Los Angeles County
Regional Dredged Material Management Plan
905(b) Reconnaissance Report

U.S. Army Corps of Engineers,
Los Angeles District

September 2000

Los Angeles County Regional Dredged Material Management Plan
Expedited Reconnaissance Report
Section 905(b) Analysis
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1. Study Authority

This Section 906(b) (WRDA) Analysis was prepared as an initial response to the Public Law 106-60 (H.R. 2605) dated September 29,1999, which reads as follows:

> ***"Los Angeles County, California**. – The recommendation includes funding for a reconnaissance study of a regional dredged material management plan for contaminated sediments in Los Angeles County, California."*

2. Study Purpose

The purpose of the Reconnaissance Study is to determine if there is a federal interest to participate in a detailed Feasibility Study to develop a Regional Dredged Material Management Plan (DMMP) and to develop alternatives for multi-user disposal site(s) for the purpose of isolation and containment of contaminated dredge material originating from coastal/harbor waters of Los Angeles County. In response to the study authority, a reconnaissance study was initiated on March 17, 2000. This study phase includes developing an initial Project Management Plan (PMP), which provides the scope of effort, costs, schedule and Federal and non-Federal responsibilities for a Feasibility Study, and its Federal Cost Sharing Agreement (FCSA) that can be supported by both the Federal and non-Federal interests. If a Federal interest is determined as part of this study, the feasibility report will be forwarded to Congress with a recommendation for authorization. This phase of the study has resulted in the finding that there is a Federal interest in continuing the study into the Feasibility phase.

3. Location of Project/Congressional District

The project study area is located along the coastal waters of Los Angeles County, and includes Marina del Rey, the Port of Long Beach, the Port of Los Angeles, and the Los Angeles River Estuary as shown in **Figure 1**. The non-Federal sponsors for the feasibility phase of the study are the County of Los Angeles, City of Long Beach, Port of Long Beach and Port of Los Angeles. The study project area is located within the jurisdictions of the 36th (R - Steven Kuykendall) and 38th (R - Stephen Horn) Congressional Districts of California.

4. Discussion of Prior Studies, Reports and Existing Water Projects

The Los Angeles District is currently in the midst of preparing the Marina del Rey and Ballona Creek Feasibility study (authorized in Section 216 of the Flood Control Act of 1970 and the House of Representatives Resolution on Public Works and Transportation in House Document 389, 83rd Congress, 2nd Session, September 1994) report. The Marina del Rey and Ballona Creek feasibility study consists of two components: i) a Dredged Material Management Plan for Marina del Rey harbor; and, ii) a Sediment Control Plan for the Ballona Creek Watershed. The Corps of Engineers completed the alternative analysis for the Dredged Material Management Plan component of the Marina del Rey and Ballona Creek Feasibility Study in May 2000. It is the intent to incorporate the results of the Marina del Rey DMMP alternative analysis into the feasibility phase of the Los Angeles County Regional DMMP study, and terminate any further efforts on the DMMP component of the Marina del Rey and Ballona Creek feasibility study. The work effort for Sediment Control Plan component of the Marina del Rey and Ballona Creek feasibility study will continue until

completed.

In addition, the following reports were reviewed as part of this study:

A) “Final Environmental Assessment, Marina del Rey Maintenance Dredging and Contained Aquatic Disposal Demonstration Project,” U.S. Army Corps of Engineers, Los Angeles District, October 1994.

B) “Marina del Rey and Ballona Creek, California, Final Reconnaissance Report”, U.S. Army Corps of Engineers, Los Angeles District, September 1995.

C) “Draft Environmental Assessment: Marina del Rey Harbor Maintenance Dredging, Los Angeles County, California”, U.S. Army Corps of Engineers, Los Angeles District, 1998.

D) “Draft Supplemental Environmental Impact Statement/Supplemental Environmental Impact Report for the Port of Los Angeles Channel Deepening Project”. Prepared by Los Angeles Harbor Department and U.S. Army Corps of Engineers, Los Angeles District, April 2000.

E) “Guidance for Subaqueous Dredged Material Capping”. Prepared by U.S. Army Corps of Engineers, Waterways Experiment Station, Technical Report DOER-1, June 1998.

