

Southeast Louisiana Project
Jefferson Parish

Cousins Drainage Canal Improvements
(Bourgeois Lane to Cousins Pumping Station)

DESIGN REPORT

Contract No. DACW29-95-D-0007

Prepared for



U.S. Army Corps of Engineers
New Orleans District

Prepared by

BURK-KLEINPETER, INC.
Engineers, Architects, Planners, Environmental Scientists
4176 Canal Street, New Orleans, LA 70119

BKI 9515-04

August 1997

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Cousins Drainage Canal Improvements
(Bourgeois Lane to Cousins Pumping Station)

Design Report

Contract No. DACW29-95-D-0007

INTRODUCTION

The following report has been prepared as required by Paragraph 2e of Burk-Kleinpeter, Inc.'s scope of work for the above mentioned contract. This report has been prepared to explain the design plans pertaining to improving the Cousins Canal from Bourgeois Lane to Cousins Pumping Station as defined by the New Orleans District of the U. S. Army Corps of Engineers (COE). Based on the information presented by the Government (COE and the Jefferson Parish Department of Public Works) the design plans being developed will expand the existing canal through excavation and embankment.

GENERAL DESIGN PARAMETERS AND ASSUMPTIONS:

The following is a list of the general design parameters and assumptions used to develop the plans. Additional design parameters and assumptions necessary for a particular utility conflict will be provided under that section. These parameters were developed from the available information provided. Verification of the assumptions will be required under the preparation of the P&S as more information is gathered (i.e. Field Survey, Geotechnical Investigation, etc.).

Survey Data

- Survey data used to define existing topographic and cross sections were provided by the BFM Corporation field survey in June of 1997.
- Existing right-of-way widths and utilities are based on the Jefferson Parish GIS maps provided by the U. S. Army Corps of Engineers and the apparent property line provided by the BFM survey.

Hydraulics

- Flow rates, required cross sections, inverts, and construction slope were provided by the U. S. Army Corps of Engineers.¹
- Manning's roughness coefficient = 0.030 for all plans (grass maintained).
- Design water surface elevations are based on the 1981 Master Plan by URS Consultants (COE).

DESIGN PLANS

General

The COE has determined that the Cousins Canal shall be improved by an earthen alternative provided there is a sufficient right-of-way. Based on the GIS map, sight survey, and required sections it appears that there may be 3 right of way conflicts. The length of the project is approximately 6,555 linear feet (Bourgeois Lane to Cousins Pumping Station).

Utilities

Existing utilities in the project area include:

Water

Drain Lines

Sewer Force Main

Gas Lines

Telephone Lines

¹ Based on flow data provided by the COE and the recommended sections. See Attachment 2.

Bridge Crossings

There are several utilities within the limits of this project which may have to be relocated or cause a conflict during construction of these improvements:

Water

36" Water crossing at station 166+68.95 near the Lapalco Blvd box culverts. The abutments for this water crossing will need to be relocated in order to improve the flow and increase the canal width. In order to keep the water line in service BKI recommend constructing a new water crossing and then tying into the existing water line on both ends. Estimated construction cost \$75,000 for the relocation of this water line.

12" water crossing at the Woodmere Bridge Crossing . This water crossing falls within the no work zone at Woodmere Blvd.

Drain Lines

36" Drain Line under the abutments at the Woodmere bridge fall within the no work zone.

All other drain lines should be braced during the improvements and should remain in the same location after the canal has been improved.

Sewer Force Main

18" sewer force main parallel to Cousin Blvd on the south side that should not have any affect on the project. It will be noted on the plans for the contractor to take precautions during construction.

4" sewer force main crossing Cousins Canal at Woodmere Blvd is within the no work zone.

Gas Lines

6" L.G.S gas service line crossing Cousins Canal at Woodmere Blvd is within the no work zone.

Telephone Lines

Underground telephone lines at station 168+20 may need to be relocated in order to widen the canal. This utility belongs to South Central Bell and the estimated cost of relocation is \$19,000.

Bridge Crossings

Oakmere Drive

- Four 10'X10' box culverts no modifications needed.

Woodmere Blvd.

- Since the required flow could not be met through slope paving the COE has recommended that this area be listed as a no work zone.
- Jefferson Parish has plans on widening the Woodmere Blvd. Bridge by two spans on the south side and one span on the north side. This would provide Cousins Canal the needed right of way, for improvements, to reach the required design flows.

Lapalco Blvd.

- No work Zone

RIGHT OF WAY

- There appears to be three locations where right of way conflicts may occur.

- Station 121+00

At this location there is a slab located on the edge of the right of way. The required bottom width at this location is 5'. However, this would decrease the capacity of the existing canal. Both upstream and downstream have a sufficient right of way to increase the canal bottom width to 15'. At this location a 15' bottom width would reach the extents of the right of way leaving no room for maintenance. BKI recommends a bottom width of 10'. This would leave approximately 8' on the north side for Jefferson Parish Maintenance crews.

- Station 127+00

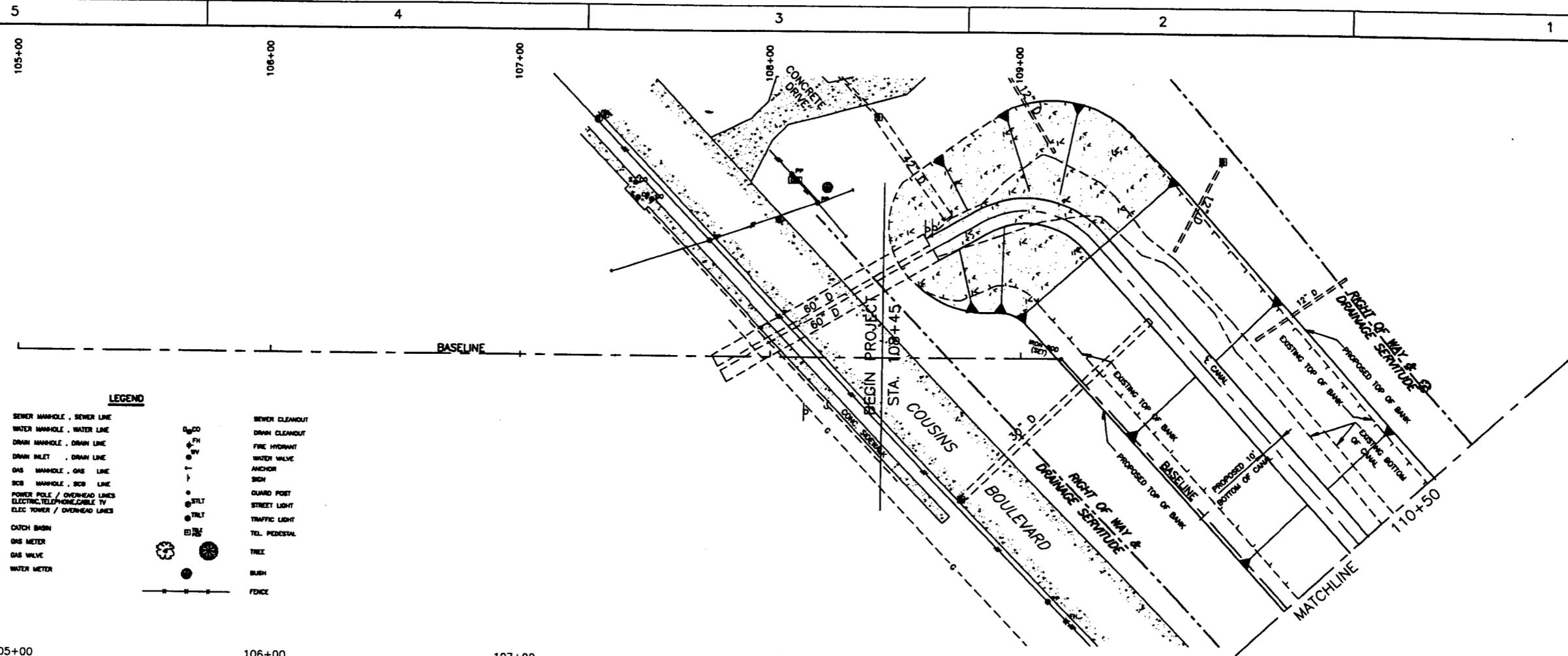
At this location a horse stable is encroaching upon the apparent right of way. This structure would have to be relocated for any widening to take place. BKI recommends that this structure be moved.

- Station 156+00

At this location the existing right of way is 88 feet. In order to maintain the required canal section, 100 feet is needed. This area is located east of the Woodmere Blvd. Bridge (area of no work). Jefferson Parish is planning on increasing the span length of the existing Woodmere Blvd. bridge in order to accommodate the required flows of the canal. At this location, the Parish will be required to purchase approximately 20 feet of right of way.

