

SWCA[®]

ENVIRONMENTAL CONSULTANTS

Sound Science. Creative Solutions.[®]

Proposal to Provide Jordan River Enhancements in Relation to the Willard Bay Diesel Spill Settlement

Prepared for

Utah Division of Water Quality

Prepared by

SWCA Environmental Consultants

May 5, 2014



CONTENTS

Applicant Information..... 1

1. Estimated Project Costs..... 1

2. Describe the Purpose and Need of the Project 1

3. Estimated Time Frame of the Project with Significant Milestones (Note: Project must be Completed with Final Reports Filed by January 1, 2018) 2

4. Describe the Location of the Project with Attached Location map, including Details on the Total Area that will be Directly Enhanced by the Project 3

5. Describe how the Project will Specifically Enhance and Protect Waterways Affected by the Willard Bay Diesel Release and Improve the Conditions of One or More of the Following: Wildlife, Habitat, Natural Vegetation, Water Quality, or Emergency Response 3

6. Describe Project’s Connectivity to Other Natural Areas or Projects that Further Enhance Wildlife, Habitat, Natural Vegetation, Water Quality, or Emergency Response 5

7. Describe any Additional Social Benefits of Implementing this Project..... 5

8. Project Plans and Details, including Rights to Work on Specified Piece of Land 5

9. Describe your Experience in Implementing Projects of Similar Scope and Magnitude . 5

10. Describe how Ongoing Maintenance of the Project will be Funded and Carried Out . 6

11. List Consultants or Agency Partners that have Participated in Project Development.... 6

Cost Assumptions..... 6

ATTACHMENT A. Examples of Previous ExperienceA-1

APPLICANT INFORMATION

Legal Name: Sandy City Corporation

Project Title: Jordan River Enhancement – River Oaks Environmental Improvements

Agency:

Sandy City Corporation
10000 Centennial Parkway
Sandy, UT 84070
(801) 568-7280
dwoodbury@sandy.utah.gov

Sandy City Corporation is a government agency.

1. ESTIMATED PROJECT COSTS

Project Item	Costs
Stream bank stabilization permitting	\$5,000
Stream bank bioengineering/stabilization implementation	\$183,000
Native plant re-vegetation along riparian area	\$12,250
Wetland enhancement permitting, delineation, and reporting	\$5,000
Invasive species management plan	\$2,000
Invasive species removal from wetlands	\$20,000
Native plant re-vegetation along invasive removal area	\$32,000
Environmental education and outreach	\$5,500
Project design, management, and reporting	\$31,770
Total	\$296,520

2. Describe the Purpose and Need of the Project

The purpose of this project is to ecologically enhance a portion of the Jordan River corridor to restore wildlife habitat, increase recreational opportunities, and increase social awareness of best management practices for invasive species removal. Specifically, this goal will be obtained through accomplishing a series of objectives that include 1) protecting the east bank of the Jordan River from further encroachment and continual erosion into the River Oaks Golf Course property, 2) creating an invasive species plan that primarily targets Russian olive (*Elaeagnus angustifolia*) and includes both removal and re-vegetation components, and 3) delineating and enhancing wetlands within the project area. The need for this project arises due to an increase in stream bank erosion at a significant rate over the past 4 or 5 years, to the detriment of prime wildlife habitat and vegetative cover, which has been lost or compromised as a result (Figure 1). Furthermore, this erosion loss is compounded by the proliferation of Russian olive along the stream bank and also within several adjacent wetlands. Project completion would result in greatly enhanced ecological, social, and recreational ecosystem services to a waterway that serves a multitude of needs for the Salt Lake Valley.



Figure 1. Stream bank collapse along the Jordan River.

