CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

ORDER NO. R2-2021-00XX

WASTE DISCHARGE REQUIREMENTS and WATER QUALITY CERTIFICATION and RESCISSION OF ORDER No. 74-28 for:

LIND TUG AND BARGE, INC.
OYSTER SHELL MINING IN SOUTH SAN FRANCISCO BAY

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

A. Purpose of Order

This Order regulates oyster shell mining operations and the discharge of sediment and water from these operations by Lind Tug and Barge, Inc. (Lind), in Lower San Francisco Bay.

This Order rescinds and updates the previous Waste Discharge Requirements (WDRs) issued in 1974 (Order No. 74-28) with new requirements and provides a water quality certification (Certification) under section 401 of the federal Clean Water Act for the discharge described herein.

B. Project Overview

Lind commercially mines historic oyster shell deposits in Lower San Francisco Bay, just north of the San Mateo–Hayward Bridge. The type of mining methods and the location for the oyster mining operations have remained relatively similar for decades and are proposed to remain the same for future operations. Lind uses a hydraulic suction dredge (shell dredge) to mine the oyster shell deposits, wash the shells, and then place the shells in a barge. The hopper barge transports the washed shells to one of the two shell stockpiling, processing, and storage sites operated by an affiliate of Lind, Lind Marine Incorporated. Once processed, the shells are primarily used as a mineral and nutrient supplement in poultry diets and livestock diets.

C. Regulatory Status

Oyster shell mining is currently regulated under Water Board Order No. 74-28. Lind has applied for a U.S. Army Corps of Engineers (USACE) individual permit (USACE File No. 1999-244030S) pursuant to CWA section 404 (33 USC 1344) and section 10 of the Rivers and Harbors Act of 1899 (33 USC 403). Lind has applied to the Water Board for a

Certification that the dredging program described herein (Project) will comply with applicable provisions of the Clean Water Act.

In addition, Lind has or intends to get the following permits/approvals from other agencies:

- Lease renewal with the California State Lands Commission (State Lands). General Lease–Mineral Extraction, No. PRC 5534.1 was renewed on December 3, 2018, and will expire on December 31, 2028.
- Incidental Take Permit (Take Permit) from the California Department of Fish and Wildlife (CDFW). Incidental Take Permit, No. 2081-2019-052-07 became effective February 11, 2020, and will expire on December 31, 2024.
- Permit for extraction of materials and discharge of sediment and water in the San Francisco Bay from the San Francisco Bay Conservation and Development Commission pursuant to the McAteer-Petris Act.
- Endangered Species Act Section 7(a)(2) Concurrence Letter and Magnuson-Stevens Fishery Conservation and Management Act Essential Fish Habitat Response, dated October 29, 2021, from the National Oceanic and Atmospheric Administration, National Marine Fisheries Service (NOAA Fisheries).

D. Project and Discharge Description

1. Purpose and History

   The purpose of oyster shell mining in San Francisco Bay is to obtain historic oyster shell material to process for high quality calcium primarily used as a mineral and nutritional supplement in poultry and livestock diets.

   Historic oyster shell deposits are primarily located in the upper 30 feet of Bay mud and are overlaid and intermixed with deposits of fine sediment. These deposits have been commercially mined from subtidal areas in Lower San Francisco Bay since 1924. In 1977, Morris Tug & Barge, Inc. (Morris) purchased Pioneer Shell Company Dredging, the permittee under the 1974 WDR. In 2015, Morris and Lind merged under the name Lind Tug and Barge, Inc.

2. Location

   Lind commercially mines historic oyster shell deposits in the State Lands designated lease area PRC 5534.1, located in Lower San Francisco Bay, just north of the San Mateo–Hayward Bridge (Lease Area) (see Appendix A). It is located about 3.5 miles from the San Mateo County shoreline and about 3.25 miles from the Alameda County shoreline. The Lease Area is approximately 1,560 acres in the open water subtidal area of the San Francisco Bay. The Bay bottom in the Lease Area is typically between 8 and 15 feet below Mean Lower Low Water. The lease from the State Land expires December 31, 2028 (PRC 5534).

Oyster shell mining does not occur uniformly within the Lease Area. Mining occurs more frequently in deeper parts of the Lease Area as the shallow areas are difficult to access during some tidal stages with the mining equipment.

