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15 STATE OF CALIFORNIA
16 STATE WATER RESOURCES CONTROL BOARD

17 In the Matter of the Petition of San Francisco
18 Baykeeper for Review of Action by the California
19 Regional Water Quality Control Board, San
20 Francisco Bay Region, in Adopting Order No. R2-
21 2015-0008, Hanson Marine Operations, Sand
22 Mining in Central San Francisco Bay and Suisun
23 Bay, Waste Discharge Requirements and Water
24 Quality Certification and Rescission of Order Nos.
25 95-177 and 00-048; Order No. R2-2015-0009, Lind
26 Marine Incorporated, Sand Mining in Suisun Bay,
27 Waste Discharge Requirements and Water Quality
28 Certification and Rescission of Order Nos. 95-177 and
00-048.

PETITION FOR REVIEW OF SAN
FRANCISCO BAY REGIONAL WATER
QUALITY CONTROL BOARD ACTION
ADOPTING ORDERS NO. R2-2015-0008,
R2-2015-0009, AND R2-2015-0010

1 In accordance with Section 13320 of the California Water Code and Section 2050 of Title 23 of
2 the California Code of Regulations, San Francisco Baykeeper (“Baykeeper” or “Petitioner”) hereby
3 petitions the State Water Resources Control Board as follows:

4 **1. Name, address, telephone number and email address of the petitioner.**

5 SAN FRANCISCO BAYKEEPER

6 1736 Franklin Street, Suite 800

7 Oakland, CA 94612

8 Phone: 510-735-9700

9 Email: george@baykeeper.org

10 **2. The specific action of the regional board which the state board is requested to review,**
11 **and a copy of any order or resolution of the regional board which is referred to in the**
12 **petition.**

13 San Francisco Baykeeper petitions the State Water Resources Control Board to review the final
14 decisions of the Regional Water Quality Control Board for the San Francisco Bay Region (“Regional
15 Board” or “Board”) approving:

- 16 • Order No. R2-2015-0008, Hanson Marine Operations, Sand Mining in Central San Francisco
17 Bay and Suisun Bay, Waste Discharge Requirements and Water Quality Certification and
18 Rescission of Order Nos. 95-177 and 00-048 (attached hereto as Exhibit A);
- 19 • Order No. R2-2015-0009, Lind Marine Incorporated, Sand Mining in Suisun Bay, Waste Discharge
20 Requirements and Water Quality Certification and Rescission of Order Nos. 95-177 and 00-048
21 (attached hereto as Exhibit B); and
- 22 • Order No. R2-2015-0010, Suisun Associates, Sand Mining in Suisun Bay, Adoption of Waste
23 Discharge Requirements and Water Quality Certification and Rescission of Order Nos. 95-177 and
24 00-048 (attached hereto as Exhibit C) (collectively the “Orders” or “Project(s)”)

25 **3. The date on which the Regional Board acted.**

26 The Regional Board approved the Orders at issue on January 21, 2015.

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1 **4. A full and complete statement of the reasons the action was inappropriate or improper.**

2 In approving the Orders, the Regional Board failed to act in accordance with relevant governing
3 law, acted arbitrarily and capriciously, without substantial evidence, and without adequate findings.

4 Specifically, but without limitation:

- 5 A. The Regional Board failed to provide sufficient evidence or analysis to demonstrate that
6 the Orders will protect beneficial uses relating to habitat, recreation, and Pacific coastal
7 resources, which beneficial uses have been and will continue to be degraded by the
8 unsustainable mining extraction of sand from San Francisco Bay and Suisun Bay.

9 Sand mining in San Francisco Bay has already contributed to permanent sediment loss, which
10 these Projects will accelerate. Historic studies show that from 1947 to 1979, sand mining and borrow pit
11 excavation caused the permanent loss of about 31 million cubic yards of sediment, leaving dozens of
12 unfilled pits pock-marking the Bay floor. Recent peer-reviewed research published by the United States
13 Geological Survey and others indicates that sand mining has reduced the available sand supply to open
14 coast beaches along the San Francisco coast. (Barnard, Hansen and Erikson, 2012; Barnard, *et al.* 2012.)
15 These studies draw a clear connection between sand mining in the Bay, and the observed shrinking of
16 the San Francisco Bar and erosion at Ocean Beach.

17 These impacts have consequences for numerous goals and objectives relating to San Francisco
18 Bay, including but not limited to, the existing and planned Basin Plan objectives for biological resources
19 and recreation, the Baylands Ecosystem Habitat Goals, and the California Ocean Plan. In particular:

20 (1) The San Francisco Bay Basin Plan provides:

- 21 • 2.1.16 NONCONTACT WATER RECREATION (REC2) Uses of water for recreational
22 activities involving *proximity* to water, but not normally involving contact with water
23 where water ingestion is reasonably possible. These uses include, but are not limited to,
24 *picnicking, sunbathing, hiking, beachcombing, camping, boating, tide pool and marine*
25 *life study, hunting, sightseeing, or aesthetic enjoyment in conjunction with the above*
26 *activities.* (Basin Plan at 2-5, emphasis added.)

- 1 • “Water quality considerations relevant to noncontact water recreation, such as hiking,
2 camping, or boating, and those activities related to tide pool or other nature studies
3 require protection of habitats and aesthetic features. In some cases, preservation of a
4 natural wilderness condition is justified, particularly when nature study is a major
5 dedicated use.” (Basin Plan at 2-6, emphasis added.)
- 6 • “Coastal waters’ beneficial uses include water contact recreation (REC1); noncontact
7 water recreation (REC2); industrial service supply (IND); navigation (NAV); marine
8 habitat (MAR); shellfish harvesting (SHELL); commercial and sport fishing (COMM);
9 wildlife habitat (WILD), fish migration (MIGR), fish spawning (SPWN), and
10 preservation of rare and endangered species (RARE). In addition, the California coastline
11 within the Region is endowed with exceptional scenic beauty.” (Basin Plan at 2-7,
12 emphasis added.)

13 (2) The Baylands Ecosystem Habitat Goals (1999) provides: “The overall goal for the Central
14 Bay subregion is to protect and restore tidal marsh, seasonal wetlands, *beach dunes*, and
15 islands.” (S-5, emphasis added.)

16 (3) The California Ocean Plan provides:

- 17 • “The beneficial uses of the ocean waters of the State that shall be protected include
18 industrial water supply; water contact and non-contact recreation, including *aesthetic*
19 *enjoyment; navigation; commercial and sport fishing*; mariculture; preservation and
20 enhancement of designated Areas of Special Biological Significance (ASBS); *rare and*
21 *endangered species; marine habitat*; fish migration; fish spawning and shellfish
22 harvesting.” (Ocean Plan at 3, emphasis added.)
- 23 • “Marine communities, including vertebrate, invertebrate, and plant species, shall not be
24 degraded.” (Ocean Plan at 10.)

25 Protection of the Basin Plan’s beneficial uses and related policy goals is paramount. The Clean
26 Water Act and California regulations provide that the Regional Board may issue a water quality
27 certification “if it is clear that all proposed activity(ies) will comply with water quality standards and
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1 other appropriate requirements” (23 Cal. Code Reg. § 3859(b).) To reach this determination, any
2 application for a water quality certification must contain a “full, technically accurate description,
3 including the purpose and final goal, of the entire activity.” (23 Cal. Code Regs. § 3856(b).) This
4 includes, among other things:

5 [T]he total estimated quantity of waters of the United States that may be adversely
6 impacted temporarily or permanently by a discharge or by dredging. The estimated
7 quantity of waters to be adversely impacted by any discharge shall be reported in acres
8 and (for channels, shorelines, riparian corridors, and other linear habitat) linear feet,
9 except that dredging estimates shall be reported in cubic yards.

10 (23 Cal. Code Regs. § 3856(h)(4).) And, in turn, a complete application must include:

11 The total estimated quantity (in acres and, where appropriate, linear feet) of waters of the
12 United States, by type (see Subsection (h)(2) of this Section) proposed to be created,
13 restored, enhanced, purchased from a mitigation or conservation bank, set aside for
14 protection, or otherwise identified as compensatory mitigation for any anticipated adverse
15 impacts. If compensatory mitigation is to be provided in some other form, that shall be
16 explained.

17 (23 Cal. Code Regs. § 3856(h)(5).)

18 Finally, in reaching these conclusions, the Regional Board must leave an administrative record
19 that is sufficient to apprise “interested parties and the courts of the bases for the administrative action”
20 by “set[ting] forth findings to bridge the analytic gap between the raw evidence and ultimate decision or
21 order.” (*San Francisco Ecology Center v. City and County of San Francisco* (1975) 48 Cal.App.3d 584,
22 596 [citing *Topanga Association for a Scenic Community v. County of Los Angeles* (1974) 11 Cal.3d
23 506, 515-517].) As discussed, below, the Regional Board failed to provide any evidence or analysis
24 demonstrating that the extraction volumes permitted by the Orders are sufficient to ensure compliance
25 with beneficial uses and policy protections for coastal resources.

26 The Regional Board’s Tentative Orders (“TO”) for the Projects did not disclose that sand mining
27 would have *any* impact to coastal erosion or related beneficial uses and policy protections. Baykeeper
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1 and others provided substantive comments in opposition to the Tentative Orders, noting that a growing
2 scientific literature had documented exactly such an effect: as extraction of coarse grain sand has
3 increased, natural replenishment outside of mined areas has decreased. (Comments of San Francisco
4 Baykeeper, October 13, 2014, pp. 6-10.) Such research has also demonstrated a connection between
5 mineral extraction in the Bay and erosion of the San Francisco Bar and Ocean Beach. (*Ibid.*)

6 In response to these comments, the Regional Board revised the TOs to acknowledge, *for the first*
7 *time*, that the extraction of coarse grain sand by these Projects has and would continue to adversely
8 affect coastal erosion. As the Regional Board stated: “We agree that sediment loss to the Bay system is
9 a concern given the need to protect shorelines and infrastructure as sea level rises in the coming decades
10 and that we need to efficiently manage existing sediment resources.” (Regional Board Response to
11 Comments, p. 8.) “We have determined that, as a precautionary measure, it is appropriate to reduce the
12 volume of sand that can be extracted from all lease areas to avoid and minimize any extraction-related
13 potential effects to beneficial uses. (e.g., subtidal and intertidal benthic habitat and recreation-related
14 uses).” (Regional Board, Revised Tentative Order, R2-2015-0008, p. 4.) Accordingly, the Revised TOs
15 reduced the sand mining extraction rate for R2-2015-0008, Hanson Marine Operations, from 15,900,000
16 cubic yards of sand to 12,430,000 over a 10-year period, targeting the greatest reduction of permitted
17 mining volume to the lease area in Presidio Shoals PRC 709.1. (*Ibid.*) The Revised Tentative Order also
18 included, for the first time, maximum annual peak limits, and maximum annual average limits for
19 Hanson’s operations. (*Ibid.*) The Regional Board did not, however, provide any analysis or so-called
20 avoidance measures for Order No. R2-2015-0009 or R2-2015-0010.

