

**SWCA**<sup>®</sup>

ENVIRONMENTAL CONSULTANTS

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**Proposal to Provide Impounded  
Wetland Habitat Improvement and  
Monitoring in Relation to the Willard  
Bay Diesel Spill Settlement**

Prepared for

**Utah Division of Water Quality**

Prepared by

**SWCA Environmental Consultants**

May 2014



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## APPLICANT INFORMATION

**Legal Name:** SWCA, Incorporated, d/b/a SWCA Environmental Consultants (SWCA)

**Project Title:** Impounded Wetland Habitat Improvement and Monitoring

**Applicant:**

SWCA Environmental Consultants  
257 East 200 South, Ste. 200  
Salt Lake City, UT 84111  
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[jdiamond@swca.com](mailto:jdiamond@swca.com)

SWCA is a commercial business.

## 1. Estimated Project Costs

Project Item	Costs
Labor	\$50,000
Materials	\$15,000
Equipment	\$8,000
Administration	\$6,000
Miscellaneous	\$1,000
Total	\$80,000

The total estimated project cost including other sources of funding will be \$80,000.

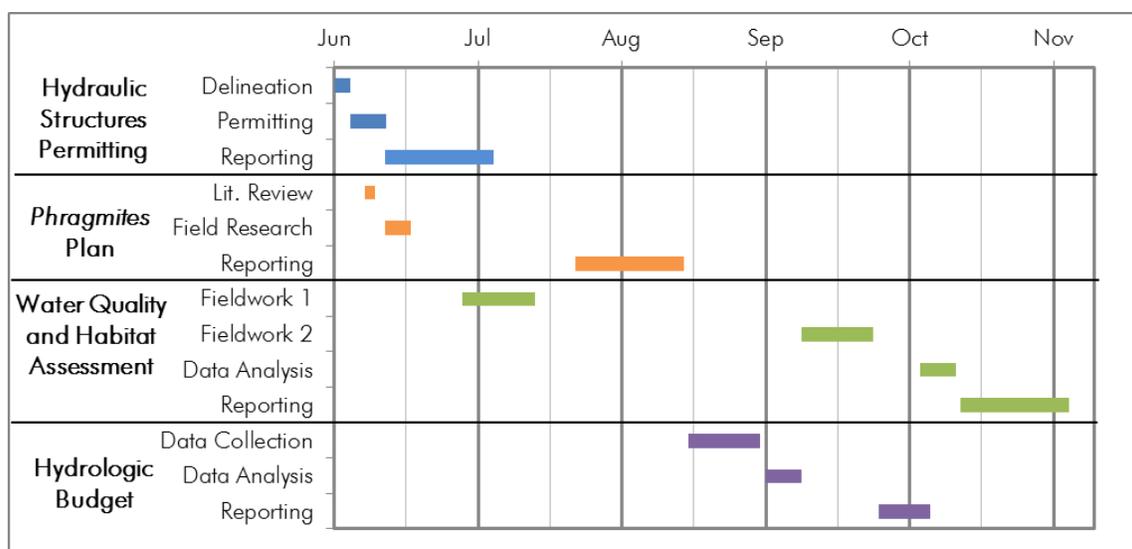
## 2. Describe the Purpose and Need of the Project

The purposes of the proposed project are threefold. First, the project aims to enhance the natural environment of Great Salt Lake impounded wetlands through improved management of invasive species and improved management and understanding of local hydrology. Second, the project will enhance recreational benefits to wetland users by increasing habitat quality for waterfowl through improvement of hydraulic infrastructure and nesting habitat at several recreational duck clubs along Great Salt Lake. Third, the project will provide benefits to citizens of the greater Utah community by developing an educational outreach plan that details successful management measures used to control invasive *Phragmites* in a scientifically defensible manner. This outreach plan will be made publicly available to other entities in the Great Salt Lake area and will provide a template for future efforts in *Phragmites* management.

