CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

ORDER NO. R2-2015-0010

WASTE DISCHARGE REQUIREMENTS and WATER QUALITY CERTIFICATION for:

SUISUN ASSOCIATES
SAND MINING IN SUISUN BAY

The California Regional Water Quality Control Board, San Francisco Bay Region (Water Board), finds that:

A. Purpose of Order: This Order regulates Suisun Associates' sand mining activities (project) within the Suisun Channel in Suisun Bay, including the discharge of decant water from those operations.

This Order constitutes Waste Discharge Requirements (WDRs) and provides the Water Quality Certification (Certification) for the project described herein.

B. Project Overview: Suisun Associates, a joint venture of Hanson Marine Operations and Lind Marine Incorporated, conducts sand mining operations in the Suisun Channel in Suisun Bay from the western end of Chipps Island through the channel and down Broad Slough between Winter Island and Sherman Island. Sand mining is the intentional dredging of sand and fine to medium gravel (hereinafter referred to collectively as sand) to be later used and sold for commercial purposes. Sand is dredged from various areas in the San Francisco Bay Estuary (Estuary) and is transported to upland facilities (sand yards) for processing and storage.

<u>Hanson Marine Operations (Hanson)</u>
Hanson currently uses one tugboat/barge pair for sand mining, the tug *San Joaquin River* with the trailing suction hopper barge the *Sand Merchant*, which is equipped with suction mining equipment. The *Sand Merchant* is 230 feet long by 55 feet wide, with an approximate cargo capacity of 2,400 cubic yards (cy). It is limited by draft and other practical operating constraints to mining in water with a minimum depth of -20 feet mean lower low water (MLLW) and can mine in water up to about -90 feet MLLW.

During mining operations, the drag head at the end of the suction pipe (drag arm) is buried about 6-18 inches into the sand substrate. The drag head consists of a mining face measuring 36x36 inches that is equipped with a 6-inch "grizzly," a square grid to prevent entrainment of material 6 inches or larger in diameter. Water and sand are drawn into the drag head by the suction of a centrifugal pump. Water drawn into the drag head through the substrate creates a sand-water slurry that allows the sand to be suspended and pumped into the hopper barge. Hanson's equipment has a maximum pumping capacity of 15,000 gallons per minute (gpm); sand to water proportions are normally approximately 17% sand and 83% water for finer fill sand and 12% sand and 88% water for coarser sand.

<u>Lind Marine Incorporated (Lind)</u>
Lind's sand mining equipment consists of two tugboats, the *Trig Lind* and the *Petaluma*, and a hopper barge, the *J5200*, which is equipped with suction dredge equipment. The barge *J5200* is 200 feet long by 45 feet wide, with a total cargo capacity of approximately 1,850 cy.

During mining operations, the end of the suction pipe is buried about 5 to 8 feet into the sand substrate. The 14-inch diameter suction pipe opening is equipped with a 6-inch "grizzly," a square grid to prevent entrainment of material 6 inches or larger in diameter. Water and sand are drawn into the drag head by the suction of a centrifugal pump. Water drawn into the suction pipe through the substrate creates a sand-water slurry that allows the sand to be suspended and pumped into the hopper barge. Lind's equipment has a maximum pumping capacity of 5,000 gpm and typically gets a sand-to-water composition approximately 27% sand and 73% water in the Suisun Channel. Lind's equipment and methods limit it to mining in water from approximately -15 feet to -40 feet MLLW.

C. Discharge Description: During mining, while the sand-water slurry is filling the cargo hopper, accumulating sand displaces the water from the sand-water slurry in the hopper. On the *Sand Merchant*, the displaced water is discharged through overflow pipes on either side at the rear of the cargo hopper that extend down below the waterline on the outside of the barge. On the *J5200*, the displaced water can be discharged through surface discharges or overflow weirs or through subsurface discharges. The bottom of the cargo hopper on both barges is also fitted with a dewatering system. A pipe along the centerline, at the bottom of the hopper, has fine-mesh-screened openings where water that has filtered through the sand is collected and pumped overboard.

The discharge, also known as return-flow, decant water, or overflow, contains material that does not settle out in the hopper such as fine-grain sediment (silt and clay particles), aeration bubbles, dissolved substances, detritus, and plankton. It may also contain larger-size aggregates. Due to these characteristics, a visible plume (turbidity) may occur around the barge while the discharge is taking place. Based on the equipment and methods used for sand mining within the Estuary, commercial sand characteristically ranges in size from approximately 1 mm to 12 mm (1/2 inch), with larger and smaller particles discharged overboard. No chemicals or other materials are added to the overflow plume during sand mining. Hanson has estimated that it discharges approximately 3,034,435 gallons (15,024 cy) of decant water containing about 1.2 cy of fine-grain suspended sediment per mining event. Lind has estimated that it discharges approximately 1,080,750 gallons (5,241 cy) of decant water containing about 0.4 cy of fine-grain suspended sediment per mining event.

Once mining is completed, the barge is taken to a site for offloading. Appendix A shows sand yard locations in the Bay Area. The *Sand Merchant* can either offload using a conveyor offloading system (dry offload), or hydraulically offload by re-slurrying the cargo and pumping the sand ashore (wet offload). The *J5200* exclusively uses a conveyor dry offloading system. Sand used in concrete must be washed using fresh water before delivery to the customer. This is necessary to produce a sand product with a chloride content appropriate for concrete, generally 0.006% chloride or less by weight of cement. Hanson conducts sand washing at its sand yards in Oakland and San Francisco; Lind does not wash the sand with fresh water or process it in any other way prior to delivery to its customers. Sand yards in the Bay Area are relatively small (typically 4-5 acres) and have limited capability to stockpile or store sand for an extended period. Therefore, sand mining in the Estuary is conducted in response to short-term demand. The wastewater discharges from Bay Area sand yards are currently regulated under the Water Board's General Permit for Aggregate Mining and Sand Washing/Offloading Facilities, Order. No. R2-2008-0011. Stormwater discharges from Bay Area sand yards, which are not otherwise commingled with

wastewater, are regulated under the statewide NPDES Industrial Stormwater General Permit (NPDES Permit No. CAS000001). As such, they are not addressed in this Order.

D. Regulatory Status: Sand mining decant or overflow water discharges are currently regulated under Water Board Order No. 95-177, as amended by Order No. 00-048, adopted on August 25, 1995, and June 21, 2000, respectively. Suisun Associates has submitted an application to the Water Board to reissue WDRs and issue Certification to mine sand in Suisun Bay for ten years (2015 - 2025).

