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# F10a

**CC-0005-25**

**(Linda Isle Community Association)**

**October 10, 2025**

## **APPENDICES**

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**Appendix B** – Endangered Species Act and Essential Fish Habitat Assessment

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**Appendix D** – Comprehensive Management Plan

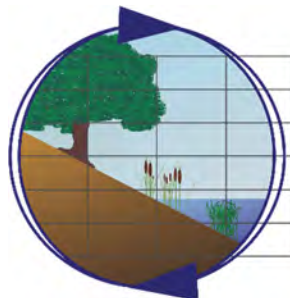
**Appendix E** – Oil Spill Prevention and Response Plan

**Federal Consistency Certification  
Linda Isle Lagoon Maintenance Dredging  
With Sediment Disposal at LA-3 Ocean Dredged Material Disposal Site**

**Newport Beach, Orange County, California**

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Linda Isle Lagoon Eelgrass Comprehensive Management Plan

**FEDERAL CONSISTENCY CERTIFICATION  
LINDA ISLE LAGOON MAINTENANCE DREDGING  
Newport Beach, Orange County, California**

**BACKGROUND**

The Linda Isle Community Association has a small man-made recreational boat basin (Linda Isle Lagoon) within a constructed island that supports residential development within lower Newport Bay. Linda Isle and Linda Isle Lagoon were constructed in 1962 by the Irvine Company to serve as a recreational navigation basin and berthing area as an element of the upland development. The lagoon is surrounded by private docks built out to the pierhead line and vessels navigate from these docks to the main lagoon through the lagoon and out a narrow west facing channel that ties into the main channel connecting upper Newport Bay with Lower Newport Bay. Over time, the Linda Isle Lagoon has silted in as in need of maintenance dredging.

The Linda Isle Community Association proposes to conduct maintenance dredging to remove up to 45,000 cubic yards of sediment. The dredging would occur within waters of the access channel and central lagoon area not covered by the City of Newport Beach Regional General Permit 54. The dredged material is fine sediment and would be disposed of at the designated LA-3 Ocean Dredged Material Disposal Site. Material is all expected to be suitable for ocean disposal based on testing conducted for RGP-54 projects which identifies all RGP 54 dredge areas to be suitable to -8 feet MLLW plus 2 feet of overdepth (-10 feet) in the lagoon and -10 plus 2 feet of overdepth in the channel (-12 feet) for unrestricted disposal at the LA-3 ODMDS. Dredging would be conducted by clamshell dredge to scows and then sediment would be transported to LA-3 for disposal. The project proposes excavation of areas needed for navigation by vessels berthed in the lagoon, while retaining a central core eelgrass conservation/management area within the lagoon, thus the full extent of the original navigation basin would not be dredged. This conservation/management area is not proposed to be dredged during the present permit cycle and is intended to be maintained long-term as a subtidal eelgrass bed accommodating surface shallow draft recreational uses. To this end, future dredging would be accommodated to lower the conservation/management area if more than 50 percent of the site rises above -3 feet MLLW or more than 20 percent of the site rises above -2 feet MLLW. At which time the area could be dredged to a maximum depth of -6 feet MLLW and replanted with eelgrass to ensure continued presence of subtidal eelgrass in this conservation/management area. It is anticipated that the frequency of such management dredging needs would be between 15 and 30-year cycles. Maintenance of the deeper navigation areas around this conservation core will slow the rate of sediment accretion and would favor longer durations between management dredging in this area. Future management dredging within the eelgrass conservation area is not proposed under the present dredging program.

Linda Isle Community Association has pursued maintenance dredging of the lagoon since at least 1998 but has not been able to develop a viable solution to mitigate eelgrass impacts associated with the dredging due to expansion of eelgrass across the lagoon floor. Through the years, there have been many efforts to address this need and the Association has met multiple times with resource and regulatory agencies to seek a means to complete the needed maintenance dredging. However, the City's Regional General Permit 54 covers the boat slips out to the pierhead line, but not the lagoon proper and thus vessel berthing may be maintained by dredging, but to date, it has not been possible for the Association to complete the dredging within the broader lagoon.

## EXISTING CONDITIONS

Eelgrass surveys were conducted in March 2021 within the Linda Isle Lagoon and it was determined that the lagoon supported 4.41 acres of eelgrass within the survey area, of which, approximately 3.88 acres was mapped outside of the pierhead line within the project area (Figure 1), with the remainder occurring in areas that are subject to the provisions of the eelgrass comprehensive management plan (CMP) under Regional General Permit (RGP) 54.

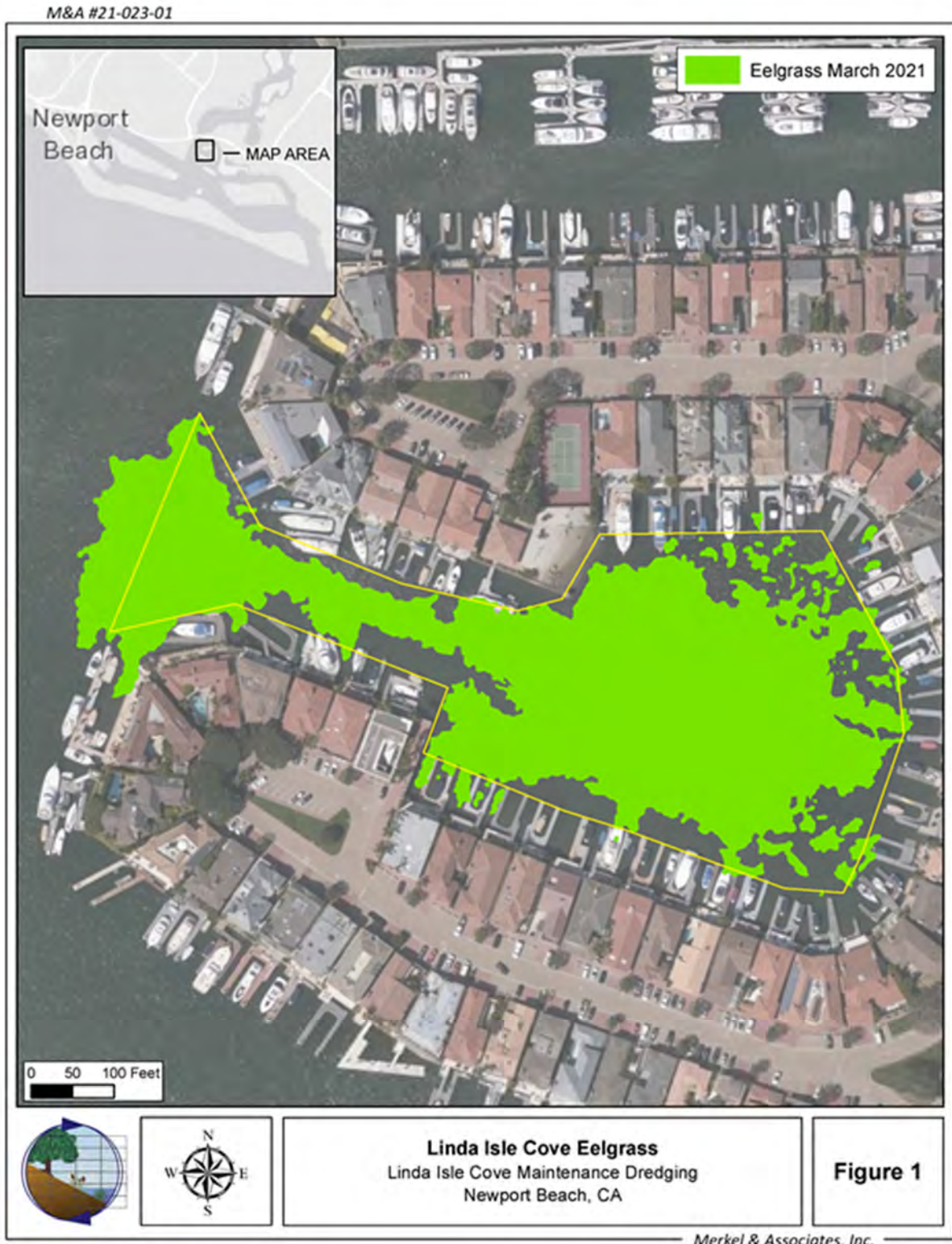
The survey also detected considerable eelgrass damage occurring as sediment accretion raises the lagoon floor to elevations where eelgrass and vessels are in direct conflict and vessel keel drags and propeller wash has damaged the beds. The loss of eelgrass is expected to expand in the future as the bay floor continues to rise within areas of active vessel navigation. This damage is evident within the interferometric sidescan sonar mosaic of the site (Figure 2).

Full dredging of the lagoon for navigation would result in impacts to all 3.88 acres of eelgrass. To date potential options for in-kind mitigation have not been identified. In past discussions with resource and regulatory agencies efforts have been made to develop solutions that would reduce impacts or provide alternative mitigation options. However, no suitable options were identified. Those considered but rejected included shallower dredging than design to support eelgrass on the lagoon floor, conserving the core of the lagoon for eelgrass, and mitigating impacts out of kind (e.g., native oysters, offshore reefs). Shallower dredging would not accommodate the vessel keel depths while still allowing persistence of eelgrass due to incompatible depths to achieve both purposes.

Previously, National Marine Fisheries has suggested a means of reducing the footprint of eelgrass habitat impact by retaining a portion of the eelgrass beds within the lagoon and only dredging that necessary to maintain the navigational needs between dock berths and the nearby navigation channel. However, such a proposal would be expected to eventually result in the loss of other, shallow water navigation and recreational uses provided by the broader lagoon as the bottom within the conserved core rises into intertidal elevations. To address this, the Linda Isle Community Association has proposed that the conservation core be designated as a management area to maintain subtidal eelgrass habitat with management triggers to maintain the subtidal nature of the site at elevations that support eelgrass. The management triggers would allow dredging of the eelgrass conservation core when greater than 50 percent of the site rises above -3 feet MLLW or greater than 20 percent of the site rises above -2 feet MLLW. At which time, the Association would be able to apply for a permit to dredge the area down to an elevation no deeper than -6 feet MLLW with replanting of the area to support eelgrass. The frequency of this dredging is estimated to be approximately 15-30 years apart. While this conservation management dredging is not part of the present dredging project and would be subject to future permitting processes, should it be required, it is important as an impact minimization measure that retains water uses of the lagoon.

The proposed maintenance dredging project is illustrated in Figure 3 (full plans are in Appendix 1) and includes dredging of a navigational area extending approximately 100 feet out from the pierhead line and extending down the lagoon access channel to the main navigation channel to the west of Linda Isle. The design depth is -8 to -10 feet and the proposed dredging would be to this depth with a 2 foot over depth allowance to -10 to -12 feet MLLW. The work would remove up to 39,072 cubic yards of soft sediment by clamshell dredging. Sediment would be transported by scow to LA-3 ODMDS for disposal.

Figure 1 Linda Isle Cove Eelgrass.





**Figure 2. Interferometric sidescan sonar mosaic of Linda Isle Lagoon, March 2021**

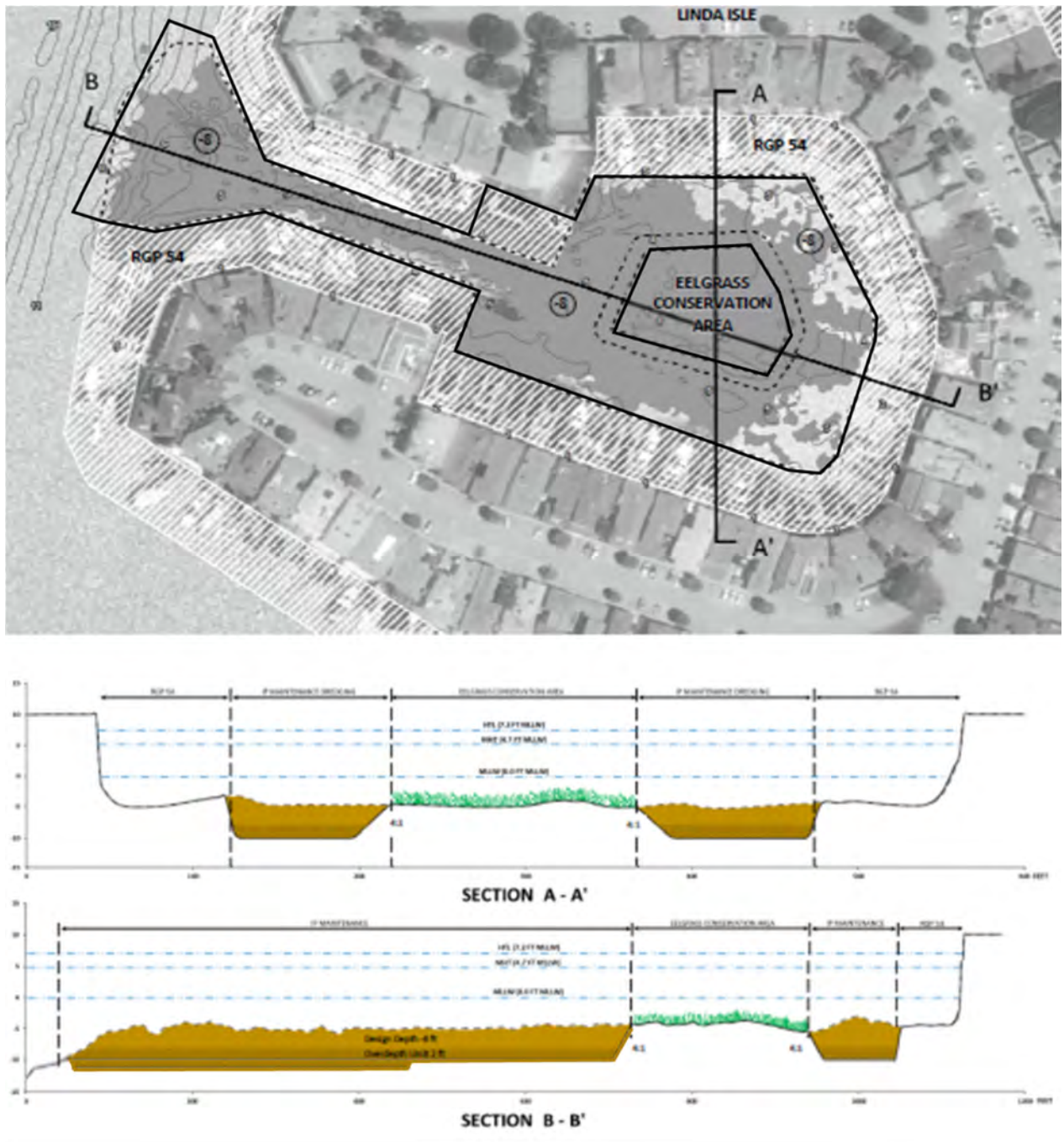


Figure 3. Proposed Linda Isle Lagoon Dredging Plan

## EELGRASS IMPACT MITIGATION

The proposed project incorporating the eelgrass conservation area would impact 3.17 acres of eelgrass habitat and conserve 0.71 acres on-site within the conservation management area. To mitigate the residual eelgrass impacts, out-of-kind mitigation is to be provided through a Comprehensive Management Plan under the California Eelgrass Mitigation Plan (CEMP, NMFS 2014). The proposed mitigation includes the subtidal eelgrass conservation component within the core of Linda Isle Lagoon, as well as an in-lieu contribution of \$749,785 to the *Caulerpa prolifera* eradication program underway within Newport Bay (Appendix 2). The CMP provides a broad degree of flexibility in achieving the conservation objectives for eelgrass in alignment of the overall goals of the CEMP. To this end, it is necessary to evaluate how a proposal would contribute to eelgrass conservation and weigh it against how such a proposed would meet or exceed the value of in-kind mitigation as outlined as a standard mitigation approach under the CEMP. The maintenance of the core eelgrass habitat coupled with the maintenance dredging of the deeper navigation areas provides a protected area that would not be subject to increasing grounding of vessels losses of eelgrass as shoaling continues. This provides a means of maintaining predictable benefit of eelgrass habitat within the lagoon. The loss of eelgrass would be offset by the participation in eradication of *Caulerpa prolifera*, a species demonstrated capable of displacing eelgrass from the bay bottom by overgrowing and smothering the eelgrass. Justification for this mitigation approach is provided below and within the adopted CMP.

- **Mitigation Proposal Justification**

Linda Isle Community Association has been pursuing maintenance dredging of the interior navigable lagoon since at least 1998 but has not been able to identify an eelgrass mitigation opportunity, working in conjunction with resource and regulatory agencies and environmental consultants over this period. This is due to limited opportunity for in-kind mitigation. In 2021, a *Caulerpa prolifera* infestation was identified in Newport Bay.

With the discovery of *Caulerpa* in Newport Bay, effort for eradication have commenced, however funding is very limited, and the effort required to achieve successful eradication is not yet fully funded. Further, much of the funding received through governmental agencies is allocated for specific actions and thus is not as flexible in its use as would be desired considering the fluid nature of eradication efforts and the need for the program to be responsive to new information as it is developed. For this reason, the Southern California *Caulerpa* Action Team (SCCAT), a multi-agency consortium assembled to eradicate *Caulerpa*, discussed the potential of using funds provided by Linda Isle Community Association to support the eradication efforts within Newport Bay, in lieu of completing an in-kind eelgrass mitigation to offset dredging impacts.

The mitigation program would be conducted under a comprehensive management plan (CMP) alternative to the in-kind regimented structure of the CEMP standard mitigation structure. The logic to this proposal is as follows:

- 1) There are not any identified opportunities to complete eelgrass restoration within Newport Bay at the scale required to offset impacts to eelgrass from the maintenance dredging within Linda Isle Lagoon. Such mitigation would likely require raising the bayfloor within shallows to the south of Balboa Island. This area is regularly used for deep keel sail boats and thus there is a potential navigational conflict in raising grades. Planting within unmanipulated sites was

performed by the Corps and City/County within this same region of the bay and success was mixed with only about a quarter of the initial planting being successful within the areas of the bay selected as most desirable for eelgrass restoration without site manipulation. As such, in-kind mitigation is not considered to be highly viable for the project.

- 2) The project proposes to minimize impacts by retain 18% of the eelgrass on-site within a subtidal eelgrass plateau as a conservation/management area within the lagoon. This is a new designation for conservation within an area designed and constructed for mid-draft navigation purposes and the retention would effectively restrict deeper draft vessel traffic to areas outside of the central core of the lagoon while retaining shallow draft recreational uses throughout the lagoon as a balance of recreational and environmental functions. The present dredging permit does not include any dredging within this core area, but rather outlines the intent for future action to maintain subtidal eelgrass habitat in the core. This would allow management dredging and replanting of the conservation/management area should elevations of more than 50 percent of the area rise above -3 feet MLLW, however the excavation would be limited to lowering the site to a depth of -6 feet MLLW, a depth suited to dense eelgrass development, and the site is replanted with eelgrass following dredging. This triggered management action would sustain eelgrass within the area long-term at what is expected to be very low frequency dredging (15 to 30-year cycles) while also maintaining the recreational boating functions in the lagoon. When coupled with the maintenance dredging of the deeper navigation ring around the core and access channel, the actions would be expected to maintain protected eelgrass while deconflicting the navigation and eelgrass that is increasingly resulting in damage to eelgrass beds due to bottom scraping and propeller wash.
- 3) The current *Caulerpa prolifera* infestation in Newport Bay is the greatest non-regulated threat to eelgrass habitat in Newport Bay and potentially coast wide. It also has potential to damage many other native habitats including eelgrass beds, if not effectively eradicated. This invasive species has demonstrated its capacity to overrun eelgrass within the bay at locations within China Cove and Collins Isle in a manner comparable to that of its congener, *C. taxifolia* was demonstrated to do the same within Agua Hedionda Lagoon and Huntington Harbour where that species was eradicated between 2000 and 2008. The risk to the natural resources of Newport Bay have been recognized by all the resource and regulatory agencies with focus on marine resources in California as demonstrated by commitment of staff time, funding, and in lieu resources to the Southern California *Caulerpa* Action Team (SCCAT) efforts to eradicate the infestation. Notably, the same agencies committing resources to the eradication to protect marine resources have not generally committed as much resource to restoration or expansion of eelgrass habitat. This is not to say that the agencies are not interested in expansion of eelgrass but rather that the eradication of the invasive *Caulerpa* is recognized to be, at least, of equal or greater concern than eelgrass as it comes to protecting and promoting the health of Newport Bay. As a footnote, much of the eelgrass impact can be addressed by available regulatory tools, while *Caulerpa* spread cannot. This does explain the agency commitment to the *Caulerpa* eradication efforts. However, the intent is to note the high value of eradication to ensure the overall welfare of the bay, including eelgrass resources.
- 4) Finally, there is an urgent and critical need for funding to implement remaining *Caulerpa* eradication actions to be successful. To date, *Caulerpa* continues to be found, within Newport Bay. However, demonstrable effectiveness in the eradication efforts thus far can be seen

within China Cove, where *Caulerpa* has been effectively eliminated through SCCAT eradication program actions. A second loci was found 2.5 kilometers away from this location at Collins Isle and a third location was found even further into the bay.

- 5) Government agency funding for initial response was derived from the State Water Resources Control Board, National Marine Fisheries Service, U.S. Fish & Wildlife Service, and California Department of Food and Agriculture, and City of Newport Beach. In addition, eelgrass mitigation has been conducted on two projects through actions that incorporated funding of *Caulerpa* eradication activities directed by the SCCAT. The last funding for response to the Newport Bay infestation is nearing depletion with less than 25 percent of the bay having been examined at any survey intensity. Army Corps of Engineer funds allocated to federal projects will extend survey areas but remain a limited overall coverage in the bay. Finally, CDFW commitment of staff for surveys is necessarily limited in scale and opportunistic in nature due to logistical constraints of drawing staff from other mandated activities. In addition to the diminishing resources for eradication, there are also several constraints on use of available funding that limit application of resources in a necessarily fluid manner to respond to immediate eradication needs and secondary elements of the eradication work such as outreach, science, and documentation of the program.
- 6) Having a discretionary fund available to the SCCAT to respond as needed to implement the eradication actions is believed to be a key component to success of the eradication efforts. In the prior eradication of *Caulerpa taxifolia* by the SCCAT, this need was met by two means. First, a much greater amount of federal and state funding was committed to the effort from the onset and second, private funding was provided as mortar in the program by Cabrillo Power, LLC an entity with a direct interest in the health of Agua Hedionda Lagoon. The *Caulerpa* spread, and subsequent treatment for eradication impacted a large portion of the eelgrass mitigation completed by Cabrillo Power, LLC within Snug Harbor at Agua Hedionda Lagoon. As a result of the infestation and treatment impacts, Cabrillo Power was released from the requirements for success of the eelgrass restoration (the restoration needs were ultimately met, but not by obligation, rather post-eradication recovery of the sites that were initially engineered to support eelgrass).
- 7) The question exists as to what the appropriate scale of financial commitment is for this proposal. To address this, resource and regulatory agencies have sought a commitment that is equal to that required to satisfy the mitigation need for the Linda Isle Lagoon dredging, should the mitigation be conducted in the form of eelgrass mitigation. In other words, if an eelgrass mitigation opportunity were available to Linda Isle, what would the cost of the mitigation implementation and monitoring be? This is the amount proposed as an in-lieu commitment to the *Caulerpa* eradication effort.
- 8) Finally, it should be recognized that the present infestation within Newport Bay by *Caulerpa* poses a unique circumstance wherein allocation of fiscal resources to the eradication effort can provide an equal or greater benefit to the system as a whole, including eelgrass conservation than the area of eelgrass that may otherwise be generated.

- **Eelgrass Comprehensive Management Plan Package**

Based on agency coordination led by NMFS, a Comprehensive Management Plan under the CEMP was developed for the Linda Isle Lagoon maintenance dredging (Appendix 2). The CMP for the Linda Isle Lagoon Maintenance Dredging Project is summarized as follows:

- 1) Linda Isle would mitigate approximately 3.17 acres of eelgrass (area of eelgrass in a 100-foot-wide perimeter ring extending from the pierhead line outward towards the center of the lagoon as well as the access into the lagoon through the fiscal participation in the eradication program by contributing \$749,785.
- 2) The central core of the lagoon will be maintained as a subtidal eelgrass conservation site. This area totals 0.71 acre, not counting slopes to the dredge area floor, a portion of which may support eelgrass after dredging is completed.
- 3) The subtidal eelgrass conservation area is not proposed to be dredged at the present time but would be subject to elevation-based triggered opportunity to sustain the core area at a subtidal elevation suited to supporting eelgrass. Should sediment accretion occur to a level that more than 50% of the conservation area rises above a -3 ft MLLW, or more than 20% rises above -2 ft MLLW, then maintenance dredging may be conducted to lower the elevation to a depth of not lower than -6 ft MLLW. The lowered site would be smoothed and planted with eelgrass to sustain eelgrass in the conservation area. This will be considered a habitat maintenance action and subject to 1.2:1 replacement ratio in place. It is expected that this may occur on a recurrent cycle of 15-30 years, provided the navigation areas are maintained around the lagoon perimeter.
- 4) Areas within the RGP 54 plan area boundary are independent of the Linda Isle CMP mitigation in this proposal and would remain subject to terms and permitting under RGP 54. However, in dredging the lagoon core, incidental sediment spill may occur into deeper berthing areas and shallow grades may slump due to the deeper navigational basin dredging. Clean-up of the transition boundary may be completed as part of the work, however no deepening is to occur and any eelgrass impacts are to be considered as part of the authorized total impact of approximately 3.17 acres.
- 5) The Linda Isle Community Association will transfer funds of \$749,785 to an escrow account prior to commencement of dredging activities. The funds will be drawn against using an accounting ledger that will track expenditures under this plan and the SCCAT Steering Committee will provide oversight over the expenditure of funds following tracking methods established for the mitigation funds provided for the Balboa Marina West Expansion Project.

## PROJECT SCHEDULE

The proposed maintenance dredging work would commence in fall 2025 and would require approximately 105 days to complete the dredging.

## FEDERAL CONSISTENCY REQUIREMENTS

The maintenance dredging and transport of sediment and transport of sediment to the federally designated LA-3 disposal site is exempt from permit under Section 30610(c) of the Coastal Act when authorized pursuant to an Army Corps of Engineers permit. None the less, CZMA consistency findings still apply. In accordance with the provisions of the Coastal Zone Management Act (CZMA), Section 307(c)(3)(A), and 15 CFR Part 930.57(a), this document has been prepared to support a consistency certification for this project in order to comply with the federal consistency requirements of the CZMA.

The project, as proposed, complies with the approved California Coastal Management Plan (CCMP) as described below, and will be conducted in a manner consistent with the program, and the enforceable policies of Chapter 3 of the California Coastal Act (California Public Resources Code Section 30210 et seq.)

- **Section 30240 Environmentally Sensitive Habitat Areas**

*Provides: (1) for the protection of Environmentally Sensitive Habitat Areas (ESHAs) against any significant disruption of habitat values; (2) that only uses dependent on ESHA resources shall be allowed within ESHAs; and (3) that development adjacent to "ESHAs and parks and recreation areas"... shall be sited and designed to prevent impacts which would significantly degrade those areas and shall be compatible with the continuance of those habitat and recreation areas.*

The site does not support ESHA and occurs within a highly urbanized portion of Newport Beach.

The project is consistent with Section 30240 of the Coastal Act in that no portion of the proposed project will encroach upon or disturb any ESHA.

- **Section 30233 Marine Environments**

*(1) Limits dredging and filling of wetland and open coastal waters to eight allowable uses; (2) requires that any proposal involving dredging or filling be the least environmentally damaging feasible alternative; and (3) provides for adequate mitigation to minimize adverse environmental effects.*

The project is consistent with the provisions of Section 30233 of the Coastal Act, as the maintenance dredging is to accommodate existing navigation uses within coastal waters in a previously constructed basin for recreational navigation uses. The proposed maintenance dredging would not alter the existing uses but rather would add a designated additional use to the lagoon basin of eelgrass conservation as part of the overall mitigation strategy while deconflicting navigation uses and eelgrass conservation. In addition, eelgrass losses would be offset by contribution to *Caulerpa prolifera* eradication from the bay at an equitable rate equal to the cost of in-kind mitigation, if it were to be possible. The details of the mitigation have been developed in coordination with resource and regulatory agencies and are provided through a CMP under the CEMP as discussed above.

The project is consistent with Section 30233 of the Coastal Act due to the project being an allowable use, meeting the least environmentally damaging feasible solutions and providing appropriate mitigation for impacts in accordance with the California Eelgrass Mitigation Policy.

- **Section 30231 Water Quality**

*Protects water quality and the biological productivity and quality of coastal waters, streams, wetlands, estuaries, and lakes...minimizing adverse effects of wastewater discharges and entrainment, controlling runoff, preventing depletion of ground water supplies and substantial interference with surface water flow, encouraging wastewater reclamation, maintaining natural vegetation buffer areas that protect habitats, and minimizing alteration of natural streams.*

The project is expected to have short-term contained turbidity effects within the Linda Isle Lagoon due to maintenance dredging that would result in long-term improvements to water circulation and water quality by increasing tidal circulation capacity within the basin and providing for greater particulate settling potential within the deepened channels. Further, the maintenance dredging would reduce the incidence of vessel grounding and propeller wash resuspension of sediments due to navigation over increasingly shallow shoals. Water quality monitoring would be undertaken and best management practices implemented to ensure that turbidity levels remain controlled in accordance with standards applied by the Regional Water Quality Control Board.

The project is consistent with Section 30231 of the Coastal Act given the measures that will be implemented to reduce impacts to water quality resources and the overall net gain in water quality due to improvements in circulation and reduction of repetitive sediment resuspension.

- **Section 30210- 30213 Public Access and Recreation**

*Provides for the maximization and protection of public access and recreation opportunities. For the purposes of complying with the public access policies, the project is not considered "new development" because it is a maintenance activity for which the commission has previously determined, pursuant to Section 30610 of the Coastal Act, that a Coastal Development Permit will not be required. However, under the provisions of the Commission's Federal Consistency jurisdiction, the project and its associated facilities must be consistent with the enforceable policies of the CCMP, Chapter 3 of the California Coastal Act, California Public Resources Code Section 30210 et Seq.*

The Linda Isle Lagoon is a publicly accessible recreational waterbody within Newport Bay. The proposed maintenance dredging would not alter this use. Further, the integration of the subtidal eelgrass conservation/management area within the lagoon would not detract from recreational utility of the lagoon in that navigable uses could continue to occur over the conservation area and future provisions for maintenance dredging to maintain the subtidal nature of the site while sustaining eelgrass would ensure that the recreational utility to the general public is not degraded.

The project is consistent with Section 30210-30213 of the Coastal Act.

- **Section 30251 Scenic and Visual Qualities**

*Section 30251 of the Coastal Act protects scenic views and provides for the minimization of natural landform alteration.*

The proposed project is maintenance dredging and would not alter visible conditions on the landscape. Further, Linda Isle Lagoon does not have any identified scenic viewsheds.

The project is consistent with Section 30251 of the Coastal Act.

- **Section 30253 Development**

*Requires protection against geologic, flood, and fire hazard, assurance of stability and structural integrity, and prohibits the creation or contribution to erosion, geologic instability, or destruction of the site surrounding the area.*

The project is maintenance dredging within previously maintained basin areas and does not include any potential for development of geologic hazards or instability within the site or surrounding area. The dredging is further set back from upland areas due to separate maintenance

The project is consistent with Section 30253 of the Coastal Act.

- **Section 30610 Repair and Maintenance Activities**

*Section 30610 of the Coastal Act states that [N]otwithstanding any other provision of this division, no coastal development permit shall be required pursuant to this chapter for the following types of development and in the following areas:*

*Section 30610(c) states that [M]aintenance dredging of existing navigation channels or moving dredged material from those channels to a disposal area outside the coastal zone, pursuant to a permit from the United States Army Corps of Engineers.*

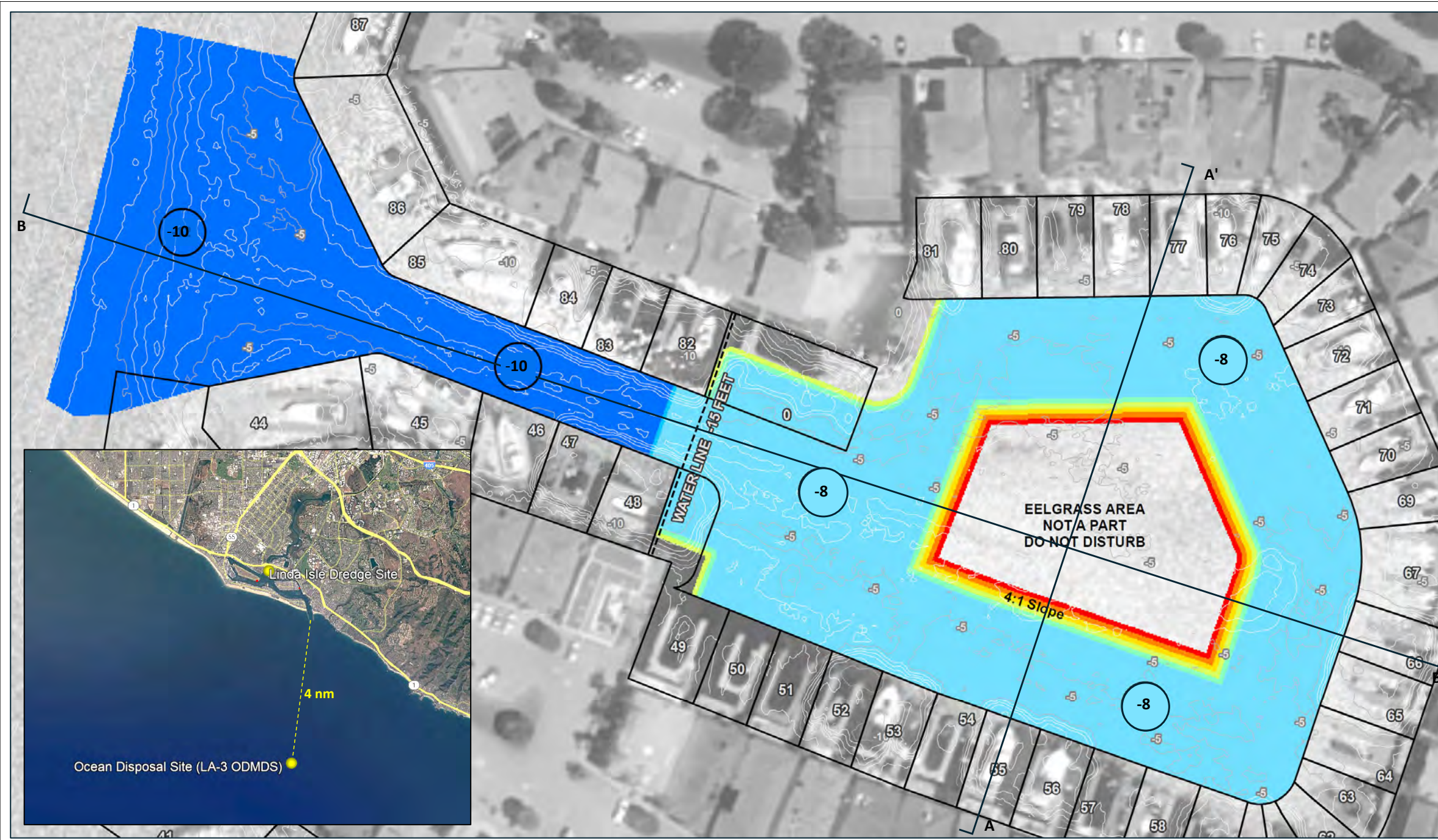
The navigation dredging proposed falls within this category of development authorized without a permit. However, provisions of the CZMA must be met.

