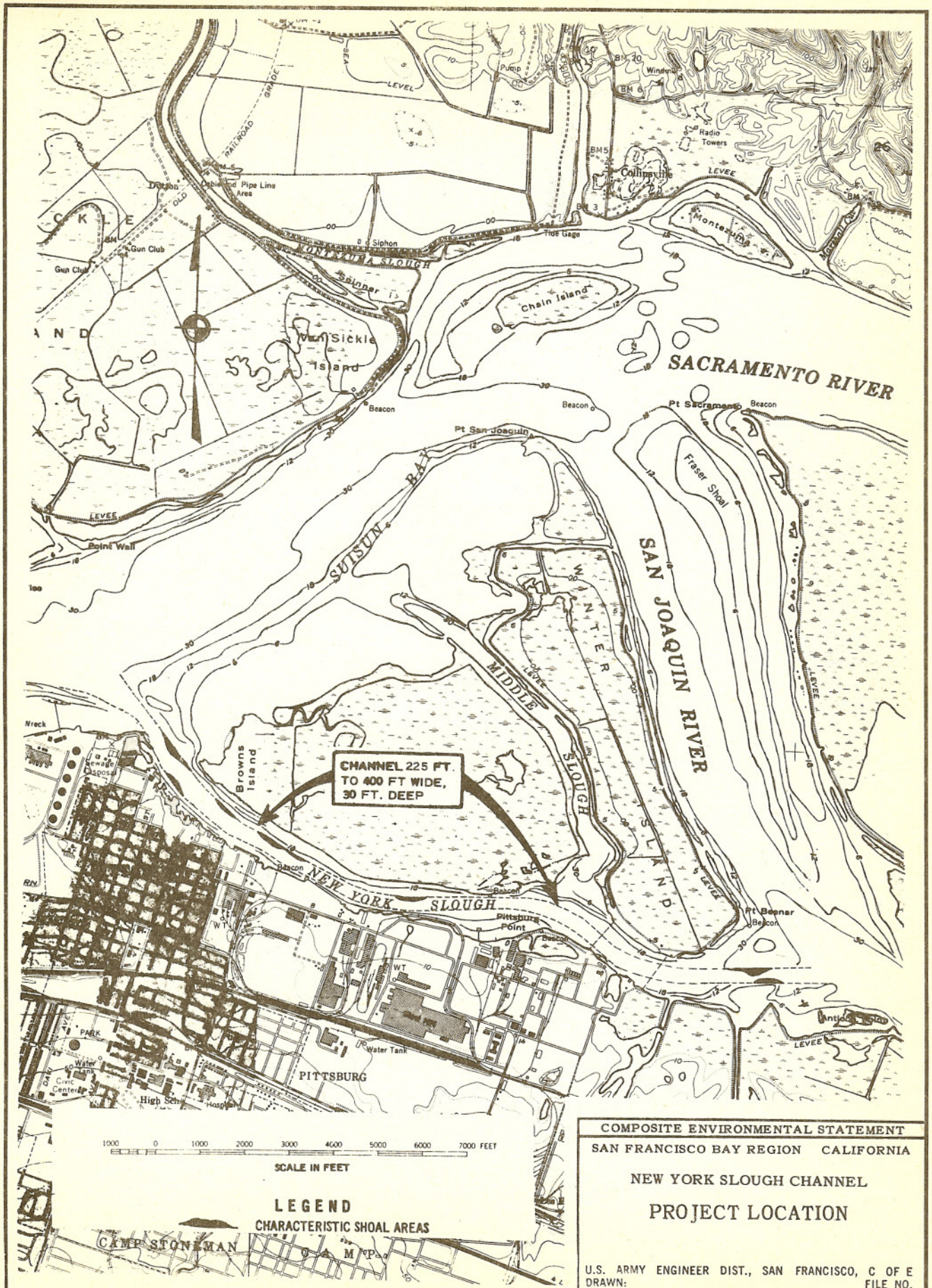


COMPOSITE ENVIRONMENTAL STATEMENT

SAN FRANCISCO BAY REGION CALIFORNIA

NEW YORK SLOUGH CHANNEL

PROJECT LOCATION

U.S. ARMY ENGINEER DIST., SAN FRANCISCO, C OF E

DRAWN: FILE NO.

TRACED: TO ACCOMPANY REPORT

CHECKED: DATED JULY 1975

PLATE I-20

12. New York Slough Channel.

1.143 a. Congressional Authorization. New York Slough Channel (Plate I-20) is a segment of the main shipping channel to Stockton, is situated roughly between Pittsburg and Antioch, and forms the initial reach of the San Joaquin River Channel.

1.144 As a part of the San Joaquin River project for navigation, maintenance of the New York Slough Channel has been authorized in numerous Rivers and Harbors Acts since 1876. The 1927 Rivers and Harbors Act authorized the original deep water channel with a depth of 26 feet, which was subsequently modified to 30 feet by the 1935 authorization. The most recent modification of the project was authorized by the 1950 Act. The existing authorized dimensions consist of: a channel of 30 foot depth, and from 225 to 400 foot bottom width, from the mouth of the Slough at Pittsburg, to the confluence with the San Joaquin River.

1.145 b. Dredging History. According to the Sacramento District of the Corps of Engineers, no written records are available on dredging in this area. However, considerable hopper dredging was performed in New York Slough prior to 1965, with open water disposal in Suisun Bay. Annual quantities of dredged material ranged up to 100,000 cubic yards. Since 1965, dredging was performed only once, by hydraulic pipeline dredge, when 16,000 cubic yards of material were removed and deposited on land at Brown's Island. The sedimentation rate in New York Slough has declined considerably in recent years. Dredging has been deferred for several years due to this lack of shoaling and due to environmental objections to disposal at Brown's Island. Based on the last dredging, the equivalent annual quantity of dredging in recent years is roughly estimated at 5,000 cubic yards.

1.146 c. Proposed Maintenance. Next maintenance dredging in New York Slough has not yet been scheduled, but might be expected within several years. Actual dredging would be dependent on the extent and volume of shoaling experienced. The quantity to be removed is tentatively estimated at 20,000 cubic yards. Characteristic shoal areas are indicated on Plate I-20. Costs are included in the San Joaquin River project that will continue to be funded by the Sacramento District. Environmental evaluation and actual dredging, however, will be handled by the San Francisco District of the Corps of Engineers. The disposal site for the next dredging has not yet been determined, but is expected to be either on land or at the Suisun Bay open water disposal site. Brown's Island, which has been used for dredged disposal in the past has recently been identified by the East Bay Regional Park District as a potential parkland site. The Regional Park District anticipates that the area would become a Regional Preserve protecting the marshland and opening it to the public (285).

1.147 d. Related Projects. New York Slough Channel would be deepened to 35 feet as part of the proposed Baldwin and Stockton Ship Channels project, authorized by the Rivers and Harbors Act of 1965. This proposed channel enlargement has been discussed in a separate environmental working paper (201).

C. INTER-SERVICE PROJECTS

1.148 The eight project areas described on the following pages are not authorized by Rivers and Harbors Acts, but may in the future be dredged by the Corps at the request of other agencies:

13. Concord Naval Weapons Station.

1.149 a. Authorization. Concord NWS is a naval ammunition depot and supply center located on the south side of Suisun Bay (Plate I-21). This facility ships and receives large quantities of ammunition and other ordnance for the U.S. Navy. Periodic dredging is required along the nine berthing areas shown on Plate I-21. Previous dredging has been handled by the U.S. Navy; however, the Navy may request the Corps to perform future dredging. Any Navy dredging to be performed by the Corps must be arranged through a Department of Defense inter-service support agreement, by which the Navy reimburses the Corps for the cost of dredging.

