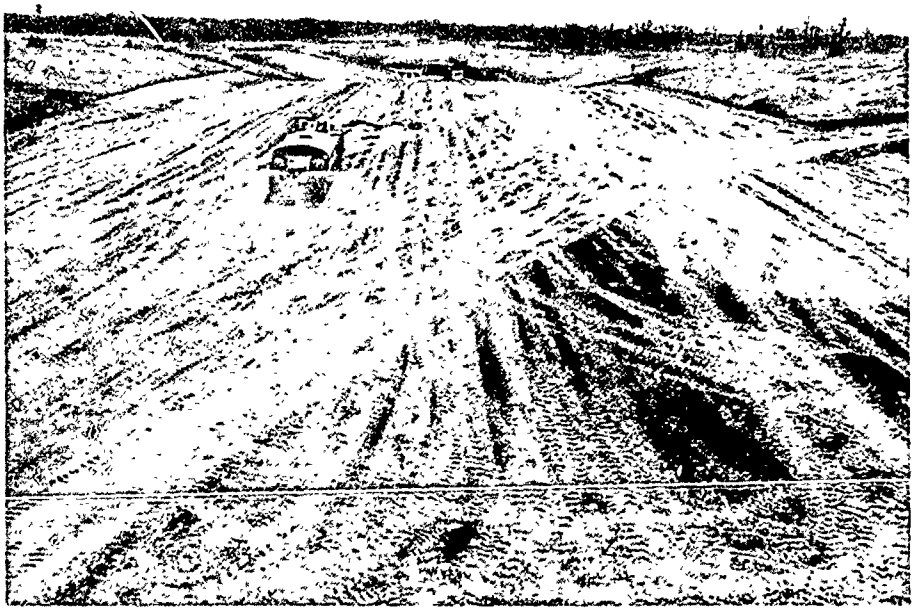


Figure 68. Outlet works backfill, looking downstream.

Figure 69. Excavation for valve vault.

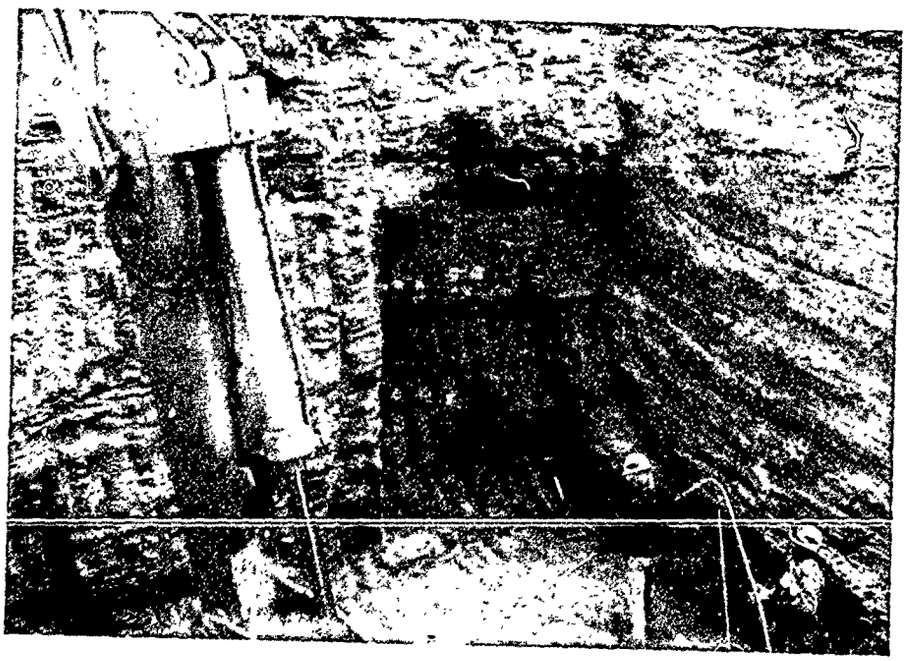


Figure 70. Same as above.

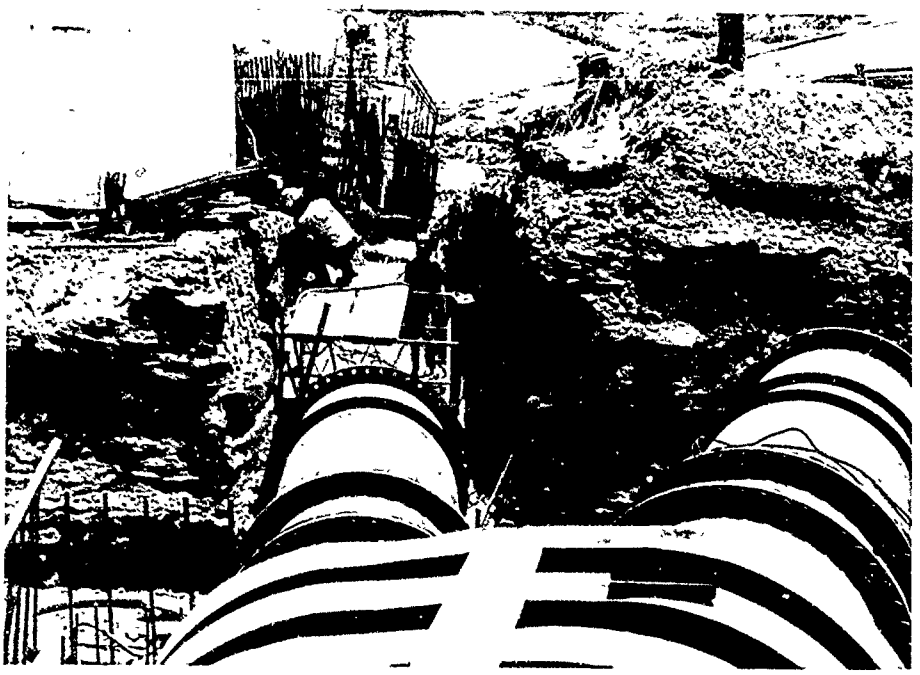


Figure 71. Discharge pipes from valve vault.

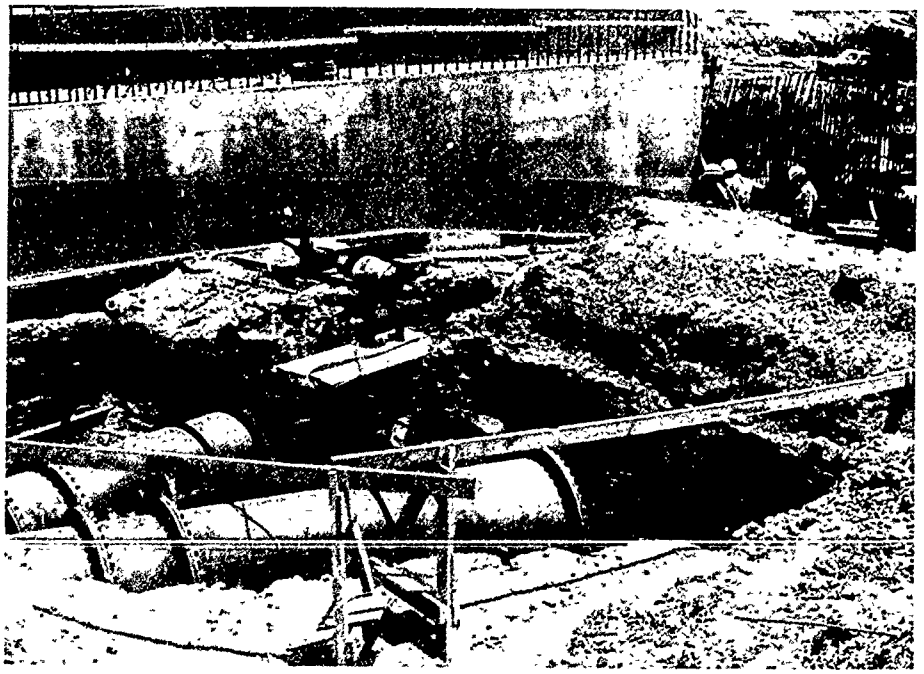
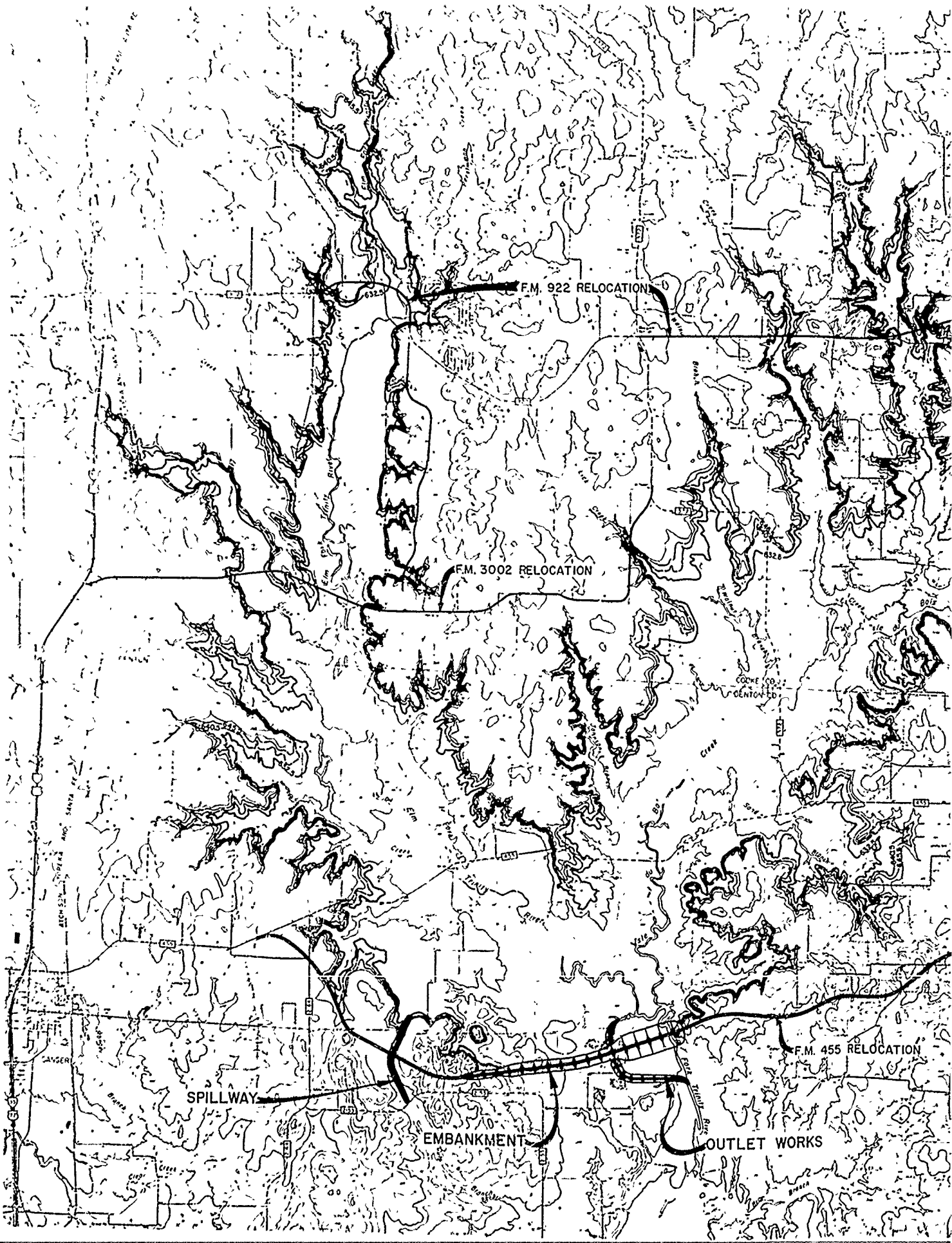
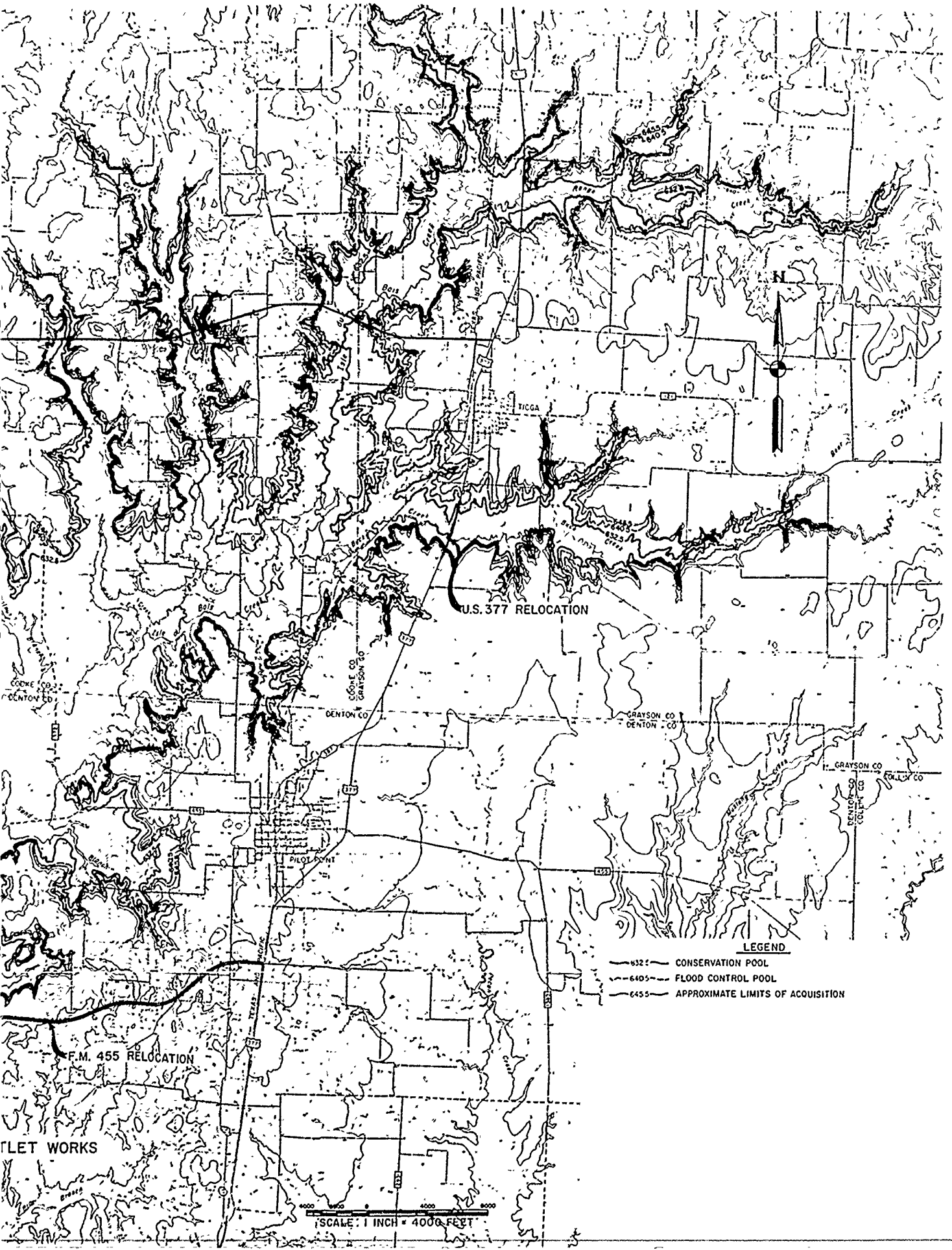
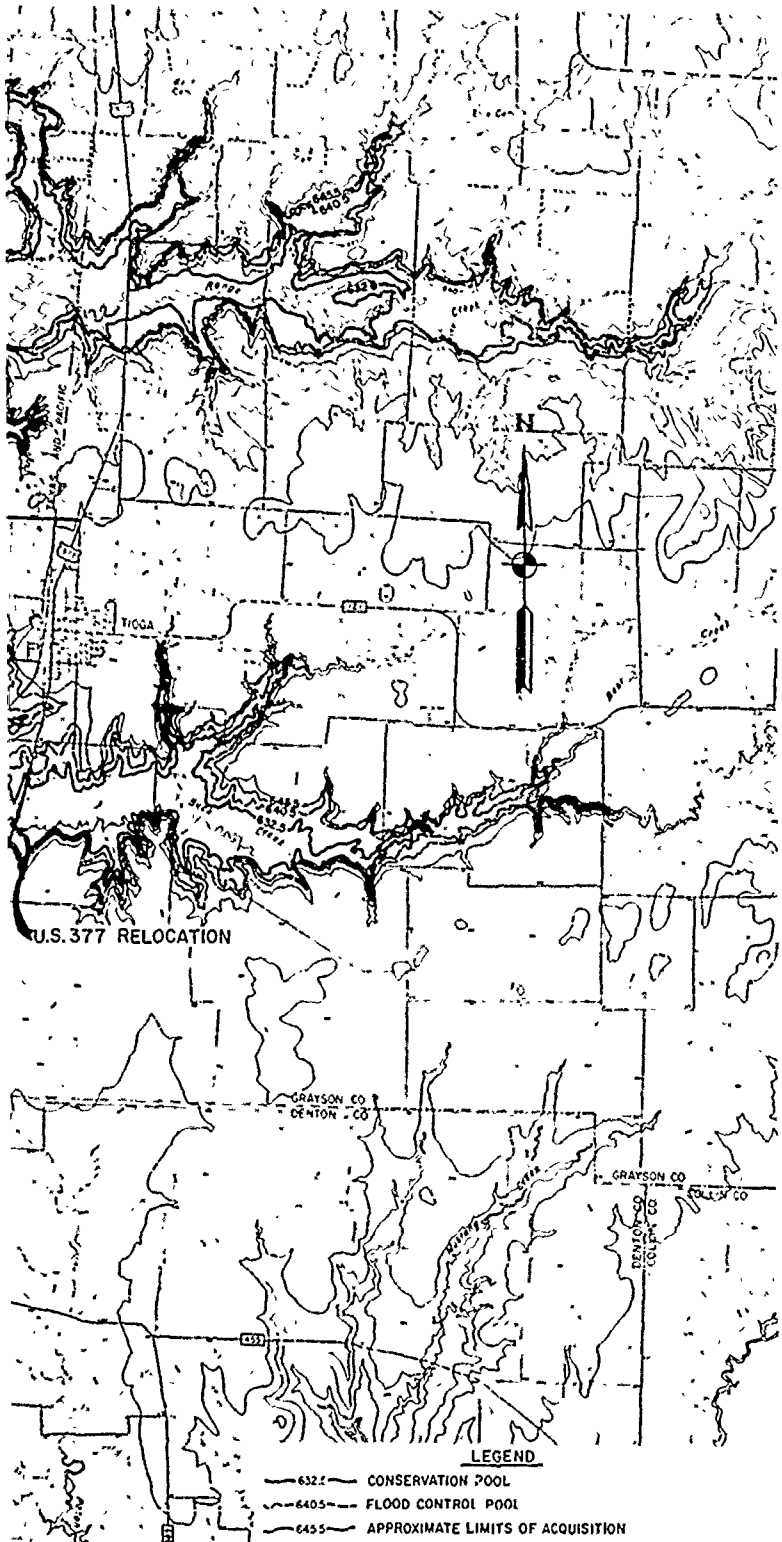
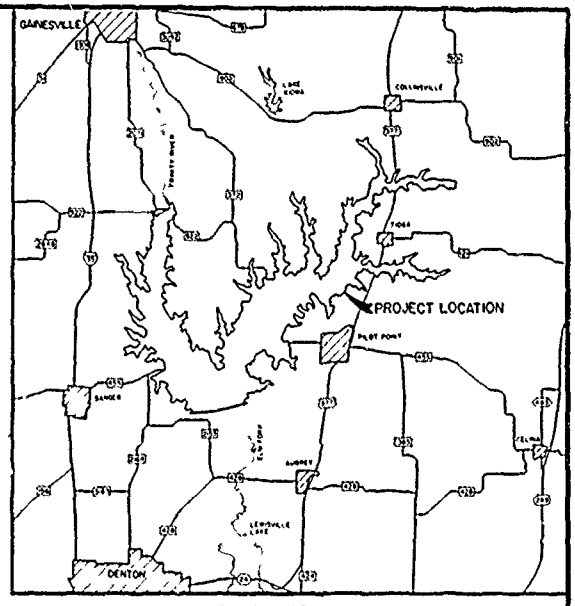


Figure 72. Same as above.


F.M. 922 RELOCATION
F.M. 3002 RELOCATION
SPILLWAY
EMBANKMENT
OUTLET WORKS
F.M. 455 RELOCATION


U.S. 377 RELOCATION
F.M. 455 RELOCATION
TLET WORKS
LEGEND
632.5 CONSERVATION POOL
640.5 FLOOD CONTROL POOL
645.5 APPROXIMATE LIMITS OF ACQUISITION
SCALE: 1 INCH = 4000 FEET
TIOGA
PILOT POINT
COOKE CO
GRAYSON CO
DENTON CO
COLLIN CO





VICINITY MAP
SCALE: 1 INCH = 4 MILES APPROX.

SYMBOL NO.	ACTION	DATE	DESCRIPTION OF REVISION

U.S. ARMY ENGINEER DISTRICT, FORT WORTH
CORPS OF ENGINEERS
FORT WORTH, TEXAS

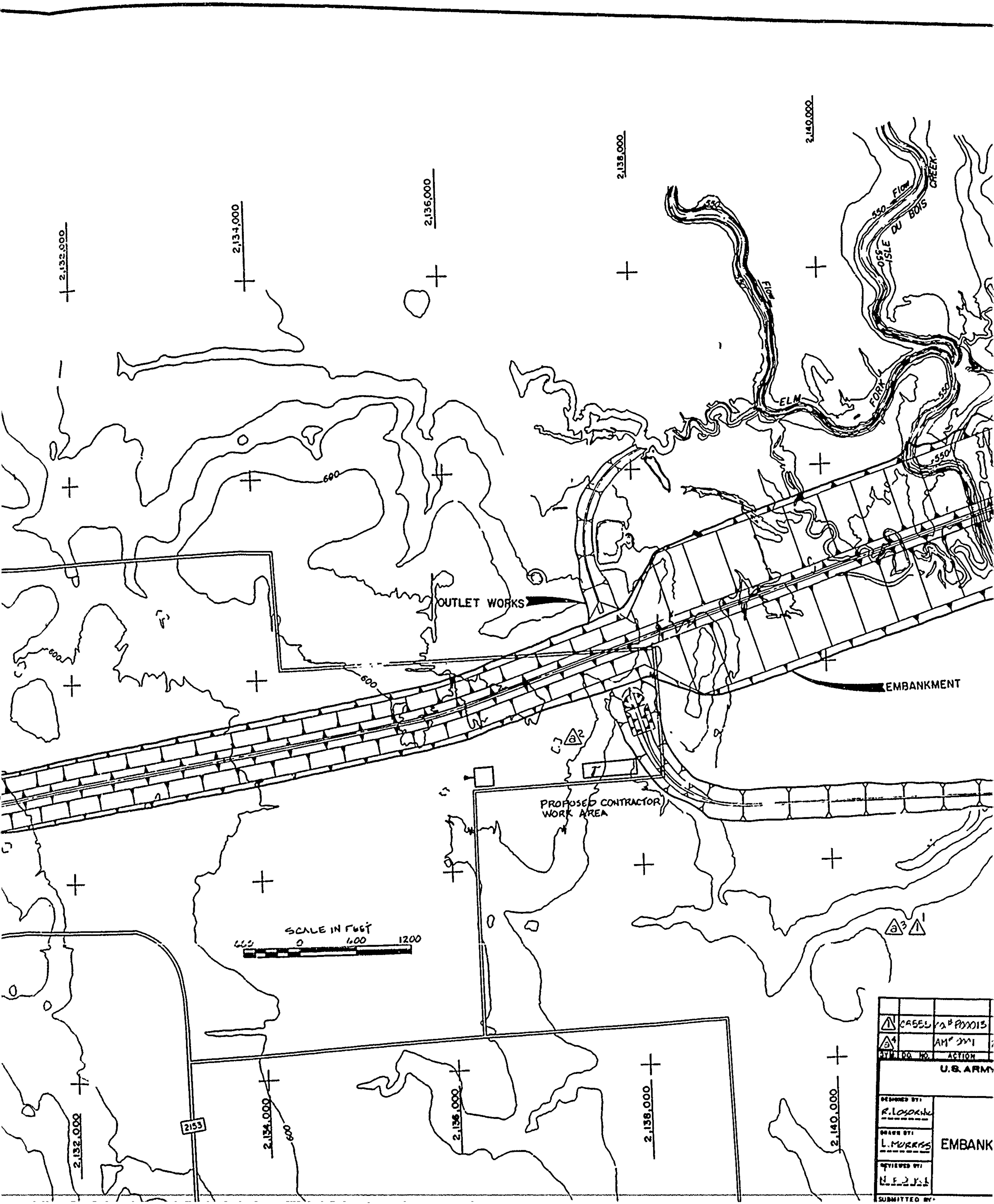
DESIGNED BY:
DRAWN BY:
REVIEWED BY:

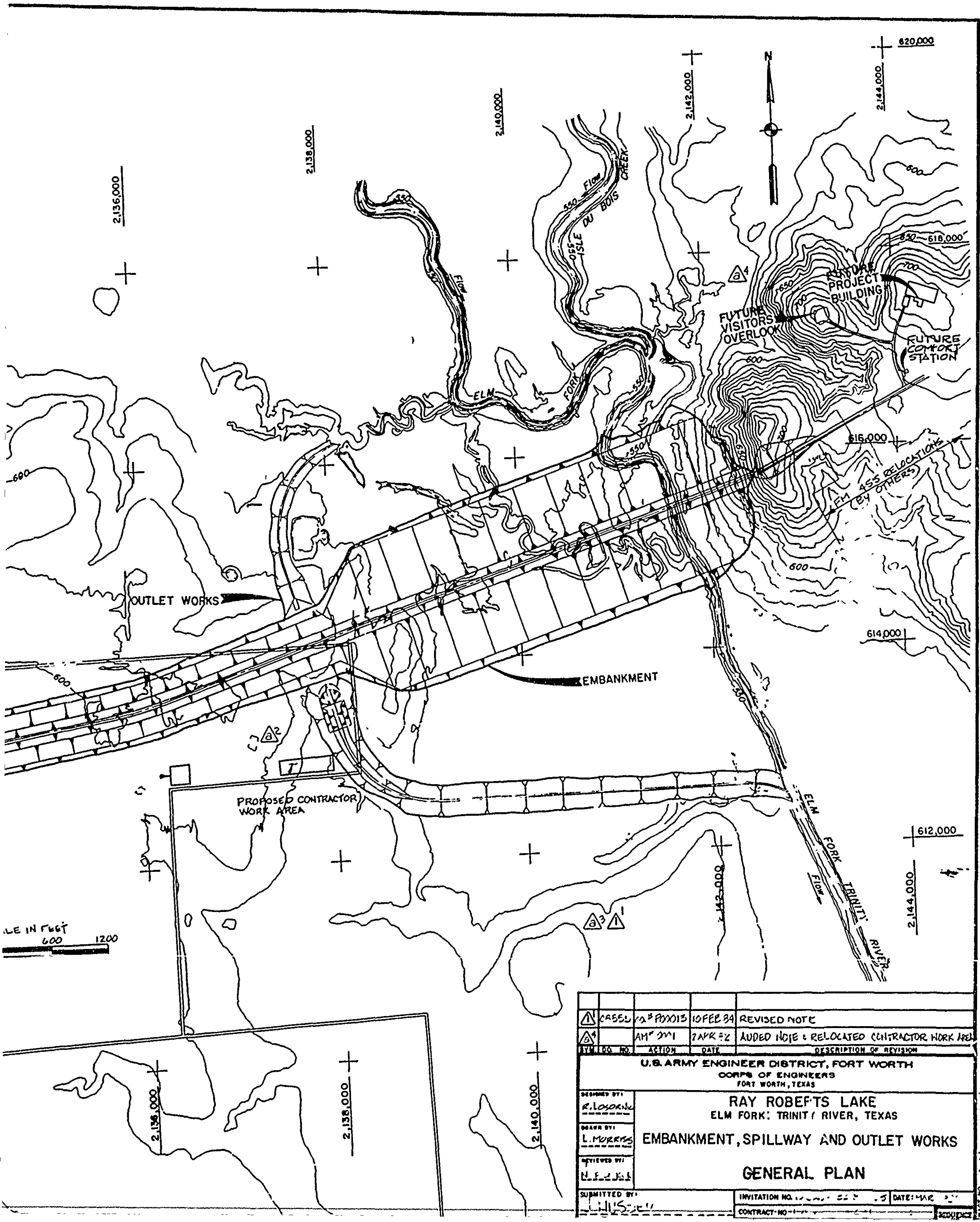
RAY ROBERTS LAKE
ELM FORK, TRINITY RIVER, TEXAS

FOUNDATION REPORT
LAKE MAP AND VICINITY MAP

SUBMITTED BY:
INVITATION NO.
DATE:
CONTRACT NO.
SPECIFICATION
PLATE NO.

2,128,000
2,130,000
2,132,000
616,000
650
SPILLWAY
614,000
700
612,000
FM 435 RELOCATIONS
(BY OTHERS)
650
600
2153
610,000
CULP
2,124,000
2,126,000
2,128,000
2,130,000
2,132,000


2,132,000
2,134,000
2,136,000
2,138,000
2,140,000
ELM FORK
ISLE DU BOIS CREEK
FLOW
550
600
OUTLET WORKS
EMBANKMENT
PROPOSED CONTRACTOR WORK AREA
SCALE IN FEET
600 0 600 1200
2153
SYM DO. NO. ACTION
U.S. ARMY
DESIGNED BY:
R. LOSORKIW
DRAWN BY:
L. MORRISS
REVIEWED BY:
EMBANK
SUBMITTED BY:



SYM.	DO. NO.	ACTION	DATE	DESCRIPTION OF REVISION
1	CASSL	2# P00013	10 FEB 84	REVISED NOTE
a 4		AM# 2001	2 APR 82	ADDED NOTE & RELOCATED CONTRACTOR WORK AREA

U.S. ARMY ENGINEER DISTRICT, FORT WORTH
CORPS OF ENGINEERS
FORT WORTH, TEXAS

DESIGNED BY: R. LOSORNIC
DRAWN BY: L. MORRIS
REVIEWED BY: N.F. [illegible]
SUBMITTED BY: [illegible]

RAY ROBERTS LAKE
ELM FORK TRINITY RIVER, TEXAS

EMBANKMENT, SPILLWAY AND OUTLET WORKS

GENERAL PLAN

INVITATION NO. [illegible]
DATE: MAR [illegible]
CONTRACT NO. [illegible]

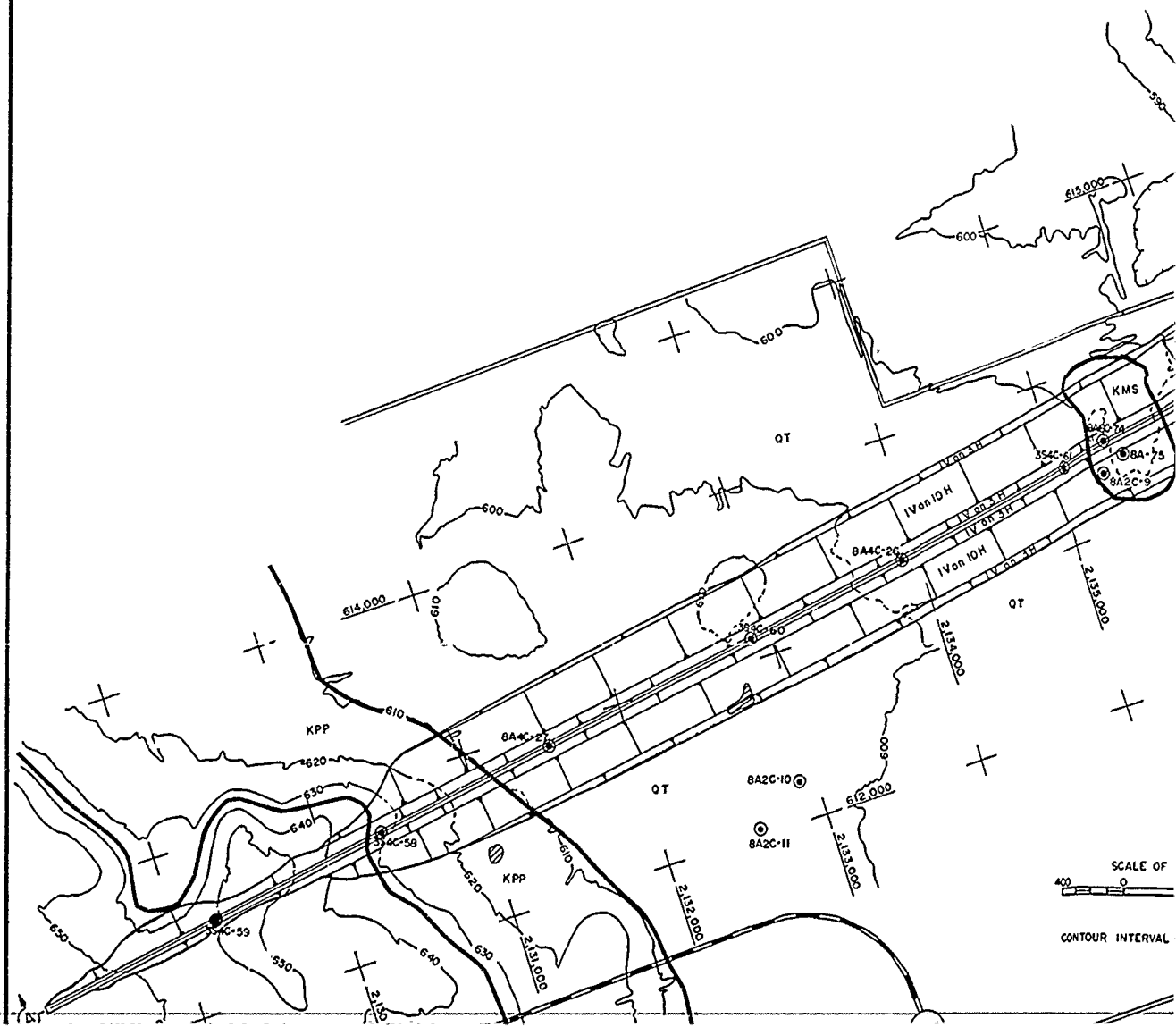
LEGEND

3F	3-INCH FISHTAIL BORING
8A	8-INCH AUGER BORING
3S	3-INCH SHELBY TUBE
4C	4-INCH CORE BORING
6C	6-INCH CORE BORING
6D	6-INCH DENISON BORING
	COUNTY ROAD (GRAVEL)
	FARM TO MARKET ROAD (PAVED)
	GRAVEL PIT

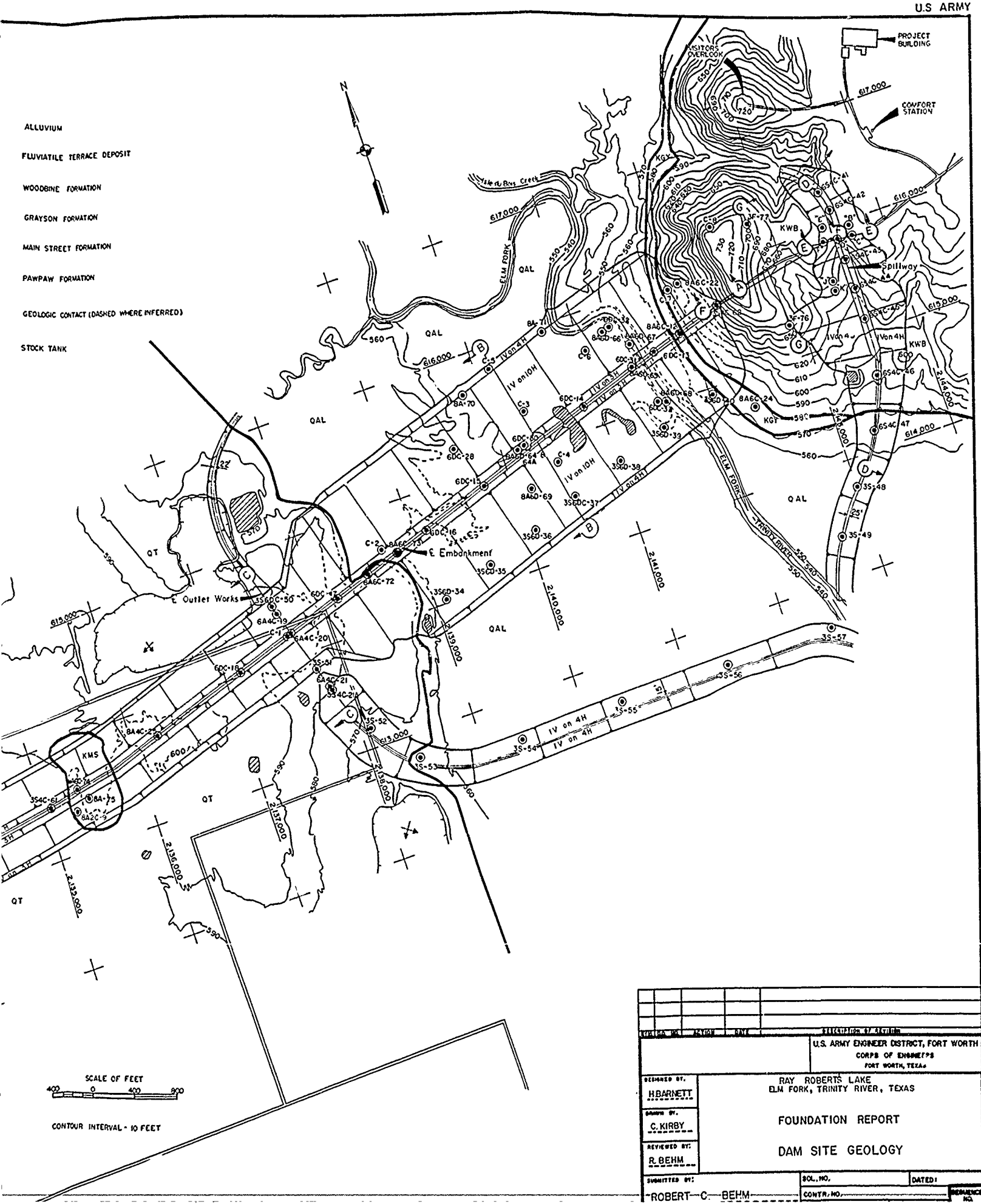
RECENT	QAL	ALLUVIUM
PLEIS	QT	FLUVIATILE TERRACE DEP.
U. CRET	KWB	WOODBINE FORMATION
L. CRETACEOUS	KGY	GRAYSON FORMATION
	KMS	MAIN STREET FORMATION
	KPP	PAWPAW FORMATION
		GEOLOGIC CONTACT (DASHED
		STOCK TANK

NOTES:

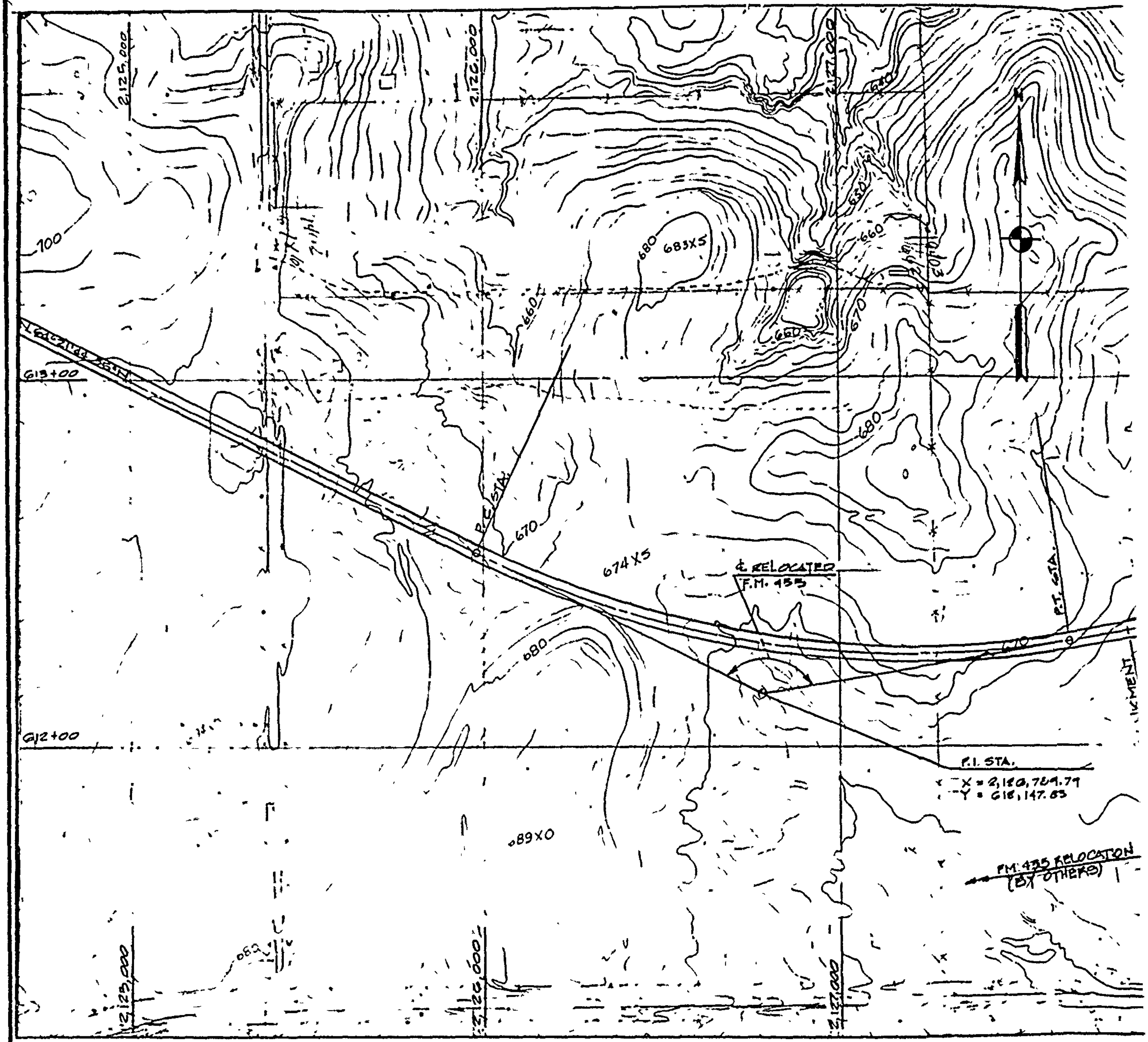
1. SEE PLATES III-6 THROUGH III-32 FOR DETAILED LOGS OF BORINGS.
2. GEOLOGY COMPILED FROM SUBSURFACE EXPLORATION AND SURFACE MAPPING.



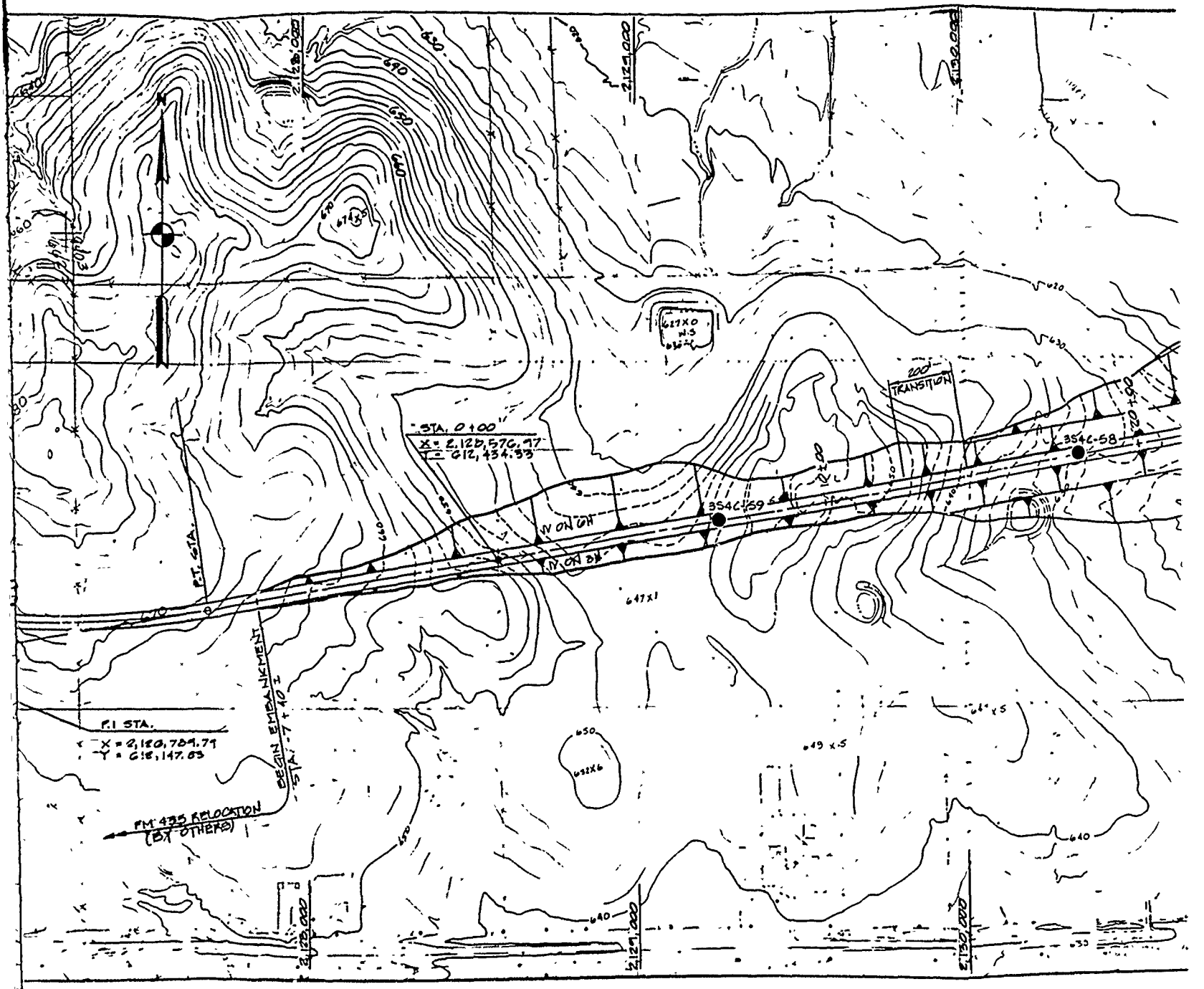
U.S ARMY



SYMBOL NO.	ACTION	DATE	DESCRIPTION OF ACTION	
			U.S. ARMY ENGINEER DISTRICT, FORT WORTH CORPS OF ENGINEERS FORT WORTH, TEXAS	
DESIGNED BY: H.BARNETT			RAY ROBERTS LAKE ELM FORK, TRINITY RIVER, TEXAS	
DRAWN BY: C.KIRBY			FOUNDATION REPORT	
REVIEWED BY: R.BEHM			DAM SITE GEOLOGY	
SUBMITTED BY: ROBERT C. BEHM			SOL. NO.	DATE:
			CONTR. NO.	DRAWING NO.



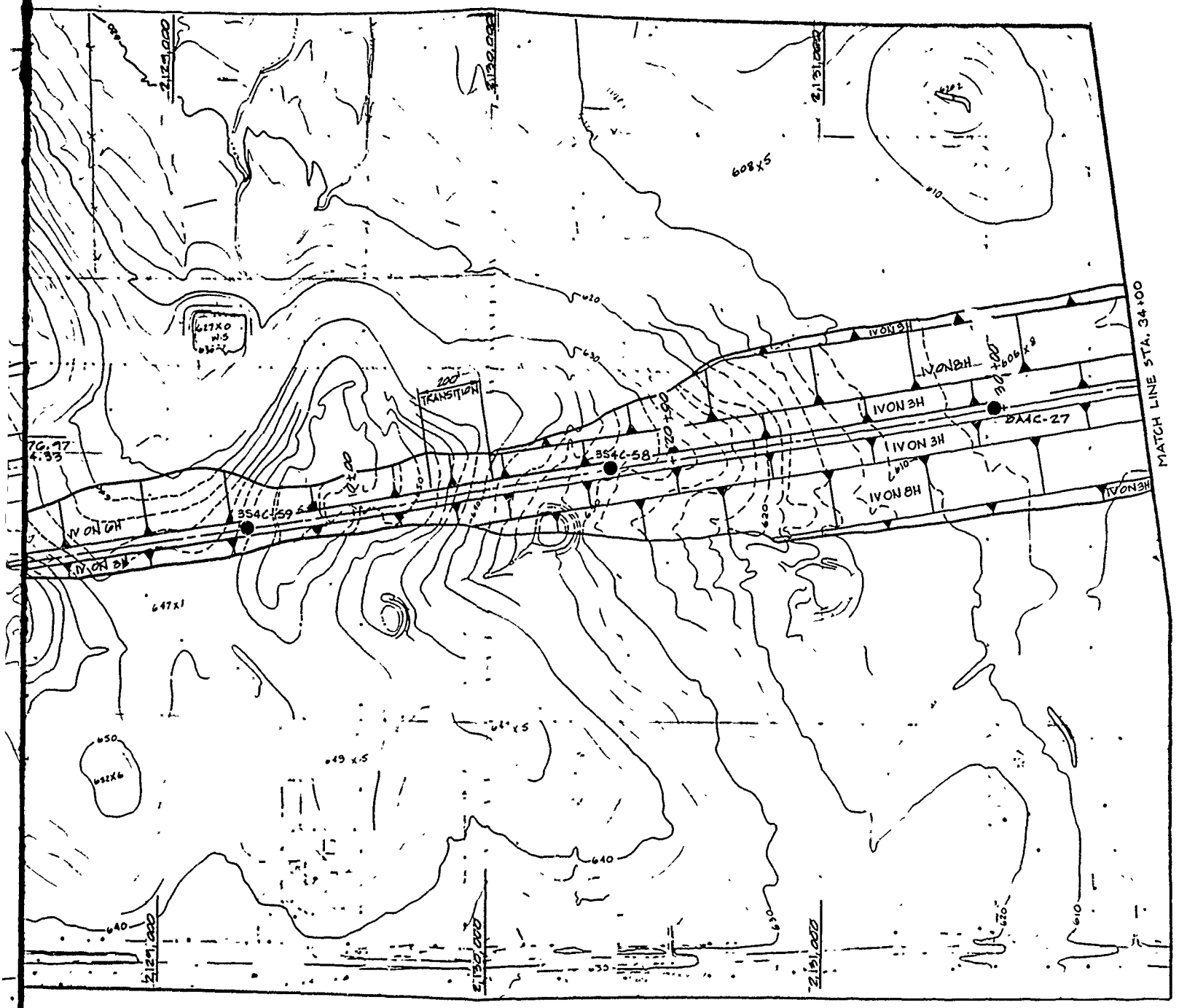
2,125,000
2,126,000
2,127,000
100
680
683X5
660
670
615+00
612+00
P.C. STA.
674X5
680
℄ RELOCATED
F.M. 455
P.T. STA.
P.I. STA.
X = 2,180,789.79
Y = 618,147.63
689X0
FM 435 RELOCATON
(BY OTHERS)



PLAN

200 100 0 200 400

SCALE: 1" = 200'



200 400
200'

RECORD DRAWING-WORK AS BUILT

SYM	NO.	ACTION	DATE	DESCRIPTION OF REVISION

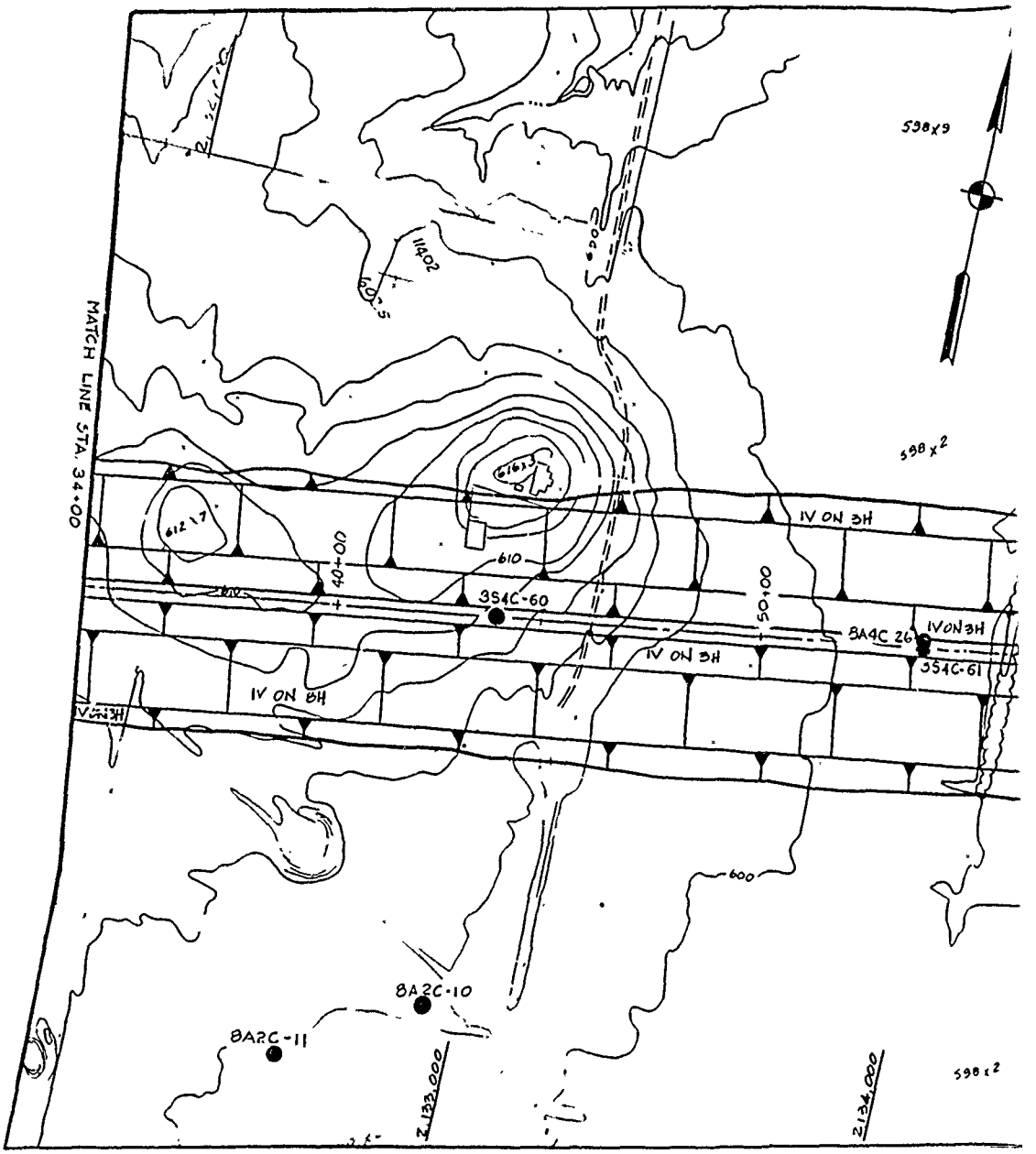
U.S. ARMY ENGINEER DISTRICT, FORT WORTH
CORPS OF ENGINEERS
FORT WORTH, TEXAS

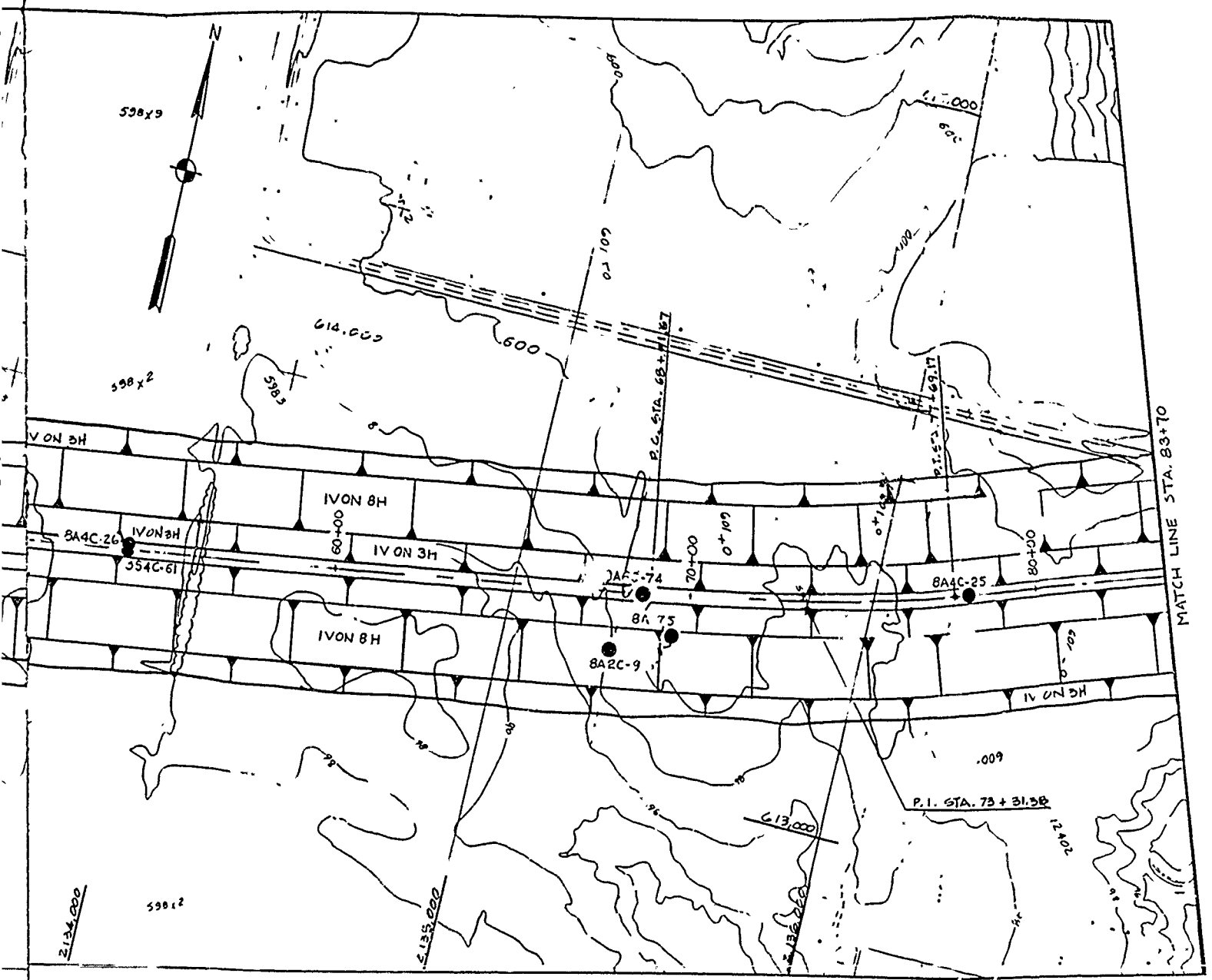
DESIGNED BY: A. BRANCH
DRAWN BY: D. BAILEY
REVIEWED BY: A. BRANCH
SUBMITTED BY: H. KARBS

RAY ROBERTS LAKE
ELM FORK, TRINITY RIVER, TEXAS

EMBANKMENT
PLAN OF BORINGS I

INVITATION NO. DACW63-82-B-0026 DATE: MAR 19
CONTRACT NO. DACW63-82-C-0093

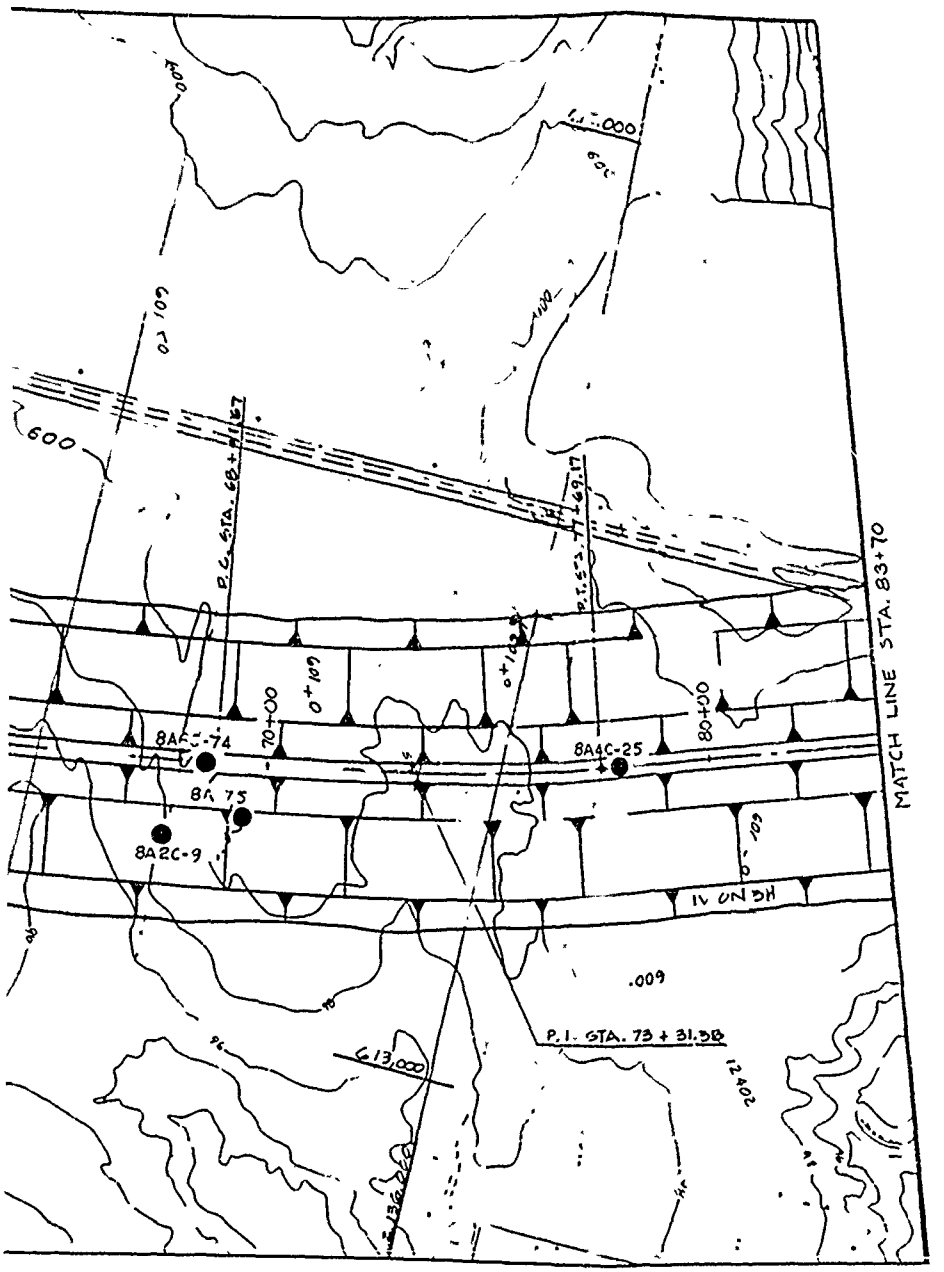

MATCH LINE STA. 34+00
598x9
598x2
IV ON 3H
610
40+00
50+00
3S4C-60
8A4C 26
IVON3H
3S4C-61
IV ON 3H
IV ON 8H
600
8A2C-10
8A2C-11
2,133,000
2,134,000
598x2
200



PLAN

200 100 0 200 400

SCALE: 1" = 200'



RECORD DRAWING-WORK AS BUILT

SYM	NO.	ACTION	DATE	DESCRIPTION OF REVISION

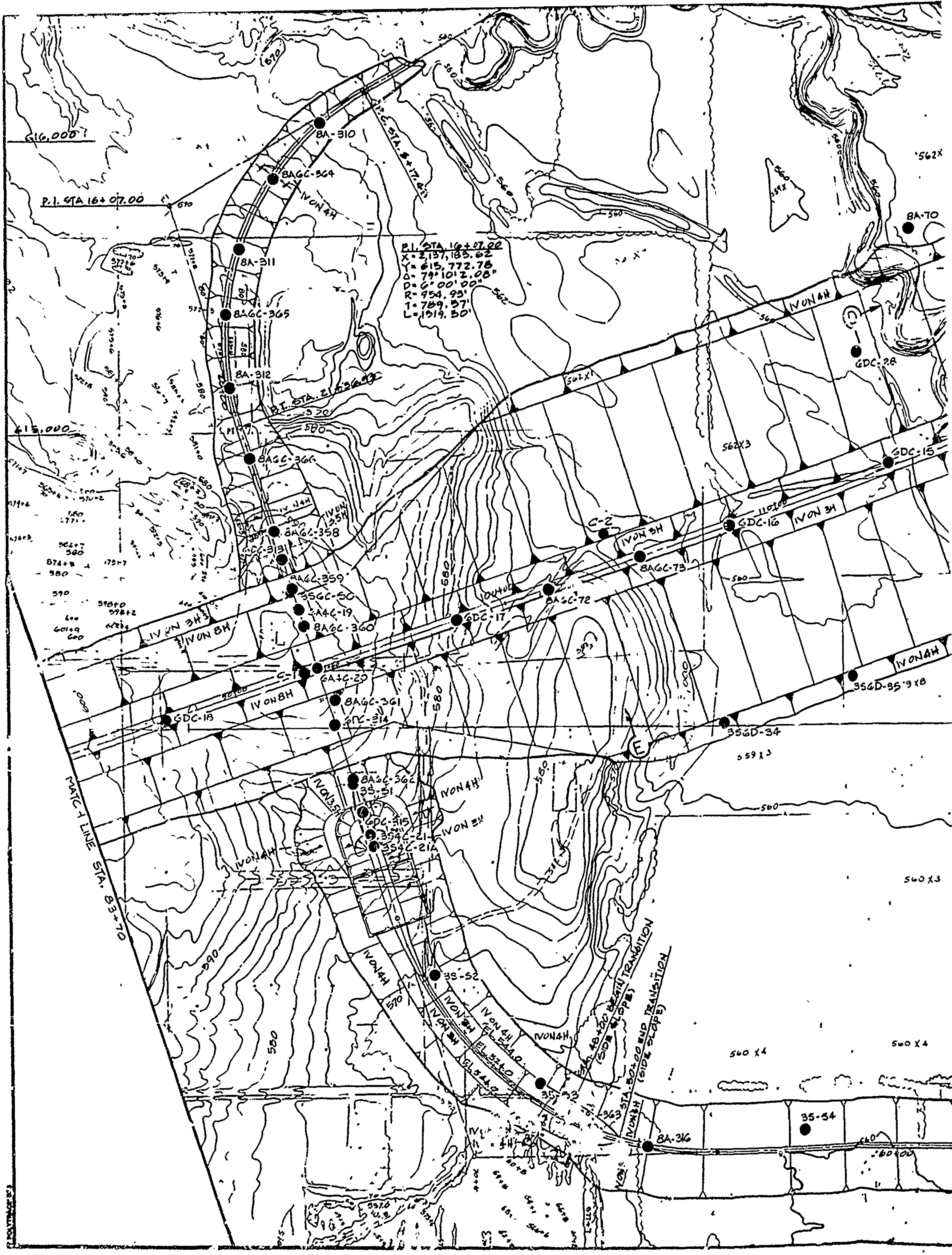
U.S. ARMY ENGINEER DISTRICT, FORT WORTH
CORPS OF ENGINEERS
FORT WORTH, TEXAS

DESIGNED BY: A. BRANCH
DRAWN BY: D DAILEY
REVIEWED BY: A. BRANCH
SUBMITTED BY:

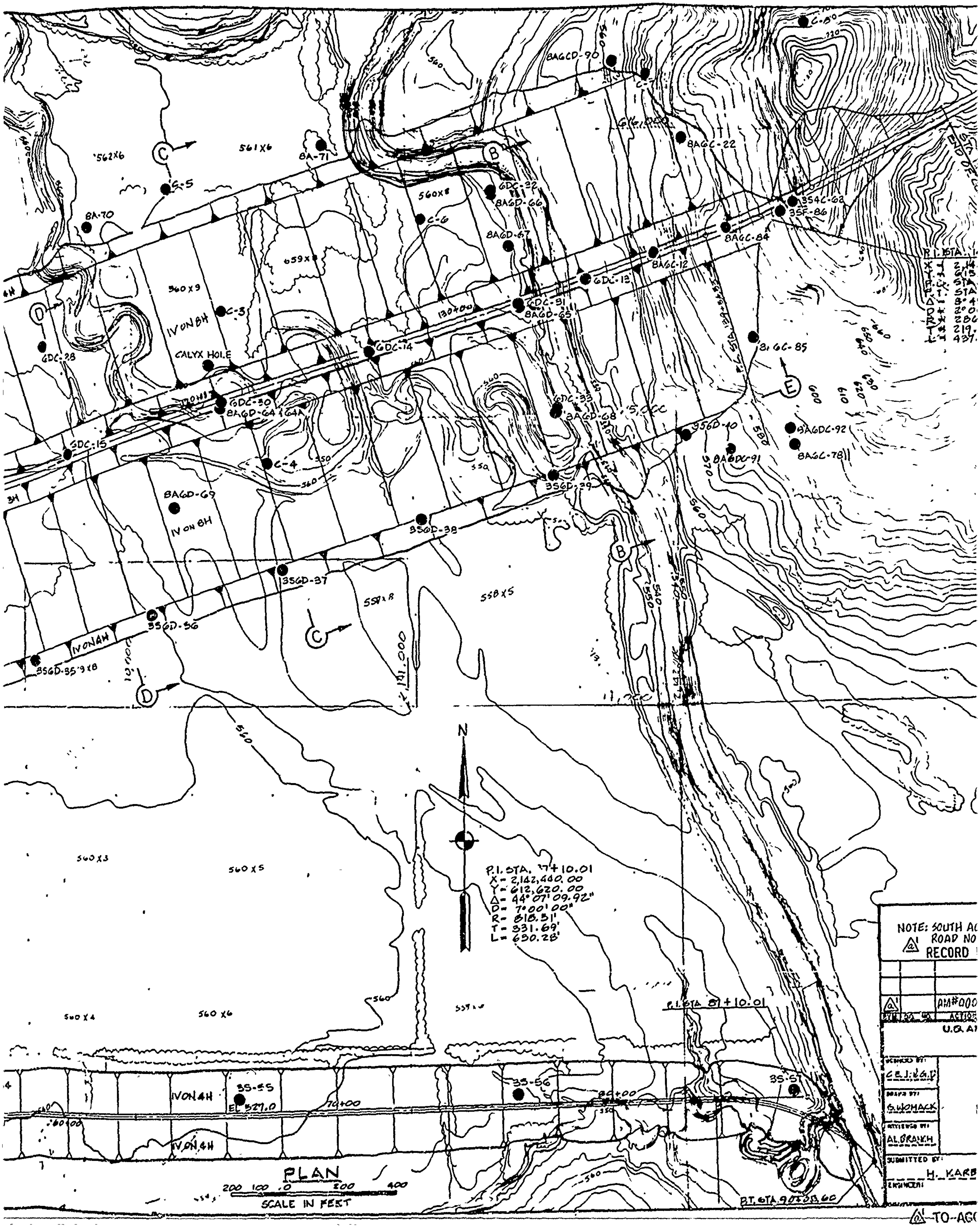
RAY ROBERTS LAKE
ELM FORK, TRINITY RIVER, TEXAS

EMBANKMENT
PLAN OF BORINGS II

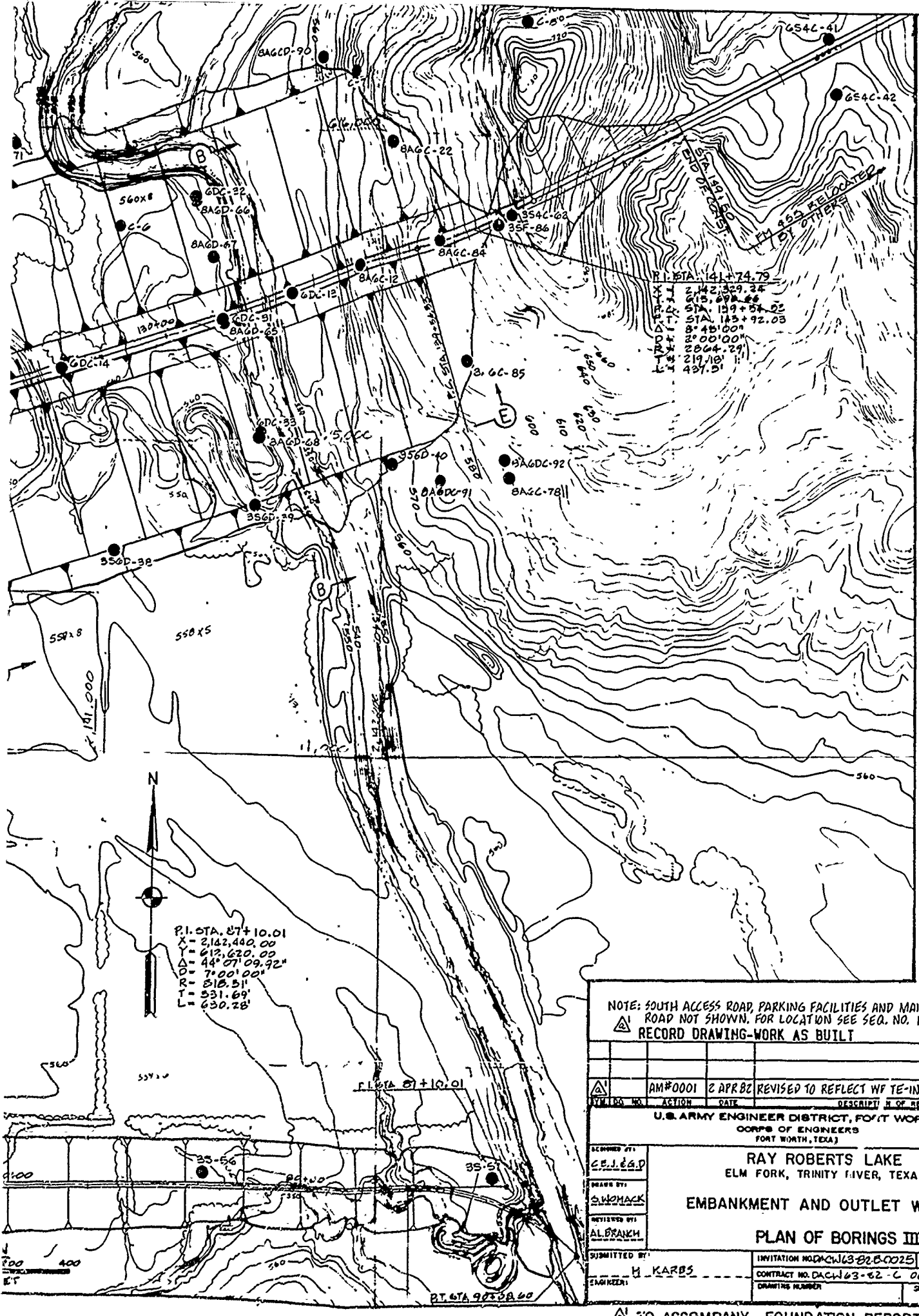
INVITATION NO. DACW63-82-B-0025 DATE: MAR 82



616,000
615,000
P.I. STA 16+07.00
P.I. STA. 16+07.00
X=2,137,183.62
Y=615,772.78
Δ=79°10'12.08"
D=6°00'00"
R=954.93'
T=789.37'
L=1319.30'
8A-310
8AGC-364
8A-311
8AGC-365
8A-312
8AGC-366
8AGC-358
8AGC-359
8AGC-360
8AGC-361
8AGC-362
8AGC-72
8AGC-73
8A-70
8A-316
GDC-15
GDC-16
GDC-17
GDC-18
GDC-28
C-2
3SGD-34
3S-51
3S-52
3S-54
IVON4H
IVON3H
IVON8H
MATCH LINE STA. 83+70



BAGCD-90
C-80
BAGC-22
BA-71
BA-70
S-5
560X8
GDC-32
BAGD-66
C-6
BAGD-67
BAGC-84
BAGC-12
3SF-86
GDC-13
GDC-31
BAGD-65
GDC-14
GDC-28
C-3
IVONBH
CALYX HOLE
GDC-30
BAGD-64
GDC-15
GDC-33
BAGD-68
3SGD-40
BAGDC-92
BAGDC-91
BAGC-78
C-4
3SGD-39
BAGD-69
IV ON BH
3SGD-38
3SGD-37
3SGD-36
3SGD-35
IVONAH
P.I. STA. 77+10.01
X-2,142,440.00
Y-612,620.00
Δ-44°07'09.92"
D-7°00'00"
R-818.51'
T-331.69'
L-630.28'
N
P.I. STA 81+10.01
3S-55
EL 527.0
3S-56
3S-57
IVON4H
PLAN
200 100 0 200 400
SCALE IN FEET
P.T. STA 90+33.60
NOTE: SOUTH A
ROAD NO
RECORD
AM#000
U.G.A
C.E.J./J.G.D
G.WOMACK
AL BRAKH
H. KARB
TO-AG



NOTE: SOUTH ACCESS ROAD, PARKING FACILITIES AND MAINTENANCE ROAD NOT SHOWN. FOR LOCATION SEE SEQ. NO. 157 AND 158.

RECORD DRAWING-WORK AS BUILT

1	AM#0001	2 APR 82	REVISED TO REFLECT WF TE-IN CHANGE	
SYM.	DO NO.	ACTION	DATE	DESCRIPTION OF REVISION

U.S. ARMY ENGINEER DISTRICT, FORT WORTH
CORPS OF ENGINEERS
FORT WORTH, TEXAS

DESIGNED BY: C.E.J. & G.D.
DRAWN BY: S. WOMACK
REVISED BY: AL BRANCH
SUBMITTED BY: H. KARBS
ENGINEER:

RAY ROBERTS LAKE
ELM FORK, TRINITY RIVER, TEXAS

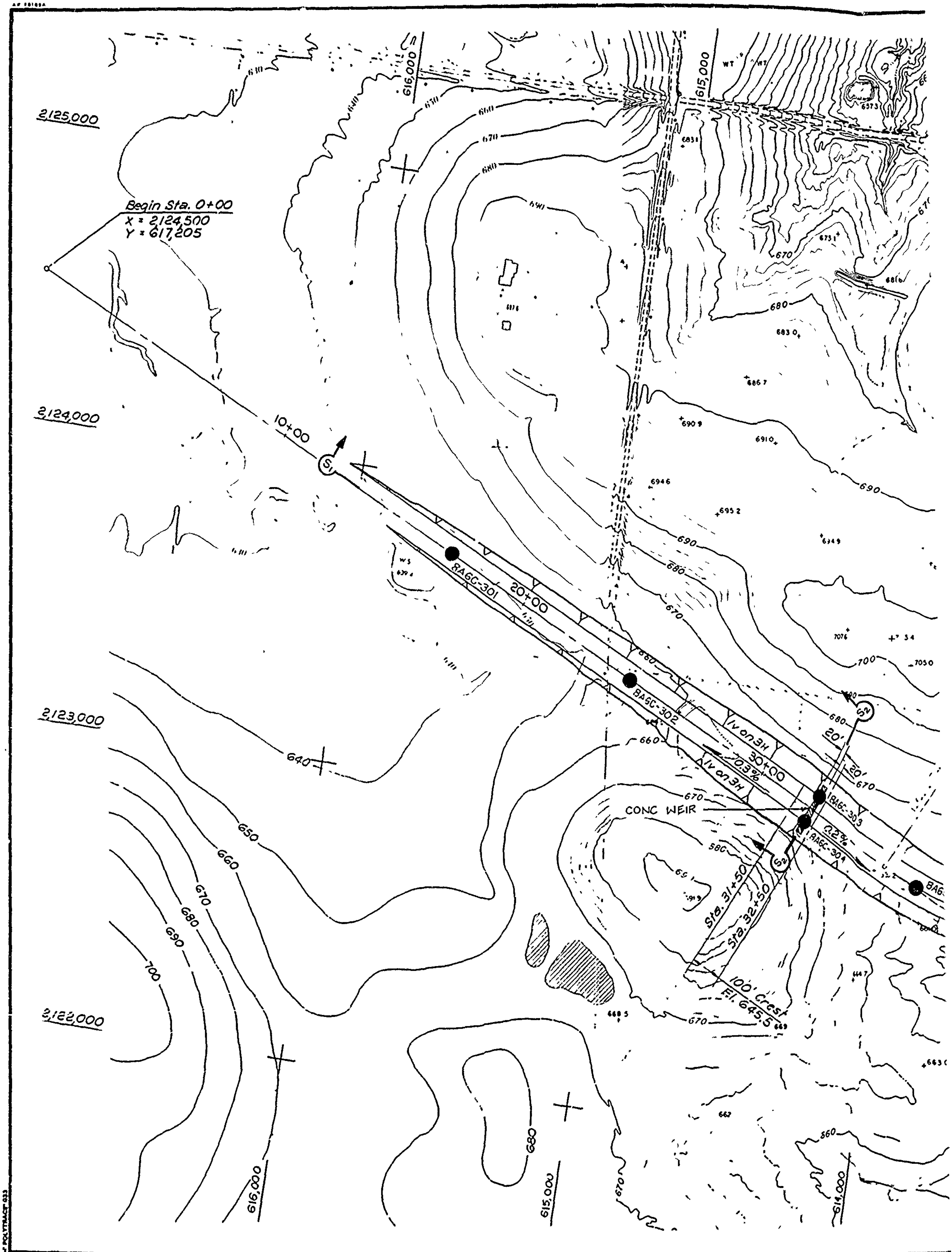
EMBANKMENT AND OUTLET WORKS

PLAN OF BORINGS III

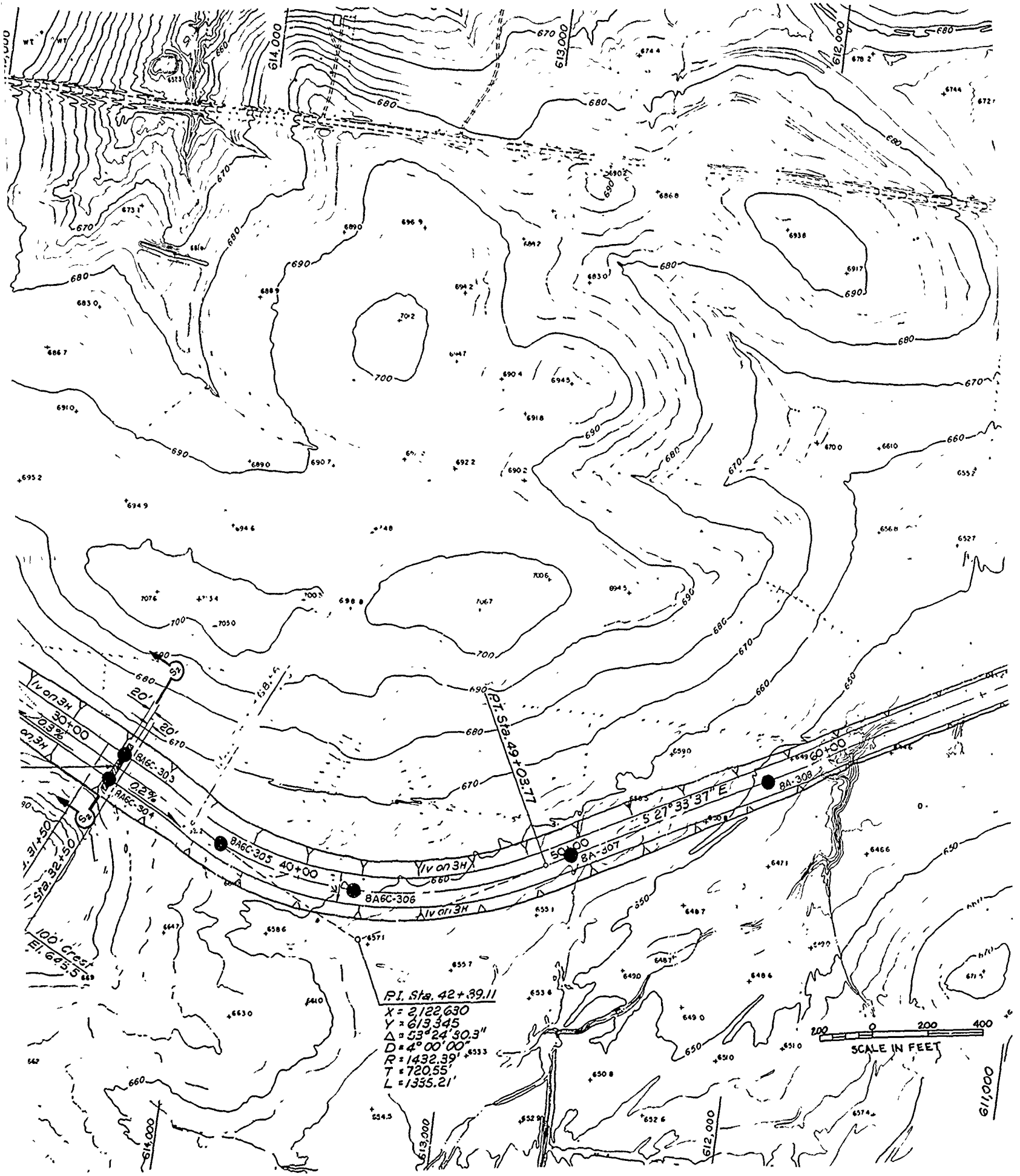
INVITATION NO. DACW63-82-B-0025 DATE MAR. 1982
CONTRACT NO. DACW63-82-C-0053
DRAWING NUMBER
SHEET NO. OF
SEQUENCE NO. 156

CONTRACT NO. DACW63-82-C-0053

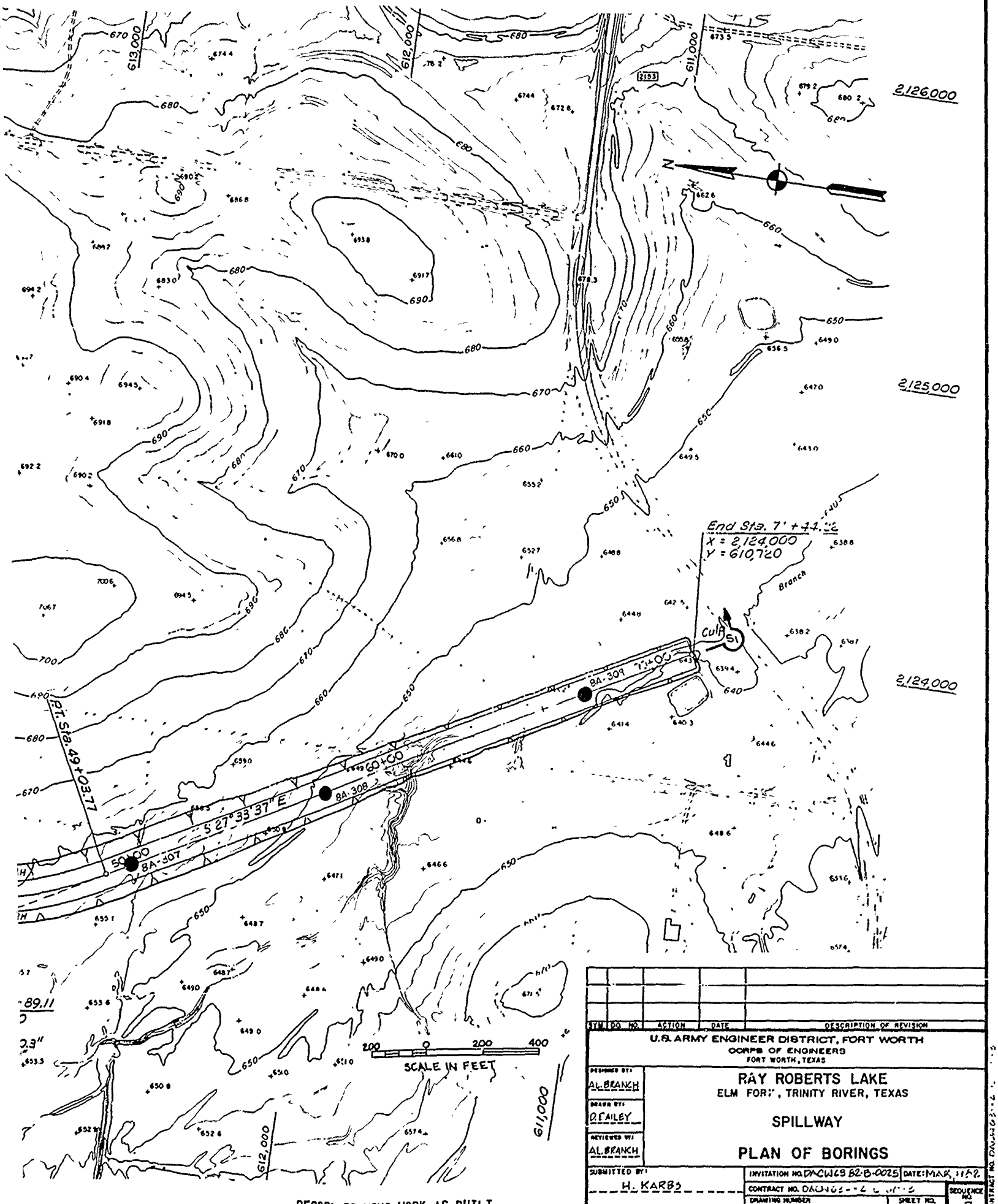
1 TO ACCOMPANY FOUNDATION REPORT



2,125,000
2,124,000
2,123,000
2,122,000
616,000
615,000
614,000
Begin Sta. 0+00
X = 2,124,500
Y = 617,205
10+00
20+00
30+00
BAGC-301
BAGC-302
BAGC-303
BAGC-304
1v on 3H
1v on 3H
.03%
0.2%
20'
20'
CONC WEIR
Sta. 31+50
Sta. 32+50
100' Crest
El. 645.5
640
650
660
670
680
690
700



RECORD DRAWING-WORK AS BUILT



SYM.	NO.	ACTION	DATE	DESCRIPTION OF REVISION

U.S. ARMY ENGINEER DISTRICT, FORT WORTH
CORPS OF ENGINEERS
FORT WORTH, TEXAS

DESIGNED BY: AL BRANCH
DRAWN BY: D FAILEY
REVIEWED BY: AL BRANCH

RAY ROBERTS LAKE
ELM FORK, TRINITY RIVER, TEXAS

SPILLWAY

PLAN OF BORINGS

SUBMITTED BY: H. KARBS

INVITATION NO. DACW63 82-B-0025 DATE: MAR 1982
CONTRACT NO. DACW63-82-C-0015
DRAWING NUMBER
SHEET NO. 7 OF
SEQUENCE NO.

CONTRACT NO. DACW63-82-C-0015

RECORD DRAWING-WORK AS BUILT

TO ACCOMPANY FOUNDATION REPORT

SWDR-C-1. -

UNITED STATES ENGINEER OFFICE
ENGINEERING DIVISION
FIELD INVESTIGATIONS SECTION
GALVESTON, TEXAS

LOG OF CORE DRILLING

Date 20 August 1946

Site Aubrey ... Sheet 1 of 2

C.L. Sta. -07 24

Hole No. C-1 Drill No. _____ Location N= _____ Y= _____

Type of Bit _____ Elevation of Top of Hole 597.2'

Size of Core 2-inch Depth of Overburden 16.0'

Method of Ovb. Sampling Earth Auger Elevation of Top of Bedrock 581.2'

Set _____ of _____ Casing Pulled Casing Yes ( ) No ( )

Depth to Water Table _____ Elevation of Water Table _____

Total Depth of Hole 97.2' Elevation of Bottom of Hole 500.2'

Overburden Sampling 16.0' - Core Drilling 81.2' % Recovery _____

Date Hole Started 4 January 1939 Date Hole Completed 6 January 1939

Number of Jars/Tubes 1 Marked Upper Elm Creek C.L. Sta. 0/00

Number of Bores 3 Marked Upper Elm Creek C.L. Sta. 0/00

Classified by _____ Submitted by _____

BOX NOS	RUNS	LOSSES	DEPTH	ELEV.	CLASSIFICATION AND REMARKS
			0.0'	597.2'	
					0.0' to 8.0' CLAY, sandy, rust to dark brown.
			8.0'	589.2'	
					8.0' to 16.0' SAND, clayey, tan.
			16.0'	581.2'	
					16.0' to 19.4' LIMESTONE, fossiliferous, marly, brown to tan, surface or near surface outcrops of this material have been colored by iron oxide.
			19.4'	577.8'	
					19.4' to 28.0' SHALE, sandy. - core washed away.
			28.0'	569.2'	
					28.0' to 32.0' SHALE, blue, stained by iron oxide.
			32.0'	565.2'	
					32.2' to 47.0' SHALE, compact, laminated, soft, thin shell seams.

SWDR-C-2

OF CORE DRILLING CONT

Site Aubrey Dam Hole No.

45
47.0' 550.2'
50
35
60
61.0' 536.2'
65
70 70.0' 527.2'
75
80 79.6' 517.6'
85
90
91.0' 506.2'
95
97.0' 500.2'
100

47.0' to
streaks.

61.0' to

70.0' to
black, sh

79.6' to
with blac

91.0' to
black, fos

Bo

OF CORE DRILLING CONTINUATION SHEET

Hole No. C-1 Sheet 2 of 2

47.0' to 61.0' SHALE, black with gray sand streaks, pyrite.

61.0' to 70.0' SHALE, sandy, gray-black.

70.0' to 79.6' SHALE, compact, laminated, black, shell marl at 70.5'.

79.6' to 91.0' SANDSTONE, gray, cross-bedded with black shale, pyritic concretions.

91.0' to 97.0' SHALE, laminated, compact, black, fossiliferous, slightly sandy.

Bottom of hole

SWDR-C-1

UNITED STATES ENGINEER OFFICE
ENGINEERING DIVISION
FIELD INVESTIGATIONS SECTION
GALVESTON, TEXAS

LOG OF CORE DRILLING

Site Aubrey. Date 20 August 1946 Sheet 1 of 2

Hole No. C-2 Drill No.
Type of Bit
Size of Core 2-Inch
Method of Dvb. Sampling Earth Auger
Set of Casing
Depth to Water Table
Total Depth of Hole 68.0'
Overburden Sampling 28.0'
Date Hole Started 4 January 1939
Number of Jars/Tubes 1
Number of Boxes 2
Classified by

Location N-C.L. Sta. 11/27
Elevation of Top of Hole 562.0'
Depth of Overburden 28.0'
Elevation of Top of Bedrock 534.0'
Pulled Casing Yes ( ) No ( )
Elevation of Water Table
Elevation of Bottom of Hole 494.0'
Core Drilling 40.0' % Recovery
Date Hole Completed 6 January 1939
Marked Upper Elm Creek C.L. Sta. 11/27
Marked Upper Elm Creek C.L. Sta. 11/27
Submitted by

BOX NOS.	RUNS	LOSSES	DEPTH	ELEV.	CLASSIFICATION AND REMARKS
		0	0.0'	562.0'	
					0.0' to 5.1' SAND, clayey, rust.
		5	5.1'	556.9'	
		10			5.1' to 19.8' CLAY, sandy, dark brown to black.
		15			
		20	19.8'	542.2'	
		25			19.8' to 28.0' CLAY, sandy, yellow-blue.
			28.0'	534.0'	
		30			28.0' to 38.0' SHALE, sandy, laminated, blue.
		35			
			38.0'	524.0'	38.0' to 38.5' SANDSTONE, gray
			38.5'	523.5'	38.5' to 42.0' SHALE, very sandy, gray.
		40	42.0'	520.0'	
		45			42.0' to 68.0' SHALE, compact, slightly sandy, black, fossiliferous. Sandstone band from 54.0' to 54.5'.
		50			
		55			
		60			
		65			
		70	68.0'	494.0'	Bottom of hole

SWD DC NO.

DESIGNED BY

DRAWN BY

REVIEWED BY

SUBMITTED BY

ENGINEER

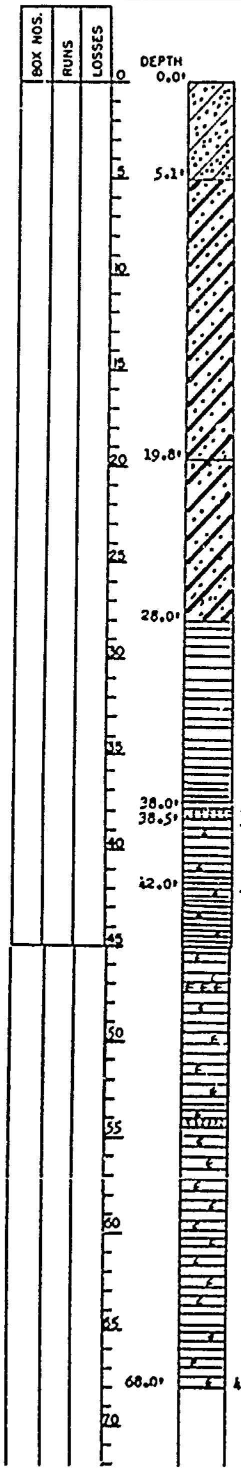
SWDR-C-1

UNITED STATES ENGINEER OFFICE
ENGINEERING DIVISION
FIELD INVESTIGATIONS SECTION
GALVESTON, TEXAS

LOG OF CORE DRILLING

Site Aubrey. Date 20 August 1946
Sheet 1 of 2

Hole No. C-2 Drill No.	Location C.L. Sta. 11/27
Type of Bit	Elevation of Top of Hole 562.0'
Size of Core 2-Inch	Depth of Overburden 28.0'
Method of Ovb. Sampling Earth Auger	Elevation of Top of Bedrock 534.0'
Set of Casing	Pulled Casing Yes ( ) No ( )
Depth to Water Table	Elevation of Water Table
Total Depth of Hole 68.0'	Elevation of Bottom of Hole 494.0'
Overburden Sampling 28.0'	Core Drilling 40.0' % Recovery
Date Hole Started 4 January 1939	Date Hole Completed 6 January 1939
Number of Jars/Tubes 1	Marked Upper Elm Creek C.L. Sta. 11/27
Number of Boxes 2	Marked Upper Elm Creek C.L. Sta. 11/27
Classified by	Submitted by



DEPTH	ELEV.	CLASSIFICATION AND REMARKS
0.0'	562.0'	0.0' to 5.1' SAND, clayey, rust.
5.1'	556.9'	5.1' to 19.8' CLAY, sandy, dark brown to black.
19.8'	542.2'	19.8' to 28.0' CLAY, sandy, yellow-blue.
28.0'	534.0'	28.0' to 38.0' SHALE, sandy, laminated, blue.
38.0'	524.0'	38.0' to 38.5' SANDSTONE, gray
38.5'	523.5'	38.5' to 42.0' SHALE, very sandy, gray.
42.0'	520.0'	42.0' to 68.0' SHALE, compact, slightly sandy, black, fossiliferous. Sandstone band from 54.0' to 54.5'.
68.0'	494.0'	Bottom of hole

RECORD DRAWING-WORK AS BUILT

SYM	DOC. NO.	ACTION	DATE	DESCRIPTION OF REVISION

U.S. ARMY ENGINEER DISTRICT, FORT WORTH
CORPS OF ENGINEERS
FORT WORTH, TEXAS

DESIGNED BY
DRAWN BY
REVIEWED BY

RAY ROBERTS LAKE
ELM FORK, TRINITY RIVER, TEXAS
EMBANKMENT, SPILLWAY AND
OUTLET WORKS
LOGS OF BORINGS
C-1 AND C-2

SUBMITTED BY
ENGINEER

INVITATION NO. DACW63-82-B-0025 DATE MAR. 1982
CONTRACT NO. DACW63-82-C-0093
DRAWING NUMBER SHEET NO.
SEQUENCE NO. 80

INVITATION NO. DACW63-82-B-0025

TO ACCOMPANY FOUNDATION REPORT

SWDR-C-1

UNITED STATES ENGINEER OFFICE
ENGINEERING DIVISION
FIELD INVESTIGATIONS SECTION
GALVESTON, TEXAS

LOG OF CORE DRILLING

Site Aubrey Date 20 August 1940
Sheet 1 of 2
C.L. Sta. 28/00

Hole No. C-1 Drill No.
Type of Bit
Size of Core 2-Inch
Method of Ovb. Sampling Earth Auger
Set of Casing
Depth to Water Table
Total Depth of Hole 67.0'
Overburden Sampling 45.0'
Date Hole Started 7 January 1939
Number of Jars/Tubes 1
Number of Boxes 1
Classified by

Location X= Y=
Elevation of Top of Hole 559.2'
Depth of Overburden 45.0'
Elevation of Top of Bedrock 514.2'
Pulled Casing Yes ( ) No ( )
Elevation of Water Table
Elevation of Bottom of Hole 492.2'
Core Drilling 22.0' % Recovery
Date Hole Completed 10 January 1939
Marked Upper Elm Creek C.L. Sta. 28/00
Marked Upper Elm Creek C.L. Sta. 28/00
Submitted by

BOX NOS	RUNS	LOSSES	DEPTH	ELEV	CLASSIFICATION AND REMARKS
			0.0'	559.2'	
					0.0' to 5.8' SILT, clayey, dark brown.
			5.8'	553.4'	
					5.8' to 13.4' CLAY, sandy, brown.
			13.4'	545.8'	
					13.4' to 25.6' SAND, silty, dark tan.
			25.6'	533.6'	
					25.6' to 34.0' CLAY, sandy, light brown.
			34.0'	525.2'	
					34.0' to 43.8' SAND, clayey, slate, tan to blue.
			43.8'	515.4'	43.8' to 45.0' LIMESTONE GRAVEL
					45.0' to 67.0' SHALE, black with cross-bedded shale and sand zones.
			67.0'	492.2'	Bottom of hole

SWDR-C-1

UNITED STATES E
ENGINEERIN
FIELD INVESTIGA
GALVESTO

LOG OF CORE

Site Aubrey

Hole No. C-1 Drill No.
Type of Bit
Size of Core 2-Inch
Method of Ovb. Sampling Earth Auger
Set of Casing
Depth to Water Table
Total Depth of Hole 82.0'
Overburden Sampling 16.0'
Date Hole Started 6 January 1939
Number of Jars/Tubes 2
Number of Boxes 1
Classified by

BOX NOS.	RUNS	LOSSES	DEPTH	ELEV.
			0.0'	556.9'
			8.0'	548.9'
			16.0'	540.9'
			22.4'	534.5'

0.0'
8.0'
16.0
blue
22.4

SWDR-C-1

UNITED STATES ENGINEER OFFICE
ENGINEERING DIVISION
FIELD INVESTIGATIONS SECTION
GALVESTON, TEXAS

LOG OF CORE DRILLING

Date 20 August 1946

Site Aubrey — Sheet 1 of 2

C.L. Sta. 22+00 500' below.

Hole No. C-4 Drill No.
Type of Bit
Size of Core 2-Inch
Method of Ovb. Sampling Earth Auger
Set of Casing
Depth to Water Table
Total Depth of Hole 82.0'
Overburden Sampling 16.0'
Date Hole Started 6 January 1939
Number of Jars/Tubes 2
Number of Boxes 1
Classified by

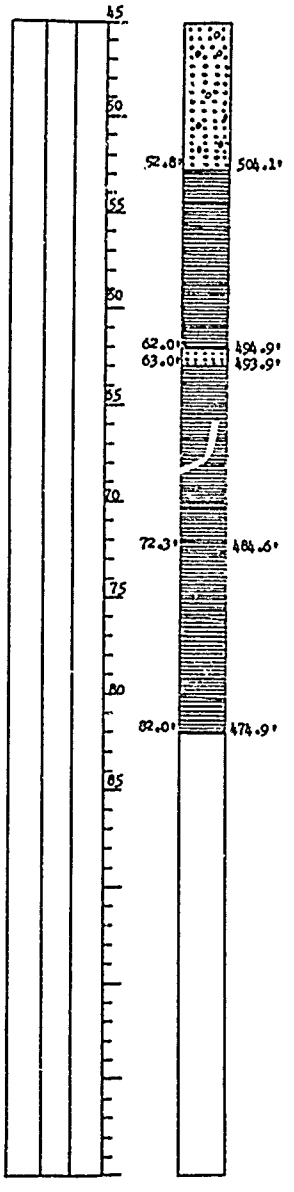
Location X= Y=
Elevation of Top of Hole 556.9'
Depth of Overburden 16.0'
Elevation of Top of Bedrock 540.9'
Pulled Casing Yes ( ) No ( )
Elevation of Water Table
Elevation of Bottom of Hole 474.9'
Core Drilling 76.0' % Recovery
Date Hole Completed 10 January 1939
Marked Upper Elm Creek 500' below 28/00
Marked Upper Elm Creek 500' below 28/00
Submitted by

BOX NOS.	RUNS	LOSSES	DEPTH	ELEV.	CLASSIFICATION AND REMARKS
			0.0'	556.9'	
					0.0' to 8.0' SAND, silty, dark brown.
			8.0	548.9'	
					8.0' to 16.0' CLAY, sandy, buff.
			16.0	540.9'	
					16.0' to 22.4' SHALE, compact, laminated, blue-black.
			22.4	534.5'	
					22.4' to 52.8' SANDSTONE, gravelly, tan.

SWDR-C-2

LOG OF CORE DRILLING CONTINUATION SHEET

Site Aubrey — Hole No C-4 — Sheet 2 of 2



52.8' to 62.0' SHALE, compact, laminated, black. Shell marl at 57.0'.

62.0' to 63.0' SANDSTONE, pyritic, gray.
63.0' to 72.3' SHALE, gray, rotten.

72.3' to 82.0' SHALE, compact, laminated, black.

Bottom of hole

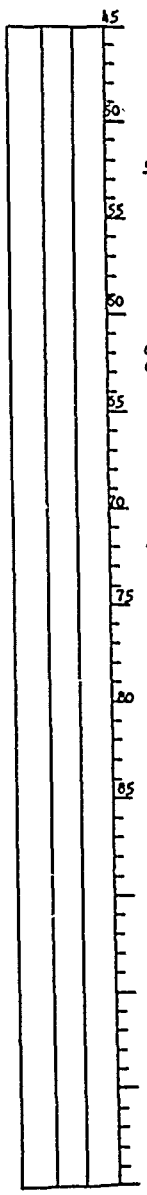
NOTE:

Additional subsurface explorations indicate top of rock shown on this boring is in error. Material from 16.0 to 22.4 is probably clay. Sandstone shown from 22.4 to 52.8 is probably sand, The geologic section reflects these changes. Nov. 1939

SWDR-C-2

LOG OF CORE DRILLING CONTINUATION SHEET

Site Aubrey Hole No. C-4 Sheet 2 of 2



52.8'	504.1'	52.8' to 62.0' SHALE, compact, laminated, black. Shell marl at 57.0'.
62.0'	494.9'	62.0' to 63.0' SANDSTONE, pyritic, gray.
63.0'	493.9'	63.0' to 72.3' SHALE, gray, rotten.
72.3'	484.6'	72.3' to 82.0' SHALE, compact, laminated, black.
82.0'	474.9'	Bottom of hole

NOTE:

Additional subsurface explorations indicate top of rock shown on this boring is in error. Material from 16.0 to 22.4 is probably clay. Sandstone shown from 22.4 to 52.8 is probably sand, The geologic section reflects these changes. NOV 1975

RECORD DRAWING-WORK AS BUILT

SYM	DC NO	ACTION	DATE	DESCRIPTION OF REVISION

U.S. ARMY ENGINEER DISTRICT, FORT WORTH
CORPS OF ENGINEERS
FORT WORTH, TEXAS

DESIGNED BY:
DRAWN BY
REVIEWED BY:

RAY ROBERTS LAKE
ELM FORK, TRINITY RIVER, TEXAS
EMBANKMENT, SPILLWAY AND OUTLET WORKS
LOGS OF BORINGS
C-3 AND C-4

SUBMITTED BY
ENGINEER

INVITATION NO. DACW63-82-B-0025 DATE MAR, 1982
CONTRACT NO. DACW63-82-C-0082
DRAWING NUMBER SHEET NO. OF SEQUENCE NO. 9

TO ACCOMPANY FOUNDATION REPORT

SWDR-C-1

UNITED STATES ENGINEER OFFICE
ENGINEERING DIVISION
FIELD INVESTIGATIONS SECTION
GALVESTON, TEXAS

LOG OF CORE DRILLING

Site Aubrey Date 20 August 1946
500' above C.L. Sta. 28+00

Hole No. C-5 Drill No.
Type of Bit
Size of Core 2-Inch
Method of Ovb. Sampling Earth Auger
Set of Casing
Depth to Water Table
Total Depth of Hole 68.0'
Overburden Sampling 37.0'
Date Hole Started 18 January 1939
Number of Jars/Tubes None
Number of Boxes 1
Classified by

Location X= Y=
Elevation of Top of Hole 560.3'
Depth of Overburden 37.0'
Elevation of Top of Bedrock 523.3'
Pulled Casing Yes ( ) No ( )
Elevation of Water Table
Elevation of Bottom of Hole 492.3'
Core Drilling 31.0' % Recovery
Date Hole Completed 20 January 1939
Marked
Marker Upper Elm Creek 500' Above Sta. 28+00
Submitted by

BOX NOS.	RUNS	LOSSES	DEPTH	ELEV.	CLASSIFICATION AND REMARKS
			0.0'	560.3'	
					0.0' to 6.5' SILT, clayey, dark brown.
			6.5'	553.8'	
					6.5' to 24.0' CLAY, silty, light brown.
			24.0'	536.3'	
					24.0' to 36.0' SAND, fine grained, tan.
			36.0'	524.3'	36.0' to 37.0' LIMESTONE GRAVEL
			37.0'	523.3'	37.0' to 50.8' SHALE, very sandy, gray, with clay "ironstone" concretions.
			50.8'	509.5'	50.8' to 53.0' SHALE, laminated, compact, black.
			53.0'	507.3'	53.0' to 53.5' SHELL MARL
			53.5'	506.8'	53.5' to 57.2' SHALE, laminated, compact, black.
			57.2'	503.1'	57.2' to 59.0' SANDSTONE, gray and sandy shale.
			59.0'	501.3'	59.0' to 68.0' SHALE, laminated, compact, black.
			68.0'	492.3'	Bottom of hole

SWDR-C-1

UNITED STATES ENGINEER OFF
ENGINEERING DIVISION
FIELD INVESTIGATIONS SECT
GALVESTON, TEXAS

LOG OF CORE DRILLIN

Site Aubrey

Hole No. C-6 Drill No.
Type of Bit
Size of Core 2-Inch
Method of Ovb. Sampling Earth Auger
Set of Casing
Depth to Water Table
Total Depth of Hole 68.0'
Overburden Sampling 43.0'
Date Hole Started 16 January 1939
Number of Jars/Tubes None
Number of Boxes 1
Classified by

Location X=
Elevation o
Depth of Ov
Elevation o
Pulled Casi
Elevation o
Elevation o
Core Drillin
Date Hole Co
Marked
Marker Uppe
Submitted by

BOX NOS.	RUNS	LOSSES	DEPTH	ELEV.	CLASSIF
			0.0'	556.4'	
					0.0' to 9.0'
			9.0'	547.4'	
					9.0' to 25.8'
			25.8'	530.6'	
					25.8' to 31.0'
			31.0'	525.4'	
					31.0' to 43.0'
			43.0'	513.4'	
					43.0' to 55.0' s concretions.
			55.0'	501.4'	
					55.0' to 68.0' sh blue-black, slight
			68.0'	488.4'	Bottom o

POLYTRACE 033

SWDB-C-1

UNITED STATES ENGINEER OFFICE
ENGINEERING DIVISION
FIELD INVESTIGATIONS SECTION
GALVESTON, TEXAS

LOG OF CORE DRILLING

Date 20 August 1946
Site Aubrey C.L. Sta. 36+00 Sheet 1 of 2

Hole No. C-6 Drill No.
Type of Bit
Size of Core 2-Inch
Method of Ovb. Sampling Earth Auger
Set of Casing
Depth to Water Table
Total Depth of Hole 68.0'
Overburden Sampling 43.0'
Date Hole Started 16 January 1939
Number of Jars/Tubes None
Number of Boxes 1
Classified by

Location X= Y=
Elevation of Top of Hole 556.4'
Depth of Overburden 43.0'
Elevation of Top of Bedrock 513.4'
Pulled Casing Yes ( ) No ( )
Elevation of Water Table
Elevation of Bottom of Hole 488.4'
Core Drilling 25.0' % Recovery
Date Hole Completed 16 January 1939
Marked - - - - - - -
Marked Upper Elm Creek C.L. Sta. 36+00
Submitted by

BOX NOS.	RUNS	LOSSES	DEPTH	ELEV.	CLASSIFICATION AND REMARKS
			0.0'	556.4'	
					0.0' to 9.0' CLAY, dark brown.
			9.0'	547.4'	
					9.0' to 25.8' SAND, silty, tan.
			25.8'	530.6'	
					25.8' to 31.0' CLAY, very sandy, gray.
			31.0'	525.4'	
					31.0' to 43.0' SAND, fine grained, rust.
			43.0'	513.4'	
					43.0' to 55.0' SHALE, blue and ironstone concretions.
			55.0'	501.4'	
					55.0' to 68.0' SHALE, compact, laminated, blue-black, slightly sandy.
			68.0'	488.4'	Bottom of hole

SWDB-C-1

UNITED STATES ENGINEER OFFICE
ENGINEERING DIVISION
FIELD INVESTIGATIONS SECTION
GALVESTON, TEXAS

LOG OF CORE DRILLING

Date 20 August 1946
Site Aubrey C.L. Sta. 45+80 Sheet 1 of 2

Hole No. C-7 Drill No.
Type of Bit
Size of Core 2-Inch
Method of Ovb. Sampling Earth Auger
Set of Casing
Depth to Water Table
Total Depth of Hole 95.0'
Overburden Sampling 28.0'
Date Hole Started 12 January 1939
Number of Jars/Tubes 1
Number of Boxes 2
Classified by

Location X= Y=
Elevation of Top of Hole 590.9'
Depth of Overburden 28.0'
Elevation of Top of Bedrock 562.9'
Pulled Casing Yes ( ) No ( )
Elevation of Water Table
Elevation of Bottom of Hole 495.9'
Core Drilling 67.0' % Recovery
Date Hole Completed 16 January 1939
Marked Upper Elm Creek C.L. Sta. 45+80
Marked Upper Elm Creek C.L. Sta. 45+80
Submitted by

BOX NOS.	RUNS	LOSSES	DEPTH	ELEV.	CLASSIFICATION AND REMARKS
			0.0'	590.9'	
					0.0' to 6.6' SAND, silty, dark brown.
			6.6'	584.3'	
					6.6' to 8.7' SAND, red and broken sandstone.
			8.7'	582.2'	
					8.7' to 28.0' SAND, clayey, tan.
			28.0'	562.9'	
			28.5'	562.4'	28.0' to 28.5' SANDSTONE, red.
					28.5' to 45.2' LIMESTONE, fossiliferous, marly gray.

UNITED STATES ENGINEER OFFICE
ENGINEERING DIVISION
FIELD INVESTIGATIONS SECTION
GALVESTON, TEXAS

LOG OF CORE DRILLING

Date 20 August 1946
Site Aubrey Sheet 1 of 2

Hole No. C-7 Drill No.
Type of Bit
Size of Core 2-Inch
Method of Ovb. Sampling Earth Auger
Set of Casing
Depth to Water Table
Total Depth of Hole 95.0'
Overburden Sampling 28.0'
Date Hole Started 12 January 1939
Number of Jars/Tubes 1
Number of Boxes 2
Classified by

C.L. Sta. 45/80
Location N= E=
Elevation of Top of Hole 590.9'
Depth of Overburden 28.0'
Elevation of Top of Bedrock 562.9'
Pulled Casing Yes ( ) No ( )
Elevation of Water Table
Elevation of Bottom of Hole 495.9'
Core Drilling 67.0' % Recovery
Date Hole Completed 16 January 1939
Marked Upper Elm Creek C. L. Sta. 45/80
Marked Upper Elm Creek C. L. Sta. 45/80
Submitted by

BOX NOS.	RUNS	LOSSES	DEPTH	ELEV.	CLASSIFICATION AND REMARKS
			0.0'	590.9'	
					0.0' to 6.6' SAND, silty, dark brown.
			6.6'	584.3'	
					6.6' to 8.7' SAND, red and broken sandstone.
			8.7'	582.2'	
					8.7' to 28.0' SAND, clayey, tan.
			28.0'	562.9'	
			28.5'	562.4'	28.0' to 28.5' SANDSTONE, red.
					28.5' to 45.2' LIMESTONE, fossiliferous, marly gray.