21 Neither the Staff Summary Report nor the Revised TOs actually analyze the scope of the newly-
22 disclosed impacts, nor how the Regional Board determined the relationship between the newly-proposed
23 mining volumes and protection of beneficial uses. (*See San Francisco Ecology Center, supra*, 48
24 Cal.App.3d at 596.) As a result, the applications and adopted Orders fail to adequately describe the
25 Projects, fail to estimate the quantity of shoreline and/or subtidal habitat lost as a result of the approved
26 Orders, and fail to calculate or require any compensatory offset. (*See* 23 Cal. Code Regs. §§ 3856(b),
27 (h)(4), and (h)(5).)

1 A review of historic extraction rates shows that the approved mining volumes still approach the
2 maximum extraction rates occurring over the last fifteen years. (*See* Comments of San Francisco
3 Baykeeper to Bay Development and Conservation Commission, December 16, 2014, p. 2-3.) The final
4 mining volume limits in the Orders are only slight reductions from those initially proposed, and appear
5 to be based more upon what reduced limits Project applicants would agree to without protest, rather than
6 what limits would be necessary to protect beneficial uses. (*See* Regional Board, Staff Summary Report,
7 p. 2 [“The applicant has agreed to the overall decreased volume in the Revised Tentative Order”].)

8 At the January 21, 2015 hearing approving the Orders, Regional Board members repeatedly
9 echoed the concern that the record contained insufficient evidence or basis for the proposed extraction
10 rates in the Revised TOs, nor how there could be any assurance that the proposed rates would protect
11 coastal resources. Also echoed by Board members, but not incorporated into the final Orders, was a need
12 for improved monitoring and study to ascertain whether approved mining operations under the WDRs
13 would, in fact, protect beneficial uses. Ultimately, however, the proposed mining volume in the Revised
14 TOs were adopted as the final Orders, without revision, and no new monitoring or future study was
15 required.

16 In addition, it is worth noting that the addition of average annual limits also fails to minimize
17 Project impacts, as the only averaging period provided is over the entire life of the Order. (*See* Order
18 R2-2015-0008, p. 4) Hence, these annual limits are not enforceable until the Order expires; and at that
19 time, will only provide protections co-equal with the total mining volume permitted.

20 In sum, the Regional Board failed to act in accordance with Basin Plan requirements, the
21 Baylands Ecosystem Habitat Goals, or California Ocean Plan policies; failed to act in accordance with
22 California Regulations governing water quality certifications; and acted arbitrarily and capriciously,
23 without substantial evidence, and without adequate findings or analysis in approving the sand mining
24 volumes in the Orders.

25 B. The Regional Board relied on significant new information and revised Tentative Order
26 conditions provided after the close of the written public comment period, and for which
27 the public was provided an inadequate notice and opportunity to review and comment.

1 The public was not provided ample opportunity to review and comment on changes to the
2 Tentative Orders. First, following Baykeeper’s submission of written testimony in opposition to the
3 TOs, the Summary Response to Comments was not provided directly to Baykeeper prior to the Regional
4 Board’s hearing on the Orders. (*See* 23 Cal. Code Regs. §§ 647.2(e), 3858.) Second, substantial
5 revisions were made to the TOs that necessitated further opportunity for written comment. (*See* 23 Cal.
6 Code Regs. §§ 647.3(a), 3858.) The Staff Summary Report’s acknowledgement of a newly disclosed
7 substantial impact to beneficial uses is a matter of great public interest, and the resulting mining
8 volumes that were proposed constitute technical and highly controversial issues warranting full public
9 participation. Unfortunately this full opportunity was not afforded.

10 C. The Project applications, and resulting Orders, fail to adequately describe impacts from
11 closely related projects.

12 California regulations require a water quality certification application to include:

13 A brief list/description, including estimated adverse impacts of any projects implemented
14 by the applicant within the last five years or planned for implementation by the applicant
15 within the next five years that are in any way related to the proposed activity or that may
16 impact the same receiving water body(ies) as the proposed activity. For purposes of this
17 item, the water body extends to a named source or stream segment identified in the
18 relevant basin plan.

19 (23 Cal. Code Regs. § 3856(h)(8).) While the Project applications do list the on-shore sand and gravel
20 facilities that will receive and process the mined product, the Project applications and the resulting
21 Orders fail to consider the “adverse impacts” flowing from those sites. However, a search of Regional
22 Board adopted orders over the last five years reveals a number of projects that could be “in any way
23 related to the proposed activity or that may impact the same receiving water body(ies) as the proposed
24 activity,” including:

- 25 • R2-2011-0097, Lehigh Hanson West Region, Enforcement
- 26 • R2-2013-1030, Lehigh Hanson West Region Facility, Enforcement

- 1 • R2-2014-0010, Lehigh Southwest Cement Company and Hanson Permanente Cement Inc.,
2 Permit
- 3 • R2-2014-0011, Lehigh Southwest Cement Company and Hanson Permanente Cement Inc.,
4 Permit
- 5 • R2-2014-1014, Lehigh Hanson West Region, Enforcement

6 The Orders failed to address the extent to which any activities at any of the above-referenced facilities
7 are in any way connected with the proposed Projects, including a discussion of the whole of the impact
8 to San Francisco Bay from these multiple projects cumulatively.

9 D. The Orders fail to comply with Basin Plan policies governing mining operations.

10 The Basin Plan includes special requirements for mining sites that are not included in the Orders:
11 A Report of Waste Discharge shall consist of a “Site Closure Plan” and an “Operation
12 and Management Plan” for active sites, as described below:

- 13 • Each plan shall be designed to ensure short- and long-term protection of
14 beneficial uses of receiving waters.
- 15 • The “Closure Plan” shall address site restoration and long-term maintenance and
16 monitoring, which may include a financial guarantee to ensure that adequate
17 funds are available for proper site closure.
- 18 • The “Operation and Management Plan” shall address . . . erosion control
19 measures and practices. Each plan will be evaluated in regard to potential impacts
20 to beneficial uses of receiving waters. WDRs will be issued or conditionally
21 waived at the discretion of the Water Board based on the threat to water quality
22 and the effectiveness of identified and implemented control measures and the
23 effectiveness of local agency oversight.

24 (Basin Plan at 4-65.) While these policies may have been historically applied only to land-based mining
25 sites, as opposed to the submerged mining locations at issue here, the impacts from the mining
26 operations on the Bay floor have similar if not greater implications for the Bay ecosystems, and post-
27 mining closure and remediation plans are therefore no less needed. The Bay floor is already pock-

1 marked with historic mine pits, and the project application proposes to increase the rate of extraction
2 over the next 10 years. The Orders should not be exempt from the Basin Plan’s mining program
3 requirements.

4 E. The Orders authorize activities for a time period longer than that which permittees have
5 been permitted to operate, and longer than that for which evidence or analysis was
6 provided.

7 The Orders approve sand mining activities from 2015-2025. (*See, e.g.,* R2-2015-0008, p. 2.)
8 However, the lease approvals granted by the State Lands Commission for the Projects extend for a
9 period of 10 years beginning in October of 2012, ending in 2022. The Regional Board should not permit
10 any extraction for future years that have not undergone California Environmental Quality Act review
11 and State Lands Commission approval.

12 **5. The manner in which the petitioner is aggrieved.**

13 Petitioner San Francisco Baykeeper is a non-profit environmental organization dedicated to
14 protection of San Francisco Bay and surrounding tributaries and resources, including the Pacific coast,
15 for the benefit of the Bay ecosystem and interdependent human communities. Baykeeper’s members
16 directly benefit from these resources in the form of recreational swimming, fishing, surfing,
17 photography, bird watching, and boating, among other uses, each of which uses have been, are, and will
18 continue to be adversely impacted by the unsustainable mining of Bay sand for private, commercial use.
19 Petitioner’s members are therefore aggrieved by the Orders’ inadequacy to protect beneficial uses
20 relating to habitat, recreation, and Pacific coastal resources, through an informed, public decision-
21 making process.

22 **6. The specific action by the state or regional board which petitioner requests.**

23 Petitioner seeks an Order by the State Board that overturns the Regional Board’s approval of R2-
24 2015-0008, R2-2015-0009, and R2-2015-0010, and remands the matter to the Regional Board with
25 specific direction to the Board to remedy each of its violations of law as further described herein.
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Exhibit A

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD SAN FRANCISCO BAY REGION

ORDER NO. R2-2015-0008

WASTE DISCHARGE REQUIREMENTS and WATER QUALITY CERTIFICATION for:

HANSON MARINE OPERATIONS SAND MINING IN CENTRAL SAN FRANCISCO BAY AND SUISUN BAY

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

- A. Purpose of Order:** This Order regulates Hanson Marine Operations' (Hanson's) marine sand mining activities (project) within Central San Francisco Bay and 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:** Hanson conducts sand mining operations in Central San Francisco Bay and Middle Ground Shoal within Suisun Bay. 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.

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.

- C. Discharge Description:** During mining, sand-water slurry fills the cargo hopper via a flume chute that runs down the center of the hopper. The flume has 10 gates fitted with ½ x ½ inch mesh screens that distribute sand to different parts of the hopper. Accumulating sand displaces the water from the sand-water slurry. The water is discharged through overflow pipes on either side at the rear of the cargo hopper. The overflow pipes extend down below the waterline on the outside of the barge. The bottom of the cargo hopper is also fitted with a dewatering system. A pipe along the

centerline, at the bottom of the hopper, has five fine-mesh-screened openings where water that has filtered through the sand and gravel smaller than ½ inch 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 (½ 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.

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). Sand used in concrete and asphalt products 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. 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. Hanson has submitted an application to the Water Board to reissue WDRs and issue Certification to mine sand in Central San Francisco Bay and Middle Ground Shoal in Suisun Bay for 10 years (2015 - 2025).

