

Appendix C

Environmental Commitments

Salt Marsh Harvest Mouse Conservation Measures

1. No debris, soil, silt, sand, cement, concrete, or washings thereof, or other construction related materials or wastes, oil or petroleum products, or other organic or earthen material will be allowed to enter into or be placed where it may be washed by rainfall or runoff into marsh, salt pans, or open water/ ditches adjacent to the work areas.
2. Sediment (visqueen or equivalent) barriers will be installed prior to initial disturbance of wetlands or uplands adjacent to wetlands to prevent the flow of spoil or heavily silt-laden water into any water body. Sediment barriers will be properly maintained throughout construction and reinstalled as necessary (such as after passage of the excavator).
3. All protective coating material removed from pipe surfaces will be captured and disposed of appropriately.
4. If used, sand-blasting material will be a manufactured substance that is either biodegradable or biologically and chemically inert. As much of this material as possible will be captured by placing tarps or plastic tubs beneath sand-blasting locations. Captured material will be disposed offsite.
5. Contaminated trench spoils, if any are encountered, will be hauled away from the work area, tested to determine concentration of contaminants, and disposed of offsite at an appropriate waste disposal site.
6. The Contra Costa Water District will schedule as much work as possible during the dry season in order to minimize the potential for wet weather, surface flooding, and high water tables in the work sites. Where possible, the work will be conducted during periods of reduced daily tidal peaks to further minimize the chance of encountering surface and groundwater. The Contra Costa Water District will minimize the potential for injuring or killing salt marsh harvest mice seeking unsubmerged cover within the right-of-way during flood events by avoiding construction activities and O&M activities when the adjacent marsh is flooded to the maximum extent practicable (this requirement does not apply to emergency conditions that require immediate repair of the pipeline).
7. All personnel and their equipment will be required to stay within the designated construction sites and access corridors to perform job-related tasks and will not be allowed to enter wetlands outside of the proposed project area, drainages, and habitat of listed species.
8. Pets will not be allowed in or near the construction areas.
9. Firearms will not be allowed in or near the construction areas. No intentional killing or injury of wildlife will be permitted.

10. The construction site will be maintained in a clean condition. All trash (e.g., food scraps, cans, bottles, containers, wrappers, cigarette butts, and other discarded items) will be placed in closed containers and properly disposed of offsite.
11. Equipment maintenance, refueling, and staging areas will occur in upland areas at least 30 feet from the edge of aquatic habitat. Prior to the onset of work, the Contra Costa Water District will ensure that a plan is in place for prompt and effective response to any accidental spills. All workers will be informed of the importance of preventing spills and of the appropriate measures to take should a spill occur.
12. Hazardous materials used during the repair work period (e.g., fuels, lubricants, solvents, and pipe coating substances) will be controlled, cleaned up, and properly disposed of outside the tidal marsh areas.
13. To control erosion during and after implementation of the proposed project, the contractor will implement a Stormwater Pollution Prevention Plan with appropriate best management practices, in accordance with San Francisco Bay Regional Water Quality Control Board guidelines.
14. High-density polyethylene (HDPE) marsh mats will be used in most instances where heavy vehicles must traverse marsh surfaces. Plywood marsh mats will be used at selected locations where lighter wheeled vehicles or pedestrians only will be deployed.
15. After construction is completed, final cleanup will include removal of all stakes, temporary fencing, flagging, and other refuse generated by construction. Vegetation will not be removed or disturbed in the cleanup process.
16. The Project's approach is to avoid and minimize lasting impacts to the marsh and adjacent uplands in the work sites, as described above. Natural contours in the work sites will be left largely intact or returned to the approximate original elevations. Vegetation in most work sites will be left intact, though the vegetation in some work sites potentially inhabited by salt marsh harvest mice will be mowed to stubble as a salt marsh harvest mouse protection measure.
17. USFWS-approved biological monitor: A USFWS-approved biologist will be present onsite to monitor for salt marsh harvest mice.
 - a. The USFWS-approved biological monitor will have the authority to stop work if deemed necessary for any reason to protect the salt marsh harvest mouse.
 - b. The USFWS-approved biological monitor will be present during vegetation clearing and salt marsh harvest mouse exclusion fence installation. Once the salt marsh harvest mouse exclusion fencing has been installed and all work activity is confined to the cleared work site, the biological monitor will inspect the site at least once per day while construction is ongoing. Inspections by the biological monitor will be weekly once the salt marsh harvest mouse exclusion fencing is installed around the work area as described below.