SWDR-C-12

LOG OF CORE DRILLING CONTINUATION SHEET

Site Aubrey Hole No C-7 Sheet 2 of 2

45.2'	545.7'	45.2' to 52.0' SHALE, black.
52.0'	538.9'	52.0' to 72.0' SHALE, compact, laminated, black.
72.0'	518.9'	72.0' to 83.0' SHALE, black, with gray sand streaks.
83.0'	507.9'	83.0' to 95.0' SHALE, very sandy, gray-black.
95.0'	495.9'	Bottom of hole

RECORD DRAWING-WORK AS BUILT

SYM	DOC NO	ACTION	DATE	DESCRIPTION OF REVISION

U.S. ARMY ENGINEER DISTRICT, FORT WORTH
CORPS OF ENGINEERS
FORT WORTH, TEXAS

DESIGNED BY
DRAWN BY
REVIEWED BY
SUBMITTED BY
ENGINEER

RAY ROBERTS LAKE
ELM FORK, TRINITY RIVER, TEXAS
EMBANKMENT, SPILLWAY AND OUTLET WORKS
LOGS OF BORINGS
C-5, C-6 AND C-7

INVITATION NO. DACW63-82-B-0025 DATE MAR, 1982
CONTRACT NO. DACW63-82-C-0085
DRAWING NUMBER
SHEET NO OF
SEQUENCE NO 10

TO ACCOMPANY FOUNDATION REPORT

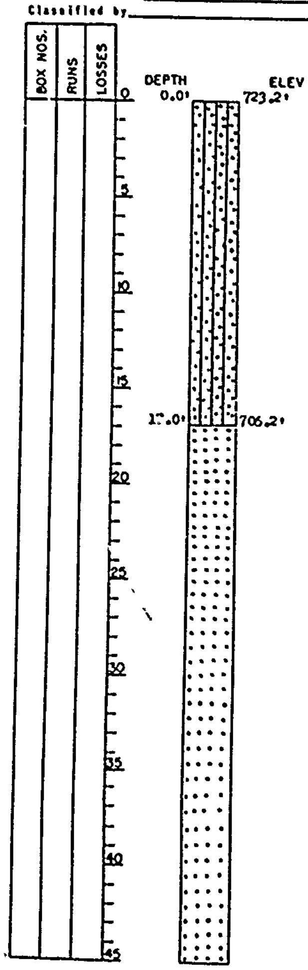
SWEW-C-1.

UNITED STATES ENGINEER OFFICE
ENGINEERING DIVISION
FIELD INVESTIGATIONS SECTION
GALVESTON, TEXAS

LOG OF CORE DRILLING

Site Aubrey | Date 20 August 1946 | Sheet 1 of 4

Hole No. C-8 Drill No.	Location X= C.L. Sta. 51/36
Type of Bit	Elevation of Top of Hole 723.2'
Size of Core 2-Inch	Depth of Overburden 17.0'
Method of Ovb. Sampling Earth Auger	Elevation of Top of Bedrock 706.2'
Set ___ of ___ Casing	Pulled Casing Yes ( ) No ( )
Depth to Water Table	Elevation of Water Table
Total Depth of Hole 217.0'	Elevation of Bottom of Hole 506.2'
Overburden Sampling 17.0'	Core Drilling 200.0' % Recovery
Date Hole Started 12 January 1939	Date Hole Completed 30 January 1939
Number of Jars/Tubes 1	Marked Upper Elm Creek C.L. Sta. 51/36
Number of Boxes 4	Marked Upper Elm Creek C.L. Sta. 51/36
Classified by	Submitted by



CLASSIFICATION AND REMARKS

0.0' to 17.0' SAND, silty, red.

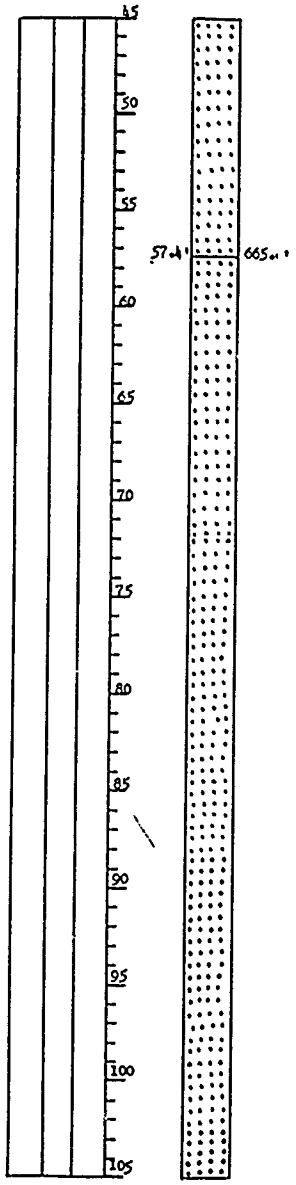
17.0' to 57.4' SANDSTONE, poorly consolidated and cross-bedded, orange, gray & yellow.

SWEW-C-2.

LOG CORE DRILLING CONTINUATION SH

Site Aubrey

Hole No. C-8



57.4' to 111.0' SAND[illegible] dated, maroon.

CORE DRILLING CONTINUATION SH

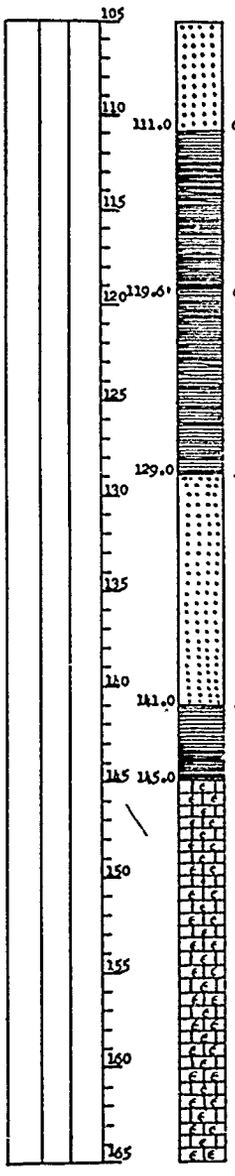
Hole No. C-8 Sheet 2 of 4

57.4' to 111.0' SANDSTONE, poorly consolidated, maroon.

SWDH-C-2.

LOG CORE DRILLING CONTINUATION SH

Site Aubrey Hole No. C-8 Sheet 3 of 4



111.0' to 119.6' SHALE, lignitic, black-brown.

119.6' to 129.0' SHALE, sandy, gray-black. Seams of plastic clay.

129.0' to 141.0' SANDSTONE, clayey, consolidated, yellow-gray.

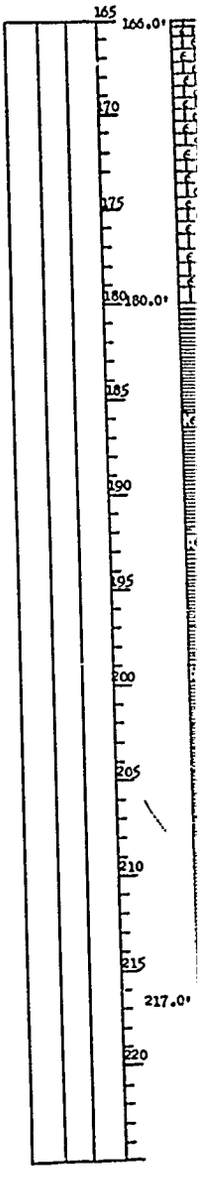
141.0' to 145.0' SHALE, very sandy, green.

145.0' to 166.0' SHELL AGGLOMERATE in matrix of green marly limestone.

SWDH-C-2.

LOG

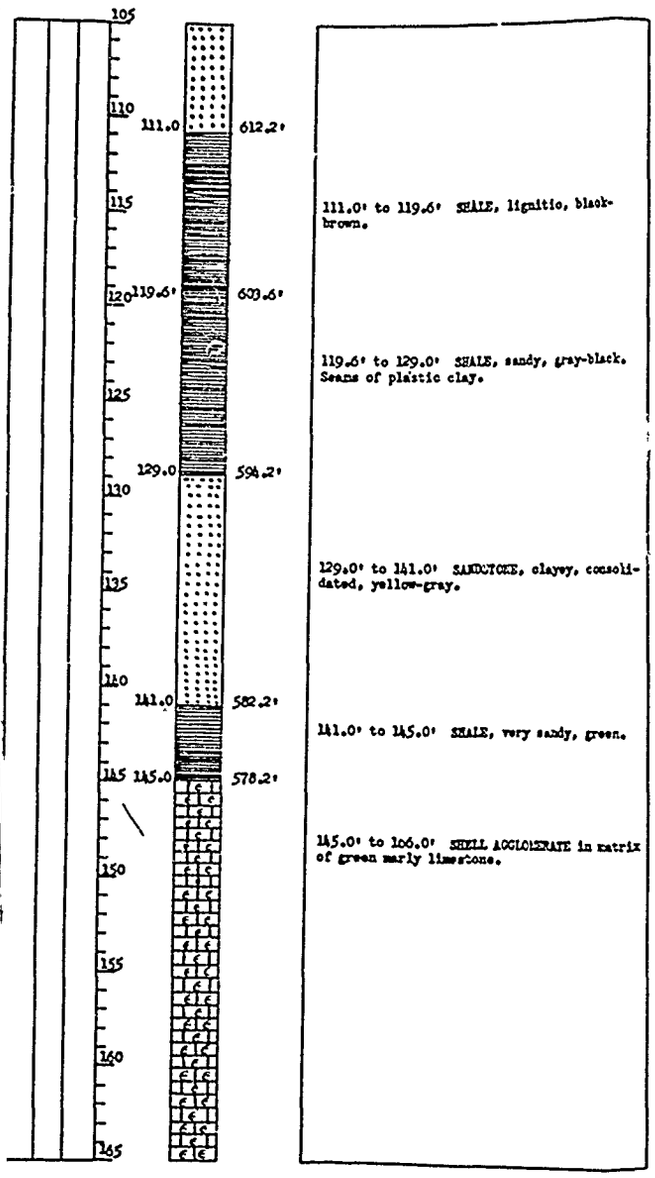
Site Aubrey



SWDH-C-2.

LOG CORE DRILLING CONTINUATION SH

Site Aubrey Hole No C-8 Sheet 3 of 4



111.0' to 119.6' SHALE, lignitic, black-brown.

119.6' to 129.0' SHALE, sandy, gray-black. Seams of plastic clay.

129.0' to 141.0' SANDSTONE, clayey, consolidated, yellow-gray.

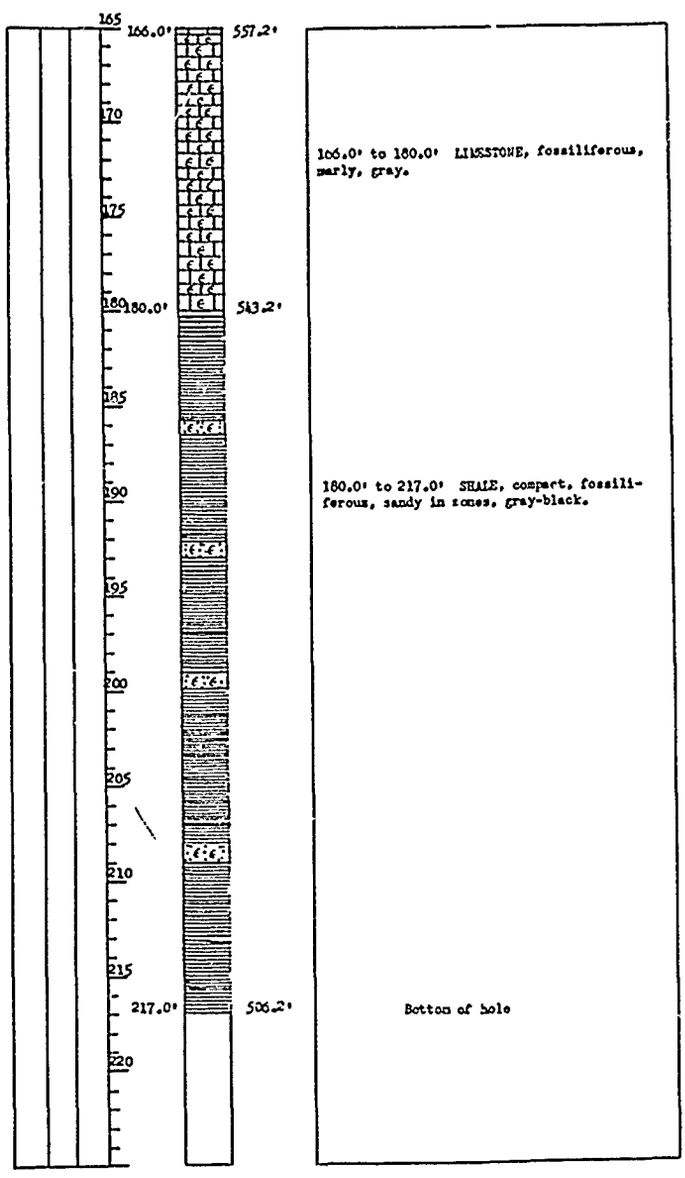
141.0' to 145.0' SHALE, very sandy, green.

145.0' to 166.0' SHELL AGGLOMERATE in matrix of green marly limestone.

SWDH-C-2.

LOG CORE DRILLING CONTINUATION SH

Site Aubrey Hole No C-8 Sheet 4 of 4



166.0' to 180.0' LIMESTONE, fossiliferous, marly, gray.

180.0' to 217.0' SHALE, compact, fossiliferous, sandy in zones, gray-black.

Bottom of hole

RECORD DRAWING-WORK AS BUILT

SYM	DG NO	ACTION	DATE	DESCRIPTION OF REVISION

U.S. ARMY ENGINEER DISTRICT, FORT WORTH
CORPS OF ENGINEERS
FORT WORTH, TEXAS

DESIGNED BY ---
DRAWN BY ---
REVIEWED BY ---

RAY ROBERTS LAKE
ELM FORK, TRINITY RIVER, TEXAS
EMBANKMENT, SPILLWAY AND OUTLET WORKS
LOGS OF BORINGS
C-8

SUBMITTED BY
ENGINEER

INVITATION NO. DACW63-82-B0025 DATE MAR. 1982
CONTRACT NO. DACW63-82-C-0082
DRAWING NUMBER SHEET NO. OF
SEQUENCE NO 11

TO ACCOMPANY FOUNDATION REPORT

Hole No. 8A2C-9

DRILLING LOG — Southwestern Division

1. PROJECT: Aubrey Dam Site	INSTALLATION: Fort Worth District (Sub) — SHEET 1 OF 3 SHEETS
2. LOCATION (Coordinates or Traverse)	10. SIZE AND TYPE OF BIT: 8" Auger 2" Core Bbl
3. DRILLING AGENCY: Corps of Engineers	11. DATUM FOR ELEVATION SHOWN (TBM or MSL)
4. HOLE NO. (As shown on drawing title) AND SITE NUMBER: 8A2C-9	12. MANUFACTURER'S DESIGNATION OF DRILL: Failing 1500
5. NAME OF DRILLER: R. M. Dunn	13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN: DISTURBED 2; UNDISTURBED 0
6. DIRECTION OF HOLE: ☒ VERTICAL ☐ INCLINED ____ DEG. FROM VERT.	14. TOTAL NUMBER CORE BOXES: 5
7. THICKNESS OF OVERBURDEN: 4.5	15. ELEVATION GROUND WATER: *
8. DEPTH DRILLED INTO ROCK: 101.5	16. DATE HOLE: STARTED 5 Dec 50; COMPLETED 8 Dec 60
9. TOTAL DEPTH OF HOLE: 106.0	17. ELEVATION TOP OF HOLE: 600.5'
	18. TOTAL CORE RECOVERY FOR BORING: 84 %
	19. SIGNATURE OF INSPECTOR

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
			Start 2" core		A	*Ground water elevation undetermined
					B	
596.0'	4.5		4.5' to 3.9' limestone, marly, hard, siliceous, massive, weathered, dark red oxidized streak from 8.0' to 8.4', gray to buff	75	Box 1	Jar Sample Depths A- 0.0 to 3.6' B- 3.6 to 4.3
591.6'	8.9					
10			8.9 to 12.3 clay, shaly, sand lenses thru out, weathered, slightly laminated, tan to grey	80		
588.2'	12.3					
			NOTE: Base of weathering zone	86		
			12.3 to 96.5' shale, clayey, sandy, firm to medium hard, very fossiliferous, laminated, dark gray	86		
20			NOTE: Medium hard sandstone streaks at following depths: 16.7 to 16.9; 24.7 to 25.3; 40.0 to 40.4; 43.1 to 43.3; 48.0 to 48.4; 55.0 (Siltstone)	86	Box 2	
30				90		
				97		

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f
					Box 3
				84	
				92	
				90	Box 4
				88	
504.0'	96.5		96.5' to 100.0 LIMESTONE sandy, hard, massive, fossiliferous, gray	100	
			100' to 106.0' SHALE, clayey firm, laminated, gray	40	Box 5
494.5'	106.0		T. D. 106.0'		

% CORE RECOV.	BOX OR SAMPLE NO.	REMARKS
	Box 3	
84		
92		
	Box 4	
90		
88		
100		
	Box 5	
40		

IE fossil

clayey

Hole No. 8A2C-10

DRILLING LOG — Division: Southwestern

INSTALLATION: Fort Worth District — SHEET 1 OF 2 SHEETS

1. PROJECT: Aubrey Damsite
2. LOCATION (Coordinates or Station)
3. DRILLING AGENCY: Corps of Engineers
4. HOLE NO. (As shown on drawing title) and title number): 8A2C-10
5. NAME OF DRILLER: R. N. Dunn
6. DIRECTION OF HOLE: [X] VERTICAL [ ] INCLINED _____ DEG. FROM VERT.
7. THICKNESS OF OVERBURDEN: 19.5
8. DEPTH DRILLED INTO ROCK: 45.5
9. TOTAL DEPTH OF HOLE: 60.0
10. SIZE AND TYPE OF BIT: 8" Auger 2" Core bbl
11. DATUM FOR ELEVATION SHOWN (TBM or MSL): MSL
12. MANUFACTURER'S DESIGNATION OF DRILL: Failing 1500
13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN: Disturbed 3; Undisturbed 0
14. TOTAL NUMBER CORE BOXES: 2
15. ELEVATION GROUND WATER: *
16. DATE HOLE: Started 15 Dec 60; Completed 15 Dec 60
17. ELEVATION TOP OF HOLE: 610.8
18. TOTAL CORE RECOVERY FOR BORING: 90 %
19. SIGNATURE OF INSPECTOR

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOV.	BOX OR SAMPLE NO.	REMARKS
					A	*Ground water elevation on 16 Dec 1960 was (8.0
					B	Jar Sample Depths; A - 0.0' to 5.5' B - 5.5' tp 10.4' C - 10.4' tp 13.8'
					C	
596.3'	14.5		Start 2" Core 14.5'			
			14.5' to 25.8' clay, shaly, firm, fine sand lenses thru out, soft sandstone streak at 16.8, and 22.1, very hard limestone boulder at 17.6'; gray to yellow	72	Box 1	
				75		
585.0'	25.8		25.8' to 41.8' SHALE, clayey firm weathering stains in upper 3.0'; sandy, laminated, small fossils thru out dark gray			
			NOTE: Base of weathering at 29.0'. Lime seam at 35.0' which is 0.1 thick	100		
				90		
				95		
569.0'	41.8		41.8' to 43.3' SAND, clayey, firm-almost sandstone, distinct bedding, fine to medium gray			
567.5'	43.3		43.3' to 60.0' SHALE, clayey, sandy firm to medium hard lime boulder at 44.8, very fossiliferous from 47.0 to 51.0, laminated, 4' sandstone at 58.0', dark gray	100	Box 2	
				97		
550.8'			T. D. 60.0'			

DRILLING LOG — Division: Southwestern

1. PROJECT: Aubrey Dam Site
2. LOCATION (Coordinates or Station)
3. DRILLING AGENCY: Corps of Engineers
4. HOLE NO. (As shown on drawing title) and title number): 8A2C-11
5. NAME OF DRILLER: R. Dunn
6. DIRECTION OF HOLE: [X] VERTICAL [ ] INCLINED _____ DEG. FROM VERT
7. THICKNESS OF OVERBURDEN: 7.0'
8. DEPTH DRILLED INTO ROCK: 23.6
9. TOTAL DEPTH OF HOLE: 30.6'

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)
			Start 2" core 7.0'
605.2'	7.0		7.0' to 14.4' clay, sl sandy, firm to medium very weathered, horiz fractures, yellow to t
10			
597.8'	14.4		14.4' to 15.8 sandst medium hard, fine to
596.4'	15.8		grain, massave, tan t
			15.8' to 22.5 shale, s firm to medium hard, a nating seams of sand and shale, weathered t gray.
20			NOTE: Base of weath zone
589.7'	22.5		
			22.5' to 30.6 shale, sandy, firm laminated, marine fossils, dark g
581.6'	30.6		T. D. 30.6'

ENG FORM 1836 MAR 71 PREVIOUS EDITIONS ARE OBSOLETE

REC

SYM | OO NO | ACT

U.S.

DESIGNED BY:
DRAWN BY:
REVIEWED BY:
SUBMITTED BY
ENGINEER

TO ACCOMP

Hole No. 8A2C-10

DRILLING LOG — Location: Southwestern — Installation: Fort Worth District — Sheet 1 of 2 Sheets

1. Project	Danville
2. Location (Coordinates or Station)	
3. Drilling Agency	Corps of Engineers
4. Hole No. (As shown on drawing title)	8A2C-10
5. Name of Driller	R. Dunn
6. Direction of Hole	☐ Vertical ☐ Inclined ____ deg. from vert.
7. Thickness of Overburden	19.5
8. Depth Drilled into Rock	43.5
9. Total Depth of Hole	60.0
10. Size and Type of Bit	8" Auger 2" Core Bbl
11. Datum for Elevation Shown (USGS or Mean)	MSL
12. Manufacturer's Designation of Drill	Failing 1500
13. Total No. of Overburden Samples Taken	Disturbed 3 / Undisturbed 0
14. Total Number Core Boxes	2
15. Elevation Ground Water	*
16. Date Hole	Started 15 Dec 60 / Completed 15 Dec 60
17. Elevation Top of Hole	610.8
18. Total Core Recovery for Boring	90 %
19. Signature of Inspector	

Depth	Legend	Classification of Materials (Description)	% Core Recovery	Box or Sample No.	Remarks (Drilling time, water loss, depth of weathering, etc.; if significant)
				A	*Ground water elevation on 16 Dec 1960 was (8.0
				B	Jar Sample Depths; A - 0.0' to 5.5' B - 5.5' tp 10.4' C - 10.4' tp 13.8'
				C	
4.5		Start 2" Core 14.5'			
		14.5' to 25.8' clay, shaly, firm, fine sand lenses thru out, soft sandstone streak at 16.8, and 22.1, very hard limestone boulder at 17.6'; grey to yellow	72	Box 1	
			75		
25.8		25.8' to 41.8' SHALE, clayey firm weathering stains in upper 3.0'; sandy, laminated small fossils thru out dark gray	100		
		NOTE: Base of weathering at 29.0'. Lime seam at 35.0' which is 0.1 thick	90		
			95		
41.8		41.8' to 43.3' SAND, clayey, firm-almost sandstone, distinct bedding, fine to medium gray			
		43.3' to 60.0' SHALE, clayey, sandy firm to medium hard lime boulder at 44.8, very fossiliferous from 47.0 to 51.0, laminated, 4' sandstone at 58.0', dark gray	100	Box 2	
			97		
		T. D. 60.0'			

Hole No. 8A2C-11

DRILLING LOG — Location: Southwestern — Installation: Fort Worth District — Sheet 1 of 1 Sheets

1. Project	Aubrey Dam Site
2. Location (Coordinates or Station)	
3. Drilling Agency	Corps of Engineers
4. Hole No. (As shown on drawing title)	8A2C-11
5. Name of Driller	R. Dunn
6. Direction of Hole	☑ Vertical ☐ Inclined ____ deg. from vert.
7. Thickness of Overburden	7.0'
8. Depth Drilled into Rock	23.6
9. Total Depth of Hole	30.6'
10. Size and Type of Bit	8" Auger, 2" Core Bbl
11. Datum for Elevation Shown (USGS or Mean)	
12. Manufacturer's Designation of Drill	Failing 1500
13. Total No. of Overburden Samples Taken	Disturbed 2 / Undisturbed 0
14. Total Number Core Boxes	1
15. Elevation Ground Water	*
16. Date Hole	Started 16 Dec 60 / Completed 16 Dec 60
17. Elevation Top of Hole	612.2'
18. Total Core Recovery for Boring	86 %
19. Signature of Inspector	

Elevation	Depth	Legend	Classification of Materials (Description)	% Core Recovery	Box or Sample No.	Remarks (Drilling time, water loss, depth of weathering, etc.; if significant)
					A	*Ground water elevation on 19 Dec 60 (10')
					B	Jar Sample Depths A - 0.0 to 3.5' B - 3.5' to 6.5
			Start 2" core 7.0'			
605.2'	7.0'		7.0' to 14.4' clay, shaly, sandy, firm to medium hard, very weathered, horizontal fractures, yellow to tan	100		
10						
				70		
597.8'	14.4'		14.4' to 15.8 sandstone, medium hard, fine to medium grain, massive, tan to gray			
596.4'	15.8'					
			15.8' to 22.5 shale, sandy, firm to medium hard, alternating seams of sand stone and shale, weathered tan to gray.	75		
20						
589.7'	22.5'		NOTE: Base of weathering zone	95		
				88		
			22.5' to 30.6 shale, clayey, sandy, firm laminated, few marine fossils, dark gray			
581.6'	30.6'					
			T. D. 30.6'			

ENG FORM 1836 MAR 71 — PREVIOUS EDITIONS ARE OBSOLETE — PROJECT — HOLE NO

RECORD DRAWING-WORK AS BUILT

Symbol	Code No.	Action	Date	Description of Revision

U.S. ARMY ENGINEER DISTRICT, FORT WORTH
CORPS OF ENGINEERS
FORT WORTH, TEXAS

Designed by: ——— Drawn by: ——— Reviewed by: ———

RAY ROBERTS LAKE
ELM FORK, TRINITY RIVER, TEXAS
EMBANKMENT, SPILLWAY AND OUTLET WORKS
LOGS OF BORINGS
8A2C-9, 8A2C-10, AND 8A2C-11

Submitted by: ——— Engineer

Invitation No. DACW63-82-B-0025 Date: MAR, 1982
Contract No. DACW63-87-C-0093
Drawing Number — Sheet No. — Of — Sequence No. 12

CONTRACT NO DACW63-82-C-0083

TO ACCOMPANY FOUNDATION REPORT

Hole No. 8A6C-12

DRILLING LOG	Division: Southwestern	Installation: Fort Worth	Sheet 1 of 2 sheets
1. Project: Aubrey Dam Site No. 1		10. Size and type of bit: 8" auger, 5" carboloy, 6" diamond	
2. Location:		11. Datum for elevation shown: MSL 577.1	
3. Drilling agency: Corps of Engineers		12. Manufacturer's designation of drill: Failing 1500	
4. Hole no. (As shown on drawing title and file number): 8A6C-12		13. Total no. of overburden samples taken: Undisturbed 5; Undisturbed 0	
5. Name of driller: Schosmeier		14. Total number core boxes: 7	
6. Direction of hole: ☒ Vertical ☐ Inclined ____ deg. from vert.		15. Elevation ground water: 0000	
7. Thickness of overburden: 13.7		16. Date hole: Started 2 Nov 71; Completed 4 Nov 71	
8. Depth drilled into rock: 37.3		17. Elevation top of hole:	
9. Total depth of hole: 51.0		18. Total core recovery for boring: 96.8%	
		19. Signature of inspector: Vance L. Thurston	

Elevation	Depth	Legend	Classification of Materials (Description)	% Core Recovery	Box or Sample No.	Remarks (Drilling time, water loss, depth of weathering, etc., if significant)
			0.0' to 13.7'			0000
			SAND - - -		A	1. After completion, hole was bailed to 43.5'. Same level after 24 hours.
			0.0 to 10.0 - fine to medium grained, trace clay, medium compact, sli. moist, red.			
			10.0 to 13.7 - fine to medium grained, trace of fine-grained, well-rounded gravel (~5%), medium compact to dense, sli. moist, red.		B C D	2. Jars: A. 0.0 to 4.7 B. 4.7 to 6.4 C. 6.4 to 8.4 D. 8.4 to 10.0 E. 10.0 to 13.7
10.0					E	
			- - - Refusal w/auger @ 13.7' - - - - - -	13.7		3. Cartons: 1. 14.2 to 15.1 2. 18.3 to 19.3 3. 23.6 to 24.5 4. 29.0 to 30.0 5. 35.7 to 36.7 6. 42.9 to 43.9 7. 48.3 to 49.1
		1	13.7' to 26.4'	L 0.6	1	
			LIMESTONE - - -			
		2	13.7 to 23.3 - shaley, highly fossilif., m. hard, thick-bedded, unfractured and unjointed, sli. stained to 22.0', gray.	18.7 0.6		4. 8" casing set to 14.3'.
Base Stain	20.0				2	
		3	23.3 to 26.4 - very hard, diamond bit used in this section.	23.3 L 2.2		5. Drilling methods: 1. 0.0 to 13.7 - 8" auger. 2. 13.7 to 23.3 - 6" carboloy 3. 23.3 to 26.4 - 6" diamond 4. 26.4 to 51.0 - 6" carboloy.
577.1 1.0 576.1			26.4' to 51.0'			
		4	SHALE, non-calc., m. hard, no visible bedding, unjointed and unfractured, occas. siltstone concretion, black.	25.8 G. 1.2	3	
	30.0			G. 0.4		
				38.1	4	
		5		G. 0.3		
				38.1	5	
				L 0.6		
		6		43.2	6	
				G 0.7		
				47.2		
		7		L 0.8	7	
	50.0		T.D. - 51.0' -	51.0		

DRILLING LOG	Division: Southwestern	Installation: Fort Wort
1. Project: Aubrey Dam Site No. 1		10. Size and type
2. Location: Sta. 13+70 - centerline		11. Datum for el
3. Drilling agency: Corps of Engineers		12. Manufacturer
4. Hole no. (As shown on drawing title and file number): 6DC-13		13. Total no. of overburden samples
5. Name of driller: Suits		14. Total number
6. Direction of hole: ☒ Vertical ☐ Inclined ____ deg. from vert.		15. Elevation gro
7. Thickness of overburden: 43.0		16. Date hole
8. Depth drilled into rock: 52.2		17. Elevation top
9. Total depth of hole: 95.2		18. Total core re
		19. Signature of i

Elevation	Depth	Legend	Classification of Materials (Description)	% Core Recov.
			0.0' to 24.6'	
			CLAY - - - -	
			0.0 to 6.6 - non-calc., moist, stiff to hard, scattered rootlets, black.	
			6.6 to 12.6 - non-calc., moist, sli. sandy, hard, scattered rootlets, dk. brown.	
	10.0			
			12.6 to 24.6 - calc., sandy, hard to 22.6', stiff from 22.6 to 24.6, moist, tan.	
			24.6' to 28.6'	
			SAND, sli. clayey, non-calc., moist, medium compact, tan.	
	20.0			
			28.6' to 39.6'	
			CLAY, sandy, sli. calc., moisture increasing with depth, hardness decreasing with depth, saturated from 36.6', tan.	
			- - Drilled into sandy gravel @ 39.6' with d. bbl. - - - - Start 8" auger @ 39.6' - -	
	30.0			
			39.6' to 43.0'	
			GRAVEL, fine to medium grained, sandy, water-bearing, loose to medium dense.	

Hole No. 6DC-13

rn	INSTALLATION: Fort Worth	SHEET 2 OF 3 SHEETS
	10 SIZE AND TYPE OF BIT: 8" auger, 6" d.b., 6" carbol	
	11 DATUM FOR ELEVATION SHOWN (TBM or MSL)	
	12 MANUFACTURER'S DESIGNATION OF DRILL: Failing 1500	
-13	13 TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN: DISTURBED 1; UNDISTURBED 19	
	14 TOTAL NUMBER CORE BOXES: 9	
	15 ELEVATION GROUND WATER: none	
DEG FROM VERT.	16 DATE HOLE: STARTED 18 Nov 71; COMPLETED 27 Nov 71	
	17 ELEVATION TOP OF HOLE: 559.39	
	18 TOTAL CORE RECOVERY FOR BORING: see remarks	
	19 SIGNATURE OF INSPECTOR: [signature]	

CLASSIFICATION OF MATERIALS (Descriptions)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
			****
to 24.6'		A	1. After completion, hole was bailed to 90.0'. Water level will be sent in at later date.
- - - -		1 4.5	
to 6.6 - non-calc., oist, stiff to hard, cattered rootlets, lack.		2 2.5	2. Jar: A. 0.0 to 2.6
to 12.6 - non-calc., oist, sli. sandy, ard, scattered rootlets, k. brown.		3 3.5	3. Denison samples: 1. 2.6 to 4.6 2. 4.6 to 6.6 3. 6.6 to 8.6 4. 8.6 to 10.6 5. 10.6 to 12.6 6. 12.6 to 14.6 7. 14.6 to 16.6 8. 16.6 to 18.6 9. 18.6 to 20.6 10. 20.6 to 22.6 11. 22.6 to 24.6 12. 24.6 to 26.6 13. 26.6 to 28.6 14. 28.6 to 30.6 15. 30.6 to 32.6 16. 32.6 to 34.6 17. 34.6 to 36.6 18. 36.6 to 38.6 19. 38.6 to 39.6
6 to 24.6 - calc., sandy, ard to 22.6', stiff rom 22.6 to 24.6, oist, tan.		4 4.5	
		5 2.5	
		6 5	
to 28.6'		7 4.5	
sli. clayey, non-calc., t, medium compact,		8 2.5	
o 39.6'		9 4.5	Note: Jar samples taken from shoe after each depth: Penetrometer readings shown in column at left.
sandy, sli. calc., ture increasing with h, hardness decreasing depth, saturated 36.6', tan.		10 4.5	
		11 2.75	
ed into sandy gravel with d. bb'l. - - t 8" auger @ 39.6' - -		12	4. Cartons: 1. 46.7 to 47.6 2. 54.3 to 54.8 3. 59.2 to 60.2 4. 65.7 to 66.7 5. 71.5 to 72.5 6. 76.9 to 77.9 7. 85.4 to 86.4 8. 93.4 to 94.4
		13	
o 43.0'		14 2.5	
fine to medium ed, sandy, water-ng, loose to medium		15 1.5	
		16 2.5	
		17 1.5	5. 8" casing set to 45'
		18 1.0	6. Drilling methods: 1. 0.0 to 2.6 - auger 2. 2.6 to 39.6 - 6" d.b.
		19 1.0	

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Descriptions)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
			- - - Augered into primary material @ 43.0' - - Set casing to 45', cleaned out, and started 6" core @ 45.0' - - - - -	45'		3. 39.6 to 45.0 - auger 4. 45.0 to 95.2 - 6" carbology.
			45.0' to 93.4'	1.50		
		1	SHALE, non-calc. to sli. calc. with depth, m. hard, black to gray.	1.07	1	NOTE: Actual core loss from 45.0' to 53.2' was 14.6%. Hole tapped for depth at 53.2'. Loss possibly occured from 50.5 to 52.0, drilling was very rapid in this zone.
	50.0		45.0 to 57.2 - thin to medium bedded, with core seperating at sand seams listed below.	1.90		
		2		1.05		
			57.2 to 93.4 - core received from bb'l. as continuous stalks	53.2	2	53.2 to 95.2 - core recovery was 98%
				1.09		
			Sandstone, fine-grained, friable, laminated, @ following depths: 45.0 to 45.3, 45.6 (0.1) 51.3 to 52.3, 53.3 (0.1) 54.2 (0.1), 55.4 (0.1) 55.6 (0.1)	57.3	3	
	60.0	3		1.09		
			@ 58.8' - 0.05 seam of broken shells.	61.2		
			61.2 to 61.7 - zone of numerous broken shells	1.00	4	*** Parker bed - see 6DC-14 at 56.2 to 56.8
		4		65.2		
			From 62.8 to 93.4 - occas. thin, poorly-defined, friable sandstone seam.	1.11	5	
	70.0			69.2		
		5		6.04		
				73.2		
				1.01	6	
				77.2		
		6		6.01	7	
				81.2		
				1.01	8	
		7		85.2		
				1.02		
				89.2	9	
			93.4' to 95.2'	1.03		
		8	LIMESTONE, shaley, sli. nodular, fossilif., hard, gray.	93.2 core 95.2		**** Parker bed see 6DC-14 at 88.4'
			T.D. - 95.2' -			

TO AC

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO	REMARKS (Drilling time, water loss, depth of weathering, etc.) IF significant
			- - - Augered into primary material @ 43.0' - - Set casing to 45', cleaned out, and started 6" core @ 45.0' - - - - -	45'		3. 39.6 to 45.0 - sur 4. 45.0 to 95.2 - 6" carboloy.
			45.0' to 93.4'	45.0		
		1	SHALE, non-calc. to sli. calc. with depth, m. hard, black to gray.	47	1	NOTE: Actual core loss from 45.0' to 53.2' was 12.6%. Hole tapped for depth at 53.2'. Loss possibly occured from 50.5 to 52.0, drilling was very rapid in this zone.
50.0			45.0 to 57.2 - thin to medium bedded, with core seperating at sand seams listed below.	50.0 C5		53.2 to 95.2 - core recovery was 98%
		2	57.2 to 93.4 - core removed from bbl. as continuous stalks	53.2	2	
			Sandstone, fine-grained, friable, laminated, @ following depths: 45.0 to 45.3, 45.6 (0.1) 51.3 to 52.3, 53.3 (0.1) 54.2 (0.1), 55.4 (0.1) 55.6 (0.1)	57.3 09	3	
60.0		3	@ 58.8' - 0.05 seam of broken shells.	61.2		
		4	61.2 to 61.7 - zone of numerous broken shells	65.2 CC	4	- - - - *** Parker bed - see 6DC-14 at 56.2 to 56.8
			From 62.8 to 93.4 - occas. thin, poorly-defined, friable sandstone seam.	68.2 11	5	
70.0		5		73.2 04	6	
		6		77.2 C1	7	
				81.2 01	8	
		7		85.2 02	9	
			93.4' to 95.2'	89.2 03		
		8	LIMESTONE, shaley, sli. nodular, fossilif., hard, gray.	93.2 C6 95.2		- - - - *** Parker bed see 6DC-14 at 88.4'
			T.D. - 95.2' -			

RECORD DRAWING - WORK AS BUILT

SYM	DR. NO	ACTION	DATE	DESCRIPTION OF REVISION

U.S. ARMY ENGINEER DISTRICT, FORT WORTH
CORPS OF ENGINEERS
FORT WORTH, TEXAS

DESIGNED BY ---
DRAWN BY ---
REVIEWED BY ---
SUBMITTED BY ENGINEER ---

RAY ROBERTS LAKE
ELM FORK, TRINITY RIVER, TEXAS
EMBANKMENT, SPILLWAY AND OUTLET WORKS
LOGS OF BORINGS
8A6C-12 AND 6DC-13

INVITATION NO. DACW63-82-B-0025 DATE MAR. 1982
CONTRACT NO. DACW63-82-C-0063
DRAWING NUMBER SHEET NO. 13

TO ACCOMPANY FOUNDATION REPORT

Hole No. 6DC-14

DRILLING LOG

Field	Entry
Division	Southwestern
Installation	Fort Worth
Sheet	1 of 3 sheets
1. Project	Aubrey Dam Site No. 1
2. Location (Coordinates or Station)	
3. Drilling Agency	Corps of Engineers
4. Hole No. (As shown on drawing title and file number)	6DC-14
5. Name of Driller	Suits
6. Direction of Hole	[X] Vertical [ ] Inclined ___ Deg. from Vert.
7. Thickness of Overburden	45.3
8. Depth Drilled into Rock	44.7
9. Total Depth of Hole	90.0
10. Size and Type of Bit	6" auger, 6" d.b., 6" core
11. Datum for Elevation Shown (TBM or MSL)	
12. Manufacturer's Designation of Drill	Failing 1500
13. Total No. of Overburden Samples Taken	Disturbed: 16; Undisturbed: 17
14. Total Number Core Boxes	---
15. Elevation Ground Water	none
16. Date Hole	Started: 28 Sep. 71; Completed: 1 Oct. 71
17. Elevation Top of Hole	559.5
18. Total Core Recovery for Boring	99.0 %
19. Signature of Inspector	[signature]

Elevation (a)	Depth (b)	Legend (c)	Classification of Materials (Description) (d)	% Core Recovery (e)	Box or Sample No. (f)	Remarks (Drilling time, water loss, depth of weathering, etc., if significant) (g)
			0.0' to 38.6'		A, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17	none
			CLAY - - -			1. After completion, hole was bailed to 89.0' and casing was pulled. 24 hour water check -
			0.0 to 18.6 - calc., moist, hard, scattered rootlets to 8.6', tan.			2. Jars: A. 0.0 to 2.6
			18.6 to 38.6 - calc., sandy, stiff, with hardness decreasing with depth, moist to very moist, tan.			3. Denison cans: 1. 2.6 to 4.6; 2. 4.6 to 6.6; 3. 6.6 to 8.6; 4. 8.6 to 10.6; 5. 10.6 to 12.6; 6. 12.6 to 14.6; 7. 14.6 to 16.6; 8. 16.6 to 18.6; 9. 18.6 to 20.6; 10. 20.6 to 22.6; 11. 22.6 to 24.6; 12. 24.6 to 26.6; 13. 28.6 to 30.6; 14. 30.6 to 32.6; 15. 32.6 to 34.6; 16. 34.6 to 36.6; 17. 36.6 to 38.6
			NOTE: 26.6 to 28.6 - attempted 3 times to recover sample. No recovery.			4. Penetrometer tests on bottom of cans: Cans 1 thru 7 - 4.5; 8. 2.75; 9. 1.75; 10. 2.5; 11. 2.0; 12. 1.5; 13. 1.25; 14. 1.0; 15. 2.0; 16. 1.0; 17. N.A.
						5. All core was wrapped in aluminum foil and placed in cartons. Depths shown on p. 2
						6. 8" casing set to 46.0'.

Elevation (a)	Depth (b)	Legend (c)	Classification of Materials (Description) (d)	% Core Recovery (e)
			38.6' to 44.2'	
			SAND and GRAVEL, (recovered only trace in bottom of can 17.), logged by drill action and cutting .	
			--- Drilled into primary material @ 44.2', set casing to 46.0', cleaned out, and started 6" core @ 47.2' -	Change at 47.2; L. 0.6; 51.2
			47.2' to 88.4'	G. 0.2; 55.2
			SHALE, sli. to non-calc., sandy, hard (pen. ≠ 4.5) thin to medium bedded to 75.1', thick-bedded from 75.1 to 88.4, unjointed and unfractured, unweathered, gray.	L. 0.5; 59.2
			Sedimentary features:	G. 0.6
			Sandstone beds at the following depths:	
			47.5 to 47.8, 48.0 to 48.2, 48.6 to 48.9, 49.4 to 49.6, 50.7 to 51.1, 57.3 to 57.4, 59.1 to 59.3, 62.8 to 62.9, 64.8 to 65.0, 65.6 to 65.8, 67.4 to 67.6, 70.8 to 70.9, 71.3 to 71.5, 73.0 to 73.2, 74.7 to 74.9, 79.1 to 79.2, 81.2 to 81.4. Most beds were soft and crumbly, crushed with moderate amount of finger pressure.	63.2; G. 0.3; 67.2; L. 0.5
			56.2 to 56.8 - highly fossilif. section, very calc. Possible marker bed - see 6DC-15	71.2; G. 0.4
			Structural features:	75.2
			None	L. 0.0; 79.2
			88.4' to 90.0'	L. 0.3
			LIMESTONE, sli. shaly, nodular, fossilif., hard, gray.	83.2; L. 0.1; 87.2
			T.D. - 90.0' -	L. 0.0; 90.0
			Core was seperated at the following	
			47.5, 47.9, 48.3, 49.0, 49.4, 50.[illegible] 51.0, 51.1, 51.4, 51.6, 53.4, 54.[illegible] 59.2, 60.1, 61.2, 62.0, 62.8, 63.[illegible] 65.0, 66.0, 66.7, 67.2, 67.[illegible], 70.[illegible] 71.5, 71.8, 72.9, 74.6, 74.9, 75.[illegible] was removed as continuous stalks [illegible]	

Drilling Log (continuation sheet, Hole 6DC-15)

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g

Classification of materials:

38.7' to 44.2'

SAND and GRAVEL, (recovered only trace in bottom of can 17.), logged by drill action and cuttings.

- - - Drilled into primary material @ 44.2', set casing to 46.0', cleaned out, and started 6" core @ 47.2' - - -

47.2' to 88.4'

SHALE, sli. to non-calc., sandy, hard (pen. ≠ 4.5), thin to medium bedded to 75.1', thick-bedded from 75.1 to 88.4, unjointed and unfractured, unweathered, gray.

Sedimentary features:

Sandstone beds at the following depths:

47.5 to 47.8, 48.0 to 48.2, 48.6 to 48.9, 49.4 to 49.6, 50.7 to 51.1, 57.3 to 57.4, 59.1 to 59.3, 62.8 to 62.9, 64.8 to 65.0, 65.6 to 65.8, 67.4 to 67.6, 70.8 to 70.9, 71.3 to 71.5, 73.0 to 73.2, 74.7 to 74.9, 79.1 to 79.2, 81.2 to 81.4. Most beds were soft and crumbly, crushed with moderate amount of finger pressure.

56.2 to 56.8 - highly fossilif. section, very calc. Possible marker bed - see 6DC-15

Structural features:

None

88.4' to 90.0'

LIMESTONE, sli. shaly, nodular, fossilif., hard, gray.

T.D. - 90.0' -

Core was seperated at the following depths:

47.5, 47.9, 48.3, 49. , 49.4, 50.0, 50.7, 50.9, 51.0, 51.1, 51.4, 51.6, 53.4, 54.8, 55.6, 57.3, 59.2, 60.1, 61.2, 62.0, 62.8, 63.2, 63.9, 64.8, 65.0, 65.0, 66.9, 67.2, 67.5, 70.3, 70.8, 71.3, 71.5, 71.7, 72.9, 74.6, 74.9, 75.1, 84.6 - - Note that core was removed as continuous stalks from 75.1'.

% Core recovery / Box or sample no.: Cleaned out to set casing; 47.2 | 47.2; L. 0.6; 51.2; G. 0.2; 55.2; L. 0.5; 59.2; G. 0.6; 63.2; G. 0.3; 67.2; L. 0.5; 71.2; G. 0.4; 75.2; L. 0.0; 79.2; L. 0.3; 83.2; L. 0.1; 87.2; L. 0.0; 90.0

Remarks:

Cartons:

1. 47.2 to 48.0
2. 48.0 to 49.0
3. 49.0 to 50.0
4. 50.0 to 50.6
5. 50.6 to 51.6
6. 51.6 to 52.6
7. 52.6 to 53.6
8. 53.6 to 54.6
9. 54.8 to 55.5
10. 55.5 to 56.5
11. 56.5 to 57.3
12. 57.3 to 58.2
13. 58.2 to 59.1
14. 59.1 to 59.9
15. 60.0 to 61.0
16. 61.0 to 61.9
17. 61.9 to 62.7
18. 62.9 to 63.9
19. 63.9 to 65.0
20. 65.0 to 66.0
21. 66.0 to 66.9
22. 67.2 to 68.1
23. 68.1 to 69.0
24. 69.0 to 69.9
25. 69.9 to 70.7
26. 70.9 to 71.8
27. 71.8 to 72.9
28. 73.2 to 74.2
29. 74.2 to 75.1
30. 75.1 to 76.1
31. 76.1 to 77.1
32. 77.1 to 78.1
33. 78.1 to 79.1
34. 79.1 to 80.0
35. 80.0 to 81.0
36. 81.0 to 82.0
37. 82.0 to 82.8
38. 82.8 to 83.8
39. 83.8 to 84.8
40. 84.8 to 85.8
41. 85.8 to 86.8
42. 86.8 to 87.4
43. 87.4 to 88.2
44. 88.2 to 88.9
45. 88.9 to 89.9

The following depths were not cartoned: 54.6 to 54.8, 62.8 to 62.9, 66.9 to 67.2, 72.9 to 73.2.

Hole No. 6DC-15

DRILLING LOG — DIVISION: Southwestern	INSTALLATION: Fort Worth — SHEET 1 OF 2 SHEETS
1. PROJECT: Aubrey Dam Site No. 1	10. SIZE AND TYPE OF BIT: 8" auger, 6" d.b., 6" carboloy core
2. LOCATION (Coordinates or Station):	11. DATUM FOR ELEVATION SHOWN (TBM or MSL):
3. DRILLING AGENCY: Corps of Engineers	12. MANUFACTURER'S DESIGNATION OF DRILL: Failing 1500
4. HOLE NO. (As shown on drawing title and file number): 6DC-15	13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN: DISTURBED 16 : UNDISTURBED 16
5. NAME OF DRILLER: Schoonover	14. TOTAL NUMBER CORE BOXES: 5
6. DIRECTION OF HOLE: [x] VERTICAL [ ] INCLINED ____ DEG. FROM VERT.	15. ELEVATION GROUND WATER: none
7. THICKNESS OF OVERBURDEN: 38.7	16. DATE HOLE: STARTED 21 Sept. 71 : COMPLETED 24 Sept. 71
8. DEPTH DRILLED INTO ROCK: 22.5	17. ELEVATION TOP OF HOLE: 558.48
9. TOTAL DEPTH OF HOLE: 61.2	18. TOTAL CORE RECOVERY FOR BORING: 95.0 %
	19. SIGNATURE OF INSPECTOR: [signature]

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g

Depth scale: 10.0, 20.0, 30.0

Classification of materials:

0.0' to 38.7'

CLAY, calc., sli. moist to 6.7', with gradual moisture increase with depth, hard to 8.7' with strength decreasing with depth (Note penetrometer tests in remarks column), brown to tan.

34.7' to 38.7' - no recovery except for a fine to med. grained Sand from 38.2' to 38.7' loose, trace clay, gray.

- - - Drilled into primary material @ 38.7', set casing to 40.0', cleaned out, and started 6" core @ 40.7' - - -

40.7' to 61.2'

SHALE, sli. to non-calc., sandy, hard (pen. ≠ 4.5), medium to thin-bedded, unjointed and unfractured (except where noted), unweathered, gray.

Sedimentary features:

Sandstone at the following depths:

42.6 to 43.3 - laminated, shaly, sli. fissile, crumbly.
43.3 to 44.0 - scattered concretions.
53.2 to 53.4 - laminated, shaly, sli. fissile.
55.0 to 56.1 - laminated, shaly, sli. fissile.

48.5 to 49.1 - highly fossilif. (broken shells), calc. possible marker bed

T.D. - 61.2' -

Box or sample no.: A, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16; 40.7 | 40.7; 1; 45.2; 2; 49.2; 3; 53.2; 57.2; 4; 61.2; 5

Remarks:

none

1. After completion, casing was pulled, and hole was bailed to 55.0'. Water check after 24 hrs. was 24.0'.

2. Jars:
   A. 0.0 to 2.7
   Jar samples taken from Denison bb'l shoe except where noted by an asterisk.

3. Denison cans.

	Depth	Pen. test
1.	2.7 - 4.7	4.5
2.	4.7 - 6.7	4.25
3.	6.7 - 8.7	4.5
4.	8.7 - 10.7	4.25
5.	10.7 - 12.7	"
6.	12.7 - 14.7	"
7.	14.7 - 16.7	3.75
8.	16.7 - 18.7	"
9.	18.7 - 20.7	"
10.	20.7 - 22.7	"
11.	22.7 - 24.7	3.0
12.	24.7 - 26.7	"
13.	26.7 - 28.7	"
14.	28.7 - 30.7	2.75
**15.	30.7 - 32.7	1.75
16.	32.7 - 34.7	1.75

Note: Can #8 - sample slipped out on initial retrieve and was recovered on second attempt.
Can #15 - poor recovery. Lost 1.0'

4. Cartons:
   1. 41.1 to 41.9
   2. 47.5 to 48.5
   3. 52.2 to 53.2
   4. 56.8 to 57.7
   5. 58.6 to 59.5

5. 8" casing set to 40.0'.

6. Drilling methods:
   1. 0.0 to 2.7 - 8" auger
   2. 2.7 to 40.7 - d. bbl.
   3. 40.7 to 61.2 - 6" core

Structural features:

In the upper 10ft., core seems to have a slight dip (approx. 5°).

0.2' fracture with poorly formed slickensides at 56.4'.

- See 6DC-14, 56.2 to 56.8

Hole No 6DC-15

Division: Southwestern	Installation: Fort Worth
Hole No. 1	Sheet 1 of 2 sheets
	10. Size and type of bit: 8" auger, 6" d.b., 6" carboloy core
	11. Datum for elevation shown (TBM or MSL):
Engineers	12. Manufacturer's designation of drill: Failing 1500
Hole No. 6DC-15	13. Total no. of overburden samples taken: Undisturbed 16; Disturbed 16
	14. Total number core boxes: 5
Dec. from vert.	15. Elevation ground water: 0000
	16. Date hole: Started 21 Sept. 71; Completed 24 Sept. 71
= 38.7	17. Elevation top of hole: 558.48
= 22.5	18. Total core recovery for boring: 96.0 %
= 61.2	19. Signature of inspector: [signature]

Classification of Materials (Description)	% Core Recovery	Box or Sample No.	Remarks (Drilling time, water loss, depth of weathering, etc., if significant)
0.0' to 38.7'		A	0000
CLAY, calc., sli. moist to 6.7', with gradual moisture increase with depth, hard to 8.7' with strength decreasing with depth (Note penetrometer tests in remarks column), brown to tan.		1	1. After completion, casi was pulled, and hole was bailed to 55.0'. Water check after 24 hrs. was 24.0'.
		2	2. Jars: a. 0.0 to 2.7 Jar samples taken from Denison bbl shoe except where noted by an asterisk.
		3	
		4	
		5	3. Denison cans. Depth — Pene. test 1. 2.7 - 4.7 — 4.5 2. 4.7 - 6.7 — 4.25 3. 6.7 - 8.7 — 4.5 4. 8.7 - 10.7 — 4.25 5. 10.7 - 12.7 — " 6. 12.7 - 14.7 — " 7. 14.7 - 16.7 — 3.75 8. 16.7 - 18.7 — " 9. 18.7 - 20.7 — " 10. 20.7 - 22.7 — " 11. 22.7 - 24.7 — 3.0 12. 24.7 - 26.7 — " 13. 26.7 - 28.7 — " 14. 28.7 - 30.7 — 2.75 *15. 30.7 - 32.7 — 1.75 16. 32.7 - 34.7 — 1.75
		6	
		7	
		8	
		9	
		10	
		11	Note: Can #8 - sample slipped out on initial retrieve and was recovered on second attempt. Can #15 - poor recovery. Lost 1.0'
		12	
		13	
34.7' to 38.7' - no recovery except for a fine to med. grained Sand from 38.2' to 38.7' loose, trace clay, grey.		14	4. Cartons: 1. 41.1 to 41.9 2. 47.5 to 48.5 3. 52.2 to 53.2 4. 56.8 to 57.7 5. 58.6 to 59.5
		15	
- - - Drilled into primary material @ 38.7', set casing to 40.0', cleaned out, and started 6" core @ 40.7' - - -		16	5. 8" casing set to 40.0'.
		X	6. Drilling methods: 1. 0.0 to 2.7 - 8" auger 2. 2.7 to 40.7 - d. bit. 3. 40.7 to 61.2 - 6" core
		X	
	40.7	40.7	
40.7' to 61.2'			
SHALE, sli. to non-calc. sandy, hard (pen. ≯ 4.5), medium to thin-bedded, unjointed and unfractured (except where noted), unweathered, grey.	45.2	1	Structural features: In the upper 10ft., core seems to have a slight dip (approx. 5°).
		2	0.2' fracture with poorly formed slickensides at 56.4'.
Sedimentary features: Sandstone at the following depths:	49.2		
42.6 to 43.3 - laminated, shaly, sli. fissile, crumbly.	53.2	3	
43.3 to 44.0 - scattered concretions.			
53.2 to 53.4 - laminated, shaly, sli. fissile.			
55.0 to 56.1 - laminated, shaly, sli. fissile.	57.2	4	
48.5 to 49.1 - highly fossilif. (broken shells), calc. possible marker bed			
- - -	- - -	- - -	- See 6DC-14, 56.2 to 57.8
T.D. - 61.2' -	61.2	5	

RECORD DRAWING - AS BUILT

STM	DC NO.	ACTION	DATE	DESCRIPTION OF REVISION

U.S. ARMY ENGINEER DISTRICT, FORT WORTH
CORPS OF ENGINEERS
FORT WORTH, TEXAS

DESIGNED BY ---------
DRAWN BY ---------
REVIEWED BY ---------

RAY ROBERTS LAKE
ELM FORK, TRINITY RIVER, TEXAS
EMBANKMENT, SPILLWAY AND OUTLET WORKS
LOGS OF BORINGS
6 DC-14 AND 6 DC-15

SUBMITTED BY
ENGINEER

INVITATION NO. DACW63-82-B-0025 DATE MAR. 1982
CONTRACT NO. DACW63-82-C-0082
DRAWING NUMBER
SHEET NO. OF
SEQUENCE NO. 14

CONTRACT NO DACW63-82-C-0082

TO ACCOMPANY FOUNDATION REPORT

Hole No. 6DC-16

DRILLING LOG — Sheet 1 of 2 Sheets

- Project: AUBREY DAM
- Drilling agency: USCE
- Hole No.: 6DC-16
- Name of driller: G. SCHOONOVER
- Direction of hole: Vertical
- Thickness of overburden: 35.0
- Depth drilled into rock: 12.0
- Total depth of hole: 50.0'
- Size and type of bit: 6" CHIZELEY
- Datum for elevation shown: MSL
- Manufacturer's designation of drill: FAILING 1500
- Total no. of overburden samples taken: Disturbed 14, Undisturbed 12
- Total number core boxes: 2
- Elevation ground water: SEE REMARKS COLUMN
- Date hole: Started 9 SEPT 71, Completed 16 SEPT 71
- Elevation top of hole: 559.66'
- Total core recovery for boring: 100 %

Elevation	Depth	Classification of Materials (Description)	% Core Recovery	Box or Sample No.
559.66	0.0	0.0' ± to 3.0' ± CLAY: SILTY, SLI MOIST; HARD, ROOT ZONE; DARK BROWN		0.0 A 2.6
		3.0' ± TO 19.6' ± CLAY: W/ TRACE OF SILT; W/ CALC. NODULES; W/ ORGANIC MATTER; MOIST; HARD; BROWN		DB #1 (4.0); 'B' 4.6; DB #2 (4.5); 'C' 6.6; DB #3 (4.5); 'D' 8.6; DB #4 (4.5); 'E' 10.6; DB #5 (4.5); 'F' 12.6; DB #6 (4.5); 'G' 14.6; DB #7 (4.5); 'H' 16.6; DB #8 (4.0); 'I' 18.6; DB #9 (2.5)
	20.0	19.6' ± TO 29.6' ± CLAY: SLI. SILTY; W/ CALC. NODULES; MOIST, V. STIFF; BROWN TO GRAY BROWN		'J' 20.6; DB #10 (2.25); 'K' 22.6; DB #11 (2.5); 24.6; L; 29.6
		29.6' ± TO 32.6' ± CLAY: W/ TRACE OF SILT & FINE SAND; MOIST; V. STIFF, BROWN-TAN		DB #12 (2); 30.6; M; 32.6
		32.6' TO 37.0' ± CLAY: SANDY, V. MOIST, V. STIFF DOWN TO STIFF; BROWN-TAN		N; 37.0
521.66'	38.0	37.0' ± TO 38.0' SAND: CLAYEY, W/ SCAT. GRAVEL, FINE TO MED GRAINED, MOD. FIRM, SAT'D; RUST BROWN		NO SAM 38.0
519.66'	40.0	38.0' TO 40.5' SANDSTONE-SANDY SHALE:		O
519.16'	40.5	UNWEATH; SOFT THIN S.S. FLAGS ALTERNATING WITH SOFT SANDY SHALE; MOIST; BLUE GRAY.	42.0	40.5 P 42.0
		40.5' TO 50.0' T.D. SHALE: ESS. UNWEATH; W/ SANDY LAMINATIONS; W/ SCAT. S.S. CONCRETIONS, FOSS.; SLI. MOIST; SOFT (ROCK CLASS) BLUE GRAY	D: 5.2 R: 5.2	1; 47.0
			47.2 D: 2.8 R: 2.8	2
509.66	50.0	T.D. 50.0'	50.0	50.0

Remarks

I. DRILLING:
8" FLIGHT AUGER: 0.0' – 2.6'
6" DENISON: 2.6' – 32.6'
NOTE: SAMPLES BECAME DISTURBED AT 24.6'-28.6' & AT 30.6'-32.6'. JAR SAMPLES WERE TAKEN.
8" FLIGHT AUGER: 32.6' – 41.0'
CLEANED OUT WITH 10" AUGER & SET CASING TO 41.0'. CLEANED OUT WITH 8" AUGER TO 42.0'.
6" CORE BARREL: 42.0' – 50.0'.

II. SAMPLES:
JAR A: 0.0' – 2.6'
B: 4.6'
C: 6.6'
D: 8.6'
E: 10.6'
F: 12.6'
G: 14.6'
H: 16.6'
I: 18.6'
J: 20.6'
K: 22.6'
L: 24.6' – 28.6'
M: 30.6' – 32.6'
N: 32.6' – 37.0'
O: 38.0' – 40.5'
P: 40.5' – 42.0'
DB 1: 2.6' – 4.6'
2: 4.6' – 6.6'
3: 6.6' – 8.6'
4: 8.6' – 10.6'
5: 10.6' – 12.6'
6: 12.6' – 14.6'
7: 14.6' – 16.6'
8: 16.6' – 18.6'
9: 18.6' – 20.6'
10: 20.6' – 22.6'
11: 22.6' – 24.6'
12: 28.6' – 30.6'
C-1: 44.0 – 45.0
C-2: 49.0 – 50.0

III. WATER LEVEL:
BORING BAILED TO 41.0' ON 16 SEPT. 71 & CHECKED AFTER 24 HOURS. WATER LEVEL AT 24.0

IV. DEPTH OF WEATH MAT'L. WEATH TO 38.0

V. MISC
POCKET PENETROMETER READINGS ARE IN COLUMN "E". ALSO JAR SAMPLES WERE TAKEN FROM DENISON SHOE.

Hole No.

DRILLING LOG

- Division: Southwestern
- Installation: Fort Worth
- 1. Project: Aubrey Dam Site No. 1
- 2. Location (Coordinates or Station):
- 3. Drilling agency: Corps of Engineers
- 4. Hole No. (As shown on drawing title and file number): 6DC-17
- 5. Name of driller: Schoonover
- 6. Direction of hole: [X] Vertical [ ] Inclined ___ deg. from vert.
- 7. Thickness of overburden: 23.5
- 8. Depth drilled into rock: 26.5
- 9. Total depth of hole: 50.0
- 10. Size and type of bit: 8" auger, 6"
- 11. Datum for elevation shown (TBM or MSL):
- 12. Manufacturer's designation of drill: Failing 1500
- 13. Total no. of overburden samples taken: Disturbed 1
- 14. Total number core boxes: 4
- 15. Elevation ground water: ****
- 16. Date hole: Started 17 Sept. 71
- 17. Elevation top of hole:
- 18. Total core recovery for boring: 1
- 19. Signature of inspector:

Elevation	Depth	Classification of Materials (Description)	% Core Recovery	Box or Sample No.
		0.0' to 5.5' SAND, fine-grained, clayey, hard, sli. moist, brown.		Jar; Can 1
		5.5' to 22.0' CLAY, sandy, non-calc., sli. moist, hard, mottled tan and gray.		Can 2; Can 3
	10.0			Can 4
		@ 14.7' – increase in moisture content to base of overburden.		Can 5; Can 6
		from 18.7' to 22.0' – calc.		Can 7; Can 8
	20.0	22.0' to 23.5' CLAY, calc., w/ scattered gravel and well-rounded siltstone concretions, moist, medium to stiff, tan.		Can 9; Can 10
			22.7	Clean out & set casing
		– – Augered into primary material @ 23.5', set casing to 25.0', cleaned out, and started 6" core @ 26.2' –	26.2 L. 08	26.2
	30.0	26.2' to 50.0' SHALE, sandy, non-calc., hard (penetrometer ≠ 4.5), thin-bedded, fossilif., unjointed and unfractured to T.D., unweathered, gray.	29.2 G. 02	1
			33.1 G. 06	32.9; 2
			37.2 L. 00	37.9
	40.0	Sandstone concretions avg. 0.1' in thickness at the following depths: 28.5', 29.3', 30.3', 31.2', 37.9.	41.2 L. 00	3; 43.2
		Shaley sandstone beds at the following depths: 27.0 to 27.4 – laminated 36.8 to 37.1 – " 42.0 to 42.9 – " and sli. fissile. Zone badly washed by core bbl. action.	45.2 L. 00	4
	50.0		50.0	50.0

T.D. – 50.0' –

Remarks

****,
1. After co[…] hole was b[…] 45.0' with […] pulled. 2[…] check […]

2. Jar:
A. 0.0 to 2[…]

3. Denison ca[…]
1. 2.7 to 4[…]
2. 4.7 to 6[…]
3. 6.7 to 8[…]
4. 8.7 to 1[…]
5. 10.7 to […]
6. 12.7 to […]
7. 14.7 to […]
8. 16.7 to […]
9. 18.7 to […]
10. 20.7 to […]

Note: Jar samp[…] from shoe a[…] sample depth[…]

4. Cartons:
1. 27.4 to […]
2. 31.6 to […]
3. 38.8 to […]
4. 43.8 to […]
5. 49.0 to […]

5. Shale weat[…] 24.9'.

6. 8" casing […] 25.0'.

7. Drilling
1. 0.0 to 2.[…]
2. 2.7 to 22[…]
3. 22.7 to 2[…]
4. 26.2 to 5[…]

Hole No. 6DC-17

DRILLING LOG

DIVISION: Southwestern	INSTALLATION: Fort Worth		SHEET 1 OF 2 SHEETS
1. PROJECT: Aubrey Dam Site No. 1	10. SIZE AND TYPE OF BIT: 8" auger, 6" d.b., 6" core		
2. LOCATION (Coordinates or Station):	11. DATUM FOR ELEVATION SHOWN (TBM or MSL):		
3. DRILLING AGENCY: Corps of Engineers	12. MANUFACTURER'S DESIGNATION OF DRILL: Failing 1500		
4. HOLE NO. (As shown on drawing title and file number): 6DC-17	13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN	DISTURBED: 1	UNDISTURBED: 10
5. NAME OF DRILLER: Schoonover	14. TOTAL NUMBER CORE BOXES: 4		
6. DIRECTION OF HOLE: [X] Vertical [ ] Inclined ___ Deg. from Vert.	15. ELEVATION GROUND WATER:		
	16. DATE HOLE	STARTED: 17 Sept. 71	COMPLETED: 20 Sept. 71
7. THICKNESS OF OVERBURDEN: 23.5	17. ELEVATION TOP OF HOLE:		
8. DEPTH DRILLED INTO ROCK: 26.5	18. TOTAL CORE RECOVERY FOR BORING: 100 %		
9. TOTAL DEPTH OF HOLE: 50.0	19. SIGNATURE OF INSPECTOR: [signature]		

ELEVATION (a) | DEPTH (b) | LEGEND (c) | CLASSIFICATION OF MATERIALS (Description) (d) | % CORE RECOVERY (e) | BOX OR SAMPLE NO. (f) | REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) (g)

Classification of materials:

0.0' to 5.5'

SAND, fine-grained, clayey, hard, sli. moist, brown.

5.5' to 22.0'

CLAY, sandy, non-calc., sli. moist, hard, mottled tan and gray.

@ 14.7' - increase in moisture content to base of overburden.

from 18.7' to 22.0' - calc.

22.0' to 23.5'

CLAY, calc., w/ scattered gravel and well-rounded siltstone concretions, moist, medium to stiff, tan.

- - Augered into primary material @ 23.5', set casing to 25.0', cleaned out, and started 6" core @ 26.2' -

26.2' to 50.0'

SHALE, sandy, non-calc., hard (penetrometer ≠ 4.5), thin-bedded, fossilif., unjointed and unfractured to T.D., unweathered, gray.

Sandstone concretions avg. 0.1' in thickness at the following depths: 28.5', 29.3', 30.3', 31.2', 37.9'.

Shaly sandstone beds at the following depths:

27.0 to 27.4 - laminated
36.8 to 37.1 - "
42.0 to 42.9 - " and sli. fissile. Zone badly washed by core bbl. action.

T.D. - 50.0' -

Depth marks: 10.0, 20.0, 30.0, 40.0, 50.0

Box or sample no.: J; Cn 1; Cn 2; Cn 3; Cn 4; Cn 5; Cn 6; Cn 7; Cn 8; Cn 9; Cn 10; Clean out & set casing; 1; 2; 3; 4

Core recovery / depths: 22.7; 26.2; 26.2; L. 08; 29.2; G 02; 31.9; 33.2; G 0.6; 37.2; 37.9; L 0.0; 41.2; L 0.0; 43.2; 45.2; L 8.0; 50.0; 50.0

Remarks:

1. After completion, hole was bailed to 45.0' with casing pulled. 24 hour check ________.
2. Jar:
   A. 0.0 to 2.7
3. Denison cans:
   1. 2.7 to 4.7
   2. 4.7 to 6.7
   3. 6.7 to 8.7
   4. 8.7 to 10.7
   5. 10.7 to 12.7
   6. 12.7 to 14.7
   7. 14.7 to 16.7
   8. 16.7 to 18.7
   9. 18.7 to 20.7
   10. 20.7 to 22.7

Note: Jar samples taken from shoe at each sample depth.

4. Cartons:
   1. 27.4 to 28.4
   2. 31.6 to 32.6
   3. 38.8 to 39.7
   4. 43.8 to 44.5
   5. 49.0 to 50.0
5. Shale weathered to 24.9'.
6. 8" casing set to 25.0'.
7. Drilling methods:
   1. 0.0 to 2.7 - auger
   2. 2.7 to 22.7 - d. bbl.
   3. 22.7 to 26.2 - auger
   4. 26.2 to 50.0 - 6" core

Hole No. 6DC-18

DRILLING LOG

DIVISION: SWD	INSTALLATION: FWD		SHEET 1 OF 1 SHEETS
1. PROJECT: AUBREY DAM	10. SIZE AND TYPE OF BIT: 6" CARBOLOY		
2. LOCATION (Coordinates or Station):	11. DATUM FOR ELEVATION SHOWN (TBM or MSL): MSL		
3. DRILLING AGENCY: USCE	12. MANUFACTURER'S DESIGNATION OF DRILL: FAILING 1500		
4. HOLE NO. (As shown on drawing title and file number): 6DC-18	13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN	DISTURBED: 8	UNDISTURBED: 5
5. NAME OF DRILLER: G SCHOONOVER	14. TOTAL NUMBER CORE BOXES: 2		
6. DIRECTION OF HOLE: [X] Vertical [ ] Inclined ___ Deg. from Vert.	15. ELEVATION GROUND WATER: SEE REMARKS COLUMN		
	16. DATE HOLE	STARTED: 7 SEPT. 71	COMPLETED: 8 SEPT 71
7. THICKNESS OF OVERBURDEN: 18.2	17. ELEVATION TOP OF HOLE: 595.11		
8. DEPTH DRILLED INTO ROCK: 11.8'	18. TOTAL CORE RECOVERY FOR BORING: 95 %		
9. TOTAL DEPTH OF HOLE: 30.0'	19. SIGNATURE OF INSPECTOR: [signature]		

ELEVATION (a) | DEPTH (b) | LEGEND (c) | CLASSIFICATION OF MATERIALS (Description) (d) | % CORE RECOVERY (e) | BOX OR SAMPLE NO. (f) | REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) (g)

Elevations / depths: 595.11 at 0; 576.91 at 18.2; 565.11 at 30.0; 40.0

Classification of materials:

0.0' TO 1.0'
CLAY: SILTY, W/ TRACE OF FINE SAND, STIFF, SLI. MOIST, ROOT ZONE, DARK BROWN.

1.0' TO 6.6' ±
CLAY: W/ TRACE OF FINE SAND & SILT, W/ CARBON STAINS, MOIST, V. STIFF DOWN TO HARD, RUST BROWN.

6.6' ± TO 10.0' ±
CLAY: SANDY, W/ CARBON STAINS, MOIST, V. STIFF, RUST BROWN

10.0' ± TO 12.6'
CLAY: V. SANDY, W/ FINE TO MEDIUM GRAVEL, V. MOIST, STIFF TO V. STIFF, RUST BROWN

12.6' TO 14.6'
GRAVEL: FINE TO MED. GRAVEL W/ TRACE OF SAND & CLAY BINDER, V. MOIST, RUST BROWN

14.6' TO 18.2'
SAND-GRAVEL: GRADED SAND, W/ FINE TO COARSE GRAVEL, W/ TRACE OF FINES, SAT'D., RUST BRN.

18.2' TO 30.0' T.D.
SHALE: MOD. WEATH. DOWN TO ESS. UNWEATH.; W/ SANDY LAMINATIONS & OCCASIONAL SANDSTONE FLAGS; W/ PURPLE IRONSTONE CONCRETIONS IN UPPER THREE FEET; W/ TIGHT FRACTURES IN WEATH. ZONE; SLI. MOIST, SOFT (ROCK CLASS.); WEATH. ZONE PREDOM. GRAY BROWN W/ RUST YELLOW; UNWEATH. ZONE IS BLUISH GRAY.
18.2'-25.2': MOD. WEATH.
25.2'-28.2': SLI. WEATH.
28.2'-30.0': ESS. UNWEATH.
27.2'-27.4': SS. FLAG
27.9': IRONSTONE CONCRETION

T.D 30.0'

% core recovery: 'B' 3.6; 'C' 5.6; 'D' 7.6; 'E' 9.6; 'F' 12.6; 21.2; D: 4.0' R: 4.0'; 25.2; D: 4.8 R: 4.3; 30.0

Box or sample no.: 0.0; A; 1.0; No SPL; 1.6; DB 1 (2.5); 3.6; DB 2 (4.0); 5.6; DB 3 (2.75); 7.6; DB 4 (2.0); 9.6; No SPL; 10.6; DB 5; 12.6; G; 14.6; H; 18.2; I; 21.2; Box 1; 27.2; Box 2; 29.5

Remarks:

I. DRILLING:
8" FLIGHT AUGER 0.0' - 1.6'
6" DENISON 1.6' - 14.6'
8" FLIGHT AUGER: 14.6' - 20.0' CLEANED OUT WITH 10" AUGER & SET CASING TO 20.0' CLEANED OUT CASING TO 21.2'
6" CORE BARREL: 21.1' - 30.0'

II. SAMPLES:
JAR A: 0.0' - 1.0'
B: 3.6'
C: 5.6'
D: 7.6'
E: 9.6'
F: 12.6'
G: 12.6' - 14.6'
H: 14.6' - 18.2'
I: 18.2' - 21.2'
DB 1: 1.6' - 3.6'
2: 3.6' - 5.6'
3: 5.6' - 7.6'
4: 7.6' - 9.6'
5: 10.6' - 12.6'
NOTE: LOST SAMPLE FROM 9.6' - 10.6'. DENISON SAMPLE DISTURBED FROM 12.6' - 14.6'; TOOK JAR SAMPLE
C - 1: 22.4' - 23.4'
2: 26.2' - 27.2'

III. WATER LEVEL.
*BORING BAILED TO 29.2' ON PM OF 8 SEPT & LEFT OPEN 24 HOURS; WATER LEVEL AT 15.6'.

IV. DEPTH OF WEATH.:
MAT'L. WEATH. TO 28.2'.

V. MISC.
POCKET PENETROMETER READINGS IN COLUMN "e" AND JAR SAMPLES WERE TAKEN FROM DENISON SHOE.

ENG FORM 1836 1 APR 65 PREVIOUS EDITIONS MAY BE USED | PROJECT: AUBREY DAM | HOLE NO. 6DC-18

Hole 6DC-18

Division	Installation	Sheet
SWD	FWD	1 of 1 sheets

DAM

10 Size and type of bit: 6" CARBOLOY
11 Datum for elevation shown (TBM or MSL): MSL
12 Manufacturer's designation of drill: FAILING 1500
Hole no. (As shown on drawing title): 6DC-18
13 Total no. of overburden samples taken: Disturbed 8, Undisturbed 5
14 Total number core boxes: 2
15 Elevation ground water: SEE REMARKS COLUMN
16 Date hole: Started 7 SEPT. 71, Completed 8 SEPT. 71
17 Elevation top of hole: 595.11'
18 Total core recovery for boring: 95 %
19 Signature of inspector: [signature]
Thickness of overburden: 18.2'
Depth drilled into rock: 11.8'
Total depth of hole: 30.0'

Classification of Materials (Description)	% Core Recovery	Box or Sample No.	Remarks (Drilling time, water loss, depth of weathering, etc., if significant)
0.0' TO 1.0' CLAY: SILTY, W/ TRACE OF FINE SAND, STIFF, SLI. MOIST, ROOT ZONE, DARK BROWN. 1.0' TO 6.6'± CLAY: W/ TRACE OF FINE SAND & SILT, W/ CARBON STAINS, MOIST, V. STIFF DOWN TO HARD, RUST BROWN. 6.6'± TO 10.0'± CLAY: SANDY, W/ CARBON STAINS, MOIST, V. STIFF, RUST BROWN 10.0'± TO 12.6' CLAY: V. SANDY, W/ FINE TO MEDIUM GRAVEL, V. MOIST, STIFF TO V. STIFF, RUST BROWN 12.6' TO 14.6' GRAVEL: FINE TO MED. GRAVEL W/ TRACE OF SAND & CLAY BINDER, V. MOIST, RUST BROWN 14.6' TO 18.2' SAND-GRAVEL: GRADED SAND, W/ FINE TO COARSE GRAVEL, W/ TRACE OF FINES, SAT'D., RUST BRN. 18.2' TO 30.0' T.D. SHALE: MOD. WEATH. DOWN TO ESS. UNWEATH.; W/ SANDY LAMINATIONS & OCCASIONAL SANDSTONE FLAGS; W/ PURPLE IRONSTONE CONCRETIONS IN UPPER THREE FEET; W/ TIGHT FRACTURES IN WEATH. ZONE; SLI. MOIST; SOFT (ROCK CLASS.); WEATH. ZONE PREDOM. GRAY BROWN W/ RUST YELLOW; UNWEATH. ZONE IS BLUISH GRAY. 18.2'-25.2': MOD. WEATH. 25.2'-28.2': SLI. WEATH. 28.2'-30.0': ESS. UNWEATH. 27.2'-27.4': SS. FLAG 27.9': IRONSTONE CONCRETION T.D. 30.0'	21.2 D: 14.0' R: 4.0' 25.2 D: 4.8' R: 4.3' 30.0	0.0 A 1.0 No SPL 1.6 DB 1 (2.5) B 3.6 DB 2 (4.0) C 5.6 DB 3 (2.75) D 7.6 DB 4 (2.0) E 9.6 No SPL 10.6 DB 5 F 12.6 G 14.6 H 18.2 I 21.2 Box 1 27.2 Box 2 27.5	I. DRILLING: 8" FLIGHT AUGER: 0.0' - 1.6' 6" DENISON: 1.6' - 14.6' 8" FLIGHT AUGER: 14.6' - 20.0' CLEANED OUT WITH 10" AUGER & SET CASING TO 20.0' CLEANED OUT CASING TO 21.2' 6" CORE BARREL: 21.2' - 30.0' II. SAMPLES: JAR A: 0.0' - 1.0' B: 2.6' C: 5.6' D: 7.6' E: 9.6' F: 12.6' G: 12.6' - 14.6' H: 14.6' - 18.2' I: 18.2' - 21.2' DB 1: 1.6' - 3.6' 2: 3.6' - 5.6' 3: 5.6' - 7.6' 4: 7.6' - 9.6' 5: 10.6' - 12.6' NOTE: LOST SAMPLE FROM 9.6' - 10.6'. DENISON SAMPLE DISTURBED FROM 12.6' - 14.6'; TOOK JAR SAMPLE. C - 1: 22.4' - 23.4' 2: 26.2' - 27.2' III. WATER LEVEL: *BORING BAILED TO 29.2' ON PM OF 8 SEPT & LEFT OPEN 24 HOURS; WATER LEVEL AT 15.6'. IV. DEPTH OF WEATH.: MAT'L. WEATH. TO 28.2'. V. MISC. POCKET PENETROMETER READINGS IN COLUMN "E" AND JAR SAMPLES WERE TAKEN FROM DENISON SHOE.

PREVIOUS EDITIONS MAY BE USED — Project: AUBREY DAM — Hole No. 6DC-18

Hole No. 6A4C-19

DRILLING LOG — Division: Southwestern — Installation: Fort Worth — Sheet 1 of 2 sheets

1 Project: Aubrey Dam Site
2 Location (Coordinates or Station): Intake Structure
3 Drilling agency: Corps of Engineers
4 Hole no. (As shown on drawing title and file number): 6A4C-19
5 Name of driller: Cronin (L. Cronquist)
6 Direction of hole: ☒ Vertical ☐ Inclined ___ deg. from vert.
7 Thickness of overburden: 22.0
8 Depth drilled into rock: 21.0
9 Total depth of hole: 43.0
10 Size and type of bit
11 Datum for elevation shown (TBM or MSL)
12 Manufacturer's designation of drill: Failing 1500
13 Total no. of overburden samples taken: Disturbed 5, Undisturbed 0
14 Total number core boxes: 4
15 Elevation ground water: ****
16 Date hole: Started 14 May 72, Completed 5 May 72
17 Elevation top of hole: 597.12
18 Total core recovery for boring: 95.2 %
19 Signature of inspector: [signature]

Elevation	Depth	Legend	Classification of Materials (Description)	% Core Recovery	Box or Sample No.	Remarks (Drilling time, water loss, depth of weathering, etc., if significant)
Base of weathering	10.0 20.0 30.0	1 2 3 4	0.0' to 15.0' CLAY, non-calc., moist, stiff to hard, sli. sandy, tan and gray. 15.0' to 22.0' * GRAVEL (max. size 1"), clayey, sli. sandy, med. dense, tan. - - Fishtail drilled into primary material at 22.0', set casing, and started 4" core @ 22.0' - - - 22.0' to 43.0' SHALE, sli. calc., weathered to 27.6', m. hard, medium bedded, unjointed and unfractured, tan to gray. SANDSTONE, med. cemented, m. hard, at the following depths: 25.8' to 26.1' 27.0' to 27.3' 33.8' to 33.9' 34.0' to 34.5' 35.1' to 35.3' LIMESTONE, very fossilif., m. hard, from 31.5' to 31.6'. T.D. - 43.0' -	27.6' 22.0 L 0.5 26.0 L 0.5 31.0 L 1.4 36.0 G. 1.0 41.0 L 0.0 43.0	A B C D E 1 2 3 4	**** 1. After completion, hole was bailed to 13.0', 3" I.D. plastic pipe was placed to T.D. 2. Jars: A. 0.0 to 1.0 B. 2.5 to 3.5 C. 5.0 to 6.0 D. 10.0 to 11.0 E. 15.0 to 15.6 Jar samples were taken from selected continuous shelby tube samples to 15.6'. 3. Cartons: 1. 24.5 to 25.5 2. 30.5 to 31.5 3. 36.3 to 37.3 4. 41.0 to 42.0 4. Weathered to 27.6' 5. Fishtail drilled from 15.6 to 22.0. * Subsequent exploration suggests that a portion of the interval between 15.0 and 22.0 feet is composed of the following: Limestone, hard, massive, weath., white and yellow-brown, fossiliferous.

RECORD DRAWING-WORK AS BUILT

SYM	DO NO	ACTION	DATE	DESCRIPTION OF REVISION

U.S. ARMY ENGINEER DISTRICT, FORT WORTH
CORPS OF ENGINEERS
FORT WORTH, TEXAS

Designed by: ______
Drawn by: ______
Reviewed by: ______

RAY ROBERTS LAKE
ELM FORK, TRINITY RIVER, TEXAS
EMBANKMENT, SPILLWAY AND OUTLET WORKS
LOGS OF BORINGS
6DC-16, 6DC-17, 6DC-18, AND 6A4C-19

Submitted by: ______
Engineer

Invitation No. DACW63-82-B-0025 — Date MAR. 1982
Contract No. DACW63-82-C-00??
Drawing Number — Sheet No. __ of __ — Sequence No. 15

CONTRACT NO DACW63-82-C-00??

TO ACCOMPANY FOUNDATION REPORT

Hole No. 6A40-20

DRILLING LOG

DIVISION	Southwestern
INSTALLATION	Fort Worth
SHEET	1 of 2 SHEETS
1. PROJECT	Aubrey Dam Site
2. LOCATION (Coordinates or Station)	Right abutment - at C.L. and outlet works
3. DRILLING AGENCY	Corps of Engineers
4. HOLE NO. (As shown on drawing title and file number)	6A40-20
5. NAME OF DRILLER	[illegible]
6. DIRECTION OF HOLE	☒ VERTICAL ☐ INCLINED ____ DEG. FROM VERT.
7. THICKNESS OF OVERBURDEN	19.0
8. DEPTH DRILLED INTO ROCK	28.0
9. TOTAL DEPTH OF HOLE	47.0
10. SIZE AND TYPE OF BIT	6" auger, 4" carboloy
11. DATUM FOR ELEVATION SHOWN (TBM or MSL)	
12. MANUFACTURER'S DESIGNATION OF DRILL	Failing 36
13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN	DISTURBED 5 / UNDISTURBED 0
14. TOTAL NUMBER CORE BOXES	5
15. ELEVATION GROUND WATER	----
16. DATE HOLE	STARTED 8 May 72 / COMPLETED 8 May 72
17. ELEVATION TOP OF HOLE	596.95
18. TOTAL CORE RECOVERY FOR BORING	88.6 %
19. SIGNATURE OF INSPECTOR	*(signature)*

ELEVATION (a)	DEPTH (b)	LEGEND (c)	CLASSIFICATION OF MATERIALS (Description) (d)	% CORE RECOVERY (e)	BOX OR SAMPLE NO. (f)	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) (g)
			0.0' to 19.0' CLAY - - 0.0' to 1.3' - sli. calc. moist, stiff, brown. 1.3' to 4.1' - non-calc., moist, stiff, mottled, brown, tan. 4.1' to 7.8' - increase in sand content, med., moist, tan. 7.8' to 19.0' - non-calc., moist, stiff, tan.		A, B, C, D, E	---- 1. After completion, bore was bailed to 42.1'. 3" I.D. perforated plastic casing was placed to T.D. 2. Jars: A. 0.0 to 1.0 B. 2.0 to 3.0 C. 5.0 to 6.0 D. 10.0 to 11.0 E. 15.0 to 16.0 Jar samples selected from continuous shelby tube samples through overburden. 3. Cartons: 1. 21.8 to 22.8 2. 26.2 to 27.2 3. 30.0 to 31.0 4. 33.6 to 34.6 5. 42.5 to 43.4 4. Weathered to 22.8
	10.0		- - Start 4" core @ 19.0' - -			
	20.0		19.0' to 21.8' LIMESTONE, stained, m. hard, jointed, tan.	19.0 L. 0.8 21.0		
Base of Weathering		1	21.8' to 47.0' SHALE - - 21.8 to 22.8' - sli. calc., stiff, weathered, tan. 22.8' to 47.0' - sli. calc., stiff to hard, unjointed and unfractured except from 24.0 to 24.5, sli. sandy, gray.	G. 0.5 23.0 L. 0.5 26.5	1	
		2		L. 0.5 31.5	2	
	30.0	3				
		4	36.0' to 36.1 - highly fossilif.	L. 0.5 36.0	3	
				L. 0.6 41.0	4	
		5		45.0	5	
			T.D. - 47.0' -	47.0	47.0	
	50.0					

Hole No. [illegible]

DRILLING LOG

DIVISION	Southwestern
INSTALLATION	Fort Worth
1. PROJECT	Aubrey Dam Site
2. LOCATION (Coordinates or Station)	Right abutment - stilling basin
3. DRILLING AGENCY	Corps of Engineers
4. HOLE NO. (As shown on drawing title and file number)	6A40-21
5. NAME OF DRILLER	Cronain
6. DIRECTION OF HOLE	☒ VERTICAL ☐ INCLINED ____ DEG. FROM VERT.
7. THICKNESS OF OVERBURDEN	31.7
8. DEPTH DRILLED INTO ROCK	20.5
9. TOTAL DEPTH OF HOLE	52.2
10. SIZE AND TYPE OF BIT	6" auger,
11. DATUM FOR ELEVATION SHOWN (TBM or MSL)	
12. MANUFACTURER'S DESIGNATION OF DRILL	Failing 1500
13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN	DISTURBED 8
14. TOTAL NUMBER CORE BOXES	5
15. ELEVATION GROUND WATER	----
16. DATE HOLE	STARTED 5 May 72
17. ELEVATION TOP OF HOLE	581.04
18. TOTAL CORE RECOVERY FOR BORING	
19. SIGNATURE OF INSPECTOR	*(signature)*

ELEVATION (a)	DEPTH (b)	LEGEND (c)	CLASSIFICATION OF MATERIALS (Description) (d)	% CORE RECOVERY (e)	BOX OR SAMPLE NO. (f)	REMARKS (Drilling time, water loss, depth of weathering, etc. (g)
			0.0' to 23.7' CLAY, non-calc., sandy, moist, stiff, tan to gray.		A, B, C	---- 1. After bole was and 3" I plastic to T.D. 2. Jars: A. 0.0 t B. 2.0 t C. 5.0 t D. 10.0 E. 15.0 F. 20.0 G. 25.0 H. 29.0 Jar sa select contin sample burden 3. Carto 1. 36.2 2. 42.1 3. 45.2 4. 50.0 4. Primar not we
	10.0		23.7' to 28.2' SAND, clayey, moist, m. dense, tan and gray.		D, E	
	20.0		28.2' to 29.2' GRAVEL, sandy, max. size -3/4", well-rounded, moist, tan.		F	
			- - Drilled into unweathered primary material @ 29.2' - -		G	
			- - Start 6" core @ 31.7' - -			
	30.0		31.7' to 52.2' SHALE, sli. calc., unwea., m. hard, thick-bedded, sli. sandy, some jointed zones below 42.1', gray.	31.7 33.7	H, 1	
		1		36.2	2	
		2	40.6' to 42.1' - SANDSTONE, soft, with SHALE laminae, tan.	40.5	3	
		3		45.2	4	
	50.0	4		50.2	5	
			T.D. - 52.2' -	52.2		

POLYTRACE 033

Hole No. 6A4C-21

NG LOG — Division: Southwestern — Installation: Fort Worth — Sheet 1 of 2 sheets

ey Dam Site

(Coordinates or Station) abutment - stilling basin

Agency: of Engineer

Hole No. (As shown on drawing title): 6A4C-21

Driller: ain

Direction of hole: ☐ Inclined ____ deg. from vert.

Thickness of overburden: 31.7

Depth drilled into rock: 20.5

Total depth of hole: 52.2

10. Size and type of bit: 6" auger, 4" core

11. Datum for elevation shown (TBM or MSL):

12. Manufacturer's designation of drill: Failing 1500

13. Total no. of overburden samples taken: Disturbed 8, Undisturbed 0

14. Total number core boxes: 5

15. Elevation ground water: ****

16. Date hole: Started 5 May 72, Completed 5 May 72

17. Elevation top of hole: 581.04

18. Total core recovery for boring: 99.6 %

19. Signature of inspector: [signature]

Depth	Legend	Classification of Materials (Description)	% Core Recovery	Box or Sample No.	Remarks (Drilling time, water loss, depth of weathering, etc., if significant)
		0.0' to 23.7' CLAY, non-calc., sandy, moist, stiff, tan to gray.		A, B, C, D	**** 1. After completion, hole was bailed to 46 D, and 3" I.D. perforated plastic pipe was placed to T.D. 2. Jars: A. 0.0 to 1.0; B. 2.0 to 3.0; C. 5.0 to 6.0; D. 10.0 to 11.0; E. 15.0 to 16.0; F. 20.0 to 21.0; G. 25.0 to 26.0; H. 29.0 to 30.2. Jar samples were selected from continuous shelby tube samples through overburden.
10.0		23.7' to 28.2' SAND, clayey, moist, m. dense, tan and gray.		E	3. Cartons: 1. 36.2 to 37.2; 2. 42.1 to 43.1; 3. 45.2 to 46.2; 4. 50.0 to 50.9
20.0		28.2' to 29.2' GRAVEL, sandy, max. size -3/4", well-rounded, moist, tan.		F	4. Primary material was not weathered.
		- - Drilled into unweathered primary material @ 29.2' - -		G.	
		- - Start 6" core @ 31.7' - -		H.	
30.0		31.7' to 52.2' SHALE, sli. calc., unwea. m. hard, thick-bedded, sli. sandy, some jointed zones below 42.1', gray	31.7 / 31.7 / 36.2	1	
	1		40.5	2	
	2	40.6' to 42.1' - SANDSTONE, soft, with SHALE laminae, tan.	45.2	3	
	3			4	
50.0	4		50.2	5	
		T.D. - 52.2' -	52.2		

Hole No. 3S4C-21A

DRILLING LOG — Division: Southwestern — Installation: Fort Worth — Sheet 1 of 3 sheets

1. Project: Aubrey Dam Site No. 1

2. Location (Coordinates or Station): Not Shown Y 2,137,824 Y 613,600

3. Drilling Agency: Corps of Engineers

4. Hole No. (As shown on drawing title and file number): 3S4C-21A

5. Name of Driller: Bill Stanton, Trinity Engineering Testing Corporation

6. Direction of Hole: ☒ Vertical ☐ Inclined ____ deg. from vert.

7. Thickness of overburden: 30.6

8. Depth drilled into rock: 69.4

9. Total depth of hole: 100.0

10. Size and type of bit: 3" Shelby & 4" Core

11. Datum for elevation shown (TBM or MSL): MSL

12. Manufacturer's designation of drill: DAMCO Model 1250

13. Total no. of overburden samples taken: Disturbed 7, Undisturbed 17

14. Total number core boxes: 11

15. Elevation ground water: See Note 2

16. Date hole: Started 12-6-72, Completed 12-13-72

17. Elevation top of hole: 579.74

18. Total core recovery for boring: 93.2 %

19. Signature of inspector: See Note 1 under "Remarks"

Elevation	Depth	Classification of Materials (Description)	% Core Recovery	Box or Sample No.
577.74	2.0'	Brown Clay	100 / 100	W1 / W2
573.74	6.0'	Reddish Brown Sandy Clay	100 / 100 / 100	J1 / W3 / W4
561.74	18.0'	Tan Silty Clay w/Sand Lenses	100 / 100 / 100 / 100 / 100 / 100 / 100 / 100 / 100 / 100	J2 / W5 / W6 / J3 / W7 / W8 / J4 / W9 / W10
558.74	21.0'	Tan Sandy Clay	100 / 100 / 100	J5 / W11 / W12
557.74	22.5'	Tan Clayey Sand	100 / 100	W13 / J6
554.94	24.8'	Tan Clay w/Sand Lenses	100 / 100	W14 / W15
553.24	26.5'	Tan Clayey Sand	100 / 100	W16 / J7
549.14	30.6'	Tan Silty Sand and Gravel	100 / 100	W17 / J8
		30.6'-50.0' SHALE, Soft-Mod. Hard, Unweath., Gray-Dark Gray, Thin-Bedded to Massive, Non-Jointed, Often Sandy, w/Numerous Sand Pockets and Lenses. 32.3' to 32.4', Sandstone, M.-Hard, Gry., Lam., W.- 45.0'-45.3', Limestone, Gray, Hard, Fossiliferous, Oolitic. Sand Pockets and Lenses, Gray, Med.-Fine-Grained, Friable, Soft-Mod. Hard at: 31.5-31.7, 31.9-32.1, 32.4-32.6, 40.0-40.5, 40.9-41.0, 41.7-42.1, 42.4-42.5, 43.8-44.2, 44.6-45.0, 46.3-46.5, 46.8-47.0. 48.0'-50.0', Sandstone, Mod. Hard, Well-Cemented, Gray.	R-1 90% 35.0; R-2 90% 40.0; R-3 90% 45.0; R-4 90% 50.0	Box 1; Box 2; Box 2; Box 3
529.74	50	50.0'-80.0' SHALE, Moderately Hard, Unweathered, Dark Gray to Black, Laminated, Non-Jointed, w/Numerous Sand Pockets and Lenses. 53.5'-55.0', Sandstone, Hard, Fine-Med.-Grained, Well-Cemented, Gray. Sand Pockets and Lenses, Gray, Med.-Fine-Grained, Friable, Soft-Med. Hard, at: 55.0-55.9, 56.1-56.2, 56.9-57.4, 58.1-58.5, 67.2-71.3. 64.4'-65.0', Fossiliferous Zone, Hard, Calcareous. 79.3'-79.5', Sandstone, Mod. Hard, Gray, Fine-Med.-Grained, Well-Cemented	R-5 86% 55.0; R-6 84% 60.0; R-7 100% 65.0; R-8 86% 70.0; R-9 100% 75.0; R-10 94% 80.0	Box 4; Box 5; Box 6; Box 7
499.74	80	80.0'-96.3' SHALE, Mod. Hard-Hard, Unweath., Very Dark Gray to Black, Massive, Non-Jointed. 82.1', Numerous Siltstone Nodules, Tan, Very Hard.	R-11 100% 85.0; R-12 100% 90.0; R-13 100%	Box 8; Box 9; Box 10

Remarks (Drilling time, water loss, depth of weathering, etc., if significant)

3" Shelby Tube Samples 0.0'-28.0'.

JAR SAMPLES
1. 2.0'- 3.0'
2. 6.0'- 7.0'
3. 10.0'-11.0'
4. 14.0'-15.0'
5. 18.0'-19.0'
6. 22.0'-23.0'
7. 26.0'-27.0'
8. 30.0'-31.0'

WRAP SAMPLES
1. 0.0'- 1.0'
2. 1.0'- 2.0'
3. 3.0'- 4.5'
4. 4.5'- 6.0'
5. 7.0'- 8.5'
6. 8.5'-10.0'
7. 11.0'-12.5'
8. 12.5'-14.0'
9. 15.0'-16.5'
10. 16.5'-18.0'
11. 19.0'-20.0'
12. 20.0'-21.0'
13. 21.0'-22.0'
14. 23.0'-24.0'
15. 24.0'-25.0'
16. 25.0'-26.0'
17. 27.0'-28.0'

Moist at 18.0'-22.5'
Wet at 22.5'-30.6'
Set Tub at 28.0' and Cleaned Hole to 30.0'
3" Shelby Tube Sample 30.0'-31.0'
(Continued)
Began Coring w/4" bbl. at 31.0'.

CARTON SAMPLES
1. 33.6'-34.5'
2. 36.7'-37.7'
3. 40.9'-41.8'
4. 45.6'-46.5'
5. 49.1'-49.7'
6. 50.7'-51.5'
7. 57.3'-57.8'
8. 61.2'-61.7'
9. 67.8'-68.7'
10. 70.0'-70.9'
11. 77.0'-77.9'
12. 83.6'-84.5'
13. 85.0'-85.9'
14. 90.0'-90.9'
15. 93.4'-94.3'
16. 98.0'-98.9'

BOXES
1. 31.0'-36.7'
2. 36.7'-43.5'
3. 43.5'-49.1'
4. 49.1'-56.6'
5. 56.6'-64.4'
6. 64.4'-71.3'
7. 71.3'-77.9'
8. 77.9'-82.8'
9. 82.8'-90.9'
10. 90.9'-96.3'
11. 96.3'-100.0'

Elevation
483.44
479.74

Hole No. 3S4C-21A

Division: Southwestern	Installation: Fort Worth	Sheet 1 of 3 sheets
No. 1	10. Size and type of bit: 3" Shelby & 4" Core	
12,824 Y: 613,600	11. Datum for elevation shown: MSL	
	12. Manufacturer's designation of drill: DAMCO Model 1250	
3S4C-21A	13. Total no. of overburden samples taken: Disturbed 7; Undisturbed 17	
Bill Stanton	14. Total number core boxes: 11	
Inc Testing Corporation	15. Elevation ground water: See Note 2	
ined ____ deg. from vert.	16. Date hole: Started 12-6-72; Completed 12-13-72	
rden 30.6	17. Elevation top of hole: 579.74	
rock 69.4	18. Total core recovery for boring: 93.2 %	
e 100.0	19. Signature of inspector: See Note 1 under "Remarks"	

Elevation	Depth	Legend	Classification of Materials (Description)	% Core Recovery	Box or Sample No.	Remarks (Drilling time, water loss, depth of weathering, etc.; if significant)
	0		Brown Clay	100	W1	3" Shelby Tube Samples 0.0'-28.0'
	2.0'			100	W2	
				100	J1	JAR SAMPLES
			Reddish Brown Sandy Clay	100	W3	1. 2.0'- 3.0'
	6.0'			100	W4	2. 6.0'- 7.0'
				100	J2	3. 10.0'-11.0'
			Tan Silty Clay w/Sand Lenses	100	W5	4. 14.0'-15.0'
				100	W6	5. 18.0'-19.0'
				100	J3	6. 22.0'-23.0'
				100	W7	7. 26.0'-27.0'
				100	W8	8. 30.0'-31.0'
				100	J4	WRAP SAMPLES
				100	W9	1. 0.0'- 1.0'
	18.0'			100	W10	2. 1.0'- 2.0'
			Tan Sandy Clay	100	J5	3. 3.0'- 4.5'
	21.0'			100	W11	4. 4.5'- 6.0'
			Tan Clayey Sand	100	W12	5. 7.0'- 8.5'
	22.5'			100	W13	6. 8.5'-10.0'
			Tan Clay w/Sand Lenses	100	J6	7. 11.0'-12.5'
	24.8'			100	W14	8. 12.5'-14.0'
			Tan Clayey Sand	100	W15	9. 15.0'-16.5'
	26.5'			100	W16	10. 16.5'-18.0'
			Tan Silty Sand and Gravel	100	J7	11. 19.0'-20.0'
				100	W17	12. 20.0'-21.0'
	30.6'			100	J8	13. 21.0'-22.0'
	30.6'-50.0'			R-1		14. 23.0'-24.0'
			SHALE, Soft-Mod. Hard, Unweath., Gray-Dark Gray, Thin-Bedded to Massive, Non-Jointed, Often Sandy, w/Numerous Sand Pockets and Lenses. 32.3' to 32.4', Sandstone, M.-Hard, Gry., Lam., W.-45.0'-45.3', Limestone, Gray, Hard, Fossilliferous, Oolitic. Sand Pockets and Lenses, Gray, Med.-Fine-Grained, Friable, Soft-Mod. Hard at: 31.5-31.7, 31.9-32.1, 32.4-32.6, 40.0-40.5, 40.9-41.0, 41.7-42.1, 42.4-42.5, 43.8-44.2, 44.6-45.0, 46.3-46.5, 46.8-47.0, 48.0'-50.0' Sandstone, Mod. Hard, Well-Cemented, Gray.	90%	Box 1	15. 24.0'-25.0'
				35.0		16. 25.0'-26.0'
				R-2		17. 27.0'-28.0'
				90%	Box 2	Moist at 18.0'-22.5'
				40.0		Wet at 22.5'-30.6'
				R-3		Set Tub at 28.0' and Cleaned Hole to 30.0'
				90%	Box 2	3" Shelby Tube Sample 30.0'-31.0' (Continued)
				45.0		Began Coring w/4" bbl. at 31.0'.
				R-4	Box 3	CARTON SAMPLES
				90%		1. 33.6'-34.5'
				50.0		2. 36.7'-37.7'
				R-5		3. 40.9'-41.8'
				86%	Box 4	4. 45.6'-46.5'
				55.0		5. 49.1'-49.7'
				R-6		6. 50.7'-51.5'
				84%		7. 57.3'-57.8'
				60.0	Box 5	8. 61.2'-61.7'
				R-7		9. 67.8'-68.7'
				100%		10. 70.0'-70.9'
				65.0		11. 77.0'-77.9'
				R-8		12. 83.6'-84.5'
			Sand Pockets and Lenses, Gray, Med.-Fine-Grained, Friable, Soft-Mod. Hard, at: 55.0-55.9, 56.1-56.2, 56.9-57.4, 58.1-58.5, 67.2-71.3,	86%	Box 6	13. 85.0'-85.9'
				70.0		14. 90.0'-90.9'
				R-9		15. 93.4'-94.3'
				100%		16. 98.0'-98.9'
				75.0	Box 7	BOXES
			64.4'-65.0', Fossilliferous Zone, Hard, Calcareous.	R-10		1. 31.0'-36.7'
				94%		2. 36.7'-43.5'
			79.3'-79.5', Sandstone, Mod. Hard, Gray, Fine-Med.-Grained, Well-Cemented	80.0	Box 8	3. 43.5'-49.1'
				R-11		4. 49.1'-56.6'
			80.0'-96.3'	100%		5. 56.6'-64.4'
			SHALE, Mod. Hard-Hard, Unweath., Very Dark Gray to Black, Massive, Non-Jointed.	85.0		6. 64.4'-71.3'
				R-12		7. 71.3'-77.9'
			82.1', Numerous Siltstone Nodules, Tan, Very Hard.	100%	Box 9	8. 77.9'-82.8'
				90.0		9. 82.8'-90.9'
				R-13		10. 90.9'-96.3'
				100%	Box 10	11. 96.3'-100.0'

Elevation	Depth	Legend	Classification of Materials (Description)	% Core Recovery	Box or Sample No.	Remarks (Drilling time, water loss, depth of weathering, etc.; if significant)
				93.0		
	94			R-14	Box 10	
483.44				92.5%		
	96			97.0		
			96.3'-100.0' LIMESTONE, Gray, Hard, Unweathered	R-15	Box 11	
	98			100%		
479.74				100.0		
	100		Total Depth = 100.0'			Note 1: Soils Logged By: A. J. Simpson, Trinity Engineering Testing Corporation; Primary Logged By: Marr and Marple, Corps of Engineers, Fort Worth District. Note 2: Installed 2" Plastic Pipe from 581.34 to for ground water observations.

RECORD DRAWING-WORK AS BUILT

SYM	DO NO	ACTION	DATE	DESCRIPTION OF REVISION

U.S. ARMY ENGINEER DISTRICT, FORT WORTH
CORPS OF ENGINEERS
FORT WORTH, TEXAS

DESIGNED BY: ---
DRAWN BY: ---
REVIEWED BY: ---

RAY ROBERTS LAKE
ELM FORK, TRINITY RIVER, TEXAS
EMBANKMENT, SPILLWAY AND OUTLET WORKS
LOGS OF BORINGS
6A4C-20, 6A4C-21, AND 3S4C-21A

SUBMITTED BY
ENGINEER:

INVITATION NO. DACW63-82-B-0025 DATE MAR, 1982
CONTRACT NO. DACW63-82-C-0083
DRAWING NUMBER
SHEET NO. OF
SEQUENCE NO. 16

CONTRACT NO DACW63-82-C-0083

TO ACCOMPANY FOUNDATION REPORT

Hole No 8A6C-22

DRILLING LOG

Division	Southwestern
Installation	Fort Worth
Sheet	1 of 2 sheets
1. Project	Aubrey Dam Site
2. Location (Coordinates or Station)	Intake structure
3. Drilling agency	Corps of Engineers
4. Hole No. (As shown on drawing title and file number)	8A6C-22
5. Name of driller	Schoonover
6. Direction of hole	[X] Vertical [ ] Inclined ___ deg. from vert.
7. Thickness of overburden	8.0
8. Depth drilled into rock	40.5
9. Total depth of hole	48.5
10. Size and type of bit	8" auger, 6" carboloy, 6" diamond
11. Datum for elevation shown (TBM or MSL)	
12. Manufacturer's designation of drill	Failing 1500
13. Total no. of overburden samples taken	Disturbed: 5; Undisturbed: 0
14. Total number core boxes	8
15. Elevation ground water	583 17 May 72
16. Date hole	Started: 4 May 72; Completed: 9 May 72
17. Elevation top of hole	593.5
18. Total core recovery for boring	96%
19. Signature of inspector	[signature]

Elevation (a)	Depth (b)	Legend (c)	Classification of Materials (Description) (d)	% Core Recovery (e)	Box or Sample No. (f)	Remarks (Drilling time, water loss, depth of weathering, etc., if significant) (g)
			0.0' to 2.6' SAND, sli. clayey, fine to med. grained, sli. moist, brown.		A	1. After completion, hole was bailed to 45.0' and 2½" I.D. perforated plastic pipe was placed in hole.
			2.6' to 8.0' CLAY, sandy, moist, medium, red to tan.		B	2. Jars: A. 0.0 to 2.6; B. 2.6 to 6.5; C. 6.5 to 8.0; D. 8.0 to 9.0; E. 9.0 to 10.0
			8.0' to 10.0' CLAY-SHALE, calc., moist, stiff, tan.		C, D, E	
	10.0	1	- - Start 6" core @ 10.0' -	10.0		
			10.0' to 19.0' CLAY-SHALE, calc., highly jointed, m. hard, numerous rootlets, open, highly-stained joint from 14.1 to 15.3, tan and gray.	L. 0.3; 14.1; L. 0.2	1	3. Cartons: 1. 10.0 to 11.0; 2. 17.2 to 18.2; 3. 22.6 to 23.6; 4. 27.7 to 28.7; 5. 38.4 to 39.4; 6. 45.2 to 46.2
	Base of Weathering	2	- - Transitional weathering contact @ 19.0' - - -	16.7	2	4. Weathered to 19.0'
	20.0		19.0' to 36.9' SHALE, calc., jointed and stained to 22.6', thick bedded, fossilif., gray	L. 0.5; 23.1	3	5. Base of jointing at 22.6'.
		3	19.0' to 30.9' - m. hard	G. 1.0; 27.0; L. 0.2		
		4	30.9' to 36.9' - numerous nodular LIMESTONE pieces, hard.	28.9	4	
	30.0			G. 0.9; 32.5	5	
			- - Transitional contact @ 36.9' - - - - -	L. 0.4		
		5	36.9' to 43.6' LIMESTONE - - 36.9' to 42.1' - m. hard fossilif., shaley, gray	37.7; G. 0.3; 40.0	6	
			42.1' to 43.6' - sandy, fossilif., shaley, HARD, gray.	41.7; G. 0.4	7	
		6	43.6' to 47.2' SHALE, calc., m. hard, scattered LIMESTONE concretions, gray.	45.5; L. 1.0	8	
			43.6' to 43.8' SILTSTONE, m. hard, tan.	48.5		
			47.2' to 48.5' NO RECOVERY			
	50.0					
			T.D. 48.5' -			

DRILLING LOG

Division	Southwestern
Installation	Fort Worth District
1. Project	Aubrey Dam
2. Location (Coordinates or Station)	Sta 78+00, West Abutment C L
3. Drilling agency	USACE-C
4. Hole No. (As shown on drawing title and file number)	8A4C-25
5. Name of driller	Jay Cremean
6. Direction of hole	[X] Vertical [ ] Inclined ___ deg. from vert.
7. Thickness of overburden	19.0'
8. Depth drilled into rock	51.0'
9. Total depth of hole	70.6
10. Size and type of bit	4'
11. Datum for elevation shown	
12. Manufacturer's designation of drill	Failing 350
13. Total no. of overburden samples taken	
14. Total number core boxes	
15. Elevation ground water	
16. Date hole	Started: 25
17. Elevation top of hole	
18. Total core recovery for boring	
19. Signature of inspector	Raymond T

Elevation (a)	Depth (b)	Legend (c)	Classification of Materials (Description) (d)	% Core Recovery (e)	Box or Sample No. (f)
	0		0.0' to 17.6' CLAY-lean, sandy-fine; silty; dry.		A
			@ 0.6 - becomes moist. @ 1.7' - becomes stiff, well consolidated, fat @ 5.3' - becomes gravelly limestone, hard, max size 1"; lean, with color change. Yellowish brown.		B, C
	10		@ 13.6' - becomes very lean with more sand fines		D, E
			17.6 to [illegible]		F
			[illegible] - hard, [illegible] & angular limestone, size 1-1/2"; san[illegible] coarse; silty; mot[illegible] brown, gray, & yellowish-brown		G
	20		--Start 4" core at 20.0'---	L-0.5; 22.0	
			20.0' to 69.2'	L-0.2; 24.0	1
			SHALE, soft - moderately hard, moist, interbedded with scattered, thin sandstone seams.	L-0.4; 26.5	
			20.0'-25.00'- Weathered, oxide stains, yellow-brown & gray.	Box 1 / Box 2; L-0	
	30		24.6'-24.8'-SANDSTONE, fine, argillaceous, moderately cemented.	30.4; 31.5	2
			25.0-33.3' - Predom dark gray with oxide staining limited to Bedding Planes.	Box 2 / Box 3; 35.4	3
			28.2-29.6' - Fossiliferous; 29.6-29.8' - Sandstone; 32.8'-33.2' - Sandstone	36.5; L-0.6	4
	40			Box 3; 37.8	

Hole No. 8A4C-25

...western	INSTALLATION Fort Worth District — SHEET 1 OF 2 SHEETS
	10. SIZE AND TYPE OF BIT 4" Core Barrel
	11. DATUM FOR ELEVATION SHOWN (TBM or MSL) MSL
C.L.	12. MANUFACTURER'S DESIGNATION OF DRILL Failing 350
...4C-25	13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN — DISTURBED 7 — UNDISTURBED 8
	14. TOTAL NUMBER CORE BOXES 8
	15. ELEVATION GROUND WATER
___ DEG. FROM VERT.	16. DATE HOLE — STARTED 25 May 72 — COMPLETED 26 May 72
	17. ELEVATION TOP OF HOLE 600.44
	18. TOTAL CORE RECOVERY FOR BORING %
	19. SIGNATURE OF INSPECTOR Raymond T. Hagen

CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
17.6'		A	JAR SAMPLES
lean, sandy-fine; dry.			A - 0.0' to 1.0' B - 3.0' to 4.0' C - 6.0' to 7.0' D - 9.0' to 10.0' E - 12.0' to 13.0' F - 15.0' to 16.0' G - 18.0' to 19.5'
becomes moist. - becomes stiff, consolidated, fat - becomes gravelly tone, hard, max 1"; lean, with change. wish brown.		B	
		C	CARTON SAMPLES
- becomes very ...h more sand fines		D	1 - 22.3' to 23.3' 2 - 29.4' to 30.4' 3 - 34.0' to 35.0' 4 - 36.4' to 37.4 5 - 46.9' to 47.9 6 - 49.0' to 49.8 7 - 52.0' to 53.0' 8 - 58.8' to 59.8'
		E	
18.3'		F	PENTROMETER BLOWS 13.6' to 14.1' - 43 14.1' to 15.1' - 72
hard, rounded & limestone; max /2"; sandy-fine to silty; mottled-ray, & yellowish-		G	Set casing to 20.0' and started coring at that depth.
" core at 20.0'---	L-0.5 22.0		
69.2'	L-0.2 24.0	1	
oft - moderately ..., interbedded ...tered, thin ... seams.	L-0.4 26.5		
Box 1 / Box 2 300'- ...ed, oxide stains, brown & gray.	L-0		
4.8'-SANDSTONE, rgillaceous, ely cemented.	30.4 31.5	2	
' - Predom ay with taining limited ing Planes. Box 2 / Box 3	35.4	3	
.6' - Fossiliferous .8' - Sandstone 3.2' - Sandstone	36.5 L-0.6	4	
Box 3	39.8		

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
	40		Box 3 33.3'-69.2' Unweathered, dark gray, moderately hard. 36.5'-36.8' - SANDSTONE, moderately hard, moderately cemented, very fine, thinly bedded, light gray-tan. Box 4 / Box 5 37.3-37.4' - Fossiliferous 46.7-47.4' - SANDSTONE 47.9-48.4' - " 50.4-50.6' - " 53.5-54.2' - " 54.6-54.9' - " 55.3-55.4' - " 56.4-56.5' - " 57.8-58.1' - " 58.2-58.7' - " 61.4-61.6' - " 62.9-64.4' - " Box 5 / Box 6 64.4-64.9' - Fossiliferous 66.6-66.9' - SANDSTONE 67.0-67.6' - " 67.6-68.0' - " 68.5-68.7' - "	41.5 L-1.0 46.5 G-0.3	5 6	
	50			50.5 L-0.9 55.5 L-0.7	7	Unable to obtain Carton samples for last 10' of hole due to fragmentation of core
	60		Box 6 / Box 7	60.5 L-0.2 65.5 G-0.8	8	
	70		T.D 72.0'.	70.0		

ENG FORM MAR 71 1836 PREVIOUS EDITIONS ARE OBSOLETE. (TRANSLUCENT)

PROJECT Aubrey Dam — HOLE NO. 8A4C-25

SYM	DO	NO

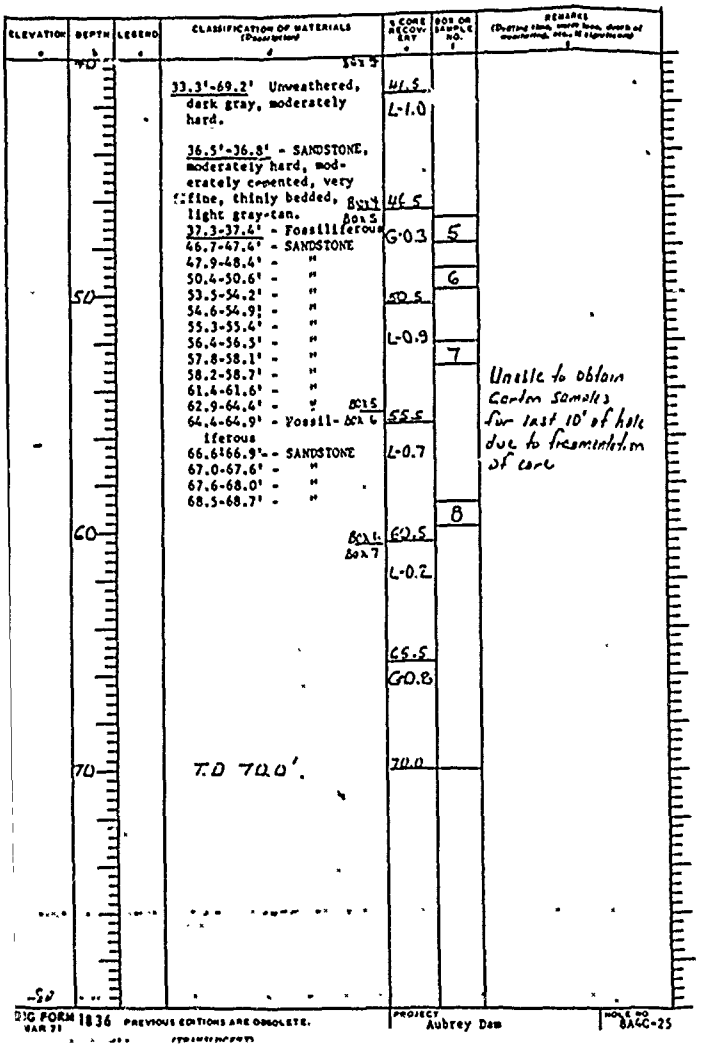
DESIGNED BY

DRAWN BY

REVIEWED BY

SUBMITTED BY

ENGINEER



ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOV-ERY	BOS OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc.; if applicable)
	40		Box 3			
			33.3'-69.2' Unweathered, dark gray, moderately hard.	41.5		
				L-1.0		
			36.5'-36.8' - SANDSTONE, moderately hard, moderately cemented, very fine, thinly bedded, light gray-tan. Box 3	46.5		
			37.3-37.4' - Fossiliferous	G-0.3	5	
			46.7-47.4' - SANDSTONE			
			47.9-48.4' - "		6	
			50.4-50.6' - "			
	50		53.5-54.2' - "	50.5		
			54.6-54.9' - "			
			55.3-55.4' - "			
			56.4-56.5' - "	L-0.9		
			57.8-58.1' - "		7	
			58.2-58.7' - "			Unable to obtain Carbon samples for last 10' of hole due to fragmentation of core
			61.4-61.6' - "			
			62.9-64.4' - " Box 5			
			64.4-64.9' - Fossil- Box 6 iferous	55.5		
			66.6-66.9' - SANDSTONE	L-0.7		
			67.0-67.6' - "			
			67.6-68.0' - "			
			68.5-68.7' - "		8	
	60		Box 6 Box 7	60.5		
				L-0.2		
				65.5		
				60.8		
			T.D 70.0'.			
	70			70.0		

DIG FORM 1836 MAR 71 PREVIOUS EDITIONS ARE OBSOLETE.