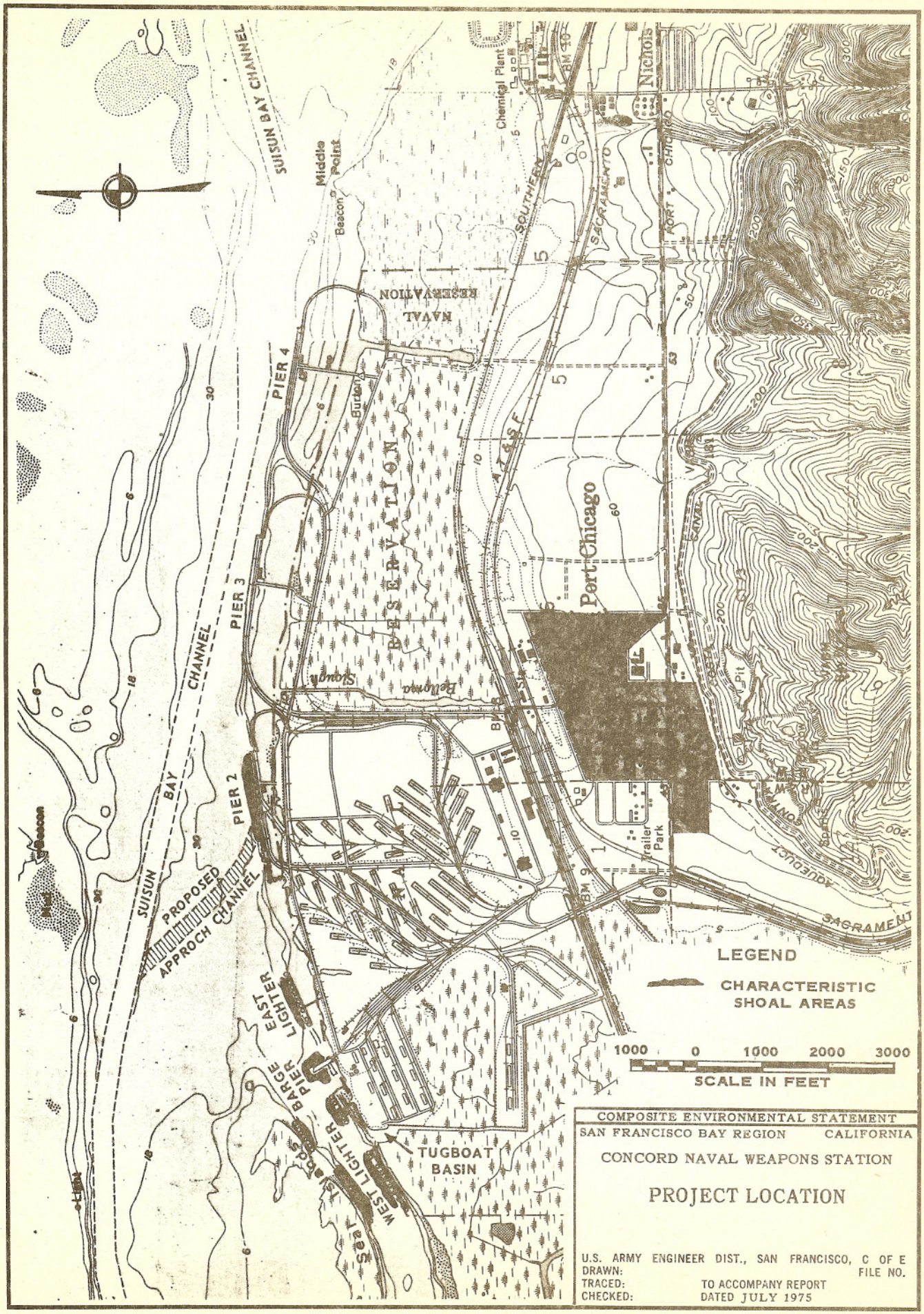
1.150 Since the Corps is not specifically authorized by Congress to perform this project, the Navy must obtain a permit from the Corps before dredging could be performed. The latest permit for this project was issued on 13 January 1975 and applies only to dredging in Fiscal Year 1975. Future dredging would require a new permit. Inclusion of this project in the Composite Statement will not eliminate the requirement for a new permit, but does provide a comprehensive evaluation of the project.

1.151 b. Dredging History. The only data available on historic dredging quantities are shown below, as extracted from Navy records:

TABLE I-15

DREDGING HISTORY OF CONCORD NWS

Fiscal Year	Quantity Removed (c.y.)	Method of Dredging
1943	620,000	clamshell
1944	298,000	"
1945	70,500	"
1950	82,300	"
1951	48,500	"
1953	37,000	"
1957	108,700	"
1959	20,900	"
1960	69,700	"
1962	40,000	"
1965	52,000	"
1967	36,800	"
1969	30,000	hydraulic pipeline
1970	63,200	clamshell
1975	78,000	"



COMPOSITE ENVIRONMENTAL STATEMENT

SAN FRANCISCO BAY REGION CALIFORNIA

CONCORD NAVAL WEAPONS STATION

PROJECT LOCATION

U.S. ARMY ENGINEER DIST., SAN FRANCISCO, C OF E

DRAWN: FILE NO.

TRACED: TO ACCOMPANY REPORT

CHECKED: DATED JULY 1975

PLATE I–21

Similar to other Navy facilities in the Bay Area, Concord NWS was dredged extensively when it was established during the Second World War. Since then, dredging has been performed on a biennial basis, with an average of 52,100 cubic yards removed each time, equivalent to an average annual quantity of about 25,000 cubic yards. In previous years dredged material has been deposited on land at the Station or in nearby water areas. Due to increasing agency opposition to its disposal practices, the Navy postponed dredging until FY 75, when 78,000 cubic yards were removed and deposited in Carquinez Strait. Disposal did not take place in Suisun Bay because heavy metal "pollutants" in the dredged material exceeded EPA standards. Dredging was performed at the east and west lighter moorings, the barge pier, and Piers 2, 3, and 4. Piers 3 and 4 generally do not require more than 3,000 cubic yards of dredging every several years. A survey of the tugboat basin prior to 1975 dredging indicated that area had shoaled in so much that enormous quantities would have to be dredged to restore it to a usable depth. Furthermore, the Navy determined from historical records that future dredging in the tugboat basin would be required two to three times per year. This portion of the dredging program has therefore been abandoned.

1.152 An environmental impact statement on maintenance dredging at Concord NWS was prepared for the Navy in 1974 (49) and suggested disposal at a 70-acre land site adjacent to the tugboat basin. This report has since been tabled by the Navy.

1.153 c. Proposed Maintenance. Next maintenance has not yet been scheduled, but might be expected in Fiscal Year 1978, when an estimated 50-60,000 cubic yards would be removed and deposited either on land or at an approved water disposal site in Suisun Bay or Carquinez Strait. Method of dredging would most likely be clamshell. Dredging would be performed in the same areas as in FY 75. Maintained depths would be: 32 feet at Piers 2, 3, and 4; 14 feet at the barge pier and east lighter mooring; and 22 feet at the west lighter mooring. Characteristic shoal areas to be dredged are shown on Plate I-21.