3. Estimated Time Frame of the Project with Significant Milestones (Note: Project must be Completed with Final Reports Filed by January 1, 2018)

This project will start upon receipt of funds in early 2014 and complete on-the-ground work efforts by fall of 2015. Monitoring, reporting, and documentation of efforts will be conducted throughout the duration of the project and will be summarized in the final report due January 2018 (see table below). Initial work would focus on mitigating critical locations of erosion (approximately 300 yards of the east bank of the Jordan River) with various stream restoration techniques, with other milestones being met and coinciding with the levels of flow in the Jordan River. Actual construction activities involving heavy equipment in the river channel will be conducted at a low-flow period of the year. Removal of invasive species will be conducted during the summer of 2014, with planting of native vegetation occurring after J-hook, and/or cross-vein installations in the river. Removal of the concrete debris and other non-native materials will also be conducted during low-flow periods. Wetland delineations and permitting will be conducted during summer of 2014, with enhancement projects occurring during the following summer of 2015.

Monitoring of stream bank stabilization and re-vegetation efforts will be conducted throughout the duration of the project to ensure successful establishment of desired species and stabilization of constructed activities. This final milestone will be completed by fall of 2017.

Task/Item	Start Date	Duration (days)	End Date
Delineation	6/15/2014	3	6/18/2014
Permitting	6/18/2014	30	7/18/2014
Reporting	7/19/2014	6	7/25/2014
Stream Bank Bioengineering Design	5/1/2015	14	5/15/2015

Task/Item	Start Date	Duration (days)	End Date
Stream Bank Bioengineering/Stabilization	9/1/2015	30	10/1/2015
Stream Bank Bioengineering/Stabilization Re-vegetation	10/7/2015	14	10/21/2015
Invasive Species Management Plan	8/16/2014	3	8/19/2014
Invasive Species Removal	9/1/2014	15	9/16/2014
Wetland Enhancement and Re-vegetation	9/20/2014	15	10/5/2014
Education and Outreach	8/1/2014	2	8/3/2014
Education and Outreach	3/1/2015	2	3/3/2015
Education and Outreach	3/1/2016	2	3/3/2016
Reporting	12/01/14	5	12/6/2014
Reporting	12/02/15	5	12/7/2015
Reporting	12/03/16	5	12/8/2016

4. Describe the Location of the Project with Attached Location map, including Details on the Total Area that will be Directly Enhanced by the Project

The location of the project is along the Jordan River, south of 9000 South, on the River Oaks Golf Course property, which is owned and operated by Sandy City. A vicinity and location map is provided in Figure 2 on page 4. The anticipated total area to be enhanced would include 2,440 feet of stream bank along the east and west banks of the Jordan River and 2.05 acres of invasive removal and wetland enhancement adjacent to the River Oaks Golf Course property.

5. Describe how the Project will Specifically Enhance and Protect Waterways Affected by the Willard Bay Diesel Release and Improve the Conditions of One or More of the Following: Wildlife, Habitat, Natural Vegetation, Water Quality, or Emergency Response

The proposed project will enhance and protect the Jordan River waterway through a suite of habitat improvement and management strategies. First, the stream bank bioengineering will stabilize bank portions that are currently eroding; the erosion contributes to the turbidity of the Jordan River and the subsequent degradation of water quality. Additionally, stabilizing these banks will prevent further loss of property and infrastructure (e.g., Oaks River Golf Course, Jordan River Parkway Trail and the trail-side urban fishery). The removal of invasive species and re-vegetation using native plant species will improve the condition and ecosystem function of the riparian and wetland area while providing wildlife habitat.



Figure 2. Map of proposed project area.

6. Describe Project's Connectivity to Other Natural Areas or Projects that Further Enhance Wildlife, Habitat, Natural Vegetation, Water Quality, or Emergency Response

The projects outlined in the proposal will supplement other wetland restoration and invasive species work being done in Sandy City. For example, the project area is contiguous to a wetland project that Sandy City has already undertaken and that is in the final design phases, with construction is slated to begin soon. Additionally, a local canal company just completed a Russian olive removal project along an adjacent canal. Finally, this would be a protection and enhancement to the Jordan River Parkway Trail system, which is contiguous and was recently installed along the west shore line of the river where we are proposing to do work.

