APPENDIX A

Geotechnical Report

Geotechnical Engineering-Testing, Inc.

PROFESSIONAL ENGINEERS

Geotechnical Evaluations - Geosciences - Construction Materials - Pavement Management

March 27, 2020

Mott MacDonald
107 St. Francis Street
Suite 2900
Mobile, AL 36602

Attn.: John W. Peterson, P.E., Principal Engineer/Associate

Via Email: john.peterson@mottmac.com

Re: Soils Explorations and Geotechnical Engineering Studies for Proposed Renovations to Pier B South at the Alabama State Port Authority in Mobile, Alabama (GET Project #18-152)

Gentlemen:

Geotechnical Engineering-Testing, Inc. (GET) is pleased to submit this report of our soils explorations and geotechnical engineering evaluations for the proposed renovations at Pier B South at the Alabama State Port Authority (ASPA) in Mobile, Alabama. This report includes the results of the soil borings and related physical laboratory tests performed for the project along with other bases for the opinions and recommendations presented. These services were performed in general accordance with our proposal of April 20, 2018 and as discussed in meetings and email correspondence subsequent to the award of the project to Mott MacDonald by the ASPA.

A draft copy of this report was submitted in October 2018. Subsequently, various questions arose. We have endeavored to include our replies to those questions in this final report. Also following submittal of the draft report, we were asked to provide analyses/recommendations for potential new foundation piles considering a dredge elevation of -42 ft. Our initial analyses/recommendations were for existing conditions in which the elevation of the mudline at the face of the existing pier was assumed to be -35 ft. The results of our analyses and recommendations for a dredge elevation of -42 ft are presented in the Supplemental Report that is included as the last section of this report.

GET appreciates the opportunity to be of service to Mott MacDonald. If questions arise of if additional information is needed, please call Hank Oakes, P.E.

Sincerely,

GEOTECHNICAL ENGINEERING-TESTING, INC.

Hank M. Oakes, P.E.
Sr. Project Engineer
Alabama License No. 19576

Copy Via Email: Lowry Denty, P.E. – lowry.denty@mottmac.com

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INTRODUCTION

Geotechnical Engineering-Testing, Inc. (GET) has completed the authorized soils explorations and geotechnical engineering studies for proposed renovations to Pier B South at the Alabama State Port Authority facilities in Mobile, Alabama. The soils explorations have included eight exploratory soil borings, visual descriptions of the soils encountered, and laboratory tests on selected soil samples. The engineering study has included the planning, coordination, and supervision of the soils explorations program, evaluations of the results of the soils explorations, review of subsurface data from previous geotechnical studies, development of geotechnical engineering design and construction recommendations for various aspects of the project, and the preparation of this report.

We understand that the project at hand includes development of renovation/repair/replacement alternatives for Pier B South along with a portion of the Pier B River End. Available information indicates the piers are approximately 71 ft wide and have a total length of approximately 1940 ft (1580 ft and 360 ft for Pier B South and Pier B River End, respectively). The piers are pile supported and were designed/constructed in approximately 1925. Development of renovation/repair/replacement alternatives are to include increasing the load capacities of the piers.

Details of our findings, recommendations, and opinions for certain geotechnical design and construction aspects of the project are presented in the following sections of this report.

SITE DESCRIPTION

The project site is an active dock facility used for loading/unloading ships and transferring of cargo. The concrete piers are pile supported and were designed to slope downward slightly from the inboard to the outboard sides but the surfaces are approximately at elevation +11 ft.

The project site lies within the main docks complex. It is on the west side of Mobile River a short distance north of downtown Mobile, Alabama. The general project location is shown by the Highway Location Map included as **Figure 1** of this report.

SOILS EXPLORATIONS PROGRAM

The procedures for the field explorations and laboratory testing utilized in this project are summarized in the following sections of this report.

Boring Locations

Eight soil borings were performed for this project; seven along Pier B South and one within Pier B River End. Boring locations were selected by Mott MacDonald representatives and shown on a drawing provided to us. The selected boring locations were established in the field by Mott MacDonald and GET representatives by estimating distances from existing site features (column lines and joints within the dock structure). Some boring locations were adjusted slightly, either before or after removing cores from the concrete deck, because of unforeseen conditions. Following the completion of the borings, a GET representative measured state plane coordinates of the locations using a Sokkia GHX2 network rover system with a SA300 high precision dual-frequency, dual-constellation antenna. The measured state plane coordinates and converted geographic coordinates of the boring locations are shown in **Table I** of this report. Geographic coordinates are also shown on the respective Logs of Boring. Approximate locations of borings performed for this study and locations of previous borings, which were considered in our analyses, are shown in **Figure 2**.

Soils Explorations

The soil borings for this project were performed with a truck mounted SIMCO 2400 drill rig. Where required for the circulation of drilling fluid, steel casing was set from the pier deck to several feet into the mudline (no casing was required at locations B-1 and B-4). The rotary wash method was used to advance the boreholes to depths of 80 to 90 ft below the surface of the decks. Although soils were not encountered to a considerable depth at some locations, generally our procedures included performance of standard penetration tests (SPT) and collection of split spoon soil samples continuously to a depth of 7.5 ft, at 2.5 ft intervals from 7.5 ft to 20 ft, and at the standard 5 ft interval below 20 ft. A few undisturbed tube samples were collected, or attempted, between or in lieu of some split spoon samples within strata of cohesive soils. Boring and sampling operations were conducted in general accordance with standard procedures. Depths where samples

were collected and the results of the standard penetration tests are shown on the Logs of Boring included in the **Appendix** of this report.

Split spoon soil samples collected during the boring operations were visually described, logged, placed in moisture tight plastic bags and, along with the sealed tube samples, transported to the laboratory. At the laboratory, the samples were visually examined by the project engineer to confirm or adjust field classifications.

Laboratory Testing

Selected samples were subjected to laboratory tests to aid the engineering evaluations. These tests included moisture content, Atterberg limits, percent finer than a number 200 sieve, and confined compressive shear strength. The tests were performed in general accordance with standard laboratory soil testing procedures. Test results are shown on the Logs of Boring opposite the samples tested and on report forms that follow the logs in the **Appendix**.

SUBSURFACE CONDITIONS

Subsurface conditions encountered during the soils exploration program as well as findings of literature research of the site geology are summarized in the following sections.

Site Geology

A review of the geologic map of Alabama indicates that the subsurface at the project site is made up of alluvial, coastal, and low terrace deposits of the Quaternary System and Holocene Series. These deposits consist of very pale orange to grayish orange varicolored fine to coarse quartz sand containing clay lenses and gravel in places. Gravel is composed of quartz and chert pebbles. Coastal deposits include fine to medium quartz sand with shell fragments and accessory heavy minerals along Gulf beaches.

Subsurface Soils

The soil borings performed at the project site generally encountered layers of loose sands and soft clays to depths of 40 to 50 ft below the surface of the decks. However, the thicknesses, which

varied from about 5 ft to 20 ft, and depths of the various layers changed from location to location. Again, no soils existed to a considerable depth at some boring locations but, generally, the borings encountered loose sands from below the decks (at elevation +11 ft) to approximately elevation -2 ft. Very soft clays were encountered from approximately -2 ft to -11 ft then another layer of loose sands from -11 ft to -20 ft. Between elevations of -20 ft and -40 ft, soft clays, some with organics (decaying vegetation), were the predominate soil type. Below approximately elevation -40 ft, the borings encountered firm to dense sands. Details of the soils encountered at each boring location are shown by the respective Log of Boring. A Subsurface Profile, which shows approximate relative positions of the various soil layers encountered by the borings performed for this project and for previous projects, is included as **Figure 3** of this report.

Soil borings are representative of subsurface conditions at their respective locations and vertical reaches. However, local variations characteristic of the subsurface materials of the region are likely to exist. The boring logs and related information are based on the driller's logs and visual examination of recovered samples in the laboratory. The delineation between soil types shown on the logs is approximate and the descriptions represent the interpretation of subsurface conditions at the designated boring location on the date drilled.

GEOTECHNICAL RECOMMENDATIONS

The recommendations provided below are based upon our understanding of the project as described above, the subsurface data collected, our engineering evaluations regarding the geotechnical matters, and our past experience on projects in proximity to this site. If our understanding of the project is incorrect, we should be provided accurate information and should be provided the opportunity to review our recommendations taking into consideration the new project information.

Design Subsurface Soil Conditions

Table II presents the recommended design soil stratigraphy and soil properties that were the bases of our geotechnical analyses. As stated above, the soil layering was variable but the table presents a reasonable and appropriately conservative interpretation of the subsurface conditions, in our opinion. The recommended design soil stratigraphy, or Idealized Subsurface Profile, is shown by

the bold horizontal lines and accompanying labels in **Figure 3**. Even though the Idealized Subsurface Profile indicates the ground surface to be at elevation +10.5 ft (assumed bottom elevation of the pier decks), the various analyses performed were based on surface elevations indicated by cross-section drawings provided by Mott MacDonald. The elevations shown in the table were used to construct soil profiles and assign soil properties for the various geotechnical analyses.

Note that undrained and drained soil shear strengths are presented in **Table II**. Also note that undrained and drained shear strength values shown in the table are the same for granular soils. This is because, when stresses are applied, drainage of granular soils occurs almost instantaneously and so, for all intents and purposes, only drained strengths of granular soils are considered when evaluating load-carrying capacities. For cohesive soils, the soils may approach a drained condition under long-term loading. For our analyses, undrained conditions were used.

Axial Pile Capacities - Existing Piles

Static pile capacity analyses were performed to estimate capacities of the in-place piles supporting Pier B South and Pier B River End. These analyses used information shown on 1925 construction drawing B-4-33 that showed the foundation piles to be 18-inch square and 16-inch square precast prestressed concrete piles installed to approximate tip elevations of -57 ft to -34 ft. **Figure 4** shows a portion of drawing B-4-33. This drawing, and others, show that the bottom 4 ft of the piles were tapered. Both the 18-inch and 16-inch piles tapered to a tip of 8 inches square. No information was available regarding actual installation of the existing piles. Thus, it was assumed that the final configuration of the piles matched that shown on the design drawings.

Our analyses used the subsurface soil properties shown in **Table II** and cross-sectional surface profiles provided by Mott MacDonald at existing pile bents 15, 30, and 75. These three bents were selected because they were judged to be representative of the variable surface conditions at the project site. Cross-section profiles were not available beyond bent 75. However, because subsurface conditions indicated by the soil borings near the east end of Pier B South and at Pier B River End are very similar, it is anticipated that surface profiles are also similar. For this reason, it is our opinion that pile capacity estimates at bent 75 may be used east and north of bent 75.

Our static pile capacity analyses were performed with the computer program Driven 1.2 which uses analysis methods recommended by the Federal Highway Administration (FHWA). The results of our analyses, i.e. estimated ultimate short-term and long-term compression capacities and (short-term) uplift capacities for the in-place piles are shown in **Table III**. Note that no factor of safety was applied to the estimated capacities shown in **Table III**. It can be seen that five analyses were performed at each of the three bents. This was because there were five different sizes/lengths of piles indicated by the drawing in **Figure 4**. Within the vicinity of each of the five sizes/lengths of piles, our analyses assumed that the ground surface was level at the estimated average surface elevation in the vicinity of the piles. That is, the assumed surface elevations were progressively higher from the outboard to the inboard side of the existing pier which resulted in greater pile embedment (even though piles were progressively shorter from the outboard to the inboard side of the pier). The varying pile embedment and pile sizes accounts for the varying estimated capacities.

Based on the available information, the average tip elevation of the 16-inch square by 40 ft long piles near along the inboard side of the existing pier is approximately -33.75 ft. This puts the pile tips within a stratum of soft to medium consistency clay based on the subsurface stratigraphy shown in **Table II**. Theoretically, the skin friction load on both the clay layers will cause those layers to consolidate. When consolidating, the skin friction load will be transferred down the piles to a non-compressible layer. However, for the case at hand, the piles do not extend to a non-compressible layer. Further, the skin friction loads will exceed the end bearing capacities of the piles (tipped in the soft to medium consistency clay). Consequently, the piles will settle. So, theoretically, the long-term capacities of the 16-inch by 40 ft long piles near the inboard side of the existing pier will be 0 kips. However, in **Table III** is can be seen that we assigned a long-term capacity to the piles of 45 kips. This is because the estimated long-term loads on the piles, according to information provided by Mott MacDonald, was 45 kips and there was no physical evidence that the piles had settled significantly. In our opinion, when designing modifications to the pier, it would be prudent to assume that the 16-inch square by 40 ft long piles have no additional long-term capacity available.

Axial Pile Capacities – Potential New Piles

Using the same methodology as described above, we also performed analyses to estimate capacities of potential new 18-inch square and 24-inch square precast prestressed concrete piles. These analyses assumed that all new piles would have a length of 60 ft. Thus, the analyses considered varying pile embedment lengths resulting from the variable and sloping surface conditions. Our recommended allowable short-term and long-term compression capacities and (short-term) uplift capacities of 60 ft long 18-inch and 24-inch concrete piles are shown in **Table IV**. The recommended allowable capacities are the result of application of a factor of safety of about 2.0 to the estimated ultimate pile capacities.

Recommended allowable pile capacities typically assume a center-to-center pile spacing of at least three pile diameters/widths so as to avoid potential capacity reductions resulting from group effects. That is, in some cases, particularly when piles are supported by cohesive soils, the capacity of a group of closely spaced piles is less than the sum of the capacities of individual piles (not in a closely spaced group). However, for the case at hand, the piles gain the majority of their long-term capacity from cohesionless soils. Under these circumstances, a potential capacity reduction factor due to group effects does not need to be evaluated unless center-to-center pile spacings are two pile diameter/widths or less.

We recommend that capacities of new piles, if used, be verified by static load tests. We recommend that no less than three load tests be performed. The precise number and locations of the load tests should be determined following final structural design. The number and locations of static load tests should be sufficient to provide information from all the anticipated differing surface profile conditions.

Further, at least one of the recommended static load tests should be performed in an area where soft, compressible soils were indicated by the soils explorations program. At this location, in order to differentiate short-term and long-term capacities, the test should consist of a dual-pile arrangement in which one pile is driven to the estimated design pile tip depth and the second pile, installed approximately 4 ft away, is driven until its tip is near the bottom of the compressible clays (as indicated by the driving resistance of the first pile). Both piles may be load tested using the

same reaction frame. The first (longer) pile should be positioned at the center of the reaction beam and the second (shorter) pile, because its capacity will be relatively low, may be positioned toward one end of the reaction frame. The second (shorter) pile should be load tested to failure to provide an estimate of the short-term skin friction capacity provided by the soils above the bottom of the soft, compressible soils (end bearing capacity within the soft, compressible soils will be negligible). The first (longer) pile should then be load tested to at least twice the design long-term capacity plus the short-term skin friction capacity calculated from the test on the shorter pile.

Installation of all the test piles and the static load tests should be monitored and evaluated by the geotechnical engineer of record.

Lateral Pile Analyses – Existing Piles

Using the soil properties shown in **Table II**, the cross-sectional surface profiles at pile bents 15, 30, and 75, and the computer program LPILE PLUS 5.0 (developed and distributed by EnSoft Corporation) we performed lateral pile analyses to estimate pile responses under the variable soil conditions and under varying loading conditions. In accord with information provided by Mott MacDonald, it was assumed that lateral loads, due to ship impact, were applied at 9 ft below the top of the deck. Because of the relatively close spacing of the existing piles, soil response values were reduced by application of a "group effects" factor of 0.45. This value was selected based on available information from research performed by others. The results of our lateral piles analyses of the existing piles are shown in **Table V**. It is noted that no factor of safety has been applied to the loads shown in the table. We recommend that allowable design lateral loads be no more than one-half the load that analyses indicate will result in the allowable pile head deflection. The allowable pile head deflection should be selected by the project structural engineer(s). This engineer should also use his judgement to determine if free head or fixed head pile conditions should be used to evaluate lateral load-pile deflection relationships.

Lateral Pile Analyses – Potential New Piles

Using the same methodology as described above, lateral pile analyses were performed for potential new 60 ft long 18-inch and 24-inch square concrete piles. In these analyses, because it was assumed that new piles would be relatively widely spaced, no "group effects" reduction factor was

applied to the soil response values. The results of our lateral piles analyses of potential new piles are shown in **Table VI**. It is noted that no factor of safety has been applied to the loads shown in the table. We recommend that allowable design lateral loads be no more than one-half the load that analyses indicate will result in the allowable pile head deflection. The allowable pile head deflection should be selected by the project structural engineer(s). This engineer should also use his judgement to determine if free head or fixed head pile conditions should be used to evaluate lateral load-pile deflection relationships.

Potential Permanent Cofferdam

We understand that one alternative being considered at Pier B South and Pier B River End is the removal of the pile supported wharfs and replacement with a permanent cofferdam. The cofferdam would be constructed of anchored sheet piles, filled with soil, and capped with a concrete slab to support loads. We recommend that Mott MacDonald engineers use the soil properties shown in Table II to design the sheet piles and anchors for the cofferdam system.

We recommend that in-situ soils within the cofferdam be excavated/dredged down to elevation -40 ft to remove the soft, compressible soils indicated by the soils explorations. The soft, compressible soils, if not removed, will consolidate under the fill soil loads, resulting in settlement of the fill soils and the soil-supported concrete deck slab.

We recommend that backfill/fill soils within the cofferdam, from the bottom of the excavation up to elevation +3 ft, consist of underwater backfill type sand (ALDOT 210.02 (c)3). This material may be placed underwater, i.e. it is not necessary to pump the water from within the cofferdam. However, the material should be placed in a controlled manner that will assure that no voids develop within the soil mass.

The means and methods for removal of the soils to elevation -40 ft and backfilling/filling the cofferdam to elevation +3 ft should be proposed by an experienced marine contractor and reviewed/approved by the design team.

Above elevation +3 ft the cofferdam should be backfilled/filled with select silty or clayey sands that classify as AASHTO A-2-4(0) or A-4(0). These soils should be placed in loose lifts of approximately 8 inches and each lift should be compacted prior to placement of the succeeding lift. From elevation +3 ft to elevation +7 ft each lift should be compacted to at least 95 percent standard proctor density (AASHTO T99). Above elevation +7 ft each lift should be compacted to at least 100 percent standard proctor density.

If these recommendations are followed, we recommend a design modulus of subgrade reaction of 225 pounds per cubic inch be used for design of the concrete deck slab.

Some consideration should be given to the effects of compaction forces on the sheet piles and anchors.

Environmental Classification

We were asked to provide an Environmental Classification of the project site in accord with Florida Department of Transportation (FDOT) guidelines. Mott MacDonald provided the FDOT guidelines to us.

Review of available information indicates that the chloride concentration in the water at the project site exceeds 2000 parts per million (ppm). The available information consisted of a 1956 report by the U.S. Army Corps of Engineers that showed the chloride concentration in Mobile River approximately 25 miles upstream from the project was greater than 2000 ppm when tested in 1954. The report also showed an increasing chloride concentration with distance downstream (the report data did not extend below approximately 12 miles upstream from the project site). A high chloride concentration of the waters at the project site was indicated by the chloride concentration levels within the concrete cores recently removed from existing concrete piles at the site (September 17, 2018 petrographic report submitted to Mott MacDonald by CTL Group).

Documents show that the existing piers are at approximate elevation +11 ft.

Based on the above information and the flow chart in Figure 1-1 from FDOT Structures Design Guidelines 1.3.2, the project at hand is a marine structure and the conditions for both the substructure and superstructure classify as Extremely Aggressive.

Voids Under Relieving Platform

The renovation/repair/replacement project at Pier B South and Pier B River End will include remediation of some large voids that have developed behind the relieving platform bulkhead on the inboard side of the piers. We understand preliminary plans call for filling voids with "flowable fill" (ASTM D 4832). This is our recommendation also.

There are no strict guidelines for the properties of flowable fill that should be used. However, following are some general guidelines and recommendations that should be considered.

- The flowable fill should not readily segregate, i.e. coarser particles should remain in suspension until the material "sets". We recommend that no particles within the mix exceed sand size.
- The flowable fill should be highly flowable. To help achieve this, soils used in the mix may consist of silty sands, i.e. sands with up to 25 percent by weight passing a number 200 sieve. The fines (material passing a number 200 sieve) should be non-plastic.
- The flowable fill should be placed through a tremie pipe from the bottom of the void to the top so as to displace water from the void.
- The mix should contain 5 to 10 percent Portland cement. Admixtures may or may not be required to achieve the needed properties related to flowability and non-segregation.
- We recommend the flowable fill have a minimum 28-day compressive strength of 50 psi.

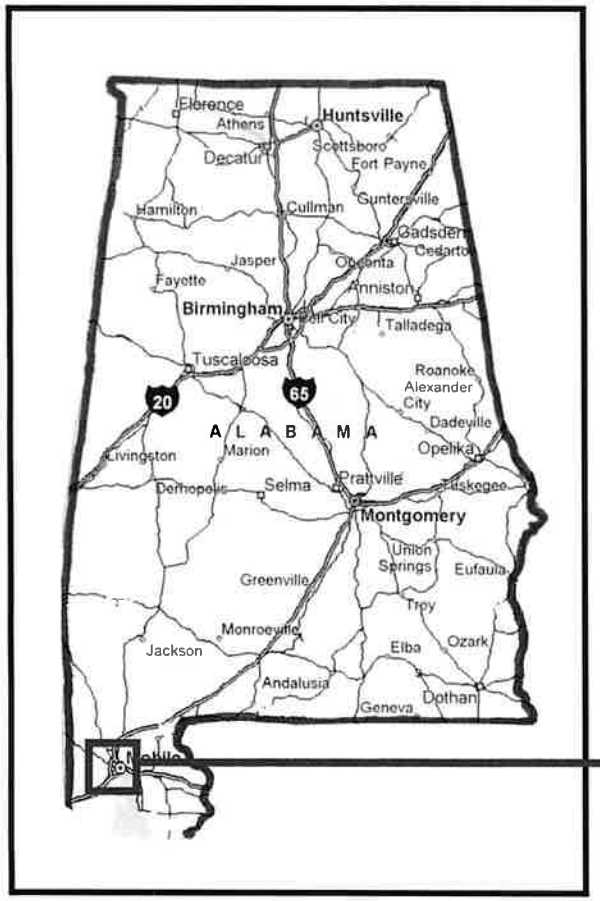
LIMITATIONS

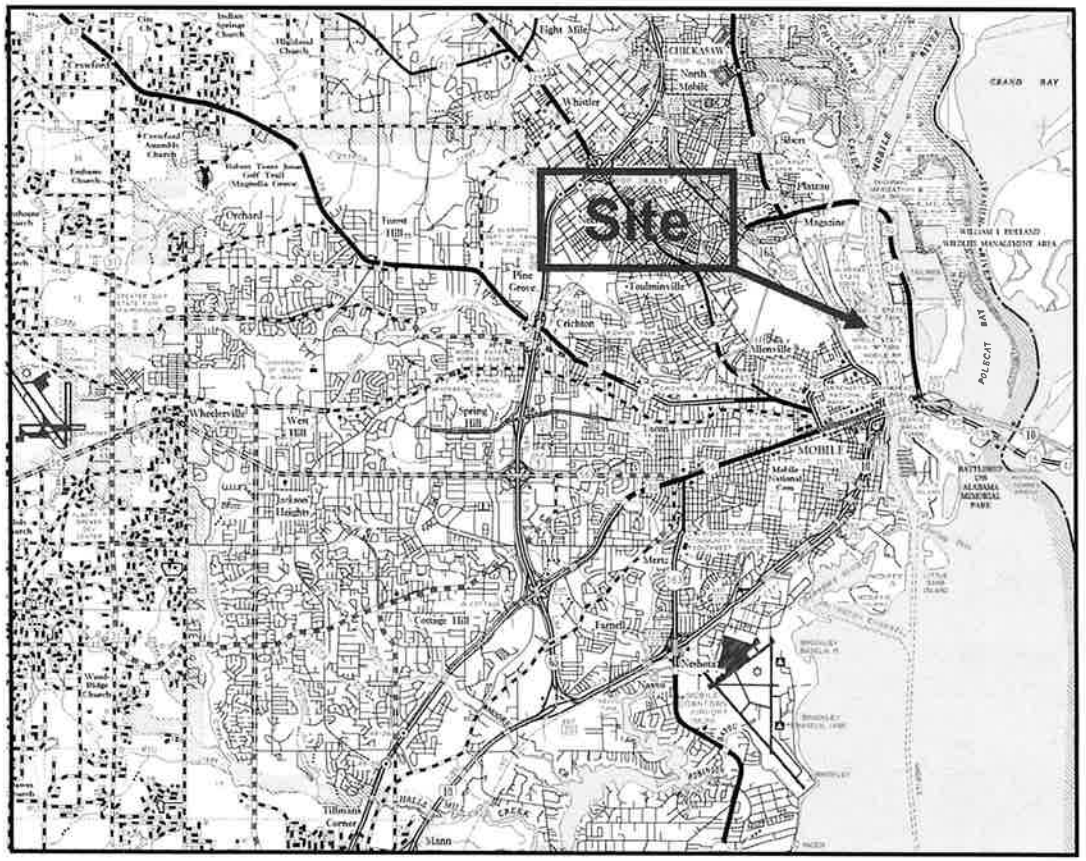
The evaluations and recommendations presented by this report are based on the data obtained from the soil borings and laboratory tests performed specifically for this project and on data obtained by previous studies at the project site. Additional assumptions may have been outlined in the discussions contained in previous sections of this report.

We prepared this report to assist in the design of various aspects of the project. The recommendations provided are based in part on the project information provided to GET and only apply to the specific project and site discussed in this report. If the project description or stated assumptions are incorrect or if additional information is available, correct or additional information should be conveyed to GET for review. Recommendations can then be modified if warranted.

Our professional services for this project have been performed, findings obtained, and recommendations prepared in accordance with generally accepted engineering principles and practices. The services identified herein were completed in a manner consistent with the level of care and skill ordinarily exercised by members of the profession currently practicing in the same locality and under similar conditions as this project. No other representation, expressed or implied, is included or intended and no warranty or guarantee is included or intended in this report or any other instrument of service.

FIGURES

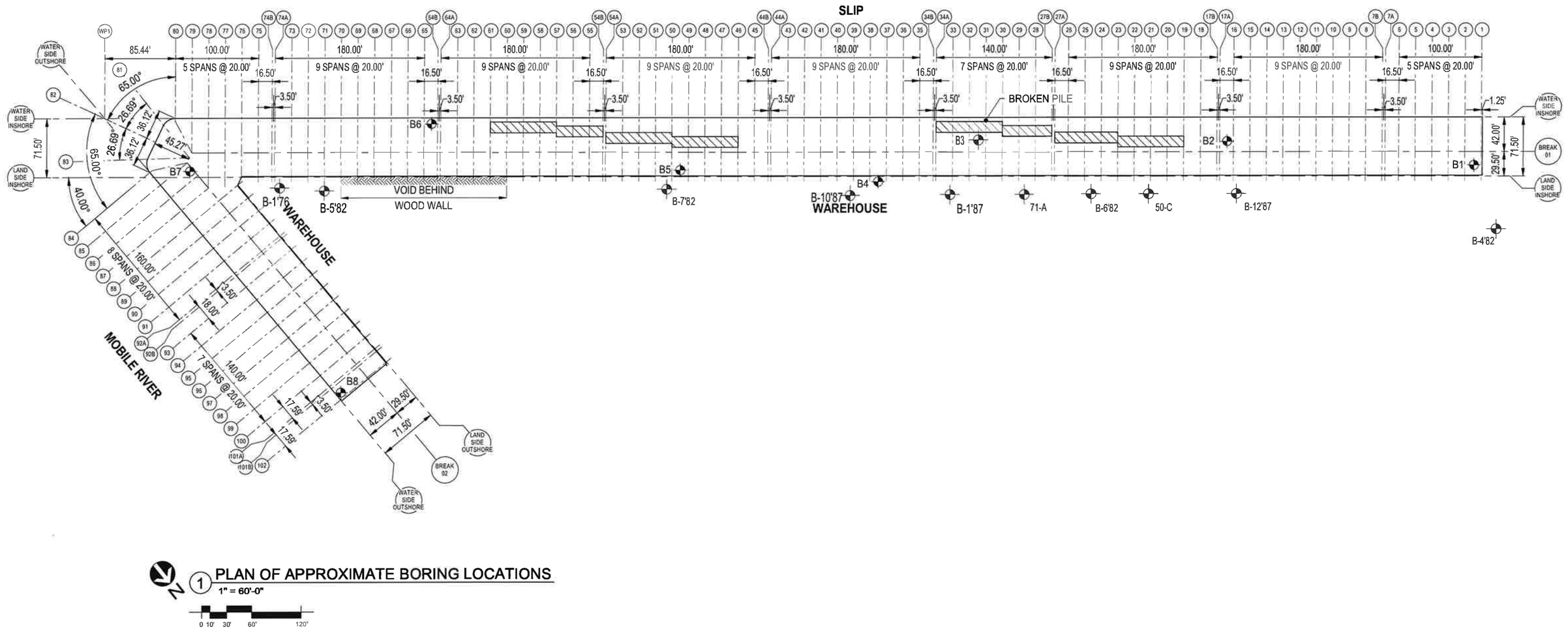




Source – General Highway Map Mobile County, Alabama, Alabama Dept. of Transportation, 2010

GEOTECHNICAL ENGINEERING TESTING, INC.

Figure 1 - Highway Location Map
Alabama State Port Authority Pier B South Renovations
Mobile, Alabama



1 PLAN OF APPROXIMATE BORING LOCATIONS

1" = 60'-0"

0 10' 30' 60' 120'

LEGEND

INDICATES 23" SLAB THICKNESS

B# INDICATES APPROXIMATE LOCATION OF SOIL BORING AND BORING NUMBER

Figure 2 - Boring Location Plan

MOTT MACDONALD

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Architects AA - C000035
Engineers EB - 0000155
Surveyors LB - 0006783

Client

ALABAMA STATE DOCKS COMMISSION

MOBILE, ALABAMA

Rev	Date	Drawn	Description	Ch'k'd	App'd

THIS DRAWING IS NOT FOR CONSTRUCTION

Designed	C. LYNER, M. TUGWELL		Eng Check	L. DENTY	
Drawn	KWD		Coordination		
Dwg Check	BFH		Approved		

Scale at ANSI D	Status	Rev	Security

Project Number 397324 | B/O | Total

Drawing Number S-001

Title
MOBILE RIVER PIER B INSPECTION

PLAN OF APPROXIMATE BORING LOCATIONS

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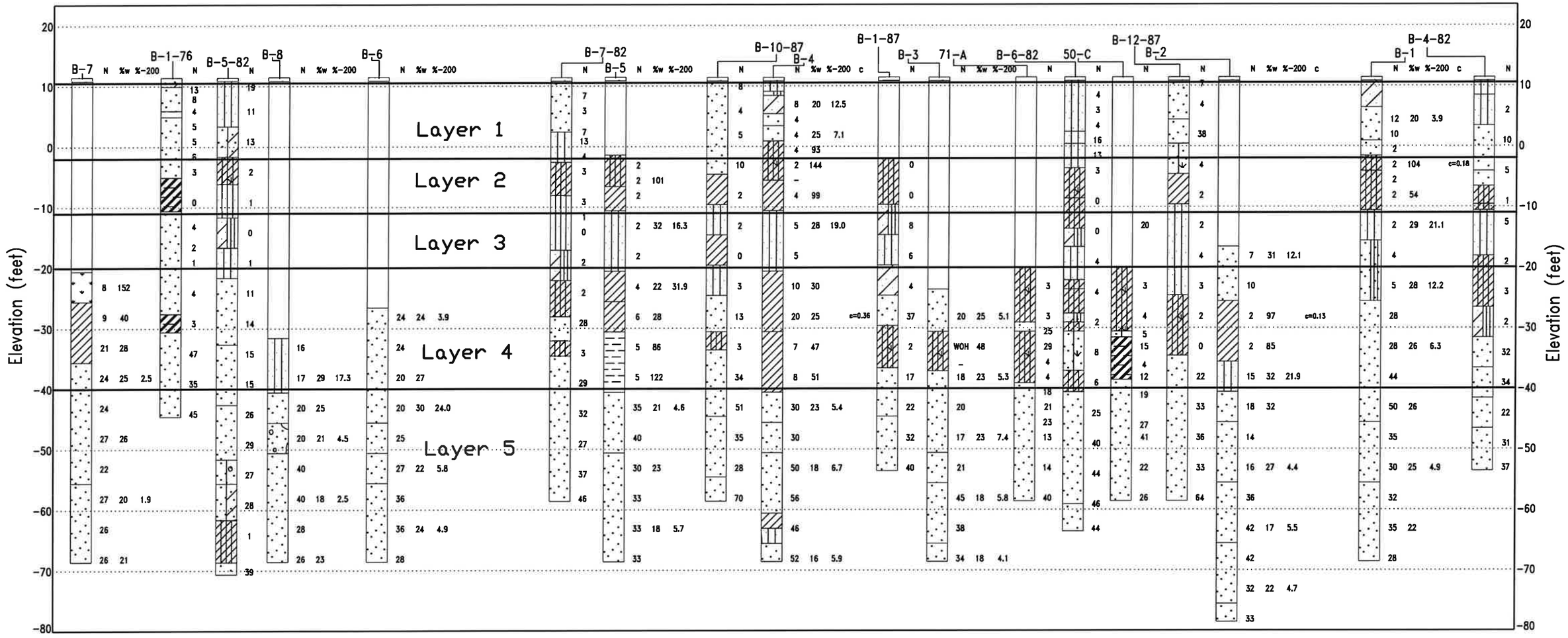


Note: Layer references correspond with those presented in Table II.

LEGEND

- Tapsail
- Paarly-graded Sand
- Silty Sand
- Clayey Sand
- Sandy Clay
- Lean Clay
- Fat Clay
- Silt
- Sand with Clay
- Sand with Silt
- Water
- High Plasticity Organic silt ar clay

N – SPT value determined in field ASTM D1586
%w – Percent Water
c – Cohesive Shear Strength, tsf
c* – Cohesive Shear Strength, tsf (Hand Penetrameter)
MV – Vane Shear Strength, tsf
Class – USCS Classification

Figure 3 – Subsurface Profile

PROJECT NAME: RENOVATION OF PIER B SOUTH
G.E.T. PROJ. NUMBER: 18-152
PROJECT LOCATION: ASPA – MOBILE, ALABAMA

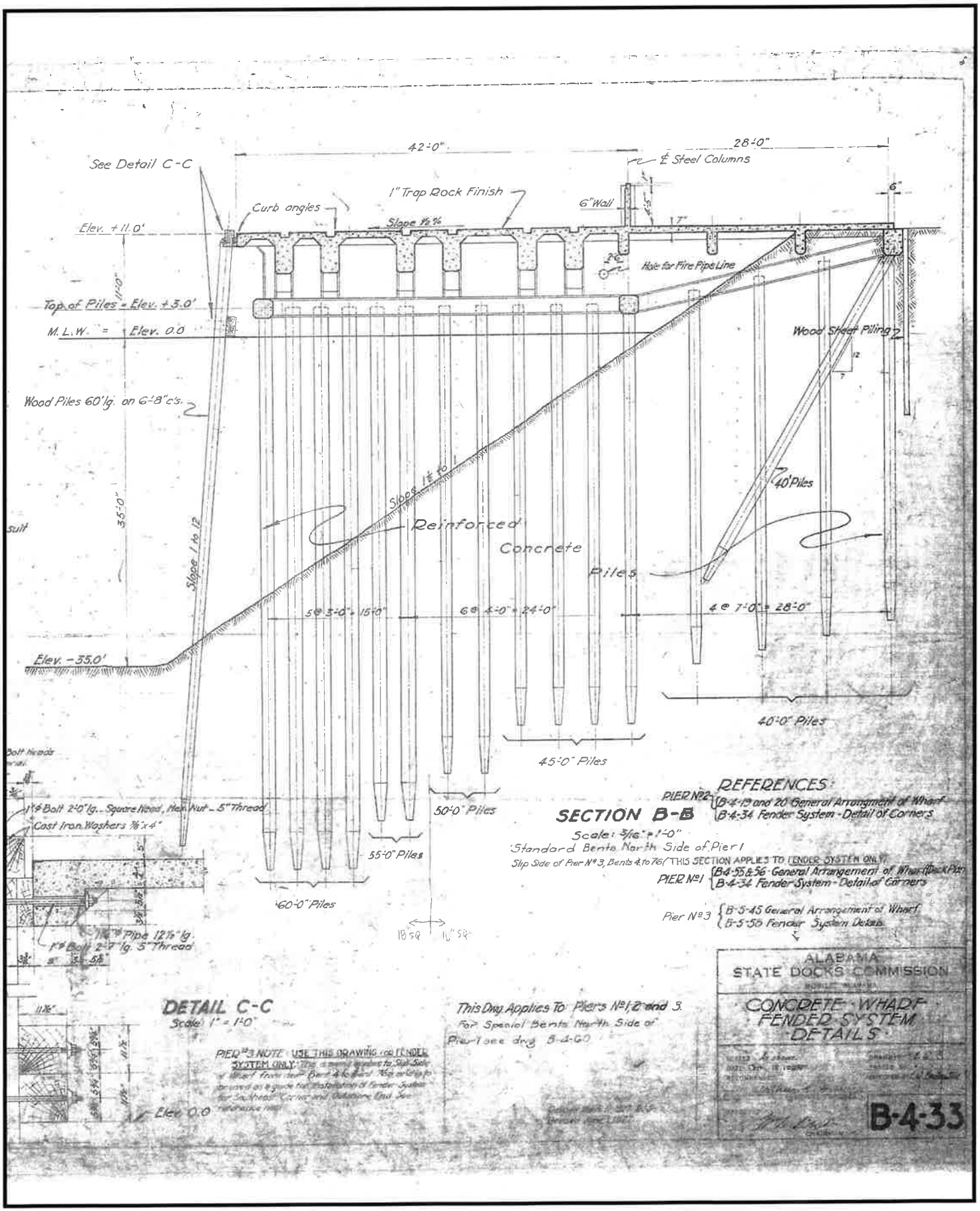


Figure 4 - Original Construction Drawing

TABLES

Table I - SOIL BORING COORDINATES
ASPA Pier B South Renovations

	STATE PLANE COORDINATES		GEOGRAPHIC COORDINATES	
LOCATION	North	East	Latitude	Longitude
B-1	258248.8	1797498.7	30°42.537'	-88°02.648'
B-2	258081.4	1797750.2	30°42.510'	-88°02.600'
B-3	257917.2	1798001.6	30°42.483'	-88°02.552'
B-4	257905.0	1798129.5	30°42.481'	-88°02.527'
B-5	257777.5	1798337.9	30°42.460'	-88°02.487'
B-6	257582.8	1798570.9	30°42.428'	-88°02.443'
B-7	257482.3	1798854.5	30°42.412'	-88°02.389'
B-8	257781.5	1798825.7	30°42.461'	-88°02.394'

GEOTECHNICAL ENGINEERING-TESTING, INC.
MOBILE, ALABAMA
OCTOBER 24, 2018

Table II - RECOMMENDED DESIGN SOIL PARAMETERS
PIER B SOUTH RENOVATIONS

Layer	Elevation		Soil Type	Unit Weight			Undrained Strength		Drained Strength		Lateral Pressure Coefficients	
	Top	Bottom		Moist	Saturated	Bouyant	Cohesion	Friction Angle	Cohesion	Friction Angle	k_a	k_p
1	10.5 Ft	-2 Ft	Loose Sand	103 pcf	114.5 pcf	52 pcf	-	Φ = 29°	-	Φ = 29°	0.35	2.88
2	-2 Ft	-11 Ft	Very Soft Clay	65 pcf	87 pcf	24.5 pcf	400 psf	-	-	Φ = 22°	-	-
3	-11 Ft	-20 Ft	Loose Sand	103 pcf	114.5 pcf	52 pcf	-	Φ = 28°	-	Φ = 28°	0.36	2.77
4	-20 Ft	-40 Ft	Soft Clay	102 pcf	110 pcf	47.5 pcf	700 psf	-	-	Φ = 25°	-	-
5	-40 Ft	-	Firm Sand	115 pcf	121 pcf	58.5 pcf	-	Φ = 34.5°	-	Φ = 34.5°	0.28	3.61

Geotechnical Engineering-Testing, Inc.
Mobile, Alabama
March 27, 2020

Table III - ESTIMATED ULTIMATE CAPACITIES IN KIPS - EXISTING PILES
ASPA PIER B SOUTH RENOVATION

18" X 60' Piles								
Bent 15			Bent 30			Bent 75		
Compression			Compression			Compression		
Short-Term	Long-Term	Uplift	Short-Term	Long-Term	Uplift	Short-Term	Long-Term	Uplift
206	143	123	174	120	102	146	109	84

18" X 55' Piles								
Bent 15			Bent 30			Bent 75		
Compression			Compression			Compression		
Short-Term	Long-Term	Uplift	Short-Term	Long-Term	Uplift	Short-Term	Long-Term	Uplift
182	106	108	146	89	85	146	89	85

16" X 50' Piles								
Bent 15			Bent 30			Bent 75		
Compression			Compression			Compression		
Short-Term	Long-Term	Uplift	Short-Term	Long-Term	Uplift	Short-Term	Long-Term	Uplift
112	63	60	134	61	76	109	51	62

16" X 45' Piles								
Bent 15			Bent 30			Bent 75		
Compression			Compression			Compression		
Short-Term	Long-Term	Uplift	Short-Term	Long-Term	Uplift	Short-Term	Long-Term	Uplift
112	45*	60	106	45*	58	94	45*	53

16" X 40' Piles								
Bent 15			Bent 30			Bent 75		
Compression			Compression			Compression		
Short-Term	Long-Term	Uplift	Short-Term	Long-Term	Uplift	Short-Term	Long-Term	Uplift
82	45*	56	74	45*	50	53	45*	35

*45 kip long-term capacity based on estimated loads on piles. Calculated long-term capacity is less than 45 kips.

Table IV - RECOMMENDED ALLOWABLE CAPACITIES IN KIPS - NEW PILES
ASPA PIER B SOUTH RENOVATION

	18" X 60' Piles								
	Bent 15			Bent 30			Bent 75		
In Vicinity of Existing	Short-Term	Long-Term	Uplift	Short-Term	Long-Term	Uplift	Short-Term	Long-Term	Uplift
18" X 60' Piles	170	139	60	148	123	54	128	110	45
18" X 55' Piles	190	152	74	161	132	64	161	132	60
16" X 50' Piles	207	165	81	202	161	77	174	141	66
16" X 45' Piles	232	189	92	219	177	86	193	154	76
16" X 40' Piles	247	187	102	234	178	95	211	168	82

	24" X 60' Piles								
	Bent 15			Bent 30			Bent 75		
In Vicinity of Existing	Short-Term	Long-Term	Uplift	Short-Term	Long-Term	Uplift	Short-Term	Long-Term	Uplift
18" X 60' Piles	269	226	84	234	201	76	205	180	63
18" X 55' Piles	298	248	103	254	216	84	254	216	84
16" X 50' Piles	325	270	113	317	262	111	274	230	93
16" X 45' Piles	362	305	129	345	289	120	303	251	105
16" X 40' Piles	385	305	142	364	291	132	331	273	114

Note: Pile capacity recommendations considered only the pile-soil interaction. Structural properties of piles were not considered.

Table V - LATERAL PILE ANALYSIS RESULTS - EXISTING PILES
ASPA PIER B SOUTH RENOVATION

		18" X 60' Piles					
		Bent 15		Bent 30		Bent 75	
Deflection		Free-Head	Fixed-Head	Free-Head	Fixed-Head	Free-Head	Fixed-Head
0.5"	Lateral Load, kips	0.5	2.3	0.4	1.8	0.3	1.5
	Max. Moment, in-kips	236.7	543.5	230.2	467.4	204.8	422.8
1.0"	Lateral Load, kips	0.9	4.1	0.6	3.2	0.5	2.6
	Max. Moment, in-kips	443.8	1008	355.3	865.5	353.9	759.1
2.0"	Lateral Load, kips	1.5	7.1	1.1	5.7	0.9	4.7
	Max. Moment, in-kips	778.9	1832	691	1607	674.3	1426
3.0"	Lateral Load, kips	2.1	9.8	1.5	7.9	1.2	6.6
	Max. Moment, in-kips	1122	2607	979.9	2288	940.6	2052

		18" X 55' Piles					
		Bent 15		Bent 30		Bent 75	
Deflection		Free-Head	Fixed-Head	Free-Head	Fixed-Head	Free-Head	Fixed-Head
0.5"	Lateral Load, kips	0.7	2.9	0.4	2.1	0.4	2.1
	Max. Moment, in-kips	278.0	630.7	204.1	516.8	204.1	516.8
1.0"	Lateral Load, kips	1.2	5.1	0.8	3.7	0.8	3.7
	Max. Moment, in-kips	506.3	1159	428.5	948.3	428.5	948.3
2.0"	Lateral Load, kips	2.1	8.7	1.3	6.5	1.3	6.5
	Max. Moment, in-kips	928.2	2077	733.0	1744	733.0	1744
3.0"	Lateral Load, kips	2.8	11.9	1.9	8.9	1.9	8.9
	Max. Moment, in-kips	1285	2935	1108	2459	1108	2459

		16" X 50' Piles					
		Bent 15		Bent 30		Bent 75	
Deflection		Free-Head	Fixed-Head	Free-Head	Fixed-Head	Free-Head	Fixed-Head
0.5"	Lateral Load, kips	0.6	2.4	0.6	2.3	0.4	1.7
	Max. Moment, in-kips	210.6	471.1	213.9	455.8	177.3	382.3
1.0"	Lateral Load, kips	1.0	4.2	1.0	4.1	0.7	3.0
	Max. Moment, in-kips	361.6	859.7	367.5	848.5	321.2	702.5
2.0"	Lateral Load, kips	1.8	7.3	1.7	7.1	1.2	5.2
	Max. Moment, in-kips	680.4	1570	651.8	1544	574.5	1267
3.0"	Lateral Load, kips	2.5	10.0	2.4	9.7	1.6	7.2
	Max. Moment, in-kips	970.0	2217	945	2174	784	1805

		16" X 45' Piles					
		Bent 15		Bent 30		Bent 75	
Deflection		Free-Head	Fixed-Head	Free-Head	Fixed-Head	Free-Head	Fixed-Head
0.5"	Lateral Load, kips	0.8	3.0	0.7	2.6	0.5	2.1
	Max. Moment, in-kips	226.8	542.7	230.9	492.9	188.6	430.6
1.0"	Lateral Load, kips	1.3	5.2	1.2	4.6	0.9	3.7
	Max. Moment, in-kips	393.8	983.2	412.1	912.4	351.3	794.3
2.0"	Lateral Load, kips	2.3	8.9	2.0	7.9	1.5	6.4
	Max. Moment, in-kips	735.0	1773	710.8	1648.0	611.4	1446
3.0"	Lateral Load, kips	3.1	11.8	2.7	10.6	2.1	8.6
	Max. Moment, in-kips	1022	2449	985	2294	876	2013

		16" X 40' Piles					
		Bent 15		Bent 30		Bent 75	
Deflection		Free-Head	Fixed-Head	Free-Head	Fixed-Head	Free-Head	Fixed-Head
0.5"	Lateral Load, kips	4.6	11.7	3.2	9.1	1.0	3.0
	Max. Moment, in-kips	425.7	1188	385.0	1048	241.9	531.1
1.0"	Lateral Load, kips	7.1	>16	5.2	14.9	1.4	4.9
	Max. Moment, in-kips	729.4	>1188	677.5	1839	350.5	944.3
2.0"	Lateral Load, kips	11.1	>16	8.4	>16	2.1	7.5
	Max. Moment, in-kips	1287	>1188	1189	>1839	543.5	1615
3.0"	Lateral Load, kips	14.3	>16	11.0	>16	2.6	9.4
	Max. Moment, in-kips	1765	>1188	1628	>1839	701	2199

Table VI - LATERAL PILE ANALYSIS RESULTS - NEW PILES
ASPA PIER B SOUTH RENOVATION

Deflection		18" X 60' Piles Near Outboard Side of Deck (Area of Existing 18" X 60' Piles)					
		Bent 15		Bent 30		Bent 75	
		Free-Head	Fixed-Head	Free-Head	Fixed-Head	Free-Head	Fixed-Head
0.5"	Lateral Load, kips	0.6	2.7	0.4	2.1	0.3	1.7
	Max. Moment, in-kips	304.4	610.1	254.3	526.8	237.3	466.3
1.0"	Lateral Load, kips	1.0	5.0	0.7	3.8	0.5	3.0
	Max. Moment, in-kips	527.5	1172	465.7	984.9	411.8	848
2.0"	Lateral Load, kips	1.7	8.9	1.2	6.8	0.8	5.5
	Max. Moment, in-kips	944.3	2171	846.1	1829	689.5	1608
3.0"	Lateral Load, kips	2.4	12.3	1.6	9.6	1.1	7.8
	Max. Moment, in-kips	1385	3078	1165	2647	994.7	2333

Deflection		24" X 60' Piles Near Outboard Side of Deck (Area of Existing 18" X 60' Piles)					
		Bent 15		Bent 30		Bent 75	
		Free-Head	Fixed-Head	Free-Head	Fixed-Head	Free-Head	Fixed-Head
0.5"	Lateral Load, kips	1.9	7.3	1.4	5.8	1.1	4.7
	Max. Moment, in-kips	736.5	1685	623.3	1458	546.8	1270
1.0"	Lateral Load, kips	3.4	12.9	2.6	10.2	2.1	8.5
	Max. Moment, in-kips	1350	3103	1183	2663	1066	2376
2.0"	Lateral Load, kips	6.0	22.3	4.6	18.0	3.7	15.1
	Max. Moment, in-kips	2442	5612	2142	4898	1924	4386
3.0"	Lateral Load, kips	8.2	30.6	6.4	25.0	5.2	21.1
	Max. Moment, in-kips	3397	7922	3030	6980	2751	6273

APPENDIX

LOGS OF BORINGS & LABORATORY TEST REPORTS

PROJECT NAME:

G.E.T. PROJ. NUMBER:

PROJECT LOCATION:

DRILL RIG:

DRILL METHOD:

DRILL CREW:

DATE DRILLED:

BORING DEPTH:

BORING ELEV.:

DATUM:

WATER DEPTH:

REMARKS:

GEOTECHNICAL ENGINEERING TESTING, INC

BORING NUMBER: LEGEND

BORING LOCATION:

DEPTH IN FEET	LOG	DESCRIPTION	SAMPLE NO.	S.P.T. N_f	S.P.T. N_C	W.C. %	ATTERBERG LIMITS L.L.	ATTERBERG LIMITS P.I.	DRY UNIT WT. pcf	% MINUS #200	SHEAR STRENGTH tsf	UNIFIED CLASS
		SAND		Nf - Standard penetration test value determined in field-ASTM D 1586 (WOH indicates penetration of sampler under weight of 140 lb hammer)	Nc - Standard penetration test value of sand corrected for overburden by Peck-Hansen-Thornburn, 1974	w.c. % - Percent water content based on dry soil weight	L.L. - Liquid Limit	P.I. - Plasticity Index	Unit Wt., pcf - Dry unit weight of soil, pounds per cubic foot	% Minus #200 - Percent by weight of soils finer than #200 sieve	c - Cohesion, tons per square foot ϕ - Angle of internal friction, degrees s - Vane shear strength, tons per square foot c* - Values measured with a pocket penetrometer	Classification according to the Unified Classification System
		CLAY										
		SILT										
		ORGANICS										
		GRAVEL										
		LIMESTONE										
		☒ SPLIT-SPOON SAMPLE (STANDARD PENETRATION TEST)										
		☒ UNDISTURBED TUBE SAMPLE										
		■ SAMPLE NOT RECOVERED										
		⊡ VANE SHEAR TEST										

NOTE: The stratification lines shown represent the approximate boundary between soil types and the transition may be gradual. The groundwater level stated is for conditions at the time of boring and the level may fluctuate large amounts for other conditions or seasons.

G:\GINT\LEGEND.DWG
LOG OF BORING LEGEND.GPJ GETI_AL.GDT 1/24/01

PROJECT NAME: RENOVATION OF PIER B SOUTH

G.E.T. PROJ. NUMBER: 18-152

PROJECT LOCATION: ASPA - MOBILE, ALABAMA

DRILL RIG: SIMCO 2400

DRILL METHOD: MUD ROTARY

DRILL CREW: ES,RS, CS(LOGGER)

DATE DRILLED: 8/29/18

BORING DEPTH: 80 FT.

BORING ELEV.: 11 FT.

DATUM:

WATER DEPTH:

REMARKS:

GEOTECHNICAL ENGINEERING TESTING, INC.

BORING NUMBER: B-1

BORING LOCATION: 30°42.537'N, 88°02.648'W

DEPTH IN FEET	LOG	DESCRIPTION	SAMPLE NO.	S.P.T. N_f	S.P.T. N_c	W.C. %	ATTERBERG LIMITS L.L.	ATTERBERG LIMITS P.I.	DRY UNIT WT. pcf	% MINUS #200	SHEAR STRENGTH tsf	UNIFIED CLASS
0		Concrete Wharf Yellowish red clayey sand w/ gravel (not sampled)										
5		Firm brown, gray, light gray fine to medium sand w/ trace small & medium gravel	1	12		20				3.9		SP
			2	10								
10		Very loose light gray fine to medium sand w/ trace small gravel	3	2								
15		Soft dark grayish brown organic clay	4	2		104	174	67	43		c=0.18	
			5	2								
20		Soft gray & dark gray silty clay	6	2		54	40	13				
25		Very loose dark gray silty sand w. trace shell fragments	7	2		29				21.1		
30		Loose dark gray & gray fine sand w/ silt & w/ trace shell fragments	8	4								
35			9	5		28				12.2		
40			10	28								
45		Firm to dense light gray, gray, light brown fine sand w/ trace shell fragments	11	28		26				6.3		
50			12	44								
55			13	50		26						
60		Dense gray fine to medium sand w/ silty lenses	14	35								
65			15	30		25				4.9		
70		Dense to firm brownish gray fine to coarse sand w/ small to medium gravel	16	32								
75			17	35		22						
80			18	28								
		B.T. @ 80 FT										
85												

NOTE: The stratification lines shown represent the approximate boundary between soil types and the transition may be gradual. The groundwater level stated is for conditions at the time of boring and the level may fluctuate large amounts for other conditions or seasons.

Reviewed By:

MOD DEEP BORING LOG W/O NC VALUES 18-152 - NEW BORINGS.GPJ GETI_AL.GDT 10/24/18

PROJECT NAME: RENOVATION OF PIER B SOUTH

G.E.T. PROJ. NUMBER: 18-152

PROJECT LOCATION: ASPA - MOBILE, ALABAMA

DRILL RIG: SIMCO 2400

DRILL METHOD: MUD ROTARY

DRILL CREW: ES,RS, CS(LOGGER)

DATE DRILLED: 8/29/18

BORING DEPTH: 90 FT.

BORING ELEV.: 11 FT.

DATUM:

WATER DEPTH:

REMARKS:

GEOTECHNICAL ENGINEERING TESTING, INC.

BORING NUMBER: B-2

BORING LOCATION:30°42.510'N, 88°02.600'W

DEPTH IN FEET	LOG	DESCRIPTION	SAMPLE NO.	S.P.T. N_f	S.P.T. N_c	W.C. %	ATTERBERG LIMITS L.L.	ATTERBERG LIMITS P.I.	DRY UNIT WT. pcf	% MINUS #200	SHEAR STRENGTH tsf	UNIFIED CLASS
0		Concrete Wharf										
5												
10												
15		Wharf to Mudline										
20												
25												
30			1	7		31				12.1		
35		Loose to firm dark gray fine sand w/ some shell fragments	2	10								
40			3	2		97	99	52	44		c=0.13	
45		Soft dark brown & dark gray clay w/ wood	4	2		85						
50		Firm gray silty sand	5	15		32				21.9		
55		Firm gray fine sand w/ clay lenses	6	18		32						
60			7	14								
65		Firm light brown fine to medium sand	8	16		27				4.4		
70			9	36								
75		Dense light brown fine to coarse sand w/ small gravel & very small clay pockets	10	42		17				5.5		
80			11	42								
85		Dense light brown fine to medium sand w/ small gravel	12	32		22				4.7		SP

NOTE: The stratification lines shown represent the approximate boundary between soil types and the transition may be gradual. The groundwater level stated is for conditions at the time of boring and the level may fluctuate large amounts for other conditions or seasons.

Reviewed By:

MOD DEEP BORING LOG W/O NC VALUES 18-152 - NEW BORINGS.GPJ GETI_AL.GDT 10/24/18

PROJECT NAME: RENOVATION OF PIER B SOUTH

G.E.T. PROJ. NUMBER: 18-152

PROJECT LOCATION: ASPA - MOBILE, ALABAMA

DRILL RIG: SIMCO 2400

DRILL METHOD: MUD ROTARY

DRILL CREW: ES,RS, CS(LOGGER)

DATE DRILLED: 8/29/18

BORING DEPTH: 90 FT.

BORING ELEV.: 11 FT.

DATUM:

WATER DEPTH:

REMARKS:

GEOTECHNICAL ENGINEERING TESTING, INC.

BORING NUMBER: B-2

BORING LOCATION:30°42.510'N, 88°02.600'W

DEPTH IN FEET	LOG	DESCRIPTION	SAMPLE NO.	S.P.T. N_f	S.P.T. N_c	W.C. %	ATTERBERG LIMITS L.L.	ATTERBERG LIMITS P.I.	DRY UNIT WT. pcf	% MINUS #200	SHEAR STRENGTH tsf	UNIFIED CLASS
85												
		Dense light brown fine to coarse sand w/ small to medium gravel	13	33								
90		B.T. @ 90 FT										
95												
100												
105												
110												
115												
120												
125												
130												
135												
140												
145												
150												
155												
160												
165												
170												

NOTE: The stratification lines shown represent the approximate boundary between soil types and the transition may be gradual. The groundwater level stated is for conditions at the time of boring and the level may fluctuate large amounts for other conditions or seasons.

Reviewed By:

MOD DEEP BORING LOG W/O NC VALUES 18-152 - NEW BORINGS.GPJ GETI_AL.GDT 10/24/18

PROJECT NAME: RENOVATION OF PIER B SOUTH

G.E.T. PROJ. NUMBER: 18-152

PROJECT LOCATION: ASPA - MOBILE, ALABAMA

DRILL RIG: SIMCO 2400

DRILL METHOD: MUD ROTARY

DRILL CREW: ES,RS, CS(LOGGER)

DATE DRILLED: 8/24/18

BORING DEPTH: 80 FT.

BORING ELEV.: 11 FT.

DATUM:

WATER DEPTH:

REMARKS:

GEOTECHNICAL ENGINEERING TESTING, INC.

BORING NUMBER: B-3

BORING LOCATION: 30°42.483'N, 88°02.552'W

DEPTH IN FEET	LOG	DESCRIPTION	SAMPLE NO.	S.P.T. N_f	S.P.T. N_c	W.C. %	ATTERBERG LIMITS L.L.	ATTERBERG LIMITS P.I.	DRY UNIT WT. pcf	% MINUS #200	SHEAR STRENGTH tsf	UNIFIED CLASS
0		Concrete wharf										
5												
10												
15		Wharf to mudline										
20												
25												
30												
35												
40		Firm light brown fine sand	1	20		25				5.1		
45		Very soft dark brown organic clay & peat	2	WOH		48	47	10				
			T-1	-								
50			3	18		23				5.3		
55		Firm light brown, light gray, brown fine sand w/ trace small gravel below 55'	4	20								
60			5	17		23				7.4		
65		Firm gray fine to medium sand w/ trace small gravel & w/ wood	6	21								
70		Dense light brown & brown fine to coarse sand w/ small amount of small gravel	7	45		18				5.8		
75			8	38								
80		Dense light brown fine sand w/ small gravel	9	34		18				4.1		SP
		B.T. @ 80 FT										
85												

NOTE: The stratification lines shown represent the approximate boundary between soil types and the transition may be gradual. The groundwater level stated is for conditions at the time of boring and the level may fluctuate large amounts for other conditions or seasons.

Reviewed By:

MOD DEEP BORING LOG W/O NC VALUES 18-152 - NEW BORINGS.GPJ GETI_AL.GDT 10/24/18

PROJECT NAME: RENOVATION OF PIER B SOUTH

G.E.T. PROJ. NUMBER: 18-152

PROJECT LOCATION: ASPA - MOBILE, ALABAMA

DRILL RIG: SIMCO 2400

DRILL METHOD: MUD ROTARY

DRILL CREW: ES,RS, CS(LOGGER)

DATE DRILLED: 8/28/18

BORING DEPTH: 80 FT.

BORING ELEV.: 11 FT.

DATUM:

WATER DEPTH:

REMARKS:

GEOTECHNICAL ENGINEERING TESTING, INC.

BORING NUMBER: B-4

BORING LOCATION: 30°42.481'N, 88°02.527'W

DEPTH IN FEET	LOG	DESCRIPTION	SAMPLE NO.	S.P.T. N_f	S.P.T. N_c	W.C. %	ATTERBERG LIMITS L.L.	ATTERBERG LIMITS P.I.	DRY UNIT WT. pcf	% MINUS #200	SHEAR STRENGTH tsf	UNIFIED CLASS
0		Concrete wharf										
		Orange/brown silty sand w/clay pockets										
		Orange/brown silty clayey sand w/wood										
5		Loose light brown fine sand w/ orange clayey sand	1	8		20				12.5		
		Loose brown fine sand w/trace small gravel	2	4								
10		Loose gray fine to medium sand w/ trace small gravel	3	4		25				7.1		
			4	4		93	179	83				
15		Soft dark gray organic clay & peat w/ some gray clay	5	2		144						
			T-1	-								
20		Soft gray clay & brown organic clay	7	4		99	110	80				
25			8	5		28				19.0		
		Loose dark gray silty sand	9	5								
30												
35			10	10		30						
		Stiff to very stiff light gray clay										
40			11	20		25	32	13	99		c=0.36	
45			12	7		47						
		Medium consistency brown & gray clay w/ organics & organic clay w/ sand pockets										
50			13	8		51	47	17				
55		Dense light brown fine sand	14	30		23				5.4		
60		Dense light brown fine to coarse sand	15	30								
65			16	50		18				6.7		
		Very dense brown fine to medium sand w/ trace coarse sand										
70			17	56								
75		Very stiff gray clay w/ sand pocket	18	46								
		Dense reddish yellow silty sand w/ small gravel										
80		Very dense light brown & reddish yellow fine to medium sand w/ trace small gravel	19	52		16				5.9		
85		B.T. @ 80 FT										

NOTE: The stratification lines shown represent the approximate boundary between soil types and the transition may be gradual. The groundwater level stated is for conditions at the time of boring and the level may fluctuate large amounts for other conditions or seasons.

Reviewed By:

MOD DEEP BORING LOG W/O NC VALUES 18-152 - NEW BORINGS.GPJ GETI_AL.GDT 10/24/18

PROJECT NAME: RENOVATION OF PIER B SOUTH

G.E.T. PROJ. NUMBER: 18-152

PROJECT LOCATION: ASPA - MOBILE, ALABAMA

DRILL RIG: SIMCO 2400

DRILL METHOD: MUD ROTARY

DRILL CREW: ES,RS, CS(LOGGER)

DATE DRILLED: 9/10/18

BORING DEPTH: 80 FT.

BORING ELEV.: 11 FT.

DATUM:

WATER DEPTH:

REMARKS:

GEOTECHNICAL ENGINEERING TESTING, INC.

BORING NUMBER: B-5

BORING LOCATION: 30°42.460'N, 88°02.487'W

DEPTH IN FEET	LOG	DESCRIPTION	SAMPLE NO.	S.P.T. N_f	S.P.T. N_c	W.C. %	ATTERBERG LIMITS L.L.	ATTERBERG LIMITS P.I.	DRY UNIT WT. pcf	% MINUS #200	SHEAR STRENGTH tsf	UNIFIED CLASS
0		Concrete wharf										
5		Wharf to mudline										
10												
15		Soft dark gray silty clay w/ wood	1	2								
			2	2		101	75	52				
20		Soft dark gray clay w/ silty sand lenses	3	2								
25			4	2		32				16.3		
		Very loose dark gray silty sand										
30			5	2								
35		Medium consistency greenish gray sandy clay w/ greenish gray silty sand pocket	6	4		22	18	5		31.9		SC-SM
40		Medium consistency greenish gray clay w/ sand	7	6		28					c*=0.20	
45			8	5		86					c*=0.25	
		Medium consistency dark brown organic silt w/ wood										
50			9	5		122					c*=0.35	
55			10	35		21				4.6		SP
		Dense brown & light gray fine to medium sand										
60			11	40								
65			12	30		23						
70			13	33								
		Dense dark brown & light brown fine to medium sand w/ trace gravel										
75			14	33		18				5.7		
80			15	33								
		B.T. @ 80 FT										
85												

NOTE: The stratification lines shown represent the approximate boundary between soil types and the transition may be gradual. The groundwater level stated is for conditions at the time of boring and the level may fluctuate large amounts for other conditions or seasons.

Reviewed By:

MOD DEEP BORING LOG W/O NC VALUES 18-152 - NEW BORINGS.GPJ GETI_AL.GDT 10/24/18

PROJECT NAME: RENOVATION OF PIER B SOUTH

G.E.T. PROJ. NUMBER: 18-152

PROJECT LOCATION: ASPA - MOBILE, ALABAMA

DRILL RIG: SIMCO 2400

DRILL METHOD: MUD ROTARY

DRILL CREW: ES,RS, CS(LOGGER)

DATE DRILLED: 8/30/18

BORING DEPTH: 80 FT.

BORING ELEV.: 11 FT.

DATUM:

WATER DEPTH:

REMARKS:

GEOTECHNICAL ENGINEERING TESTING, INC.

BORING NUMBER: B-6

BORING LOCATION: 30°42.428'N, 88°02.443'W

DEPTH IN FEET	LOG	DESCRIPTION	SAMPLE NO.	S.P.T. N_t	S.P.T. N_c	W.C. %	ATTERBERG LIMITS L.L.	ATTERBERG LIMITS P.I.	DRY UNIT WT. pcf	% MINUS #200	SHEAR STRENGTH tsf	UNIFIED CLASS
0		Concrete wharf										
5												
10												
15												
20		Wharf to mudline										
25												
30												
35												
40			1	24		24	NP	NP		3.9		SP
45			2	24								
50		Firm light brown fine to medium sand w/ clayey lenses below 50'	3	20		27						
55			4	20		30	NP	NP		24.0		SM
60		Firm light gray fine to coarse sand w/ trace small gravel	5	25								
65		Firm light gray fine to medium sand w/ trace small to medium gravel	6	27		22	NP	NP		5.8		SP-SM
70			7	36								
75		Dense to firm light gray & light brown fine sand w/ trace small to medium gravel	8	36		24	NP	NP		4.9		SP
80			9	28								
85		B.T. @ 80 FT										

NOTE: The stratification lines shown represent the approximate boundary between soil types and the transition may be gradual. The groundwater level stated is for conditions at the time of boring and the level may fluctuate large amounts for other conditions or seasons.

Reviewed By:

MOD DEEP BORING LOG W/O NC VALUES 18-152 - NEW BORINGS.GPJ GETI_AL.GDT 10/24/18

PROJECT NAME: RENOVATION OF PIER B SOUTH

G.E.T. PROJ. NUMBER: 18-152

PROJECT LOCATION: ASPA - MOBILE, ALABAMA

DRILL RIG: SIMCO 2400

DRILL METHOD: MUD ROTARY

DRILL CREW: ES,RS, CS(LOGGER)

DATE DRILLED: 9/7/18

BORING DEPTH: 80 FT.

BORING ELEV.: 11 FT.

DATUM:

WATER DEPTH:

REMARKS:

GEOTECHNICAL ENGINEERING TESTING, INC.

BORING NUMBER: B-7

BORING LOCATION:30°42.412'N, 88°02.389'W

DEPTH IN FEET	LOG	DESCRIPTION	SAMPLE NO.	S.P.T. N_f	S.P.T. N_c	W.C. %	ATTERBERG LIMITS L.L.	ATTERBERG LIMITS P.I.	DRY UNIT WT. pcf	% MINUS #200	SHEAR STRENGTH tsf	UNIFIED CLASS
0		Concrete wharf										
5												
10												
15		Wharf to mudline										
20												
25												
30												
35		Peat & wood	1	8		152						
40		Stiff to very stiff light greenish gray clay w/ sand & silty sand pockets	2	9		40	27	17				
45			3	21		28						
50			4	24		25				2.5		SP
55		Firm brown & light brown fine to medium sand w/ trace gravel below 60'	5	24								
60			6	27		26						
65			7	22								
70			8	27		20				1.9		SP
75		Firm light brown fine to coarse sand w/ trace gravel	9	26								
80			10	26		21						
85		B.T. @ 80 FT										

NOTE: The stratification lines shown represent the approximate boundary between soil types and the transition may be gradual. The groundwater level stated is for conditions at the time of boring and the level may fluctuate large amounts for other conditions or seasons.

Reviewed By:

MOD DEEP BORING LOG W/O NC VALUES 18-152 - NEW BORINGS.GPJ GETI_AL.GDT 10/24/18

PROJECT NAME: RENOVATION OF PIER B SOUTH

G.E.T. PROJ. NUMBER: 18-152

PROJECT LOCATION: ASPA - MOBILE, ALABAMA

DRILL RIG: SIMCO 2400

DRILL METHOD: MUD ROTARY

DRILL CREW: ES,RS, CS(LOGGER)

DATE DRILLED: 9/6/18

BORING DEPTH: 80 FT.

BORING ELEV.: 11 FT.

DATUM:

WATER DEPTH:

REMARKS:

GEOTECHNICAL ENGINEERING TESTING, INC.

BORING NUMBER: B-8

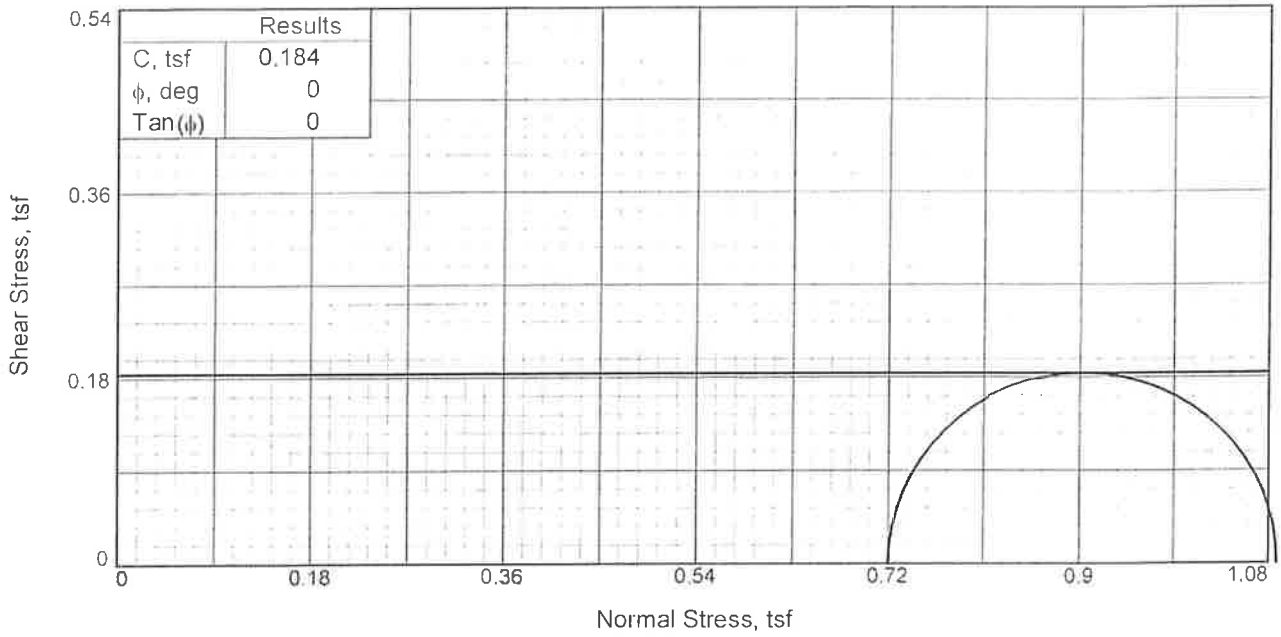
BORING LOCATION:30°42.461'N, 88°02.394'W

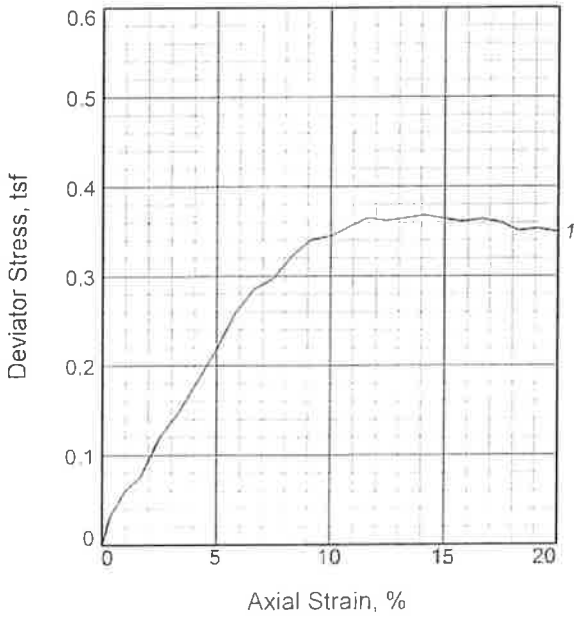
DEPTH IN FEET	LOG	DESCRIPTION	SAMPLE NO.	S.P.T. N_f	S.P.T. N_c	W.C. %	ATTERBERG LIMITS L.L.	ATTERBERG LIMITS P.I.	DRY UNIT WT. pcf	% MINUS #200	SHEAR STRENGTH tsf	UNIFIED CLASS
0		Concrete wharf										
5												
10												
15												
20		Wharf to mudline										
25												
30												
35												
40												
45		Firm black & brown silty sand w/ some gravel	1	16								
50			2	17		29				17.3		
55		Firm brown fine to medium sand w/ small amount gravel	3	20		25						
60		Firm brown fine to coarse sand w/ gravel & shell	4	20		21				4.5		SP
65			5	40								
70		Dense to firm fine to medium sand w/ small amount gravel	6	40		18				2.5		SP
75			7	28								
80			8	26		23						
85		B.T. @ 80 FT										

NOTE: The stratification lines shown represent the approximate boundary between soil types and the transition may be gradual. The groundwater level stated is for conditions at the time of boring and the level may fluctuate large amounts for other conditions or seasons.

Reviewed By:

MOD DEEP BORING LOG W/O NC VALUES 18-152 - NEW BORINGS.GPJ GETI_AL.GDT 10/24/18





Sample No.		1
Initial	Water Content, %	104.4
	Dry Density, pcf	43.3
	Saturation, %	97.8
	Void Ratio	2.8631
	Diameter, in.	1.40
	Height, in.	3.01
At Test	Water Content, %	106.8
	Dry Density, pcf	43.3
	Saturation, %	100.0
	Void Ratio	2.8631
	Diameter, in.	1.40
	Height, in.	3.01
Strain rate, in./min.		0.03
Back Pressure, psi		0.00
Cell Pressure, psi		10.00
Fail. Stress, tsf		0.37
Strain, %		14.1
Ult. Stress, tsf		0.37
Strain, %		
σ_1 Failure, tsf		1.09
σ_3 Failure, tsf		0.72

Type of Test: Unconsolidated Undrained

Sample Type: Split Spoon

Description: Dark Brownish Gray and Black Fat Organic Clay

LL= 174 **PL=** 107 **PI=** 67

Assumed Specific Gravity= 2.68

Remarks:

Figure _____

Client:

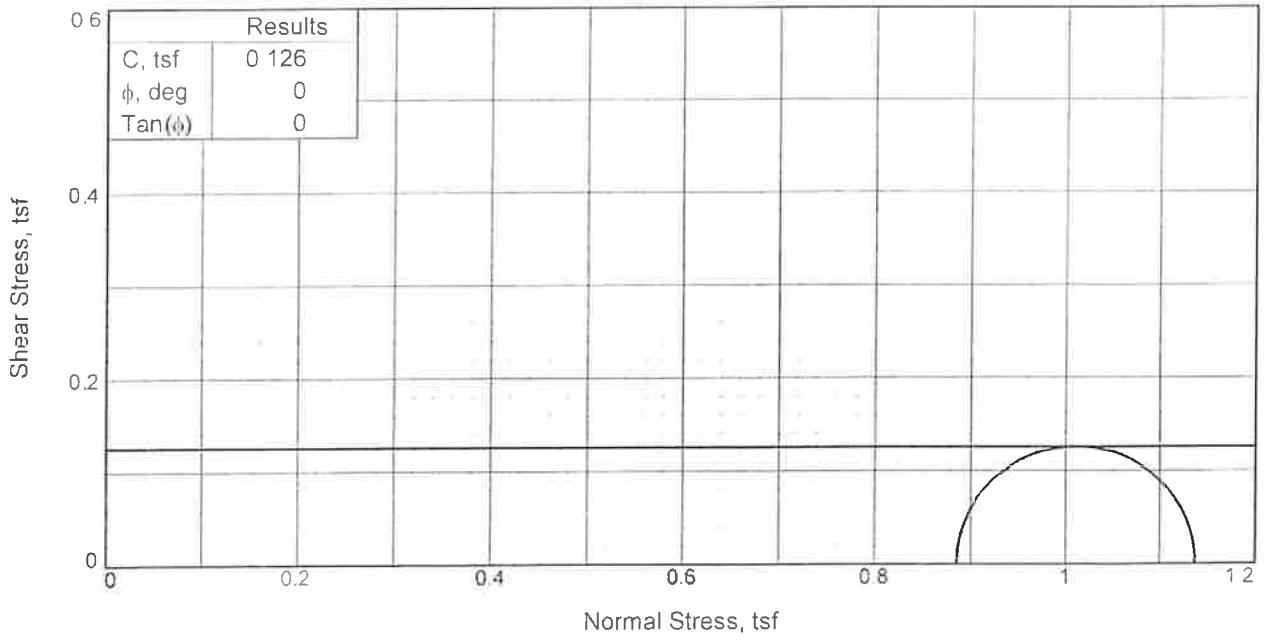
Project: RENOVATION OF PIER B SOUTH
ASPA - MOBILE, ALABAMA

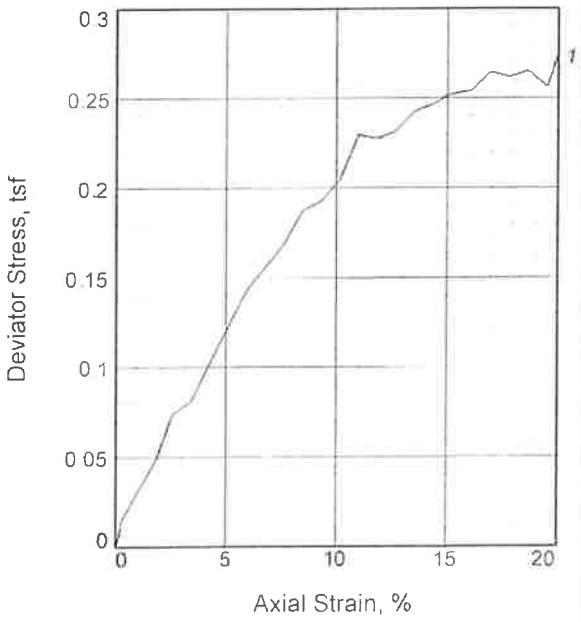
Sample Number: B-1, S-4 **Depth:** 13.5'-15.0'

Proj. No.: 18-152 **Date Sampled:** 09-05-2018

TRIAXIAL SHEAR TEST REPORT
Geotechnical Engineering-Testing, Inc.
Mobile, AL

Tested By: RGP





Sample No.		1
Initial	Water Content, %	97.4
	Dry Density, pcf	43.9
	Saturation, %	92.9
	Void Ratio	2.8110
	Diameter, in.	1.42
	Height, in.	2.96
At Test	Water Content, %	104.2
	Dry Density, pcf	44.1
	Saturation, %	100.0
	Void Ratio	2.7936
	Diameter, in.	1.41
	Height, in.	2.95
Strain rate, in./min.		0.03
Back Pressure, psi		0.00
Cell Pressure, psi		12.30
Fail. Stress, tsf		0.25
Strain, %		15.0
Ult. Stress, tsf		0.25
Strain, %		
σ_1 Failure, tsf		1.14
σ_3 Failure, tsf		0.89

Type of Test:
Unconsolidated Undrained
Sample Type: Split Spoon
Description: Dark Brownish Gray and Black Fat Organic Clay
LL= 99 **PL=** 47 **PI=** 52
Assumed Specific Gravity= 2.68
Remarks:

Client:

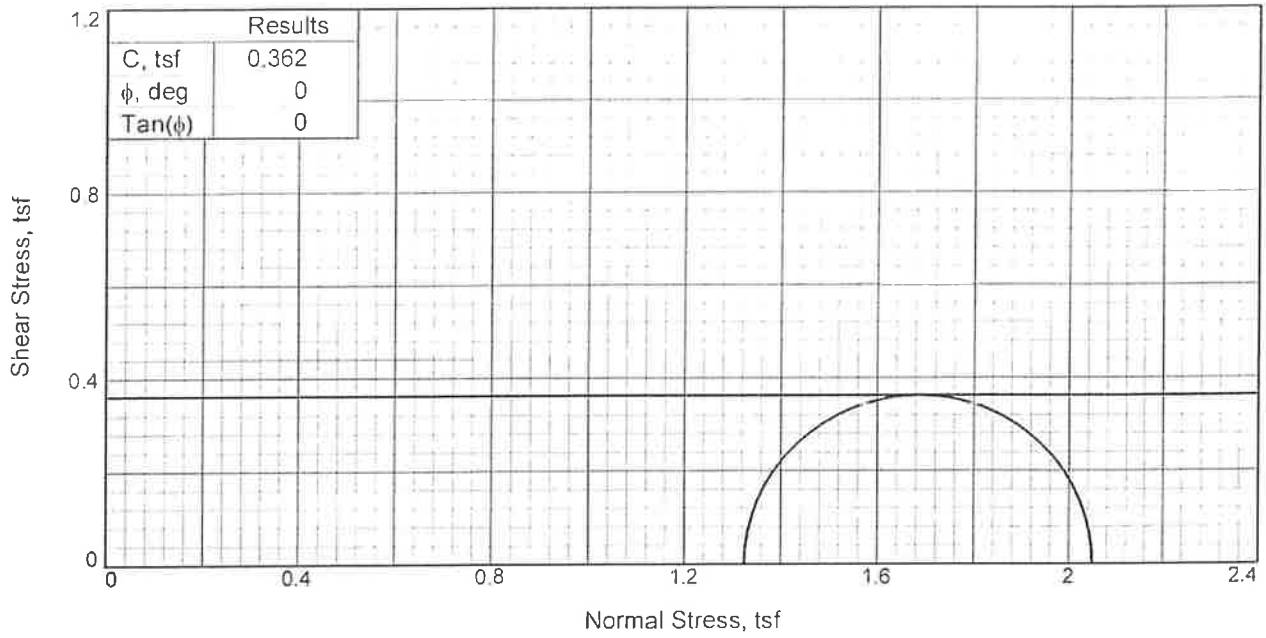
Project: RENOVATION OF PIER B SOUTH
ASPA - MOBILE, ALABAMA
Sample Number: B-2, S-3 **Depth:** 38.5'-40.0'

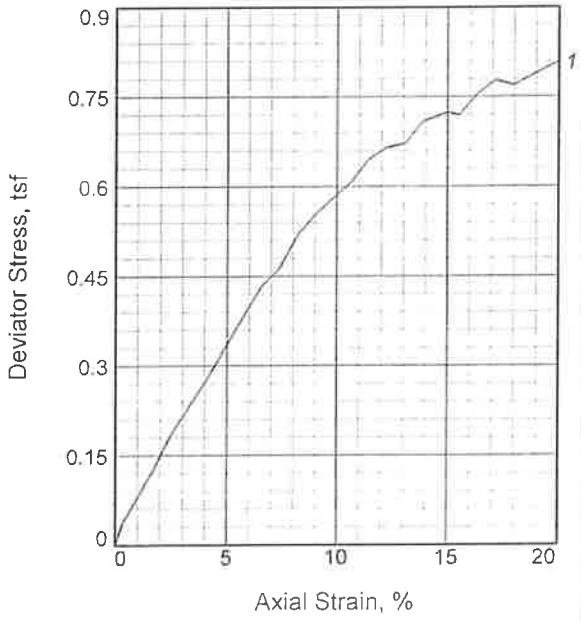
Proj. No.: 18-152 **Date Sampled:** 09-06-2018

TRIAXIAL SHEAR TEST REPORT
Geotechnical Engineering-Testing, Inc.
Mobile, AL

Figure

Tested By: RGP





Sample No.		1
Initial	Water Content, %	25.3
	Dry Density, pcf	98.6
	Saturation, %	97.2
	Void Ratio	0.6962
	Diameter, in.	1.42
	Height, in.	3.06
At Test	Water Content, %	26.0
	Dry Density, pcf	98.6
	Saturation, %	100.0
	Void Ratio	0.6962
	Diameter, in.	1.42
	Height, in.	3.06
Strain rate, in./min.		0.03
Back Pressure, psi		0.00
Cell Pressure, psi		18.40
Fail. Stress, tsf		0.72
Strain, %		15.0
Ult. Stress, tsf		0.72
Strain, %		
σ_1 Failure, tsf		2.05
σ_3 Failure, tsf		1.32

Type of Test: Unconsolidated Undrained

Sample Type: Split Spoon

Description: Light Bluish Gray Lean Clay with Sand

LL= 32 **PL=** 19 **PI=** 13

Assumed Specific Gravity= 2.68

Remarks:

Client:

Project: RENOVATION OF PIER B SOUTH
ASPA - MOBILE, ALABAMA

Sample Number: B-4, S-11 **Depth:** 38.5'-40.0'

Proj. No.: 18-152 **Date Sampled:** 09-06-2018

TRIAXIAL SHEAR TEST REPORT
Geotechnical Engineering-Testing, Inc.
Mobile, AL

Figure _____

Tested By: RGP

SUPPLEMENTAL REPORT

Geotechnical Engineering-Testing, Inc.

PROFESSIONAL ENGINEERS

Geotechnical Evaluations - Geosciences - Construction Materials - Pavement Management

March 27, 2020

Mott MacDonald
107 St. Francis Street
Suite 2900
Mobile, AL 36602

Attn.: John W. Peterson, P.E., Principal Engineer/Associate

Re: Supplemental Report - Proposed Renovations to Pier B South at the Alabama State Port Authority in Mobile, Alabama (GET Project #18-152)

Gentlemen:

Geotechnical Engineering-Testing, Inc. (GET) submitted a draft geotechnical report for the proposed renovations at Pier B South at the Alabama State Port Authority (ASPA) in Mobile, Alabama in October 2018. The analyses performed during the development of that report considered only the existing ground surface profile at discrete locations. The existing ground surface elevation was assumed to be -35 ft at the outboard side of the pier. Subsequently, in March 2019, we were asked to perform analyses to estimate lateral capacities of potential new 18-inch and 24-inch square concrete piles in the event that the slip was dredged to elevation -42 ft (design dredge depth of -40 ft plus an additional 2 ft for potential over dredge).

Using the subsurface soil conditions described in our geotechnical report and information provided Mott MacDonald we performed lateral pile analyses of the potential new piles installed to a tip elevation of -67 ft (70 ft long piles) and with an assumed axial compression load of 75 tons. The same methods were used for these subsequent analyses as were used for the original analyses. Rather than simply translating the existing surface profiles down to the new dredge depth, uniform long-term surface slopes were assumed for each of the bents analyzed. The assumed uniform long-term slopes were selected based on the existing slopes near the outboard side of the pier. The assumed uniform long-term slopes were 17°, 12°, 20° at bents 15, 30, and 75, respectively. Information provided by Mott MacDonald indicated that new pile bents would include 16 piles and that the total lateral load at each bent, at the pile heads, would be 76 kips. Our supplemental estimates of pile head deflection and maximum moment within the piles under free head and fixed head conditions are presented in the attached **Table I**.

It is noted that estimates are presented for outboard piles, middle piles, and inboard piles. We recommend that linear interpolation be used to estimate values for intermediate piles. It can be seen that no values are presented for an 18-inch square pile under free head conditions. This is because the analysis program "crashed" when performing these analyses. The "crash" was the result of excessive pile head deflection because of the flexibility of the pile and the length of pile above the dredge line. Extending the pile deeper did not affect the pile head deflection calculations.

We were also asked to perform analyses to estimate axial capacities of 24-inch square piles installed to a tip elevation of -67 ft (70 ft long pile) with the slip dredged to elevation -42 ft. The same methods were used for these subsequent analyses as were used for the original analyses. Subsequent axial analyses were supplemented using the computer program APILE version 2018.8.1. The analyses assumed the same uniform long-term surface slopes at described above. Our supplemental estimates of axial pile capacities are presented in the attached **Table II**.

