

Red Hill Bay Restoration

Project Work Plan

<u>Task</u>	<u>Deliverables</u>	<u>Funding Source</u>
<u>A. Construction/Implementation</u>		
1. Divert drainage water that continues flowing into RHB to prepare for berm const.	Farm water diversion channel 6,500'L x 5'W x 3'D connecting SE corner of project to existing outflow of RHB.	Sonny Bono Salton Sea NWR
2. Construct RHB 2 Berm @ mouth of RHB to keep periodic wind generated flows out of RHB.	RHB 2 Berm is built w/ 2 water control structure outlets.	SBSS NWR
3. Construct Saltwater Intake Channel from edge of Salton Sea to Pumping Plant to supply saltwater into system.	Saltwater Intake Channel 10'W x 10'D x 6.050'L w/ adjacent berm 2'H x 20'W is built, capable of supplying 10 cfs to maintain RHB w/ a source of salt and low-selenium water.	Dept. Fish & Game Financial Assistance Program
4. Construct Alamo River supply Channel to get Alamo River water to pumping plant.	Alamo River supply channel 10'W x 6'D x 1,600'L is built. This can supply the needed 10 cfs to reduce salinity in RHB.	SBSS NWR
5. Construct/install concrete structure and siphon under RH Marina Rd. to deliver Alamo River water in excavated channel past RH Marina Rd. to pumping plant.	A concrete water control structure and siphon or culvert is installed under Red Hill Marina Rd. to deliver Alamo River water under the County Rd. to the pumping plant.	DFG FAP
6. Construct RHB water pumping plant to distribute blended water from the Salton Sea and Alamo River into a mixing basin and from there into Red Hill Bay 1. Pumping will require variable rates of salt and drain water to accommodate changing water conditions in the habitat.	A concrete pumping facility to support both saltwater and drain water pumping systems. Includes a single pump for each and a single back-up for each. Includes all electric switching and controls necessary to adjust flows as needed to maintain habitat water quality parameters (i.e. salinity, selenium). System will operate on 3-phase electrical power but have built-in capacity for solar PV in the future.	DFG FAP

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<p>7. Construct RHB 1 Berm to impound blended water in the first bay, Red Hill Bay 1. Tie the berm into the east bank of the saltwater intake channel/berm.</p>	<p>BHB 1 Berm is constructed and capable of impounding water. Berm is 3.5'H x 20'W x 4,800'L and protected on the upstream side with cocoa-mat or similar economical erosion control. Two wcs's installed to pass water through berm.</p>	<p>DFG FAP</p>
<p>8. Extend 3-Phase electrical power supply from Sinclair Rd. 6,700' north to the project site to provide sufficient power to meet all pumping needs of the project and capacity for increased need in the future.</p>	<p>An installed 3-Phase electrical power line, on same alignment as existing single-phase supply, to the pumping plant, connected with power and meters provided.</p>	<p>DFG FAP</p>
<p>9. Build Boundary Berm on the east edge of the project to keep impounded water from Red Hill Bay 1 from the 400' strip of land between Garst Rd. and the Boundary Berm (poss.future location of geothermal facilities). This road may also provide future access for birdwatchers to view birds.</p>	<p>Boundary Berm is built. Berm is 2.5'H x 20'W x 5,000'L. Connects Garst Rd. to pumping plant.</p>	<p>DFG FAP</p>
<p>10. Connect saltwater intake channel out into the Salton Sea to a depth of 12" to ensure adequate saltwater flow to the pumping plant for distribution to Red Hill Bay 1.</p>	<p>A small, sheet-piling re-enforced channel is excavated connecting the saltwater intake channel to a steady supply of Salton Sea water. The temporary sheet piling is placed 10' apart in parallel in the alignment of the channel and soil in between the piling is excavated to a depth of 12".</p>	<p>SBSS NWR</p>
<p>11. Enhance/excavate low flow swales in each of the bays, connecting inflows to the outflows. Use excavated soil from swales to build loafing/nesting islands. Excavate deep pools as needed for island construction.</p>	<p>Approximately ten islands 30'W x 60'L will be in each bay, armored with 1"-3" crushed rock up to the waterline for erosion control. Broad low flow swales will connect water flow from the inlet of each bay to it's outlet.</p>	<p>SBSS NWR</p>
<p>12. Place dead tree snags or similar material to attract potential wadingbird nesting. Also need concrete culvert pipe dispersed in the swales and throughout the bays to shelter fish.</p>	<p>Approx. ten tree snags will be placed in each bay. Approx. ten 20" concrete culvert pipe will be placed in each bay.</p>	<p>SBSS NWR</p>

<u>B. Project Administration</u>		
1. Ensure flow of administrative functions.	Preparation of invoices and other documents as required.	SBSS NWR
2. Reporting. Ensure thorough financial and product reports are provided.	Submission of quarterly, annual and final reports as specified in the Grant Agreement.	SBSS NWR
<u>C. Land Easement/Lease</u>		
1. Work with land owner in project area to establish long-term lease.	Long-term lease is acquired	SBSS NWR
<u>D. Planning/Design/Engineering/Environmental Documentation</u>		
1. Initial Surveys	Feasibility surveys completed and likely project mapped out.	IID
2. Final Design	Completion of project plans and specifications at the 90 percent and final level.	DFG FAP
3. Environmental Documentation	Approved and adopted NEPA documentation.	SBSS NWR
4. Permitting	Sections 1602 & 404, and air quality permits.	SBSS NWR
<u>E. Environmental Compliance/Enhancement</u>		
1. Environmental Compliance	Environmental regulation will be adhered and documented. Final result is intended to be an enhanced, sustainable habitat, in compliance with federal, state and local regulation.	SBSS NWR
<u>F. Monitoring</u>		
1. Biological	Spreadsheets with survey data for birds, fish and invertebrates.	SBSS NWR/FAP
2. Salinity and Water Levels	Spreadsheets with salinity and water level data.	SBSS NWR
3. Pesticides	Spreadsheets with sample dates, times and extraction information, and a final report.	DFG FAP
4. Selenium	Annual reports	DFG FAP (first 2 years) SBSS NWR (subsequent years)

G. Operations and Maintenance

Operations and maintenance of all infrastructure and habitat.

Sustainably operated and maintained habitat and infrastructure.

SBSS NWR