7. Describe any Additional Social Benefits of Implementing this Project

This project provides several social benefits to Utah citizens from an aesthetic, recreational, and environmental standpoint. It enhances multiple ecosystem services by creating a healthy, properly functioning river corridor and adjacent wetlands. Stream bank restoration and invasive species removal will increase both aesthetic and recreational value for all users of the Jordan River Parkway Trail system as well as golfers at the River Oaks Golf Course. Improvements in invasive species removal and native re-vegetation coupled with successful dissemination of that information to local stakeholders will increase both the environmental health of the area as well as awareness of efforts.

8. Project Plans and Details, including Rights to Work on Specified Piece of Land

Most of the work on this project is set to be completed by the end of 2015. Stream bank restoration of the Jordan River will be the initial project focus and will commence as soon as funds are acquired. A series of techniques will be applied, including soil lifts, J-hooks, and cross-vein installation, to stabilize and restore banks. Restoration efforts will be monitored throughout the year and evaluated the following summer. Invasive species removal and native re-vegetation will occur over the course of 2 years from 2014 to 2015. Wetland delineation will proceed as soon as possible, and permitting from the U.S. Army Corps of Engineers (USACE) will be sought to conduct wetland enhancement. Once invasive species have been removed, wetland enhancement will begin in the summer of 2015. Sandy City is the sole owner and operator of lands within the boundaries of the River Oaks Golf Course; therefore, no further permission is required. Restoration work within the ordinary high water mark (OHWM) of the Jordan River and in any delineated wetlands will require permitting from the USACE and the State Department of Sovereign Lands.

9. Describe your Experience in Implementing Projects of Similar Scope and Magnitude

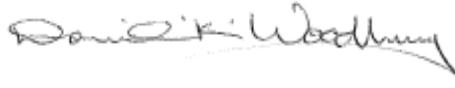
See Attachment A.

10. Describe how Ongoing Maintenance of the Project will be Funded and Carried Out

Stream bank restoration and wetland enhancement projects will be monitored throughout the duration of the project until the project completion deadline of January 1, 2018. At this time, monitoring efforts will be minimal and overseen by Sandy City and River Oaks Golf Course. Invasive plant removal will be more aggressively monitored throughout the project duration, with interim reports documenting treatment strategies and results. Future monitoring and invasive species removal will also be carried out by the River Oaks Golf Course.

11. List Consultants or Agency Partners that have Participated in Project Development

Name/Company	Address	Phone
Sandy City	10000 Centennial Parkway, Sandy, UT 84070	(801) 568-7280
SWCA Environmental Consultants	257 E. 200 South, Salt Lake City, Utah, 84111	(801) 322-4307
Salt Lake County	2001 South State Street, N4300, Salt Lake County, Utah 84114	(385) 468-0300

Signature: 

Date: May 5, 2014

COST ASSUMPTIONS

Stream bank bioengineering/stabilization will be achieved using various treatment methods including soil lifts, stream bank re-grading, and erosion control fabric, which have an average cost of \$75.00 per foot.

Riparian re-vegetation of native plants includes the installation of 350 5-gallon containerized plants at \$35.00 each. Plants will be installed to create habitat patches at varying densities across the 2,440 feet of the project.

Wetland re-vegetation after removal of invasive plants includes the use of 400 5- to 15-gallon containerized plants ranging from \$35.00 to \$125.00 each, with varying plant densities over the 2.05 acres of project area. Additionally, the removal site will be reseeded with a mix of native seeds.

Removal of invasive species, specifically Russian olive, includes an estimated 200 trees at \$100.00 each.

Environmental education and outreach includes three public meetings to address the concerns of the public. SWCA will provide Sandy City annual updates to post on their website.

ATTACHMENT A. EXAMPLES OF PREVIOUS EXPERIENCE

East Canyon Stream Restoration

Client: Snyderville Water Reclamation District

Location: Summit County, Utah

Dates: 2009–Present

SWCA is working with Snyderville Basin Water Reclamation District's (District) with the following primary goal for stream restoration: attain water quality standards for dissolved oxygen in East Canyon Creek by 1) controlling nonpoint source contributions of sediments and nutrients such as bank erosion and 2) mitigating poor physical stream characteristics, including channel widening, lack of shading, and unstable banks. To date, SWCA has managed the installation of 3,824 feet of stream bank bioengineering and the installation of more than 6,000 native riparian plants to provide soil stabilization, shading, and wildlife habitat.

