

SAN FRANCISCO BAY RESTORATION AUTHORITY

Staff Recommendation

October 2, 2020

INVASIVE SPARTINA REMOVAL AND TIDAL MARSH RESTORATION PROJECT

Project No. RA-020

Project Manager: Marilyn Latta

RECOMMENDED ACTION: Authorization to disburse up to four million dollars (\$4,000,000) to the California Invasive Plant Council for the continued eradication of invasive cordgrass (invasive Spartina) and enhancement of critically important tidal marsh and mudflat habitat throughout the entire nine county San Francisco Estuary; and adoption of findings pursuant to the California Environmental Quality Act. The project includes invasive Spartina monitoring and treatment, native Spartina revegetation, California Ridgway's rail monitoring, and community outreach and job training in partnership with the regional San Francisco Estuary Invasive Spartina Project led by the State Coastal Conservancy and US Fish and Wildlife Service.

LOCATION: Counties of Marin, Sonoma, Napa, Solano, Alameda, Contra Costa, San Mateo, Santa Clara, and San Francisco.

MEASURE AA PROGRAM CATEGORY: Vital Fish, Bird and Wildlife Habitat Program.

EXHIBITS

Exhibit 1: [Project Area Map](#)

Exhibit 2: [San Francisco Bay Invasive Spartina Net Acres 2004-2019](#)

Exhibit 3: [Treatment and Habitat Enhancement Photos](#)

Exhibit 4: [San Francisco Estuary Invasive Spartina Project: Spartina Control Program Volume 1: 2003 Final Environmental Impact Statement/Environmental Impact Report, and Volume 2: Appendices](#)

Exhibit 5: [San Francisco Estuary Invasive Spartina Project: Spartina Control Program EIR/S 2005 Addendum](#)

Exhibit 6: [Project Letters](#)

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RESOLUTION AND FINDINGS:

Staff recommends that the San Francisco Bay Restoration Authority adopt the following resolution pursuant to The San Francisco Bay Restoration Authority Act, Gov. Code Sections 66700-66706:

“The San Francisco Bay Restoration Authority hereby authorizes the disbursement of an amount not to exceed four million dollars (\$4,000,000) to the California Invasive Plant Council for the continued eradication of invasive cordgrass (invasive Spartina) and enhancement of critically important tidal marsh and mudflat habitat throughout the entire nine county San Francisco Estuary. The project includes invasive Spartina monitoring and treatment, native marsh plant revegetation, California Ridgway’s rail monitoring, and community outreach and job training in partnership with the San Francisco Estuary Invasive Spartina Project led by the State Coastal Conservancy and US Fish and Wildlife Service Don Edwards San Francisco Bay National Wildlife Refuge Complex.

Prior to commencement of the project, the grantee shall submit for the review and written approval of the Executive Officer of the Authority the following:

1. A detailed work program, schedule, and budget.
2. Names and qualifications of any contractors to be employed in carrying out the project.
3. A plan for acknowledgement of Authority funding.
4. Evidence that all permits and approvals required to implement the project have been obtained.
5. Evidence that the grantee has entered into agreements sufficient to enable the grantee to implement, operate, and maintain the project. ”

Staff further recommends that the Authority adopt the following findings:

“Based on the accompanying staff report and attached exhibits, the San Francisco Bay Restoration Authority hereby finds that:

1. The proposed authorization is consistent with The San Francisco Bay Restoration Authority Act, Gov. Code Sections 66700-66706.
2. The proposed authorization is consistent with The San Francisco Bay Clean Water, Pollution Prevention and Habitat Restoration Measure (Measure AA).
3. The grantee is not required to enter into a project labor agreement per Resolution 22 due to the fact that there are no unions representing aquatic herbicide application.
4. The San Francisco Bay Restoration Authority has independently reviewed and considered the “ San Francisco Estuary Invasive Spartina Project: Spartina Control Program Volume 1: 2003 Final Environmental Impact Statement/Environmental Impact Report” and “Volume 2: Appendices” (EIR) certified by the State Coastal Conservancy on September 25, 2003 and the Addendum to the EIR adopted on June 16, 2005, attached to the accompanying staff recommendation as Exhibits 4 and 5, and comments received. The EIR and Addendum identified potential significant effects in the areas of Hydrology and

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Geomorphology, Water Quality, Biological Resources, Air Quality, Noise, Human Health and Safety, and Visual Resources. With regards to the potentially significant impacts on Hydrology and Geomorphology, Water Quality, Air Quality, Noise, and Human Health and Safety, the Authority finds that the mitigation measures identified in the EIR and Addendum avoid, reduce or mitigate any possible significant environmental effect of the project. Effects on Biological Resources (short term effects on the salt marsh harvest mouse, tidal shrew, California Ridgway's (previously known as clapper) rail and California black rail) and short-term impacts to Visual Resources remain significant even after incorporation of mitigation measures.