PROJECT Aubrey Dam

HOLE NO 8A4C-25

RECORD DRAWING-WORK AS BUILT

SYM	DD NO	ACTION	DATE	DESCRIPTION OF REVISION

U.S. ARMY ENGINEER DISTRICT, FORT WORTH
CORPS OF ENGINEERS
FORT WORTH, TEXAS

DESIGNED BY: ---

DRAWN BY ---

REVIEWED BY: ---

RAY ROBERTS LAKE
ELM FORK, TRINITY RIVER, TEXAS
EMBANKMENT, SPILLWAY AND OUTLET WORKS
LOGS OF BORINGS
8A6C-22 AND 8A4C-25

SUBMITTED BY

ENGINEER

INVITATION NO. DACW63-82-B-0025 | DATE MAR, 1982

CONTRACT NO DACW63-82-C-0083

DRAWING NUMBER | SHEET NO OF | SEQUENCE NO 17

CONTRACT NO DACW63-82-C-0083

TO ACCOMPANY FOUNDATION REPORT

Hole No. 8A-4C-26

DRILLING LOG — Division: Southwestern — Installation: Fort Worth District — Sheet 1 of 2 sheets

1. Project: Aubrey Dam	10. Size and type of bit: 4" Core Barrel
2. Location (Coordinates or Station): Sta 54+00, West Abutment C.L.	11. Datum for Elevation shown (GS or MSL): MSL
3. Drilling Agency: USACE-C	12. Manufacturer's Designation of Drill: Failing 350
4. Hole No. (As shown on drawing title and drill number): 8A4C-26	13. Total No. of Overburden Samples Taken: Disturbed 10, Undisturbed 4
5. Name of Driller: Jay Creemean	14. Total Number Core Boxes: 4
6. Direction of Hole: ☒ Vertical ☐ Inclined ____ deg. from vert.	15. Elevation Ground Water:
7. Thickness of Overburden: 30.5'	16. Date Hole: Started 24 May 72, Completed 25 May 72
8. Depth Drilled into Rock: 24.5'	17. Elevation Top of Hole: 398.91
9. Total Depth of Hole: 55.0'	18. Total Core Recovery for Boring:
	19. Signature of Inspector: Raymond T. Hagen

Elevation (a)	Depth (b)	Legend (c)	Classification of Materials (Description) (d)	% Core Recovery (e)	Box or Sample No. (f)	Remarks (Drilling time, water loss, depth of weathering, etc., if significant) (g)
			0.0' to 18.8'		A	JAR SAMPLES
			CLAY-dry, lean, loose, sandy-fine; dark grayish brown.			A - 0.0' to 1.0'
			@ 0.8 becomes fat, stiff, wet		B	B - 3.0' to 4.0'
			@ 2.3' color changes to light grayish-brown			C - 6.0' to 7.0'
			@ 8.2' becomes very stiff, much fatter, well consolidated, with color change to dark grayish-brown		C	D - 9.0' to 10.0'
	10		@ 11.2' becomes lean, very sandy-fine, with color change to yellowish brown.		D	E -12.0' to 13.0'
						F - 15.0' to 16.0'
					E	G - 18.0' to 19.0'
						H - 21.0' to 22.0'
			18.8' to 26.4'		F	I - 24.0' to 25.0'
			SAND-fine, clayey, lean, wet, silty; yellowish-brown			J - 27.0' to 28.6'
					G	CARTON SAMPLES
	20					1 - 33.4' to 34.3'
			26.9' to 29.0'		H	2 - 39.0' to 40.0'
			GRAVEL-hard, well rounded, max size 1-1/2"; clayey, lean, sandy-fine; yellowish brown			3 - 43.5' to 44.6'
					I	4 - 51.0' to 52.0'
			@ 27.0 - becomes banded with Gravel & Sand bedding. Sand-fine to coarse; micaceous			Set casing to 30.5'.
					J	Started coring at 31.5' (upper gravel deposit chewed up core - no recovery).
	30		--Start 4" Core at 31.5'--			
			31.5' to 54.4'	31.5		PENETPOMETER TEST
			SHALE, moderately hard, moist, dark gray, fissile, unweathered (except for oxide staining to 33.1), non-jointed.	L-0.7		26.9 to 27.4 - 50 Blows
				73.5	1	27.4 to 28.4 - 97 "
				G-0.4		Bailed Hole to 51.3'.
				36.5		Direct Measure of Depth 53.5'
			Box 1 Box 2	L-1.2		
					2	
	40		31.5-31.6 SANDSTONE, argillaceous, moderately hard, moderately cemented, thin bedded, oxide stained. Box 2 Box 3	44.5 L-0.7		
			31.8-32.6 SANDSTONE		3	
			35.2-44.1 Interbedded with thin, very fine, thin bedded, tan-lt gray sandstone seams.	46.5 L-1.0		
			36.8-37.0 SANDSTONE Box 3 Box 4			
	50		39.3-40.0 SANDSTONE			
			39.8-40.0 Fossiliferous	51.5	4	
			41.8-42.4 SANDSTONE	L-0.1		
			42.8-43.8 "			
			44.0-44.1 "			
			46.9-49.8 Slightly fossilliferous throughout.	55.0		
			46.9-47.3 Sandy with fossil detritus	1.5 Left in hole		
			49.4-49.8 Very fossiliferous, very well cemented, claystone nodules from 49.4 - 49.6.			
			T.D. 55.0'			

DRILLING LOG — Division: Southwestern — Installation: Fort Worth D

1. Project: Aubrey Dam	10. Size and type of bit:
2. Location (Coordinates or Station): Sta 29+50 West Abutment C.L.	11. Datum for Elevation shown (GS or MSL): MSL
3. Drilling Agency: USACE-C	12. Manufacturer's Designation of Drill: Failin
4. Hole No. (As shown on drawing title and drill number): 8A4C-27	13. Total No. of Overburden Samples:
5. Name of Driller: Jay Creemean	14. Total Number C
6. Direction of Hole: ☒ Vertical ☐ Inclined ____ deg. from vert.	15. Elevation Grou
7. Thickness of Overburden: 23.9'	16. Date Hole
8. Depth Drilled into Rock: 16.1'	17. Elevation Top o
9. Total Depth of Hole: 40.0'	18. Total Core Rec
	19. Signature of In

Elevation (a)	Depth (b)	Legend (c)	Classification of Materials (Description) (d)	% Core Recovery (e)	Box or Sample No. (f)
			0.0' to 20.6' - CLAY-fat, moist, sandy-fine to coarse; very dark grey.		
			@ 2.1' - becomes soft, wet		
			@ 5.2' - becomes stiff with more coarse sand (lime nodules) with color change to grayish-brown		
			@ 11.1' - Color change to mottled-yellowish brown, gray, and red.		
			@ 15.0' - loses coarse sand and becomes lean.		
			@ 17.6' - becomes gravelly, well rounded, hard, max size 1/2".		
			20.6' to 23.7' - GRAVEL-hard, rounded, max size 2", clayey, very lean sandy-fine to coarse; yellowish brown.		
			Started 4" core at 25.0'.		
			26.5' to 26.7' SANDSTONE, fine-grained, soft, tan, friable, stained.		
			26.7' to 32.7' SHALE, sandy, moderately hard, gray to brown, slightly stained, moderately hard sandstone bed at 29.3' to 29.4'.	25.0 L-1.5 26.5 L.0.0 32.5 L.0.3	
			32.7' to 40.0' SHALE, moderately hard, dark gray, fresh.	32.5 L-0.5 36.0	
			TOTAL DEPTH - 40.0'.		

ENG FORM 1836 MAR 71 — PREVIOUS EDITIONS ARE OBSOLETE. (TRANSLUCENT) — PROJECT Aubre

POLYTRACE 033

Hole No. 8A4C-27

Division	Southwestern
Installation	Fort Worth District
Sheet	1 of 1 sheets
Location	...at Abutment C.L.
10. Size and type of bit	4" Core Barrel
11. Datum for elevation shown	MSL
Drilling agency	USACE-C
12. Manufacturer's designation of drill	Failing 350
Hole No.	8A4C-27
13. Total no. of overburden samples taken	Disturbed: 7; Undisturbed: 3
Name of driller	Jay Creamean
14. Total number core boxes	2
15. Elevation ground water	
Direction of hole	Inclined ______ deg. from vert.
16. Date hole	Started: 27 May 72; Completed: 27 May 72
Thickness of overburden	23.9'
17. Elevation top of hole	607.03
Depth drilled into rock	16.1'
18. Total core recovery for boring	%
Total depth of hole	40.0'
19. Signature of inspector	Raymond T. Hagen

Classification of Materials (Description)

0.0' to 20.6' - CLAY-fat, moist, sandy-fine to coarse; very dark gray.

@ 2.1' - becomes soft, wet

@ 5.2' - becomes stiff with more coarse sand (lime nodules) with color change to grayish-brown

@ 11.1' - Color change to mottled-yellowish brown, gray, and red.

@ 15.0' - loses coarse sand and becomes lean.

@ 17.6' - becomes gravelly, well rounded, hard, max size 1/2".

20.6' to 23.7' - GRAVEL-hard, rounded, max size 2", clayey, very lean sandy-fine to coarse; yellowish brown.

Started 4" core at 25.0'.

26.5' to 26.7' SANDSTONE, fine-grained, soft, tan, friable, stained.

26.7' to 32.7' SHALE, sandy, moderately hard, gray to brown, slightly stained, moderately hard sandstone bed at 29.3' to 29.4'.

32.7' to 40.0' SHALE, moderately hard, dark gray, fresh.

TOTAL DEPTH - 40.0'.

% Core Recovery: 25.0; L-1.5; 26.5; 100; 28.5; L0.3; 32.5; L-0.5; 40

Box or Sample No.: A, B, C, D, E, F, G, H, 1, 2, 3

Remarks

Jar Samples

A - 0.0' to 1.0'
B - 3.0' to 4.0'
C - 66.0' to 7.0'
D - 9.0' to 10.0'
E - 12.0' to 13.0'
F - 15.0' to 16.0'
G - 18.0' to 19.0'
H - 21.0' to 22.0'

Carton Samples

1 - 29.9' to 30.8'
2 - 32.7' to 33.7'
3 - 36.9' to 37.9'

Set casing to 25.0'. Started coring at this depth.

Bailed hole to 37.2'.

Previous editions are obsolete. (Translucent)

Project: Aubrey Dam — Hole No. 8A4C-27

Hole No. 6DC-28

DRILLING LOG	
Division	Southwestern
Installation	Fort Worth
Sheet	1 of 2 sheets
1. Project	Aubrey Dam Site No. 1
10. Size and type of bit	8" A.S., 6" Den, 6" Core
2. Location (Coordinates or Station)	Not Shown X 2,119,650 Y 415,255
11. Datum for elevation shown	MSL
3. Drilling agency	Corps of Engineers
12. Manufacturer's designation of drill	Failing Model 44
4. Hole No. (As shown on drawing title and file number)	6DC-28
13. Total no. of overburden samples taken	Disturbed: 18; Undisturbed: 16
5. Name of driller	Boyd Lane, Trinity Engineering Testing Corporation
14. Total number core boxes	5
6. Direction of hole	[X] Vertical [ ] Inclined ______ deg. from vert.
15. Elevation ground water	See Note 2
16. Date hole	Started: 11-14-72; Completed: 12-7-72
7. Thickness of overburden	36.0'
17. Elevation top of hole	558.84
8. Depth drilled into rock	24.0'
18. Total core recovery for boring	100.0 %
9. Total depth of hole	60.0'
19. Signature of inspector	See Note 1 under "Remarks"

Elevation	Depth	Classification of Materials (Description)	% Core Recovery	Box or Sample No.
556.84	2.0'	Dark Brown Clay 2.0'		J1
550.34	8.5'	Tan Clay 8.5'	100; 100; 100	D1; D2; D3
542.34	16.5'	Tan Sandy Clay 16.5'	100; 100; 100; 100	D4; D5; D6; D7
537.84	21.0'	Tan Clay 21.0'	100; 100	D8; D9
533.84	25.0'	Tan Sandy Clay 25.0'	100; 100	D10; D11
529.84	29.0'	Tan Sand and Gravel 29.0'	50; 75	D12; D13
522.84	36.0'	Tan Gravel and Sand 36.0'	25; 75; 75; 0	D14; D15; D16
513.94		36.0'-44.9' SHALE, Mod. Hard, Non-Jointed, Laminated, Dark (Continued) Gray, Often Sandy w/Thin Sandstone Seams. 39.3'-41.5', Sand, Fine-Med.-Grained, Well-Compacted, Gray, Scat. Thin Tan Siltstone Nodules. 41.7'-42.9', Sand w/Scat. Siltstone Nodules. 43.0'-44.1', Sand Seams. 44.1'-44.5', Sandstone, Well-Cemented, Mod. Hard, Med.-Fine-Grained, Sli. Friable, Gray. 44.5'-44.9', Sand w/Siltstone Nodules	100; R-1 100%; R-1 100% 43.0; R-2 100% 48.0	D17; Box 1; Box 2
498.84	60	44.9'-60.0' SHALE, Mod. Hard, Non-Jointed, Laminated, Dark Gray, w/Sand Seams at: 46.8-47.5, 52.9-53.0, 54.95-57.9, 58.5-60.0. 47.8'-48.0', Fossiliferous Zone.	R-3 100% 53.0; R-4 100% 58.0; R-5 100%	Box 3; Box 4; Box 5

Total Depth = 60.0'

Remarks

Used 8" Auger from 0.0'-3.0'
Used 6" d.b. from 3.0'-38.0'
Jar sample taken from shoe of each Denison sample.

JAR SAMPLES
1. 0.0'-3.0'
2. 5.0'
3. 7.0'
4. 9.0'
5. 11.0'
6. 13.0'
7. 15.0'
8. 17.0'
9. 19.0'
10. 21.0'
11. 23.0'
12. 25.0'
13. 27.0'
14. 29.0'
15. 31.0'
16. 33.0'
17. 35.0'
18. 38.0'

Cleaned out from 35.5'-36.0'
Set casing to 36.0'
Began coring w/6" bbl. at 38.0'

DENISON SAMPLES
1. 3.0'- 5.0'
2. 5.0'- 7.0'
3. 7.0'- 9.0'
4. 9.0'-11.0'
5. 11.0'-13.0'
6. 13.0'-15.0'
7. 15.0'-17.0'
8. 17.0'-19.0'
9. 19.0'-21.0'
10. 21.0'-23.0'
11. 23.0'-25.0'
12. 25.0'-27.0'
13. 27.0'-29.0'
14. 29.0'-31.0'
15. 31.0'-33.0'
16. 33.0'-35.0'
17. 36.0'-38.0'

CARTON SAMPLES
1. 39.8'-40.8'
2. 43.8'-44.8'
3. 50.0'-50.8'
4. 55.3'-56.3'
5. 58.8'-59.8'

Note 1:
Soils Logged By: A. J. Simpson, Trinity Engineering Testing Corporation;
Primary Logged By: Marr, Corps of Engineers, Fort Worth District

Note 2:
Installed 4" Plastic Pipe from 560.34 to 529.74 for groundwater observations.

Hole No. 6DC-28

DRILLING LOG	DIVISION: Southwestern	INSTALLATION: Fort Worth	SHEET 1 of 2 SHEETS
PROJECT: Aubrey Dam Site No. 1		10. SIZE AND TYPE OF BIT: 8" A'S, 6" Den, 6" Core	
LOCATION (Coordinates or Station): Not Shown X: 2,139,650 Y: 615,255		11. DATUM FOR ELEVATION SHOWN (TBM or MSL): MSL	
DRILLING AGENCY: Corps of Engineers		12. MANUFACTURER'S DESIGNATION OF DRILL: Failing Model 44	
HOLE NO. (As shown on drawing title and file number): 6DC-28		13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN: DISTURBED 18; UNDISTURBED 16	
NAME OF DRILLER: Boyd Lane, Trinity Engineering Testing Corporation		14. TOTAL NUMBER CORE BOXES: 5	
DIRECTION OF HOLE: ☒ VERTICAL ☐ INCLINED ___ DEG. FROM VERT.		15. ELEVATION GROUND WATER: See Note 2	
		16. DATE HOLE: STARTED 11-14-72; COMPLETED 12-7-72	
		17. ELEVATION TOP OF HOLE: 558.84	
THICKNESS OF OVERBURDEN: 36.0'		18. TOTAL CORE RECOVERY FOR BORING: 100.0 %	
DEPTH DRILLED INTO ROCK: 24.0'			
TOTAL DEPTH OF HOLE: 60.0'		19. SIGNATURE OF INSPECTOR: See Note 1 under "Remarks"	

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f
6.84	2		Dark Brown Clay 2.0'		J1
	4		Tan Clay	100	D1
	6			100	D2
0.34	8		8.5'	100	D3
	10		Tan Sandy Clay	100	D4
	12			100	D5
	14			100	D6
2.34	16		16.5'	100	D7
	18		Tan Clay	100	D8
7.8	20		21.0'	100	D9
	22		Tan Sandy Clay	100	D10
3.84	24		25.0'	100	D11
	26		Tan Sand and Gravel	50	D12
9.84	28		29.0'	75	D13
	30		Tan Gravel and Sand	25	D14
	32			75	D15
	34			75	D16
2.84	36		36.0'	0	
			36.0'-44.9' SHALE, Mod. Hard, Non-Jointed, Laminated, Dark (Continued) Gray, Often Sandy w/Thin Sandstone Seams.	100	D17
	38			R-1 100%	Box 1
	40		39.3'-41.5', Sand, Fine-Med.-Grained, Well-Compacted, Gray, Scat. Thin Tan Siltstone Nodules.	R-1 100%	
	42			43.0	
13.94	44		41.7'-42.9', Sand w/Scat. Siltstone Nodules.	R-2 100%	Box 2
	46		43.0'-44.1', Sand Seams.		
	48		44.1'-44.5', Sandstone, Well-Cemented, Mod. Hard, Med.-Fine-Grained, Sli. Friable, Gray.	48.0 R-3	
	50		44.5'-44.9', Sand w/Siltstone Nodules	100%	Box 3
	52			53.0 R-4	
	54			100%	Box 4
	56		44.9'-60.0'		
	58		SHALE, Mod. Hard, Non-Jointed, Laminated, Dark Gray, w/Sand Seams at: 46.8-47.5, 52.9-53.0, 54.95-57.9, 58.5-60.0. 47.8'-48.0', Fossiliferous Zone.	58.0 R-5 100%	Box 5
8.84	60		Total Depth = 60.0'		

REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g

Used 8" Auger from 0.0'-3.0'
Used 6" d.b. from 3.0'-38.0'
Jar sample taken from shoe of each Denison sample.

JAR SAMPLES
1. 0.0'-3.0'
2. 5.0'
3. 7.0'
4. 9.0'
5. 11.0'
6. 13.0'
7. 15.0'
8. 17.0'
9. 19.0'
10. 21.0'
11. 23.0'
12. 25.0'
13. 27.0'
14. 29.0'
15. 31.0'
16. 33.0'
17. 35.0'
18. 38.0'

Cleaned out from 35.5'-36.0'
Set casing to 36.0'
Began coring w/6" bbl. at 38.0'

DENISON SAMPLES
1. 3.0'- 5.0'
2. 5.0'- 7.0'
3. 7.0'- 9.0'
4. 9.0'-11.0'
5. 11.0'-13.0'
6. 13.0'-15.0'
7. 15.0'-17.0'
8. 17.0'-19.0'
9. 19.0'-21.0'
10. 21.0'-23.0'
11. 23.0'-25.0'
12. 25.0'-27.0'
13. 27.0'-29.0'
14. 29.0'-31.0'
15. 31.0'-33.0'
16. 33.0'-35.0'
17. 36.0'-38.0'

CARTON SAMPLES
1. 39.8'-40.8'
2. 43.8'-44.8'
3. 50.0'-50.8'
4. 55.3'-56.3'
5. 58.8'-59.8'

Note 1:
Soils Logged By: A. J. Simpson, Trinity Engineering Testing Corporation;

Primary Logged By: Marr, Corps of Engineers, Fort Worth District

Note 2:
Installed 4" Plastic Pipe from 560.34 to 529.74 for groundwater observations.

RECORD DRAWING-WORK AS BUILT

SYM	DC NO	ACTION	DATE	DESCRIPTION OF REVISION

U.S. ARMY ENGINEER DISTRICT, FORT WORTH
CORPS OF ENGINEERS
FORT WORTH, TEXAS

DESIGNED BY:
DRAWN BY:
REVIEWED BY:

RAY ROBERTS LAKE
ELM FORK, TRINITY RIVER, TEXAS
EMBANKMENT, SPILLWAY AND OUTLET WORKS
LOGS OF BORINGS
8A4C-26, 8A4C-27, AND 6 DC-28

SUBMITTED BY:
ENGINEER

INVITATION NO. DACW63-82-B-0025 | DATE: MAR. 1982
CONTRACT NO. DACW63-82-C-0085
DRAWING NUMBER | SHEET NO. OF | SEQUENCE NO 18

CONTRACT NO DACW63-82-C-00

TO ACCOMPANY FOUNDATION REPORT

Hole No. 6DC-30

DRILLING LOG	DIVISION: Southwestern	INSTALLATION: Fort Worth	SHEET 1 OF 3 SHEETS
1. PROJECT: Aubrey Dam Site No. 1		10. SIZE AND TYPE OF BIT: 8" Aug. 6" Den. 6" Core	
2. LOCATION (Coordinates or Station): X=2, 142, 237; Y=615, 051 Sta. 120+70		11. DATUM FOR ELEVATION SHOWN (TBM or MSL): MSL	
3. DRILLING AGENCY: Corps of Engineers		12. MANUFACTURER'S DESIGNATION OF DRILL: Falling Model 44	
4. HOLE NO. (As shown on drawing title and file number): 6DC-30		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN: DISTURBED 21	UNDISTURBED 20
5. NAME OF DRILLER: Boyd Lane, Trinity Engineering Testing Corporation		14. TOTAL NUMBER CORE BOXES: 7	
6. DIRECTION OF HOLE: ☒ VERTICAL ☐ INCLINED ____ DEG. FROM VERT.		15. ELEVATION GROUND WATER: See Note 2	
7. THICKNESS OF OVERBURDEN: 46.5		16. DATE HOLE: STARTED 11-15-72	COMPLETED 11-30-72
8. DEPTH DRILLED INTO ROCK: 43.5		17. ELEVATION TOP OF HOLE: 556.70	
9. TOTAL DEPTH OF HOLE: 90.0		18. TOTAL CORE RECOVERY FOR BORING: 96.4 %	
		19. SIGNATURE OF INSPECTOR: See Note 1 under "Remarks"	

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
	2		Dark Brown Clay		J1	Used 8" Auger from 0.0'-3.0' Used 6" Denison
551.70	4		5.0'	100	D1	bbl. from 3.0'-46.0'
	6		Dark Brown Clay w/Sand Lenses	75	D2	Jar sample taken
	8			100	D3	from shoe of each Denison sample.
	10			100	D4	JAR SAMPLES
	12			100	D5	1. 0.0'-3.0'
	14			100	D6	2. 5.0' 3. 7.0'
	16			75	D7	4. 9.0' 5. 11.0'
537.70	18		19.0'	100	D8	6. 13.0' 7. 15.0'
	20		Tan and Gray Clay w/ Calcareous Particles	100	D9	8. 17.0'
	22			100	D10	9. 19.0' 10. 21.0'
	24			100	D11	11. 23.0' 12. 25.0'
	26			50	D12	13. 27.0' 14. 29.0'
	28			100	D13	15. 31.0' 16. 33.0'
526.70	30		30.0'	100	D14	17. 35.0' 18. 37.0'
523.70	32		Tan and Gray Sandy Clay w/ Silt and Sand Lenses 33.0'	100	D15	19. 39.0'
	34		Gray Clayey Sand	100	D16	20. 41.0' 21. 46.0'
520.70	36		36.0'	100	D17	
	38		Tan and Gray Clayey Gravel w/Sand	50	D18	
	40			50	D19	
	42		Tan and Gray Clayey Gravel w/Sand	120		6" Denison from 40.0'-46.0' Encountered Gray Shale at 46.5'
	44			50	D20	Set 8" Casing to 47.8'
510.20	46		46.5'			
	48		46.5'-60.8' SHALE, Mod. Hard, Dark Gray, Thick-Bedded-Massive, Non-Jointed, Often Sandy w/Thin Sandstone Stringers and Seams. 48.0'-48.7', Scattered Tan Siltstone Inclusions. Sandstone, Fine-Grained, Light Gray, Friable, at: 49.0-49.1, 49.2, 50.8-51.5, 53.0, 57.0-57.2, 60.1-60.2, 60.8. 53.5' and 55.3', Thin Fossiliferous Zones 60.8'	48.0 R-1 100% 50.0		Began Coring w/ 6" Core bbl. at 48.0'
	50–54			R-2 100% 55.0	Box 1	DENISON SAMPLES 1. 3.0'- 5.0' 2. 5.0'- 7.0' 3. 7.0'- 9.0'
	56–58			R-3 100% 60.0	Box 2	4. 9.0'-11.0' 5. 11.0'-13.0' 6. 13.0'-15.0' 7. 15.0'-17.0' 8. 17.0'-19.0'
495.90	60–64		60.8'-66.5'. SANDSTONE, Mod. Hard, Gray, Fine-Grained, Slightly Friable, Numerous Thin (0.1-0.2) Shale Seams. 66.5'	R-4 95% 65.0	Box 3	9. 19.0'-21.0' 10. 21.0'-23.0' 11. 23.0'-25.0' 12. 25.0'-27.0' 13. 27.0'-29.0'
490.20	66–70			R-5 100% 70.0	Box 4	14. 29.0'-31.0' 15. 31.0'-33.0' 16. 33.0'-35.0' 17. 35.0'-37.0' 18. 37.0'-39.0'
	72–74		66.5'-90.0' SHALE, Mod. Hard, Dark Gray, Thick-Bedded-Massive. Numerous Fine-Grained, Light Gray Sandstone Seams and Stringers. Occasional Siltstone Inclusions. 67.0'-67.4', Sandy w/ Siltstone Stringers 68.5'-69.0', Fine Sandstone Stringers 70.3'-71.0', Scattered Brown Siltstone Inclusions.	R-6 100% 75.0	Box 5	19. 39.0'-41.0' 20. 44.0'-46.0' CARTON SAMPLES 1. 49.2'-50.0'
	76–78			R-7 100% 80.0		2. 54.0'-55.0' 3. 56.0'-57.0' 4. 61.7'-62.7' 5. 66.0'-67.0'
	80–84			R-8 100% 85.0	Box 6	6. 72.0'-73.0' 7. 77.0'-78.0' 8. 81.7'-82.7' 9. 86.0'-87.0' R-9-left 1' of core in hole.
	86–88			R-9 80%	Box 7	(Continued)
466.70	90		90.0'	90.0		
			Total Depth = 90.0 Feet			

ENG FORM 1836-A (MODIFIED)

DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOV. FEET	BOX OR SAMPLE NO.	REMARKS (Drilling rate, water loss, depth of weathering, etc., if significant)
					Note 1: Soils Logged By: A. J. Simpson, Trinity Engineering Testing Corporation; Primary Logged By: Green and Marr, Corps of Engineers, Fort Worth District. Note 2: Installed 4" Plastic Pipe from 558.50 to 520.50 for ground-water observations.

1836-A (MODIFIED) | PROJECT: Aubrey Dam Site No. 1 | HOLE NO. 6DC-30

Hole No. 6DC-31

DRILLING LOG — Southwestern — Fort Worth — SHEET 1 OF 2 SHEETS

1. PROJECT: Aubrey Dam Site No. 1
2. LOCATION (Coordinates or Station): X-2,141,403; Y-415,398 Sta. 132+00
3. DRILLING AGENCY: Corps of Engineers
4. HOLE NO. (As shown on drawing title): 6DC-31
5. NAME OF DRILLER: Boyd Lane — Trinity Engineering Testing Corporation
6. DIRECTION OF HOLE: VERTICAL ☒ INCLINED ☐ ____ DEG. FROM VERT.
7. THICKNESS OF OVERBURDEN: 39.0'
8. DEPTH DRILLED INTO ROCK: 51.0'
9. TOTAL DEPTH OF HOLE: 90.0'
10. DATE HOLE: STARTED 12-18-72 — COMPLETED 12-29-72
11. ELEVATION TOP OF HOLE: 555.38
12. TOTAL CORE RECOVERY FOR BORING: 100.0 %
13. SIGNATURE OF INSPECTOR: See Note 1 under "Remarks"

11. ELEVATION DATUM: MSL
11. TOTAL NO. OF CORE BOXES: 9
11. ELEVATION GROUND WATER: See Note 2
11. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN: UNDISTURBED 19 — DISTURBED 19
11. TOTAL NO. OF ROCK CORES: 0
11. ELEVATION TOP OF ROCK: Falling Model 44

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOV. FEET	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
	2		Brown Clay	0	J1	Used 8" Auger from 0.0'-3.0' Used 6" Denison bbl. 3.0'-40.0' Jar sample taken from shoe of each Denison sample. JAR SAMPLES 1. 0.0'-3.0' 2. 5.0' 3. 7.0' 4. 9.0' 5. 11.0' 6. 13.0' 7. 15.0' 8. 17.0' 9. 19.0' 10. 21.0' 11. 23.0' 12. 25.0' 13. 27.0' 14. 29.0' 15. 31.0' 16. 33.0' 17. 35.0' 18. 37.0' 19. 40.0'
	4			50	D1	
550.38			5.0'			
	6		Brown Sandy Clay	100	D2	
	8			100	D3	
546.38			9.0'			
	10		Brown Silty Clay w/Sand Lenses	100	D4	
	12			80	D5	
540.38	14		15.0'	100	D6	
	16		Brown Silty Sand w/Clay Lenses	90	D7	
	18			100	D8	
	20			100	D9	
532.38	22		23.0'	50	D10	
	24		Tan and Gray Sandy Clay 25.0' w/Silt Lenses	100	D11	
530.38						
	26		Tan and Gray Silty Clay w/Iron Ore	50	D12	
	28			75	D13	
	30			90	D14	DENISON SAMPLES 1. 3.0'- 5.0' 2. 5.0'- 7.0' 3. 7.0'- 9.0' 4. 9.0'-11.0' 5. 11.0'-13.0' 6. 13.0'-15.0' 7. 15.0'-17.0'
	32			100	D15	
522.38			33.0'			
	34		Gray Silty Sand w/ Scattered Gravel	90	D16	
	36			100	D17	
	38			0		
516.38			39.0'	40	D18	
	40		39.0'-45.0', SHALE 39.0'- 45.0'	R-1		
	42		SHALE, Mod. Hard, Dk. Gray Thin-Bedded-Massive, w/Num. Lt. Gray Sand Pockets and Lenses	100%	Box 1	DENISON SAMPLES 8. 17.0'-19.0' 9. 19.0'-21.0' 10. 21.0'-23.0' 11. 23.0'-25.0' 12. 25.0'-27.0' 13. 27.0'-29.0' 14. 29.0'-31.0' 15. 31.0'-33.0' 16. 33.0'-35.0' 17. 35.0'-37.0' 18. 38.0'-40.0'
510.38	44			55.0		
	46		43.4' Siltstone Nods., Hard Tan	R-2		
	48		45.0'-55.6'	100%	Box 2	
	50		Shale & Sandstone, Alt. Bed w/occas. Sand Lenses	50.0		
	52		Shale is Gray, Massive, Mod. Hard, Sandy Unweathered	R-3 100% 54.0	Box 3	
499.78	54		Sandstone is Fine-Med. Gra Soft-Mod. Hard, Gray-Lt. Gray, Well Cemented 55.6'-64.0'	R-4 100%		Reamed from 0.0'-38.0' w/8" bit. Began coring w/6" core bbl. at 40.0' Set 8" casing to 44.0'
	56			59.0		
	58		Shale, Mod. Hard-Hard, Dk. Gray Laminated, Unweathered 58.6'-59.4' Fossiliferous zone Soft-Mod. Hard, Calc	R-5 100%	Box 4	CARTON SAMPLES 1. 42.3'-43.3' 2. 46.2'-46.8' 3. 51.6'-52.6' 4. 56.5'-57.5' 5. 61.2'-62.2' 6. 64.7'-65.7' 7. 72.8'-73.8' 8. 75.4'-76.4' 9. 80.9'-81.9' 10. 85.5'-86.5'
491.38	60			64.0		
	62		64.0'-75.4'	R-6 100%	Box 5	
	64		Shale & Sandstone, Alt. Bed w/occas. Sand Lenses	69.0		
	66		Shale is Mod Hard-Hard, Dk. Gray, Laminated	R-7 100%	Box 6	
	68			74.0		
	70			R-8 100%		
479.98	72		75.4'			
	74		75.4'-90.0'			Note 1: Soils Logged By: A. J. Simpson, Trinity Engineering Testing Corporation Primary Logged By: Marr Corps of Engineers, Fort Worth District Note 2: Installed 4" plastic pipe from 556.6 to 511.6 for ground-water observations.
	76		Shale, Gray-Dk. Gray, Mod. Hard-Hard, Laminated Calc.	100%		
	78			79.0	Box 7	
	80			R-9 100%		
	82			84.0		
	84			R-10	Box 8	
	86			100%		
	88			87.0	Box 9	
465.39	90		90.0'	100%		
			Total Depth = 90.0 Feet			

BNG FORM 1836-A (MODIFIED) | PROJECT: Aubrey Dam Site No. 1 | HOLE NO. 6DC-31

STM DO NO.

DESIGNED BY

DRAWN BY

REVIEWED BY

SUBMITTED BY

ENGINEER

TO ACCOM

Hole No. 6DC-31

DRILLING LOG

Division	Southwestern
Installation	Fort Worth
Sheet	1 of 2 sheets
1. Project	Aubrey Dam Site No. 1
2. Location (Coordinates or Station)	X=2,141,403; Y=615,398; Sta. 132+00
3. Drilling Agency	Corps of Engineers
4. Hole No. (As shown on drawing title and file number)	6DC-31
5. Name of Driller	Boyd Lane, Trinity Engineering Testing Corporation
6. Direction of Hole	Vertical
7. Thickness of Overburden	39.0'
8. Depth Drilled into Rock	51.0'
9. Total Depth of Hole	90.0'
10. Size and Type of Bit	8" Aug., 6" Den. & Core
11. Datum for Elevation Shown (TBM or MSL)	MSL
12. Manufacturer's Designation of Drill	Failing Model 44
13. Total No. of Over-burden Samples Taken	Disturbed 19; Undisturbed 19
14. Total Number Core Boxes	9
15. Elevation Ground Water	See Note 2
16. Date Hole	Started 12-18-72; Completed 12-29-72
17. Elevation Top of Hole	555.38
18. Total Core Recovery for Boring	100.0 %
19. Signature of Inspector	See Note 1 under "Remarks"

Elevation	Depth	Classification of Materials	% Core Recovery	Box or Sample No.
		Brown Clay	0	J1
550.38	5.0'		50	D1
		Brown Sandy Clay	100	D2
546.38	9.0'		100	D3
		Brown Silty Clay w/Sand Lenses	100	D4
			80	D5
540.38	15.0'		100	D6
		Brown Silty Sand w/Clay Lenses	90	D7
			100	D8
			100	D9
532.38	23.0'		50	D10
530.38	25.0'	Tan and Gray Sandy Clay w/Silt Lenses	100	D11
		Tan and Gray Silty Clay w/Iron Ore	50	D12
			75	D13
			90	D14
522.38	33.0'		100	D15
		Gray Silty Sand w/ Scattered Gravel	90	D16
			100	D17
			0	
516.38	39.0'		40	D18
		39.0'-45.0' , SHALE 39.0'- 45.0' SHALE, Mod. Hard, Dk. Gray Thin-Bedded-Massive, w/Num. Lt. Gray Sand Pockets and Lenses	R-1 100% 45.0	Box 1
510.38		43.4' Siltstone Nods., Hard Tan	R-2 100% 50.0	Box 2
		45.0'-55.6' Shale & Sandstone, Alt. Bed w/occas. Sand Lenses Shale is Gray, Massive, Mod. Hard, Sandy Unweathered	R-3 100% 54.0	Box 3
499.78		Sandstone is Fine-Med. Grn Soft-Mod. Hard, Gray-Lt. Gray, Well Cemented	R-4 100% 59.0	Box 4
		55.6'-64.0' Shale, Mod. Hard-Hard, Dk. Gray Laminated, Unweathered 58.6'-59.4' Fossiliferous zone Soft-Mod. Hard, Calc	R-5 100% 64.0	
491.38		64.0'-75.4' Shale & Sandstone, Alt. Bed w/occas. Sand Lenses Shale is Mod Hard-Hard, Dk. Gray, Laminated	R-6 100% 69.0	Box 5
			R-7 100% 74.0	Box 6
479.98	75.4'		R-8 100% 79.0	Box 7
		75.4'-90.0' Shale, Gray-Dk. Gray, Mod. Hard-Hard, Laminated Calc.	R-9 100% 84.0	
			R-10 100% 89.0	Box 8
465.39	90.0'		100%	Box 9
		Total Depth = 90.0 Feet		

Remarks

Used 8" Auger from 0.0'-3.0'
Used 6" Denison bbl. 3.0'-40.0'
Jar sample taken from shoe of each Denison sample.

JAR SAMPLES
1. 0.0'-3.0'
2. 5.0'
3. 7.0'
4. 9.0'
5. 11.0'
6. 13.0'
7. 15.0'
8. 17.0'
9. 19.0'
10. 21.0'
11. 23.0'
12. 25.0'
13. 27.0'
14. 29.0'
15. 31.0'
16. 33.0'
17. 35.0'
18. 37.0'
19. 40.0'

DENISON SAMPLES
1. 3.0'- 5.0'
2. 5.0'- 7.0'
3. 7.0'- 9.0'
4. 9.0'-11.0'
5. 11.0'-13.0'
6. 13.0'-15.0'
7. 15.0'-17.0'

DENISON SAMPLES
8. 17.0'-19.0'
9. 19.0'-21.0'
10. 21.0'-23.0'
11. 23.0'-25.0'
12. 25.0'-27.0'
13. 27.0'-29.0'
14. 29.0'-31.0'
15. 31.0'-33.0'
16. 33.0'-35.0'
17. 35.0'-37.0'
18. 38.0'-40.0'

Reamed from 0.0'-38.0' w/8" bit.
Began coring w/6" core bbl. at 40.0'
Set 8" casing to 44.0'

CARTON SAMPLES
1. 42.3'-43.3'
2. 46.2'-46.8'
3. 51.6'-52.6'
4. 56.5'-57.5'
5. 61.2'-62.2'
6. 64.7'-65.7'
7. 72.8'-73.8'
8. 75.4'-76.4'
9. 80.9'-81.9'
10. 85.5'-86.5'

Note 1: Soils Logged By: A. J. Simpson, Trinity Engineering Testing Corporation
Primary Logged By: Marr, Corps of Engineers, Fort Worth District

Note 2: Installed 4" plastic pipe from 556.6 to 511.6 for ground-water observations.

ENG FORM 1836-A (MODIFIED) — Project: Aubrey Dam Site No. 1 — Hole No. 6DC-31

RECORD DRAWING-WORK AS BUILT

SYM	DO NO.	ACTION	DATE	DESCRIPTION OF REVISION

U.S. ARMY ENGINEER DISTRICT, FORT WORTH
CORPS OF ENGINEERS
FORT WORTH, TEXAS

RAY ROBERTS LAKE
ELM FORK, TRINITY RIVER, TEXAS
EMBANKMENT, SPILLWAY AND OUTLET WORKS
LOGS OF BORINGS
6DC-30 AND 6 DC-31

Designed by: / Drawn by: / Reviewed by: / Submitted by: / Engineer:
INVITATION NO. DACW63-82-B-0025 DATE MAR. 1982
CONTRACT NO. DACW63-82-C-0083
DRAWING NUMBER / SHEET NO. OF / SEQUENCE NO. 19
CONTRACT NO. DACW63-82-C-0083

TO ACCOMPANY FOUNDATION REPORT

Hole No. 3S6DC 32

DRILLING LOG — Division: Southwestern — Installation: Fort Worth — Sheet 1 of 2 sheets

1. Project: Aubrey Dam Site No. 1
2. Location: Not Shown X 2,141,310 Y 615,790
3. Drilling Agency: Corps of Engineers
4. Hole No.: 3S6DC-32
5. Name of Driller: Boyd Lane
6. Direction of Hole: ☒ Vertical ☐ Inclined ____ deg. from vert.
7. Thickness of Overburden: 41.5
8. Depth Drilled into Rock: 18.5
9. Total Depth of Hole: 60.0
10. Size and Type of Bit: 3" Shelby, 6" Den., 6" Core
11. Datum for Elevation shown: MSL
12. Manufacturer's Designation of Drill: Failing Model 44
13. Total No. of Overburden Samples Taken: Undisturbed 16; Undisturbed 22
14. Total Number Core Boxes: 3
15. Elevation Ground Water: See Note 2
16. Date Hole: Started 12-30-72; Completed 1-4-73
17. Elevation Top of Hole: 557.05
18. Total Core Recovery for Boring: 100.0 %
19. Signature of Inspector: See Note 1 under "Remarks"

Elevation	Depth	Legend	Classification of Materials (Description)	% Core Recovery	Box or Sample No.	Remarks (Drilling time, water loss, depth of weathering, etc.; if significant)
555.05	2		Brown Clay 2.0'	100	W1	3" Shelby Tube Samples 0.0'-20.0'
				100	W2	
				100	J1	
	4		Brown Sandy Clay	100	W3	Denison bbl. Samples 20.0'-44.0'
	6			100	W4	
				100	J2	Jar Samples Nos. 6 - 16 were taken from the shoe of the Denison sample.
548.05	8		9.0'	100	W5	
				100	W6	
	10			100	J3	JAR SAMPLES
	12		Brown Silty Sand	100	W7	1. 2.0'- 3.0'
				100	W8	2. 6.0- 7.0'
	14			100	J4	3. 10.0'-11.0'
	16			100	W9	4. 14.0'-15.0'
539.05	18		18.0'	100	W10	5. 18.0'-19.0'
				100	J5	6. 22.0'
	20		Brown Clayey Sand	100	W11	7. 24.0'
				100	D1	8. 26.0'
	22					9. 28.0'
				75	D2	10. 30.0'
	24					11. 32.0'
				100	D3	12. 34.0'
530.55	26		26.5'			13. 38.0'
				100	D4	14. 40.0'
	28		Tan Sandy Clay			15. 42.0'
				50	D5	16. 44.0'
	30					Reamed hole to 42.0' w/8" bit.
525.05	32		32.0'	100	D6	Set 8" casing to 42.0'
				100	D7	Used 6" core bbl. from 44.0'-60.0'
	34		Tan Sand and Gravel	0	Lost Sam.	
	36					
				50	D8	
	38					
	40			50	D9	
515.55	42		41.5 Tan Sand and Gravel 41.5-60.0' SHALE & SANDSTONE, Predominantely shale, w/num. layers and lenses of sandstone and siltstone nodules. Shale is soft-mod. hard, med bedded to massive, dark gray. Sandstone is fine-grained, soft-mod. hard, light gray to tan, friable. Siltstone Nodules are hard, tan. Scattered fossil shells at 54.4-54.7 and 56.8-56.9	65	D10	WRAP SAMPLES 1. 0.0'- 1.0' 2. 1.0'- 2.0' 3. 3.0'- 4.5' 4. 4.5'- 6.0' 5. 7.0'- 8.5' 6. 8.5'-10.0' 7. 11.0'-12.5' 8. 12.5'-14.0' 9. 15.0'-16.5' 10. 16.5'-18.0' 11. 19.0'-20.0'
				75	D11	
	44			R-1	Box 1	
				100%		
	46			49.0		
				R-2	Box 2	
	48			100%		
	50			54.0		
				R-3	Box 3	
	52			100%		
	54			59.0		
				100%		
	56					DENISON SAMPLES 1. 20.0'-22.0' 2. 22.0'-24.0' 3. 24.0'-26.0' 4. 26.0'-28.0' 5. 28.0'-30.0' 6. 30.0'-32.0' 7. 32.0'-34.0' 8. 36.0'-38.0' 9. 38.0'-40.0' 10. 40.0'-42.0' 11. 42.0'-44.0'
	58					
497.05	60		60.0'			
			Total Depth = 60.0 Feet			CARTON SAMPLES 1. 45.3'-46.2' 2. 52.6'-53.6' 3. 57.3'-58.1'

Note 1:
Soils Logged By:
A. J. Simpson,
Trinity Engineering Testing Corporation

Primary Logged By:
Green and Marr,
Corps of Engineers,
Fort Worth District

Note 2:
Installed 4" plastic pipe from 559.25 to 516.25 for ground-water observations.

Hole No. 6DC-33

DRILLING LOG — Division: Southwestern — Installation: Fort Worth — Sheet 1 of 2 sheets

1. Project: Aubrey Dam Site No. 1
2. Location: Xe2, 141, 550; Y=615, 025
3. Drilling Agency: Corps of Engineers
4. Hole No.: 6DC-33
5. Name of Driller: Boyd Lane
6. Direction of Hole: ☒ Vertical ☐ Inclined ____ deg. from vert.
7. Thickness of Overburden: 41.0
8. Depth Drilled into Rock: 18.0
9. Total Depth of Hole: 59.0
10. Size and Type of Bit: A, 4" Dmn., 6 Core
11. Datum for Elevation shown: MSL
12. Manufacturer's Designation of Drill: Failing Model 44
13. Total No. of Overburden Samples Taken: Undisturbed 20; Undisturbed 18
14. Total Number Core Boxes: 3
15. Elevation Ground Water: See Note 2
16. Date Hole: Started 12-8-72; Completed 12-15-72
17. Elevation Top of Hole: 561.29
18. Total Core Recovery for Boring: 90.0 %
19. Signature of Inspector: See Note 1 under "Remarks"

Elevation	Depth	Legend	Classification of Materials (Description)	% Core Recovery	Box or Sample No.	Remarks (Drilling time, water loss, depth of weathering, etc.; if significant)
	2		Brown Clay		J1	Used 8" Auger from 0.0'-3.0'
				100	D1	Used 6" Denison bbl. from 3.0'-44.0'
	4					
554.29	6		7.0'	100	D2	Jar sample taken from shoe of each Denison sample.
	8			100	D3	
	10		Tan Sandy Clay	50	D4	JAR SAMPLES
				50	D5	1. 0.0'-3.0'
	12					2. 5.0'
	14			75	D6	3. 7.0'
	16			75	D7	4. 9.0'
						5. 11.0'
542.29	18		19.0'	100	D8	6. 13.0'
	20		Tan Clay w/Calcareous Particles	75	D9	7. 15.0'
						8. 17.0'
538.79	22		22.5'	100	D10	9. 19.0'
	24			100	D11	10. 21.0'
			Tan Sandy Clay w/ Calcareous Particles			11. 23.0'
	26			75	D12	12. 25.0'
				100	D13	13. 27.0'
	28					14. 29.0'
	30			50	D14	15. 31.0'
	32			40	D15	16. 33.0'
528.29			33.0'	Cleaned Hole		17. 37.0'
	34		Tan Clayey Sand	100	D16	18. 39.0'
	36					19. 41.0'
523.59	38		37.7'	50	D17	20. 41.5'
			Tan Clayey Sand w/Gravel			DENISON SAMPLES
	40		40.0'	75	D18	1. 3.0'- 5.0'
520.29			41.0' Tan Gravel w/Sand		J20	2. 5.0'- 7.0'
	42		41.0'-44.0'	0	Core Lost	3. 7.0'- 9.0'
515.29			Gray Shale	44.0		4. 9.0'-11.0'
	44		44.0'-45.0' Gravel, 1 1/2" Max. Diam., Well Rounded	R-1	Box 1	5. 11.0'-13.0'
513.29			45.0'-46.0' Sand & Gravel, 1 1/2" Max. Diam., Fine-Med. Grn., Gray Loosely Compacted Very Moist	100%		6. 13.0'-15.0'
	46		46.0'-59.0'	49.0		7. 15.0'-17.0'
	48		SHALE AND SANDSTONE, Alt. Beds, w/occas. Sand Lenses	R-2	Box 2	8. 17.0'-19.0'
	50			90%		9. 19.0'-21.0'
			Shale is Gray Soft-Mod Hard Laminated Unweathered Sandstone is Mod. Hard-Hard, Gray Fine-Med. Grn., Loosely Cemented Siltstone Nodules, Tan, Hard at 47.5', 54.0', 58.2'	54.0		10. 21.0'-23.0'
	52			R-3	Box 3	11. 23.0'-25.0'
	54			90%		12. 25.0'-27.0'
	56			59.0		13. 27.0'-29.0'
	58					14. 29.0'-31.0'
502.29						15. 31.0'-33.0'
	60		Total Depth = 59.0 Feet			16. 35.0'-37.0'
						17. 37.0'-39.0'
						18. 39.0'-41.0'
						Set Casing to 41.5' Began Coring w/6" bbl. at 44.0'
						CARTON SAMPLES
						1. 47.9'-48.6'
						2. 52.0'-53.0'
						3. 55.2'-56.0'

Note 1:
Soils Logged By:
A. J. Simpson,
Trinity Engineering Testing Corporation;

Primary Logged By:

Corps of Engineers,
Fort Worth District

Note 2:
Installed 4" plastic pipe from 563.3 to 519.1 for ground-water observations.

ENG FORM 1836-A (MODIFIED)

Project: Aubrey Dam Site No. 1 — Hole No. 6DC-33

DRILLING LOG

1. Project: Aubrey Dam Site
2. Location: Xe2, 139, 11n, Y=
3. Drilling Agency: Corps of Engineer
4. Hole No.:
5. Name of Driller: Trinity Enginee
6. Direction of Hole: ☒ Vertical ☐ Inclin
7. Thickness of Overburden:
8. Depth Drilled into Rock:
9. Total Depth of Hole:

Elevation	Depth	Legend
551.47	8	
	10	
547.97	12	
	14	
	16	
	18	
	20	
	22	
	24	
532.97	26	
	28	
526.97	30	
	32	
	34	
523.17	36	
521.97		
520.97	38	
	40	

ENG FORM 1836-A (MODIFIED)

Hole No. 6DC-33

of 2 sheets

6" Den... 6" Core

20 | 18

3

Note 2

12-15-72

61.29

90.0

...arks"

6" Auger from ...-3.0'
...6" Denison ... from 3.0'.

...mple taken ... shoe of each ...on sample.

...SAMPLES
0'-3.0'
5.0'
7.0'
9.0'
11.0'
13.0'
15.0'
17.0'
19.0'
21.0'
3.0'
5.0'
7.0'
9.0'
1.0'
3.0'
7.0'
9.0'
1.0'
1.5'

...N SAMPLES
...- 5.0'
...- 7.0'
...- 9.0'
...-11.0'
...-13.0'
...-15.0'
...-17.0'
...-19.0'
...-21.0'
...-23.0'
...-25.0'
...-27.0'
...-29.0'
...-31.0'
...-33.0'
...-37.0'
...-39.0'
...-41.0'

...g to 41.5' ...ring w/6" ...4.0'

...SAMPLES
...-48.6'
...-53.0'
...-56.0'

...gged By: ...pson, ...ngineering ...orporation;

Logged By: ...Engineers, ...th District

...4" plastic ...563.3 to ...or ground- ...servations.

1 | 6DC-33

Hole No. 3S6D-34

DRILLING LOG	DIVISION: Southwestern	INSTALLATION: Fort Worth	SHEET 1 of 2 SHEETS

1. PROJECT	Aubrey Dam Site No. 1
2. LOCATION (Coordinates or Station)	X=2,139,118, Y=614,010; Sta. 106+00/ 619'R
3. DRILLING AGENCY	Corps of Engineers
4. HOLE NO. (As shown on drawing title and file number)	3S6D-34
5. NAME OF DRILLER	Boyd Lane, Trinity Engineering Testing Corporation
6. DIRECTION OF HOLE	☒ Vertical ☐ Inclined ____ Deg. from vert.
7. THICKNESS OF OVERBURDEN	38.0'
8. DEPTH DRILLED INTO ROCK	1.0'
9. TOTAL DEPTH OF HOLE	39.0'
10. SIZE AND TYPE OF BIT	3" Shelby, 6" d.b.
11. DATUM FOR ELEVATION SHOWN (TBM or MSL)	MSL
12. MANUFACTURER'S DESIGNATION OF DRILL	Falling Model 44
13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN	Disturbed: 11; Undisturbed: 20
14. TOTAL NUMBER CORE BOXES	0
15. ELEVATION GROUND WATER	See Note 2
16. DATE HOLE	Started: 2-2-73; Completed: 2-5-73
17. ELEVATION TOP OF HOLE	559.99
18. TOTAL CORE RECOVERY FOR BORING	-- %
19. SIGNATURE OF INSPECTOR	See Note 1 under "Remarks"

ELEVATION a	DEPTH b	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f
	0–8.5	Brown Clay		W1, W2, J1, W3, W4, J2, W5
551.47	8.5'	Brow Clay w/Calcareous Particles		W6, J3
547.97	12.0'	Light Brown Sandy Clay w/Calcareous Particles		W7, W8, J4, W9, W10, J5, W11, W12, J6, W13, W14, J7
532.97	27.0'	Brown Clay		W15, W16, J8
528.97	31.0'	Brown Sandy Clay w/ Gravel	90%	D1
			90%	D2
523.17	36.8'		80%	D3
521.97	38.0'	Tan Sand and Gravel	75%	D4
520.97	39.0'	Gray Shale		
		Total Depth = 39.0 Feet		

REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g

Drilling: 0.0'-31.0', 3" Shelby tube. 31.0'-39.0', 6" d.b. Set 8" casing to 38.0'. Water rose to 4.0' depth and could not be bailed out when boring reached the 36.0' depth.

WRAP SAMPLES
1. 0.0'- 1.0'
2. 1.0'- 2.0'
3. 3.0'- 4.5'
4. 4.5'- 6.0'
5. 7.0'- 8.5'
6. 8.5'-10.0'
7. 11.0'-12.5'
8. 12.5'-14.0'
9. 15.0'-16.5'
10. 16.5'-18.0'
11. 19.0'-20.5'
12. 20.5'-22.0'
13. 23.0'-24.5'
14. 24.5'-26.0'
15. 27.0'-28.5'
16. 28.5'-30.0'

DENISON SAMPLES
1. 31.0'-33.0'
2. 33.0'-35.0'
3. 35.0'-37.0'
4. 37.0'-39.0'

JAR SAMPLES
1. 2.0'- 3.0'
2. 6.0'- 7.0'
3. 10.0'-11.0'
4. 14.0'-15.0'
5. 18.0'-19.0'
6. 22.0'-23.0'
7. 26.0'-27.0'
8. 30.0'-31.0'
9. 33.0'
10. 35.0'
11. 37.0'
12. 39.0'

Note 1:
Soils logged by: A. J. Simpson, Trinity Engineering Testing Corporation.

Note 2:
Installed 4" plastic pipe from 561.0 to 522.0 for ground-water observations.

ENG FORM 1836-A (MODIFIED) | PROJECT: Aubrey Dam Site No. 1 | HOLE NO. 3S6D-34

Hole No. 3S6D-35

DRILLING LOG	DIVISION: Southwestern	INSTALLATION: Fort Worth	SHEET 1 of 2 SHEETS

1. PROJECT	Aubrey Dam Site No. 1
2. LOCATION (Coordinates or Station)	X=2,139,594, Y=614,164; Sta. 111+00/ 619'R
3. DRILLING AGENCY	Corps of Engineers
4. HOLE NO. (As shown on drawing title and file number)	3S6D-35
5. NAME OF DRILLER	Boyd Lane, Trinity Engineering Testing Corporation
6. DIRECTION OF HOLE	☒ Vertical ☐ Inclined ____ Deg. from vert.
7. THICKNESS OF OVERBURDEN	45.0'
8. DEPTH DRILLED INTO ROCK	2.0'
9. TOTAL DEPTH OF HOLE	47.0'
10. SIZE AND TYPE OF BIT	3" Shelby & 6" d.b.
11. DATUM FOR ELEVATION SHOWN (TBM or MSL)	MSL
12. MANUFACTURER'S DESIGNATION OF DRILL	Falling Model 44
13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN	Disturbed: 12; Undisturbed: 23
14. TOTAL NUMBER CORE BOXES	0
15. ELEVATION GROUND WATER	See Note 2
16. DATE HOLE	Started: 1-31-72; Completed: 2-2-73
17. ELEVATION TOP OF HOLE	559.58
18. TOTAL CORE RECOVERY FOR BORING	83.3 %
19. SIGNATURE OF INSPECTOR	See Note 1 under "Remarks"

ELEVATION a	DEPTH b	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f
	0–13.0	Dark Brown Clay		W1, W2, J1, W3, W4, J2, W5, W6, J3, W7
546.58	13.0'	Brown Clay w/Silt		W8, J4, W9, W10, J5
539.58	20.0'	Brown Silty Clay		W11, W12, J6, W13, W14, J7, W15, W16, J8, W17, W18
524.58	35.0'	Tan and Brown Sandy Clay		J9, W19, W20, J10, W21
518.08	41.5'	Tan & Brown Sandy Clay		
		Gray Sandy Clay	75%	D1
515.08	44.5'		100%	D2
514.58	4.50'	Gray Sand w/Gravel		
512.58		Gray Shale	75%	D3
		Total Depth = 47.0 Feet		

REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g

Boring advanced with 3" Shelby tube from 0.0'-40.5'. Cleaned out 40.5'-41.0'. Used 6" Denison barrel 41.0'-47.0'. Set 8" casing to 45.0' depth. Encountered moisture at 23.0' and water at 38.0'.

JAR SAMPLES
1. 2.0'- 3.0'
2. 6.0'- 7.0'
3. 10.0'-11.0'
4. 14.0'-15.0'
5. 18.0'-19.0'
6. 22.0'-23.0'
7. 26.0'-27.0'
8. 30.0'-31.0'
9. 34.0'-35.0'
10. 38.0'-39.0'
11. 43.0'
12. 45.0'
13. 47.0'

DENISON SAMPLES
1. 41.0'-43.0'
2. 43.0'-45.0'
3. 45.0'-47.0'

WRAP SAMPLES
1. 0.0'- 1.0'
2. 1.0'- 2.0'
3. 3.0'- 4.0'
4. 4.5'- 6.0'
5. 7.0'- 8.5'
6. 8.5'-10.0'
7. 11.0'-12.5'
8. 12.5'-14.0'
9. 15.0'-16.5'
10. 16.5'-18.0'
11. 19.0'-20.5'
12. 20.5'-22.0'
13. 23.0'-24.5'
14. 24.5'-26.0'
15. 27.0'-28.5'
16. 28.5'-30.0'
17. 31.0'-32.5'
18. 32.5'-34.0'
19. 35.0'-36.5'
20. 36.5'-38.0'
21. 39.0'-40.5'

Note 1:
Soils logged by: A. J. Simpson, Trinity Engineering Testing Corporation.

Note 2:
4" plastic pipe installed from for groundwater observations.

RE...

SYM | DO NO | A...

U.S...

DESIGNED BY

DRAWN BY

REVIEWED BY

SUBMITTED BY

ENGINEER

3...

TO ACCOM...

Hole No 3S6D-35

DRILLING — Division: Southwestern
1. Project: Aubrey Dam Site No. 1
2. Location: Sta. 111+00/ 619'R; X=2,139,594; Y=614,164;
3. Drilling Agency: Corps of Engineers
4. Hole No. (As shown on drawing title): 3S6D-35
5. Name of Driller: Boyd Lane — Trinity Engineering Testing Corporation
6. Direction of Hole: ☒ Vertical ☐ Inclined ____ deg. from vert.
7. Thickness of Overburden: 45.0'
8. Depth Drilled into Rock: 2.0'
9. Total Depth of Hole: 47.0'

Installation: Fort Worth — Sheet 1 of 1 Sheets
10. Size and Type of Bit: 3" Shelby & 6" d. b.
11. Datum for Elevation Shown (MSL or Mole): MSL
12. Manufacturer's Designation of Drill: Failing Model 44
13. Total No. of Overburden Samples Taken: Undisturbed 12; Undisturbed 23
14. Total Number Core Boxes: 0
15. Elevation Ground Water: See Note 2
16. Date Hole: Started 1-31-72; Completed 2-2-73
17. Elevation Top of Hole: 559.58
18. Total Core Recovery for Boring: 83.3 %
19. Signature of Inspector: See Note 1 under "Remarks"

Elevation (a)	Depth (b)	Legend (c)	Classification of Materials (Description) (d)	% Core Recovery (e)	Box or Sample No. (f)	Remarks (Drilling fluid, water loss, depth of weathering, etc., if significant) (g)
	2				W1	Boring advanced with 3" Shelby tube from 0.0'-40.5'. Cleaned out 40.5'-41.0'. Used 6" Denison barrel 41.0'-47.0'. Set 8" casing to 45.0' depth. Encountered moisture at 23.0' and water at 38.0'.
	4				W2	
	6				J1	
	8		Dark Brown Clay		W3	
	10				W4	
	12				J2	
546.58			13.0'		W5	
	14				W6	
	16		Brown Clay w/Silt		J3	
	18				W7	
539.58	20		20.0'		W8	
	22				J4	
	24		Brown Silty Clay		W9	
	26				W10	
	28				J5	
	30				W11	
	32				W12	
	34				J6	
524.58			35.0'		W13	
	36		Tan and Brown Sandy Clay		W14	
	38				J7	
	40				W15	
					W16	
518.08			41.5' Tan & Brown Sandy Clay		J8	
	42		Gray Sandy Clay	75%	D1	
515.08	44		44.5'	100%	D2	
514.58			4.50' Gray Sand w/Gravel		W17	
512.58	46		Gray Shale	75%	D3	
	48		Total Depth = 47.0 Feet		W18	
					J9	
					W19	
					W20	
					J10	
					W21	

JAR SAMPLES
1. 2.0'- 3.0'
2. 6.0'- 7.0'
3. 10.0'-11.0'
4. 14.0'-15.0'
5. 18.0'-19.0'
6. 22.0'-23.0'
7. 26.0'-27.0'
8. 30.0'-31.0'
9. 34.0'-35.0'
10. 38.0'-39.0'
11. 43.0'
12. 45.0'
13. 47.0'

DENISON SAMPLES
1. 41.0'-43.0'
2. 43.0'-45.0'
3. 45.0'-47.0'

WRAP SAMPLES
1. 0.0'- 1.0'
2. 1.0'- 2.0'
3. 3.0'- 4.0'
4. 4.5'- 6.0'
5. 7.0'- 8.5'
6. 8.5'-10.0'
7. 11.0'-12.5'
8. 12.5'-14.0'
9. 15.0'-16.5'
10. 16.5'-18.0'
11. 19.0'-20.5'
12. 20.5'-22.0'
13. 23.0'-24.5'
14. 24.5'-26.0'
15. 27.0'-28.5'
16. 28.5'-30.0'
17. 31.0'-32.5'
18. 32.5'-34.0'
19. 35.0'-36.5'
20. 36.5'-38.0'
21. 39.0'-40.5'

Note 1:
Soils logged by: A. J. Simpson, Trinity Engineering Testing Corporation.

Note 2:
4" plastic pipe installed from ____ for groundwater observations.

RECORD DRAWING-WORK AS BUILT

SYM	DO NO	ACTION	DATE	DESCRIPTION OF REVISION

U.S. ARMY ENGINEER DISTRICT, FORT WORTH
CORPS OF ENGINEERS
FORT WORTH, TEXAS

DESIGNED BY ---
DRAWN BY ---
REVIEWED BY ---

RAY ROBERTS LAKE
ELM FORK, TRINITY RIVER, TEXAS
EMBANKMENT, SPILLWAY AND OUTLET WORKS
LOGS OF BORINGS
3S6DC-32, 6DC-33, 3S6D-34, AND 3S6D-35

SUBMITTED BY ---
ENGINEER ---

INVITATION NO. DACW63-82-B-0025 DATE MAR 1982
CONTRACT NO. DACW63-82-C-0043
DRAWING NUMBER
SHEET NO OF
SEQUENCE NO 20

CONTRACT NO DACW63-82-C-0043

TO ACCOMPANY FOUNDATION REPORT

Hole No. 3S6D-36

DRILLING — Division: Southwestern

1 PROJECT: Aubrey Dam Site No. 1
2 LOCATION (Coordinates or Station): Sta. 121+00/ 619'R; X=2,140,546; Y=614,471;
3 DRILLING AGENCY: Corps of Engineers
4 HOLE NO. (As shown on drawing title) AND SITE NUMBER: 3S6D-37
5 NAME OF DRILLER: Boyd Lane
6 FIRM NAME OF DRILLING OPERATION: Trinity Engineering Testing Corporation
7 DIRECTION OF HOLE: ☒ VERTICAL ☐ INCLINED ____ DEG. FROM VERT.
7 THICKNESS OF OVERBURDEN: 44.0'
8 DEPTH DRILLED INTO ROCK: 2.0'
9 TOTAL DEPTH OF HOLE: 46.0'

INSTALLATION: Fort Worth — SHEET 1 of 2 SHEETS
10 SIZE AND TYPE OF BIT: 3" Shelby, 4" Denison
11 DATUM FOR ELEVATION SHOWN: MSL
12 MANUFACTURER'S DESIGNATION OF DRILL: Failing Model 44
13 TOTAL NO. OF OVERBURDEN SAMPLES TAKEN: DISTURBED 14; UNDISTURBED 23
14 TOTAL NUMBER CORE BOXES: 0
15 ELEVATION GROUND WATER: See Note 2
16 DATE HOLE: STARTED 1-29-73; COMPLETED 1-30-73
17 ELEVATION TOP OF HOLE: 557.88
18 TOTAL CORE RECOVERY FOR BORING: %
19 SIGNATURE OF INSPECTOR: See Note 1 under "Remarks"

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOV. ERY	BOX OR SAMPLE NO	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
	2		Brown Clay		W1	**Drilling**
	4				W2	3" Shelby: 0.0'-26.0'.
	6				J1	Cleaned out
549.38	8		8.5'		W3	Set 26.0' of 8" casing
	10		Tan and Brown Clay w/ Calcareous Particles		W4	6"d. b. from 26.0'-
	12				J2	46.0'. Advanced casing
543.88	14		14.0'		W5	to 45.0'.
	16		Light Brown Silty Clay		W6	**WRAP SAMPLES**
	18				J3	1. 0.0'- 1.0'
	20				W7	2. 1.0'- 2.0'
	22				W8	3. 3.0'- 4.5'
	24				J4	4. 4.5'- 6.0'
	26				W9	5. 7.0'- 8.5'
529.88	28		28.0'		W10	6. 8.5'-10.0'
			Tan and Light Gray Sandy Clay	100%	D1	7. 11.0'-12.5'
526.88	30		31.0'	100%	D2	8. 12.5'-14.0'
	32		Tan Sand	100%	D3	9. 15.0'-16.5'
	34			50%	D4	10. 16.5'-18.0'
520.88	36		37.0'	50%	D5	11. 19.0'-20.5'
	38		Tan Sand and Gravel	100%	D6	12. 20.5'-22.0'
	40			75%	D7	13. 23.0'-24.5'
	42		Tan Sand and Gravel	50%	D8	**JAR SAMPLES**
513.88	44		44.0'	50%	D9	1. 2.0'- 3.0'
511.88	46		Gray Shale 46.0'	100%	D10	2. 6.0'- 7.0'
			Total Depth = 46.0 Feet			3. 10.0'-11.0'
						4. 14.0'-15.0'
						5. 18.0'-19.0'
						6. 22.0'-23.0'
						7. 28.0'
						8. 30.0'
						9. 32.0'
						10. 34.0'
						11. 36.0'
						12. 38.0'
						13. 40.0'
						14. 42.0'
						15. 44.0'
						16. 46.0'
						DENISON SAMPLES
						1. 26.0'-28.0'
						2. 28.0'-30.0'
						3. 30.0'-32.0'
						4. 32.0'-34.0'
						5. 34.0'-36.0'
						6. 36.0'-38.0'
						7. 38.0'-40.0'
						8. 40.0'-42.0'
						9. 42.0'-44.0'
						10. 44.0'-46.0'

Note 1:
Soils logged by: A. J. Simpson, Trinity Engineering Testing Corporation.

Note 2:
Install 4" plastic pipe from 559.18 to 513.18 for groundwater observations.

Boring was advanced to 26.0 feet below the ground surface prior to using drilling fluid and groundwater was encountered at the 18.0-foot depth.

DRILLING — Division: Southwestern

1 PROJECT: Aubrey Dam Site No. 1
2 LOCATION (Coordinates or Station): Sta. 121+00/ 619'R; X=2,140,546; Y=614,471;
3 DRILLING AGENCY: Corps of Engineers
4 HOLE NO. (As shown on drawing title) AND SITE NUMBER: 3S6DC-37
5 NAME OF DRILLER: Boyd Lane
6 FIRM NAME OF DRILLING OPERATION: Trinity Engineering Testing Corporation
7 DIRECTION OF HOLE: ☒ VERTICAL ☐ INCLINED ____ DEG. FROM VERT.
7 THICKNESS OF OVERBURDEN: 44.0'
8 DEPTH DRILLED INTO ROCK: 2.0'
9 TOTAL DEPTH OF HOLE: 46.0'

INSTALLATION: Fort W[illegible] — 10 SIZE AND TYPE OF BIT: 3" Shelb
11 DATUM FOR ELEVATION SHOWN: MSL
12 MANUFACTURER'S DESIGNATION OF D
13 TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN: 15
14 TOTAL NUMBER CORE BOXES: 0
15 ELEVATION GROUND WATER: See
16 DATE HOLE: STARTED 1-20-73
17 ELEVATION TOP OF HOLE: 556.
18 TOTAL CORE RECOVERY FOR BORING:
19 SIGNATURE OF INSPECTOR: See Note 1 under "Remark

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOV. ERY	BOX OR SAMPLE NO	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
	2		Brown Clay		W1	DRILLI
553.68			3.0'		W2	3" Shelb
	4		Tan Silty Clay		J1	Cleaned
	6				W3	31.0'-46
549.68			7.0'		W4	WRAP
	8		Light Brown Silty Clay		J2	1. 0.
	10				W5	2. 1.
545.68			11.0'		W6	3. 3.
	12				J3	4. 4.
	14		Tan and Brown Silty Clay		W7	5. 7.
	16				W8	6. 8.
	18				J4	7. 11.
536.68	20		20.0'		W9	8. 12.
	22		Tan Silty Sandy Clay		W10	9. 15.
	24				J5	10. 16.
	26				W11	11. 19.
526.68	28		30.0'		W12	12. 20.
524.68	30		Tan Clayey Sand 32.0'		J6	13. 23.
	32			100%	W13	14. 24.
	34		Tan Silty Sand	75%	W14	15. 27.
	36			75%	D1	16. 28.
518.68	38		38.0'	100%	D2	JAR SA
	40		Tan Sand and Gravel	25%	D3	1. 2.
	42		Tan Sand and Gravel	50%	D4	2. 6.
512.68	44		44.0'	25%	D5	3. 10.
510.68	46		Gray Shale 46.0'	100%	D5	4. 14.
			Total Depth = 46.0 Feet		J15	5. 18.
					D6	6. 22.
						7. 26.
						8. 30.
						9. 33
						10. 35
						11. 37
						12. 38
						13. 38.
						14. 42.
						15. 42.
						16. 46.
						DENISON
						1. 31.
						2. 33.
						3. 35.
						4. 37.
						5. 40.
						6. 44.

Set 8" casi

Note 1:
Soils logge
A. J. Simp
Trinity En
Testing Co

Note 2:
Installed 4'
pipe from
511.68 for
water obse

Hole No. 356DC-37

Division: Southwestern
Installation: Fort Worth
Sheet 1 of 2 sheets

No. 1
Sta. 121+07
4,471; 619'R

356DC-37
Boyd Lane
Testing Corporation

44.0'
2.0'
46.0'

10. Size and type of bit: 3" Shelby & 6" d.b.
11. Datum for elevation shown: MSL
12. Manufacturer's designation of drill: Failing Model 44
13. Total no. of overburden samples taken: Disturbed 15, Undisturbed 21
14. Total number core boxes: 0
15. Elevation ground water: See Note 2
16. Date hole: Started 1-20-73, Completed 1-24-73
17. Elevation top of hole: 556.68
18. Total core recovery for boring: ---
19. Signature of inspector: See Note 1 under "Remarks"

Classification of Materials (Description)	Depth	% Core Recovery	Box or Sample No.	Remarks
Brown Clay	3.0'		W1	DRILLING
			W2	3" Shelby: 0.0'-31.0'
			J1	Cleaned out 6" d.b.:
			W3	31.0'-46.0'.
Tan Silty Clay	7.0'		W4	WRAP SAMPLES
			J2	1. 0.0'- 1.0'
			W5	2. 1.0'- 2.0'
Light Brown Silty Clay	11.0'		W6	3. 3.0'- 4.5'
			J3	4. 4.5'- 6.0'
			W7	5. 7.0'- 8.0'
			W8	6. 8.5'-10.0'
Tan and Brown Silty Clay			J4	7. 11.0'-12.5'
			W9	8. 12.5'-14.0'
			W10	9. 15.0'-16.5'
			J5	10. 16.5'-18.0'
	20.0'		W11	11. 19.0'-20.5'
			W12	12. 20.5'-22.0'
Tan Silty Sandy Clay			J6	13. 23.0'-24.5'
			W13	14. 24.5'-26.0'
			W14	15. 27.0'-28.5'
			J7	16. 28.5'-30.0'
	30.0'		7715	
Tan Clayey Sand	32.0'		W16	JAR SAMPLES
			J8	1. 2.0'- 3.0'
		100%	D1	2. 6.0'- 7.0'
Tan Silty Sand		75%	D2	3. 10.0'-11.0'
		75%	D3	4. 14.0'-15.0'
	41.0'	100%	D4	5. 18.0'-19.0'
Tan Sand and Gravel		25%	D5	6. 22.0'-23.0'
				7. 26.0'-27.0'
Tan Sand and Gravel		50%	D5	8. 30.0'-31.0'
		25%	J15	9. 33.0'
	46.0'			10. 35.0'
Gray Shale		100%	D6	11. 37.0'
	46.0'			12. 38.0'
Total Depth = 46.0 Feet				13. 38.0'-40.0'
				14. 42.0'
				15. 42.0'-44.0'
				16. 46.0'
				DENISON SAMPLES
				1. 31.0'-33.0'
				2. 33.0'-35.0'
				3. 35.0'-37.0'
				4. 37.0'-38.0'
				5. 40.0'-42.0'
				6. 44.0'-46.0'

Set 8" casing to 45.0'.

Note 1:
Soils logged by:
A. J. Simpson,
Trinity Engineering
Testing Corporation.

Note 2:
Instilled 4" plastic pipe from 557.68 to 511.68 for ground-water observations.

Hole No. 356D-38

Division: Southwestern
Installation: Fort Worth
Sheet 1 of 2 sheets

1. Project: Aubrey Dam Site No. 1
2. Location: Not Shown
3. Drilling Agency: Corps of Engineers
4. Hole No. (As shown on drawing title): 356D-38
5. Name of Driller: Boyd Lane
6. Manufacturer: Trinity Engineering Testing Corporation
7. Direction of Hole: ☒ Vertical ☐ Inclined ___ deg. from vert.
8. Thickness of Overburden: 44.0'
9. Depth Drilled into Rock: 1.5'
10. Total Depth of Hole: 45.5'
11. Size and type of bit: 3" Shelby, 6" d.b.
12. Datum for Elevation shown: MSL
13. Manufacturer's Designation of Drill: Failing Model 44
14. Total No. of Overburden Samples Taken: Disturbed 11, Undisturbed 19
15. Total Number Core Boxes: 0
16. Elevation Ground Water: See Note 2
17. Date Hole: Started 1-18-73, Completed 1-20-73
18. Elevation Top of Hole: 559.07
19. Total Core Recovery for Boring: ---
20. Signature of Inspector: See Note 1 under "Remarks"

Elevation	Depth	Legend	Classification of Materials (Description)	% Core Recovery	Box or Sample No.	Remarks
556.07	3.0'		Dark Brown Clay		W1	3" Shelby tube samples from 0.0'-30.0'. Boring was advanced to 30.0' prior to using drilling fluid. Water at 20.5'. 6" d.b. from 30.0'-45.5'. Set 8" casing to 44.0'.
					W2	
					J1	
					W3	
550.57	8.5'		Brown Clay		W4	
					J2	
					W5	
			Light Brown Silty Clay		W6	
					J3	
					W7	
					W8	
					J4	
					W9	
					W10	
					J5	
					W11	
					W12	
					J7	
					W13	
533.07	26.0'				W14	
					J8	
530.57	28.5'		Tan Sandy Clay		W15	
					W16	
			Tan Sand w/Gravel	100%	D1	WRAP SAMPLES
				100%	D2	1. 0.0'- 1.0'
				0%		2. 1.0'- 2.0'
523.07	36.0'					3. 3.0'- 4.5'
			Tan Sand and Gravel	0%		4. 4.5'- 6.0'
				10%	J11	5. 7.0'- 8.5'
				0%		6. 8.5'-10.0'
			Tan Sand and Gravel	50%	D3	7. 11.0'-12.5'
515.07	44.0'			100%	D4	8. 12.5'-14.0'
513.57			Gray Shale			9. 15.0'-16.5'
			Total Depth = 45.5 Feet			10. 16.5'-18.0'
						11. 19.0'-20.5'
						12. 20.5'-22.0'
						13. 23.0'-24.5'
						14. 24.5'-26.0'
						15. 27.0'-28.5'
						16. 28.5'-30.0'
						DENISON SAMPLES
						1. 30.0'-32.0'
						2. 32.0'-34.0'
						3. 42.0'-44.0'
						4. 44.0'-45.5'
						JAR SAMPLES
						1. 2.0'- 3.0'
						2. 6.0'- 7.0'
						3. 10.0'-11.0'
						4. 14.0'-15.0'
						5. 18.0'-19.0'
						7. 22.0'-23.0'
						8. 26.0'-27.0'
						9. 32.0'
						10. 34.0'
						11. 38.0'-40.0'
						12. 44.0'
						13. 45.5'

Note 1:
Soils logged by:
A. J. Simpson,
Trinity Engineering
Testing Corporation.

Note 2:
Installed 4" plastic pipe from
for groundwater observations.

DRILLING
1. Project: Aubrey Dam Site
2. Location: Not Shown
3. Drilling Agency: Corps of Engineer
4. Hole No. (As shown on drawing title):
5. Name of Driller: Trinity Engineering
6. Direction of Hole: ☒ Vertical ☐ Inclined
7. Thickness of Overburden:
8. Depth Drilled into Rock:
9. Total Depth of Hole:

Elevation	Depth	Legend
556.11	4.5'	
533.61	27.0'	
532.11	28.5'	
521.11	39.5'	
515.11	45.5'	
513.61		

RECORD DRAWING-WORK AS BUILT

Hole No. 3S6D-38

DIVISION: Southwestern
INSTALLATION: Fort Worth
SHEET 1 OF 2 SHEETS

Dam Site No. 1
MSL
Failing Model 44
Engineers
3S6D-38
Boyd Lane
Engineering Testing Corporation
INCLINED ____ DEG FROM VERT
OVERBURDEN 44.0'
ED INTO ROCK 1.5'
H OF HOLE 45.5'

10 SIZE AND TYPE OF BIT 3" Shelby, 6" d.b.
11 DATUM FOR ELEVATION SHOWN (TBM or MSL)
12 MANUFACTURER'S DESIGNATION OF DRILL
13 TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN: DISTURBED 11; UNDISTURBED 19
14 TOTAL NUMBER CORE BOXES 0
15 ELEVATION GROUND WATER See Note 2
16 DATE HOLE: STARTED 1-18-73; COMPLETED 1-20-73
17 ELEVATION TOP OF HOLE 559.07
18 TOTAL CORE RECOVERY FOR BORING ---
19 SIGNATURE OF INSPECTOR
See Note 1 under "Remarks"

DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
		Dark Brown Clay		W1	3" Shelby tube samples from 0.0'-30.0'. Boring was advanced to 30.0' prior to using drilling fluid. Water at 20.5'. 6" d.b. from 30.0'-45.5'. Set 8" casing to 44.0'.
		3.0'		W2	
				J1	
		Brown Clay		W3	
				W4	
				J2	
		8.5'		W5	
				W6	
		Light Brown Silty Clay		J3	
				W7	
				W8	
				J4	
				W9	
				W10	
				J5	
				W11	
				W12	
				J7	
				W13	
		26.0'		W14	
		Tan Sandy Clay		J8	
		28.5'		W15	
				W16	
		Tan Sand w/Gravel	100%	D1	
			100%	D2	
		36.0'	0%		
		Tan Sand and Gravel	0%		
			10%	J11	
2		Tan Sand and Gravel	0%		
			50%	D3	
4		44.0'	100%	D4	
		Gray Shale			
6		Total Depth = 45.5 Feet			

WRAP SAMPLES
1. 0.0'- 1.0'
2. 1.0'- 2.0'
3. 3.0'- 4.5'
4. 4.5'- 6.0'
5. 7.0'- 8.5'
6. 8.5'-10.0'
7. 11.0'-12.5'
8. 12.5'-14.0'
9. 15.0'-16.5'
10. 16.5'-18.0'
11. 19.0'-20.5'
12. 20.5'-22.0'
13. 23.0'-24.5'
14. 24.5'-26.0'
15. 27.0'-28.5'
16. 28.5'-30.0'

DENISON SAMPLES
1. 30.0'-32.0'
2. 32.0'-34.0'
3. 42.0'-44.0'
4. 44.0'-45.5'

JAR SAMPLES
1. 2.0'- 3.0'
2. 6.0'- 7.0'
3. 10.0'-11.0'
4. 14.0'-15.0'
5. 18.0'-19.0'
7. 22.0'-23.0'
8. 26.0'-27.0'
9. 32.0'
10. 34.0'
11. 38.0'-40.0'
12. 44.0'
13. 45.5'

Note 1:
Soils logged by:
A. J. Simpson,
Trinity Engineering
Testing Corporation.

Note 2:
Installed 4" plastic
pipe from
for groundwater
observations.

Hole No. 3S6D-39

DRILLING
DIVISION: Southwestern
INSTALLATION: Fort Worth
SHEET 1 OF 2 SHEETS

1 PROJECT: Aubrey Dam Site No. 1
2 LOCATION: Not Shown
3 DRILLING AGENCY: Corps of Engineers
4 HOLE NO.: 3S6D-39
5 NAME OF DRILLER: Boyd Lane
Trinity Engineering Testing Corporation
6 DIRECTION OF HOLE: VERTICAL; INCLINED ____ DEG FROM VERT
7 THICKNESS OF OVERBURDEN 45.5'
8 DEPTH DRILLED INTO ROCK 1.5'
9 TOTAL DEPTH OF HOLE 47.0'

10 SIZE AND TYPE OF BIT 3" Shelby, 6" d.b.
11 DATUM FOR ELEVATION SHOWN (TBM or MSL): MSL
12 MANUFACTURER'S DESIGNATION OF DRILL: Failing Model 44
13 TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN: DISTURBED; UNDISTURBED
14 TOTAL NUMBER CORE BOXES 0
15 ELEVATION GROUND WATER
16 DATE HOLE: STARTED 1-16-73; COMPLETED 1-17-73
17 ELEVATION TOP OF HOLE 560.61
18 TOTAL CORE RECOVERY FOR BORING
19 SIGNATURE OF INSPECTOR
See Note 1 under "Remarks"

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
	2		Dark Brown Clay		W1	3" Shelby tube samples from 0.0'-34.0'. 6" d.b. samples from 34.0'-47.0'. Set 8" casing to 46.0'. Boring was advanced to 34.0' prior to using drilling fluid.
					W2	
					J1	
556.11	4		4.5'		W3	
	6		Brown Silty Clay		W4	
					J2	
	8				W5	
	10				W6	
					J3	
	12				W7	
	14				W8	
					J4	
	16				W9	
	18				W10	
					J5	
	20				W11	
	22				W12	
					J6	
	24				W13	
					W14	
533.61	26		27.0'		J7	
532.11	28		Tan Sandy Clay		W15	
	30		Tan Clayey Sand		W16	
	32				W17	
					W18	
	34			100%	D1	
	36			100%	D2	
	38		39.5'			
521.11	40		Tan Sand and Gravel	75%	D3	
			Tan Sand and Gravel	85%	D4	
	42			90%	D5	
	44			33%	J14	
515.11			45.5'			
513.61	46		Gray Shale	100%	D6	
	48		Total Depth = 47.0 Feet			

WRAP SAMPLES
1. 0.0'- 1.0'
2. 1.0'- 2.0'
3. 3.0'- 4.5'
4. 4.5'- 6.0'
5. 7.0'- 8.5'
6. 8.5'-10.0'
7. 11.0'-12.5'
8. 12.5'-14.0'
9. 15.0'-16.5'
10. 16.5'-18.0'
11. 19.0'-20.5'
12. 20.5'-22.0'
13. 23.0'-24.5'
14. 24.5'-26.0'
15. 27.0'-28.5'
16. 28.5'-30.0'
17. 31.0'-32.5'
18. 32.5'-34.0'

DENISON SAMPLES
1. 34.0'-36.0'
2. 36.0'-38.0'
3. 38.0'-40.0'
4. 40.0'-42.0'
5. 42.0'-44.0'
6. 45.5'-47.0'

A jar sample was taken from the shoe of each denison barrel run.

JAR SAMPLES
1. 2.0'- 3.0'
2. 6.0'- 7.0'
3. 10.0'-11.0'
4. 14.0'-15.0'
5. 18.0'-19.0'
6. 22.0'-23.0'
7. 26.0'-27.0'
8. 30.0'-31.0'
9. 36.0'
10. 38.0'
11. 40.0'
12. 42.0'
13. 44.0'
14. 44.0'-45.5'
15. 47.0'

Note 1:
Soils logged by:
A. J. Simpson,
Trinity Engineering
Testing Corporation

SYM	QC NO	ACTION	DATE	DESCRIPTION OF REVISION

U.S ARMY ENGINEER DISTRICT, FORT WORTH
CORPS OF ENGINEERS
FORT WORTH, TEXAS

DESIGNED BY: ---
DRAWN BY: ---
REVIEWED BY: ---

RAY ROBERTS LAKE
ELM FORK, TRINITY RIVER, TEXAS
EMBANKMENT, SPILLWAY AND OUTLET WORKS
LOGS OF BORINGS
8S6D-36, 3S6DC-37, 3S6D-38, AND 3S6D-39

SUBMITTED BY
ENGINEER

INVITATION NO. DACW63-82-B-0025 DATE MAR, 1982
CONTRACT NO. DACW63-82-C-0083
DRAWING NUMBER
SHEET NO. 21 OF
SEQUENCE NO

CONTRACT NO. DACW63-82-C-0083

RECORD DRAWING-WORK AS BUILT

TO ACCOMPANY FOUNDATION REPORT

Hole No. 356D-40

DRILLING LOG — Division: Southwestern — Installation: Fort Worth — Sheet 1 of 1 sheets

1. Project: Aubrey Dam Site No. 1
2. Location: Y=2,142,040; Y=614,930
3. Drilling Agency: Corps of Engineers
4. Hole No.: 356D-40
5. Name of Driller: Bill Stanton
6. Manufacturer's Designation of Drill: DAMCO 1250
7. Total Number of Core Boxes: 1
8. Elevation Ground Water: See Note 2
9. Date Hole: Started 11-30-73; Completed 2-8-73
10. Elevation Top of Hole: 649.04
11. Total Core Recovery for Boring: 100
12. Signature of Inspector: See Note 1 under "Remarks"

Trinity Engineering Testing Corporation

Direction of Hole: ☒ Vertical ☐ Inclined ____ deg. from vert.

	Overburden	Rock	Total
Thickness	15.0'	12.0'	27.0'
Depth Drilled Into Rock		12.0'	
Total Depth of Hole			27.0'

Elevation	Depth	Legend	Classification of Materials	% Core Recovery	Box or Sample No.	Remarks
	0				W1	DRILLING: 0.0'-9.0': 3" Shelby Tube 9.0'-17.0': d"d.b. 17.0'-27.0': NX-core. Set tub at 9.0'.
562.3	4		Brown Silty Sand 4.0'		J1	
			Brown Silty Sand w/Clay Lenses 7.0'		B1	
559.3	6				J2	
557.3	8		Red and Brown Clayey Sand 9.0'		W2	WRAP SAMPLES: 1. 0.0'- 2.0' 2. 6.0'- 8.0' 3. 22.2'-22.9' 4. 23.5'-24.4'
	10		Brown and Light Gray Clayey Sand 13.0'	100%	D1	
554.3	12			90%	D2	
			Gray Clay w/Sand Lenses and Iron Ore Particles 15.0'	100%	D3	JAR SAMPLES: 1. 2.0'- 4.0' 2. 6.0'- 8.0' 3. 11.0' 4. 13.0' 5. 15.0' 6. 17.0'
551.3	14					
	16		Tan Sandstone w/Shale Lenses	100%	D4	
	18			R-1 100%	Box 1	
	20					
544.1	22		22.2'	22.0' R-2	W3	Set 8" casing to the 17.0' depth.
			Gray Shale	100%	W4	
539.3	24		27.0'	27.0'		Note 1: Soils logged by: A. J. Simpson, Trinity Engineering Testing Corporation.
	26		Total Depth = 27.0 Feet			
	28					Note 2: Installed 4" plastic pipe from 650.0 to 631.0 for groundwater observations.

ENG FORM 1836 (MODIFIED) — Project: Aubrey Dam Site No. 1 — Hole No. 356D-40

Hole No. 354C-41

DRILLING LOG — Division: Southwestern — Installation: Fort Worth — Sheet 1 of 2 sheets

1. Project: Aubrey Dam Site No. 1
2. Location: X = 2,143,515, Y = 616,330
3. Drilling Agency: Corps of Engineers
4. Hole No.: 354C-41
5. Name of Driller: Bill Stanton
6. Manufacturer's Designation of Drill: DAMCO 1250
7. Total Number of Core Boxes: 2
8. Elevation Ground Water: See Note 2
9. Date Hole: Started 2-13-73; Completed 2-15-73
10. Elevation Top of Hole: 665.20
11. Total Core Recovered for Boring: 100.0
12. Signature of Inspector: See Note 1 Under "Remarks"

Trinity Engineering Testing Corporation

Direction of Hole: ☒ Vertical ☐ Inclined ____ deg. from vert.

	Overburden	Rock	Total
Thickness	49.0'	10.0'	59.0'
Depth Drilled Into Rock		10.0'	
Total Depth of Hole			59.0'

Elevation	Depth	Legend	Classification of Materials	% Core Recovery	Box or Sample No.	Remarks
664.70	0		0.5' Brown Clayey Sand		B1	DRILLING: 0.0'-9.0': 3" Shelby Tube 9.0'-49.0': NX-Core and 2" Split-Spoon 49.0-59.0': 4" Core
	2		Red Clayey Silty Sand 5.0'		W1	
660.20	4				J1	
	6				W2	
	8				W3	
					W4	
	10				J2	
	12		Red and Orange Sand (Cemented)	50 %	B2	
	14		14.0'		B3	*All recovered NX-Core Samples were placed in TETCO's cardboard core boxes.
	16			0 %		
647.20	18		18.0'	18.0'		Set 6" casing to 49.0' depth. Sand washed away with drilling fluid.
	20		Tan Sand	19.0'	B4	JAR SAMPLES: 1. 2.0'-3.0' 2. 6.0'-7.0'
	22			0 %		
				23.0'		
	24			24.0'	B5	BAG SAMPLES: 1. 0.0'- 1.0' 2. 7.0'- 8.0' 3. 8.0'- 9.0' 4. 18.0'-19.0' 5. 23.0'-24.0' 6. 28.0'-29.0' 7. 33.0'-34.0' 8. 38.0'-39.0' 9. 43.0'-44.0'
	26			0 %		
	28			28.0'		
	30			29.0'	B6	
				0 %		
	32			33.0'		
	34			34.0'	B7	
	36			0 %		
	38			38.0'		
				39.0'	B8	
	40					
	42			0 %		CARTONS: 1. 52.5'-53.4'
				43.0'		
	44		Tan Sand	44.0'	B9	BOXES: 1. 49.0'-54.0' 2. 54.0'-59.0'
	46			50 %		
617.30	48		47.9'			
616.20			49.0' Gray Shale w/Sandstone Lenses	49.0'	W5	Note 1: Soils logged by: A. J. Simpson, Trinity Engineering Testing Corporation
	50		Shale, Dk. Gray-Black, Soft-Mod. Hard, Massive, w/ 53.1' Occas. Sandy Zones	100%	Box 1	
612.10	52			54.0'		
	54		Shale, Lt. Gray, Mod. Hard Massive, Calc., w/occas. Sandy Zones	100%	Box 2	Primary logged by: Marr, Fort Worth District, Corps of Engineers
	56			59.0'		
606.20	58					Note 2: 2" plastic pipe installed from 666.2 to 616.2 for groundwater observations.
	60		Total Depth of Boring = 59.0			

ENG FORM 1836-A (MODIFIED) — Project: Aubrey Dam Site No. 1 — Hole No. 354C-41

Hole No. 354C-41

Sheet 1 of 2 sheets

Shelby and 4" Core

See Note 2

2-13-73 2-15-73

665.20

100.0

Under "Remarks"

DRILLING:
0.0'-9.0': 3" Shelby Tube
9.0'-49.0': NX-Core and 2" Split-Spoon
49.0-59.0': 4" Core

*All recovered NX-Core Samples were placed in TETCO's cardboard core boxes

Set 6" casing to 49.0' depth. Sand washed away with drilling fluid.

JAR SAMPLES:
1. 2.0'-3.0'
2. 6.0'-7.0'

BAG SAMPLES:
1. 0.0'- 1.0'
2. 7.0'- 8.0'
3. 8.0'- 9.0'
4. 18.0'-19.0'
5. 23.0'-24.0'
6. 28.0'-29.0'
7. 33.0'-34.0'
8. 38.0'-39.0'
9. 43.0'-44.0'

WRAP SAMPLES:
1. 1.0'- 2.0'
2. 3.0'- 4.0'
3. 5.0'- 6.0'
4. 47.9'-48.5'

CARTONS:
1. 52.5'-53.4'

BOXES:
1. 49.0'-54.0'
2. 54.0'-59.0'

Note 1:
Soils logged by:
A. J. Simpson,
Trinity Engineering Testing Corporation

Primary logged by:
Marr,
Fort Worth District,
Corps of Engineers

Note 2:
2" plastic pipe installed from 666.2 to 616.2 for groundwater observations.

ey Dam Site No. 1 | 354C-41

Hole No. 354C-42

DRILLING LOG | Division: Southwestern | Installation: Fort Worth | Sheet 2 of 2 sheets

Project: Aubrey Dam Site No. 1

Location: X = 2,143,550, Y = 616,150

Drilling Agency: Corps of Engineers

Hole No. of Boring: 354C-42

Name of Driller: Bill Stanton
Trinity Engineering Testing Corp.

Vertical / Inclined

Thickness of Overburden: 13.0

Depth Drilled into Rock: 42.0'

Total Depth of Hole: 55.0'

Manufacturer's Designation of Drill: DAMCO 1250

Total Number Core Boxes: 5 | 7

Total Number Samples: 1

Elevation Ground Water: See Note 1

Date Hole: 2-7-73 | 2-13-73

Elevation Top of Hole: 662.00

Total Core Recovery for Boring: 31.6

Inspector: See Note 1 under "Remarks"

Elevation	Depth	Classification of Materials	% Core Recovery	Sample No.	Remarks
661.00	2	1.0' Brown Clayey Sand		W1	DRILLING: 0.0'-13.0', 3" Shelby Tube 13.0'-50.0', NX-Core 21.0'-41.0', Split-Spoon Samples at 5' intervals. 50.0'-55.0', 4" Core Drilling fluid was used below the 10.5' depth. Set casing to 50.0'
	4	Red Sandy Clay 4.7'		J1 W2 W3 W4 J2 W5 W6 W7 J3 R1 B2	
657.30	6	Tan and Orange Clayey Sand w/Iron Ore and 13.0' Lignite Particles			
653.00	8				
	10				
	12	Red and Gray Clayey Sand 13.0'	13.0'		
649.00	14	13.0'-45.0' Tan and Brown Sandstone w/Layers of Loosely Cemented Sandstone	33% 16.0'	In Shelby Box	WRAP SAMPLES: 1. 0.0'- 2.0' 2. 3.0'- 4.0' 3. 4.0'- 5.0' 4. 5.0'- 6.0' 5. 7.0'- 8.0' 6. 8.0'- 9.0' 7. 9.0'-10.0' 8. 43.2'-43.7' 9. 43.7'-44.3' 0. 45.0'-46.2' 1. 46.2'-46.8' 2. 46.8'-47.6'
	16				
	18				
	20		20% 21.0'	B3	
	22		0% 25.0'		
	24				
	26		26.0'	B4	
	28		0% 30.0'		
	30		33.0'	B5	JAR SAMPLES: 1. 2.0'- 3.0' 2. 6.0'- 7.0' 3. 10.0'-10.5'
	32		0% 35.0'		
	34		36.0'	B6	BAG SAMPLES: 1. 10.5'-12.0' 2. 12.0'-13.0' 3. 16.0'-21.0' 4. 25.0'-26.0'
	36		0% 40.0'		
	38		41.0'	B7	5. 30.0'-31.0' 6. 35.0'-35.6' 7. 40.0'-41.0'
	40		63% 45.0'	In Shelby Box	BOX 1: 5.0'-55.0'
617.00	42	45.0'-52.7' Shale, Dk. Gray, Massive, Soft-Mod. Hard	60% 50.0'	In Shelby Box	CARTON 1: 51.8'-52.7'
	44				
	46				
	48	Siltstone Nodules, Hard, 52.7' Tan	R-1 100%	Box 1	Note 1: Soils Logged By: A. J. Simpson, Trinity Engineering Testing Corporation
609.3	50	52.7'-55.0' Shale, Gray, Mod. Hard, Massive often Sandy w/Num. Sand and Sandstone Seams, Sand is Tan Med. Grn.	55.0'		Primary Logged By: Marr Corps of Engineers Fort Worth District
607.00	52				Note 2: Installed 2" plastic pipe from 663.0 to 613.0 for ground water observations.
	54				
	56	Total Depth = 55.0 Feet			

ENG FORM 1836-A (MODIFIED) | Aubrey Dam Site No. 1 | 354C-42

Hole No. 356DC-50

DRILLING LOG | Division: Southwestern | Installation: Fort Worth | Sheet 1 of 2 sheets

Project: Aubrey Dam Site No. 1

Location: X=2,137,605 Y=614,466 | Sta. 224+07 250' L

Drilling Agency: Corps of Engineers

Hole No. of Boring: 356DC 50

Name of Driller: Boyd Lane
Trinity Engineering Testing Corporation

Vertical / Inclined

Thickness of Overburden: 14.0'

Depth Drilled into Rock: 76.0'

Total Depth of Hole: 90.0'

Manufacturer's Designation of Drill: MSL Failing Model 44

Total Number Core Boxes: 11

Total Number Samples: 3 | 8

Elevation Ground Water: See Note 2

Date Hole: 1 1-5-73 | 1-15-73

Elevation Top of Hole: 596.96

Total Core Recovery for Boring: 48.0

Inspector: See Note 1 under "Remarks"

Elevation	Depth	Classification of Materials	% Core Recovery	Sample No.	Remarks
	2	Tan and Brown Clay		W1 W2 J1 W3 W4 J2 W5 W6 J3 W7 W8	3" Shelby tube 0.0'-24.5' JAR SAMPLES 1. 2.0'- 3.0' 2. 6.0'- 7.0' 3. 10.0'-11.0' 4. 14.0'-14.5' 5. 18.0'-19.0' 6. 22.0'-23.0' 7. 26.0'-27.0' BAG SAMPLES 1. 14.5'-16.0' 2. 16.0'-17.0' 3. 17.0'-18.0' 4. 20.0'-20.5' 5. 20.5'-21.0' WRAP SAMPLES 1. 0.0'- 1.0' 2. 1.0'- 2.0' 3. 3.0'- 4.5' 4. 4.5'- 6.0' 5. 7.0'- 8.5' 6. 8.5'-10.0' 7. 11.0'-12.5' 8. 12.5'-14.0' 9. 19.0'-20.0' 10. 21.0'-22.0' 11. 23.0'-23.5' 12. 23.5'-24.0' 13. 24.0'-24.5' Drilled hole out from 24.5'-27.0' and set casing to 27.0'. Started coring with 6" core barrel at 27.0'. CARTON SAMPLES 1. 27.0'-27.5' 2. 33.3'-34.3' 3. 38.5'-39.2' 4. 41.7'-42.7' 5. 47.0'-48.0' 6. 50.5'-51.5' 7. 58.0'-59.0' 8. 60.8'-61.8' 9. 66.5'-67.5' 10. 71.5'-72.5' 11. 75.6'-76.6' 12. 80.9'-81.9' 13. 84.3'-85.3' 14. 89.0'-90.0' BOXES 1. 27.0'-31.9' 2. 31.9'-37.2' 3. 37.2'-43.5' 4. 43.5'-49.5' 5. 49.5'-55.0' 6. 55.0'-62.1' 7. 62.1'-68.0' 8. 68.0'-73.6' 9. 73.6'-80.0' 10. 80.0'-86.0' 11. 86.0'-90.0'
591.46	4	5.5'			
	6				
	8	Tan Sandy Clay			
	10				
	12				
582.96	14	14.0'			
	16	14.0'-18.0' Limestone Gravel, Weathered, Tan Mod.	100 100 100 100	J4 B1 B2 B3	
578.96	18	18.0' Hard	100	J5	
	20	18.0'-27.0' Shale, Tan and Gray Weathered, Soft w/Num. Fine Grn. Soft, Friable, Tan Sand Pockets	100 100 100 100 100 100 0	W9 B4 W10 J6 W11 W12 J7	
	22	22.0' Ironstone Nods., Red, Hard.			
	24				
	26				
	28	27.2'-28.7' Sandstone, Fin. Grain, Soft, Friable, Tan, Weathered, Ox. Stained.	100 R-1 100%	B7	
	30	30.5'-90.0' Shale and Sandstone, Predominantly Shale w/Num. Layers and Lenses of Sandstone and Siltstone Nodules.	R-2 100% 35.0' R-3 100% 40.0'	1 Box 2 Box 3	
	32				
	34				
	36				
	38				
	40		R-4 100%	Box 3	
	42	30.5'-90.0' Shale and Sandstone, Predominantly Shale w/Num. Layer and Lenses of Sandstone, Scattered Siltstone Inclusions and Fossil Shells. Shale is Soft-Mid. Hard, Med. Bedded to Massive, Dark Gray, Unweathered. Sandstone is Soft-Mod. Hard, Lt. Gray, Fine-V. Fine Grn., Friable. Siltstone is Hard Tan Below 60.0' Sandstone is very Fine Grain and Hard.			
	44		45.0' R-5 100% 50.0' R-6 100% 55.0' R-7 86% 60.0' R-8 95% 64.0' R-9 100% 69.0' R-10 100% 74.0' R-11 80% 79.0' R-12 83.0' R-13 100% 88.0' R-14 100%	Box 4 Box 5 Box 6 Box 7 Box 8 Box 9 Box 10 Box 11	
	46				
	48				
	50				
	52				
	54				
	56				
	58				
	60				
	62				
	64				
	66				
	68				
	70				
	72				
	74				
	76				
	78	79.0'-79.4' Fossiliferous Zone			
	80				
	82				
	84				
	86				
	88				
506.96	90	90.0' Total Depth = 90.0 Feet			

Note 1:
Soils logged by:
A. J. Simpson,
Trinity Engineering Testing Corporation;

Primary logged by:
Green & Marr
Corps of Engineers,
Fort Worth District.

Note 2:
Installed 4" plastic pipe from 597.8 to 566.8 for groundwater observations.

ENG FORM 1836-A (MODIFIED) | Aubrey Dam Site No. 1 | 356DC-50

Hole No. 3S4C-42

Sheet 2 of 2 sheets

See Note 2

-7-73 | 2-13-73

662.00

31.6

r "Remarks"

DRILLING:
0.0'-13.0', 3" Shelby Tube
13.0'-50.0', NX-Core
21.0'-41.0', Split-Spoon Samples at 5' Intervals.
50.0'-55.0', 4" Core
Drilling fluid was used below the 10.5' depth.
Set casing to 50.0'

WRAP SAMPLES:
1. 0.0'- 2.0'
2. 3.0'- 4.0'
3. 4.0'- 5.0'
4. 5.0'- 6.0'
5. 7.0'- 8.0'
6. 8.0'- 9.0'
7. 9.0'-10.0'
8. 43.2'-43.7'
9. 43.7'-44.3'
0. 45.0'-46.2'
1. 46.2'-46.8'
2. 46.8'-47.6'

JAR SAMPLES:
1. 2.0'- 3.0'
2. 6.0'- 7.0'
3. 10.0'-10.5'

BAG SAMPLES:
1. 10.5'-12.0'
2. 12.0'-13.0'
3. 16.0'-21.0'
4. 25.0'-26.0'
5. 30.0'-31.0'
6. 35.0'-35.6'
7. 40.0'-41.0'

BOX 1: 5.0'-55.0'

CARTON 1:
51.8'-52.7'

Note 1:
Soils Logged By: A. J. Simpson, Trinity Engineering Testing Corporation

Primary Logged By: Marr Corps of Engineers Fort Worth District

Note 2:
Installed 2" plastic pipe from 663.0 to 613.0 for groundwater observations.

Dam Site No. 1 | 3S4C-42

Hole No. 3S6DC-50

DRILLING LOG	Division: Southwestern	Installation: Fort Worth	Sheet 1 of 2 sheets

1. Project: Aubrey Dam Site No. 1	10. Size and type of bit:
2. Location: X=2,137,605, Y=614,466. Sta. 233+00/ 250'L	11. Datum for elevation shown: MSL
3. Drilling agency: Corps of Engineers	12. Manufacturer's designation of drill: Failing Model 44
4. Hole No.: 3S6DC-50	13. Total no. of over-burden samples taken: Disturbed 3 / Undisturbed 8
5. Name of driller: Boyd Lane, Trinity Engineering Testing Corporation	14. Total number core boxes: 11
6. Direction of hole: Vertical	15. Elevation ground water: See Note 2
	16. Date hole: Started 1-5-73 / Completed 1-15-73
7. Thickness of overburden: 14.0'	17. Elevation top of hole: 596.96
8. Depth drilled into rock: 76.0'	18. Total core recovery for boring: 98.0 %
9. Total depth of hole: 90.0'	19. Signature of inspector: See Note 1 under "Remarks"

Elevation	Depth	Classification of Materials	% Core Recovery	Box or Sample No.
	0-5.5	Tan and Brown Clay		W1, W2, J1, W3, W4
591.46	5.5	5.5'		
	5.5-14.0	Tan Sandy Clay		J2, W5, W6, J3, W7, W8
582.96	14.0	14.0'		
	14.0-18.0	14.0'-18.0' Limestone Gravel, Weathered, Tan Mod. Hard	100, 100, 100, 100	J4, B1, B2, B3
578.96	18.0	18.0'		
	18.0-27.0	18.0'-27.0' Shale, Tan and Gray Weathered, Soft w/Num. Fine Grn. Soft, Friable, Tan Sand Pockets. 22.0' Ironstone Nods., Red, Hard.	100, 100, 100, 100, 100, 100, 100, 100, 100, 100	J5, W9, B4, B5, W10, J6, W11, W12, J7
	27.2-28.7	27.2'-28.7' Sandstone, Fin. Grain, Soft, Friable, Tan, Weathered, Ox. Stained.	R-1 100%	
	30.5-90.0	30.5'-90.0' Shale and Sandstone, Predominantly Shale w/Num. Layers and Lenses of Sandstone and Siltstone Nodules.	R-2 100%; 35.0' R-3 100%; 40.0'	Box 1, Box 2, Box 3
		30.5'-90.0' Shale and Sandstone, Predominantly Shale w/Num. Layer and Lenses of Sandstone, Scattered Siltstone Inclusions and Fossil Shells. Shale Is Soft-Mid. Hard, Med. Bedded to Massive, Dark Gray, Unweathered. Sandstone Is Soft-Mod. Hard, Lt. Gray, Fine-V. Fine Grn., Friable. Siltstone Is Hard Tan Below 60.0' Sandstone Is very Fine Grain and Hard.	R-4 100%; 45.0' R-5 100%; 50.0' R-6 100%; 55.0' R-7 86%; 60.0' R-8 95%; 64.0' R-9 100%; 69.0' R-10 100%; 74.0' R-11 80%	Box 3, Box 4, Box 5, Box 6, Box 7, Box 8, Box 9
	79.0-79.4	79.0'-79.4' Fossiliferous Zone	79.0' R-12 112%; 83.0' R-13 100%; 88.0' R-14 100%	Box 10, Box 11
506.96	90.0	90.0'		
		Total Depth = 90.0 Feet		

Remarks:

3" Shelby tube 0.0'-24.5'

JAR SAMPLES
1. 2.0'- 3.0'
2. 6.0'- 7.0'
3. 10.0'-11.0'
4. 14.0'-14.5'
5. 18.0'-19.0'
6. 22.0'-23.0'
7. 26.0'-27.0'

BAG SAMPLES
1. 14.5'-16.0'
2. 16.0'-17.0'
3. 17.0' 16.0'
4. 20.0'-20.5'
5. 20.5'-21.0'

WRAP SAMPLES
1. 9.0'- 1.0'
2. 1.0'- 2.0'
3. 3.0'- 4.5'
4. 4.5'- 6.0'
5. 7.0'- 8.5'
6. 8.5'-10.0'
7. 11.9'-12.5'
8. 12.5'-14.0'
9. 19.0'-20.0'
10. 21.0'-22.0'
11. 23.0'-23.5'
12. 23.5'-24.0'
13. 24.0'-24.5'

Drilled hole out from 24.5'-27.0' and set casing to 27.0'.

Started coring with 6" core barrel at 27.0'.

CARTON SAMPLES
1. 27.0'-27.5'
2. 33.3'-34.3'
3. 38.5'-39.2'
4. 41.7'-42.7'
5. 47.0'-48.0'
6. 50.5'-51.5'
7. 58.0'-39.0'
8. 60.8'-61.8'
9. 66.5'-67.5'
10. 71.5'-72.5'
11. 75.6'-76.6'
12. 80.9'-81.9'
13. 84.3'-85.3'
14. 89.0'-90.0'

BOXES
1. 27.0'-31.9'
2. 31.9'-37.2'
3. 37.2'-43.5'
4. 43.5'-49.5'
5. 49.5'-55.0'
6. 55.0'-62.1'
7. 62.1'-68.0'
8. 68.0'-73.6'
9. 73.6'-80.0'
10. 80.0'-86.0'
11. 86.0'-90.0'

Note 1:
Soils logged by: A. J. Simpson, Trinity Engineering Testing Corporation.

Primary logged by: Green & Marr Corps of Engineers, Fort Worth District.

Note 2:
Installed 4" plastic pipe from 597.8 to 566.8 for groundwater observations.

ENG FORM 1836-A (MODIFIED) | Project: Aubrey Dam Site No. 1 | Hole No. 3S6DC-5

Hole No. 3S-51

DRILLING LOG	Division: Southwestern	Installation: Fort Worth	Sheet 1 of 1 sheets

1. Project: Aubrey Dam Site No. 1	10. Size and type of bit: 3" Shelf, NX Core
2. Location: X=2,137,814; Y=613,819; Sta. 97+00, 400'R	11. Datum for elevation shown: MSL
3. Drilling agency: Corps of Engineers	12. Manufacturer's designation of drill: DAMCO Model 1250
4. Hole No.: 3S-51	13. Total no. of over-burden samples taken: Disturbed 1 / Undisturbed 5
5. Name of driller: Bill Stanton, Trinity Engineering Testing Corporation	14. Total number core boxes: 0
6. Direction of hole: Vertical	15. Elevation ground water: See Note 2
	16. Date hole: Started 12-22-72 / Completed 12-27-72
7. Thickness of overburden: 7.8'	17. Elevation top of hole: 587.66
8. Depth drilled into rock: 17.2'	18. Total core recovery for boring: 60.0 %
9. Total depth of hole: 25.0	19. Signature of inspector: See Note 1 under "Remarks"

Elevation	Depth	Classification of Materials	% Core Recovery	Box or Sample No.
	0-2.0	Brown Silty Clay	100, 100	W1, W2
585.66	2.0	2.0'		
	2.0-6.3	Tan Sandy Clay	100, 100, 100, 100	J1, W3, W4, W5
581.36	6.3	6.3'		
	6.3-7.8	Tan and Brown Clay w/ Scattered Gravel	100, 100	J2, W6
579.46	7.8	7.8'		
	7.8-11.8	7.8'-11.8' Limestone Gravel, Mod. Hard, Weath., Tan w/Num. Clay, Lenses, Tan and Stained.	R-1 25%; 11.0 R-2 25%	J3
575.86	11.8	11.8'	0	
	11.8-20.5	11.8'-20.5' Shale, Weath. Tan, and Gray Soft, Massive Scattered Tan Sand Pockets and Lenses	100, 100, 100, 100, 100, 100, 100	J4, W7, W8, W9, J5, W10, W11
567.16	20.5	20.5'		
	20.5-25.0	20.5'-25.0' Shale, Gray, Mod. Hard, w/Occasional Sand/and Sandstone Seams	R-3 95%	J6, W12
562.66	25.0	25.0'		
		Total Depth = 25.0 Feet		

Remarks:

3" Shelby tube samples 0.0'-7.8', and 13.0'-21.0'

JAR SAMPLES
1. 2.0'- 3.0'
2. 6.0'- 7.0'
3. 9.0'-10.0'
4. 14.0'-15.0'
5. 18.0'-19.0'
6. 22.0'-23.3'

WRAP SAMPLES
1. 0.0'- 1.0'
2. 1.0'- 2.0'
3. 3.0'- 4.0'
4. 4.0'- 5.0'
5. 5.0'- 6.0'
6. 7.0'- 7.8'
7. 15.0'-16.0'
8. 16.0'-17.0'
9. 17.0'-18.0'
10. 19.0'-20.0'
11. 20.0'-21.0'
12. 23.0'-24.8'

Set tub at 7.8' and cleaned out to 9.0'. Used NX-size core bbl. 9.0'-13.0', and 21.0'-25.0'

Note 1: Soils Logged By. A. J. Simpson, Trinity Engineering Testing Corporation. Primary Logged By: Green & Marr Corps of Engineers, Fort Worth District.