F) “Marina del Rey and Ballona Creek Feasibility Study – Dredge Material management Plan Alternative Analysis Report – F4 Main Report”, U.S. Army Corps of Engineers, Los Angeles District, April 2000.

G) “Los Angeles Estuary Borrow Pit Sedimentation Study”, Prepared by Moffatt & Nichol Engineers, July 1999.

5. Plan Formulation

A) NATIONAL OBJECTIVES: Federal and federally assisted water and related land planning activities attempt to achieve National Economic Development (NED). Contributions to NED are increases in the net value of the national output of goods and services, expressed in monetary units. Plans are formulated to alleviate problems and take advantage of opportunities in ways that contribute to the NED objective. An additional objective is Ecosystem Restoration in response to Legislation and administration policy. This objective is to contribute to the nation’s ecosystems through ecosystem restoration, with contributions measured by changes in the amounts and values of habitat.

B) STUDY OBJECTIVES: The objectives of this study are to:

1) Establish preliminary dredged material disposal sediment threshold levels, through defining trigger points and hierarchal approaches for the disposal of dredged sediments.

2) Establish local best management practices for the dredging and disposal of contaminated and non-contaminated marine sediments.

3) Identify regional disposal alternatives for contaminated and non-contaminated dredged sediments.

4) Implement pilot projects to assess the viability of various treatment alternatives for contaminated dredged sediments through the Corps' Operations and Maintenance program.

5) Identify environmental restoration and/or enhancement opportunities that are directly related to the dredging and disposal of contaminated marine sediments.

6) Prepare detailed cost estimates for identified disposal alternatives.

7) Recommend a regional disposal management strategy, to include: i) the recommended regional disposal sites and/or treatment alternatives; ii) best management practices for the dredging and disposal operations; iii) a consolidated and consistent plan for regulatory review; iv) chemical trigger levels for sediment testing and disposal site selection; and, v) a tiered approach for site selection to dispose dredged sediments.

8) Prepare a programmatic EIS/EIR to implement regional disposal management alternatives.

9) Recommend a regional dredged material management plan that is consistent with the Los Angeles Region's Contaminated Sediments Task Force implementation strategy.

C) PUBLIC CONCERNS: A number of public concerns have been identified during the course of the reconnaissance study. Initial concerns were received through coordination and meetings with the potential sponsor(s) and other agencies. The public concerns that are related to the establishment of planning objectives and planning constraints are:

1) Economics:

a) Cost to the Federal government, non-Federal sponsors and regulatory applicants of finding suitable sites for disposal or treatment of contaminated dredged sediments. Desire to identify economically affordable options for the disposal management of contaminated dredged sediments.

b) Economic degradation of regional economy due to the inability to re-use, redevelop, modernize or expand operational facilities at the Ports and Harbors within Los Angeles County. Impact on Port and Harbor operations as a result of the inability to dredge contaminated sediments.

c) Need to establish an economic basis and an acceptable benefit to cost ratio for the dredging and disposal of contaminated marine sediments.

2) Environmental/Permitting:

a) Difficulties in obtaining permits for the dredging of contaminated marine sediments until suitable (environmentally safe and economically feasible) disposal sites have been identified.

b) Impacts on environmental resources from dredging and disposal operations, such as temporary and possible permanent impacts to biological resources as a result of: i) turbidity noise, and degradation of air quality; ii) resuspension of contaminants in the water column; and, iii) chemical advection and diffusion at aquatic disposal sites.

c) Bioaccumulation through the food chain through either resuspension of contaminants during dredging operations and/or by leaving contaminated marine sediments in-place.

3) Technical:

a) Feasibility of leaving contaminated sediments in place versus removing.

b) Construction impacts of dredge and disposal operations on air/water quality, ambient noise and vessel traffic, and mechanical and logistics modifications required to reduce impacts.

c) Lack of sediment thresholds, which impact the ability to properly plan and identify suitable disposal sites for dredged sediments.

d) Failure of source control, which result in exacerbating the pollutant problems within the coastal marine environment.

