TABLE OF CONTENTS

Similar to the Delta Risk Management Strategy (DRMS) Phase 1 Risk Analysis Report (URS/JBA 2007h), the DRMS Phase 2 Risk Reduction Report was carried out for the most part using existing information (data and analyses). The Phase 2 schedule did not afford the opportunity to conduct field studies, laboratory tests, or research investigations.

The overall assumptions and limitations pertinent to DRMS Phase 2 are listed below:

- The bases for the development of the concepts and costs presented in this report are developed at a conceptual level. They should not be considered as final estimates normally associated with the design of a project. At this level of conceptual development, contingencies are included in the costs. The final engineering cost estimate can only be obtained at the design phase of the project. The cost estimate efforts presented in this report are not those expected to be provided with a final design product.
- The engineering analyses conducted for DRMS Phase 2 were developed at a simplified level using broad interpolation of engineering parameters that are naturally highly variable across a large area such as the Sacramento–San Joaquin River Delta (Delta) and Suisun Marsh. The assumptions and limitations discussed here apply to all the building blocks presented in this report.
- Topographic and bathymetric base maps are essential components of the analyses presented in this report. The data used for this study are a compilation of various topographic data sets prepared at different times, with different reference datums, and by different methods and entities. The use of current, unified, and comprehensive topographic and bathymetric base maps would greatly improve the reliability of the findings of this report. The California Department of Water Resources recognizes this need and is in the process of producing such topographic base maps.
- Many of the building blocks discussed in this report, if implemented, would result in substantial changes. Where substantial changes in land use would occur and where people and their livelihoods could be affected, considerable social costs can be assumed to occur. It is beyond the scope of this study to assess the magnitude of these social costs.
- Capital construction costs were estimated using available historical data, cost data handbooks, and other available sources. Operation and maintenance costs were evaluated only at a qualitative level.
- Some costs were used uniformly across the building blocks, as follows:
  - The building blocks used an assumed land acquisition cost of $10,000 per acre.
  - A mobilization and demobilization cost of 10 percent of the construction cost was used for all building blocks, except Building Block 1.6: Armored Pathway (Through-Delta Conveyance) and Building Block 1.7: Isolated Conveyance Facility Alternatives, which used a mobilization and demobilization cost of 5 percent due to their higher relative costs.
  - A contingency allowance of 30 percent was used to account for unknowns at the conceptual level of cost estimating used for this report.
  - Survey, design, construction management, and administration costs of 30 percent were assumed.

- Impacts and risk to ecosystems were assessed qualitatively.
  - Emphasis was placed on assessing impacts to listed species. Impacts to listed species are based on data sets collected with different resolution in space and time and therefore represent only potential impacts. Detailed site surveys are required to identify the listed species affected by the building blocks.
  - In many building blocks, this report did not take into account impacts to unlisted species and habitats, which may reflect greater changes in species communities and composition. The report also did not account for impacts that would result in modified landscapes as vegetation matures and as altered hydrodynamics and sedimentation modify habitats. Impacts resulting from cascading effects along food webs were also not included in the assessment.
  - Due to the complexity of the Delta's ecology, species response to modified habitats is difficult to predict and was not assessed. However, in some cases expert opinion or species surveys from similarly impacted habitat in the Delta was referred to in the qualitative assessment. Surveys of species use of existing modified habitats would increase the accuracy of predictions of species response to changes caused by the building blocks. These data would also inform predictions about the response of non-listed species, species composition, and communities.
- The complexity of the issues in the Delta and the limited time available to undertake the Phase 2 effort mean that additional scenarios that could not be developed in this phase will require consideration. Further, the performance of sensitivity analyses of the scenarios themselves would be valuable to assess the importance of the major components of the scenarios on the overall risk reduction benefits. Other ongoing agency initiatives will likely require consideration of additional scenarios.