It is noted that axial capacity estimates are presented for outboard piles, middle piles, and inboard piles. We recommend that linear interpolation be used to estimate values for intermediate piles.

The limitations stated in our original report apply to this supplemental report.

GET appreciates this opportunity to be of service to Mott MacDonald. Please contact Hank Oakes, P.E. if questions arise of if additional information is needed.

Sincerely,

GEOTECHNICAL ENGINEERING-TESTING, INC.

Hank M. Oakes, P.E.
Sr. Project Engineer
Alabama License No. 19576

Attachments

TABLE I - LATERAL PILE ANALYSIS RESULTS
ASPA PIER B SOUTH RENOVATION
MOBILE, ALABAMA
ASSUMED DREDGE LINE OF EL. -42 FT AT FACE OF PIER

Location		18" X 70' Piles							
		Outboard Pile		Middle Pile		Inboard Pile		**Estimated Design Value**	
		Free-Head	Fixed-Head	Free-Head	Fixed-Head	Free-Head	Fixed-Head	**Free-Head**	**Fixed-Head**
Bent 15	Head Deflection, Inch	?	4.7	20.8	2.2	3.8	0.6	**?**	**2.3**
	Max. Moment, in-lbs	?	2,082,020	4,995,691	1,533,968	1,969,156	984,980	**?**	**1,533,910**
Bent 30	Head Deflection, Inch	?	4.7	33.5	2.9	12.5	1.6	**?**	**2.9**
	Max. Moment, in-lbs	?	2,082,020	7,066,554	1,712,620	3,620,822	1,352,032	**?**	**1,713,171**
Bent 75	Head Deflection, Inch	?	4.7	16.9	1.9	2.8	0.5	**?**	**2.0**
	Max. Moment, in-lbs	?	2,082,020	4,335,630	1,450,529	1,613,557	884,956	**?**	**1,454,649**

Location		24" X 70' Piles							
		Outboard Pile		Middle Pile		Inboard Pile		**Estimated Design Value**	
		Free-Head	Fixed-Head	Free-Head	Fixed-Head	Free-Head	Fixed-Head	**Free-Head**	**Fixed-Head**
Bent 15	Head Deflection, Inch	8.0	1.4	3.6	0.7	1	0.2	**3.7**	**0.7**
	Max. Moment, in-lbs	4,002,925	1,872,697	2,661,609	1,461,662	1,604,301	976,916	**2,679,360**	**1,457,055**
Bent 30	Head Deflection, Inch	8.0	1.4	4.8	0.9	2.6	0.5	**4.9**	**0.9**
	Max. Moment, in-lbs	4,002,925	1,872,697	3,079,469	1,615,483	2,295,076	1,305,826	**3,088,160**	**1,612,205**
Bent 75	Head Deflection, Inch	8.0	1.4	3.1	0.6	0.8	0.2	**3.3**	**0.6**
	Max. Moment, in-lbs	4,002,925	1,872,697	2,490,773	1,388,967	1,369,436	888,892	**2,515,199**	**1,387,945**

TABLE II - RECOMMENDED ALLOWABLE AXIAL CAPACITIES IN **KIPS** - NEW PILES
ASPA PIER B SOUTH RENOVATION
MOBILE, ALABAMA
DREDGE LINE AT FACE OF PIER AT ELEVATION -42 FT

Location	24" X 70' Precast Concrete Pile - Tip Elevation = -67'								
	Outboard Pile			Middle Pile			Inboard Pile		
	Short-Term	Long-Term	Uplift	Short-Term	Long-Term	Uplift	Short-Term	Long-Term	Uplift
Bent 15	189	189	43	292	283	83	385	361	126
Bent 30	189	189	43	255	250	68	328	314	99
Bent 70	189	189	43	310	298	91	416	385	143

Note:
1. Pile capacity recommendations considered only the pile-soil interaction. Structural properties of piles were not considered.
2. Recommended allowable capacities derived by application of a factor of safety of approximately 2.0 to estimated ultimate capacities.
3. Uplift loads are assumed to be short-term.

APPENDIX B

Survey

E 1 797 300 E 1 797 450 E 1 797 600 E 1 797 750 E 1 797 900 E 1 798 050

N 258 300 N 258 150 N 258 000 N 257 850 N 257 700

SOUTH PIER B

SOUTH B WAREHOUSE

FF-10.44

FF-10.84

FF-10.63

REST ROOM

GUARD

CONC.DOCK

5' X 13' DECK DRAIN (TYP.)

TIMBER FENDER

HEAD SLIP B

SLIP B

STEEL PLATE

CP-1 (X ON ELEC.MANHOLE)
N=258142.756
E=1797295.174
Z=8.749

CP-3 (X ON DRAIN GRATE)
N=258191.418
E=1797516.166
Z=9.996

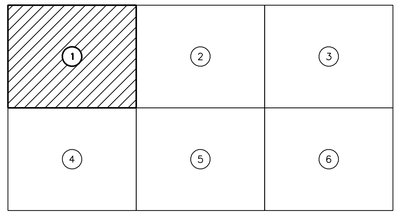
CP-4 (X ON STEEL RAIL)
N=257730.999
E=1797574.584
Z=9.851

MATCH SHEET 4

MATCH SHEET 2

LEGEND

CURB LINES	WATER VALVE	PARCEL BOUNDARY	
BURIED TELEPHONE —T—·—T·—	TELEPHONE BOX	ADJOINING PROPERT	
OVERHEAD LINES —OHE——OHE—	UNKNOWN ELECTRICAL	SECTION LINE	
FIBER OPTIC CABLE —FOC·—FOC·—	STREET LIGHTS	SET BACK LINES	
SANITARY SEWER —SS·—SS·—	POLES	EASEMENTS	
WATER MAINS —W·—W·—	GUY ANCHORS	SPOT ELEVATIONS 21.5	
RAILROAD	TRANSFORMERS	INDEX CONTOURS 10	
FENCES —X—X—X—	ACCENT LIGHTS	CONTOURS	
BUILDINGS	SHORELINES	TEMPORARY CONTROL POINT	
CULVERTS	SIGNS	MONUMENTS	
CATCH BASINS	DECIDUOUS TREES	IRON PINS & PIPES AS NOTED	
MAN HOLES	GATE VALVE	RCP=REINFORCED CONCRETE PIPE	
FIRE HYDRANT	HVAC UNIT	CRS=LAWLER 1/2" CAPPED REBAR SET	
WATER METER	PIPE STUB	CTIF=CRIMP TOP IRON PIPE FOUND	
GAS METER	SANITARY CLEAN OUT	REC=DEED RECORD DIMENSION	
FIBER OPTIC CABLE	R/W=RIGHT OF WAY	ACT=ACTUAL FIELD MEASUREMENT	
CABLE TV BOX	CMP=CORRUGATED METAL PIPE	CRF=CAPPED REBAR FOUND	
ROOF DRAIN	CONC.=CONCRETE	IRF=IRON ROD (REBAR) FOUND	
HANDICAP PARKING	A/C=CENTRAL HVAC UNIT	XF=SCRIBED X FOUND IN CONCRETE	
PALM TREES	SEC.=GOVERNMENTAL SECTION	CMF=CONCRETE MONUMENT FOUND	



INDEX TO SHEETS

FLOOD ZONE:
FEMA NFIP FLOOD INSURANCE RATE MAP 01097C0558K DATED MARCH 17, 2010, SHOWS THIS PROPERTY IN ZONE AE, BASE FLOOD ELEVATION 12.0' NAVD 1988. FLOOD ZONE DETERMINATION MADE FROM GRAPHIC PLOTTING ONLY.

GENERAL NOTES:
150 FOOT GRID BASED ON ALABAMA STATE PLANE COORDINATE SYSTEM, WEST ZONE, NAD 83 (2011) ESTABLISHED ON SITE USING RTK GPS REFERENCING ALDOT CORS NETWORK.
ELEVATIONS AND ONE FOOT CONTOUR INTERVAL BASED ON NAVD, 1988 REFERENCING ALDOT CORS NETWORK AND ESTABLISHED ON SITE WITH RTK GPS.
TO CONVERT NAVD TO MLLW, ADD 0.41 FEET TO NAVD.
TOPOGRAPHIC DATA COLLECTED WITH LEICA TOTAL STATIONS
HYDROGRAPHIC DATA COLLECTED WITH DIFFERENTIAL GPS BASED AUTOMATED SYSTEM
MODELING AND CONTOURING ACCOMPLISHED WITH INROADS INSIDE MICROSTATION
FIELD SURVEY COMPLETED 30 AUGUST, 2018
FILE:\ASPA\PORTOFMOBILE\ 18069-SOUTH-B\ 18069-SOUTH-B-ASBUILT.DGN

CERTIFICATION:
I, W. J. LAWLER, III, A REGISTERED LAND SURVEYOR IN THE STATE OF ALABAMA HEREBY CERTIFY THAT ALL PARTS OF THIS SURVEY AND DRAWING HAVE BEEN COMPLETED IN ACCORDANCE WITH THE CURRENT REQUIREMENTS OF THE STANDARDS OF PRACTICE FOR LAND SURVEYING IN THE STATE OF ALABAMA TO THE BEST OF MY KNOWLEDGE, INFORMATION AND BELIEF.

THIS THE 11TH DAY OF SEPTEMBER, 2018

W. J. LAWLER, III PLS 17513

N

30 0 30 60 90

SCALE IN FEET

REVISIONS		
01	5-7-20	LABEL PRIMARY SURVEY CONTROL

ALABAMA STATE PORT AUTHORITY
ASBUILT SURVEY OF PIER B SOUTH, PORT OF MOBILE

REF:	MOTT McDONALD--JOHN PETERSON	
DATE: 11 SEPT., 2018	SCALE: 1"=30'	SHEET 01 OF 06
PROJ. NO. 18-069		DWG. No. 18-069-1

ALABAMA REGISTERED No. 17513 PROFESSIONAL LAND SURVEYOR W. J. LAWLER III ORIGINAL DOCUMENT SEALED

LAWLER AND COMPANY
LAND AND INDUSTRIAL SURVEYORS
2879 CLAUDIA LANE
THEODORE, ALABAMA 36590
(251) 661-9411 FAX (251) 661-9177

E 1 798 050 E 1 798 200 E 1 798 350 E 1 798 500 E 1 798 650 E 1 798 800

N 258 300 N 258 150 N 258 000 N 257 850 N 257 700

MATCH SHEET 1

MATCH SHEET 3

MATCH SHEET 5

SOUTH PIER B

SOUTH B WAREHOUSE

CONC. DOCK

GRATE

STEEL PLATE

GUARD RAIL

SANITARY SEWER LIFT STATION THE WELL

REST ROOM

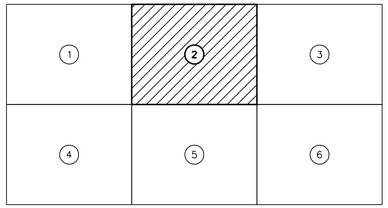
FF=0.56

FF=0.53

FF=0.47

LEGEND

CURB LINES	WATER VALVE	PARCEL BOUNDARY	
BURIED TELEPHONE —T——T—	TELEPHONE BOX	ADJOINING PROPERT	
OVERHEAD LINES —OHE——OHE—	UNKNOWN ELECTRICAL	SECTION LINE	
FIBER OPTIC CABLE —FOC—FOC—	STREET LIGHTS	SET BACK LINES	
SANITARY SEWER —SS—SS—	POLES	EASEMENTS	
WATER MAINS —W—W—	GUY ANCHORS	SPOT ELEVATIONS 21.5	
RAILROAD	TRANSFORMERS	INDEX CONTOURS 10	
FENCES	ACCENT LIGHTS	CONTOURS	
BUILDINGS	SHORELINES	TEMPORARY CONTROL POINT	
CULVERTS	SIGNS	MONUMENTS	
CATCH BASINS	DECIDUOUS TREES	IRON PINS & PIPES AS NOTED	
MAN HOLES	GATE VALVE	RCP•REINFORCED CONCRETE PIPE	
FIRE HYDRANT	HVAC UNIT	CRS•LAWLER ½" CAPPED REBAR SET	
WATER METER	PIPE STUB	CTIF•CRIMP TOP IRON PIPE FOUND	
GAS METER	SANITARY CLEAN OUT	REC•DEED RECORD DIMENSION	
FIBER OPTIC CABLE	R/W•RIGHT OF WAY	ACT•ACTUAL FIELD MEASUREMENT	
CABLE TV BOX	CMP•CORRUGATED METAL PIPE	CRF•CAPPED REBAR FOUND	
ROOF DRAIN	CONC.•CONCRETE	IRF•IRON ROD (REBAR) FOUND	
HANDICAP PARKING	A/C•CENTRAL HVAC UNIT	XF•SCRIBED X FOUND IN CONCRETE	
PALM TREES	SEC.•GOVERNMENTAL SECTION	CMF•CONCRETE MONUMENT FOUND	



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FIELD SURVEY COMPLETED 30 AUGUST, 2018
FILE:\\ASPA\PORTOFMOBILE_18069-SOUTH-B_18069-SOUTH-B-ASBUILT.DGN

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THIS THE 11TH DAY OF SEPTEMBER, 2018

W. J. LAWLER, III PLS 17513

N

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SCALE IN FEET

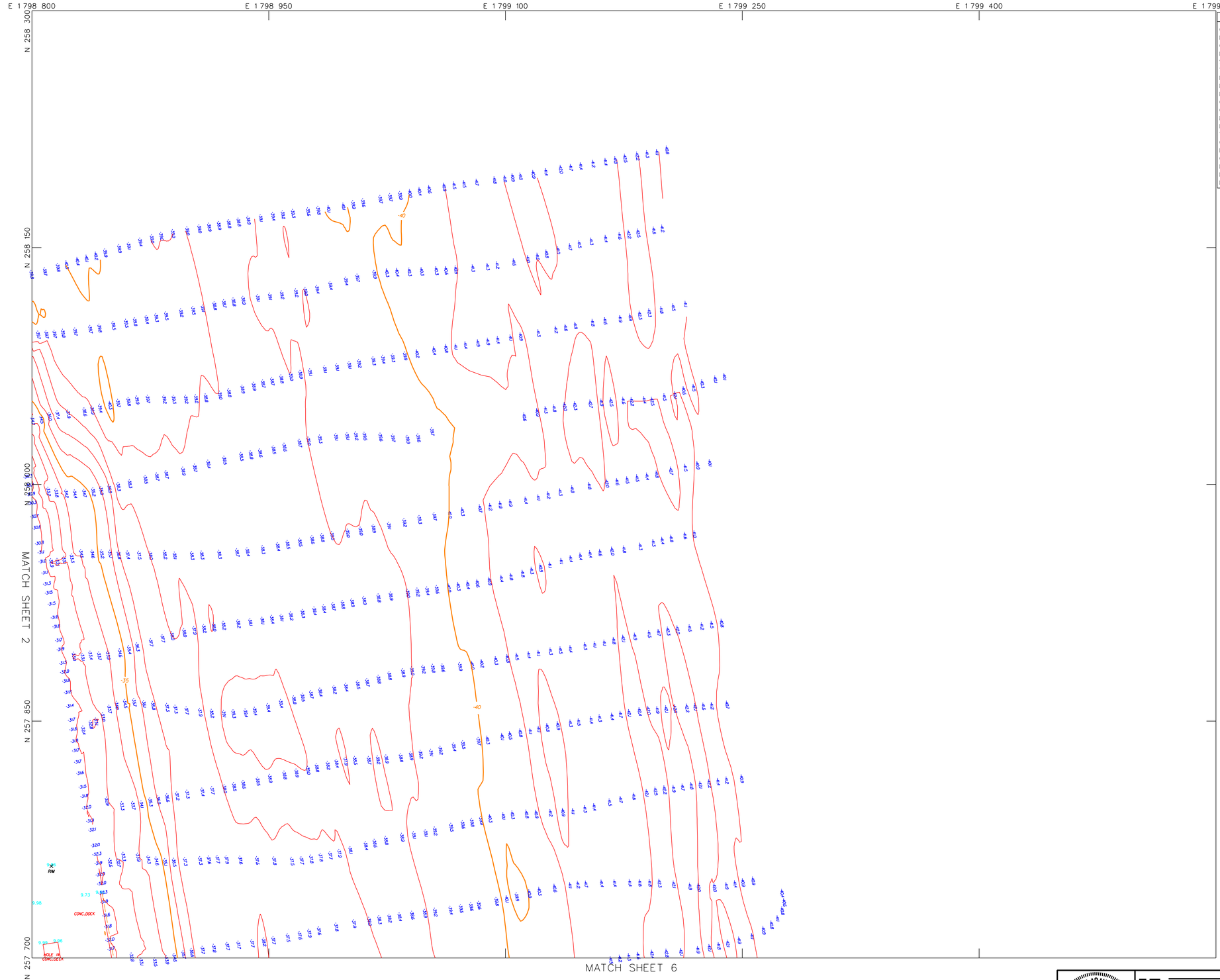
REVISIONS

ALABAMA REGISTERED No. 17513 PROFESSIONAL LAND SURVEYOR W. J. LAWLER III ORIGINAL SEAL

LAWLER AND COMPANY
LAND AND INDUSTRIAL SURVEYORS
2879 CLAUDIA LANE
THEODORE, ALABAMA 36590
(251) 661-9411 FAX (251) 661-9177

ALABAMA STATE PORT AUTHORITY
ASBUILT SURVEY OF PIER B SOUTH, PORT OF MOBILE

REF:	MOTT McDONALD--JOHN PETERSON	
DATE: 11 SEPT., 2018	SCALE: 1"=30'	SHEET 02 OF 06
PROJ. NO. 18-069		DWG. No. 18-069-1



LEGEND

CURB LINES	WATER VALVE		PARCEL BOUNDARY
BURIED TELEPHONE —T—T—	TELEPHONE BOX		ADJOINING PROPERT
OVERHEAD LINES —OHE—OHE—	UNKNOWN ELECTRICAL		SECTION LINE
FIBER OPTIC CABLE —FOC—FOC—	STREET LIGHTS		SET BACK LINES
SANITARY SEWER —SS—SS—	POLES		EASEMENTS
WATER MAINS —W—W—	GUY ANCHORS	21.5	SPOT ELEVATIONS
RAILROAD	TRANSFORMERS	10	INDEX CONTOURS
FENCES	ACCENT LIGHTS		CONTOURS
BUILDINGS	SHORELINES		TEMPORARY CONTROL POINT
CULVERTS	SIGNS		MONUMENTS
CATCH BASINS	DECIDUOUS TREES		IRON PINS & PIPES AS NOTED
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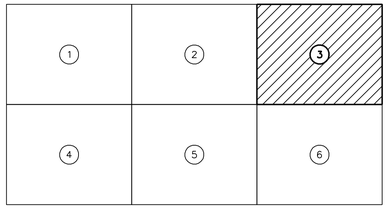
PALM TREES	SEC.-GOVERNMENTAL SECTION		CMF-CONCRETE MONUMENT FOUND



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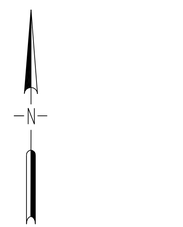

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SCALE IN FEET

REVISIONS

ALABAMA STATE PORT AUTHORITY
ASBUILT SURVEY OF PIER B SOUTH, PORT OF MOBILE

REF:	MOTT McDONALD--JOHN PETERSON	
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PROJ. NO. 18-069		DWG. No. 18-069-1

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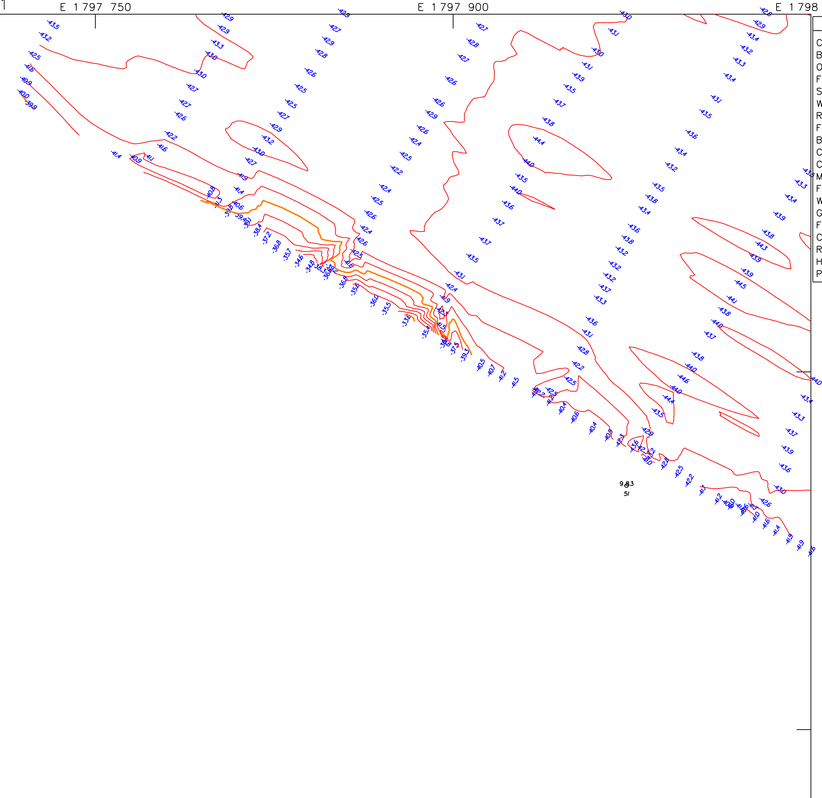
LAWLER AND COMPANY
LAND AND INDUSTRIAL SURVEYORS
2879 CLAUDIA LANE
THEODORE, ALABAMA 36590
(251) 661-9411 FAX (251) 661-9177

E 1 797 300 E 1 797 450 E 1 797 600 MATCH SHEET 1 E 1 797 750 E 1 797 900 E 1 798 050

N 258 700
N 258 550
N 258 400
N 257 250
N 257 100

MATCH SHEET 5



LEGEND

CURB LINES	WATER VALVE	PARCEL BOUNDARY	
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OVERHEAD LINES —OHE—OHE—	UNKNOWN ELECTRICAL	SECTION LINE	
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SANITARY SEWER —SS—SS—	POLES	EASEMENTS	
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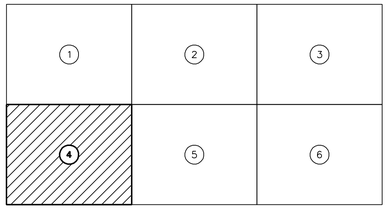

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N

30 0 30 60 90
SCALE IN FEET

REVISIONS

ALABAMA STATE PORT AUTHORITY
ASBUILT SURVEY OF
PIER B SOUTH, PORT OF MOBILE

REF:	MOTT McDONALD--JOHN PETERSON	
DATE: 11 SEPT., 2018	SCALE: 1"=30'	SHEET 04 OF 06
PROJ. NO. 18-069		DWG. No. 18-069-1

ALABAMA REGISTERED No. 17513 PROFESSIONAL LAND SURVEYOR W. J. LAWLER III ORIGINAL DOCUMENT SEALED

LAWLER AND COMPANY
LAND AND INDUSTRIAL SURVEYORS
2879 CLAUDIA LANE
THEODORE, ALABAMA 36590
(251) 661-9411 FAX (251) 661-9177

E 1 797 300 E 1 797 450 E 1 797 600 E 1 797 750 E 1 797 900 E 1 798 050

N 258 700 N 258 550 N 258 400 N 257 250 N 257 100

MATCH SHEET 2

MATCH SHEET 4

MATCH SHEET 6

SLIP B

SOUTH PIER B

SOUTH B WAREHOUSE

SOUTH PIER B

SLIP B

CONC.DOCK

FF-10.73

REST ROOM

HOLE IN CONC.DECK

STEEL PLATE

LEGEND

CURB LINES	WATER VALVE	PARCEL BOUNDARY	
BURIED TELEPHONE —T—T—	TELEPHONE BOX	ADJOINING PROPERT	
OVERHEAD LINES —OHE—OHE—	UNKNOWN ELECTRICAL	SECTION LINE	
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1	2	3
4	5	6

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N 258 700 N 258 550 N 258 400 MATCH SHEET 5 N 257 250 N 257 100

SOUTH PIER B

SOUTH PIER B

MOBILE RIVER

CP-2 BRASS CAP "PIER B-2"
LAWLER 5996
N=257474.388
E=1798886.585
Z=10.030

PIER B-2
LAWLER

CONC. DOCK

GRATE

LEGEND

CURB LINES	WATER VALVE	PARCEL BOUNDARY	
BURIED TELEPHONE —T—·—T·—	TELEPHONE BOX	ADJOINING PROPERT	
OVERHEAD LINES —ONE——ONE—	UNKNOWN ELECTRICAL	SECTION LINE	
FIBER OPTIC CABLE —FOC·—FOC·—	STREET LIGHTS	SET BACK LINES	
SANITARY SEWER —SS·—SS·—	POLES	EASEMENTS	
WATER MAINS —W·—W·—	GUY ANCHORS	SPOT ELEVATIONS 21.5	
RAILROAD	TRANSFORMERS	INDEX CONTOURS 10	
FENCES —x—x—x—	ACCENT LIGHTS	CONTOURS	
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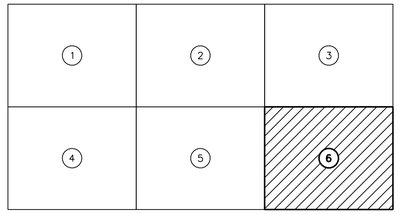

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01	5-7-20	LABEL PRIMARY SURVEY CONTROL

ALABAMA STATE PORT AUTHORITY
ASBUILT SURVEY OF PIER B SOUTH, PORT OF MOBILE

REF: MOTT McDONALD--JOHN PETERSON

DATE: 11 SEPT., 2018 | SCALE: 1"=30' | SHEET 06 OF 06

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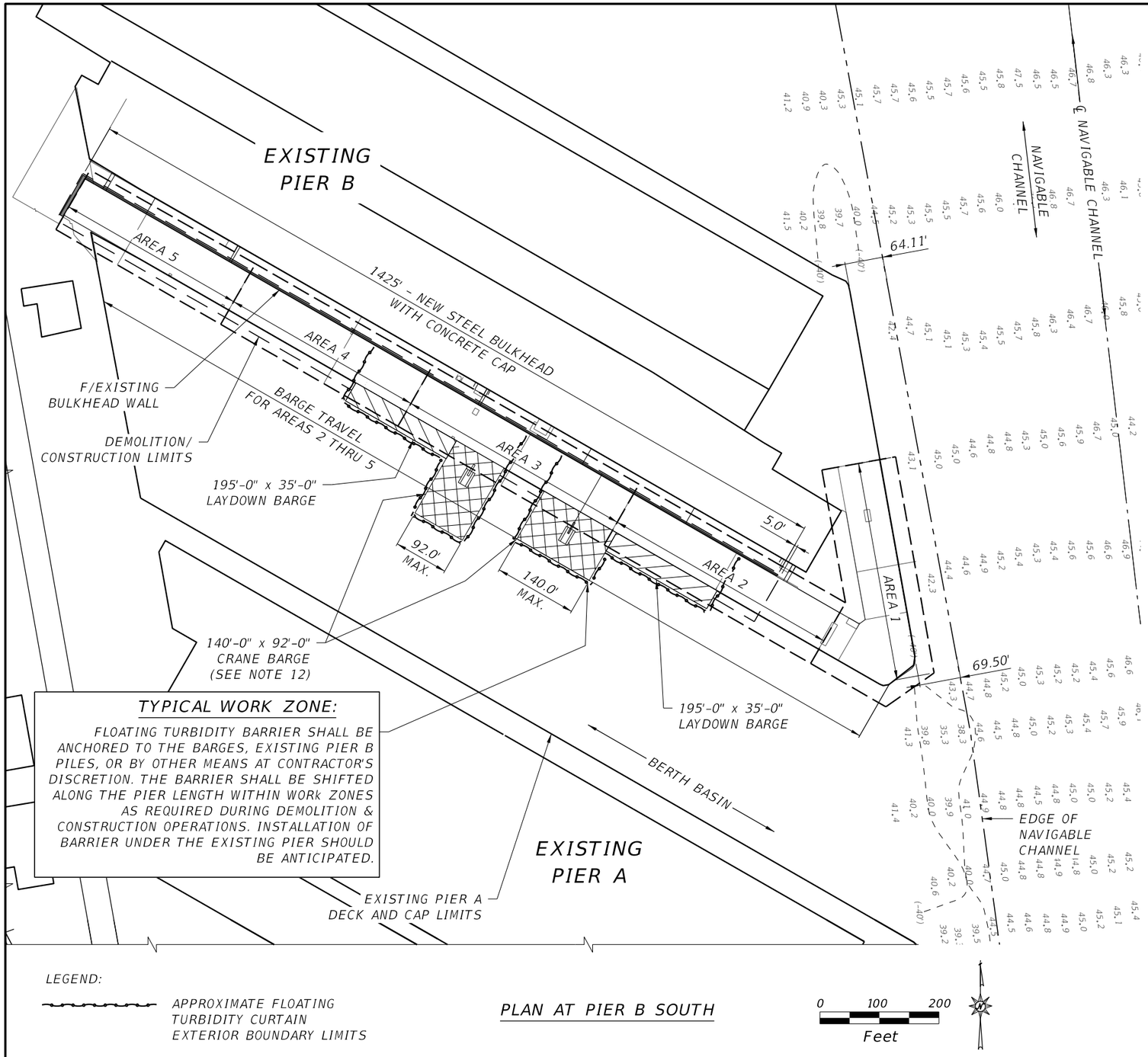
APPENDIX C

Turbidity Curtain



Turbidity Curtain Notes:

1. *The positions of floating turbidity curtain along the slip illustrates the general requirements around the demolition and construction activities as these operations progress around the Pier B South work area. Contractor shall provide a turbidity curtain installation and maintenance plan for review prior to commencing work.*
2. *The turbidity barrier shall conform to "The Alabama Handbook For Erosion Control, Sediment Control, and Stormwater Management On Construction Sites And Urban Areas".*
3. *The location of the turbidity curtains shown on these plans are for encapsulation of turbidity in the demolition and construction zones. Turbidity curtains shall be located and repositioned by the contractor using best management practices to assure water quality standards are maintained throughout demolition and construction.*
4. *Barriers should be a bright color (yellow or "international" orange are recommended) that will attract the attention of nearby boaters.*
5. *The curtain fabric shall meet manufacturer's recommendations for the application.*
6. *Floatation devices shall be flexible, buoyant units contained in an individual floatation sleeve or collar attached to the curtain. Buoyancy provided by the floatation units shall be sufficient to support the weight of the curtain and maintain a freeboard of at least 3 inches above the water surface level.*
7. *The Contractor is responsible for maintenance of the curtain for the duration of the project in order to ensure the continuous protection of the watercourse.*
8. *Should repairs to the geotextile fabric become necessary, repair kits are generally available from the manufacturer. The manufacturer's instructions must be followed to ensure the adequacy of the repair.*
9. *When the curtain is no longer required the curtain and related components shall be removed in such a manner as to minimize turbidity. Remaining sediment shall be sufficiently settled before removing the curtain.*
10. *Turbidity curtains shall be located and secured to prevent conflict and / or creation of a navigation hazard to passing vessel traffic and adjacent marine facilities.*
11. *Contractor shall be responsible for cleanup of any material deposited on the bank, in the water, or outside the work zone*
12. *Crane barge basis of design is a minimum 200 ton Manitowoc Ringer 4100 with A-frame for anticipated maximum barge size shown. Barge sizes may vary based on actual crane used. Two different orientations are shown and can be interchanged at contractors discretion. Actual crane and barge sizes needed is the responsibility of the Contractor.*

MOTT MACDONALD

Mott MacDonald
Alabama, LLC
107 St. Francis Street
Suite 2900,
Mobile, Alabama 36602
Telephone: (251) 343-4366
www.mottmac.com/americas

Client

ALABAMA STATE
PORT AUTHORITY

MOBILE, ALABAMA

Rev	Date	Drawn	Description	Ch'k'd	App'd

Project Number: 397324 | B/O | Total

Designed			Eng check		
Drawn			Coordination		
Dwg check			Approved		
Scale at ARCH D	Status		Rev	Security	

Drawing Number

Title

PIER B SOUTH

TEMPORARY CONSTRUCTION BARGE AND TURBIDITY CURTAIN PLAN

APPENDIX D

USACE Nationwide Permit

DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS, MOBILE DISTRICT
P.O. BOX 2288
MOBILE, AL 36628-0001

REPLY TO
ATTENTION OF:

May 27, 2020

South Alabama Branch
Regulatory Division

SUBJECT: Department of the Army Nationwide Permit, File Number SAM-2018-01099-GAC, Alabama State Port Authority, Mobile River, Mobile County, Alabama

Alabama State Port Authority
Attention: Robert Harris, P.E.
Email: bharris@asdd.com
Post Office Box 1588
Mobile, AL 36633-1588

Dear Mr. Harris:

This letter is in response to your request for verification of Department of the Army Nationwide Permit (NWP) authorization to repair and rehabilitate an existing commercial pier structure in Mobile, Mobile County, Alabama. The project has been assigned file number SAM-2018-01099-GAC, which should be referred to in any future correspondence with this office concerning this project. The project is located on State Docks Road; within Township 4 South, Range 1 West; Latitude 30.708752° North, Longitude -88.042064° West; Mobile, Mobile County, Alabama

Department of the Army permit authorization is necessary because your project involves work in waters of the United States under our regulatory jurisdiction. The project activities include the following:

-- Repair and rehabilitation of the existing Pier B South within the Port of Mobile. Approximately 1,425 linear feet of an existing timber bulkhead will be replaced with a new cantilever steel bulkhead landward of the existing bulkhead. Three (3) sections of pile-supported platform totaling 11,590 square feet will be replaced with new concrete pile-supported structures within the original footprint. A temporary flexible anchored turbidity curtain will be utilized in the waterway during demolition and construction activities.

Based upon the information and plans you provided, we hereby verify the work described above, which would be performed in accordance with the attached drawings, is authorized by NWP 3, *Maintenance,* in accordance with 33 CFR Part 330 of our regulations. This NWP and associated Regional and General Conditions are attached for your review and compliance.

This verification is valid until the NWP is modified, reissued, or revoked. All of the existing NWPs are scheduled to be modified, reissued, or revoked prior to March 18, 2022. It is incumbent upon you to remain informed of changes to the NWPs. We will issue a public notice when the NWPs are reissued. Furthermore, if you commence or are under contract to commence this activity before the date the relevant NWP is modified or revoked, you will have 12 months from the date of the modification or revocation of the NWP to complete the activity under the present terms and conditions of this NWP.

Your use of this NWP is subject to the following special conditions:

a. The activity shall be conducted in accordance with the information submitted and meets the conditions applicable to the NWP, as described at Parts B and C of the NWP Program and State Regional Conditions.

b. The permittee is required to notify the USACE, Mobile District, Navigation Section at (251) 694-3726 at least thirty (30) days prior to the start of demolition and construction activities, in order to limit potential conflicts with USACE dredging operations and to allow the issuance of a Navigation Bulletin to inform mariners of potential hazards in the adjacent federal channel.

c. Best management practices shall be implemented to minimize sedimentation and turbidity in adjacent waters of the United States. Appropriate turbidity and siltation control measures must be implemented and maintained in effective operating condition during all demolition and construction activities.

d. The permittee shall implement the enclosed “Alabama Standard Manatee Construction Conditions” throughout project construction. In the event of an equipment strike, collision with and/or injury to a manatee as a result of project implementation, work shall cease and the permittee shall immediately contact this office at (251) 694-3772, and the U.S. Fish and Wildlife Service in Daphne, (251) 441-5181.

e. Should historic properties, archaeological material, cultural resources, or human remains be encountered during project activities, all work shall cease and the USACE, Mobile District shall be consulted immediately, such that appropriate coordination with state, federal, and tribal organizations may be initiated. The USACE, Mobile District must be contacted by telephone at (251) 694-3772. It is the permittee's responsibility to ensure that contractors are aware of this requirement.

f. The permittee understands and agrees that, if future operations by the United States require the removal, relocation, or other alteration, of the structure or work herein authorized, or if, in the opinion of the Secretary of the Army or his authorized representative, said structure or work shall cause unreasonable obstruction to the free navigation of the navigable waters, the permittee will be required, upon due notice from USACE, to remove, relocate, or alter the structural work or obstructions caused thereby,

without expense to the United States. No claim shall be made against the United States on account of any such removal or alteration.

g. The disposal of trees, brush and other project related debris in any wetland, stream corridor or other surface water is prohibited. Trees, brush, other debris, excess soil and other materials generated from project construction must be removed to an upland disposal area.

h. No building materials, tools or other equipment associated with project construction shall be stockpiled in wetlands or other waters of the United States. All excess materials, tools, and equipment shall be removed immediately upon completion of the activity.

i. The enclosed yellow Notice of Authorization card must be posted at the site during construction of the permitted activity.

j. It is the permittee's responsibility to ensure the contractors working on this project are aware of all general and special permit conditions.

k. Within 30 days of completion of the work authorized, the attached Compliance Certification form must be completed and submitted to the USACE.

Nothing in this letter shall be construed as excusing you from compliance with other federal, state, or local statutes, ordinances, or regulations which may affect this work. Revisions to your proposal may invalidate this authorization. In the event changes to this project are contemplated, it is recommended that you coordinate with us prior to proceeding with the work.

It is the responsibility of the permittee to coordinate this activity with the Alabama Department of Conservation and Natural Resources, State Lands Division, for any approvals, riparian easements, and/or fees that may be required for impacting public submerged lands at: Alabama Department of Conservation and Natural Resources, State Lands Division, Coastal Section, 31115 Five Rivers Boulevard, Spanish Fort, Alabama 36527, (251) 621-1238.

The U.S. Coast Guard (USCG) has requested we include the following statements in our authorizations: In order for the Coast Guard to give proper notice to the maritime community, the permitted owners, contractors, or responsible party shall contact Coast Guard Sector Mobile Waterways Management Branch (spw), 1500 15th Street, Mobile, Alabama 36615, (251) 441-5166 or (251) 441-5940, 60 days prior to performing the proposed action. The permitted owners, contractors, or responsible party must also install and maintain, at the permitted owner’s, contractor’s, or responsible party’s expense, any safety lights, signs and signals required by the USCG, through regulations or otherwise, on the permitted owner’s, contractor’s, or responsible party’s fixed structures. To receive a USCG Private Aids to Navigation marking determination, at no later than 30 days prior to the installation of any fixed structures in navigable waters,

you are required to contact the Eighth Coast Guard District (dpw), 500 Poydras Street, Suite 1230, New Orleans, Louisiana 70130, (504) 671-2124 or via email to D8oanPATON@uscg.mil. For general information related to Private Aids to Navigation, please visit the Eight CG District website at www.atlanticarea.uscg.mil/District-8/District-Divisions/Waterways/PATON/.

You are receiving an electronic copy only of this letter. If you wish to receive a paper copy, you should send a written request to this office at the following address: U.S. Army Corps of Engineers, Mobile District, Regulatory Division, Post Office Box 2288, Mobile, Alabama 36628. Electronic copies of this letter are also being sent to your agent, Mott MacDonald, Attention: Lowry J. Denty, at lowry.denty@mottmac.com; the Alabama Department of Environmental Management, Mobile Branch / Coastal Section, Attention: Mr. Scott Brown, at coastal@adem.alabama.gov; and the Alabama Department of Conservation and Natural Resources, State Lands Division, Attention: Mr. Will Underwood, at DCNR.Coastal@dcnr.alabama.gov, and Mr. Jeremiah Kolb, at jeremiah.kolb@dcnr.alabama.gov.

Please contact me at (251) 694-3772, or at dylan.c.hendrix@usace.army.mil if you have any questions. For additional information about our Regulatory Program, visit our web site at http://www.sam.usace.army.mil/Missions/Regulatory.aspx, and please take a moment to complete our customer satisfaction survey. Your responses are appreciated and will allow us to improve our services.

Sincerely,

HENDRIX.DYLAN.C.1537773142

Digitally signed by HENDRIX.DYLAN.C.1537773142
Date: 2020.05.27 12:26:36 -05'00'

Dylan C. Hendrix
Senior Project Manager
South Alabama Branch
Regulatory Division

Attachments

When the structures or work authorized by this nationwide permit (file number SAM-2018-01099-GAC) are still in existence at the time the property is transferred, the terms and conditions of this nationwide permit, including any special conditions, will continue to be binding on the new owner(s) of the property. To validate the transfer of this nationwide permit and the associated liabilities associated with compliance with its terms and conditions, have the transferee sign and date below.

_____ _____

(TRANSFEREE) (DATE)

COMPLIANCE CERTIFICATION

US Army Corps of Engineers
Mobile District

Permit Number: SAM-2018-01099-GAC

Name of Permittee: Alabama State Port Authority

Date of Issuance: May 27, 2020

Upon completion of the activity authorized by this permit and any mitigation required by the permit, please sign this certification and return it to the following address:

U.S. Army Corps of Engineers
Mobile District
Regulatory Division
Post Office Box 2288
Mobile, Alabama 36628-0001

Please note that your permitted activity is subject to a compliance inspection by a U.S. Army Corps of Engineers representative. If you fail to comply with all terms and conditions of this permit, the permit is subject to permit suspension, modification, or revocation and you are subject to an enforcement action by this office.

I hereby certify that the work authorized by the above-referenced permit has been completed in accordance with the terms and conditions of the said permit including any general or specific conditions, and the required mitigation was completed in accordance with the permit conditions and documentation required by 33 CFR 332.3(l)(3) has been provided to this office.

_____ _____

Signature of Permittee Date

US Army Corps of Engineers

This notice of authorization must be conspicuously displayed at the site of work.

A permit to perform work authorized by statutes and regulations of the Department of the Army at

Pier B South, State Docks Road, Mobile, Mobile County, Alabama

has been issued to Alabama State Port Authority **on** May 27, 2020

Address of Permittee: Post Office Box 1588, Mobile, AL 36633-1588

PERMIT NUMBER

SAM-2018-01099-GAC

HENDRIX.DYLAN.C.1537773142

Digitally signed by HENDRIX.DYLAN.C.1537773142
Date: 2020.05.27 12:25:42 -05'00'

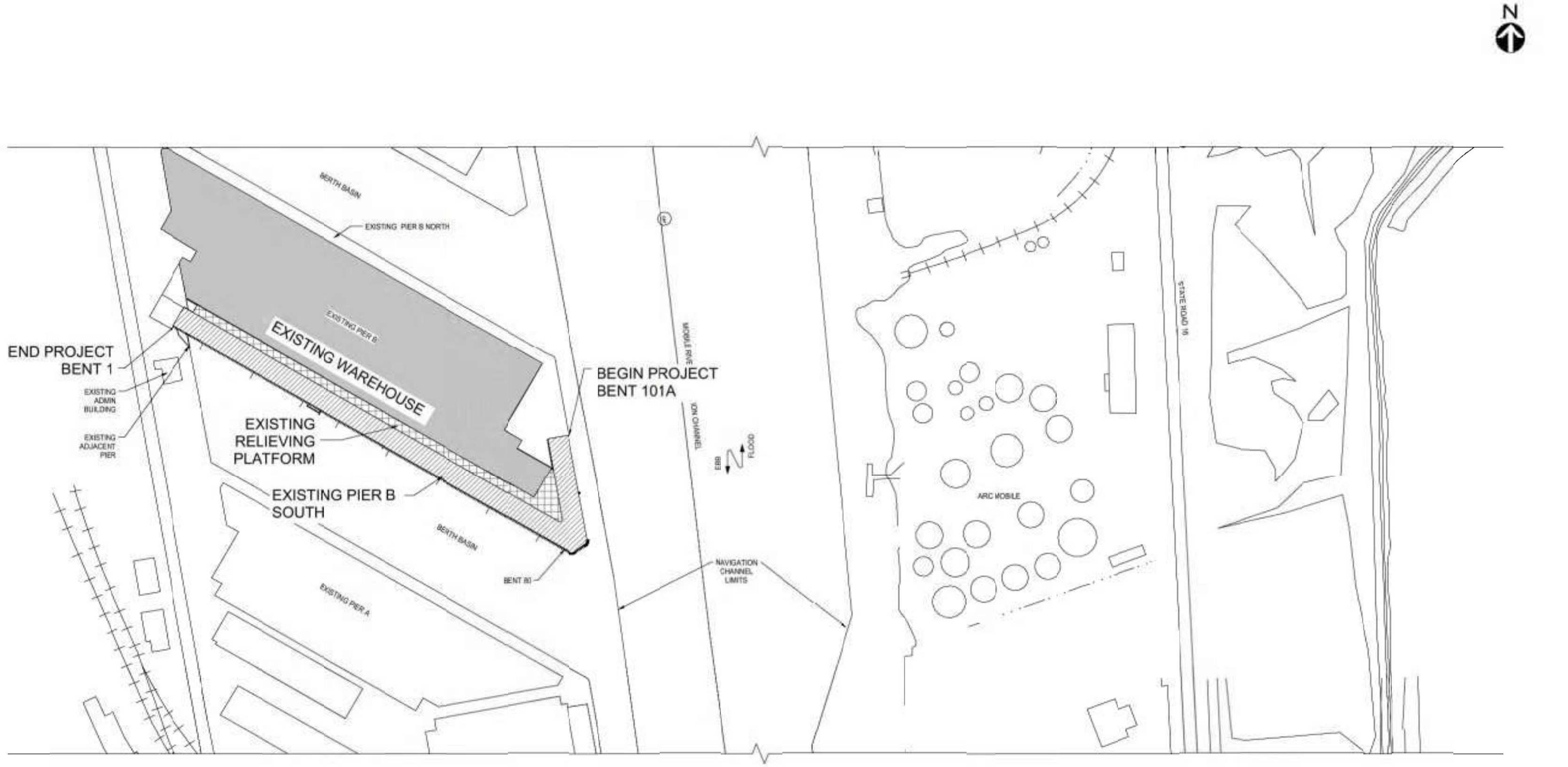
Dylan C. Hendrix, Senior Project Manager

Regulatory Division, South AL Branch

For the **District Commander**

ENG FORM 4336, Jul 81 (33 CFR 320-330) EDITION OF JUL 70 MAY BE USED

Proponent: CECW-O



1 EXIST SITE PLAN
1" = 200'-0"

LEGEND

- LIMIT OF EXISTING WAREHOUSE BUILDING
- LIMIT OF EXISTING RELIEVING PLATFORM
- LIMIT OF EXISTING PIER B SOUTH

MOTT MACDONALD

Mott MacDonald
107 St. Francis Street
Suite 2900
Mobile, Alabama 36602
United States of America
Telephone: (251) 343-4366
www.mottmac.com/americas

Client
ALABAMA STATE
PORT AUTHORITY
MOBILE, ALABAMA

Rev	Date	Drawn	Description	Ch'k'd	App'd
A	01/10/20	KWD	30% Submittal	CEL	LJD

30% SUBMITTAL
NOT FOR
CONSTRUCTION

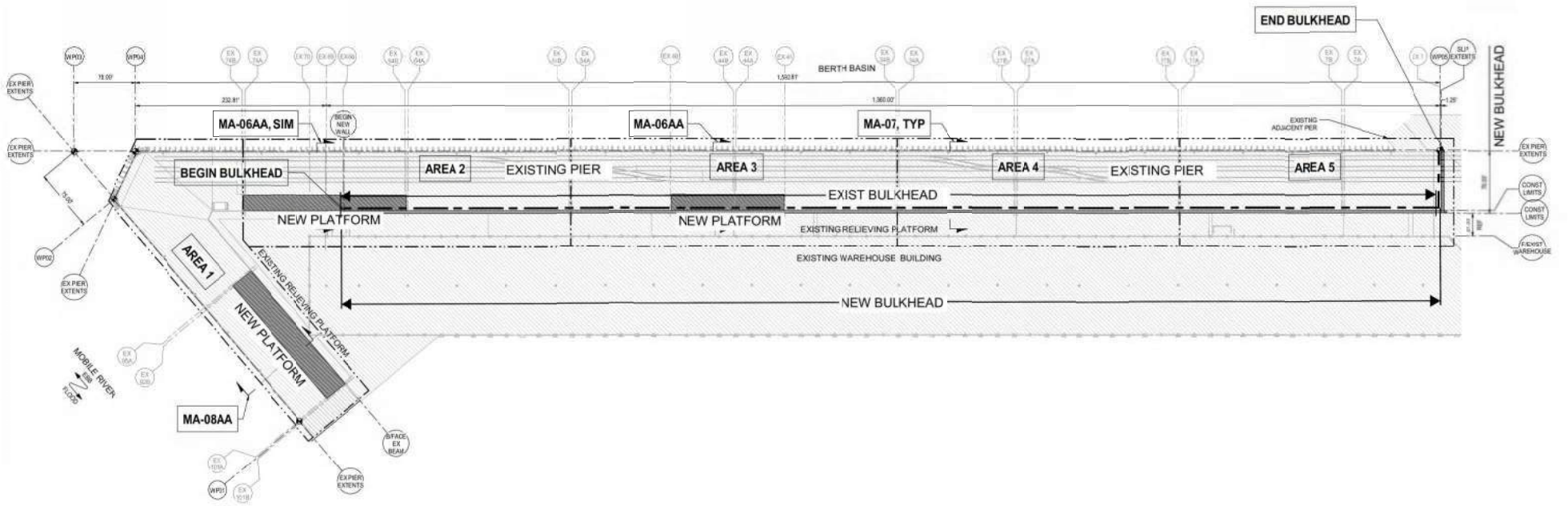
Project Number 397324 | B/O | Total

Designed	JQ	Eng Check	KP
Drawn	KWD	Coordination	LJD
Dwg Check	CEL	Approved	BP
Scale at ANSI D: AS SHOWN	Status: 30% Submittal	Rev: A	Security: STD

Drawing Number
GA-04

Title
PIER B SOUTH REHABILITATION
BASE BID AND
ADD ALTERNATE
EXISTING OVERALL SITE PLAN

SAM-2018-01099-GAC



N

1 INDEX MARINE PLANS
1" = 60'-0"

0 10' 30' 60' 120'

NOTES

1. WORK POINTS SHOWN ARE NEW PIER STRUCTURE WORK POINTS. EXISTING WORK POINTS ARE NOT THE SAME DUE TO GEOMETRY.
2. WATER LEVEL DATA IS FROM NOAA TIDE DATA WEB SITE FOR MOBILE STATE DOCKS, DATUM NAVD 88.

LEGEND

- INDICATES LIMITS OF NEW CONSTRUCTION
- INDICATES EXISTING STRUCTURES
- INDICATES WORK POINT
- WP # — INDICATES GRID LINE FOR LOCATION AND DESIGNATION OF WORK POINTS
- EX # — INDICATES EXISTING BENT REFER TO EXISTING DRAWINGS
- INDICATE EXISTING TIMBER BULKHEAD

BASE BID
PIER B SOUTH REHABILITATION
397324
1/28/2020 5:31:55 PM

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Client
ALABAMA STATE PORT AUTHORITY

MOBILE, ALABAMA

Rev	Date	Drawn	Description	Chk'd	App'd
A	01-10-20	KWD	30% Submittal	CEL	LJD

30% SUBMITTAL
NOT FOR CONSTRUCTION

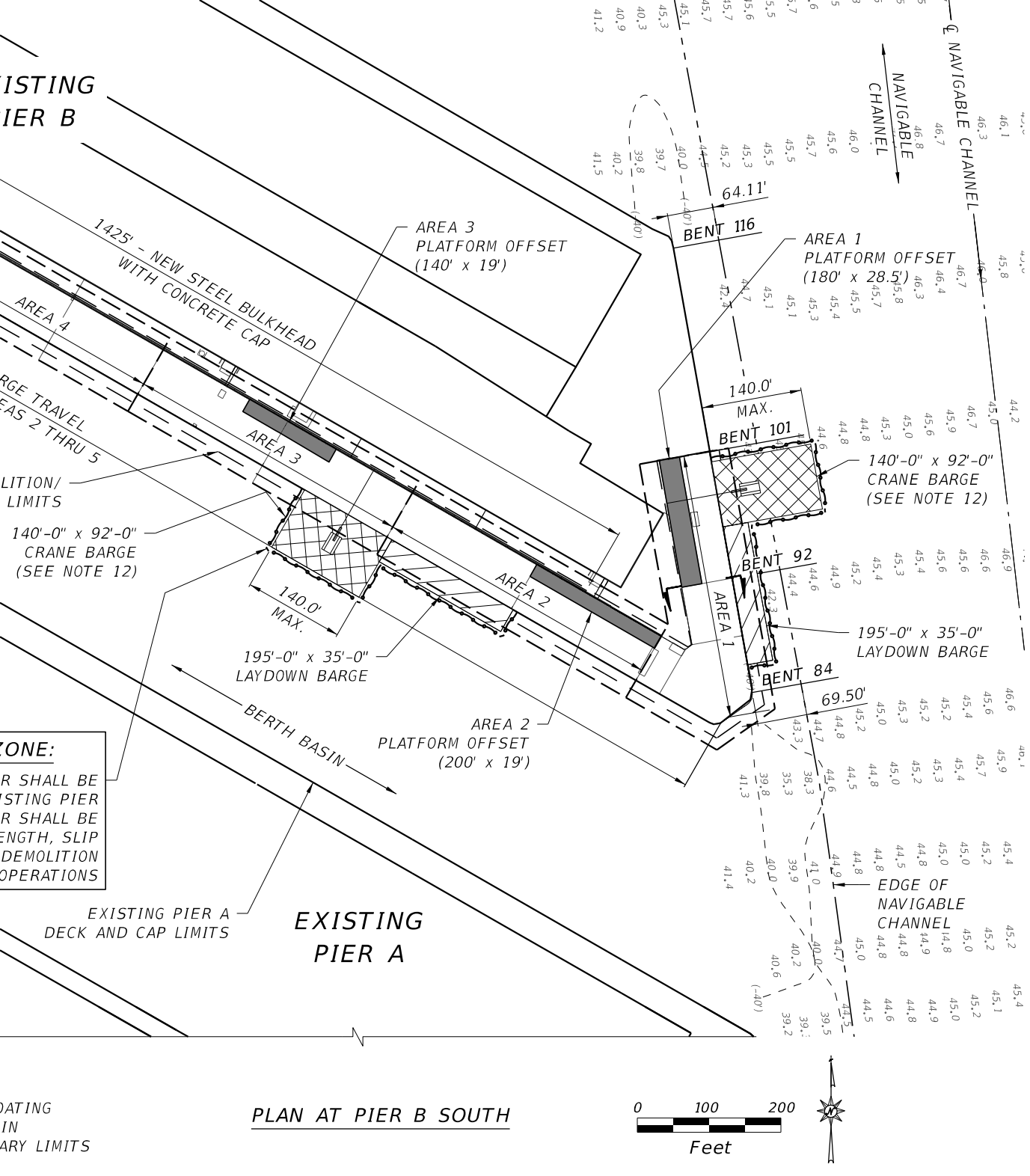
Designed	JQ		Eng Check	KP	
Drawn	KWD		Coordination	LJD	
Dwg Check	CEL		Approved	BP	
Scale at ANSI D	As Shown	Status	30% Submittal	Rev	A
Security	STD				

Project Number 397324 | B/O | Total

Drawing Number MA-01

Title
PIER B SOUTH REHABILITATION

BASE BID - NEW BULKHEAD
INDEX MARINE PLANS



PLAN AT PIER B SOUTH

2. The turbidity barrier shall conform to "The Alabama Handbo
Control, and Stormwater Management On Construction Sites
3. The location of the turbidity curtains shown on these plans
demolition and construction zones. Turbidity curtains shall b
contractor using best management practices to assure water
throughout demolition and construction.
4. Barriers should be a bright color (yellow or "international" c
attract the attention of nearby boaters.
5. The curtain fabric shall meet manufacturer's recommendation
6. Floatation devices shall be flexible, buoyant units contained
or collar attached to the curtain. Buoyancy provided by the
to support the weight of the curtain and maintain a freeboa
water surface level.
7. The Contractor is responsible for maintenance of the curtain
the project in order to ensure the continuous protection of
8. Should repairs to the geotextile fabric become necessary, r
from the manufacturer. The manufacturer's instructions mus
adequacy of the repair.
9. When the curtain is no longer required, the curtain and relat
such a manner as to minimize turbidity. Remaining sediment
before removing the curtain. Sediment may be removed and
elevation) restored. Any spoils must be taken to an approved
stabilized in accordance with the approved plan.
10. Turbidity curtains shall be located and secured to prevent c
navigation hazard to passing vessel traffic and adjacent ma
11. A floating turbidity barrier shall be attached directly to the
B piling when the demolition or construction operations are
12. Crane barge basis of design is a minimum 200 ton Manitowo
anticipated maximum barge size shown. Barge sizes may var
different orientations are shown and can be interchanged at

SUMMARY OF IN WATER WO

AREA 1 IN WATER WORK:

1. DEMOLISH PARTIAL SECTION OF EXIST CONCRETE PIER (DEC
2. CONSTRUCT NEW PLATFORM OFFSET (180' L X 28.5' W) THAT I
   - (36) 24" SQ X 60'-0" PRESTRESSED CONCRETE PILES.
   - (9) 3'-8" WIDE x 3'-0" PILE CAPS
   - 18" CONCRETE DECK
   - T/DECK EL TO MATCH EXISTING

AREA 2 IN WATER WORK:

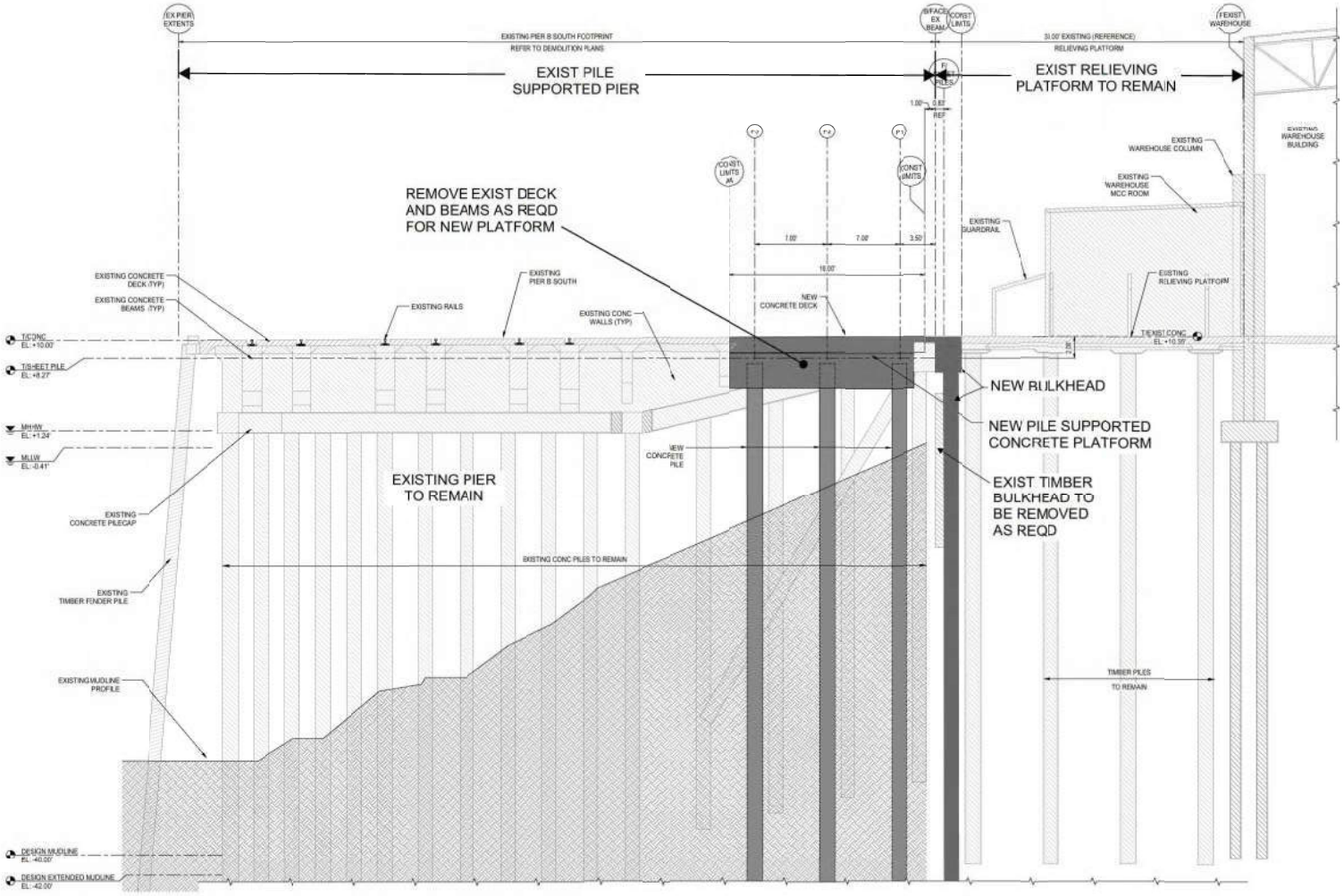
1. DEMOLISH PARTIAL SECTION OF EXIST CONCRETE PIER (DEC
2. CONSTRUCT NEW PLATFORM OFFSET (200' L X 19' W) THAT IN
   - (30) 24" SQ X 60'-0" PRESTRESSED CONCRETE PILES.
   - (10) 3'-8" WIDE x 3'-0" PILE CAPS
   - 18" CONCRETE DECK
   - T/DECK EL TO MATCH EXISTING

AREA 3 IN WATER WORK:

1. DEMOLISH PARTIAL SECTION OF EXIST CONCRETE PIER (DEC
2. CONSTRUCT NEW PLATFORM OFFSET (140' L X 19' W) THAT IN
   - (21) 60'-0" NEW PRESTRESSED CONCRETE PILES.
   - (7) 3'-8" WIDE x 3'-0" PILE CAPS
   - 18" CONCRETE DECK
   - T/DECK EL TO MATCH EXISTING

Client
ALABAMA STATE

Designed | Eng check
Drawn | Coordination



1 **SECTION AT EXISTING WAREHOUSE MCC BUILDING**
3/16" = 1'-0"

ADD ALTERNATE
PIER B SOUTH REHABILITATION
397324
1/29/2020 5:31:57 PM

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www.mottmac.com/americas

Client
ALABAMA STATE PORT AUTHORITY

MOBILE, ALABAMA

Rev	Date	Drawn	Description	Chk'd	App'd
A	01-10-20	KWD	30% Submittal	CEL	LJD

30% SUBMITTAL
NOT FOR CONSTRUCTION

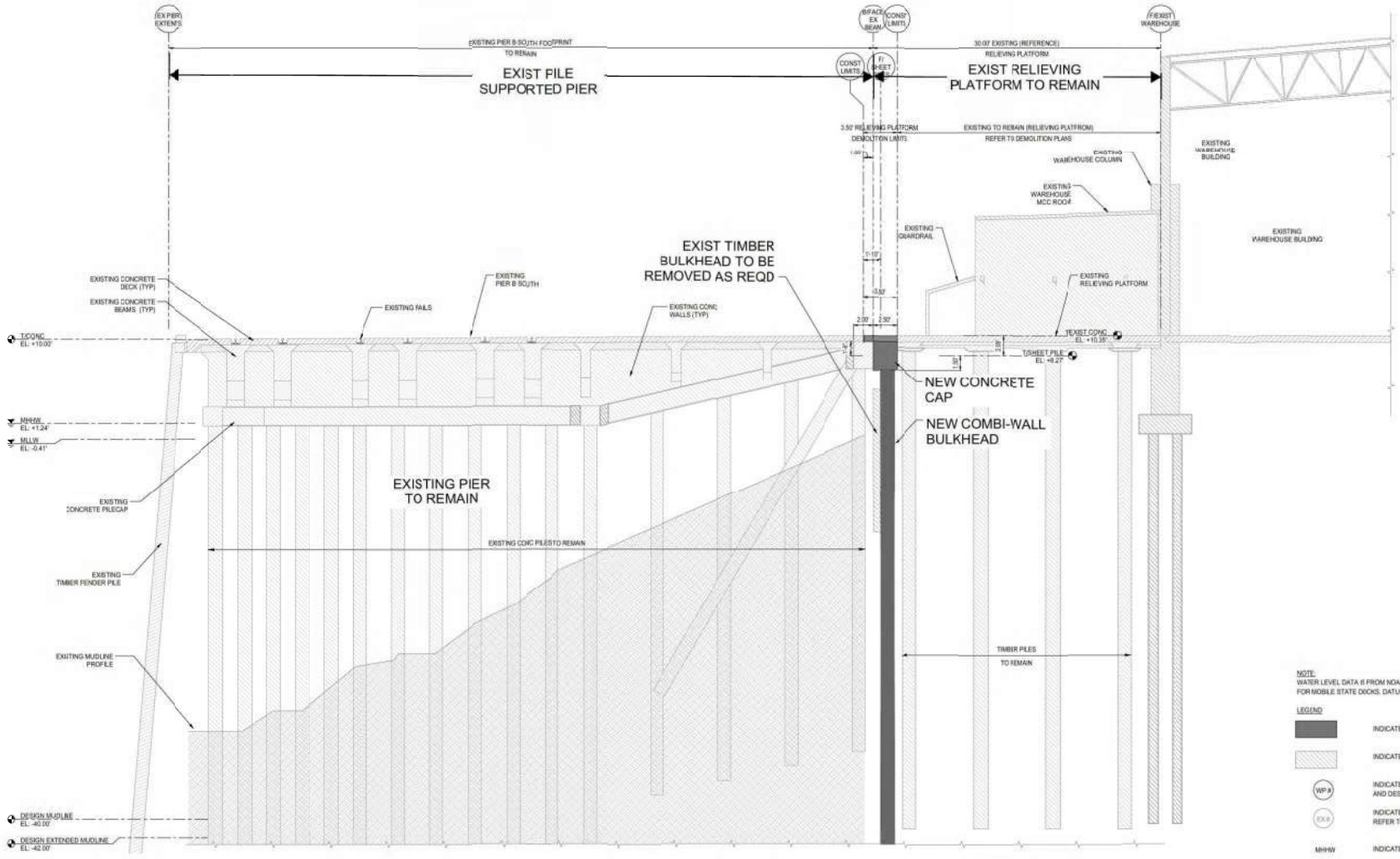
Project Number 397324
B/O
Total

Designed	JQ		Eng Check	KP	
Drawn	KWD		Coordination	LJD	
Dvg Check	CEL		Approved	BP	
Scale at ANSI D	As Shown	Status	30% Submittal	Rev A	Security STD

Drawing Number MA-06AA

Title
PIER B SOUTH REHABILITATION

PLATFORM OFFSETS
AREA 3 - SLIP SIDE
SECTION AT MCC BUILDING



1 SLIP SIDE TYPICAL WALL SECTION
3/16" = 1'-0"

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Client
ALABAMA STATE PORT AUTHORITY

MOBILE, ALABAMA

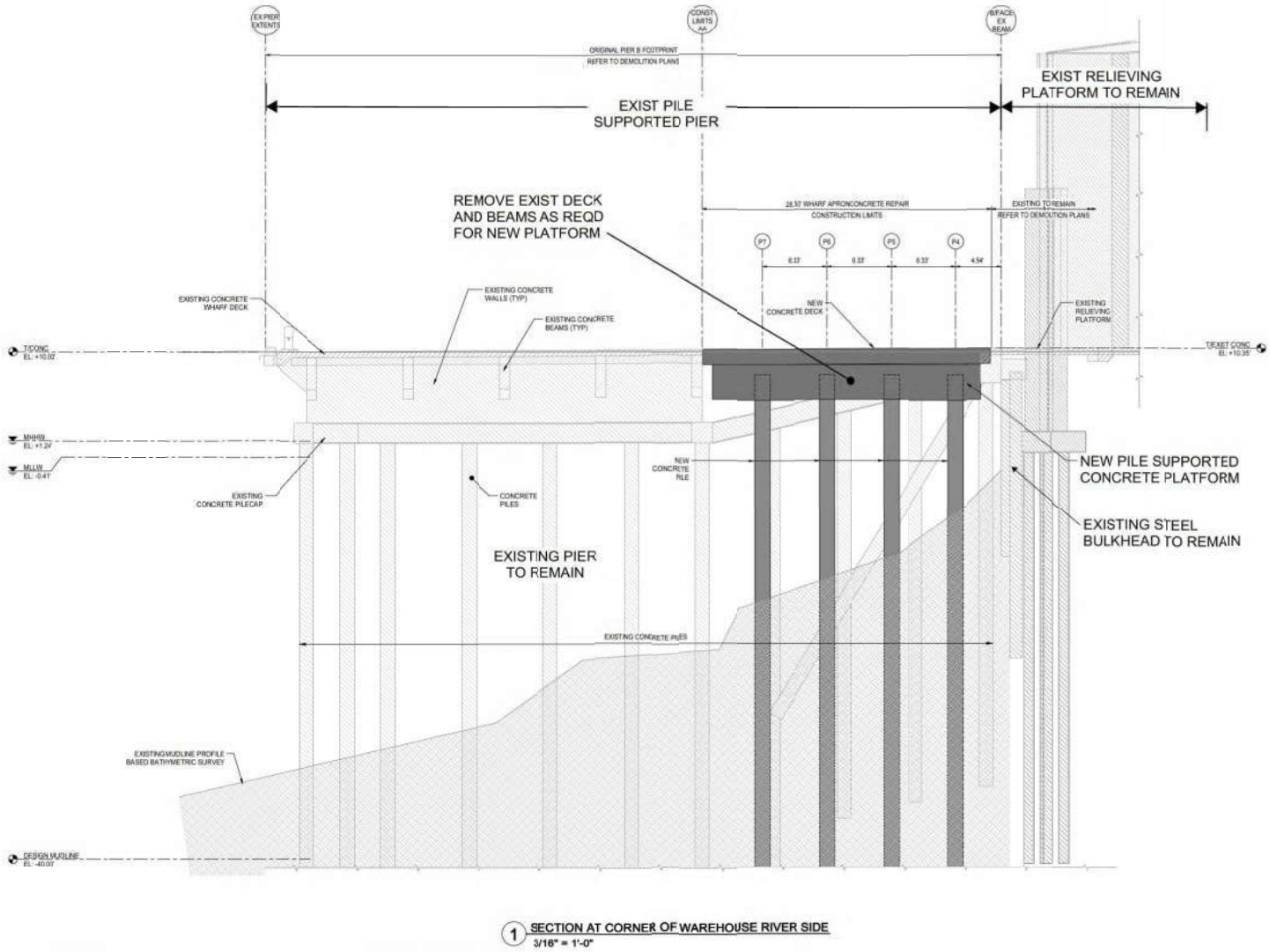
Rev	Date	Drawn	Description	Chk'd	App'd
A	01-10-20	KWD	30% Submittal	CEL	LJD

30% SUBMITTAL
NOT FOR CONSTRUCTION

Project Number 397324
B/O
Total
Drawing Number MA-07

Designed	JQ		Eng Check	KP	
Drawn	KWD		Coordination	LJD	
Dwg Check	CEL		Approved	BP	
Scale at ANSI D	As Shown	Status	30% Submittal	Rev	A
Security	STD				

Title
PIER B SOUTH REHABILITATION
NEW BULKHEAD



1 SECTION AT CORNER OF WAREHOUSE RIVER SIDE
3/16" = 1'-0"

NOTE:
WATER LEVEL DATA IS FROM NOAA TIDE DATA WEB SITE FOR MOBILE STATE DOCKS. DATUM NAVD 88

LEGEND

- INDICATES NEW CONCRETE
- INDICATES EXISTING STRUCTURES
- WP # — INDICATES GRID LINE FOR LOCATION AND DESIGNATION OF WORK POINTS
- C.I. # — INDICATES EXISTING BENT REFER TO EXISTING DRAWINGS
- MHHW — INDICATES MEAN HIGHER-HIGH WATER
- MLLW — INDICATES MEAN LOWER-LOW WATER
- MAX TIDE — INDICATES HIGHEST OBSERVED TIDE 10-06-2017

ADD ALTERNATE
PIER B SOUTH REHABILITATION
397324
1/28/2020 5:31:59 PM

MOTT MACDONALD

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Client
ALABAMA STATE PORT AUTHORITY

MOBILE, ALABAMA

Rev	Date	Drawn	Description	Chk'd	App'd
A	01-10-20	KWD	30% Submittal	CEL	LJD

30% SUBMITTAL
NOT FOR CONSTRUCTION

Designed	JQ		Eng Check	KP	
Drawn	KWD		Coordination	LJD	
Dvg Check	CEL		Approved	BP	
Scale at ANSI D	As Shown	Status	30% Submittal	Rev	A
Security	STD				

Project Number 397324 | B/O | Total
Drawing Number MA-08AA

Title
PIER B SOUTH REHABILITATION

PLATFORM OFFSETS
AREA 1 - RIVER SIDE
SECTION AT WAREHOUSE CORNER

Standard Manatee Conditions for In-Water Activities

The following conditions are recommended for any in-water work occurring between June 1 and December 31.

1. All on-site personnel will be responsible for observing water-related activities for the presence of manatees.

2. If a manatee is spotted within a 50-foot radius (buffer zone) of the action area, all work, equipment, and vessel operation **must** cease. Manatees must not be herded or harassed into leaving the active work area. Once the manatee has left the buffer zone on its own accord, and after 30 minutes have passed without additional sightings of manatee(s) in the buffer zone, in-water work can resume under careful observation for manatee(s).

3. If a manatee(s) is sighted outside of, but near to the action area, all vessels associated with the project should operate at "no wake/idle" speeds within the action area; and at all times while in waters where the draft of the vessel provides less than a 4-foot clearance from the bottom. Vessels should follow routes of deep water whenever possible.

4. If used, siltation or turbidity barriers should be properly secured and be monitored to avoid manatee entrapment or obstruction to their movement.

5. Temporary signs concerning manatees **must** be posted prior to and during all in-water project activities and then removed upon completion of in-water activities. Each vessel involved in construction activities **must** display a temporary sign at the vessel control station or in a prominent location, visible to all employees operating the vessel. The temporary sign must be at least 8½" x 11" reading language similar to the following: "CAUTION: MANATEE AREA. IDLE SPEED IS REQUIRED IN ACTION AREA AND WHERE THERE IS LESS THAN FOUR-FOOT BOTTOM CLEARANCE WHEN MANATEE IS PRESENT". A second temporary sign measuring 8½" x 11" **must** be posted at a location prominently visible to all personnel engaged in water-related activities and should read language similar to the following: "CAUTION: MANATEE AREA. EQUIPMENT **MUST** BE SHUTDOWN IMMEDIATELY IF A MANATEE COMES WITHIN 50 FEET OF VESSEL OPERATION".

6. Collisions with, injury to, or sightings of manatees **must** be immediately reported to the USFWS's Mobile, AL (251-441-5181) or Panama City, FL (850-769-0552) Ecological Services Office. Please provide the nature of the call (i.e., report of an incident, manatee sighting, etc.); time of incident/sighting; and the approximate location, including the latitude and longitude coordinates, if possible.

CAUTION:
MANATEE HABITAT

IDLE SPEED IS REQUIRED IF OPERATING A VESSEL IN THE CONSTRUCTION OR EVENT AREA

All equipment must be SHUTDOWN if a manatee comes within 50 FEET of operation

Report any collision with and/or injury to a manatee immediately to:

Dauphin Island Sea Lab's Manatee Sighting Network:

1-866-493-5803

and the U.S. Fish and Wildlife Service in Daphne, AL:

(251) 441-5839 or (251) 441-5181

U S Army Corps of Engineers

Nationwide Permit Summary

33 CFR Part 330; Issuance of Nationwide Permits – March 19, 2017

3. Maintenance.

(a) The repair, rehabilitation, or replacement of any previously authorized, currently serviceable structure or fill, or of any currently serviceable structure or fill authorized by 33 CFR 330.3, provided that the structure or fill is not to be put to uses differing from those uses specified or contemplated for it in the original permit or the most recently authorized modification. Minor deviations in the structure's configuration or filled area, including those due to changes in materials, construction techniques, requirements of other regulatory agencies, or current construction codes or safety standards that are necessary to make the repair, rehabilitation, or replacement are authorized. This NWP also authorizes the removal of previously authorized structures or fills. Any stream channel modification is limited to the minimum necessary for the repair, rehabilitation, or replacement of the structure or fill; such modifications, including the removal of material from the stream channel, must be immediately adjacent to the project. This NWP also authorizes the removal of accumulated sediment and debris within, and in the immediate vicinity of, the structure or fill. This NWP also authorizes the repair, rehabilitation, or replacement of those structures or fills destroyed or damaged by storms, floods, fire or other discrete events, provided the repair, rehabilitation, or replacement is commenced, or is under contract to commence, within two years of the date of their destruction or damage. In cases of catastrophic events, such as hurricanes or tornadoes, this two-year limit may be waived by the district engineer, provided the permittee (b) This NWP also authorizes the removal of accumulated sediments and debris outside the immediate vicinity of existing structures (e.g., bridges, culverted road crossings, water intake structures, etc.). The removal of sediment is limited to the minimum necessary to restore the waterway in the vicinity of the structure to the approximate dimensions that existed when the structure was built, but cannot extend farther than 200 feet in any direction from the structure. This 200 foot limit does not apply to maintenance dredging to remove accumulated sediments blocking or restricting outfall and intake structures or to maintenance dredging to remove accumulated sediments from canals associated with outfall and intake structures.

All dredged or excavated materials must be deposited and retained in an area that has no waters of the United States unless otherwise specifically approved by the district engineer under separate authorization.

(c) This NWP also authorizes temporary structures, fills, and work, including the use of temporary mats, necessary to conduct the maintenance activity. Appropriate measures must be taken to maintain normal downstream flows and minimize flooding to the maximum extent practicable, when temporary structures, work, and discharges, including cofferdams, are necessary for construction activities, access fills, or dewatering of construction sites. Temporary fills must consist of materials, and be placed in a manner, that will not be eroded by expected high flows. After conducting the maintenance activity, temporary fills must be removed in their entirety and the affected areas returned to preconstruction elevations. The areas affected by temporary fills must be revegetated, as appropriate.

d) This NWP does not authorize maintenance dredging for the primary purpose of navigation. This NWP does not authorize beach restoration. This NWP does not authorize new stream channelization or stream relocation projects.

Notification: For activities authorized by paragraph (b) of this NWP, the permittee must submit a preconstruction notification to the district engineer prior to commencing the activity (see general condition 32). The pre-construction notification must include information regarding the original design capacities and configurations of the outfalls, intakes, small impoundments, and canals. (Authorities: Section 10 of the Rivers and Harbors Act of 1899 and section 404 of the Clean Water Act (Sections 10 and 404))

Note: This NWP authorizes the repair, rehabilitation, or replacement of any previously authorized structure or fill that does not qualify for the Clean Water Act section 404(f) exemption for maintenance..

A. Regional Conditions

1. **Alabama Water Quality Certification Special Conditions:**
http://www.sam.usace.army.mil/Missions/Regulatory/NWP.aspx

2. **Alabama Coastal Zone Managment Conditions:**

A. Activities authorized under Nationwide Pennit 3 shall not be located in close proximity to existing wetlands, submersed grassbeds, or natural oyster reefs and shall not result in adverse impacts to those resources.

B. The perrnittee shall obtain all appropriate authorizations required by the ADCNR-SLD prior to commencement of activities that would impact or be located over State-Owned Submerged Lands.

3. **Mississippi Regional Conditions:**

http://www.sam.usace.army.mil/Missions/Regulatory/NWP.aspx

B. **Nationwide Permit General Conditions**

Note: To qualify for NWP authorization, the prospective permittee must comply with the following general conditions, as applicable, in addition to any regional or case-specific conditions imposed by the division engineer or district engineer. Prospective permittees should contact the appropriate Corps district office to determine if regional conditions have been imposed on an NWP. Prospective permittees should also contact the appropriate Corps district office to determine the status of Clean Water Act Section 401 water quality certification and/ or Coastal Zone Management Act consistency for an NWP. Every person who may wish to obtain permit authorization under one or more NWPs, or who is currently relying on an existing or prior permit authorization under one or more NWPs, has been and is on notice that all of the provisions of 33 CFR 330.1 through 330.6 apply to every NWP authorization. Note especially 33 CFR 330.5 relating to the modification, suspension, or revocation of any NWP authorization.

☐ 1. **Navigation**.

☐ (a) No activity may cause more than a minimal adverse effect on navigation.

☐ (b) Any safety lights and signals prescribed by the U.S. Coast Guard, through regulations or otherwise, must be installed and maintained at the permittee's expense on authorized facilities in navigable waters of the United States.

☐ (c) The permittee understands and agrees that, if future operations by the United States require the removal, relocation, or other alteration, of the structure or work herein authorized, or if, in the opinion of the Secretary of the Army or his authorized representative, said structure or work shall cause unreasonable obstruction to the free navigation of the navigable waters, the permittee will be required, upon due notice from the Corps of Engineers, to remove, relocate, or alter the structural work or obstructions caused thereby, without expense to the United States. No claim shall be made against the United States on account of any such removal or alteration.

☐ 2. **Aquatic Life Movements.** No activity may substantially disrupt the necessary life cycle movements of those species of aquatic life indigenous to the waterbody, including those species that normally migrate through the area, unless the activity's primary purpose is to impound water. All permanent and temporary crossings of waterbodies shall be suitably culverted, bridged, or otherwise designed and constructed to maintain low flows to sustain the movement of those aquatic species. If a bottomless culvert cannot be used, then the crossing should be designed and constructed to minimize adverse effects to aquatic life movements.

☐ 3. **Spawning Areas**. Activities in spawning areas during spawning seasons must be avoided to the maximum extent practicable. Activities that result in the physical destruction (e.g., through excavation, fill, or downstream smothering by substantial turbidity) of an important spawning area are not authorized.

☐ 4. **Migratory Bird Breeding Areas.** Activities in waters of the United States that serve as breeding areas for migratory birds must be avoided to the maximum extent practicable.

☐ 5. **Shellfish Beds**. No activity may occur in areas of concentrated shellfish populations, unless the activity is directly related to a shellfish harvesting activity authorized by NWPs 4 and 48, or is a shellfish seeding or habitat restoration activity authorized by NWP 27.

☐ 6. **Suitable Material**. No activity may use unsuitable material (e.g., trash, debris, car bodies, asphalt, etc.). Material used for construction or discharged must be free from toxic pollutants in toxic amounts (see section 307 of the Clean Water Act).

☐ 7. **Water Supply Intakes**. No activity may occur in the proximity of a public water supply intake, except where the activity is for the repair or improvement of public water supply intake structures or adjacent bank stabilization.

☐ 8. **Adverse Effects From Impoundments**. If the activity creates an impoundment of water, adverse effects to the aquatic system due to accelerating the passage of water, and/or restricting its flow must be minimized to the maximum extent practicable.

☐ 9. **Management of Water Flows**. To the maximum extent practicable, the preconstruction course, condition, capacity, and location of open waters must be maintained for each activity, including stream channelization, storm water management activities, and temporary and permanent road crossings, except as provided below. The activity must be constructed to withstand expected high flows. The activity must not restrict or impede the passage of normal or high flows, unless the primary purpose of the activity is to impound water or manage high flows. The activity may alter the preconstruction course, condition, capacity, and location of open waters if it benefits the aquatic environment (e.g., stream restoration or relocation activities).

☐ 10. **Fills Within 100-Year Floodplains**. The activity must comply with applicable FEMA-approved state or local floodplain management requirements.

☐ 11. **Equipment**. Heavy equipment working in wetlands or mudflats must be placed on mats, or other measures must be taken to minimize soil disturbance.

☐ 12. **Soil Erosion and Sediment Controls**. Appropriate soil erosion and sediment controls must be used and maintained in effective operating condition during construction, and all exposed soil and other fills, as well as any work below the ordinary high water mark or high tide line, must be permanently stabilized at the earliest practicable date. Permittees are encouraged to perform work within waters of the United States during periods of low-flow or no-flow, or during low tides.

☐ 13. **Removal of Temporary Fills**. Temporary fills must be removed in their entirety and the affected areas returned to pre-construction elevations. The affected areas must be revegetated, as appropriate.

☐ 14. **Proper Maintenance**. Any authorized structure or fill shall be properly maintained, including maintenance to ensure public safety and compliance with applicable NWP general conditions, as well as any activity-specific conditions added by the district engineer to an NWP authorization.

☐ 15. **Single and Complete Project**. The activity must be a single and complete project. The same NWP cannot be used more than once for the same single and complete project.

☐ 16. **Wild and Scenic Rivers**.

☐ (a) No NWP activity may occur in a component of the National Wild and Scenic River System, or in a river officially designated by Congress as a ''study river'' for possible inclusion in the system while the river is in an official study status, unless the appropriate Federal agency with direct management responsibility for such river, has determined in writing that the proposed activity will not adversely affect the Wild and Scenic River designation or study status.

☐ (b) If a proposed NWP activity will occur in a component of the National Wild and Scenic River System, or in a river officially designated by Congress as a ''study river'' for possible inclusion in the system while the river is in an official study status, the permittee must submit a pre-construction notification (see general condition 32). The district engineer will coordinate the PCN with the Federal agency with direct management responsibility for that river. The permittee shall not begin the NWP activity until notified by the district engineer that the Federal agency with direct management responsibility for that river has determined in writing that the proposed NWP activity will not adversely affect the Wild and Scenic River designation or study status.

☐ (c) Information on Wild and Scenic Rivers may be obtained from the appropriate Federal land management agency responsible for the designated Wild and Scenic River or study river (e.g., National Park Service, U.S. Forest Service, Bureau of Land Management, U.S. Fish and Wildlife Service). Information on these rivers is also available at: http://www.rivers.gov/.

☐ 17. **Tribal Rights**. No NWP activity may cause more than minimal adverse effects on tribal rights (including treaty rights), protected tribal resources, or tribal lands.

☐ 18. **Endangered Species**.

☐ (a) No activity is authorized under any NWP which is likely to directly or indirectly jeopardize the continued existence of a threatened or endangered species or a species proposed for such designation, as identified under the Federal Endangered Species Act (ESA), or which will directly or indirectly destroy or adversely modify the critical habitat of such species. No activity is authorized under any NWP which ''may affect'' a listed species or critical habitat, unless ESA section 7 consultation addressing the effects of the proposed activity has been completed. Direct effects are the immediate effects on listed species and critical habitat caused by the NWP activity. Indirect effects are those effects on listed species and critical habitat that are caused by the NWP activity and are later in time, but still are reasonably certain to occur.

☐ (b) Federal agencies should follow their own procedures for complying with the requirements of the ESA. If preconstruction notification is required for the proposed activity, the Federal permittee must provide the district engineer with the appropriate documentation to demonstrate compliance with those requirements. The district engineer will verify that the appropriate documentation has been submitted. If the appropriate documentation has not been submitted, additional ESA section 7 consultation may be necessary for the activity and the respective federal agency would be responsible for fulfilling its obligation under section 7 of the ESA.

☐ (c) Non-federal permittees must submit a pre-construction notification to the district engineer if any listed species or designated critical habitat might be affected or is in the vicinity of the activity, or if the activity is located in designated critical habitat, and shall not begin work on the activity until notified by the district engineer that the requirements of the ESA have been satisfied and that the activity is authorized. For activities that might affect Federally-listed endangered or threatened species or designated critical habitat, the pre-construction notification must include the name(s) of the endangered or threatened species that might be affected by the proposed activity or that utilize the designated critical habitat that might be affected by the proposed activity. The district engineer will determine whether the proposed activity ''may affect'' or will have ''no effect'' to listed species and designated critical habitat and will notify the non-Federal applicant of the Corps' determination within 45 days of receipt of a complete pre-construction notification. In cases where the non- Federal applicant has identified listed species or critical habitat that might be affected or is in the vicinity of the activity, and has so notified the Corps, the applicant shall not begin work until the Corps has provided notification that the proposed activity will have ''no effect'' on listed species or critical habitat, or until ESA section 7 consultation has been completed. If the non-Federal applicant has not heard back from the Corps within 45 days, the applicant must still wait for notification from the Corps.

☐ (d) As a result of formal or informal consultation with the FWS or NMFS the district engineer may add species specific permit conditions to the NWPs.

☐ (e) Authorization of an activity by an NWP does not authorize the ''take'' of a threatened or endangered species as defined under the ESA. In the absence of separate authorization (e.g., an ESA Section 10 Permit, a Biological Opinion with ''incidental take'' provisions, etc.) from the FWS or the NMFS, the Endangered Species Act prohibits any person subject to the jurisdiction of the United States to take a listed species, where ''take'' means to harass, harm, pursue, hunt, shoot, wound, kill,

trap, capture, or collect, or to attempt to engage in any such conduct. The word ‘‘harm’’ in the definition of ‘‘take’’ means an act which actually kills or injures wildlife. Such an act may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering.