In addition to obtaining 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, Hanson 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. Hanson has entered into a lease with SLC, effective January 1, 2013 through December 31, 2022, to mine at the specified lease areas as indicated in Table 1 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 the 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 the California Department of Fish and Wildlife (CDFW). Hanson submitted its application on July 11, 2013, and CDFW issued the permit on April 1, 2014, and amended it on October 14, 2014.
- A permit from the San Francisco Bay Conservation and Development Commission (BCDC) pursuant to the McAteer-Petris Act. Hanson 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:** Two marine aggregate companies, Hanson and Lind Marine Incorporated (previously Jerico Products, Inc.), and a joint venture, Suisun Associates, with Hanson and Lind Marine as the joint venture partners, currently harvest sand commercially from the Estuary. Hanson harvests sand from specified areas that are leased from the SLC and a private party, the Grossi Family.

The specific areas where Hanson proposes to continue mining sand are the SLC Central Bay and Middle Ground lease locations listed in Table 1 and shown in Appendix A. Hanson is currently the only sand mining company operating in the Central Bay. Hanson and Lind Marine currently both mine the Middle Ground parcel under separate leases with the Grossi family, 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 marine sand mining in the Estuary is to obtain marine 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.

Sand has been mined commercially from the Estuary for more than seven decades, beginning in the 1930s. Hanson entered the construction sand mining business in 1999 when it acquired two companies that held the construction sand mining leases and permits that Hanson operates under today.

- Sand Mining Volume:** Hanson proposed in its application to mine up to 1,540,000 cy of sand annually for a ten-year period from the 2,601-acre area in the Central Bay consisting of nine parcels of submerged land that comprise four leases from the SLC, designated as Mineral Extraction Lease Nos. 709.1, 2036.1, 7779.1, and 7780.1 (Appendix A-2) and 50,000 cy from the 367-acre area of submerged lands known as Middle Ground Island Sand Shoals, adjacent to Middle Ground Island in Suisun Bay (Middle Ground, Appendix A-3).

Studies conducted by the United States Geological Service have indicated that the dominant sediment transport pathway in certain southern Central Bay lease areas is ebb-directed (seaward) and that sand removed from this transport pathway may be linked to reduced sediment supplies to the ebb-tidal delta at the mouth of San Francisco Bay. Also, 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 and recreation-related uses). The permitted annual mining volume in lease area Presidio Shoals PRC 709.1, has been reduced from the proposed 340,000 cy to 232,000 cy, to reduce the volume of sand extracted from the South Parcel.

Table 1 provides the average and maximum volumes Hanson is authorized to mine within each lease area on an annual basis over the ten-year period that the WDRs are in effect. The ten-year maximum volume allows for multiple peak years when construction-related demand for sand is greater than the allowed annual volume.

Table 1: 2015 - 2025 Permitted Annual, Peak Year and Ten-Year Total Sand Mining Volumes

Location / Lease No.	Annual Volume Cubic Yards (cy)	Peak Year Volume Cubic Yards (cy)
Central Bay		
PRC 709.1: Presidio Shoals (709.1 South Parcel), Alcatraz Shoals (709.1 East Parcel), Point Knox Shoals (709.1 North Parcel)	232,000	290,000
PRC 2036.1: Point Knox South Shoal	360,000	450,000
PRC 7779.1: Point Knox Shoal (7779.1 North, West, & East Parcels)	484,000	550,000
PRC 7780.1: Alcatraz South Shoal	127,000	160,000
Central Bay Total	1,203,000	1,450,000
Suisun Bay		
Middle Ground (Grossi family lease)	40,000	50,000
Total	1,243,000	
Total		1,500,000
Total 10-year Not-to-Exceed Maximum	12,430,000	

4. **Sand Mining Methods:** Hanson 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.
- 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. This method is used 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, they raise the drag head into the water column no higher than 3 feet off the bottom and clear the drag pipe by keeping the pumped engaged for up to 30 seconds. The operator then turns off the pump and it remains off 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, and type of sand (fine or coarse). Sand mining activity may occur at any time of day. The timing is influenced by tidal schedules. An individual mining event generally lasts from 3 to 5.5 hours. In the Central Bay, the mean duration of mining events is relatively consistent from month to month. For Hanson’s mining operations during the period March 2002 through February 2003, the monthly mean event duration ranged from 3.5 to 4.6 hours, with a maximum duration of 9 hours and a minimum duration of 1 hour. The mean single-event yields from Hanson’s mining operations were also quite consistent, with monthly means of from 1,931 cy per event to 2,149 cy per event.

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, but typically takes about 10 hours in the Central Bay. Under these circumstances, from an operational perspective, the greatest frequency with which the *Sand Merchant* could disturb any single area is twice in any 24-hour period.

6. **Sand Mining Impacts on Benthic Habitat**

Hanson has 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 Hanson 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 Hanson 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.

In addition, larval fish can be entrained through the vacuum-relief vent pipe mounted on the top of the drag head, which is designed to draw in water to thin the sand slurry if it becomes too dense to effectively pump. Hanson has installed a positive barrier fish screen at the intake end of the vent pipe. The screen is 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 Hanson 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 drag arm, the drag head is held 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, the suction pump is not engaged until the drag head is on the substrate. The dredge operator 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 no higher than 3 feet off the bottom 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 -30 feet MLLW in Central Bay or -9 feet MLLW in the Middle Ground area of Suisun Bay.
- Based on consultation with CDFW and USFWS, during longfin and delta smelt spawning season (December 1 through June 30), Hanson will implement mining volume reductions in the Middle Ground lease area to avoid and minimize potential entrainment of larval smelt.
- To minimize entrainment take of larval longfin smelt and delta smelt, Hanson will observe seasonal mining depth restrictions in the Middle Ground 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.
- Hanson will establish a 100-foot buffer zone around all hard bottom habitat within and adjacent to Central Bay mining leases, especially Harding, Shag, and Arch Rocks.
- To fully mitigate incidental take of species protected under the State and federal Endangered Species Acts that fish screens cannot avoid or minimize, Hanson is 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 Hanson 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, Hanson 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, the 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, Hanson 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 Hanson to purchase 0.421 acres 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 Hanson 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 Hanson 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 Hanson, 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 (-30 to -90 feet MLLW in Central Bay), the depth restrictions imposed by mining equipment draft limits or other operating constraints (-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 Hanson's hopper barge 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 5.0 mg/L minimum in Central Bay and 7.0 mg/L minimum in Suisun Bay (if natural factors cause lower dissolved oxygen concentrations, 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 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 Hanson to enforcement action pursuant to section 13268 of the Water Code.

2. Monitoring and Reporting

Hanson 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 Hanson 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

Hanson shall submit a Sampling and Analysis Plan (SAP), acceptable to the Executive Officer, within 30 days of Order adoption, for a study 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 shall 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 Hanson's 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.

Hanson shall start implementing the SAP within 45 days of the Executive Officer's approval. Hanson shall submit a final study report within 60 days of data collection completion, but in no case later than June 30, 2017. Hanson may collaborate with other sand miners to fund and perform the required study.

5. Benthic Study Technical Advisory Committee (TAC)

Hanson shall organize and convene a TAC that includes representatives from SLC, the Corps, the Water Board, NOAA Fisheries, USFWS, CDFW, BCDC, Hanson, Lind Marine, and at least one scientist with expertise in Estuary benthic ecology, preferably from USGS or affiliated with

a local university. Hanson 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, Hanson 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.

Hanson may collaborate with other sand miners to fund and perform the required study. Hanson 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**

Hanson 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, Hanson shall operate sand mining dredges only within the areas detailed in Table 1 in Finding E.3 and as shown in Appendices A-2 and A-3.

8. **Annual and Seasonal Volume Limits**

Hanson shall limit the volume of sand mined annually as shown in Table 1 in Finding E.3. To reduce the potential for entrainment of larval longfin smelt and delta smelt in the Middle Ground lease area, Hanson 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, 2014¹. Hanson shall also adhere to seasonal volume limits required by USFWS in its Biological Opinion dated October 22, 2014.

9. **Location and Depth Restrictions**

Hanson shall comply with the mining location and depth restrictions shown in the following table:

¹ Middle Ground and Suisun Channel lease areas are limited to a combined mining volume of 54,000 cy between December 1 and June 30.

Mining Location & Depth Restrictions	
<i>Central Bay</i>	No mining within 200 feet of any shoreline No mining within 250 feet of depths <-30 feet MLLW
<i>Middle Ground</i>	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. Buffer Zone Around Hard Bottom Habitat

Hanson shall establish a buffer zone at a minimum of 100 feet from the outward edge of any hard bottom feature within and adjacent to Central Bay mining leases such that dredging equipment does not come into physical contact with these sensitive areas, including Harding, Shag, and Arch Rocks. SLC has required that any physical contact between dredging equipment and hard bottom areas be immediately reported to SLC, which will establish a new minimum buffer zone distance sufficient to avoid subsequent contacts. Hanson shall notify Water Board staff via email if hard bottom contact occurs, concurrent with reporting to SLC.

11. Spill Prevention Plan

Hanson 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.

12. Spill Notification and Response

Hanson 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.

13. Monitoring and Reporting

- a. Hanson 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. Hanson 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. Hanson shall notify Water Board staff immediately by telephone and email whenever violations are detected. Operations shall not resume until Hanson submits, and the Executive Officer approves, a corrective action plan that will provide alternative methods of compliance.

Protection of Special Status Species

- 14. This Certification does not allow for the take, or incidental take except as described below, of any special status species. Hanson 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.
- 15. Hanson shall adhere to the Terms and Conditions and the Reasonable and Prudent Measures in the *Biological Opinion* dated October 22, 2014, issued for the project by USFWS.
- 16. Hanson 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.
- 17. Hanson shall adhere to the conditions of Incidental Take Permit No. 2081-2013-047-03 dated April 1, 2014, Amendment No. 1 dated October 14, 2014, and any subsequent amendments, issued for the project by CDFW for entrainment of special status fish species (Chinook Salmon, Delta Smelt, and Longfin Smelt).

Standard Provisions

- 18. Hanson shall maintain a copy of this Order on the vessel so as to be available at all times to all vessel personnel.
- 19. 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 offsite 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.

Hanson 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.

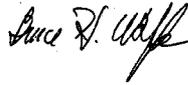
- c. Inspection of any treatment equipment, monitoring equipment, or monitoring method required by this Order.
- d. Sampling of any discharge or surface water covered by this Order.

20. **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.

