

US Army Corps
of Engineers

PUBLIC NOTICE

NUMBER: 251794S

DATE: May 11, 2007

RESPONSE REQUIRED BY: May 29, 2007

Regulatory Branch
1455 Market Street
San Francisco, CA 94103-1398PERMIT MANAGER: Debra O'Leary PHONE: (415) 503-6807 E-mail: debra.a.o'leary@usace.army.mil

1. INTRODUCTION: The Santa Cruz Port District represented by Brian Foss has requested a modification of Department of the Army permit 251794S (DA permit). The modification would make the existing DA permit consistent with the amended Coastal Development Permit issued by the California Coastal Commission. The current DA permit authorizes the dredging of the Port and the disposal of dredged material in the aquatic environment including on Twin Lakes State Beach, the nearshore environment and at aquatic disposal site SF-14. The proposed modification would: 1. increase the amount of coarse grained sand which can be deposited on the beach; 2. authorize dredging in the inner harbor through the month of October; 3. authorize nearshore disposal of material dredged from the south section of the inner-harbor through and April 30th; 4. use of a newly configured non-anchored pipeline to transport the material from the harbor to the nearshore environment and ; 5. authorization to dredge between July 1 and October 30 with disposal at SF-14 or an approved non-aquatic (upland) site. Additionally, the Port District proposes to increase the depth of the channel south of the culverts to - 16 feet mean lower low water (MLLW) with an additional 2 feet of overdepth. The project is located in Santa Cruz, Santa Cruz County, adjacent to Monterey Bay in California. This modification request is being processed pursuant to the provisions of Section 404 of the Clean Water Act (33 U.S.C. 1344) and Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. 403).

2. PROJECT DESCRIPTION: The permit currently authorizes the maintenance dredging of approximately 360,000 cubic yards (cy) from Santa

Cruz Harbor annually for a ten-year period ending in 2011. The project area includes dredging of the inner harbor which is comprised of the north and south harbor areas and the entrance channel (see Sheet 1). Approximately 350,000 cys would be dredged from the approximately 10-acre entrance channel (see Sheet 3) and approximately 10,000 cys would be dredged from the approximately 60-acre area in the inner harbor (See Sheets 4 through 7) and annually. The maximum total amount of dredged material during the ten-year period would be approximately 3,600,000 cys.

As shown on Sheet 9 the entrance channel is dredged to a design depth of -20 feet mean lower low water (MLLW) with a 2 foot overdepth allowance. As shown on Sheets 8 and 9, the inner harbor areas are dredged to a design depth of -8 feet MLLW in the berth areas and - 10 feet in some of the channel areas. All dredging in the Santa Cruz Harbor has an additional overdepth allowance of 2 feet (-8 ft + -2 feet; -10 feet + -2 feet).

Material of suitable grain size (approximately 80% or more sand), from both entrance channel and inner harbor dredging areas, is disposed into the inter-tidal zone (2 to 3 feet of water) at the mean high water line on the beach, approximately 300 yards east of the East Jetty, at a location between 5th and 7th Avenue. If sediment is encountered that contains decaying organic material (kelp), it would be disposed in the deeper water of the near-shore in order to reduce or eliminate odors that might occur. Material that is significantly less than 80% sand would be disposed at SF-14 or at an approved upland location.

Both the entrance channel and inner harbor areas are dredged hydraulically, using a cutter head suction dredge. The material is pumped through a submerged 16-inch pipe that runs most of the length of Santa Cruz Harbor to the beach and near-shore discharge locations between 5th and 7th Avenue; or dredged material is taken to SF-14 in a dump scow, as necessary.

Santa Cruz Harbor lies on the boundary of the Monterey Bay National Marine Sanctuary (MBNMS). A portion of the disposal site (the area between 6th and 7th Avenue) is a California State Beach. The near-shore disposal site and SF-14 lie within the MBNMS (see Sheet 2). The use of all sites has been approved, in the past, by the appropriate agencies. Prior to each dredge episode, the sediment-to-be-dredged will be sampled and tested, as necessary, for agency approval of aquatic disposal per the Inland Testing Manual.

In order to protect steelhead trout migrating through the Harbor to Arana Gulch, the original permit specified that dredging could only occur annually from November 1 through March 31st.

Since its' issuance the permit has been modified three times.

Modification 1: expansion of the dredging window in the Harbor entrance from November 1 to April 30 and limitation of the amount of dredging of the inner Harbor to 80 daylight hours between November and February 28th.

Modification 2: allowed up to 3,000 of the 10,000 cubic yards dredged from the inner harbor and disposed in the near shore environment east of the harbor entrance to be finer-grained sediment (between 50% to 80% sand). In accordance with the permit, the remaining 7,000 cubic yards are to be greater than 80% sand.

Modification 3: authorized a dredging demonstration project with nearshore disposal with material from the inner Harbor during October 2005.

The proposed modifications in the inner Harbor would: 1. increase the amount of coarse grained material dredged from the inner Harbor which can be deposited in the nearshore environment from 10,000 cys. to 20,000 cys (the additional material would be at least 80% sand); 2. authorize dredging in the inner Harbor during the month of October; 3. authorize that nearshore disposal of material dredged from the south section of the inner-harbor through April 30th; 4. authorize use of a newly configured non-anchored pipeline to transport the material from the harbor to the nearshore environment; and 5. dredging between July 1 and October 30th with disposal at SF-14 or at a non-aquatic (including non-wetland), upland site.

Additionally, the Port District proposes to increase the depth of the channel south of the culverts to – 16 feet MLLW with 2 foot overdepth (see Sheet 14). The purpose of this deepening is to provide a holding area for annual sediment discharge from the Arana Gulch culverts (see sheets 7 and 15). The shallow conditions created by this discharge negatively effect navigation, prevent use of forty-six berths and damage floating docks by subjecting them to grounding and breaking waves.

3. COMPLIANCE WITH VARIOUS FEDERAL LAWS:

National Environmental Policy Act of 1969 (NEPA): The Corps will assess the environmental impacts of the proposed action in accordance with the requirements of the National Environmental Policy Act of 1969 (42 U.S.C. Section 4371 et. seq.), the Council on Environmental Quality's Regulations, 40 C.F.R. Part 1500-1508, and Corps' Regulations, 33 C.F.R. Part 230 and 325, Appendix B. Unless otherwise stated, the Environmental Assessment will describe only the impacts (direct, indirect, and cumulative) resulting from activities within the Corps' jurisdiction. The documents used in the preparation of the Environmental Assessment will be on file with the U.S. Army Corps of Engineers, San Francisco District, Regulatory Branch, 1455 Market Street, San Francisco, California 94105-2197.

Endangered Species Act of 1973 (ESA): Section 7 of the Endangered Species Act requires formal

consultation with the U.S. Fish and Wildlife Service (FWS) and/or the National Marine Fisheries Service (NMFS) if a Corps permitted project may adversely affect any Federally listed threatened or endangered species or its designated critical habitat. The only federally protected species in the project area or near the vicinity of the disposal sites are steelhead trout, brown pelicans and southern sea otters. Potential impacts to the brown pelicans and southern sea otters are covered under the FWS' 8/29/1997 Programmatic Biological Opinion.

Central California Coast population of steelhead trout (*Oncorhynchus mykiss*) was classified as federally threatened in August 1997 by NMFS, and its status was reaffirmed in January 2006. The steelhead that occur in Santa Cruz Harbor are included in this ESU (evolutionarily significant unit) and therefore receive protection under the Endangered Species Act. There is concern that steelhead migrating through the Harbor to Arana Gulch might be negatively impacted by dredging and disposal activities. Steelhead are protected through limiting the times when dredging and dredged material disposal can occur. If the permit is modified dredging could occur from July 1st to April 30th. Any material dredged from July 1st to October 30th would be disposed of or reused on an upland (non-aquatic and non-wetland) site or at SF-14. Dredging of the inner harbor between November 1st and February 28th is authorized for only 80 daylight hours.

Magnuson-Stevens Fisheries Conservation and Management Act: This notice initiates the Essential Fish Habitat (EFH) consultation requirements of the Magnuson-Stevens Fishery Conservation and Management Act. The proposal would impact approximately 70 acres of EFH which could be utilized by various species of sole, shark and rockfish. Our initial determination is that the proposed action would not have a substantial adverse impact on EFH or federally managed fisheries in California waters. The Corps considers this fish habitat disturbed because the harbor has been dredged several times in the past and it is continually utilized by recreational boaters. As the infaunal community recovers in the dredged area, fish species will return to feed. Our final determination relative to project impacts and the

need for mitigation measures is subject to review by and coordination with NMFS. It is presumed that fish species utilizing the area would be using it for feeding during a period of growth. When dredging occurs, the fish should be able to find ample and suitable foraging areas in and along the adjacent areas.

Seagrasses and macroalgae, including kelp, provide several important functions in the aquatic environment such as providing a surface for fish eggs to attach. Eelgrass is not expected to be established in this area. However, kelp is regularly uprooted and reestablishes itself between the dredging episodes.

The diversity and abundance of kelp on Monterey Bay and in the Harbor fluctuates seasonally and annually. During the summer and fall *Macrocystis pyrifera* and *Cystoseira osmundacea* form the canopy. Patchy subsurface *Pterygophora californica* is present throughout the year with a year round ground cover of red algae and *Desmarestia spp.* (in spring and summer).

Clean Water Act of 1972 (CWA):

a. Water Quality: Under Section 401 of the Clean Water Act (33 U.S.C. Section 1341), an applicant for a Corps permit must first obtain a State water quality certification before a Corps permit may be issued. The applicant has provided the Corps with evidence that a valid request has been submitted to the San Francisco Bay Regional Water Quality Control Board for State water quality certification. No Corps permit will be granted until the applicant obtains the required water quality certification. The Corps may assume a waiver of water quality certification if the State fails or refuses to act on a valid request for certification within 60 days after the receipt of a valid request, unless the District Engineer determines a shorter or longer period is reasonable for the State to act.

Those parties concerned with any water quality issues that may be associated with this project should write to the Executive Officer, California Regional Water Quality Control Board, San Francisco Bay Region, 1515 Clay Street, Suite 1400, Oakland, California

94612 by the close of the comment period of this Public Notice.

b. Alternatives: Evaluation of this proposed activity's impact includes application of the guidelines promulgated by the Administrator of the Environmental Protection Agency under Section 404(b)(1) of the Clean Water Act (33 U.S.C. Section 1344(b)).

If a land, ocean, or other aquatic disposal site becomes available for use during the life of the permit, the permittee shall evaluate these disposal alternatives, taking into consideration cost, existing technology, and logistics in light of the overall project purpose to facilitate compliance with the 404(b)(1) Guidelines (40 CFR 230). This evaluation shall be submitted to the Corps at least 60 calendar days before commencement of subsequent dredging episodes. The District Engineer, upon review of this information and after consultation with other resource agencies, may direct the permittee to use such sites in lieu of or in addition to the Moss Landing Disposal Site (SF-14) under authority of 33 CFR 325.7 and 40 CFR 230.10(a).