3. Equipment

Lind's oyster shell mining equipment consists of a tugboat, a shell dredge, and a hopper barge. The hopper barge typically has a maximum cargo capacity of about 4,400 cy. The tugboat pushes the shell dredge and hopper barge to the Lease Area and as mining occurs. Lind uses the shell dredge to mine the oyster shell deposits, wash the shells, and then place the shells in the hopper barge.

4. Oyster Shell Mining Volume

State Lands limits the annual mining volume in the Lease Area to 80,000 cy per year. Between 2010 and 2019, Lind mined an average of 59,807 cy/year.

5. Oyster Shell Mining Method

The oyster shell mining is conducted using a hydraulic hopper dredge method. This method consists of placing a drag head attached to a suction pipe about 2 to 3 feet below the mud surface, pulling the drag head at about 1 to 2 nautical miles per hour sucking up a slurry at about 6,000 gallons per minute (gpm). This slurry, consisting of oyster shell, silt, and water, is pumped into a large rotating trommel[1] and washed by adding about 3,700 gpm of Bay water through spray bars. This water is supplied by an intake hose that is lowered into the water during the mining activity. The intake is equipped with a pair of stationary positive barrier cylindrical fish screens. As the trommel rotates, silt and water are released back into the Bay through a pipe that extends from the bottom of the shell dredge to about 5 feet below the water surface. The washed oyster shells are sent from the trommel to the adjacent hopper barge using a conveyor belt.

Most of the water in the slurry comes from the interstices between the oyster shell substrate. However, when the oyster shell material is more consolidated, the slurry is formed by adding water to the drag head from a small hose that sits on top of the drag head. This hose has a single stationary positive barrier cylindrical fish screen.

[1] A trommel is a rotating cylindrical sieve or screen used for washing and sorting mining materials.

When the mining event is complete, the suction pipe is cleared by injecting water into the suction pipe from the wash pump system before raising the drag head.

6. Oyster Shell Mining Event Frequency and Duration

   It is anticipated that 20 to 28 mining events will occur each year. Each mining event will take between 6 and 24 hours.

7. Oyster Shell Transport

   The barge transports the shells to one of two shell processing sites. One site is in Petaluma on the Petaluma River and the second site is in Collinsville, along Montezuma Slough, upstream of Suisun Bay (Appendix B). These sites are small and have a limited capacity to stockpile shells. As such, oyster shell mining is conducted in response to short-term demand. This Order authorizes discharges from mining oyster shells but does not authorize discharges from the processing sites.

8. Discharge Description

   The hydraulically mined slurry consists of about 50 percent shell, 45 percent water, and 5 percent silt. The slurry is pumped into a trommel on the shell dredge, and Bay water is added to the trommel through spray bars to remove silt from the shells. The silt and water are then discharged back into San Francisco Bay about 5 feet below the water line. Lind will mine up to 80,000 cy of oyster shells each year and discharge approximately 4,000 cubic yards (cy) of silt and 94 million gallons of water annually.

E. Discharge Impacts

9. Water Quality Impacts

   Oyster shell mining creates a temporary and localized sediment plume. The plume may contain anoxic sediment, creating a temporary increase in turbidity, temporary drop in pH, and a temporary low dissolved oxygen (DO) environment. Exposure to this sediment plume may affect the health of the fish and macroinvertebrates.

10. Entrainment Impacts

    Hydraulic dredging has the potential to incidentally remove fish and other aquatic life from the environment with the mined material, a process referred to as entrainment. In general, smaller organisms, with limited or no swimming capabilities are more susceptible to entrainment. Aquatic life and plants on top of or embedded in the sediment, and those in the water column near the dredging apparatus may be entrained. Entrained fish are likely to suffer mechanical injury or suffocate during dredging, resulting in mortality. Fish species listed as threatened or endangered under the California Endangered Species Act and/or federal Endangered Species Act species that occur within the Lease Area include steelhead (*Oncorhynchus mykiss*), Green sturgeon (*Acipenser medirostris*), and longfin smelt (*Spirinchus thaleichthys*).

The longfin smelt is particularly susceptible to entrainment in the flow fields created around the intakes of hydraulic suction dredges because it is not a strong swimmer. The most sensitive life stages of the longfin smelt are likely present during the late winter and spring.