**Appendix 1.**

**Linda Isle Lagoon Maintenance Dredge Plan**

**LINDA ISLE LAGOON MAINTENANCE DREDGING PROJECT**

**Paid Dredge Quantity:** 20,439 CY  
**2-Foot Paid Overdepth:** 12,121 CY  
**Accretion Allowance Contingency:** 6,512 CY  
**Maximum Total Dredge:** 39,072 CY  
**Storm Drain Outlets:** None to Lagoon  
**Disposal Site:** LA-3 ODMDS (33.519607°; -117.890295°)



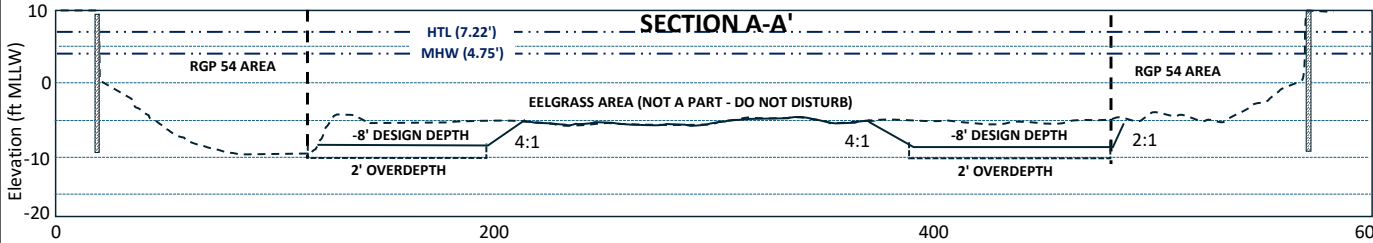
**Horizontal Datum:** California State Plane, Zone 5, North American Datum of 1983, U.S. Survey Feet.

**Vertical Datum:** Feet Mean Lower Low Water (ft MLLW)

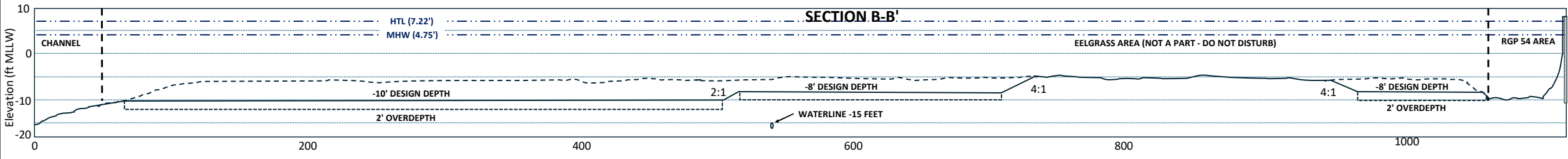
**Harmonic Tidal Controlling Station:** NOAA Station 9410660 Los Angeles, CA

**Assessor's Parcel Number (APN):** 050 461 01

**Data Sources:** Bathymetric survey data are derived from Woolpert multibeam sonar survey conducted May 31, 2023. Contours are in feet MLLW. Aerial imagery is derived from Google Earth 2023.



- EXISTING MUDLINE
- DESIGN DEPTH
- OVERDEPTH GRADE
- DESIGN ELEVATION (FT MLLW)
- EXISTING 5 FOOT CONTOURS
- EXISTING 1 FOOT CONTOURS



# Appendix B

## Expedited ESA & EFH Assessment for Consultation Linda Isle Lagoon Maintenance Dredging

August 20, 2025



Prepared for:

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# Expedited ESA & EFH Assessment for Consultation

## Linda Isle Lagoon Maintenance Dredging

August 20, 2025

### 1. Action Agency, Applicant, and Action Name

**Table 1** provides a summary of the action agency contact information, applicant contact, the action to be taken, and the consultation being sought.

**Table 1. Project Summary Information**

Project Summary Information	
<b>Federal Action Agency:</b>	U.S. Army Corps of Engineers (USACE), Los Angeles District, Regulatory Division, South Coast Branch, Orange and Riverside Counties Section 915 Wilshire Boulevard, Suite 1109 Los Angeles, California 90017 <b>Contact:</b> Geraldo Salas (Gerry) CIV USARMY CESPL (USA) Senior Project Manager, Environmental Engineer Office: 213-452-3417 Government Mobile: 213-321-0786 (Gerardo.Salas@usace.army.mil)
<b>Applicant/Permittee:</b>	Linda Isle Community Association (LICA) <b>Contact:</b> Merkel & Associates 5434 Ruffin Road, San Diego, CA 92123 Keith Merkel, Principal Ecologist (858) 560-5465 (kmerkel@merkelinc.com)
<b>Action Name:</b>	Linda Isle Maintenance Dredging with Ocean Disposal at LA-3 ODMDS
<b>Action Contemplated:</b>	Issuance of an SIP for maintenance dredging under Section 10 of the Rivers & Harbors Act of 1899, and Section 103 of the Marine Protection Research and Sanctuaries Act of 1972 for the transportation of dredged material for the purpose of dumping it into ODMDS.
<b>Action Area:</b>	Linda Isle Lagoon and access channel, Lower Newport Bay, City of Newport Beach, Orange County, California; disposal at LA-3 Ocean Dredged Material Disposal Site (LA-3 ODMDS) located approximately 4 nautical miles south of Newport Harbor in waters of approximately 1,600 feet depth, and the tug-scow transit corridor between Linda Isle and LA-3 ODMDS (approx. 33.519607° N, -117.890295° W).
<b>Consultation Type Requested:</b>	Informal, expedited consultation under ESA §7(a)(2); integrated EFH consultation under MSA §305(b).

## 2. Description of the Proposed Action

### 2.1. Project Details

**Table 2** summarizes the extent of dredging work, the area of activities, volume of sediment to be dredged, and the depth of dredging to be performed.

**Table 2. Project Description Summary**

Project Details			
<b>Purpose:</b>	Restore navigational depths within Linda Isle Lagoon and the narrow west-facing access channel while maintaining a central eelgrass conservation/management area.		
<b>Methods &amp; Equipment:</b>	Mechanical clamshell dredge to bottom-dump scows; transport and ocean disposal at LA-3 ODMDS ( <b>Figure 1</b> ).		
<b>Dredge Area</b>	5 acres excluding internal conservation area not proposed for dredging. ( <b>Figure 2, Appendix A</b> ).		
<b>Project Characteristics:</b>	Design Depth	Overdepth Allowance	Maximum Total Dredge (CY)
<ul style="list-style-type: none"> <li>Lagoon Dredge Depths (navigation areas outside conservation core)</li> </ul>	-8 ft MLLW	up to 2 ft (to -10 ft MLLW)	
<ul style="list-style-type: none"> <li>Access Channel Dredge Depths (western neck of lagoon)</li> </ul>	-10 ft MLLW	up to 2 ft (to -12 ft MLLW)	
Paid dredge quantity	—	—	20,439
Paid overdepth	—	—	12,121
Accretion allowance contingency	—	—	6,512

### 2.2. Action Area

The action area includes: (1) the dredge footprint in Linda Isle Lagoon and its access channel; (2) in-harbor tug/scow transit route to the harbor entrance; and (3) offshore tug/scow transit to and disposal at LA-3 ODMDS (approximately 4 miles south of the harbor) (**Figure 1**). The area of potential effects also includes the zone of influence for underwater noise (vessel and mechanical dredging only) and short-duration turbidity. These are anticipated to be limited to areas within the dredge area, along the transit route, and at the ODMDS.



Figure 1. Action Area for Linda Isle Maintenance Dredging

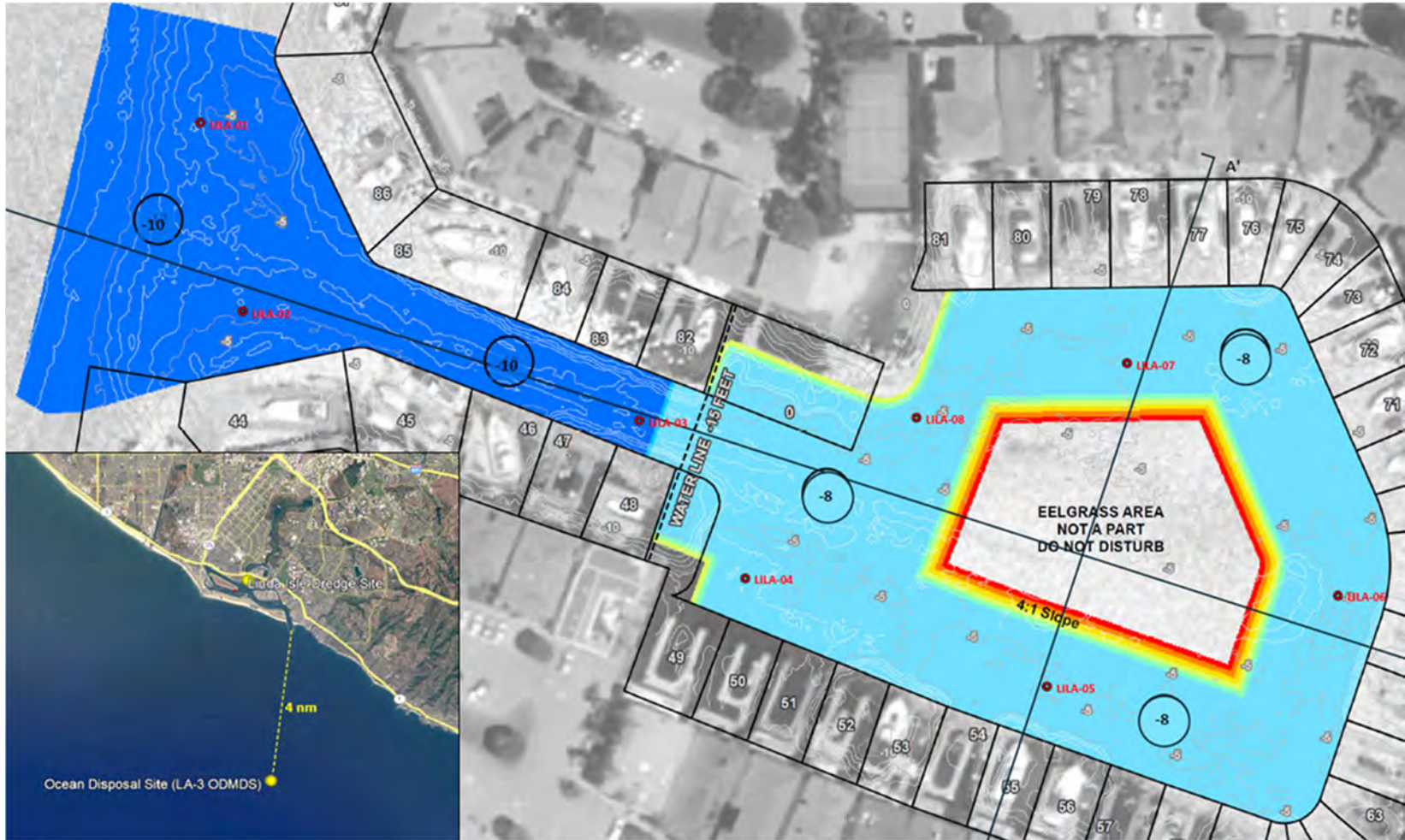


Figure 2. Dredge Plan

### 3. Project Conservation Commitments

The following conservation measures have been incorporated into the project design and are intended to support reduction of potential of environmental harm and to provide a basis for analysis of effects of the project.

- **Work Periods and Duration.** Daytime-only in-water dredging operations with dredge disposal and towing to LA-3 occurring day and night. Work is estimated to take approximately 100 calendar days to complete.
- **Contractor Vessel Speeds.** Vessel speeds will be limited to 10-kt maximum outside of the harbor for tugs towing scows to and from LA-3. In the bay, Contractor vessels shall be limited to 5-kt maximum. Speeds will be further reduced as needed for safety and upon encountering marine mammals or turtles in the area.
- **Environmental Awareness Training.** Environmental training will be given to all Contractor staff prior to commencing dredging activities. Training will include spill prevention and response, water quality management, site environmental best management practices (BMPs), and protected-species awareness & sighting response.
- **Marine Mammal and Turtle Monitoring:** A protected-species watchman will be provided by the Contractor for offshore towing and LA-3 disposal. This may be qualified Contractor staff that have received protected species awareness training. If any sea turtle or marine mammal is observed within the immediate dredging zone (20-m radius), the operations will be paused until the animal has voluntarily cleared the area or has submerged and not been sighted for a 15-minute period (turtles) or 5 minutes (marine mammals). The Contractor shall maintain continuous visual watch and suspend disposal/transit if marine mammals enter the immediate work area until clear (50-m radius). The Contractor will document all observations and responses.
- **Eelgrass Protections and Impact Mitigation:**
  - 1) California Eelgrass Mitigation Policy (CEMP, NMFS 2014)-compliant pre- and post-dredging eelgrass surveys will be completed to document dredging impacts are restricted to the authorized work areas.
  - 2) Eelgrass mitigation shall be conducted in accordance with the Linda Isle Lagoon Final Comprehensive Eelgrass Management Plan (Merkel & Associates, Nov 2023).
  - 3) Barges and other vessels shall avoid transit over any eelgrass meadow outside of the dredge area to the maximum extent practicable. Where transit over eelgrass beds is unavoidable, such transit shall only occur during high tides when grounding and potential damage to eelgrass can be avoided.
- **Caulerpa Controls.**
  - 1) Pre-dredging *Caulerpa* surveys will be conducted in accordance with the Caulerpa Control Protocol (CCP, NMFS Version 5 – October 20, 2021). Surveys shall follow requirements for work in Infested systems.
  - 2) If invasive algae (*Caulerpa* spp.) are found within the project area the occurrence shall be reported to the USACE, NMFS, the Regional Water Quality Control Board RWQCB), the

Executive Director of the California Coastal Commission (CCC), California Department of Fish & Wildlife (CDFW), the City of Newport Beach, and the Southern California Caulerpa Action Team (SCCAT) Steering Committee. Dredging or dispose of dredged material shall not proceed until a determination has been made by the USACE, in consultation with the other agencies and SCCAT, that dredging may proceed without risk of spread.

- **Turbidity & Water-Quality Controls.**

- 1) A turbidity curtain will be deployed to control turbidity drift along the outside of the dredge area.
- 2) Work will use an environmental dredge bucket to minimize spillage. Scows will not be overfilled to avoid spillage outside of the dredge area while being transported for sediment disposal.
- 3) Operational BMPs, such as reduction in dredging rate, modification of clamshell operation, use of favorable tidal conditions to minimize spread of turbidity plumes, and temporary suspension of dredging, shall be employed as necessary, should turbidity exceed water quality monitoring limits established by the RWQCB.
- 4) The Contractor shall ensure dredged material is not leaked or spilled from the disposal vessel(s) during transit to the ocean disposal site. The Contractor shall transport dredged material to the ocean disposal site only when weather and sea state conditions will not interfere with safe transportation and will not create risk of spillage, leak, or other loss of dredged material during transit. No disposal vessel trips shall be initiated when the National Weather Service has issued a gale warning for local waters during the time period necessary to complete disposal operations.

- **Spill Prevention & Debris Management.**

- 1) Implement fueling controls, deck housekeeping, and debris capture to avoid discharges.
- 2) Dispose of any recovered non-sediment debris at an authorized upland landfill.
- 3) All materials generated from construction activities associated with this project shall be managed appropriately. This shall include identifying all potential pollution sources associated with the project and incorporating all necessary pollution prevention BMPs for each potential pollution source identified.

#### 4. ESA-Listed Species and Critical Habitat (NMFS Jurisdiction)

The expedited consultation covers NMFS-managed marine species and habitats potentially present within Lower Newport Bay and the offshore transit corridors. Species include those covered under the Endangered Species Act (ESA), applicable fishery management plans under the Magnuson-Stevens Fishery Conservation and Management Act (MSA), and species under the Marine Mammal Protection Act (MMPA).

##### 4.1 ESA Species & Critical Habitat Considered

One sea turtle and six cetacean species occur within the proposed action area (Table 3). In addition, critical habitat has been proposed for the habitat of the green sea turtle (88 FR 46572; July 19, 2023) (Table 3). Of the ESA listed species, only the green sea turtle potentially occurs on an infrequent basis within the dredging area. The cetaceans, consisting of whales would be expected to be rarely, or infrequently encountered offshore during transits to, while discharging from scows within the LA-3 ODMDS.

Green sea turtles (East Pacific DPS) are herbivores that forage on algae and eelgrass and occur along the Southern California coast at low densities, with most regular aggregations historically tied to warmer embayments and thermal effluents (e.g., San Diego Bay, San Gabriel River). There are no nesting areas on the U.S. West Coast; individuals using regional waters are affiliated with breeding sites in Mexico. Recent observations indicate an expansion in coastal occurrences, though records within individual harbors remain infrequent. For the East Pacific DPS, NMFS's proposed marine critical habitat encompasses nearshore waters from the mean high water line to 20-m depth—features that occur off Newport Beach—supporting the expectation of occasional transient use by foraging turtles in and adjacent to Newport Bay. Green sea turtles are common within the San Gabriel River, waters of Seal Beach Wildlife Refuge within Anaheim Bay, and the Bolsa Chica wetland complex. They are less common, but occasionally detected within more urbanized embayments. NMFS's most recent Section 7 analysis for the Lower Newport Bay maintenance dredging noted that there has been no dedicated research on GST within Newport Bay, however there have been relatively few reported sightings/strandings (<10) within the bay over many years, and that it is likely that turtles are occasional foragers within the bay, likely from nearby resident aggregations. In addition, it was noted that nearshore waters between San Onofre and Newport Beach (including Newport Bay) were assessed as having moderate conservation value for the East Pacific DPS.

In the nearshore waters transited between the Newport Harbor Entrance and the LA-3 ODMDS, ESA-listed large whales that could occur seasonally include blue, fin, humpback, and the Western North Pacific gray whale (very rare). NMFS has previously advised considering these taxa for coastal construction transits analysis in Southern California. Other species are also occasional to rare in the area. A dead fin whale washed ashore in Anaheim Bay in the fall of 2019 and sei whales are occasionally seen off the Channel Islands and in the open waters of the San Pedro Channel. Sperm whales are generally found in offshore waters but a rare occurrence off Laguna Beach occurred in 2023.

**Table 3. Summary of Species and Critical Habitat Considered in this Analysis**

Species / CH (NMFS)	Federal Status	Presence in Action Area	Primary Exposure Pathways	Effect Determination
Green sea turtle ( <i>Chelonia mydas</i> ), East Pacific DPS	Threatened	Occasional/low within Lower Newport Bay; transient offshore. No terrestrial presence or beach nesting within region.	Vessel and dredge interaction risk, underwater noise (vessel only), turbidity/disturbance	May affect, not likely to adversely affect (NLAA). Considering dredging BMPs and vessel speed limitations
Proposed CH for East Pacific DPS green sea turtle	Proposed	Not designated within lagoon and nearshore; potential offshore features considered	Same as above; no measurable effect on essential features	NLAA (conference)
Blue whale ( <i>Balaenoptera musculus</i> )	Endangered	Low/seasonal offshore presence	Vessel interaction during offshore transit and sediment disposal at LA-3	NLAA Slow tug/scow speeds ( $\leq 10$ kt) and monitor render collision risk remote.
Fin whale ( <i>B. physalus</i> )	Endangered	Low/seasonal offshore presence	Vessel interaction during offshore transit and sediment disposal at LA-3	NLAA. Same as above
Sei whale ( <i>B. borealis</i> )	Endangered	Very low	Vessel interaction during offshore transit and sediment disposal at LA-3	NLAA. Same as above
Humpback whale ( <i>Megaptera novaeangliae</i> )	Endangered	Low/seasonal	Vessel interaction during offshore transit and sediment disposal at LA-3	NLAA. Same as above
Gray whale ( <i>Eschrichtius robustus</i> ) (WNP DPS)	Endangered	Very rare in Newport Bay entrance channel. Very rare and seasonal offshore.	Vessel interaction during offshore transit and sediment disposal at LA-3	NLAA. Same as above
Sperm whale ( <i>Physeter macrocephalus</i> )	Endangered	Very rare	Vessel interaction during offshore transit and sediment disposal at LA-3	NLAA. Same as above

Notes: Encounter potential is low to very low in the coastal/shelf corridor to LA-3. Non-impulsive project sound sources (tugs, scow operations, bottom-dump) are below levels associated with injury and are limited in duration/area; Level A/PTS is not expected; Level B harassment is discountable. Speed of operations and active monitoring would be expected to provide adequate capability to avoid vessel strike risk.

## 5. Effects of the Action – ESA

### 5.1 Action stressors and potential exposure

- (i) Vessel strike risk in confined waterways during tug/scow movements;
- (ii) Temporary, non-impulsive underwater noise/disturbance from mechanical clamshell operations, tugs, and support vessels;
- (iii) Localized turbidity/resuspension within the dredge footprint and during scow loading;
- (iv) Very low entrainment/entanglement risk given mechanical dredging methods (no suction intake) and the mobility of sea turtles.

### 5.2 Species occurrence and environmental context

GST occurrence in Lower Newport Bay is low; NMFS's recent Section 7 review for the harbor documents fewer than ten reports over many years, with individuals considered occasional foragers likely originating from nearby resident groups. Nearshore waters from San Onofre to Newport Beach (including the harbor mouth) were characterized as moderate conservation value for the East Pacific DPS. The Linda Isle Lagoon itself does not contain designated critical habitat; however, critical habitat is proposed for the East Pacific DPS to encompass nearshore waters from MHW to ~20 m depth along portions of the Southern California Bight, including the nearshore portions of the action area.

### 5.3 Avoidance and minimization measures integral to the action

- Daylight-only dredging operations (mechanical clamshell) to maximize detectability and avoidance.
- Scow transport may occur day or night; crews maintain protected-species watch consistent with conservation commitments.
- Speed management: ≤5 kt in-harbor for tug/scow movements; ≤10 kt offshore (the in-harbor limit supersedes the general towing limit within harbor waters).
- Sighting response: Trained spotters implement slow/hold and maintain separation distances upon any turtle or marine mammal observation; resume only after animals voluntarily clear.
- BMPs to limit turbidity and eliminate barge leakage.
- Spill/debris prevention and crew protected-species awareness briefings before in-water work.

### 5.4 Pathway-specific effects and conclusions

Vessel strike risk (harbor and offshore). GST and listed whales may occasionally pass through the transit corridor for dredged material management. Within the lagoon/access channel, movements are conducted in daylight at ≤5 kt. Offshore, tugs tow at slow speeds (≤10 kt maximum) with continuous watch during transits and within the LA-3 disposal site.

Given low encounter probability and low speeds with maneuvering room in open water there is extremely low collision risk to listed species.

Underwater noise and disturbance. Clamshell dredging and tug operations produce non-impulsive, intermittent, low-frequency sound. In the semi-enclosed lagoon, attenuation and propagation loss limit the area/time of elevated levels. Offshore, tug/scow tonal noise occurs along a narrow transit track with brief bottom-dump events at LA-3. For listed species, expected responses are limited to temporary avoidance; TTS/PTS is not expected and masking of biologically important cues is unlikely given the short duration, intermittent nature, and broad availability of undisturbed habitat (NMFS 2016, Matzner and Jones 2011, Galli et al 2003).

Turbidity and resuspension. Resuspension is localized and short-lived around the bucket during hoist and at the surface during scow loading. No overflow (except as authorized) and barge-leakage prevention minimize water-column exposure. Any behavioral avoidance by GST of localized plumes would be temporary; no adverse physiological effect or prey-base limitation is anticipated.

Entrainment/entanglement potential. Mechanical clamshell dredging lacks a suction intake and engages sediment in discrete bites, affording mobile fauna—including turtles—ample opportunity to avoid interaction. Scow hulls and bottom-dump doors are designed for rapid release of material at LA-3, with brief exposure; protected-species watch at the disposal site further reduces any chance of interaction. Entrainment/entanglement risk is extremely low.

**Proposed critical habitat (conference).** Presently, the Linda Isle Lagoon/access channel and nearshore portions of the transit corridor to LA-3 ODMS contain no designated critical habitat. Dredging is anticipated to have shore-term low potential to modify critical habitat by introducing additional vessel traffic and dredging. The project would alter depth contours within the Linda Isle Lagoon and access channel and would have localized and mitigated impacts to eelgrass within the inner portions of the bay. However these effects would not measurably alter essential features within the context of Newport Bay and the proposed critical habitat and the conservation measures to address green sea turtle will also address proposed critical habitat for the species. Conference conclusion: NLAA for proposed critical habitat.

### 5.5 Effects conclusion (ESA)

Based on the action description, environmental context, and incorporated avoidance/minimization measures, the project may affect but is not likely to adversely affect (NLAA) the East Pacific DPS green sea turtle (Table 3). The basis for NLAA includes: (1) low baseline occurrence of GST in the action area; (2) daylight-only dredging, with trained spotters and conservative speeds ( $\leq 5$  kt in-harbor;  $\leq 10$  kt offshore); (3) non-impulsive, intermittent sound sources of short duration; (4) localized, managed turbidity and no overflow policy; and (5) mechanical methods with negligible entrainment potential. For proposed critical habitat, effects are discountable and NLAA (conference). All other NMFS-listed species/CH: No Effect (see §4.1).

Based on the same considerations, the determination has been made that the proposed action may affect but is not likely to adversely affect (NLAA) listed whales that could occur within the transit corridor for sediment disposal (Table 3).

## 5.6 Take and reinitiation

**Take:** None requested or anticipated.

**Reinitiation:** Will occur if any trigger at 50 CFR 402.16 is met.

**Data standard:** This finding is based on the best scientific and commercial data available, consistent with ESA §7(a)(2) (16 U.S.C. §1536(a)(2)), the consultation regulations at 50 CFR §402.14(d), and §402.14(g)(8), including NMFS's most recent Lower Newport Bay analyses and current Federal Register notices for GST critical habitat (see §4 and §11).

## 6. Essential Fish Habitat (EFH) & HAPC

Under the provisions of the 1996 amendments to the Magnuson-Stevens Fishery Conservation and Management Act (Federal Register 1997), the amendments require the delineation of essential fish habitat (EFH) for all managed species. Federal action agencies which fund, permit, or carry out activities that may adversely impact EFH are required to consult with the National Marine Fisheries Service (NMFS) regarding the potential effects of their actions on EFH and respond in writing to the NMFS's recommendations.

EFH is defined as "those waters and substrates necessary to fish for spawning, breeding, feeding or growth to maturity" (16 United States Code [U.S.C.] 1802 (10)). NMFS further clarifies EFH with the following definitions:

- "Waters" include aquatic areas and their associated physical, chemical, and biological properties that are used by fish.
- "Substrate" includes sediment, hard bottom, structures underlying the waters, and associated biological communities.
- "Necessary" includes the managed species' contribution to a healthy ecosystem; and "spawning, breeding, feeding, or growth to maturity" covers a species' full life cycle (PFMC 2025).

### 6.1. Applicable Fisheries Management Plans

Essential fish habitat (has been designated over all tidal marine waters in southern California. The entire coastal area ranging from the mean high tide line to offshore depths represents EFH. Within the action area, three fishery management plans apply. These are the Pacific Groundfish and Coastal Pelagic fishery management plans (FMPs), and FMP for U.S. West Coast Highly Migratory Species.

NOAA's Essential Fish Habitat (EFH) Mapper (<https://www.habitat.noaa.gov/apps/efhmapper>) identified the harbor as EFH for all life stages for groundfish and coastal pelagic finfish, and krill (*Thysooessa spinifera*, *Euphausia pacifica*, and other krill species). The nearshore area is identified for all the life stages for the species management units listed above plus highly migratory species of common thresher shark and dorado.

The habitat designations associated with the relevant FMPs are defined below.

### **Pacific Groundfish FMP**

EFH for species in the Pacific Groundfish FMP (PFMC 2025), which applies to over 90 fish species (e.g., flatfish, rockfish, sharks) is identified as all waters and substrate within the following areas:

- Depths less than or equal to 3,500 meters (1,914 fathoms) to mean higher high water (MHHW);
- Water level (MHHW) or the upriver extent of saltwater intrusion, defined as upstream and landward to where ocean-derived salts measure less than 0.5 ppt during the period of average annual low flow;
- Seamounts in depths greater than 3,500 m as mapped in the EFH assessment GIS; and
- Areas designated as Habitat Areas of Particular Concern (HAPC) (e.g., seagrass, canopy kelp, estuaries, rocky reef).

### **Coastal Pelagic FMP**

EFH for species in the Coastal Pelagic FMP (PFMC 2024a), which applies to four fish species and two invertebrates (e.g., anchovy, sardine, Pacific mackerel, jack mackerel, market squid, and krill) is identified as all waters and substrate within the following areas:

- All marine and estuarine waters from the shoreline to the limits of the Exclusive Economic Zone (EEZ), which extends approximately 200 nautical miles offshore; and
- Water surface boundary, which is the water column between the thermoclines where temperatures range from 10 to 26 degrees Centigrade.
- HAPC has not been designated under the Coastal Pelagic FMP.

### **U.S. West Coast Highly Migratory Species FMP**

EFH under the Highly Migratory Species FMP is designated by species (PFMC 2024b). Within the action area, Highly Migratory Species EFH has been designated for the common thresher shark to include:

- Neonate/early juveniles (< 102 cm fork length [FL]): Epipelagic, neritic and oceanic waters off beaches, in shallow bays, in near surface waters from the U.S.-Mexico EEZ border north to off Santa Cruz (37° N. latitude) over bottom depths of 6 to 400 fm, particularly in water less than 100 fm deep and to a lesser extent further offshore between 200-300 fm.
- Late juveniles/subadults (> 101 cm FL and < 167 cm FL): Epipelagic, neritic and oceanic waters off beaches and open coast bays and offshore, in near-surface waters from the U.S.-Mexico EEZ border north to off Pigeon Point, California (37° 10' N. latitude) from the 6 fm to 1400 fm isobaths.
- Adults (> 166 cm FL): Epipelagic, neritic and oceanic waters off beaches and open coast bays, in near surface waters from the U.S.-Mexico EEZ border north seasonally to Cape Flattery, WA

from the 40 fm isobath westward to about 127° 30' W. longitude north of the Mendocino Escarpment and from the 40 to 1900 fm isobath south of the Mendocino Escarpment.

EFH for dorado has been designated to include:

- Spawning, eggs, and larvae - (< 13.7 cm FL): Primarily outside of the U.S. West Coast EEZ. Spawning restricted to water  $\geq 24^{\circ}\text{C}$ ; off southern Baja California, Mexico.
- Juveniles and subadults - (> 13.6 cm FL and < 35 cm FL): Epipelagic (30 m deep) and predominantly oceanic waters offshore the 6 fm isobath along coastal California from the U.S. Mexico border generally as far north as Point Conception, CA ( $34^{\circ} 34'$  N. latitude) and within the U.S. West Coast EEZ primarily east of the Santa Rosa-Cortes Ridge. (Line extends from Point Conception south-southeast to a point on the EEZ boundary at  $31^{\circ} 36'$  N. latitude and  $118^{\circ} 45'$  W. longitude). Prefers sea surface temperatures  $20^{\circ}\text{C}$  and higher during warm water incursions.
- Adults - (> 34 cm FL): Epipelagic (30 m deep) and predominantly oceanic waters offshore the 6 fm isobath along coastal California from the U.S.-Mexico border generally as far north as Point Conception, CA ( $34^{\circ} 34'$  N. latitude) and within the U.S. West Coast EEZ primarily east of the Santa Rosa-Cortes Ridge. (Line extends from Point Conception south-southeast to a point on the EEZ boundary at  $31^{\circ} 36'$  N. latitude and  $118^{\circ} 45'$  W. longitude).
- There are no HAPCs designated for Highly Migratory Species.

#### ***EFH Managed Species in Action Area***

Approximately 27 species managed by the NMFS under three Fishery Management Plans (FMPs) are expected to occur within the action area (**Table 4**).

The EFH Mapper identified HAPC in the form of eelgrass, and no EFH Areas Protected from Fishing in the project area.

**Table 4. Managed Species Observed or Anticipated to Occur in the Action Area**

Fishery Management Plan	Common Name	Scientific Name
Pacific Coast Groundfish (PFMC 2025)	Big Skate	<i>Raja binoculata</i>
	Spiny Dogfish	<i>Squalus acanthias</i>
	Leopard Shark	<i>Triakis semifasciata</i>
	Curlfin Sole	<i>Pleuronichthys decurrens</i>
	English Sole	<i>Pleuronectes vetulis</i>
	Cabazon	<i>Scorpaenichthys marmoratus</i>
	Lingcod	<i>Ophiodon elongates</i>
	Kelp Greenling	<i>Hexagrammos decagrammus</i>
	California Scorpionfish	<i>Scorpaena gutatta</i>
	Brown Rockfish	<i>Sebastes auriculatus</i>
	Calico Rockfish	<i>Sebastes dallii</i>
	Blue Rockfish	<i>Sebastes mystinus</i>
	Bocaccio	<i>Sebastes paucispinis</i>
	Gopher Rockfish	<i>Sebastes carnatus</i>
	Black and Yellow Rockfish	<i>Sebastes chrysomelas</i>
	Grass Rockfish	<i>Sebastes rastrelliger</i>
	Kelp Rockfish	<i>Sebastes atrovirens</i>
	Olive Rockfish	<i>Sebastes serranoides</i>
Rosy Rockfish	<i>Sebastes rosaceus</i>	
Treefish	<i>Sebastes serriceps</i>	
Vermilion Rockfish	<i>Sebastes miniatus</i>	
Coastal Pelagic Species (PFMC 2024a)	Pacific Sardine	<i>Sardinops sagax</i>
	Northern Anchovy	<i>Engraulis mordax</i>
	Pacific (Chub) Mackerel	<i>Scomber japonicus</i>
	Jack Mackerel	<i>Trachurus symmetricus</i>
	Market Squid	<i>Doryteuthis (Loligo) opalescens</i>
U.S. West Coast Highly Migratory Species (PFMC 2024b)	Common Thresher	<i>Alopias vulpinus</i>
	Dorado	<i>Coryphaena hippurus</i>

**Pacific Groundfish FMP Species Accounts**

**Big Skate**

Big skate are found from the Bering Sea and Southeastern Alaska to Central Baja California; however, they are rare south of Point Conception. They are typically found from shallow water down to approximately 100 fathoms and are found in sandy or muddy bottom habitats in shallow embayments as well as on the open coast. They feed on benthic invertebrates as well as small fish. Male skates reach maturity after 7-8 years, while females may mature in 12-13 years with a lifespan of approximately 17 years.

### **Pacific Spiny Dogfish**

Pacific spiny dogfish range from Alaska to Baja California in depths from the surface to 4,050 feet. Spiny dogfish are common in Puget Sound, San Francisco Bay, and shallow bays from Alaska to central California. The spiny dogfish is a long-lived species that can live up to 80 years. Females mature at about 35 years, while males mature at about 19 years. They are live birthers with long gestation periods of 18-22 months, producing approximately 20-24 pups per gestation cycle. These small sharks are opportunistic predators eating squid, fish, crabs, shrimp, and other invertebrates. They often hunt in large groups and can have a forage resource clear-cutting effect where the pack travels.