4) Political:

a) Lack of consensus regarding the disposal of contaminated sediments originating from one political region within another political region ("not in my backyard syndrome").

b) Opposition to aquatic disposal of contaminated dredged material, utilization of fine-grain contaminated sediments as construction fill material, and placement of marine (salt laden) dredged sediments within local Class III landfill sites.

c) Lack of multi-agency coordination and consensus among regulatory agencies regarding disposal of contaminated sediments.

e) Identification of responsible parties for discharge and clean-up of pollutants (source reduction).

f) Public perception of the lack of end use for the contaminated dredged material treated products.

C) PROBLEMS AND OPPORTUNITIES:

Within the Los Angeles County Region it is estimated that approximately 2.5 million cubic meters of contaminated sediments will need to be dredged from the Ports and Harbors of Los Angeles County over the next five years. Currently there is a lack of readily available disposal sites for these sediments. A regional task force (Los Angeles Region Contaminated Sediments Task Force (CSTF)) was formed in 1998 to address the problems of disposing contaminated dredged sediments. The CSTF is chartered with developing a long-term management strategy for contaminated sediments. The U.S. Army Corps of Engineers, along with state and federal resources and regulatory agencies, are active participants in the CSTF. It is anticipated that the Regional DMMP study will evolve into a major component of the CSTF's long-term management strategy.

D) ALTERNATIVE PLANS:

The following alternatives were addressed that involve soft and hard structures, sediment treatments, capping sites and beneficial uses to manage the disposal of dredged sediments:

1) **No Action**: The "no action" alternative would result in continued significant shoaling of contaminated sediments in Marina del Rey, Port of Los Angeles, Port of Long Beach and the Los Angeles River Estuary. Periodic maintenance dredging and disposal of contaminated material may have potentially significant impacts on the environment in violation of applicable laws including the Clean Water Act (CWA) and the Marine Protection, Research and Sanctuaries Act (MPRSA).

2) **Ocean Disposal**: This alternative involves direct disposal of dredged materials in deep water, nearshore areas, or on the beaches without confined measures. Unconfined ocean disposal requires the potential site have adequate capacity to allow for the placement of large volumes of sediments. The sediments must meet the requirements set forth in the Environmental Protection Agency and the U.S. Army Corps of Engineers document, Evaluation of Dredged Material Proposed for Ocean Disposal, EPA-503/8-91/001, February 1991 and the Clean Water Act Guidelines for Specifications of Disposal Sites for Dredge or Fill Material, 40 CFR 230 Section 404(b)(1)(December 1980). Some of the criteria provided are concerned with physical characteristics of sediments, chemical characteristics of sediments (contamination), and effects (if any) on organisms. Additional items for nearshore placement are material must be free from contamination and the source sediments must be physically compatible with the receiving site.

3) **Upland Disposal** : This alternative involves placing the contaminated dredged material in an upland facility constructed with containment measures such as lining, diking, and covering. Typical upland disposal facilities include upland confined disposal facilities (CDFs) and landfills.

Primary issues with upland landfill disposal of contaminated dredged materials include contaminant leachability levels, availability of suitable existing landfills, land availability and cost for new landfill facilities, dewatering land availability and cost, and transportation cost.

Primary issues with upland CDF disposal of contaminated dredged materials include land availability and cost for the facility, contaminant leachability levels, effluent control, solids retention, surface runoff control, and long-term end use of the site after closure. Upland disposal has been applied in dredging projects where the physical and chemical characteristics of the dredged material satisfy the requirements of the receiving facilities. The above issues, however, often pose major constraints on the application of this alternative to large-volume, contaminated sediment dredging projects.

4) **Aquatic Capping**: This alternative involves placing the contaminated dredged material in a subaqueous depression and covering the materials with a clean sand cap of appropriate thickness. Primary issues with aquatic capping of contaminated dredged materials include short-term effects from turbidity and contaminant release during dredging and placement, cap stability under hydrodynamic stresses (waves and currents), cap integrity under biological perturbations (bioturbation), chemical leachability, site consolidation, and organism re-colonization. Aquatic capping has been proven in the field on various scales and successfully applied in major dredging projects.

