



US Army Corps  
of Engineers  
Honolulu District

# Public Notice of Application for Permit

Guam Field Office  
Regulatory Office (1145)  
PSC 455, Box 188  
FPO AP 96540

**PUBLIC NOTICE DATE: 10 February 2015**

**EXPIRATION DATE: 12 March 2015**

**REFERENCE FILE NUMBER: POH-2014-00209**

Interested parties are hereby notified that a Department of the Army permit application has been received for work in waters of the United States as described below and shown on the enclosed project drawings.

Comments on the described work, with the reference file number, should reach this office no later than the expiration date of this Public Notice to become part of the record and be considered in the decision. Comments may be provided by conventional mail to the address above or email to [ryan.h.winn@usace.army.mil](mailto:ryan.h.winn@usace.army.mil). Please contact Ryan H. Winn, Project Manager, at (671) 339-2108 or by email if further information is desired concerning this notice.

APPLICANT: Edward E. Moon, Navy Base Guam, Department of the Navy, PSC 455, Box 195, FPO AP 96540; [Edward.Moon@fe.navy.mil](mailto:Edward.Moon@fe.navy.mil); (671) 339-4100.

AGENT: Karen Sumida, NAVFAC Pacific, 258 Makalapa Dr., Ste. 100, Pearl Harbor, HI 96860; [Karen.sumida@navy.mil](mailto:Karen.sumida@navy.mil); (808) 585-5419.

LOCATION:

X-Ray Wharf Improvements: X-Ray Wharf, Southeast shore of Inner Apra Harbor, Santa Rita, Guam; 13° 26' N. 144° 40' W.

Guam Ocean Dredged Material Disposal Site, also referred as Guam Deep Ocean Disposal Site (G-DODS): 3 nm boundary diameter located 11 nm west of Apra Harbor, Guam; centered at 13° 35.500' N., 144° 28.733' E.

PURPOSE: The applicant's stated purpose is to allow the current class of multi-purpose auxiliary support ships (T-AKE class) safe navigation to X-Ray Wharf, Naval Base Guam's designated supply wharf, and to provide adequate berthing facilities that meet current design criteria. Due to structural and operational deficiencies the existing wharf was determined inadequate to berth T-AKE vessels and does not meet Pacific Fleet requirements. Additionally, the current navigational depth is insufficient to accommodate the larger T-AKE vessel draft requirements.

PROPOSED WORK: U.S. Naval Base Guam (Navy) proposes to rehabilitate and upgrade the North Berth (Berth 1) of the existing X-Ray Wharf, the Navy's existing main supply wharf, to provide berthing and utilities to accommodate T-AKE class ships (MILCON Project 518). The proposed project includes the construction of a new wharf 35' outboard of the existing Berth 1 and construction dredging (harbor deepening) to accommodate the draft requirements of the T-AKE class ships. The new wharf would strengthen the existing wharf by providing a

new sheet pile bulkhead wall, tie-back system and engineered and fill strengthened soils between the new and existing bulkheads. The proposed action includes the following construction components subject to DA regulatory authority: New Fill Supported Wharf, Mooring Dolphin, Navigational Buoys and Relocation of Moorings, Dredging, and Ocean Disposal of Dredged Material.

#### New Fill Supported Wharf:

The Navy proposes to construct a new 35' X 742' (0.6 acre) closed cell sheet pile wharf with mooring and fendering systems seaward of the existing North Berth (Berth 1) of X-Ray Wharf. The area between the new sheet piling and the existing wharf face would be backfilled and capped with a concrete deck platform. The fill area between the new and existing wharf face would be engineered and strengthened by mixing cement into the soil 45'-70' below mean lower low water (MLLW), depending on soil density, to provide a gravity based retaining foundation to support the vertical and lateral loads on the existing and new wharf during normal operations and seismic events. Approximately 26,619 m<sup>3</sup> of cement deep soil mixing (CDSM) fill would be covered with 30,043 m<sup>3</sup> of compacted fill. The outer sheet pile wharf face would consist of 24" wide sheet piles (224 ea of Skyline AZ 26-700 and 130 ea of Skyline AZ 38-700N), which would be driven with both vibratory and impact hammers over a 3-month period. A temporary pile tie-back/bracing system would be installed outboard of the new sheet pile wall during wharf construction. New tie-backs would permanently anchor the new bulkhead wall to the existing bulkhead and the temporary tie-backs would be removed following construction.

#### Mooring Dolphin

The proposed project also includes the construction of one pile-supported mooring dolphin approximately 150' north of the north end of the new wharf. The dolphin system involves four 30" steel pipe piles capped with a 20' square concrete platform, a 5' metal trestle walkway between the new wharf face and the dolphin, and an intermediate walkway support consisting of two 30" steel pipe piles capped with an 11' square platform. The pipe piles would be driven with an impact hammer over 10 days.

#### Navigational Buoys and Relocation of Moorings

Two new navigation buoys with concrete anchors would be installed to demarcate the T-AKE navigational channel. Four existing buoys currently located within the proposed T-AKE turning basin and approach channel would be relocated northwest to alternative locations in Inner Apra Harbor (see sheet 8 of attached drawings).

#### Dredging and Disposal of Dredged Material

Dredging is proposed in two sections within Inner Apra Harbor to achieve a -35' MLLW navigational depth for the T-AKE vessel, including approximately 26,500 yd<sup>3</sup> over a 4 acre area within the proposed approach channel and 24,500 yd<sup>3</sup> over a 2.8 acre area for the berth outboard of the new wharf face. A total of 50,775 yd<sup>3</sup> of sediment would be dredged over a combined footprint of 6.8 acres. The seafloor sediment, consisting primarily of fine grain silt and clay with sand and rubble, would be mechanically dredged with a barge mounted closed bucket clamshell or backhoe excavator. Dredging would occur over a 3-month period, 24 hours/day, 7 days/week. Dredged spoils would be placed in a SCOW or barge and towed to the USEPA designated G-DODS concurrent with dredging operations. On 22 August 2014 the U.S. Environmental Protection Agency (USEPA) determined that the proposed dredged material was suitable for ocean disposal at the G-DODS site. Disposal operations would be conducted in accordance with the *Guam Ocean Dredged Material Disposal Site (ODMDS) Site Management and Monitoring Plan*, dated March 2010. The proposed disposal would be the first use of the G-DODS site.

All work would be performed in accordance with the enclosed plan (26 sheets), dated February 2015.

**ADDITIONAL INFORMATION:** Please contact the applicant or the designated agent for additional information regarding their proposed actions, including project design specifications; proposed BMPs and conservation measures to avoid and/or minimize adverse impacts to marine biological resources and to ensure no significant impacts to ESA-listed species; project specifications for Temporary and Supplementary Temporary Environmental Controls, Water Quality Monitoring, Excavation and Fill, and Dredging; or for copies of the following reference documents:

Department of the Navy, *Final Environmental Assessment, X-Ray Wharf Improvements, Milcon P-518 and P-519*, dated April 2014.

Department of the Navy, *Dredged Material Evaluation for Ocean Disposal: Construction Dredging at X-Ray Wharf, Apra Harbor, Guam, Final Report*, dated April 2014

Additional information regarding the G-DODS, including the USEPA, *Final Environmental Impact Statement for Designation of an Ocean Dredged Material Disposal Site Offshore of Guam*, dated March 2010, is available at <http://www.epa.gov/region9/water/dredging/gdods>.

#### APPLICANT PROPOSED MITIGATION:

The Navy proposes to employ BMPs and conservation measures to avoid and/or minimize adverse impacts to marine biological resources and to ensure no significant impacts to ESA-listed species. A list of the proposed BMPs and conservation measures will be provided upon request.

The Navy intends to employ silt curtains and real time turbidity monitoring devices to monitor the biological resources and minimize impacts to adjacent aquatic resources, including Abo Cove. Specifications for Supplemental Temporary Environmental Controls will be provided upon request.

The area of direct impact consists of a high turbidity water column and fine silt unconsolidated sediment seafloor substrate with less than 2% coral cover. Coral losses would primarily be limited to coral growth occurring on the existing wharf face. The Navy does not propose to mitigate for the loss of corals along artificial structures.

WATER QUALITY CERTIFICATION: The Guam Environmental Protection Agency issued a Section 401 of the Clean Water Act (Public Law 95-217) Water Quality Certification for the proposed project on 18 December 2014.

COASTAL ZONE MANAGEMENT ACT CERTIFICATION: On 25 February 2014, the Guam Bureau of Statistics and Plans, Guam Coastal Management Program, concurred with the Navy's determination under 15 CFR 930.35 that the proposed project would not have foreseeable coastal effects to Guam's defined coastal zone, in accordance with Section 307(c)(3) of the Coastal Zone Management Act of 1972 (Public Law 92-583), as amended (16 U.S.C. 1456(c)(3)).

CULTURAL RESOURCES: The State Historic Preservation Officer (SHPO) concurred with the Navy's determination of "No Historic Properties Affected" on 7 December 2011. The July 2008 *Programmatic Agreement among the Commander, Navy Region Marianas, Advisory Council on Historic Preservation, and the Guam Historic Preservation Office regarding Navy Undertakings on the Island of Guam* describes processes to be followed in the event of inadvertent discoveries of historic properties during ground disturbing activities

ENDANGERED SPECIES: The Navy conducted formal consultation under Section 7 of the Endangered Species Act with the National Marine Fisheries Service (NMFS) for green and hawksbill sea turtles. The Navy determined that the proposed project is likely to adversely affect green and hawksbill sea turtles. A low but unknown number of green and hawksbill sea turtles may be affected by exposure to pile driving noise through behavioral modifications; however, the noise exposure is not expected to injure, kill or impact their ability to forage, shelter, reproduce, or avoid predators or other threats. The NMFS issued a Biological Opinion on 9 January 2014 (NMFS File No. PIR-2013-9309) which concluded that the proposed project is not likely to jeopardize the continued existence of green and hawksbill turtles and that the proposed action would have no effect on designated or proposed critical habitat under NMFS jurisdiction. An Incidental Take Statement was not issued for the proposed action because no take of sea turtles is expected.

This application is being coordinated with the U.S. Fish and Wildlife Service and the NMFS. Any comments they may have concerning endangered or threatened wildlife or plants or their critical habitat will be considered in our final assessment of the described work.

ESSENTIAL FISH HABITAT: The Magnuson-Stevens Fishery Conservation and Management Act, as amended by the Sustainable Fisheries Act of 1996, requires all Federal agencies to consult with the NMFS on all actions, or proposed actions, permitted, funded, or undertaken by the agency, that may adversely affect Essential Fish Habitat (EFH). The Navy determined that the proposed project would adversely affect EFH. The proposed construction activities would permanently reduce the quantity of EFH in Inner Apra Harbor, temporarily degrade EFH water quality, disturb and/or displace motile species, and disrupt and/or destroy benthos. The Navy completed EFH consultation on 27 February 2014 by providing its final response to the NMFS 28 January 2014 EFH Conservation Recommendations.

Any comments or recommendations the NMFS may have concerning EFH will be considered in our final assessment of the proposed work.

**PUBLIC HEARING:** Any person may request, in writing, within the comment period specified in this notice, that a public hearing be held to consider this application. Requests for public hearings shall state, with particularity, reasons for holding a public hearing.

**EVALUATION:** The decision whether to issue a permit will be based on an evaluation of the probable impacts including cumulative impacts of the proposed activity and its intended use on the public interest. Evaluation of the probable impacts, which the proposed activity may have on the public interest, requires a careful weighing of all the factors that become relevant in each particular case. The benefits, which reasonably may be expected to accrue from the proposal, must be balanced against its reasonably foreseeable detriments. The outcome of the general balancing process would determine whether to authorize a proposal, and if so, the conditions under which it will be allowed to occur. The decision should reflect the national concern for both protection and utilization of important resources. All factors, which may be relevant to the proposal, must be considered including the cumulative effects thereof. Among those are conservation, economics, aesthetics, general environmental concerns, wetlands, cultural values, fish and wildlife values, flood hazards, floodplain values, land use, navigation, shore erosion and accretion, recreation, water supply and conservation, water quality, energy needs, safety, food and fiber production, mineral needs, considerations of property ownership, and, in general, the needs and welfare of the people. For activities involving 404 discharges, a permit will be denied if the discharge that would be authorized by such permit would not comply with the Environmental Protection Agency's 404(b)(1) guidelines. For activities involving the transport of dredged material for ocean disposal, the proposed dumping must comply with the criteria established by the Administrator of EPA pursuant to section 102 of the Marine Protection, Research and Sanctuaries Act of 1972 or the Chief of Engineers must determine and certify that ocean dumping at the proposed disposal site is required because of the unavailability of economically feasible alternatives and request that the Secretary of the Army seek a waiver from the Administrator of EPA of the criteria. Subject to the preceding sentences and any other applicable guidelines or criteria (see Sections 320.2 and 320.3), a permit will be granted unless the District Commander determines that it would be contrary to the public interest.

The Corps of Engineers is soliciting comments from the public; Federal, State, and local agencies and officials; and other interested parties in order to consider and evaluate the impacts of this proposed activity. Any comments received will be considered by the Corps of Engineers to determine whether to issue, modify, condition or deny a permit for this proposal. To make this decision, comments are used to assess impacts on endangered species, historic properties, water quality, general environmental effects, and the other public interest factors listed above. Comments are used in the preparation of an Environmental Assessment and/or an Environmental Impact Statement pursuant to the National Environmental Policy Act. Comments are also used to determine the need for a public hearing and to determine the overall public interest of the proposed activity.

**AUTHORITY:** This permit will be issued or denied under the following authorities:

(X) Perform work in or affecting navigable waters of the United States – Section 10 Rivers and Harbors Act 1899 (33 U.S.C. 403).

(X) Discharge dredged or fill material into waters of the United States – Section 404 Clean Water Act (33 U.S.C. 1344). Therefore, we will review the proposed activity in accordance with the guidelines at 40 CFR 230 issued under the authority of Section 404(b)(1) of the Clean Water Act.

(X) Transport dredged material for the purpose of dumping it into ocean waters - Section 103 Marine Protection, Research, and Sanctuaries Act of 1972 (33 U.S.C. 1413). Therefore, we will apply the criteria at 40 CFR Parts 220 to 229 established under the authority of Section 102(a) of the Marine Protection, Research and Sanctuaries Act of 1972, as amended, as appropriate, to determine whether the proposed dumping will unreasonably degrade or endanger human health, welfare, amenities, or the marine environment, ecological systems or economic potentialities.

Project drawings are enclosed with this Public Notice.

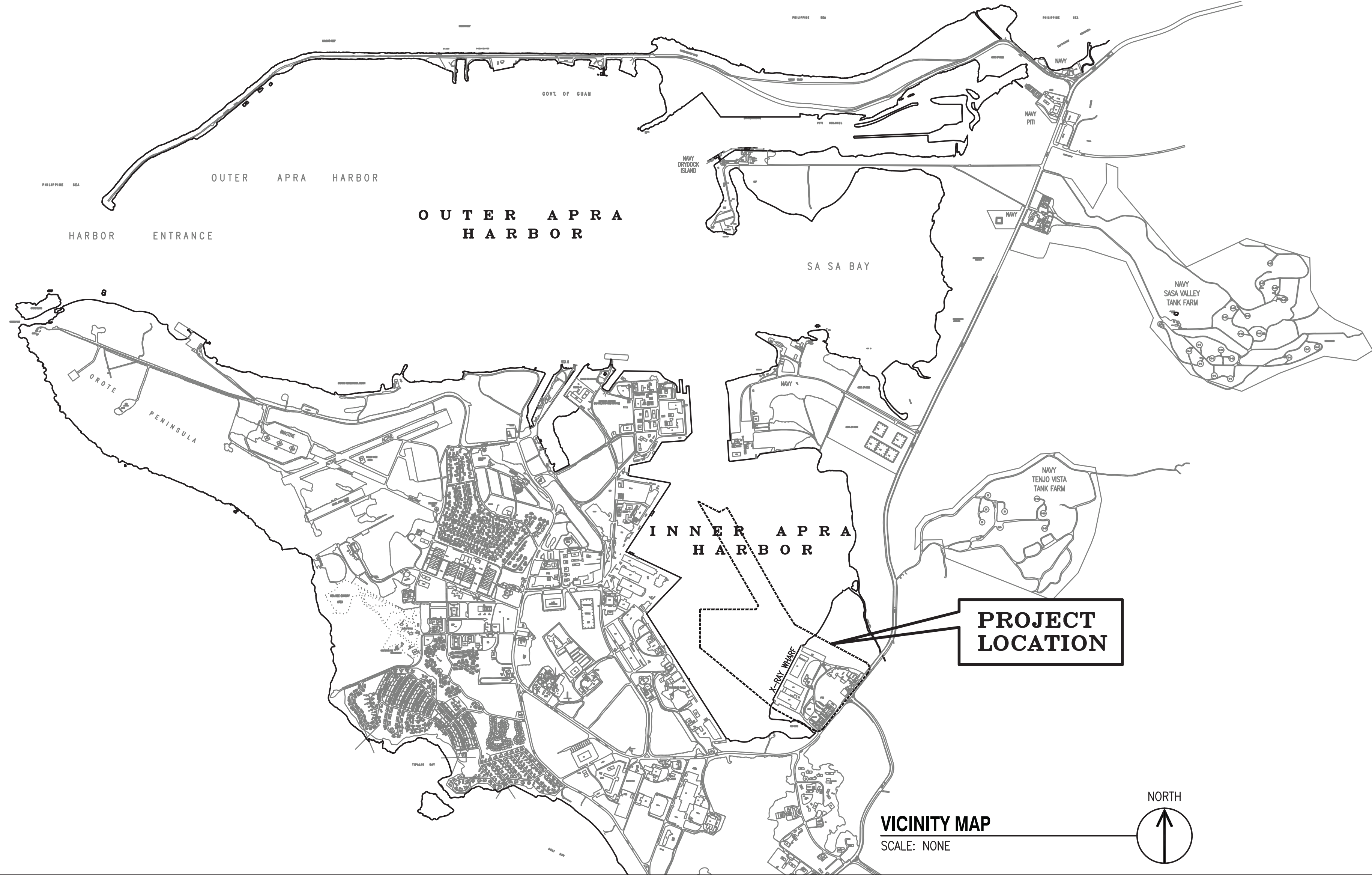
District Commander  
U.S. Army, Corps of Engineers

Enclosures

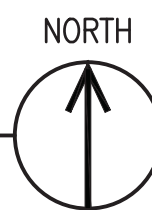
# FY14 MCON P-518 X-RAY WHARF IMPROVEMENTS BERTH 1 (PART A) NAVAL BASE, GUAM WON 852260



LOCATION MAP  
SCALE:NONE



VICINITY MAP  
SCALE: NONE



## PROJECT DESIGN TEAM

STRUCTURAL DESIGNER

moffatt & nichol  
3780 KILROY AIRPORT WAY, STE 600  
LONG BEACH, CALIFORNIA 90806  
(562)426-9551

STRUCTURAL DESIGNERS

BergerABAM  
33301 9th Avenue South, Suite 300  
Federal Way, Washington 98003-2600  
(206) 431-2300 Fax: (206) 431-2250

THE Louis Berger Group, Inc.

ARCHITECT

TRMA  
Tangiguchi Ruth Makio Architects  
100 CLIFF BUSINESS CENTER  
P.O. BOX EA, HAGATNA, GUAM 96932  
TEL: (671) 475-8772  
FAX: (671) 472-3381

CIVIL DESIGNER  
& SURVEYOR

DCA  
DURAS & ASSOCIATES  
• ENGINEERING (CIVIL/STRUCTURAL)  
• CONSTRUCTION MANAGEMENT/PLANNING  
• ENVIRONMENTAL SERVICES/SURVEYING  
• DEVELOPMENT CONSULTANTS  
• GEOGRAPHIC INFORMATION SYSTEMS  
1001 W. WALKER STREET, SUITE 2000  
TAMUNING, GUAM 96913

CIVIL UTILITY DESIGNER

JB YOUNG & ASSOCIATES, LTD.  
CONSULTING ENGINEERS  
11440 RIVERSIDE DRIVE, SUITE M  
LAKESIDE, CA 92040  
TEL: (619) 448-9424  
FAX: (619) 448-4690

GEOTECHNICAL DESIGNERS

Earth Mechanics, Inc.  
Geotechnical and Earthquake Engineering  
GEO-ENGINEERING & TESTING, INC.  
Geotechnical & Material Testing Engineers  
11440 RIVERSIDE DRIVE, SUITE M  
LAKESIDE, CA 92040  
TEL: (619) 448-9424  
FAX: (619) 448-4690

ELECTRICAL DESIGNER

mkengineers  
286 Kalhi Street  
Honolulu, Hawaii 96819  
Phone: (808) 848-8622  
Fax: (808) 848-5574  
E-Mail: info@mkhawaii.com

FIRE PROTECTION DESIGNER

THERMAL ENGINEERING  
CORPORATION  
HONOLULU, HAWAII

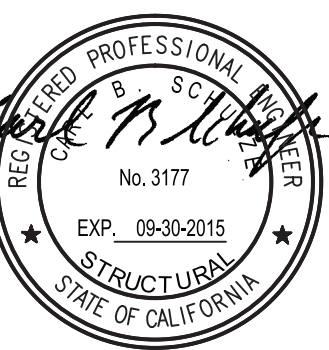
CORROSION ENGINEERING

HDR

ENVIRONMENTAL DESIGNER

EA SCIENCE AND  
TECHNOLOGY

REV	DESCRIPTION	DATE



moffatt & nichol  
3780 KILROY AIRPORT WAY, STE 600  
LONG BEACH, CALIFORNIA 90806  
(562)426-9551

DES CS DRAW HG CHK FC

APPROVED  
M. Sutula  
PER COMMANDER NAVFAC 11-26-13

PER MEMO SIGNED BY CAPT  
JOHN WARD COMMANDING  
OFFICER NAVAL BASE GUAM  
SATISFACTORY TO DATE 1 AUG 2013

DES DRAW REV  
PM/DM AWF  
BRANCH MANAGER  
CHIEF ENG/ARCH  
FIRE PROTECTION

DEPARTMENT OF THE NAVY  
NAVFAC PACIFIC  
NAVAL BASE  
GUAM  
FY14 MCON P-518  
X-RAY WHARF IMPROVEMENTS  
BERTH 1  
TITLE SHEET (PART A)

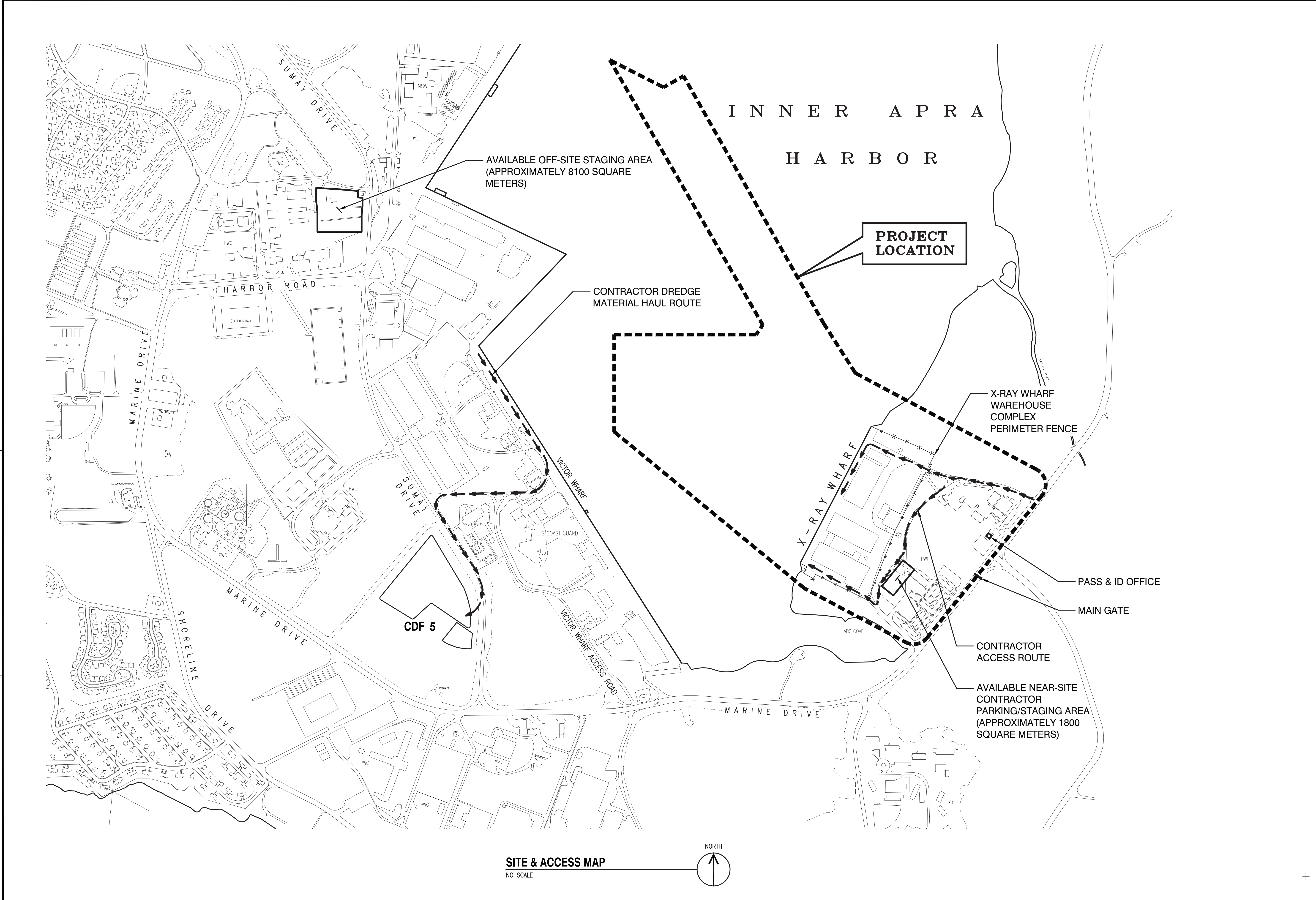
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NAVFAC DRAWING NO.  
17152480  
SHEET 1 OF 147

GA001

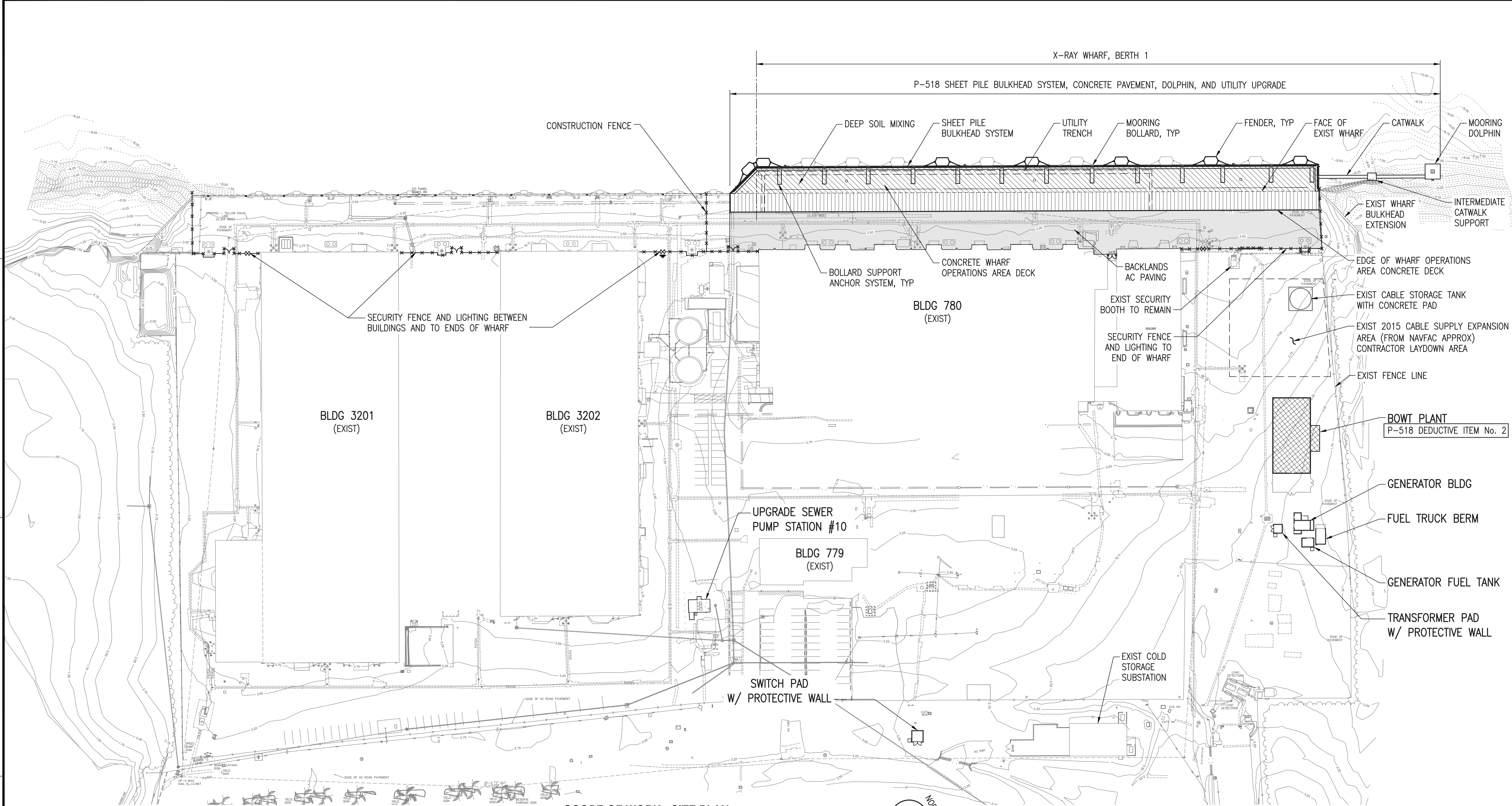
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FILE NAME: P:\6948-13 X-Ray 7 Design Information\CADD\1-SHEETS\518\PART A\518A-GA003.dwg PLOTTED: 11/22/13 - 2:52pm BY: tgonzalez



NO. DESCRIPTION	
3780 KILROY AIRPORT WAY, STE. 600 LONG BEACH, CALIFORNIA 90806 (562)426-9551 <i>M. S. S.</i>	
DES	CS
DRW	HG
CHK	FC
APPROVED	
<i>M. S. S.</i>	
PER COMMANDER NAVFAC 11-26-13	
ACTIVITY	
SATISFACTORY TO DATE	
DES	REV
PM/DM	AWF
BRANCH MANAGER	FE
CHIEF ENG/ARCH	FE
FIRE PROTECTION	FE
DEPARTMENT OF THE NAVY NAVFAC PACIFIC NAVAL BASE MAJOLLA HAWAII GUM FY14 MCON P-518 <b>X-RAY WHARF IMPROVEMENTS BERTH 1</b> SITE AND ACCESS MAP (PART A)	
SCALE: AS SHOWN	
EPROJCT NO.: 852260	
CONSTR. CONTR. NO.	
NAVFAC DRAWING NO. 17152482	
SHEET 3 OF 147	
<b>GA003</b>	

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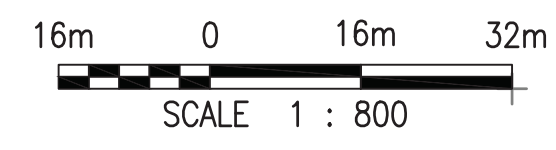


**SCOPE OF WORK - SITE PLAN**  
SCALE: 1:800

- LEGEND:**
- INDICATES MOORING BOLLARD
  - INDICATES FENDER
  - INDICATES BOWT PLANT
  - INDICATES WHARF WIDENING W/ CONC WHARF OPERATION DECK AND DEEP SOIL MIXING
  - INDICATES CONCRETE WHARF OPERATION DECK OVER EXISTING WHARF
  - INDICATES BACKLANDS AC PAVING

- NOTES:**
1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING THE WORK AMONG THE VARIOUS TRADES AS NECESSARY TO AVOID CONFLICTS AND TO INSURE THE INSTALLATION OF ALL WORK WITHIN THE AVAILABLE SPACE.
  2. FOR IDENTIFICATION OF PART A AND PART B WORK SEE GA005 AND GB005.
  3. SEE TABLE, MECHANICAL AND ELECTRICAL DRAWINGS FOR DEDUCTIVE ITEMS.
  4. SEE MECHANICAL DRAWINGS FOR SITE UTILITIES.