## 3. Estimated Time Frame of the Project with Significant Milestones

The estimated time frame of the project is from June 2014 to January 1, 2018, with most of the work being concentrated in summer 2014 (Figure 1). The project will begin with delineation and permitting of new hydraulic structures to improve hydrologic management for waterfowl habitat in June 2014.

Each fall, for the remainder of the project, a monitoring and outreach report will be completed that identifies changes in habitat structure due to hydrologic management improvement. In July and September 2014, fieldwork for water quality and soil sampling will be conducted to improve understanding of drivers of local habitat quality. In summer 2014, the *Phragmites* management and monitoring plan will be developed, which will take into account prior management measures used by state and local governments. In late summer and early fall 2014, a hydrologic budget will be performed for the Harrison Duck Club, which will help inform better hydrologic management that is critical for constructing and maintaining adequate nesting habitat. Over the next three years, *Phragmites* monitoring will occur, with interim outreach reports being completed every fall that document invasive management actions and results. A final report will be completed in December 2017 and made available for public use (not shown in Figure 1).



**Figure 1. Summer–Fall 2014 project timeline.**

**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**

This project is in three Great Salt Lake duck clubs, just south of Farmington Bay (Attachment A). The total area that will be directly enhanced by the project is approximately 500 acres, but the total area of all participating duck clubs that can have indirect benefits from this project is estimated to be 6,000 acres. Harrison Duck Club (approximately 1,275 acres) will have the most direct benefits from this project. These include new culverts, a new rest lake for waterfowl, and new nesting structures for waterfowl. All participating duck clubs (Ambassador Duck Club is approximately 2,640 acres, and Lake Front Duck Club is approximately 2,150 acres) will benefit from *Phragmites* management and monitoring plans indirectly over their entire areas.

**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 project will enhance and protect the waterways affected by the Willard Bay diesel release by providing detailed information about ecosystem processes in impounded wetlands along Great Salt Lake. Impounded wetlands provide vital ecosystem services to Utah citizens such as nutrient and contaminant removal and sequestration, and recreational revenue and enjoyment from migratory bird habitat. Through improvements to hydraulic structures and ecohydrologic characterization of these impounded wetlands, this project will outline and promote effective management strategies to improve wetland water quality and habitat for wildlife.

Specifically, this project will use the Utah Division of Water Quality (DWQ) *Great Salt Lake Impounded Wetlands: 2012 Probabilistic Survey of Wetland Condition Sampling and Analysis Plan*<sup>1</sup> to characterize the wetlands of Utah duck clubs. This approach adheres to DWQ's *A Great Salt Lake Water Quality Strategy*<sup>2</sup> and will allow direct comparison to previous measurements of impounded and fringe wetlands along Great Salt Lake and Willard Bay. These comparisons will be summarized in a final report, which will also provide suggested management measures for improved health of Great Salt Lake impounded wetlands. This project will also create a hydrologic budget for the impounded wetlands, which will greatly improve hydrologic planning and management in the future.

Additionally, this project will specifically enhance and protect the wetlands around Great Salt Lake through development of an invasive *Phragmites* management plan. This plan will highlight best management practices and will seek to identify new avenues for control and removal of the invasive species through field monitoring and measurements. Over the course of the project, annual outreach reports will be completed that identify successful and unsuccessful management measures and detail the reasons behind successes and failures. These reports will be available to the public and will be used as educational tools for all stakeholders interested in *Phragmites* removal at Great Salt Lake.

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

This project is directly connected to all Great Salt Lake wetlands at several scales. At the management scale, this project connects all Great Salt Lake impounded wetlands by providing outreach of successful management of invasive species and waterfowl habitat. Additionally, the data generated by this project will bolster the development of the Wetland Program Plan section of the *Great Salt Lake Water Quality Strategy*. At the ecological scale, this project's direct improvements of local habitat and resource management are linked to improvements in water quality and habitat in downstream and adjacent wetlands. Furthermore, at the social and scientific scales, this project adds to the overall

<sup>1</sup> DWQ. 2012. *Great Salt Lake Impounded Wetlands: 2012 Probabilistic Survey of Wetland Condition Sampling and Analysis Plan*. Salt Lake City, Utah: Utah Department of Environmental Quality.