5. Statement of Overriding Considerations for the Invasive Spartina Removal and Tidal Marsh Restoration project. The implementation and operating conditions of the ISP, and therefore this project, will result in "significant and unavoidable" short-term effects on the salt marsh harvest mouse, tidal shrew, California Ridgway's (previously known as clapper) rail and California black rail and short-term impacts to Visual Resources. Specific benefits of the project are described in the accompanying staff recommendation and are also detailed in the EIR. The Authority finds that the long-term environmental benefit of restoring and protecting native habitat for endangered species and other wildlife that would be threatened with the spread of invasive Spartina outweighs the short-term adverse impacts associated with the ISP and this project. These project benefits are: 1) over the long term it is anticipated that the removal of invasive Spartina and planting of native vegetation will promote native vegetation to return to where it had previously been displaced, thus creating additional species habitat; 2) other restoration projects may move forward and add further native habitat without risk of infestation of invasive Spartina; 3) more severe long term impacts of invasive Spartina on tidal marsh species will be avoided."

PROJECT SUMMARY:

Staff recommends that the Authority disburse up to four million dollars (\$4,000,000) to the California Invasive Plant Council (Cal-IPC) for the continued eradication of invasive cordgrass (invasive Spartina) and enhancement of critically important tidal marsh and mudflat habitat throughout the entire nine county San Francisco Estuary (Exhibit 1) (project). The project includes invasive Spartina monitoring and treatment, native marsh plant revegetation, California Ridgway's rail (rail) monitoring, and community outreach and job training in partnership with the long-term Invasive Spartina Project (ISP) led by the State Coastal Conservancy (SCC) and the United States Fish and Wildlife Service (USFWS) as the state and federal leads.

Pacific cordgrass (native Spartina) is an important native species in the Estuary's tidal marshes and mudflats as the primary plant that naturally occurs at the low intertidal zone between bay waters and tidal marsh edge. Pacific cordgrass contributes to the base of the food chain in the bay and provides critical habitat where a variety of species hide from predators, forage, and nest. Atlantic cordgrass (invasive Spartina), native to the East Coast, was introduced by the Army Corps of Engineers in the early 1970's and subsequently hybridized with the native Spartina. Invasive Spartina invades both tidal mudflats and marshes and scientists have documented changes in the physical structure and plant communities in these habitats, and the resulting degradation of biodiversity and habitat values for native species.

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The ISP is a successful regionwide collaborative effort to eradicate invasive *Spartina* that was started in 2000 by the SCC and USFWS. The ISP engages a network of more than 150 partners, including Cal-IPC, local, state, and federal resource agencies, non-profit organizations, local small business contractors, universities, environmental consultants, and landowners to implement the project. This coordinated regional project is critical to the protection of native tidal marsh restoration throughout the Estuary, due to concerns of rapid and aggressive spread of the invasive species and alteration of native tidal marsh and mudflat habitats. The ISP has also been successful in securing local, state, and federal funding for continuous treatment and, as of 2019, the project has reduced the net acreage of invasive *Spartina* by 95%, from the high of 805 net acres in 2005 down to 38 net acres in 2019 (Exhibit 2). Net acreage refers to the size of the infestation if the space between stems were subtracted from the overall footprint of the plant or clump of plants, and is the metric typically used in botanical surveys.

The ISP also includes a revegetation program to propagate and outplant native marsh plants such as Pacific cordgrass (*Spartina foliosa*) and marsh gumplant (*Grindelia stricta*). Both of these native marsh species will provide needed habitat for wildlife in the near-term and will serve as seed sources for further spread throughout nearby marshes. Both species provide nesting substrate for rails, and gumplant in particular is at a higher tidal elevation and provides the vertical structure necessary for high tide refuge. The ISP has planted 475,000 native marsh plants at 40 sites since 2011 (Exhibit 3). Although invasive *Spartina* cover has been reduced to 38 net acres, the remaining plants are not concentrated in a single location. Rather, the invasive *Spartina* is known to persist in specific locations within the entire 70,000 acres of tidal wetlands, and these locations still need to be monitored and treated to ensure future completion of eradication of invasive *Spartina*. Regional eradication is the goal of ISP because any untreated invasive *Spartina* left in the Estuary would quickly repopulate treated areas.