☐ (f) f the non-federal permittee has a valid ESA section 10(a)(1)(B) incidental take permit with an approved Habitat Conservation Plan for a project or a group of projects that includes the proposed NWP activity, the non-federal applicant should provide a copy of that ESA section 10(a)(1)(B) permit with the PCN required by paragraph (c) of this general condition. The district engineer will coordinate with the agency that issued the ESA section 10(a)(1)(B) permit to determine whether the proposed NWP activity and the associated incidental take were considered in the internal ESA section 7 consultation conducted for the ESA section 10(a)(1)(B) permit. If that coordination results in concurrence from the agency that the proposed NWP activity and the associated incidental take were considered in the internal ESA section 7 consultation for the ESA section 10(a)(1)(B) permit, the district engineer does not need to conduct a separate ESA section 7 consultation for the proposed NWP activity. The district engineer will notify the non-federal applicant within 45 days of receipt of a complete pre-construction notification whether the ESA section 10(a)(1)(B) permit covers the proposed NWP activity or whether additional ESA section 7 consultation is required.

☐ (g) Information on the location of threatened and endangered species and their critical habitat can be obtained directly from the offices of the FWS and NMFS or their world wide Web pages at http://www.fws.gov/ or http://www.fws.gov/ipac and http://www.nmfs.noaa.gov/pr/species/esa/ respectively.

☐ 19. **Migratory Birds and Bald and Golden Eagles**. The permittee is responsible for ensuring their action complies with the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act. The permittee is responsible for contacting appropriate local office of the U.S. Fish and Wildlife Service to determine applicable measures to reduce impacts to migratory birds or eagles, including whether ‘‘incidental take’’ permits are necessary and available under the Migratory Bird Treaty Act or Bald and Golden Eagle Protection Act for a particular activity.

☐ 20. **Historic Properties**.

☐ (a) In cases where the district engineer determines that the activity may have the potential to cause effects to properties listed, or eligible for listing, in the National Register of Historic Places, the activity is not authorized, until the requirements of Section 106 of the National Historic Preservation Act (NHPA) have been satisfied.

☐ (b) Federal permittees should follow their own procedures for complying with the requirements of section 106 of the National Historic Preservation Act. If pre-construction notification is required for the proposed NWP activity, the Federal permittee must provide the district engineer with the appropriate documentation to demonstrate compliance with those requirements. The district engineer will verify that the appropriate documentation has been submitted. If the appropriate documentation is not submitted, then additional consultation under section 106 may be necessary. The respective federal agency is responsible for fulfilling its obligation to comply with section 106.

☐ (c) Non-federal permittees must submit a pre-construction notification to the district engineer if the NWP activity might have the potential to cause effects to any historic properties listed on, determined to be eligible for listing on, or potentially eligible for listing on the National Register of Historic Places, including previously unidentified properties. For such activities, the preconstruction notification must state which historic properties might have the potential to be affected by the proposed NWP activity or include a vicinity map indicating the location of the historic properties or the potential for the presence of historic properties. Assistance regarding information on the location of, or potential for, the presence of historic properties can be sought from the State Historic Preservation Officer, Tribal Historic Preservation Officer, or designated tribal representative, as appropriate, and the National Register of Historic Places (see 33 CFR 330.4(g)). When reviewing pre-construction notifications, district engineers will comply with the current procedures for addressing the requirements of section 106 of the National Historic Preservation Act. The district engineer shall make a reasonable and good faith effort to carry out appropriate identification efforts, which may include background research, consultation, oral history interviews, sample field investigation, and field survey. Based on the information submitted in the PCN and these identification efforts, the district engineer shall determine whether the proposed NWP activity has the potential to cause effects on the historic properties. Section 106 consultation is not required when the district engineer determines that the activity does not have the potential to cause effects on historic properties (see 36 CFR 800.3(a)). Section 106 consultation is required when the district engineer determines that the activity has the potential to cause effects on historic properties. The district engineer will conduct consultation with consulting parties identified under 36 CFR 800.2(c) when he or she makes any of the following effect determinations for the purposes of section 106 of the NHPA: no historic properties affected, no adverse effect, or adverse effect. Where the non-Federal applicant has identified historic properties on which the activity might have the potential to cause effects and so notified the Corps, the non-Federal applicant shall not begin the activity until notified by the district engineer either that the activity has no potential to cause effects to historic properties or that NHPA section 106 consultation has been completed.

☐ (d) For non-federal permittees, the district engineer will notify the prospective permittee within 45 days of receipt of a complete pre-construction notification whether NHPA section 106 consultation is required. If NHPA section 106 consultation is required, the district

engineer will notify the non- Federal applicant that he or she cannot begin the activity until section 106 consultation is completed. If the non- Federal applicant has not heard back from the Corps within 45 days, the applicant must still wait for notification from the Corps.

☐ (e) Prospective permittees should be aware that section 110k of the NHPA (54 U.S.C. 306113) prevents the Corps from granting a permit or other assistance to an applicant who, with intent to avoid the requirements of section 106 of the NHPA, has intentionally significantly adversely affected a historic property to which the permit would relate, or having legal power to prevent it, allowed such significant adverse effect to occur, unless the Corps, after consultation with the Advisory Council on Historic Preservation (ACHP), determines that circumstances justify granting such assistance despite the adverse effect created or permitted by the applicant. If circumstances justify granting the assistance, the Corps is required to notify the ACHP and provide documentation specifying the circumstances, the degree of damage to the integrity of any historic properties affected, and proposed mitigation. This documentation must include any views obtained from the applicant, SHPO/ THPO, appropriate Indian tribes if the undertaking occurs on or affects historic properties on tribal lands or affects properties of interest to those tribes, and other parties known to have a legitimate interest in the impacts to the permitted activity on historic properties.

☐ 21. **Discovery of Previously Unknown Remains and Artifacts**. If you discover any previously unknown historic, cultural or archeological remains and artifacts while accomplishing the activity authorized by this permit, you must immediately notify the district engineer of what you have found, and to the maximum extent practicable, avoid construction activities that may affect the remains and artifacts until the required coordination has been completed. The district engineer will initiate the Federal, Tribal, and state coordination required to determine if the items or remains warrant a recovery effort or if the site is eligible for listing in the National Register of Historic Places.

☐ **22. Designated Critical Resource Waters**. Designated Critical Resource Waters. Critical resource waters include, NOAA-managed marine sanctuaries and marine monuments, and National Estuarine Research Reserves. The district engineer may designate, after notice and opportunity for public comment, additional waters officially designated by a state as having particular environmental or ecological significance, such as outstanding national resource waters or state natural heritage sites. The district engineer may also designate additional critical resource waters after notice and opportunity for public comment.

☐ (a) Discharges of dredged or fill material into waters of the United States are not authorized by NWPs 7, 12, 14, 16, 17, 21, 29, 31, 35, 39, 40, 42, 43, 44, 49, 50, 51, and 52 for any activity within, or directly affecting, critical resource waters, including wetlands adjacent to such waters.

☐ (b) For NWPs 3, 8, 10, 13, 15, 18, 19, 22, 23, 25, 27, 28, 30, 33, 34, 36, 37, 38, and 54, notification is required in accordance with general condition 32, for any activity proposed in the designated critical resource waters including wetlands adjacent to those waters. The district engineer may authorize activities under these NWPs only after it is determined that the impacts to the critical resource waters will be no more than minimal.

☐ **23. Mitigation**. The district engineer will consider the following factors when determining appropriate and practicable mitigation necessary to ensure that the individual and cumulative adverse environmental effects are no more than minimal:

☐ (a) The activity must be designed and constructed to avoid and minimize adverse effects, both temporary and permanent, to waters of the United States to the maximum extent practicable at the project site (i.e., on site).

☐ (b) Mitigation in all its forms (avoiding, minimizing, rectifying, reducing, or compensating for resource losses) will be required to the extent necessary to ensure that the individual and cumulative adverse environmental effects are no more than minimal.

☐ (c) Compensatory mitigation at a minimum one-for-one ratio will be required for all wetland losses that exceed 1⁄10-acre and require preconstruction notification, unless the district engineer determines in writing that either some other form of mitigation would be more environmentally appropriate or the adverse environmental effects of the proposed activity are no more than minimal, and provides an activity-specific waiver of this requirement. For wetland losses of 1⁄10-acre or less that require preconstruction notification, the district engineer may determine on a case-by-case basis that compensatory mitigation is required to ensure that the activity results in only minimal adverse environmental effects.

☐ (d) For losses of streams or other open waters that require pre-construction notification, the district engineer may require compensatory mitigation to ensure that the activity results in no more than minimal adverse environmental effects. Compensatory mitigation for losses of streams should be provided, if practicable, through stream rehabilitation, enhancement, or preservation, since streams are difficult-to- replace resources (see 33 CFR 332.3(e)(3)).

☐ (e) Compensatory mitigation plans for NWP activities in or near streams or other open waters will normally include a requirement for the restoration or enhancement, maintenance, and legal protection (e.g., conservation easements) of riparian areas next to open waters. In some cases, the restoration or maintenance/protection of riparian areas may be the only compensatory mitigation required. Restored riparian areas should consist of native species. The width of the required riparian area will address documented water quality or aquatic habitat loss concerns. Normally, the riparian area will be 25 to 50 feet wide on each side of the stream, but the district engineer may require slightly wider riparian areas to address documented water quality or habitat loss concerns. If it is not possible to restore or maintain/protect a riparian area on both sides of a stream, or if the waterbody is a lake or coastal waters, then restoring or maintaining/protecting a riparian area along a single bank or shoreline may be sufficient. Where both wetlands and open waters exist on the project site, the district engineer

will determine the appropriate compensatory mitigation (e.g., riparian areas and/or wetlands compensation) based on what is best for the aquatic environment on a watershed basis. In cases where riparian areas are determined to be the most appropriate form of minimization or compensatory mitigation, the district engineer may waive or reduce the requirement to provide wetland compensatory mitigation for wetland losses.

☐ (f) Compensatory mitigation projects provided to offset losses of aquatic resources must comply with the applicable provisions of 33 CFR part 332.

☐ (1) The prospective permittee is responsible for proposing an appropriate compensatory mitigation option if compensatory mitigation is necessary to ensure that the activity results in no more than minimal adverse environmental effects. For the NWPs, the preferred mechanism for providing compensatory mitigation is mitigation bank credits or in-lieu fee program credits (see 33 CFR 332.3(b)(2) and (3)). However, if an appropriate number and type of mitigation bank or in-lieu credits are not available at the time the PCN is submitted to the district engineer, the district engineer may approve the use of permittee-responsible mitigation.

☐ (2) The amount of compensatory mitigation required by the district engineer must be sufficient to ensure that the authorized activity results in no more than minimal individual and cumulative adverse environmental effects (see 33 CFR 330.1(e)(3)). (See also 33 CFR 332.3(f)).

☐ (3) Since the likelihood of success is greater and the impacts to potentially valuable uplands are reduced, aquatic resource restoration should be the first compensatory mitigation option considered for permittee-responsible mitigation.

☐ (4) If permittee-responsible mitigation is the proposed option, the prospective permittee is responsible for submitting a mitigation plan. A conceptual or detailed mitigation plan may be used by the district engineer to make the decision on the NWP verification request, but a final mitigation plan that addresses the applicable requirements of 33 CFR 332.4(c)(2) through (14) must be approved by the district engineer before the permittee begins work in waters of the United States, unless the district engineer determines that prior approval of the final mitigation plan is not practicable or not necessary to ensure timely completion of the required compensatory mitigation (see 33 CFR 332.3(k)(3)).

☐ (5) If mitigation bank or in-lieu fee program credits are the proposed option, the mitigation plan only needs to address the baseline conditions at the impact site and the number of credits to be provided.

☐ (6) Compensatory mitigation requirements (e.g., resource type and amount to be provided as compensatory mitigation, site protection, ecological performance standards, monitoring requirements) may be addressed through conditions added to the NWP authorization, instead of components of a compensatory mitigation plan (see 33 CFR 332.4(c)(1)(ii)).

☐ (g) Compensatory mitigation will not be used to increase the acreage losses allowed by the acreage limits of the NWPs. For example, if an NWP has an acreage limit of 1/2-acre, it cannot be used to authorize any NWP activity resulting in the loss of greater than 1/2- acre of waters of the United States, even if compensatory mitigation is provided that replaces or restores some of the lost waters. However, compensatory mitigation can and should be used, as necessary, to ensure that an NWP activity already meeting the established acreage limits also satisfies the no more than minimal impact requirement for the NWPs.

☐ (h) Permittees may propose the use of mitigation banks, in-lieu fee programs, or permittee-responsible mitigation. When developing a compensatory mitigation proposal, the permittee must consider appropriate and practicable options consistent with the framework at 33 CFR 332.3(b). For activities resulting in the loss of marine or estuarine resources, permittee-responsible mitigation may be environmentally preferable if there are no mitigation banks or in-lieu fee programs in the area that have marine or estuarine credits available for sale or transfer to the permittee. For permittee-responsible mitigation, the special conditions of the NWP verification must clearly indicate the party or parties responsible for the implementation and performance of the compensatory mitigation project, and, if required, its long-term management.

☐ (i) Where certain functions and services of waters of the United States are permanently adversely affected by a regulated activity, such as discharges of dredged or fill material into waters of the United States that will convert a forested or scrub-shrub wetland to a herbaceous wetland in a permanently maintained utility line right-of-way, mitigation may be required to reduce the adverse environmental effects of the activity to the no more than minimal level.

☐ **24. Safety of Impoundment Structures**. To ensure that all impoundment structures are safely designed, the district engineer may require non-Federal applicants to demonstrate that the structures comply with established state dam safety criteria or have been designed by qualified persons. The district engineer may also require documentation that the design has been independently reviewed by similarly qualified persons, and appropriate modifications made to ensure safety.

☐ **25. Water Quality**. Where States and authorized Tribes, or EPA where applicable, have not previously certified compliance of an NWP with CWA section 401, individual 401 Water Quality Certification must be obtained or waived (see 33 CFR 330.4(c)). The district engineer or State or Tribe may require additional water quality management measures to ensure that the authorized activity does not result in more than minimal degradation of water quality.

☐ **26. Coastal Zone Management**. In coastal states where an NWP has not previously received a state coastal zone management consistency concurrence, an individual state coastal

zone management consistency concurrence must be obtained, or a presumption of concurrence must occur (see 33 CFR 330.4(d)). The district engineer or a State may require additional measures to ensure that the authorized activity is consistent with state coastal zone management requirements.

☐ **27. Regional and Case-By-Case Conditions**. The activity must comply with any regional conditions that may have been added by the Division Engineer (see 33 CFR 330.4(e)) and with any case specific conditions added by the Corps or by the state, Indian Tribe, or U.S. EPA in its section 401 Water Quality Certification, or by the state in its Coastal Zone Management Act consistency determination.

☐ **28. Use of Multiple Nationwide Permits**. The use of more than one NWP for a single and complete project is prohibited, except when the acreage loss of waters of the United States authorized by the NWPs does not exceed the acreage limit of the NWP with the highest specified acreage limit. For example, if a road crossing over tidal waters is constructed under NWP 14, with associated bank stabilization authorized by NWP 13, the maximum acreage loss of waters of the United States for the total project cannot exceed 1/3-acre.

☐ **29. Transfer of Nationwide Permit Verifications**. If the permittee sells the property associated with a nationwide permit verification, the permittee may transfer the nationwide permit verification to the new owner by submitting a letter to the appropriate Corps district office to validate the transfer. A copy of the nationwide permit verification must be attached to the letter, and the letter must contain the following statement and signature:

> When the structures or work authorized by this nationwide permit are still in existence at the time the property is transferred, the terms and conditions of this nationwide permit, including any special conditions, will continue to be binding on the new owner(s) of the property. To validate the transfer of this nationwide permit and the associated liabilities associated with compliance with its terms and conditions, have the transferee sign and date below.
>
> ---
> (Transferee)
>
> ---
> (Date)

☐ **30. Compliance Certification**. Each permittee who receives an NWP verification letter from the Corps must provide a signed certification documenting completion of the authorized activity and implementation of any required compensatory mitigation. The success of any required permittee-responsible mitigation, including the achievement of ecological performance standards, will be addressed separately by the district engineer. The Corps will provide the permittee the certification document with the NWP verification letter. The certification document will include:

☐ (a) A statement that the authorized activity was done in accordance with the NWP authorization, including any general, regional, or activity-specific conditions;

☐ (b) A statement that the implementation of any required compensatory mitigation was completed in accordance with the permit conditions. If credits from a mitigation bank or in-lieu fee program are used to satisfy the compensatory mitigation requirements, the certification must include the documentation required by 33 CFR 332.3(l)(3) to confirm that the permittee secured the appropriate number and resource type of credits; and

☐ (c) The signature of the permittee certifying the completion of the activity and mitigation. The completed certification document must be submitted to the district engineer within 30 days of completion of the authorized activity or the implementation of any required compensatory mitigation, whichever occurs later.

☐ **31. Activities Affecting Structures or Works Built by the United States.** If an NWP activity also requires permission from the Corps pursuant to 33 U.S.C. 408 because it will alter or temporarily or permanently occupy or use a U.S. Army Corps of Engineers (USACE) federally authorized Civil Works project (a ''USACE project''), the prospective permittee must submit a preconstruction notification. See paragraph (b)(10) of general condition 32. An activity that requires section 408 permission is not authorized by NWP until the appropriate Corps office issues the section 408 permission to alter, occupy, or use the USACE project, and the district engineer issues a written NWP verification.

☐ **32. Pre-Construction Notification**.

☐ (a) **Timing**. Where required by the terms of the NWP, the prospective permittee must notify the district engineer by submitting a pre-construction notification (PCN) as early as possible. The district engineer must determine if the PCN is complete within 30 calendar days of the date of receipt and, if the PCN is determined to be incomplete, notify the prospective permittee within that 30 day period to request the additional information necessary to make the PCN complete. The request must specify the information needed to make the PCN complete. As a general rule, district engineers will request additional information necessary to make the PCN complete only once. However, if the prospective permittee does not provide all of the requested information, then the district engineer will notify the prospective permittee that the PCN is still incomplete and the PCN review process will not commence until all of the requested information has been received by the district engineer. The prospective permittee shall not begin the activity until either:

☐ (1) He or she is notified in writing by the district engineer that the activity may proceed under the NWP with any special conditions imposed by the district or division engineer; or

☐ (2) 45 calendar days have passed from the district engineer's receipt of the complete PCN and the prospective permittee has not received written notice from the district or division engineer. However, if the permittee was required to notify the Corps pursuant to general condition 18 that listed

species or critical habitat might be affected or are in the vicinity of the activity, or to notify the Corps pursuant to general condition 20 that the activity might have the potential to cause effects to historic properties, the permittee cannot begin the activity until receiving written notification from the Corps that there is ‘‘no effect’’ on listed species or ‘‘no potential to cause effects’’ on historic properties, or that any consultation required under Section 7 of the Endangered Species Act (see 33 CFR 330.4(f)) and/or section 106 of the National Historic Preservation Act (see 33 CFR 330.4(g)) has been completed. Also, work cannot begin under NWPs 21, 49, or 50 until the permittee has received written approval from the Corps. If the proposed activity requires a written waiver to exceed specified limits of an NWP, the permittee may not begin the activity until the district engineer issues the waiver. If the district or division engineer notifies the permittee in writing that an individual permit is required within 45 calendar days of receipt of a complete PCN, the permittee cannot begin the activity until an individual permit has been obtained. Subsequently, the permittee’s right to proceed under the NWP may be modified, suspended, or revoked only in accordance with the procedure set forth in 33 CFR 330.5(d)(2).

☐ (b) Contents of Pre-Construction Notification: The PCN must be in writing and include the following information:

☐ (1) Name, address and telephone numbers of the prospective permittee;

☐ (2) Location of the proposed activity;

☐ (3) Identify the specific NWP or NWP(s) the prospective permittee wants to use to authorize the proposed activity;

☐ (4) A description of the proposed activity; the activity’s purpose; direct and indirect adverse environmental effects the activity would cause, including the anticipated amount of loss of wetlands, other special aquatic sites, and other waters expected to result from the NWP activity, in acres, linear feet, or other appropriate unit of measure; a description of any proposed mitigation measures intended to reduce the adverse environmental effects caused by the proposed activity; and any other NWP(s), regional general permit(s), or individual permit(s) used or intended to be used to authorize any part of the proposed project or any related activity, including other separate and distant crossings for linear projects that require Department of the Army authorization but do not require pre-construction notification. The description of the proposed activity and any proposed mitigation measures should be sufficiently detailed to allow the district engineer to determine that the adverse environmental effects of the activity will be no more than minimal and to determine the need for compensatory mitigation or other mitigation measures. For single and complete linear projects, the PCN must include the quantity of anticipated losses of wetlands, other special aquatic sites, and other waters for each single and complete crossing of those wetlands, other special aquatic sites, and other waters. Sketches should be provided when necessary to show that the activity complies with the terms of the NWP. (Sketches usually clarify the activity and when provided results in a quicker decision. Sketches should contain sufficient detail to provide an illustrative description of the proposed activity (e.g., a conceptual plan), but do not need to be detailed engineering plans);

☐ (5) The PCN must include a delineation of wetlands, other special aquatic sites, and other waters, such as lakes and ponds, and perennial, intermittent, and ephemeral streams, on the project site. Wetland delineations must be prepared in accordance with the current method required by the Corps. The permittee may ask the Corps to delineate the special aquatic sites and other waters on the project site, but there may be a delay if the Corps does the delineation, especially if the project site is large or contains many wetlands, other special aquatic sites, and other waters. Furthermore, the 45 day period will not start until the delineation has been submitted to or completed by the Corps, as appropriate;

☐ (6) If the proposed activity will result in the loss of greater than 1⁄10-acre of wetlands and a PCN is required, the prospective permittee must submit a statement describing how the mitigation requirement will be satisfied, or explaining why the adverse environmental effects are no more than minimal and why compensatory mitigation should not be required. As an alternative, the prospective permittee may submit a conceptual or detailed mitigation plan.

☐ (7) For non-Federal permittees, if any listed species or designated critical habitat might be affected or is in the vicinity of the activity, or if the activity is located in designated critical habitat, the PCN must include the name(s) of those endangered or threatened species that might be affected by the proposed activity or utilize the designated critical habitat that might be affected by the proposed activity. For NWP activities that require pre-construction notification, Federal permittees must provide documentation demonstrating compliance with the Endangered Species Act;

☐ (8) For non-Federal permittees, if the NWP activity might have the potential to cause effects to a historic property listed on, determined to be eligible for listing on, or potentially eligible for listing on, the National Register of Historic Places, the PCN must state which historic property might have the potential to be affected by the proposed activity or include a vicinity map indicating the location of the historic property. For NWP activities that require pre-construction notification, Federal permittees must provide documentation demonstrating compliance with section 106 of the National Historic Preservation Act;

☐ (9) For an activity that will occur in a component of the National Wild and Scenic River System, or in a river officially designated by Congress as a ‘‘study river’’ for possible inclusion in the system while the river is in an official study status, the PCN must identify the Wild and Scenic River or the ‘‘study river’’ (see general condition 16); and

☐ (10) For an activity that requires permission from the Corps pursuant to 33 U.S.C. 408 because it will alter or temporarily or permanently occupy or use a U.S. Army Corps of Engineers federally authorized civil works project, the pre-construction notification must include a statement confirming that the project proponent has submitted a written request for section 408 permission from the Corps office having jurisdiction over that USACE project.

☐ (c) Form of Pre-Construction Notification: The standard individual permit application form (Form ENG 4345) may be used, but the completed application form must clearly indicate that it is an NWP PCN and must include all of the applicable information required in paragraphs (b)(1) through (10) of this general condition. A letter containing the required information may also be used. Applicants may provide electronic files of PCNs and supporting materials if the district engineer has established tools and procedures for electronic submittals.

☐ (d) Agency Coordination:

☐ (1) The district engineer will consider any comments from Federal and state agencies concerning the proposed activity’s compliance with the terms and conditions of the NWPs and the need for mitigation to reduce the activity’s adverse environmental effects so that they are no more than minimal.

☐ (2) Agency coordination is required for: (i) All NWP activities that require pre-construction notification and result in the loss of greater than 1⁄2-acre of waters of the United States; (ii) NWP 21, 29, 39, 40, 42, 43, 44, 50, 51, and 52 activities that require pre-construction notification and will result in the loss of greater than 300 linear feet of stream bed; (iii) NWP 13 activities in excess of 500 linear feet, fills greater than one cubic yard per running foot, or involve discharges of dredged or fill material into special aquatic sites; and (iv) NWP 54 activities in excess of 500 linear feet, or that extend into the waterbody more than 30 feet from the mean low water line in tidal waters or the ordinary high water mark in the Great Lakes.

☐ (3) When agency coordination is required, the district engineer will immediately provide (e.g., via email, facsimile transmission, overnight mail, or other expeditious manner) a copy of the complete PCN to the appropriate Federal or state offices (FWS, state natural resource or water quality agency, EPA, and, if appropriate, the NMFS). With the exception of NWP 37, these agencies will have 10 calendar days from the date the material is transmitted to notify the district engineer via telephone, facsimile transmission, or email that they intend to provide substantive, site-specific comments. The comments must explain why the agency believes the adverse environmental effects will be more than minimal. If so contacted by an agency, the district engineer will wait an additional 15 calendar days before making a decision on the preconstruction notification. The district engineer will fully consider agency comments received within the specified time frame concerning the proposed activity’s compliance with the terms and conditions of the NWPs, including the need for mitigation to ensure the net adverse environmental effects of the proposed activity are no more than minimal. The district engineer will provide no response to the resource agency, except as provided below. The district engineer will indicate in the administrative record associated with each pre-construction notification that the resource agencies’ concerns were considered. For NWP 37, the emergency watershed protection and rehabilitation activity may proceed immediately in cases where there is an unacceptable hazard to life or a significant loss of property or economic hardship will occur. The district engineer will consider any comments received to decide whether the NWP 37 authorization should be modified, suspended, or revoked in accordance with the procedures at 33 CFR 330.5.

☐ (4) In cases of where the prospective permittee is not a Federal agency, the district engineer will provide a response to NMFS within 30 calendar days of receipt of any Essential Fish Habitat conservation recommendations, as required by section 305(b)(4)(B) of the Magnuson-Stevens Fishery Conservation and Management Act.

☐ (4) Applicants are encouraged to provide the Corps with either electronic files or multiple copies of preconstruction notifications to expedite agency coordination.

C. District Engineer’s Decision

☐ 1. In reviewing the PCN for the proposed activity, the district engineer will determine whether the activity authorized by the NWP will result in more than minimal individual or cumulative adverse environmental effects or may be contrary to the public interest. If a project proponent requests authorization by a specific NWP, the district engineer should issue the NWP verification for that activity if it meets the terms and conditions of that NWP, unless he or she determines, after considering mitigation, that the proposed activity will result in more than minimal individual and cumulative adverse effects on the aquatic environment and other aspects of the public interest and exercises discretionary authority to require an individual permit for the proposed activity. For a linear project, this determination will include an evaluation of the individual crossings of waters of the United States to determine whether they individually satisfy the terms and conditions of the NWP(s), as well as the cumulative effects caused by all of the crossings authorized by NWP. If an applicant requests a waiver of the 300 linear foot limit on impacts to streams or of an otherwise applicable limit, as

provided for in NWPs 13, 21, 29, 36, 39, 40, 42, 43, 44, 50, 51, 52, or 54, the district engineer will only grant the waiver upon a written determination that the NWP activity will result in only minimal individual and cumulative adverse environmental effects. For those NWPs that have a waivable 300 linear foot limit for losses of intermittent and ephemeral stream bed and a 1/2-acre limit (i.e., NWPs 21, 29, 39, 40, 42, 43, 44, 50, 51, and 52), the loss of intermittent and ephemeral stream bed, plus any other losses of jurisdictional waters and wetlands, cannot exceed 1/2- acre.

☐ 2. When making minimal adverse environmental effects determinations the district engineer will consider the direct and indirect effects caused by the NWP activity. He or she will also consider the cumulative adverse environmental effects caused by activities authorized by NWP and whether those cumulative adverse environmental effects are no more than minimal. The district engineer will also consider site specific factors, such as the environmental setting in the vicinity of the NWP activity, the type of resource that will be affected by the NWP activity, the functions provided by the aquatic resources that will be affected by the NWP activity, the degree or magnitude to which the aquatic resources perform those functions, the extent that aquatic resource functions will be lost as a result of the NWP activity (e.g., partial or complete loss), the duration of the adverse effects (temporary or permanent), the importance of the aquatic resource functions to the region (e.g., watershed or ecoregion), and mitigation required by the district engineer. If an appropriate functional or condition assessment method is available and practicable to use, that assessment method may be used by the district engineer to assist in the minimal adverse environmental effects determination. The district engineer may add case-specific special conditions to the NWP authorization to address site-specific environmental concerns.

☐ 3. If the proposed activity requires a PCN and will result in a loss of greater than 1/10-acre of wetlands, the prospective permittee should submit a mitigation proposal with the PCN. Applicants may also propose compensatory mitigation for NWP activities with smaller impacts, or for impacts to other types of waters (e.g., streams). The district engineer will consider any proposed compensatory mitigation or other mitigation measures the applicant has included in the proposal in determining whether the net adverse environmental effects of the proposed activity are no more than minimal. The compensatory mitigation proposal may be either conceptual or detailed. If the district engineer determines that the activity complies with the terms and conditions of the NWP and that the adverse environmental effects are no more than minimal, after considering mitigation, the district engineer will notify the permittee and include any activity-specific conditions in the NWP verification the district engineer deems necessary. Conditions for compensatory mitigation requirements must comply with the appropriate provisions at 33 CFR 332.3(k). The district engineer must approve the final mitigation plan before the permittee commences work in waters of the United States, unless the district engineer determines that prior approval of the final mitigation plan is not practicable or not necessary to ensure timely completion of the required compensatory mitigation. If the prospective permittee elects to submit a compensatory mitigation plan with the PCN, the district engineer will expeditiously review the proposed compensatory mitigation plan. The district engineer must review the proposed compensatory mitigation plan within 45 calendar days of receiving a complete PCN and determine whether the proposed mitigation would ensure the NWP activity results in no more than minimal adverse environmental effects. If the net adverse environmental effects of the NWP activity (after consideration of the mitigation proposal) are determined by the district engineer to be no more than minimal, the district engineer will provide a timely written response to the applicant. The response will state that the NWP activity can proceed under the terms and conditions of the NWP, including any activity-specific conditions added to the NWP authorization by the district engineer.

☐ 4. If the district engineer determines that the adverse environmental effects of the proposed activity are more than minimal, then the district engineer will notify the applicant either: (a) That the activity does not qualify for authorization under the NWP and instruct the applicant on the procedures to seek authorization under an individual permit; (b) that the activity is authorized under the NWP subject to the applicant's submission of a mitigation plan that would reduce the adverse environmental effects so that they are no more than minimal; or (c) that the activity is authorized under the NWP with specific modifications or conditions. Where the district engineer determines that mitigation is required to ensure no more than minimal adverse environmental effects, the activity will be authorized within the 45-day PCN period (unless additional time is required to comply with general conditions 18, 20, and/or 31, or to evaluate PCNs for activities authorized by NWPs 21, 49, and 50), with activity-specific conditions that state the mitigation requirements. The authorization will include the necessary conceptual or detailed mitigation plan or a requirement that the applicant submit a mitigation plan that would reduce the adverse environmental effects so that they are no more than minimal. When compensatory mitigation is required, no work in waters of the United States may occur until the district engineer has approved a specific mitigation plan or has determined that prior approval of a final mitigation plan is not practicable or not necessary to ensure timely completion of the required compensatory mitigation.

D. **Further Information**

1. District Engineers have authority to determine if an activity complies with the terms and conditions of an NWP.

2. NWPs do not obviate the need to obtain other federal, state, or local permits, approvals, or authorizations required by law.

3. NWPs do not grant any property rights or exclusive privileges.

4. NWPs do not authorize any injury to the property or rights of others.

5. NWPs do not authorize interference with any existing or proposed Federal project (see general condition 31).

E. **Definitions**

Best management practices (BMPs): Policies, practices, procedures, or structures implemented to mitigate the adverse environmental effects on surface water quality resulting from

development. BMPs are categorized as structural or non-structural.

Compensatory mitigation: The restoration (re-establishment or rehabilitation), establishment (creation), enhancement, and/or in certain circumstances preservation of aquatic resources for the purposes of offsetting unavoidable adverse impacts which remain after all appropriate and practicable avoidance and minimization has been achieved.

Currently serviceable: Useable as is or with some maintenance, but not so degraded as to essentially require reconstruction.

Direct effects: Effects that are caused by the activity and occur at the same time and place.

Discharge: The term ''discharge'' means any discharge of dredged or fill material into waters of the United States.

Ecological reference: A model used to plan and design an aquatic habitat and riparian area restoration, enhancement, or establishment activity under NWP 27. An ecological reference may be based on the structure, functions, and dynamics of an aquatic habitat type or a riparian area type that currently exists in the region where the proposed NWP 27 activity is located. Alternatively, an ecological reference may be based on a conceptual model for the aquatic habitat type or riparian area type to be restored, enhanced, or established as a result of the proposed NWP 27 activity. An ecological reference takes into account the range of variation of the aquatic habitat type or riparian area type in the region.

Enhancement: The manipulation of the physical, chemical, or biological characteristics of an aquatic resource to heighten, intensify, or improve a specific aquatic resource function(s). Enhancement results in the gain of selected aquatic resource function(s), but may also lead to a decline in other aquatic resource function(s). Enhancement does not result in a gain in aquatic resource area.

Ephemeral stream: An ephemeral stream has flowing water only during, and for a short duration after, precipitation events in a typical year. Ephemeral stream beds are located above the water table year-round. Groundwater is not a source of water for the stream. Runoff from rainfall is the primary source of water for stream flow.

Establishment (creation): The manipulation of the physical, chemical, or biological characteristics present to develop an aquatic resource that did not previously exist at an upland site. Establishment results in a gain in aquatic resource area.

High Tide Line: The line of intersection of the land with the water's surface at the maximum height reached by a rising tide. The high tide line may be determined, in the absence of actual data, by a line of oil or scum along shore objects, a more or less continuous deposit of fine shell or debris on the foreshore or berm, other physical markings or characteristics, vegetation lines, tidal gages, or other suitable means that delineate the general height reached by a rising tide. The line encompasses spring high tides and other high tides that occur with periodic frequency but does not include storm surges in which there is a departure from the normal or predicted reach of the tide due to the piling up of water against a coast by strong winds such as those accompanying a hurricane or other intense storm.

Historic Property: Any prehistoric or historic district, site (including archaeological site), building, structure, or other object included in, or eligible for inclusion in, the National Register of Historic Places maintained by the Secretary of the Interior. This term includes artifacts, records, and remains that are related to and located within such properties. The term includes properties of traditional religious and cultural importance to an Indian tribe or Native Hawaiian organization and that meet the National Register criteria (36 CFR part 60).

Independent utility: A test to determine what constitutes a single and complete non-linear project in the Corps Regulatory Program. A project is considered to have independent utility if it would be constructed absent the construction of other projects in the project area. Portions of a multi-phase project that depend upon other phases of the project do not have independent utility. Phases of a project that would be constructed even if the other phases were not built can be considered as separate single and complete projects with independent utility.

Indirect effects: Effects that are caused by the activity and are later in time or farther removed in distance, but are still reasonably foreseeable.

I**ntermittent stream**: An intermittent stream has flowing water during certain times of the year, when groundwater provides water for stream flow. During dry periods, intermittent streams may not have flowing water. Runoff from rainfall is a supplemental source of water for stream flow.

Loss of waters of the United States: Waters of the United States that are permanently adversely affected by filling, flooding, excavation, or drainage because of the regulated activity. Permanent adverse effects include permanent discharges of dredged or fill material that change an aquatic area to dry land, increase the bottom elevation of a waterbody, or change the use of a waterbody. The acreage of loss of waters of the United States is a threshold measurement of the impact to jurisdictional waters for determining whether a project may qualify for an NWP; it is not a net threshold that is calculated after considering compensatory mitigation that may be used to offset losses of aquatic functions and services. The loss of stream bed includes the acres or linear feet of stream bed that are filled or excavated as a result of the regulated activity. Waters of the United States temporarily filled, flooded, excavated, or drained, but restored to pre-construction contours and elevations after construction, are not included in the measurement of loss of waters of the United States. Impacts resulting from activities that do not require Department of the Army authorization, such as activities eligible for exemptions under section 404(f) of the Clean Water Act, are not considered when calculating the loss of waters of the United States. Navigable waters: Waters subject to section 10 of the Rivers and Harbors Act of 1899. These waters are defined at 33 CFR part 329.

Non-tidal wetland: A non-tidal wetland is a wetland that is not subject to the ebb and flow of tidal waters. Nontidal wetlands contiguous to tidal waters are located landward of the high tide line (i.e., spring high tide line).

Open water: For purposes of the NWPs, an open water is any area that in a year with normal patterns of precipitation has water flowing or standing above ground to the extent that an ordinary high water mark can be determined. Aquatic vegetation within the area of flowing or standing water is either non-emergent, sparse, or absent. Vegetated shallows are considered to be open waters. Examples of ''open waters'' include rivers, streams, lakes, and ponds.

Ordinary High Water Mark: An ordinary high water mark is a line on the shore established by the fluctuations of water and indicated by physical characteristics, or by other appropriate means that consider the characteristics of the surrounding areas.

Perennial stream: A perennial stream has flowing water year-round during a typical year. The water table is located above the stream bed for most of the year. Groundwater is the primary source of water for stream flow. Runoff from rainfall is a supplemental source of water for stream flow.

Practicable: Available and capable of being done after taking into consideration cost, existing technology, and logistics in light of overall project purposes.

Pre-construction notification: A request submitted by the project proponent to the Corps for confirmation that a particular activity is authorized by nationwide permit. The request may be a permit application, letter, or similar document that includes information about the proposed work and its anticipated environmental effects. Preconstruction notification may be required by the terms and conditions of a nationwide permit, or by regional conditions. A pre-construction notification may be voluntarily submitted in cases where preconstruction notification is not required and the project proponent wants confirmation that the activity is authorized by nationwide permit.

Preservation: The removal of a threat to, or preventing the decline of, aquatic resources by an action in or near those aquatic resources. This term includes activities commonly associated with the protection and maintenance of aquatic resources through the implementation of appropriate legal and physical mechanisms. Preservation does not result in a gain of aquatic resource area or functions.

Protected tribal resources: Those natural resources and properties of traditional or customary religious or cultural importance, either on or off Indian lands, retained by, or reserved by or for, Indian tribes through treaties, statutes, judicial decisions, or executive orders, including tribal trust resources.

Re-establishment: The manipulation of the physical, chemical, or biological characteristics of a site with the goal of returning natural/historic functions to a former aquatic resource. Reestablishment results in rebuilding a former aquatic resource and results in a gain in aquatic resource area and functions.

Rehabilitation: The manipulation of the physical, chemical, or biological characteristics of a site with the goal of repairing natural/historic functions to a degraded aquatic resource. Rehabilitation results in a gain in aquatic resource function, but does not result in a gain in aquatic resource area.

Restoration: The manipulation of the physical, chemical, or biological characteristics of a site with the goal of returning natural/historic functions to a former or degraded aquatic resource. For the purpose of tracking net gains in aquatic resource area, restoration is divided into two categories: Reestablishment and rehabilitation.

Riffle and pool complex: Riffle and pool complexes are special aquatic sites under the 404(b)(1) Guidelines. Riffle and pool complexes sometimes characterize steep gradient sections of streams. Such stream sections are recognizable by their hydraulic characteristics. The rapid movement of water over a course substrate in riffles results in a rough flow, a turbulent surface, and high dissolved oxygen levels in the water. Pools are deeper areas associated with riffles. A slower stream velocity, a streaming flow, a smooth surface, and a finer substrate characterize pools.

Riparian areas: Riparian areas are lands next to streams, lakes, and estuarine-marine shorelines. Riparian areas are transitional between terrestrial and aquatic ecosystems, through which surface and subsurface hydrology connects riverine, lacustrine, estuarine, and marine waters with their adjacent wetlands, non-wetland waters, or uplands. Riparian areas provide a variety of ecological functions and services and help improve or maintain local water quality. (See general condition 23.)

Shellfish seeding: The placement of shellfish seed and/or suitable substrate to increase shellfish production. Shellfish seed consists of immature individual shellfish or individual shellfish attached to shells or shell fragments (i.e., spat on shell). Suitable substrate may consist of shellfish shells, shell fragments, or other appropriate materials placed into waters for shellfish habitat.

Single and complete linear project: A linear project is a project constructed for the purpose of getting people, goods, or services from a point of origin to a terminal point, which often involves multiple crossings of one or more waterbodies at separate and distant locations. The term “single and complete project” is defined as that portion of the total linear project proposed or accomplished by one owner/developer or partnership or other association of owners/developers that includes all crossings of a single water of the United States (i.e., a single waterbody) at a specific location. For linear projects crossing a single or multiple waterbodies several times at separate and distant locations, each crossing is considered a single and complete project for purposes of NWP authorization. However, individual channels in a braided stream or river, or individual arms of a large, irregularly shaped wetland or lake, etc., are not separate waterbodies, and crossings of such features cannot be considered separately.

Single and complete non-linear project: For non-linear projects, the term “single and complete project” is defined at 33 CFR 330.2(i) as the total project proposed or accomplished by one owner/developer or partnership or other association of owners/developers. A single and complete non-linear project must have independent utility (see definition of “independent utility”). Single and complete non-linear projects may not be “piecemealed” to avoid the limits in an NWP authorization.

Stormwater management: Stormwater management is the mechanism for controlling stormwater runoff for the purposes

of reducing downstream erosion, water quality degradation, and flooding and mitigating the adverse effects of changes in land use on the aquatic environment.

Stormwater management facilities: Stormwater management facilities are those facilities, including but not limited to, stormwater retention and detention ponds and best management practices, which retain water for a period of time to control runoff and/or improve the quality (i.e., by reducing the concentration of nutrients, sediments, hazardous substances and other pollutants) of stormwater runoff.

Stream bed: The substrate of the stream channel between the ordinary high water marks. The substrate may be bedrock or inorganic particles that range in size from clay to boulders. Wetlands contiguous to the stream bed, but outside of the ordinary high water marks, are not considered part of the stream bed.

Stream channelization: The manipulation of a stream's course, condition, capacity, or location that causes more than minimal interruption of normal stream processes. A channelized stream remains a water of the United States.

Structure: An object that is arranged in a definite pattern of organization. Examples of structures include, without limitation, any pier, boat dock, boat ramp, wharf, dolphin, weir, boom, breakwater, bulkhead, revetment, riprap, jetty, artificial island, artificial reef, permanent mooring structure, power transmission line, permanently moored floating vessel, piling, aid to navigation, or any other manmade obstacle or obstruction.

Tidal wetland: A tidal wetland is a jurisdictional wetland that is inundated by tidal waters. Tidal waters rise and fall in a predictable and measurable rhythm or cycle due to the gravitational pulls of the moon and sun. Tidal waters end where the rise and fall of the water surface can no longer be practically measured in a predictable rhythm due to masking by other waters, wind, or other effects. Tidal wetlands are

Tribal lands: Any lands title to which is either: (1) Held in trust by the United States for the benefit of any Indian tribe or individual; or (2) held by any Indian tribe or individual subject to restrictions by the United States against alienation.

Tribal rights: Those rights legally accruing to a tribe or tribes by virtue of inherent sovereign authority, unextinguished aboriginal title, treaty, statute, judicial decisions, executive order or agreement, and that give rise to legally enforceable remedies.

Vegetated shallows: Vegetated shallows are special aquatic sites under the 404(b)(1) Guidelines. They are areas that are permanently inundated and under normal circumstances have rooted aquatic vegetation, such as seagrasses in marine and estuarine systems and a variety of vascular rooted plants in freshwater systems.

Waterbody: For purposes of the NWPs, a waterbody is a jurisdictional water of the United States. If a wetland is adjacent to a waterbody determined to be a water of the United States, that waterbody and any adjacent wetlands are considered together as a single aquatic unit (see 33 CFR 328.4(c)(2)). Examples of ''waterbodies'' include streams, rivers, lakes, ponds, and wetlands.

LANCE R. LEFLEUR
DIRECTOR

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GOVERNOR

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January 30, 2017

Colonel Jim DeLapp
Commander, Mobile District
U.S. Army Corps of Engineers
P.O. Box 2288
Mobile, AL 36628-0001

RE: Clean Water Act (CWA) Section 401 Water Quality Certification (WQC), U.S. Army Corps of Engineers (COE) Proposed 2017 Reissuance of Alabama Nationwide Permits (ALNWPs) For Activities Within the State of Alabama With Minimal Individual And Cumulative Adverse Impacts On The Aquatic Environment, January 6, 2017 CESAM-RD, SAM-2016-00407-MBM

Dear Colonel DeLapp:

This office has completed a review of the above-referenced notice and all associated materials submitted related to the proposed ALNWPs. Any comments made during the public notice period have also been forwarded to us for review.

1. Aids to Navigation
2. Structures in Artificial Canals
3. Maintenance
4. Fish and Wildlife Harvesting, Enhancement, and Attraction Devices and Activities
5. Scientific Measurement Devices
6. Survey Activities
7. Outfall Structures and Associated Intake Structures
8. Oil and Gas Structures on the Outer Continental Shelf
9. Structures in Fleeting and Anchorage Areas
10. Mooring Buoys
11. Temporary Recreational Structures
12. Utility Line Activities
13. Bank Stabilization
14. Linear Transportation Projects
15. U.S. Coast Guard Approved Bridges
16. Return Water From Upland Contained Disposal Areas
17. Hydropower Projects
18. Minor Discharges
19. Minor Dredging
20. Response Operations for Oil or Hazardous Substances
21. Surface Coal Mining Activities
22. Removal of Vessels
23. Approved Categorical Exclusions
24. Indian Tribe or State Administered Section 404 Programs
25. Structural Discharges
26. [*Reserved*]
27. Aquatic Habitat Restoration, Establishment, and Enhancement Activities

Birmingham Branch
110 Vulcan Road
Birmingham, AL 35209-4702
(205) 942-6168
(205) 941-1603 (FAX)

Decatur Branch
2715 Sandlin Road, S.W.
Decatur, AL 35603-1333
(256) 353-1713
(256) 340-9359 (FAX)

Mobile Branch
2204 Perimeter Road
Mobile, AL 36615-1131
(251) 450-3400
(251) 479-2593 (FAX)

Mobile-Coastal
3664 Dauphin Street, Suite B
Mobile, AL 36608
(251) 304-1176
(251) 304-1189 (FAX)

28. Modifications of Existing Marinas
29. Residential Developments
30. Moist Soil Management for Wildlife
31. Maintenance of Existing Flood Control Facilities
32. Completed Enforcement Actions
33. Temporary Construction, Access, and Dewatering
34. Cranberry Production Activities
35. Maintenance Dredging of Existing Basins
36. Boat Ramps
37. Emergency Watershed Protection and Rehabilitation
38. Cleanup of Hazardous and Toxic Waste
39. Commercial and Institutional Developments
40. Agricultural Activities
41. Reshaping Existing Drainage Ditches
42. Recreational Facilities
43. Stormwater Management Facilities
44. Mining Activities
45. Repair of Uplands Damaged by Discrete Events
46. Discharges in Ditches
47. [*Reserved*]
48. Commercial Shellfish Aquaculture Activities
49. Coal Remining Activities
50. Underground Coal Mining Activities
51. Land-Based Renewable Energy Generation Facilities
52. Water-Based Renewable Energy Generation Pilot Projects
53. Removal of Low-Head Dams
54. Living Shorelines

Because action pertinent to WQC is required by Section 401(a)(1) of the CWA, 33 U.S.C. Section 1251, et seq., we hereby issue certification until **March 18, 2022**, that there is reasonable assurance that the discharge resulting from the proposed activities as submitted will not violate applicable water quality standards established under Section 303 of the CWA and Title 22, Section 22-22-9(g), Code of Alabama, 1975, provided the applicant acts in accordance with the following conditions as specified. We further certify that there are no applicable effluent limitations under Sections 301 and 302 nor applicable standards under Sections 306 and 307 of the CWA in regard to the activities specified.

To minimize adverse impacts to State waters, by copy of this letter we are requesting the Mobile District Corps of Engineers to incorporate the following as special conditions appropriate to each activity in Alabama authorized by the COE NWPs:

1. During project implementation, the applicant shall ensure compliance with applicable requirements of ADEM. Admin. Code Chapter 335-6-6 [National Pollutant Discharge Elimination System (NPDES)], Chapter 335-6-10 (Water Quality Criteria), and Chapter 335-6-11 (Water Use Classifications for Interstate and Intrastate Waters).

2. ADEM permit coverage may be required prior to commencing and/or continuing certain activities/operations relating to or resulting from the project. If an applicant has any questions regarding ADEM regulated activity or the need for NPDES permit coverage, the applicant can contact ADEM's Water Division at (334) 271-7823. If an applicant has any questions regarding ADEM regulated activity or the need for air permit coverage, the applicant can contact ADEM's Air

Division at (334) 271-7869. If the applicant has any questions regarding ADEM regulated activity or the need for hazardous, toxic, and/or solid waste permit coverage, the applicant can contact ADEM's Land Division at (334) 271-7730.

3. Upon the loss or failure of any treatment facility, Best Management Practice (BMP), or other control, the applicant shall, where necessary to maintain compliance with this certification, suspend, cease, reduce or otherwise control work/activity and all discharges until effective treatment is restored. It shall not be a defense for the applicant in a compliance action that it would have been necessary to halt or reduce work or other activities in order to maintain compliance with the conditions of this certification.

4. The applicant shall retain records adequate to document activities authorized by this certification for a period of at least three years after completion of work/activity authorized by the certification. Upon written request, the applicant shall provide ADEM with a copy of any record/information required to be retained by this paragraph.

5. The applicant shall conduct or have conducted, at a minimum, weekly comprehensive site inspections until completion of the proposed activity to ensure that effective BMPs are properly designed, implemented, and regularly maintained (i.e. repair, replace, add to, improve, implement more effective practice, etc.) to prevent/minimize to the maximum extent practicable discharges of pollutants in order to provide for the protection of water quality.

6. The applicant shall implement a project-specific or a detailed general BMP Plan prepared by an ADEM recognized qualified credentialed professional (QCP) applicable to and commensurate with activities of the type proposed. Effective BMPs shall be implemented and continually maintained for the prevention and control of turbidity, sediment, and other sources of pollutants, including measures to ensure permanent revegetation or cover of all disturbed areas, during and after project implementation.

7. The applicant shall implement a Spill Prevention Control and Countermeasures (SPCC) Plan for all temporary and permanent onsite fuel or chemical storage tanks or facilities consistent with the requirements of ADEM Admin. Code R. 335-6-6-.12(r), Section 311 of the Federal Water Pollution Control Act, and 40 CFR Part 112. The applicant shall maintain onsite or have readily available sufficient oil & grease absorbing material and flotation booms to contain and clean-up fuel or chemical spills and leaks. The applicant shall immediately notify ADEM after becoming aware of a significant visible oil sheen in the vicinity of the proposed activity. In the event of a spill with the potential to impact groundwater or other waters of the State, the applicant should immediately call the National Response Center at 1-800-424-8802 and the Alabama Emergency Management Agency at 1-800-843-0699. The caller should be prepared to report the name, address and telephone number of person reporting spill, the exact location of the spill, the company name and location, the material spilled, the estimated quantity, the source of spill, the cause of the spill, the nearest downstream water with the potential to receive the spill, and the actions taken for containment and cleanup.

8. Additional, effective BMPs shall be fully implemented and maintained on a daily basis as needed to prevent to the maximum extent possible potential discharges of pollutants from activities authorized by this certification, directly to or to a tributary or other stream segment, that have the potential to impact a State water currently considered impaired [waterbody is identified on the Alabama 303(d) list, a total maximum daily load (TMDL) has been finalized for the waterbody, and/or the waterbody is otherwise considered a Tier 1 water pursuant to ADEM Admin. Code Ch. 335-6-10]. The applicant

shall inspect all BMPs as often as is necessary (daily if needed) for effectiveness, need for maintenance, and the need to implement additional, effective BMPs. Additional effective BMPs shall immediately be implemented as needed to ensure full compliance with ADEM requirements and the protection of water quality in the impaired waterbody.

9. All construction and worker debris (e.g. trash, garbage, etc.) must be immediately removed and disposed in an approved manner. If acceptable offsite options are unavailable, effective onsite provisions for collection and control of onsite worker toilet wastes or gray waste waters (i.e. port-o-let, shower washdown, etc.) must be implemented and maintained. Soil contaminated by paint or chemical spills, oil spills, etc. must be immediately cleaned up or be removed and disposed in an approved manner. Also, the applicant shall manage and dispose of any trash, debris, and solid waste according to applicable state and federal requirements.

10. All materials used as fill, or materials used for construction of structures in a waterbody, must be non-toxic, non-leaching, non-acid forming, and free of solid waste or other debris. This requirement does not preclude the use of construction materials authorized by the COE that are typically utilized in marine or other aquatic applications.

11. The applicant shall implement appropriate measures to minimize the potential for a decrease of instream dissolved oxygen concentrations as a result of project implementation. In addition, the applicant shall ensure that the activities authorized by this certification do not significantly contribute to or cause a violation of applicable water quality standards for instream dissolved oxygen.

12. The applicant shall implement appropriate, effective BMPs, including installation of floating turbidity screens as necessary, to minimize downstream turbidity to the maximum extent practicable. The applicant shall visually monitor or measure background turbidity. The applicant must suspend operations should turbidity resulting from project implementation exceed background turbidity by more than 50 NTUs. Operations may resume when the turbidity decreases to within acceptable levels.

13. The applicant shall evaluate, characterize, and as necessary, conduct regular analysis of any material proposed to be dredged/removed/disturbed in order to ensure that potential pollutants are not present in concentrations that could cause or contribute to a violation of applicable water quality standards. Information regarding the evaluation, characterization, or detailed results of any analyses shall be made available to ADEM upon request.

14. If upland disposal areas are utilized, the applicant shall be responsible for the condition of the disposal area, including the structural integrity of any embankments, until the disposal area is permanently reclaimed or adequately stabilized, to ensure that sediment and/or turbidity in the return water and/or stormwater runoff will not cause substantial visible contrast with the receiving waters, or result in an increase of 50 NTUs above background turbidity levels in the receiving waters.

15. For proposed activities associated with new or updated docks, marinas, multiple boat slips, floating docks, large or multiple piers, etc. or that increase the number of berthing areas, the applicant shall ensure that these facilities are equipped with appurtenances (i.e. trash receptacles, receptacles for fish offal and carcasses, SPCC for fueling facilities, and a sewage pump out system where appropriate) as needed to protect water quality.

16. The applicant is encouraged to consider additional pollution prevention practices, low impact development (LID), and other alternatives to assist in complying with applicable regulatory

requirements and possible reduction/elimination of pollutant discharges. LID is an approach to land development or re-development that works with nature to manage stormwater as close to its source as possible. LID employs principles such as preserving and recreating natural landscape features, minimizing effective imperviousness to create functional and appealing site drainage that treat stormwater as a resource rather than a waste product. There are many practices that have been used to implement these sustainable ideas such as bioretention facilities, rain gardens, vegetated rooftops, rain barrels, and permeable pavements. By implementing LID principles and practices, water can be managed in a way that reduces the impact of built areas and promotes the natural movement of water within an ecosystem or watershed.

17. The applicant is encouraged to consider and implement a site design plan/strategy for post-construction hydrology to mimic pre-construction hydrology to the extent feasible, and for post-construction stormwater runoff peak flows and total stormwater volume to minimize potential downstream channel and stream bank erosion.

18. In recognition that projects are site specific in nature and conditions can change during project implementation, ADEM reserves the right to require the submission of additional information or require additional management measures to be implemented, as necessary on a case-by-case basis, in order to ensure the protection of water quality. Liability and responsibility for compliance with this certification are not delegable by contract or otherwise. The applicant shall ensure that any agent, contractor, subcontractor, or other person employed by, under contract, or paid a salary by the applicant complies with this certification. Any violations resulting from the actions of such person may be considered violations of this certification.

19. Issuance of a certification by ADEM neither precludes nor negates an operator/owner's responsibility or liability to apply for, obtain, or comply with other ADEM, federal, state, or local government permits, certifications, licenses, or other approvals. This certification does not convey any property rights in either real or personal property, or any exclusive privileges, nor does it authorize any injury to persons or property or invasion of other private rights, trespass, or any infringement of Federal, State, or local laws or regulations, and in no way purports to vest in the applicant title to lands now owned by the State of Alabama, nor shall it be construed as acquiescence by the State of Alabama of lands owned by the State of Alabama that may be in the applicant's possession.

Should you have any questions on this or related matters, please do not hesitate to contact Richard Hulcher, Office of Field Services, by email at rfh@adem.alabama.gov or by phone at 334-394-4311.

Sincerely,

Anthony Scott Hughes, Chief
Field Operations Division

File: WQ401
c: Nashville District COE
EPA Region IV

LANCE R. LEFLEUR
DIRECTOR

ROBERT J. BENTLEY
GOVERNOR

Alabama Department of Environmental Management
adem.alabama.gov

1400 Coliseum Blvd. 36110-2400 ▪ Post Office Box 301463
Montgomery, Alabama 36130-1463
(334) 271-7700 ▪ FAX (334) 271-7950

March 6, 2017

Colonel Jim DeLapp
Commander, Mobile District
U. S. Army Corps of Engineers
P.O. Box 2288
Mobile, AL 36628-0001

RE: U. S. Army Corps of Engineers 2017 Nationwide Permits (NWPs) Program
Mobile District Notice: SAM-2016-00407-MBM
ADEM Tracking Code: 2016-301-FC-FAA-COE

Dear Colonel DeLapp:

The Alabama Coastal Area Management Program (ACAMP) was developed by the state of Alabama in accordance with the passage and codification of the 1976 Alabama Coastal Area Act (Act No. 534) in order to manage certain land and water activities within the Alabama Coastal Area (Coastal Area). The ACAMP derives authority from Act No. 534 and the 1982 Alabama Environmental Management Act (Act No. 82-612) for the purpose of promoting, improving, and safeguarding the lands and waters located in the Coastal Area of the state through a comprehensive and cooperative program designed to preserve, enhance, and develop such valuable resources for the present and future well-being and general welfare of the citizens of the state. Act No. 534 adheres to the federal rules and regulations established by the Coastal Zone Management Act of 1972, as amended and as such, the ACAMP is a federally-approved coastal program and receives financial benefits in the form of federal grants for its implementation, *(USC 16 §§1451-1466)*. The Coastal Area is defined as the area that lies between the continuous 10-foot contour in Mobile and Baldwin counties seaward to the outer limits of the United States territorial sea *(Code of Alabama 1975 §9-7-10(1))*. The 10-foot contour refers to a continuous line on a map joining points of equal elevation above mean sea level.

The ACAMP is implemented by two state agencies: the Alabama Department of Conservation & Natural Resources (ADCNR) and the Alabama Department of Environmental Management (ADEM). ADCNR is responsible for administration, planning, and public engagement functions, while ADEM is responsible for permitting, monitoring, and regulatory functions. Under its regulatory authority, the ADEM reviewed - for consistency with the ACAMP - each of the above referenced new, modified, and reissued NWPs which were advertised in the 06 January 2017 publication of the Federal Register. As a part of its review, the ADEM considered all materials submitted and associated with 2017 NWP program proposal, including comments submitted by the public.

The NWPs listed below have been determined by the ADEM, based on their scope or nature, not to have a significant impact on coastal resources when implemented in accordance with the specific conditions described herein and are therefore categorically certified to be **consistent with the ACAMP** - pursuant to ADEM Administrative Code 335-8-1-.03(4).

1. **Aids to Navigation**
No additional coastal consistency conditions.

2. **Structures in Artificial Canals**
The permittee shall obtain all appropriate authorizations required by the Alabama Department of Conservation and Natural Resources – State Lands Division (ADCNR-SLD) prior to commencement of activities that would impact or be located over State-Owned Submerged Lands.

3. Maintenance

A. Activities authorized under Nationwide Permit 3 shall not be located in close proximity to existing wetlands, submersed grassbeds, or natural oyster reefs and shall not result in adverse impacts to those resources.

B. The permittee shall obtain all appropriate authorizations required by the ADCNR-SLD prior to commencement of activities that would impact or be located over State-Owned Submerged Lands.

4. Fish and Wildlife Harvesting, Enhancement, and Attraction Devices and Activities

The permittee shall obtain all appropriate authorizations required by the ADCNR-SLD prior to commencement of activities that would impact or be located over State-Owned Submerged Lands.

5. Scientific Measurement Devices

A. Activities authorized under Nationwide Permit 5 shall not be located in close proximity to existing wetlands, submersed grassbeds, or natural oyster reefs and shall not result in adverse impacts to those resources.

B. The permittee shall obtain all appropriate authorizations required by the ADCNR-SLD prior to commencement of activities that would impact or be located over State-Owned Submerged Lands.

6. Survey Activities

No additional coastal consistency conditions.

7. Outfall Structures and Associated Intake Structures

A. Activities authorized under Nationwide Permit 7 shall not be located in close proximity to existing wetlands, submersed grassbeds, or natural oyster reefs and shall not result in adverse impacts to those resources.

B. There shall be no placement of new riprap in previously unarmored areas.

C. There shall be no construction of new outfall and/or intake structures on properties fronting the Gulf of Mexico, Pelican Bay, Weeks Bay, Dauphin Island Audubon Sanctuary, or the Point aux Pines wetland system owned by the Board of Trustees of the University of Alabama.

D. The permittee shall obtain all appropriate authorizations required by the ADCNR-SLD prior to commencement of activities that would impact or be located over State-Owned Submerged Lands.

8. Oil and Gas Structures on the Outer Continental Shelf

No additional coastal consistency conditions.

9. Structures in Fleeting and Anchorage Areas

The permittee shall obtain all appropriate authorizations required by the ADCNR-SLD prior to commencement of activities that would impact or be located over State-Owned Submerged Lands.

11. Temporary Recreational Structures

The permittee shall obtain all appropriate authorizations required by the ADCNR-SLD prior to commencement of activities that would impact or be located over State-Owned Submerged Lands.

12. Utility Line Activities

A. The permittee shall submit a copy of the Pre-Construction Notification (PCN) required by the Corps to the ADEM Mobile-Coastal office.

B. Activities authorized under Nationwide Permit 12 shall not be located in close proximity to existing submersed grassbeds or natural oyster reefs and shall not result in adverse impacts to those resources.

C. The permittee must demonstrate avoidance and minimization of wetland impacts to the maximum extent practicable. Wetland impacts may be considered only after utilization of all available uplands.

D. The permittee shall undertake restoration of any wetland areas or State waterbottoms temporarily impacted as a result of activities authorized under Nationwide Permit 12. Disturbed areas must be returned to preproject elevations and wetland areas must be revegetated.

E. The permittee shall provide compensatory mitigation for any authorized permanent wetland impacts and shall submit supporting documentation (e.g. certificate of credit purchase) to the ADEM Mobile-Coastal office for verification.
F. The permittee shall obtain all appropriate authorizations required by the ADCNR-SLD prior to commencement of activities that would impact or be located over State-Owned Submerged Lands.

14. Linear Transportation Crossings

A. The permittee shall submit a copy of the PCN required by the Corps to the ADEM Mobile-Coastal office.
B. There shall be no placement of permanent fill in wetlands as part of new construction or expansions of multiple unit residential, commercial, or institutional developments.
C. The permittee must demonstrate avoidance and minimization of wetland impacts to the maximum extent practicable. Wetland impacts may be considered only after utilization of all available uplands.
D. The permittee shall provide compensatory mitigation for any authorized permanent wetland impacts and shall submit supporting documentation (e.g. certificate of credit purchase) to the ADEM Mobile-Coastal office for verification.
E. The permittee shall obtain all appropriate authorizations required by the ADCNR-SLD prior to commencement of activities that would impact or be located over State-Owned Submerged Lands.

15. U.S. Coast Guard Approved Bridges

The permittee shall obtain all appropriate authorizations required by the ADCNR-SLD prior to commencement of activities that would impact or be located over State-Owned Submerged Lands.

16. Return Water from Upland Contained Disposal Areas

A. The permittee shall ensure the salinity of return waters from dredge disposal sites is similar to the salinity of the receiving waters.
B. The discharge from the upland contained disposal area(s) shall not cause a violation of State water quality standards or applicable conditions of the State Clean Water Act Section 401 Water Quality Certification.

17. Hydropower Projects

No additional coastal consistency conditions.

18. Minor Discharges

A. The permittee shall submit a copy of the PCN required by the Corps to the ADEM Mobile-Coastal office. The PCN must include a copy of the legal plat.
B. There shall be no dredging or filling of wetlands, except on legally platted lots or parcels in existence on or before 14 August 1979.
C. Activities authorized under Nationwide Permit 18 shall not be located in close proximity to existing submersed grassbeds or natural oyster reefs and shall not result in adverse impacts to those resources.
D. The permittee must demonstrate avoidance and minimization of wetland impacts to the maximum extent practicable. Wetland impacts may be considered only after utilization of all available uplands.
E. The permittee shall provide compensatory mitigation for any authorized permanent wetland impacts and shall submit supporting documentation (e.g. certificate of credit purchase) to the ADEM Mobile-Coastal office for verification.
F. The permittee shall obtain all appropriate authorizations required by the ADCNR-SLD prior to commencement of activities that would impact or be located over State-Owned Submerged Lands.

19. Minor Dredging

A. Activities authorized under Nationwide Permit 19 shall not be located in close proximity to existing wetlands, submersed grassbeds, or natural oyster reefs and shall not result in adverse impacts to those resources.
B. Dredging is prohibited in the Gulf of Mexico or Pelican Bay in an area from the ADEM Construction Control Line to a point 1,500 feet seaward of Mean High Tide.

C. Dredging is prohibited in the Gulf of Mexico in an area from the City of Gulf Shores Construction Control Line to a point 1,500 feet seaward of Mean High Tide.
D. Dredged material shall be placed in an upland disposal area and properly contained to prevent re-entering the waterway or wetlands unless specifically authorized by other approved permits or exemptions.
E. The permittee shall obtain all appropriate authorizations required by the ADCNR-SLD prior to commencement of activities that would impact or be located over State-Owned Submerged Lands.

20. Response Operations for Oil and Hazardous Substances

The permittee shall undertake restoration of any wetland areas or State waterbottoms temporarily impacted as a result of activities authorized under Nationwide Permit 20. Disturbed areas must be returned to preproject elevations and wetland areas must be revegetated.

22. Removal of Vessels

A. The permittee shall undertake restoration of any wetland areas or State waterbottoms temporarily impacted as a result of activities authorized under Nationwide Permit 22. Disturbed areas must be returned to preproject elevations and wetland areas must be revegetated.
B. Vessel removal related to a catastrophic natural disaster (e.g. hurricane, discrete flooding event, etc.) is not authorized during the time an applicable Temporary State/Regional General Permit for Emergency Vessel Removal related to the natural disaster recovery is in effect.

23. Approved Categorical Exclusions

No additional coastal consistency conditions.

25. Structural Discharges

A. Activities authorized under Nationwide Permit 25 shall not be located in close proximity to existing submersed grassbeds or natural oyster reefs and shall not result in adverse impacts to those resources.
B. The permittee shall obtain all appropriate authorizations required by the ADCNR-SLD prior to commencement of activities that would impact or be located over State-Owned Submerged Lands.

27. Aquatic Habitat Restoration, Establishment, and Enhancement Activities

A. The permittee shall submit a copy of the PCN required by the Corps to the ADEM Mobile-Coastal office.
B. There shall be no construction of open water areas in existing wetlands unless the impacted wetland acreage is replaced elsewhere within the restoration, establishment, and/or enhancement project area.
C. The permittee shall obtain all appropriate authorizations required by the ADCNR-SLD prior to commencement of activities that would impact or be located over State-Owned Submerged Lands.

28. Modifications of Existing Marinas

A. The permittee shall submit notification to the ADEM Mobile-Coastal office prior to reconfiguration of existing docking facilities at marinas having 10 or more wet slips.
B. The permittee shall obtain all appropriate authorizations required by the ADCNR-SLD prior to commencement of activities that would impact or be located over State-Owned Submerged Lands.

31. Maintenance of Existing Flood Control Facilities

No additional coastal consistency conditions.

32. Completed Enforcement Actions

No additional coastal consistency conditions.

33. Temporary Construction, Access and Dewatering

No additional coastal consistency conditions.

35. Maintenance Dredging of Existing Basins

A. Dredged material shall be placed in an upland disposal area and properly contained to prevent re-entering the waterway or wetlands unless specifically authorized by other approved permits or exemptions.
B. The permittee shall obtain all appropriate authorizations required by the ADCNR-SLD prior to commencement of activities that would impact or be located over State-Owned Submerged Lands.

36. Boat Ramps

A. Activities authorized under Nationwide Permit 36 shall not be located in close proximity to existing wetlands, submersed grassbeds, or natural oyster reefs and shall not result in adverse impacts to those resources.
B. There shall be no construction of boat ramps on properties fronting the Gulf of Mexico, Pelican Bay, Weeks Bay, Dauphin Island Audubon Sanctuary, or the Point aux Pines wetland system owned by the Board of Trustees of the University of Alabama.
C. The permittee shall obtain all appropriate authorizations required by the ADCNR-SLD prior to commencement of activities that would impact or be located over State-Owned Submerged Lands.

37. Emergency Watershed Protection and Rehabilitation

No additional coastal consistency conditions.

38. Cleanup of Hazardous and Toxic Waste

No additional coastal consistency conditions.

45. Repair of Uplands Damaged by Discrete Events

A. Activities authorized under Nationwide Permit 45 shall not be located in close proximity to existing wetlands, submersed grassbeds, or natural oyster reefs and shall not result in adverse impacts to those resources.
B. The permittee shall obtain all appropriate authorizations required by the ADCNR-SLD prior to commencement of activities that would impact or be located over State-Owned Submerged Lands.

46. Discharges in Ditches and Canals

No additional coastal consistency conditions.

48. Commercial Shellfish Aquaculture Activities

A. The permittee shall submit a copy of the PCN required by the Corps to the ADEM Mobile-Coastal office, ADCNR Marine Resources Division, and the ADCNR-SLD.
B. Activities structures authorized under Nationwide Permit 48 shall not be located in close proximity to existing wetlands, submersed grassbeds, or natural oyster reefs and shall not result in adverse impacts to those resources. The permittee may be required to submit a submersed grassbed survey to the ADEM Mobile-Coastal office prior to commencement of work.
C. There shall be no placement or addition of fill onto State-Owned Submerged Lands.
D. The permittee shall obtain all appropriate authorizations required by the ADCNR-SLD prior to commencement of activities that would impact or be located over State-Owned Submerged Lands.

53. Removal of Low-Head Dams

A. The permittee shall submit a copy of the PCN required by the Corps to the ADEM Mobile-Coastal office.
B. The permittee shall undertake the restoration of any wetland areas or State waterbottoms temporarily impacted as a result of activities authorized under Nationwide Permit 53. Disturbed areas must be restored to preproject elevations and wetland areas must be revegetated.
C. The permittee shall obtain all appropriate authorizations required by the ADCNR-SLD prior to commencement of activities that would impact or be located over State-Owned Submerged Lands.

Recognizing that projects are site specific in nature and scope and that conditions may change during project implementation, the ADEM reserves the right to require a permittee to submit additional information or require additional management measures to be implemented, as necessary on a case-by-case basis, in order to ensure that

activities authorized under one or more NWPs are being conducted in a manner that protects water quality and coastal resources.

This categorical certification addresses activities which are regulated under the enforceable policies of the ACAMP as codified in ADEM Admin. Code R. 335-8 and does not, in any way, imply that those activities would therefore comply with the requirements of any other jurisdictional entity. This categorical certification does not convey any property rights in either real or personal property, or any exclusive privileges, nor does it authorize any injury to persons or property or invasion of other private rights, trespass, or any infringement of Federal, State, or local laws or regulations, and in no way purport to vest in any applicant title to lands now owned by the State of Alabama nor shall it be construed as acquiescence by the State of Alabama of lands owned by the State that may be in an applicant's possession.

The following NWPs have been found to be inconsistent with the ACAMP and are not authorized for use within the coastal area of Alabama without individual review of the applicant's certification of coastal consistency.

10. Mooring Bouys
13. Bank Stabilization
21. Surface Coal Mining Activities
24. Indian Tribe or State Administered Section 404 Programs
26. Reserved
29. Residential Developments
30. Moist Soil Management for Wildlife
34. Cranberry Production Activities
39. Commercial and Institutional Developments
40. Agricultural Activities
41. Reshaping Existing Drainage Ditches
42. Recreational Facilities
43. Stormwater Management Facilities
44. Mining Activities
47. Reserved
49. Coal Remining Activities
50. Underground Coal Mining Activities
51. Land-Based Renewable Energy Generation Facilities
52. Water-Based Renewable Energy Generation Pilot Projects
54. Living Shorelines

Call, write, or email the Mobile-Coastal office anytime with questions. Always include the ADEM tracking code above when corresponding on this matter. The ADEM contact for this and other coastal zone management issues is J. Scott Brown. He may be reached by telephone at 251. 304.1176 or via e-mail (jsb@adem.alabama.gov).

Sincerely,

A. Scott Hughes, Chief
Field Operations Division

ASH/jsb

cc: Joy Earp, USACE (Sent Via Email Only: Joy.B.Earp@usace.army.mil)
Phillip Hinesley, ADCNR (Sent Via Email Only: Phillip.Hinesley@dcnr.alabama.gov)

APPENDIX E

Existing Drawings

LOUISVILLE & NASHVILLE R.R. South Bound Main Line

DOCKS COMM'S BELT LINE (Future)

End of Commission's Track - 70# Rail
Contractor may connect at this point

MOBILE & OHIO R.R.

ZERO

BASE LINE N. 10°51'27" W.

L-1000' L-500' L+500' L+1000' L+1500' L+2000'

D-500' D+500' D+1000' D+1500'

± Bent #1

L+709.76
D+194.30

L+1166.66
D+194.30

654.42'

50°

Material Delivery Track connecting with Docks Comm's Belt Line R.R.
To be removed by State Docks Comm.

± Bent #197
L+1897.69
D+194.30

456.90'

2292'

ONE MILE CREEK
-TO BE FILLED-

L. & N. R.R. To be removed

PIER No 1

SLIP No 1

PIER No 2B

SLIP No 2

1600.0'
CONCRETE WHARF
Curb Angle at edge of wharf

350.0'

560.0'

M. & O. R.R. — PIER No 8

350.00

U.S. EXTERIOR HARBOR LINE - S.5°09'18"E

MOBILE RIVER

± Bent #79

± Bent #117

L+138.16
D+1420.0'

L+869.19
D+1420.0'

VALETTA
R.R. FLAG STA.

Revised - Jan. 9, 1926

ALABAMA
STATE DOCKS COMMISSION
MOBILE, ALABAMA

CONCRETE WHARF
LOCATION MAP PIER 2

SCALE: 1" = 100'
DATE: Oct. 15, 1925
RECOMMENDED: Arthur C. Davis
ENGINEER & MANAGER
APPROVED: CHAIRMAN

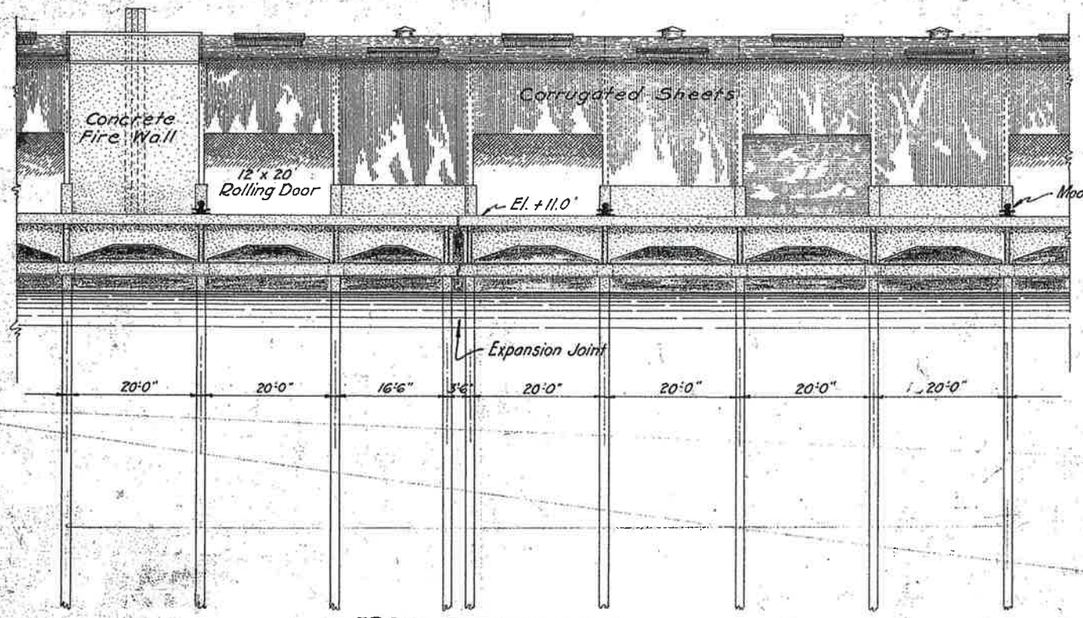
DRAWN BY:
TRACED BY:
CHECKED BY:

B-4-17

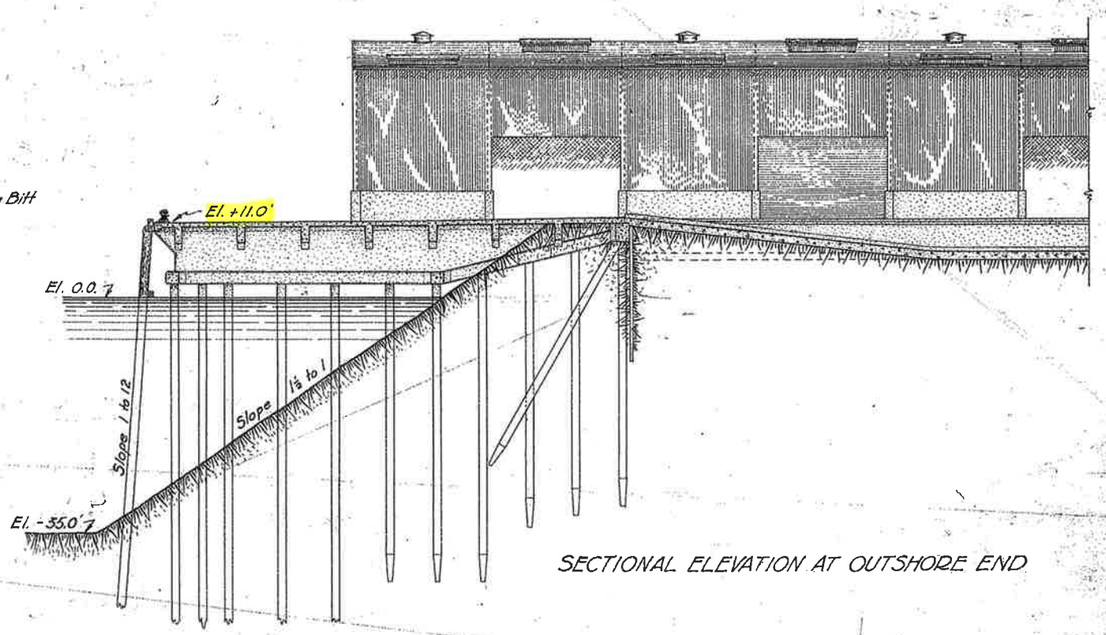
101

1411.9

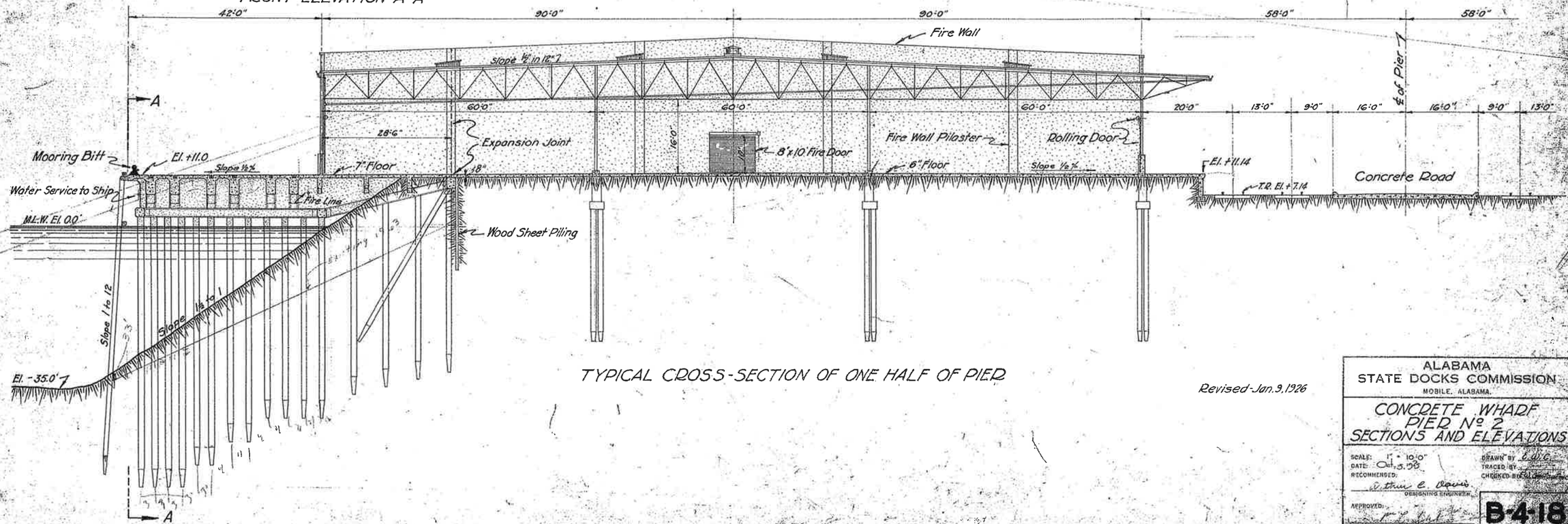
892.9



FRONT ELEVATION A-A



SECTIONAL ELEVATION AT OUTSHORE END



TYPICAL CROSS-SECTION OF ONE HALF OF PIER

Revised-Jan.9,1926

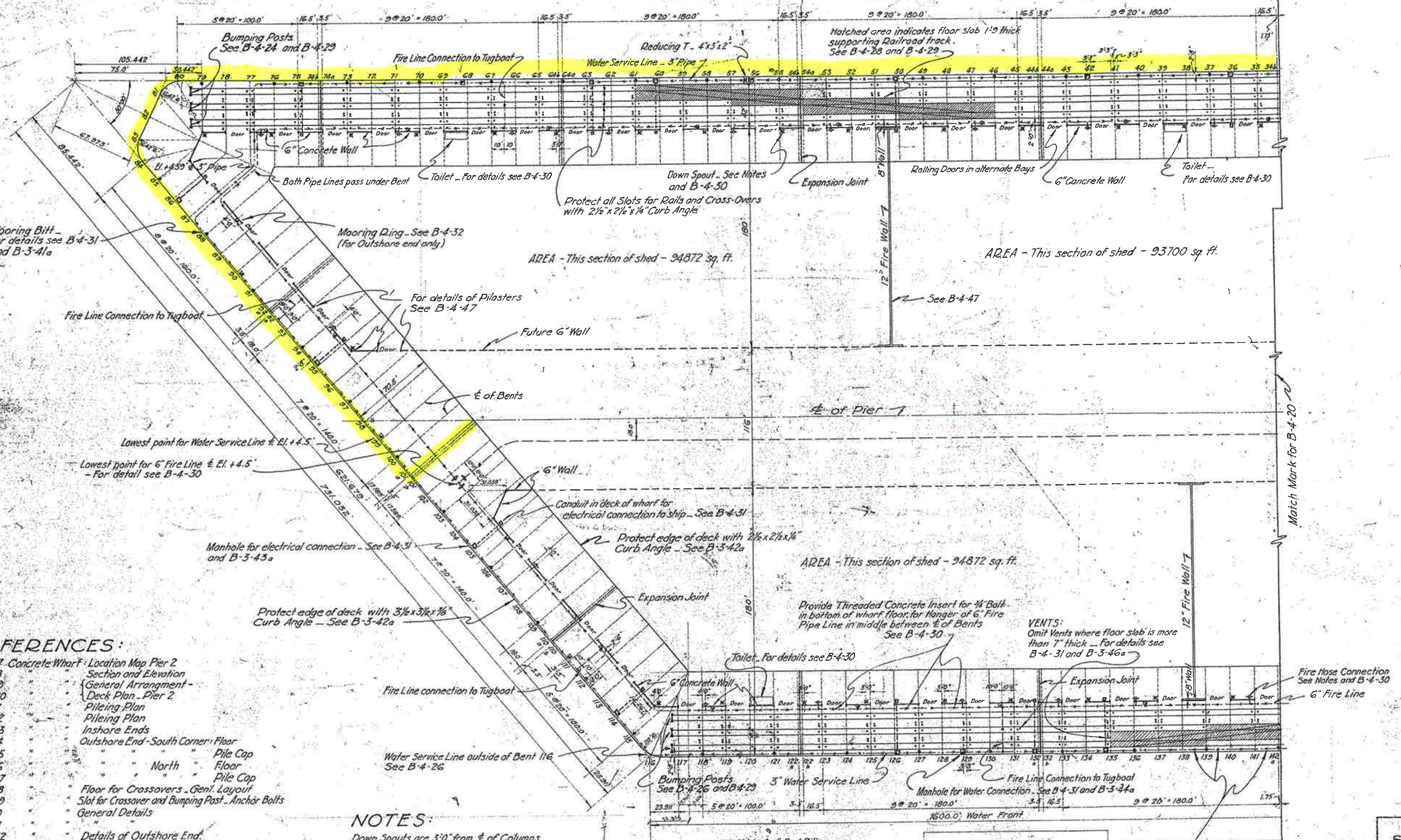
ALABAMA
STATE DOCKS COMMISSION
MOBILE, ALABAMA.