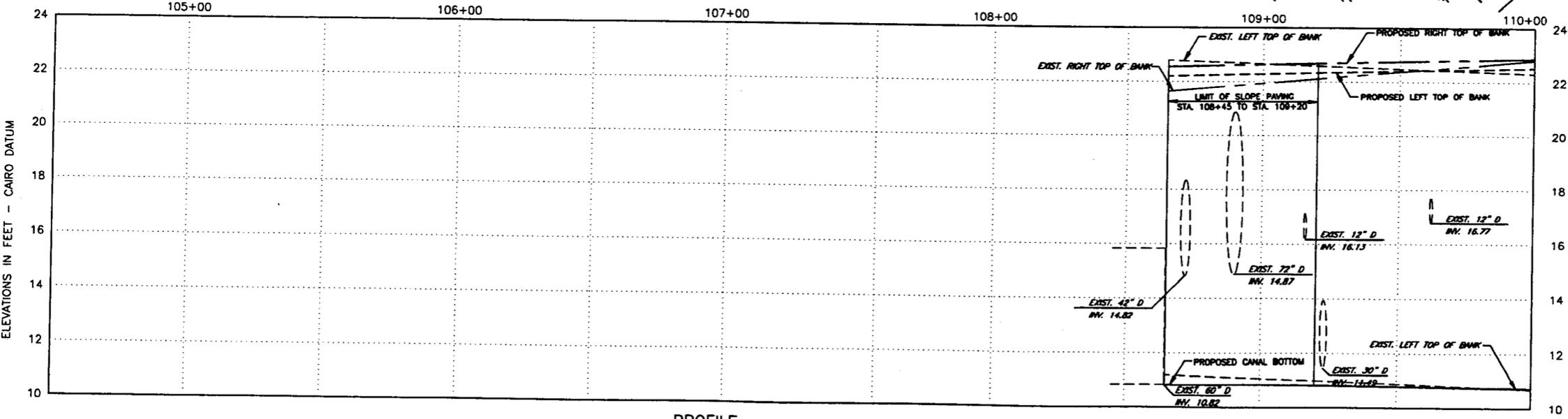
REPORT

PLATES

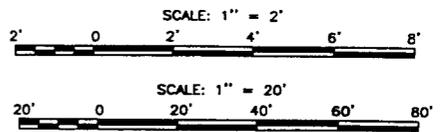


LEGEND

	SEWER MANHOLE, SEWER LINE		SEWER CLEANOUT
	WATER MANHOLE, WATER LINE		DRAIN CLEANOUT
	DRAIN MANHOLE, DRAIN LINE		FIRE HYDRANT
	DRAIN INLET, DRAIN LINE		WATER VALVE
	GAS MANHOLE, GAS LINE		ANCHOR
	SCS MANHOLE, SCS LINE		SIGN
	POWER POLE / OVERHEAD LINES		GUARD POST
	ELECTRIC, TELEPHONE, CABLE TV		STREET LIGHT
	ELECTRIC TOWER / OVERHEAD LINES		TRAFFIC LIGHT
	CATCH BASIN		TEL. PEDESTAL
	GAS METER		TREE
	GAS VALVE		BUSH
	WATER METER		FENCE



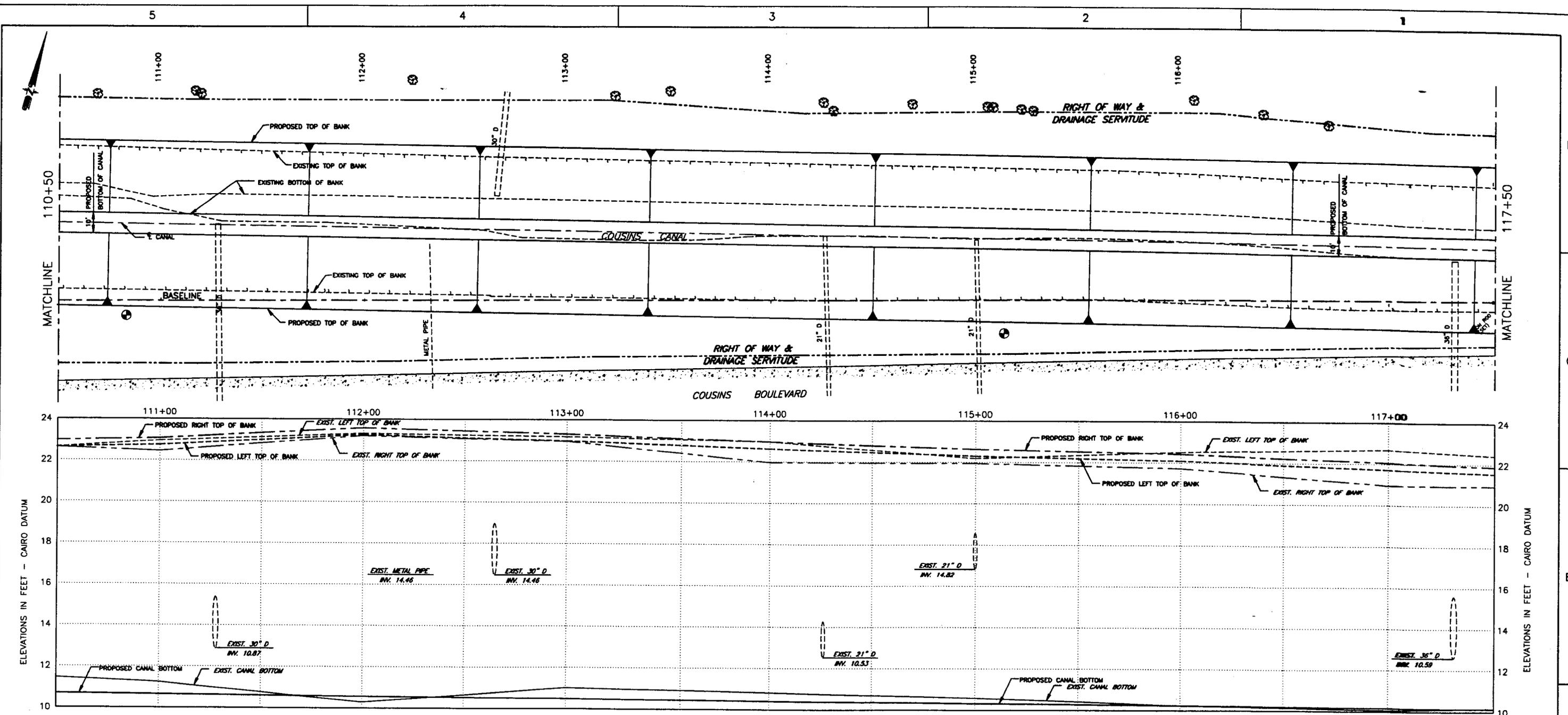
PROFILE
 SCALE: HOR. 1" = 20'-0"
 VERT. 1" = 2'-0"



SOUTHEAST LOUISIANA PROJECT
 JEFFERSON PARISH WEST BANK
 STA. 108+45 TO STA. 110+50
 COUSIN CANAL IMPROVEMENTS
DESIGN REPORT
 JEFFERSON PARISH, LA

JEFFERSON PARISH DEPARTMENT OF DRAINAGE	BURK-KLEINPETER, INC.
U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS CORPS OF ENGINEERS NEW ORLEANS, LOUISIANA	
DRAWN BY: C.A.D. CHECKED BY: T.B. DATE: JULY 1997	PLOT SCALE: 20:1 DWG. 1 OF 12 FILE NO. H-B-4489605

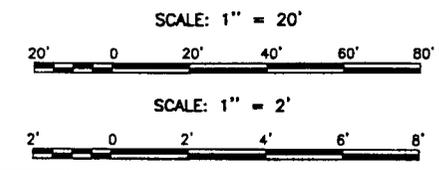




ELEVATIONS IN FEET - CAIRO DATUM

ELEVATIONS IN FEET - CAIRO DATUM

PROFILE
 SCALE: HOR. 1" = 20'-0"
 VERT. 1" = 2'-0"