Coastal Zone Management Act of 1972 (CZMA): Section 307 of the Coastal Zone Management Act requires the applicant to certify that the proposed project will comply with the State's Coastal Zone Management Program, if applicable. The proposed work is authorized by Coastal Development Permit Amendment 3-05-065-A2. Coastal development issues should be directed the California Coastal Commission, Central Coast District Office, 725 Front Street, Suite 300, Santa Cruz, California 95060.

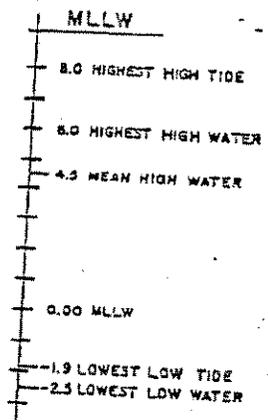
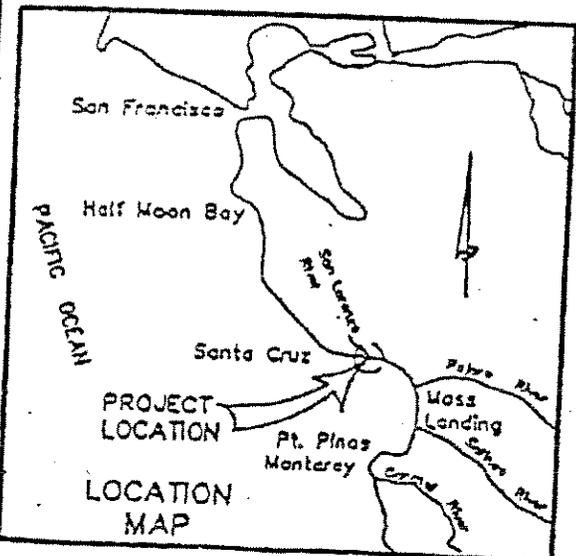
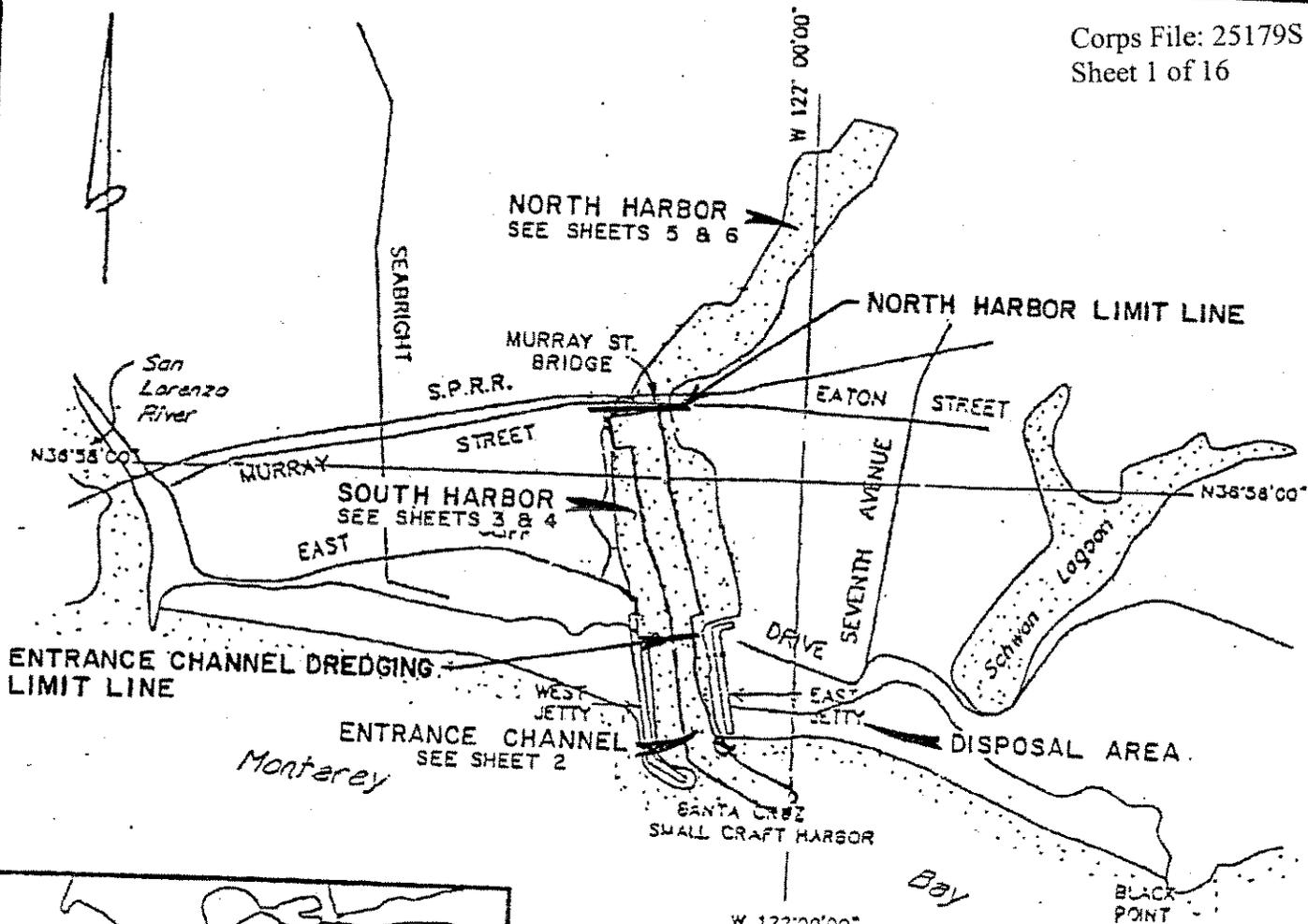
National Historic Preservation Act of 1966 (NHPA): Based on a review of survey data on file with various City, State and Federal agencies, no historic or archeological resources are known to occur in the project vicinity. If unrecorded resources are discovered during construction of the project, operations will be suspended until the Corps completes consultation with the State Historic Preservation Office (SHPO) in accordance with Section 106 of the National Historic Preservation Act.

4. PUBLIC INTEREST EVALUATION: The decision whether to issue a permit will be based on an evaluation of the probable impact, including cumulative impact, of the proposed activity on the public interest. That decision will reflect the national concern for both protection and utilization of important resources. The benefits that reasonably may be expected to accrue from the proposed activity must be balanced against its reasonably foreseeable detriments. All factors that may be relevant to the proposal will be considered, including its cumulative effects. Among those factors are: conservation, economics, aesthetics, general environmental concerns, wetlands, historical properties, fish and wildlife values, flood hazards, floodplain values, land use, navigation, shoreline 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.

5. CONSIDERATION OF COMMENTS: The Corps of Engineers is soliciting comments from the public, Federal, State and local agencies and officials, Indian Tribes, 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 to determine whether to issue, 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 in the proposed activity.

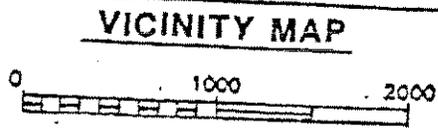
6. SUBMISSION OF COMMENTS: Interested parties may submit, in writing, any comments concerning this activity. Comments should include the applicant's name and the number and the date of this Public Notice, and should be forwarded so as to reach this office within the comment period specified on Page 1. Comments should be sent to Debra

O'Leary at the U.S. Army Corps of Engineers, San Francisco District, Regulatory Branch, 1455 Market Street, 16th Floor, San Francisco, California 94103-1398. It is the Corps' policy to forward any such comments that include objections to the applicant for resolution or rebuttal. Any person may also request, in writing, within the comment period of this Public Notice that a public hearing be held to consider this application. Requests for public hearings shall state, with particularity, the reasons for holding a public hearing. Additional details may be obtained by contacting the applicant whose name and address are indicated in the first paragraph of this Public Notice or by contacting Debra O'Leary of our office at telephone number (415) 503-6807 or by E-mail at: debra.a.o'leary@usace.army.mil. Details on any changes of a minor nature that are made in the final permit action will be provided upon request.



DATUM = MLLW

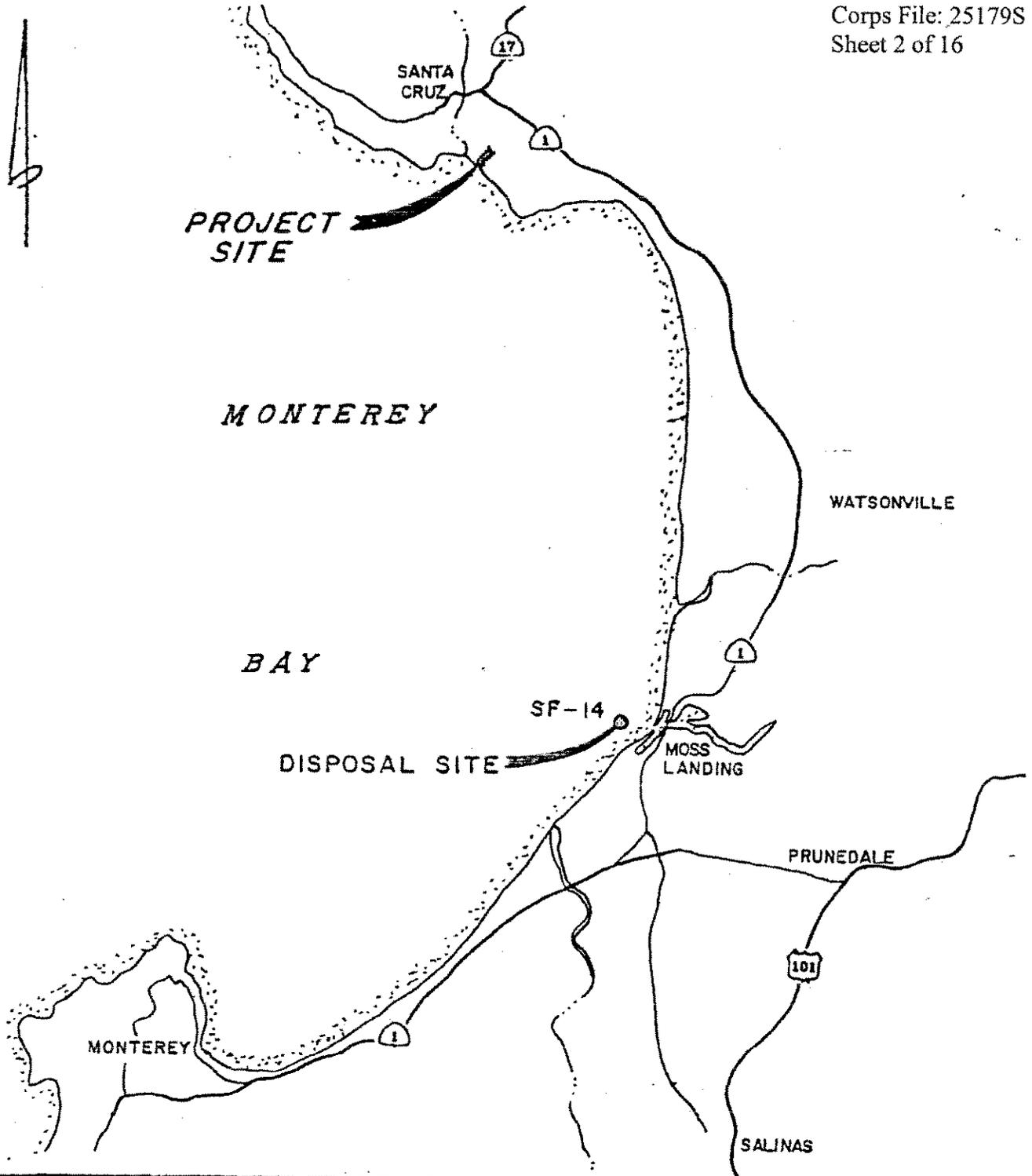
PURPOSE: TO MAINTENANCE DREDGE EXISTING ENTRANCE/ FEDERAL CHANNEL & BERTHING AREAS IN THE NORTH AND SOUTH HARBORS
DATUM: MLLW