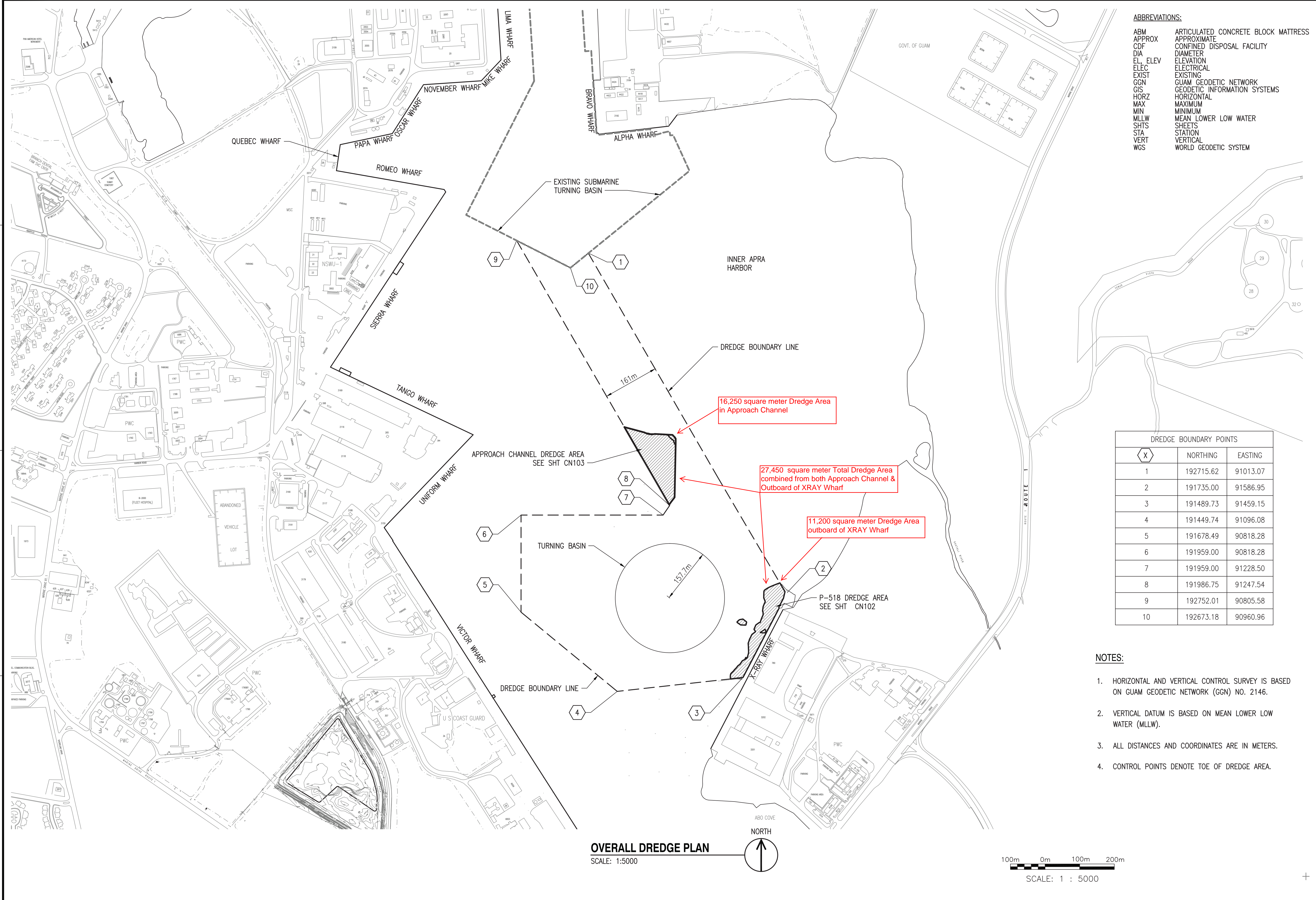
DEDUCTIVE ITEMS - P-518	
1	DELETE FUTURE POWER MOUND DUCTS, SEE ELECTRICAL DRAWINGS.
2	DELETE BOW SYSTEM INCLUDING PLANT, PIPING, AND RISER STATIONS.



	DATE
	SYN DESCRIPTION
<b>moffatt &amp; nichol</b> <small>3780 KILROY AIRPORT WAY, STE 600          LONG BEACH, CALIFORNIA 90806          (562)426-9551</small>	
DES: CS	CHK: FC
 PER COMMANDER NAVFAC 11-26-13	
ACTIVITY	
SATISFACTORY TO	DATE
DES	DATE
PM/DM	REV
BRANCH MANAGER	AWF
CHIEF ENG/ARCH	AWF
FIRE PROTECTION	AWF
DEPARTMENT OF THE NAVY NAVAL FACILITIES ENGINEERING COMMAND NAVFAC PACIFIC NAVAL BASE GUAM	
FY14 MCON P-518 <b>X-RAY WHARF IMPROVEMENTS</b> <b>BERTH 1</b>	
SCOPE OF WORK SUMMARY (PART A)	
SCALE: AS SHOWN	
EPROJECT NO.: 852260	
CONSTR. CONTR. NO.	
NAVFAC DRAWING NO. 17152483	
SHEET 4 OF 147	
<b>GA004</b>	



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**ABBREVIATIONS:**

ABM	ARTICULATED CONCRETE BLOCK MATTRESS
APPROX	APPROXIMATE
CDF	CONFINED DISPOSAL FACILITY
DIA	DIAMETER
EL.	ELEVATION
ELEC	ELECTRICAL
EXIST	EXISTING
GGN	GUAM GEODETIC NETWORK
GIS	GEODETIC INFORMATION SYSTEMS
HORZ	HORIZONTAL
MAX	MAXIMUM
MIN	MINIMUM
MLLW	MEAN LOWER LOW WATER
SHTS	SHEETS
STA	STATION
VERT	VERTICAL
WGS	WORLD GEODETIC SYSTEM

NO.	DESCRIPTION	DATE



**moffatt & nichol**  
 3780 KILROY AIRPORT WAY, STE. 600  
 LONG BEACH, CALIFORNIA 90806  
 (562)426-9551

DES: AA | DRW: DB | CHK: FC  
 APPROVED: *M. S. Alford*  
 PER: COMMANDER NAVFAC 11-26-13

DES	DRW	REV

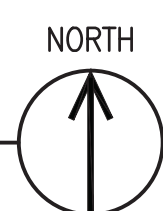
NAVFAC PACIFIC  
 MAJOURA, HAWAII  
 GUAM

DEPARTMENT OF THE NAVY  
 NAVAL FACILITIES ENGINEERING COMMAND  
 NAVAL BASE  
 FY14 MCON P-518  
**X-RAY WHARF IMPROVEMENTS**  
**BERTH 1**  
 OVERALL DREDGE PLAN (PART A)

DREDGE BOUNDARY POINTS		
X	NORTHING	EASTING
1	192715.62	91013.07
2	191735.00	91586.95
3	191489.73	91459.15
4	191449.74	91096.08
5	191678.49	90818.28
6	191959.00	90818.28
7	191959.00	91228.50
8	191986.75	91247.54
9	192752.01	90805.58
10	192673.18	90960.96

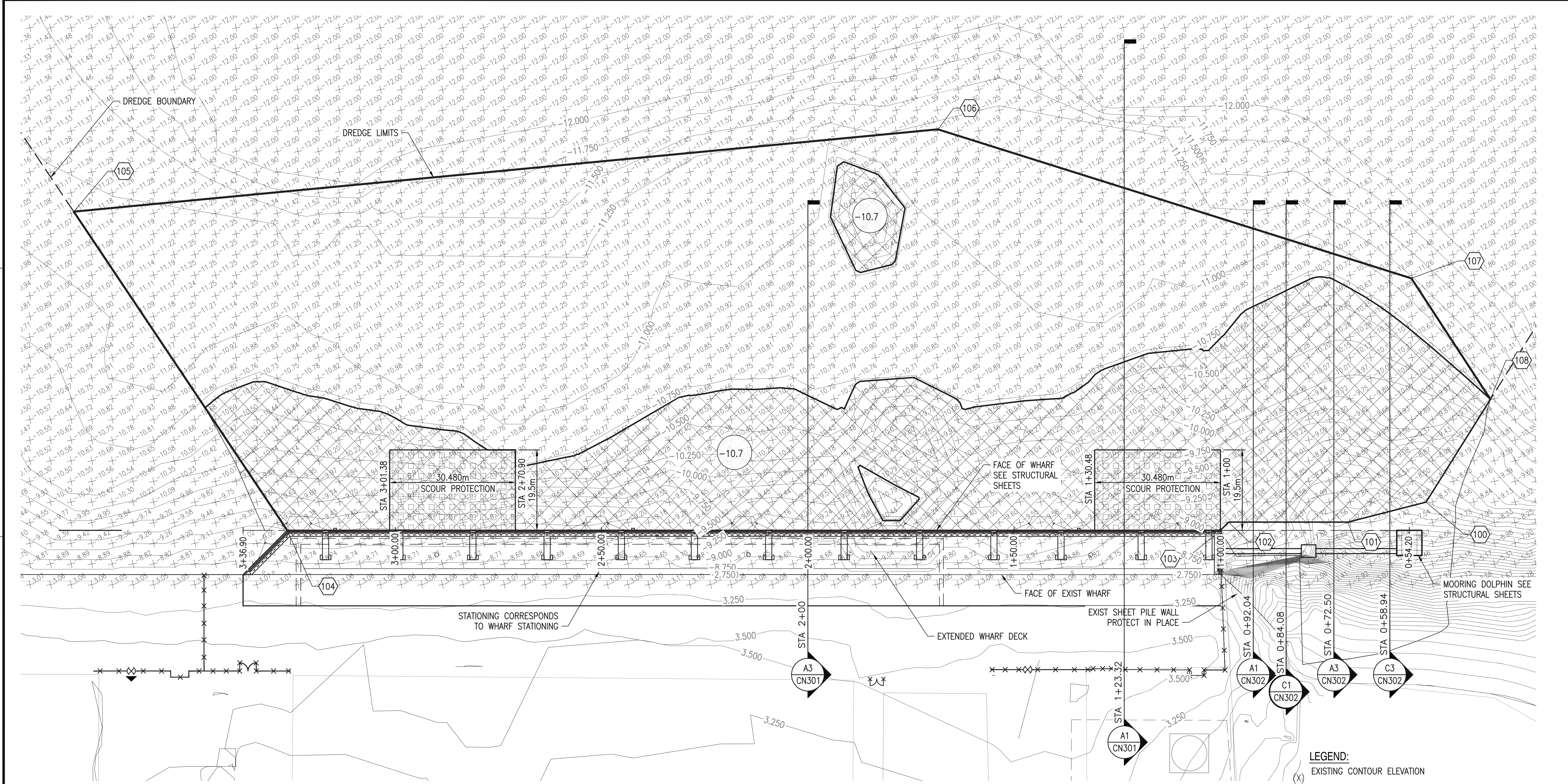
- NOTES:**
- HORIZONTAL AND VERTICAL CONTROL SURVEY IS BASED ON GUAM GEODETIC NETWORK (GGN) NO. 2146.
  - VERTICAL DATUM IS BASED ON MEAN LOWER LOW WATER (MLLW).
  - ALL DISTANCES AND COORDINATES ARE IN METERS.
  - CONTROL POINTS DENOTE TOE OF DREDGE AREA.

**OVERALL DREDGE PLAN**  
 SCALE: 1:5000



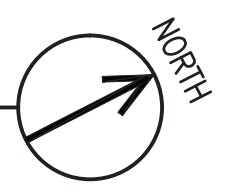
100m 0m 100m 200m  
 SCALE: 1 : 5000

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DREDGE LIMIT CONTROL POINTS		
(X)	NORTHING	EASTING
100	191737.70	91580.64
101	191718.66	91576.18
102	191693.02	91562.82
103	191690.32	91563.67
104	191489.73	91459.15
105	191479.55	91366.70
106	191674.53	91445.79
107	191759.62	91530.87
108	191763.05	91565.73

**P-518 WHARF AREA DREDGE PLAN VIEW**  
 SCALE: 1:500



**ABBREVIATIONS:**

- ABM ARTICULATED CONCRETE BLOCK MATTRESS
- APPROX APPROXIMATE
- CFD CONFINED DISPOSAL FACILITY
- DIA DIAMETER
- EL, ELEV ELEVATION
- ELEC ELECTRICAL
- EXIST EXISTING
- GGN GUAM GEODETIC NETWORK
- GIS GEODETIC INFORMATION SYSTEMS
- HORZ HORIZONTAL
- MAX MAXIMUM
- MIN MINIMUM
- MLLW MEAN LOWER LOW WATER
- SHTS SHEETS
- STA STATION
- VERT VERTICAL
- WGS WORLD GEODETIC SYSTEM

**LEGEND:**

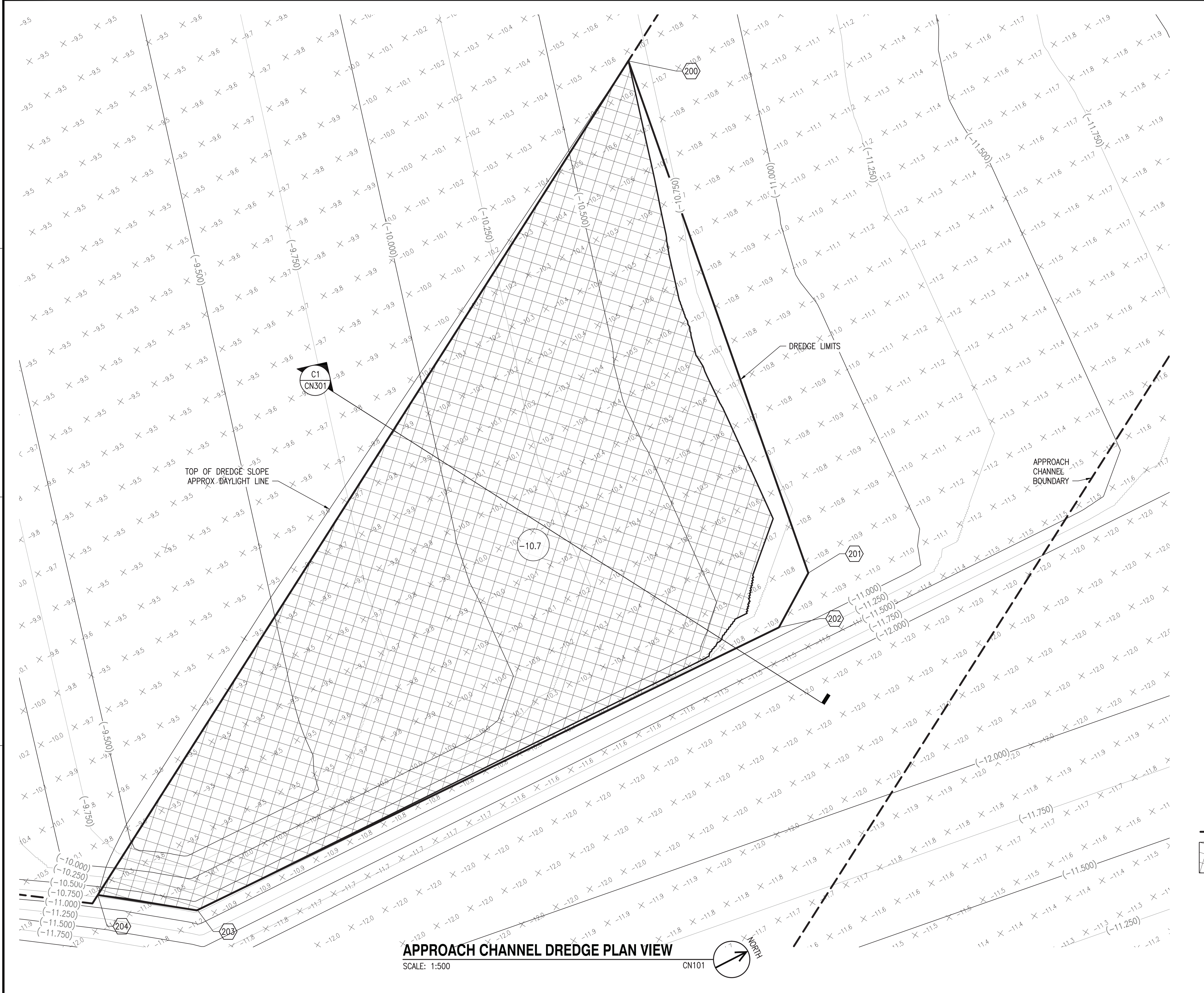
- (X) EXISTING CONTOUR ELEVATION
- X-X.XX EXIST BATHYMETRY SURVEY POINT ELEVATION. SURVEY DATA WAS COMPILED FROM:
  1. TOPO SURVEY CONDUCTED BY DCA IN MAY 2013
  2. DATA FROM GIS FILE RECEIVED FROM THE GOVERNMENT (SURVEY DATE UNKNOWN)
  3. X-RAY MAINTENANCE DREDGING CONDUCTED BY EFRON B. STANTOS IN OCTOBER 2012, RECEIVED IN PDF FORMAT
- (X) DREDGE CONTROL POINT (REFERENCES TOE OF DREDGE LIMIT)
- (-10.7) PROJECT DREDGE ELEVATION
- [Cross-hatched box] PROJECT DREDGE AREA



SCALE: 1 : 500

   3780 KILROY AIRPORT WAY, STE. 600 LONG BEACH, CALIFORNIA 90806 (562) 426-9551 M. S. Alford PER. COMMANDER NAVFAC 11-26-13 APPROVED: AA   DRAW: DB   CHECK: FC M. S. Alford PER. COMMANDER NAVFAC 11-26-13	DEPARTMENT OF THE NAVY NAVAL FACILITIES ENGINEERING COMMAND NAVAL PACIFIC MAJOLAPA, HAWAII GUAM FY14 MCON P-518 <b>X-RAY WHARF IMPROVEMENTS</b> BERTH 1 DREDGE PLAN - P-518 DREDGE AREA (PART A) SCALE: AS SHOWN EPROJECT NO.: 852260 CONSTR. CONTR. NO. NAVFAC DRAWING NO. 17152508 SHEET 24 OF 147 <b>CN102</b>
--	---

FILE NAME: P:\6948-13 X-Ray 7 Design Information\CADD\1-SHEETS\5-18\PART A\518A-CN103.dwg PLOTTED: 11/22/13 - 2:56pm BY: hgranzelz



**APPROACH CHANNEL DREDGE PLAN VIEW**  
SCALE: 1:500

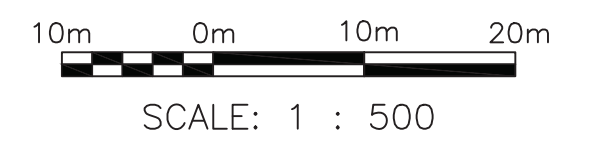
**ABBREVIATIONS:**






ABM	ARTICULATED CONCRETE BLOCK MATTRESS
APPROX	APPROXIMATE
CDP	CONFINED DISPOSAL FACILITY
DIA	DIAMETER
EL. ELEV	ELEVATION
ELEC	ELECTRICAL
EXIST	EXISTING
GGN	GUAM GEODETIC NETWORK
GIS	GEODETIC INFORMATION SYSTEMS
HORZ	HORIZONTAL
MAX	MAXIMUM
MIN	MINIMUM
MLLW	MEAN LOWER LOW WATER
SHTS	SHEETS
STA	STATION
VERT	VERTICAL
WGS	WORLD GEODETIC SYSTEM

**DREDGE LIMIT CONTROL POINTS**

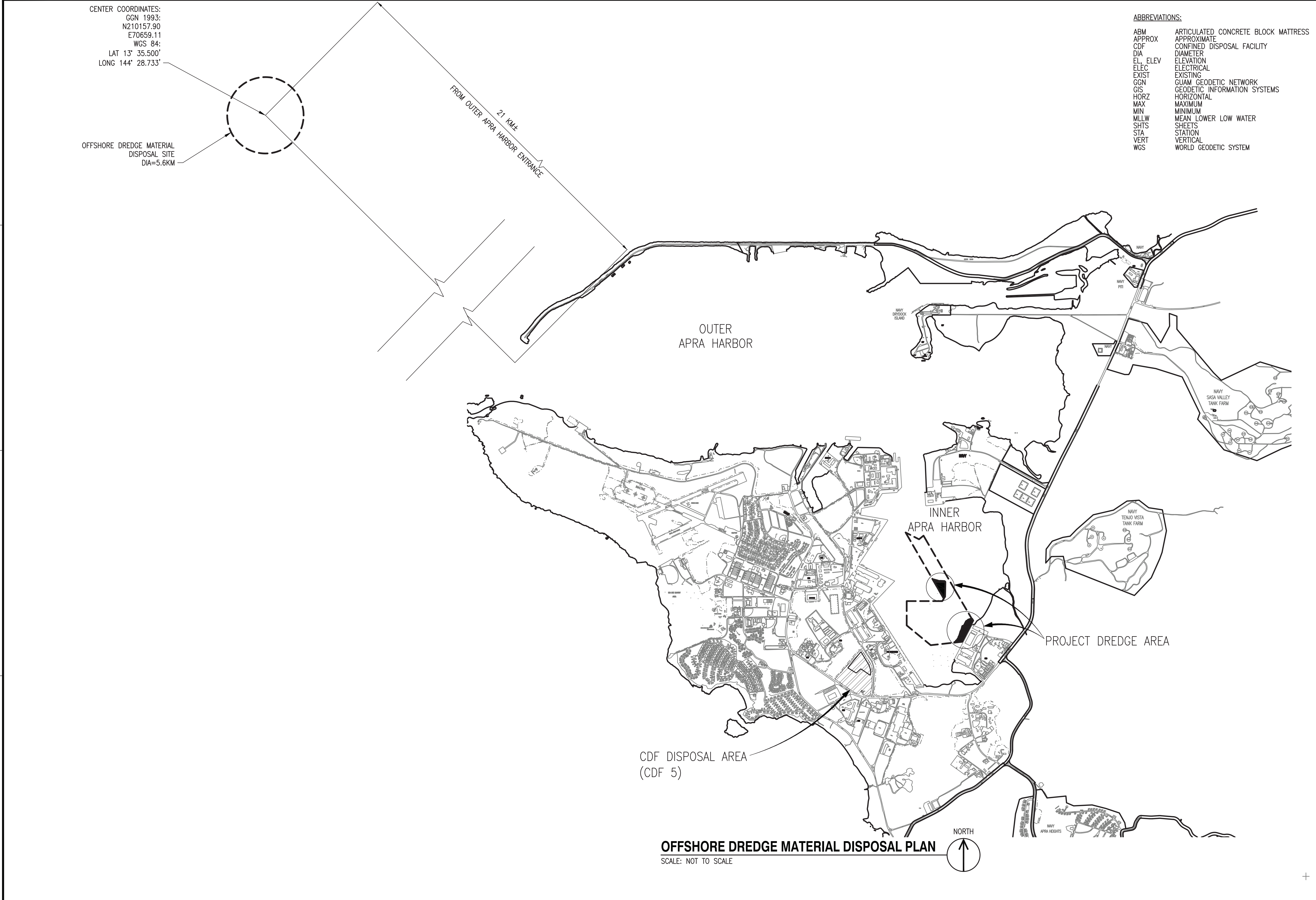
X	NORTHING	EASTING
200	192213.15	91116.79
201	192192.98	91257.46
202	192179.59	91266.52
203	192010.37	91261.85
204	191989.03	91246.22

- LEGEND:**
- (X) EXIST. CONTOUR ELEVATION
  - X-X.XX EXIST. BATHYMETRY SURVEY POINT ELEVATION. SURVEY DATA FROM GIS FILE RECEIVED FROM THE GOVERNMENT (SURVEY DATE UNKNOWN)
  - X DREDGE CONTROL POINT (REFERENCES TOE OF DREDGE LIMIT)
  - 10.7 PROJECT DREDGE ELEVATION
  - APPROACH CHANNEL BOUNDARY
  - [Cross-hatch pattern] PROJECT DREDGE AREA



	DATE
	DESCRIPTION
	SWR
	
	
	
<b>moffatt &amp; nichol</b> <small>3780 KILROY AIRPORT WAY, STE. 600          LONG BEACH, CALIFORNIA 90806          (562)426-9551</small>	
 <small>DES: AA   DRAW: DB   CHK: FC</small>	
 <small>PER COMMANDER NAVFAC 11-26-13</small>	
ACTIVITY	
SATISFACTORY TO DATE	
	REV
	AWK
BRANCH MANAGER	
CHIEF ENG/ARCH	
FIRE PROTECTION	
DEPARTMENT OF THE NAVY NAVFAC PACIFIC NAVAL FACILITIES ENGINEERING COMMAND MAQUOPA, HAWAII GUAM	FY14 MCON P-518 <b>X-RAY WHARF IMPROVEMENTS</b> BERTH 1 APPROACH CHANNEL DREDGE PLAN VIEW (PART A)
SCALE: AS SHOWN	
PROJECT NO.: 852260	
CONSTR. CONTR. NO.	
NAVFAC DRAWING NO. 17152509	
SHEET 25 OF 147	
<b>CN103</b>	

FILE NAME: P:\6948-13 X-Ray 7 Design Information\CADD\1-SHEETS\P-518\PART A\P518A-CN104.dwg PLOTTED: 11/22/13 - 2:56pm BY: hganzalez



CENTER COORDINATES:  
 GGN 1993:  
 N210157.90  
 E70659.11  
 WGS 84:  
 LAT 13° 35.500'  
 LONG 144° 28.733'

- ABBREVIATIONS:
- ABM ARTICULATED CONCRETE BLOCK MATTRESS
  - APPROX APPROXIMATE
  - CDF CONFINED DISPOSAL FACILITY
  - DIA DIAMETER
  - EL ELEVATION
  - ELEC ELECTRICAL
  - EXIST EXISTING
  - GGN GUAM GEODETIC NETWORK
  - GIS GEODETIC INFORMATION SYSTEMS
  - HORZ HORIZONTAL
  - MAX MAXIMUM
  - MIN MINIMUM
  - MILLW MEAN LOWER LOW WATER
  - SHTS SHEETS
  - STA STATION
  - VERT VERTICAL
  - WGS WORLD GEODETIC SYSTEM