5) **Nearshore CDF Disposal**: This alternative involves placing contaminated dredged materials in a diked nearshore area or island constructed with containment and control measures such as lining, covering and effluent control. Primary issues with nearshore CDF disposal include coastal land availability and cost, wave protection, short-term effects from effluent discharge during and after filling, solids retention during filling, and long-term end use of the site after closure. Nearshore CDF disposal has been proven in the field on various scales and successfully applied in major dredging projects.

6) **Shallow Water Habitat Creation**: This alternative involves placing the contaminated dredged material in a diked subaqueous area in shallow water and covering the material with a clean cap designed to enhance the biological value of the site. Primary issues with shallow water habitat creation include cap elevation determination, cap material selection, and target organism colonization, as well as all issues associated with aquatic capping of contaminated dredged materials. Aquatic capping has been proven in the field on various

scales and successfully applied in major dredging projects.

7) **Treatment**

Treatment of contaminated dredged materials is a developing area where significant progresses have been made in recent years which capitalize on decades of experience with soil remediation technologies. Treatment processes such as cement-based stabilization and sediment washing have been successfully proven in the field on pilot scales. Other processes such as separation, blending, and thermal desorption may also have potential in treating specific materials depending on project volume and end use requirements.

a) **Stabilization**: This alternative involves blending the contaminated dredged material with reagents such as Portland cement, lime kiln dust, and fly ash to encapsulate and immobilize the contaminants in the sediment matrix, bind fines, and produce after curing enhanced engineering properties in the material. The treated material is generally suitable for use as structural fill.

   Primary issues with stabilization include the effectiveness of the cement additive in treating site-specific contaminants. Project-specific bench-scale treatability tests are generally required to determine an additive mix design that will be effective for a specific material. Stabilization has been proven in the field on various scales and successfully applied in dredging projects.

b) **Washing**: This alternative involves slurrying the contaminated dredged material and subjecting the slurry to physical collision, shearing, and abrasive actions and aeration, cavitation, and oxidation processes while reacting with chemical additives such as chelating agents, surfactants, and peroxides. The contaminants are transferred from the sediments to the water phase in the process. The washed material is then dewatered by hydrocyclones and centrifuges to 70 to 80 percent solids. The process water containing the contaminants is discharged on treatment.

   Primary issues with sediment washing include treatment requirements for the process effluent water, and the end use of the dewatered fine material cake, which is a primary product if the dredged material consists predominantly of silt and clay.

   Sediment washing has been used in the field on various scales for upland contaminated soils, and successfully proven on a pilot-scale for contaminated dredged materials containing upwards of 90 percent fines.

c) **Blending**: This alternative involves blending the contaminated dredged material with borrowed clean sandy material to create an aggregate that exhibits enhanced engineering properties and reduced apparent contamination levels.

   Primary issues with sediment blending include the cost of obtaining large quantities of the clean sand required to achieve the treatment objective, the availability of borrowing sources, large-volume material handling, the means and achievable levels of blending, land availability and cost for dewatering, and eventual environmental acceptability of the material.

   Sediment blending has not been extensively proven in the field or applied in major dredging projects.

d) **Separation**: This alternative involves slurrying the contaminated dredged material

and separating the contaminated fines fraction from the largely clean coarse fractions through mechanical means such as hydrocycloning.

Primary issues with sediment separation include dewatering means and disposal need for the separated contaminated fines, which could be of significant volume if the dredged material consists predominantly of silt and clay.

Sediment separation has not been extensively proven in the field for treating contaminated dredged material.

e) **Thermal Desorption**: This alternative involves treating the contaminated dredged material at high temperatures to remove volatile contaminants (primarily organic compounds) from the sediments. The process also results in a reduced total material volume.

Primary issues with thermal desorption include high energy consumption and treatment waste stream disposal. This alternative has not been extensively proven in the field for treating contaminated dredged material.