- c. The USFWS-approved biological monitor will have demonstrated experience in monitoring sensitive resource issues on construction projects. Specifically, the monitor will have at least a bachelor's degree in the biological or allied sciences or the equivalent; at least one field season of prior monitoring experience under the supervision of a qualified biological monitor; and knowledge of the natural history of the salt marsh harvest mouse and related sensitive biological resources in the vicinity of the proposed project area. Resumes of candidate biological monitors will be submitted to the USFWS for their approval prior to the monitor being deployed in the field.
- d. In summary, the biological monitor will have the following responsibilities:
 - 1) Review the appearance, habitats, and life history of the salt marsh harvest mouse with construction crews.
 - 2) Review the conservation measures and permit conditions with construction crews.
 - 3) Inspect work sites for salt marsh harvest mice and approve salt marsh harvest mouse exclusion fencing.
 - 4) Visit active construction sites daily to inspect biological protection measures and assist construction personnel with resource conservation.
- e. Prior to initiation of construction, the Contra Costa Water District will submit to the USFWS for its review the qualifications of its biologist(s) proposed for use as USFWS-approved biologist(s). USFWS-approved biologist(s) will be given the authority to stop work that may result in the harassment, harm, injury, or mortality of the salt marsh harvest mouse. The USFWS-approved biologist(s) will be the contact for personnel who observe a salt marsh harvest mouse or who find a salt marsh harvest mouse. USFWS-approved biologist(s) will be onsite for exclusion fence installation and removal, vegetation clearing, and initial ground disturbances in salt marsh harvest mouse habitat. When vegetation is cleared, exclusion fence erected, and after initial ground disturbance, the USFWS-approved biologist will conduct weekly visits to the proposed project area. The USFWS-approved biologist will conduct weekly inspections of exclusion fencing, document compliance, and conduct construction education training if necessary. The USFWS-approved biologist will be available on an "on call" basis, as necessary, between site visits.

18. Vegetation removal:

- a. If any areas with pickleweed vegetation or other marsh vegetation within 50 feet of the edge of pickleweed vegetation need to be cleared for proposed project activities, vegetation will be removed.
- b. Initial vegetation removal will preferably be accomplished with a band of sheep and/ or goats in order to avoid injuring any salt marsh harvest mice within the construction areas. Grazing with sheep and/ or goats will involve the use of a portable battery powered electric fence system to keep the livestock in the correct locations. This electric fencing cannot touch any vegetation or shorting may occur, compromising the efficacy of the system. Thus, a four-foot wide path will need to be cleared of vegetation initially in order to install the sheep/goat fence.

A string trimmer (i.e., weed whacker) or hand clearing tools will be used to clear a four-foot wide path centered on the location of the sheep/ goat fencing. The USFWS-approved biologist will inspect the path to be mowed immediately prior to the mowing field work to clear the path of any salt marsh harvest mice within the mow area. Once the four-foot wide path is mowed, then the sheep/ goat fencing will be installed by the grazing contractor within the center of the mowed path. The sheep and/or goats will be allowed to graze the construction areas and exclusion fence area (including pickleweed) vegetation to remove as much above ground plant material as possible. Pickleweed vegetation is mostly unpalatable for sheep/ goats and all that remains after sheep/goat grazing will be harvested, stored, and re-applied post construction.