### **Leopard Shark**

The leopard shark is most commonly found in sandy or muddy bays and estuaries either at or near the bottom. The shark is most commonly encountered in 20 feet (6.1 meters) of water or less, but has been sighted up to 300 feet (91.4 meters) deep. Leopard sharks feed primarily on benthic invertebrates and small fish. Their diet includes invertebrates such as crabs, shrimp, octopi, fat innkeeper worms (*Urechis caupo*), clam siphons, and fish such as midshipmen, sanddabs, shiner perch, bat rays, smoothhounds, and a variety of fish eggs. Female leopard sharks are ovoviviparous and can produce litters of 4 to 33 pups. The gestation period of the shark is between 10 and 12 months, and birth usually occurs between April and May. During the summer months from June through August leopard sharks aggregate in shallow water.

### **Curlfin Sole**

Curlfin sole are native to subtropical waters of the eastern Pacific, from Prince William Sound, Alaska to San Quintín, Baja California. The species grows to approximately 1.7 pounds. The species occupies soft bottom habitat between 26 and 1,739 feet. The diet of the curlfin sole consists of polychaetes, crustacean eggs, and ophiuroids. Spawning occurs from April to August with eggs being positively buoyant and larvae being pelagic.

### **English Sole**

English sole are found from the Bering Sea and Aleutian Islands, to San Cristobal Bay, Baja California Sur. They are usually caught in relatively shallow water, less than 300 feet deep, and on the outer continental shelf community in southern California. Eggs and larvae are pelagic; juveniles and adults are demersal. Small juveniles settle in the estuarine and shallow nearshore areas all along the coast, but are less common in southerly areas, particularly south of Point Conception. Juveniles and adults are carnivorous, apparently feeding primarily during daylight hours. Juveniles feed on harpacticoid copepods, gammarid amphipods, cumaceans, mysids, polychaetes, small bivalves, clam siphons, and other benthic invertebrates, while adult English sole feed on a variety of benthic organisms, but primarily polychaetes, amphipods, molluscs, cumaceans, ophiuroids, and crustaceans (PFMC 2019).

### **Cabazon**

Cabazon occur within the eastern Pacific, from northern Alaska to central Baja California, Mexico. The fish is found from the rocky intertidal out to depths of 656 feet and they are found within rocky reef and kelp forest habitats. They are often found among jetty armor stone. They are a highly predatory fish consuming almost any smaller fish through an ambush strategy. Cabazon spawn on rocky substrate and the eggs are guarded by males until hatching.

### **Lingcod**

Lingcod are found from Kodiak Island in the Gulf of Alaska down to Baja California, but they're most abundant near British Columbia and Washington. Larvae are pelagic with settlement as juveniles occurring near eelgrass or kelp bed habitats. Young and adult lingcod move into structured habitats of rocky reefs and eelgrass beds. Fish mature in 2 (male) to 3 (female) years and grow rapidly. They are aggressive ambush predators consuming benthic fish including greenling rockfish, other lingcod as well as octopus, squid, and crabs.

### **Kelp Greenling**

Kelp greenling range from the Aleutian Islands to La Jolla, California. They are uncommon south of Point Conception. Greenling occur in rocky nearshore areas and are commonly associated with kelp beds. Kelp greenlings feed on crustaceans, polychaetes, brittle stars, mollusks, and small fishes.

### **California Scorpionfish**

The California scorpionfish ranges from Santa Cruz, California south to Uncle Sam Bank, Baja California. It is a benthic species found in both sandy and rocky habitats. Individuals are predominantly solitary but are known to aggregate near prominent features both natural and human-made. Young fish live in shallow habitats typically hidden within dense algae and bottom-encrusting organisms. Spawning occurs between May and September and peaks in July. Eggs are laid in a gelatinous mass that floats near the surface. The primary food items include juvenile crabs, small fishes (e.g. northern anchovy), octopus, isopods, and shrimps (Core Team 1998).

### **Rockfish (Sebastes)**

Rockfish (Sebastes) include approximately 100 species worldwide and multiple species of rockfish have been captured within the action area at various times (Table 5). These are addressed as a group as they typically have similar life histories. Rockfish are typically a temperate group of fish. With few exceptions, those that have been collected in the action area range from southern California or Baja California north to Alaska or around the Pacific rim to Japan and Korea. Most of the species collected in the action area are associated with kelp habitat and rocky bottom habitat; however, some can occur over soft bottom. The extension of Redondo Canyon and the proximity of deep water near the tip of the breakwater may account for a higher species capture of rockfish in the area than would otherwise be expected. Rockfish are predatory and may consume small fish, invertebrates, and squid.

## **Coastal Pelagic FMP Species Accounts**

### **Pacific Sardine**

Pacific sardine is a pelagic species that can be found in estuaries but are most common in open coastal habitats and offshore. The Pacific sardine is wide ranging with sardines in the Alguhas, Benguela, California, Kuroshio, and Peru currents, and off New Zealand and Australia being considered the same species. Changes in distribution are common and linked to environmental conditions. In California, sardines are highly mobile and move seasonally. Older adults move from southern California and northern Baja spawning grounds to feeding grounds off the Pacific Northwest and Canada. Younger individuals (two to four years old) migrate to feeding grounds in central and northern California. Juveniles occur in nearshore habitats off northern Baja and southern California. Although numbers vary greatly, at times sardines are the most abundant fish species in the California current. In southern populations spawning occurs year-round with a peak from April to August between Point Conception and Magdalena Bay. Eggs and larvae are found everywhere adults are found. Sardines are planktivores consuming both phytoplankton and zooplankton. They are themselves prey for a variety of predators. Eggs and larvae are consumed by numerous planktivores with juvenile and adults being consumed by a variety of fish, birds, and mammals (NMFS 1998).

### **Northern Anchovy**

Northern anchovy historically ranged from the Queen Charlotte Islands, British Columbia south to Cape San Lucas, Baja California. More recently, populations have moved into the Gulf of California, Mexico. Larvae and juveniles are often abundant in nearshore areas and estuaries with adults being more oceanic. However, adults can be abundant in shallow nearshore areas and estuaries, and eggs and larvae have been found offshore. Northern anchovy are non-migratory but do make extensive inshore-offshore and along-shore movements. In some populations, juveniles and adults are observed moving into estuaries during spring and summer and then back out during the fall. Spawning occurs throughout the year dependent upon the population. In southern California, spawning occurs between January and May. Larvae consume copepod eggs and nauplii, naked dinoflagellates, rotifers, ciliates, and foraminiferans. Adults and juveniles typically consume phytoplankton, planktonic crustaceans, and fish larvae. Northern anchovy are one of the most abundant fish in the California current and are important prey for a variety of fish, birds, and marine mammals. They are used as indicator of environmental stress, being affected by low dissolved oxygen and water-soluble fractions of crude oil (Emmett et al. 1991).

### **Pacific Mackerel**

Pacific mackerel is a pelagic species. In the northeastern Pacific, Pacific mackerel range from southeastern Alaska to Banderas Bay, Mexico. As a group they are the same species as mackerel of a variety of names occurring elsewhere in the Pacific, Atlantic, and Indian oceans. Pacific mackerel usually occur within 20 miles of shore. Local populations spawn from Eureka, California south to Cabo San Lucas, Baja California between 3 and 320 km from shore with peak spawning occurring between late April and July. However, fecundity is more closely tied to sufficient food and environmental conditions than to season. Pacific mackerel larvae eat zooplankton including copepods and fish larvae. Juveniles and adults consume small fishes, fish larvae, squid and pelagic crustaceans. Pacific mackerel larvae are predated by numerous

invertebrate and vertebrate planktivores. Juveniles and adults are important prey for many large fishes, marine mammals, and birds. Due to their larger size, they are likely less important as forage than Pacific sardine or northern anchovy which are available to a wider variety of predators and are more abundant (NMFS 1998).

### **Jack Mackerel**

Jack mackerel is a schooling fish that ranges widely throughout the northeastern Pacific. Individuals are found along the mainland coasts to an offshore limit approximated by a line running from the eastern Aleutian Islands, Alaska to Cabo San Lucas, Baja California. Typically, small jack mackerel (< 6 years of age) are most abundant near the mainland coast and islands in the Southern California Bight. Older individuals fill out the geographic range and are generally found offshore in deep water and along the coastline north of Point Conception, California. Jack mackerel spawn between February and October in California, with peak spawning activity between March and July. Larvae eat primarily copepods with the small jack mackerel found off southern California consuming large zooplankton, juvenile squid, and anchovy. Jack mackerel are prey items for large predators such as tuna and billfish. They are likely only of minor significance as prey for marine birds because of the large size of adults and their deep schooling (NMFS 1998).

### **Market Squid**

Market squid range from the southern tip of Baja California to southeastern Alaska. Adults move off the continental shelf by day and can be found to depths of 1500 feet and return to the surface at night to hunt. They are cannibalistic predators that feed on smaller prey species such as fish, crabs, shrimp, molluscs, and other juvenile squids. Spawning market squid tend to congregate in dense schools, usually over sandy habitats where they deposit extensive egg masses. In central California spawning activity starts around April and ends in October, while in southern California spawning events begin around October and end in April or May. Market squid have been reported to die after completing their first and only spawning period. Market squid are an integral part of the food web to many marine vertebrates. Fish, seabirds, and marine mammals all utilize squid as a prey item.

## **Highly Migratory Species FMP Species Accounts**

### **Common Thresher**

Common thresher is an epipelagic, neritic and oceanic species often found off beaches and in shallow bays, in near surface waters of the U.S. and Mexico. The young are presumed to eat anchovy and other schooling fish and invertebrates. As they mature, they continue to eat anchovy but also add larger fish and invertebrates to their diet, including Pacific hake, Pacific mackerel and sardine, as well as other fish, squid and pelagic red crab. As adults the thresher tends to move into deeper waters and forages primarily on northern anchovy, Pacific hake, Pacific mackerel and sardine as well as other fishes, squid and pelagic red crab (PFMC 2025b).

### **Dorado**

Dorado typically spawn outside the U.S. off Baja California with peak larval production in August and September in waters that are greater than or equal to 24°C. Juveniles prefer sea temperatures of 20°C and higher. They are presumed to forage on epipelagic fishes, crustaceans, and squid during this period. As adults, dorado continue to occur in waters 20°C and higher during warm water incursions with their diet remaining primarily fish, with flying fish being the most important prey (PFMC 2025b).

## 6.2 Effects to EFH and Eelgrass (HAPC)

**Short-term effects.** Mechanical clamshell dredging will temporarily disturb subtidal sediments within the cut prism, removing surface layers and exposing recently deposited fines. Resulting turbidity plumes are expected to remain localized to the immediate work area and scow-loading zone, attenuating quickly with estuarine mixing and tidal exchange. Any increases in total suspended solids will be short-lived (tidal-cycle scale) and diminish with distance from the bucket and scow due to operational controls that limit hoist rate, minimize bucket residence time in the water column, and prohibit unauthorized scow overflow. Pelagic and demersal fishes may exhibit brief behavioral avoidance of the active work face and plume margins but will rapidly redistribute into adjacent undisturbed habitat; feeding and migration corridors remain available throughout. Within the dredge footprint, benthic infauna will be temporarily reduced by substrate removal; recolonization by opportunistic polychaetes and crustaceans typically initiates within weeks under harbor conditions and proceeds over subsequent months as sediments consolidate and organic content stabilizes (Merkel & Associates 2010a and b). Given the confined footprint, short duration, and continuity of alternative foraging/refuge areas, population-level effects to EFH species are not anticipated.

**Eelgrass HAPC.** The project would impact eelgrass within the dredge area and avoid eelgrass within a central eelgrass conservation/management area retained in situ (**Figure 3**). Any residual effects to eelgrass HAPC associated with restoring navigational depths along corridors (e.g., edge disturbance, temporary turbidity) are managed through the Comprehensive Management Plan (CMP), which implements CEMP survey timing and success criteria and provides adaptive triggers for long-term eelgrass conservation in the lagoon. Consistent with the CMP, eelgrass conservation is accomplished through retention/management of a subtidal eelgrass core and programmatic, out-of-kind support for regional eelgrass protection (*Caulerpa* eradication). No separate, stand-alone CEMP mitigation plan is required beyond the CMP. Operational safeguards that further protect HAPC include daylight dredging, elimination of unauthorized scow overflow, conservative vessel speeds ( $\leq 5$  kt in-harbor;  $\leq 10$  kt offshore), and avoidance of tight turns or prop-wash near eelgrass margins to minimize scour.

**EFH Conclusion.** The action may adversely affect EFH under the Coastal Pelagic Species and Pacific Coast Groundfish FMPs—including eelgrass HAPC—because of temporary substrate disturbance, short-duration turbidity, and localized, reversible behavioral displacement of fishes within the active work zone. These effects are minor in magnitude and limited in space and time, and are further reduced by embedded best management practices and the CMP framework. No long-term degradation of water column, substrate, or habitat complexity is expected, and EFH functions at the bay/nearshore scale will remain intact.



Figure 3. Eelgrass Distribution Relative to Dredge Area (Newport Beach 2024 Baywide Survey)

**EFH Conservation Recommendations.** Pursuant to 50 CFR §600.920, the following measures are recommended (and are already incorporated into the action): (1) conduct pre- and post-construction eelgrass surveys within CEMP validity windows and apply CMP/CEMP success standards if verified effects occur; (2) complete *Caulerpa* surveillance appropriate to an infested system and implement the Caulerpa Control Protocol upon any detection; (3) maintain turbidity and material-control best practices—including managed bucket handling, elimination of unauthorized scow overflow, and scow deck/weir housekeeping—to limit plume magnitude and duration; and (4) provide post-construction eelgrass reporting to NMFS within permit timeframes to document outcomes and support adaptive management.

## 7. Eelgrass Conservation & Mitigation Summary

As documented in the Linda Isle Lagoon Final Comprehensive Eelgrass Management Plan (November 2023), a mitigation program to offset eelgrass impacts has been developed through agency collaboration with input from NMFS, USACE, USFWS, Coastal Commission, and RWQCB, and City of Newport Beach representatives. This CMP, structured under CEMP (2014) Section E.1 – Comprehensive Management Plans reconciles navigation needs with long-term eelgrass conservation within Linda Isle Lagoon and provides funding for eradication of *Caulerpa prolifera*, a species that threatens eelgrass and other marine habitats, from within Newport Bay. The plan’s cornerstone is retention and active management of a subtidal eelgrass conservation core in the lagoon center (approximately 0.71 acre), preserving habitat functions (primary production, refuge, and seed source) while allowing maintenance dredging in navigation corridors where eelgrass expansion has created keel/prop scour conflicts.

The CMP acknowledges site constraints (hydrography, shading, vessel traffic, sediment regime) and recognizes that in-kind restoration within the navigation corridors is limited and often impracticable for recurring maintenance. To sustain eelgrass presence and function, the CMP pairs in-situ conservation (core retention with elevation-based maintenance triggers) with regional, out-of-kind mitigation that directly reduces threats to eelgrass in Newport Bay—specifically, dedicated funding for *Caulerpa* eradication. Implementation measures include CEMP-compliant pre-/post-construction surveys; conservation of a core area of subtidal eelgrass within the lagoon; and an in-lieu contribution of \$749,785 administered through SCCAT for targeted *Caulerpa prolifera* control, with Steering Committee oversight and a transparent expenditure ledger to document eelgrass-benefiting outcomes harbor-wide.

**Adequacy of offset and consistency finding.** Consistent with CEMP performance standards and the detailed methodology, the agency-coordinated CMP provides an adequate offset for eelgrass habitat effects from dredging in navigation corridors. The CMP retains and maintains core eelgrass habitat in situ, prevents functional loss through elevation triggers and replanting when needed, and delivers bay-wide eelgrass conservation benefits by removing invasive *Caulerpa* stressors that otherwise degrade eelgrass beds. Because the CMP incorporates CEMP survey windows and success standards, no separate, stand-alone CEMP mitigation plan is required. Collectively, these elements maintain eelgrass functions and services at the lagoon and harbor scale and satisfy NMFS’s EFH/HAPC conservation intent for eelgrass. A summary of the CMP elements is provided in Table 5.

**Table 5. Eelgrass CMP for the Linda Isle Lagoon Maintenance Dredging**

Measure	Standard / Trigger	Action	Notes
Subtidal eelgrass conservation core retained	Maintain ~0.71 ac in center of lagoon	Avoid dredging in current cycle; preserve habitat/water-quality functions and seed source	Slopes to navigation basin may support eelgrass post-dredge
Elevation-based maintenance triggers for core – No action is proposed to be authorized under the current dredging action	If >50% of core rises above –3 ft MLLW or >20% above –2 ft MLLW	Conduct maintenance dredging to –6 ft MLLW, smooth bed, and replant eelgrass	Event treated as habitat maintenance with 1.2:1 replacement; expected 15–30 yr cycle
Navigation corridors dredging	Outside conservation core	Restore depths; implement CEMP surveys/mitigation and Caulerpa CCP	Avoid unauthorized scow overflow; manage turbidity
Out-of-kind mitigation funding	Impact area ~3.17 ac	Provide \$749,785 to SCCAT for <i>Caulerpa prolifera</i> eradication in Newport Bay	SCCAT Steering Committee oversight; ledger of expenditures from escrow holding account.

## 8. Marine Mammal Protection Act (MMPA)

This section evaluates potential effects to marine mammals from (a) in-harbor dredging within Linda Isle Lagoon and its access channel and (b) offshore tug/scow transit and disposal at LA-3 ODMDS. The analysis follows the Marine Mammal Protection Act (16 U.S.C. §1361 et seq.) and NMFS practice for non-impulsive sources. Project sound sources are mechanical clamshell dredging and vessel operations (tugs, support boats, scows), which produce tonal, non-impulsive noise at relatively low levels compared with pile driving or seismic surveys. No impulsive or explosive activities are proposed.

### 9.1 Harbor/Lagoon Context

The Linda Isle Lagoon and access channel are confined, low-energy environments with existing vessel activity and rapid acoustic attenuation. Dredging is limited to daylight hours, which maximizes detectability of any marine mammals transiting the harbor. In-harbor vessel movements associated with dredging are slow and controlled ( $\leq 5$  kt in-harbor) over short distances, and with high operator visibility. With trained observers and the commitment to slow/hold or temporarily pause if marine mammals enter the immediate work area, collision risk is remote and Level B behavioral harassment is unlikely. No Level A (injury) mechanism is present because sources are low and non-impulsive and activities can be paused upon sighting.

### 9.2 Offshore Transit Corridor: Entrance Channel → LA-3 ODMDS

Transit profile and exposure. Offshore operations involve a tug towing a bottom-dump scow at slow speeds ( $\leq 10$  kt) along a nearshore coastal/shelf corridor to LA-3, with brief bottom-dump events within

the disposal site. Daylight transits are preferred; regardless of time of day, crews maintain a protected-species watch during offshore towing and at LA-3. Exposure pathways include (i) vessel strike and (ii) non-impulsive vessel/mechanical noise.

**Effect characterization.** For vessel strike, encounter probability is low to very low given regional occurrence patterns, the single-track nature of the route, and low transit speeds with open-water maneuverability. For non-impulsive noise, tug/scow operations generate narrow-band tonal energy of modest source levels; any levels above ambient will be spatially constrained near the trackline and temporally brief. Behavioral responses, if any, are expected to be short-duration avoidance with rapid return to baseline once the tow has passed. The bottom-dump at LA-3 is brief and does not create sustained acoustic or physical disturbance. Collectively, there is no reasonable potential for Level A harassment and a low likelihood of Level B behavioral harassment; with the embedded measures, no take is expected.

**Analytical basis.** Species are grouped into ESA-listed and non-listed taxa potentially present along the corridor. Potential occurrence reflects seasonal patterns in the Southern California Bight and the nearshore route to LA-3. Species considered in this analysis are identified in Table 6.

**Table 6. Marine mammals potentially present on route between dredge and disposal site**

<b>Common name (Scientific name)</b>	<b>Potential occurrence (offshore corridor)</b>	<b>Effect discussion / MMPA determination</b>
Blue whale ( <i>Balaenoptera musculus</i> )	Low/seasonal offshore presence	Slow tug/scow speeds and open-water maneuvering render collision risk remote, non-impulsive noise unlikely to elicit behavioral responses; no take anticipated.
Fin whale ( <i>B. physalus</i> )	Low/seasonal offshore presence	Same as above; no take anticipated.
Sei whale ( <i>B. borealis</i> )	Very low	Same as above; no take anticipated.
Humpback whale ( <i>Megaptera novaeangliae</i> )	Low/seasonal	Same as above; no take anticipated.
Gray whale ( <i>Eschrichtius robustus</i> )	Rare in entrance channel. Uncommon and seasonal offshore during migration.	Same as above; no take anticipated.
Sperm whale ( <i>Physeter macrocephalus</i> )	Very rare	Same as above; no take anticipated.
Minke whale ( <i>Balaenoptera acutorostrata</i> )	Rare	Collision risk remote at low transit speeds; no take anticipated.
Killer whale ( <i>Orcinus orca</i> )	Very rare	Same as above.
( <i>Globicephala</i> spp.)	Very rare	Same as above.
Northern right whale dolphin ( <i>Lissodelphis borealis</i> )	Rare/episodic	Same as above.
Pacific white-sided dolphin ( <i>Lagenorhynchus obliquidens</i> )	Seasonal/variable	Temporary avoidance; no take anticipated.
Dall's porpoise ( <i>Phocoenoides dalli</i> )	Rare	Same as above.
Risso's dolphin ( <i>Grampus griseus</i> )	Variable	Same as above.
Harbor porpoise ( <i>Phocoena Phocoena</i> )	Rare nearshore	Same as above.
Common dolphin ( <i>Delphinus delphis</i> )	Common offshore	Behavioral avoidance; no take anticipated.
Bottlenose dolphin ( <i>Tursiops truncatus</i> )	Regular nearshore	Same as above.
Harbor seal ( <i>Phoca vitulina</i> )	Occasional	Habituation to vessel traffic; no take anticipated.
Northern elephant seal ( <i>Mirounga angustirostris</i> )	Rare	Same as above.
California sea lion ( <i>Zalophus californianus</i> )	Common	Habituation; separation distances maintained; no take anticipated.

## 10. Effect Determination Summary (for NMFS Tracking)

### Effect Determination Summary (for NMFS Tracking)

Resource	Effect Determination
Green sea turtle (East Pacific DPS)	Not Likely to Adversely Affect (NLAA)
Proposed CH for green sea turtle (East Pacific DPS)	NLAA (conference)
Other NMFS-listed species/CH	NLAA
EFH – CPS & PCG (incl. eelgrass HAPC)	May adversely affect; minimized/offset with measures

## 11. Regulatory Framework & Expedited Pathway Justification

This submittal integrates the requirements of the Endangered Species Act (ESA) and the Magnuson-Stevens Fishery Conservation and Management Act (MSA) for Essential Fish Habitat (EFH). The action is subject to ESA §7(a)(2) (16 U.S.C. §1536(a)(2)), which requires federal agencies to insure, in consultation with NMFS, that actions are not likely to jeopardize listed species or destroy or adversely modify designated critical habitat. The analysis is prepared in accordance with ESA consultation regulations at 50 CFR part 402, including §402.13 (informal consultation) and §402.14(d) and §402.14(g)(8), which require use of the best scientific and commercial data available. EFH consultation is conducted under MSA §305(b) (16 U.S.C. §1855(b)) and the implementing regulations at 50 CFR §600.920, which establish EFH assessment content and NMFS conservation recommendation procedures. Consistent with NMFS guidance, this document provides an integrated ESA/EFH review, addressing EFH (including eelgrass HAPC) within the same effects framework used for ESA.

The action qualifies for NMFS's expedited consultation pathway because, with the incorporated avoidance and minimization measures, effects to ESA-listed species are expected to be discountable or insignificant, and EFH effects are minor and temporary in spatial and temporal extent. The project consists of short-duration, mechanical (non-impulsive) in-water work; daylight-only dredging; conservative vessel speeds ( $\leq 5$  kt in-harbor;  $\leq 10$  kt offshore); a protected-species watch during offshore towing and at LA-3; no unauthorized scow overflow; and operational BMPs that limit turbidity and noise exposure. Eelgrass resources are addressed programmatically through the Comprehensive Management Plan (CMP), which implements CEMP survey timing and success criteria and provides adaptive triggers for long-term conservation; no separate stand-alone CEMP mitigation plan is required beyond the CMP. With these measures, the ESA effects determination is may affect, not likely to adversely affect (NLAA) for the East Pacific DPS green sea turtle, NLAA (conference) for proposed marine critical habitat, and NLAA for other NMFS-listed species whales potentially occurring within the action area, while EFH effects are limited and addressed through conservation measures and the CMP. No take is requested or expected under the MMPA, and reinitiation will occur if any 50 CFR §402.16 trigger is met.

Under the integrated approach, EFH conservation recommendations (see §§6.2 and 17) are provided pursuant to 50 CFR §600.920 and reflect measures already embedded in the action (CEMP-valid survey timing, turbidity/material controls, *Caulerpa* surveillance and response, and post-construction reporting). This combined ESA/EFH submittal follows NMFS's Template for Expedited Consultation, documenting the

statutory and regulatory bases, the best-available-data standard, and the rationale supporting expedited eligibility.

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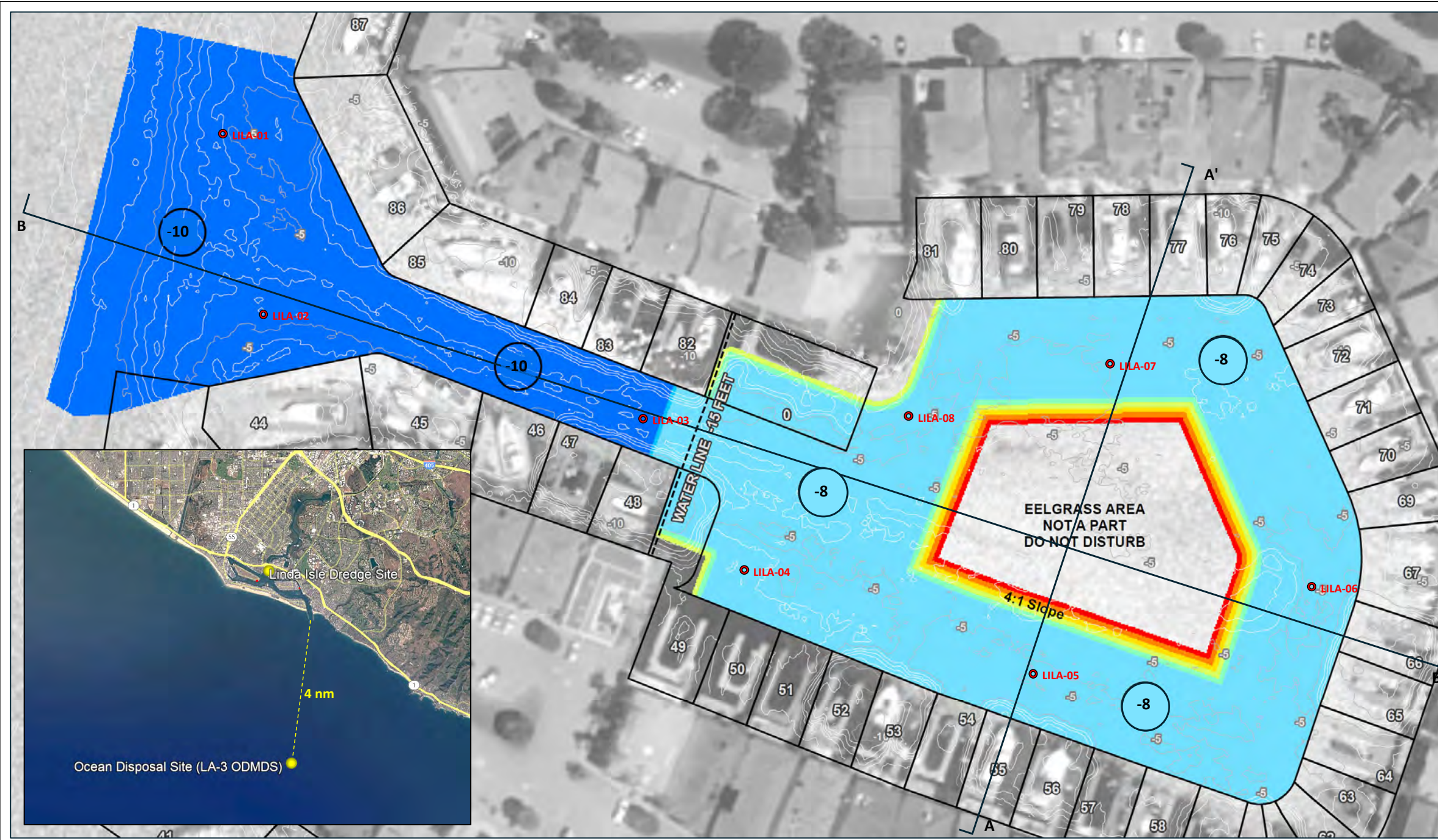
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**Appendix A.**  
**Linda Isle Dredge Plans**

**LINDA ISLE LAGOON MAINTENANCE DREDGING PROJECT**

**Paid Dredge Quantity:** 20,439 CY  
**2-Foot Paid Overdepth:** 12,121 CY  
**Accretion Allowance Contingency:** 6,512 CY  
**Maximum Total Dredge:** 39,072 CY  
**Storm Drain Outlets:** None to Lagoon  
**Proposed Sampling Locations:**

● LILA-XX Linda Isle Lagoon Sample Cores



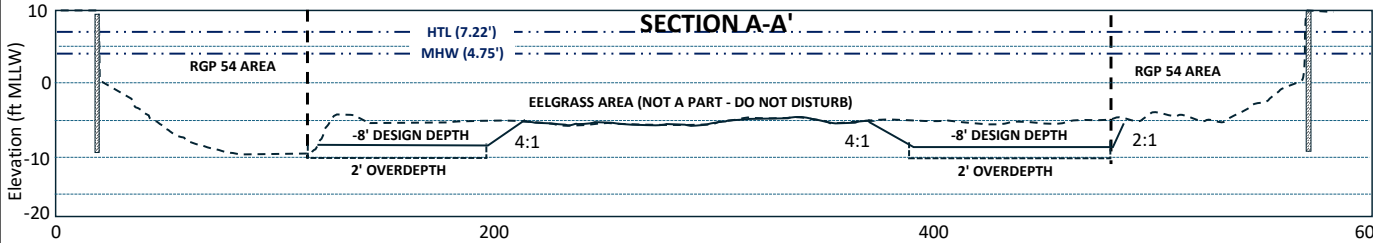
**Horizontal Datum:** California State Plane, Zone 5, North American Datum of 1983, U.S. Survey Feet.

**Vertical Datum:** Feet Mean Lower Low Water (ft MLLW)

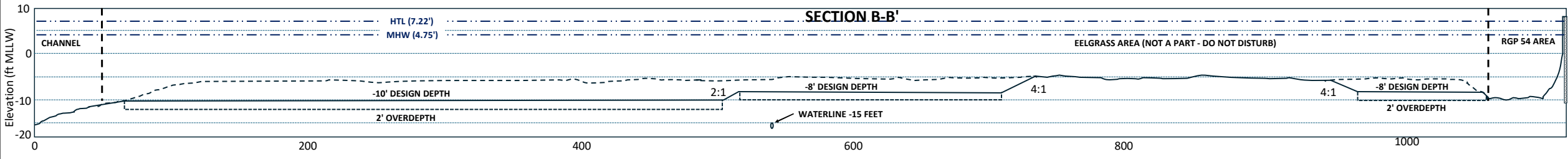
**Harmonic Tidal Controlling Station:** NOAA Station 9410660 Los Angeles, CA

**Assessor's Parcel Number (APN):** 050 461 01

**Data Sources:** Bathymetric survey data are derived from Woolpert multibeam sonar survey conducted May 31, 2023. Contours are in feet MLLW. Aerial imagery is derived from Google Earth 2023.



- EXISTING MUDLINE
- DESIGN DEPTH
- OVERDEPTH GRADE
- DESIGN ELEVATION (FT MLLW)
- EXISTING 5 FOOT CONTOURS
- EXISTING 1 FOOT CONTOURS



## **Appendix C**

### **Sediment Sampling and Analysis Plan and Preliminary Results**

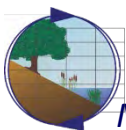


## Linda Isle Lagoon Maintenance Dredging, Dredged Material Evaluation

# Sampling and Analysis Plan

Prepared for  
Linda Isle Community Association  
Newport Beach, California 92660

Prepared by  
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*Merkel & Associates, Inc.*

**JUNE 2025**  
*(Revised June 26, 2025)*

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## APPENDICES

Appendix 1. Sediment Core Log Form	
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**ABBREVIATIONS**

ammonia-N	ammonia as nitrogen
ASTM	ASTM International
BP	bioaccumulation potential
COC	chain of custody
cy	cubic yard
DMMT	Southern California Dredged Material Management Team
DO	dissolved oxygen
DQO	data quality objective
EC50	median effective concentration
EDD	electronic data deliverable
ERL	effects range low
ERM	effects range median
HDPE	high-density polyethylene
ITM	<i>Evaluation of Dredged Material Proposed for Discharge in Waters of the U.S. – Testing Manual: Inland Testing Manual</i>
LC50	median lethal concentration
LCS	laboratory control sample
MDL	method detection limit
MLLW	mean lower low water
MS	matrix spike
MSD	matrix spike duplicate
ODMDS	ocean dredged material disposal site
OTM	<i>Evaluation of Dredged Material Proposed for Ocean Disposal: Testing Manual</i>
PAH	polycyclic aromatic hydrocarbon
PCB	polychlorinated biphenyl
QA	quality assurance
QC	quality control
R	recovery
RL	reporting limit
RPD	relative percent difference
SAP	Sampling and Analysis Plan
SM	Standard Method
SP	solid phase
SPP	suspended particulate phase
SRM	standard reference material
STLC	Soluble Threshold Limit Concentration
TCLP	Toxicity Characteristic Leaching Procedure

TOC	total organic carbon
TRV	toxicity reference value
TTLC	total threshold limit concentration
USACE	U.S. Army Corps of Engineers
USEPA	U.S. Environmental Protection Agency
µg/kg	microgram per kilogram

## Linda Isle Lagoon Maintenance Dredging, Dredged Material Evaluation

### Sampling and Analysis Plan

#### INTRODUCTION

Linda Isle is a small man-made island located in Lower Newport Bay south of the Pacific Coast Highway Bridge in Newport Beach, California (Figure 1). The island is horseshoe shaped and wraps around a small recreational boat basin (Linda Isle Lagoon). There are 107 waterfront private residences on the island with the common areas being owned by the Linda Isle Community Association.

Waterways around the island are maintained by public entities including the Army Corps of Engineers and the City of Newport Beach, however waters within the lagoon are the maintenance obligation of the Linda Isle Community Association. The lagoon is surrounded by private docks built out to the pierhead line and vessels navigate from these docks to the main lagoon through the lagoon and out a narrow west facing channel that ties into the Upper Bay Channel that connecting upper Newport Bay with Lower Newport Bay. Over time, the Linda Isle Lagoon has silted in, raising the bottom to depths that are now suited to support common eelgrass (*Zostera marina*) from depths that were historically too deep for eelgrass (-8 to -10 feet MLLW). The lagoon has become increasingly less suitable for its purpose as a navigation and vessel berthing basin with vessels regularly dragging bottom or scouring the bottom with propeller wash at low tides and some period being unsuited to any vessel movements.