In addition to obtaining the Water Board WDRs/ Certification and a permit from the U.S Army Corps of Engineers (Corps) under section 10 of the Rivers and Harbors Act of 1899, Suisun Associates must also obtain and comply with the following approvals/permits for the project:

- A lease with the State Lands Commission (SLC) for mineral extraction, where mining takes place on State sovereign lands. Suisun Associates has entered into a lease with SLC, effective January 1, 2013, to mine at the specified lease area shown in Appendix A of this Order.

- An approved reclamation plan from the State Mining and Geology Board (SMGB). SMGB has approval authority over the reclamation plans prepared pursuant to Surface Mining and Reclamation Act for sand mining sites. SMGB adopted resolution No. 2005-02 in February 2005, approving the reclamation plans for ten marine sand mining leases in the Central Bay, Suisun Bay, and the western Delta.

- An Incidental Take Permit from California Department of Fish and Wildlife (CDFW). CDFW issued individual permits to Hanson and Lind on April 1, 2014, and amended the permits on October 14, 2014. Each individual permit covers the Suisun Associates dredging lease area.

- A permit from the San Francisco Bay Conservation and Development Commission (BCDC) pursuant to the McAteer-Petris Act. Suisun Associates has submitted an application to BCDC.

- Biological Opinions from the National Oceanic and Atmospheric Administration National Marine Fisheries Service (NOAA Fisheries) and the U.S. Fish and Wildlife Service (USFWS) regarding potential impacts to federally-listed special status species and essential fish habitat. USFWS issued a biological opinion on October 22, 2014.

E. Sand Mining Project Description

1. **Project Location:** The specific area where Suisun Associates proposes to continue mining sand is the SLC lease location shown in Appendix A. Both Hanson and Lind also currently mine the Middle Ground Shoal parcel in western Suisun Bay under separate leases with the Grossi family, a private party which owns the rights to the Middle Ground area.

   Sand mining does not occur uniformly within the lease areas but is typically clustered within specific areas where sand deposits have a low percentage of fine material (silts, clay, and mud). Material with a low percentage of fines is more suitable for use in construction materials. In addition, mining locations are limited by equipment constraints and permit

requirements. The actual locations where sand mining occurs in the Central Bay are regulated and/or influenced by a number of factors, which include SLC designated lease areas, navigation restrictions, areas having suitable water depths for mining, areas where sand is known from historical observations to accumulate, and areas having moderately high water velocities resulting in frequent sand movement, replenishment, and scour of fines from sand deposits.

2. **Project Purpose and History:** The purpose of sand mining in the Estuary is to obtain aggregate that is primarily used for construction activities within the greater San Francisco Bay Area, either as fill and base material or as an ingredient in ready-mix concrete and hot mix asphalt. Sand obtained from the Estuary is used in the construction and maintenance of highway and freeway systems, commercial and public buildings, and residential construction.

   Suisun Associates was originally formed in 1994 as a joint venture of Olin Jones Sand Company and Morris Tug and Barge. The SLC issued Lease No. PRC 7781.1 to Suisun Associates for their joint mining operation on August 11, 1999. Hanson Marine Operations acquired Olin Jones Sand Co. in late 1999 and thus became the joint venture partner, with Morris Tug and Barge, in Suisun Associates. Jerico Products, Inc. (which became Lind Marine Inc. in 2014) subsequently acquired Morris Tug and Barge. With these acquisitions, Hanson and Lind are now the current joint venture partners in Suisun Associates.

3. **Sand Mining Volume:** In its application, Suisun Associates proposed to mine up to 300,000 cy of sand (150,000 cy by each of the joint venture partners, Hanson and Lind) annually over the ten-year period from the 938-acre area in the Suisun Channel of Suisun Bay consisting of submerged land that comprises one lease from the SLC, designated as Mineral Extraction Lease No. 7781.1 (Appendix A-2).

   NOAA Fisheries has stated during its in-progress consultation on impacts to Essential Fish Habitat that it needs additional data regarding impacts to benthic habitat. We have determined that, as a precautionary measure, it is appropriate to reduce the volume of sand that can be extracted from all lease areas to avoid and minimize any extraction-related potential effects to beneficial uses (e.g., subtidal and intertidal benthic habitat) as follows:

Annual Volume	245,000 cy
Peak Year Volume	300,000 cy
Ten-Year (2015-2025) Maximum (Not-to-Exceed) Volume	2,450,000 cy

   The ten-year maximum (not-to-exceed) volume allows for multiple peak years when construction-related demand for sand is greater than the allowed annual volume.

4. **Sand Mining Methods:** Suisun Associates uses two methods of hydraulic sand mining - stationary potholing and moving potholing:

   - Stationary potholing, involves an initial search for an appropriate sand source, followed by “stationary” mining by burying the drag head into the substrate and controlling the drag head from moving by either anchoring or engine thrust. Lind uses this method exclusively.

- Moving potholing may involve mining more than one specific location during a mining event and may involve some movement within a general site. Moving potholing is similar to stationary potholing, in that it involves mining in a "stationary" position when an appropriate sand source is found, but also involves moving in search of another appropriate stationary source. Hanson uses this method in addition to stationary potholing when the sand at a particular location becomes unsuitable (i.e., too coarse or too fine) or is particularly challenging to remove (too consolidated or weather conditions make removal difficult). If the operator determines that the barge needs to move to a new location, he raises the drag head into the water column no higher than 3 feet off the bottom and clears the drag pipe by keeping the pump engaged for up to 30 seconds. The operator then turns off the pump while the barge is en route to the next potential mining location.

5. **Mining Event Duration**
The duration and timing of individual mining events reflect differences in equipment, weather, conditions of the substrate at the mining site, and type of sand (fill or coarse). Sand mining activity may occur at any time of day. The timing is influenced by tidal schedules which dictate when loaded barges can navigate to the various offload locations. Hanson's Suisun Channel mining events generally last from 3 to 5.5 hours with monthly mean yields per event ranging from 1,490 cy to 1,768 cy. Lind's mining events typically last an average of 4.67 hours, during which time approximately 1,850 cy of sand is harvested.

Once the barge is loaded, it travels to an upland offloading location. Depending on the mining and offloading locations, a single event–including loading, unloading, and travel time–can take anywhere from 8 to 24 hours. Tidal conditions may further reduce the frequency of sand mining operations and disturbance of the sand shoals (e.g, the onset of low tide at the time a barge is available to return to the sand shoal or arrive at an offload location could delay the sand mining activity). Under these circumstances, from an operational perspective, the greatest frequency that the same mining vessel could disturb any single area is two times in any 24-hour period.

