LAKE PONTCHARTRAIN,LOUISIANA AND VICINITY

CHALMETTE AREA PLAN

BAYOU DUPRE CONTROL STRUCTURE

PERIODIC INSPECTION REPORT NO. 5

8 APRIL 1987

United States Army
Corps of Engineers
...Serving the Army
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New Orleans District

CELMV-ED-GG (CELMN-ED-DG/10 Sep 87) 1st End Mr. Stegall/jl/634-5900
SUBJECT: Lake Pontchartrain, Louisiana and Vicinity, Chalmette Area Plan, Bayou Dupre Control Structure, Periodic Inspection Report No. 5, 8 April 1987

DA, Lower Mississippi Valley Division, CE, Vicksburg, MS 39180-0080

16 OCT 87

TO: Commander, New Orleans District, ATTN: CELMN-ED-DG

The subject periodic inspection report is approved. No further action is required on this chain of correspondence.

FOR THE COMMANDER:

for William R. Hill
FRED H. BAYLEY III
Chief, Engineering Division

Encl (6 cys)
wd 2 cys

R 21 Sep
SA 23 Cy Stegall

PI Rpt

DEPARTMENT OF THE ARMY

NEW ORLEANS DISTRICT, CORPS OF ENGINEERS
P.O. BOX 60267
NEW ORLEANS, LOUISIANA 70160-0267

REPLY TO
ATTENTION OF

CELMN-ED-DG 10 Sep 87

MEMORANDUM FOR: Commander, Lower Mississippi Valley Division, ATTN: CELMV-ED-G

SUBJECT: Lake Pontchartrain, Louisiana and Vicinity, Chalmette Area Plan, Bayou Dupre Control Structure, Periodic Inspection Report No. 5, 8 April 1987

Subject report is herewith submitted for your approval.

FOR THE COMMANDER:

Encl (6 cys)

FREDERIC M. CHATRY
Chief, Engineeering Division

LAKE PONTCHARTRAIN, LOUISIANA AND VICINITY

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U. S. ARMY ENGINEER DISTRICT

CORPS OF ENGINEERS

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PERIODIC INSPECTION REPORT NO. 5

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SUMMARY

Periodic Inspection No. 5 of the Bayou Dupre Control Structure was held on 8 April 1987. The structure was dewatered at the time of inspection. Participants in the inspection consisted of representatives of New Orleans District (NOD), Lake Borgne Basin Levee District (LBBLD), and the Louisiana Department of Transportation and Development (LDOTD). The structure was determined to be structurally sound and adequately fulfilling original design criteria.

PREVIOUS REPORTS

REPORT NO.	TITLE	DATE OF INSPECTION	APPROVAL DATE
1	Periodic Inspection Report No. 1	22 Feb 74	25 Jun 74
2	Periodic Inspection Report No. 2	12 Mar 80	10 Nov 80
3	Periodic Inspection Report No. 3	1 Dec 83	6 Apr 84
4	Periodic Inspection Report No. 4	25 Jun 86	19 Mar 87

SECTION I - INTRODUCTION

1-01 Authority. Authority for this report is ER 1110-2-100, dated 28 February 1983, subject "Periodic Inspection and Continuing Evaluation of Completed Civil Works Structures".

1-02 Purpose and Scope. This report presents the results and conclusions of the fifth inspection of the Bayou Dupre Control Structure conducted under the above referenced ER. The inspection was limited to surfaces normally under water during standard operation.

1-03 Datum Plane. All elevations in connection with the control structure, unless otherwise specified, are in feet and refer to the National Geodetic Vertical Datum (N.G.V.D.), formerly mean sea level (M.S.L.).

SECTION II - PROJECT DESCRIPTION AND BACKGROUND

2-01 General. A description of the structure and historical and other general background information are included in Report No. 1, which also contains selected construction drawings illustrating typical sections and details. This report and other issued subsequently to Report No. 1 are considered supplementary to that report.

SECTION III - CURRENT OPERATION AND MAINTENANCE DATA

3-01 Maintenance and Operating Problems. The local assuring agency (Lake Borgne Basin Levee District) performs semiannual inspections of the Bayou Dupre Control Structure for which reports are submitted to NOD by 30 June and 31 December of each calendar year. Since the last periodic inspection in June 1986, no major operational or maintenance problems have occurred at the facility.

3-02 Actions on Deficiencies from the Last Inspection.

a. The following remedial actions listed in the last periodic inspection report were accomplished while the structure was dewatered:

1. Blasting and painting of sector gates. Repair of ladders and other metal items damaged by corrosion.

2. Replacement of the timber fender systems on both gates.

3. Repairs to the dolphins on the east side of the structure. Repair to navigation lights on these dolphins.

4. Repair of the tidal current warning system.

5. Replacement of staff gages.

b. Local interests will label the disconnect/transfer switch in the summer of 1987.

SECTION IV - REVIEW OF DESIGN AND ANALYSIS OF INSTRUMENTATION

4-01 Design Review. The original design of the Bayou Dupre Control Structure was made in accordance with standard engineering practice and with criteria as set forth in engineering manuals for civil work construction published by the Office of the Chief of Engineers. The original design criteria was given in Periodic Inspection Report No. 1; therefore, a detailed review of the design is not required at this time.

4-02 Design Stress. The original design stress criteria as contained in Engineering Manual No. 1110-1-2101, dated November 1963, has not changed.

4-03 Analysis of Instrumentation. The latest surveys of the Bayou Dupre Control Structure were completed in February 1987. Findings are as follows:

a. Settlement Marks. The settlement reference marks for the floodwall and concrete sheet pile wall on the east side of the control structure shows continued settlement as expected due to additional fill placements in this area accomplished in 1978 and 1983. Although the settlement is occurring at a relatively rapid rate, it is presently felt that it has not reached a significant magnitude. The east floodwall and sheet pile wall will be monitored closely to detect any possible future settlement that could endanger the safety of the structure.

b. Scour Survey. The north and south approach channels appear to be somewhat unstable as minor scour is indicated at stations 8+00, 16+00 and 19+02 while small shoals occur at stations 10+62 and 19+00. None of the above mentioned scouring or shoaling is occurring within the riprap apron, and no significant threat to the structure presently exists.

c. Joint Movement. No significant joint movement is indicated in the latest survey data.

SECTION V - INSPECTIONS

5-01 Preliminary Structural Inspection.

a. A preliminary structural inspection was conducted on 18 March 1987 in order to determine the condition of the control structure prior to initiation of repairs. The following personnel participated in this preliminary inspection:

NOD

Name	Organization
Jake Terranova	CELMN-ED-DG
George Seghers	CELMN-ED-DG
Charles Laborde	CELMN-ED-DD
Mohan Desai	CELMN-ED-DD
Richard Baldini	CELMN-OD-OP

LBBLD

Dan Caluda

b. Observations.

1. General. At the time of inspection, the structure was completely dewatered. Sandblasting of the east sector gate was complete and was approximately 75% complete for the west sector gate. Sandblasting of the skin plates of both gates was 100% complete. Work had not been initiated on other items.

2. Sector Gates. Steel members of the east sector gate were in very good condition and had experienced only surface corrosion. Severe corrosion of 3 steel girders of the west gate

in the tidal fluctuation zone was evident (see photos nos. 1 and 2). Only surface corrosion was noticed on other west gate members. Skin plates of both gates were in good condition with only small areas of surface corrosion noticed (see photo no. 3) had been completely removed by the Contractor. The elements of the system were completely overgrown by barnacles and other marinelife (see photo no. 4). Holes in the PVC pipes protecting the sacrificial anodes were in some cases completely blocked by the growth. The anodes within the PVC pipe were barely consumed.

4. Miscellaneous Steel Members. Surface corrosion was observed on most miscellaneous steel members (see photo no. 5). Steel ladders were completely destroyed by corrosion and had been removed by the contractor.

5. Concrete Surfaces. Concrete surfaces below the water level were completely overgrown with barnacles and other marine growth (see photo no. 6). Sandblasting of these areas had not yet begun. No evidence of structural damage was seen.

c. Conclusions.

1. General. The structure was found to be in fairly good condition and no signs of structural distress were noticed.

2. Sector Gates. At the time of inspection, local interests had not yet decided whether to reinforce or replace the three members of the west gate severely damaged by corrosion. There were several theories discussed by the inspection team as to

why corrosion of the west gate was more severe than that of the east gate. One possible cause was the use of improper painting techniques when the gate was originally painted. The paint inspector at the site said that the paint on the west gate was more easily removed by the sandblasting operation than the paint on the east gate. Another possibility was that the cathodic protection system on the west gate was hindered by marine growth blocking the holes in the PVC. This is further indicated by the near intact condition of the anodes within the PVC. However, the condition of the east sector gate's cathodic protection system was similar to that of the west gate's. Since only surface corrosion was seen on the east gate, it does not seem that the condition of the cathodic protection system was the cause of the severe corrosion of the west gate members.

5-02. Dewatered Inspection.

a. The principal dewatered inspection was conducted on 8 April 1987. The following personnel participated in this inspection:

NOD

Name	Organization
Jake Terranova	CE-LMNED-DG
Aiden Andry	CE-LMNED-DG
Dan Bradley	CE-LMNED-DG
Charles Laborde	CE-LMNED-DD
Roberto Estrada	CE-LMNED-FS
Jose Lizaribar	CE-LMNED-FD
Deborah Garrett	CE-LMNED-HC
Brian Keller	CE-LMNOD-OP

LBBLD

Dan Caluda

LDOTD

Charlene Trapp
Larry Langenstein
Fred Schilling

b. Pre-Inspection Briefing. A pre-inspection briefing was held for NOD participants of Periodic Inspection No. 5 on 26 March 1987. At this briefing, NOD participants were familiarized with the findings of the preliminary structural inspection done on 18 March 1987. Participants were also briefed on those items of particular importance that would be seen during the inspection. The briefing concluded with final instructions concerning the inspection schedule and itinerary.

c. Observations. The following observations were made by the inspection team during dewatered Periodic Inspection No. 5.

1. General. At the time of inspection, construction on the structure was 95%+ complete. Watering of the structure was scheduled to begin on Saturday, 11 April 1987, or 3 days after the inspection.

2. Sector Gates. Repair of the sector gates was 100% complete. The three badly damaged steel members noticed on the west gate during the 18 March inspection were completely replaced. Examination of the replaced members showed damage from corrosion to be extensive (see photo no. 7). The structural steel

members and skin plates of both gates were thoroughly and professionally painted with a coal tar epoxy paint (see photo no. 8). This is a change from the original vinyl paint system. The paint job was thoroughly inspected by a licensed paint inspector. The timber fender systems on both gates were completely replaced (see photo no. 9).

3. Cathodic Protection System. The cathodic protection system was completely replaced (see photos nos. 8 and 10). Three new rows of ship hull anodes were installed on each skin plate. The 36 inch, 150 pound anodes located within the PVC protection tubes were replaced with 60 inch, 250 pound anodes also protected in PVC pipe. However, there were some problems with the new system. Original design of the cathodic protection system called for groups of 3 holes in the PVC pipes that would be spaced at 120 degree intervals. The Contractor drilled 4 holes instead of 3, with the spacing being 90 degrees. As a result, the throw distance and effective protection of the system would be substantially reduced. The LBBLD, LDOTD, and the Contractor were notified of this discrepancy during the inspection along with the potential consequences. The LDOTD reported that they would study the problem prior to watering of the structure.

4. Miscellaneous Steel Members. Miscellaneous steel members were thoroughly and professionally painted with coal tar

epoxy paint (see photo no. 11). No blemishes in the paint job were noticed.

5. Concrete Surfaces. All concrete surfaces were effectively cleaned by the Contractor.

6. Staff Gauges. New staff gauges were installed by the Contractor.

7. Timber Dolphins. The damaged timber dolphins on the east side of the Bayou Dupre Control Structure were repaired by the Contractor during the dewatering. The navigation lights on these dolphins were repaired by the Contractor at the same time.

8. Electrical System. The tidal current warning system was being repaired by the Contractor during the dewatering.

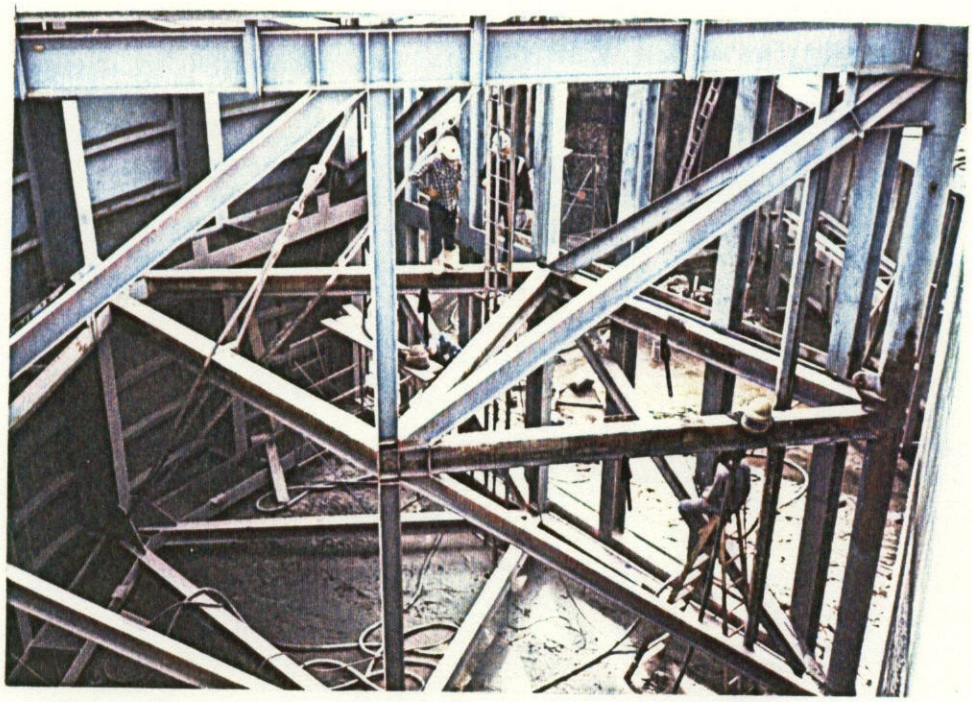


Photo No. 1 - West gate after dewatering. Notice three steel members extensively corroded. Sand blasting of steel members had begun. (18 March inspection)

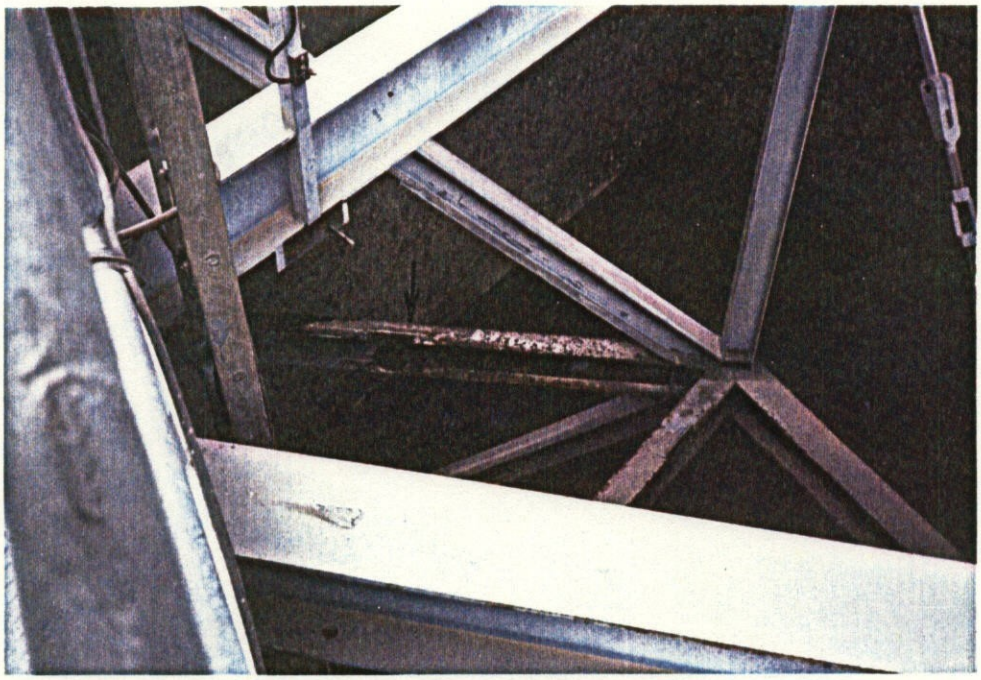


Photo No. 2 - Close-up view of corroded steel member of west gate. (18 March inspection)

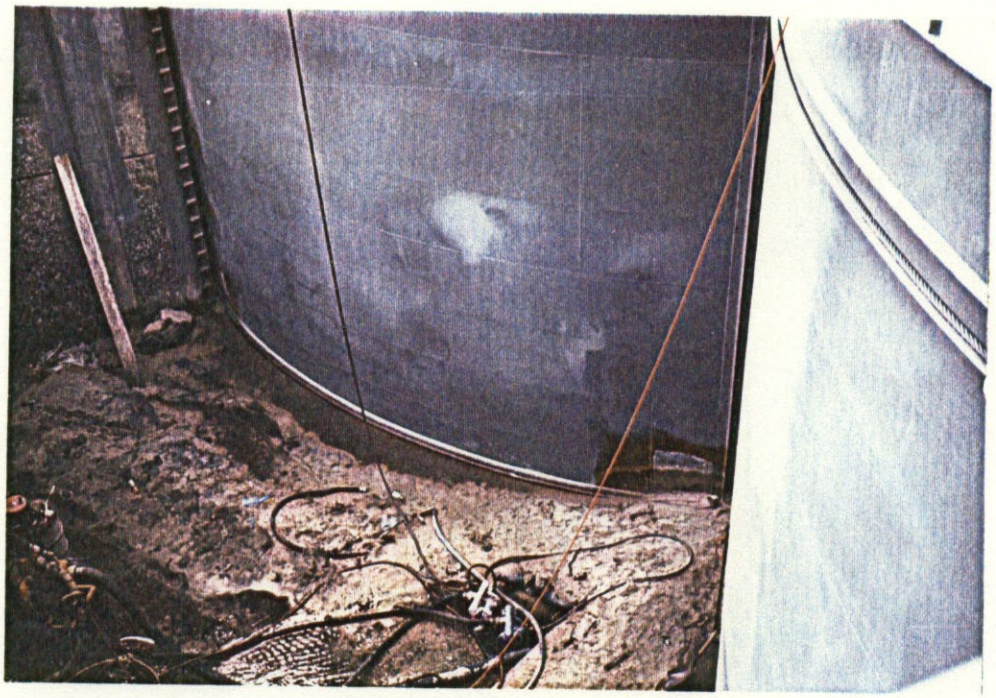


Photo No. 3 - Skin plate of east gate after sand blasting. Notice surface corrosion in lower right hand corner. (18 March inspection)

Photo No. 4 - Members of old cathodic protection system. Notice barnacle overgrowth. Old system was entirely replaced. (18 March inspection)

Photo No. 5 - Notice surface corrosion on steel members embedded in concrete. (18 March inspection)

Photo No. 6 - Notice marine growth on concrete walls of gate recess. (18 March inspection)

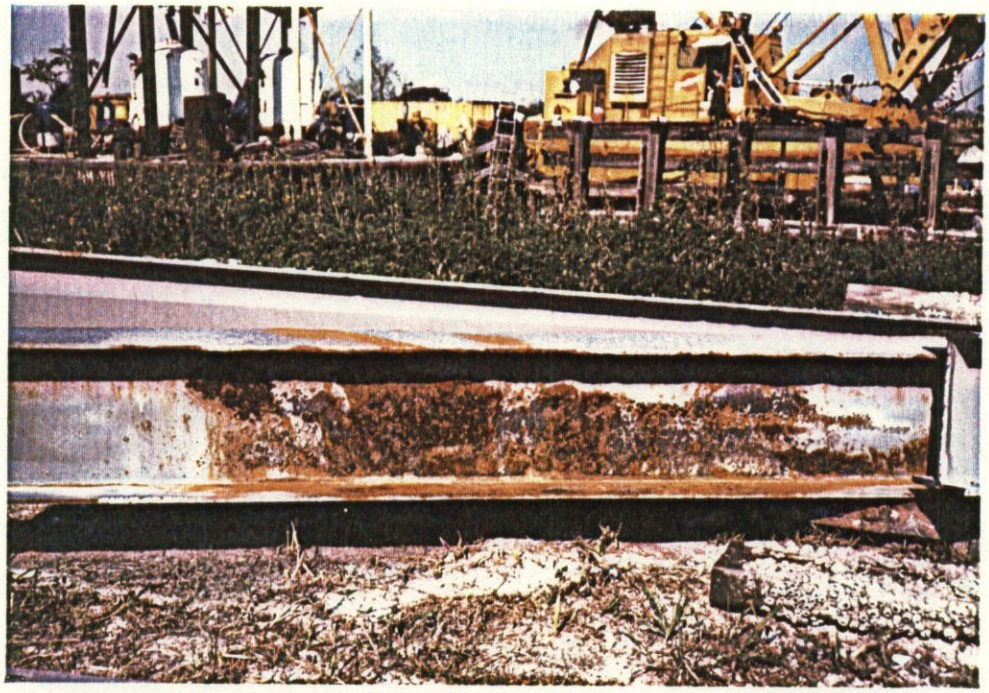


Photo No. 7 - Corrosion on steel member removed from west gate. (8 April inspection)

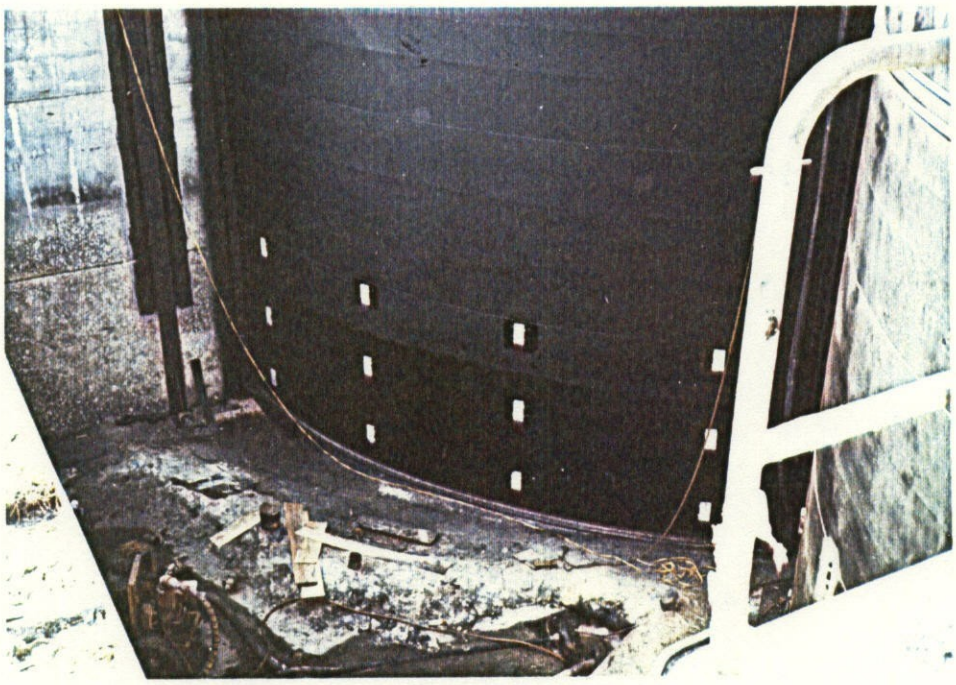


Photo No. 8 - Skin plate of east gate after painting. Notice 3 rows of new sacrificial annodes. (8 April inspection)

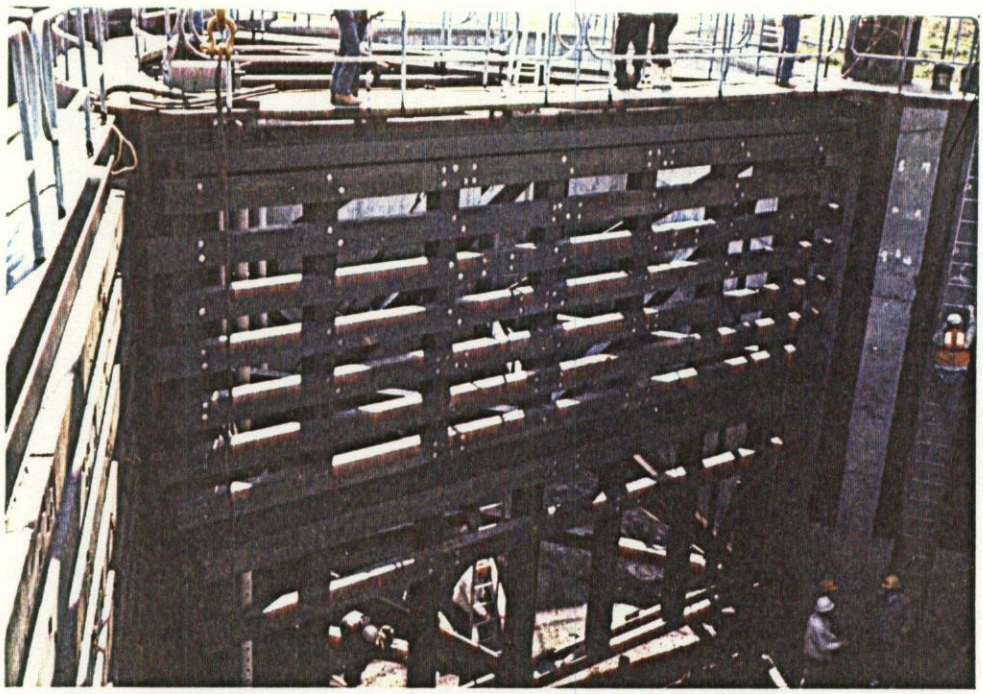


Photo No. 9 - New timber fender system on west gate.

Photo No. 10 - Members of new cathodic protection system.

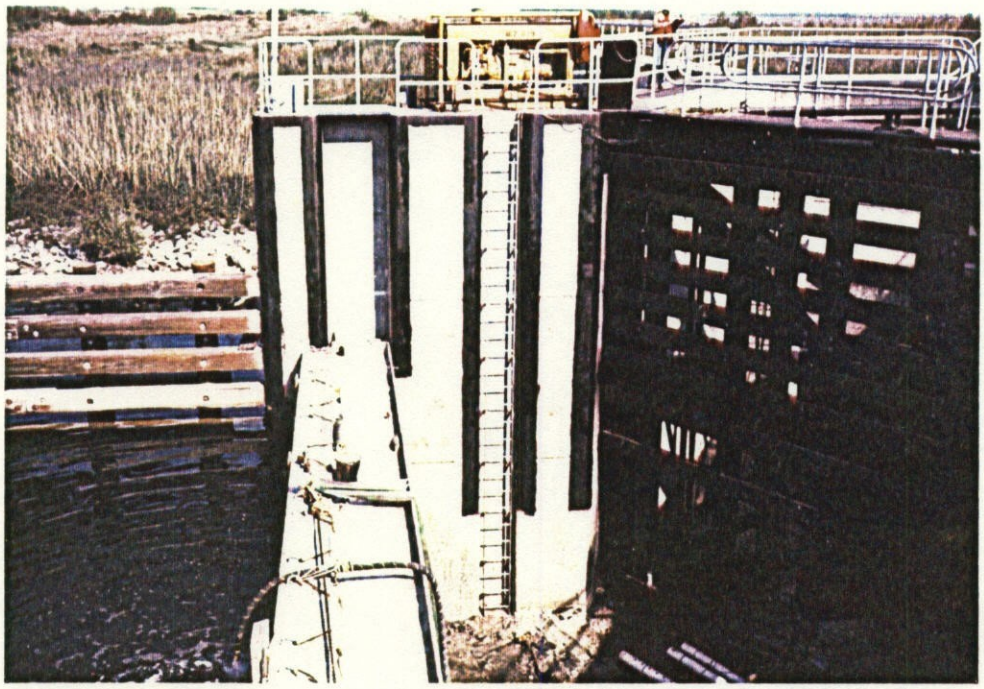


Photo No. 11 - Steel members embedded in concrete after painting.

SECTION VI - CONCLUSIONS AND REMEDIAL ACTIONS

6-01 Conclusions. Periodic Inspection No. 5 of the Bayou Dupre Control Structure in dewatered condition revealed that the structure is structurally sound and stable. The structure is now in near new condition resulting from the extensive repairs and renovations accomplished during this dewatering.

6-02 Proposed Remedial Actions.

a. The cathodic protection system was inspected by Mr. Karl Finch, a mechanical engineer from the LDOTD, prior to watering of the structure in response to the discrepancies noted in paragraph 5-02, c, 3. "Cathodic Protection System" of this report. In his report to Mr. Eugene Waguespack, LDOTD Maintenance Engineering Administrator, Mr. Finch determines that the PVC pipes protecting the new 250 pound sacrifical anodes of the cathodic protection system will eventually limit the effectiveness of the system. This is based on two facts:

(1) The 150 pound anodes of the old system were almost intact upon their removal during the dewatering as a result of the holes in the PVC being blocked by barnacles and oysters.

(2) Readings taken at the Bayou Bienvenue Control Structure indicate minimal output from the anodes similarly installed within PVC pipes. Inspection of the Bienvenue system indicates that the holes in the PVC pipes are blocked by barnacles

and oysters. This system was installed less than 2 years ago.

Mr. Finch states that the PVC pipes protecting the new anodes at the Bayou Dupre structure will also become overgrown with marine life. This will render the anodes useless and cause the ship hull anodes on the skin plate to provide protection for the entire structure, thus accelerating their depletion. He recommends that the PVC pipes be deleted and that the new 250 pound anodes be hung bare. If this is done, he estimates that the cathodic protection system will be adequate for 15 to 20 years of life. No action has been initiated by the LDOTD in response to Mr. Finch's report. A complete copy of Mr. Finch's report is included within Appendix D of this report.

b. Corrosion Protection. In order to adequately monitor the operation and effectiveness of the cathodic protection system, the LBBLD will be reminded to perform periodic checks of the cathodic protection system as required by the Operation and Maintenance Manual. By insuring the proper operation of this system, extensive corrosion as seen on the three members of the west gate will hopefully be prevented.

c. Unprotected Ends of New Timber Walers. The unprotected ends of the new timber walers were coated with creosote by the Contractor prior to watering of the structure. NOD

representatives consulted with EPA officials within the district and ascertained that the use of creosote is, in fact, still legal in Louisiana.

6-03 Next Inspection. Periodic Inspection No. 6 of the Bayou Dupre Control Structure is scheduled for June 1989.

1009.11 COUNTERWEIGHT ROPES.

The 1st paragraph is amended to include the following. Wire from which wire ropes are made shall be tested in the presence of the engineer, except that filler wires may be made to the manufacturer's standards.

The 4th paragraph is amended to include the following. While being measured, each rope shall be twisted to correct lay and shall be supported throughout its length in a straight line at maximum 25-foot intervals.

The 1st sentence of the 6th paragraph is deleted and the following substituted. Sockets and socket pins used with wire ropes shall be forged, without welds, from solid steel and shall conform to ASTM A 668, Class D, normalized, except that sockets for ropes 2 1/2" or greater diameter may be cast steel conforming to ASTM A 148, Grade 80-50.

The 7th paragraph is amended to include the following. Sockets used for these tests shall not be used in the structure.

TABLE II: The title of this Table is amended to be "Type I, General Purpose, Class 2, 6 x 25 Filler Wire, Improved Plow Steel, Fiber Core Wire Rope".

SECTION 1010
FENCE AND GUARD RAIL

1010.01 BARBED WIRE.

(a) General Requirements: This Heading is deleted.

(b) Steel Barbed Wire: This Heading is deleted and the following substituted. Steel barbed wire shall conform to ASTM A 121, except that the coating weight shall be at least 0.27 oz/sq ft of uncoated wire surface.

1010.02 WOVEN WIRE. This Subsection is deleted and the following substituted. Woven wire shall conform to ASTM A 116, Design No. 939-6-12 1/2, except that the coating weight shall be at least 0.27 oz/sq ft of uncoated wire surface.

1010.07 CHAIN LINK FENCE, GATES AND APPURTENANCES. Heading (b) is deleted and the following substituted.

(b) All materials, except as specified herein, shall conform to AASHTO M 181.

(1) Zinc-Coated Steel Fabric: Zinc coating for steel fabric shall be at least 1.0 oz/sq ft of uncoated wire surface in accordance with ASTM A 392.

(2) Zinc-Coated Steel Members: Zinc coating of posts, rails, expansion sleeves and gate frames shall be an average of 1.8 oz/sq ft of uncoated surface in accordance with ASTM A 120.

(3) Wire Ties and Tension Wire: Wire ties, fabric ties, hog rings and tension wire for Type I, II or III fencing shall be either aluminum alloy, zinc-coated ductile steel or aluminum-coated ductile steel wire.

a. Wire Ties: Wire ties, fabric ties and hog rings shall have 20 ksi minimum tensile strength, and 10% minimum elongation. Steel shall be coated with at least 0.60 oz of zinc or 0.40 oz of aluminum alloy per square foot of uncoated wire surface. Wire ties shall be AWG No. 9, and fabric ties and hog rings shall be AWG No. 12.

b. Tension Wire:

1. Zinc-coated and aluminum-coated steel tension wire shall be AWG No. 9 wire having at least 75 ksi tensile strength with at least 0.70 oz. of zinc or 0.40 oz of aluminum alloy per square foot of uncoated wire surface.

2. Aluminum alloy tension wire shall be AWG No. 6 wire having at least 42 ksi tensile strength, 35 ksi yield strength and 10% elongation.

1010.08 METAL BEAM FOR HIGHWAY GUARD RAIL. The 3rd paragraph is deleted and the following substituted. The fabricator shall file a Brand Registration and Guarantee with the Department's Materials Engineer on an annual basis in accordance with AASHTO M 180.

Add 1010.13 CERTIFICATE OF COMPLIANCE. A notarized certificate of compliance shall be furnished prior to the use of materials listed in Subsections 1010.08 through 1010.12. The certificate shall be signed by the material supplier and shall state that the materials involved comply with specifications. A certificate of compliance shall be furnished with each lot of material delivered to the work and the lot so certified shall be clearly identified in the certificate. The engineer shall forward the certificate of compliance to the Materials Laboratory for approval.

SECTION 1013
METALS

1013.01 STRUCTURAL STEEL. The 1st paragraph is deleted and the following substituted.

The contractor shall obtain all applicable physical and chemical tests and furnish the Department's Construction Section 5 copies of the certificates of analysis (Mill Test Reports) together with a Fabricator's Material Statement and Certificate of Compliance. This form will be furnished by the Department upon request.

1013.08 BOLTS, NUTS AND WASHERS: Heading (a) is deleted and the following substituted.

(a) Bolts, nuts and washers, except high strength bolts, shall conform to ASTM A 307, Grade A.

SECTION 1015
SIGNS AND PAVEMENT MARKINGS

1015.02 METALS.

(a) Ferrous Metals:

(3) Steel Posts for Small Signs, Markers and Delienators: The 1st sentence of the 2nd paragraph is deleted and the following substituted.

Posts shall be fabricated from steel conforming to either ASTM A 499 (Grade 60) with chemical properties conforming to ASTM A1 for 91 lb/yd or heavier rail steel, or A 576 (Grade 1080) with 0.10 to 0.20% silicon.

1015.04 SIGN PANELS.

(b) Temporary Sign Panels: Paragraph (3)b is deleted and the following substituted.

b. Medium Density Overlay: Edges of panels shall be coated with an approved polyurethane varnish or other approved protective coating.

1015.08 SIGNS AND PAVEMENT MARKINGS. The following Heading (d) is added.

(d) Traffic Paint: Paint shall be an approved reflectorized traffic paint.

1015.09 RAISED PAVEMENT MARKERS. Headings (c) and (d) are deleted and the following substituted.

(c) Optical Requirements: Class IV markers shall conform to the following requirements when tested in accordance with DOTD TR 639.

		Minimum Specific Intensity (Candlepower per Footcandle)		
Horizontal Entrance Angle	Observation Angle	Crystal	Amber	Red
0°	0.2°	3.0	1.8	0.75
20°	0.2°	1.2	0.72	0.30

Marker reflectivity shall be at least 80% of the above values after being subjected to the heat test required elsewhere herein.

(d) Adhesive:

(1) Epoxy Adhesive: Epoxy adhesive shall be Type V epoxy resin system conforming to Section 1017.

(2) Bituminous Adhesive: The adhesive shall be an asphaltic material with a homogeneously mixed mineral filler suitable for bonding pavement markers to portland cement concrete or asphaltic concrete pavements, when the road surface and marker temperatures are in the range of 40° to 160°F. The composition of the adhesive must be such that its properties will not deteriorate when heated to and applied at temperatures up to 425°F using either air or oil-jacketed melters.

The adhesive shall be an approved product on the QPL and shall comply with the following requirements.

a. Adhesive Properties:

	Min.	Max.	Test Method
Softening Point, °F	200	---	ASTM D 36
Penetration, 100g, 5 sec, 77°F	10	20	ASTM D 5
Flow, inch	---	0.2	AASHTO T 187 (1)
Heat Stability Flow, inch	---	0.2	AASHTO T 187 (2)
Viscosity, 400°F, poises	---	75	ASTM D 2669 (3)
Flash Point, COC, °F	550	---	ASTM D 92

Asphalt properties determined on the filler-free material derived from the extraction and Abson recovery process:

	Min.	Max.	Test Method
Penetration, 100g, 5 sec, 77°F	25	---	ASTM D 5
Viscosity, 275°F, poises	12	---	ASTM D 2171
Viscosity Ratio, 275°F, Aged/Original	---	2.2	

b. Filler Properties:

Filler Content, % by weight	50	75	AASHTO T 44
Filler Fineness, % passing			ASTM C 430(4)
Sieve No. 100	100		
Sieve No. 200	95		
Sieve No. 325	75		

Note (1) Flow shall be determined according to Section 6, Flow, of ASTM D 3407 except that the oven temperature shall be 158±2°F and sample preparation shall be according to Section 7.1 of ASTM D 5.

Note (2) Heat stability flow shall be determined according to flow except that 1000 grams of adhesive shall be placed in a covered quart can, heated to 425°F and maintained at this temperature for 4 hours prior to preparing the sample panel.

Note (3) Viscosity shall be determined according to ASTM D 2669 using a spindle speed of 10 rpm. The adhesive shall be heated to approximately 410°F and allowed to cool. Viscosity shall be determined at 400±1°F.

Note (4) Filler fineness shall be determined according to ASTM C 430 using Sieve Nos. 100, 200 and 325. This method shall be modified by the use of a water-soluble, non-ionic wetting agent, such as Triton X-100, to aid the wetting action. Concentration of the surfactant solution shall be approximately 1% by weight. The 1-gram dry sample shall be thoroughly wetted in the surfactant solution and allowed to soak for 30 minutes. The filler shall be transferred completely into the sieve cup and water-spray applied for 2 minutes. Surfactant solution may be added as needed and physical means used to disperse any clumped particles. The sample shall then be dried and handled as directed in ASTM C 430.

c. Sampling: Sampling for acceptance shall be performed at the marker applicator's warehouse or other storage facility. The marker applicator shall notify the District Laboratory in the District in which his storage facility is located of his desire for lot approval. Upon such request, District Laboratory personnel will randomly sample each pallet of adhesive (not exceeding 3,000 lb) at the rate of 5 lb per pallet. Each pallet will be considered a lot, and the pallet shall be satisfactorily labeled with the DOTD Lot Number. Samples will be forwarded to the Materials Laboratory for testing.

1015.10 THERMOPLASTIC PAVEMENT MARKINGS. The table under Heading (c)(8) is deleted and the following substituted.

Durometer Type	Hardness	Test Temperature
A2	65	115±3°F
A2	90	77±3°F

SECTION 1017
EPOXY SYSTEMS

1017.02 EPOXY RESIN SYSTEMS.

Heading (e)(1) is amended as follows. The 1st sentence is deleted and the following substituted. Types I, II and III epoxy resin systems, when tested in accordance with DOTD TR 701 thru 708, and ASTM C 881 and C 883, shall conform to the following requirements.

Heading (e)(2) is amended as follows. Paragraphs e. and f. are deleted and the following substituted.

e. Maximum allowable tensile elongation will be 9% when tested in accordance with DOTD TR 709.

f. Gel time of the mixed epoxy, when tested in accordance with DOTD TR 703, shall be 5 minutes, minimum.

Heading (e)(3) is amended as follows. The 1st sentence is deleted and the following substituted. Type V epoxy resin systems shall be specified by the supplier as standard set or rapid set and shall conform to the following requirements when tested in accordance with DOTD TR 703, 706, 707 and 702.

SECTION 1018
MISCELLANEOUS MATERIALS

1018.08 HARDWARE AND STRUCTURAL SHAPES.

(a) Hardware: The 2nd paragraph is deleted and the following substituted.

Machine bolts may have either square or hex heads and nuts. Nails shall be cut or round wire of standard form. Spikes shall be cut wire or boat spikes. Bridge hardware shall be galvanized in accordance with ASTM A 153 or by an approved mechanical galvanizing process that provides the same coating thickness.

1018.14 ELASTOMERIC BRIDGE BEARING PADS: Heading (e) is deleted and the following substituted.

(e) Load Testing: For laminated bearings, each bearing shall be subjected by the manufacturer to an average compression of 1000 psi. The performance of each bearing will be considered satisfactory if there is no visible evidence of bond failure or other damage to the bearing because of this loading. The Department will verify that pads meet this requirement by means of random testing.

(f) Certification: Prior to installation, the contractor shall furnish the Materials Engineer with a notarized material certificate of compliance listing (1) the proposed number of laminated bearing pads to be used itemized

by type and size, (2) manufacturer's name and lot number, and (3) the state project number. The certification shall also state that each laminated bearing pad shipped has been load tested and found to conform to specifications as described in Subsection 1018.14(e). It shall also state that the steel laminates in each pad are aligned as required in Subsection 1018.14(d).

Add 1018.25 FLY ASH. Fly ash shall be from a source listed on the QPL and shall conform to the following requirements when tested in accordance with ASTM C 311.

PROPERTY	PORTLAND CEMENT REPLACEMENT	GENERAL USE
$SiO_2+Al_2O_3+Fe_2O_3$, % min.	50.0	50.0
SO_3, % max.	5.0	5.0
MgO, % max.	- - -	6.0
CaO, % min.	- - -	18.0
Loss on Ignition, % max.	4.0	4.0
Alkali Content, Na_2O equivalent, % max.	1.5*	- - -
Moisture Content, % max.	3.0	3.0
Fineness, % retained when wet-sieved on No. 325, max.	25.0	25.0
Pozzolanic Activity Index, with portland cement at 28 days, % of control, min.	75	- - -
Water Requirement, % of control, max.	105	- - -
Autoclave Expansion or Contraction, % max.	0.8	- - -

*Applicable only when used in concrete containing reactive aggregate and cement.

Acceptance of each shipment of fly ash from an approved source will be based on an accompanying Certificate of Delivery showing the source, quantity of material in the shipment, and a statement indicating conformance of the fly ash in the shipment with specifications. Verification samples will be taken in accordance with DOTD S 102 of the Materials Sampling Manual at a minimum frequency of 1 sample per 100 tons per source. The sample shall be packaged in a moisture-proof container and sent to the Materials Section for testing.

STATE PROJECT NO. 502-44-36
TECHNICAL SPECIFICATIONS

SURVEY MOVEMENT MONITORING

SCOPE OF WORK: The contractor shall employ a professional land survey firm, at his expense, for the purpose of monitoring the movement of the structure during the dewatering process, actual work time and final flooding of the structure. The purpose for the monitoring is to prevent damage to the structure. It is of utmost importance that the contractor cooperate fully with the monitoring process.

QUALIFICATIONS: Within one week after the awarding of the contract, the contractor shall submit to the project engineer two copies of complete information on the professional land survey firm he plans to use. Qualifications of survey experience, with information regarding personnel to be used on this project must be provided. Approval or rejection shall be given by the Department following the review.

MOVEMENT MONITORING: Prior to dewatering, a total of thirteen (13) monitoring points shall be installed on the gate bay walls, the chamber walls and the gate bay floor. See Exhibit A for approximate locations of monitoring points. Monitor points B-1 and B-10 located on the floodwalls shall be used as bench marks. The Department shall furnish bench mark elevations to be used for monitoring vertical movement.

Elevation and measurement of the distance across the gate bay shall be taken every four hours during the dewatering and refilling periods. Horizontal measurements and settlement readings shall be taken on the chamber walls and across the gate bay floor after the chamber is dewatered as follows:

(1) immediately after dewatering;
(2) twice daily for the first three days;
(3) daily for the next five days; and
(4) weekly thereafter.

The MR-GO, Bayou Dupre, and gate bay stages shall be recorded daily.

All of the above data shall be recorded on tables similar to those in Exhibit B and C.

CESSATION OF WORK: The professional land survey firm shall work closely with the Department's inspectors and shall immediately inform the project engineer and Lake Borgne Levee Board should the structure indicate any movement. The contracotr shall furnish an operable mobile radio to the Department and shall maintain 24-hour radio contact with the Department and the Levee Board throughout the contract on the frequency of the Lake Borgne Basin Levee District.

In the event the structure should move an unacceptable amount, one-quarter of an inch (1/4") in any direction, the contractor will be notified immediately by the project engineer as to what actions shall be taken, including cessation of all work and flooding the structure. Payment for all work accomplished

prior to flooding will be due the contractor. Payment for cessation of work shall be made on the basis of a price agreed on, if feasible. Otherwise, payment will be made at actual cost to the contractor for all labor and materials used, plus fifteen percent (15%).

PAYMENT: Payment for Survey Movement Monitoring, complete and accepted, will be made at the contract lump sum price bid for the Item S-002, "Survey Movement Monitoring", which price and payment shall constitute full compensation for monitoring, labor, equipment and incidentals to complete the item.

STATE PROJECT NO. 502-44-36
TECHNICAL SPECIFICATIONS

DEWATERING

SCOPE OF WORK: The work consists of erecting concrete needle dams and dewatering the structure.