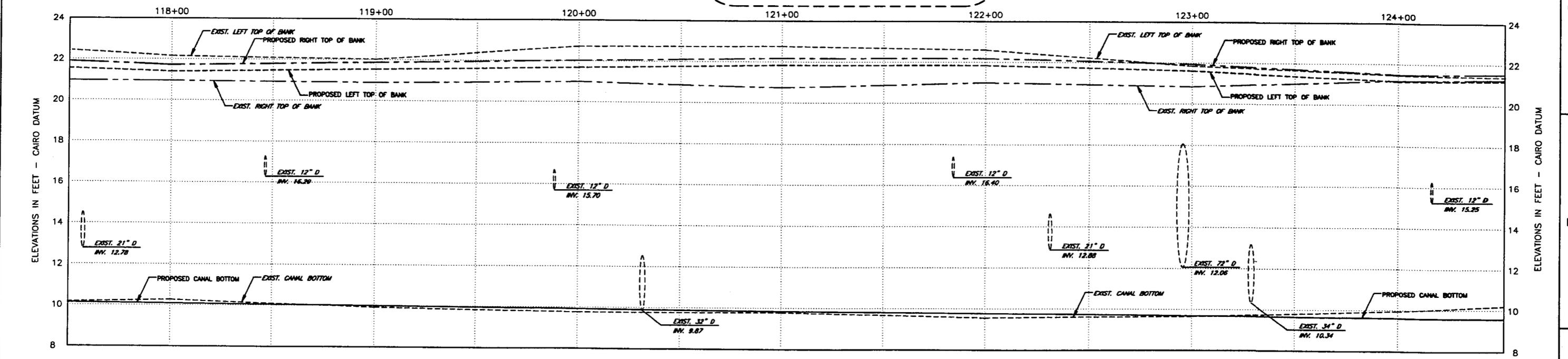
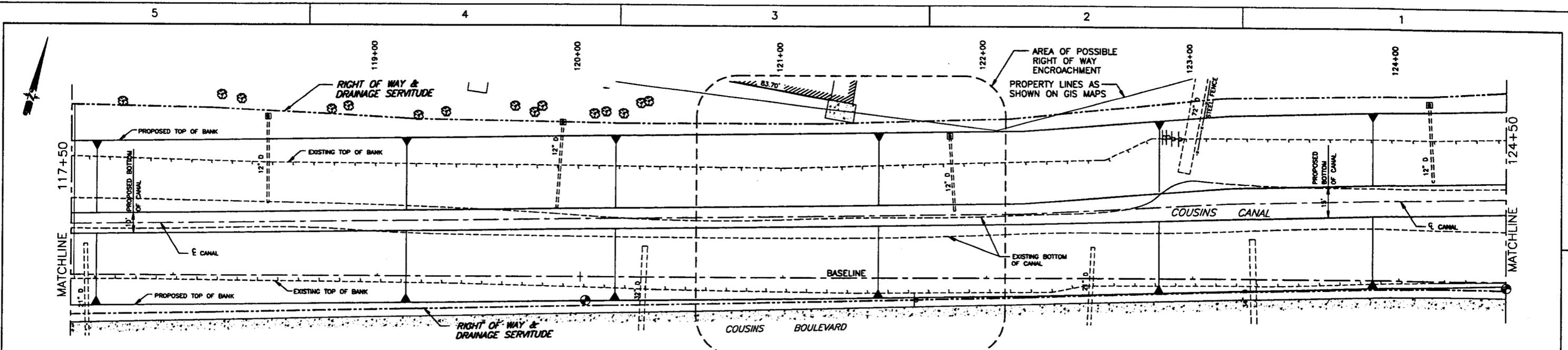
JEFFERSON PARISH WEST BANK
 STA. 110+50 TO STA. 117+50
 COUSIN CANAL IMPROVEMENTS
DESIGN REPORT
 JEFFERSON PARISH, LA

JEFFERSON PARISH DEPARTMENT OF DRAINAGE BURK-KLEINPETER, INC.

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

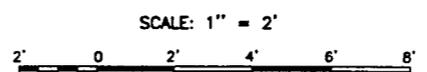
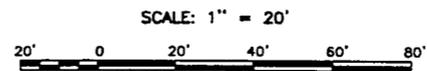
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 CHECKED BY: T.B. DATE: 2 OF 12 FILE NO.
 DATE: JULY 1997 H-8-4489605

⊕ LOCATION OF SOIL BORING



⊙ LOCATION OF SOIL BORING

PROFILE
 SCALE: HOR. 1" = 20'-0"
 VERT. 1" = 2'-0"



SOUTHEAST LOUISIANA PROJECT JEFFERSON PARISH WEST BANK STA. 117+50 TO STA. 124+50 COUSIN CANAL IMPROVEMENTS DESIGN REPORT JEFFERSON PARISH, LA		
JEFFERSON PARISH DEPARTMENT OF DRAINAGE	BURK-KLEINPETER, INC.	
U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS CORPS OF ENGINEERS NEW ORLEANS, LOUISIANA		
DRAWN BY: G.A.D. CHECKED BY: T.B. DATE: JULY 1997	PLOT SCALE: 20:1 DWG. 3 OF 12	CADD FILE: DSN5.DGN FILE NO. H-8-4489605

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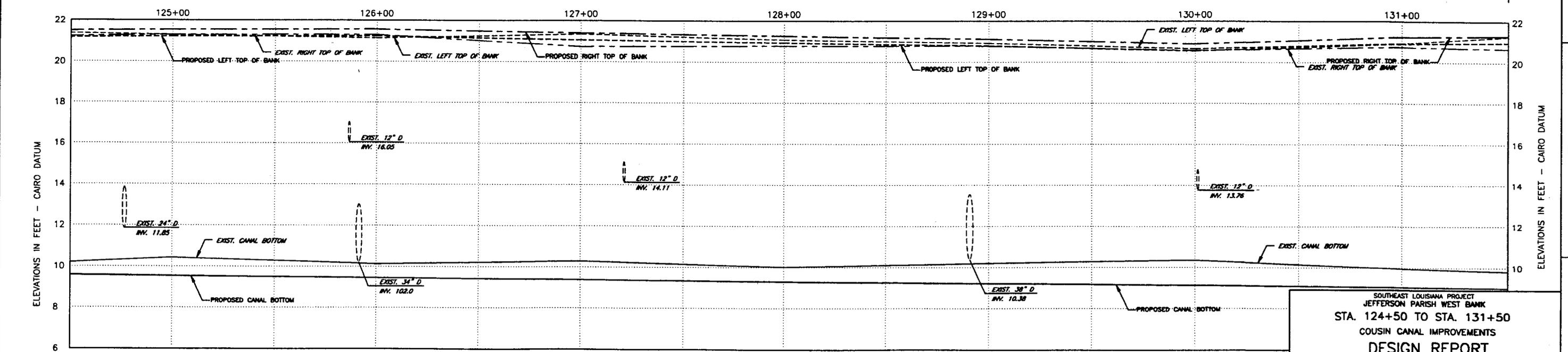
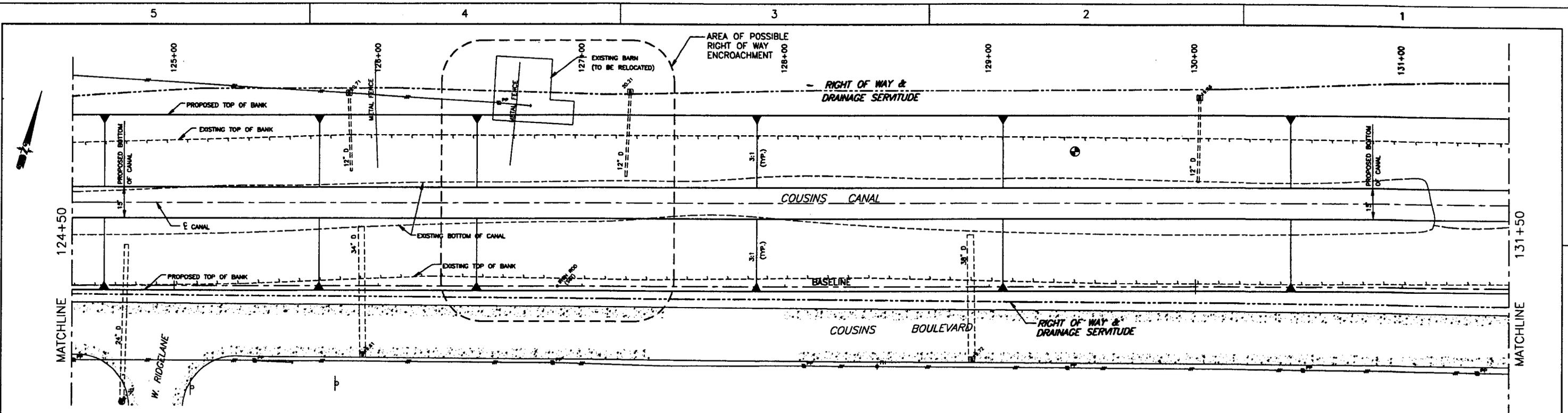
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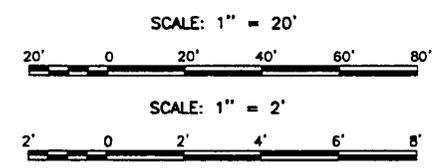
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⊕ LOCATION OF SOIL BORING

PROFILE
 SCALE: HOR. 1" = 20'-0"
 VERT. 1" = 2'-0"



SOUTHEAST LOUISIANA PROJECT
 JEFFERSON PARISH WEST BANK
 STA. 124+50 TO STA. 131+50
 COUSIN CANAL IMPROVEMENTS
DESIGN REPORT
 JEFFERSON PARISH, LA