- 21. 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 Hanson 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.
- 22. 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.
- 23. 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.
- 24. 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.
- 25. 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 17:37:55 -08'00'

Bruce H. Wolfe
Executive Officer

Appendices: Appendix A: Site Maps - Central and Suisun Bays
Appendix B: Self-Monitoring Program (SMP)

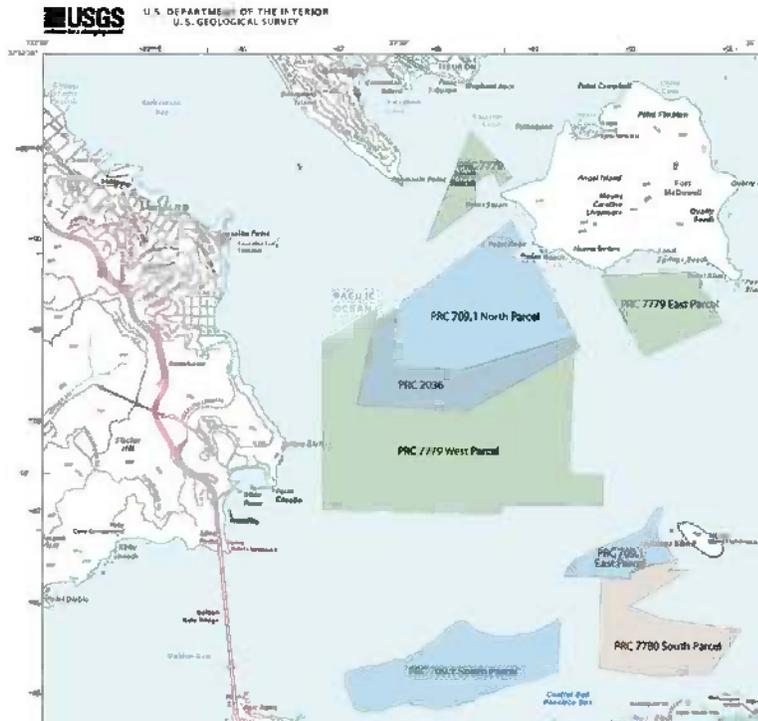
APPENDIX A

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

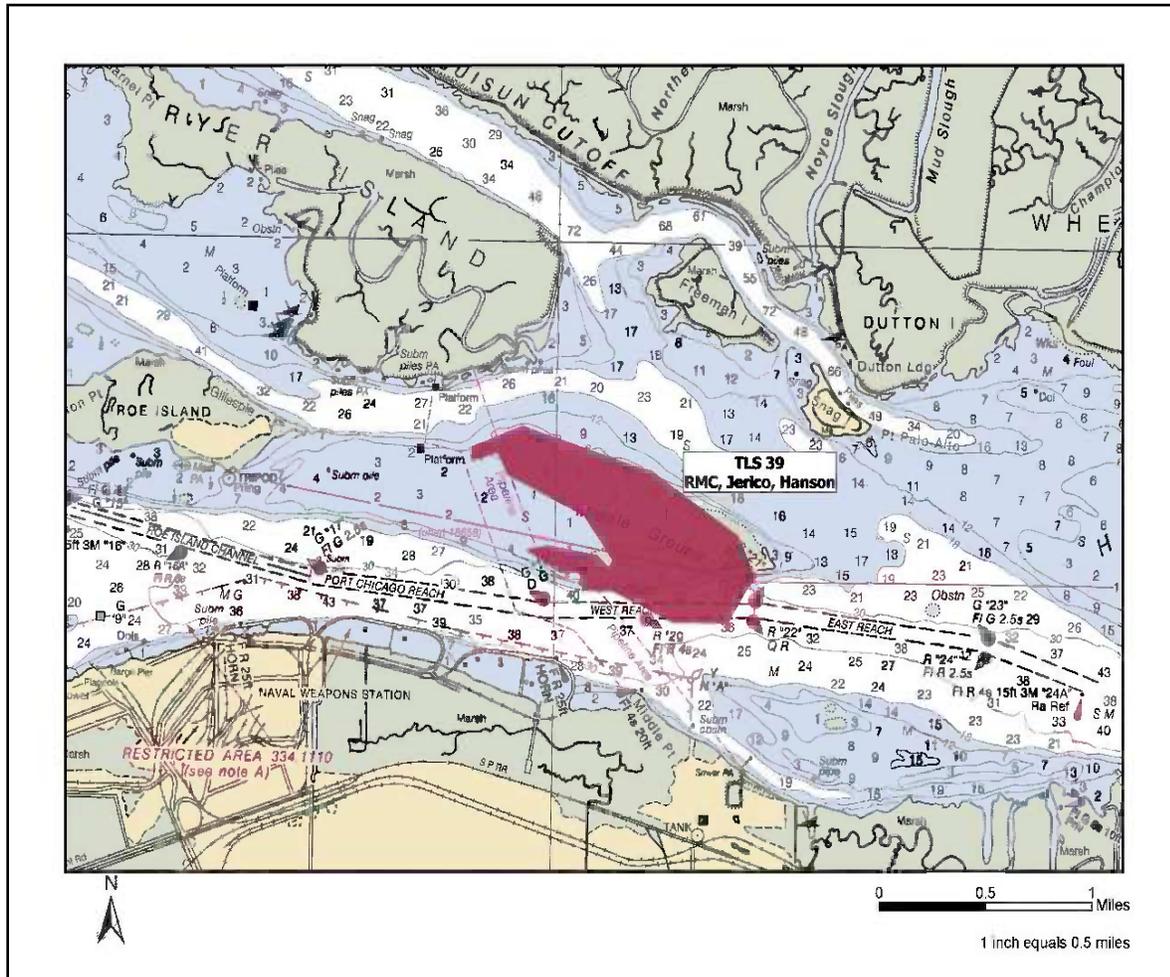
Appendix A-1 Regional Map of General Sand Mining Lease Locations



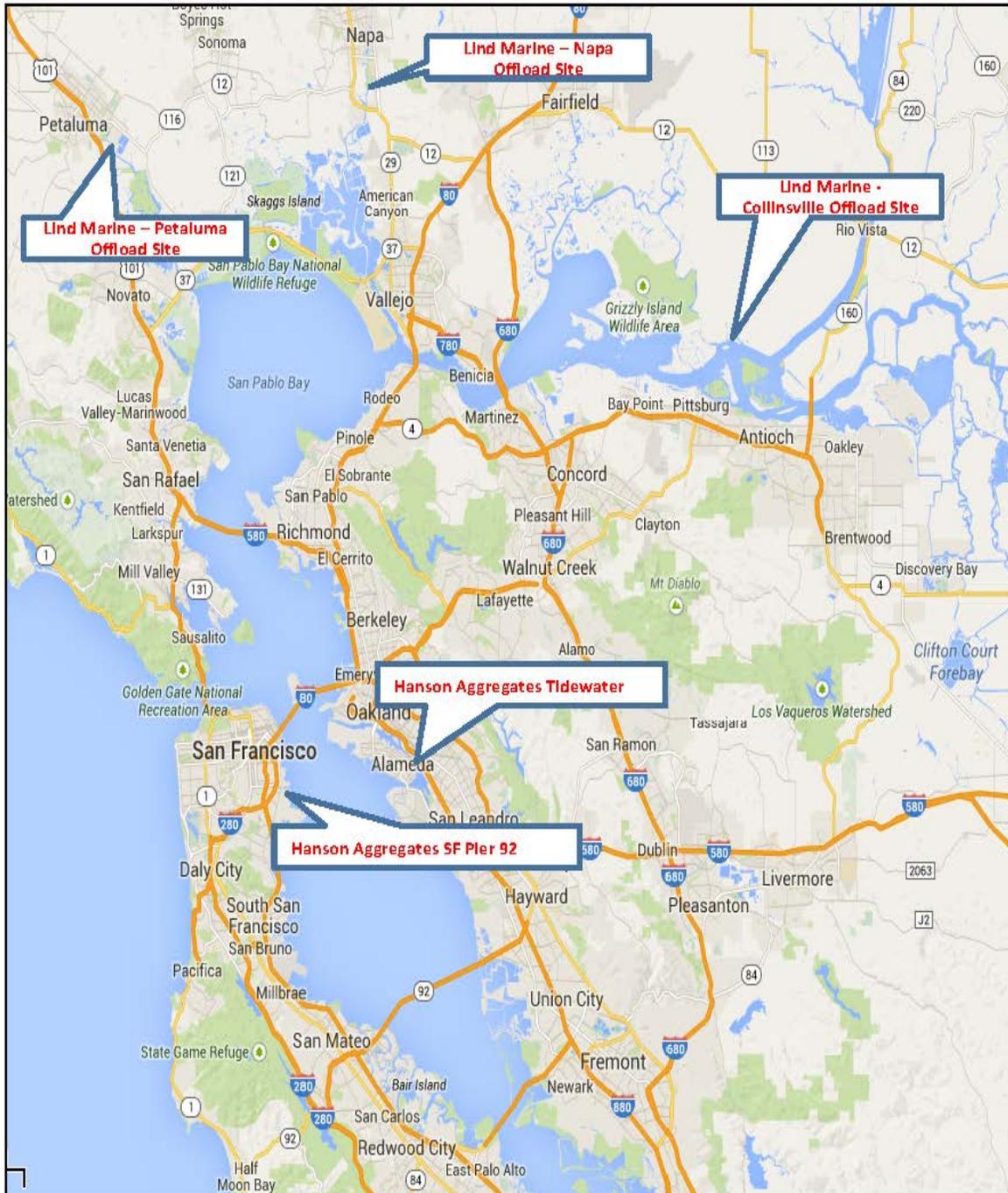
Appendix A-2 Hanson Marine Operations' Central Bay Sand Mining Lease Locations



Appendix A-3 Hanson Marine Operations' Middle Ground Sand Mining Lease Locations



Appendix A-4 Upland Sand Processing Facility (Sand Yard) Locations



APPENDIX B

Self-Monitoring and Reporting Program

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

SELF-MONITORING PROGRAM

FOR:

HANSON MARINE OPERATIONS

I. GENERAL

A. Basis

Reporting responsibilities of waste discharges are specified in sections 13225(a), 13267(b), 13260 *et seq.*, 13268, 13383, 13387(b) of the California Water Code and this Water Board's Resolution No. 73-16.