MONITORING POINTS (BY OTHERS): Prior to dewatering, monitoring points must be installed as provided for under "Survey Movement Monitoring", included elsewhere herein. Elevation and measurements of the distance across the gate bay will be taken throughtout the dewatering and refilling periods. Settlement readings will be taken on the chamber walls and across the gate bay floor after the chamber is dewatered. The MR-GO, Bayou Dupre and gate bay stages shall be recorded daily. All of the above data should be documented properly and five (5) copies furnished to the project engineer.

DEWATERING: Dewatering of the gate bay will be accomplished only at low water periods with adequate provisions made to terminate dewatering should water stages reach elevation 5.0 M.S.L. or above. When water stages reach elevation 5.0 M.S.L. the contractor must be prepared to flood the structure, close the gates and evacuate his men and equipment on orders from the project engineer. Reinforced concrete needles can remain in place during these flooding conditions.

Dewatering of the gate bay will be accomplished by placing reinforced concrete needles across gate opening on each side of the structure. The concrete needles are supported and secured at the top by a steel girder. At the bottom, the concrete needles fit into recesses in the base slab. Before placing the needles, it will be necessary to secure the services of a diver to clean out the needle dam recesses. At this time, it may be advantageous to partially close the gates. After the needles are set in place, the gate bay should be dewatered by lowering the water level at a rate not to exceed one half foot per hour.

Concrete needles (22) and steel girders (2), with accompanying hardware, to be used in the dewatering process are stored adjacent to the Bayou Bienvenue Control Structure located at the intersection of Bayou Bienvenue and the Mississippi River-Gulf Outlet. The contractor shall make arrangements for picking-up and returning needles and girders with Mr. Alan Francinques, Assistant Chief Engineer, Orleans Levee Board. The contractor shall advise the project engineer of the anticipated date for this work, so that the Contracting Agency may issue navigational notices for closure of the Bienvenue Structure and/or channel during loading and unloading operations. The presence of inspectors from both the Department and Orleans Levee Board is required for this work.

Needles are sculptured reinforced concrete, overall size 5'-1"x17'-4"x 1'-4". Since no spare needle is available, the contractor shall exercise the utmost care in all his operations in handling the needles. The contractor, at his own expense, shall provide wood strips, caulk and any other materials required to seal openings between concrete needles.

STATE PROJECT NO. 502-44-36
TECHNICAL SPECIFICATIONS

DEWATERING

Placing of the needle dam should be accomplished as follows:

1. Assemble girder and supports and place in needle girder recess.
2. Place and secure to girder eleven (11) needles at each end of the structure. Needles should be placed six on one side and five on the other with wood strips between the joints. This will leave a gap in the middle.
3. Drive a wooden wedge in the gap to make needles fit snug.
4. Pump water from structure and caulk joints where necessary.

Other methods of erecting needle dams shall be approved by the engineer prior to beginning work. The contractor shall submit five (5) copies to the project engineer, outlining his proposed method.

PAYMENT: Payment for the dewatering, complete in place and accepted, will be made at the contract lump sum price bid for the Item S-001 "Dewatering", which price and payment shall constitute full compensation for diver, all tools, labor, equipment and incidentals necessary to complete the item.

STATE PROJECT NO. 502-44-36
TECHNICAL SPECIFICATIONS

TIMBER FENDERS AND BUMPERS

SCOPE OF WORK: The work consists of furnishing all paint, labor, materials, and equipment and performing all operations in connection with the removal and reinstallation/replacement of timber fenders and bumpers on sector gates in accordance with these specifications and applicable drawings.

GENERAL: The contractor must remove all timbers on the sector gates before sandblasting and painting begins on the gates. All timbers will be reinstalled after paint has had sufficient time to cure. Existing timbers and hardware shall be reused if existing conditions permit and any timber or hardware determined unsuitable for reinstallation by the project engineer shall be replaced with new materials. In the event that existing timbers and/or hardware are damaged during the removal, the contractor will replace items damaged by him at no cost to the Board. Suitability of hardware will be determined by the project engineer.

MATERIALS:

(a) Timber and Lumber: Timber and lumber shall conform to Section 812 of the Standard Specifications and shall be "Dense Structural 65" Southern Pine as graded under the grading rules of the Southern Pine Inspection Bureau or other lumber of an equivalent grade approved by the project engineer. The timber shall be surfaced 4 sides and have full square edges when installed. The timber shall be accurately framed and beveled to dimensions shown and shall be neatly fitted in place.

Treatment of timber and lumber shall conform to Subsections 1014.03 and 1014.04 of the Standard Specifications. All timber shall be treated with creosote-coal tar with minimum retention of 16 pounds per cubic foot. Insofar as practical, cutting of timber and boring of holes shall be done prior to creosoting. Treatment of timber shall be inspected by DOTD inspectors in accordance with Section 106 and Part X-Preface of the Standard Specifications. Inspection shall be coordinated with the project engineer.

(b) Hardware: Hardware shall conform to Subsection 1018.08 of the Standard Specifications.

Bolts, nuts, steel washers and other metal items, except cast iron ogee washers, shall be galvanized. Dome head bolts shall be equal to "Lewis Sealtite Guard Rail Bolts", manufactured by Lewis Bolt and Nut Company, Minneapolis, Minnesota.

MEASUREMENT: Quantities of timber for payment will be the design quantities and adjustments thereto. The design quantities are based on the number of thousand board feet of timber in the completed work. Design quantities will be adjusted if the engineer makes changes to adjust for field conditions, if plan errors are proven or if design changes are necessary. Hardware will not be measured for payment.

PAYMENT: Payment for removing and reinstalling/replacing timber fender and bumpers, complete and accepted, will be made at the contract unit bid per thousand board feet (MFBM) for the Item S-005, "Timber Fender and Bumpers", which price and payment shall constitute full compensation for all materials, tools, labor, equipment and incidentals necessary to complete the item.

STATE PROJECT NO. 502-44-36
TECHNICAL SPECIFICATIONS

REPLACEMENT OF LADDERS

SCOPE OF WORK: The work consists of removing four (4) existing ladders and replacing them with four (4) new ladders. Ladders are located in the gate bay and on sector gates and are detailed on sheets 7 and 16 of the project plans. Construction of new ladders shall be equal to that shown on the plans.

MATERIALS:

(a) Ladders: Structural steel for ladders shall meet the requirements of specifications for "Structural Steel, ASTM Designation A36-70." Ladders, chains, and grab bars shall be fabricated and installed as shown on the plans.

(b) Ladder Safety Devices: Ladder safety devices shall be equal to those manufactured by "Air Space Inc.," Paramount, California.

SHOP DRAWINGS: The Contractor shall prepare and submit for approval nine (9) copies of complete shop drawings showing details of ladders and safety devices.

PAINTING: The painting of ladders, chains and grab bars shall be as specified in "Painting and Sandblasting", contained elsewhere herein.

PAYMENT: Payment for the replacement of ladders, complete and accepted, will be made at the contract lump sum price bid for Item S-006, "Replacement of Ladders", which price and payment shall constitute full compensation for all tools, labor, equipment and incidentals necessary to complete the item.

STATE PROJECT NO. 502-44-36
TECHNICAL SPECIFICATIONS

PAINTING AND SANDBLASTING

SCOPE OF WORK: The work consists of furnishing all plant, labor, equipment, appliances, and materials and in performing all operations in connection with preparation of surfaces and application of paint or other materials complete in strict accordance with the specifications and applicable plans.

REQUIREMENTS: Painting and sandblasting shall conform to sections 811 and 1008 of the Standard Specifications, except as amended elsewhere herein.

All metal surfaces below the water line shall be scraped to remove marine growth (barnacles, algae, etc.) before sandblasting and cleaning begins.

Paint shall not be applied to aluminum, rubber, corrosion-resisting steel, non-ferrous metal, galvanized parts, zinc anodes, finished or machine surfaces nor metal surfaces which are to be embedded in concrete.

The handrails on the structure shall not be sandblasted or painted. Work shall proceed from the bottom of the gates upward, with all primed work covered as work progresses.

MATERIALS: Within one week after the awarding of the contract the contractor shall submit to the project engineer two copies of complete information on all materials he plans to use. The material information shall be reviewed to determine if the materials meet or exceed the quality and quantity of those referred to in the specifications.

The required paint system and the surfaces to which they shall be applied is as follows:

Items or surfaces to be coated: All exposed steel surfaces including corner protection angles and plates, recess bearing plates, recess protection plates, needle girder and needle girder supports, sector gates, and ladders. Corner and recess protection plates outside the dewatered area shall be coated down to the water line.

(a) Primer: Shall be BYCO Zinc Gard 102-SP-86 Inorganic Zinc primer, or approved equal, 2.5 to 3 mils dry film thickness.

(b) Coal Tar Epoxy: Intermediate and top coat shall be Coal Tar Epoxy, conforming to Corps of Engineers Specification C-200, 2 coats, dry film thickness, 16 mils, color black.

NOTE: Primer, intermediate, and top coat shall be product of the same manufacturer.

The contractor shall follow paint manufacturer's instructions. The specified film thicknesses shall be attained in any event and any additional coats needed to do so shall be applied at no additional cost to the Board.

STATE PROJECT NO. 502-44-36
TECHNICAL SPECIFICATIONS

PAINTING AND SANDBLASTING

CLEANING OF SURFACES:

(a) General: Cleaning of surfaces shall conform to Subsection 811.06(a) and (b) of the Standard Specifications except surface shall be blasted to a White Metal Blast Cleaning, SSPC No. 5.

Surfaces to be painted shall be clean before applying paint or surface treatments. The removal of oil and grease shall, in general, be accomplished with mineral spirits or other low-toxicity solvents having a flashpoint above 100 degrees F before any machanical cleaning starts. Solvent cleaning shall be done with clean cloths and clean fluids to avoid leaving a thin film of greasy residue on the surfaces being cleaned.

Cleaning and painting shall be so scheduled that dust or other contaminants from the cleaning process do not fall on wet, newly painted surfaces, and surfaces not intended to be painted shall be suitably protected from the effects of cleaning and painting operations. Welding of, or in the vicinity of, previously painted surfaces shall be conducted in such a manner as to minimize coating damage; paint damaged by welding operations shall be restored to original condition. Machinery shall be protected against entry of blast abrasive and dust into working parts. Surfaces to be painted that will be inaccessible after construction erection, or installation operations are completed shall be painted before they become inaccessible.

APPLICATION: Paint application shall conform to manufacturer's recommendations. Because of the porosity of the inorganic coating, the contractor will apply a mist coat of coal tar epoxy prior to the application of a full coat to decrease or alleviate pinholing.

The finished coating shall be free from holidays, pinholes, bubbles, runs, drops, ridges, waves, laps, unnecessary brush marks, and variations in color, texture, and gloss. All paint coats shall be applied in such manner as to produce an even, continuous film of uniform thickness. Edges, corners, crevices, seams, joints, welds, rivets, and other surface irregularities shall receive special attention to insure that they receive an adequate thickness of paint. Spray equipment shall be equipped with traps, separators, mechanical agitators, pressure gages, pressure regulators, and screens or filters. Air caps, nozzles, and needles shall conform to the spray equipment manufacturer's recommendations for the material being applied. Airless-type spray equipment shall be used only on broad, flat, or otherwise simply configured surfaces.

WEATHER LIMITATIONS: Paint application shall conform to Subsection 811.05 of the Standard Specifications.

CONTACTING CORROSION-RESISTING AND CLAD METAL SURFACES: When ordinary bolted contact is to exist between surfaces of ferrous or other metal parts of substantially similar chemical composition, such surfaces shall be primed only and any resulting crevices shall subsequently be filled or sealed off with paint.

STATE PROJECT NO. 502-44-36
TECHNICAL SPECIFICATIONS

PAINTING AND SANDBLASTING

Contacting metal surfaces formed by high-strength bolts in friction-type connections shall not be painted. Unless otherwise specified, corrosion-resisting metal surfaces, including cladding therewith, shall not be painted.

PROGRESS OF PAINTING WORK: Where painting on any type of surface has commenced, the complete painting operations, including priming and finishing coats, on that portion of the work, shall be completed as soon as practical, without prolonged delays. Sufficient time shall elapse between successive coats to permit them to dry properly for recoating, and this period shall be modified as necessary to suit adverse weather conditions. Paint shall be considered dry for recoating when it feels firm, does not deform or feel sticky under moderate pressure of the finger, and the application of another coat of paint does not cause such film irregularities as lifting or loss of adhesion of the undercoat. An application time shall be in accordance with manufacturer's instructions. All coats of all painted surfaces shall be unscarred and completely integral at the time of application of succeeding coats. At the time of application of each successive coat, undercoats shall be cleaned of dust, grease, or foreign matter by means of airblast, solvent cleaning, or other suitable methods. Undercoats of high gloss shall, if necessary for establishment of good adhesion, be scuffed sanded, solvent wiped, or otherwise treated prior to application of succeeding coat.

DRYING TIME PRIOR TO IMMERSION: Final coats of painted surfaces that are to be immersed in water shall be permitted the maximum practical drying time but in any event the minimum requirements for curing according to paint manufacturer's recommendations shall be met for Coal Tar Epoxy paint systems.

INSPECTION AND TESTS: The contractor shall submit paint manufacturer's certification on the conformance of all paint materials to these specifications. Shelf life, manufacturing and certification dates shall be required on all products submitted.

Inspection of all surface preparation and paint application will be performed by an independent private inspection firm designated and paid for by the contractor and approved by the Department. Documentation of all inspection results by this firm shall be furnished to the project engineer. All tests on materials submitted by the contractor which fail to meet specifications as outlined will be rejected.

Until final acceptance of the contract, any material or work which has passed inspection and later found to be defective shall be subject to rejection and shall be replaced by the contractor at his own expense.

Tests specified in this section shall be performed by the DOTD testing lab. Except as otherwise indicated, inspection and test will be performed in accordance with the applicable provisions of the latest current revision of Federal Test Method Standard 141, entitled "Paint, Varnish, Lacque, and Related Materials; Methods of Inspection , Sampling, and Testing". Test methods described hereinafter unless otherwise stated are taken from the referenced standard.

STATE PROJECT NO. 502-44-36
TECHNICAL SPECIFICATIONS

PAINTING AND SANDBLASTING

PAYMENT: Payment for the painting and sandblasting, complete in place and accepted, will be made at the contract lump sum price bid for the Item S-004, "Painting and Sandblasting", which price and payment shall constitute full compensation for all tools, labor, equipment, cleaning surfaces to be painted, sandblasting, painting and incidentals necessary to complete the item.

STATE PROJECT NO. 502-44-36
TECHNICAL SPECIFICATIONS

CATHODIC PROTECTION

SCOPE OF WORK: The work consists of furnishing all plant, labor, material and equipment required for the removal and replacement of the entire cathodic system and the subsequent testing.

GENERAL: The cathodic protection system for the sector gates shall be of the sacrificial anode type, for details see drawings number 25 and 25A. Anodes shall be zinc, and of two basic types:

(a) Suspension Type (20 required-10 per gate): These shall weigh 150 pounds and shall fit inside a 6" perforated polyethylene pipe as detailed on the plans. Joint between anode lead and anode shall be watertight and factory made. Anode lead shall be high density polyethylene insulated, #4 copper minimum size.

The 3x10 creosote timber and attaching hardware behind the perforated pipes shall be replaced. Perforated pipes shall also be replaced by the contractor under this item of work.

(b) Ship Hull Type (24 required-12 per gate): These shall be 24 pound zinc anodes with four factory set steel straps, welded to the sector gate skin plate as shown on the plans.

Anodes shall have current efficiency of 90% (335 amps-hrs/lb) and shall meet the requirements of the latest revision of specification MIL-A-18001.

TESTING: The contractor shall be responsible for checking the cathodic protection system after all work is complete and the structure is reopened to marine traffic.

Potential measurements should be taken by experienced personnel.

The measurements shall be taken with a Copper-Copper Sulfate reference half cell and a high resistance voltmeter. Readings should be taken at 2-foot intervals of water depth at each location on each leaf gate.

The procedure is as follows:

(1) Determine structure to water potential by placing reference cell in water at desired depth and between 6 and 12 inches from steel structure.
(2) Adjust variable resistor, if used, to obtain a structure to water potential of -0.85 volts to reference half cell.
(3) Record date, gate leaf number, depth of cell, voltage, sketch of station location and number for future reference.
(4) Inspect all anodes, resistors, wiring and components, and connections for deterioration.
(5) Forward a copy of all the readings and inspection results to the Project Engineer immediately upon completion.
(6) Acceptance will be determined solely by the project engineer.

PAYMENT: Payment for the cathodic protection system, complete and accepted, will be made at the contract lump sum price bid for the Item S-007, "Cathodic Protection", which price and payment shall constitute full compensation for all tools, labor, equipment, furnishing and installing anodes, anode mountings, brackets, anode wiring, testing and incidentals necessary to complete the item.

STATE PROJECT NO. 502-44-36
TECHNICAL SPECIFICATIONS

REPLACEMENT OF STEEL CABLES

SCOPE OF WORK: The contractor shall remove and replace all four (4) existing steel wire rope cables which operate the sector gates, see plan sheet 22.

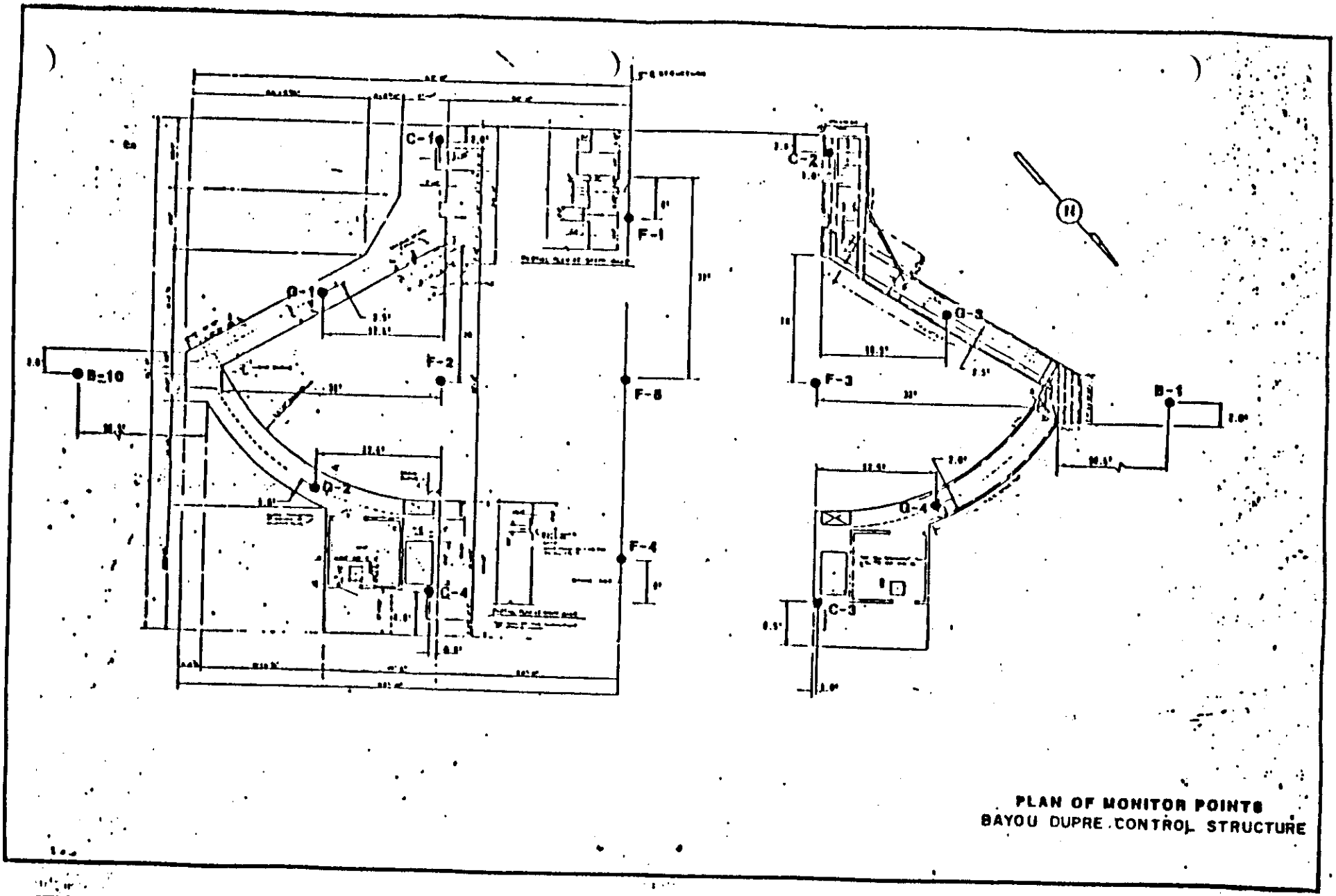
WIRE ROPE: Shall conform to Subsection 1009.10 of the Standard Specifications. It shall be 1-1/8 inch, 6x37, preformed, galvanized, extra flexible cable, Type 1, Class 3 and made of improved plow steel, regular lay, with fiber center. The fiber center shall be polypropylene; the fiber center and the individual wires shall be thoroughly lubricated during manufacture.

The wire rope shall have sufficient length so that when the gates are in the open position there will be at least 1-1/2 to 2-1/2 wraps of wire rope on the take-up spool. Each cable length shall be furnished 67'-0" long, instead of the 65'-0" length as shown on the plans. Removed wire rope shall be the property of the Levee Board and shall be delivered by the contractor to the Levee District yard in Violet.

WIRE ROPE SOCKETS: One end of each cable shall be factory equipped with a socket of forged steel open spelter, equal to Crosby-Laughlin #G-416.

INSTALLATION: Prior to installing cables the sheave assemblies shall be wiped clean of all grease and dirt. Wire rope shall be laid in a compound equal to Texaco Wire Rope Lubricant C. After replacement of wire rope cables the contractor shall adjust cables and operate gates to insure proper functioning of gates.

PAYMENT: Payment for the replacement of steel cables, complete and accepted, will be made at the contract lump sum price bid for the Item S-008 "Replacement of Steel Cables", which price and payment shall constitute full compensation for all tools, labor, equipment, furnishing and installing cables, sockets and incidentals necessary to complete the item.



PLAN OF MONITOR POINTS
BAYOU DUPRE CONTROL STRUCTURE

EXHIBIT A

FOR MONITORING
HORIZONTAL MEASUREMENTS

DATE	TIME	C-1/C-2	C-3/C-4	C-1/C-4	C-2/C-3	G-1/G-2	G-3/G-4	G-1/G-3	G-2/G-4

EXHIBIT B

FOR MONITORING
VERTICAL MEASUREMENTS

DATE	TIME	B-1	C-1	C-2	C-3	C-4	G-1	G-2	G-3	G-4	B-10	F-1	F-2	F-3	F-4	F-5	WATER ELEVATION			
																	GATE	BAY	MR-GO	BAYOU DUPRE

EXHIBIT C

BIDS52

LOUISIANA DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT

SCHEDULE OF ITEMS

LEAD PROJECT: 502-44-0036
OTHER PROJECTS:

DATE: 02/19/87 PAGE: 1

ITEM NUMBER	APPROXIMATE QUANTITY	UNIT OF MEASURE	PAY ITEM UNIT PRICE (IN WORDS, INK OR TYPED)	AMOUNT
727(01)	LUMP	LUMP SUM	MOBILIZATION EIGHTEEN THOUSAND THREE HUNDRED DOLLARS NO CENTS	$18,300.00
S-001	LUMP	LUMP SUM	DEWATERING FORTY-ONE THOUSAND EIGHT HUNDRED DOLLARS NO CENTS	$41,800.00
S-002	LUMP	LUMP SUM	SURVEY MOVEMENT MONITORING NINETEEN THOUSAND SEVEN HUNDRED DOLLARS NO CENTS	$19,700.00
S-003	LUMP	LUMP SUM	CLEANING STRUCTURE FIVE THOUSAND THREE HUNDRED DOLLARS NO CENTS	$5,300.00
S-004	LUMP	LUMP SUM	PAINTING AND SANDBLASTING EIGHTY-SIX THOUSAND NINE HUNDRED DOLLARS NO CENTS	$86,900.00
S-005	2.280	MFBM	TIMBER FENDER AND BUMPERS SIX THOUSAND FIVE HUNDRED DOLLARS NO CENTS	$14,820.00

SCHEDULE OF ITEMS

LEAD PROJECT: 502-44-0036
OTHER PROJECTS:

DATE: 02/19/87 PAGE: 2

ITEM NUMBER	APPROXIMATE QUANTITY	UNIT OF MEASURE	PAY ITEM UNIT PRICE (IN WORDS, INK OR TYPED)	AMOUNT
S-006	LUMP	LUMP SUM	REPLACEMENT OF LADDERS SIX THOUSAND NINE HUNDRED DOLLARS NO CENTS	$6,900.00
S-007	LUMP	LUMP SUM	CATHODIC PROTECTION FOURTEEN THOUSAND DOLLARS NO CENTS	$14,000.00
S-008	LUMP	LUMP SUM	REPLACEMENT OF STEEL CABLES THREE THOUSAND THREE HUNDRED DOLLARS NO CENTS	$3,300.00
S-009	LUMP	LUMP SUM	STAFF GAGES ONE THOUSAND ONE HUNDRED DOLLARS NO CENTS	$1,100.00
			DOLLARS CENTS	
			DOLLARS CENTS	

SIGNATURE REQUIREMENTS: Refer to Subsection 102.07 of the Standard Specifications for signature requirements.

(If a Firm or Individual)

NAME OF FIRM OR INDIVIDUAL _____

SIGNATURE _____

Names and Addresses of Members of the Firm (_____

(_____

(_____

(_____

(_____

(If a Corporation)

NAME OF CORPORATION Boh Bros. Construction Co., Inc.

SIGNATURE /s/Robert H. Boh

Names and Business Address of Officers

(President Robert H. Boh

(P.O. Drawer 53266, New Orleans, LA 70153

(Secretary Clyde Nary

(P.O. Drawer 53266, New Orleans, LA 70153

(Treasurer Clyde Nary

(P.O. Drawer 53266, New Orleans, LA 70153

LEGAL DOMICILE New Orleans, LA

Return Proposal Guaranty to (Boh Bros. Construction Co., Inc.

(P.O. Drawer 53266, New Orleans, LA 70153

STATE OF LOUISIANA

LAKE BORGNE BASIN LEVEE DISTRICT, ST. BERNARD PARISH

CONTRACT

This agreement is made and executed in seven (7) original copies, on this _____ day of _____ 19 _____, between Lake Borgne Basin Levee District, St. Bernard Parish acting through it's President, Party of the First Part, hereinafter designated as "Agency", and _____ Boh Bros. Construction Co., Inc., Contractor, Party of the Second Part, hereinafter designated as "Contractor".

In consideration of the agreements herein contained, to be performed by the parties hereto and of the payments hereinafter agreed to be made, it is mutually agreed as follows:

The Contractor will provide all materials, equipment and labor and perform the work required to complete in a thorough and workmanlike manner, to the satisfaction of the Chief Engineer of the Department of Transportation and Development

State Project No. 502-44-36

entitled Bayou Dupre Control Structure, Dewatering, Painting And Miscellaneous Repairs,

Parish St. Bernard consisting of dewatering, painting and miscellaneous repairs of the Bayou Dupree Control structure and related work,

in accordance with the plans and proposal on file at the Department of Transportation and Development in Baton Rouge, Louisiana, and with the 1982 Louisiana Standard Specifications for Roads and Bridges, and with the proposal and supplementary specifications and special provisions accompanying said proposal; copy of said plans, specifications and proposal are made a part hereof and hereby become a part of this contract.

The Contractor agrees to accept and the Agency agrees to pay for the work at the prices stipulated in said Proposal in lawful money of the United States in the time and manner set forth in the Standard Specifications.

Performance shall begin on the date stipulated in the "Notice to Proceed" and shall be completed within the time specified in said Proposal, subject to such extensions as may be authorized.

Total cost of State Project No. 502-44-36

is TWO HUNDRED TWELVE THOUSAND ONE HUNDRED TWENTY AND NO/100 - - - - - - - -

- DOLLARS ($ 212,120.00).

This contract shall become effective on the date all parties hereto have signed the same.

In witness whereof, the President has hereunto subscribed his name, and the same has been approved by the Lake Borgne Basin Levee District, St. Bernard Parish, and

____

Boh Bros. Construction Co., Inc. , Contractor, has also hereunto subscribed his name.

______________________ Witness	Boh Bros. Construction Co., Inc. Contractor
______________________ Witness	______________________ Federal Identification Number
	By ______________________
	LOUISIANA LAKE BORGNE BASIN LEVEE DISTRICT, ST. BERNARD PARISH
______________________ Witness	By ______________________ George E. Lopez, President
______________________ Witness	

LOUISIANA
LAKE BORGNE BASIN LEVEE DISTRICT, ST. BERNARD PARISH

CONTRACT/RETAINAGE BOND

Boh Bros. Construction Co., Inc.,

as Principal, and _____

_____,

a surety company or companies authorized to do business in Louisiana, as Surety, are bound, in solido, to the Lake Borgne Basin Levee District, St. Bernard Parish and to all subcontractors, workmen and furnishers of materials and equipment, jointly in the sum of TWO HUNDRED TWELVE THOUSAND ONE HUNDRED TWENTY AND NO/100 - DOLLARS ($ 212,120.00) payable in lawful money of the United States, and to this bond do obligate their heirs, successors and assigns. In the case of cosureties, the cosureties assume an obligation of the sum of _____ DOLLARS ($_____)

for _____

and _____ DOLLARS ($_____)

for _____.

The consideration of this bond is such, that if the Principal shall perform this contract, made and entered into on the _____

day of _____, 19_____, to construct State Project No. 502-44-36

entitled Bayou Dupre Control Structure, Dewatering, Painting and Miscellaneous Repairs

Parish St. Bernard, consisting of dewatering, painting and miscellaneous repairs of the Bayou Dupre control structure and related work according to the terms of said contract, attached hereto and made a part hereof, at the time and in the manner and form specified; perform all labor and work, and shall furnish all materials as specified in said contract, in accordance with said contract, and the plans and specifications thereto attached and made a part thereof; and pay all legal debts pertaining to construction of the project, including liens, monies due the Department, and bills for labor and materials used in performance of the work; this obligation shall be void; otherwise to remain in effect.

It is agreed by the parties that this bond is given in accordance with Louisiana Revised Statutes of 1950, Title 38, Chapter 10, Sections 2241 to 2248 inclusive, as revised by Act 195 of the 1986 Regular Legislative Session, and in accordance with Act 579 of the 1986 Regular Legislative Session, and is

limited to claims and claimants entitled to file and have recognized a timely filed sworn Statement of Amounts Due under Revised Statutes of 1950, Title 38, Chapter 10, Section 2242.

In faith whereof, we have subscribed this obligation at Chalmette, Louisiana.

Witness our hands and seals, this _____ day of _____

_____, 19____.

Witnesses

_____ Boh Bros. Construction Co., Inc.
Principal

_____ By _____

_____
Typed or Printed Name

_____ _____
First Surety

_____ By _____(Seal)
Attorney-in-Fact

_____
Typed or Printed Name

_____ _____
Second Surety

_____ By _____(Seal)
Attorney-in-Fact

_____
Typed or Printed Name

I certify that I am as of the date of this bond a licensed Resident Agent of Louisiana in good standing with the Louisiana Insurance Commission and authorized to countersign this bond on behalf of the Surety or Sureties.

First Surety

By _____

_____
Typed or Printed Name

_____
Name of Agency

_____
Address

Second Surety

By _____

_____
Typed or Printed Name

_____
Name of Agency

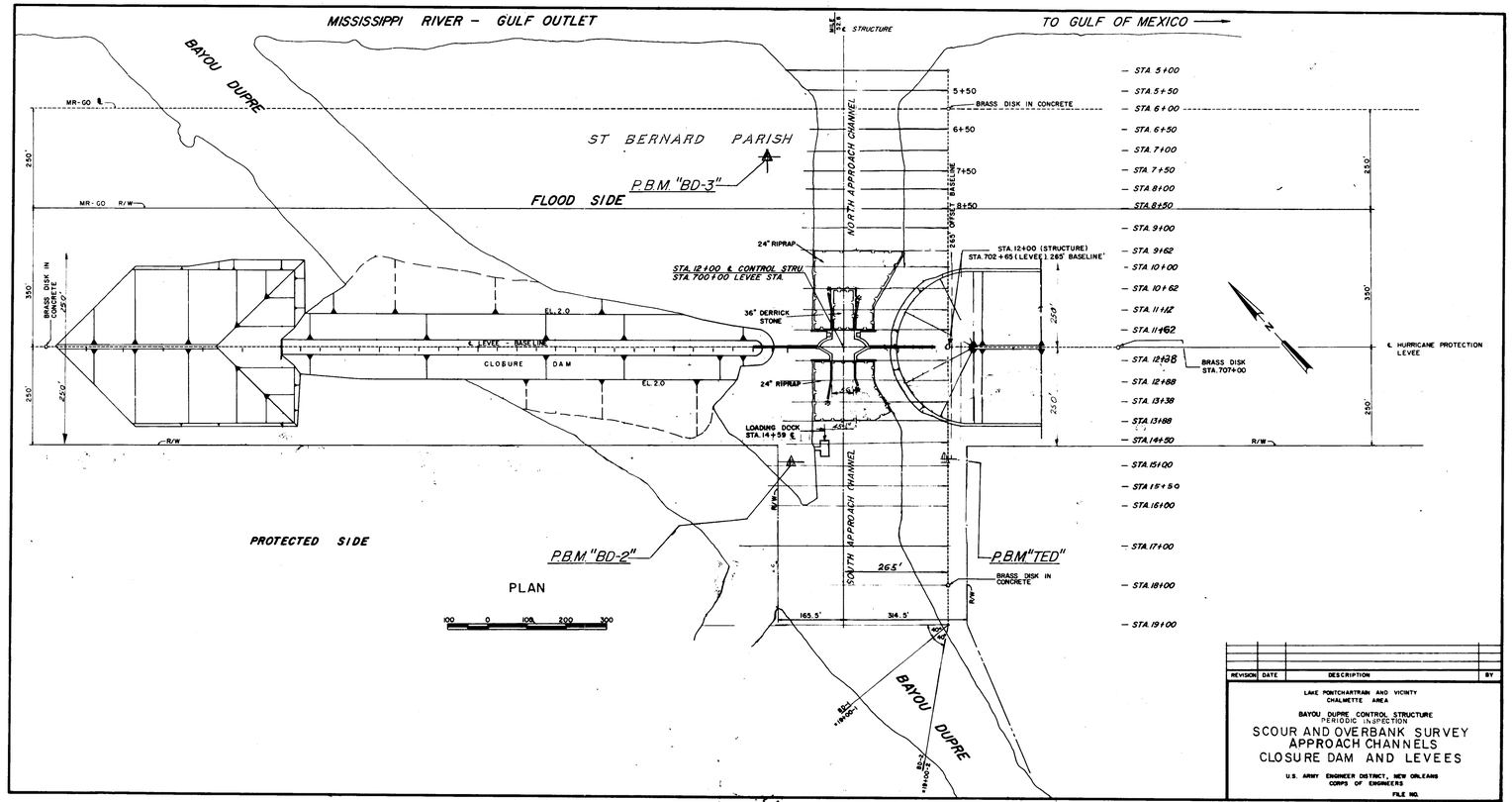
_____
Address

8/86
Form PW-18AA

APPENDIX A

INSTRUMENTATION DRAWINGS

BAYOU DUPRE CONTROL STRUCTURE
INDEX OF INSTRUMENTATION PLATES



REVISION	DATE	DESCRIPTION	BY

LAKE PONTCHARTRAIN AND VICINITY
CHALMETTE AREA

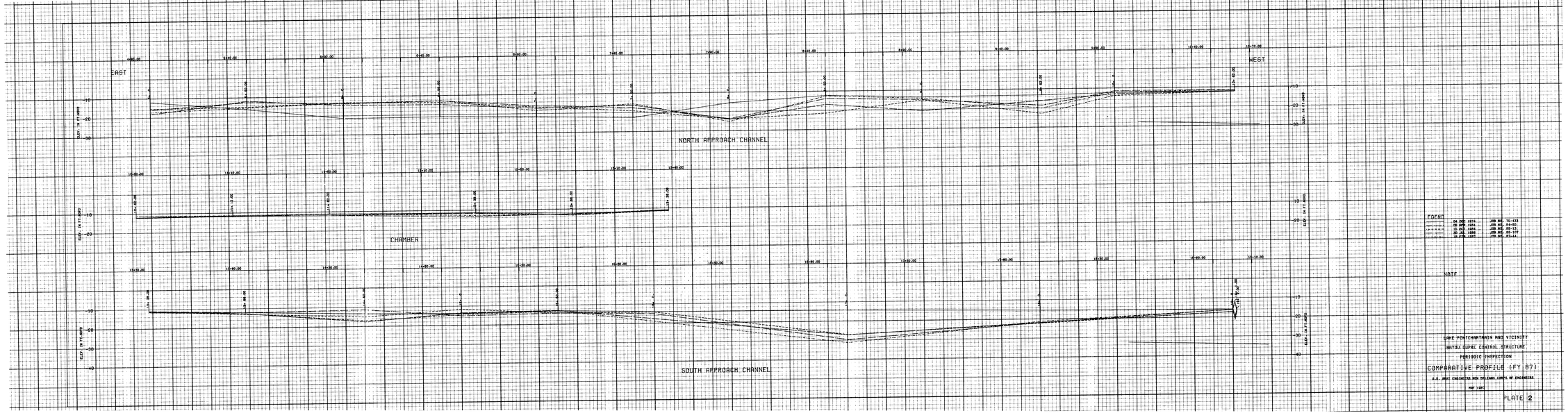
BAYOU DUPRE CONTROL STRUCTURE
PERIODIC INSPECTION

SCOUR AND OVERBANK SURVEY
APPROACH CHANNELS
CLOSURE DAM AND LEVEES

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

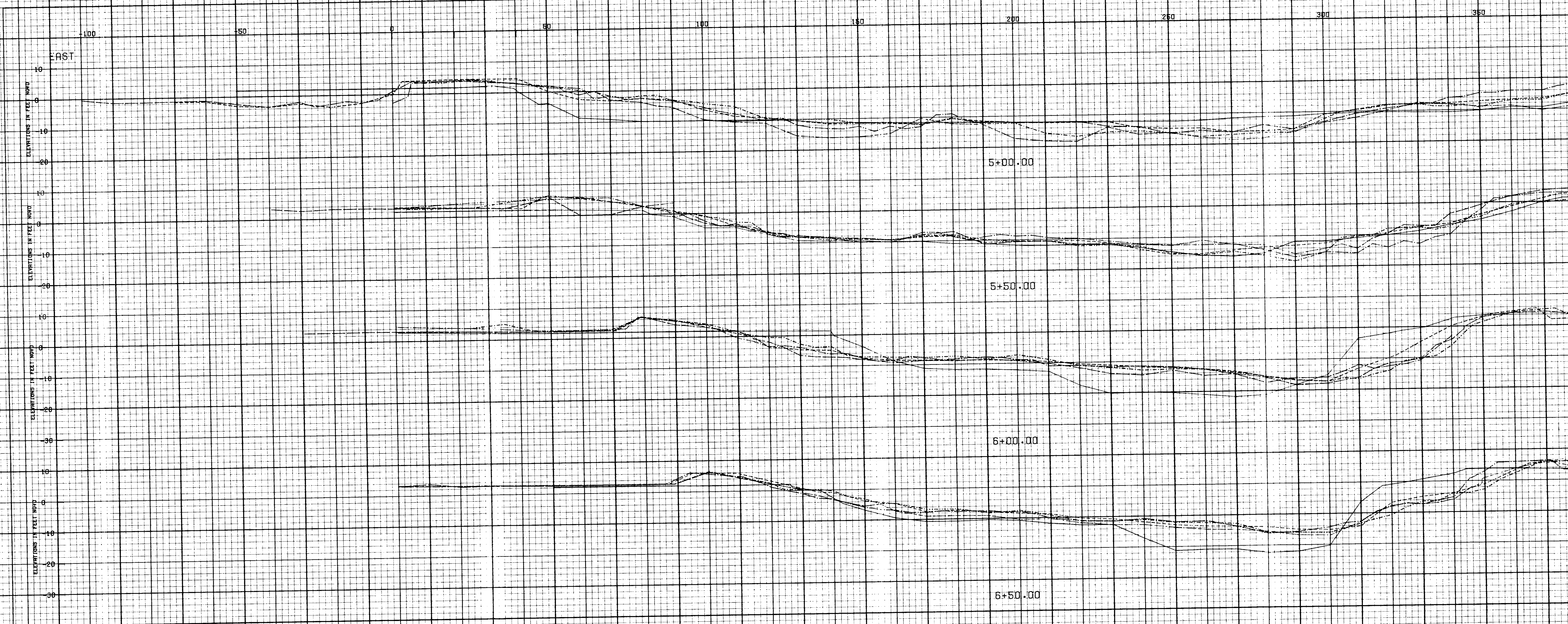
FILE NO.