SANTA CRUZ PORT DISTRICT
135 5th AVENUE
SANTA CRUZ, CA. 95062

IN: SANTA CRUZ SMALL CRAFT HARBOR
AT: NORTH AND SOUTH HARBOR
COUNTY OF: SANTA CRUZ
APPLICATION BY: SANTA CRUZ PORT DISTRICT

7/10/00



PURPOSE: TO MAINTENANCE DREDGE
EXISTING ENTRANCE/
FEDERAL CHANNEL &
BERTHING AREAS IN THE
NORTH AND SOUTH
HARBORS

DATUM: MLLW

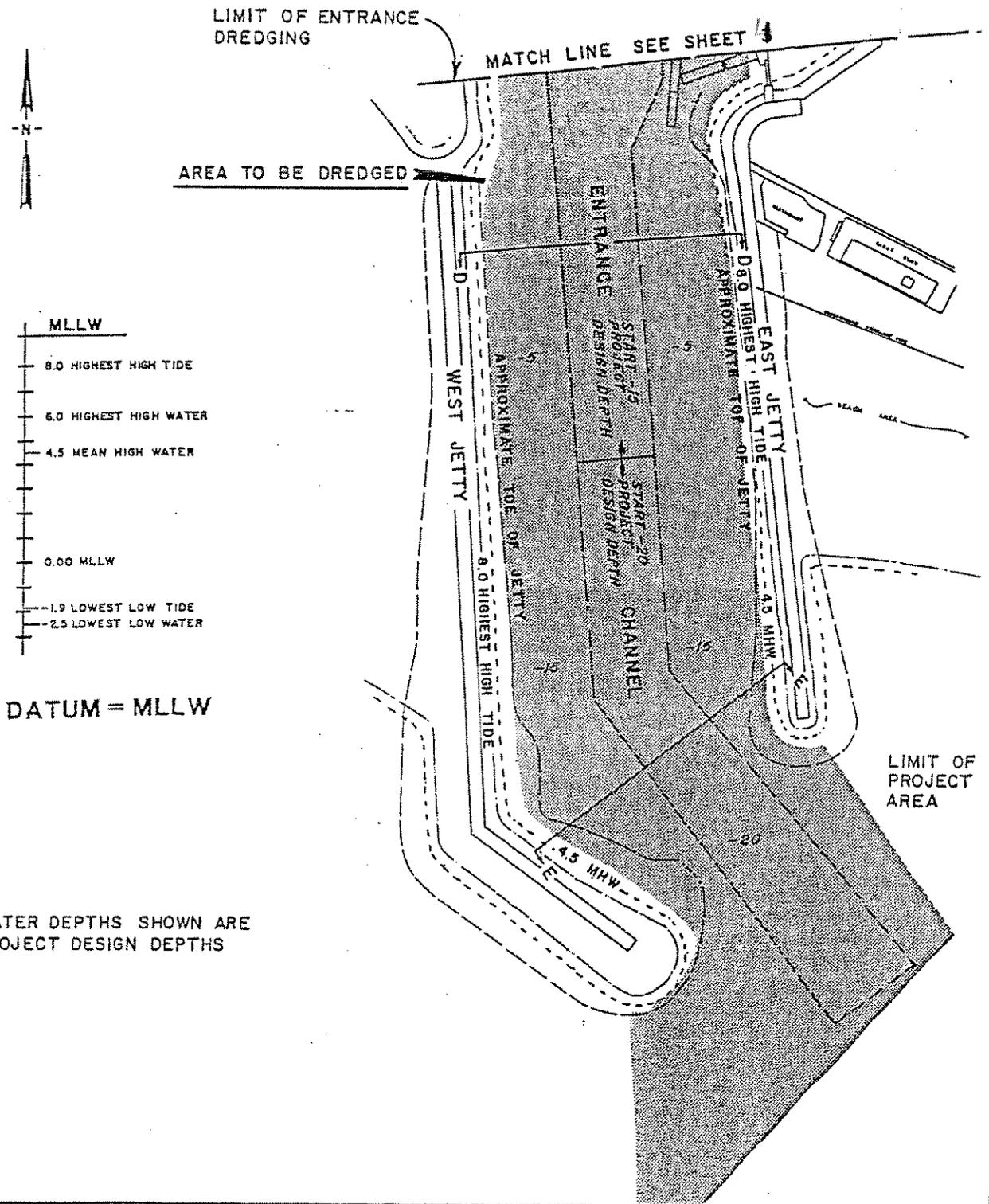
VICINITY MAP



SANTA CRUZ PORT DISTRICT
135 5th AVENUE
SANTA CRUZ, CA. 95062

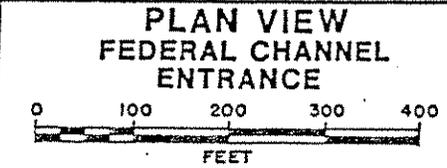
IN: SANTA CRUZ SMALL CRAFT
HARBOR
AT: NORTH AND SOUTH HARBOR
COUNTY OF: SANTA CRUZ
APPLICATION BY: SANTA CRUZ PORT
DISTRICT

7/10/00



NOTE: WATER DEPTHS SHOWN ARE PROJECT DESIGN DEPTHS

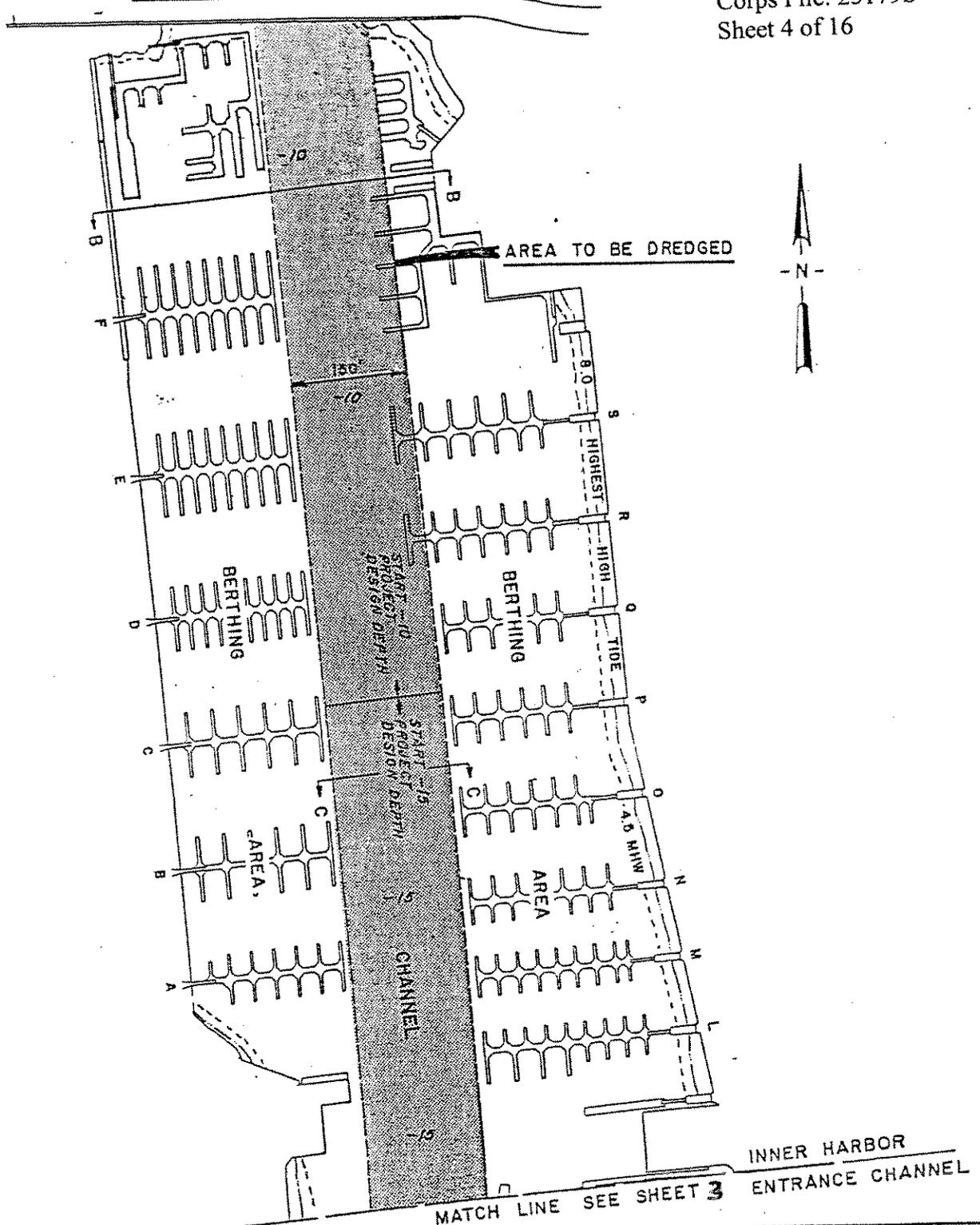
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DATUM: MLLW