Eradication of invasive *Spartina* is essential to protecting the substantial investments of the restoration projects funded by the Authority and other agencies to date. This project will support the ISP over the next two years to advance the eradication of invasive *Spartina* and to implement the restoration enhancements which will help to fulfill recommendations included in multiple regional plans listed under the “Consistency with Measure AA Prioritization Criteria” below. The project activities will restore the natural ecological functions of tidal marsh habitat and improve habitat values for fish and wildlife. Furthermore, the project is ready to be implemented immediately. The project has an established invasive *Spartina* monitoring and treatment protocol from the ISP for the project areas, as well as revegetation implementation and monitoring plans, and rail monitoring protocols that have successfully been implemented from 2005 to present. The project is a baylands restoration project that has all applicable permits that are necessary to complete the scope of work. The project will renew any relevant permits over the grant timeframe as needed.

The project is intended to be implemented from November 1, 2020 – January 31, 2023. The project consists of the following components:

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1. Project Management: Cal-IPC, along with SCC will oversee planning and management of the project, coordinate partners and oversee work by subcontractors including lead subcontractor Olofson Environmental, Inc. (OEI).
2. Invasive Spartina Monitoring and Treatment:
 - a. Invasive Spartina will be located and mapped from May - November 2021 and May - November 2022 to inform treatment operations for the following season.
 - b. Herbicide will be applied directly on occurrences of invasive Spartina from May - November 2021 and May - November 2022 by OEI and additional licensed professionals subcontracted by Cal-IPC and according to established and permitted protocols.
3. Habitat Enhancement: A local native plant nursery will be subcontracted to grow approximately 36,000 native marsh plants, and environmental contractors will outplant these seedlings at selected tidal marsh locations in two winter seasons, November 2020 – April 2021 and November 2021 – April 2022.
4. Rail Monitoring: OEI and Point Blue Conservation Science (Point Blue) will conduct annual call count surveys for rail at key marsh locations. Point Blue will analyze survey data from 2012-2020 to develop an update to the previous 2012 range-wide population estimate for rail.
5. Community Outreach and Job Training: Cal-IPC will engage members of diverse community groups in eight presentations followed by discussions regarding Estuary stewardship; attend meetings and present to all seven county-based Weed Management Areas in the Bay Area; send email updates on the project to 200 organizations and contacts in the region; and hold 16 professional trainings for Conservation Corps members (primarily disadvantaged young adults) and local conservation volunteer groups. Lastly, Cal-IPC will work with SCC, USFWS, and OEI to create a simplified, updated project website that hosts all project data and documents to provide modern accessibility to project information.

Cal-IPC is qualified and appropriate for this particular project because it is an eligible private non-profit organization, the organization is experienced in work to reduce invasive plants in California, and it is one of the lead organizations in coordinating and implementing the ISP. CAL-IPC is a leader in advancing state policy and coordination on invasive plant issues. Cal-IPC's leadership in this regard is exemplified by their coordination of information sharing opportunities, such as a quarterly statewide management calls with multiple agencies and an annual statewide conference that brings together hundreds of practitioners and agency staff engaged in invasive plant prevention and control.

Site Description: The project area encompasses 70,000 acres of intertidal wetland and mudflat habitat of the Estuary and includes work on public and private lands in the nine Bay Area counties (Marin, Sonoma, Napa, Solano, Contra Costa, Alameda, Santa Clara, San Mateo, and San Francisco). Please see Exhibit 1 for the Project Area Map. The project area is divided into 219 sub-areas within 11 regions, to allow for best access and logistical planning. The project area overlaps with the San Francisco Bay Trail and Water Trail in numerous locations around the bay, as well as with local, state, and federal wetlands reserves, refuges, and protected habitat sites. Native marshes not only provide habitat and climate adaptation benefits, but also important

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opportunities for boating, hunting, birdwatching, photography, and other recreation. The project protects this habitat for people who access these trails or recreate in marsh waters.

PROJECT FINANCING

San Francisco Bay Restoration Authority	\$4,000,000
USFWS (Pending)	\$1,000,000
SCC	\$974,490
Project Total	\$5,974,490

SCC has contributed \$974,490 of Proposition 68 funds to support project activities. Project partners have submitted a grant application to the USFWS’s National Coastal Wetlands Grant Program which, if successful, would provide sufficient funds to cover the total project cost of \$5,974,490. Cal-IPC and SCC continue to fundraise and will apply to other funding sources if the USFWS grant is not funded.

CONSISTENCY WITH AUTHORITY’S ENABLING LEGISLATION, THE SAN FRANCISCO BAY RESTORATION AUTHORITY ACT:

Consistent with Section 66704.5(a), Cal-IPC is a private non-profit entity. Consistent with 66704.5(b) the project will “restore, protect, or enhance tidal wetlands, managed ponds, or natural habitats on the shoreline in the San Francisco Bay area.” The project will advance eradication of invasive Spartina in the Estuary which will allow the 70,000 acres of native habitat to recover from the infestation and be protected from future infestation. In addition, 36,000 native plants will be planted to expedite the recovery of native tidal marsh. Consistent with Section 66704(e) this award will be used to support monitoring, operation, and maintenance.