CONCRETE WHARF
PIER No 2
SECTIONS AND ELEVATIONS

SCALE: 1" = 10'-0"
DATE: Oct. 5. 28
RECOMMENDED: Arthur E. Davis
DESIGNING ENGINEER
APPROVED:
CHAIRMAN

DRAWN BY E.W.C.
TRACED BY
CHECKED BY

B-418



5 @ 20' = 100.0'
9 @ 20' = 180.0'
105.442'
75.0'
Bumping Posts. See B-4-24 and B-4-29
Fire Line Connection to Tugboat
Water Service Line - 3" Pipe
Reducing T - 4"x3"x2"
Hatched area indicates floor slab 1'-9 thick supporting Railroad track. See B-4-28 and B-4-29
6" Concrete Wall
El. + 4.59 - 3" Pipe
Both Pipe Lines pass under Bent
Toilet - For details see B-4-30
Protect all Slots for Rails and Cross-Overs with 2½"x2½"x¼" Curb Angle
Down Spout - See Notes and B-4-30
Expansion Joint
8" Wall
Rolling Doors in alternate Bays
6" Concrete Wall
Toilet - For details see B-4-30
Mooring Bitt - For details see B-4-31 and B-3-41a
Mooring Ring - See B-4-32 (For Outshore end only)
AREA - This section of shed - 94872 sq. ft.
AREA - This section of shed - 93700 sq. ft.
12" Fire Wall
See B-4-47
For details of Pilasters See B-4-47
Fire Line Connection to Tugboat
Future 6" Wall
℄ of Bents
℄ of Pier
Match Mark for B-4-20
Lowest point for Water Service Line ℄ El. + 4.5'
Lowest point for 6" Fire Line ℄ El. + 4.5' - For detail see B-4-30
6" Wall
Conduit in deck of wharf for electrical connection to ship - See B-4-31
Protect edge of deck with 2½"x2½"x¼" Curb Angle - See B-3-42a
Manhole for electrical connection - See B-4-31 and B-3-43a
AREA - This section of shed - 94872 sq. ft.
Expansion Joint
Protect edge of deck with 3½"x3½"x⅜" Curb Angle - See B-3-42a
Provide Threaded Concrete Insert for ¾" Bolt in bottom of wharf floor for Hanger of 6" Fire Pipe Line in middle between ℄ of Bents See B-4-30
VENTS: Omit Vents where floor slab is more than 7" thick - For details see B-4-31 and B-3-46a
12" Fire Wall
Toilet - For details see B-4-30
6" Concrete Wall
Fire Line connection to Tugboat
Expansion Joint
Fire Hose Connection See Notes and B-4-30
6" Fire Line
Water Service Line outside of Bent 116 See B-4-26
Bumping Posts See B-4-26 and B-4-29
3" Water Service Line
Fire Line Connection to Tugboat
Manhole for Water Connection - See B-4-31 and B-3-44a
1600.0' Water Front
162391' to ℄ of End Piling

REFERENCES:

B-4-17 Concrete Wharf: Location Map Pier 2
B-4-18 " " Section and Elevation
B-4-19 " " {General Arrangment -
B-4-20 " " {Deck Plan - Pier 2
B-4-21 " " Pileing Plan
B-4-22 " " Pileing Plan
B-4-23 " " Inshore Ends
B-4-24 " " Outshore End - South Corner: Floor
B-4-25 " " " " " " Pile Cap
B-4-26 " " " " North " Floor
B-4-27 " " " " " " Pile Cap
B-4-28 " " Floor for Crossovers - Genl. Layout
B-4-29 " " Slot for Crossover and Bumping Post - Anchor Bolts
B-4-30 " " General Details
B-4-31 " " " "
B-4-32 " " Details of Outshore End.
B-4-33 " " Fender System-Details
B-4-34 " " " " " of Corner
B-4-35 " " Key Plan of Reinforcing Details
B-3-41a " " Detail of Mooring Bitt
B-3-42a " " " " Curb Angles
B-3-43a " " " " Manhole frame for Electrical conn.
B-3-44a " " " " " " " Water connection
B-3-45a " " " " frame for Keyhole for operating Fire Valves
B-3-46a " " " " frame for Vents

NOTES:

Down Spouts are 3'0" from ℄ of Columns except as noted near Bents 7a, 64b, 122b, 152b, 172b.
Stand Pipes of Fire Hose Connections are 4'0" from ℄ of Columns except as noted near Bents 17a, 27a, 94 and 107, and 76
Mooring Rings are in middle between ℄ of Bents except as noted near Bent 88.
Provide supports for Fire Line at each Bent.
Vents, Manholes for Water connection and Manholes for Electrical connection are 3'3" from ℄ of Bents

LEGEND:

- Mooring Ring .... ○
- Mooring Bitt .... ●
- Manhole - Water Conn. .... ◪
- Manhole - Electrical Conn. .... □
- Pipe Line Hangers .... ×
- Vents in floor slab .... ▪
- Fire Hose Connection .... ✝
- Down Spout .... ✖
- Bumping Post I
- Key hole for operating Valve .... ✢

Provide Threaded Concrete Inserts for ¾" Pipe in bottom of Wharf Floor for Hangers of Water Line in middle between ℄ of Bents

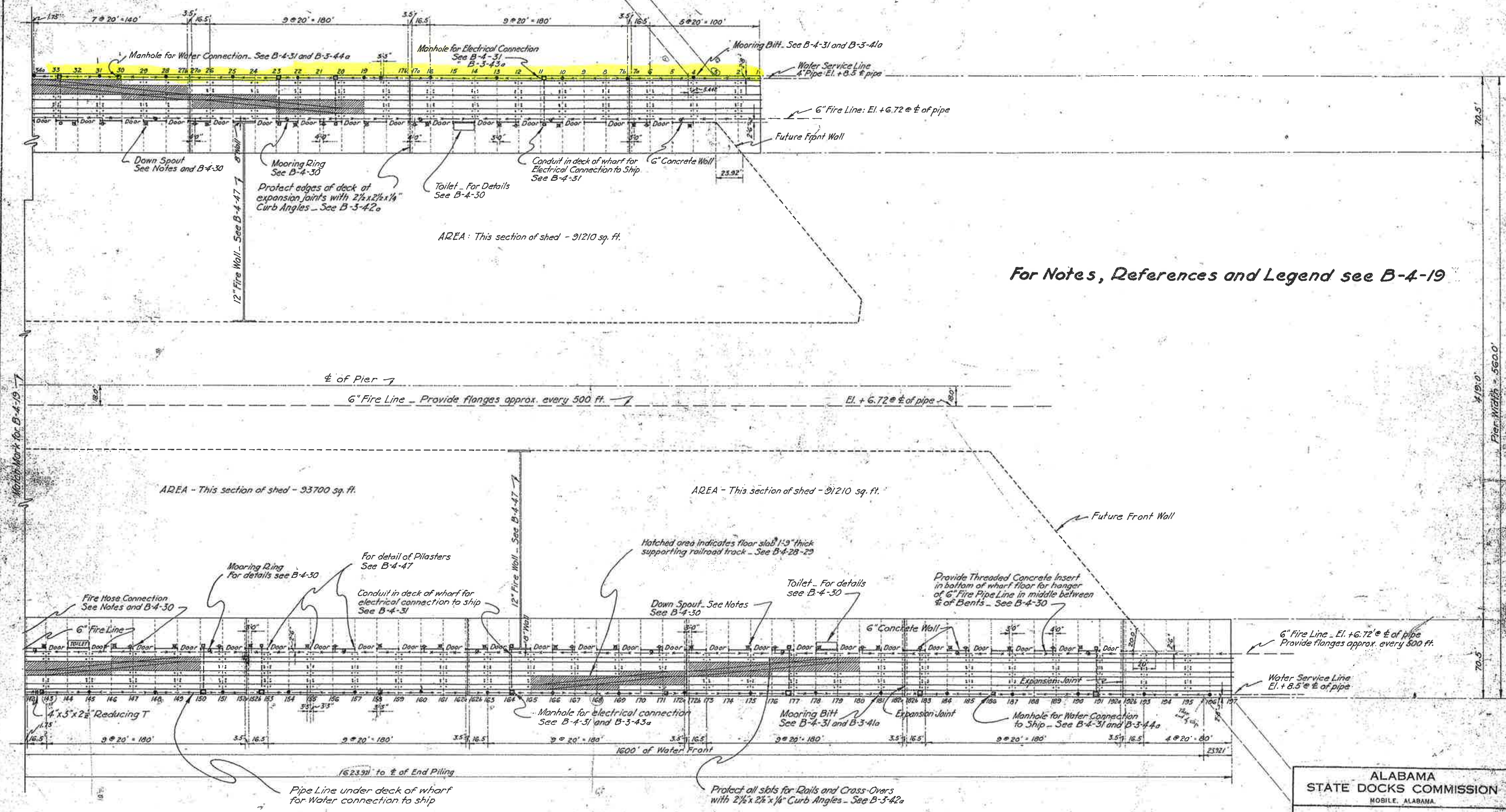
Revised - Jan. 9, 1926.

ALABAMA
STATE DOCKS COMMISSION
MOBILE, ALABAMA.

CONCRETE WHARF
DECK PLAN - PIER 2

SCALE: 1" = 40'
DATE: Oct. 15, 1925
RECOMMENDED: Arthur C. Davis
DESIGNING ENGINEER
APPROVED:
CHAIRMAN
DRAWN BY: E.W.C.
TRACED BY: —
CHECKED BY:

B-4-19



Manhole for Water Connection. See B-4-31 and B-3-44a
Manhole for Electrical Connection See B-4-31 B-3-43a
Mooring Bitt. See B-4-31 and B-3-41a
Water Service Line 4" Pipe El. +8.5 ℄ pipe
6" Fire Line: El. +6.72 @ ℄ of pipe
Future Front Wall
Down Spout See Notes and B-4-30
Mooring Ring See B-4-30
Protect edges of deck at expansion joints with 2½x2½x¼" Curb Angles. See B-3-42a
Toilet. For Details See B-4-30
Conduit in deck of wharf for Electrical Connection to Ship See B-4-31
6" Concrete Wall
12" Fire Wall. See B-4-47
AREA: This section of shed - 91210 sq. ft.
For Notes, References and Legend see B-4-19
℄ of Pier
6" Fire Line. Provide flanges approx. every 500 ft.
El. + 6.72 @ ℄ of pipe
Pier Width = 560.0'
Match Mark for B-4-19
AREA - This section of shed - 93700 sq. ft.
AREA - This section of shed - 91210 sq. ft.
Hatched area indicates floor slab 1'-9" thick supporting railroad track. See B-4-28-29
For detail of Pilasters See B-4-47
Mooring Ring For details see B-4-30
Fire Hose Connection See Notes and B-4-30
Conduit in deck of wharf for electrical connection to ship See B-4-31
Down Spout. See Notes See B-4-30
Toilet. For details see B-4-30
Provide Threaded Concrete Insert in bottom of wharf floor for hanger of 6" Fire Pipe Line in middle between ℄ of Bents. See B-4-30
6" Fire Line. El. +6.72' @ ℄ of pipe Provide flanges approx. every 500 ft.
Water Service Line El. + 8.5' @ ℄ of pipe
Expansion Joint
4"x3"x2½" Reducing T
Manhole for electrical connection See B-4-31 and B-3-43a
Mooring Bitt See B-4-31 and B-3-41a
Manhole for Water Connection to Ship. See B-4-31 and B-3-44a
1600' of Water Front
1623.92' to ℄ of End Piling
Pipe Line under deck of wharf for Water connection to ship
Protect all slots for Rails and Cross-Overs with 2½x2½x¼" Curb Angles. See B-3-42a

DECK PLAN
General Arrangement

Revised-Jan. 9, 1926

ALABAMA
STATE DOCKS COMMISSION
MOBILE, ALABAMA.

CONCRETE WHARF
DECK PLAN. PIER 2

SCALE: 1" = 40'
DATE: Oct. 15, 1925
RECOMMENDED: Arthur [illegible] CONSULTING ENGINEER
APPROVED: [illegible] CHAIRMAN
DRAWN BY E.W.C.
TRACED BY
CHECKED BY [illegible]

B-4-20

NOTES:

In refering to Piles always give number of both Bent and Pile.

Total number of Battered Piles = 376 (159 on this dwg.)
" " " Vertical " 3056 (1405 " " ")
TOTAL 3432

Battered Piles are shown thus: ○ (battered symbol)
Vertical " " " " ○

Pile lengths called for are approximate ONLY: exact lengths to be determined in the field.

REFERENCES:

For Piling Plan for Bents 90 to 197 see B-4-22
Pile Reinforcement B-4-48
General Layout of Wharf, B-4-19 : B-4-20

REFER TO B-4-33 FOR PILE LENGTHS & SIZES

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MOBILE, ALABAMA

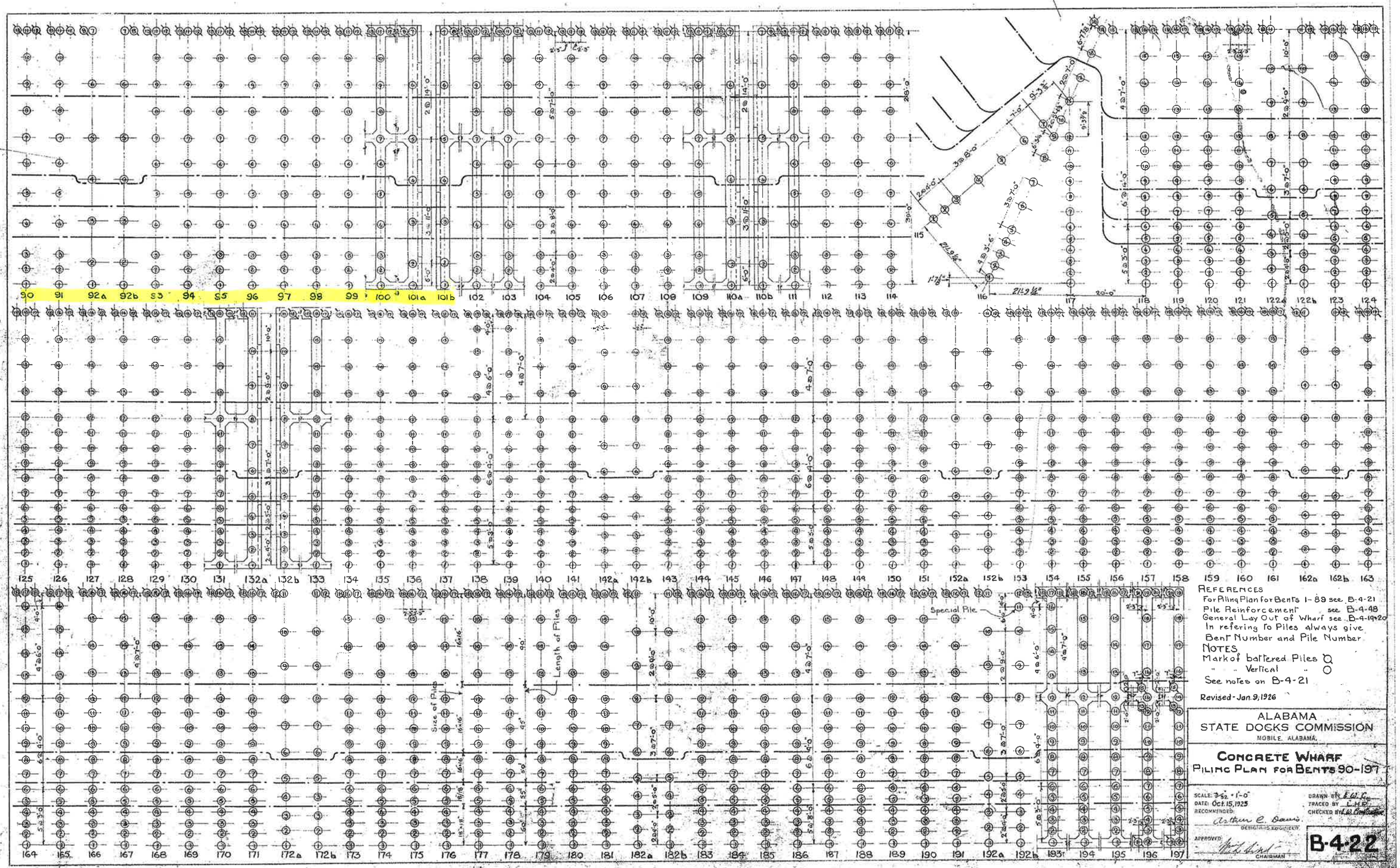
CONCRETE WHARF
PILING PLAN FOR BENTS 1 TO 89

SCALE: 3/32" = 1'-0"
DATE: Oct. 15, 1925
RECOMMENDED: Arthur C. Davis
DESIGNING ENGINEER
APPROVED: [signature]
CHAIRMAN

DRAWN BY E.W.C.
TRACED BY [illegible]
CHECKED BY [illegible]

B-4-21

WATER



REFERENCES
For Piling Plan for Bents 1-89 see B-4-21
Pile Reinforcement see B-4-48
General Lay Out of Wharf see B-4-1920
In refering to Piles always give
Bent Number and Pile Number
NOTES
Mark of battered Piles ○
" " Vertical " ○
See notes on B-4-21

Revised - Jan. 9, 1926

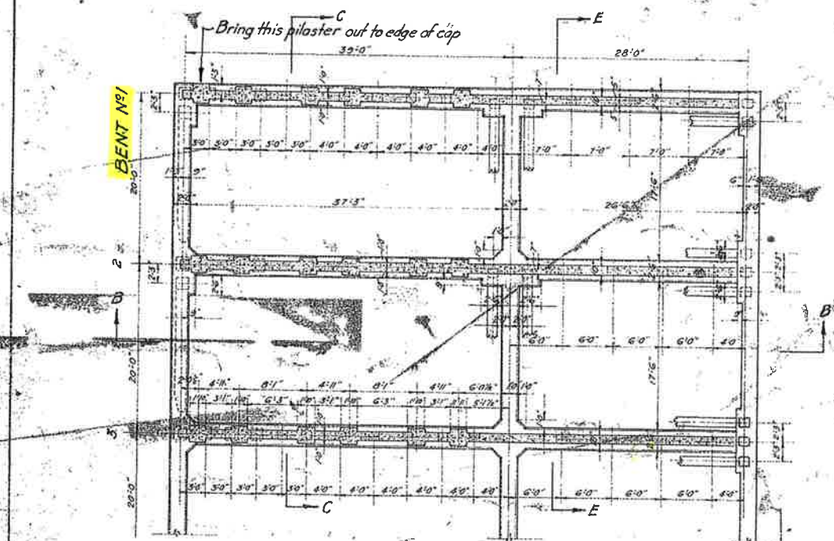
ALABAMA
STATE DOCKS COMMISSION
MOBILE, ALABAMA.

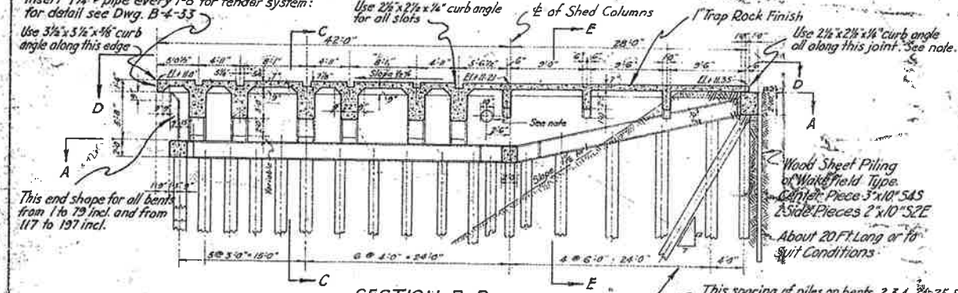
CONCRETE WHARF
PILING PLAN FOR BENTS 90-197

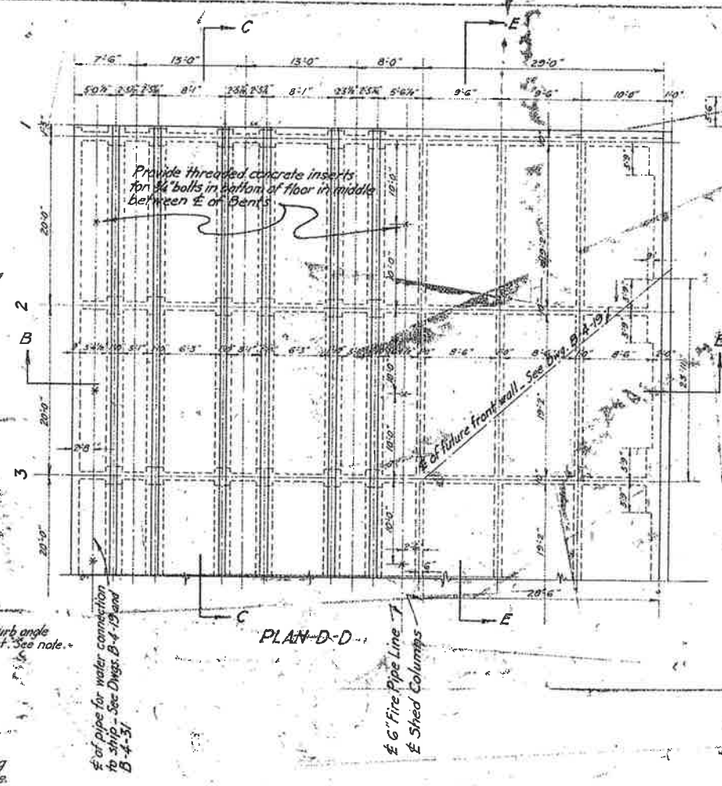
SCALE: 3/32" = 1'-0"
DATE: Oct. 15, 1925
RECOMMENDED: Arthur C. Davis
DESIGNING ENGINEER
APPROVED: [signature]
CHAIRMAN

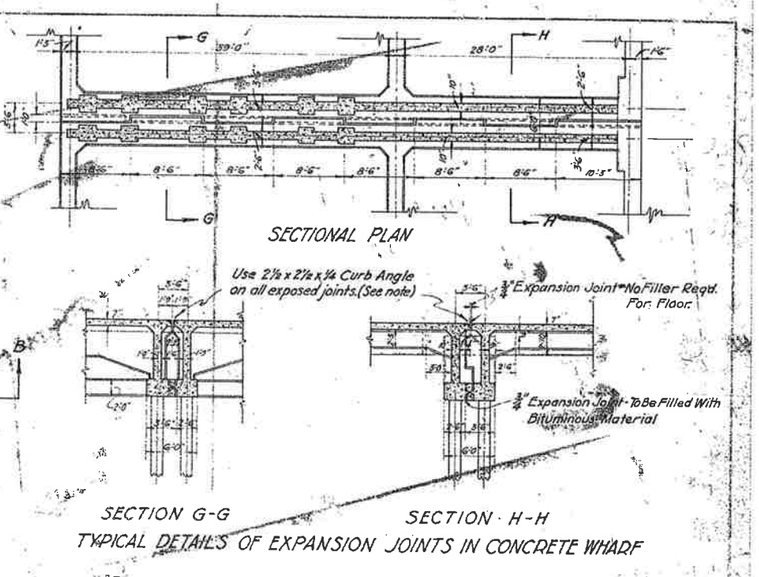
DRAWN BY E.W.C.
TRACED BY L.H.P.
CHECKED BY E.W.C. Contractor

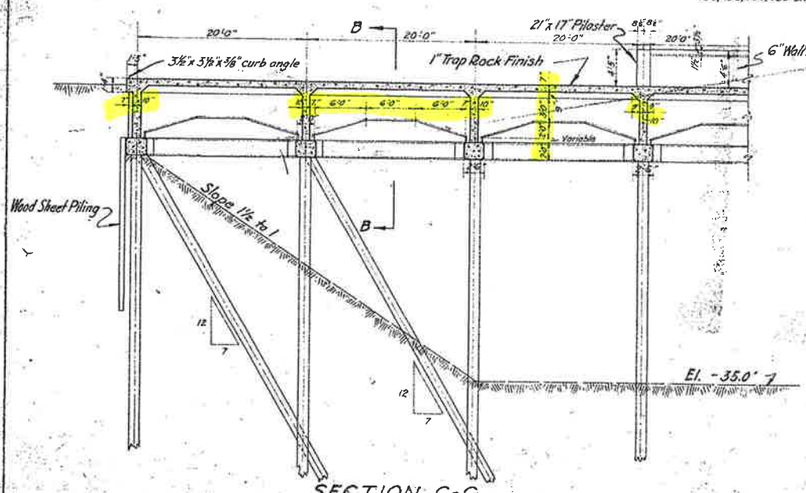
B-4-22

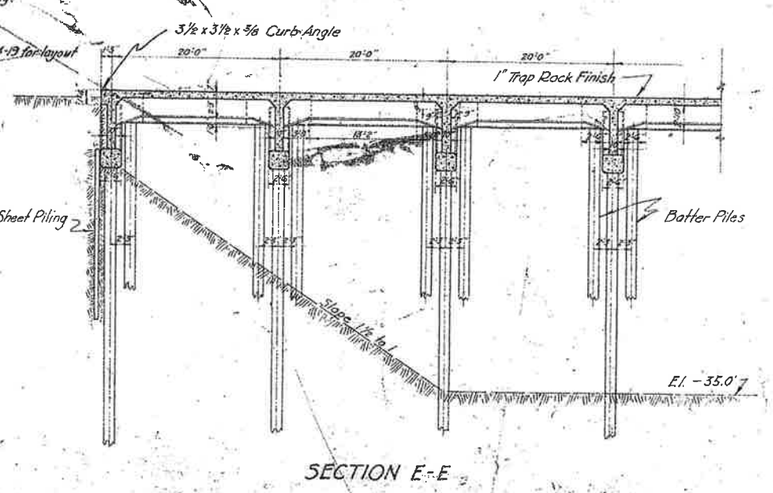












REFERENCES:

General arrangement of wharf... B-4-19 and B-4-20
Pile Plans.... B-4-21 and B-4-22
Key plan for reinforcing details.... B-4-35

NOTES:

Provide 10"dia Hole in Bents for Fire Line; See dwgs. B-4-19 and B-4-30.
For details of curb angles see B-3-42a.
For expansion joint detail of 6" wall above wharf floor see B-4-47
Chamfer for pile caps and beams supporting R.R. track is 2"x2"; for regular floor beams 1½"x1½"

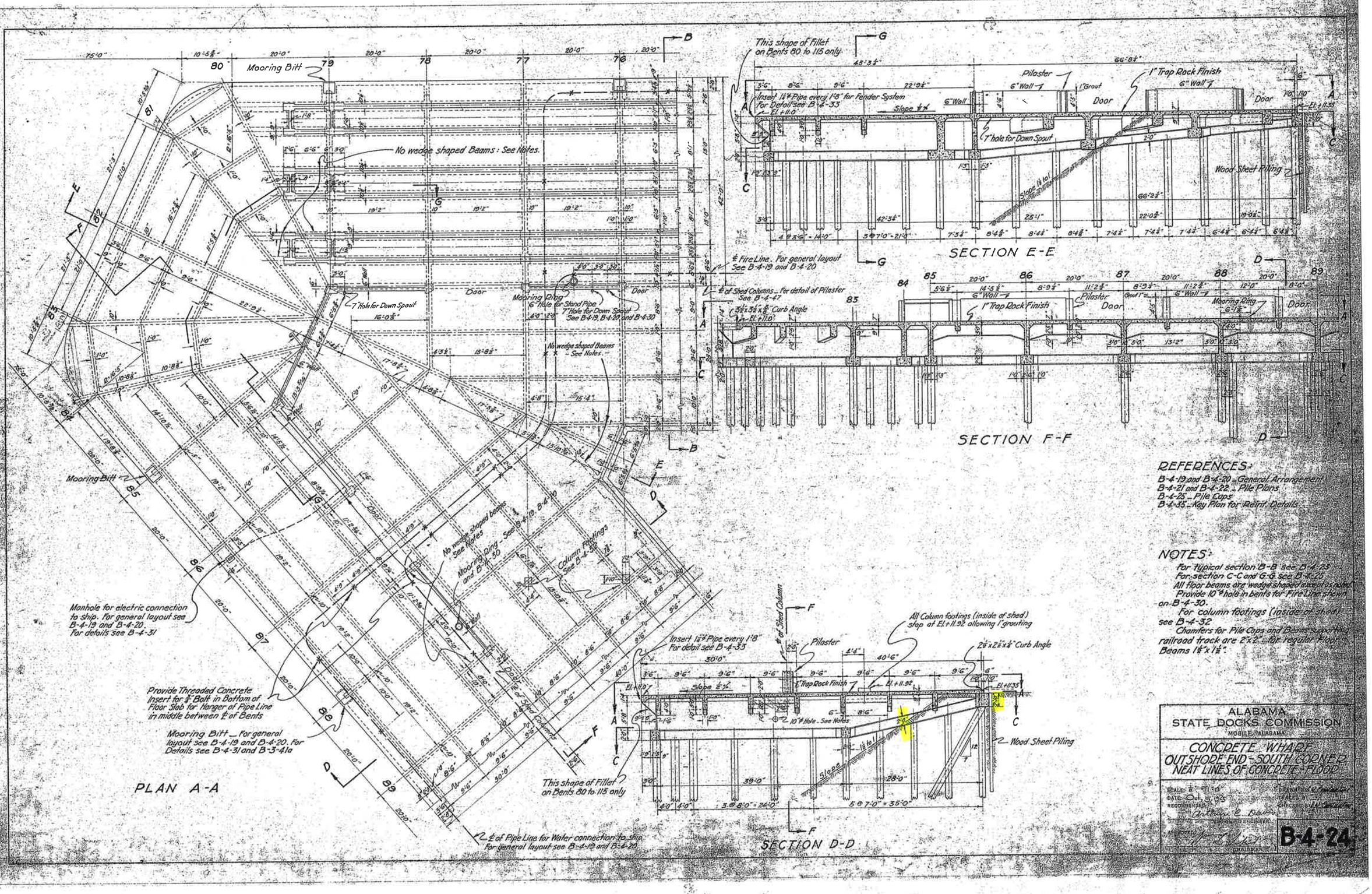
Revised-Jan. 9, 1926.

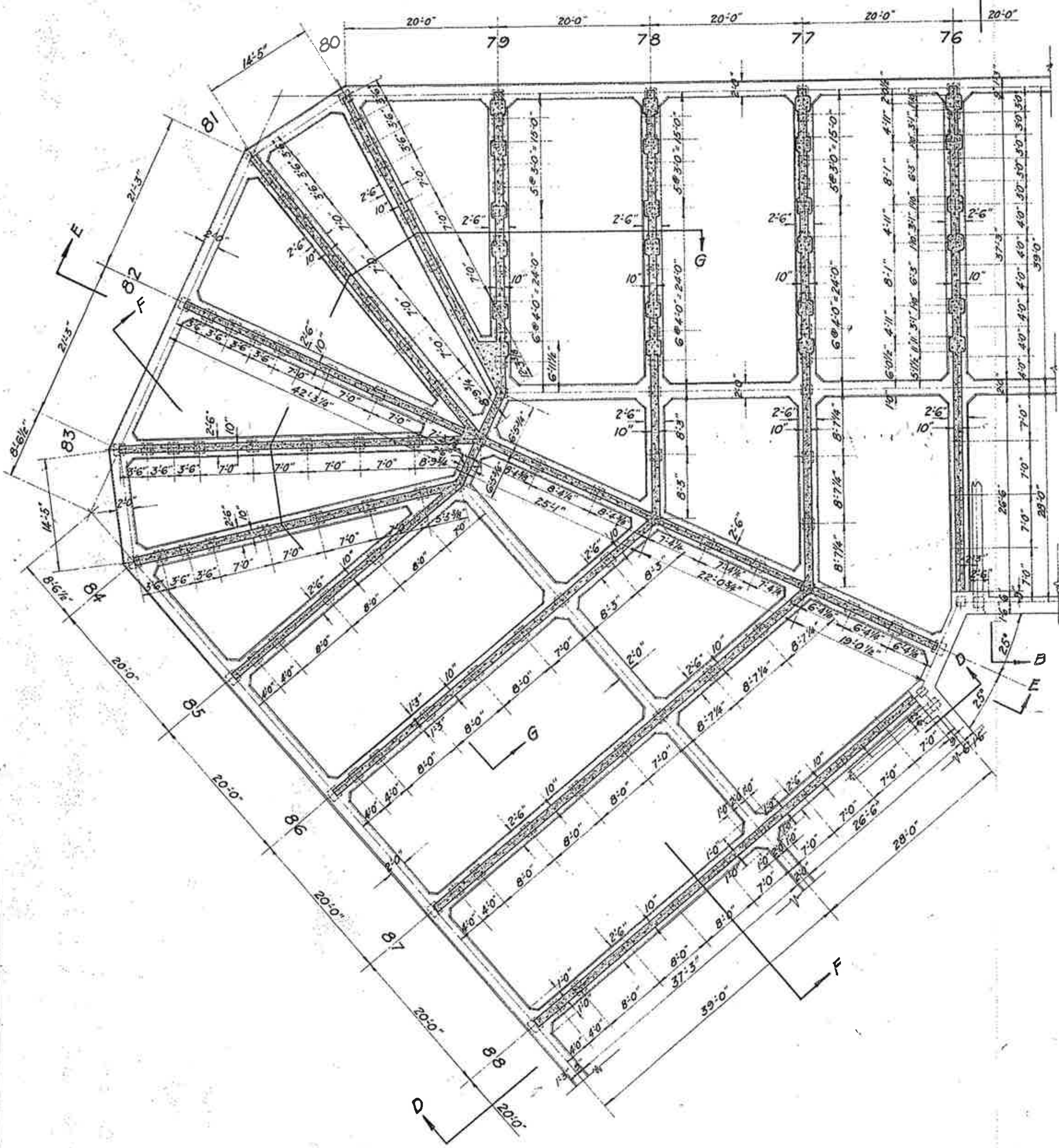
ALABAMA STATE DOCKS COMMISSION
MOBILE, ALABAMA.

CONCRETE WHARF
INSHORE ENDS-NORTH & SOUTH CORNERS
-NEAT LINES OF CONCRETE-

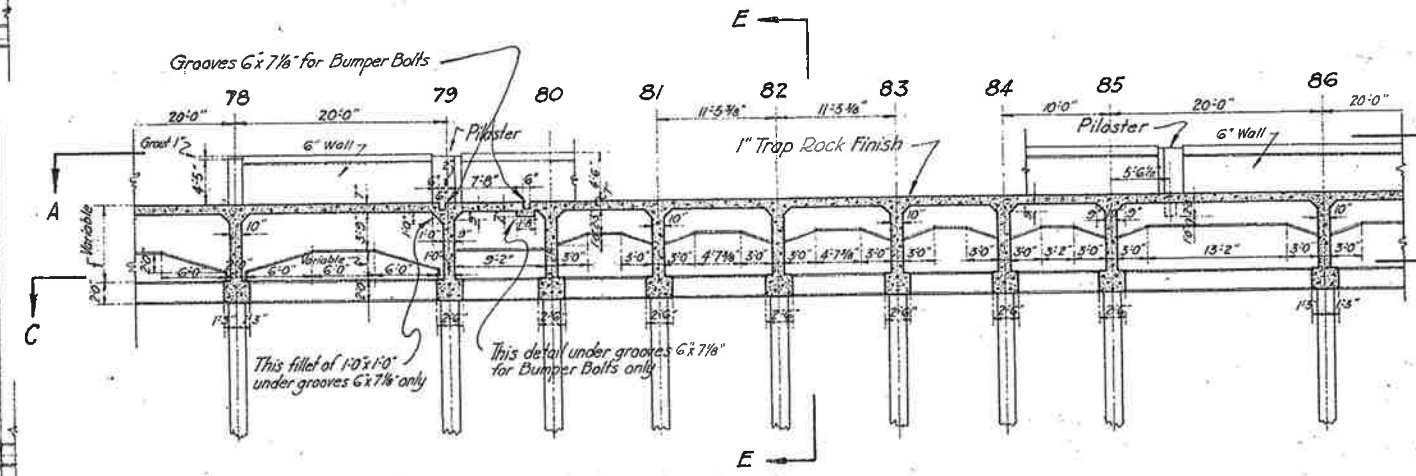
SCALE: 1/8" = 1'-0"
DATE: Oct. 15, 1925
RECOMMENDED: Arthur E. Davis, DESIGNING ENGINEER
APPROVED: W. D. Lee, CHAIRMAN
DRAWN BY: E.W.C.
TRACED BY:
CHECKED BY:

B-4-23


Mooring Bitt
No wedge shaped Beams : See Notes.
7" Hole for Down Spout
Door
Mooring Ring
6" Hole for Stand Pipe
7" Hole for Down Spout
See B-4-19, B-4-30 and B-4-30
No wedge shaped Beams
- See Notes. -
No wedge shaped Beams
: See Notes
Mooring Ring - See B-4-19, B-4-30
and B-4-30
Column footings
See B-4-32
Manhole for electric connection
to Ship. For general layout see
B-4-19 and B-4-20.
For details see B-4-31
Provide Threaded Concrete
Insert for ¾" Bolt in Bottom of
Floor Slab for Hanger of Pipe Line
in middle between ℄ of Bents
Mooring Bitt - For general
layout see B-4-19 and B-4-20. For
Details see B-4-31 and B-3-41a
℄ of Pipe Line for Water connection to Ship.
For general layout see B-4-19 and B-4-20
PLAN A-A
This shape of Fillet
on Bents 80 to 115 only
Inset 1¼" Pipe every 1'8"
for Fender System
for Detail see B-4-33
El +11.0'
Slope ¼"
6" Wall
Pilaster
1" Grout
1" Trap Rock Finish
7" hole for Down Spout
Wood Sheet Piling
Slope ¼ to 1
SECTION E-E
℄ Fire Line. For general layout
See B-4-19 and B-4-20
℄ of Shed Columns - For detail of Pilaster
See B-4-47
(3½"x3½"x⅜" Curb Angle
El. +11.0')
SECTION F-F
REFERENCES:
B-4-19 and B-4-20 - General Arrangement
B-4-21 and B-4-22 - Pile Plans
B-4-25 - Pile Caps
B-4-35 - Key Plan for Reinf. Details
NOTES:
For typical section B-B see B-4-23
For section C-C and G-G see B-4-25
All floor beams are wedge shaped except as noted
Provide 10" ϕ hole in bents for Fire Line shown
on B-4-30.
For column footings (inside of shed)
see B-4-32
Chamfers for Pile Caps and Beams supporting
railroad track are 2"x2". For regular Floor
Beams 1½"x1½".
℄ of Shed Column
All Column footings (inside of shed)
stop at El.+11.92 allowing 1' grouting
Insert 1¼" Pipe every 1'8"
For detail see B-4-33
Pilaster
2½"x2½"x¼" Curb Angle
1" Trap Rock Finish
El.+11.92
El.+11.35
Slope ¼"
10" ϕ Hole - See Notes
Wood Sheet Piling
Slope
This Shape of Fillet
on Bents 80 to 115 only
SECTION D-D
ALABAMA
STATE DOCKS COMMISSION
MOBILE, ALABAMA
CONCRETE WHARF
OUTSHORE END - SOUTH CORNER
NEAT LINES OF CONCRETE - FLOOR
B-4-24



SECTIONAL PLAN C-C



SECTION G-G

REFERENCES:

B-4-19 and B-4-20 _ General Arrangement
B-4-21 and B-4-22 Pile Plans
B-4-35 Key Plan for Reinf. details

NOTES:

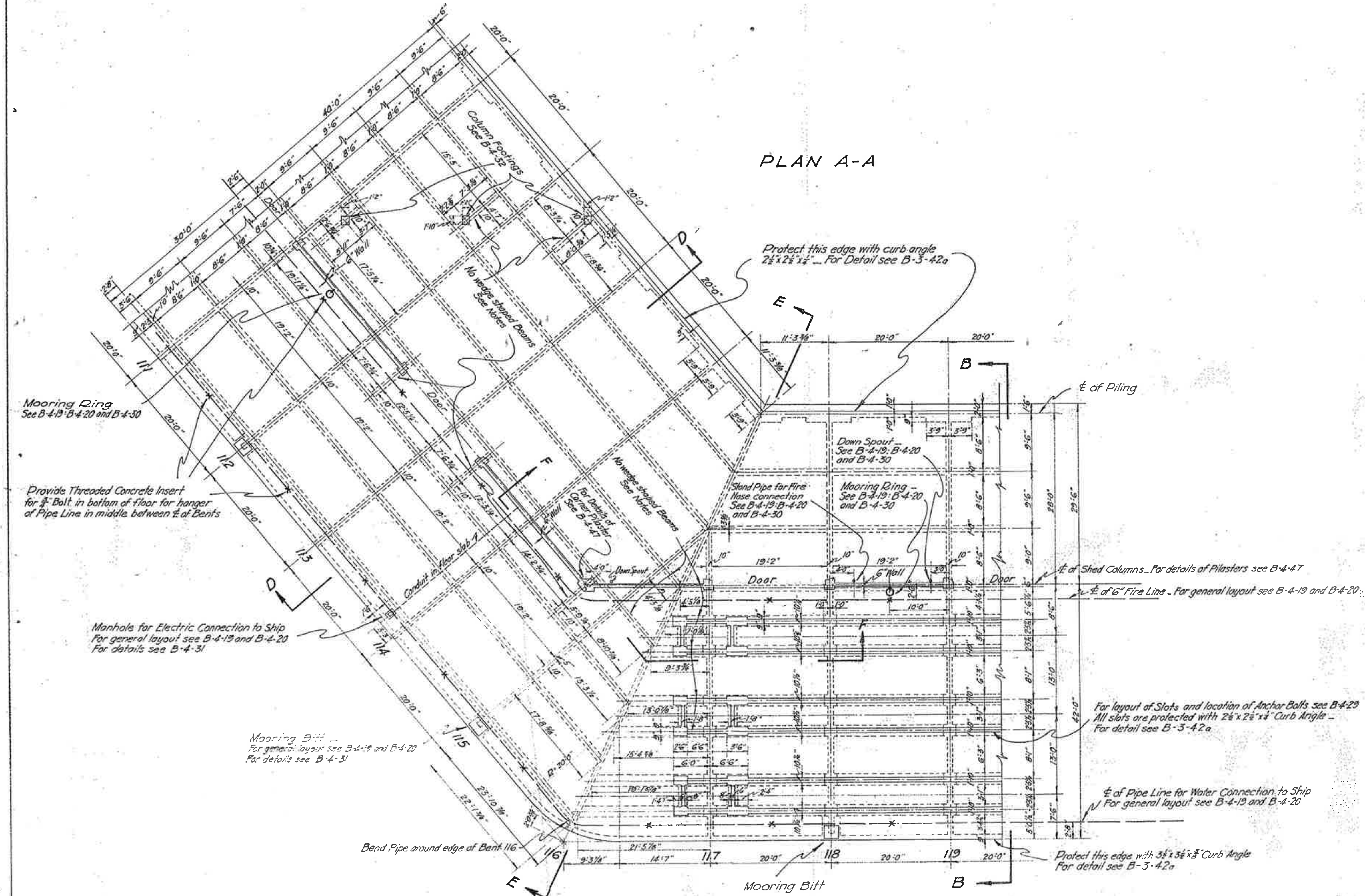
For typical section B-B see B-4-23
For sections A-A, D-D, E-E and F-F see B-4-24
Chamfer for Pile Caps and Beams supporting Railroad track are 2"x 2": For regular floor beams 1½"x 1½".

ALABAMA
STATE DOCKS COMMISSION
MOBILE, ALABAMA.

CONCRETE WHARF
OUTSHORE END - SOUTH CORNER
NEAT LINES OF CONCRETE PILE CAPS

SCALE: ⅛" = 1'-0"
DATE: Oct. 10, 1925
RECOMMENDED:
Arthur L. Davis
DESIGNING ENGINEER.
APPROVED:
W. D. Lilly
CHAIRMAN
DRAWN BY E.W.C.
TRACED BY
CHECKED BY

B-4-25



REFERENCES:

B-4-19 and B-4-20 General Arrangment
B-4-21 and B-4-22 Pile Plans
B-4-35 Key Plan for Reinf. Details

NOTES:

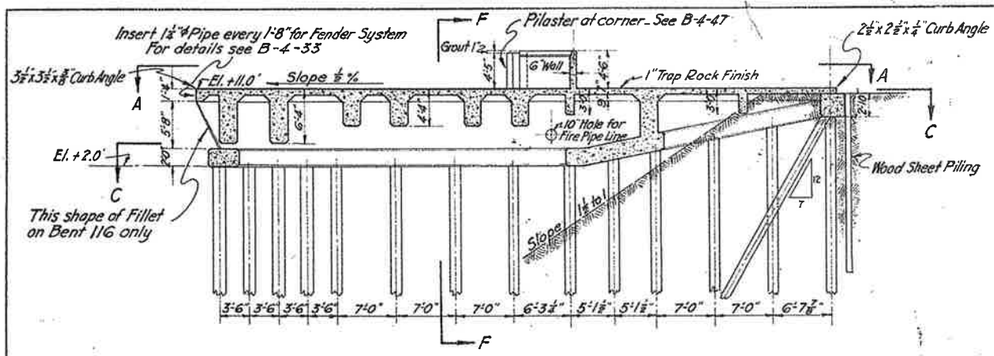
For Typical Section B-B See B-4-23
For Section D-D " B-4-24
" " E-E and F-F " B-4-27
" " C-C showing Pile Cap see B-4-27
All Floor Beams are wedge shaped except as noted
Chamfer for Pile Caps and Beams supporting Railroad track are 2"x2"; For regular Floor Beams 1½"x1½"

ALABAMA
STATE DOCKS COMMISSION
MOBILE, ALABAMA

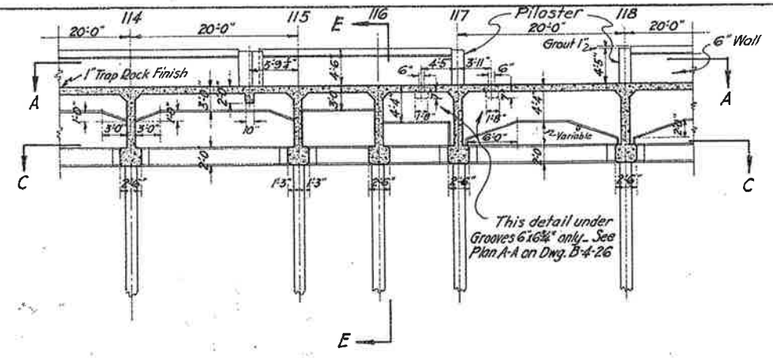
CONCRETE WHARF
OUTSHORE END - NORTH CORNER
NEAT LINES OF CONCRETE - FLOOR
- DECK PLAN A-A -

SCALE: ⅛" = 1'-0"
DATE: Oct. 15, 1925
RECOMMENDED: Arthur E. Bovis, DESIGNING ENGINEER
APPROVED: [signature] CHAIRMAN
DRAWN BY E.Q.C.
TRACED BY
CHECKED BY [signature]

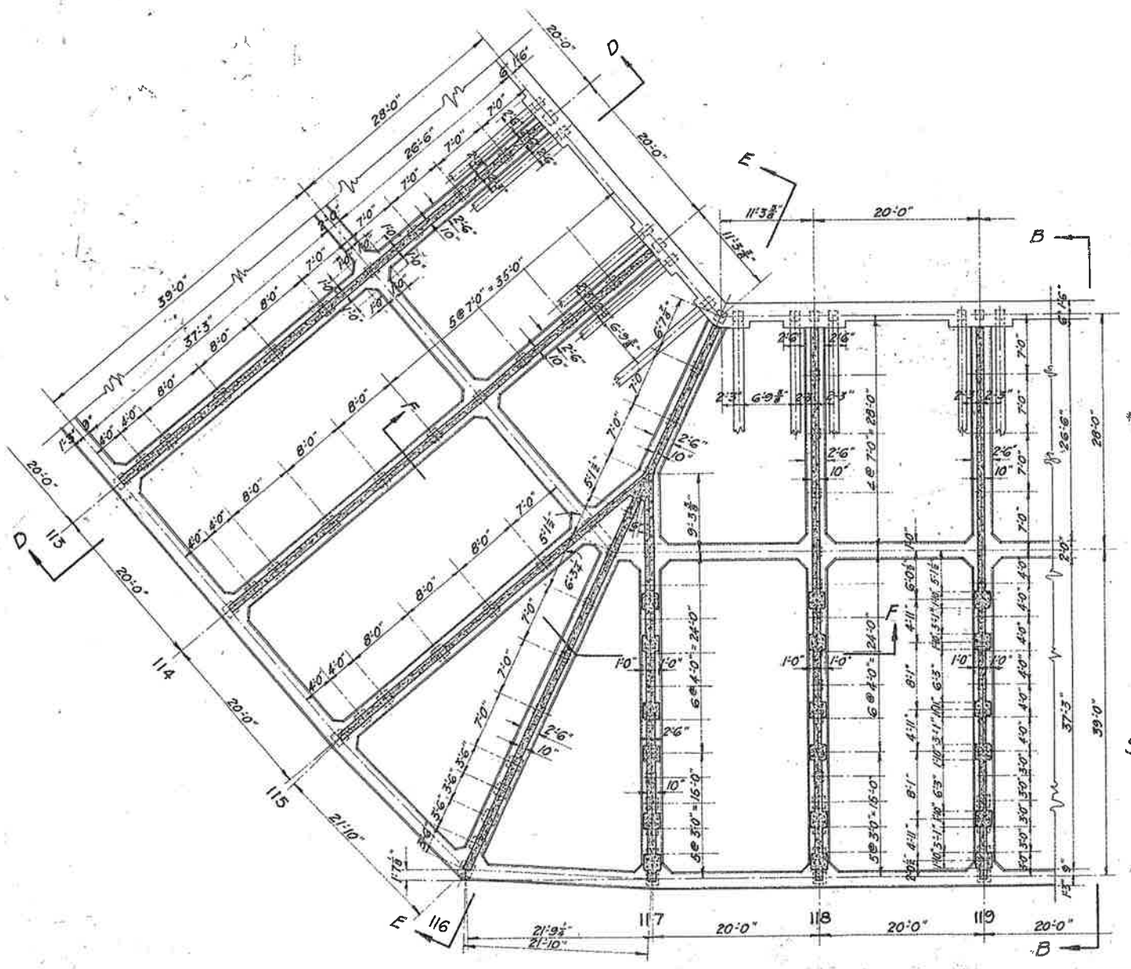
B-4-26



SECTION E-E



SECTION F-F



SECTIONAL PLAN C-C

Revised Jan. 9, 1926

REFERENCES:
B-4-19 and B-4-20 General Arrangements
B-4-21 and B-4-22 Pile Plans
B-4-35 Key Plan for Reinf. Details

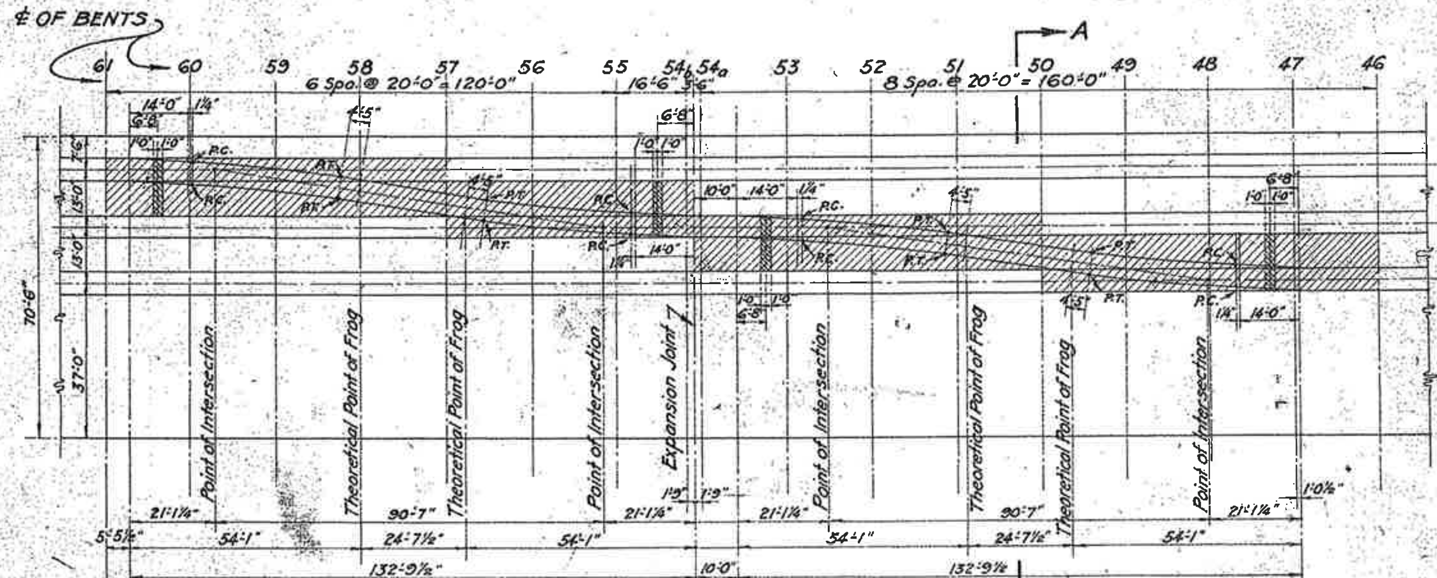
NOTES:
For typical section B-B see B-4-23
" " D-D " B-4-24
" plan A-A " B-4-26
Chamfer for Pile Caps and Beams supporting Railroad tracks are 2"x2": For regular floor Beams 1½"x1½"

ALABAMA
STATE DOCKS COMMISSION
MOBILE, ALABAMA.

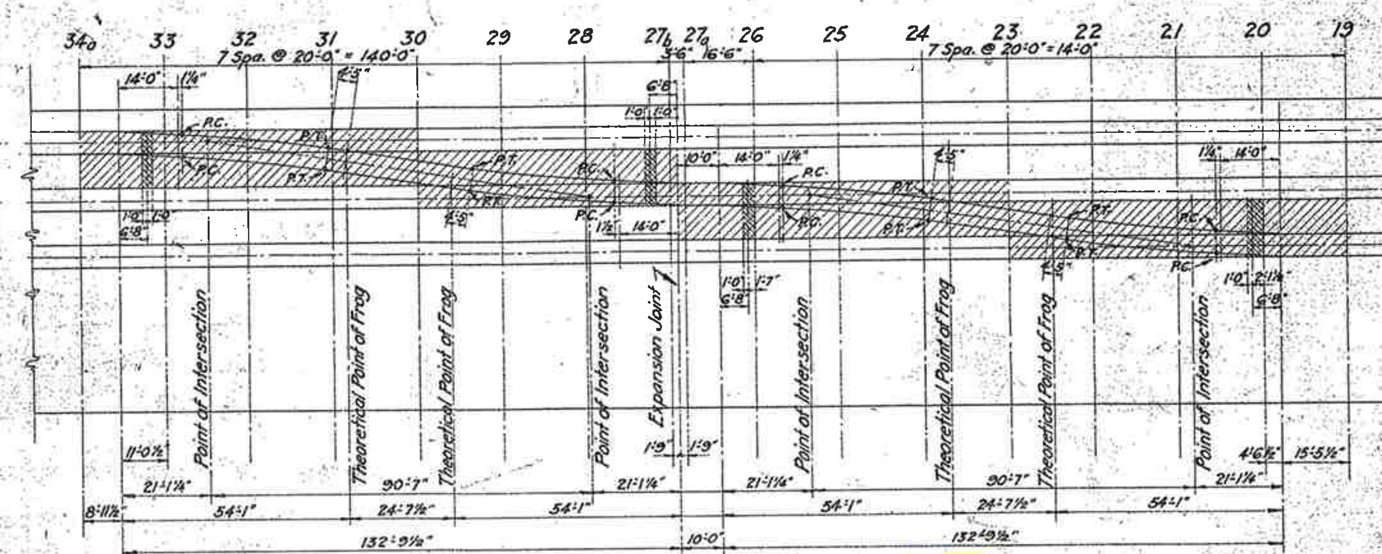
... CONCRETE WHARF ...
OUTSHORE END - NORTH CORNER
NEAT LINES OF CONCRETE - PILE CAPS

SCALE: ⅛" = 1'-0"
DATE: OCT. 15, 1925
RECOMMENDED: Arthur C. Davis, DESIGNING ENGINEER.
APPROVED: CHAIRMAN.
DRAWN BY E.W.C.
TRACED BY
CHECKED BY

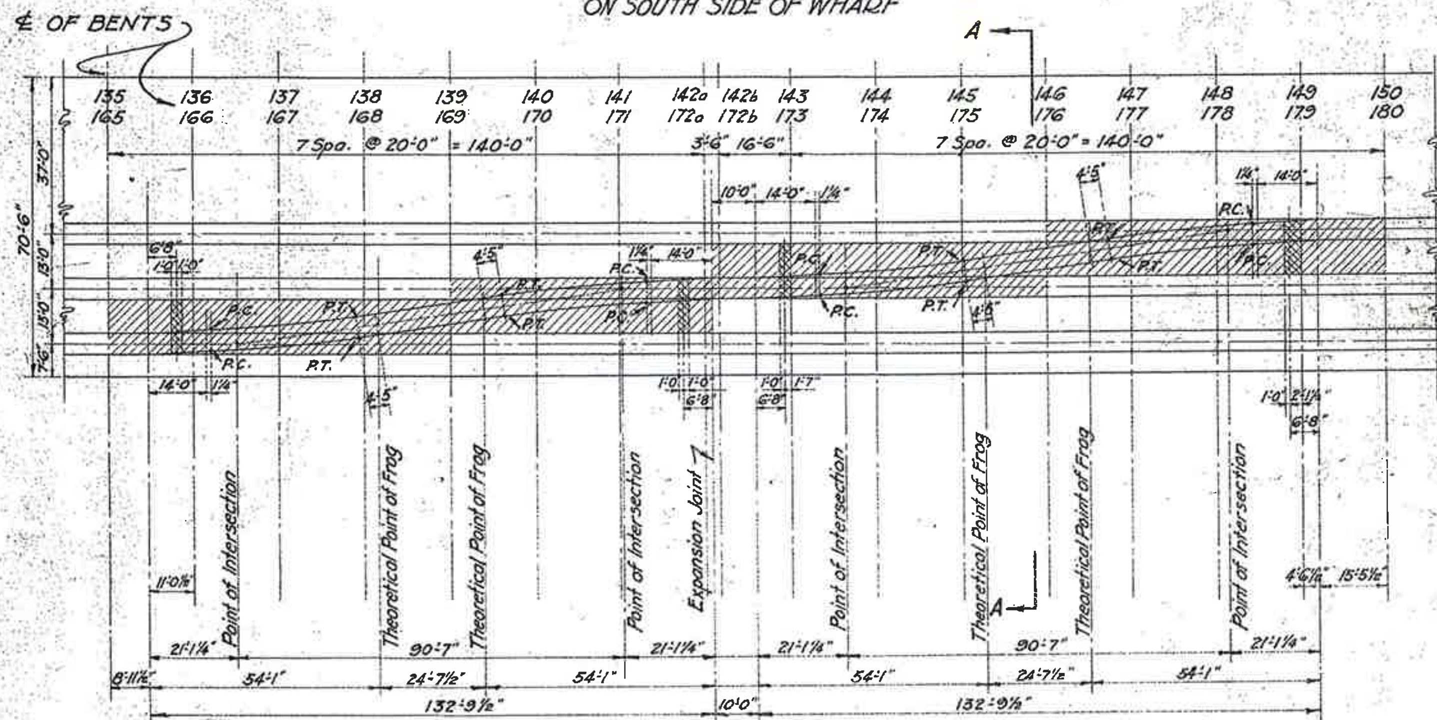
B-4-27



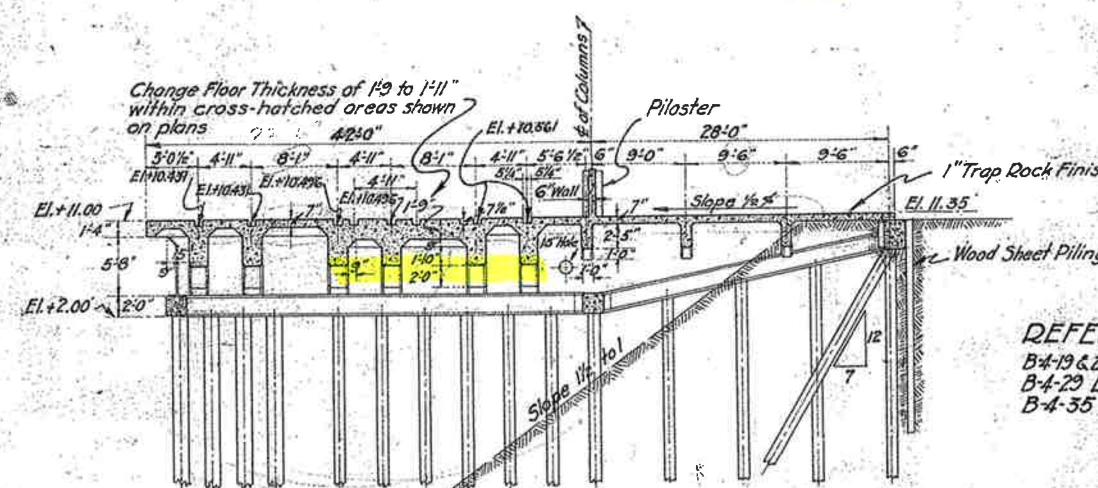
CROSS-OVER BETWEEN BENTS 46 AND 61
ON SOUTH SIDE OF WHARF



CROSS-OVER BETWEEN BENTS 19 AND 34a
ON SOUTH SIDE OF WHARF



CROSS-OVERS BETWEEN BENTS 135-150 AND 165-180
ON NORTH SIDE OF WHARF



SECTION A-A
Showing special floor under Cross-Overs
For further Details of Bents see typical section B-B
on B-4-23

REFERENCES:
B-4-19 & 20 General Arrangement of Wharf
B-4-29 Layout of Slots for Cross-over
B-4-35 Key Plan for Reinf. Detail

NOTES:
Spacing for Anchor Bolts for Rails on Concrete Wharf are ± 1'-8" except as shown on B-4-29
Hatched areas indicate Special Floor as shown in Section A-A on this drawing
Cross-Hatched areas indicate Special Floor of 1'-11" instead of 1'-9" as shown in Section A-A on this drawing

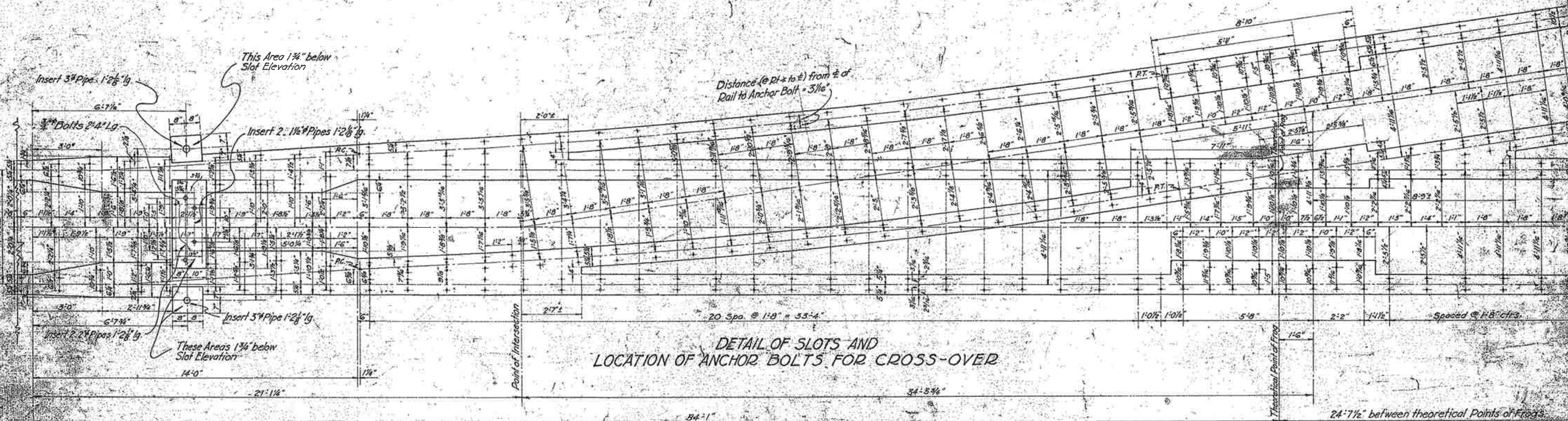
Revised Jan. 9, 1926.

ALABAMA
STATE DOCKS COMMISSION
MOBILE, ALABAMA

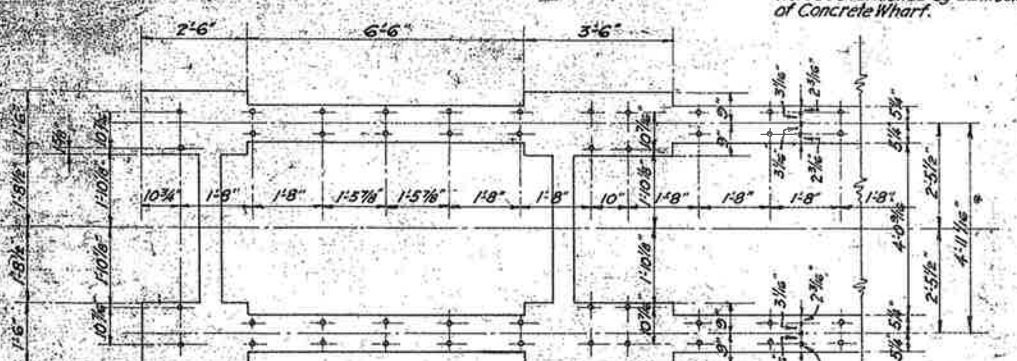
CONCRETE WHARF
SPECIAL FLOOR FOR CROSS-OVER
GENERAL LAYOUT

SCALE: ⅛" = 1'-0" and ¼" = 1'-0"
DATE: Oct. 15, 1925
RECOMMENDED:
APPROVED:

B-4-28



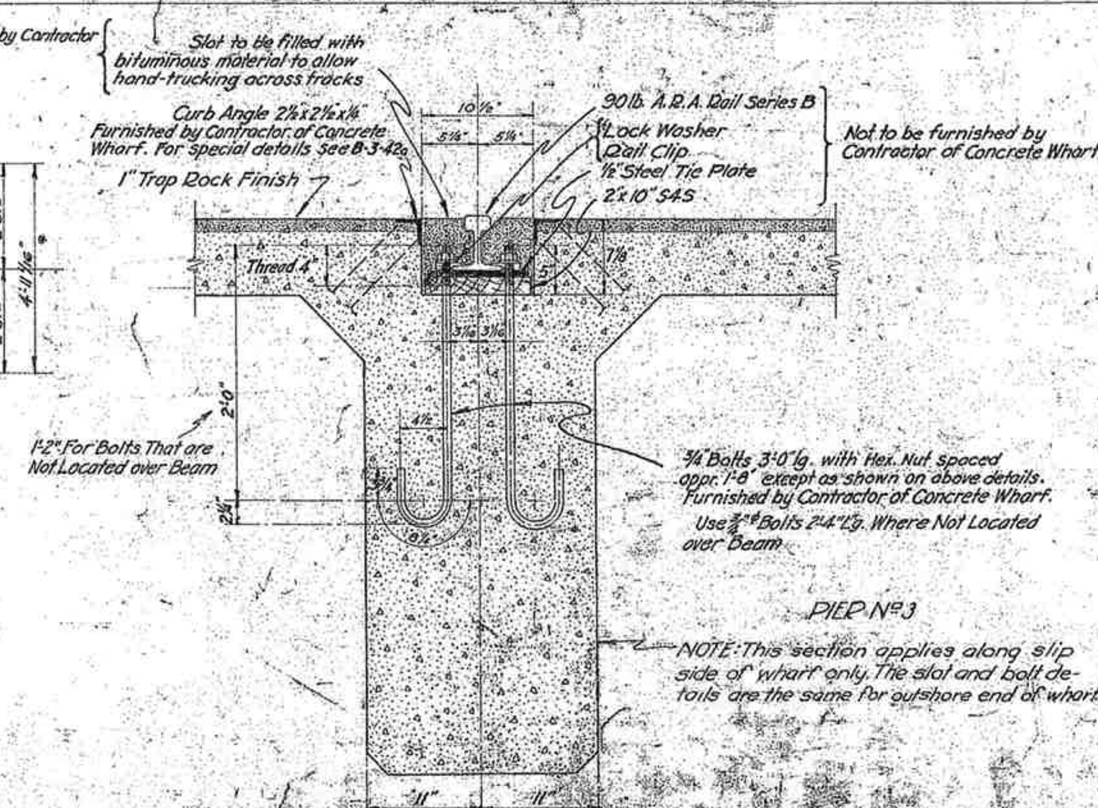
DETAIL OF SLOTS AND LOCATION OF ANCHOR BOLTS FOR CROSS-OVER



For further details of slots for Bumping Posts See drawings B-4-24, B-4-26, B-4-19 and B-3-47a For Pier Nº2 only.
For Pier Nº1 See Dwgs. Nº B-4-185, B-4-186, B-4-187 and 186

DETAIL OF SLOTS AND LOCATION OF ANCHOR BOLTS FOR BUMPING POSTS

For Pier Nº3 see Dwgs. B-5-45 and B-5-50



PIER Nº3

NOTE: This section applies along slip side of wharf only. The slot and bolt details are the same for outshore end of wharf.

TYPICAL SECTION OF RAIL SLOT IN CONCRETE WHARF

Scale: 1 1/2" = 1'-0"

REFERENCES:

PIER Nº2 { B-4-19 & 20 General Arrangement of Wharf; B-4-35 Key Plan for Reinf. Details }

PIER Nº1 { B-4-187 & 188 - General Arrgt. of Wharf (Deck Plan); B-4-190 - Key Plan for Reinf. Details }

NOTES: FOR PIER Nº2 { Locations of Anchor Bolts are for all Turnouts alike. For General Layout of Cross-overs see B-4-28. Spacings for Anchor Bolts for Rails on Concrete Wharf are ±1'-8" except as shown on this drwg. For Elevations of Slots See Sec. A-A on B-4-28 }

FOR PIER Nº1: Same Notes as for Pier Nº2. For General Layout of Cross-overs & Elevation of Slots See Drawing Nº B-4-187.

FOR PIER Nº3 { B-5-45 General Arrangement of Wharf; B-5-59 Key Plan for Reinforcing Details; B-5-56 General Layout of Crossover. Same notes as for Pier Nº2. }

This Drawing Used For Piers Nº1 and Nº2, and Nº3

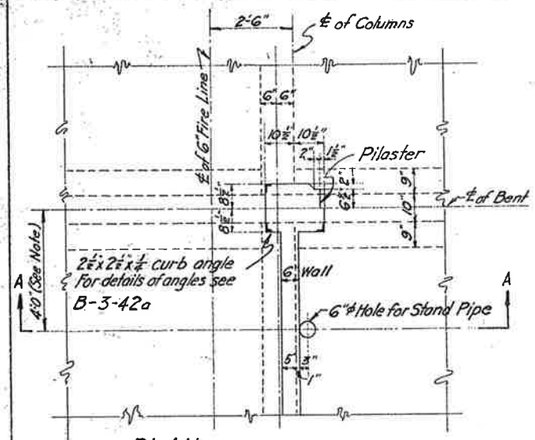
Revised - Jan. 9, 1926.
Revised - June 30, 1926.
Revised. - Dec. 6, 1926.
Revised - June 1, 1927.

ALABAMA
STATE DOCKS COMMISSION
MOBILE, ALABAMA

CONCRETE WHARF
SLOTS FOR CROSS-OVER AND BUMPING POST
LOCATION OF ANCHOR BOLTS

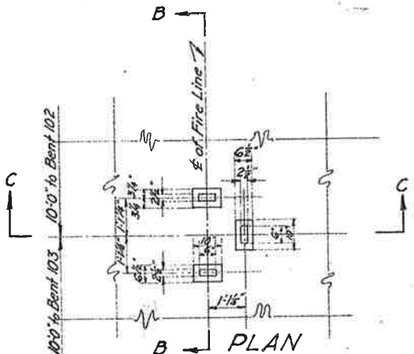
SCALE: 1/2" = 1'-0"
DATE: OCT. 15, 1926
RECOMMENDED:
DESIGNING ENGINEER
APPROVED:
CHAIRMAN
DRAWN BY
TRACED BY
CHECKED BY

B-4-29



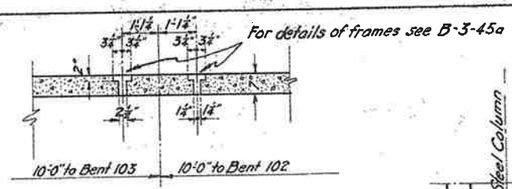
PLAN

DETAIL SHOWING HOLES FOR STAND PIPE FOR FIRE HOSE CONNECTION.

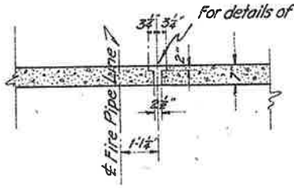


PLAN

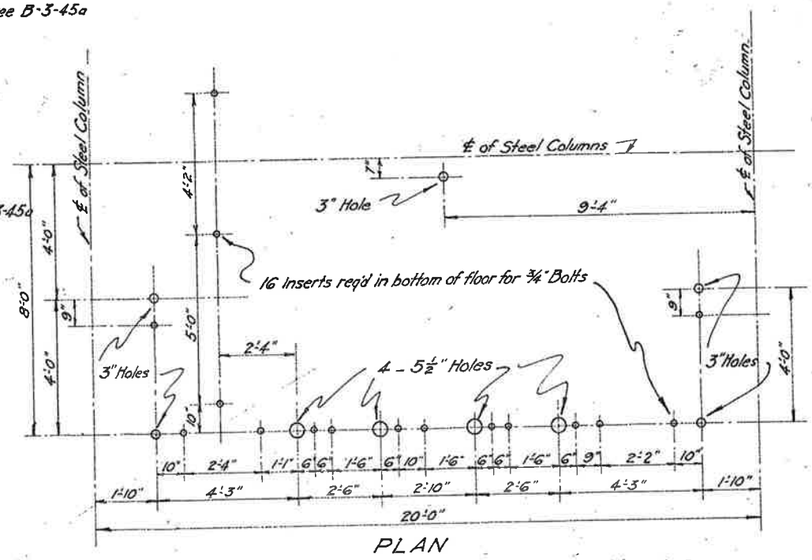
Details of holes allowing operation of 6" Gate Valves of Fire Line on outshore end of wharf between Bents Nos 102 and 103. See B-4-19 and B-4-20



SECTION B-B

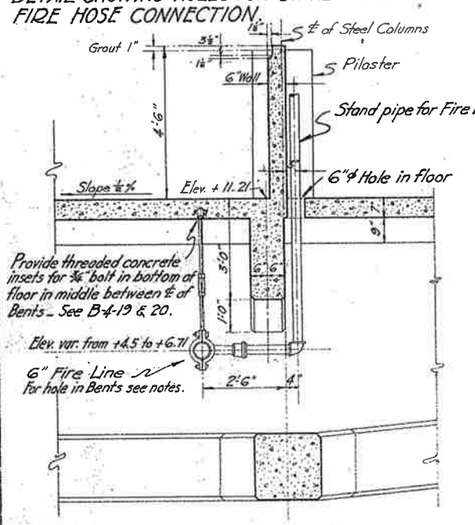


SECTION C-C

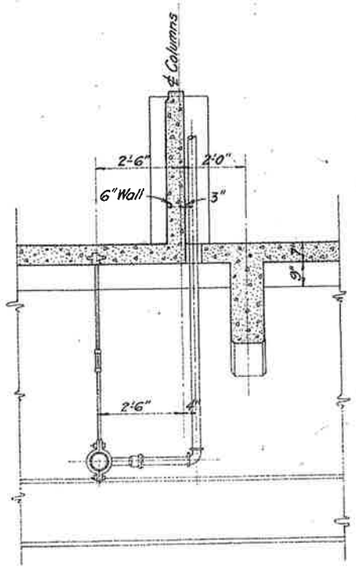


PLAN

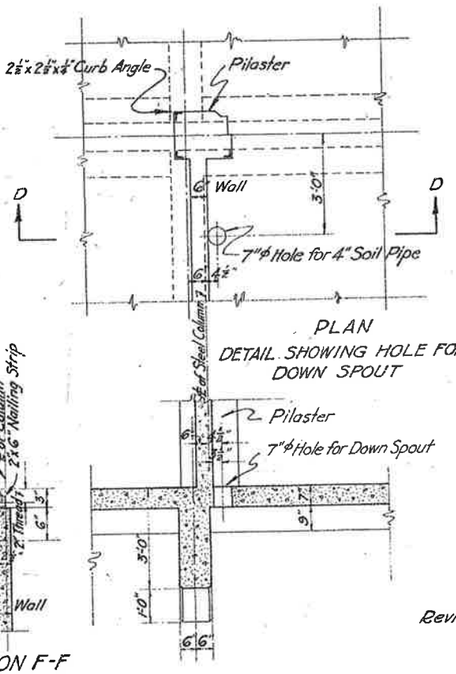
Diagram showing location of holes for pipes and inserts for hangers for toilets. For general location of toilets see B-4-19 and B-4-20.



SECTION A-A



Corresponding SECTION A-A for outshore end of wharf

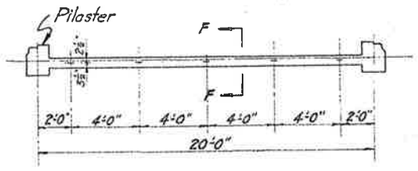


PLAN

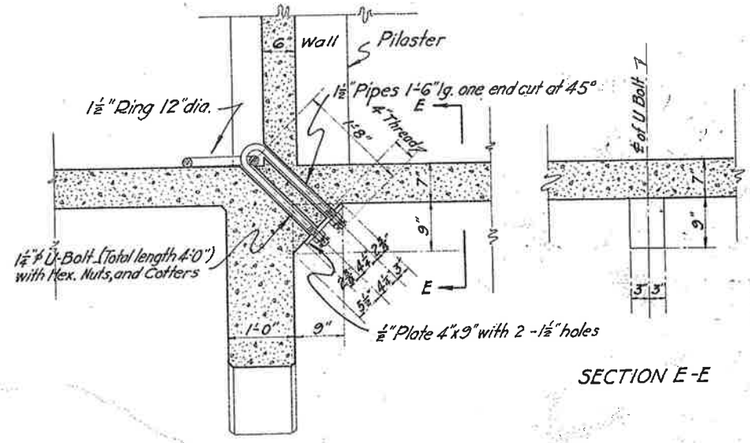
DETAIL SHOWING HOLE FOR DOWN SPOUT

SECTION D-D

SECTION F-F



Location and Details of Bolts for Nailing Strip on Top of 6" wall



SECTION E-E

DETAILS SHOWING MOORING DEVICE NEAR SHEDS (See Notes)
For general Location see B-4-19 and B-4-20

NOTES:

℄ of 6" Fire Line varies from Elev. + 4.5 to +6.71 as shown on Drwgs B-4-19 and B-4-20. Provide corresponding holes 10"ϕ in Bents. - 6" holes in floor for stand pipes of fire hose connections are 4'-0" from ℄ of columns except as noted near Bents 17a, 27a, 94 and 107 on drawing B-4-19 and B-4-20.
For detail showing Mooring Device at outshore end see B-4-32

REFERENCES:

See B-4-19 and B-4-20 for general arrangment of wharf.
See B-4-35 for key plan of reinforcing details.

THIS DRAWING SHOWS:

FIRE HOSE CONNECTION - Details for holes in floor.
FIRE LINE - Details for holes in floor for operation of 6" Gate Valves.
TOILET - Diagram showing location of holes for pipes and inserts for hangers.
DOWN SPOUT - Detail showing hole for 4" soil pipe.
MOORING DEVICE NEAR SHEDS - General details
Bolts for Nailing Strip on top of 6" wall.

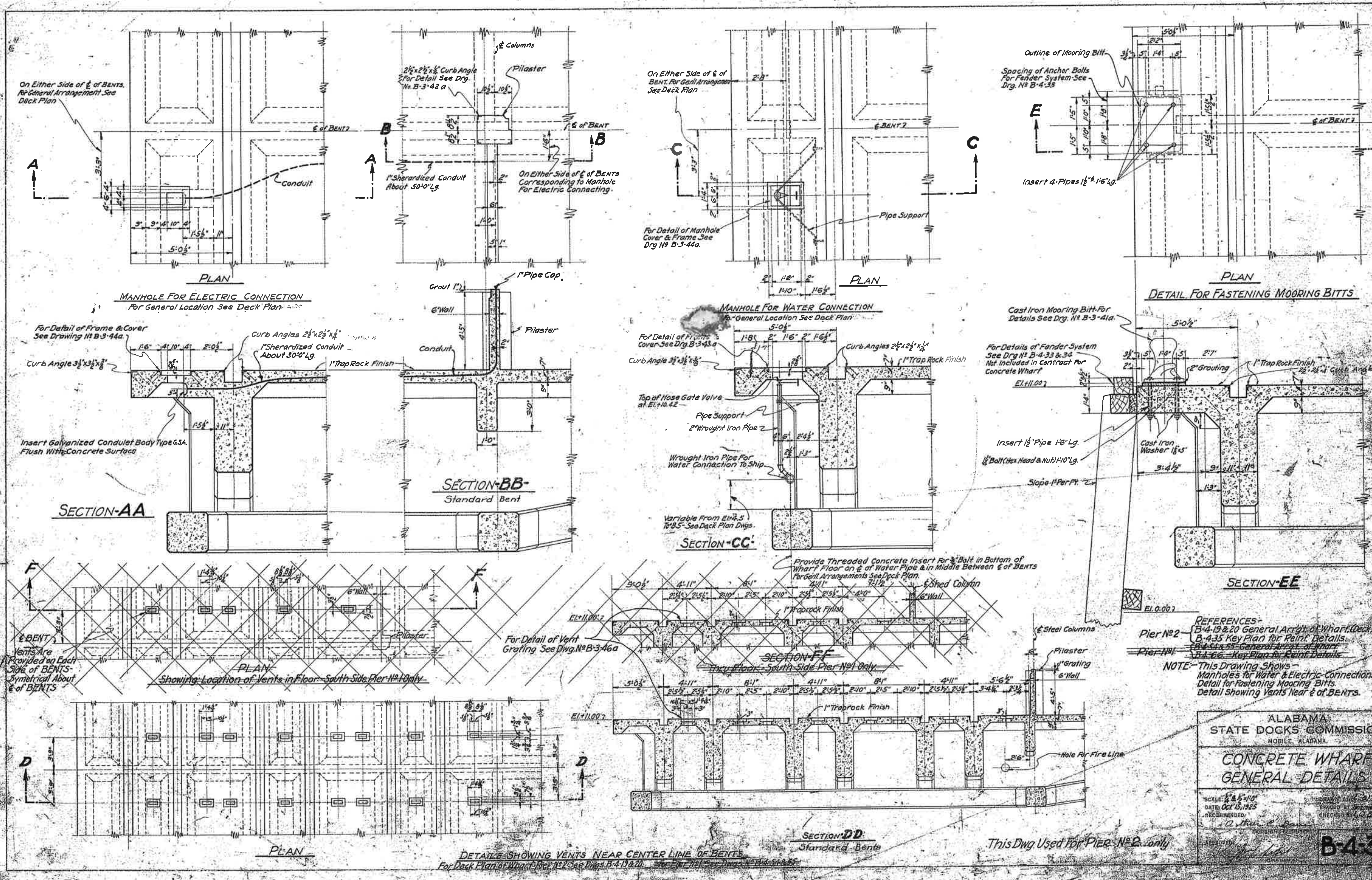
Revised - Jan. 9, 1926

ALABAMA
STATE DOCKS COMMISSION
MOBILE, ALABAMA.

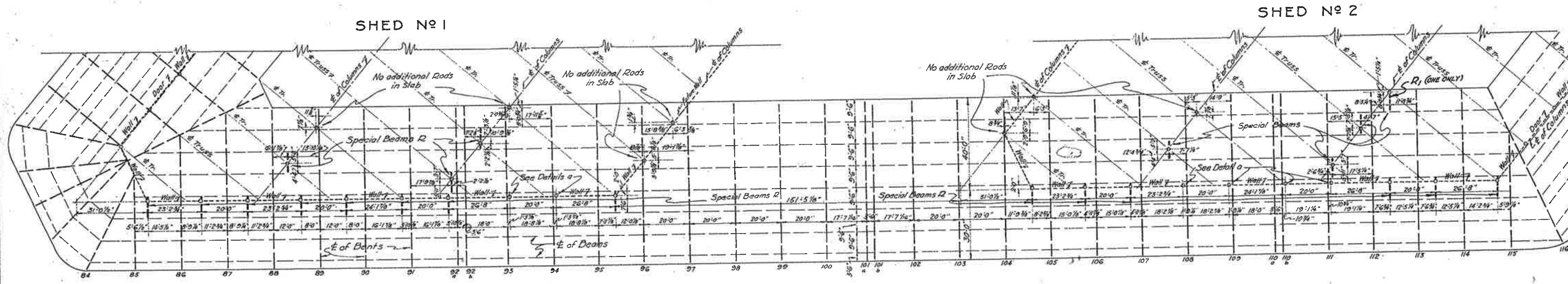
CONCRETE WHARF GENERAL DETAILS

SCALES: 1"=1'0" and ¼"=1'0"
DATE: OCT., 15, 1925
DESIGNED: Arthur E. Davis, DESIGNING ENGINEER
APPROVED: CHAIRMAN
DRAWN BY: E.W.G.
TRACED BY:
CHECKED BY: E.W. Gentleman

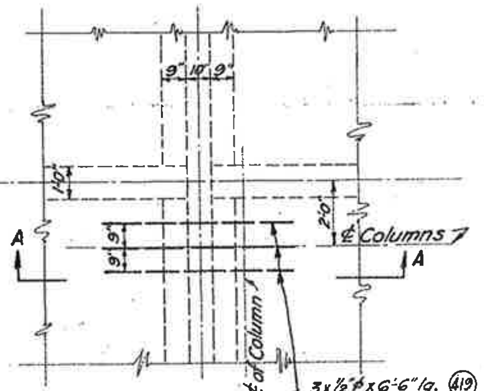
B-4-30


PLAN
MANHOLE FOR ELECTRIC CONNECTION
For General Location See Deck Plan
On Either Side of ℄ of Bents. For General Arrangement See Deck Plan
Conduit
2½"x2½"x⅜" Curb Angle For Detail See Drg. No. B-3-42a
Pilaster
℄ Columns
℄ of Bent
1" Sherardized Conduit About 50'0" Lg.
On Either Side of ℄ of Bents Corresponding to Manhole For Electric Connecting
SECTION-AA
SECTION-BB-
Standard Bent
For Detail of Frame & Cover See Drawing No. B-3-44a.
Curb Angles 2½"x2½"x⅜"
1" Sherardized Conduit About 50'0" Lg.
Curb Angle 3½"x3½"x⅜"
1" Trap Rock Finish
Insert Galvanized Condulet Body Type G.S.A. Flush With Concrete Surface
Grout 1"
1" Pipe Cap
6" Wall
PLAN
MANHOLE FOR WATER CONNECTION
For General Location See Deck Plan
On Either Side of ℄ of Bent. For Gen'l Arrangement See Deck Plan
For Detail of Manhole Cover & Frame See Drg. No. B-3-44a.
Pipe Support
SECTION-CC
For Detail of Frame & Cover See Drg. B-3-43a
Curb Angle 3½"x3½"x⅜"
Curb Angles 2½"x2½"x¼"
1" Trap Rock Finish
Top of Hose Gate Valve at El.+10.42
Pipe Support
2" Wrought Iron Pipe
Wrought Iron Pipe For Water Connection To Ship
Variable From El+3.5 To 8.5 - See Deck Plan Dwgs.
PLAN
DETAIL FOR FASTENING MOORING BITTS
Outline of Mooring Bitt
Spacing of Anchor Bolts For Fender System See Drg. No. B-4-33
Insert 4-Pipes 1½"φ 1'-6" Lg.
SECTION-EE
Cast Iron Mooring Bitt For Details See Drg. No. B-3-41a.
For Details of Fender System See Drg. No. B-4-33 & 34 Not Included in Contract For Concrete Wharf
2" Grouting
1" Trap Rock Finish
Insert 1½" Pipe 1'-6" Lg.
1¼" Bolt (Hex. Head & Nut) 1'-10" Lg.
Cast Iron Washer
Slope 1" Per Ft.
El.+11.00
El. 0.00
Provide Threaded Concrete Insert For ¾" Bolt in Bottom of Wharf Floor on ℄ of Water Pipe & in Middle Between ℄ of Bents For Gen'l Arrangements See Deck Plan.
℄ Steel Column
6" Wall
1" Traprock Finish
SECTION-FF
Thru Floor - South Side Pier No. 1 Only
For Detail of Vent Grating See Dwg. No. B-3-46a
PLAN
Showing Location of Vents in Floor - South Side Pier No. 1 Only
℄ Bent
Vents Are Provided on Each Side of BENTS - Symetrical About ℄ of BENTS
Pilaster
1" Grating
Hole For Fire Line
SECTION-DD
Standard Bents
PLAN
DETAILS SHOWING VENTS NEAR CENTER LINE OF BENTS
For Deck Plan of Wharf Pier No. 2 See Dwgs. B-4-13 & 20
REFERENCES -
Pier No. 2 - B-4-13 & 20 General Arr'g't. of Wharf (Deck Plan)
B-4-35 Key Plan for Reinf. Details.
NOTE - This Drawing Shows -
Manholes for Water & Electric Connections.
Detail for Fastening Mooring Bitts.
Detail Showing Vents Near ℄ of BENTS.
This Dwg Used For Pier No. 2 only
ALABAMA
STATE DOCKS COMMISSION
MOBILE, ALABAMA.
CONCRETE WHARF
GENERAL DETAILS
DATE: Oct. 15, 1925
B-4-31

SHED Nº 1 SHED Nº 2

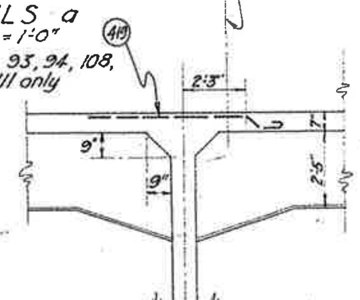


PLAN OF OUTSHORE END
SHOWING LOCATION OF SHED COLUMN CENTERS AND BEAMS R AND R₁
Scale: 1" = 20'

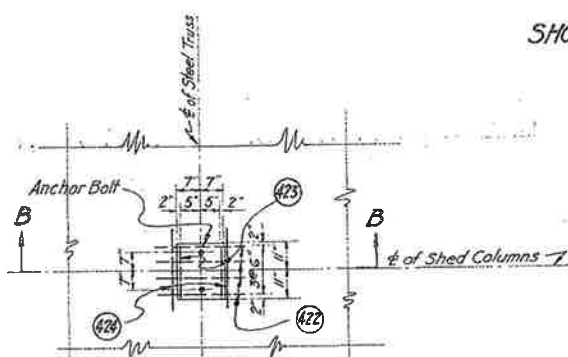


PLAN

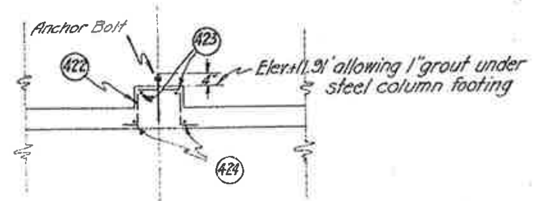
DETAILS a
Scale ⅜" = 1'-0"
Near Bents 93, 94, 108, 109, 110b and 111 only



SECTION A-A

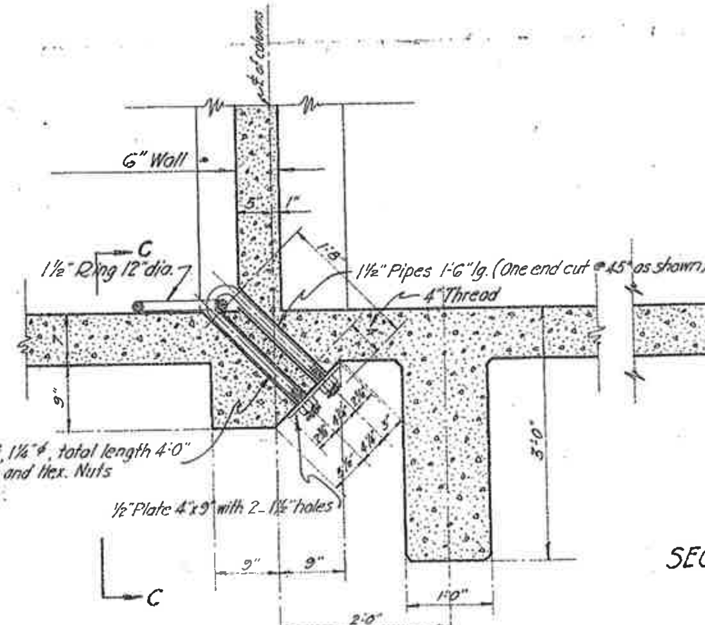


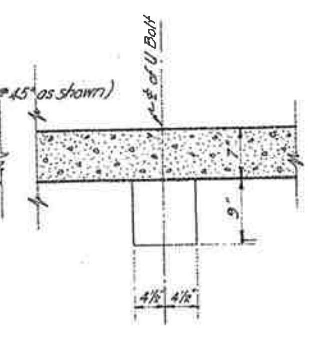
PLAN



SECTION B-B

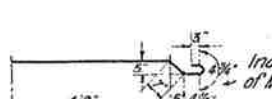
DETAILS OF INTERIOR COLUMN FOOTINGS
(10 Column Footings on wharf for both sheds)





SECTION C-C

DETAIL SHOWING MOORING DEVICE AT OUTSHORE ENDS ONLY _ SEE NOTES
Scale: 1" = 1'-0"



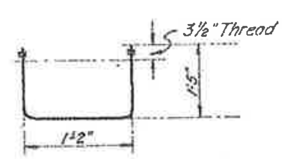
Included in Bill of Material

419 ½"⌀ x 6'-6" lg.
Total 18 reqd.

