3. ENVIRONMENTAL SETTING, IMPACTS, AND MITIGATION MEASURES

3.1 Introduction

3.1.1 Chapter Organization

The sections in Chapter 3 are organized into three broad categories: Physical Environment, Biological Environment, and Social and Cultural Environment. A fourth category, the South San Francisco Bay Shoreline Study, was included as Section 3.2 in the 2007 South Bay Salt Pond (SBSP) Restoration Project Programmatic Environmental Impact Statement/Environmental Impact Report (2007 EIS/R), but it was summarized in a few paragraphs in Chapter 1 of this document and is not included in Chapter 3 of this Final EIS/R. Sections 3.2 through 3.17 present the environmental setting, impacts, and mitigation measures for the SBSP Restoration Project, Phase 2. Topics addressed in these sections are required by the National Environmental Policy Act (NEPA) and/or the California Environmental Quality Act (CEQA). The environmental resource sections for each of these categories are listed below.

Physical Environment

3.2 Hydrology, Flood Management, and Infrastructure

3.3 Water Quality

3.4 Geology, Soils, and Seismicity

Biological Environment

3.5 Biological Resources

Social and Cultural Environment

3.6 Recreation Resources

3.7 Cultural Resources

3.8 Land Use

3.9 Public Health and Vector Management

3.10 Socioeconomics and Environmental Justice

3.11 Traffic

3.12 Noise

3.13 Air Quality

3.14 Public Services

3.15 Utilities

3.16 Visual Resources

3.17 Greenhouse Gas Emissions

Each of the above sections in Chapter 3 (Sections 3.2 through 3.17) is divided into three parts: Physical Setting, Regulatory Setting, and Environmental Impacts and Mitigation Measures. These are described in further detail below. Cumulative effects for each of the environmental resources listed above are evaluated in Chapter 4.

3.1.2 Environmental Setting and Impact Analysis

Physical Setting

The physical setting includes the regional setting as well as the project setting. The regional setting presents the existing conditions within the greater South Bay for the environmental topic. In most cases, the regional setting covers the SBSP Restoration Project area. In other cases, the regional setting provides information on a broader area extending beyond the immediate project vicinity (e.g., geology). The 2007 EIS/R covered the regional setting in great detail, and so this project-level document does not focus on that and instead includes it only to the extent necessary for that resource impact analysis.

The project setting provides the existing conditions specific to the SBSP Restoration Project's Phase 2 alternatives for each environmental topic. Project setting information is presented for each of the two SBSP Restoration Project pond complexes (Alviso and Ravenswood) and the Phase 2 pond clusters within them.

Regulatory Setting

Where the SBSP Restoration Project's Phase 2 ponds fall within the jurisdiction of federal, state, and local regulatory agencies, the project would be subject to the laws, regulations, and policies of those agencies. These regulations are intended to guide development to reduce adverse effects on sensitive resources, or offer general guidance on the protection of such resources. The regulatory framework sections describe the rules that may be applicable to Phase 2 for each issue area. These rules may also set the standards (significance criteria or thresholds of significance, as described below) by which potential project impacts are evaluated.

Environmental Impacts and Mitigation Measures

Significance Criteria

The Environmental Impacts and Mitigation Measures section presents the significance criteria (also referred to as thresholds of significance under CEQA) against which potential effects are evaluated and the potential impacts that would result from implementation (construction and operation) of the Phase 2 No Action Alternatives and the Phase 2 Action Alternatives. (The equivalent CEQA terms are "No Project Alternatives" and "project alternatives," but the NEPA terms will be used throughout.)

As defined by CEQA Guidelines 15064.7(a), a threshold of significance is an identifiable quantitative, qualitative, or performance standard for a particular environmental effect. Although the Council of Environmental Quality (CEQ) Regulations for Implementing NEPA do not identify any specific criteria for evaluating impacts, NEPA regulations adopted by the federal lead agencies were considered as the significance criteria were developed. The significance criteria against which the Phase 2 Action

Alternatives are assessed include the criteria listed in Appendix G of the CEQA Guidelines and the specific criteria provided in the 2007 EIS/R. The criteria have been updated to address newer CEQA requirements; to be geographically specific, where appropriate; and to address SBSP Restoration Project–specific topics.