8) **Beneficial Use**:

Beneficial use of contaminated dredged materials as a stand-alone disposal alternative is constrained by the contamination levels of the material to be disposed. Beneficial use of the end products of most of the disposal alternatives discussed previously, however, is often a critical management consideration for improving environmental and/or economic benefits of a disposal project. It has been extensively proven in the field that treated contaminated dredged materials and/or dewatered marginally contaminated dredged materials can be used beneficially as construction fill, landfill cover, or land reclamation fill.

a) **Construction Fill**: This alternative involves using treated contaminated dredged materials as construction fill for industrial developments, dikes and levees, coastal structures, offshore berms, and building, road and parking lot foundations. Primary issues with this alternative include ensuring adequate engineering properties of the material required of a construction fill.

b) **Landfill Cover**: This alternative involves using treated contaminated dredged materials as daily cover or grade materials for sanitary landfills. Key issues with this alternative include dewatering requirements and potential leaching of mobile constituents such as chlorides into groundwater.

c) **Reclamation Fill**: This alternative involves placing treated contaminated dredged materials at brownfields (abandoned former industrial sites) and abandoned mines as fill for redevelopment. Key issues with this alternative include requirements for adequate material engineering properties if the site is redeveloped for building construction, and potential leaching of mobile constituents such as chlorides into groundwater.

d) **Oil Well Injections**: This alternative involves injecting contaminated dredged sediments into idle oil wells. The process involves fracturing a sediment (sand) layer in excess of 2,000 meters below the surface by hydraulically introducing approximately 300 kg/cm^2 pressure near the end of the oil well core through a perforated tube. The operational procedure consists of a conveyor belt which transports the sediments to a screen. The fine grain materials are sent through two

grinding units which introduce water, turning the material into a mud consistency and shears the shales and then to a holding tank, where water is jetted into the tank to maintain the sediment particles in suspension. The slurry is then sent to a pump which injects the slurried sediments into the injection well. The alternative is suitable for smaller highly contaminated dredge sediment volumes.

e) **Geotextile Encapsulation**: This alternative involves placing contaminated dredged materials in geotextile containers for isolation from the environment. Clamshell dredged contaminated sediments may be placed within a geotextile lined split-hull barge. Once the barge is adequately full, the geotextile liner can then be sewed shut forming a tubular confinement shell. The contaminated sediment geotextile tube may then be transported and bottom dumped by the barge at an approved offshore location. These geotextile containers should be covered with a layer of clean sediment and depending on the magnitude of the expected wave climate, armor with stone. Geotextile containers may be used to provide shore protection, or utilized as a dike structure to contain backfilled sediments.

E) PRELIMINARY EVALUATION OF ALTERNATIVES

1) Without Project Conditions Assumptions:

a) Continued shoaling of the coastal navigation channels within Los Angeles County, due to limited dredging of contaminated sediments as a result of the lack of suitable disposal site sites.

b) Negative impacts on regional economics as a result of the build up of shoals which inhibit optimization of commercial maritime operations. Additionally, negative impacts to regional environmental resources as a result of in-situ pollutants remaining in-place

c) Upland disposal of contaminated dredged material at a Class II landfill site in Utah is environmentally acceptable and technically feasible, but would involve prohibitive costs.

2) Preliminary Alternatives Eliminated from Further Consideration: None.

3) Preliminary Alternatives for Further Consideration: All alternatives described in Section D of this report.

6. Federal Interest

In accordance with Chapter 4 of ER 1105-2-100, the Federal interest in navigation is derived from the Competence Clause of the Constitution, and is limited to navigable waters of the United States. Federal navigation improvements in or on those waters are in the general public interest and must be open to use of all equal terms. In general, this public interest is a measure of positive NED benefits.

In addition, Policy Guidance Letter (PGL) No. 40, “Development and Financing of Dredged Material Management Studies”, dated 25 Mar 1993, authorizes the development of dredged material management plans for federally maintained harbors, specifically to develop measures necessary to manage the volume of material likely to be dredged over a twenty year period. Implementation of the plan may involve placement of material (sand) on publicly accessed beaches for the purpose of providing hurricane or storm damage protection. Financing of such placement would entail a cost share of 50 percent Federal and 50 percent non-Federal.

PGL No. 42, “Additional Guidance on Financing of Dredged Material Management Studies”, dated 26 Oct 1993, specifies that financing dredged material management plans where there is a

feasibility study for modification of an existing navigation project, will be allocated between the existing project and the feasibility study for the project modification.