Linda Isle Community Association has pursued maintenance dredging of the lagoon since at least 1998 but had not been able to develop a viable solution to mitigate eelgrass impacts associated with the dredging due to expansion of eelgrass across the lagoon floor. However, the recent infestation of *Caulerpa prolifera* within Newport Bay has led to the need for funding of eradication activities and an in lieu fee contribution to the Southern California *Caulerpa* Action Team's eradication efforts within Newport Bay, coupled with partial conservation of eelgrass within the lagoon core was determined by resource and regulatory agencies to be a suitable offset to eelgrass impacts, as such a payment would facilitate securing the bay's eelgrass resources against being overwhelmed by the spread of *Caulerpa*. The payment amount was set at \$749,785 based on the cost foregone by Linda Isle that would have been applicable in-kind eelgrass restoration were an opportunity to achieve mitigation be available in the bay. With the resolution of eelgrass mitigation requirements, the dredging project is advancing to implementation.

#### Project Summary

The proposed project is the maintenance dredging of Linda Isle Lagoon. The inner lagoon would be dredged to -10 feet MLLW (design +2-foot overdepth) while the entrance channel into the lagoon would be dredged to a depth of -12 feet MLLW (design +2-foot overdepth) (Figure 2). The dredging would remove sediment by clamshell dredge to small scows for disposal at the LA-3 Ocean Dredge Material Disposal Site (ODMDS) located approximately 4 nautical miles south of the Newport Bay entrance at 33.519607°; -117.890295°. The volume of dredged material to be removed is provided in Table 1.



Figure 1. Regional Locator Map

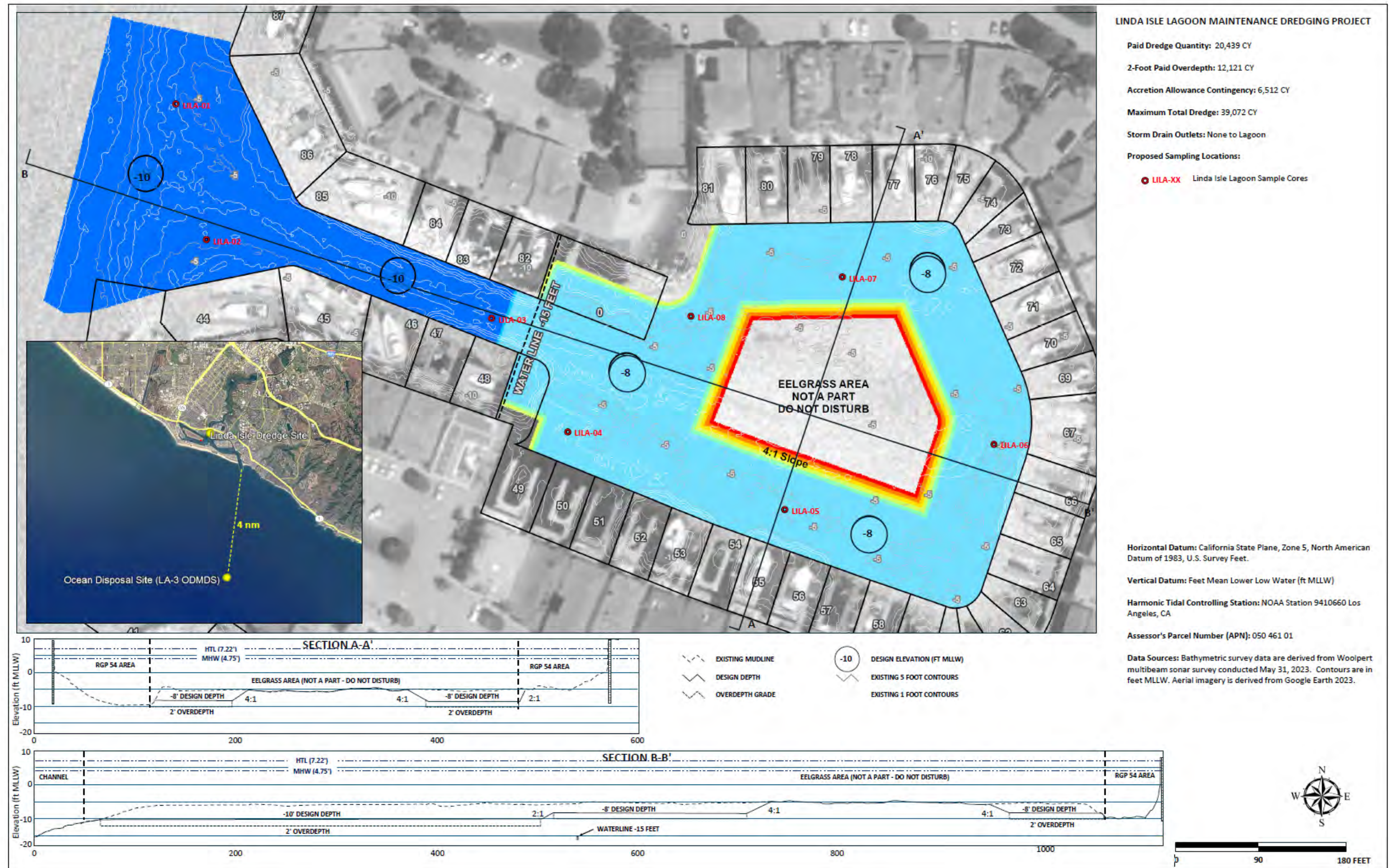


Figure 2. Dredge Plan and Proposed Sediment Sampling Locations

**Table 1 Proposed Dredging Volumes**

Dredge Unit	Design Depth (feet MLLW)	Estimated Volume to Design Depth (cy)	Paid 2-Foot Overdepth (cy)	Total Volume (cy)	Dredge Footprint (acres)
Lagoon Channel	-10	7,893	4,261	12,154	1.6
Lagoon Core	-8	12,546	7,860	20,406	2.9
Additional Accretion Allowance Contingency (20%)				6,512	
Total Dredging				39,072	4.5

**Objectives**

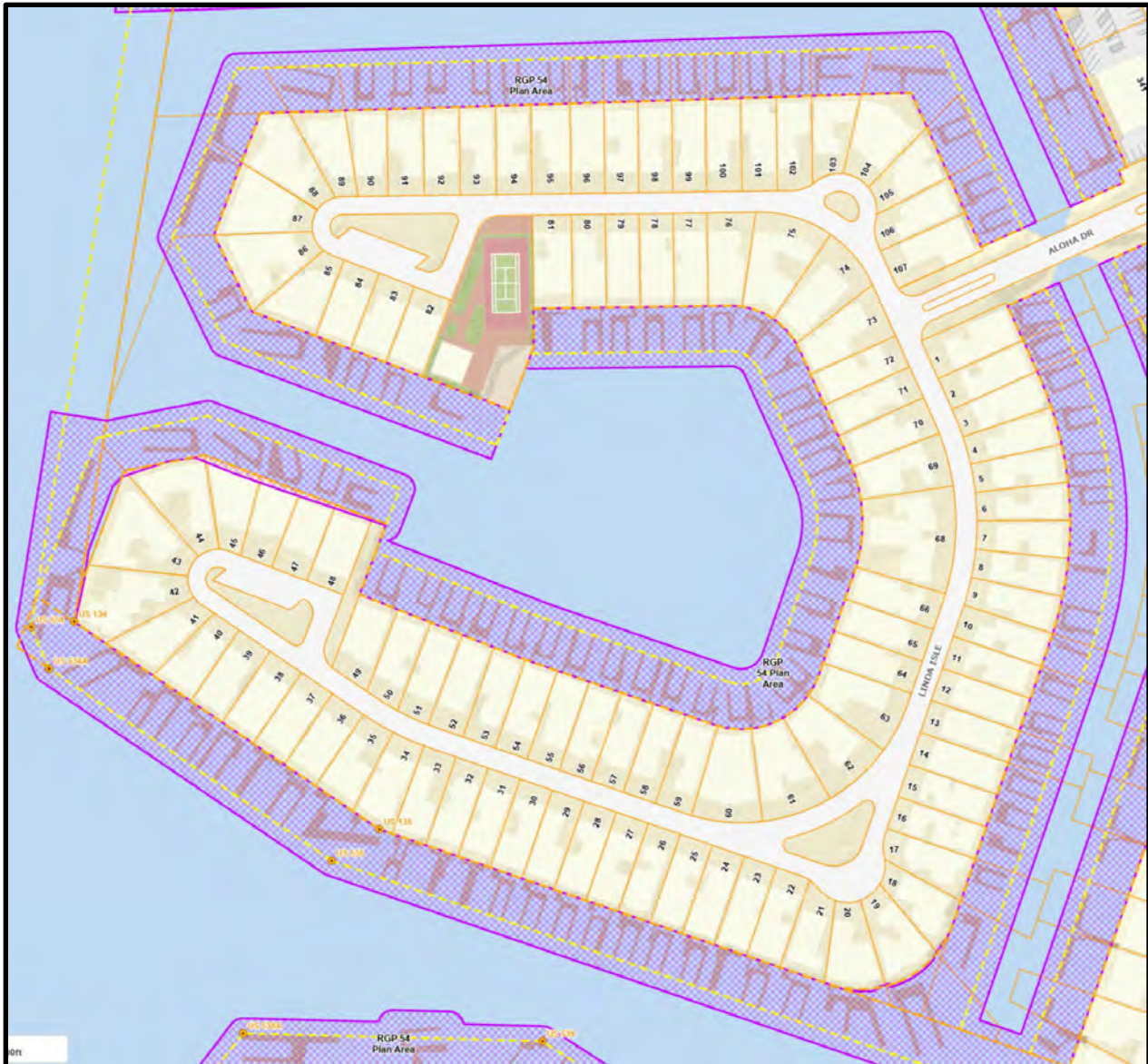
The purpose of this sediment investigation is to determine the suitability of proposed dredged material for ocean disposal at the LA-3 ODMDs. Testing will include physical, chemical, and biological analyses in accordance with the *Evaluation of Dredged Material Proposed for Ocean Disposal: Testing Manual* (OTM; USEPA and USACE 1991) and *Evaluation of Dredged Material Proposed for Discharge in Waters of the U.S. – Testing Manual: Inland Testing Manual* (ITM; USEPA and USACE 1998). Evaluations are also intended to meet or exceed the Sampling and Analysis Plan/Results (SAP/R) Guidelines (SAPRG) (USACE LAD and USEPA R9 2021) supplement to the ITM and OTM. Additionally, Z-layer samples from each core will be analyzed for DDTs, as coordinated with the Santa Ana Regional Water Quality Control Board (RWQCB) with the goal of complying with the DDT TMDL for Newport Bay.

**SITE HISTORY AND HISTORICAL DATA REVIEW****Site History and Influences**

Linda Isle and Linda Isle Lagoon were constructed in 1962 by the Irvine Company. The island is a 19-acre island contained by tieback bulkheads that extend to embedment depths of -9 and -11.83 feet MLLW that surround the 1.2-mile perimeter of the island. The island drainage is all directed towards the outer perimeter of the island via storm drains that discharge to the bay such that no storm drains are directed to the inner lagoon. The island was constructed of dredge materials from the bay.

**Historic Sediment Data**

The Linda Isle Lagoon includes two elements with differing permit requirements. The shoreward margins of the lagoon are located within the City of Newport Beach's RGP 54 Plan. The RGP 54 Plan Area extends from 70-80 feet from the bulkhead wall towards the center of the lagoon (Figure 3). These areas experience the same source of sediment supply as the central portion of the lagoon that occurs outside of the RGP 54 Plan Area and which is the subject of the present SAP.



**Figure 3. RGP 54 Plan Area Boundaries**

Dredging has been conducted within multiple locations within the RGP 54 Plan Area located within the Linda Isle Lagoon. This includes focused sediment sampling to support maintenance dredging, projects as well as City sponsored RGP 54 Sediment Characterization (Anchor QEA 2023). Since 2016 there have been 21 sampling efforts undertaken within the Linda Isle Lagoon (Figure 4). In August 2022 and January 2023 sampling was conducted within the lagoon at Sample Location 2-2 with a comprehensive analysis being conducted on composites from subarea samples 2-1 through 2-7 collected in August 2022 (Figure 4). Finer resolution compositing was conducted with samples 2-1, 2-2, 2-7, and 2-7a, collected in January 2023 as well. of custody (COC) forms and transfer of samples to laboratories. Additionally, two associate scientists with experience in vibracore sediment sampling will support the field team.

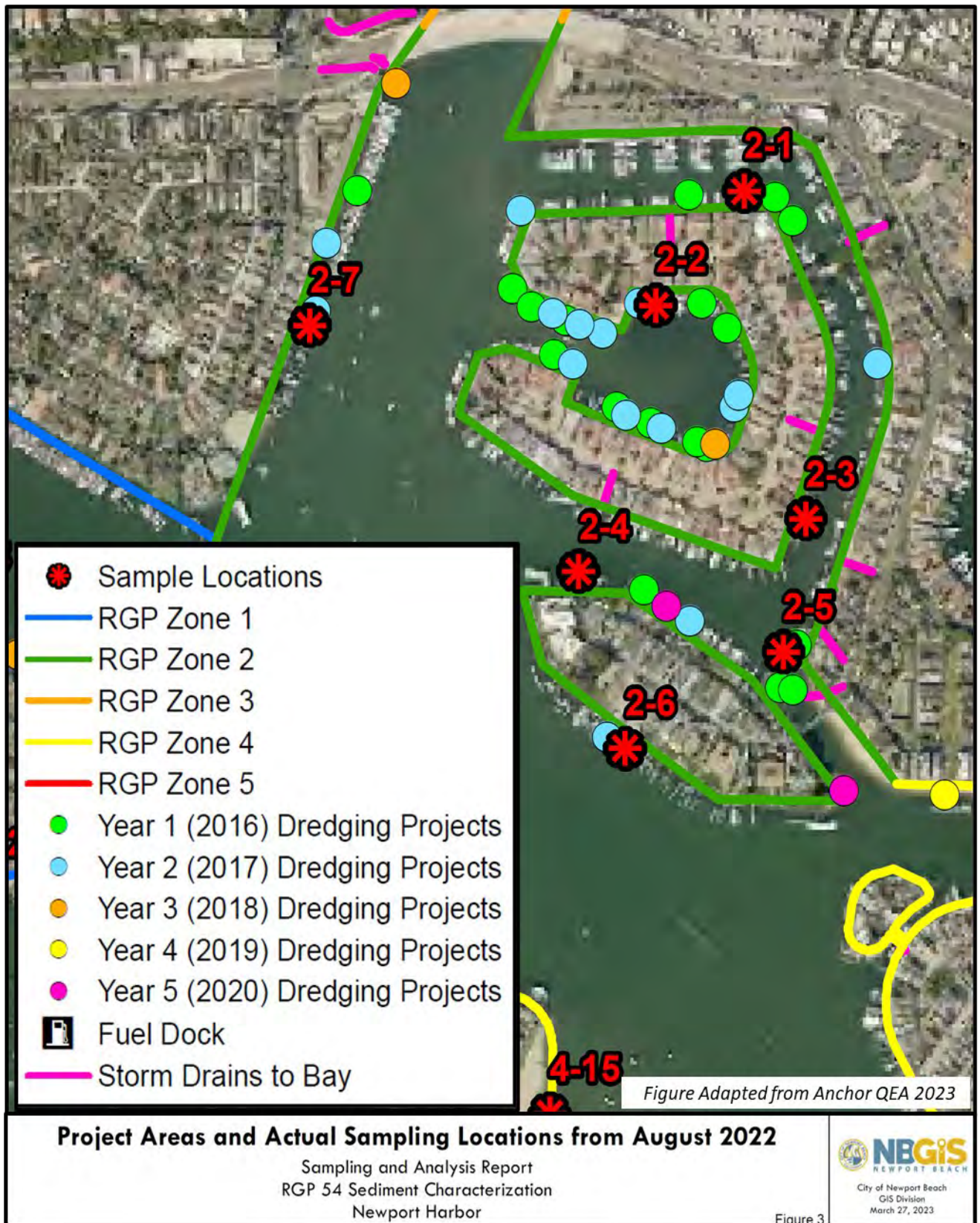


Figure 4. Prior Sediment Sampling in the Project Vicinity (Figure Adapted from Anchor QEA 2023)

Sampling conducted in the RGP 54 sediment composite for Subarea 2 revealed a sand content of 45.6% with silt and clay comprising 54.5% of the sample. Two metals exceeded the ERL but did not exceed the ERM screening levels, copper (37.4 mg/kg) and mercury (0.56 mg/kg). In addition, four organic chemicals exceeded the ERL but not the ERM screening levels. These include 4,4'-DDD and 4,4'-DDE (2.94 µg/kg and 20.2 µg/kg, respectively), total DDT and congeners (DDX, 24.9 µg/kg), and Total Chlordane (0.76 µg/kg). The January 2023 sampling analysis of the RGP-2A composite, including site 2-2 from within the lagoon, revealed fewer chemical contaminants with no metals exceeding the ERL screening levels, and only 4,4'-DDE and total DDX exceeding the ERL screening levels (5.5 µg/kg and 6.47 µg/kg, respectively). Solid phase testing for amphipod mortality bioassays found the RGP-2A composite meeting the limiting permissible concentration (LPC) for Ocean Disposal having a mean survival rate of 92% compared to a 93% survival rate within the LA-3 reference sediments (Anchor QEA 2023).

Sediment chemical contamination within RGP Subarea 2 has shown a general consistency in constituents with elevated levels from sampling conducted in 2013, 2017, and 2022-2023. However, elevated levels and numbers of elevated constituents exceeding ERL screening levels have continued to decline over time. The results of the 2022-2023 RGP 54 sediment testing program concluded that material within the Linda Isle Lagoon and adjacent areas is “[S]uitable to -15 feet MLLW plus 2 feet of overdepth for unrestricted disposal at the LA-3 ODMDs. Material proposed for beach replenishment or nearshore placement must have grain size verification and chemical testing for DDTs with agency concurrence to verify suitability prior to placement. Z-layer testing is required to confirm post-dredge surface contains DDT concentrations less than 18.0 ppb.” (Anchor QEA 2023).

Recent 2024 DDT sampling conducted to support 2024-2025 RGP 54 maintenance dredging concurrent with the proposed HOA dredging included Z-layer sampling of 17 locations adjacent to the proposed Association’s lagoon dredging (Appendix 2). The Z-layer total DDX averaged 4.74 µg/kg with the maximum concentration at planned dredge depths being 16.80 µg/kg.

Because proposed dredging within the Linda Isle Lagoon is very similar to that covered by the RGP 54 dredging program that has previously characterized sediments, including during recent sampling for the dredging program (Anchor QEA 2023), and because sediments within this area of the bay have been determined to be suitable for ocean disposal at LA-3 ODMDs, the sampling and analysis plan very closely follows that of the prior RGP 54 sediment characterization program (Anchor QEA 2023).

## **PROJECT MANAGEMENT AND RESPONSIBILITIES**

Members of the sediment sampling project team and their responsibilities are outlined below.

### **Field Sampling Program**

Keith Merkel will be Merkel & Associates’ project manager. He will be responsible for project oversight, management of the project team, final report review and presentation of report results and findings to appropriate regulatory agencies. The field sampling crew will be led by Jordan Volker, M&A senior scientist and Field Logistics Coordinator who will be responsible for sampling vessel operations and vibracoring activities. Samuel Schipper, M&A senior marine scientist will serve as the field manager for the work. He

will be responsible for logging of cores and collection and compositing of samples and maintaining chain of custody.

### Laboratory Project Management

Lawrence Honma will serve as M&A's quality assurance (QA) manager. He will provide QA oversight for the laboratory program, coordinate with the analytical and bioassay laboratories, ensure data quality, oversee data validation, and will manage the QA elements of the sampling and analysis program. This includes ensuring that all sampling, transfer, and laboratory analyses meet the data quality objectives (DQOs) required by OTM (USEPA and USACE 1991) and ITM (USEPA and USACE 1998) guidelines. Lawrence will be responsible for ensuring that all aspects of the sampling and analysis process have met required standards and he shall ensure that the component elements including core logs, field sampling photographs and notes, chain of custody (COC) forms, laboratory analysis reports, and other documentation that may be generated and salient to the analyses are appended to the Sampling and Analysis Report (SAPR).

The laboratories intended to conduct analysis for the work are identified in Table 2. These laboratories have required capacity and certifications to conduct the analysis planned for the sediment sampling program.

**Table 2. Laboratories, Points of Contact, and Shipping Information**

Laboratory	Analyses Performed	Point of Contact	Shipping Information
Physis Environmental Laboratories, Inc.	Sediment Chemistry	Mark Baker Office: 1-714-602-5320 ext 204 Mobile: (714) 335-5793	Physis Environmental Laboratories, Inc. 1904 East Wright Circle Anaheim, California 92806
WSP USA, Inc.	Biological Testing	Steve Carlson (858) 299-5368	WSP USA, Inc. Aquatic Toxicology Laboratory 4905 Morena Boulevard, Suite 1304 San Diego, California 92117

Contract laboratories shall be required to follow the established testing methods set forth in this SAP, provide written and digital data reports for summarizing information and provide supporting appendices to the SAPR. The laboratories must meet all the required reporting requirements set forth in the SAP and shall implement QA/QC procedures as required under this SAP as well as by the OTM (USEPA and USACE 1991) and ITM (USEPA and USACE 1998) guidelines. Finally, laboratories shall maintain COC documentation, collect and log metadata on analyses, meet testing and hold time requirements, and shall promptly deliver results to Merkel & Associates.

## **SAMPLING PROGRAM FOR SEDIMENT COLLECTION AND HANDLING**

Sediment collection will be performed by vibracoring. The sampling vessel, positioning equipment, and sampling equipment and field collection methods are outlined below.

### **Sampling Vessel**

Merkel & Associates will provide the sampling vessel, a 26-foot open deck pontoon boat equipped with a high bow A-frame and electric winch for deploying and retrieving a vibracore with up to a 12-foot barrel. The vessel includes an elevated roller cart to receive the vibracore head allowing the core tube to be easily retrieved with a sloping gradient to ensure maintenance of an intact core stratigraphy. The vessel is equipped with separate handling and processing areas to maintain to avoid cross contamination. The vessel conforms to U.S. Coast Guard safety standards. Operation of the vessel will be the responsibility of Mr. Volker.

Sediment collection from the LA-3 ODMS reference site (33.5283°; -117.855°, approximately 450m deep) will be conducted using pipe dredge sampling equipment and site water will be collected from the Linda Isle Lagoon using a Niskin water sampler and transferred to polyethylene cubitainers for preparation of elutriates.

### **Navigation and Vertical Control**

On-vessel navigation and positioning will be accomplished using a Hemisphere real time kinematic (RTK) GPS. The navigation system will be used to guide the vessel to the pre-determined sampling locations with submeter accuracy. Horizontal positions will be reported in latitude and longitude. Positions will be relative to North American Datum of 1983 (NAD83).

Upon locating the sampling position, station depth will be determined by a lead line at the location of sampling and the mudline vertical elevation in feet MLLW will be determined by subtracting the tide stage elevation from the measured water depth.

### ***Caulerpa* and Vessel Positioning**

Newport Bay is considered to be a *Caulerpa* infected system and, as such, holding the position of the vessel by anchoring poses some risk of *Caulerpa* spread. To mitigate this risk, several actions have been and are to be taken with the sediment sampling program. First, a high intensity *Caulerpa* survey was conducted in accordance with the *Caulerpa* Control Protocol (CCP, NMFS 2021, Ver. 5) within the lagoon in June 2024 to assess the potential that the lagoon supported *Caulerpa*. No *Caulerpa* was identified at that time. Second, positioning of the sampling vessel will either be done in a manner that avoids bottom disturbance associated with anchoring by using floating lines attachment to nearby dock structures to hold position, or anchors will be set by a *Caulerpa* certified diver with a surface mooring to which the vessel will be tethered. This arrangement will allow the diver to fully inspect the point of anchoring and drag area of ground tackle for the anchor rode for *Caulerpa*. The diver will also inspect the location of vibracoring prior to commencing the coring operation. A negative high intensity level survey under the CCP was completed in the Lagoon in June 2025.

### Sample Identification

Each sediment core location and each individual and composite sediment sample will be assigned a unique alphanumeric identifier using the following format:

#### Core Sample IDs

- The first set of four characters identify the site (i.e., LILA for Linda Isle Lagoon).
- The next set of two characters identify the sample number (i.e., 01 to 08 for the eight stations planned).
- The next 6 digits in the sample identify the date of collection in a MMDDYY format.

#### Composite Sample IDs

- The first set of four characters identify the site (i.e., LILA).
- The next set of digits identifies the sample as a composite (e.g., COMP)
- The next set of digits provides the date of sample collection in a MMDDYY format

#### Z-Layer Sample IDs

- The first set of four characters identify the site.
- The next set of two characters identify the sample number.
- The next character identifies the Z-layer (Z for Z-layer).
- The remaining set of six characters identify the sampling date.

#### Site Water Sample IDs

- The first set of four characters identify the site as the LA-3 ODMDS (e.g., LA-3).
- The next set of characters identify the sample as reference sediment (REF\_SED)
- The remaining set of six characters identify the sampling date.

For the Linda Isle Lagoon maintenance dredging project the sampling nomenclature is identified in Table 3.

**Table 3. Sample Identifiers**

Station ID	Sediment Core			Site Water Sample ID
	Core Sample ID	Composite Sample ID	Z-Layer Sample ID	
LILA-01	LILA-01- MMDDYY	LILA-COMP- MMDDYY	LILA-01-Z- MMDDYY	LILA-SW- MMDDYY
LILA-02	LILA-02- MMDDYY		LILA-02-Z- MMDDYY	
LILA-03	LILA-03- MMDDYY		LILA-03-Z- MMDDYY	
LILA-04	LILA-04- MMDDYY		LILA-04-Z- MMDDYY	
LILA-05	LILA-05- MMDDYY		LILA-05-Z- MMDDYY	
LILA-06	LILA-06- MMDDYY		LILA-06-Z- MMDDYY	
LILA-07	LILA-07- MMDDYY		LILA-07-Z- MMDDYY	
LILA-08	LILA-08- MMDDYY		LILA-08-Z- MMDDYY	
LA-3-REF	LA_3-REF_SED-MMDDYY			

### Station Locations

Six stations were identified for sediment core sampling to determine suitability for ocean disposal. The stations were selected to provide a good spatial representation of the dredge footprint and target areas of increased shoaling. Proposed stations are shown in Figure 2. Target coordinates, estimated mudline elevations, and target core lengths for each station are presented in Table 4.

**Table 4. Station Coordinates, Mudline Elevations, and Target Core Lengths**

Station ID	Sampling Method	Latitude: Longitude	Mudline Elevation (ft MLLW)	Design Depth +2' Overdepth (ft MLLW)	Depth of Z-Layer (feet)	Target Core Length (feet)
LILA-01	Vibracore	33.614397°; -117.905042°	-6.2	-12.0	0.5	6.3
LILA-02	Vibracore	33.614003°; -117.904923°	-6.0	-12.0	0.5	6.5
LILA-03	Vibracore	33.613788°; -117.903930°	-6.6	-12.0	0.5	5.9
LILA-04	Vibracore	33.613460°; -117.903662°	-3.8	-10.0	0.5	6.7
LILA-05	Vibracore	33.613248°; -117.902889°	-5.2	-10.0	0.5	5.3
LILA-06	Vibracore	33.613453°; -117.902160°	-5.1	-10.0	0.5	5.4
LILA-07	Vibracore	33.613914°; -117.902687°	-5.0	-10.0	0.5	5.5
LILA-08	Vibracore	33.613806°; -117.903220°	-4.9	-10.0	0.5	5.6

### Sampling, Processing, and Laboratory Delivery

Sampling activities will include the collection of sediment cores and site water, on-site processing of the cores, compositing of samples, and delivery to analytical and biological laboratories. Each sample container will be labeled using an indelible-ink pen. Labels will include the project name, sample ID, preservation method, requested analyses, date and time of collection and preparation, and the initials of the individual who prepared the sample.

While in the field, all samples will be stored in coolers with crushed ice or ice packs to maintain a temperature close to 4°C. Upon return from the field, archived chemistry samples will be frozen at temperatures below -10°C and may be retained for up to one year after collection. All other samples will be transferred to the appropriate analytical chemistry and biological laboratories, accompanied by a Chain of Custody (COC) form completed by the field collector.

### Sample Collection and Field Processing

#### *Sediment Cores*

Sediment cores will be collected at eight stations representing the dredge site. Cores will be collected to the design depth plus 2 feet of overdepth and the Z-layer, a 0.5-foot depth beyond the overdepth allowance depth. Should core penetration refusal occur prior to reaching target depth, this will be noted

along with the stratigraphy or other reason for refusal.

Sediment cores will be collected using an electrically powered vibracore. Core tubes will consist of polyethylene liners inside a 3-inch-outer-diameter aluminum core barrel with a stainless-steel catcher to retain the sediment. The core tube will be cleaned with Alconox and a new liner will be inserted into the core tube prior to sampling at each successive station to eliminate the possibility of cross-contamination. The vibracore will be deployed from the vessel using an electric winch. The vibracore will be energized as it penetrates the mudline and lowered in a vertical orientation by maintaining tension on the winch cable as the core penetrates the sediment. A tape attached to the corer will be used to measure penetration and upon reaching the target depth of penetration, the vibracore will be turned off and the penetration depth recorded. The vibracore and sample will then be retrieved by dead pull.

Once on the deck, the liner will be extracted with the core onto a PVC core tray and split lengthwise to open the core up for logging and processing. Multiple cores are anticipated to be required at each station to obtain adequate material volume necessary to support bioassay testing and analytical chemistry analyses.

If refusal is met with less than 90 percent penetration of the core length, two additional attempts will be made at slightly offset locations. Should any one of the attempts be successful in reaching target depth, then the core will be considered acceptable. Should all cores fall short of the target depth, the longest core will be processed and accepted as characterizing the site.

Sediment core samples will be processed on the sampling vessel. This will commence with photographing and logging the physical characteristics of the core including making note of color, density, texture, moisture condition, odors and sheen, stratigraphy and integrity of the core. The lithology of the core will follow the Unified Soil Classification System (USCS) as outlined in ASTM Standards D-2488 and D-2487. The core will be logged on pre-prepared log sheets (Appendix 1). As multiple cores may be required to meet sediment volume needs, a representative core from each sampling location will be photographed. Should cores collected at the same location differ in observed character multiple cores will be photographed. Table 5 presents the sediment sample compositing scheme and proposed testing strategy.

**Table 5. Sediment Sample Compositing Scheme and Testing Strategy**

Site	Core Sample ID	Composite Sample ID	Chemistry Archive	Physical and Chemical Analyses	Toxicity Tests	Bioaccumulation Potential Tests
LILA	LILA-01 LILA-02 LILA-03 LILA-04 LILA-05 LILA-06 LILA-07 LILA-08	LILA-COMP	<b>Individual Sample Cores</b> (250-mL) <b>Site Composite</b> (250-mL) – Frozen at -10°C	<b>Composite</b> (per individual jars provided by analytical laboratory)  <b>Z-layer Individual Sample Cores</b> (50-mL for DDX analysis)	<b>Composite</b> (Polyethylene bag)	<b>Composite</b> (Polyethylene bag)
LA-3 Reference Site	--	LA5-REF	<b>Surface Grab</b> (250-mL) Frozen at -10°C	<b>Surface Grab</b> (per individual jars provided by analytical laboratory)	<b>Composite</b> (Polyethylene bag) Solid Phase only	<b>Composite</b> (Polyethylene bag)

Sediment from the entire length of the core (to design depth plus 2-foot overdepth) will be individually homogenized to a uniform consistency in a stainless-steel mixing bowl. A 250-milliliter (mL) subsample of each individual homogenized core will be archived to allow for additional chemical analysis, if necessary. The Z-layer at each station, consisting of the 0.5-foot interval below design depth plus overdepth, will be collected, homogenized, and a 250-mL sample will be collected for analyses for DDT and its congeners to determine the total DDX concentrate for the Z-layer. Additional core depth may be collected beyond the tested Z-layer and will be frozen in 6-inch depth segments for potential subsequent Z-layer analyses should it be determined necessary to adjust the over depth to remove additional DDX contamination above the TMDL 18 ppb threshold.

One composite sample will be created from each of the eight stations. To create the composite sample, a volume proportionate to the core lengths will be homogenized together. The composite sample will then be placed into laboratory provided jars with Teflon®-lined lids appropriate for the physical and chemical analyses to be performed. An additional 250-mL subsample of the composite will be archived to allow for additional chemical analysis, if necessary. The remaining sediment will be placed into food-grade polyethylene bags and sealed airtight for biological testing.

#### **Reference Sediment**

Reference sediment will be collected from the LA-3 ODMDS using a pipe dredge. The pipe dredge will be deployed from the vessel and towed across the seafloor at the reference site to scoop up benthic sediment. The sediment will be brought back to the vessel homogenized as a composite of collected material, divided into a 250 mL container for physical and chemical characterization with the remainder being placed in a sealed polyethylene bag placed within an ice chest for transport to the biological testing laboratory.

**Site Water**

Site water will be collected for suspended particulate phase testing requirements. Site water will be collected from within the Linda Isle Lagoon dredge area using a Niskin water sampler. Site water will be transferred from the sampler to polyethylene cubitainers. Site water will be held in coolers on ice at temperatures of  $4^{\circ}\text{C} \pm 2^{\circ}\text{C}$ .

**Field Equipment Decontamination Procedure**

The deck, work benches, and other surfaces on the sampling barge will be rinsed with site water between stations. Sampling equipment will be cleaned with Alconox and then rinsed with site water. Equipment will then be rinsed in distilled water as a final decontamination procedure. Any equipment that cannot be adequately cleaned will be replaced between sampling sites.

**Documentation**

All aspects of sampling, sample handling, and transfer will be thoroughly documented in a field notebook, sediment core log forms, applicable chain-of-custody (COC) forms, sample container labels, and photographs. A comprehensive record of field activities will be maintained, and any deviations from standard procedures will be fully described and included in the final report. Documentation will cover field operations, sample transport, and laboratory analyses.

The field manager will be responsible for maintaining the field notebook, which will include records of environmental conditions, personnel on site, and all sampling activities. Each sediment core will be documented and photographed using a designated core log form. The log will record the sampling personnel, water depth, core penetration depth, recovery, refusal depth (if applicable), and any sampling limitations encountered. It will also include sediment descriptions, identification of strata, and observations of any distinct color, odor, or sheen. A representative core from each location will be photographed.

Core logs will include the project name, sampling site identification, and core numbers if multiple cores are collected from a single site. Core photographs will include a tape measure placed along the length of the core (starting from the top) and a whiteboard displaying the date, time, and core number.

Chain-of-custody protocols will be strictly followed throughout sample collection, handling, and analysis. COC forms will accompany all samples during transfer and will provide detailed instructions regarding sample handling and processing. The field manager will oversee all sample tracking and COC procedures, including maintaining final sample inventories, completing all custody documentation, and ensuring that COC and tracking forms are filled out before samples are transferred to the laboratories.

Each cooler of samples sent to the analytical and biological laboratories will be accompanied by a COC form. Laboratories receiving the samples will document their receipt and any subsequent transfers. Copies of all COC forms will be stored in the project files and included in the Sampling and Analysis Report. If any discrepancies between the COC forms and the samples are identified upon receipt, the laboratory will immediately notify the field coordinator or designated representative.

Sediment and site water samples will be packed in coolers with crushed ice or frozen ice packs and delivered via courier to the laboratories. Upon receipt, the laboratory project manager will ensure that all COC forms are properly signed and will document any issues related to sample integrity on the forms. The receiving laboratory will also measure the temperature of the temperature blank included in each cooler and note whether the cooler contains sufficient ice packs or if the temperature is inadequate.

### PHYSICAL AND CHEMICAL ANALYSES

Physical and chemical analyses will be conducted for sediments and tissues to determine suitability of material for disposal at LA-3.

