

## PROJECT IMPACTS AND MITIGATION

This attachment lists the Project impacts for both the Loveridge Road and Sommersville to State Route 160 segments. In addition, the mitigation requirements for temporary, permanent, and stormwater impacts are provided.

### A. Project Impacts (Temporary, Permanent, and Stormwater):

1. Temporary impacts for the Loveridge Road segment are summarized below:

Table 1: Loveridge Road segment-Temporary Impacts

Hydrologic Unit Code (HUC)	Water Body	Project Impact Area (acres)	Impact Sheet No.	Post Mile
Suisun Bay 18050001	Kirker Creek	0.005	1	23.8
Suisun Bay 18050001	Los Medanos Wasteway	0.004	3	25.5
<b>Total</b>		<b>0.009</b>		

2. Permanent impacts for the Loveridge Road segment are summarized below:

Table 2: Loveridge Road segment-Permanent Impacts

Hydrologic Unit Code (HUC)	Water Body	Project Impact Area (acres)	Impact Sheet No.	Post Mile
Suisun Bay 18050001	Kirker Creek	0.048	1	23.8
Suisun Bay 18050001	Kirker Creek	0.008	1	23.8
Suisun Bay 18050001	Old Kirker Creek	0.005	1	23.8
Suisun Bay 18050001	Old Kirker Creek	0.010	2	24.4
Suisun Bay 18050001	Old Kirker Creek	0.021	2	24.4
Suisun Bay 1805001	Los Medanos Wasteway	0.011	3	25.5
Suisun Bay 1805001	Los Medanos Wasteway	0.007	3	25.5
<b>Total</b>		<b>0.11</b>		

3. Stormwater impacts for the Loveridge Road segment are summarized below:

Project implementation would result in 32.8 acres of added and reworked impervious area. As detailed in a memorandum dated October 27, 2008, the Authority evaluated susceptibility for hydromodification impacts to receiving waters and found that all receiving waters in the Project area, with the exception of Old Kirker Creek and the culverts under Century Boulevard, are at low risk for hydromodification impacts.

## 4. Permanent impacts for the Somersville to State Route 160 segment are summarized below:

Table 3: Somersville to State Route 160 segment-Permanent Impacts

Hydrologic Unit Code (HUC)	Water Body	Project Impact Area (acres)	Impact Sheet No.	Post Mile
San Joaquin Delta 18040003	West Antioch Creek	0.015	4	26.8
San Joaquin Delta 18040003	West Antioch Creek	0.031	4	26.9
San Joaquin Delta 18040003	West Antioch Creek	0.004	4	26.8
San Joaquin Delta 18040003	West Antioch Creek	0.004	4	26.9
San Joaquin Delta 18040003	West Antioch Creek	0.008	4	26.8
San Joaquin Delta 18040003	West Antioch Creek	0.013	4	26.9
San Joaquin Delta 18040003	West Antioch Creek	0.011	4	26.8
San Joaquin Delta 18040003	West Antioch Creek	0.003	4	26.9
San Joaquin Delta 18040003	West Antioch Creek	0.005	4	26.9
San Joaquin Delta 18040003	West Antioch Creek	0.002	4	27.0
San Joaquin Delta 18040003	West Antioch Creek	0.007	4	27.0
San Joaquin Delta 18040003	West Antioch Creek	0.003	4	27.2
San Joaquin Delta 18040003	West Antioch Creek	0.002	4	27.0
San Joaquin Delta 18040003	West Antioch Creek	0.007	5	27.0
San Joaquin Delta 18040003	West Antioch Creek	0.002	5	27.0
San Joaquin Delta 18040003	West Antioch Creek	0.009	5	27.2
<b>Total</b>		<b>0.126</b>		

## 5. Stormwater impacts for the Somersville to State Route 160 segment are summarized below:

Project implementation would result in 39.1 acres of added impervious area. As detailed in a memorandum dated May 26, 2009, the Authority evaluated susceptibility for hydromodification impacts to receiving waters and found that West Antioch Creek is at risk for hydromodification impacts.

**B. Mitigation:**

## 1. Mitigation for temporary impacts for the Project is summarized below:

To mitigate for temporary impacts to jurisdictional wetlands and waters, the Authority shall re-vegetate all temporarily disturbed areas with appropriate native vegetation, restore disturbed areas to original or improved conditions, and follow stream diversion best management practices unless otherwise approved by the State Water Board.

## 2. Mitigation for permanent impacts for the Project is summarized below:

The Authority shall mitigate for permanent impacts through the purchase of 0.944 acres of seasonal wetland mitigation credits from Elsie Gridley Mitigation Bank (Bank) in Solano County.

## 3. Mitigation for stormwater impacts for the Project is summarized below:

## a. Loveridge Road segment

As mitigation for increased pollutant loads associated with impervious areas, the Authority shall provide on-site treatment of stormwater runoff. On-site stormwater treatment shall be constructed as described in the Best Management Practice (BMPs) as identified in the *Route 4 East Widening Project: Loveridge Road to Somersville Road Draft Storm Water Data Report*. The biofiltration swales and detention basin will mitigate water quality impacts from 23.0 acres of the required 32.8 acres of stormwater treatment, leaving a treatment deficit of 9.8 acres.

To fulfill the 9.8 acre stormwater treatment deficit, the Authority shall implement an off-site stormwater treatment project. Details of the off-site stormwater treatment proposal were provided to Water Board staff in a Water Resources Engineering Company Project Memorandum dated June 17, 2008, and in a follow-up e-mail correspondence with the Authority dated August 6, 2008.

The Authority prepared a *Hydromodification Report* (Report) dated September 2008, based on the Hydrograph Modification Management Plan of the Contra Costa Clean Water Program. An addendum was made to the Report in a Project Memorandum (Memo) dated October 27, 2008. As detailed in the Report and Memo, only Old Kirker Creek requires mitigation for potential hydromodification impacts. The above-mentioned detention basin shall mitigate for potential hydromodification impacts to Old Kirker Creek.

## b. Sommersville to State Route 160 segment

As mitigation for increased pollutant loads associated with impervious areas, the Authority shall provide on site treatment of stormwater runoff. On-site stormwater treatment shall be constructed as described in the BMPs as identified in the Caltrans *Drainage Calculations and Exhibits for Storm Water Quality Treatment BMPs* dated April 2009. The biofiltration swales, biosrips, and an underground water quality detention pipe facility will mitigate water quality impacts from 40 acres of the required 39.1 acres of stormwater treatment.