423 ¾"⌀ x 1'-9" lg.
20 Reqd.

424 ¾"⌀ x 3'-0" lg.
20 Reqd.

422 ¾"⌀ x 4'-0"
40 Reqd.



1"⌀ Anchor Bolt with 2 Hex. Nuts
10 Reqd. (20 Nuts)
Not Included in Bill of Material

REFERENCES:

B-4-19 and 20 General Arrangement of Wharf.
B-4-21 and 22 Pile Plans
B-4-35 Key Plan for Reinf. Details

NOTES:

Total number of Beams R = 20
" " " " R₁ = 1
For Reinf. of 6" Wall 4'-6" high (above floor) and Pilasters supporting Future Shed Columns see B-4-47.
For detail showing Mooring Device near sheds at Pier Sides see B-4-30 and B-4-19 and 20.

ALABAMA
STATE DOCKS COMMISSION
MOBILE, ALABAMA.

CONCRETE WHARF
DETAIL OF OUTSHORE END

SCALES: AS SHOWN
DATE: Oct. 15, 1925
RECOMMENDED: Arthur E. Davis, CONSULTING ENGINEER
APPROVED: CHAIRMAN
DRAWN BY E.W.C.
TRACED BY
CHECKED BY

B-4-32

Pier 3: Use C.I. Insert here See B-5-58.

PIER 2: Insert this bolt only on every 4th of bent with head in concrete. Free end 1'-4".

1"ϕ Bolts - Length to suit

1"ϕ Bolts 2'-7" lg. (Square Head, Hex. Nut - 5" Thread)

Chock Block 11½" x 11½"

PLAN

Scale: ¼" = 1'-0"

ELEVATION A-A

Scale: ¼" = 1'-0"

Elev. +11.0'

Variable

Elev. 0.0

1"ϕ Bolts, Length to suit

Reinforced Concrete Piles

Fill all holes around Bolt Heads with Bituminous Material.

1"ϕ Bolt 2'-0" lg. - Square Head, Hex. Nut - 5" Thread

Cast Iron Washers ⅞" x 4"

24 gage Galvanized Sheet Iron

1"ϕ Bolt through Pile - Length to Suit

1¼"ϕ Pipe 12½" lg.

1"ϕ Bolt 2'-7" lg. 5" Thread

All timber creosoted and S4S.

1"ϕ Bolts - Length to Suit

Cast Iron Washers ⅞" x 4"

DETAIL C-C

Scale: 1" = 1'-0"

PIER No 3 NOTE: USE THIS DRAWING FOR FENDER SYSTEM ONLY. This drawing applies to Sta Side of Wharf from near Bent 4 to Bent 76, and is to be used as a guide for installation of Fender System for Southeast Corner and Outshore End. See respective plans.

See Detail C-C

42'-0"

28'-0"

℄ Steel Columns

Curb. angles

1" Trap Rock Finish

Slope ½%

6" Wall

6"

7"

Hole for Fire Pipe Line

Elev. +11.0'

11'-0"

Top of Piles - Elev. +3.0'

M.L.W. = Elev. 0.0

Wood Piles 60' lg. on 6'-8" c.s.

Wood Sheet Piling

12

7

40' Piles

Slope 1 to 1

Reinforced Concrete Piles

35'-0"

Slope 1 to 1½ to 12

5 @ 3'-0" = 15'-0"

6 @ 4'-0" = 24'-0"

4 @ 7'-0" = 28'-0"

Elev. -35.0'

40'-0" Piles

45'-0" Piles

50'-0" Piles

55'-0" Piles

60'-0" Piles

10'-5⅝"

11'-5⅝"

SECTION B-B

Scale: 3/16" = 1'-0"

Standard Bents, North Side of Pier 1

Slip Side of Pier No 3, Bents 4 to 76 (THIS SECTION APPLIES TO FENDER SYSTEM ONLY)

REFERENCES

PIER No 2: B-4-19 and 20 General Arrangement of Wharf; B-4-34 Fender System - Detail of Corners

PIER No 1: B-4-55 & 56 General Arrangement of Wharf-Backfill; B-4-34 Fender System - Detail of Corners

Pier No 3: B-5-45 General Arrangement of Wharf; B-5-58 Fender System Details

This Dwg Applies To Piers No 1, 2 and 3. For Special Bents North Side of Pier 1 see dwg B-4-60.

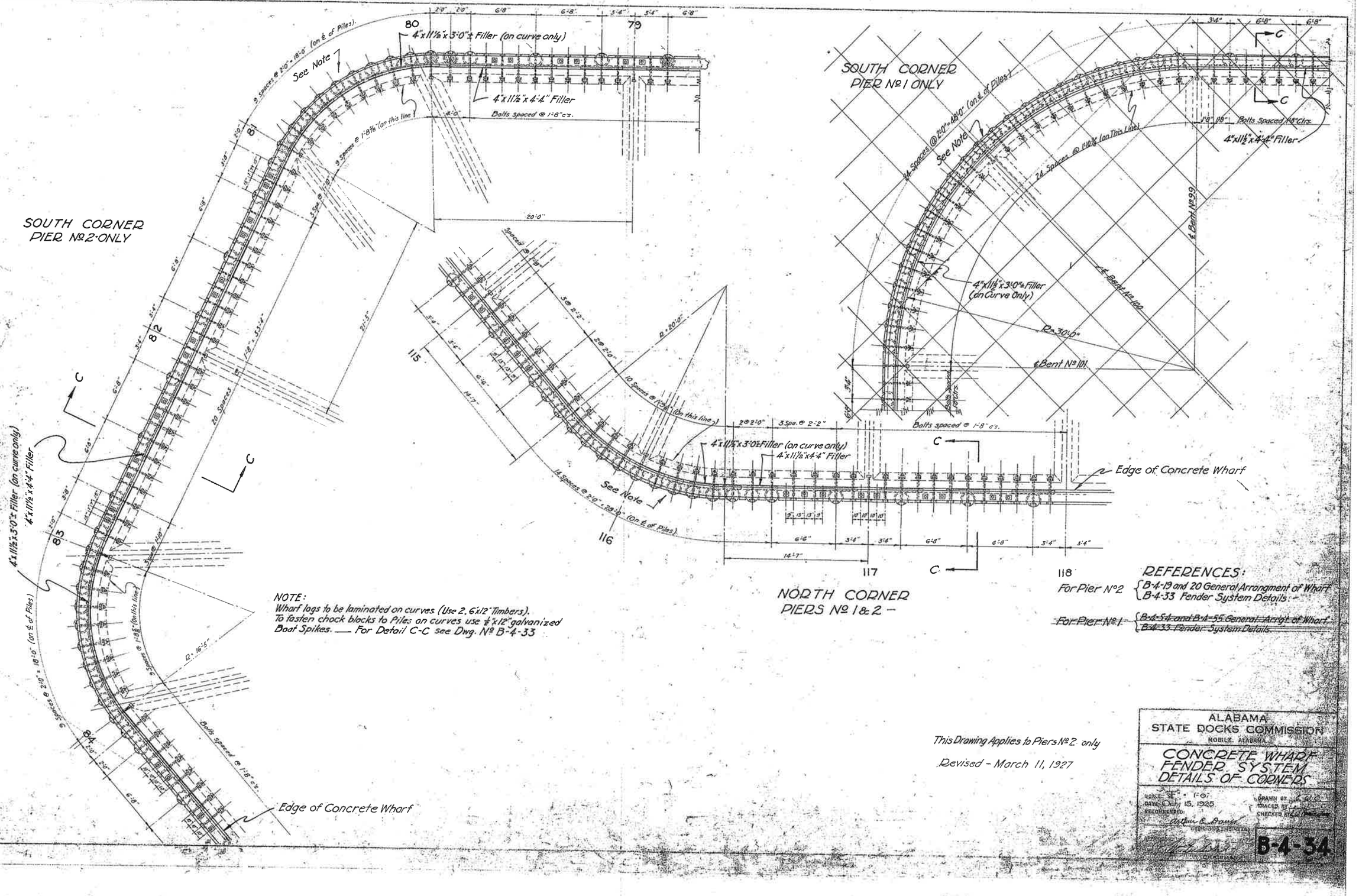
ALABAMA STATE DOCKS COMMISSION

CONCRETE WHARF FENDER SYSTEM DETAILS

B-4-55

SOUTH CORNER
PIER Nº 2 ONLY

SOUTH CORNER
PIER Nº 1 ONLY



NOTE:
Wharf logs to be laminated on curves. (Use 2, 6"x12" Timbers).
To fasten chock blocks to Piles on curves use ¾"x12" galvanized Boat Spikes. —— For Detail C-C see Dwg. Nº B-4-33

NORTH CORNER
PIERS Nº 1 & 2 –

REFERENCES:
For Pier Nº 2 { B-4-19 and 20 General Arrangement of Wharf
B-4-33 Fender System Details.
~~For Pier Nº 1 { B-4-54 and B-4-55 General Arrgt of Wharf~~
~~B-4-33 Fender System Details~~

This Drawing Applies to Piers Nº 2 only

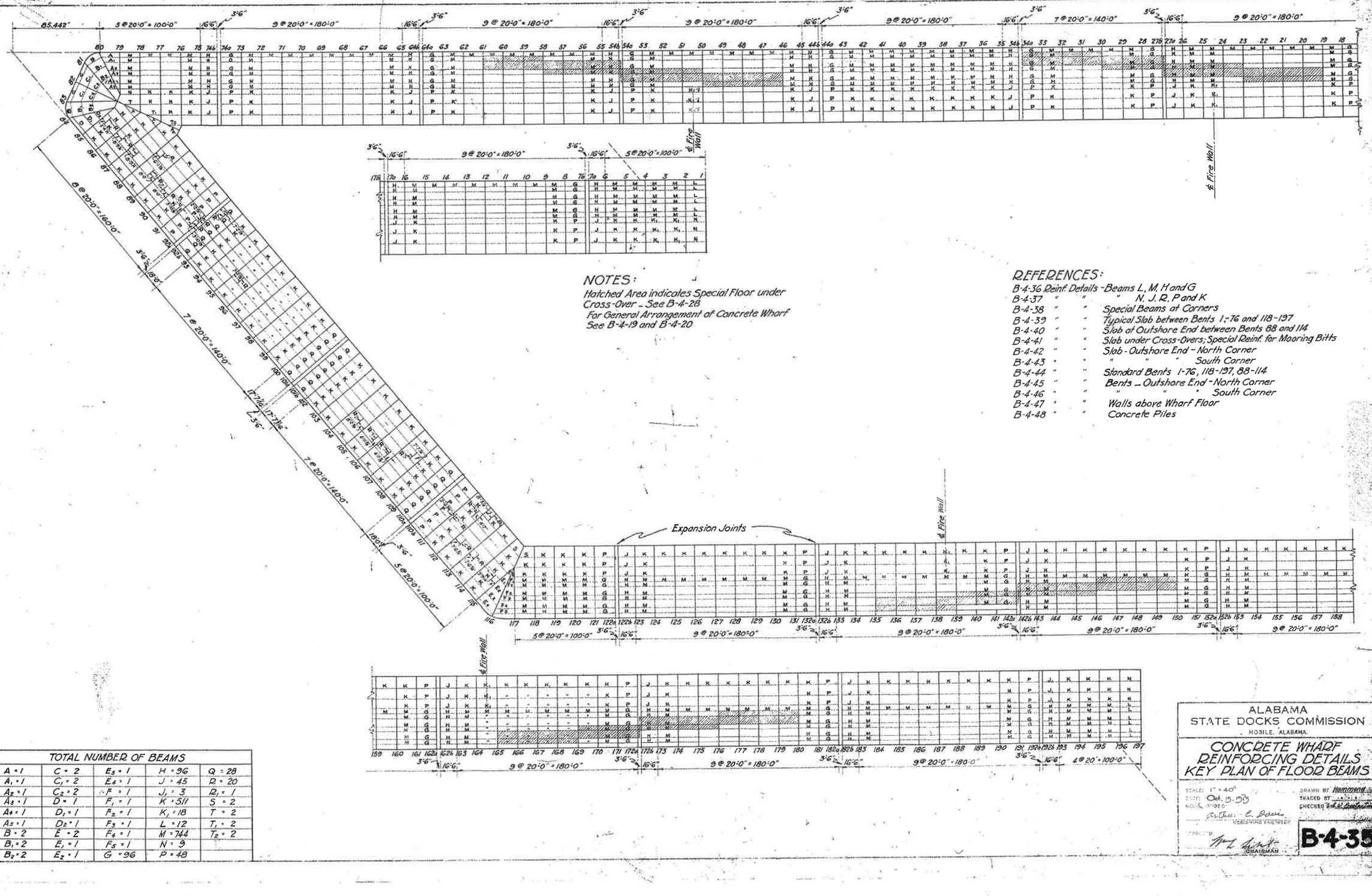
Revised - March 11, 1927

ALABAMA
STATE DOCKS COMMISSION
MOBILE, ALABAMA

CONCRETE WHARF
FENDER SYSTEM
DETAILS OF CORNERS

SCALE 1" = 1'-0"
DATE Oct. 15, 1925
DRAWN BY
TRACED BY
CHECKED BY
RECOMMENDED:
Arthur C. Brown
CHIEF ENGINEER

B-4-34



NOTES:

Hatched Area indicates Special Floor under Cross-Over - See B-4-28

For General Arrangement of Concrete Wharf See B-4-19 and B-4-20

REFERENCES:

B-4-36	Reinf. Details -	Beams L, M, H and G
B-4-37	" "	" N, J, R, P and K
B-4-38	" "	Special Beams at Corners
B-4-39	" "	Typical Slab between Bents 1-76 and 118-197
B-4-40	" "	Slab at Outshore End between Bents 88 and 114
B-4-41	" "	Slab under Cross-Overs; Special Reinf. for Mooring Bitts
B-4-42	" "	Slab - Outshore End - North Corner
B-4-43	" "	" " " South Corner
B-4-44	" "	Standard Bents 1-76, 118-197, 88-114
B-4-45	" "	Bents - Outshore End - North Corner
B-4-46	" "	" " " South Corner
B-4-47	" "	Walls above Wharf Floor
B-4-48	" "	Concrete Piles

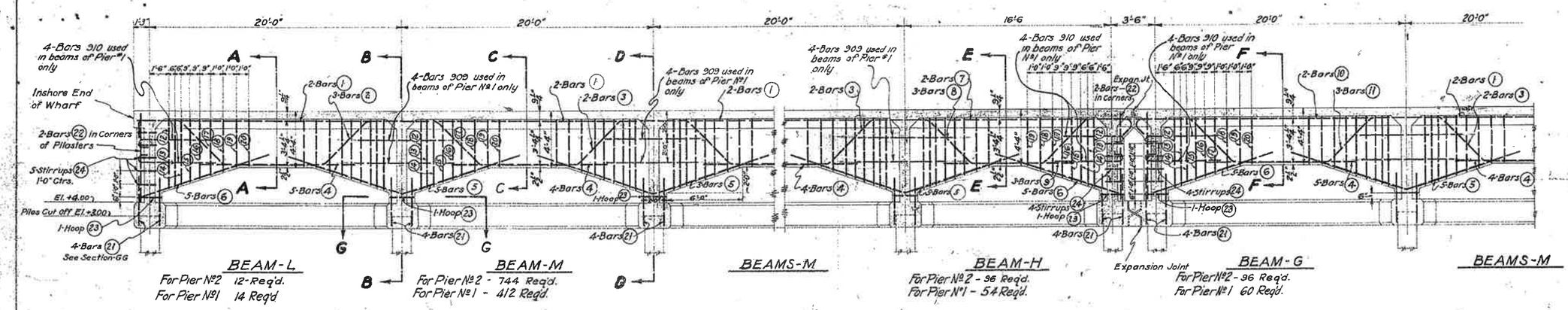
TOTAL NUMBER OF BEAMS				
A = 1	C = 2	E_3 = 1	H = 96	Q = 28
A_1 = 1	C_1 = 2	E_4 = 1	J = 45	R = 20
A_2 = 1	C_2 = 2	F = 1	J_1 = 3	R_1 = 1
A_3 = 1	D = 1	F_1 = 1	K = 511	S = 2
A_4 = 1	D_1 = 1	F_2 = 1	K_1 = 18	T = 2
A_5 = 1	D_2 = 1	F_3 = 1	L = 12	T_1 = 2
B = 2	E = 2	F_4 = 1	M = 744	T_2 = 2
B_1 = 2	E_1 = 1	F_5 = 1	N = 9	
B_2 = 2	E_2 = 1	G = 96	P = 48	

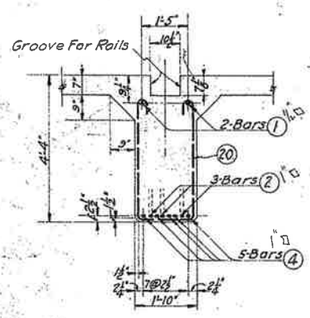
ALABAMA
STATE DOCKS COMMISSION
MOBILE, ALABAMA

CONCRETE WHARF REINFORCING DETAILS KEY PLAN OF FLOOR BEAMS

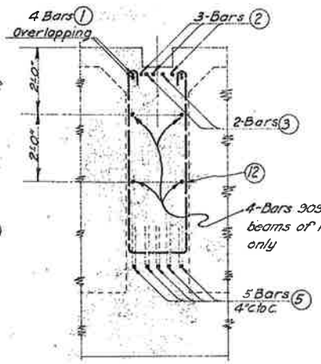
SCALE: 1" = 40'
DATE: Oct. 15, 1938
DESIGNED BY: Arthur C. Davis, DESIGNING ENGINEER
DRAWN BY: Hammond
TRACED BY:
CHECKED BY:
APPROVED: CHAIRMAN

B-4-35

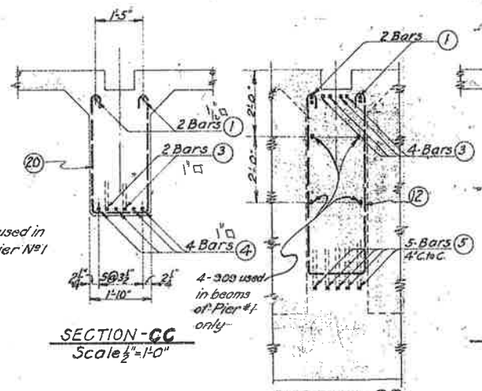




SECTION-AA
Scale ½"=1'-0"

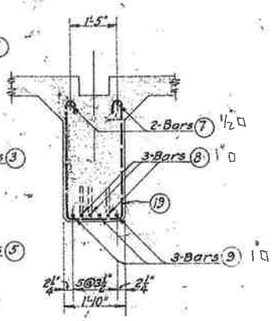


SECTION-BB
Scale ½"=1'-0"

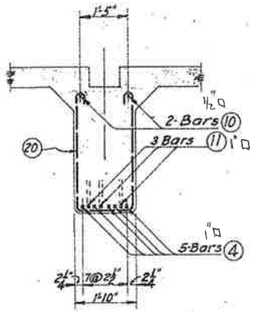


SECTION-CC
Scale ½"=1'-0"

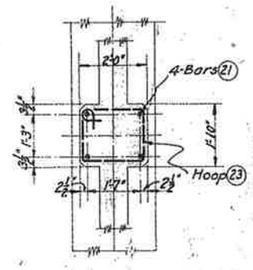
SECTION-DD
Scale ½"=1'-0"



SECTION-EE
Scale ½"=1'-0"

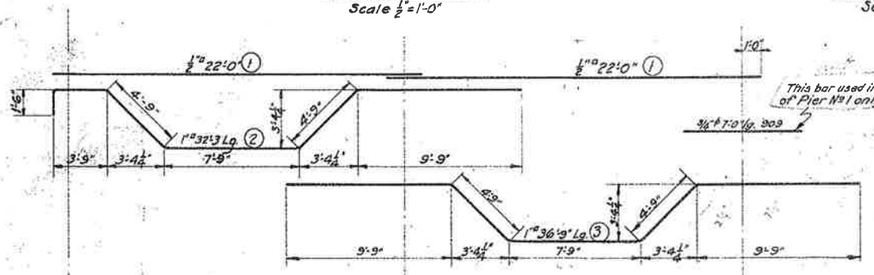


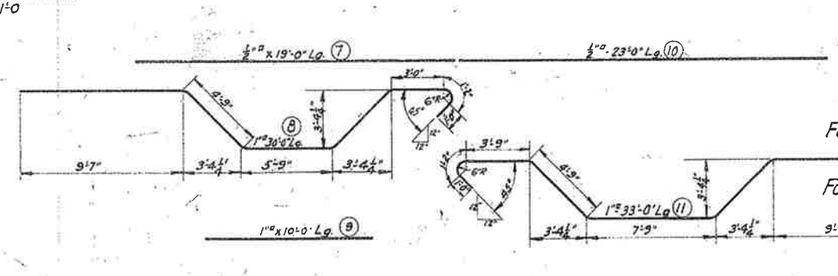
SECTION-FF
Scale ½"=1'-0"

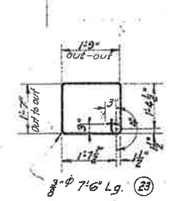


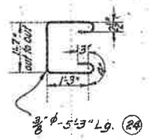
SECTION-GG
Scale ½"=1'-0"
Typical Section Thru Pilasters Supporting Beams.

MARK	BAR		LENGTH BAR	
	FT.	IN.	FT.	IN.
12	5	2	13	6
13	5	0	13	3
14	4	10	12	9
15	4	8	12	6
16	4	4	11	9
17	4	1	11	3
18	3	9	10	6
19	3	5	10	0
20	3	4	9	9

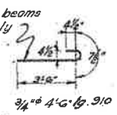








This bar used in beams of Pier #1 only



REFERENCES:

For Pier #2
- B-4-35 Key Plan of Floor Beams for Reinforcing
- B-4-23 Inshore Ends-Neat Lines of Concrete
- B-4-38 Special Beams at Corners-Reinforcing

For Pier #1
- B-4-190 Key Plan of Floor Beams for Reinf.
- B-4-58 Inshore Ends-Neat Lines of Concrete
- B-4-195 Special Beams at Corners-Reinforcing
- B-4-197

NOTE:
This Drawing Used For Piers #1 & 2
Dimensions are to center lines of Bars except as noted.

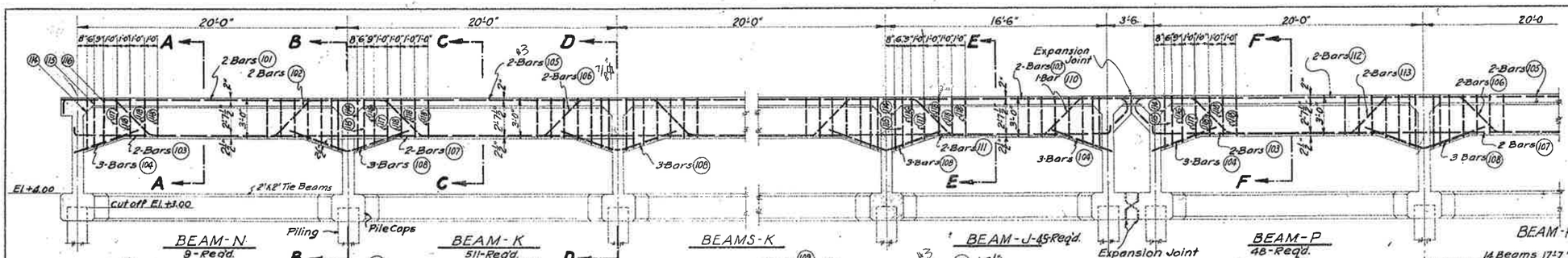
Revised for Pier #1 June 1, 1926.
Revised for Pier #1 Dec. 6, 1926.

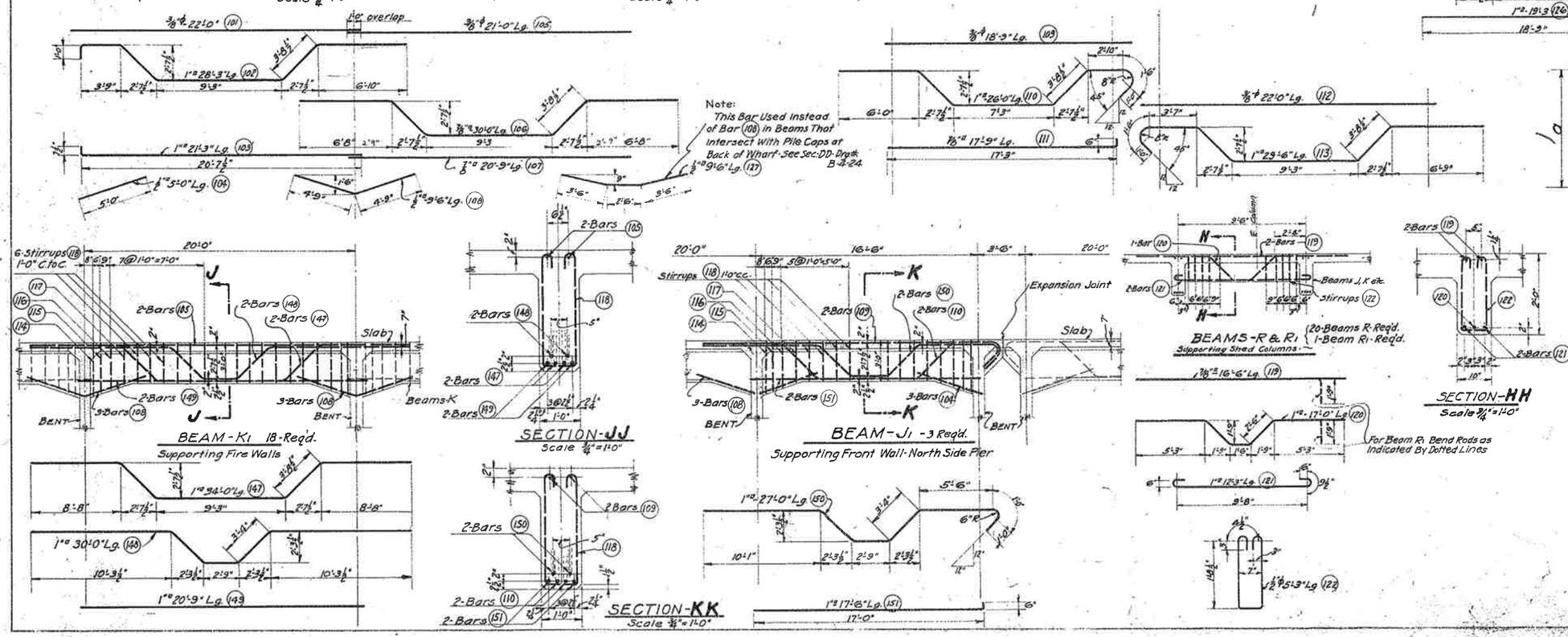
ALABAMA
STATE DOCKS COMMISSION
MOBILE, ALABAMA

CONCRETE WHARF
REINFORCING DETAILS
BEAMS L, M, H & G SUPPORTING R.R TRACKS

SCALE: 1"=1'-0" & ½"=1'-0"
DATE: Oct. 15, 1925
RECOMMENDED: Arthur E. Davis, CHIEF ASST. ENGINEER
DRAWN BY Hemmond
TRACED BY
CHECKED BY
APPROVED: CHAIRMAN

B-4-36





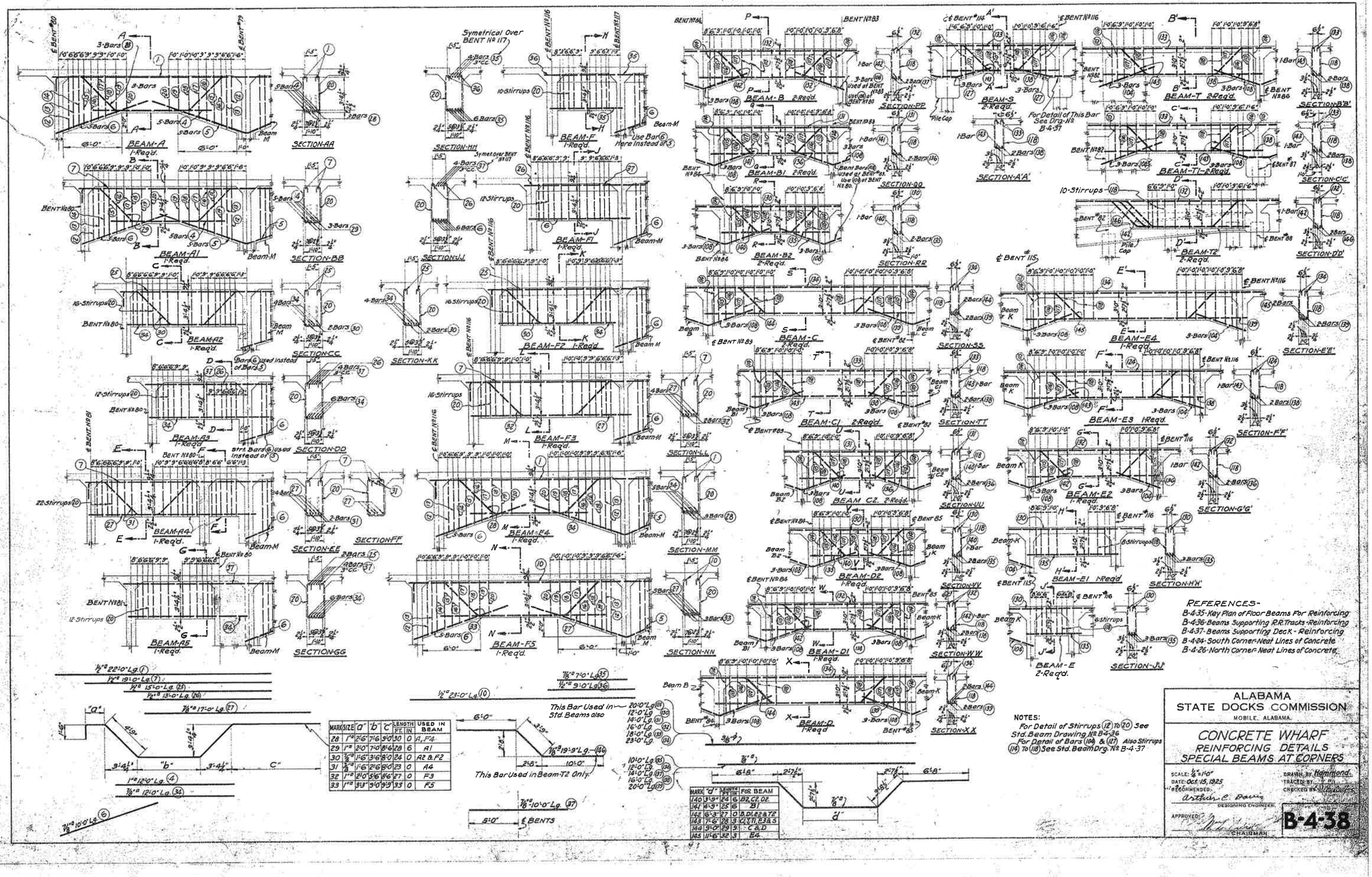
REFERENCES:
B-4-35- Key Plan of Floor Beams
B-4-23- Inshore End of Wharf-Neat Lines of Concrete
B-4-38- Special Beams at Corners-Reinforcing

ALABAMA
STATE DOCKS COMMISSION
MOBILE, ALABAMA.

CONCRETE WHARF
REINFORCING DETAILS
STANDARD BEAMS-N, J, J1, K, K1, P, R & R1.

SCALE: 1/4, 1/2, 3/4"=1'-0"
DAT: Oct. 15, 1925
RECOMMENDED:
Arthur C. Davis
DESIGNING ENGINEER.
APPROVED:
CHAIRMAN.
DRAWN BY Hammond
TRACED BY "
CHECKED BY Asst. Draftsman

B-4-37



MARK	SIZE	"a"	"b"	"c"	LENGTH FT.	LENGTH IN.	USED IN BEAM
26	1"	2'-6"	7'-6	9'-0	30	0	A, F4
29	1"	2'-0"	7'-0	8'-6	28	6	A1
30	7/8"	1'-6"	3'-6	8'-0	24	0	A2 & F2
31	7/8"	1'-6"	2'-6	8'-0	23	0	A4
32	1"	2'-0"	5'-6	8'-6	27	0	F3
33	1"	3'-3"	9'-0	9'-9	33	0	F5

MARK	"d"	LENGTH FT.	LENGTH IN.	FOR BEAM
140	3'-9"	24	6	B2, C2, D2.
141	4'-9"	25	6	B1
142	6'-3"	27	0	B, D1, E2 & T2
143	7'-6"	28	3	C, C1, T1, E3 & S
144	5'-0"	29	5	C & D
145	11'-6"	32	3	E4

REFERENCES-
B-4-35-Key Plan of Floor Beams For Reinforcing
B-4-36-Beams Supporting R.R. Tracks-Reinforcing
B-4-37-Beams Supporting Deck-Reinforcing
B-4-24-South Corner-Neat Lines of Concrete
B-4-26-North Corner-Neat Lines of Concrete.

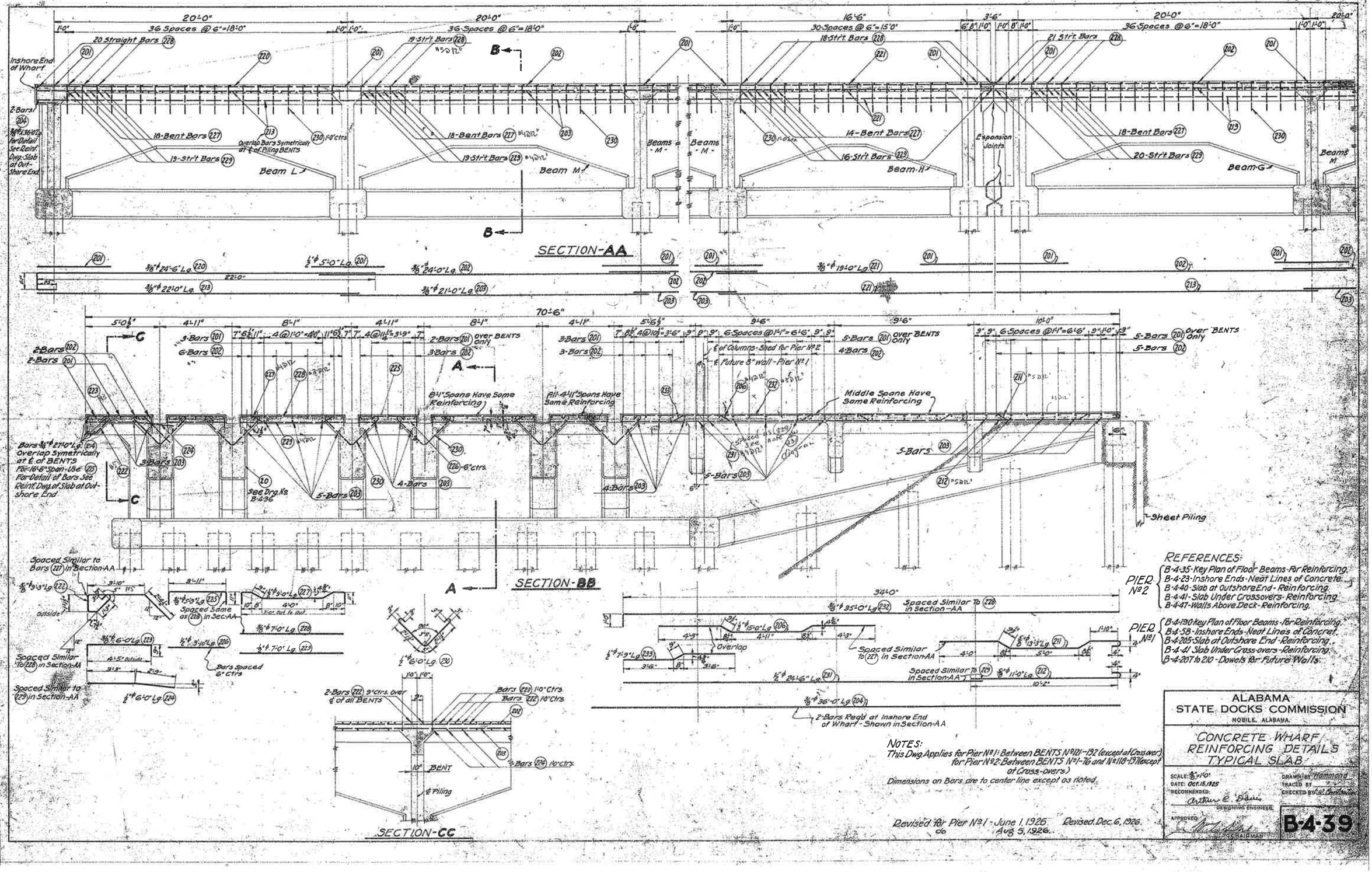
NOTES:
For Detail of Stirrups (12) To (20) See Std. Beam Drawing No B-4-36
For Detail of Bars (104) & (127) Also Stirrups (114) To (118) See Std. Beam Drg. No B-4-37

ALABAMA
STATE DOCKS COMMISSION
MOBILE, ALABAMA.

CONCRETE WHARF
REINFORCING DETAILS
SPECIAL BEAMS AT CORNERS

SCALE: 1/2"=1'-0"
DATE: Oct. 15, 1925
RECOMMENDED: Arthur C. Davis
DESIGNING ENGINEER.
APPROVED:
CHAIRMAN
DRAWN BY Hammond.
TRACED BY
CHECKED BY

B-4-38



REFERENCES:

PIER No 2
- B-4-35 Key Plan of Floor Beams For Reinforcing.
- B-4-23 Inshore Ends Neat Lines of Concrete.
- B-4-40 Slab at Outshore End - Reinforcing.
- B-4-41 Slab Under Grossovers Reinforcing.
- B-4-47 Walls Above Deck - Reinforcing.

PIER No 1
- B-4-190 Key Plan of Floor Beams For Reinforcing.
- B-4-58 Inshore Ends Neat Lines of Concrete.
- B-4-205 Slab at Outshore End - Reinforcing.
- B-4-41 Slab Under Grossovers Reinforcing.
- B-4-207 to 210 Dowels for Future Walls.

NOTES:
This Dwg. Applies for Pier No 1: Between BENTS No 121 - 132 (except at Crossover) for Pier No 2: Between BENTS No 1 - 16 and No 118 - 131 except of Cross-overs)
Dimensions on Bars are to center line except as noted.

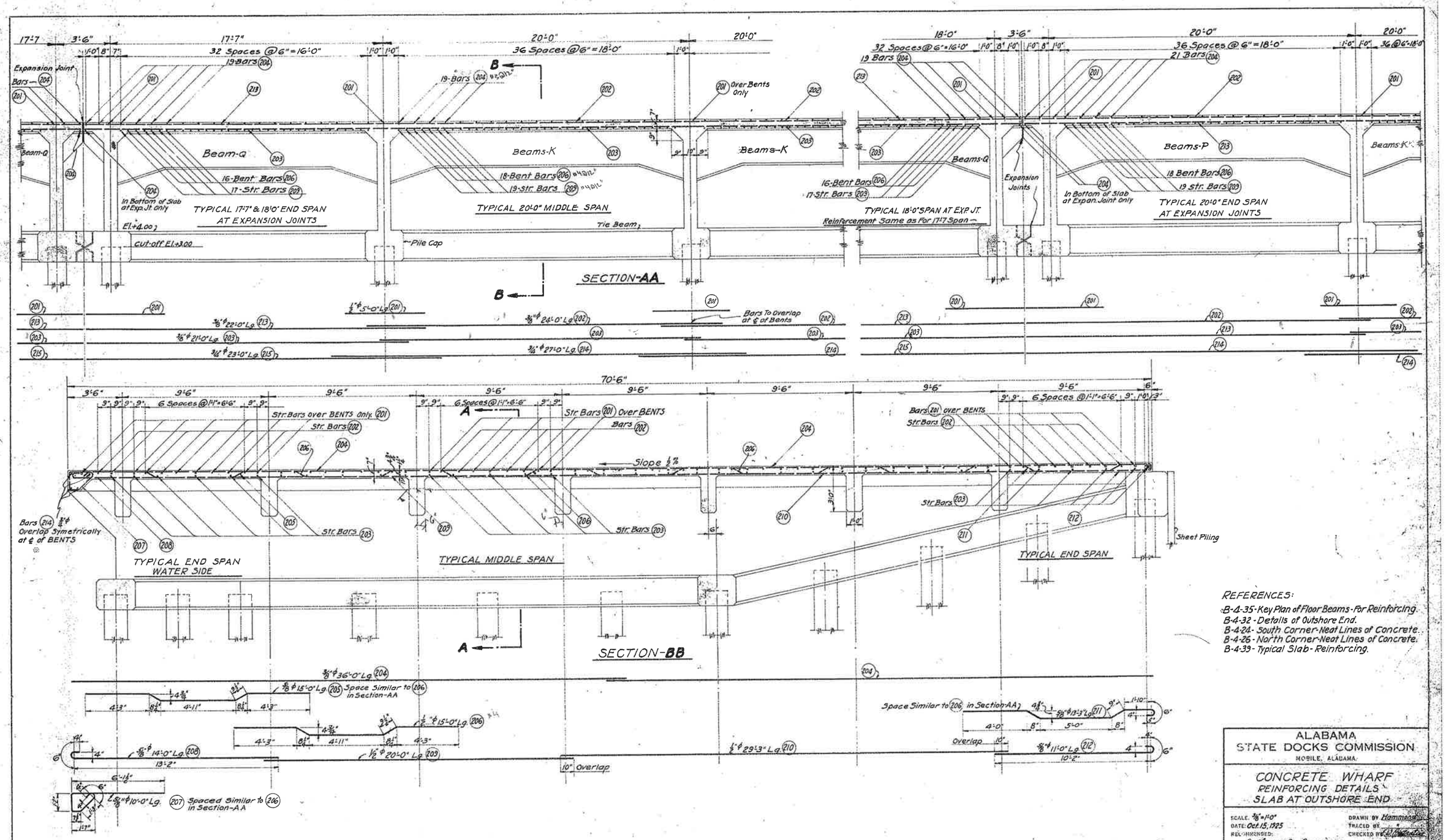
Revised for Pier No 1 - June 1, 1926 Revised Dec. 6, 1926.
do Aug 5, 1926.

ALABAMA
STATE DOCKS COMMISSION
MOBILE, ALABAMA.

CONCRETE WHARF
REINFORCING DETAILS
TYPICAL SLAB

SCALE: 3/8" = 1'0" DRAWN BY Hammond
DATE: Oct. 15, 1925 TRACED BY
RECOMMENDED: Arthur E. Davis DESIGNING ENGINEER CHECKED BY
APPROVED: CHAIRMAN

B-4-39



REFERENCES:

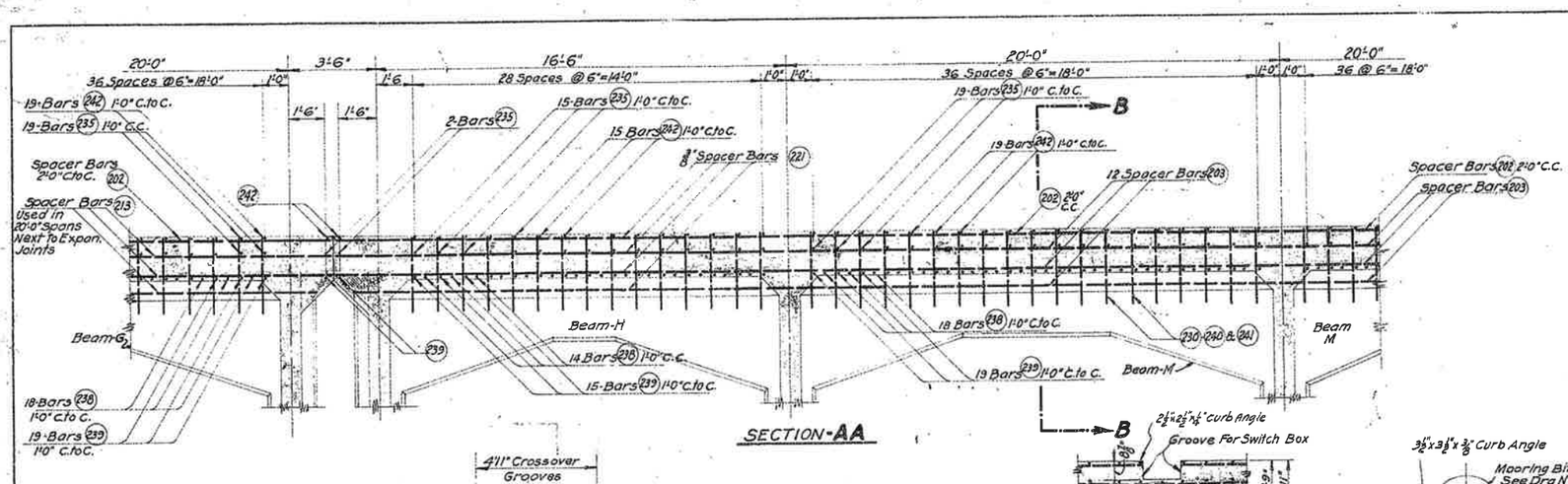
B-4-35-Key Plan of Floor Beams-For Reinforcing.
B-4-32-Details of Outshore End.
B-4-24-South Corner-Neat Lines of Concrete.
B-4-26-North Corner-Neat Lines of Concrete.
B-4-39-Typical Slab-Reinforcing.

ALABAMA
STATE DOCKS COMMISSION
MOBILE, ALABAMA.

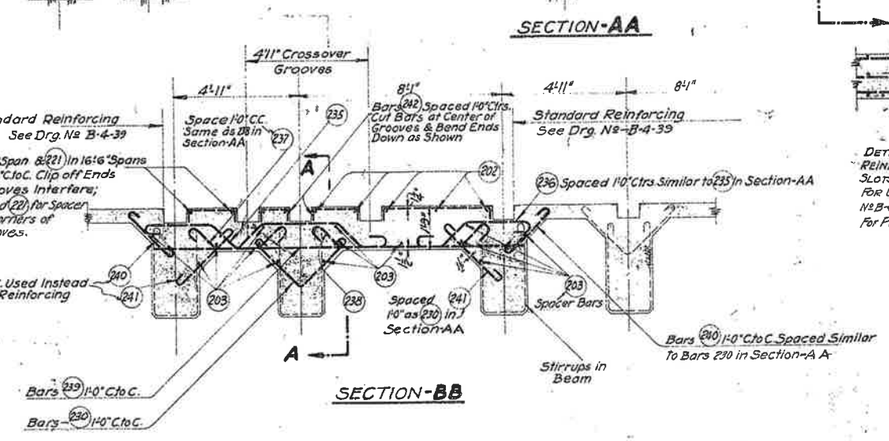
CONCRETE WHARF
REINFORCING DETAILS
SLAB AT OUTSHORE END

SCALE: 3/8"=1'0"
DATE: Oct. 15, 1925
RECOMMENDED: Arthur C. Davis, DESIGNING ENGINEER
APPROVED: CHAIRMAN
DRAWN BY Hammond
TRACED BY
CHECKED BY

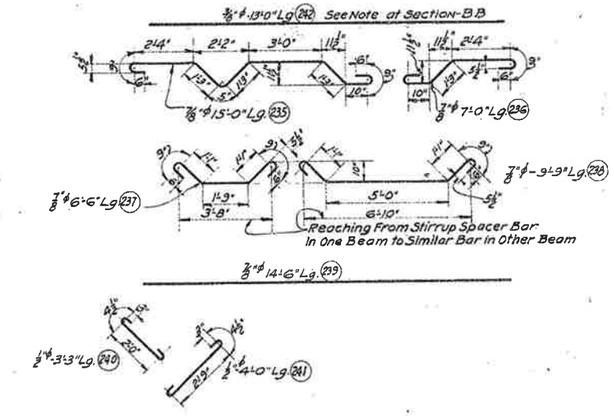
B-4-40



SECTION-AA

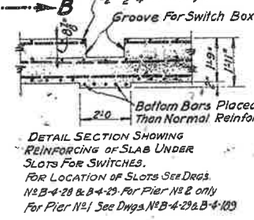


SECTION-BB

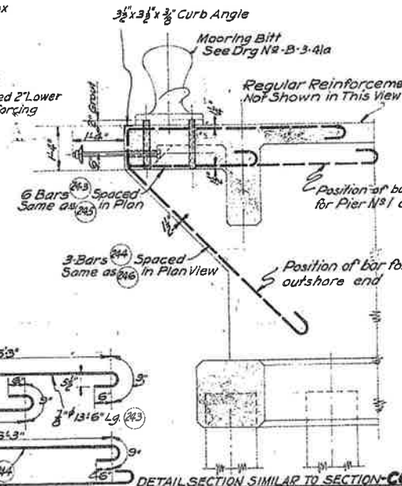


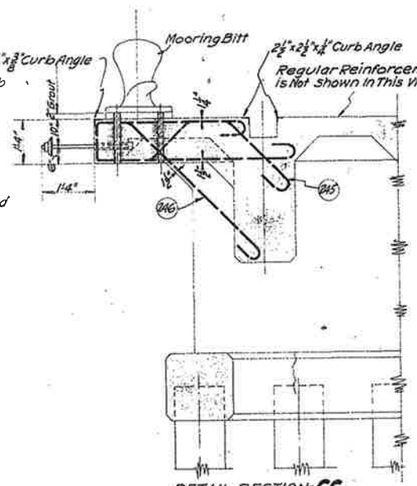
REINFORCING DETAILS OF SLAB AT CROSSOVERS

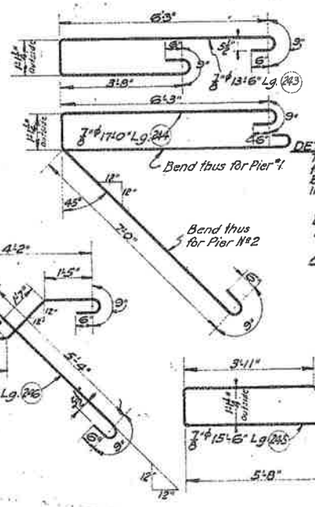
See Notes



DETAIL SECTION SHOWING REINFORCING OF SLAB UNDER SLOTS FOR SWITCHES.
FOR LOCATION OF SLOTS SEE DRGS. No B-4-28 & B-4-29. For Pier No 2 only
For Pier No 1 See Drgs. No B-4-29 & B-4-189



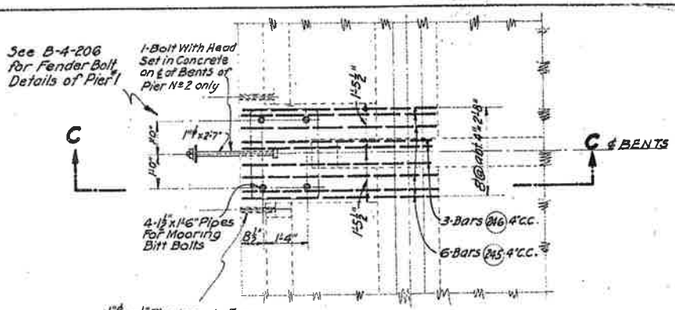




DETAIL SECTION SIMILAR TO SECTION-CC
Typical Section Showing Special Reinforcement of Slab Supporting Mooring Bitt Located Between Bents No 81 to 115 Inclusive - For Pier No 2 Only.

For Pier No 1 - Mooring Bitts Located Between BENTS No 100 to 116 - Setting Details see B-4-192

ADDITIONAL REINFORCING OF SLAB UNDER MOORING BITTS



DETAIL PLAN

Showing Additional Reinforcing of Slab Supporting Mooring Bitts.
Scale 1/2"=1'-0"

DETAIL SECTION-CC
Typical Section Showing Special Reinforcement of Slab Supporting Mooring Bitts Located Between Bents No 1 to No 80 & No 116 to 137, For Pier No 2 Only - Located Between BENTS No 72 to 99 & No 206 to 192 For Pier No 1 Only.

NOTES:

PIER No 2 — Reinforcement of Slab at Crossovers Between BENTS No 19 to 34a, 46 to 61, 135 to 150 & 165 to 180.

PIER No 1 & 2 — Reinforcing Includes Two Spans 4'-11" & 8'-1" Together as Shown in Section-BB, or in Oposite Position as Indicated on Cross Over-General Layout - Reinforcing Similar For Both Positions.

For Details of Bars 202 203 213 221 & 230 See Drg. No B-4-39

PIER No 1 — Cross-Overs are Located Between BENTS No 135 to 150 & No No 3 to 178

Dimensions on Bars are to center lines except as noted

This Drawing Used for Piers No 1 & 2

REFERENCES:

FOR PIER No 2:
- B-4-35 Key Plan of Floor Beams - for Reinforcing
- B-4-28 Cross Over-General Layout
- B-4-39 - Typical Slab-Reinforcing.

FOR PIER No 1 & 2:
- B-4-29 Cross Over-Location of Anchor Bolts
- B-3-41 a - Mooring Bitt Detail

FOR PIER No 1:
- B-4-190 Key Plan of Floor Beams - for Reinforcing
- B-4-189 Cross Over-General Layout
- B-4-187 & 188 - Location of Mooring Bits
- B-4-192 Setting Details of Mooring Bitts

This Dwg. Revised - Jan. 9, 1926
Revised - June 1, 1926 - for Pier No 1
Revised Dec. 6, 1926 - for Pier No 1

ALABAMA
STATE DOCKS COMMISSION
MOBILE, ALABAMA.

CONCRETE WHARF
REINFORCING DETAILS
SLAB UNDER CROSSOVERS & MOORING BITTS

SCALE: 3/4"=1'-0" | DRAWN BY Hammond
DATE: Oct. 15, 1925 | TRACED BY "
RECOMMENDED: Arthur C. Davis, DESIGNING ENGINEER | CHECKED BY [illegible]
APPROVED: [illegible] CHAIRMAN

B-4-41

Standard Reinforcement For Outshore End of Wharf Between BENTS Nos 8 & 14 See Drawings Nos B-4-40 For Pier Nº 2

Bars (211) About 210" Ctrs Entire Length of BENTS See Section BB

¢ BENT #114

¢ BENT #115

¢ BENT #116

¢ BENT #117

¢ BENT #118

Reinforcing Similar to Standard Reinforcing For Out Shore End - Drg Nº B-4-40 for Pier Nº 2

Similar to Sec BB on Drg Nº B-4-40 for Pier Nº 2

4-Bent Bars (219) Lapping (218)

Overlapping (108) (118) For Location Refer to Drg Nº B-4-39 Section-BB

Reinforcing Similar to Std. Reinforcing Drg Nº B-4-39

Standard Reinforcing Between BENTS Nos 118 to 197 See Drg. Nº B-4-39.

Similar to Section-BB Drg. Nº B-4-39

SECTION - DD
Scale 1/2" = 1'0"

SECTION - CC
Through Grooves for Bumper Bolts
Scale 1/2" = 1'0"

NOTE
Beginning 1'0" from Beam Bars (228) Spaced 10" C.to C. Entire Length of Rail Beams

Spacer Bars (232) Entire Length of Rail Beams

3/8" ϕ Str. Bars 7

1/2" ϕ Str. Bar 7

MARK	LENGTH FT.	LENGTH IN.	MARK	LENGTH FT.	LENGTH IN.	MARK	LENGTH FT.	LENGTH IN.	MARK	LENGTH FT.	LENGTH IN.
255	11	0	266	3	3	271	3	3	281	8	0
256	12	6	267	6	0	272	6	6	282	24	0
257	13	6	268	9	0	273	9	6	283	27	0
258	15	0	269	10	0	274	11	0	284	29	0
259	17	0	270	27	0	275	12	0	291	31	0
260	18	0	285	29	0	276	14	0	292	33	0
261	20	0	286	31	0	277	16	0	293	35	0
262	22	0	287	33	0	278	18	0	294	37	0
263	24	0	288	35	0	279	20	0	295	40	0
264	25	0	289	37	0	280	22	0	298	25	0
265	7	9	290	40	0						

REFERENCES-

FOR PIER Nº 2
- B-4-35 Key Plan of Floor Beams for Reinforcing.
- B-4-39 Typical Slab Reinforcing.
- B-4-40 Slab at Outshore End-Reinforcing.
- B-4-41 Walls Above Deck-Reinforcing.
- B-4-26 North Corner Neat Lines of Concrete.

FOR PIER Nº 1
- B-4-66 Key Plan of Floor Beams for Reinforcing
- B-4-39 Typical Slab-Reinforcing
- B-4-70 Slab at Outshore End-Reinforcing
- B-4-75 Walls Above Wharf-Reinforcing
- B-4-61 North Corner Neat Lines of Concrete

NOTES

PIER Nº 2
- Section AA on This Drawing Same as Section-BB on Drawing Nº B-4-39.
- Section-BB on This Drawing Same as Section-BB on Drawing Nº B-4-40 Except as Shown.
- Short Bars (201) To Be Placed in Top of Slab Over all BENTS, Entire Length, about 2'-0" Ctrs. as Shown in Sections-BB Drgs Nº B-4-39 & Nº B-4-40.
- For Details of Bars (201) to (206) See Drgs. Nº B-4-39 & B-4-40.

PIER Nº 1
- Section AA on This Drawing Same as Section-BB on Drawing Nº B-4-39.
- Section-BB on this Drawing Same as Section-BB on Drg. Nº B-4-70.
- Short Bars (201) to be Placed in top of Slab, Over all BENTS, Entire Length, About 2'-0" Ctrs. as Shown in AA & BB.
- For Details of Bars (201) to (206) see Drgs. Nº B-4-39 & B-4-70.

ALABAMA
STATE DOCKS COMMISSION
MOBILE, ALABAMA.

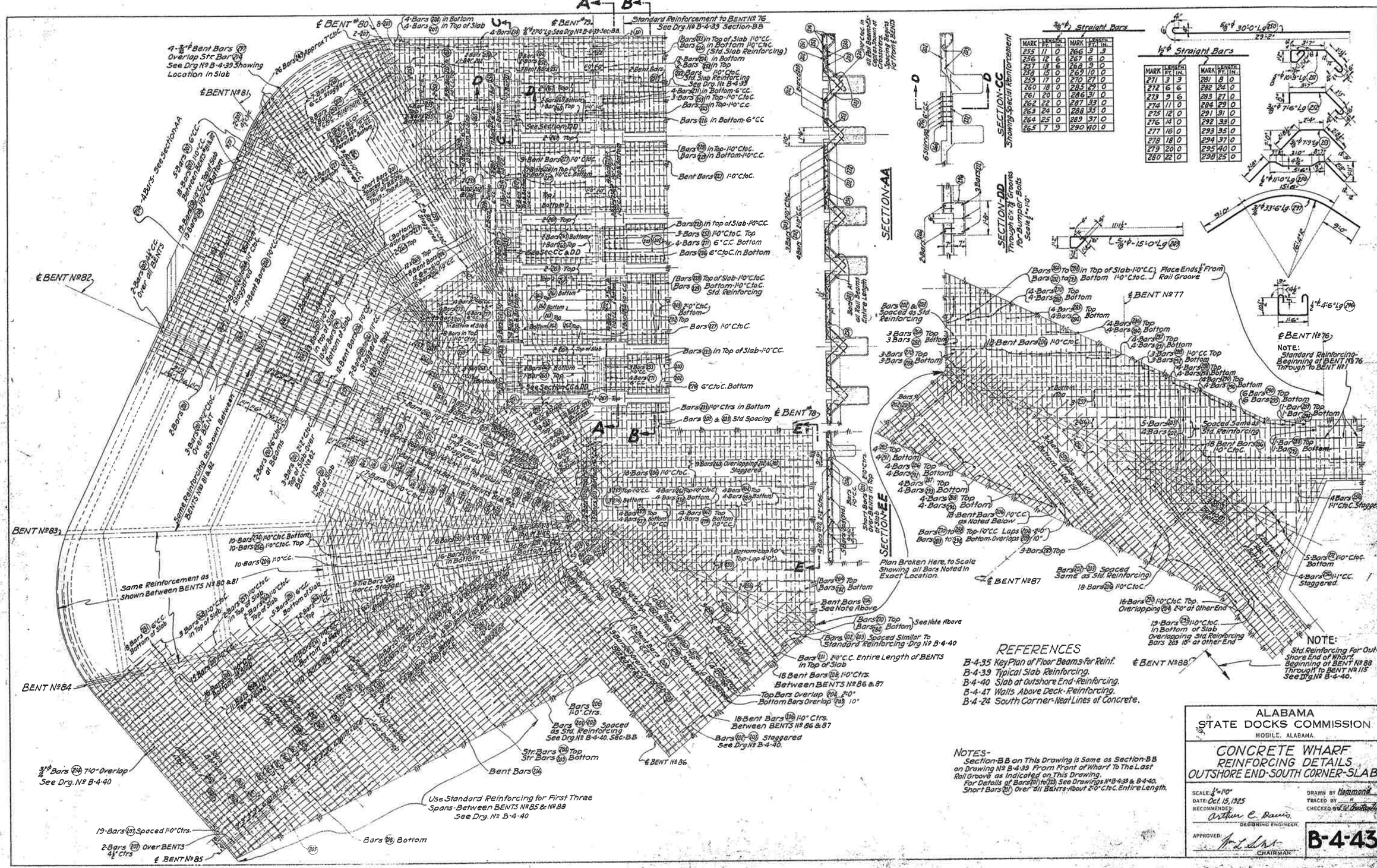
CONCRETE WHARF
REINFORCING DETAILS
OUTSHORE END-NORTH CORNER-SLAB

SCALE: 1/4" = 1'0"
DATE: Oct 18, 1925
RECOMMENDED: Arthur C. Davis, DESIGNING ENGINEER
APPROVED: CHAIRMAN

DRAWN BY Hammond
TRACED BY "
CHECKED BY [illegible]

B-4-42

Revised - June 1, 1926. for Pier Nº 1
Revised - June 29, 1926 Nº 2



NOTE:
Standard Reinforcing - Beginning at BENT No 76 Through to BENT No 1

NOTE:
Std. Reinforcing For Outshore End of Wharf Beginning at BENT No 88 Through to BENT No 115 See Drg. No B-4-40.

3/8"φ Straight Bars

MARK	LENGTH FT.	LENGTH IN.
255	11	0
256	12	6
257	13	6
258	15	0
259	17	0
260	18	0
261	20	0
262	22	0
263	24	0
264	25	0
265	7	9

MARK	LENGTH FT.	LENGTH IN.
266	3	3
267	6	0
268	9	0
269	10	0
270	27	0
285	29	0
286	31	0
287	33	0
288	35	0
289	37	0
290	40	0

1/2"φ Straight Bars

MARK	LENGTH FT.	LENGTH IN.
271	3	3
272	6	6
273	9	6
274	11	0
275	12	0
276	14	0
277	16	0
278	18	0
279	20	0
280	22	0

MARK	LENGTH FT.	LENGTH IN.
281	8	0
282	24	0
283	27	0
284	29	0
291	31	0
292	33	0
293	35	0
294	37	0
295	40	0
298	25	0

REFERENCES

B-4-35	Key Plan of Floor Beams-For Reinf.
B-4-39	Typical Slab Reinforcing.
B-4-40	Slab at Outshore End-Reinforcing.
B-4-47	Walls Above Deck-Reinforcing.
B-4-24	South Corner-Neat Lines of Concrete.

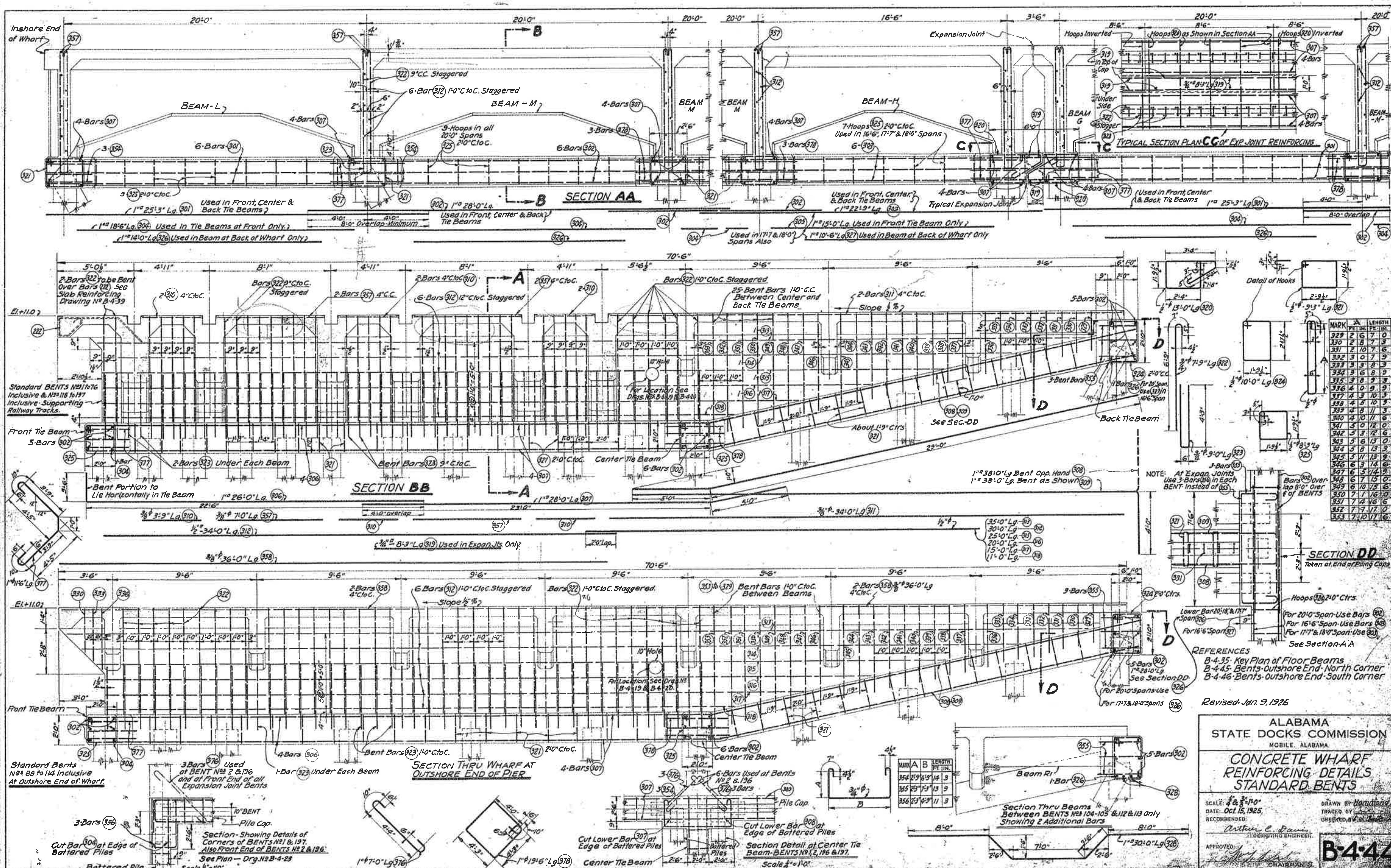
NOTES-
Section-BB on This Drawing is Same as Section-BB on Drawing No B-4-39 From Front of Wharf To The Last Rail Groove as Indicated on This Drawing.
For Details of Bars 201 to 233 See Drawings No B-4-39 & B-4-40.
Short Bars 201 Over all BENTS - About 2'-0" C to C. Entire Length.

ALABAMA
STATE DOCKS COMMISSION
MOBILE, ALABAMA.

CONCRETE WHARF
REINFORCING DETAILS
OUTSHORE END-SOUTH CORNER-SLAB

SCALE: 1/4" = 1'-0"
DATE: Oct. 15, 1925
RECOMMENDED: Arthur C. Davis
DESIGNING ENGINEER.
APPROVED:
CHAIRMAN
DRAWN BY Hammond
TRACED BY "
CHECKED BY

B-4-43


Inshore End of Wharf
SECTION AA
TYPICAL SECTION PLAN CC OF EXP. JOINT REINFORCING
Used in Front, Center & Back Tie Beams
Used in Tie Beams at Front Only.
Used in Beam at Back of Wharf Only
Used in Front Tie Beam Only
SECTION BB
Standard BENTS Nos. 1 to 76 Inclusive & Nos. 118 to 197 Inclusive - Supporting Railway Tracks.
Front Tie Beam
Center Tie Beam
Back Tie Beam
Detail of Hooks
NOTE: At Expan. Joints Use 3-Bars (356) in Each BENT Instead of (351)
SECTION DD
Taken at End of Piling Caps
SECTION THRU WHARF AT OUTSHORE END OF PIER
Standard Bents Nos. 88 to 114 Inclusive At Outshore End of Wharf
Section - Showing Details of Corners of BENTS Nos. 1 & 197. Also Front End of BENTS Nos. 2 & 196.
See Plan - Drg. No. B-4-23
Section Detail at Center Tie Beam - BENTS Nos. 1, 2, 196 & 197.
Section Thru Beams Between BENTS Nos. 104-105 & 112 & 113 Only Showing 2 Additional Bars
REFERENCES
B-4-35 - Key Plan of Floor Beams
B-4-45 - Bents - Outshore End - North Corner
B-4-46 - Bents - Outshore End - South Corner
Revised - Jan. 9, 1926

MARK	A		LENGTH	
	FT.	IN.	FT.	IN.
329	2	6	7	0
330	2	8	7	3
331	2	10	7	6
332	3	0	7	9
333	3	3	8	3
334	3	6	8	9
335	3	8	9	3
336	4	0	9	9
337	4	3	10	3
338	4	5	10	9
339	4	8	11	3
340	4	10	11	6
341	5	0	12	0
342	5	3	12	6
343	5	6	13	0
344	5	8	13	3
345	5	11	13	9
346	6	3	14	6
347	6	5	14	9
348	6	7	15	0
349	6	10	15	6
350	7	1	16	0
351	7	4	16	6
352	7	7	17	0
353	7	10	17	6

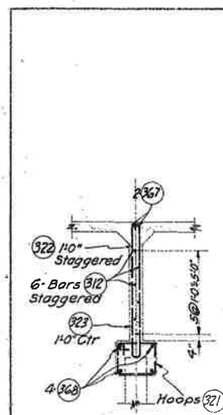
MARK	A	B	LENGTH	
			FT.	IN.
354	2'-9"	6'-9"	14	3
355	2'-3"	7'-3"	13	9
356	2'-3"	4'-9"	11	3

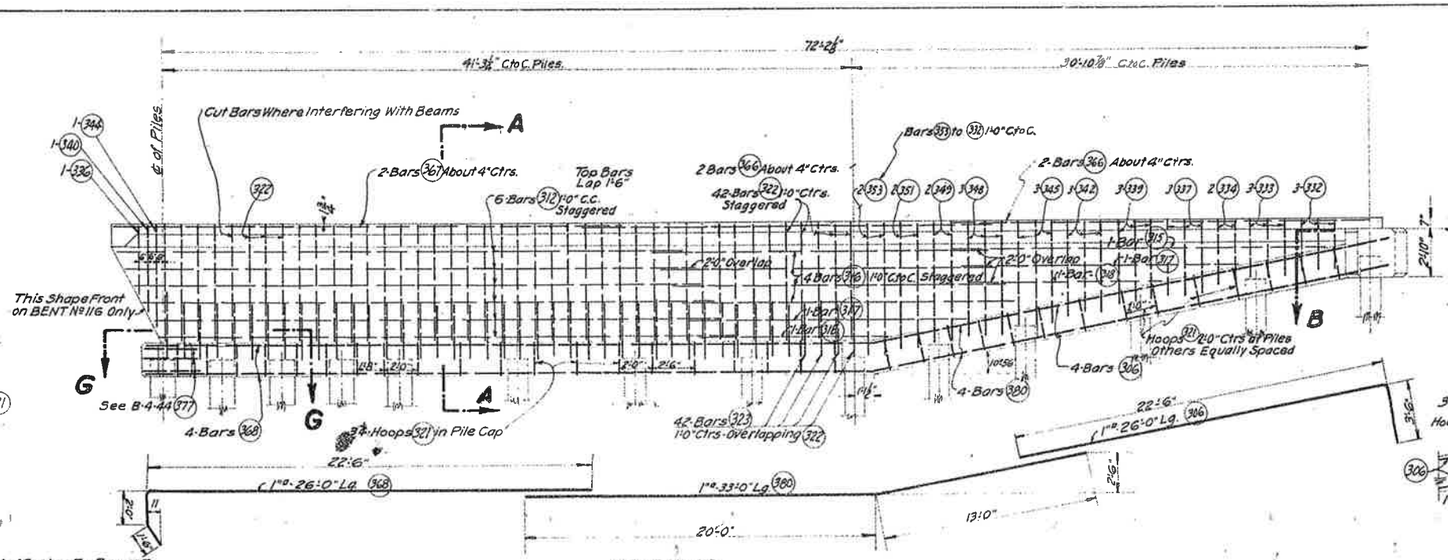
ALABAMA
STATE DOCKS COMMISSION
MOBILE, ALABAMA.

CONCRETE WHARF REINFORCING DETAILS STANDARD BENTS

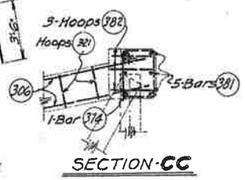
SCALE: ¼" & ⅜" = 1'-0"
DATE: Oct. 15, 1925.
RECOMMENDED: Arthur C. Davis, DESIGNING ENGINEER.
APPROVED: [signature] CHAIRMAN.
DRAWN BY Hammond
TRACED BY
CHECKED BY

B-4-44

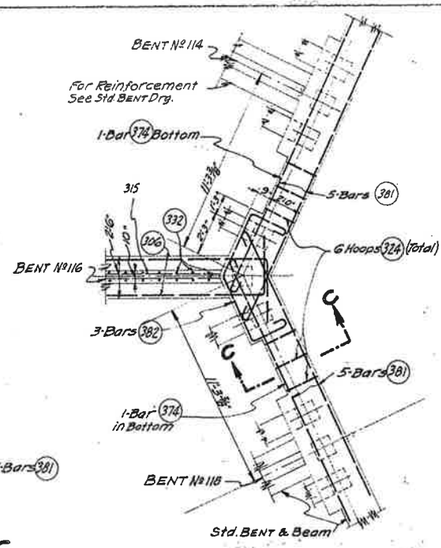




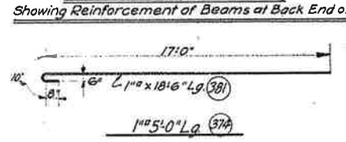
BENT No 116
Intersecting BENTS & Floor Beams Not Shown

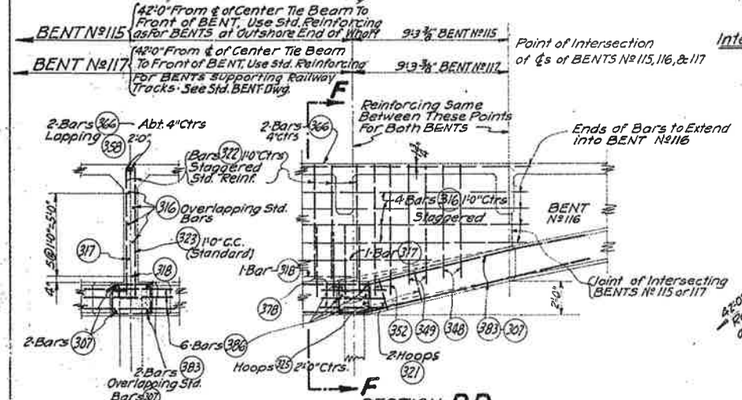


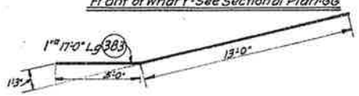
SECTION-CC

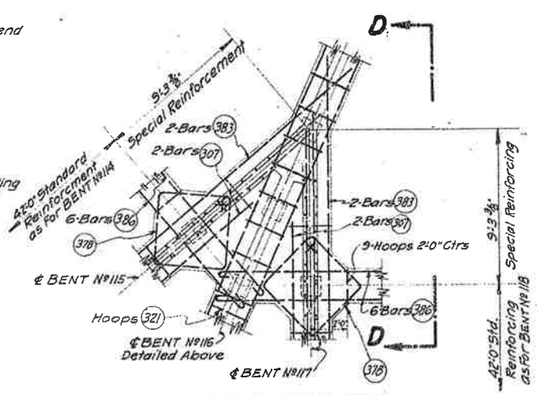


DETAIL SECTION BB
Showing Reinforcement of Beams at Back End of BENT

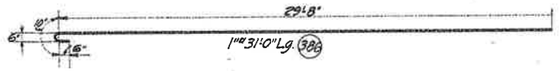


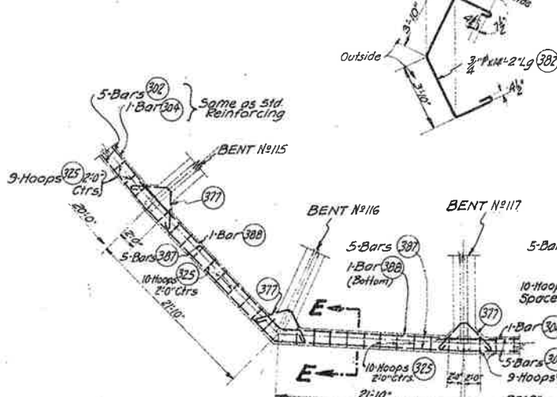




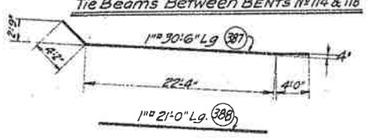


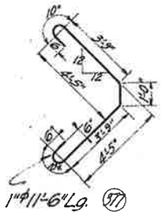
SECTIONAL PLAN DETAIL
at Intersection of BENTS No 115, 116 & 117

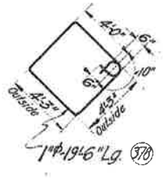




SECTIONAL PLAN GG AT CORNER
Showing Reinforcement for Tie Beams Between BENTS No 114 & 118







REFERENCES:

FOR PIER No 2
- B-4-35 - Key Plan of Floor Beams
- B-4-44 - Standard - Bents - Reinforcing
- B-4-46 - Bents at Outshore End - South Corner
- B-4-27 - Outshore End-North Corner-Neat Lines of Concrete.

FOR PIER No 1
- B-4-66 Key Plan of Floor Beams - For Reinf.
- B-4-72 & 73 Standard BENTS - Reinforcing.
- B-4-74 BENTS at Outshore End - South Corner
- B-4-61 - Outshore End-North Corner-Neat Lines of Concrete

NOTE
See Sections A,A, and B,B on dwg B-4-43 for additional reinforcing in bent 117B not shown in Sections FF and DD on this sheet.

NOTES-
This Drawing Shows Reinforcing For BENTS No 115, 116 & 117B. Bars Numbered From 301 to 358 Detailed on Drg No B-4-44 For Pier No 2 Only. Bars 301 to 338 Detailed on Dwg No B-4-72 For Pier No 1

Dimensions on Bars are to center lines except as noted.

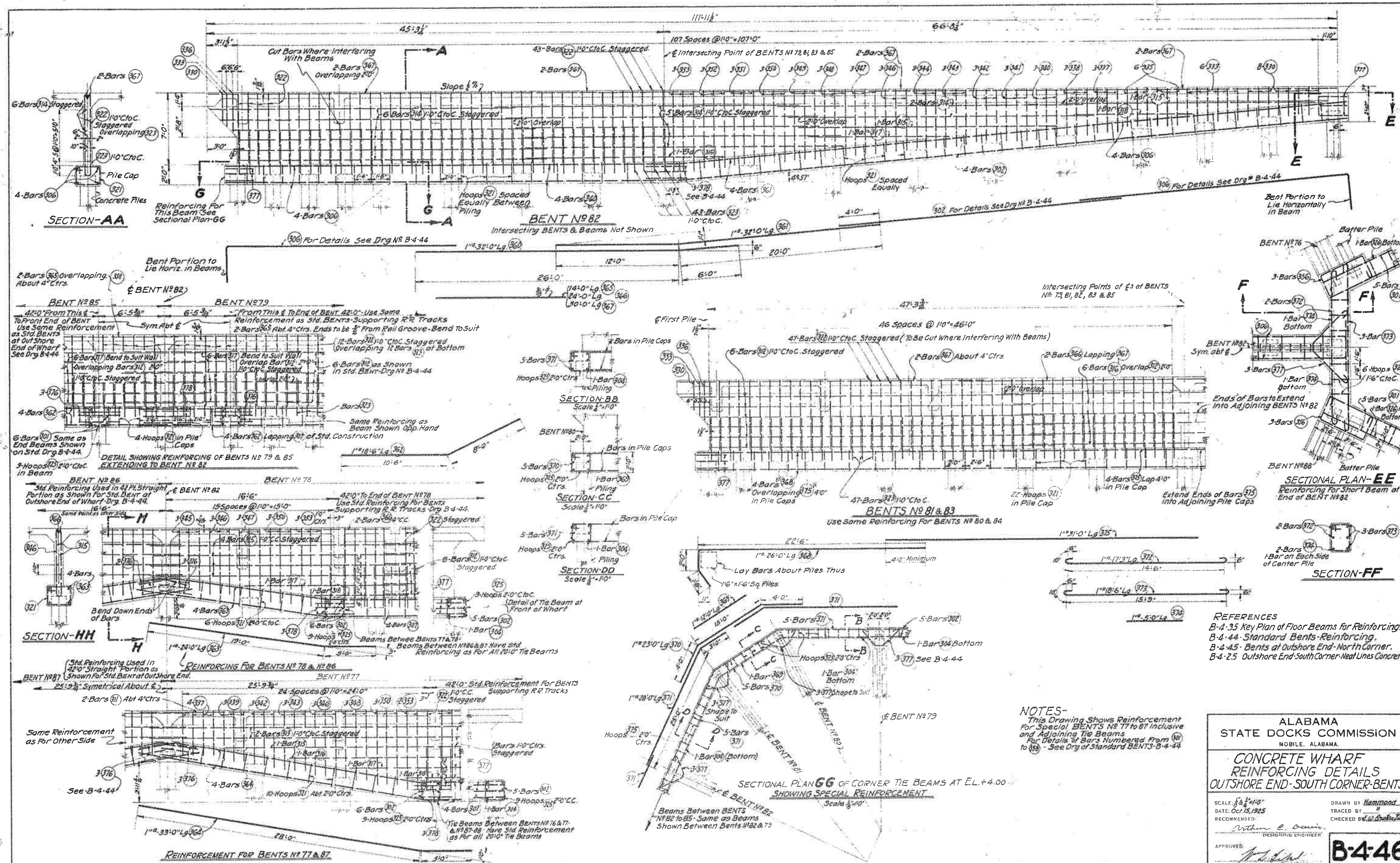
Revised for Pier No 1 June 1, 1926.

ALABAMA
STATE DOCKS COMMISSION
MOBILE, ALABAMA.

CONCRETE WHARF REINFORCING DETAILS OUTSHORE END-NORTH CORNER-BENTS

SCALE: 3/8"=1'0" 1/4"=1'0"
DATE: Oct. 15, 1925
RECOMMENDED: Wilbur C. Davis, CHIEF ENGINEER
APPROVED: CHAIRMAN
DRAWN BY Hammond
TRACED BY
CHECKED BY

B-4-45



REFERENCES
B-4-35 Key Plan of Floor Beams for Reinforcing.
B-4-44 Standard Bents-Reinforcing.
B-4-45 Bents at Outshore End-North Corner.
B-4-25 Outshore End-South Corner-Neat Lines Concrete

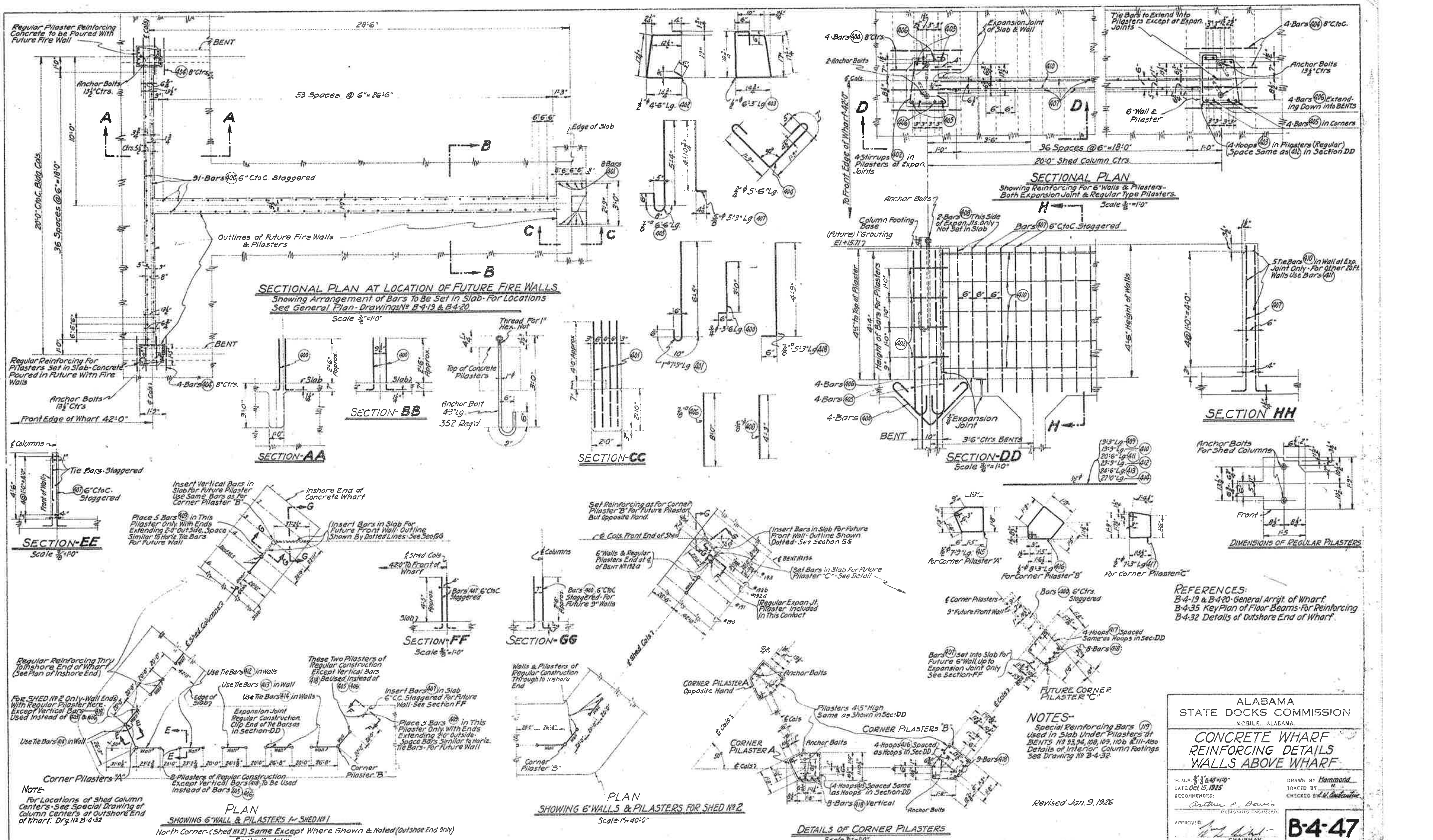
NOTES-
This Drawing Shows Reinforcement for Special BENTS Nº 77 to 87 Inclusive and Adjoining Tie Beams.
For Details of Bars Numbered From 301 to 358 - See Drg of Standard BENTS B-4-44

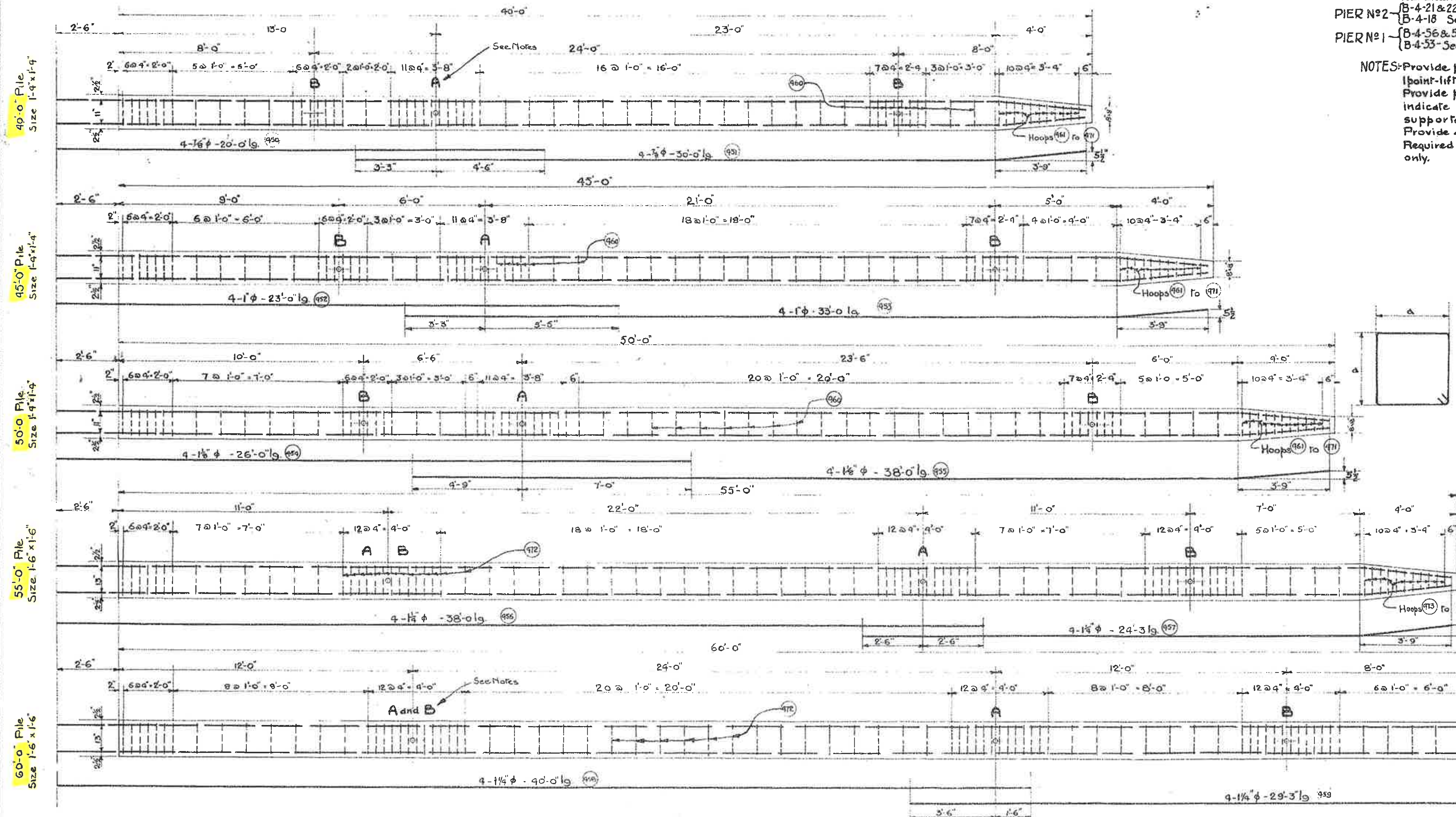
ALABAMA
STATE DOCKS COMMISSION
MOBILE, ALABAMA.