CONSISTENCY WITH MEASURE AA PROGRAMS AND ACTIVITIES:

This authorization is consistent with Measure AA’s Vital Fish, Bird and Wildlife Habitat Program since it will restore wetland habitat to benefit wildlife such as the salt marsh harvest mouse, rail, and native marsh plants.

CONSISTENCY WITH MEASURE AA PRIORITIZATION CRITERIA:

1. **Greatest positive impact:** This project has a beneficial regional impact on 70,000 acres of baylands and will protect and enhance native tidal marshes and mudflats that support native fish, birds, tidal marsh plants, and other wildlife. A portion of this area includes tidal mudflats, and the eradication of invasive Spartina is critical to maintaining unvegetated mudflats that provide food and habitat resources for shorebirds that use San Francisco Bay as a critical migration stop to rest and feed while migrating thousands of miles on the Pacific Flyway. The outreach and engagement with diverse communities, stakeholder network, and job trainings with Conservation Corps and volunteer conservation groups will help make more Bay Area residents aware of the importance of healthy tidal habitats and the invasive weed control methods to protect them. By removing invasive Spartina and revegetating native tidal marsh habitats, this project protects the long-term ecosystem integrity and

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physical structure of the Estuary, including habitat for the endangered rail and salt marsh harvest mouse.

2. **Greatest long-term impact:** The project will protect the health of the Estuary's marsh habitats for the long term because removing invasive Spartina makes these areas feasible for successful restoration rather than becoming a breeding or hybridization ground for the invasive plant. In the absence of management, invasive Spartina would infest virtually all of the Estuary's tidal marsh and mudflat habitat, decreasing the diversity of flora and fauna and habitat structure, and risking the investment in tidal marsh restoration to date.
3. **Leveraging resources and partnerships:** An Authority grant for this project would leverage secured funding from SCC and a pending USFWS application, if funded. The project includes more than 150 landowners and partners, and their work on invasive Spartina monitoring and removal and native revegetation helps to protect and leverage all of the tidal wetland Authority projects that are funded [Exhibit 6, Project Letters].
4. **Economically disadvantaged communities:** The tidal marsh habitats are a resource for all communities in the Bay Area. Some project sites occur adjacent to socioeconomically disadvantaged communities based on the block group and census tract data presented on the interactive map available on the SFBRA website. This provides an excellent opportunity for public engagement for the project in areas such as Cooley Landing in East Palo Alto, Emeryville Crescent adjacent to West Oakland, Candlestick Point State Recreation Area and Heron's Head Park in the Bayview Hunters Point neighborhood, and the San Rafael Canal area in Marin County. The Conservation Corps trainings included as part of this project provide technical training for green jobs and workforce development for young adults from these disadvantaged communities.
5. **Benefits to economy:** Protecting the Estuary's tidal marsh habitat and the wildlife it supports also protects a tourism economy that prizes the area for its natural attractions. The project will restore and enhance many sites that allow public access to tidal areas. Habitat enhancements increase opportunities for wildlife viewing and bird watching for walkers and kayakers. The project also increases opportunities for hunters on open water within sites including Eden Landing Ecological Reserve, Ravenswood Open Space Preserve, and Don Edwards National Wildlife Refuge. Invasive Spartina treatment enhances access for small boaters and reduces annual dredging expenditures to protect communities from flooding by preventing invasive cordgrass from establishing in navigable slough flood control channels. Work on the Project itself provides employment for Bay Area residents, and the trainings included as part of the Project aim to increase employment in conservation fields from disadvantaged communities.
6. **Engage youth and young adults:** This project will provide 16 trainings on invasive plant management for Conservation Corps members through CiviCorps in Oakland, the San Francisco Corps, the San Jose Corps and the North Bay Corps. Corps members are young adults, typically from disadvantaged backgrounds. Trainings will be designed to build ecological literacy, provide job skills needed for invasive plant management and other resource protection work, connect youth with staff from local park districts, and provide career pathways through internships.