In addition to hydraulic dredging, Lind's shell dredge pumps San Francisco Bay water to prime and clear the suction pipe, make slurry, and wash the mined shells. Pumping water for these processes can also entrain fish.

11. Oyster Shell Mining Impacts on Benthic Habitat

The Lind oyster shell mining operation results in recurring impacts to the benthic community within the Lease Area. Oyster shell mining disturbs the bottom of San Francisco Bay, removing the benthic community. Results of studies conducted at other locations have shown that recolonization of subtidal areas from dredging activities typically begins immediately after completion of the dredging activity and recovery of the benthic community to pre-disturbance levels occurs within 1 to 3 years. The benthic habitat in the Lease Area and vicinity has been frequently disturbed every year since 1924. As such, the benthic habitat in the Lease Area is highly compromised.

F. Avoidance, Minimization, and Compensatory Mitigation Measures

12. Avoidance Measures

Pursuant to State Water Resource Control Board Resolution Nos. 2019-0015 and 2021-0012 (State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State [Dredge and Fill Procedures]), an alternative analysis is required to demonstrate that the Project is the least environmentally damaging practicable alternative. As such, Lind has evaluated alternatives to dredging oyster shells from San Francisco Bay (Appendix C). The Project was determined to not be water dependent because there are alternatives that could be implemented outside waters of the state.

One such alternative would be for Lind to purchase calcium carbonate from existing mines and transport the calcium carbonate to Lind's processing site. While this alternative avoids impacts to the San Francisco Bay, it was determined to not be practicable because it would be cost prohibitive and have other significant environmental impacts. As described in Appendix D, this alternative would cost between 1.7 million and 2.3 million dollars more per year than the Project. In addition, the greenhouse gas emissions from this alternative would be nearly six times greater than the proposed project. Another alternative would be for Lind to develop a new mine for calcium carbonate in an upland area. This alternative was determined to not be practicable because it would be cost prohibitive and have other significant environmental impacts, such as impacts to local habitat and species, pollutant run off

due to new roads and the new mine, water quality and hydrology impacts, permanent land use alteration, and greenhouse gas emissions from mining and transportation.

13. Minimization Measures

To minimize impacts on aquatic habitat, including special-status species habitat, within the Lease Area, the Project will implement the following measures:

a. Limit shell mining volume to no more than 80,000 cy per year to minimize disturbance of estuarine and special status species habitat.
b. Operate positive barrier fish screens that meet CDFW and NOAA Fisheries specifications to minimize entrainment of aquatic species.
c. Inspect positive barrier fish screens following each mining event to verify screen integrity and remove impinged debris.
d. Prime the pump and clear the suction pipe while the drag head is in contact with the substrate to minimize entrainment of aquatic species.
e. Limit priming and clearing of the drag to no more than 5 minutes.
f. Cease mining for 2 months between February 1 and June 30 each year to minimize impacts to spawning and rearing habitat of special-status fish species.
g. Discharge silt and water to the Bay through a subsurface pipe that is located approximately 5 feet below the water surface to minimize the overflow plume in the water column.
h. Limit mining to depths below photic zone to avoid impacting submerged aquatic vegetation.
i. Limit shell mining discharge of silt and water to the Lease Area to minimize risk to sensitive subtidal habitat located outside the Lease Area.
j. Limit shell mining area to no more than 1,170 acres (75 percent of the Lease Area) each year to minimize disturbance to benthic communities.

Measures a, b, and f are included in 2018 Initial Study/Mitigated Negative Declaration (Mitigated Negative Declaration) for the Project and are required in Lind's State Lands Lease Renewal. Measures a, b, c, d, e, f, and h are required in CDFW's Take Permit. Lastly, measures a, b, d, f, g, and h are required in NOAA Fisheries' Concurrence Letter. Measures i and j are required in this Order to further reduce impacts to water quality and beneficial uses.

14. Compensatory Mitigation Measures

Lastly, to compensate for unavoidable impacts on aquatic habitat, including special status species habitat, Lind will implement the following measures:

a. Purchase 0.2 acres of Covered Species credit at Liberty Island to compensate for unavoidable impacts to special status species habitat. This credit was purchased on October 8, 2019.
b. Provide 3 percent of the oyster shells mined, up to 1,800 cy annually, for shoreline restoration projects in San Francisco, San Mateo or Alameda counties. Permittee will deliver shells to an upland offloading site, such as Port of Redwood City, where it will be picked up and transported to the restoration projects.