- c. If initial clearing of the vegetation is not feasible with sheep/ goats, then string trimmers (i.e., weed whackers) may be used to conduct the initial vegetation removal; however, the USFWS-approved biologist will need to walk immediately in front of the trimmer to clear vegetation to be mowed of any salt marsh harvest mice or nests for the entire mow area.
- d. As directed by the USFWS-approved biological monitor, cut native vegetation will be stored onsite and re-spread as mulch at the completion of the proposed project in areas where the impact is temporary. Any cut vegetation stored onsite will be surrounded with salt marsh harvest mouse-proof exclusion fencing. Cut non-native vegetation listed as moderately to highly invasive by the California Invasive Plant Council (California Invasive Plant Council 2006) will be bagged and removed offsite at a suitable disposal site. Areas of vegetation removal that are part of “permanent impact areas” will not be restored as part of the proposed project; therefore, cut vegetation in “permanent” impact areas will be removed and disposed of offsite.
- e. If necessary, maintenance will be conducted to keep vegetation trimmed down. Maintenance will be conducted using one or several typical technologies such as mowing, use of string trimmers, application of bonded fiber matrix, and/ or herbicide application. The USFWS-approved biologist will conduct a pre-maintenance survey to determine that no areas needing maintenance provide vegetative cover that may attract or hide salt marsh harvest mice. As determined by the USFWS-approved biologist, areas that do provide vegetative cover will first be removed of vegetation by the methods described above in the preceding measures.

19. Contingency if a salt marsh harvest mouse is onsite:

- a. If a salt marsh harvest mouse is observed within the areas being removed of vegetation or elsewhere within the work site, the biological monitor will stop work in the immediate area until the salt marsh harvest mouse leaves the work area on its own volition.
- b. If the salt marsh harvest mouse does not leave the work area, work in the immediate area will not be reinitiated until the USFWS is consulted regarding appropriate avoidance measures, and permission is granted by the USFWS to commence work.

- c. No salt marsh harvest mice may be handled or captured at any time during site preparation or proposed project activities.

20. Salt marsh harvest mouse exclusion fencing:

- a. Exclusion fencing for salt marsh harvest mice will be installed between areas of salt marsh harvest mouse habitat and work sites immediately following vegetation removal and before excavation activities begin to prevent entry of the salt marsh harvest mice into cleared areas. Exclusion fencing will not be used during annual vegetation maintenance.
- b. The final design and proposed location of the fencing will be submitted to the USFWS for review and approval prior to placement. The USFWS-approved biologist will have the ability to make field adjustments to the location of the fencing based on site-specific habitat conditions.
- c. The wildlife exclusion fence will be a minimum of two feet in height. The fencing will be constructed from a material (i.e., plastic or metal) so that the outside is too smooth to be climbed by salt marsh harvest mouse. The toe of the fence will be buried approximately 4 inches in the ground to prevent salt marsh harvest mouse from crawling or burrowing underneath it. Entrance gates will be similarly protected with a rolling fence exclusion device or similar on the bottom of the gate with close ground contact making it extremely difficult for a salt marsh harvest mouse to enter the site. Other alternatives that provide equivalent exclusion will be allowed at the discretion of the USFWS-approved biological monitor. Attachment 4 in Olberding Environmental, Inc. (2015) provides more detailed information regarding various options for small mammal exclusion fencing suitable for salt marsh harvest mouse.
- d. Maintenance of the fencing will be conducted as needed throughout the work period. Any necessary repairs to the fencing will be completed within 24 hours of the initial observance of damage. Work will not continue within 300 feet of the damaged fencing until the fence is repaired and the site is surveyed by a USFWS approved biologist to ensure that salt marsh harvest mice have not entered the work area.
- e. A qualified biologist or site manager will monitor site fencing periodically throughout each day when work is conducted within 300 feet of the fence. If there is no construction activity within 300 feet of the exclusion fencing, the qualified biologist or site manager will inspect the fencing: (1) at least twice per week during clear weather, and (2) within 24 hours after a storm.

21. Work will be confined to daylight hours.

22. Endangered species training for construction personnel:

- a. All construction personnel will participate in an endangered species training program to be given by the USFWS-approved biological monitor. The training will provide information about the salt marsh harvest mouse, measures being implemented to avoid impacts to this species, and procedures to follow should a

salt marsh harvest mouse be encountered during routine activities. Training materials will be in Spanish and English.