SANTA CRUZ PORT DISTRICT
135 5th AVENUE
SANTA CRUZ, CA. 95062

IN: SANTA CRUZ SMALL CRAFT HARBOR
AT: SOUTH HARBOR
COUNTY OF: SANTA CRUZ
APPLICATION BY: SANTA CRUZ PORT DISTRICT

7/10/00



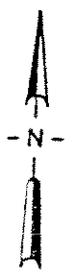
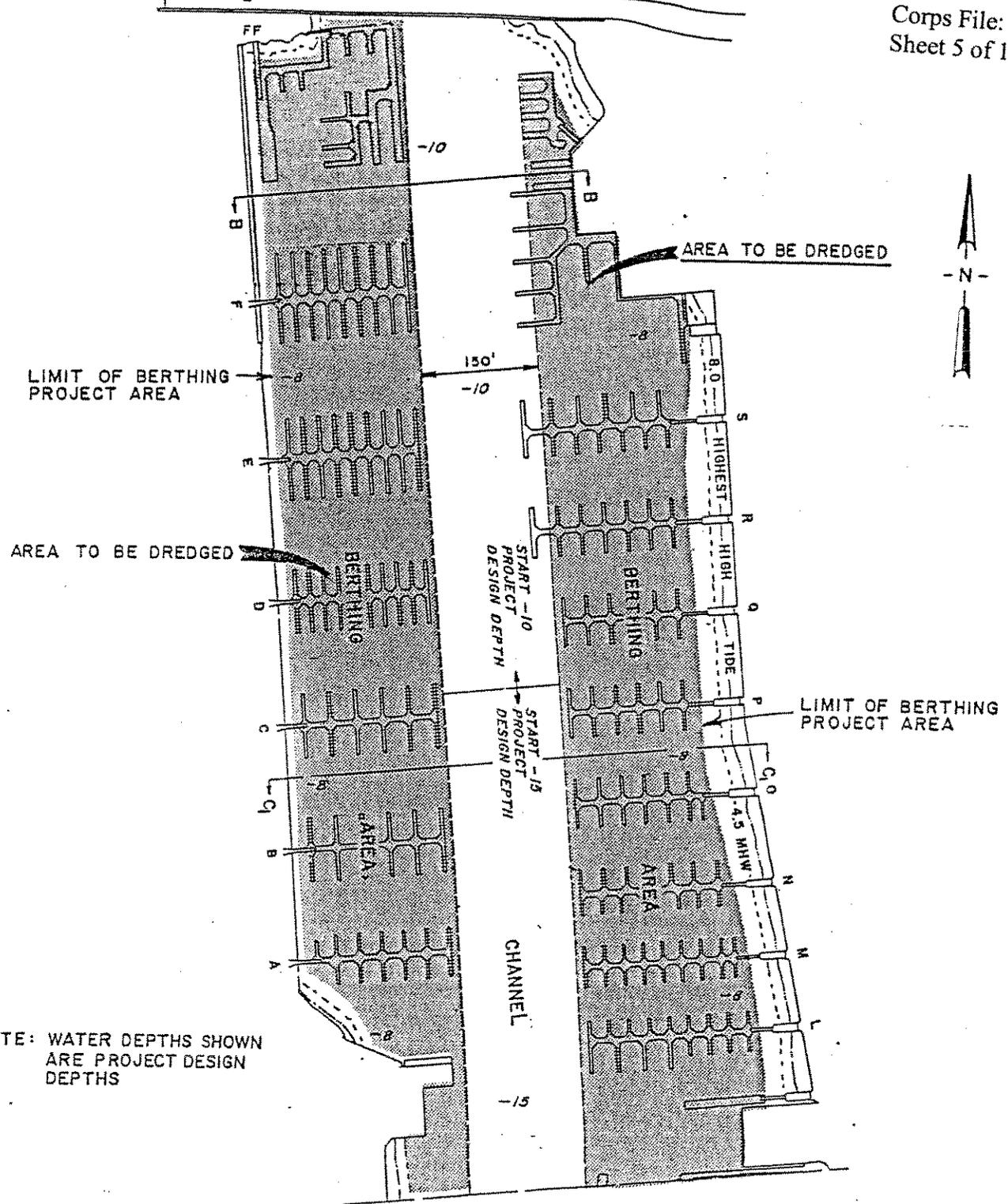
PURPOSE: TO MAINTENANCE DREDGE
 EXISTING ENTRANCE/
 FEDERAL CHANNEL &
 BERTHING AREAS IN THE
 NORTH AND SOUTH
 HARBORS
 DATUM: MLLW

**PLAN VIEW
 FEDERAL CHANNEL
 SOUTH HARBOR**

0 100 200 300 400
 FEET

SANTA CRUZ PORT DISTRICT
 135 5th AVENUE
 SANTA CRUZ, CA. 95062

IN: SANTA CRUZ SMALL CRAFT
 HARBOR
 AT: SOUTH HARBOR
 COUNTY OF: SANTA CRUZ
 APPLICATION BY: SANTA CRUZ PORT
 DISTRICT
 7/10/00



NOTE: WATER DEPTHS SHOWN
ARE PROJECT DESIGN
DEPTHS

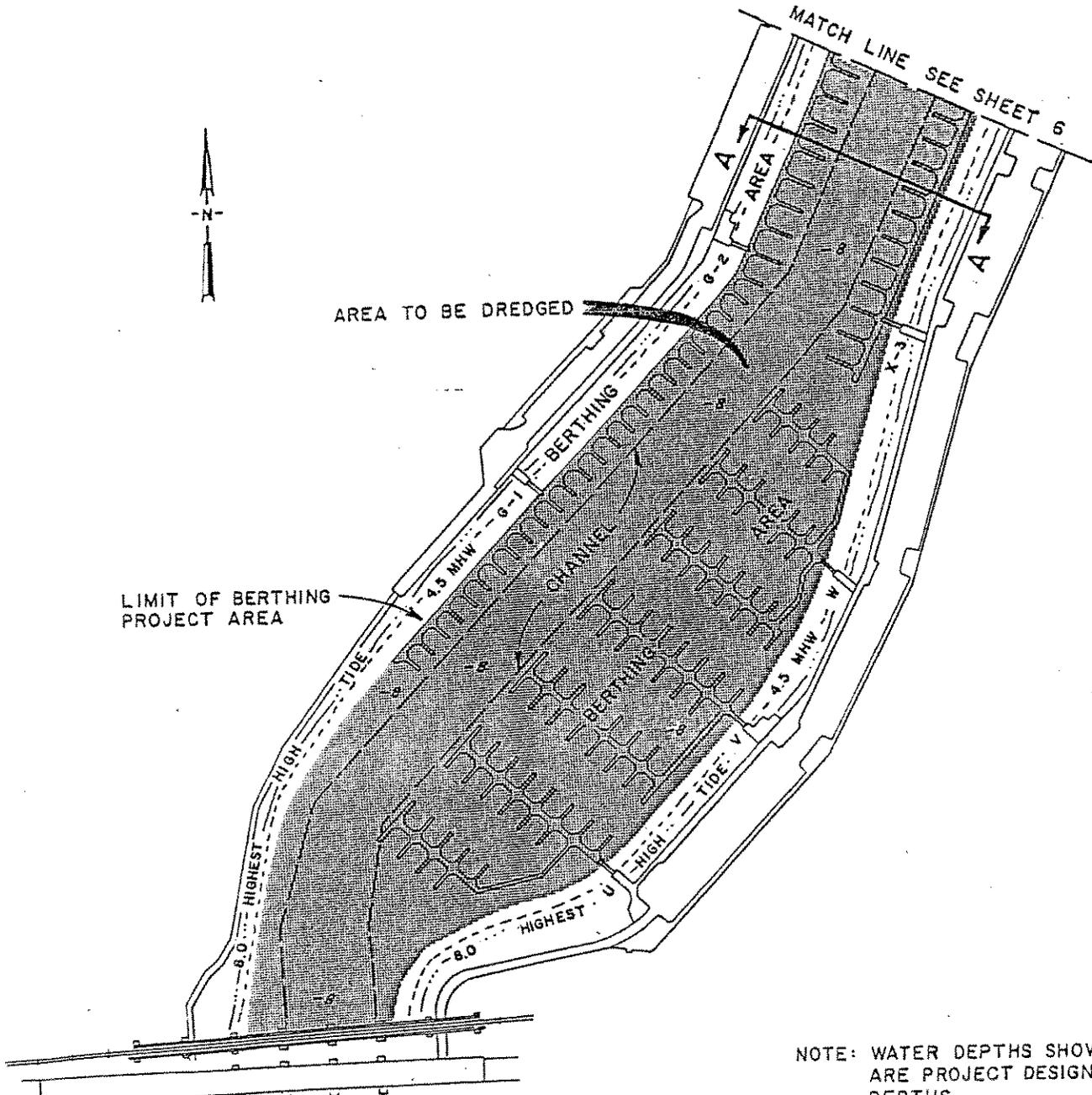
PURPOSE: TO MAINTENANCE DREDGE
EXISTING ENTRANCE/
FEDERAL CHANNEL &
BERTHING AREAS IN THE
NORTH AND SOUTH
HARBORS
DATUM: MLLW.

**PLAN VIEW
SOUTH HARBOR BERTHING
AREAS**



SANTA CRUZ PORT DISTRICT
135 5th AVENUE
SANTA CRUZ, CA 95060

IN: SANTA CRUZ SMALL CRAFT
HARBOR
AT: SOUTH HARBOR
COUNTY OF: SANTA CRUZ
APPLICATION BY: SANTA CRUZ PORT
DISTRICT



NOTE: WATER DEPTHS SHOWN
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PURPOSE: TO MAINTENANCE DREDGE
 EXISTING ENTRANCE/
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 NORTH AND SOUTH
 HARBORS
 DATUM: MLLW