Salt Lake City Airport Wetland Phragmites Management Plan

Client: Salt Lake City Department of Airports

Location: Salt Lake County, Utah

Dates: 2012–2013

In 2013, SWCA developed an integrated phragmites management plan for the Salt Lake City Department of Airports. The plan details the state of the knowledge for *Phragmites* control and treatment; monitoring plans for quantifying the success of control efforts; and long-term, site-specific weed management guidelines for the 450-acre wetland complex within the 945-acre mitigation site west of Salt Lake City International Airport. The objective of the plan is to provide context and guidance for the control or elimination of large, monotypic stands of *Phragmites* at the Salt Lake City Department of Airports mitigation wetlands.

Salt Lake City Regional Athletic Complex Mitigation Oversight

Client: MGB&A

Location: Salt Lake County, Utah

Dates: 2006–2010

As part of the development of a regional athletic complex, Salt Lake City Corporation required a Section 404 permit, mitigation plan, and construction oversight for 3 acres of created wetlands adjacent to the Jordan River.

SWCA designed a wetland mitigation plan in the context of a broader restoration strategy for the city-owned parcel adjacent to the Jordan River. The mitigation plan integrates wetlands into site-specific restoration goals and includes a description of desired future condition of the riparian corridor and long-term management of the site. In addition, SWCA reviewed the contractor bid package for mitigation plan implementation. Within this larger project, SWCA is currently providing construction oversight for the installation of a 3-acre mitigation wetland complex, which began in fall 2011. Specific tasks associated with construction oversight include final grade assessment, groundwater monitoring, plant material selection, and plant installation evaluation.

Jordan River Riparian Restoration and Enhancement Services

Client: Salt Lake City Corporation

Location: Salt Lake County, Utah

Dates: 2012–2013

SWCA is under contract with Salt Lake City Corporation to develop restoration goals and designs for two locations along the Jordan River. Working within a fixed construction budget, SWCA developed restoration strategies that improve habitat diversity, bank stability, water quality, and recreation access along this urban waterway. SWCA is also responsible for construction oversight and development of an operations and maintenance manual for the long-term management of the restoration sites.

Bingham Junction Compensatory Mitigation

Client: Mercer Bingham Junction, LLC

Location: Salt Lake County, Utah

Dates: 2006–2011

The Mercer Bingham Junction project includes the redevelopment of approximately 130 acres of the Midvale Slag Superfund Site adjacent to the Jordan River, the purpose of which is to provide mixed residential and commercial space along with natural areas in south Salt Lake County. In collaboration with Midvale City and the site developer, SWCA provided wetland delineation services and submitted Section 404 Individual and Nationwide permit applications to the U.S. Army Corps of Engineers. SWCA developed the conceptual design for a 13-acre wetland mitigation site and collaborated with a local engineer firm to turn it into construction design sheets. The focus of design was relocating a 600-foot section of berm along the Jordan River to re-establish floodplain connectivity and maximizing the restoration potential of this managed urban waterway. SWCA conducted construction oversight of the grading and planting contractor and long-term monitoring at the site, as per the conditions of the permit. Two channels were established within the 12-acre wetland area totaling approximately 1,700 linear feet. This site was designated as complete by the Corps in November 2011, having met conditions of the Section 404 permit.

Legacy Nature Preserve

Client: Utah Department of Transportation

Location: Davis County, Utah

Dates: 2006–2012

The Utah Department of Transportation (UDOT) needed both short- and long-term restoration plans for the Legacy Nature Preserve to meet the conditions of its Section 404 permit. Effective contractor oversight was also needed to ensure construction was completed according to plans. SWCA assisted UDOT in developing and implementing these plans. As part of the implementation phase of this project, SWCA provided construction oversight and mitigation planning services to meet the terms of the Clean Water Act (CWA) Section 404 permit, as well as conducted vegetation and wildlife monitoring and annual reporting. The overall project involved restoration and management of a 2,200-acre mitigation site that borders the Jordan River. Smaller projects within the Legacy Nature Preserve included approximately 16 acres of wetland creation and installation of a 500-foot wetland drainage similar to the planned Lindon Hollow project. The wetland drainage project, associated with expansion of a PacifiCorp substation on the Preserve, was installed in 2010. Vegetation was well established by 2011 and mitigation requirements were completed in 2011.