6. **Sand Mining Impacts on Benthic Habitat**
Suisun Associates' joint venture partners Hanson and Lind have submitted Biological Assessments for consultation with NOAA Fisheries and USFWS regarding potential impacts to federally-listed special status species and essential fish habitat. The Biological Assessments concluded that the proposed sand mining is not expected to change the benthic habitat or community and will not substantially affect the availability or distribution of foraging habitat for protected fish species. These conclusions were primarily based on the findings of a 2009 benthic study by Applied Marine Sciences (AMS). However, NOAA Fisheries staff indicated that the AMS study design did not account for naturally variable short-term population fluctuations (e.g., diurnal and seasonal) in the benthos at or between sites, nor did it establish pre-mining benthic community baselines that could be compared to post-mining communities. Furthermore, it did not assess the epibenthic community, an important source of fish forage. NOAA Fisheries determined that an additional, supplemental benthic habitat evaluation study is necessary. Provision 6 requires Suisun Associates to coordinate with NOAA Fisheries, USFWS, and CDFW to develop a work plan and complete investigations as per the approved work plan to verify the results of the 2009 AMS study. Provision 5 requires Suisun Associates

to organize a technical advisory committee (TAC) to develop a work plan for the study, identify experienced contractors to conduct it, and review all data deliverables.

7. **Potential Entrainment Impacts**
Suction head dredging has the capability to affect multiple vertebrate and invertebrate communities inhabiting the Estuary, including benthic infauna and epifauna, mobile invertebrates such as shrimp and crabs, demersal and pelagic fish, and the planktonic stages of both invertebrates and fish. The suction current created to pump the sand slurry off of the seafloor, up the dredge pipe, and onboard the barge could be too strong for some organisms and age classes to escape entrainment. Entrainment of estuarine organisms is expected to occur as described below:

- The entrainment of larval, juvenile, and adult fish and invertebrates from the water column during priming and clearing of the centrifugal pump when the drag head is positioned near the bottom of the water column, within 3 feet of the seafloor, and

In addition, larval fish can be entrained through the vacuum-relief vent pipe mounted on the top of the drag head of the *Sand Merchant* and through the external vent pipes that extend a few feet above the suction pipe intake of the *J5200*. Suisun Associates has installed positive barrier fish screens at the intake ends of the vent pipes. The screens are sized to exclude juvenile and adult fish, but it currently is not technologically possible to exclude larvae.

8. **Avoidance, Minimization, and Mitigation Measures**
The following measures are intended to minimize adverse effects on special-status species and their habitats within the project area:

- A positive barrier fish screen that meets CDFW, USFWS, and NOAA Fisheries specifications has been installed on Suisun Associates mining equipment (vacuum-relief vent pipe on top of the drag head) to prevent entrainment take of adult and juvenile special-status fish species when water is drawn in through the vent pipe to thin the sand slurry at times when it becomes too dense.

- To minimize fish entrainment, when priming the pump or clearing the suction pipe, Lind holds the end of the pipe as close to the bottom as possible, no more than 3 feet off the bottom at its maximum height in the water column. In addition, Hanson has implemented new operating procedures to reduce entrainment. Specifically, Hanson does not engage the suction pump until the drag head is on the substrate. Hanson's dredge operator then continuously monitors for production of "clear water" and disengages the pump if "clear water" is observed (i.e., when the drag head is off the bottom, limited to 6 minutes per mining event). If it becomes necessary to move the barge, the operator raises the drag arm and clears the pipe for no more than 30 seconds. The operator then turns off the pump while the barge is en route to the next potential mining location. When the barge stops moving the operator lowers the drag head into the substrate and turns on the pump for sample collection and further mining if the substrate meets grade specifications.

- To avoid impacts to sensitive shallow water habitat, mining is not allowed within 200 feet of any shoreline or within 250 feet of areas with water depths less than or equal to -9 feet MLLW in the Suisun Channel mining lease area of Suisun Bay.

- Based on consultations with CDFW and USFWS, during longfin and delta smelt spawning season (December 1 through June 30), Suisun Associates will implement mining volume reductions in the Suisun Channel lease area to avoid and minimize potential entrainment of larval smelt.

- To minimize entrainment take of larval longfin smelt and delta smelt, Suisun Associates will observe seasonal mining depth restrictions in the Suisun Channel mining lease area. No mining will be allowed December through June in water depths less than or equal to -25 feet MLLW and no mining will be allowed July through November in water depths less than or equal to -15 feet MLLW.

- To fully mitigate incidental take of species protected under the State and federal Endangered Species Acts that fish screens cannot avoid or minimize, Suisun Associates' joint venture partners Hanson and Lind are required by CDFW and USFWS to purchase credits from a CDFW and USFWS-approved mitigation bank to provide permanent protection and perpetual management of compensatory habitat.

9. **Discharge Characterization and Receiving Water Quality Evaluation Study**
Provision 4 of this Order requires Suisun Associates to complete a study characterizing the quality of its effluent (i.e., hopper barge decant/overflow discharge) and the impacts of this discharge and mining on receiving water quality.

In November 1993, MEC Analytical Systems, Inc. completed a study, *Special Studies for Sand Mining Discharges of the Tidewater Sand and Gravel Company*, to evaluate Central Bay sand mining effluent quality and its potential impacts on receiving water quality. The study found, generally, that the effluent met water quality objectives under typical sand mining conditions.

However, the 1993 study did not include Suisun Bay mining locations and equipment and environmental conditions may have changed in the ensuing 21 years, therefore, Suisun Associates needs to perform a new study to update the results of the 1993 study. This Order may be reopened to require additional water quality monitoring and implementation of corrective measures if the new study indicates potentially unacceptable water quality impacts from sand mining discharges.

F. Compliance with Applicable Plans, Policies, and Regulations

The requirements in this Order are based on the requirements and authorities described below:

1. **California Environmental Quality Act (CEQA) Statement of Findings and Overriding Considerations**

On October 19, 2012, SLC, as lead agency, certified a Final Environmental Impact Report (FEIR) (State Clearinghouse No. 2007072036) for the San Francisco Bay and Delta Sand Mining Project in accordance with CEQA. The SLC also adopted a Statement of Findings and Statement of Overriding Considerations (SOC) (October 19, 2012).