PLATE 1 (DUP-1)



LAKE PONTCHARTRAIN AND VICINITY
BAYOU CLIPRE CONTROL STRUCTURE
PERIODIC INSPECTION
COMPARATIVE PROFILE (FY 87)
U.S. ARMY ENGINEER DIV. NEW ORLEANS, CORPS OF ENGINEERS
MAY 1987

PLATE 2



LEGEND

04 DEC 74	JOB NO. 75-433
05 APR 84	JOB NO. 84-060
15 OCT 84	JOB NO. 85-013
30 JUL 86	JOB NO. 86-107
18 FEB 87	JOB NO. 87-044

NOTE
SECTIONS PLOTTED LOOKING SOUTH

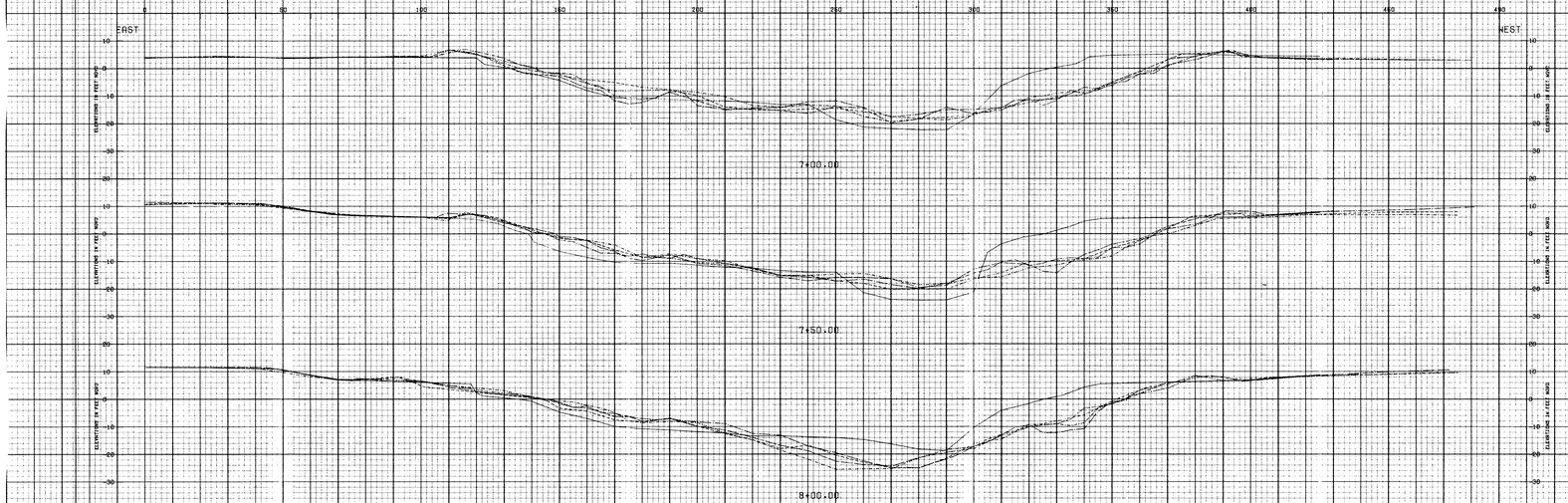
STATION
5+00
5+50
6+00
6+50

LAKE PONTCHARTRAIN AND VICINITY
CHALMETTE AREA
BAYOU DUPRE CONTROL STRUCTURE
SCOUR SURVEY (74-87)

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

SHEET NO FEB 1987 FILE NO

PLATE 3



STATION
7+00
7+50
9+00

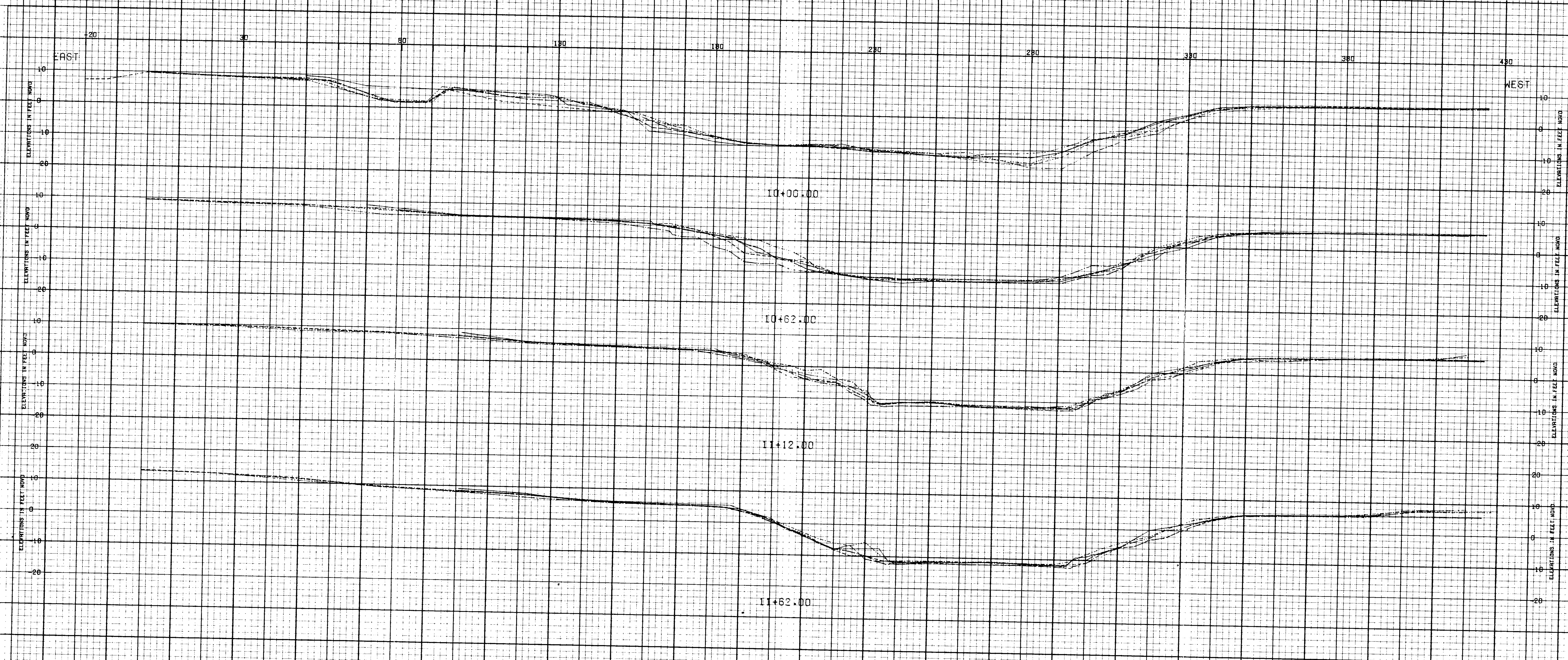
LAKE PONTCHARTRAIN AND VICINITY
CHALMETTE AREA
BAYOU DUPRE CONTROL STRUCTURE
SCOUR SURVEY (74-87)

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

SHEET NO | FEB 1987 | FILE NO

PLATE 4


EAST
WEST
ELEVATIONS IN FEET NGVD
8+50.00
9+00.00
9+62.00
LEGEND
04 DEC 74 JOB NO. 75-433
05 APR 84 JOB NO. 84-060
15 OCT 84 JOB NO. 85-013
30 JUL 86 JOB NO. 86-107
18 FEB 87 JOB NO. 87-044
NOTE
SECTIONS PLOTTED LOOKING SOUTH
STATION
8+50
9+00
9+62
LAKE PONTCHARTRAIN AND VICINITY
CHALMETTE AREA
BAYOU DUPRE CONTROL STRUCTURE
SCOUR SURVEY (74-87)
U.S. ARMY ENGINEERS, NEW ORLEANS CORPS OF ENGINEERS
SHEET NO
FEB 1987
FILE NO
PLATE 5



LEGEND

04 DEC 74 JOB NO. 75-433
06 APR 84 JOB NO. 84-060
15 OCT 84 JOB NO. 85-013
30 JUL 86 JOB NO. 86-107
18 FEB 87 JOB NO. 87-044

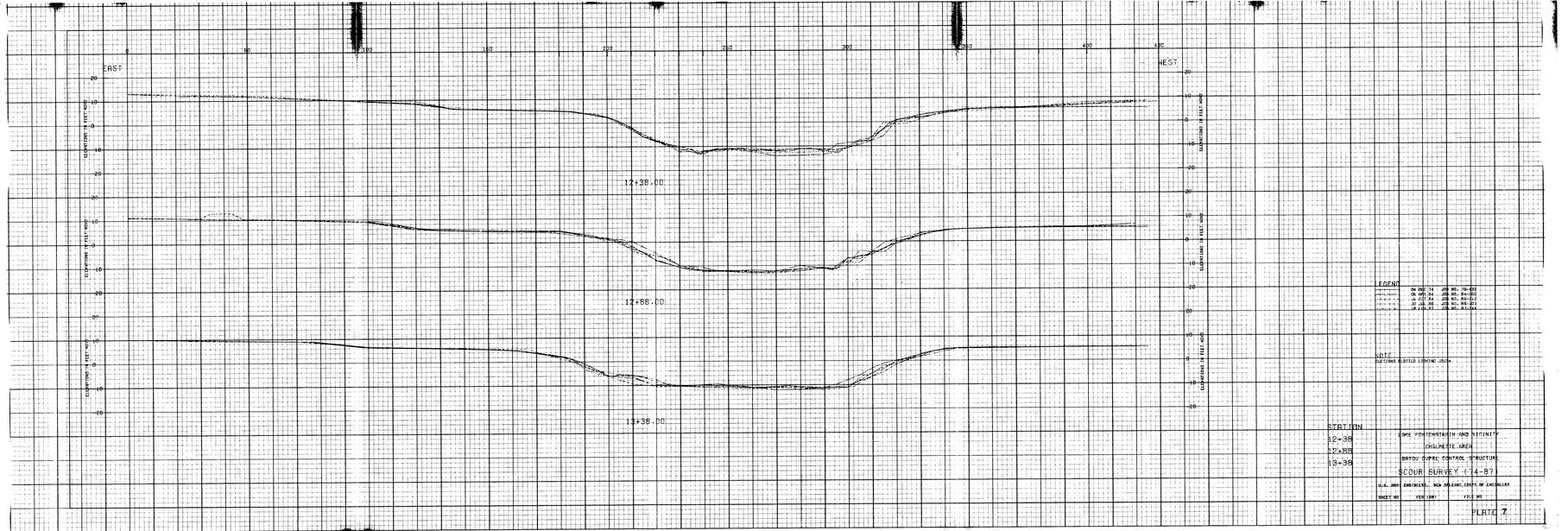
NOTE
SECTIONS PLOTTED LOOKING SOUTH

STATION
10+00
10+62
11+12
11+62

LAKE PONTCHATRAIN AND VICINITY
CHALMETTE AREA
BAYOU DUPRE CONTROL STRUCTURE
SCOUR SURVEY (74-87)

U.S. ARMY ENGINEERS, NEW ORLEANS CORPS OF ENGINEERS
SHEET NO FEB 1987 FILE NO

PLATE 6


EAST
WEST
ELEVATION IN FEET NGVD
12+38.00
12+88.00
13+38.00
LEGEND
NOTE
STATION
12+38
12+88
13+38
CAPE PONTCHARTRAIN (2ND) VICINITY
CHALMETTE AREA
BAYOU DUPRE CONTROL STRUCTURE
SCOUR SURVEY (14-87)
U.S. ARMY ENGINEERS, NEW ORLEANS, CORPS OF ENGINEERS
SHEET NO
FEB 1987
FILE NO
PLATE 7

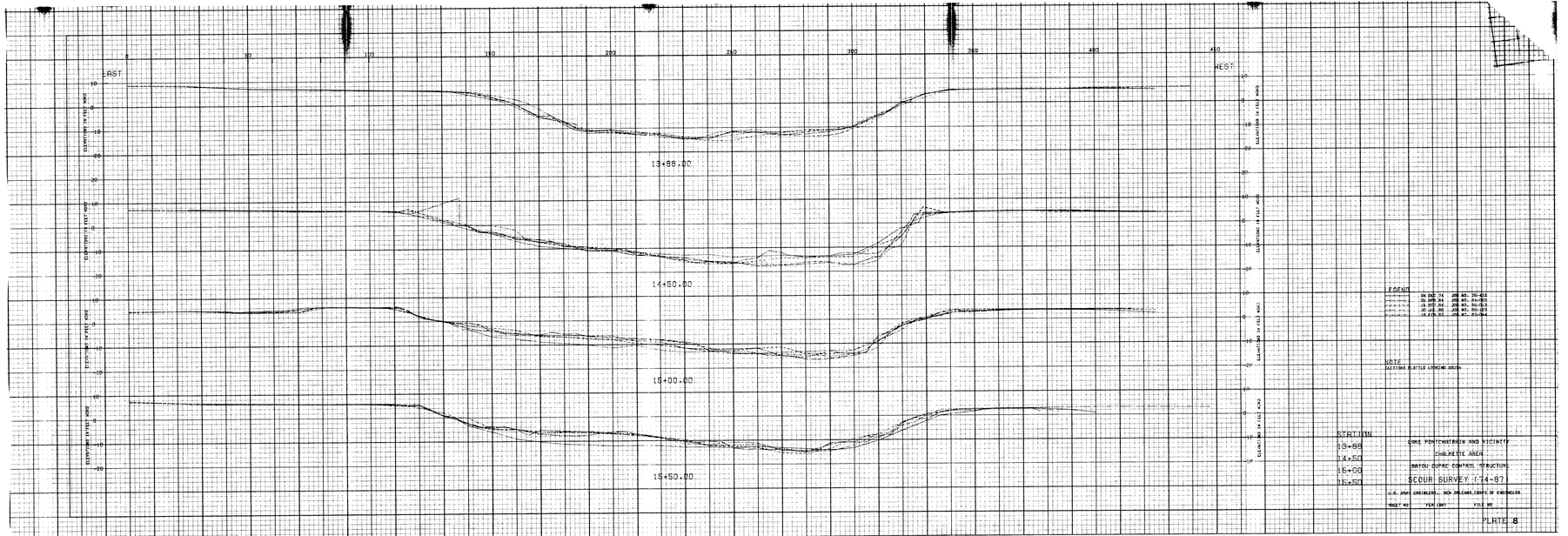

EAST
WEST
13+88.00
14+50.00
15+00.00
15+50.00
ELEVATION IN FEET (NGVD)
LEGEND
NOTE
SECTIONS PLOTTED LOOKING SOUTH
STATION
13+88
14+50
15+00
15+50
LAKE PONTCHARTRAIN AND VICINITY
CHALMETTE AREA
BAYOU DUPRE CONTROL STRUCTURE
SCOUR SURVEY 1974-87
U.S. ARMY ENGINEER... NEW ORLEANS, CORPS OF ENGINEERS
SHEET NO
FEB 1987
FILE NO

PLATE 8

LEGEND

————	04 DEC 74	JOB NO. 75-433
— — —	05 APR 84	JOB NO. 84-060
- - - -	15 OCT 84	JOB NO. 85-013
—·—·—	30 JUL 86	JOB NO. 86-107
-·-·-·-	18 FEB 87	JOB NO. 87-144

NOTE
SECTIONS PLOTTED LOOKING SOUTH.

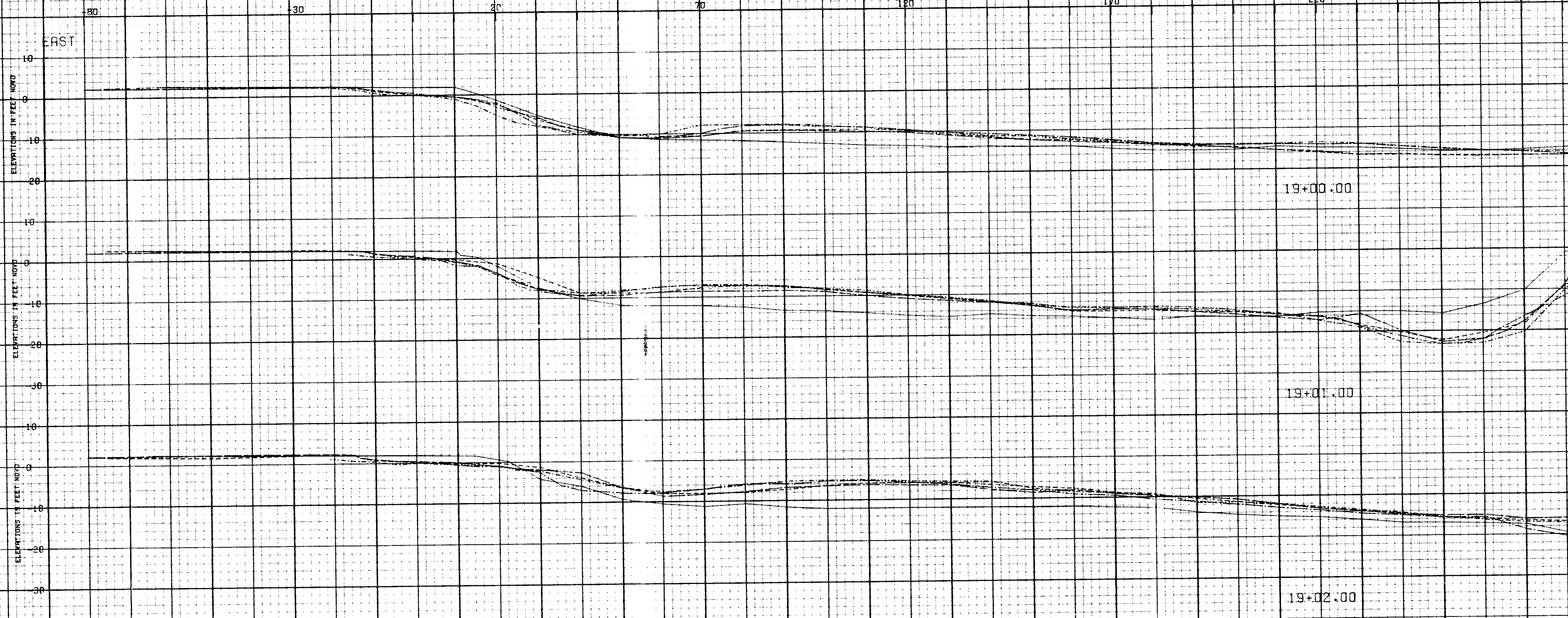
STATION
16+00
17+00
18+00

LAKE PONTCHATRAIN AND VICINITY
CHALMETTE AREA
BAYOU DUPRE CONTROL STRUCTURE
SCOUR SURVEY (74-87)

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

SHEET NO   FEB 1987   FILE NO

PLATE 9



LEGEND

04 DEC 74	JOB NO. 75-433
06 APR 84	JOB NO. 84-060
15 OCT 84	JOB NO. 85-013
30 JUL 86	JOB NO. 86-107
18 FEB 87	JOB NO. 87-044

NOTE
SECTIONS PLOTTED LOOKING SOUTH

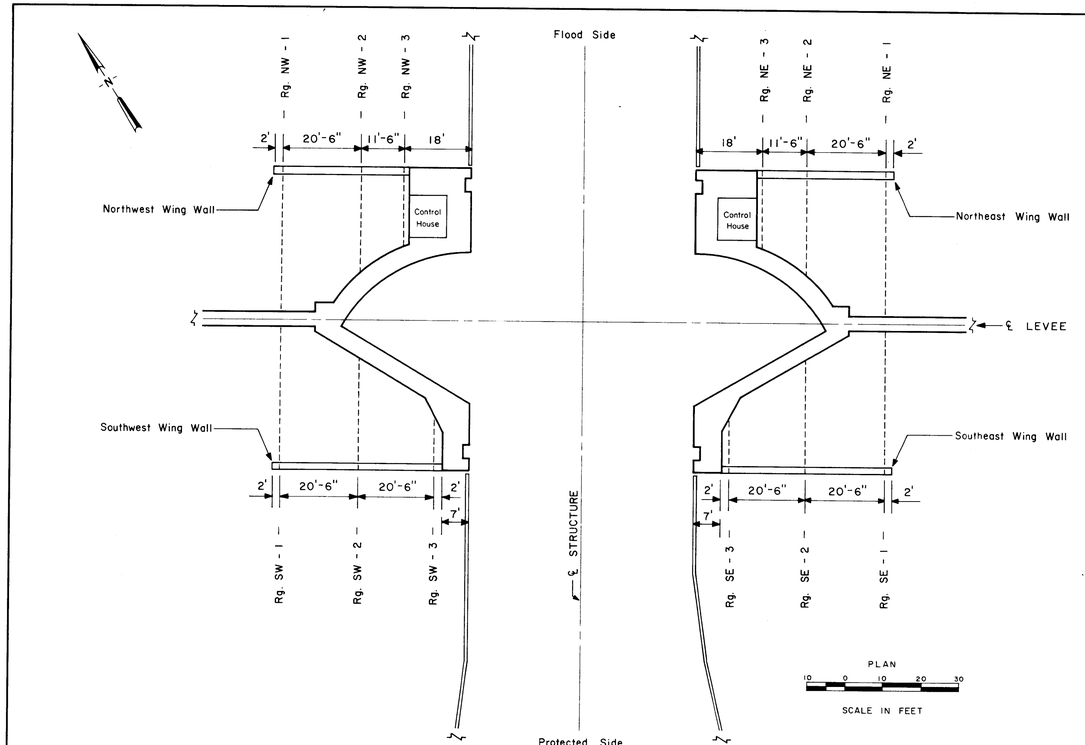
STATION
19+00
19+01
19+02

LAKE PONTCHATRAIN AND VICINITY
CHALMETTE AREA
BAYOU DUPRE CONTROL STRUCTURE
SCOUR SURVEY (74-87)

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

SHEET NO   FEB 1987   FILE NO

PLATE 10



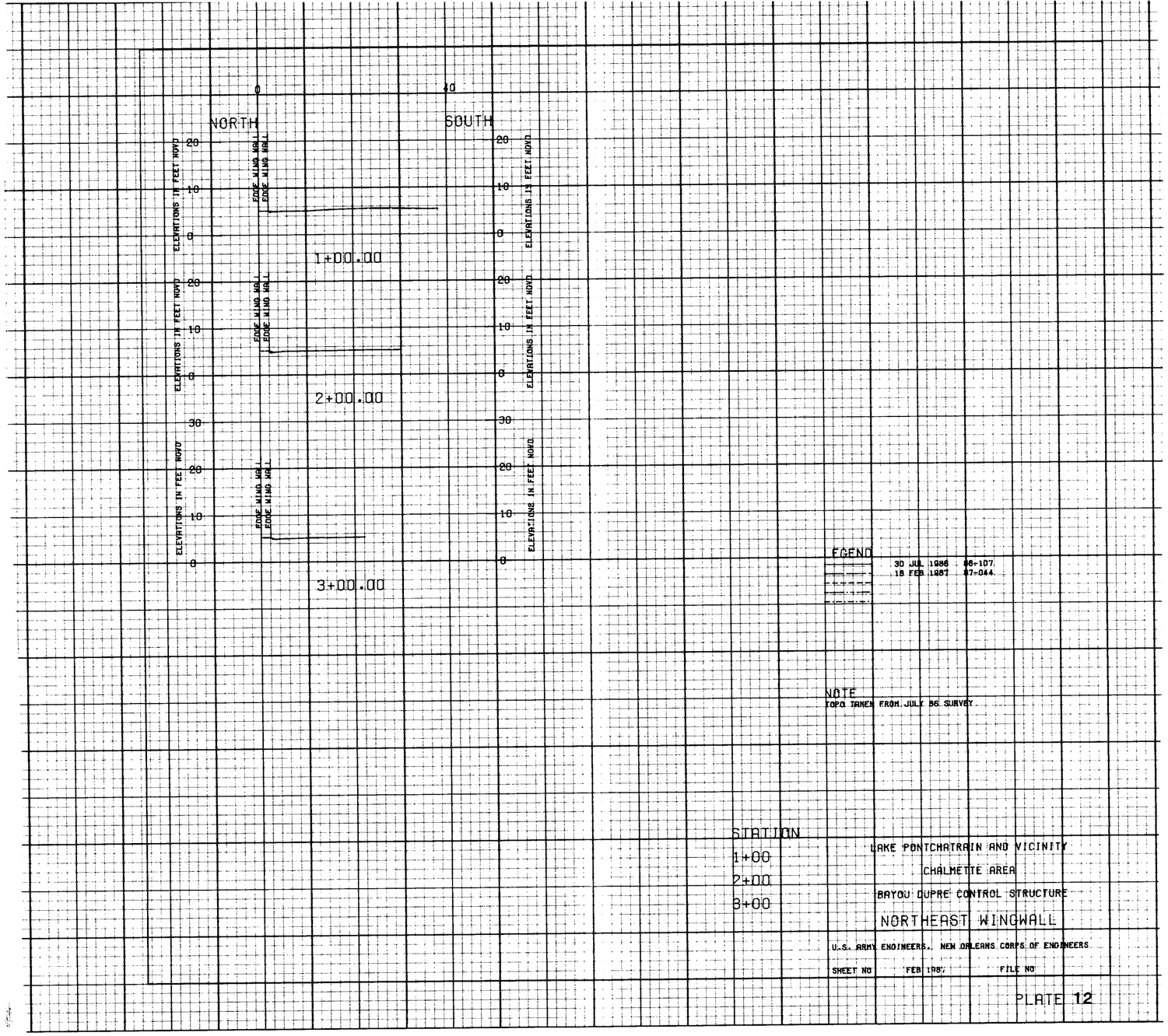
LAKE PONTCHARTRAIN AND VICINITY
BAYOU DUPRE
PERIODIC INSPECTION

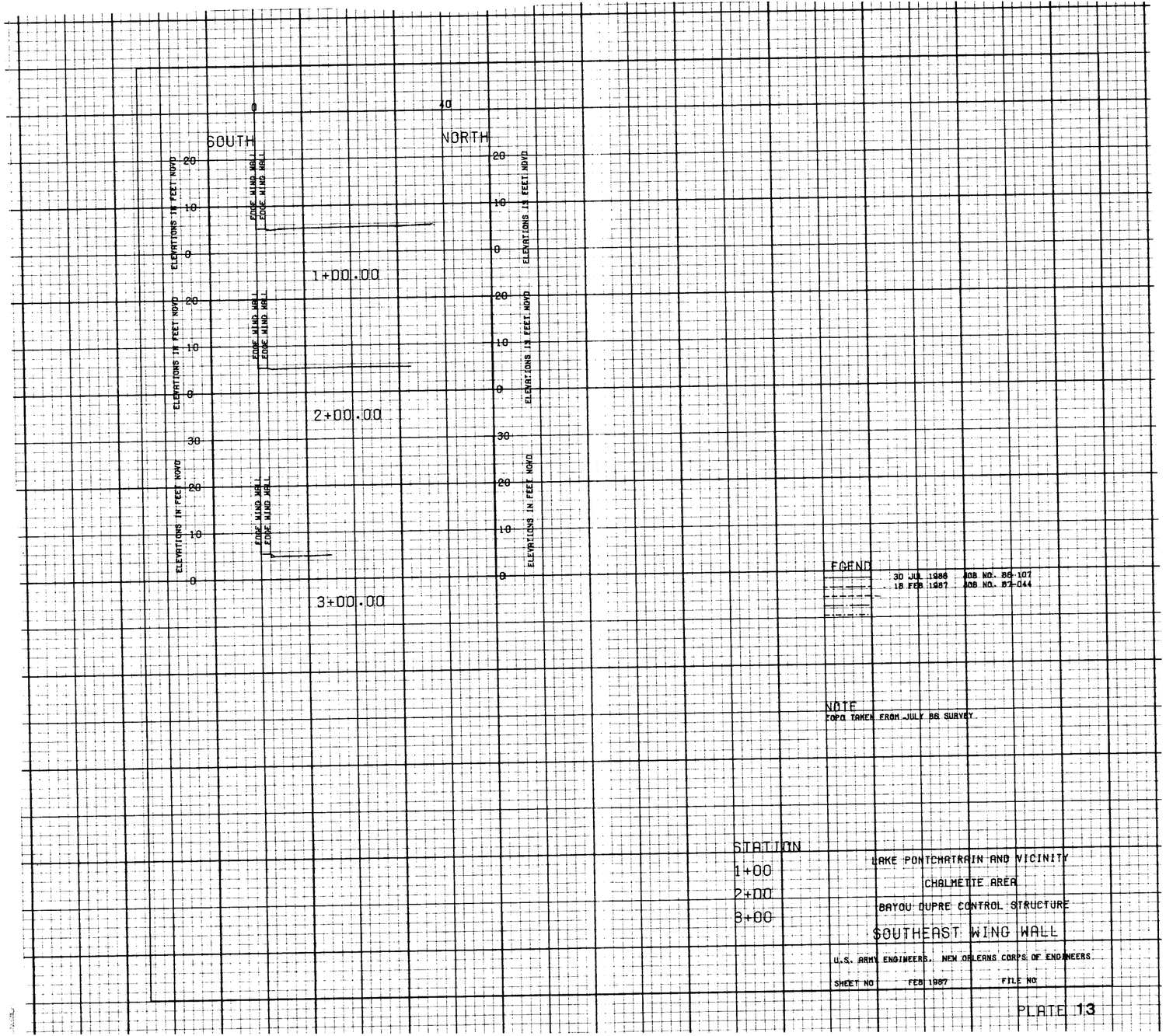
WING WALL RANGE LAYOUT

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

FILE NO.

PLATE 11 (DUP-3)


NORTH
SOUTH
0
10
ELEVATIONS IN FEET NGVD
20
10
0
20
10
0
30
20
10
0
EDGE WING WALL
EDGE WING WALL
1+00.00
2+00.00
3+00.00
LEGEND
30 JUL 1986 86-107.
18 FEB 1987 87-044.
NOTE
TOPO TAKEN FROM JULY 86 SURVEY
STATION
1+00
2+00
3+00
LAKE PONTCHARTRAIN AND VICINITY
CHALMETTE AREA
BAYOU DUPRE CONTROL STRUCTURE
NORTHEAST WINGWALL
U.S. ARMY ENGINEERS, NEW ORLEANS CORPS OF ENGINEERS
SHEET NO
FEB 1987
FILE NO
PLATE 12


0
40
SOUTH
NORTH
ELEVATIONS IN FEET NGVD
20
10
0
30
EDGE WING WALL
1+00.00
2+00.00
3+00.00
LEGEND
30 JUL 1986 JOB NO. 86-107
18 FEB 1987 JOB NO. 87-044
NOTE
TOPO TAKEN FROM JULY 86 SURVEY
STATION
1+00
2+00
3+00
LAKE PONTCHARTRAIN AND VICINITY
CHALMETTE AREA
BAYOU DUPRE CONTROL STRUCTURE
SOUTHEAST WING WALL
U.S. ARMY ENGINEERS, NEW ORLEANS CORPS OF ENGINEERS
SHEET NO
FEB 1987
FILE NO
PLATE 13

0
40
SOUTH
NORTH
30
20
10
0
ELEVATIONS IN FEET NGVD
EDGE WING WALL
EDGE WING WALL
1+00.00
2+00.00
3+00.00
LEGEND
30 JUL 1986 JOB NO. 86-107
02 FEB 1987 JOB NO. 87-044
NOTE
TOPO. TAKEN FROM JULY 86 SURVEY.
STATION
1+00
2+00
3+00
LAKE PONTCHARTRAIN AND VICINITY
CHALMETTE AREA
BAYOU DUPRE CONTROL STRUCTURE
SOUTHWEST WING WALL
U.S. ARMY ENGINEERS, NEW ORLEANS CORPS OF ENGINEERS
SHEET NO
FEB 1987
FILE NO
PLATE 14

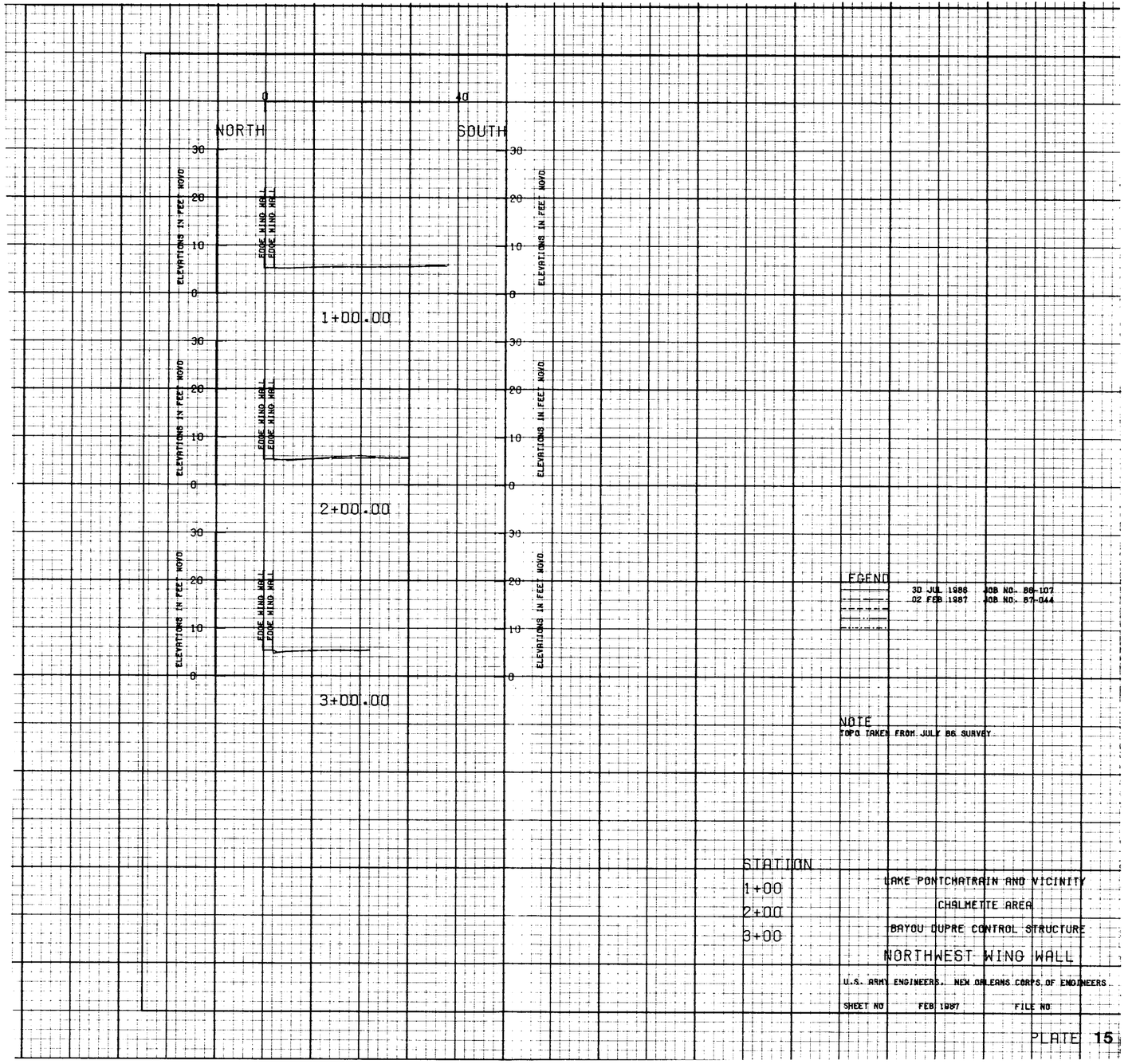
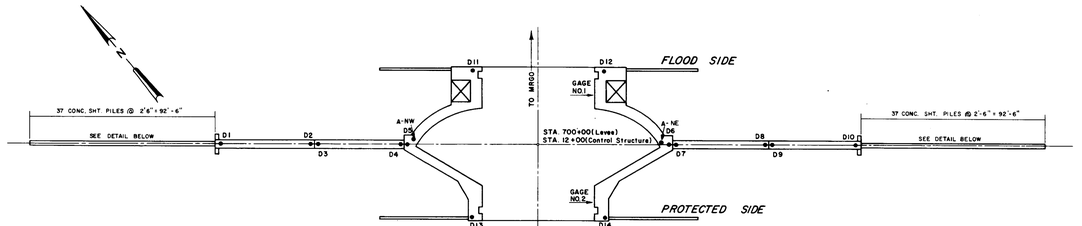

0
40
NORTH
SOUTH
30
20
10
0
ELEVATIONS IN FEET NGVD
EDGE WING WALL
EDGE WING WALL
1+00.00
2+00.00
3+00.00
LEGEND
30 JUL 1986 JOB NO. 86-107
02 FEB 1987 JOB NO. 87-044
NOTE
TOPO TAKEN FROM JULY 86 SURVEY
STATION
1+00
2+00
3+00
LAKE PONTCHARTRAIN AND VICINITY
CHALMETTE AREA
BAYOU DUPRE CONTROL STRUCTURE
NORTHWEST WING WALL
U.S. ARMY ENGINEERS, NEW ORLEANS CORPS OF ENGINEERS
SHEET NO
FEB 1987
FILE NO

PLATE 15



SETTLEMENT REFERENCE MARKS - CONCRETE SHEET PILE WALL
NOT TO SCALE

SETTLEMENT REFERENCE MARKS - CONCRETE SHEET PILE WALL
NOT TO SCALE

DISTANCE TO REFERENCE MARKS								
NO. OF REFERENCE MARKS		D2 - D3	D4 - D5	D5 - D6	D6 - D7	D8 - D9	D11 - D12	D13 - D14
INITIAL DATE		6-7-74	6-7-74	6-7-74	6-7-74	6-7-74	6-7-74	6-7-74
ORIGINAL READINGS		4.00	4.05	129.96	4.00	4.00	64.17	64.08
DATE OF OBSERVATION	2 APRIL 1984	4.04	4.08	—	4.04	4.04	—	—
	10 OCTOBER 1984	4.02	4.08	—	4.04	4.02	—	—
	28 JULY 1986	4.03	4.08	—	4.03	4.03	—	—
	18 FEBRUARY 1987	4.03	4.09	—	4.05	4.04	—	—

PBM TED Elevation N.G.V.D.
Galvanized pipe, 1½ inches in diameter, was set in bore hole at a depth of 95 feet. The 1½-inch diameter pipe was then driven an additional 10.5 feet into strata. PBM is on the east side of Bayou Dupre, south side of the structure, 105 feet from Bayou Dupre and 282 feet from the wall of the structure. The 1¼-inch pipe is protected by 3-inch diameter galvanized pipe with cap and three 1¼-inch guard posts painted yellow.

PBM BD-2 Elevation N.G.V.D.
Galvanized pipe, 1¼ inches in diameter, was set in bore hole at 95 feet, then driven an additional 10.5 feet into strata. PBM is on the west side of Bayou Dupre and on the south side of the structure, 67 feet from Bayou Dupre and 291 feet from the wall of the structure. The 1½-inch pipe is protected by 3-inch diameter galvanized pipe with cap and three 1¼-inch guard post painted yellow.

NOTE:
Bench marks set and vertical control established during the months of May and June 1974 by the Survey Branch. All elevations are expressed in feet and refer to N.G.V.D.

PBM BD-3 Elevation N.G.V.D.
Galvanized pipe, 1¼ inches in diameter was set in bore hole at a depth 95 feet then driven an additional 10.5 feet into strata. PBM is on the west side of Bayou Dupre and 128 feet west of Bayou Dupre and 483 feet from the wall of the structure. The 1¼-inch diameter pipe is protected by 3-inch diameter galvanized pipe with cap and three 1½-inch guard posts painted yellow.

* This gage may be in error as 3 new PBMs were set during May and June 1974. The present gage was set by general contractor earlier.

REVISION	DATE	DESCRIPTION	BY

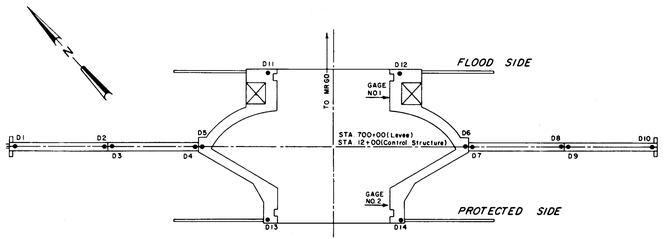
LAKE PONTCHARTRAIN AND VICINITY
BAYOU DUPRE
PERIODIC INSPECTION

INSTRUMENTATION LOCATION

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

FILE NO.

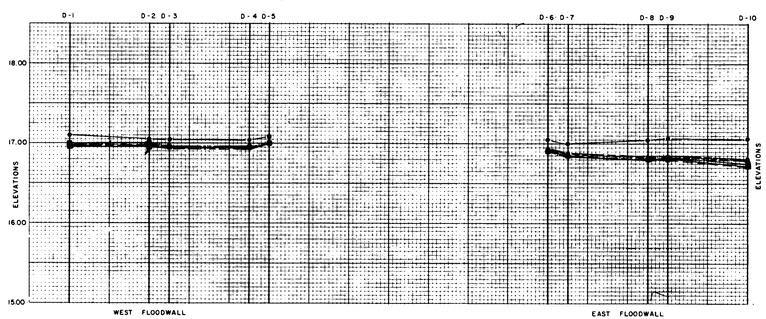
PLATE 16



PLAN

20 0 20 40 60

SCALE IN FEET

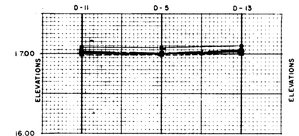


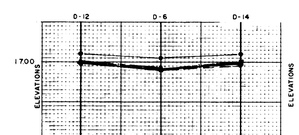
PROFILE

SETTLEMENT REFERENCE MARKS

NO. OF REFERENCE MARKS	D-1	D-2	D-3	D-4	D-5	D-6	D-7	D-8	D-9	D-10	D-11	D-12	D-13	D-14	TEMP	GAGE 1	GAGE 2
INITIAL DATE	7-20-74	7-20-74	7-20-74	7-20-74	7-20-74	7-20-74	7-20-74	7-20-74	7-20-74	7-20-74	7-20-74	7-20-74	7-20-74	7-20-74	91°	1.6	1.5
ORIGINAL READINGS	17.07	17.04	17.03	17.03	17.07	17.04	17.01	17.03	17.05	17.05	17.07	17.10	17.10	17.09			
17 JUNE 1982	16.99	16.98	16.96	16.95	17.00	16.92	16.88	16.86	16.87	16.81	17.01	17.01	17.03	17.00	85°	0.7	0.6
17 DECEMBER 1982	16.97	16.96	16.95	16.94	16.99	16.90	16.85	16.83	16.84	16.79	16.99	17.01	16.93	16.98	53°	1.2	1.4
2 APRIL 1984	16.99	16.98	16.96	16.96	17.01	16.91	16.87	16.84	16.85	16.78	17.01	17.00	17.04	16.99	60°	- 0.4	
10 OCTOBER 1984	16.98	16.98	16.96	16.96	17.0	16.90	16.85	16.82	16.83	16.75	17.01	16.98	17.04	16.99	76°	1.4	1.4
29 JULY 1986	16.96	16.96	16.94	16.94	16.99	16.89	16.84	16.80	16.81	16.72	17.00	16.99	17.02	16.98	87°	1.1	1.1
18 FEBRUARY 1987	16.96	16.95	16.94	16.94	16.99	16.88	16.83	16.78	16.79	16.70	16.99	16.97	17.01	16.96	46°	0.2	0.2

DATE OF OBSERVATIONS





LEGEND

- 20 July 1974
- 17 June 1982
- 17 Dec 1982
- 2 Apr. 1984
- 10 Oct. 1984
- 29 July 1986
- 18 Feb. 1987

LAKE PONTCHARTRAIN AND VICINITY
BAYOU DUPRE
PERIODIC INSPECTION

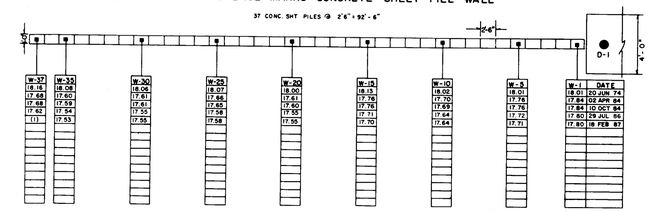
SETTLEMENT REFERENCE MARKS PLAN AND PROFILE

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

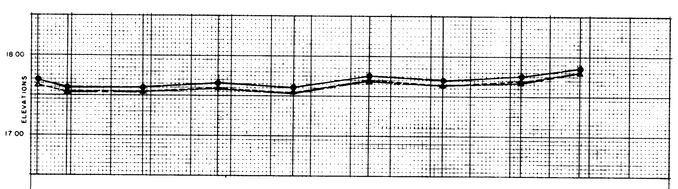
FILE NO.

PLATE 17

SETTLEMENT REFERENCE MARKS-CONCRETE SHEET PILE WALL



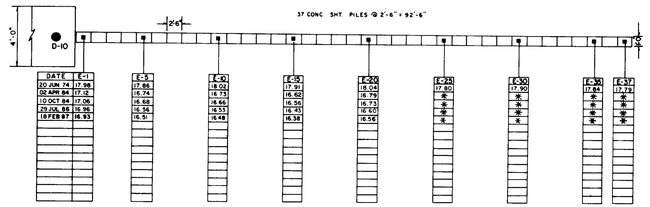
W-37	W-33	W-30	W-25	W-20	W-15	W-10	W-5	W-1	DATE
18.18	18.08	18.06	18.07	18.00	18.13	18.02	18.01	17.81	20 JUN 74
17.68	17.60	17.61	17.66	17.61	17.78	17.70	17.76	17.84	02 APR 84
17.68	17.59	17.61	17.60	17.60	17.70	17.83	17.76	17.84	10 OCT 84
17.62	17.54	17.55	17.58	17.55	17.71	17.64	17.72	17.80	29 JUL 86
(1)	17.53	17.55	17.58	17.55	17.70	17.64	17.71	17.80	18 FEB 87



PLAN

NOT TO SCALE

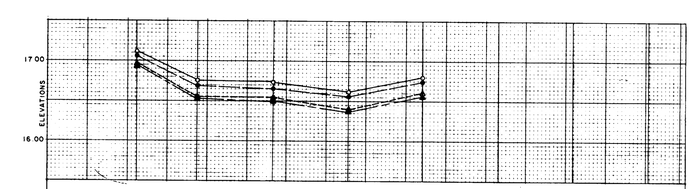
SETTLEMENT REFERENCE MARKS - CONCRETE SHEET PILE WALL



DATE	C-1	C-5	C-10	C-15	C-20	C-25	C-30	C-35	C-37
20 JUN 74	17.98	17.86	18.02	17.91	18.04	17.80	17.90	17.84	17.79
02 APR 84	17.12	16.74	16.73	16.62	16.79	*	*	*	*
10 OCT 84	17.06	16.68	16.66	16.56	15.73	*	*	*	*
29 JUL 86	16.96	16.56	16.53	16.43	16.60	*	*	*	*
18 FEB 87	16.93	16.51	16.48	16.38	16.58	*	*	*	*

NOTE:

* Covered by Levee
(1) Not Surveyed



LEGEND

- 02 APR 84
- 10 OCT 84
- 29 JUL 86
- 18 FEB 87

LAKE PONTCHARTRAIN AND VICINITY
BAYOU DUPRE
PERIODIC INSPECTION

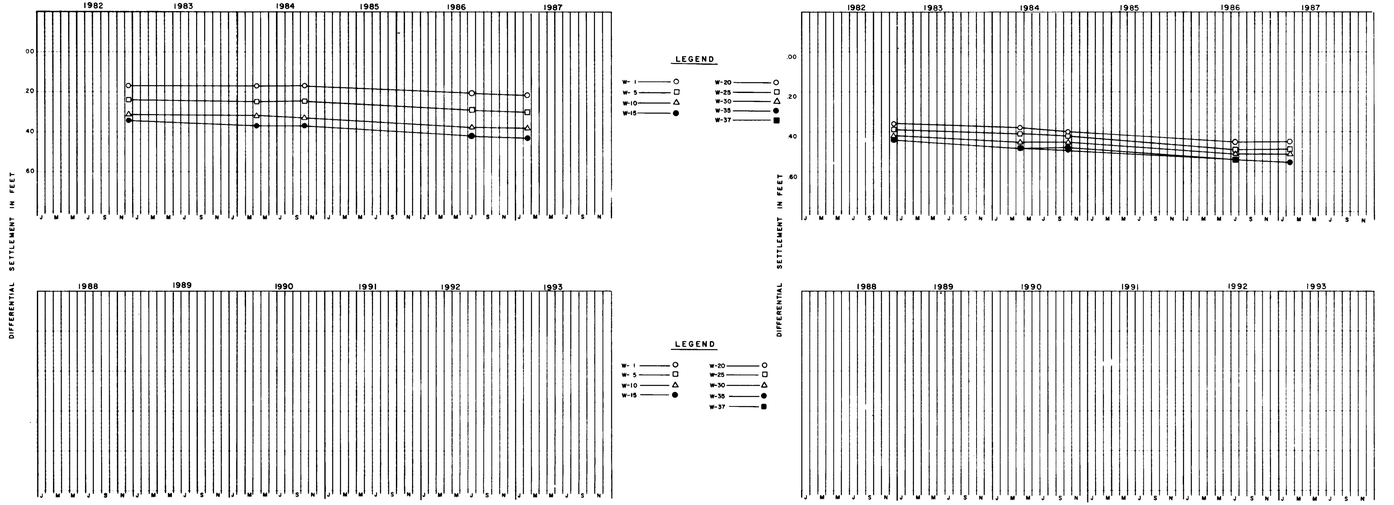
SETTLEMENT REFERENCE MARKS PLAN AND PROFILE CONCRETE-SHEET PILE

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

FILE NO. H-

PLATE 18

WEST CONCRETE SHEET PILE WALL



NOTE:
For location and tabulation of settlement reference marks see plate

FILL PLACEMENTS NEAR WEST SIDE OF STRUCTURE

STATIONS	CONTRACT NO.	DATES OF WORK
380+70 - 899+00	80-C-0343	SEP 80 TO MAY 81

LAKE PONTCHARTRAIN AND VICINITY
BAYOU DUPRE
PERIODIC INSPECTION

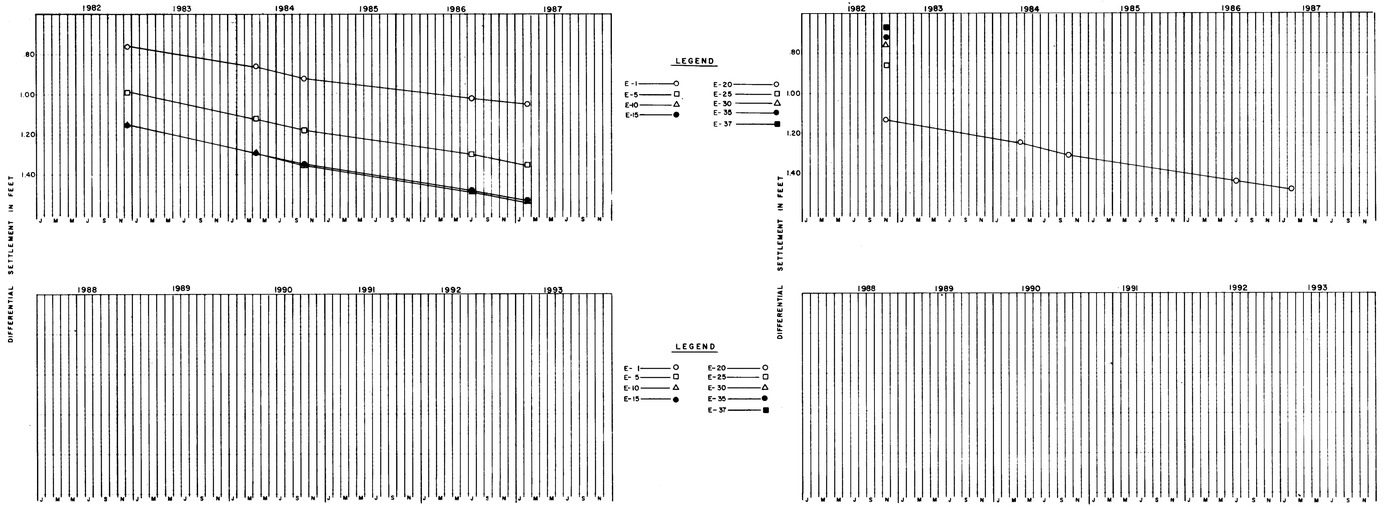
SETTLEMENT REFERENCE MARKS
DIFFERENTIAL SETTLEMENT CHART

U S ARMY ENGINEER DISTRICT, NEW ORLEANS
CORPS OF ENGINEERS

FILE NO. H-4-28857

PLATE 19

EAST CONCRETE SHEET PILE WALL



NOTE:
For location and tabulation of settlement reference marks see plate

FILL PLACEMENTS NEAR WEST SIDE OF STRUCTURE

STATIONS	CONTRACT NO.	DATES OF WORK
705+95 - 945+85	78-C-0274	JUL 78 TO JUL 79
708+00 - 945+00	83-C-0175	JUN 83 TO NOV. 83

LAKE PONTCHARTRAIN AND VICINITY
BAYOU DUPRE
PERIODIC INSPECTION

SETTLEMENT REFERENCE MARKS
DIFFERENTIAL SETTLEMENT CHART

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

FILE NO. H-4-26857

PLATE 20

APPENDIX B

CONTRACT AND SPECIFICATIONS
FOR
BAYOU DUPRE CONTROL STRUCTURE
DEWATERING, PAINTING AND MISCELLANEOUS
REPAIRS
PREPARED BY
LOUISIANA DEPARTMENT OF
TRANSPORTATION
AND DEVELOPMENT

CONTRACT

PREPARED BY

LOUISIANA
DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT
OFFICE OF PUBLIC WORKS

FOR

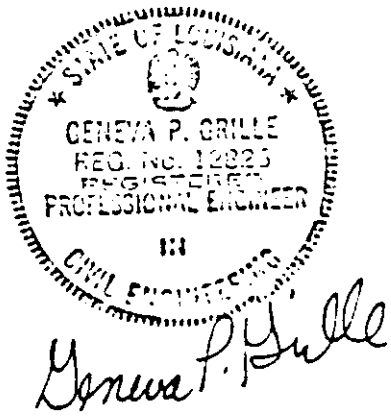
LAKE BORGNE BASIN LEVEE DISTRICT

STATE PROJECT NO. 502-44-36

BAYOU DUPRE CONTROL STRUCTURE
DEWATERING, PAINTING AND MISCELLANEOUS REPAIRS

ST. BERNARD PARISH

DRAWING FILE NO. LD8-1321-1



CONTRACT

STATE PROJECT NO. 502-44-36
TABLE OF CONTENTS

NOTICE TO CONTRACTORS

Sealed bids for construction of the following project will be received by the Board of Commissioners Lake Borgne Basin Levee District at the intersection of St. Bernard Highway and Violet Canal, P. O. Box 216, Violet, Louisiana 70092 until 3:00 P.M. on Tuesday, February 17, 1987, at which time and place bids will be publicly opened and read. No bids will be received after 3:00 P.M.