Measure a is required in CDFW's Take Permit. Measures a and b are required in NOAA Fisheries' Concurrence Letter.

G. Monitoring and Studies

15. Water Quality Monitoring

The last water quality monitoring study of the silt and water discharge was conducted in 1996. The study appears to show no difference in the water quality between the up current reference station and the down current stations at 50 feet, 100 feet, and 500 feet behind the discharge. However, no recent studies or other detailed field investigations have been conducted to characterize the discharge plume from the new mining equipment. As such, the Mitigated Negative Declaration, State Lands, and NOAA Fisheries require Lind to collaborate with the Water Board and other interested agencies to design, fund, conduct, and report results of a discharge plume water quality monitoring study. This Order includes discharge and receiving water quality monitoring provisions, including evaluation of the discharge plume, consistent with the Mitigated Negative Declaration, State Lands Lease Renewal, and NOAA Fisheries Concurrence Letter.

16. Special Study to Evaluate Potential Mining Impacts on Shoreline Features

Historic oyster shells in San Francisco Bay is a non-renewable resource. As sea levels rise, increasing volumes of clam and oyster shells will be needed to maintain and expand shell hash beaches and their beneficial uses along the Bay's shoreline. Further, maintaining and expanding hash beaches is important for protecting water quality and beneficial uses because hash beaches prevent shoreline erosion by dampening wave energy, which is anticipated to increase along with rising sea levels and greater storm events under future climate change scenarios.

The Mitigated Negative Declaration for Lind's shell mining operation stated that wave and current action migrate loose relic oyster shell deposits shoreward to form hash beaches in San Mateo County. However, it is unknown whether oyster shell mining will reduce the amount of shell available to maintain hash beaches. Although the Water Board does not believe this is a significant concern, there is sufficient uncertainty to warrant further analysis to confirm. This Order, therefore, requires Lind to complete a study comparing the composition and age of sediment and shells at the Outer Bair

Island shell hash beach, a shell hash beach in Foster City, and the shoals adjacent to both beaches to the composition and age of oyster shells mined from the Bay.

Lind has agreed to spend up to $225,00 for this Special Study, which the Water Board finds adequate.

H. Compliance with Applicable Plans, Policies, and Regulations

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

17. California Environmental Quality Act (CEQA)

    CEQA requires public agencies approving discretionary projects to comply with CEQA and requires a lead agency (in this case, State Lands) to prepare an appropriate environmental document for such projects. State Lands prepared and certified the Mitigated Negative Declaration on December 3, 2018, State Clearinghouse No. 2018062075. The Water Board, as a Responsible Agency under CEQA, has reviewed the Mitigated Negative Declaration and finds that the Project's significant environmental effects that are within the Water Board's purview and jurisdiction have been identified and will be mitigated to less-than-significant levels. Specifically, significant impacts pertaining to wetland and aquatic habitat and water quality will be mitigated to less-than-significant levels through implementation of mitigation measures identified in the Mitigated Negative Declaration and the minimization measures and compensatory mitigation identified above, all of which are required to be implemented and reported on by this Order.

18. Water Quality Certification

    The Clean Water Act CWA (33 U.S. Code [USC] 1251-1387) was enacted "to restore and maintain the chemical, physical, and biological integrity of the Nation's waters" (33 USC 1251(a)). CWA section 401 (33 USC 1341) requires every applicant for a federal license or permit that may result in a discharge into navigable waters to provide the licensing or permitting federal agency with certification that the project will be in compliance with specified provisions of the CWA, including water quality standards pursuant to CWA section 303 (33 USC 1313). CWA section 401 directs the agency responsible for certification to prescribe effluent limitations and other limitations necessary to ensure compliance with the CWA and with any other appropriate requirement of state law. CWA section 401 further provides that state certification conditions shall become conditions of any federal license or permit for the project.