As directed by CEQA and the State CEQA Guidelines (PRC sections 211002.1(d), 21080.1, 21167.2; 15 CCR sections 15096(e),(f), 15231), the Water Board, as a responsible agency

under CEQA, has considered the FEIR and SOC and finds that the Project has the following significant environmental effects that are within the Water Board's purview and jurisdiction:

Bio-6 (Sand mining could result in smothering or burial of, or mechanical damage to, infauna and epifauna, and reduced fish foraging.)

The SLC determined that impacts will be less than significant with mitigation. The Water Board concurs and hereby finds that changes or alterations have been required in, or incorporated into, the Approved Project that avoid or substantially lessen the significant environmental effect as identified in the EIR and for the reasons described in the SLC's Findings on pages D-7 through D-9.

Bio-8 (Regular operation of sand mining activities will cause entrainment and mortality of delta and longfin smelt. The Project would result in a significant impact to delta smelt and longfin smelt as a result of entrainment and mortality during sand mining operations impacting delta smelt and longfin smelt thereby exceeding the established significance level criteria thresholds.)

The SLC determined that impacts to delta and longfin smelt will remain significant and unavoidable even with implementation of the recommended mitigation measures. The Water Board concurs and hereby finds that (1) Changes or alterations have been required in, or incorporated into, the Approved Project that avoid or substantially lessen the significant environmental effect as identified in the EIR; (2) Such changes or alterations are within the responsibility and jurisdiction of the CDFW and not the SLC or Water Board. Such changes have been adopted by such other agency or can and should be adopted by such other agency; and (3) Specific economic, legal, social, technological or other considerations, including provision or employment opportunities for highly trained workers make infeasible the mitigation measures identified in the EIR. These findings are supported by the reasons described in the SLC's Findings on pages D-9 through D-14. In particular, Suisun Associates will implement measures required by CDFW to avoid and minimize effects to these and other state- and federally-listed species and their habitat within project areas. As compensatory mitigation for the incidental take impact during the proposed 10-year mining period, CDFW has required Suisun Associates joint venture partners Hanson and Lind to purchase 0.421 acres and 0.107 acres, respectively, of shallow water habitat credits from a CDFW-approved mitigation or conservation bank.

Bio-9 (Green sturgeon, Chinook salmon, and steelhead trout will be impacted during sand mining. The Project will cause the entrainment and mortality of green sturgeon, Chinook salmon and steelhead trout during sand mining.)

The SLC determined that implementation of mitigation measure MM Bio-8a will reduce effects of the Approved Project due to entrainment of Chinook salmon, steelhead trout, and green sturgeon to less than significant. The Water Board concurs and hereby finds that changes or alterations have been required in, or incorporated into, the Approved Project that avoid or substantially lessen the significant environmental effect as identified in the EIR for the reasons described in the SLC's Findings on pages D-14 through D-16. In addition, these changes or alterations are within the responsibility and jurisdiction of CDFW and not the SLC or Water Board. CDFW has required implementation of mitigation measure MM Bio-8a in the Incidental Take Permit for the Project.

In addition to the original Approved Project, the Water Board has ordered Suisun Associates to abide by certain conditions, discharge prohibitions, and receiving water limitations in order to meet beneficial uses and water quality objectives. These conditions, discharge prohibitions and receiving water limitations do not create any new significant impacts or increase the severity of impacts requiring any additional CEQA analysis as provided by PRC section 21166 and CEQA Guidelines sections 15162, 15163.

2. **San Francisco Bay Basin Water Quality Control Plan (Basin Plan)**
California Water Code section 13240 authorizes the Water Board to develop a Water Quality Control Plan for the San Francisco Bay Basin, which is the Water Board's master water quality control planning document (the Basin Plan). The Basin Plan designates beneficial uses and water quality objectives for waters of the State, including surface waters and groundwater. It also includes implementation programs and policies to achieve those objectives for all waters addressed through the plan. The Basin Plan was duly adopted by the Water Board and approved by the State Water Resources Control Board (State Water Board), U.S. EPA, and the Office of Administrative Law where required. The latest version can be found on the Water Board's website at http://www.waterboards.ca.gov/sanfranciscobay/basin_planning.shtml. Requirements in this Order implement the Basin Plan.

The existing beneficial uses of Central San Francisco Bay and Suisun Bay include:

- Industrial service supply (IND)
- Industrial process supply (PROC)
- Commercial and sport fishing (COMM)
- Shellfish harvesting (SHELL) (Central Bay only)
- Estuarine Habitat (EST)
- Fish migration (MIGR)
- Preservation of rare and endangered species (RARE)
- Fish Spawning (SPWN)
- Wildlife habitat (WILD)
- Water contact recreation (REC-1)
- Noncontact water recreation (REC-2)
- Navigation (NAV)

3. **Anti-Degradation Policy**
State Water Board Resolution 68-16 ("Statement of Policy with Respect to Maintaining High Quality of Waters in California") requires that whenever the existing quality of water is better than the quality established in policies as of the date on which such policies become effective, such existing high quality must be maintained. Resolution 68-16 only allows change in the existing high quality if it has been demonstrated to the Water Board that the change is consistent with maximum benefit to the people of the State, will not unreasonably affect present and anticipated beneficial uses of such water, and will not result in water quality less than that prescribed in the policies. Resolution 68-16 further requires that discharges meet WDRs which will result in the best practicable treatment or control of the discharge necessary to assure that (a) pollution or nuisance will not occur and (b) the highest water quality consistent with the maximum benefit to the people of the State will be maintained. Resolution 68-16 incorporates the federal "antidegradation" policy (Cal. Code Regs., tit. 40, § 131.12).

Sand mining, as proposed, is not expected to result in water quality less than that prescribed in the policies. No pollution or nuisance is expected to occur and the highest water quality consistent with the maximum benefit of the people of the State will be maintained. This Order proposes to allow sand mining at a reduced level as compared with the prior permit or the project application. Therefore, it is anticipated that the effects of sand mining, as authorized by this Order, will have even less of an impact than those discussed in the EIR and will not degrade water quality.

4. **Public Notice**
   The Water Board notified Suisun Associates and interested agencies and persons of its intent to issue WDRs and Certification for the project and provided a 30-day public comment period during which they could submit their written views and recommendations.

5. **Public Hearing**
   The Water Board, in a public meeting, heard and considered all comments pertaining to the WDRs and Certification for the Project.