1.154 d. Related Projects. The Navy is planning to construct a container handling facility at Pier 2, which would involve dredging of an approach channel between Suisun Bay Channel and Pier 2 (see Plate I-21). This new dredging would involve 250,000 cubic yards and may increase future maintenance dredging requirements at Concord NWS by 30-40,000 cubic yards biennially, or 15-20,000 cubic yards per year. An environmental impact statement on this new dredging was prepared for the Navy in 1974 (50) and is essentially identical to the maintenance dredging report mentioned above (49), except that disposal is suggested at a 290-acre land site adjacent to Piers 3 and 4, instead of adjacent to the tugboat basin. This report is presently under consideration by the Navy.

1.155 Suisun Bay Channel, leading to Concord NWS, is maintained to a depth of 30 feet by the Corps of Engineers. Deepening of Suisun Bay Channel to 45 feet is currently under advanced engineering and design study by the Corps as a part of the proposed Baldwin-Stockton Ship Channel's project. This project has been authorized but not funded by Congress. The status of dredging at Concord NWS is dependent on Suisun Bay Channel, which is discussed elsewhere in the Composite Statement as a separate project.

14. Alameda Naval Air Station.

1.156 a. Authorization. Alameda NAS is a major naval facility located just south of the entrance to Oakland Harbor (Plate I-22). Berthing carriers and large service ships of the Pacific Fleet is one of the primary purposes for this facility. Periodic dredging to a depth of 42 feet is required in the entrance channel, turning basin and berthing area. Portions of this maintenance dredging are performed annually by the Corps at Alameda NAS but are not authorized by a Rivers and Harbors Act. The Corps performs this dredging at the request of the Navy through a Department of Defense inter-service support agreement. The Navy then reimburses the Corps for the cost of this dredging.

1.157 Similar to the arrangement at Concord NWS, since the Corps is not specifically authorized by Congress to perform this project, the Navy must obtain a permit from the Corps before dredging. The latest permit for this project was issued on 19 November 1974 and applies only to dredging in Fiscal Year 1975 (the winter of 1974-75). Future dredging would require a new permit. Inclusion of this project in the Composite Statement will not eliminate the requirement for a new permit.

1.158 b. Dredging History. With the rapid expansion of Alameda NAS during and after World War II, dredging began to be performed in large quantities, and depths increased accordingly. Project depth in 1937 was 30 feet; increased to 35 feet in 1940; to 44 feet in 1961; and decreased to 42 feet in 1970. The area is presently maintained at the 42-foot depth, and consists of an approach channel approximately 1,000 feet wide and 1.3 miles long, widening to a turning basin 3,500 feet wide. Corps hopper dredges took over the project soon after the war and began dredging on an annual basis. A historic summary of dredging since 1959 is given below:

TABLE I-16

DREDGING HISTORY OF ALAMEDA NAS

Fiscal Year	Quantity Removed (c.y.)		Method of Dredging
1959	1,600,000		hopper
1961	974,000		"
1963	909,500		"
1965	618,000	2,030,000	"
1965	1,412,000		"
1967	854,700		"
1968	201,500	396,800	"
1968	115,300		"
1968	80,000		clamshell 1/
1969	1,144,000		hopper
1970	922,500	972,500	"
1970	50,000		clamshell 1/
1971	217,000	876,000	hopper
1971	659,000		hydraulic 1/
1972	155,000		" 1/
1974	1,494,000		hopper
1975	312,000	895,400	"
1975	583,400		clamshell 2/

1/ Contracted out by the Navy to a private dredging firm.
2/ Contracted out by the Corps to a private dredging firm.

Based on the above table, the average annual quantity of dredging is estimated at 900,000 cubic yards. In previous years all disposal has taken place in the Bay, often near the entrance to Alameda NAS. However, due to new stricter EPA regulations, funds were provided by the Navy in Fiscal Year 1975 to transport 172,000 cubic yards of the more heavily contaminated clamshell-dredged material to the 100-fathom disposal site. The clamshell dredge was used extensively in FY 1975 to perform "cleanup work" around the piers and in the approach channel. Due to a tight dredging schedule, no Corps hopper dredge was available to perform this work. Due to heavy commitments in its R&HA projects, the Corps can only allot between three to seven weeks of hopper dredge time to NAS Alameda. This period will allow removal of from 400,000 to 800,000 cubic yards of dredge material from turning basin, channel and open areas of pier where 100 fathom disposal is not required.

1.159 c. Proposed Maintenance. Maintenance dredging in Fiscal Year 1976 is expected to be more than FY 75 due to the increased requirement to dredge the northern 100-foot wide strip

MOTBA NORTH

NSC-OAKLAND

MOTBA EAST

ALAMEDA N.A.S.

LEGEND

Characteristic shoal areas dredged for Navy

Boundary of Navy property

0 ½ SCALE IN MILES

COMPOSITE ENVIRONMENTAL STATEME

SAN FRANCISCO BAY REGION CALIFOR

NAVAL FACILITIES IN OAKLAND HARBOR

of the ships' channel, turning basin and pier area deleted from FY 75 dredging contract, due to fund limitations. Approximately 600,000 cubic yards will be removed by hopper dredge from characteristic shoal areas shown on Plate I-22, depending on dredge availability. The material will be disposed of at the Alcatraz site (Plate I-2). Hopper dredging is scheduled for January-February 1976. Clamshell dredging by contract will be used to remove the 600,000 cubic yards remaining from the total 1.2 million cubic yards after hopper dredging is completed. It is estimated that a maximum of 250,000 cubic yards may require disposal at the 100-fathom line under the clamshell contract. The choice of a disposal site (either Alcatraz or 100-Fathom) would be determined in coordination with the California Regional Water Quality Control Board and EPA, based on evaluation of laboratory data on core samples. A Draft Environmental Impact Statement on maintenance dredging at Alameda NAS was written in 1973 (234). A Final Statement will not be written since the impacts are discussed in this Composite Statement.

1.160 d. Related Projects. The Navy hopes to reduce shoaling at Alameda NAS by closing the gap in the breakwater on the south side of the turning basin. The closure of the breakwater, tentatively scheduled for 1978, is estimated to reduce shoaling in the turning basin by 18 percent, as determined in the U.S. Army Corps of Engineers Report of Survey on San Francisco Bay and Tributaries, Appendix V, Sedimentation and Shoaling and Model Tests, November 1967. Shoaling tests, as reported in the Corps Survey of November 1967, indicated shoaling reductions up to 67 percent could be effected at Alameda NAS. No future projects to reduce shoaling are planned in the immediate future.

1.161 The Navy has also contemplated filling the seaplane berthing area adjacent to the turning basin by diking off the berthing area and pumping dredged materials into it. Approximately 2.6 million cubic yards, equivalent to nearly three years total dredging volume at Alameda NAS, would be required to fill the area to an elevation of 13 feet above mean lower low water. The Navy prepared an in-house environmental impact statement in 1974, but has since tabled the proposed project due to anticipated environmental opposition.

1.162 The Navy has also considered disposing of future dredge material on land at Skaggs Island. The material would be barged to a handling basin at or near Skaggs Island and pumped onto land. An engineering feasibility study prepared for the Navy by International Engineering Company discusses alternative methods of land disposal at Skaggs Island to accommodate all Navy dredged material in the Bay Area, but the Navy has no definite plans at this time.

1.163 An industrial wastewater collection and treatment system has been completed at NAS Alameda which diverted the industrial wastewater discharges into the East Bay Municipal Utility District (EBMUD) System. The new system collects, pretreats and conveys the industrial wastewater from the Station via the Naval Supply Center-Oakland main sewer to the EBMUD system for treatment and final disposal through the EBMUD outfall, which discharges into San Francisco Bay at a point approximately two-thirds of the way to Yerba Buena Island. This new routing system, combined with new discharge regulations at the air base, is intended to stop the previous necessity of discharging industrial wastes into the aircraft carrier and seaplane berthing areas. Since these wastes have probably been one of the primary causes of contaminated dredge material in this area (as stated in Draft EIS, Maintenance Dredging at Alameda NAS, August 1973), it is anticipated that rerouting of discharges may have a major effect on upgrading the water quality of this area and on future dredge disposal from Alameda NAS.