The significance criteria presented in this Final EIS/R provide rational bases for determining whether the SBSP Restoration Project would have significant environmental effects and as such, are presented before the evaluation of potential effects in Sections 3.2 through 3.17.

Characterization of Impact Significance

Impact evaluations for the Action Alternatives are assessed based on the existing conditions (existing baseline) at each Phase 2 pond cluster, not the conditions anticipated to occur or develop under the No Action Alternative. This approach is consistent with the CEQA Guidelines and the approach used in the 2007 EIS/R.

In determining the significance of impacts, many CEQA documents generally categorize impacts as "significant" or "less than significant" based on stated significance criteria. CEQA defines significance as a substantial or potentially substantial adverse change to the environment (Section 15382). The definition of significant in terms of what is a "substantial" or significant effect is left to the lead agencies to determine. In CEQA, the point at which the severity of an impact changes from less than significant to significant is called the significance threshold (see discussion of significance criteria, above).

Pursuant to Section 1508.27 of the CEQ Regulations for Implementing NEPA, "significantly" as used in NEPA requires consideration of both context and intensity. Context can include the society as a whole (human, national), the affected region, the affected interests, and the locality. Intensity refers to the severity of impact.

In this Final EIS/R, the context is explained in the impact discussions presented in Sections 3.2 through 3.17. The intensity or severity of impacts is generally characterized using CEQA terminology. To determine whether impacts might be significant, potentially adverse impacts are identified and evaluated using the significance criteria developed for each environmental resource.

Although CEQA focuses on adverse impacts, NEPA addresses both adverse and beneficial impacts. Section 1508.8 of the CEQ Regulations for Implementing NEPA states that "effects [or impacts] may also include those resulting from actions which may have both beneficial and detrimental effects." Consequently, this Final EIS/R identifies both potentially adverse and potentially beneficial impacts of the SBSP Restoration Project. The following terms are used in this Final EIS/R to characterize project impacts:

- Potentially significant: Adverse environmental effects would occur (impacts would exceed the significance criteria or thresholds defined for each environmental issue), and no mitigation measures are available to reduce impacts to levels below the significance criteria. In other documents, these are often described as "potentially significant and unavoidable"
- Less than significant with mitigation: Potentially adverse environmental effects would occur, but mitigation measures would be implemented to reduce adverse effects to less-than significant levels.
- Less than significant: Environmental effects would not exceed the significance criteria.

- No impact: No adverse environmental effects would occur.
- Beneficial (NEPA only): No adverse environmental effects would occur, and conditions would improve, creating a beneficial effect.

Both NEPA and CEQA address the potential for mitigation to reduce environmental impacts. CEQA states that "an EIR shall describe feasible measures which could minimize significant adverse impacts" (CEQA Guidelines Section 15126.4[a][1]). According to Section 1508.20 of the CEQ Regulations for Implementing NEPA, mitigation is intended to do one of the following:

- Avoid the effect or impact altogether by not taking a certain action or parts of an action;
- Minimize the effect or impact by limiting the degree or magnitude of the action and its implementation;
- Rectify the effect or impact by repairing, rehabilitating, or restoring the affected environment; or
- Reduce or eliminate the effect or impact over time by preservation and maintenance operations during the life of the action.

A significant impact that cannot be mitigated to a less than significant level is considered unavoidable.

Presentation of Impacts

In Sections 3.2 through 3.17 of this Final EIS/R, the impacts of the SBSP Restoration Project, Phase 2, long-term alternatives are presented in the following order for each impact and for each of the four pond clusters:

- Phase 2 No Action Alternative; and
- Phase 2 Action Alternatives.

Project-level impacts are presented as Phase 2 Impact 3.X-Y, where X is the section number and Y is impact number. The project-level impacts detail the specific design information that was developed for use in the impact evaluation. To the extent possible, quantitative analyses are provided for the project-level impact analyses. All impact analyses consider changes in the environment over the 50-year planning period.