NO.	DESCRIPTION	DATE

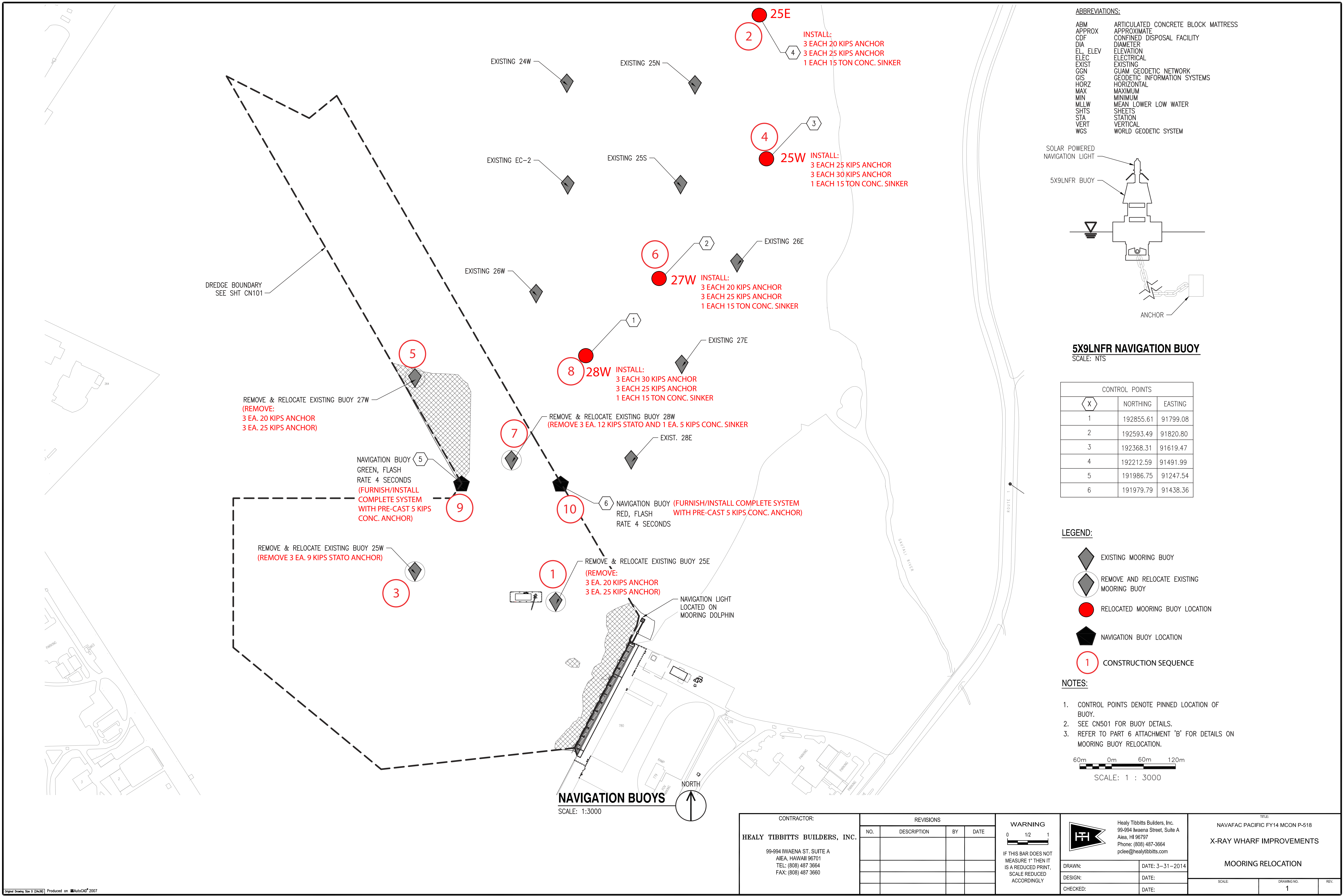


**moffatt & nichol**  
 3780 KILROY AIRPORT WAY, STE 600  
 LONG BEACH, CALIFORNIA 90806  
 (562) 426-9551

DES: AA | DRW: DB | CHK: FC  
 APPROVED: *M. Sutila*  
 PER COMMANDER NAVFAC: 11-26-13

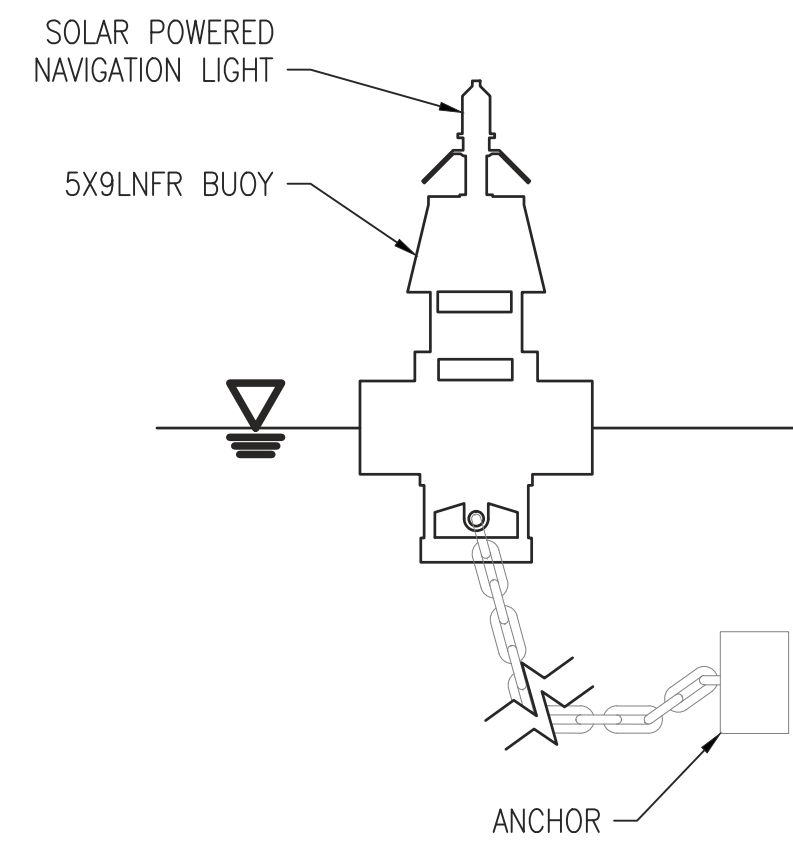
DEPARTMENT OF THE NAVY  
 NAVAL FACILITIES ENGINEERING COMMAND  
 NAVFAC PACIFIC  
 NAVY WHARF IMPROVEMENTS  
 BERTH 1  
 OFFSHORE DREDGE MATERIAL DISPOSAL PLAN (PART A)

SCALE: AS SHOWN  
 PROJECT NO.: 852260  
 CONSTR. CONTR. NO.  
 NAVFAC DRAWING NO.: 17152510  
 SHEET 26 OF 147  
**CN104**



**ABBREVIATIONS:**

ABM	ARTICULATED CONCRETE BLOCK MATTRESS
APPROX	APPROXIMATE
CDF	CONFINED DISPOSAL FACILITY
DIA	DIAMETER
EL., ELEV	ELEVATION
ELEC	ELECTRICAL
EXIST	EXISTING
GGN	GUAM GEODETIC NETWORK
GIS	GEODETIC INFORMATION SYSTEMS
HORZ	HORIZONTAL
MAX	MAXIMUM
MIN	MINIMUM
MLLW	MEAN LOWER LOW WATER
SHTS	SHEETS
STA	STATION
VERT	VERTICAL
WGS	WORLD GEODETIC SYSTEM

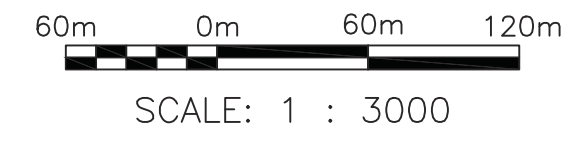


**5X9LNFR NAVIGATION BUOY**  
SCALE: NTS

CONTROL POINTS		
X	NORTHING	EASTING
1	192855.61	91799.08
2	192593.49	91820.80
3	192368.31	91619.47
4	192212.59	91491.99
5	191986.75	91247.54
6	191979.79	91438.36

- LEGEND:**
- EXISTING MOORING BUOY
  - REMOVE AND RELOCATE EXISTING MOORING BUOY
  - RELOCATED MOORING BUOY LOCATION
  - NAVIGATION BUOY LOCATION
  - CONSTRUCTION SEQUENCE

- NOTES:**
- CONTROL POINTS DENOTE PINNED LOCATION OF BUOY.
  - SEE CN501 FOR BUOY DETAILS.
  - REFER TO PART 6 ATTACHMENT 'B' FOR DETAILS ON MOORING BUOY RELOCATION.



**NAVIGATION BUOYS**  
SCALE: 1:3000

**CONTRACTOR:**  
**HEALY TIBBITTS BUILDERS, INC.**  
99-994 IWAENA ST. SUITE A  
AIEA, HAWAII 96701  
TEL: (808) 487 3664  
FAX: (808) 487 3660

REVISIONS			
NO.	DESCRIPTION	BY	DATE

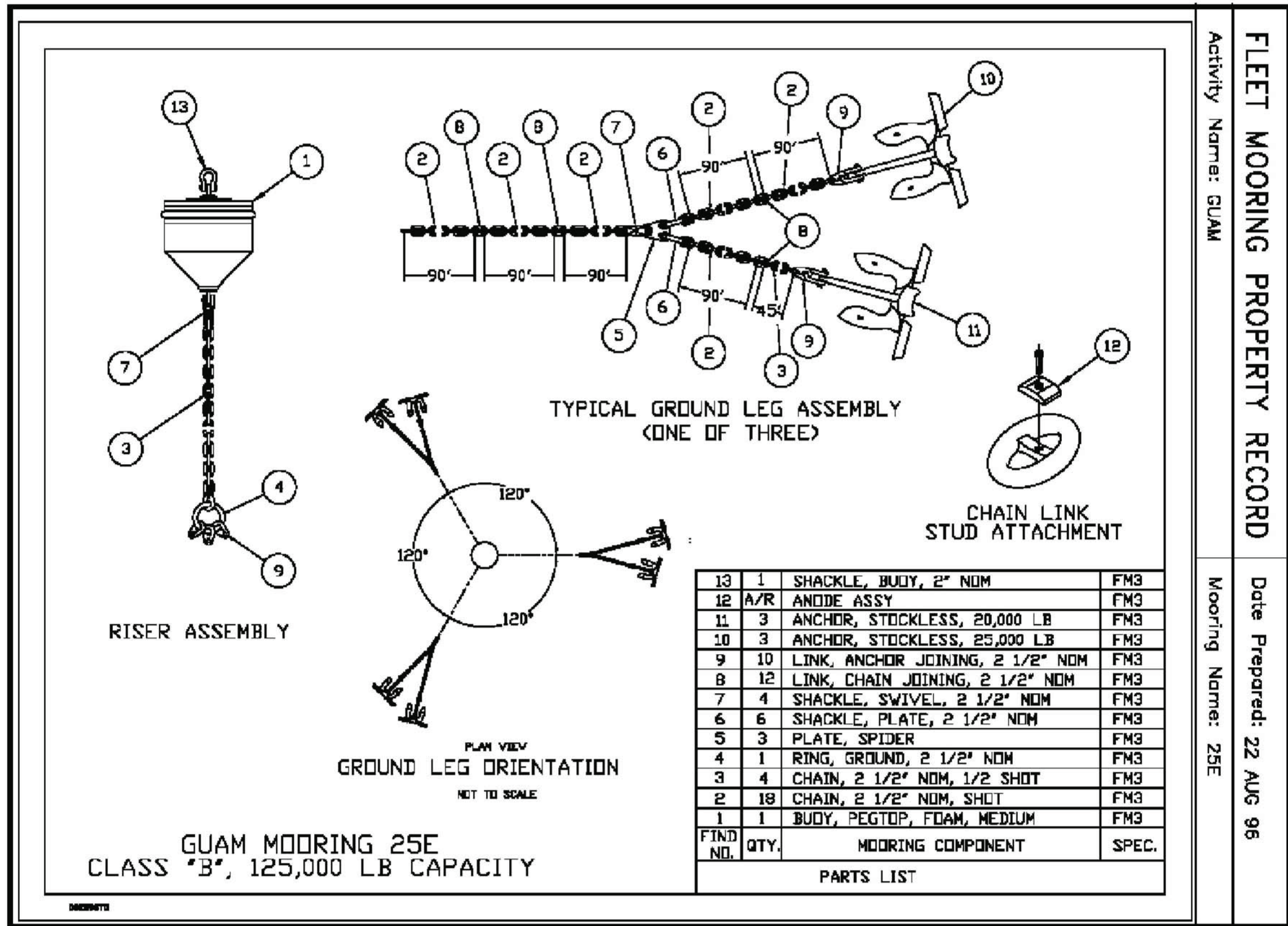
**WARNING**  
IF THIS BAR DOES NOT MEASURE 1" THEN IT IS A REDUCED PRINT, SCALE REDUCED ACCORDINGLY

**Healy Tibbitts Builders, Inc.**  
99-994 Iwaena Street, Suite A  
Aiea, HI 96797  
Phone: (808) 487-3664  
pctee@healytibbitts.com

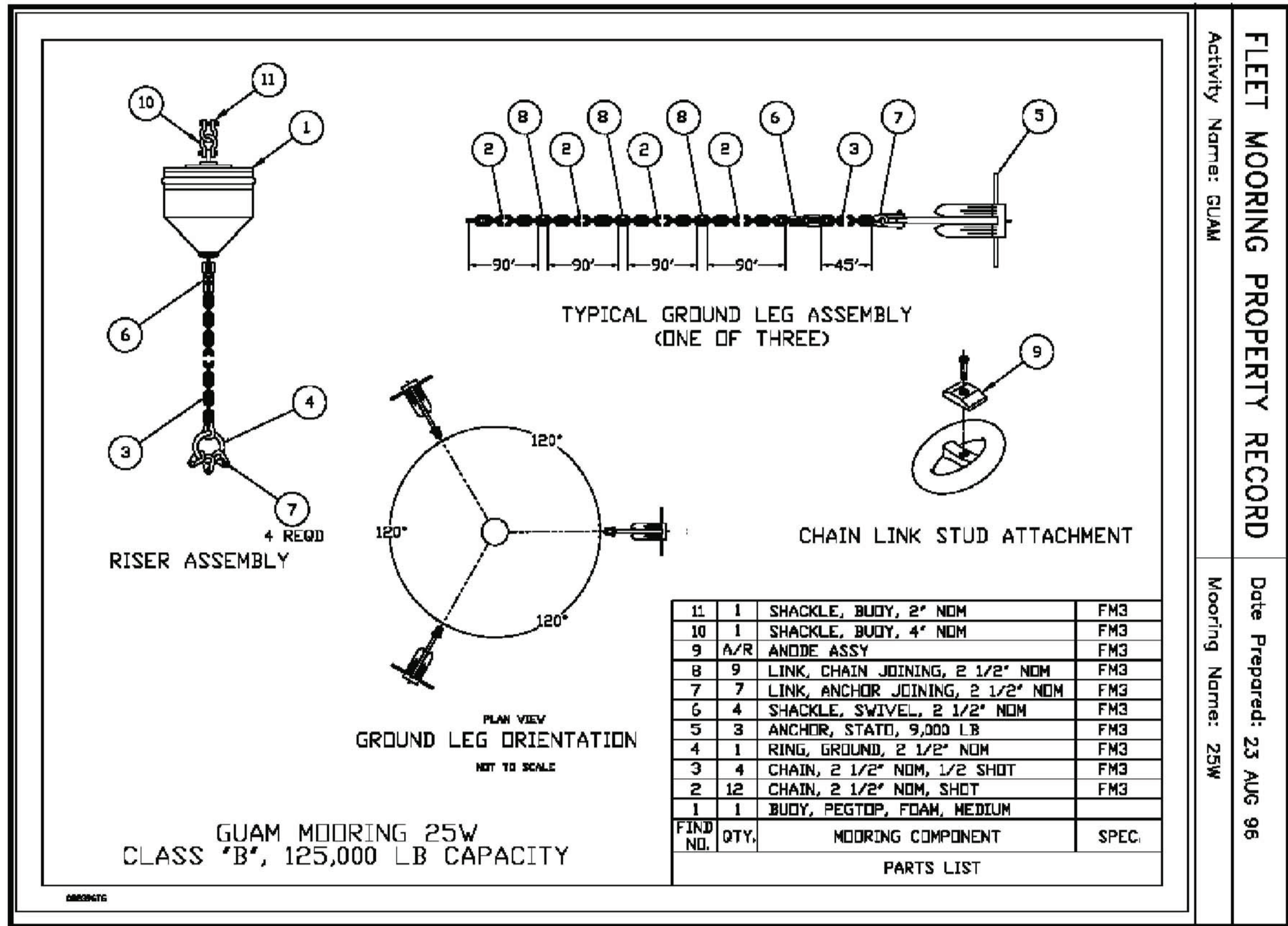
DRAWN: DATE: 3-31-2014  
DESIGN: DATE:  
CHECKED: DATE:

**NAVAFAC PACIFIC FY14 MCON P-518**  
**X-RAY WHARF IMPROVEMENTS**  
**MOORING RELOCATION**

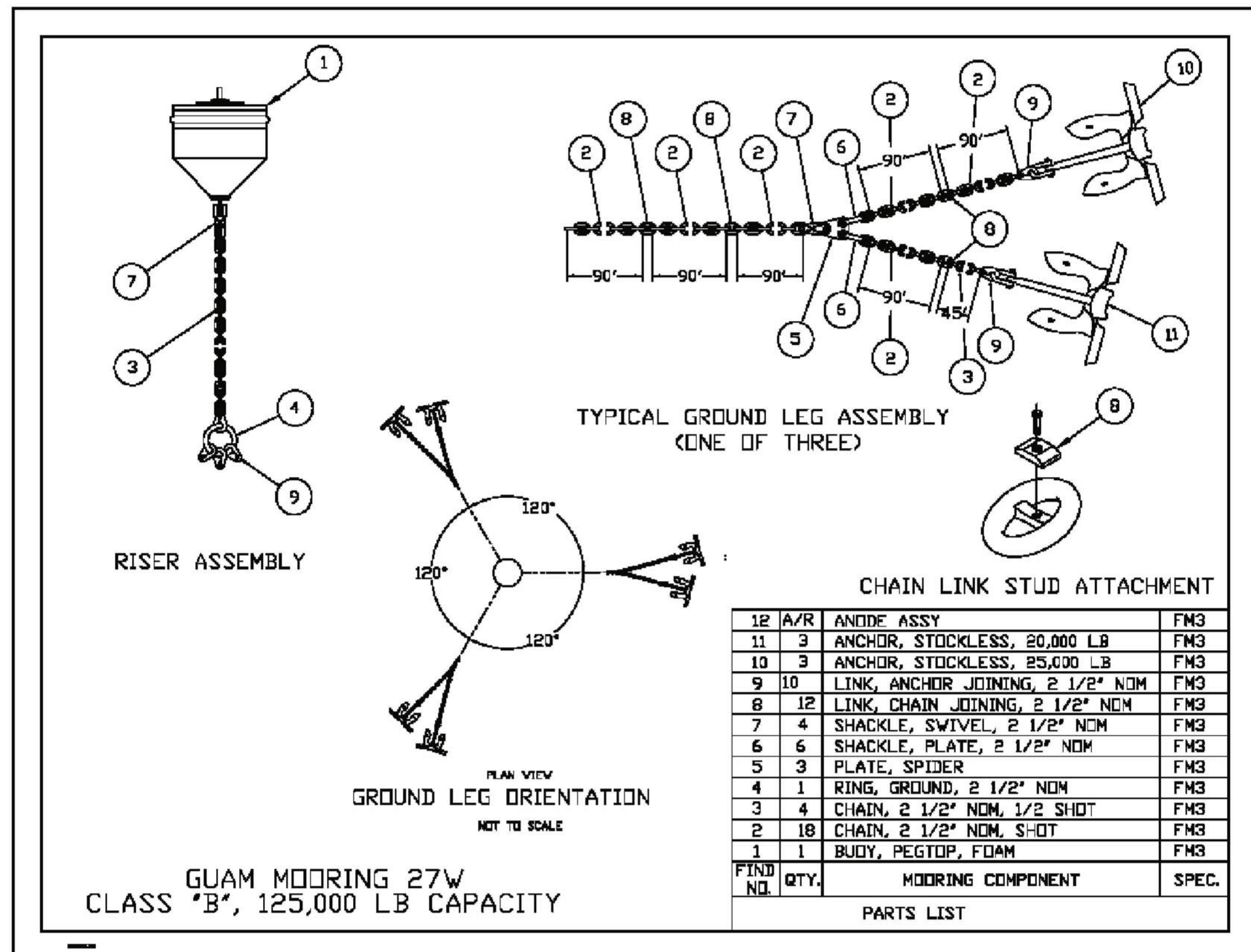
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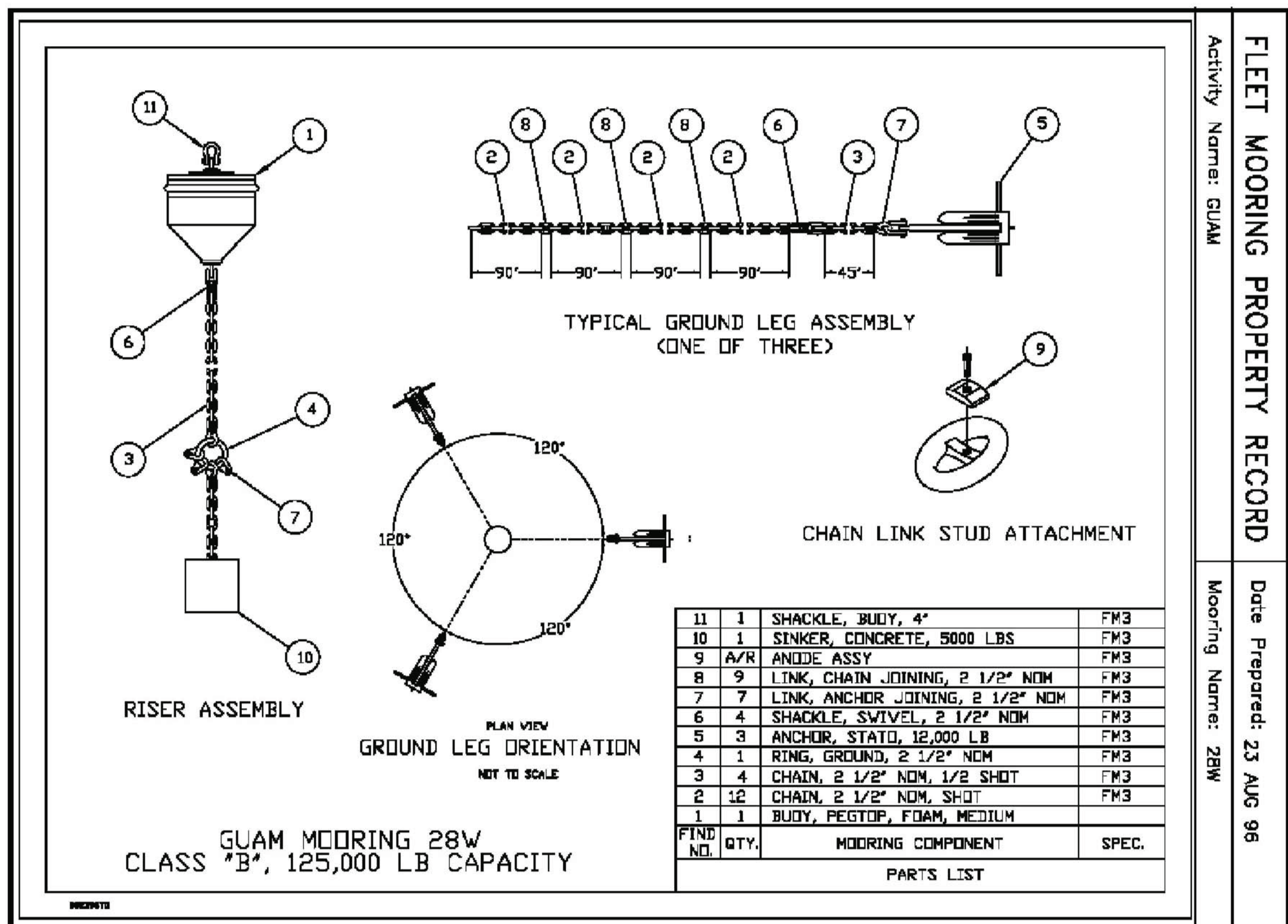
**EXISTING MOORING BUOY 25E**  
SCALE: NTS CN105



**EXISTING MOORING BUOY 25W**  
SCALE: NTS CN105



**EXISTING MOORING BUOY 27W**  
SCALE: NTS CN105



**EXISTING MOORING BUOY 28W**  
SCALE: NTS CN105

FLEET MOORING PROPERTY RECORD  
Activity Name: GUAM  
Date Prepared: 22 AUG 96  
Mooring Name: 25E

FLEET MOORING PROPERTY RECORD  
Activity Name: GUAM  
Date Prepared: 23 AUG 96  
Mooring Name: 25W

FLEET MOORING PROPERTY RECORD  
Activity Name: GUAM  
Date Prepared: 23 AUG 96  
Mooring Name: 28W



3780 KILROY AIRPORT WAY, STE 600  
LONG BEACH, CALIFORNIA 90806  
(562)426-9551

DES: AA | DRW: DB | CHK: FC  
APPROVED: M. S. Alford  
PER COMMANDER NAVFAC 11-26-13

SATISFACTORY TO	DATE
DES	REV
PM/DM	AWK
BRANCH MANAGER	
CHIEF ENG/ARCH	
FIRE PROTECTION	

DEPARTMENT OF THE NAVY  
NAVFAC PACIFIC  
NAVFAC PACIFIC  
NAVAL BASE  
FY14 MCON P-518  
X-RAY WHARF IMPROVEMENTS  
BERTH 1  
EXISTING MOORING BUOY DETAILS (PART A)

SCALE: AS SHOWN  
PROJECT NO.: 852260  
CONSTR. CONTR. NO.  
NAVFAC DRAWING NO. 17152514  
SHEET 30 OF 147  
**CN501**

FILE NAME: P:\6948-13 X-Ray\7 Design Information\CADD\1-SHEETS\5-518\PART A\518A-CN501.dwg PLOTTED: 11/22/13 - 2:57pm BY: hgonzalez

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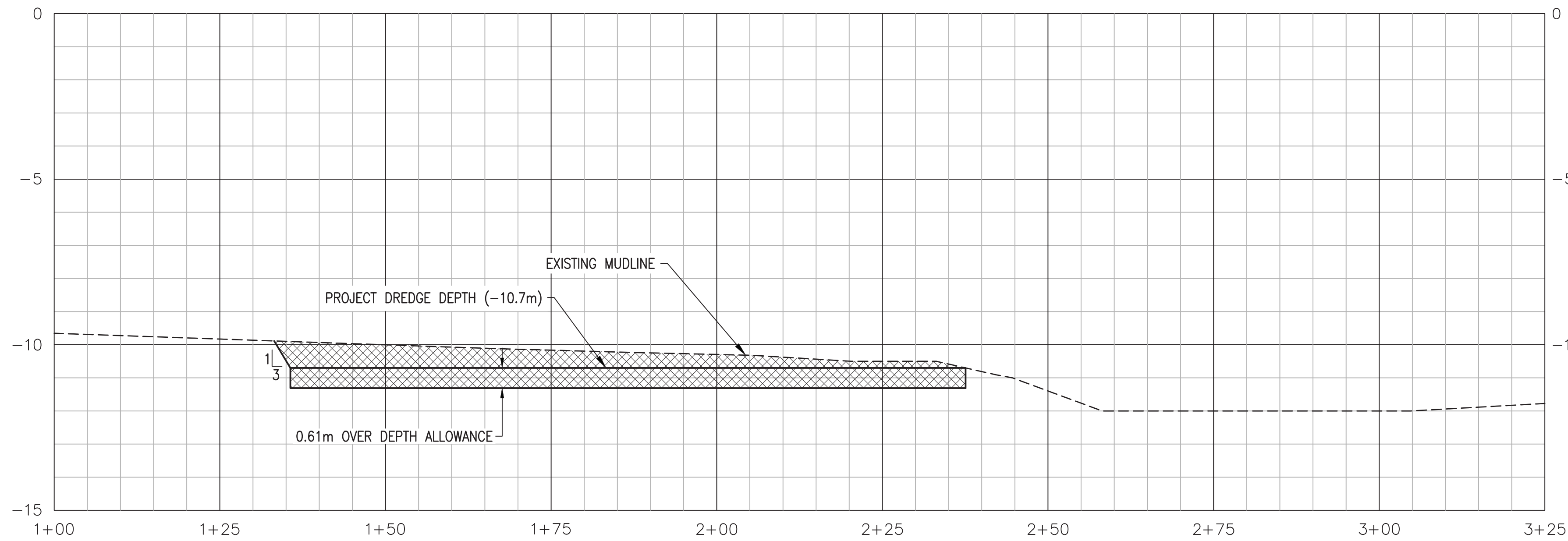
1 2 3 4 5

D

C

B

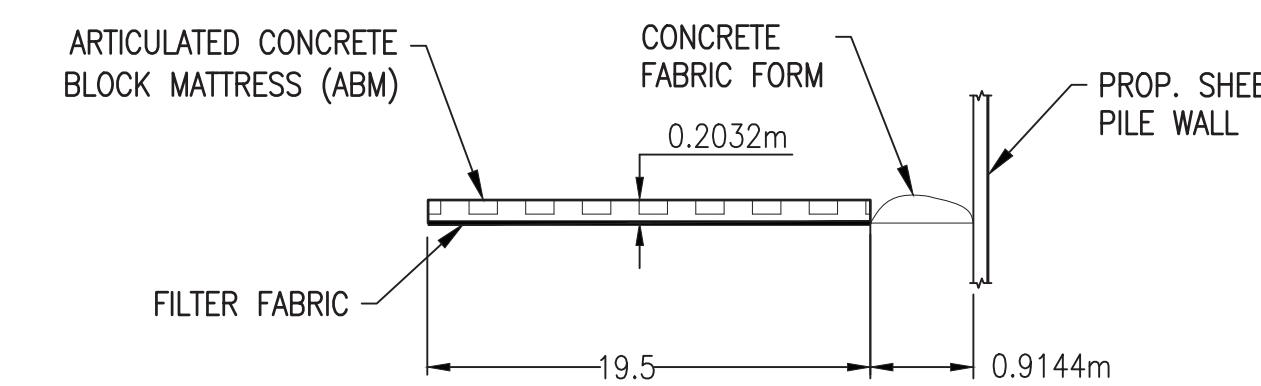
A



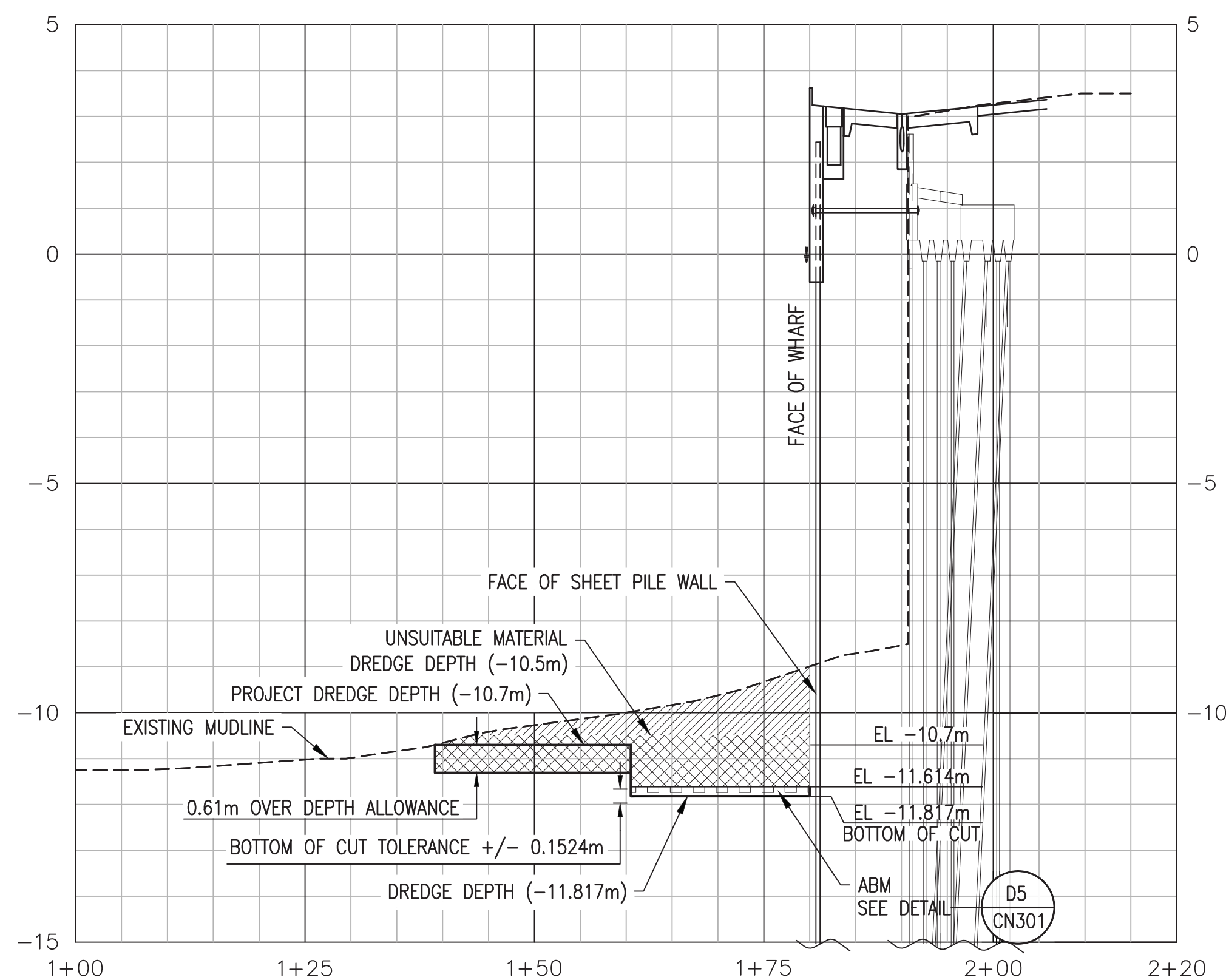
**DREDGE SECTION - APPROACH CHANNEL**  
SCALE: 1:500 HORZ, 1:100 VERT CN103 **C1**