CONCRETE WHARF
REINFORCING DETAILS
OUTSHORE END - SOUTH CORNER - BENTS

SCALE: ⅛" & ¼" = 1'-0"
DATE: Oct. 15, 1925
RECOMMENDED: [signature]
DESIGNING ENGINEER
APPROVED: [signature]
CHAIRMAN
DRAWN BY Hammond
TRACED BY "
CHECKED BY

B-4-46


Regular Pilaster Reinforcing Concrete to be Poured With Future Fire Wall
28'6"
BENT
Anchor Bolts 13½" Ctrs.
53 Spaces @ 6" = 26'6"
20'0" CtoC. Bldg Cols.
36 Spaces @ 6" = 18'0"
Edge of Slab
91-Bars (400) 6" CtoC. Staggered
8-Bars (401)
Outlines of Future Fire Walls & Pilasters
Regular Reinforcing For Pilasters Set in Slab-Concrete Poured in Future With Fire Walls
4-Bars (404) 8" Ctrs.
Anchor Bolts 13½" Ctrs
Front Edge of Wharf 42'0"
SECTIONAL PLAN AT LOCATION OF FUTURE FIRE WALLS
Showing Arrangement of Bars To Be Set in Slab - For Locations See General Plan - Drawings Nº B-4-19 & B-4-20
Scale ⅜" = 1'0"
SECTION-AA
SECTION-BB
Thread For 1" Hex. Nut
Top of Concrete Pilasters
Anchor Bolt 4'3" Lg.
352 Req'd.
SECTION-CC
4-Bars (404) 8" Ctrs.
2-Anchor Bolts
Expansion Joint of Slab & Wall
Tie Bars to Extend into Pilasters Except at Expan. Joints
4-Bars (404) 8" CtoC.
Anchor Bolts 13½" Ctrs
4-Bars (406) Extending Down into BENTS
6" Wall & Pilaster
4-Bars (405) in Corners
4-Stirrups (402) in Pilasters at Expan. Joints
36 Spaces @ 6" = 18'0"
20'0" Shed Column Ctrs.
4-Hoops (403) in Pilasters (Regular) Space Same as (402) in Section DD
SECTIONAL PLAN
Showing Reinforcing For 6" Walls & Pilasters - Both Expansion Joint & Regular Type Pilasters.
Scale ½" = 1'0"
To Front Edge of Wharf 42'0"
Anchor Bolts
Column Footing Base
(Future) 1" Grouting
El + 15.717
2-Bars (408) This Side of Expan. Jts. Only Not Set in Slab
Bars (401) 6" CtoC. Staggered
4'5" To Top of Pilaster
Height of Bars For Pilasters
4'6" Height of Walls
4-Bars (406)
4-Bars (405)
4-Bars (408)
¾" Expansion Joint
BENT
3'6" Ctrs BENTS
SECTION-DD
Scale ½" = 1'0"
5 Tie Bars (410) in Wall at Exp. Joint Only - For Other 20 Ft. Walls Use Bars (411)
SECTION HH
13'3" Lg. (409)
19'9" Lg. (410)
20'6" Lg. (411)
23'9" Lg. (412)
24'6" Lg. (413)
27'0" Lg. (414)
For Corner Pilaster "A"
For Corner Pilaster "B"
For Corner Pilaster "C"
Anchor Bolts For Shed Columns
Front
DIMENSIONS OF REGULAR PILASTERS
¢ Columns
Tie Bars - Staggered
(407) 6" CtoC. Staggered
Front of Wall
SECTION-EE
Scale ⅜" = 1'0"
Insert Vertical Bars in Slab For Future Pilaster Use Same Bars as For Corner Pilaster "B"
Inshore End of Concrete Wharf
Place 5 Bars (405) in This Pilaster Only With Ends Extending 3'0" Outside - Space Similar To Horiz. Tie Bars For Future Wall
Insert Bars in Slab For Future Front Wall - Outline Shown By Dotted Lines - See Sec. GG
¢ Shed Cols
42'0" To Front of Wharf
Bars (407) 6" CtoC Staggered
SECTION-FF
Scale ⅜" = 1'0"
¢ Columns
Bars (416) 6" CtoC Staggered - For Future 9" Walls
SECTION-GG
Set Reinforcing as For Corner Pilaster "B" For Future Pilaster But Opposite Hand.
¢ Cols. Front End of Shed
6" Walls & Regular Pilasters End at ¢ of BENT Nº 192A
Insert Bars in Slab For Future Front Wall - Outline Shown Dotted - See Section GG
Set Bars in Slab For Future Pilaster "C" - See Detail
Regular Expan. Jt. Pilaster Included In This Contact
Regular Reinforcing Thru To Inshore End of Wharf (See Plan of Inshore End)
For SHED Nº 2 Only - Wall Ends With Regular Pilaster Here. Except Vertical Bars (418) Used Instead of (405) & (406)
Use Tie Bars (412) in Walls
Use Tie Bars (413) in Wall
Use Tie Bars (414) in Walls
Edge of Slab
Expansion Joint Regular Construction. Clip End of Tie Bars as in Section-DD
These Two Pilasters of Regular Construction Except Vertical Bars (418) Be Used Instead of (405) (406)
Insert Bars (407) in Slab 6" CC. Staggered For Future Wall - See Section FF
Place 5 Bars (405) in This Pilaster Only With Ends Extending 3'0" Outside - Space Bars Similar to Horiz. Tie Bars - For Future Wall
Use Tie Bars (414) in Wall
Corner Pilasters "A"
8-Pilasters of Regular Construction Except Vertical Bars (418) To Be Used Instead of Bars (405) (406)
Corner Pilaster "B"
NOTE -
For Locations of Shed Column Centers - See Special Drawing of Column Centers at Outshore End of Wharf. Drg. Nº B-4-32
PLAN
SHOWING 6" WALL & PILASTERS for SHED Nº 1
North Corner - (Shed Nº 2) Same Except Where Shown & Noted (Outshore End Only)
Scale 1" = 40'0"
Walls & Pilasters of Regular Construction Through to Inshore End
Corner Pilaster "B"
PLAN
SHOWING 6" WALLS & PILASTERS FOR SHED Nº 2
Scale 1" = 40'0"
CORNER PILASTER A Opposite Hand
Anchor Bolts
Pilasters 4'5" High Same as Shown in Sec. DD
CORNER PILASTERS "B"
CORNER PILASTER A
4-Hoops (416) Spaced as Hoops in Sec. DD
4-Hoops (415) Spaced Same as Hoops in Section-DD
8-Bars (418) Vertical
9-Bars (418)
Anchor Bolts
DETAILS OF CORNER PILASTERS
Scale ⅜" = 1'0"
¢ Corner Pilasters
9" Future Front Wall
Bars (408) 6" Ctrs. Staggered
4-Hoops (417) Spaced Same as Hoops in Sec. DD
8-Bars (418)
Bars (401) Set Into Slab For Future 6" Wall, Up to Expansion Joint Only See Section-FF
FUTURE CORNER PILASTER "C"
NOTES -
Special Reinforcing Bars (119) Used in Slab Under Pilasters at BENTS Nº 93, 94, 108, 109, 110b & 111 - Also Details of Interior Column Footings See Drawing Nº B-4-32.
Revised - Jan. 9, 1926
REFERENCES:
B-4-19 & B-4-20 - General Arrgt. of Wharf.
B-4-35 Key Plan of Floor Beams - For Reinforcing
B-4-32 Details of Outshore End of Wharf.
ALABAMA
STATE DOCKS COMMISSION
MOBILE, ALABAMA
CONCRETE WHARF
REINFORCING DETAILS
WALLS ABOVE WHARF
DATE: Oct. 15, 1925
RECOMMENDED:
APPROVED:
CHAIRMAN
DRAWN BY Hammond
TRACED BY
CHECKED BY
B-4-47



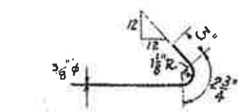
REFERENCES

PIER №2 — B-4-21 & 22 Piling Plan
B-4-18 Sections & Elevation of Wharf

PIER №1 — B-4-56 & 57 - Piling Plan
B-4-53 - Sections & Elevation of Wharf

NOTES:- Provide painted red bands at points A to indicate 1 point-lift or 2 point lift for handling lines.
Provide painted white bands at points B to indicate places where Piles have to be supported in case of transport.
Provide all piles with 2"×2" Chamfer.
Required numbers of piles are approximate only.

Mark	a	Mark	a
460	1'-1"	472	1'-2¾"
461	1'-0½"	473	1'-2"
462	11¾"	474	1'-1¼"
463	11"	475	1-0½"
464	10¼"	476	1'-0"
465	9½"	477	10¾"
466	8¾"	478	9¾"
467	8¼"	479	8¾"
468	7½"	480	8"
469	6¾"	481	7¼"
470	6¼"	482	6¼"
471	5½"	483	5¾"



Schedule For Hooks.
For Hoops.

NUMBER OF PILES REQUIRED					
LENGTH	60'-0"	55'-0"	50'-0"	45'-0"	40'-0"
SIZE	1'-6"x1'-6"	1'-6"x1'-6	1'-4"x1'-4"	1'-4x1'-4"	1'-4"x1'-4"
PIER №1					
PIER №2	883	340	336	750	1123

Revised Jan. 9, 1926.

ALABAMA
STATE DOCKS COMMISSION

CONCRETE WHARF.
DETAILS OF CONCRETE PILES.

Scale ½"=1'-0"
Oct. 15, 1925
Drawn by E.W.G.
Traced PAR.
Arthur C. Davis
CHAIRMAN

B-4-48

BILL OF MATERIAL FOR DWG. Nº B-4-36

Beam	Nº of Beams	Mark	Number Reqd.	Size	Length Ft.	Length In.	Tot. Length Ft.	Tot. Length In.	Wt. per Ft.	Tot. Wt.	Remarks
		4	5	1"□	12	0	5760	0	3.4	19584	
		6	5	7/8"□	10	0	4800	0	2.6	12480	
		10	2	1/2"□	23	0	4416	0	0.85	3754	
		11	3	1"□	33	0	9504	0	3.4	32314	
		12	2	1/2"□	13	6	2592	0	0.85		
		13	2	"	13	3	2544	0	"		
		14	2	"	12	9	2448	0	"		
		15	2	"	12	6	2400	0	"		
G	96	16	2	"	11	9	2256	0	"	17177	
		17	2	"	11	3	2160	0	"		
		18	2	"	10	6	2016	0	"		
		19	2	"	10	0	1920	0	"		
		20	2	"	9	9	1872	0	"		
		21	4	7/8"□	4	0	1536	0	2.6	7238	
		22	2	"	6	6	1248	0	"		
		23	1	3/8"⌀	7	6	720	0	0.38	1040	
		24	4	"	5	3	2016	0	"		
	6	5	5	7/8"□	20	0	600	0	2.6	1560	at Bent 28 only
		5	5	7/8"□	20	0	9600	0	2.6	37440	
		6	5	"	10	0	4800	0	"		
		7	2	1/2"□	19	0	3648	0	0.85	3101	
		8	3	1"□	30	0	8640	0	3.4	39168	
		9	3	"	10	0	2880	0	"		
		12	2	1/2"□	13	6	2592	0	0.85		
		13	2	"	13	3	2544	0	"		
H	96	14	2	"	12	9	2448	0	"		
		15	2	"	12	6	2400	0	"		
		16	2	"	11	9	2256	0	"	15586	
		17	2	"	11	3	2160	0	"		
		18	2	"	10	6	2016	0	"		
		19	2	"	10	0	1920	0	"		
		21	8	7/8"□	4	0	3072	0	2.6	11232	
		22	2	"	6	6	1248	0	"		
		23	2	3/8"⌀	7	6	1440	0	0.38	1313	
		24	4	"	5	3	2016	0	"		
		1	2	1/2"□	22	0	528	0	0.85	449	
		2	3	1"□	32	3	1161	0	3.4	6395	
		4	5	"	12	0	720	0	"		
		6	5	7/8"□	10	0	600	0	2.6	1560	
		12	2	1/2"□	13	6	324	0	0.85		
		13	2	"	13	3	318	0	"		
		14	2	"	12	9	306	0	"		
		15	2	"	12	6	300	0	"		
		16	2	"	11	9	282	0	"		
		17	2	"	11	3	270	0	"	2147	
L	12	18	2	"	10	6	252	0	"		
		19	2	"	10	0	240	0	"		
		20	2	"	9	9	234	0	"		
		21	4	7/8"□	4	0	192	0	2.6	905	
		22	2	"	6	6	156	0	"		
		23	1	3/8"⌀	7	6	90	0	0.38	154	
		24	5	"	5	3	315	0	"		
		1	2	1/2"□	22	0	32736	0	0.85	27826	
	744	3	2	1"□	36	9	54684	0	3.4	307346	
		4	4	1"□	12	0	35712	0	"		
	740	5	5	7/8"□	20	0	74000	0	2.6	192400	
		12	2	1/2"□	13	6	20088	0	0.85		
		13	2	"	13	3	19716	0	"		
		14	2	"	12	9	18972	0	"		
		15	2	"	12	6	18600	0	"		
M	744	16	2	"	11	9	17484	0	"	133120	
		17	2	"	11	3	16740	0	"		
		18	2	"	10	6	15624	0	"		
		19	2	"	10	0	14880	0	"		
		20	2	"	9	9	14508	0	"		
		21	4	7/8"□	4	0	11904	0	2.6	30950	
		23	1	3/8"⌀	7	6	5580	0	0.38	2120	
	4	6	5	7/8"□	10	0	200	0	2.6	520	at Bent 79 only
										908879	#
									or	454.45	T

BILL OF MATERIAL FOR DWG. Nº B-4-37

Beam	No. of Beams	Mark	Number Reqd.	Size	Length Ft.	Length In.	Tot. Length Ft.	Tot. Length In.	Wt. per Ft.	Tot. Wt.	Remarks
		101	2	3/8"⌀	22	0	396	0	0.38	150	
	9	102	2	1"□	28	3	508	6	3.4	3029	
		103	2	"	21	3	382	6	"		
		104	3	1/2"□	5	0	135	0	0.85	163	at Bent 86 only
	2	108	3	1/2"□	9	6	57	0	"		
		114	2	3/8"⌀	9	0	162	0	0.38		
N		115	2	"	8	6	153	0	"		
	9	116	2	"	8	0	144	0	"	376	
		117	2	"	7	9	139	6	"		
		118	6	"	7	3	391	6	"		
		105	2	3/8"⌀	21	0	21462	0	0.38	8156	
	511	106	2	7/8"□	30	0	30660	0	2.6	156775	
		107	2	"	29	0	29638	0	"		
	375	108	3	1/2"□	9	6	10687	6	0.85	12379	
K	136	127	3	"	9	6	3876	0	"		
		114	2	3/8"⌀	9	0	9198	0	0.38		
		115	2	"	8	6	8687	0	"		
	511	116	2	"	8	0	8176	0	"	21360	
		117	2	"	7	9	7920	6	"		
		118	6	"	7	3	22228	6	"		
	18	105	2	3/8"⌀	21	0	756	0	0.38	287	
	12	108	3	1/2"□	9	6	342	0	0.85	456	Near Pile Cap
	6	127	3	"	9	6	171	0	"		
		114	2	3/8"⌀	9	0	324	0	0.38		
		115	2	"	8	6	306	0	"		
K_1	18	116	2	"	8	0	324	0	"	964	
		117	2	"	7	9	279	0	"		
		118	10	"	7	3	1305	0	"		
		147	2	1"□	34	0	1224	0	3.4		
		148	2	"	30	0	1080	0	"	10373	
		149	2	"	20	9	747	0	"		
	45	104	3	1/2"□	5	0	675	0	0.85		
	30	108	3	"	9	6	855	0	"	1664	
	15	127	3	"	9	6	427	6	"		Near Pile Cap
		109	2	3/8"⌀	18	6	1665	0	0.38	633	
		110	1	1"□	26	0	1170	0	3.4	3978	
J	45	111	2	7/8"□	17	9	1597	6	2.6	4154	
		114	2	3/8"⌀	9	0	810	0	0.38		
		115	2	"	8	6	765	0	"		
		116	2	"	8	0	720	0	"	1881	
		117	2	"	7	9	697	6	"		
		118	6	"	7	3	1957	6	"		
	3	104	3	1/2"□	5	0	45	0	0.85		
	2	108	3	"	9	6	57	0	"	111	
	1	127	3	"	9	6	28	6	"		
		109	2	3/8"⌀	18	9	112	6	0.38	43	
		110	2	1"□	26	0	156	0	3.4		
		150	2	"	27	0	162	0	"	1438	
J_1	3	151	2	"	17	6	105	0	"		
		114	2	3/8"⌀	9	0	54	0	0.38		
		115	2	"	8	6	51	0	"		
		116	2	"	8	0	48	0	"	142	
		117	2	"	7	9	46	6	"		
		118	8	"	7	3	174	0	"		
	48	103	2	1"□	28	3	2712	0	3.4	9221	
		104	3	1/2"□	5	0	720	0	0.85		
	2	108	3	"	9	6	57	0	"	685	Bent 28 only
	1	127	3	"	9	6	28	6	"		
		112	2	3/8"⌀	22	0	2112	0	0.38	803	
P		113	2	1"□	29	6	2832	0	3.4	9629	
	48	114	2	3/8"⌀	9	0	864	0	0.38		
		115	2	"	8	6	816	0	"		
		116	2	"	8	0	768	0	"	2006	
		117	2	"	7	9	744	0	"		
		118	6	"	7	3	2088	0	"		

BILL OF MATERIAL FOR DWG. Nº B-4-37 CONT'D.

Beam	Nº of Beams	Mark	Number Reqd.	Size	Length Ft.	Length In.	Tot. Length Ft.	Tot. Length In.	Wt. per Ft.	Tot. Wt.	Remarks
		119	2	7/8"□	16	6	693	0	2.6	1802	
		120	1	1"□	17	0	357	0	3.4	2963	
R and R_1	21	121	2	"	12	3	514	6	"		
		122	10	1/2"⌀	5	3	1102	6	0.67	739	
	28	104	3	1/2"□	5	0	420	0	0.85		
	12	108	3	"	9	6	342	0	"	696	Remaining 14 with Beams K
	2	127	3	"	9	6	57	0	"		
		124	2	3/8"⌀	20	0	1120	0	0.38	426	
		125	2	1"□	27	6	1540	0	3.4	8901	
		126	2	1"□	19	3	1078	0	"		
Q	28	114	2	3/8"⌀	9	0	504	0	0.38		
		115	2	"	8	6	476	0	"		
		116	2	"	8	0	448	0	"	1170	
		117	2	"	7	9	434	0	"		
		118	6	"	7	3	1218	0	"		
										267533	#
									or	133.77	T

BILL OF MATERIAL FOR SHEET Nº B-4-38

Beam	Nº of Beams	Mark	Number Reqd.	Size	Length Ft.	Length In.	Tot. Length Ft.	Tot. Length In.	Wt. per Ft.	Tot. Wt.	Remarks
		1	2	1/2"□	22	0	44	0	0.85	37	
		5	10	7/8"□	20	0	200	0	2.6	1456	
		6	36	"	10	0	360	0	"		
		7	2	1/2"□	19	0	38	0	0.85	71	
		10	2	"	23	0	46	0	"		
		12	4	3/8"⌀	13	6	54	0	0.38		
		13	4	"	13	3	53	0	"		
		14	4	"	12	9	51	0	"		
		15	4	"	12	6	50	0	"	360	
F		16	4	"	11	9	47	0	"		
F_1	Total	17	4	"	11	3	45	0	"		
F_2	of	18	4	"	10	6	42	0	"		
F_3	all 6	19	4	"	10	0	40	0	"		
F_4	Beams	20	58	"	9	9	565	6	"		
F_5		25	2	1/2"□	15	0	30	0	0.85	48	
		26	2	"	13	0	26	0	"		
		27	9	7/8"□	17	0	153	0	2.6	398	
		28	3	1"□	30	0	90	0	3.4	306	
		30	2	7/8"□	24	0	48	0	2.6	125	
		32	2	1"□	27	0	54	0	3.4	520	
		33	3	"	33	0	99	0	"		
		34	9	7/8"□	12	0	108	0	2.6	463	
		35	10	"	7	0	70	0	"		
		36	2	1/2"□	9	0	18	0	0.85	15	
		37	4	7/8"□	10	0	40	0	2.6	104	
		104	18	1/2"□	5	0	90	0	0.85	149	
		108	9	"	9	6	85	6	"		
		114	6	3/8"⌀	9	0	54	0	0.38		
		115	6	"	8	6	51	0	"		
		116	6	"	8	0	48	0	"		
		117	6	"	7	9	46	6	"		
E (2)		118	36	"	7	3	261	0	"	247	
E_1		124	2	"	20	0	40	0	"		
E_2	Total	130	6	"	12	0	72	0	"		
E_3	of	132	2	"	16	0	32	0	"		
E_4	all 6	134	2	"	23	0	46	0	"		
	Beams	135	9	7/8"□	10	0	90	0	2.6		
		136	2	"	12	0	24	0	"		
		138	2	"	16	0	32	0	"	795	
		139	2	"	20	0	40	0	"		
		142	1	"	27	0	27	0	"		
		143	1	"	28	3	28	3	"		
		145	2	"	32	3	64	6	"		
		116	8	3/8"⌀	8	0	64	0	0.38		
		117	4	"	7	9	31	0	"	58	
		118	8	"	7	3	58	0	"		
S	Total	127	9	1/2"□	9	6	85	6	0.85	73	
	of 2	133	4	3/8"⌀	18	0	72	0	0.38	27	
	Beams	138	4	7/8"□	16	0	64	0	2.6	313	
		143	2	"	28	3	56	6	"		

BILL OF MATERIAL FOR DWG. Nº B-4-38 CONT'D.

Beam	Nº of Beams	Mark	Number Reqd.	Size	Length Ft.	Length In.	Tot. Length Ft.	Tot. Length In.	Wt. per Ft.	Tot. Wt.	Remarks
		1	2	1/2"□	22	0	44	0	0.85	37	
		4	10	1"□	12	0	120	0	3.4	408	
		6	10	7/8"□	10	0	100	0	2.6	260	
		7	4	1/2"□	19	0	76	0	0.85	65	
		12	4	3/8"⌀	13	6	54	0	0.38		
		12	4	"	13	3	53	0	"		
		14	4	"	12	9	51	0	"		
		15	4	"	12	6	50	0	"	386	
		16	4	"	11	9	47	0	"		
A		17	4	"	11	3	45	0	"		
A_1	Total	18	4	"	10	6	42	0	"		
A_2	of all	19	4	"	10	0	40	0			
A_3	6 Beams	20	65	"	9	9	633	9			
A_4		25	4	1/2"□	15	0	60	0	0.85	73.	
A_5		26	2	"	13	0	26	0	"		
		27	4	7/8"□	17	0	68	0	2.6	177	
		28	3	1"□	30	0	90	0	3.4	592	
		29	3	"	28	0	84	0	"		
		30	2	7/8"□	24	0	48	0	2.6		
		31	2	"	23	0	46	0	"	952	
		34	16	"	12	0	192	0	"		
		37	8	"	10	0	80	0	"		
		104	9	1/2"□	5	0	45	0	0.85	256	
		108	27	"	9	6	256	6	"		
		114	12	3/8"⌀	9	0	108	0	0.38		
		115	12	"	8	6	102	0	"		
		116	12	"	8	0	96	0	"		
		117	12	"	7	9	93	0	"	282	
2 x B	Total	118	24	"	7	3	174	0	"		
2 x B_1	of all	130	4	"	12	0	48	0	"		
2 x B_2	6 Beams	131	4	"	14	0	56	0	"		
		132	4	"	16	0	64	0	"		
		135	4	7/8"□	10	0	40	0	2.6		
		136	4	"	12	0	48	0	"		
		137	4	"	14	0	56	0	"	775	
		140	2	"	24	6	49	0	"		
		141	2	"	25	6	51	0	"		
		142	2	"	27	0	54	0	"		
		108	9	1/2"□	9	6	85	6	0.85	73	
		114	12	3/8"⌀	9	0	108	0	0.38		
		115	12	"	8	6	102	0	"		
		116	12	"	8	0	96	0	"		
		117	12	"	7	9	93	0	"	312	
		118	28	"	7	3	203	0	"		
		131	4	"	14	0	56	0	"		
		133	4	"	18	0	72	0	"		
		134	4	"	23	0	92	0			
		136	4	7/8"□	12	0	48	0	2.6		
		138	4	"	16	0	64	0	"		
		139	4	"	20	0	80	0	"	928	
		140	2	"	24	6	49	0	"		
		143	2	"	28	3	56	6	"		
		144	2	"	29	9	59	6	"		

Continued on Drawing B-4-50

ALABAMA
STATE DOCKS COMMISSION
MOBILE, ALABAMA

**CONCRETE WHARF & PIER #2
BILL OF MATERIAL FOR REINFORCING STEEL - SHEET 1 OF 4 SHEETS**

SCALE:
DATE: Oct. 15, 1925
RECOMMENDED: Arthur C. Davis, DESIGNING ENGINEER
APPROVED: [signature], CHAIRMAN
DRAWN BY E.W.C.
TRACED BY
CHECKED BY [signature]

B-4-49

BILL OF MATERIAL FOR DWG. Nº B-4-38 CONT'D.

Beam	Nº of Beams	Mark	Number Reqd.	Size	Length Ft.	Length In.	Tot. Length Ft.	Tot. Length In.	Wt. per Ft.	Tot. Wt.	Remarks
		108	9	½"	9	6	85	6	0.85	73	
		114	6	⅜" ø	9	0	54	0	0.38		
		115	6	"	8	6	51	0	"		
		116	6	"	8	0	48	0	"		
		117	6	"	7	9	46	6	"		
		118	12	"	7	3	87	0	"	148	
D	Total	130	2	"	12	0	24	0	"		
D1	of all	132	2	"	16	0	32	0	"		
D2	3 Beams	134	2	"	23	0	46	0	"		
		135	2	⅞" ø	10	0	20	0	2.6		
		138	2	"	16	0	32	0	"		
		139	2	"	20	0	40	0	"		
		140	1	"	24	6	24	6	"	528	
		142	1	"	27	0	27	0	"		
		144	2	"	29	9	59	6	"		
		104	24	½" ø	5	0	120	0	0.85	199	
		108	12	"	9	6	114	0	"		
		114	2	⅜" ø	9	0	18	0	0.38		
		115	8	"	8	6	68	0	"		
		116	8	"	8	0	64	0	"		
T (2)	Total	117	8	"	7	9	62	0	"	270	
T1 (2)	of all G	118	40	"	7	3	290	0	"		
T2 (2)	Beams	132	4	"	16	0	64	0	"		
		133	8	"	18	0	144	0	"		
		138	8	⅞" ø	16	0	128	0	2.6		
		142	2	"	27	0	54	0	"	972	
		143	4	"	28	3	113	0	"		
		146	4	"	19	9	79	0	"		
										13331	#
									or	6.67	T

BILL OF MATERIAL FOR DWG. Nº B-4-39

Span	Nº of Spans	Mark	Number Reqd.	Size	Length Ft.	Length In.	Tot. Length Ft.	Tot. Length In.	Wt. per Ft.	Tot. Wt.	Remarks
	82	201	37	½" ø	5	0	15170	0	0.67	10164	
	80	202	39	⅜" ø	24	0	74880	0	0.38		
	69	203	45	"	21	0	65205	0	"	55260	
	1	204	2	"	36	0	72	0	"		
	82	206	36	⅝" ø	15	0	44280	0	1.04		
		211	18	"	13	3	19557	0	"		
	71	212	19	"	11	0	14839	0	"	84340	
	11	212	20	"	11	0	2420	0	"		1st Span near Exp. Joint
	13	213	45	⅜" ø	22	0	12870	0	0.38	4891	
	82	214	4	¾" ø	27	0	8856	0	1.5	13284	
	2	220	39	⅜" ø	24	6	1911	0	0.38	726	
	82	222	18	⅝" ø	9	3	13653	0	1.04	14199	
	69	223	19	⅜" ø	6	0	7866	0	0.38		Middle Span
	2	223	20	"	6	0	240	0	"	3607	End Span.
	11	223	21	"	6	0	1386	0	"		2d Span near Exp. Joint
	71	224	19	½" ø	6	0	8094	0	0.67		
	11	224	20	"	6	0	1320	0	"	6307	"
20'0"	69	225	57	⅜" ø	5	9	22614	9	0.38		
Total 82 Spans	2	225	60	"	5	9	690	0	"	10370	
	11	225	63	"	5	9	3984	9	"		
	71	226	111	½" ø	4	0	31524	0	0.67		
	11	226	114	"	4	0	5016	0	"	42282	
	82	227	36	"	9	0	26568	0	"		
	69	228	38	⅝" ø	7	0	18354	0	0.38		
	2	228	40	"	7	0	560	0	"	8416	
	11	228	42	"	7	0	3234	0	"		
	71	229	38	½" ø	7	0	18886	0	0.67		
	11	229	40	"	7	0	3080	0	"		
	71	230	114	"	6	0	48564	0	"	78316	
	11	230	120	"	6	0	7920	0	"		
	71	231	19	"	24	6	33050	6	"		
	11	231	20	"	24	6	5390	0	"		
	71	232	19	⅝" ø	35	0	47215	0	0.38	20868	
	11	232	20	"	35	0	7700	0	"		
	82	233	18	½" ø	7	9	11439	0	0.67	7664	
	24	201	37	½" ø	5	0	4440	0	0.67	2975	
		206	28	⅝" ø	15	0	5040	0	1.04		
		211	14	"	13	3	2226	0	"	9753	
		212	16	"	11	0	2112	0	"		
		215	4	¾" ø	23	0	1104	0	1.5	1656	

BILL OF MATERIAL FOR DWG. Nº B-4-39 CONT'D.

Span	Nº of Spans	Mark	Number Reqd.	Size	Length Ft.	Length In.	Tot. Length Ft.	Tot. Length In.	Wt. per Ft.	Total Wt.	Remarks
		221	84	⅝" ø	19	0	19152	0	0.38	7278	
		222	14	⅝" ø	9	3	1554	0	1.04	1616	
		223	18	⅝" ø	6	0	12916	0	0.38	492	
16'-6"	12	224	16	½" ø	6	0	1152	0	0.67	772	
Tot. 12 Spans		225	54	⅝" ø	5	9	372G	0	0.38	1416	
		226	90	½" ø	4	0	4320	0	0.67	4920	
		227	28	"	9	0	3024	0	"		
		228	36	⅝" ø	7	0	3024	0	0.38	1149	
		229	32	½" ø	7	0	2688	0	0.67		
		230	96	"	6	0	6912	0	"	9584	
		231	16	"	24	6	4704	0	"		
		232	16	⅜" ø	35	0	6720	0	0.38	2554	
		233	14	½" ø	7	9	1302	0	0.67	872	
	113	222	2	⅝" ø	9	3	2090	6	1.04	2174	on ½ of all Bents
										405905	#
									or	202.95	T

BILL OF MATERIAL FOR DWG. Nº B-4-40

Span	Nº of Spans	Mark	Number Reqd.	Size	Length Ft.	Length In.	Tot. Length Ft.	Tot. Length In.	Wt. per Ft.	Total Wt.	Remarks
	23	201	37	½" ø	5	0	4255	0	0.67	2851	
	22	202	29	⅜" ø	24	0	15312	0	0.38		
	20	203	37	"	21	0	15540	0	"	23160	
		204	38	"	36	0	30096	0	"		
		205	18	⅝" ø	15	0	5940	0	1.04		
20'Spans		206	90	"	15	0	29700	0	"		
		207	18	"	10	0	3960	0	"	47270	
		208	19	"	14	0	5852	0	"		
	22	209	19	½" ø	20	0	8360	0	0.67	13793	
		210	19	"	29	3	12226	6	"		
		211	18	⅝" ø	13	3	5247	0	1.04	10239	
		212	19	⅝" ø	"	0	4598	0	"		
		214	4	¾" ø	27	0	2376	0	1.5	3564	
	2	213	37	⅜" ø	22	0	1628	0	0.38	783	20 Span near Exp. Joint
		204	6	"	36	0	432	0	"		
	6	201	37	½" ø	5	0	1110	0	0.67	744	
		213	29	⅜" ø	22	0	2552	0	0.38		
		203	37	"	21	0	3108	0	"	3245	
		204	20	"	36	0	2880	0	"		
		205	16	⅝" ø	15	0	960	0	1.04		
		206	80	"	15	0	4800	0	"	7646	
17'-7" and		207	16	"	10	0	640	0	"		
18'0" Spans	4	208	17	"	14	0	952	0	"		
		209	17	½" ø	20	0	1360	0	0.67		
		210	17	"	29	3	1989	0	"	2244	
		211	16	⅝" ø	13	3	848	0	1.04	1660	
		212	17	"	11	0	748	0	"		
		215	4	¾" ø	23	0	368	0	1.5	552	
	30	207	2	⅝" ø	10	0	600	0	1.04	624	on ½ of all Bents
										118375	#
									or	59.19	T

BILL OF MATERIAL FOR DWG. Nº B-4-41

Span	Nº of Spans	Mark	Number Reqd.	Size	Length Ft.	Length In.	Tot. Length Ft.	Tot. Length In.	Wt. per Ft.	Total Wt.	Remarks
	64	201	32	½" ø	5	0	10240	0	0.67	6861	
	56	202	30	⅜" ø	24	0	40320	0	0.38		
	52	203	34	"	21	0	37128	0	"	29450	
	56	206	36	⅝" ø	15	0	30240	0	1.04		
	4	206	28	"	15	0	1680	0	"		
	56	211	18	"	13	3	13356	0	"		
	4	211	14	"	13	3	742	0	"	60809	
	52	212	19	"	11	0	10868	0	"		
	4	212	20	"	11	0	880	0	"		
	4	212	16	"	11	0	704	0	"		
	4	213	34	⅝" ø	22	0	2992	0	0.38	1137	
	56	214	4	¾" ø	27	0	6048	0	1.5	9624	
	4	215	4	"	23	0	368	0	"		
	4	221	64	⅞" ø	19	0	4864	0	0.38	1848	
	56	222	18	⅝" ø	9	3	9324	0	1.04	10236	
	4	222	14	"	9	3	518	0	"		
	52	223	19	⅞" ø	6	0	5928	0	0.38		
	4	223	18	"	6	0	432	0	"	2608	
	4	223	21	"	6	0	504	0	"		
	52	224	19	½" ø	6	0	5928	0	0.67		

Slab Reinforcing exclusive of Reinforcing at Cross-Over

BILL OF MATERIAL FOR DWG. Nº B-4-41 CONT'D.

Span	Nº of Spans	Mark	Number Reqd.	Size	Length Ft.	Length In.	Tot. Length Ft.	Tot. Length In.	Wt. per Ft.	Total Wt.	Remarks
20'0" and	4	224	20	½" ø	6	0	480	0	0.67	4551	
16'-6" Total	4	224	16	"	6	0	384	0	"		
60 Spans	52	225	38	⅜" ø	5	9	11362	0	0.38		
	4	225	42	"	5	9	966	0	"	4999	
	4	225	36	"	5	9	828	0	"		
	52	226	74	½" ø	4	0	15392	0	0.67		
	4	226	76	"	4	0	1216	0	"		
	4	226	60	"	4	0	960	0	"	18186	
	56	227	18	"	9	0	9072	0	"		
	4	227	14	"	9	0	504	0	"		
	52	228	19	⅜" ø	7	0	6916	0	0.38		
	4	228	21	"	7	0	588	0	"	3043	
	4	228	18	"	7	0	504	0	"		
	52	229	19	½" ø	7	0	6916	0	0.67		
	4	229	20	"	7	0	560	0	"		
	4	229	16	"	7	0	448	0	"		
	52	230	57	"	6	0	17784	0	"		
	4	230	80	"	6	0	1920	0	"		
	4	230	64	"	6	0	1536	0	"	38122	
	52	231	19	"	24	6	24206	0	"		
	4	231	20	"	24	6	1960	0	"		
	4	231	16	"	24	6	1568	0	"		
	52	232	19	⅜" ø	35	0	34580	0	0.38		
	4	232	20	"	35	0	2800	0	"	15056	
	4	232	16	"	35	0	2240	0	"		
	56	233	18	½" ø	7	9	7812	0	0.67		
	4	233	14	"	7	9	434	0	"	5525	
	68	222	2	⅝" ø	9	3	1258	0	1.04	1308	
	56	202	9	⅜" ø	24	0	12096	0	0.38		
	52	203	13	"	21	0	14196	0	"		
	4	213	13	"	22	0	1144	0	"	11061	
	4	221	22	"	19	0	1672	0	"		
	52	235	19	⅞" ø	15	0	14820	0	2.04		
	4	235	20	"	15	0	1200	0	"		
	4	235	16	"	15	0	960	0	"		
	52	236	19	"	7	0	6916	0	"		
	4	236	20	"	7	0	560	0	"		
20'0" and	4	236	16	"	7	0	448	0	"		
16'6" Spans	56	237	18	"	6	6	6552	0	"		
	4	237	14	"	6	6	364	0	"	119560	
	56	238	18	"	9	9	9828	0	"		
	4	238	14	"	9	9	546	0	"		
	52	239	19	"	14	6	14326	0	"		
	4	239	16	"	14	6	928	0	"		
	4	239	20	"	14	6	1160	0	"		
	56	240	38	½" ø	3	3	6916	0	0.67		
	4	240	30	"	3	3	390	0	"		
	56	241	38	"	4	0	8512	0	"	10920	
	4	241	30	"	4	0	480	0	"		
	52	242	19	⅜" ø	13	0	12844	0	0.38		
	4	242	20	"	13	0	1040	0	"	5592	
	4	242	16	"	13	0	832	0	"		
Bents	11	243	6	⅞" ø	13	6	891	0	2.04		
	11	244	3	"	17	0	561	0	"	17720	
	53	245	6	"	15	6	4929	0	"		
	53	246	3	"	14	6	2305	6	"		
										378196	#
									or	189.10	T

Slab Reinforcing exclusive of Reinforcing at Cross-Over only

BILL OF MATERIAL FOR DWG. Nº B-4-42

Span	Number of Spans	Mark	Number Reqd.	Size	Length Ft.	Length In.	Tot. Length Ft.	Tot. Length In.	Wt. Per Ft.	Total Wt.	Remarks
		201	152	½" ø	5	0	760	0	0.67	509	
		202	45	⅜" ø	24	0	1080	0	0.38	1452	
		203	62	"	21	0	1302	0	"		
		204	40	"	36	0	1440	0	"		
		205	35	⅝" ø	15	0	525	0	1.04		
		206	156	"	15	0	2340	0	"		
		207	60	"	10	0	600	0	"	4142	
		208	37	"	14	0	518	0	"		
		209	28	½" ø	20	0	560	0	0.67	610	
		210	12	"	29	3	351	0	"		
		211	22	⅝" ø	13	3	291	6	1.04	978	
		212	50	"	11	0	649	0	"		
		214	8	¾" ø	27	0	216	0	1.5	600	
		215	8	"	23	0	184	0	"		

Standard Bars

BILL OF MATERIAL FOR DWG. Nº B-4-42 CONT'D.

Span	Nº of Spans	Mark	Number Reqd.	Size	Length Ft.	Length In.	Tot. Length Ft.	Tot. Length In.	Wt. per Ft.	Total Wt.	Remarks
		222	22	⅝" ø	9	3	203	6	1.04	212	
		223	18	⅜" ø	6	0	108	0	0.38	41	
		224	25	½" ø	6	0	150	0	0.67	101	
		225	54	⅜" ø	5	9	310	6	0.38	118	
		226	108	½" ø	4	0	432	0	0.67	507	
		227	36	½" ø	9	0	324	0	"		
		228	38	⅜" ø	7	0	266	0	0.38	101	
		229	38	½" ø	7	0	266	0	0.67		
		230	186	"	6	0	1116	0	"	1189	
		231	16	"	24	6	392	0	"		
		232	12	⅜" ø	35	0	420	0	0.38	160	
		233	27	½" ø	7	9	209	3	0.67	140	
		251	5	⅝" ø	10	9	53	9	1.04	56	
		252	7	⅜" ø	7	6	52	6	0.38	46	
		253	9	"	7	9	69	9	"		
		254	10	½" ø	11	0	110	0	0.67	74	
		255	9	⅜" ø	11	0	99	0	0.38		
		256	3	"	12	6	37	6	"		
		257	12	"	13	6	162	0	"		
		258	24	"	15	0	360	0	"		
		259	18	"	17	0	306	0	"		
		260	3	"	18	0	54	0	"		
		261	19	"	20	0	380	0	"	1034	
		262	8	"	22	0	176	0	"		
		263	15	"	24	0	360	0	"		
		264	16	"	25	0	400	0	"		
		265	11	"	7	9	85	3	"		
		266	12	"	3	3	39	0	"		
		267	15	"	6	0	90	0	"		
		268	5	"	9	0	45	0	"		
		269	2	"	10	0	20	0	"		
		270	4	"	27	0	108	0	"		
		271	15	½" ø	3	3	48	9	0.67		
		272	55	"	6	6	357	6	"		
		273	12	"	9	6	114	0	"		
		274	11	"	11	0	121	0	"		
		276	4	"	14	0	56	0	"		
		278	3	"	18	0	54	0	"		
		280	7	"	22	0	154	0	"	732	
		281	10	"	8	0	80	0	"		
		282	1	"	24	0	24	0	"		
		283	2	"	27	0	54	0	"		
		284	1	"	29	0	29	0	"		
		285	3	⅜" ø	29	0	87	0	0.38		
		286	1	"	31	0	31	0	"		
		287	4	"	33	0	132	0	"		
		288	1	"	35	0	35	0	"	222	
		289	7	"	37	0	259	0	"		
		290	1	⅜" ø	40	0	40	0	"		
		291	2	½" ø	31	0	62	0	0.67		
		293	1	"	35	0	35	0	"	144	
		294	1	"	37	0	37	0	"		
		296	18	"	4	6	81	0	"		
		299	4	¾" ø	24	6	98	0	1.5	147	
										13315	#
									or	6.66	T

Special Bars for North Corner

ALABAMA
STATE DOCKS COMMISSION
MOBILE, ALABAMA.

CONCRETE WHARF - PIER #2
BILL OF MATERIAL FOR REINFORCING STEEL - SHEET 2 OF 4 SHEETS

SCALE:
DATE: OCT. 15, 1925
RECOMMENDED: Arthur G. Davis, DESIGNING ENGINEER
APPROVED: _____, CHAIRMAN

DRAWN BY E.W.C.
TRACED BY
CHECKED BY E.W.C.

B-4-50

BILL OF MATERIAL FOR DWG. № B-4-43

Span	Number of Spans	Mark	Number Reqd.	Size	Length Ft.	Length In.	Tot. Length Ft.	Tot. Length In.	Wt. per Ft.	Total Wt.	Remarks
		201	392	½"ϕ	5	0	1960	0	0.67	1313	
		202	174	⅜"ϕ	24	0	4176	0	0.38		
		203	205	"	21	0	4305	0	"	4003	
		204	57	"	36	0	2052	0	"		
		205	131	⅝"ϕ	15	0	1965	0	1.04		
		206	432	"	15	0	6480	0	"		
		207	149	"	10	0	1490	0	"	11949	
		208	111	"	14	0	1554	0	"		
		209	57	½"ϕ	20	0	1140	0	0.67	764	Standard
		212	17	⅝"ϕ	11	0	187	0	1.04	194	Bars
		214	40	¾"ϕ	27	0	1080	0	1.5	1620	
		222	60	⅝"ϕ	9	3	555	0	1.04	577	
		223	64	⅜"ϕ	6	0	384	0	0.38	146	
		224	70	½"ϕ	6	0	420	0	0.67	281	
		225	192	⅜"ϕ	5	9	1104	0	0.38	420	
		226	372	½"ϕ	4	0	1488	0	0.67	1727	
		227	121	"	9	0	1089	0	"		
		228	128	⅜"ϕ	7	0	896	0	0.38	340	
		229	140	½"ϕ	7	0	980	0	0.67		
		230	411	"	6	0	2466	0	"	2589	
		233	54	"	7	9	418	6	"		
		249	26	⅝"ϕ	15	0	390	0	1.04		
		250	24	"	30	0	720	0	"	1233	
		251	7	"	10	9	75	3	"		
		252	4	⅜"ϕ	7	6	30	0	0.38	47	
		253	12	"	7	9	93	0	"		
		254	10	½"ϕ	11	0	110	0	0.67	74	
		255	23	⅜"ϕ	11	0	253	0	0.38		
		256	36	"	12	6	450	0	"		
		257	22	"	13	6	297	0	"		
		258	49	"	15	0	735	0	"		
		259	61	"	17	0	1037	0	"		
		260	45	"	18	0	810	0	"		
		261	28	"	20	0	560	0	"		
		262	33	"	22	0	726	0	"	3078	
		263	58	"	24	0	1392	0	"		
		264	30	"	25	0	750	0	"		
		265	33	"	7	9	255	9	"		
		266	12	"	3	3	39	0	"		
		267	16	"	6	0	96	0	"		
		268	20	"	9	0	180	0	"		
		269	6	"	10	0	60	0	"		
		270	17	"	27	0	459	0	"		
		271	29	½"ϕ	3	3	94	3	0.67		
		272	55	"	6	6	357	6	"		
		273	46	"	9	6	437	0	"		
		274	51	"	11	0	561	0	"		
		275	6	"	12	0	72	0	"		
		276	7	"	14	0	98	0	"		
		277	16	"	16	0	256	0	"	2240	
		278	6	"	18	0	108	0	"		
		279	13	"	20	0	260	0	"		
		280	6	"	22	0	132	0	"		
		281	33	"	8	0	264	0	"		
		282	7	"	24	0	168	0	"		
		283	8	"	27	0	216	0	"		
		284	11	"	29	0	319	0	"		
		285	8	⅜"ϕ	29	0	232	0	0.38		
		286	8	"	31	0	248	0	"		
		287	8	"	33	0	264	0	"		
		288	12	"	35	0	420	0	"	894	
		289	4	"	37	0	148	0	"		
		290	26	⅜"ϕ	40	0	1040	0	"		
		291	8	½"ϕ	31	0	248	0	0.67		
		292	7	"	33	0	231	0	"		
		293	9	"	35	0	315	0	"		
		294	9	"	37	0	333	0	"	1534	
		295	25	"	40	0	1000	0	"		
		296	36	"	4	6	162	0	"		
		297	8	¾"ϕ	33	6	268	0	1.5	402	
		298	4	½"ϕ	25	0	100	0	0.67	670	
										36095 #	
									or	18.05 T	

BILL OF MATERIAL FOR DWG. № B-4-44

Beam	№ of Beams	Mark	Number Reqd.	Size	Length Ft.	Length In.	Tot. Length Ft.	Tot. Length In.	Wt. per Ft.	Total Wt.	Remarks
Tie Beams											
Front and Back	40	301	5	1"□	25	3	5050	0	3.4		at Exp. Joints 20'0" and Ends of Wharf
Center	20	301	6	"	25	3	3030	0	"		
Front and Back	280	302	5	"	28	0	39200	0	"		20' Span
Center	140	302	6	"	28	0	23520	0	"		
Front and Back	40	303	5	"	22	9	4550	0	"	276556	16'6", 17'7" and 18'0" Spans
Center	20	303	6	"	22	9	2730	0	"		
Front	160	304	1	"	18	6	2960	0	"		of all 20'0" Spans
Front	20	305	1	"	15	0	300	0	"		of 16'6", 17'7" and 18'0" Spans
Back	160	324	9	½"ϕ	10	0	14400	0	0.67		20'0" Spans
Back	20	324	7	"	10	0	1400	0	"		For all Shorter Spans
Front and Center	320	325	9	"	8	3	23760	0	"	28053	20'0" Spans
Front and Center	40	325	7	"	8	3	2310	0	"		For all shorter Spans
Back	160	326	1	1"□	14	0	2240	0	3.4		All 20' Spans
Back	20	327	1	"	10	6	210	0	"	8738	16'6", 17'7" and 18'0" Spans
Back	2	328	2	"	30	0	120	0	"		In Bents 104, 105, 112 and 113 only
Bents	Number of Bents										
Standard Bents from 1 to 76 incl. and 118 to 197 incl.		306	4	1"□	26	0	14560	0	3.4		
		307	4	"	26	0	14560	0	"	171360	
	140	308	2	"	38	0	10640	0	"		
		309	2	"	38	0	10640	0	"		
		310	6	⅜"ϕ	3	9	3870	0	0.38	5915	
		311	2	"	34	0	11696	0	"		
	172	312	6	½"ϕ	34	0	35088	0	0.67		
		313	1	"	35	0	6020	0	"		
		314	1	"	30	0	5160	0	"		
		315	1	"	25	0	4300	0	"		
		316	1	"	20	0	3440	0	"	39182	
		317	1	"	15	0	2580	0	"		
		318	1	"	11	0	1892	0	"		
	16	319	32	¾"□	8	3	4224	0	1.91	8068	
	16	320	68	½"ϕ	12	9	13872	0	0.67		
	140	321	34	"	9	3	44030	0	"	38794	
		322	41	¾"ϕ	7	9	54653	0	1.5	205046	
		323	53	"	9	0	82044	0	"		
		329	1	½"ϕ	7	0	1204	0	0.67		
		330	2	"	7	3	2494	0	"		
		331	1	"	7	6	1290	0	"		
		332	1	"	7	9	1333	0	"		
		333	2	"	8	3	2838	0	"		
		334	1	"	8	9	1505	0	"		
		335	1	"	9	3	1591	0	"		
		336	2	"	9	9	3354	0	"		
		337	1	"	10	3	1765	0	"		
		338	1	"	10	9	1849	0	"		
		339	1	"	11	3	1935	0	"		
	172	340	1	"	11	6	1978	0	"		
		341	1	"	12	0	2064	0	"	37539	
		342	1	"	12	6	2150	0	"		
		343	1	"	13	0	2236	0	"		
		344	1	"	13	3	2279	0	"		
		345	1	"	13	9	2365	0	"		
		346	1	"	14	6	2494	0	"		
		347	1	"	14	9	2537	0	"		
		348	1	"	15	0	2580	0	"		
		349	1	"	15	6	2666	0	"		
		350	1	"	16	0	2752	0	"		
		351	1	"	16	6	2838	0	"		
		352	1	"	17	0	2924	0	"		
		353	1	"	17	6	3010	0	"		
	4	354	3	¾"ϕ	14	3	171	0	1.5		
	136	355	3	"	13	9	5610	0	"	10545	Near Exp. Joints and Bents 1, 76 and 197
	37	356	3	"	11	3	1248	9	"		
	172	357	4	⅜"ϕ	7	0	4816	0	0.38	1830	
	34	376	3	1"ϕ	7	0	714	0	2.67		Bents 2 and 196 and Exp. Joints
	170	377	3	"	11	6	5865	0	"	38808	
	136	378	3	"	19	6	7956	0	"		
		204	4	⅜"ϕ	36	0	4320	0	0.38	1642	
		306	4	1"□	26	0	3120	0	3.4		
		307	4	"	26	0	3120	0	"		
		308	2	"	38	0	2280	0	"	36720	
		309	2	"	38	0	2280	0	"		
		312	6	½"ϕ	34	0	6120	0	0.67		
	30	313	1	"	35	0	1050	0	"		
		314	1	"	30	0	900	0	"		
		315	1	"	25	0	750	0	"		
		316	1	"	20	0	600	0	"	6834	
		317	1	"	15	0	450	0	"		
		318	1	"	11	0	330	0	"		

BILL OF MATERIAL FOR DWG. № B-4-44 CONT'D.

Bents	№ of Bents	Mark	№ Reqd Per Bent	Size	Length Ft.	Length In.	Tot. Length Ft.	Tot. Length In.	Wt. Per Ft.	Total Wt.	Remarks
	3	319	32	¾"□	8	3	792	0	1.91	1513	
	3	320	64	½"ϕ	12	9	2448	0	0.67	6100	
	24	321	32	"	9	3	7104	0	"		
Bents from 88 to 114 incl.		322	37	¾"ϕ	7	9	8602	6	1.5	25914	
		323	42	"	9	0	11340	0	"		
		329	1	½"ϕ	7	0	210	0	0.67		
		330	1	"	7	3	217	6	"		
		331	1	"	7	6	225	0	"		
		332	1	"	7	9	232	6	"		
		333	1	"	8	3	247	6	"		
		334	1	"	8	9	262	6	"		
		335	1	"	9	3	277	6	"		
		336	1	"	9	9	292	6	"		
	30	337	1	"	10	3	307	6	"		
		338	1	"	10	9	322	6	"		
		339	1	"	11	3	337	6	"	6040	
		340	1	"	11	6	345	0	"		
		341	1	"	12	0	360	0	"		
		342	1	"	12	6	375	0	"		
		343	1	"	13	0	390	0	"		
		344	1	"	13	3	397	6	"		
		345	1	"	13	9	412	6	"		
		346	1	"	14	6	435	0	"		
		347	1	"	14	9	442	6	"		
		348	1	"	15	0	450	0	"		
		349	1	"	15	6	465	0	"		
		350	1	"	16	0	480	0	"		
		351	1	"	16	6	495	0	"		
		352	1	"	17	0	510	0	"		
		353	1	"	17	6	525	0	"		
	29	355	3	¾"ϕ	13	9	1196	3	1.5	1845	Bent 88
	1	356	3	"	11	3	33	9	"		
	6	376	3	1"ϕ	7	0	126	0	2.67		
	30	377	3	"	11	6	1035	0	"	6849	
	24	378	3	"	19	6	1404	0	"		
										968191 #	
									or	484.10 T	

BILL OF MATERIAL FOR DWG. № B-4-45

Bent	№ of Bents	Mark	Number Reqd.	Size	Length Ft.	Length In.	Tot. Length Ft.	Tot. Length In.	Wt. Per Ft.	Total Wt.	Remarks
		302	10	1"□	28	0	280	0	3.4	1078	
		304	2	"	18	6	37	0	"		
		324	6	½"ϕ	10	0	60	0	0.67	350	
		325	56	"	8	3	462	0	"		
		374	2	1"□	5	0	10	0	3.4	663	
		381	10	"	18	6	185	0	"		
Tie Beams		382	3	¾"ϕ	12	0	36	0	1.5	54	
		386	12	1"□	31	0	372	0	3.4		
		387	10	"	30	6	305	0	"		
		388	2	"	21	0	92	0	"	2798	
		306	4	"	26	0	104	0	"		
		312	6	½"ϕ	34	0	204	0	0.67		
		315	1	"	25	0	25	0	"		
		316	4	"	20	0	80	0	"		
		317	2	"	15	0	30	0	"	453	
		318	2	"	11	0	22	0	"		
		321	34	"	9	3	314	6	"		
		322	42	¾"ϕ	7	9	325	6	1.5	1055	
		323	42	"	9	0	378	0	"		
№ 116		332	3	½"ϕ	7	9	23	3	0.67		
		333	3	"	8	3	24	9	"		
		334	3	"	8	9	26	3	"		
		336	1	"	9	9	9	9	"		
		337	3	"	10	3	30	9	"		
		339	3	"	11	3	33	9	"		
		340	1	"	11	6	11	6	"		
		342	3	"	12	6	37	6	"		
		344	1	"	13	3	13	3	"		
		345	3	"	13	9	41	3	"	265	
		348	3	"	15	0	45	0	"		
		349	2	"	15	6	31	0	"		
		351	2	"	16	6	33	0	"		
		353	2	"	17	6	35	0	"		
		366	4	⅜"ϕ	24	0	96	0	0.38	59	
		367	2	"	30	0	60	0	"		
		368	4	1"□	26	0	104	0	34	354	
		377	3	1"ϕ	11	6	34	6	2.67	92	
		380	4	1"□	33	0	132	0	3.4		

BILL OF MATERIAL FOR DWG. № B-4-45 CONT'D.

Bent	№ of Bents	Mark	Number Reqd.	Size	Length Ft.	Length In.	Tot. Length Ft.	Tot. Length In.	Wt. Per Ft.	Total Wt.	Remarks
		306	4	1"□	26	0	104	0	3.4	1333	
		307	6	"	26	0	156	0	"		
		312	6	½"ϕ	34	0	204	0	0.67		
		316	4	"	20	0	80	0	"		
		317	1	"	15	0	15	0	"	344	
		318	1	"	11	0	11	0	"		
		321	22	"	9	3	203	6	"		
		322	37	¾"ϕ	7	9	286	9	1.5	997	
№ 115		323	42	"	9	0	378	0	"		
		348	2	½"ϕ	15	0	30	0	0.67		
		349	2	"	15	6	31	0	"	64	
		352	2	"	17	0	34	0	"		
		358	2	⅜"ϕ	36	0	72	0	0.38	46	
		366	2	"	24	0	48	0	"		
		377	3	1"ϕ	11	6	34	6	2.67	248	
		378	3	"	19	6	58	6	"		
		383	2	1"□	17	0	34	0	3.4		
		306	4	"	26	0	104	0	"	1000	
		307	6	"	26	0	156	0	"		
		310	6	⅜"ϕ	3	9	22	6	0.38	9	
		312	6	½"ϕ	34	0	204	0	0.67		
		316	4	"	20	0	80	0	"		
		317	1	"	15	0	15	0	"	344	
		318	1	"	11	0	11	0	"		
№ 117		321	22	"	9	3	203	6	"		
		322	41	¾"ϕ	7	9	317	9	1.5	1192	
		323	53	"	9	0	477	0	"		
		348	2	½"ϕ	15	0	30	0	0.67		
		349	2	"	15	6	31	0	"	64	
		352	2	"	17	0	34	0	"		
		357	4	⅜"ϕ	7	0	28	0	0.38	29	
		366	2	"	24	0	48	0	"		
		377	3	1"ϕ	11	6	34	6	2.67	248	
		378	3	"	19	6	58	6	"		
		383	2	1"□	17	0	34	0	3.4	116	
										13255 #	
									or	6.63 T	

BILL OF MATERIAL FOR DWG. № B-4-46

Bent	Number Bents	Mark	Number Req'd.	Size	Length Ft.	Length In.	Tot. Length Ft.	Tot. Length In.	Wt. per Ft.	Total Wt.	Remarks
		301	22	1"□	25	3	555	6	3.4		
		302	54	"	28	0	1512	0	"	7659	
		304	10	"	18	6	185	0	"		
		324	6	½"ϕ	10	0	60	0	0.67	902	
		325	156	"	8	3	1287	0	"		
		369	2	1"□	12	0	24	0	3.4		
		370	10	"	23	0	230	0	"		
Tie Beams		371	20	"	28	0	560	0	"		
		372	2	"	17	3	34	6	"	3108	
		373	3	"	18	6	55	6	"		
		374	2	"	5	0	10	0	"		
		376	21	1"ϕ	7	0	147	0	2.67		
		377	39	"	11	6	448	6	"	2371	
		378	15	"	19	6	292	6	"		
	2	306	4	1"□	26	0	208	0	3.4	1414	
	2	307	4	"	26	0	208	0	"		
	1	310	6	⅜"ϕ	3	9	22	6	0.38	34	
	2	311	2	"	34	0	136	0	"		
	2	312	6	½"ϕ	34	0	408	0	0.67		
	2	313	2	"	35	0	140	0	"		
	2	315	1	"	25	0	50	0	"		
	2	316	1	"	20	0	40	0	"	834	
	2	317	1	"	15	0	30	0	"		

Continued on Drawing B-4-52

ALABAMA
STATE DOCKS COMMISSION
MOBILE, ALABAMA

CONCRETE WHARF - PIER #2
BILL OF MATERIAL FOR REINFORCING
STEEL - SHEET 3 OF 4 SHEETS

SCALE:
DATE: OCT. 15, 1925
RECOMMENDED: Arthur C. Davis, DESIGNING ENGINEER
APPROVED: [signature] CHAIRMAN

DRAWN BY E. W. C.
TRACED BY ----
CHECKED BY E. W. Constantine

B-4-51

BILL OF MATERIAL FOR DWG. Nº B-4-46 CONT'D.

Bent	Number of Bents	Mark	Number Reqd.	Size	Length Ft.	Length In.	Tot. Length Ft.	Tot. Length In.	Wt. per Ft.	Total Wt.	Remarks
Bents 77	2	318	1	½"φ	11	0	22	0	0.67		
and 87	2	321	30	"	9	3	555	0	"		
	1	322	78	¾"φ	7	9	604	6	1.5	2189	
	1	323	95	"	9	0	855	0	"		
	1	330	1	½"φ	7	3	7	3	0.67		
	1	333	1	"	8	3	8	3	"		
	1	336	1	"	9	9	9	9	"		
	2	337	4	"	10	3	82	0	"		
	2	339	3	"	11	3	67	6	"		
	2	342	3	"	12	6	75	0	"	482	
	2	343	3	"	13	0	78	0	"		
	2	346	3	"	14	6	87	0	"		
	2	348	3	"	15	0	90	0	"		
	3	350	3	"	16	0	144	0	"		
	2	353	2	"	17	6	70	0	"		
	1	357	4	⅜"φ	28	0	112	0	0.38	70	
	1	358	2	"	36	0	72	0			
	2	364	4	1"□	33	0	264	0	3.4		
	2	306	4	"	26	0	208	0	"	2312	
	2	307	4	"	26	0	208	0	"		
	1	310	6	⅜"φ	3	9	22	6	0.38	9	
	2	312	6	½"φ	34	0	408	0	0.67		
	2	315	4	"	25	0	200	0	"		
	2	317	1	"	15	0	30	0	"	764	
	2	318	1	"	11	0	22	0	"		
	2	321	26	"	9	3	481	0	"		
	1	322	78	¾"φ	7	9	604	6	1.5	2189	
Bents 78	1	323	95	"	9	0	855	0	"		
and 86	1	330	1	½"φ	7	3	7	3	0.67		
	1	333	1	"	8	3	8	3	"		
	1	336	1	"	9	9	9	9	"		
	2	345	3	"	13	9	82	6	"	324	
	2	346	3	"	14	6	87	0	"		
	2	347	3	"	14	9	88	6	"		
	2	350	3	"	16	0	96	0	"		
	2	353	3	"	17	6	105	0	"		
	1	357	4	⅜"φ	28	0	112	0	0.38	70	
	1	358	2	"	36	0	72	0	"		
	2	363	4	1"□	24	0	192	0	3.4	653	
	2	366	2	⅜"φ	24	0	96	0	0.38	36	
	2	306	4	1"□	26	0	208	0	3.4	1414	
	2	307	4	"	26	0	208	0	"		
	1	310	6	⅜"φ	3	9	22	6	0.38	9	
	2	312	6	½"φ	34	0	408	0	0.67		
	2	317	6	"	15	0	180	0	"	667	
	2	321	22	"	9	3	407	0			
	1	322	90	¾"φ	7	9	697	6	1.5	2423	
Bents 79	1	323	102	"	9	0	918	0	"		
and 85	1	330	1	½"φ	7	3	7	3	0.67		
	1	333	1	"	8	3	8	3	"	17	
	1	336	1	"	9	9	9	9	"		
	1	357	4	⅜"φ	28	0	112	0	0.38	70	
	1	358	2	"	36	0	72	0	"		
	2	362	4	1"□	18	6	74	0	3.4	252	
	2	365	2	⅜"φ	14	0	28	0	0.38	11	
		312	6	½"φ	34	0	816	0	0.67		
		316	6	"	20	0	480	0	"	1414	
		321	22	"	9	3	814	0	"		
		322	47	¾"φ	7	9	1457	0	1.5	4724	
Bents		323	47	"	9	0	1692	0	"		
80, 81, 83		330	1	½"φ	7	3	29	0	0.67		
and 84	4	333	1	"	8	3	33	0	"	68	
		336	1	"	9	9	39	0	"		
		366	2	⅜"φ	24	0	192	0	0.38	164	
		367	2	"	30	0	240	0	"		
		368	4	1"□	26	0	416	0	3.4		
		375	4	"	31	0	496	0	"	4189	
		302	4	"	28	0	112	0	"		
		306	8	"	26	0	208	0	"		
		314	13	½"φ	30	0	390	0	0.67		
		315	2	"	25	0	50	0	"		
		316	1	"	20	0	20	0	"		
		317	1	"	15	0	15	0	"	654	
		318	1	"	11	0	11	0	"		
		321	53	"	9	3	490	3	"		
		322	43	¾"φ	7	9	333	3	1.5	1080	
		323	43	"	9	0	387	0	"		
		330	9	½"φ	7	3	65	3	0.67		
		333	7	"	8	3	57	9	"		

BILL OF MATERIAL FOR DWG. Nº B-4-46 CONT'D.

Bent	Number of Bents	Mark	Number Reqd.	Size	Length Ft.	Length In.	Tot. Length Ft.	Tot. Length In.	Wt. per Ft.	Total Wt.	Remarks
		335	6	½"φ	9	3	55	6	0.67		
		336	1	"	9	9	9	9	"		
Bent 82		337	3	"	10	3	30	9	"		
		338	3	"	10	9	32	3	"		
		340	3	"	11	6	34	6	"		
		341	3	"	12	0	36	0	"		
		342	3	"	12	6	37	6	"		
		343	3	"	13	0	39	0	"		
		344	3	"	13	3	39	9	"		
		346	3	"	14	6	43	6	"	548	
		347	3	"	14	9	44	3	"		
		348	3	"	15	0	45	0	"		
		349	3	"	15	6	46	6	"		
		350	3	"	16	0	48	0	"		
		351	3	"	16	6	49	6	"		
		352	3	"	17	0	51	0	"		
		353	3	"	17	6	52	6	"		
		360	4	1"□	32	0	128	0	3.4	870	
		361	4	"	32	0	128	0	"		
		367	8	⅜"φ	30	0	240	0	0.38	91	
										44085 #	
									or	22.05	

BILL OF MATERIAL FOR DWG. Nº B-4-47 AND B-4-32

		Mark	Number Reqd.	Size	Length Ft.	Length In.	Tot. Length Ft.	Tot. Length In.	Wt. per Ft.	Total Wt.	Remarks
		403	4	½"φ	6	3	3375	0	0.67	2261	
Regular	135	404	4	¾"φ	5	6	2970	0	1.5	4455	
Pilasters		405	4	⅞"□	6	6	3510	0	2.6	20358	
		406	4	"	8	0	4320	0	"		
		402	4	½"φ	4	6	288	0	0.67	193	
Pilasters at	16	404	4	¾"φ	5	6	352	0	1.5	528	
Exp. Joint		405	4	⅞"φ	6	6	416	0	2.04	1893	
		406	4	"	8	0	512	0	"		
Reg. Pilasters at Outshore	17	403	4	½"φ	6	3	425	0	0.67	285	
End		418	8	⅞"□	5	3	714	0	2.6	1856	
Pilasters at Exp. Joint at	2	402	4	½"φ	4	6	36	0	0.67	24	
Outshore End		418	8	⅞"□	5	3	84	0	2.6	218	
	4	415	4	½"φ	7	9	124	0	0.67	83	
Pilasters "A"		418	8	⅞"□	5	3	168	0	2.6	437	
" "B"	4	416	4	½"φ	8	3	132	0	0.67	88	
		418	9	⅞"□	5	3	189	0	2.6	491	
" "C"	1	417	4	½"φ	7	3	29	0	0.67	19	
		418	8	⅞"□	5	3	42	0	2.6	109	
Pilasters "A"		404	4	¾"φ	5	6	22	0	1.5	33	Near Bent 79
Standard	127	407	37	⅝"φ	5	3	24665	9	1.04	25657	Between Regular Pilasters
6" Wall		411	5	½"φ	20	6	13017	6	0.67	8722	
6" Wall near		407	35	⅝"φ	5	3	2756	3	1.04	2999	
Exp. Joint	15	408	2	"	4	3	127	6	"		
		410	5	½"φ	19	9	1481	3	0.67	992	
		400	158	¾"φ	3	6	553	0	1.5	830	Fire Wall and Future Front Wall
		407	590	⅝"φ	5	3	3097	6	1.04	3292	
		408	16	"	4	3	68	0	"		
		409	10	½"φ	3	3	32	6	0.67		
		412	20	"	23	9	475	0	"	1047	
		413	10	"	24	6	245	0	"		
		414	30	"	27	0	810	0	"		
Fire Wall	4	400	91	¾"φ	3	6	1274	0	1.5	1911	
		401	8	1"φ	7	9	248	0	2.67	662	
		419	18	½"φ	6	6	117	0	0.67	78	
See Dwg.		422	40	¾"φ	4	0	160	0	1.5		
B-4-32		423	20	"	1	9	35	0	"	383	
		424	20	"	3	0	60	0	"		
										79904 #	
									or	39.95 T	

BILL OF MATERIAL FOR DWG. Nº B-4-48

Pile	Nº of Piles	Mark	Number Reqd.	Size	Length Ft.	Length In.	Tot. Length Ft.	Tot. Length In.	Wt. per Ft.	Total Wt.	Remarks
		450	4	⅞"φ	20	0	90000	0	2.04	459000	
		451	4	"	30	0	135000	0	"		
		460	56	⅜"φ	5	6	346500		0.38		
		461	1	"	5	3					
		462	1	"	5	0					
		463	1	"	4	9					
		464	1	"	4	6	49500	0	"		
		465	1	"	4	3				150480	
40'0" long	1125	466	1	"	4	0					
16"x16"		467	1	"	3	9					
		468	1	"	3	6					
		469	1	"	3	3					
		470	1	"	3	0					
		471	1	"	2	9					
		452	4	1"φ	23	0	69000	0	2.67	448560	
		453	4	"	33	0	99000	0	"		
		460	61	⅜"φ	5	6	251625	0	0.38		
		461	1	"	5	3			"		
		462	1	"	5	0			"		
		463	1	"	4	9			"		
45'0"	750	464	1	"	4	6			"		
		465	1	"	4	3	33000	0	"	108158	
16"x16"		466	1	"	4	0			"		
		467	1	"	3	9			"		
		468	1	"	3	6			"		
		469	1	"	3	3			"		
		470	1	"	3	0			"		
		471	1	"	2	9			"		
		454	4	1⅛"φ	26	0	35152	0	3.38	292465	
		455	4	"	38	0	51376	0			
		460	67	⅜"φ	5	6	124553	0	0.38		
		461	1	"	5	3			"		
		462	1	"	5	0			"		
		463	1	"	4	9			"		
		464	1	"	4	6			"		
50'0"	338	465	1	"	4	3	14872	0	"	52982	
		466	1	"	4	0			"		
16"x16"		467	1	"	3	9			"		
		468	1	"	3	6			"		
		469	1	"	3	3			"		
		470	1	"	3	0			"		
		471	1	"	2	9			"		
		456	4	1¼"φ	38	0	51984	0	4.17	355109	
		457	4		24	3	33174	0	"		
		472	79	⅜"φ	6	0	162108	0	0.38		
		473	1	"	5	9			"		
		474	1	"	5	6			"		
		475	1	"	5	3			"		
		476	1	"	5	0			"		
55'0"	342	477	1	"	4	6	16330	6	"		
		478	1	"	4	3			"	67807	
18"x18"		479	1	"	4	0			"		
		480	1	"	3	9			"		
		481	1	"	3	6			"		
		482	1	"	3	3			"		
		483	1	"	3	0			"		

BILL OF MATERIAL FOR DWG. Nº B-4-48 CONT'D.

Pile	Nº of Piles	Mark	Number Reqd.	Size	Length Ft.	Length In.	Tot. Length Ft.	Tot. Length In.	Wt. per Ft.	Total Wt.	Remarks
		458	4	1¼"φ	40	0	141920	0	4.17	1024565	
		459	4	"	29	3	103779	0	"		
		472	84	⅜"φ	6	0	447048	0	0.38		
		473	1	"	5	9			"		
		474	1	"	5	6			"		
		475	1	"	5	3			"		
60'0"		476	1	"	5	0			"		
	887	477	1	"	4	6	142354	3	"	185973	
18"x18"		478	1	"	4	3			"		
		479	1	"	4	0			"		
		480	1	"	3	9			"		
		481	1	"	3	6			"		
		482	1	"	3	3			"		
		483	1	"	3	0			"		
										3145099 #	
									or	1572.55 T	

	Drawing	Weight
Total weight of Drawing Nº	B-4-36	454.45 T
" " " " "	B-4-37	133.77
" " " " "	B-4-38	6.67
" " " " "	B-4-39	202.95
" " " " "	B-4-40	59.14
" " " " "	B-4-41	189.10
" " " " "	B-4-42	6.66
" " " " "	B-4-43	18.05
" " " " "	B-4-44	484.10
" " " " "	B-4-45	6.63
" " " " "	B-4-46	22.05
" " " " "	B-4-47	39.95
Total		1623.57 T
Drwg.	B-4-48	1572.55 (Piles)
Total		3196.12

ALABAMA
STATE DOCKS COMMISSION
MOBILE, ALABAMA

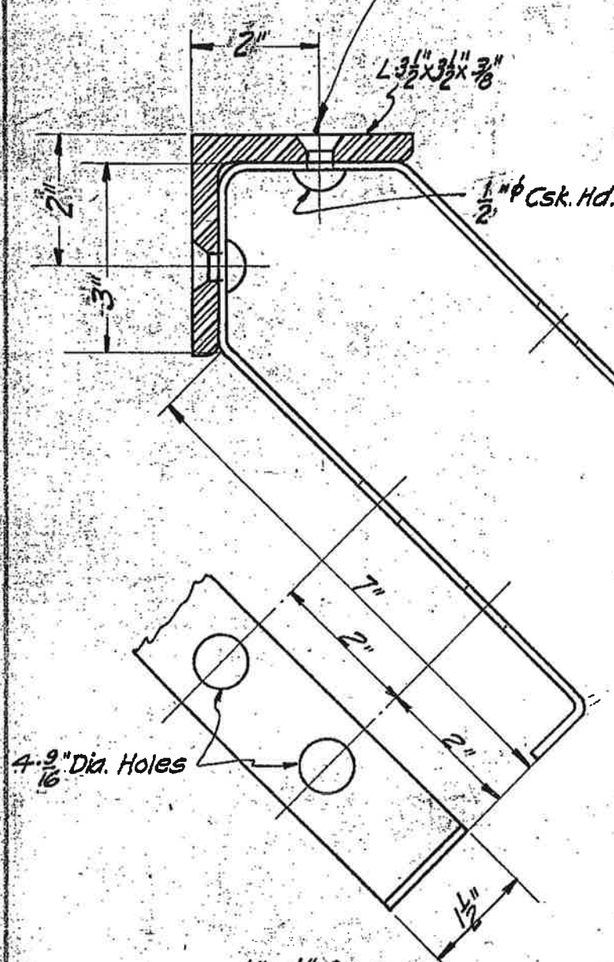
CONCRETE WHARF - PIER #2
BILL OF MATERIAL FOR REINFORCING STEEL - SHEET 4 OF 4 SHEETS

SCALE:
DATE: OCT. 15, 1925
RECOMMENDED: Arthur C. Davis
DESIGNING ENGINEER
APPROVED: [signature]
CHAIRMAN

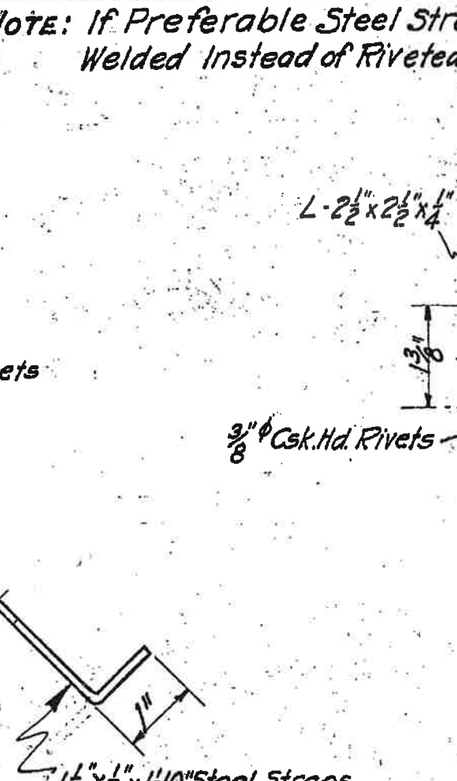
DRAWN BY E. W. C.
TRACED BY
CHECKED BY E. W. Constantine

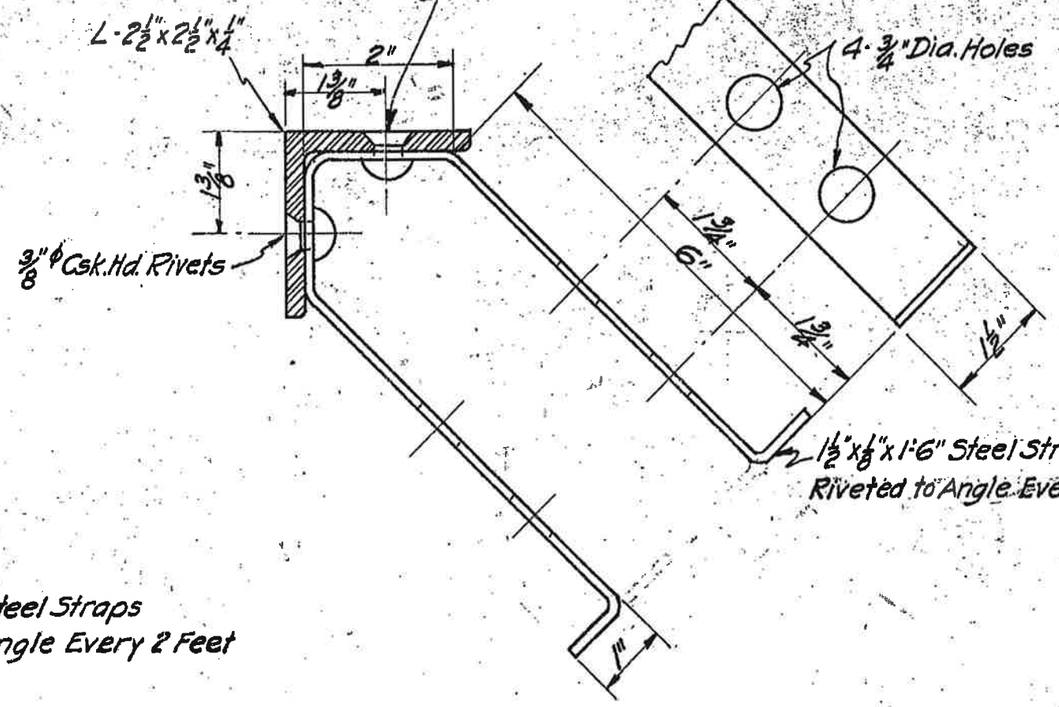
B-4-52

NOTE: If Preferable Steel Straps May Be Welded Instead of Riveted To Curb Angle



3½"x3½"x⅜" CURB ANGLE - DETAIL "A"





2½"x2½"x¼" CURB ANGLE - DETAIL "B"

Revised - Jan. 9, 1926

Note: This is not suitable for a 6" slab R/S.

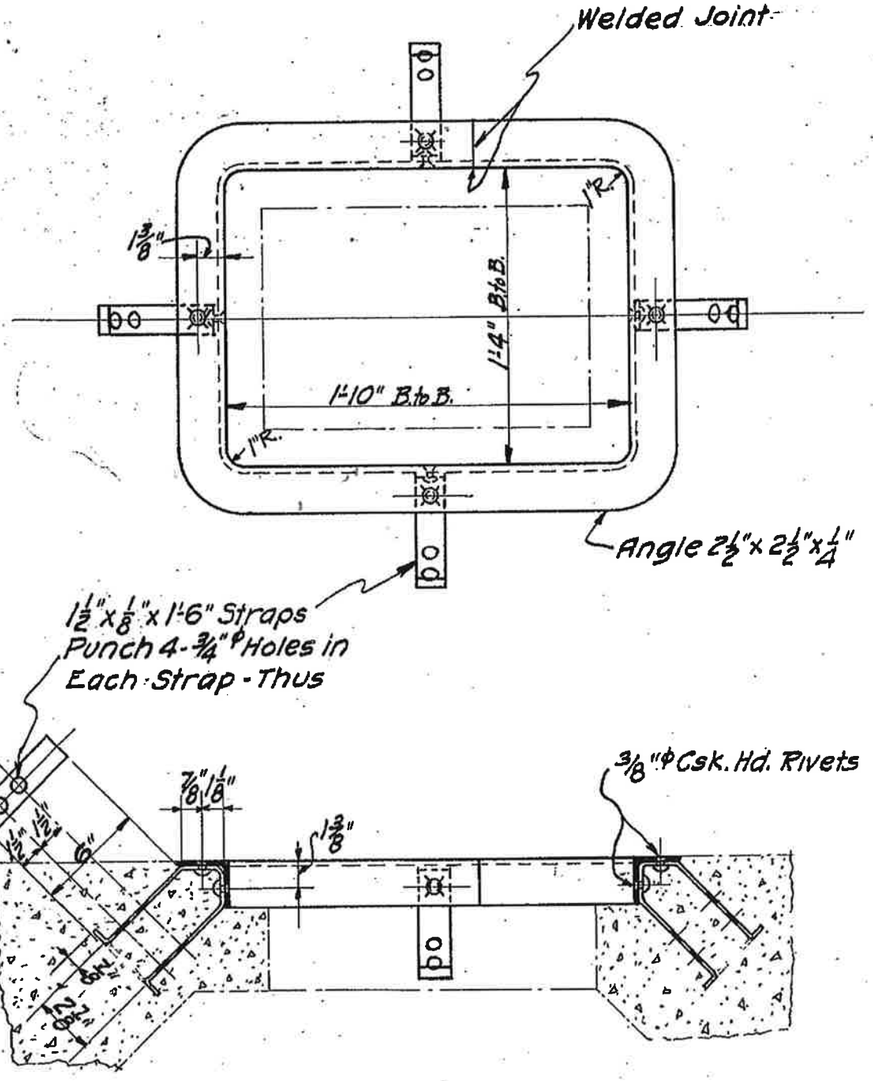
ALABAMA
STATE DOCKS COMMISSION
MOBILE, ALABAMA.

CONCRETE WHARF
CURB ANGLES

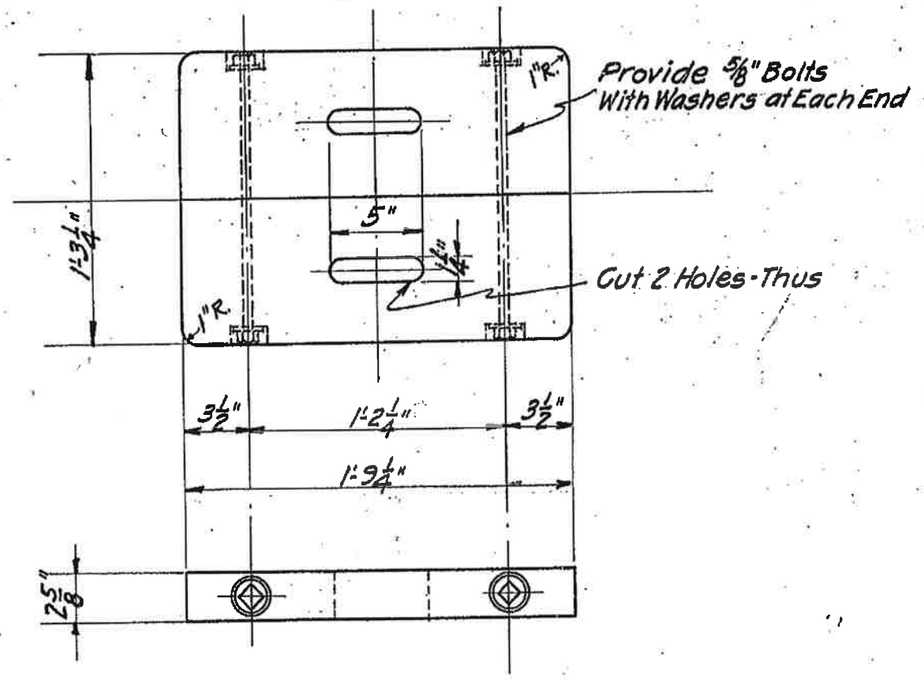
SCALE: 6"=1'-0"
DATE: Oct. 15, 1925
APPROVED:
CHAIRMAN.

DRAWN BY W.L.H.
CHECKED BY E.D.C.