1.164 Aircraft carrier activity is expected to diminish and fluctuate in the near future. Due to recent defense budget cutbacks, the carriers' Hancock and Oriskany, both based at Alameda NAS, will be retired sometime in 1976. The carrier Ranger has been transferred to San Diego. This will leave only the Coral Sea and the nuclear carrier Enterprise to be based at Alameda. The Station is currently homeport for all five of the carriers. However, increased berthing of large service ships is expected to maintain port activity at about the same level as present. The large service ships require 41 feet 6 inches water depth or about the same as aircraft carriers.

15. MOTBA North.

1.165 a. Authorization. MOTBA* North is a four-berth military cargo terminal on the north side of Oakland Outer Harbor (Plate I-22). For a more detailed description of this facility, refer to the Navigation Commerce section of this report. Dredging in this area is handled through an inter-service support agreement between the Corps and the Navy.

1.166 b. Dredging History. The shoal area adjacent to the wharf was dredged in 1958, 100 feet wide and 35 feet deep. In 1967, during a period of increased shipments to Vietnam, it was dredged again by hopper and clamshell. The Corps hopper dredge removed about 27,000 cubic yards during its dredging of Oakland Outer Harbor. The remaining shoal which could not be reached by hopper was dredged by a clamshell, which removed an additional 54,000 cubic yards. The clamshell work was contracted out to a private firm by the Corps. Funds were supplied by the Navy for both hopper and clamshell dredging. All sediments were deposited at an aquatic site southwest of Yerba Buena Island. MOTBA North has not required dredging in recent years.

1.167 c. Proposed Maintenance. Based on the 81,000 total cubic yards dredged eight years ago, future dredging needs are tentatively estimated at an average of 10,000 cubic yards per year. Next maintenance has not yet been scheduled, but is expected within three to six years. A hydrographic survey by the Corps in October 1974 indicated depths of 31 to 35 feet at MOTBA North. No delays in shipping have occurred, although some difficulty in maneuvering has been reported. Should dredging be required, the Navy may request the Corps to perform the work. If so, the Navy would be required to provide the Corps with the appropriate funds through an inter-service support agreement, and to apply for a permit from the Corps. Dredging would be performed either by Corps hopper dredge or by private clamshell dredge, with disposal of shoal material at Alcatraz. The quantity to be dredged is tentatively estimated at between 30,000 and 50,000 cubic yards.

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* Military Ocean Terminal, Bay Area

16. Naval Supply Center - Oakland.

1.168 a. Authorization. The Naval Supply Center - Oakland (NSC-Oakland) is a 13-berth Navy terminal located in Oakland Middle Harbor (Plate I-22). For a more detailed description of this facility, see "Port and Terminal Characteristics" in Section II. Although previous dredging in this area has usually been handled by the U.S. Navy, it is anticipated that the Navy may request the Corps to handle future hopper dredging. If this is the case, the Navy would be required to provide the Corps with the appropriate funds through an inter-service support agreement, and to apply for a permit from the Corps before dredging could be performed.

1.169 b. Dredging History. A historic summary of dredging since NSC-Oakland was first constructed is shown below, as extracted from Navy records:

TABLE I-17

DREDGING HISTORY OF NSC-OAKLAND

Fiscal Year	Quantity Removed (c.y.)		Method of Dredging
1940	4,117,000		hydraulic pipeline
1942	1,558,000		" "
1943	1,176,000		" "
1943	700,000	1,946,000	clamshell 1/
1943	70,000		"
1945	1,117,000		" 1/
1950	1,184,000		" 1/
1951	155,000		"
1956	599,000		"
1959	293,000		"
1967	586,000	1,001,000	hopper
1967	424,000		clamshell
1968	95,000		hopper 1/
1970	77,000		" 1/

1/ Dredging performed by the Corps.

The initial dredged material in Fiscal Year 1940 was used as landfill to construct NSC. Dredging in FY 1942 was performed to widen the berthing area and turning basin. Dredged material during FY 1942 and FY 1943 was pumped across the Oakland estuary

by hydraulic pipeline and used as landfill at Alameda Naval Air Station, also under construction at that time. All dredged material since that time has been disposed of near the southwest side of Yerba Buena Island. The Yerba Buena site was heavily used for dredge disposal during the 1940's, 1950's and 1960's. EPA and the Corps no longer allow use of this site for dredge disposal.

1.170 The project area has been maintained to a depth of 35 feet plus one or two feet overdepth for all the years listed except in FY 1959 when the area was dredged to 32 feet. Based on the above table, roughly 125,000 cubic yards are dredged about every two to three years, giving an average annual quantity of about 50,000 cubic yards. Dredging has not been requested by the Navy since 1970.

1.171 c. Proposed Maintenance. Neither the Navy nor the Corps have planned any future dredging for NSC at this time. A hydrographic survey made by the Navy in September 1974 indicated average depths greater than the required 35 feet. If the two-to-three year dredging cycle is assumed then dredging would next be required by FY 1977 or 1978, when roughly 125,000 cubic yards would be removed.

1.172 Future dredging work would either be contracted out by the Navy to a private clamshell dredging firm, or the Navy would request the Corps to perform the work by hopper through an inter-service support agreement. The work may also be divided between the two methods. In either case, spoils would be disposed of at Alcatraz or if heavily contaminated, would be transported to the 100-fathom disposal site. Determination of the exact quantity to be disposed at each site would be made in coordination with the California Regional Water Quality Control Board and EPA.

1.173 d. Related Projects. Demolition of Piers 2 and 3 on the north side of NSC-Oakland is planned for February or March 1975. These piers are condemned and no longer handle shipments (Plate I-22). Future use of the berthing area is indefinite at this time and the Navy has considered filling it.

1.174 A study made in 1974 for the Navy suggested narrowing the turning basin at NSC to reduce future dredging requirements (41). It proposed that a triangular shoal area at the north side of the turning basin and a similar triangle on the south side no longer be dredged. Consistent with this proposal, the Navy no longer dredges in the south side triangle. This narrowing, however, makes maneuvering of ships more difficult, especially at the south side berths.

1.175 The Corps performs hopper dredging annually during December and January in the Oakland Outer Harbor entrance channel and turning basin, adjacent to NSC-Oakland. Any hopper dredging at NSC would most likely be performed during these months.

17. MOTBA East.

1.176 a. Authorization. MOTBA East, also known as the Naval Supply Center Alameda Facility, is a four-berth Navy cargo terminal located on the south side of Oakland Inner Harbor (Plate I-22). (For a more detailed description of this facility, refer to the Navigation Commerce section). Similar to the arrangements at other Navy areas, any dredging performed by the Corps requires an inter-service support agreement with the Navy.

1.177 b. Dredging History. The only figures available on historic dredging quantities are shown below:

TABLE I-18

DREDGING HISTORY OF MOTBA EAST

Fiscal Year	Quantity Removed (c.y.)		Method of Dredging
1967	89,500		hopper 1/
1968	47,900	> 60,800	hopper 1/
1968	12,900		clamshell 2/
1969	31,400	> 73,200	hopper 1/
1969	41,800		clamshell 2/
1970	46,000		hopper 1/

1/ Performed by Corps.
2/ Performed by a private dredging firm under contract from the Navy.