<sup>2</sup> DWQ. 2012. *Great Salt Lake Water Quality Strategy*. Salt Lake City, Utah: Utah Department of Environmental Quality.

watershed-based understanding of resource flows and environmental processes of the Great Salt Lake watershed.

## **7. Describe any Additional Social Benefits of Implementing this Project**

The ecosystem services provided by these wetlands are by their definition social benefits, and any enhancement of the ecosystem is an enhancement of the social benefits derived from it. Improvements in invasive species control, and dissemination of that information, equate to less costs for control and more financial availability for other worthwhile projects. Likewise, improvements in hydrologic management mean more efficient use of water and thus more efficient use of time and labor. Finally, this project directly improves, both aesthetically and ecologically, Great Salt Lake area duck clubs, which provide both enjoyment and revenue to Utah citizens.

## **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 fall 2014, aligning with the start of duck hunting season. The hydrologic infrastructure improvements are planned to be delineated, permitted, and completed by the end of July 2014. During this time, an invasive *Phragmites* management and monitoring plan will be written that builds off of other plans completed by SWCA as well as new data and information from the duck clubs. Starting in July 2014 and ending in September 2014, an impounded wetland assessment will take place at all participating duck clubs using DWQ's impounded wetland sampling and analysis plan. By November 2014, data from the wetland assessments will be analyzed and presented in a publicly available report. By the end of October 2014, a hydrologic budget of the impounded wetlands will be completed and submitted as a report. Permission has been obtained from Harrison Duck Club (see Attachment C; permission pending for Lake Front and Ambassador Duck Clubs) to conduct all aforementioned work in a joint effort between SWCA, ducks clubs, and Ducks Unlimited.

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

SWCA has a large amount of experience in implementing projects of similar scope and magnitude. SWCA has already created a *Phragmites* management plan for Salt Lake City Airport, and has completed many wetland mitigation and enhancement projects throughout Utah (Attachment B).