Note 2: Boring advanced to 7.8-foot depth prior to using drilling fluid and groundwater was not encountered above that depth.

ENG FORM MAR 71 1836 PREVIOUS EDITIONS ARE OBSOLETE (MODIFIED) | Project: Aubrey Dam Site No. 1 | Hole No. 3S-51

RECORD DRAWING-WORK AS BUILT

SYM	DO NO.	ACTION	DATE	DESCRIPTION OF REVISION

U.S. ARMY ENGINEER DISTRICT, FORT WORTH
CORPS OF ENGINEERS
FORT WORTH, TEXAS

DESIGNED BY:
DRAWN BY:
REVIEWED BY:
SUBMITTED BY
ENGINEER

RAY ROBERTS LAKE

ELM FORK, TRINITY RIVER, TEXAS

EMBANKMENT, SPILLWAY AND OUTLET WORKS

LOGS OF BORINGS 3S6D-40, 3S4C-41, 3S4C-42, 3S6DC-50 AND 3S-51

INVITATION NO. DACW63-82-B-0025 | DATE MAR. 1982

CONTRACT NO. DACW63-82-C-0083

DRAWING NUMBER | SHEET NO. OF | SEQUENCE NO. 22

CONTRACT NO. DACW63-82-C-0083

TO ACCOMPANY FOUNDATION REPORT

Hole No. 3S-52

DRILLING LOG	Division: Southwestern	Installation: Fort Worth	Sheet 1 of 1 sheets
1. Project: Aubrey Dam Site No. 1		10. Size and type of bit: 3" Shelby tube	
2. Location: Not Shown		11. Datum for elevation shown: MSL	
3. Drilling agency: Corps of Engineers		12. Manufacturer's designation of drill: Failing Model 44	
4. Hole No.: 3S-52		13. Total no. of overburden samples taken: Disturbed 7; Undisturbed 7	
5. Name of driller: Boyd Lane, Trinity Engineering Testing Corporation		14. Total number core boxes: 0	
6. Direction of hole: ☒ Vertical ☐ Inclined ___ deg. from vert.		15. Elevation ground water: See Note 2	
		16. Date hole: Started 1-23-73; Completed 1-23-73	
7. Thickness of overburden: 17.5'		17. Elevation top of hole: 568.34	
8. Depth drilled into rock: 1.5		18. Total core recovery for boring: --- %	
9. Total depth of hole: 19.0'		19. Signature of inspector: See Note 1 under "Remarks"	

Elevation (a)	Depth (b)	Classification of Materials (Description) (d)	% Core Recovery (e)	Box or Sample No. (f)
566.34	2.0'	Brown Sandy Clay		W1, W2
562.34	6.0'	Brown and Tan Sandy Clay w/Iron Ore		J1, W3, W4
560.04	8.3'	Brown and Light Gray Sandy Clay w/Iron Ore		J2, W5
550.84	17.5'	Tan Clayey Silty Sand w/ Gravel		B1, J3, W6, W7, J4, B2
549.34	19.0'	Gray Shale		J5
		Total Depth = 19.0 Feet		

Remarks (Drilling time, water loss, depth of weathering, etc., if significant) (g):

Boring was advanced to 15.0' prior to using drilling fluid. Water at 12.5'. All samples taken with 3" Shelby tube, except B2, which is a washed sample.

WRAP SAMPLES
1. 0.0'- 1.0'
2. 1.0'- 2.0'
3. 3.0'- 4.5'
4. 4.5'- 6.0'
5. 7.0'- 8.5'
6. 11.0'-12.5'
7. 12.5'-14.0'

BAG SAMPLES
1. 8.5'-10.0'
2. 15.0'-18.0'

JAR SAMPLES
1. 2.0'- 3.0'
2. 6.0'- 7.0'
3. 10.0'-11.0'
4. 14.0'-15.0'
5. 18.0'-19.0'

Note 1:
Soils logged by: A. J. Simpson, Trinity Engineering Testing Corporation.

Note 2:
Groundwater was encountered at 12.5'.

ENG FORM 1836 MAR 71 PREVIOUS EDITIONS ARE OBSOLETE (MODIFIED) (TRANSLUCENT) | Project: Aubrey Dam Site No. 1 | Hole No. 3S-52

Hole No. 3S-53

DRILLING LOG	Division: Southwestern	Installation: Fort Worth	Sheet 1 of 1 sheets
1. Project: Aubrey Dam Site No. 1		10. Size and type of bit: 3" Shelby	
2. Location: X=2,138,455; Y=612,795		11. Datum for elevation shown: MSL	
3. Drilling agency: Corps of Engineers		12. Manufacturer's designation of drill: Failing Model 44	
4. Hole No.: 3S-53		13. Total no. of overburden samples taken: Disturbed 3; Undisturbed 7	
5. Name of driller: Boyd Lane, Trinity Engineering Testing Corporation		14. Total number core boxes: 0	
6. Direction of hole: ☒ Vertical ☐ Inclined ___ deg. from vert.		15. Elevation ground water: See Note 2	
		16. Date hole: Started 1-23-73; Completed 1-23-73	
7. Thickness of overburden: 12.5'		17. Elevation top of hole: 562.37	
8. Depth drilled into rock: 4.5'		18. Total core recovery for boring: ---	
9. Total depth of hole: 17.0'		19. Signature of inspector: See Note 1 under "Remarks"	

Elevation (a)	Depth (b)	Classification of Materials (Description) (d)	% Core Recovery (e)	Box or Sample No. (f)
555.37	7.0'	Brown Sandy Clay w/Gravel		W1, W2, J1, W3, W4
549.87	12.5'	Brown and Light Gray Sandy Clay w/Scattered Gravel and Calcareous Particles		J2, W5, W6, J3, W7
546.37	16.0'	Light Gray and Yellow Weathered Shale w/Silt Layers		W8, J4
545.37	17.0'	Gray Shale w/Sandstone Lenses		W9, B1
		Total Depth = 17.0 Feet		

Remarks (Drilling time, water loss, depth of weathering, etc., if significant) (g):

Used 3" Shelby tube for all samples.

WRAP SAMPLES
1. 0.0'- 1.0'
2. 1.0'- 2.0'
3. 3.0'- 4.0'
4. 4.5'- 6.0'
5. 7.0'- 8.5'
6. 8.5'-10.0'
7. 11.0'-12.0'
8. 12.5'-14.0'
9. 15.0'-16.5'

JAR SAMPLES
1. 2.0'- 3.0'
2. 6.0'- 7.0'
3. 10.0'-11.0'
4. 14.0'-15.0'

BAG SAMPLE
1. 16.5'-17.0'

Note 1:
Soils logged by: A. J. Simpson, Trinity Engineering Testing Corporation.

Note 2:
Boring was advanced to 17.0 foot depth without using drilling fluid and groundwater was not encountered [illegible] depth.

ENG FORM 1836 MAR 71 PREVIOUS EDITIONS ARE OBSOLETE (MODIFIED) (TRANSLUCENT) | Project: Aubrey Dam Site No. 1 | Hole No. 3S-53

Hole No. 35-53

Installation	Fort Wor[th]
Size and type of bit	3" Shelby
Manufacturer's designation of drill	[M]odel 44
Total no. of over-burden samples taken	Disturbed: 3 / Undisturbed: 7
Total number core boxes	0
Elevation ground water	See Note 2
Date hole	Started: 1-23-73 / Completed: 1-23-73
Elevation top of hole	562.37
Total core recovery for boring	---
Signature of inspector	[See Note 1] under "Remarks"

Box or sample no.	Remarks
W1	Used 3" Shelbytube for all samples.
W2	
J1	WRAP SAMPLES
W3	1. 0.0'- 1.0'
W4	2. 1.0'- 2.0'
J2	3. 3.0'- 4.0'
W5	4. 4.5'- 6.0'
W6	5. 7.0'- 8.5'
J3	6. 8.5'-10.0'
W7	7. 11.0'-12.0'
W8	8. 12.5'-14.0'
J4	9. 15.0'-16.5'
W9	JAR SAMPLES
B1	1. 2.0'- 3.0'
	2. 6.0'- 7.0'
	3. 10.0'-11.0'
	4. 14.0'-15.0'
	BAG SAMPLE
	1. 16.5'-17.0'

Note 1:
Soils logged by:
A. J. Simpson,
Trinity Engineering Testing Corporation.

Note 2:
Boring was advanced to 17.0 feet depth without using drilling fluid and groundwater was not encountered above that depth.

[Aubrey] Dam Site No. 1 — Hole No. 35-53

Hole No. 35-54

DRILLING LOG

Division	Southwestern
Installation	Fort Worth
Sheet	1 of 2 sheets
1. Project	Aubrey Dam Site No. 1
2. Location	X = 2,139,350; Y = 612,635
3. Drilling agency	Corps of Engineers
4. Hole no.	35-54
5. Name of driller	Watenbach-Southwestern Lab; Trinity Engineering Testing Corp.
6. Direction of hole	Vertical / Inclined ___ deg. from vert.
7. Thickness of overburden	40.0'
8. Depth drilled into rock	0.5
9. Total depth of hole	40.5'
10. Size and type of bit	3" Shelby
11. Datum for elevation shown	MSL
12. Manufacturer's designation of drill	Failing 1500
13. Total no. of over-burden samples taken	Disturbed: 8 / Undisturbed: 6
14. Total number core boxes	0
15. Elevation ground water	See Note 2
16. Date hole	Started: 3-9-73 / Completed: 3-9-73
17. Elevation top of hole	558.70
18. Total core recovery for boring	%
19. Signature of inspector	See Note 1 under "Remarks"

Elevation	Depth	Classification of materials	Box or sample no.
	0–10.0'	Gray Clay	W1, J1, W2, J2
548.7	10.0'	Brown Clay w/Calcareous Particles	W3, J3, W4, J4, W5
538.7	20.0'	Tan Sandy Clay	J5, W6
536.2	22.5'	Tan Sand and Gravel	J6, J7, J8
518.2	40.0'	Gray Shale	J9
		Total Depth = 40.5 Feet	

Remarks:

3" Shelby tube Samples from 0.0'- 22.0'

Drilling fluid was utilized from the ground surface down

Wrap Samples
1. 0.0'- 2.0'
2. 4.0'- 6.0'
3. 8.0'-10.0'
4. 12.0'-14.0'
5. 16.0'-18.0'
6. 20.0'-22.0'

Jar Samples
1. 2.0'- 4.0'
2. 6.0'- 8.0'
3. 10.0'-12.0'
4. 14.0'-16.0'
5. 18.0'-20.0'
6. 22.0'-24.0'
7. 24.0'-26.0'
8. 26.0'-27.0'
9. 40.0'-40.5'

Note 1:
Soils logged by:
A. J. Simpson
Trinity Engineering Testing Corporation

Note 2:
Drilling fluid was utilized in advancing the boring from the ground surface down.

ENG FORM 1836-A (MODIFIED) — Project: Aubrey Dam Site No. 1 — Hole No. 35-54

Hole No. 35-55

DRILLING LOG

Division	Southwestern
Installation	Fort Worth
Sheet	1 of 2 sheets
1. Project	Aubrey Dam Site No. 1
2. Location	X = 2,140,380, Y = 612,640
3. Drilling agency	Corps of Engineers
4. Hole no.	35-55
5. Name of driller	Southwestern Labs; Trinity Engineering Testing Corp.
6. Direction of hole	[X] Vertical / Inclined ___ deg. from vert.
7. Thickness of overburden	46.0
8. Depth drilled into rock	0.5'
9. Total depth of hole	46.5'
10. Size and type of bit	3" Shelby, 6" H.A.
11. Datum for elevation shown	MSL
12. Manufacturer's designation of drill	Failing 1500
13. Total no. of over-burden samples taken	Disturbed: 8 / Undisturbed: 8
14. Total number core boxes	0
15. Elevation ground water	See Note 2
16. Date hole	Started: 3-9-73 / Completed: 3-9-73
17. Elevation top of hole	558.45
18. Total core recovery for boring	-- %
19. Signature of inspector	See Note 1 under Remarks

Elevation	Depth	Classification of materials	Box or sample no.
	0–5.5'	Gray Clay	W1, J1
552.95	5.5'	Brown Clay w/Calcareous Particles and Scattered Gravel	W2, J2, W3, J3, W4, J4, W5, J5, W6, J6
533.45	25.0'		
531.75	26.7	Tan Sandy Clay	W7
		Tan Sand	J7, J8
527.45	31.0	Tan Sand and Gravel	J8
		Tan Sand and Gravel	
512.45	46.0'	Gray Shale	W9
511.95		Total Depth = 46.5 Feet	

Remarks:

3" Shelby tube Samples from 0.0'- 32.0'

Boring was advanced to 20.0' prior to using drilling fluid

Wrap Samples
1. 0.0'- 2.0'
2. 4.0'- 6.0'
3. 8.0'-10.0'
4. 12.0'-14.0'
5. 16.0'-18.0'
6. 20.0'-22.0'
7. 24.0'-26.0'
8. 28.0'-30.0'

Jar Samples
1. 2.0'- 4.0'
2. 6.0'- 8.0'
3. 10.0'-12.0'
4. 14.0'-16.0'
5. 18.0'-20.0'
6. 22.0'-24.0'
7. 26.0'-28.0'
8. 30.0'-32.0'

Note 1:
Soils logged by:
A. J. Simpson
Trinity Engineering Testing Corporation

Note 2:
Boring was advanced to 20.0 feet below the ground surface prior to using drilling fluid and groundwater was not encountered above that depth.

ENG FORM 1836-A (MODIFIED) — Project: Aubrey Dam Site No. 1 — Hole No. 35-55

DRILLING LOG
Aubrey D[am Site No. 1]
X = 2,14[...]
Co[rps of Engineers]
Trinity E[ngineering Testing Corp.]

Elevation
550.7
530.2
527.7
518.7
513.7

DESIGNED BY:
DRAWN BY:
REVIEWED BY:
SUBMITTED
ENGINEER

TO ACC[OMPANY]

Hole No. 3S-54

Fort Worth — Sheet 1 of 2 sheets

3" Shelby tube

MSL

Failing 1500

8 | 6

0

See Note 2

3-9-73 | 3-9-73

558.70

See Note 1 under "Remarks"

W1, J1, W2, J2, W3, J3, W4, J4, W5, J5, W6, J6, J7, J8, J9

3" Shelby tube Samples from 0.0'-22.0'

Drilling fluid was utilized from the ground surface down

Wrap Samples
1. 0.0'- 2.0'
2. 4.0'- 6.0'
3. 8.0'-10.0'
4. 12.0'-14.0'
5. 16.0'-18.0'
6. 20.0'-22.0'

Jar Samples
1. 2.0'- 4.0'
2. 6.0'- 8.0'
3. 10.0'-12.0'
4. 14.0'-16.0'
5. 18.0'-20.0'
6. 22.0'-24.0'
7. 24.0'-26.0'
8. 26.0'-27.0'
9. 40.0'-40.5'

Note 1: Soils logged by: A. J. Simpson Trinity Engineering Testing Corporation

Note 2: Drilling fluid was utilized in advancing the boring from the ground surface down.

Aubrey Dam Site No. 1 — Hole No. 3S-54

DRILLING LOG — Division: Southwestern — Installation: Fort Worth — Hole No. 3S-55 — Sheet 1 of 2 sheets

Project: Aubrey Dam Site No. 1

Location: X = 2,140,380; Y = 612,640

Drilling Agency: Corps of Engineers

Hole No.: 3S-55

Name of Driller: Southwestern Labs, Trinity Engineering Testing Corp.

Direction of Hole: Vertical

Thickness of Overburden: 46.0'

Depth Drilled into Rock: 0.5'

Total Depth of Hole: 46.5'

Size and Type of Bit: 3" Shelby, 6" U.S.

Datum for Elevation Shown: MSL

Manufacturer's Designation of Drill: Failing 1500

Total No. of Overburden Samples Taken: Undisturbed 8, Disturbed 8

Total Number Core Boxes: 0

Elevation Ground Water: See Note 2

Date Hole: Started 3-9-73, Completed 3-9-73

Elevation Top of Hole: 558.45

Signature of Inspector: See Note 1 under "Remarks"

Elevation	Depth	Classification of Materials
	0–4.5	Gray Clay
552.95	4.5'	
	4.5–25.0	Brown Clay w/Calcareous Particles and Scattered Gravel
533.45	25.0'	
531.75	26.7	Tan Sandy Clay
		Tan Sand
527.45	31.0	
		Tan Sand and Gravel
		Tan Sand and Gravel
512.45	46.0'	
511.95		Gray Shale
		Total Depth = 46.5 Feet

Samples: W1, J1, W2, J2, W3, J3, W4, J4, W5, J5, W6, J6, W7, J7, J8, W9

Remarks:

3" Shelby tube Samples from 0.0'-32.0'

Boring was advanced to 20.0' prior to using drilling fluid

Wrap Samples
1. 0.0'- 2.0'
2. 4.0'- 6.0'
3. 8.0'-10.0'
4. 12.0'-14.0'
5. 16.0'-18.0'
6. 20.0'-22.0'
7. 24.0'-26.0'
8. 28.0'-30.0'

Jar Samples
1. 2.0'- 4.0'
2. 6.0'- 8.0'
3. 10.0'-12.0'
4. 14.0'-16.0'
5. 18.0'-20.0'
6. 22.0'-24.0'
7. 26.0'-28.0'
8. 30.0'-32.0'

Note 1: Soils logged by: A. J. Simpson Trinity Engineering Testing Corporation

Note 2: Boring was advanced to 20.0 feet below the ground surface prior to using drilling fluid and groundwater was not encountered above that depth.

ENG FORM 1836-A (Modified) — Aubrey Dam Site No. 1 — Hole No. 3S-55

DRILLING LOG — Division: Southwestern — Installation: Fort Worth — Hole No. 3S-56

Project: Aubrey Dam Site No. 1

Location: X = 2,141,190; Y = 612,440

Drilling Agency: Corps of Engineers

Hole No.: 3S-56

Name of Driller: Walenbach Southwestern Labs, Trinity Engineering Testing Corp.

Direction of Hole: Vertical

Thickness of Overburden: 40.0'

Depth Drilled into Rock: 3.0'

Total Depth of Hole: 43.0

Datum for Elevation Shown: MSL

Manufacturer's Designation of Drill: Failing 1500

Total No. of Overburden Samples Taken: Undisturbed 11, Disturbed 11

Total Number Core Boxes: 0

Elevation Ground Water: See Note 2

Date Hole: Started 3-13-73, Completed 3-13-73

Elevation Top of Hole: 555.7

Signature of Inspector: See Note 1 under Remarks

Elevation	Depth	Classification of Materials
550.7	5.0'	Gray Clay
	5.0–26.5	Brown Clay w/Calcareous Particles
530.2	26.5'	
527.7	29.0'	Tan Clayey Sand
		Tan Silty Sand
518.7	38.0'	
	40.0'	Tan Sand and Gravel
513.7	43.0	Gray Shale
		Total Depth = 43.0 Feet

Samples: W1, J1, W2, J2, W3, J3, W4, W5, J4, W6, W7, J5, W8, W9, J6, W10, J7, W11, W12, J8, J9, J10, J11

Remarks:

3" Shelby tube Samples from 0.0'-30.0'

Drilled out and took Shelby tube samples 30.0'-43.0'

Wrap Samples
1. 0.0'- 2.0'
2. 4.0'- 6.0'
3. 6.0'- 8.0'
4. 10.0'-12.0'
5. 12.0'-14.0'
6. 14.0'-16.0'
7. 16.0'-18.0'
8. 18.0'-20.0'
9. 20.0'-22.0'
10. 22.0'-24.0'
11. 26.0'-28.0'
12. 28.0'-30.0'

Jar Samples
1. 2.0'- 4.0'
2. [illegible]
3. 8.0'-10.0'
4. 12.0'-14.0'
5. 16.0'-18.0'
6. 20.0'-22.0'
7. 24.0'-26.0'
8. 28.0'-30.0'
9. 34.0'-36.0'
10. 38.0'-39.0'
11. 41.0'-43.0'

Note 1: Soils Logged by. A. J. Simpson Trinity Engineering Testing Corporation

STANDARD PENETRATION VALUES

Depth	Blows Per Foot
30.0-31.5	15
38.0-39.5	33

Note 2: Boring was advanced to 30.0 feet below the ground surface prior to using drilling fluid and groundwater was not encountered above that depth.

RECORD DRAWING-WORK AS BUILT

SYM	DO NO	ACTION	DATE	DESCRIPTION OF REVISION

U.S. ARMY ENGINEER DISTRICT, FORT WORTH
CORPS OF ENGINEERS
FORT WORTH, TEXAS

Designed by: / Drawn by: / Reviewed by:

RAY ROBERTS LAKE
ELM FORK, TRINITY RIVER, TEXAS
EMBANKMENT, SPILLWAY AND OUTLET WORKS
LOGS OF BORINGS
3S-52, 3S-53, 3S-54, 3S-55 AND 3S-56

Submitted by: / Engineer:

Invitation No. DACW63-82-B-0026 — Date MAR. 1982

Contract No. DACW63-82-C-0073

Drawing Number — Sheet No. — Of — Sequence No. 23

CONTRACT NO DACW63-82-C-0073

TO ACCOMPANY FOUNDATION REPORT

Hole No. 35-57

DRILLING LOG | Division: Southwestern | Installation: Fort Worth | Sheet 1 of 1 sheets

- Project: Aubrey Dam Site No. 1
- Location: X 2,14[illegible], Y 612,149
- Drilling agency: Corps of Engineers
- Hole No.: 35-57
- Name of driller: Trinity Engineering Testing Labs
- Direction of hole: Vertical
- Thickness of overburden: 28.0'
- Depth drilled into rock: 2.0'
- Total depth of hole: 30.0'
- Size and type of bit: [illegible]
- Datum for elevation shown: MSL
- Manufacturer's designation of drill: Failing 1500
- Total no. of overburden samples taken: Disturbed 8, Undisturbed 11
- Total number core boxes: 0
- Elevation ground water: See Note 2
- Date hole: Started 3-13-73, Completed 3-13-73
- Elevation top of hole: 554.5
- Total core recovery for boring: %
- Signature of inspector: See Note 1 under "Remarks"

Elevation	Depth	Classification of materials	Box or sample no.	Remarks
	0.0–7.0	Gray Clay	W1, J1, W2, W3, J2	3" Shelby tube Samples from 0.0'-22.0'
549.5	7.0'	Brown Clay w/Calcareous Particles	W4, W5, J3, W6, W7, J4, W8	Standard Penetration Values: Depth 22.0-23.5, No. Blows Per Foot 33
540.0	16.5'	Tan Sandy Clay	W9, J5	
536.5	20.0	Tan Sand and Gravel	W10, W11, J6, J7	
528.5	28.0'	Gray Shale		
526.5	30.0'	Total Depth = 30.0 Feet	J8	

Wrap Samples
1. 0.0'- 2.0'
2. 2.0'- 4.0'
3. 4.0'- 6.0'
4. 6.0'- 8.0'
5. 8.0'-10.0'
6. 10.0'-12.0'
7. 12.0'-14.0'
8. 14.0'-16.0'
9. 16.0'-18.0'
10. 18.0'-20.0'
11. 20.0'-22.0'

Jar Samples
1. 0.0'- 2.0'
2. 4.0'- 6.0'
3. 8.0'-10.0'
4. 12.0'-14.0'
5. 16.0'-18.0'
6. 20.0'-22.0'
7. 24.0'-26.0'
8. 28.0'-30.0'

Note 1: Soils Logged By: A. J. Simpson, Trinity Engineering Testing Corporation

Note 2: Boring was advanced to 22.0 feet below the ground surface prior to using drilling fluid and groundwater was not encountered above that depth.

ENG FORM 1836 (MODIFIED) | Project: Aubrey Dam Site No. 1 | Hole No. 35-57

Hole No. 354C-58

DRILLING LOG | Division: Southwestern | Installation: Fort Worth | Sheet 1 of 2 sheets

- Project: Aubrey Dam Site No. 1
- Location: X=2,130,371, Y=612,723, Sta. 18+25
- Drilling agency: Corps of Engineers
- Hole No.: 354C-58
- Name of driller: Bill Stanton, Trinity Engineering Testing Corporation
- Direction of hole: Vertical
- Thickness of overburden: 4.0'
- Depth drilled into rock: 66.0'
- Total depth of hole: 70.0'
- Size and type of bit: 3" Shelby, 4" Core
- Datum for elevation shown: MSL
- Manufacturer's designation of drill: DAMCO Model 1250
- Total no. of overburden samples taken: Disturbed 1, Undisturbed 3
- Total number core boxes: 8
- Elevation ground water: See Note 2
- Date hole: Started 11-5-73, Completed 1-15-73
- Elevation top of hole: 631.10
- Total core recovery for boring: 93.5 %
- Signature of inspector: See Note 1 under "Remarks"

Elevation	Depth	Classification of materials	% Core recovery	Box or sample no.
	0.0–4.0'	Dark Brown Clay w/ Scattered Gravel	100, 100, 100	W1, W2, J1
627.0	4.0'-7.0'	Shale, Severely Weath., Soft Tan, w/Calcareous Nods. and Scatt. Gravels	100, 100, 100, 100, 100	W3, B1, WA, J2, W5
624.0	7.0'-18.0'	Shale, Weath., Tan and Gray Massive, Num. Tan Fine Grained Pockets and Lenses.	100, 100, 100, 100, 100, 100, 100, 100, 100	B2, W6, J3, W7, W8, W9, J4, W10, J[illegible]
613.0	18.0'-40.5'	Shale, Dark Gray, Soft-Mod Hard, Med. Bedded to Massive Scatt. Fossil Frags., often Sandy w/Occas. ss Seams and Siltstone is fine-grained, Lt. Gray, Soft-Mod. Hard, Friable w/Shale Streaks. 35.3' Siltstone Nodules	100, 100, 100, 100; R-1 100% (26.0); R-2 100% (31.0); R-3 84% (36.0); R-4 90% (40.0)	J5, W12, W13; Box 1; Box 2; Box 3
590.5	40.5'-53.2'	Sandstone, v. shaly, soft-mod. hard, v. friable, gray. 46.8'-47.0' Siltstone nodules	R-5 92% (46.0); R-6 68% (50.0); R-7 100% (53.9)	Box 4; Box 5
577.8	53.2'-70.0'	Shale and Sandstone, predominately shale w/numerous sandstone lenses and layers. Shale is sandy, mod. hard, dark gray, med. bedded. Sandstone is fine-grained, soft-mod. hard, light gray, friable. 55.5'-56.0' Fossil scne, hard	R-8 100% (58.0); R-9 100% (62.0); R-10 100% (65.[illegible]); R-11 100% (70.0)	Box 6; Box 7; Box 8
561.0	70.0'	Total Depth = 70.0 Feet		

Remarks:

3" Shelby tube samples 0.0'-21.0'

JAR SAMPLES
1. 2.0'- 3.0'
2. 6.0'- 7.0'
3. 10.0'-11.0'
4. 14.0'-15.0'
5. 18.0'-19.0'

BAG SAMPLES
1. 4.0'- 5.0'
2. 8.0'- 9.0'
3. 16.0'-17.0'

WRAP SAMPLES
1. 0.0'- 1.0'
2. 1.0'- 2.0'
3. 3.0'- 4.0'
4. 5.0'- 6.0'
5. 7.0'- 8.0'
6. 9.0'-10.0'
7. 11.0'-12.0'
8. 12.0'-13.0'
9. 13.0'-14.0'
10. 15.0'-16.0'
11. 17.0'-18.0'
12. 19.0'-20.0'
13. 20.0'-21.0'

Cleaned out hole at 21.0' and set casing to 21.0'.

Started coring with 4" core barrel at 21.0'.

CARTON SAMPLES
1. 24.8'-25.7'
2. 27.8'-28.7'
3. 32.8'-33.9'
4. 37.5'-38.3'
5. 43.1'-44.0'
6. 45.7'-46.6'
7. 51.7'-52.6'
8. 53.5'-54.4'
9. 59.3'-59.8'
10. 63.7'-64.4'
11. 69.1'-70.0'

BOXES
1. 21.0'-27.3'
2. 27.3'-32.8'
3. 32.8'-40.5'
4. 40.5'-47.3'
5. 47.3'-55.5'
6. 55.5'-59.8'
7. 59.8'-65.7'
8. 65.7'-70.0'

Note 1: Soils logged by: A. J. Simpson, Trinity Engineering Testing Corporation; Primary logged by: Green and Marr, Corps of Engineers, Fort Worth District

Note 2: Installed 2' plastic pipe from 631.8 to 610.5 for groundwater observations.

ENG FORM 1836-A (MODIFIED) | Project: Aubrey Dam Site No. 1 | Hole No. 354C-58

DRILLING LOG

- Project: Aubrey Dam Site N[illegible]
- Location: X=2,129,243; Y=6[illegible]
- Drilling agency: Corps of Engineers
- Name of driller: Trinity Engineering [illegible]
- Direction of hole: Vertical

Elevation	Depth
646.51	
640.01	
637.01	
620.01	
579.01	70

ENG FORM 1836-A (MODIFIED)

Hole No. 354C-58

Fort Worth

MSL

AMCO Model 1250

1 3

8

See Note 2

1-5-73 1-15-73

631.10

93.5

See Note 1 under "Remarks"

Elevation	Depth	Legend	Classification of Materials	% Core Recovery	Box or Sample No.	Remarks
				100	W1	3" Shelby tube samples 0.0'-21.0'
				100	W2	
				100	J1	JAR SAMPLES
				100	W3	1. 2.0'- 3.0'
				100	D1	2. 6.0'- 7.0'
				100	W4	3. 10.0'-11.0'
				100	J2	4. 14.0'-15.0'
				100	W5	5. 18.0'-19.0'
				100	R2	
				100	W6	BAG SAMPLES
				100	J3	1. 4.0'- 5.0'
				100	W7	2. 8.0'- 9.0'
				100	W8	3. 16.0'-17.0'
				100	W9	
				100	I4	WRAP SAMPLES
				100	W10	1. 0.0'- 1.0'
				100	R3	2. 1.0'- 2.0'
				100	W11	3. 3.0'- 4.0'
				100	J5	4. 5.0'- 6.0'
				100	W12	5. 7.0'- 8.0'
				100	W13	6. 9.0'-10.0'
				R-1		7. 11.0'-12.0'
				100%	Box 1	8. 12.0'-13.0'
				30.0		9. 13.0'-14.0'
				R-2		10. 15.0'-16.0'
				100%		11. 17.0'-18.0'
				30.0	Box 2	12. 19.0'-20.0'
				R-3		13. 20.0'-21.0'
				84%		
				30.0		Cleaned out hole at 21.0' and set casing to 21.0'.
				R-4	Box 3	
				90%		Started coring with 4" core barrel at 21.0'.
				40.0		
				R-5		CARTON SAMPLES
				92%		1. 24.8'-25.7'
				46.0	Box 4	2. 27.8'-28.7'
				R-6		3. 32.8'-33.9'
						4. 37.5'-38.3'
				68%		5. 43.1'-44.0'
				34.0		6. 45.7'-46.6'
				R-7	Box 5	7. 51.7'-52.6'
				100%		8. 53.5'-54.4'
				50.0		9. 59.3'-59.8'
				R-8		10. 63.7'-64.4'
						11. 69.1'-70.0'
				100%		
				56.0		BOXES
				R-9	Box 6	1. 21.0'-27.3'
				100%		2. 27.3'-32.8'
				62.0		3. 32.8'-40.5'
				R-10		4. 40.5'-47.3'
				100%		5. 47.3'-55.5'
				66.0	Box 7	6. 55.5'-59.8'
				R-11		7. 59.8'-65.7'
				100%		8. 65.7'-70.0'
				70.0	Box 8	

Note 1:
Soils logged by:
A. J. Simpson,
Trinity Engineering
Testing Corporation;

Primary logged by:
Green and Marr,
Corps of Engineers,
Fort Worth District

Note 2:
Installed 2" plastic pipe from 631.8 to 610.5 for ground-water observations.

Aubrey Dam Site No. 1 | 354C-58

Hole No. 354C-59

DRILLING LOG | Southwestern | Fort Worth | Sheet 1 of 2 Sheets

Aubrey Dam Site No. 1

X=2,149,243. Y=612,541.Sta. 6+75

Corps of Engineers

354C-59

Bill Stanton

Trinity Engineering Testing Corporation

Vertical | Inclined | Deg. from vert.

14.0

56.0

70.0

MSL

DAMCO Model 1250

5 5

9

See Note 2

12-19-72 12-21-72

649.01

See Note 1 under "Remarks"

Elevation	Depth	Legend	Classification of Materials	% Core Recovery	Box or Sample No.	Remarks
646.51	2		Brown Clay w/Iron Ore Gravel 2.5'	100	W1	3" Shelby tube samples 0.0'-3.0', and 9.0'-15.0'. Set tub at 3.0'. Cleaned Hole at 3.0'-4.0'. Used NX-size core bbl. 4.0'-9.0' Used 4" core bbl. 15.0'-70.0' Set 6" casing to 15.0'
	4		2.5'-9.0'	100	W2	
	6		Limestone, Weathered, Tan, Mod. Hard	100	J1	
	8			100	R1	
640.01			9.0'	0		
	10		9.0'-12.0'	R-1		
637.01	12		Shale, Weath., Tan, Soft w/Scat. Hard Calc. Nods	40%	J2	
			12.0'	9.0'		
	14		12.0'-29.0'	100	W3	
	16		Shale, Soft-Mod. Hard, Med. Bedded or Massive, Dk. Gray w/Num. Pockets and Lenses of Sand and Sandstone	100	J3	
				100	R2	
	18		Sand is Fine-Med. Grained, Well Compacted Gray.	100	W4	
	20		Sandstone is Soft-Mod. Hard, Fine-Med. Grained, Well Cemented, Gray, Friable.	100	W5	
	22			100	I4	
	24		Siltstone is Hard, Tan at 29.0' 17.1'-28.0'.	R-2		
	26			82%		
	28			20.0'	Box 1	
620.01				R-3		
	30		29.0'-49.0'	30%		
	32		Shale, Laminated, Mod. Hard, Dk. Gray-Black, Calcareous, w/Num. Pockets and Lenses, Sand and Sandstone, also Scat. Hard, Tan Siltstone Nodules.	25.0'		
	34			R-4	Box 2	
	36			100%		
	38			40.0'		
	40			R-5		
	42		40.0'-70.0'	100%		
	44		Shale, Laminated, Mod. Hard-Hard, Unweath. Dk. Gray-Black Calcareous, w/Num., Pockets and Lenses of Sand and Sandstone.	35.0'		
	46			R-6	Box 3	
	48			100%		
	50			40.0'		
	52		Sand is fine-grained, Gray, Well-Compacted.	R-7		
	54		Sandstone is fine-grained, Mod. Hard-Hard, Gray, Friable.	90%		
	56		Siltstone, Nodules, Hard, Tan, Occasionally Found.	45.0	Box 4	
	58			R-8		
	60			80%		
	62			50.0		
	64		63.0'-66.0'-Highly Calcareous Fossil Zone-Abundance of Fossils Causes Shale to be Very Impure and Incohesive.	R-9		
	66			100%		
	68			55.0		
579.01	70		70.0' Total Depth = 70.0 Feet	R-10		
				87%	Box 5	
				58.0		
				R-11		
				63.0		
				R-12	Box 6	
				46.0		
				R-13		
				70.0	Box 7	

CARTON SAMPLES
1. 19.2'-20.0'
2. 22.3'-23.2'
3. 25.0'-25.9'
4. 31.0'-33.9'
5. 37.5'-38.4'
6. 42.0'-42.9'
7. 46.6'-47.5'
8. 53.4'-54.2'
9. 56.3'-57.2'
10. 60.0'-60.5'
11. 61.1'-62.0'
12. 67.6'-68.5'

Note 1:
Soils Logged By:
A. J. Simpson,
Trinity Engineering
Testing Corporation;

Primary Logged By:
Green & Marr
Corps of Engineers,
Fort Worth District

Note 2:
Installed 2" Plastic Pipe from 649.6 to [illegible] for ground-water observations.

BHQ FORM 1836-A (MODIFIED)

Aubrey Dam Site No. 1 | 354C-59

Hole No. 354C-60

DRILLING LOG | Southwestern | Fort Worth | Sheet 1 of 2 Sheets

Aubrey Dam Site No. 1

X=2,132,897. Y=613,127. Sta. 43+74.71

Corps of Engineers

354C-60

Bill Stanton

Trinity Engineering Testing Corporation

Vertical | Inclined | Deg. from vert.

5.0'

45.0'

50.0'

MSL

DAMCO Model 1250

1 4

4

See Note 2

12-15-72 12-19-72

607.42

40.4

See Note 1 under "Remarks"

Elevation	Depth	Legend	Classification of Materials	% Core Recovery	Box or Sample No.	Remarks
606.12	2		1.3 Brown Clay		W1	3" Shelby tube samples 0.0'-23.0' Set tub at 23.0' Cleaned hole to 26.5' Set 6" casing to 27.0 Used 4" core bbl. 27.0'-50.0'
			Tan Clay w/Lignite and Calcareous Particles		W2	
602.42	4		5.0'		J1	
	6		5.0'-8.0' Limestone, Severely Weath. 5.0' Tan.		W3	
599.42	8		8.0'-10.0' Clay, Tan, Sandy, w/Iron Ore and 10.0' Lignite Particles	100	R1	
			10.0'-17.0' Clay, Tan, Sandy, w/Iron Ore and Lignite Particles	100	J2	
597.42	10			100	R2	
	12			100	W3	
	14			100	J3	
	16		17.0'	100	W4	
590.4				100	W5	
	18		17.0'-28.7' Shale, Weath., Tan, Soft, Mod. Hard, w/Num. Tan Sand Pockets and Lenses.	100	I4	
	20			100	W6	
	22			100	W7	
	24			100	W8	
	26			100	I5	
	28		28.7'	100	W9	
587.72				100	W10	
	30		SHALE, Gray, Massive Mod. Hard, w/Occas. Gray, well Compacted, Fine-Med. Grained Sand Lenses.	100	I6	
	32			100	R3	
	34			100	R4	
	36		33.7'-33.8', Siltstone Nodules, Tan, Very Hard	100	I7	
	38		39.6'	R-1		
567.82	40		39.6'-50.0', SHALE	80.0%		
	42		39.6'-50.0' SHALE, Gray, Med. Hard, Unweath., Laminated, w/ Numerous Lenses and Layers of Gray, Med. Hard Well-Compacted, Fine-Med. -Grained Sand and Sandstone. 40.1'-40.3', Sandstone, Porous, Fossiliferous, Hard, Gray. 44.6'and 46.6', Siltstone Nodules, Tan, Very Hard 48.4'-50.0', Shale, Hard, Gray	R-2		
				80.0%		
	44			35.0	Box 1	
	46			R-3		
	48			125%		
557.42	50		50.0' Total Depth = 50.0 Feet	39.0	Box 2	
				R4		
				90%		
				44.0	Box 3	
				R-5		
				90%		
				49.0	Box 4	
				100%		

CARTON SAMPLES
1. 27.5'-28.0'
2. 30.0'-31.1'
3. 36.2'-37.0'
4. 41.4'-42.0'
5. 47.6'-48.3'

Note 1:
Soils Logged By:
A. J. Simpson,
Trinity Engineering
Testing Corporation

Primary Logged By:
Marr and Marple,
Corps of Engineers,
Fort Worth District

Note 2:
Installed 2" plastic pipe from 608.6 to 583.3 for ground-water observations.

BHQ FORM 1836-A (MODIFIED)

Aubrey Dam Site No. 1 | 354C-60

Hole No. 3S4C-60

DRILLING LOG — Division: Southwestern — Installation: Fort Worth — Sheet 1 of 2 Sheets

Project: Aubrey Dam Site No. 1
Location: X=2,132,097, Y=613,127 Sta. 43+74.71
Drilling Agency: Corps of Engineers
Hole No. (As shown on drawing title): 3S4C-60
Name of Driller: Bill Stanton
Manufacturer's Designation of Drill: DAMCO Model 1250
Type Bit: Shelby 4 Core
Total Number Core Boxes: 4
Elevation Ground Water: See Note 2
Date Hole: Started 12-15-72, Completed 12-19-72
Elevation Top of Hole: 607.42
Total Core Recovered for Boring: 90.4
Signature of Inspector: See Note 1 under "Remarks"
Thickness of Overburden: 5.0'
Depth Drilled Into Rock: 45.0'
Total Depth of Hole: 50.0'

Elevation	Depth	Legend	Classification of Materials	% Core Recovery	Box or Sample No.	Remarks
606.12	2		1.3 Brown Clay		W1	3" Shelby tube samples 0.0'-23.0'
			Tan Clay w/Lignite and Calcareous Particles		W2	Set tub at 23.0'
	4				I1	Cleaned hole to 26.5'
602.42			5.0'		W3	Set 6" casing to 27.0'
	6		5.0'-8.0' Limestone, Severely Weath. 8.0' Tan.	100	R1	Used 4" core bbl. 27.0'-50.0'
599.42	8			100	J2	
			8.0'-10.0' Clay, Tan, Sandy, w/Iron Ore and Lignite Particles	100	J3	JAR SAMPLES
597.42	10		10.0'	100	W5	1. 2.0'- 3.0'
			10.0'-17.0' Clay, Tan, Sandy, w/Iron Ore and Lignite Particles	100	J4	2. 5.6'- 6.6'
	12			100	W6	3. 8.0'- 9.0'
				100	W7	4. 10.0'-11.0'
	14			100	W8	5. 14.0'-15.0'
				100	J5	6. 18.0'-19.0'
590.42	16		17.0'	100	W9	7. 22.0'-23.0'
			17.0'-28.7' Shale, Weath., Tan, Soft, Mod. Hard, w/Num. Tan Sand Pockets and Lenses.	100	W10	8. 26.5'-27.0'
	18			100	W11	
				100	J6	WRAP SAMPLES
	20			100	R3	1. 0.0'- 1.0'
				100	R4	2. 1.0'- 2.0'
	22			100	R5	3. 3.0'- 4.0'
				100	J7	4. 4.0'- 5.0'
	24					5. 9.0'-10.0'
						6. 11.0'-12.0'
	26			100	J8	7. 12.0'-13.0'
				R-1	B2	8. 13.0'-14.0'
587.72	28		28.7'	80.0%		9. 15.0'-16.0'
				80.0	Box 1	10. 16.0'-17.0'
	30		SHALE, Gray, Massive Mod. Hard, w/Occas. Gray, well Compacted, Fine-Med. Grained Sand Lenses.	R-2		11. 17.0'-18.0'
						BAG SAMPLES
	32			80.0%		1. 5.0'- 5.6'
				35.0		2. 6.6'- 8.0'
	34			R-3		3. 19.0'-20.0'
				125%	Box 2	4. 20.0'-21.0'
	36		33.7'-33.8', Siltstone Nodules, Tan, Very Hard	39.0		5. 21.0'-22.0'
			39.6'			6. 27.0'-27.5'
567.82	38		39.6'-50.0', SHALE	R4		CARTON SAMPLES
			39.6'-50.0'			1. 27.5'-28.0'
	40		SHALE, Gray, Med. Hard, Unweath., Laminated, w/ Numerous Lenses and Layers of Gray, Med. Hard Well-Compacted, Fine-Med.-Grained Sand and Sandstone.	90%		2. 30.0'-31.1'
				44.0	Box 3	3. 36.2'-37.0'
	42			R-5		4. 41.4'-42.0'
						5. 47.6'-48.4'
	44			90%		
				49.0	Box 4	
	46					
				100%		
	48					
557.42	50		40.1'-40.3', Sandstone, Porous, Fossiliferous, Hard, Gray, 44.6' and 46.6', Siltstone Nodules, Tan, Very Hard 48.4'-50.0', Shale, Hard, Gray 50.0' Total Depth = 50.0 Feet			

Note 1: Soils Logged By: A. J. Simpson, Trinity Engineering Testing Corporation
Primary Logged By: Marr and Marple, Corps of Engineers, Fort Worth District
Note 2: Installed 2" plastic pipe from 608.6 to 583.3 for ground-water observations.

ENG FORM 1836-A OBSOLETE

Aubrey Dam Site No. 1 | 3S4C-60

Hole No. 3S4C-61

DRILLING LOG — Division: Southwestern — Installation: Fort Worth — Sheet 2 of 2 Sheets

Project: Aubrey Dam Site No. 1
Location: X=2,135,051, Y=613,472, Sta. 65+57
Drilling Agency: Corps of Engineers
Hole No. (As shown on drawing title): 3S4C-61
Name of Driller: Bill Stanton
Manufacturer's Designation of Drill: DAMCO Model 1250
Type Bit: Shelby 4 Core
Total Number Core Boxes: 6
Elevation Ground Water: See Note 2
Date Hole: Started 12-27-72, Completed 12-29-72
Elevation Top of Hole: 595.51
Total Core Recovered for Boring: 70.4
Signature of Inspector: See Note 1 under "Remarks"
Thickness of Overburden: 32.6
Depth Drilled Into Rock: 37.4
Total Depth of Hole: 70.0

Elevation	Depth	Legend	Classification of Materials	% Core Recovery	Box or Sample No.	Remarks
593.51	2		Dark Brown Clay w/ 2.0' Calcareous Particles	100	W1	3" Shelby tube samples 0.0'-24.0', 27.0'-28. ', 33.0'-34.0'.
			Dark Brown Sandy Clay w/ 4.0' Calcareous Particles	100	W2	
591.51	4			100	I1	
				100	W3	
	6		Tan and Gray Sandy Clay w/Lignite Particles	100	W4	Set Tub at 24.0'
				100	W5	Used NX-size bbl. for R-1 & R-2.
	8			100	J2	
				100	W6	
584.51	10		11.0'	100	W7	JAR SAMPLES
				100	J3	1. 2.0'- 3.0'
	12		Tan Clay w/Sand Lenses	100	W8	2. 6.0'- 7.0'
				100	W9	3. 10.0'-11.0'
	14			100	W10	4. 14.0'-15.0'
				100	W11	5. 18.0'-19.0'
	16			100	J4	6. 22.0'-23.0'
				100	W12	7. 24.0'-27.0'
577.51	18		18.0'	100	W13	
				100	W14	Samples very moist 20.0'-24.0'
	20		Tan Clayey Sand	100	J5	Set 6" casing to 33.0'
				100	W15	Used 4" core bbl. 34.0'-70.0'
	22			100	W16	
				100	W17	
571.51	24		24.0'	100	J6	WRAP SAMPLES
				100	W18	1. 0.0'- 1.0'
	26		Tan Sand and Gravel w/ Clay Lenses	R-1 17% 27.0	J7	2. 1.0'- 2.0'
				100	B1	3. 3.0'- 4.0'
	28			R-2		4. 4.0'- 5.0'
						5. 5.0'- 6.0'
	30			12%	Shelby Box	6. 7.0'- 8.0'
						7. 8.0'- 9.0'
562.91	32		32.6'	33.0		8. 9.0'-10.0'
			32.6'-70.0' SHALE AND SANDSTONE, Alternating Beds, w/occas. Sand Lenses	100	B2	9. 11.0'-12.0'
	34			R-3		10. 12.0'-13.0'
				74%		11. 13.0'-14.0'
	36				Box 1	12. 15.0'-16.0'
				19.0		13. 16.0'-17.0'
	38			R-4		(Continued)
					Box	WRAP SAMPLES
	40		32.6'-70.0' SHALE, is Mod. Hard, Massive Gray Unweathered	94%		14. 17.0'-18.0'
				44.0	Box 2	15. 19.0'-20.0'
	42			R-5		16. 20.0'-21.0'
						17. 21.0'-22.0'
	44			84%		18. 23.0'-24.0'
			SANDSTONE is Mod. Hard, Fine-Med. Grn. Lt. Gray, Well Cemented	49.0		BAG SAMPLES
	46			R-6		1. 27.0'-28.0'
				96%	Box 3	2. 33.0'-34.0'
	48			54.0		CARTON SAMPLES
				R-7		1. 37.0'-37.9'
	50			94%		2. 42.0'-42.8'
				59.0	Box 4	3. 47.9'-48.8'
	52			R-8		4. 51.2'-51.8'
						5. 57.5'-58.4'
	54			100%		6. 59.0'-59.7'
				64.0	Box 5	7. 64.0'-64.9'
	56			R-9		
				92%		
	58			69.0	Box 6	
538.80			59.7'	100%		
	60		59.7'-70.0' SHALE & SANDSTONE Alt. Beds w/Occas. Sand Lenses			
	62		SHALE is Dk. Gray, Mod. Hard Laminated, Calc.			
	64					
			SANDSTONE is Gray Mod. Hard Fine-Med. Grn. Poorly Cemented, Friable Calc.			
	66					
	68					
525.51	70		Total Depth = 70.0 Feet			

Note 1: Soils Logged By: A. J. Simpson, Trinity Engineering Testing Corporation: Primary Logged By: Marr Corps of Engineers, Fort Worth District.
Note 2: Installed 2" plastic pipe from 596.1 to 563.1 for ground-water observations.

RECORD DRAWING-WORK AS BUILT

SYM	DO NO	ACTION	DATE	DESCRIPTION OF REVISION

U.S. ARMY ENGINEER DISTRICT, FORT WORTH
CORPS OF ENGINEERS
FORT WORTH, TEXAS

DESIGNED BY: ---
DRAWN BY: ---
REVIEWED BY: ---

RAY ROBERTS LAKE
ELM FORK, TRINITY RIVER, TEXAS
EMBANKMENT, SPILLWAY AND OUTLET WORKS
LOGS OF BORINGS
3S-57, 3S4C-58, 3S4C-59, 3S4C-60, AND 3S4C-61

SUBMITTED BY: ENGINEER
INVITATION NO DACW63-82-B-0025 | DATE MAR, 1982
CONTRACT NO DACW63-82-C-0083
DRAWING NUMBER | SHEET NO OF
SEQUENCE NO 24

CONTRACT NO DACW63-82-C-0083

Hole No 354C-62

DRILLING LOG — Division: SOUTHWESTERN — Installation: FT WORTH DIST — Sheet 1 of 3 sheets

1. Project: HUBBEY DAM SITE # 1
2. Location (Coordinates or Station): 31+ 44+09
3. Drilling Agency: USCE
4. Hole No. (As shown on drawing title): 354C-62
5. Name of Driller: TRINITY ENGR TESTING CORP.
6. Direction of Hole: ☑ Vertical ☐ Inclined ____ deg. from vert.
7. Thickness of Overburden: 0
8. Depth Drilled into Rock: 120.0
9. Total Depth of Hole: 120.0
10. Size and Type of Bit: 4" core NX CORE
11. Datum for Elevation Shown (M.S.L. or M.L.L.): M.S.L.
12. Manufacturer's Designation of Drill: DAMCO 1250
13. Total No. of Overburden Samples Taken: Disturbed ____ Undisturbed ____
14. Total Number Core Boxes: 15
15. Elevation Ground Water: ____
16. Date Hole: Started 12 MAR 73 Completed 9 MAR 73
17. Elevation Top of Hole: 650.0 651.35 est
18. Total Core Recovery for Boring: 95 %
19. Signature of Inspector: Alan V Marr

Elevation	Depth	Legend	Classification of Materials (Description)	% Core Recovery	Box or Sample No.	Remarks (Drilling time, water loss, depth of weathering, etc., if significant)
			0.0' - 35.5' SAND & SANDSTONE POORLY CEMENTED BUT TIGHT, MED-COARSE GRN, RED, TAN, AND GRAY, SCATT GRAVELS			DRILLING 3" SHELBY TUBE 0.0 - 3.0' FISH-TAIL BIT 3.0 - 16.0' NX-CORE BBL 16.0 - 19.0' (NO RECOV) 8½" ROCK BIT 19.0 - 24.0' 6" ROCK-BIT 24.0 - 30.0' 4" CORE-BBL. 30.0 - 35.5' (NO RECOV) 4" CORE-BBL 35.5 - 108' NX CORE BBL 108 - 120' SAMPLES JAR 1: 2.0-2.5' 2: 3.0-3.5 3: 10.0-11.0 4: 29.0-30.0 5: 35.5-36.0
	40		35.5' - 50.0' SAND & SANDSTONE MED.-COARSE GRN, SOFT, V. POORLY CEMENTED, GRAVELLY, TAN & GRAY			SAMPLES (cont'd) CARTON 1: 46.5'-47.5' 2: 52.5-53.5 3: 57.4-58.2 4: 62.8-63.7 5: 68.3-69.2 6: 72.3-73.2 7: 78.3-79.2 8: 81.9-82.8 9: 88.7-89.6 10: 94.1-95.0 11: 96.5-97.4 12: 112.6-113.5 13: 116.1-117.1
	50		50.0-51.5 SAND & GRAVEL ½" MAX DIAM, MED-COARSE GRN SAND, LOOSELY COMP, TAN & GOLD 51.5-57.5' SANDSTONE, HIGHLY WEATH, GRAVELLY, SOFT-MOD HARD TAN & BROWN 53.5-55.0' SHALE, HARD, SLI. SANDY, DK. GRAY 55.0-57.5' SANDSTONE, GRAY, MOD. HARD, FINE-MED. GRN. 57.3-57.5 SILTSTONE, HARD, TAN			WATER LEVEL AFTER 36 HOURS WAS 65.6'
	60		57.5' - 80' SANDSTONE, SHALY, LIGNITIC, GRAY TO DK. GRAY, SOFT-MOD HARD, MASSIVE, FINE-MED GRN, OCCAS SILTSTONE NODS.			NOTE: HOLE WAS PRESSURE TESTED

Elevation	Depth	Legend	Classification of Materials (Description)	% Core Recovery	Box or Sample No.	Remarks
	70					
	80		81.0-81.5 LIMESTONE NODULES HARD, GRAY 81.5'-106.0' SHALE, MOD HARD, CALC, MASSIVE, GRAY			
	90					
651.35 111.0 540.35	100		HARD, MASSIVE, FOSSILIFEROUS,			
	110		111.0 - 120.0 TO SHALE, MOD HARD, DARK GRAY TO BLACK, MASSIVE, SCAT FOSS. ZONES			
	120		119.5-120.0' VERY FOSSILIFEROUS			

ENG FORM 1836 MAR 73 — PREVIOUS EDITIONS ARE OBSOLETE.

PROJECT: AUBREY DAM SITE # 1

POLYTRACE 033

CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
910-915 LIMESTONE NODULES HARD, GRAY			
915'-1060' SHALE, MOD. HARD, CALC, MASSIVE, GRAY			
1060'-1110' LIMESTONE, HARD, MASSIVE TO NODULAR, FOSSILIFEROUS, GRAY			
1110-1190 TO SHALE, MOD HARD, DARK GRAY TO BLACK, MASSIVE, SCAT FOSS. ZONES			
1195-1220' VERY FOSSILIFEROUS			

ATIONS ARE OBSOLETE.

PROJECT: AUBREY DAM SITE #1 | HOLE NO.: 334C-62

Hole No. 8A6D-64

DRILLING LOG | DIVISION: Southwestern | INSTALLATION: Fort Worth | SHEET 1 OF 2 SHEETS

1. PROJECT: Aubrey Dam Site
2. LOCATION (Coordinates or Stations)
3. DRILLING AGENCY: Corps of Engineers
4. HOLE NO. (As shown on drawing title) and file number): 8A6D-64
5. NAME OF DRILLER: Newhouse
6. DIRECTION OF HOLE: ☒ VERTICAL ☐ INCLINED ____ DEG. FROM VERT.
7. THICKNESS OF OVERBURDEN: 44.0
8. DEPTH DRILLED INTO ROCK: 57.0
9. TOTAL DEPTH OF HOLE: 101.0
10. SIZE AND TYPE OF BIT: 8" auger, 6" d.b., 3" fishtail
11. DATUM FOR ELEVATION SHOWN (GS or MSL)
12. MANUFACTURER'S DESIGNATION OF DRILL: Failing 1500
13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN: DISTURBED 5; UNDISTURBED 3
14. TOTAL NUMBER CORE BOXES: - -
15. ELEVATION GROUND WATER: ****
16. DATE HOLE: STARTED 9 April 73; COMPLETED 11 April 73
17. ELEVATION TOP OF HOLE
18. TOTAL CORE RECOVERY FOR BORING
19. SIGNATURE OF INSPECTOR: Walter L. Moody

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
			0.0' to 24.0'			****
			CLAY - - -			1. Water level not determined.
			0.0 to 4.0 - calc., moist, stiff, brown.			
			4.0 to 14.0 - calc., sandy, moist, stiff, brown.			2. Jars: A. 26.0 B. 28.0 C. 36.0 D. 38.0 E. 38.6
			14.0 to 19.0 - calc., scattered gravel, moist, stiff, brown.			NOTE: All jar samples taken from shoe and catcher of denison sampler.
			19.0 to 24.0 - calc., moist, stiff, gray and tan.			
			- - - Start 6" d. bb'l at 24.0' - - - - -			3. Denison cans: 1. 24.0 to 26.0 2. 34.0 to 36.0 3. 36.0 to 38.0
			24.0' to 26.0'			
			CLAY, calc., moist, stiff, gray and tan.			4. Hole squeezing badly at 27.0'. 4" plastic pipe set to 45.0'. Another offset from 6DC-30, Hole 8A6D-64A, will be drilled to obtain denison samples from 26.0 to 34.0. Offset bearings and elevations will be furnished after completion.
			26.0' to 34.0'			
			NO RECOVERY -			
			34.0' to 37.3'			
			CLAY, sandy, moist, med. stiff, gray and tan.		Can 1	
			37.3' to 38.6'			5. Drilling: 0.0' to 24.0' - 8" auger - no samples taken. 24.0' to 38.6' - 6" d. bb'l. 38.6' to 101.0' - 3" fishtail.
			SAND, gravelly, clayey, saturated, med. dense, tan.			
			- - Refusal w/d. bb'l. at 38.6' - - Start 3" fishtail at 38.6' - - -			
			38.6' to 44.0'		Can 2	6. Identification of materials from 38.6' to 101' based on cuttings and drill action.
			SAND and GRAVEL, med. dense.			
			- - Drilled into primary material at 44.0' - - -		Can 3	
			44.0' to 101.0'			7. "E" log from 45' to 101'
90.0			SHALE, soft to m. hard w/LIMESTONE from 86.5' to 89.6'.			
100.0			T.D. - 101.0' -	101.0	101.0	

DRILLING LOG

1. PROJECT: Aubrey Dam Si
2. LOCATION (Coordinates or
3. DRILLING AGENCY: Corps of Engi
4. HOLE NO. (As shown on dr... and file number)
5. NAME OF DRILLER: Newhouse
6. DIRECTION OF HOLE: ☒ VERTICAL ☐ INCLIN
7. THICKNESS OF OVERBURD
8. DEPTH DRILLED INTO RO
9. TOTAL DEPTH OF HOLE

ELEVATION | DEPTH | LEGEN

ENG FORM 1836 MAR 71 PREVIOU

Hole No. 8A6D-64

DRILLING LOG — Division: Southwestern — Installation: Fort Worth — Sheet 1 of 2 sheets

1. Project: Dam Site
2. Location (Coordinates or Station): Engineers
3. Drilling Agency: Corps of Engineers
4. Hole No. (As shown on drawing title): 8A6D-64
5. Name of Driller: Newhouse
6. Direction of Hole: ☒ Vertical ☐ Inclined ____ deg. from vert.
7. Thickness of Overburden: 14.0
8. Depth Drilled into Rock: 57.0
9. Total Depth of Hole: 101.0
10. Size and Type of Bit: 8" auger, 6" d.bb'l, 3" fishtail
11. Datum for Elevation Shown (TBM or MSL):
12. Manufacturer's Designation of Drill: Failing 1500
13. Total No. of Overburden Samples Taken: Disturbed 5, Undisturbed 3
14. Total Number Core Boxes: --
15. Elevation Ground Water: ----
16. Date Hole: Started 9 April 73, Completed 11 April 73
17. Elevation Top of Hole:
18. Total Core Recovery for Boring: %
19. Signature of Inspector: James L. Christi

Elevation	Depth	Legend	Classification of Materials (Description)	% Core Recovery	Box or Sample No.	Remarks (Drilling time, water loss, depth of weathering, etc., if significant)
	0.0' to 24.0'		CLAY - - -			1. Water level not determined.
			0.0 to 4.0 - calc., moist, stiff, brown. 4.0 to 14.0 - calc., sandy, moist, stiff, brown. 14.0 to 19.0 - calc., scattered gravel, moist, stiff, brown. 19.0 to 24.0 - calc., moist, stiff, gray and tan.			2. Jars: A. 26.0 B. 28.0 C. 36.0 D. 38.0 E. 38.6
			- - - Start 6" d. bb'l at 24.0' - - - - -			NOTE: All jar samples taken from shoe and catcher of denison sampler.
	24.0' to 26.0'		CLAY, calc., moist, stiff, gray and tan.			3. Denison cans: 1. 24.0 to 26.0 2. 34.0 to 36.0 3. 36.0 to 38.0
	26.0' to 34.0'		NO RECOVERY -			4. Hole squeezing badly at 27.0'. 4" plastic pipe set to 45.0'. Another offset from 6DC-30, Hole 8A6D-64A, will be drilled to obtain denison samples from 26.0 to 34.0. Offset bearings and elevations will be furnished after completion.
	34.0' to 37.3'		CLAY, sandy, moist, med. stiff, gray and tan.		Can 1	
	37.3' to 38.6'		SAND, gravelly, clayey, saturated, med. dense, tan.			5. Drilling: 0.0' to 24.0' - 8" auger - no sample taken. 24.0' to 38.6' - 6" d. bb'l. 38.6' to 101.0' - 3" fishtail.
			- - Refusal w/d. bb'l, at 38.6' - - Start 3" fishtail at 38.6' - - -			
	38.6' to 44.0'		SAND and GRAVEL, med. dense.		Can 2	6. Identification of materials from 38.6 to 101' based on cuttings and drill action.
			- - Drilled into primary material at 44.0' - - -		Can 3	
	44.0' to 101.0'		SHALE, soft to m. hard w/LIMESTONE from 86.5' to 89.6'.			7. "E" log from 45' to 101'
	T.D. - 101.0' -			101.0	101.0	

ENG FORM 1836 MAR 73 — PREVIOUS EDITIONS ARE OBSOLETE — Project: Aubrey Dam Site — Hole No. 8A6D-64

Hole No. 8A6D-64A

DRILLING LOG — Division: Southwestern — Installation: Fort Worth — Sheet 1 of 1 sheets

1. Project: Aubrey Dam Site
2. Location (Coordinates or Station):
3. Drilling Agency: Corps of Engineers
4. Hole No. (As shown on drawing title): 8A6D-64A
5. Name of Driller: Newhouse
6. Direction of Hole: ☒ Vertical ☐ Inclined ____ deg. from vert.
7. Thickness of Overburden: - -
8. Depth Drilled into Rock: - -
9. Total Depth of Hole: 36.0
10. Size and Type of Bit: 8" auger, 6" d.bb'l.
11. Datum for Elevation Shown (TBM or MSL):
12. Manufacturer's Designation of Drill: Failing 1500
13. Total No. of Overburden Samples Taken: Disturbed 6, Undisturbed 6
14. Total Number Core Boxes: ---
15. Elevation Ground Water: ----
16. Date Hole: Started 11 Apr 73, Completed 11 Apr 73
17. Elevation Top of Hole:
18. Total Core Recovery for Boring: %
19. Signature of Inspector: James L. Christi

Elevation	Depth	Legend	Classification of Materials (Description)	% Core Recovery	Box or Sample No.	Remarks (Drilling time, water loss, depth of weathering, etc., if significant)
	0.0' to 24.0'		CLAY, calc., moist, stiff, brown to gray and tan.			---- 1. Water table not determined.
			- - Start 6" d. bb'l. at 24.0' - - -			2. Jars: A. 26.0 B. 28.0 C. 30.0 D. 32.0 E. 34.0 F. 36.0
	24.0' to 34.0'		CLAY, calc., moist, med. stiff to stiff, sandy to 32.0' with sand increase at 32.0', tan and gray.			NOTE: Jar samples taken from shoe of denison bb'l.
	34.0' to 36.0'		SAND, sli. clayey, med. dense, saturated, medium to coarse grained, tan.			3. Denison Cans: 1. 24.0 to 26.0 2. 26.0 to 28.0 3. 28.0 to 30.0 4. 30.0 to 32.0 5. 32.0 to 34.0 6. 34.0 to 36.0
	T.D. - 36.0' -				Can 1 Can 2 Can 3 Can 4 Can 5 Can 6	4. Drilling: 1. 0.0' to 24.0' - 8" auger 2. 24.0' to 36.0' - 6" d. bb'l.

ENG FORM 1836 MAR 73 — PREVIOUS EDITIONS ARE OBSOLETE — Project: Aubrey Dam Site — Hole No. 8A6D-64A

RECORD DRAWING-WORK AS BUILT

SYM	DC NO.	ACTION	DATE	DESCRIPTION OF REVISION

U.S. ARMY ENGINEER DISTRICT, FORT WORTH
CORPS OF ENGINEERS
FORT WORTH, TEXAS

DESIGNED BY ---
DRAWN BY ---
REVIEWED BY: ---
SUBMITTED BY ENGINEER ---

RAY ROBERTS LAKE
ELM FORK, TRINITY RIVER, TEXAS
EMBANKMENT, SPILLWAY AND OUTLET WORKS
LOGS OF BORINGS
3S4C-62, 3A6D-64, AND 8A6D-64A

INVITATION NO. DACW63-82-B-0025 DATE MAR. 1982
CONTRACT NO DACW63-82-C-0083
DRAWING NUMBER
SHEET NO 25 OF
SEQUENCE NO

CONTRACT NO DACW63-82-C-0083

TO ACCOMPANY FOUNDATION REPORT

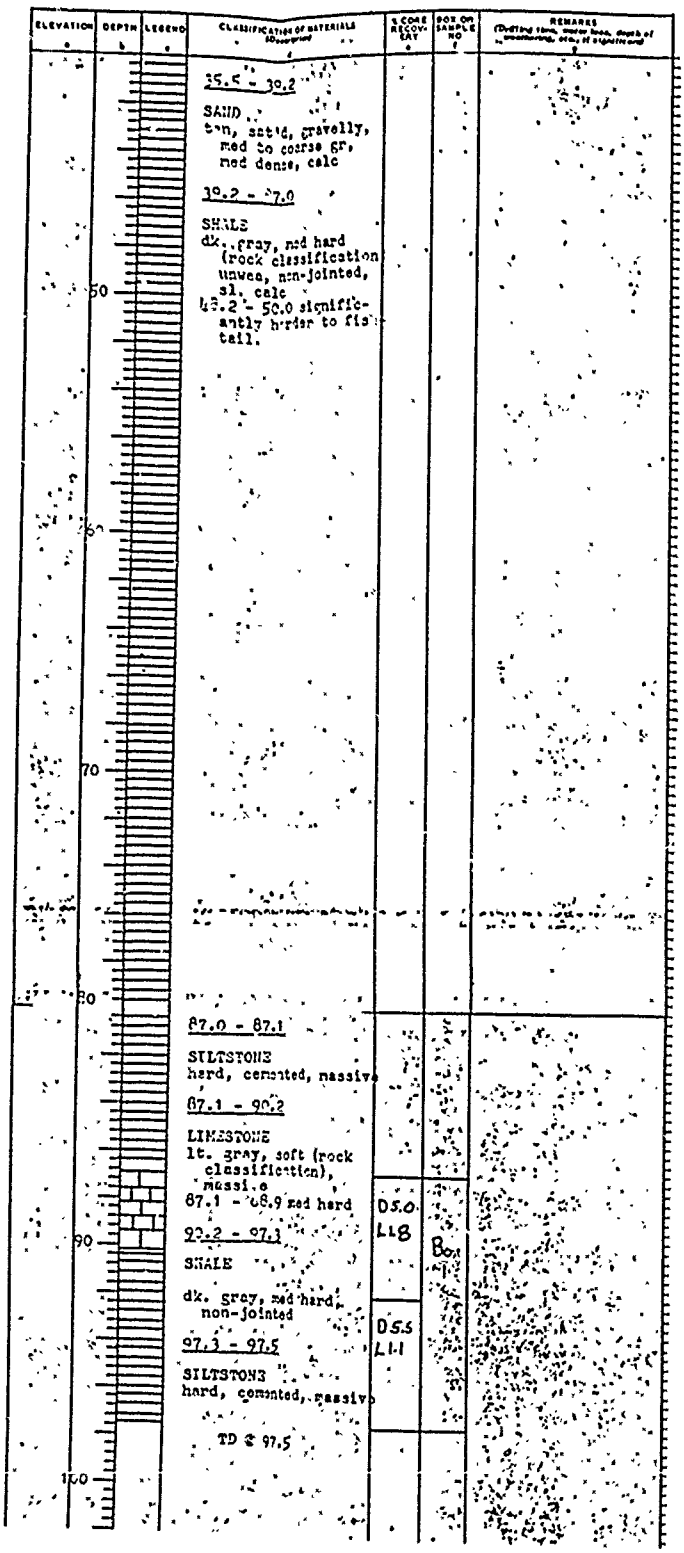
Hole No. DA62-65

DRILLING LOG — Division: Southwestern — Installation: Fort Worth Dist — Sheet 1 of 3 sheets

- Drilling agency: Corps of Engineers
- Hole No. (as shown on drawing title and file number): 16-65
- Manufacturer's designation of drill: Failing 1500
- Total no. of overburden samples taken: Disturbed 9; Undisturbed 8
- Total number core boxes: 1
- Elevation ground water: —
- Direction of hole: Vertical
- Date hole: Started 4 Apr 1973; Completed 5 Apr 1973
- Thickness of overburden: 39.2
- Elevation top of hole: 555.4
- Depth drilled into rock: 58.3
- Total core recovery for boring: 52
- Total depth of hole: 97.5
- Signature of inspector: [signature]

Elevation	Depth	Legend	Classification of Materials (Description)	% Core Recovery	Box or Sample No.	Remarks
			0.0 - 17.0 CLAY 0.0 - 5.5 brown, moist, med. stiff; 5.5 - 11.0 sandy, brn, moist, med stiff; 11.0 - 15.0 brown, moist, stiff; 15.0 - 17.0 sandy, brn, moist, stiff			**Drilling** 0.0 - 22.0 8" auger; 22.0 - 40.0 6" d bbl; 40.0 - 87.0 3" fishtail; 87.0 - 97.5 2" core
	10		**17.0 - 26.2** SAND tan, med dense, sat'd, med to coarse gr, calc. 25.0 - 26.2 dense			**Jar samples** A. 24.0; B. 26.0; C. 28.0; D. 30.0; E. 32.0; F. 33.8; G. 34.0; H. 36.0; I. 38.0
	20		**26.2 - 31.0** CLAY moist, gray and tan, stiff to v. stiff calc		D1, D2, D3, D4	**Denison samples** 1. 22.0 - 24.0; 2. 24.0 - 26.0; 3. 26.0 - 28.0; 4. 28.0 - 30.0; 5. 30.0 - 32.0; 6. 32.0 - 34.0; 7. 34.0 - 36.0; 8. 36.0 - 38.0
	30		**31.0 - 33.8** SAND tan, sat'd, m dense, med to coarse gr, calc		D5, D6	**Water table** 4 Apr, 73: adjacent hole, 6DC-31 at 17.7'
			33.8 - 35.5 CLAY sandy, med stiff, gray, calc.		D7, D8	**Note** 8" casing to 6.5'. Electric log
	40				no recov.	

Elevation	Depth	Legend	Classification of Materials (Description)
			35.5 - 39.2 SAND tan, sat'd, gravelly, med to coarse gr, med dense, calc
			39.2 - 87.0 SHALE dk. gray, med hard (rock classification), unwea, non-jointed, sl. calc. 48.2 - 50.0 significantly harder to fishtail.
	50		
	60		
	70		
	80		**87.0 - 87.1** SILTSTONE hard, cemented, massive
			87.1 - 90.2 LIMESTONE lt. gray, soft (rock classification), massive. 87.1 - 88.9 med hard
	90		**90.2 - 97.3** SHALE dk. gray, med hard, non-jointed
			97.3 - 97.5 SILTSTONE hard, cemented, massive
			TD = 97.5
	100		



ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOV-ERY	BOX OR SAMPLE NO	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
			35.5 - 39.2			
			SAND, tan, sand, gravelly, med to coarse GR, med dense, calc			
			39.2 - 97.0			
			SHALE dk. gray, med hard (rock classification unwea, non-jointed, sl. calc			
	50		48.2 - 50.0 significantly harder to fis tail.			
	60					
	70					
	80		87.0 - 87.1			
			SILTSTONE hard, cemented, massive			
			87.1 - 90.2			
			LIMESTONE lt. gray, soft (rock classification), massive			
			87.1 - 88.9 med hard	D5.0 L18	Box	
	90		90.2 - 97.1			
			SHALE dk. grey, med hard, non-jointed	D5.5 L11		
			97.3 - 97.5			
			SILTSTONE hard, cemented, massive			
			TD @ 97.5			
	100					

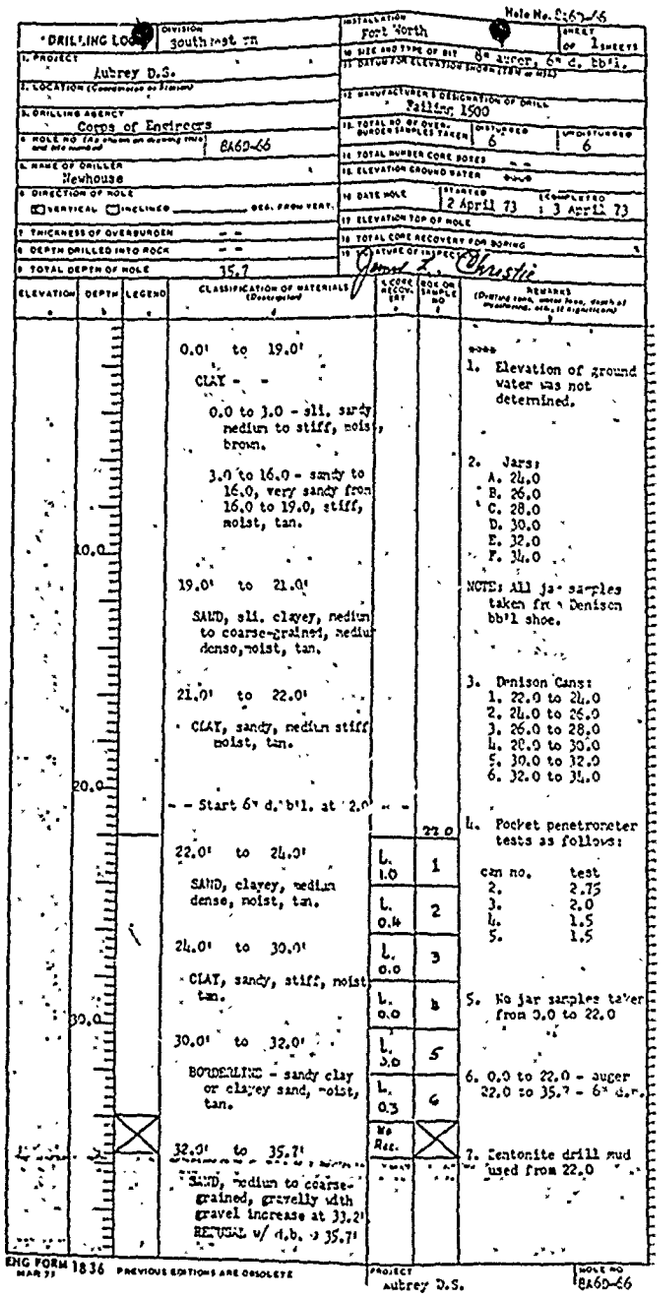
Hole No. 8A6D-66

DRILLING LOG	DIVISION Southwestern	INSTALLATION Fort Worth	SHEET 1 OF 2 SHEETS
1. PROJECT Aubrey D.S.		10. SIZE AND TYPE OF BIT 8" auger, 6" d. bb'l.	
2. LOCATION (Coordinates or Station)		11. DATUM FOR ELEVATION SHOWN (GS or MSL)	
3. DRILLING AGENCY Corps of Engineers		12. MANUFACTURER'S DESIGNATION OF DRILL Failing 1500	
4. HOLE NO. (As shown on drawing title and file number) 8A6D-66		13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN: DISTURBED 6 / UNDISTURBED 6	
5. NAME OF DRILLER Newhouse		14. TOTAL NUMBER CORE BOXES --	
6. DIRECTION OF HOLE ☒ VERTICAL ☐ INCLINED ____ DEG. FROM VERT		15. ELEVATION GROUND WATER 0.0	
7. THICKNESS OF OVERBURDEN --		16. DATE HOLE STARTED 2 April 73 / COMPLETED 3 April 73	
8. DEPTH DRILLED INTO ROCK --		17. ELEVATION TOP OF HOLE	
9. TOTAL DEPTH OF HOLE 35.7		18. TOTAL CORE RECOVERY FOR BORING	
		19. SIGNATURE OF INSPECTOR James L. Christie	

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOV-ERY	BOX OR SAMPLE NO	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
			0.0' to 19.0'			1. Elevation of ground water was not determined.
			CLAY - -			
			0.0 to 3.0 - sli. sandy medium to stiff, moist, brown.			2. Jars: A. 24.0 B. 26.0 C. 28.0 D. 30.0 E. 32.0 F. 34.0
			3.0 to 16.0 - sandy to 16.0, very sandy from 16.0 to 19.0, stiff, moist, tan.			NOTE: All jar samples taken from Denison bb'l shoe.
	10.0		19.0' to 21.0'			3. Denison Cans: 1. 22.0 to 24.0 2. 24.0 to 26.0 3. 26.0 to 28.0 4. 28.0 to 30.0 5. 30.0 to 32.0 6. 32.0 to 34.0
			SAND, sli. clayey, medium to coarse-grained, medium dense, moist, tan.			
			21.0' to 22.0'			
			CLAY, sandy, medium stiff moist, tan.			
	20.0		- - Start 6" d. bb'l. at 22.0	- -	22.0	4. Pocket penetrometer tests as follows:
			22.0' to 24.0'	L. 1.0	1	cen no. test 2. 2.75 3. 2.0 4. 1.5 5. 1.5
			SAND, clayey, medium dense, moist, tan.	L. 0.4	2	
			24.0' to 30.0'	L. 0.0	3	
			CLAY, sandy, stiff, moist tan.	L. 0.0	4	5. No jar samples taken from 0.0 to 22.0
	30.0		30.0' to 32.0'	L. 0.0	5	
			BOUNDERLINE - sandy clay or clayey sand, moist, tan.	L. 0.3	6	6. 0.0 to 22.0 - auger 22.0 to 35.7 - 6 d.b.
			32.0' to 35.7'	No Rec.		7. Bentonite drill mud used from 22.0
			SAND, medium to coarse-grained, gravelly with gravel increase at 33.2' REFUSAL w/ d.b. @ 35.7'			

ENG FORM 1836 MAR 71 PREVIOUS EDITIONS ARE OBSOLETE

PROJECT Aubrey D.S. HOLE NO 8A6D-66



DRILLING LOG — Hole No. 8A6D-66

Division	Southwestern
Installation	Fort Worth
Sheet	1 of 1 sheets
1. Project	Aubrey D.S.
2. Location (Coordinates or Stations)	
3. Drilling Agency	Corps of Engineers
4. Hole No. (As shown on drawing title and file number)	8A6D-66
5. Name of Driller	Newhouse
6. Direction of Hole	☒ Vertical ☐ Inclined ____ deg. from vert.
7. Thickness of Overburden	--
8. Depth Drilled into Rock	--
9. Total Depth of Hole	35.7
10. Size and Type of Bit	8" auger, 6" d. bbl.
11. Datum for Elevation Shown (MSL or USC&GS)	
12. Manufacturer's Designation of Drill	Failing 1500
13. Total No. of Overburden Samples Taken	Disturbed 6 / Undisturbed 6
14. Total Number Core Boxes	--
15. Elevation Ground Water	--
16. Date Hole	Started 2 April 73 / Completed 3 April 73
17. Elevation Top of Hole	
18. Total Core Recovery for Boring	
19. Signature of Inspector	Gerald L. Christie

Elevation	Depth	Legend	Classification of Materials (Description)	Core Recovery	Box or Sample No.	Remarks
			0.0' to 19.0'			1. Elevation of ground water was not determined.
			CLAY - -			
			0.0 to 3.0 - sli. sandy medium to stiff, moist, brown.			2. Jars: A. 24.0 B. 26.0 C. 28.0 D. 30.0 E. 32.0 F. 34.0
			3.0 to 16.0 - sandy to 16.0, very sandy from 16.0 to 19.0, stiff, moist, tan.			NOTE: All jar samples taken fr Denison bbl shoe.
	10.0		19.0' to 21.0'			
			SAND, sli. clayey, medium to coarse-grained, mediu dense, moist, tan.			3. Denison Cans: 1. 22.0 to 24.0 2. 24.0 to 26.0 3. 26.0 to 28.0 4. 28.0 to 30.0 5. 30.0 to 32.0 6. 32.0 to 34.0
			21.0' to 22.0'			
			CLAY, sandy, medium stiff moist, tan.			
	20.0		- - Start 6" d. bbl. at 22.0 - -		22.0	4. Pocket penetroneter tests as follows:
			22.0' to 24.0'	L. 1.0	1	can no. test 2. 2.75 3. 2.0 4. 1.5 5. 1.5
			SAND, clayey, medium dense, moist, tan.	L. 0.4	2	
			24.0' to 30.0'	L. 0.0	3	
			CLAY, sandy, stiff, moist tan.	L. 0.0	4	5. No jar samples taken from 0.0 to 22.0
	30.0		30.0' to 32.0'	L. 3.0	5	
			BOULDERLINE - sandy clay or clayey sand, moist, tan.	L. 0.3	6	6. 0.0 to 22.0 - auger 22.0 to 35.7 - 6" d.b.
			32.0' to 35.7'	No Rec.		7. Bentonite drill mud used from 22.0
			SAND, medium to coarse-grained, gravelly with gravel increase at 33.2' REFUSAL w/ d.b. @ 35.7'			

ENG FORM 1836 MAR 73 — PREVIOUS EDITIONS ARE OBSOLETE — Project: Aubrey D.S. — Hole No. 8A6D-66

RECORD DRAWING-WORK AS BUILT

SYM	DOC. NO.	ACTION	DATE	DESCRIPTION OF REVISION

U.S. ARMY ENGINEER DISTRICT, FORT WORTH
CORPS OF ENGINEERS
FORT WORTH, TEXAS

DESIGNED BY ---
DRAWN BY ---
REVIEWED BY ---

RAY ROBERTS LAKE
ELM FORK, TRINITY RIVER, TEXAS
EMBANKMENT, SPILLWAY AND OUTLET WORKS
LOGS OF BORINGS
8A6D-65 AND 8A6D-66

SUBMITTED BY
ENGINEER

INVITATION NO. DACW63-82-B-0025 DATE MAR. 1982
CONTRACT NO. DACW63-82-C-0043
DRAWING NUMBER
SHEET NO. OF
SEQUENCE NO. 26

CONTRACT NO. DACW63-82-C-0043

TO ACCOMPANY FOUNDATION REPORT

Hole No. 8A6D-67

DRILLING LOG — Division: Southwestern

1. PROJECT	Aubrey D. S.
2. LOCATION (Coordinates or Station)	
3. DRILLING AGENCY	Corps of Engineers
4. HOLE NO. (As shown on drawing title) and file number	8A6D-67
5. NAME OF DRILLER	Mullins
6. DIRECTION OF HOLE	☒ VERTICAL ☐ INCLINED ____ DEG. FROM VERT.
7. THICKNESS OF OVERBURDEN	35.3
8. DEPTH DRILLED INTO ROCK	0
9. TOTAL DEPTH OF HOLE	35.3
10. INSTALLATION	Fort Worth District
11. SIZE AND TYPE OF BIT	4" Calyx 6" D Bol
12. MANUFACTURER'S DESIGNATION OF DRILL	Failing 1500
13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN	DISTURBED 12 / UNDISTURBED 9
14. TOTAL NUMBER CORE BOXES	
15. ELEVATION GROUND WATER	0.0
16. DATE HOLE	STARTED 8 Aug 73 / COMPLETED 9 Aug 73
17. ELEVATION TOP OF HOLE	558.6'
18. TOTAL CORE RECOVERY FOR BORING	%
19. SIGNATURE OF INSPECTOR	Joseph A. Hunter

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc.; if significant)
			0.0 to 33.3 CLAY - - 0.0 to 3.0 medium plasticity, dark brown, medium stiff, moist 3.0 to 9.4 low to medium plasticity, brown, very moist, stiff, slightly sandy 9.4 to 16.5 medium plasticity, dark brown, stiff, moist 16.5 to 26.5 low plasticity, dark brown, stiff to very stiff, moist, slightly sandy 26.5 to 30.5 medium plasticity, dark brown, stiff, moist 30.5 to 33.3 medium plasticity, gray and tan, very stiff, moist 33.3 to 35.3 GRAVEL - -		Jar A Jar B Jar C Jar D Can 1 Core 1 Can 2 Can 3 Can 4 Can 5 Can 6 Can 7 Can 8	**Drilling** 0.0 to 15.0 10" auger 15.0 to 33.3 6" D Bol 33.3 to 35.3 7 7/8" rock bit **Denison samples** 1. 15.8 to 17.8 2. 19.8 to 21.8 3. 21.8 to 23.8 4. 23.8 to 25.8 5. 25.8 to 27.8 6. 27.8 to 29.8 7. 29.8 to 31.8 8. 31.8 to 33.3 **Carton sample** 1. 18.1 to 19.0 Note: sample came from denison can. **Jar samples** A. 0.0 to 3.0 B. 3.0 to 9.0 C. 8.0 to 9.4 D. 9.4 to 15.8 E. 17.8 F. 19.8 G. 21.8 H. 23.8 I. 25.8 J. 27.8 K. 29.8 L. 31.8 Note: samples E through L from shoe of Denison Bol. **Location** Hole offset 20.7' S35°W from staked location (X= 2,141,445; Y= 615,594). New elevation is 559.6 as determined by hand level. T. D. @ 35.3
	40					**Hand penetrometer test** depth / tons/sq. ft. 17.8 1.50 19.8 1.50 21.8 2.25 23.8 2.25 25.8 2.25 27.8 1.75 29.8 1.75 31.8 3.50 **Note** All samples are calcareous. **Water table** Hole was not bailed. 4" slotted, plastic pipe set to 36.0'. Daily measurements reported on supplimental sheet.

DRILLING LOG — Division: Southwestern

1. PROJECT	Aubrey D. S.
2. LOCATION (Coordinates or Station)	X: 2,141,610 Y: 615,020
3. DRILLING AGENCY	Corps of Engineers
4. HOLE NO. (As shown on drawing title) and file number	8A6D-68
5. NAME OF DRILLER	Mullins
6. DIRECTION OF HOLE	☒ VERTICAL ☐ INCLINED ____ DEG. FROM VERT.
7. THICKNESS OF OVERBURDEN	45.5'
8. DEPTH DRILLED INTO ROCK	0
9. TOTAL DEPTH OF HOLE	45.5'

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIA (Description)
			0.0 to 29.2 CLAY - - 0.0 to 6.0 medium pl dark brown, medium st stiff, moist, caolare 6.0 to 14.6 medium brown, hard, moist (t very stiff at 12.5) 14.6 to 18.0 medium ticity, light brown, stiff, moist 18.0 to 22.0 high pl brown, very stiff, ve 22.0 to 28.2 medium ticity, light brown a very n stiff to stiff moist, slightly sandy 28.2 to 29.2 low pla gray and tan, very st moist 29.2 to 32.6 SAND - - tan, loose to medium saturated, non calcar 32.6 to 36.0 CLAY - - 32.6 to 34.5 medium ticity, moist, stiff, and gray 34.0 to 36.0 low pla tan and gray, soft to stiff, saturated, san 36.0 to 38.5 SAND - - tan, medium dense, sa slightly clayey 38.5 to 45.5 GRAVEL - - tan, loose, saturated, sandy, becomes coarse 40.5' T. D. @ 45.5

Hole No. A16D-69

DRILLING LOG — Division: Southwestern — Installation: Fort Worth District — Sheet 1 of 2 sheets

1. Project: Aubrey D. S.
2. Location (Coordinates or Stations): X: 2,141,610 Y: 615,020
3. Drilling agency: Corps of Engineers
4. Hole No. (As shown on drawing title and file number): A16D-68
5. Name of driller: Mullins
6. Direction of hole: ☒ Vertical ☐ Inclined ____ deg. from vert.
7. Thickness of overburden: 45.5'
8. Depth drilled into rock: 0
9. Total depth of hole: 45.5'
10. Size and type of bit: 8" auger, 6" D Bbl
11. Datum for elevation shown (MSL or USC&GS): MSL
12. Manufacturer's designation of drill: Failing 1500
13. Total no. of overburden samples taken: Undisturbed 20, Disturbed 16
14. Total number core boxes:
15. Elevation ground water:
16. Date hole: Started 9 Aug 73, Completed 10 Aug 73
17. Elevation top of hole: 560.8'
18. Total core recovery for boring:
19. Signature of inspector: Joseph A. Strutt

Elevation	Depth	Legend	Classification of materials (Description)	% Core Recovery	Box or Sample No.	Remarks
			0.0 to 29.2		Jar A	Drilling
			CLAY - -		Jar B	0.0 to 5.0 8" auger
			0.0 to 6.0 sedium plasticity, dark brown, sedium stiff to stiff, moist, calcareous		Can 1	5.0 to 41.0 6" D Bbl
			6.0 to 14.6 sedium plasticity, brown, hard, moist (becomes very stiff at 12.5)		Can 2	41.0 to 45.5 7 7/8" rock bit
					Can 3	no casing
					Can 4	Denison samples
			14.6 to 18.0 sedium plasticity, light brown, very stiff, moist		Can 5	1. 5.0 to 7.0
					Can 6	2. 7.0 to 9.0
			18.0 to 22.0 high plasticity, brown, very stiff, very moist		Can 7	3. 9.0 to 11.0
					Can 8	4. 11.0 to 13.0
			22.0 to 28.2 sedium plasticity, light brown and gray, very n stiff to stiff, moist, slightly sandy		Can 9	5. 13.0 to 15.0
					Can 10	6. 15.0 to 17.0
					Can 11	7. 17.0 to 19.0
			28.2 to 29.2 low plasticity, gray and tan, very stiff, moist		Can 12	8. 19.0 to 21.0
			29.2 to 32.6		Can 13	9. 21.0 to 23.0
			SAND - -		Can 14	10. 23.0 to 25.0
			tan, loose to sedium dense saturated, non calcareous		Can 15	11. 25.0 to 27.0
			32.6 to 36.0		Can 16	12. 27.0 to 29.0
			CLAY - -			13. 31.0 to 33.0
			32.6 to 34.5 sedium plasticity, moist, stiff, tan and gray			14. 33.0 to 35.0
			34.0 to 36.0 low plasticity, tan and gray, soft to sedium stiff, saturated, sandy			15. 35.0 to 37.0
			36.0 to 38.5			16. 37.0 to 39.0
			SAND - -			Note: sand sample from 29.0 to 31.0 and gravel sample from 39.0 to 41.0 were disturbed.
			tan, sedium dense, saturated, slightly clayey			Jar samples
			38.5 to 45.5			A. 0.0 to 3.0
			GRAVEL - -			B. 3.0 to 5.0
			tan, loose, saturated, sandy, becomes coarse at 40.5'			C. 7.0
			T. D. @ 45.5			D. 9.0
						E. 11.0
						F. 13.0
						G. 15.0
						H. 17.0
						I. 19.0
						J. 21.0
						K. 23.0
						L. 25.0
						M. 27.0
						N. 29.0
						O. 31.0
						P. 33.0
						Q. 35.0
						R. 37.0
						S. 39.0
						T. 41.0
						Note: samples C through T obtained from shoe of Denison barrel.
						Water table
						Hole was bailed to 35.0 after 15 minutes, level at 15.0', 4" slotted plastic pipe installed to 44.0'. Daily measurements reported on supplemental sheet.
						Note
						All material from 0.0 to 29.2 was calcareous
						Hand penetrometer test
						Depth tons/sq. ft.
						7.0 >4.50
						9.0 >4.50
						11.0 >4.50
						13.0 4.00
						15.0 3.00
						17.0 2.00
						19.0 2.10
						21.0 2.25
						23.0 2.50
						25.0 2.25
						27.0 2.00
						29.0 3.00
						35.0 0.50

DRILLING LOG — Division: Southwestern — Installation: Fort Worth District

1. Project: Aubrey D. S.
2. Location (Coordinates or Stations): X= 2,140,155 Y= 614,685
3. Drilling agency: Corps of Engineers
4. Hole No. (As shown on drawing title and file number): A16D-69
5. Name of driller: Mullins
6. Direction of hole: ☒ Vertical ☐ Inclined ____ deg. from vert.
7. Thickness of overburden: 43.0
8. Depth drilled into rock: 1.0
9. Total depth of hole: 44.0
10. Size and type of bit:
11. Datum for elevation shown (MSL or USC&GS): MSL
12. Manufacturer's designation of drill: Failing 1500
13. Total no. of overburden samples taken: Undisturbed 16
14. Total number core boxes:
15. Elevation ground water:
16. Date hole: Started 15 Aug 73
17. Elevation top of hole: 557.5
18. Total core recovery for boring:
19. Signature of inspector: Joseph A. Strutt

Elevation	Depth	Legend	Classification of materials (Description)	% Core Recovery	Box or Sample No.	Remarks
			0.0 to 32.0		Jar A	*Dri
			CLAY - -		Jar B	0.0 to 15.
			0.0 to 4.5 sedium plasticity, brownish-gray, stiff, slightly moist		Jar C	15.0 to 3
			4.5 to 11.0 low to sedium plasticity, brown, stiff to very stiff, moist, with some calcareous particles 5.2 to 11.0		Jar D	37.0 to 4
			11.0 to 20.0 high plasticity, light brown, moist to very moist, stiff		Jar E	rockbit
			20.0 to 22.0 high plasticity, light brown, sedium stiff, very moist to saturated		Can 1	no casing
			22.0 to 28.0 sedium plasticity, brown, stiff to very stiff, moist, wit. some calcareous partioles and a few small shells		Can 2	Jar s
			28.0 to 30.0 sedium plasticity, tan, stiff, very moist, slightly sandy		Can 3	A. 0.0 to
			30.0 to 32.0 low plasticity. tan, saturated, stiff, sandy		Can 4 50%	B. 4.5 to
			32.0 to 43.0		Can 5	C. 5.2 to
			SAND - -		Can 6 50%	D. 10.2 to
			32.0 to 34.0 tan, sedium dense, clayey, saturated		Can 7	E. 11.0 to
			34.0 to 36.5 tan, loose, saturated, gravelly		Can 8	F. 17.0
			36.5 to 43.0 with coarse gravel		Can 9	G. 19.0
						H. 21.0
						I. 23.0
						J. 25.0
						K. 27.0
						L. 29.0
						M. 31.0
						N. 33.0
						O. 35.0
						P. 37.0
						Note: samp P taken fr Denison ba
						Denison
						1. 15.0 to
						2. 17.0 to
						3. 21.0 t
						4. 23.0 to
						5. 25.0 to
						6. 27.0 to
						7. 29.0 to
						8. 31.0 to
						9. 33.0 to
						Note: no s 21.0 due t no sample due to pre
						Ho
						All overbu are calcar
			43.0 to 44.0			Hand penet
			SHALE - -			depth
			dark gray, medium hard (rock classification), unweathered, non-jointed, moist			17.0
						19.0
						23.0
						25.0
						27.0
						29.0
						31.0
						**Wate Hole baile imately 3 water very after com bailing, 9.8'. Addi table info ported on sheet. 4" plastic p 35.0'.

Hole No. A6D-69

DRILLING LOG — Division: Southwestern — Installation: Fort Worth District — Sheet 1 of 2 sheets

1. Project: Aubrey D. 3
2. Location: X- 2,140,155 Y- 614,685
3. Drilling Agency: Corps of Engineers
4. Hole No.: A6D-69
5. Name of Driller: Mullins
6. Direction of Hole: ☒ Vertical ☐ Inclined ____ deg. from vert.
7. Thickness of Overburden: 43.0
8. Depth Drilled Into Rock: 1.0
9. Total Depth of Hole: 44.0
10. Size and Type of Bit: —
11. Datum for Elevation Shown: MSL
12. Manufacturer's Designation of Drill: Failing 1500
13. Total No. of Overburden Samples Taken: Undisturbed 16; Undisturbed 9
14. Total Number Core Boxes: —
15. Elevation Ground Water: —
16. Date Hole: Started 15 Aug 73; Completed 16 Aug 73
17. Elevation Top of Hole: 557.5'
18. Total Core Recovery for Boring: —
19. Signature of Inspector: Joseph A. Smith

Elevation	Depth	Legend	Classification of Material (Description)	% Core Recovery	Box or Sample No.	Remarks (Drilling time, water loss, depth of weathering, etc.; if significant)
			0.0 to 32.0		Jar A	*Drilling
			CLAY - -			0.0 to 15.0 10" auger
			0.0 to 4.5 medium plasticity, brownish-gray, stiff, slightly moist		Jar B	15.0 to 37.0 6" D Hol
			4.5 to 11.0 low to medium plasticity, brown, stiff to very stiff, moist, with some calcareous particles 5.2 to 11.0		Jar C	37.0 to 44.0 7 7/8" rockbit
	10		11.0 to 20.0 high plasticity, light brown, moist to very moist, stiff		Jar D	no casing
			20.0 to 22.0 high plasticity, light brown, medium stiff, very moist to saturated		Jar E	Jar samples
			22.0 to 28.0 medium plasticity, brown, stiff to very stiff, moist, wit. some calcareous particles and a few small shells		Can 1	A. 0.0 to 4.5
					Can 2	B. 4.5 to 5.2
	20		28.0 to 30.0 medium plasticity, tan, stiff, very moist, slightly sandy		Can 3	C. 5.2 to 10.2
			30.0 to 32.0 low plasticity, tan, saturated, stiff, sandy		Can 4	D. 10.2 to 11.0
			32.0 to 43.0		50%	E. 11.0 to 15.0
			SAND - -		Can 5	F. 17.0
			32.0 to 34.0 tan, medium dense, clayey, saturated		Can 6	G. 19.0
					50%	H. 21.0
	30		34.0 to 36.5 tan, loose, saturated, gravelly		Can 7	I. 23.0
			36.5 to 43.0 with coarse gravel		Can 8	J. 25.0
						K. 27.0
					Can 9	L. 29.0
						M. 31.0
						N. 33.0
						O. 35.0
						P. 37.0
						Note: samples F through P taken from shoe of Denison barrel.
						Denison samples
						1. 15.0 to 17.0
						2. 17.0 to 19.0
						3. 21.0 to 23.0
						4. 23.0 to 25.0
						5. 25.0 to 27.0
						6. 27.0 to 29.0
						7. 29.0 to 31.0
						8. 31.0 to 33.0
						9. 33.0 to 35.0
						Note: no sample 19.0 to 21.0 due to catcher; no sample 35.0 to 37.0 due to presence of gravel
						Note
						All overburden material are calcareous.
	40		43.0 to 44.0			Hand penetrometer test
			SHALE - -			depth tons/sq. ft.
			dark gray, medium hard (rock classification), unweathered, non-jointed, moist			17.0 3.20
						19.0 2.75
						23.0 2.65
						25.0 2.65
						27.0 1.75
						29.0 1.50
						31.0 1.20
	50					**Water table
						Hole bailed to approximately 30.0' but making water very rapidly. After completion of bailing, water level at 9.8'. Additional water table information reported on supplimental sheet. 4" slotted plastic pipe set to 35.0'.

RECORD DRAWING-WORK AS BUILT

SYM	DO NO.	ACTION	DATE	DESCRIPTION OF REVISION

U.S. ARMY ENGINEER DISTRICT, FORT WORTH
CORPS OF ENGINEERS
FORT WORTH, TEXAS

DESIGNED BY: ---
DRAWN BY: ---
REVIEWED BY: ---

RAY ROBERTS LAKE
ELM FORK, TRINITY RIVER, TEXAS
EMBANKMENT, SPILLWAY AND OUTLET WORKS
LOGS OF BORINGS
8A6D-67, 8A6D-68, AND 8A6D-69

SUBMITTED BY
ENGINEER

INVITATION NO. DACW63-82-B-0025 DATE: MAR. 1982
CONTRACT NO. DACW63-82-C-0083
DRAWING NUMBER
SHEET NO. 27 OF
SEQUENCE NO.

CONTRACT NO DACW63-82-C-0083

Hole No. 8A-70

DRILLING LOG

Division	Southwestern
Installation	Fort Worth District
Sheet	1 of 2 sheets
1. Project	Aubrey D. S.
2. Location (Coordinates or Station)	X= 2,133,8[illegible] Y= 615,[illegible]
3. Drilling Agency	Corps of Engineers
4. Hole No. (As shown on drawing title and file number)	8A-70
5. Name of Driller	Mullins
6. Direction of Hole	[X] Vertical [ ] Inclined ____ deg. from vert.
7. Thickness of Overburden	39.2
8. Depth Drilled into Rock	0.8
9. Total Depth of Hole	40.0
10. Size and Type of Bit	8" auger
11. Datum for Elevation Shown (TBM or MSL)	MSL
12. Manufacturer's Designation of Drill	Failing 1500
13. Total No. of Overburden Samples Taken	Disturbed: 14 / Undisturbed:
14. Total Number Core Boxes	
15. Elevation Ground Water	*
16. Date Hole	Started: 14 Aug 73 / Completed: 15 Aug 73
17. Elevation Top of Hole	561.0'
18. Total Core Recovery for Boring	%
19. Signature of Inspector	Joseph A. [illegible]

Classification of Materials (Description)	Box or Sample No.
0.0 to 29.0 CLAY - - 0.0 to 5.0 medium plasticity, dark brown, medium stiff, slightly moist	Jar A
5.0 to 10.8 medium plasticity, brown, stiff, moist, with some calcareous particles	Jar B
10.8 to 27.0 high plasticity, brown, stiff to very stiff, moist	Jar C, Jar D, Jar E, Jar F
27.0 to 28.0 medium plasticity, tan, medium stiff to stiff, very moist, slightly sandy	Jar G
28.0 to 29.0 low plasticity, tan, medium stiff, saturated, sandy	Jar H
29.0 to 33.0 SAND - - tan, loose, saturated, becomes slightly gravelly 31.0 to 33.0	Jar I, Jar J, Jar K, Jar L
33.0 to 34.0 CLAY - - medium to high plasticity, brown, stiff, moist, slightly gravelly	Jar M, Jar N
34.0 to 35.0 GRAVEL - - tan, loose, saturated, poorly graded	Jar O
35.0 to 39.2 CLAY - - 35.0 to 38.0 medium plasticity, brown and gray, stiff, moist 38.0 to 39.2 low plasticity, brown, medium stiff, saturated, sandy and gravelly	
39.2 to 40.0 SHALE - - dark gray medium hard (rock classification), unweathered, non-jointed, non- to slightly calcareous	

Remarks (Drilling time, water loss, depth of weathering, etc., if significant)

Drilling

0.0 to 40.0 8" auger
no casing

Jar samples

A. 0.0 to 5.0
B. 5.0 to 10.8
C. 10.8 to 12.0
D. 12.0 to 16.8
E. 16.8 to 21.8
F. 21.8 to 27.0
G. 27.0 to 28.0
H. 28.0 to 29.0
I. 29.0 to 31.0
J. 31.0 to 33.0
K. 33.0 to 34.0
L. 34.0 to 35.0
M. 35.0 to 38.0
N. 38.0 to 39.2
O. 39.2 to 40.0

Note

All overburden materials are calcareous

*Water table

Drilling mud not used and hole not bailed. 4" slotted plastic pipe set to 33.0'. At completion of drilling, water level standing at 24.1'. Other water table information reported on supplimental sheet.

T. D. @ 40.0

DRILLING LOG

Division	Southwestern
Installation	Fort [illegible]
1. Project	Aubrey D. S.
2. Location (Coordinates or Station)	X: 2,140,700 Y: 615,945
3. Drilling Agency	Corps of Engineers
4. Hole No. (As shown on drawing title and file number)	8A-71
5. Name of Driller	Mullins
6. Direction of Hole	[X] Vertical [ ] Inclined ____ deg. from vert.
7. Thickness of Overburden	45.5'
8. Depth Drilled into Rock	0.5'
9. Total Depth of Hole	46.0'
12. Manufacturer's Designation of Drill	Failing 1[illegible]

Classification of Materials (Description)	Box or Sample No.
0.0 to 30.5 CLAY - - 0.0 to 6.5 medium plasticity, brown, medium stiff (becomes stiff at 4.0), slightly moist	Jar [illegible]
6.5 to 11.5 low plasticity, light brown, very stiff, slightly sandy	Jar [illegible]
11.5 to 16.5 medium plasticity, light brown, stiff, moist	Jar [illegible]
16.5 to 29.6 medium to high plasticity, brown, stiff, moist	Jar E, Jar F, Jar G
29.6 to 30.5 low plasticity, tan, stiff, saturated, sandy, very slightly gravelly	Jar [illegible]
30.5 to 31.7 SAND - - tan, loose, saturated, coarse, gravelly	Jar K
31.7 to 37.0 CLAY - - 31.7 to 32.5 high plasticity, gray and tan mottled, medium stiff, very moist, calcareous 32.5 to 37.0 high plasticity, grayish-brown, soft to medium stiff, very moist to saturated. Becomes slightly sandy at 35.0	Jar L, Jar M
37.0 to 45.5 GRAVEL - - tan, loose, saturated, clayey, with some shells and small cobbles. Becomes very clayey at 42.0'.	

Hole No. 8A-71

DRILLING LOG — Division: Southwestern — Installation: Fort Worth District — Sheet 1 of 2 sheets

1. Project: Aubrey D. S.
2. Location: X= 2,140,700 Y= 615,945
3. Drilling Agency: Corps of Engineers
4. Hole No. (As shown on drawing title and file number): 8A-71
5. Name of Driller: Mullins
6. Direction of Hole: ☒ Vertical ☐ Inclined ____ deg. from vert.
7. Thickness of Overburden: 45.5'
8. Depth Drilled into Rock: 0.5'
9. Total Depth of Hole: 46.0'
10. Size and Type of Bit: 8" auger
11. Datum for Elevation shown (MSL or USC&GS): MSL
12. Manufacturer's Designation of Drill: Failing 1500
13. Total No. of Overburden Samples Taken: Disturbed 13; Undisturbed 0
14. Total Number Core Boxes:
15. Elevation Ground Water: 0
16. Date Hole: Started 13 Aug 73; Completed 14 Aug 73
17. Elevation Top of Hole: 560.0'
18. Total Core Recovery for Boring: %
19. Signature of Inspector: Joseph A. Blanks

Elevation	Depth	Legend	Classification of Material (Description)	% Core Recovery	Box or Sample No.	Remarks
			0.0 to 30.5 CLAY - - 0.0 to 6.5 medium plasticity, brown, medium stiff (becomes stiff at 4.0), slightly moist		Jar A Jar B	**Drilling** 0.0 to 43.0 8" auger 43.0 to 46.0 7 7/8 rockbit **Jar samples** A. 0.0 to 4.0 B. 4.0 to 6.5 C. 6.5 to 11.5 D. 11.5 to 16.5 E. 16.5 to 20.5 F. 20.5 to 25.5 G. 25.5 to 29.6 H. 29.6 to 30.5 I. 30.5 to 31.7 J. 31.7 to 32.5 K. 32.5 to 37.0 L. 37.0 to 42.0 M. 42.0 to 45.5
10			6.5 to 11.5 low plasticity, light brown, very stiff, slightly sandy		Jar C	
			11.5 to 16.5 medium plasticity, light brown, stiff, moist		Jar D	
			16.5 to 29.6 medium to high plasticity, brown, stiff, moist		Jar E Jar F	**Note** All materials are calcareous. ***Water table** Because of squeezing, hole was bailed only to 16.0' & slotted, plastic pipe set to 39.2'. Subsequent measurements reported on supplimental sheet.
20					Jar G	
30			29.6 to 30.5 low plasticity, tan, stiff, saturated, sandy, very slightly gravelly		Jar H Jar I Jar J	
			30.5 to 31.7 SAND - - tan, loose, saturated, coarse, gravelly		Jar K	
			31.7 to 37.0 CLAY - -		Jar L	
40			31.7 to 32.5 high plasticity, gray and tan mottled, medium stiff, very moist, calcareous 32.5 to 37.0 high plasticity, grayish-brown, soft to medium stiff, very moist to saturated. Becomes slightly sandy at 35.0		Jar M	T. D. @ 46.0'
			37.0 to 45.5 GRAVEL - - tan, loose, saturated, clayey, with some shells and small cobbles. Becomes very clayey at 42.0'.			
50						

Hole No. 8A6C-72

DRILLING LOG — Division: Southwestern — Installation: Fort Worth District — Sheet 1 of 1 sheets

1. Project: Aubrey D. S.
2. Location:
3. Drilling Agency: Corps of Engineers
4. Hole No. (As shown on drawing title and file number): 8A6C-72
5. Name of Driller: Kerbouse
6. Direction of Hole: ☒ Vertical ☐ Inclined ____ deg. from vert.
7. Thickness of Overburden: 21.0
8. Depth Drilled into Rock: 7.0
9. Total Depth of Hole: 28.0
10. Size and Type of Bit: 8" auger; 6" core
11. Datum for Elevation shown (MSL or USC&GS): MSL
12. Manufacturer's Designation of Drill: Failing 1500
13. Total No. of Overburden Samples Taken: Disturbed 8; Undisturbed 0
14. Total Number Core Boxes: 1
15. Elevation Ground Water: ∞
16. Date Hole: Started 17 Aug 73; Completed 21 Aug 73
17. Elevation Top of Hole: 570.4
18. Total Core Recovery for Boring: 60%
19. Signature of Inspector: Joseph A. Blanks

Elevation	Depth	Legend	Classification of Material (Description)	% Core Recovery	Box or Sample No.	Remarks
			0.0 to 4.0 CLAY - - medium plasticity, brown, very stiff, slightly moist, slightly sandy		Jar A Jar B	***Location** Hole offset 16.0' S40°W from staked location of X= 2,138,510 and Y= 614,460 ****Water table** 4" slotted plastic pipe installed to 18.5 after hole bailed to 23.0. Readings reported on supplimental sheet.
10			4.0 to 20.0 SAND - - 4.0 to 11.0 tan, medium dense, moist, fine, clayey; becomes silty at 10.0		Jar C Jar D Jar E	**Drilling** 0.0 to 24.0 8" auger 24.0 to 28.0 6" core **Jar samples** A. 0.0 to 4.0 B. 4.0 to 10.0 C. 10.0 to 11.0 D. 11.0 to 12.5 E. 12.5 to 15.0 F. 15.0 to 17.0 G. 17.0 to 20.0 H. 20.0 to 21.0
			11.0 to 12.5 tan, medium dense, moist, silty, with small ironstone nodules		Jar F	
			12.5 to 15.0 tan and gray, loose, saturated, with ironstone		Jar G	
20			15.0 to 17.0 gray, loose, saturated, silty		Jar H	
			17.0 to 20.0 tan, loose, saturated, silty		Jar clay.	
			20.0 to 21.0 GRAVEL - - tan, loose, saturated, sandy, with cobbles up to 4" diameter	L 1.2	Box 1	**Carton sample** 1. 26.7 to 27.6 **Note** Overburden is non-calcareous. Hole elevation is 571.1' & 8" casing to 24.0'
			21.0 to 21.2 SILTSTONE - - light gray, hard (rock classification), massive			
30			21.2 to 28.0 SHALE - - light gray, non-weathered, moderately hard (rock classification), laminated, non-jointed			
			T. D. @ 28.0			

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Project: Aubrey D. S. — Hole No. 8A6C-72

Hole No. 8A6C-72

Division	Southwestern
Installation	Fort Worth District
Sheet	1 of 1 sheets
10. Size and type of bit	8" auger, 6" core
11. Datum for elevation shown (TBM or MSL)	MSL
12. Manufacturer's designation of drill	Failing 1500
13. Total no. of overburden samples taken	Disturbed: 8 / Undisturbed: 0
Hole No.	8A6C-72
14. Total number core boxes	1
15. Elevation ground water	*
16. Date hole	Started: 17 Aug 73 / Completed: 21 Aug 73
17. Elevation top of hole	570.4
18. Total core recovery for boring	60%
Thickness of overburden	21.0
Depth drilled into rock	7.0
Total depth of hole	28.0
19. Signature of inspector	Joseph A. Hinkle (signature)

Classification of Materials (Description)	% Core Recovery	Box or Sample No.	Remarks (Drilling time, water loss, depth of weathering, etc., if significant)
0.0 to 4.0 CLAY - - medium plasticity, brown, very stiff, slightly moist, slightly sandy		Jar A Jar B	*Location Hole offset 16.0' 340° W from staked location of X- 2,138,510 and Y- 614,460
4.0 to 20.0 SAND - - 4.0 to 11.0 tan, medium dense, moist, fine, clayey, becomes silty at 10.0		Jar C Jar D	*Water table 4" slotted plastic pipe installed to 18.5 after hole bailed to 23.0. Readings reported on supplimental sheet.
11.0 to 12.5 tan, medium dense, moist, silty, with small ironstone nodules		Jar E	Drilling 0.0 to 24.0 8" auger 24.0 to 28.0 6" core
12.5 to 15.0 tan and gray, loose, saturated, with ironstone		Jar F	Jar samples A. 0.0 to 4.0 B. 4.0 to 10.0 C. 10.0 to 11.0 D. 11.0 to 12.5 E. 12.5 to 15.0 F. 15.0 to 17.0 G. 17.0 to 20.0 H. 20.0 to 21.0
15.0 to 17.0 gray, loose, saturated, silty		Jar G	
17.0 to 20.0 tan, loose, saturated, silty		Jar H	
20.0 to 21.0 GRAVEL - - tan, loose, saturated, sandy, with cobbles up to 4" diameter		Jar. No. Recover	Carton sample 1. 26.7 to 27.6
21.0 to 21.2 SILTSTONE - - light gray, hard (rock classification), massive	L 1.2	Box 1	Note Overburden is non-calcarous. *Top elevation is 571.1'. 8" casing to 24.0'
21.2 to 28.0 SHALE - - light gray, non-weathered, moderately hard (rock classification), laminated, non-jointed			
T. D. @ 28.0			

EDITIONS ARE OBSOLETE.