The lack of dredging records since 1970 may indicate that dredging requirements at MOTBA East have decreased over the past five years. Even if this assumption is correct, the decrease may be only temporary, so future dredging requirements must be based on the available figures, which indicate approximately 120,000 cubic yards removed once every three years. The average annual quantity is therefore estimated at about 40,000 cubic yards.

1.178 c. Proposed Maintenance. Future dredging will most likely be performed by hopper or by clamshell dredge, or a combination of both. Any clamshell work would be performed by a private dredging firm under contract from the Navy, while any hopper dredging would be performed by the Corps at the request of the Navy through an inter-service support agreement. The Corps hopper would simply make several extra passes with its suction pipes in close to the pier during its maintenance dredging in Oakland Inner Harbor.

Hopper or clamshell dredging would be disposed of either at the Alcatraz site (Plate I-2) or at the 100-Fathom disposal site.

1.179 d. Related Projects. Oakland Inner Harbor is maintained by the Corps to a depth of 35 feet up to within 180 feet of the pier at MOTBA East, while the Navy requires only 33 feet of depth in the berthing area. The result is "sloughing" of sediments from the berthing area into the Corps channel. This sloughing action may considerably reduce future dredging requirements at MOTBA East. A hydrographic survey conducted by the Corps in mid-1974 indicated average depths greater than 33 feet in the berthing area. The results of future Corps and Navy surveys will more accurately determine future dredging requirements.

18. Point Molate.

1.180 a. Authorization. Point Molate is a Navy fuel depot located just north of the Richmond-San Rafael Bridge on the Richmond shoreline (Plate I-23). (For a listing of fuel shipments, refer to the Navigation Commerce section.) Maintenance dredging is performed by the Corps once every two and a half years at this facility at the request of the Navy through an inter-service support agreement. The Navy reimburses the Corps for the cost of dredging. Since this dredging is not within an authorized Corps channel, the Navy must apply for a permit from the Corps. The latest permit for this project was issued on 22 January 1975 and allows 120,000 cubic yards of dredging to be performed during Fiscal Year 1975.

1.181 b. Dredging History. The earliest dredging in this area was in 1943, for construction of the pier and berthing area. A historic summary of dredging is listed below:

TABLE I-19

DREDGING HISTORY OF POINT MOLATE

Fiscal Year	Quantity Removed (c.y.)	Method of Dredging
1943	1,218,000	hopper 1/
1946	459,000	clamshell 2/
1947-48	691,000	hopper and clamshell
1949-50	299,000	hopper
1951	406,000	hopper
1952	80,000	clamshell
1953	361,000	clamshell
1954	349,000	clamshell
1956	54,000	clamshell
1958	105,000	clamshell

1965	234,000		hopper
1967	195,000	303,000	hopper
1967	108,000		clamshell
1969	176,000		hopper
1970	73,000		clamshell
1971	261,000		hopper
1975	92,000		hopper
1975	120,000		clamshell

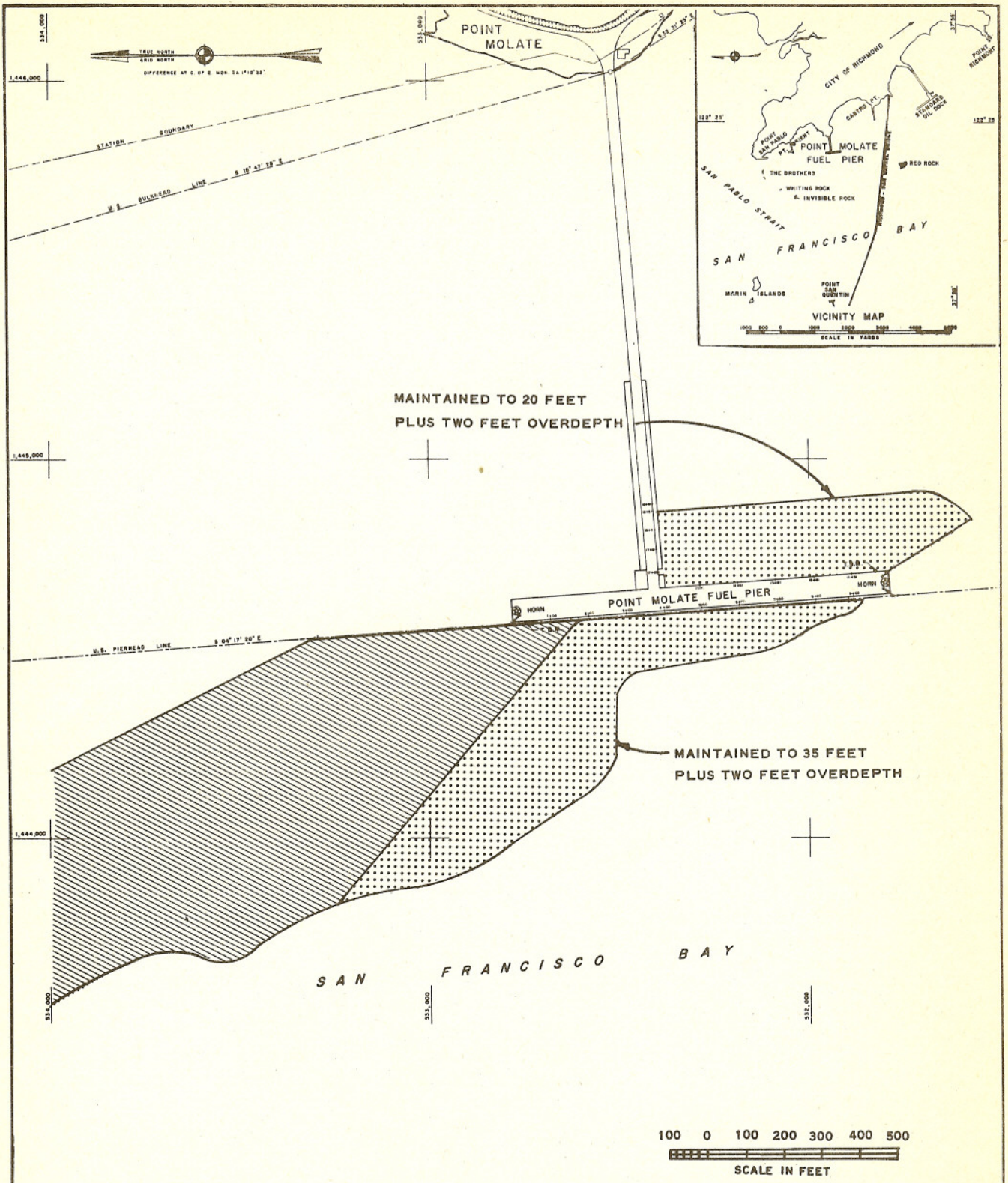
1/ All hopper dredgings listed were performed by the Corps.
2/ All clamshell dredgings listed were performed by private firms under contract from the Navy, with the exceptions of 1952 and 1975, which were under Corps contract.

Based on the quantity of dredgings since 1965, the average quantity removed is 228,000 cubic yards once every two and a half years, which is equivalent to an average annual quantity of 91,000 cubic yards (see Table I-1).

1.182 c. Proposed Maintenance. Next maintenance dredging has not been scheduled; however, based on the two and a half year frequency, dredging will most likely be required by Fiscal Year 1977 (winter of 1976-77) when roughly 400,000 cubic yards will be removed. This quantity assumes completion of pier reconstruction, described below as a related project. All dredged material will be disposed of at the Alcatraz site (described on Plate I-2 and Table I-2). Characteristic shoal areas to be dredged are shown on Plate I-23. Dredging east of the "hammerhead" end of the pier will most likely be performed by private clamshell under contract from the Navy or the Corps, while dredging west of the hammerhead will be performed by a Corps hopper dredge. The relative amounts to be dredged by each method have not yet been determined.