IT IS HEREBY ORDERED that Suisun Associates, in order to meet the provisions contained in Division 7 of the California Water Code and regulations adopted thereunder, shall comply with the following:

A. DISCHARGE PROHIBITIONS

1. The discharge of water, material, or wastes that is not otherwise authorized by the Order is prohibited.

2. The Basin Plan prohibits discharge of waste water which has "particular characteristics of concern to beneficial uses" (a) at any point in San Francisco Bay and (b) "at any point where the waste water does not receive a minimum initial dilution of at least 10:1 or into any non-tidal water, dead end slough, similar confined water, or any immediate tributary thereof." All shoals presently mined for sand, as listed under Table 1, are expected to have a dilution ratio of at least 10:1. The determination was made based on the depth of the receiving water bodies where sand mining typically occurs (-20 to -45 feet MLLW in Suisun Bay) and potential maximum overflow or decant discharge rate of 15,000 gpm.

3. The discharge shall not cause a condition of pollution or nuisance as defined in Water Code sections 13050(l) and (m), respectively.

4. The discharge of effluent which meets the definition of a hazardous or designated waste as defined in Title 23, Division 3, Chapter 15 of the California Administrative Code is prohibited. Only dredged material that has been demonstrated to be non-hazardous may be mined.

B. RECEIVING WATER LIMITATIONS

1. The discharge of decant/overflow effluent from Suisun Associates' hopper barges shall not cause the following conditions to exist in waters of the State:

   a. Floating material, including solids, liquids, foams, and scum, in concentrations that cause nuisance or adversely affect beneficial uses.

b. Suspended material in concentrations that cause nuisance or adversely affect beneficial uses.

c. Oils, greases, waxes, or other materials in concentrations that result in a visible film or coating on the surface of the water or on objects in the water, that cause nuisance, or that otherwise adversely affect beneficial uses.

d. Bottom deposits or aquatic growths to the extent that such deposits or growths cause nuisance or adversely affect beneficial uses.

e. Alteration of temperature beyond present natural background levels.

f. Changes in turbidity that cause nuisance or adversely affect beneficial uses, or increases from normal background light penetration or turbidity greater than 10 percent in areas where natural turbidity is greater than 50 nephelometric turbidity units.

g. Coloration that causes nuisance or adversely affects beneficial uses.

h. Toxic or other deleterious substances in concentrations or quantities that cause deleterious effects on wildlife, waterfowl, or other aquatic biota, or render any of these unfit for human consumption, either at levels created in the receiving waters or as a result of biological concentration.

2. The discharge shall not cause waters of the State to exceed the following quality limits:

a.	Dissolved Oxygen	7.0 mg/L minimum in Suisun Bay (if natural factors cause lower concentrations, then this discharge shall not cause further reductions).
b.	Dissolved Sulfide	Natural background level.
c.	pH	The pH shall not be depressed below 6.5 or raised above 8.5. The discharge shall not cause changes greater than 0.5 pH units in normal ambient pH levels.

C. PROVISIONS

1. **Reporting Requirements.** All technical and monitoring reports required by to this Order are required pursuant to section 13267 of the Water Code. Failure to submit reports in accordance with schedules established by this Order or attachments or appendices to this Order, or failure to submit a report of sufficient technical quality acceptable to the Executive Officer, may subject Suisun Associates to enforcement action pursuant to section 13268 of the Water Code.

2. **Monitoring and Reporting**. Suisun Associates shall comply with the Self-Monitoring and Reporting Program (SMP) attached to this Order and as may be amended by the Executive Officer. The Executive Officer may amend the SMP in response to a written request by Suisun Associates or as necessary to assure collection of information to demonstrate compliance with this Order.

3. **Reopener Provisions.**
   The Water Board may modify or reopen this Order prior to its expiration date in any of the following circumstances or as otherwise allowed by law:

   a. If present or future investigations demonstrate that the discharges governed by this Order have or will have a reasonable potential to cause or contribute to, or will cease to have, adverse impacts on water quality or beneficial uses of the receiving waters.

   b. If a water quality study (or studies) or other relevant information provides a basis for determining that a permit condition should be modified.

   c. If State Water Board precedential decisions, new policies, new laws, or new regulations are adopted.

   d. If conditions in federal permits and state permits, which are referenced by this permit, are modified.

4. **Special Study to Evaluate Effluent and Receiving Water Quality**
   Suisun Associates shall submit a Sampling and Analysis Plan (SAP), acceptable to the Executive Officer, within 30 days of Order adoption, to characterize effluent and receiving water quality. In particular, the study shall characterize overflow effluent toxicity and composition (suspended sediment, conventional pollutant, and toxic pollutant concentrations), the spatial and temporal extent of the overflow plume in the receiving water based on the magnitude of suspended sediment concentrations within the plume, and compare overflow plume suspended sediment concentrations to background (ambient) conditions. The selection of sampling locations and number of sampling events shall be representative of all of Suisun Associates' mining areas and mining methods, adequate to capture seasonal variations, and be conducted under both flood and ebb tide cycles.

   The SAP shall include, at a minimum, sampling locations, a sampling schedule, laboratory information, analytical methods, QA/QC information, and a reporting schedule.

   Suisun Associates shall start implementing the SAP within 45 days of the Executive Officer's approval. Suisun Associates shall submit a final study report within 60 days of data collection completion but in no case later than June 30, 2017.

5. **Benthic Study Technical Advisory Committee (TAC)**
   Suisun Associates shall organize and convene a TAC that includes representatives from SLC, the Corps, the Water Board, NOAA Fisheries, USFWS, CDFW, BCDC, Hanson, Lind, and at least one scientist with expertise in Estuary benthic ecology, preferably from USGS or affiliated with a local university. Suisun Associates shall coordinate with the TAC to develop a work plan for the benthic study, identify experienced contractors to conduct it, and review all data deliverables.

6. **Benthic Habitat Impact Evaluation Study**
   Based on the final work plan developed through the TAC, Suisun Associates shall complete, no later than December 31, 2018, a benthic habitat evaluation study that includes, but is not limited to, the following objectives:

- Characterize the benthic community and habitat within areas where sand mining is permitted to occur and adjacent areas having similar habitat characteristics where sand mining is not permitted. Characteristics of the benthic community include species composition, biomass of the dominant taxa, density (abundance), and species diversity. Benthic habitat characteristics include consideration of substrate particle size, bed form, evidence of natural and anthropogenic disturbance, and other physical conditions;

- Identify differences between communities inhabiting mining leases and control sites; and

- Obtain a better understanding of the effects of sand mining on benthic communities and their rates of recovery following sand mining events.

Suisun Associates shall submit copies of its progress reports and the final report to Water Board staff according to the TAC-approved study and reporting plan.