B. Purpose

The principle purposes of a monitoring program, also referred to as a Self-Monitoring Program, are to 1) document compliance with Waste Discharge Requirements and prohibitions established by the Water Board, 2) to facilitate self-policing by Hanson Marine Operations (Hanson) in the prevention and abatement of pollution arising from waste discharge, 3) to develop or assist in the development of effluent or other limitations, discharge prohibitions, national standards of performance, pretreatment and toxicity standards, and other standards, and 4) to prepare water and wastewater quality inventories.

C. Sampling and Analytical Methods

Sample collection, storage and analyses shall be performed according to Title 40 of the Code of Federal Regulations, section 136, or other methods approved by the Executive Officer.

Water and wastewater analyses shall be performed by a laboratory approved by the California Department of Public Health or a laboratory approved by the Executive Officer.

All monitoring instruments and equipment shall be properly calibrated and maintained to ensure accuracy of measurements.

Routine sampling shall follow Quality Assurance/Quality Control procedures including the use of field (trip), equipment and laboratory blanks and laboratory surrogate samples.

All Quality Assurance/Quality Control measures and results shall be reported along with the data.

II. REPORTS TO BE FILED WITH THE REGIONAL BOARD

A. Report of Permit Violation

In the event that violations of permit requirements are detected, operations shall cease and Hanson shall immediately notify the Water Board staff by telephone and email (current case manager: Elizabeth Christian, email: EChristian@Waterboards.ca.gov, telephone number: 510-622-2335). Operations shall not resume until Hanson submits, and the Executive Officer approves, a corrective action plan that will provide alternative methods of compliance.

B. Quarterly Self-Monitoring Reports

Written reports shall be submitted to the current Water Board case manager in electronic format (e.g., via email, CD, or via uploading to the Water Board's FTP site) for each quarter (unless specified otherwise) within 30 days after the end of the quarter. The reports shall be comprised of the following information:

1. **Transmittal letter** that discusses any violations found during the reporting period in terms of dates of occurrence, magnitude, cause (if known), corrective actions taken or planned, and the time schedule for completion.
2. **Identification**
 - a. Name and address of dredging company.
 - b. Name and registration number of dredging vessel.
3. **Standard Observations**
 - a. Receiving Water
 - i. Geographical location of vessel during dredging.
 - ii. Location of the dredge, reported as longitude and latitude.
 - iii. Depth of water at time of dredging (can be a range if location moves during the single mining event).
 - iv. Time of day and duration of dredge operation.
 - v. Volume of material offloaded per month.
 - vi. Location where sand was off-loaded.
 - b. Sand Quantity
 - i. Volume of sand in cubic yards dredged per quarter.
 - ii. Approximate amount of available sand remaining at dredged location.
 - c. Graphical portrayal (maps showing track lines) and calculations of the areal extent of mining/benthic disturbance per lease area (number of acres and percent of total lease area mined).
4. **Non-standard Observations**
 - a. Any collisions, near collisions, or other navigation problems or conflicts encountered during the year's dredging operations.

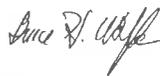
C. Annual Report

By January 30 of each year, Hanson shall submit an annual report to the Water Board covering the activities of the previous year. The report shall contain both tabular and graphical summaries of the monitoring data obtained during the previous year. In addition, the report shall contain a comprehensive discussion of the compliance record and the corrective actions taken place or planned which may be needed to bring Hanson into full compliance with this permit.

Monitoring reports and the letter transmitting reports shall be assigned by a principal executive officer or ranking elected official of Hanson, or by a duly authorized representative of that person. The transmittal letter shall contain the following certification: "I certify under penalty of law that this document and all attachments are prepared under my direction or supervision and that the information submitted is, to the best of my knowledge, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

I, Bruce H. Wolfe, Executive Officer, do hereby certify that the foregoing Self-Monitoring Program has been developed in accordance with the procedures set forth in the Water Board's Resolution No. 73-16 in order to obtain data and document compliance with waste discharge requirements established in Water Board Order No. R2-2015-0008, adopted by the Board on January 21, 2015.

This Self-Monitoring Program may be reviewed at any time subsequent to its adoption date upon written notice from the Executive Officer or a request from Hanson, and revisions may be ordered by the Executive Officer or Water Board.



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 17:35:34 -08'00'

Bruce H. Wolfe
Executive Officer

Exhibit B

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD SAN FRANCISCO BAY REGION

ORDER NO. R2-2015-0009

WASTE DISCHARGE REQUIREMENTS and WATER QUALITY CERTIFICATION for:

LIND MARINE INCORPORATED 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 sand mining operations (project) within Suisun Bay conducted by Lind Marine Incorporated (Lind) (previously Jerico Products, Inc.), 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: Lind conducts sand mining operations in the Middle Ground Island lease area, southeast of Ryer Island and west of Middle Ground Island in Suisun Bay. 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.

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 cubic yards (cy). Lind's equipment and methods limit it to mining in water depths from approximately -15 feet to -40 feet mean lower low water (MLLW).

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 gallons per minute (gpm). At Middle Ground Shoal, the sand to water proportion is normally approximately 23% sand and 77% water.

C. Discharge Description: During mining, a sand-water slurry fills the barge hopper through a flume chute running length-wise above the hopper. The chute is equipped with 13 gates fitted with $\frac{1}{4}$ inch to $\frac{1}{2}$ inch mesh screens. The slurry flows through these gates, which are controlled to evenly fill the hopper. Excess water and gravel particles larger than the mesh screens are discharged through a pipe extending below the surface of the water. Water displaced by accumulating sand within the hopper barge returns to the receiving waters through overflow weirs or through subsurface discharges. The cargo hopper is also fitted with fine mesh screens along the bottom

centerline of the barge where water that has filtered through the sand is also 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. 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 one of Lind's sand yard offloading sites located in Petaluma, Napa, or Collinsville. Appendix A shows sand yard locations in the Bay Area. At the offloading site, a conveyer belt mounted on the barge is lowered and moved to the side of the barge, where an excavator or front-end loader transfers the sand from the hopper onto the barge conveyor belt, which leads to a shore-side conveyor system that dumps the sand into a pile for distribution. 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. 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. Lind has submitted an application to the Water Board to reissue WDRs and issue a Certification to mine sand in Middle Ground Shoal in Suisun Bay for ten years (2015 - 2025).

In addition to obtaining 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, Lind must also obtain and comply with the following approvals/permits for the project:

- An approved reclamation plan from the State Mining and Geology Board (SMGB). SMGB has approval authority over the reclamation plans prepared pursuant to the 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 the California Department of Fish and Wildlife (CDFW). Lind submitted its application on July 11, 2013, and CDFW issued the permit on April 1, 2014. CDFW issued an amendment to the permit on October 14, 2014.

- A permit from the San Francisco Bay Conservation and Development Commission (BCDC) pursuant to McAteer-Petris Act. Lind 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:** Two marine aggregate companies, Hanson Marine Operations (Hanson) and Lind Marine Incorporated, and a joint venture, Suisun Associates, with Hanson and Lind as the joint venture partners, currently harvest sand commercially from the San Francisco Bay and the western Delta.

The specific area where Lind proposes to continue mining sand is the Middle Ground lease location shown in Appendix A. Both Hanson and Lind currently mine the Middle Ground parcel under separate leases with the Grossi family, 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 are regulated and/or influenced by a number of factors, which include 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.

Sand has been mined commercially from the Estuary for more than seven decades, beginning in the 1930s. In the late 1970s, Morris Shell, formerly Pioneer Shell, began sand mining at Middle Ground Shoal in Suisun Bay, Chipps Island, and New York Slough. Mike Lind, current owner of Lind Marine Inc., purchased Morris Shell and subsequently changed the name of the company to Jerico Products, Incorporated. Jerico Products changed its name to Lind Marine Incorporated in mid-2014.

3. **Sand Mining Volume:** In its application, Lind proposed to mine up to 150,000 cy of sand annually over a ten-year period from the 367-acre area of submerged lands known as Middle Ground Island Sand Shoals (Grossi family lease), adjacent to Middle Ground Island in Suisun Bay (see map, 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	125,000 cy
Peak Year Volume	150,000 cy
Ten-Year (2015-2025) Maximum (Not-to-Exceed) Volume	1,250,000 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.

- Sand Mining Methods:** Lind uses the stationary potholing method of hydraulic sand mining. Stationary potholing involves an initial search for an appropriate sand source, followed by “stationary” mining by burying the suction pipe into the substrate and keeping it from moving by either anchoring or engine thrust.

The suction pipe is equipped with small external vent pipes that extend a few feet above it and pull in water to help create the sand-water slurry when the pipe is buried in the substrate so deeply that insufficient water can be drawn through the sand substrate itself. This allows for sand to be mined without moving the suction pipe and for the suction pipe to be inserted farther under the substrate surface. As sand is pumped to the barge, adjacent sand is mobilized and falls into the pothole created by the suction head. The suction end is lowered to keep it in the substrate as the pothole is deepened.

As mining commences, the dredge’s operators determine the suitability of the sand for mining. Tests include grab samples to determine the gradation of the sand (coarse or fine) and visual observations of the slurry (a dark color indicates high sand to water proportion, signifying either loose, unconsolidated sand and/or finer sand). Vacuum measurements on the drag arm and density measurements of the slurry and pump RPMs give indications of the slurry density as well. Once the operator has determined a suitable location and the barge has been placed in position, an anchor is dropped from the bow of the barge. The barge is allowed to pivot and shift into position by drifting on the current. Once the barge has drifted to a stable position, the hydraulic suction pipe assembly is lowered into the water using a cable winch system to the substrate surface. The pump is primed and the pipe filled with water when the suction end is lower than 3 feet from the sand surface. The suction pipe is then slowly lowered about 5 to 8 feet into the sand, which further stabilizes the barge, and mining begins.

If the sand becomes unsuitable (too coarse or fine) or the substrate too consolidated to mine, the operator shuts down the pump, picks up the suction pipe, and proceeds to another location to resume mining.

- Mining Event Duration**

It typically takes an average of 4.67 hours for Lind to load the *J5200* barge to its 1,850 cy capacity when mining sand at Middle Ground Shoal. Depending on the offloading

locations, the entire operation – 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 would disturb any single area is twice in any 24-hour period.

6. Sand Mining Impacts on Benthic Habitat

Lind has 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 Lind 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 Lind 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.

During sand mining using the stationary potholing method, entrainment of larval, juvenile, and adult fish and invertebrates from the water column is expected to occur during initial priming and clearing of the centrifugal pump when the end of the suction pipe is positioned near the bottom of the water column, within 3 feet of the seafloor.