19. Water Code sections 13263 and 13267

    These discharges are also regulated under California Water Code (CWC) section 13263. CWC section 13263 requires the Water Board, after considering this matter at a public hearing, to prescribe requirements as to the nature of the proposed discharge

within its area of jurisdiction. These requirements implement the Water Board's relevant water quality control plans and policies and take into consideration the beneficial uses to be protected, the water quality objectives reasonably required for that purpose, other waste discharges, and the need to prevent nuisance

Technical reports required by this Order are required pursuant to CWC section 13267. The reports required by this Order are necessary to evaluate and confirm impacts of the Project to shore-line features and water quality have been first avoided, then minimized, and lastly compensated for in accordance with the Dredge and Fill Procedures and the Basin Plan. Specifically, the water quality monitoring is needed to verify that the discharge plume does not violate water quality objectives for turbidity, pH, and DO. The study to evaluate potential mining impacts on shell hash beaches is needed to provide a better understanding of whether mining activities are impacting water quality and beneficial uses provided by shell hash beaches along the San Mateo shoreline. The burden, including costs, of providing these reports bears a reasonable relationship to the need for the report and the benefits to be obtained, including demonstrating compliance with this Order, the Dredge and Fill Procedures, Basin Plan, State water quality objectives, and protection of beneficial uses.

20. Dredge and Fill Procedures

The Dredge and Fill Procedures includes a wetland definition and procedures for submitting, reviewing, and approving applications for water quality certifications and waste discharge requirements for dredge or fill activities. The Dredge and Fill Procedures only allow authorization of dredge or fill activities after it has been demonstrated that a sequence of actions has been taken to first avoid, then to minimize, and lastly compensate for adverse impacts that cannot be practicably avoided or minimized to waters of the state. As described above, the avoidance, minimization, and compensatory mitigation measures included in this Order comply with the Dredge and Fill Procedures.

21. San Francisco Bay Basin Water Quality Control Plan (Basin Plan)

CWC section 13240 authorizes the Water Board to develop a Water Quality Control Plan for the San Francisco Bay Basin (Basin Plan). The Basin Plan is the Water Board’s master water quality control planning document and 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, U.S. EPA, and the Office of Administrative Law where required. Requirements in this Order implement the Basin Plan.

The existing beneficial uses of Lower San Francisco Bay include: Industrial Service Supply; Commercial and Sport Fishing; Shellfish Harvesting; Estuarine Habitat; Fish

Migration; Preservation of Rare and Endangered Species; Fish Spawning; Wildlife Habitat; Water Contact Recreation; Noncontact Water Recreation; and Navigation.

22. Anti-Degradation Policy

Federal regulations at 40 C.F.R. section 131.12 require that state water quality standards include an antidegradation policy consistent with the federal policy. The State Water Resources Control Board established California's antidegradation policy through Resolution 68-16 ("Statement of Policy with Respect to Maintaining High Quality of Waters in California"). It incorporates the federal antidegradation policy where the federal policy applies under federal law and 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. Permitted discharges must comply with both the federal and state antidegradation policies.

This Order complies with the antidegradation provisions of 40 C.F.R. section 131.12 and State Water Board Resolution 68-16. It does not authorize lowering water quality as compared to the existing baseline for turbidity. Turbidity in the Bay is highly variable, both seasonally with storm events and daily with tidal cycles, but the existing turbidity levels are the highest water quality since antidegradation policies became effective. The Project will not lower turbidity water quality levels in the Bay. Any impacts will be minor, short-term, and localized. To the extent these temporary minor impacts are viewed as lowering water quality, they are consistent with the maximum benefit to the people of the state because alternatives to the discharge will have greater environmental impacts as discussed above. The permitted discharge will not result in water quality less than that prescribed in policies and this Order requires the best practicable treatment or control to assure no pollution or nuisance and the highest water quality consistent with the maximum benefit of the people.

The Project will have no effect on DO in the Bay. The slurry pumped into the trommel during oyster shell mining may be anoxic initially, but the rotating action of the trommel will quickly aerate the water prior to its discharge back into the Bay.

Unlike the previous Order, this Order includes entrainment avoidance, minimization, and compensatory mitigation measures as well as monitoring. It also includes

receiving water limits and a special study. Therefore, it is anticipated that the effects of oyster shell mining, as authorized by this Order, will have even less of an impact than those discussed in the Mitigated Negative Declaration and will not degrade water quality.

23. Public Notice

    The Water Board notified Lind and interested parties 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.

24. 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 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 discharge shall not cause a condition of pollution or nuisance as defined in Water Code sections 13050(l) and (m), respectively.
3. No overflow or discharge is allowed outside of the Lease Area.