- b. The USFWS-approved biologist will provide training to field management and construction personnel on the importance of protecting environmental resources.
- c. Communication efforts and training will take place during pre-construction meetings so that construction personnel are aware of their responsibilities and the importance of compliance.
- d. Construction personnel will be educated on the types of sensitive resources located in the proposed project area and the measures required to avoid impacts on these resources. Materials covered in the training program will include environmental rules and regulations for the proposed project and requirements for limiting activities to the construction right-of-way and avoiding demarcated sensitive resources areas.
- e. Training meetings will educate construction supervisors and managers on: the need for resource avoidance and protection; construction drawing format and interpretation; staking methods to protect resources; the construction process; roles and responsibilities; project management structure and contacts; conservation measures; and emergency procedures.

23. Onsite habitat restoration:

- a. Restoration period: The temporarily disturbed sites are anticipated to restore to full functions and values in the year following impacts. A three-year monitoring and maintenance period is prescribed for these sites.
- b. Restoration goals: The goals for the onsite restoration of temporarily disturbed habitat to pre-project conditions or better are: (1) restoration of at least 1.43 acres of wetland habitat; (2) restoration of at least 0.22 acre of waters of the U.S.; and (3) restoration of at least 0.70 acre of grassland habitat. The Contra Costa Water District has elected to compensate for permanent impacts (3:1 ratio) for the temporary disturbance of 0.166 acre of pickleweed-dominated wetland habitat rather than restoring this habitat (see the compensation ratios in the "Offsite Salt Marsh Harvest Mouse Compensation" measure below). However, if pickleweed is restored, then the Contra Costa Water District and its contractors will follow the procedures recommended in Olberding Environmental, Inc. (2015, pp. 18-19) for harvesting the pickleweed.
- c. Reference sites: Reference notes and photographs will be made of all work sites prior to ground disturbance by the monitoring biologist. Revegetation reference sites will be designated at that time and delineated with a Global Positioning System for future analysis. The revegetation sites will be paired with disturbance sites and should have comparable biological values, vegetation cover, and plant species composition.
- d. Revegetation techniques: Within six months following road and infrastructure construction completion, the construction areas subject to temporary impacts will be planted and seeded with native species. The only areas that will not be planted or seeded within the temporary impact areas include the areas that were designated as waters of the U.S. The revegetation techniques are described in

more detail in Olberding Environmental, Inc. (2015, pp. 19-20). Two seed mixes will be used as appropriate within wetlands and uplands, respectively. Within wetlands the seed mix will consist of: meadow barley at eight pounds per acre, small fescue at five pounds per acre, marsh rosemary at one pound per acre, saltgrass at five pounds per acre, and alkali heath at two pounds per acre. Within uplands the seed mix will consist of: saltgrass at five pounds per acre, blue wildrye at 10 pounds per acre, small fescue at 10 pounds per acre, and California barley at 15 pounds per acre.