JEFFERSON PARISH DEPARTMENT OF DRAINAGE	BURK-KLEINPETER, INC.
U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS CORPS OF ENGINEERS NEW ORLEANS, LOUISIANA	
DRAWN BY: B.L. CHECKED BY: T.B. DATE: JULY 1997	PLOT SCALE: 20:1 DWG. 4 OF 12
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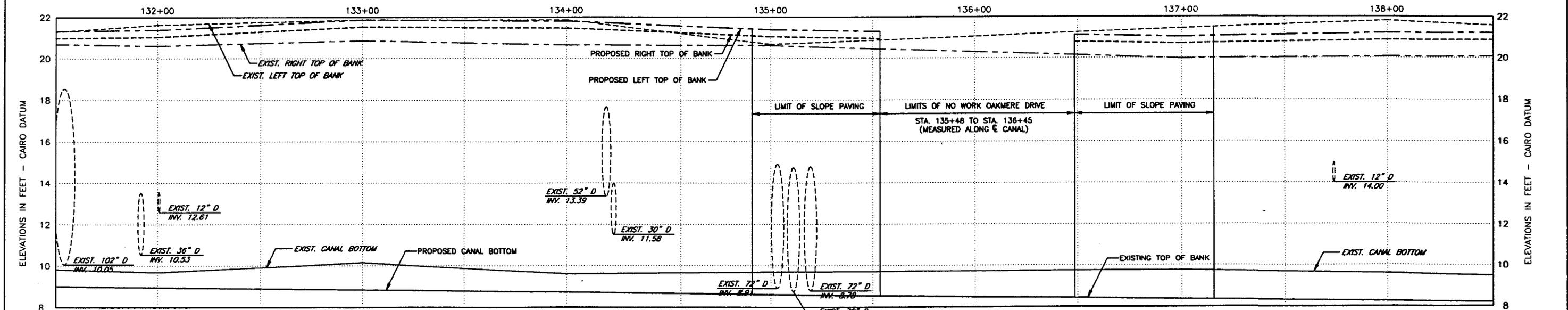
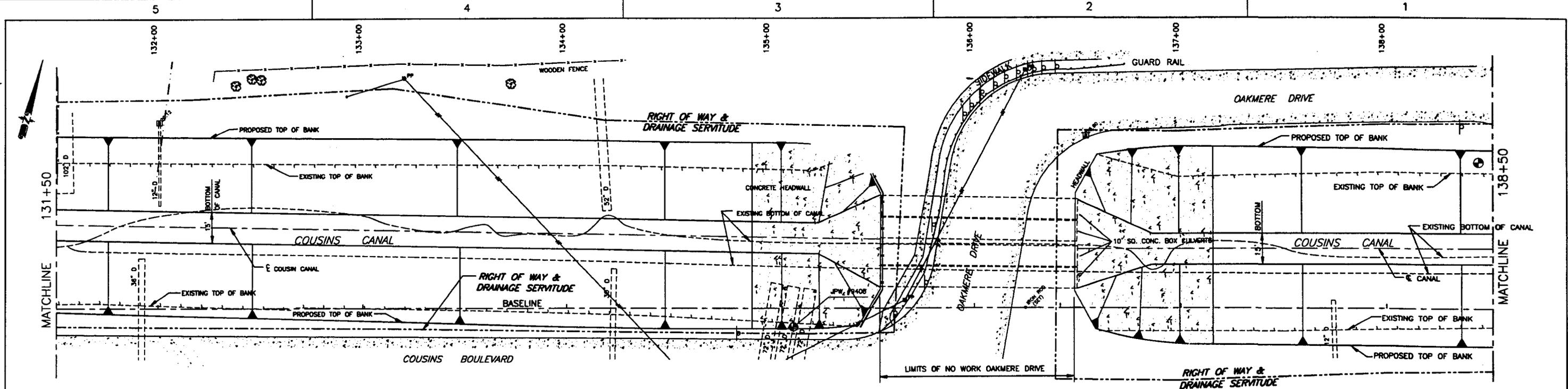
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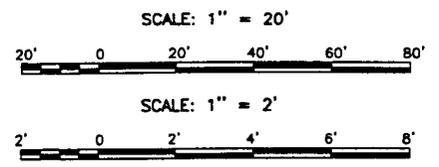
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PROFILE

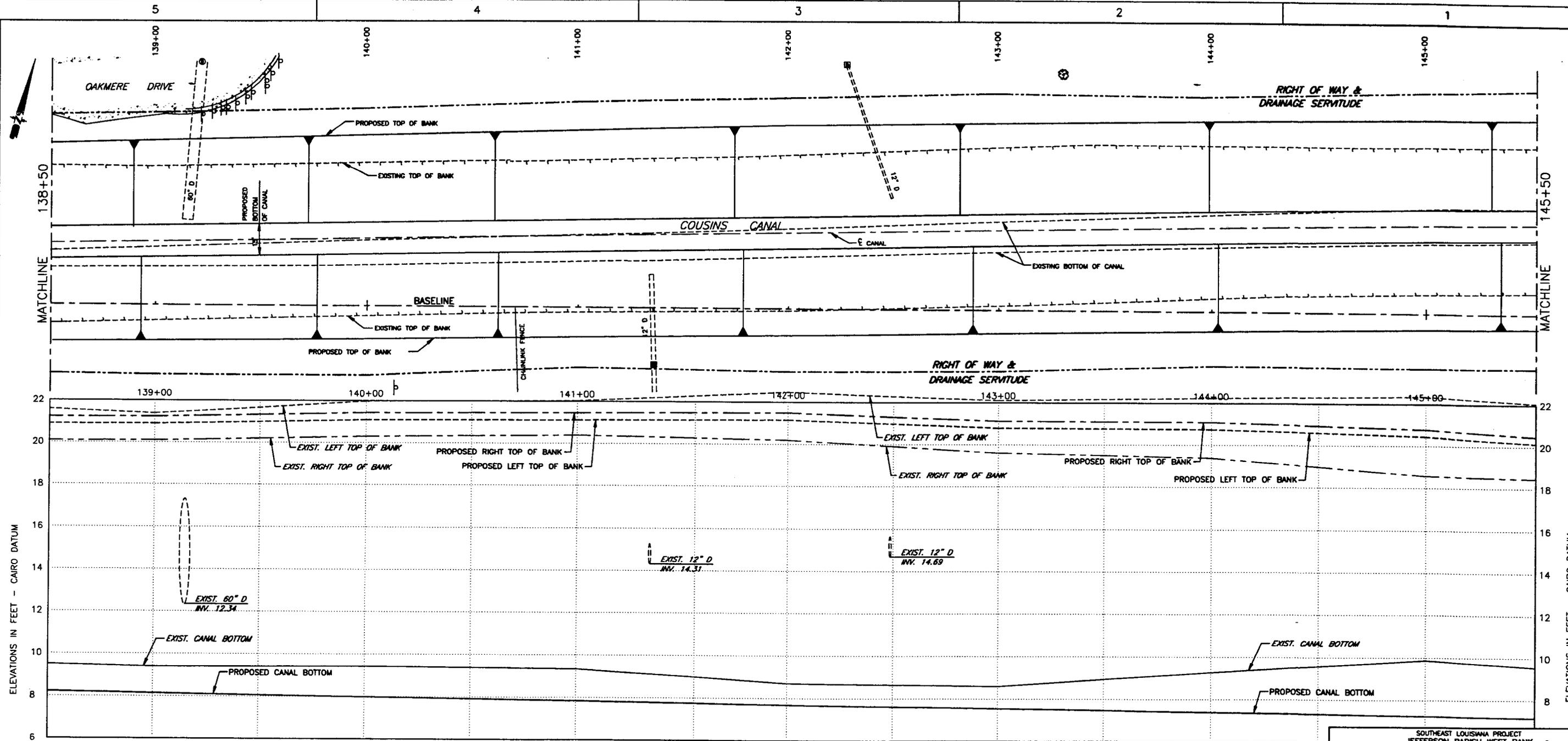
SCALE: HOR. 1" = 20'-0"
 VERT. 1" = 2'-0"



⊕ LOCATION OF SOIL BORING

SOUTHEAST LOUISIANA PROJECT
 JEFFERSON PARISH WEST BANK
 STA. 131+50 TO STA. 138+50
 COUSIN CANAL IMPROVEMENTS
DESIGN REPORT
 JEFFERSON PARISH, LA

JEFFERSON PARISH DEPARTMENT OF DRAINAGE	BURK-KLEINPETER, INC.
U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS CORPS OF ENGINEERS NEW ORLEANS, LOUISIANA	
DRAWN BY: G.A.D. CHECKED BY: T.B. DATE: JULY 1997	PLOT SCALE: 20:1 DWG. 5 OF 12
CADD FILE: DSN7.DGN FILE NO. H-B-4489605	