Project: Aubrey D. S. — Hole No. 8A6C-72

Hole No. 8A6C-73

DRILLING LOG

Division	Southwestern
Installation	Fort Worth District
Sheet	1 of 1 sheets
1. Project	Aubrey D. S.
2. Location (Coordinates or Station)	X- 2,138,830 Y- 614,570
3. Drilling agency	Corps of Engineers
4. Hole No. (As shown on drawing title and file number)	8A6C-73
5. Name of driller	Hulling
6. Direction of hole	[X] Vertical [ ] Inclined ____ deg. from vert.
7. Thickness of overburden	10.5
8. Depth drilled into rock	8.5
9. Total depth of hole	19.0
10. Size and type of bit	8" auger, 6" core
11. Datum for elevation shown (TBM or MSL)	MSL
12. Manufacturer's designation of drill	Failing 1500
13. Total no. of overburden samples taken	Disturbed: 4 / Undisturbed: 0
14. Total number core boxes	1
15. Elevation ground water	*
16. Date hole	Started: 17 Aug 73 / Completed: 17 Aug 73
17. Elevation top of hole	560.4'
18. Total core recovery for boring	100%
19. Signature of inspector	Joseph A. Hinkle (signature)

Elevation	Depth	Legend	Classification of Materials (Description)	% Core Recovery	Box or Sample No.	Remarks (Drilling time, water loss, depth of weathering, etc., if significant)
			0.0 to 10.5 CLAY - - 0.0 to 4.0 medium to high plasticity, dark brown, stiff, dry to slightly moist, non-calcareous		Jar A	Drilling 0.0 to 14.0 8" auger 14.0 to 19.0 6" core no casing
			4.0 to 6.0 medium plasticity, light brown, very stiff, moist, slightly sandy, calcareous		Jar B Jar C Jar D	Jar samples A. [illegible] B. 4.[illegible] [illegible].0 C. 6.0 to 7.5 D. 7.5 to 10.5 E. 10.5 to 13.0 F. 13.0 to 14.0
	10		6.0 to 7.5 low plasticity, tan, stiff, moist, sandy, calcareous		Jar E	Carton sample 1. 18.1 to 19.0
			7.5 to 10.5 low plasticity, tan and gray, very stiff, moist, sandy, non-calcareous, becomes slightly gravelly 10.0 to 10.5	14.0 L 0.0	Jar F Box 1	*Water table 4" slotted plastic pipe set to 19.0 after hole bailed to 17.2'. Water table information reported on supplimental sheet.
			10.5 to 19.0 SHALE *-	19.0	19.0	
	20		moderately weathered, dark gray to tan, moist, soft (rock classification), non-jointed, with clayey sand, tan, from 13.0 to 14.0			
			T. D. @ 19.0			
			*Carton Sample Shows A mottled gray & tan Clay w/ small pockets of siltstone. No shale structure noted. WKS 9/27/74			

ENG FORM 1836 MAR 71 PREVIOUS EDITIONS ARE OBSOLETE.

Project: Aubrey D. S. — Hole No. 8A6C-73

RECORD DRAWING-WORK AS BUILT

SYM	DO NO	ACTION	DATE	DESCRIPTION OF REVISION

U.S. ARMY ENGINEER DISTRICT, FORT WORTH
CORPS OF ENGINEERS
FORT WORTH, TEXAS

Designed by: --------
Drawn by: --------
Reviewed by: --------
Submitted by:
Engineer

RAY ROBERTS LAKE
ELM FORK, TRINITY RIVER, TEXAS
EMBANKMENT, SPILLWAY AND OUTLET WORKS
LOGS OF BORINGS
8A-70, 8A-71, 8A6C-72, AND 8A6C-73

Invitation No. DACW63-82-B-0025 — Date MAR, 1982
Contract No. DACW63-82-C-0083
Drawing Number — Sheet No. — Sequence No. 28

CONTRACT NO DACW63-82-C-0083

TO ACCOMPANY FOUNDATION REPORT

Hole No. 8160-7[illegible]

DRILLING LOG — Division: Southwestern — Installation: Fort Worth District — Sheet 1 of 1 sheets

Field	Entry
1. Project	Aubrey D. S.
2. Location (Coordinates or Station)	
3. Drilling agency	Corps of Engineers
4. Hole No. (As shown on drawing title and file number)	8160-74
5. Name of driller	Newhouse
6. Direction of hole	[x] Vertical [ ] Inclined ____ deg. from vert.
7. Thickness of overburden	3.5
8. Depth drilled into rock	5.6
9. Total depth of hole	9.1
10. Size and type of bit	8" auger; 6" core
11. Datum for elevation shown (TBM or MSL)	
12. Manufacturer's designation of drill	Failing 1500
13. Total no. of overburden samples taken	Disturbed: 0 — Undisturbed: 0
14. Total number core boxes	1
15. Elevation ground water	
16. Date hole	Started: 21 Aug 73 — Completed: 22 Aug 73
17. Elevation top of hole	
18. Total core recovery for boring	75%
19. Signature of inspector	Joseph A. [signature]

Elevation	Depth	Legend	Classification of Materials (Description)	% Core Recovery	Box or Sample No.	Remarks (Drilling time, water loss, depth of weathering, etc., if significant)
			0.0 to 3.5 CLAY - - 0.0 to 2.5 medium plasticity, dark brown, stiff to very stiff, slightly moist 2.5 to 3.5 low plasticity, brown, stiff, moist, slightly sandy; gravelly from 3.3 to 3.5	LO.T LO.C	Box 1	Drilling 0.0 to 3.5 8" auger 3.5 to 9.1 6" core (short barrel) 0.0 to 3.5 8" casing Carton sample 1. 5.4 to 6.0 Note Water measurements not taken. Overburden non-calcareous.
	10		3.5 to 7.9 LIMESTONE - - hard (rock classification), well cemented, light gray, massive 7.9 to 9.1 SHALE - - gray and tan, moderately hard, non-jointed, non-calcareous T. D. @ 9.1			

Hole No. 8A-75

DRILLING LOG — Division: Southwestern — Installation: Fort Worth District — Sheet 1 of 1 sheets

Field	Entry
1. Project	Aubrey D. S.
2. Location (Coordinates or Station)	
3. Drilling agency	Corps of Engineers
4. Hole No. (As shown on drawing title and file number)	8A-~~74~~ 75
5. Name of driller	Newhouse
6. Direction of hole	[x] Vertical [ ] Inclined ____ deg. from vert.
7. Thickness of overburden	5.5
8. Depth drilled into rock	0
9. Total depth of hole	5.5
10. Size and type of bit	8" auger
11. Datum for elevation shown (TBM or MSL)	
12. Manufacturer's designation of drill	Failing 1500
13. Total no. of overburden samples taken	Disturbed: 0 — Undisturbed: 0
14. Total number core boxes	
15. Elevation ground water	
16. Date hole	Started: 22 Aug 73 — Completed: 22 Aug 73
17. Elevation top of hole	
18. Total core recovery for boring	%
19. Signature of inspector	Joseph A. [signature]

Elevation	Depth	Legend	Classification of Materials (Description)	% Core Recovery	Box or Sample No.	Remarks (Drilling time, water loss, depth of weathering, etc., if significant)
			0.0 to 5.5 CLAY - - 0.0 to 4.0 medium plasticity, dark brown, stiff to very stiff, slightly moist 4.0 to 5.5 becomes light brown, moist			Drilling 0.0 to 5.5 8" auger Note Water measurements not taken. Overburden non-calcareous. Auger refusal at 5.5'.
	10		5.5 LIMESTONE - - hard (rock classification), well cemented, light gray, massive T. D. @ 5.5			

DRILLING LOG — Division: SWD — Installation: [illegible]

Field	Entry
1. Project	AUBREY DAM
2. Location (Coordinates or Station)	TUNNEL OUTLET WORKS
3. Drilling agency	USCE
4. Hole No. (As shown on drawing title and file number)	8160-78
5. Name of driller	Newhouse
6. Direction of hole	[x] Vertical [ ] Inclined ____ deg. from vert.
7. Thickness of overburden	12.0'
8. Depth drilled into rock	80.8'
9. Total depth of hole	92.8'
10. Size a[nd type of bit]	
11. Datum [for elevation shown]	
12. Manufa[cturer's designation of drill]	
13. Total n[o. of over]burden [samples taken]	
14. Total n[umber core boxes]	
15. Elevati[on ground water]	
16. Date ho[le]	
17. Elevati[on top of hole]	
18. Total c[ore recovery for boring]	
19. Signatu[re of inspector]	

Elevation	Depth	Legend	Classification of Materials (Description)	% C[ore] Rec[overy]
	0		0.0'-to 39.5' NO SAMPLES TAKEN	
	10			
	20			
	30			
	40			

ENG FORM 1836 MAR 71 PREVIOUS EDITIONS ARE OBSOLETE. (TRANSLUCENT) — PROJECT AUB[REY]

Hole No. 8A6C-78

DRILLING LOG

DIVISION	SWD
INSTALLATION	Ft Worth Dist
SHEET	1 of 3 SHEETS
1. PROJECT	AUBREY DAM
2. LOCATION (Coordinates or Station)	TUNNEL OUTLET WORKS
3. DRILLING AGENCY	USCE
4. HOLE NO. (As shown on drawing title and file number)	8A6C-78
5. NAME OF DRILLER	Newhouse
6. DIRECTION OF HOLE	☒ VERTICAL ☐ INCLINED ____ DEG. FROM VERT.
7. THICKNESS OF OVERBURDEN	12.0'
8. DEPTH DRILLED INTO ROCK	80.8'
9. TOTAL DEPTH OF HOLE	92.8'
10. SIZE AND TYPE OF BIT	See notes
11. DATUM FOR ELEVATION SHOWN (TBM or MSL)	MSL
12. MANUFACTURER'S DESIGNATION OF DRILL	Failing 1500
13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	DISTURBED 0 / UNDISTURBED 9
14. TOTAL NUMBER CORE BOXES	10
15. ELEVATION GROUND WATER	See notes
16. DATE HOLE	STARTED 11Feb76 / COMPLETED 13Feb76
17. ELEVATION TOP OF HOLE	
18. TOTAL CORE RECOVERY FOR BORING	%
19. SIGNATURE OF INSPECTOR	Alan J. Mer[illegible]

ELEVATION a | DEPTH b | LEGEND c | CLASSIFICATION OF MATERIALS (Description) d | % CORE RECOVERY e | BOX OR SAMPLE NO. f | REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g

Depth: 0, 10, 20, 30, 40

Classification of materials:

0.0'-to 39.5'

NO SAMPLES TAKEN

Box 1

Remarks:

1. Hole was bailed to 92' upon completion. After one hour, water level had risen to 82'.
2. Drilling:
   - 8" auger- 0 - 12.0'
   - rock-bit- 12 - 39.5'
   - 6" core-barrel - 39.5' - 92.8' TD
3. Cartons:
   1. 43.8' to 44.8'
   2. 48.5' to 49.5'
   3. 54.0' to 55.0'
   4. 60.4' to 61.4'
   5. 66.4' to 67.3'
   6. 73.0' to 74.0'
   7. 80.0' to 81.0'
   8. 85.3' to 86.3'
   9. 91.0' to 91.8'
4. Core boxes:
   1. 39.5' to 45.1'
   2. 45.1' to 50.5'
   3. 50.5' to 56.2'
   4. 56.2' to 62.0'
   5. 62.0' to 67.3'
   6. 67.3' to 71.9'
   7. 71.9' to 77.0'
   8. 77.0' to 82.6'
   9. 82.6' to 88.2'
   10. 88.2' to 92.8'

ENG FORM 1836 MAR 71 PREVIOUS EDITIONS ARE OBSOLETE. (TRANSLUCENT)

PROJECT: AUBREY DAM | HOLE NO. 8A6C-78

Hole No. 8A6C-78

DRILLING LOG

DIVISION	SWD
INSTALLATION	Ft Worth Dist
SHEET	2 of 3 SHEETS
1. PROJECT	AUBREY DAM
2. LOCATION (Coordinates or Station)	TUNNEL OUTLET WORKS
3. DRILLING AGENCY	USCE
4. HOLE NO. (As shown on drawing title and file number)	8A6C-78
5. NAME OF DRILLER	Newhouse
6. DIRECTION OF HOLE	☒ VERTICAL ☐ INCLINED ____ DEG. FROM VERT.
7. THICKNESS OF OVERBURDEN	12.0'
8. DEPTH DRILLED INTO ROCK	80.8'
9. TOTAL DEPTH OF HOLE	92.8'
10. SIZE AND TYPE OF BIT	See notes
11. DATUM FOR ELEVATION SHOWN (TBM or MSL)	
12. MANUFACTURER'S DESIGNATION OF DRILL	Failing 1500
13. TOTAL NO. OF OVER BURDEN SAMPLES TAKEN	DISTURBED 0 / UNDISTURBED 9
14. TOTAL NUMBER CORE BOXES	10
15. ELEVATION GROUND WATER	See notes
16. DATE HOLE	STARTED 11Feb76 / COMPLETED 13Feb76
17. ELEVATION TOP OF HOLE	
18. TOTAL CORE RECOVERY FOR BORING	%
19. SIGNATURE OF INSPECTOR	Alan J. Mer[illegible]

ELEVATION a | DEPTH b | LEGEND c | CLASSIFICATION OF MATERIALS (Description) d | % CORE RECOVERY e | BOX OR SAMPLE NO. f | REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g

Depth: 40, 50, 60, 70, 80, 90

Legend run numbers: 1, 2, 3, 4, 5, 6, 7, 8, 9

Classification of materials:

39.5' to 43.8'

LIMESTONE - Hard, light gray, argillaceous, becomes shaly at bottom, massive

43.8' to 92.8'

SHALE - Moderately hard, non - calc, laminated, silty, scatt fossil zones gray to dark gray with numerous lt gray sand & sandstone lenses

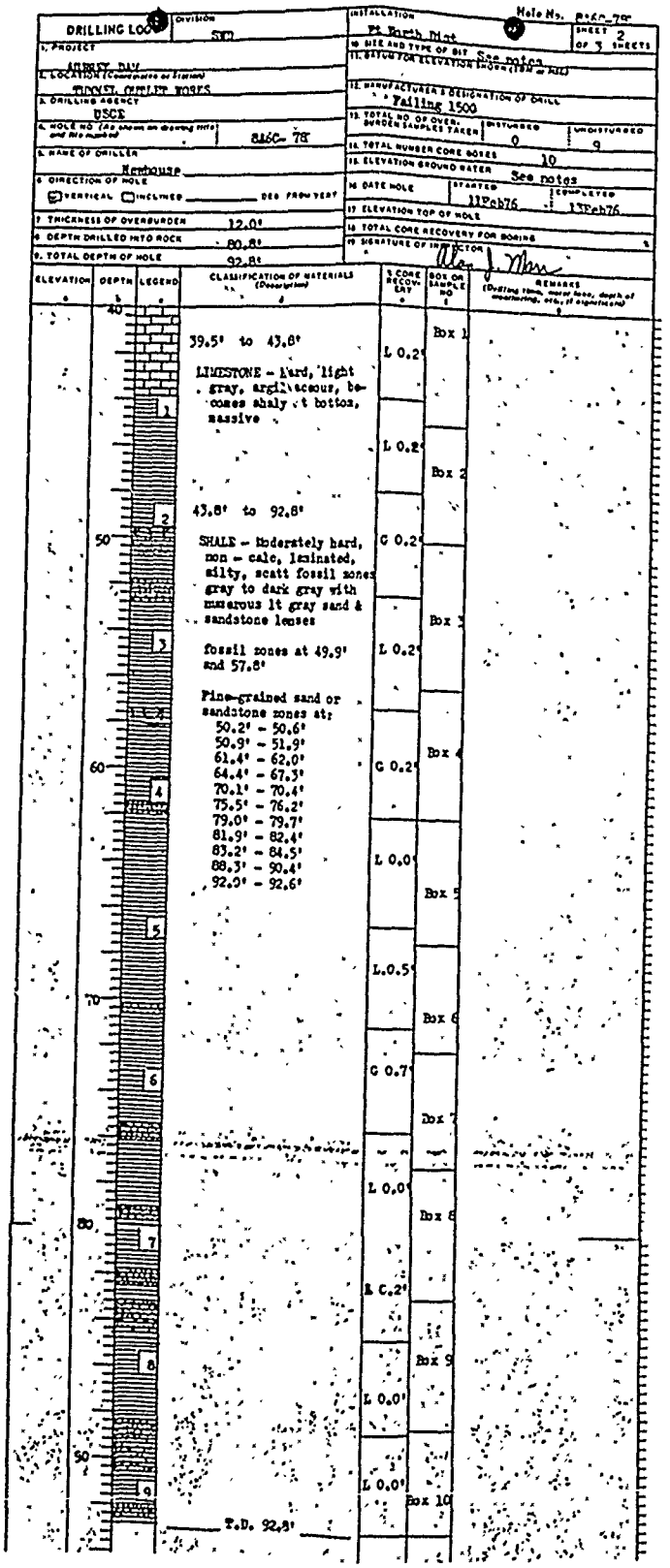
fossil zones at 49.9' and 57.8'

Fine-grained sand or sandstone zones at:
- 50.2' - 50.6'
- 50.9' - 51.9'
- 61.4' - 62.0'
- 64.4' - 67.3'
- 70.1' - 70.4'
- 75.5' - 76.2'
- 79.0' - 79.7'
- 81.9' - 82.4'
- 83.2' - 84.5'
- 88.3' - 90.4'
- 92.0' - 92.6'

T.D. 92.8'

% Core recovery: L 0.2', L 0.2', G 0.2', Z 0.2', G 0.2', L 0.0', L 0.5', G 0.7', L 0.0', L 0.2', L 0.0', L 0.0'

Box or sample no.: Box 1, Box 2, Box 3, Box 4, Box 5, Box 6, Box 7, Box 8, Box 9, Box 10



DRILLING LOG — Division: SWD — Installation: Ft Worth Dist — Hole No. 8A6C-78 — Sheet 2 of 3 sheets

1. Project: Ray Roberts Lake
2. Location (Coordinates or Station): Trinity, Spillway Works
3. Drilling Agency: USCE
4. Hole No. (As shown on drawing title and file number): 8A6C-78
5. Name of Driller: Henhouse
6. Direction of Hole: ☒ Vertical ☐ Inclined ____ Deg From Vert
7. Thickness of Overburden: 12.0'
8. Depth Drilled Into Rock: 80.8'
9. Total Depth of Hole: 92.8'
10. Size and Type of Bit: See notes
11. Datum for Elevation Shown (USGS or Assd):
12. Manufacturer's Designation of Drill: Failing 1500
13. Total No. of Overburden Samples Taken: Disturbed 0; Undisturbed 9
14. Total Number Core Boxes: 10
15. Elevation Ground Water: See notes
16. Date Hole: Started 11Feb76; Completed 13Feb76
17. Elevation Top of Hole:
18. Total Core Recovery for Boring:
19. Signature of Inspector: Wm J. Mann

Elevation	Depth	Legend	Classification of Materials (Description)	% Core Recovery	Box or Sample No.	Remarks (Existing items, water loss, depth of weathering, etc., if significant)
	40		39.5' to 43.8' LIMESTONE – Hard, light gray, argillaceous, becomes shaly at bottom, massive	L 0.2'	Box 1	
		1		L 0.2'		
					Box 2	
	50	2	43.8' to 92.8' SHALE – Moderately hard, non – calc, laminated, silty, scatt fossil zones gray to dark gray with numerous lt gray sand & sandstone lenses	C 0.2'		
					Box 3	
		3	fossil zones at 49.9' and 57.8'	L 0.2'		
			Fine-grained sand or sandstone zones at: 50.2' – 50.6' 50.9' – 51.9' 61.4' – 62.0' 64.4' – 67.3' 70.1' – 70.4' 75.5' – 76.2' 79.0' – 79.7' 81.9' – 82.4' 83.2' – 84.5' 88.3' – 90.4' 92.0' – 92.6'		Box 4	
	60	4		C 0.2'		
				L 0.0'	Box 5	
		5		L 0.5'		
					Box 6	
	70			C 0.7'		
		6			Box 7	
				L 0.0'		
					Box 8	
	80	7		L C.2'		
					Box 9	
		8		L 0.0'		
				L 0.0'	Box 10	
	90	9	T.D. 92.8'			

RECORD DRAWING-WORK AS BUILT

STM	DC NO	ACTION	DATE	DESCRIPTION OF REVISION

U.S. ARMY ENGINEER DISTRICT, FORT WORTH
CORPS OF ENGINEERS
FORT WORTH, TEXAS

DESIGNED BY ---
DRAWN BY ---
REVIEWED BY ---

RAY ROBERTS LAKE
ELM FORK, TRINITY RIVER, TEXAS
EMBANKMENT, SPILLWAY AND OUTLET WORKS
LOGS OF BORINGS
8A6C-74, 8A-75, AND 8A6C-78

SUBMITTED BY ---
ENGINEER

INVITATION NO. DACW63-82-B-0025 DATE MAR 1982
CONTRACT NO DACW63-82-C-0083
DRAWING NUMBER
SHEET NO. of
SEQUENCE NO. 29

CONTRACT NO DACW63-82-C-0083

DRILLING LOG

Hole No. 8A6C-84

DIVISION	Southwestern
INSTALLATION	Fort Worth District
SHEET	1 of 3 SHEETS
1. PROJECT	Aubrey Lake
2. LOCATION (Coordinates or Station)	Left abutment
3. DRILLING AGENCY	Corps of Engineers
4. HOLE NO. (As shown on drawing title and file number)	8A6C-84
5. NAME OF DRILLER	Walling
6. DIRECTION OF HOLE	[X] Vertical [ ] Inclined ____ Deg. from vert.
7. THICKNESS OF OVERBURDEN	4.0'
8. DEPTH DRILLED INTO ROCK	82.0'
9. TOTAL DEPTH OF HOLE	86.0'
10. SIZE AND TYPE OF BIT	8" auger; 6" core
11. DATUM FOR ELEVATION SHOWN (TBM or MSL)	
12. MANUFACTURER'S DESIGNATION OF DRILL	Failing 1500
13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN	Disturbed: 1; Undisturbed: 0
14. TOTAL NUMBER CORE BOXES	15
15. ELEVATION GROUND WATER	*
16. DATE HOLE	Started: 7 Jan 75; Completed: 16 Jan 75
17. ELEVATION TOP OF HOLE	~~6??.05'~~ 621.3
18. TOTAL CORE RECOVERY FOR BORING	99%
19. SIGNATURE OF INSPECTOR	[signature]

Elevation (a)	Depth (b)	Legend (c)	Classification of Materials (Description) (d)	% Core Recovery (e)	Box or Sample No. (f)	Remarks (Drilling time, water loss, depth of weathering, etc., if significant) (g)
			0.0' to 4.0' SAND - - brown, loose, very moist, medium-grained, non-calcareous		Jar A	**Drilling** 0.0' to 9.0' 8" auger 9.0' to 86.0' 6" core 0.0' to 17.0' 8" casin[g] **Jar sample** A. 0.0' to 4.0'
	10		4.0' to 33.5' SAND (primary) - - red, massive, weathered, fine-grained, with some small ironstone concretions and zones slightly clayey 4.0' to 16.3' non-cemented	9.0 / 100 / 13.0	Box 1	**Carton samples** 1. 16.3' to 17.0' 2. 20.1' to 21.0' 3. 36.1' to 37.0' 4. 42.0' to 43.0' 5. 51.7' to 52.6' 6. 56.4' to 57.3' 7. 61.6' to 62.6' 8. 65.4' to 66.3' 9. 68.1' to 69.0' 10. 69.0' to 69.9' 11. 72.7' to 73.6' 12. 76.9' to 77.8' 13. 79.9' to 80.9' 14. 81.8' to 82.6' 15. 85.1' to 86.0'
		1	16.3' to 24.5' poorly cemented	100 / 17.0	14.0 / 2	
	20	2		100 / 21.0	19.0 / 3	
			24.5' to 27.3' non-cemented	103 / 25.0	24.7	**Note** Depth of weathering at 55.0'. Hole was not electric logged.
			27.3' to 29.0' poorly cemented	100 / 29.0	4	***Water level** Four inch slotted plastic pipe was set to 49.
	30		29.0' to 33.5' non-cemented, slightly clayey, becoming very clayey at base	0.0 / 33.0	29.7 / 5	
			33.5' to ~~43.8'~~ 45.3 SHALE - - light gray, moderately weathered, massive, non-calcareous, easy to drill, 4.25' to 4.50' on hand penetrometer down to 35.0' and >4.5 below 35.0'; sandy to very sandy with	100 / 37.0	34.6 / 6	
		3		0.0	40.0	
	40					

DRILLING LOG

Hole No.

DIVISION	SWD
INSTALLATION	FWD
1. PROJECT	Aubrey Lake
2. LOCATION (Coordinates or Station)	
3. DRILLING AGENCY	
4. HOLE NO. (As shown on drawing title and file number)	8A6C-84
5. NAME OF DRILLER	
6. DIRECTION OF HOLE	[ ] Vertical [ ] Inclined ____ Deg. from vert.
7. THICKNESS OF OVERBURDEN	
8. DEPTH DRILLED INTO ROCK	
9. TOTAL DEPTH OF HOLE	
10. SIZE AND TYPE OF BIT	
11. DATUM FOR ELEVATION SHOWN (TBM or MSL)	
12. MANUFACTURER'S DESIGNATION OF DRILL	
13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN	Disturbed:
14. TOTAL NUMBER CORE BOXES	
15. ELEVATION GROUND WATER	
16. DATE HOLE	Started:
17. ELEVATION TOP OF HOLE	
18. TOTAL CORE RECOVERY FOR BORING	
19. SIGNATURE OF INSPECTOR	

Elevation (a)	Depth (b)	Legend (c)	Classification of Materials (Description) (d)	% Core Recovery (e)	Box or Sample No. (f)	Remarks (g)
		4	occasional pockets of tan sand; with numerous short, irregular, tight, iron-stained yellow-brown joints, some of which open upon handling	41.0 / 106	7	
			32.5' to 34.8' black, iron stained, high angle, tight joint	45.0 / 100	45.4 / 8	
			44.4' to 46.8' badly jointed and very sandy; completely broken up with handling	49.0	49.4	
	50		48.0' to 48.3' ironstone, red, soft	602	9	
		5	48.3' to 65.4' SHALE - -	53.0		
			48.3' to 55.0' tan and light gray, slightly weathered, massive, calcareous	102	54.9	
		6	55.0' to 65.4' light gray to gray, non-weathered, thin-bedded, very calcareous; slightly fossiliferous in lower 0.1'	57.0 / 102	10	
	60			61.0	60.2	
		7	65.4' to 79.2' LIMESTONE - -	101	11	
		8	65.4' to 72.7' gradational with above unit, light gray, argillaceous, with numerous lenses of gray shale; moderately well cemented	68.3 / 111	66.3	
		9		68.3 / 60.7	12	
	70	10		70.3		
		11	72.7' to 78.6' well cemented with occasional lenses of shale, light gray	606	73.6	
		12	78.6' to 79.2' transitional with unit below	77.3 / 603	13	
	80	13		78.6		
		14	79.2' to SHALE - -	101 / 83.3	14	
		15	dark gray, non-calcareous, thin-bedded, non-fractured, non-jointed, with numerous thin sandy lenses and lenses of fine, poorly cemented, thin-bedded to cross-bedded sandstone; contains scattered ~~shells which tend to be con~~centrated along bedding planes sandstone at 80.7' to 81.0'; 81.7' to 82.0'; 82.3' to 82.6'; 85.7' to 86.0' siltstone, brownish-gray, well cemented at 79.6'; 85.2'	605	84.0 / 15 / 86.0	T. D. in shal[e]
	90					
	100					

Hole No. 8A6C-84

INSTALLATION	FWD
SHEET	2 OF 3 SHEETS
10 SIZE AND TYPE OF BIT	
11 DATUM FOR ELEVATION SHOWN (TBM or MSL)	
12 MANUFACTURER'S DESIGNATION OF DRILL	
13 TOTAL NO. OF OVERBURDEN SAMPLES TAKEN	DISTURBED / UNDISTURBED
14 TOTAL NUMBER CORE BOXES	
15 ELEVATION GROUND WATER	
16 DATE HOLE	STARTED / COMPLETED
17 ELEVATION TOP OF HOLE	
18 TOTAL CORE RECOVERY FOR BORING	
19 SIGNATURE OF INSPECTOR	

6C-84

...EES FROM VERT

CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
...l pockets of tan ...h numerous short, ..., tight, iron-stained ...own joints, some ...open upon handling	41.0 L 0.6	7	
...34.8' black, iron ...high angle, tight	45.0 L 0.0	45.4 8	
...46.8' badly jointed ...sandy; completely ...with handling	49.0 G 0.2	49.4 9	
...48.3' ironstone,			
....4'	53.0 L 0.2	54.9	
...55.0' tan and ...y, slightly weathered, ...calcareous	57.0	10	
...65.4' light gray ...-weathered, thin- ...ery calcareous; ...fossiliferous in	to L 0.2	60.2	
....2'	61.0 L 0.1	11	
...72.7' gradational ...e unit, light gray, ...ous, with numerous ...gray shale; mod- ...ell cemented	64.3 L 1.1	66.3	
	68.3 G 0.7	12	
...78.6' well cemen... ...sional lenses of ...ght gray	70.3 G 0.6	73.6	
...79.2' transitional ...below	74.3 G 0.3	13	
	78.6 L 0.1	14	
...y, non-calcareous, ...ded, non-fractured, ...ted, with numerous thin ...ases and lenses of ...orly cemented, thin- ...o cross-bedded sand- ...ontains scattered ...hich tend to be con- ...d along bedding	83.3 G 0.5	84.0 15 86.0	T. D. in shale at 86.0'
...e at 80.7' to 81.0'; ...82.0'; 82.3' to 82.6'; ...86.0'			
..., brownish-gray, ...ented at 79.6';			

Hole No. 8A6C-85

DRILLING LOG	DIVISION: Southwestern
INSTALLATION	Fort Worth District
SHEET	1 OF 2 SHEETS
1. PROJECT	Aubrey Lake
2. LOCATION (Coordinates or Station)	
3. DRILLING AGENCY	Corps of Engineers
4. HOLE NO. (As shown on drawing title and file number)	8A6C-85
5. NAME OF DRILLER	Mullins
6. DIRECTION OF HOLE	[X] VERTICAL [ ] INCLINED ___ DEG. FROM VERT.
7. THICKNESS OF OVERBURDEN	3.5'
8. DEPTH DRILLED INTO ROCK	63.5'
9. TOTAL DEPTH OF HOLE	67.0'
10. SIZE AND TYPE OF BIT	8" auger; 6" core
11. DATUM FOR ELEVATION SHOWN (TBM or MSL)	
12. MANUFACTURER'S DESIGNATION OF DRILL	Failing 1500
13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN	DISTURBED 1 / UNDISTURBED 0
14. TOTAL NUMBER CORE BOXES	12
15. ELEVATION GROUND WATER	*
16. DATE HOLE	STARTED 3 Dec 74 / COMPLETED 6 Dec 74
17. ELEVATION TOP OF HOLE	~~600.24'~~ 542.3
18. TOTAL CORE RECOVERY FOR BORING	100%
19. SIGNATURE OF INSPECTOR	[signature]

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
			0.0' to 3.5' SAND - - tan, loose, moist, fine to medium, silty, non-calcareous		Jar A B	**Drilling** 0.0' to 7.0' 8" auger 7.0' to 67.0' 6" core 0.0' to 6.0' 8" casing
	10	C1	3.5' to 25.6' SAND (primary) - - 3.5' to 6.0' brown, non-cemented, non-calcarcous, fine to medium, slightly clayey, very moist, with numerous ironstone concretions (to 6"), easy to auger	7.0 L 0.0 10.0 L 0.0	Box 1 11.6	**Jar samples** A. 0.0' to 3.5' B. 3.5' to 6.0'
		2, 3	6.0' to 8.6' reddish-brown, poorly cemented, with concretions, very difficult to auger 8.6' to 14.2' reddish-brown, non-cemented, massive, very moist, non-calcareous, with scattered small ironstone concretions, carbonaceous inclusions, and decayed roots	14.0 L 0.0 18.2 L 0.3	2 17.7 3	**Carton samples** 1. 7.0' to 7.9' 2. 12.3' to 13.2' 3. 16.0' to 16.8' 4. 18.0' to 18.9' 5. 27.7' to 28.6' 6. 32.1' to 33.0' 7. 34.7' to 35.6' 8. 41.4' to 42.3' 9. 48.1' to 49.0' 10. 54.0' to 54.9' 11. 58.3' to 59.2' 12. 65.6' to 66.5'
	20	4	14.2' to 25.6' becomes light gray with reddish-brown and yellowish-brown, clayey, with some carbonaceous matter and occasional thin veins of selenite 18.0' to 19.8' CLAY, predominately gray, sandy, with pockets of yellowish-brown clayey sand	22.0 G 0.3 26.0 L 0.4	23.1 4 28.6	**Note** Depth of weathering at 33.7'. ***Water level** Hole was not bailed but left open for water level checks.
	30	5, 6	19.8' to 25.6' borderline clay, gray, massive with lenses of clayey sand and sandy clay 25.6' to 45.0' SHALE - -	27.0 G 0.4 33.0 L 0.0	5 34.3	
	40	7	25.6' to 26.7' dark purple, sandy, massive, with ironstone nodules 26.7' to 28.6' light gray and gray, slightly weathered, approximately 4.0 on hand	37.0 L 1.0	6 39.6	

ELEVATION	DEPTH	LEGEND	CLASSIF...
		8	penetr... non-c... and no...
			28.6' ... calcar... penetr...
		9	33.7' ... gray, ... cement... planes... app re...
	50		34.0...
			42.8... tere...
		10	45.0' to...
			LIMESTO...
		11	45.0' ... with a... laccou... and p... moderat... with n... 50.8'
	60		51.3' ... gray, ... numero... argil...
		12	57.6' to...
			SHALE -
	70		dark ... fractu... carcou... to 59.... from 5... pocket... are a...
			...
			60.5' ... bedded...
			60.9'
			61.6'
			62.1'

ENG FORM 1836 MAR 71 PREVIOUS EDITIONS A... (TRANSLU...

Hole No. 8A6C-85

DIVISION: Southwestern | INSTALLATION: Fort Worth District | SHEET 1 OF 2 SHEETS

...ke

...ngineers

... 8A6C-85

10. SIZE AND TYPE OF BIT: 8" auger; 6" core
11. DATUM FOR ELEVATION SHOWN (TBM or MSL)
12. MANUFACTURER'S DESIGNATION OF DRILL: Failing 1500
13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN: DISTURBED 1 | UNDISTURBED 0
14. TOTAL NUMBER CORE BOXES: 12
15. ELEVATION GROUND WATER
16. DATE HOLE: STARTED 3 Dec 74 | COMPLETED 6 Dec 74
17. ELEVATION TOP OF HOLE: ~~600.34'~~ 599.3
18. TOTAL CORE RECOVERY FOR BORING: 100%
19. SIGNATURE OF INSPECTOR: [signature]

INCLINED ___ DEG. FROM VERT.
OVERBURDEN: 3.5'
DRILLED INTO ROCK: 63.5'
TOTAL DEPTH OF HOLE: 67.0'

LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
	0.0' to 3.5' SAND - - tan, loose, moist, fine to medium, silty, non-calcareous		Jar A, B	**Drilling** 0.0' to 7.0' 8" auger; 7.0' to 67.0' 6" core; 0.0' to 6.0' 8" casing
C1	3.5' to 25.6' SAND (primary) - -	7.0 L00	Box 1	**Jar samples** A. 0.0' to 3.5'; B. 3.5' to 6.0'
	3.5' to 6.0' brown, non-cemented, non-calcareous, fine to medium, slightly clayey, very moist, with numerous ironstone concretions (to 6"), easy to auger	10.0		**Carton samples** 1. 7.0' to 7.9'; 2. 12.3' to 13.2'; 3. 16.0' to 16.8'; 4. 18.0' to 18.9'; 5. 27.7' to 28.6'; 6. 32.1' to 33.0'; 7. 34.7' to 35.6'; 8. 41.4' to 42.3'; 9. 48.1' to 49.0'; 10. 54.0' to 54.9'; 11. 58.3' to 59.2'; 12. 65.6' to 66.5'
2	6.0' to 8.6' reddish-brown, poorly cemented, with concretions, very difficult to auger	L00	11.6 / 2	
3	8.6' to 14.2' reddish-brown, non-cemented, massive, very moist, non-calcareous, with scattered small ironstone concretions, carbonaceous inclusions, and decayed roots	14.0 L00	17.7	**Note** Depth of weathering at 33.7'.
4	14.2' to 25.6' becomes light gray with reddish-brown and yellowish-brown, clayey, with some carbonaceous matter and occasional thin veins of selenite	18.0 L03	3	**Water level** Hole was not bailed but left open for water level checks.
	18.0' to 19.8' CLAY, predominately gray, sandy, with pockets of yellowish-brown clayey sand	22.0 G03	23.1 / 4	
5	19.8' to 25.6' borderline clay, gray, massive with lenses of clayey sand and sandy clay	26.0 L0.4 / 27.0 G0.4	28.6 / 5	
6	25.6' to 45.0' SHALE - -	33.0 L00	34.3	
7	25.6' to 26.7' dark purple, sandy, massive, with ironstone nodules	37.0	6	
	26.7' to 28.6' light gray and gray, slightly weathered, approximately 4.0 on hand	L1.0	39.5	

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
		8	penetrometer, thin-bedded, non-calcareous, non-fractured, and non-jointed	41.0 G10	7	
			28.6' to 33.7' becomes calcareous, >4.5 on hand penetrometer		44.3	
		9	33.7' to 45.0' non-weathered, gray, very calcareous, slightly cemented, breaks along bedding planes, but bedding is not apparent	L00 / 47.0	8	
	50		34.0' to 34.2' rust-stained	L17	50.3	
			42.8' to 45.0' with scattered fossils	53.0	9	
		10	45.0' to 57.6' LIMESTONE - -	G11 / 56.0	55.4	
			45.0' to 51.3' transitional with above unit, very argillaceous, with numerous lenses and partings of shale, gray, moderately well cemented, with numerous fossils from 50.8' to 51.2'	L01 / 59.0	10	
	60	11	51.3' to 57.6' becomes light gray, well cemented, with numerous lenses of gray, argillaceous limestone	G05 / 63.0	60.5 / 11	
			57.6' to 60.5'	L01		
		12	SHALE - -	67.0	66.?/ 67.0	T. D. in shale @ 67.0'
	70		dark gray, thin-bedded, non-fractured, non-jointed, calcareous on bedding planes to 59.0', non-calcareous from 59.0' to TD, scattered pockets of fossils, thin lenses are sandy			
			58.3' to 58.?' SILTSTONE			
			60.5' to 60.9' SAND, thin-bedded, very fine			
			60.9' to 61.0' SILTSTONE			
			61.6' fossils on bedding plane			
			62.1' to 62.2' fossiliferous			

ENG FORM 1836 MAR 71 PREVIOUS EDITIONS ARE OBSOLETE (TRANSLUCENT)

PROJECT: Aubrey Lake | HOLE NO. 8A6C-85

RECORD DRAWING-WORK AS BUILT

SYM	CO. NO.	ACTION	DATE	DESCRIPTION OF REVISION

U.S. ARMY ENGINEER DISTRICT, FORT WORTH
CORPS OF ENGINEERS
FORT WORTH, TEXAS

DESIGNED BY: --------
DRAWN BY: --------
REVIEWED BY: --------
SUBMITTED BY:
ENGINEER

RAY ROBERTS LAKE
ELM FORK, TRINITY RIVER, TEXAS
EMBANKMENT, SPILLWAY AND OUTLET WORKS
LOGS OF BORINGS
8A6C-84 AND 8A6C-85

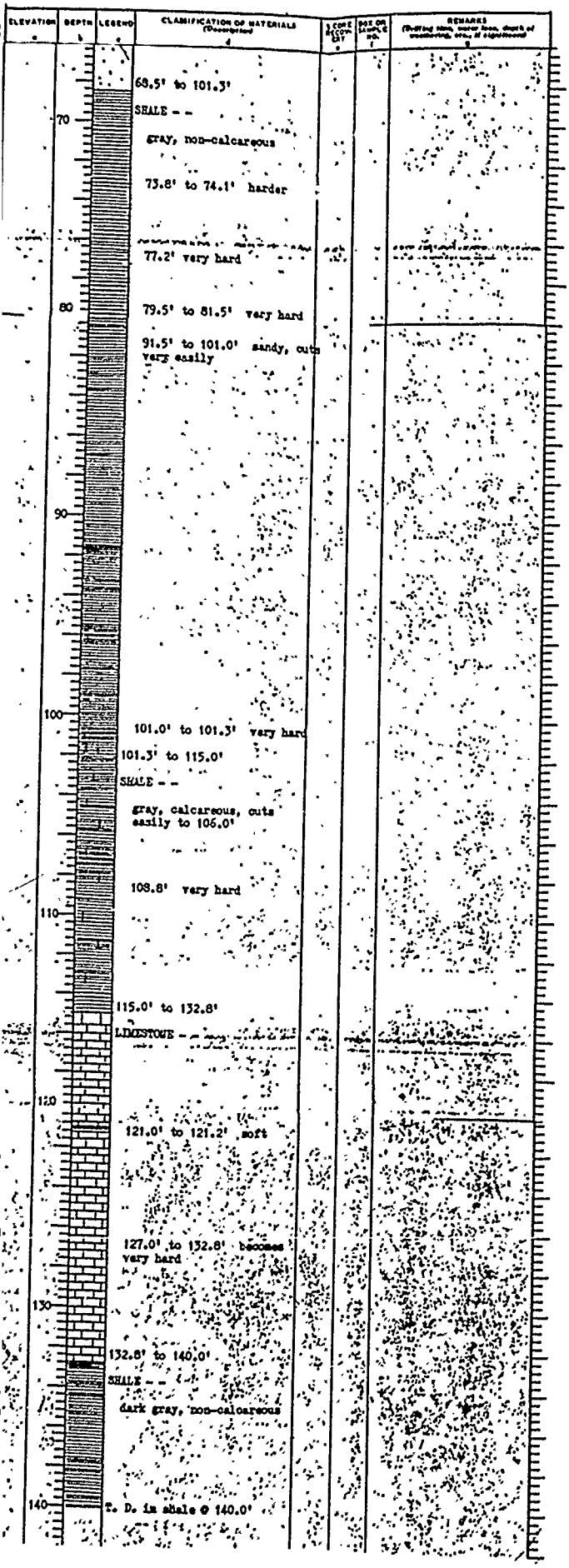
INVITATION NO. DACW63-82-B-0025 | DATE MAR. 1982
CONTRACT NO. DACW63-82-C-00-- | SEQUENCE
DRAWING NUMBER | SHEET NO. 20

Hole No. 33P-86

DRILLING LOG — Division: Southwestern — Installation: Fort Worth District — Sheet 1 of 4 sheets

1. Project	Aubrey Lake
2. Location (Coordinates or Station)	Left Abutment*
3. Drilling Agency	Corps of Engineers
4. Hole No. (As shown on drawing title and file number)	33P-86
5. Name of Driller	Mullins
6. Direction of Hole	[X] Vertical [ ] Inclined ___ Deg. from Vert.
7. Thickness of Overburden	0.0'
8. Depth Drilled into Rock	140.0'
9. Total Depth of Hole	140.0'
10. Size and Type of Bit	3 1/8" fishtail
11. Datum for Elevation Shown (TBM or MSL)	
12. Manufacturer's Designation of Drill	Failing 1500
13. Total No. of Overburden Samples Taken	Disturbed: 0 / Undisturbed: 0
14. Total Number Core Boxes	0
15. Elevation Ground Water	--
16. Date Hole	Started: 15 Dec 74 / Completed: 6 Jan 75
17. Elevation Top of Hole	
18. Total Core Recovery for Boring	
19. Signature of Inspector	Joseph A. Obrecht

Elevation	Depth	Legend	Classification of Materials (Description)	% Core Recovery	Box or Sample No.	Remarks (Drilling time, water loss, depth of weathering, etc., if significant)
			0.0' to 68.5'			**Drilling**
			SAND - -			0.0' to 140.0' 3 1/8" fishtail
			red, fine-grained			**Jar sample**
						A. 45.0' (from split spoon; may be fall-in)
			8.0' becomes firmer, possibly clayey			**Offset**
	10					Due to inaccessibility, hole was offset approximately 50' WSW from elevation 690.26' to elevation 674.8' (as measured by hand level). Packer lost in hole at 95.0', and hole was redrilled 4.5' S at same elevation.
			14.5' ironstone concretion			**Note**
	20		20.0' to 21.5' fairly hard, poorly cemented			Attempted unsuccessfully to obtain sand samples with shelby tube, split spoon, and NX core barrel. Hole was pressure tested and electric logged. Logging is by drilling action and cuttings.
	30					
	40					
	50					
	60					
			68.5' to 101.3'			
			SHALE - -			
	70		gray, non-calcareous			
			73.8' to 74.1' harder			
			77.2' very hard			
	80		79.5' to 81.5' very hard			
			81.5' to 101.0' sandy, cuts very easily			
	90					
	100		101.0' to 101.3' very hard			
			101.3' to 115.0'			
			SHALE - -			
			gray, calcareous, cuts easily to 106.0'			
			108.8' very hard			
	110					
			115.0' to 132.8'			
			LIMESTONE - -			
	120		121.0' to 121.2' soft			
			127.0' to 132.8' becomes very hard			
	130					
			132.8' to 140.0'			
			SHALE - -			
			dark gray, non-calcareous			
	140		T. D. in shale @ 140.0'			



Hole No. calyx hole

DRILLING LOG — DIVISION: Southwestern — INSTALLATION: Fort Worth District — SHEET 1 OF 2 SHEETS

1. PROJECT: Aubrey Lake
2. LOCATION (Coordinates or Station)
3. DRILLING AGENCY: Corps of Engineers
4. HOLE NO. (As shown on drawing) and this number: calyx hole
5. NAME OF DRILLER: Trevor
6. DIRECTION OF HOLE: ☒ VERTICAL ☐ INCLINED ____ DEG. FROM VERT.
7. THICKNESS OF OVERBURDEN: 45.0'
8. DEPTH DRILLED INTO ROCK: 1.5'
9. TOTAL DEPTH OF HOLE: 46.5'
10. SIZE AND TYPE OF BIT: 12" auger
11. DATUM FOR ELEVATION SHOWN (TBM or MSL)
12. MANUFACTURER'S DESIGNATION OF DRILL
13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN: DISTURBED 0 | UNDISTURBED 2
14. TOTAL NUMBER CORE BOXES: 0
15. ELEVATION GROUND WATER
16. DATE HOLE: STARTED 3 Mar 75 | COMPLETED 3 Mar 75
17. ELEVATION TOP OF HOLE
18. TOTAL CORE RECOVERY FOR BORING
19. SIGNATURE OF INSPECTOR: Joseph A. Martin

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIAL (Description)	CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS
			0.0' to 45.0' CLAY - - 0.0' to 6.0' low to medium plasticity, dark brownish-gray, very stiff, moist, silty			Drilling 0.0' to 46.5' 12" auger 0.0' to 29.6' 43" casing
			6.0' to 8.0' with small, irregular lime nodules			Water level
	10		8.0' to 12.0' becomes brown, hard			Boring was making water from between 20.0' and 21.0' to 45.0'. Hole tended to cave from 21.0' to TD
			12.0' to 14.5' low plasticity, brown, very stiff, moist, slightly sandy			Cylinder samples
			14.5' to 16.0' becomes stiff, sandy			1 19.6' to 20.4'
			16.0' to 19.6' low plasticity, brown, medium stiff, very moist, sandy			2 21.6' to 22.4'
	20		19.6' to 35.0' becomes saturated, soft, very easy to auger		1	
					2	
	30		35.0' to 45.0' becomes very sandy with gravel and small cobbles in lower 1.5'			
	40		45.0' to 46.5' SHALE - -			T. D. @ 46.5' in shale

DRILLING LOG — Hole No. calyx hole

DIVISION	Southwestern
INSTALLATION	Fort Worth District
SHEET	1 of 2 SHEETS
PROJECT	Aubrey Lake
LOCATION (Coordinates or Station)	
DRILLING AGENCY	Corps of Engineers
HOLE NO. (As shown on drawing title and file number)	calyx hole
…AME OF DRILLER	Brewer
…RECTION OF HOLE	VERTICAL / INCLINED ___ DEG. FROM VERT.
…ICKNESS OF OVERBURDEN	45.0'
…PTH DRILLED INTO ROCK	1.5'
…TAL DEPTH OF HOLE	46.5'
10. SIZE AND TYPE OF BIT	42" auger
11. DATUM FOR ELEVATION SHOWN (TBM or MSL)	
12. MANUFACTURER'S DESIGNATION OF DRILL	
13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	DISTURBED 0 / UNDISTURBED 2
14. TOTAL NUMBER CORE BOXES	0
15. ELEVATION GROUND WATER	
16. DATE HOLE	STARTED 3 Mar 75 / COMPLETED 3 Mar 75
17. ELEVATION TOP OF HOLE	
18. TOTAL CORE RECOVERY FOR BORING	%
19. SIGNATURE OF INSPECTOR	

ELEVATION | DEPTH | LEGEND | CLASSIFICATION OF MATERIALS (Description) | % CORE RECOVERY | BOX OR SAMPLE NO. | REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)

Depth scale: 10, 20, 30, 40

Classification of materials:

0.0' to 45.0'

CLAY -

0.0' to 6.0' low to medium plasticity, dark brownish-gray, very stiff, moist, silty

6.0' to 8.0' with small, irregular lime nodules

8.0' to 12.0' becomes brown, hard

12.0' to 14.5' low plasticity, brown, very stiff, moist, slightly sandy

14.5' to 16.0' becomes stiff, sandy

16.0' to 19.6' low plasticity, brown, medium stiff, very moist, sandy

19.6' to 35.0' becomes saturated, soft, very easy to auger

35.0' to 45.0' becomes very sandy with gravel and small cobbles in lower 1.5'

45.0' to 46.5'

SHALE -

Sample No.: 1, 2

Remarks:

Drilling

0.0' to 46.5' 42" auger

0.0' to 29.6' 43" casing

Water level

Boring was making water from between 20.0' and 21.0' to 45.0'. Hole tended to cave from 21.0' to TD

Cylinder samples

1. 19.6' to 20.4'
2. 21.6' to 22.4'

T.D. @ 46.5' in shale

DRILLING LOG — Hole No. 8A6DC-90

DIVISION	Southwestern
INSTALLATION	Fort Worth
SHEET	1 of 1 SHEETS
1. PROJECT	Aubrey Dam
2. LOCATION (Coordinates or Station)	Tunnel Outlet Works
3. DRILLING AGENCY	Corps of Engineers
4. HOLE NO. (As shown on drawing title and file number)	8A6DC-90
5. NAME OF DRILLER	Newhouse
6. DIRECTION OF HOLE	[X] VERTICAL / INCLINED ___ DEG. FROM VERT.
7. THICKNESS OF OVERBURDEN	1.5'
8. DEPTH DRILLED INTO ROCK	28.5'
9. TOTAL DEPTH OF HOLE	30.0'
10. SIZE AND TYPE OF BIT	8" Auger; Rock & Core
11. DATUM FOR ELEVATION SHOWN (TBM or MSL)	
12. MANUFACTURER'S DESIGNATION OF DRILL	Falling 1500
13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	DISTURBED 1 / UNDISTURBED 0
14. TOTAL NUMBER CORE BOXES	5
15. ELEVATION GROUND WATER	
16. DATE HOLE	STARTED 29 Jan 1976 / COMPLETED 30 Jan 1976
17. ELEVATION TOP OF HOLE	
18. TOTAL CORE RECOVERY FOR BORING	100 %
19. SIGNATURE OF INSPECTOR	

ELEVATION | DEPTH | LEGEND | CLASSIFICATION OF MATERIALS (Description) | % CORE RECOVERY | BOX OR SAMPLE NO. | REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)

Depth scale: 10.0', 20.0', 30.0'

Legend markers: 1, 2, 3

Classification of materials:

0.0' to 1.5'

SAND - fine to medium grained, brown, dry, clayey and limy.

1.5' to 9.2'

LIMESTONE - fine to medium grained, tan to rust brown, highly weathered, medium hard.

9.2' to 30.0'

SHALE

9.2' to 13.5' - tan to gray, silty, soft, weathered.

13.5' to 30.0' - dark gray, silty, horizontal bedding definition, soft, fossiliferous, non-calcareous except for fossils and fossil fragments. Light gray siltstone noted from 25.2' to 26.0'.

T. D. 30.0'

% Core Recovery	Box or Sample No.
	A
	B
	No Sample
L 1.4'	Box 1
C 1.0'	Box 2
L 1.4'	Box 3
C 0.4'	
C 0.2'	Box 4
C 1.2'	Box 5

Remarks:

1. Hole was bailed upon completion and perforated plastic pipe was installed for water level observation.
2. Drilling: 8" auger to 2.5'; 7 7/8" tri-cone rock bit to 7.0'; 6" core to total depth.
3. Jars:
   A. 0.0' to 1.5'
   B. 1.5' to 2.5'
4. Cartons:
   1. 13.5' to 14.5'
   2. 20.6' to 21.6'
   3. 27.8' to 28.8'
5. Core Boxes:
   1. 7.0' to 11.6'
   2. 11.6' to 17.2'
   3. 17.2' to 22.6'
   4. 22.6' to 27.4'
   5. 27.4' to 30.0'

ENG FORM 1836 MAR 71 PREVIOUS EDITIONS ARE OBSOLETE (TRANSLUCENT)

PROJECT: Aubrey Dam | HOLE NO. 8A6DC-90

RECORD DRAWING-WORK AS BUILT

SYM	NO	ACTION	DATE	DESCRIPTION OF REVISION

U.S. ARMY ENGINEER DISTRICT, FORT WORTH
CORPS OF ENGINEERS
FORT WORTH, TEXAS

DESIGNED BY: / DRAWN BY: / REVIEWED BY: / SUBMITTED BY: / ENGINEER

RAY ROBERTS LAKE
ELM FORK, TRINITY RIVER, TEXAS
EMBANKMENT, SPILLWAY AND OUTLET WORKS
LOGS OF BORINGS
3SF-86, CALYX HOLE AND 8A6DC-90

INVITATION NO. DACW63-82-B-0025 | DATE MAR. 1982
CONTRACT NO. DACW63-82-C-0023
DRAWING NUMBER | SHEET NO. OF | SEQUENCE NO. 31

CONTRACT NO DACW63-82-C-0023

TO ACCOMPANY FOUNDATION REPORT

Hole No. 8A6C-91

DRILLING LOG

Division	S. [illegible]
Installation	Fort Worth
Sheet	1 of 2 sheets
1. Project	Aubrey Dam
2. Location (Coordinates or Station)	Tunnel Outlet Works
3. Drilling Agency	Corps of Engineers
4. Hole No. (As shown on drawing title and file number)	8A6C-91
5. Name of Driller	Scrogrover and Mullins
6. Direction of Hole	[X] Vertical [ ] Inclined ___ Deg. from Vert.
7. Thickness of Overburden	18.0'
8. Depth Drilled into Rock	46.1'
9. Total Depth of Hole	64.1'
10. Size and Type of Bit	10" Auger; 6" Core
11. Datum for Elevation Shown (TBM or MSL)	
12. Manufacturer's Designation of Drill	Failing 1500
13. Total No. of Overburden Samples Taken	Disturbed: 6; Undisturbed: 0
14. Total Number Core Boxes	8
15. Elevation Ground Water	**
16. Date Hole	Started: 11 Dec. 1975; Completed: 16 Dec. 1975
17. Elevation Top of Hole	
18. Total Core Recovery for Boring	99 %
19. Signature of Inspector	[signature]

Elevation (a)	Depth (b)	Legend (c)	Classification of Materials (Description) (d)	% Core Recovery (e)	Box or Sample No. (f)	Remarks (Drilling time, water loss, depth of weathering, etc., if significant) (g)
			0.0' to 14.0' SAND 0.0' to 4.0' - very fine grained, light brown, unconsolidated, dry, non-calcareous. 4.0' to 7.0' - as above interval, light tan color, slightly damp, non-calcareous. 7.0' to 9.0' - very fine grained, rust brown, moist, becoming clayey (cohesive), non-calcareous. 9.0' to 14.0' - as above interval, more clayey, more moist, non-calcareous.		A B C D	** Hole bailed to near T.D. upon completion with 27.0' of slotted plastic pipe installed for water level observation. Water level after: 20 hours - 29.0' 48 hours - 17.2' Drilling: Augered to 19.5'; 6" core to total depth of 64.1'. Offset core hole 7½' east and drilled fishtail hole 3" in diameter to total depth of 67.0' for electric logging. Electric log was made for this boring.
	10.0'					
			14.0' to 18.0' GRAVEL - borders on gravelly clay, dark brown, poorly graded up to 1½", becoming wet from 15.5' to 18.0', non-calcareous.		E F G	Jars: A. 0.0' to 4.0' B. 4.0' to 7.0' C. 7.0' to 9.0' D. 9.0' to 14.0' E. 14.0' to 15.5' F. 15.5' to 18.0' G. 18.0' to 19.5'
	20.0'	1	18.0' to 24.0' SHALE - light tan, soft, intermittently limy and gray below 20.0'. Very calcareous.	L 0.5'	Box 1	Cartons: 1. 20.6' to 21.5' 2. 25.6' to 26.6' 3. 31.7' to 32.7' 4. 37.5' to 38.5' 5. 44.8' to 45.8' 6. 51.6' to 52.6' 7. 55.9' to 56.9' 8. 62.9' to 63.9'
		2	24.0' to 36.9' LIMESTONE - light gray, fine to medium grained, medium hard, argillaceous, fossiliferous (less argillaceous, lighter in color from 29.5' to 34.5').	G 0.5'	Box 2	Core Boxes: 1. 19.5' to 24.9' 2. 24.9' to 30.2' 3. 30.2' to 35.9' 4. 35.9' to 41.6' 5. 41.6' to 46.9' 6. 46.9' to 52.6' 7. 52.6' to 58.6' 8. 58.6' to 63.9'
	30.0'	3	36.9' to 63.9' SHALE - dark gray, silty, soft, intermittently fossiliferous, slightly calcareous. Light gray very fine grained sandstone noted from 54.5' to 54.8'. Gray, dense, micaceous siltstone noted from 57.2' to 59.0' with angular (approximately 10° from horizontal) contact with shale below.	L 0.4' C 0.3'	Box 3	NOTE: CORE SWOLLEN AFTER EXPOSURE TO ELEMENTS, (SOME RAIN), FROM 55.1 TO 55.9.
		4			Box 4	
	40.0'			L 0.2'		
		5		C 0.1'	Box 5	
	50.0'	6		L 0.7'	Box 6	
		7		C 0.4'	Box 7	
				L 0.2'		
	60.0'	8		C 0.5'	Box 8	
			T. D. 64.1'			

DRILLING LOG

Division	Southwestern
Installation	Fort Wor[th]
1. Project	Aubrey Dam
2. Location (Coordinates or Station)	Tunnel Outlet Works
3. Drilling Agency	Corps of Engineers
4. Hole No. (As shown on drawing title and file number)	8A6C-92
5. Name of Driller	Newhouse
6. Direction of Hole	[X] Vertical [ ] Inclined ___ Deg. from Vert.
7. Thickness of Overburden	15.2'
8. Depth Drilled into Rock	10.3'
9. Total Depth of Hole	25.5'
10. Size and Type of Bit	
11. Datum for Elevation	
12. Manufacturer's Desi[gnation of Drill]	Failing 1500
13. Total No. of Overburden Samples Take[n]	
14. Total Number Core [Boxes]	
15. Elevation Ground Wa[ter]	
16. Date Hole	19
17. Elevation Top of Ho[le]	
18. Total Core Recover[y]	
19. Signature of Inspect[or]	

Elevation (a)	Depth (b)	Legend (c)	Classification of Materials (Description) (d)	% Core Recovery (e)	Box or Sample No. (f)
			0.0' to 15.2' CLAY AND SAND - clay dominates overburden with sand noted only at 6.0'. Clay from 0.0' to 2.0' light reddish brown, stiff, silty, sandy, medium to low plasticity, slightly moist; becoming dry, finely sandy, light rust brown at 4.0'. Sand at 6.0' fine grained, brown, clayey with scattered fine gravel. Clay was noted below and to 15.2'; reddish brown, some gray, silty, slightly sandy, medium to low plasticity, medium to stiff, moist, non-calcareous.	 1 2 3 No Sample 4 5 6	A B C D E F G
	10.0'				
			15.2' to 17.2' SHALE - tan soft, silty, calcareous.	7	H
	20.0'	1	17.2' to 25.[5]' LIMESTONE - gray, soft to medium hard to hard, fine to medium grained, argillaceous, fossiliferous.	L 0.0'	Box 1
		2		L 0.0'	Box 2
			T. D. 25.5'		

ENG FORM 1836 MAR 71 PREVIOUS EDITIONS ARE OBSOLETE. (TRANSLUCENT)

Project: Aubrey

Hole No. 8A6C-92

DRILLING LOG — Division: Southwestern

Project	Aubrey Dam
Location	Tunnel Outlet Works
Drilling Agency	Corps of Engineers
Hole No.	8A6C-92
Name of Driller	Newhouse
Direction of Hole	☒ Vertical ☐ Inclined ____ deg from vert
Thickness of Overburden	15.2'
Depth Drilled into Rock	10.3'
Total Depth of Hole	25.5'

Installation	Fort Worth
Sheet	1 of 1 sheets
10 Size and Type of Bit	
11 Datum for Elevation Shown (ft MSL)	
12 Manufacturer's Designation of Drill	Failing 1500
13 Total No. of Overburden Samples Taken	Disturbed 7 / Undisturbed 7
14 Total Number Core Boxes	2
15 Elevation Ground Water	--
16 Date Hole	Started 19 Jan 1976 / Completed 20 Jan 1976
17 Elevation Top of Hole	
18 Total Core Recovery for Boring	10.3'
19 Signature of Inspector	Lauren L. Logan

Elevation	Depth	Legend	Classification of Materials (Description)	% Core Recovery	Box or Sample No.	Remarks
			0.0' to 15.2'		A	**
			CLAY AND SAND - clay dominates overburden with sand noted only at 6.0'. Clay from 0.0' to 2.0' light reddish brown, stiff, silty, sandy, medium to low plasticity, slightly moist; becoming dry, finely sandy, light rust brown at 4.0'. Sand at 6.0' fine grained, brown, clayey with scattered fine gravel. Clay was noted below and to 15.2'; reddish brown, some gray, silty, slightly sandy, medium to low plasticity, medium to stiff, moist, non-calcareous.		1	B	1. Hole was bailed upon completion and perforated plastic pipe installed for water level observation.
					2	C	
					3	D	2. Drilling: 8" auger to 2.0'; Denison barrel to 17.0'; 6" core to 25.5'.
	10.0'				No Sample		
					4	E	3. Jars: A. 0.0' to 2.0' B. At 4.0' C. At 6.0' D. At 8.0' E. At 11.0' F. At 13.0' G. At 15.0' H. At 17.0'
					5	F	
					6	G	
			15.2' to 17.2'		7	H	
			SHALE - tan soft, silty, calcareous.				
			17.2' to 25.5'				4. Denison Cans: 1. 2.0' to 4.0' 2. 4.0' to 6.0' 3. 6.0' to 8.0' 4. 9.0' to 11.0' 5. 11.0' to 13.0' 6. 13.0' to 15.0' 7. 15.0' to 17.0'
	20.0'	1	LIMESTONE - gray, soft to medium hard to hard, fine to medium grained, argillaceous, fossiliferous.	L 0.0'	Box 1		
		2		L 0.0'	Box 2		5. Cartons: 1. 18.7' to 19.7' 2. 23.3' to 24.2'
			T. D. 25.5'				6. Core Boxes: 1. 17.0' to 21.5' 2. 21.5' to 25.5'

FORM 1836 PREVIOUS EDITIONS ARE OBSOLETE.

Project: Aubrey Dam — Hole No. 8A6C-92

Hole No. 8A6C-301

DRILLING LOG — Division: Southwestern

Project	Aubrey Lake
Location	Spillway Site "B"
Drilling Agency	Corps of Engineers
Hole No.	8A6C-301
Name of Driller	Schoonover
Direction of Hole	☒ Vertical ☐ Inclined ____ deg from vert
Thickness of Overburden	7.0'
Depth Drilled into Rock	13.0'
Total Depth of Hole	20.0'

Installation	Fort Worth
Sheet	1 of 1 sheets
10 Size and Type of Bit	8" Auger 6" Core
11 Datum for Elevation Shown (ft MSL)	
12 Manufacturer's Designation of Drill	Failing 1500
13 Total No. of Overburden Samples Taken	Disturbed 2 / Undisturbed 0
14 Total Number Core Boxes	2
15 Elevation Ground Water	--
16 Date Hole	Started 21 Nov. 1975 / Completed 21 Nov. 1975
17 Elevation Top of Hole	
18 Total Core Recovery for Boring No.	10.0'
19 Signature of Inspector	Lauren L. Logan

Elevation	Depth	Legend	Classification of Materials (Description)	% Core Recovery	Box or Sample No.	Remarks
			0.0' to 2.0'		No Sample	**
			CLAY - as described in interval below.		A	1. Hole was bailed to near total depth upon completion. 4" plastic pipe, slotted, was installed in boring for future water level observations.
			2.0' to 7.0'		B	
			CLAY			
			2.0' to 5.0' - medium plasticity, brown, hard, silty to finely sandy, slightly moist, non-calcareous.			2. Drilling: 8" auger to 7.0'; 6" core to total depth of 20.0'.
		1	5.0' to 7.0' - as above interval, slightly lighter in color, some very fine gravel widely scattered throughout.	L 0.1'	Box 1	3. Jars: A. 2.0' to 5.0' B. 5.0' to 7.0'
	10.0'					
		2	7.0' to 13.9'			
			CLAY-SHALE - soft, rust brown and gray, silty, highly weathered, non-calcareous, occasional very fine gravel scattered throughout recovery.	L 0.1'		4. Cartons: 1. 7.5' to 8.5' 2. 11.5' to 12.5' 3. 16.7' to 17.6' 4. 19.0' to 20.0'
				L 0.4'	Box 2	
		3	13.9' to 20.0'			
			SHALE - tan with some gray marbling, soft, occasional soft white lisy inclusions. Shale is non-calcareous and weathered to total depth. Sand lense noted from 13.5' to 13.9'; fine grained, rust brown. Iron concretionary zone noted from 14.9' to 15.1'.	C 0.6		5. Core Boxes: 1. 7.0' to 13.4' 2. 13.4' to 20.0'
	20.0'	4				
			T. D. 20.0'			

ENG FORM 1836 MAR 71 PREVIOUS EDITIONS ARE OBSOLETE.

Project: Aubrey Lake — Hole No. 8A6C-301

DRILLING LOG — Hole No. 8A6C-301

- Division: Southwestern
- Installation: Fort Worth
- Sheet 1 of 1 sheets
- Project: Aubrey Lake
- Location: Spillway Site "E"
- Drilling agency: Corps of Engineers
- Hole No.: 8A6C-301
- Name of driller: Schoonover
- Size and type of bit: 8" Auger; 6" Core
- Manufacturer's designation of drill: Failing 1500
- Total no. of overburden samples taken: Disturbed 2, Undisturbed 0
- Total number core boxes: 2
- Elevation ground water: **
- Date hole: Started 21 Nov. 1975; Completed 21 Nov. 1975
- Thickness of overburden: 7.0'
- Depth drilled into rock: 13.0'
- Total depth of hole: 20.0'
- Total core recovery for boring: 100 %
- Signature of inspector: [signature]

Elevation	Depth	Legend	Classification of Materials (Description)	% Core Recovery	Box or Sample No.	Remarks
			0.0' to 2.0' CLAY - as described in interval below.		No Sample	** 1. Hole was bailed to near total depth upon completion. 4" plastic pipe, slotted, was installed in boring for future water level observations.
			2.0' to 7.0' CLAY. 2.0' to 5.0' - medium plasticity, brown, hard, silty to finely sandy, slightly moist, non-calcareous.		A	
					B	
		1	5.0' to 7.0' - as above interval, slightly lighter in color, some very fine gravel widely scattered throughout.	L 0.1'	Box 1	2. Drilling: 8" auger to 7.0'; 6" core to total depth of 20.0'.
	10.0'	2	7.0' to 13.9' CLAY-SHALE - soft, rust brown and gray, silty, highly weathered, non-calcareous, occasional very fine gravel scattered throughout recovery.	L 0.1'		3. Jars: A. 2.0' to 5.0' B. 5.0' to 7.0'
				L 0.4'	Box 2	4. Cartons: 1. 7.5' to 8.5' 2. 11.5' to 12.5' 3. 16.7' to 17.6' 4. 19.0' to 20.0'
		3	13.9' to 20.0' SHALE - tan with some gray marbling, soft, occasional soft white limy inclusions. Shale is non-calcareous and weathered to total depth. Sand lense noted from 13.5' to 13.9'; fine grained, rust brown. Iron concretionary zone noted from 14.9' to 15.1'.	G 0.6'		5. Core Boxes: 1. 7.0' to 13.4' 2. 13.4' to 20.0'
	20.0'	4	T. D. 20.0'			

ENG FORM 1836 PREVIOUS EDITIONS ARE OBSOLETE. (TRANSLUCENT)

Project: Aubrey Lake — Hole No. 8A6C-301

DRILLING LOG — Hole No. 8A6C-302

- Division: Southwestern
- Installation: Fort Worth
- Sheet 1 of 1 sheets
- Project: Aubrey Lake
- Location: Spillway Site "E"
- Drilling agency: Corps of Engineers
- Hole No.: 8A6C-302
- Name of driller: Schoonover
- Size and type of bit: 8" Auger; 6" Core
- Manufacturer's designation of drill: Failing 1500
- Total no. of overburden samples taken: Disturbed 3, Undisturbed 0
- Total number core boxes: 3
- Elevation ground water: **
- Date hole: Started 20 Nov. 1975; Completed 20 Nov. 1975
- Thickness of overburden: 6.5'
- Depth drilled into rock: 19.4'
- Total depth of hole: 25.9'
- Total core recovery for boring: 92.0 %
- Signature of inspector: [signature]

Elevation	Depth	Legend	Classification of Materials (Description)	% Core Recovery	Box or Sample No.	Remarks
			0.0' to 2.0' CLAY - as described in interval below.		No Sample	** 1. Installed slotted plastic pipe after bailing to near T.D.
			2.0' to 6.5' CLAY. 2.0' to 4.0' - medium plasticity, brown, hard, silty to finely sandy, slightly moist, non-calcareous.		A	
					B	2. Drilling: 8" auger to 8.0'. 6" core to total depth of 25.9'.
		1	4.0' to 6.5' - as above interval; light brown.		C	
	10.0'		6.5' to 13.0' CLAY-SHALE - soft, rust brown and gray, silty, highly weathered, non-calcareous, occasional fine gravel scattered throughout recovery; appears to be reworked shale. Core becoming calcareous at 12.0'.	L 0.0'	Box 1	3. Jars: A. 2.0' to 4.0' B. 4.0' to 6.5' C. 6.5' to 8.0' D. 13.0' to 14.0'
		2	13.0' to 14.0' GRAVEL - poorly graded up to 2", clayey to shaly matrix, angular to subangular, calcareous, easy to penetrate with core bit. (Sample in Jar D).	See Remark No. 6	Jar D	4. Cartons: 1. 8.0' to 9.0' 2. 14.0' to 15.0' 3. 20.1' to 21.1' 4. 24.7' to 25.5'
				L 0.1'		
	20.0'	3	14.0' to 25.9' SHALE - tan with some gray marbling, soft, occasional soft white lime inclusions. Occasional small pockets of rust brown silt. Shale is non-calcareous and weathered to total depth.	L 0.7'	Box 2	5. Core Boxes: 1. 8.0' to 15.?' 2. 15.?' to 1?.?' 3. 19.8' to 25.9' 6. Actual loss of 0.9' from 13.1' to 14.0' due to poorly graded gravel up to 2". See Jar Sample D.
		4	T. D. 25.9'	L 0.0'	Box 3	

ENG FORM 1836 MAR 71 PREVIOUS EDITIONS ARE OBSOLETE (TRANSLUCENT)

Project: Aubrey Lake — Hole No. 8A6C-302

RECORD DRAWING-WORK AS BUILT

Sym	Zone	Description	Date	Approval

U S ARMY ENGINEER DISTRICT, FORT WORTH
CORPS OF ENGINEERS
FORT WORTH, TEXAS

Designed by: ---------
Drawn by: ---------
Reviewed by: ---------
Submitted by:

RAY ROBERTS LAKE

ELM FORK, TRINITY RIVER, TEXAS

EMBANKMENT, SPILLWAY AND OUTLET WORKS
LOGS OF BORINGS
8A6C-91, 8A6DC-92, 8A6C-301, AND 8A6C-302

Invitation No. DACW63-82-B-0050 — Date MAR. 1982
Contract No. DACW63-
Drawing Number — Sheet No. — Sequence 32

Hole No. 6166-303

DRILLING LOG — Division: Southwestern — Installation: Fort Jo...

1. Project	Aubrey Lake
2. Location	Spillway Site "F"
3. Drilling Agency	Corps of Engineers
4. Hole No.	6AEC-303
5. Name of Driller	Schoonover
6. Direction of Hole	☒ Vertical ☐ Inclined ____ deg. from vert.
7. Thickness of Overburden	11.0'
8. Depth Drilled into Rock	40.0'
9. Total Depth of Hole	51.0'
11. Size and Type of Bit	8" Auger; 6" Core
12. Manufacturer's Designation of Drill	Failr. 1500
13. Total No. Core Samples Taken	Undisturbed: 0; Disturbed: 2
14. Total Number Core Boxes	7
15. Elevation Ground Water	--
16. Date Hole	Started: 21 Nov. 1975; Completed: 25 Nov. 1975
17. Elevation Top of Hole	
18. Total Core Recovery for Boring	99.3 %
19. Signature of Inspector	Lowell D. Logan
Sheet	1 of 2 Sheets

Elevation	Depth	Legend	Classification of Materials (Description)	% Core Recovery	Box or Sample No.	Remarks (Drilling time, water loss, depth of weathering, etc.; if significant)
			0.0' to 11.0'		No Sample	1. Hole was bailed to near total depth upon completion. Unable to determine where hole is making water, but making water slowly. Installed slotted plastic pipe for water level observations. Water Levels: 26 Nov. '75 – 17.0'; 1 Dec. '75 – 16.5'
			CLAY			
			0.0' to 7.0' – medium plasticity, brown, hard, silty to finely sandy, slightly moist, non-calcareous.		A	
			7.0' to 11.0' – as above interval; more moist.		B	
	10.0'		11.0' to 22.0'			
		1	CLAY-SHALE – rust brown, marbled gray, soft, non-calcareous; appears to be reworked shale; scattered ferrous nodules; very gravelly and calcareous from 18.3' to 19.3' with very fine grained light rust brown sand from 19.3 to 19.6'.	L 1.0'	Box 1	2. Drilling: 8" auger to 11.0'; 6" core to total depth of 51.0'. Set 3.0' of 8" casing due to fluid loss near surface.
		2	22.0' to 50.7'	C 0.8		
			SHALE			3. Jars: A. 2.0' to 7.0'; B. 7.0' to 11.0'
	20.0'		22.0' to 40.7' – light tan to grayish tan, soft, non-calcareous, bedding angle approximately 5° from horizontal, occasional ferrous nodule with distinct iron concretionary zone from 26.3' to 26.8'; very fine grained light rust brown sandstone from 35.8' to 36.0' and from 37.4' to 37.7'; approaching base of extensive weathering from 38.0' to 40.7' as evidenced by intermittent short intervals of light bluish-gray shale.	L 0.8	Box 2	4. Cartons: 1. 11.3' to 12.2'; 2. 16.0' to 17.0'; 3. 22.1' to 23.1'; 4. 28.5' to 29.5'; 5. 35.1' to 35.8'; 6. 39.7' to 40.7'; 7. 45.3' to 46.2'; 8. 49.7' to 50.7'
		3		L 0.0	Box 3	
				C 0.2		
	30.0'	4			Box 4	5. Core Boxes: 1. 11.0' to 17.5'; 2. 17.5' to 23.5'; 3. 23.5' to 28.3'; 4. 28.3' to 33.9'; 5. 33.9' to 39.0'; 6. 39.0' to 44.3'; 7. 44.3' to 50.7'
			40.7' to 50.7' – shale is light bluish-gray, soft, slightly silty, very fossiliferous (numerous fossils along parting at 44.3' and in Carton No. 8 at 49.7'); bedding is near horizontal; shale is calcareous from 40.7' to recovery depth of 50.7'.	C 0.8		
		5		L 0.0	Box 5	
	40.0'	6		L 0.0	Box 6	
		7		L 0.7		
				C 0.4	Box 7	
	50.0'	8	T. D. 51.0'			

DRILLING LOG — Division: Southwestern — Installation: [illegible]

1. Project	Aubrey Lake
2. Location	Spillway Site "F"
3. Drilling Agency	Corps of Engineers
4. Hole No.	6AEC-304
5. Name of Driller	Schoonover
6. Direction of Hole	☒ Vertical ☐ Inclined ____ deg. from vert.
7. Thickness of Overburden	2.0'
8. Depth Drilled into Rock	49.0'
9. Total Depth of Hole	51.0'
12. Manufacturer's Designation of Drill	Failing
16. Date Hole	
17. Elevation Top of Hole	

Elevation	Depth	Legend	Classification of Materials (Description)	% Core Recovery
			0.0' to 2.0'	
			CLAY – medium plasticity, brown, hard, silty to finely sandy, slightly moist, non-calcareous.	
			2.0' to 13.7'	
			CLAY-SHALE	
		1	2.0' to 7.0' – rust brown, soft, non-calcareous; appears to be reworked shale; more moist from 4.0' to 7.0'.	L 0.6'
	10.0'		7.0' to 13.7' – as described above with some gray marbling and scattered ferrous nodules.	
		2	13.7' to 14.0'	C 0.2'
			SANDSTONE – very fine grained, light rust brown, soft, well consolidated, non-calcareous.	
		3	14.0' to 17.0'	L 0.0'
	20.0'		SHALE – light tan to grayish tan, soft, silty, non-calcareous.	
			17.0' to 17.6'	
			SANDSTONE – as described in interval 13.7' to 14.0'.	L 0.0'
		4	17.6' to 19.8'	
			SHALE – as described above.	
			19.8' to 20.2'	
			SANDSTONE – as described above.	L 0.1'
		5	20.2' to 20.6'	
	30.0'		SHALE – as described above.	
			20.6' to 22.8'	C 0.5'
		6	SANDSTONE – as described above with approximately 5° from horizontal bedding angle.	
			22.8' to 32.7'	L 0.9'
			SHALE – as described above, approaching base of extensive weathering from 28.7' to 32.7' as evidenced by intermittent thin beds of bluish gray	
	40.0'	7	Distinct iron concretionary zone was noted from 28.7' to 29.2'. Shale becoming calcareous below 24.7'	L 0.0'
			32.7' to 51.0'	
		8	SHALE – unweathered, soft, bluish gray, varies from waxy to silty to very finely sandy, fossiliferous, calcareous.	L 0.0'
	50.0'	9	T. D. 51.0'	C 0.4'

Hole No. 8A6C-304

Southwestern

8A6C-304

over

DEG. FROM VERT.

2.0'
49.0'
51.0'

INSTALLATION: Fort Worth — SHEET 1 OF 2 SHEETS

10. SIZE AND TYPE OF BIT: 8" Auger; 6" Core

11. DATUM FOR ELEVATION SHOWN (TBM or MSL):

12. MANUFACTURER'S DESIGNATION OF DRILL: Failing 1500

13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN: DISTURBED 0; UNDISTURBED 0

14. TOTAL NUMBER CORE BOXES: 8

15. ELEVATION GROUND WATER: 80

16. DATE HOLE: STARTED 1 Dec. 1975; COMPLETED 3 Dec. 1975

17. ELEVATION TOP OF HOLE:

18. TOTAL CORE RECOVERY FOR BORING: 100 %

19. SIGNATURE OF INSPECTOR: Thomas H. Logan

CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS
.0' to 2.0'		No Sample	1. Hole was bailed to near total depth upon completion. Water level 24 hours after completion at 16.0'. Hole was backfilled.
LAY - medium plasticity, brown, hard, silty to finely sandy, slightly moist, non-calcareous.		A	
0' to 13.7'		B	2. Drilling: 8" auger to 7.0', 6" core to total depth of 51.0'.
LAY-SHALE			
2.0' to 7.0' - rust brown, soft, non-calcareous; appears to be reworked shale; more moist from 4.0' to 7.0'.	L 0.6'	Box 1	3. Jars: A. 2.0' to 4.0' B. 4.0' to 7.0'
7.0' to 13.7' - as described above with some gray marbling and scattered ferrous nodules.			4. Cartons: 1. 7.5' to 8.5' 2. 12.5' to 13.5' 3. 17.8' to 18.8' 4. 23.4' to 24.4' 5. 27.7' to 28.7' 6. 31.0' to 32.0' 7. 39.5' to 40.5' 8. 45.5' to 46.5' 9. 50.0' to 51.0'
.7' to 14.0'	C 0.2'		
ANDSTONE - very fine grained, light rust brown, soft, well consolidated, non-calcareous.		Box 2	
.0' to 17.6'	L 0.0'		5. Core Boxes: 1. 7.0' to 12.5' 2. 12.5' to 18.9' 3. 18.9' to 24.7' 4. 24.7' to 30.3' 5. 30.3' to 36.0' 6. 36.0' to 41.7' 7. 41.7' to 47.3' 8. 47.3' to 51.0'
MALF - light tan to grayish tan, soft, silty, non-calcareous.		Box 3	
0' to 17.6'			
NDSTONE - as described in interval 13.7' to 14.0'	L 0.0'		
6' to 19.8'			
ALE - as described above.			
8' to 20.2'	L 0.1'	Box 4	
NDSTONE - as described above.			
2' to 20.6'			
ALE - as described above.			
6' to 22.8'	C 0.5'	Box 5	
NDSTONE - as described above with approximately 5° from horizontal bedding angle.			
8' to 32.7'	L 0.9'		
ALE - as described above, approaching base of extensive weathering from 28.7' to 32.7' as evidenced by intermittent thin beds of bluish gray			
stinct iron concretionary zone was noted from .7' to 29.2'. Shale coning calcareous below .7'		Box 6	
7' to 51.0'	L 0.0'		
ALE - unweathered, soft, uish grey, varies from ay to silty to very fine sandy, fossiliferous, lcareous.		Box 7	
	C 0.4'	Box 8	
— T. D. 51.0' —			

Hole No. 8A6C-305

DRILLING LOG — DIVISION: Southwestern

1. PROJECT: Aubrey Lake

2. LOCATION (Coordinates or Station): Spillway Site "E"

3. DRILLING AGENCY: Corps of Engineers

4. HOLE NO. (As shown on drawing title) and (Bore number): 8A6C-305

5. NAME OF DRILLER: Sebesmover

6. DIRECTION OF HOLE: ☒ VERTICAL ☐ INCLINED ____ DEG. FROM VERT.

7. THICKNESS OF OVERBURDEN: 6.0'

8. DEPTH DRILLED INTO ROCK: 24.0'

9. TOTAL DEPTH OF HOLE: 30.0'

INSTALLATION: Fort Worth — SHEET 1 OF 1 SHEETS

10. SIZE AND TYPE OF BIT: 8" Auger; 6" Core

11. DATUM FOR ELEVATION SHOWN (TBM or MSL):

12. MANUFACTURER'S DESIGNATION OF DRILL: Failing 1500

13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN: DISTURBED 2; UNDISTURBED 0

14. TOTAL NUMBER CORE BOXES: 4

15. ELEVATION GROUND WATER:

16. DATE HOLE: STARTED 3 Dec. 1975; COMPLETED 4 Dec. 1975

17. ELEVATION TOP OF HOLE:

18. TOTAL CORE RECOVERY FOR BORING: 100 %

19. SIGNATURE OF INSPECTOR: Thomas H. Logan

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS
			0.0' to 6.0' CLAY		No Sample	1. Hole was bailed to near total depth upon completion and slotted plastic pipe installed for water level observation. Water level after 24 hours at 10.9'.
			0.0' to 2.0' - medium plasticity, hard, silty to finaly sandy, brown, slightly moist, non-calcareous.		A	
			2.0' to 4.0' - as above interval; slightly calcareous.		B	
			4.0' to 6.0' - yellowish brown, medium plasticity, stiff, silty, finely sandy, some scattered fine gravel, moist, non-calcareous.		C	
	10.0'	1	6.0' to 12.0'	L 0.6'	Box 1	2. Drilling: 8" auger to 7.0'; 6" core to total depth of 30.0'.
		2	CLAY-SHALE - rust brown, soft, some gray mixed, scattered gravel and ferrous nodules, non-calcareous.	L 0.1'	Box 2	3. Jars: A. 2.0' to 4.0' B. 4.0' to 6.0' C. 6.0' to 7.0'
		3	12.0' to 21.0'			4. Cartons: 1. 7.5' to 8.5' 2. 12.9' to 13.9' 3. 14.5' to 15.5' 4. 21.0' to 22.0' 5. 29.0' to 30.0'
	20.0'	4	SHALE AND SANDSTONE - shale is dominant; light tan to grayish tan, silty, non-calcareous. Shale is interrupted with occasional thin beds of sandstones, notably from 14.5' to 17.3'; sandstone is light rust brown, very fine grained, soft and non-calcareous. Maximum thickness without shale interruption was 1.0' (Carton No. 3 from 14.5' to 15.5'). Shale was dominant from 17.3' to 20.7'. Last sandstone in this boring was logged from 20.7' to 21.0'.	C 0.4'		5. Core Boxes: 1. 7.0' to 12.6' 2. 12.6' to 19.2' 3. 19.2' to 24.8' 4. 24.8' to 30.0'
				L 0.4'	Box 3	
				L 0.1'	Box 4	
	30.0'	5	21.0' to 30.0'	L 3'		
			SHALE - soft, light tan to grayish tan, silty, some very widely scattered selenite; iron concretionary zone, very calcareous, noted from 27.4' to 23.9'. Shale is [illegible]ly calcareous from this point to total depth and is weathered throughout.	C 0.8'		
			— T. D. 30.0' —			

ENG FORM 1836 MAR 75 PREVIOUS EDITIONS ARE OBSOLETE — PROJECT: Aubrey Lake — HOLE NO. 8A6C-305

DRILLING LOG

1 PROJECT: Aubrey L

2 LOCATION: Spillway

3 DRILLING AGENCY: Corps of

4 HOLE NO.

5 NAME OF DRILLER

6 DIRECTION OF HOLE ☒ VERTICAL ☐ INCLINED

7 THICKNESS OF OVERBURDEN

8 DEPTH DRILLED INTO ROCK

9 TOTAL DEPTH OF HOLE

ELEVATION | DEPTH | LEGEND

1. Hole was bailed to near total depth upon completion and slotted plastic pipe installed for water level observation. Water level after 24 hours at 10.9'.

2. Drilling: 8" auger to 7.0'; 6" core to total depth of 30.0'.

3. Jars: A. 2.0' to 4.0' B. 4.0' to 6.0' C. 6.0' to 7.0'

4. Cartons: 1. 7.5' to 8.5' 2. 12.9' to 13.9' 3. 14.5' to 15.5' 4. 21.0' to 22.0' 5. 29.0' to 30.0'

5. Core Boxes: 1. 7.0' to 12.6' 2. 12.6' to 19.2' 3. 19.2' to 24.8' 4. 24.8' to 30.0'

ENG FORM 1836 MAR 75 PREVIOUS

Hole No. 8A6C-305

Division	Southwestern
Project	Aubrey Lake
Location	Spillway Site "E"
Drilling Agency	Corps of Engineers
Hole No.	8A6C-306
Name of Driller	Schoonover
Direction of Hole	Vertical
Thickness of Overburden	5.0'
Depth Drilled into Rock	25.2'
Total Depth of Hole	30.2'
Installation	Fort Worth
Size and Type of Bit	8" Auger; 6" Core
Manufacturer's Designation of Drill	Failing 1500
Total No. of Overburden Samples Taken	Disturbed 1; Undisturbed 0
Total Number Core Boxes	4
Elevation Ground Water	--
Date Hole	Started 4 Dec. 1975; Completed 5 Dec. 1975
Elevation Top of Hole	
Total Core Recovery for Boring	100 %
Signature of Inspector	Homer L. Logan

Elevation	Depth	Legend	Classification of Materials (Description)	% Core Recovery	Box or Sample No.	Remarks (Drilling time, water loss, depth of weathering, etc., if significant)
			0.0' to 5.0' CLAY 0.0' to 2.0' – medium plasticity, light brown, hard, silty, sandy, slightly moist, non-calcareous. 2.0' to 5.0' – medium plasticity, light brown, very stiff, silty, slightly moist, non-calcareous.		No Sample	** 1. Hole was bailed to near total depth upon completion and slotted plastic pipe was installed for water level observation.
		1	5.0' to 7.0' CLAY-SHALE – rust brown and gray, soft, silty, appears to be reworked shale, non-calcareous.	L 0.5'	A	
	10.0'				B	
		2	7.0' to 19.5' SHALE AND SANDSTONE – shale is dominant; light tan to grayish tan, silty, non-calcareous. Shale is interrupted with occasional beds of sandstone, notably from 12.4' 19.5' with maximum thickness of 1.5' from 14.2' to 15.7' (see carton No. 2). Sandstone is light rust brown, very fine grained, well consolidated, soft, and non-calcareous. Shale as described above is dominant below this point with last sandstone in this interval logged from 19.3' to 19.5'.	C 0.2'	Box 1	2. Drilling: 8" auger to 7.0'; 6" core to total depth of 30.2'. 3. Jars: A. 2.0' to 5.0' B. 5.0' to 7.0'
	20.0'	3		L 0.1'		
				C 0.1'	Box 2	4. Cartons: 1. 8.0' to 9.0' 2. 14.5' to 15.5' 3. 20.9' to 21.9' 4. 24.6' to 25.5' 5. 28.2' to 29.1'
		4		C 0.3'	Box 3	5. Core Boxes: 1. 7.0' to 12.9' 2. 12.9' to 18.6' 3. 18.6' to 24.2' 4. 24.2' to 30.2'
	30.0'	5	19.5' to 30.2' SHALE – light tan to gray, (predominantly gray below 25.0'), silty, scattered small crystals of selenite, slightly calcareous; iron concretionary zone, very calcareous, noted from 21.9' to 22.4'. Some very fine-grained gray sand interbedded with shale below 29.0'. Shale is weathered to total depth. T. D. 30.2'	C 0.3'	Box 4	
				L 0.0'		

ENG FORM 1836 MAR 71 — PREVIOUS EDITIONS ARE OBSOLETE. — (TRANSLUCENT)

PROJECT: Aubrey Lake — HOLE NO. 8A6C-306

Hole No. 8A6C-305

Installation	Fort Worth
Size and Type of Bit	8" Auger; 6" Core
Manufacturer's Designation of Drill	Failing 1500
Total No. of Overburden Samples Taken	Disturbed 2; Undisturbed 0
Total Number Core Boxes	4
Elevation Ground Water	
Date Hole	Started 3 Dec. 1975; Completed 4 Dec. 1975
Elevation Top of Hole	
Total Core Recovery for Boring	100 %
Signature of Inspector	Homer L. Logan

Classification of Materials (Description)	% Core Recovery	Box or Sample No.	Remarks (Drilling time, water loss, depth of weathering, etc., if significant)
to 6.0'		No Sample	** 1. Hole was bailed to near total depth upon completion and slotted plastic pipe installed for water level observation. Water level after 24 hours at 10.9'.
0' to 2.0' – medium plasticity, hard, silty to finely sandy, brown, slightly moist, non-calcareous.		A	
0' to 4.0' – as above interval; slightly calcareous.		B	
0' to 6.0' – yellowish brown, medium plasticity, stiff, silty, finely sandy, some scattered fine gravel, moist, non-calcareous.		C	
to 12.0'	L 0.6'	Box 1	2. Drilling: 8" auger to 7.0'; 6" core to total depth of 30.0'. 3. Jars: A. 2.0' to 4.0' B. 4.0' to 6.0' C. 6.0' to 7.0'
N-SHALE – rust brown, soft, some gray mixed, scattered gravel and ferrous nodules, non-calcareous.	L 0.1'	Box 2	4. Cartons: 1. 7.5' to 8.5' 2. 12.9' to 13.9' 3. 14.5' to 15.5' 4. 21.0' to 22.0' 5. 29.0' to 30.0'
0' to 21.0'			
LE AND SANDSTONE – shale is dominant; light tan to grayish tan, silty, non-calcareous. Shale is interrupted with occasional thin beds of sandstones, notably from 14.5' to 17.3'; sandstone is light rust brown, very fine grained, soft and non-calcareous. Maximum thickness without shale interruption was 1.0' (Carton No. 3 from 14.5' to 15.5'). Shale was dominant from 17.3' to 20.7'. Last sandstone in this boring was logged from 20.7' to 21.0'.	C 0.4'		5. Core Boxes: 1. 7.0' to 12.6' 2. 12.6' to 19.2' 3. 19.2' to 24.8' 4. 24.8' to 30.0'
	L 0.4'	Box 3	
	L 0.1'	Box 4	
	C 0.8'		
0' to 30.0'			
LE – soft, light tan to grayish tan, silty, some very widely scattered selenite; iron concretionary zone, very calcareous noted from 25.4' to 25.9'. Shale is slightly calcareous from this point to total depth and is weathered throughout. T. D. 30.0'			

TIONS ARE OBSOLETE.

PROJECT: Aubrey Lake — HOLE NO. 8A6C-305

RECORD DRAWING-WORK AS BUILT

SYM	DC NO	ACTION	DATE	DESCRIPTION OF REVISION

U.S. ARMY ENGINEER DISTRICT, FORT WORTH
CORPS OF ENGINEERS
FORT WORTH, TEXAS

DESIGNED BY: ---
DRAWN BY: ---
REVIEWED BY: ---
SUBMITTED BY: ENGINEER

RAY ROBERTS LAKE
ELM FORK, TRINITY RIVER, TEXAS
EMBANKMENT, SPILLWAY AND OUTLET WORKS
LOGS OF BORINGS
8A6C-303, 8A6C-304, 8A6C-305, AND 8A6C-306

INVITATION NO. DACW63-82-B-0025 | DATE: MAR, 1982
CONTRACT NO. DACW63-82-C-0083 | SEQUENCE NO. 33
DRAWING NUMBER | SHEET NO. 0F -

CONTRACT NO DACW63-82-C-0083

TO ACCOMPANY FOUNDATION REPORT

Hole No. SASC-307

DRILLING LOG — Division: Southwestern — Installation: Fort Bliss — Sheet 1 of 1 sheets

1. Project	Aubrey Lake
2. Location (Coordinates or Station)	Spillway Site "B"
3. Drilling Agency	Corps of Engineers
4. Hole No. (As shown on drawing title and file number)	SASC-307
5. Name of Driller	Schoonover
6. Direction of Hole	☒ Vertical ☐ Inclined ____ deg. from vert.
7. Thickness of Overburden	4.5'
8. Depth Drilled into Rock	20.5'
9. Total Depth of Hole	25.0'
10. Size and Type of Bit	6" Auger; 6" Core
11. Datum for Elevation Shown (MSL or Assumed)	
12. Manufacturer's Designation of Drill	Failing 1500
13. Total No. of Overburden Samples Taken	Undisturbed: 1; Disturbed: 0
14. Total Number Core Boxes	3
15. Elevation Ground Water	--
16. Date Hole	Started: 8 Dec. 1975; Completed: 8 Dec. 1975
17. Elevation Top of Hole	
18. Total Core Recovery for Boring	90%
19. Signature of Inspector	Lauren L. Logan

Elevation	Depth	Legend	Classification of Materials (Description)	Core Recovery	Box or Sample No.	Remarks
	0.0'		0.0' to 4.5'		No Sample	1. Hole bailed to near total depth upon completion and slotted plastic pipe installed for water level observation.
			CLAY - medium plasticity, brown, hard, silty, sandy, slightly moist, non-calcareous.		A	
					B	
		1	4.5' to 10.0'			2. Drilling: 6" auger to 7.0'; 6" core to total depth of 25.0'.
	10.0'		CLAY-SHALE - rust brown, some gray mixed, soft, appears to be reworked shale, scattered small ferrous nodules, non-calcareous.		Box 1	
			10.0' to 24.7'	L 0.2'		3. Jars: A. 2.0' to 4.5' B. 4.5' to 7.0'
		2	SHALE, SILTSTONE AND SANDSTONE - shale is light tan, some gray marbling, soft, variously grades into thin beds of siltstone and very fine grained sandstones; light rust brown and non-calcareous. Maximum thickness of sandstone is 0.8' from 18.3' to 19.1'. Last sandstone logged this interval from 22.0' to 22.3', brown, fine grained and calcareous. Shale as previously described becoming gray, slightly calcareous below 22.3'. Iron concretionary zone, very calcareous, noted from 24.5' to 24.7'.	L 1.0'	Box 2	4. Cartons: 1. 7.7' to 8.7' 2. 12.7' to 13.5' 3. 19.2' to 20.0' 4. 23.0' to 24.0'
				C 1.2'		5. Core Boxes: 1. 7.0' to 12.7' 2. 12.7' to 18.3' 3. 18.3' to 24.7'
	20.0'	3		L 0.3'	Box 3	
		4				
			T. D. 25.0'			

ENG FORM 1836 MAR 71 — PREVIOUS EDITIONS ARE OBSOLETE. (TRANSLUCENT)

PROJECT: Aubrey Lake — HOLE NO. SASC-307

Hole No.

DRILLING LOG — Division: Southwestern — Installation: Fort Bliss

1. Project	Aubrey Lake
2. Location (Coordinates or Station)	Spillway Site "B"
3. Drilling Agency	Corps of Engineers
4. Hole No. (As shown on drawing title and file number)	SASC-308
5. Name of Driller	Schoonover
6. Direction of Hole	☒ Vertical ☐ Inclined ____ deg. from vert.
7. Thickness of Overburden	3.5'
8. Depth Drilled into Rock	17.1'
9. Total Depth of Hole	20.6'
10. Size and Type of Bit	6" Auger; 6"
11. Datum for Elevation Shown (MSL or Assumed)	
12. Manufacturer's Designation of Drill	Failing 1500
13. Total No. of Overburden Samples Taken	Undisturbed: 1
14. Total Number Core Boxes	3
15. Elevation Ground Water	--
16. Date Hole	Started: 9 Dec. 1975
17. Elevation Top of Hole	
18. Total Core Recovery for Boring	1
19. Signature of Inspector	

Elevation	Depth	Legend	Classification of Materials (Description)	Core Recovery	Box or Sample No.	Remarks
	0.0'		0.0' to 3.5'		No Sample	1. Hole bai total dept pletion an plastic pi for water vation.
			CLAY - medium plasticity, brown, hard, silty to finely sandy, slightly moist, non-calcareous.		A	
					B	
			3.5' to 4.5'		C	
		1	CLAY-SHALE - rust brown to reddish brown, some gray, soft, gravelly (composed mostly of small ferrous nodules), some calcareous granules.		Box 1	2. Drilling to 7.0'; 6 total depth
	10.0'		4.5' to 20.6'	L 0.4'		3. Jars: A. 2.0' to B. 3.5' to C. 4.5' to
			SHALE AND SANDSTONE - predominantly shale, light tan to grayish tan, soft, non-calcareous with interruptions of light rust brown, fine grained sandstone noted at the following intervals: 10.5' to 11.0'; 11.5' to 12.3'; 12.8' to 14.9'; 16.9' to 17.2'. Shale becoming slightly calcareous from 17.2' to total depth. Iron concretionary zone, very calcareous from 20.0 to 20.4'.			
		2		L 0.5'	Box 2	4. Cartons: 1. 8.4' to 2. 14.4' to 3. 19.0' to
				C 0.9'		5. Core Boxe 1. 7.0' to 2. 12.8' to 3. 20.0' to
	20.0'	3			Box 3	
			T. D. 20.6'			

ENG FORM 1836 MAR 71 — PREVIOUS EDITIONS ARE OBSOLETE. (TRANSLUCENT)

PROJECT: Aubrey Lake

Hole No. SAGC-308

DRILLING LOG — Division: Southwestern
Installation: Fort Worth — Sheet 1 of 1 sheets
1. Project: Aubrey Lake
2. Location (Coordinates or Station): Spillway Site "E"
3. Drilling Agency: Corps of Engineers
4. Hole No. (As shown on drawing title): SAGC-308
5. Name of Driller: Schoonover
6. Direction of Hole: ☐ Vertical ☐ Inclined ____ deg. from vert.
7. Thickness of Overburden: 3.5'
8. Depth Drilled into Rock: 17.1'
9. Total Depth of Hole: 20.6'
10. Size and Type of Bit: 8" Auger; 6" Core
11. Datum for Elevation Shown (MSL or Assumed):
12. Manufacturer's Designation of Drill: Failing 1500
13. Total No. of Overburden Samples Taken: Disturbed 1; Undisturbed 0
14. Total Number Core Boxes: 3
15. Elevation Ground Water: 0'
16. Date Hole: Started 9 Dec. 1975; Completed 9 Dec. 1975
17. Elevation Top of Hole:
18. Total Core Recovery for Boring: 100 %
19. Signature of Inspector: Lauren D. Logan

Depth	Legend	Classification of Materials (Description)	% Core Recovery	Box or Sample No.	Remarks (Drilling time, water loss, depth of weathering, etc., if significant)
0		0.0' to 3.5' CLAY - medium plasticity, brown, hard, silty to finely sandy, slightly moist, non-calcareous.		No Sample	1. Hole bailed to near total depth upon completion and slotted plastic pipe installed for water level observation.
				A	
				B	
		3.5' to 4.5' CLAY-SHALE - rust brown to reddish brown, some gray, soft, gravelly (composed mostly of small ferrous nodules), some calcareous granules.		C	
	1		L 0.4'	Box 1	2. Drilling: 8" auger to 7.0'; 6" core to total depth of 20.6'.
10.0		4.5' to 20.6' SHALE AND SANDSTONE - predominantly shale, light tan to grayish tan, soft, non-calcareous with interruptions of light rust brown, fine grained sandstone noted at the following intervals: 10.5' to 11.0'; 11.5' to 12.3'; 12.8' to 14.9'; 16.9' to 17.2'. Shale becoming slightly calcareous from 17.2' to total depth. Iron concretionary zone, very calcareous from 20.0 to 20.4'.			3. Jars: A. 2.0' to 3.5' B. 3.5' to 4.5' C. 4.5' to 7.0'
	2		L 0.5'	Box 2	4. Cartons: 1. 8.4' to 9.4' 2. 14.4' to 15.4' 3. 19.0' to 20.0'
					5. Core Boxes: 1. 7.0' to 12.8' 2. 12.8' to 20.0' 3. 20.0' to 20.6'
20.6	3	T. D. 20.6'	C 0.9'	Box 3	

36 PREVIOUS EDITIONS ARE OBSOLETE. (TRANSLUCENT)
Project: Aubrey Lake — Hole No. SAGC-308

Hole No. SAGC-309

DRILLING LOG — Division: Southwestern
Installation: Fort Worth — Sheet 1 of 1 sheets
1. Project: Aubrey Lake
2. Location (Coordinates or Station): Spillway Site "E"
3. Drilling Agency: Corps of Engineers
4. Hole No. (As shown on drawing title): SAGC-309
5. Name of Driller: Schoonover
6. Direction of Hole: ☐ Vertical ☐ Inclined ____ deg. from vert.
7. Thickness of Overburden: 4.5'
8. Depth Drilled into Rock: 10.5'
9. Total Depth of Hole: 15.0'
10. Size and Type of Bit: 8" Auger; 6" Core
11. Datum for Elevation Shown (MSL or Assumed):
12. Manufacturer's Designation of Drill: Failing 1500
13. Total No. of Overburden Samples Taken: Disturbed 1; Undisturbed 0
14. Total Number Core Boxes: 1
15. Elevation Ground Water: 0'
16. Date Hole: Started 10 Dec. 1975; Completed 10 Dec. 1975
17. Elevation Top of Hole:
18. Total Core Recovery for Boring: 100 %
19. Signature of Inspector: Lauren D. Logan

Elevation	Depth	Legend	Classification of Materials (Description)	% Core Recovery	Box or Sample No.	Remarks (Drilling time, water loss, depth of weathering, etc., if significant)
	0		0.0' to 4.5' CLAY - medium plasticity, brown, hard, silty to finely sandy, slightly moist, becoming more moist from 2.0' to 4.5', slightly calcareous.		No Sample	1. Hole was bailed to near total depth upon completion and slotted plastic pipe installed for water level observation.
					A	
					B	
			4.5' to 9.9' CLAY-SHALE - appears to be reworked shale, rust brown, marbled gray, soft, abundant calcareous nodules throughout, moist. Clay-shale is gravelly (mostly ferrous nodules) throughout this interval. Calcareous from 9.3' to 9.9'.	Actual Loss 1.4'		
		1		L 0.6'	Box 1	2. Drilling: 8" auger to 7.0'; 6" core to total depth of 15.0'.
10.0						3. Jars: A. 2.0' to 4.5' B. 4.5' to 7.0'
				C 0.6'		4. Cartons: 1. 7.5' to 8.5' 2. 14.0' to 15.0'
		2	9.9' to 11.3' Core lost due to grinding.			5. Core Box: 1. 7.0' to 15.0'
			11.3' to 15.0' SHALE AND SANDSTONE - shale is tan, to grayish tan, soft, silty, finely sandy and is interrupted by tan very fine grained sandstone at the following intervals: 11.8' to 12.0'; 12.5' to 13.3'. Ironstone noted from 13.3' to 13.4'. Shale and sandstone is non-calcareous.			
15.0			T. D. 15.0'			

ENG FORM 1836 PREVIOUS EDITIONS ARE OBSOLETE. (TRANSLUCENT)
Project: Aubrey Lake — Hole No. SAGC-309

Hole No. 8A6C-309

Division: Southwestern	Installation: Fort Worth	Sheet 1 of 1 sheets
Aubrey Lake	10. Size and type of bit: 8" Auger; 6" Core	
Spillway Site "E"	11. Datum for elevation shown (USGS or MSL)	
Corps of Engineers	12. Manufacturer's designation of drill: Failing 1500	
Hole No.: 8A6C-309	13. Total no. of overburden samples taken: Disturbed 1; Undisturbed 0	
Schoonover	14. Total number core boxes: 1	
Dec. from vert.	15. Elevation ground water: --	
	16. Date hole: Started 10 Dec. 1975; Completed 10 Dec. 1975	
4.5'	17. Elevation top of hole:	
10.5'	18. Total core recovery for boring: 109 %	
15.0'	19. Signature of inspector: Homer L. Lyon	

Classification of Materials (Description)	% Core Recovery	Box or Sample No.	Remarks (Drilling time, water loss, depth of weathering, etc., if significant)
0.0' to 4.5'		No Sample	1. Hole was bailed to near total depth upon completion and slotted plastic pipe installed for water level observation.
CLAY - medium plasticity, brown, hard, silty to finely sandy, slightly moist, becoming more moist from 2.0' to 4.5', slightly calcareous.		A	
4.5' to 9.9'		B	
CLAY-SHALE - appears to be reworked shale, rust brown, marbled gray, soft, abundant calcareous nodules throughout, moist. Clay-shale is gravelly (mostly ferrous nodules) throughout this interval. Calcareous from 9.3' to 9.9'.	Actual Loss 1.4' L 0.6'	Box 1	2. Drilling: 8" auger to 7.0'; 6" core to total depth of 15.0'.
9.9' to 11.3'	C 0.6'		3. Jars: A. 2.0' to 4.5' B. 4.5' to 7.0'
Core lost due to grinding.			4. Cartons: 1. 7.5' to 8.5' 2. 14.0' to 15.0'
11.3' to 15.0'			5. Core Box: 1. 7.0' to 15.0'
SHALE AND SANDSTONE - shale is tan, to grayish tan, soft, silty, finely sandy and is interrupted by tan very fine grained sandstone at the following intervals; 11.8' to 12.0'; 12.5' to 13.3'. Ironstone noted from 13.3' to 13.4'. Shale and sandstone is non-calcareous.			
T. D. 15.0'			

ENG FORM 1836 PREVIOUS EDITIONS ARE OBSOLETE. (TRANSLUCENT)

Project: Aubrey Lake — Hole No. 8A6C-309

Hole No. 8A-310

Drilling Log — Division: Southwestern	Installation: Fort Worth	Sheet 1 of 1 sheets
1. Project: Aubrey Dam	10. Size and type of bit: Auger	
2. Location: Outlet Works	11. Datum for elevation shown (USGS or MSL)	
3. Drilling agency: USCE	12. Manufacturer's designation of drill: Failing 1500	
4. Hole No. (As shown on drawing title and file number): 8A-310	13. Total no. of overburden samples taken: Disturbed 5; Undisturbed 0	
5. Name of driller: Mullins	14. Total number core boxes: --	
6. Direction of hole: ☒ Vertical ☐ Inclined ____ deg. from vert.	15. Elevation ground water: --	
7. Thickness of overburden: 10.3	16. Date hole: Started 19 Sep 83; Completed 19 Sep 83	
8. Depth drilled into rock: 0.7	17. Elevation top of hole: offset elev Base	
9. Total depth of hole: 11 0	18. Total core recovery for boring: %	
	19. Signature of inspector: J.P. Cole by JEC	

Elevation	Depth	Legend	Classification of Materials (Description)	% Core Recovery	Box or Sample No.	Remarks (Drilling time, water loss, depth of weathering, etc., if significant)
			0.0' to 1.0'		A	***
			CLAY, low plasticity, hard, dry, silty, dark gray.		B	1. Hole was dry after completion. 16 hour check, hole was dry.
			1.0' to 4.0'		C	2. Jars: A. 0.0 to 1.0 B. 1.0 to 4.0 C. 4.0 to 6.0 D. 6.0 to 9.0 E. 9.0 to 10.3 F. 10.3 to 11.0
			CLAY, medium plasticity, hard, dry, gray.		D	
			4.0' to 6.0'		E	
	10		CLAY, medium plasticity, silty, stiff, gravelly, some caliche, tan and white.		F	
			6.0' to 10.3'			3. Hole offset 10' East.
			CLAY, low plasticity, medium stiff, sandy, moist to 9', wet from 9' to 10.3', tan.			
			10.3' to 11.0'			
	20		SHALE, weathered to 10.5', unweathered from 10.5' to 11', stiff, dark gray.			
			T.D. - 11.0' -			

ENG FORM 1836 PREVIOUS EDITIONS ARE OBSOLETE.

Project: Aubrey Dam — Hole No. 8A-310

RECORD DRAWING-WORK AS BUILT

SYM	DD NO	ACTION	DATE	DESCRIPTION OF REVISION

U.S. ARMY ENGINEER DISTRICT, FORT WORTH
CORPS OF ENGINEERS
FORT WORTH, TEXAS

DESIGNED BY: ---
DRAWN BY: ---
REVIEWED BY: ---
SUBMITTED BY: ENGINEER

RAY ROBERTS LAKE
ELM FORK, TRINITY RIVER, TEXAS
EMBANKMENT, SPILLWAY AND OUTLET WORKS
LOGS OF BORINGS
8A6C-307, 8A6C-308, 8A6C-309 AND 8A-310

Invitation No. DACW63-82-B-0025 | Date MAR. 1982
Contract No. DACW63-82-C-0083 | Sequence No. 34
Drawing Number | Sheet No. of

CONTRACT NO DACW63-82-C-0083

TO ACCOMPANY FOUNDATION REPORT

Hole No. 8A-311

DRILLING LOG — Division: Southwestern — Installation: Fort Worth — Sheet 1 of 1 sheets

1. Project	Aubrey Dam
2. Location (Coordinates or Station)	Outlet Works
3. Drilling Agency	USCE
4. Hole No. (As shown on drawing title and file number)	8A-311
5. Name of Driller	Mullins
6. Direction of Hole	☐ Vertical ☐ Inclined ____ deg. from vert.
7. Thickness of Overburden	13.8
8. Depth Drilled into Rock	2.2
9. Total Depth of Hole	16.0
10. Size and Type of Bit	Auger
11. Datum for Elevation Shown (USGS or MSL)	
12. Manufacturer's Designation of Drill	Failing 1500
13. Total No. of Overburden Samples Taken	Disturbed 5 / Undisturbed 0
14. Total Number Core Boxes	- -
15. Elevation Ground Water	***
16. Date Hole	Started 5 / Completed 6
17. Elevation Top of Hole	573.6 (offset elev.)
18. Total Core Recovery for Boring	%
19. Signature of Inspector	[illegible]

Elevation	Depth	Legend	Classification of Materials (Description)	% Core Recovery	Box or Sample No.	Remarks
			0.0' to 1.0'		A	****
			SILT, medium stiff, dry, low plasticity, dark brown.		B	1. Hole was dry after completion. 16 hour check, level was 15.4'
			1.0' to 6.7'			2. Jars: A. 0.0 to 1.0 B. 1.0 to 6.7 C. 6.7 to 12.0 D. 12.0 to 13.8 E. 13.8 to 16.0
			CLAY, low plasticity, medium stiff, silty, sandy, slightly moist, red and tan.		C	
	10		6.7' to 12.0'			3. Hole offset 30 ft. on a bearing of N 90° E.
			CLAY, low plasticity, medium stiff, sandy, moist, tan and gray.			
			12.0' to 13.8'		D	
			SAND, gravelly, medium dense, clayey, tan and brown.		E	
			13.8' to 16.0'			
			SHALE, reworked in upper 0.3', unweathered darl gray..			
	20		T.D. - 16.0' -			

ENG FORM 1836 MAR 71 — PREVIOUS EDITIONS ARE OBSOLETE. — Project: Aubrey Dam — Hole No. 8A-311

DRILLING LOG — Division: Southwestern — Installation: Fort Worth

1. Project	Aubrey Dam
2. Location (Coordinates or Station)	Outlet Works
3. Drilling Agency	USCE
4. Hole No. (As shown on drawing title and file number)	8A-312
5. Name of Driller	Mullins
6. Direction of Hole	☒ Vertical ☐ Inclined ____ deg. from vert.
7. Thickness of Overburden	15.0
8. Depth Drilled into Rock	0.5
9. Total Depth of Hole	15.5
12. Manufacturer's Designation of Drill	Failing 1500
13. Total No. of Overburden Samples Taken	Disturbed 6
14. Total Number Core Boxes	
15. Elevation Ground Water	**
16. Date Hole	Started 19 Sep 80
17. Elevation Top of Hole	56
18. Total Core Recovery for Boring	
19. Signature of Inspector	[illegible]

Elevation	Depth	Legend	Classification of Materials (Description)	% Core Recovery	Box or Sample No.	Remarks
			0.0' to 2.0'		A	**
			SAND, fine grained, medium dense, dry, brown.		B	1. Aug... rated 24 ho... was s...
			2.0' to 12.0'		C	2. Jar... A. 0. B. 2. C. 5. D. 7. E. 12 F. 15
			GRAVEL, coarse to fine grained, medium dense, moist from 2' to 5', damp from 5' to 7', becomes saturated at 7'.		D	
	10		12.0' to 15.0'			3. Hol... on ... N80° fna... Ele... tai...
			CLAY, medium plasticity, very stiff, moist, gravelly, brown.		E	
			15.0' to 15.5'			
			SHALE, unweathered, soft, dark gray.			
	20		T.D. - 15.5' -			

ENG FORM 1836 MAR 71 — PREVIOUS EDITIONS ARE OBSOLETE — Project: Aubrey Lake

Hole No. 8A-312

Division: Southwestern	Installation: Fort Worth — Sheet 1 of 1 sheets
	10. Size and type of bit: auger
	11. Datum for elevation shown (TBM or MSL)
	12. Manufacturer's designation of drill: Failing 1500
Hole No.: 8A 312	13. Total no. of overburden samples taken: Disturbed 6, Undisturbed 0
line	14. Total number core boxes
	15. Elevation ground water **
deg. from vert.	16. Date hole: Started 19 Sep 80, Completed 19 Sep 80
15.0	17. Elevation top of hole 567.9
0.5	18. Total core recovery for boring
15.5	19. Signature of inspector: L P Cole [signature]

Classification of Materials (Description)	% Core Recovery	Box or Sample No.	Remarks
0.0' to 2.0' SAND, fine grained, medium dense, dry, brown.		A	** 1. Augered into saturated gravel at 7'. 24 hour check - level was same.
2.0' to 12.0' GRAVEL, coarse to fine grained, medium dense, moist from 2' to 5', damp from 5' to 7', becomes saturated at 7'.		B, C	2. Jars: A. 0.0 to 2.0; B. 2.0 to 5.0; C. 5.0 to 7.0; D. 7.0 to 12.0; E. 1. ? to 15.0; F. 15.. to 15.5
12.0' to 15.0' CLAY, medium plasticity, very stiff, moist, gravelly, brown.		D	3. Hole offset 80 ft. on a bearing of N80°E due to inaccessible terrain. Elevation was obtained with level.
15.0' to 15.5' SHALE, unweathered, soft, dark gray.		E, F	
T.D. - 15.5' -			

...TIONS ARE OBSOLETE. Project: Aubrey Lake. Hole No. 8A-312

Hole No. 6DC-313

DRILLING LOG — Division: SWD	Installation: FWD — Sheet 1 of 3 sheets
1. Project: Aubrey Dam	10. Size and type of bit: 8" aug., 6" den., 6" core
2. Location (Coordinates or Station): Outlet	11. Datum for elevation shown (TBM or MSL)
3. Drilling agency: USCE-C	12. Manufacturer's designation of drill: Failing 1500
4. Hole No. (As shown on drawing title and file number): 6DC-313	13. Total no. of overburden samples taken: Disturbed 14, Undisturbed 6
5. Name of driller: Newbcman & Mullins	14. Total number core boxes: 10
6. Direction of hole: [x] Vertical [ ] Inclined ___ deg. from vert.	15. Elevation ground water: ****
	16. Date hole: Started 29 Aug, Completed 10 Sep 80
7. Thickness of overburden: 29.5	17. Elevation top of hole
8. Depth drilled into rock: 53.6	18. Total core recovery for boring: 99 %
9. Total depth of hole: 83.1	19. Signature of inspector: McVeru to 39', Cole to T.D.