1.183 d. Related Projects. The Navy plans to reconstruct 550 feet of the 1,000-foot Point Molate fuel pier in FY 1976 or FY 1977. This $3 million project is presently being designed under the supervision of the Naval Supply Center at Oakland and would primarily involve replacement of 400 feet of rotted timber pilings. If the reconstructed section of the pier is not usable by the late 1970's, FY 1977 dredging will probably be reduced to roughly 120,000 cubic yards. For other related projects in the nearby vicinity, refer to the Richmond Harbor description.

1.184 19. Government Island. Like the Navy projects, the Corps performs this project at the request of the U.S. Coast Guard under an inter-service support agreement. The area maintained for them is along the southern shoreline of Government Island, between the pier wall and the Oakland Inner Harbor channel in Brooklyn Basin (Plate I-24). The Coast Guard uses Government



LEGEND

CHARACTERISTIC SHOAL AREAS PRESENTLY DREDGE BY CORPS.

ADDITIONAL SHOAL AREAS TO BE DREDGE BY CORPS FOLLOWING NAVY PIER RECONSTRUCTION

COMPOSITE ENVIRONMENTAL STATEMENT

SAN FRANCISCO BAY REGION CALIFORNIA

POINT MOLATE

PROJECT LOCATION

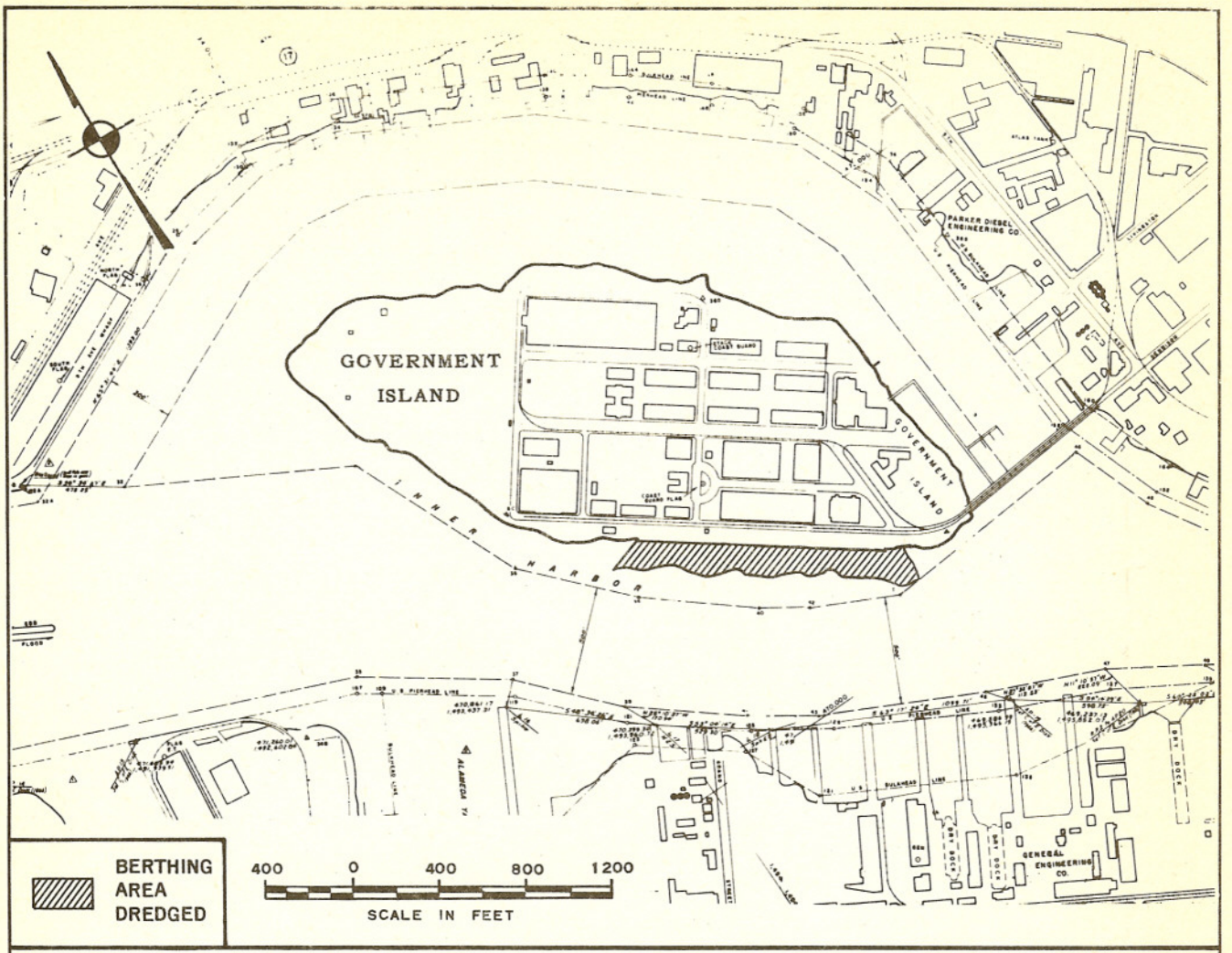
U.S. ARMY ENGINEER DIST., SAN FRANCISCO, C OF E

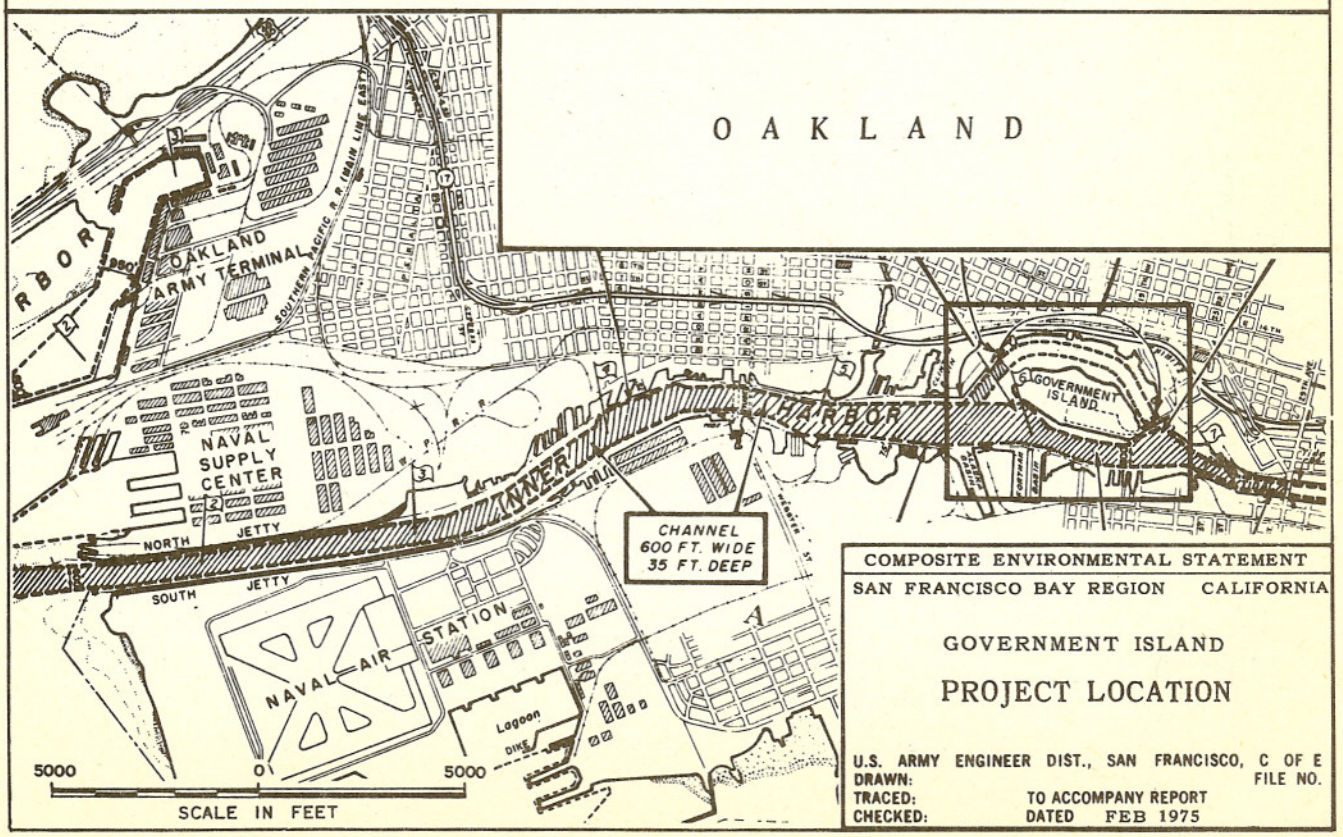
DRAWN:
TRACED:
CHECKED:

FILE NO.

TO ACCOMPANY REPORT
DATED FEB 1975

PLATE I–23





COMPOSITE ENVIRONMENTAL STATEMENT

SAN FRANCISCO BAY REGION CALIFORNIA

GOVERNMENT ISLAND

PROJECT LOCATION

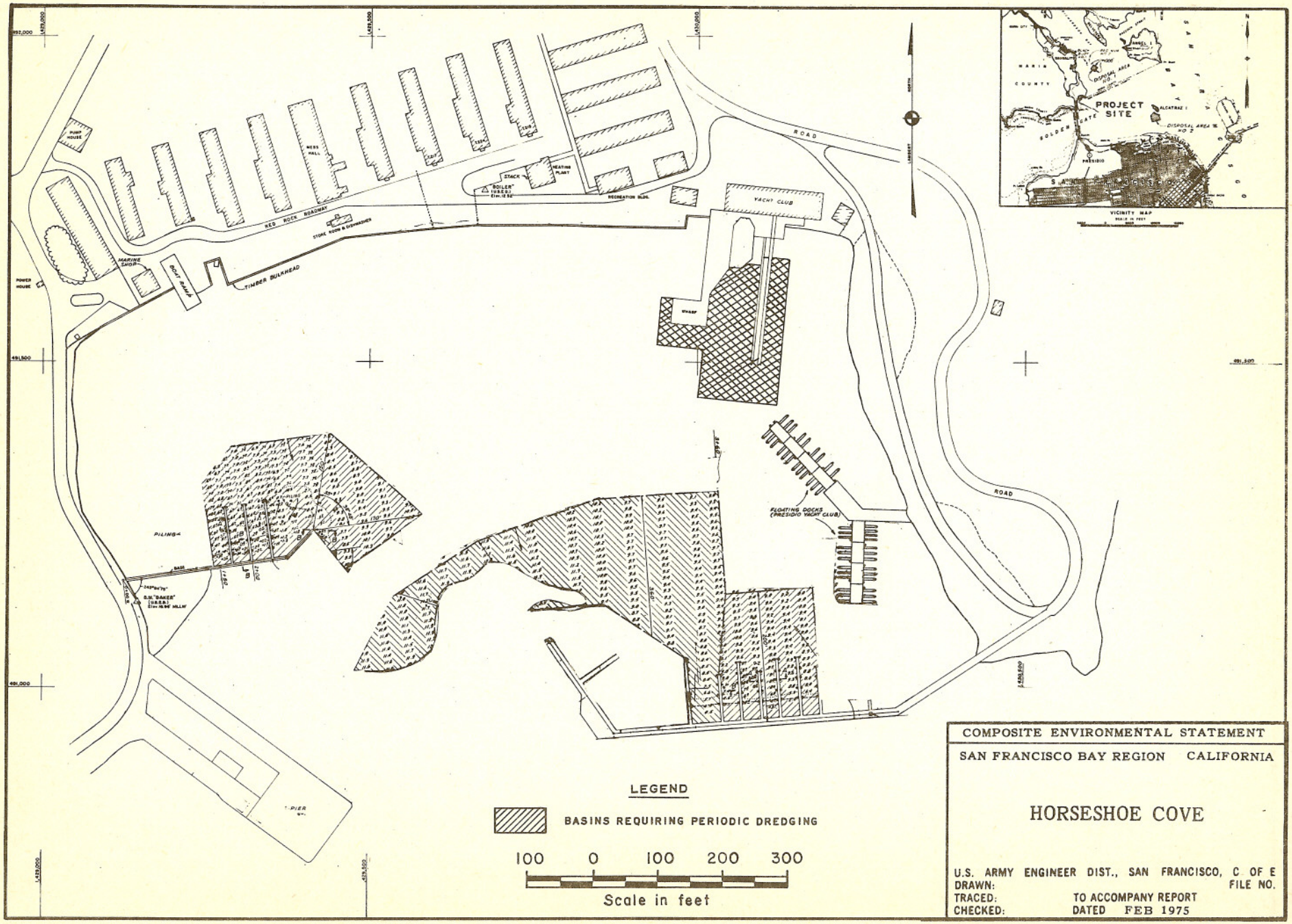
U.S. ARMY ENGINEER DIST., SAN FRANCISCO, C OF E

DRAWN: FILE NO.

TRACED: TO ACCOMPANY REPORT

CHECKED: DATED FEB 1975

PLATE I–24



COMPOSITE ENVIRONMENTAL STATEMENT

SAN FRANCISCO BAY REGION CALIFORNIA

HORSESHOE COVE

U.S. ARMY ENGINEER DIST., SAN FRANCISCO, C OF E
DRAWN:
TRACED:
CHECKED:
FILE NO.
TO ACCOMPANY REPORT
DATED FEB 1975

PLATE I-25

Island as a training station, and along the pier wall are docked three large Coast Guard cutters. The pier is also used by craft-on-call as well as by transient boats navigating through Oakland Inner Harbor.

1.185 Dredging records for this project are incomplete but our earliest record indicates that 10,000 cubic yards were dredged along the pier wall and causeway in 1937. In 1947, ten years later, approximately 5,000 cubic yards were removed from this same area which included deepening to 17 feet, plus two feet overdepth. The pier wall area was again deepened in 1950 to 18 feet when 2,000 cubic yards were removed. Approximately 2,000 cubic yards were dredged in 1954; and in 1959 and 1966, 12,000 and 15,000 cubic yards were respectively removed under contract by clamshell. The last maintenance occurred in 1967 which involved removing 1,000 cubic yards. Dredging within 120 feet of the pier wall has normally been done by clamshell and the rest by the Corps hopper dredge. It is estimated that maintenance is required every 5-10 years when 20,000 to 30,000 cubic yards will be removed, which is equivalent to an average annual removal of 3,500 cubic yards (see Table I-1).

1.186 There have been two disposal sites used for this project. In earlier work the dredged material was placed from 170 to 300 feet south of the Island which caused shoaling problems in the natural channel in Brooklyn Basin. During the 1950's and 1960's, dredged material was disposed of southwest of Yerba Buena Island.