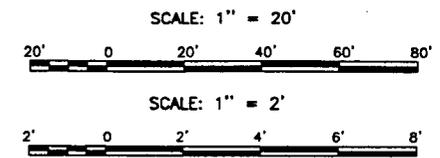
ELEVATIONS IN FEET - CAIRO DATUM

ELEVATIONS IN FEET - CAIRO DATUM

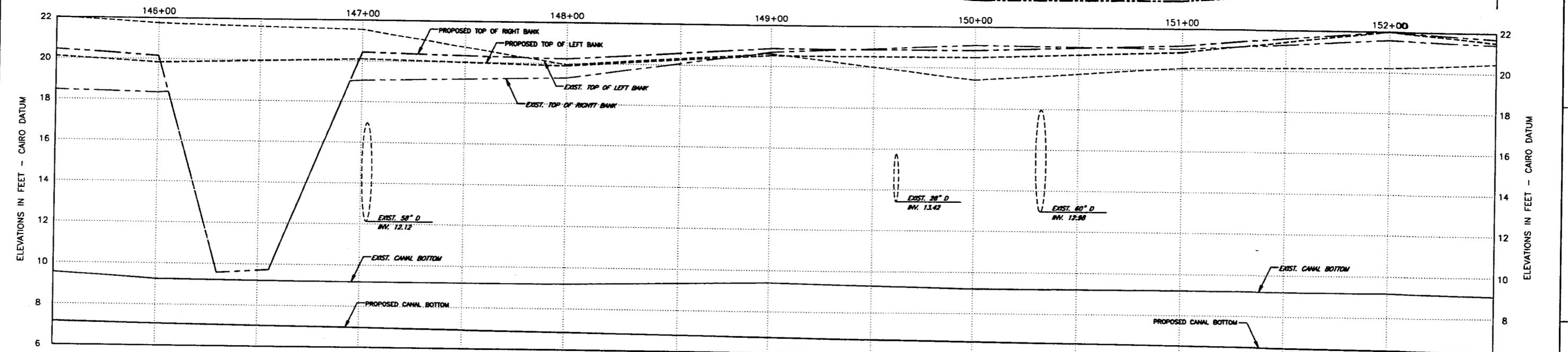
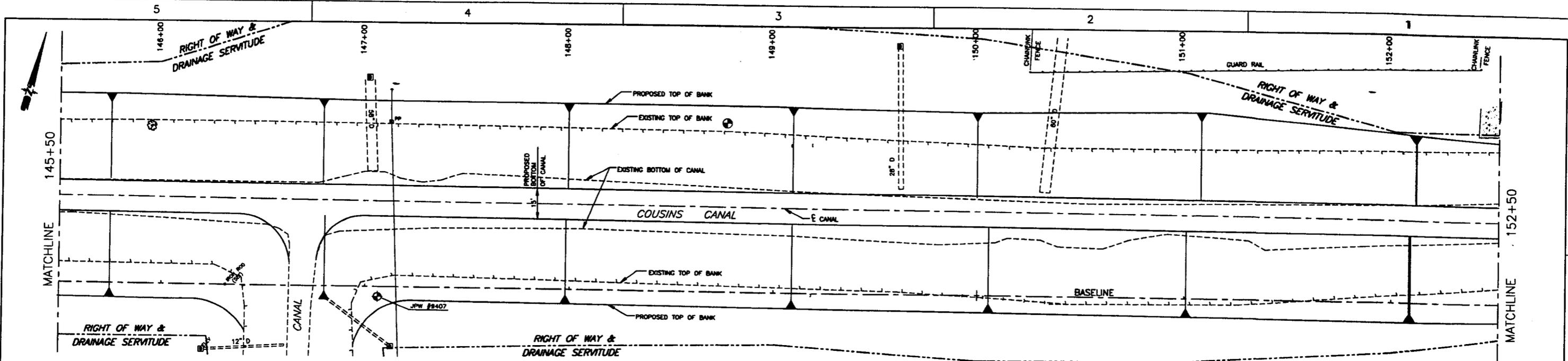
⊕ LOCATION OF SOIL BORING

PROFILE

SCALE: HOR. 1" = 20'-0"
VERT. 1" = 2'-0"

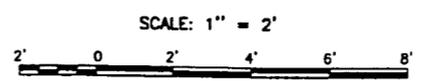
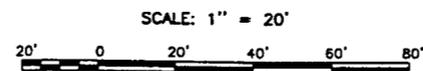


SOUTHEAST LOUISIANA PROJECT JEFFERSON PARISH WEST BANK 6 STA. 138+50 TO STA. 145+50 COUSIN CANAL IMPROVEMENTS DESIGN REPORT JEFFERSON PARISH, LA		
JEFFERSON PARISH DEPARTMENT OF DRAINAGE	BURK-KLEINPETER, INC.	
U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS CORPS OF ENGINEERS NEW ORLEANS, LOUISIANA		
DRAWN BY: G.A.D. CHECKED BY: T.B. DATE: JULY 1997	PLOT SCALE: 20:1 DWG. 6 OF 12	CADD FILE: DSNB.DGN FILE NO. H-8-4489605



PROFILE

SCALE: HOR. 1" = 20'-0"
VERT. 1" = 2'-0"



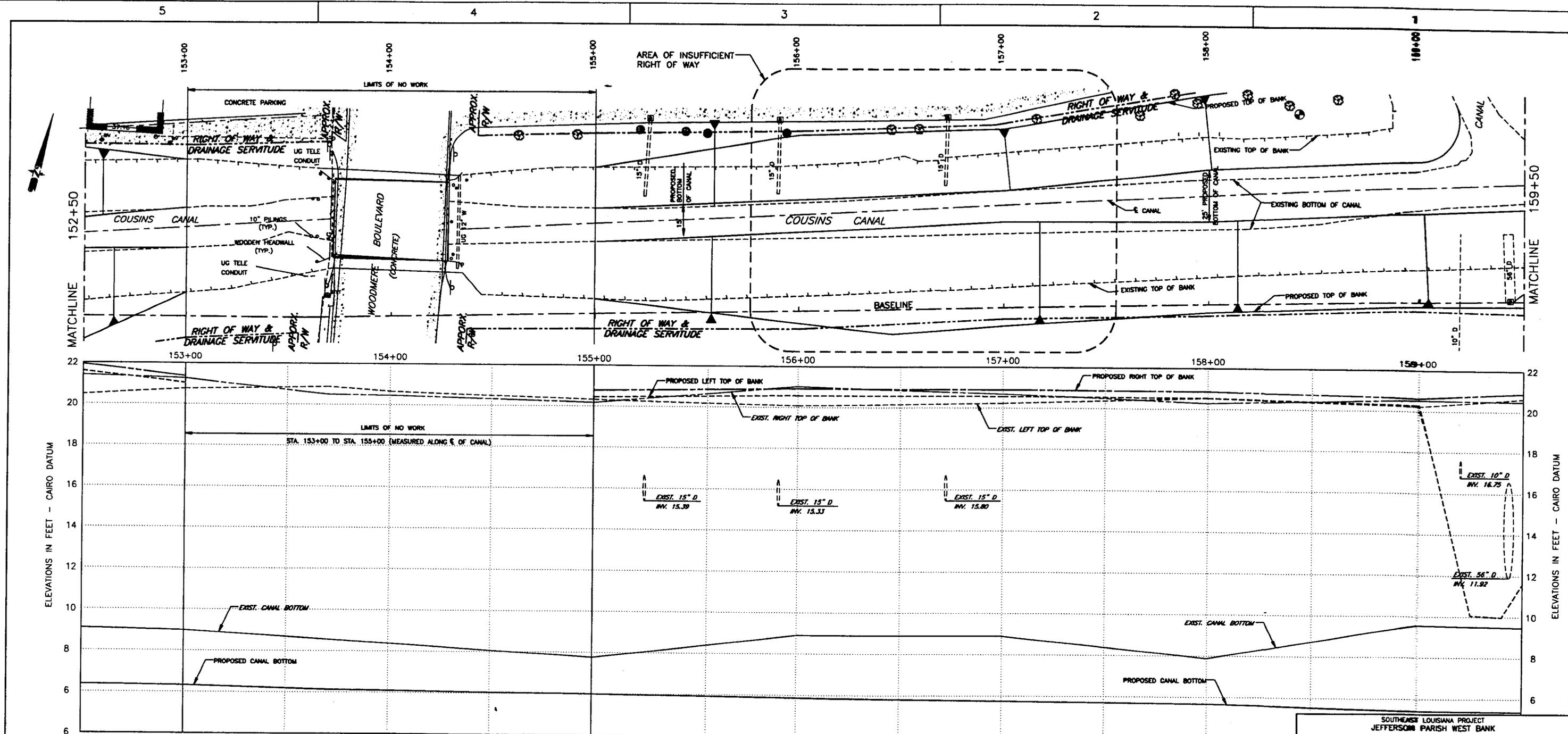
SOUTHEAST LOUISIANA PROJECT
JEFFERSON PARISH WEST BANK
STA. 145+50 TO STA. 152+50
COUSIN CANAL IMPROVEMENTS
DESIGN REPORT
JEFFERSON PARISH, LA

JEFFERSON PARISH DEPARTMENT OF DRAINAGE | BURK-KLEINPETER, INC.