SLC Open Space

Client: Salt Lake City Corporation

Location: Salt Lake County, Utah

Dates: 2011–Present

SWCA was contracted by Salt Lake City Corporation to map noxious and invasive weed infestations in open space areas owned and managed by the city and to develop an integrated pest management plan (IPMP). As part of this project, SWCA also created a pocket weed guide for use by City Public Works Department staff and the public for easier identification of weed species in the field. This guide includes a list of noxious plants found in Salt Lake County and the following information for each weed species: common and scientific names, precautions, description, and photographs of each weed at different life stages. Recommendations for proper control of weeds through chemical, mechanical, and biological methods are also included. SWCA mapped noxious and certain invasive weed species for the Jordan River and for the following properties: Wasatch Hollow Open Space, Hidden Hollow Open Space, H-Rock, Parley's Historic Nature Park, Miller Park, City Creek Open Space, Foothill Open Space, and Twin Peaks.

Yellowstone Mountain Club Wetlands

Client: Yellowstone Mountain Club

Location: Multiple Counties, Montana

Dates: 2006–2009

SWCA provided environmental services for The Yellowstone Mountain Club (YMC) near Big Sky, Montana, pertaining to environmental compliance construction monitoring and development of best management practices for golf courses and residential areas. Relevant services also included continued implementation of an environmental regulatory compliance program and monitoring construction and erosion control efforts. SWCA implemented the environmental regulatory compliance program beginning with an environmental awareness program for all YMC maintenance employees and contractors. Employees took a short test and signed a statement agreeing to and understanding their environmental compliance responsibilities. The program included regular updates to a checklist used to help monitor erosion control measures throughout the property. Construction monitoring activities included periodically observing construction work and notifying crew and/or supervisors if any environmental concerns arise. Monitoring duties included evaluation and recommendations for maintenance and installation of the best management practices. The monitoring concerns span a wide range of environmental concerns ranging from runoff and erosion, documenting hazardous material spills, stormwater management, and wildlife habitat protection.

West Valley City Wetland Delineation and Mitigation

Client: West Valley City

Location: Salt Lake County, Utah

Dates: 2008–2010

As part of the 12th West road construction project, SWCA inventoried natural and cultural resources. Specific services included a wetland delineation, wetland mitigation plan, and cultural resources inventory in the project area adjacent to the Jordan River. SWCA worked closely with West Valley City to minimize impacts to natural resources caused by road design and construction and to address invasive species (*Phragmites*) infestation in Jordan River wetlands.

Great Salt Lake Comprehensive Management Plan

Client: Utah Division of Forestry Fire and State Lands

Location: Multiple Counties, Utah

Dates: 2010–2012

SWCA assisted the Utah Division of Forestry, Fire and State Lands (FFSL) in revising the *Great Salt Lake Comprehensive Management Plan*. Before project implementation, SWCA prepared a project management plan for FFSL. SWCA's project approach included the development of draft and final plans that incorporate the wealth of new scientific research on Great Salt Lake and stakeholder (e.g., county government, environmental groups, and industry) input on management issues. SWCA was responsible for facilitating the project's planning team meetings as well as over a dozen public meetings held in a 2-year period. Through scoping, SWCA identified various management issues of concern to stakeholders. To address these issues SWCA developed an adaptive management strategy linking a variety of permitted uses and management actions to specific lake levels. SWCA also developed a long-term interagency coordination plan to improve communications between government agencies with regard to permitting and management on Great Salt Lake. SWCA's adaptive approach to the development lake-level management strategies and an interagency coordination plan have been well-received by the Utah Department of Natural Resources, the Department of Environmental Quality and by a range of stakeholders, including extractive industries as well as environmental advocacy groups.