Section 516 of the 1996 Water Resource Development Act, authorizes Federal participation in development of long term management strategies for sediment control at navigation projects. The strategy is to include assessments of sediment rates and composition, sediment reduction options, dredging practices, long-term management of any dredged material disposal facilities, remediation of such facilities, and alternative disposal and reuse options. In addition, the strategy shall incorporate ongoing planning efforts, including remedial action planning, dredged material management planning, harbor and waterfront development planning, and watershed management planning.

7. Preliminary Financial Analysis

The potential non-Federal sponsor(s) for the feasibility study have been identified as the Port of Los Angeles, City of Long Beach, Port of Long Beach, and County of Los Angeles, California. The non-Federal sponsors will be required to provider 50 percent of the cost of the feasibility study. The non-Federal sponsors are also aware of the cost sharing requirements for potential project implementation. Letter of Intents from the non-Federal sponsor stating a willingness to pursue the feasibility study and to share in its cost, and an understanding of the cost sharing that is required for project construction is included in **Appendix B**.

8. Feasibility Phase Milestones

Milestone	Description	Duration (mo)	Cumulative (mo)
Milestone F1	Initiate Study	0	0
Milestone F2	Public Workshop/Scoping	2	2
Milestone F3	Feasibility Scoping Meeting	9	11
Milestone F4	Alternative Review Conference	8	19
Milestone F4A	Alternative Formulation Briefing	4	23
Milestone F5	Draft Feasibility Report	2	25
Milestone F6	Final Public Meeting	1	26
Milestone F7	Feasibility Review Conference	1	27
Milestone F8	Final Report to SPD	2	29
Milestone F9	DE's Public Notice	1	30
-	Chief's Report	3	33
-	Project Authorization	3	36

9. Feasibility Study Cost Estimate

WBS#	Description	Cost
JAA00	Feas – Surveys and Mapping except Real Estate	$120,000
JAB00	Feas – Coastal Engineering Design and Analysis Studies/Report	$120,000
JAC00	Feas – Geotechnical Field Investigation Studies/Report	$100,000
JAE00	Feas – Engineering and Design Analysis Report	$60,000
JB000	Feas – Socioeconomic Studies	$120,000
JC000	Feas – Real Estate Analysis/Report	$80,000
JD000	Feas – Environmental Studies/Report (Except USF&WL)	$220,000
JE000	Feas – Fish and Wildlife Coordination Act Report	$40,000
JF000	Feas – HTRW Studies/Report	$10,000
JG000	Feas – Cultural Resources Studies/Report	$50,000
JH000	Feas – Cost Estimates	$50,000
JI000	Feas – Public Involvement Documents	$90,000
JJ000	Feas – Plan Formulation and Evaluation	$180,000
JL000	Feas – Final Report Documentation	$85,000
JLD00	Feas – Technical Review Documents	$85,000
JM000	Feas – Washington Level Report Approval (Review Support)	$50,000
JPA00	Project Management and Budget Documents	$80,000
JPB00	Supervision and Administration*	$160,000
JPC00	Contingencies	$240,000
L0000	Project Management Plan (PMP)	$50,000
Q0000	PED Cost Sharing Agreement	$30,000
Total		$2,000,000

Note: * cost is incorporated into other items at 6 percent of all work efforts.

10. Views of Other Resource Agencies

Because of the funding and time constraints of the reconnaissance phase, only limited and informal coordination has been conducted with other resource agencies. Views that have been expressed are as follows:

A) Aquatic capping of contaminated dredged sediments within the marine environment has yet to be proven as a safe means to isolate and contain the pollutants from the marine environment. A pilot project with an extensive monitoring component ought be implemented prior to final regulatory acceptance of this alternative.

B) There are other promising technologies currently available that may provide a way to manage the disposal of contaminated dredged sediments. These technologies should be demonstrated in the field prior to accepting or discarding them as viable disposal management alternatives.

C) Typically end users (Ports & Harbors) are responsible for the cost to dispose contaminated marine sediments at suitable disposal sites. However, the source of pollutants may not be a result of Port & Harbor operations, but may result from urban runoff. Regulatory bodies need to recognize the overall responsibility of pollutant sources, and develop programs to reduce contaminant loading into Port & Harbor facilities.