7. **Monitoring, maintenance, and stewardship:** The project will use ISP's detailed monitoring protocols to track the distribution of invasive *Spartina*, the effectiveness of treatment and revegetation, and to track the populations of rail using call-count data. This monitoring serves to inform ongoing project implementation and also provides valuable data that is used in a wide variety of applications by other entities working on wetland restoration and rail protection in San Francisco Bay. The long-term success depends on the implementation of annual monitoring and treatment over the 70,000-acre project area until there are three years of confirmed zero detections at the sites. Habitat enhancement will also include ongoing monitoring and stewardship of revegetated sites to help native plants establish, and the creation of rail habitat where possible.
8. **Coastal Conservancy's San Francisco Bay Area Conservancy Program:** The project is fully consistent with the project selection criteria for SCC and has been led by the SCC and USFWS since 2000. The project is multijurisdictional and serves the regional Bay Area constituency. Because the project is underway with previous funding from multiple agencies, it can be implemented right away with Authority funding. Steady work on an annual basis is essential to secure the gains made to date, thus the project provides an opportunity for benefits that could be lost if the project is not quickly implemented. The Project includes matching contributions of funding and assistance from other sources (SCC and pending grant application to USFWS). Funding for the ISP has come from many sources over the years—local, state, federal, and private funds—and extensive partners around the region substantially assist in making the effort a success.

The project is also consistent with numerous state and regional plans:

- a. **California Water Action Plan (2016 update):** The project directly implements California Water Action Plan Action 4 – Protect and Restore Important Ecosystems – by reversing coastal wetland habitat degradation with treatment, enhancing substantial tidal marsh habitat by planting natives and also creating high tide refuge for key marsh species as part of the habitat enhancement tasks.
- b. **CA Wildlife Action Plan (2015 update):** This project will contribute to the Bay-Delta and Central Coast regional goals of achieving by 2025 a 5% increase from 2015 levels in acres with desired structural diversity and enhancing acres of habitat that provide high-tide refugia with treatment and habitat enhancement activities.
- c. **California Aquatic Invasive Species Management Plan (2008):** The ISP is presented as an eradication case study in the plan, which focuses on non-native plants, algae, crabs, clams, fish and other species that invade California's natural waterways. The plan aims to prevent the economic and environmental impacts caused by the spread of these invasive species. The proposed project supports the eight objectives of the plan directly through regional eradication of invasive *Spartina* through monitoring and treatment, replanting of native tidal marsh plants, and protection of local endangered species and threatened tidal marsh habitat.
- d. **Baylands Ecosystem Habitat Goals Report (1999):** The original goals report presents goals and recommendations to restore vital habitat in the Bay area and prioritize support for the ISP. The project will support many of these goals, in particular its emphasis on controlling invasive species and restoring tidal marsh along the Bay edge by enhancing tidal mudflat and marsh physical habitat and functions

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- through treatment and habitat enhancement. This will provide for foraging, roosting, nesting, and refugia for resident and migratory species.
- e. **SF Bay Subtidal Habitat Goals Report (2010):** The goals report presents goals and recommendations for regional management of the subtidal and intertidal habitats in the Bay. The report specifically calls for the eradication of invasive *Spartina* to avoid inevitable monoculture and major loss of habitat function. The project directly implements Cross-Habitat Invasive Species Control Objective 1, Action 1-1 to continue to fund and implement the ISP in order to enhance food resources and habitat benefits for aquatic species in the bay.
 - f. **USFWS Recovery Plan for Tidal Marsh Ecosystems of Northern and Central CA (2013):** The plan addresses the federally endangered California Ridgway's rail and salt marsh harvest mouse, as well as several plant species present in the Estuary. The proposed project supports objectives through treatment of invasive *Spartina* and habitat enhancements such as replanting natives and high tide refugia that will benefit these endangered species as sea level rises.
 - g. **Baylands Goals Science Update (2015):** The update documents the progress made toward achieving the 1999 Baylands Goals and outlines strategies for continuing restoration progress in the face of climate change and sea-level rise. The Project is consistent with the Update's recommendations to treat invasive *Spartina* and increase resilience to sea level rise by restoring tidal marsh along the Bay edge and enhancing tidal marsh and mudflat physical habitat and functions.
 - h. **State Coastal Conservancy's 2018-2022 Strategic Plan:** The project is consistent with Objectives 12A, 12B, and 12D which call for the protection of tidal wetlands and subtidal habitat, protection of wildlife, and the enhancement of tidal wetlands and subtidal habitat. This project protects tidal wetlands, subtidal habitat and wildlife through the eradication of invasive *Spartina*, as well as enhances these habitats through planting of native vegetation.
9. **San Francisco Bay Conservation and Development Commission's Coastal Management Program.** The Project is consistent with the San Francisco Bay Conservation and Development Commission's "San Francisco Bay Plan":
- a. Fish, Other Aquatic Organisms and Wildlife Policies 1 and 2 by removing invasive *Spartina* which protects tidal marsh and mudflats and native marsh plant revegetation.
 - b. Tidal Marshes and Tidal Flats Policies 1 and 6 by protecting and restoring native tidal marsh and flat and by having a biological monitoring program in place for native vegetation and rail.
10. **San Francisco Bay Joint Venture's (SFBJV) Implementation Strategy.** This project's goals are consistent with the SFBJV's work to protect, restore, increase and enhance wetlands and mudflats throughout the SF Bay region to benefit birds, fish and other wildlife. The project is located entirely within SFBJV's boundary and invasive *Spartina* eradication is on SFBJV's list of adopted projects.