7. **Lease Area Boundaries**
Suisun Associates shall limit sand mining and effluent (overflow) discharges to specific SLC-designated lease areas. Mining is not permitted outside of the lease areas. These limitations reduce and avoid the risk of mining in sensitive subtidal habitat that is located outside the designated lease areas. Specifically, Suisun Associates shall operate sand mining dredges only within the area described in Finding E.3 and as shown in Appendix A-2.

8. **Annual and Seasonal Volume Limits**
Suisun Associates shall limit the volume of sand mined annually and over the 10-year effective period of these WDRs in the portion of the Suisun Channel designated as SLC Mineral Extraction Lease No. 7781.1 as shown in Finding E.3. To reduce the potential for entrainment of larval Longfin Smelt and Delta Smelt in the Middle Ground lease area, Suisun Associates shall limit the volume of sand mined between December 1 and June 30 each year as required by CDFW Incidental Take Permit 2081-2013-047-03, Amendment No. 1, dated October 14, 2014, and by USFWS in its Biological Opinion dated October 22, 2014.

9. **Location and Depth Restrictions**
Suisun Associates shall comply with the mining location and depth restrictions shown in the following table:

Mining Location & Depth Restrictions	
Suisun Channel	No mining within 200 feet of any shoreline No mining within 250 feet of depths < -9 feet MLLW No mining within depths < -25 feet MLLW from December 1 through June 30 No mining within depths < -15 feet MLLW from July 1 through November 30

10. **Spill Prevention Plan**
Suisun Associates shall maintain and implement a plan, reviewed and approved by the CDFW Office of Oil Spill Prevention and Response, demonstrating that adequate measures are in place to prevent and respond to accidental releases of hydraulic fluids, solvents, oils, and other hazardous materials. To the extent such a plan or plans are already maintained and fully implemented by Suisun Associates' joint venture partners for the equipment operated under the joint venture, the plans do not need to be prepared separately for the joint venture for the purposes of this Order.

11. **Spill Notification and Response**
Suisun Associates shall notify Water Board staff immediately by telephone and e-mail whenever a release of petroleum products or toxic chemicals to waters of the State occurs as a result of sand mining activity. Pursuant to Water Code section 13267, a written notification of spill response shall be submitted to the Water Board within 30 days of spill occurrence. The written notification shall identify the nature of the spill, describe the action necessary to remedy the condition, and specify a timetable, subject to the modifications of the Water Board, for remedial actions.

12. **Monitoring and Reporting**

    a. Suisun Associates shall measure and record dredging locations and areal extent of benthic disturbance per lease area, water depth at time of dredging, volumes dredged, and off-loading locations for dredging on a daily basis during operations. Monitoring and reporting shall be conducted in accordance with the Self-Monitoring Program (SMP, Appendix B).

    b. Suisun Associates shall file with the Water Board a report of any material change or proposed change in the character, location, or quantity of the effluent discharge.

    c. Dredging operations shall cease immediately whenever violations of requirements are detected through implementation of the SMP and operations shall not resume until alternative methods of compliance are provided. Suisun Associates shall notify the Water Board staff immediately by telephone and email whenever violations are detected. Operations shall not resume until Lind submits, and the Executive Officer approves, a corrective action plan that will provide alternative methods of compliance.

Protection of Special Status Species

13. This Certification does not allow for the take, or incidental take except as described below, of any special status species. Lind shall use the appropriate protocols, as approved by State and federal resource agencies in their consultations on the project, to ensure that sand mining activities do not adversely impact Preservation of Rare and Endangered Species, a beneficial use of San Francisco Bay and its tributaries as set forth in the Basin Plan.

14. Suisun Associates shall adhere to the Terms and Conditions and the Reasonable and Prudent Measures in the *Biological Opinion* issued for the project by USFWS on October 22, 2014.

15. Suisun Associates shall adhere to the Terms and Conditions and the Reasonable and Prudent Measures in the most current *Endangered Species Consultation* issued for the project by

NOAA Fisheries, and, to the extent imposed as permit conditions by the Corps, the Conservation Recommendations in the Essential Fish Habitat Consultation also issued for the project by NOAA Fisheries.

16. Suisun Associates shall adhere to the conditions of the Incidental Take Permits (No. 2081-2013-047-03 and No. 2081-2012-012-03, both dated April 1, 2014), amendments to both permits dated October 14, 2014, and any subsequent amendments, issued to Suisun Associates joint venture partners Hanson and Lind by CDFW for entrainment of special status fish species (Chinook Salmon, Delta Smelt, and Longfin Smelt).

Standard Provisions

17. Suisun Associates shall maintain a copy of this Order on the vessel so as to be available at all times to all vessel personnel.

18. For the purposes of this Order, disposal of dredged material is defined as any ultimate use or disposition other than the resale of the sand for construction and other beneficial uses. For dredged material that is not of market grade and is not sold, the ultimate off-site disposal of the material is subject to the approval of the Executive Officer. This approval shall be based upon a demonstration that the ultimate disposal will occur at a site that has WDRs or another appropriate approval from the Water Board.

    Suisun Associates shall permit the Water Board or its authorized representative, upon presentation of identification:

    a. Entry onto the premises on-board any and all vessels and into offices where records are kept.
    b. Access to copy any records required to be kept under the terms and conditions of this Order.
    c. Inspection of any treatment equipment, monitoring equipment, or monitoring method required by this Order.
    d. Sampling of any discharge or surface water covered by this Order.

19. **Certification**
    The Water Board hereby certifies that any discharge from the referenced project will comply with the applicable provisions of Clean Water Act sections 301 (Effluent Limitations), 302 (Water Quality Related Effluent Limitations), 303 (Water Quality Standards and Implementation Plans), 306 (National Standards of Performance), and 307 (Toxic and Pretreatment Effluent Standards), and with other applicable requirements of State law. Clean Water Act section 401 directs the agency responsible for certification to prescribe effluent limitations and other limitations necessary to ensure compliance with the Clean Water Act and with any other appropriate requirement of state law. Section 401 further provides that state certification conditions shall become conditions of any federal license or permit for the project. The conditions of this certification must be met to ensure that the project will comply with water quality standards, any applicable effluent limitation, standard of performance, prohibition, effluent standard, or pretreatment standard required pursuant to the Clean Water Act sections listed above and to ensure that the project will comply with any other appropriate requirements.