D) There is a need to continue with contaminated sediments dredging and disposal during the feasibility phase of this study. The on-going efforts of this study should not preclude the planning and implementation of these near-term projects.

E) The Los Angeles Basin Contaminated Sediments Task Force is in the process of developing a long-term contaminated material management strategy. The Task Force will rely heavily on the feasibility study to analyze and propose management strategies. The timeline of the feasibility study may lag behind the time line of the Task Force's strategy development program, which may impact the results to the Task Force's proposed strategy and completion date.

F) Dredging and disposal practices for the purpose of minimizing impacts to the surrounding marine environment are inconsistent amongst past and proposed projects. Local standardization of Best Management Practices is needed prior to the formal adoption of a regional dredged material management plan.

11. Potential Issues Affecting Initiation of Feasibility Phase

Cost-sharing of the study into the cost-shared feasibility phase is contingent upon an executed Feasibility Cost Sharing Agreement (FCSA). Additionally, it is anticipated that there will be multiple non-Federal signatory parties (maximum of four) on the FCSA. The feasibility study will rely on field data generated by four pilot projects. A description of each pilot project is summarized below. The pilot projects are to be implemented under the Corps' Operations and Maintenance (O&M) Program in FY2001, with the final scope of each project dependent upon the availability of O&M funds.

A) **Pilot Project Alternative 1 – Aquatic Capping**: A total of approximately 125,000 m^3 of contaminated sediments will be dredged from the Source Site for use as the Source Material for the Project. A total of approximately 100,000 m^3 of clean sediments will be dredged from the Borrow Site for use as the Capping Material for the Project. After the mound is completed, clean capping material from the Borrow Site will be transported to the Project Site via bottom dumping scow. The placement of material will be slower than placement of the contaminated materials because it must placed in a uniform layer and minimize resuspension of the contaminated mound. A preliminary cost estimate for the core components of the pilot project is $1,250,000, depending on the distance between Source, Borrow and Capping Material Sites. This estimate does not include costs for monitoring.

B) **Pilot Project Alternative 2 – Stabilization:** A total of approximately 1,200 m^3 of contaminated sediments will be dredged from the Source Site for use as the Source Material for the Project. This pilot-scale volume accommodates a balance between the need for an adequate amount of material to produce reliable pilot-scale data, and the need to lessen the burdens of material handling, staging and eventual disposal. The dredging equipment will be mobilized to the Source Site to dredge the Source Material. A total of 1,200m^3 of the Source Material will be dredged, with approximately 400m^3 placed in each barge and 200m^3 in each batch compartment, and barged to the Project Site. A preliminary cost estimate for the core components of the pilot project is $1,070,000. The cost of treatability tests is not included.

C) **Pilot Project Alternative 3 – Blending:** Contaminated sediment samples will be taken from the Source Site for use as the Source Material for the bench-scale project. Various blending ratios will be determined under treatability testing. A preliminary cost estimate for the bench-scale testing will vary depending on the amount of samples and different blending ratios tested.

A) **Pilot Project Alternative 4 – Washing:** A total of approximately 800m^3 of contaminated sediments will be dredged from the Source Site for use as the Source Material for the Project. This pilot-scale volume accommodates a balance between the need for an adequate amount of material to produce reliable pilot-scale data, and the need to lessen the burdens of material handling, staging and eventual disposal. The dredging equipment consisting of a clamshell dredge and two barges (Barges 1 and 2) with tugboats will be mobilized to the Source Site to dredge the Source Material. An empty Barge 3 will be mobilized to, and docked at, the treated

material loading section of the Project Site. A total of 800m^3 of the Source Material will be dredged and placed, approximately 400m^3 each, in Barges 1 and 2 for transport to the Project Site. The dredged material will undergo natural dewatering en route. Upon arrival at the Project Site, the barge will be tugged in place at the preprocessing section of the dock for in-barge preprocessing. A preliminary cost estimate for the core components of this pilot project is $1,115,000. The cost of treatability tests is not included.

12. Project Area Map

The project area map is presented in the enclosed figure (Figure 1).