## **10. Describe How Ongoing Maintenance of the Project will be Funded and Carried Out**

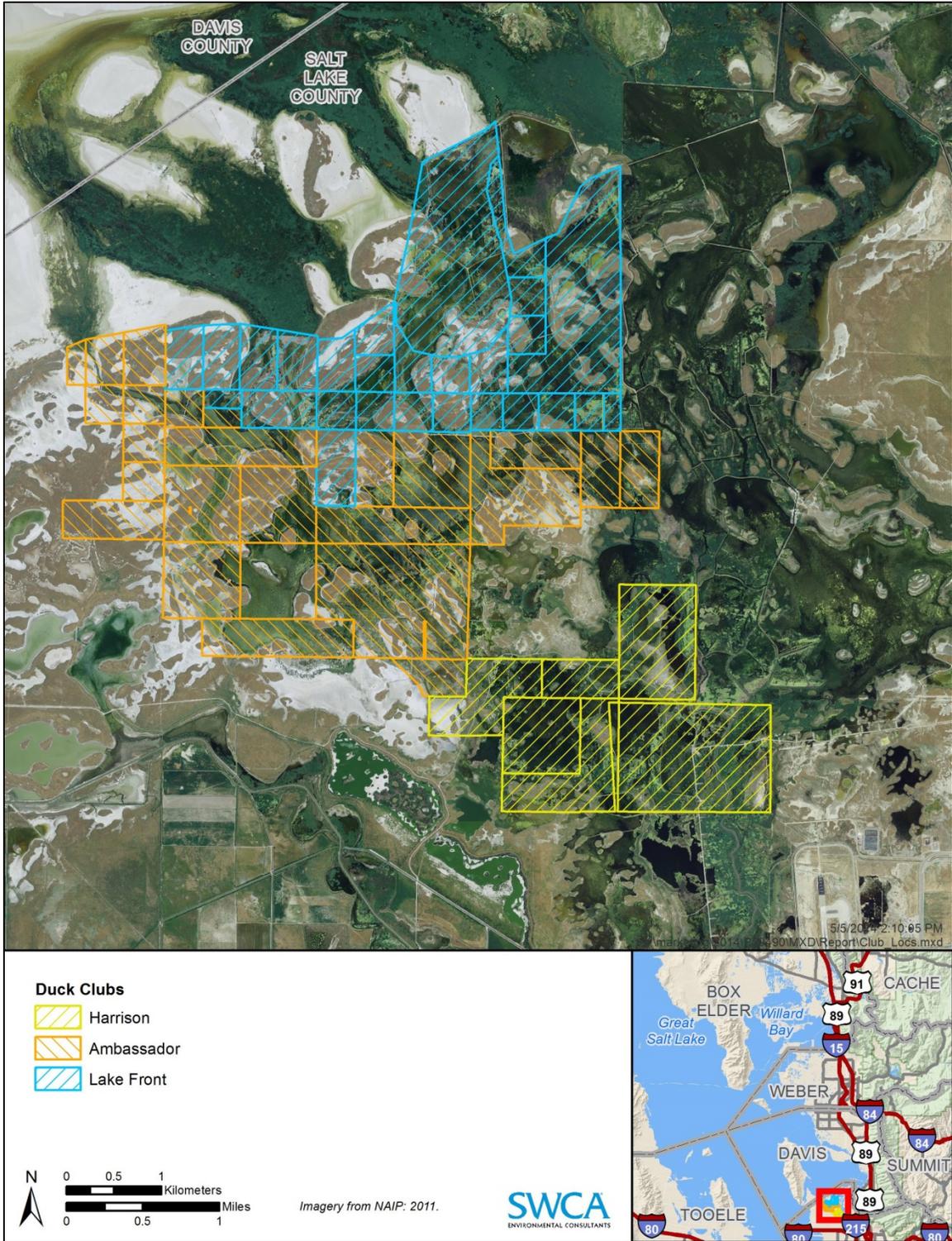
Ongoing hydraulic structure and habitat maintenance will be carried out by volunteers from local duck clubs and Ducks Unlimited. Each duck club will submit an annual status report detailing management activities and changes in habitat quality to DWQ. These volunteers will also participate in long-term (i.e., post-project) *Phragmites* monitoring and management.

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

Name/Company	Address	Phone
Jake Diamond/SWCA	257 E 200 S, Salt Lake City, Utah, 84111	(801) 322-4307
Rob Fehr/Ducks Unlimited/ Harrison Duck Club	No address	(801) 554-2741

Signature:  Date: May 5, 2014

**ATTACHMENT A. PROJECT AREA**



## ATTACHMENT B. EXAMPLES OF PREVIOUS EXPERIENCE

### **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 12<sup>th</sup> 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.

## ATTACHMENT C. LETTER OF SUPPORT

Robert W. Fehr, Jr.  
5929 Black Mica Ave.  
Kearns, UT. 84118

April 25, 2014

To whom it may concern:

On behalf of the Harrison Reclamation Company, I offer support of the application for funds to be used for the improvement of the wetland habitat located on the Harrison Duck Club. The Harrison will be able to provide volunteer services of our membership to help accomplish: *Phragmites* control, water control structure placement and improvement, and habitat improvement in the form of a new rest lake area, planting wetland specific vegetation to be used as food for waterfowl, and waterfowl nesting structure construction and placement.

Improving these key items, not only serves the recreational needs of our members, but it also supports over 900 different species of plants and animals that thrive in the wetlands, from breeding grounds, to rest area, to necessary habitat for everyday life.

It is my belief that we have the support of other duck clubs in the area who would like to participate in this as well, and that of Utah State Ducks Unlimited and its membership.

Thank you for your time and consideration.

Best Regards,

Robert W. Fehr, Jr.