In addition, larval fish can be entrained through the small external vent pipes that extend a few feet above the suction pipe intake, which draw in water to thin the sand slurry if it becomes too dense to effectively pump. Lind has installed a positive barrier fish screen at the collective intake end of the vent pipes. The screen is 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 Lind mining equipment (intake end of vent pipes) 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, the intake end of the pipe is held as close to the bottom as possible, no more than 3 feet off the bottom at its maximum height in the water column.
- 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 Middle Ground area of Suisun Bay.
- Based on consultations with CDFW and USFWS, during longfin and delta smelt spawning season (December 1 through June 30), Lind will implement mining volume reductions in the Middle Ground lease area to avoid and minimize potential entrainment of larval smelt.
- To minimize entrainment take of larval longfin smelt and delta smelt, Lind will observe seasonal mining depth restrictions in the Middle Ground 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, Lind is 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 Lind 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, Lind 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, the 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, Lind 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 Lind to purchase 0.107 acres 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 Lind 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 that 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 Lind and interested agencies and persons of its intent to issue WDRs and Water Quality 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 Water Quality Certification for the project.

IT IS HEREBY ORDERED that Lind, 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 5,000 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 Lind's hopper barge 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 dissolved oxygen 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 Lind to enforcement action pursuant to section 13268 of the Water Code.

2. Monitoring and Reporting

Lind 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 Lind 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

Lind shall submit a Sampling and Analysis Plan (SAP), acceptable to the Executive Officer, within 30 days of Order adoption, for a study 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 shall compare overflow plume suspended sediment concentrations to background (ambient) conditions. The selection of sampling locations and number of sampling events shall be representative of the mining area and mining method, 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.

Lind shall start implementing the SAP within 45 days of the Executive Officer's approval. Lind shall submit a final study report within 60 days of data collection completion but in case

later than June 30, 2017. Lind may collaborate with other sand miners to fund and perform the required study.

5. Benthic Study Technical Advisory Committee (TAC)

Lind shall organize and convene a TAC that includes representatives from SLC, the Corps, the Water Board, NOAA Fisheries, USFWS, CDFW, BCDC, Lind, Hanson Marine Operations, and at least one scientist with expertise in Estuary benthic ecology, preferably from USGS or affiliated with a local university. Lind 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, Lind 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.

Lind may collaborate with other sand miners to fund and perform the required study. Lind 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

Lind 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, Lind 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

Lind shall limit the volume of sand mined at Middle Ground Shoal in Suisun Bay annually and over the 10-year effective period of these WDRs 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, Lind shall limit the volume of sand mined between December 1 and June 30 each year as required by CDFW Incidental Take Permit 2081-2012-012-03, Amendment No. 1, dated October 14, 2014, and by USFWS in its Biological Opinion dated October 22, 2014.

9. Location and Depth Restrictions

Lind shall comply with the mining location and depth restrictions shown below:

Mining Location & Depth Restrictions	
<i>Middle Ground</i>	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

Lind shall maintain and implement a plan demonstrating that adequate measures are in place to prevent and respond to accidental releases of hydraulic fluids, solvents, oils, and other hazardous materials.

11. Spill Notification and Response

Lind 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. Lind 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. Lind 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. Lind 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. Lind 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. Lind shall adhere to the Terms and Conditions and the Reasonable and Prudent Measures in NOAA Fisheries' *Endangered Species Consultation*, 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. Lind shall adhere to the conditions of Incidental Take Permit No. 2081-2012-012-03 dated April 1, 2014, Amendment No. 1 dated October 14, 2014, and any subsequent amendments, issued for the Project by CDFW for entrainment of special status fish species (Chinook Salmon, Delta Smelt, and Longfin Smelt).

Standard Provisions

17. Lind 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.

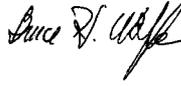
Lind shall permit the Water Board or its authorized representative, upon presentation of identification:

- 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 approved 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
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ou=Region 2,
email=bwolfe@waterboards.ca.gov,
c=US
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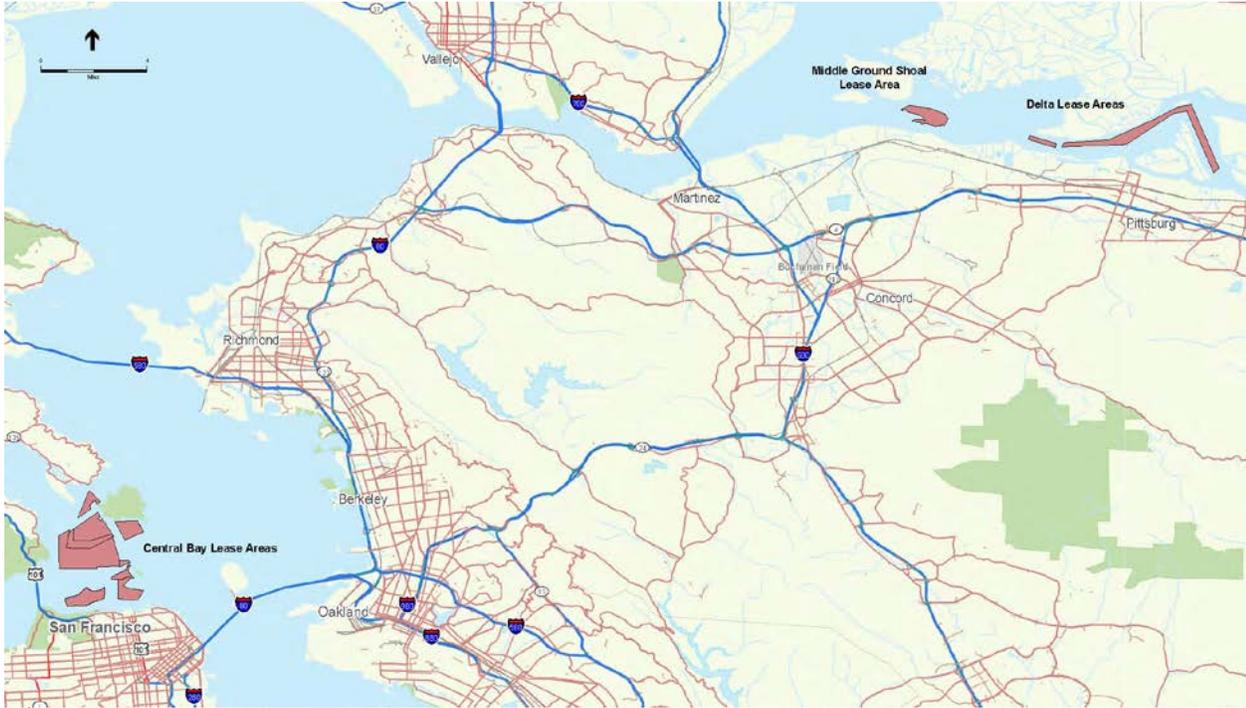
Bruce H. Wolfe
Executive Officer

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

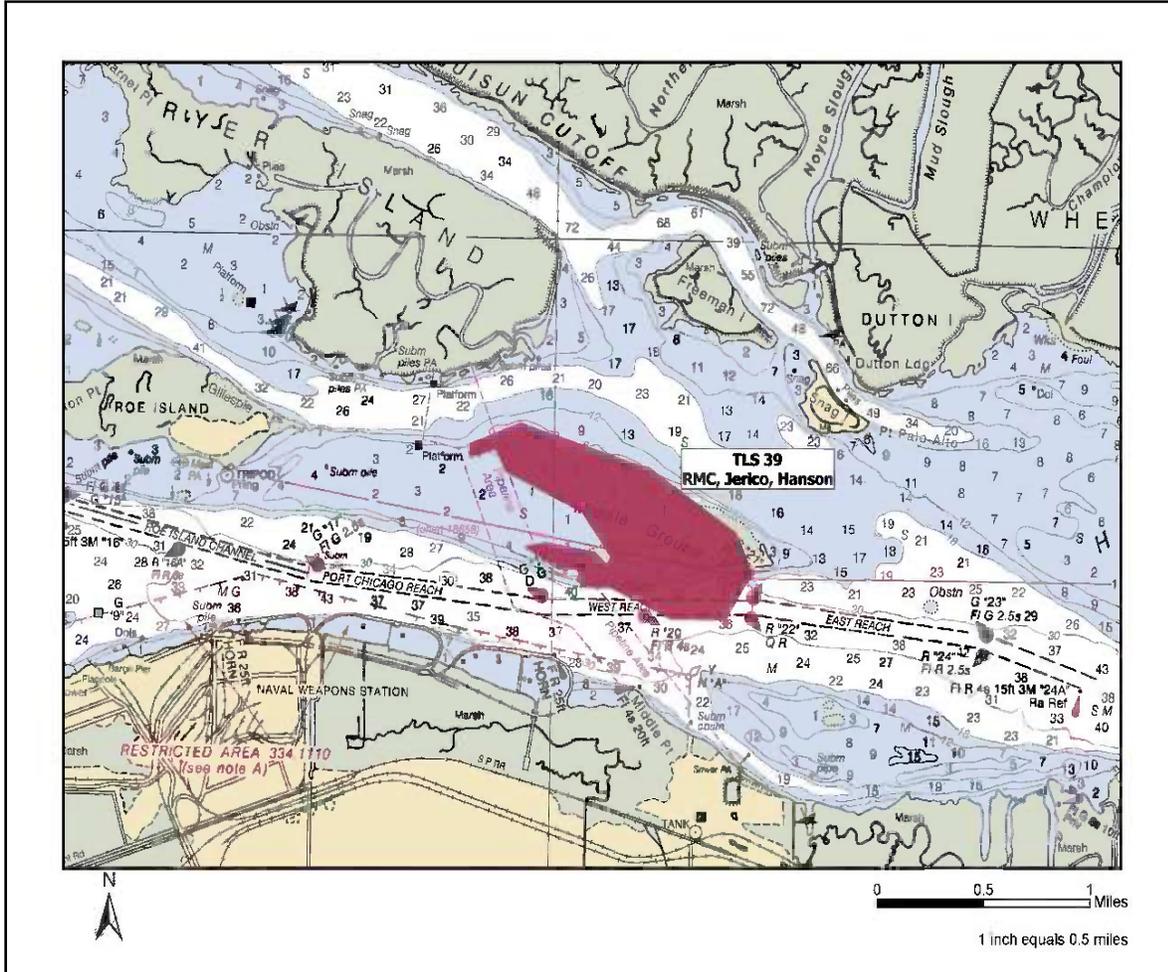
APPENDIX A

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 Lind Marine Incorporated's Middle Ground Sand Mining Lease Location



APPENDIX B

Self-Monitoring and Reporting Program

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

SELF-MONITORING PROGRAM

FOR:

LIND MARINE INCORPORATED

I. GENERAL

A. Basis

Reporting responsibilities of waste discharges are specified in Sections 13225(a), 13267(b), 13260 *et seq.*, 13268, 13383, 13387(b) of the California Water Code and this Water Board's Resolution No. 73-16.