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

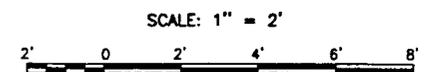
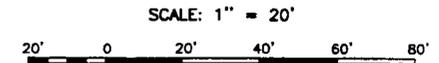
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CHECKED BY: T.B. | DWG. 7 of 12 | FILE NO.
DATE: JULY 1997 | H-8-4489605

⊕ LOCATION OF SOIL BORING



PROFILE

SCALE: HOR. 1" = 20'-0"
 VERT. 1" = 2'-0"



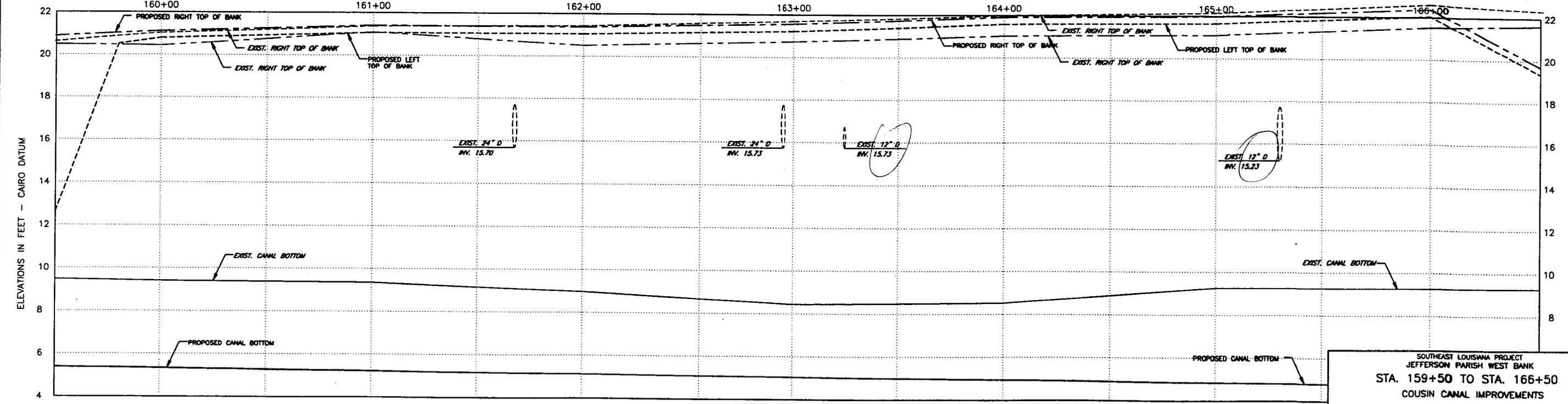
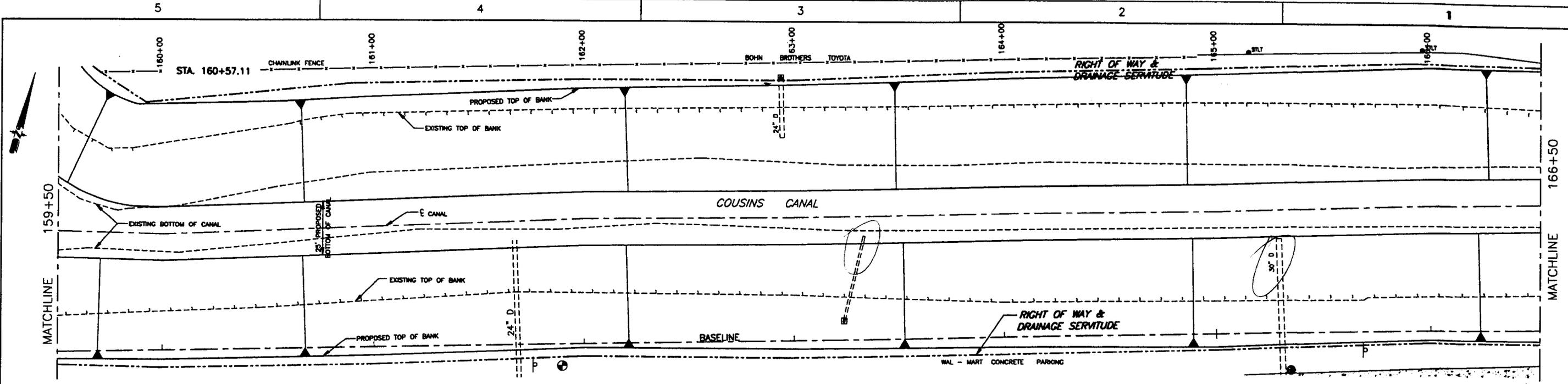
SOUTHEAST LOUISIANA PROJECT
 JEFFERSON PARISH WEST BANK
 STA. 152+50 TO STA. 159+50
 COUSIN CANAL IMPROVEMENTS
DESIGN REPORT
 JEFFERSON PARISH, LA

JEFFERSON PARISH DEPARTMENT OF DRAINAGE BURK-KLEINPETER, INC.

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

DRAWN BY: G.A.D. PLOT SCALE: 20:1 CAD FILE: DSN10.DGN
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 DATE: JULY 1997 H-8-4489605

⊙ LOCATION OF SOIL BORING

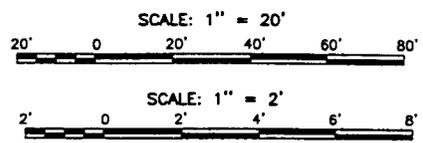


ELEVATIONS IN FEET - CAIRO DATUM

ELEVATIONS IN FEET - CAIRO DATUM

⊕ LOCATION OF SOIL BORING

PROFILE
 SCALE: HOR. 1" = 20'-0"
 VERT. 1" = 2'-0"



SOUTHEAST LOUISIANA PROJECT
 JEFFERSON PARISH WEST BANK
 STA. 159+50 TO STA. 166+50
 COUSIN CANAL IMPROVEMENTS
DESIGN REPORT
 JEFFERSON PARISH, LA

JEFFERSON PARISH DEPARTMENT OF DRAINAGE	BURK-KLEINPETER, INC.
U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS CORPS OF ENGINEERS NEW ORLEANS, LOUISIANA	
DRAWN BY: G.A.D. CHECKED BY: T.B. DATE: JULY 1997	PLOT SCALE: 20:1 DWG. 9 OF 12 FILE NO. H-B-4489605