B-3-42 a



MAN HOLE FRAME



MAN HOLE COVER

HARD WOOD

NOTE: If Preferable Steel Straps May Be Welded Instead of Riveted to Curb Angle

Revised - Jan. 9, 1926

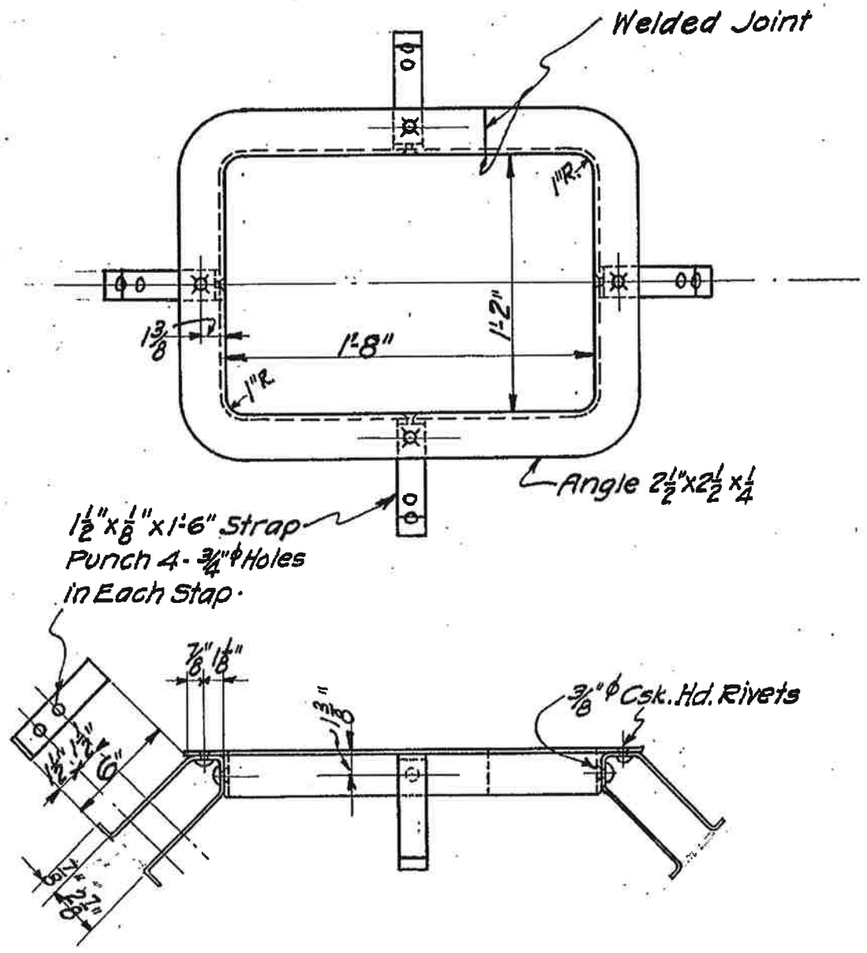
This Frame Used in Connection With Water Service Lines Only.

ALABAMA
STATE DOCKS COMMISSION
MOBILE, ALABAMA.

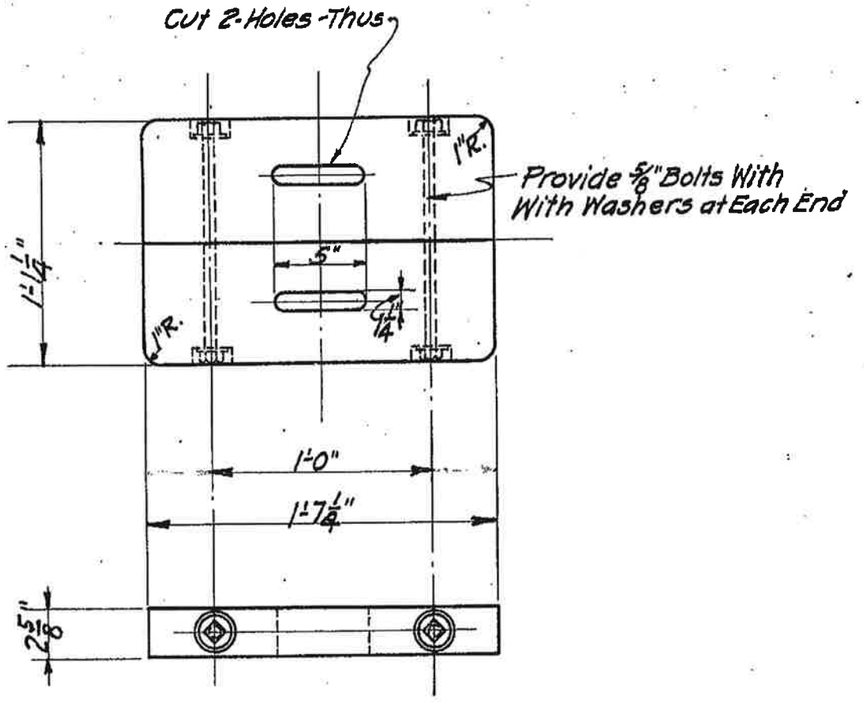
CONCRETE WHARF
MANHOLE FRAME & COVER

SCALE: 1½"=1'0" DRAWN BY W.L.H.
DATE: OCT 15 1925 CHECKED BY E.W.C.
APPROVED:
CHAIRMAN

B-3-43a



MAN HOLE FRAME



MAN HOLE COVER
HARD WOOD

NOTE - If Preferable Steel Straps May Be Welded Instead of Riveted To Curb Angles.

Revised - Jan. 9, 1926

This Frame Used in Connection With Electric Service Lines Only

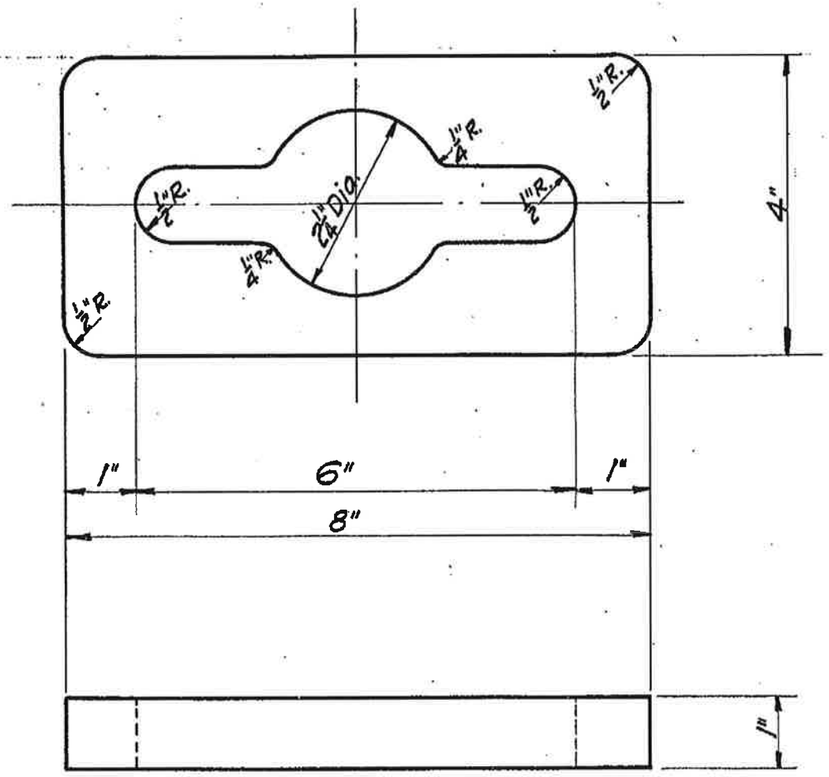
ALABAMA
STATE DOCKS COMMISSION
MOBILE, ALABAMA.

CONCRETE WHARF
MANHOLE FRAME & COVER

SCALE: 1 1/2" = 1'-0"
DATE: [illegible]
APPROVED:
DRAWN BY W.L.H.
CHECKED BY E.W.C.

CHAIRMAN

B-3-44a



KEY HOLE PLATE

Cast Iron –

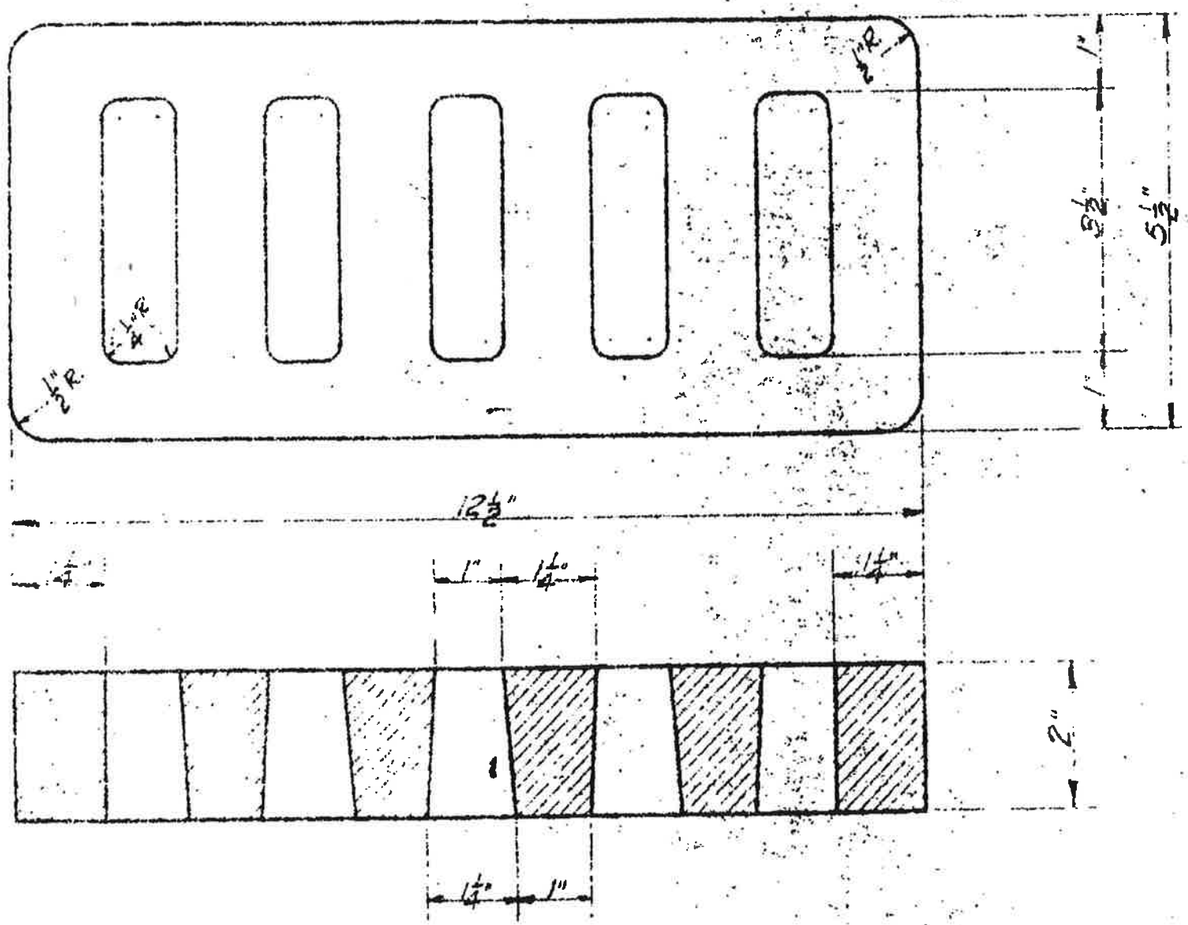
ALABAMA
STATE DOCKS COMMISSION
MOBILE, ALABAMA.

CONCRETE WHARF
KEY HOLE PLATE

SCALE: 6"=1'-0"
DATE: Oct. 15, 1925
APPROVED:
DRAWN BY: W.L.H.
CHECKED BY: E.W.C.

CHAIRMAN

B-3-45a.



VENT GRATING
Cast Iron

ALABAMA
STATE DOCKS COMMISSION
MOBILE, ALABAMA.

CONCRETE WHARF
VENT GRATING

SCALE: 6"=1'0"
DATE: Oct. 15, 1945
APPROVED:

CHAIRMAN

B-3-46a

ALABAMA STATE DOCKS DEPARTMENT

MOBILE, ALABAMA

PIER "B" SOUTH

WAREHOUSE REHABILITATION

PILE SUPPORTED RELIEVING PLATFORM

A.F.E. NO. 1571

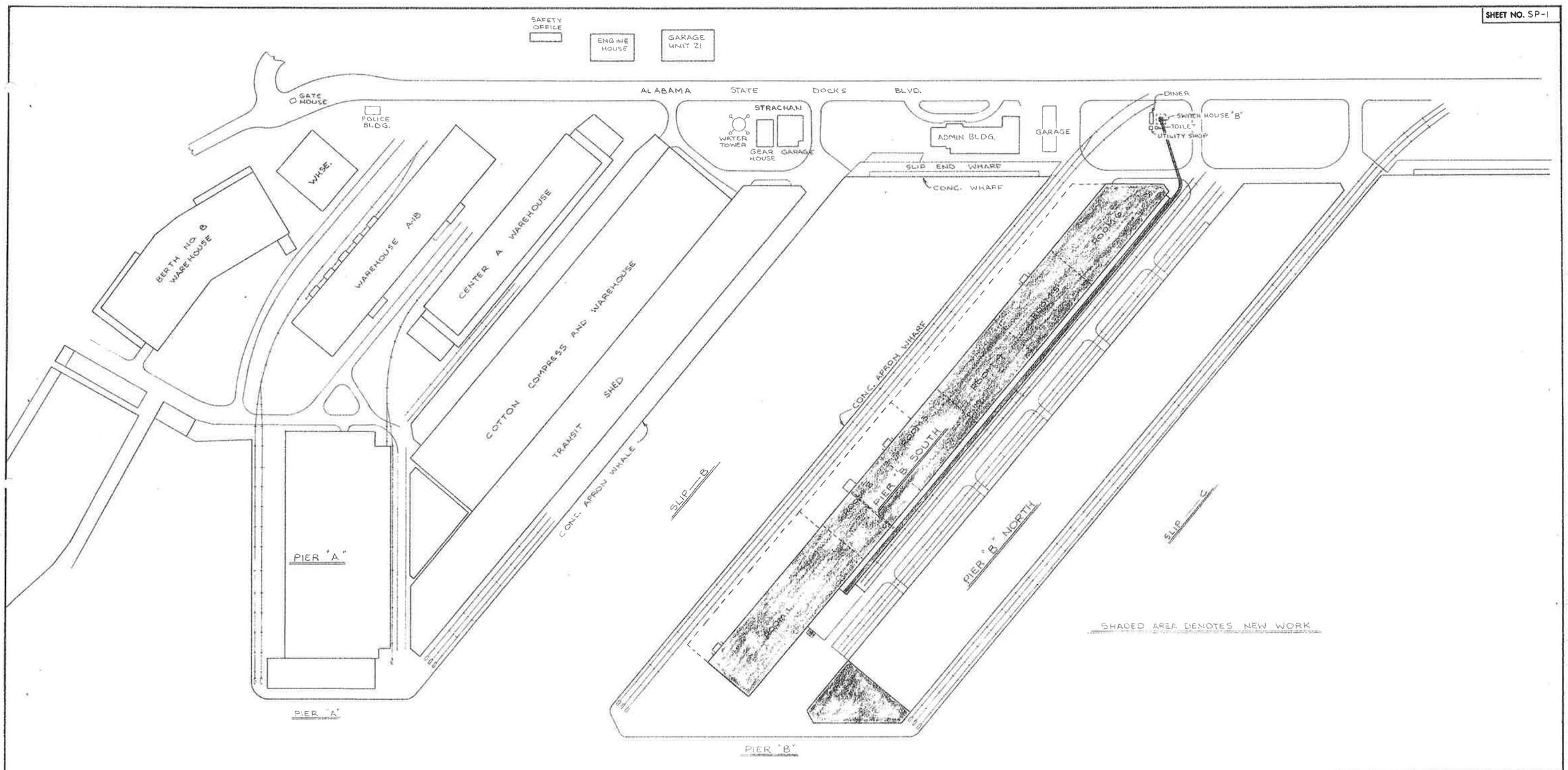
ASD SPEC. NO. 518

SEPTEMBER 1987

GUY HUNT, GOVERNOR

JOHN B. DUTTON, DIRECTOR

SHEET NO. SP-1



ALABAMA STATE DOCKS

MOBILE, ALABAMA

PIER "B" SOUTH
REHABILITATION
SITE PLAN

SCALE: 1"=100'
DATE: 4-9-87
RECOMMENDED:
APPROVED:

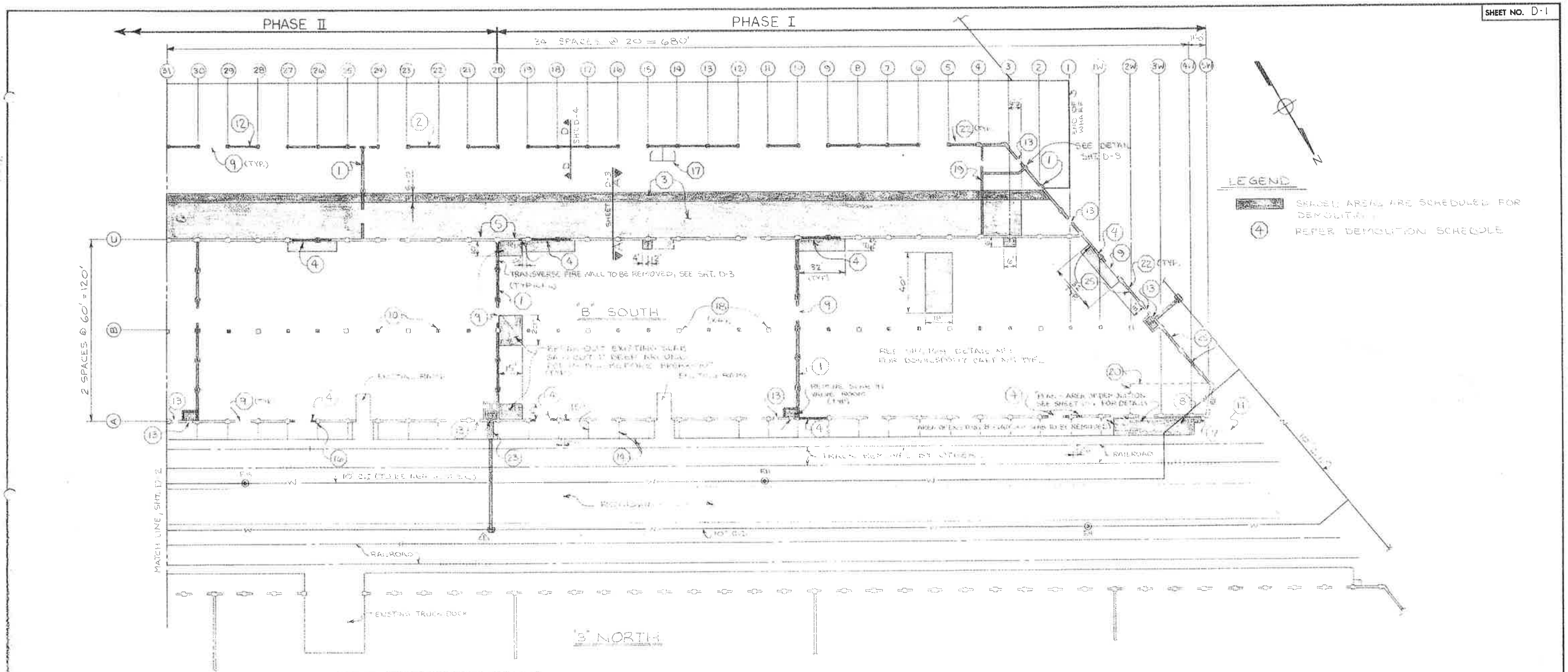
DRAWN BY: LRH
TRACED BY:
CHECKED BY:

SP-1

B-10-145-2

P. W. D 378

SHEET NO. D-1



PARTIAL LAYOUT AND DEMOLITION PIER "B" SOUTH

SCALE: [illegible] 30'-0"

DEMOLITION SCHEDULE

(1) BREAK OUT AND REMOVE 12" THK. REINF. CONC. FIRE WALLS AND PILASTERS AND WASTE [illegible]

(2) BREAK OUT AND REMOVE 8" THK. REINF. CONC. (SOUTH) WALL AND PILASTERS AND WASTE THIS CONCRETE AT [illegible]

* (3) BREAK OUT AND REMOVE 5" [illegible] CONC. FLOOR SLAB AS INDICATED ON SHT. [illegible] FOR DETAIL SECTION SEE SHT. [illegible] SEE SHEET S-6 FOR ALTERNATE [illegible]

(4) CUT OUT DOCK OPENINGS AND WASTE CONCRETE AT McDUFFIE TERMINAL SITE. SEE DETAIL D-4

(5) REMOVE OVERHEAD [illegible] FOR [illegible] AND STORE [illegible] FOR LATER USE.

(6) REMOVE SEWER EJECTOR AND [illegible] WITH ASD MAINTENANCE DEPT. CLOSE DOCK OPENINGS PER SHT. [illegible] DETAIL [illegible]

(7) BREAK OUT AND REMOVE CONC. STEPS.

(8) BREAK OUT AND REMOVE CONC. DOCK PLATFORM SLAB AND WALLS AND WASTE, SEE SHT. Nº D-4 FOR DETAILS, WASTE CONCRETE AT McDUFFIE TERMINAL SITE.

(9) REMOVE METAL ROLLUP DOORS AND STORE WITH ASD MAINTENANCE DEPT.

(10) BREAK OUT CONCRETE PEDESTALS TO 3" BELOW EXIST. [illegible] SLAB. SEE SHTS. Nº D-1 [illegible] FOR LOCATION. PATCH CUT-OFF PORTION OF PEDESTAL W/ 3000# PSI. CONCRETE.

* (11) BREAK OUT AND REMOVE ROADWAY PAVING ALONGSIDE [illegible]

(12) REMOVE AND WASTE CORRUGATED METAL SIDING

(13) REMOVE PERSONNEL DOORS & FRAMES AND STORE [illegible] IN CONCRETE WALLS WHICH REMAIN.

* (14) CONTRACTOR SHALL REMOVE EXIST. ARMOR ANGLE AT JOINTS & [illegible] CONTRACTOR SHALL CUT ALL EMBEDMENTS FROM ANGLES.

* (15) REMOVE LOOSE CONCRETE & ARMOR ANGLES, TYPICAL AT ALL DOCK EXPANSION JOINTS (JOINTS @ 20' C/C) [illegible] SHT. S-12

* (16) ON PILASTERS WHICH HAVE CONCRETE SPALLED AREAS, CUT 1/2" DEEP STRAIGHT BOUNDARY LINES AND JACK HAMMER OUT ALL LOOSE CONC. WITHIN BOUNDARY LINES FOR REPAIRS. SEE SHEET S-14.

(17) CONTRACTOR SHALL REMOVE EXIST. TOILET AREAS, WALLS, PIPING & FIXTURES. [illegible] WITH [illegible] FITTINGS, PLUG FLOOR OPENINGS WITH EPOXY GROUT.

* (18) [illegible] PEDESTALS TO [illegible] CONC. LEVEL. DO NOT DAMAGE EXISTING ANCHOR BOLTS OR REBAR. WORK THIS ITEM WITH [illegible] SHEET D-3 & D-2.

(19) BREAK OUT AND REMOVE STAIRS, WALLS, [illegible] FLOOR TOILETS, ETC AND WASTE.

(20) REMOVE FENCE AND STORE WITH ASD MAINTENANCE DEPT.

(21) REMOVE DOCK LEVELERS AND STORE WITH ASD MAINTENANCE DEPT.

(22) REMOVE EXTERIOR LIGHT & STORE WITH ASD MAINTENANCE DEPT.

* (23) [illegible] WATER LINE THAT PASSES UNDER DOCK TO VALVE ROOMS. REMOVE [illegible] SEE DETAIL OF SHEET D-5.

(24) [illegible] DRAIN PIPE SLEEVES, DOWN SPOUTS, EMBEDDED [illegible] FITTINGS, PIPE AND HOLES CREATED BY DEMOLITION.

(25) BREAK OUT [illegible] AND WASTE AT McDUFFIE TERMINAL SITE.

* [illegible]

△ REV. [illegible] 9-10-[illegible]
△ DELETE F.H. SYMBOL 8-28-87

ALABAMA STATE DOCKS
MOBILE, ALABAMA

PIER "B" SOUTH
DEMOLITION
PARTIAL FLOOR PLAN

SCALE: 1" = 30'	DRAWN BY: LRH
DATE: 3-11-87	TRACED BY:
RECOMMENDED:	CHECKED BY: [illegible]
APPROVED:	D-1
	B-10-145-3

SHEET NO. D-2

PHASE III

PHASE II

30 SPACES @ 20' = 780'

TRANSVERSE FIREWALL TO BE REMOVED, SEE SHT. D-3

CONTRACTOR TO SAW CUT 1' DEEP x 9'-0" x 6'-0" RECTANGLE AROUND 5'-0" ESCALATOR HOLE CHIP OUT REMAINING EXISTING CONCRETE TO PREPARE FOR NEW SLAB.

SAW CUT

REF. SHT. M-4 DETAIL No 1 FOR DOWNSPOUT CAPPING TYP.

"B" SOUTH

TRANSVERSE FIRE WALL TO BE REMOVED, SEE SHT. D-3 (TYPICAL)

REMOVE 4'-0" KNOCKOUT DOOR SLAB

SQUARE OFF DECK

BREAK OUT EXISTING SLAB SAW CUT 1' DEEP AROUND PERIMETER BEFORE BREAK-OUT (TYP.)

EXISTING RAMP

REMOVE SLAB IN VALVE ROOM (TYP.)

MATCH LINE, SHT. D-1

2 SPACES @ 60' = 120'

CONTRACTOR TO SAW CUT 1' DEEP x 9'-6" x 6'-0" RECTANGLE AROUND 5'-0" ESCALATOR HOLE CHIP OUT REMAINING EXISTING CONCRETE TO PREPARE FOR NEW SLAB.

PORTABLE OFFICE POWER BY OTHERS

PORTABLE OFFICE RELOCATED BY OTHERS

RAILROAD (TRACK REMOVAL BY OTHERS)

2'-0" TRENCH EXCAVATION

ROADWAY

RAMP UP

PLAN AREA OF DEMOLITION SEE SHEET D-4 FOR DETAILS & SECTIONS

140'-0"

PORTABLE OFFICE RELOCATED BY OTHERS

EXISTING TRUCK DOCK

"B" NORTH

STEEL WALL (TO REMAIN)

SEE SHEET D-3 FOR ELEVATION AND FRAMING INFORMATION, SEE SHEET D-7 FOR ROOF FRAMING

CONSTRUCT END WALL GABLE SEE DETAIL #1 SHEET D-8

PHASE I

NOTE:
SEE SHEET D-4 FOR DEMOLITION SCHEDULE

PARTIAL LAYOUT AND DEMOLITION PIER "B" SOUTH

SCALE: 1" = 30'-0"

△ REV. PLAN TO AGREE W/ PLAN ON SHT D-4
△ DELETED F.H. SYMBOL 8-31-87

ALABAMA STATE DOCKS

MOBILE, ALABAMA

PIER "B" SOUTH
DEMOLITION
PARTIAL FLOOR PLAN

SCALE: 1"=30'
DATE: 3-11-87
RECOMMENDED:

DRAWN BY: LRH
TRACED BY:
CHECKED BY:

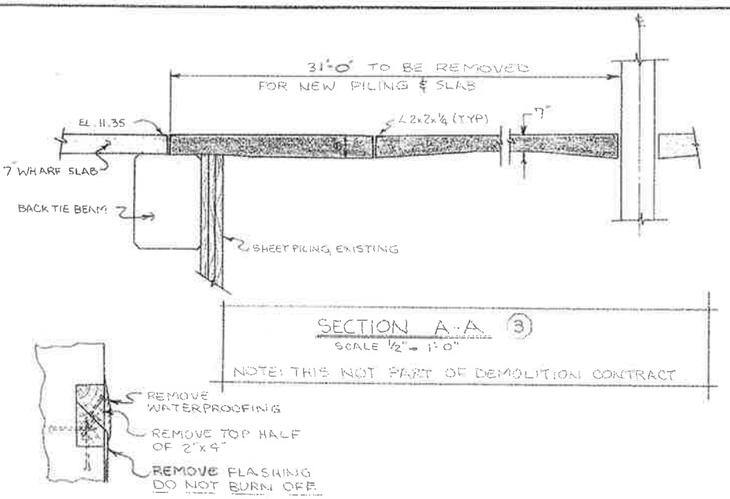
D-2

APPROVED:

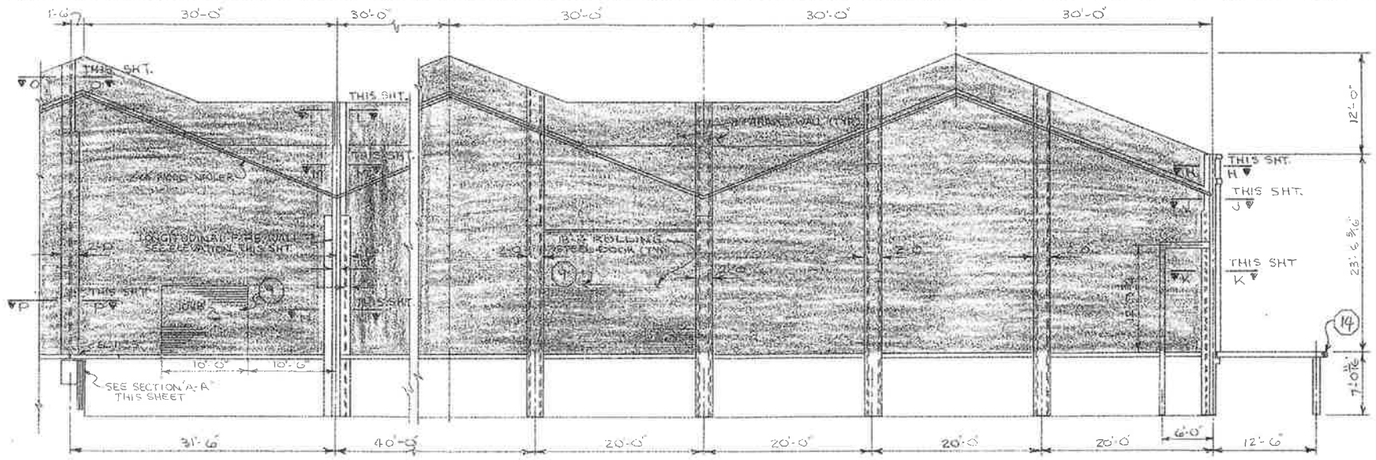
B-10-145-4

168

SHEET NO. D-3

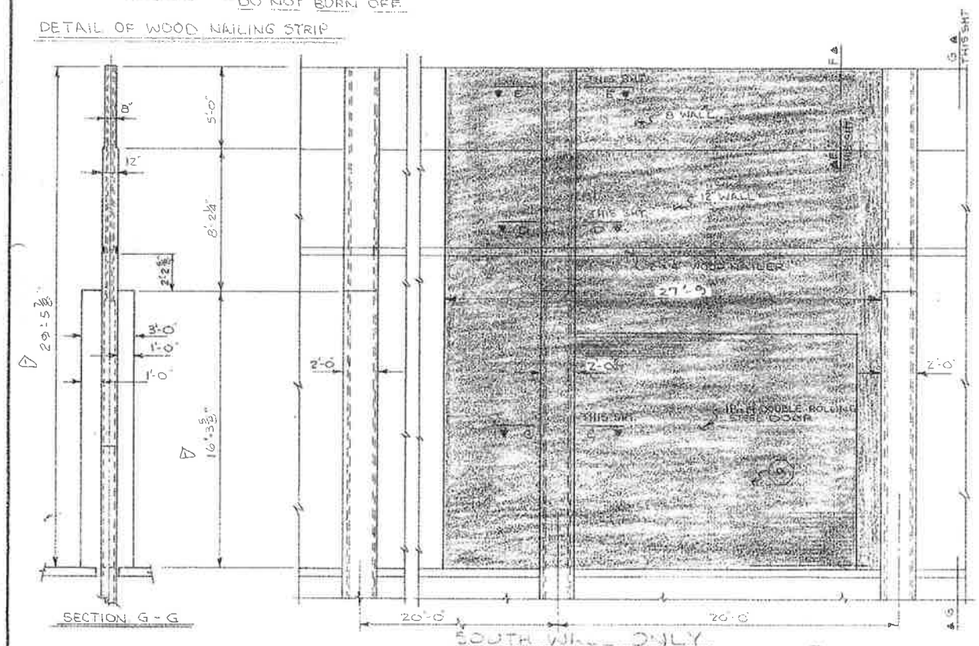


SECTION A-A (3)
SCALE 1/2" = 1'-0"



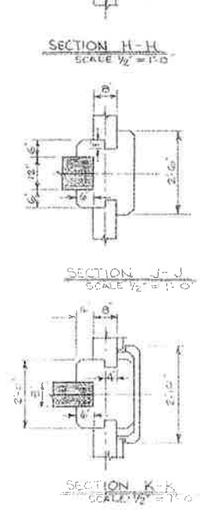
SECTION B-B ~ PARTIAL ELEVATION (1)
SCALE: 1/8" = 1'-0"

DETAIL OF WOOD NAILING STRIP



SECTION G-G

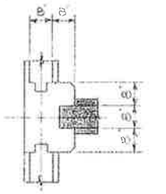
PARTIAL SECTIONAL ELEVATION OF LONGITUDINAL FIRE WALL (4)
SCALE: 1/4" = 1'-0"



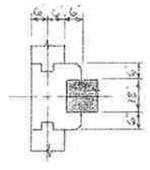
SECTION H-H
SCALE 1/2" = 1'-0"

SECTION J-J
SCALE 1/2" = 1'-0"

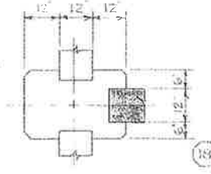
SECTION K-K
SCALE 1/2" = 1'-0"



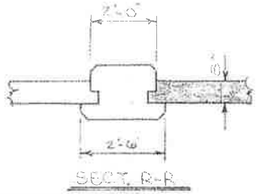
SECTION L-L
SCALE 1/2" = 1'-0"



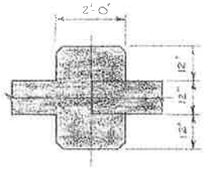
SECTION M-M
SCALE 1/2" = 1'-0"



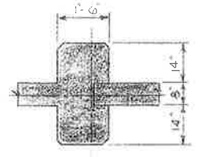
SECTION N-N
SCALE 1/2" = 1'-0"



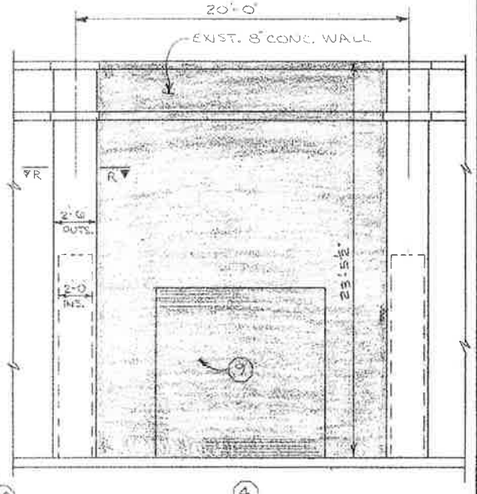
SECT. R-R



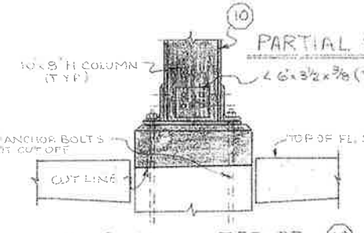
SECTION O-O
SCALE 1/2" = 1'-0"



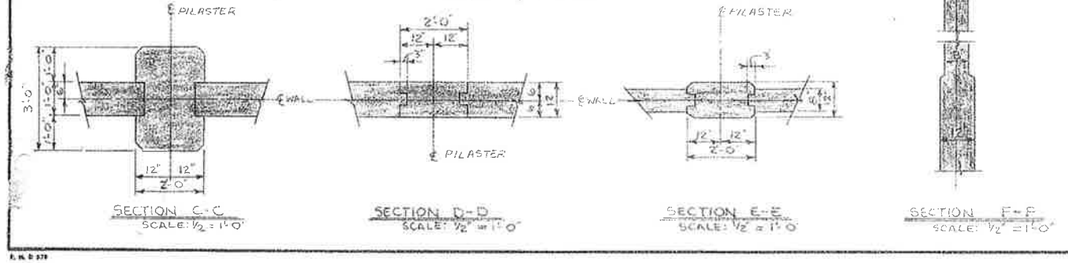
SECTION P-P
SCALE 1/2" = 1'-0"



(4)
PARTIAL SECT. NORTH WALL @ DOOR
1/4" = 1'-0"



TYPICAL INTERIOR COLUMN DETAIL (10) (18)
SCALE: 1" = 1'-0"



SECTION C-C
SCALE: 1/2" = 1'-0"

SECTION D-D
SCALE: 1/2" = 1'-0"

SECTION E-E
SCALE: 1/2" = 1'-0"

SECTION F-F
SCALE: 1/2" = 1'-0"

△ REV. TO CORRECT DIMENSIONS JAN 1-4-88

ALABAMA STATE DOCKS

MOBILE, ALABAMA

PIER "B" SOUTH DEMOLITION MISC WALL SECTIONS

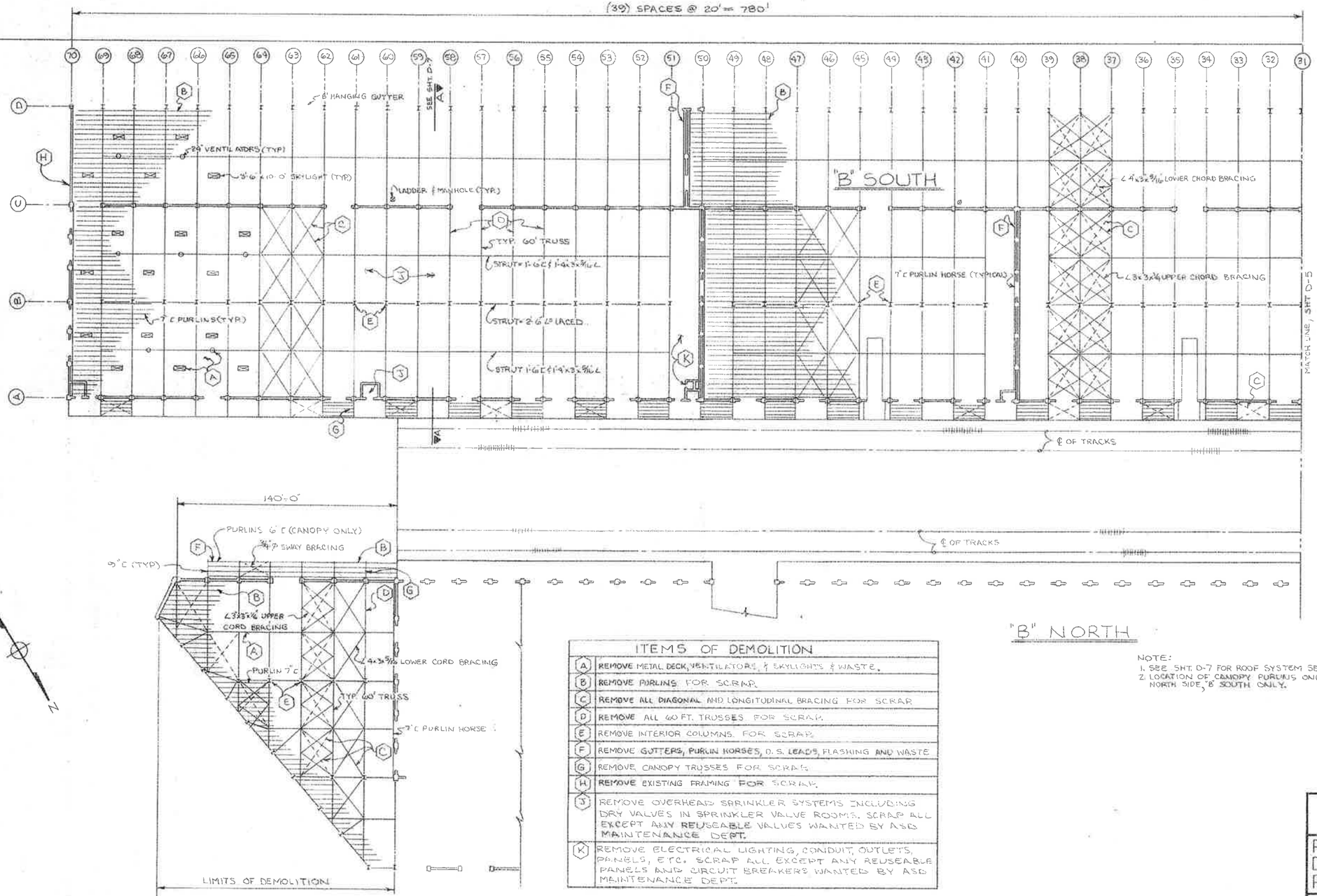
SCALE: NOTED
DATE: 4-10-87
RECOMMENDED:

DRAWN BY: LRH
TRACED BY:
CHECKED BY:

D-3

APPROVED:

B-10-145-5



ITEMS OF DEMOLITION	
A	REMOVE METAL DECK, VENTILATORS, & SKYLIGHTS & WASTE.
B	REMOVE PURLINS FOR SCRAP.
C	REMOVE ALL DIAGONAL AND LONGITUDINAL BRACING FOR SCRAP.
D	REMOVE ALL 60 FT. TRUSSES FOR SCRAP.
E	REMOVE INTERIOR COLUMNS FOR SCRAP.
F	REMOVE GUTTERS, PURLIN HORSES, D. S. LEADS, FLASHING AND WASTE
G	REMOVE CANOPY TRUSSES FOR SCRAP.
H	REMOVE EXISTING FRAMING FOR SCRAP.
J	REMOVE OVERHEAD SPRINKLER SYSTEMS INCLUDING DRY VALVES IN SPRINKLER VALVE ROOMS. SCRAP ALL EXCEPT ANY REUSEABLE VALVES WANTED BY ASD MAINTENANCE DEPT.
K	REMOVE ELECTRICAL LIGHTING, CONDUIT, OUTLETS, PANELS, ETC. SCRAP ALL EXCEPT ANY REUSEABLE PANELS AND CIRCUIT BREAKERS WANTED BY ASD MAINTENANCE DEPT.

NOTE:
1. SEE SHT. D-7 FOR ROOF SYSTEM SECTION AND DETAIL
2. LOCATION OF CANOPY PURLINS ONLY AS INDICATED NORTH SIDE, & SOUTH ONLY.

ALABAMA STATE DOCKS

MOBILE, ALABAMA

PIER "B" SOUTH DEMOLITION ROOF FRAMING PLAN

SCALE: 1"=30'
DATE: 4-10-87
RECOMMENDED:
APPROVED:

DRAWN BY: L.R.H.
TRACED BY:
CHECKED BY:

D-6

B-10-145-8

SHEET NO. S-1

PHASE I

346'-6"

(PILE SUPPORTED RELIEVING PLATFORM DETAILS SEE SHT. S-27)

BREAK-OUT FOR ROTABLE WATER SHIP SERVICE BOX SEE SHT. M-1 & M-4

E.M.L.+11.0 — EDGE OF WHARF

EXISTING R.R. TRACKS

(13) SPCS @ 7'-6" = 97'-6" FOR (56) PILING

(21) SPACES @ 7'-6" = 157'-6" FOR (88) PILING

(10) SPACES @ 17'-6" = 75'-0" FOR (99) PILING

5'-0"

6"

4' WD. REMOVABLE SLAB SHT. S-27

TEST PILE SEE SPECS.

BATTER PILE (TYP) 12:1

TOOLED CONTROL JOINT SEE DETAIL F/E SHT S-27 (TYPL)

EXP. JT.

TCJ

SAWCUT 1" BEFORE DEMOLITION BREAKOUT

6' WD TRANSITION SLAB SHT S-27 DET. E-E

31' SLAB SHT. S-27

SEE ENLARGED PLAN OF NEW TOILET - SHT. S-33

ABANDONED SCALE PIT 6'X8' (TYP. 12 PLACES)

Remove/ of Door Rates Creek - Void beneath abandoned "Concrete" doorway. Contractor to fill void with nonsegregated concrete

12" THK.

MATCH LINE, SHT S-2

60'-0" = 120'-0"

2 SPACES @ 60'-0" = 120'-0"

15'

EXIST. SPRINKLER VALVE ROOM

TRUCK

RAIL

LOADING DOCK

LOADING DOCK

RR TRACKS BY OTHERS

PILING LEGEND

BENT Nº	ESTIMATED TIP EL.	QTY
3 - 11	-35'	88
11 - 14	-40'	32
14 - 20	-45'	48

NOTE:
CONTRACTOR SHALL DRIVE PROBE PILING ON INTERVALS NOT TO EXCEED 100 FEET.

ABANDONED scale pits of 18" concrete exist. for Contractor Removal

31'-0" TO BE REMOVED FOR NEW PILING & SLAB

7" WHARF SLAB

EL. 11.35

6' WD. TRANSITION SLAB

L 2x2x1/4 (TYP)

6"

AVG. EL. 11.25±

REINFORCED W/ #5 @ 3' T.B.

REINFORCED W/ SINGLE MAT #4 @ 12"

SHEET PILING, EXISTING

BACK TIE BEAM

SECTION A-A

1/2" = 1'-0"

2'-9"

STD 4-PILE FOOTING 40' LG.

LEGEND

AREA OF NEW CONSTRUCTION

FLOOR PLAN — NEW RENOVATION AND REPAIRS
PIER "B" SOUTH
SCALE: 1" = 20'

△ REV. PER ADDENDUM Nº1 9/25/87

PIER "B" SOUTH REHABILITATION
PILE SUPPORTED
RELIEVING PLATFORM - PLAN

ALABAMA STATE DOCKS

MOBILE, ALABAMA

PIER B SOUTH
RENOVATION & REPAIR
PARTIAL FLOOR PLAN

SCALE: 1"=20'
DATE: 4-21-87
RECOMMENDED:
DRAWN BY: LRH
TRACED BY:
CHECKED BY:
APPROVED:

S-1

B-10-145-11A

SHEET NO. S-3

PHASE III

PHASE II

475'-0"

(PILE SUPPORTED RELIEVING PLATFORM DETAILS SEE SHT. S-27)

BREAK-OUT FOR POTABLE WATER SHIP SERVICE BOX SEE SHT. M-3 & M-4

EDGE OF WHARF

BENCH MARK EL. 11.00

EXISTING R.R. TRACKS

27'-6"

(25) SPCS @ 7'-6" = 187'-6" FOR (104) PILING

(26) SPCS @ 7'-6" = 195'-0" FOR (109) PILING

(10) SPCS @ 7'-6" = 75'-0" FOR (44) PILING

6'WD TRANSITION SLAB SHT. S-27 DETAIL 'E-E'

NEW TOILET FACILITIES SEE SHT. S-33

SAWCUT 1" BEFORE DEMOLITION BREAKOUT

SEE ENLARGED PLAN OF NEW TOILET SHT. S-25

TCS

EXP JT.

TOOLED CONTROL ST. (TYP) SHT S-27 DETAIL F-F

BATTERED PILE (TYP) 12:1

TEST PILE SEE SPECS

ABANDONED SCALE PIT 6'X8' (TYP'L 12 PLACES)

31' SLAB SHT. S-27

REF. SHT. S-1

MATCH LINE, SHT. S-2

2 SPACES @ 60'-0" = 120'-0"

EXIST. SPRINKLER VALVE ROOM

RAMP DOWN

EXISTING 10" C.I.

R.R. TRACKS BY OTHERS

EDGE OF WHARF

BREAK-OUT FOR POTABLE WATER SHIP SERVICE BOX SEE SHT. M-4

NOTES:
1) FOR LEGEND SEE SHEET S-1

FLOOR PLAN — NEW RENOVATION AND REPAIRS
PIER "B" SOUTH
3/64" = 1'-0" = 20'

PILING LEGEND

BENT Nº	ESTIMATED TIP EL.	QTY
45-54	-40	96
54-60	-35	68
60-69	-40	92

NOTE:
CONTRACTOR SHALL DRIVE PROBE PILING ON INTERVALS NOT TO EXCEED 100 FEET.

PIER "B" SOUTH REHABILITATION
PILE SUPPORTED
RELIEVING PLATFORM PLAN

ALABAMA STATE DOCKS

MOBILE, ALABAMA

PIER "B" SOUTH
RENOVATION & REPAIRS
PARTIAL FLOOR PLAN

SCALE: 1" = 20'
DATE: 4-20-87
RECOMMENDED:
DRAWN BY: LRH
TRACED BY:
CHECKED BY:
APPROVED:

S-3

B-10-145-13A

⚠ REV. PER ADDENDUM Nº1 9/25/87

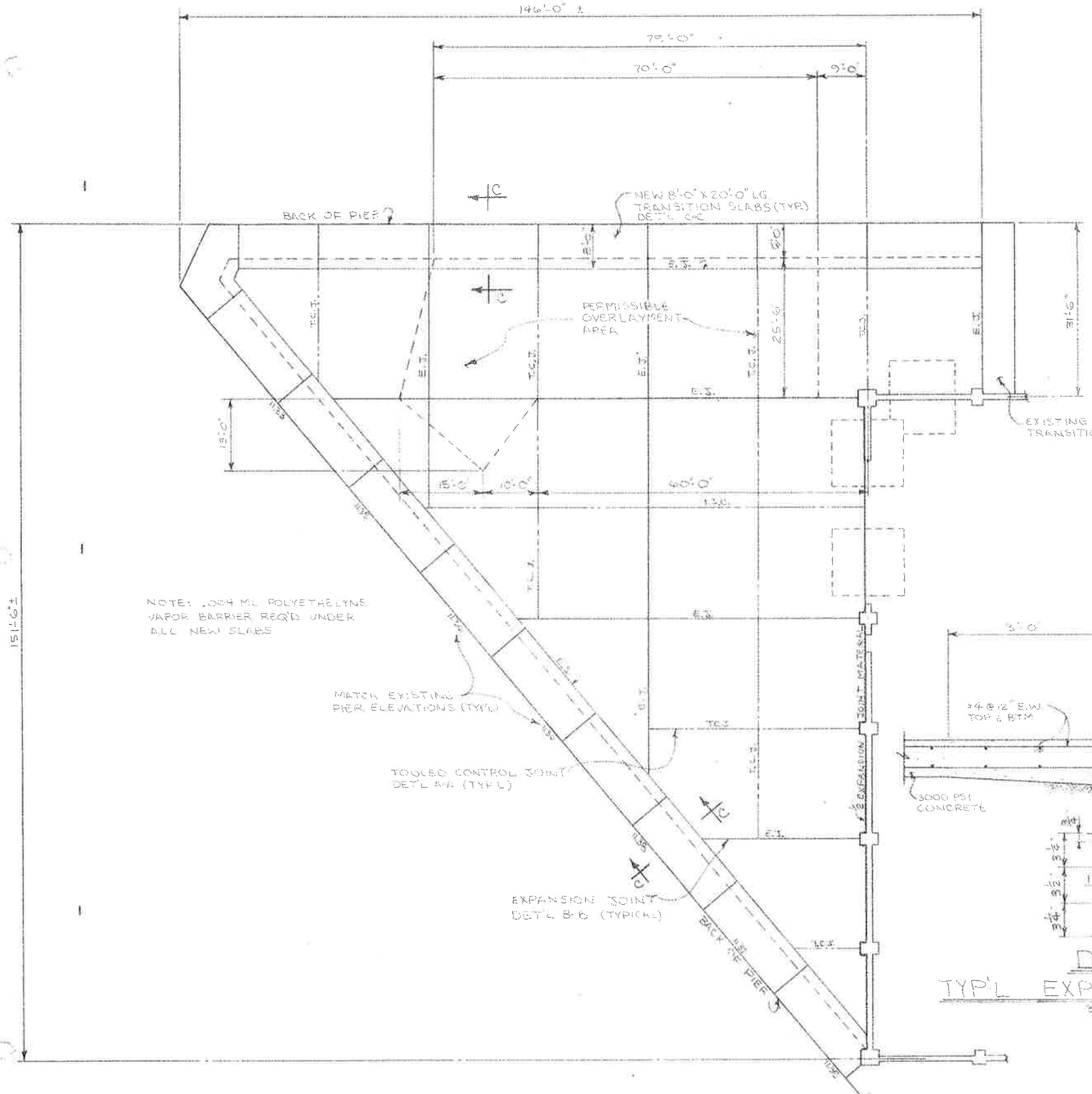
93

SHEET NO.

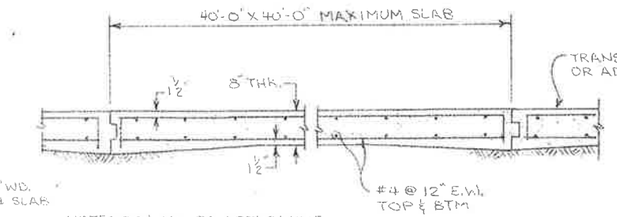
NOTES FOR EXTERIOR CONCRETE WORKS

1. BREAK AND REMOVE EXISTING SLAB WITHIN LIMITS SHOWN. DISPOSAL TO BE OFF STATE OWNED PROPERTY.
2. BACKFILL WITH SAND-CLAY CONFORMING TO TYPE A, SECTION 821 OF ALA. HIGHWAY DEPT. SPECIFICATIONS. COMPACTION SHALL BE NOT LESS THAN 95% OF MODIFIED PROCTOR DENSITY. MAXIMUM 8" LIFTS.
3. CONCRETE OVERLAYMENT OF EXISTING SLAB WILL BE PERMITTED IN AREAS WITH 6" OR GREATER THICKNESS. REINFORCEMENT SHALL BE (2) MATS OF #4 @ 12" EA. WAY.
4. ALL SLABS SHALL BE POURED IN A CHECKER BOARD MANNER WITH (7) DAYS TIME BETWEEN ADJACENT POURS.
5. THE FOLLOWING CONTRACT SPECIFICATIONS ARE APPLICABLE AS DEFINED:

   SPECIFICATION 518: SECTION 6 CONCRETE
   SPECIFICATION 519: SECTION 8 CONCRETE



PLAN AT EAST END OUTSIDE WH'SE SLAB
1" = 10'

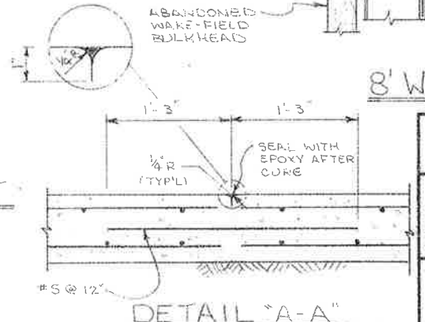


NOTE: 004 MIL POLYETHELYNE VAPOR BARRIER REQ'D UNDER ALL NEW SLABS

DET'L D-D TYP'L SECT. OF SLAB
¾" = 1'-0"

DET'L B-B
TYP'L EXPANSION JOINT
3/16" = 1"

DETAIL "C-C"
8' WD. TRANSTION SLAB
¾" = 1'-0"



DETAIL "A-A"
TOOLED CONTROL JOINT
1½" = 1'-0"

ALABAMA STATE DOCKS
MOBILE, ALABAMA

PIER B SOUTH
EAST END
SLAB REPAIR

SCALE: 1"=10'
DATE: 9-2-88
RECOMMENDED:
DRAWN BY: LRH
TRACED BY:
CHECKED BY:
APPROVED:

B-10-145-16B

F. M. D 3-72

68

Note: this old line D was the original building line of the 1925 construction. From Grids D-C was removed under this contract. A portion of that old structure was supported on the pier with

D

C

B

A

NOTE:
FOR TRUSS CONNECTIONS REFER SHEET S-22
FOR ROOF FRAMING PLAN REFER SHEET S-15, S-16, & S-17

℄ BUILDING

SEE SECT. "A-A", SHT. S-22

42'-0"

REFER SECT. "E-E", SHEET S-22

TRUSS T-2

METAL ROOF DECK
REFER SPECS.

PURLINS (GALV.)
@ 5'-0" C. TO C.

12

12

TOP OF STEEL PURLINS @ RIDGE

TOP OF STEEL PURLINS
@ COL. LINE D

34'-1"

29'-1"

REFER SECT. "A-A"
SHT. S-20

SEE SECTION "F-F"
SHT. S-22

W 12 X 53 OR W12 X 72
STEEL COLUMN

23'-9" CL.

28'-9" CL.

JOIST GIRDERS
@ 20'-0" C.C.

JACK TRUSS

W12 X 72
STEEL COLUMN

24'-2" CLR

REFER SECT. "D-D"
SHT. S-20 SECTION @
NORTH WALL

EXISTING CONC.
WALL & PILASTERS

20'-6"

24'-1"

EXISTING
CONCRETE
WALL

W 12 X 65
STEEL COLUMN

NOTE:
LIGHTS & SPRINKLER SYSTEM
ELEMENTS SHALL BE INSTALLED
AT LEVELS AT OR ABOVE BOTTOM
CHORD OF ROOF TRUSSED

EXISTING CONCRETE
WALL

30" ϕ CONC.
ENCASEMENT

8'-0"
TYP.

EXISTING RAIL
RECEIVING PLATFORM
EL. 11.14

EL. 11.68

BASE DATUM EL. 12'-2"

EL. 11.66

EL. 12.0

EL. 11.66

EXISTING FLOOR
SLAB (TYPICAL)

EXISTING CONC. PILASTERS,
PILE CAP AND PILINGS

REFER SHT. S-12
FOR ADDITION
TO DOCK

T.O.R. EL. 25'

TOP OF
DRAIN
EL. 16.0'

EDGE OF WHARF

EXISTING SHEETPILE
WALL

30'-0"

NEW TIMBER PILES
SEE PLAN ON SHT. S-10
20 TON CAPACITY

℄ TRACK

31'-6"
(NEW PILE SUPPTED SLAB)
(BY OTHERS)

60'-0"

60'-0"

102'-0"

120'-0"

20'-9"

6'-6"

13'-0"

8'-8"±

48'-11"±

EDGE OF ROADWAY

11.07
1.50
3.57

Note:

BUILDING SECTION "A-A"
1/8" = 1'-0"

60'-0"

60'-0"

PURLINS 7" x [illegible]
@ 5'-0" CTRS.

METAL ROOF DECK
REFER SPECS.

REFER SECT. "C-C"
SHT. S-22

JACK TRUSS

REFER SECT. "B-B"
SHEET S-22

JOIST GIRDERS @ 20' C.C.

COLUMN HP 12 X 65

30" ϕ CONC. ENCASEMENT
SEE SHEET S-21

8'-0"
TYP.

BASE DATUM EL. 12.17

BUILDING SECTION "B-B"
1/8" = 1'-0"

△ REV. PER AS BUILTS 3/29/88 LRH

ALABAMA STATE DOCKS

MOBILE, ALABAMA

PIER "B" SOUTH
REHABILITATION
BUILDING SECTIONS

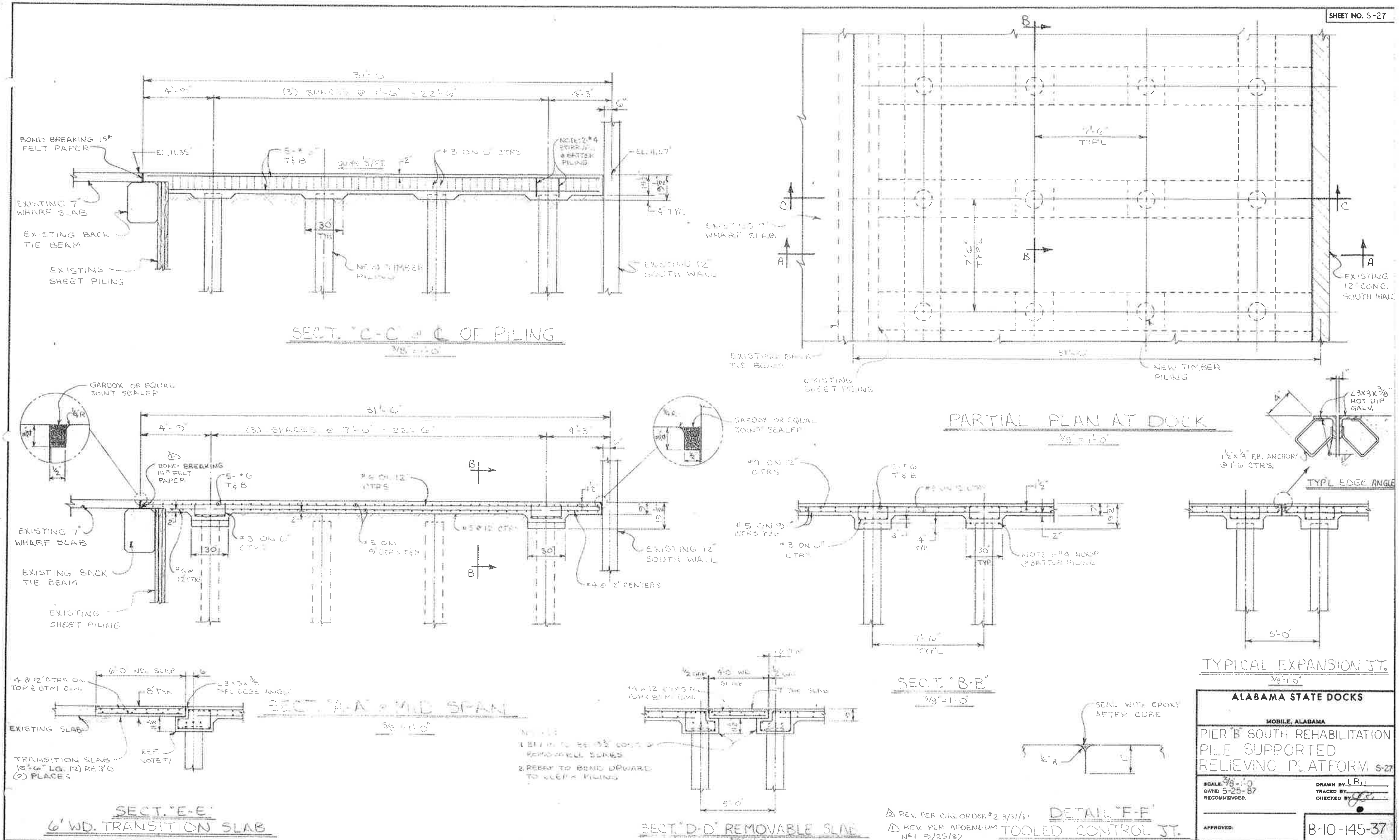
SCALE: 1/8" = 1'-0"
DATE: 5-13-87
RECOMMENDED)

DRAWN BY: LRH
TRACED BY:
CHECKED BY:

S-19

APPROVED:

B-10-145-29


SHEET NO. S-27
SECT. "C-C" @ ℄ OF PILING
3/8" = 1'-0"
31'-6"
4'-9"
(3) SPACES @ 7'-6" = 22'-6"
4'-3"
BOND BREAKING 15# FELT PAPER
EXISTING 7" WHARF SLAB
EXISTING BACK TIE BEAM
EXISTING SHEET PILING
NEW TIMBER PILING
EXISTING 12" SOUTH WALL
4" TYP.
PARTIAL PLAN AT DOCK
3/8" = 1'-0"
7'-6" TYP.
EXISTING 7" WHARF SLAB
EXISTING BACK TIE BEAM
EXISTING SHEET PILING
NEW TIMBER PILING
EXISTING 12" CONC. SOUTH WALL
GARDOX OR EQUAL JOINT SEALER
BOND BREAKING 15# FELT PAPER
5-#6 T&B
#4 ON 12" CTRS
#3 ON 6" CTRS
#4 @ 12" CENTERS
EXISTING 7" WHARF SLAB
EXISTING BACK TIE BEAM
EXISTING SHEET PILING
EXISTING 12" SOUTH WALL
SECT. "A-A" @ MID SPAN
3/8" = 1'-0"
SECT. "B-B"
3/8" = 1'-0"
7'-6" TYP.
NOTE 1-#4 HOOP @ BATTER PILING
L3x3x3/8" HOT DIP GALV.
1 1/2" x 1/4" F.B. ANCHORS @ 1'-6" CTRS.
TYP'L EDGE ANGLE
5'-0"
TYPICAL EXPANSION JT.
3/8" = 1'-0"
6'-0 WD. SLAB
8" THK
4 @ 12" CTRS ON TOP & BTM EACH WAY
L3x3x3/8" TYP'L EDGE ANGLE
EXISTING SLAB
TRANSITION SLAB 15'-6" LG. (2) REQ'D (2) PLACES
REF. NOTE #1
SECT. "E-E"
6' WD. TRANSITION SLAB
NOTES:
2. REBAR TO BEND UPWARD TO CLEAR PILING
5'-0"
SECT. "D-D" REMOVABLE SLAB
SEAL WITH EPOXY AFTER CURE
DETAIL "F-F"
TOOLED CONTROL JT.
REV. PER CHG. ORDER #2
REV. PER ADDENDUM No 1
ALABAMA STATE DOCKS
MOBILE, ALABAMA
PIER "B" SOUTH REHABILITATION
PILE SUPPORTED
RELIEVING PLATFORM S-27
SCALE: 3/8" = 1'-0
DATE: 5-25-87
RECOMMENDED:
DRAWN BY: LR
TRACED BY:
CHECKED BY:
APPROVED:
B-10-145-37

SHEET NO. CS-1

ALABAMA STATE DOCKS DEPARTMENT

MOBILE, ALABAMA

PIER "B" SOUTH

WAREHOUSE REHABILITATION

A.F.E. NO. 1571

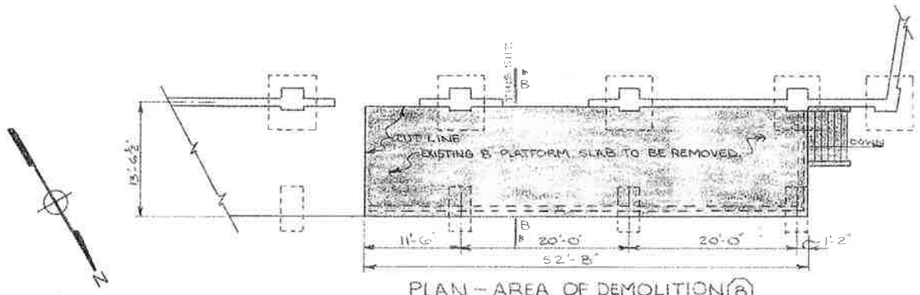
ASD SPEC. NO. 519

SEPTEMBER 1987

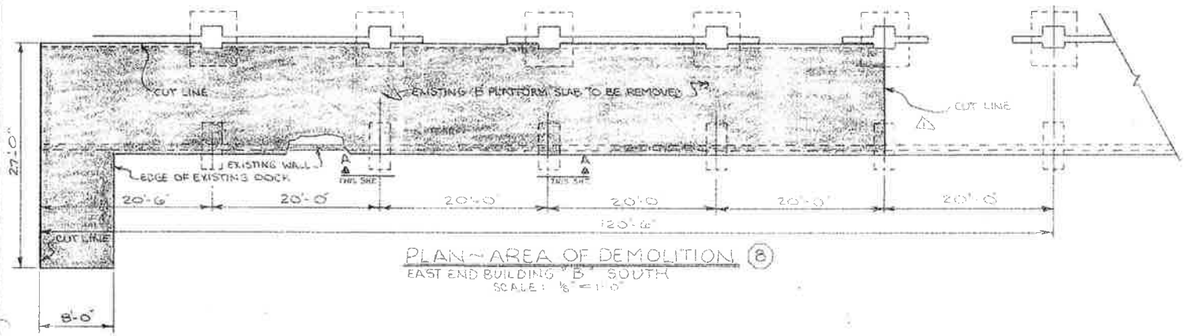
GUY HUNT, GOVERNOR

JOHN B. DUTTON, DIRECTOR

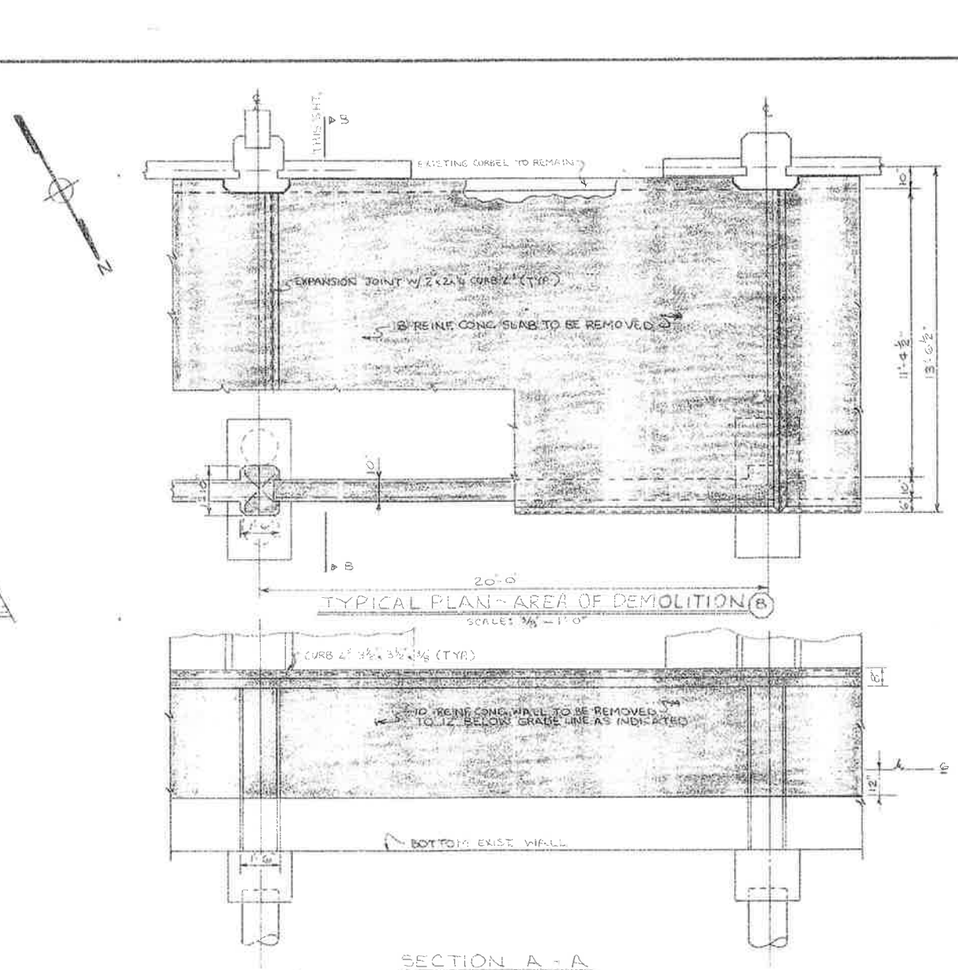
B-10-145



PLAN - AREA OF DEMOLITION (8)
WEST END BUILDING 'B' SOUTH
SCALE: 1/8" = 1'-0"

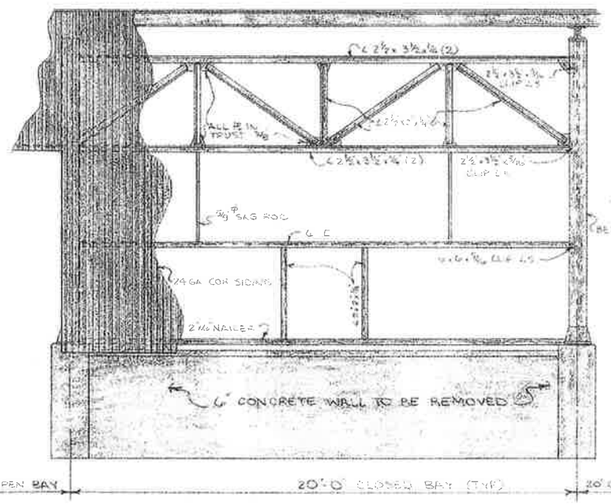


PLAN - AREA OF DEMOLITION (8)
EAST END BUILDING 'B' SOUTH
SCALE: 1/8" = 1'-0"

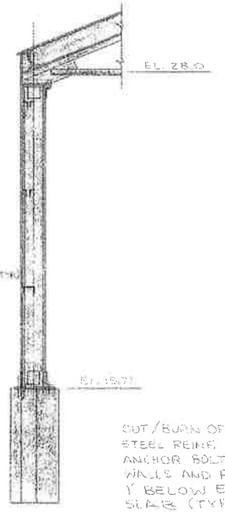


TYPICAL PLAN - AREA OF DEMOLITION (8)
SCALE: 3/8" = 1'-0"

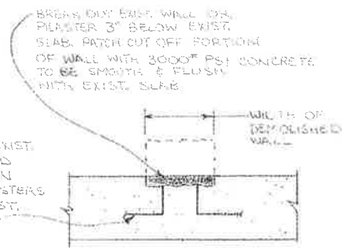
SECTION A - A
SCALE: 3/8" = 1'-0"



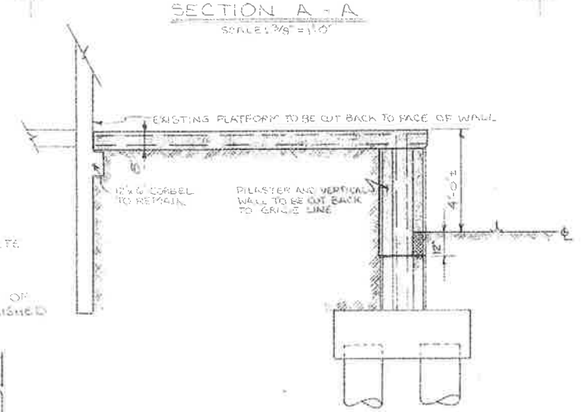
PARTIAL ELEVATION, SOUTH WALL (2) (12)
SCALE: 3/8" = 1'-0"



SECTION C-C



SECTION 'D-D'
1½" = 1'-0"



SECTION B-B
SCALE: 3/8" = 1'-0"

1 REV. CUT LINE ITEM (8) 8-28-87

ALABAMA STATE DOCKS

MOBILE, ALABAMA

PIER B SOUTH DEMOLITION SOUTH WALL & LOADING DOCK DETAILS

SCALE: NOTED
DATE: 4-10-87
RECOMMENDED:

DRAWN BY: LRH
TRACED BY:
CHECKED BY:

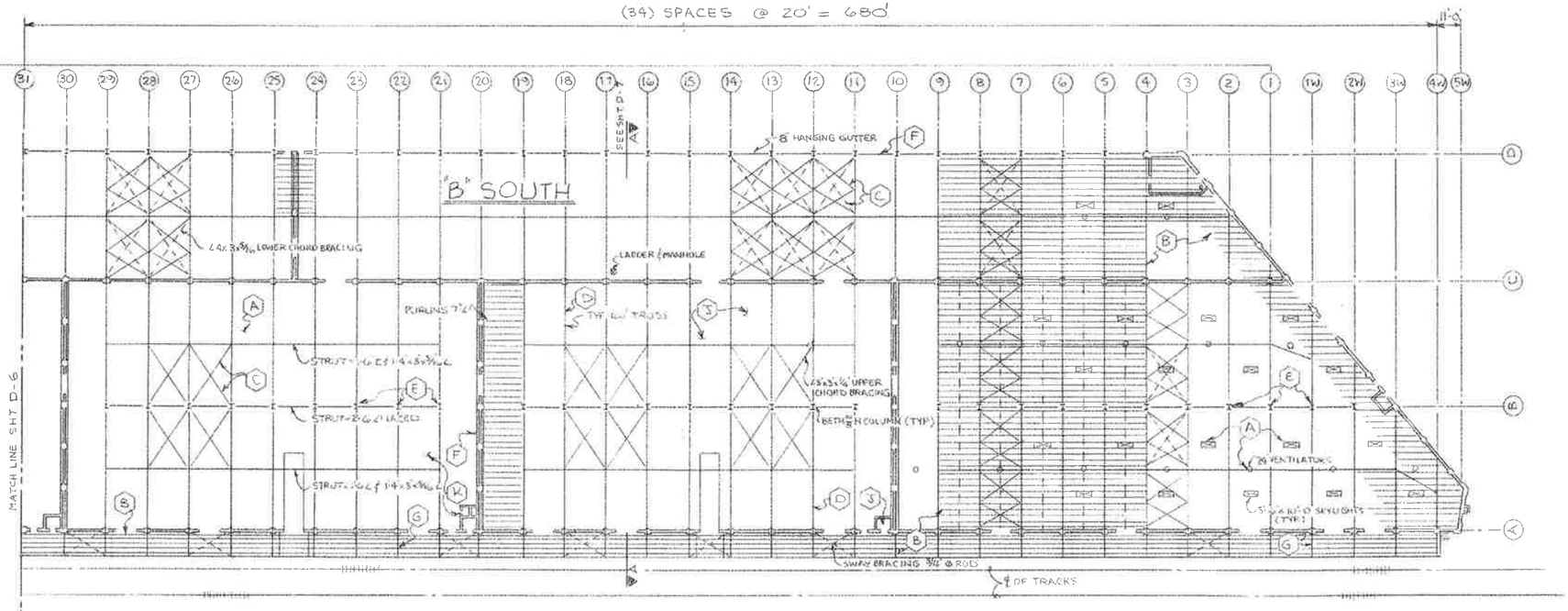
D-4

APPROVED:

B-10-145-6

P. K. D 838

SHEET NO. D-5



ITEMS OF DEMOLITION	
A	REMOVE METAL DECK, VENTILATORS & SKYLIGHTS & WASTE.
B	REMOVE PURLINS FOR SCRAP.
C	REMOVE ALL DIAGONAL AND LONGITUDINAL BRACING FOR SCRAP.
D	REMOVE ALL 60 FT TRUSSES FOR SCRAP.
E	REMOVE INTERIOR COLUMNS FOR SCRAP.
F	REMOVE GUTTERS, PURLIN HORSES, D.S. LEADS, FLASHING AND WASTE
G	REMOVE CANOPY TRUSSES FOR SCRAP
J	REMOVE OVERHEAD SPRINKLER SYSTEMS INCLUDING DRY VALVES IN SPRINKLER VALVE ROOMS. SCRAP ALL EXCEPT ANY REUSEABLE VALVES WANTED BY A.S.D. MAINTENANCE DEPT.
K	REMOVE ELECTRICAL LIGHTING, CONDUIT, OUTLETS, PANELS, ETC. SCRAP ALL EXCEPT ANY REUSEABLE PANELS & CIRCUIT BREAKERS WANTED BY A.S.D. MAINTENANCE DEPT.