B. Purpose

The principle purposes of a monitoring program, also referred to as a Self-Monitoring Program, are to 1) document compliance with Waste Discharge Requirements and prohibitions established by the Water Board, 2) to facilitate self-policing by Lind Marine Incorporated (Lind) in the prevention and abatement of pollution arising from waste discharge, 3) to develop or assist in the development of effluent or other limitations, discharge prohibitions, national standards of performance, pretreatment and toxicity standards, and other standards, and 4) to prepare water and waste water quality inventories.

C. Sampling and Analytical Methods

Sample collection, storage and analyses shall be performed according to Title 40 of the Code of Federal Regulations, section 136, or other methods approved by the Executive Officer.

Water and waste-water analyses shall be performed by a laboratory approved by the California Department of Public Health Services or a laboratory approved by the Executive Officer.

All monitoring instruments and equipment shall be properly calibrated and maintained to ensure accuracy of measurements.

Routine sampling shall follow Quality Assurance/Quality Control procedures including the use of field (trip), equipment and laboratory blanks and laboratory surrogate samples.

All Quality Assurance/Quality Control measures and results shall be reported along with the data.

II. REPORTS TO BE FILED WITH THE REGIONAL BOARD

A. Report of Permit Violation

In the event that violations of permit requirements are detected, operations shall cease and Lind shall immediately notify the Water Board staff by telephone and email (current case manager: Elizabeth Christian, email: EChristian@Waterboards.ca.gov, telephone number: 510-622-2335). Operations shall not resume until Lind submits, and the Executive Officer approves, a corrective action plan that will provide alternative methods of compliance.

B. Quarterly Self-Monitoring Reports

Written reports shall be submitted to the current Water Board case manager in electronic format (e.g., via email, CD, or via uploading to the Water Board's FTP site) for each quarter (unless specified otherwise) within 30 days after the end of the quarter. The reports shall be comprised of the following information:

1. **Transmittal letter** that discusses any violations found during the reporting period in terms of dates of occurrence, magnitude, cause (if known), corrective actions taken or planned, and the time schedule for completion.
2. **Identification**
 - a. Name and address of dredging company.
 - b. Name and registration number of dredging vessel.
3. **Standard Observations**
 - a. Receiving Water
 - i. Geographical location of vessel during dredging.
 - ii. Location of the dredge, reported as longitude and latitude.
 - iii. Depth of water at time of dredging (can be a range if location moves during the single mining event).
 - iv. Time of day and duration of dredge operation.
 - v. Volume of material offloaded per month.
 - vi. Location where sand was off-loaded.
 - b. Sand Quantity
 - i. Volume of sand in cubic yards dredged per quarter.
 - ii. Approximate amount of available sand remaining at dredged location.
 - c. Graphical portrayal (maps showing track lines) and calculations of the areal extent of mining/benthic disturbance per lease area (number of acres and percent of total lease area mined).
4. **Non-standard Observations**
 - a. Any collisions, near collisions or other navigation problems or conflicts encountered during the year's dredging operations.

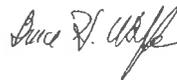
C. Annual Report

By January 30 of each year, Lind shall submit an annual report to the Water Board covering the activities of the previous year. The report shall contain both tabular and graphical summaries of the monitoring data obtained during the previous year. In addition, the report shall contain a comprehensive discussion of the compliance record and the corrective actions taken place or planned which may be needed to bring Lind into full compliance with this permit.

Monitoring reports and the letter transmitting reports shall be assigned by a principal executive officer or ranking elected official of Lind, or by a duly authorized representative of that person. The transmittal letter shall contain the following certification: "I certify under penalty of law that this document and all attachments are prepared under my direction or supervision and that the information submitted is, to the best of my knowledge, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

I, Bruce H. Wolfe, Executive Officer, do hereby certify that the foregoing Self-Monitoring Program has been developed in accordance with the procedures set forth in the Water Board's Resolution No. 73-16 in order to obtain data and document compliance with waste discharge requirements established in Water Board Order No. R2-2015-0009, adopted by the Board on January 21, 2015.

This Self-Monitoring Program may be reviewed at any time subsequent to its adoption date upon written notice from the Executive Officer or a request from Lind, and revisions may be ordered by the Executive Officer or Water Board.



Digitally signed by Bruce H. Wolfe
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ou=Region 2,
email=bwolfe@waterboards.ca.gov,
c=US
Date: 2015.01.28 17:34:42 -08'00'

Bruce H. Wolfe
Executive Officer

Exhibit C

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.

Hanson Marine Operations (Hanson)

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.

Lind Marine Incorporated (Lind)

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	
<i>Suisun Channel</i>	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

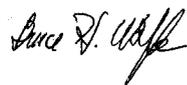
17. Suisun Associates shall maintain a copy of this Order on the vessel so as to be available at all times to all vessel personnel.
18. For the purposes of this Order, disposal of dredged material is defined as any ultimate use or disposition other than the resale of the sand for construction and other 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.g
ov, c=US
Date: 2015.01.28 17:36:24 -08'00'