STATE PROJECT NO. 502-44-36, BAYOU DUPRE CONTROL STRUCTURE, DEWATERING, PAINTING AND MISCELLANEOUS REPAIRS located in ST. BERNARD PARISH. Type: DEWATERING, PAINTING AND MISCELLANEOUS REPAIRS OF THE BAYOU DUPRE CONTROL STRUCTURE and related work.
Project located at the intersection of Bayou Dupre and the Mississippi River-Gulf Outlet in St. Bernard Parish.
LOUISIANA DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT
OFFICE OF PUBLIC WORKS
CONTRACTING AGENCY: Lake Borgne Basin Levee District
ESTIMATED COST: $219,000
PROPOSAL GUARANTY: $10,955 (Make payable to Lake Borgne Basin Levee District)
PROJECT ENGINEER: Mr. A. V. Flotte, 527 Deckbar, Jefferson, Louisiana 70121. Phone (504) 831-8434.
PLANS: No Charge

Bids must be submitted on forms provided by the Department, must be prepared in accordance with Section 102 of the 1982 Louisiana Standard Specifications for Roads and Bridges and must include all information required by the bid form. Bid forms are available in Room 100 of the Department's Administration Building in Baton Rouge or will be mailed to prospective bidders upon request (Telephone 504-379-1111). Bid forms will not be issued later than 24 hours prior to the time set for opening bids. Each bid shall include a proposal guaranty in an amount not less than specified above.

The contract will be awarded to the lowest responsible bidder without discrimination on grounds of race, color, sex or national origin. Disadvantaged Businesses will be afforded full opportunity to submit bids.

Plans and specifications may be seen at the Project Engineer's office or in Room 100 of the Department's Administration Building in Baton Rouge. Plans may be obtained from Room 100 in said Administration Building upon payment of the amount specified above (not to be refunded). Upon request, the Project Engineer will show the work. Written requests for plans and bid forms should be sent to the Louisiana Department of Transportation and Development, Project Control Section, P. O. Box 94245, Baton Rouge, Louisiana 70804-9245.

Utility location plans, when available and applicable to the project, may be seen at the Project Engineer's office.

The right is reserved to reject bids and waive informalities.

PRESIDENT
BOARD OF COMMISSIONERS
LAKE BORGNE BASIN LEVEE DISTRICT

STATE PROJECT NO. 502-44-36
SPECIAL PROVISIONS

GENERAL BIDDING REQUIREMENTS: The specifications, contract and bonds governing the construction of the work are the 1982 Edition of the Louisiana Standard Specifications for Roads and Bridges, together with any supplementary specifications and special provisions attached to this proposal.

Bids must be prepared and submitted in accordance with Section 102 of the Standard Specifications.

The plans herein referred to are the plans approved and marked with the project number and Parish, together with all standard or special designs that may be included in such plans.

The bidder declares that the only parties interested in this proposal as principals are those named herein; that this proposal is made without collusion or combination of any kind with any other person, firm, association, or corporation, or any member or officer thereof; that careful examination has been made of the site of the proposed work, the plans, Standard Specifications, supplementary specifications and special provisions above mentioned, and the form of contract and contract bond; that the bidder agrees, if this proposal is accepted, to provide all necessary machinery, tools, apparatus and other means of construction and will do all work and furnish all material specified in the contract, in the manner and time therein prescribed and in accordance with the requirements therein set forth; and agrees to accept as full compensation therefor, the amount of the summation of the products of the quantities of work and material incorporated in the completed project, as determined by the engineer, multiplied by the respective unit prices herein bid.

It is understood by the bidder that the quantities given in this proposal are a fair approximation of the amount of work to be done and that the sum of the products of the approximate quantities multiplied by the respective unit prices bid shall constitute gross sum bid, which sum shall be used in comparison of bids and awarding of the contract.

The bidder further agrees to perform all extra and force account work that may be required on the basis provided in the specifications.

The bidder further agrees that within 10 days after the contract has been transmitted to him, he will execute the contract and furnish the Contracting Agency a satisfactory surety bond in a sum equal to the contract price.

If this proposal is accepted and the bidder fails to execute the contract and furnish bond as above provided, the proposal guaranty shall become the property of the Contracting Agency; otherwise, said proposal guaranty will be returned to the bidder; all in accordance with Subsection 103.04 of the Standard Specifications.

RISKS AND DIFFICULTIES: The contractor shall be aware that exactly twenty-two (22) concrete needles are available to be used for dewatering the structure, no spares exist. Consequently the contractor shall use extreme care when loading and transporting needles so no damage occurs to them. In the event that a needle/or needles are damaged, the contractor shall be responsible for fabricating new concrete needles at his own expense and with no compensation for down time.

The contractor shall be responsible for providing transportation to the site for all his personnel, his subcontractor's, all inspection and monitoring firms furnished by him and shall cooperate with inspection by the Department. He shall provide respirators for Departmental inspectors to be used within the dewatered chamber and provide any assistance requested by the project engineer.

Subsection 102.06 of the Standard Specifications is amended to include the following. Submission of a bid will be considered evidence that the bidder has acquainted himself with the conditions to be encountered in performing the work under this contract.

PROPOSAL GUARANTY: Subsection 102.09 of the Standard Specifications is amended as follows. The last sentence of the first paragraph of this Subsection is deleted and the following substituted.

The check, money order or bid bond shall be made payable to Lake Borgne Basin Levee District.

FAILURE TO COMPLETE ON TIME: The table contained in Subsection 108.08 of the Standard Specifications is deleted and the following substituted.

A charge of $1,000 shall be made for each contract day after expiration of the contract time as extended.

CONTRACTOR QUALIFICATIONS: As soon as possible after the award of contract, and before beginning work, the contractor shall submit to the Project Engineer written evidence of his own, any subcontractors', the independent inspection laboratory's, professional survey firm's, etc. experience in this type of work with information regarding personnel to be used on this project. Approval or rejection shall be given by the Department following the review.

CORRESPONDENCE COPY LIST: A copy of all correspondence, including construction schedules, subcontractor information, and shop drawing transmittal letters, shall be sent to the Project Engineer and the District Design, Water Resources and Development Engineer, 7252 Lakeshore Drive, New Orleans, LA 70124-2498. Shop drawings shall be submitted to Mr. Ed Preau, Chief, Water Resources Design and Development, P. O. Box 94245, Baton Rouge, Louisiana 70804-9245.

PERMITS, LICENSES AND TAXES: Subsection 107.02 of the Standard Specifications is amended to include the following.

At the Preconstruction Conference, the contractor shall give written notice to the project engineer of any materials, equipment or construction features considered unsuitable or inadequate for its intended use; any materials, equipment or construction features considered to be in violation of any Federal, State or Local laws and regulations governing this type of work; and any necessary items of work omitted from the plans and specifications. In the

absence of such written notice, it is mutually agreed that the contractor has included the cost of abiding by such Federal, State and Local laws and regulations in his bid and that he will be responsible for any work necessary for such compliance without extra compensation.

LOCATION OF WORK: All work in this contract is located at the intersection of Bayou Dupre and the Mississippi River-Gulf Outlet in St. Bernard Parish. See plans for location map.

SCOPE OF WORK: Work under this contract consists of:

1. Loading and transporting the concrete needles and steel girders from Bayou Bienvenue Control Structure to Bayou Dupre Control Structure;
2. Provide survey movement monitoring of structure by a professional land survey firm furnished by the contractor;
3. Placing the needles and dewatering the structure;
4. Cleaning and removing all marine growth and debris from gate bay walls and gate recesses;
5. Cleaning all exposed steel surfaces of barnacles and other marine growth;
6. Sandblasting and painting all exposed steel surfaces;
7. Provide an independent inspection firm for paint inspection;
8. Inspection, repair and/or replacement of grease tubes;
9. Replacing steel cables which open and close the gates;
10. Installing rubber seals (furnished by others);
11. Replacing steel ladders;
12. Replacing all zinc anodes in the cathodic protection system;
13. Removing and reinstalling/replacing timber fenders and bumpers;
14. Flooding the structure;
15. Returning the concrete needles and steel girders to the Bayou Bienvenue Structure.

NOTE: Dewatering and flooding the structure will require the services of a diver.

The contractor shall furnish all labor, materials and service necessary for completion of the contract and shall work on a continuous twenty-four hour schedule. All machinery and equipment owned or controlled by the contractor, proposed to be used on the work, shall be of sufficient size to meet the requirements of the work, and shall produce a satisfactory quantity of work; all to be subject to the inspections and approval of the project engineer. The contractor shall furnish his own pumps and generators. The available power to the site is 3 phase, 240/480 VAC. The contractor must make his own arrangements for use of this power. The contractor shall employ at all times a sufficient force of workmen of such experience and ability that the work can be prosecuted in a satisfactory and workmanlike manner.

STATE PROJECT NO. 502-44-36
SPECIAL PROVISIONS

PLANS: Original construction plans prepared by the U.S. Army Corps of Engineers, U.S.C.E. File No. H-4-25997, sheets 1, 7, 18, 22, 28, 29, 30, 31, 38, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 56, 64, 64A - BAYOU DUPRE CONTROL STRUCTURE dated February 1972 and U.S.C.E. File No. H-4-24326, Sheets 28 and 29 - BAYOU BIENVENUE CONTROL STRUCTURE dated October 1971 are included in the bid package and shall be consulted for work under this contract.

Please note that all further references to these plans shall be to DOTD plan sheet numbers.

WORKING TIME: All work will be performed on a continuous 24 hour per day, 7 days per week schedule in order to minimize total closure time of the control structure. Contractor shall plan and schedule entire work program to provide a smooth and continuous flow of work.

The contractor period will begin immediately on March 4, 1987 as directed by the Department and will continue until all work is complete and structure is tested and reopened for marine traffic. The contractor is hereby notified that public and private interests have been issued notification that the structure closure will begin on March 5, 1987 and will remain closed for 35 calendar days (maximum) or until work is complete. The contractor will be required to have all equipment, materials and labor forces on hand ready to begin closure of the structure and the dewatering process on the designated date.

CONSTRUCTION LAYOUT: Subsection 105.08 of the Standard Specifications is deleted and the following substituted.

The Department shall furnish bench mark elevations for monitor points B-1 and B-10 located on the floodwalls. These marks shall constitute the field control by and in accordance with which the contractor shall establish other necessary controls and perform the work. The contractor shall be responsible for maintaining the marks furnished by the Department.

OFFICE OF CONTRACTOR: The contractor shall maintain on the worksite a field office. All communications, orders, or instructions received in his field office from the project engineer shall have the same legal force and effect as if delivered to him in person.

24-HOUR RADIO COMMUNICATION: The contractor shall maintain 24-hour radio communication with the Department and the Lake Borgne Basin Levee District on the frequency of the Levee District for duration of the work and shall furnish an operable mobile radio to the Department.

PAINT INSPECTION FIRM: The contractor shall employ an approved Independent Inspection Firm for all painting and surface preparation work, at his expense. Inspection results and reports shall be furnished to the project engineer for approval.

MATERIALS AND EQUIPMENT: All materials and equipment, unless otherwise specified, shall be new, free from defects, and fabricated in a workmanlike manner.

Within one week after the awarding of the contract the contractor shall submit to the Project Engineer two copies of complete information on all materials he plans to use. The material information shall be reviewed to determine if the materials meet or exceed the quality and quantity of those referred to in the specifications.

All timber shall be Department certified and stamped. Paint shall be sampled and tested by the Department. Unless otherwise specified, all other materials will not be sampled; however, the contractor shall supply material certifications for the cables, hardware, plates, anodes and other miscellaneous material furnished.

PAYMENT FOR MATERIALS: Materials furnished by the contractor by order of the Project Engineer to replace any defective existing materials or equipment and not specifically included as pay items, shall be paid for at the actual material cost delivered on the worksite including transportation charges (exclusive of machinery rentals), plus an additional 15 percent. Request for payment shall be accompanied and supported by material specifications and invoices for all materials used and all transportation charges. If materials used on force account work are not purchased but taken from the contractor's stock, in lieu of invoices, the contractor shall furnish an itemized list showing that quantity claimed was actually used, and that the price and transportation costs claimed represent the actual cost to the contractor. All invoices submitted shall be accompanied by the contractor's notarized statement that payment in full has been made for the materials. No compensation will be made for tools, labor, special equipment, etc.

LIGHTS: The contractor shall keep proper lights each night between sunset and sunrise on all equipment connected with the work, and shall be responsible for all damages resulting from any neglect or failure in this respect. No specific payment will be made for lighting.

CLEANING THE STRUCTURE: The contractor shall clean all marine growth and debris from the concrete walls within the dewatered area and gate recesses, and all steel gate members. He shall remove and dispose of all blast sand build up within the dewatered area. The resulting debris shall be disposed of outside the work area subject to the approval of the Engineer. Payment will be made at the lump sum price for the Item, S-003, "Cleaning Structure".

GREASE TUBES: The contractor shall inspect grease tubes and fittings located on gate pintles and hinges and replace any inoperable, damaged or corroded parts as determined by the project engineer. No specific payment will be made for repairing or replacing grease tubes; however, any material that must be replaced shall be paid for as described in Special Provisions, "Payment for Materials". (See sheets 12, 13 and 15 for locations of grease tubes.)

STAFF GAGES: The contractor shall remove and replace two staff gages located on the west side concrete wall of the gate bay. New gages shall be furnished by the contractor and have a porcelain enamel finish and shall be equal to Style E staff gage with number plates as manufactured by Stevens Staff Gages, Forestry Suppliers, Inc., Jackson, MS, (601) 354-3565. The contractor's professional land survey monitor firm shall provide elevations to set gages. Payment will be made at the lump sum price for the Item S-009, "Staff Gages."

RUBBER SEALS: All rubber seals on the sector gates and concrete walls of the structure shall be replaced by the contractor. The Lake Borgne Basin Levee Board shall supply the seals to the contractor. The contractor shall pick-up the rubber seals at the Levee District yard in Violet. The contractor shall follow manufacturer's instructions for installation.

All bolt holes shall be drilled in the field by use of a hollow core drill. The contractor shall reuse existing clamp bars to replace rubber seals if possible. The contractor shall furnish new Type 302 corrosion-resisting steel, annealed and hot finished bolts, nuts and washers to attach rubber seals. Any new clamp bars shall be made of Type 410, corrosion-resisting steel and shall conform to the standard specification for "Stainless and Heat Resisting Steel Bars, Hot Finished or Cold Finished," ASTM Designation A276-67. See plans for clamping bar details. Payment for new clamping bars, if needed, shall be made as described in Special Provisions, "Payment for Materials".

No direct payment will be made for installing rubber seals.

FLOODING THE STRUCTURE: Upon completion of work, the contractor shall remove the needles and carefully flood the structure. After flooding is completed a diver with a jet pump shall clear gate recess and structure bottom of loose sand and debris.

No direct payment will be made for diver or for flooding the structure.

INSURANCE REQUIREMENTS: The contractor shall not begin work under this contract until he has obtained all insurance required herein. This must be evidenced by the contractor furnishing the Board of Commissioners, Lake Borgne Basin Levee District, with an original policy or a certificate of insurance, which shall provide that the original policy shall not be cancelled without 30 days prior written notice to the Board. A 30-day notice shall be given to the Board by the contractor of any changes contemplated in any of the policies required herein. All insurance must be from companies acceptable to the Board. A copy of all insurance documentation shall be furnished to the project engineer. No direct payment will be made for providing the required insurance.

Evidence of required insurance shall be furnished to the address shown below for review by the Board.

Mr. Dan Caluda, Manager-Director
Lake Borgne Basin Levee District
P. O. Box 216
Violet, LA 70092

The contractor shall maintain at all times during the performance of the work under the contract, the following types of insurance with the specified amounts of coverage:

A. Worker's Compensation-Limits of Liability shall be statutory requirements. Employers liability shall be $100,000.
Policy will include U.S. Longshoremen and Harbor Workers Act Coverage.

B. Comprehensive General Liability-including contractural liability, subcontractors, personal injury liability, and broad form property damage liability providing for limits of not less than $500,000/$1,000,000 bodily injury and $1,000,000 property damage.

C. Comprehensive Automobile Liability-providing for limits of liability of not less than $500,000 for bodily injury and property damage combined.

D. Owner's Protective Liability-issued in the name of Lake Borgne Basin Levee District providing for limits of not less than $500,000/ $1,000,000 for bodily injury and $1,000,000 for property damage.

E. All Risk Builder's Risk/Installation Floater issued in the name of Lake Borgne Basin Levee District and the contractor, deductible not to exceed $1,000, per occurrence. Coverage shall be in the amount of the contract and include any material or equipment to be used in the work.

F. Marine Insurance (applicable if watercraft and/or amphibians are used in operations)-Protection and indemnity insurance on all vessels owned and/or chartered with limit of liability up to value of vessel or $500,000 single limit whichever is greater. Coverage shall include members or masters of the crew. In lieu of the above, Jones Act coverage shall be provided with limits of $500,000.

ITEMS S-001, S-002, AND S-004 THROUGH S-008, CONTROL STRUCTURE: Items shall conform to the Technical Specifications elsewhere herein, and payment will be as specified.

CONTRACT TIME: The entire contract shall be completed in all details and ready for final acceptance within 45 calendar days. Dewatering and closure of the structure shall be accomplished within 35 calendar days beginning March 5, 1987.

LOUISIANA
DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT
SUPPLEMENTAL SPECIFICATIONS
PUBLIC WORKS

PART I
GENERAL PROVISIONS

Part I, General Provisions, of the 1982 Standard Specifications is amended as follows.

SECTION 101
DEFINITIONS AND TERMS

This Section is amended by the following additions and revisions:

101.01 ABBREVIATIONS. Add the following.
SCS Soil Conservation Service, U.S. Department of Agriculture.
CE Corps of Engineers, U.S. Army

Add 101.02.1 ADDENDUM. A written revision, correction, interpretation, clarification or supplement to the plans, specifications or other contract documents issued by authority of the Chief Engineer prior to opening bids, which will become a part of the contract.

101.07 BRIDGE. This Subsection is deleted.

Add 101.08.1 CONTRACTING AGENCY. Levee Board, Police Jury or other governing authority of a Parish, State Office, Agency, Board, Commission, Public Corporation or other political subdivision of the State, in whose name the contract will be executed. For projects on which the Department is responsible for construction supervision, but is not the contracting agency, the term "Department" shall mean the contracting agency in matters not pertaining to construction supervision.

101.09 CONTRACT.
The 1st paragraph is amended to change "Department" to "Contracting Agency".
The 2nd paragraph is amended to change "Contract Bond" to "Contract/Retainage Bond", and add the term "technical specifications".

101.10 CONTRACT BOND. This Subsection is deleted and the following substituted.
101.10 CONTRACT/RETAINAGE BOND. The approved form of security, executed by the contractor and his surety, guaranteeing complete execution of the contract and all supplemental agreements thereto, and payment of all legal debts, including liens and monies due the Contracting Agency, pertaining to construction of the project.

101.17 CULVERT. This Subsection is deleted.

101.18 DEPARTMENT. The Louisiana Department of Transportation and Development as constituted under the laws of the State for administration of Office of

Public Works responsibilities. For projects on which the Department is responsible for construction supervision, but is not the contracting agency, the term "Department" shall mean the contracting agency in matters not pertaining to construction supervision.

Add 101.37.1 OFFICE OF PUBLIC WORKS. Louisiana Department of Transportation and Development, Office of Public Works.

101.43 PROFILE GRADE. Delete and substitute the following. The trace of a vertical plane intersecting the top surface of an existing or proposed wearing surface or other designated course, the top surface of an existing or proposed channel bottom, or the top surface of an existing or proposed embankment crown, usually along the longitudinal centerline of the proposed improvement. Profile grade means either elevation or gradient of such trace, according to context.

101.51 RIGHT OF WAY. Delete and substitute the following. A term denoting land, property or interest therein, reserved for use in constructing, maintaining and protecting the proposed improvement.

101.59 SPECIFICATIONS. Add the following:

Technical Specifications - Requirements pertaining to a specific method of performing the work and to quantities and qualities of materials to be furnished.

101.62 STRUCTURES. Add the phrase "dams, floodgates, pumping stations, docks, wharves, levees, boat ramps, pile dolphins, jetties, etc."

101.69 SUPPLEMENTAL AGREEMENT. Substitute "Contracting Agency" for "Department".

101.71.1 TEMPORARY STRUCTURES. A temporary structure and approaches required to maintain traffic during construction.

SECTION 102
BIDDING REQUIREMENTS

102.07 PREPARATION OF PROPOSAL. This Subsection is amended to include the following.

If no alternate items are included in the "Schedule of Items" in the proposal form, bidders must bid on all items; if alternate items are included, bidders must bid on all "General Items" and on one of the groups of items under each set of "Alternate Items".

102.08 IRREGULAR PROPOSALS. The lst sentence is deleted and the following substituted. Proposals will be considered irregular and may be rejected for any of the following reasons.

102.10 DELIVERY OF PROPOSALS. This Subsection is amended to include the following. Bids shall be either hand delivered or shall be sent by registered or certified mail with a return receipt requested.

SECTION 103
AWARD AND EXECUTION OF CONTRACT

103.01 CONSIDERATION OF PROPOSALS. This Subsection is amended to include the following for projects not involving Federal funds. Preference will be given to proposals of contractors domiciled in Louisiana over contractors domiciled in other states in accordance with existing State laws.

103.02 AWARD OF CONTRACT. The 1st sentence of the 1st paragraph is deleted and the following substituted. The award of contract, if awarded, will be made within 45 calendar days after opening proposals to the lowest qualified bidder whose proposal complies with all requirements prescribed.

103.05 REQUIREMENT OF CONTRACT BOND. The title of this Subsection is changed to "Contract/Retainage Bond".

103.06 EXECUTION AND APPROVAL OF CONTRACT. The 1st sentence is deleted and the following substituted. The contract shall be signed by the successful bidder and returned, with the contract/retainage bond, within 10 days after the contract has been mailed to the bidder.

103.07 FAILURE TO EXECUTE CONTRACT. The requirements of this Subsection are deleted and the following substituted. Failure of the bidder to execute the contract and furnish acceptable contract/retainage bond within 10 days after the contract has been mailed to the bidder will be cause for cancellation of the award and forfeiture of the proposal guaranty, which shall become the property of the Contracting Agency as liquidation of damages sustained.

SECTION 104
SCOPE OF WORK

104.02 ALTERATION OF CONTRACT. The last paragraph is deleted.

104.04 FINAL CLEANING UP. This Subsection is deleted and the following substituted. Before final acceptance, the contractor shall remove from the right-of-way and adjacent property all surplus materials, weeds, bushes, rubbish and temporary structures; shall satisfactorily restore all property which has been damaged during the work; and shall leave the site in a presentable condition. Upon completion of work in connection with drainage structures, the contractor shall remove all obstructions to the flow of water from inside all structures, whether new or old. No direct payment will be made for this work.

SECTION 105
CONTROL OF WORK

105.02 PLANS AND WORKING DRAWINGS.

The 1st sentence of the 1st paragraph is amended to substitute the word "project" for "roadway".

The last paragraph is deleted and the following substituted. The contractor shall submit to the Chief, Water Resources Design and Development for

approval, 9 sets of detailed drawings or bulletins showing all pertinent data for equipment prior to incorporating such equipment in the work. Type and size of drawings shall conform to Subsection 801.03. The contractor shall submit the drawings or bulletins with such promptness as to cause no delay in his work or that of other contractors. Approval of such drawings or bulletins shall not relieve the contractor from responsibility for deviations from the plans or specifications, unless he has in writing called the engineer's attention to such deviations at the time of submission; nor shall it relieve him from responsibility for errors in shop drawings or bulletins.

105.04 COORDINATION OF PLANS, SPECIFICATIONS, SUPPLEMENTAL SPECIFICATIONS AND SPECIAL PROVISIONS. The last sentence of the lst paragraph is deleted and the following substituted.

In case of discrepancy, calculated dimensions govern over scaled dimensions; plans govern over standard specifications, supplemental specifications and technical specifications; supplemental specifications govern over standard specifications; technical specifications govern over supplemental specifications and standard specifications; and special provisions govern over plans, technical specifications, supplemental specifications and standard specifications.

105.06 COOPERATION WITH UTILITIES. This Subsection is deleted and the following substituted.

The contractor shall notify all public utilities or other interested parties to make all necessary adjustments of public utility fixtures and appurtenances within or adjacent to the construction. The contractor shall see that the necessary adjustments of public utility fixtures and appurtenances are made.

The contractor will be responsible for any damage done by him to telephone, telegraph, power poles or lines, water or fire hydrants, water or gas mains and pipe lines, sewers, conduits and other accessories and appurtenances of a similar nature which are fixed or controlled by a city, public utility company or corporation. He shall perform his work in such manner as not to interfere with or damage fixtures mentioned herein, or as shown on the plans or discovered during construction, which are to be left within the project. The contracting agency will not be responsible for any delay or damage incurred by the contractor due to working around or joining his work to fixtures left in place.

The contracting agency will not be responsible for any delays or inconvenience to the contractor in carrying on his work while the public utilities companies or cities are making necessary adjustments of their fixtures or appurtenances, nor will the contracting agency be responsible for any costs incurred by the contractor or utility owners for making said adjustments, by delays, etc.

105.08 CONSTRUCTION STAKES, LINES AND GRADES. This Subsection is deleted and the following substituted.

The engineer will furnish all survey lines, points and elevations reasonably necessary for setting ranges, stakes and templates. After lines and grades have been given by the engineer, the contractor shall be responsible for proper execution of the work to such lines and grades, and preservation of the line and grade stakes.

105.15 MAINTENANCE DURING CONSTRUCTION. This Subsection is deleted and the following substituted. The work shall be under the charge and care of the contractor until final acceptance. The contractor shall take precautions against damages to the work by action of the elements or from other cause, and shall satisfactorily repair any damaged work at his expense. In case of suspension of work, the contractor shall be responsible for all materials and shall properly store them if necessary, and shall erect temporary structures where necessary.

If the contractor fails to comply with the provisions of this Subsection, the engineer will immediately notify the contractor, in writing, of such noncompliance. If the contractor fails to remedy unsatisfactory maintenance within 24 hours after receipt of such notice, the engineer may immediately proceed to maintain the project, and the cost of this maintenance will be deducted from payments for the work.

If the unsatisfactory maintenance results in a condition that is hazardous to life, health or property, the engineer will immediately effect necessary repairs and deduct the cost of such repairs from payments for the work.

105.16 FAILURE TO MAINTAIN ROADWAY OR STRUCTURE. This Subsection is deleted.

105.17 ACCEPTANCE. Heading (a), Partial Acceptance, is deleted.

SECTION 106
CONTROL OF MATERIALS

106.02 LOCAL MATERIAL SOURCES. The 3rd paragraph of Heading (d) is deleted.

Add 106.12 SUBSTITUTIONS OF MATERIALS OR EQUIPMENT. Whenever in the plans or project specifications any materials, process or equipment is specified by patent, proprietary or brand name, or name of manufacturer, such wording is intended to establish the quality and type of materials, processes and equipment, and shall be deemed to be followed by the words "or approved equal". Lists of acceptable materials in the plans or specifications are not intended to be comprehensive lists, or in order of preference. The contractor may offer any material, process or equipment which meets specifications.

Requests for substitutions of equal products for those specified shall be submitted for approval to the engineer as soon as possible after the award of contract and before installation.

Manufactured products shall be installed in accordance with the manufacturer's recommendations. Products, when delivered to the site, shall be labeled as to manufacturer's name and catalog number; also, products shall have manufacturer's certification that the product conforms to specifications.

If required by the engineer, the contractor, at his expense, shall have the proposed material tested as to its physical and chemical characteristics, durability, finish, efficiency, dimensions, and suitability for its intended use. The method of test shall be subject to approval, and test results shall be reported promptly to the engineer. Material shall not be installed until approved.

No additional payment will be made for revisions in the project made necessary by the substituted equipment, materials or product, and no extension

of contract time will be granted because of the use of substituted materials, processes or equipment.

SECTION 107
LEGAL RELATIONS AND RESPONSIBILITY TO PUBLIC

107.01 LAWS TO BE OBSERVED. This Subsection is amended to include the following. All materials furnished and work performed shall conform to all Federal, State and Local laws, by laws, ordinances, codes, regulations, orders and decrees governing the work. At the Preconstruction Conference, the contractor shall give written notice to the engineer of any materials, equipment or construction features considered unsuitable or inadequate for its intended use; any materials, equipment or construction features considered to be in violation of any Federal, State or Local laws or regulations; and any necessary items of work believed to have been omitted from the plans and specifications.

107.04 RESTORATION OF SURFACES OPENED BY PERMIT. This Subsection is deleted and the following substituted.

The construction, reconstruction or maintenance of any governmental, public or private utility may be authorized at any time. If such work by others is indicated in the contract, the contractor will not be entitled to damages due to such work nor for resulting delays to his work.

During the work, if utility work by others is authorized, the contractor shall so perform his work as to facilitate such utility work. When ordered as extra work, the contractor shall make all necessary repairs to the work due to such utility work.

107.19 OPENING SECTIONS OF PROJECT TO TRAFFIC. This Subsection is deleted.

SECTION 108
PROSECUTION AND PROGRESS

108.04 PROSECUTION OF WORK. The 2nd paragraph under Heading (c) is deleted and the following substituted. The review board will be composed of the Department's Secretary, Assistant Secretary (OPW), Chief Engineer, and one DOTD official to be appointed by the Secretary. If the Department is not the contracting agency on the project, this paragraph is deleted.

108.05 LIMITATION OF OPERATIONS. This Subsection is deleted and the following substituted. The contractor shall conduct the work in such manner and sequence as will insure the least interference with traffic. He shall not begin new work to the prejudice of work already started, unless otherwise permitted.

108.08 FAILURE TO COMPLETE ON TIME. The 3rd paragraph of this Subsection is deleted and the following substituted.

The contractor may request waiver of such portions of the liquidated damages that accrue after the work can be safely and conveniently used for its intended purpose. The written request may be submitted to the engineer at any

time after expiration of the contract time as extended, but must be submitted within 10 days after final inspection, and must set forth the reasons which he believes justify the waiver and the effective date thereof. The Department will be the sole judge of damages suffered and will waive damages accordingly.

108.10 TERMINATION OF CONTRACTOR'S RESPONSIBILITY. The last sentence is deleted and the following substituted. The contractor will then be released from further obligation except as set forth in his contract/retainage bond and Subsection 107.24.

SECTION 109
MEASUREMENT AND PAYMENT

109.06 PARTIAL PAYMENTS AND RETAINAGE ESCROW OPTION. The title of this Subsection is changed to "Partial Payments", and the 1st and 2nd paragraphs are deleted and the following substituted. Provided the work is prosecuted in accordance with the contract provisions, the engineer will make the 1st progress estimate within 2 months from the date indicated to begin work in the Notice to Proceed. The Department will determine the progress estimate date. Each successive progress estimate will be made on this same date of each month thereafter until completion of the contract. Each progress estimate will be an approximation of the value of work performed up to the date the estimate is made.

109.09 ACCEPTANCE AND FINAL PAYMENT. The 2nd sentence is amended to delete the phrase "including all retained percentages".

LOUISIANA
DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT
SUPPLEMENTAL SPECIFICATIONS

PART VIII
STRUCTURES

Part VIII, Structures, of the 1982 Standard Specifications is amended as follows.

SECTION 801
GENERAL REQUIREMENTS FOR STRUCTURES

801.03 SHOP AND WORKING DRAWINGS. Heading (a) is deleted and the following substituted.

(a) General: Two prints of required shop or working drawings shall be submitted to the Bridge Design Engineer for checking, 1 of which will be returned with either approval or required revisions noted thereon. For final approval and distribution, 9 prints of each checked drawing shall be submitted to the Bridge Design Engineer.

Changes on drawings shall be noted and dated to show that a revision has been made. Tracings and subsequent reproductions shall have an outside measure of either 22"x36" or 23"x36", with margins measuring not more than 21"x34". Top, bottom and right-hand margins shall be least 1/2", and the left-hand margin shall be at least 1 1/2". Each sheet shall have a title block in the lower right hand corner with the state project number, project name, parish, fabricator's plant location, sheet number, date and revision block.

(1) Movable Bridges: The original tracings or photographic reproductions of original shop and working drawings shall be delivered to the Bridge Design Engineer upon completion of fabrication or erection, as follows:

a. Original Tracings: Original tracings shall be ink drawings on either Imperial tracing cloth or polyester translucent matte film 0.003" to 0.004" thick and having matte surfaces on both sides.

b. Reproductions: Photographic reproductions shall be on either cloth or 0.003" to 0.004" thick translucent polyester film with matte surfaces on both sides which incorporates a silver halide emulsion image of a permanent type from which satisfactory prints can be made. Additions or changes shall be made with a permanent type waterproof black ink made for this purpose. Electrostatic processes will not be acceptable.

(2) All Other Structures: One set of the final corrected shop and working drawings suitable for microfilming shall be delivered to the Bridge Design Engineer upon completion of fabrication or erection.

SECTION 802
STRUCTURAL EXCAVATION AND BACKFILL

802.02 GENERAL CONSTRUCTION REQUIREMENTS. This Subsection is amended to include the following. Foundations for reinforced concrete box culverts shall be prepared in accordance with Subsection 701.04.

SECTION 805
STRUCTURAL CONCRETE

805.01 DESCRIPTION. This Subsection is amended to include the following. At the time of final acceptance, concrete box culverts constructed or extended by the contractor shall be cleaned of debris and soil to the culvert invert.

805.03 HANDLING AND PLACING CONCRETE.

(b) Reinforced Concrete Box Culvert: The 1st sentence is deleted and the following substituted. The contractor may furnish structures of either cast-in-place concrete or precast concrete units; however, design and installation procedures for precast units will be subject to approval.

805.10 CURING. The last sentence of the 1st paragraph is deleted and the following substituted. Precast concrete shall be cured in accordance with Subsection 805.14(e).

805.14 PRESTRESSED CONCRETE.

Heading (j), Prestressing Reinforcement, is amended to include the following. If low-relaxation strand design for girders is not detailed on the plans, and is requested by the contractor and approved by the Bridge Design Engineer, the contractor shall bear all costs for redesign of the strand pattern and shall reimburse the Department for costs incurred in checking the redesign.

Heading (e), Curing, is amended to delete the 7th sentence of the 2nd paragraph and substitute the following. Steam curing shall continue at this temperature until concrete reaches release strength. At the contractor's option, the temperature may be decreased to not less than 100°F after 6 hours and held at this temperature until the time of detensioning operations, provided no structural defects occur; if structural defects occur, the defective members will be rejected.

SECTION 807
STRUCTURAL METALS

807.04 INSPECTION. This Subsection is amended to add the following Heading (d).

(d) Die Stamping: Steel die stamping shall be accomplished with low-stress steel stamps having a minimum face character radius of 0.010" and a maximum allowable impression depth of 0.010". Impressions shall be placed on the thickest member in transition joints. Impressions shall not be placed within 1" of plate edges.

807.16 SHOP ASSEMBLING.

The last sentence of the 1st paragraph of this Subsection is deleted and the following substituted. Unless otherwise specified, assembly shall be Full Truss or Girder Assembly.

Heading (b) is deleted and the following substituted.

(b) Progressive Truss or Girder Assembly: Progressive Truss or Girder Assembly consists of assembling initially for each truss, arch rib, bent, tower face, continuous beam line, plate grider, or rigid frame at least 3 contiguous shop sections or all members in at least 3 contiguous panels but not less than

the number of panels associated with 3 continuous chord lengths (i.e., length between field splices). Successive assemblies shall consist of not less than 2 sections or panels of the previous assembly, repositioned if necessary and adequately pinned to assure accurate alignment, plus 1 or more sections or panels added at the advancing end. For structures longer than 150 feet, each assembly shall be not less than 150 feet long regardless of the length of individual continuous panels or sections. When approved, assembly may start from any location in the structure and proceed in one or both directions provided the preceding requirements are met.

SECTION 811
PAINTING AND PROTECTIVE COATINGS

811.04 PAINTING METAL. Headings (a) and (b) are deleted and the following substituted.

(a) 3-Coat Organic Zinc Primer and Topcoat Systems: The minimum dry film thickness of each coat shall be as follows:

1st Prime Coat (Tinted Red)	3.0 mils
2nd Prime Coat (Tinted Green)	2.0 mils
Vinyl Aluminum Topcoat	2.0 mils

(b) 2-Coat Organic Zinc Primer and Topcoat System: Each coat shall be applied to a minimum dry film thickness of 3.0 mils.

811.10 APPLICATION. Heading (a)(3) is amended as follows. The 3rd paragraph is deleted and the following substituted.

Maximum time between application for the 2nd prime coat and the topcoat shall be 4 months. If more than 4 months have elapsed after application of the 2nd prime coat, a vinyl wash primer shall be sprayed on surfaces to be topcoated to a dry film thickness of 0.3 to 0.7 mil. The topcoat shall be applied to the wash primer the same day, after allowing the wash primer to thoroughly dry. Any wash primer not topcoated the same day shall be removed by approved methods and a new coat of wash primer shall be applied. The wash primer shall conform to SSPC Paint Specification No. 27.

SECTION 813
CONCRETE APPROACH SLABS

813.09 SUBGRADE. The last sentence is deleted and the following substituted.

Aggregate shall be placed and compacted as directed and covered with approved polyethylene film of 6 mils nominal thickness.

SECTION 814
DRILLED SHAFTS

814.02 MATERIALS. The 1st sentence is deleted and the following substituted. Concrete shall be Class S conforming to Section 901.

814.03 CONSTRUCTION REQUIREMENTS. The 6th paragraph under Heading (b) is deleted and the following substituted.

Excavation for footing bells or shafts beyond the line required by plan dimensions, where casings are not required, shall be backfilled with Class S concrete at the contractor's expense. Where casings are used, the contractor will be permitted to backfill around the upper portion of casing with pea gravel or approved granular material. Where a double casing is required for a portion of the shaft, the area between casings shall be filled with Class S concrete.

SECTION 815
WELDING

815.02 QUALIFICATION OF PROCEDURES, WELDERS AND WELDING OPERATORS. Heading (d) is deleted and the following substituted.

(d) Aluminum: Welding qualification for aluminum alloys shall conform to AWS D1.2-83 Structural Welding Code - Aluminum.

815.03 WELDING. Headings (a) and (c) are deleted and the following substituted.

(a) Structural Steel and Steel Pipe: Welding of structural steel and steel pipe shall conform to AWS D1.1-80 Structural Welding Code as modified by AASHTO Standard Specifications for Welding of Structural Steel Highway Bridges (Third Edition-1981), with the following amendments.

Table 4.2 is amended as follows. All minimum preheat and interpass temperatures in this Table that are less than 125°F are amended to be a minimum of 125°F.

9.2 Base Metal:

9.2.1.7 The last sentence is deleted and the following substituted. Thickness is limited to a maximum of 4".

Paragraph 9.2.5 is deleted and the following substituted.

9.2.5 Base Metal for Extension Bars, Runoff Plates and Backing:

9.2.5.1 Extension Bars and Runoff Plates: Extension bars and runoff plates used in welding shall conform to the following.

(1) When used in welding with an approved steel listed in 9.2.1, they may be any of the steels listed in 9.2.1.

(2) When used in welding with a steel qualified in accordance with 9.2.4, they may be either the steel qualified or any steel listed in 9.2.1.

9.2.5.2 Backing: Steel for backing which will be removed shall be of the same material as the base metal and shall conform to 9.2.5.1(1) and (2), except that 100 ksi minimum yield strength steel shall be used for A 514 steel

(c) Aluminum: Welding of aluminum alloys shall conform to AWS D1.2-83 Structural Welding Code - Aluminum.

815.04 NONDESTRUCTIVE TESTING. Heading (c) is deleted and the following substituted.

(c) Aluminum:

(1) Welds shall be visually inspected and, in addition, welds subjected to computed stress shall be inspected by the dye penetrant method except as specified in Paragraph (4) below.

(2) For highway sign structures, the dye penetrant method shall be used on butt welds in columns and main chord members, and on fillet welds connecting columns to bases and main chord members, including associated flanges, gussets, or main load carrying brackets or members; also on fillet welds connecting flanges to main truss chord members.

(3) Dye penetrant tests shall be performed in accordance with ASTM Designation: E 165, Method B, Procedure B-2 or B-3.

(4) Dye penetrant inspection may be omitted provided the inspector examines each layer of weld metal with a magnifier of 3X minimum before the next layer is deposited.

LOUISIANA
DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT
SUPPLEMENTAL SPECIFICATIONS

PART X
MATERIALS

Part X, Materials of the 1982 Standard Specifications is amended as follows.

SECTION 1001
HYDRAULIC CEMENT

1001.01 PORTLAND CEMENT. Heading (a) is deleted and the following substituted.

(a) Types I(B) and I(C) cement are defined as Type I cement with fineness requirements modified as follows:

	Fineness (sq. cm./g.)	
Turbidimeter Test:	Type I(B)	Type I(C)
Average value, max.	2000	2550
Max. value, 1 sample	2100	2650
Air Permeability Test:		
Average value, max.	3600	4600
Max. value, 1 sample	3800	4800

1001.02 PORTLAND-POZZOLAN CEMENT: The last sentence is deleted and the following substituted. Fly ash or bottom ash shall conform to ASTM C 618, Class C or F, except that loss on ignition shall not exceed 6% by weight.

SECTION 1002
ASPHALTIC MATERIALS

TABLE 1, ASPHALT CEMENT, MODIFIED AASHTO GRADES AC-20 AND AC-30. The "Tests on Residue from Thin Film Oven Test" are amended to include the following.

Applicable to Asphaltic Concrete	Percent of Contract Unit Price/Unit of Measurement of Asphaltic Concrete					
	AC-20(1)			AC-30(1)		
	Specifications	Deviations		Specifications	Deviations	
	100	95	90 or Remove(2)	100	95	90 or Remove(2)
Applicable to Asphalt Cement As a Separate Item	**Percent of Contract Unit Price/Unit of Measurement of Asphalt Cement/Shipment**					
	Specifications	Deviations		Specifications	Deviations	
Test Method	100	80	50 or Remove (2)	100	80	50 or Remove(2)
Thin Film Oven Test, % loss @325°F, 5 hr — AASHTO T 179	0.50-		0.51+	0.50-		0.51+

TABLE 2, ASPHALT CEMENT, MODIFIED AASHTO GRADES AC-5 AND AC-10. The "Tests on Residue from Thin Film Oven Test" are amended to include following.