COMPLIANCE WITH CEQA:

The 2003 “San Francisco Estuary Invasive Spartina Project: Spartina Control Program Volume 1: 2003 Final Environmental Impact Statement/Environmental Impact Report” and “Volume 2: Appendices” (EIR) was prepared for the ISP pursuant to the California Environmental Quality Act (CEQA) by lead agencies SCC and USFWS (Exhibit 4). The EIR is a programmatic environmental impact report (Section 15168 of the CEQA Guidelines, 14 Cal. Code of Regulations, Sections 15000 et seq., hereafter “Guidelines”) in that it analyzes the potential environmental effects of implementing the ISP on a regional scale, rather than the effects of any one or more individual treatment sites. The program-level EIR identifies mitigation measures that will be applied to reduce or eliminate impacts at various treatment locations, under varying site characteristics and conditions, and using varying methods of treatment. The EIR identified and addressed potentially significant effects of the ISP programmatic activities with respect to the following: Geomorphology and Hydrology, Water Quality, Biological Resources, Noise, Human Health and Safety, Visual Resources, Land Use, Cultural Resources, Land Use, Socioeconomic, Environmental Justice, and Cumulative Impacts. Where potential impact was found, the ISP has integrated the relevant mitigation measures from the Mitigation Monitoring and Reporting Program (MMRP) found in the “Volume 2: Appendices” of the EIR into ISP monitoring and treatment protocols. The ISP has followed those protocols, as well as implemented best management practices and habitat enhancement for the rail. The following categories were found to have significant impact:

1. Hydrology and Geomorphology

- a. **Erosion or deposition of sediments caused by removal of invasive Spartina.** This is mitigated by using temporary erosion controls in areas where erosion rates may be significantly greater than background levels or threatening stability to any existing infrastructure.
- b. **Erosion or topographic change by vehicles used in eradication.** This is mitigated by using mats to distribute the weight of a vehicle parked on marsh surfaces, and accessing locations by boat instead of overland vehicles in sensitive sites.
- c. **Remobilization of sand at sensitive locations.** This is mitigated by sand nourishments, and the repair or replacement of existing erosion control structure as needed.
- d. **Sediment disposal of sediments dredged at treatment sites, which may contain seeds of invasive Spartina that can be dispersed and grow elsewhere in the Estuary.** This is mitigated by disposing of sediments in upland disposal site or at depths in sites proposed for tidal marsh restoration (as prioritized in the Long Term Management Strategy for Bay dredged material).

2. Water Quality

- a. **Degradation due to herbicide application, herbicide spills or fuel spills.** Herbicide is applied under NPDES Permit from the State. Any harmful effects of

herbicide application is mitigated by applying directly to invasive Spartina at low tide, in accordance with application guidelines and the manufacturer label, and applied by or under the direct supervision of a trained, certified or licensed applicator. Fuel spills are mitigated by maintaining fuel and storage offsite. In addition, a spill prevention plan is to be developed as a mitigation measure.

- b. **Contaminant remobilization caused by ISP treatment activities.** This is mitigated by researching and sampling, if needed, of any site where there may be contamination. If contamination is present, the Waste Discharge Requirements shall be obtained for operations.
3. Biological Resources
- a. **Disturbance to tidal and subtidal marsh plant communities.** These effects are minimized by prioritizing boat access over vehicle and foot pathways, removing any plant or soil debris that accumulates as a byproduct of treatment out of the marsh completely, avoid spraying non-target vegetation by covering with fabric or pre-treating the area with protective films of silt-clay, prioritizing the removal of invasive Spartina over control of invasive Spartina, and restricting equipment working in marsh to areas with mats and geotextile fabric covers. For subtidal habitats in particular, installing temporary water-permeable debris barriers around vulnerable areas and avoid transporting tanks of spray solution near these areas in addition to the minimization methods above.
 - b. **Harm to special-status plant and wildlife species due to treatment and temporary habitat removal (invasive Spartina).** Harm will be mitigated by conducting surveys and monitoring, avoiding known sensitive habitat, and by having a qualified biologist on the crew who can identify sensitive habitat in the vicinity. Additional mitigation measures are listed as follows by groups of species:
 - i. For sensitive plant populations near the high tide line, mitigation measures are to remove large plant debris during growing season and refrain from burning in marshes supporting sensitive plant species. During herbicide treatment, cover non-target vegetation or install spray-drift barriers.
 - ii. For shorebirds and waterfowl, mitigation measures are to schedule any treatment activities for work within 1,000 feet of mudflats to avoid peak fall and spring migratory birds, avoid helicopter applications of herbicide to mudflat colonies within 1,000 feet of major habitual roosting or foraging sites, and, as a last resort, haze shorebirds and waterfowl within 1,000 feet of spray operations.
 - iii. For salt marsh harvest mouse and tidal marsh shrew subspecies, mitigation measures are to minimize vehicle and foot access pathways in potential tidal marsh habitat, restrict equipment working in marsh areas with mats and geotextile fabric covers, and schedule work in suitable habitat soon after natural mass-mortality events such as extreme high tides.