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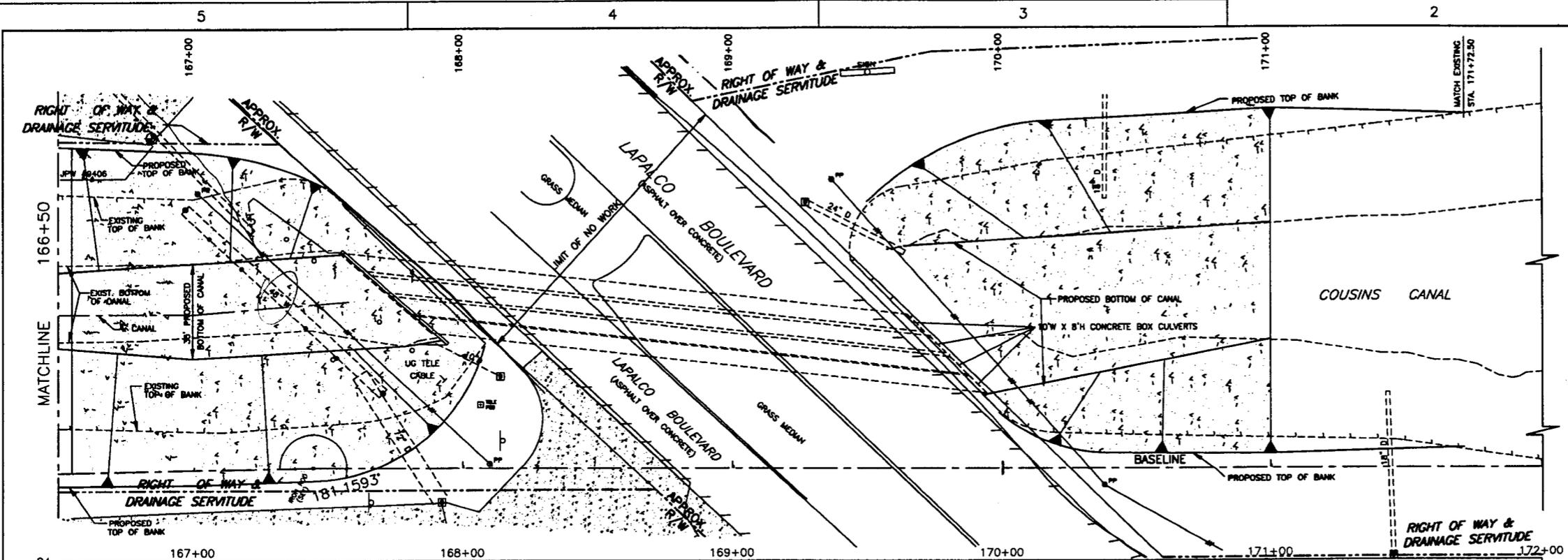
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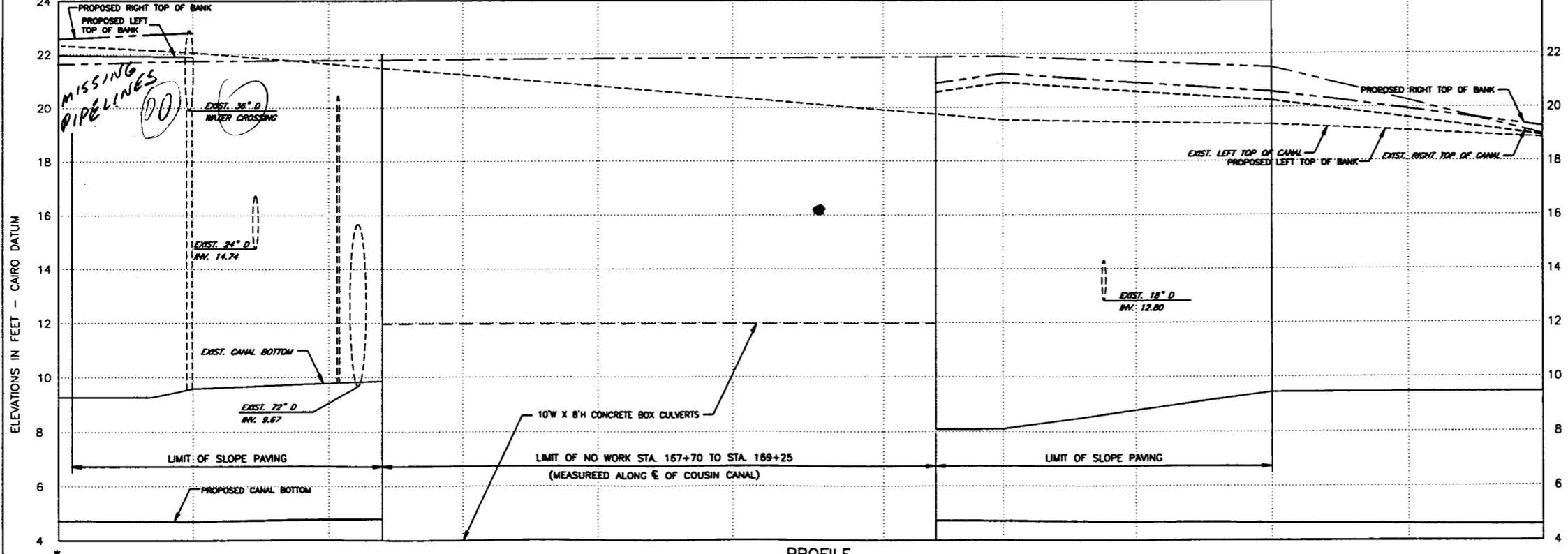
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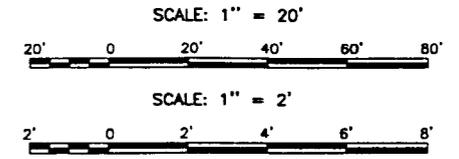
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FROM STA. 171+72.5 TO 174+00 (END PROJECT)
EXISTING CANAL BANKS TO BE DRESSED UP.



PROFILE
SCALE: HOR. 1" = 20'-0"
VERT. 1" = 2'-0"



SOUTHEAST LOUISIANA PROJECT JEFFERSON PARISH WEST BANK STA. 166+50 TO STA. 172+00 COUSIN CANAL IMPROVEMENTS DESIGN REPORT JEFFERSON PARISH, LA		
JEFFERSON PARISH DEPARTMENT OF DRAINAGE	BURK-KLEINPETER, INC.	
U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS CORPS OF ENGINEERS NEW ORLEANS, LOUISIANA		
DRAWN BY: G.A.D. CHECKED BY: T.B. DATE: JULY 1997	PLOT SCALE: 20:1 DWG. 10 OF 12	CHDS FILE: DSN12.DGN FILE NO. H-B-4489605



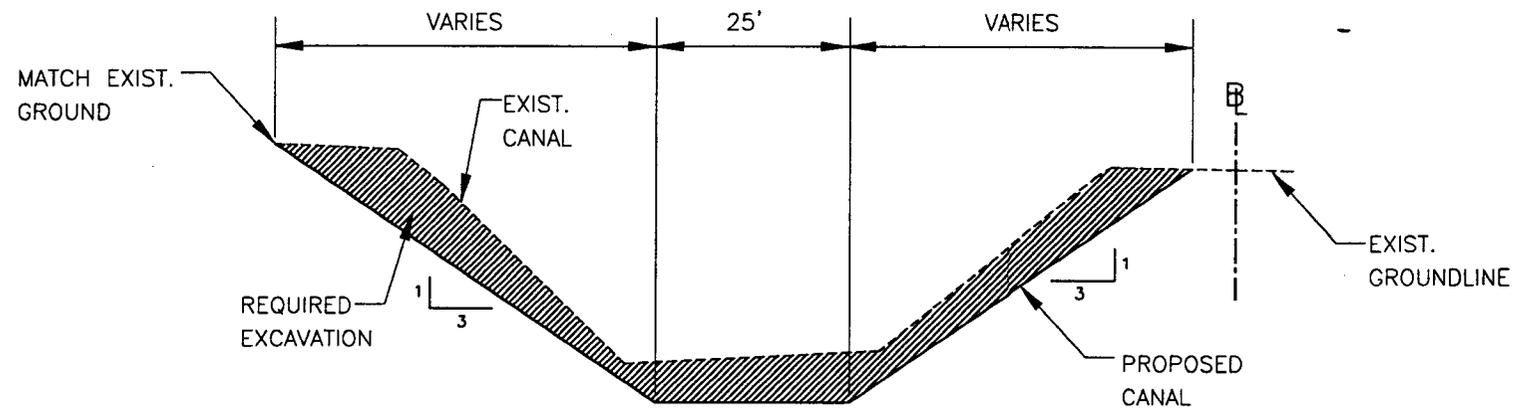
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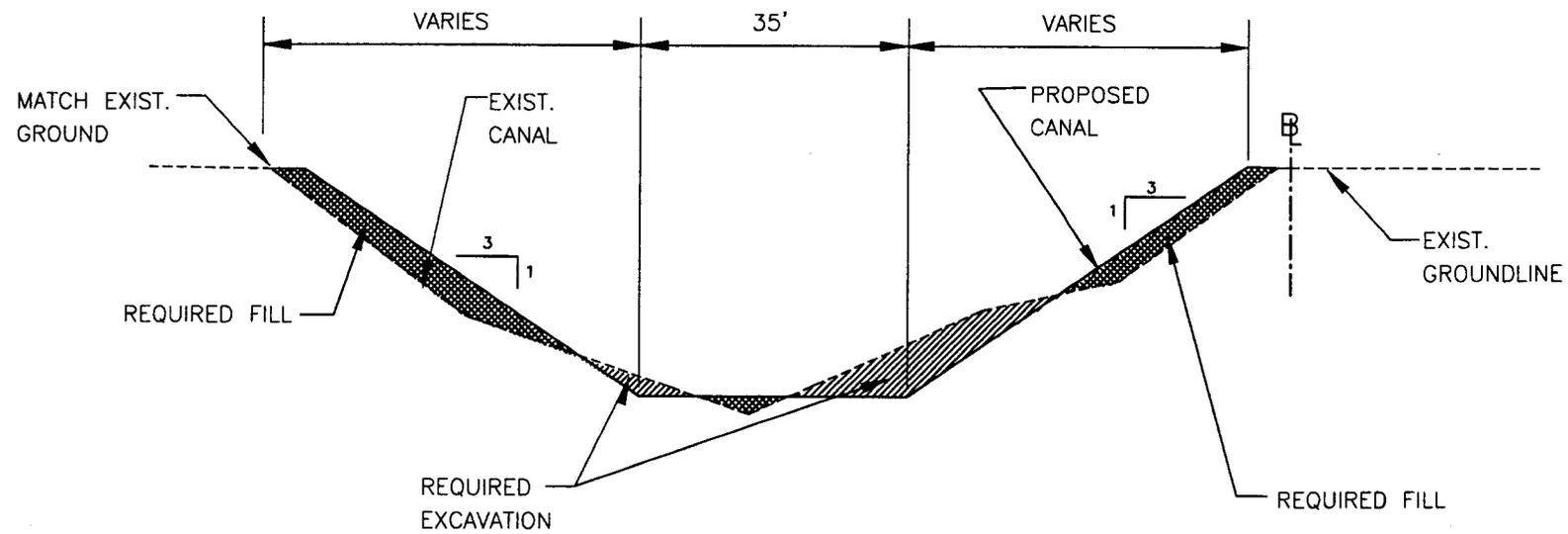
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TYPICAL SECTION
STATION 157+00 TO STATION 166+85
 NOT TO SCALE