20. This Certification applies to the project as proposed in the application materials. Failure to implement the project as proposed is a violation of this certification. Violation or threatened violation of the conditions of this Certification is subject to any remedies, penalties, process, or sanctions as provided for under applicable State or federal law, including administrative civil liability pursuant to Water Code section 13350. Failure to meet any condition of a certification may subject Lind to civil liability imposed by the Water Board to a maximum of $5,000 per day of violation or $10 for each gallon of waste discharged in violation of the certification.

21. This Certification action is subject to modification or revocation upon administrative or judicial review, including review and amendment pursuant to Water Code section 13330 and California Code of Regulations, title 23 (23 CCR), section 3867. The Water Board may add to or modify the conditions of this Order, as appropriate, to implement any new or revised water quality standards and implementation plans adopted and approve pursuant to the Porter-Cologne Water Quality Control Act or section 303 of the Clean Water Act, or in response to new information concerning the conditions of the project.

22. This Certification action is not intended and shall not be construed to apply to any discharge from any activity involving a hydroelectric facility requiring a Federal Energy Regulatory Commission (FERC) license or an amendment to a FERC license unless the pertinent certification application was filed pursuant to 23 CCR subsection 3855(b) and that application specifically identified that a FERC license or amendment to a FERC license for a hydroelectric facility was being sought.

23. This Order does not remove liability under federal, State, or local laws, regulations or rules of other programs and agencies, nor does this Order authorize the discharge of wastes without appropriate permits from other agencies or organizations.

24. Water Board Order Nos. 95-177 and 00-048 are hereby rescinded.

I, Bruce H. Wolfe, Executive Officer, do hereby certify that the foregoing is a full, complete and correct copy of an Order adopted by the California Regional Water Quality Control Board, San Francisco Bay Region, on January 21, 2015.

Digitally signed by Bruce H. Wolfe
DN: cn=Bruce H. Wolfe, o=SWRCB, ou=Region 2, email=bwolfe@waterboards.ca.gov, c=US
Date: 2015.01.28 17:36:24 -08'00'

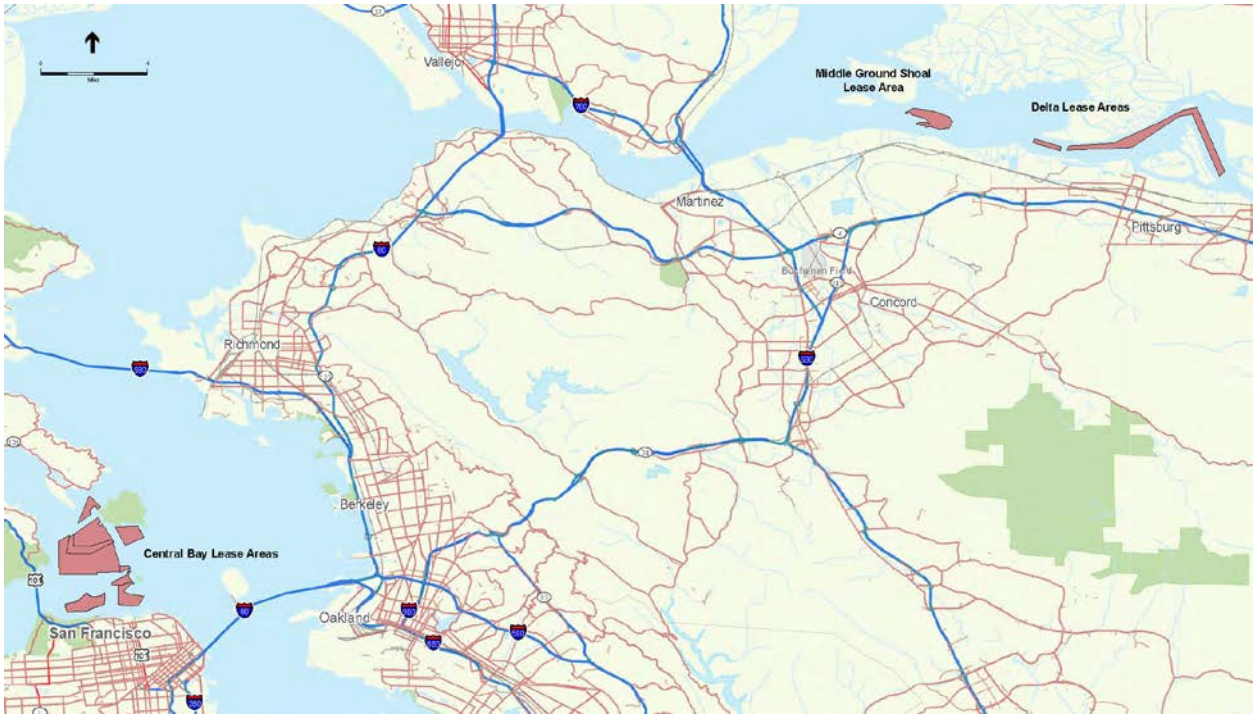
Bruce H. Wolfe
Executive Officer

Appendices: Appendix A: Maps - Lease Locations and Upland Processing Facilities
Appendix B: Self-Monitoring Program (SMP)