NOTE:
SEE SHEET D-7 FOR ROOF SYSTEM SECTION AND DETAIL

ALABAMA STATE DOCKS
MOBILE, ALABAMA

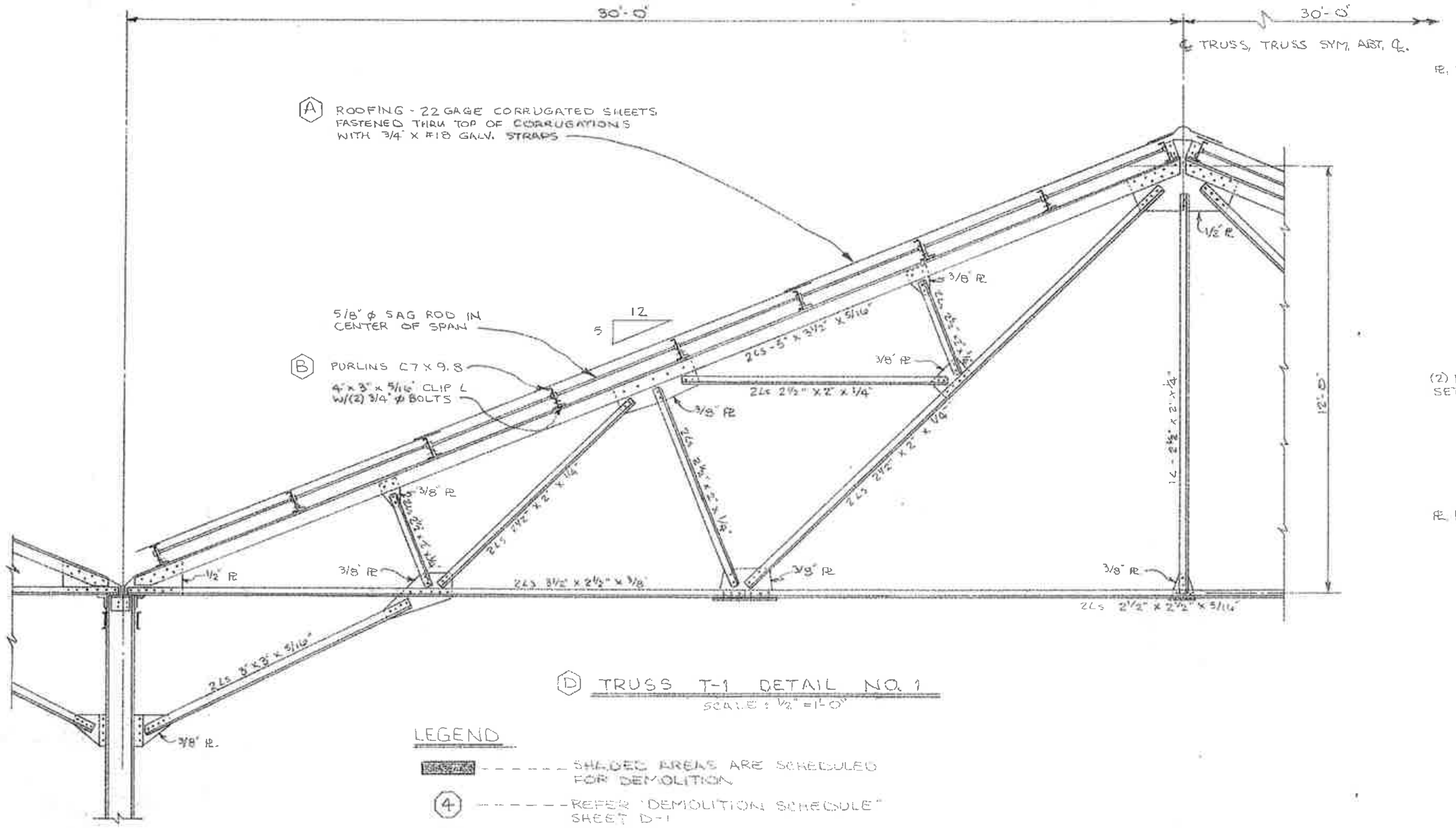
PIER "B" SOUTH
DEMOLITION
ROOF FRAMING PLAN

SCALE: 1"=30'
DATE: 4-10-87
RECOMMENDED:
APPROVED:
DRAWN BY: LRH
TRACED BY:
CHECKED BY:

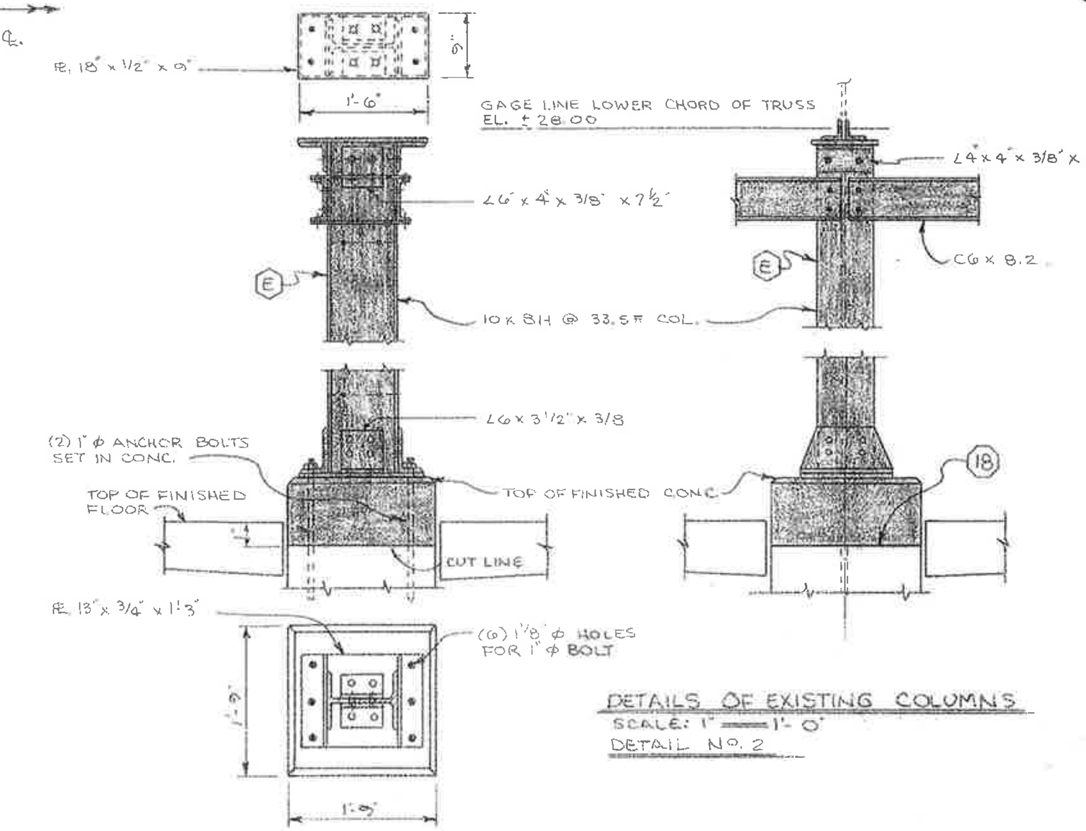
D-5
B-10-145-7

P.W.D. 379

SHEET NO. D-7

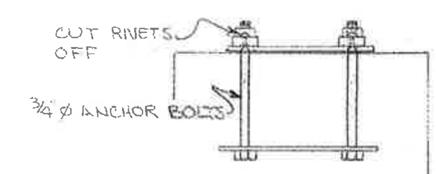


(D) TRUSS T-1 DETAIL NO. 1
SCALE: 1/2" = 1'-0"

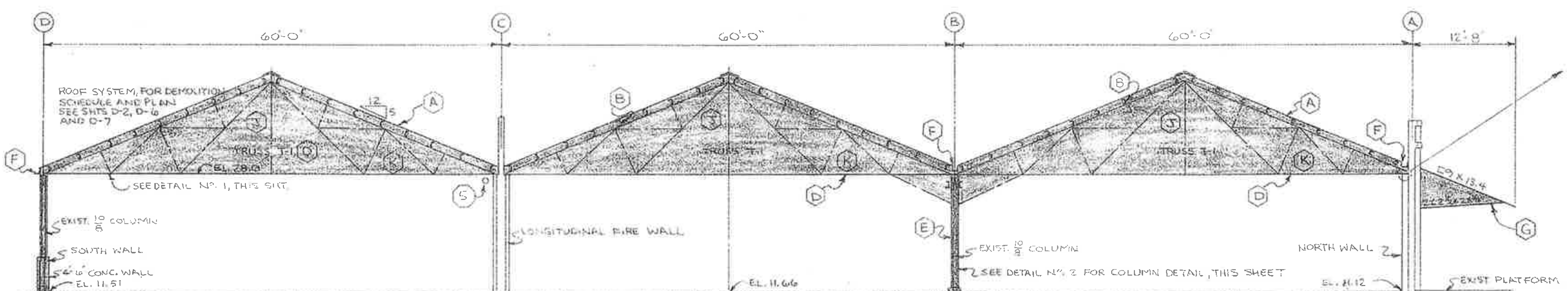


DETAILS OF EXISTING COLUMNS
SCALE: 1" = 1'-0"
DETAIL NO. 2

LEGEND
- (shaded) ------ SHADED AREAS ARE SCHEDULED FOR DEMOLITION
- (4) ------ REFER "DEMOLITION SCHEDULE" SHEET D-1
- (B) ------ REFER "DEMOLITION SCHEDULE" SHEET D-5 & D-6



BOLT PL @ PILASTERS



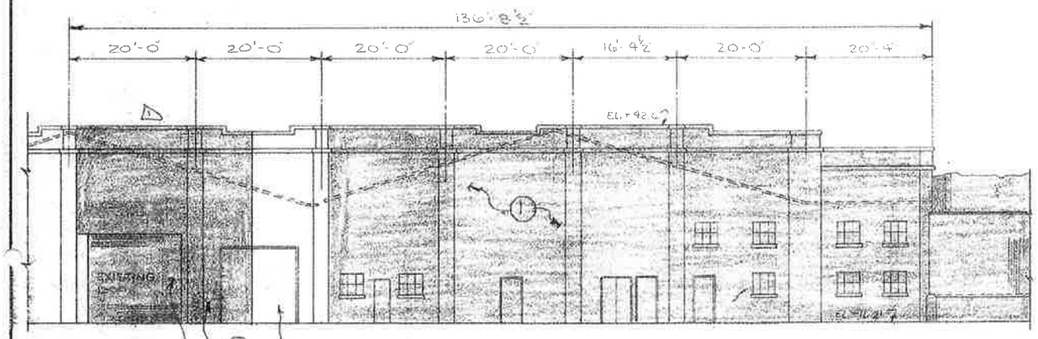
BUILDING SECTION A-A ~ AREA OF DEMOLITION
SCALE: 1/8" = 1'-0"

ALABAMA STATE DOCKS
MOBILE, ALABAMA

PIER "B" SOUTH
DEMOLITION
BUILDING & TRUSS SECTION

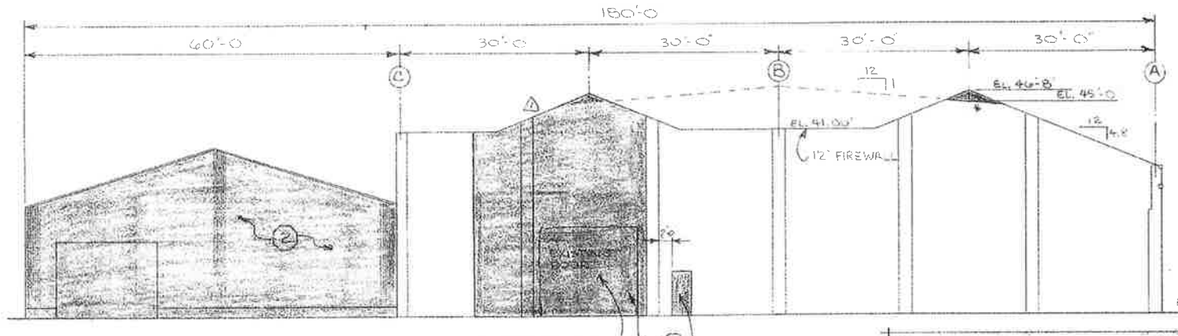
SCALE: NOTED
DATE: 4-10-87
RECOMMENDED:
DRAWN BY: LRH
TRACED BY:
CHECKED BY:
APPROVED:
D-7
B-10-145-9

SHEET NO. D-8



① PARTIAL WEST WALL

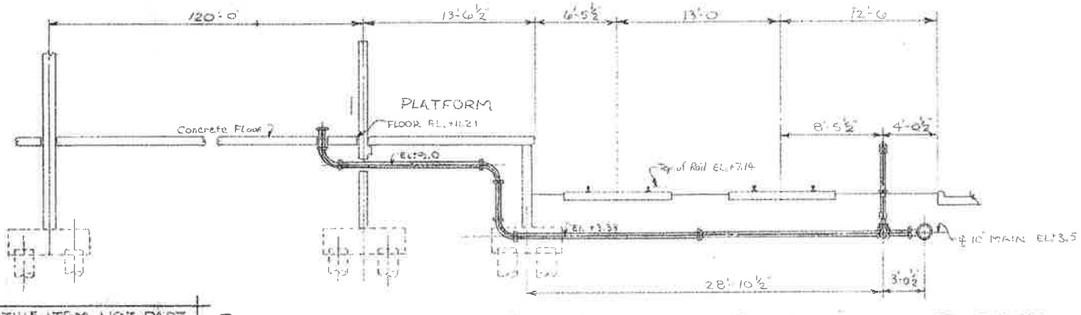
3/32" = 1'-0"



* BREAK OUT AND REMOVE SHADED AREAS. WORK THIS DEMOLITION ITEM WITH SHEET S-14 NOTE: THIS ITEM NOT PART OF DEMOLITION CONTRACT

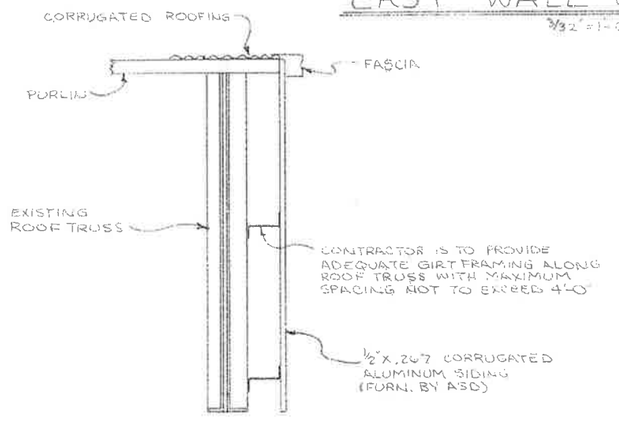
EAST WALL ELEVATION

3/32" = 1'-0"



NOTE: THIS ITEM NOT PART OF DEMOLITION CONTRACT

(23) SECTION TYPICAL 8" C.I. PIPE TO SPRINKLER VALVE ROOM



DET'L #1 END WALL GABLE

⚠1 SHOW DEMOLITION @ TOP OF DOORS 8-28-87

ALABAMA STATE DOCKS

MOBILE, ALABAMA

PIER B SOUTH
DEMOLITION
EAST & WEST WALLS

SCALE: NOTED
DATE: 4-10-87
RECOMMENDED:

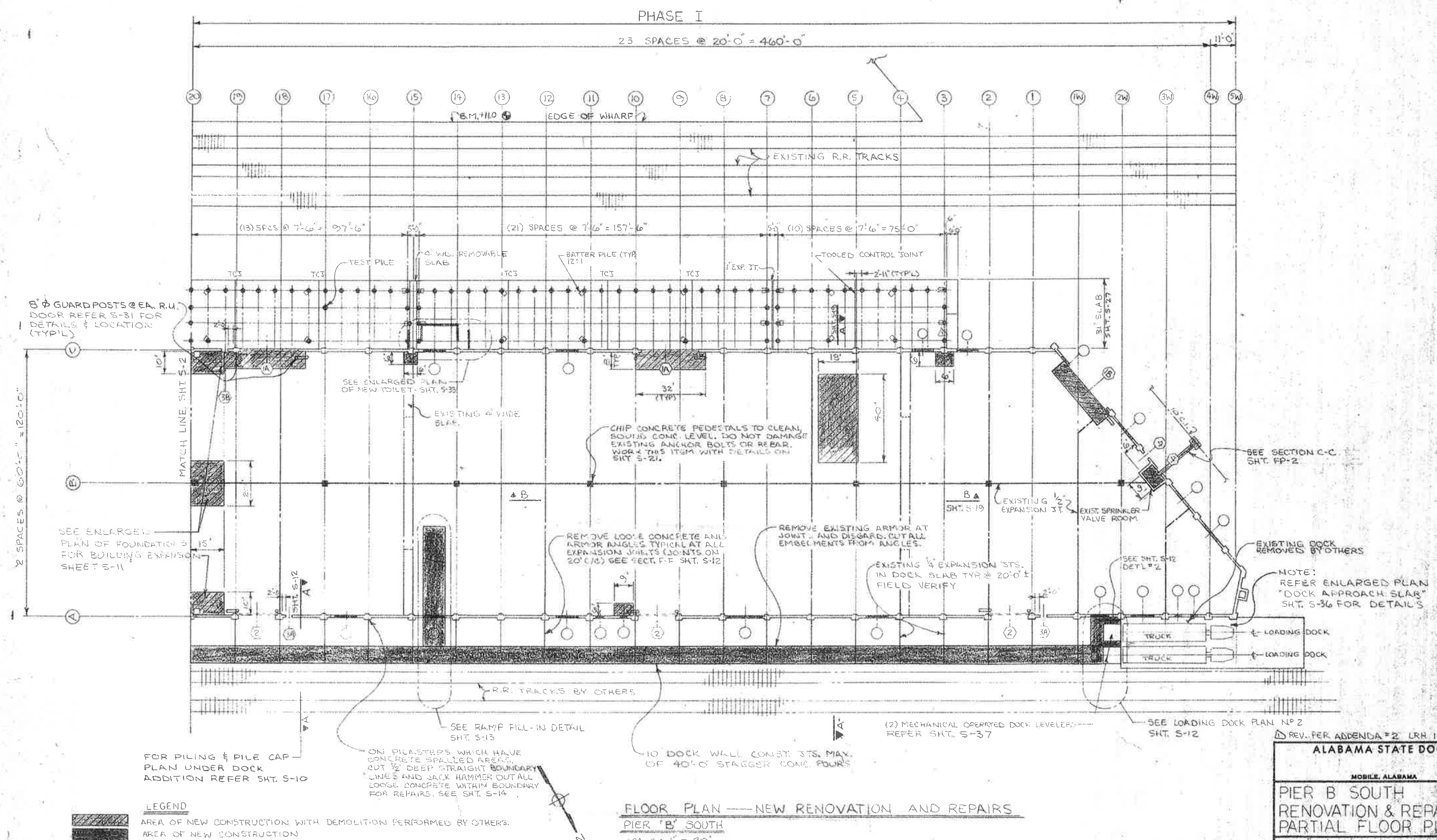
DRAWN BY: LRH
TRACED BY:
CHECKED BY:

D-8

APPROVED:

B-10-145-10

SHEET NO. S-1



PHASE I
23 SPACES @ 20'-0" = 460'-0"
11'-0"
B.M. +11.0
EDGE OF WHARF
EXISTING R.R. TRACKS
(13) SPCS @ 7'-6" = 97'-6"
(21) SPACES @ 7'-6" = 157'-6"
(10) SPACES @ 7'-6" = 75'-0"
TEST PILE
4' WD. REMOVABLE SLAB
BATTER PILE (TYP.) 12:1
TOOLED CONTROL JOINT
2'-11" (TYP'L)
31' SLAB SHT. S-27
8" Ø GUARDPOSTS @ EA. R.U. DOOR REFER S-31 FOR DETAILS & LOCATION (TYP'L)
MATCH LINE SHT. S-2
2 SPACES @ 60'-0" = 120'-0"
SEE ENLARGED PLAN OF NEW TOILET SHT. S-33
EXISTING 4' WIDE SLAB
CHIP CONCRETE PEDESTALS TO CLEAN, SOUND CONC. LEVEL. DO NOT DAMAGE EXISTING ANCHOR BOLTS OR REBAR. WORK THIS ITEM WITH DETAILS ON SHT. S-21.
SEE SECTION C-C SHT. FP-2
EXISTING 1/2" EXPANSION JT.
EXIST. SPRINKLER VALVE ROOM
SEE ENLARGED PLAN OF FOUNDATIONS FOR BUILDING EXPANSION SHEET S-11
REMOVE LOOSE CONCRETE AND ARMOR ANGLES TYPICAL AT ALL EXPANSION JOINTS (JOINTS ON 20' C/C) SEE SECT. F-F SHT. S-12
REMOVE EXISTING ARMOR AT JOINT AND DISCARD. CUT ALL EMBEDMENTS FROM ANGLES.
EXISTING 1/4" EXPANSION JTS. IN DOCK SLAB TYP @ 20'-0" ± FIELD VERIFY
SEE SHT. S-12 DETL. 2
EXISTING DOCK REMOVED BY OTHERS
NOTE: REFER ENLARGED PLAN "DOCK APPROACH SLAB" SHT. S-36 FOR DETAILS
TRUCK
LOADING DOCK
R.R. TRACKS BY OTHERS
SEE RAMP FILL-IN DETAIL SHT. S-13
SEE LOADING DOCK PLAN No 2 SHT. S-12
(2) MECHANICAL OPERATED DOCK LEVELERS REFER SHT. S-37
FOR PILING & PILE CAP PLAN UNDER DOCK ADDITION REFER SHT. S-10
ON PILASTERS WHICH HAVE CONCRETE SPALLED AREAS, CUT 1/2" DEEP STRAIGHT BOUNDARY LINES AND JACK HAMMER OUT ALL LOOSE CONCRETE WITHIN BOUNDARY FOR REPAIRS. SEE SHT. S-14
10 DOCK WALL CONST. JTS. MAX. OF 40'-0" STAGGER CONC. POURS
N

LEGEND

- AREA OF NEW CONSTRUCTION WITH DEMOLITION PERFORMED BY OTHERS.
- AREA OF NEW CONSTRUCTION
- (1) DOOR NO. SEE DOOR SCHEDULE, SHT. S-29
- NOTE WORK THIS SHEET WITH SHT. S-4
- ○ OPENINGS FILLED WITH CONC. REFER SECT. A-A SHT. S-31

FLOOR PLAN — NEW RENOVATION AND REPAIRS

PIER 'B' SOUTH

SCALE: 1" = 20'

△2 REV. PER ADDENDA #2 LRH 11-23-87

ALABAMA STATE DOCKS

MOBILE, ALABAMA

PIER B SOUTH
RENOVATION & REPAIR
PARTIAL FLOOR PLAN

SCALE: 1"=20'
DATE: 4-21-87
RECOMMENDED:
DRAWN BY: LRH
TRACED BY:
CHECKED BY:
APPROVED:

S-1

B-10-145-11B

SHEET NO. S-2

PHASE II

PHASE I

500'-0"

(PILE SUPPORTED RELIEVING PLATFORM DETAILS SEE SHT. S-27)

BREAK-OUT FOR POTABLE WATER SHIP SERVICE BOX SEE SHT. M-2 & M-9

B.M. +11.0

EDGE OF WHARF

45 44 43 42 41 40 39 38 37 36 35 34 33 32 31 30 29 28 27 26 25 24 23 22 21 20

2'-6" (15) SPCS @ 7'-6" = 112'-6" FOR (64) PILING

5'-0"

(32) SPCS @ 7'-6" = 240'-0" FOR (132) PILING

5'-0"

(18) SPCS @ 7'-6" = 135'-0" FOR (72) PILING

4'WD REMOVABLE SLAB SHT. S-27

GUARD RAIL REF. SHT. S-31

TOOLED CONTROL JOINT (TYP) SHT. S-27 DETAIL F-F

2'-11" H (TYP)

BATTER PILE (TYP) 12:1

1" EXP. JT.

ABANDONED SCALE PIT 6'-8" (TYP) 12 PLACES)

ELECTRICAL ROOM BY OTHERS

#4 x 2'-6" LG. STRAIGHT DOWELS ON 12" CTRS IN SLAB

TCJ

(U)

(1A)

(3B)

SEE ENLARGED PLAN OF NEW TOILET SHT. S-33

NEW SEWAGE LIFT STATION REFER SHT. M-5 & M-6

REF. SHT. S-1

(3) SPCS @ 5'-6" = 22'-0" 31' WD. SLAB SHT. S-27

MATCH LINE, SHT. S-3

MATCH LINE, SHT. S-1

2 SPACES @ 60'-0" = 120'-0"

(B)

(A)

EXIST. SPRINKLER VALVE ROOM

EXIST. ELECTRICAL VAULT

EXIST. SPRINKLER VALVE ROOM

RR TRACK BY OTHERS

EXCAVATE AND PLACE RUBBLE CONTINUOUS

6'-0" MAX.

EL. 40

ALTERNATE DISPOSAL SCHEME FOR 31' WIDE CONCRETE SLAB

PILING LEGEND

BENT Nº	ESTIMATED TIP EL.	QTY
20	-45'	8
21 - 35	-50'	152
35 - 39	-45'	44
39 - 45	-40'	64

NOTE:
CONTRACTOR SHALL DRIVE PROBE PILING ON INTERVALS NOT TO EXCEED 100 FEET.

NOTES:
1) FOR LEGEND SEE SHEET S-1

N

FLOOR PLAN — NEW RENOVATION AND REPAIRS
PIER "B" SOUTH
SCALE: 1" = 20'

PIER "B" SOUTH REHABILITATION
PILE SUPPORTED
RELIEVING PLATFORM PLAN

ALABAMA STATE DOCKS
MOBILE, ALABAMA

PIER "B" SOUTH
RENOVATION & REPAIR
PARTIAL FLOOR PLAN

SCALE: 1"=20'
DATE: 4-21-87
RECOMMENDED:
DRAWN BY: LRH
TRACED BY:
CHECKED BY:
S-2

APPROVED:

B-10-145-12A

SHEET NO. S-2

PHASE II

25 SPACES @ 20'-0" = 500'-0"

(45) (44) (43) (42) (41) (40) (39) (38) (37) (36) (35) (34) (33) (32) (31) (30) (29) (28) (27) (26) (25) (24) (23) (22) (21) (20)

B.M. +11.0

EDGE OF WHARF

2'-6" (15) SPCS @ 7'-6" = 112'-6" 5'-0" (32) SPCS @ 7'-6" = 240'-0" 5'-0" (18) SPCS @ 7'-6" = 135'-0"

4" NOM. REMOVABLE SLAB

TOOLED CONTROL JOINT (TYP) 2'-11" (TYP)

BATTER PILE (TYP) 12:1

1" EXP. JT.

TCJ

ELECTRICAL ROOM SEE SHT. S-37

(U)

CONTRACTOR SHALL BREAK-OUT CONCRETE SLAB ON THIS CONTRACT

20'-0"

32' (TYP)

SEE ENLARGED PLAN OF NEW TOILET- SHT. S-33

NEW SEWAGE LIFT STATION REFER SHT. M-5 & M-6

8" GUARDPOSTS @ EA. R.U. DOOR. REFER SHT. S-31 FOR DETAILS & LOCATION (TYP.)

EXISTING 4' WIDE SLAB.

(33) SPCS @ 7'-6" = 247'-6" 31' WD. SLAB SHT. S-27

MATCH LINE, SHT. S-1

2 SPACES @ 60'-0" = 120'-0"

MATCH LINE, SHT. S-3

CHIP CONCRETE PEDESTALS TO CLEAN, SOUND CONC. LEVEL. DO NOT DAMAGE EXISTING ANCHOR BOLTS OR REBAR. WORK THIS ITEM WITH DETAILS ON SHT. S-21

EXISTING 1/2" EXPANSION JT.

B SHT. S-19

EXISTING 1/4" EXPANSION JTS. IN DOCK SLAB TYP. @ 20'-0" FIELD VERIFY

SHT. S-12 A

REMOVE LOOSE CONCRETE AND ARMOR ANGLES, TYPICAL AT ALL EXPANSION JOINTS (JOINTS ON 20' C/L) SEE SECT. F-F SHT. S-12.

REMOVE EXISTING ARMOR AT JOINTS AND DISCARD. CUT ALL EMBEDMENTS FROM ANGLES.

EXIST. SPRINKLER VALVE ROOM

EXIST. ELECTRICAL VAULT

EXIST. SPRINKLER VALVE ROOM

DPV NO. 3 PART OF PHASE I WORK

SEE SECTION C-C SHT. FP-2

EXPANSION JOINT (TYP'L) SHT. S-13

FILL IN SLAB FOR TRUCK LEVELER

NEW ADDITION EXISTING DOCK

ON PILASTERS WHICH HAVE CONCRETE SPALLED AREAS, CUT 1/2" DEEP STRAIGHT BOUNDARY LINES AND JACK HAMMER OUT ALL LOOSE CONCRETE WITHIN BOUNDARY FOR REPAIRS. SEE SHT. S-14

SEE RAMP FILL-IN DETAIL SHT. S-13

SEE SECTION C-C SHT FP-2

FOR PILING & PILE CAP PLAN UNDER DOCK ADDITION REFER SHT. S-10

10' DOCK WALL, CONST. JTS. MAX. OF 40'-0" STAGGER CONC. POURS

SEE RAMP FILL IN DETAIL SHT. S-13

R.R. TRACKS BY OTHERS

SEE RAMP FILL IN DETAIL SHT. S-13

NEW DOCK SLAB, STAGGER SLAB POURS CONST. JTS. MAX. OF 40'-0". CONTROL JTS. (FORMED OR CUT) AT 20'-0" ± MATCH LOCATION OF EXISTING 1/4" DOCK SLAB JOINTS.

NOTES:
1) FOR LEGEND SEE SHEET S-1
2.) WORK THIS SHEET WITH SHEET S-5.

N

FLOOR PLAN — NEW RENOVATION AND REPAIRS

PIER "B" SOUTH

SCALE: 1" = 20'

1 REVISED PER CHG. ORDER #2 3-28-88 LRH

ALABAMA STATE DOCKS

MOBILE, ALABAMA

PIER "B" SOUTH
RENOVATION & REPAIR
PARTIAL FLOOR PLAN

SCALE: 1"=20'
DATE: 4-21-87
RECOMMENDED:

DRAWN BY: LRH
TRACED BY:
CHECKED BY:

S-2

APPROVED:

B-10-145-12B

SHEET NO. S-3

PHASE III

PHASE II

25 SPACES @ 20'-0" = 500'-0"

70 69 68 67 66 65 64 63 62 61 60 59 58 57 56 55 54 53 52 51 50 49 48 47 46 45

EDGE OF WHARF

BENCH MARK E. +11.00

EXISTING R.R. TRACKS

27'-6"

(25) SPCS @ 7'-6" = 187'-6"

5"

(26) SPCS @ 7'-6" = 195'-0"

5"

(10) SPCS @ 7'-6" = 75'-0"

5"

TOOLED CONTROL ST. (TYP)

1" EXP. ST.

BATTERED PILE (TYP.) 12:1

TEST PILE

1" EXP. ST.

TC3

NEW TOILET FACILITIES SEE SHT. S-33

SHT. S-19 A

(13) SPCS @ 19'-6" = 253'-0"

31' SLAB SHT. S-27

2 SPACES @ 60'-0" = 120'-0"

32' (TYP.)

CHIP CONCRETE PEDESTALS TO CLEAN SOUND CONC. LEVEL. DO NOT DAMAGE EXISTING ANCHOR BOLTS OR REBAR. WORK THIS ITEM WITH DETAILS ON SHT. S-21

EXISTING 4' WIDE SLAB (TYP)

EXISTING ½" EXPANSION ST. (TYP)

MATCH LINE, SHT. S-2

SEE ENLARGED PLAN OF FOUNDATIONS FOR BUILDING EXPANSION SHEET S-11

30'-0"

B SHT. S-19

GUARDPOST @ EA. R.U. DOOR REFER S-31 FOR DETAILS & LOCATION (TYP'L)

EXIST. SPRINKLER VALVE ROOM

SEE LOADING DOCK PLAN No 1 SHT. S-12

SEE SHT S-12 DETL #2

SHT. S-12 A

REMOVE LOOSE CONCRETE AND ARMOR ANGLES, TYPICAL AT ALL EXPANSION JOINTS. (JOINTS ON 5'0" C/C) SEE SECT. F-F SHT. S-12

REMOVE EXISTING ARMOR AT JOINTS AND DISGARD. CUT ALL EMBEDMENTS FROM ANGLES.

ABANDONED RAIL DOCK

BACK OF WHARF SLAB

BREAK-OUT EXISTING SLAB SAW CUT 1" DEEP AROUND PERIMETER BEFORE BREAK-OUT (TYP)

(2) MECHANICAL OPERATED DOCK LEVELERS

℄ ROADWAY

48'

RAMP DOWN

EXISTING 10" C.I.

SEE SECTION C-C SHT. FP-2

EXISTING DOCK REMOVED BY OTHERS

R.R. TRACKS BY OTHERS

ON PILASTERS WHICH HAVE CONCRETE SPALLED AREAS, CUT ½" DEEP STRAIGHT BOUNDARY LINES AND JACK HAMMER OUT ALL LOOSE CONCRETE WITHIN BOUNDARY FOR REPAIRS. SEE SHT. S-14

NOTES:
1) FOR LEGEND SEE SHEET S-1
2) WORK THIS SHEET WITH SHEET S-6

N

FLOOR PLAN — NEW RENOVATION AND REPAIRS

PIER "B" SOUTH

SCALE: 1" = 20'

ALABAMA STATE DOCKS

MOBILE, ALABAMA

PIER "B" SOUTH
RENOVATION & REPAIRS
PARTIAL FLOOR PLAN

SCALE: 1" = 20'
DATE: 4-20-87
RECOMMENDED:

DRAWN BY: LRH
TRACED BY:
CHECKED BY:

APPROVED:

S-3

B-10-145-13B

PHASE III

PHASE II

25 SPACES @ 20'-0" = 500'-0"

B.M. +11.0?

EDGE OF WHARF?

EXISTING R.R. TRACKS

70 69 68 67 66 65 64 63 62 61 60 59 58 57 56 55 54 53 52 51 50 49 48 47 46 45

NEW TOILET FACILITIES SEE SHEET S-33

TYPICAL 7" UTILITY SLAB. REINFORCE WITH SINGLE MAT #5 @ 12" E.W. USE EPOXY BONDING COMPOUND AROUND EDGES. PREVENT CONCRETE BOND ONTO PIPING.

TYPICAL 6" DOOR SLABS. SLOPE TO EXISTING GRADE. REINFORCE WITH #4 @ 12" E.W. TOP & BOTTOM. USE ½" PREFOLDED JOINT FILLER AND SARDOX OR EQUAL JOINT SEALER. SEE REPLACEMENT SLAB EXPANSION JOINT DETAIL SHT. S-11

SHT. S-19

NOTE: .004 ML POLYETHELYNE VAPOR BARRIER REQ'D UNDER ALL NEW SLABS

NEW ROLLING STEEL DOOR (#11) SEE DOOR SCHEDULE, SHT. S-29

SHT. S-20

8" ø GUARDPOST @ EA. R.U. DOOR REFER S-31 FOR DETAILS & LOCATION (TYPL).

MATCH LINE, SHT. S-5

SEE REPLACENT SLAB EXPANSION JOINT DETAIL SHT. S-11

30" ø CONC. COLUMN ENCASEMENT (x25) REFER TO SECTIONAL ELEV. SHEET S-21

TYPICAL 7" REPLACEMENT SLAB. REINFORCE WITH SINGLE MAT #5 @ 12 E.W. USE EPOXY BONDING COMPOUND AROUND EDGES. PREVENT CONCRETE BOND TO PILASTER AND WALL.

2 SPACES @ 60'-0" = 120'-0"

ROLLING STEEL DOOR (#8) SEE DOOR SCHEDULE SHEET S-29

TYPICAL 6" VALVE ROOM SLAB. SLOPE TO DRAIN PIPE. REINFORCE WITH SINGLE MAT OF #4 @ 12" E.W. PREVENT CONCRETE BOND ONTO PIPING.

TYPICAL 7" REPLACEMENT SLAB

ABANDONED RAIL DOCK

BACK OF WHARF SLAB

LOADING DOCK

TYPICAL 7" REPLACEMENT SLAB. SLOPE TO EXISTING GRADE.

(2) DOCK LEVELERS 60,000 lb. CAPACITY

R.R. TRACKS

TYPICAL 7" REPLACEMENT SLAB

RAMP DOWN

CONC. ROADWAY

NEW CATCH BASIN (6) REQ'D

LOWER EXIST. GRATING TO 3" BELOW EXIST. GRADE.

SEAL WITH EPOXY AFTER CURE

¼" R

FLOOR PLAN — FINAL

1" = 20'

DETAIL "F-F"

TOOLED CONTROL J.T.

ALABAMA STATE DOCKS

MOBILE, ALABAMA

PIER B SOUTH

FINAL

PARTIAL FLOOR PLAN

SCALE: 1" = 20'
DATE: 4-22-87
RECOMMENDED:

DRAWN BY: LRF
TRACED BY:
CHECKED BY:

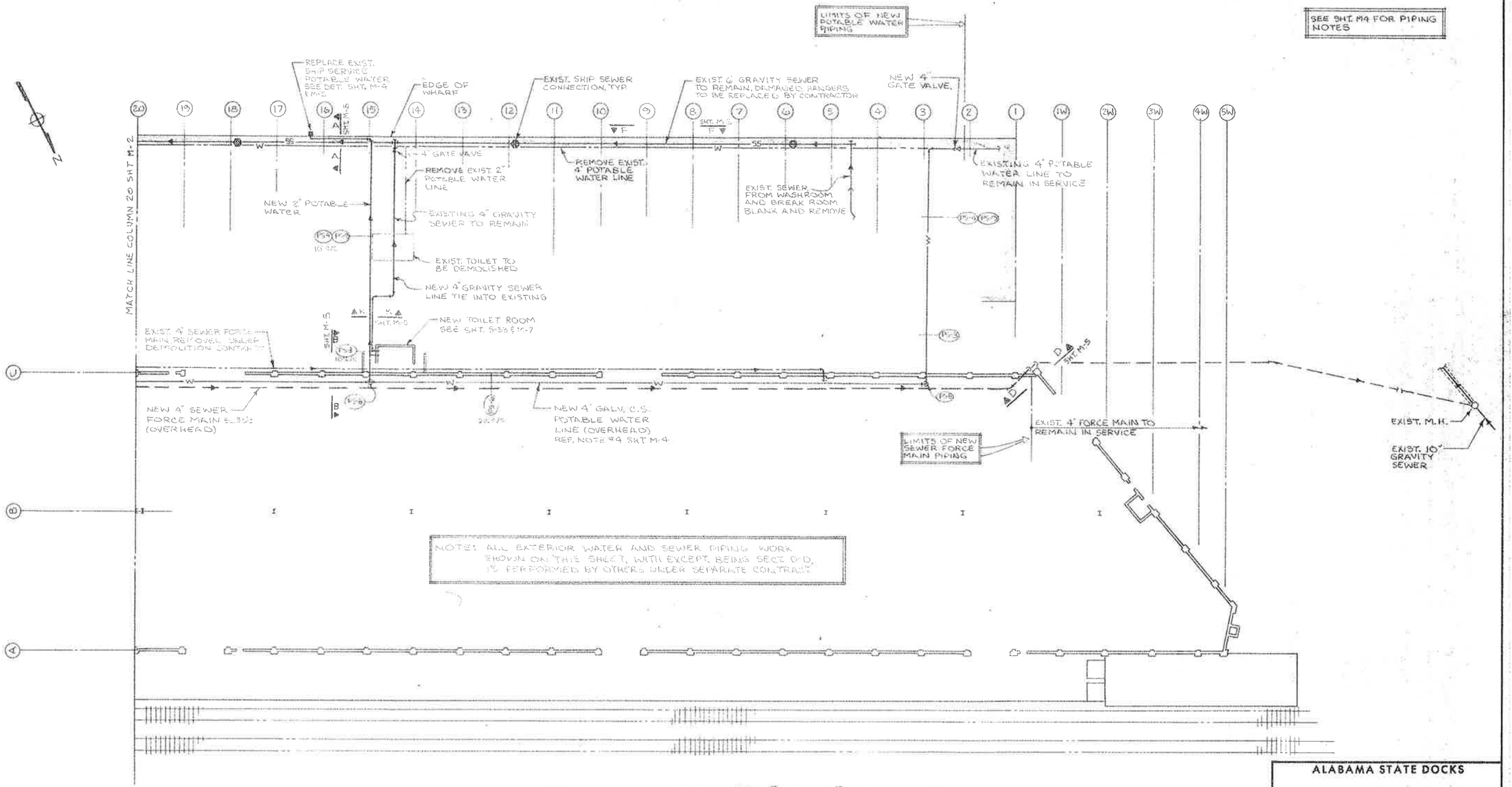
S-6

APPROVED:

B-10-145-16

SHEET NO. M-1

SEE SHT. M4 FOR PIPING NOTES



PARTIAL UTILITY PLAN - COL. (20) THRU (5W) (WEST END)
1" = 20'

LEGEND
- SS — SANITARY SEWER, GRAVITY
- SHIP SEWER CONNECTION
- SEWER FORCE MAIN
- W — POTABLE WATER
- SHIP SERVICE CONNECTION (POTABLE WATER)
- EXIST. PIPING TO BE REMOVED OR ABANDONED

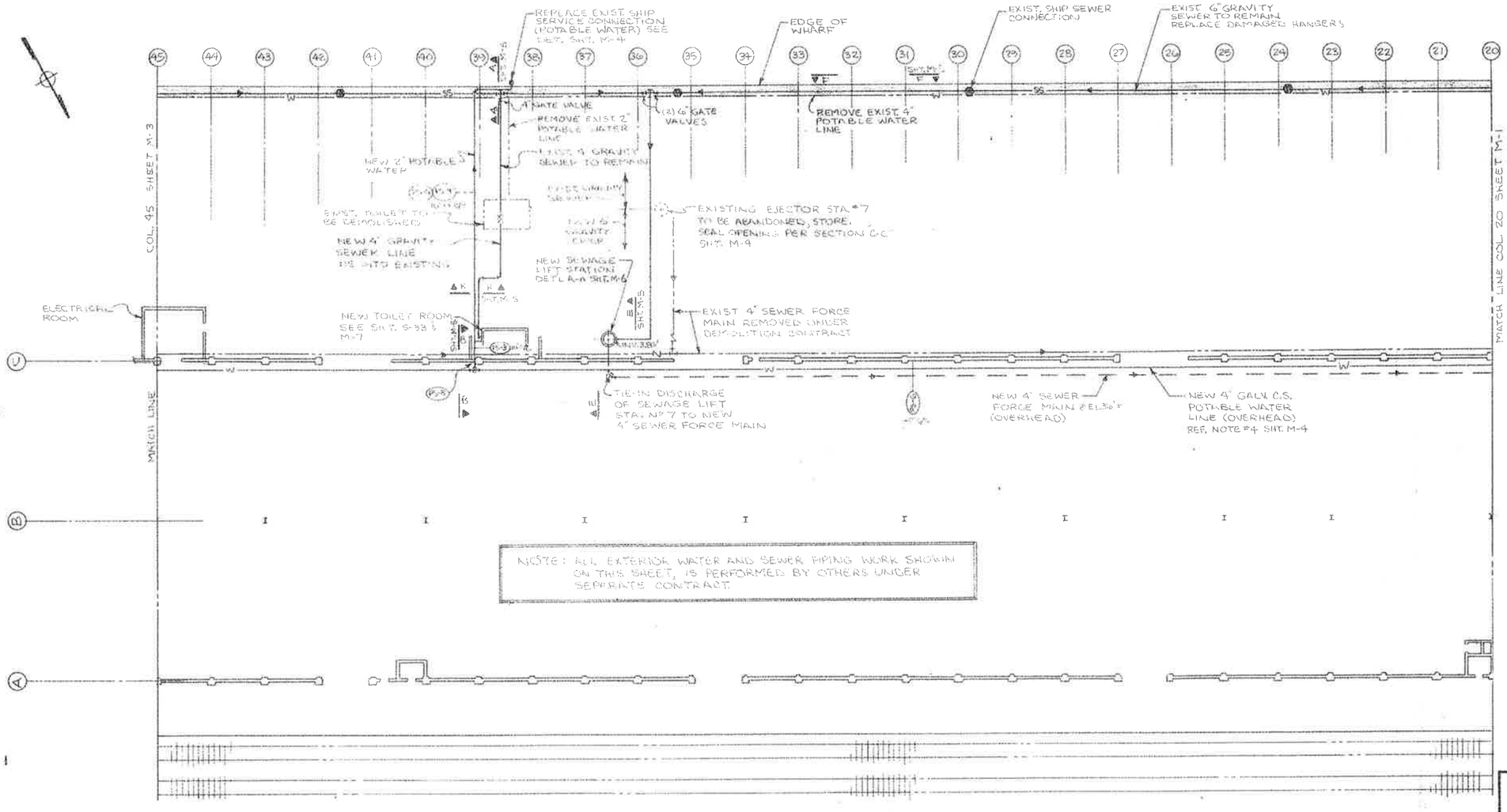
ALABAMA STATE DOCKS
MOBILE, ALABAMA

PIER "B" SOUTH REHAB.
MECHANICAL
POTABLE WATER & SEWER LAYOUT

SCALE: 1"=20'
DATE: 7-13-87
RECOMMENDED:
APPROVED:
DRAWN BY: LRH
TRACED BY:
CHECKED BY:

B-10-145-49

SEE, SHT. M4 FOR PIPING NOTES



NOTE: ALL EXTERIOR WATER AND SEWER PIPING WORK SHOWN ON THIS SHEET, IS PERFORMED BY OTHERS UNDER SEPARATE CONTRACT.

PARTIAL UTILITY PLAN - COL. 20 THRU 45
1" = 20'

LEGEND

- SS — SANITARY SEWER, GRAVITY
- SHIP SEWER CONNECTION
- SEWER FORCE MAIN
- W — POTABLE WATER
- SHIP SERVICE CONNECTION (POTABLE WATER)
- EXIST. PIPING TO BE REMOVED OR ABANDONED

ALABAMA STATE DOCKS

MOBILE, ALABAMA

PIER 'B' SOUTH
MECHANICAL
POTABLE WATER & SEWER LAYOUT

SCALE: 1"=20'
DATE: 7-14-87
RECOMMENDED:

DRAWN BY: LRH
TRACED BY:
CHECKED BY:

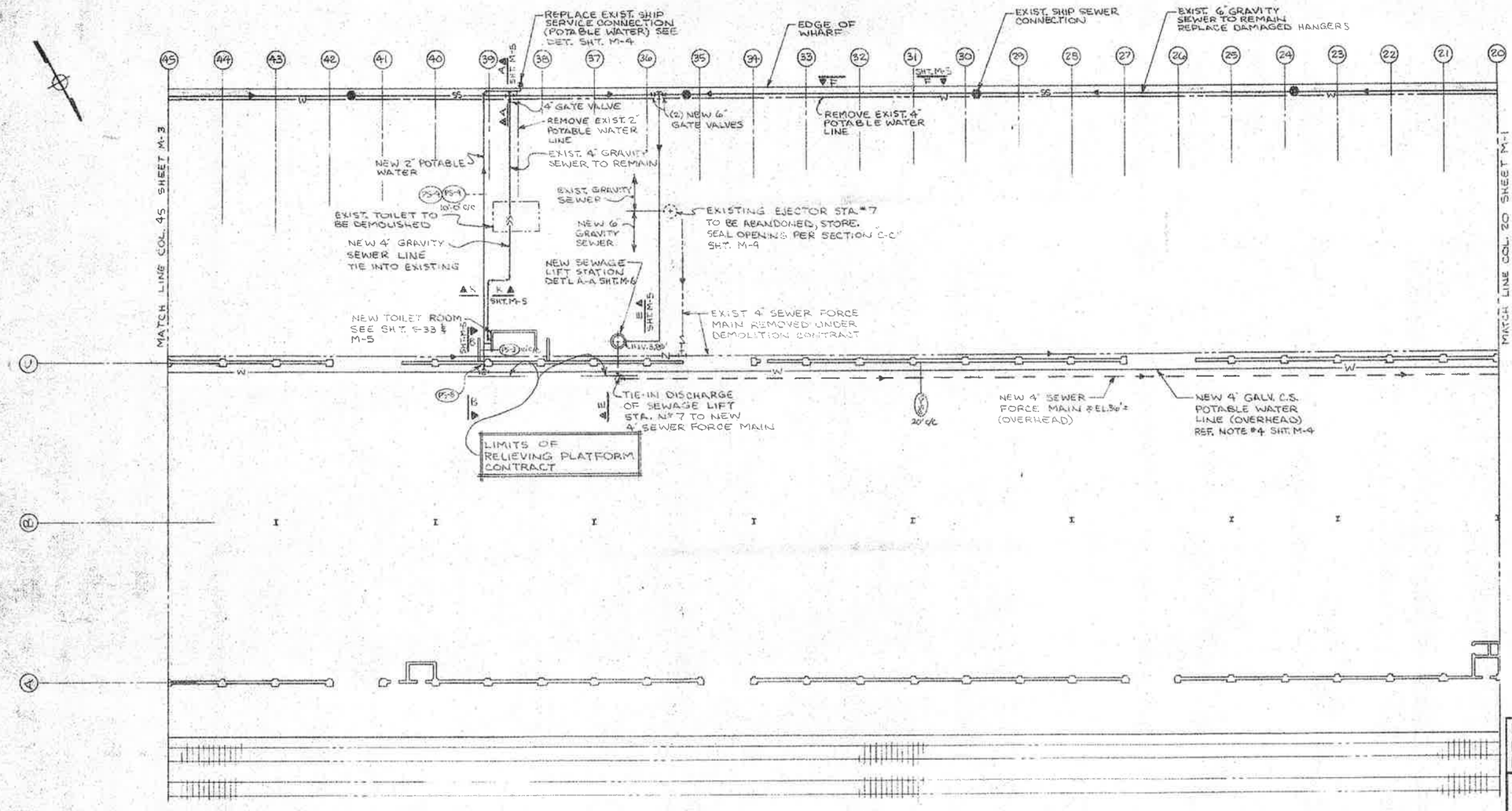
APPROVED:

M-2

B-10-145-50

SHEET NO. M-2

SEE, SHT. M4 FOR PIPING NOTES



PARTIAL UTILITY PLAN - COL. (20) THRU (45)
1" = 20'

LEGEND

- SS — SANITARY SEWER, GRAVITY
- SHIP SEWER CONNECTION
- SEWER FORCE MAIN
- PW — POTABLE WATER
- SHIP SERVICE CONNECTION (POTABLE WATER)
- EXIST. PIPING TO BE REMOVED OR ABANDONED

△ REV. PER ADDENDUM N°1 9/25/87

PIER 'B' SOUTH REHABILITATION
PILE SUPPORTED
RELIEVING PLATFORM

ALABAMA STATE DOCKS

MOBILE, ALABAMA

PIER 'B' SOUTH
MECHANICAL
POTABLE WATER & SEWER LAYOUT

SCALE: 1"=20'
DATE: 7-14-87
RECOMMENDED:

DRAWN BY: LRH
TRACED BY:
CHECKED BY:

M-2

APPROVED:

B-10-145-50A

SEE SHT. M-4 FOR PIPING NOTES

REPLACE EXIST. SHIP SERVICE POTABLE WATER, SEE DET. SHT. M-4

EXIST. SHIP SEWER CONNECTION, TYP.

EDGE OF WHARF

EXIST. 6" GRAVITY SEWER TO REMAIN REPLACE DAMAGED HANGERS

REMOVE EXIST. 4" POTABLE WATER LINE

4" GATE VALVE

EXISTING 4" SEWER TO REMAIN

REMOVE EXIST. 2" WATER LINES TO EXISTING TOILET

EXISTING TOILET TO BE DEMOLISHED

NEW 4" GRAVITY SEWER TIE INTO EXISTING

NEW 2" POTABLE WATER

NEW TOILET ROOM SEE SHT. M-7

EXIST. 4" RISER, CAP BELOW FIN. FL., FILL OPENINGS W/ EPOXY GROUT

EXISTING 4" SEWER FORCE MAIN REMOVED UNDER DEMOLITION CONTRACT

ABANDON EXIST. 4" SEWER FORCE MAIN BELOW CONC.

NEW 4" SEWER FORCE MAIN (OVERHEAD)

NEW 4" GALV. C.S. POTABLE WATER LINE (OVERHEAD) REF. NOTE #4 SHT. M-4

NEW 4" GALV. C.S. POTABLE WATER LINE (OVERHEAD) @ EL. 36' ±

(SEE SHT. M-4)

MATCH LINE COL. 70 SHEET M-4

MATCH LINE COL. 45 SHEET M-2

NOTE: ALL EXTERIOR WATER AND SEWER PIPING WORK SHOWN ON THIS SHEET IS PERFORMED BY OTHERS UNDER SEPARATE CONTRACT.

LEGEND

- SS — SANITARY SEWER, GRAVITY
- SS — SHIP SEWER CONNECTION
- — — — SEWER FORCE MAIN
- W — POTABLE WATER
- W — SHIP SERVICE CONNECTION (POTABLE WATER)
- — — — EXIST. PIPING TO BE REMOVED OR ABANDONED

PARTIAL UTILITY PLAN ~ BLDG COL. 70 THRU 45

1" = 20'

ALABAMA STATE DOCKS

MOBILE, ALABAMA

PIER "B" SOUTH

MECHANICAL

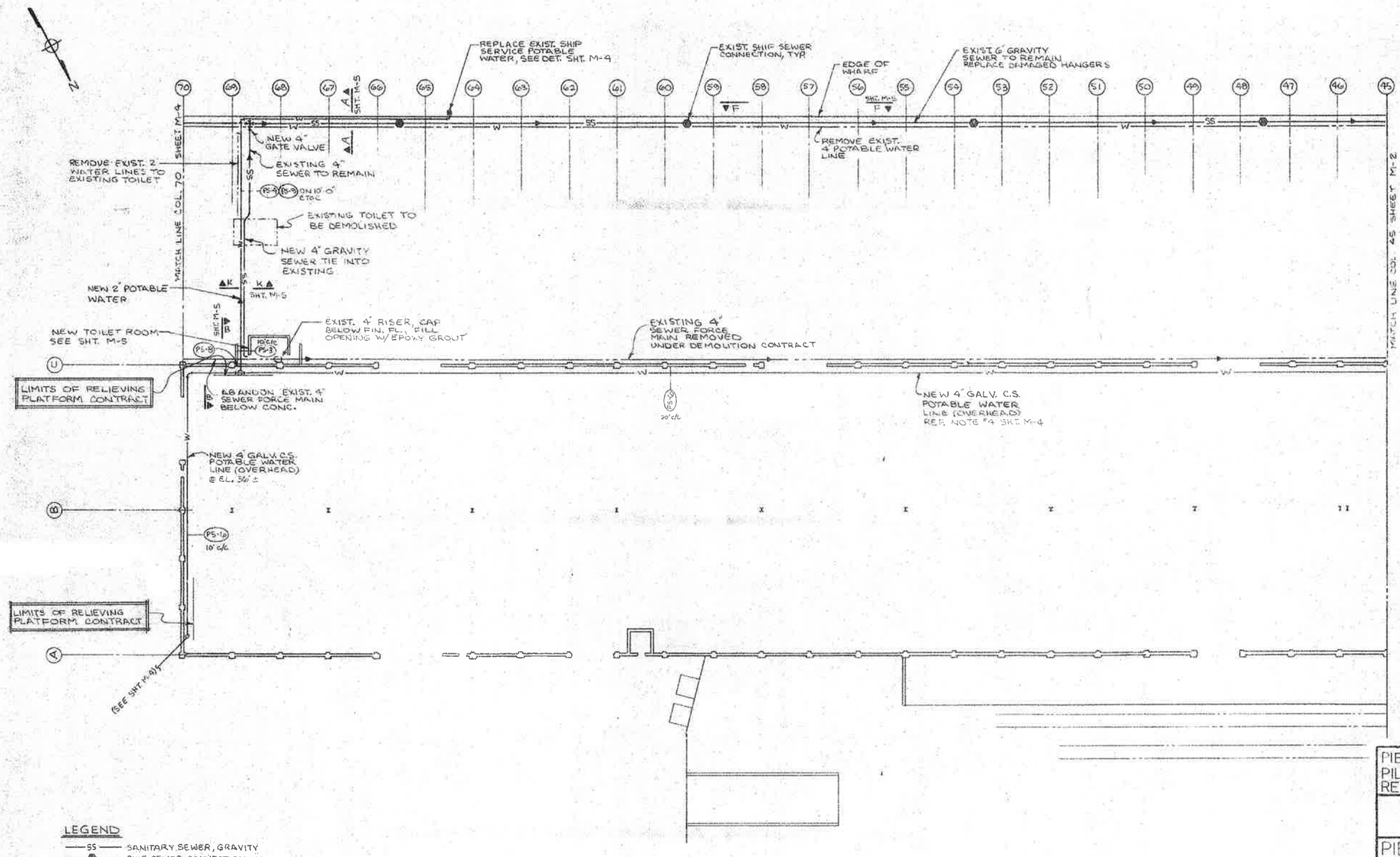
POTABLE WATER & SEWER LAYOUT

SCALE: 1"=20'
DATE: 7-14-87
RECOMMENDED:
APPROVED:
DRAWN BY: LRH
TRACED BY:
CHECKED BY:

M-3

B-10-145-51

SEE SHT. M-4 FOR PIPING NOTES



LEGEND

- SS — SANITARY SEWER, GRAVITY
- SHIP SEWER CONNECTION
- SEWER FORCE MAIN
- W — POTABLE WATER
- SHIP SERVICE CONNECTION (POTABLE WATER)
- EXIST. PIPING TO BE REMOVED OR ABANDONED

PARTIAL UTILITY PLAN ~ BLDG COL. (70) THRU (45)

1" = 20'

△ REV. PER ADDENDUM №1 9/25/87

PIER "B" SOUTH REHABILITATION
PILE SUPPORTED RELIEVING PLATFORM

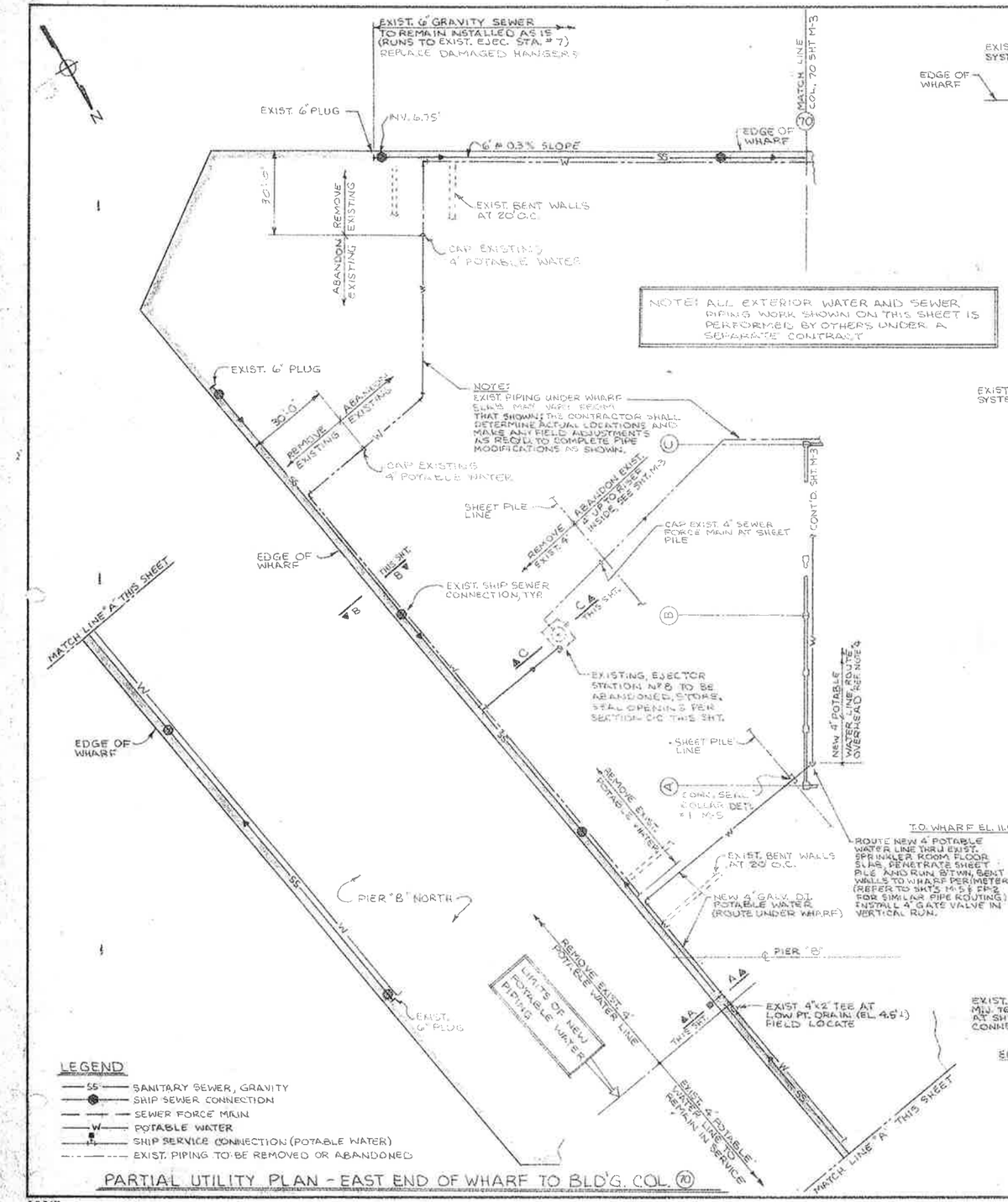
ALABAMA STATE DOCKS

MOBILE, ALABAMA

PIER "B" SOUTH
MECHANICAL
POTABLE WATER & SEWER LAYOUT

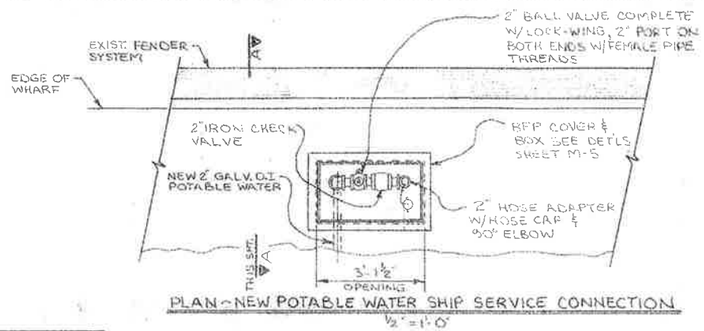
SCALE: 1"=20'
DATE: 7-14-87
RECOMMENDED:
DRAWN BY: LRH
TRACED BY:
CHECKED BY:
M-3
APPROVED:

B-10-145-51A

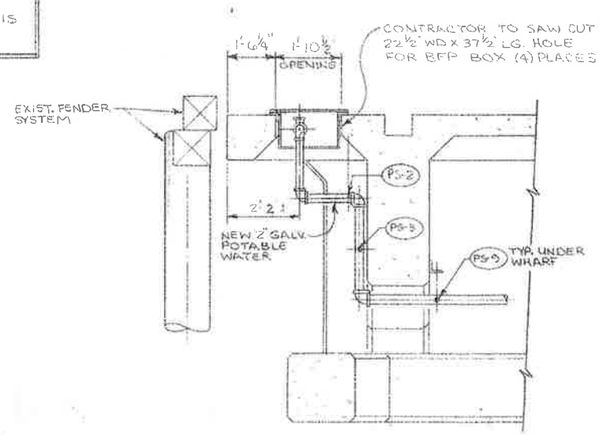


PARTIAL UTILITY PLAN - EAST END OF WHARF TO BLD'G. COL. (70)

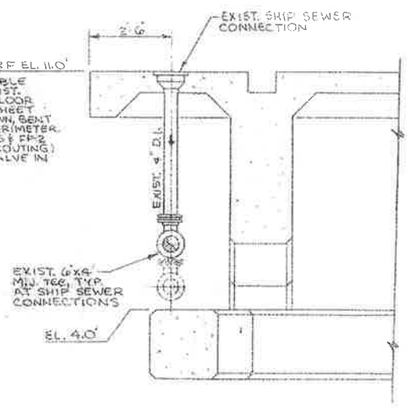
NOTE: ALL EXTERIOR WATER AND SEWER PIPING WORK SHOWN ON THIS SHEET IS PERFORMED BY OTHERS UNDER A SEPARATE CONTRACT



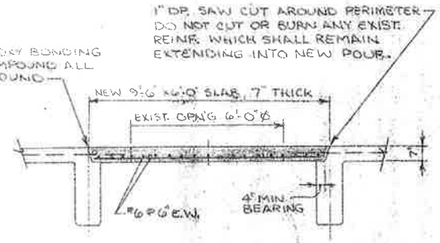
PLAN - NEW POTABLE WATER SHIP SERVICE CONNECTION
½" = 1'-0"



SECTION A-A
½" = 1'-0"

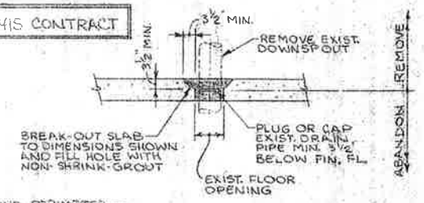


SECTION B-B
½" = 1'-0"



SECTION C-C
⅜" = 1'-0"

* NOT PART OF THIS CONTRACT



DETAIL Nº 1

MECHANICAL NOTES:

1. GENERAL SCOPE:

b. PROVIDE NEW 4" SEWER FORCE MAIN FROM RELOCATED EJECTOR STA. Nº 7 TO TIE IN POINT W/ EXIST. U.G. FORCE MAIN AT WEST END OF BLD'G.

* c. REMOVE EXIST. 4" SEWER FORCE MAIN AND APPURTENANCES.

d. PROVIDE NEW 4" LINE INSIDE BLD'G.

* e. PROVIDE PLUMBING TO NEW TOILET ROOMS.

* UPGRADE EXIST. FIRE WATER MAINS AND FIRE PROTECTION SYSTEM, INSTALL NEW SPRINKLER SYSTEM IN RENOVATED WAREHOUSE. REFER TO SHEETS FP-1 THRU FP-2 FOR PLANS AND DETAILS.

* 2. ALL NEW PIPE AND FITTINGS FOR MODIFICATIONS TO EXIST. 6" GRAVITY SEWER ALONG WHARF PERIMETER SHALL BE DUCTILE IRON WITH MECHANICAL JOINT ENDS. ALL NEW SOIL WASTE AND VENT PIPING 4" AND SMALLER SHALL BE CAST IRON SOIL PIPE WITH COMPRESSION JOINT FITTINGS. (THE CONTRACTOR MAY AT HIS OPTION, SUBSTITUTE PVC FOR VENT PIPING ABOVE THE FLOOR LINE.)

3. ALL SEWER FORCE MAIN PIPING AND FITTINGS SHALL BE DUCTILE IRON MECHANICAL JOINT WITH RETAINER GLANDS. USED PIPING FROM ASD STOCK WILL BE MADE AVAILABLE FOR CONTRACTORS USE. CONTRACTOR TO FURN. NEW GASKETS & FITTINGS.

4. ALL NEW POTABLE WATER PIPING SHALL BE GALVANIZED CARBON STEEL, SCREWED PIPE AND FITTINGS; INSULATE WITHIN WAREHOUSE PER SPECS.

5. REFER TO SPEC'S FOR ADDITIONAL PIPING REQUIREMENTS: ALL PIPING SHALL BE TESTED IN ACCORDANCE WITH THE SPECIFICATIONS.

6. VALVES ARE TO BE SAME SIZE AS LINE SHOWN UNLESS NOTED OTHERWISE. FIELD DETERMINE POSITION OF ALL VALVE OPERATORS FOR ACCESSIBILITY.

7. THESE DRAWINGS DO NOT PURPORT TO SHOW IN COMPLETE DETAIL ALL EXISTING STRUCTURES AND UTILITIES NOR ALL MISCELLANEOUS ITEMS OF WORK AS NECESSARY TO COMPLETE THE WORK AS INTENDED; THE CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR MAKING CONNECTIONS OF ALL NEW PIPING TO EXISTING PIPING, THIS INCLUDES COORDINATING TURNING OFF OR ON SERVICE, PREVENTING CONTAMINATION OF LINES AND REPAIRING ANY DAMAGE RESULTING FROM CONSTRUCTION OPERATIONS. THE CONTRACTOR SHALL FURNISH AND INSTALL EXTRA PIPE FITTINGS, HANGERS, ETC. TO AFFORD PROPER PIPE CLEARANCES AND ALIGNMENT WHERE NECESSARY AT NO ADDITIONAL COST TO THE OWNER.

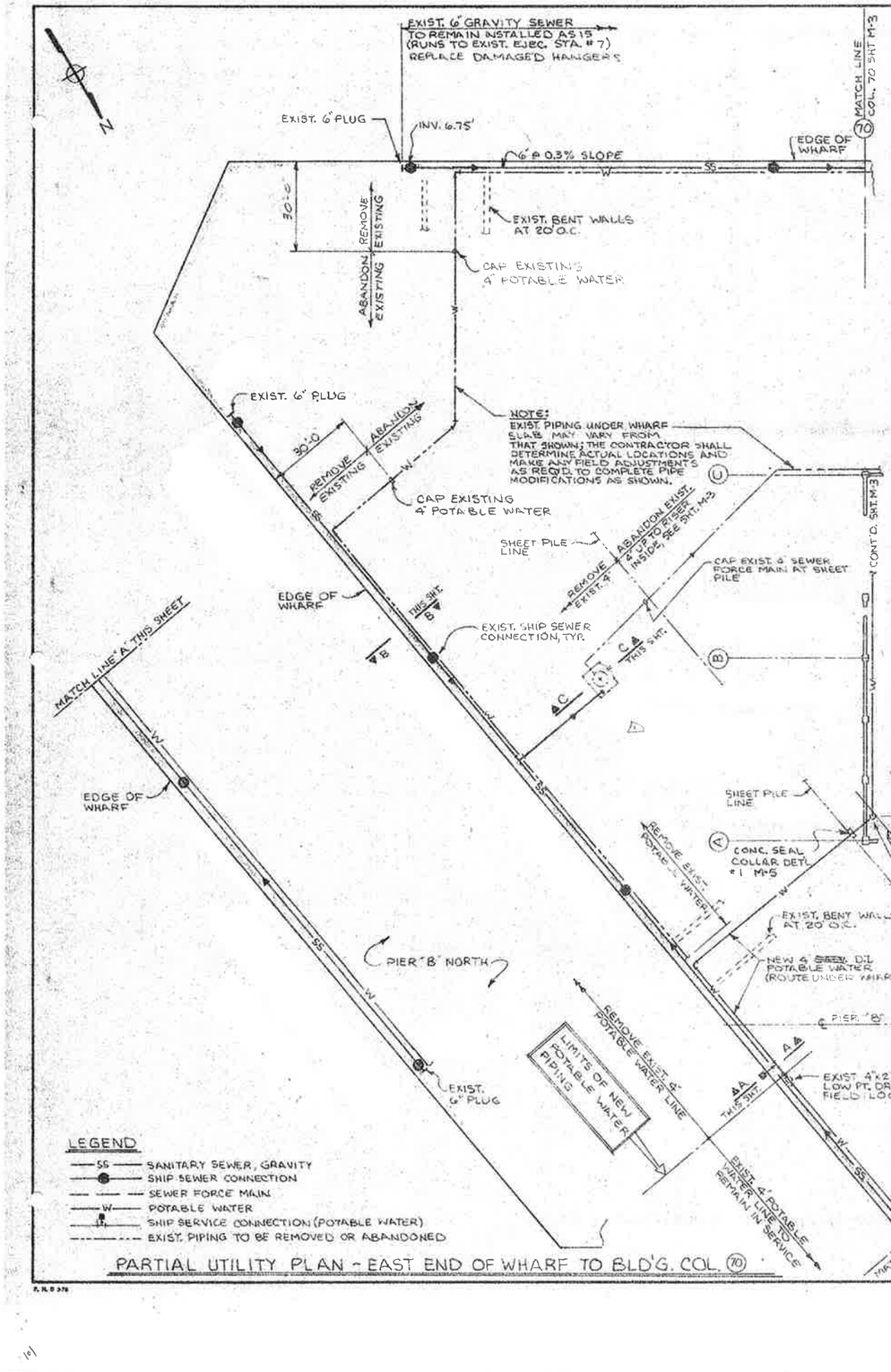
* 8. PIPING AND VALVES TO BE "STORED" SHALL BE CLEANED AND STOCKPILED IN AN AREA DESIGNATED BY THE OWNER AND SHALL REMAIN THE PROPERTY OF THE OWNER. PIPING AND VALVES TO BE "WASTED" SHALL BE REMOVED FROM ASD PROPERTY. "STORED" AND "WASTED" ITEMS SHALL BE AS SCHEDULED BELOW. THIS SCHEDULE HOWEVER SHALL BE SUBJECT TO THE FINAL DECISION OF ASD PROJECT INSPECTOR AT ACTUAL TIME OF REMOVAL.

ITEM	"STORE"	"WASTE"
SOIL, WASTE AND VENT PIPE & FITTINGS		•
SEWER FORCE MAIN PIPE & FITTINGS	•	
SEWER FORCE MAIN VALVES	•	
POTABLE WATER PIPING & FITTINGS		•
POTABLE WATER VALVES	•	
ALL HANGERS & SUPPORTS		•

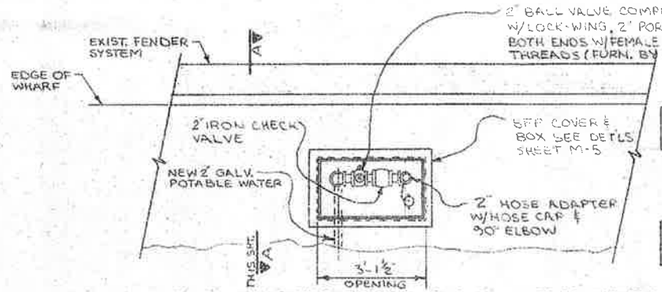
ALABAMA STATE DOCKS
MOBILE, ALABAMA

PIER "B" SOUTH
MECHANICAL
POTABLE WATER & SEWER LAYOUT

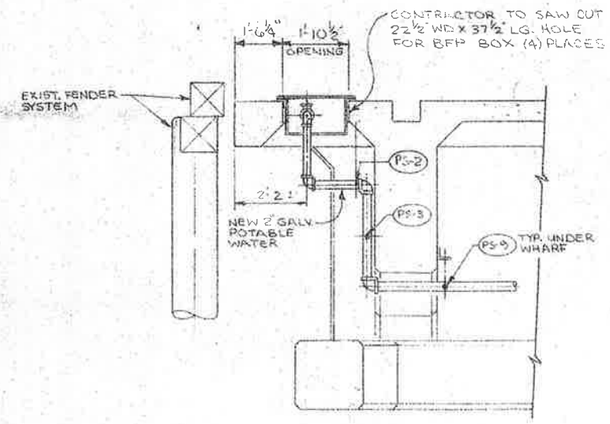
SCALE: 1"=20'
DATE: 7-15-87
RECOMMENDED:
DRAWN BY: LRH
TRACED BY:
CHECKED BY:
APPROVED:
M-4
B-10-145-52



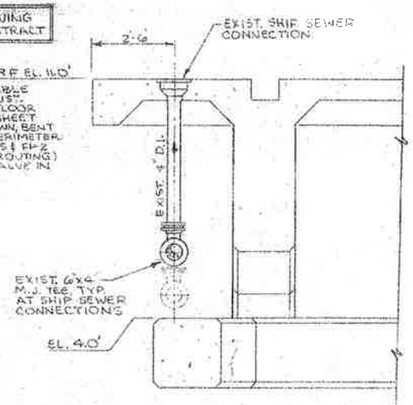
PARTIAL UTILITY PLAN - EAST END OF WHARF TO BLD'G. COL. (70)



PLAN - NEW POTABLE WATER SHIP SERVICE CONNECTION
½" = 1'-0"



SECTION A-A
½" = 1'-0"



SECTION B-B
½" = 1'-0"

MECHANICAL NOTES:

1. GENERAL SCOPE:

NOT PART OF CONTRACT
a. PROVIDE NEW 4" SEWER FORCE MAIN FROM RELOCATED EJECTOR STA. N°7 TO TIE-IN POINT W/EXIST. U.G. FORCE MAIN AT WEST END OF BLD'G.

c. REMOVE EXIST. 4" SEWER FORCE MAIN AND APPURTENANCES.

d. REMOVE EXIST. 4" POTABLE WATER LINE ALONG WHARF PERIMETER; PROVIDE NEW 4" LINE INSIDE BLD'G.

e. PROVIDE PLUMBING TO NEW TOILET ROOMS.

NOT PART OF CONTRACT
f. UPGRADE EXIST. FIRE WATER MAINS AND FIRE PROTECTION SYSTEM, INSTALL NEW SPRINKLER SYSTEM IN RENOVATED WAREHOUSE. REFER TO SHEETS FP-1 THRU FP-2 FOR PLANS AND DETAILS.

2. ALL NEW PIPE AND FITTINGS FOR MODIFICATIONS TO EXIST. 6" GRAVITY SEWER ALONG WHARF PERIMETER SHALL BE DUCTILE IRON WITH MECHANICAL JOINT ENDS. ALL NEW SOIL WASTE AND VENT PIPING 4" AND SMALLER SHALL BE CAST IRON SOIL PIPE WITH COMPRESSION JOINT FITTINGS. (THE CONTRACTOR MAY AT HIS OPTION, SUBSTITUTE PVC FOR VENT PIPING ABOVE THE FLOOR LINE.)

3. ALL NEW SEWER FORCE MAIN PIPING AND FITTINGS SHALL BE DUCTILE IRON MECHANICAL JOINT WITH RETAINER GLANDS.

4. ALL NEW POTABLE WATER PIPING SHALL BE GALVANIZED CARBON STEEL, SCREWED PIPE AND FITTINGS; INSULATE WITHIN WAREHOUSE PER SPEC'S.

5. REFER TO SPEC'S FOR ADDITIONAL PIPING REQUIREMENTS: ALL PIPING SHALL BE TESTED IN ACCORDANCE WITH THE SPECIFICATIONS.

6. VALVES ARE TO BE SAME SIZE AS LINE SHOWN UNLESS NOTED OTHERWISE. FIELD DETERMINE POSITION OF ALL VALVE OPERATORS FOR ACCESSIBILITY.

7. THESE DRAWINGS DO NOT PURPORT TO SHOW IN COMPLETE DETAIL ALL EXISTING STRUCTURES AND UTILITIES NOR ALL MISCELLANEOUS ITEMS OF WORK AS NECESSARY TO COMPLETE THE WORK AS INTENDED; THE CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR MAKING CONNECTIONS OF ALL NEW PIPING TO EXISTING PIPING, THIS INCLUDES TEMPORARY TURNING OFF OR ON SERVICE, PREVENTING CONTAMINATION OF LINES AND REPAIRING ANY DAMAGE RESULTING FROM CONSTRUCTION OPERATIONS. THE CONTRACTOR SHALL FURNISH AND INSTALL EXTRA PIPE FITTINGS, HANGERS, ETC. TO AFFORD PROPER PIPE CLEARANCES AND ALIGNMENT WHERE NECESSARY AT NO ADDITIONAL COST TO THE OWNER.

8. PIPING AND VALVES TO BE "STORED" SHALL BE CLEANED AND STOCKPILED IN AN AREA DESIGNATED BY THE OWNER AND SHALL REMAIN THE PROPERTY OF THE OWNER, PIPING AND VALVES TO BE "WASTED" SHALL BE REMOVED FROM ASD PROPERTY. "STORED" AND "WASTED" ITEMS SHALL BE AS SCHEDULED BELOW, THIS SCHEDULE HOWEVER SHALL BE SUBJECT TO THE FINAL DECISION OF ASD. PROJECT INSPECTOR AT ACTUAL TIME OF REMOVAL.

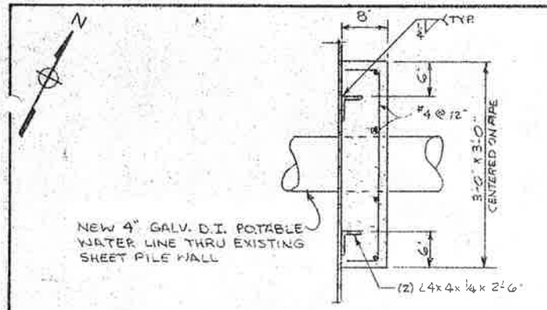
ITEM	'STORE'	'WASTE'
SOIL, WASTE AND VENT PIPE & FITTINGS		•
SEWER FORCE MAIN PIPE & FITTINGS	•	
SEWER FORCE MAIN VALVES	•	
POTABLE WATER PIPING & FITTINGS		•
POTABLE WATER VALVES	•	
ALL HANGERS & SUPPORTS		•

△ REV. PER ADDEDUM N°1 9/27/87

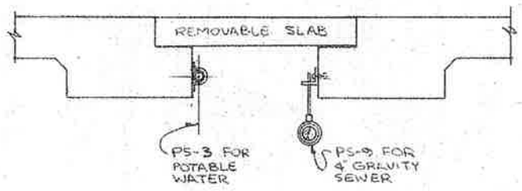
PIER "B" SOUTH REHABILITATION
PILE SUPPORTED RELIEVING PLATFORM
ALABAMA STATE DOCKS
MOBILE, ALABAMA

PIER "B" SOUTH
MECHANICAL
POTABLE WATER & SEWER LAYOUT

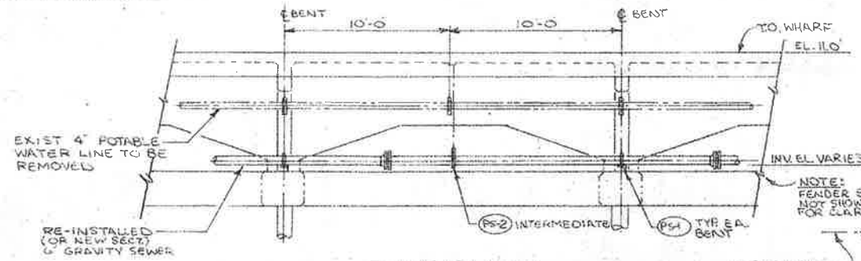
SCALE: 1"=20'
DATE: 7-15-87
RECOMMENDED:
APPROVED:
DRAWN BY: LRH
TRACED BY:
CHECKED BY:
M-4
B-10-145-52A



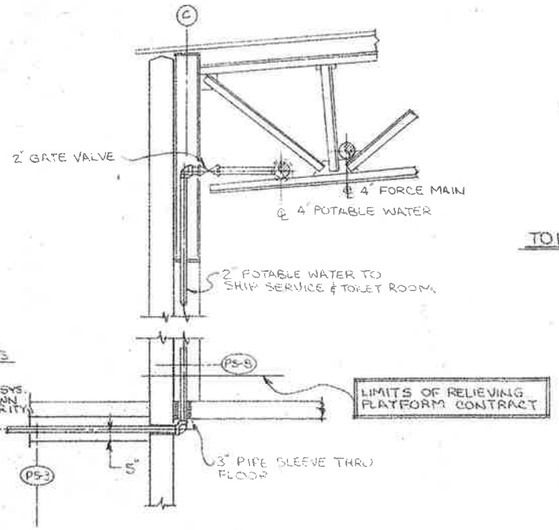
DETAIL #1 CONC. SEAL

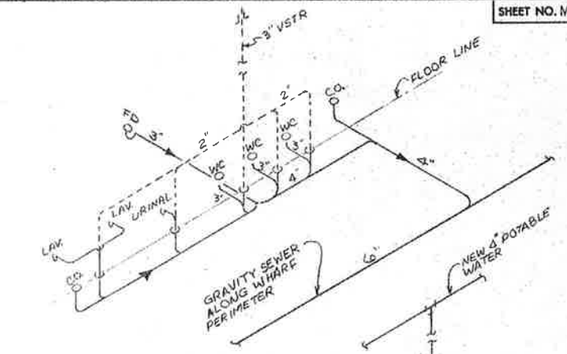


SECT. "K-K"
3/4"=1'-0"

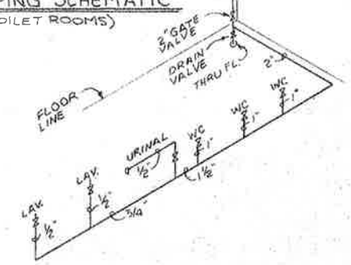


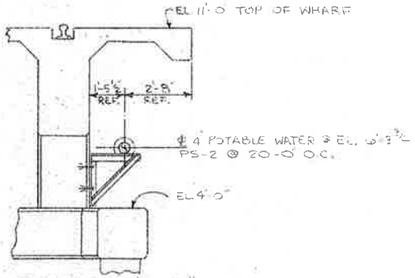
ELEVATION F-F
1/4"=1'-0"



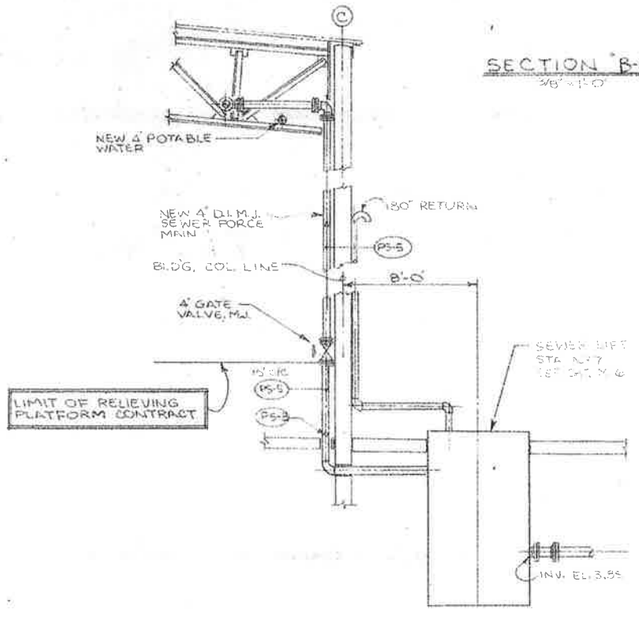


TOILET WASTE PIPING SCHEMATIC
(TYPICAL FOR 3 TOILET ROOMS)





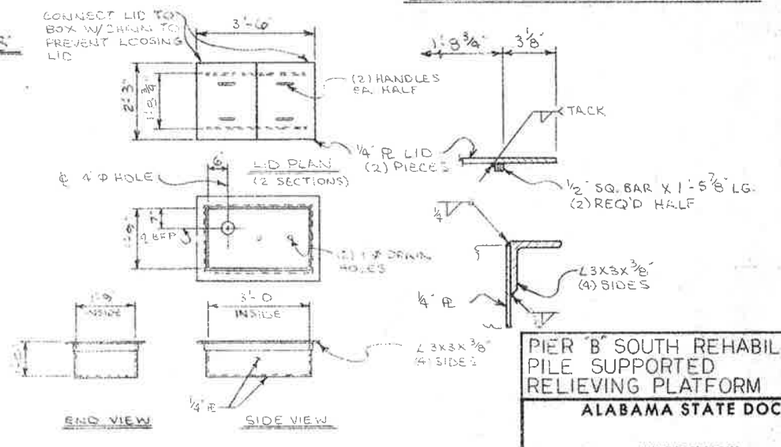
SECTION "A-A"
3/8"=1'-0



SECTION "E-E" (SHT. M-2)
1/4"=1'-0"

SECTION "B-B"
3/8"=1'-0"

TOILET POTABLE WATER SCHEMATIC



BACKFLOW PREVENTER COVER BOX DETAIL
½"=1'-0" (TYP. @ 4 SHIP SERVICE CONNECTIONS)

NOTES:
1. ALL DIMENSIONS SHOWN SHALL BE FIELD VERIFIED AFTER INSTALLATION OF BFP AND RELATED PIPING.
2. BOX AND LID SHALL BE ASTM A-36, WELDED CONSTRUCTION; HOT DIP GALVANIZED AFTER FABRICATION.

PIER "B" SOUTH REHABILITATION
PILE SUPPORTED
RELIEVING PLATFORM

ALABAMA STATE DOCKS

MOBILE, ALABAMA

PIER B SOUTH MECHANICAL
POTABLE WATER & SEWER
PIPING - SECT'S & DET'LS

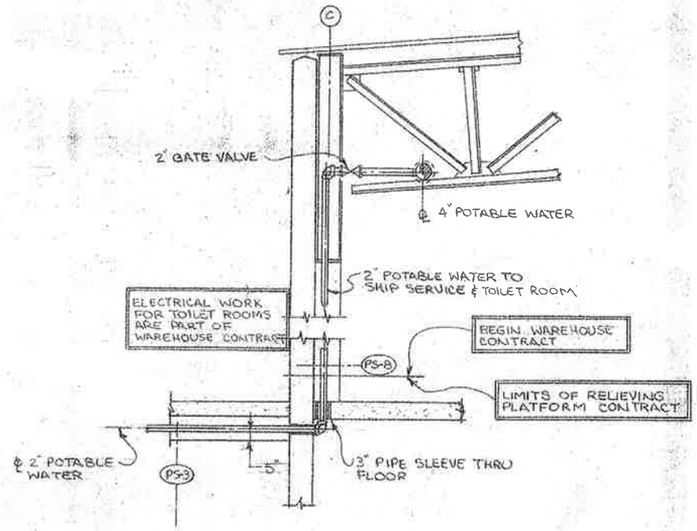
SCALE: NOTED
DATE: 7-20-87
RECOMMENDED:

DRAWN BY: LRH
TRACED BY:
CHECKED BY:

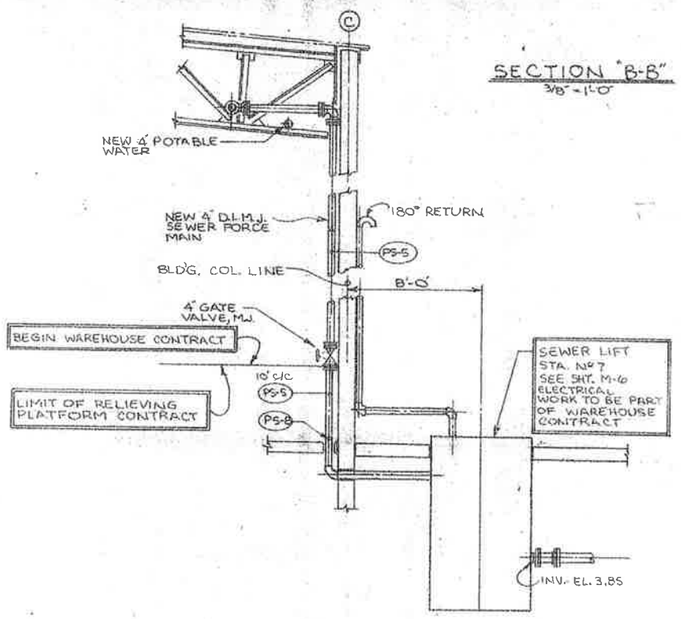
M-5

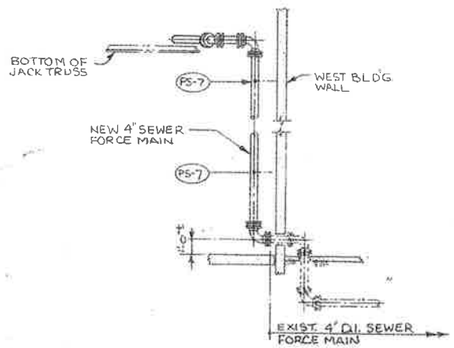
APPROVED:

B-10-145-53A



SECTION "B-B"
3/8" = 1'-0"





SECTION D-D (SHT. M-1)
1/4" = 1'-0"

SECTION E-E (SHT. M-2)
1/4" = 1'-0"

ALABAMA STATE DOCKS

MOBILE, ALABAMA

PIER B SOUTH MECHANICAL
POTABLE WATER & SEWER
PIPING - SECT'S & DET'LS

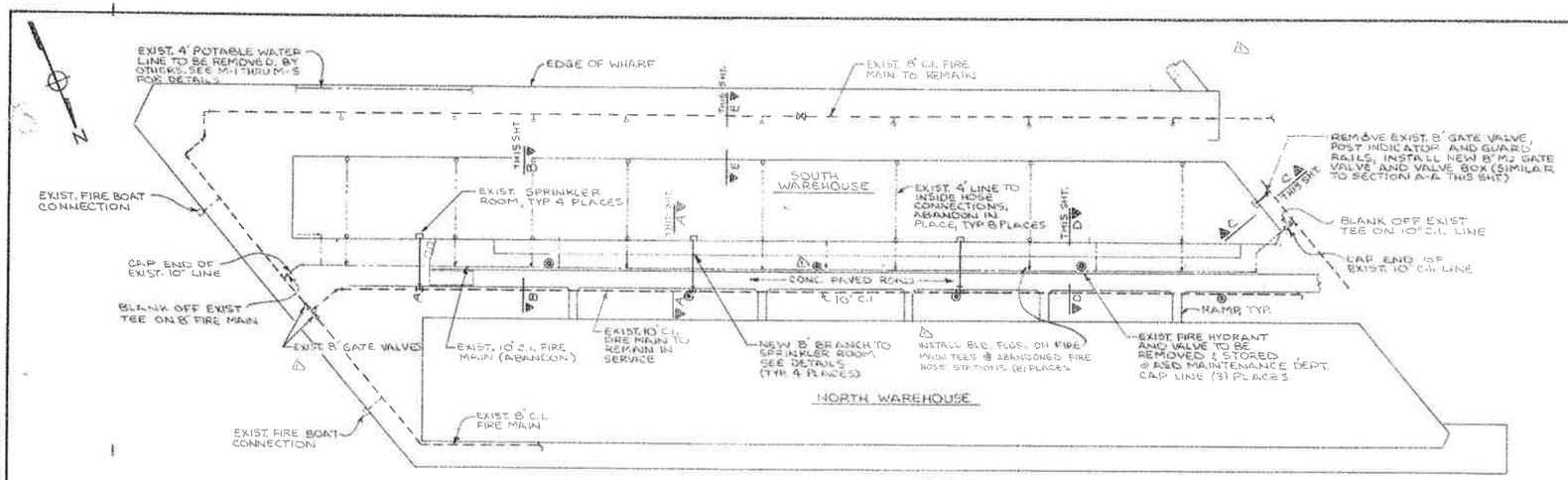
SCALE: NOTED
DATE: 7-20-87
RECOMMENDED:

DRAWN BY: LRH
TRACED BY:
CHECKED BY:

M-5

APPROVED:

B-10-145-53B



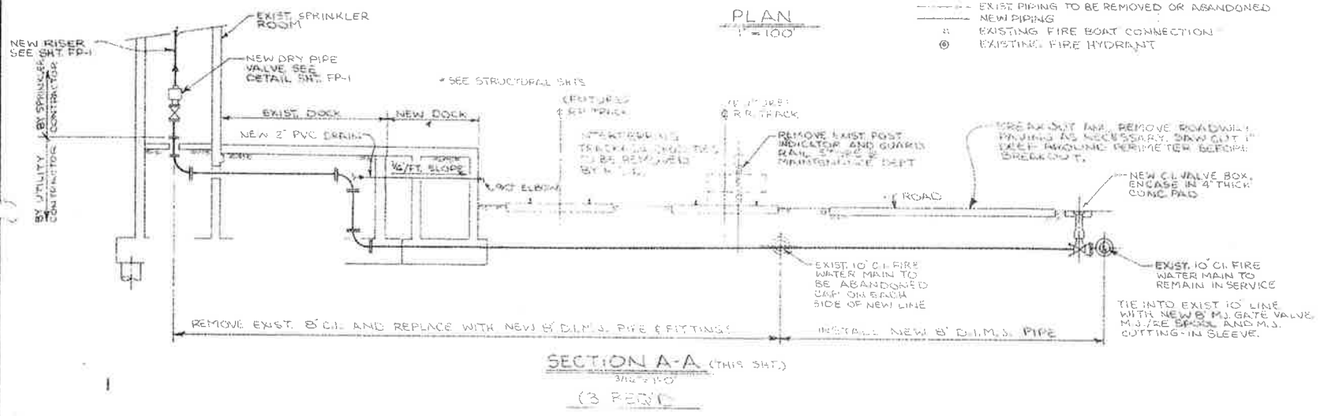
PLAN
1" = 100'

LEGEND: (THIS PLAN ONLY)
- EXIST. PIPING TO REMAIN IN SERVICE
- EXIST PIPING TO BE REMOVED OR ABANDONED
- NEW PIPING
- EXISTING FIRE BOAT CONNECTION
- EXISTING FIRE HYDRANT

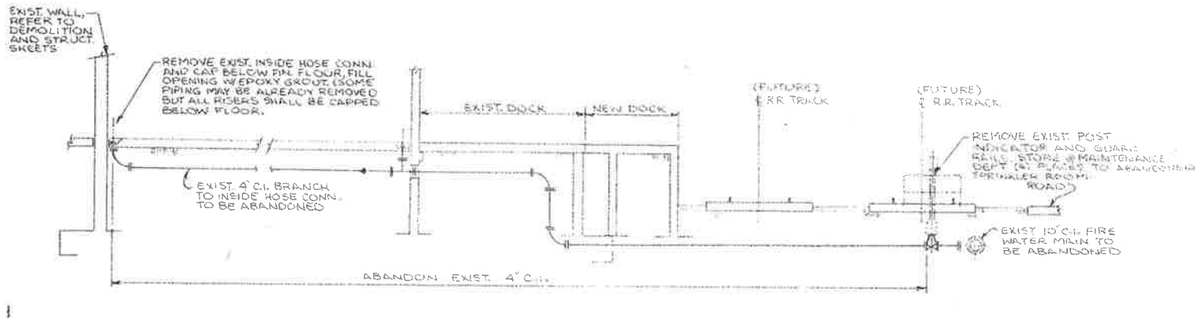
NOTES:
1. ALL NEW FIRE MAIN & RELATED PIPING SHALL BE DUCTILE IRON MECHANICAL JOINT WITH RETAINER GLANDS, UNLESS NOTED OTHERWISE.
2. STORE OR WASTE REMOVED PIPING & APPURTENANCES PER SCHEDULE BELOW. (REF. NOTE 8, SHT. M-1)

ITEM	"STORE"	"WASTE"
8" & LARGER FIRE MAIN PIPE & FITTINGS		•
FIRE HYDRANTS & POST INDICATORS	•	
GUARD RAILS	•	
4" & SMALLER BRANCH & HOSE CONN. PIPING & FITTINGS		•
ALL VALVES *	—	—
ALL HANGERS & SUPPORTS		•

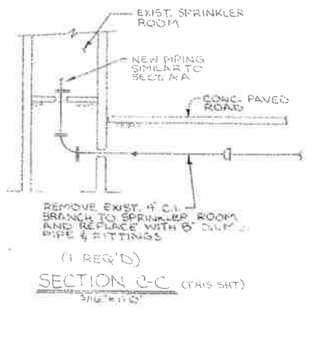
* AS DIRECTED BY ASD PROJECT INSPECTOR



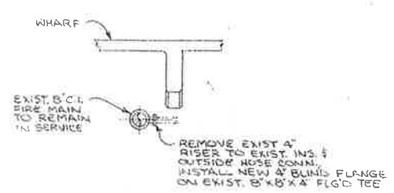
SECTION A-A (THIS SHT.)
3/16" = 1'-0"
(3 REQ'D)



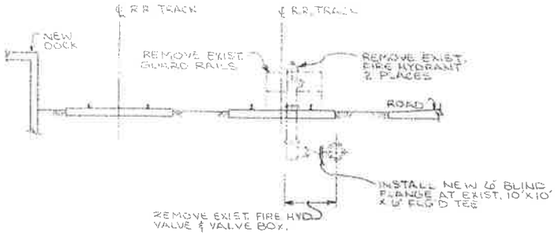
SECTION B-B (THIS SHT.)
3/16" = 1'-0"



(1 REQ'D)
SECTION C-C (THIS SHT)
3/16" = 1'-0"



SECTION E-E (THIS SHT)
1/4" = 1'-0"



SECTION D-D (THIS SHT.)
3/16" = 1'-0"

△ AS BUILTS PER CHG. ORDER #2 3/28/88 LRH

ALABAMA STATE DOCKS
MOBILE, ALABAMA

PIER B SOUTH REHAB. FIRE PROTECTION FIRE MAIN PIPING PLAN

SCALE: 1"=100'
DATE: 9-1-87
RECOMMENDED:
APPROVED:
DRAWN BY: LRH
TRACED BY:
CHECKED BY:
FP-2
B-10-145-57