B. RECEIVING WATER LIMITATIONS

1. The discharge of silt and water 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. 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.
    c. Bottom deposits or aquatic growths to the extent that such deposits or growths cause nuisance or adversely affect beneficial uses.
    d. 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 (NTUs), or above 55 NTUs in areas where natural turbidity is less than or equal to 50 NTU.

e. The discharge shall not cause waters of the State to exceed the following receiving water limits as measured at 1,000 feet down current from the discharge location:

Pollutants	**Instantaneous[2] Limit**
Turbidity	No more than 10 percent above background level when ambient background turbidity is greater than 50 NTU, and no greater than 55 NTU when ambient background turbidity is less than or equal to 50 NTU.
pH	6.5-8.5. The discharge shall not cause changes greater than 0.5 units.
Dissolved Oxygen	Minimum of 5.0 mg/L

C. PROVISIONS

1. Lind shall implement the following Avoidance, Minimization, and Compensatory Mitigation Measures:
    a. Limit shell mining volume to 80,000 cy per year to minimize disturbance of estuarine and special status species habitat.
    b. Operate positive barrier fish screens to minimize entrainment of aquatic species.
    c. Inspect positive barrier fish screens following each mining event to verify screen integrity and remove impinged debris.
    d. Lower drag head into the substrate, approximately 2 to 3 feet below the mud surface, before the priming the pump and clearing the suction pipe to minimize entrainment of aquatic species.
    e. Limit priming and clearing of the drag to no more than 5 minutes.
    f. Cease mining for 2 months between February 1 and June 30 each year to minimize impacts to spawning and rearing habitat.
    g. Discharge silt and water to the Bay through a subsurface pipe that is located approximately 5 feet below the water surface to minimize the overflow plume in the water column.

[2] Instantaneous is the value of any single grab sample or the value transmitted by a sonde for the parameter.

h. Limit mining to depths below photic zone to avoid impacting submerged aquatic vegetation.
i. Limit shell mining discharge of silt and water to the Lease Area to minimize risk to sensitive subtidal habitat located outside the Lease Area.
j. Limit shell mining area within the Lease Area to 1,170 acres (75 percent of the Lease Area) per year.
k. Provide 3 percent of the oyster shells mined, up to 1,800 cy annually, to shoreline restoration projects in San Francisco, San Mateo or Alameda counties. Permittee will deliver shells to an upland offloading site, such as Port of Redwood City, where it will be picked up and transported to the restoration projects.
l. Purchase 0.2 acres of Covered Species credit at Liberty Island to compensate for unavoidable impacts to special status species habitat. This credit was purchased on October 8, 2019.

2. Observations
    a. The following observations shall be recorded once every 24-hours during mining episodes:
        i. Location of shell dredge where mining begins and where mining ends, recorded as longitude and latitude;
        ii. Date and time when mining begins;
        iii. Date and time when mining ends;
        iv. Date and time when mining begins;
        v. Date and time when mining ends; and
        vi. Depth of water at time of mining (can be a range if location moves during the day).
    b. The following observations shall be recorded for each episode:
        i. Volume of oyster shells mined in cubic yards;
        ii. Processing site where oyster shells were off-loaded;
        iii. Dredging depths (can be a range); and
        iv. Total benthic surface area (in acres) disturbed.

3. Discharge and Receiving Water Monitoring
    a. Definition of Terms
        i. A grab sample is defined as an individual sample collected in a short period of time not exceeding 15 minutes. Grab samples represent only the condition that exists at the time the water is collected.
        ii. An episode starts when the tugboat positions the shell dredge in place to begin priming. An episode ends when the barge begins offloading at the processing facility.

iii. Receiving waters refers to any surface or groundwater that actually receives or potentially could receive discharges of sediment, water, or other waste associated with oyster mining activities authorized by this Order. For discharge episode monitoring, the receiving water is the San Francisco Bay.

b. Discharge

D-1: Discharge samples shall be taken at the collection point shown in Figure 1.