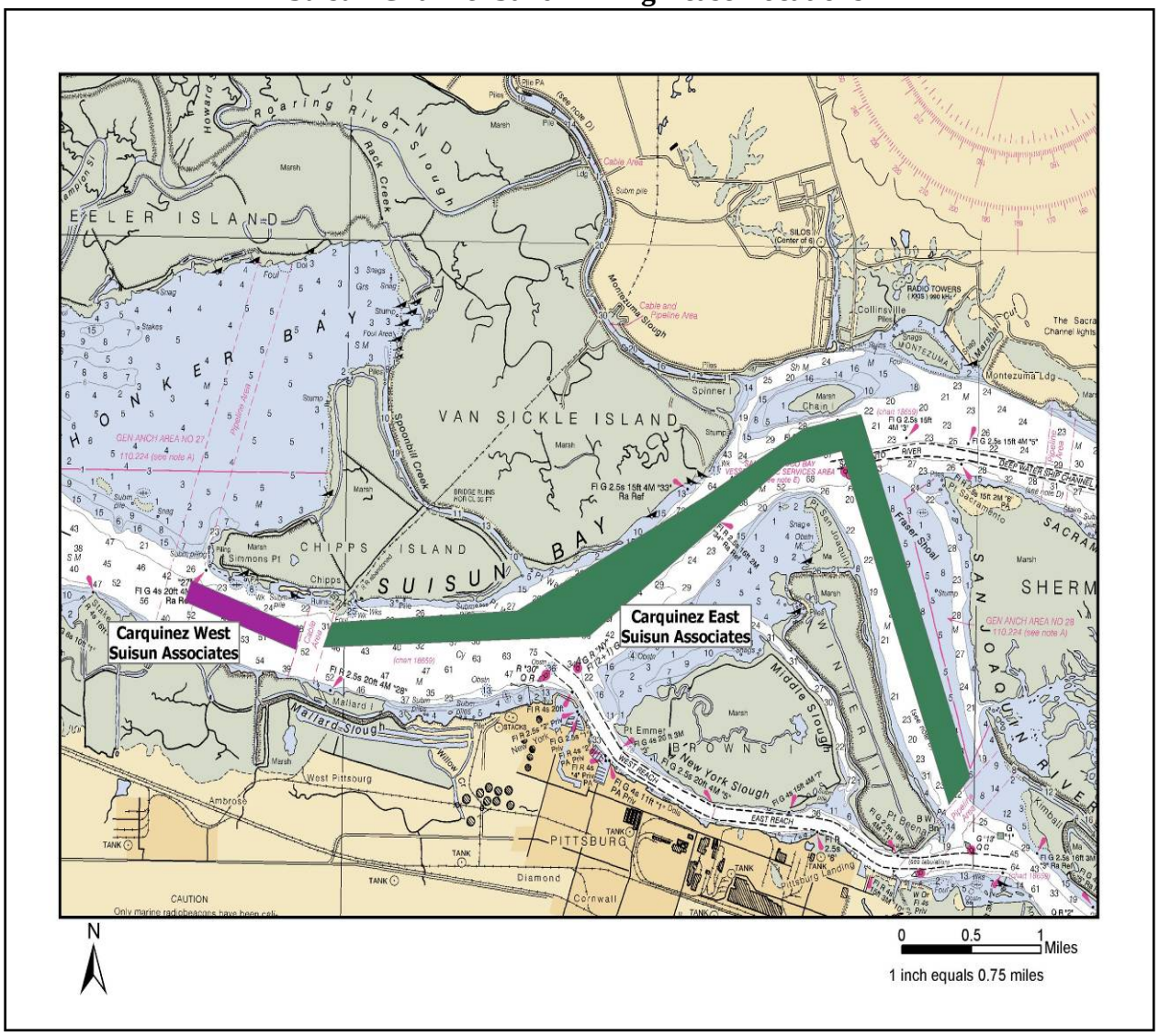
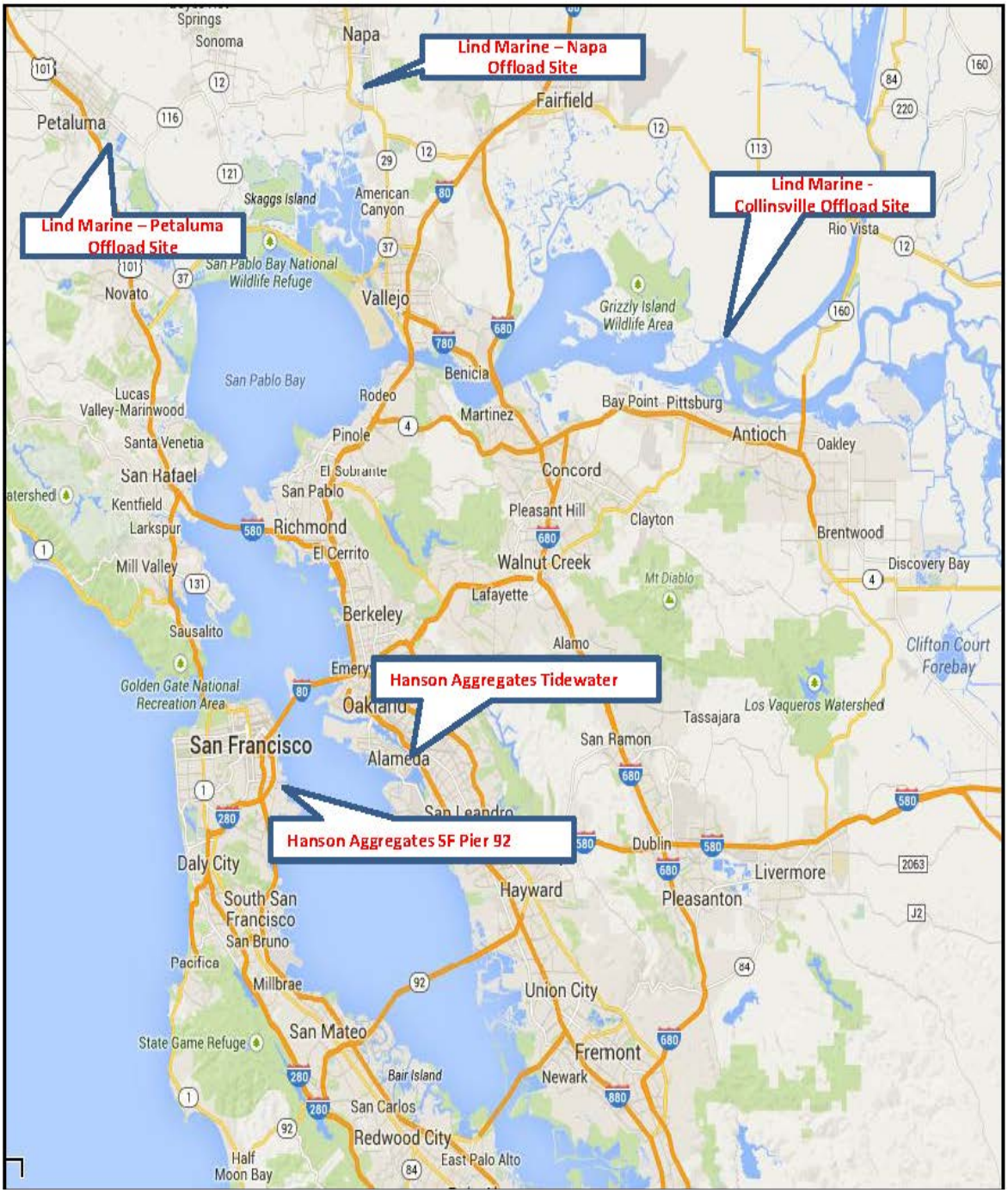
APPENDIX A

Sand Mining Lease Location Maps and
Upland Sand Processing Facility (Sand Yard) Location Map

Appendix A-1
Regional Map of General Sand Mining Lease Locations



Appendix A-2
Suisun Channel Sand Mining Lease Locations



Appendix A-3
Upland Sand Processing Facility (Sand Yard) Locations