TYPICAL SECTION
STATION 166+85 TO STATION 171+00
 NOT TO SCALE



SOUTHEAST LOUISIANA PROJECT JEFFERSON PARISH WEST BANK STA. 157+00 TO STA. 171+00 COUSIN CANAL IMPROVEMENTS TYPICAL SECTION JEFFERSON PARISH, LA		
JEFFERSON PARISH DEPARTMENT OF DRAINAGE	BURK-KLEINPETER, INC.	
U.S. ARMY ENGINEER DISTRICT, NEW ORLEANS CORPS OF ENGINEERS NEW ORLEANS, LOUISIANA		
DRAWN BY: G.A.D. CHECKED BY: T.B. DATE: JULY 1997	PLOT SCALE: 20:1 DWG. 12 OF 12	CADD FILE: TSEC2.DGN FILE NO. H-8-4489605

5

4

3

2

1

Southeast Louisiana Project
Jefferson Parish

Improvements to Cousins Drainage Canal
(Bourgeois Lane to Cousins Pumping Station)

DESIGN REPORT

ATTACHMENTS

Attachment 1
COST ESTIMATES

Attachment 2
FLOWS PROVIDED BY THE COE

REACH DESIGNATION	Q (cfs)	BOTTOM SLOPE
COUSINS CANAL		
ABOVE PIPELINE CANAL	320	0.0014
ABOVE WOODMERE CANAL	650	0.00148
BELOW WOODMERE CANAL	1700	0.00109
WOODMERE BRIDGE	1700	0.0025
ABOVE CALIFORNIA CANAL	1700	0.00111
ABOVE LAPALCO	2100	0.00095
LAPALCO BLVD	NO WORK ZONE	
ABOVE FIRST AVE. CANAL	2100	0.00063
INFLOWS INTO COUSINS CANAL		
PIPELINE CANAL	330	
WOODMERE CANAL	950	
CALIFORNIA CANAL	170	

Attachment 3

SECTIONS PROVIDED BY THE COE

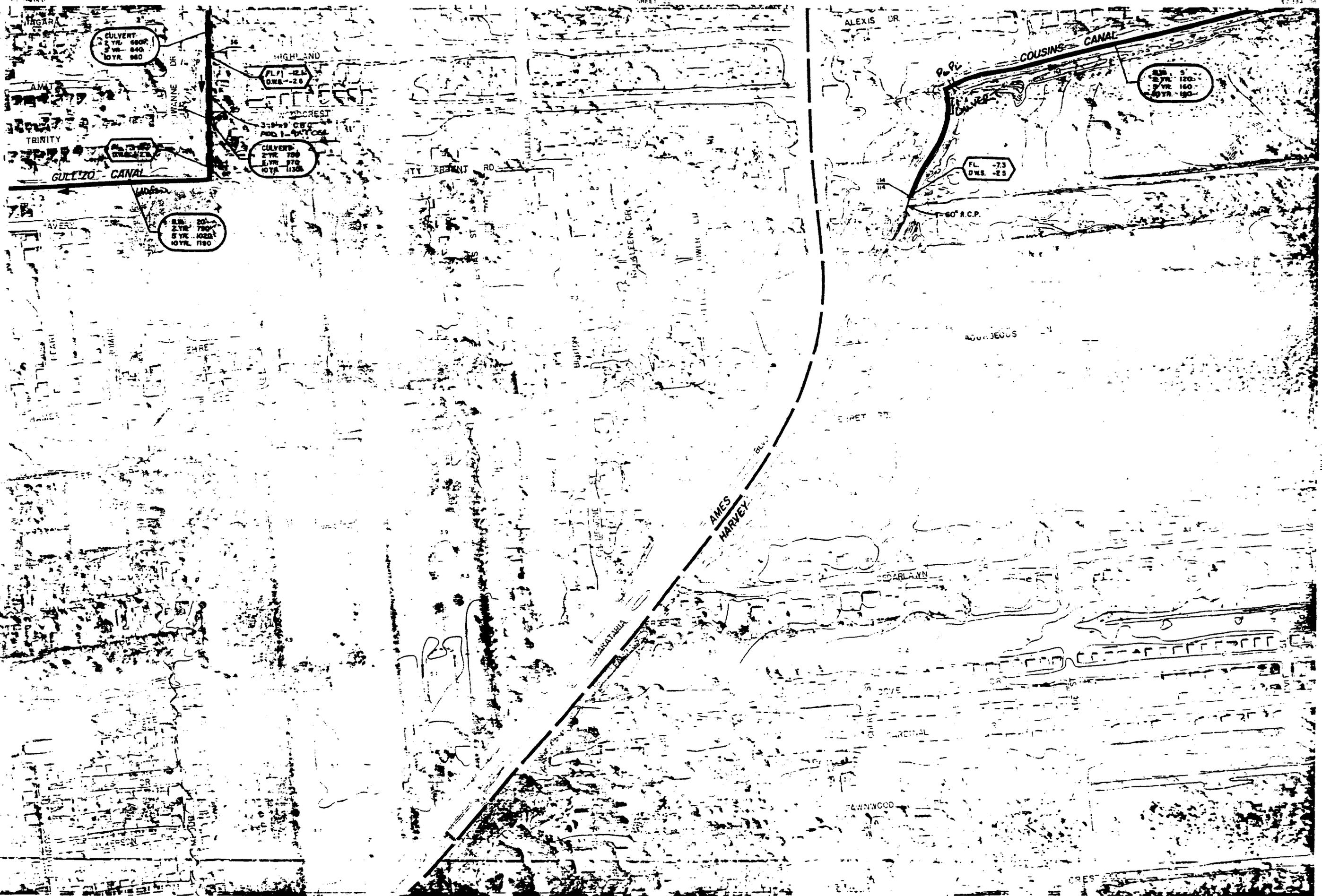
enlarged from Lapalco Boulevard to Cousins Pumping Station. An additional 1,969 cfs pumping capacity will be added to Cousins Pumping Station; Harvey Pumping Station will remain unchanged. Plate 49 illustrates this plan of improvement. A detailed summary of the proposed improvements for Plan JW13-1 follows.

DESCRIPTION OF PLAN JW13-1 IMPROVEMENTS

Canal Name	Type	Reach Length ft.	Bottom Width ft.	Side slope V:H	Invert Elev. (ft. NGVD)	
					U/S	D/S
Fifth Ave or Swift	Earth	430	10	1:2.7	-8.9	-9.4
		4150	10	1:3	-9.4	-14.5
Ave. "A"	CBC	75	12	V	-2.5	-3.0
	Earth	1730	5	1:3	-3.0	-7.6
	CMP	200	205	---	-7.6	-7.7
	Earth	500	5	1:3	-7.7	-8.9
Ave. "D"	CL	2090	10	1:1.35	-8.9	-11.0
Oil Co.	Earth	710	5	1:3	-2.0	-6.0
	Earth	300	10	1:2.5	-6.0	-6.2
Justice	Earth	4880	5	1:3	-4.0	-7.7
	Earth	2000	15	1:3	-7.7	-9.0
	CL	1100	8	1:2	-9.0	-9.8
Two Mile	Earth	1000	15	1:4	-10.0	-11.0
	Earth	1900	25	1:4	-11.0	-12.5
	CL	1400	25	1:2	-12.5	-13.8
	Earth	2400	25-35	1:4	-13.8	-16.4
First Ave	Earth	2185	35	1:3	-16.4	-16.4
		2185	40	1:3	-16.4	-16.5
Cousins	Earth	3150	5	1:3	-7.3	-11.7
	Earth	1700	15	1:2.9	-11.7	-14.0
	CL	200	15	1:1.5	-14.0	-14.5
	Earth	450	15	1:3	-14.5	-15.0
	Earth	840	25	1:3	-15.0	-15.8
	Earth	800	35	1:3	-16.0	-16.5

Attachment 4

MASTER DRAINAGE PLAN INFORMATION



Attachment 5

MASTER DRAINAGE PLAN INFORMATION



URS
 URS Company
 DALLAS, TEXAS
 NEW ORLEANS, LOUISIANA
 MARCH 1981



WEST BANK MASTER DRAINAGE STUDY
 JEFFERSON PARISH, LOUISIANA

BASIN COVERAGE
 HARVEY
 DRAINAGE MAP NO. 138

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