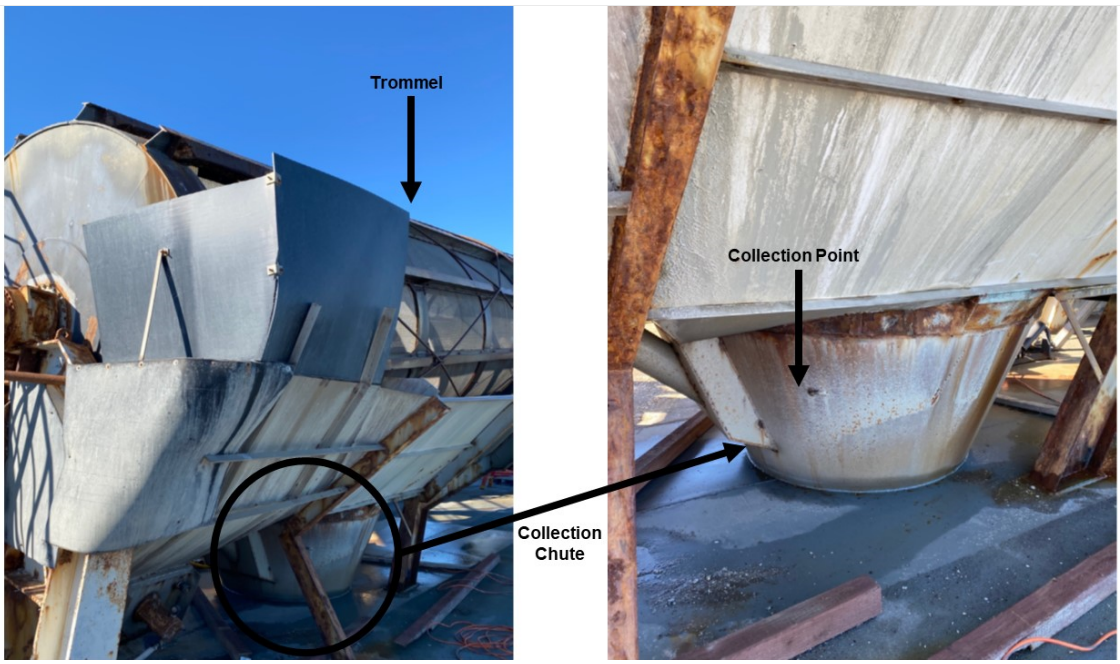

Figure 1: The collection point for D-1 is in the collection chute, which directs the silt and water from the trommel into the discharge pipe below the deck.

c. Receiving Water

i. R-C: Samples shall be taken 1,000 feet up current from the shell dredge discharge.

ii. R-DS100: Samples shall be taken 100 feet down current from the shell dredge discharge.

iii. R-DS500: Samples shall be taken 500 feet down current from the shell dredge discharge.

iv. R-DS1000: Samples shall be taken 1,000 feet down current from the shell dredge discharge.

d. The following observations shall be recorded when samples are collected:

i. Location of samples for R-C, R-DS100, R-DS500, and R-DS1000 recorded as longitude and latitude in decimal degrees;

ii. Date and time when samples were taken at D-1, R-C, R-DS100, R-DS500, and R-DS1000; and

iii. Tide stage when samples were taken at R-C, R-DS100, R-DS500, and R-DS1000.

e. All samples shall be taken from a depth between 3 and 5 feet below the water surface

f. Sampling at D-1 must commence after the discharge commences.

g. Sampling at R-C, R-DS100, R-DS500, and R-DS1000 must commence after the discharge commences. R-C, R-DS100, R-DS500, and R-DS1000 must be taken in this sequence and be completed within 2 hours of commencing.

h. At least three water quality grab samples or meter measurements shall be taken and recorded from each station. The results shall be averaged to assess spatial and temporal variability.

i. Lind shall collect water samples according to the schedule in Table 1 below:

TABLE 1
SCHEDULE OF SAMPLING, MEASUREMENTS, AND ANALYSIS

Parameter	**Station**	**Type of Sample**	**Frequency of Sampling and Analysis**
Flow Rate (gpd and total gallons per episode	D-1	Calculation or flow meter measurement	Daily during discharge
Turbidity (NTU)	D-1	Grab or meter measurement	Once per episode
Turbidity (NTU)	R-C R-DS100 R-DS500 R-DS1000	Grab or meter measurement	Once per quarter
pH	D-1	Grab or meter measurement	Once per episode
pH	R-C R-DS100 R-DS500 R-DS1000	Grab or meter measurement	Once per quarter
Dissolved Oxygen (mg/L)	R-C R-DS-00 R-DS500 R-DS1000	Grab or meter measurement	Once per quarter

4. Annual Reporting

Annual reports must include a transmittal letter and shall be signed by a principal executive officer 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.”