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- iv. For San Francisco Bay harbor seals, mitigation measures are to minimize vehicle and foot access pathways in marsh within 1,000 feet of seal haul-outs, avoid approaching haul-outs within 2,000 feet, consult with marine mammal experts to determine seasonal variation in sensitivity to disturbance, and transport any pre-mixed solutions of herbicide in double-lined containers and remediate spilled solutions on mudflats to the greatest extent feasible.
- v. For the California rails (Ridgway's, formerly known as Clapper rail, and black rail), mitigation measures are to follow "best management practices" in the EIR Appendix G (Exhibit 4), as modified by the most recent 2018 US Fish and Wildlife Service's Biological Opinion. These protocols are based on (1) current survey and map data to determine distribution and abundance of rails in relation to project sites, and local behavior of rails in occupied habitats; (2) training and expert biological supervision of field crews to detect clapper rails and identify habitat; (3) modification of timing and within-site location of operations to minimize or avoid disturbances to clapper rails. Unavoidable significant impacts are due to eradication of invasive *Spartina* which provide habitat currently occupied by clapper rails. Proportional compensatory mitigation is necessary for unavoidable impacts and the primary components of this mitigation include revegetation of areas where treatment has occurred, and high tide refuge construction.
- vi. For tidal marsh song sparrow subspecies and salt marsh common yellowthroats, mitigation measures are to adapt protocols for minimization and avoidance of California clapper rail and avoid occupied habitat during the breeding season.
- vii. For Western snowy plovers and California least terns, mitigation measures are to survey levee routes for potential nests and avoid those areas, conduct dredging and excavation of invasive *Spartina* either after least terns have migrated out of San Francisco Bay, or during middle to lower tidal stages that allow ease of access to invasive *Spartina* plants for barge and crane equipment.
- viii. For Chinook salmon and steelhead (anadromous salmonids), Delta smelt, Sacramento splittail, and other shallow water fish that may be impacted by dredging and herbicide application, mitigation measures are to limit dredging of intertidal channels to tidal stages when target areas are above water level, and seasons where the winter- and spring-run Chinook salmon and steelhead migration is not occurring. In addition, impoundment techniques used to drown large invasive *Spartina* infested marshes in former diked baylands should be limited to tide areas above mean high water for Chinook salmon and steelhead but eliminated in areas Delta smelt or splittails occur. Herbicide use should be minimized or avoided near channels and mudflats during Chinook salmon and steelhead migration and herbicide drift minimized as much as possible.

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- ix. Limit mosquito production in tidal marshes by monitoring access routes in marshes to detect formation of undrained depressions in tire ruts or foot trails. Where impoundments are used, design impoundments of sufficient size and depth to minimize mosquito breeding habitat.

4. Air Quality

- a. **Air quality affected by dust kicked up from vehicles and/or other treatment procedures.** This is mitigated by suspending activities when winds are too great to prevent visible dust clouds and limiting traffic speeds to 15 miles per hour on dirt access road when sensitive receptors (i.e., houses, schools, hospitals) are located within 500 feet of the treatment site. Smoke and ash emissions from prescribed burns must notify the Bay Area Air Quality Management District and the Agriculture Commissioner prior to initiating the burn, and/or obtain a burn permit.
- b. **Herbicide application effects on air quality.** Prepare and implement an herbicide drift management plan for aerial application within 0.5 miles of sensitive receptors or densely populated areas to reduce the possibility of chemical drift into areas with sensitive receptors and avoid spraying when winds exceed 10 miles per hour.

5. Noise

- a. **Noise by project equipment and machinery.** This is mitigated by complying with all applicable local noise ordinances and policies or, at a minimum, limit the use of equipment and machinery in invasive Spartina removal to weekdays (Monday-Friday) between the hours of 7:00 a.m. to 7:00 p.m. within 500 feet of sensitive receptors, and helicopters will not be used within 1,500 feet of sensitive receptors.