		Percent of Contract Unit Price/Unit of Measurement/Shipment					
		AC-5(1)			AC-10(1)		
		Specifications	Deviations		Specifications	Deviations	
	Test Method	100	80	50 or Remove(2)	100	80	50 or Remove(2)
Thin Film Oven Test, % loss @325°F, 5 hr	AASHTO T 179	1.00-		1.01+	0.50-		0.51+

SECTION 1003
AGGREGATES

1003.02 AGGREGATES FOR PORTLAND CEMENT CONCRETE AND MORTAR. Heading (c) is amended to include the following requirements.

(1) Lightweight aggregates shall be from a source listed on the QPL and shall conform to the following gradation for Grade Y aggregate:

U. S. Sieve	Percent Passing Grade Y
3/4"	100
1/2"	90-100
3/8"	40-70
No. 4	0-15
No. 8	0-5

The unit weight of lightweight coarse aggregate shall not exceed 55 pounds per cubic foot, dry loose measurement. If the unit weight of any shipment of lightweight coarse aggregate differs by more than 10% from that of the sample submitted for acceptance tests, the shipment may be rejected.

When tested in accordance with the magnesium sulfate soundness test of AASHTO T 104, the weight loss of lightweight aggregate shall not exceed 10% after 5 cycles of test. In lieu of this sulfate soundness test, concrete specimens having a cement content of 6.5 bags per cubic yard shall have a durability factor of at least 75 after 300 cycles of freezing and thawing.

When tested in accordance with DOTD TR 107, the drying shrinkage of 3" x 3" x 11 1/4" Class X concrete specimens shall not exceed 0.07%.

Sampling shall be in accordance with Section 902 of the Materials Sampling Manual.

(2) Crushed Coarse Aggregates: If the material finer than the No. 200 sieve consists of the dust fraction from crushing, essentially free of clay or shale, this percentage shall be 0-2. If the total material passing the No. 200 sieve from the coarse and fine aggregates does not exceed 5%, the percent passing the No. 200 from the crushed coarse aggregate may be increased to 3.

SECTION 1005
JOINT MATERIALS FOR PAVEMENTS AND STRUCTURES

1005.01 JOINT FILLERS. Heading (d)(2) is amended as follows. The weight of the asphalt ribbon filler shall be 50 lb/100 sq ft, minimum.

1005.02 POURED AND EXTRUDED JOINT SEALERS. Heading (c) is amended as follows. The 4th paragraph is deleted and the following substituted.

Silicone sealants shall conform to Fed. Spec. TT-S-001543 for Class A Sealants as modified by the following requirements.

Property	Test Method	Requirement
Flow, inches, max.	AASHTO T 187 (1)	0.3
Tack-Free Time at 77°F and 45-55% R/H., minutes	Fed. Spec. TT-S-00227E	20-75
Resilience, %, min.	DOTD TR 623 (2)	60
Resilience (after heat aging, %, min.	DOTD TR 623 (2)	60
Durometer, Shore A	ASTM D 2240 (2)	10-25
Tensile Stress at 150% Elongation, psi, max.	ASTM D 412, Die C(2)	75
Elongation, %, min,.	ASTM D 412, Die C(2)	500
Bond, inches separation, max.	DOTD TR 635	0.25
Peel, lb, min.	DOTD TR 635	20

Note (1) Flow test will be conducted according to AASHTO T 187, except that samples shall be placed in an oven maintained at 150±2°F for 24 hours.

Note (2) Cured 7 days at 75-90°F and 45-55% R.H.

1005.05 ARMORED JOINT WITH NEOPRENE STRIP. The 1st sentence is deleted and the following substituted. Armored joints with neoprene strip seal shall be an approved product shown on the plans.

SECTION 1007
METAL PIPE

1007.01 CORRUGATED STEEL PIPE AND PIPE ARCH.

(e) The last sentence is deleted and the following substituted. Helical pipe ends shall be rerolled a minimum of 2 full standard corrugations.

(i) This Heading is deleted and the following substituted. Damaged metallic coating which requires repair under AASHTO M 36 shall either be recoated or shall be repaired by an approved method with a cold galvanizing repair compound listed on the QPL.

1007.06 CORRUGATED ALUMINUM PIPE AND PIPE ARCH.

(a) The last sentence is deleted and the following substituted. Helical pipe ends shall be rerolled a minimum of 2 full standard corrugations.

1007.08 POLYMERIC COATED CORRUGATED STEEL PIPE AND PIPE ARCH.

(d) The last sentence is deleted and the following substituted. Helical pipe ends shall be rerolled a minimum of 2 full standard corrugations.

SECTION 1008
PAINTS

1008.02 3-COAT ORGANIC ZINC PRIMER AND TOPCOAT SYSTEM:

(a) Organic Zinc Primer (2 Coats):

(1) Base Composition: The requirements for zinc dust, and thixatropes and tinting pigments are deleted and the following substituted.

	% By Weight
Zinc Dust, ASTM D 520, Type I, min.	97
Thixatropes and Tinting Pigments, max.	3

(3) Mixed Primer: The next to last sentence is deleted and the following substituted. The manufacturer shall produce the primers as a 2-component paint consisting of a base and curing agent.

Add 1008.09 METALWORK PAINT: Metalwork paint shall conform to the following requirements.

Property	Test Method	Min.	Max.
Color	By reflected light	Jet Black	
Weight, lb/gal	ASTM D1475	6.9	---
Viscosity, KU @ 77°F	ASTM D562	94	105
Solids, % by Weight	ASTM D2369	50	---
Dry touch, minutes	ASTM D1640	---	30
Dry through, hours	ASTM D1640	---	3
Infrared spectrum	- - - -	Pass	
X-ray diffraction	- - - -	Pass	

SECTION 1009
REINFORCING STEEL AND WIRE ROPE

1009.04 LOAD TRANSFER DEVICES.

(a) Dowel Bars: The 2nd sentence of the 2nd paragraph is deleted and the following substituted. Plastic coated dowel bars shall be undercoated with an adhesive and given an outer coat of polypropylene or polyethylene in accordance with AASHTO M 254 and the following:

Adhesive Undercoating:	
Adhesive Thickness	3 to 10 mils
Outer Coating	
Coating Material	Plastic
Coating Thickness	14 to 20 mils
Total Thickness of Adhesive Under Coating and Outer Coating	20 to 30 mils

1009.05 STEEL STRAND FOR PRETENSIONING. This Subsection is amended to include the following.

When allowed by the plans or approved by the Bridge Design Engineer, strand patterns using low-relaxation strands may be submitted for approval for use in prestressed concrete girders and piles. No more than 75% of the minimum ultimate tensile strength of the steel may be used when designing girders or piles with low-relaxations strands. For this design the final compressive stress in the concrete shall be at least as great as that required for the design using normal stress-relieved strands.

Strands for prestressing shall conform to ASTM A 416, Supplement I Low-Relaxation Strand. The manufacturer shall submit to the Construction Section 3 copies of certificates of analysis of all tests results required in ASTM A 416, Supplement I and shall provide a typical load-elongation curve for each size and grade of strand shipped. A 24" gage length shall be used to obtain the curves. The supplier shall furnish the Central Testing Laboratory 6 strands, each 5 feet in length, for each size and grade shipped. One copy of the manufacturer's load-elongation curves shall accompany the strand submittals. The load-elongation curves generated by the Central Testing Laboratory shall be in inches per inch and shall not vary from the manufacturer's typical curves by more than $\pm$ 3%. The data from the manufacturer's typical curve shall be used when computing the required elongation for each strand.

Manufacturers desiring to supply low-relaxation strands shall provide a detailed description to the Construction Section of their method of producing the low-relaxation strand, and all quality assurances required by the Department shall be met.

Load-elongation curves shall show elongation in inches per inch, and inches per 10 feet, from 0 to 80% of the minimum ultimate tensile strength.

Low relaxation strands shall be clearly identified by color markings on both the reel and the cable at intervals not exceeding 100 feet or as approved. These markings shall be consistent and shall be identified to the Construction Section prior to shipping.

Mixing of low-relaxation strands and normal stress-relieved strands in girders and piles will not be permitted.

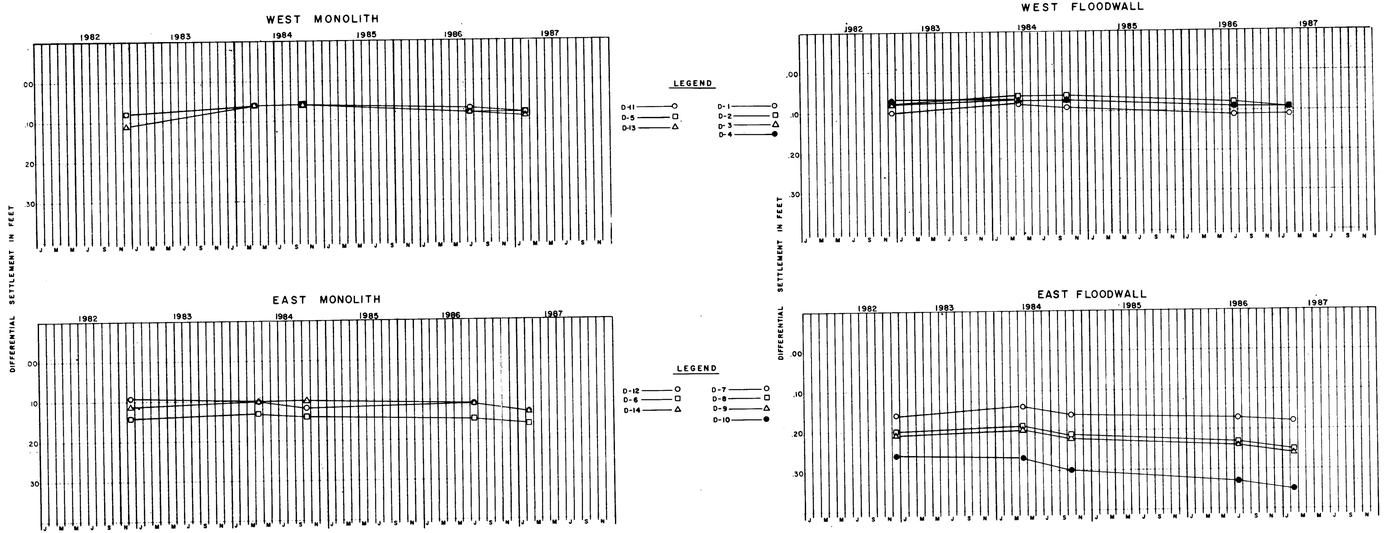
Any strand that has been stretched during stress-relieving operations will be considered to be a low-relaxation strand, even if it does not fully meet the requirements of low-relaxation strands in ASTM A 416, Supplement I, and will not be allowed for use as a normal stess-relieved strand nor will they be allowed to be used in the same member containing low relaxation strands meeting ASTM A 416, Supplement I requirements.

1009.10 WIRE ROPE. The 2nd paragraph of this Subsection is deleted and the following substituted.

Wire rope shall be improved plow steel, uncoated, preformed 6 x 25 filler wire construction with hard fiber core and right regular lay. Each strand shall consist of 19 main wires and 6 filler wires fabricated in one operation, with all wires interlocking. Lay of wires in strands shall be such as to make wires approximately parallel to the axis of the rope where they would come in contact with a circular cylinder circumscribed on the rope.

APPENDIX C

CONTRACT DRAWINGS
FOR
BAYOU DUPRE CONTROL STRUCTURE
DEWATERING, PAINTING AND MISCELLANEOUS
REPAIRS
PREPARED BY
LOUISIANA DEPARTMENT OF
TRANSPORTATION
AND DEVELOPMENT



LAKE PONTCHARTRAIN AND VICINITY,
BAYOU DUPRE
PERIODIC INSPECTION

SETTLEMENT REFERENCE MARKS
DIFFERENTIAL SETTLEMENT CHART

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

FILE NO. H-4-24857

PLATE 21

FILE NUMBER	STATE PROJECT	PARISH	SHEET NO.
LDB-1321-1	502-44-36	ST. BERNARD	1

INDEX TO SHEETS

SHEET NO.	DESCRIPTION
1	TITLE SHEET
2	SUMMARY OF QUANTITIES
3	LOCATION PLAN & INDEX TO DRAWINGS U.S.C.E. FILE NO. H-4-25997

ATTACHED SET OF DRAWINGS

4-25	ORIGINAL CONSTRUCTION PLANS U.S.C.E. FILE NO. H-4-25997
25A	CATHODIC PROTECTION-MOUNTING DETAILS
26-27	CONSTRUCTION PLANS FOR NEEDLE DETAILS AT BAYOU BIENVENUE STRUCTURE U.S.C.E. FILE NO. H-4-24326

TOTAL SHEETS 28

PREPARED BY

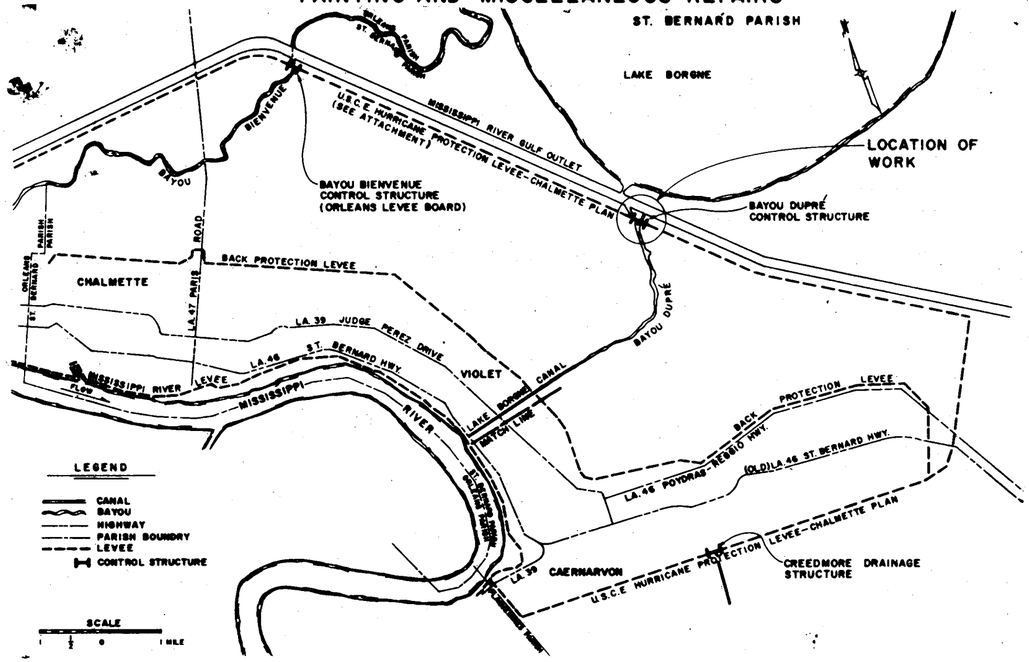
STATE OF LOUISIANA
DEPARTMENT OF TRANSPORTATION & DEVELOPMENT
OFFICE OF PUBLIC WORKS

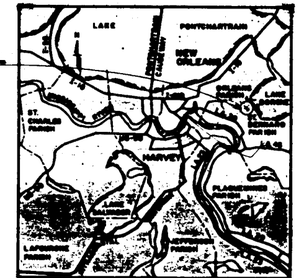
FOR

LAKE BORGNE BASIN LEVEE DISTRICT

STATE PROJECT NO. 502-44-36

BAYOU DUPRE CONTROL STRUCTURE DEWATERING, PAINTING AND MISCELLANEOUS REPAIRS





WORK LOCATION

PREPARED BY DISTRICT 02 DESIGN, WATER RESOURCES AND DEVELOPMENT SECTION

SCHEDULE OF REVISIONS

DATE	REVISION	DATE	RECOMMENDED	DATE	APPROVED

DATUM USED: N.G.V.D.
MAG. VAR.:
BEARING ARE:
TRANSIT BOOKS:
LEVEL BOOKS:

TYPE OF CONSTRUCTION:

DEWATERING, PAINTING & MISCELLANEOUS REPAIRS

NOTE
THE 1982 EDITION OF THE LOUISIANA D.O.T.D. STANDARD SPECIFICATIONS FOR ROADS AND BRIDGES, AS AMMENDED BY THE PROJECT SPECIFICATIONS, SHALL GOVERN ON THIS PROJECT.

NOTE :
NEEDLES AND GIRDERS TO BE USED FOR NEEDLE DAM AT BAYOU DUPRE CONTROL STRUCTURE ARE STORED AT BAYOU BIENVENUE CONTROL STRUCTURE (ORLEANS LEVEE BOARD).

RECOMMENDED FOR APPROVAL

Kenneth P. Hebert

D.O.T.D. DISTRICT DESIGN, WATER RESOURCES & DEVELOPMENT SECTION

APPROVED

D.O.T.D. CHIEF ENGINEER

DATE

	STATE PROJECT	PARISH	SHEET NO.
LDB-132H-1	502-44-36	ST. BERNARD	2

SUMMARY OF ESTIMATED QUANTITIES

ITEM NO.	ITEM	UNIT	QUANTITY
727(01)	MOBILIZATION	LUMP SUM	LUMP
S-001	DEWATERING	LUMP SUM	LUMP
S-002	SURVEY MOVEMENT MONITORING	LUMP SUM	LUMP
S-003	CLEANING STRUCTURE	LUMP SUM	LUMP
S-004	PAINTING AND SANDBLASTING	LUMP SUM	LUMP
S-005	TIMBER FENDER AND BUMPERS	M.F.B.M.	2.880
S-006	REPLACEMENT OF LADDERS	LUMP SUM	LUMP
S-007	CATHODIC PROTECTION	LUMP SUM	LUMP
S-008	REPLACEMENT OF STEEL CABLES	LUMP SUM	LUMP
S-009	STAFF GAGES	LUMP SUM	LUMP

Gerrick P. Grille

DATE	DESCRIPTION	BY
	REVISIONS	

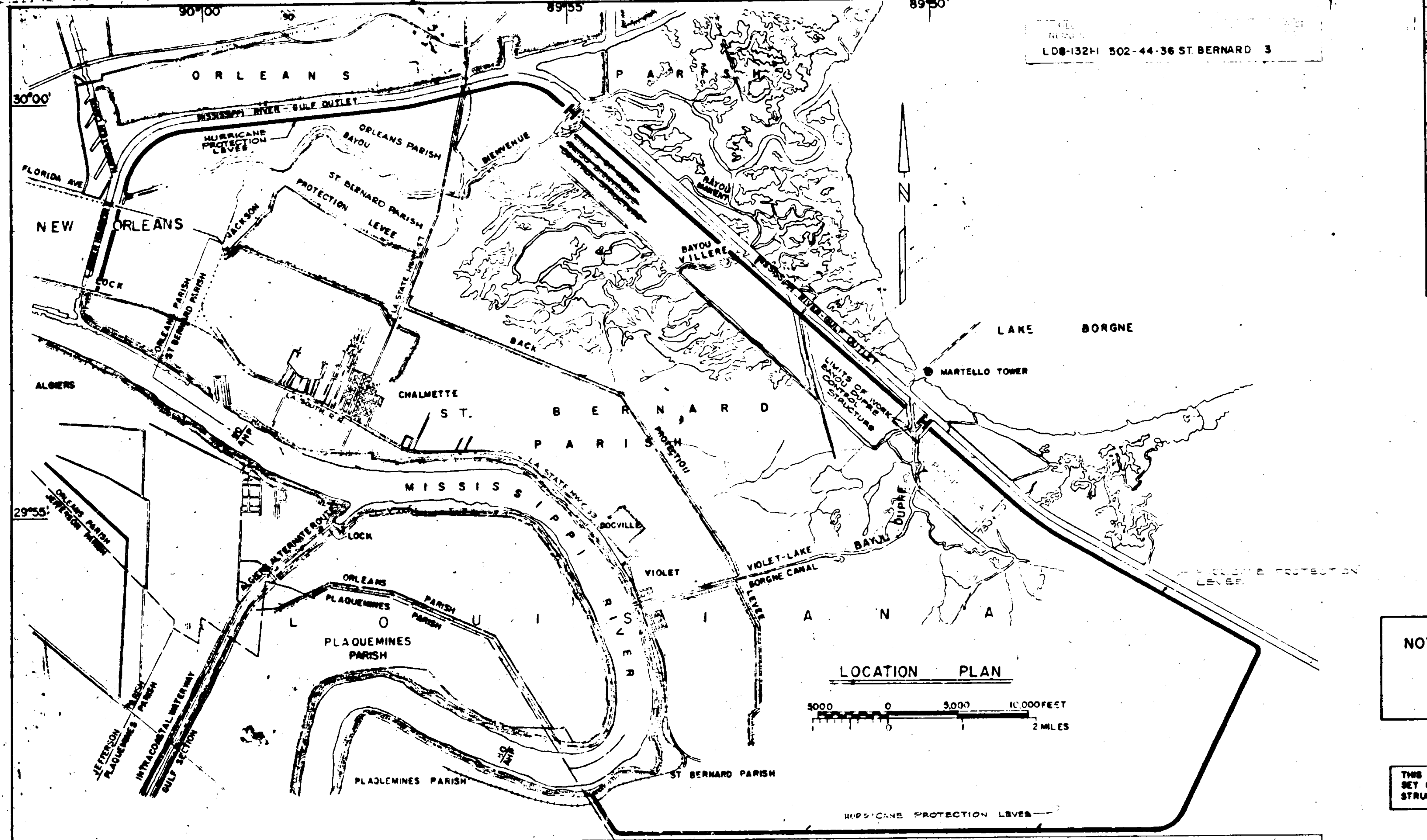
SUMMARY SHEET

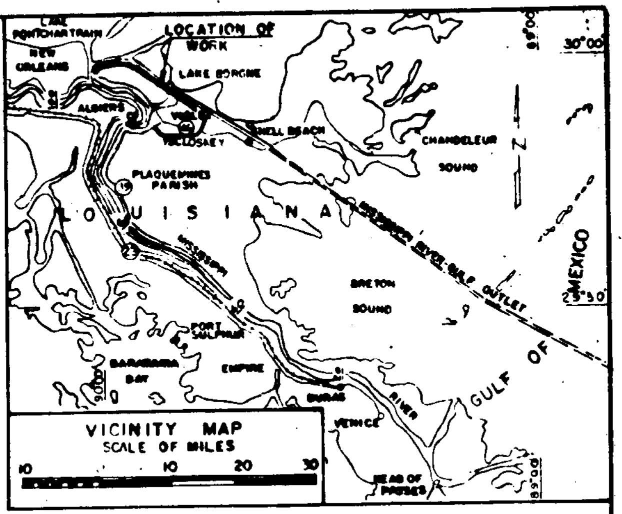
DATED JAN. 19 87

STATE OF LOUISIANA
DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT

DESIGNED	DETAILED D.B.	TRACED
CHECKED	CHECKED C.T.	CHECKED

LDB-132H1 502-44-36 ST. BERNARD 3





Safety is a Part of Your Contract

NOTE:
ALL REFERENCES IN THIS SET OF DWGS. TO THE BAYOU BIENVENUE CONTROL STRUCTURE ARE TO BE DELETED.

THIS DRAWING IS PART OF A REPRODUCTION OF THE ORIGINAL SET OF PLANS FOR THE CONSTRUCTION OF THE EXISTING STRUCTURE AND IS INCLUDED FOR INFORMATION PURPOSES.

THIS PLAN ACCOMPANIES MODIFICATION P00003 TO CONTRACT NO. DACW29-72-C-0159

INDEX TO DRAWINGS

DWG	TITLE
1	LOCATION PLAN AND INDEX TO DRAWINGS
~~2~~	~~GENERAL PLAN - BAYOU BIENVENUE~~
3	GENERAL PLAN - BAYOU DUPRE
4	LEVEE CLOSURE
5	LOG OF BORINGS
~~6~~	~~COMPLETED PLAN - BAYOU BIENVENUE~~
7	COMPLETED PLAN - BAYOU DUPRE
8	COMPLETED SECTIONS
~~9~~	~~INITIAL EXCAVATION PLAN AND SECTIONS - BAYOU BIENVENUE~~
10	INITIAL EXCAVATION PLAN AND SECTIONS - BAYOU DUPRE
~~11~~	~~FINAL STRUCTURE EXCAVATION - GATE BAY - PLANS & SECT'S. - BAYOU BIENVENUE~~
12	FINAL STRUCTURE EXCAVATION - GATE BAY - PLANS & SECT'S. - BAYOU DUPRE
13	GATE BAY PILING LAYOUT AND STABILIZATION SLAB
14	GATE BAY BASE SLAB - MASONRY PLAN
15	GATE BAY BASE SLAB - REINFORCEMENT PLAN, BOTTOM FACE
16	GATE BAY BASE SLAB - REINFORCEMENT PLAN, TOP FACE
17	GATE BAY BASE SLAB - SECTIONS
18	GATE BAY WALL MASONRY & REINFORCEMENT PLAN AT ELEV. -10.45
19	GATE BAY WALL MASONRY & REINFORCEMENT PLAN AT ELEV. 17.5
20	GATE BAY WALL - ELEVATIONS AND SECTIONS
21	GATE BAY WALL - ELEVATIONS AND SECTIONS
22	GATE BAY WALL - ELEVATIONS AND SECTIONS
23	CONTROL HOUSE - PLAN AND ELEVATION
24	CONTROL HOUSE - SECTIONS AND DETAILS
25	CONTROL HOUSE - REINFORCEMENT
26	HINGE ANCHOR - ASSEMBLY AND DETAILS
27	PINTLE SUPPORT ASSEMBLY AND DETAILS
~~28~~	~~NEEDLE GIRDER - PLAN AND DETAILS~~
~~29~~	~~NEEDLE DETAILS~~
30	MISC. METAL - PROTECTION ANGLES & PLATES
31	MISC. METAL - SEAL PLATES
32	MISC. METAL - MACHINERY RECESS
33	HANDRAIL PLAN AND DETAILS
34	FLOODWALL - PLAN AND ELEVATION
35	FLOODWALL - SECTIONS AND DETAILS
36	TIMBER GUIDE WALL FENDER AND DOLPHINS
37	LOADING DOCK
38	SECTOR GATES - GATE CLEARANCE
39	SECTOR GATES - UPPER FRAMES AND JOINTS
40	SECTOR GATES - CENTER FRAME AND JOINTS
41	SECTOR GATES - LOWER FRAME AND JOINTS
42	SECTOR GATES - CHANNEL TRUSS
43	SECTOR GATES - RECESS TRUSS
44	SECTOR GATES - SKIN PLATE
45	SECTOR GATES - WALKWAY
46	SECTOR GATES - HANDRAIL
47	SECTOR GATES - FENDER
48	SECTOR GATES - HINGE
49	SECTOR GATES - PINTLE
50	SECTOR GATES - RUBBER SEALS
51	SECTOR GATES - MISC. DETAILS
52	OPERATING MACHINERY - GENERAL ARRANGEMENT
53	OPERATING MACHINERY - CONTROL ROOM - PLAN AND DETAILS
54	OPERATING MACHINERY - MACHINERY BASE & ANCHOR BOLT LAYOUT
55	OPERATING MACHINERY - CABLE DRUM AND DETAILS
56	OPERATING MACHINERY - SHEAVE ASSEMBLY AND DETAILS
57	OPERATING MACHINERY - SHEAVE ASSEMBLY DETAILS
* 58	OPERATING MACHINERY - CRANK STAND AND DETAILS
59	OPERATING MACHINERY - MISC. DETAILS
60	ONE LINE SCHEMATIC AND WIRING DIAGRAMS
~~61~~	~~POWER LAYOUT - BAYOU BIENVENUE~~
62	LIGHTING LAYOUT
63	LIMIT SWITCH MOUNTING DETAILS
* 64	CATHODIC PROTECTION, NAVIGATION AIDS AND DETAILS
65	SECTION AND CONDUIT DETAILS
PLATE A	SOIL BORING LEGEND, FILE NO. H-2-21800
* 58A	OPERATING MACHINERY - CRANK STAND DETAILS
* 61A	POWER LAYOUT - BAYOU DUPRE
* 64A	CATHODIC PROTECTION - MOUNTING DETAILS (NO FULL SCALE)

REVISION	DATE	DESCRIPTION	BY	APPVD.
1	5-2-73	Added new dwg. 64A Mod. #3		

WALDEMAR S. NELSON AND COMPANY
ENGINEERS AND ARCHITECTS
NEW ORLEANS, LA.

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

DESIGNED WSNCO | DRAWN WSNCO | CHECKED WSNCO

DATE FEB. 1972

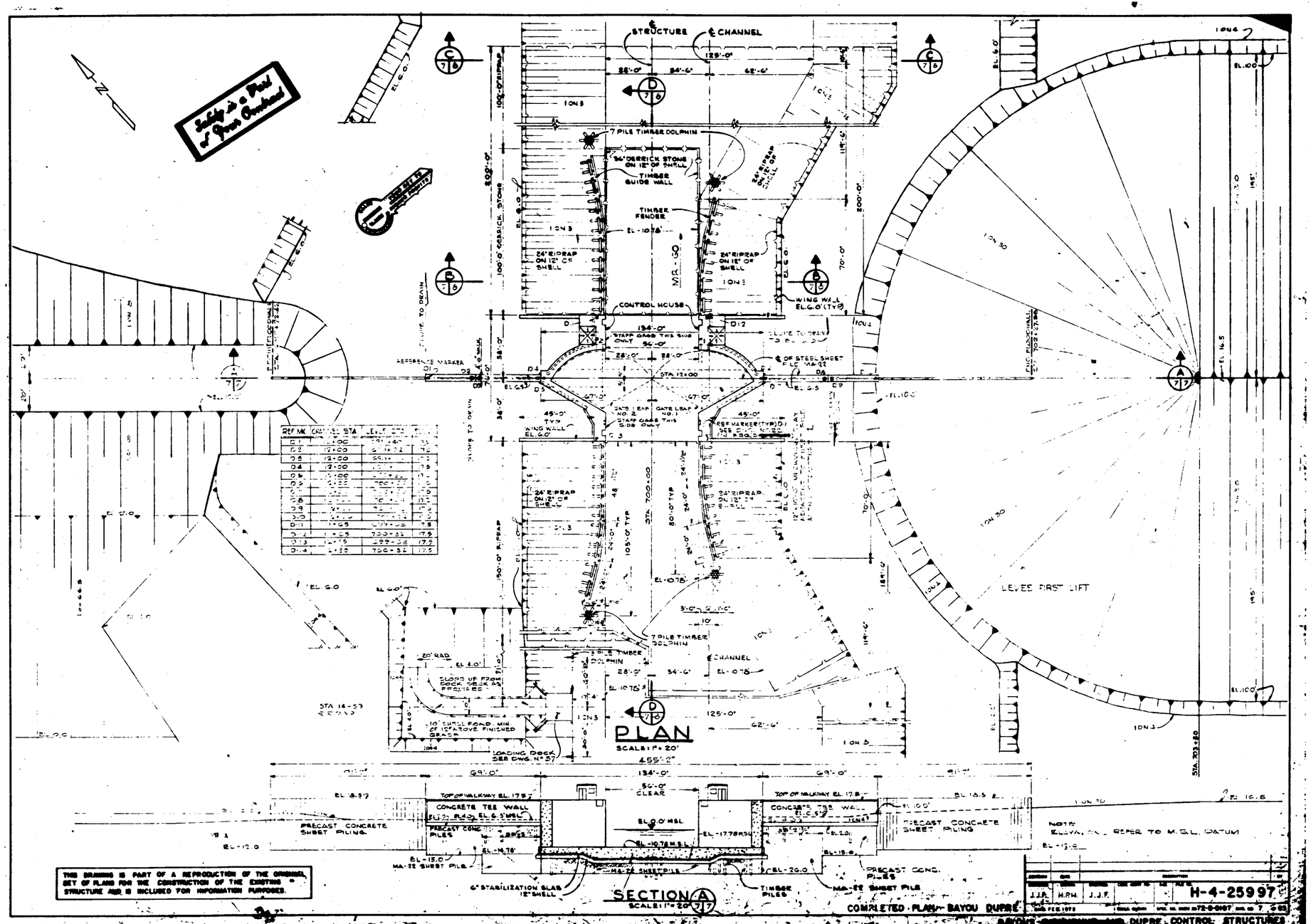
LAKE PONTCHARTRAIN, LA AND VICINITY

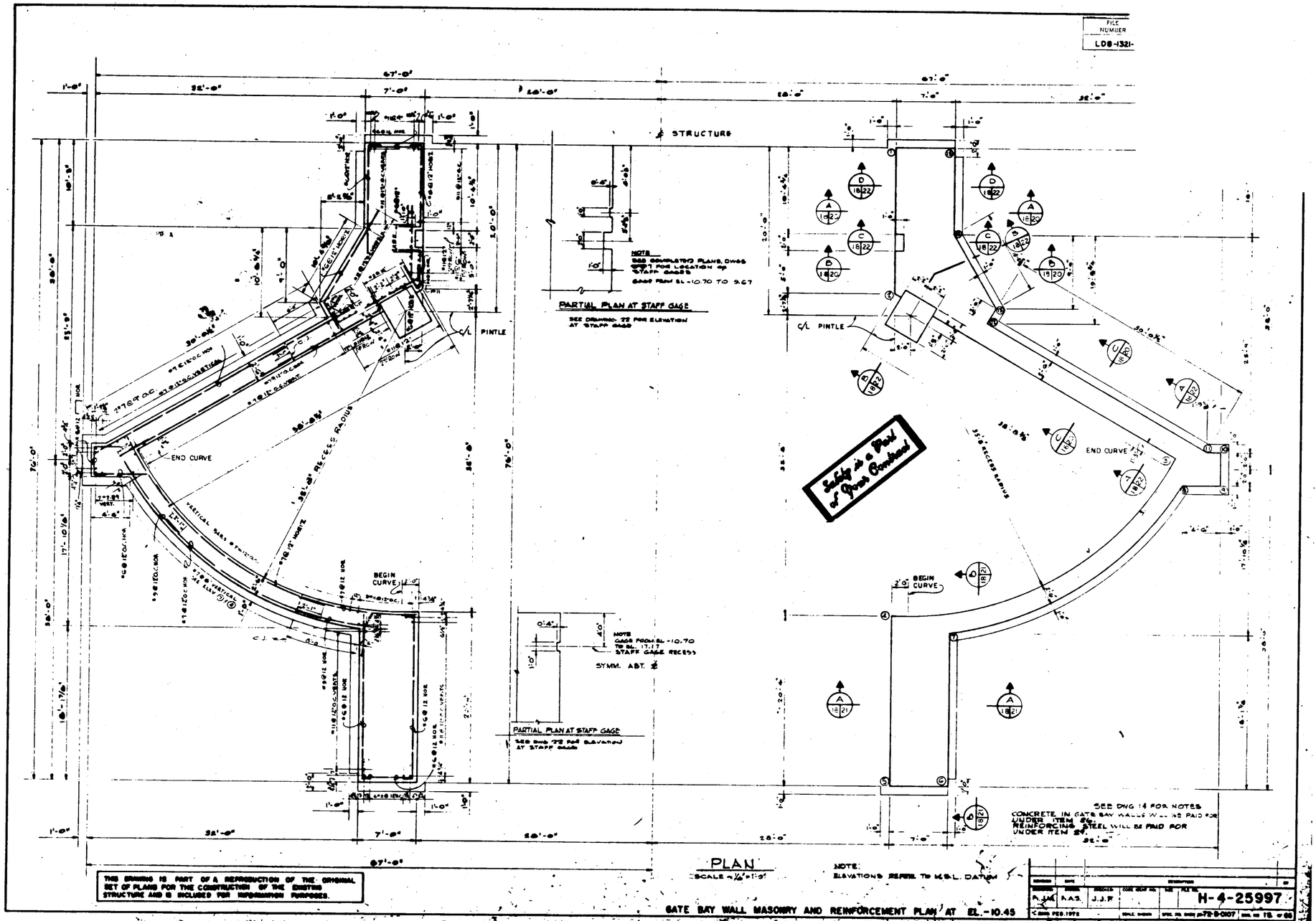
CHALMETTE AREA PLAN

LOCATION PLAN AND INDEX TO DRAWINGS

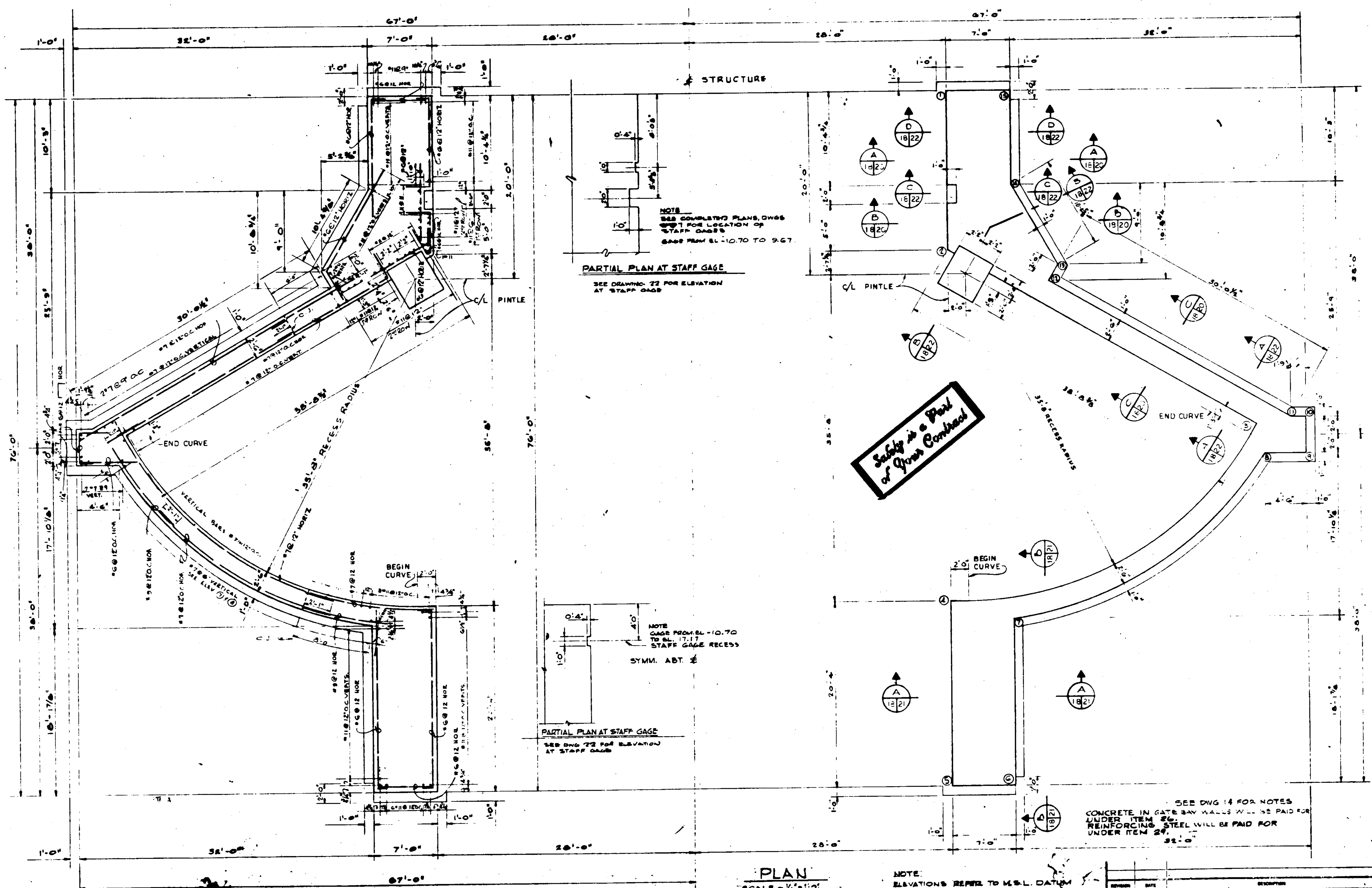
FILE No. H-4-25997

BAYOU DUPRE CONTROL STRUCTURE


PLAN
SCALE: 1" = 20'
SECTION A
SCALE: 1" = 20'
LEVEE FIRST LIFT
COMPLETED PLAN BAYOU DUPRE
H-4-25997
BAYOU DUPRE CONTROL STRUCTURE
THIS DRAWING IS PART OF A REPRODUCTION OF THE ORIGINAL SET OF PLANS FOR THE CONSTRUCTION OF THE EXISTING STRUCTURE AND IS INCLUDED FOR INFORMATION PURPOSES.


FILE NUMBER
LDB-1321-
STRUCTURE
PINTLE
END CURVE
BEGIN CURVE
PARTIAL PLAN AT STAFF GAGE
SEE DRAWING 72 FOR ELEVATION AT STAFF GAGE
NOTE
SEE DRAWING TWO PLANS, DWGS SHEET FOR LOCATION OF STAFF GAGES
GAGE FROM EL -10.70 TO 9.67
NOTE
GAGE FROM EL -10.70 TO EL. 17.17
STAFF GAGE RECESS
SYMM. ABT. ℄
SEE DWG 14 FOR NOTES
CONCRETE IN GATE BAY WALLS WILL BE PAID FOR UNDER ITEM 24.
REINFORCING STEEL WILL BE PAID FOR UNDER ITEM 24.
THIS DRAWING IS PART OF A REPRODUCTION OF THE ORIGINAL SET OF PLANS FOR THE CONSTRUCTION OF THE EXISTING STRUCTURE AND IS INCLUDED FOR INFORMATION PURPOSES.
PLAN
SCALE 1/8"=1'-0"
NOTE:
ELEVATIONS REFER TO M.S.L. DATUM
H-4-25997
GATE BAY WALL MASONRY AND REINFORCEMENT PLAN AT EL. -10.45
BAYOU CHEMINEUF AND DUPRE CONTROL STRUCTURES

FILE NUMBER	STATE PROJECT	PARISH	SHEET NO.
LD8-1321-1	502-44-36	ST. BERNARD	5



SEE DWG 14 FOR NOTES

CONCRETE IN GATE BAY WALLS WILL BE PAID FOR UNDER ITEM 26.
REINFORCING STEEL WILL BE PAID FOR UNDER ITEM 29.

PLAN
SCALE $\frac{1}{4}$" = 1'-0"

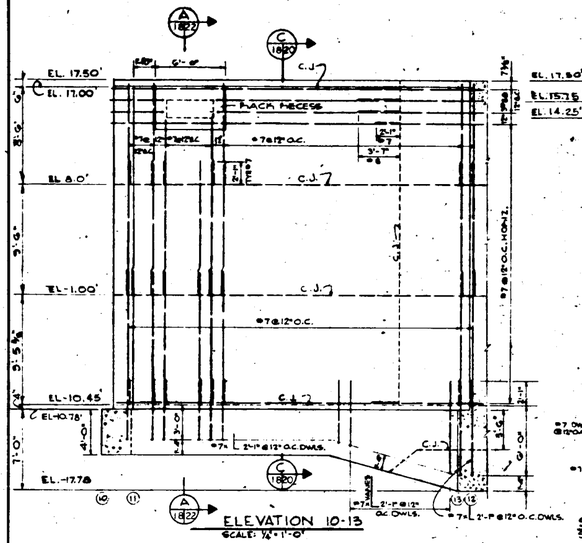
NOTE:
ELEVATIONS REFER TO M.S.L. DATUM

GATE BAY WALL MASONRY AND REINFORCEMENT PLAN AT EL. -10.45

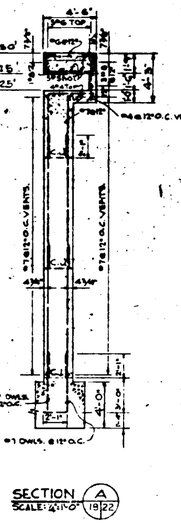
REVISION	DATE	DESCRIPTION	BY
DESIGNED: R.J.M.	DRAWN: R.A.S.	CHECKED: J.J.F.	FILE NO. H-4-25997
FEB. 1972	SCALE: SHOWN	SPEC. NO. DACW 29-72-B-0107	DWG. NO. 18 OF 65

BAYOUS ~~BIENVENUE AND~~ DUPRE CONTROL STRUCTURES

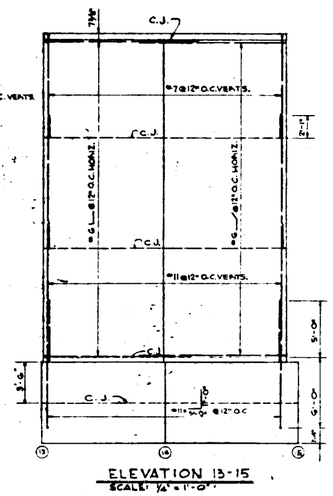
LDB-4321-1 502-44-36 ST. BERNARD 6



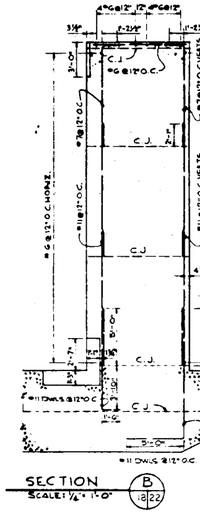
ELEVATION 10-13
SCALE: 1/4" = 1'-0"



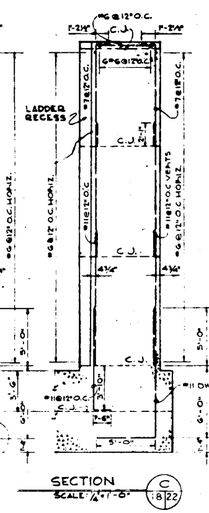
SECTION A
SCALE: 1/4" = 1'-0"



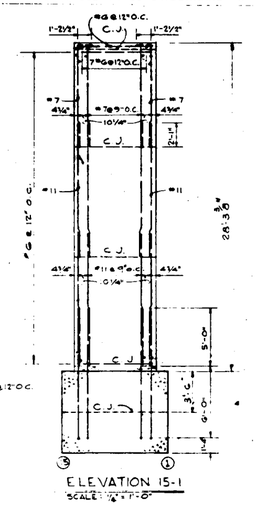
ELEVATION 13-15
SCALE: 1/4" = 1'-0"



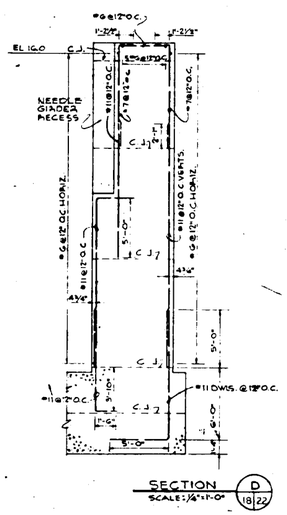
SECTION B
SCALE: 1/4" = 1'-0"



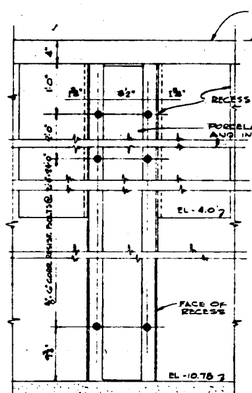
SECTION C
SCALE: 1/4" = 1'-0"



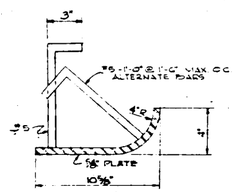
ELEVATION 15-1
SCALE: 1/4" = 1'-0"



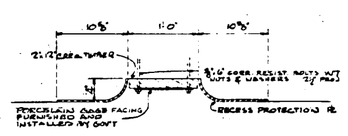
SECTION D
SCALE: 1/4" = 1'-0"



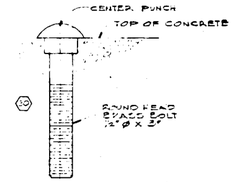
STAFF GAGE ELEVATION
SCALE 1/2" = 1'-0"



STAFF GAGE RECESS PROTECTION ∠
SCALE: 3" = 1'-0"



STAFF GAGE RECESS DETAIL
SCALE 1½" = 1'-0"



REFERENCE MARKER
FULL SIZE
14 REQ'D

Safety is a Part of Your Contract

NOTE
FOR LOCATION OF REFERENCE MARKERS SEE DWGS ← 7
ELEVATIONS REFER TO M.S.L. DATUM

CONCRETE IN GATE BAY WALLS WILL BE PAID FOR UNDER ITEM 29. REINFORCING STEEL WILL BE PAID FOR UNDER ITEM 29.