- e. Non-native invasive plant control: Non-native invasive plants listed as moderately to highly invasive by the California Invasive Plant Council (California Invasive Plant Council 2006) shall be controlled for three years. The USFWS-approved biologist will inspect the site at least three times per year to detect and record occurrences of non-native invasive vegetation within the construction areas and within reference site areas. The site visits will roughly occur during the following time frames: April/May, June/July, and August/September. Maps with inset recommendation boxes will be prepared by the USFWS-approved biologist following each site visit and sent to the Contra Costa Water District regarding target weeds for control and methodology. Both hand weeding and herbicide applications (with possible cutting) will be conducted as recommended by the USFWS-approved biologist. Hand weeding of stinkwort will be done as new plants emerge. No mowing or use of power tools will be allowed to be used for weed control during the three-year establishment period. Herbicides will be applied as a part of the restoration maintenance contract under the direct supervision of a qualified and appropriately licensed applicator and according to the recommendations of a qualified and appropriately licensed Pest Control Advisor. The Pest Control Advisor will be familiar with herbicide application within and among special status species and wetlands, and will provide recommendations suitable to avoid impacting said entities. AquaMaster® or an equivalent herbicide will be the preferred herbicide for control of perennial pepperweed. The herbicide must be aquatically approved to control emergent vegetation in and around bodies of fresh or salt water. The active ingredient would be glyphosate (AquaMaster® is 53.8 percent glyphosate). The active ingredient becomes deactivated once it touches water so that vegetation only on or above the waterline is controlled. An aquatically approved surfactant such as Activator 90 is required to obtain best performance. Herbicide will be applied in a focused stream to minimize losses of non-target plants due to drift or overspray. The solution will be sprayed on large infestations and/ or wicked onto isolated plants.
- f. Restoration success criteria: Restoration will be considered successful when:
 - 1) Absolute plant cover within restored wetland areas will be at least 80 percent of adjacent reference site values (areas designated as waters of the U.S. during preconstruction will be allowed to remain unvegetated but will be graded to provide functions and values similar to preconstruction condition).
 - 2) Plants within the restored wetland areas will have an average height of at least 8 inches;

- 3) The species composition and abundance of non-native plants does not exceed those of adjacent reference sites;
 - 4) All three federal parameters - hydrophytic vegetation, hydric soils, and wetland hydrology - will be achieved within the restored wetlands;
 - 5) Restored pickleweed areas will be dominated by pickleweed. Restored pickleweed areas will remain true to type and will not revert to another habitat type; and
 - 6) The species composition of the restored grassland will be similar to adjacent reference sites.
- g. Monitoring of restoration sites: Monitoring of the restoration sites will occur annually during the three-year establishment period (as described in Olberding Environmental, Inc. (2015)) to determine success in comparison to the performance standards specified above. Monitoring data (including photo documentation) will be collected at restored and reference habitats as shown on the maps provided in Attachment 3 of Olberding Environmental, Inc. (2015). The extent of inundation or saturation during the rainy season will be monitored annually during the three-year establishment period to document hydrologic conditions of the sites. The biological monitor will conduct a site visit during the middle of the rainy season (January /February) within two weeks after a saturating rainfall event (at least one inch rainfall) in order to document inundation and/ or soil saturation within the restored wetland habitats. Photo documentation will occur at each data collection point and other relevant areas to document inundation and/ or saturated soil conditions. If inundation is observed, then the maximum depth of ponding will be measured with a hand held meter stick. Monitoring reports will be submitted to the Corps, Reclamation, USFWS, and San Francisco Bay Regional Water Quality Control Board beginning with the as-built report. Annual reports will be submitted by December 15 of each of the three establishment years as described in Olberding Environmental, Inc. (2015). The Corps, Reclamation, USFWS, and San Francisco Bay Regional Water Quality Control Board will be notified following successful completion of the three-year monitoring period. If performance standards are not met within the three-year period, monitoring, habitat maintenance, and remedial actions will continue until the performance standards are met.

24. Offsite salt marsh harvest mouse habitat compensation:

- a. The Contra Costa Water District will compensate for the temporary disturbance and permanent loss of salt marsh harvest mouse habitat offsite at Wildlands' Cordelia Slough Preserve in Suisun Bay (Wildlands 2015) (or another USFWS-approved site within the Suisun Bay Area Recovery Unit if not possible at this location). All access roads and other permanent features within the Shortcut right-of-way will be compensated at a 3:1 ratio. Temporary impact compensation ratios will be as low as 0.5:1 if restored within six months of the start of construction and will increase to 1:1 if restored within one year of the start of construction and will further increase to 2:1 if restored within two years of the start of construction. If longer than two years, this is effectively a permanent

impact and will be compensated at a 3:1 ratio. The Contra Costa Water District will strive to restore temporary impacts within six months but may need up to one year to restore temporary impacts depending on actual project conditions.