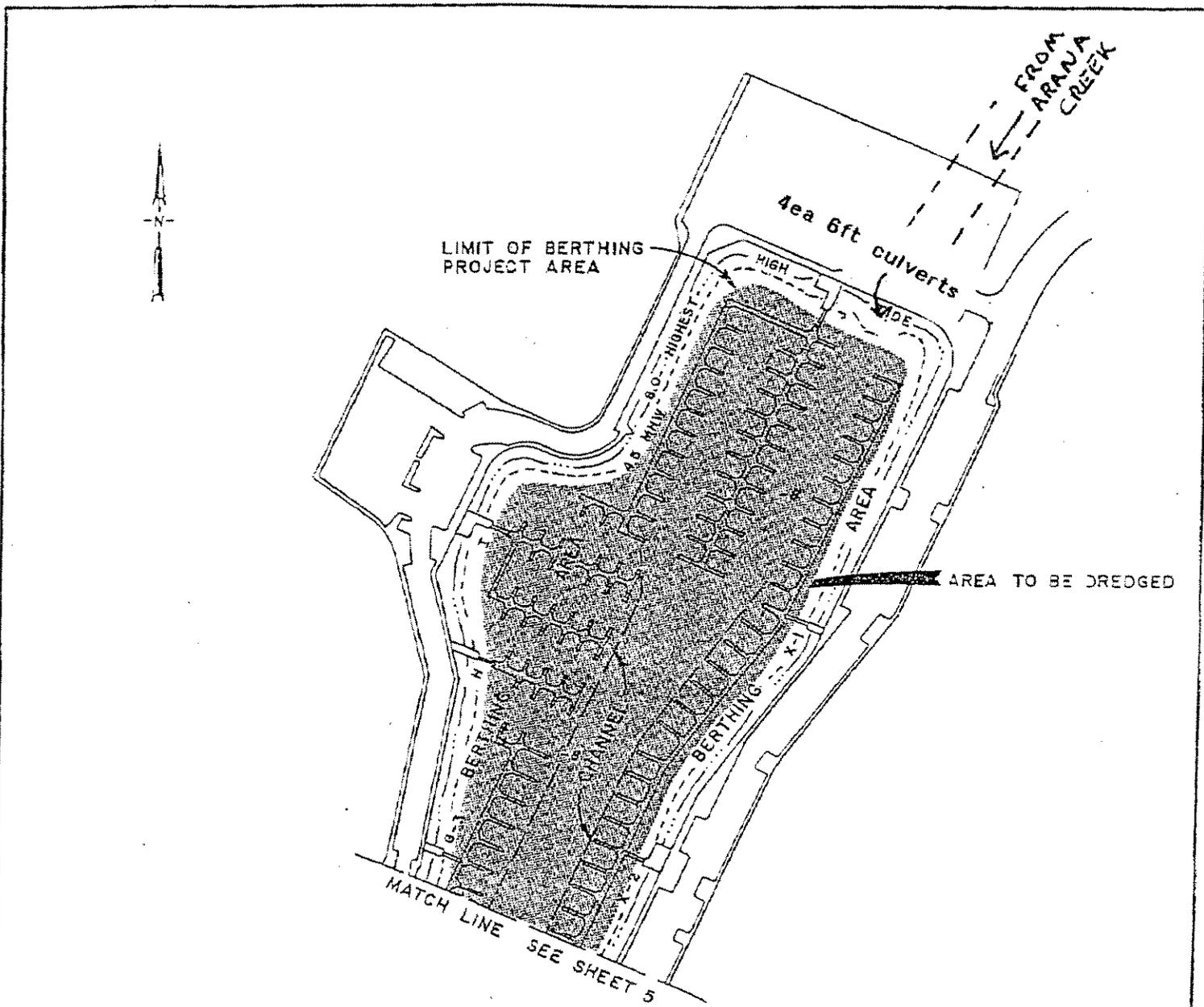
**PLAN VIEW
 NORTH HARBOR BERTHING
 AREAS**



SANTA CRUZ PORT DISTRICT
 135 5th AVENUE
 SANTA CRUZ, CA. 95062

IN: SANTA CRUZ SMALL CRAFT
 HARBOR
 AT: NORTH HARBOR
 COUNTY OF: SANTA CRUZ
 APPLICATION BY: SANTA CRUZ PORT
 DISTRICT

7/10/00

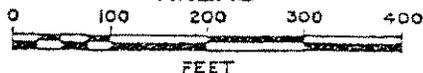


NOTE: WATER DEPTHS SHOWN ARE PROJECT DESIGN DEPTHS

PURPOSE: TO MAINTENANCE DREDGE EXISTING ENTRANCE/ FEDERAL CHANNEL & BERTHING AREAS IN THE NORTH AND SOUTH HARBORS

DATUM: MLLW

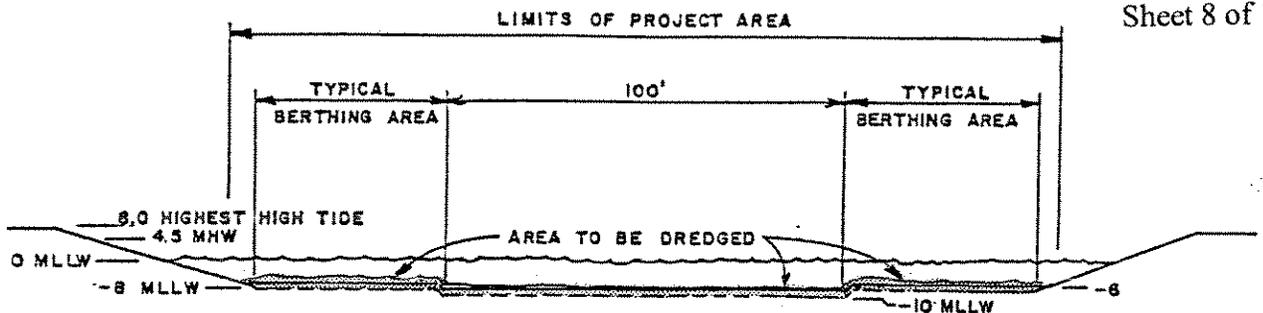
**PLAN VIEW
NORTH HARBOR BERTHING
AREAS**



SANTA CRUZ PORT DISTRICT
135 5th AVENUE
SANTA CRUZ, CA. 95062

IN: SANTA CRUZ SMALL CRAFT HARBOR
AT: NORTH HARBOR
COUNTY OF: SANTA CRUZ
APPLICATION BY: SANTA CRUZ PORT DISTRICT

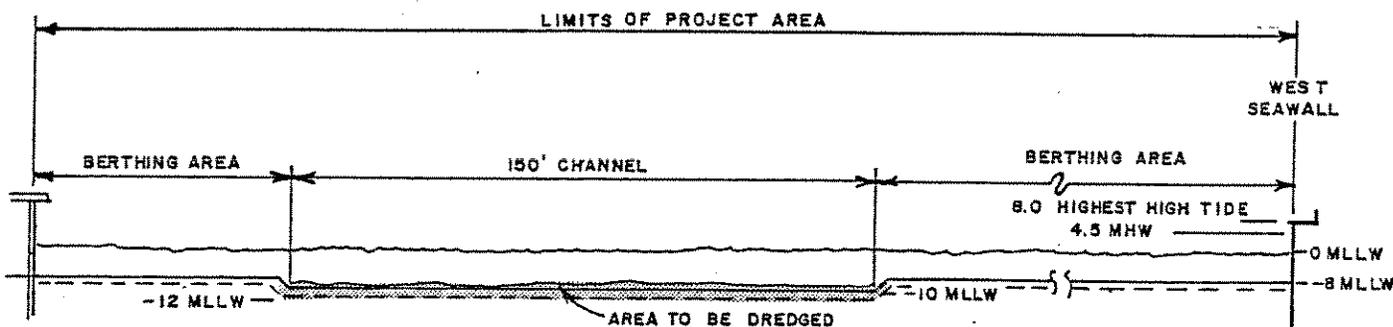
7/10/00



SECTION A-A

CHANNEL DESIGN DEPTH -8 MLLW
+2 FT. OVER DEPTH

BERTHING AREA DESIGN DEPTH -6 MLLW
+2 FT. OVER DEPTH

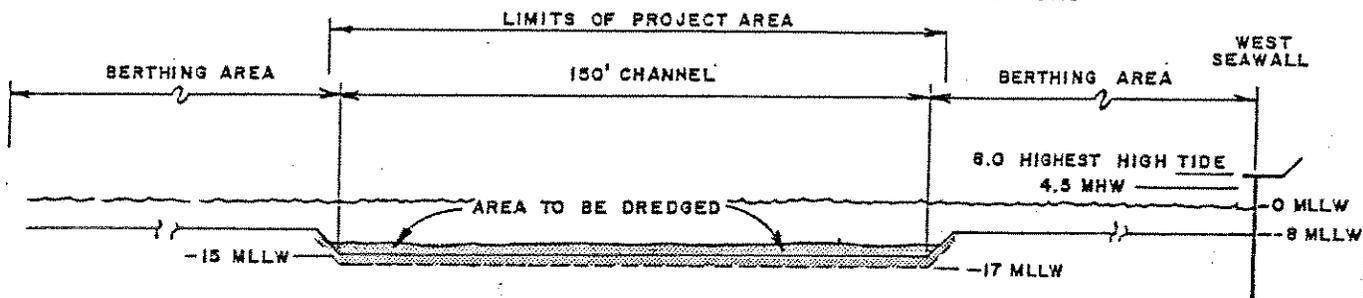


SECTION B-B

CHANNEL DESIGN DEPTH -10 MLLW
+2 FT. OVER DEPTH

BERTHING AREA DESIGN DEPTH -8 MLLW
+2 FT. OVER DEPTH

SILTATION TYPICALLY OCCURS DURING NOVEMBER THRU MAY EACH YEAR AND REQUIRES MAINTENANCE DREDGING. SECTION DRAWINGS ARE TYPICAL OF SHOAL CONDITIONS



**SECTION C-C
FEDERAL CHANNEL**

CHANNEL DESIGN DEPTH -15 MLLW
+2 FT. OVER DEPTH

PURPOSE: TO MAINTENANCE DREDGE EXISTING ENTRANCE/ FEDERAL CHANNEL & BERTHING AREAS IN THE NORTH AND SOUTH HARBORS
DATUM: MLLW

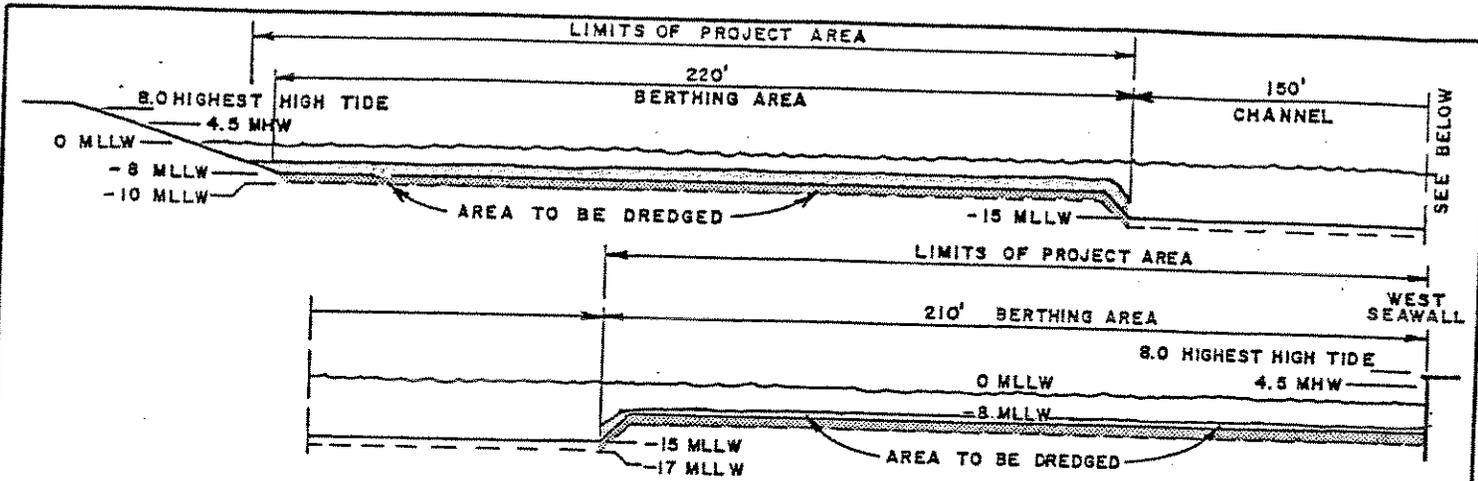
SECTIONS



SANTA CRUZ PORT DISTRICT
135 5th AVENUE
SANTA CRUZ, CA. 95062

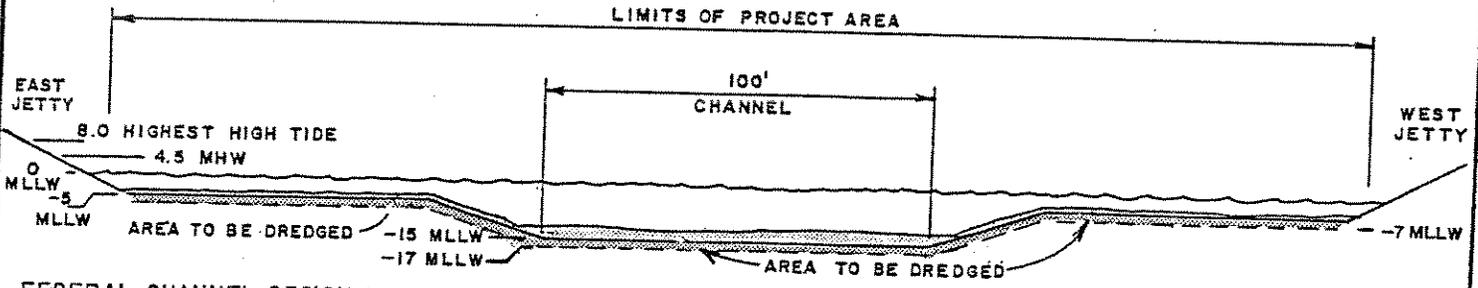
IN: SANTA CRUZ SMALL CRAFT HARBOR
AT: NORTH AND SOUTH HARBORS
COUNTY OF: SANTA CRUZ
APPLICATION BY: SANTA CRUZ PORT DISTRICT