Adaptive Management Plan and its Relationship to the Impact Analysis

As stated in Chapters 1 and 2 of this Final EIS/R, the Adaptive Management Plan (AMP) is an integral component of the SBSP Restoration Project, Phase 2. The AMP allows for lessons learned from earlier phases to be incorporated into subsequent phases as management plans and designs for future actions are made. As importantly, it also allows the decisions about the specific actions and components of each project phase to be made based on the outcomes of previous project phases and to adjust the balance of restoration options between tidal marsh and enhanced managed ponds as needed to avoid significant impacts to one species. This approach to phased tidal restoration acknowledges that uncertainties exist and provides a framework for adjusting management decisions as understanding of the cause-and-effect linkages between management actions and the physical and biological response of the system are more fully understood. Adaptive management is used to maximize the ability to achieve the Project Objectives (benefits). Another key aspect of the adaptive management approach is to avoid adverse environmental

impacts by triggering specific pre-planned intervention measures if monitoring reveals that aspects of the ecosystem are evolving (responding to prior interventions) along undesirable trajectories.

Monitoring key attributes of the physical, chemical, and biological conditions of the South Bay ecosystem may detect early signs of unexpected or uncertain adverse effects. The AMP identifies management triggers that indicate when restoration actions may cause a significant adverse environmental impact. The management triggers are intended to provide a warning to decision-makers before a significant impact occurs. If a management trigger is tripped, the restoration would be halted or modified until a focused evaluation is conducted to assess if a potentially significant impact would result from the SBSP Restoration Project or other factors. If the focused evaluation determines that the SBSP Restoration Project would cause a significant impact, an adaptive management action to avoid the significant impact would be implemented. Ongoing monitoring would determine the effectiveness of the adaptive management action. The project decision-makers would use these results to determine whether the progression along the restoration "staircase" should continue (i.e., additional tidal restoration should occur). If the focused evaluation and/or monitoring results indicate that a significant impact would still occur, even with implementation of the adaptive management action, then additional tidal restoration activities would cease. This cessation could happen at any point along the restoration staircase (described in more detail in the Executive Summary of the 2007 EIS/R) between the Alternatives B and C bookends of 50 percent tidal marsh/50 percent managed ponds and 90 percent tidal marsh/10 percent managed ponds.

As mentioned above, triggers were developed and selected to provide the opportunity to modify the phasing and design of future phases or change pond management before thresholds of significance are exceeded. These decisions about future restoration options (e.g., choosing whether a particular salt pond would be restored to a tidal marsh or retained and enhanced as a managed pond) and the designs and plans that would go into them are termed "staircase" issues because they address where on the staircase between the pre-project conditions and the 90 percent/10 percent balance the SBSP Restoration Project might ultimately stop. Many of the resources that could be impacted by the project are directly affected by these staircase-issue decisions. These include weighing the habitat needs of pond-dependent bird species against marsh-dependent species, or balancing the goal of providing public access and recreation features with the need to not disturb sensitive wildlife species. The AMP provides a formal context in which to evaluate these aspects of the staircase issues and how they would be shaped by the selection and implementation of actions in each phase of the SBSP Restoration Project. Consequently, many of the most wide-reaching and long-term potentially significant impacts identified in this Final EIS/R would be avoided through implementation of the AMP.

The adaptive management approach similarly ensures that no significant impacts would occur in association with construction and/or operation of the project. As such, the AMP is not a mitigation measure identified in this Final EIS/R to reduce potentially significant impacts, but rather it is an integral part of the project that would avoid significant impacts through the restoration triggers-management actions feedback loop.

For the other environmental issue areas that the AMP does not address (e.g., non-staircase issues such as air quality), mitigation measures are identified (as needed) to reduce potentially significant impacts to less than significant levels. If feasible mitigation measures are not identified for a potentially significant impact concerning a non-staircase issue, then it would remain potentially significant.

Phase 2 No Action Alternatives

The Phase 2 No Action impact discussion presents a project-level evaluation of the No Action Alternative at each pond cluster. In general, and as listed and explained in Chapter 2, these No Action Alternatives are named with the letter "A" following the name of the pond cluster in which it would occur (e.g., the No Action Alternative at the Alviso-Island Ponds is named "Alternative Island A").