6. Human Health and Safety

- a. **Worker injury from accidents associated with non-native cordgrass treatment.** This is mitigated by following appropriate safety procedures, using proper safety equipment, and training treatment workers in order to ensure worker safety.
- b. **Worker health effects from herbicide application.** This is mitigated by following appropriate health and safety procedures and equipment as described on the herbicide or surfactant label and only allowing certified or licensed herbicide applicators to mix and apply herbicide. Herbicide application will follow air quality mitigation measures in addition to providing public notice of treatment a week prior to application, avoiding areas where the public is likely to contact water or vegetation, putting up signs that will advise “no entry” for humans and animals to a treatment site until 8 hours after treatment, and avoiding treatment within 24 hours prior to the weekend or public holidays if the site is adjacent to high use areas.

7. Visual Resources

- a. **Invasive Spartina removal temporarily changes the visual landscape.** To minimize the effect, signs will be put up to provide a brief description of the nature and reason for the visual change whenever treatment of invasive Spartina occurs in areas adjacent, accessible, or visible to the general public.

8. Cultural Resources

- a. **Disturbance or destruction of cultural resources from access and treatment.** For all sites proposed for ground-disturbing control methods and ground-disturbing access (other than manual removal and smothering of invasive Spartina) a qualified archaeologist shall conduct an initial study and literature review to assess the site's cultural resources. If cultural resources are abundant, alternate methods that do not disturb these resources will be used and/or the project will stop to allow time for cultural resources to be recovered by archeologists, and erosion control measures shall also be designed to avoid damaging cultural resources.

The MMRP was adopted September 2003 and titled "Mitigation Monitoring and Reporting Program, Invasive Spartina Project: Spartina Control Program". The EIR (which includes the MMRP) and underlying documentation are on record at SCC.

An addendum to the EIR regarding the use of Imazapyr herbicide was added in 2005 and titled "2005 Addendum to the Programmatic Environmental Impact Report/Statement, San Francisco Estuary Invasive Spartina Project, Spartina Control" (Exhibit 6). CalEPA's Department of Pesticide Regulation (DPR) approved imazapyr for estuarine use in summer 2005 and the ISP included the use of imazapyr in the Control Program because of benefits over the use of glyphosate, such as having lower toxicity, degrading more readily, and being more effective at treating invasive Spartina. The EIR did not analyze the potential effects of using imazapyr and associated surfactants and colorants, however section 15164(a) of the Guidelines specify that the an "addendum" to a previously certified EIR can be added without further environmental review if some changes or additions to a project are necessary and none of the conditions described in Guidelines Section 15162 calling for preparation of a subsequent EIR have occurred. Based on these conclusions, an Addendum to the FEIS/R, rather than a subsequent EIR, was the appropriate vehicle under CEQA to document the change in the ISP Control Program. The Addendum concludes that the change to imazapyr does not cause any new significant effects.

Statement of Overriding Considerations

The EIR also identified significant and unavoidable impacts. There will be unavoidable impact to the four identified biological species, the salt harvest mouse, tidal shrew, and rails (California Ridgway's rail and California black rail). There will also be unavoidable impact to visual resources. Both unavoidable impacts are caused by the removal of invasive Spartina and are temporary. With respect to the significant and unavoidable impacts, staff recommends that the Authority adopt a statement of overriding considerations. The specific environmental and other benefits of the project described in this staff recommendation and detailed in the EIR outweigh and render acceptable the unavoidable adverse environmental effects. These project benefits are: 1) over the long term it is anticipated that the removal of invasive Spartina and planting of native

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vegetation will promote native vegetation to return to where it had previously been displaced, thus creating additional species habitat; 2) other restoration projects may move forward and add further native habitat without risk of infestation of invasive *Spartina*; 3) more severe long term impacts of invasive *Spartina* on tidal marsh species will be avoided. The EIR concludes, based on best available science, that without implementation of the ISP the spread of non-native cordgrass would expand, eventually creating an altered Estuary environment that would be less suitable for these four species and lead to more severe long-term impacts on them and on other species dependent on marsh and tidal area.

The unavoidable, significant impact on visual resources is likewise a short-term one. The change in vistas occurs only with and during treatment and the change is one-time. When balanced against the environmental benefits of the removal of an aggressive non-native plant that displaces native plants and impacts biological resources, there is little question that environmental concerns are best served by implementing the project.

For purposes of the 2020-2022 treatment seasons and subsequent years, the nature, duration, scope, location and site characteristics of the proposed treatment and control work remain consistent with the work analyzed in the 2003 EIR and 2005 Addendum. Staff recommends that the Authority find that the project has potentially significant effects that are avoided or substantially lessened with the identified mitigation measures, as well as significant and unavoidable environmental effects. Upon approval of the project, staff will file a Notice of Determination.