- b. The Contra Costa Water District has elected not to restore any pickleweed habitat within the Shortcut right-of-way. Therefore, the Contra Costa Water District will compensate for all pickleweed habitat within the site that is impacted on a temporary or permanent basis assuming a permanent impact compensation ratio of 3:1.
 - c. Habitat will be preserved in perpetuity under a USFWS-approved compensation plan with an endowment and USFWS-approved long-term management plan (e.g., Cordelia Slough Preserve Long-term Management Plan (Wildlands 2015)). The Contra Costa Water District will have a final compensation plan reviewed and approved by the USFWS and provide the funding for the compensation plan prior to the initiation of construction of the proposed project. If the performance-based criteria for the recovery of vegetation onsite to pre-project conditions or better is not achieved, then the total amount of offsite compensation that the Contra Costa Water District will provide at the Cordelia Slough Preserve (or another USFWS-approved site if not possible at this location) will increase based on the compensation ratios discussed above. As stated previously, the Contra Costa Water District may elect to compensate for permanent impacts (3: 1 ratio) for the 0.166 acre of temporary disturbance to pickleweed-dominated wetland habitat rather than restoring this habitat.
 - d. The Contra Costa Water District will obtain 0.5 acre of salt marsh harvest mouse habitat compensation for expected future O&M work (this is consistent with the 2011 California Environmental Quality Act documentation that estimated up to 21,000 square feet (0.48 acre) of further repairs under Phase 3 once the pipeline is able to be inspected). If this level of repair is not needed once the pipeline is inspected, then the Contra Costa Water District would use the 0.5 acre of habitat compensation over time for potential road repairs that may develop. The compensation ratios discussed above would apply to future O&M work based on the timeline for restoration of temporarily disturbed habitats.
25. The Contra Costa Water District will install chain link gates at the entrance to the access road at Site 10 to help deter mammal predators and people from using the access road.
26. The Contra Costa Water District will include Special Provisions that incorporate the proposed avoidance measures for salt marsh harvest mouse in the solicitation for bid information. In addition, the Contra Costa Water District will inform all contractors involved in the proposed project about the requirements and measures to avoid impacts or adverse effects to this species.

Conservation Measures for Routine O&M Activities

1. A USFWS-approved biologist will oversee implementation of environmental protection for O&M activities. The USFWS-approved biologist shall be responsible for documentation of compliance with the terms and conditions in the biological opinion and

the revegetation and monitoring plan (Olberding Environmental, Inc. 2015). Some of the O&M activities consist of visual inspections only and will not require pre-event surveys or biological monitoring. Any O&M activity that involves vegetation removal, grading/excavation, and/or maintenance work will require a pre-event survey and biological monitoring during implementation for protection of salt marsh harvest mouse and/ or wetlands as appropriate. Activities may occur after the USFWS-approved biologist has conducted a detailed search of the appropriate area and cleared the area of any salt marsh harvest mouse individuals. Should any pickleweed grow within the O&M areas it will be thoroughly searched for nests and signs of salt marsh harvest mouse activity then removed by hand prior to the activity. Wildlife exclusion fencing may be installed to prevent injury to salt marsh harvest mouse depending on the activity as determined by the USFWS-approved biologist.

2. Trucks will routinely traverse the gravel road, and thus to avoid impacts to sensitive resources, drivers will undergo environmental awareness training and update/ renew their training on a regular basis. Any motorized equipment or materials stored onsite overnight will be inspected prior to the commencement of work the next morning. The operator will conduct a visual inspection for the presence of any animals that may have used the equipment or materials for cover during the night. If an animal (especially a mouse) is discovered, then it will be avoided with a 50-foot buffer and allowed to exit the work area unassisted.
3. Any soil that is disturbed will be revegetated by seeding with a native seed mix and/ or container planting as appropriate.
4. Any O&M activities that extend beyond the “permanent impact areas” may require compensatory mitigation if ground disturbing activities occur within wetlands, waters of the U.S., or potential salt marsh harvest mouse habitat and are not already covered through the purchase of additional wetland and habitat mitigation. The Contra Costa Water District may obtain additional salt marsh harvest mouse habitat compensatory mitigation to satisfy temporary habitat impacts from future temporary habitat impacts. Impacts to pickleweed habitat from O&M activities are unlikely; however, the USFWS will be consulted should they occur.
5. All work will be during daylight hours, and no artificial illumination will be used.
6. Personnel will limit their vehicular travel to the access roads. Any off-road access would be on-foot.
7. The Contra Costa Water District will minimize the potential for injuring or killing salt marsh harvest mice seeking unsubmerged cover within the right-of-way during flood events by avoiding construction activities and O&M activities when the adjacent marsh is flooded to the maximum extent practicable (this requirement does not apply to emergency conditions that require immediate repair of the pipeline).
8. Personnel will be required to implement the following general protection measures:

- a. No vehicles will be allowed in the marsh. All entry will be on-foot.
- b. Equipment will be fueled outside of the marsh.
- c. Any spills will be contained and properly disposed.
- d. All equipment will be properly maintained to reduce the potential for spills of petroleum-based products.
- e. If any materials or wastes are inadvertently released to the marsh, project supervisors will immediately halt all work and use all available resources to assure containment and removal.
- f. Pets will not be allowed in or near the work area.
- g. Firearms will not be allowed in or near work areas. No intentional killing or injury of wildlife will be permitted.
- h. The work area will be maintained in a clean condition. All trash (e.g., food scraps, cans, bottles, containers, wrappers, cigarette butts, and other discarded items) will be placed in closed containers and properly disposed of offsite.

O&M Non-Native Invasive Plant Species Control Strategy

Since much of the areas immediately adjacent to the Shortcut right-of-way are currently inhabited at various levels by non-native invasive plant species, the strategy for non-native invasive control within the permanently impacted areas centers on preventing the establishment and spread of invasive nonnative plant species. The invasive non-native plant control strategy for the permanently impacted areas includes:

1. **Operations and Maintenance:** To allow routine O&M activities of the Shortcut as identified by the Contra Costa Water District as necessary to occur with maximum efficiency and efficacy.
2. **Prevention and Early Detection:** To prevent the establishment and spread of non-native invasive and other nuisance plant species through an integrated and comprehensive approach that emphasizes the prevention of invasive plant species establishment through early detection, and treatment of new populations. Regular surveys will be conducted to detect new species and monitor those already in place, and the qualified biologist will provide recommendations on targeted control as necessary.
3. **Prioritization and Control:** Remove invasive non-native vegetation that hinder routine O&M activities and/ or pose a risk to special-status species, their habitats, and/ or other sensitive habitats (i.e., wetlands).
4. **Protection of Special-Status Species:** Control and eradication activities will be conducted to minimize risk to special-status species, their habitats, and/ or other sensitive habitats (i.e., wetlands).
5. **Monitoring and Quality Control:** Ensure that the control and eradication activities are regularly monitored, improved, and environmentally safe.

- a. flow from the pipeline can be controlled if needed, to avoid connecting with a wetted section;
- b. block nets can be used downstream of the blow-off area to keep any fish from moving up towards the blow-off water; and
- c. if necessary flow can be further controlled using diffusers so as to be gradual enough to avoid any scouring.

Non-native invasive species plant control and eradication measures will be similar to those described above for the temporary impact areas, namely hand pull and herbicide application. No mowing is proposed within the right-of-way. Any grading will occur only under the direct supervision of a USFWS approved biologist and only after they have conducted a pre-construction survey to visually inspect for salt marsh harvest mouse.

Migratory Birds and Various Special-Status Species Conservation Measures

Hoary Bats. Pre-construction bat surveys would be conducted by a qualified biologist at Sites 3 and 10 no more than seven days prior to vegetation removal that will occur between February 1st and October 31st.

Burrowing Owls. Pre-construction surveys will be conducted within 14 days prior to ground-disturbing and vegetation removal activities. Due to the potential for burrowing owls utilizing nests outside the breeding season (February 1 through August 31), surveys will be conducted at all times of the year when required. To the extent possible, road construction will be scheduled to avoid the breeding season altogether. Once eggs have been laid, a buffer of at least 100 feet, or other Cal. Fish & Game approved buffer, must be established around the nest site and the site protected until August 31 or until the young have fledged.