1.187 No maintenance is anticipated for the next few years. Related projects in this area are discussed under "Oakland Harbor."

20. Horseshoe Cove, Fort Baker.

1.188 The Corps performs maintenance dredging at this site at the request of the U.S. Sixth Army Region, under an inter-service support agreement. Horseshoe Cove is located at the southern tip of Marin County in Fort Baker, and is used as a recreational facility by our servicemen (Plate I-25). General facilities include the Fort Baker Yacht Club, picnic areas, a small sandy beach, a basketball court, several small piers, and a Special Services fishing boat.

1.189 Records of dredging activity in the cove are very sketchy since the project is performed very infrequently and only by request from the Sixth Army. In 1944, our earliest dredging record for this area, approximately 1,000 cubic yards around the west breakwater and piers, and another 1,000 cubic yards along the north piers were removed. Since that time, the cove has only been dredged twice but records are only available for 1971 when 10,000 cubic yards were removed by clamshell under contract. Since the cove is so close to the Golden Gate, sediments in the cove are essentially sand and gravel, and shoaling around the piers is evidently due to tidal action.

1.190 The disposal site for this project has historically been off Yellow Bluff which is northeast of the cove (the same area that was previously used for dredged material from Sausalito Operations Base; see inset of Plate I-25, disposal area no. 1). In 1971, shoal sand and gravel were barged to the Alcatraz disposal site.

1.191 No maintenance dredging is scheduled within the next few years. However, for the purpose of estimating the average quantity to be removed if Horseshoe Cove was dredged annually, it is assumed that maintenance dredging is required once every 10 to 15 years, when 10,000-15,000 cubic yards would be removed. This would be equivalent to an average annual quantity of 1,000 cubic yards removed (Table I-1).

1.192 Since Horseshoe Cove is in a relatively isolated location in a Government reservation, there are no related projects in this general vicinity.

D. MAINTENANCE DREDGING PERMITS.

1.193 1. Introduction. In addition to its own maintenance dredging projects, the U.S. Army Corps of Engineers issues permits to various private entities, port authorities and other agencies which perform their own maintenance dredging. The Army's authority stems from the Rivers and Harbors Act of 1899, Section 10 (33 U.S.C. Sec. 403), and Section 404 of the Federal Water Pollution Control Act of 1972 (33 U.S.C. Sec. 1344) which pertains to the disposal of dredged and fill material within the waters of the United States. The status of many of these permit activities is dependent on continued maintenance dredging of Federal navigation channels.

1.194 It should be noted that maintenance dredging does not represent the entire quantity of dredging in the Bay. The San Francisco District has in the past few years issued permits for port construction involving several million cubic yards of dredged material. Most of this material has been deposited at the Alcatraz disposal site. This additional dredging is not discussed in the Composite Statement since major port construction is relatively infrequent and is evaluated on a case-by-case basis.

1.195 2. Permit Areas (Table I-20). The quantities of dredge material described below and listed on Table I-20 are only rough estimates based on permits issued during 1971 through 1975.

1.196 a. San Francisco Harbor. The Port of San Francisco dredges an average annual quantity of 500,000 cubic yards of bottom sediments from its piers and wharves which extend from Aquatic Park to India Basin. Private firms dredge an additional 100,000 cubic yards annually from their own piers and also deposit the material at Alcatraz. At the south end of the harbor, the Navy dredges an average annual quantity of roughly 150,000 cubic yards at Hunter's Point Naval Shipyard and disposes the material at Alcatraz. Future dredging at this facility is uncertain pending sale or lease of the Shipyard by the U.S. Navy.

1.197 b. Oakland Harbor. The Port of Oakland dredges an average annual quantity of 200,000 cubic yards from its berths in the inner and outer harbors. An additional 35,000 cubic yards per year are dredged by private firms. All sediments dredged from Oakland Harbor are deposited at Alcatraz. Dredgings at Alameda NAS, MOTBA North, Naval Supply Center-Oakland, MOTBA East, and Government Island also require permits, which are discussed elsewhere in the Project Description as inter-service projects.

1.198 c. Redwood City Harbor. Roughly 10,000 cubic yards per year are dredged from Redwood Creek and disposed of on land.

1.199 d. Richmond Harbor. At Richmond Longwharf the Standard Oil Company of California (SOCAL) dredges an average annual quantity of about 200,000 cubic yards from the berthing area. Other public and private firms remove an additional 30,000 cubic yards per year from Richmond Inner Harbor. All material is deposited at Alcatraz.

1.200 e. Mare Island Strait. The Navy dredges about 500,000 cubic yards of sediments per year from alongside Mare Island Naval Shipyard. The slurry is pumped by hydraulic pipeline to diked areas on the opposite side of Mare Island (Plate I-8). The City of Vallejo removes an additional 30,000 cubic yards per year from its marina and pumps the slurry to an adjacent land area. The City also dredges 25,000 cubic yards per year to maintain berthing areas for Kaiser Steel and deposits the material in Carquinez Strait.

1.201 f. Carquinez Strait. Several oil companies maintain berthing areas along Carquinez Strait. Union Oil at Oleum dredges 90,000 cubic yards per year and Exxon Oil at Benicia dredges roughly 20,000 cubic yards per year. Although Gulf, Shell and Phillips also have oil piers in this area, they have not applied for permits in recent years and so apparently dredge only infrequently. All material dredged from this vicinity is deposited in Carquinez Strait.

1.202 g. Suisun Bay. Although PG&E, Dow Chemical, Phillips Oil and other private concerns maintain berthing areas along Suisun Bay, they have not applied for dredging permits in recent years. Dredging by the Navy at Concord Naval Weapons Station is discussed elsewhere in the Project Description as an inter-service project.

1.203 h. Marinas. In addition to the various ports requiring maintenance dredging, there are at least 76 small-boat marinas in the Bay constituting over 13,600 berths (see Table II-92). Most, if not all, require maintenance dredging periodically. Most of the marinas require very infrequent maintenance (once every 5 to 10 years or less), whereas a few of the larger marinas require more frequent dredging. Amounts dredged at any given time may vary from a few thousand to hundreds of thousands of cubic yards, depending on the need and funds.

1.204 It is beyond the scope of this environmental statement to analyze in detail all the marinas in the Bay, since the primary objective of this report is to evaluate Corps maintenance dredging projects. Except for a few marinas, very little environmental and sediment data are available to critically evaluate

the effects of marina dredging. What little data the Corps has seem to indicate that sediments from these marinas are similar in chemical concentration (e.g. zinc, lead, cadmium, copper) as that found in Corps-maintained channels and basins. If this is typical of all marinas in the Bay, then aquatic disposal of this material would have the same general effect as Corps disposed dredged material. Cumulative impacts of aquatic disposal in the Bay, irrespective of where the material comes from, are discussed in Section IV.

1.205 Land disposal of marina sediments require individual evaluation and degree of impact would depend on the natural resources of the proposed land site. Unlike aquatic disposal, there are no official designated land sites for dredged material disposal. Disposal of marina sediments on land requires a case-by-case evaluation.

TABLE I-20

MAINTENANCE DREDGING PERMITS

Major Permit Area	Average Annual Quantity (cu-yd)	Disposal Site
San Francisco Harbor	750,000	Alcatraz
Oakland Harbor	256,000	Alcatraz
Redwood City Harbor	10,000	Land
Richmond Harbor	230,000	Alcatraz
Mare Island Strait	555,000	Land and Carquinez
Carquinez Strait	110,000	Carquinez Strait
Suisun Bay	None	Suisun or Carquinez
TOTAL	1,911,000	

Environmental Setting II