#### Sediment

Physical and chemical analyses of the sediment core composite sample will include grain size, total solids, total organic carbon (TOC), ammonia as nitrogen [ammonia-N], sulfides, total recoverable petroleum hydrocarbons (TRPH), metals, organotins, chlorinated pesticides, PAHs, PCB congeners, and pyrethroids. PCBs (USEPA and USACE 2021). Analytical methods used will follow USEPA, Standard Methods, or ASTM International protocols as identified in Table 6 along with method detection limits (MDLs) associated with testing procedures, reporting limits (RLs), and the applicable units of measure. Appropriate containers, holding times, and preservation for sediment analysis are provided in Table 7.

**Table 6. Analyzed Parameters, Recommended Analytical Methods, and Target Method Detection Limits and Reporting Limits for Sediment**

Parameter	Recommended Analytical Method	Units	Sediment MDL <sup>1</sup>	Sediment RL <sup>1</sup>
<b>Physical and Conventional Parameters</b>				
Total solids	SM 2540B	% wet weight	0.1	0.1
Total Organic Carbon (TOC)	USEPA 9060	%	0.01	0.01
Grain size/particle size distribution	SM 2560 D	%	0.05	0.05
Ammonia-N	SM 4500-NH3 D or 350.1M	mg/kg	0.02	0.03
Dissolved sulfides	Plumb 1981	mg/kg	0.2	0.4
Total sulfides	Plumb 1981	mg/kg	0.2	0.4
Total recoverable petroleum hydrocarbons (TRPH)	SM 5520 E	mg/kg	100	200

Parameter	Recommended Analytical Method	Units	Sediment MDL <sup>1</sup>	Sediment RL <sup>1</sup>
<b>Metals</b>				
Arsenic	USEPA 6020	mg/kg	0.025	0.05
Cadmium	USEPA 6020	mg/kg	0.0025	0.005
Chromium	USEPA 6020	mg/kg	0.0025	0.005
Copper	USEPA 6020	mg/kg	0.0025	0.005
Lead	USEPA 6020	mg/kg	0.0025	0.005
Mercury	USEPA 7471A	mg/kg	0.00001	0.00002
Nickel	USEPA 6020	mg/kg	0.01	0.02
Selenium	USEPA 6020	mg/kg	0.025	0.05
Silver	USEPA 6020	mg/kg	0.01	0.02
Zinc	USEPA 6020	mg/kg	0.025	0.05
<b>PAHs</b>				
1-Methylnaphthalene	USEPA 8270E	µg/kg	0.084	0.5
2-Methylnaphthalene	USEPA 8270E	µg/kg	0.106	0.5
Acenaphthene	USEPA 8270E	µg/kg	0.078	0.5
Acenaphthylene	USEPA 8270E	µg/kg	0.058	0.5
Anthracene	USEPA 8270E	µg/kg	0.046	0.5
Benzo(a)anthracene	USEPA 8270E	µg/kg	0.107	0.5
Benzo(a)pyrene	USEPA 8270E	µg/kg	0.106	0.5
Benzo(b)fluoranthene	USEPA 8270E	µg/kg	0.063	0.5
Benzo(g,h,i)perylene	USEPA 8270E	µg/kg	0.093	0.5
Benzo(k)fluoranthene	USEPA 8270E	µg/kg	0.111	0.5
Chrysene	USEPA 8270E	µg/kg	0.067	0.5
Dibenzo(a,h)anthracene	USEPA 8270E	µg/kg	0.106	0.5
Fluoranthene	USEPA 8270E	µg/kg	0.035	0.5
Fluorene	USEPA 8270E	µg/kg	0.068	0.5
Indeno(1,2,3-cd)pyrene	USEPA 8270E	µg/kg	0.087	0.5
Naphthalene	USEPA 8270E	µg/kg	0.187	0.5
Phenanthrene	USEPA 8270E	µg/kg	0.074	0.5
Pyrene	USEPA 8270E	µg/kg	0.048	0.5
<b>Organotins</b>				
Monobutyltin	Krone et al. 1989	µg/kg	1	3
Dibutyltin	Krone et al. 1989	µg/kg	1	3
Tributyltin	Krone et al. 1989	µg/kg	1	3
Tetrabutyltin	Krone et al. 1989	µg/kg	1	3
<b>PCB Congeners</b>				
PCB018	USEPA 8270E	µg/kg	0.029	0.2

Parameter	Recommended Analytical Method	Units	Sediment MDL <sup>1</sup>	Sediment RL <sup>1</sup>
PCB028	USEPA 8270E	µg/kg	0.023	0.2
PCB037	USEPA 8270E	µg/kg	0.06	0.2
PCB044	USEPA 8270E	µg/kg	0.028	0.2
PCB049	USEPA 8270E	µg/kg	0.036	0.2
PCB052	USEPA 8270E	µg/kg	0.012	0.2
PCB066	USEPA 8270E	µg/kg	0.027	0.2
PCB070	USEPA 8270E	µg/kg	0.023	0.2
PCB074	USEPA 8270E	µg/kg	0.021	0.2
PCB077	USEPA 8270E	µg/kg	0.018	0.2
PCB081	USEPA 8270E	µg/kg	0.084	0.2
PCB087	USEPA 8270E	µg/kg	0.081	0.2
PCB099	USEPA 8270E	µg/kg	0.028	0.2
PCB101	USEPA 8270E	µg/kg	0.027	0.2
PCB105	USEPA 8270E	µg/kg	0.047	0.2
PCB110	USEPA 8270E	µg/kg	0.074	0.2
PCB114	USEPA 8270E	µg/kg	0.072	0.2
PCB118	USEPA 8270E	µg/kg	0.069	0.2
PCB119	USEPA 8270E	µg/kg	0.071	0.2
PCB123	USEPA 8270E	µg/kg	0.018	0.2
PCB126	USEPA 8270E	µg/kg	0.086	0.2
PCB128	USEPA 8270E	µg/kg	0.081	0.2
PCB138	USEPA 8270E	µg/kg	0.057	0.2
PCB149	USEPA 8270E	µg/kg	0.092	0.2
PCB151	USEPA 8270E	µg/kg	0.073	0.2
PCB153	USEPA 8270E	µg/kg	0.065	0.2
PCB156	USEPA 8270E	µg/kg	0.089	0.2
PCB157	USEPA 8270E	µg/kg	0.103	0.2
PCB158	USEPA 8270E	µg/kg	0.074	0.2
PCB167	USEPA 8270E	µg/kg	0.049	0.2
PCB168/132	USEPA 8270E	µg/kg	0.094	0.2
PCB169	USEPA 8270E	µg/kg	0.116	0.2
PCB170	USEPA 8270E	µg/kg	0.118	0.25
PCB177	USEPA 8270E	µg/kg	0.085	0.25
PCB180	USEPA 8270E	µg/kg	0.154	0.25
PCB183	USEPA 8270E	µg/kg	0.056	0.25
PCB187	USEPA 8270E	µg/kg	0.168	0.25
PCB189	USEPA 8270E	µg/kg	0.109	0.25

Parameter	Recommended Analytical Method	Units	Sediment MDL <sup>1</sup>	Sediment RL <sup>1</sup>
PCB194	USEPA 8270E	µg/kg	0.164	0.25
PCB201	USEPA 8270E	µg/kg	0.104	0.25
PCB206	USEPA 8270E	µg/kg	0.155	0.25
<b>Organochlorine Pesticides</b>				
2,4-DDD	USEPA 8270E	µg/kg	0.267	0.5
2,4-DDE	USEPA 8270E	µg/kg	0.2	0.5
2,4-DDT	USEPA 8270E	µg/kg	0.194	0.5
4,4-DDD	USEPA 8270E	µg/kg	0.198	0.5
4,4-DDE	USEPA 8270E	µg/kg	0.193	0.5
4,4-DDT	USEPA 8270E	µg/kg	0.128	0.5
Aldrin	USEPA 8270E	µg/kg	0.25	0.5
Alpha-BHC	USEPA 8270E	µg/kg	0.25	0.5
Beta-BHC	USEPA 8270E	µg/kg	0.25	0.5
Delta-BHC	USEPA 8270E	µg/kg	0.25	0.5
Gamma-BHC (Lindane)	USEPA 8270E	µg/kg	0.25	0.5
Alpha-Chlordane	USEPA 8270E	µg/kg	0.187	0.5
Gamma-Chlordane (beta-Chlordane)	USEPA 8270E	µg/kg	0.179	0.5
Cis-nonachlor	USEPA 8270E	µg/kg	0.192	0.5
Dieldrin	USEPA 8270E	µg/kg	0.1	0.2
Endosulfan I	USEPA 8270E	µg/kg	0.25	0.5
Endosulfan II	USEPA 8270E	µg/kg	0.25	0.5
Endosulfan Sulfate	USEPA 8270E	µg/kg	0.25	0.5
Endrin	USEPA 8270E	µg/kg	0.25	0.5
Endrin Aldehyde	USEPA 8270E	µg/kg	0.25	0.5
Endrin Ketone	USEPA 8270E	µg/kg	0.25	0.5
Heptachlor	USEPA 8270E	µg/kg	0.25	0.5
Heptachlor Epoxide	USEPA 8270E	µg/kg	0.25	0.5
Methoxychlor	USEPA 8270E	µg/kg	0.25	0.5
Oxychlordane	USEPA 8270E	µg/kg	0.25	0.5
Toxaphene	USEPA 8270E-NCI	µg/kg	10	20
Trans-nonachlor	USEPA 8270E	µg/kg	0.186	0.5
<b>Pyrethroids</b>				
Allethrin	USEPA 8270E-NCI	µg/kg	0.28	0.5
Bifenthrin	USEPA 8270E-NCI	µg/kg	0.22	0.5
Cyfluthrin	USEPA 8270E-NCI	µg/kg	0.25	0.5
Cyhalothrin, Total Lambda	USEPA 8270E-NCI	µg/kg	0.23	0.5
Cypermethrin	USEPA 8270E-NCI	µg/kg	0.25	0.5

Parameter	Recommended Analytical Method	Units	Sediment MDL <sup>1</sup>	Sediment RL <sup>1</sup>
Danitol (Fenpropathrin)	USEPA 8270E-NCI	µg/kg	0.21	0.5
Deltamethrin/Tralomethrin	USEPA 8270E-NCI	µg/kg	0.25	0.5
Esfenvalerate	USEPA 8270E-NCI	µg/kg	0.25	0.5
Fenvalerate	USEPA 8270E-NCI	µg/kg	0.25	0.5
Fluvalinate	USEPA 8270E-NCI	µg/kg	0.23	0.5
Permethrin, cis-	USEPA 8270E-NCI	µg/kg	0.17	0.5
Permethrin, trans-	USEPA 8270E-NCI	µg/kg	0.22	0.5
Sumithrin (Phenothrin)	USEPA 8270E-NCI	µg/kg	1	5
Resmethrin	USEPA 8270E-NCI	µg/kg	0.38	1
Tetramethrin	USEPA 8270E-NCI	µg/kg	1	5

1. Target MDLs and RLs are listed in wet weight and may increase due to dry weight correction, dilutions, or matrix interference.

**Table 7. Container Requirements, Holding Times, and Preservation Methods for Sediment**

Parameter	Sample Size	Container Size and Type	Holding Time	Sample Preservation Technique
Grain size	300 g	16-ounce plastic Ziplock bag	6 months	Cool 4°C
Total solids	15 g	8-ounce glass	14 days	Cool 4°C
			6 months	Freeze -18°C
TOC	15 g		28 days	Cool 4°C
			1 year	Freeze -18°C
Metals (except Hg)	10 g		6 months; 28 days for mercury	Cool 4°C
			2 years; 6 months for mercury	Freeze -18°C
			28 days	Freeze -18°C
PAHs/PCBs/ organotins/ pesticides/ pyrethroids	100 g		14 days until extraction	Cool 4°C
			1 year until extraction	Freeze -18°C
			40 days until analysis	Cool 4°C
TRPH	100g	8-ounce glass	14 days	HCL, Cool4°C
Archive	125 g	8-ounce glass	Varies per analysis	Freeze -18°C

### Tissue

At the completion of bioaccumulation tests, tissue from organisms exposed to project site and reference sediment, as well as Day 0 tissue (i.e., tissue from test organisms not exposed to project sediments), will be depurated, frozen, and submitted for tissue chemistry analyses. The tissue analyte list will be determined based on those analytes in the sediment composite sample that are significantly different from the reference and those with a propensity to bioaccumulate. The proposed tissue analyte list will be submitted to USEPA for approval prior to analysis. A comprehensive tissue target analyte list for the

evaluation of tissue samples is presented in Table 8.

**Table 8. Analyzed Parameters, Recommended Analytical Methods, and Target Method Detection Limits and Reporting Limits for Tissue**

Parameter	Recommended Analytical Method	Units	Tissue MDL <sup>1</sup>	Tissue RL <sup>1</sup>
<b>Physical Parameters</b>				
Percent lipids	SM 2540B	%	0.1	0.1
<b>Metals</b>				
Arsenic	USEPA 6020	mg/kg	0.025	0.05
Cadmium	USEPA 6020	mg/kg	0.0025	0.005
Chromium	USEPA 6020	mg/kg	0.0025	0.005
Copper	USEPA 6020	mg/kg	0.0025	0.005
Lead	USEPA 6020	mg/kg	0.0025	0.005
Mercury	USEPA 7471A	mg/kg	0.00001	0.00002
Nickel	USEPA 6020	mg/kg	0.01	0.02
Selenium	USEPA 6020	mg/kg	0.025	0.05
Silver	USEPA 6020	mg/kg	0.01	0.02
Zinc	USEPA 6020	mg/kg	0.025	0.05
<b>PAHs</b>				
1-Methylnaphthalene	USEPA 8270E	µg/kg	0.084	0.5
2-Methylnaphthalene	USEPA 8270E	µg/kg	0.106	0.5
Acenaphthene	USEPA 8270E	µg/kg	0.078	0.5
Acenaphthylene	USEPA 8270E	µg/kg	0.058	0.5
Anthracene	USEPA 8270E	µg/kg	0.046	0.5
Benzo(a)anthracene	USEPA 8270E	µg/kg	0.107	0.5
Benzo(a)pyrene	USEPA 8270E	µg/kg	0.106	0.5
Benzo(b)fluoranthene	USEPA 8270E	µg/kg	0.063	0.5
Benzo(g,h,i)perylene	USEPA 8270E	µg/kg	0.093	0.5
Benzo(k)fluoranthene	USEPA 8270E	µg/kg	0.111	0.5
Chrysene	USEPA 8270E	µg/kg	0.067	0.5
Dibenzo(a,h)anthracene	USEPA 8270E	µg/kg	0.106	0.5
Fluoranthene	USEPA 8270E	µg/kg	0.035	0.5
Fluorene	USEPA 8270E	µg/kg	0.068	0.5
Indeno(1,2,3-cd)pyrene	USEPA 8270E	µg/kg	0.087	0.5
Naphthalene	USEPA 8270E	µg/kg	0.187	0.5
Phenanthrene	USEPA 8270E	µg/kg	0.074	0.5
Pyrene	USEPA 8270E	µg/kg	0.048	0.5

Parameter	Recommended Analytical Method	Units	Tissue MDL <sup>1</sup>	Tissue RL <sup>1</sup>
<b>Organotins</b>				
Monobutyltin	Krone et al. 1989	µg/kg	1	3
Dibutyltin	Krone et al. 1989	µg/kg	1	3
Tributyltin	Krone et al. 1989	µg/kg	1	3
Tetrabutyltin	Krone et al. 1989	µg/kg	1	3
<b>PCB Congeners</b>				
PCB018	USEPA 8270E	µg/kg	0.029	0.2
PCB028	USEPA 8270E	µg/kg	0.023	0.2
PCB037	USEPA 8270E	µg/kg	0.06	0.2
PCB044	USEPA 8270E	µg/kg	0.028	0.2
PCB049	USEPA 8270E	µg/kg	0.036	0.2
PCB052	USEPA 8270E	µg/kg	0.012	0.2
PCB066	USEPA 8270E	µg/kg	0.027	0.2
PCB070	USEPA 8270E	µg/kg	0.023	0.2
PCB074	USEPA 8270E	µg/kg	0.021	0.2
PCB077	USEPA 8270E	µg/kg	0.018	0.2
PCB081	USEPA 8270E	µg/kg	0.084	0.2
PCB087	USEPA 8270E	µg/kg	0.081	0.2
PCB099	USEPA 8270E	µg/kg	0.028	0.2
PCB101	USEPA 8270E	µg/kg	0.027	0.2
PCB105	USEPA 8270E	µg/kg	0.047	0.2
PCB110	USEPA 8270E	µg/kg	0.074	0.2
PCB114	USEPA 8270E	µg/kg	0.072	0.2
PCB118	USEPA 8270E	µg/kg	0.069	0.2
PCB119	USEPA 8270E	µg/kg	0.071	0.2
PCB123	USEPA 8270E	µg/kg	0.018	0.2
PCB126	USEPA 8270E	µg/kg	0.086	0.2
PCB128	USEPA 8270E	µg/kg	0.081	0.2
PCB138	USEPA 8270E	µg/kg	0.057	0.2
PCB149	USEPA 8270E	µg/kg	0.092	0.2
PCB151	USEPA 8270E	µg/kg	0.073	0.2
PCB153	USEPA 8270E	µg/kg	0.065	0.2
PCB156	USEPA 8270E	µg/kg	0.089	0.2
PCB157	USEPA 8270E	µg/kg	0.103	0.2
PCB158	USEPA 8270E	µg/kg	0.074	0.2
PCB167	USEPA 8270E	µg/kg	0.049	0.2
PCB168+132	USEPA 8270E	µg/kg	0.094	0.2
PCB169	USEPA 8270E	µg/kg	0.116	0.2

PCB170	USEPA 8270E	µg/kg	0.118	0.25
Parameter	Recommended Analytical Method	Units	Tissue MDL <sup>1</sup>	Tissue RL <sup>1</sup>
PCB177	USEPA 8270E	µg/kg	0.085	0.25
PCB180	USEPA 8270E	µg/kg	0.154	0.25
PCB183	USEPA 8270E	µg/kg	0.056	0.25
PCB187	USEPA 8270E	µg/kg	0.168	0.25
PCB189	USEPA 8270E	µg/kg	0.109	0.25
PCB194	USEPA 8270E	µg/kg	0.164	0.25
PCB201	USEPA 8270E	µg/kg	0.104	0.25
PCB206	USEPA 8270E	µg/kg	0.155	0.25
<b>Organochlorine Pesticides</b>				
2,4-DDD	USEPA 8270E	µg/kg	0.267	0.5
2,4-DDE	USEPA 8270E	µg/kg	0.2	0.5
2,4-DDT	USEPA 8270E	µg/kg	0.194	0.5
4,4-DDD	USEPA 8270E	µg/kg	0.198	0.5
4,4-DDE	USEPA 8270E	µg/kg	0.193	0.5
4,4-DDT	USEPA 8270E	µg/kg	0.128	0.5
Aldrin	USEPA 8270E	µg/kg	0.25	0.5
Alpha-BHC	USEPA 8270E	µg/kg	0.25	0.5
Beta-BHC	USEPA 8270E	µg/kg	0.25	0.5
Delta-BHC	USEPA 8270E	µg/kg	0.25	0.5
Gamma-BHC (Lindane)	USEPA 8270E	µg/kg	0.25	0.5
Alpha-Chlordane	USEPA 8270E	µg/kg	0.187	0.5
Gamma-Chlordane (beta-Chlordane)	USEPA 8270E	µg/kg	0.179	0.5
Cis-nonachlor	USEPA 8270E	µg/kg	0.192	0.5
Dieldrin	USEPA 8270E	µg/kg	0.1	0.2
Endosulfan I	USEPA 8270E	µg/kg	0.25	0.5
Endosulfan II	USEPA 8270E	µg/kg	0.25	0.5
Endosulfan Sulfate	USEPA 8270E	µg/kg	0.25	0.5
Endrin	USEPA 8270E	µg/kg	0.25	0.5
Endrin Aldehyde	USEPA 8270E	µg/kg	0.25	0.5
Endrin Ketone	USEPA 8270E	µg/kg	0.25	0.5
Heptachlor	USEPA 8270E	µg/kg	0.25	0.5
Heptachlor Epoxide	USEPA 8270E	µg/kg	0.25	0.5
Methoxychlor	USEPA 8270E	µg/kg	0.25	0.5
Oxychlorane	USEPA 8270E	µg/kg	0.25	0.5
Toxaphene	USEPA 8270E-NCI	µg/kg	10	20
Trans-nonachlor	USEPA 8270E	µg/kg	0.186	0.5

Parameter	Recommended Analytical Method	Units	Tissue MDL <sup>1</sup>	Tissue RL <sup>1</sup>
<b>Pyrethroids</b>				
Allethrin	USEPA 8270E-NCI	µg/kg	0.28	0.5
Bifenthrin	USEPA 8270E-NCI	µg/kg	0.22	0.5
Cyfluthrin	USEPA 8270E-NCI	µg/kg	0.25	0.5
Cyhalothrin, Total Lambda	USEPA 8270E-NCI	µg/kg	0.23	0.5
Cypermethrin	USEPA 8270E-NCI	µg/kg	0.25	0.5
Danitol (Fenpropathrin)	USEPA 8270E-NCI	µg/kg	0.21	0.5
Deltamethrin/Tralomethrin	USEPA 8270E-NCI	µg/kg	0.25	0.5
Esfenvalerate	USEPA 8270E-NCI	µg/kg	0.25	0.5
Fenvalerate	USEPA 8270E-NCI	µg/kg	0.25	0.5
Fluvalinate	USEPA 8270E-NCI	µg/kg	0.23	0.5
Permethrin, cis-	USEPA 8270E-NCI	µg/kg	0.17	0.5
Permethrin, trans-	USEPA 8270E-NCI	µg/kg	0.22	0.5
Resmethrin	USEPA 8270E-NCI	µg/kg	0.38	1

Note:

1. Target MDLs and RLs are listed in wet weight and may increase due to dilutions or matrix interference

#### Laboratory Quality Assurance/Quality Control

Physis Environmental Laboratory follows strict quality control (QC) procedures that include both initial and ongoing instrument calibrations conducted before and during testing. These procedures incorporate a variety of calibration and verification methods, such as the use of standard reference materials (SRMs), laboratory control samples (LCSs), duplicates, matrix spikes (MS) and matrix spike duplicates (MSD), surrogate spikes (for organic analyses), and method blanks. Table 9 outlines the frequency of analysis for chemistry laboratory QA/QC samples, while Table 10 presents the data quality objectives (DQOs) for precision, accuracy, and completeness.

After each batch of samples is analyzed, the assigned analyst will immediately review the QC sample results. These results are then assessed to determine whether control limits have been exceeded. If significant deviations are observed, the project QA manager will be notified, and corrective actions will be taken before the next set of samples is processed. Corrective measures may include agreed-upon method adjustments followed by reanalysis of the affected samples, or, if an instrument issue is suspected, subcontracting the analyses to an external laboratory.

**Table 9. Frequency of Analysis for Laboratory QC Samples**

Analysis Type	Initial Calibration	Ongoing Calibration	LCS/SRM <sup>1</sup>	Duplicates	MS	MSD <sup>2</sup>	Method Blanks	Surrogate Spikes
Grain size	--	--	--	1 per 20 samples	--	--	--	--
Total solids	Each batch	--	--	1 per 20 samples	--	--	--	--
TOC	Daily or each batch	1 per 20 samples	1 per 20 samples	--	1 per 20 samples	1 per 20 samples	1 per 20 samples	--
Metals	Daily	1 per 10 samples	1 per 20 samples	--	1 per 20 samples	1 per 20 samples	1 per 20 samples	--
PAHs	As needed <sup>3</sup>	Every 12 hours	1 per 20 samples	--	1 per 20 samples	1 per 20 samples	1 per 20 samples	Every sample
Organotins	As needed <sup>3</sup>	Every 12 hours	1 per 20 samples	--	1 per 20 samples	1 per 20 samples	1 per 20 samples	Every sample
Pesticides/PCBs	As needed <sup>3</sup>	1 per 20 samples	1 per 20 samples	--	1 per 20 samples	1 per 20 samples	1 per 20 samples	Every sample
Pyrethroids	As needed <sup>3</sup>	Every 12 hours	1 per 20 samples	--	1 per 20 samples	1 per 20 samples	1 per 20 samples	Every sample

Notes:

1. When an SRM is available, it may be used in lieu of an LCS.
2. An MSD may be analyzed in lieu of a sample duplicate.
3. Initial calibrations are considered valid until the continuing calibration no longer meets method specifications. At that point, a new initial calibration is performed.

**Table 10. DQOs for Sediment and Tissue Samples**

Parameter	Precision (Replicates and MSDs as a Relative Percent Difference)	Accuracy (LCS and MS Recoveries)	Completeness
Grain size	± 20% RPD	--	95%
Total solids	± 20% RPD	--	95%
TOC	± 20% RPD	75% to 125% Recovery	95%
Metals	± 30% RPD	75% to 125% Recovery	95%
PAHs	± 35% RPD	75% to 125% Recovery	95%
PCBs	± 35% RPD	75% to 125% Recovery	95%
Pesticides	± 35% RPD	75% to 125% Recovery	95%
Organotins	± 35% RPD	75% to 125% Recovery	95%
Pyrethroids	± 35% RPD	75% to 125% Recovery	95%

**Laboratory Results Submittals**

Analytical data records will be retained by the laboratory and delivered to M&A in both Adobe Acrobat PDF and Microsoft Excel spreadsheet formats. Data will be reviewed by the QA manager. Hard-copy data packages are not proposed to be prepared. The analytical laboratory will be required, where applicable, to report the following:

- **Project report** – This report will provide a summary of any issues encountered during shipping, handling and analysis of the samples. This will include any identified issues related to QA/QC, sample hold times or temperatures, any sample damage prior to testing, and the effects of the issues on the sampling, real or potential.
- **COC records** – Copies of COC forms will be returned as part of the data. The COC forms will include the time and condition of each sample received by the laboratory. Additional tracking of sample custody by the laboratory will be documented on a sample receipt form. The form will include sample shipping container temperatures measured at the time of sample receipt and any sample leakage or potential for cross contamination.
- **Sample results** – The delivered data package will include summaries for all sample tests conducted. The data will provide results for each sample analyzed and will include the following information when applicable:
  - Field sample identification codes and any differing laboratory identification code
  - Sample matrix
  - Date of sample preparation
  - Date and time of analysis
  - Analytical method
  - Final dilution factor for the sample
  - Identification of the instrument used for analysis
  - MDLs
  - Method RLs accounting for sample-specific factors (e.g., dilution and total solids)
  - Analytical results with reporting units identified
  - Data qualifiers and their definitions
- **QA/QC summaries** – This documentation will contain the results of laboratory QA/QC procedures. Each QA/QC sample analysis will be documented with the same information required for sample results. The required QA/QC data are as follows:
  - Method blank analysis
  - Surrogate spike recovery
  - MS and MSD recovery
  - Duplicates
  - LCS recovery

### Data Review, Validation, and Verification

Analytical data will be evaluated by the QA manager for QC compliance, and their validity and applicability for program purposes will be determined. Based on the findings of the validation process, data validation qualifiers may be assigned. Laboratory data that are electronically provided will undergo a 10% check against the laboratory hard-copy data. Data will be validated or reviewed manually by the QA manager, and qualifiers will be entered manually, if appropriate based on the review. All laboratory data will be reviewed and verified to determine whether DQOs have been met. The QA manager will evaluate each element of the sample handling, testing, and analyses and will document any issues. As part of this review all laboratory protocols will be assessed against the standards set forth in this SAP.

### BIOLOGICAL TESTING

Biological testing will be performed by WSP USA's San Diego laboratory in order to determine the suitability of proposed dredged material for ocean disposal at the LA-3 ODMDS. Testing will include solid phase (SP), suspended particulate phase (SPP), and bioaccumulation phase (BP) testing according to OTM/ITM protocols. Testing will be performed on composite samples from the project site, a laboratory control sediment, and a reference sediment from the LA-3 ODMDS reference site (33.5283°; -117.8541°). Testing will be used to determine if contaminants of concern are present at concentrations such that ocean disposal of dredged material would pose an unacceptable risk of toxicity or bioaccumulation to biota.

Biological testing for this project will include two SP tests, three SPP tests, and two BP tests, as specified in Table 11. All testing will be performed in accordance with OTM (USEPA and USACE 1991) and ITM (USEPA and USACE 1998) guidelines.

**Table 11. Proposed Biological Testing**

Test Type	Organism		Reference Sediment	Control Material	Reference Toxicant Test
	Type	Taxon			
SP	Amphipod	<i>Eohaustorius estuarius</i> or <i>Ampelisca</i> sp.	LA-3 Reference	Native or clean sediment	Copper chloride
	Polychaete	<i>Neanthes arenaceodentata</i>	LA-3 Reference	Native or clean sediment	Copper chloride
SPP	Bivalve larvae	<i>Mytilus galloprovincialis</i>	--	Filtered seawater	Copper chloride
	Inland silverside fish	<i>Menidia beryllina</i>	--	Filtered seawater	Copper chloride
	Mysid shrimp	<i>Americamysis bahia</i>	--	Filtered seawater	Copper chloride
BP	Clam	<i>Macoma nasuta</i>	LA-3 Reference	Native or clean sediment	--
	Polychaete	<i>Alitta virens</i> or <i>Nereis virens</i>	LA-3 Reference	Native or clean sediment	--

**Solid Phase Toxicity**

Solid phase tests will be conducted to evaluate the potential adverse toxicological impacts of dredged material on the benthic community after disposal at the LA-3 ODMS. These benthic tests involve exposing organisms to test sediments and comparing organism responses with those exposed to reference sediment. The two species proposed for SP testing for this project include the amphipod, *Eohaustorius estuarius* or *Ampelisca* sp. and the polychaete, *Neanthes arenaceodentata*. SP tests will be performed on project, reference, and control sediments. Solid phase testing will follow OTM (USEPA and USACE 1991) and ITM (USEPA and USACE 1998) guidelines. Additional guidance for the amphipod test is provided in ASTM Method E1367-99 (ASTM 1999) and in Methods for Assessing the Toxicity of Sediment-Associated Contaminants with Estuarine and Marine Amphipods (USEPA 1994). Additional guidance for the polychaete test is provided in ASTM Method E1611-00 (ASTM 2000). Prior to testing, all sediments will be sieved to remove existing organisms.

**Amphipod Bioassay**

The amphipod bioassay will be performed using *Eohaustorius estuarius* or *Ampelisca* sp. Amphipods will be exposed to sediments for 10 days under static conditions. Water quality parameters, including pH, temperature, dissolved oxygen (DO), and salinity, will be measured daily during testing. Overlying and interstitial ammonia will be measured at test initiation and termination. At test initiation, 20 organisms will be placed in each replicate. Test chambers will be randomized and gently aerated during testing. After 10 days, organisms will be sieved from the sediment and survivorship will be recorded. Test acceptability will be evaluated by survivorship in the control, which should be at least 90%. If the test does not meet control acceptability criteria, the test would be repeated. The relative sensitivity of each batch of amphipods will be assessed by conducting a 96-hour, water-only reference toxicant test using copper chloride.

Interstitial ammonia concentrations will be measured on project sediments prior to testing. If ammonia concentrations are elevated, the bioassay laboratory will purge the sediments to reduce ammonia concentrations prior to exposures following ITM guidance (USEPA and USACE 1998). For each test with elevated ammonia concentrations, additional water quality replicates will be set up and used to monitor interstitial ammonia throughout the purging. Test sediments will be purged by manually exchanging the overlying seawater in each test chamber daily per ITM guidance. Once all ammonia concentrations meet the USEPA-recommended level, test organisms will be placed into test chambers and the test will proceed as a static test per the procedures previously described. To ensure ammonia concentrations remain within the required protocol range, additional surrogate chambers will be set up for interstitial ammonia measurements at test termination. In addition, salinity, pH, and temperature of the interstitial water will be measured to be used to calculate unionized ammonia concentrations.

Solid phase toxicity tests are performed across a 10-day exposure period using polychaete worms and benthic amphipods as test species. SP polychaete bioassays will be conducted in 6-gallon aquaria under flowthrough conditions. The test is initiated by placing a 4.5 cm layer of control, reference, or composite test sediment separately into one of five replicate aquaria. After the addition of sediments, the flow-through seawater system is started. After a one-hour settling time, ten polychaetes are placed into each

test chamber. Water quality measurements will be taken in each chamber daily during the testing period and will include pH, temperature, dissolved oxygen, salinity, and ammonia. All measurements will be taken by instruments calibrated and logged daily. After ten days, the sediments are sieved and the surviving animals removed counted. Statistical analysis of survival will be carried out to determine if a toxic response is observed by contrasting survival in test sediments against survival in control and reference sediments.

Ten-day amphipod survival tests are conducted under static-renewal conditions in 1-liter glass beakers according to the protocol described in ASTM 1990. Tests are initiated by addition of control, reference, or test sediment to each beaker to achieve a final sediment layer of 2cm. Control sediment is uncontaminated material obtained from the animal collection location. Clean seawater is placed over the sediment. Gentle aeration is added to each beaker. Twenty animals are distributed randomly to each beaker, with five replicates being prepared for each sediment type. After ten days of exposure, test animals are removed by sieving the contents of each beaker. Survival is then enumerated and analyzed. The control criterion is 90 percent survival in the control sediment.

The test will be a static, non-renewal type lasting 10 days, conducted at a controlled temperature of  $20 \pm 1^\circ\text{C}$  and a salinity of  $28 \pm 2$  parts per thousand. Lighting conditions will reflect ambient laboratory conditions with a continuous photoperiod. No feeding will be provided during the test. Aeration will be maintained at a low flow rate. Test treatments will include a composite sample, a reference sediment, and a control, with no dilution series used. The endpoint for evaluation will be percent survival. Sediment samples will be held for no more than eight weeks prior to testing, and a minimum of 4 liters of sediment is required per sample.

#### **Juvenile Polychaete Bioassay**

The polychaete bioassay will be performed using *Neanthes arenaceodentata*. Polychaetes will be exposed to sediments for 10 days under static conditions. Water quality parameters including pH, temperature, DO, and salinity will be measured daily during testing. Overlying and interstitial ammonia will be measured at test initiation and termination. At test initiation, five organisms will be placed into each replicate. Test chambers will be randomized and gently aerated during testing. After 10 days, organisms will be sieved from the sediment and survivorship will be recorded. Test acceptability will be evaluated by survivorship in the control, which should be at least 90%. If the test does not meet control acceptability criteria, the test should be repeated. The relative sensitivity of each batch of polychaete will be assessed by conducting a 96-hour, water-only reference toxicant test using cadmium chloride.

Test organisms will be 2 to 3 weeks post-emergence at the start of the test. Conditions will be maintained at a temperature of  $20 \pm 1^\circ\text{C}$  and salinity of  $32 \pm 2$  parts per thousand. Lighting will consist of ambient laboratory light with a photoperiod of 16 hours light and 8 hours dark. Each test chamber will be a 1-liter glass jar filled with 800 mL of 20-micrometer-filtered seawater (adjusted to test salinity) and 2.5 centimeters (approximately 200 mL) of sediment. No water renewal or feeding will occur during the test and test chambers will be gently aerated. Five test organisms will be placed in each chamber, with five replicate chambers per treatment, resulting in a total of 25 organisms per treatment. Test treatments will include composite sediment samples, a

reference sediment, and a control, with no dilution series applied. The test endpoint will be survival percentage. Sediment samples must be used within eight weeks of collection, and a minimum of 4 liters of sediment is required per sample.