Reports shall be submitted to rb2-dredgereports@waterboards.ca.gov.

Annual Reports shall be submitted by January 31 each year for monitoring of mining activities conducted the previous year. The reports shall be comprised of the following information:

a. Tabular and graphical summaries of the monitoring data by location and date;
b. Total number of episodes performed;
c. Total number of hours mined;
d. Total acreage mined;
e. Percent of total lease area mined;
f. Acreage of areas mined more than once during the year;
g. Graphical portrayal (maps showing track lines) of the area mined more than once during the year, including the longitude and latitude;
h. Graphical portrayal (maps showing episode boundary polygons) of the area mined for each episode that year;
i. Map of the total area mined;
j. Total volume of oyster shells mined per episode;
k. Total volume of sediment and water discharged per episode; and
l. 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.

5. Special Study to Evaluate Dredging Impacts on Shoreline Features

Lind shall prepare and then implement an approved workplan for a study to assess whether oyster shells from the Lease Area are contributing to shells forming beaches in San Mateo County. The Special Study Workplan shall be submitted for Executive Officer approval within 180 days from adoption of this Order. The following components shall be included in the Special Study Workplan:

a. Methods for comparing the composition and approximate age of shells (clam, mussels, oyster, etc.) from the Outer Bair Island shell hash beach, a shell hash

beach in Foster City, and the shoals adjacent to both beaches with the composition and approximate age of the shells mined by Lind.

b. Decision criteria for determining whether the comparison above indicates that a significant portion of shell hash was derived from shell deposits being mined by Lind.

c. A schedule for completing Special Study and submitting the final report for Special Study by December 31, 2024, for Executive Officer approval.

6. Hazardous Material Control and Spill Prevention and Response Plan

Lind shall implement the Hazardous Material Control and Spill Response Plan detailed in its report entitled “Project Description for Oyster Shell Mining within South San Francisco Bay State Lands Commission Lease PRC 5534.1” and dated August 2020 to prevent and respond to accidental releases of hydraulic fluids, solvents, oils, and other hazardous materials.

7. Contingency and Corrective Action Reporting

A report to the Water Board case manager shall be made by telephone and email of any accidental discharge or adverse condition immediately after it is discovered. An adverse condition includes, but is not limited to, a violation or threatened violation of the Provisions of this Order, a spill of petroleum products or toxic chemicals that meets or exceeds applicable reportable quantities for hazardous materials, or other events that could affect compliance. Dredging operations shall cease immediately whenever accidental discharges or adverse conditions are detected and operations shall not resume until alternative methods of compliance are provided. A written report shall be filed with the Water Board within fifteen days thereafter. This report shall contain the following information:

a. A qualitative description of the discharge(s) and the circumstances leading to the discharge(s), including date and time of discharge(s), weather conditions and tide stage (flood, ebb, or slack):

b. A map showing the location(s) of discharge(s);

c. Approximate flow rate and estimated volume of the discharge(s);

d. Laboratory results if, based on the initial notification and nature of the accidental discharge, the Water Board case manager requests sampling and analysis for particular pollutants potentially discharged; and

e. Corrective measures underway or proposed.

Standard Provisions

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

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

Certification

10. The Water Board hereby certifies that any discharge from the 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 Order 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 of state law.
11. This Order applies to the Project as proposed in the application materials and conditioned and approved in this Order. Failure to implement the Project as proposed, conditioned, and approved is a violation of this Order. Violation or threatened violation of the conditions of this Order is subject to remedies, including, but not limited to, penalties or injunctive relief as provided under applicable State or federal law.
12. This Order action is subject to modification or revocation upon administrative or judicial review, including review and amendment pursuant to CWC section 13330 and 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.
13. This Order 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.

14. Water Board Order No. 74-28 is hereby rescinded.

15. This Order expires on December 31, 2028, which coincides with the expiration of the State Lands mineral extraction lease.

I, Thomas E. Mumley, Interim 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 [Date].

_____

Thomas E. Mumley
Interim Executive Officer

Attachments:

Attachment A: Map – Lease Location

Attachment B: Map – Upland Processing Facilities

Attachment C: Alternatives Analysis

Attachment D: Summary of Letter Providing Supplemental Information to Alternatives Analysis