- ABBREVIATIONS:**
- ABM ARTICULATED CONCRETE BLOCK MATTRESS
  - APPROX APPROXIMATE
  - CDF CONFINED DISPOSAL FACILITY
  - DIA DIAMETER
  - EL ELEVATION
  - ELEC ELECTRICAL
  - EXIST EXISTING
  - GGN GUAM GEODETIC NETWORK
  - GIS GEODETIC INFORMATION SYSTEMS
  - HORZ HORIZONTAL
  - MAX MAXIMUM
  - MIN MINIMUM
  - MILLW MEAN LOWER LOW WATER
  - SHTS SHEETS
  - STA STATION
  - VERT VERTICAL
  - WGS WORLD GEODETIC SYSTEM

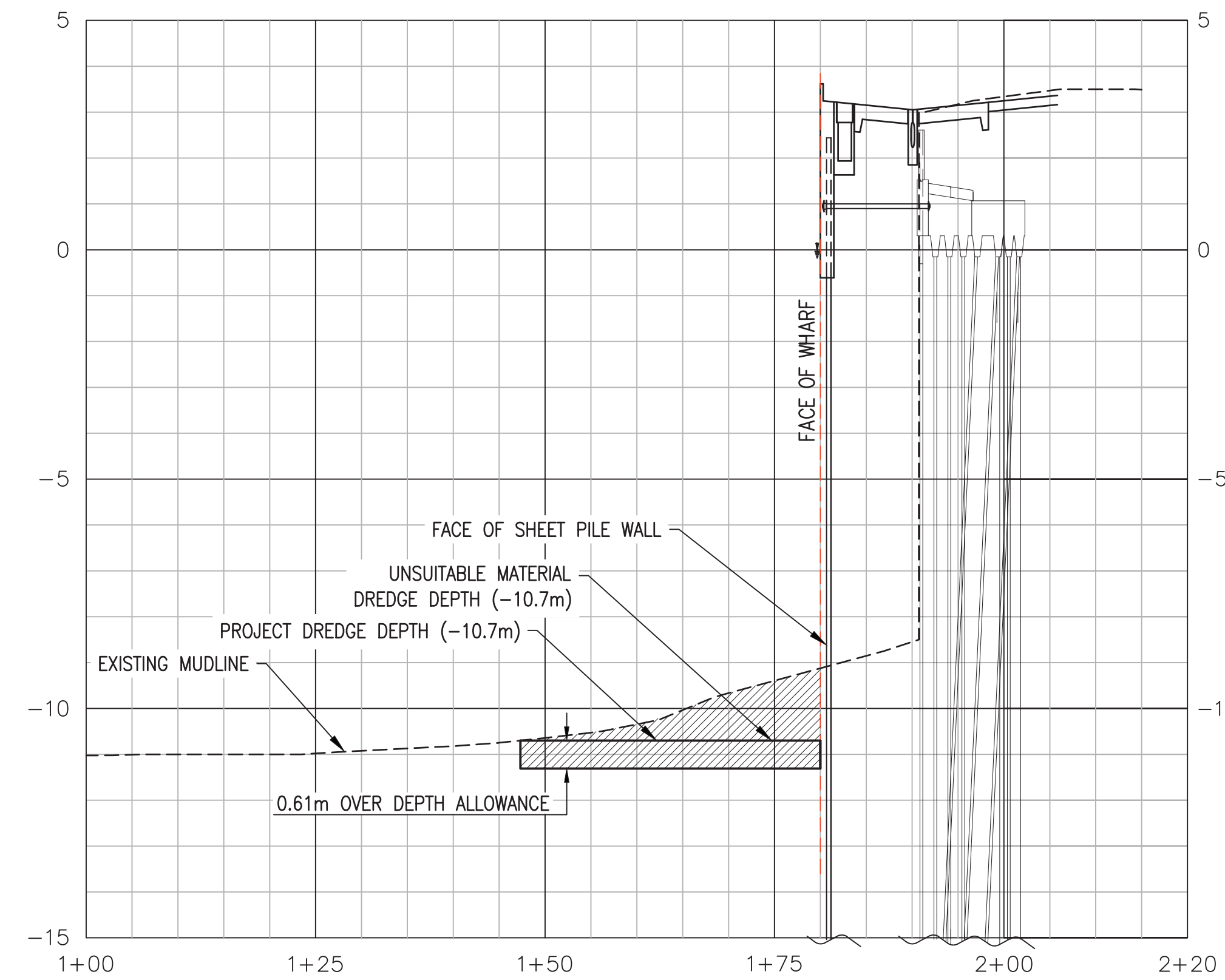
- LEGEND:**
- MATERIAL DISPOSED AT UPLAND DISPOSAL AREA
  - MATERIAL DISPOSED AT OFF SHORE DISPOSAL AREA



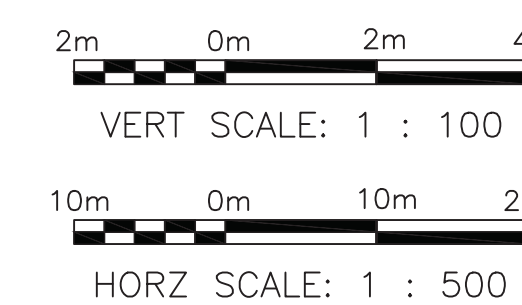
**ARTICULATED CONCRETE BLOCK MATTRESS DETAIL**  
NOT TO SCALE BEGIN STA 1+00 END STA 1+30.48 CN301 **D5**  
BEGIN STA 2+70.90 END STA 3+01.38



**APPLIES FROM STA 1+00 TO 1+60 Amendment 03 07 FEB 2014**  
**DREDGE SECTION - STA 1+23.32**  
SCALE: 1:500 HORZ, 1:100 VERT CN102 **A1**



**APPLIES FROM STA 1+60 TO 3+36 Amendment 03 07 FEB 2014**  
**DREDGE SECTION - STA 2+00**  
SCALE: 1:500 HORZ, 1:100 VERT CN102 **A3**



SYN	DESCRIPTION	DATE



**moftatt & nichol**  
3780 KILROY AIRPORT WAY, STE 600  
LONG BEACH, CALIFORNIA 90806  
(562)426-9551

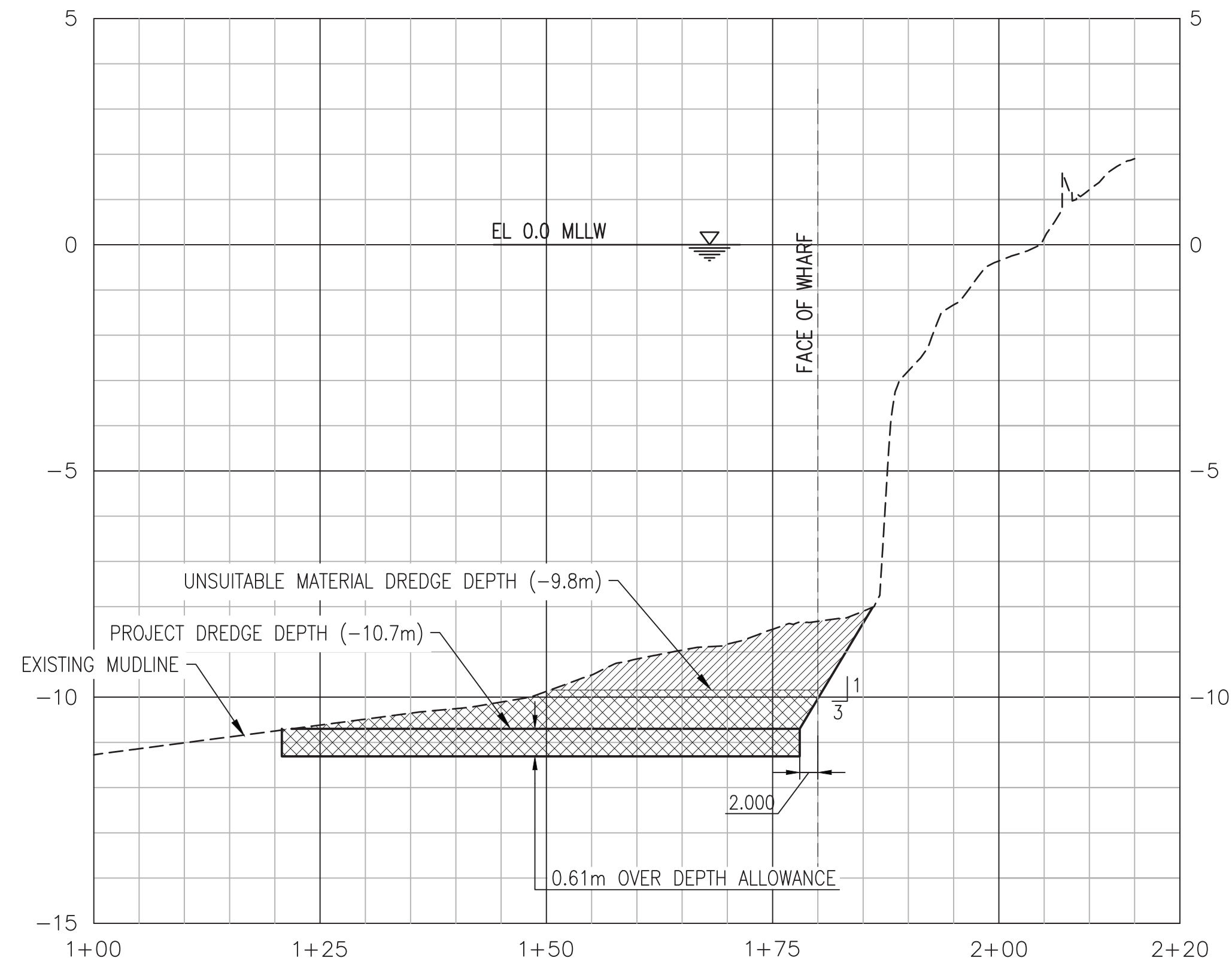
DES: AA | DRW: DB | CHK: FC  
APPROVED: *M. S. Algoday*  
PER. COMMANDER NAVFAC 11-26-13

ACTIVITY: NAVAL FACILITIES ENGINEERING COMMAND  
GUAM

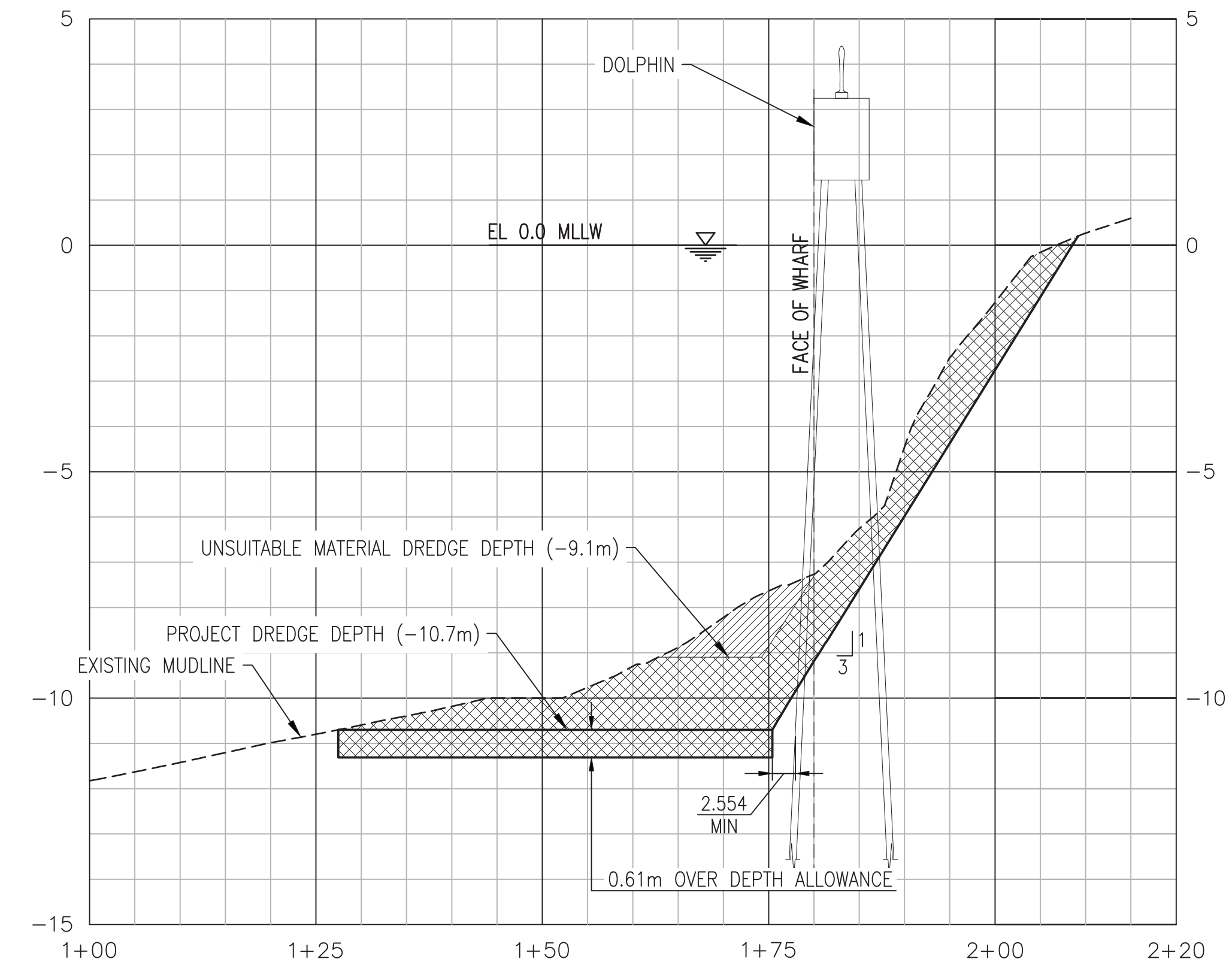
NAVFAC PACIFIC  
FY14 MCON P-518  
X-RAY WHARF IMPROVEMENTS  
BERTH 1  
DREDGE SECTIONS - 1 (PART A)

SCALE: AS SHOWN  
PROJECT NO.: 852260  
CONSTR. CONTR. NO.  
NAVFAC DRAWING NO. 17152512  
SHEET 28 OF 147  
**CN301**

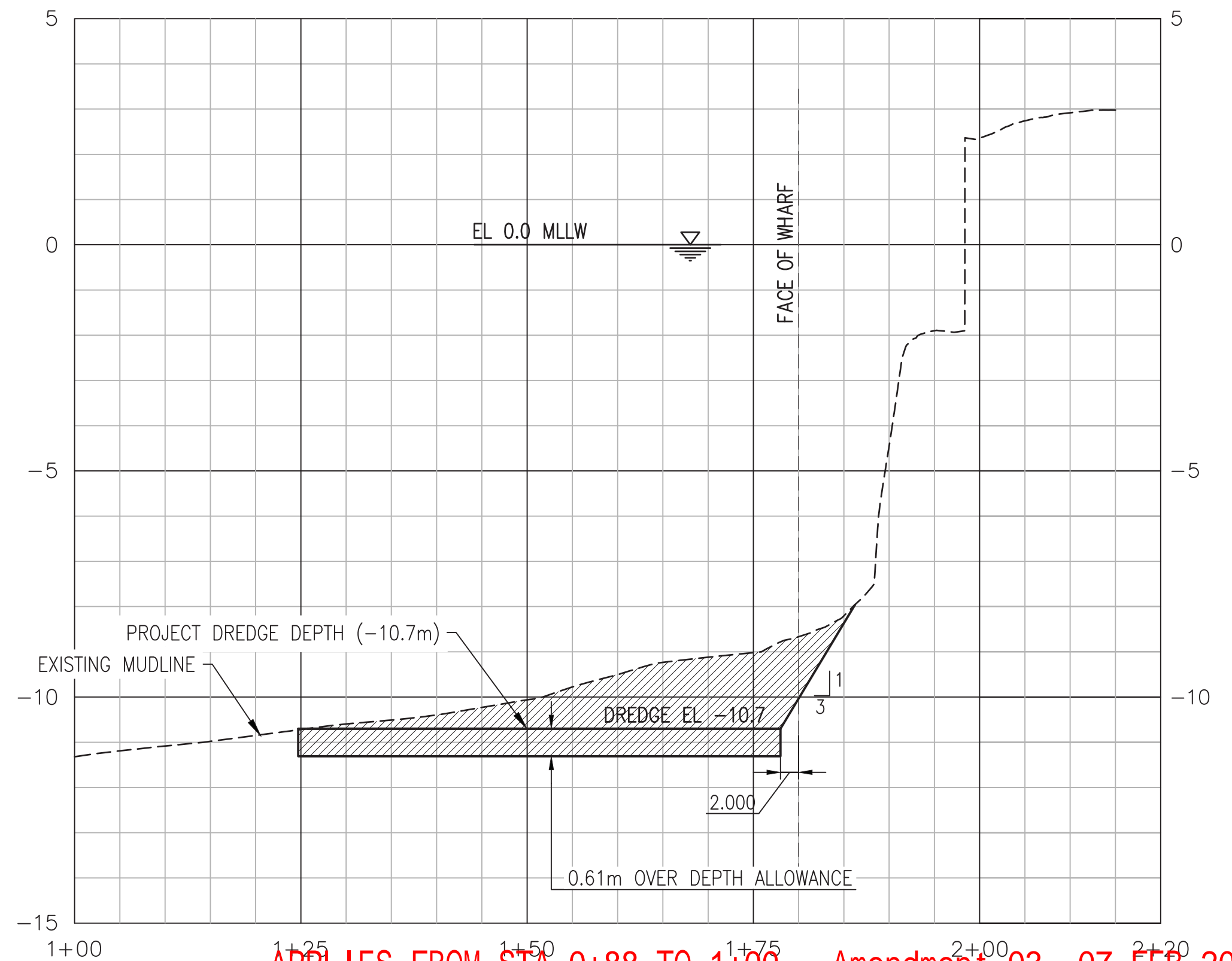
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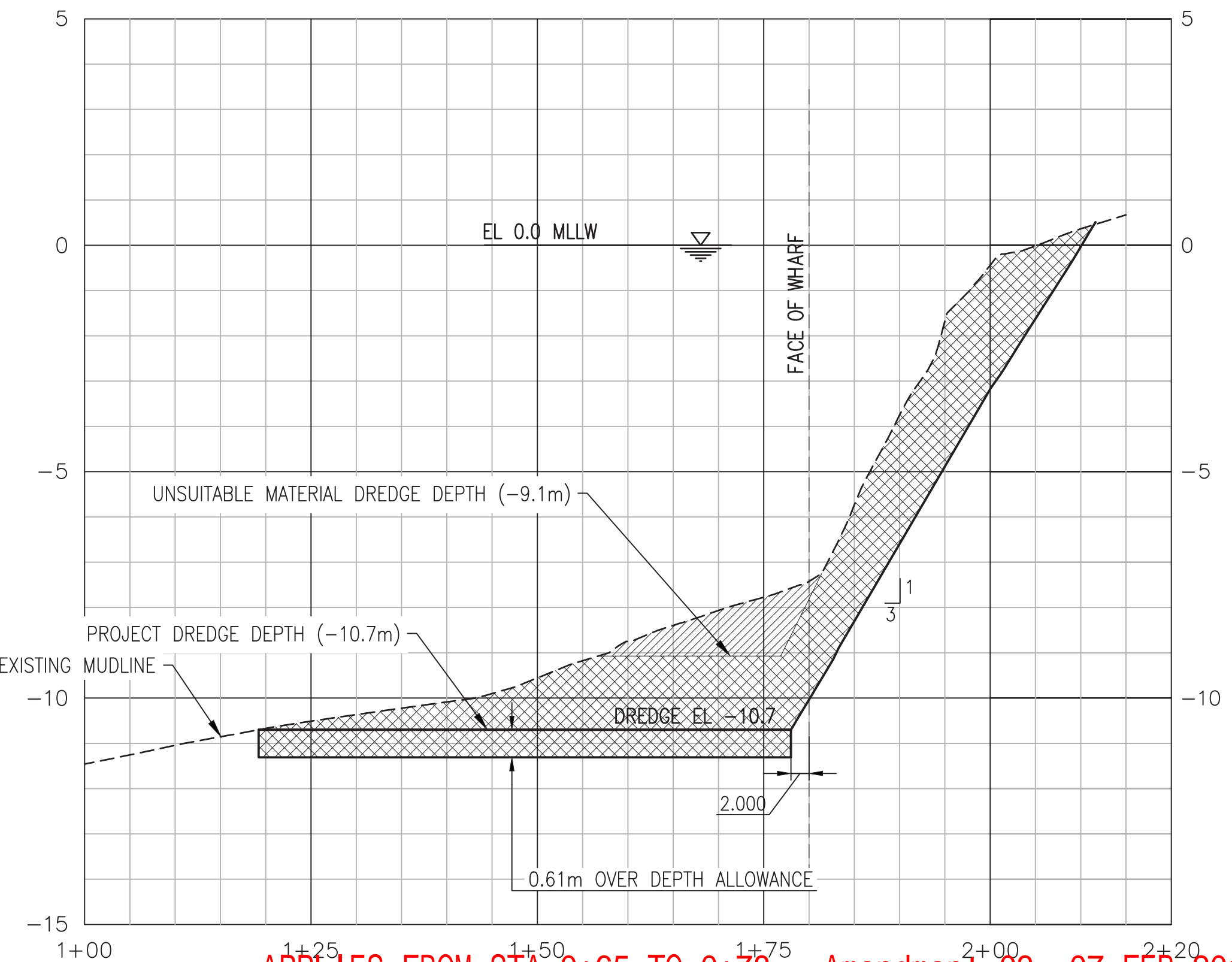
**APPLIES FROM STA 0+78 TO 0+88** Amendment 03 07 FEB 2014  
**DREDGE SECTION - STA 0+84.08**  
 SCALE: 1:500 HORZ, 1:100 VERT



**APPLIES FROM STA 0+54 TO 0+65** Amendment 03 07 FEB 2014  
**DREDGE SECTION - STA 0+58.94**  
 SCALE: 1:500 HORZ, 1:100 VERT



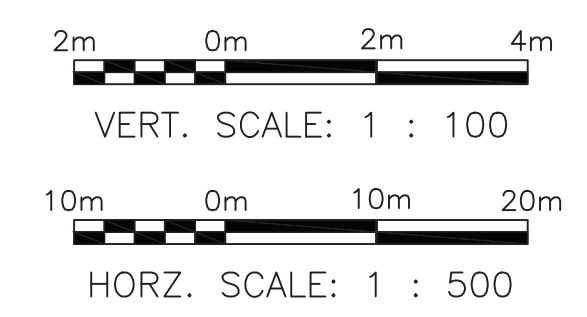
**APPLIES FROM STA 0+88 TO 1+00** Amendment 03 07 FEB 2014  
**DREDGE SECTION - STA 0+92.04**  
 SCALE: 1:500 HORZ, 1:100 VERT



**APPLIES FROM STA 0+65 TO 0+78** Amendment 03 07 FEB 2014  
**DREDGE SECTION - STA 0+72.50**  
 SCALE: 1:500 HORZ, 1:100 VERT

- ABBREVIATIONS:**
- ABM ARTICULATED CONCRETE BLOCK MATTRESS
  - APPROX APPROXIMATE
  - CDF CONFINED DISPOSAL FACILITY
  - DIA DIAMETER
  - EL ELEVATION
  - ELEC ELECTRICAL
  - EXIST EXISTING
  - GGN GUAM GEODETIC NETWORK
  - GIS GEODETIC INFORMATION SYSTEMS
  - HORZ HORIZONTAL
  - MAX MAXIMUM
  - MIN MINIMUM
  - MLLW MEAN LOWER LOW WATER
  - SHTS SHEETS
  - STA STATION
  - VERT VERTICAL
  - WGS WORLD GEODETIC SYSTEM

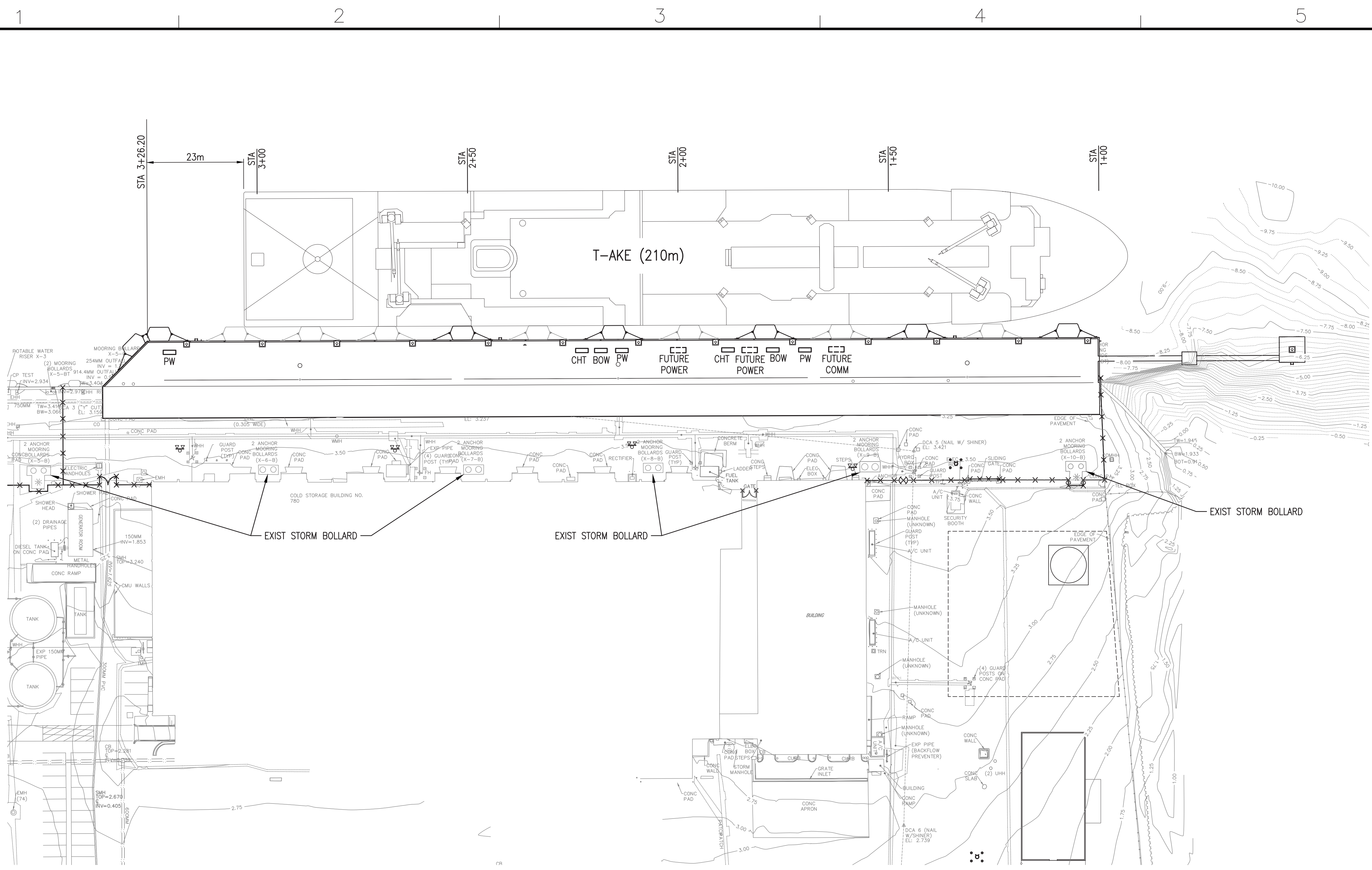
- LEGEND:**
- [Hatched pattern] MATERIAL DISPOSED AT UPLAND DISPOSAL AREA
  - [Cross-hatched pattern] MATERIAL DISPOSED AT OFF SHORE DISPOSAL AREA



DATE	
DESCRIPTION	
SYN	
<b>moffatt &amp; nichol</b> 3780 KILROY AIRPORT WAY, STE 600 LONG BEACH, CALIFORNIA 90806 (562)426-9551	
DES	AA
DRW	DB
CHK	FC
APPROVED	
PER COMMANDER NAVFAC 11-26-13	
ACTIVITY	
SATISFACTORY TO DATE	
DES	DATE
REV	REV
PM/DM	AWK
BRANCH MANAGER	
CHIEF ENG/ARCH	
FIRE PROTECTION	
DEPARTMENT OF THE NAVY	NAVFAC PACIFIC
NAVFAC PACIFIC	NAVFAC PACIFIC
FY14 MCON P-518	
X-RAY WHARF IMPROVEMENTS	
BERTH 1	
DREDGE SECTIONS - 2 (PART A)	
SCALE:	AS SHOWN
EPROJECT NO.:	852260
CONSTR. CONTR. NO.	
NAVFAC DRAWING NO.	17152513
SHEET	29 OF 147
<b>CN302</b>	



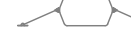


FILE NAME: P:\6948-13 X-Ray\7 Design Information\CADD\1-SHEETS\PART A\518A-S-101.dwg PLOTTED: 11/22/13 - 3:27pm BY: hgonzalez



**MOORING ARRANGEMENT PLAN**  
SCALE: 1:500




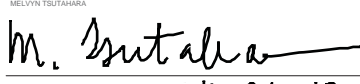
**LEGEND:**

-  INDICATES MOORING BOLLARD
-  INDICATES 3300 DIA PNEUMATIC BASE BID FENDERS (7 TOTAL)  
CONTRACTOR FURNISHED CONTRACTOR INSTALLED (CFCI)
-  INDICATES PNEUMATIC COLLATERAL EQUIPMENT FENDERS (7 TOTAL)  
~~CONTRACTOR FURNISHED CONTRACTOR INSTALLED (CFCI)~~ **GOVERNMENT FURNISHED GOVERNMENT INSTALLED (GFGI)**  
**Amendment 01 10 JAN 2014**
- CHT SHIPS WASTE WATER
- BOW BILGE OILY WASTE (P-518 DEDUCTIVE ITEM No. 2)
- PW POTABLE WATER
- COMM COMMUNICATIONS

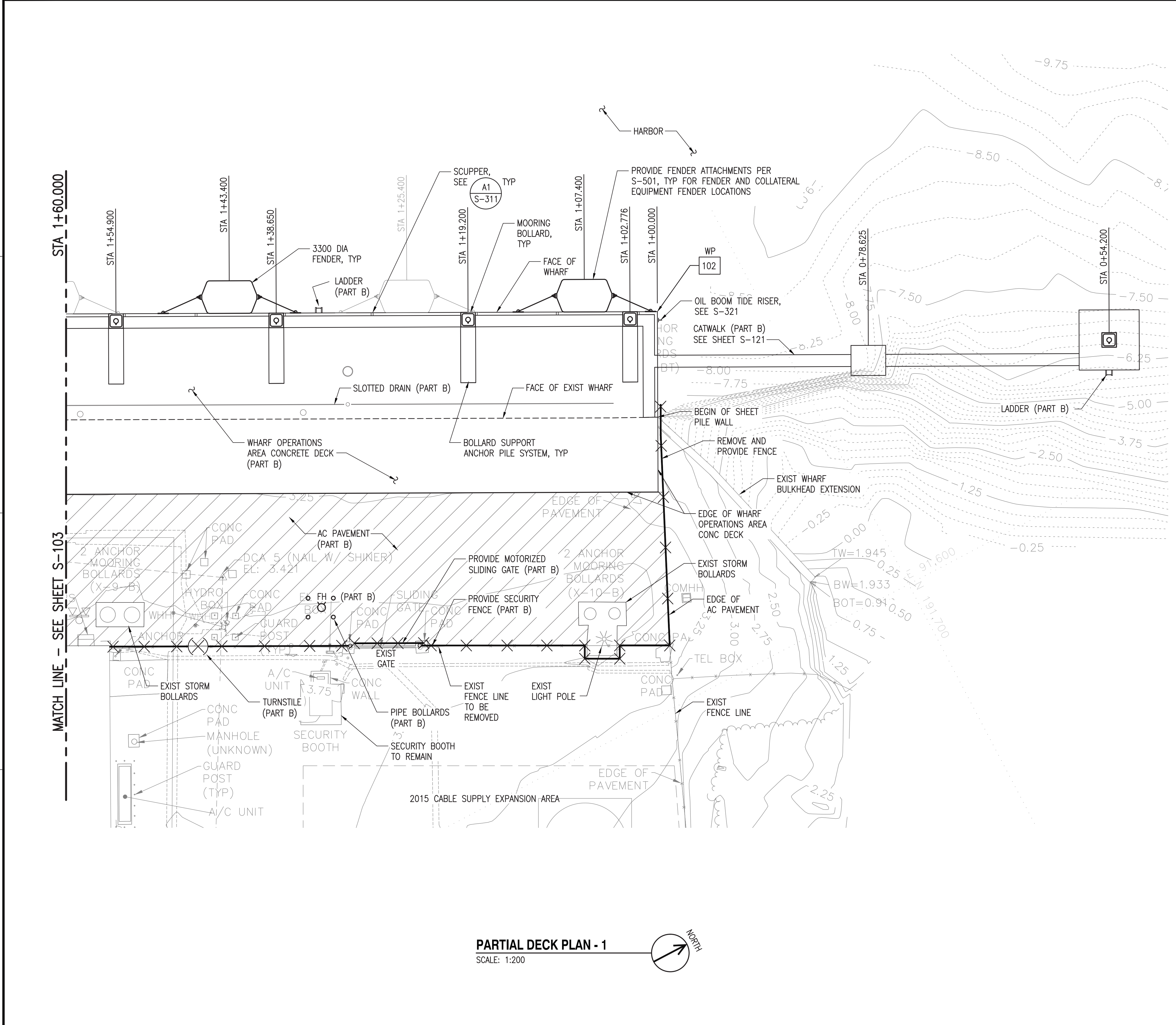
**NOTES:**

1. FOR WINDS LESS THAN 50 KNOTS USE MOORING HARDWARE ON THE MOORING DOLPHIN AND WHARF FACE.
2. FOR WINDS FROM 50 TO 64 KNOTS USE STORM BOLLARDS AS WELL AS BOLLARDS ON THE MOORING DOLPHIN AND WHARF FACE.
3. FOR FENDER STATIONS SEE DECK PLANS ON S-102 THROUGH S-104
4. BOW SYSTEM INCLUDING BOWT PLANT, PIPING, AND RISER STATIONS ARE PART B (DESIGN-BUILD) WORK AND PART OF P-518 DEDUCTIVE ITEM No. 2.