Elevation	Depth	Legend	Classification of Materials (Description)	% Core Recovery	Box or Sample No.	Remarks
			0.0' to 16.0' CLAY		A	**** 1. Bailed hole to near T.D., 24 hr. check, water @ 23.5'.
			0.0' to 4.0', low plasticity, hard, dry, brown, silty.		B, C	2. Jars: ** from den. ca[ns] A. 0.0 to 4.0; B. 4.0 to 5.0; C. 5.0 to 5.5; D. 7.0; E. 9.0; F. 11.0; G. 11.0 to 13.0 **; H. 15.0; I. 17.0; J. 18.0 **; K. 20.0; L. 20.0 to 21.3 **; M. 21.3 to 26.3; N. 26.3 to 29.5; O. 29.5 to 32.0
			4.0' to 6.3', med. plast., V. stiff, dry, strong brown, sl. sandy.		1 D	
			6.3' to 16.0', med./low plast., stiff, dry, yellowish brown, silty, lime nodules and sand below 15.0'.		2 E, 3 F	
	10					
			16.0' to 21.3' SAND, fine grained, clayey & silty seams within, sl. gravelly, dry, strong brown, & yellow brown W/ light grey.		G, 4 H	
			21.3' to 29.5' GRAVEL, coarse to fine & round, damp to moist? (drill fluid still in hole), strong brn. clayey, sandy.		5 I, J, 6 K	3. Denison cans: 1. 5.5 to 7.0; 2. 7.0 to 9.0; 3. 9.0 to 11.0; 4. 13.0 to 15.0; 5. 15.0 to 17.0; 6. 18.0 to 20.0
	20					
			29.5' to 82.9' CLAYSHALE, unweath., dk, grey, soft to mod. soft (Rx. classif) massive, silty W/ interbeds of thin silty & sandy seams @ 10-12 degrees.		L, M	4. Cartons: 1-35.3 to 36.3; 2-41.9 to 42.9; 3-45.6 to 46.3; 4-50.5 to 51.3; 5-57.3 to 58.3; 6-65.8 to 66.8; 7-69.9 to 70.6; 8-75.3 to 76.3; 9-81.9 to 82.9
			Several med. hard SANDSTONE seams as indicated below: 45.6—45.9; 49.6 50.9; 50.4 52.1; 57.0 57.3; 61.2 61.4; 64.1 64.4; 64.9 65.0; 66.7 66.8		N	
	30				O	
			Highly fossilif. zone from 69.9 to 70.4 (ctn. #7).		Box	5. Drilling: 0.0' to 5.0', 8" auger, Set 5.0' casing
			Structural features as follows: 43.4 open fract; 47.1 " "; 51.3 " "; 64.2 " "	6.02	1	5.0' to 21.5' 6" denison, 8" casing as drill progressed
				6.02	2	21.5' to 32.0' 8" auger

ENG FORM 1836, MAR 71 — PREVIOUS EDITIONS ARE OBSOLETE. Project. Hole No. 6DC-313

DRILLING LOG	
1. Project: AUB...	
2. Location (Coordinates or Station)	
3. Drilling agency	
4. Hole No. (As shown on drawing title and file number)	
5. Name of driller	
6. Direction of hole: [ ] Vertical [ ] Inclined	
7. Thickness of overburden	
8. Depth drilled into rock	
9. Total depth of hole	

Elevation	Depth	Legend
	50	
	60	
	70	

RECORD DRAWING-WORK AS BUILT

Hole No. 6DC-313

LOG — DIVISION SWD — INSTALLATION SWD — SHEET 1 OF 3 SHEETS

rey Dam

USCE-C — 6DC-313

ller & Mullins

HOLE ☐ INCLINED ___ DEG. FROM VERT.

OVERBURDEN 29.5 — D INTO ROCK 53.6 — OF HOLE 83.1

10. SIZE AND TYPE OF BIT 8" auger, 6" diam., 6" core
11. DATUM FOR ELEVATION SHOWN (TBM or MSL)
12. MANUFACTURER'S DESIGNATION OF DRILL: Failing 1500
13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN: DISTURBED 14 — UNDISTURBED 6
14. TOTAL NUMBER CORE BOXES: 10
15. ELEVATION GROUND WATER: 0000
16. DATE HOLE: STARTED 29 Aug — COMPLETED 10 Sep 80
17. ELEVATION TOP OF HOLE
18. TOTAL CORE RECOVERY FOR BORING: 99 %
19. SIGNATURE OF INSPECTOR: McTeer to 39', Cole to T.D.

ELEVATION	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO	REMARKS (Drilling time, water loss, depth of weathering, etc.; if significant)
		0.0' to 16.0' CLAY		A	1. Bailed hole to near T.D., 24 hr. check, water @ 23.5'.
		0.0' to 4.0', low plasticity, hard, dry, brown, silty.		B	
		4.0' to 6.3', med. plast., V. stiff, dry, strong brown, sl. sandy.		C	2. Jars: ** from den. ca
		6.3' to 16.0', med./low plast., stiff, dry, yellowish brown, silty, lime nodules and sand below 15.0'.		1 D	A. 0.0 to 4.0 B. 4.0 to 5.0 C. 5.0 to 5.5 D. 7.0 E. 9.0 F. 11.0 G. 11.0 to 13.0 **
		16.0' to 21.3' SAND, fine grained, clayey & silty seams within, sl. gravelly, dry, strong brown, & yellow brown w/ light grey.		2 E 3 F G	H. 15.0 I. 17.0 J. 18.0 ** K. 20.0 L. 20.0 to 21.3 * M. 21.3 to 26.3 N. 26.3 to 29.5 O. 29.5 to 32.0
		21.3' to 29.5' GRAVEL, coarse to fine & round, damp to moist? (drill fluid still in hole), strong brn. clayey, sandy.		4 M 5 I J	3. Denison cans:
		29.5' to 82.9' CLAYSHALE, unweath., dk. grey, soft to mod. soft (Rx. classif) massive, silty w/ interbeds of thin silty & sandy seams @ 10-12 degrees.		6 K L M	1. 5.5 to 7.0 2. 7.0 to 9.0 3. 9.0 to 11.0 4. 13.0 to 15.0 5. 15.0 to 17.0 6. 18.0 to 20.0 *
		Several med. hard SANDSTONE seams as indicated below: 45.6—45.9, 49.6 50.9, 50.4 52.1, 57.0 57.3, 61.2 61.4, 64.1 64.4, 64.9 65.0, 66.7 66.8		N	4. Cartons: 1. 35.3 to 36.3, 2. 41.9 to 42.9, 3. 45.6 to 46.3, 4. 50.5 to 51.3, 5. 57.5 to 58.3, 6. 65.8 to 66.8, 7. 69.9 to 70.6, 8. 75.3 to 76.3, 9. 81.9 to 82.9
		Highly fossilif. zone from 69.9 to 70.4 (ctn. #7).		O	
		Structural features as follows: 43.4 open fract, 47.1 " ", 51.3 " ", 64.2 " "		BO4	5. Drilling: 0.0' to 5.0', 8" auger, Set 5.0' casing
			L-0.2	1	5.0' to 21.5' 6" denison 8" casing as drill progressed
			C-0.2	2	21.5' to 32.0' 8" auger

** PREVIOUS EDITIONS ARE OBSOLETE. — PROJECT — HOLE NO. 6DC-313

Hole No. 6DC-313

DRILLING LOG — DIVISION — INSTALLATION — SHEET 2 OF 3 SHEETS

1. PROJECT: -
2. LOCATION (Coordinates or Station): AUBREY DAM OUTLET
3. DRILLING AGENCY
4. HOLE NO. (As shown on drawing title) and date mailed: 6DC-313
5. NAME OF DRILLER
6. DIRECTION OF HOLE: ☐ VERTICAL ☐ INCLINED ___ DEG. FROM VERT.
7. THICKNESS OF OVERBURDEN
8. DEPTH DRILLED INTO ROCK
9. TOTAL DEPTH OF HOLE

10. SIZE AND TYPE OF BIT
11. DATUM FOR ELEVATION SHOWN (TBM or MSL)
12. MANUFACTURER'S DESIGNATION OF DRILL
13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN: DISTURBED — UNDISTURBED
14. TOTAL NUMBER CORE BOXES
15. ELEVATION GROUND WATER
16. DATE HOLE: STARTED — COMPLETED
17. ELEVATION TOP OF HOLE
18. TOTAL CORE RECOVERY FOR BORING: %
19. SIGNATURE OF INSPECTOR

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO	REMARKS (Drilling time, water loss, depth of weathering, etc.; if significant)
				L-1.2	2	Drilling cont. Set 31.5' casing, clearout to 33.5'
				C-0.3	3	33.5' to 83.1' 6" core
	50			L-0.1	4	
				C-0.3		
				L-0.1	5	
	60			C-0.2	6	
				L-0.2	7	
	70		Pay	L-0.2	8	
				C-0.1		
				C-0.2	9	
				C-0.1	10	
				C-0.1	10	
			- T.D. 83.1 -		11	

HOLE TAPED 72.9

SYM	DC NO	ACTION	DATE	DESCRIPTION OF REVISION

U.S ARMY ENGINEER DISTRICT, FORT WORTH
CORPS OF ENGINEERS
FORT WORTH, TEXAS

DESIGNED BY: ---
DRAWN BY: ---
REVIEWED BY: ---
SUBMITTED BY: ---
ENGINEER

RAY ROBERTS LAKE
ELM FORK, TRINITY RIVER, TEXAS
EMBANKMENT, SPILLWAY AND OUTLET WORKS
LOGS OF BORINGS
8A-311, 8A-312, 6DC-313

INVITATION NO. DACW63-82-B-0025 — DATE MAR, 1982
CONTRACT NO. DACW63-82-C-0093 — SEQUENCE NO. 35
DRAWING NUMBER — SHEET NO. —

JOINT REC NO. DACW63-82-C-0093

RECORD DRAWING-WORK AS BUILT

TO ACCOMPANY FOUNDATION REPORT

Hole No. 6DC 314

DRILLING LOG — Division: Southwestern — Installation: Fort Worth — Sheet of 3 sheets

1. Project: Aubrey Dam
2. Location: Outlet Works
3. Drilling Agency: USCE
4. Hole No. (As shown on drawing title and file number): 6DC-314
5. Name of Driller: Mullins
6. Direction of Hole: Vertical
7. Thickness of Overburden: 18.5
8. Depth Drilled into Rock: 70.5
9. Total Depth of Hole: 89.0
10. Size and Type of Bit: Core
11. Datum for Elevation Shown (TBM or MSL):
12. Manufacturer's Designation of Drill: Failing 1500
13. Total No. of Overburden Samples Taken: Disturbed 7; Undisturbed 6
14. Total Number Core Boxes: 15
15. Elevation Ground Water: **
16. Date Hole: Started 10 Sep 80; Completed 15 Sep 80
17. Elevation Top of Hole:
18. Total Core Recovery for Boring: 100%
19. Signature of Inspector: [signature]

Elevation	Depth	Legend	Classification of Materials (Description)	% Core Recovery	Box or Sample No.	Remarks
			0.0' to 2.5' CLAY, low plasticity, hard, silty, dark brown.		A	** 1. After completion, hole was bailed to T.D. 24 hour check, level was 39.3
			2.5' to 3.5' CLAY, medium plasticity, hard, moist, brown		1	2. Jars: A. 0.0 to 2.5; B. @ 4.5; C. @ 5.5; D. @ 8.5; E. @ 10.5; F. @ 12.5; G. @ 13.5
			3.5' to 13.5' CLAY (CALICHE), medium to low plasticity, hard, slightly moist, silty, calcareous nodules, brown.		2, 3, 4, 5	3. Denison cans: 1. 2.5 to 4.5; 2. 4.5 to 6.5; 3. 6.5 to 8.5; 4. 8.5 to 10.5; 5. 10.5 to 12.5; 6. 12.5 to 13.5
	10		**13.5' to 16.0'** * GRAVEL, well-graded, medium dense, clayey, brown.		6	
			16.0' to 18.5' * CLAY (CALICHE), low plasticity, hard, moist, calcareous nodules, light brown.			4. Cartons were not requested.
	20			20.5	20.5	5. Drilling methods: 0.0 to 2.5 - auger; 2.5 to 13.5 - denison bbl.; 13.5 to 20.5 - auger; 20.5 to 89.0 - core
			18.5' to 24.5' SHALE, highly weathered to 22.0', partly weathered from 22.0' to 24.5', soft, numerous fractures to 22.0', tan and gray.	L 00 24.5	1	6. Depth of weathering at 24.5'
			24.5' to 89.0' SHALE, unweathered, moderately hard, massive, gray, with interbeds of moderately hard SANDSTONE as shown below:	L 00 29.0	2	* Substitute the following classification of materials for this interval: Limestone, argil, weathered stained yellow-brown & white massive, hard, foss, irreg thin soft shale seams, limonite concretions. (See boring 3A6C-351 which was drilled at the same location).
	30			L 00 33.0	3	
				L 00 36.5	4	
	40			L 03		

ENG FORM 1836 MAR 71 — PREVIOUS EDITIONS ARE OBSOLETE — Project: Aubrey Dam — Hole No. 6DC 314

Elevation	Depth	Legend	Classification of Materials (Description)	% Core Recovery	Box or Sample No.
	40			41.0	5
			44.3' to 44.5 - SANDSTONE; 44.7' to 44.9' - SANDSTONE	G 03 49.5	6
	50			L 0.0 53.5	7
			54.3' to 54.9' - SANDSTONE	L 05 57.0	8
	60		60.6' to 60.8' - SANDSTONE	G. 0.1 61.5	9
			62.1' to 62.4' - SANDSTONE; 62.7' to 62.9' - SANDSTONE	G 04 65.5	10
			65.0' to 65.5' - SANDSTONE; 66.0' to 70.0' - SANDSTONE	L. 0.0 69.5	11
	70		72.3' to 74.5' - very fossiliferous, numerous claystone lenses	L 0.7 73.5	12
				G. 0.1 78.0	13
				82.0 G 0.2 86.0	14
				G.03 89.0	15
	90		T.D. - 89.0' -		

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
	40			410	5	
			44.3' to 44.5 - SANDSTONE 44.7' to 44.9' - SANDSTONE	G 0.3	6	
	50			495 L 0.0 535	7	
			54.3' to 54.9' - SANDSTONE	L 05 570	8	
	60		60.6' to 60.8' - SANDSTONE	G 0.1 615	9	
			62.1' to 62.4' - SANDSTONE 62.7' to 62.9' - SANDSTONE 65.0' to 65.5' - SANDSTONE 66.0' to 70.0' - SANDSTONE	G 04 655	10	
	70			L 00 695	11	
			72.3' to 74.5' - very fossiliferous, numerous claystone lenses	L 0.7 735	12	
				G 0.1 780	13	
	80			820 G 0.2 860	14	
				G.03 890	15	
	90		T.D. - 89.0' -			

Hole No. 6DC-315

DRILLING LOG | DIVISION Southwestern | INSTALLATION Fort Worth | SHEET 1 OF 3 SHEETS

1. PROJECT: Aubrey Dam	10. SIZE AND TYPE OF BIT: auger, d bb'l, core bb'l
2. LOCATION (Coordinates or Station): Outlet Works	11. DATUM FOR ELEVATION SHOWN (TBM or MSL)
3. DRILLING AGENCY: USCE	12. MANUFACTURER'S DESIGNATION OF DRILL: Failing 1500
4. HOLE NO. (As shown on drawing title and file number): 6DC-315	13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN: DISTURBED 8; UNDISTURBED 2
5. NAME OF DRILLER: Mullins	14. TOTAL NUMBER CORE BOXES: 14
6. DIRECTION OF HOLE: [X] VERTICAL [ ] INCLINED ____ DEG. FROM VERT.	15. ELEVATION GROUND WATER: **
7. THICKNESS OF OVERBURDEN: 18.5	16. DATE HOLE: STARTED 13 Sept 80; COMPLETED 18 Sept 80
8. DEPTH DRILLED INTO ROCK: 76.3	17. ELEVATION TOP OF HOLE
9. TOTAL DEPTH OF HOLE: 94.8	18. TOTAL CORE RECOVERY FOR BORING: 98.4 %
	19. SIGNATURE OF INSPECTOR: [signature]

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
			0.0' to 2.5' CLAY, low plasticity, hard, dry, brown.		A	** 1. After completion, hole was bailed to T.D. 24 hr check, water level was 31.5'
			2.5' to 6.5' CLAY, medium plasticity, very stiff, slightly moist, brown.		1 B 2 C	2. Jars: A. 0.0 to 2.5 * B. 4.5 * C. @ 6.5 D. 6.5 to 11.5 E. 11.5 to 12.5 F. 12.5 to 17.5 G. 17.5 to 18.5 H. 18.5 to 20.5 * taken from denison shoe.
	10		6.5' to 18.5' CLAY, medium plasticity, hard, moist, gravelly except from 17.5' to 18.5', calcareous nodules.		D E F G	3. Denison cans: 1. 2.5 to 4.5 2. 4.5 to 6.5
	20		18.5' to 30.0' SHALE, moderately soft, weathered as shown below: 18.5' to 20.5' - unweathered. 20.5' to 25.4' - highly weathered, soft, tan. 25.4' to 30.0' - slightly weathered, gray and tan	205 L 0.3 245	H 20.5 1	4. Cartons: 1. 22.6 to 23.6 2. 26.7 to 27.7 3. 30.0 to 31.0 4. 35.4 to 36.4 5. 38.9 to 39.9 6. 44.5 to 45.5 7. 51.2 to 52.2 8. 56.0 to 57.0 9. 59.8 to 60.6 11. 65.4 to 66.4 11. 70.6 to 71.6 12. 77.0 to 77.8 13. 80.8 to 81.8 14. 85.8 to 86.8 15. 90.0 to 90.9 16. 93.8 to 94.8
	30		30.0' to 94.8' SHALE, moderately soft, unweathered, unjointed, unfractured, massive, gray. Interbeds of hard SANDSTONE at the following depths: 21.0' to 21.6' 38.9' to 40.3' 42.7' to 43.0' 45.7' to 45.0' 49.3' to 50.0' 57.3' to 58.3' 58.4' - very fossiliferous.	L 06 285 L 0.0 325 G 08 365	2 3	5. Drilling methods: 0.0 to 2.5 - auger 2.5 to 6.5 - denison bb'l 6.5 to 20.5 - auger 20.5 to 94.8 - core bb'l 6. Base of weathering at 30'
	40			L 04 405	4	
				G 04 445	4	
				L 0.0 490	5	
	50			G 0.2 535	6	
				L 05 580	7	

Hole No. 6DC 315

DRILLING LOG

DIVISION	Southwestern
INSTALLATION	Fort Worth
SHEET	A of 3 SHEETS
PROJECT	Aubrey Dam
LOCATION (Coordinates or Station)	Outlet Works
DRILLING AGENCY	USCE
HOLE NO. (As shown on drawing title and file number)	6DC-315
NAME OF DRILLER	Mullins
DIRECTION OF HOLE	VERTICAL / INCLINED ___ DEG. FROM VERT.
THICKNESS OF OVERBURDEN	18.5
DEPTH DRILLED INTO ROCK	76.3
TOTAL DEPTH OF HOLE	94.8
10. SIZE AND TYPE OF BIT	auger, d bb'l, core bb'l
11. DATUM FOR ELEVATION SHOWN (TBM or MSL)	
12. MANUFACTURER'S DESIGNATION OF DRILL	Failing 1500
13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	DISTURBED 8 / UNDISTURBED 2
14. TOTAL NUMBER CORE BOXES	14
15. ELEVATION GROUND WATER	**
16. DATE HOLE	STARTED 13 Sept 80 / COMPLETED 18 Sept 80
17. ELEVATION TOP OF HOLE	
18. TOTAL CORE RECOVERY FOR BORING	98.4 %
19. SIGNATURE OF INSPECTOR	L P Cole by [signature]

ELEVATION | DEPTH | LEGEND | CLASSIFICATION OF MATERIALS (Description) | % CORE RECOVERY | BOX OR SAMPLE NO. | REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)

Classification of materials:

0.0' to 2.5'

CLAY, low plasticity, hard, dry, brown.

2.5' to 6.5'

CLAY, medium plasticity, very stiff, slightly moist, brown.

6.5' to 18.5'

CLAY, medium plasticity, hard, moist, gravelly except from 17.5' to 18.5', calcareous nodules.

18.5' to 30.0'

SHALE, moderately soft, weathered as shown below:
18.5' to 20.5' - unweathered.
20.5' to 25.4' - highly weathered, soft, tan.
25.4' to 30.0' - slightly weathered, gray and tan.

30.0' to 94.8'

SHALE, moderately soft, unweathered, unjointed, unfractured, massive, gray.

Interbeds of hard SANDSTONE at the following depths:

21.0' to 21.6'
38.9' to 40.3'
42.7' to 43.0'
45.7' to 45.0'
49.3' to 50.0'
57.3' to 53.3'

58.4' - very fossiliferous.

T.D. - 94.8'

Box or sample no. / core recovery:

A; 1 (B); 2 (C); D; E; F; G; H (20.5); 1: L. 0.3, 24.5; 2: L. 0.6, 28.5; L. 0.0, 32.5; 3: G. 0.8, 36.5; 4: L. 0.4, 40.5; 4: G. 0.4, 44.5; 5: L. 0.0, 49.0; 6: G. 0.2, 53.5; 7: L. 0.5, 58.0; 8: L. 0.2, 62.0; 9: L. 0.1, 66.0; L. 1.7, 70.0; 10: G. 1.5, 73.0; 11: L. 1.4, 77.0; G. 1.0, 79.0; 12: L. 0.0, 83.0; 13: L. 0.2, 87.0; G. 0.1, 91.0; 14: L. 0.0, 95.0

Remarks:

**

1. After completion, hole was bailed to T.D. 24 hr check, water level was 31.5'

2. Jars:
   A. 0.0 to 2.5
   * B. 4.5
   * C. @ 6.5
   D. 6.5 to 11.5
   E. 11.5 to 12.5
   F. 12.5 to 17.5
   G. 17.5 to 18.5
   H. 18.5 to 20.5
   * taken from denison shoe.

3. Denison cans:
   1. 2.5 to 4.5
   2. 4.5 to 6.5

4. Cartons:
   1. 22.6 to 23.6
   2. 26.7 to 27.7
   3. 30.0 to 31.0
   4. 35.4 to 36.4
   5. 38.9 to 39.9
   6. 44.5 to 45.5
   7. 51.2 to 52.2
   8. 56.0 to 57.0
   9. 59.8 to 60.6
   11 65.4 to 66.4
   11. 70.6 to 71.6
   12. 77.0 to 77.8
   13. 80.8 to 81.8
   14. 85.8 to 86.8
   15. 90.0 to 90.9
   16. 93.8 to 94.8

5. Drilling methods:
   0.0 to 2.5 - auger
   2.5 to 6.5 - denison bb'l
   6.5 to 20.5 - auger
   20.5 to 94.8- core bb'l

6. Base of weathering at 30'

ENG FORM 1836 MAR 71 PREVIOUS EDITIONS ARE OBSOLETE | PROJECT Aubrey Dam | HOLE NO. 6DC 315

RECORD DRAWING-WORK AS BUILT

SYM	DATE	ACTION	DATE	DESCRIPTION OF REVISION

U.S. ARMY ENGINEER DISTRICT, FORT WORTH
CORPS OF ENGINEERS
FORT WORTH, TEXAS

DESIGNED BY ------- | DRAWN BY ------- | REVIEWED BY -------

RAY ROBERTS LAKE
ELM FORK, TRINITY RIVER, TEXAS
EMBANKMENT, SPILLWAY AND OUTLET WORKS
LOGS OF BORINGS
6 DC-314 AND 6DC-315

SUBMITTED BY | INVITATION NO. DACA63-82 B-0025 | DATE MAR. 1982
CONTRACT NO. DACW63-82 C | SEQUENCE 36
CHIEF, ENGINEERING | DRAWING NUMBER | SHEET NO.

TO ACCOMPANY FOUNDATION REPORT

Hole No. SA-316

DRILLING LOG — Division: Southwestern — Installation: Fort Worth — Sheet: 1 of 1 sheets

1. Project	Aubrey Dam
2. Location (Coordinates or Station)	Outlet Works
3. Drilling Agency	USCE
4. Hole No. (As shown on drawing title and file number)	SA-316
5. Name of Driller	Mullins
6. Direction of Hole	☒ Vertical ☐ Inclined ____ deg. from vert.
7. Thickness of Overburden	--
8. Depth Drilled into Rock	--
9. Total Depth of Hole	35.0
11. Size and Type of Bit	
12. Datum for Elevation Shown (MSL or USC&GS)	
13. Manufacturer's Designation of Drill	Failing 1500
14. Total No. of Overburden Samples Taken	Undisturbed: 7; Disturbed: 0
15. Total Number Core Boxes	--
16. Elevation Ground Water	---
17. Date Hole	Started: 19 Sep 80; Completed: 19 Sep 80
18. Elevation Top of Hole	
19. Total Core Recovery for Boring	%
20. Signature of Inspector	[signature]

Elevation	Depth	Legend	Classification of Materials (Description)	% Core Recovery	Box or Sample No.	Remarks (Drilling time, water loss, depth of weathering, etc.; if significant)
			0.0' to 11.0'		A	*** 1. After completion, water level in hole was 12.4. 16 hour check - level was 12.4'
			CLAY, medium to high plasticity, stiff, moist black and white.			
			11.0' to 23.0'		B	2. Jars: A. 0.0 to 5.0 B. 5.0 to 11.0 C. 11.0 to 16.0 D. 16.0 to 21.0 E. 21.0 to 23.0 F. 23/0 to 29.0 G. 29.0 to 35.0
			CLAY, high plasticity, medium stiff, moist to 16', very moist from 16' to 23', scattered gravel, tan and gray.			
	10		23.0' to 29.0'		C	
			CLAY, medium plasticity, soft, wet, sandy, gray-green.			
			29.0' to 35.0'		D	
	20		CLAY, medium plasticity, soft, wet, sandy, gray green.		E	
			T.D. = 35.0'		F	
	30				G	

ENG FORM 1836 MAR 73 PREVIOUS EDITIONS ARE OBSOLETE. — Project: Aubrey Dam — Hole No. SA-316

DRILLING LOG — Division: SWD — Installation: F

1. Project	AUBREY DAM - OUTLET WORKS
2. Location (Coordinates or Station)	STA 2 +10
3. Drilling Ag	CT USCE-C
4. Hole No. (As shown on drawing title and file number)	BALC-358
5. Name of Driller	MULLINS
6. Direction of Hole	☒ Vertical ☐ Inclined ____ deg. from vert.
7. Thickness of Overburden	27.7'
8. Depth Drilled into Rock	76.8'
9. Total Depth of Hole	104.5'
11. Size and Type of B	
12. Datum for Elevation	
13. Manufacturer's D	
14. Total No. of Over	
15. Total Number Co	
16. Elevation Ground	
17. Date Hole	
18. Elevation Top of	
19. Total Core Recov	
20. Signature of Insp	

Elevation	Depth	Legend	Classification of Materials (Description)	% Core Recovery	Box or Sample No.
	00'		00' to 13.5'		A
			CLAY: 00'-1.3' MED/HIGH PLASTICITY, STIFF, MOIST, DK. BRN, SANDY LIME		B
			1.3'-5.6' as above, COLOR GRADES TO BRN		
			5.6'-13.5' LOW PLASTICITY, HARD; DRY, REDDISH YELLOW; SANDY & SILTY, VERY SANDY AFTER 10.6'		C
	10				D
			13.5' to 16.1'		
			GRAVEL COARSE TO FINE, DRY; STRONG BRN, VERY SANDY, CLAYEY		E
			16.1' to 20.2':		
			SAND: FINE-GRAINED; DRY REDDISH YELLOW; SLI. GRAVELLY		F
	20		20.2' to 27.7':		
			GRAVEL: COARSE TO FINE; DAMP; VERY SANDY, STRONG BRN TO BRN BY 21.2'		G
					H
	27.7'		27.7' to 43.1':		I
			SHALE:		J
	40		27.7'-28.3': WEATHERED; GRAY; MASSIVE; SAND IS OLIVE, VERY FRIABLE & WEAKLY CEMENTED		Box 1
			28.3'-43.1': UNWEATHERED; DK GRAY, MOD. SOFT, MASSIVE; SILTY; NUMEROUS THIN (<0.1' THICK) SANDSTONE SEAMS SCATTERED EXCEPT WHERE NOTED: @30.0' 20.3'-20.5' @31.5' 33.3'-34.2': VERY SILTY		Box 2

ENG FORM 1836 MAR 73 PREVIOUS EDITIONS ARE OBSOLETE — Project: AUBR

Hole No. BALC-358

DRILLING LOG — SWD — INSTALLATION FWD — SHEET 1 OF 3 SHEETS

1. PROJECT: AUBREY DAM - OUTLET WORKS
2. LOCATION (Coordinates or Stations): STA 25+10
3. DRILLING AGENCY: USCE-C
4. HOLE NO. (As shown on drawing title) and DRILL NUMBER: BALC-358
5. NAME OF DRILLER: HULLINS
6. DIRECTION OF HOLE: ☒ VERTICAL ☐ INCLINED ____ DEG. FROM VERT.
7. THICKNESS OF OVERBURDEN: 27.7'
8. DEPTH DRILLED INTO ROCK: 76.8'
9. TOTAL DEPTH OF HOLE: 104.5'
10. SIZE AND TYPE OF BIT: AUGER & 6" CORE
11. DATUM FOR ELEVATION SHOWN (GS or MSL):
12. MANUFACTURER'S DESIGNATION OF DRILL: FAILING 1500
13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN: DISTURBED 8; UNDISTURBED 0
14. TOTAL NUMBER CORE BOXES: 16
15. ELEVATION GROUND WATER: SEE REMARKS
16. DATE HOLE: STARTED 9FEB81; COMPLETED 13FEB81
17. ELEVATION TOP OF HOLE:
18. TOTAL CORE RECOVERY FOR BORING: 99%
19. SIGNATURE OF INSPECTOR: McVEY

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS
	00'		00' TO 13.5' CLAY 00'-13' MED/HIGH PLASTICITY, STIFF; MOIST, DK. BRN, SANDY LME 13'-56' AS ABOVE, COLOR GRADES TO BRN 56'-135' LOW PLASTICITY, HARD; DRY, REDDISH YELLOW, SANDY & SILTY, VERY SANDY AFTER 10.6'		A	1 WATER LEVEL: 84 HRS AFTER BAILING WATER LEVEL WAS @ 27.2'
					B	
	10				C	2. JAR SAMPLES. A: 00'-1.3' B: 1.3'-5.6' C: 5.6'-10.6' D: 10.6'-13.5' E: 13.5'-16.1' F: 16.1'-20.2' G: 20.2'-24.2' H: 24.2'-27.7' I: 27.7'-28.3' J: 28.3'-29.0'
					D	
			135' TO 16.1' GRAVEL COARSE TO FINE, DRY; STRONG BRN, VERY SANDY, CLAYEY		E	
			16.1' TO 20.2' SAND FINE-GRAINED; DRY, REDDISH YELLOW; SLI GRAVELLY		F	
	20		20.2' TO 27.7' GRAVEL COARSE TO FINE; DAMP; VERY SANDY, STRONG BRN TO BRN BY 24.2'		G	3 DRILLING: AUGER 00'-29.0' SET 30' OF CASING. CLEANED HOLE OUT TO 30.0'. 6" CORE 30.0'-105.0'
					H	4. E-LOGGING: BORING DRILLED 15' SOUTH OF BALC-358 & WAS E-LOGGED.
27.7'			27.7' TO 43.1' SHALE: 27.7'-28.3' WEATHERED; GRAY, MASSIVE; SAND IS OLIVE, VERY FRIABLE & WEAKLY CEMENTED		I	5. BASE OF WEATHERING: @ 28.3'
	30		28.3'-43.1' UNWEATHERED, DK. GRAY; MOD. SOFT, MASSIVE; SILTY; NUMEROUS THIN (<0.1' THICK) SANDSTONE SEAMS SCATTERED EXCEPT WHERE NOTED: @ 30.0' 29.3'-30.5' @ 31.5' 33.3'-34.2': VERY SILTY		J	
					Box 1	
					Box 2	
	40					

ENG FORM 1836 MAR 71 PREVIOUS EDITIONS ARE OBSOLETE. PROJECT AUBREY DAM HOLE NO. BALC-358

Hole No. BALC 358

DRILLING LOG — SWD — INSTALLATION FWD — SHEET 2 OF 3 SHEETS

1. PROJECT: AUBREY DAM - OUTLET WORKS
2. LOCATION (Coordinates or Stations): STA 25+10
3. DRILLING AGENCY: USCE-C
4. HOLE NO. (As shown on drawing title) and DRILL NUMBER: BALC-358
5. NAME OF DRILLER: HULLINS
6. DIRECTION OF HOLE: ☒ VERTICAL ☐ INCLINED ____ DEG. FROM VERT.
7. THICKNESS OF OVERBURDEN: 27.7'
8. DEPTH DRILLED INTO ROCK: 76.8'
9. TOTAL DEPTH OF HOLE: 104.5'
10. SIZE AND TYPE OF BIT: AUGER 6" CORE
11. DATUM FOR ELEVATION SHOWN (GS or MSL):
12. MANUFACTURER'S DESIGNATION OF DRILL: FAILING 1500
13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN: DISTURBED 8; UNDISTURBED 0
14. TOTAL NUMBER CORE BOXES: 16
15. ELEVATION GROUND WATER: SEE REMARKS
16. DATE HOLE: STARTED 9FEB81; COMPLETED 13FEB81
17. ELEVATION TOP OF HOLE:
18. TOTAL CORE RECOVERY FOR BORING: 99%
19. SIGNATURE OF INSPECTOR: McVEY

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS
			@ 31.2': HARD DENSE BRN CO_3 37.2'-37.5': VERY SILTY @ 40.1' HARD DENSE BRN CO_3		Box 3	
			43.1' TO 66.9': SHALE & SANDSTONE: 43.1'-66.3': INTERLAYERED, UNWEATHERED; DK. GRAY TO LT. GRAY, MOD. SOFT TO MOD. HARD; MOD. CEMENTED SANDSTONE ZONES AS FOLLOWS: 43.1'-43.4' 45.7'-46.0' 46.9'-48.0': SHALEY 48.5'-50.1': SHALEY 50.8'-51.0' 52.3'-54.5': SHALEY		Box 4	
	50				Box 5	
			58.6-59.0'		Box 6	
			60.2'-60.5' @ 61.3': HARD BRN CO_3 61.5'-61.9': SANDSTONE IS HARD & WELL-CEMENTED		Box 7	
	60		66.3'-66.9': SHALE AS ABOVE; SANDSTONE IS GREEN GRAY WITH NUMEROUS OYSTER SHELLS (< 1/2" in size)		Box 8	
			66.9' TO 99.9': SHALE: 66.9'-91.0': UNWEATHERED, DK. GRAY TO LT. GRAY, MOD. SOFT TO MOD. HARD; ARENACEOUS, NUMEROUS THIN & SCAT. SAND & SILT SEAMS; NUMEROUS HARD BRN CONCRETIONS & LENSES @ 68.0': FOSSILIFEROUS & VERY SILTY FOR 0.5'		Box 9	
	70				Box 10	
					Box 11	
	80					

ENG FORM 1836 MAR 71 PREVIOUS EDITIONS ARE OBSOLETE. PROJECT AUBREY DAM HOLE NO. BALC-358

Hole No. 8A6C-358

DRILLING LOG	DIVISION: SWD	INSTALLATION: FWD	SHEET 2 OF 3 SHEETS
PROJECT: AUBREY DAM - OUTLET WORKS		10. SIZE AND TYPE OF BIT: AUGER, 6" CORE	
LOCATION: STA 25+10		11. DATUM FOR ELEVATION SHOWN	
DRILLING AGENCY: USCE-C		12. MANUFACTURER'S DESIGNATION OF DRILL: FAILING 1500	
HOLE NO.: 8A6C-358		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN: DISTURBED 8, UNDISTURBED 0	
NAME OF DRILLER: HULLINS		14. TOTAL NUMBER CORE BOXES: 16	
DIRECTION OF HOLE: VERTICAL / INCLINED		15. ELEVATION GROUND WATER: SEE REMARKS	
		16. DATE HOLE: STARTED 9FEB81, COMPLETED 13FEB81	
THICKNESS OF OVERBURDEN: 27.7'		17. ELEVATION TOP OF HOLE	
DEPTH DRILLED INTO ROCK: 76.8'		18. TOTAL CORE RECOVERY FOR BORING: 99%	
TOTAL DEPTH OF HOLE: 104.5'		19. SIGNATURE OF INSPECTOR: McVEY	

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS
			@34.2' HARD DENSE BRN CO_3		Box 3	
			37.2'-37.5': VERY SILTY			
			@40.4' HARD DENSE BRN CO_3		Box 4	
			43.1' to 66.9': SHALE & SANDSTONE			
			43.1'-66.3': INTERLAYERED, UNWEATHERED; DK GRAY TO LT. GRAY, MOD. SOFT TO MOD HARD, MOD. CEMENTED SANDSTONE ZONES AS FOLLOWS:			
	50		43.1'-43.4'; 45.7'-46.0'; 46.9'-48.0': SHALEY; 48.5'-50.1': SHALEY; 50.8'-51.0'; 52.3'-54.5': SHALEY		Box 5, Box 6	
			58.5-59.0'			
	60		60.2'-60.5'		Box 7	
			@61.3': HARD BRN CO_3			
			61.5'-61.9': SANDSTONE IS HARD & WELL-CEMENTED		Box 8	
			66.3'-66.9': SHALE as above; SANDSTONE IS GREEN GRAY WITH NUMEROUS OYSTER SHELLS (< 1/2" in size)			
	70		66.9' to 99.9': SHALE		Box 9	
			66.9'-91.0': UNWEATHERED, DK GRAY TO LT GRAY, MOD. SOFT TO MOD. HARD, ARENACEOUS, NUMEROUS THIN & FLAT SAND & SILT SEAMS; NUMEROUS HARD BRN CONCRETIONARY LENSES		Box 10	
			@ 76.7': FOSSILIFEROUS & VERY SILTY FOR ...		Box 11	

Hole No. 8A6C-358

DRILLING LOG	DIVISION: SWD	INSTALLATION: FWD	SHEET 3 OF 3 SHEETS
PROJECT: AUBREY DAM - OUTLET WORKS		10. SIZE AND TYPE OF BIT: AUGER, 6" CORE	
LOCATION: STA 25+10		11. DATUM FOR ELEVATION SHOWN	
DRILLING AGENCY: USCE-C		12. MANUFACTURER'S DESIGNATION OF DRILL: FAILING 1500	
HOLE NO.: 8A6C-358		13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN: DISTURBED 8, UNDISTURBED 0	
NAME OF DRILLER: BREWER		14. TOTAL NUMBER CORE BOXES: 16	
DIRECTION OF HOLE: VERTICAL / INCLINED		15. ELEVATION GROUND WATER: SEE REMARKS	
		16. DATE HOLE: STARTED 9FEB81, COMPLETED 13FEB81	
THICKNESS OF OVERBURDEN: 27.7'		17. ELEVATION TOP OF HOLE	
DEPTH DRILLED INTO ROCK: 76.8		18. TOTAL CORE RECOVERY FOR BORING: 99%	
TOTAL DEPTH OF HOLE: 104.5'		19. SIGNATURE OF INSPECTOR: McVEY	

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS
			SANDSTONE ZONES AS FOLLOWS: @74.8'; 75.5'-75.7'; 76.2'-78.0'; 79.9'-80.5'		Box 12	
					Box 13	
	90		84.3'-91.0': SCAT. OYSTER SHELLS			
			91.0'-99.9': DK GRAY, MASSIVE, MOD SOFT, SL SANDY & SILTY		Box 14	
					Box 15	
	100		99.9' to 103.7': LIMESTONE, HARD, MASSIVE, WHITE, ARGILLACEOUS, SL FOSSILIFEROUS		Box 16	
			103.7' to 104.5': SHALE, DK GRAY, MASSIVE, MOD SOFT, LIMEY, SOME OYSTER SHELLS			
	104.5'		TD 104.5'			
	110					

ENG FORM 1836 MAR 71 PREVIOUS EDITIONS ARE OBSOLETE. PROJECT: AUBREY DAM. HOLE NO. 8A6C-358

RECORD DRAWING - WORK AS BUILT

			DESCRIPTION OF REVISION

U.S. ARMY ENGINEER DISTRICT, FORT WORTH
CORPS OF ENGINEERS
FORT WORTH, TEXAS

RAY ROBERTS LAKE
ELM FORK, TRINITY RIVER, TEXAS
EMBANKMENT, SPILLWAY AND OUTLET WORKS
LOGS OF BORINGS
8A-310 AND 8A6C-358

INVITATION NO. DACW63-82-B-0025 DATE MAR 1982
CONTRACT NO. DACW63-82-C-0043
SHEET 27

TO ACCOMPANY FOUNDATION REPORT

Hole No. BAGC-359

DRILLING LOG — DIVISION: SWD — INSTALLATION: FWD — SHEET 1 OF 1 SHEETS

1. PROJECT	AUBREY DAM - OUTLET WORKS
2. LOCATION (Coordinates or Station)	STA 27+20
3. DRILLING AGENCY	USCE-C
4. HOLE NO. (As shown on drawing title and file number)	BAGC-359
5. NAME OF DRILLER	MULLINS
6. DIRECTION OF HOLE	☒ VERTICAL ☐ INCLINED ____ DEG. FROM VERT.
7. THICKNESS OF OVERBURDEN	17.0'
8. DEPTH DRILLED INTO ROCK	15.5'
9. TOTAL DEPTH OF HOLE	32.5'
10. SIZE AND TYPE OF BIT	AUGER; 6" CORE
11. DATUM FOR ELEVATION SHOWN (TBM or MSL)	
12. MANUFACTURER'S DESIGNATION OF DRILL	FAILING 1500
13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN	DISTURBED 5 / UNDISTURBED 0
14. TOTAL NUMBER CORE BOXES	3
15. ELEVATION GROUND WATER	* SEE REMARKS
16. DATE HOLE	STARTED 18 FEB 81 / COMPLETED 19 FEB 81
17. ELEVATION TOP OF HOLE	
18. TOTAL CORE RECOVERY FOR BORING	100 %
19. SIGNATURE OF INSPECTOR	McVEY

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
	0.0'		0.0' to 17.0': CLAY: 0.0'-3.0': MED/HIGH PLASTICITY; HARD; DRY; BRN; SANDY & SILTY		A	* 1. WATER LEVEL: 24 HRS AFTER BAILING WATER LEVEL WAS @ 27.4'
			3.0'-4.9': as above; VERY STIFF; DAMP; BRN		B	
			4.9'-8.0': MED/HIGH PLASTICITY; HARD; DRY; YELLOW BRN & BRN; LIMEY; SILTY & SANDY		C	2. JAR SAMPLES: A: 0.0'-3.0'; B: 3.0'-4.9'; C: 4.9'-8.0'; D: 8.0'-14.1'; E: 14.1'-17.0'
	10		8.0'-14.1': MED/LOW PLASTICITY, VERY STIFF; DRY, RED YELLOW; SILTY & SANDY		D	
			14.1'-17.0': as above; STIFF; DAMP		E	3. DRILLING: AUGERED 0.0'-17.5'. AUGER REFUSAL @ 17.5'. 6" CORE 17.5'-32.5'. LEFT 1.0' OF CORE IN BORING (31.5'-32.5') ON LAST RUN. BAILED BORING.
	17.0'		17.0' to 18.7': LIMESTONE: HARD; MASSIVE, WEATHER-STAINED, WHITE & YELLOW-BRN, FOSSILIFEROUS; 0.1' THICK LIMONITE SEAM @ BASE		Box 1	
	20		18.7' to 31.5': SHALE: 18.7'-28.9': WEATHERED; YELLOW BRN & GRAY, SOFT TO MOD. SOFT, MASSIVE, SCAT. THIN SILT & SAND SEAMS, SL. TO NON-CALC.			4. BASE OF WEATHERING @ 28.9'
			18.8'-19.1': MOD HARD & MOD. CEMENTED SANDSTONE SEAMS		Box 2	
			25.7'-27.2': VERY SANDY ZONE		Box 3	
	30		27.6'-27.7': HARD LIMONITE SEAM			
	31.5'		28.9': THIN VERY SHELLY & SANDY SEAM	1.0' LEFT IN HOLE		
			28.9'-31.5': UNWEATHERED; DK. GRAY; FOSSILIFEROUS; 3" AMMONITE @ 31.0'			
			TD: 31.5'			
	40					

ENG FORM 1836 MAR 71 — PREVIOUS EDITIONS ARE OBSOLETE — PROJECT: AUBREY DAM — HOLE NO. BAGC-359

Hole No.

DRILLING LOG — DIVISION: SWD — INSTALLATION: FWD

1. PROJECT	AUBREY DAM - OUTLET WORKS
2. LOCATION (Coordinates or Station)	STA 28+50
3. DRILLING AGENCY	USCE-C
4. HOLE NO. (As shown on drawing title and file number)	BAGC-360
5. NAME OF DRILLER	MULLINS
6. DIRECTION OF HOLE	☒ VERTICAL ☐ INCLINED ____ DEG. FROM VERT.
7. THICKNESS OF OVERBURDEN	15.3'
8. DEPTH DRILLED INTO ROCK	14.7'
9. TOTAL DEPTH OF HOLE	30.0'
10. SIZE AND TYPE OF BIT	AUGER; 6"
11. DATUM FOR ELEVATION SHOWN	
12. MANUFACTURER'S DESIGNATION OF DRILL	FAILING 15
13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN	DISTURBED 4
14. TOTAL NUMBER CORE BOXES	3
15. ELEVATION GROUND WATER	* SEE R
16. DATE HOLE	STARTED 19 FEB 81
17. ELEVATION TOP OF HOLE	
18. TOTAL CORE RECOVERY FOR BORING	
19. SIGNATURE OF INSPECTOR	McVEY

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS g
	0.0'		0.0' to 15.3': CLAY: 0.0'-2.4': MED/HIGH PLASTICITY, STIFF; DAMP, DK. BRN; SANDY & SILTY		A	* 1. WATER LE[VEL]: 18 HRS A[FTER] WATER [LEVEL] @ 23.1'
			2.4'-7.4': HIGH/MED PLASTICITY, STIFF; DAMP TO MOIST, RED YELLOW; SILTY & SANDY, LIME NODULES		B	2. JAR SA[MPLES]: A: 0.0'-2'; B: 2.4'-7; C: 7.4'-1; D: 12.7'-
			7.4'-12.7': as above, MED/LOW PLASTICITY; MED STIFF; SANDIER			
	10				C	3. DRILLIN[G]: AUGERED; 6" CORE; BAILED
			12.7'-15.3': MED/HIGH PLASTICITY; HARD; DRY, YELLOW BRN, SANDY & SILTY, LIMEY		D	
	15.3'		15.3' to 17.3': LIMESTONE: WHITE & YELLOW BRN STAINS, HARD; MASSIVE, FOSSILIFEROUS			4. E-LOGGI[NG]: C. OG HO; 27' NORT[H]; BAGC-36
					Box 1	
	20		17.3' to 29.7': SHALE: WEATHERED TO YELLOW BRN & LT. GRAY TO 29.2', THEN UNWEATHERED DK GRAY, MASSIVE, MOD. SOFT, SILTY & SANDY, NUMEROUS SCAT. THIN SAND SEAMS; FEW LIMONITE CONCRETIONS		Box 2	5. BASE OF [WEATHERING] @ 29.2'
			26.3'-26.7': MOD. CEMENTED SANDSTONE		Box 3	
	29.7' 30		27.8'-28.1': MOD. CEMENTED SANDSTONE			
			TD: 29.7'			
	40					

ENG FORM 1836 MAR 71 — PREVIOUS EDITIONS ARE OBSOLETE — PROJECT: AUBREY DAM

Hole No. BAGC-360

DRILLING LOG	SWD	INSTALLATION FWD	SHEET 1 OF 1 SHEETS
1 PROJECT: DAM - OUTLET WORKS		10 SIZE AND TYPE OF BIT: AUGER, 6" CORE	
2 LOCATION (Coordinates or Stations): 28+50		11 DATUM FOR ELEVATION SHOWN (GS or MSL):	
3 DRILLING AGENCY: USCE-C		12 MANUFACTURER'S DESIGNATION OF DRILL: FAILING 1500	
4 HOLE NO. (As shown on drawing title) and file number of: BAGC-360		13 TOTAL NO. OF OVERBURDEN SAMPLES TAKEN: DISTURBED 1, UNDISTURBED 0	
5 NAME OF DRILLER: MULLINS		14 TOTAL NUMBER CORE BOXES: 3	
6 DIRECTION OF HOLE: ☐ VERTICAL ☐ INCLINED ____ DEG. FROM VERT		15 ELEVATION GROUND WATER: SEE REMARKS	
7 THICKNESS OF OVERBURDEN: 15.3'		16 DATE HOLE: STARTED 19 FEB 81, COMPLETED 19 FEB 81	
8 DEPTH DRILLED INTO ROCK: 14.7'		17 ELEVATION TOP OF HOLE:	
9 TOTAL DEPTH OF HOLE: 30.0'		18 TOTAL CORE RECOVERY FOR BORING: 98 %	
		19 SIGNATURE OF INSPECTOR: McVEY	

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOV.	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc.; if significant)
	0.0'		**0.0' to 15.3':**		A	* 1 WATER LEVEL: 16 HRS. AFTER BAILING WATER LEVEL WAS @ 23.1'.
			CLAY:			
			0.0'-2.4' MED/HIGH PLASTICITY, STIFF, DAMP; DK. BRN; SANDY & SILTY		B	2. JAR SAMPLES: A: 0.0'-2.4' B: 2.4'-7.4' C. 7.4'-12.7' D. 12.7'-15.3'
			2.4'-7.4' HIGH/MED PLASTICITY; STIFF; DAMP TO MOIST; RED YELLOW; SILTY & SANDY; LIME NODULES		C	
			7.4'-12.7': as above, MED/LOW PLASTICITY; MED. STIFF; SANDIER			
	15.3'		12.7'-15.3': MED/HIGH PLASTICITY, HARD; DRY, YELLOW BRN, SANDY & SILTY; LIMEY		D	3. DRILLING: AUGERED 0.0'-15.0'; 6" CORE 15.0'-30.0'. BAILED BORING.
			15.3' to 17.3':			* 4 E-LOGGING
			LIMESTONE: WHITE & YELLOW BRN STAINS, HARD; MASSIVE; FOSSILIFEROUS		Box 1	C: 06 HOLE DRILLED 29' NORTH OF BAGC-360.
	17.3'		17.3' to 29.7':			5. BASE OF WEATHERING @ 29.2'.
			SHALE: WEATHERED TO YELLOW BRN & LT. GRAY TO 29.2'; THEN UNWEATHERED DK GRAY; MASSIVE; MOD. SOFT; SILTY & SANDY, NUMEROUS SCAT. THIN SAND SEAMS; FEW LIMONITE CONCRETIONS		Box 2	
			26.3'-26.7': MOD. CEMENTED SANDSTONE		Box 3	
			27.8'-28.1': MOD. CEMENTED SANDSTONE	2% CORE LOSS		
	29.7'		TD: 29.7'			

136 PREVIOUS EDITIONS ARE OBSOLETE

PROJECT: AUBREY DAM — HOLE NO. BAGC-360

Hole No. BAGC-361

DRILLING LOG	SWD	INSTALLATION FWD	SHEET 1 OF 1 SHEETS
1 PROJECT: AUBREY DAM - OUTLET WORKS		10 SIZE AND TYPE OF BIT: 8" AUGER, 6" CARBOLOY	
2 LOCATION (Coordinates or Stations): STA 32+00		11 DATUM FOR ELEVATION SHOWN (GS or MSL):	
3 DRILLING AGENCY: USCE-C		12 MANUFACTURER'S DESIGNATION OF DRILL: FAILING 1500	
4 HOLE NO. (As shown on drawing title) and file number of: BAGC-361		13 TOTAL NO. OF OVERBURDEN SAMPLES TAKEN: DISTURBED 3, UNDISTURBED 0	
5 NAME OF DRILLER: MULLINS		14 TOTAL NUMBER CORE BOXES: 3	
6 DIRECTION OF HOLE: ☒ VERTICAL ☐ INCLINED ____ DEG. FROM VERT		15 ELEVATION GROUND WATER: SEE REMARKS	
7 THICKNESS OF OVERBURDEN: 13.0'		16 DATE HOLE: STARTED 29 JAN 81, COMPLETED 30 JAN 81	
8 DEPTH DRILLED INTO ROCK: 11.0'		17 ELEVATION TOP OF HOLE:	
9 TOTAL DEPTH OF HOLE: 24.0'		18 TOTAL CORE RECOVERY FOR BORING: 99 %	
		19 SIGNATURE OF INSPECTOR:	

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOV.	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc.; if significant)
	0.0'		**0.0' to 13.0':**		A	* 1 WATER LEVEL: ENCOUNTERED NO WATER WHILE AUGERING. 24 HRS AFTER BAILING WATER LEVEL WAS @ 17.5'.
			CLAY:			
			0.0'-5.0' MED. TO HIGH PLASTICITY; STIFF TO VERY STIFF; MOIST; RED-BRN WITH YELLOW-BRN & STRONG BRN; SILTY; SLI. CALC		B	2. JAR SAMPLES: A: 0.0'-5.0' B: 5.0'-8.1' C: 8.1'-13.0'
			5.0'-8.1' HIGH PLASTICITY, VERY STIFF; SLI. MOIST; YELLOW-BRN; SANDY & SILTY; LIMEY; CALC		C	
			8.1'-13.0' MED-LOW PLASTICITY; VERY STIFF; SLI. MOIST; YELLOW-BRN; SANDY & SILTY; SM GRAVELLY @ 8.5'			3 DRILLING: 8" AUGER 0.0'-13.0' AUGER REFUSAL @ 13.0'. SET CASING TO 13.0'. 6" CORING 13.0'-24.0'. BAILED HOLE.
	13.0'		13.0' to 19.2':			
			LIMESTONE: ARGILLACEOUS, WEATHER-STAINED YELLOW-BRN & WHITE, MASSIVE; HARD; OYSTER SHELLS, IRREGULAR THIN SOFT SHALE SEAMS; LIMONITE CONCRETIONS	0.2' CORE LOSS (13.6'-24.0')	Box 1	
			18.8'-19.2': HARD RED LIMONITE SEAM		Box 2	4 E-LOGGING: BORING DRILLED 5' WEST OF BAGC-361 TO DEPTH OF 120.0' & WAS E-LOGGED
	19.2'		19.2' to 23.8':		Box 3	
			SHALE: DK. GRAY WITH YELLOW-BRN WEATHERED JOINTS; MOD. SOFT; MASSIVE; LIMONITE CONCRETIONS; MOD HARD, MOD. CEMENTED PALE BRN OR GRAY THIN SANDSTONE SEAMS @ 22.0', 22.3', 22.8', & 23.5'			
			19.2'-20.5': WEATHERED YELLOW-BRN & LT. GRAY			
	23.8'		TD 23.8'			

ENG FORM 1836 MAR 71 PREVIOUS EDITIONS ARE OBSOLETE

PROJECT: AUBREY DAM — HOLE NO. BAGC-361

Hole No. BA6C-361

SWD	INSTALLATION FWD	SHEET 1 OF 1 SHEETS
ITLET WORKS	10 SIZE AND TYPE OF BIT 8" AUGER 6" CARBOLOY	
	11 DATUM FOR ELEVATION SHOWN (TBM or MSL)	
E-C	12 MANUFACTURER'S DESIGNATION OF DRILL FAILING 1500	
BA6C-361	13 TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN: DISTURBED 3 / UNDISTURBED 0	
LLINS	14 TOTAL NUMBER CORE BOXES 13	
	15 ELEVATION GROUND WATER SEE REMARKS	
DEG. FROM VERT.	16 DATE HOLE: STARTED 29 JAN 81 / COMPLETED 30 JAN 81	
13.0'	17 ELEVATION TOP OF HOLE	
11.0'	18 TOTAL CORE RECOVERY FOR BORING 99%	
24.0'	19 SIGNATURE OF INSPECTOR	

CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc.; if significant)
0.0' to 13.0': CLAY: 0.0'-5.0' MED. TO HIGH PLASTICITY; STIFF TO VERY STIFF; MOIST; RED-BRN WITH YELLOW-BRN & STRONG BRN; SILTY, SLI. CALC. 5.0'-8.1' HIGH PLASTICITY, VERY STIFF; SLI. MOIST; YELLOW-BRN; SANDY & SILTY; LIMEY; CALC. 8.1'-13.0' MED-LOW PLASTICITY; VERY STIFF, SLI. MOIST; YELLOW-BRN, SANDY & SILTY; SL. GRAVELLY @ 8.5'		A / B / C	1. WATER LEVEL: ENCOUNTERED NO WATER WHILE AUGERING. 24 HRS. AFTER BAILING WATER LEVEL WAS @ 17.5'. 2. JAR SAMPLES: A: 0.0'-5.0' B: 5.0'-8.1' C: 8.1'-13.0' 3. DRILLING: 8" AUGER 0.0'-13.0' AUGER REFUSAL @ 13.0'. SET CASING TO 13.0' 6" CORING 13.0'-24.0'. BAILED HOLE 4. E-LOGGING: BORING DRILLED 5' WEST OF BA6C-361 TO DEPTH OF 120.0' & WAS E-LOGGED
13.0' to 19.2': LIMESTONE: ARGILLACEOUS, WEATHER-STAINED YELLOW-BRN & WHITE, MASSIVE; HARD; OYSTER SHELLS, IRREGULAR THIN SOFT SHALE SEAMS, LIMONITE CONCRETIONS. 18.8'-19.2': HARD RED LIMONITE SEAM	92 (CORE LOSS (13.0'-24.0'))	Box 1 / Box 2	
19.2' to 23.8': SHALE: DK. GRAY WITH YELLOW-BRN WEATHERED JOINTS; MOD. SOFT; MASSIVE, LIMONITE CONCRETIONS; MOD HARD, MOD. CEMENTED PALE BRN OR GRAY THIN SANDSTONE SEAMS @ 22.0', 22.3', 22.8', & 23.5'. 19.2'-20.5': WEATHERED YELLOW-BRN & LT. GRAY		Box 3	
TD 23.8'			

5 EDITIONS ARE OBSOLETE — PROJECT AUBREY DAM — HOLE NO BA6C-361

Hole No. BA6C-362

DRILLING LOG — DIVISION SWD	INSTALLATION FWD	SHEET 1 OF 2 SHEETS
1. PROJECT AUBREY DAM - OUTLET WORKS	10 SIZE AND TYPE OF BIT 8" AUGER, 6" CORE	
2. LOCATION (Coordinates or Station) STA. 33+95	11 DATUM FOR ELEVATION SHOWN (TBM or MSL)	
3. DRILLING AGENCY USCE:C	12 MANUFACTURER'S DESIGNATION OF DRILL FAILING 1500	
4. HOLE NO. (As shown on drawing title) BA6C-362	13 TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN: DISTURBED 3 / UNDISTURBED 0	
5. NAME OF DRILLER HULLINS	14 TOTAL NUMBER CORE BOXES 5	
6. DIRECTION OF HOLE: ☒ VERTICAL ☐ INCLINED ____ DEG. FROM VERT.	15 ELEVATION GROUND WATER SEE REMARKS	
7. THICKNESS OF OVERBURDEN 6.7'	16 DATE HOLE: STARTED 30 JAN 81 / COMPLETED 2 FEB 81	
8. DEPTH DRILLED INTO ROCK 21.9'	17 ELEVATION TOP OF HOLE	
9. TOTAL DEPTH OF HOLE 28.6'	18 TOTAL CORE RECOVERY FOR BORING 94%	
	19 SIGNATURE OF INSPECTOR M. Levi	

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO.	REMARKS (Drilling time, water loss, depth of weathering, etc.; if significant)
	0.0		0.0' to 6.7': CLAY: 0.0'-1.3' MED PLASTICITY; STIFF; DRY, DK. BRN, SANDY & SILTY. 1.3'-2.2' HIGH PLASTICITY; STIFF, SLI. MOIST, STRONG BRN. 2.2'-6.7' MED-LOW PLASTICITY, VERY STIFF, DRY, RED-DISH-YELLOW; SANDY & SILTY; LIMEY		A / B / C / Box 1 / Box 2 / Box 3 / Box 4 / Box 5	1 WATER LEVEL: BAILED BORING 2 FEB 81; 3 FEB 81 WL = 21.0'; 4 FEB 81 WL = 20.2'; 6 FEB 81 WL = 19.1'; 9 FEB 81 WL = 18.9' 2 JAR SAMPLES: A 0.0'-1.3' B 1.3'-2.2' C 2.2'-6.7' 3 DRILLING: 8" AUGER & 6" CORE 4 E-LOGGING: BORING DRILLED 7' EAST OF BA6C-362 TO DEPTH OF 110.0' & WAS E-LOGGED
	6.7		6.7' to 12.6': LIMESTONE: ARGILLACEOUS, WEATHER-STAINED YELLOW-BRN & WHITE; MASSIVE; HARD; OYSTER SHELLS. 12.3'-12.6' HARD RED LIMONITE SEAM			
	12.6		12.6' to 24.1': SHALE: WEATHERED YELLOW-BRN & GRAY TO UNWEATHERED DK GRAY @ 24.3', SOFT TO MOD. SOFT, MASSIVE; LIMONITE CONCRETIONS, SCAT. THIN SANDY SEAMS, MOD HARD, MOD. CEMENTED PALE BRN SANDSTONE SEAMS @ 15.6'-16.0' & @ 16.9'			
	24.1		24.1' to 28.3': SANDSTONE & SHALE: INTERBEDDED DK GRAY SOFT TO MOD SOFT UNWEATHERED SHALE & PALE BRN MOD. HARD MOD CEMENTED SANDSTONE. 24.1'-24.2': HARD, WELL-CEMENTED SANDSTONE. 28.1'-28.3': HARD, WELL-CEMENTED SANDSTONE			
	28.3		TD 28.3'			

ENG FORM 1836 MAR 71 — PREVIOUS EDITIONS ARE OBSOLETE — PROJECT AUBREY DAM — HOLE NO BA6C-362

RECORD DRAWING-WORK AS BUILT

SYM	DOC NO	ACTION	DATE	DESCRIPTION OF REVISION

U.S. ARMY ENGINEER DISTRICT, FORT WORTH
CORPS OF ENGINEERS
FORT WORTH, TEXAS

DESIGNED BY ____
DRAWN BY ____
REVIEWED BY ____
SUBMITTED BY ____
ENGINEER

RAY ROBERTS LAKE
ELM FORK, TRINITY RIVER, TEXAS
EMBANKMENT, SPILLWAY AND OUTLET WORKS
LOGS OF BORINGS
8A6C-359, 8A6C-360, 8A6C-361 AND 8A6C-362

INVITATION NO. DACW63-82-B-0025 | DATE MAR 1982
CONTRACT NO DACW63-82-C-0093
DRAWING NUMBER | SHEET NO 38 OF | SEQUENCE NO

CONTRACT NO DACW63-82-C-0093

TO ACCOMPANY FOUNDATION REPORT

Hole No. BA-363

DRILLING LOG — DIVISION SWD — INSTALLATION FWD — SHEET 1 OF 1 SHEETS

1. PROJECT: AUBREY DAM - OUTLET WORKS
2. LOCATION (Coordinates or Station): STA 19+00
3. DRILLING AGENCY: USCE-C
4. HOLE NO. (As shown on drawing title) and file number: BA-363
5. NAME OF DRILLER: MULLINS
6. DIRECTION OF HOLE: ☒ VERTICAL ☐ INCLINED ____ DEG. FROM VERT.
7. THICKNESS OF OVERBURDEN: 24.6'
8. DEPTH DRILLED INTO ROCK: 1.4'
9. TOTAL DEPTH OF HOLE: 26.0'
10. SIZE AND TYPE OF BIT: 8" AUGER
11. DATUM FOR ELEVATION SHOWN (GS or MSL):
12. MANUFACTURER'S DESIGNATION OF DRILL: FAIUNG 1500
13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN: DISTURBED 0; UNDISTURBED 0
14. TOTAL NUMBER CORE BOXES: N/A
15. ELEVATION GROUND WATER: SEE REMARKS
16. DATE HOLE: STARTED 4 JAN 81; COMPLETED 4 JAN 81
17. ELEVATION TOP OF HOLE:
18. TOTAL CORE RECOVERY FOR BORING: N/A %
19. SIGNATURE OF INSPECTOR: McVEY

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
	0.0		0.0' to 24.6': CLAY: 0.0-4.3' LOW PLASTICITY @ SURFACE, GRADING TO HIGH PLASTICITY BY 1.0'; SOFT TO MED. STIFF, MOIST; DK BRN; SILTY			1. WATER LEVEL: BORING MAKING WATER @ 13.0'. WATER LEVEL IMMEDIATELY AFTER DRILLING WAS @ 7.0'. 24 HRS AFTER DRILLING WATER LEVEL WAS @ 4.8'. 6FEB81: WL= 4.6' 9FEB81: WL= 4.6'
	10		4.3'-16.0': HIGH-MED. PLASTICITY; STIFF BECOMING SOFT BY 14.0', MOIST; YELLOW BRN & LT. GRAY; SANDY & SILTY; SOME LIME GRAVELS			2. No SAMPLES TAKEN.
	20		16.0'-23.0': GRAY & STRONG BRN; as above; THIN YELLOW SAND SEAM AFTER 20.0'.			3. DRILLING NOTE: BORING OFFSET 17' NE.
	24.6		23.0'-24.6': DK. GRAY, as above, STIFF			
	26.0		24.6' to 26.0': SHALE: DK. GRAY; DRY; MOD SOFT, BLOCKY CLEAVAGE. TD: 26.0'			
	30					
	40					

ENG FORM 1836 MAR 71 — PREVIOUS EDITIONS ARE OBSOLETE — PROJECT AUBREY DAM — HOLE NO BA-363

Hole No.

DRILLING LOG — DIVISION SWD — INSTALLATION FWD

1. PROJECT: AUBREY DAM - OUTLET WORKS
2. LOCATION (Coordinates or Station): STA. 12+50
3. DRILLING AGENCY: USCE-C
4. HOLE NO. (As shown on drawing title) and file number: BAGC-364
5. NAME OF DRILLER: MULLINS
6. DIRECTION OF HOLE: ☒ VERTICAL ☐ INCLINED ____ DEG. FROM VERT.
7. THICKNESS OF OVERBURDEN: 12.0'
8. DEPTH DRILLED INTO ROCK: 23.0'
9. TOTAL DEPTH OF HOLE: 35.0'
10. SIZE AND TYPE OF BIT: AUGER; 6" CORE
11. DATUM FOR ELEVATION SHOWN (GS or MSL):
12. MANUFACTURER'S DESIGNATION OF DRILL: FAIUNG 1500
13. TOTAL NO. OF OVERBURDEN SAMPLES TAKEN: DISTURBED 4
14. TOTAL NUMBER CORE BOXES: 4
15. ELEVATION GROUND WATER: SEE REMARKS
16. DATE HOLE: STARTED 23 FEB 81
17. ELEVATION TOP OF HOLE:
18. TOTAL CORE RECOVERY FOR BORING:
19. SIGNATURE OF INSPECTOR: McVEY

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant)
	0.0		0.0' to 8.0': CLAY: 2.0-2.1': LOW PLASTICITY, STIFF, MOIST, BLACK; SILTY & SANDY		A	X 1. WATER LEVE 24 HRS. AFTE WATER LEVE 8.5'
			2.1'-5.1': HIGH PLASTICITY; STIFF; MOIST; DK. BRN; SILTY		B	
	10		5.1'-8.0': HIGH PLASTICITY, HARD; SLI DAMP, YELLOW BRN & LT. GRAY, LINEY; SANDY & SILTY		C	2. JAR SAM A: 0.0'-2. B: 2.1'-5.1 C: 5.1'-8.0
	12.0		8.0' to 12.0': GRAVEL: WELL-GRADED, MED. DENSE; SUB-ROUNDED; SANDY, CLAYEY; BRN		D	D: 8.0'-12. E: 12.0'-16
			12.0' to 16.0': SHALE & SANDSTONE: SLI. WEATHERED; YELLOW BRN & LT. TO DK. GRAY; SOFT TO MOD SOFT, MASSIVE; SOME SAND & GRAVEL TO 14.0' (REWORKED OR DUE TO AUGER)		E	3. DRILLING AUGERED SET CASIN CLEANED CORED 16 BAILED TE
	16.0		16.0' to 35.0': SHALE: UNWEATHERED, DK GRAY; MOD SOFT, MASSIVE; SILTY & SANDY; SLI. FOSSILIFEROUS WITH PLANT REMAINS & CARBON; ABUNDANT MOD. HARD MOD CEMENTED SANDSTONE SEAMS		Box 1	1. BASE OF WEA @ 16.0'.
			16.9'-17.4': SANDSTONE		Box 2	
			18.1'-18.8': SANDSTONE			
			20.8'-21.0': SANDSTONE		Box 3	
			21.1'-21.4': SANDSTONE			
			21.7'-21.9': SANDSTONE			
	30		22.2'-22.5': SANDSTONE		Box 4	
			23.8'-24.0': SANDSTONE			
			29.3'-29.8': SANDSTONE			
			29.9'-30.5': SANDSTONE			
			32.6'-33.1': SANDSTONE			
			33.6'-34.7': SHALEY SANDSTONE			
	35.0		34.7': HARD BRN CONCRETION			
			TD: 35.0'			
	40					

ENG FORM 1836 MAR 71 — PREVIOUS EDITIONS ARE OBSOLETE. — PROJECT AUBREY DAM

CONTRACT 033

Hole No. BA6C-365

DRILLING LOG — DIVISION: SWD — INSTALLATION: FWD — SHEET 1 OF 1 SHEETS

1. PROJECT	AUBREY DAM - OUTLET WORKS
2. LOCATION (Coordinates or Station)	STA 17+50
3. DRILLING AGENCY	USCE-C
4. HOLE NO. (As shown on drawing title and file number)	BA6C-365
5. NAME OF DRILLER	MULLINS
6. DIRECTION OF HOLE	☒ VERTICAL ☐ INCLINED ____ DEG. FROM VERT.
7. THICKNESS OF OVERBURDEN	16.0'
8. DEPTH DRILLED INTO ROCK	18.7'
9. TOTAL DEPTH OF HOLE	34.7'
10. SIZE AND TYPE OF BIT	AUGER, 6" CORE
11. DATUM FOR ELEVATION SHOWN (TBM or MSL)	
12. MANUFACTURER'S DESIGNATION OF DRILL	FAILING 1500
13. TOTAL NO. OF OVER-BURDEN SAMPLES TAKEN	DISTURBED: 6 — UNDISTURBED: 0
14. TOTAL NUMBER CORE BOXES	3
15. ELEVATION GROUND WATER	* SEE REMARKS
16. DATE HOLE	STARTED: 6 FEB 81 — COMPLETED: 6 FEB 81
17. ELEVATION TOP OF HOLE	
18. TOTAL CORE RECOVERY FOR BORING	98 %
19. SIGNATURE OF INSPECTOR	McVEY

ELEVATION a	DEPTH b	LEGEND c	CLASSIFICATION OF MATERIALS (Description) d	% CORE RECOVERY e	BOX OR SAMPLE NO. f	REMARKS (Drilling time, water loss, depth of weathering, etc., if significant) g
	0.0'		**0.0' to 12.2':** CLAY: 0.0'-2.4': LOW PLASTICITY, MED. STIFF, MOIST; YELLOW BRN; VERY SANDY; GRAVELLY. 2.4'-3.5': MED/HIGH PLASTICITY; MED STIFF, MOIST; BROWNISH-GRAY, SANDY, SL. GRAVELLY. 3.5'-8.3': MED/HIGH PLASTICITY, HARD; DRY; BRN GRAY, SANDY & SILTY. 8.3'-12.2': MED/HIGH PLASTICITY; HARD; DRY; YELLOW BRN & LT. GRAY; SANDY & SILTY		A, B, C, D	* 1. WATER LEVEL: 72 HRS. AFTER BAILING WATER LEVEL WAS @ 14.0'. 2. JAR SAMPLES: A: 0.0'-2.4'; B: 2.4'-3.5'; C: 3.5'-8.3'; D: 8.3'-12.2'; E: 12.2'-13.1'; F: 13.1'-16.0'; G: 16.0'-20.0'
	10		**12.2' to 16.0':** GRAVEL: 12.2'-13.1': COARSE TO FINE, ROUND, DRY; STRONG BRN; SANDY & CLAYEY. 13.1'-16.0': as above; MOIST, YELLOW BRN & LT. GRAY		E, F	3. DRILLING: NOTE: BORING OFFSET 50' WEST. AUGER 0.0'-16.0'. SET 19' OF CASING. CLEANED OUT TO 20.0'. 6" CORE 20.0'-35.0'.
	16.0'		**16.0' to 34.7':** SHALE & SANDSTONE: INTERLAYERED; UNWEATHERED; DK. GRAY TO LT. GRAY; MOD. SOFT TO MOD. HARD; MOD. CEMENTED; MASSIVE. 23.5'-24.6': SANDSTONE SEAM		G, Box 1, Box 2, Box 3	
	34.7'		TD: 34.7'			

ENG FORM 1836 MAR 71 — PREVIOUS EDITIONS ARE OBSOLETE. — PROJECT: AUBREY DAM — HOLE NO. BA6C-365

RECORD DRAWING-WORK AS BUILT

RECORD DRAWING-WORK AS BUILT

Hole No. BA6C-365

SWD | INSTALLATION FWD | SHEET 1 OF 1 SHEETS

1. OUTLET WORKS | 10. SIZE AND TYPE OF BIT AUGER, 6" CORE | 11. DATUM FOR ELEVATION SHOWN (TBM or MSL)

USCE-C | 12. MANUFACTURER'S DESIGNATION OF DRILL FAILING 1500

BA6C-365 | 13. TOTAL NO. OF OVER BURDEN SAMPLES TAKEN: DISTURBED 6, UNDISTURBED 0

MULLINS | 14. TOTAL NUMBER CORE BOXES 3 | 15. ELEVATION GROUND WATER # SEE REMARKS

DEG. FROM VERT. | 16. DATE HOLE: STARTED 6 FEB 81, COMPLETED 6 FEB 81

INCLINED | 17. ELEVATION TOP OF HOLE

DEPTH OF OVERBURDEN 16.0' | 18. TOTAL CORE RECOVERY FOR BORING 98 %

DEPTH DRILLED INTO ROCK 18.7' | 19. SIGNATURE OF INSPECTOR McVEY

TOTAL DEPTH OF HOLE 34.7'

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO	REMARKS
			00' to 12.2': CLAY: 00'-24': LOW PLASTICITY, MED. STIFF, MOIST, YELLOW BRN; VERY SANDY, GRAVELLY. 24'-35': MED/HIGH PLASTICITY; MED. STIFF; MOIST, BROWNISH-GRAY, SANDY, SLI. GRAVELLY. 35'-83': MED/HIGH PLASTICITY; HARD; DRY; BRN GRAY; SANDY & SILTY. 83'-12.2': MED/HIGH PLASTICITY; HARD; DRY, YELLOW BRN & LT. GRAY; SANDY & SILTY. 12.2' to 16.0': GRAVEL: 12.2'-13.1': COARSE TO FINE; ROUND; DRY; STRONG BRN; SANDY & CLAYEY. 13.1'-16.0': AS ABOVE; MOIST; YELLOW BRN & LT. GRAY. 16.0' to 34.7': SHALE & SANDSTONE: INTERLAYERED; UNWEATHERED; DK. GRAY TO LT. GRAY; MOD. SOFT TO MOD HARD, MOD. CEMENTED; MASSIVE. 23.5'-24.6': SANDSTONE SEAM. TD: 34.7'		A, B, C, D, E, F, G, Box 1, Box 2, Box 3	* 1. WATER LEVEL: 72 HRS. AFTER BAILING WATER LEVEL WAS @ 14.0'. 2. JAR SAMPLES: A: 00'-2.4' B: 2.4'-3.5' C: 3.5'-8.3' D: 8.3'-12.2' E: 12.2'-13.1' F: 13.1'-16.0' G: 16.0'-20.0' 3. DRILLING: NOTE: BORING OFFSET 50' WEST. AUGER 00'-16.0'. SET 19' OF CASING. CLEANED OUT TO 20'. 6" CORE 20.0'-35.0'.

PREVIOUS EDITIONS ARE OBSOLETE. | PROJECT AUBREY DAM | HOLE NO. BA6C-365

Hole No. BA6C-366

DRILLING LOG | SWD | INSTALLATION FWD | SHEET 1 OF 2 SHEETS

1. PROJECT AUBREY DAM – OUTLET WORKS | 10. SIZE AND TYPE OF BIT 8" AUGER, 6" CARBOLOY | 11. DATUM FOR ELEVATION SHOWN (TBM or MSL)

2. LOCATION (Coordinates or Station) STA. 22+50 | 12. MANUFACTURER'S DESIGNATION OF DRILL FAILING 1500

3. DRILLING AGENCY USCE-C | 13. TOTAL NO. OF OVER BURDEN SAMPLES TAKEN: DISTURBED 6, UNDISTURBED 0

4. HOLE NO. (As shown on drawing title) BA6C-366 | 14. TOTAL NUMBER CORE BOXES 2

5. NAME OF DRILLER MU' NS | 15. ELEVATION GROUND WATER # SEE REMARKS

6. DIRECTION OF HOLE: VERTICAL, INCLINED ___ DEG FROM VERT | 16. DATE HOLE: STARTED 4 FEB 81, COMPLETED 5 FEB 81

7. THICKNESS OF OVERBURDEN 25.0' | 17. ELEVATION TOP OF HOLE

8. DEPTH DRILLED INTO ROCK 10.0' | 18. TOTAL CORE RECOVERY FOR BORING 96 %

9. TOTAL DEPTH OF HOLE 35.0' | 19. SIGNATURE OF INSPECTOR McVEY

ELEVATION	DEPTH	LEGEND	CLASSIFICATION OF MATERIALS (Description)	% CORE RECOVERY	BOX OR SAMPLE NO	REMARKS
	00'		00' to 17.0': CLAY: 00'-31': HIGH PLASTICITY, STIFF, MOIST, RED & REDDISH-BRN, SANDY & SILTY. 31'-12.3': MED-HIGH PLASTICITY, HARD; DRY, YELLOW-BRN & LT. GRAY, SANDY & SILTY. 12.3'-17.0': LOW-MED PLASTICITY, MED STIFF TO SOFT, MOIST, PALE BRN & YELLOW-BRN, VERY SANDY, SAND SEAMS. 17.0' to 25.0': GRAVEL: 17.0'-19.8': FINE TO COARSE, ROUND, VERY MOIST TO WET, STRONG BRN; SANDY & CLAYEY. 19.8'-25.0': AS ABOVE; YELLOW-BRN & LT. GRAY, VERY MOIST. 25.0' to 34.6': SHALE: ARENACEOUS, SOFT TO MOD SOFT, UNWEATHERED, MASSIVE; BENTONITE-LOOKING @ 25.1', SCAT SANDSTONE SEAMS; SCAT. DOLOMITE SEAMS; MANY THIN SCAT. SAND SEAMS, MOD. SOFT TO MOD HARD, MOD CEMENTED, & LT. GRAY. 25.0'-25.4': VERY HARD BRN DOLOMITE SEAM. 26.1'-26.3': SANDSTONE. 27.8': HARD DOLOMITE. 28.5'-29.2': SHALEY SANDSTONE. 31.3'-31.6': SANDSTONE. 31.9'-32.0': SANDSTONE. 32.0'-32.1': DOLOMITE. 32.8'-34.6': SHALEY SANDSTONE. TD: 34.6'		A, B, C, D, E, F, Box 1, Box 2	* 1. WATER LEVEL: 18 HRS AFTER BAILING WATER LEVEL WAS @ 17.8'. 72 HRS AFTER BAILING WATER LEVEL WAS @ 17.5'. 2. JAR SAMPLES: A 00'-3.1' B 3.1'-8.1' C. 8.1'-12.3' D 12.3'-17.0' E 17.0'-19.8' F 19.8'-25.0'. 3. DRILLING: NOTE GRAVEL ON SURFACE @ BORING LOCATION. 8" AUGER 00'-25.0'. AUGER REFUSAL @ 25.0'. SET CASING TO 25.0'. 6" CORING 25.0'-35.0'.
	10					
	20					
	25.0'			0.4' CORELOSS (34.6'-35.0')	Box 1, Box 2	
	30					
34.6'						
	40					

ENG FORM 1836 MAR 71 PREVIOUS EDITIONS ARE OBSOLETE | PROJECT AUBREY DAM | HOLE NO. BA6C-366

RECORD DRAWING-WORK AS BUILT

SYM	DC NO	ACTION	DATE	DESCRIPTION OF REVISION

U.S. ARMY ENGINEER DISTRICT, FORT WORTH
CORPS OF ENGINEERS
FORT WORTH, TEXAS

8A

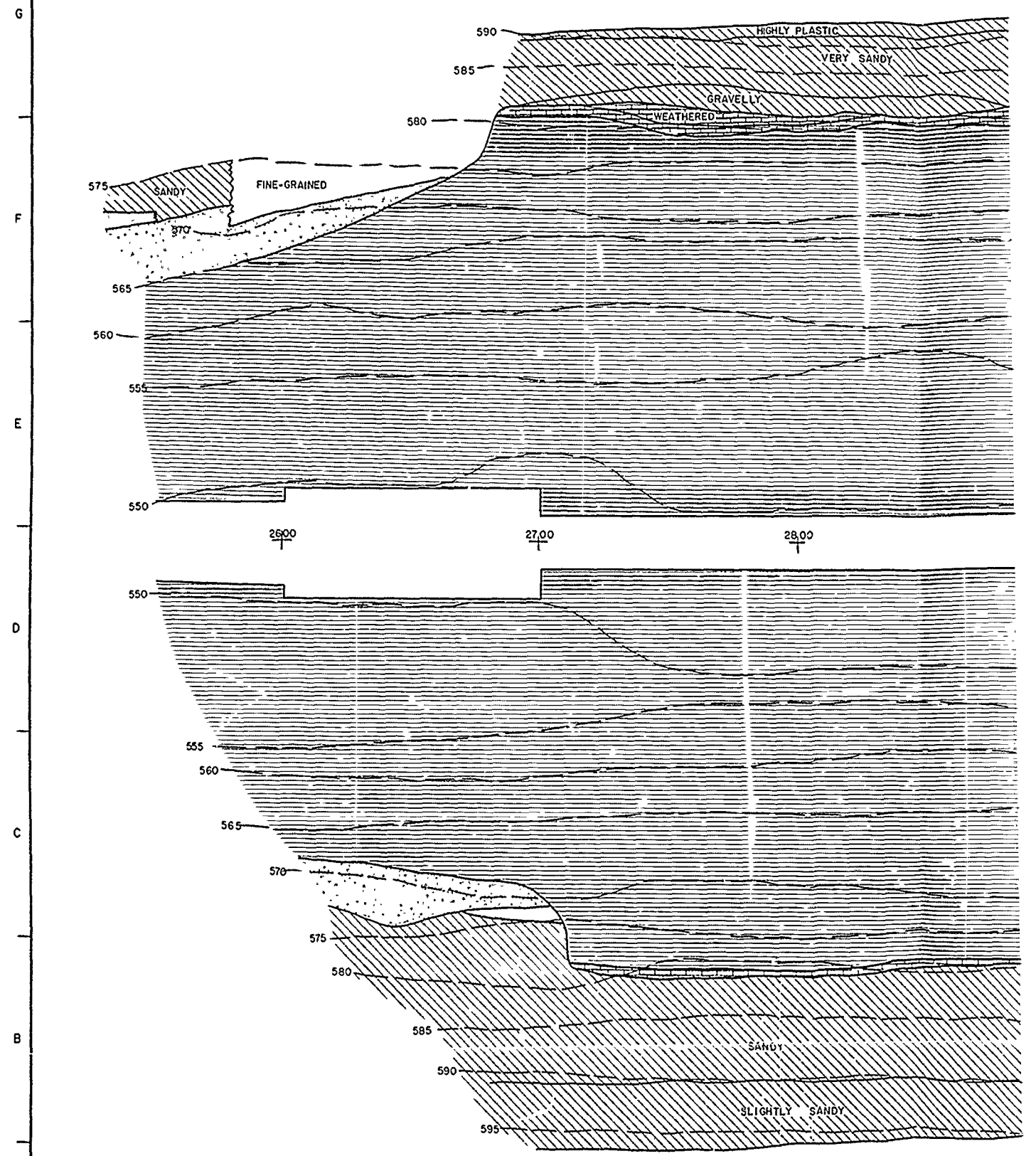
DESIGNED BY: ---
DRAWN BY: ---
REVIEWED BY: ---

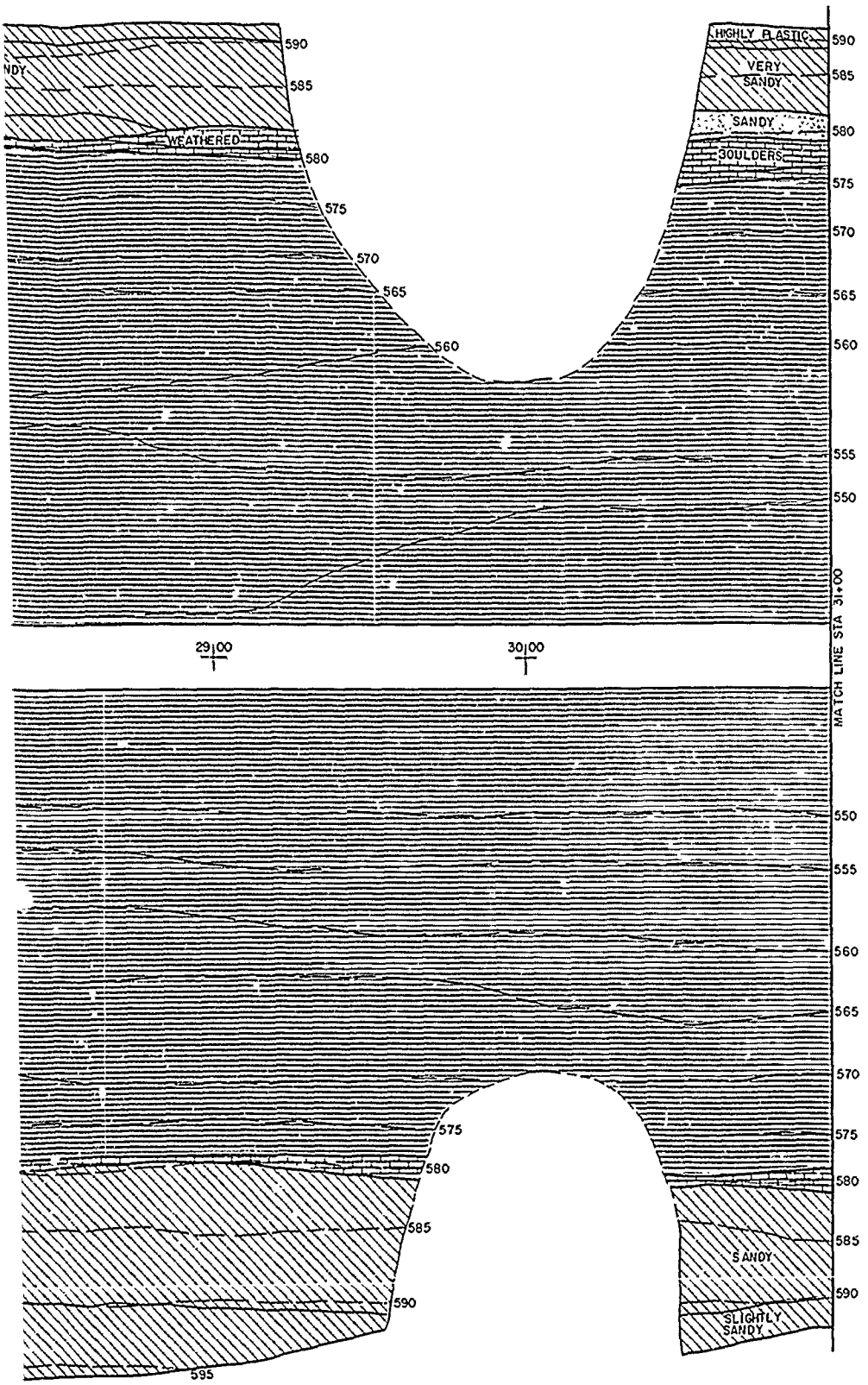
RAY ROBERTS LAKE
ELM FORK, TRINITY RIVER, TEXAS
EMBANKMENT, SPILLWAY AND OUTLET WORKS
LOGS OF BORINGS
8A-363, 8A6C-364, 8A6C-365 AND 8A6C-366

SUBMITTED BY: ENGINEER

INVITATION NO. DACW63-82-B-0025 DATE MAR, 1982
CONTRACT NO. DACW63-82-C-0083
DRAWING NUMBER
SHEET NO. OF
SEQUENCE NO. 39

CONTRACT NO DACW63-82-C-0083


G
F
E
D
C
B
A
590
585
580
575
570
565
560
555
550
HIGHLY PLASTIC
VERY SANDY
GRAVELLY
WEATHERED
SANDY
FINE-GRAINED
2600
27.00
28.00
SANDY
SLIGHTLY SANDY



LEGEND

- SAND
- GRAVEL
- CLAY
- SANDSTONE
- LIMESTONE
- SHALE

DRWG NO.	ACTION	DATE	DESCRIPTION OF REVISION

U.S. ARMY ENGINEER DISTRICT, FORT WORTH
CORPS OF ENGINEERS
FORT WORTH, TEXAS

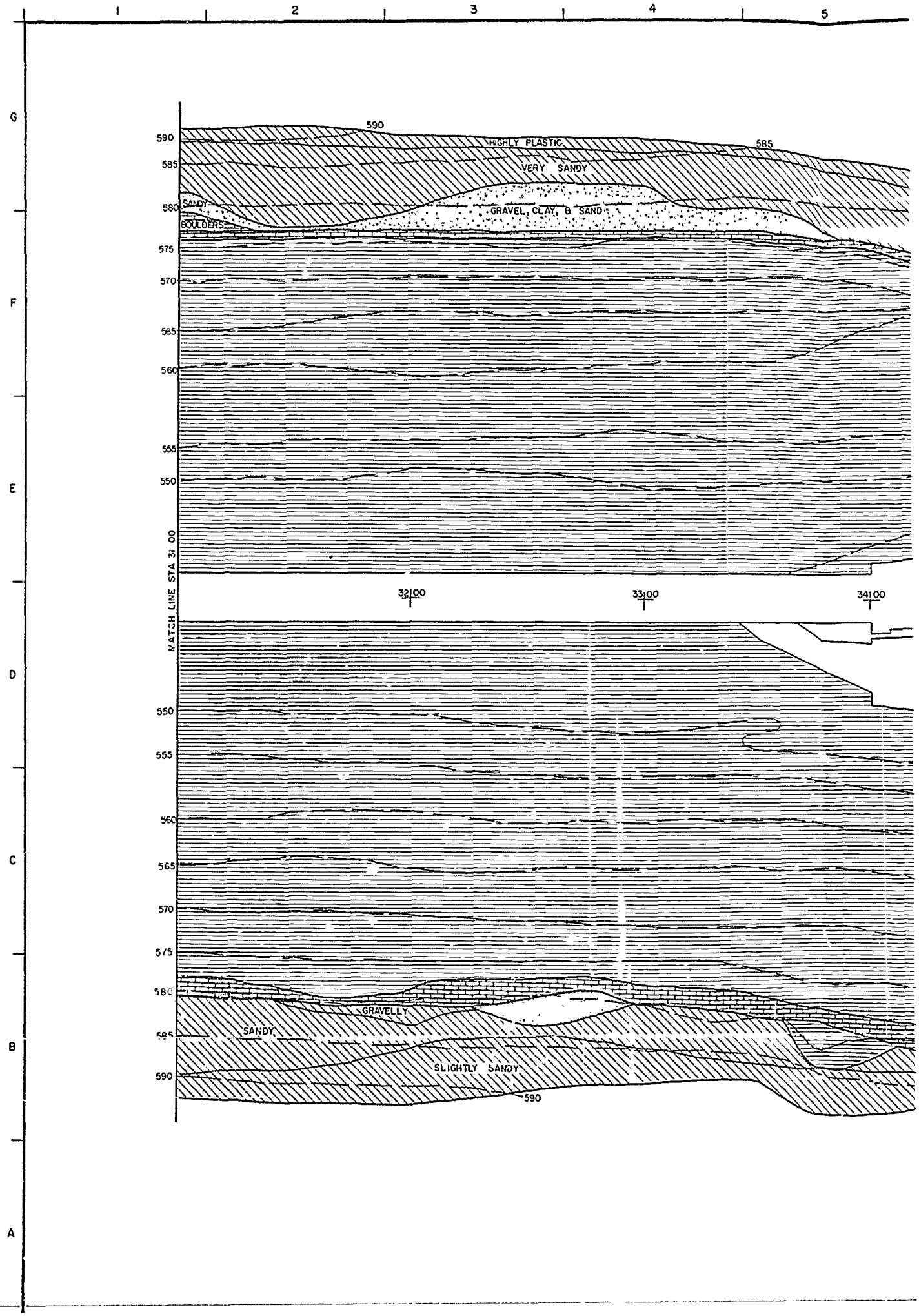
DESIGNED BY: H.BARNETT
DRAWN BY: C.KIRBY
REVIEWED BY: R.BEHM
SUBMITTED BY: ROBERT C. BEHM
ENGINEER:

RAY ROBERTS LAKE
ELM FORK, TRINITY RIVER, TEXAS

FOUNDATION REPORT

OUTLET WORKS
STA. 25+50 TO 31+00

SOL. NO.
DATED:
CONTR. NO.
DRAWING NUMBER
SHEET NO. OF
SEQUENCE NO. 40-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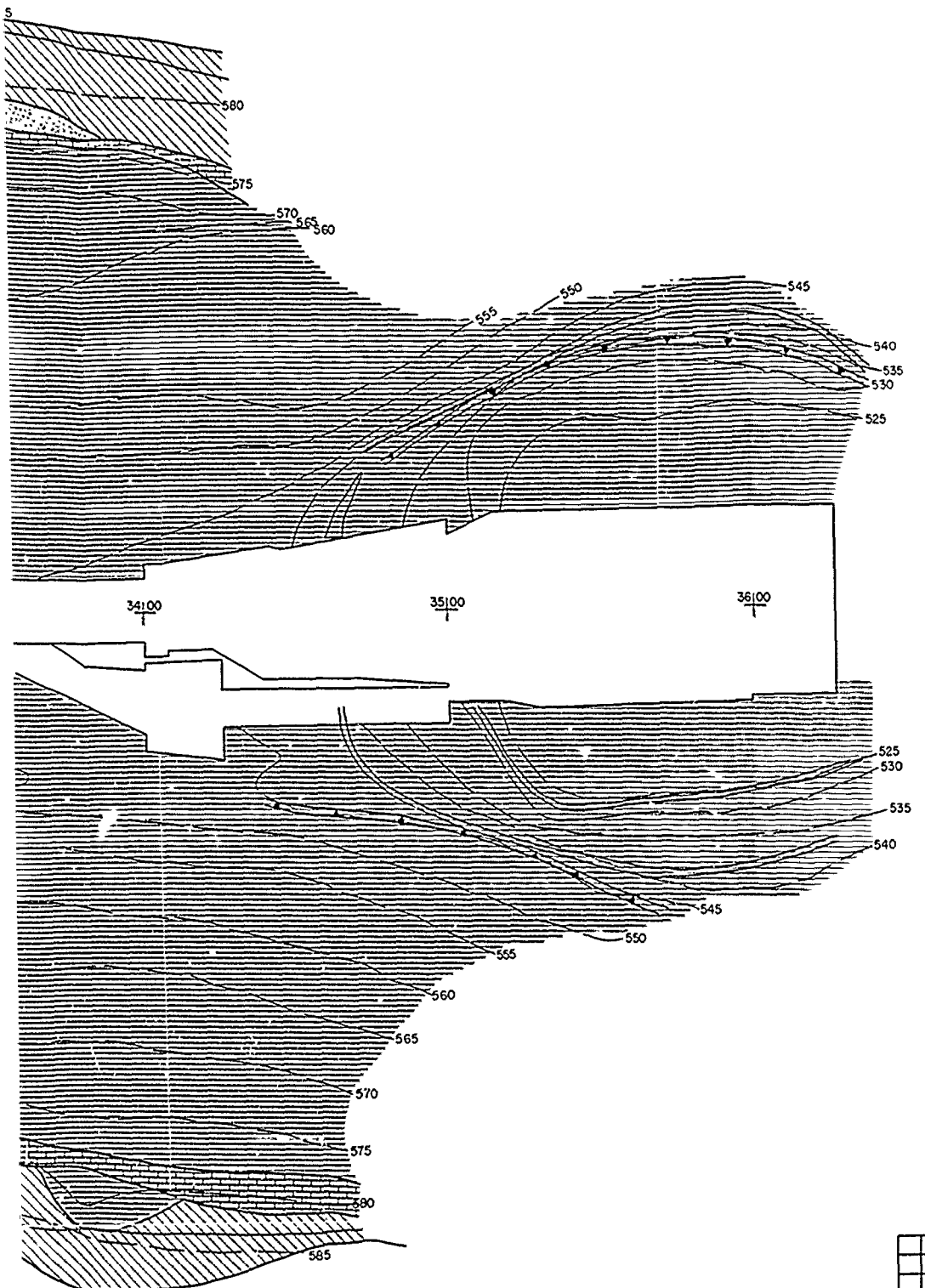
590
585
580
575
570
565
560
555
550
HIGHLY PLASTIC
VERY SANDY
SANDY
BOULDERS
GRAVEL, CLAY, & SAND
MATCH LINE STA 31 00
32 00
33 00
34 00
GRAVELLY
SANDY
SLIGHTLY SANDY



NO.	BY	DATE	DESCRIPTION OF REVISION

U.S. ARMY ENGINEER DISTRICT, FORT WORTH
CORPS OF ENGINEERS
FORT WORTH, TEXAS

DESIGNED BY: H BARNETT
DRAWN BY: C. KIRBY
REVIEWED BY: R. BEHM

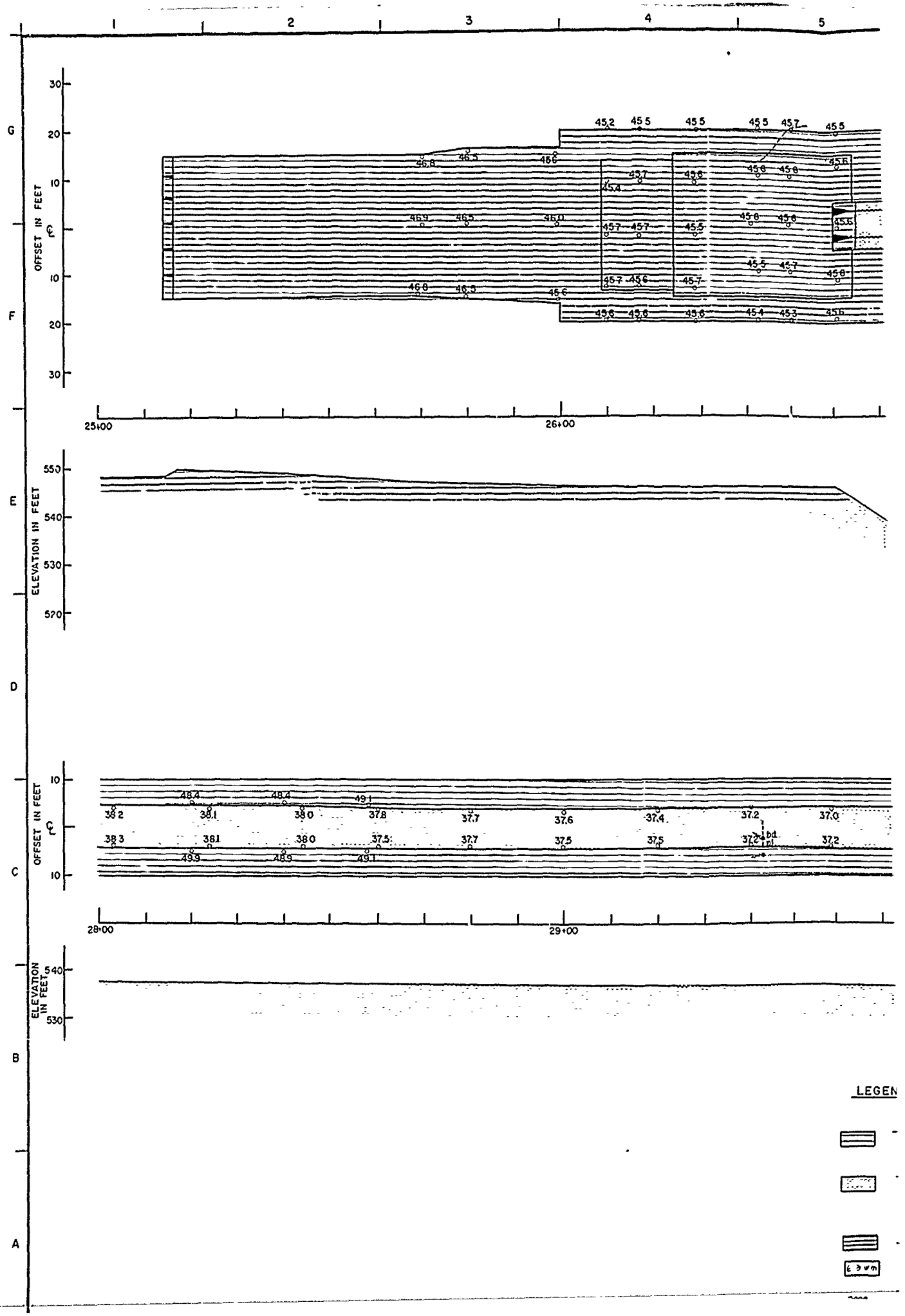
RAY ROBERTS LAKE
ELM FORK, TRINITY RIVER, TEXAS

FOUNDATION REPORT

OUTLET WORKS
STA. 31+00 TO 36+28

SUBMITTED BY: ROBERT C. BEHM
ENGINEER:

SOL. NO. | DATED:
CONTR. NO.
DRAWING NUMBER | SHEET NO. OF
SEQUENCE NO. 41
CONTR. NO.


1
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G
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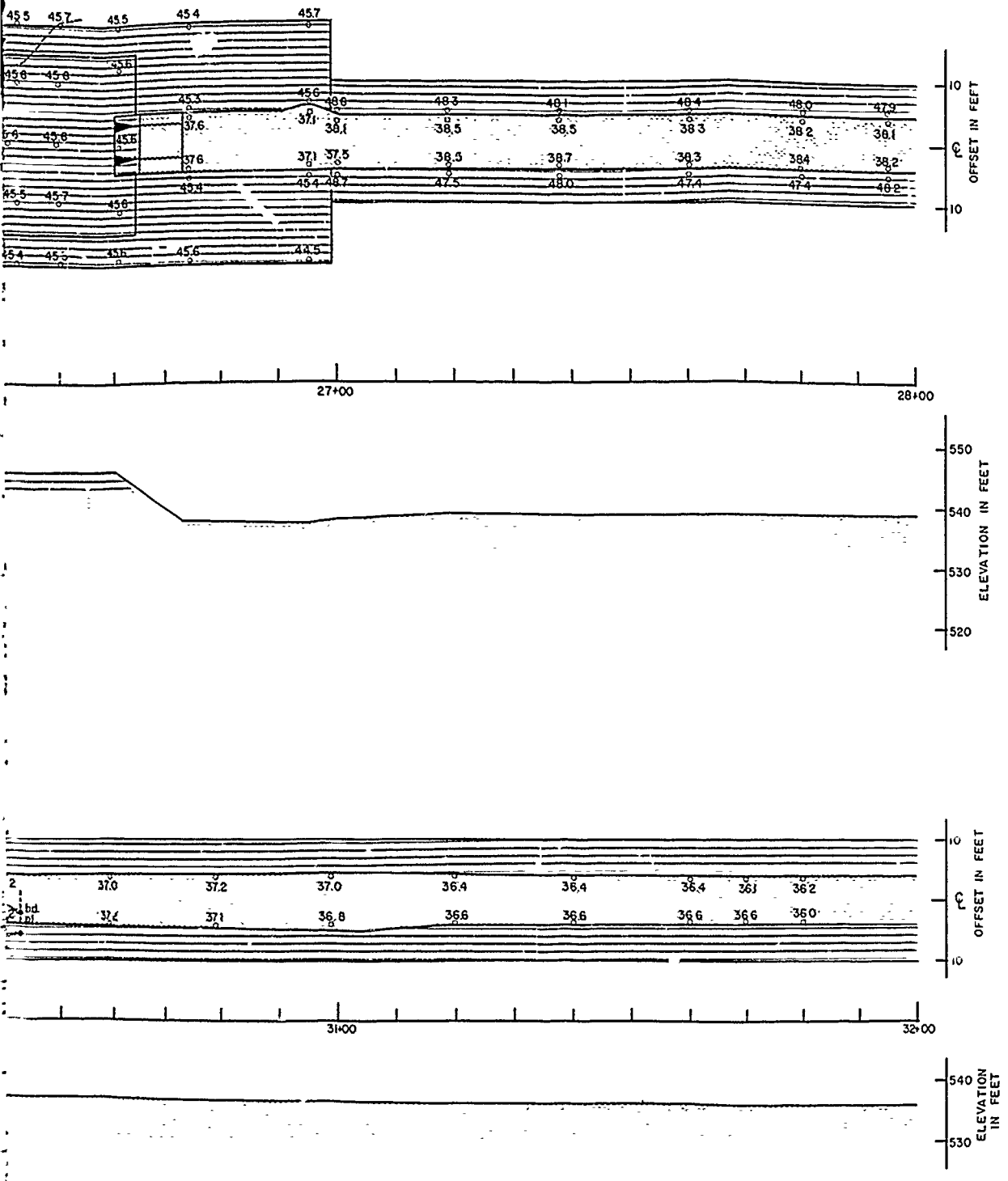
D
C
B
A
OFFSET IN FEET
30
20
10
10
20
30
45.2 45.5 45.5 45.5 45.7 45.5
46.8 46.5 46.6 45.7 45.4 45.6 45.6 45.6
46.9 46.5 46.0 45.7 45.7 45.5 45.6 45.6 45.5
46.8 46.3 45.6 45.7 45.6 45.7 45.5 45.7 45.6
45.6 45.6 45.6 45.4 45.3 45.6
25+00
26+00
ELEVATION IN FEET
550
540
530
520
OFFSET IN FEET
10
10
48.4 48.4 49.1
38.2 38.1 38.0 37.8 37.7 37.6 37.4 37.2 37.0
38.3 38.1 38.0 37.5 37.7 37.5 37.5 37.2 37.2
49.9 48.9 49.1
bd
pl
28+00
29+00
ELEVATION IN FEET
540
530
LEGEN
6 3 vm



LEGEND

- CLAY-SHALE, SOFT TO MODERATELY HARD, GREENISH TO DARK GRAY w/SAND AND SANDSTONE LENSES.
- ALTERNATING CLAY SHALE AND SANDSTONE SEAMS, SOFT TO MODERATELY HARD, DARK GRAY, SANDSTONE, FINE TO MEDIUM GRAINED, COMPRISES UP TO 50% OF MATERIAL.
- CLAY-SHALE, SOFT TO MODERATELY HARD, MOIST, DARK GRAY, SLIGHTLY FOSSILFEROUS.
- HIGHLY FOSSILFEROUS
- WATER SEEP

SYMBOL NO.	REVISION	DATE	DESCRIPTION OF REVISION

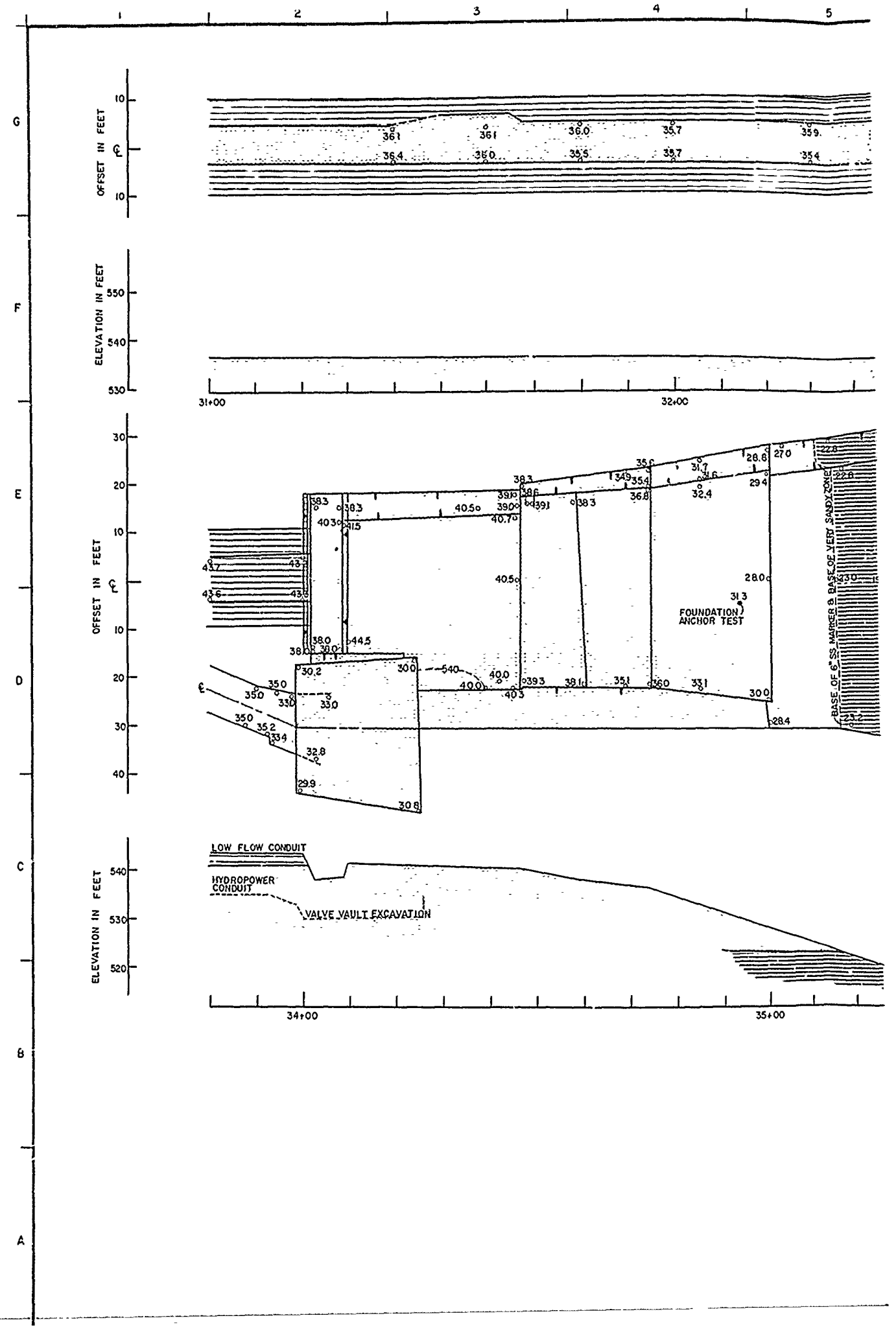
U.S. ARMY ENGINEER DISTRICT, FORT WORTH
CORPS OF ENGINEERS
FORT WORTH, TEX S

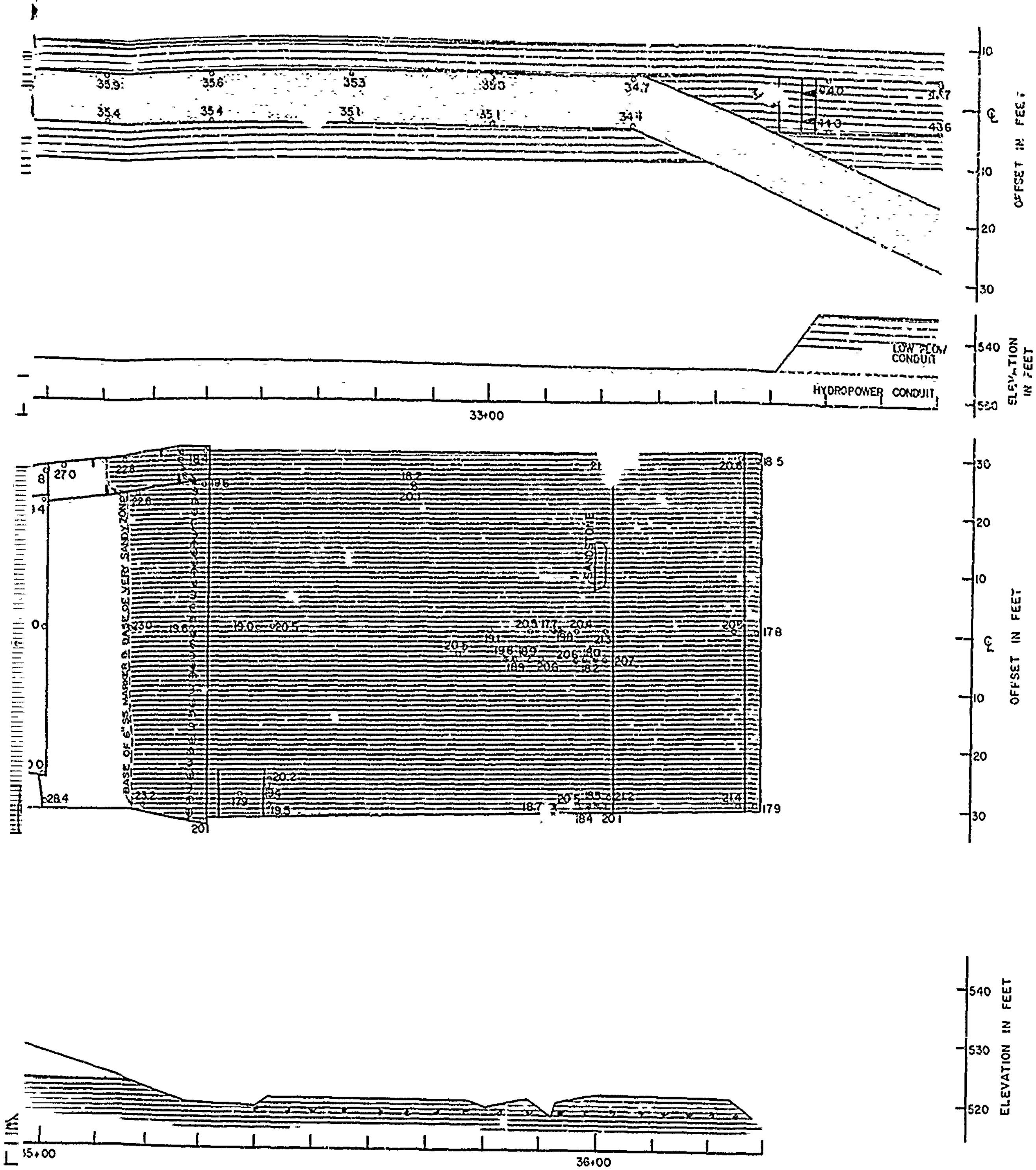
DESIGNED BY: H. BARNETT
DRAWN BY: C. KIRBY
REVIEWED BY: R. BEHM

RAY ROBERTS LAKE
ELM FORK, TRINITY RIVER, TEXAS
FOUNDATION REPORT
OUTLET WORKS
PLAN AND PROFILE
STA. 25+00 TO 31+00

SUBMITTED BY: ROBERT C. BEHM
ENGINEER:

SCL. NO. | DATED:
CONTR. NO.
DRAWING NUMBER | SHEET NO. OF
SEQUENCE NO. 42


1
2
3
4
5
G
F
E
D
C
B
A
OFFSET IN FEET
10
℄
10
ELEVATION IN FEET
550
540
530
36.1
36.1
36.0
35.7
35.9
36.4
36.0
35.5
35.7
35.4
31+00
32+00
OFFSET IN FEET
30
20
10
℄
10
20
30
40
ELEVATION IN FEET
540
530
520
FOUNDATION ANCHOR TEST
BASE OF 6" SS MARKER @ BASE OF VERY SANDY ZONE
LOW FLOW CONDUIT
HYDROPOWER CONDUIT
VALVE VAULT EXCAVATION
34+00
35+00



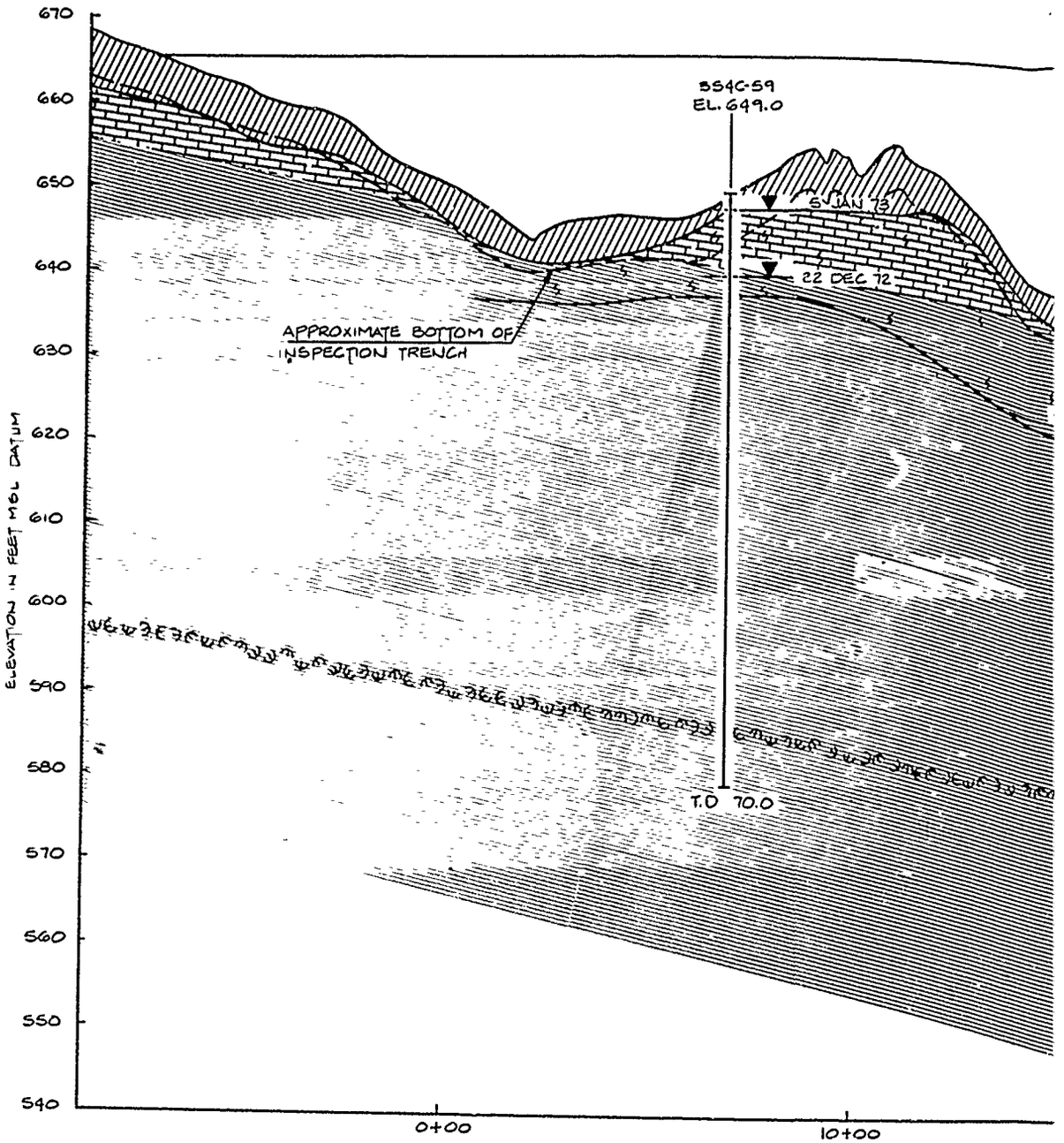
NOTE:
FOR LEGEND, SEE PLATE NO. 42.