7/10/00



**SECTION C-C,
BERTHING AREAS**

BERTHING AREA DESIGN DEPTH -8 MLLW
+2 FT. OVER DEPTH
FOR CHANNEL SEE SECTION C-C

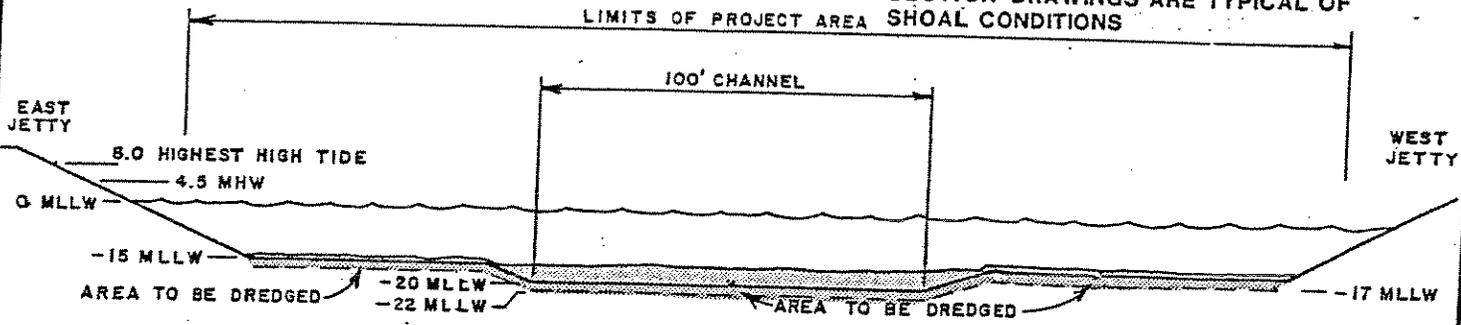


FEDERAL CHANNEL DESIGN DEPTH -15 MLLW
+2 FT. OVER DEPTH

EAST AND WEST SHOULDER AREA DESIGN
DEPTH -5 MLLW +2 FT. OVER DEPTH

SECTION D-D

SILTATION TYPICALLY OCCURS DURING
NOVEMBER THRU MAY EACH YEAR AND
REQUIRES MAINTENANCE DREDGING.
SECTION DRAWINGS ARE TYPICAL OF
SHOAL CONDITIONS



FEDERAL CHANNEL DESIGN DEPTH -20 MLLW
+2 FT. OVER DEPTH

EAST AND WEST SHOULDER AREA DESIGN
DEPTH -15 MLLW +2 FT. OVER DEPTH

SECTION E-E

PURPOSE: TO MAINTENANCE DREDGE
EXISTING ENTRANCE/
FEDERAL CHANNEL &
BERTHING AREAS IN THE
NORTH AND SOUTH
HARBORS
DATUM: MLLW

SECTIONS

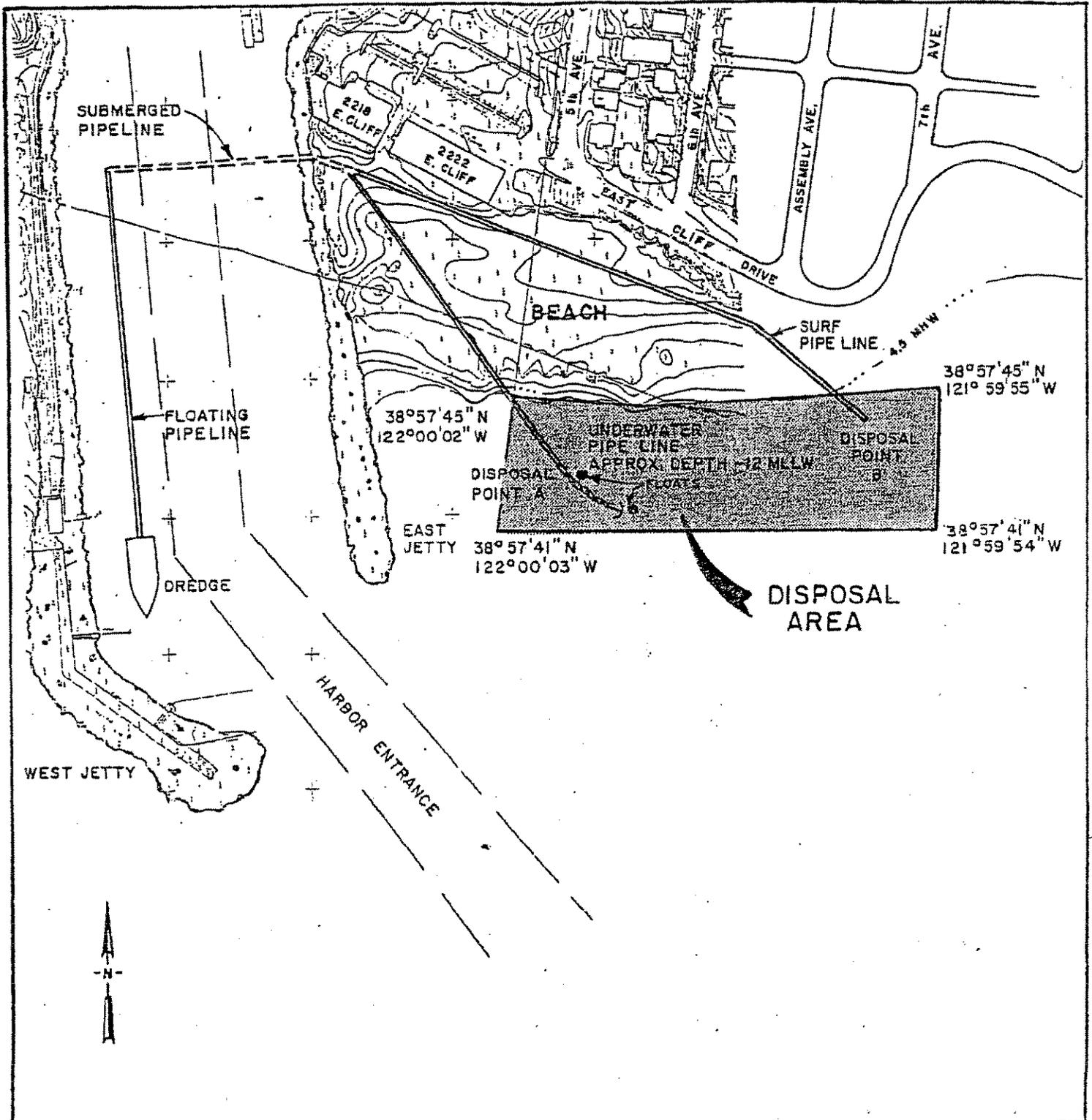


SANTA CRUZ PORT DISTRICT
135 5th AVENUE
SANTA CRUZ, CA. 95062

IN: SANTA CRUZ SMALL CRAFT
HARBOR
AT: SOUTH HARBOR
COUNTY OF: SANTA CRUZ
APPLICATION BY: SANTA CRUZ PORT
DISTRICT

7/10/00

Corps File: 25179S
Sheet 10 of 16



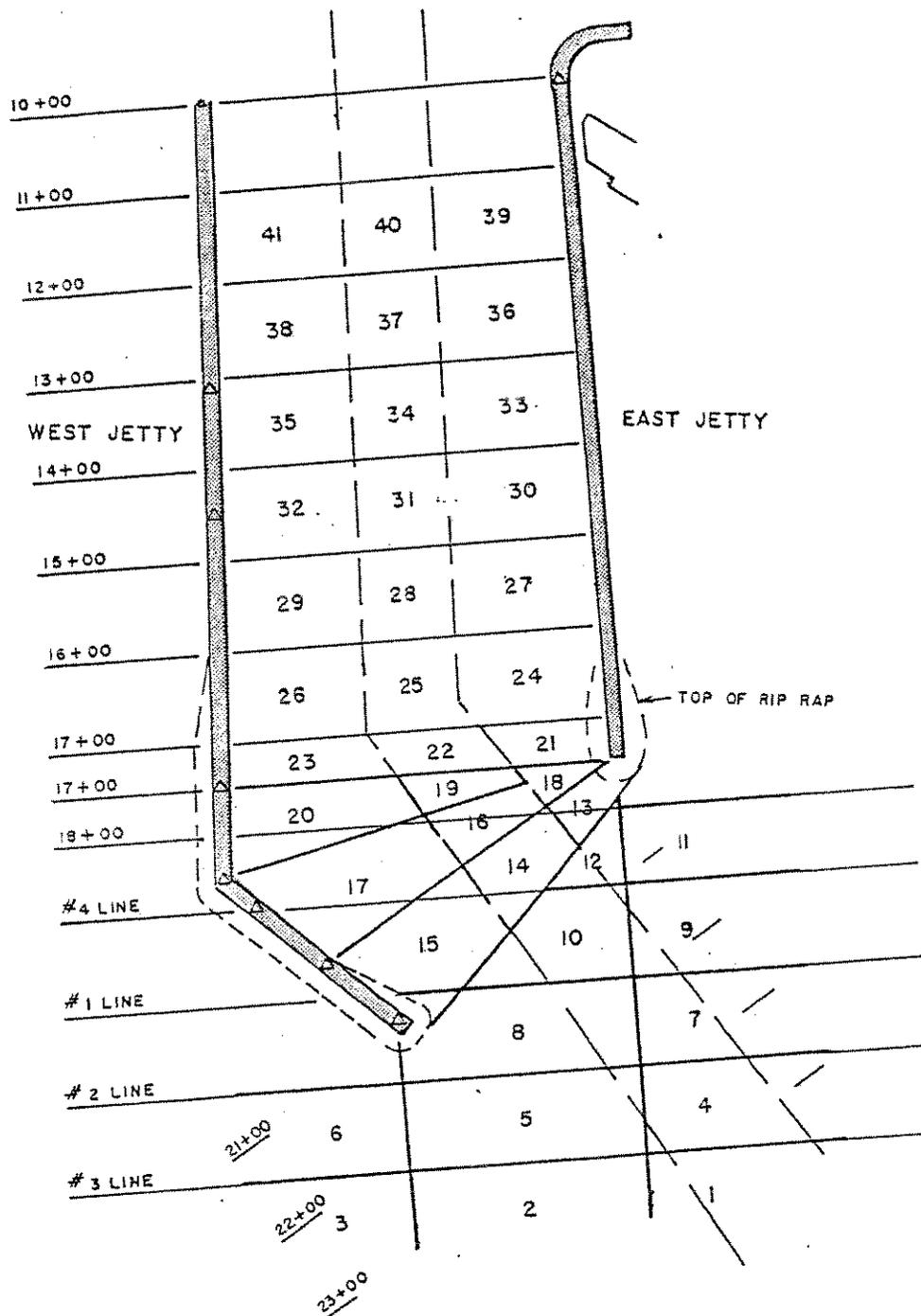
PURPOSE: TO MAINTENANCE DREDGE
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BERTHING AREAS IN THE
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HARBORS
DATUM: MLLW