THIS DRAWING IS PART OF A REPRODUCTION OF THE ORIGINAL SET OF PLANS FOR THE CONSTRUCTION OF THE EXISTING STRUCTURE AND IS INCLUDED FOR INFORMATION PURPOSES.

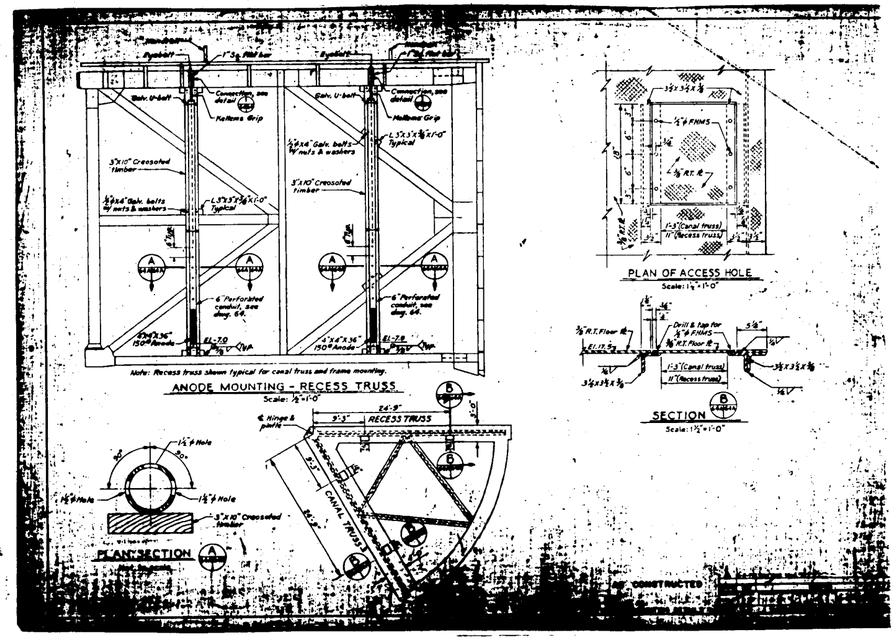
SEE DWG 14 FOR NOTES

REVISION	DATE	DESCRIPTION	BY
DESIGNED	DRAWN	CHECKED	CODE IDENT. NO.	SIZE	FILE NO.
R.J.M.	R.A.S.	J.J.F.			H-4-25997
DATE: FEB 1972		SCALE: SHOWN	SPEC. NO. BASIC 72-B-0107	DWG. NO. 22 OF 65

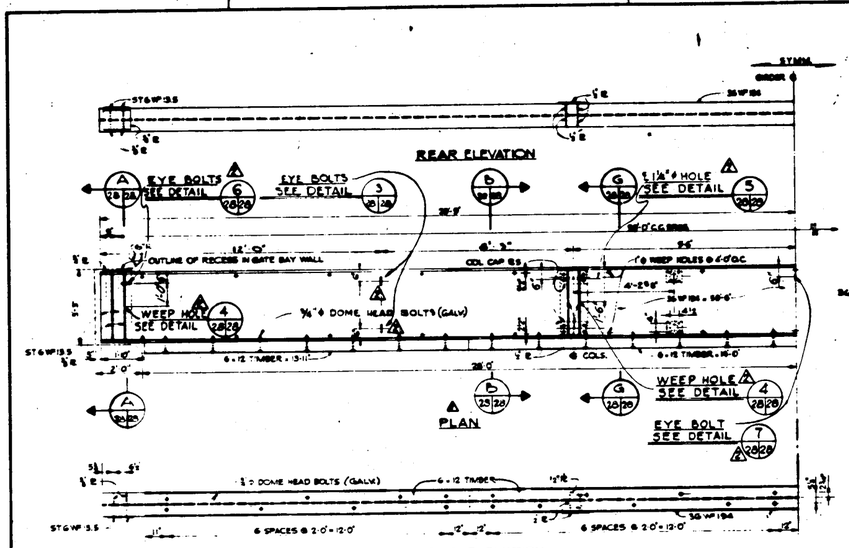
GATE BAY WALL - ELEVATIONS AND SECTIONS

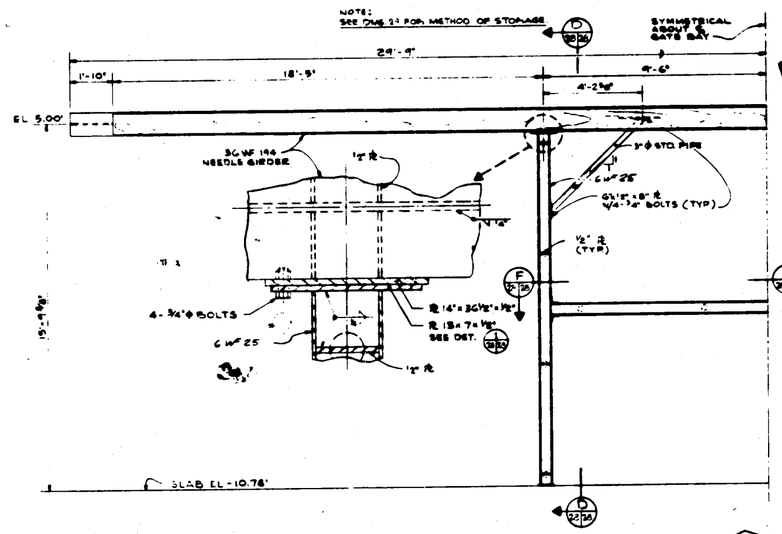
BAYOUS ~~BIENVENUE AND~~ DUPRE CONTROL STRUCTURES

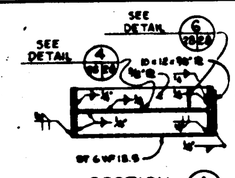
FILE NUMBER	STATE PROJECT	PARISH	SHEET NO.
LD 8-1321-I	802-44-36	ST. BERNARD	25A

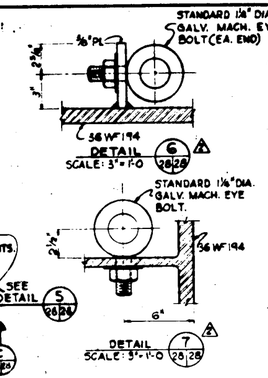


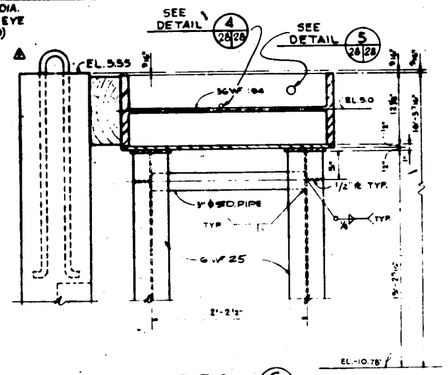
CATHODIC PROTECTION MOUNTING DETAIL

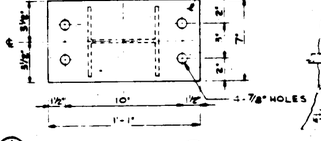


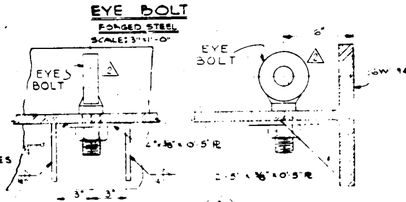


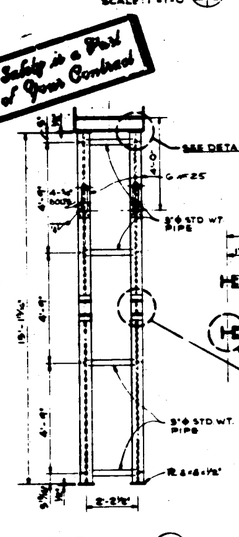


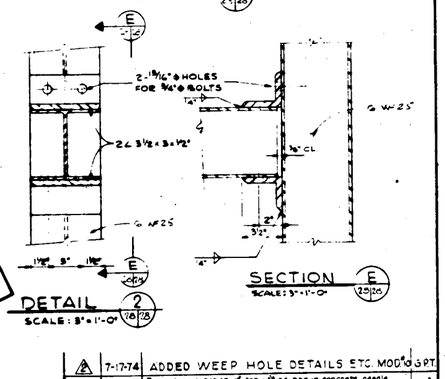












THIS DRAWING IS PART OF A REPRODUCTION OF THE ORIGINAL SET OF PLANS FOR THE CONSTRUCTION OF THE EXISTING STRUCTURE AND IS INCLUDED FOR INFORMATION PURPOSES.

THIS PLAN ACCOMPANIES MODIFICATION P00010 TO CONTRACT NO. DACW29-72-C-0084

NEEDLE BEAM & STORAGE RACK IS TO BE PAID FOR UNDER ITEM 29.

NOTE:
FOR GEN'L. NOTES SEE DWGS. 14 & 38
ELEVATIONS REFER TO MSL DATUM

NEEDLE GIRDER - PLAN AND DETAILS

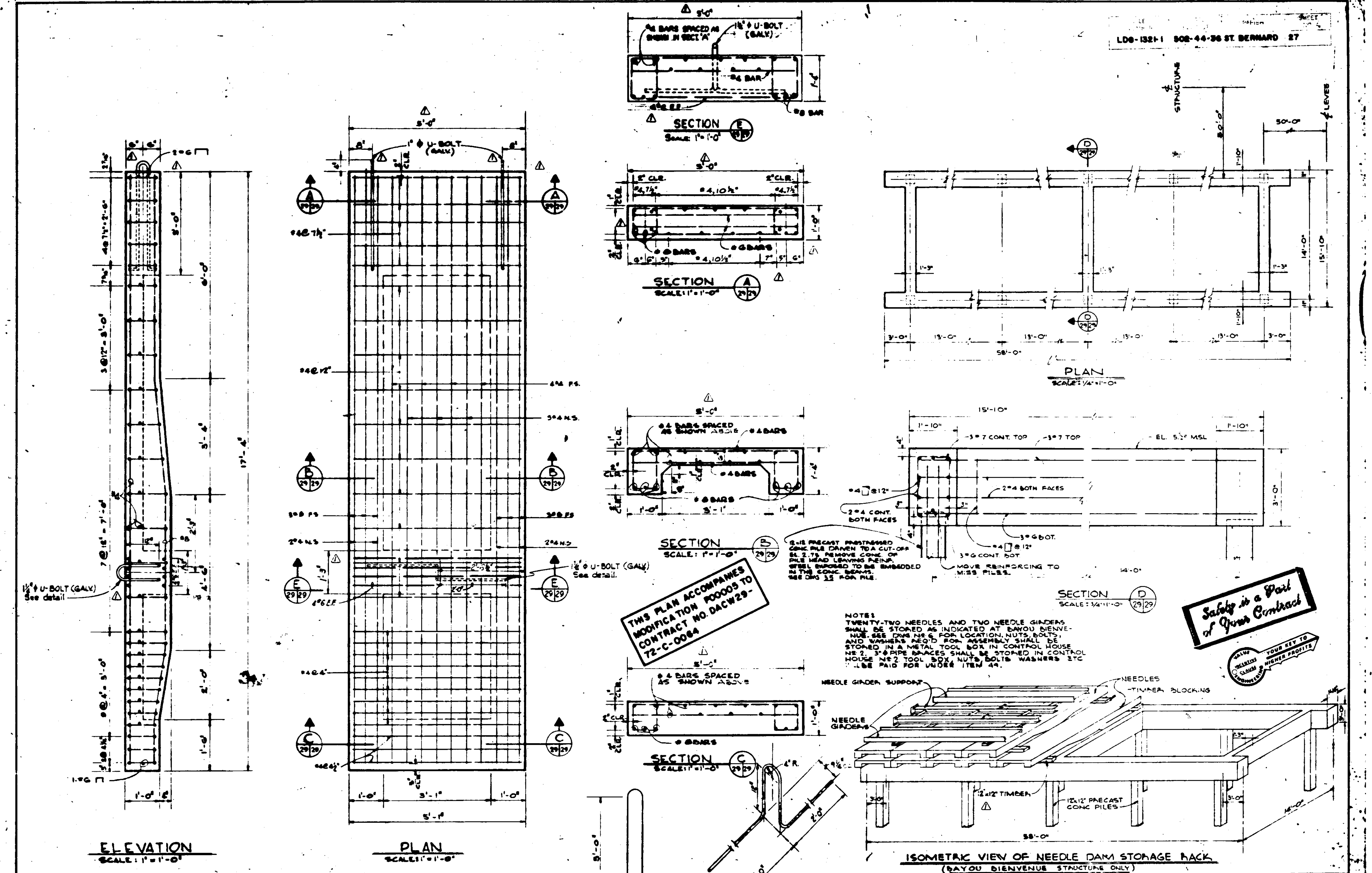
2	7-17-74	ADDED WEEP HOLE DETAILS ETC. MOD'G BPT
1	1 Aug. 72	Revised orientation of rod lifting bar in concrete needle. Deleted bolts and slotted holes in needle girder: Mod #5 BK.H.
REVISIONS	DATE	DESCRIPTION BY

DESIGNED: RJM DRAWN: RAS CHECKED: JJF CORP AGENT NO. DATE FILE NO.

H-4-24326

DATE: October, 1971 SCALE SHOWN SPEC. NO. DACW 29-72-B-0031 DWG. NO. 28 of 65

BAYOUS BIENVENUE & GARDEN CONTROL STRUCTURES



ISOMETRIC VIEW OF NEEDLE DAM STORAGE RACK
(BAYOU BIENVENUE STRUCTURE ONLY)
(SEE DWG Nº 6 FOR LOCATION)

NOTES:
TWENTY-TWO NEEDLES AND TWO NEEDLE GIRDERS SHALL BE STORED AS INDICATED AT BAYOU BIENVENUE. SEE DWG Nº 6 FOR LOCATION. NUTS, BOLTS, AND WASHERS REQ'D FOR ASSEMBLY SHALL BE STORED IN A METAL TOOL BOX IN CONTROL HOUSE Nº 2. 3" φ PIPE BRACES SHALL BE STORED IN CONTROL HOUSE Nº 2 TOOL BOX. NUTS, BOLTS, WASHERS, ETC. WILL BE PAID FOR UNDER ITEM 44.

THIS DRAWING IS PART OF A REPRODUCTION OF THE ORIGINAL SET OF PLANS FOR THE CONSTRUCTION OF THE EXISTING STRUCTURE AND IS INCLUDED FOR INFORMATION PURPOSES.

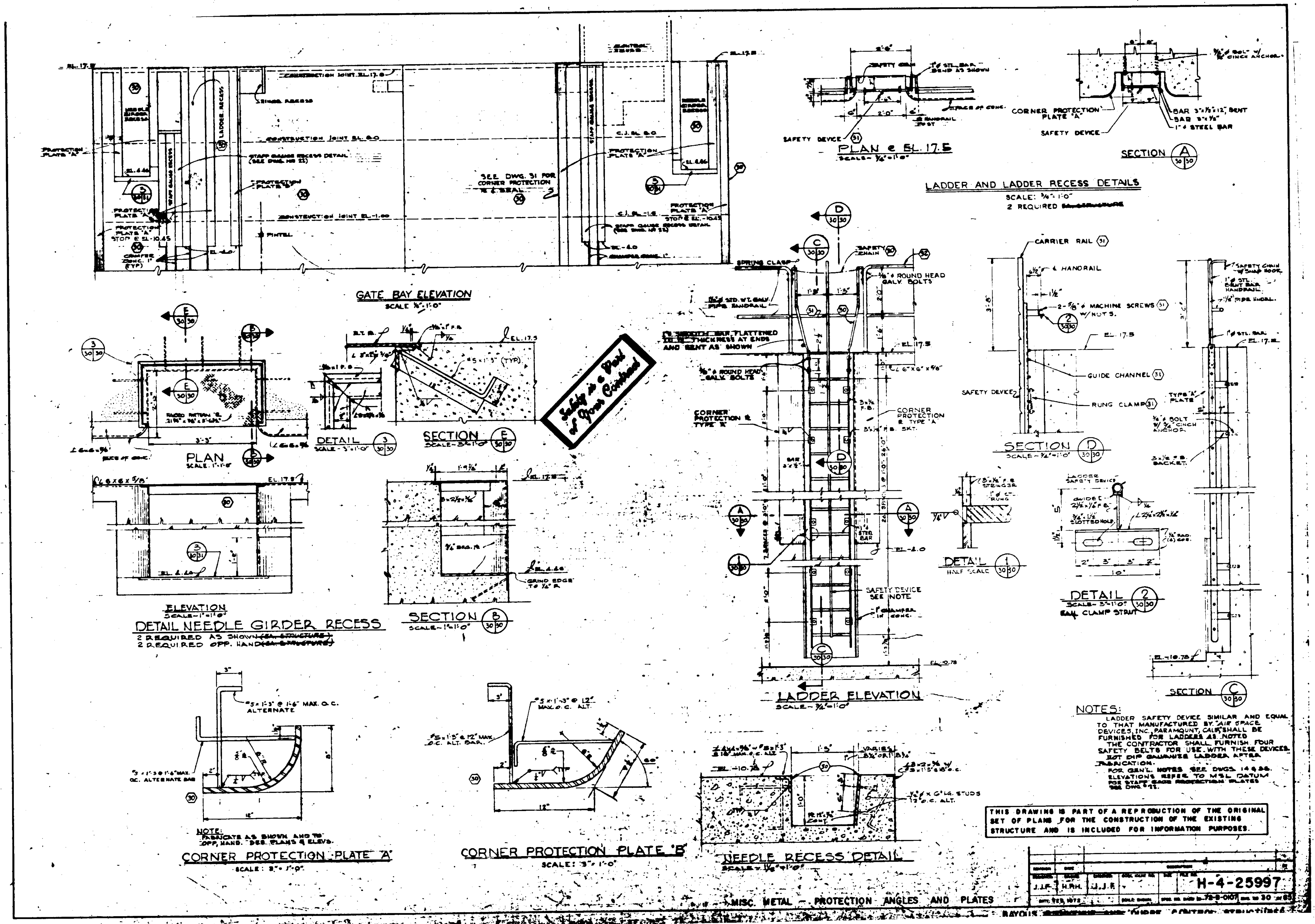
NOTE:
FOR GEN'L. NOTES SEE DWGS. 14 & 58
ELEVATIONS REFER TO MSL DATUM
NEEDLE DAM STORAGE RACK WILL BE PAID FOR UNDER ITEM 44.

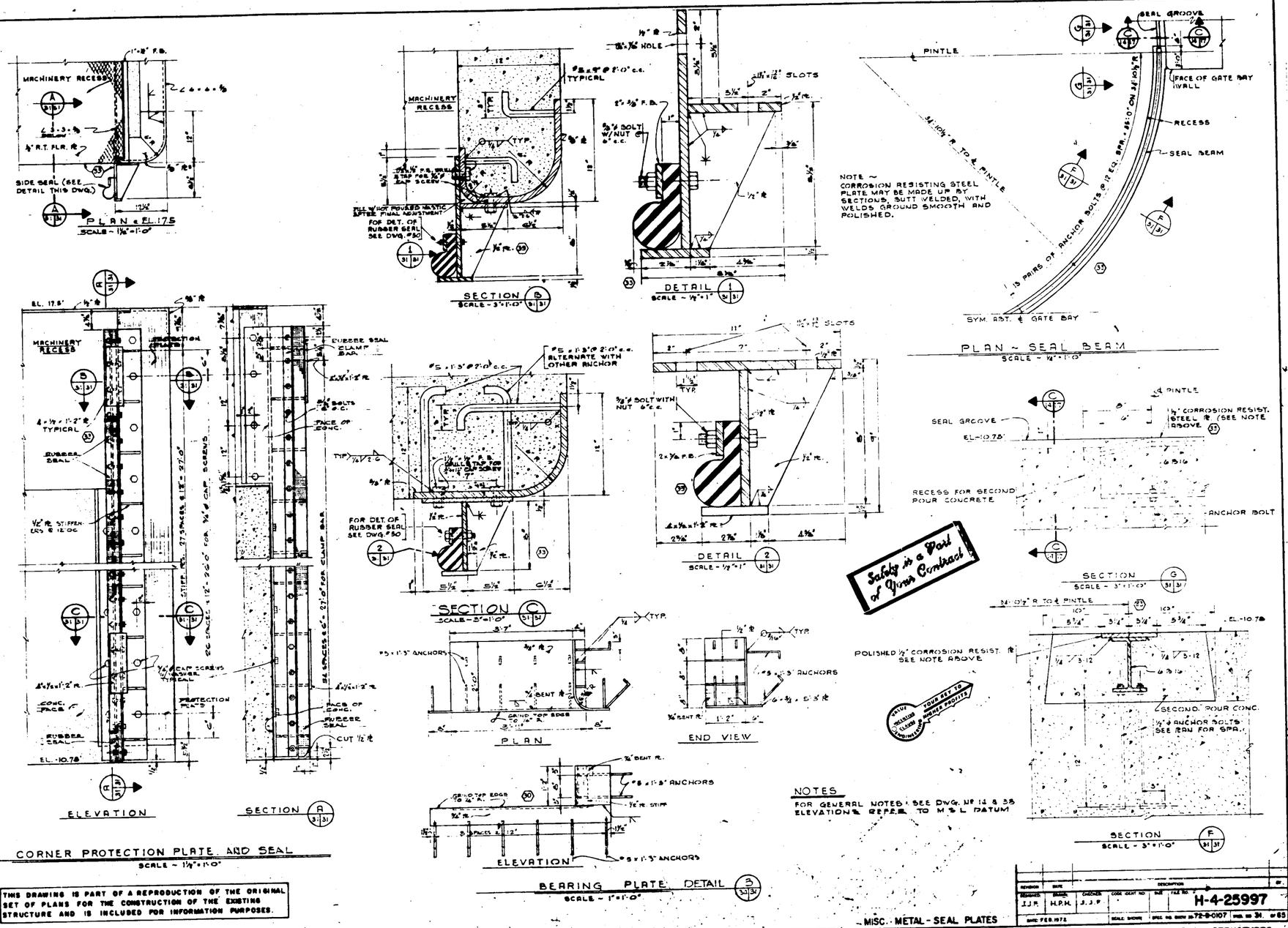
Revision	Date	Description
⚠	1 Aug 72	Added U-bolt, U-bolt detail & Section E. Changed orientation of top lifting bars, width of needle & size of timber blocking. Deleted 2" φ pipe sleeves in needle. Mod P5

Designed	Drawn	Checked	File No.
A.J.M.	R.A.S.	J.J.F.	H-4-24326

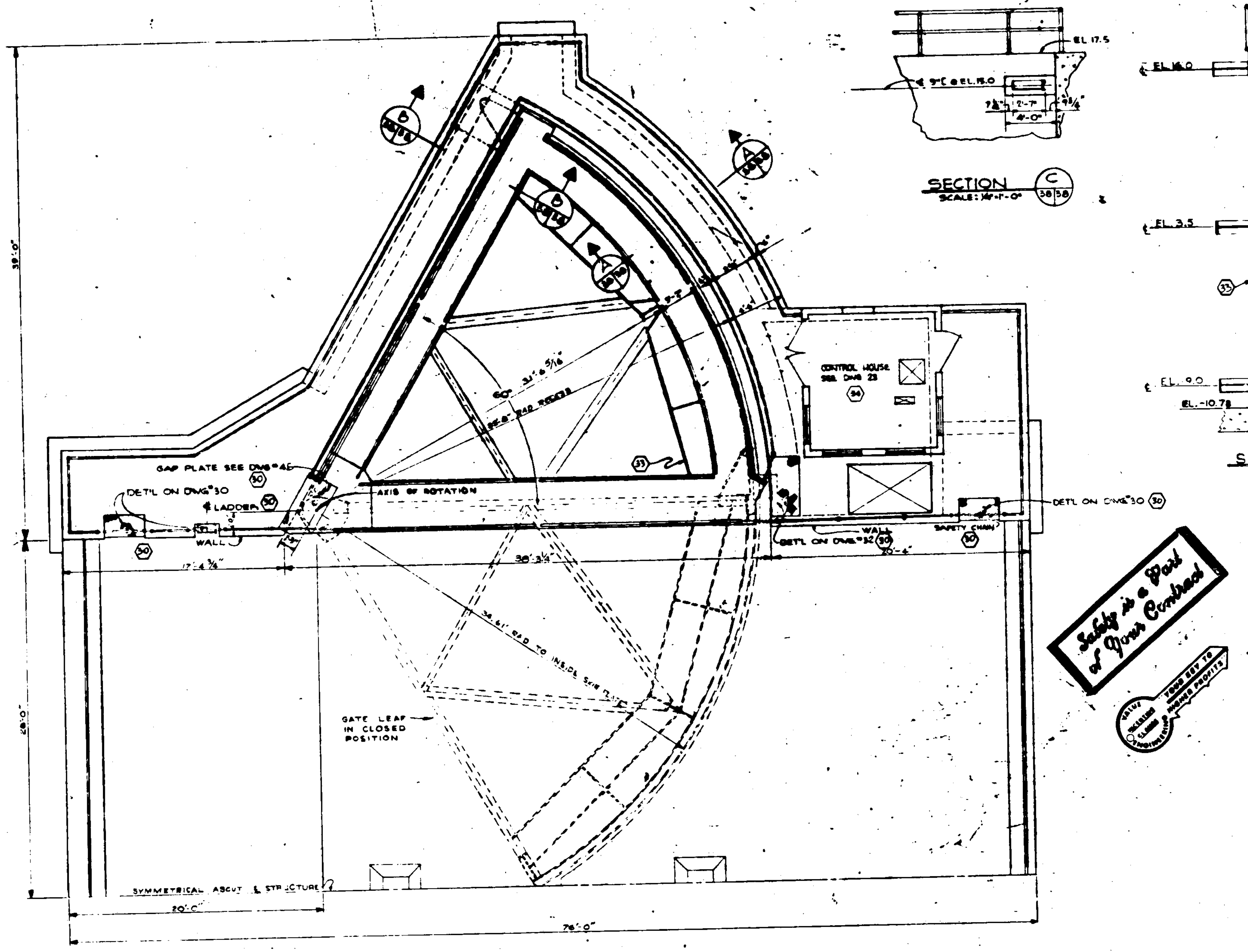
DATE: OCTOBER 1971 — SCALE: SHOWN — SPEC. NO. DACW 29-72-B-0031 — DWG. NO. 29 OF 60

NEEDLE DETAILS
BAYOUS BIENVENUE AND DUPRE CONTROL STRUCTURES


GATE BAY ELEVATION
SCALE 1/8"=1'-0"
LADDER AND LADDER RECESS DETAILS
2 REQUIRED
PLAN @ EL. 17.5
SECTION A
PLAN
DETAIL 3
SECTION E
Safety is a Part of Your Contract
LADDER ELEVATION
SECTION D
SECTION C
DETAIL 1
DETAIL 2
ELEVATION
DETAIL NEEDLE GIRDER RECESS
2 REQUIRED AS SHOWN
2 REQUIRED OPP. HAND
SECTION B
CORNER PROTECTION PLATE "A"
CORNER PROTECTION PLATE "B"
NEEDLE RECESS DETAIL
NOTE: FABRICATE AS SHOWN AND TO OPP. HAND. SEE PLANS & ELEVS.
NOTES:
LADDER SAFETY DEVICE SIMILAR AND EQUAL TO THAT MANUFACTURED BY AIR SPACE DEVICES, INC., PARAMOUNT, CALIF., SHALL BE FURNISHED FOR LADDERS AS NOTED.
THE CONTRACTOR SHALL FURNISH FOUR SAFETY BELTS FOR USE WITH THESE DEVICES.
THIS DRAWING IS PART OF A REPRODUCTION OF THE ORIGINAL SET OF PLANS FOR THE CONSTRUCTION OF THE EXISTING STRUCTURE AND IS INCLUDED FOR INFORMATION PURPOSES.
H-4-25997
MISC. METAL - PROTECTION ANGLES AND PLATES

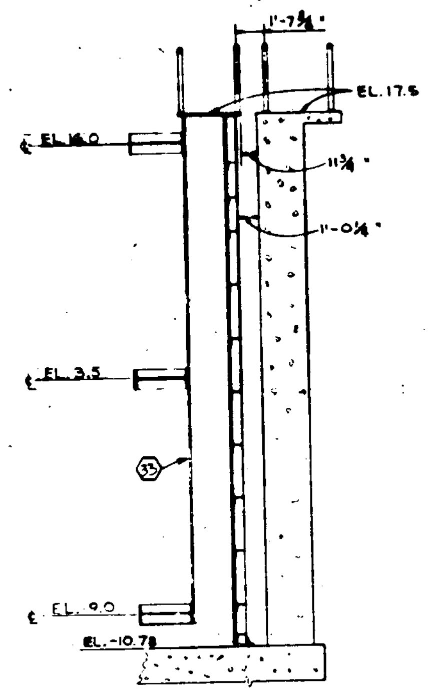


L 08-1321-1 502-44-36 ST BERNARD 8

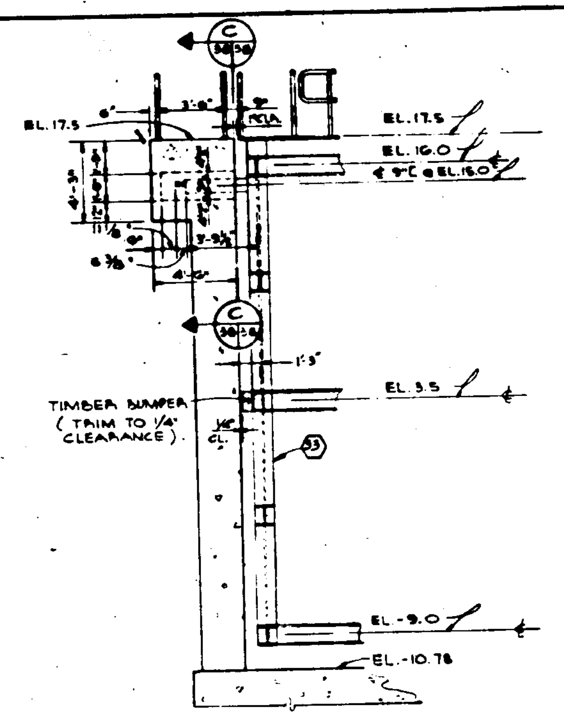


HALF PLAN
SCALE: 1/8"=1'-0"

SECTION (C 38|58)
SCALE: 1/8"=1'-0"



SECTION (A 28|58)
SCALE 1/8"=1'-0"



SECTION (B 28|58)
SCALE 1/8"=1'-0"

LD 8-1321-1 502-44-36 ST. BERNARD 9

GENERAL NOTES:

ONE GATE LEAVE IS REQUIRED AS SHOWN AND ONE OPPOSITE HAND EXCEPT AS SHOWN AND NOTED.

WELDING SYMBOLS ARE AMERICAN WELDING SOCIETY STANDARD.

ALL MATERIAL WILL BE STRUCTURAL STEEL EXCEPT AS OTHERWISE NOTED.

ERECTION BOLTS WILL BE 3/4" EXCEPT AS NOTED.

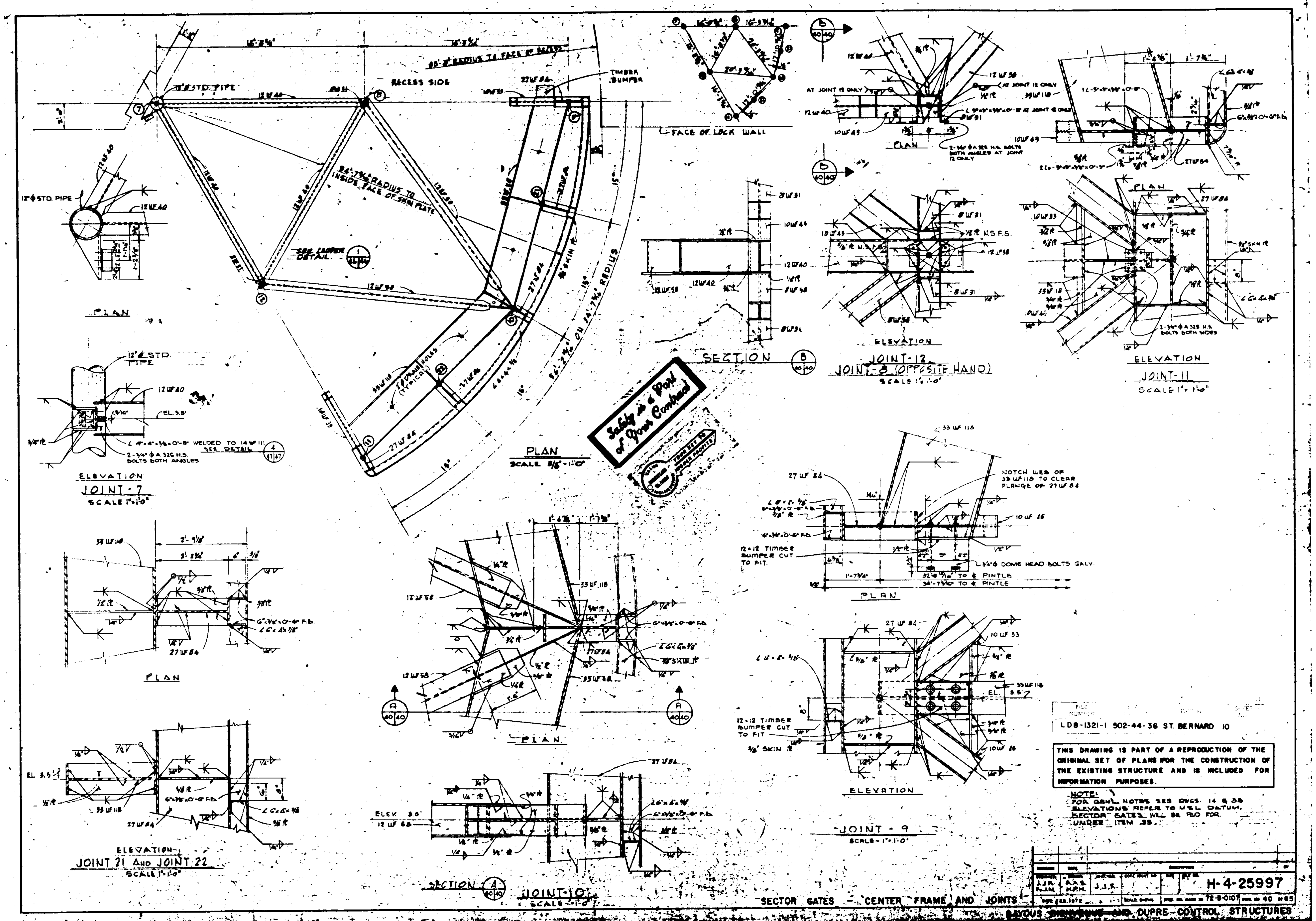
FOR ADDITIONAL GENERAL NOTES SEE DWG. #14

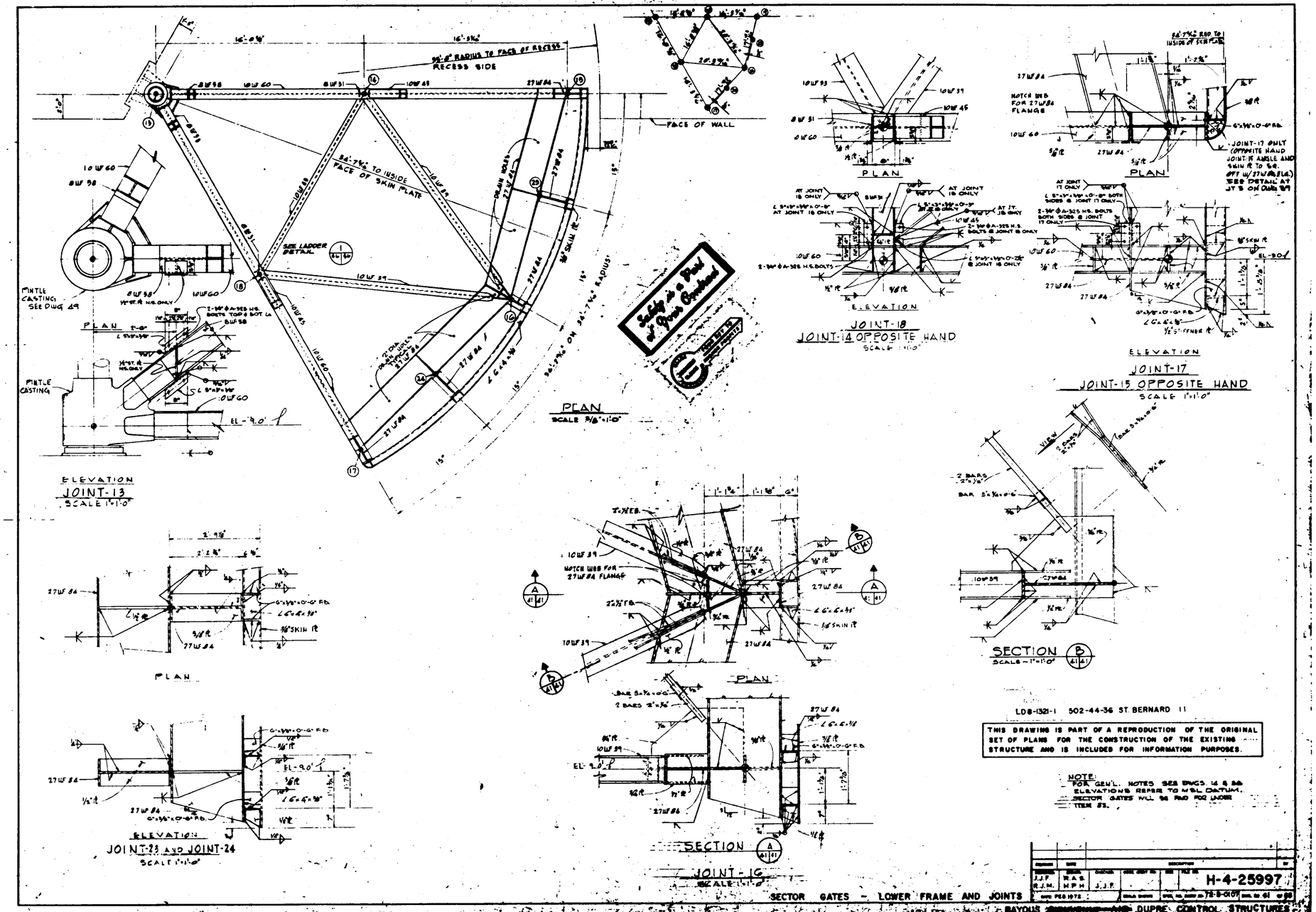
ELEVATIONS REFER TO MSL DATUM.

REVISION	DATE	DESCRIPTION			BY
DESIGNED: J.J.F.	DRAWN: H.P.H.	CHECKED: J.J.F.	CODE IDENT NO.	SIZE	FILE NO. H-4-25997
DATE FEB. 1972			SCALE: SHOWN		SPEC. NO. DACW 29-72-B-0107 DWG. NO 38 OF 65

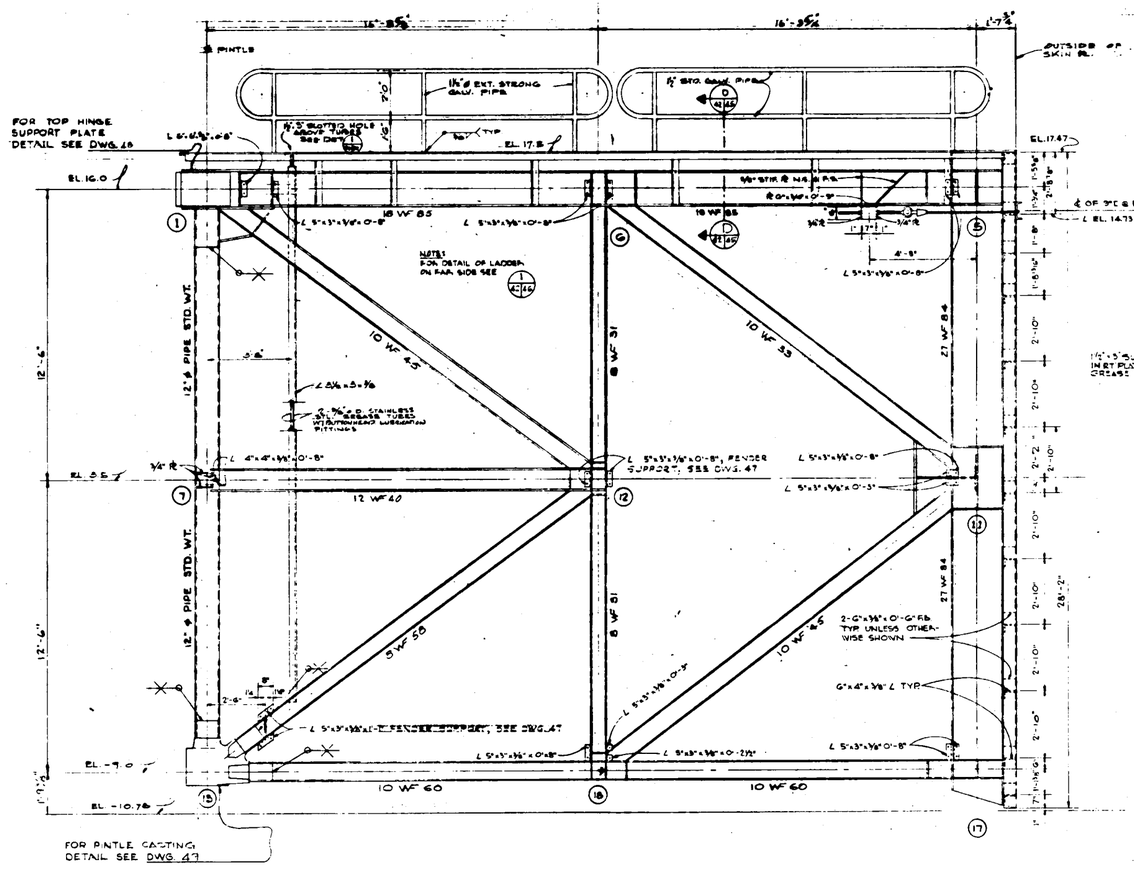
SECTOR GATES – GATE CLEARANCE

BAYOUS ~~BIENVENUE AND~~ DUPRE CONTROL STRUCTURES

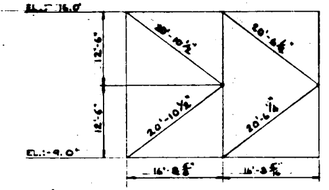

PLAN
SCALE 3/16" = 1'-0"
RECESS SIDE
TIMBER BUMPER
FACE OF LOCK WALL
SEE LADDER DETAIL
12" Ø STD. PIPE
ELEVATION
JOINT-7
SCALE 1" = 1'-0"
SECTION B
ELEVATION
JOINT-12
JOINT-8 (OPPOSITE HAND)
SCALE 1" = 1'-0"
ELEVATION
JOINT-11
SCALE 1" = 1'-0"
NOTCH WEB OF 33 WF 118 TO CLEAR FLANGE OF 27 WF 84
12 x 12 TIMBER BUMPER CUT TO FIT.
3/4" Ø DOME HEAD BOLTS GALV.
ELEVATION
JOINT - 9
SCALE - 1" = 1'-0"
ELEVATION
JOINT 21 AND JOINT 22
SCALE 1" = 1'-0"
SECTION A
JOINT-10
SCALE 1" = 1'-0"
Safety is a Part of Your Contract
LDB-1321-1 502-44-36 ST. BERNARD 10
THIS DRAWING IS PART OF A REPRODUCTION OF THE ORIGINAL SET OF PLANS FOR THE CONSTRUCTION OF THE EXISTING STRUCTURE AND IS INCLUDED FOR INFORMATION PURPOSES.
NOTES:
FOR GEN'L NOTES SEE DWGS. 14 & 38
ELEVATIONS REFER TO M.S.L. DATUM.
SECTOR GATES WILL BE PAID FOR UNDER ITEM 35.
H-4-25997
SECTOR GATES - CENTER FRAME AND JOINTS
BAYOUS SEGNETTE AND DUPRE CONTROL STRUCTURES


RECESS SIDE
FACE OF WALL
SEE LADDER DETAIL
PINTLE CASTING; SEE DWG 49
PINTLE CASTING
PLAN
ELEVATION
JOINT-13
SCALE 1"=1'-0"
PLAN
SCALE 3/8"=1'-0"
PLAN
ELEVATION
JOINT-18
JOINT-14 OPPOSITE HAND
SCALE 1"=1'-0"
PLAN
ELEVATION
JOINT-17
JOINT-15 OPPOSITE HAND
SCALE 1"=1'-0"
PLAN
ELEVATION
JOINT-23 AND JOINT-24
SCALE 1"=1'-0"
PLAN
SECTION
JOINT-16
SCALE 1"=1'-0"
SECTION
SCALE 1"=1'-0"
LDB-1321-1 502-44-36 ST. BERNARD 11
THIS DRAWING IS PART OF A REPRODUCTION OF THE ORIGINAL SET OF PLANS FOR THE CONSTRUCTION OF THE EXISTING STRUCTURE AND IS INCLUDED FOR INFORMATION PURPOSES.
NOTE:
FOR GEN'L. NOTES SEE DWGS 14 & 84.
ELEVATIONS REFER TO M.S.L. DATUM.
SECTOR GATES WILL BE PAID FOR UNDER ITEM 83.
H-4-25997
SECTOR GATES - LOWER FRAME AND JOINTS
BAYOU DUPRE CONTROL STRUCTURES

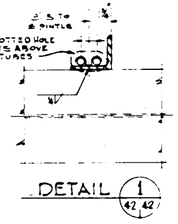
LDB-1321-1 502-44-36 ST. BERNARD 12



CHANNEL TRUSS ELEVATION
SCALE 1/2" = 1'-0"



TRUSS DIMENSIONS
SCALE - ½" = 1'-0"



DETAIL 1 / 42 42

THIS DRAWING IS PART OF A REPRODUCTION OF THE ORIGINAL SET OF PLANS FOR THE CONSTRUCTION OF THE EXISTING STRUCTURE AND IS INCLUDED FOR INFORMATION PURPOSES.