U.S. ARMY ENGINEER DISTRICT, FORT WORTH
CORPS OF ENGINEERS
FORT WORTH, TEXAS

DESIGNED BY: H BARNETT
DRAWN BY: C KIRBY
REVIEWED BY: R. BEHM
SUBMITTED BY: ROBERT C. BEHM

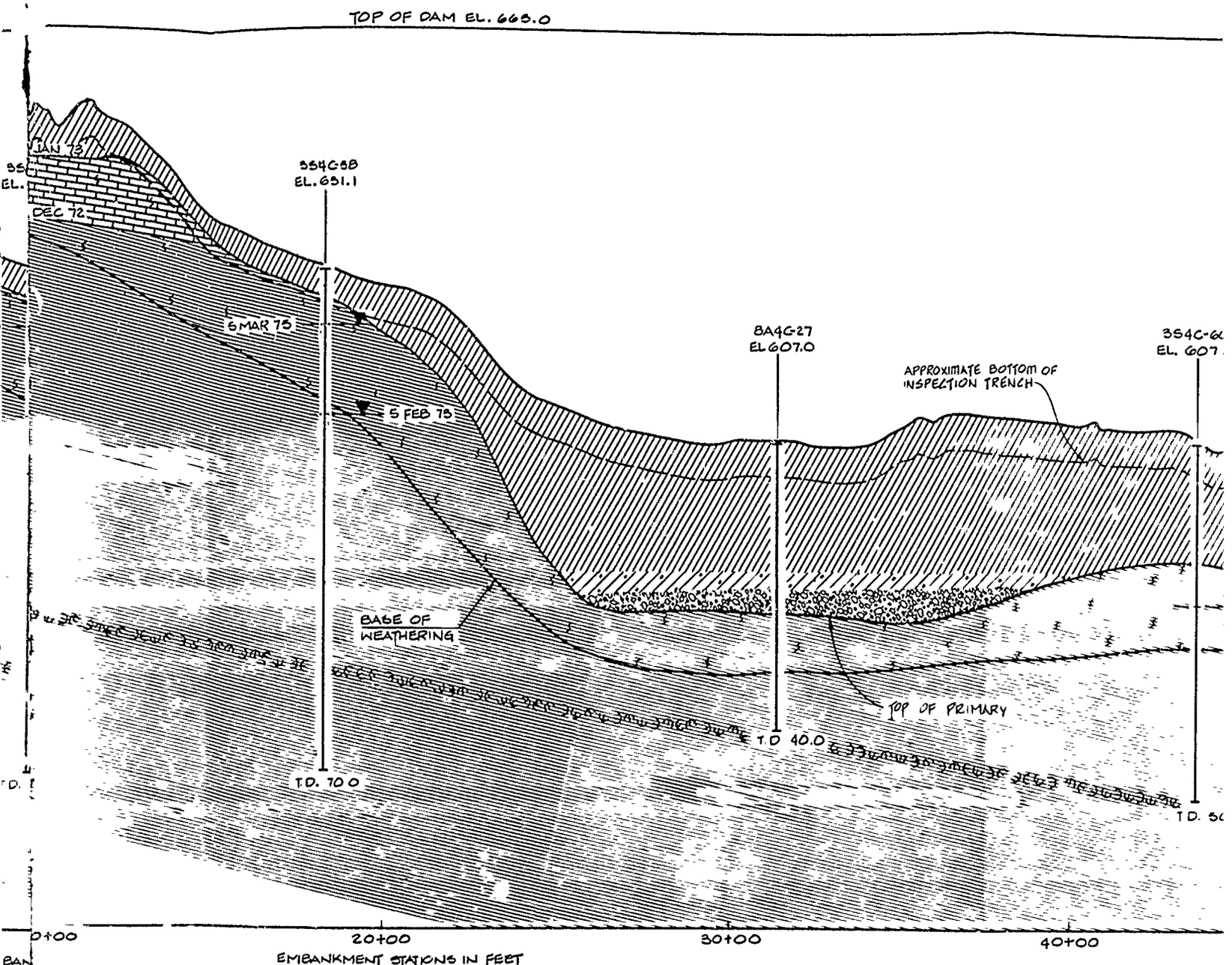
RAY ROBERTS LAKE
ELM FORK, TRINITY RIVER, TEXAS
FOUNDATION REPORT
OUTLET WORKS
STA. 31+00 TO 36+25

SEQUENCE NO. 43



LEGEND

- CLAY, VARIABLY SILTY AND SANDY
- CLAY, GRAVELLY
- SAND, VARIABLY CLAYEY SANDY & GRAVELLY
- GRAVEL, VARIABLY SANDY & CLAYEY
- SHALE & SANDY SHALE
- SHALE CALCAREOUS
- SHALE, SANDY W/NUMEROUS LENSES OF MODERATELY TO WELL CEMENTED SANDSTONE
- SHALE, NON-SANDY
- SANDSTONE, VARIAB
- LIMESTONE, MODER TO HARD



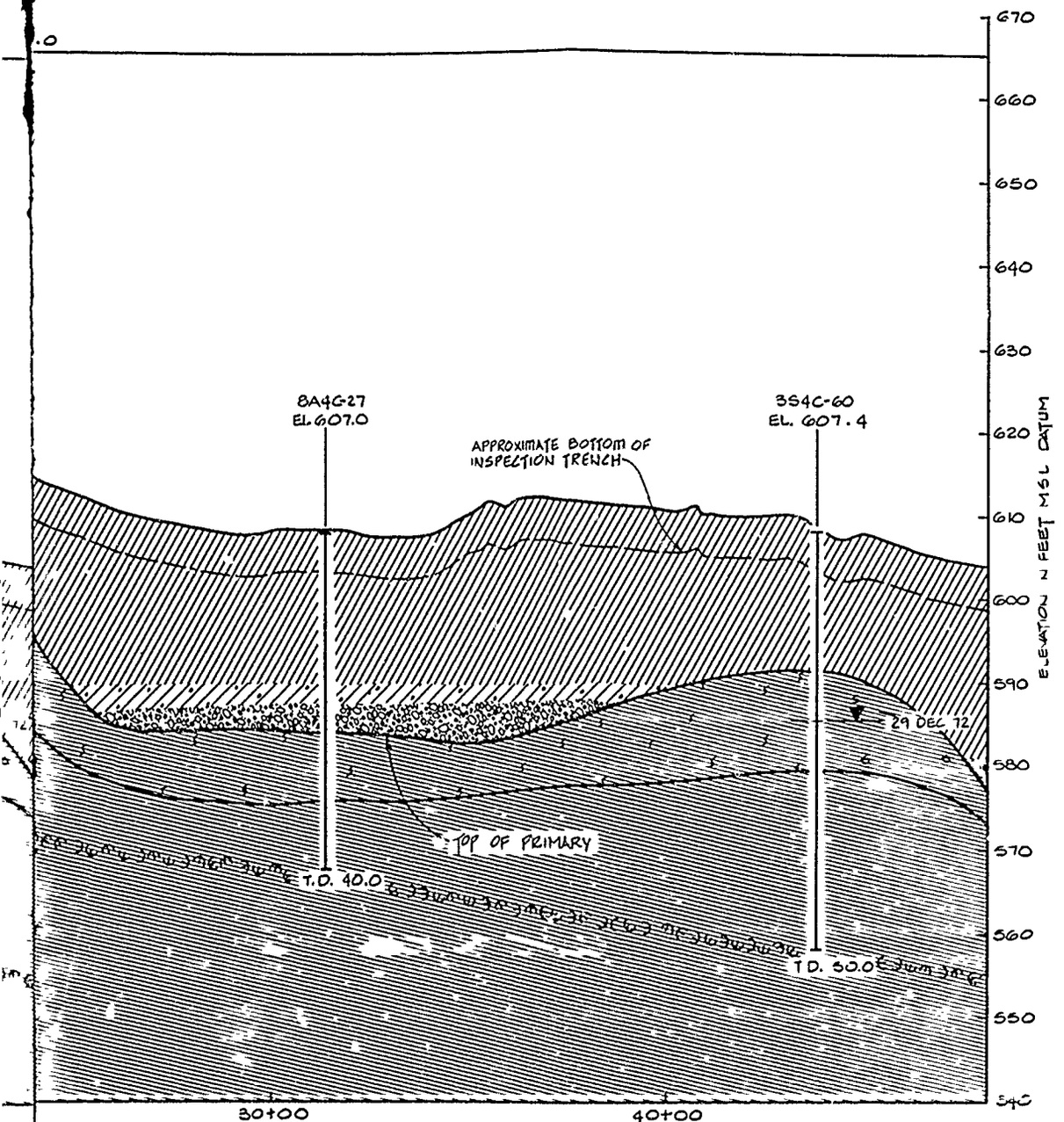
LEGEND

- WATER LEVEL ON DATE INDICATED
- SANDSTONE, VARIABLY CEMENTED
- LIMESTONE, MODERATELY HARD TO HARD
- WEATHERED ZONE
- FOSSILIFEROUS ZONE
- 100 OHM RESISTIVITY LOG

BA	8 INCH AUGER BORING
6D	6-INCH DENISON BORING
6C	6-INCH CORE BORING
4C	4-INCH CORE BORING
3S	3-INCH SHELBY TUBE
2C	2-INCH CORE BORING
F	FISHTAIL WASH BORING
C	CORE BORING
T.D.	TOTAL DEPTH

GENERAL NOTES

1. OVERBURDEN AND PRIMARY STRATA DESCRIPTIONS ARE GENERALIZED SEE SEQUENCES 205 THROUGH 336 FOR DETAILED LOGS OF BORINGS.
2. ABSENCE OF GROUND WATER LEVELS OPPOSITE BORING LOGS DOES NOT NECESSARILY MEAN THAT GROUND WATER WILL NOT BE ENCOUNTERED AT THE LOCATION OR WITHIN THE VERTICAL REACHES OF THE BORINGS. WATER LEVELS WILL FLUCTUATE DEPENDING ON SEASON AND RAINFALL.
3. FOR DETAIL OF CUTOFF AND INSPECTION TRENCH SEE SEQ. 171 AND 172.



LEVEL ON
DICATED

ED ZONE

EROUS ZONE

IM
VITY LOG

8A	8 INCH AUGER BORING
6D	6-INCH DENISON BORING
6C	6-INCH CORE BORING
4C	4-INCH CORE BORING
3S	3-INCH SHELBY TUBE
2C	2-INCH CORE BORING
F	FISHTAIL WASH BORING
C	CORE BORING
T.D.	TOTAL DEPTH

GENERAL NOTES

1. OVERBURDEN AND PRIMARY STRATA DESCRIPTIONS ARE GENERALIZED SEE SEQUENCES 205 THROUGH 236 FOR DETAILED LOGS OF BORINGS.
2. ABSENCE OF GROUND WATER LEVELS OPPOSITE BORING LOGS DOES NOT NECESSARILY MEAN THAT GROUND WATER WILL NOT BE ENCOUNTERED AT THE LOCATION OR WITHIN THE VERTICAL REACHES OF THE BORINGS. WATER LEVELS WILL FLUCTUATE DEPENDING ON SEASON AND RAINFALL.
3. FOR DETAIL OF CUTOFF AND INSPECTION TRENCH SEE SEQ. 171 AND 172.

RECORD DRAWING-WORK AS BUILT

SYM	NO.	ACTION	DATE	DESCRIPTION OF REVISION

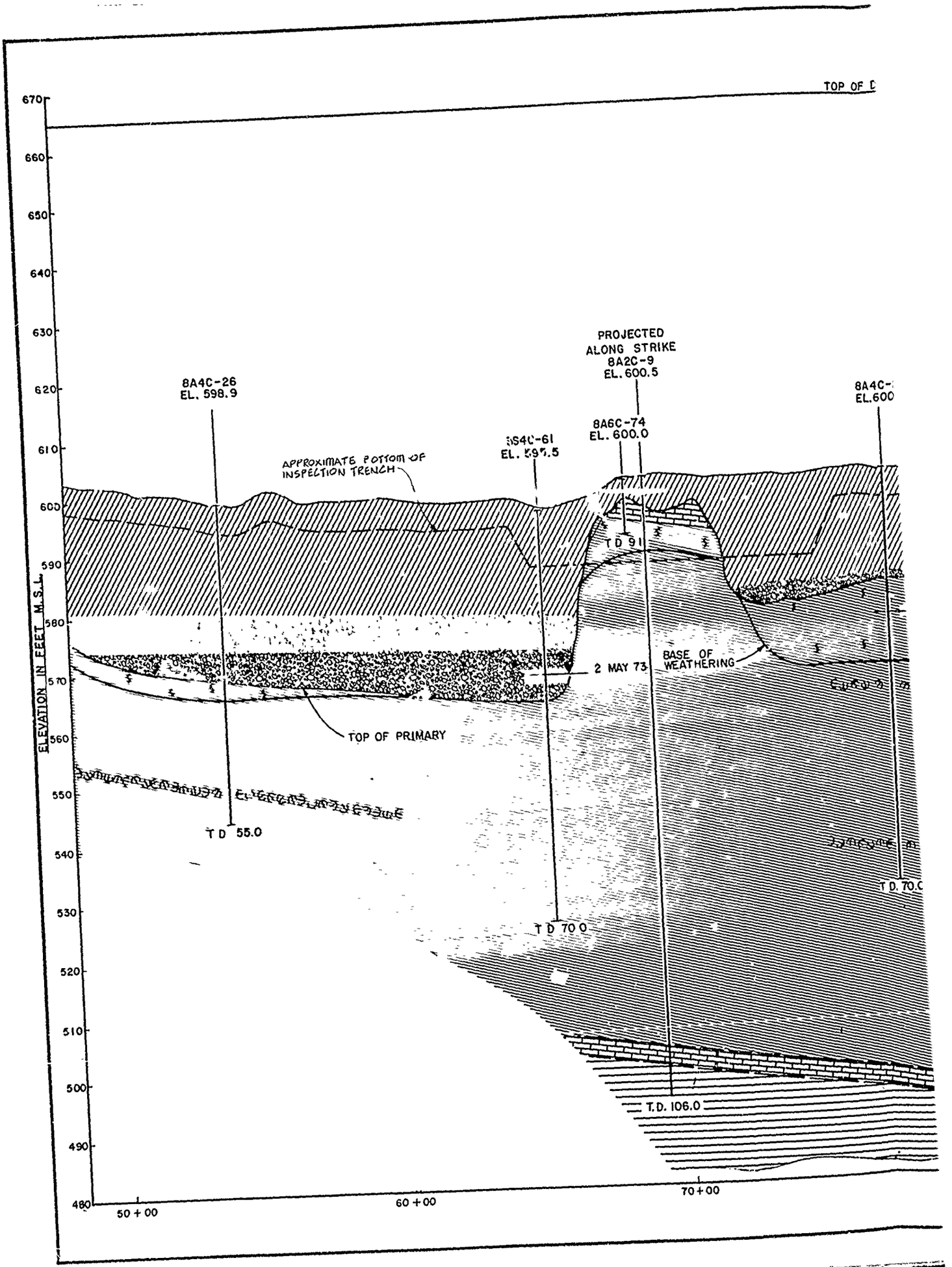
U.S. ARMY ENGINEER DISTRICT, FORT WORTH
CORPS OF ENGINEERS
FORT WORTH, TEXAS

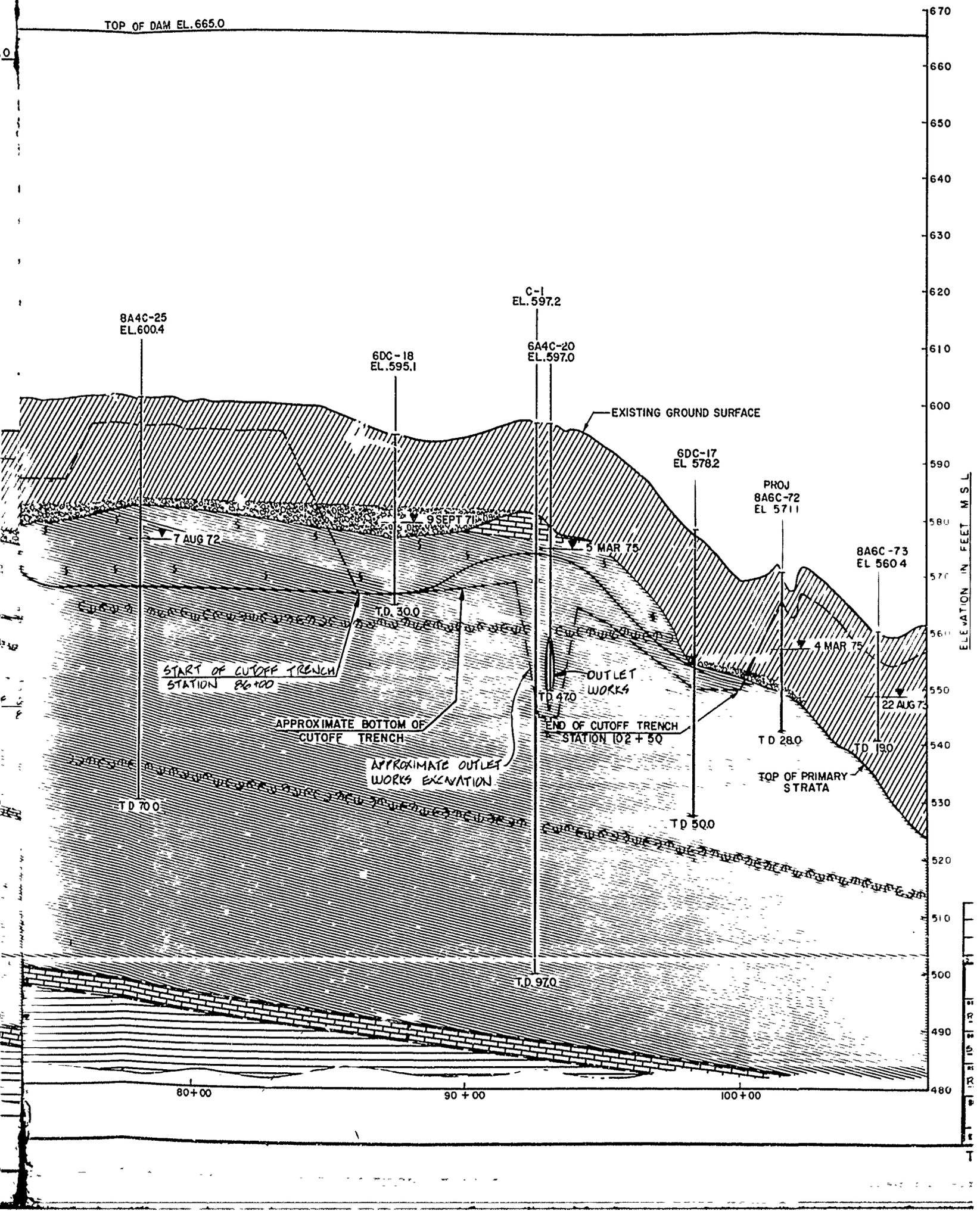
DESIGNED BY: R. HAGEN
DRAWN BY: H. RUTHERFORD
REVIEWED BY: R. HAGEN
SUBMITTED BY: M. GREEN
ENGINEER:

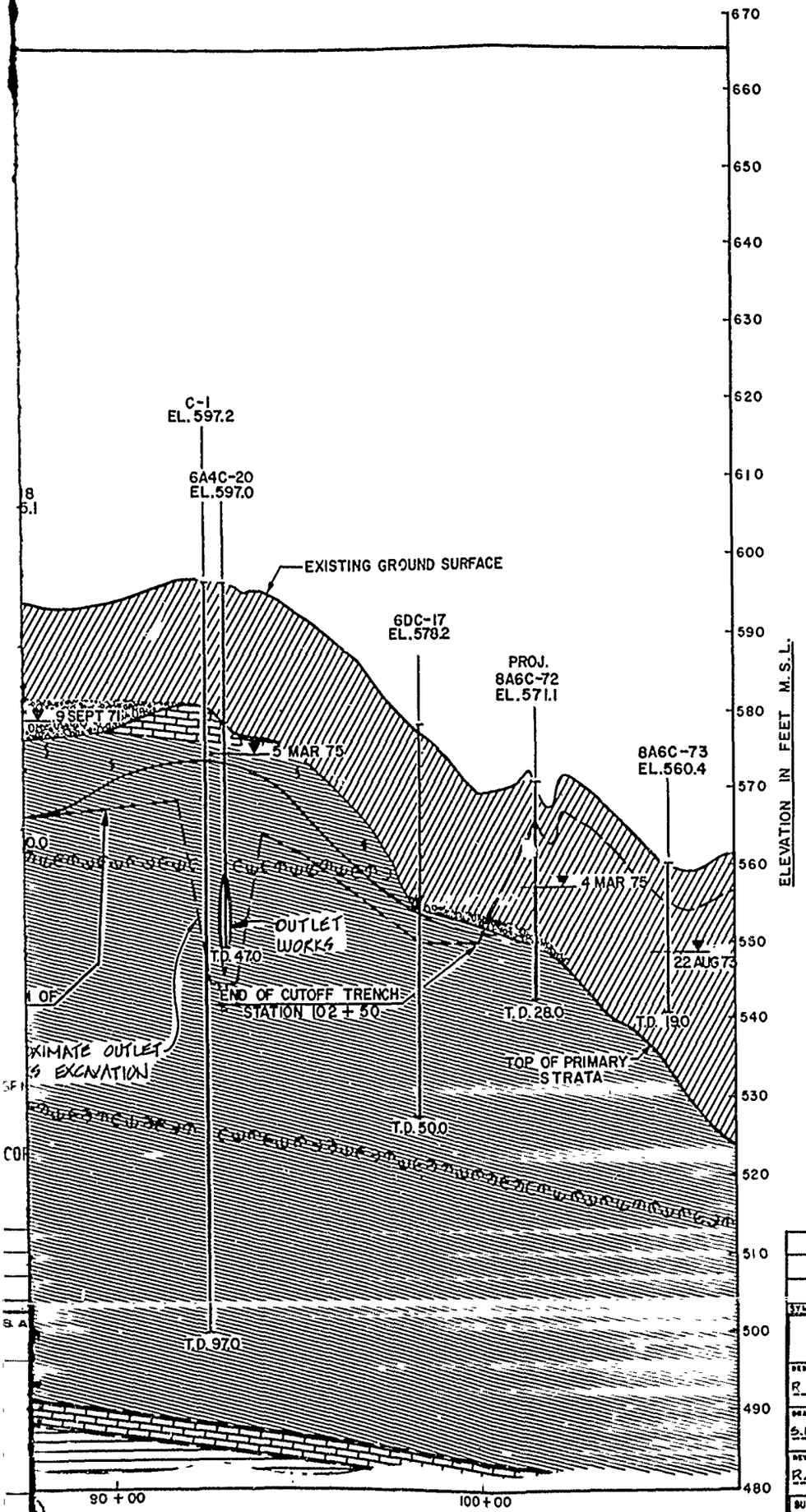
RAY ROBERTS LAKE
ELM FORK TRINITY RIVER, TEXAS
EMBANKMENT
GEOLOGIC PROFILE
EMBANKMENT CENTERLINE
(STA. 0+00 TO STA. 48+00)

INVITATION NO. DACW63-82-B0025 DATE: MAR 1982
CONTRACT NO. DACW63-82-C-0083
DRAWING NUMBER
SHEET NO. OF
SEQUENCE NO. 44

TO ACCOMPANY FOUNDATION REPORT


TOP OF D
670
660
650
640
630
620
610
600
590
580
570
560
550
540
530
520
510
500
490
480
ELEVATION IN FEET M.S.L.
8A4C-26
EL. 598.9
APPROXIMATE BOTTOM OF
INSPECTION TRENCH
8S4C-61
EL. 597.5
PROJECTED
ALONG STRIKE
8A2C-9
EL. 600.5
8A6C-74
EL. 600.0
8A4C-
EL.600
T D 91
2 MAY 73
BASE OF
WEATHERING
TOP OF PRIMARY
T D 55.0
T D 70.0
T.D. 106.0
T.D. 70.0
50 + 00
60 + 00
70 + 00


TOP OF DAM EL. 665.0
8A4C-25
EL.600.4
6DC-18
EL.595.1
C-1
EL.597.2
6A4C-20
EL.597.0
EXISTING GROUND SURFACE
6DC-17
EL 578.2
PROJ
8A6C-72
EL 571.1
8A6C-73
EL 560.4
9 SEPT 71
7 AUG 72
5 MAR 75
4 MAR 75
22 AUG 73
T.D. 30.0
START OF CUTOFF TRENCH
STATION 86+00
APPROXIMATE BOTTOM OF
CUTOFF TRENCH
APPROXIMATE OUTLET
WORKS EXCAVATION
OUTLET
WORKS
TD 47.0
END OF CUTOFF TRENCH
STATION 102 + 50
TD 28.0
TD 19.0
TOP OF PRIMARY
STRATA
TD 70.0
TD 50.0
T.D. 97.0
80+00
90 + 00
100+00
670
660
650
640
630
620
610
600
590
580
570
560
550
540
530
520
510
500
490
480
ELEVATION IN FEET MSL



FOR LEGEND AND GENERAL NOTES, SEE SEQ 199

RECORD DRAWING-WORK AS BUILT

SYM	DO NO	ACTION	DATE	DESCRIPTION OF REVISION

U.S. ARMY ENGINEER DISTRICT, FORT WORTH
CORPS OF ENGINEERS
FORT WORTH, TEXAS

DESIGNED BY: R. HAGEN
DRAWN BY: S. WOMACK
REVIEWED BY: R. HAGEN

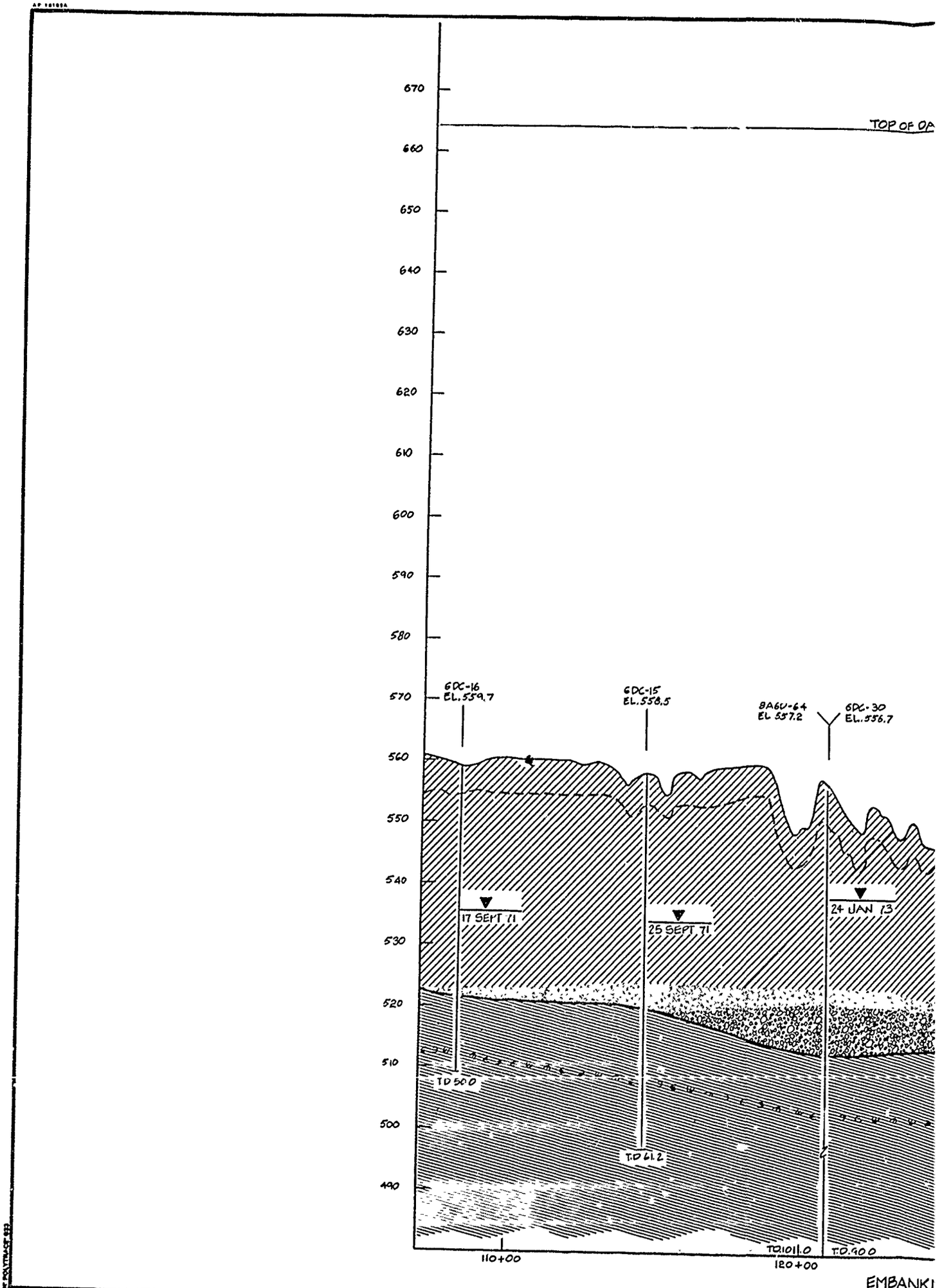
RAY ROBERTS LAKE
ELM FORK, TRINITY RIVER, TEXAS

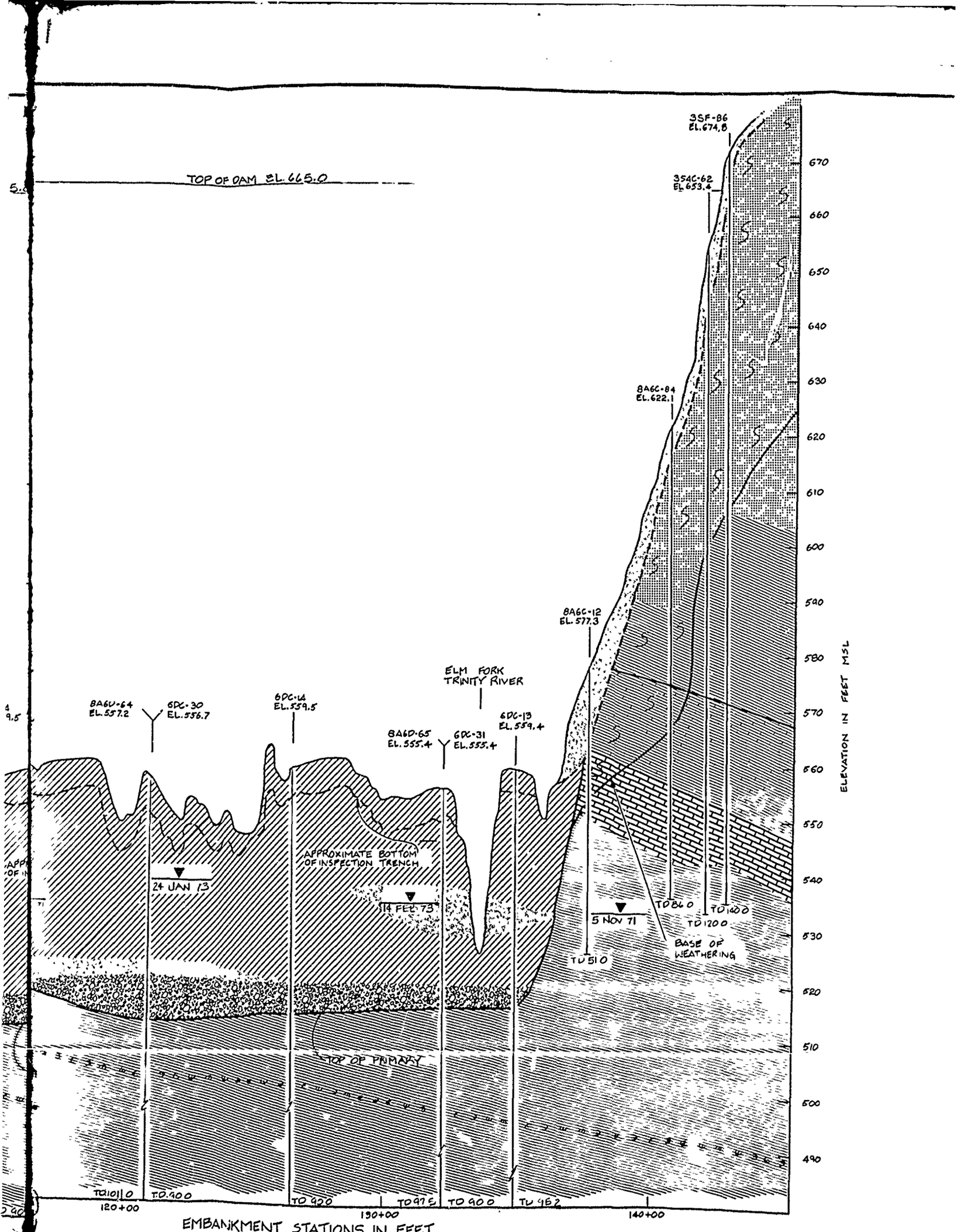
EMBANKMENT
GEOLOGIC PROFILE
EMBANKMENT CENTERLINE
(STATION 48+00 TO 107+00)

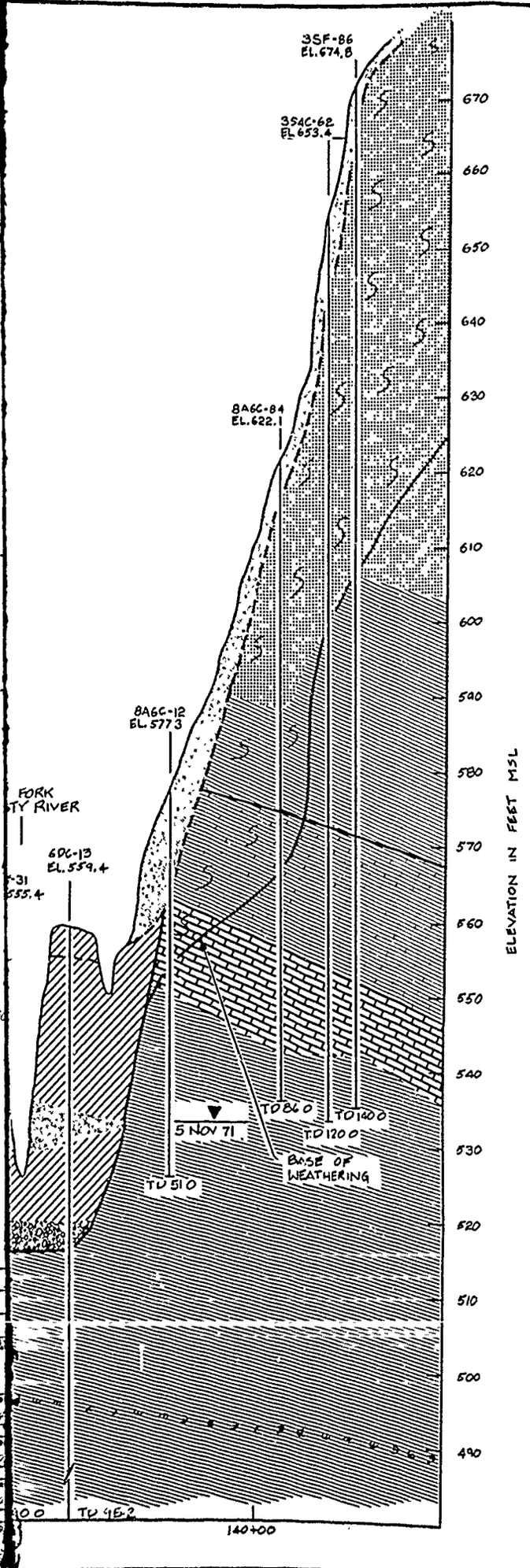
SUBMITTED BY: M. GREEN
ENGINEER:
INVITATION NO. DACW63-82-B-0025 DATE: MAR. 1982
CONTRACT NO. DACW63-82-C-0033
DRAWING NUMBER
SHEET NO. OF
SEQUENCE NO. 45

CONTRACT NO. DACW63 82 C 0033

TO ACCOMPANY FOUNDATION REPORT


670
660
650
640
630
620
610
600
590
580
570
560
550
540
530
520
510
500
490
TOP OF DA
GDC-16
EL. 559.7
GDC-15
EL. 558.5
BAGU-64
EL 557.2
GDC-30
EL. 556.7
17 SEPT 71
25 SEPT. 71
24 JAN 73
T.D 50.0
T.D 61.2
T.D 101.0
T.D. 90.0
110+00
120+00
EMBANKI


TOP OF DAM EL. 665.0
3SF-86
EL. 674.8
354C-62
EL. 653.4
8A6C-84
EL. 622.1
8A6C-12
EL. 577.3
8A6V-64
EL. 557.2
6DC-30
EL. 556.7
6DC-14
EL. 559.5
8A6D-65
EL. 555.4
6DC-31
EL. 555.4
6DC-13
EL. 559.4
ELM FORK
TRINITY RIVER
24 JAN 73
14 FEB 73
5 NOV 71
APPROXIMATE BOTTOM
OF INSPECTION TRENCH
TOP OF PRIMARY
BASE OF
WEATHERING
TD 510
TD 840
TD 1200
TD 1400
TD 1010
TD 900
TD 900
TD 975
TD 900
TD 962
120+00
130+00
140+00
EMBANKMENT STATIONS IN FEET
ELEVATION IN FEET MSL
670
660
650
640
630
620
610
600
590
580
570
560
550
540
530
520
510
500
490



FOR LEGEND AND GENERAL NOTES SEE SEQ 19-1.

RECORD DRAWING-WORK AS BUILT

SYM	DG. NO.	ACTION	DATE	DESCRIPTION OF REVISION

U.S. ARMY ENGINEER DISTRICT, FORT WORTH
CORPS OF ENGINEERS
FORT WORTH, TEXAS

DESIGNED BY: R. HAGEN
DRAWN BY: P. BAILEY
REVIEWED BY: R. HAGEN

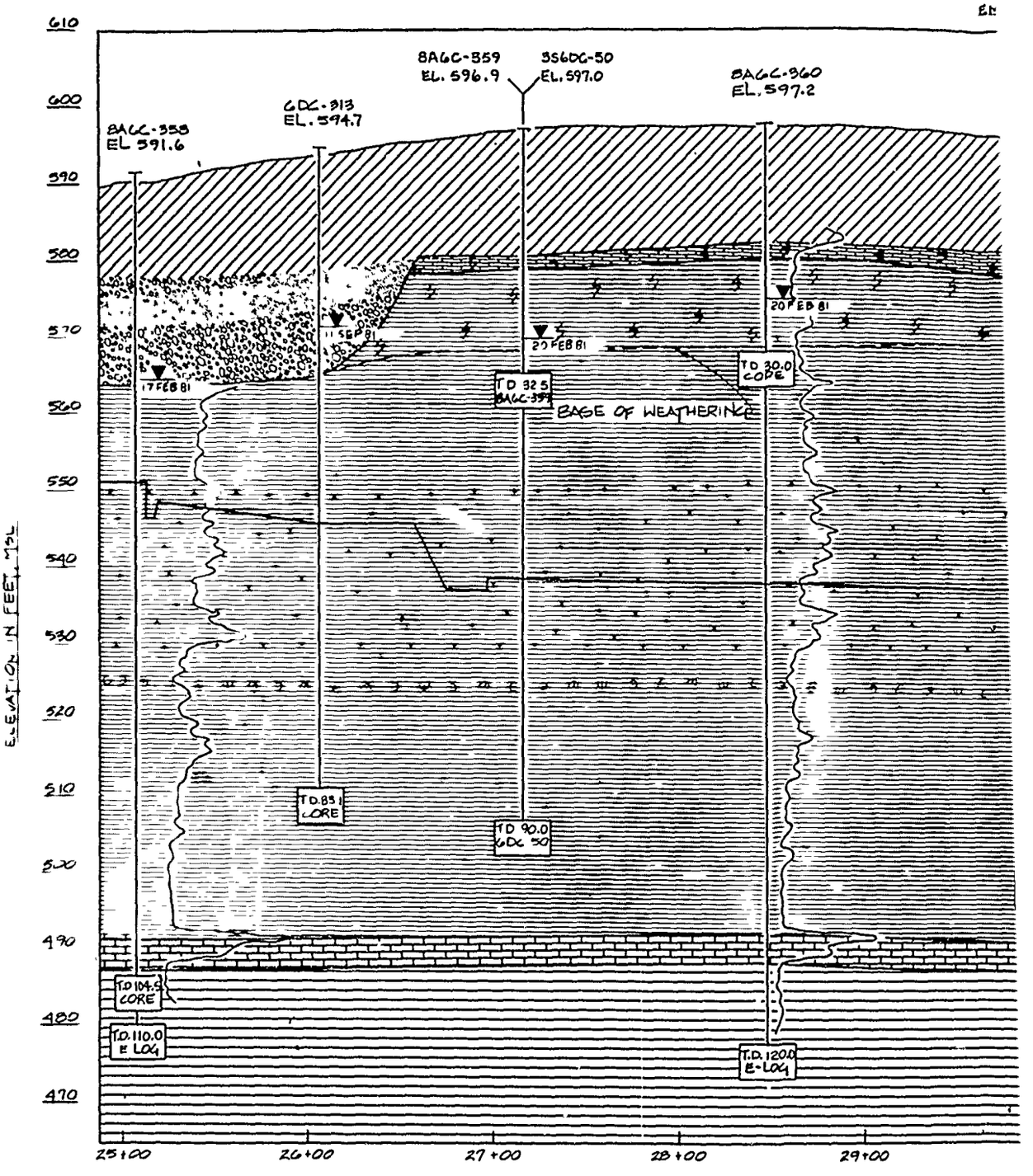
RAY ROBERTS LAKE
ELM FORK, TRINITY RIVER, TEXAS

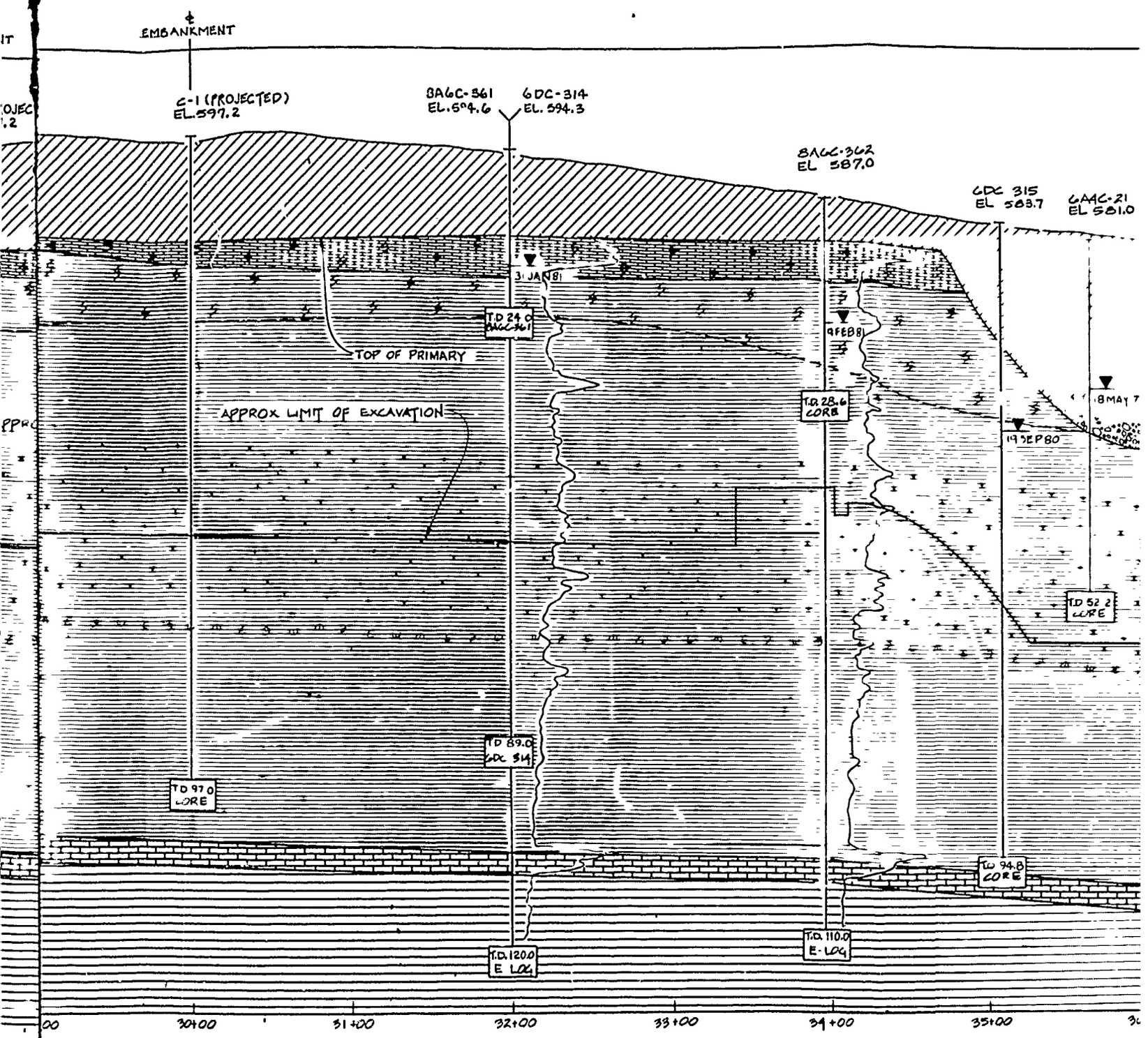
EMBANKMENT
GEOLOGIC PROFILE
EMBANKMENT CENTERLINE
(STATION 107+00 TO 142+25)

SUBMITTED BY: M. GREEN
ENGINEER:

INVITATION NO. DACW63-82-B-0025 DATE: MAR. 19
CONTRACT NO. DACW63-82-C-[illegible]
DRAWING NUMBER
SHEET NO. 4[illegible] OF

TO ACCOMPANY FOUNDATION REPORT

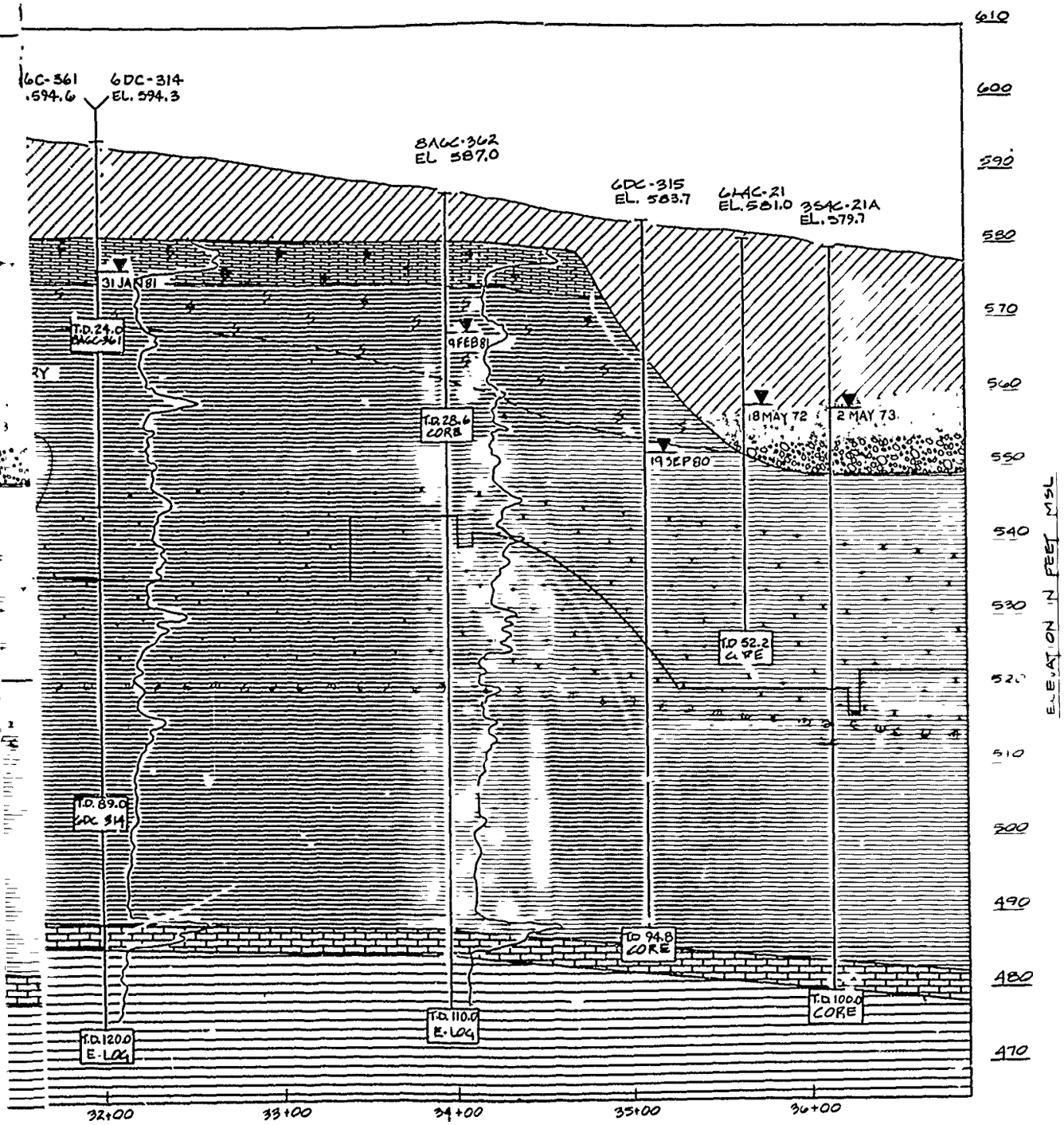

BAGC-359
EL. 596.9
356DC-50
EL. 597.0
BAGC-360
EL. 597.2
GDC-313
EL. 594.7
BAGC-358
EL 591.6
610
600
590
580
570
560
550
540
530
520
510
500
490
480
470
ELEVATION IN FEET MSL
17 FEB 81
11 SEP 81
20 FEB 81
20 FEB 81
TD 32.5
BAGC-359
BASE OF WEATHERING
TD 30.0
CORE
TD 83.1
CORE
TD 90.0
GDC 50
TD 104.5
CORE
TD 110.0
E LOG
T.D. 120.0
E-LOG
25+00
26+00
27+00
28+00
29+00



DISTANCES IN STATIONS ALONG OUTLET WORKS

FOR LEGEND AND GENERAL NOTES SEE SEQ 199.

RECORD DRAWING-WORK AS BUILT



LET WORKS

FOR LEGEND AND GENERAL NOTES SEE SEQ 199.

RECORD DRAWING-WORK AS BUILT

INVITATION NO.	ACTION	DATE	DESCRIPTION OF REVISION

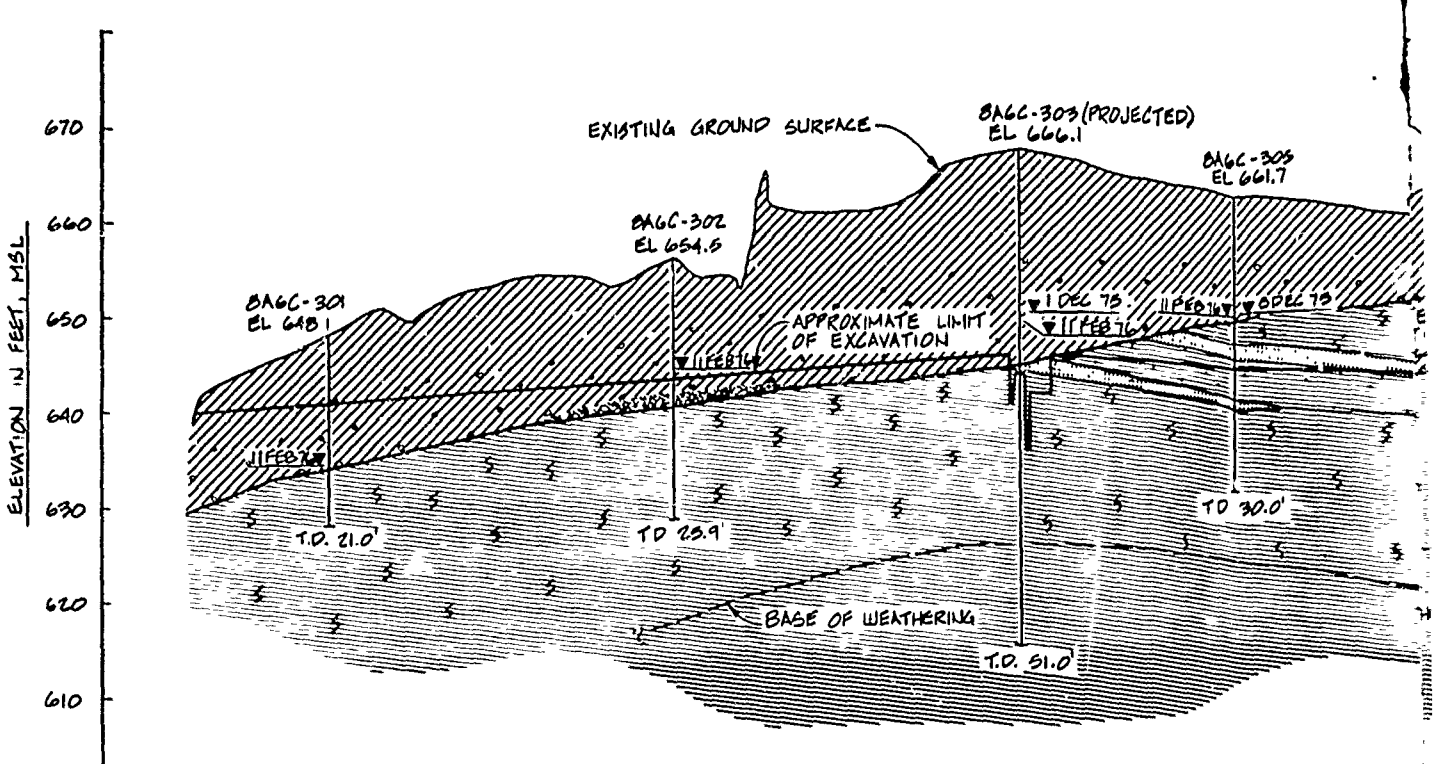
U.S. ARMY ENGINEER DISTRICT, FORT WORTH
CORPS OF ENGINEERS
FORT WORTH, TEXAS

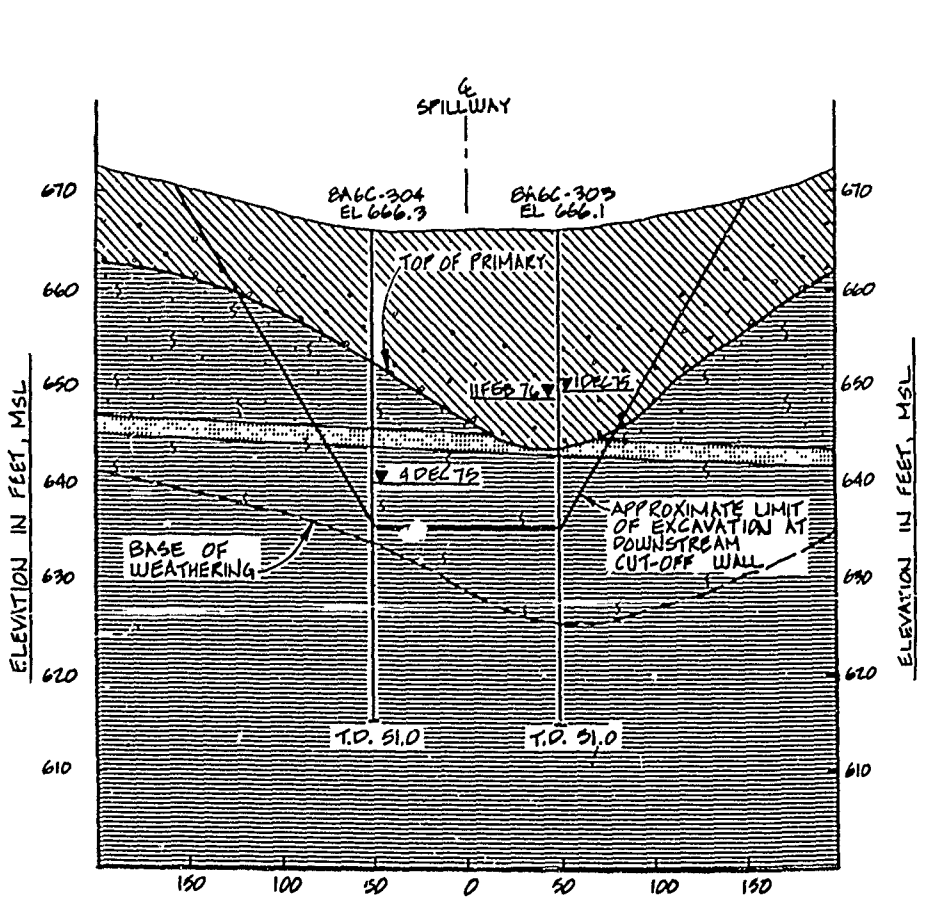
DESIGNED BY: R. HAGEN
DRAWN BY: M. BLAIN
REVIEWED BY: R. HAGEN
SUBMITTED BY: M. GREEN
ENGINEER

RAY ROBERTS LAKE
ELM FORK, TRINITY RIVER, TEXAS
OUTLET WORKS
GEOLOGIC PROFILE
STATION 25+11 TO STATION 36+27

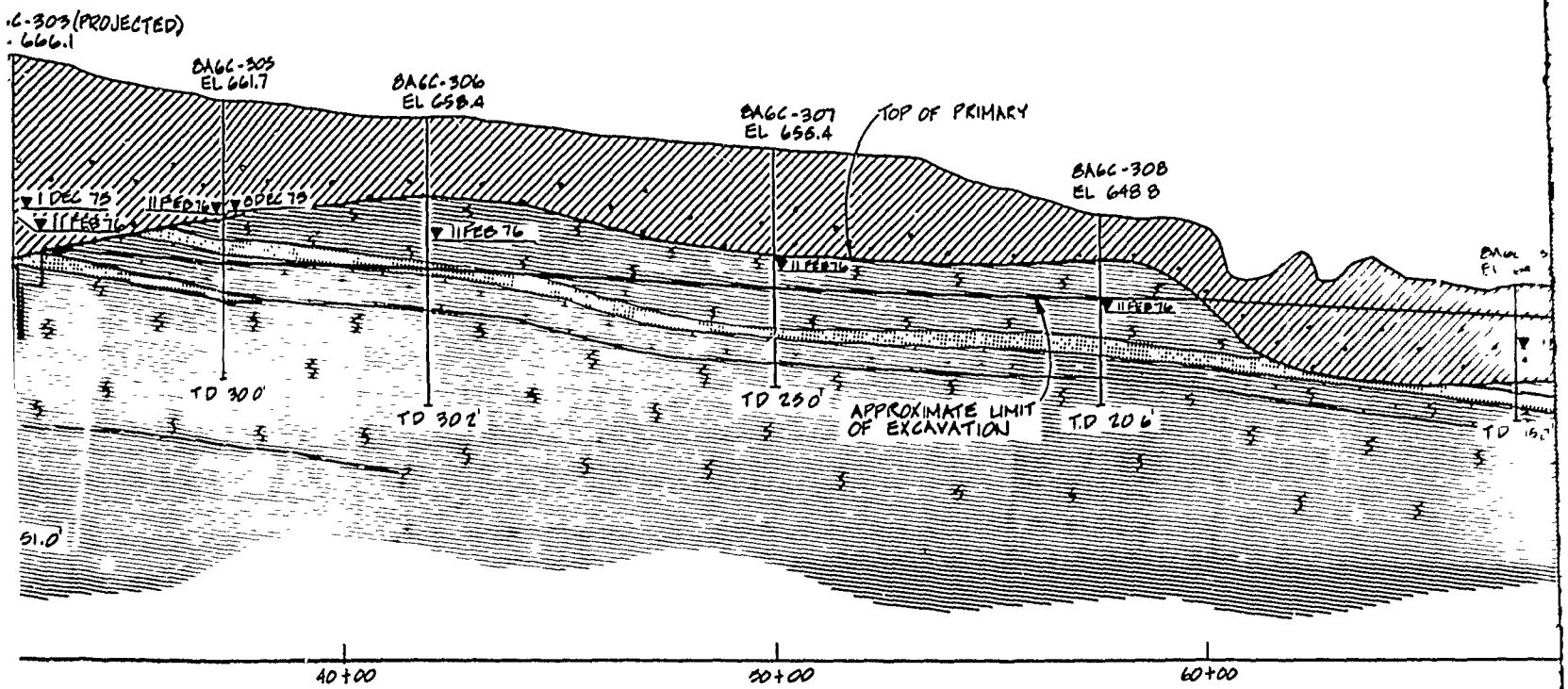
INVITATION NO. DACW63-82-B-0025 DATE: MAR 19
CONTRACT NO. DACW 63-82-C-0083
DRAWING NUMBER
SHEET NO. OF
REVISED 4

TO ACCOMPANY FOUNDATION REPORT

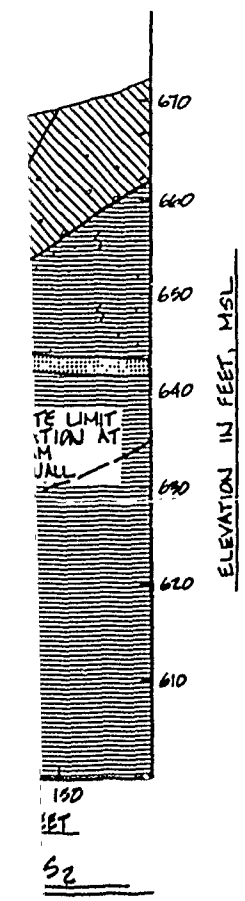




SPILLWAY GEOLOGIC SECTION S_2-S_2



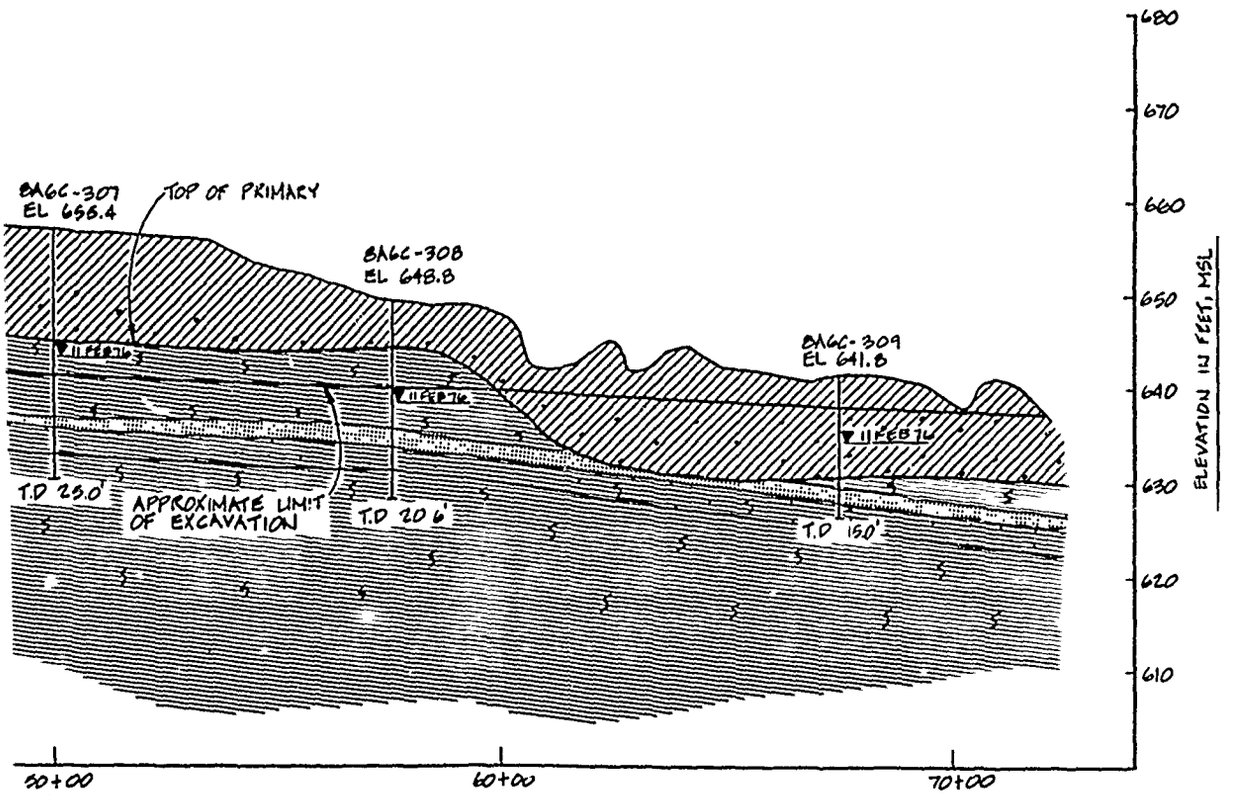
SPILLWAY GEOLOGIC PROFILE S_1-S_1



S_2

NOTES:

1. FOR LEGEND AND GENERAL NOTES SEE SE
2. FOR LOCATION OF PROFILE AND SECTION SE



EET

OFILE S_1-S_1

NOTES:
1. FOR LEGEND AND GENERAL NOTES SEE SEQ. 199.
2. FOR LOCATION OF PROFILE AND SECTION SEE SEQ. 180.

RECORD DRAWING-WORK AS BUILT

SYM	DO NO.	ACTION	DATE	DESCRIPTION OF REVISION

U.S. ARMY ENGINEER DISTRICT, FORT WORTH
CORPS OF ENGINEERS
FORT WORTH, TEXAS

DESIGNED BY: R. HAGEN
DRAWN BY: E. REED
REVISED BY: R. HAGEN
SUBMITTED BY: M. GREEN
ENGINEER:

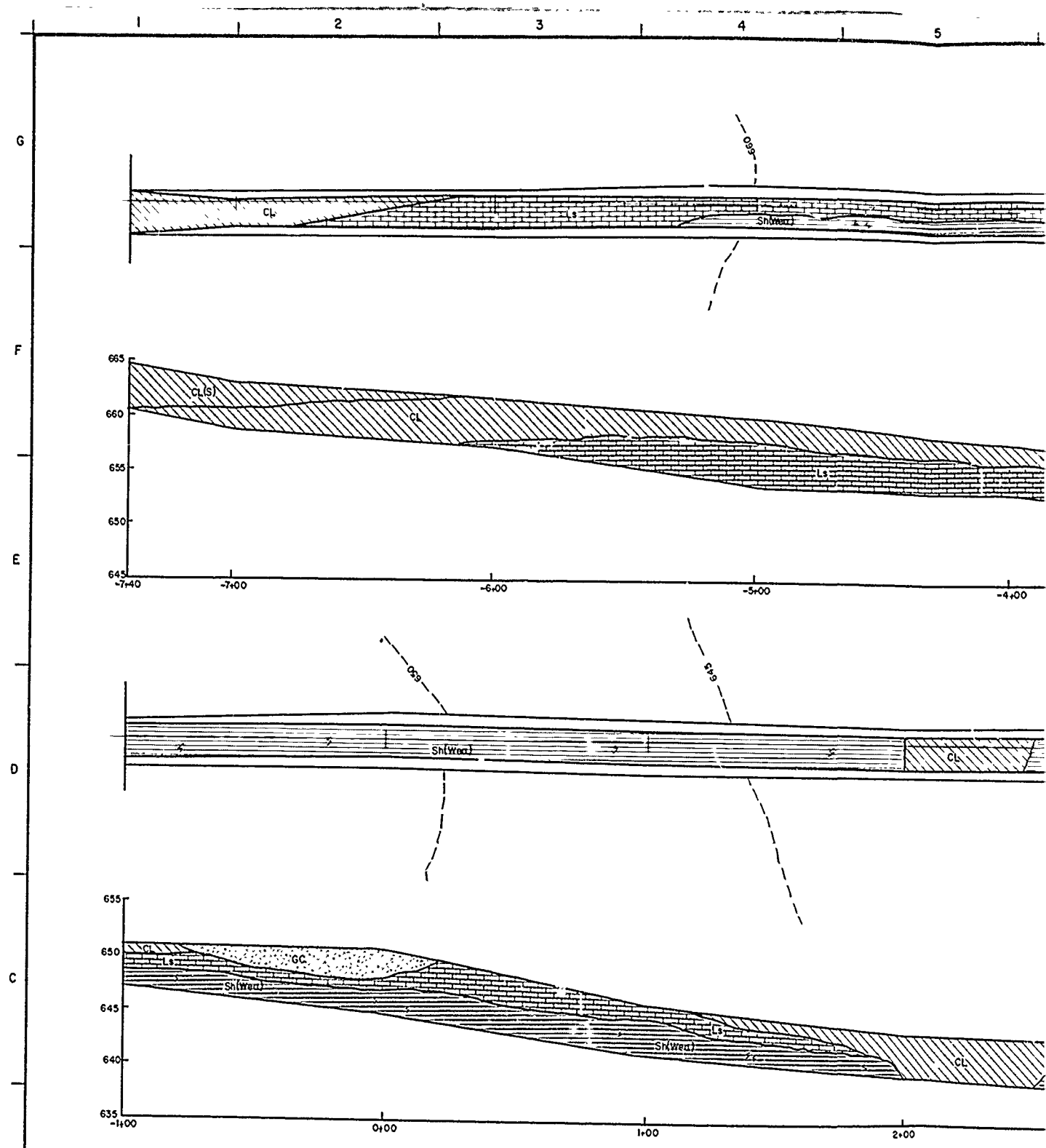
RAY ROBERTS LAKE
ELM FORK, TRINITY RIVER, TEXAS

SPILLWAY, APPROACH CHANNEL AND DISCHARGE CHANNEL

GEOLOGIC PROFILE S_1-S_1 AND SECTION S_2-S_2

INVITATION NO. DACW63-82-B-0025 DATE: MAR, 1982
CONTRACT NO. DACW63-82-C-0083
DRAWING NUMBER
SHEET NO. OF
SEQUENCE NO. 48

CONTRACT NO. DACW63-82-C-0083

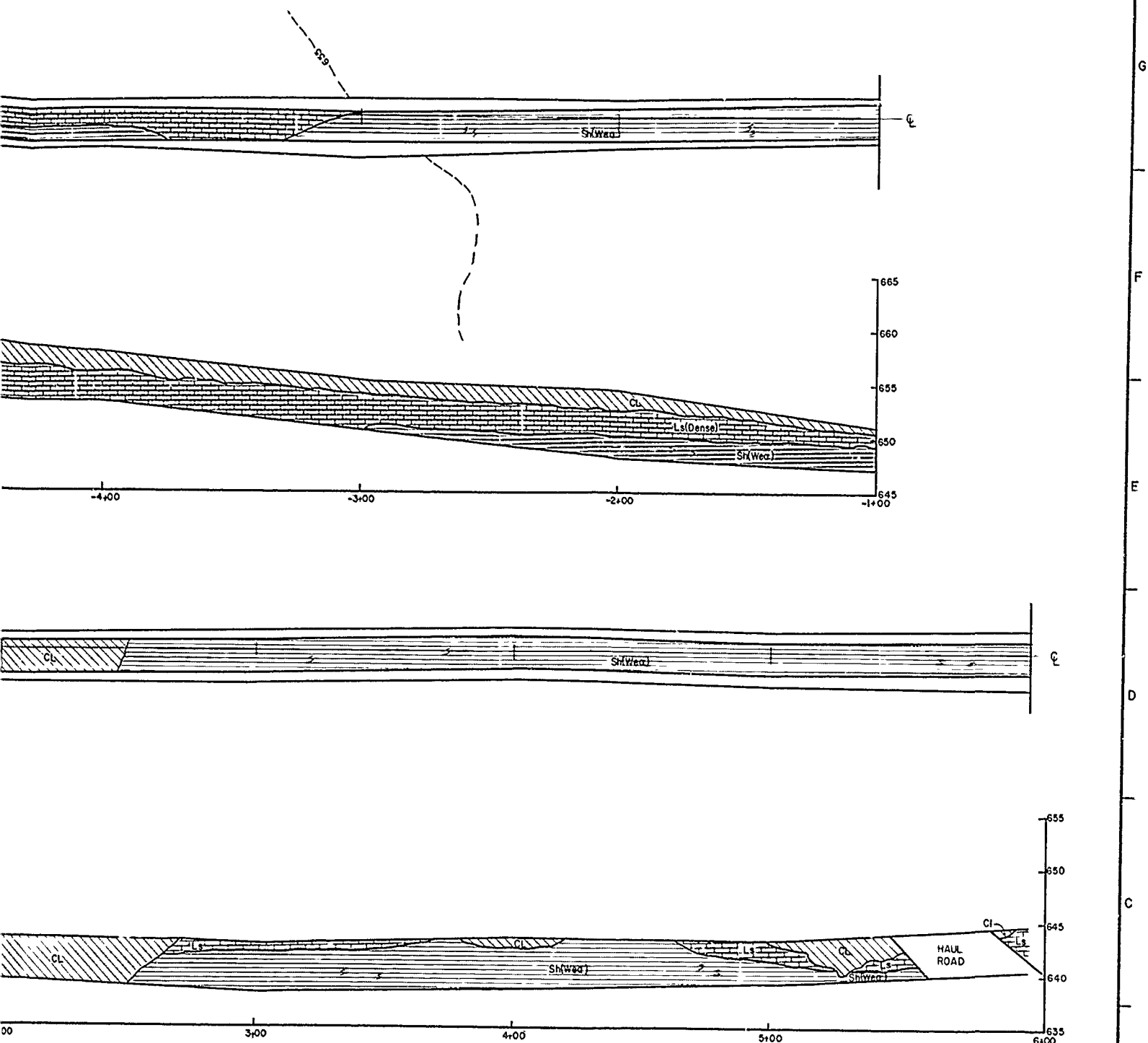


LEGEND

- CH — CLAY, MEDIUM TO HIGH PLASTICITY, DARK BROWN
- CL — CLAY, LEAN
- CLAY, LEAN, SANDY
- CLAY, GRAVELLY
- CH — CLAY, HIGH PLASTICITY, ORGANIC, BLACK
- SC — SAND, CLAYEY, FINE
- SP — SAND, FINE, POORLY GRADED
- GC — GRAVEL, VARIABLY CLAYEY
- CLAY, STIFF, HAS APPEARANCE OF WEATHERED SHALE INCLUDING SHALE-LIKE STRUCTURE.
- SHALE, WEATHERED
- SHALE, UNWEATHERED

NOTES

1. SECTION
2. NO INSI
3. PLAN V
GEOLOGY



NOTES

1. SECTIONS REPRESENT UPSTREAM(LEFT) FACE OF INSPECTION TRENCH.
2. NO INSPECTION TRENCH WAS EXCAVATED BETWEEN STATIONS 117+50 AND 125+50.
3. PLAN VIEW OF INSPECTION TRENCH PRESENTS GEOLOGY OF THE FLOOR ONLY. GEOLOGY OF SIDE SLOPES IS PRESENTED IN THE SECTION.

SYMBOL NO.	REVISION	DATE	DESCRIPTION OF REVISION

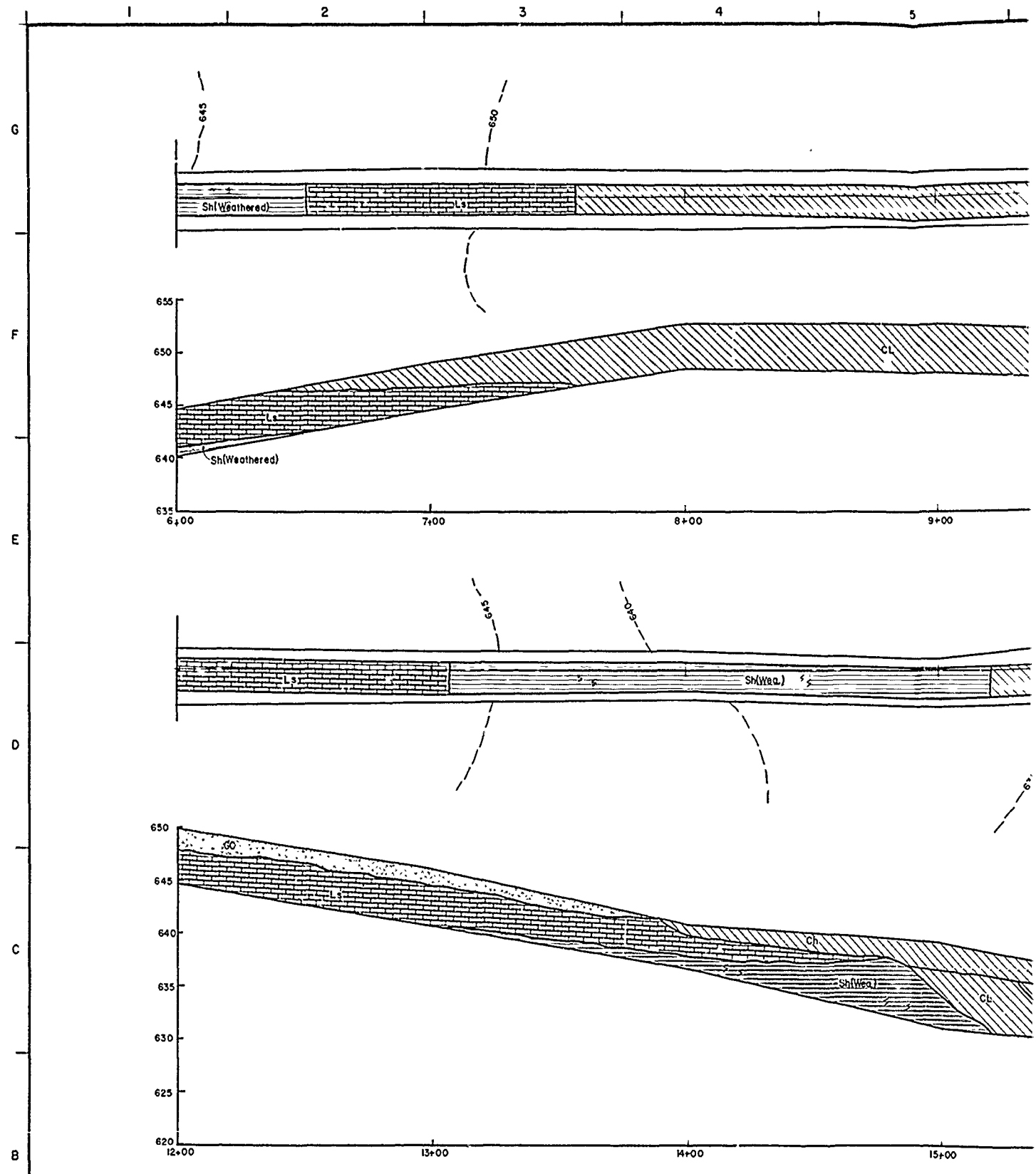
U.S. ARMY ENGINEER DISTRICT, FORT WORTH
CORPS OF ENGINEERS
FORT WORTH, TEX.

DESIGNED BY: H BARNETT
DRAWN BY: C.KIRBY
REVIEWED BY: R. BEHM
SUBMITTED BY: ROBERT C. BEHM
ENGINEER:

RAY ROBERTS LAKE
ELM FORK, TRINITY RIVER, TEXAS

FOUNDATION REPORT
INSPECTION TRENCH
AS-BUILT PLAN AND PROFILE
STA. -7+40 TO 6+00

SOL. NO. | DATED:
CONTR. NO.
DRAWING NUMBER | SHEET NO.
SEQUENCE NO. 40


1
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G
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D
C
B
A
645
650
Sh(Weathered)
Ls
655
650
645
640
635
CL
Ls
Sh(Weathered)
6+00
7+00
8+00
9+00
645
640
Ls
Sh(Wea.)
650
645
640
635
630
625
620
GO
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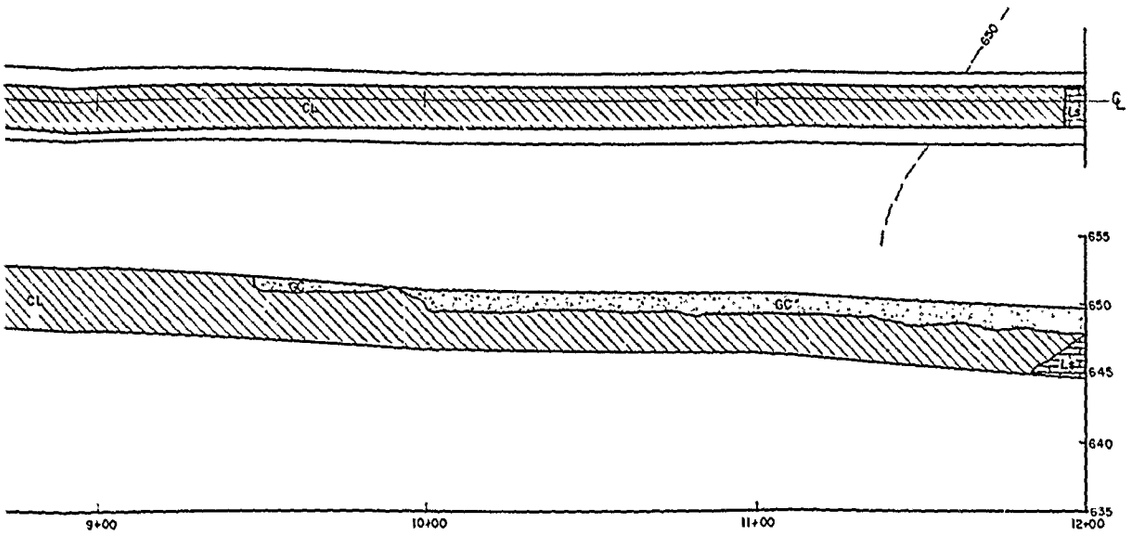
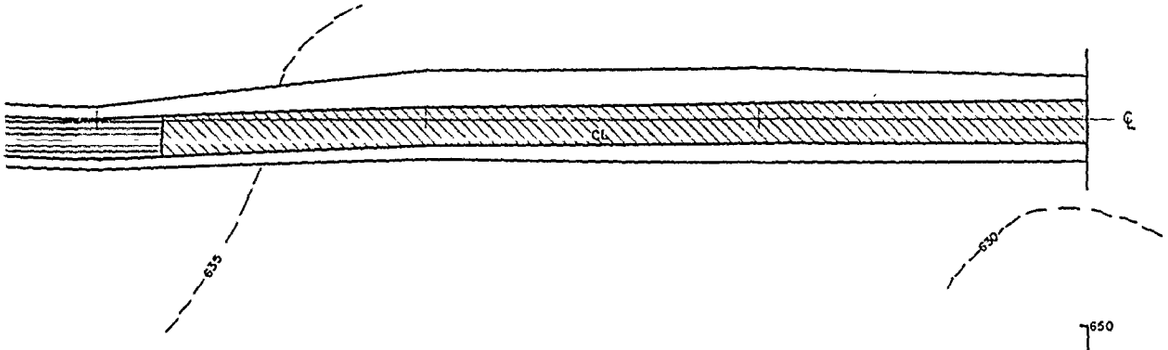
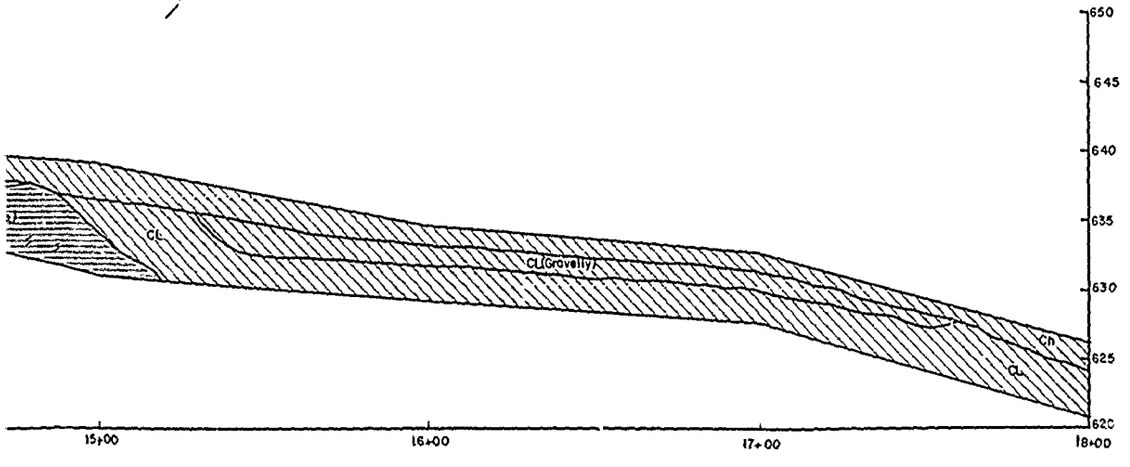
Sh(Wea.)
CL
12+00
13+00
14+00
15+00

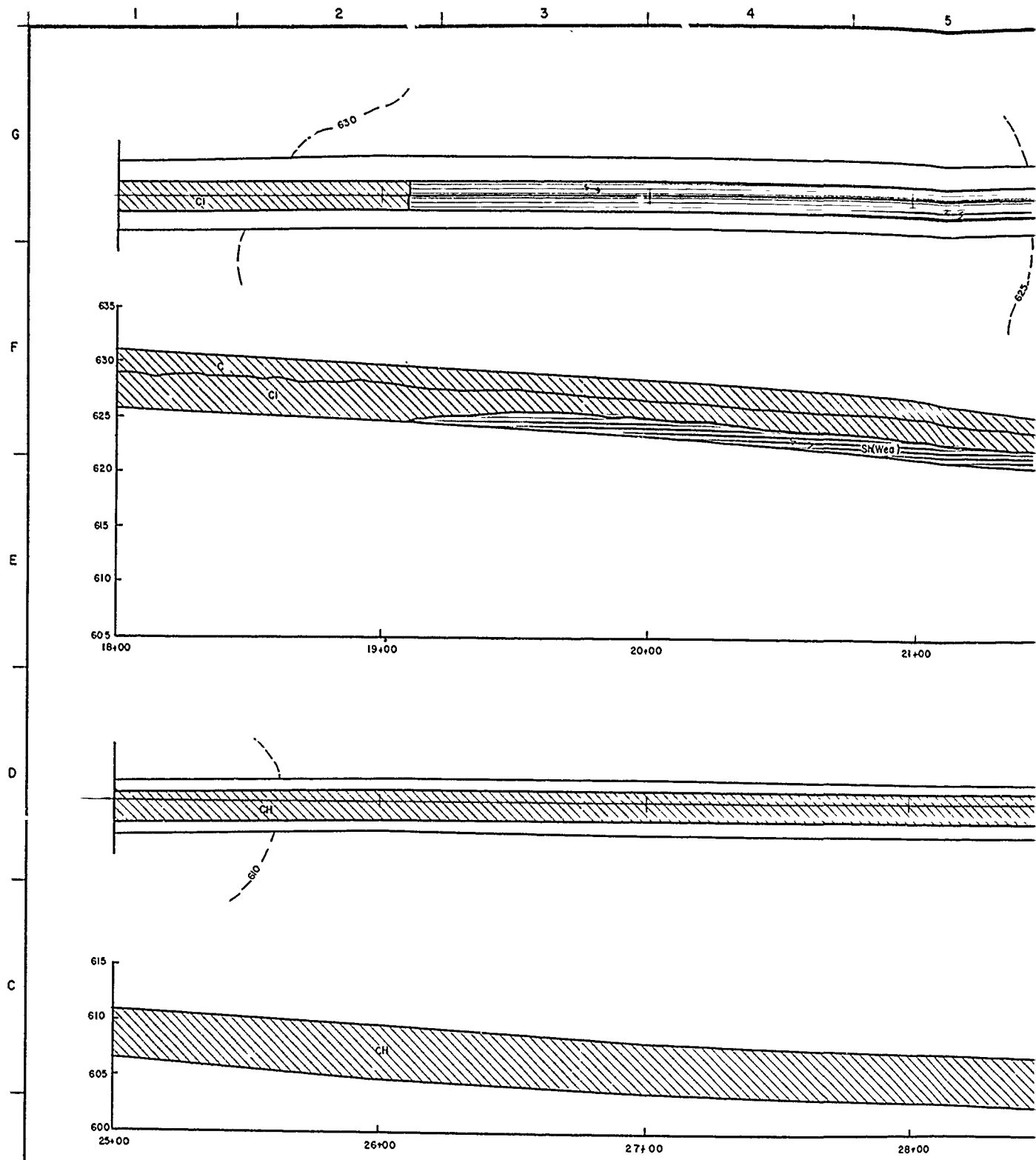






			U.S. ARMY ENGINEER DISTRICT, FORT WORTH CORPS OF ENGINEERS FORT WORTH, TEX A
DESIGNED BY: H.BARNETT	RAY ROBERTS LAKE ELM FORK, TRINITY RIVER, TEXAS		
DRAWN BY: C. KIRBY	FOUNDATION REPORT INSPECTION TRENCH AS-BUILT PLAN AND PROFILE STA. 6+00 TO 18+00		
REVIEWED BY: R. BEHM			
SUBMITTED BY: ROBERT C. BEHM, ENGINEER	SOL. NO.	DATED:	
	CONTR. NO		SEQUENCE NO. 50
	DRAWING NUMBER	SHEET NO. OF	

TO ACCOMPANY FOUNDATION REPORT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635
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625
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SH(Wea)
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19+00
20+00
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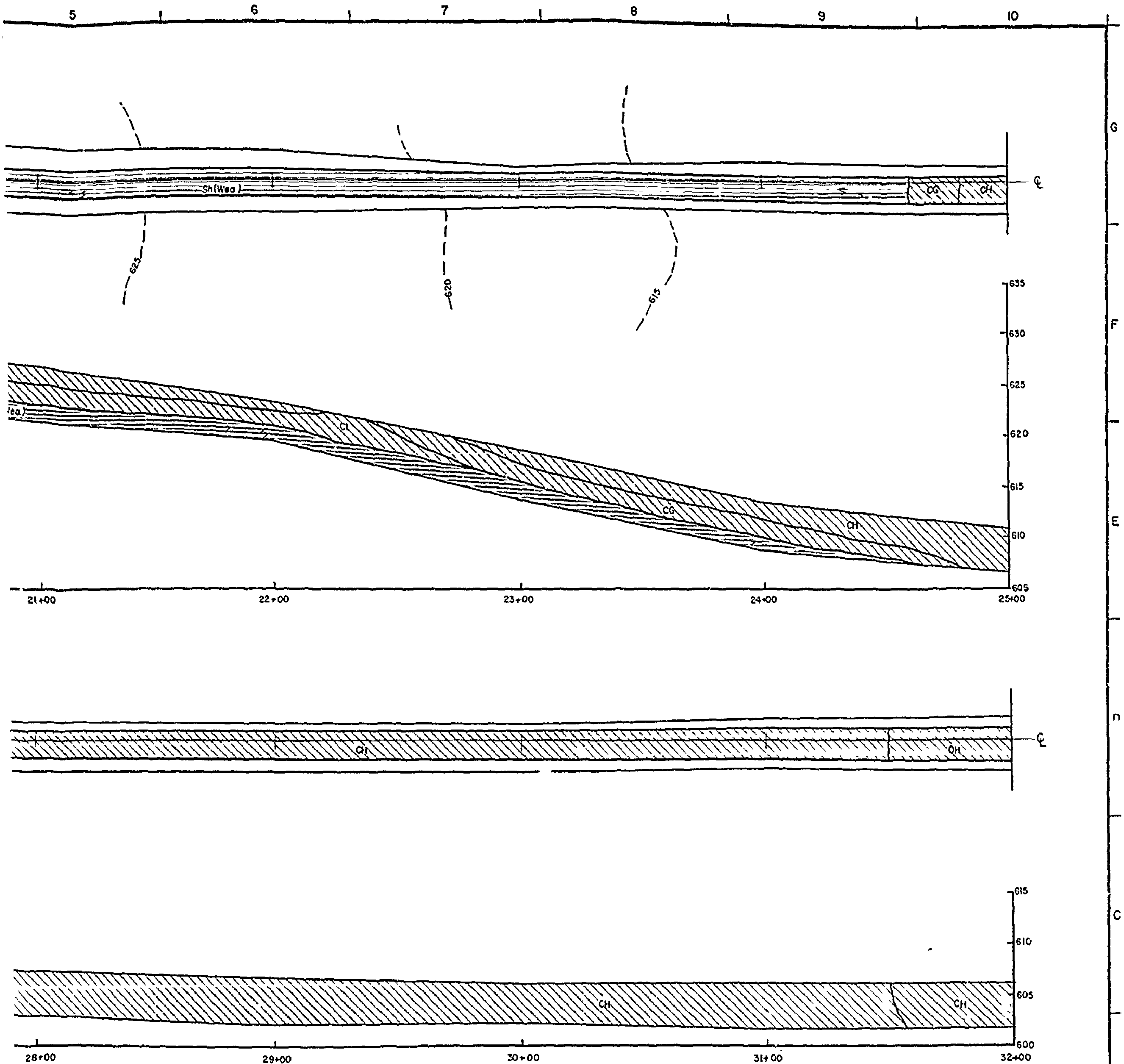
605
600
CH
25+00
26+00
27+00
28+00



SYMBOL	ACTION	DATE	DESCRIPTION OF REVISION

U.S. ARMY ENGINEER DISTRICT, FORT WORTH
CORPS OF ENGINEERS
FORT WORTH, TEXAS

DESIGNED BY: H. BARNETT
DRAWN BY: C. KIRBY
REVIEWED BY: R. BEHM

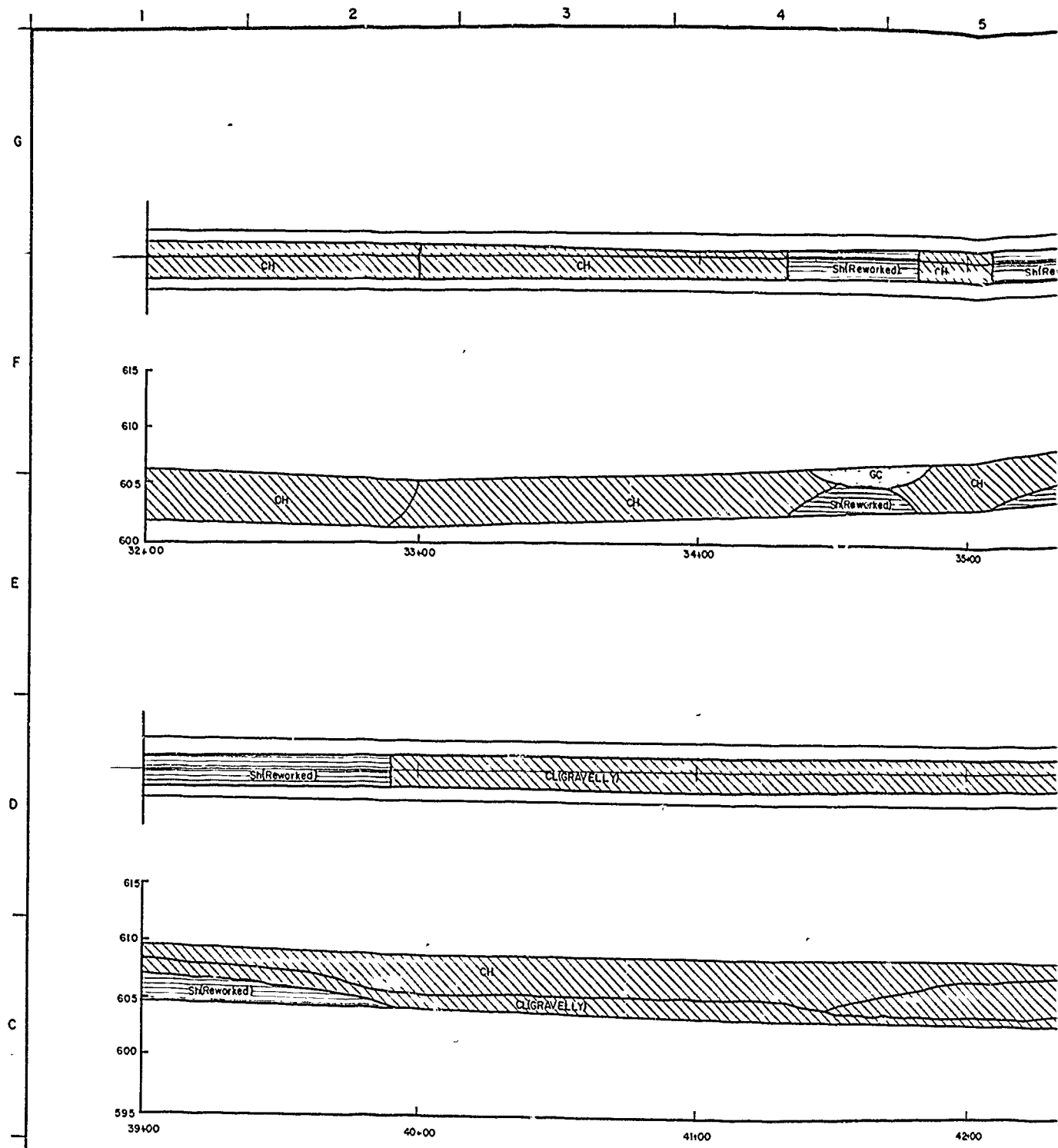
RAY ROBERTS LAKE
ELM FORK, TRINITY RIVER, TEXAS

FOUNDATION REPORT

INSPECTION TRENCH
AS-BUILT PLAN AND PROFILE
STA. 18+00 TO 32+00

SUBMITTED BY: ROBERT C. BEHM
ENGINEER:

SOL. NO. | DATED:
CONTR. NO.
DRAWING NUMBER | SHEET NO. OF
SEQUENCE NO. 51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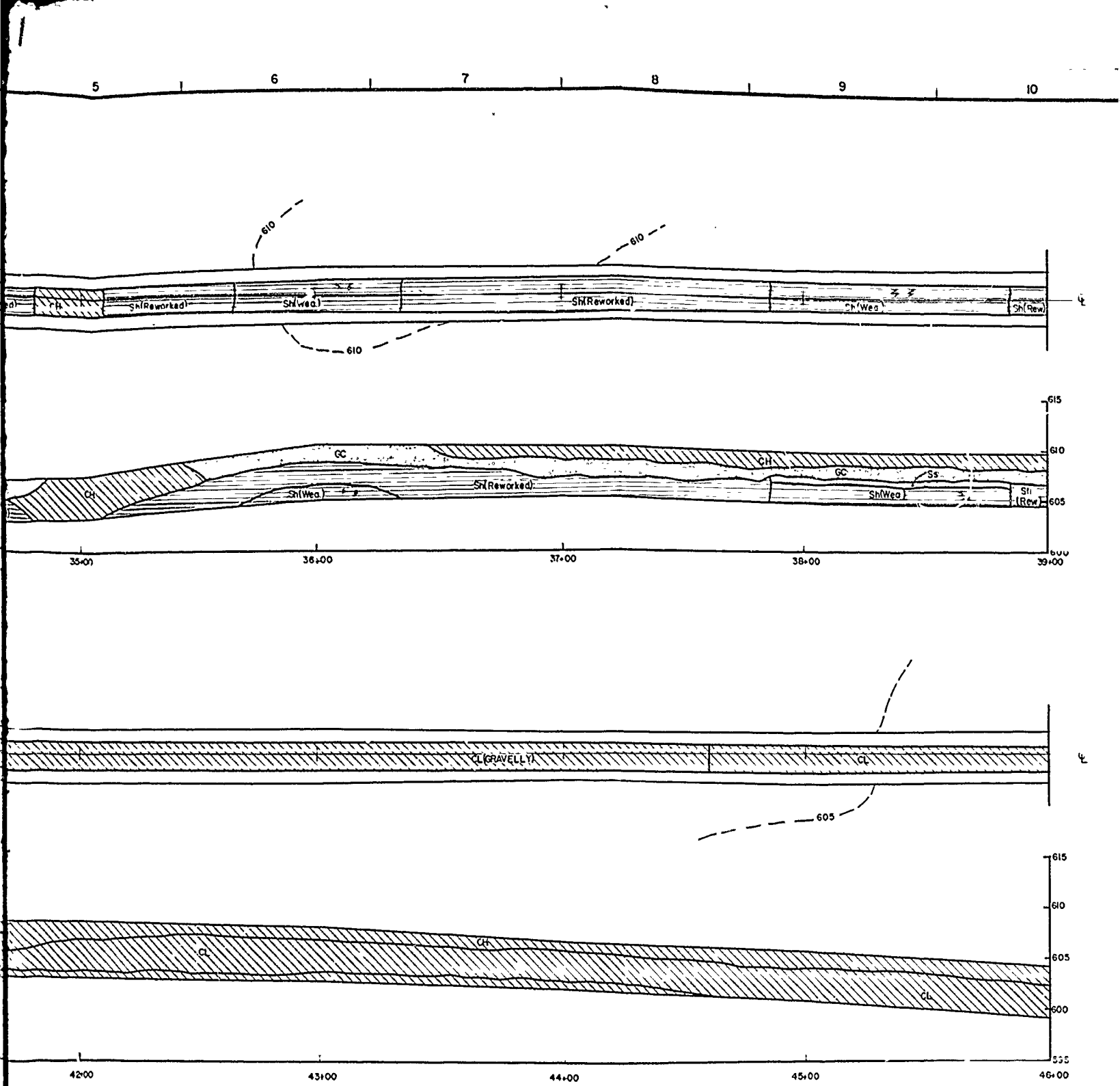
Sh(Reworked)
CH
615
610
605
600
CH
CH
GC
Sh(Reworked)
CH
32+00
33+00
34+00
35+00
Sh(Reworked)
CL(GRAVELLY)
615
610
605
600
595
Sh(Reworked)
CH
CL(GRAVELLY)
39+00
40+00
41+00
42+00



SYMBOL NO.	MATOR	DATE	DESCRIPTION OF REVISION	

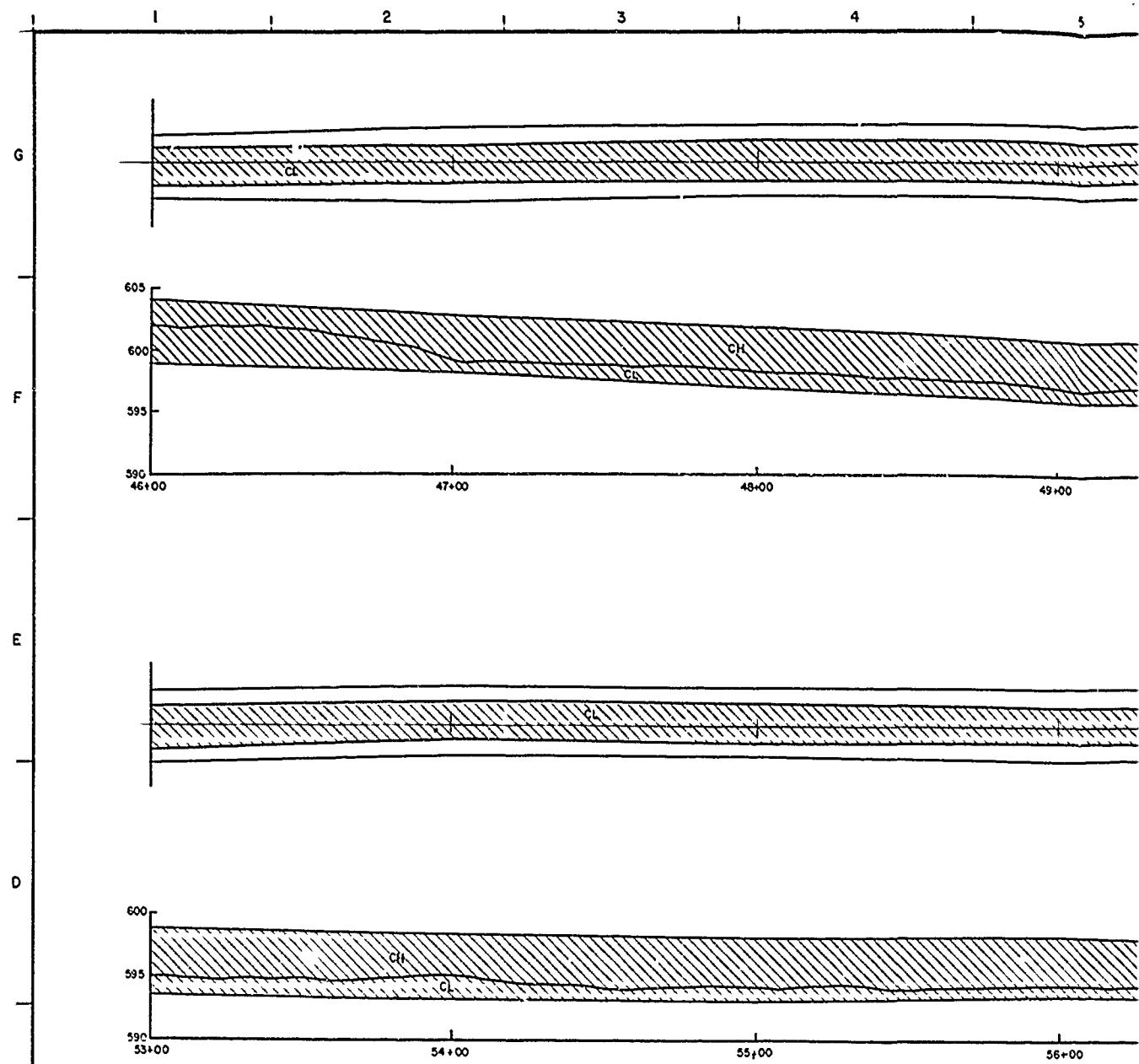
U.S. ARMY ENGINEER DISTRICT, FORT WORTH
CORPS OF ENGINEERS
FORT WORTH, TEXAS

DESIGNED BY: H. BARNETT
DRAWN BY: C. KIRBY
REVIEWED BY: R. BEHM
SUBMITTED BY: ROBERT C. BEHM

RAY ROBERTS LAKE
ELM FORK, TRINITY RIVER, TEXAS

FOUNDATION REPORT
INSPECTION TRENCH
AS-BUILT PLAN AND PROFILE
STA. 32+00 TO 46+00

SOL. NO.
DATED:
CONTR. NO.
SEQUENCE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605
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595
590
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46+00
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48+00
49+00
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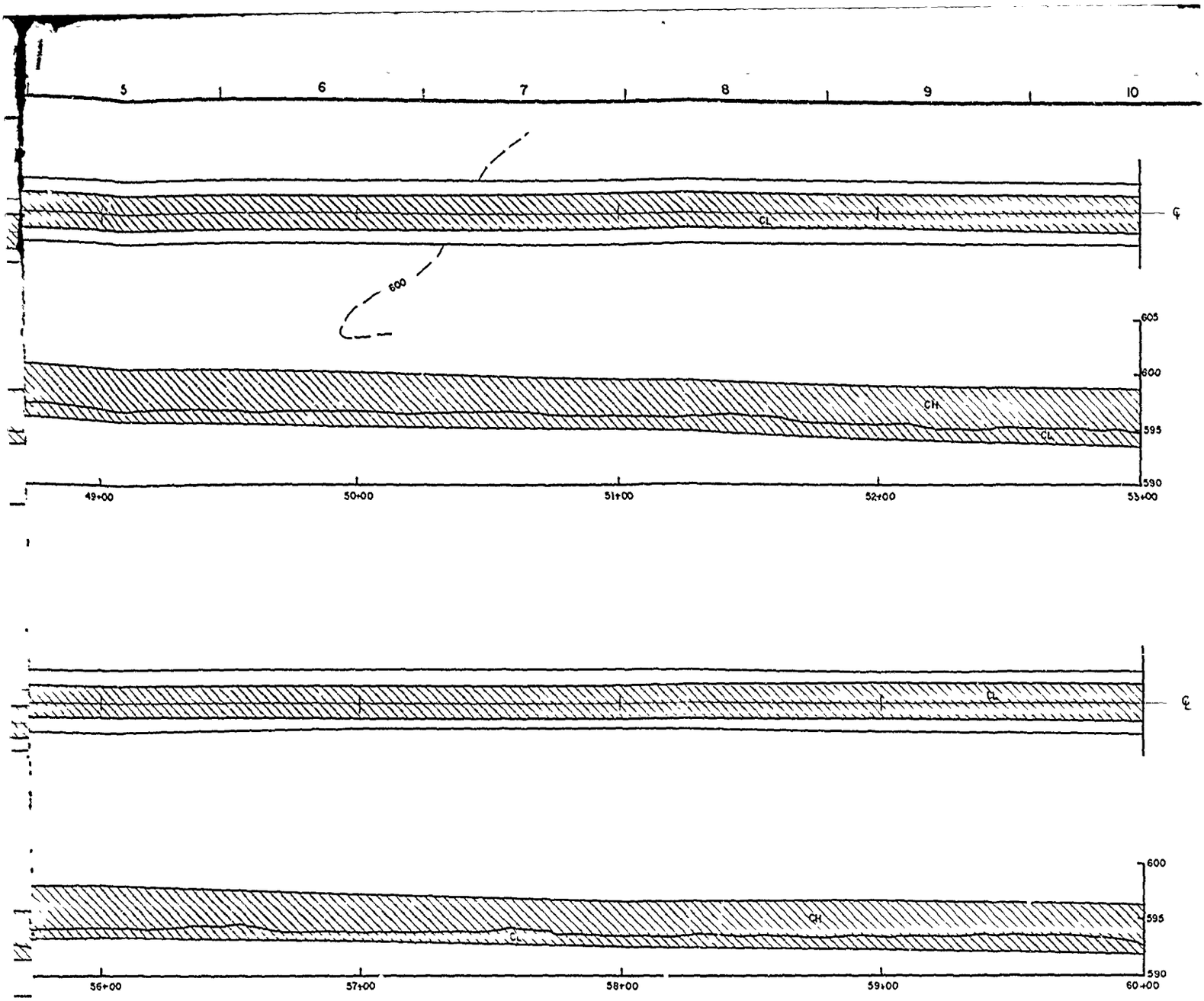
595
590
CH
CL
53+00
54+00
55+00
56+00



REVISION NO.	MADE BY	DATE	DESCRIPTION OF REVISION

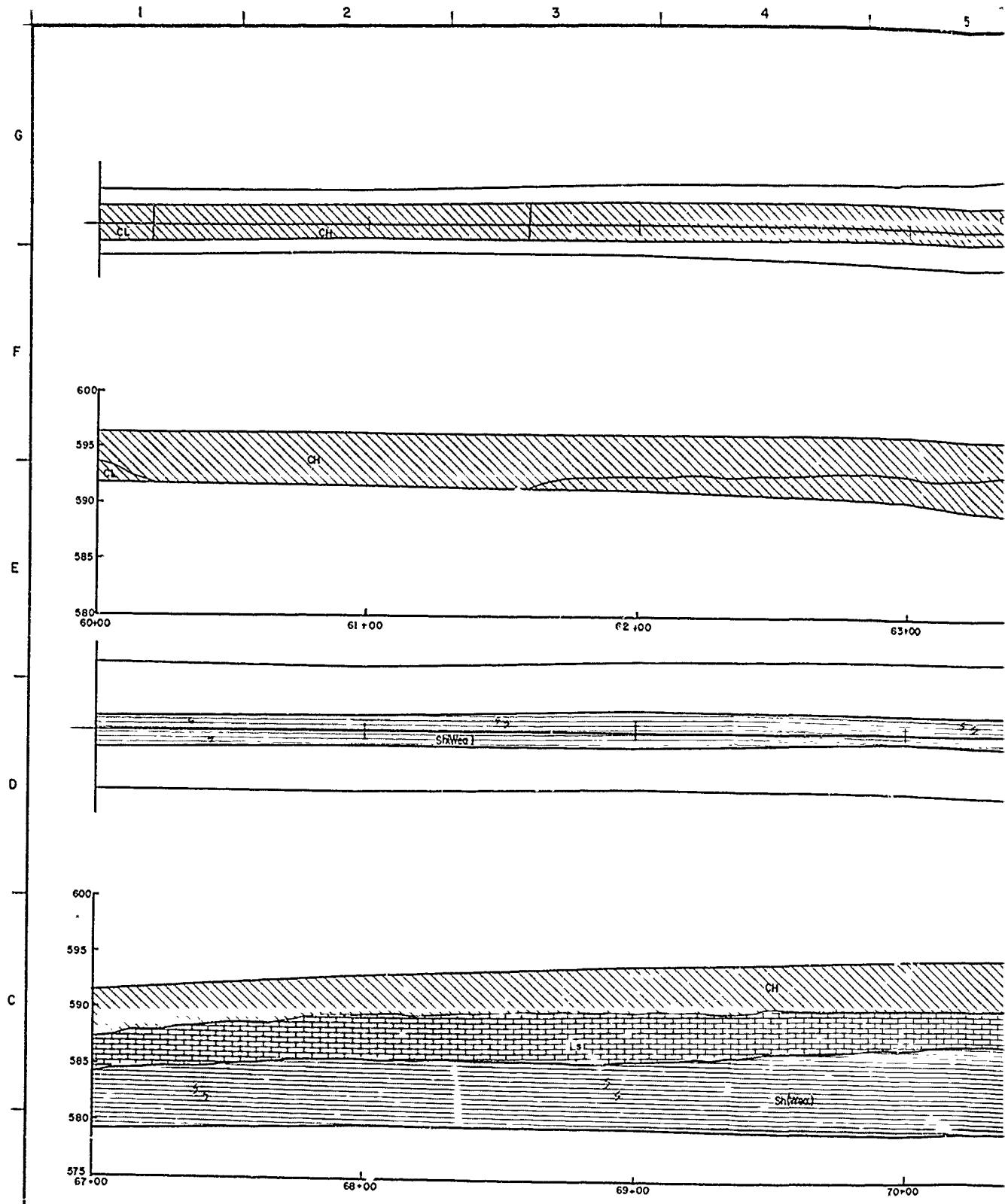
U.S. ARMY ENGINEER DISTRICT, FORT WORTH
CORPS OF ENGINEERS
FORT WORTH, TEXAS

DESIGNED BY: H BARNETT
DRAWN BY: C KIRBY
REVIEWED BY: R. BEHM
SUBMITTED BY: ROBERT C BEHM
ENGINEER

RAY ROBERTS LAKE
ELM FORK, TRINITY RIVER, TEXAS

FOUNDATION REPORT
INSPECTION TRENCH
AS-BUILT PLAN AND PROFILE
STA. 46+00 TO 60+00

SOL. NO.
DATED:
CONTR. NO.
DRAWING NUMBER


1
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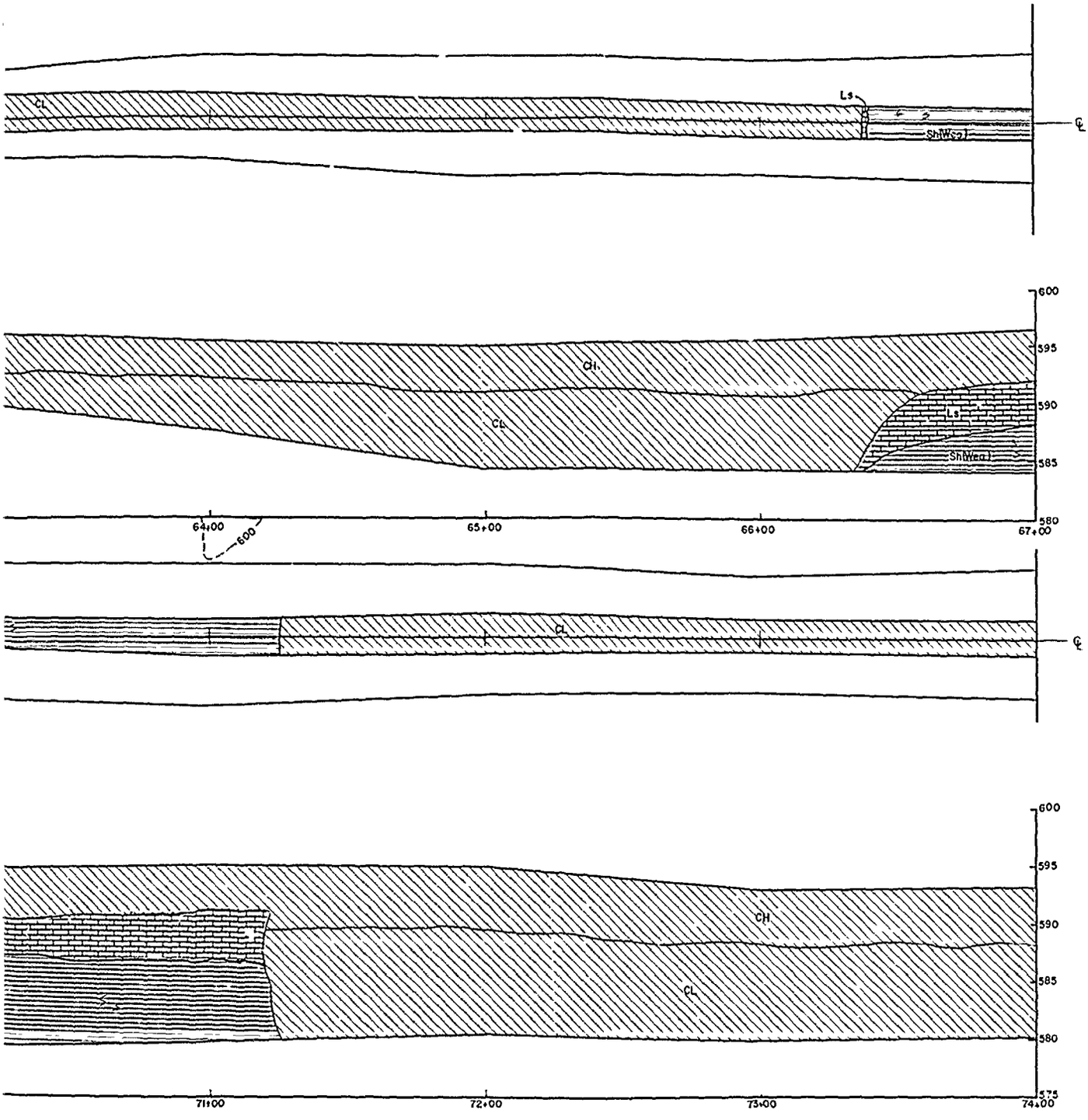
B
A
CL
CH
600
595
590
585
580
60+00
61+00
62+00
63+00
Sh(Weg)
575
67+00
68+00
69+00
70+00
Ls
Sh(Freq)



REVISED NO.	ACTION	DATE	DESCRIPTION OF REVISION

U.S. ARMY ENGINEER DISTRICT, FORT WORTH
CORPS OF ENGINEERS
FORT WORTH, TEXAS

DESIGNED BY: H. BARNETT
DRAWN BY: C. KIRBY
REVIEWED BY: R. BEHM
SUBMITTED BY: ROBERT C BEHM
ENGINEER.