### **Suspended Particulate Phase Testing**

Suspended Particulate Phase (SPP) testing will be carried out to assess the potential toxicological effects of dredged material on organisms inhabiting the water column during disposal activities at the LA-3 Ocean Dredged Material Disposal Site (ODMDS). Three test species have been proposed for this evaluation: bivalve larvae *Mytilus galloprovincialis*, mysid shrimp *Americamysis bahia*, and juvenile fish *Menidia beryllina*. The SPP tests will be conducted in accordance with the Ocean Testing Manual (OTM; USEPA and USACE, 1991) and the Inland Testing Manual (ITM; USEPA and USACE, 1998). Additional procedures specific to bivalve larvae testing are outlined in ASTM Method E724-98 (ASTM, 1998).

SPP testing will be based on sediment elutriates generated from the project sediments. These elutriates will be prepared according to ITM (USEPA and USACE, 1998) protocols. Specifically, one part sediment will be mixed with four parts site water and stirred vigorously at room temperature for 30 minutes. After mixing, the suspension will be allowed to settle for one hour. Following this settling period, the overlying liquid and suspended particulates will be carefully siphoned off to avoid disturbing the settled sediment. If the dredged material is particularly fine, centrifugation may be required prior to siphoning. The resulting supernatant is designated as the 100% SPP. Dilutions of this 100% SPP with filtered seawater will be used to create the remaining test concentrations.

### **Larval Development Bioassay**

Water column toxicity tests will be conducted using larvae of the bivalve *Mytilus galloprovincialis*. Due to seasonal variations in gamete availability, an alternative bivalve or echinoderm species listed in Table 11-1 of the Inland Testing Manual (USEPA and USACE, 1998) may be used as a substitute if gravid *M. galloprovincialis* or other *Mytilus* sp. are not available.

The toxicity test will involve four SPP concentrations—1%, 10%, 50%, and 100%—prepared using clean, filtered seawater. Both laboratory control and site water control treatments will also be included. Each replicate will be inoculated with an equal number of bivalve embryos and incubated for 48 hours.

Water quality parameters—including pH, temperature, dissolved oxygen (DO), and salinity—will be monitored daily throughout the test period. At the end of the test, organisms will be preserved using buffered formalin. Live and normally developed bivalve larvae will be counted under a microscope.

Test validity will be determined based on survival and normal development in the control group, which must reach at least 70%. If this criterion is not met, the test will be repeated. To assess the relative sensitivity of each larval batch, a reference toxicant test using ammonium chloride will also be performed.

The test will be conducted at a temperature of  $15 \pm 1^\circ\text{C}$  and a salinity of  $32 \pm 2$  parts per thousand, under ambient laboratory lighting and a photoperiod of 16 hours light and 8 hours dark. Test chambers will consist of 20-mL vials, each containing 10 mL of test solution. No water renewal, aeration, or feeding will occur during the test. Embryos, no more than 4 hours old at the start of the test, will be introduced at a density of 150 to

300 per vial. Each concentration will be tested in five replicate chambers, resulting in 750 to 1,500 embryos per concentration.

Sediment samples used for elutriate preparation must be tested within eight weeks of collection, and a minimum of 3 liters of sample volume is required.

### **Mysid Shrimp Bioassay**

Water column toxicity testing will be conducted using the mysid shrimp *Americamysis bahia*. The test will include three concentrations of Suspended Particulate Phase (SPP)—10%, 50%, and 100%—prepared using clean, filtered seawater.

At the start of the test, 10 mysids will be placed into each replicate. The organisms will be exposed to the SPP under static conditions for 96 hours and will be fed *Artemia nauplii* twice daily throughout the exposure period. Water quality parameters—including pH, temperature, dissolved oxygen (DO), and salinity—will be recorded daily. Test validity will be determined by survival rates in the control group, which must be at least 90%. If this criterion is not met, the test will be repeated. To evaluate the relative sensitivity of each mysid batch, a 96-hour reference toxicant test using copper chloride will be performed.

Testing will occur at a temperature of  $25 \pm 1^\circ\text{C}$  and a salinity of  $32 \pm 2$  parts per thousand, under ambient laboratory lighting with a photoperiod of 16 hours light followed by 8 hours dark. Test chambers will be 1-liter glass jars containing 500 mL of test solution, with no water renewal during the test. Organisms will be 3 to 5 days old, with a 24-hour age range, and 10 individuals will be placed in each test chamber. Each concentration will be replicated five times, totaling 50 organisms per concentration. The mysids will be fed *Artemia nauplii* twice daily. Aeration will be applied if necessary to maintain dissolved oxygen levels above 40% saturation.

Sediment samples must be tested within eight weeks of collection, with a minimum sample volume of 3 liters.

### **Juvenile Fish Bioassay**

Water column toxicity tests will be conducted using juvenile inland silverside fish (*Menidia beryllina*). The test will include three concentrations of Suspended Particulate Phase (SPP)—10%, 50%, and 100%—prepared with clean, filtered seawater. Both a laboratory control and a site water control will also be included.

At test initiation, 10 fish will be placed in each replicate. The fish will be exposed to the SPP under static conditions for a duration of 96 hours. During the test period, fish will be fed *Artemia nauplii* once daily. Water quality parameters—including pH, temperature, dissolved oxygen (DO), and salinity—will be monitored daily. Test validity will be determined by survival rates in the control group, which must be at least 90%. If this requirement is not met, the test must be repeated. To assess the sensitivity of each fish batch, a 96-hour reference toxicant test using copper chloride will be conducted.

The test will be carried out at a temperature of  $25 \pm 1^\circ\text{C}$  and a salinity of  $32 \pm 2$  parts per thousand, under ambient laboratory lighting with a photoperiod of 16 hours light followed by 8 hours dark. Test chambers will consist of 1-liter glass jars containing 500 mL of test solution, with no water renewal during the test. Test organisms will be 9 to 14 days old, with a 24-hour age range. Each concentration will have five replicate

chambers, totaling 50 organisms per concentration. The fish will be fed *Artemia* nauplii once daily. Aeration will be applied if necessary to maintain dissolved oxygen saturation above 40%.

Sediment samples must be tested within eight weeks of collection, with a minimum sample volume of 3 liters. The test will be considered acceptable if the mean survival in the laboratory control is at least 90%.

### **Bioaccumulation Potential**

Bioaccumulation tests are conducted to assess the potential for benthic organisms to accumulate contaminants from sediment. For this project, two species are proposed for bioaccumulation (BP) testing: the clam *Macoma nasuta* and the polychaete *Alitta virens*. BP tests will be conducted on project sediments, as well as on reference and control sediments, following the guidance provided in the Ocean Testing Manual (OTM; USEPA and USACE, 1991) and the Inland Testing Manual (ITM; USEPA and USACE, 1998). Additional procedures are described in ASTM Method E1688-00a (ASTM, 2003).

Before testing begins, a subset of test organisms will be held in clean seawater to allow for depuration, then frozen for baseline (time-zero) tissue contaminant analysis. At the start of the test, 25 clams and 10 polychaetes will be added to each replicate chamber. Chambers will be randomized and gently aerated, and exposures will be maintained under continuous flow-through conditions for 28 days. Water quality parameters—including pH, temperature, dissolved oxygen (DO), and salinity—will be recorded daily. Ammonia levels in the overlying water will be measured weekly.

At the conclusion of the 28-day exposure, organisms will be separated from the sediment by sieving, and survival rates will be documented. Survivors will be rinsed with clean seawater and transferred to tanks containing only filtered seawater to allow depuration of sediment from their systems. After 24 hours, organisms will be placed in appropriately sized, pre-cleaned containers and frozen immediately. Samples will then be shipped on ice to Physis Environmental Laboratories, Inc. for chemical analysis.

All biological testing will follow standard quality assurance and quality control (QA/QC) procedures in accordance with OTM and ITM protocols to ensure the validity of results. These procedures include the use of negative and positive controls, reference sediments, test replicates, and daily monitoring of water quality parameters.

Negative controls help confirm the health and baseline condition of test organisms and ensure that acceptability criteria are met. These controls will consist of clean sediment—either native or from a suitable reference site—or filtered seawater adjusted to the required salinity. Positive controls (i.e., reference toxicant tests) will be conducted to verify organism sensitivity. The LC50 or EC50 from the reference toxicant test should fall within two standard deviations of the historical mean, confirming acceptable sensitivity.

The tests will be carried out at  $15 \pm 1^\circ\text{C}$  and a salinity of  $34 \pm 2$  parts per thousand, with ambient laboratory lighting at a photoperiod of 16 hours light and 8 hours dark. Each test chamber will be a 12-liter tank containing 2 liters of sediment and 8 liters of overlying water, which will be 20-micrometer-filtered seawater maintained at ambient salinity. Water will be renewed once daily under static renewal conditions, and continuous aeration will be provided.

## DATA ANALYSIS AND REPORTING

All data will be reviewed for accuracy prior to reporting and analyzed to evaluate the suitability of dredged material from Linda Isle Lagoon for ocean disposal at the LA-3 Ocean Dredged Material Disposal Site (ODMDS).

### Data Analysis for Ocean Disposal

#### *Sediment Chemistry and Physical Data Analyses*

Chemical analysis results for the dredged material will be compared with those from reference sediments, as well as with Effects Range-Low (ERL) and Effects Range-Median (ERM) values developed by Long et al. (1995). These benchmarks help assess the potential ecological significance of contaminants associated with sediments when considered alongside biological testing.

It is important to note that while ERL and ERM values can indicate whether contaminants are present at levels of potential concern, they do not establish causality due to the inherent variability in the underlying data. For certain compounds such as chlordane and dieldrin, ERL values are often lower than the detection capabilities of standard analytical methods used in marina sediment evaluations. Therefore, non-detect results exceeding ERL values or method detection limits (MDLs) will not trigger reanalysis.

#### *Bioassay Data Analysis*

Bioassay testing results provide information about the potential ecological effects of placing dredged material at an unconfined aquatic disposal site (i.e., LA-3 ODMDS).

#### *Solid Phase Test Data*

According to ITM guidance (USEPA and USACE, 1998), solid phase test results from project sediments will be compared to those from reference sediments to assess the potential acute toxicity to benthic organisms within and around the disposal site.

The acceptance criteria are:

- No acute toxicity is indicated if survival in test sediment (ST) is greater than in reference sediment (SR).
- If the difference between SR and ST is  $\leq 20\%$  for amphipods or  $\leq 10\%$  for other species, test sediment is not considered acutely toxic.
- If the difference exceeds these thresholds ( $> 20\%$  for amphipods,  $> 10\%$  for others), a statistical comparison must be made. A significant difference would indicate that the sediment is acutely toxic and does not meet the limiting permissible concentration (LPC) for open-water disposal.

#### *Suspended Particulate Phase Test Data*

SPP test results will be compared to laboratory controls in accordance with ITM guidelines to evaluate potential impacts on water column organisms during sediment disposal.

Evaluation criteria include:

- If survival or normal development in the 100% SPP test is not significantly different from the control or site water, the dredged material is not expected to be acutely toxic to pelagic organisms.

- If observed lethality or effect is less than 50%, the LC50 or EC50 is assumed to be  $\geq 100\%$  concentration.
- If greater than 50%, LC50 or EC50 values will be calculated, and a dilution model (e.g., STFATE) used to determine environmental concentrations post-mixing. These concentrations must not exceed 1% of the LC50 or EC50 outside the mixing zone.

#### **Bioaccumulation Data Analysis**

Bioaccumulation data will be interpreted following OTM (USEPA and USACE, 1991) and ITM (USEPA and USACE, 1998) guidance to determine whether the material is suitable for unconfined open-water disposal.

Initial evaluation will compare tissue concentrations to applicable U.S. Food and Drug Administration (FDA) action levels for contaminants in fish and shellfish intended for human consumption. The evaluation approach will align with methodologies used in Anchor QEA (2023) for the RGP 54 Sediment Sampling and Analysis.

If tissue concentrations in organisms exposed to test sediment are not statistically greater than those in organisms exposed to reference sediment, the material is considered to meet LPC requirements for bioaccumulation.

If tissue concentrations are significantly elevated, a weight-of-evidence approach will be used. This includes comparing tissue concentrations to toxicity reference values (TRVs) from the Environmental Residue Effects Database (ERED, 2019) to assess the likelihood of adverse effects. TRV selection will be coordinated with USEPA, using guidance from Support for Sediment Bioaccumulation Evaluation: Toxicity Reference Values for San Francisco Bay (Lin and Davis, 2018).

- If tissue concentrations are below TRVs, no further evaluation is necessary.
- If they exceed TRVs, the degree of exceedance and potential for food web effects will be further assessed.

#### **Project Reporting**

A Sampling and Analysis Report will be developed to document all activities related to sediment sampling, processing, analysis, and interpretation. Appendices will include laboratory reports, field documentation, sample photographs, and data validation results.

The report will include:

- A summary of all field activities, including any deviations from the approved Sampling and Analysis Plan (SAP)
- Geographic coordinates (NAD83) for sampling locations; vertical measurements (mudline and water surface) reported to the nearest 0.1 foot relative to NAVD88
- A project map showing actual sampling station locations
- Summary of sediment chemistry results, including comparisons with reference sediments and

sediment quality benchmarks

- Summary of biological testing results, with comparisons to reference and control data
- Summary of tissue chemistry data, including comparison to FDA action levels, reference tissue values, and TRVs
- A QA/QC summary for both physical/chemical and biological data
- A final recommendation regarding the suitability of dredged material for ocean disposal
-

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**APPENDIX 1. SEDIMENT CORE LOG FORM**

**CORE LOG SAMPLING FORM**

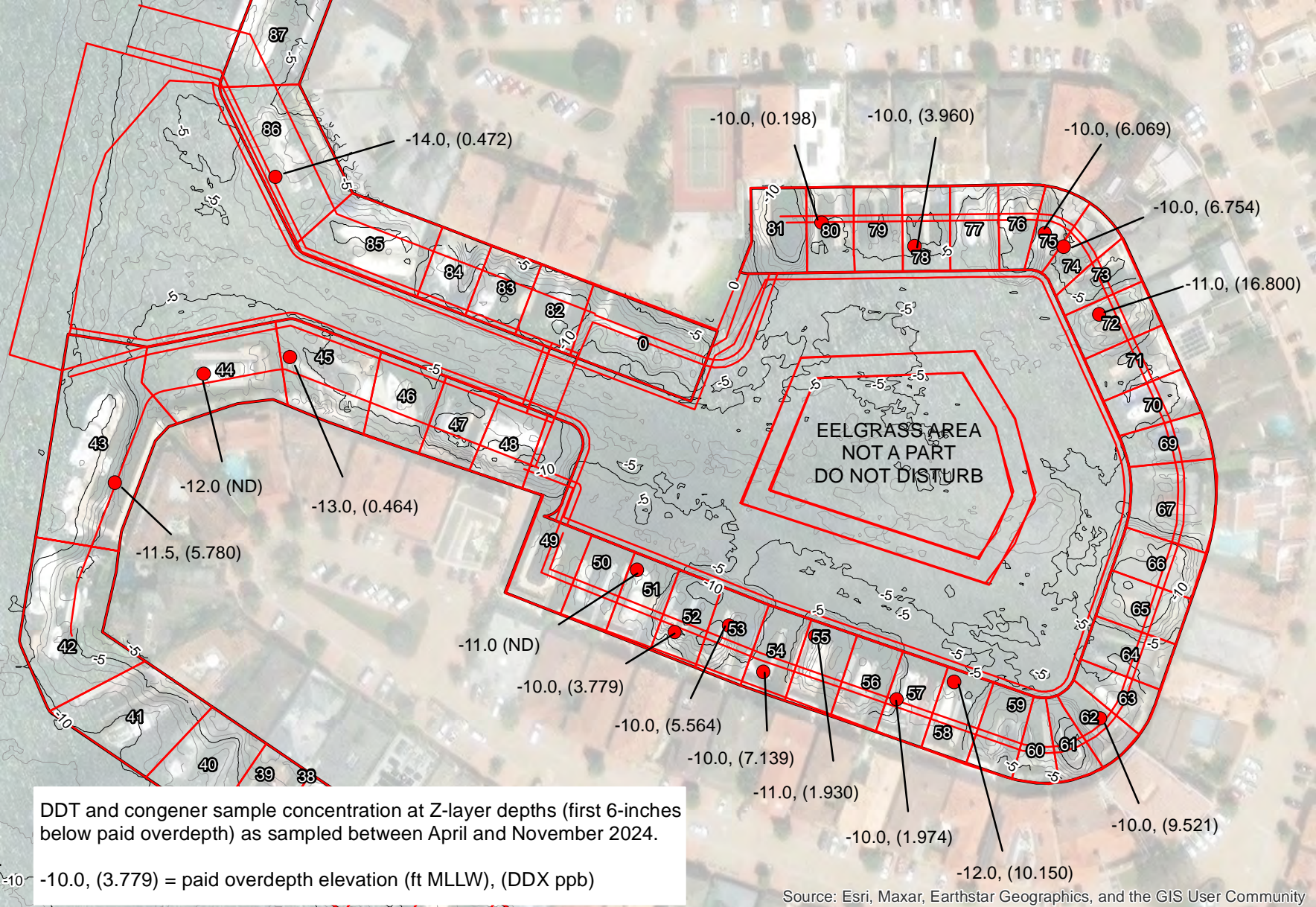
<b>PROJECT</b>		<b>PROJECT SITE</b>		<b>CLIENT</b>	
<b>DATE</b>		<b>TIME</b>		<b>FIELD MANAGER</b>	
<b>STATION ID</b>		<b>LATITUDE</b>		<b>LONGITUDE</b>	
<b>WATER DEPTH (FT)</b>		<b>TIDE (FT)</b>		<b>MLLW WATER DEPTH (FT)</b>	
<b>PROJECT DEPTH (FT)</b>		<b>TARGET CORE LENGTH (FT)</b>		<b>ACTUAL CORE LENGTH (FT)</b>	
<b>FEET BELOW MUDLINE</b>	<b>SEDIMENT TYPE</b>	<b>ODOR</b>	<b>COLOR</b>	<b>SAMPLE ID BY DEPTH/ COMMENTS</b>	
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					

**NOTES:**

**ATTEMPT:** \_\_\_ of \_\_\_

**PHOTOS:** \_\_\_\_\_

**APPENDIX 2. LINDA ISLE LAGOON 2024 Z-LAYER TESTING SUMMARY  
DATA GRAPHIC DISTRIBUTION OF SAMPLING DATA**



DDT and congener sample concentration at Z-layer depths (first 6-inches below paid overdepth) as sampled between April and November 2024.

-10.0, (3.779) = paid overdepth elevation (ft MLLW), (DDX ppb)

Table X. Linda Isle Lagoon Sediment Testing Results Compared to LA-3 Reference Sediment and Surrounding RGP-54 Sediment in Subarea

CONSTITUENT	METHODS AND DETECTION LIMITS			EFFECTS LEVELS		TESTED SEDIMENT	COMPARATIVE RESULTS FROM RGP54_TESTING*	
	MDL	RL	METHOD	ERL	ERM	Linda Isle Lagoon	LA3-Reference	LNB Subarea 2A
						LILA-COMP 7/18/2025	LA3-REF- COMP-010923 1/9/2023	RGP-2A- COMP-011323 1/13/2023
<b>Conventional Parameters (pct)</b>								
Total organic carbon	0.01	0.01	EPA 9060	--	--	0.01 U	1.6	0.2
Total solids	0.10	0.10	SM 2540 B	--	--	60.4	52.6	71.4
Ammonia as N	0.02	0.03	SM 4500-NH3 D			11.2	Not Reported	Not Reported
Dissolved Sulfides	0.20	0.40	Plumb, 1981 and			1.69	Not Reported	Not Reported
Total Sulfides	0.20	0.40	Plumb, 1981 and	--	--	168.0	Not Reported	Not Reported
<b>Grain Size (pct)</b>								
Gravel (>2mm)	0.05	0.10	SM 2560 D	--	--	0.050 U	0.050 U	0.050 U
Sand (2.0mm – 0.063mm)	0.05	0.10	SM 2560 D	--	--	22.9	16.2 J	74.2 J
Silt (0.063mm – 4um)	0.05	0.10	SM 2560 D	--	--	58.7	76.8 J	15.8 J
Clay (<4um)	0.05	0.10	SM 2560 D	--	--	18.1	9.2 J	5.1 J
<b>Metals (mg/kg)</b>								
Arsenic	0.025	0.050	EPA 6020	8.2	70	7.37	8.92	5.02
Cadmium	0.002	0.005	EPA 6020	1.2	9.6	0.812	0.793	0.359
Chromium	0.002	0.005	EPA 6020	81	370	32.2	59.8	16.3
Copper	0.002	0.005	EPA 6020	34	270	33.8	23.5	16
Lead	0.002	0.005	EPA 6020	46.7	218	22.3	10.9	8.59
Mercury	0.000	0.000	EPA 245.7	0.15	0.71	0.1480 J	0.0725 J	0.11 J
Nickel	0.010	0.020	EPA 6020	20.9	51.6	17	25	8.01
Selenium	0.025	0.050	EPA 6020	--	--	0.34	1.14	0.315
Silver	0.010	0.020	EPA 6020	1	3.7	0.18	0.22	0.0765
Zinc	0.025	0.050	EPA 6020	150	410	98.4	87.3	46.6
<b>Organometals (µg/kg)</b>								
Butyltin	1	3	Krone et al., 1989	--	--	1.0 U	1.0 U	1.0 U
Dibutyltin	1	3	Krone et al., 1989	--	--	1.0 U	1.0 U	1.0 U
Tetrabutyltin	1	3	Krone et al., 1989	--	--	1.0 U	1.0 U	1.0 U
Tributyltin	1	3	Krone et al., 1989	--	--	1.0 U	1.0 U	1.0 U
<b>Polycyclic Aromatic Hydrocarbons (µg/kg)</b>								
1-Methylnaphthalene	0.084	0.5	EPA 8270E	--	--	0.084 U	0.485 J	0.084 U
2-Methylnaphthalene	0.106	0.5	EPA 8270E	70	670	0.106 U	0.916	0.301 J
Acenaphthene	0.078	0.5	EPA 8270E	16	500	0.078 U	0.271 J	0.119 J
Acenaphthylene	0.058	0.5	EPA 8270E	44	640	0.058 U	0.514	0.132 J
Anthracene	0.046	0.5	EPA 8270E	85.3	1,100	0.046 U	1.02	0.505
Benzo(a)anthracene	0.107	0.5	EPA 8270E	261	1,600	5.64	6.32 J	3.29 J
Benzo(a)pyrene	0.106	0.5	EPA 8270E	430	1,600	0.106 U	4.15	2.73
Benzo(b)fluoranthene	0.063	0.5	EPA 8270E	--	--	0.063 U	4.72	5.04
Benzo(g,h,i)perylene	0.093	0.5	EPA 8270E	--	--	7.36	6.66	5.27
Benzo(k)fluoranthene	0.111	0.5	EPA 8270E	--	--	0.111 U	5.65	4.7
Chrysene	0.067	0.5	EPA 8270E	384	2,800	0.067 U	12.5 J	7.38 J
Dibenzo(a,h)anthracene	0.106	0.5	EPA 8270E	63.4	260	0.106 U	0.106 U	0.106 U
Fluoranthene	0.035	0.5	EPA 8270E	600	5,100	0.035 U	9.84	4.56
Fluorene	0.068	0.5	EPA 8270E	19	540	0.068 U	0.525	0.116 J
Indeno(1,2,3-c,d)pyrene	0.087	0.5	EPA 8270E	--	--	0.087 U	4.96	4.71
Naphthalene	0.187	0.5	EPA 8270E	160	2,100	0.76	1.39	0.509
Phenanthrene	0.074	0.5	EPA 8270E	240	1,500	2.16	5.42	1.54
Pyrene	0.048	0.5	EPA 8270E	665	2,600	0.048 U	11.9	5.44
Total HPAH (9 of 17) (U = 0 max)			EPA 8270E	1,700	9,600	13.0 J	66.7 J	43 J
Total LPAH (8 of 17) (U = 0 max)			EPA 8270E	552	3,160	2.9 J	10.1 J	3.22 J
Total PAH (17) (U = 0 max limit)			EPA 8270E	4,022	44,792	15.9 J	76.8 J	46 J
TRPH	100	200	SM 5520 E	--	--	335-506	Not Reported	Not Reported
<b>Pesticides (µg/kg)</b>								
2,4'-DDD (o,p'-DDD)	0.267	0.5	EPA 8270E	--	--	0.267 U	0.304 J	0.267 U
2,4'-DDE (o,p'-DDE)	0.200	0.5	EPA 8270E	--	--	0.83	1.01	0.361 J
2,4'-DDT (o,p'-DDT)	0.194	0.5	EPA 8270E	--	--	0.194 U	0.194 U	0.194 U
4,4'-DDD (p,p'-DDD)	0.198	0.5	EPA 8270E	2	20	3.12	0.474 J	0.611
4,4'-DDE (p,p'-DDE)	0.193	0.5	EPA 8270E	2.2	27	16.60	6.85	5.5
4,4'-DDT (p,p'-DDT)	0.128	0.5	EPA 8270E	1	7	0.128 U	0.128 U	0.128 U
Aldrin	0.250	0.5	EPA 8270E	--	--	0.25 U	0.25 U	0.25 U
Chlordane, alpha- (Chlordane,	0.187	0.5	EPA 8270E	--	--	0.46 J	0.187 U	0.187 U
Chlordane, gamma-	0.179	0.5	EPA 8270E	--	--	0.742	0.179 U	0.179 U
Dieldrin	0.100	0.2	EPA 8270E	0.02	8	0.10 U	0.10 U	0.10 U
Endosulfan sulfate	0.250	0.5	EPA 8270E	--	--	0.25 U	0.25 U	0.25 U
Endosulfan, alpha- (I)	0.250	0.5	EPA 8270E	--	--	0.25 UJ	0.25 UJ	0.25 UJ

CONSTITUENT	METHODS AND DETECTION LIMITS			EFFECTS LEVELS		TESTED SEDIMENT	COMPARATIVE RESULTS FROM RGP54_TESTING*	
	MDL	RL	METHOD	ERL	ERM	Linda Isle Lagoon	LA3-Reference	LNB Subarea 2A
						LILA-COMP	LA3-REF- COMP-010923	RGP-2A- COMP-011323
Endosulfan, beta (II)	0.250	0.5	EPA 8270E	--	--	0.25 UJ	0.25 UJ	0.25 UJ
Endrin	0.250	0.5	EPA 8270E	--	--	0.25 U	0.25 U	0.25 U
Endrin aldehyde	0.250	0.5	EPA 8270E	--	--	0.25 UJ	0.25 UJ	0.25 UJ
Endrin ketone	0.250	0.5	EPA 8270E	--	--	0.25 U	0.25 U	0.25 U
Heptachlor	0.250	0.5	EPA 8270E	--	--	0.25 U	0.25 U	0.25 U
Heptachlor epoxide	0.250	0.5	EPA 8270E	--	--	0.25 U	0.25 U	0.25 U
Hexachlorocyclohexane (BHC),	0.250	0.5	EPA 8270E	--	--	0.25 U	0.25 U	0.25 U
Hexachlorocyclohexane (BHC),	0.250	0.5	EPA 8270E	--	--	0.25 U	0.25 U	0.25 U
Hexachlorocyclohexane (BHC),	0.250	0.5	EPA 8270E	--	--	0.25 U	0.25 U	0.25 U
Hexachlorocyclohexane (BHC),	0.250	0.5	EPA 8270E	--	--	0.25 U	0.25 U	0.25 U
Methoxychlor	0.250	0.5	EPA 8270E	--	--	0.25 UJ	0.25 UJ	0.25 UJ
Nonachlor, cis-	0.192	0.5	EPA 8270E	--	--	0.192 U	0.192 U	0.192 U
Nonachlor, trans-	0.186	0.5	EPA 8270E	--	--	<b>0.674</b>	0.186 U	0.186 U
Oxychlorthane	0.250	0.5	EPA 8270E	--	--	0.25 U	0.25 U	0.25 U
Permethrin, cis-	0.170	0.5	EPA 8270E-MRM	--	--	0.17 U	0.17 U	0.17 U
Permethrin, trans-	0.220	0.5	EPA 8270E-MRM	--	--	0.22 U	<b>0.437 J</b>	0.22 U
Sum DDX (U = 0 max limit)			EPA 8270E	1.58	46.1	<b>20.55 J</b>	<b>8.64 J</b>	<b>6.47 J</b>
Total Chlordane (U = 0 max limit)			EPA 8270E	0.5	6	<b>1.202 J</b>	0.250 U	0.250 U
Toxaphene	10	20	EPA 8270E-NCI	--	--	10 U	10 U	10 U
<b>Pyrethroids (µg/kg)</b>								
Allethrin	0.28	0.5	EPA 8270E-MRM	--	--		0.28 U	0.28 U
Bifenthrin	0.22	0.5	EPA 8270E-MRM	--	--	<b>1.74</b>	0.22 U	<b>0.257 J</b>
Cyfluthrin, beta-	0.25	0.5	EPA 8270E-MRM	--	--	0.25 U	0.50 U	0.50 U
Cypermethrin	0.25	0.5	EPA 8270E-MRM	--	--	0.25 U	<b>0.419 J</b>	0.25 U
Deltamethrin/Tralomethrin	0.25	0.5	EPA 8270E-MRM	--	--	0.25 U	0.25 U	0.25 U
Esfenvalerate	0.25	0.5	EPA 8270E-MRM	--	--	0.25 U	0.25 U	0.25 U
Fenpropathrin	0.21	0.5	EPA 8270E-MRM	--	--	0.21 U	0.21 U	0.21 U
Fenvalerate	0.25	0.5	EPA 8270E-MRM	--	--	0.25 U	0.25 U	0.25 U
Fluvalinate	0.23	0.5	EPA 8270E-MRM	--	--	0.23 U	0.23 U	0.23 U
Permethrin, cis-	0.17	0.5	EPA 8270E-MRM	--	--	0.17 U	0.17 U	0.17 U
Permethrin, trans-	0.22	0.5	EPA 8270E-MRM	--	--	0.22 U	<b>0.437 J</b>	0.22 U
Lambda-cyhalothrin	0.23	0.5	EPA 8270E-MRM	--	--	0.23 U	0.23 U	0.23 U
Sumithrin (Phenothrin)	1	5	EPA 8270E-MRM	--	--	1.0 U	1.0 U	1.0 U
Resmethrin	0.38	1	EPA 8270E-MRM	--	--	0.38 U	0.38 U	0.38 U
Tetramethrin	1	5	EPA 8270E-MRM	--	--	1.0 U	1.0 U	1.0 U
<b>PCB Congeners (µg/kg)</b>								
PCB-018	0.03	0.20	EPA 8270E	--	--	0.029 U	0.029 U	0.029 U
PCB-028	0.02	0.20	EPA 8270E	--	--	0.023 UJ	0.023 UJ	0.023 UJ
PCB-037	0.06	0.20	EPA 8270E	--	--	0.060 U	0.060 U	0.060 U
PCB-044	0.03	0.20	EPA 8270E	--	--	0.028 U	0.028 U	0.028 U
PCB-049	0.04	0.20	EPA 8270E	--	--	0.036 U	0.036 U	0.036 U
PCB-052	0.01	0.20	EPA 8270E	--	--	0.012 U	0.012 U	<b>0.304</b>
PCB-066	0.03	0.20	EPA 8270E	--	--	0.027 U	<b>0.182 J</b>	<b>0.157 J</b>
PCB-070	0.02	0.20	EPA 8270E	--	--	0.023 U	<b>0.272</b>	<b>0.139 J</b>
PCB-074	0.02	0.20	EPA 8270E	--	--	0.021 U	0.021 U	0.021 U
PCB-077	0.02	0.20	EPA 8270E	--	--	0.018 U	0.018 U	0.018 U
PCB-081	0.08	0.20	EPA 8270E	--	--	0.084 U	0.084 U	0.084 U
PCB-087	0.08	0.20	EPA 8270E	--	--	0.081 U	0.081 U	0.081 U
PCB-099	0.03	0.20	EPA 8270E	--	--	0.028 U	0.028 U	0.028 U
PCB-101	0.03	0.20	EPA 8270E	--	--	0.027 U	0.027 U	0.027 U
PCB-105	0.05	0.20	EPA 8270E	--	--	0.047 U	0.047 U	0.047 U
PCB-110	0.07	0.20	EPA 8270E	--	--	0.072 U	<b>0.359</b>	<b>0.437</b>
PCB-114	0.07	0.20	EPA 8270E	--	--	0.069 U	0.072 U	0.072 U
PCB-118	0.07	0.20	EPA 8270E	--	--	0.071 U	<b>0.279</b>	<b>0.388</b>
PCB-119	0.07	0.20	EPA 8270E	--	--	0.071 U	0.071 U	0.071 U
PCB-123	0.02	0.20	EPA 8270E	--	--	0.018 U	0.018 U	0.018 U
PCB-126	0.09	0.20	EPA 8270E	--	--	0.086 U	0.086 U	0.086 U
PCB-128	0.08	0.20	EPA 8270E	--	--	0.081 U	0.081 U	0.081 U
PCB-132/168	0.09	0.20	EPA 8270E	--	--	0.094 U	0.094 U	0.094 U
PCB-138	0.06	0.20	EPA 8270E	--	--	0.057 U	0.057 U	<b>0.553</b>
PCB-149	0.09	0.20	EPA 8270E	--	--	0.092 U	<b>0.256</b>	<b>0.347</b>
PCB-151	0.07	0.20	EPA 8270E	--	--	0.073 U	0.073 U	0.073 U
PCB-153	0.06	0.20	EPA 8270E	--	--	0.065 U	<b>0.382</b>	<b>0.33</b>
PCB-156	0.09	0.20	EPA 8270E	--	--	0.089 U	0.089 U	0.089 U
PCB-157	0.10	0.20	EPA 8270E	--	--	0.103 U	0.103 U	0.103 U
PCB-158	0.07	0.20	EPA 8270E	--	--	0.074 U	0.074 U	0.074 U

CONSTITUENT	METHODS AND DETECTION LIMITS			EFFECTS LEVELS		TESTED SEDIMENT	COMPARATIVE RESULTS FROM RGP54_TESTING*	
	MDL	RL	METHOD	ERL	ERM	Linda Isle Lagoon	LA3-Reference	LNB Subarea 2A
						LILA-COMP	LA3-REF- COMP-010923	RGP-2A- COMP-011323
PCB-167	0.05	0.20	EPA 8270E	--	--	0.049 U	0.049 U	0.049 U
PCB-169	0.12	0.20	EPA 8270E	--	--	0.116 U	0.116 U	0.116 U
PCB-170	0.12	0.25	EPA 8270E	--	--	0.118 U	0.118 U	0.118 U
PCB-177	0.09	0.25	EPA 8270E	--	--	0.085 U	0.085 U	0.085 U
PCB-180	0.15	0.25	EPA 8270E	--	--	0.154 U	0.154 U	<b>0.31</b>
PCB-183	0.06	0.25	EPA 8270E	--	--	0.056 U	0.056 U	0.056 U
PCB-187	0.17	0.25	EPA 8270E	--	--	0.168 U	0.168 U	0.168 U
PCB-189	0.11	0.25	EPA 8270E	--	--	0.109 U	0.109 U	0.109 U
PCB-194	0.16	0.25	EPA 8270E	--	--	0.164 U	0.164 U	0.164 U
PCB-201	0.10	0.25	EPA 8270E	--	--	0.104 U	0.104 U	0.104 U
PCB-206	0.16	0.25	EPA 8270E	--	--	0.155 UJ	0.155 UJ	0.155 UJ
Total PCB Congener (U = 0 max)			EPA 8270E	22.7	180	<b>0.0 J</b>	<b>1.73 J</b>	<b>3.0 J</b>

Notes:

■ Detected concentration is greater than ERL screening level.