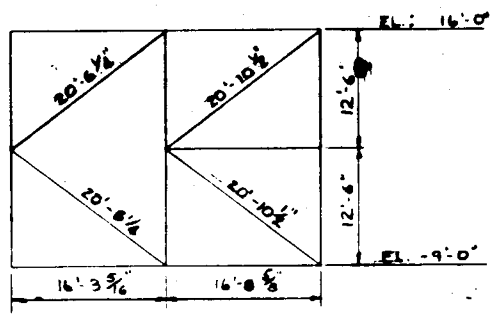
NOTE:
FOR GEN'L. NOTES SEE DWGS. 16 & 36
ELEVATIONS REFERE TO MSL DATUM
SECTOR GATES WILL BE PAID FOR UNDER ITEM 33

DESIGNED	DRAWN	CHECKED	QUAN. COUNT NO.	SIZE	FILE NO.
J.J.R. R.J.M.	R.A.S. M.P.H.	J.J.F.			H-4-25997
APPD. FEB 1972		SCALE SHOWN	SPEC. NO. DWG. NO. 72-8-0107		SHEET NO. 42 OF 65

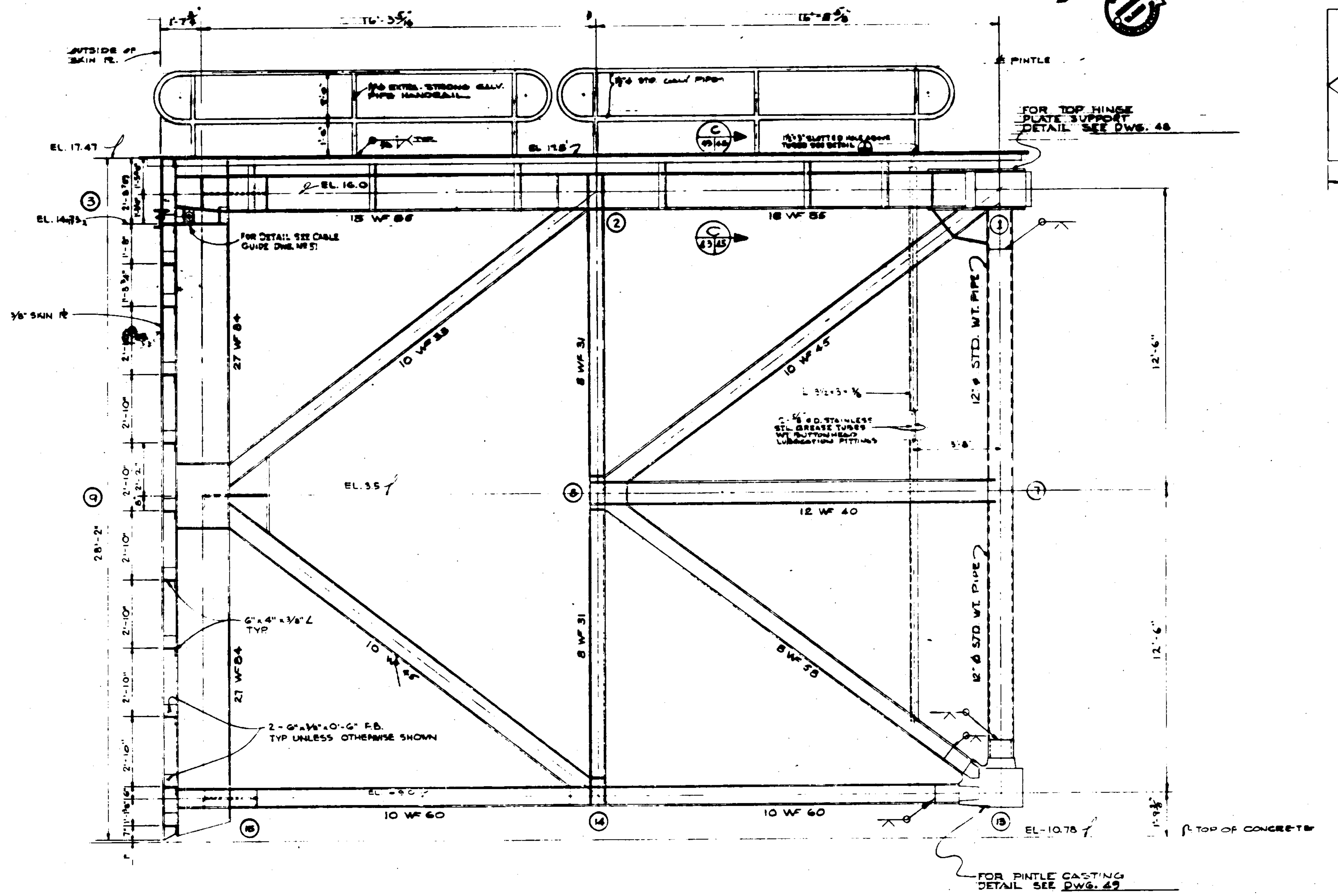
SECTOR GATES - CHANNEL TRUSS

BAYOUS DENEMUSE AND DUPRE CONTROL STRUCTURES.

FILE NUMBER		PARISH	SHEET NO.
LDB-1321-1	502-44-36	ST. BERNARD	13



TRUSS DIMENSIONS
SCALE: 1/8"=1'-0"



RECESS TRUSS ELEVATION
SCALE: 1/2"=1'-0"

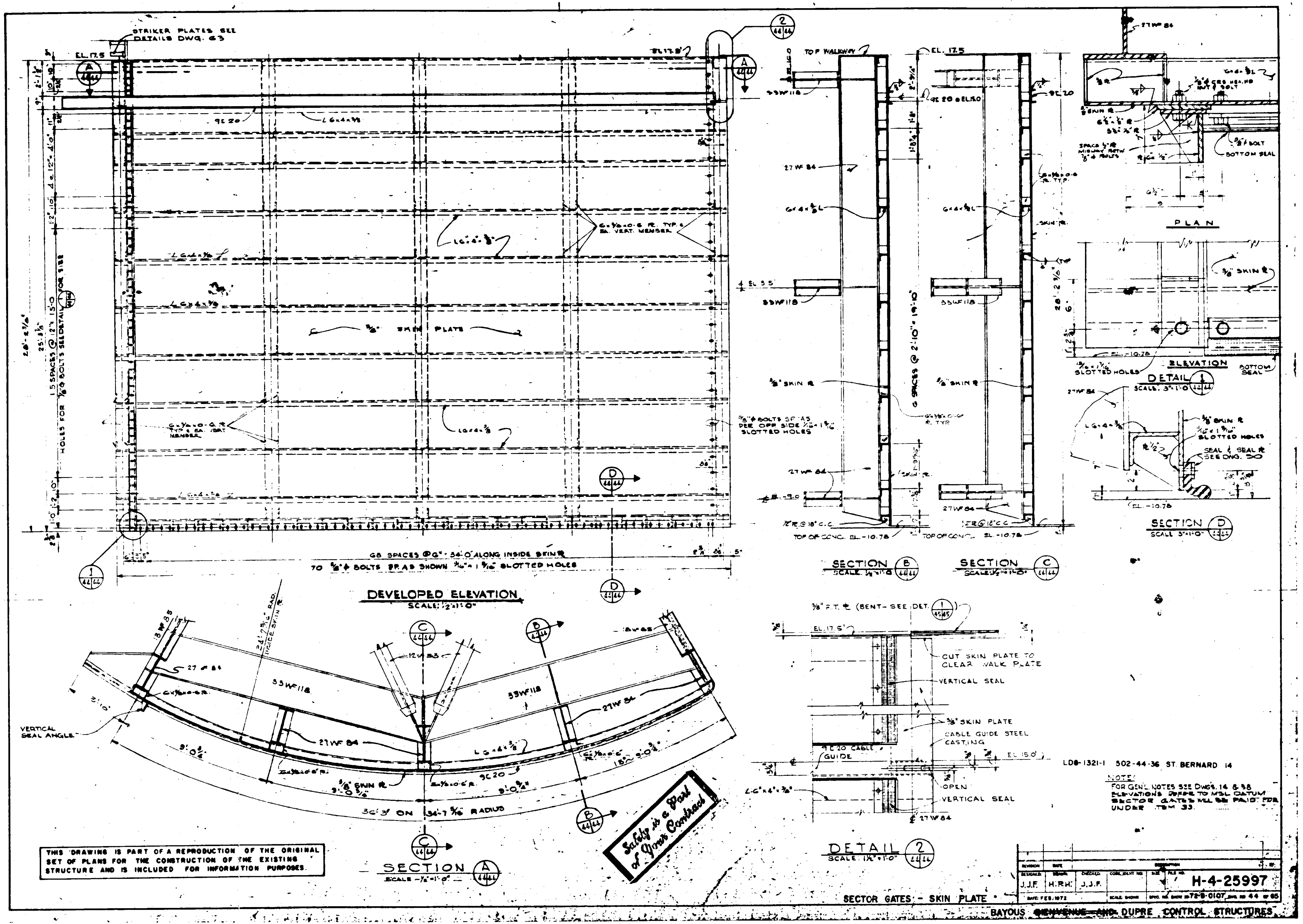
THIS DRAWING IS PART OF A REPRODUCTION OF THE ORIGINAL SET OF PLANS FOR THE CONSTRUCTION OF THE EXISTING STRUCTURE AND IS INCLUDED FOR INFORMATION PURPOSES.

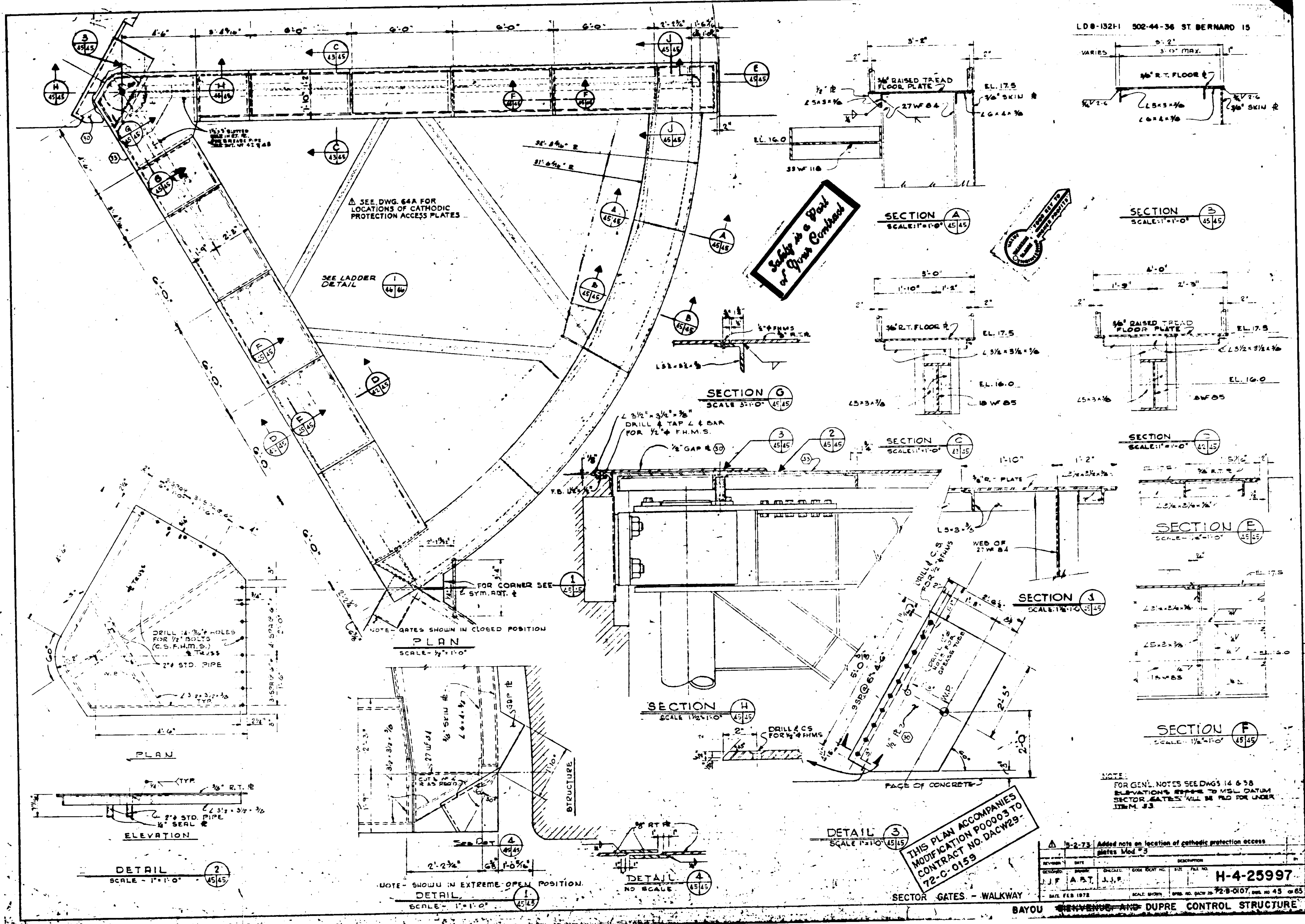
NOTE:
FOR GEN'L. NOTES SEE DWGS. 14 & 38
ELEVATIONS REFER TO MSL DATUM
SECTOR GATES WILL BE PAID FOR UNDER ITEM 33

DESIGNED	DRAWN	CHECKED			FILE NO.
J.J.F. R.J.M.	R.A.S. H.P.H.	J.J.F.			H-4-25997
DATE FEB. 1972		SCALE SHOWN	SPEC. NO. DACW 29-72-B-0107		DWG. NO. 43 OF 65

SECTOR GATES - RECESS TRUSS

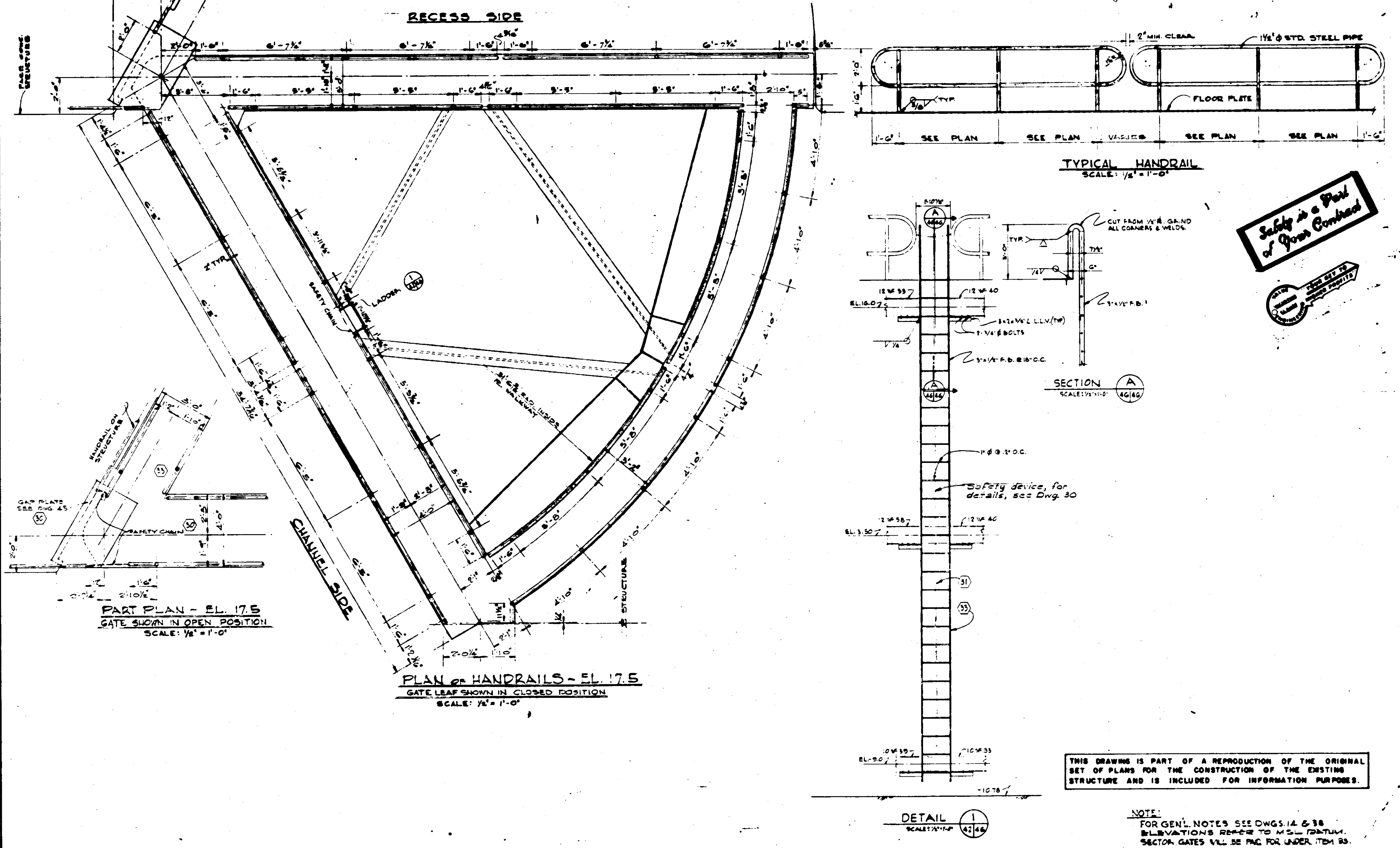
BAYOUS ~~BIENVENUE AND~~ DUPRE CONTROL STRUCTURES


DEVELOPED ELEVATION
SCALE: 1/2"=1'-0"
STRIKER PLATES SEE DETAILS DWG. 63
EL. 17.5
9C20
3/8" SKIN PLATE
68 SPACES @ 6" = 34'-0" ALONG INSIDE SKIN PL.
70 5/8" φ BOLTS SP. AS SHOWN 11/16" x 1 5/16" SLOTTED HOLES
HOLES FOR 7/8" φ BOLTS SEE DETAIL
SECTION B
SECTION C
TOP WALKWAY
33WF118
27WF84
3/8" SKIN PL.
TOP OF CONC. EL. -10.78
PLAN
ELEVATION
DETAIL 1
BOTTOM SEAL
SECTION D
SCALE 3"=1'-0"
3/8" P.T. PL. (BENT - SEE DET. 1)
CUT SKIN PLATE TO CLEAR WALK PLATE
VERTICAL SEAL
3/8" SKIN PLATE
CABLE GUIDE STEEL CASTING
9C20 CABLE GUIDE
OPEN
VERTICAL SEAL
27WF84
DETAIL 2
SCALE 1 1/2"=1'-0"
VERTICAL SEAL ANGLE
36'-3" ON 34'-7 9/16" RADIUS
SECTION A
SCALE 1/2"=1'-0"
THIS DRAWING IS PART OF A REPRODUCTION OF THE ORIGINAL SET OF PLANS FOR THE CONSTRUCTION OF THE EXISTING STRUCTURE AND IS INCLUDED FOR INFORMATION PURPOSES.
Safety is a Part of Your Contract
LDB-1321-1 502-44-36 ST. BERNARD 14
NOTE:
FOR GEN'L NOTES SEE DWGS. 14 & 38
ELEVATIONS REFER TO MSL DATUM
SECTOR GATES WILL BE PAID FOR UNDER ITEM 33.
J.J.F. H.R.H. J.J.F.
DATE FEB. 1972
H-4-25997
SECTOR GATES - SKIN PLATE
BAYOUS BIENVENUE AND DUPRE CONTROL STRUCTURES



LD8-132H1 502-44-36 ST. BERNARD 15
SEE DWG. 64A FOR LOCATIONS OF CATHODIC PROTECTION ACCESS PLATES
SEE LADDER DETAIL
Safety is a Part of Your Contract
PLAN
SCALE - 1/8" = 1'-0"
NOTE - GATES SHOWN IN CLOSED POSITION
FOR CORNER SEE
SECTION A
SECTION B
SECTION C
SECTION D
SECTION E
SECTION F
SECTION G
SECTION H
SECTION J
3/8" RAISED TREAD FLOOR PLATE
EL. 17.5
EL. 16.0
27 WF 84
33 WF 118
18 WF 85
DRILL & TAP ∠ & BAR FOR 1/2" ϕ F.H.M.S.
1/2" GAP
DRILL 14-9/16" ϕ HOLES FOR 1/2" BOLTS (C.S.F.H.M.S.)
2" ϕ STD. PIPE
PLAN
ELEVATION
DETAIL 2
SCALE - 1" = 1'-0"
NOTE - SHOWN IN EXTREME OPEN POSITION
DETAIL 1
SCALE - 1" = 1'-0"
DETAIL 4
NO SCALE
DETAIL 3
SCALE 1" = 1'-0"
STRUCTURE
FACE OF CONCRETE
THIS PLAN ACCOMPANIES MODIFICATION P00003 TO CONTRACT NO. DACW29-72-C-0159
NOTE: FOR GEN'L. NOTES SEE DWGS 14 & 38. ELEVATIONS REFER TO MSL DATUM. SECTOR GATES WILL BE PAID FOR UNDER ITEM 33.
5-2-73 Added note on location of cathodic protection access plates Mod #3
J.J.F. A.B.T. J.J.F.
DATE FEB 1972
H-4-25997
72-B-0107 DWG. NO 45 OF 65
SECTOR GATES - WALKWAY
BAYOU ~~BIENVENUE AND~~ DUPRE CONTROL STRUCTURE

FILE NUMBER LDS-1321-1 502-44-36 ST. BERNARD 16



THIS DRAWING IS PART OF A REPRODUCTION OF THE ORIGINAL SET OF PLANS FOR THE CONSTRUCTION OF THE EXISTING STRUCTURE AND IS INCLUDED FOR INFORMATION PURPOSES.

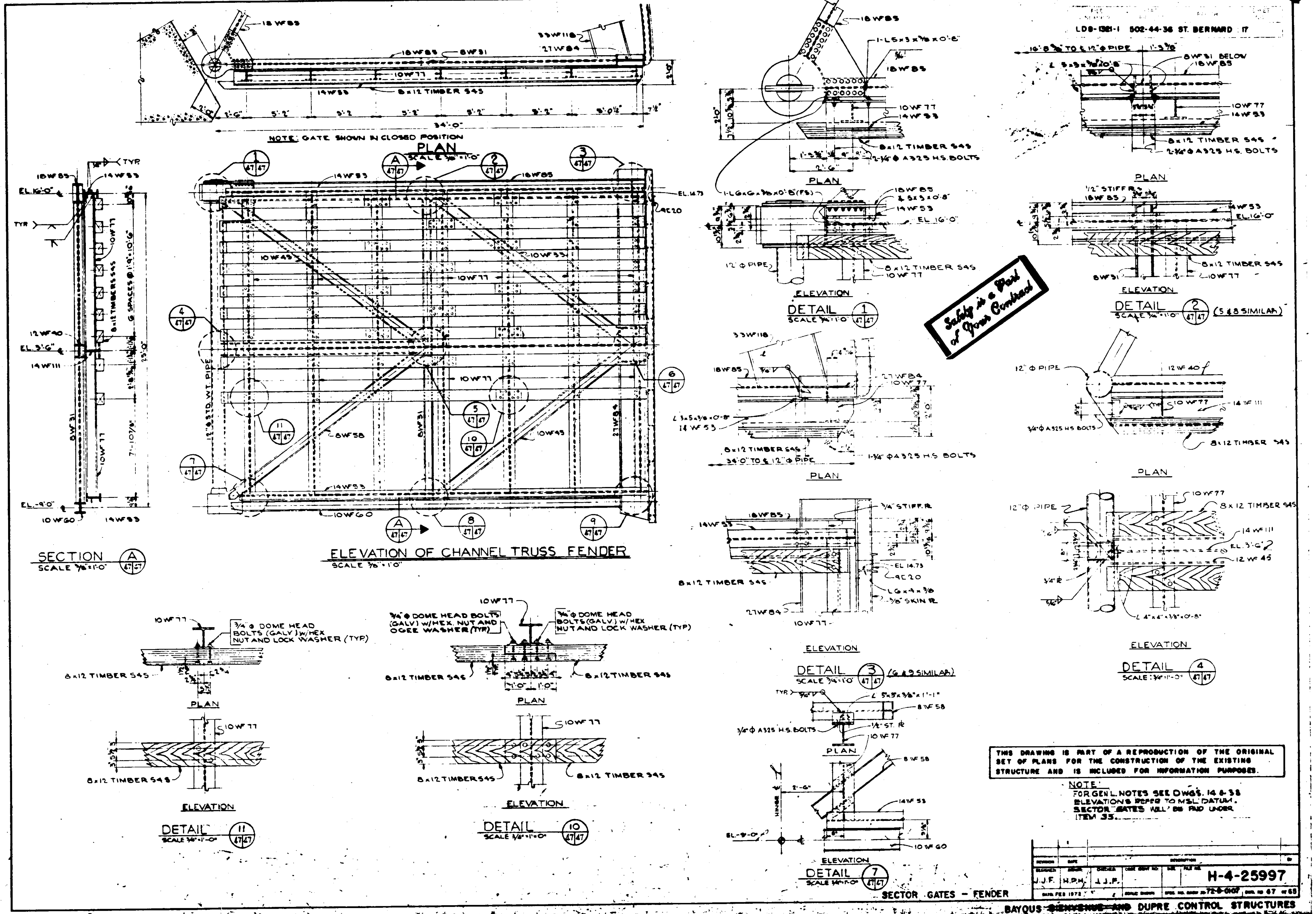
NOTE:
FOR GEN'L. NOTES SEE DWGS. 14 & 38
ELEVATIONS REFER TO MSL DATUM.
SECTOR GATES WILL BE PAID FOR UNDER ITEM 33.

DESIGNED	DRAWN	CHECKED	FILE NO.
J.J.F.	H.R.H.	J.J.F.	H-4-25997

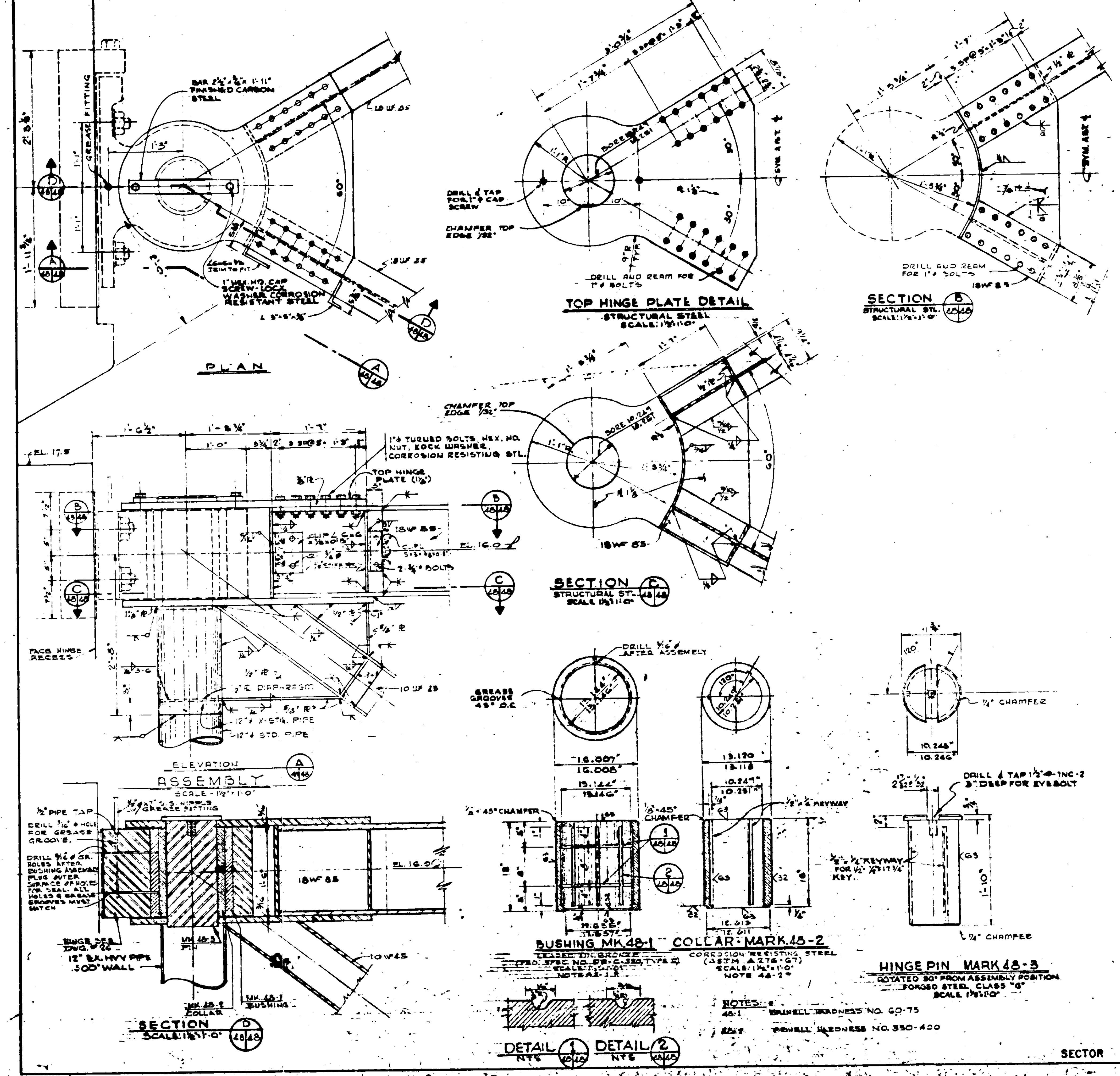
DATE: FEB. 1972 — SCALE: SHOWN — SPEC. NO. DACW 29-72-B-0107 — DWG. NO. 46 of 65

SECTOR GATES - HANDRAIL

BAYOUS ~~BIENVENUE AND~~ DUPRE CONTROL STRUCTURES



LDS-1381-1 502-44-36 ST. BERNARD 17
NOTE: GATE SHOWN IN CLOSED POSITION
PLAN
SCALE 1/8"=1'-0"
SECTION A
SCALE 1/8"=1'-0"
ELEVATION OF CHANNEL TRUSS FENDER
SCALE 1/8"=1'-0"
DETAIL 1
SCALE 3/4"=1'-0"
DETAIL 2
(5 & 8 SIMILAR)
DETAIL 3
(6 & 9 SIMILAR)
DETAIL 4
DETAIL 7
DETAIL 10
DETAIL 11
PLAN
ELEVATION
8x12 TIMBER S4S
10WF77
14WF53
18WF85
27WF84
33WF118
12" Φ PIPE
3/4" Φ DOME HEAD BOLTS (GALV) W/HEX NUT AND LOCK WASHER (TYP)
3/4" Φ DOME HEAD BOLTS (GALV) W/HEX. NUT AND OGEE WASHER (TYP)
Safety is a Part of Your Contract
THIS DRAWING IS PART OF A REPRODUCTION OF THE ORIGINAL SET OF PLANS FOR THE CONSTRUCTION OF THE EXISTING STRUCTURE AND IS INCLUDED FOR INFORMATION PURPOSES.
NOTE:
FOR GEN'L NOTES SEE DWGS. 14 & 38
ELEVATIONS REFER TO MSL DATUM.
SECTOR GATES WILL BE PAID UNDER ITEM 35.
J.J.F. H.P.H. J.J.F.
H-4-25997
SECTOR GATES - FENDER
BAYOUS BIENVENUE AND DUPRE CONTROL STRUCTURES



THIS DRAWING IS PART OF A REPRODUCTION OF THE ORIGINAL SET OF PLANS FOR THE CONSTRUCTION OF THE EXISTING STRUCTURE AND IS INCLUDED FOR INFORMATION PURPOSES.

NOTE:
FOR GEN'L NOTES SEE DWGS. 14 & 38
ALL ITEMS SHOWN ON THIS DWG WILL BE PAID FOR UNDER ITEM 33.

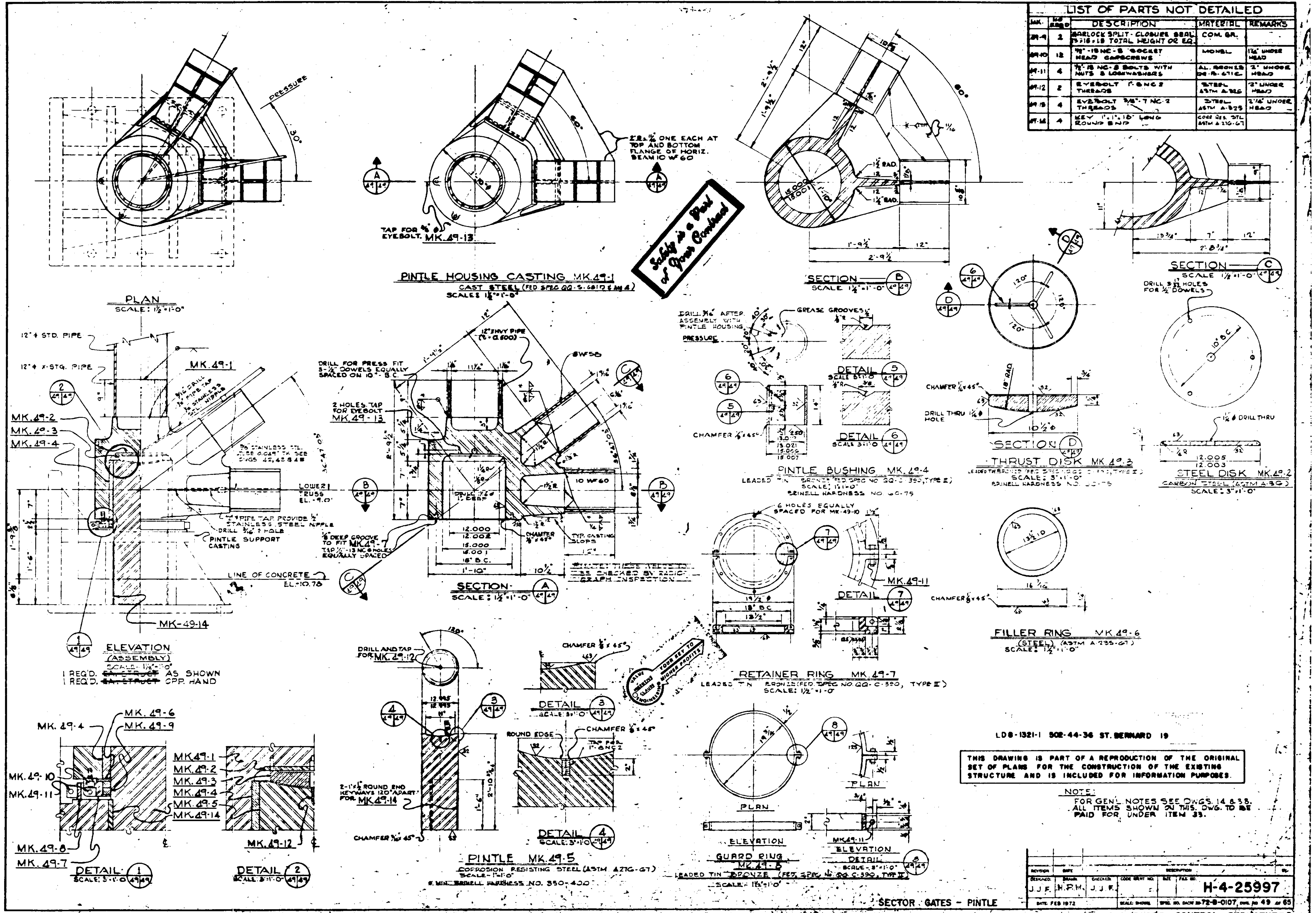
SECTOR GATES - HINGE

REVISION	DATE	DESCRIPTION	BY

DESIGNED	DRAWN	CHECKED	CODE IDENT NO.	SIZE	FILE NO.
J.J.F.	H.P.H.	J.J.F.			H-4-25997

DATE - FEB. 1972 · SCALE SHOWN · SPEC. NO. DACW 29-72-B-0107 · DWG. NO. 48 OF 65

BAYOUS ~~BIENVENUE AND~~ DUPRE CONTROL STRUCTURES



LIST OF PARTS NOT DETAILED

MK.	NO. REQ'D	DESCRIPTION	MATERIAL	REMARKS
49-9	2	BARLOCK SPLIT-CLOSURE SEAL 3⅞16×18 TOTAL HEIGHT OR EQ.	COM. GR.	
49-10	12	½"-13 NC-2 SOCKET HEAD CAPSCREWS	MONEL	1¼" UNDER HEAD
49-11	4	½"-13 NC-2 BOLTS WITH NUTS & LOCKWASHERS	AL. BRONZE QQ-B-671C	2" UNDER HEAD
49-12	2	EYEBOLT 1"-8 NC 2 THREADS	STEEL ASTM A-326	3" UNDER HEAD
49-13	4	EYEBOLT ⅝"-7 NC-2 THREADS	STEEL ASTM A-325	2¼" UNDER HEAD
49-14	4	KEY 1"×1"×18" LONG ROUND END	CORR RES. STL ASTM A-276-67	

LDB-1321-1 502-44-36 ST. BERNARD 19

THIS DRAWING IS PART OF A REPRODUCTION OF THE ORIGINAL SET OF PLANS FOR THE CONSTRUCTION OF THE EXISTING STRUCTURE AND IS INCLUDED FOR INFORMATION PURPOSES.

NOTE:
FOR GEN'L NOTES SEE DWGS. 14 & 38.
ALL ITEMS SHOWN ON THIS DWG. TO BE PAID FOR UNDER ITEM 33.