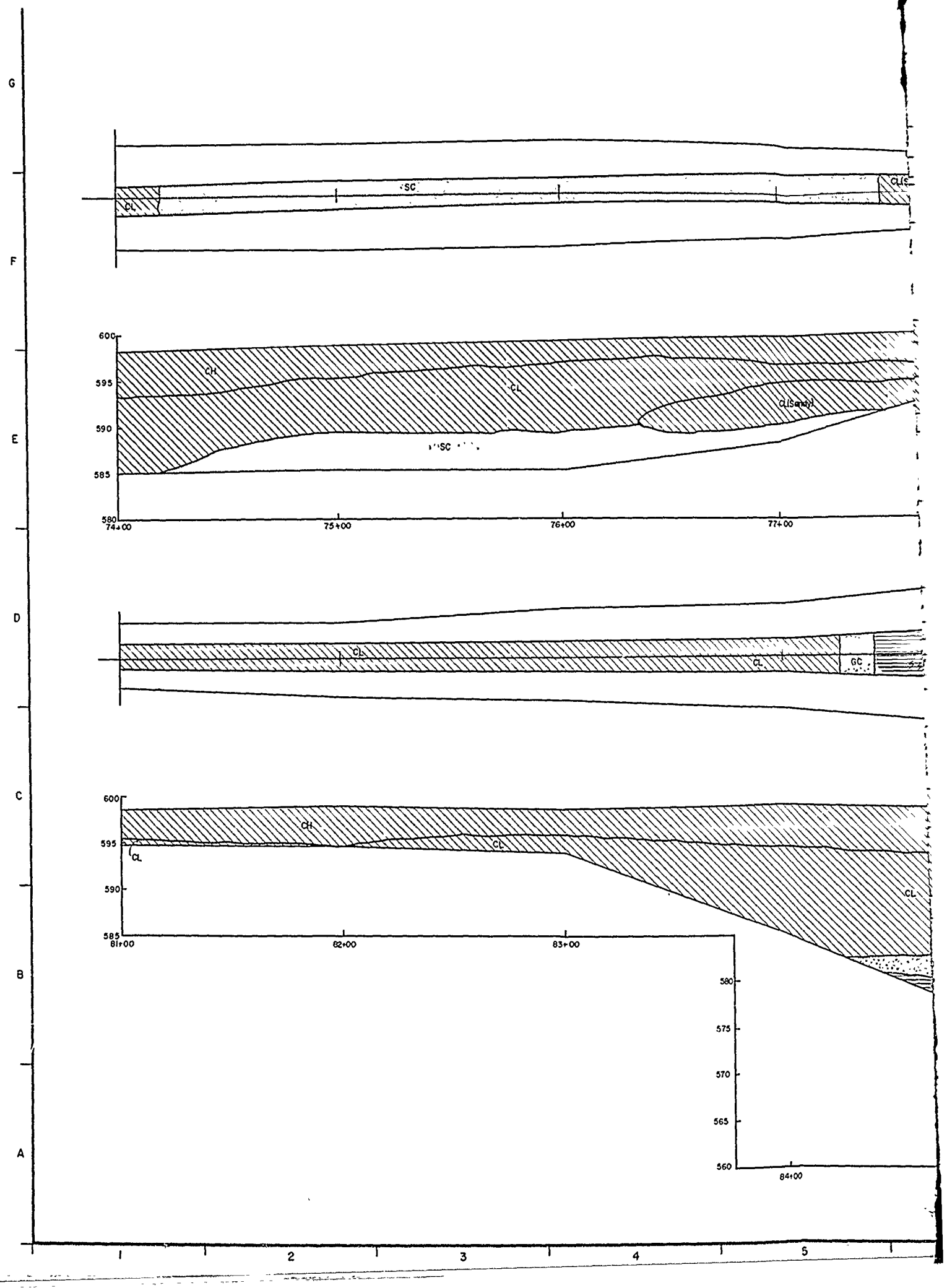
RAY ROBERTS LAKE
ELM FORK, TRINITY RIVER, TEXAS
FOUNDATION REPORT
INSPECTION TRENCH
AS-BUILT PLAN AND PROFILE
STA. 60+00 TO 74+00

SOL. NO. | DATED:
CONTR. NO.
DRAWING NUMBER | SHEET NO. OF
SEQUENCE NO. 54
CONTR. NO.

TO ACCOMPANY FOUNDATION REPORT

G F E D C B

6 7 8


G
F
E
D
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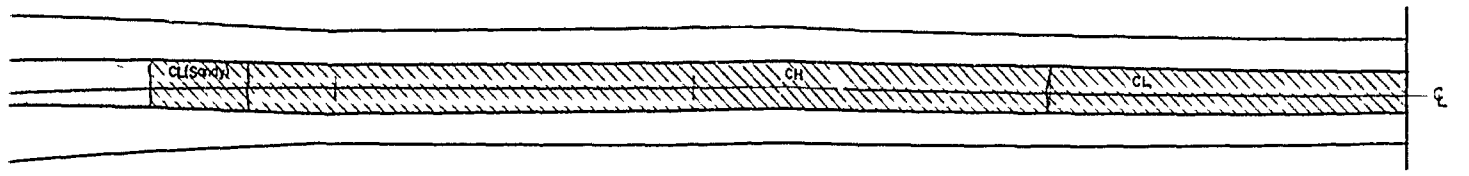
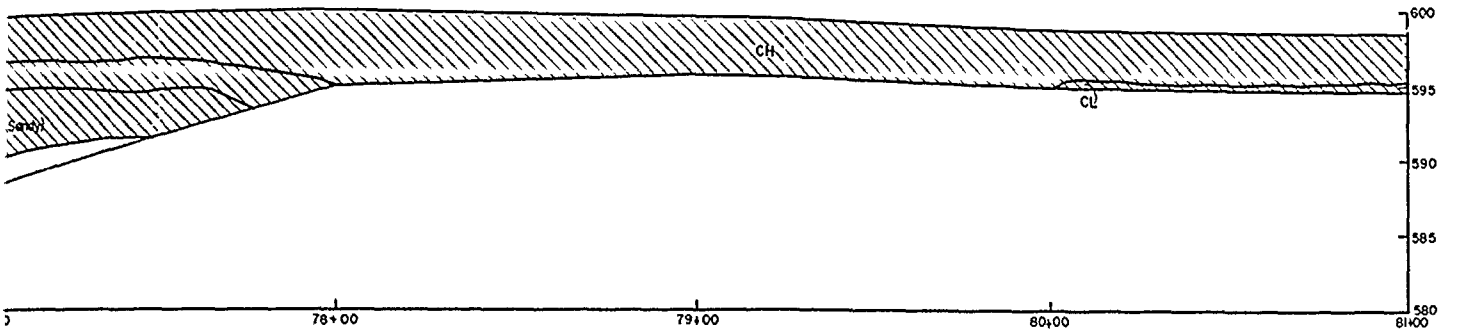
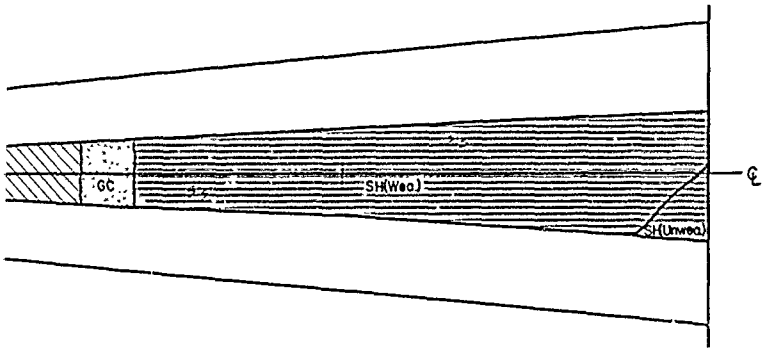
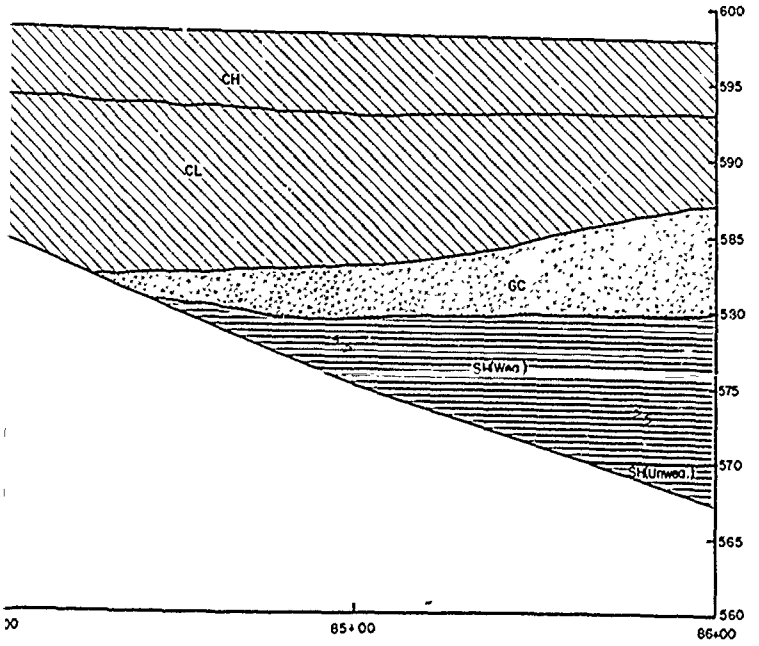
5
SC
CL
CL(S
600
595
590
585
580
74+00
75+00
76+00
77+00
CH
CL
CL(Sandy)
SC
GC
81+00
82+00
83+00
575
570
565
560
84+00









SYM. NO.	NO.	ACTION	DATE	Description of Revision

U.S. ARMY ENGINEER DISTRICT, FORT WORTH
CORPS OF ENGINEERS
FORT WORTH, TEX.

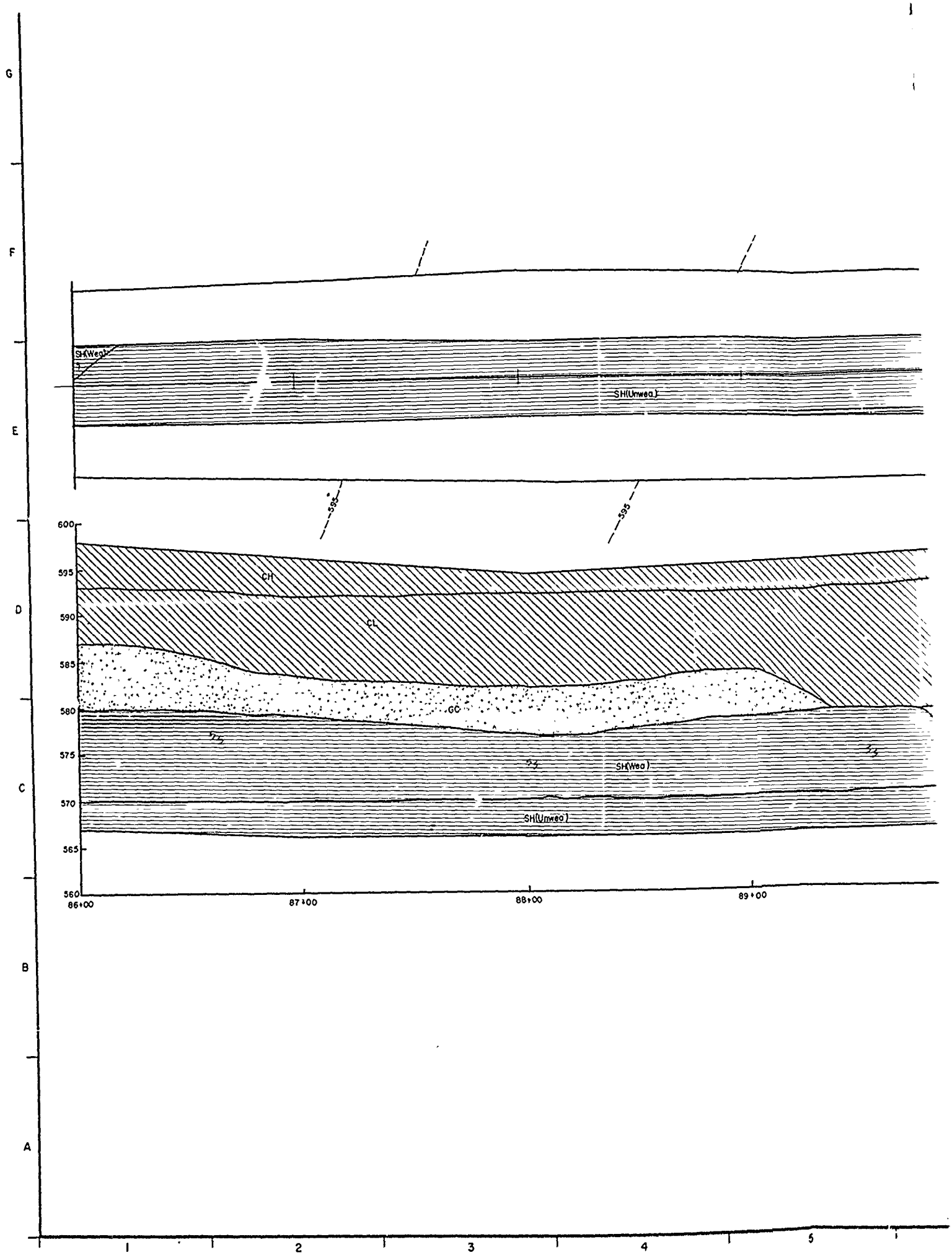
DESIGNED BY: H BARNETT
DRAWN BY: C KIRBY
REVIEWED BY: R. BEHM

RAY ROBERTS LAKE
ELM FORK, TRINITY RIVER, TEXAS
FOUNDATION REPORT
INSPECTION TRENCH
AS-BUILT PLAN AND PROFILE
STA 74+00 TO 86+00

SUBMITTED BY: ROBERT C BEHM
ENGINEER:

SOL. NO. | DATED:
CONTR. NO.
DRAWING NUMBER | SHEET NO. OF | SEQUENCE NO. 55 | CONTR. NO.

TO ACCOMPANY FOUNDATION REPORT


G
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SH(Weo)
SH(Unweo)
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CL
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SH(Weo)
SH(Unweo)
86+00
87+00
88+00
89+00
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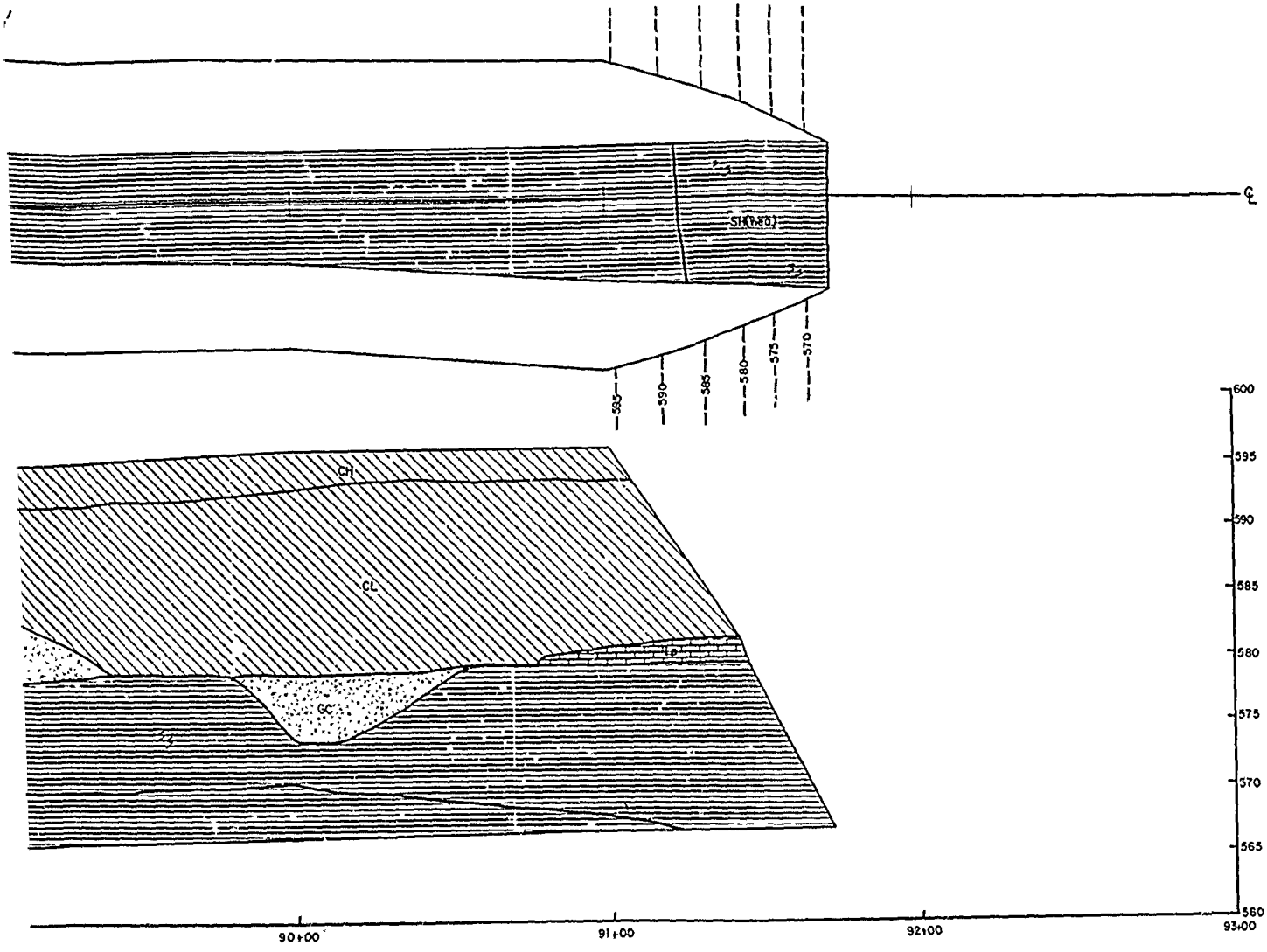
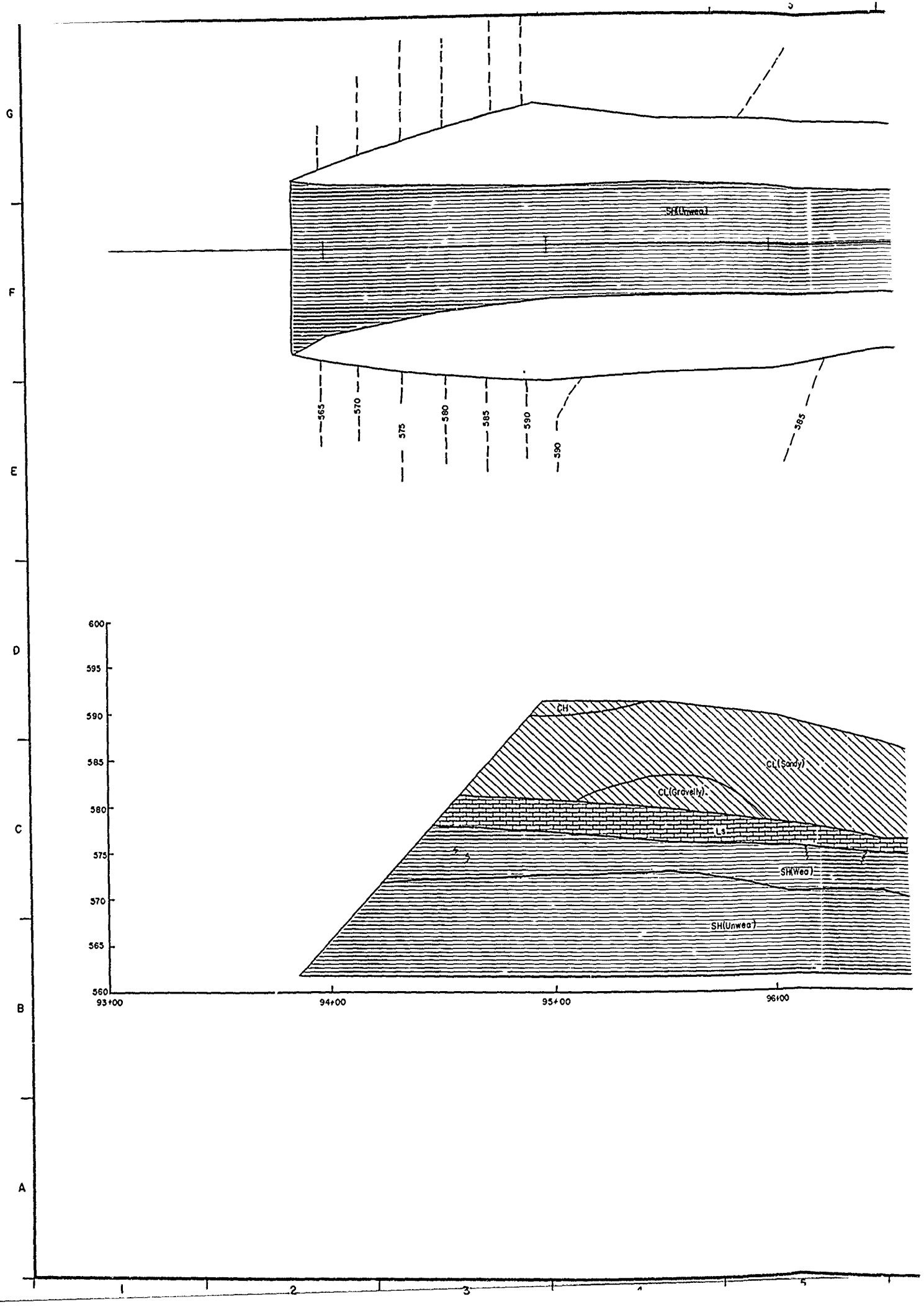


			U.S. ARMY ENGINEER DISTRICT, FORT WORTH CORPS OF ENGINEERS FORT WORTH, TEXAS
DESIGNED BY: H. BARNETT	RAY ROBERTS LAKE ELM FORK, TRINITY RIVER, TEXAS FOUNDATION REPORT INSPECTION TRENCH AS-BUILT PLAN AND PROFILE STA. 86+00 TO 93+00		
DRAWN BY: C. KIRBY			
REVIEWED BY: R. BEHM			
SUBMITTED BY: ROBERT C. BEHM ENGINEER:	SOL. NO.	DATED:	
	CONTR. NO.	SEQUENCE NO. 56	CONTR. NO.
	DRAWING NUMBER	SHEET NO. OF	

TO ACCOMPANY FOUNDATION REPORT


SH(Unwea)
565
570
575
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585
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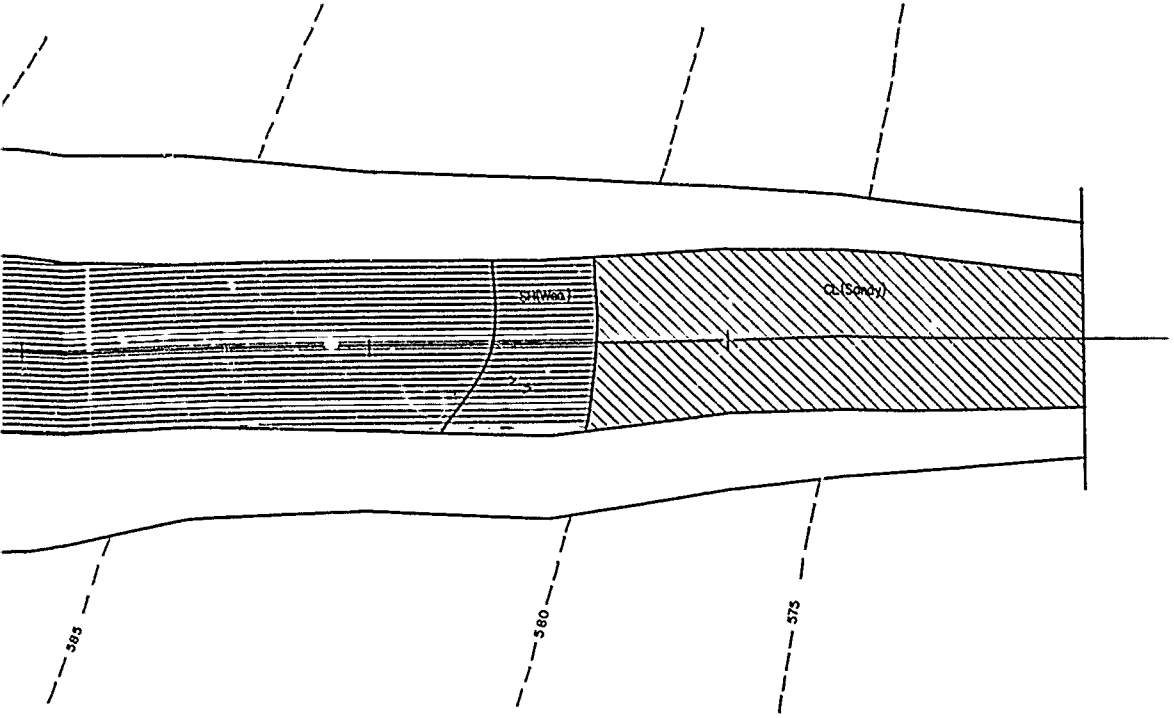
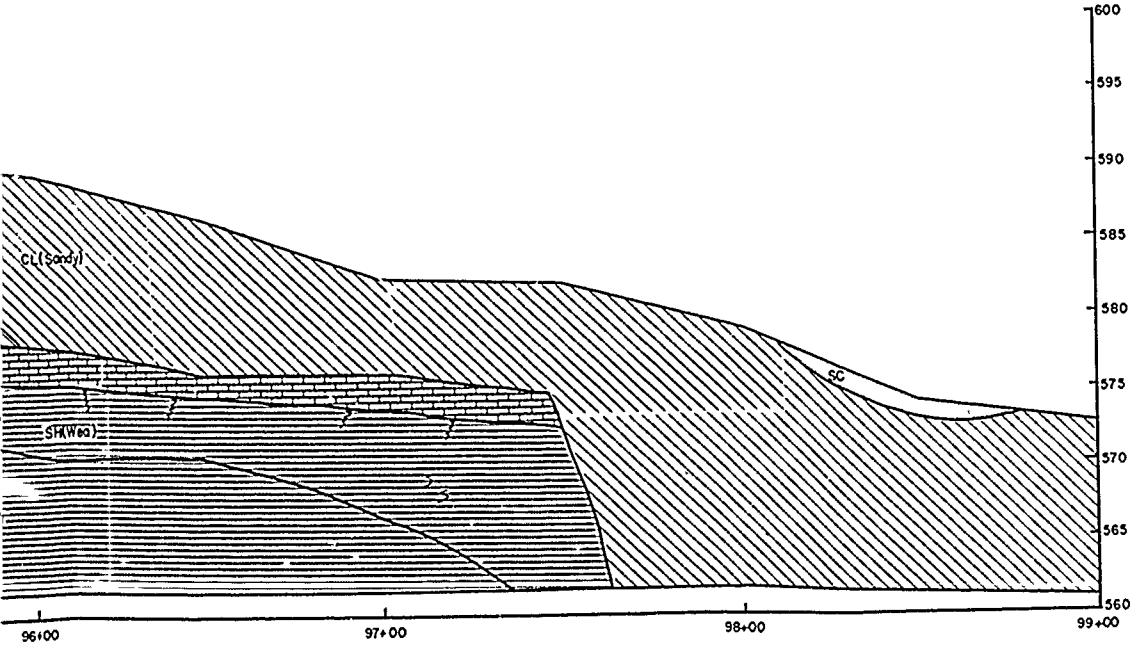
575
570
565
560
93+00
94+00
95+00
96+00
CH
CL(Sandy)
CL(Gravelly)
LS
SH(Wea)
SH(Unwea)





NO.	ACTION	DATE	DESCRIPTION OF REVISION

U.S. ARMY ENGINEER DISTRICT, FORT WORTH
CORPS OF ENGINEERS
FORT WORTH, TEXAS

DESIGNED BY: H.BARNETT
DRAWN BY: C.KIRBY
REVIEWED BY: R.BEHM

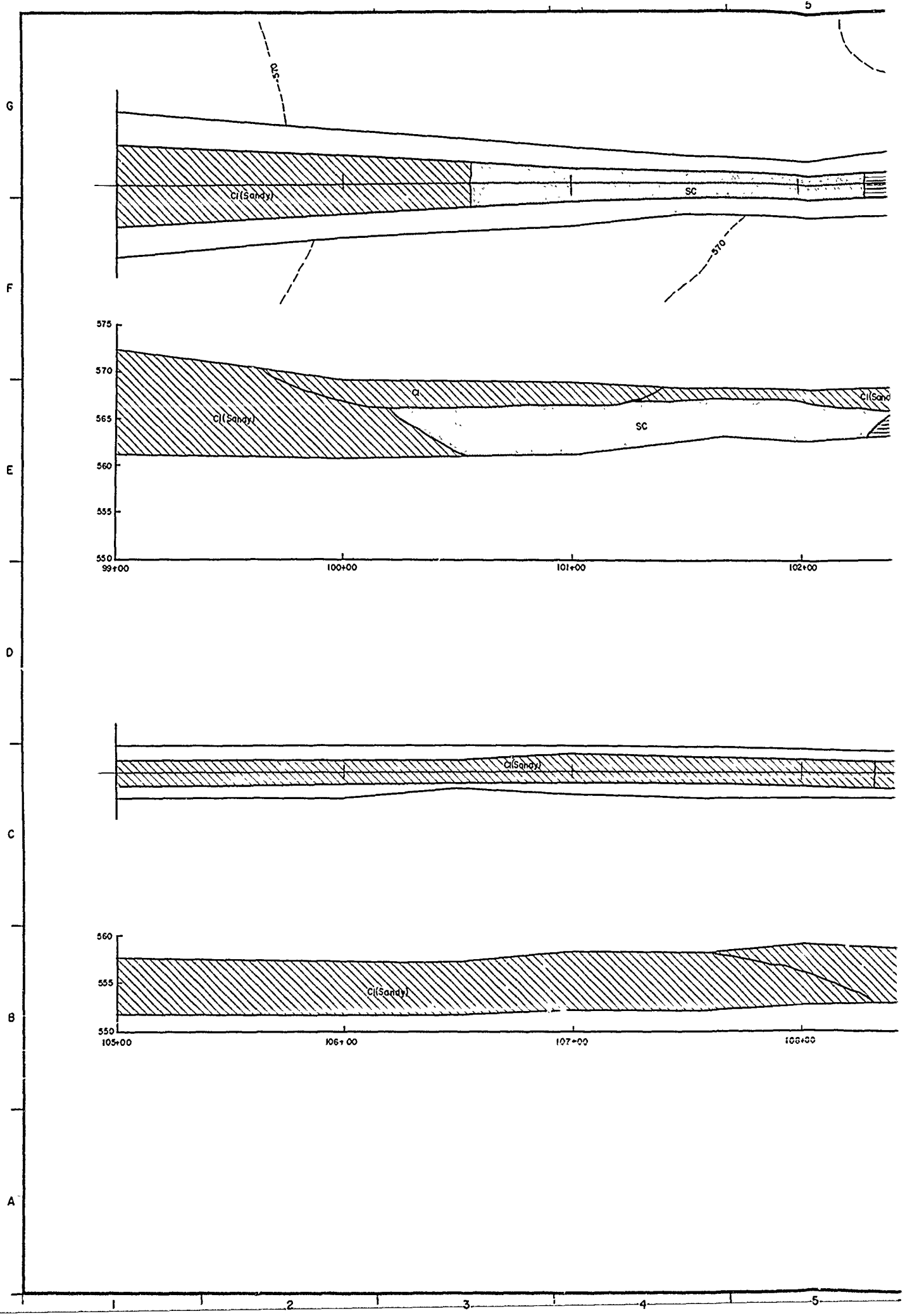
RAY ROBERTS LAKE
ELM FORK, TRINITY RIVER, TEXAS

FOUNDATION REPORT
INSPECTION TRENCH
AS-BUILT PLAN AND PROFILE
STA. 93 00 TO 99 00

SUBMITTED BY: ROBERT C. BEHM
ENGINEER:

SOL. NO. | DATED:
CONTR. NO.
DRAWING NUMBER | SHEET NO. OF
SEQUENCE NO. 57
CONTR. NO.

TO ACCOMPANY FOUNDATION REPORT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570
565
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555
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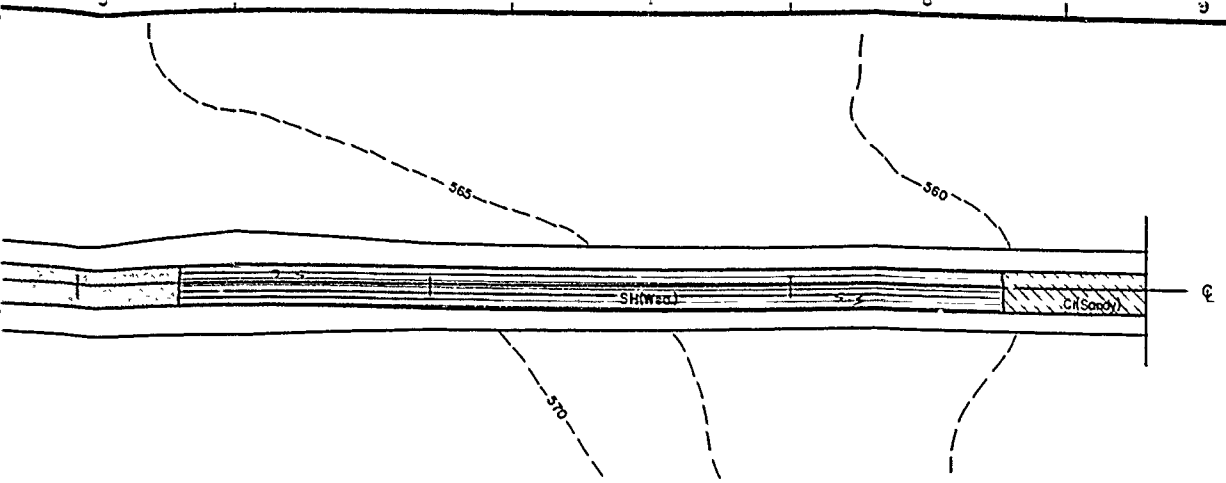
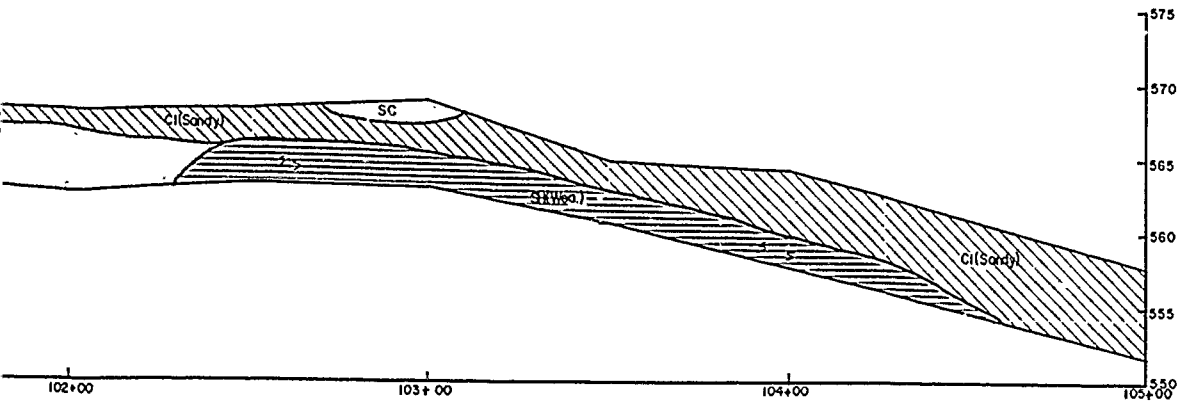
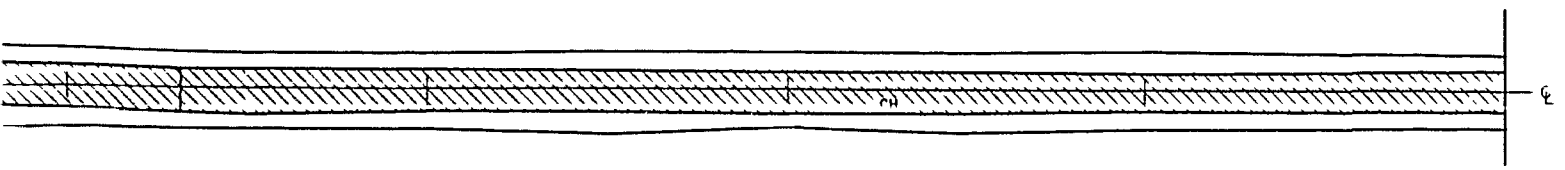
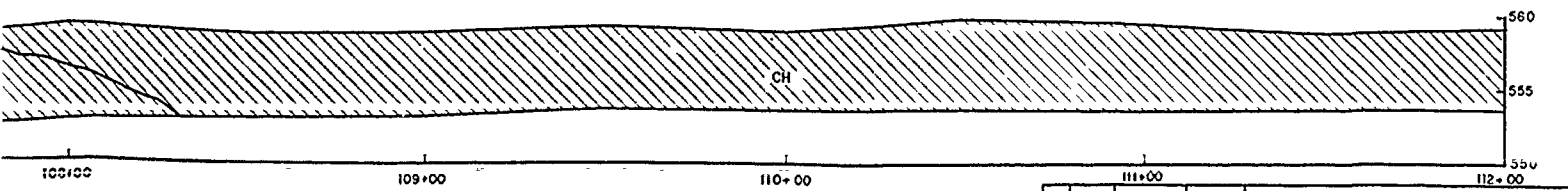
Cl(Sandy)
SC
Cl(Sandy)
Cl(Sandy)
99+00
100+00
101+00
102+00
560
555
550
Cl(Sandy)
105+00
106+00
107+00









REVISED NO.	ACTION	DATE	DESCRIPTION OF REVISION

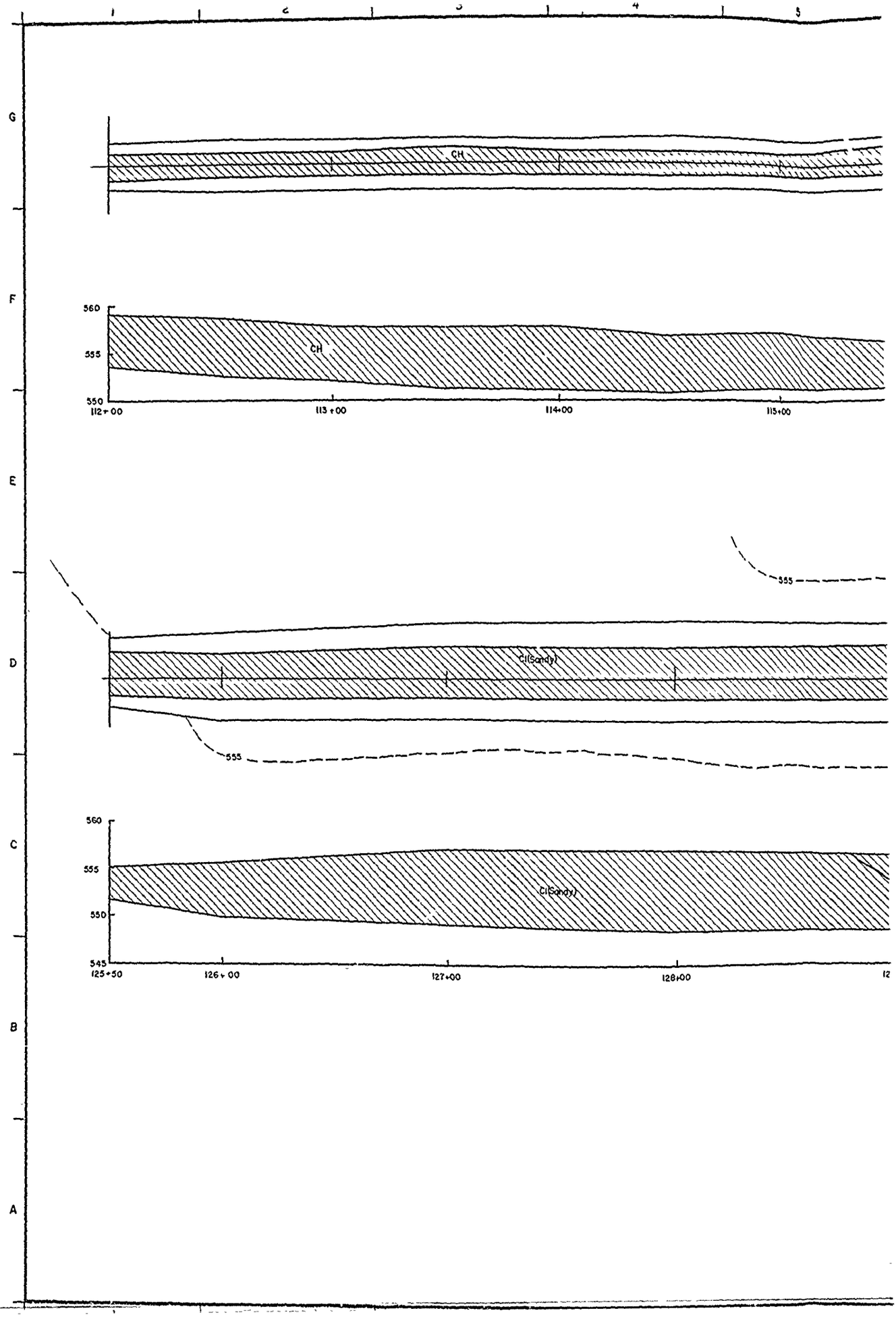
U.S. ARMY ENGINEER DISTRICT, FORT WORTH
CORPS OF ENGINEERS
FORT WORTH, TEXAS

DESIGNED BY: H.BARNETT
DRAWN BY: C.KIRBY
REVIEWED BY: R.BEHM
SUBMITTED BY: ROBERT C. BEHM
ENGINEER:

RAY ROBERTS LAKE
ELM FORK, TRINITY RIVER, TEXAS
FOUNDATION REPORT
INSPECTION TRENCH
AS-BUILT PLAN AND PROFILE
STA. 99+00 TO 112+00

SOL. NO. | DATED:
CONTR. NO
DRAWING NUMBER | SHEET NO.
SEQUENCE NO. 58
CONTR. NO.

TO ACCOMPANY FOUNDATION REPORT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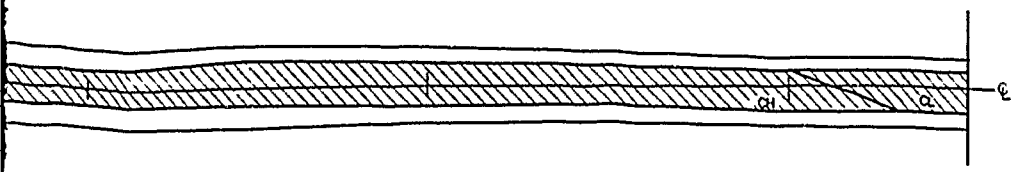
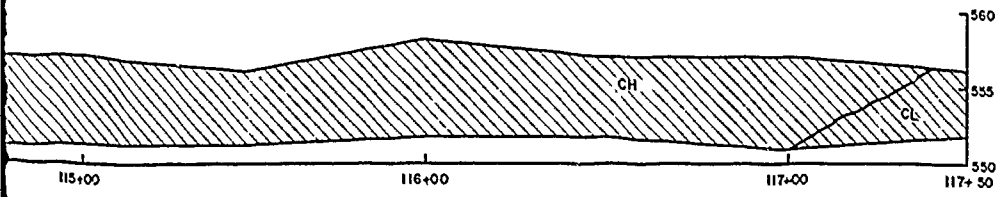
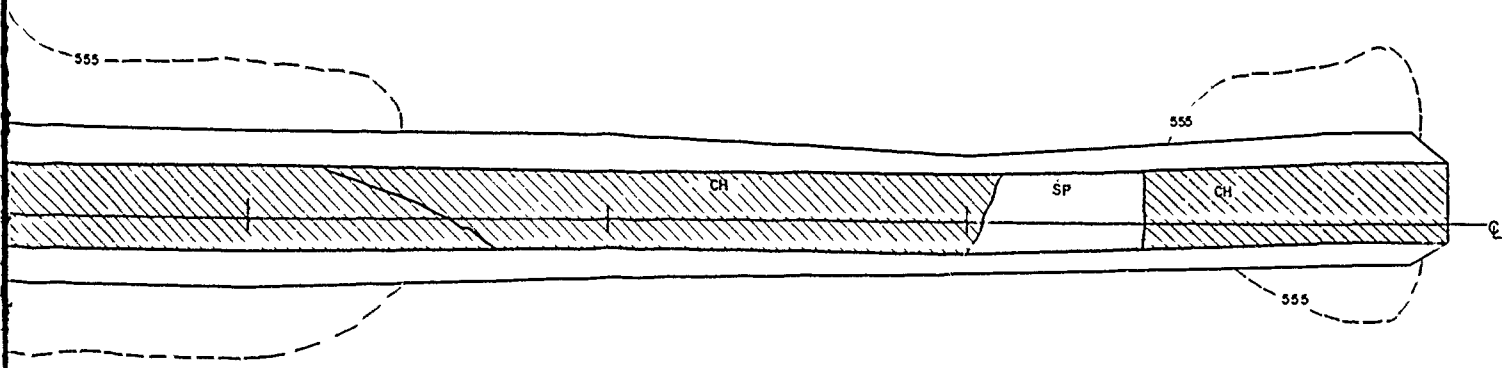
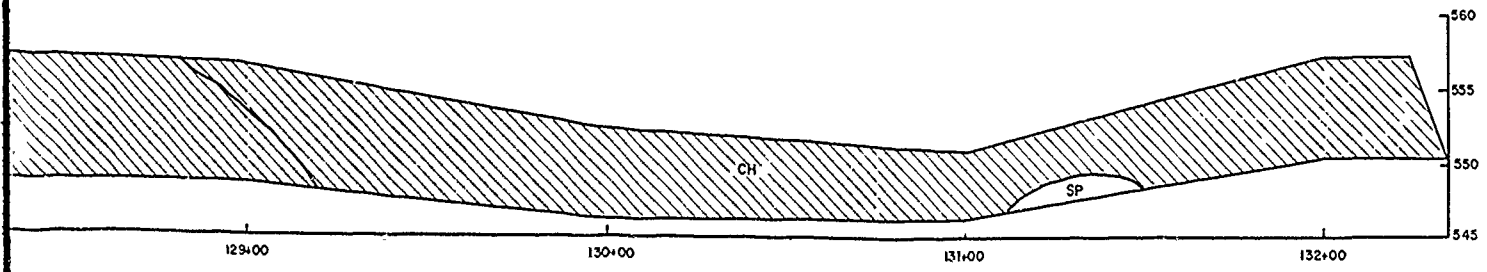
A
CH
560
555
550
112+00
113+00
114+00
115+00
555
Cl(Sandy)
555
560
555
550
545
125+50
126+00
127+00
128+00



NOTE
NO INSPECTION TRENCH WAS EXCAVATED BETWEEN STATIONS 117+50 AND 125+50

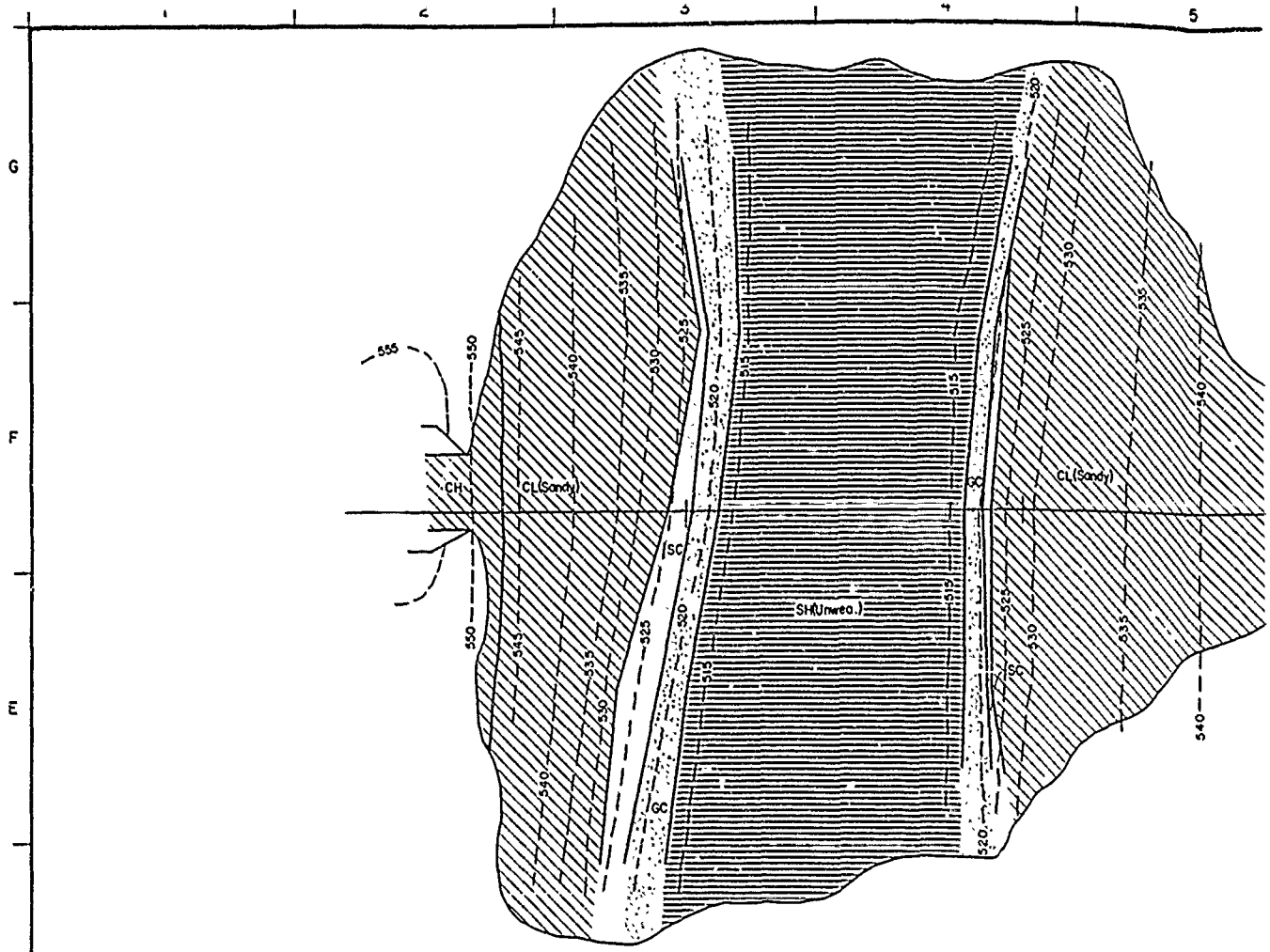






			U.S. ARMY ENGINEER DISTRICT, FORT WORTH CORPS OF ENGINEERS FORT WORTH, TEXAS
DESIGNED BY: H. BARNETT	RAY ROBERTS LAKE ELM FORK, TRINITY RIVER, TEXAS		
DRAWN BY: C. KIRBY	FOUNDATION REPORT		
REVIEWED BY: R. BEHM	INSPECTION TRENCH AS-BUILT PLAN AND PROFILE STA. 112+00 TO 117+50/125+50 TO 132+35		
SUBMITTED BY: ROBERT C. BEHM ENGINEER:	SOL. NO.	DATED:	SEQUENCE NO. 59
	CONTR. NO.		
	DRAWING NUMBER	SHEET NO. OF	

TO ACCOMPANY FOUNDATION REPORT


CH
CL(Sandy)
SC
GC
SH(Unwea.)
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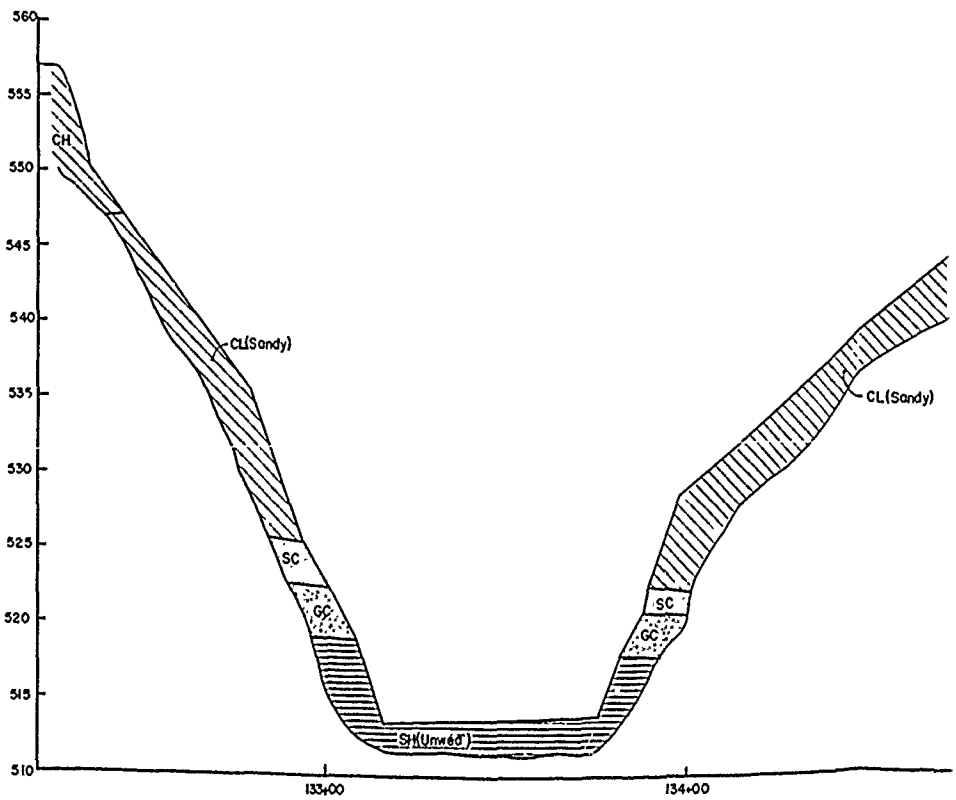
560
555
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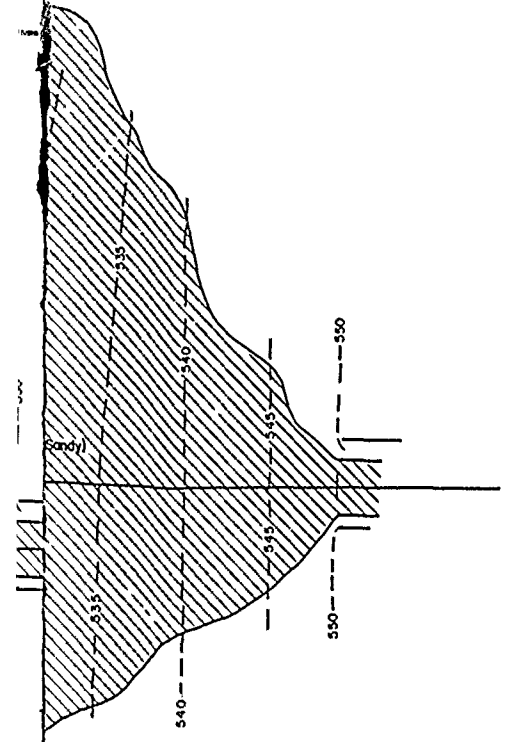
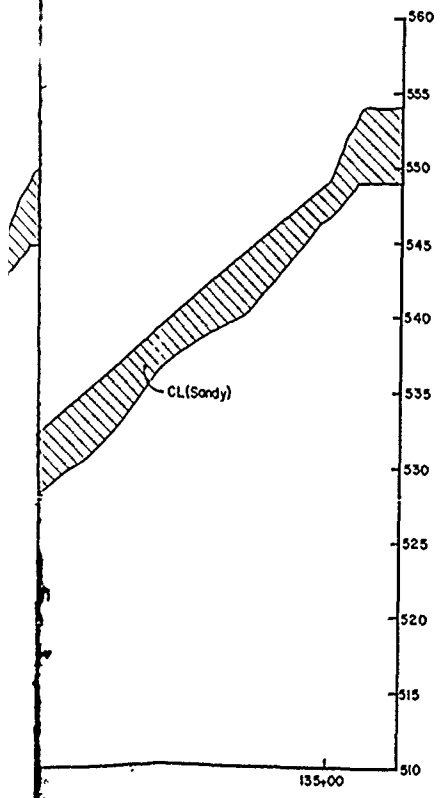
510
CH
CL(Sandy)
SC
GC
SH(Unwea.)
133+00
134+00





NO.	REVISION	DATE	DESCRIPTION OF REVISION

U.S. ARMY ENGINEER DISTRICT, FORT WO
CORPS OF ENGINEERS
FORT WORTH, TEXAS

DESIGNED BY: H.BARNETT
DRAWN BY: C.KIRBY
REVIEWED BY: R. BEHM

RAY ROBERTS LAKE
ELM FORK, TRINITY RIVER, TEXAS

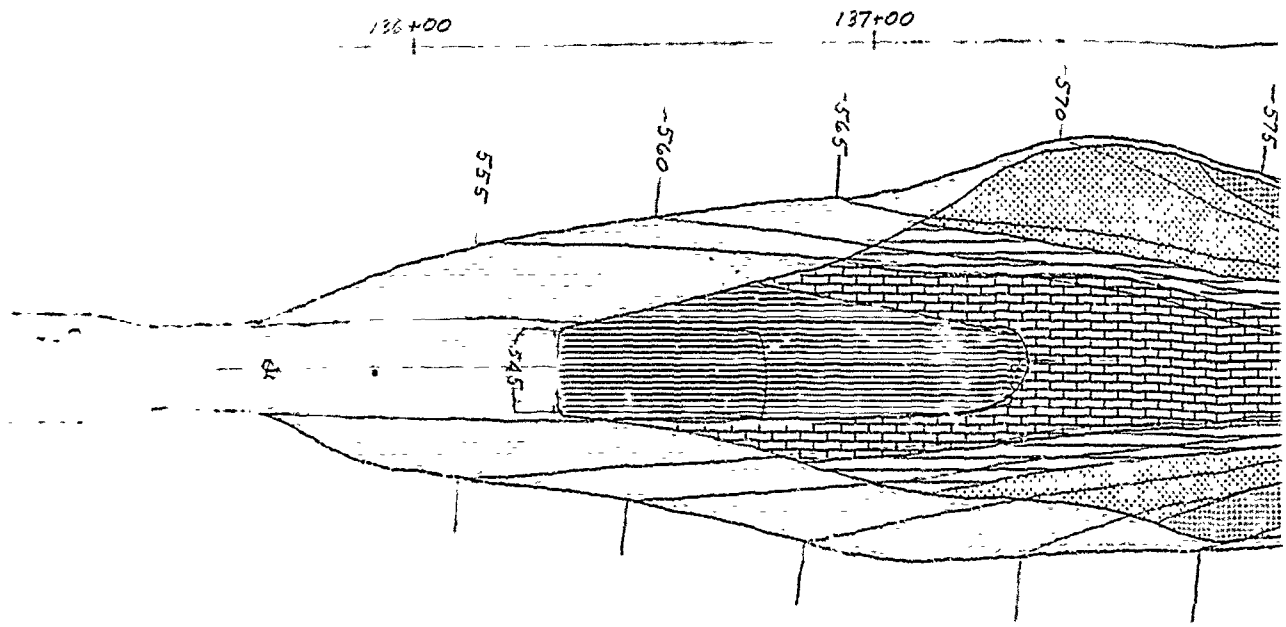
FOUNDATION REPORT
INSPECTION TRENCH
AS BUILT PLAN AND PROFILE
STA. 132+35 TO 135+20

SUBMITTED BY:
ROBERT C BEHM
ENGINEER:

SOL. NO.
DATED:
CONTR. NO.
DRAWING NUMBER
SHEET NO.
OF

5 6 7 8

TO ACCOMPANY FOUNDATION REPORT



OVERBURDEN

CLAY, v sandy, dry, lt gray mottled red-brn

SAND, silty, variably clayey, tan, fine. Scattered gravels, irregularly weakly cemented.

SAND, clayey, dense, rust. With gravel and cobble-sized sandstone fragments.

PRIMARY

SHALE, (Pawpaw) soft, moist, gray w/ rust stains along joint planes, mod-sl cemented.

LIMESTONE, (Main Street) hard, sl weathered, non-jointed.

MARL, (Grayson) soft-mod hard, moist, weathered, calc, massive, tan and lt gray, scatt stained joints.

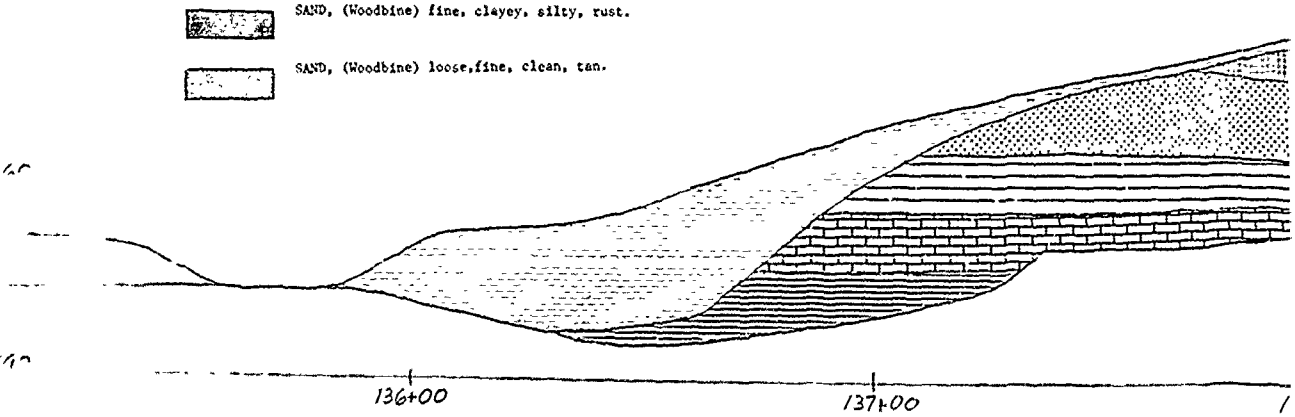
WEATHERED SANDSTONE, (Woodbine) Non-cemented sand and weakly cemented sandstone, oxide stained, lt gray and rust.

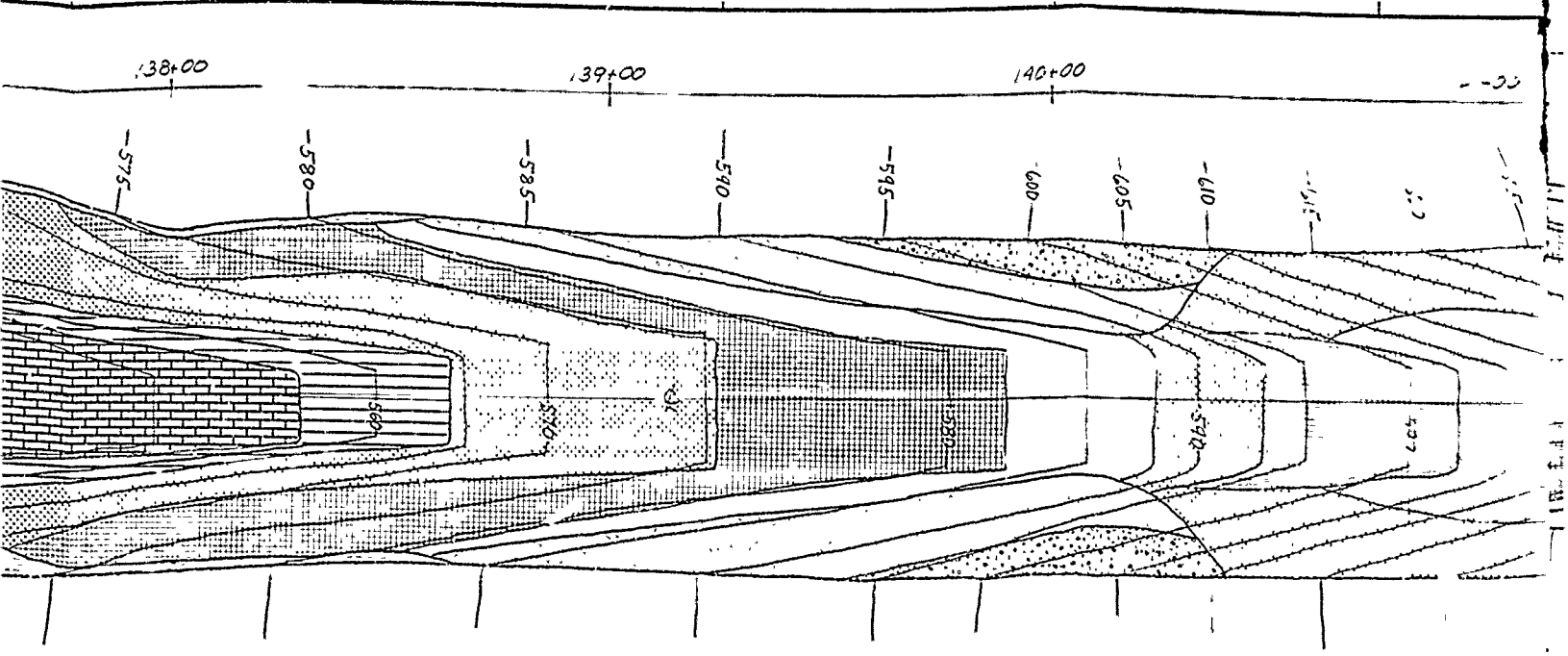
CLAY, (Woodbine) sandy, v stiff, dry, lt gray mottled rust, massive, contains plant frags.

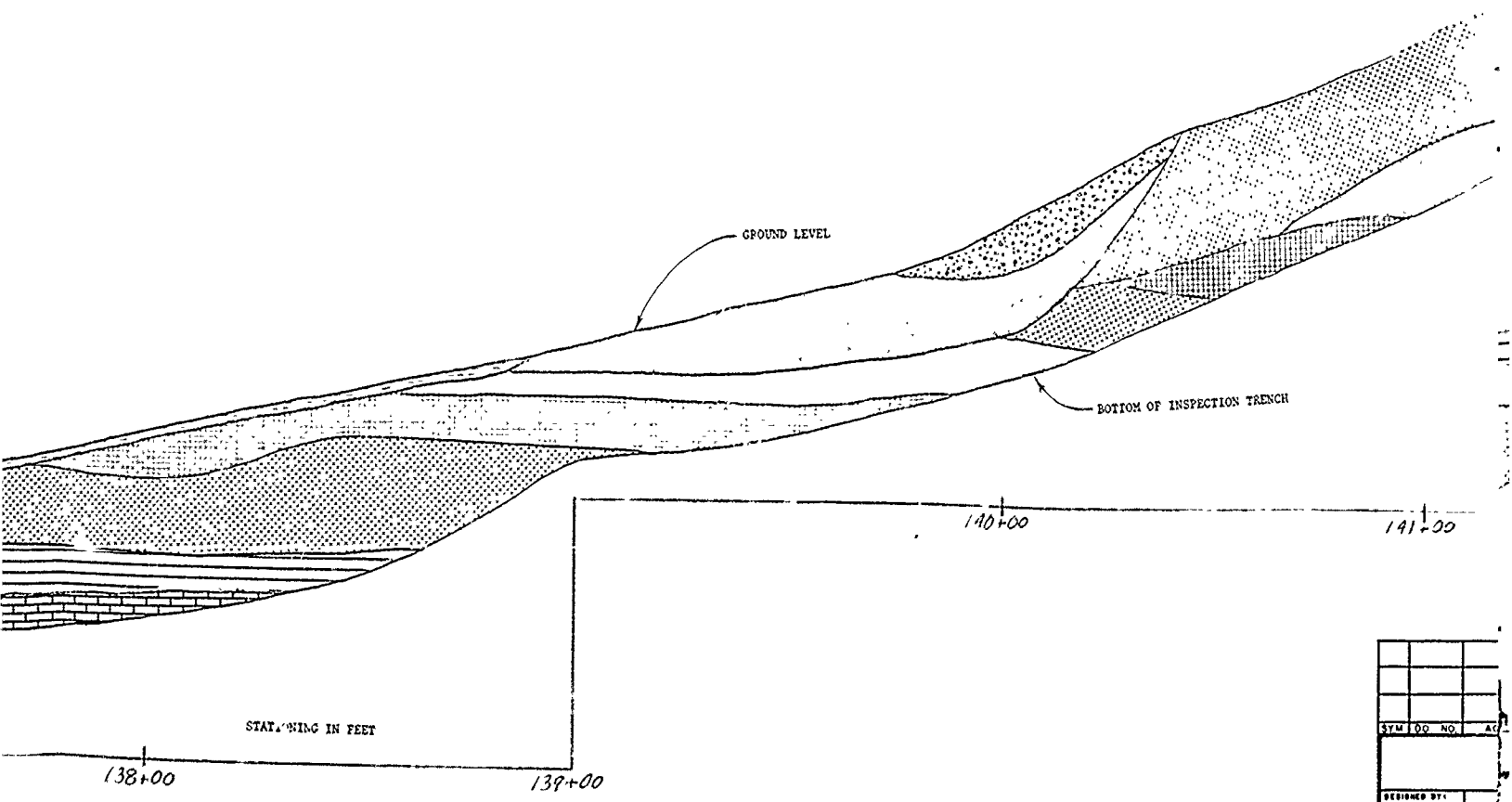
SAND, (Woodbine) fine, clayey, silty, rust.

SAND, (Woodbine) loose, fine, clean, tan.

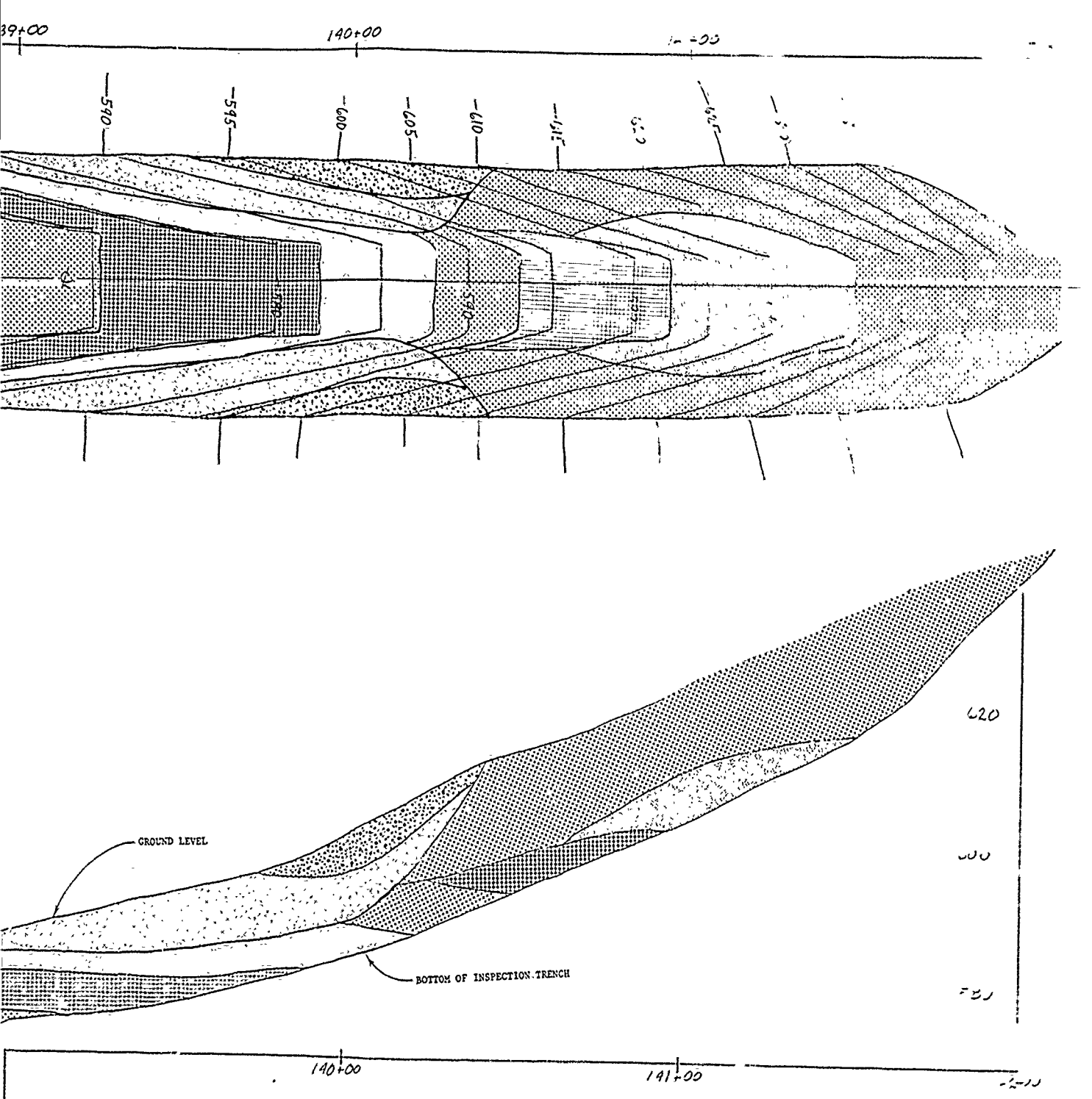
ELEVATION IN FEET







STM	OO	NO.	AC
DESIGNED BY: R.HAGEN			
DRAWN BY: R.HAGEN			
REVIEWED BY: R.HAGEN			



STM. DD NO.	ACTION	DATE	DESCRIPTION OF REVISION

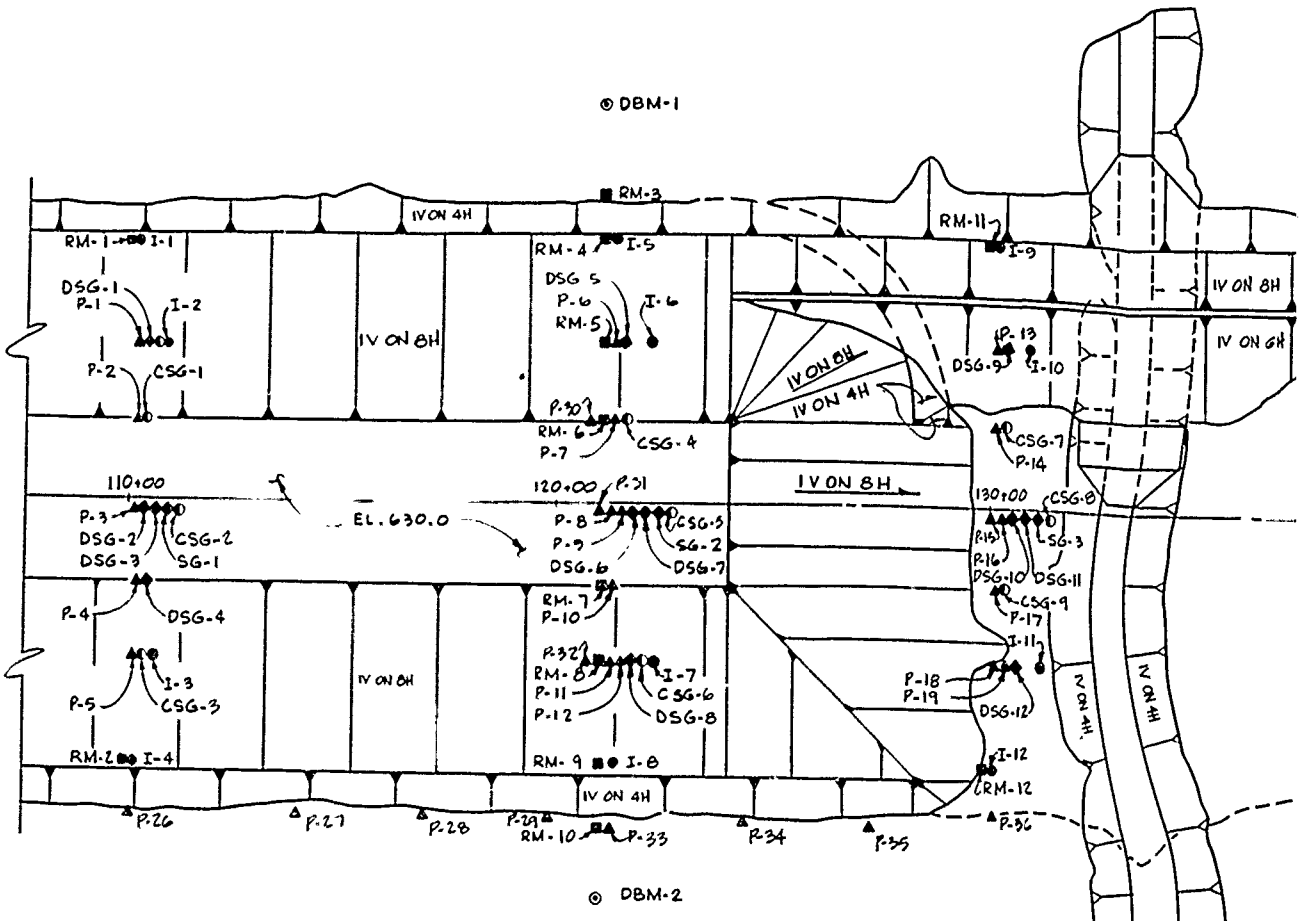
US ARMY ENGINEER DISTRICT, FORT WORTH
CORPS OF ENGINEERS
FORT WORTH, TEXAS

DESIGNED BY: R.HAGEN
DRAWN BY: R.HAGEN
REVIEWED BY: R.HAGEN

RAY ROBERTS LAKE
ELM FORK TRINITY RIVER, TEXAS

LEFT ABUTMENT INSPECTION TRENCH
GEOLOGIC PLAN AND PROFILE
STA. 135+00 TO STA. 142+00

SUBMITTED BY: ROBERT C. BEHM
INVITATION NO.
DATE:



PLAN OF INSTRUMENTATION

200 0 200 400

SCALE IN FEET

REFERENCE MARKS				
LINE	NO.	STATION	OFFSET	INSTALLATION SCHEDULE
A	RM-1	109+90.2	580.6 U/S	3
	RM-2	109+90.1	580.3 D/S	3
B	RM-3	120+89.4	679.6 U/S	1
	RM-4	120+90.5	579.1 U/S	3
	RM-5	120+90.7	350.8 U/S	3
	RM-6		U/S	3
	RM-7		D/S	3
	RM-8	120+90.3	351.1 D/S	3
	RM-9	120+79.6	580.2 D/S	3
	RM-10	120+78.3	679.8 D/S	1
C	RM-11		U/S	3
	RM-12		D/S	3

1

POROUS PLASTIC TIP PIEZOMETERS						
LINE	NO.	STATION	OFFSET	FILTER LOCATION	APPROX. FILTER EL. FT., MSL	INSTALLATION SCHEDULE
A	P-1	110+15	349' U/S	WK CL	534-539	1
	P-2	110+10	179' U/S	WK CL	529-534	1
	P-3	110+10	24' D/S	WK CL	524-529	1
	P-4	110+18	181' D/S	WK CL	525-530	1
	P-5	110+10	350' D/S	WK CL	526-531	1
B	P-6	121+10	350' U/S	WK CL	538-543	1
	P-7	121+11	180' U/S	WK CL	538-543	1
	P-8	121+01	24' D/S	WK CL	538-543	1
	P-9	121+10	24' D/S	SH	490-495	1
	P-10	121+10	180' D/S	WK CL	530-535	1
	P-11	121+20	350' D/S	WK CL	536-541	1
	P-12	121+10	350' U/S	SH	499-504	1
C	P-13	129+99	351' U/S	WK CL	533-538	2
	P-14A	130+11	112' U/S	WK CL	527-532	2
	P-15	130+00	24' D/S	WK CL	529-534	2
	P-16	130+10	24' D/S	SH	501-506	2
	P-17A	130+01	116' D/S	WK CL	526-531	2
	P-18	129+99	349' D/S	WK CL	529-534	2
	P-19	130+10	349' D/S	SH	499-504	2
SEEPAGE PIEZOMETERS	P-20	28+47	297' D/S	SD & GR	583-588	4
	P-21	32+48	299' D/S	SD & GR	581-586	4
	P-22	54+02	325' D/S	SD & GR	565-570	4
	P-23	63+00	327' D/S	SD & GR	565-570	4
	P-24	73+25	328' D/S	SD & GR	576-581	4
	P-25	85+07	320' D/S	SD & GR	576-581	4
	P-26	110+05	666' D/S	SD & GR	523-528	4
	P-27	114+00	678' D/S	SD & GR	521-526	4
	P-28	116+99	678' D/S	SD & GR	520-525	4
	P-29	119+99	678' D/S	SD & GR	518-523	4
	P-30	121+40	182' U/S	SD & GR	520-525	4
	P-31	120+40	26' D/S	SD & GR	513-518	4
	P-32	121+00	345' D/S	SD & GR	523-528	4
	P-33	121+09	677' D/S	SD & GR	518-523	4
	P-34	124+30	675' D/S	SD & GR	520-525	4
	P-35	127+29	672' D/S	SD & GR	521-526	4
	P-36	130+10	675' D/S	SD & GR	522-527	4

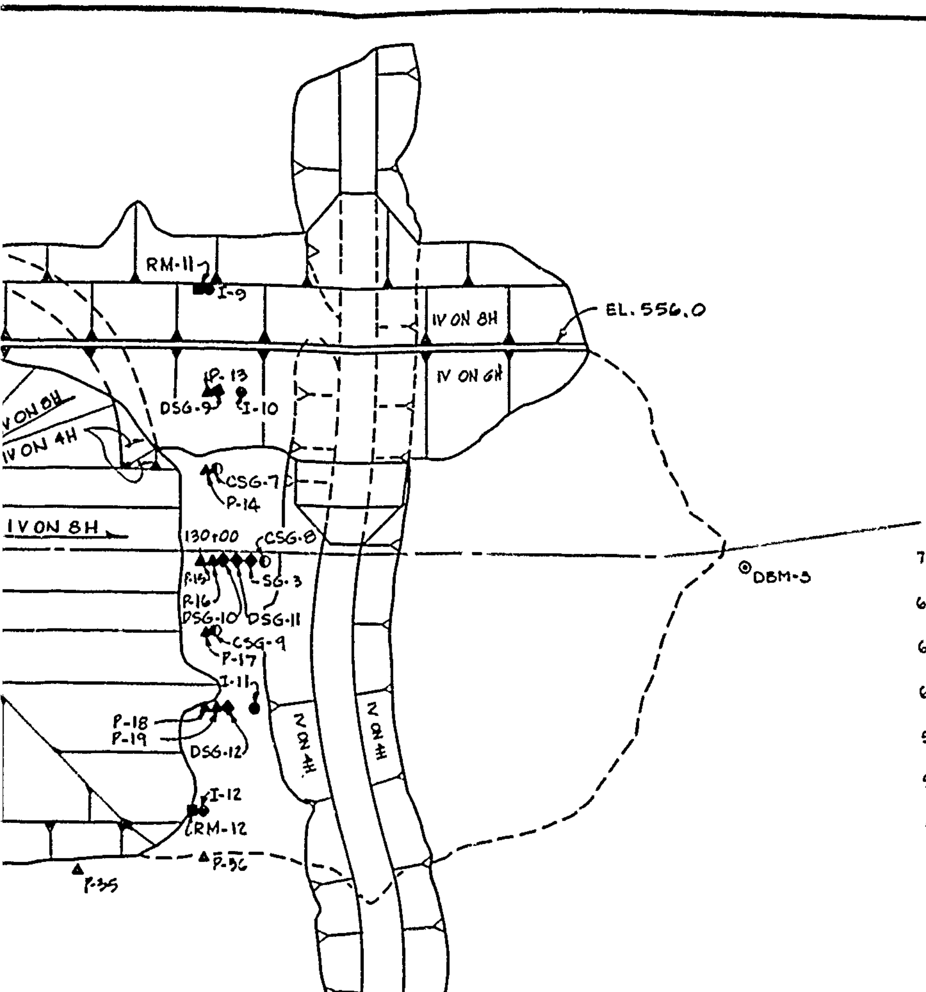
2

SETTLEME			
LINE	NO.	STATION	OFF
A	DSG-1	110+30	350
	DSG-2	110+20	24
	DSG-3	110+30	24
	SG-1	110+50	25
	DSG-4	110+20	350
B	DSG-5	121+20	350
	DSG-6	121+20	24
	DSG-7	121+40	24
	SG-2	121+31	25
	DSG-8	121+30	350
C	DSG-9	130+09	351
	DSG-10	130+19	24
	DSG-11	130+29	24
	SG-3	130+40	24
	DSG-12	130+19	350

4

POROUS PLASTIC TIP P				
LINE	NO.	STATION	OFFSET	L
SEEPAGE PIEZOMETERS	P-37	130+07	120' U/S	S
	P-38	137+62	104' U/S	
	P-39	137+59	361' D/S	
	P-39A	137+58	621' D/S	
	P-40	139+06	107' D/S	
	P-41	139+04	565' D/S	
	P-42	140+53	326' D/S	
	P-43A	141+41	92' D/S	
	P-43B	141+39	95' D/S	

3



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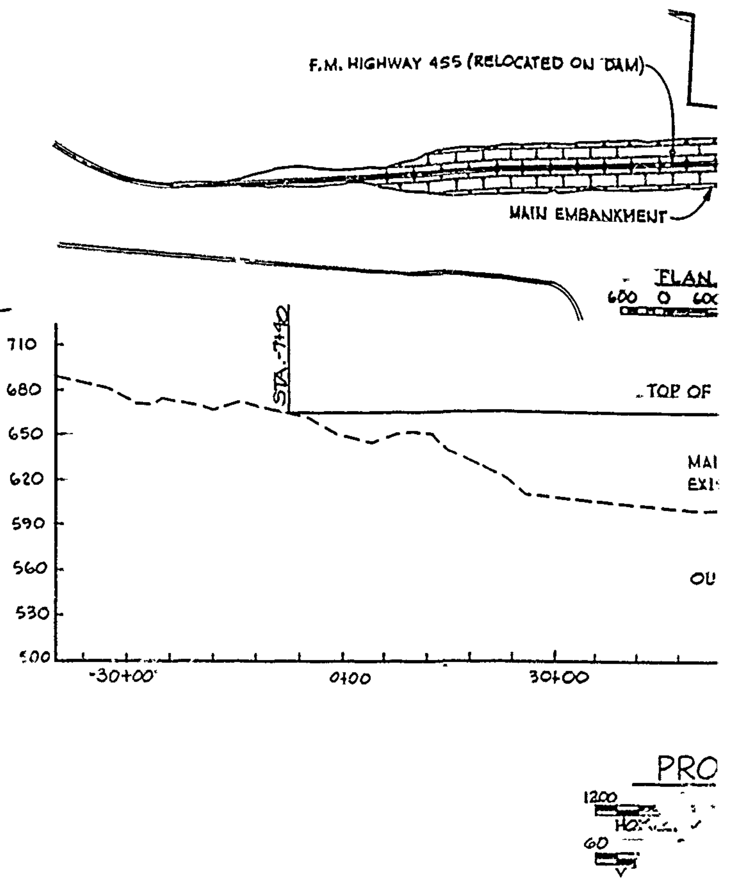


...ZOMETERS		
...TER ...TION	APPROX. FILTER EL. FT., MSL	INSTALLATION SCHEDULE
CI	534-539	1
CI	529-534	1
CI	524-529	1
CI	525-530	1
CI	526-531	1
CI	538-543	1
CI	538-543	1
CI	522-527	1
H	490-495	1
CI	530-535	1
CI	536-541	1
H	499-504	1
CI	533-538	2
CI	527-532	2
CI	529-534	2
H	501-506	2
CI	526-531	2
CL	524-529	2
H	499-504	2
GR	583-588	4
GR	581-586	4
GR	565-570	4
GR	565-570	4
GR	576-581	4
GR	576-581	4
GR	523-528	4
GR	521-526	4
GR	520-525	4
GR	518-523	4
GR	520-525	4
GR	513-518	4
GR	525-530	4
GR	518-523	4
GR	520-525	4
GR	521-525	4
GR	522-527	4

SETTLEMENT GAGES					
LINE	NO.	STATION	OFFSET	APPROX. PLATE EL	INSTALLATION SCHEDULE
A	DSG-1	110+30	350' U/S	536	1
	DSG-2	110+20	24' D/S	503	1
	DSG-3	110+30	24' D/S	526	1
	SG-1	110+50	25' D/S	560	1
	DSG-4	110+20	350' D/S	529	1
B	DSG-5	121+20	350' U/S	540	1
	DSG-6	121+20	24' D/S	525	1
	DSG-7	121+40	24' D/S	508	1
	SG-2	121+31	25' D/S	557	1
	[illegible]	121+30	350' D/S	540	1
C	DSG-9	130+09	351' U/S	536	2
	DSG-10	130+19	24' D/S	532	2
	DSG-11	130+29	24' D/S	516	2
	SG-3	130+40	24' U/S	558	2
	DSG-12	130+19	350' D/S	526	2

POROUS PLASTIC TIP PIEZOMETERS (CONT.)						
LINE	NO.	STATION	OFFSET	FILTER LOCATION	APPROX. FILTER EL. FT., MSL	INSTALLATION SCHEDULE
...EEPAGE PIEZOMETERS	P-14B	130+07	120' U/S	SD & CI		
	P-37	137+62	104' U/S	SD		
	P-38	137+59	361' D/S			
	P-39	137+58	621' D/S			
	P-40	139+06	107' D/S	SD & CI		
	P-41	139+04	565' D/S	SD		
	P-42	140+53	326' D/S	SD		
	P-43A	141+41	92' D/S	SD		
	P-43B	141+39	95' D/S	SD		

INCLINOMETERS					
LINE	NO	STATION	OFFSET	APPROX BOTTOM	INSTALLATION SCHEDULE
A	I-1	110+10	580' U/S	490	1
	I-2	110+30	350' U/S	490	1
	I-3	110+30	350' D/S	480	1
	I-4	110+20	580' D/S	488	1
B	I-5	121+10	580' U/S	500	1
	I-6	121+30	350' U/S	498	1
	I-7	121+50	350' D/S	494	1
	I-8	121+10	580' D/S	494	1
C	I-9	130+10	580' U/S	490	2
	I-10	130+30	350' U/S	496	2
	I-11	130+40	350' D/S	494	2
	I-12	130+10	580' D/S	494	2

COLLAPSIBLE SETTLEMENT GAGES					
LINE	NO.	STATION	OFFSET	APPROX. BOTTOM	INSTALLATION SCHEDULE
A	CSG-1	110+20	180' U/S	490	1
	CSG-2	110+50	24' U/S	480	1
	CSG-3	110+40	350' D/S	480	1
B	CSG-4	121+20	180' U/S	496	1
	CSG-5	121+60	24' D/S	486	1
	CSG-6	121+40	350' D/S	494	1
C	CSG-7	130+20	180' U/S	496	2
	CSG-8	130+60	24' D/S	486	2
	CSG-9	130+20	180' D/S	494	2

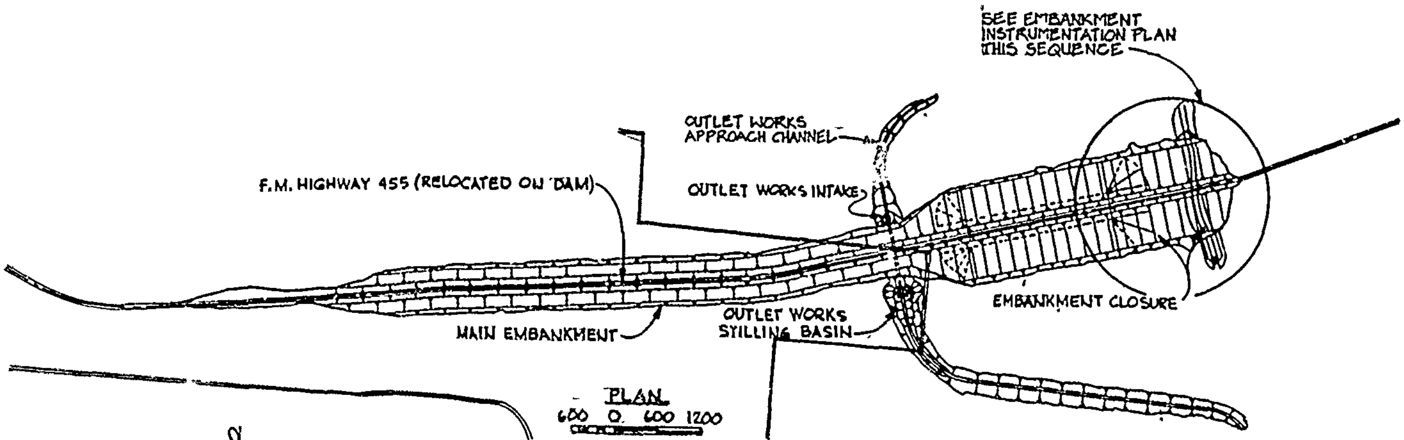
INSTALLATION SCHEDULE

1. AFTER STRIPPING STA...
2. AFTER STRIPPING STA...
3. AS EMBANKMENT REA... ELEVATION AT THIS ST... OFFSET (BEFORE TOP...
4. AFTER ENTIRE EMB... TOPPED-OUT

LEGEND

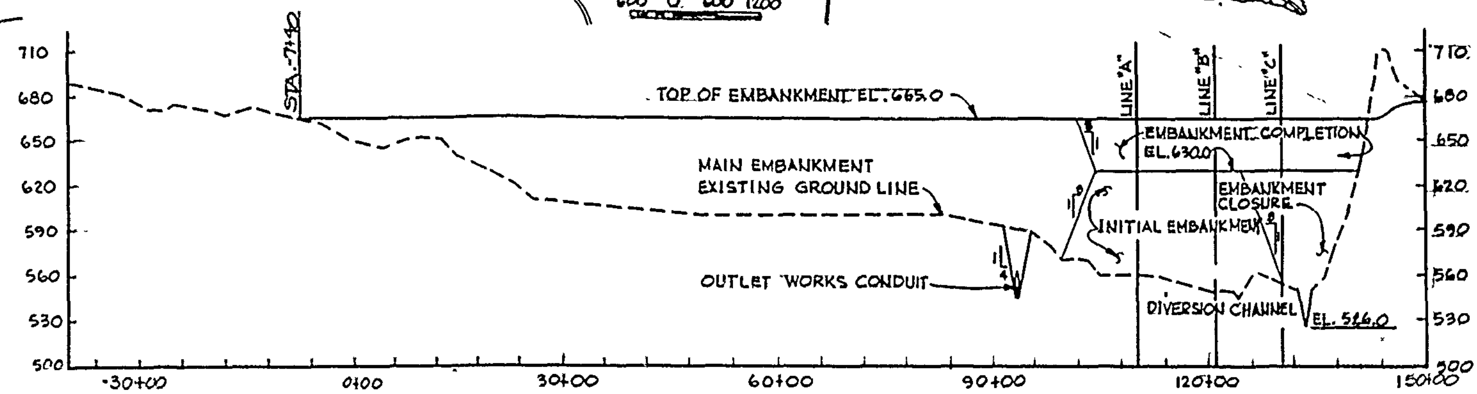
- ▲ PIEZOMETER
- ◆ SETTLEMENT GAGE
- ◐ COLLAPSIBLE SETTLE...
- ● INCLINOMETER
- ■ REFERENCE MARK
- ⊙ BENCHMARK

DEEP BENCHMARK				
LINE	NO.	STATION	OFFSET	APPR... BOTTO...
B	DBM-1	121+00	880' D/S	50...
B	DBM-2	121+00	880' D/S	49...
	DBM-3	143+00	50' D/S	65...



PLAN

600 0 600 1200



PROFILE

1200 0 1200 2400

HORIZ. SCALE IN FEET

60 0 60 120

VERT. SCALE IN FEET

NOTES:

1. FOR SECTION THRU LINE A, SEE SEQ. NO. 44 .
2. FOR SECTION THRU LINE B, SEE SEQ. NO. 45 .
3. FOR SECTION THRU LINE C, SEE SEQ. NO. 46 .
4. ALL INSTRUMENT ELEVATIONS ARE APPROXIMATE. ACTUAL ELEVATIONS WILL BE DETERMINED AT TIME OF INSTALLATION.
5. ALL INSTRUMENTATION WILL HAVE PROTECTIVE FENCE, EXCEPT THOSE ALONG THE DOWNSTREAM CREST. FOR PROTECTIVE FENCE DETAILS, SEE SEQ. 41 .

INCLINOMETERS

LINE	NO.	STATION	OFFSET	APPROX. BOTTOM	INSTALLATION SCHEDULE
A	I-1	110+10	580' U/S	490	1
	I-2	110+30	350' U/S	490	1
	I-3	110+30	350' D/S	480	1
	I-4	110+20	580' D/S	488	1
B	I-5	121+10	580' U/S	500	1
	I-6	121+30	350' U/S	498	1
	I-7	121+50	350' D/S	494	1
	I-8	121+10	580' D/S	494	1
C	I-9	130+10	580' U/S	490	2
	I-10	130+30	350' U/S	496	2
	I-11	130+40	350' D/S	494	2
	I-12	130+10	580' D/S	494	2

INSTALLATION SCHEDULE LEGEND

1. AFTER STRIPPING STAGE I
2. AFTER STRIPPING STAGE III C
3. AS EMBANKMENT REACHES FINISHED ELEVATION AT THIS STATION AND OFFSET (BEFORE TOPSOIL).
4. AFTER ENTIRE EMBANKMENT IS TOPPED-OUT

LEGEND

- ▲ PIEZOMETER
- ◆ SETTLEMENT GAGE
- ◐ COLLAPSIBLE SETTLEMENT GAGE
- ⊖ INCLINOMETER
- ■ REFERENCE MARK
- ⊙ BENCHMARK

COLLAPSIBLE SETTLEMENT GAGES

LINE	NO.	STATION	OFFSET	APPROX. BOTTOM	INSTALLATION SCHEDULE
A	CSG-1	110+20	180' U/S	490	1
	CSG-2	110+50	24' U/S	480	1
	CSG-3	110+40	350' D/S	480	1
B	CSG-4	121+20	180' U/S	496	1
	CSG-5	121+60	24' D/S	486	1
	CSG-6	121+40	350' D/S	494	1
C	CSG-7	130+20	180' U/S	496	2
	CSG-8	130+60	24' D/S	486	2
	CSG-9	130+20	180' D/S	494	2

DEEP BENCHMARK

LINE	NO.	STATION	OFFSET	APPROX. BOTTOM EL.	INSTALLATION SCHEDULE
B	DBM-1	121+00	850' D/S	500	1
B	DBM-2	121+00	880' D/S	490	1
	DBM-3	143+00	50' D/S	650	1

RECORD DRAWING-WORK AS-BUILT

SYM	DO. NO.	ACTION	DATE	DESCRIPTION OF REVISION
3	60182	60th P0006	30 MAR 84	REVISED TO REFLECT AS-BUILT CHANGES

U.S. ARMY ENGINEER DISTRICT, FORT WORTH
CORPS OF ENGINEERS
FORT WORTH, TEXAS

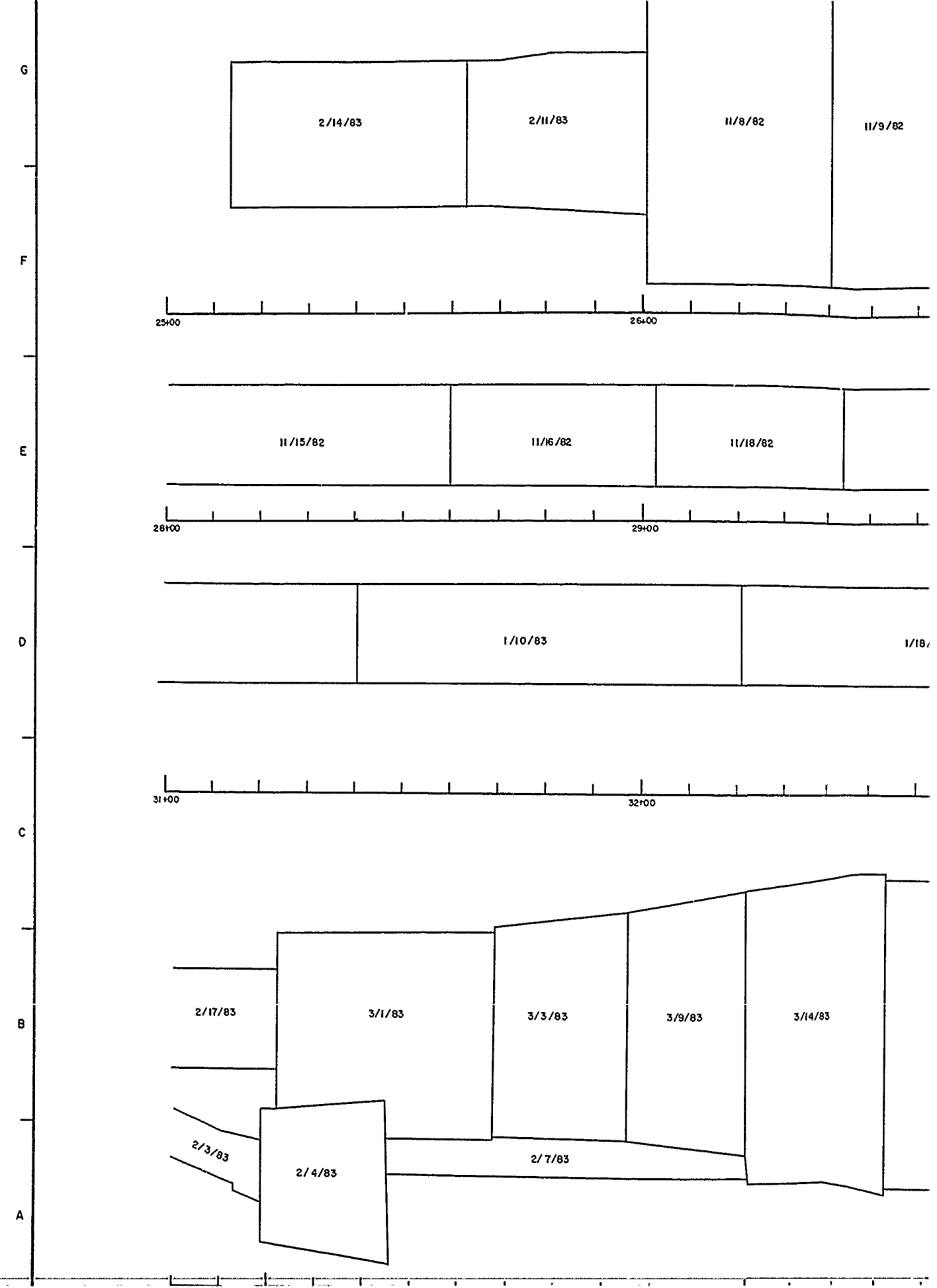
DESIGNED BY: A. BRANCH
DRAWN BY: J. FIESELER
REVIEWED BY: A. BRANCH
SUBMITTED BY: H. KARBS
ENGINEER

RAY ROBERTS LAKE
ELM FORK, TRINITY RIVER, TEXAS

EMBANKMENT
PLAN OF INSTRUMENTATION

INVITATION NO. DACW63-82-B-0025 DATE: MAR. 1982
CONTRACT NO. DACW63-82-C-0093
DRAWING NUMBER
SHEET NO. OF
SEQUENCE NO. 62

CONTRACT NO. DACW63-82-C-0093


G
F
E
D
C
B
A
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2/11/83
11/8/82
11/9/82
25+00
26+00
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11/16/82
11/18/82
28+00
29+00
1/10/83
31+00
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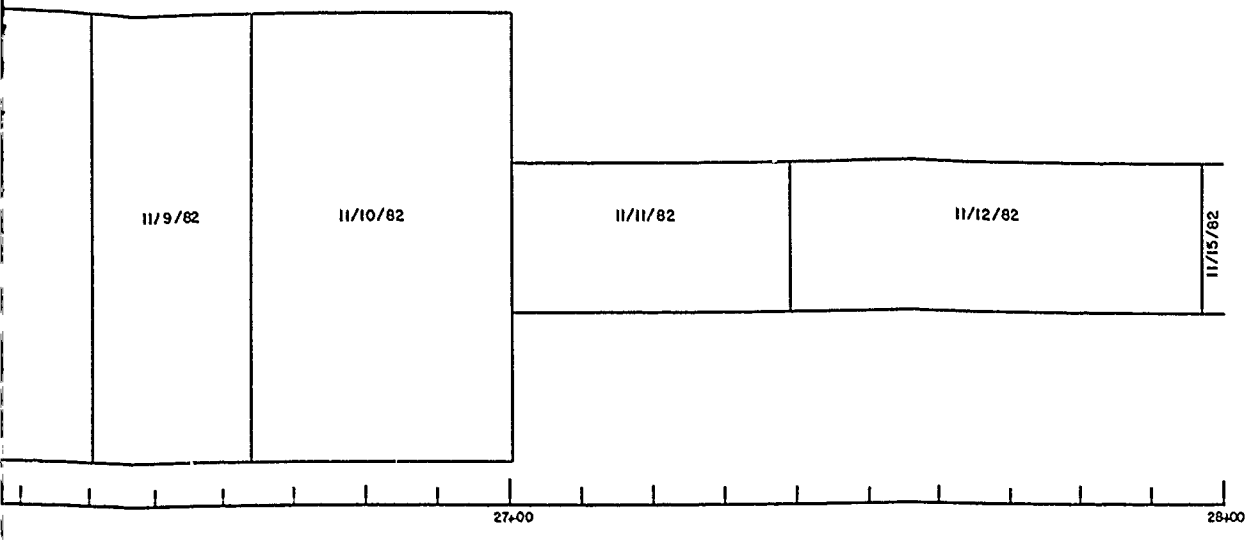
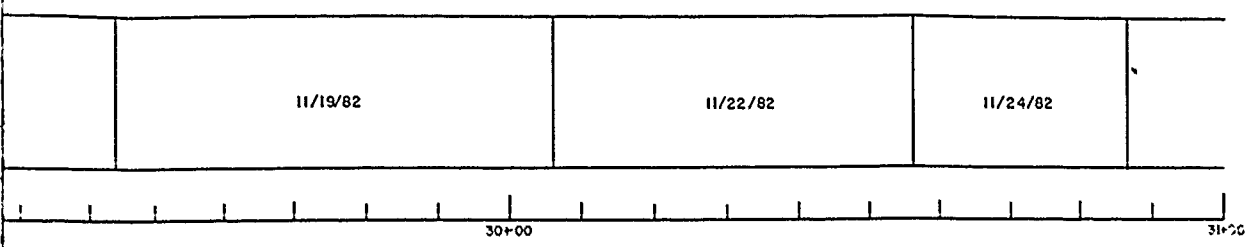
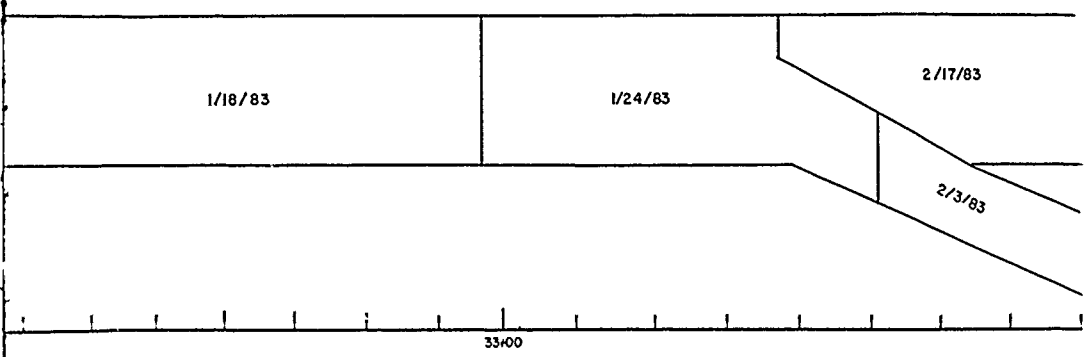
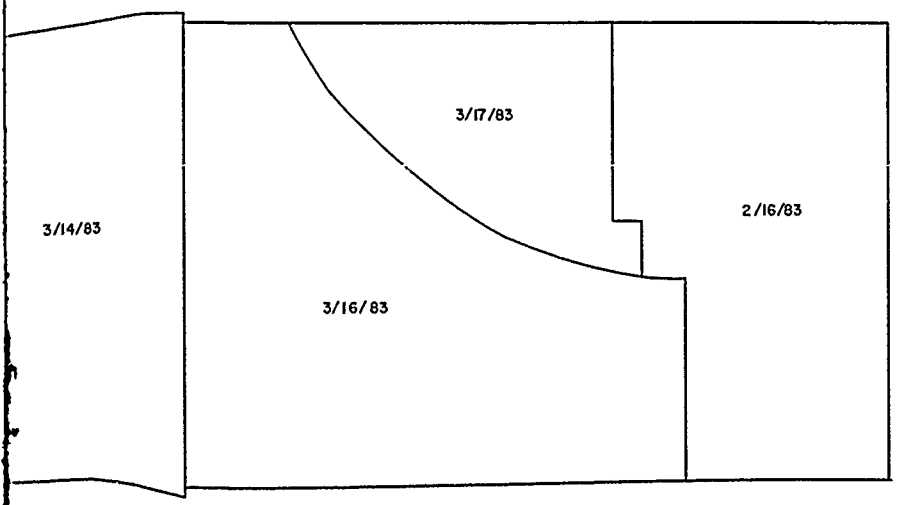
2/7/83









ITEM NO.	ACTION	DATE	DESCRIPTION OF REVISION

U.S. ARMY ENGINEER DISTRICT, FORT WORTH
CORPS OF ENGINEERS
FORT WORTH, TEXAS

DESIGNED BY: H.BARNETT
DRAWN BY: C.KIRBY
REVIEWED BY: R.BEHM

RAY ROBERTS LAKE
ELM FORK, TRINITY RIVER, TEXAS

FOUNDATION REPORT

RECORD OF FOUNDATION APPROVAL