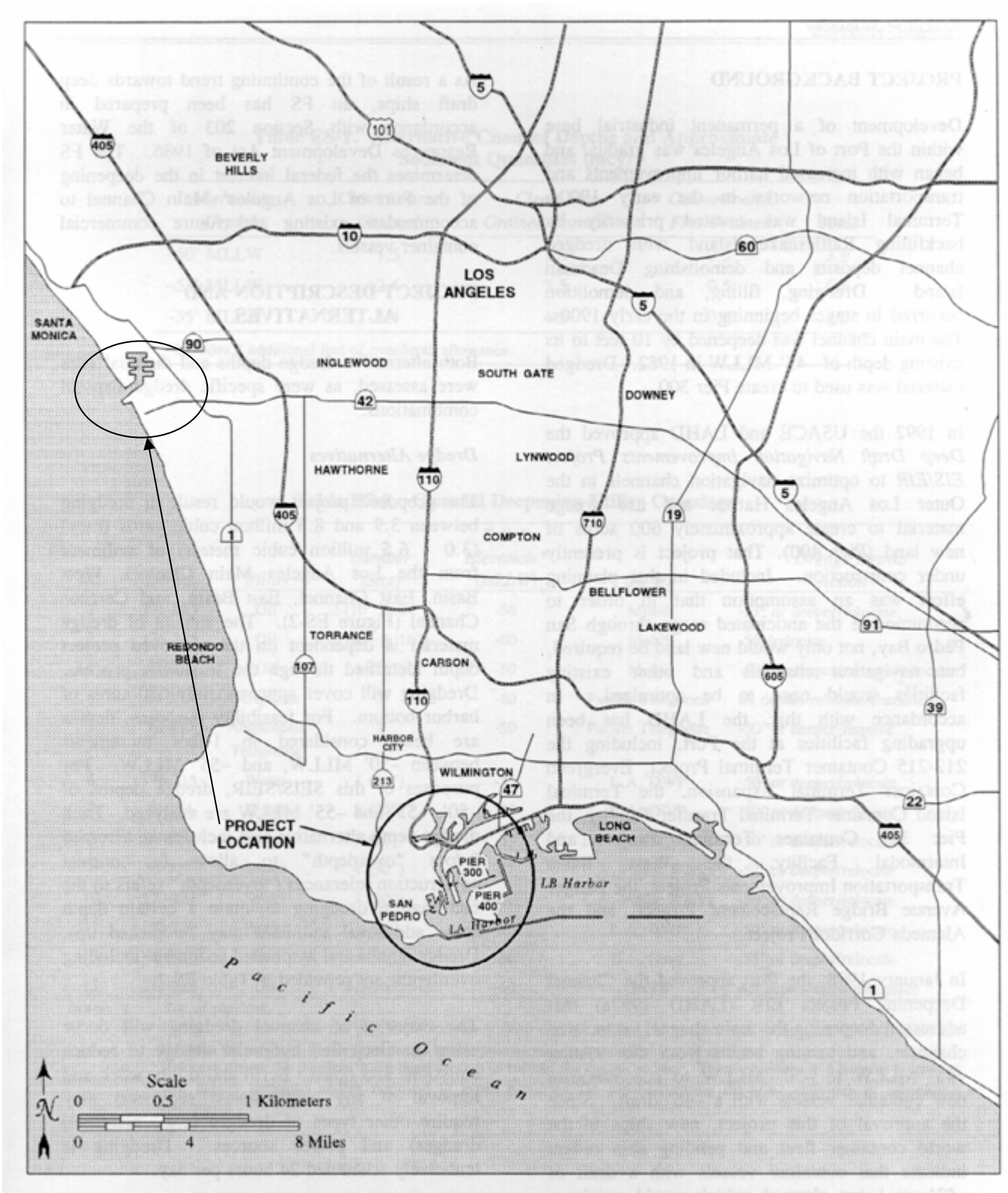
13. Recommendations

The recommendation resulting from the reconnaissance level investigations is that the Los Angeles District proceed with a cost-shared Feasibility Study of Los Angeles County Regional Dredged Material Management Plan

//s//

Date: 8 Sep 00

John P. Carroll
Colonel, Corps of Engineers
District Engineer



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LOS ANGELES COUNTY REGIONAL DREDGED MATERIAL MANAGEMENT PLAN	Project Location Map	Figure 1