■ Detected concentration is greater than ERM screening level.

U: compound analyzed for but not detected above detection limit

UJ: compound analyzed but not detected above estimated detection limit

All non-detect results are reported at the method detection limit.

Totals are calculated as the sum of all detected results (U=0). If all results are not detected, the highest method detection limit value is reported as the sum.

Total DDX is the sum of 4,4'-DDD, 4,4'-DDE, 4,4'-DDT, 2,4'-DDD, 2,4'-DDE, and 2,4'-DDT if measured.

Total chlordane is the sum of cis-chlordane, trans-chlordane, cis-nonachlor, trans-nonachlor, and oxychlordane.

Total HPAH (10 of 18) is the sum of benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(g,h,i)perylene, chrysene,

Total LPAH (8 of 18) is the sum of 1-methylnaphthalene, 2-Methylnaphthalene, Acenaphthene, Acenaphthylene, Anthracene, Fluorene, Naphthalene, and

Total PCB congeners is the total of all PCB congeners listed in this table.

**Bold:** detected result

*Italicized* : Non-detected concentration is above one or more identified screening levels.

J: estimated value

N: normal

\*Data derived from Anchor QEA 2023 RGP 54 Sediment Characterization Sampling and Analysis Report for comparative constituent concentration values only.

# Appendix D

## Linda Isle Lagoon, Newport Beach, CA Eelgrass Comprehensive Management Plan

Merkel & Associates  
November 2023

### Purpose

This Comprehensive Management Plan (CMP) for eelgrass conservation associated with the Linda Isle Lagoon Maintenance Dredging has been developed under the provisions of the California Eelgrass Mitigation Policy (CEMP, NOAA Fisheries 2014). Under the CEMP, *E. Mitigation Options, 1. Comprehensive Management Plans.*

### Background

The Linda Isle Community Association has a small man-made boat basin (Linda Isle Lagoon) within a constructed island that supports residential development within lower Newport Bay. The lagoon is surrounded by private docks built out to the pierhead line and vessels navigate from these docks to the main lagoon through the lagoon and out a narrow west facing channel that ties into the main channel connecting upper Newport Bay with Lower Newport Bay. Over time, the Linda Isle Lagoon has silted in such that depths that are now suited to support common eelgrass (*Zostera marina*) from depths that were historically too deep for eelgrass.

The shoreline margin of Linda Isle, as is the case for most shoreline margins of lower Newport Bay occur within the City of Newport Beach's *Eelgrass Protection and Mitigation Plan for Shallow Waters in Lower Newport Bay: An Ecosystem Based Management Plan* (City of Newport Beach 2015). The City's Plan addresses eelgrass protection needs within the berths around the island and is to a degree reliant upon eelgrass status beyond the plan coverage areas due to proportional limits of authorized impact relative to eelgrass presence within the bay that occurs within the City's Plan. As a result, while Linda Isle Lagoon occurs outside of the coverage of the City's Plan, its eelgrass is supportive of the City's Plan functioning. The City's Plan serves as a CMP under the CEMP underpins maintenance dredging authorization under Regional General Permit (RGP) 54.

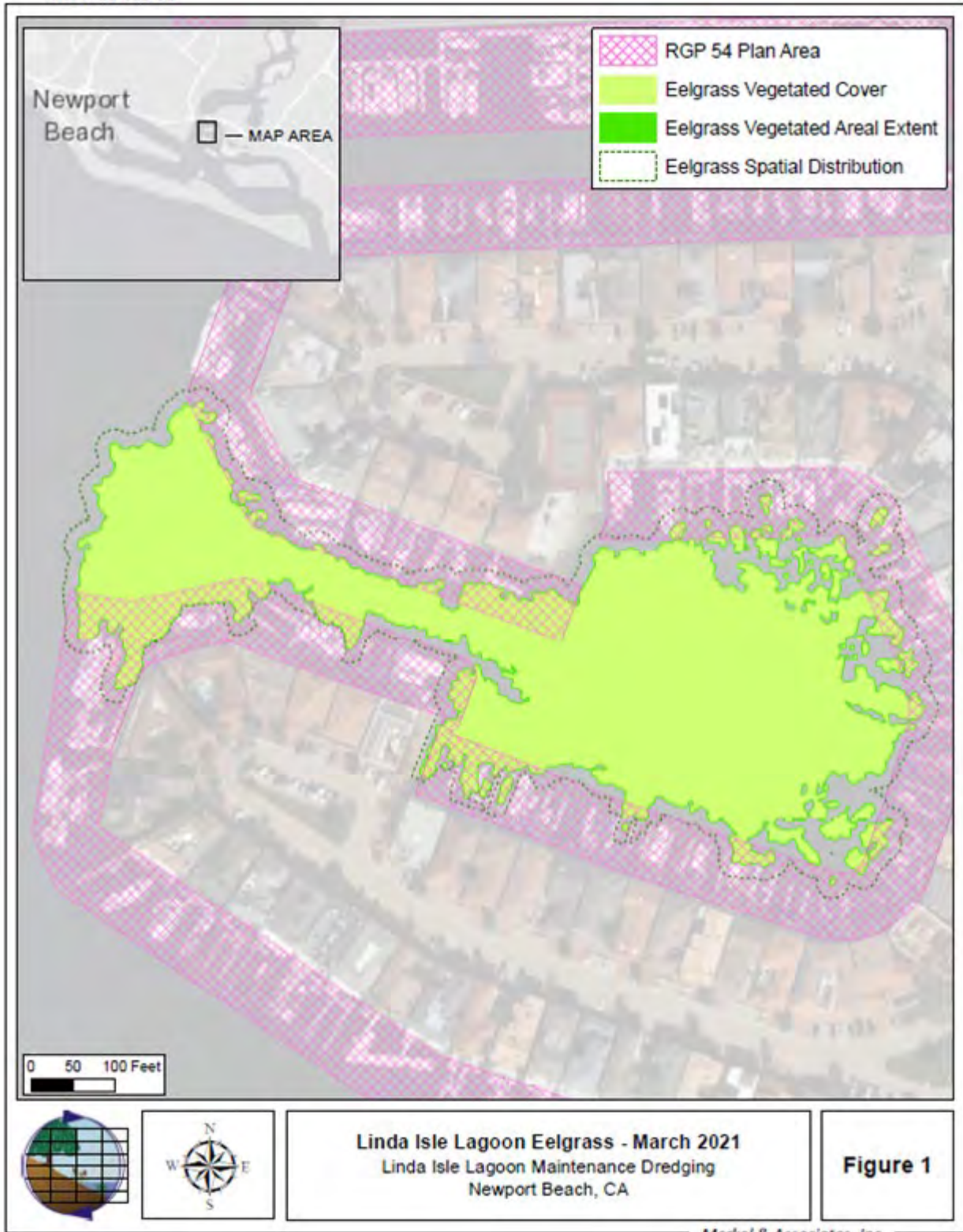
Linda Isle Community Association has pursued maintenance dredging of the lagoon since at least 1998 but has not been able to develop a viable solution to mitigate eelgrass impacts associated with the dredging due to expansion of eelgrass across the lagoon floor. Through the years, Anchor QEA, Ramboll Environ, and Rick Ware have all explored mitigation options without success, noting that opportunities for in-kind mitigation within Newport Bay are very limited. During these pursuits, the Linda Isle Community Association and its consultants have met multiple times with resource and regulatory agencies to seek a means to complete the needed maintenance dredging. However, the City's RGP 54 covers the boat slips out beyond the pierhead line, but not the lagoon proper and thus vessel berthing may be maintained by dredging, but to date, it has not been possible for the Association to complete the dredging within the broader lagoon.

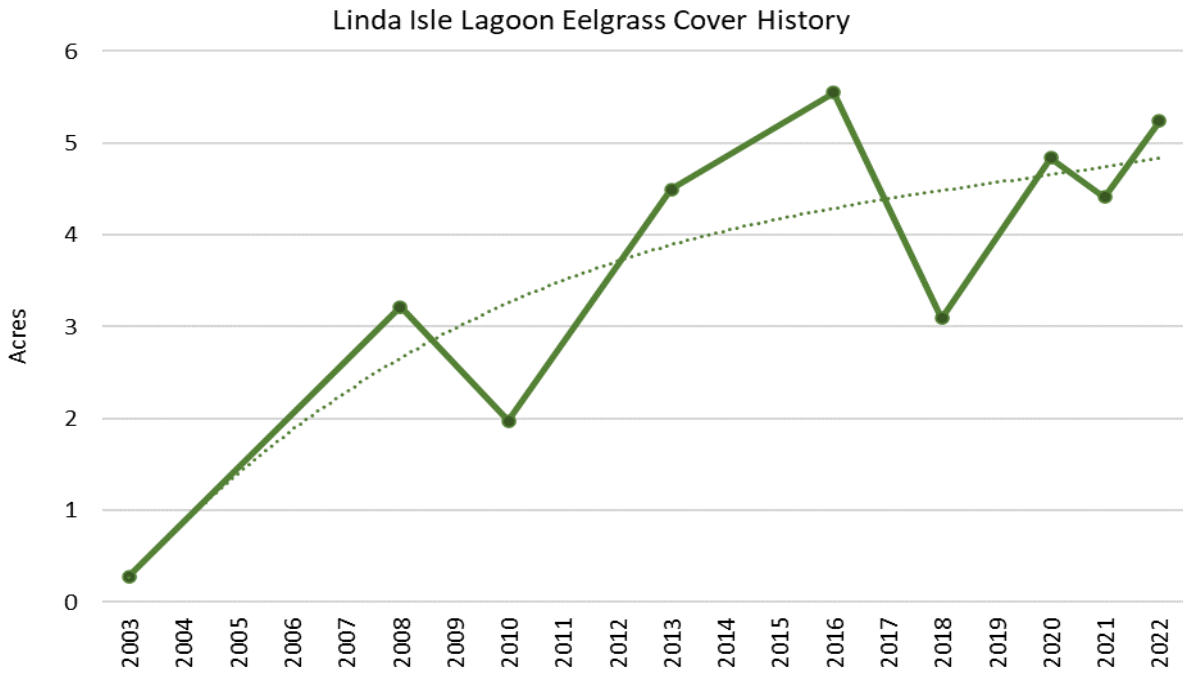
In March 2021, Merkel & Associates (M&A) was retained by Linda Isle Community Association to complete an eelgrass survey to update the status of eelgrass within the lagoon. In total, the survey revealed 4.41 acres of eelgrass within the survey area, of which, approximately 3.84 acres of eelgrass spatial distribution with a 96.6 percent vegetated cover was mapped outside of the RGP 54 boundary (Figure 1), with the remainder occurring in areas that are subject to the provisions of the CMP under RGP 54.

It is generally anticipated that the extent of eelgrass in the lagoon is nearing its maximum spatial distribution, but that as a result of vessel damage, it is expected that depressions in eelgrass spatial distribution and percent vegetated cover as defined under the CEMP will likely decline as the sediment accretion continues to raise the bottom into depths at greater and greater conflict with present navigational uses. This is well represented when examining the past two-decade history of eelgrass cover in the lagoon (Figure 2). Data supporting the eelgrass bottom cover extent through time is derived from surveys conducted by M&A (2021) and multiple surveys for the RGP 54 monitoring conducted by MTS and CRM (2023).

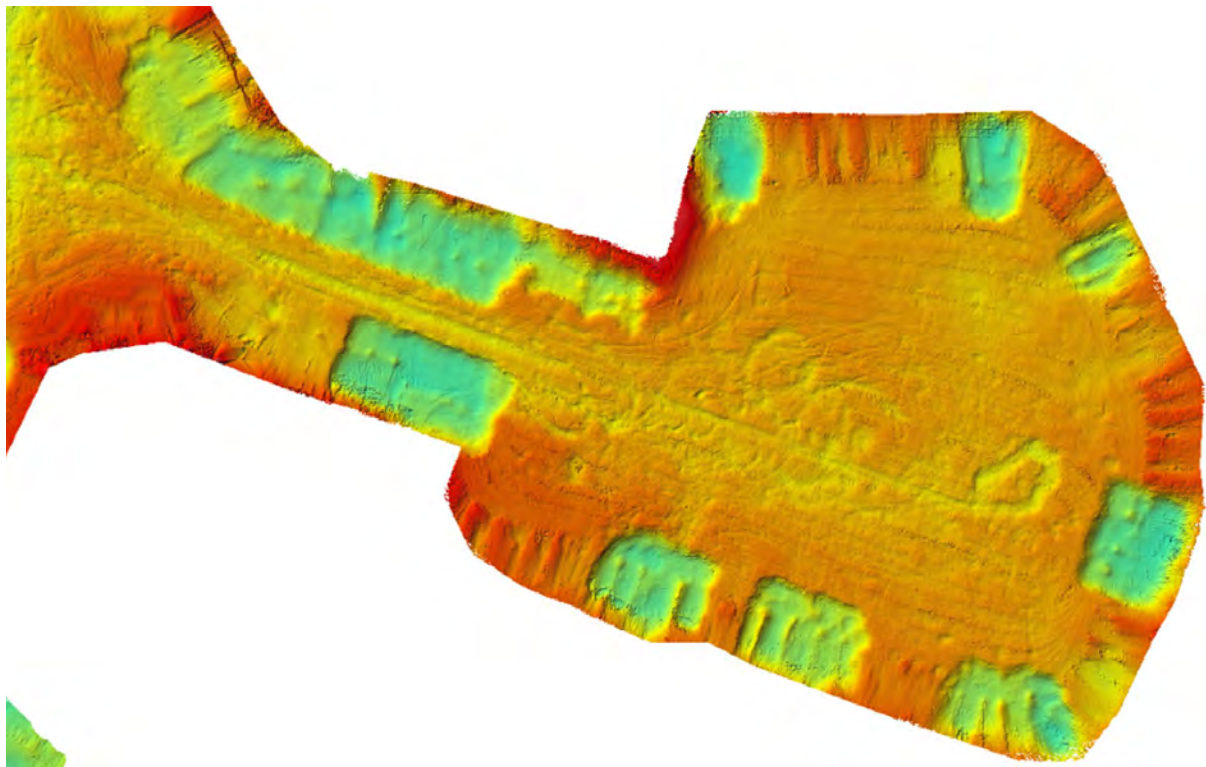
The recent surveys conducted for Linda Isle have yielded both an updated acreage and distribution of eelgrass as well as observations that vessel traffic into and out of the lagoon was beginning to limit eelgrass as a result of keel dragging and propeller wash and scour damage. This is evident within the 2021 interferometric sidescan sonar mosaic of the site as well as the 2023 bathymetric survey with changing patterns of damage through time (Figure 3).

With increasing sediment accretion, it is expected that more significant eelgrass losses will begin to occur as a result of physical damage from bottom feeling vessel traffic. This is likely to be first manifested by a diminishing percent vegetated cover defined as the vegetated areal extent of eelgrass divided by the total spatial distribution of eelgrass under the CEMP. This occurs due to the fact that vessel scaring of the bottom typically fragments beds and then ultimately removes enough of the beds within concentrated traffic areas to cause an impact to spatial distribution. It is expected that the degradation of the beds would eventually result in reduced spatial distribution, but this would follow a much-reduced percent vegetated cover. As the lagoon continues to shallow, the reduced navigability is expected to continue to impact resident's ability to use their docks and boats, and it will exacerbate the extent of impact to eelgrass as a greater frequency of vessel grounding will occur as shoaling continues to raise the floor of the lagoon. At some point the vessel grounding and/or reduced circulation within the lagoon will result in declines in the total extent of eelgrass present.





**Figure 2. Linda Isle Lagoon eelgrass cover history from 2003-2022.**



**Figure 3. Interferometric sidescan sonar mosaic of Linda Isle Lagoon (March 2021) showing eelgrass and vessel grounding damage (top) and bathymetry (May 2023) showing additional vessel grounding damage (bottom).**

## Considered Options for Eelgrass Mitigation

### *In-kind Eelgrass Mitigation*

Full dredging of the lagoon for navigation would result in impacts to all 3.84 acres of eelgrass. Under the CEMP, impacts to 3.84 acres of eelgrass would require an eelgrass planting of 5.30 acres (1.38:1) with an ultimate establishment of 4.61 acres (1.2:1) restoration.

To date potential options for a preferred in-kind mitigation have not been identified and it is not believed that practical in-kind mitigation options exist for the project. The Linda Isle Lagoon is a fairly unique circumstance in Newport Bay in that it is a privately owned waterbody that is open to public navigation but is not maintained by a public agency (Corps, County, or City). The waters controlled by the Linda Isle Community Association and available to Linda Isle for mitigating eelgrass impacts from maintenance dredging are limited to those of the Linda Isle Lagoon. Waters outside of the lagoon are public agency held waters used for recreational boating, including navigation by semi-deep draft recreational vessels such as larger sailboats. This restricts the ability to raise the bay floor to elevations suited to support consistent eelgrass. Most eelgrass within the inner portions of the bay is limited to the shallower bay margins, with deeper eelgrass tending to occur at the southeaster portion of the bay where more oceanic influence occurs along with clearer waters, allowing for deeper eelgrass presence. These areas have been used for mitigation in prior years, but the eelgrass presence in this region of the bay fluctuates regularly and absent raising the bay floor in conflict with navigation, mitigation in this area would not likely be fully successful. This was the case for prior mitigation conducted for public navigation improvements where significantly oversizing the mitigation still resulted in partial failure with subsequent resurgence in later years.

What makes in-kind mitigation most untenable for the Linda Isle Lagoon maintenance dredging project is the large scale of dredging required to restore the failing navigable depths, the private nature of the project with limited control and influence over waters outside of the lagoon, and the general conflict of raising the bottom grades within the harbor supporting deeper draft recreational vessel uses. This is coupled with the already dynamic nature of eelgrass within areas of the bay that may support eelgrass if planted within an unmanipulated location.

### *Avoidance and Minimization Measures*

The Linda Isle Community Association and multiple consultants supporting the dredge project work over the past 25 years have coordinated with resource and regulatory agencies to find a way to advance the needed dredging. This included exploring some options put forward by agencies to reduce the impact level and potentially provide mitigation opportunity onsite, or off-site and out of kind. These measures included consideration for shallower dredging than design to support eelgrass on the lagoon floor or conserving the core of the lagoon for eelgrass.

Shallower dredging was examined as a potential means of restoring eelgrass into the dredged areas following the dredging impact. However, an evaluation of the potential for eelgrass restoration post dredging was conducted in 2013 by Coastal Resources Management and it was determined that the optimal depth range for eelgrass in the lagoon was -4 to -5 feet MLLW. It was noted that depths of -8 have very low eelgrass potential and that within the lagoon eelgrass will not grow at -10 feet MLLW (Coastal Resources Management 2013). However, the draft of some of the vessels in

the lagoon are as much as 6 feet and navigation is already severely curtailed. Conducting a dredging project to -8 feet would leave the area at a depth with potential for patchy eelgrass and continued conflict with navigation at extreme low tides. Further, the duration of dredge value would be very limited as minor accretion would exacerbate navigational conflicts.

Another recommendation that was made by NMFS to support the navigational dredging needs was to consider conservation of the lagoon core allowing for conservation of eelgrass within the lagoon, while restoring the navigational depths around the perimeter of the lagoon. This alternative would still leave a need for mitigation for the deepened navigational areas, but it would provide value by continuing to provide eelgrass within the lagoon thereby providing for a wide distribution of eelgrass within Newport Bay. Second, it provides fisheries and water quality benefits within the lagoon that will help maintain ecological functions. Finally, it provides a local seed source that will allow eelgrass expansion beyond the shallows should suitable conditions for eelgrass persist on the slopes to the navigation basin floor.

The drawbacks to the conservation core is a concern that the continuing accretion of sediment will raise this area to intertidal elevations. Expanded surface eelgrass, and low intertidal flats create a concern expressed by the homeowners of the core becoming a gull haven and the eelgrass impeding surface recreation by small crafts. At the present time, the high point within the core of the lagoon is -4.6 feet, while higher elevations as shallow as -2.8 feet occur around the perimeter of the lagoon in proposed navigation areas. The retention of the eelgrass core was rejected as an option due to concerns that would be manifested by accretion over time.

### *Out-of-kind Measures*

Mitigating impacts out of kind (e.g., native oysters, offshore reefs) has been suggested as a potential approach to offsetting impacts to eelgrass from the dredging. As has an in-lieu fee mitigation program. However, the scale of the eelgrass impacts within the lagoon generally do not match well with native oyster projects that tend to be much smaller in size and do not have the same habitat return as eelgrass. Off-shore reefs have been considered but there is difficulty in constructing new reefs given complexities in achieving philosophical alignment across resource and regulatory agencies on artificial reefs and the considerable expense better suited to much larger projects. Participating in established reef programs is not considered viable due to timing of work being mostly completed on the larger reef projects and the reefs being located well outside of the impact area region. An in-lieu fee program has been considered and was initiated several years ago but was unsuccessful at getting established.

## **Eelgrass Management and Mitigation**

The Linda Isle Lagoon poses a unique management challenge requiring a unique solution. It is not acceptable to not dredge as it would ultimately eliminate navigation from the purpose-built lagoon, having significant negative financial impacts on the property values. Further, the continued use of the lagoon, until ultimately becoming unsuited to navigation, would be expected to result in declines in eelgrass due to increased vessel grounding damage. As noted above design options to restore eelgrass within the lagoon are not practical, opportunities to expand eelgrass outside of the lagoon are not viable considering the size of the project and its private nature, and partial conservation without management intervention is expected to eventually hamper small vessel navigation and water quality within the lagoon. To address the needs of the lagoon maintenance a comprehensive management plan has been developed to offset impacts to eelgrass. This plan

incorporates a combination of minimization measures, conservation measures, and fiscal contribution to out-of-kind conservation benefits to sustaining eelgrass through funding of eradication actions to address infestations of *Caulerpa prolifera*, an invasive species that has been demonstrated to readily displace eelgrass within Newport Bay.

### Adopted Minimization/Conservation Measures

While the blanket avoidance of the lagoon core does not produce a practical solution to maintaining multiple functions of the lagoon should accretion continue to raise the core areas, a mutually acceptable plan to maintain a “subtidal eelgrass conservation core” was developed in conjunction with resource and regulatory agencies. This would be achieved by using tidal harmonic elevation exceedance triggers to allow Linda Isle to dredge the conservation core down to an elevation suitable to support eelgrass and accompanying the dredging with eelgrass planting. This conservation action would ensure continued presence of eelgrass, while maintaining circulation, recreation, and avoidance of nuisance avian fecal loading in the lagoon. The conservation area maintenance actions are as follows:

- Conservation area dredging may occur if more than 50% of the area rises above a -3 ft MLLW elevation, or more than 20% rises above -2 ft MLLW elevation;
- Dredging may only occur to a depth of -6 ft MLLW when dredging is conducted;
- The conservation area must be smoothed suitably to support eelgrass and must be replanted with eelgrass following the dredging.
- The dredging will be considered a habitat maintenance action when it occurs and subject to a 1.2:1 replacement ratio.
- With maintenance of a deeper navigational perimeter, it is expected that this conservation maintenance may occur on a recurrent cycle of 15-30 years, provided the navigation areas are maintained around the lagoon perimeter allowing for the majority of the sediment to be deposited in deeper waters.

The incorporation of the subtidal eelgrass conservation core results in an expected retention of 0.71 acre of the eelgrass within the core of the lagoon (Figure 4). This retention lowers the anticipated direct impact, while maintaining eelgrass in a manner that is expected to provide benefits of habitat, water quality improvement, and capacity to spread on to dredged slopes as practical.

Maintenance dredging within the subtidal eelgrass conservation core is not part of the present maintenance dredging proposal, as the core is not near any of the established elevation-based maintenance triggers. However, this allowance for future maintenance dredging is documented in this CMP to provide future guidance on the intent of the conservation of this core to support future maintenance dredging actions.

### *Caulerpa Eradication Funding*

#### Background

The highly invasive *Caulerpa prolifera* was found within Newport Bay in October 2020, although not recognized as an invasives species at the time. In April 2021, the detection was brought to the attention of resource agencies who acted quickly to reconstitute the Southern California Caulerpa Action Team (SCCAT). The SCCAT is a working group initially assembled in 2000 to eradicate an introduction of *Caulerpa taxifolia* discovered in Agua Hedionda Lagoon, San Diego County and a

second infestation in Huntington Harbour, Orange County. The multi-agency SCCAT successfully executed two *Caulerpa* eradication efforts in California, as the first and second successful eradications of a marine invasive alga.

*Caulerpa prolifera* has been observed within Newport Bay and again in San Diego Bay to readily displace native eelgrass by developing a dense carpet of rhizoids and densely packed fronds (Photo 1, from SCCAT 2021). Further, the *Caulerpa* was noted to readily fragmented and be translocated within the bay, even being facilitated by integration with native algae to create an efficient roller subject to tidal migration (Photos 2 and 3). The capacity for *Caulerpa* to displace eelgrass was also demonstrated within both of the *C. taxifolia* infestations, and the capacity for unchecked spread has been documented in multiple areas around the globe where *Caulerpa* has invaded and become established.

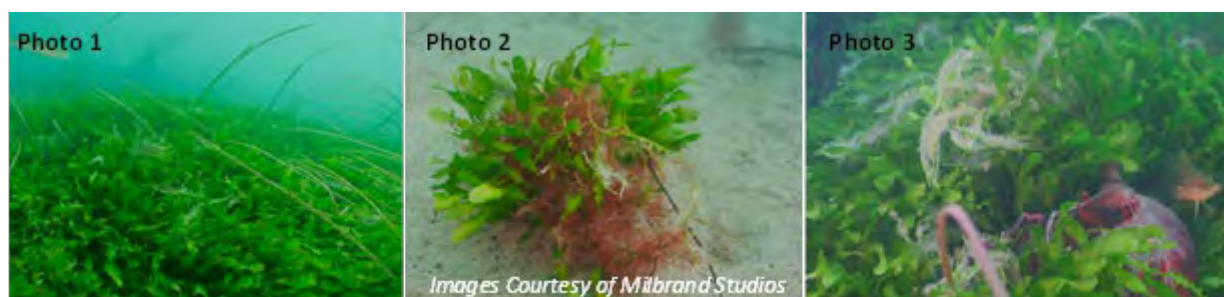


Photo 1. Largest patch of *C. prolifera*. Note remnants of eelgrass bed displaced by the alga.

Photo 2. *C. prolifera* that is not rooted, growing on top of drift *Gracilaria*.

Photo 3. The white/brown material are plumes of *C. prolifera* rhizoids from dislodged thalli, ready to spread.

### Newport Bay *Caulerpa* Eradication Status

The SCCAT is presently implementing eradication actions within Newport Bay under a rapid response and eradication plan (SCCAT 2021), as well as operative adaptive management memoranda that are incorporated into the plan by adoption by the SCCAT. The plan and adaptive management memoranda follow the framework of the initial *Caulerpa taxifolia* eradications and borrow from procedures applied in terrestrial and freshwater aquatic eradication programs.

The *Caulerpa prolifera* infestations pose a clear and present danger to all of the eelgrass and many of the other marine species within Newport Bay, should it persist. As such, and like the predecessor eradication programs for *C. taxifolia*, the pursuits of the SCCAT are eradication, as it is not believed that control is a practical solution, given the propensity for spread, the cost to combat a marine invasive, and the exposure to not only spread in Newport Bay, but also potentially escape to the open coast and other embayments. The present eradication efforts have recently reached a milestone within Newport Bay of completion of Phase 1 which included Initial localized eradication and initial localized removal followed by three consecutive surveys of the known infestation area. Work has also progressed to survey some of the highest risk areas of the Bay for additional spread of the species, with one additional outbreak location being identified over 1.5 miles from the initially known infestation local.

To date, the eradication work has been primarily funded by public funding derived through the State Water Resources Control Board Clean-up and Abatement Account, National Marine Fisheries

Service, U.S. Fish and Wildlife Service, City of Newport Beach, and in-lieu services provided by the California Department of Fish & Wildlife and City of Newport Beach.

This principally public funding has been augmented by \$84,000 paid into the eradication efforts as mitigation fees received for eelgrass impacts associated with the Irvine Company's Balboa Marina West Expansion Project. Through the marina permitting and consultation process, resource and regulatory agencies agreed that impacts to eelgrass associated with the Project could be mitigated through a combination of eelgrass transplantation and an \$84,000 in-lieu fee to support eradication efforts currently underway relative to the eradication of *Caulerpa prolifera* in Newport Harbor. In the case of the Balboa Marina West project, the fees paid were not in lieu of the initial restoration efforts being undertaken, but rather backed the initial restoration that is planned to include areas of marginal suitability to support eelgrass. The funding provided, a contribution, considered to be of high value to eliminating a greater threat to eelgrass. The expenditure of the provided funds was then made by direction of the SCCAT towards the highest needs of the eradication program and accounting was completed by a ledger tracking the drawdown of the provided mitigation contribution.

While the eradication program has proceeded forward and has now reached a milestone with completion of Phase 1, funding has not yet been secured to continue immediately into Phase 2. This is due in part to the nature of funding sources and restrictions on application of the funds beyond the known distribution of the infestations. Further, because of the nature of biological invasions and capacity for growth, propagation, and spread, partial eradication does not achieve the required objectives and continues to subject the system to risk. To continue the eradication through to fruition, it is necessary to obtain additional funding and for the funds to be adaptive to the most urgent needs of achieving program success. Funds are necessary for continued surveillance of the treatment areas, completion of additional surveys in areas of highest risk beyond the known infestation sites, development and implementation of a subsampling program to provide statistical certainty of success in the eradication, treat other identified outbreaks located during program implementation, and to adequately document and share the eradication program information. It is planned that Linda Isle Lagoon Maintenance Dredging would provide a significant and immediately available funding source to support the continued eradication efforts under the direction of the SCCAT and particularly the multi-agency SCCAT Steering Committee.

### Linda Isle Funding to SCCAT *Caulerpa* Eradication

The Linda Isle Lagoon project is anticipated to impact 3.17 acres of eelgrass. It is not possible to directly determine the value of individual funding contributions to the *Caulerpa* eradication as it is based on an unknowable probability of achieving eradication success, with or without the funds provided, coupled with an unknown extent of damage over an unknown timeframe should *Caulerpa* successfully spread throughout the bay and into other systems outside of the bay. An initial proposal was made by Linda Isle for an in-lieu payment into the eradication of \$450,000 to compensate for dredging up to 3.88 acres of eelgrass within the lagoon. From this point, the proposal morphed into the \$450,000 and retention of the conservation core with management caveats for subtidal habitat with elevational triggers to dredging. This reduced the dredge impact to 3.17 acres.

To address the uncertainties regarding what the appropriate contribution would be to offset eelgrass impacts, it was suggested that the quantification of appropriate funding be developed in a

different manner through discussions with resource and regulatory agencies. This was done with multiple agency representatives and particularly Bryant Chesney with NMFS.

The approach taken was to consider the cost foregone by Linda Isle that would have been applicable in-kind eelgrass restoration were an opportunity to be available. In this case, Merkel & Associates estimated costs for the hypothetical restoration of eelgrass in the bay following the CEMP and including planning, permitting, site preparation (placement of fill to raise the bay floor, planting, and 5-years of monitoring. Based on mitigation costs foregone, the estimated costs was revised to \$455,368. While the proposal received general support as an in-lieu fee approach supporting the eradication efforts, there was widely shared concern that the \$450,000 proposed was not adequate as it was based on an estimate of in-kind mitigation, should opportunities exist. Specifically, the agencies expressed concern that the approach does not address the out-of-kind nature of offset through in-lieu fee and it removes all risk from Linda Isle that would otherwise exist for an eelgrass restoration mitigation program. NMFS suggested that costs should reflect not only the base mitigation at a 1.38:1 planting ratio called for under the CEMP but should include an additional 1:1 ratio of the impact area of 3.17 acres to address the out-of-kind nature of the in-lieu fee and the release of risk associated with this mitigation approach. When this was considered, in the calculations, Merkel & Associates developed a cost estimate of \$749,785 for the in-lieu fee payment. Bryant Chesney conducted a separate analysis using a different approach and derived a value close but slightly lower than that presented here. Based on the similar values derived from non-parallel construction, it was proposed that the fee amount to be paid into the *Caulerpa* eradication effort and directed by the SCCAT be \$749,785. This represents an equivalency of 68.6 percent of all of the funding that has been expended to date in the Newport Bay *Caulerpa* eradication program and would contribute significantly to the completion of the eradication program.

A round table concurrence was received from staff of NMFS, Regional Water Quality Control Board, California Coastal Commission, and U.S. Fish & Wildlife Service. CDFW supported the approach but abstained from commenting on the valuation. The concurrence proposal was taken back to the Linda Isle Community Association for consideration. The HOA board approved the amount. A subsequent vote of the membership of the HOA was required to adopt a special assessment to cover the dredging and mitigation fee costs to fully fund the dredging project. This was completed on October 24 with good support from the HOA members.

## Comprehensive Management Plan Package

The CMP for the Linda Isle Lagoon Maintenance Dredging Project is summarized as follows:

- 1) Linda Isle would mitigate approximately 3.17 acres of eelgrass (area of eelgrass in a 100-foot-wide perimeter ring extending from the pierhead line outward towards the center of the lagoon as well as the access into the lagoon through the fiscal participation in the eradication program by contributing \$749,785.
- 2) The central core of the lagoon will be maintained as a subtidal eelgrass conservation site. This area totals 0.71 acre, not counting slopes to the dredge area floor, a portion of which may support eelgrass after dredging is completed.

- 3) The subtidal eelgrass conservation area is not proposed to be dredged at the present time but would be subject to elevation-based triggered opportunity to sustain the core area at a subtidal elevation suited to supporting eelgrass. Should sediment accretion occur to a level that more than 50% of the conservation area rises above a -3 ft MLLW, or more than 20% rises above -2 ft MLLW, then maintenance dredging may be conducted to lower the elevation to a depth of not lower than -6 ft MLLW. The lowered site would be smoothed and planted with eelgrass to sustain eelgrass in the conservation area. This will be considered a habitat maintenance action and subject to 1.2:1 replacement ratio in place. It is expected that this may occur on a recurrent cycle of 15-30 years, provided the navigation areas are maintained around the lagoon perimeter.
- 4) Areas within the RGP 54 plan area boundary are not included in the proposal and would remain subject to terms and permitting under the RGP. However, in dredging the lagoon core, incidental sediment spill may occur into deeper berthing areas and shallow grades may slump due to the deeper navigational basin dredging. Clean-up of the transition boundary may be completed as part of the work, however no deepening is to occur and any eelgrass impacts are to be considered as part of the authorized total impact of approximately 3.17 acres.
- 5) The Linda Isle Community Association will transfer funds of \$749,785 prior to commencement of dredging activities. The funds will be drawn against using an accounting ledger that would be kept illustrating the expenditures under this plan and the SCCAT Steering Committee would retain oversight over the funding the methods would follow those established for the mitigation funds provided for the Balboa Marina West Expansion Project.