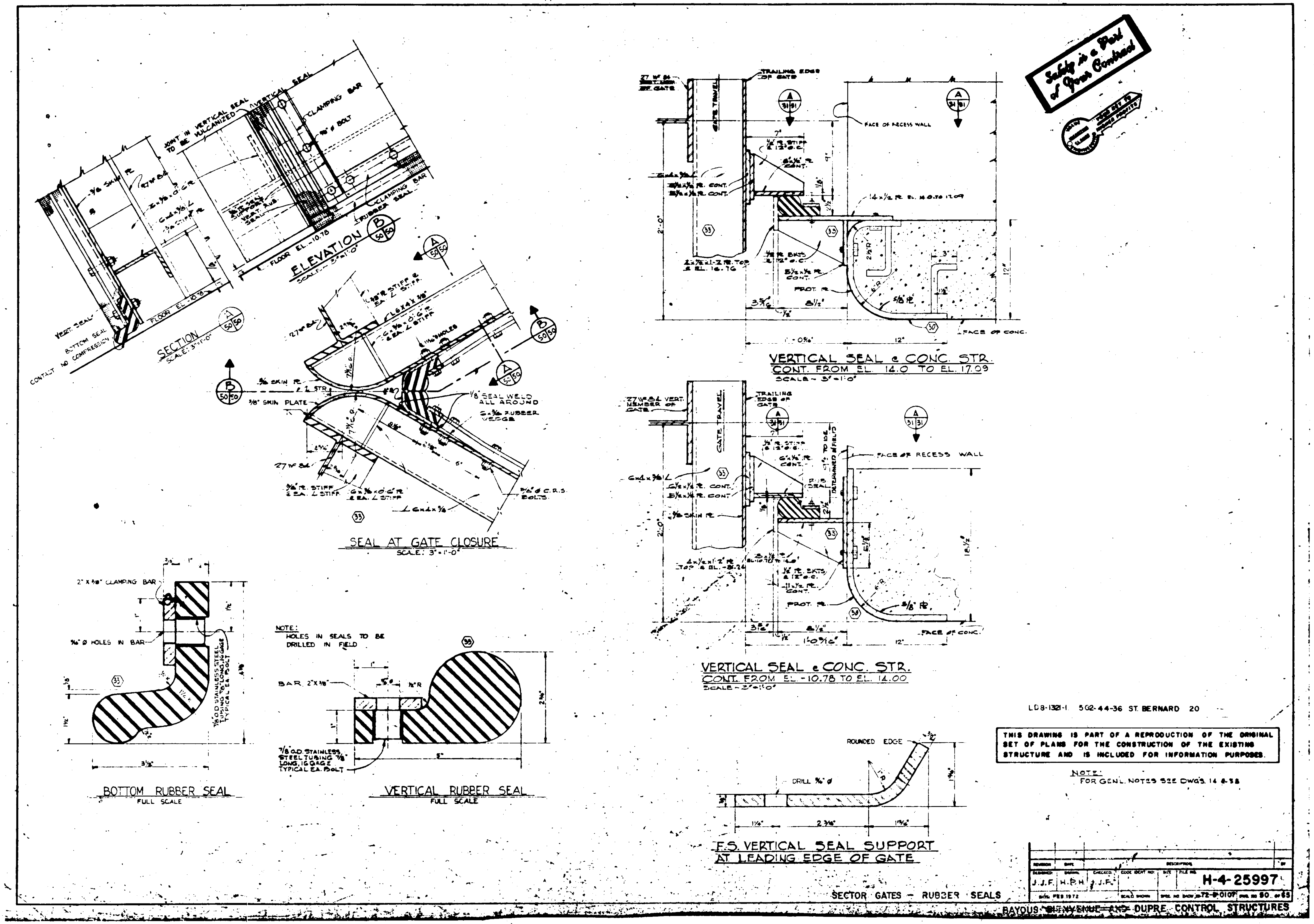
REVISION	DATE	DESCRIPTION	BY

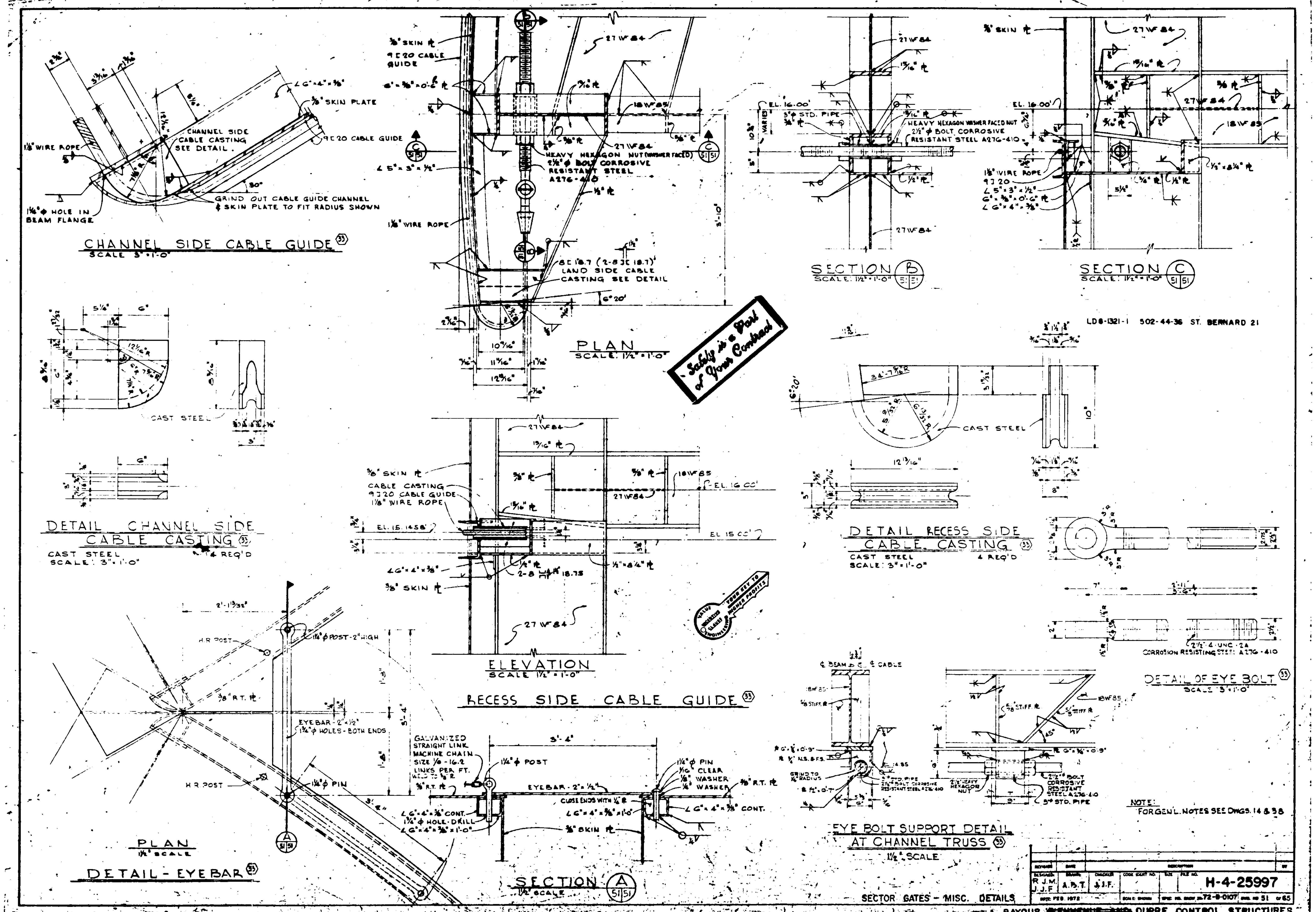
DESIGNED:	DRAWN:	CHECKED:	CODE IDENT NO:	SIZE	FILE NO.
J.J.F.	H.P.H.	J.J.F.			H-4-25997

DATE: FEB 1972 — SCALE: SHOWN — SPEC. NO. DACW 29-72-B-0107, DWG. NO. 49 OF 65

SECTOR GATES - PINTLE

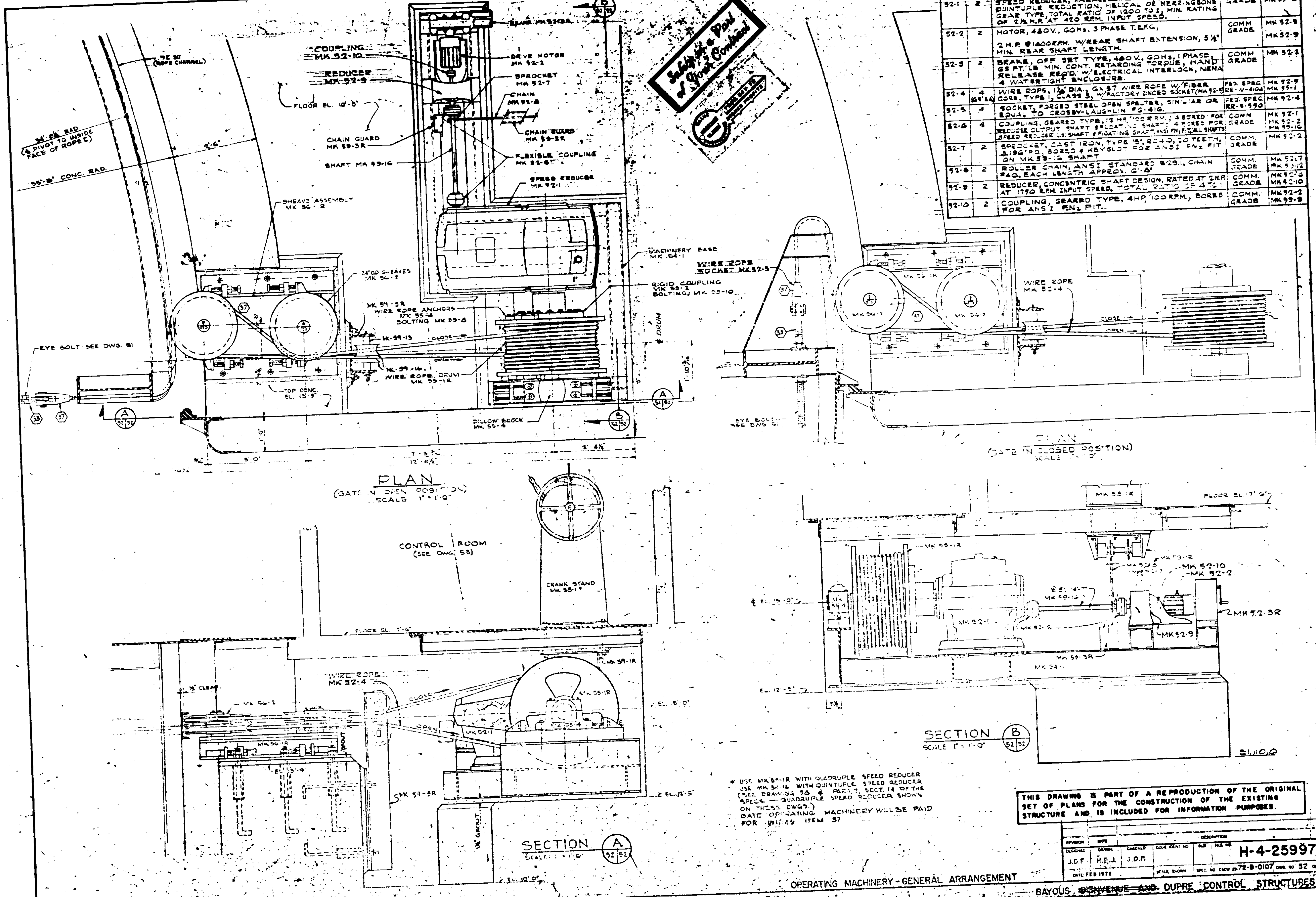
BAYOUS ~~BIENVENUE AND~~ DUPRE CONTROL STRUCTURES


ELEVATION
SECTION
SEAL AT GATE CLOSURE
SCALE: 3" = 1'-0"
VERTICAL SEAL @ CONC. STR.
CONT. FROM EL. 14.0 TO EL. 17.09
VERTICAL SEAL @ CONC. STR.
CONT. FROM EL. -10.78 TO EL. 14.00
BOTTOM RUBBER SEAL
FULL SCALE
VERTICAL RUBBER SEAL
FULL SCALE
NOTE:
HOLES IN SEALS TO BE DRILLED IN FIELD
F.S. VERTICAL SEAL SUPPORT AT LEADING EDGE OF GATE
FACE OF RECESS WALL
FACE OF CONC.
ROUNDED EDGE
Safety is a Part of Your Contract
LDB-1321-1 5G2-44-36 ST. BERNARD 20
THIS DRAWING IS PART OF A REPRODUCTION OF THE ORIGINAL SET OF PLANS FOR THE CONSTRUCTION OF THE EXISTING STRUCTURE AND IS INCLUDED FOR INFORMATION PURPOSES.
NOTE:
FOR GENL. NOTES SEE DWGS. 14 & 38
J.J.F. H.P.H. J.J.F.
FEB 1972
H-4-25997
SECTOR GATES — RUBBER SEALS
BAYOUS BIENVENUE AND DUPRE CONTROL STRUCTURES


CHANNEL SIDE CABLE GUIDE (33)
SCALE 3" = 1'-0"
CHANNEL SIDE CABLE CASTING SEE DETAIL.
9 [20 CABLE GUIDE
3/8" SKIN PLATE
1/8" WIRE ROPE
GRIND OUT CABLE GUIDE CHANNEL & SKIN PLATE TO FIT RADIUS SHOWN
PLAN
SCALE: 1 1/2" = 1'-0"
HEAVY HEXAGON NUT (WASHER FACED)
2 1/2" ϕ BOLT CORROSIVE RESISTANT STEEL A276-410
LAND SIDE CABLE CASTING SEE DETAIL
1/8" WIRE ROPE
SECTION B
SCALE: 1 1/2" = 1'-0"
SECTION C
SCALE: 1 1/2" = 1'-0"
LD8-1321-1 502-44-36 ST. BERNARD 21
Safety is a Part of Your Contract
DETAIL CHANNEL SIDE CABLE CASTING (33)
CAST STEEL 4 REQ'D
SCALE: 3" = 1'-0"
CAST STEEL
ELEVATION
SCALE 1 1/2" = 1'-0"
RECESS SIDE CABLE GUIDE (33)
DETAIL RECESS SIDE CABLE CASTING (33)
CAST STEEL 4 REQ'D
SCALE: 3" = 1'-0"
DETAIL OF EYE BOLT (33)
SCALE 3" = 1'-0"
CORROSION RESISTING STEEL A276-410
PLAN
1/4" SCALE
DETAIL - EYEBAR (33)
H.R. POST
EYEBAR - 2" x 1/2"
1 3/4" ϕ HOLES - BOTH ENDS
GALVANIZED STRAIGHT LINK MACHINE CHAIN SIZE 1/0 - 16.2 LINKS PER FT.
SECTION A
1/2" SCALE
EYE BOLT SUPPORT DETAIL AT CHANNEL TRUSS (33)
1 1/2" SCALE
NOTES:
FOR GEN'L. NOTES SEE DWGS. 14 & 38
H-4-25997
SECTOR GATES - MISC. DETAILS
BAYOUS BIENVENUE AND DUPRE CONTROL STRUCTURES

LIST OF PARTS NOT DETAILED

MK. NO.	REQ'D.	DESCRIPTION	MATERIAL	USED WITH
52-1	2	SPEED REDUCER, PARALLEL SHAFT, QUADRUPLE OR QUINTUPLE REDUCTION, HELICAL OR HERRINGBONE GEAR TYPE, TOTAL RATIO OF 1200 TO 1, MIN. RATING OF 2½ H.P. AT 420 R.P.M. INPUT SPEED.	COMM GRADE	MK 52-6 MK 55-2
52-2	2	MOTOR, 480V., 60Hz, 3 PHASE T.E.F.C., 2 H.P. @1800RPM. W/REAR SHAFT EXTENSION, 5½" MIN. REAR SHAFT LENGTH.	COMM GRADE	MK 52-3 MK 52-9
52-3	2	BRAKE, OFF SET TYPE, 480V., 60Hz, 1 PHASE, 65 FT. LB MIN. CONT. RETARDING TORQUE, HAND RELEASE REQ'D. W/ELECTRICAL INTERLOCK, NEMA 4 WATERTIGHT ENCLOSURE.	COMM GRADE	MK 52-2
52-4	4 (68' EA)	WIRE ROPE, 1⅛" DIA., 6x37 WIRE ROPE W/FIBER CORE, TYPE I, CLASS 3, W/FACTORY ZINCED SOCKET (MK 52-5)	FED. SPEC. RR-W-410d	MK 52-5 MK 55-1
52-5	4	SOCKET, FORGED STEEL OPEN SPELTER, SIMILAR OR EQUAL TO CROSBY-LAUGHLIN #G-416.	FED. SPEC. RR-S-550	MK 52-4
52-6	4	COUPLING, GEARED TYPE, 12 HP/100 R.P.M.; 4 BORED FOR REDUCER OUTPUT SHAFT & FLOATING SHAFT; 4 BORED FOR SPEED REDUCER L.S. SHAFT & FLOATING SHAFT, ANSI FN1 FIT ALL SHAFTS.	COMM GRADE	MK 52-1 MK 52-2 MK 59-16
52-7	2	SPROCKET, CAST IRON, TYPE "B", RC40, 20 TEETH, 3.196" P.D., BORED & KEYSLOT FOR ANSI FN2 FIT ON MK 59-16 SHAFT	COMM. GRADE	MK 52-2
52-8	2	ROLLER CHAIN, ANSI STANDARD B29.1, CHAIN #40, EACH LENGTH APPROX. 6'-8"	COMM. GRADE	MK 52-7 MK 59-12
52-9	2	REDUCER, CONCENTRIC SHAFT DESIGN, RATED AT 2 H.P. AT 1750 R.P.M. INPUT SPEED, TOTAL RATIO OF 4 TO 1	COMM. GRADE	MK 52-6 MK 52-10
52-10	2	COUPLING, GEARED TYPE, 4HP/100 R.P.M., BORED FOR ANSI FN2 FIT.	COMM. GRADE	MK 52-2 MK 59-9



* USE MK 55-1R WITH QUADRUPLE SPEED REDUCER
USE MK 55-1L WITH QUINTUPLE SPEED REDUCER
(SEE DRAWING 56 & PARA. 7, SECT. 14 OF THE SPECS. — QUADRUPLE SPEED REDUCER SHOWN ON THESE DWGS.)
GATE OPERATING MACHINERY WILL BE PAID FOR UNDER ITEM 37

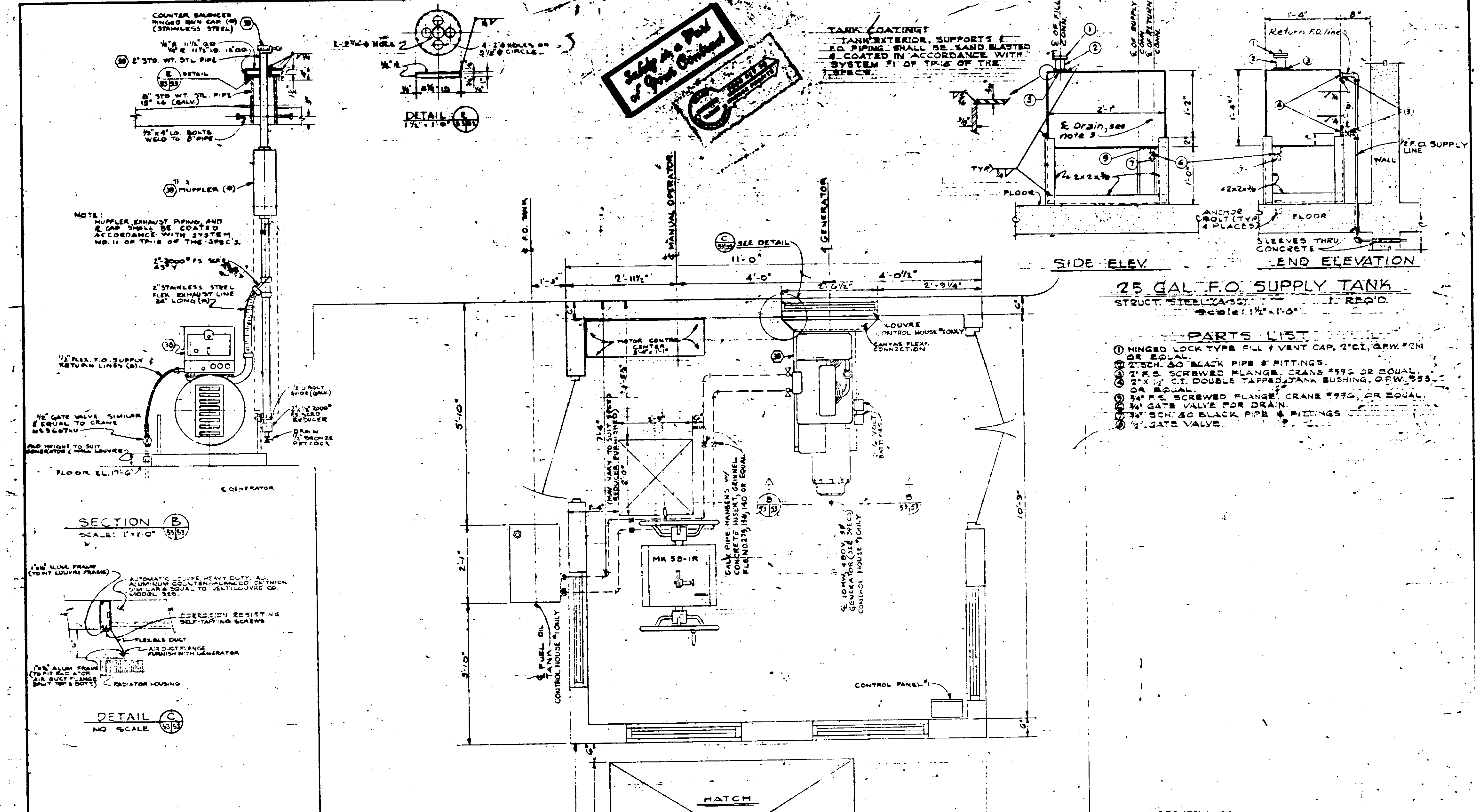
THIS DRAWING IS PART OF A REPRODUCTION OF THE ORIGINAL SET OF PLANS FOR THE CONSTRUCTION OF THE EXISTING STRUCTURE AND IS INCLUDED FOR INFORMATION PURPOSES.

REVISION	DATE	DESCRIPTION	BY

DESIGNED	DRAWN	CHECKED	CODE IDENT NO.	SIZE	FILE NO.
J.D.F.	R.E.J.	J.D.F.			H-4-25997
DATE FEB 1972			SCALE: SHOWN	SPEC. NO. DACW 29-72-B-0107	DWG. NO. 52 OF 65

OPERATING MACHINERY - GENERAL ARRANGEMENT

BAYOUS ~~BIENVENUE AND~~ DUPRE CONTROL STRUCTURES



25 GAL. F.O. SUPPLY TANK

STRUCT. STEEL (A-36) 1 REQ'D.
Scale: 1 1/2" = 1'-0"

PARTS LIST

1. HINGED LOCK TYPE FILL & VENT CAP, 2" C.I., O.P.W. #214 OR EQUAL.
2. 2" SCH. 80 BLACK PIPE & FITTINGS.
3. 2" F.S. SCREWED FLANGE, CRANE #556 OR EQUAL.
4. 2" x 1/2" C.I. DOUBLE TAPPED TANK BUSHING, O.P.W. #53 OR EQUAL.
5. 3/4" F.S. SCREWED FLANGE, CRANE #556, OR EQUAL.
6. 3/4" GATE VALVE FOR DRAIN.
7. 3/4" SCH. 80 BLACK PIPE & FITTINGS
8. 1/2" GATE VALVE

NOTE:
1. ALL ITEMS TAGGED THUS (#) SHALL BE FURNISHED WITH GENERATOR.
2. CONTROL HOUSE #1 SHOWN, CONTROL HOUSE #2 OPP. HAND EXCEPT AS NOTED.

LD8-1321-1 502-44-36 ST. BERNARD 23

Note:
1. GATE OPERATING MACHINERY WILL BE PAID FOR UNDER ITEM 37
2. F.O. SUPPLY TANK SHALL BE U.L. APPROVED.
3. SLOPE F.O. SUPPLY TANK 1% IN 5' TO DRAIN.

REVISION	DATE	DESCRIPTION	BY

DESIGNED	DRAWN	CHECKED	CODE IDENT NO.	SIZE	FILE NO.
J.D.F.	R.B.	J.D.F.			H-4-25997
DATE FEB. 1972			SCALE SHOWN	SPEC. NO. 72-B-0107	DWG. NO 53 OF 65

OPERATING MACHINERY - CONTROL ROOM - PLAN & DETAILS

BAYOUS ... DUPRE CONTROL STRUCTURES

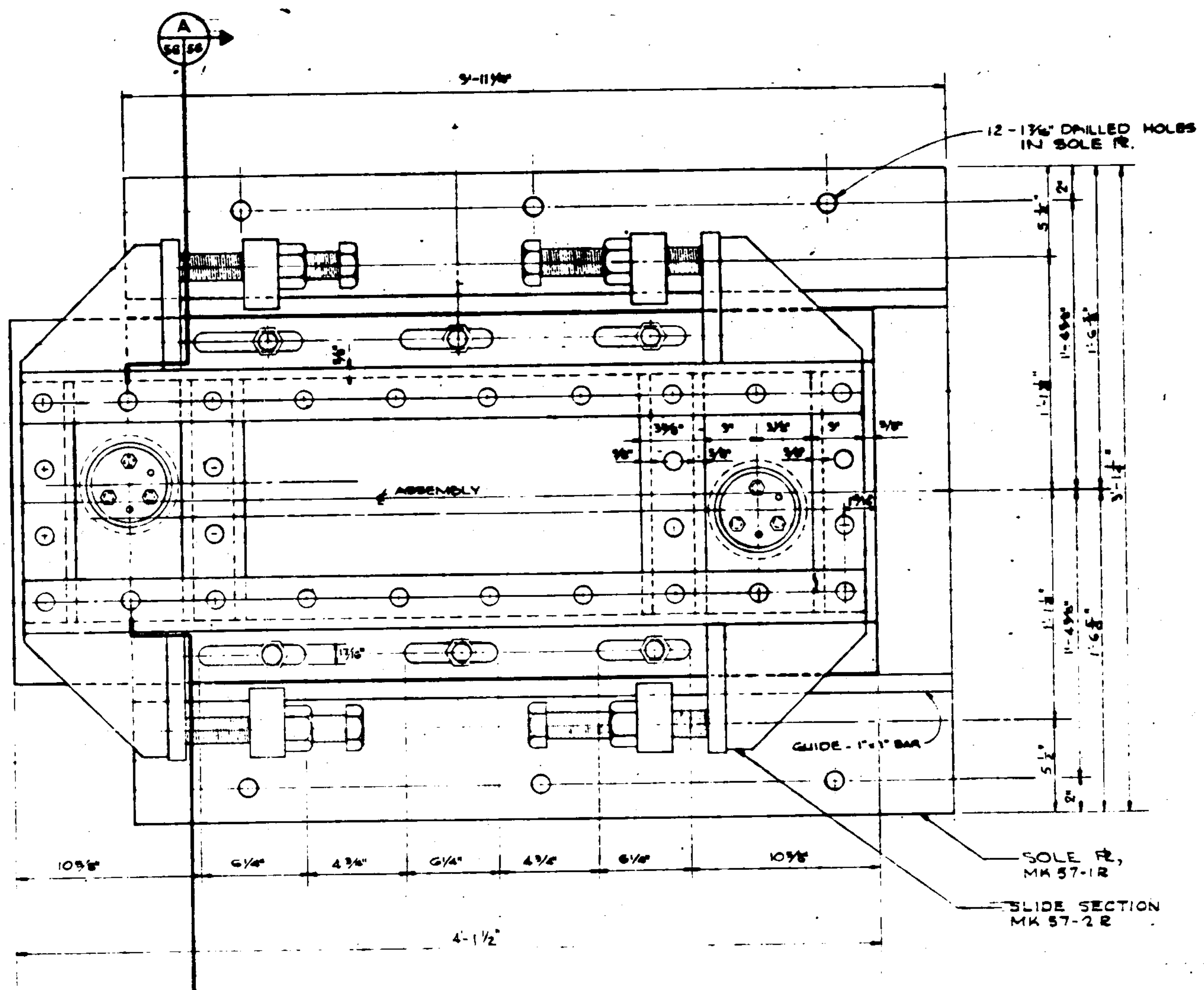
LDB-1321-1 502-44-36 ST. BERNARD 24

LIST OF PARTS NOT DETAILED

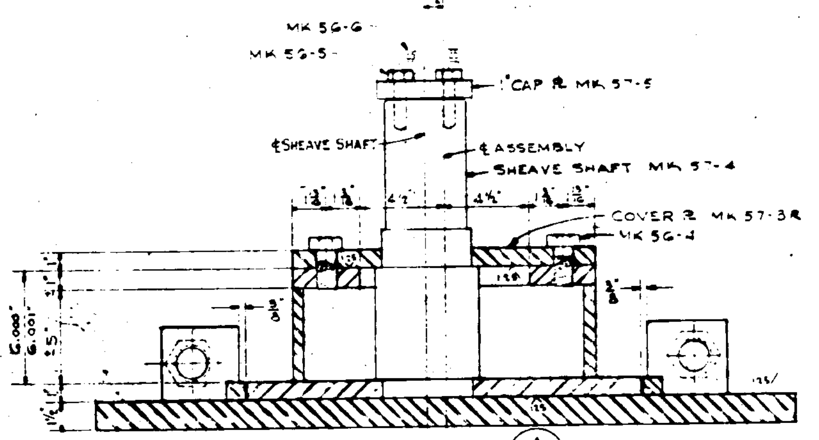
MARK NO.	NO. REQ'D.	DESCRIPTION	MATERIAL	USED WITH
56-2	8	WIRE ROPE SHEAVE, 24" O.D., 6½" BORE, DOUBLE ROW ROLLER BEARINGS, SIMILAR & EQUAL TO McKISSICK #24TS	COM. GR. CAST STEEL	57-4
56-3	8	HEX HEAD CAP SCREW, 1½"-6UNC-2A, 10" LONG W/HEX NUT.	STEEL	57-1 & 57-2
56-4	56	HEX HEAD CAP SCREW, 1"-8UNC-2A, 2¼" LONG, 1½" THD. LENGTH.	STEEL	57-2 & 57-3
56-5	12	HEX HEAD CAP SCREW, ⅝"-11UNC-2A, 2½" LONG, FULL THD., DRILL HEADS FOR LOCKING BY WIRE.	STEEL	57-4 & 57-5
56-6	8	GREASE FITTING, ¼" MALE P.T., ALEMITE NO. 1823 OR EQUAL. (USE 2" NIPPLE & COUPLING TO CLEAR CAP PL.)	COM. GR.	57-4 & 57-5

Subject to a Part of Govt Contract

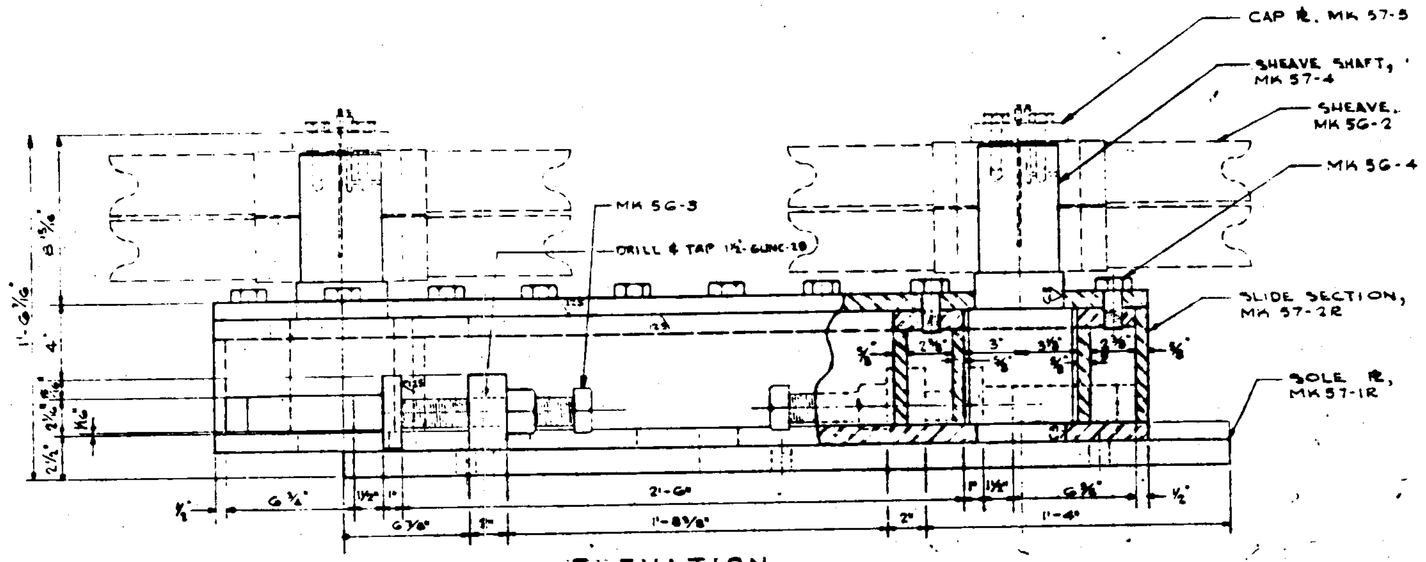
THIS DRAWING IS PART OF A REPRODUCTION OF THE ORIGINAL SET OF PLANS FOR THE CONSTRUCTION OF THE EXISTING STRUCTURE AND IS INCLUDED FOR INFORMATION PURPOSES.



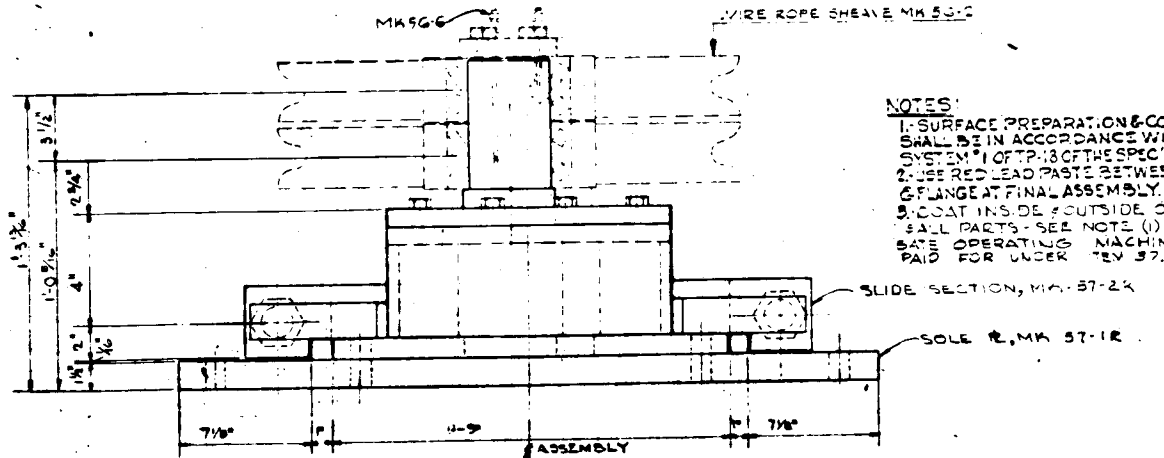
PLAN
(COVER PLATE NOT SHOWN)
SCALE: 3"=1'-0"



SECTION A (56/56)
SCALE: 3"=1'-0"



ELEVATION
SCALE: 3"=1'-0"



END ELEVATION
SCALE: 3"=1'-0"

NOTES:
1.-SURFACE PREPARATION & COATING SHALL BE IN ACCORDANCE WITH SYSTEM #1 OF TP-18 OF THE SPEC'S, & PARA. 15 OF TP-9.
2.-USE RED LEAD PASTE BETWEEN COVER & FLANGE AT FINAL ASSEMBLY.
3.-COAT INSIDE & OUTSIDE OF ASSEMBLY & ALL PARTS - SEE NOTE (1) DWG 58
GATE OPERATING MACHINERY WILL BE PAID FOR UNDER ITEM 37.

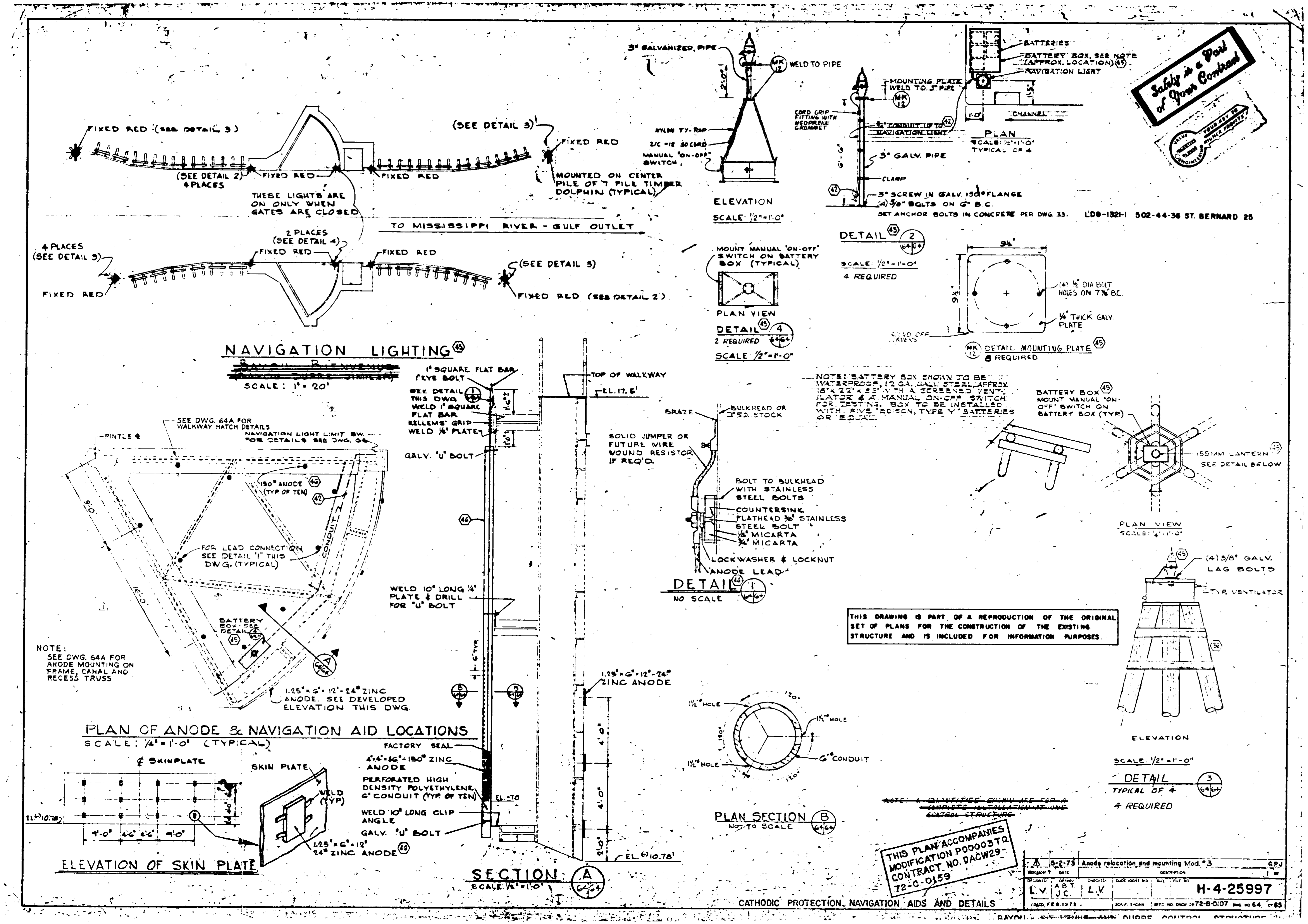
SHEAVE ASSEMBLY MK 56-1R MK 56-1L
STRUCTURAL STEEL (A-36) MK 56-1R AS SHOWN 1 REQ'D.
MK 56-1L OPP. HAND 1 REQ'D.

OPERATING MACHINERY - SHEAVE ASSEMBLY

REVISION	DATE	DESCRIPTION	BY

DESIGNED: JDF DRAWN: V G CHECKED: JDF CODE IDENT NO.: SIZE: FILE NO. H-4-25997
DATE: FEB 1972 SCALE: SHOWN SPEC. NO. DACW 29-72-B-0107 DWG. NO 56 OF 65

BAYOUS ~~BIENVENUE AND~~ DUPRE CONTROL STRUCTURES



NAVIGATION LIGHTING
SCALE: 1" = 20'
FIXED RED (SEE DETAIL 3)
(SEE DETAIL 2) 4 PLACES
FIXED RED
THESE LIGHTS ARE ON ONLY WHEN GATES ARE CLOSED
(SEE DETAIL 3)
MOUNTED ON CENTER PILE OF 7 PILE TIMBER DOLPHIN (TYPICAL)
TO MISSISSIPPI RIVER - GULF OUTLET
2 PLACES (SEE DETAIL 4)
4 PLACES (SEE DETAIL 3)
FIXED RED (SEE DETAIL 2)
3" GALVANIZED PIPE
WELD TO PIPE
NYLON TY-RAP
2/C #12 SO CORD
MANUAL "ON-OFF" SWITCH
ELEVATION
SCALE: 1/2" = 1'-0"
MOUNTING PLATE WELD TO 3" PIPE
CORD GRIP FITTING WITH NEOPRENE GROMMET
3/4" CONDUIT UP TO NAVIGATION LIGHT
3" GALV. PIPE
CLAMP
3" SCREW IN GALV. 150# FLANGE
(4) 5/8" BOLTS ON 6" B.C.
SET ANCHOR BOLTS IN CONCRETE PER DWG 33.
DETAIL 2
SCALE: 1/2" = 1'-0"
4 REQUIRED
BATTERIES
BATTERY BOX, SEE NOTE (APPROX. LOCATION)
NAVIGATION LIGHT
CHANNEL
PLAN
SCALE: 1/2" = 1'-0"
TYPICAL OF 4
Safety is a Part of Your Contract
LDB-1321-1 502-44-36 ST. BERNARD 25
MOUNT MANUAL "ON-OFF" SWITCH ON BATTERY BOX (TYPICAL)
PLAN VIEW
DETAIL 4
2 REQUIRED
SCALE: 1/2" = 1'-0"
(4) 1/2" DIA BOLT HOLES ON 7 1/2" B.C.
1/4" THICK GALV. PLATE
DETAIL MOUNTING PLATE
8 REQUIRED
NOTE: BATTERY BOX SHOWN TO BE WATERPROOF, 12 GA. GALV. STEEL, APPROX. 18" x 22" x 33" WITH A SCREENED VENTILATOR & A MANUAL ON-OFF SWITCH FOR TESTING. BOX TO BE INSTALLED WITH FIVE "EDISON, TYPE Y" BATTERIES OR EQUAL.
BATTERY BOX MOUNT MANUAL "ON-OFF" SWITCH ON BATTERY BOX (TYP)
155MM LANTERN SEE DETAIL BELOW
PLAN VIEW
(4) 3/8" GALV. LAG BOLTS
TYP. VENTILATOR
ELEVATION
SCALE: 1/2" = 1'-0"
DETAIL 3
TYPICAL OF 4
4 REQUIRED
1" SQUARE FLAT BAR
1" EYE BOLT
SEE DETAIL THIS DWG
WELD 1" SQUARE FLAT BAR
KELLEMS' GRIP
WELD 1/4" PLATE
GALV. "U" BOLT
TOP OF WALKWAY
EL. 17.5'
WELD 10" LONG 1/4" PLATE & DRILL FOR "U" BOLT
1.25" x 6" x 12"-24" ZINC ANODE
FACTORY SEAL
4"-4"-36"-150# ZINC ANODE
PERFORATED HIGH DENSITY POLYETHYLENE 6" CONDUIT (TYP. OF TEN)
EL. -7.0
WELD 10" LONG CLIP ANGLE
GALV. "U" BOLT
EL. -10.78'
SECTION A
SCALE: 1/2" = 1'-0"
BRAZE
BULKHEAD OR 1" SQ. STOCK
SOLID JUMPER OR FUTURE WIRE WOUND RESISTOR IF REQ'D.
BOLT TO BULKHEAD WITH STAINLESS STEEL BOLTS
COUNTERSINK FLATHEAD 3/8" STAINLESS STEEL BOLT
1/8" MICARTA
3/4" MICARTA
LOCKWASHER & LOCKNUT
ANODE LEAD
DETAIL 1
NO SCALE
THIS DRAWING IS PART OF A REPRODUCTION OF THE ORIGINAL SET OF PLANS FOR THE CONSTRUCTION OF THE EXISTING STRUCTURE AND IS INCLUDED FOR INFORMATION PURPOSES.
1 1/2" HOLE
6" CONDUIT
PLAN SECTION B
NOT TO SCALE
SEE DWG. 64A FOR WALKWAY HATCH DETAILS
NAVIGATION LIGHT LIMIT SW. FOR DETAILS SEE DWG. 68
PINTLE
150# ANODE (TYP. OF TEN)
CONDUIT
FOR LEAD CONNECTION SEE DETAIL "1" THIS DWG. (TYPICAL)
BATTERY BOX SEE DETAIL
NOTE: SEE DWG. 64A FOR ANODE MOUNTING ON FRAME, CANAL AND RECESS TRUSS
1.25" x 6" x 12"-24" ZINC ANODE. SEE DEVELOPED ELEVATION THIS DWG.
PLAN OF ANODE & NAVIGATION AID LOCATIONS
SCALE: 1/4" = 1'-0" (TYPICAL)
SKINPLATE
SKIN PLATE
WELD (TYP)
1.25" x 6" x 12" 24" ZINC ANODE
ELEVATION OF SKIN PLATE
THIS PLAN ACCOMPANIES MODIFICATION P00003 TO CONTRACT NO. DACW29-72-C-0159
5-2-73 Anode relocation and mounting Mod. #3
L.V.
A.B.T. J.C.
L.V.
FEB 1972
H-4-25997
72-B-0107
64 of 65
CATHODIC PROTECTION, NAVIGATION AIDS AND DETAILS

APPENDIX D

FINDINGS OF LDOTD CORROSION INSPECTOR

STATE OF LOUISIANA

DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT

INTRADEPARTMENTAL CORRESPONDENCE

IN REPLY PLEASE REFER TO FILE NO.

April 21, 1987

REFERRED TO
JAICE TERRANOVA
RM. 310

_____ REFERRED FOR ACTION
_____ ANSWER FOR MY SIGNATURE
_____ FOR FILE
_____ FOR YOUR INFORMATION
_____ FOR SIGNATURE
_____ RETURN TO ME
_____ PLEASE SEE ME
_____ PLEASE TELEPHONE ME
_____ FOR APPROVAL
_____ PLEASE ADVISE ME

BY _____ DATE _____
BY _____ DATE _____
BY _____ DATE _____
BY _____ DATE _____

M E M O R A N D U M T O:

MR. EUGENE P. WAGUESPACK
DOTD MAINTENANCE ENGINEERING ADMINISTRATOR

RE: BAYOU DUPRE LOCKS
CATHODIC PROTECTION (c.p.)

Ms. Grille called requesting assistance on review of and reconnecting the c.p. at the dewatered Bayou Dupre Locks. Maintenance painting and replacement of 3 pieces of waterline steel had been completed and it was ready to be put back into service.

The paint system had been changed from a vinyl system to an epoxy system (high build) which will provide better long term service in the essentially seawater atmosphere. Per DEQ data the Mississippi-Gulf Outlet channel is a major source of high concentration salt water supply to Lakes Borgne and Ponchatrain when southerly winds prevail. The salt stratifies being about 30,000 parts per million near the bottom and 20,000 ppm near the top. Seawater is 35,000 ppm. When Pearl River floods the salt content can go down to 2-10,000 ppm.

Bayou Bienvenue and Bayou Dupre Locks are single lock structures in the levee system protecting St. Bernard Parish from hurricane floodwaters and are also operated at unusually high tide, said to be 2-3 times/week.

The locks were built in about 1975 and feature a very thick (7') matte floor which allows dewatered maintenance without wellpoint system.

The locks were built to U.S. Corps of Engineers specifications and is now owned and operated by the Lake Borgne Levee Board with maintenance funding from the state.

The c.p. consists of (12) 24 lb. zinc ships hull anodes on each gate skin and (4) 150 lb. zinc anodes behind the skin (4" x 4" x 36") and (6) 150 lb. zinc anodes for the structure. The 150 lb. anodes being placed in 6" polyethylene tubes with perforated holes.

_____ RECOMMENDED FOR APPROVAL _____ DATE

_____ RECOMMENDED FOR APPROVAL _____ DATE

_____ RECOMMENDED FOR APPROVAL _____ DATE

_____ APPROVED _____ DATE

x-K1

The ships hull anodes were completely depleted and the 150 lb. anodes were barely consumed, over 90% of the anodes not having been consumed at all. During the 12 years of operation the c.p. system was not checked, consequently no records are available.

Based upon review of the Bayou Bienvenue Locks anode condition and records 1½ years after similar maintenance, and after calculations, and consultation with consultants and anodes suppliers the following conclusions were reached:

1. The ships hull anodes being bare with the gates normally open is providing c.p. for the structure in addition to the skin and are becoming depleted at an accelerated rate when the tube anodes become fouled with barnacles. Already fouled at Bienvenue.

2. The ships hull anodes may not last but 7 or 8 years anyhow based upon 10 milli-amps (m.a.) consumption for the waterline interface and 1 m.a. for the submerged area for approximately 1500 m.a. total and figuring 1000 m.a. would consume 1 anode per year there would be 1½ per year consumed if only protecting the skin. Typical c.p. design assigns a 10% holiday figure for the coating which would result in about 1/3 the above consumption but this calculation basis is not appropriate for lock gates subject to wear from floating trash and scratches from boats.

3. The 36 inch long 150 lb. anodes were replaced with 60 inch long 250 lb. anodes. The six inch plastic tubes with less than 5 percent open area is a definite problem. Barnacles have already plugged the holes and plugged the anodes at Bayou Bienvenue in less than a year and a half. Output from the anodes was minimal and only in the area of the holes (see photos). The perforated tube designs apparently was a hold over from impressed current designs by the Corps where they protect the small wire size platinum anodes from trash. On those it is desired to have 15-20 percent open area and on the rectifier fed impressed current c.p. systems 5-6 volts can be maintained which will shed barnacles. The zinc anodes that only put out 1.1 volts will not shed the barnacles. Oysters also inhabit the tubes in the corners of the structure and against the timber frames that the structure anodes are attached to.

4. The conductors were brazed to the eye bolts extending from the anodes and does not need to be sealed.

5. The steel cable used to support the anodes will likely rot at the water interface and should be changed to an insulated support such as the existing number six stranded wire conductor. This

could be done coincident with pulling the anodes prior to rehanging them bare outside the tubes. Separate support is desirable so as to not break the conductor connection. The support should still be electrically discontinuous with the structure. Hung bare, the anodes can then be pulled occasionally to clean off the barnacles and check depletion. The consultant could set this schedule.

6. Since the channel is only 11.0 feet deep, one elevation for hanging the anodes is adequate as is near the bottom.

Summary - The existing system appears adequate for perhaps 15-20 year life with the larger 250 lb. anodes if hung bare which would also allow access for replacements if required. The shielded tube c.p. became essentially ineffective and in 12 years no more damage than was done being due to protection from the coating. It must be noted that reliance on c.p. compared to the coating out past 10 years is essential. A consultant needs to be retained who will review the present c.p. and make recommendations and provide file data and recommendations out in time.

Karl Finch

KARL FINCH
BRIDGE MAINTENANCE MECHANICAL ENGINEER

KF:faj

x-K1