The Phase 2 No Action Alternatives focus on the environmental changes that would occur if the Phase 2 actions were not implemented in those locations. These ponds are currently managed under the general principles and practices described in Programmatic Alternative C; therefore, the Phase 2 No Action Alternatives would result in the continued implementation of Programmatic Alternative C at these ponds.

Programmatic Alternative C was selected and is being implemented for the SBSP Restoration Project as a whole. Yet at any particular pond cluster, it would be possible to select a No Action Alternative under Phase 2 and still move forward with a Phase 2 action alternative at other pond clusters. In some cases, geographic distinctions are identified that are unique to the Phase 2 ponds. Where there are similarities between the impacts resulting from Programmatic Alternative A and the Phase 2 No Action Alternatives, the program-level discussions from the 2007 EIS/R are referenced.

Phase 2 Action Alternatives

The Phase 2 actions are the second phase of long-term Programmatic Alternatives B and C. Because potential impacts from implementation of the Phase 2 actions would generally be similar to those identified for Alternatives B and C, many of the impacts and mitigation discussions are similar. To reduce redundancy, impact discussions and mitigation measures presented in the 2007 EIS/R for the SBSP Restoration Project long-term alternatives are referenced in the Phase 2 impact discussions to the extent possible. Also, as noted in Chapter 2, program-level mitigation measures from the 2007 EIS/R have been adopted and incorporated into the designs at the project level, making them part of the project and not a mitigation measure.

Avoidance and Minimization Measures for Less than Significant Impacts

As discussed above, impacts of Phase 2 of the SBSP Restoration Project are characterized as potentially significant, less than significant with mitigation, less than significant, no impact, or beneficial. Where potential impacts are considered to be less than significant, effects would not exceed the identified thresholds, and mitigation measures were not identified in Chapter 3's resource-specific Sections 3.2 through 3.17, to further reduce impacts.

Three categories of less than significant impacts were identified in Chapter 3 of the 2007 EIS/R and are described below. This section reviews the availability or absence of mitigation measures that would further reduce less than significant impacts.

- **Impacts that would be reduced to less than significant levels with the implementation of management actions identified in the Adaptive Management Plan.** The AMP, presented in Appendix C of the 2007 EIS/R and summarized in Section 2.3 of that document and again in this Final EIS/R, identifies management actions that are intended to optimize environmental resources affected by the project and reduce impacts to acceptable, less than significant levels. These management actions address sediment dynamics, water quality, biological resources, and recreation and public access. The AMP identifies management triggers that would be tripped

before a significant environmental impact occurs in order to warn decision-makers and give them time to implement the appropriate management actions to address the potential impact. These management actions would generally be applied even if management triggers are not tripped, to further improve environmental conditions for the resource areas addressed by the AMP.

- **Impacts that would be considered less than significant with implementation of mitigation measures identified in the Final EIS/R.** Certain impacts that are identified as potentially significant would be reduced to less than significant levels with implementation of mitigation measures. Because these mitigation measures include a variety of Best Management Practices that would cumulatively achieve greater reduction than the minimum acceptable to reach the less than significant threshold, the implementation of these mitigation measures would likely be effective in further reducing the impact.
- **Impacts that are so minor that additional mitigation measures are not warranted or impacts where no additional measures would be feasible.** This category of impacts covers the remaining less than significant impacts of the project

3.1.3 Baseline Conditions

Baseline conditions are typically “the physical environmental conditions in the vicinity of the Project, as they exist at the time the Notice of Preparation (NOP) is published” (CEQA Guidelines Section 15125(a)). However, given that the 2007 EIS/R, on which this document is tiered, was published in 2007, more than 8 years before the Phase 2 Final EIS/R is scheduled to be released, the baseline conditions described in the 2007 EIS/R were updated as needed. The NOP for Phase 2 was published in September 2013, and for the purposes of this Final EIS/R, the baseline conditions are set in Fall 2013. For this timeline, the Phase 1 actions are complete and are included in the baseline conditions.

This page intentionally left blank