## Appendix E

# LINDA ISLE (LICA) MAINTENANCE DREDGING PROJECT NEWPORT BEACH, CALIFORNIA



**Dredge & Construction, LLC**

## Oil Spill Prevention and Response Plan

9/2/2025 REV. 1

1444 Cesar E. Chavez Parkway  
San Diego, CA 92113  
(619) 533-7932

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## **1. Overview of Oil Spill Prevention and Response Plan and Purpose**

- a) *Pacific Dredge & Construction* shall comply with all applicable Federal, State, and local laws and regulations. The Contractor shall provide environmental protective measures and procedures to prevent and control pollution, limit habitat disruption, and correct environmental damage that may occur during dredging operations.
- b) This Oil Spill Prevention and Response Plan has been developed by *Pacific Dredge & Construction* to document environmental management activities to be implemented as part of the dredging required in the Linda Isle Maintenance Dredging project.
- c) *Pacific Dredge & Construction* has developed this program to prevent environmental pollution or damage during and as a result of dredging operations. It is the policy to develop an Oil Spill Prevention and Response Plan in conjunction with all federal, state, and local laws, and regulations. This plan includes the elimination or limitation of chemicals, turbidity, physical or biological elements or agents that adversely affect human health or welfare; unfavorably alter ecological balances of importance to human life, affect other species of importance to man; or degrade the utilities of the environment for aesthetic and recreational purposes. Preservation of land, water, and fish/wildlife resources within the project boundaries.

## **2. Description of required plans**

### **1. Spill Control Plan, (Appendix A)**

- a) *Pacific Dredge & Construction* shall include as part of the Oil Spill Prevention and Response Plan a Spill Control Plan. (See appendix A) The Spill Control Plan shall include the procedures, instructions, and reports to be used in the event of an unforeseen spill of a substance regulated by the Emergency Response and Community Right-to-Know Act or regulated under State or local laws or regulations. The Spill Control Plan supplements the requirements of EM 385-1-1.

### **2. Disposal of Solid Waste**

- a) *Pacific Dredge & Construction* will implement a plan to dispose of solid waste as per contract description.
- b) Solid waste is rubbish, debris, waste materials, garbage, and other discarded solid materials (excluding clearing debris and hazardous waste as defined in following paragraphs). Solid waste shall be placed in containers and disposed on a daily basis. All handling and disposal shall be conducted in such a way as to prevent spillage and contamination. The Contractor shall transport all solid waste off Government property and dispose of in compliance with Federal, State, and local requirements.
- c) The Contractor shall remove all trash, debris, and excess construction material from the shore and waters in the vicinity of the placement site, and the staging/work area at the end of every work shift (at a minimum) and shall discard all such material at an acceptable disposal site.

### **3. Wastewater Management Plan**

- a) *Pacific Dredge and Construction* will not be generating wastewater during the course of this dredging contract.

### **4. Air Pollution Control Plan**

*Pacific Dredge & Construction* will obtain any necessary permits in order to comply with all State Air Resources Board laws regulations. All construction activities are under surveillance, management and control to minimize pollution of air resources.

- a) Conditions of the State Air Resources Board laws, regulations, and permits shall be met. Special management techniques as set out below shall be implemented to control air pollution by the construction activities. These techniques supplement the requirements of Federal, State, and local laws and regulations, and the safety requirements under this Contract.

*Pacific Dredge & Construction* has obtained all California Air Resources Board (CARB) Equipment Identification Numbers (EIN) through Dynamic Object-Oriented Requirements System (DOORS), For PDC equipment and rental equipment. These will be provided as necessary. All floating vessels Have United States Coast Guard (USCG) documentation and are under the jurisdiction of the California Harbor Craft Report.

## 5. Contaminant Prevention Plan

- a) As a part of the Oil Spill Prevention and Response Plan, *Pacific Dredge & Construction* has prepared a contaminant prevention statement identifying potentially hazardous substances to be used on the job site and intended actions to prevent introduction of such materials into the air, water, or ground.

- b) The Contractor shall detail provisions to be taken to meet Federal, State, and local laws and regulations regarding the storage and handling of these materials.

- c) Pacific Dredge & Construction will implement a **contaminant prevention** plan by reducing the amount of hazardous substance brought to the work site.

- d) There will be no storage of any hazardous materials, or any other hazardous contaminants.

- e) The clamshell dredge, HORTON, will have a double wall storage tanks on board to supply fuel to the crane and hydraulic power unit that runs the winches.

- f) Small quantities of various other hazardous or flammable liquids are kept on board in the flam locker. Some of the products include hydraulic oil, gear oil and grease. Safety Data Sheets for all Products are posted on board.

## 6. Biological Resources and Wetlands Plan

- a) The Contractor shall keep construction activities under surveillance, management and control to minimize interference with, disturbance to and damage to fish, wildlife and plants including their habitat.

- b) The Contractor shall be responsible for the protection of threatened and endangered species and their habitat.

- c) PDC will strive to preserve the natural resources within the project boundaries and outside the limits of permanent work.

## 7. Non-Hazardous Solid Waste Disposal Plan

- i. This plan details the Contractor's actions to comply with the following recycling and waste minimization requirements:

1. *Pacific Dredge & Construction* shall participate in State and local government sponsored recycling programs to reduce the volume of solid waste materials at the source.
2. *Pacific Dredge & Construction* will resource local recycling vendors to receive any recyclable materials that are produced under the contract
3. *Pacific Dredge & Construction* shall collect glass bottles, aluminum cans, and paper at the job site for recycling.

#### Waste Separation

1. Debris such as **food** will be placed in plastic lined steel trash can with lid. This trash can will be emptied daily and taken to a dumpster for disposal located within the laydown yard.
2. Debris such as **plastic** will be placed in a steel trash can with lid. This trash can will be emptied daily and taken to a dumpster for disposal located within the fenced area of the laydown yard. The dumpster will be emptied on a scheduled basis.
3. If any floating debris is seen by any Pacific Dredge Employee, a skiff will be used to retrieve any debris that is seen afloat in the work area. The debris will then be disposed of accordingly.

### **3. Duties and Level of Authority**

The Project Manager will be responsible to oversee environmental compliance and adherence to this plan. The site superintendent will be responsible for spill cleanup and training of personnel on spill response procedures and manifesting of any hazardous wastes that might be removed from the site.

### **4. Project procedures for managing environmental protection**

PDC crews are well versed in dredging operations conducted in biologically sensitive areas. The positioning equipment utilized to aid the operators in keeping the clamshell dredge within the specified channel and operating areas is always displayed in the leverman's station, winch house and captain's office. In addition, as a backup to the electronics, channel markers and shoreline references are noted and referenced as the dredging proceeds along the intended channel. By staying within the confines of the dredging area access/entry into environmentally sensitive areas is avoided.

### **5. Communication and Training procedures**

PDC crews will be indoctrinated into the environmental management requirements at the initial phase meeting prior to the start of work on site. Daily tailboard meetings will discuss environmental, safety and production topics on a regular basis to keep all personnel aware of all requirements on the project.

Prior to initiating work, ensure personnel are made aware of the ecological importance of surrounding habitat areas, the presence of federal and state listed threatened and endangered species and other sensitive species (including marine mammals), and the legal ramifications for harming endangered species and other items identified in the contract specifications. In addition, the environmental training will

include protocols to be followed in the event of any spills.

## **6. Contact information**

See "TABLE 1" at end of this plan (Attachment 1)

## **7. General Site information**

Dredging operations will be performed between the hours of 7:00am and 6:30pm, Monday through Friday and between 8:00am and 6:00pm on Saturdays.

## **8. Drawings**

The project will take place at the Linda Isle in accordance with the contract drawings.

## **9. Work Area**

All dredging work to be performed inside project limits and Linda Isle. PDC will dredge the entrance channel (-10+2') and the Lagoon (-8+2') per the project plans and specifications.

## **10. Management of Natural Resources**

### **Fish and Wildlife Resources**

- a) Pacific Dredge & Construction will ensure vigilant observance of the presence of fish, wildlife and plants including their habitat.
- b) *Pacific Dredge & Construction* will monitor and ensure there is no known impact to the protection of threatened and endangered species and their habitat.
- c) *Pacific Dredge & Construction* will keep all vehicle and equipment working speed to a minimum while working in the vicinity of ANY possible environmentally sensitive area.

## **11. Protection of the Environment from Waste Derived from Contractor Operations**

- a. PDC does not expect to generate any hazardous waste on this dredging contract.
- b. Should any hazardous waste be encountered or fluids from machinery require changing a written waste determination will be conducted to assure wastes will be disposed of appropriately.
- c. Methods and locations for hazardous waste accumulation/storage. No hazardous waste is expected to be accumulated or stored during the course of this dredging project.
- e. Management procedures for storage, labeling, transportation and disposal of wastes. - Should hazardous

waste be encountered on the project all procedures required in the California workplace Hazard Communication Standard will be followed.

f. Disposal of any hazardous waste will comply with Land Disposal Restrictions in 40 CFR 268.

g. Management procedures for recyclable hazmat will be in accordance with all local, state and federal regulations.

h. Used oil Management procedures will be in accordance with 70 CFR 279

## 12. Prevention of Releases to the Environment

- a) Procedures to prevent releases to the environment. Fueling and lubrication of equipment and motor vehicles shall be conducted in a safe and professional manner, Lubricants and waste oil to be discarded shall be stored in marked corrosion-resistant containers and recycled or disposed in accordance with Federal, State, and local laws and regulations.
- b) Pacific Dredge & Construction will ensure the maximum protection of the environment from any fueling and lubrication of equipment and motor vehicles that may be on the projectsite.
- c) Ensure motorized equipment are not maintained or parked in or near any bodies of water in such a manner that petroleum products or other pollutants from the equipment may enter these areas. Do not operate vehicles and equipment in any water body, except as necessary for construction. Drip pans to be placed under parked equipment to contain any oilleaks.
- d) All equipment will be inspected daily for potential fuel or hydraulic system leaks. Equipment to be inspected prior to arriving on site to ensure it is in good working order.
- e) Notifications in the event of a release to the environment. (See attachment 4)
- f) Spill response kit is onboard dredge Horton and Tug Contender. Spill kits are yellow 50 gallon drums with sorbent boom and sorbent pads for emergency response. Each spill kit holds 20' of floating sorbent boom. Additionally, there will be enough silt curtain/oil boom onsite to either close off the entrance channel of Linda Isle or wrap around the perimeter of the Horton dredge to prevent spills from leaving the immediate area.
- g) Fuel tank on board Horton is double wall containment 750 gallon tank. Image below shows typical pump and fill set up for tank.



### **13. Pollution Generating Equipment**

All vessels on the project are listed in the annual California Harbor craft Report and compliant with California Tier level standards. All other equipment, both owned and rented is registered in the Portable Equipment Registration Program (PERP) program at its respective home attainment area. All Diesel fuel utilized for the equipment will be reformulated low sulfur diesel fuel.

#### **1.7.7.2 Stationary Internal Combustion Engines**

All machinery is diesel powered off-road in use and compliant with CARB regulations.

**Dredge:** HORTON w/ Liebherr material handler. Secured on deck is a 750 gallon capacity double walled fuel tank. Barge stability analysis in Attachments.

**Tug:** CONTENDER. Internal tanks with 8,000 gallon capacity in total. This is the only required Coast Guard Inspected Vessel. Certificate of Inspection in Attachments.

**Tug:** CADET. Internal tank with 450 gallon capacity.

**Skiff:** Small work skiff with 25 gallon gas tank.

**Scows:** THING 1 & THING 2. Each have 50 gallon fuel tanks onboard.

#### **1.7.7.3 Refrigerants**

There will be no work involving any HVAC installation or removal conducted on this project. This is strictly a dredging project.

#### **1.7.7.4 Air Pollution-engineering Processes**

There will be no planned air pollution-generating processes conducted on the project. Dredging only.

#### **1.7.7.5 Compliant Materials**

The dredge barge Horton has an SDS file on board with all materials on board. A supplemental file will be provided listing lubricants, fuels, oils etc. along with SDS.

**ii) APPENDIX A**  
**SPILL PREVENTION PLAN**

**GENERAL INFORMATION**

**VESSELS AND EQUIPMENT ON PROJECT:** (1) Dredging Barge with material handler and clamshell, (1) skiff with outboard gas engines, (2) Tugboats, (2) dump scows.

The equipment on this project powered with diesel engines all use #2 diesel fuel. The equipment on this project powered with gas engines are fueled with unleaded gasoline. Diesel fuel, unleaded gasoline, and oil/lubricants will be stored in the Flammable materials locker(s).

The Project Manager and Project Superintendent are responsible for coordinating all activities regarding an implementation of the Spill Plan. All emergency activities are under the direct control of Project Manager, the Project Superintendent and the SSHO. The Project Management Team will be available to respond to an emergency on a 24-hour basis.

The Project Superintendent is on site everyday work is in progress. All qualified personnel will be available by phone 24/7.

Project Superintendent and Project Manager are very familiar with all operations, locations or records, the layout and fuels/lubricants onboard the vessels. All team members have been instructed to call appropriate emergency organizations and then notify the Project Manager immediately in the event of a major spill. The team members have been instructed to notify the Project Manager immediately in the event of a minor spill. A concise description of the appropriate response in case of a spill including the contact information for the Project Manager and Superintendent is provided below. This information will be displayed on the dredge Barge.

The Project Superintendent, Raul Madera, will assess the severity of the incident and determine the appropriate action necessary to mitigate the release. The Superintendent will immediately notify the National Response Center and CDFW OSPR as necessary. The Project Team will keep dredge operation activities under surveillance, management, and control, to prevent pollution from entering ground, drainage, or local bodies of water. The dredge and dredge operations will be conducted in a manner to minimize exposure and risk, in order to conform to all applicable water quality protection standards. Constant radio contact and visual observance will allow for quick notification should the dredge or dredge operations exceed water quality standards.

The Project Team will take measures to prevent spills from:

- Fuel leaks
- Oil leaks

Immediate actions will be taken to contain and clean up any spill of oily substance, contaminated water, and petroleum products. Booms, absorbent pads, and dry absorbent will be used to contain

and clean-up any spills. Clean up materials will be made available on the dredge, tugboat, discharge site, and lay down yard. Any spills or exceeded water quality standard will be immediately reported to the Project Manager, then to the Project Representative within reasonable time. Any spilled quantities will be reported to the National Response Center (NRC), United States Environmental Protection Agency (USEPA), Ca Dept of Fish and Wildlife Office of Spill Prevention and Response and the Army Corp of Engineers within 20 minutes of any spills. If a reportable quantity spill occurs the legally required Federal, State, and local reporting channels will be notified within 20 minutes. The agencies and groups that will be notified in the event of an emergency are listed in Table 1 of the emergency contacts section.

In the event of a worst-case scenario spill occurs it is imperative that MSRC is called to aid in spill-response and recovery. Both the dredge Horton and Tug Contender have their own spill-response kits and their own crews to address spills.

The following incidents will warrant a major spill.

- An uncontrolled untreated water spill from the dredge operation
- An uncontrolled discharge of fuel or lubricant
- An uncontrolled off-site release of contaminated sediment. Whenever there is a major spill, call 911.

The PIC or designee will then immediately:

- Activate communication system to notify personnel;
- Notify appropriate local, state, and federal agencies as listed in Table 1; and
- Identify the material, exact source, amount and the real extent of any released materials and assess possible hazards to human health and the environment that may result from the situation.

Immediately following the emergency situation, the PIC will:

- Provide the treatment, storage or disposal of any material recovered or contaminated from the discharge or cleanup;
- See that any material, which is potentially incompatible with the discharge material from the incident area, is removed or protected until cleanup procedures are completed;
- See that emergency equipment is cleaned and fit for its intended use before operations are resumed;
- Notify the appropriate local, state and federal authorities that the above steps have been completed, following the emergency situation;
- Record the time, date and details of incident and file a report as shown in Table 1.

#### EMERGENCY RESPONSE PROCEDURES

Emergency response procedures have been developed to effectively mitigate any spill that may arise at the project site.

##### A. Spill Response Procedures

1. Stop All Operations;
2. Call 911, if major spill;

3. Apprise PIC of situation;
4. Block all possible routes to stop material from spreading; surround spill area; and
5. Contact the appropriate agencies, if reportable quantity.

**A. Pacific Dredge & Construction Contaminant Prevention Statement**

*Pacific Dredge & Construction* will use any and all measures to prevent the introduction of any potentially hazardous substance into the environment.

**A1.** The dredge Barge will store fuel (diesel) in double wall containment. In the event of a spill, a petroleum absorbent boom will be deployed to contain the spill. Absorbent soaks will be deployed to recover any contaminants that have been exposed to the environment. Any hazardous waste will be properly disposed of. Waste will be placed in plastic bags, and then placed in approved leak proof waste barrels for disposal. All **Proper Authorities**, including but not limited to the **Contracting Officer**, will be notified immediately upon any release into the environment.

**A2.** The tugboats, will store diesel in a double wall containment. In the event of a spill, a petroleum absorbent boom will be deployed on deck to contain the spill. Absorbent soaks will be deployed to recover any contaminants spilled. Waste will be placed in plastic bags, and then placed in approved leak proof waste barrels for disposal. All **Proper Authorities**, including but not limited to the **Contracting Officer**, will be notified immediately upon any release into the environment.

**Attachment 1**

**TABLE 1 - EMERGENCY CONTACTS**

PIC - Raul Madera (PDC) radio or cell phone:	(619) 992-2894
Project Manager – Matt MacArthur (PDC) cell phone:	(951) 541-6941
Hoag Hospital (if workers injured)	911
Fire Department and Police Department	911
Merkel & Associates – Keith Merkel	(619) 884-6715

MSRC Environmental Clean-up (If spill can't be contained and cleaned up by onsite personnel and equipment)  
(800) 645-7745

**I. Spill Notification Sequence and Numbers:**

1.	Raul Madera (PDC) radio or cell phone:	(619) 992-2894	Time: _____
2.	<b>Matt MacArthur (PDC) Project Manager</b>	<b>(951) 541-6941</b>	Time: _____
3.	Walt Jellison (PDC) President	(951) 541-6941	Time: _____
4.	<b>National Response Center (NRC)</b>	<b>1 (800) 424-8802</b>	Time: _____
5.	<b>Cal OES</b>	<b>1 (800) 645-7911</b>	Time: _____
6.	USCG Newport Beach	(310) 521-3600 or VHF CH 16	Time: _____
7.	CDFW OSPR	(800) 852-7550	Time: _____
8.	<b>Keith Merkel Owner Rep</b>	<b>(619) 884-6715</b>	Time: _____
9.	Newport Beach Fire Department	(949) 644-3309	Time: _____
10.	Jonathan Bishop (California Coastal Commision)	(831) 303-0360	Time: _____

**DREDGE SITE SPILL INCIDENT LOG SHEET**

**II. Initial Information Required**

1. Name of Individual Reporting: \_\_\_\_\_
2. Phone Number: \_\_\_\_\_
3. Location of Spill: \_\_\_\_\_
4. Name of Injured and Type of Injuries (if applicable): \_\_\_\_\_  
\_\_\_\_\_
5. Substance Spilled: \_\_\_\_\_
6. Amount Spilled (estimated): \_\_\_\_\_
7. Extent of Spill: \_\_\_\_\_
8. Rate Material Currently Spilling (if applicable): \_\_\_\_\_
9. Time Spill Occurred (estimated): \_\_\_\_\_
10. Time of Notification(s): \_\_\_\_\_
11. Other information: \_\_\_\_\_  
\_\_\_\_\_  
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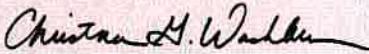


# UNITED STATES OF AMERICA

DEPARTMENT OF HOMELAND SECURITY  
UNITED STATES COAST GUARD

NATIONAL VESSEL DOCUMENTATION CENTER

## CERTIFICATE OF DOCUMENTATION

VESSEL NAME CONTENDER		OFFICIAL NUMBER 519844	IMO OR OTHER NUMBER NONE	YEAR COMPLETED 1969	
HAILING PORT LOS ANGELES CA		HULL MATERIAL STEEL		MECHANICAL PROPULSION YES	
GROSS TONNAGE 81 GRT	NET TONNAGE 55 NRT	LENGTH 61.8	BREADTH 20.0	DEPTH 7.5	
PLACE BUILT LONG BEACH CA					
OWNERS PACIFIC MARITIME GROUP INC			OPERATIONAL ENDORSEMENTS COASTWISE REGISTRY		
MANAGING OWNER PACIFIC MARITIME GROUP INC 1444 CESAR E CHAVEZ PKWY SAN DIEGO CA 92113					
RESTRICTIONS NONE					
ENTITLEMENTS NONE					
REMARKS NONE					
ISSUE DATE FEBRUARY 28, 2025		 DIRECTOR, NATIONAL VESSEL DOCUMENTATION CENTER			
THIS CERTIFICATE EXPIRES MARCH 31, 2026					





**United States of America  
Department of Homeland Security  
United States Coast Guard**

Certification Date: 25 Apr 2022  
Expiration Date: 25 Apr 2027

# Certificate of Inspection

For ships on international voyages this certificate fulfills the requirements of SOLAS 74 as amended, regulation V/14, for a SAFE MANNING DOCUMENT.

Vessel Name	Official Number	IMO Number	Call Sign	Service
CONTENDER	519844		WDI8589	Towing Vessel

Hailing Port	Hull Material	Horsepower	Propulsion
LOS ANGELES, CA	Steel	1200	Diesel Reduction
UNITED STATES			

Place Built	Delivery Date	Keel Laid Date	Gross Tons	Net Tons	DWT	Length
LONG BEACH, CA	01Jul1969	01Feb1969	R-81	R-55		R-61.8
UNITED STATES			I-	I-		I-0

Owner	Operator
PACIFIC MARITIME GROUP INC 1444 CESAR E CHAVEZ PKWY SAN DIEGO, CA 92113 UNITED STATES	PACIFIC MARITIME GROUP 1444 CESAR E CHAVEZ PKWY SAN DIEGO, CA 92113 UNITED STATES

This vessel must be manned with the following licensed and unlicensed Personnel. Included in which there must be 0 Certified Lifeboatmen, 0 Certified Tankermen, 0 HSC Type Rating, and 0 GMDSS Operators.

1 Masters	1 Licensed Mates	0 Chief Engineers	0 Oilers
0 Chief Mates	0 First Class Pilots	0 First Assistant Engineers	
0 Second Mates	0 Radio Officers	0 Second Assistant Engineers	
0 Third Mates	0 Able Seamen	0 Third Assistant Engineers	
0 Master First Class Pilot	0 Ordinary Seamen	0 Licensed Engineers	
0 Mate First Class Pilots	2 Deckhands	0 Qualified Member Engineer	

In addition, this vessel may carry 0 Passengers, 0 Other Persons in crew, 2 Persons in addition to crew, and no Others. Total Persons allowed: 6

**Route Permitted And Conditions Of Operation:**  
**---Oceans---**

MINIMUM SAFE MANNING ABOVE APPLIES TO INTERNATIONAL AND DOMESTIC VOYAGES OF 600 NAUTICAL MILES (NM) OR MORE ON OCEANS OR COASTWISE ROUTES. THE FOLLOWING MINIMUM SAFE MANNING SCALES MAY BE APPLIED AS INDICATED BELOW:

INTERNATIONAL AND DOMESTIC VOYAGES OF LESS THAN 600 NM ON OCEANS OR COASTWISE ROUTE:  
 1- MASTER  
 1- MATE  
 1- ABLE SEAMEN  
 1- ORDINARY SEAMAN

**\*\*\*SEE NEXT PAGE FOR ADDITIONAL CERTIFICATE INFORMATION\*\*\***

With this Inspection for Certification having been completed at SAN DIEGO, CA, UNITED STATES, the Officer in Charge, Marine Inspection, SECTOR SAN DIEGO certified the vessel, in all respects, is in conformity with the applicable vessel inspection laws and the rules and regulations prescribed thereunder.

Annual/Periodic/Re-Inspection				This certificate issued by: <i>R.J. Caputo</i> R.J. CAPUTO, CDR, USCG, (By direction) Officer in Charge, Marine Inspection SECTOR SAN DIEGO Inspection Zone
Date	Zone	A/P/R	Signature	



# Certificate of Inspection

Vessel Name: CONTENDER

DOMESTIC VOYAGES OF LESS THAN 600 NM ON OCEANS OR COASTWISE ROUTE WITH OPERATIONS OF LESS THAN 12-HOURS IN ANY 24-HOUR PERIOD:

- 1- MASTER
- 1- ABLE SEAMAN

DOMESTIC OPERATIONS OF 12-HOURS OR MORE IN ANY 24-HOUR PERIOD ON LAKES, BAYS AND SOUNDS ROUTE:

- 1- MASTER
- 1- MATE
- 2- DECKHANDS

DOMESTIC OPERATIONS OF LESS THAN 12-HOURS IN A 24-HOUR PERIOD ON LAKES, BAYS AND SOUNDS ROUTE:

- 1- MASTER
- 1- DECKHAND

ON ALL ROUTES/OPERATIONS, PERSONS IN ADDITION TO MAY BE CARRIED. THE TOTAL PERSONS ALLOWED SHALL NOT EXCEED 6.

**ENGINEERS:**

AS PER UNITED STATES REGULATIONS, ENGINEERS ARE NOT REQUIRED FOR SAFE MANNING OF A VESSEL LESS THAN 200 GROSS REGISTERED TONS. APPROPRIATELY LICENSED AND ENDORSED ENGINEERS MAY SERVE ABOARD THIS VESSEL AS PERSONS IN ADDITION TO CREW. A DESIGNATED DUTY ENGINEER WITH ENDORSEMENTS OF STCW III/1, III/2 OR III/3 IS APPROPRIATE FOR SERVICE ON AN INTERNATIONAL VOYAGE.

WHEN THE VESSEL IS OPERATING OUTSIDE OF THE SECTOR SAN DIEGO MARINE INSPECTION ZONE, AS DEFINED IN 33 CFR 3.55-15, MASTER SHOULD CONSULT THE COGNIZANT OFFICER IN CHARGE, MARINE INSPECTION (OCMI) OF THE ZONE TO WHICH THE VESSEL INTENDS ON OPERATING TO DETERMINE ANY ROUTE SPECIFIC REQUIREMENTS.

**---Hull Exams---**

Exam Type	Next Exam	Last Exam	Prior Exam
DryDock	25Apr2025		
Internal Structure	25Apr2025		

**---Lifesaving Equipment---**

Total Equipment for 6 Persons

Primary Lifesaving Equipment	Quantity	Capacity		Required
Lifeboats (Total)	0	0	Life Preservers (Adult)	7
Lifeboats (Port)	0	0	Life Preservers (Child)	0
Lifeboats (Starboard)	0	0	Ring Buoys (Total)	2
Motor Lifeboats	0	0	With Lights	1
Lifeboats With Radio	0	0	With Line Attached	1
Rescue Boats/Platforms	0	0	Other	0
Inflatable Rafts	1	6	Immersion Suits	7
Life Floats/Buoyant App	0	0	Portable Lifeboat Radios	0
Inflatable Buoyant Apparatus (IBA)	0	0	Equipped With EPIRB?	YES

**--- Fire Fighting Equipment ---**

**\*Fire Extinguishers - Hand portable and semi-portable\***

Quantity	Class Type
1	160-B
2	10-B:C
1	40-B:C

\*\*\*END\*\*\*

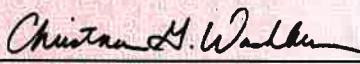


# UNITED STATES OF AMERICA

DEPARTMENT OF HOMELAND SECURITY  
UNITED STATES COAST GUARD

NATIONAL VESSEL DOCUMENTATION CENTER

## CERTIFICATE OF DOCUMENTATION

VESSEL NAME HARBOR CADET		OFFICIAL NUMBER 964451	IMO OR OTHER NUMBER WB049MIF0590	YEAR COMPLETED 1990	
HAILING PORT SAN DIEGO CA		HULL MATERIAL STEEL		MECHANICAL PROPULSION YES	
GROSS TONNAGE 13 GRT	NET TONNAGE 10 NRT	LENGTH 25.2	BREADTH 14.0	DEPTH 4.5	
PLACE BUILT PANAMA CITY FL					
OWNERS PACIFIC MARITIME GROUP INC			OPERATIONAL ENDORSEMENTS REGISTRY COASTWISE		
MANAGING OWNER PACIFIC MARITIME GROUP INC 1444 CESAR E CHAVEZ PKWY SAN DIEGO CA 92113					
RESTRICTIONS NONE					
ENTITLEMENTS NONE					
REMARKS NONE					
ISSUE DATE JULY 09, 2025		 DIRECTOR, NATIONAL VESSEL DOCUMENTATION CENTER			
THIS CERTIFICATE EXPIRES JULY 31, 2026					



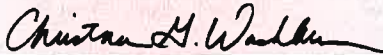


# UNITED STATES OF AMERICA

DEPARTMENT OF HOMELAND SECURITY  
UNITED STATES COAST GUARD

NATIONAL VESSEL DOCUMENTATION CENTER

## CERTIFICATE OF DOCUMENTATION

VESSEL NAME THING 1		OFFICIAL NUMBER 1283751	IMO OR OTHER NUMBER 328	YEAR COMPLETED 2017	
HAILING PORT SAN DIEGO CA		HULL MATERIAL STEEL		MECHANICAL PROPULSION NO	
GROSS TONNAGE 153 GRT	NET TONNAGE 153 NRT	LENGTH 78.5	BREADTH 24.0	DEPTH 9.7	
PLACE BUILT GRANDVIEW IN					
OWNERS PACIFIC DREDGE AND CONSTRUCTION LLC			OPERATIONAL ENDORSEMENTS COASTWISE		
MANAGING OWNER PACIFIC DREDGE AND CONSTRUCTION LLC 1444 CESAR E CHAVEZ PKWY SAN DIEGO CA 92113					
RESTRICTIONS NONE					
ENTITLEMENTS NONE					
REMARKS NONE					
ISSUE DATE DECEMBER 26, 2023		 DIRECTOR, NATIONAL VESSEL DOCUMENTATION CENTER			
THIS CERTIFICATE EXPIRES					
JANUARY 31, 2025					






# UNITED STATES OF AMERICA

DEPARTMENT OF HOMELAND SECURITY  
UNITED STATES COAST GUARD

NATIONAL VESSEL DOCUMENTATION CENTER

## CERTIFICATE OF DOCUMENTATION

VESSEL NAME THING 2		OFFICIAL NUMBER 1286014	IMO OR OTHER NUMBER 329	YEAR COMPLETED 2018	
HAILING PORT SAN DIEGO CA		HULL MATERIAL STEEL		MECHANICAL PROPULSION NO	
GROSS TONNAGE 153 GRT	NET TONNAGE 153 NRT	LENGTH 78.5	BREADTH 24.0	DEPTH 9.7	
PLACE BUILT GRANDVIEW IN					
OWNERS PACIFIC DREDGE AND CONSTRUCTION LLC			OPERATIONAL ENDORSEMENTS COASTWISE		
MANAGING OWNER PACIFIC DREDGE AND CONSTRUCTION LLC 1444 CESAR E CHAVEZ PKWY SAN DIEGO CA 92113					
RESTRICTIONS NONE					
ENTITLEMENTS NONE					
REMARKS NONE					
ISSUE DATE DECEMBER 26, 2023		 DIRECTOR, NATIONAL VESSEL DOCUMENTATION CENTER			
THIS CERTIFICATE EXPIRES					
JANUARY 31, 2025					



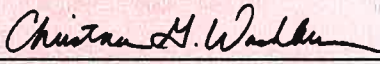


# UNITED STATES OF AMERICA

DEPARTMENT OF HOMELAND SECURITY  
UNITED STATES COAST GUARD

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## CERTIFICATE OF DOCUMENTATION

VESSEL NAME YC-3		OFFICIAL NUMBER 1113112	IMO OR OTHER NUMBER YC-1487	YEAR COMPLETED 1968	
HAILING PORT LONG BEACH CA		HULL MATERIAL STEEL		MECHANICAL PROPULSION NO	
GROSS TONNAGE 186 GT ITC 149 GRT	NET TONNAGE 55 NT ITC 149 NRT	LENGTH 104.3	BREADTH 31.6	DEPTH 8.4	
PLACE BUILT SAN DIEGO CA					
OWNERS PACIFIC MARITIME GROUP			OPERATIONAL ENDORSEMENTS REGISTRY COASTWISE		
MANAGING OWNER PACIFIC MARITIME GROUP INC ATTN: WILLIAM A HARJU 1444 CESAR E CHAVEZ PKWY SAN DIEGO CA 92113					
RESTRICTIONS NONE					
ENTITLEMENTS NONE					
REMARKS NONE					
ISSUE DATE DECEMBER 11, 2024		 DIRECTOR, NATIONAL VESSEL DOCUMENTATION CENTER			
THIS CERTIFICATE EXPIRES DECEMBER 31, 2025					



## Activity Hazard Analysis (AHA)

Activity/Work Task: Fueling Operations (Over Water)		Overall Risk Assessment Code (RAC) (Use highest code)				M	
Project Location:Diablo Canyon Intake Cove		<b>Risk Assessment Code (RAC) Matrix</b>					
Contract Number: DCPD Dredging		<b>Probability</b>					
Date Prepared: 5-22-24		<b>Severity</b>	Frequent	Likely	Occasional	Seldom	Unlikely
Prepared by (Name/Title): Bill Harju, HSE Manager		Catastrophic	E	E	H	H	M
Reviewed by (Name/Title): Germain Carrillo		Critical	E	H	H	M	L
		Marginal	H	M	M	L	L
		Negligible	M	L	L	L	L
Notes: (Field Notes, Review Comments, etc.)		<p><b>Step 1:</b> Review each "Hazard" with identified safety "Controls" and determine RAC (See above)</p> <p>"Probability" is the likelihood to cause an incident, near miss, or accident and identified as: Frequent, Likely, Occasional, Seldom or Unlikely.</p> <p>"Severity" is the outcome/degree if an incident, near miss, or accident did occur and identified as: Catastrophic, Critical, Marginal, or Negligible</p> <p><b>Step 2:</b> Identify the RAC (Probability/Severity) as E, H, M, or L for each "Hazard" on AHA. Annotate the overall highest RAC at the top of AHA.</p>					
Bill Harju  Germain Carrillo		<b>RAC Chart</b>					
		E = Extremely High Risk					
		H = High Risk					
		M = Moderate Risk					
		L = Low Risk					
<b>Job Steps</b>	<b>Hazards</b>	<b>Controls</b>				<b>RAC</b>	
Secure vessel, check ullage	Fuel oil spill	Ensure spill kit is within 50 feet at any time while liquid fuels are being transferred or handled. Nozzle operator must remain at nozzle until fueling is completed with absorbent pad or rag in hand to catch any drips. Use PPE at all times.				L = Low Risk	
Deploy vent bag/absorbent roll	Fire or explosion	No open flames				M = Moderate	
Meet with shore side PIC	Slips, trips, falls	Secure deck				L = Low Risk	
Connect hoses, open valves	Heavy lifting	Manage posture to lift loads. Get help from team or machinery				L = Low Risk	
Vessel refueling	Spills	Vessel refueling will be done at fuel dock or via USCG approved fueling station				L= Low Risk	
Day tank refueling	Spills	Day tank to be refueled from Tug. Pump operator and nozzle operator to remain at controls and in communication at all times. Nozzle operator to have absorbent pad in hand at all times. Notify pump operator to secure at 7/8's fill .				L= Low Risk	
Check for leaks/increase flow	Over filling	Sound frequently				M = Moderate	
Reduce flow to top off	Burpage	slow to recommended rate				M = Moderate	
After refueling, close valves	Spill onto deck	Draw hose				L= Low Risk	
<b>Equipment to be Used</b>		<b>Training</b>		<b>Inspection Requirements</b>			
Crane fuel transfer pump		License OJT		Daily Inspect hoses regularly			