DISPOSAL SITE



SANTA CRUZ PORT DISTRICT
135 5th AVENUE
SANTA CRUZ, CA. 95062

SANTA CRUZ SMALL CRAFT
HARBOR
AT: ENTRANCE CHANNEL
COUNTY OF: SANTA CRUZ
APPLICATION BY: SANTA CRUZ PORT
DISTRICT
REVISED 4/10/76



PURPOSE: TO MAINTENANCE DREDGE
 EXISTING ENTRANCE/
 FEDERAL CHANNEL &
 BERTHING AREAS IN THE
 NORTH AND SOUTH
 HARBORS
 DATUM: MLLW

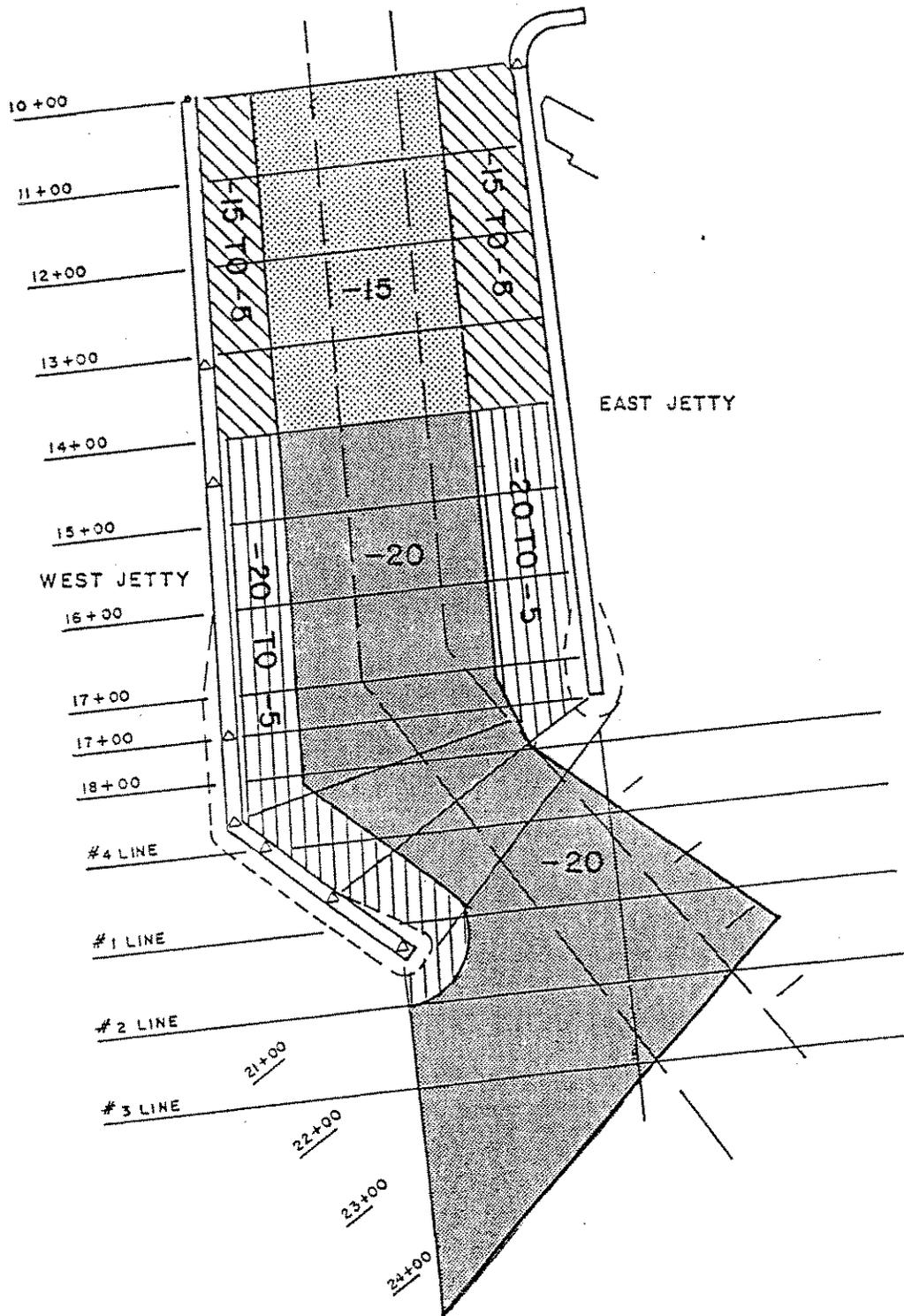
DREDGING QUADRANTS



SANTA CRUZ PORT DISTRICT
 135 5th AVENUE
 SANTA CRUZ, CA. 95062

IN: SANTA CRUZ SMALL CRAFT
 HARBOR
 AT: SOUTH HARBOR
 COUNTY OF: SANTA CRUZ
 APPLICATION BY: SANTA CRUZ PORT
 DISTRICT

7/10/00



PURPOSE: TO MAINTENANCE DREDGE
 EXISTING ENTRANCE/
 FEDERAL CHANNEL &
 BERTHING AREAS IN THE
 NORTH AND SOUTH
 HARBORS
 DATUM: MLLW

**PROJECT DESIGN
 DREDGING DEPTHS**



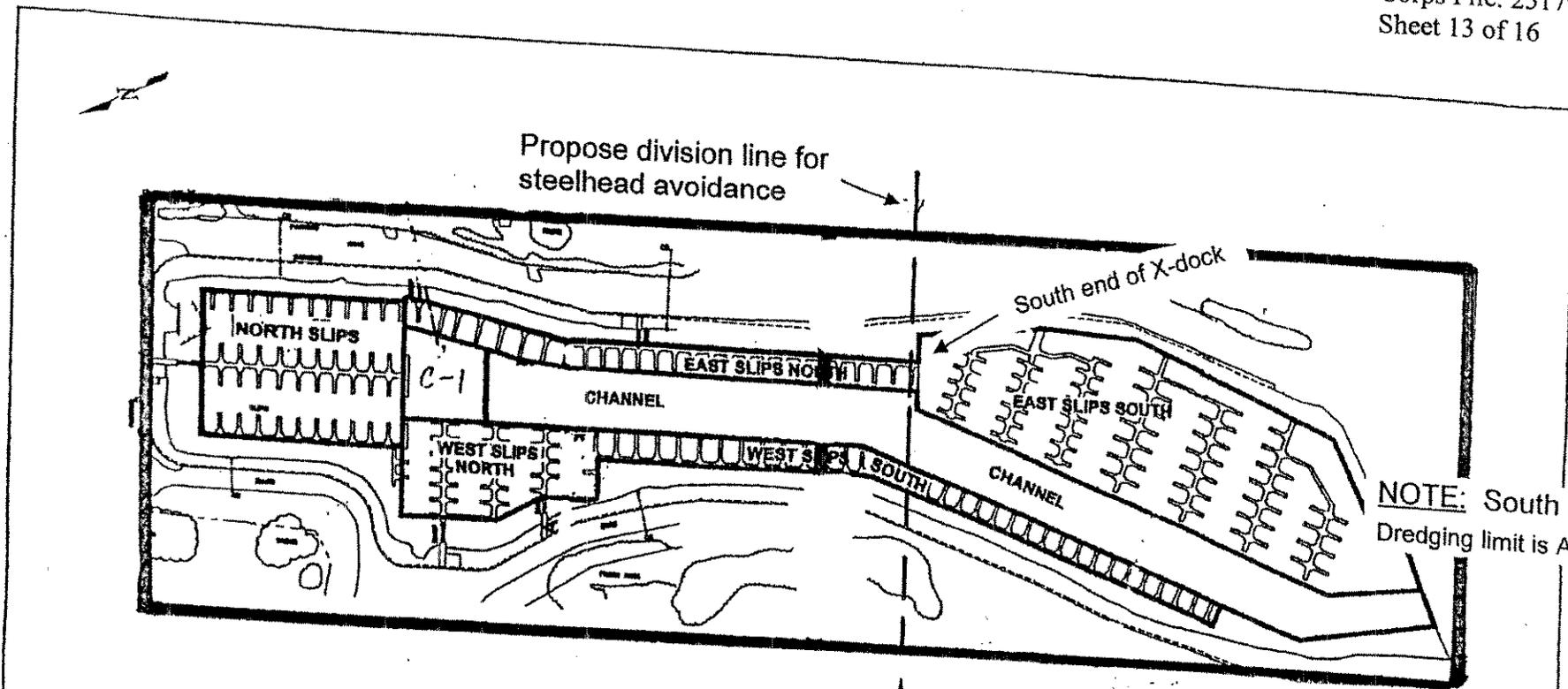
SANTA CRUZ PORT DISTRICT
 135 5th AVENUE
 SANTA CRUZ, CA. 95062

IN: SANTA CRUZ SMALL CRAFT
 HARBOR
 AT: SOUTH HARBOR
 COUNTY OF: SANTA CRUZ
 APPLICATION BY: SANTA CRUZ PORT
 DISTRICT

7/10/00

SANTA CRUZ NORTH HARBOR

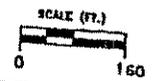
Corps File: 25179S
Sheet 13 of 16



NOTE: South Harbor Area →
Dredging limit is August 1 to April 30.

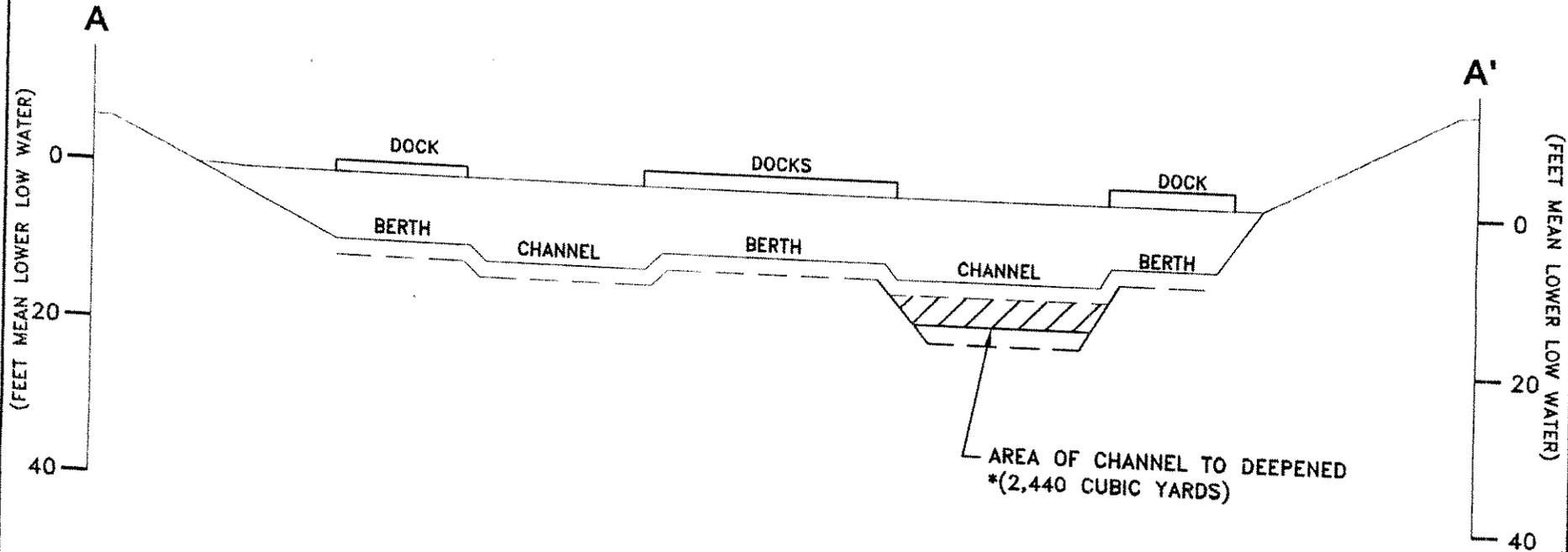
North of Line: Dredging allowed
seasonally August 1 to February 28