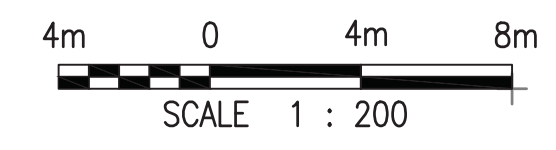
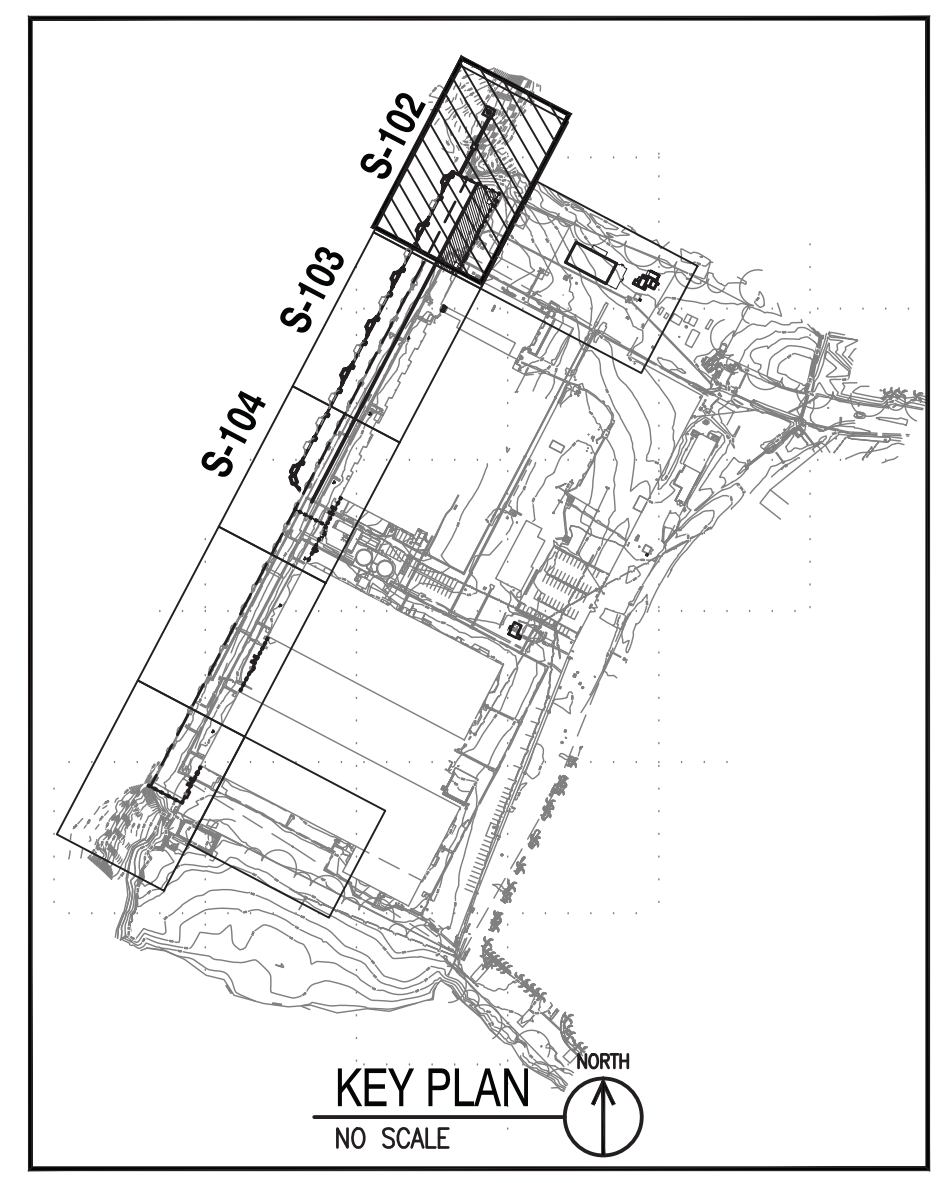
	DATE
	DESCRIPTION
	SW
	
	
	
<b>moffatt &amp; nichol</b> 3780 KILROY AIRPORT WAY, STE 600 LONG BEACH, CALIFORNIA 90806 (562)426-9551	
DES: CS	CHK: FC
 M. Suter PER COMMANDER NAVFAC 11-26-13	
ACTIVITY	
SATISFACTORY TO DATE	
DES	DATE
REV	REV
PM/DM	AWK
BRANCH MANAGER	JE
CHIEF ENG/ARCH	JE
TIRE PROTECTION	JE
DEPARTMENT OF THE NAVY	NAVFAC PACIFIC
NAVFAC PACIFIC	MAOULANA HAWAII
NAVFAC PACIFIC	GUAM
NAVFAC PACIFIC	NAVAL BASE
FY14 MCON P-518	X-RAY WHARF IMPROVEMENTS
BERTH 1	MOORING ARRANGEMENT PLAN (PART A)
SCALE: AS SHOWN	PROJECT NO.: 852260
CONSTR. CONTR. NO.	NAVFAC DRAWING NO. 17152528
SHEET 39 OF 147	<b>S-101</b>

FILE NAME: P:\6948-13 X-Ray 7 Design Information\CADD\1-SHEETS\518\PART A\518A-S-102.dwg PLOTTED: 11/22/13 - 3:27pm BY: hgonzalez



- LEGEND:**
- MOORING BOLLARD
  - SHIPS WASTE WATER (PART B)
  - POTABLE WATER (PART B)
  - BILGE OILY WASTE (PART B) P-518 DEDUCTIVE ITEM No. 2
  - 3300 DIA PNEUMATIC BASE BID FENDER CFCI
  - 3300 DIA PNEUMATIC COLLATERAL EQUIPMENT FENDER ~~CFCI~~
  - WP 102 WORK POINT, SEE CA001
  - AC PAVEMENT AREA
- GOVERNMENT FURNISHED  
GOVERNMENTN INSTALLED (GFGI)  
Amendment 01 10 JAN 2014

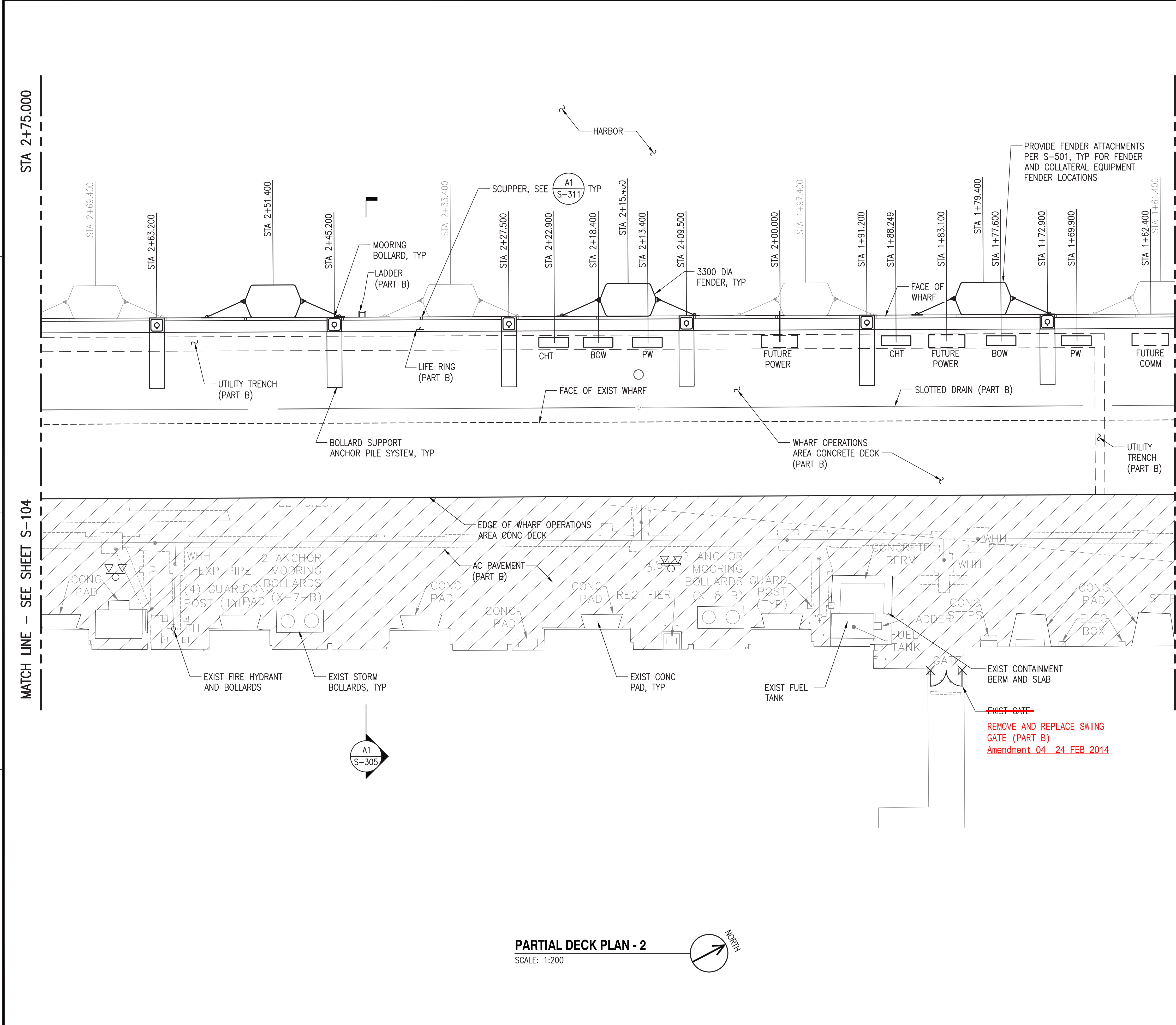
- NOTES:**
1. LOCATE FENDERS WITHIN 1.5m OF STATIONS INDICATED (PARALLEL TO WHARF).
  2. STATIONING IS SHOWN IN METERS.



**PARTIAL DECK PLAN - 1**  
SCALE: 1:200

	DATE
	DESCRIPTION
	SYN
	DATE
3780 KILROY AIRPORT WAY, STE 600 LONG BEACH, CALIFORNIA 90806 (562)426-9551	
DES: CS    DRAW: HG    CHK: FC	
PER: COMMANDER NAVFAC    DATE: 11-26-13	
ACTIVITY	
SATISFACTORY TO: DATE	
DES:    DRAW:    REV:	
PM/DM:    AWK	
BRANCH MANAGER:    JEC	
CHIEF ENG/ARCH:    JEC	
FIRE PROTECTION:    JEC	
DEPARTMENT OF THE NAVY    NAVAL FACILITIES ENGINEERING COMMAND    GUAM	
NAVFAC PACIFIC    MAQUA, HAWAII	
<b>FY14 MCON P-518</b>	
<b>X-RAY WHARF IMPROVEMENTS</b>	
<b>BERTH 1</b>	
<b>PARTIAL DECK PLAN - 1 (PART A)</b>	
SCALE: AS SHOWN	
EPROJCT NO.: 852260	
CONSTR. CONTR. NO.	
NAVFAC DRAWING NO. 17152529	
SHEET 40 OF 147	
<b>S-102</b>	

FILE NAME: P:\6948-13 X-Ray\7 Design Information\CADD\1-SHEETS\5-18\PART A\518A-S-103.dwg PLOTTED: 11/22/13 - 3:27pm BY: hgonzalez



**LEGEND:**

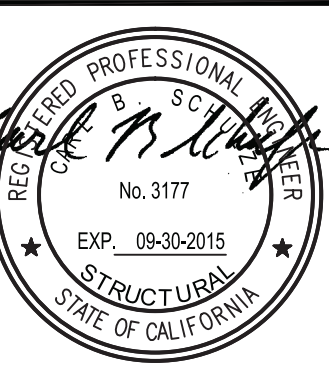
- MOORING BOLLARD
- SHIPS WASTE WATER (PART B)
- COMMUNICATIONS
- POTABLE WATER (PART B)
- BILGE OILY WASTE (PART B) P-518 DEDUCTIVE ITEM No. 2
- 3300 DIA PNEUMATIC BASE BID FENDER CFCI
- 3300 DIA PNEUMATIC COLLATERAL EQUIPMENT FENDER CFCI
- AC PAVEMENT AREA

**NOTES:**

1. LOCATE FENDERS WITHIN 1.5m OF STATIONS INDICATED (PARALLEL TO WHARF).
2. STATIONING IS SHOWN IN METERS.

GOVERNMENT FURNISHED  
GOVERNMENT INSTALLED (GFGI)  
Amendment 01 10 JAN 2014

NO.	DESCRIPTION	DATE



**moffatt & nichol**  
3780 KILROY AIRPORT WAY, STE 600  
LONG BEACH, CALIFORNIA 90806  
(562)426-9551

DES: CS | DRAW: HG | CHK: FC

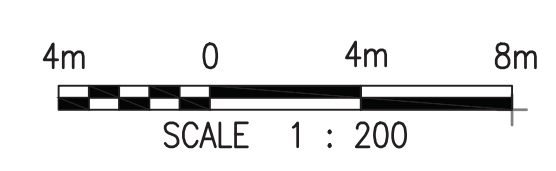
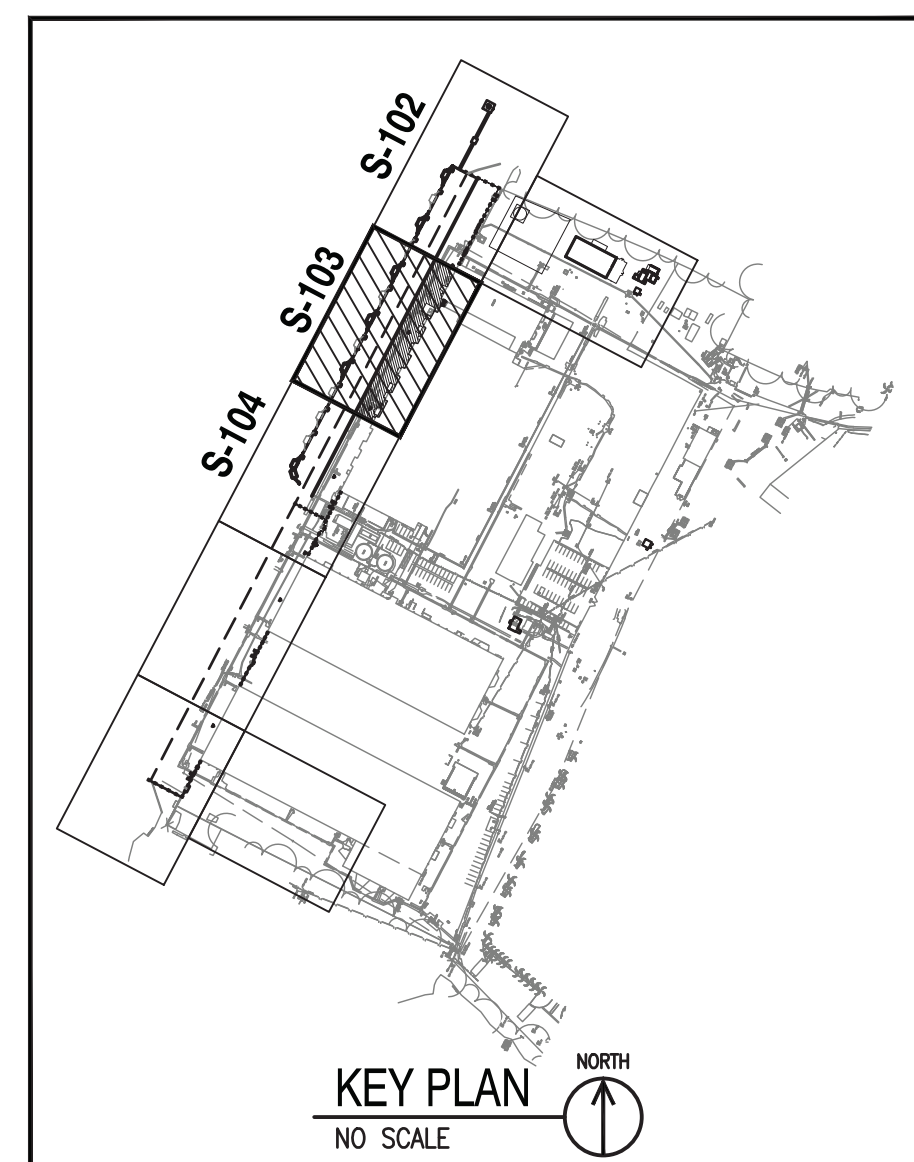
APPROVED: *M. S. S.*  
FOR COMMANDER NAVFAC 11-26-13

SATISFACTORY TO	DATE
DES	
PM/DM	
BRANCH MANAGER	
CHIEF ENG/ARCH	
FIRE PROTECTION	

NAVAL FACILITIES ENGINEERING COMMAND  
NAVFAC PACIFIC  
NAVFAC HAWAII  
GUAM

DEPARTMENT OF THE NAVY  
NAVFAC PACIFIC  
NAVFAC HAWAII  
NAVFAC BASE  
FY14 MCON P-518  
**X-RAY WHARF IMPROVEMENTS**  
BERTH 1  
PARTIAL DECK PLAN - 2 (PART A)

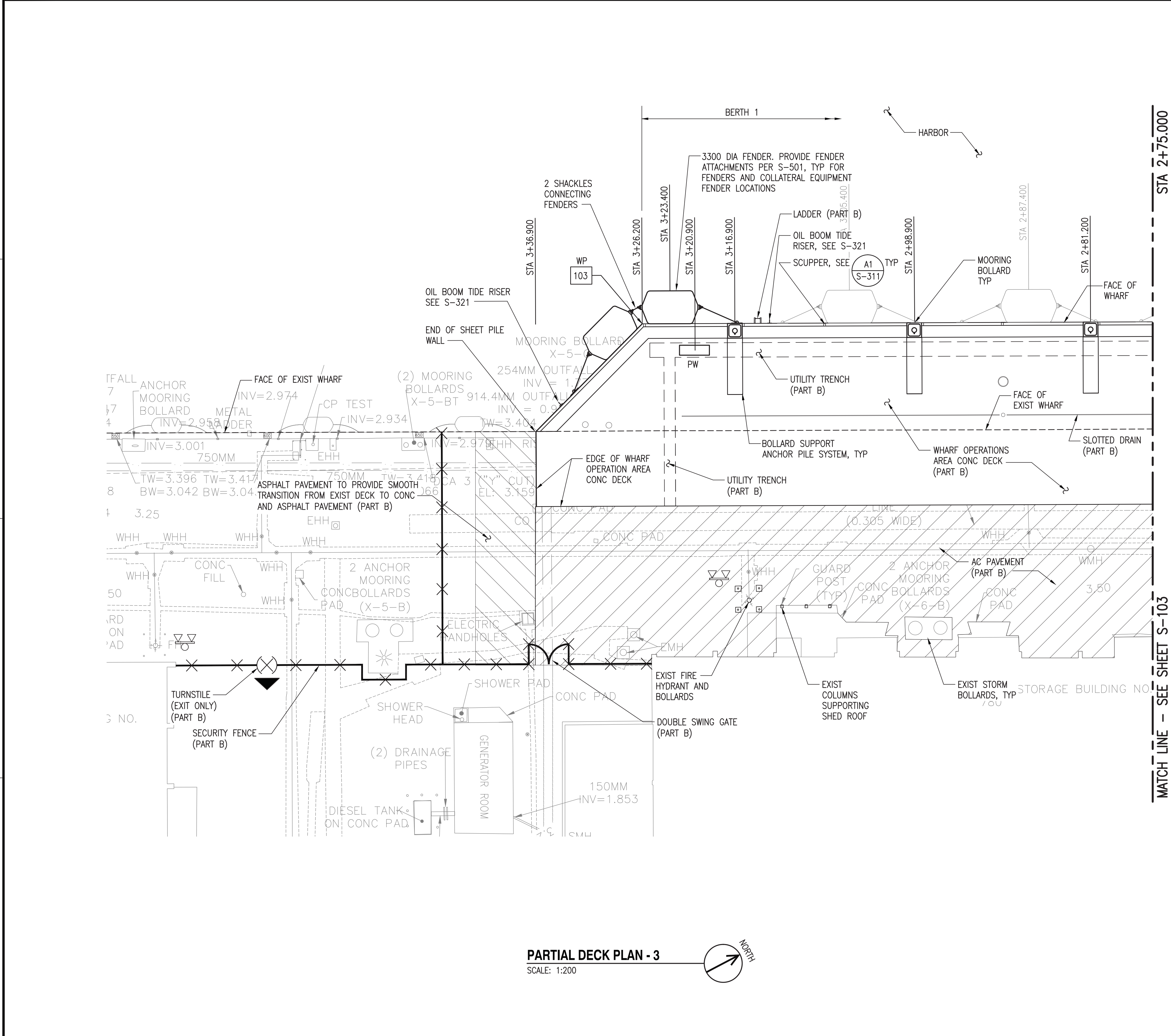
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CONSTR. CONTR. NO.  
NAVFAC DRAWING NO. 17152530  
SHEET 41 OF 147  
**S-103**



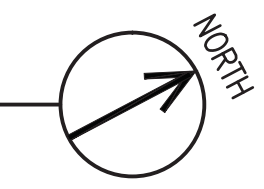
**PARTIAL DECK PLAN - 2**  
SCALE: 1:200



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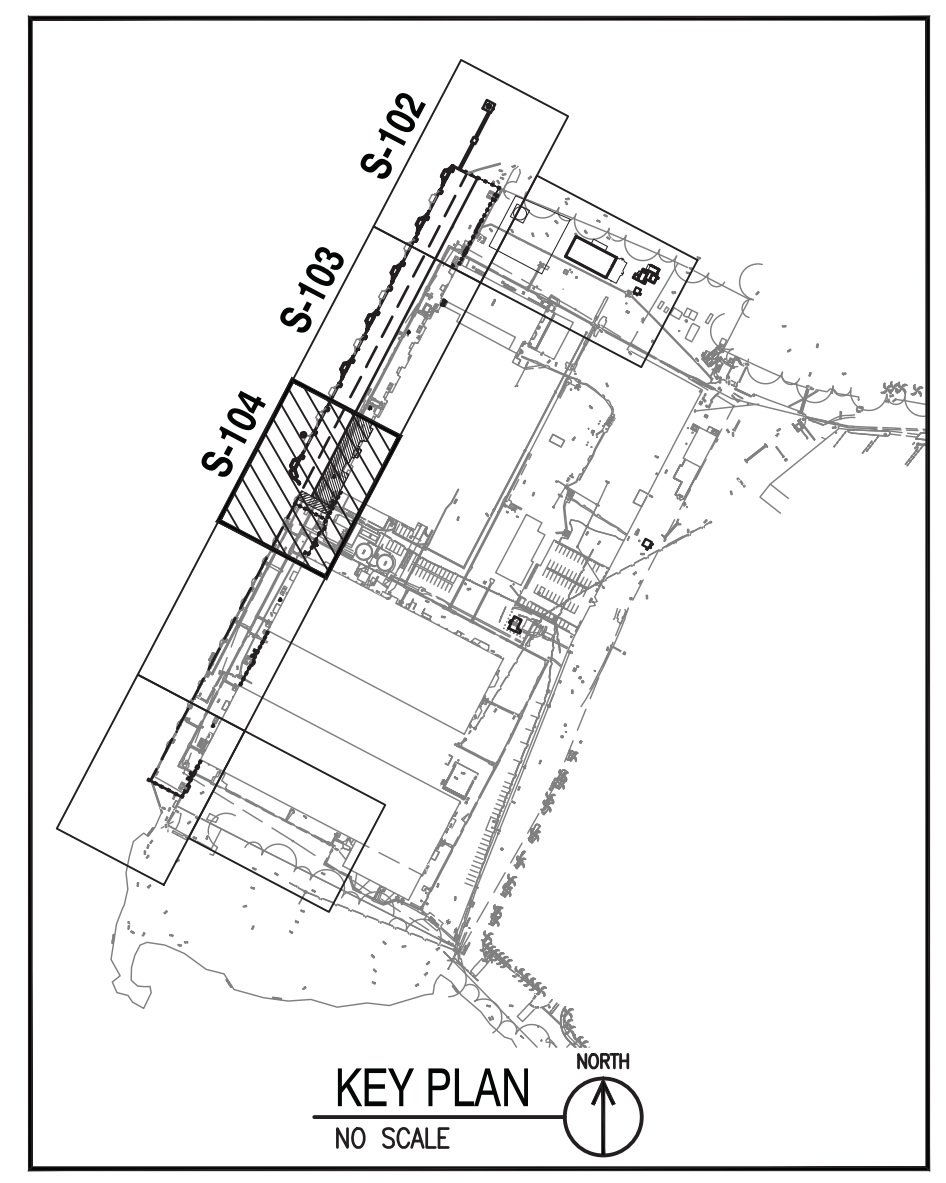
**PARTIAL DECK PLAN - 3**  
SCALE: 1:200



- LEGEND:**
- MOORING BOLLARD
  - SHIPS WASTE WATER (PART B)
  - COMMUNICATIONS
  - POTABLE WATER (PART B)
  - BILGE OILY WASTE (PART B) P-518 DEDUCTIVE ITEM No. 2
  - 3300 DIA PNEUMATIC BASE BID FENDER CFCI
  - 3300 DIA PNEUMATIC COLLATERAL EQUIPMENT FENDER CFCI
  - AC PAVEMENT AREA
  - WP 103 WORK POINT, SEE CA001
- GOVERNMENT FURNISHED  
GOVERNMENT INSTALLED (GFGI)  
Amendment 01 10 JAN 2014

- NOTES:**
1. LOCATE FENDERS WITHIN 1.5m OF STATIONS INDICATED (PARALLEL TO WHARF) UNLESS NOTED OTHERWISE.
  2. LOCATE FENDER AT STATION 3+23.400 WITHIN 0.15m OF STATION INDICATED.
  3. STATIONING IS SHOWN IN METERS.