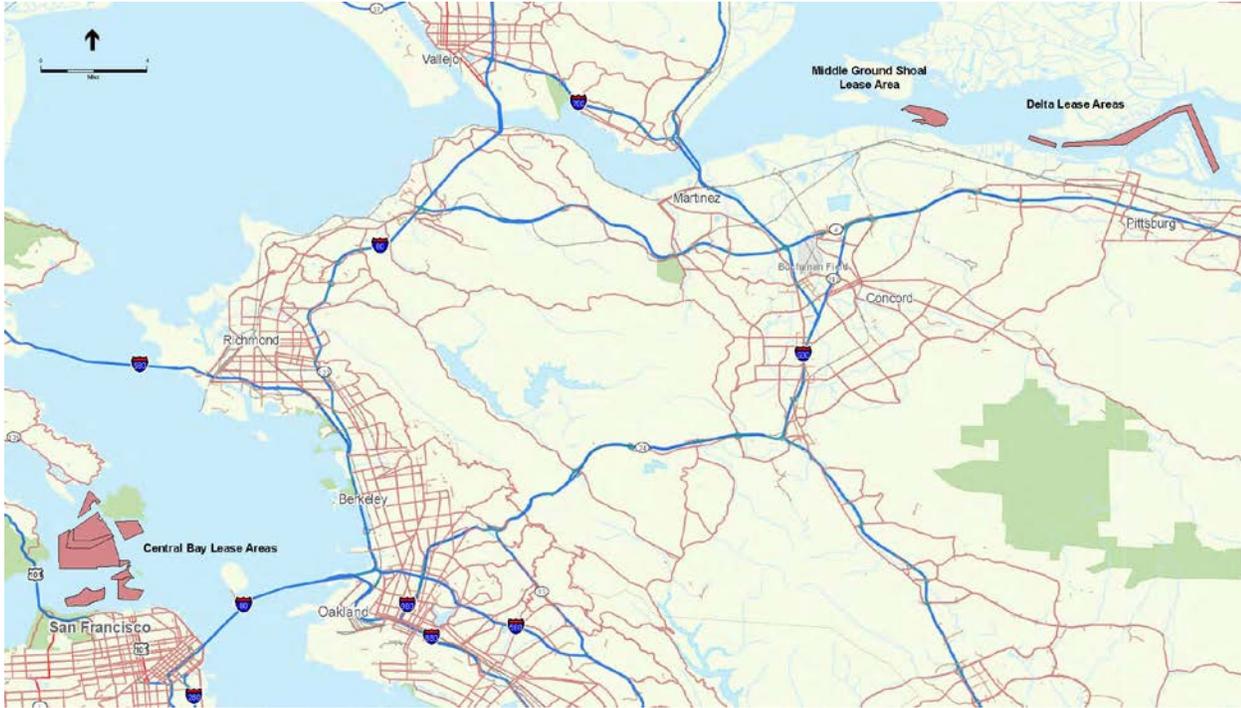
Bruce H. Wolfe
Executive Officer

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

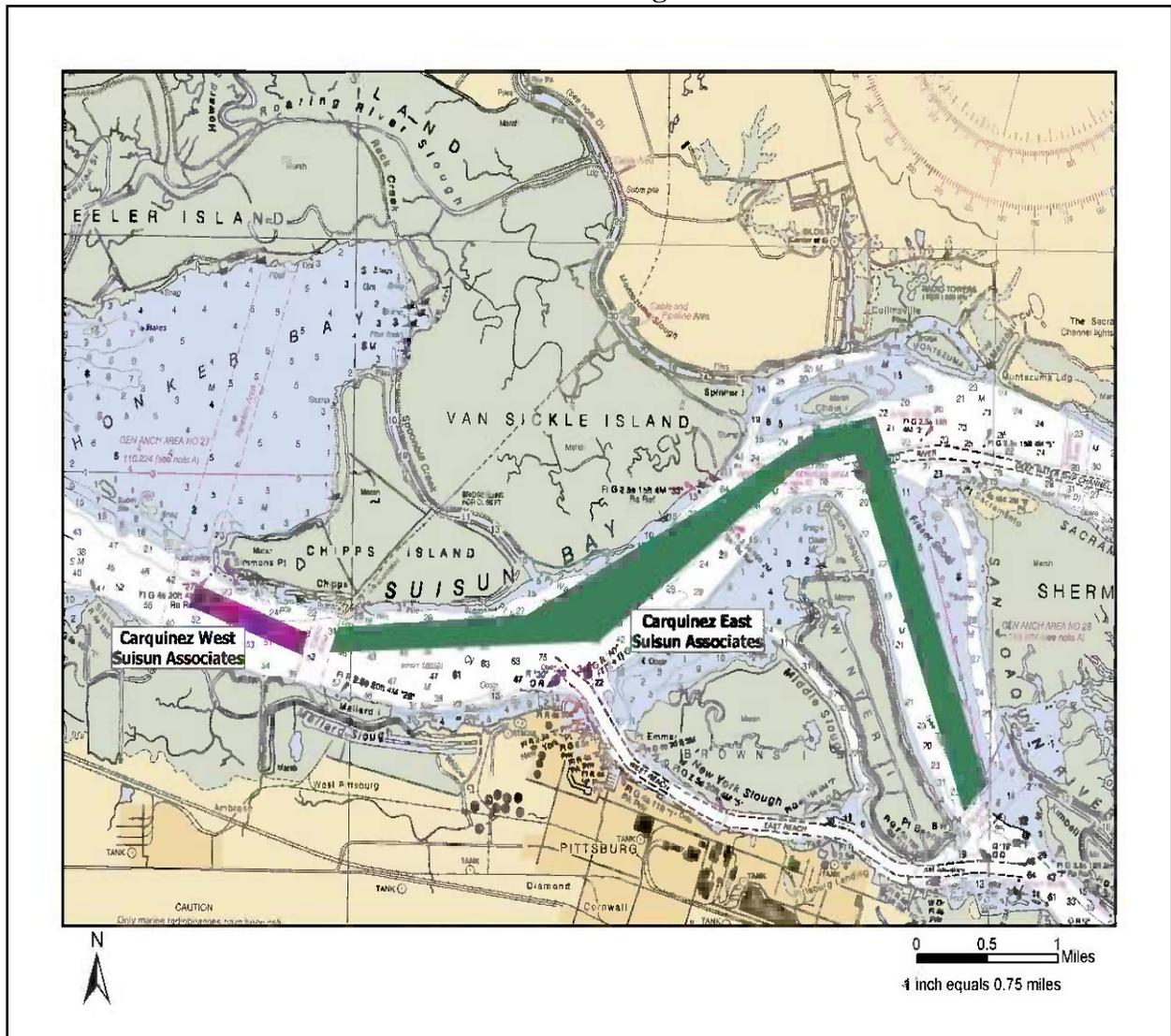
APPENDIX A

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

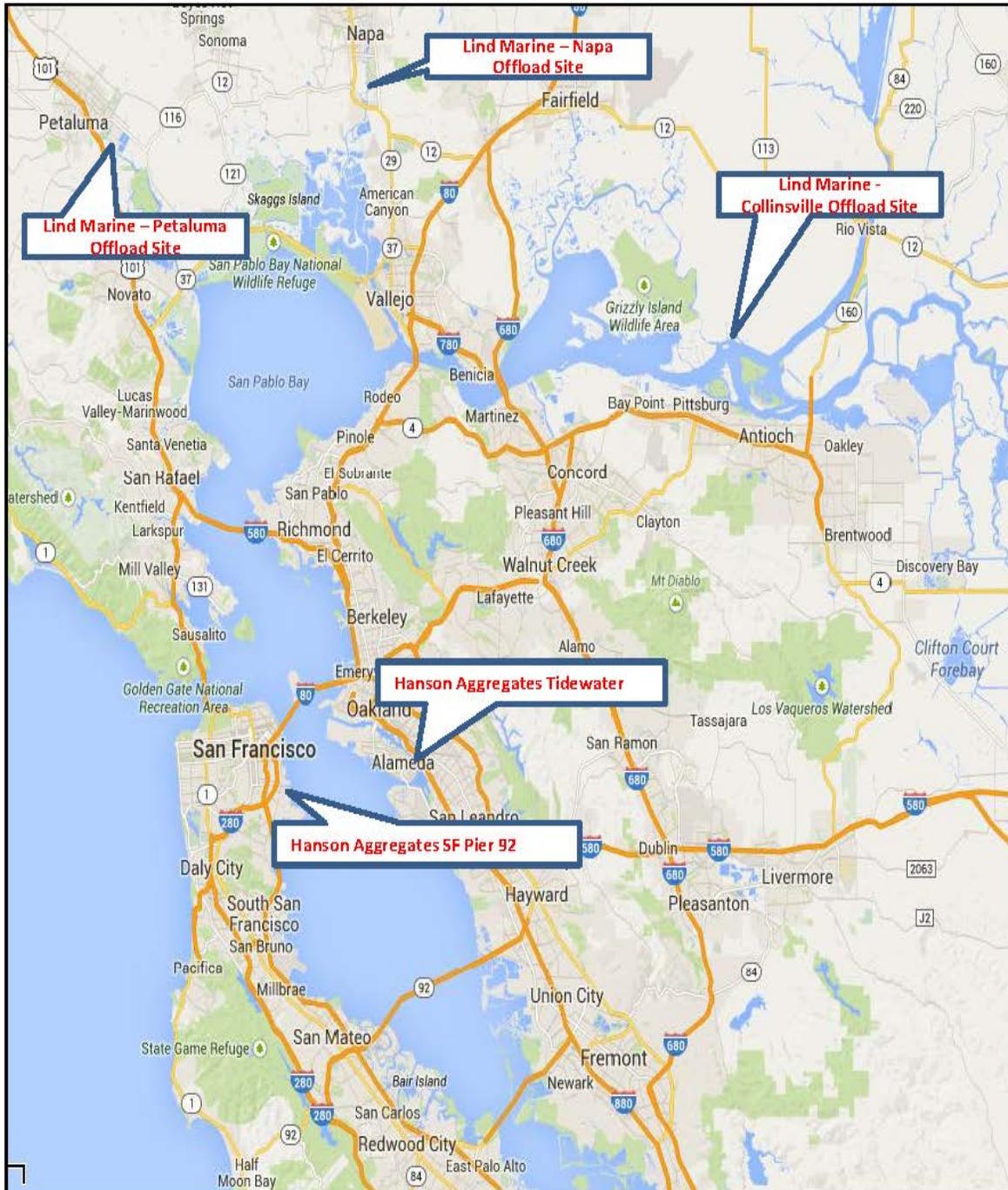
Appendix A-1 Regional Map of General Sand Mining Lease Locations



Appendix A-2 Suisun Channel Sand Mining Lease Locations



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



APPENDIX B

Self-Monitoring and Reporting Program

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

SELF-MONITORING PROGRAM

FOR:

SUISUN ASSOCIATES

I. GENERAL

A. Basis

Reporting responsibilities of waste discharges are specified in sections 13225(a), 13267(b), 13260 *et seq.*, 13268, 13383, 13387(b) of the California Water Code and this Water Board's Resolution No. 73-16.

B. Purpose

The principle purposes of a monitoring program, also referred to as a Self-Monitoring Program, are to 1) document compliance with Waste Discharge Requirements and prohibitions established by the Water Board, 2) to facilitate self-policing by Suisun Associates in the prevention and abatement of pollution arising from waste discharge, 3) to develop or assist in the development of effluent or other limitations, discharge prohibitions, national standards of performance, pretreatment and toxicity standards, and other standards, and 4) to prepare water and waste water quality inventories.

C. Sampling and Analytical Methods

Sample collection, storage and analyses shall be performed according to Title 40 of the Code of Federal Regulations, section 136, or other methods approved by the Executive Officer.

Water and waste-water analyses shall be performed by a laboratory approved by the California Department of Public Health Services or a laboratory approved by the Executive Officer.

All monitoring instruments and equipment shall be properly calibrated and maintained to ensure accuracy of measurements.

Routine sampling shall follow Quality Assurance/Quality Control procedures including the use of field (trip), equipment and laboratory blanks and laboratory surrogate samples.

All Quality Assurance/Quality Control measures and results shall be reported along with the data.

II. REPORTS TO BE FILED WITH THE REGIONAL BOARD

A. Report of Permit Violation

In the event that violations of permit requirements are detected, operations shall cease and Suisun Associates shall immediately notify the Water Board staff by telephone and email (current case manager: Elizabeth Christian, email: EChristian@Waterboards.ca.gov, telephone number: 510-622-2335). Operations shall not resume until Suisun Associates submits, and the Executive Officer approves, a corrective action plan that will provide alternative methods of compliance.

B. Quarterly Self-Monitoring Reports

Written reports shall be submitted to the current Water Board case manager in electronic format (e.g., via email, CD, or via uploading to the Water Board's FTP site) for each quarter (unless specified otherwise) within 30 days after the end of the quarter. The reports shall be comprised of the following information:

1. **Transmittal letter** that discusses any violations found during the reporting period in terms of dates of occurrence, magnitude, cause (if known), corrective actions taken or planned, and the time schedule for completion.
2. **Identification**
 - a. Name and address of dredging company.
 - b. Name and registration number of dredging vessel.
3. **Standard Observations**
 - a. Receiving Water
 - i. Geographical location of vessel during dredging.
 - ii. Location of the dredge, reported as longitude and latitude.
 - iii. Depth of water at time of dredging (can be a range if location moves during the single mining event).
 - iv. Time of day and duration of dredge operation.
 - v. Volume of material offloaded per month.
 - vi. Location where sand was off-loaded.
 - b. Sand Quantity
 - i. Volume of sand in cubic yards dredged per quarter.
 - ii. Approximate amount of available sand remaining at dredged location.
 - c. Graphical portrayal (maps showing track lines) and calculations of the areal extent of mining/benthic disturbance per lease area (number of acres and percent of total lease area mined).
4. **Non-standard Observations**
 - a. Any collisions, near collisions or other navigation problems or conflicts encountered during the year's dredging operations.

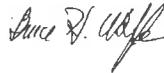
C. Annual Report

By January 30 of each year, Suisun Associates shall submit an annual report to the Water Board covering the activities of the previous year. The report shall contain both tabular and graphical summaries of the monitoring data obtained during the previous year. In addition, the report shall contain a comprehensive discussion of the compliance record and the corrective actions taken place or planned which may be needed to bring Lind into full compliance with this permit.

Monitoring reports and the letter transmitting reports shall be assigned by a principal executive officer or ranking elected official of Suisun Associates, or by a duly authorized representative of that person. The transmittal letter shall contain the following certification: "I certify under penalty of law that this document and all attachments are prepared under my direction or supervision and that the information submitted is, to the best of my knowledge, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

I, Bruce H. Wolfe, Executive Officer, do hereby certify that the foregoing Self-Monitoring Program has been developed in accordance with the procedures set forth in the Water Board's Resolution No. 73-16 in order to obtain data and document compliance with waste discharge requirements established in Water Board Order No. R2-2015-0010, adopted by the Board on January 21, 2015.

This Self-Monitoring Program may be reviewed at any time subsequent to its adoption date upon written notice from the Executive Officer or a request from Suisun Associates, and revisions may be ordered by the Executive Officer or Water Board.



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 17:33:56 -08'00'

Bruce H. Wolfe
Executive Officer