Miscellaneous Birds. Pre-construction breeding bird surveys will be conducted at Sites 3, 7, or 10 within 14 days prior to ground disturbance or impacts to on-site shrubs, trees, and wetland and marsh vegetation during the breeding season (February 1 through August 31). The surveys will encompass suitable nesting habitat on and within 200 feet of the work site(s). To the extent possible, road construction will be scheduled to avoid the breeding season altogether. Once eggs have been laid, a buffer of at least 100 feet, or other Cal. Fish & Game approved buffer, must be established around the nest site and the site protected until August 31 or until the young have fledged.

Raptors. Pre-construction breeding bird surveys will be conducted within 14 days prior to ground disturbance and vegetation removal activities at Sites 3, 7, or 10. Due to the potential for ground nesting raptors utilizing nests outside the breeding season (February 1 through August 31), surveys will be conducted at all times of the year when required. Surveys will encompass nesting habitat on and within 200 feet of the work site(s). To the extent possible, road construction will be scheduled to avoid the breeding season altogether. Once eggs have been laid, a buffer of at least 100 feet, or other Cal. Fish & Game approved buffer, must be established around the nest site and the site protected until August 31 or until the young have fledged.

Western Pond Turtle. Pre-construction surveys at Sites 3, 4, 5, and 7 will be performed to identify any turtles encountered within work sites, and installation of silt fencing surrounding

upland pond turtle nesting areas to act as a barrier during the breeding season (March 1 – April 30), would avoid impacts to this species. Impacts at the other sites are not anticipated, and pre-construction surveys are not warranted. At Site 2, the proposed work would occur outside a seasonally inundated drainage (and when the drainage would be dry) and well separated from a permanent pond located more than 180 feet to the northeast. There are no drainage channels or pond habitat in the work areas at Sites 9 and 10, so the potential for impacts to pond turtles is very remote at these work sites.

Oak and Riparian Trees. The Contra Costa Water District will comply with all provisions of the County’s Tree Protection Ordinance and the Conservation Element of the Contra Costa County General Plan.

Special-Status Plant Species. Prior to initiation of construction, a qualified plant biologist shall conduct focused plant surveys at Work Site 10 for Congdon’s tarplant (blooms June through November) and at all sites for soft bird’s-beak (blooms April to July), Delta tule pea (blooms May to September), Mason’s lilaeopsis (blooms April to December), and Suisun marsh aster (blooms May to November). Focused surveys for each of these plants shall be conducted during their respective blooming seasons to determine presence or absence on each work site. Any special-status plants identified within any work site will be protected during construction by construction barrier fencing around the special-status plant populations, and appropriate avoidance and mitigation measures would be developed and implemented in consultation with California Fish & Wildlife and/or USFWS.

Wetlands and Waters of U.S. and State

To the extent feasible, all planned activities will be designed to avoid and minimize disturbances to wetlands as verified by the U.S. Army Corps of Engineers. Prior to the placement of fill into wetlands or any alteration or modification of an existing creek, wetland, drainage or other jurisdictional feature, the project sponsor shall obtain permits under Sections 401 and 404 of the Clean Water Act. These permits, administered by the San Francisco Bay Regional Water Quality Control Board and the U.S. Army Corps of Engineers, respectively, will identify specific mitigation measures that would be imposed on the project as permit conditions. Additionally, a Streambed Alteration Agreement from Cal. Fish & Wildlife may be required. The Contra Costa Water District will comply with all permit conditions of the regulatory agencies, including the implementation of an appropriate compensatory mitigation plan for unavoidable impacts to wetlands. Road construction work in wetlands and waters of the U.S. shall only occur between April 15th and October 15th to minimize the potential for erosion and sedimentation in downstream waters. Prior to road construction at Sites 3, 4, 5, 7, 9 and 10, the Contra Costa Water District will erect exclusion fencing around all wetlands to protect adjacent wetlands from incursion by equipment and vehicles.