MATCH LINE - SEE SHEET S-103



**KEY PLAN**  
NO SCALE



	DATE
	DESCRIPTION
	DRAWN
	CHECKED
	APPROVED

**NAVFAC**

**moffatt & nichol**  
3780 KILROY AIRPORT WAY, STE 600  
LONG BEACH, CALIFORNIA 90806  
(562)426-9551

DES: CS | DRAW: HG | CHK: FC

*M. S. M.*  
PER COMMANDER NAVFAC 11-26-13

ACTIVITY

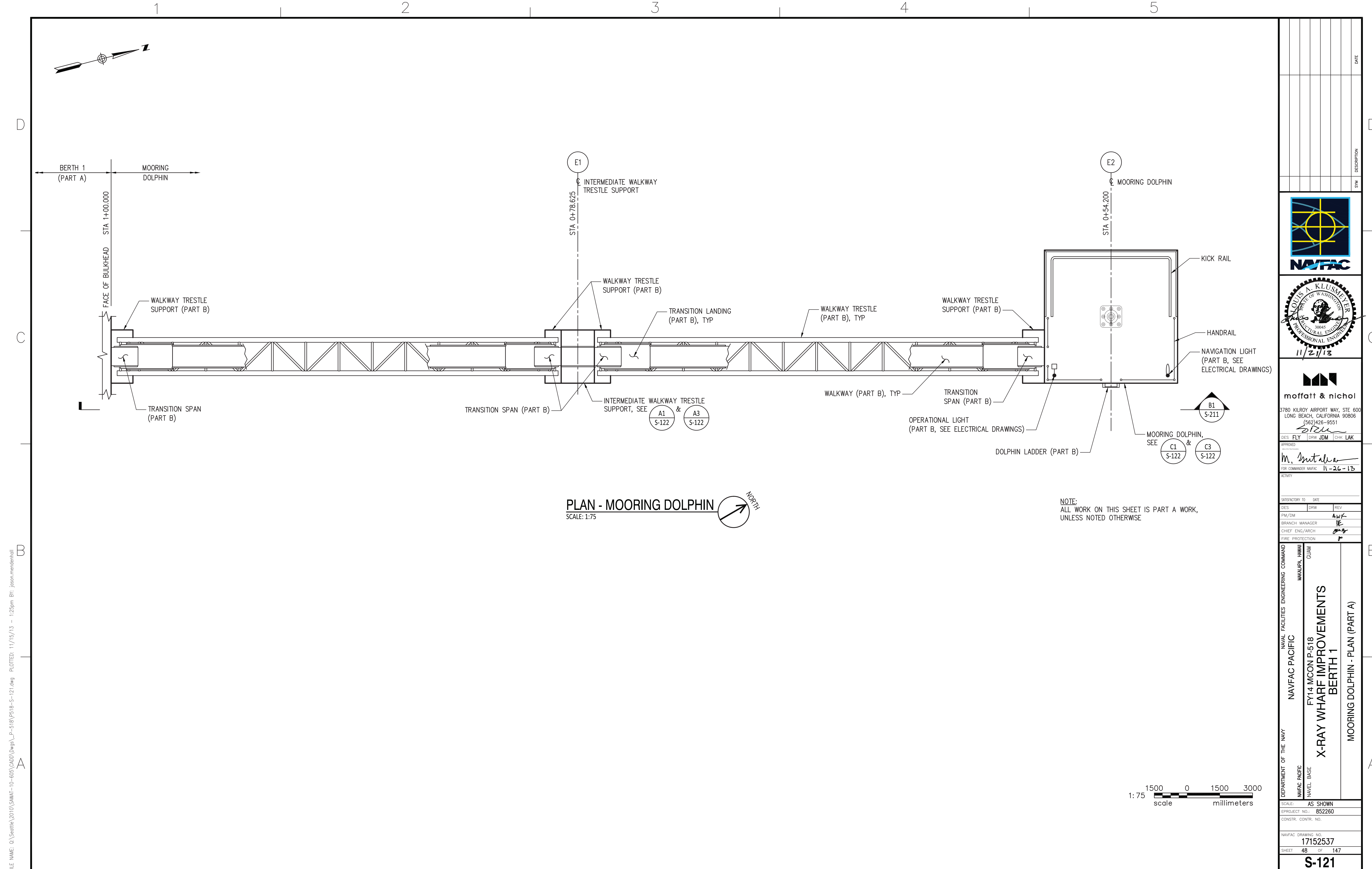
SATISFACTORY TO	DATE
DES	DRAW
REV	
PM/DM	AWK
BRANCH MANAGER	JE
CHIEF ENG/ARCH	JE
FIRE PROTECTION	

DEPARTMENT OF THE NAVY  
NAVFAC PACIFIC  
NAVFAC PACIFIC  
FY14 MCON P-518  
X-RAY WHARF IMPROVEMENTS  
BERTH 1  
PARTIAL DECK PLAN - 3 (PART A)

SCALE: AS SHOWN  
PROJECT NO.: 852260  
CONSTR. CONTR. NO.

NAVFAC DRAWING NO. 17152531  
SHEET 42 OF 147

S-104



**PLAN - MOORING DOLPHIN**  
SCALE: 1:75

NOTE:  
ALL WORK ON THIS SHEET IS PART A WORK,  
UNLESS NOTED OTHERWISE

	DATE
	DESCRIPTION
	SYN
3780 KILROY AIRPORT WAY, STE 600 LONG BEACH, CALIFORNIA 90806 (562) 426-9551 <i>[Signature]</i>	
DES: FLY   DRW: JDM   CHK: LAK APPROVED: <i>[Signature]</i> PER: COMMANDER NAVFAC 11-26-13	
ACTIVITY	
SATISFACTORY TO DATE	
DES   DRW   REV	
PM/DM   BRANCH MANAGER   CHIEF ENG/ARCH   FIRE PROTECTION	
DEPARTMENT OF THE NAVY NAVFAC PACIFIC NAVAL FACILITIES ENGINEERING COMMAND HAWAII GUAM <b>FY14 MCON P-518</b> <b>X-RAY WHARF IMPROVEMENTS</b> <b>BERTH 1</b> MOORING DOLPHIN - PLAN (PART A)	
SCALE: AS SHOWN	
PROJECT NO.: 852260	
CONSTR. CONTR. NO.	
NAVFAC DRAWING NO. 17152537	
SHEET 48 OF 147	
<b>S-121</b>	

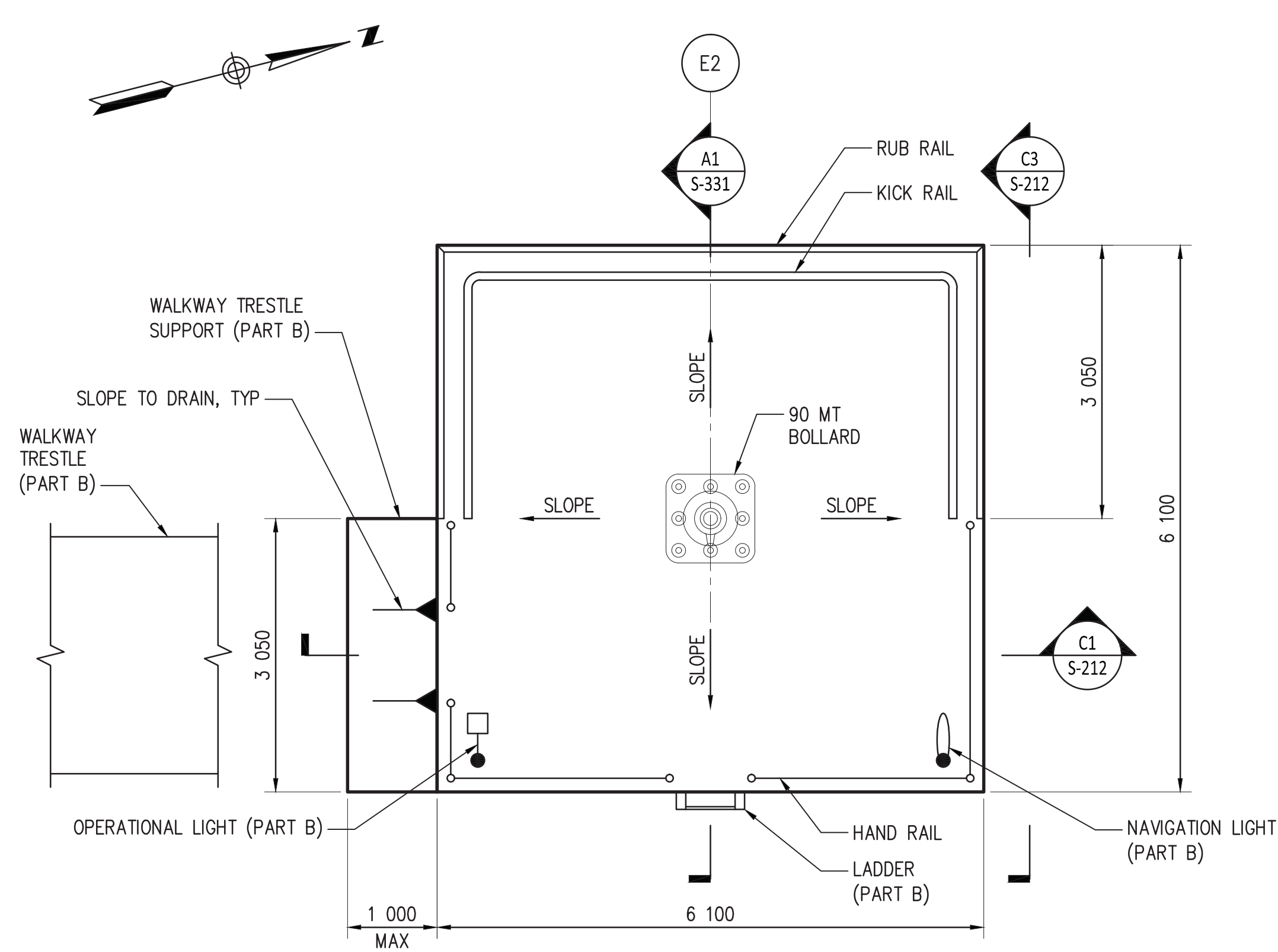
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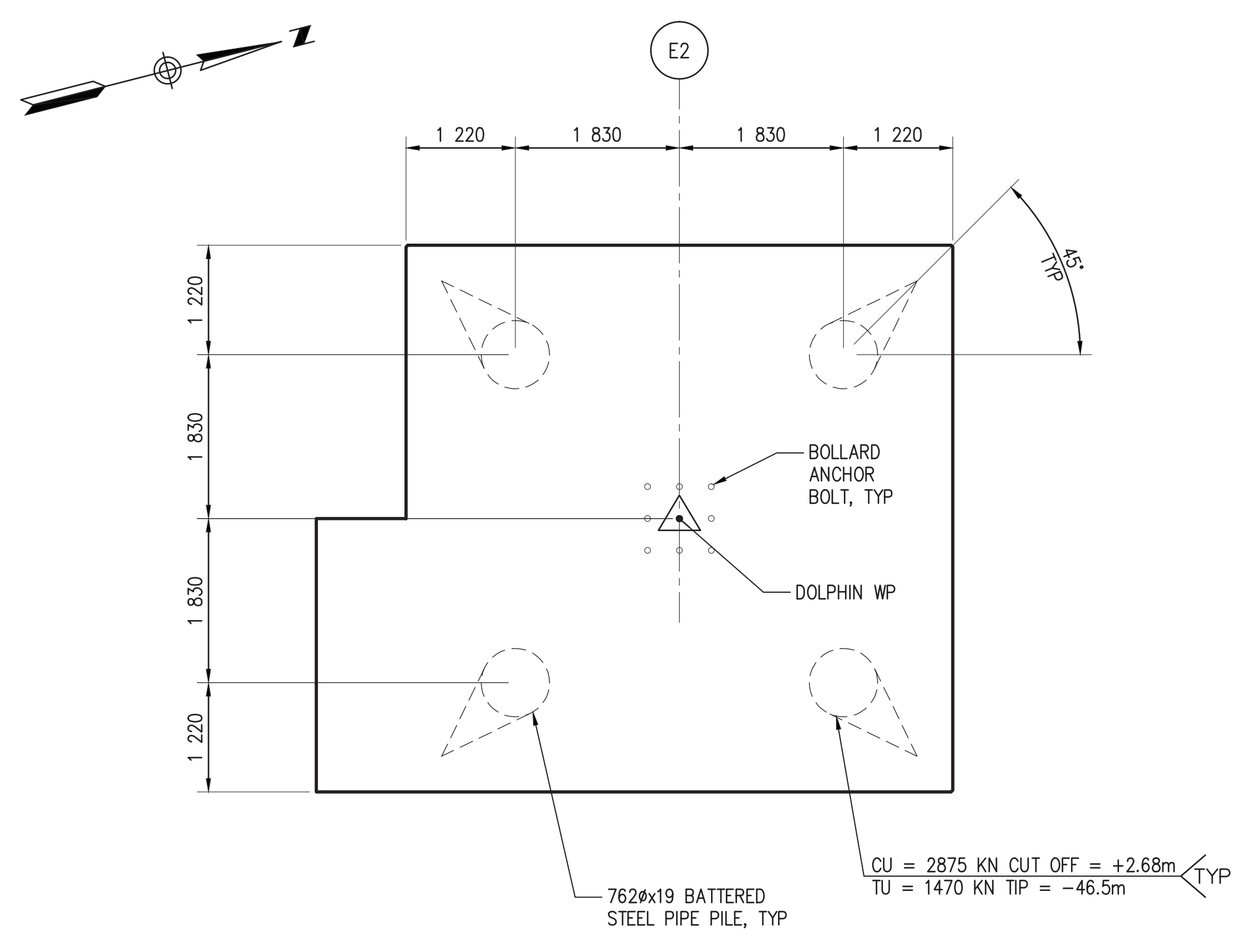
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4

5



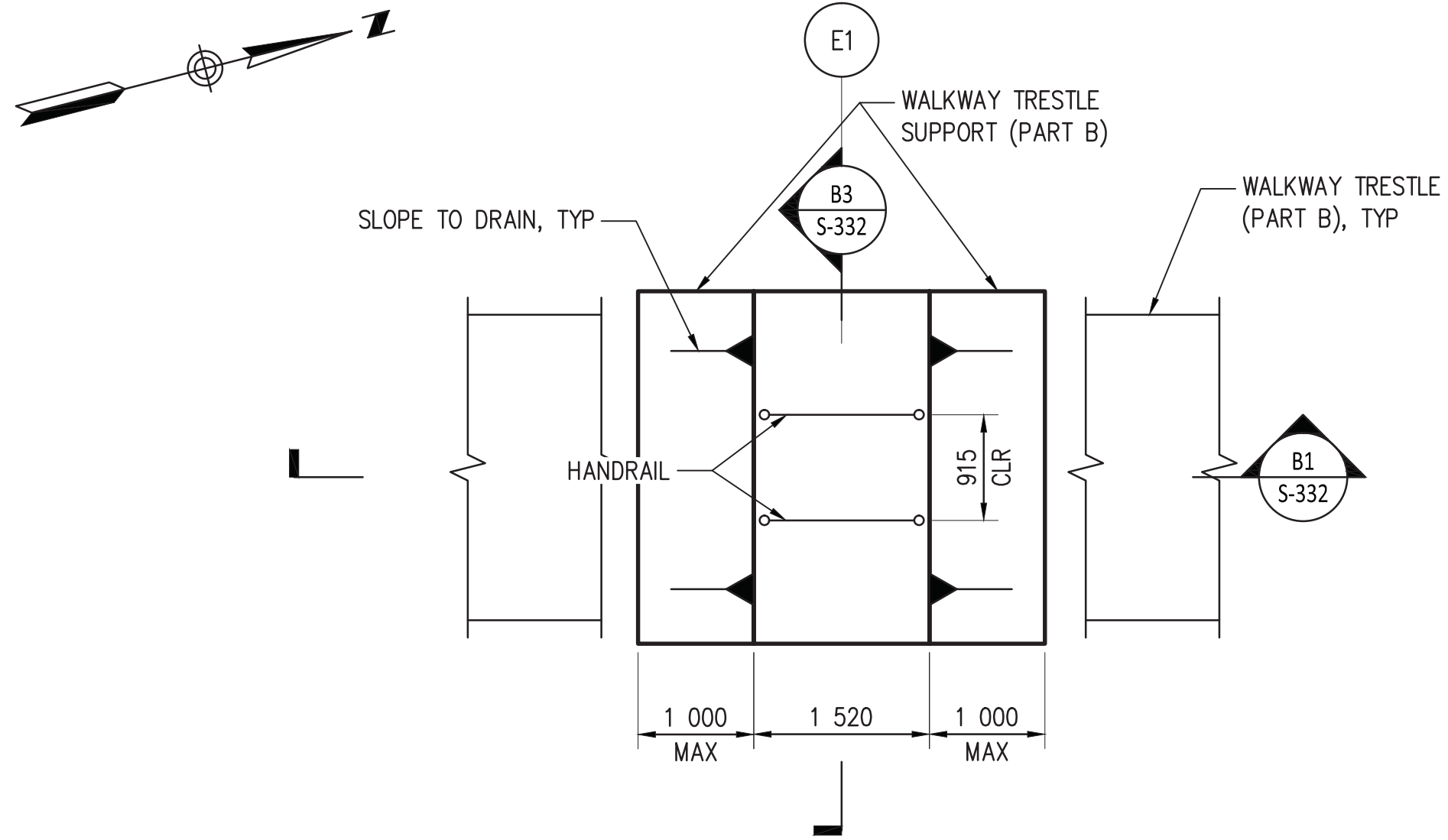
**PLAN - MOORING DOLPHIN**  
SCALE: 1:50 S-121 C1



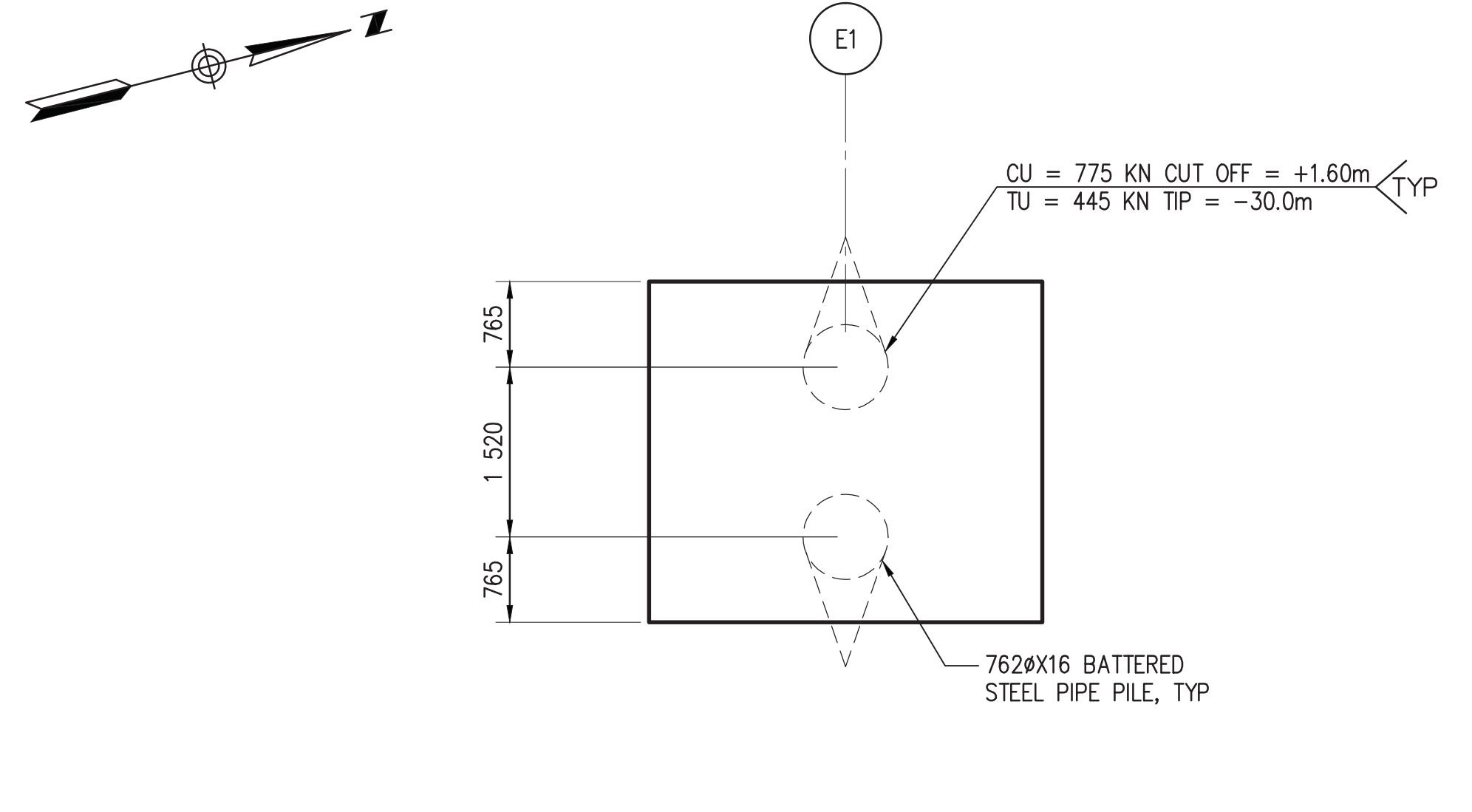
**PLAN - PILE ARRANGEMENT**  
SCALE: 1:50 S-121 C3

- NOTES:**
- COAT ALL PILING IN ACCORDANCE WITH THE SPECIFICATIONS COATING SHALL EXTEND FROM CUT-OFF TO 4.5m BELOW MUDLINE.
  - PILE LOCATIONS SHOWN ARE AT PILE CAP SOFFIT ELEVATION.
  - ALL WORK ON THIS SHEET IS PART A WORK UNLESS NOTED OTHERWISE.

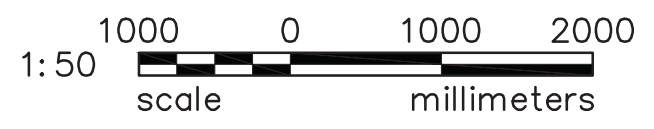
- LEGEND:**
- 762Ø 1H:3V BATTERED PILE
  - DESIGN ULTIMATE PILE COMPRESSION FORCE (FS=2.0)
  - PILE CUT-OFF ELEVATION
  - MIN PILE TIP ELEVATION
  - DESIGN ULTIMATE PILE TENSION FORCE (FS=2.0)
  - WORK POINT
- Formulas:  
 $CU = C + XX.XX$   
 $TU = T - XX.XX$



**PLAN - INTERMEDIATE WALKWAY TRESTLE SUPPORT**  
SCALE: 1:50 S-121 A1



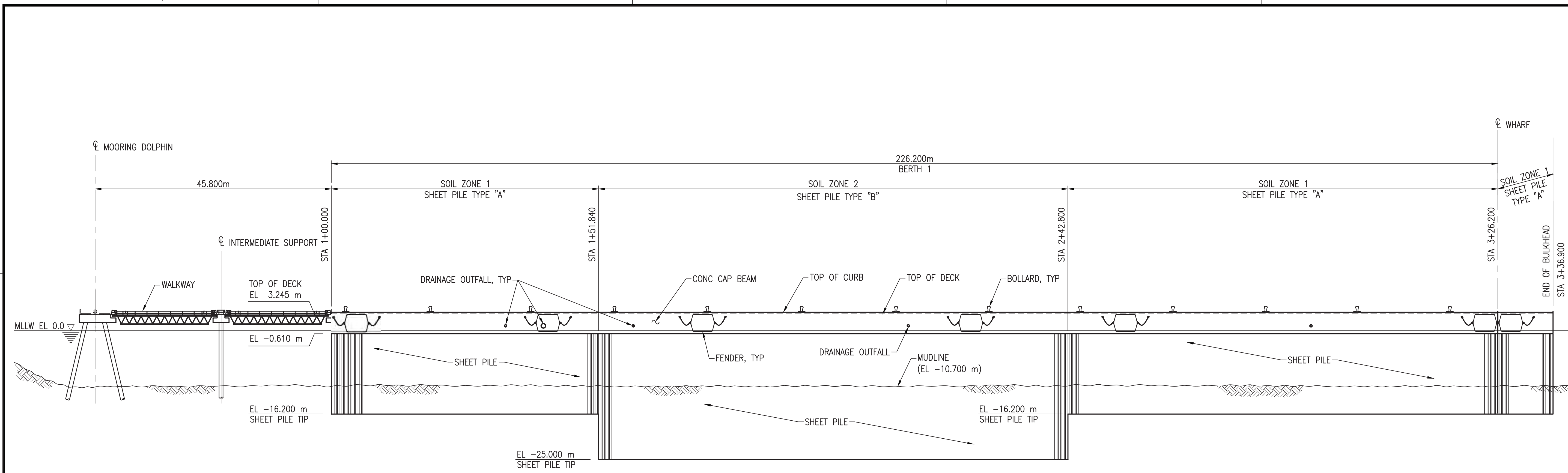
**PLAN - PILE ARRANGEMENT**  
SCALE: 1:50 S-121 A3



DATE	
DESCRIPTION	
SYN	
<b>moftatt &amp; nichol</b> 3780 KILROY AIRPORT WAY, STE 600 LONG BEACH, CALIFORNIA 90806 (562) 426-9551 <i>[Signature]</i>	
DES	FLY   DRW JDM   CHK LAK
APPROVED	<i>[Signature]</i>
FIR COMMANDER NAVFAC	11-26-13
ACTIVITY	
SATISFACTORY TO	DATE
DES	DRW
REV	
PM/DM	AWK
BRANCH MANAGER	JE
CHIEF ENG/ARCH	JE
FIRE PROTECTION	
NAVAL FACILITIES ENGINEERING COMMAND	NAVALBASE GUAM
NAVFAC PACIFIC	MAJALAPA, HAWAII
<b>FY14 MCON P-518</b> <b>X-RAY WHARF IMPROVEMENTS</b> <b>BERTH 1</b> <b>MOORING DOLPHIN - PLANS &amp; PILE ARRANGEMENTS (PART A)</b>	
DEPARTMENT OF THE NAVY	
NAVFAC PACIFIC	
NAVFAC DRAWING NO.	17152538
PROJECT NO.	852260
CONSTR. CONTR. NO.	
SHEET	49 OF 147
<b>S-122</b>	

FILE NAME: Q:\gentile\2010\SAWAT-10-605\CADD\Draws\_P-518\PA18-S-122.dwg PLOTTED: 11/15/13 - 1:25pm BY: jason.mendenhall

FILE NAME: P:\6948-13 X-Ray (FY14, P-518), Berth 1\7\_ Design\_Information\CADD\P518 S-201.dwg PLOTTED: 11/22/13 - 2:57pm BY: fsmason


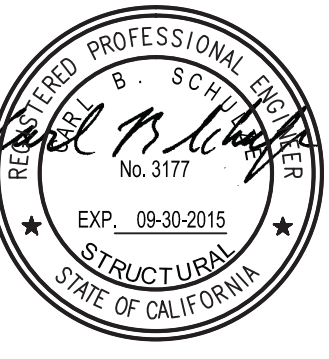



**WHARF ELEVATION - BERTH 1**  
 SCALE: 1:400 S-201, S-311 **C3**

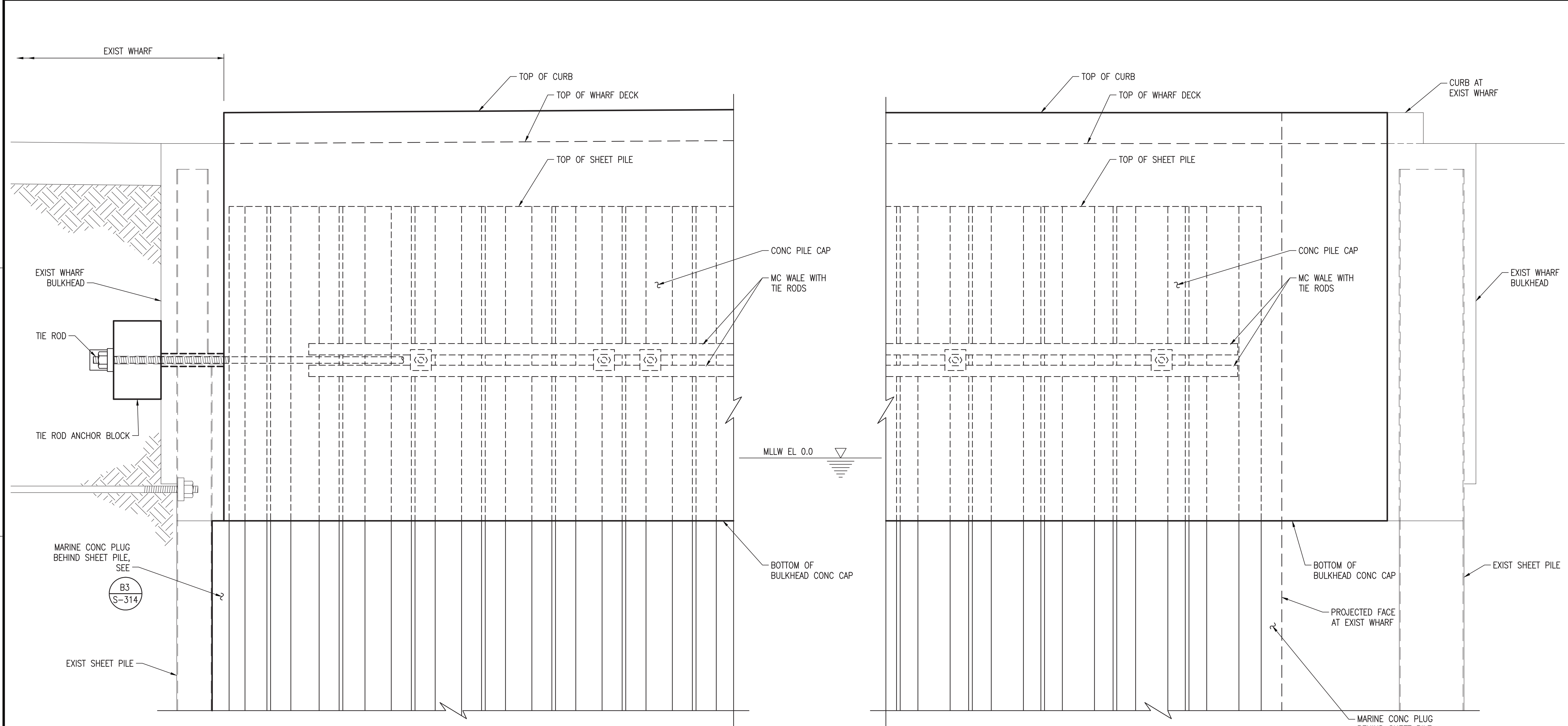
**NOTES:**

1. THE BASIS OF THE INDICATED DESIGN IS A SHEET PILE WALL SYSTEM CONSISTING OF TWO "Z" SHEET PILE SECTIONS. ALTERNATIVE SYSTEMS WITH THE INDICATED PROPERTIES MAY BE USED PROVIDED THE SHEET PILE CAP IS RECONFIGURED TO ACCOMMODATE THE SYSTEM AND PROVIDE AT LEAST EQUIVALENT CAPACITIES AT NO ADDITIONAL COST.
2. MINIMUM SHEET PILE SYSTEM PROPERTIES FOR TYPE "A":  
 SECTION MODULUS = 2600 cm<sup>3</sup>/m  
 SHEET PILE WALL THICKNESS = 12.2mm
3. MINIMUM SHEET PILE SYSTEM PROPERTIES FOR TYPE "B":  
 SECTION MODULUS = 3590 cm<sup>3</sup>/m  
 SHEET PILE FLANGE THICKNESS = 15.0mm  
 SHEET PILE WEB THICKNESS = ~~12.2mm~~ 11.0 mm Amendment 03 07 FEB 2014
4. MAXIMUM SHEET PILE WALL SYSTEM DEPTH IS 500mm.