South of Line: Dredging allowed
seasonally August 1 to April 30



	TITLE NORTH HARBOR BATHYMETRIC INDEX MAP		
	PREPARED FOR Santa Cruz Port District 135 5th Avenue Santa Cruz, California		
REF. HARBORDWG	SCALE AS SHOWN	PROJ. NO. R110502	FIG. 1

VIEW NORTHEAST



NOTES:

- BERTHING DESIGN DEPTH IS -8 FEET MLLW + 2 FEET OVER DEPTH
- CHANNEL DESIGN DEPTH IS -10 FEET MLLW + 2 FEET OVER DEPTH
- EAST CHANNEL DEEPEENING PROJECT DESIGN DEPTH IS -16 FEET MLLW + 2 FEET OVER DEPTH
- MLLW = MEAN LOWER LOW WATER
- * VOLUME FOR -16 FEET MLLW DESIGN DEPTH

SCALE
HORIZONTAL: 1" = 40'
VERTICAL: 1" = 20'

PREPARED BY
RED HILLS
ENVIRONMENTAL, INC.

TITLE
EAST CHANNEL DEEPEENING PROJECT, DREDGING CROSS SECTION A-A'

PREPARED FOR
**Santa Cruz Port District
135 5th Avenue
Santa Cruz, California**

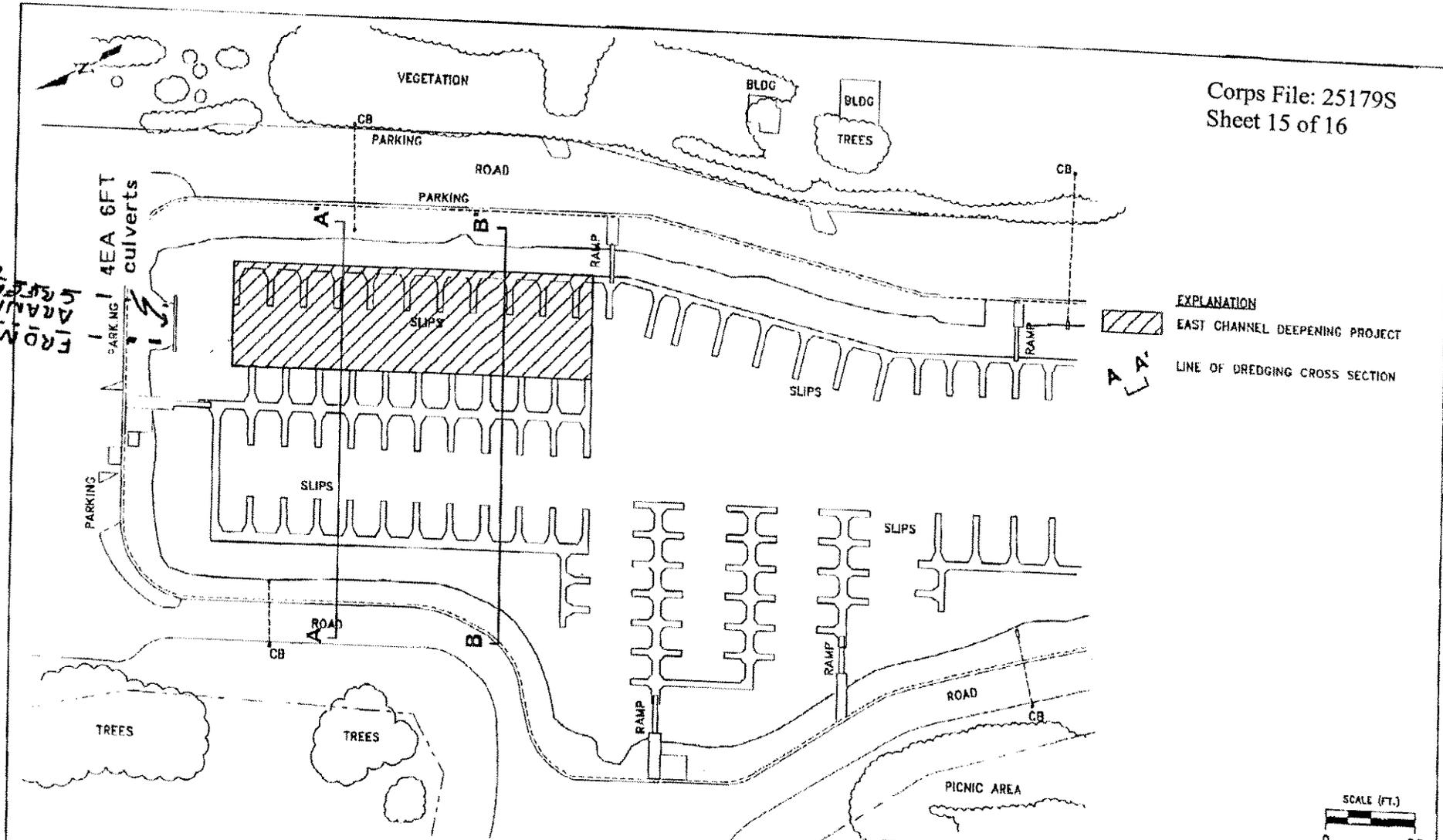
REF.
RH0502-1/SecAA-HARBOR3.DWG

SCALE
AS SHOWN

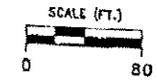
PROJ. NO.
RH0502-1

FIG:
2

Corps File: 25179S
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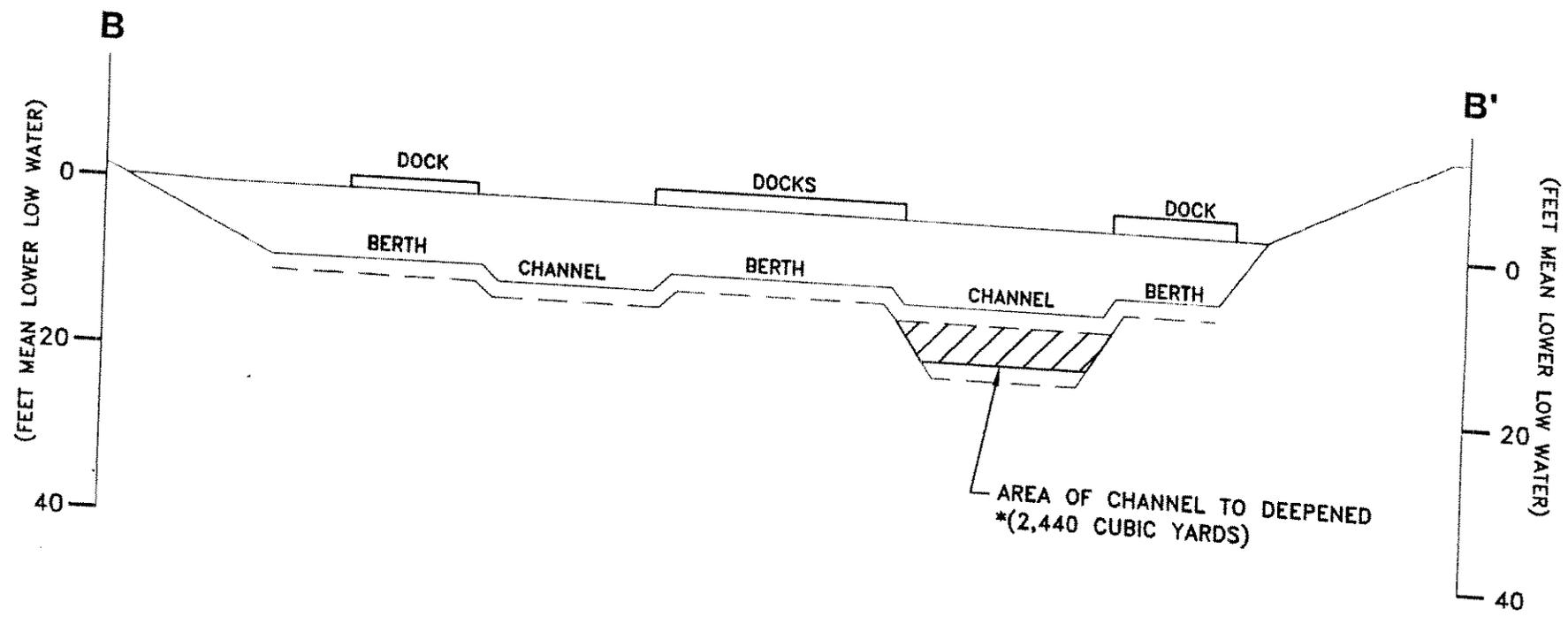
EXPLANATION
 [Hatched Box] EAST CHANNEL DEEPENING PROJECT
 [Dashed Line] LINE OF DREDGING CROSS SECTION



Base map Santa Clara Aerial Surveys, 12/77
 Ref. RH0502-1/3/ITEMAP2.DWG

PREPARED FOR RFD HILLS ENVIRONMENTAL, INC.	TITLE EAST CHANNEL DEEPENING PROJECT SANTA CRUZ NORTH HARBOR
	PREPARED FOR Santa Cruz Port District 135 5th Avenue Santa Cruz, California
SCALE 4" = 80'	PROJ NO RH0502
	PAGE 1

VIEW NORTHEAST



NOTES:
 BERTHING DESIGN DEPTH IS -8 FEET MLLW + 2 FEET OVER DEPTH
 CHANNEL DESIGN DEPTH IS -10 FEET MLLW + 2 FEET OVER DEPTH
 EAST CHANNEL DEEPENING PROJECT DESIGN DEPTH IS -16 FEET MLLW + 2 FEET OVER DEPTH
 MLLW = MEAN LOWER LOW WATER
 * VOLUME FOR -16 FEET MLLW DESIGN DEPTH

SCALE
 HORIZONTAL: 1" = 40'
 VERTICAL: 1" = 20'

PREPARED BY

 ENVIRONMENTAL, INC.

TITLE EAST CHANNEL DEEPENING PROJECT, DREDGING CROSS SECTION B-B'		SCALE AS SHOWN	
PREPARED FOR Santa Cruz Port District 135 5th Avenue Santa Cruz, California		REF. RH0502-1/Sec8B-HARBOR3.DWG	PROJ. NO. RH0502-1
		FIG. 3	