DATE	
DESCRIPTION	
SYN	
 <b>NAVFAC</b>	
	
 <b>moffatt &amp; nichol</b> 3780 KILROY AIRPORT WAY, STE 600 LONG BEACH, CALIFORNIA 90806 (562)426-9551 <i>Paul M. Suter</i>	
DES	KA
DRW	KL
CHK	CS
APPROVED	<i>M. Suter</i>
FOR COMMANDER NAVFAC	11-26-13
ACTIVITY	
SATISFACTORY TO	DATE
DES	DATE
REV	
PM/DM	AWK
BRANCH MANAGER	JE
CHIEF ENG/ARCH	JE
FIRE PROTECTION	JE
DEPARTMENT OF THE NAVY	NAVFAC PACIFIC
NAVFAC PACIFIC	NAVFAC PACIFIC
NAVAL BASE	NAVAL BASE
NAVAL FACILITIES ENGINEERING COMMAND	NAVAL FACILITIES ENGINEERING COMMAND
MAJAGDA, HAWAII	GUAM
<b>FY14 MCON P-518</b> <b>X-RAY WHARF IMPROVEMENTS</b> <b>BERTH 1</b> <b>WHARF ELEVATION (PART A)</b>	
SCALE:	AS SHOWN
EPROJECT NO.:	852260
CONSTR. CONTR. NO.	
NAVFAC DRAWING NO.	17152539
SHEET	50 OF 147
<b>S-201</b>	

FILE NAME: P:\6948-13 X-Ray (FY14, P-518), Berth 1\7\_ Design\_Information\CADD\PS18 S-202.dwg PLOTTED: 11/22/13 - 2:57pm BY: fismson

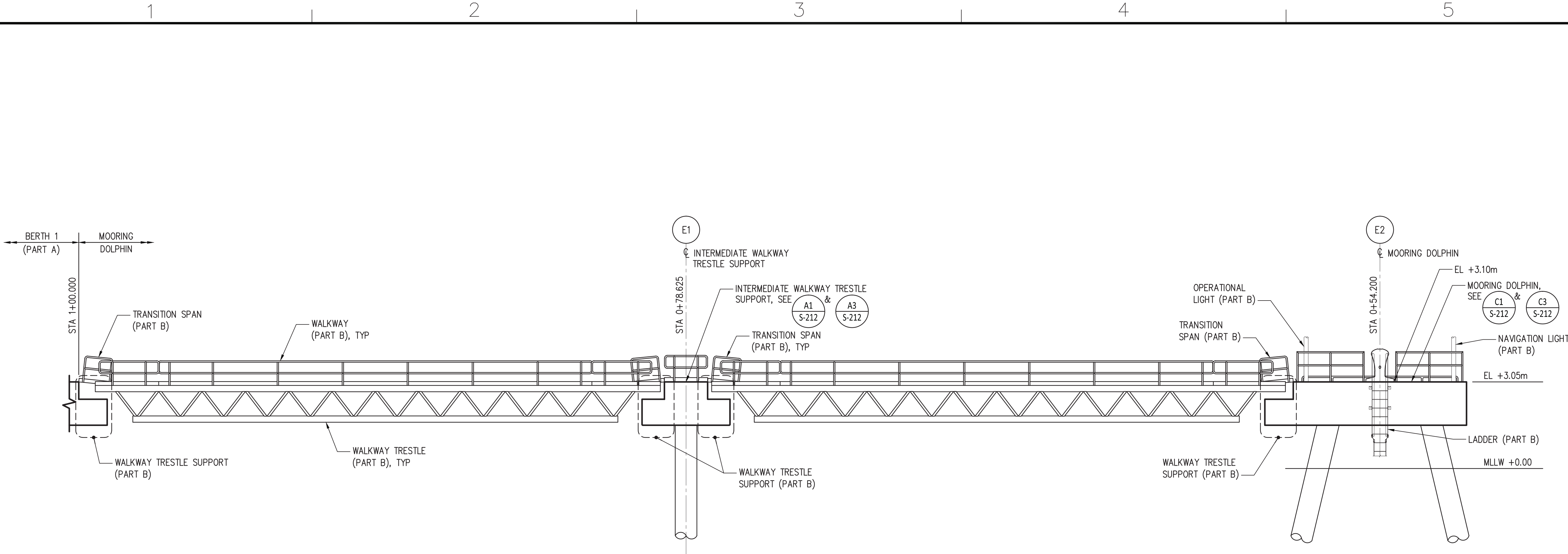


**ELEVATION - NORTH END**  
SCALE: 1:20 S-111 **B2**

**ELEVATION - SOUTH END**  
SCALE: 1:20 S-114 **B5**

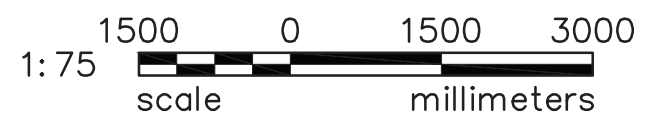
DATE	
DESCRIPTION	
SYN	
 <b>NAVFAC</b>	
	
 <b>moffatt &amp; nichol</b> 3780 KILROY AIRPORT WAY, STE 600 LONG BEACH, CALIFORNIA 90806 (562) 426-9551	
DES	KA
DRW	KL
CHK	CS
APPROVED	
 M. Sutula PER COMMANDER NAVFAC 11-26-13	
ACTIVITY	
SATISFACTORY TO	DATE
DES	DRW
REV	
PM/DM	AWK
BRANCH MANAGER	IE
CHIEF ENG/ARCH	IE
FIRE PROTECTION	
DEPARTMENT OF THE NAVY	NAVFAC PACIFIC
NAVFAC PACIFIC	NAVFAC PACIFIC
NAVAL BASE	NAVAL BASE
<b>FY14 MCON P-518</b> <b>X-RAY WHARF IMPROVEMENTS</b> <b>BERTH 1</b> <b>WHARF ELEVATION AT NORTH AND SOUTH END (PART A)</b>	
SCALE:	AS SHOWN
PROJECT NO.:	852260
CONSTR. CONTR. NO.	
NAVFAC DRAWING NO.	17152540
SHEET	51 OF 147
<b>S-202</b>	





**ELEVATION - MOORING DOLPHIN** B1  
SCALE: 1:75 S-121

NOTE:  
ALL WORK ON THIS SHEET IS PART A WORK,  
UNLESS NOTED OTHERWISE



FILE NAME: C:\gentile\2010\SAWAY-10-605\CADD\Drawgs\_P-518\PS18-S-211.dwg PLOTTED: 11/15/13 - 1:25pm BY: jason.mendenthal

											DATE																												
											DESCRIPTION																												
											SYN																												
 <b>moffatt &amp; nichol</b> 3780 KILROY AIRPORT WAY, STE 600 LONG BEACH, CALIFORNIA 90806 (562) 426-9551 <i>SZL</i>																																							
DES: FLY    DRW: JDM    CHK: LAK APPROVED: <i>M. Sutaba</i> PER: COMMANDER NAVFAC    11-26-13 ACTIVITY:																																							
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SATISFACTORY TO			DATE																																				
DES	DRW	REV																																					
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BRANCH MANAGER																																							
CHIEF ENG/ARCH																																							
FIRE PROTECTION																																							
DEPARTMENT OF THE NAVY NAVFAC PACIFIC NAVFAC PACIFIC FY14 MCON P-518 <b>X-RAY WHARF IMPROVEMENTS</b> <b>BERTH 1</b> MOORING DOLPHIN - ELEVATION (PART A)																																							
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SCALE:	AS SHOWN																																						
PROJECT NO.:	852260																																						
CONSTR. CONTR. NO.																																							
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SHEET	52 OF 147																																						
<b>S-211</b>																																							

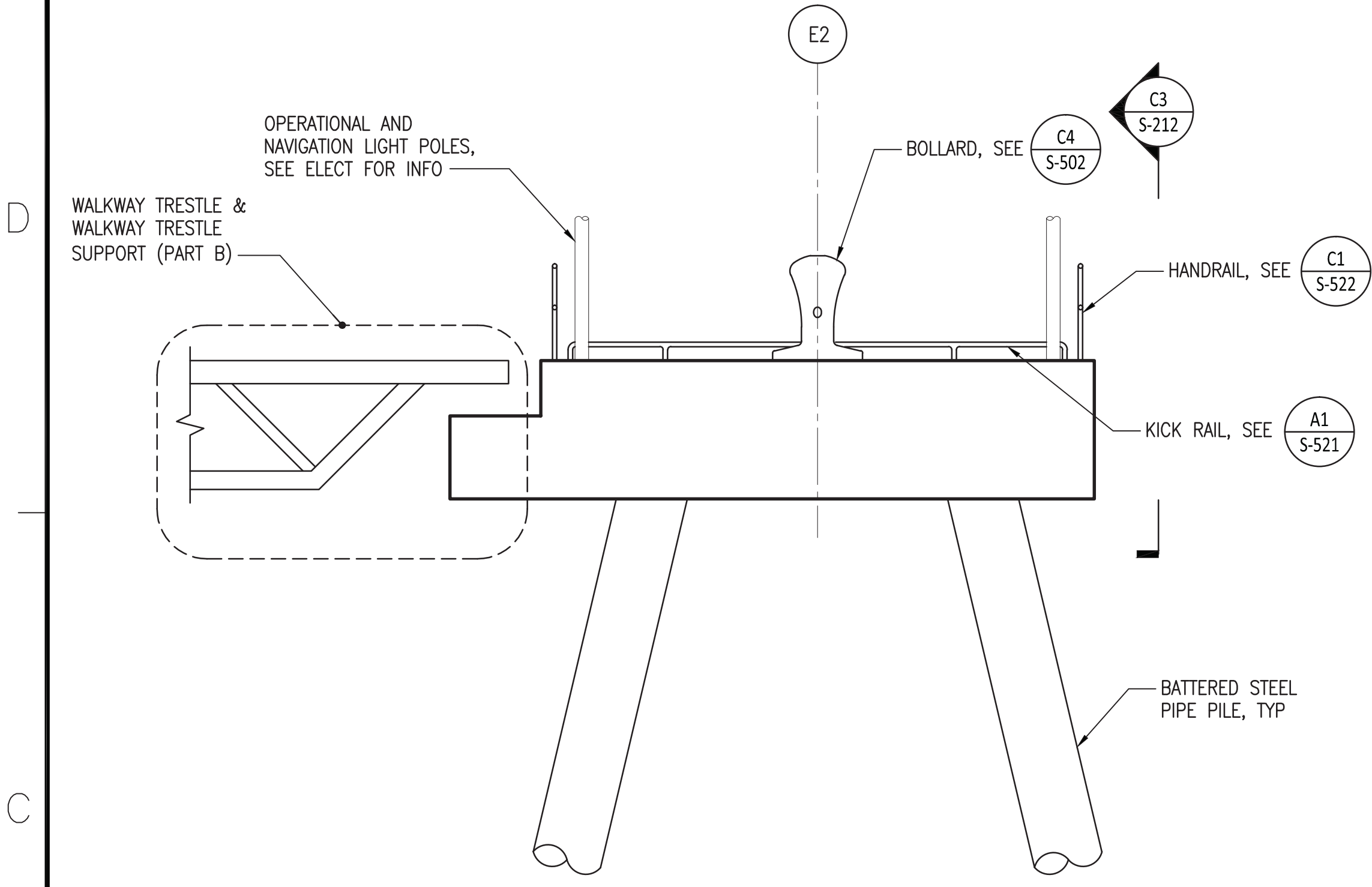
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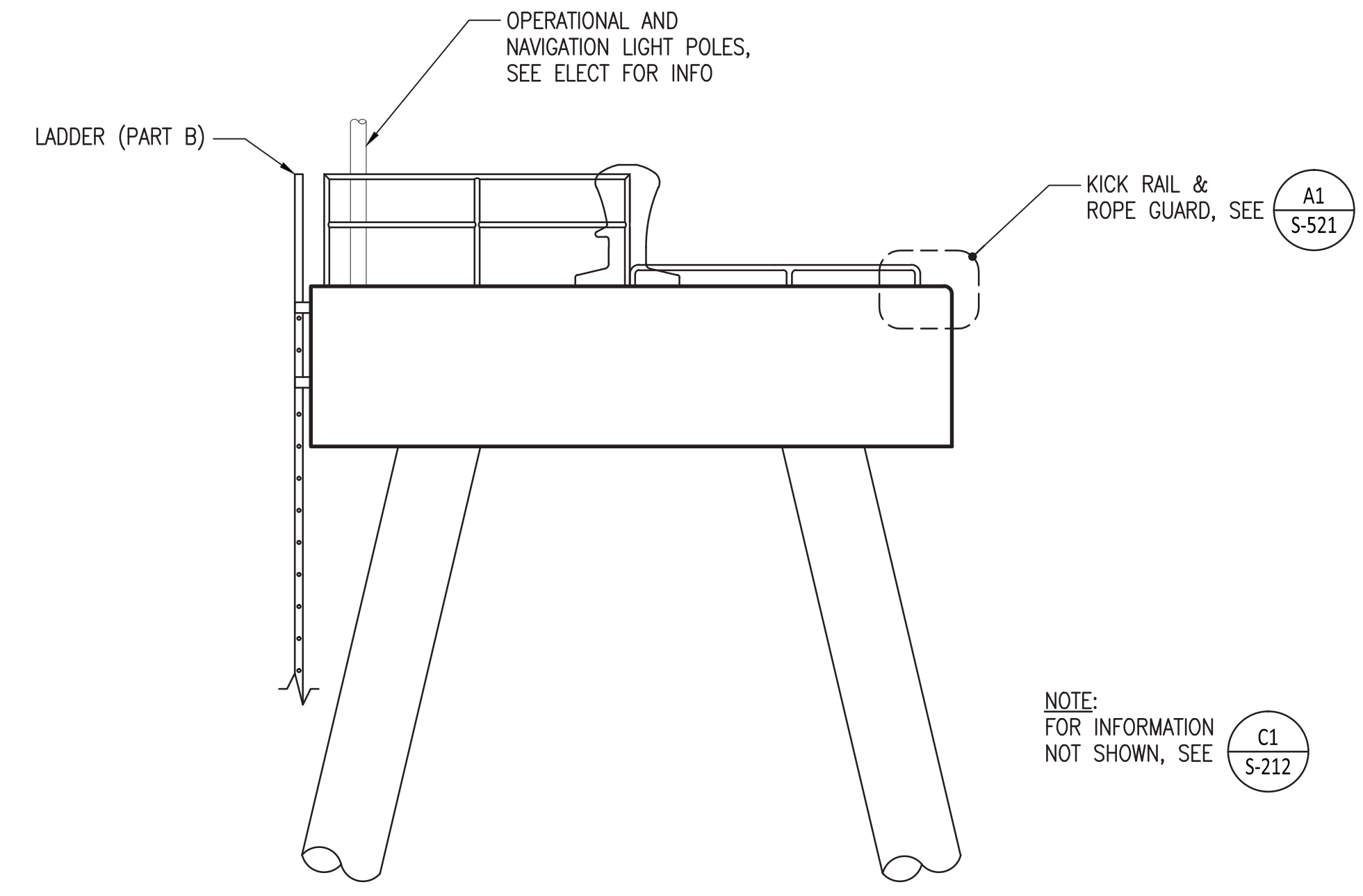
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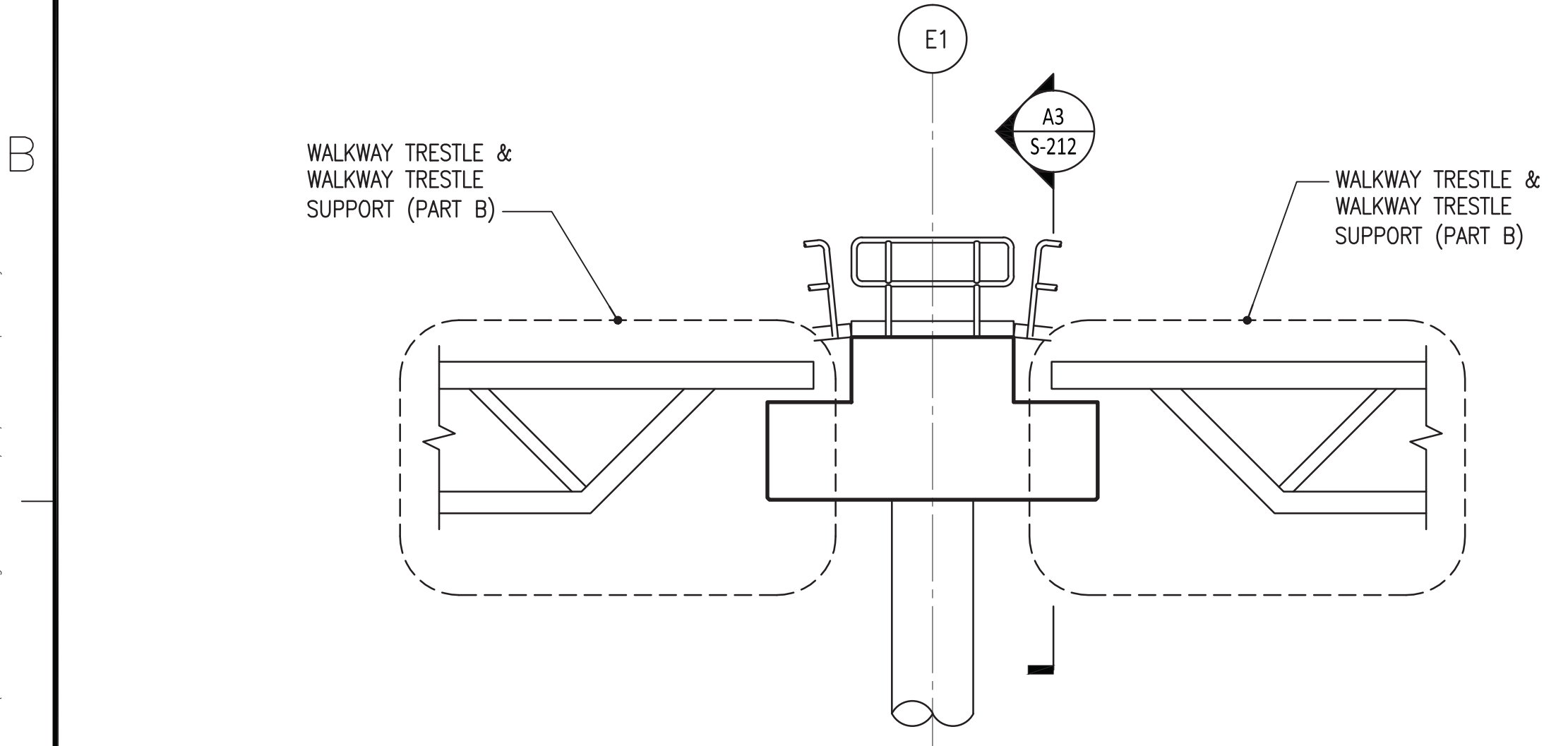
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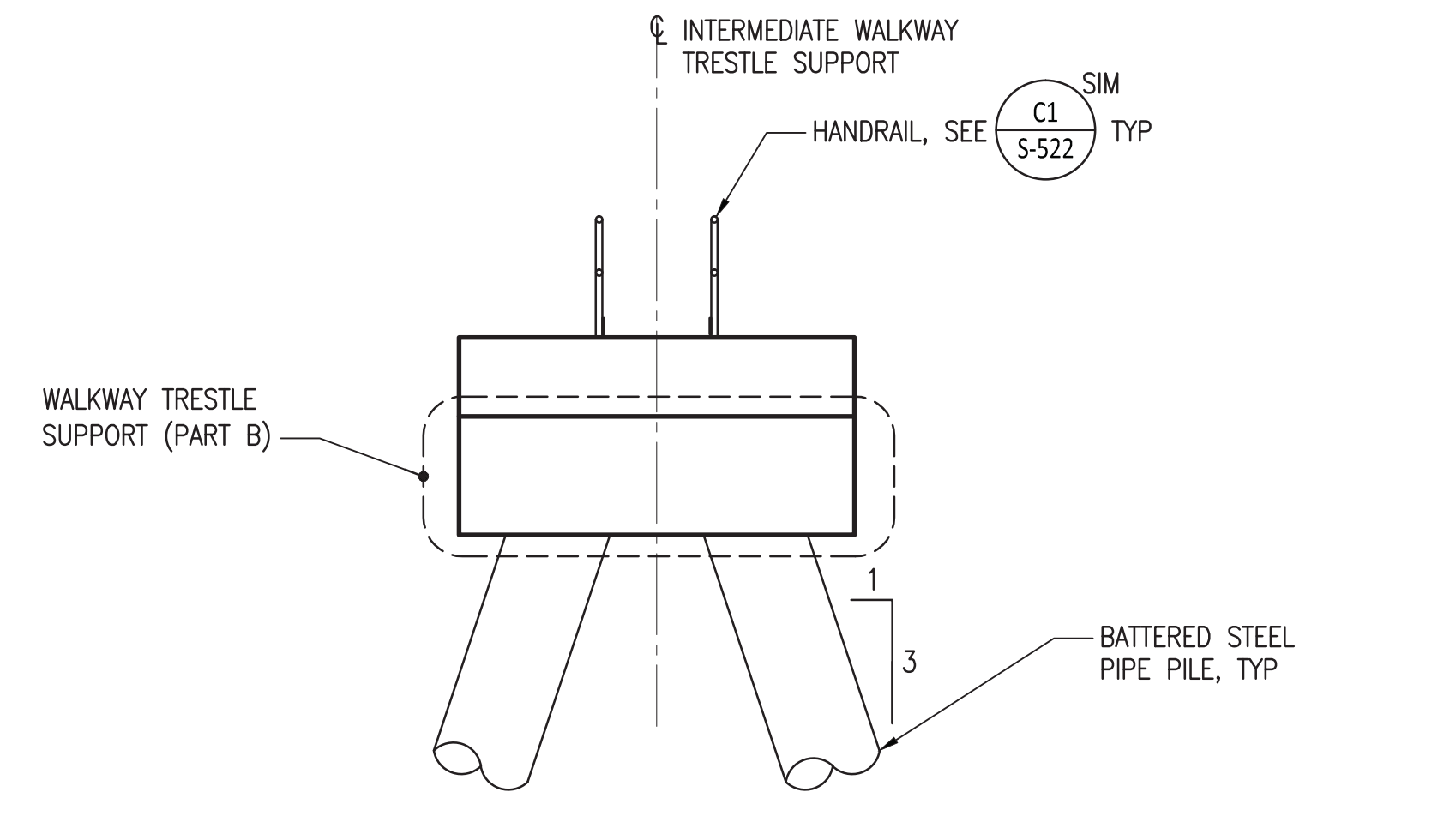
**ELEVATION - MOORING DOLPHIN**  
SCALE: 1:50 S-122, S-211, S-212 C1



**ELEVATION - MOORING DOLPHIN**  
SCALE: 1:50 S-122, S-211, S-212 C3

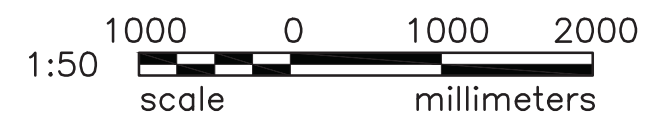


**ELEVATION - INTERMEDIATE WALKWAY TRESTLE SUPPORT**  
SCALE: 1:50 S-211 A1

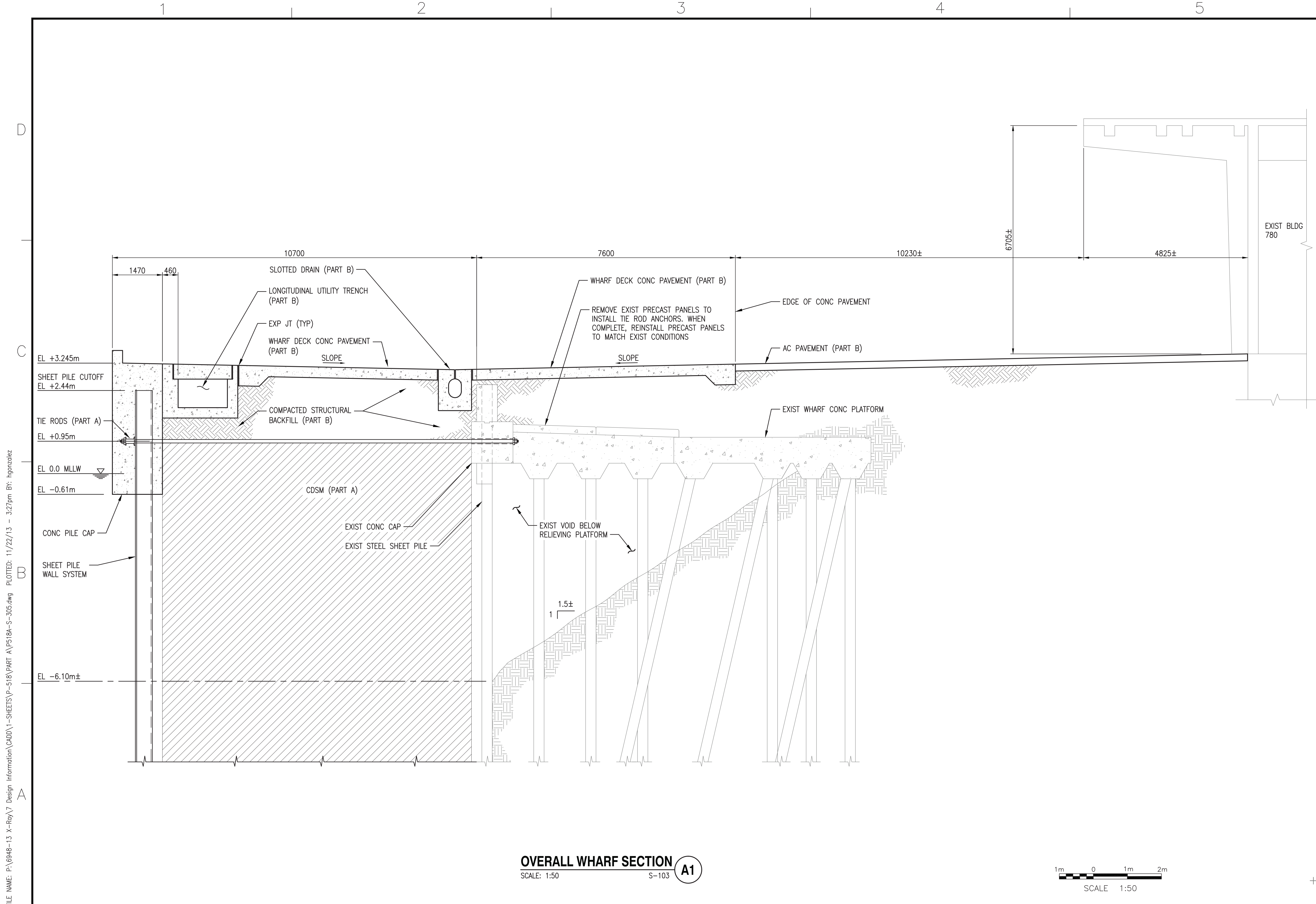


**ELEVATION - INTERMEDIATE WALKWAY TRESTLE SUPPORT**  
SCALE: 1:50 S-211, S-212 A3

NOTE:  
ALL WORK SHOWN ON THIS SHEET IS PART A WORK UNLESS NOTED OTHERWISE



DATE	
DESCRIPTION	
SYN	
<b>moffatt &amp; nichol</b> 3780 KILROY AIRPORT WAY, STE 600 LONG BEACH, CALIFORNIA 90806 (562) 426-9551 <i>SLM</i>	
DES	FLY   DRW JDM   CHK LAK
APPROVED	
 PER COMMANDER NAVFAC 11-26-13	
ACTIVITY	
SATISFACTORY TO	DATE
DES	DRW
REV	
PM/DM	AWK
BRANCH MANAGER	JE
CHIEF ENG/ARCH	JE
FIRE PROTECTION	
NAVAL FACILITIES ENGINEERING COMMAND	NAVAL BASE GUAM
NAVFAC PACIFIC	MAAGUAPA, HAWAII
<b>FY14 MCON P-518 X-RAY WHARF IMPROVEMENTS BERTH 1</b>	
<b>MOORING DOLPHIN &amp; TRESTLE SUPPORT - ELEVATIONS (PART A)</b>	
SCALE:	AS SHOWN
PROJECT NO.:	852260
CONSTR. CONTR. NO.	
NAVFAC DRAWING NO.	17152542
SHEET	53 OF 147
<b>S-212</b>	



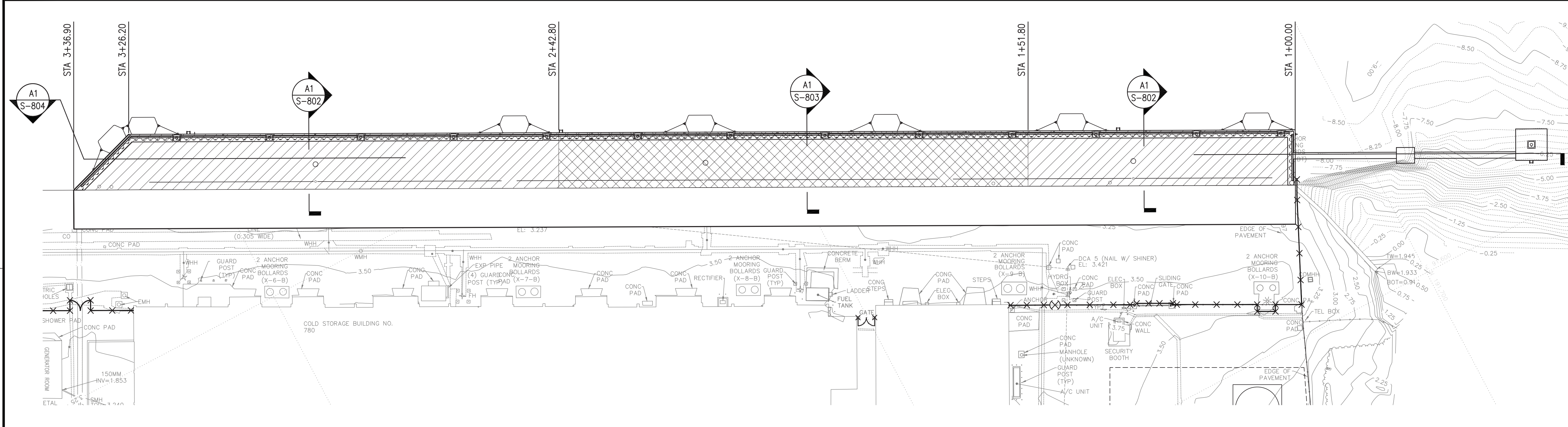
FILE NAME: P:\6948-13 X-Ray 7 Design Information\CADD\1-SHEETS\5-18\PART A\518A-S-305.dwg PLOTTED: 11/22/13 - 3:27pm BY: hgonzalez

**OVERALL WHARF SECTION**  
 SCALE: 1:50 S-103 **A1**



SYMBOL	DESCRIPTION	DATE
3780 KILROY AIRPORT WAY, STE 600 LONG BEACH, CALIFORNIA 90806 (562)426-9551		
DES	CS	[ ]
DRAW	HG	[ ]
CHK	FC	[ ]
APPROVED 		
PER COMMANDER NAVFAC 11-26-13		
ACTIVITY		
SATISFACTORY TO DATE		
DES	DRAW	REV
PM/DM	AWK	[ ]
BRANCH MANAGER	[ ]	[ ]
CHIEF ENG/ARCH	[ ]	[ ]
FIRE PROTECTION		
DEPARTMENT OF THE NAVY NAVFAC PACIFIC NAVFAC PACIFIC NAVAL BASE		
NAVAL FACILITIES ENGINEERING COMMAND MAJALAPA, HAWAII GUAM		
FY14 MCON P-518 <b>X-RAY WHARF IMPROVEMENTS</b> BERTH 1 WHARF SECTION WITH UTILITY TRENCH (PART A)		
SCALE: AS SHOWN EPROJECT NO.: 852260 CONSTR. CONTR. NO.		
NAVFAC DRAWING NO. 17152547		
SHEET 58 OF 147		
<b>S-305</b>		

FILE NAME: P:\6948-13 X-Ray\7 Design Information\CADD\1-SHEETS\5-18\PART A\518A-S-801.dwg PLOTTED: 11/22/13 - 3:00pm BY: jgonzalez



CDSM NOTES

- A) FILL SHALL BE LEFT UNDISTURBED AS SPECIFIED PRIOR TO THE START OF DEEP SOIL MIXING ACTIVITIES.
- B) TEST AREA 1
  - I. SELECT TEST AREA 1 WITHIN ZONE 1 WITHIN THE PRODUCTION AREA. TEST AREA 1 SHALL CONSIST OF MINIMUM 9 CDSM COLUMNS AND THE AREA SHALL NOT BE LESS THAN 13.5 SQUARE METERS. TEST AREA 1 SHALL CONSIST OF CDSM COLUMN LAYOUT THAT WOULD PROVIDE A MINIMUM 75% REPLACEMENT RATIO. ALL THE CDSM COLUMNS WITHIN TEST AREA 1 SHALL BE INSTALLED FROM EL. -13.7 M TO EL. +0.9 M.
  - II. WET-GRAB SAMPLES SHALL BE TAKEN IN 6 CDSM COLUMNS AT 3 DIFFERENT ELEVATIONS (A TOTAL OF 18 SAMPLES) SPECIFIED BY THE CONTRACTING OFFICER. IF MORE THAN 9 COLUMNS ARE INSTALLED, WET GRAB SAMPLES SHALL BE TAKEN IN AT LEAST 60% OF THE CDSM COLUMNS AT 3 DIFFERENT ELEVATIONS SPECIFIED BY THE CONTRACTING OFFICER. THE CONTRACTOR SHALL BE PREPARED TO TAKE SAMPLES AT ANY ELEVATION WITHIN CDSM COLUMNS.
  - III. CONTINUOUS CORE SAMPLES SHALL BE TAKEN AT LOCATIONS IN 4 CDSM COLUMNS SPECIFIED BY THE CONTRACTING OFFICER. UP TO 5 CORE SAMPLES FROM EACH CORING WILL BE SELECTED BY THE CONTRACTING OFFICER. IF MORE THAN 9 COLUMNS ARE INSTALLED, CONTINUOUS CORE SAMPLES SHALL BE TAKEN IN AT LEAST 45% OF THE CDSM COLUMNS; LOCATIONS TO BE SPECIFIED BY THE CONTRACTING OFFICER. CONTRACTOR'S GEOTECHNICAL ENGINEER SHALL OBSERVE THE CORING PROCESS AND LOG CORE SAMPLES.
- C) TEST AREA 2
  - I. SELECT TEST AREA 2 WITHIN ZONE 2 WITHIN THE PRODUCTION AREA. TEST AREA 2 SHALL CONSIST OF MINIMUM 4 CDSM COLUMNS AND AREA SHALL NOT BE LESS THAN 6 SQUARE METERS. TEST AREA 2 SHALL CONSIST OF CDSM COLUMN LAYOUT THAT WOULD PROVIDE A MINIMUM 75% REPLACEMENT RATIO. ALL THE CDSM COLUMNS WITHIN TEST AREA 2 SHALL BE INSTALLED FROM EL. -21.3 M TO EL. +0.9 M.
  - II. WET-GRAB SAMPLES SHALL BE TAKEN IN 3 CDSM COLUMNS AT 4 DIFFERENT ELEVATIONS (AT TOTAL OF 12 SAMPLES) SPECIFIED BY THE CONTRACTING OFFICER. IF MORE THAN 4 COLUMNS ARE INSTALLED, WET GRAB SAMPLES SHALL BE TAKEN IN AT LEAST 75% OF THE CDSM COLUMNS AT 4 DIFFERENT ELEVATIONS SPECIFIED BY THE CONTRACTING OFFICER. THE CONTRACTOR SHALL BE PREPARED TO TAKE

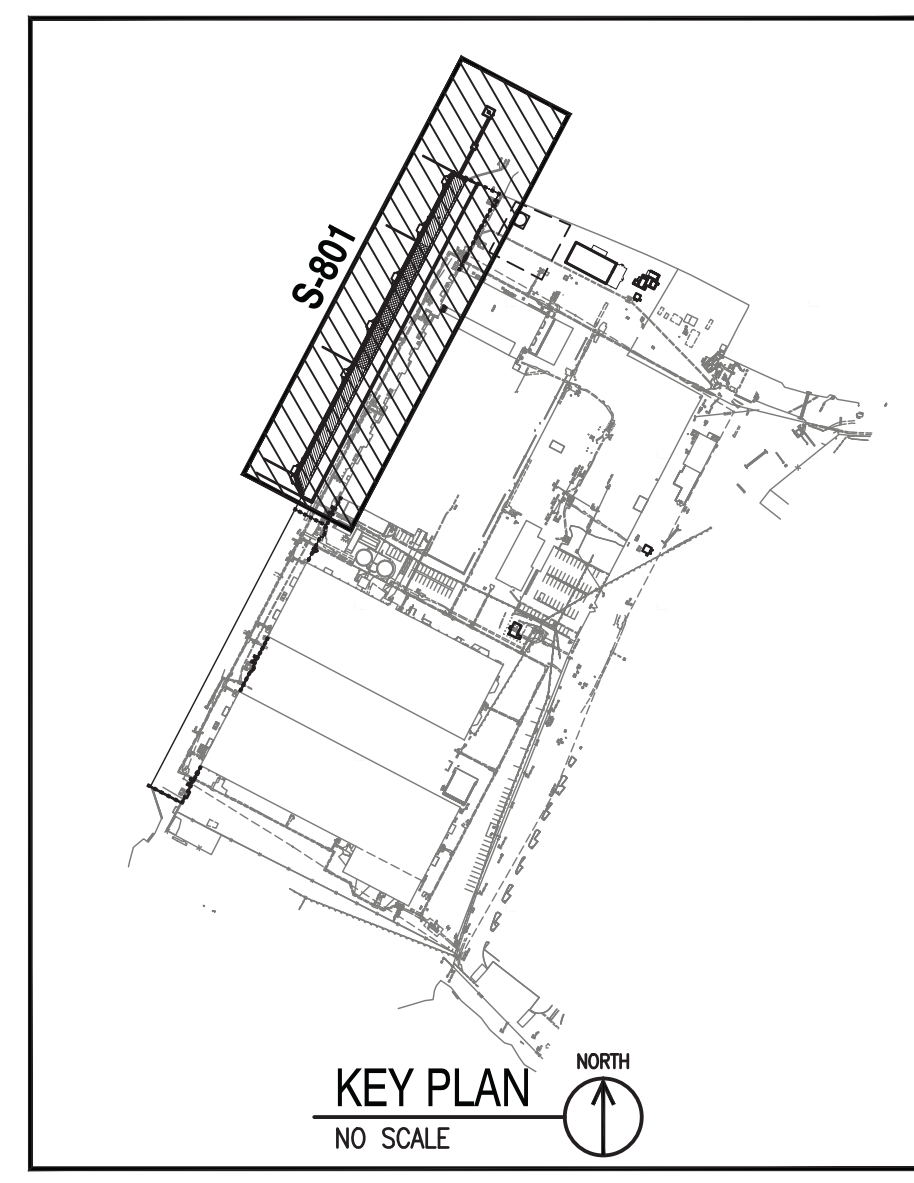
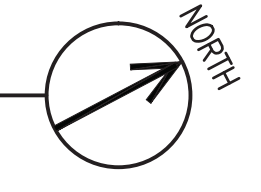
- SAMPLES AT ANY ELEVATION WITHIN THE CDSM COLUMNS.
- III. CONTINUOUS CORE SAMPLES SHALL BE TAKEN AT LOCATIONS IN 2 CDSM COLUMNS SPECIFIED BY THE CONTRACTING OFFICER. UP TO 6 CORE SAMPLES FROM EACH CORING WILL BE SELECTED BY THE CONTRACTING OFFICER. IF MORE THAN 4 COLUMNS ARE INSTALLED, CONTINUOUS CORE SAMPLES SHALL BE TAKEN IN AT LEAST 50% OF THE CDSM COLUMNS; LOCATIONS TO BE SPECIFIED BY THE CONTRACTING OFFICER. CONTRACTOR'S GEOTECHNICAL ENGINEER SHALL OBSERVE THE CORING PROCESS AND LOG CORE SAMPLES.
- D) VERIFICATION TESTING FOR PRODUCTION CDSM COLUMNS WITHIN ZONE 1
  - I. FOR EVERY 25 SQUARE METERS OF AREA IMPROVED, A TOTAL NUMBER OF 3 WET-GRAB SAMPLES SHALL BE TAKEN IN 3 DIFFERENT CDSM COLUMNS. CDSM COLUMNS AND ELEVATIONS WILL BE SELECTED BY THE CONTRACTING OFFICER. THE CONTRACTOR SHALL BE PREPARED TO TAKE SAMPLES AT ANY ELEVATION WITHIN THE CDSM COLUMNS.
  - II. CONTINUOUS CORE SAMPLES SHALL BE TAKEN AT LOCATION IN ONE OF THE CDSM COLUMNS SPECIFIED BY THE CONTRACTING OFFICER FOR EVERY 50 SQUARE METER AREA IMPROVED. UP TO 5 CORE SAMPLES FROM EACH CORING WILL BE SELECTED BY THE CONTRACTING OFFICER. CONTRACTOR'S GEOTECHNICAL ENGINEER SHALL OBSERVE THE CORING PROCESS AND LOG CORE SAMPLES.
- E) VERIFICATION TESTING FOR PRODUCTION CDSM COLUMNS WITHIN ZONE 2
  - I. FOR EVERY 25 SQUARE METERS OF AREA IMPROVED, A TOTAL NUMBER OF 4 WET-GRAB SAMPLES SHALL BE TAKEN IN 4 DIFFERENT CDSM COLUMNS. CDSM COLUMNS AND ELEVATIONS WILL BE SELECTED BY THE CONTRACTING OFFICER. THE CONTRACTOR SHALL BE PREPARED TO TAKE SAMPLES AT ANY ELEVATION WITHIN THE CDSM COLUMNS.
  - II. CONTINUOUS CORE SAMPLES SHALL BE TAKEN AT LOCATION IN ONE OF THE CDSM COLUMNS SPECIFIED BY THE CONTRACTING OFFICER FOR EVERY 50 SQUARE METER AREA IMPROVED. UP TO 6 CORE SAMPLES FROM EACH CORING WILL BE SELECTED BY THE CONTRACTING OFFICER. CONTRACTOR'S GEOTECHNICAL ENGINEER SHALL OBSERVE THE CORING PROCESS AND LOG CORE SAMPLES.

CEMENT DEEP SOIL MIX ZONES PLAN

SCALE: 1:400

LEGEND:

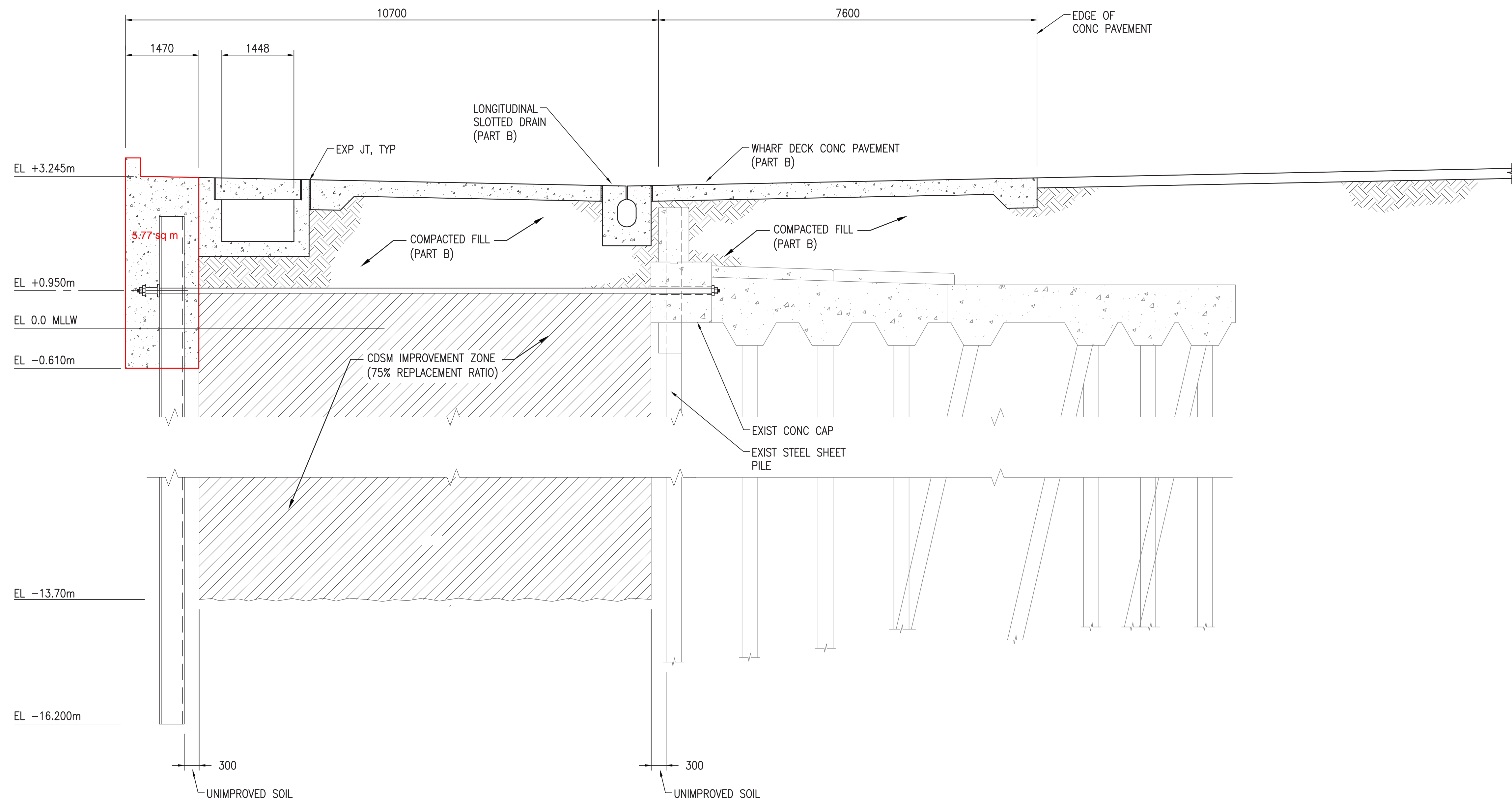
- [Hatched Pattern] ZONE 1 (75% REPLACEMENT RATIO)
- [Cross-hatched Pattern] ZONE 2 (75% REPLACEMENT RATIO OVER 50% REPLACEMENT RATIO)



DATE	
DESCRIPTION	
SW	
<b>moffatt &amp; nichol</b> 3780 KILROY AIRPORT WAY, STE 600 LONG BEACH, CALIFORNIA 90806 (562)426-9551	
DES	KA   DRW   HG   CHK   FC
APPROVED	<i>M. S. M.</i>
FOR COMMANDER NAVFAC	11-26-13
ACTIVITY	
SATISFACTORY TO	DATE
DES	DATE
REV	DATE
PM/DM	AWK
BRANCH MANAGER	JE
CHIEF ENG/ARCH	JE
FIRE PROTECTION	JE
DEPARTMENT OF THE NAVY NAVFAC PACIFIC NAVAL BASE FY14 MCON P-518 <b>X-RAY WHARF IMPROVEMENTS</b> <b>BERTH 1</b> CDSM (CEMENT DEEP SOIL MIX) ZONES PLAN (PART A)	
SCALE:	AS SHOWN
EPROJECT NO.:	852260
CONSTR. CONTR. NO.	
NAVFAC DRAWING NO.	17152566
SHEET	77 OF 147
<b>S-801</b>	

FILE NAME: P:\6948-13 X-Ray 7 Design Information\CADD\1-SHEETS\PART A\518A-S-802.dwg PLOTTED: 11/22/13 - 3:00pm BY: hgonzalez


1 2 3 4 5



**CDSM TRANSVERSE SECTION**  
SCALE: 1:50 S-801, S-804 **A1**




SYN	DESCRIPTION	DATE




**NAVFAC**



REGISTERED PROFESSIONAL ENGINEER  
M. S. ARUNDEL  
No. 02-00260  
12-31-2013  
STATE OF CALIFORNIA  
CIVIL ENGINEER



**moffatt & nichol**  
3780 KILROY AIRPORT WAY, STE 600  
LONG BEACH, CALIFORNIA 90806  
(562)426-9551

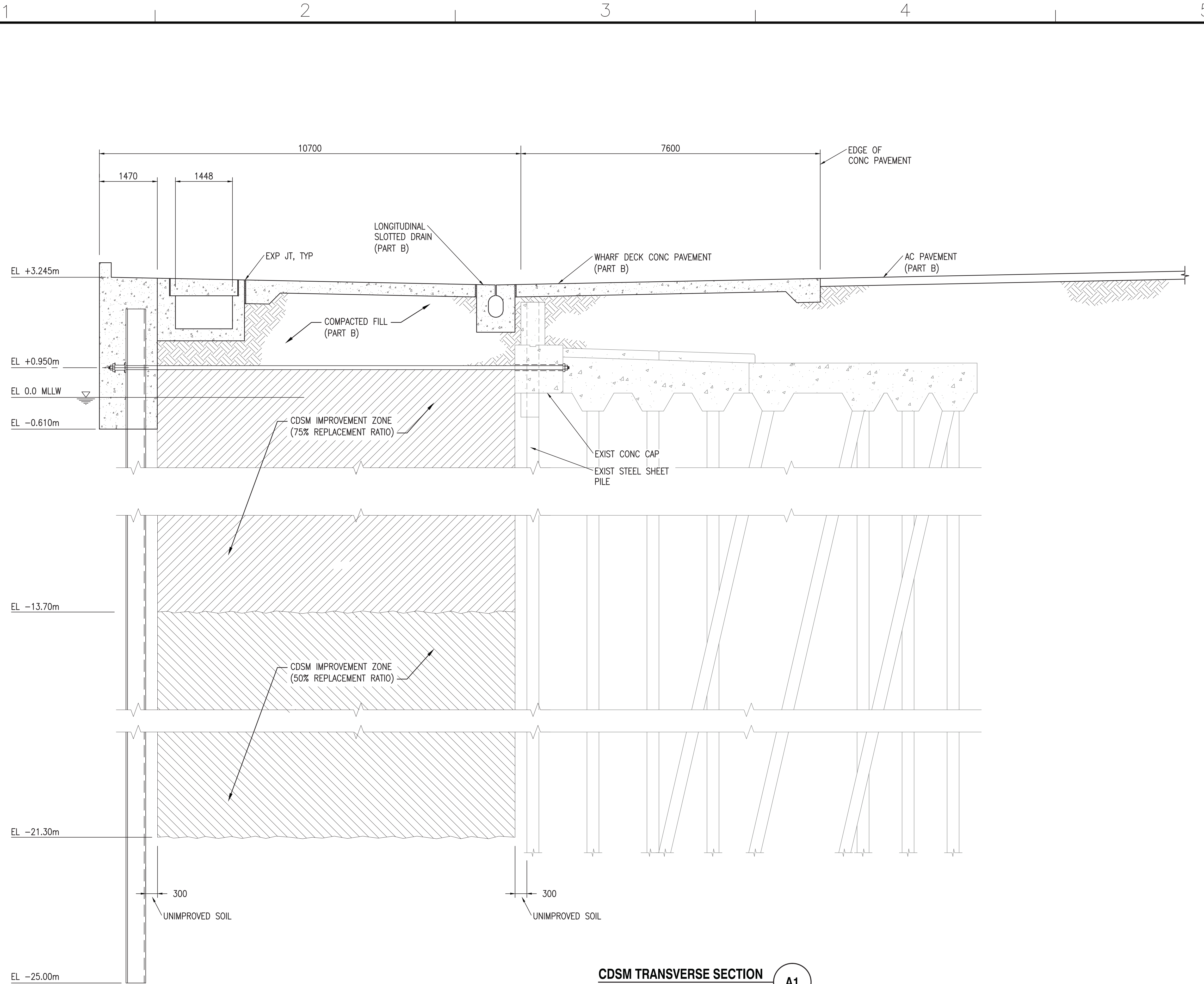
DES	KA	DRW	HG	CHK	FC
APPROVED	 M. S. Arundel PER COMMANDER NAVFAC 11-26-13				
ACTIVITY					
SATISFACTORY TO DATE					
DES	DRW	REV			
PM/DM	AWK				
BRANCH MANAGER	JE				
CHIEF ENG/ARCH	JG				
FIRE PROTECTION					

DEPARTMENT OF THE NAVY	NAVFAC PACIFIC	NAVFAC PACIFIC	NAVFAC PACIFIC
NAVFAC PACIFIC	NAVFAC PACIFIC	NAVFAC PACIFIC	NAVFAC PACIFIC
FY14 MCON P-518	FY14 MCON P-518	FY14 MCON P-518	FY14 MCON P-518
X-RAY WHARF IMPROVEMENTS	X-RAY WHARF IMPROVEMENTS	X-RAY WHARF IMPROVEMENTS	X-RAY WHARF IMPROVEMENTS
BERTH 1	BERTH 1	BERTH 1	BERTH 1
CDSM TRANSVERSE SECTION - 1 (PART A)	CDSM TRANSVERSE SECTION - 1 (PART A)	CDSM TRANSVERSE SECTION - 1 (PART A)	CDSM TRANSVERSE SECTION - 1 (PART A)

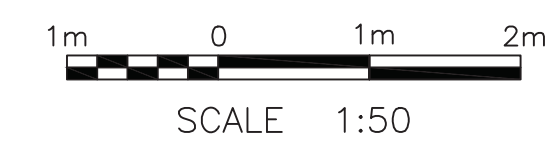
SCALE:	AS SHOWN
EPROJCT NO.:	852260
CONSTR. CONTR. NO.	
NAVFAC DRAWING NO.	17152567
SHEET	78 OF 147

**S-802**

FILE NAME: P:\6948-13 X-Ray 7 Design Information\CADD\1-SHEETS\5-18\PART A\518A-S-803.dwg PLOTTED: 11/22/13 - 3:00pm BY: hgonzalez

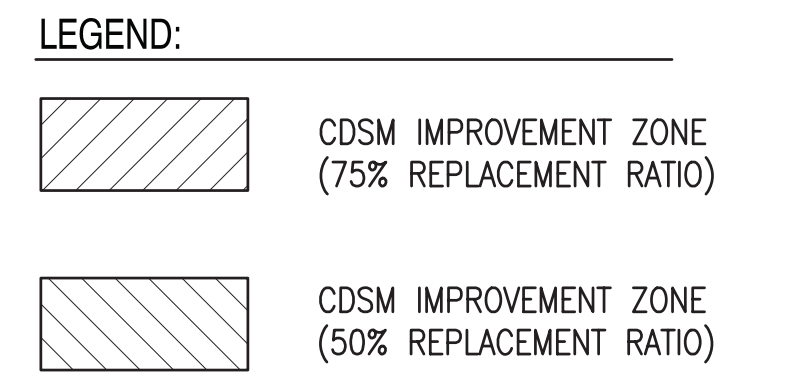
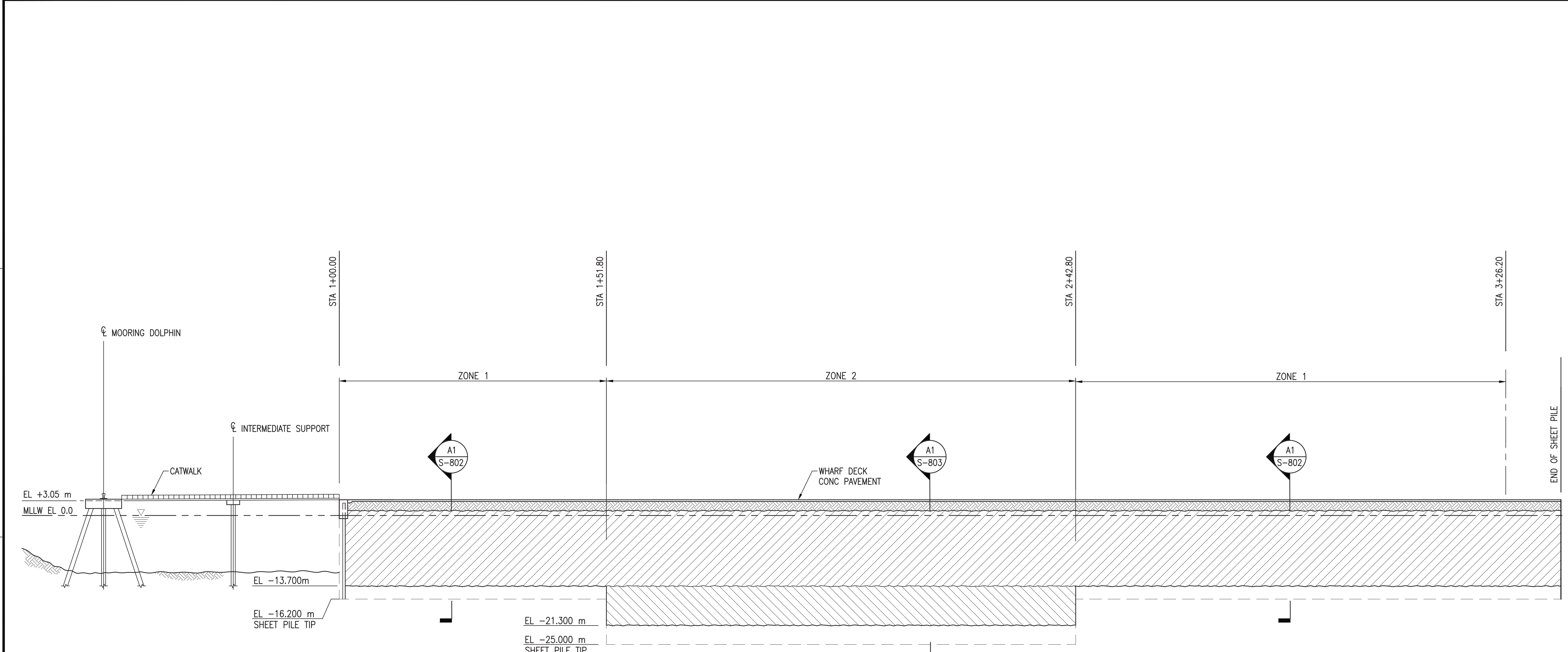


**CDSM TRANSVERSE SECTION**  
 SCALE: 1:50 S-801, S-804 **A1**

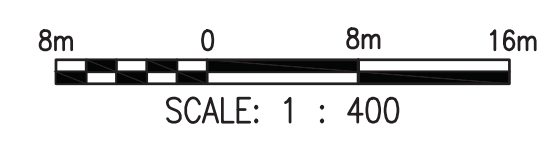


	DATE
	DESCRIPTION
	SYN
 	
 <b>moffatt &amp; nichol</b> 3780 KILROY AIRPORT WAY, STE 600 LONG BEACH, CALIFORNIA 90806 (562)426-9551	
DES: KA   DRW: HG   CHK: FC APPROVED:  PER COMMANDER NAVFAC 11-26-13	
ACTIVITY	
SATISFACTORY TO DATE	
DES:   DRW:   REV:	
PM/DM: AWK	
BRANCH MANAGER: JE	
CHIEF ENG/ARCH: JG	
FIRE PROTECTION: P	
DEPARTMENT OF THE NAVY NAVFAC PACIFIC NAVAL BASE	NAVAL FACILITIES ENGINEERING COMMAND HAWAII GUAM
FY14 MCON P-518 <b>X-RAY WHARF IMPROVEMENTS</b> BERTH 1 CDSM TRANSVERSE SECTION - 2 (PART A)	
SCALE: AS SHOWN EPROJECT NO.: 852260 CONSTR. CONTR. NO.	
NAVFAC DRAWING NO. 17152568 SHEET 79 OF 147	
<b>S-803</b>	

FILE NAME: P:\6948-13 X-Ray\7 Design Information\CADD\1-SHEETS\5-18\PART A\518A-S-804.dwg PLOTTED: 11/22/13 - 3:28pm BY: hgonzalez



**CDSM LONGITUDINAL SECTION (PART A)**  
SCALE: 1:400 A1 S-801



DATE	
DESCRIPTION	
SYN	
<b>moffatt &amp; nichol</b> 3780 KILROY AIRPORT WAY, STE 600 LONG BEACH, CALIFORNIA 90806 (562)426-9551	
DES	KA
DRW	HG
CHK	FC
APPROVED	<i>M. Sutaba</i>
PER COMMANDER NAVFAC	11-26-13
ACTIVITY	
SATISFACTORY TO	DATE
DES	
DRW	
REV	
PM/DM	AWK
BRANCH MANAGER	
CHIEF ENG/ARCH	
FIRE PROTECTION	
DEPARTMENT OF THE NAVY	NAVFAC PACIFIC
NAVFAC PACIFIC	NAVFAC PACIFIC
NAVAL BASE	NAVAL BASE
<b>FY14 MCON P-518</b> <b>X-RAY WHARF IMPROVEMENTS</b> <b>BERTH 1</b> <b>CDSM LONGITUDINAL SECTION (PART A)</b>	
SCALE:	AS SHOWN
EPROJECT NO.:	852260
CONSTR. CONTR. NO.	
NAVFAC DRAWING NO.	17152569
SHEET	80 OF 147
<b>S-804</b>	