South Platte Shallow Water Wetlands on LaFleur Farms
Final Report

Prepared for:
Colorado Healthy Rivers Fund Grants
Attn: Chris Sturm

October 26th, 2020
Ducks Unlimited, Inc.
Grant Amount: $84,802
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Introduction

The primary goal of this project was to create and enhance permanent shallow water wetlands on the LaFleur Family Farm irrigated by the Ramsey Ditch for environmental, recreational, and wildlife purposes. The Lafleur property is located in Logan County and is approximately 1,000 acres of mixed agricultural use and wildlife habitat, located directly north of the South Platte River. Our intent on the site was to promote the growth of desirable wetland vegetation communities that provide the seeds and substrate for invertebrates that will attract and nourish foraging waterfowl species. Hydrologic manipulation of water levels in the irrigated wetlands will result in stands of native graminoid and forb plant communities preferred by nonbreeding populations of ducks and geese. The increased size and quality of marsh and wet meadow habitats on the site will assist non-breeding waterfowl in maintaining body condition by providing excellent foraging and roosting habitat in a stretch of the river deficient in these habitat types. Waterfowl in good body condition are more likely to survive the nonbreeding period and return to the breeding grounds with a higher likelihood of successful breeding effort, thus aiding managers in achieving waterfowl population goals.

Ducks Unlimited, Inc. (DU) is a private not for profit (501(c)3) organization whose mission is to “conserve, restore and manage wetlands and associated habitats for North America’s waterfowl. These habitats also benefit other wildlife and people.” Established in 1937, DU was founded by a group who realized the climatic impact of the “Dust Bowl” was having a devastating effect on waterfowl populations. They set about to form an organization which has become the preeminent conservator of North American wetland habitats. Wetlands are one of the most dynamic natural systems on earth, providing flood irrigation, recharge of aquifers, contaminant removal, wildlife habitat, and they provide the basis for the livelihoods and recreation of millions of people. Over our 75 year history, DU has conserved more than 14 million acres of wetlands and associated habitats. DU is a science-based organization and it pursues its mission continent-wide, focusing on priority areas with the biggest impact on North American waterfowl populations.

In Colorado, DU has worked with several organizations focused on both wildlife conservation and water resources conservation. Since 1997, we have conserved, restored and managed more than 75,000 acres of wetlands and associated habitats in Colorado, including 16,000 acres in the South Platte River watershed. To deliver wetland conservation projects in the state, DU

maintains a staff including a full-time program manager, a regional biologist, a team of certified engineers, and a regional director of grassroots membership. We also maintain a registered membership of over 10,000 members in the state of Colorado.

Background

The LaFleur wetlands project area has been managed as irrigated crop and pasture for many decades. A center-pivot irrigation system was recently installed on the eastern portion of the property. Row crops and hay are grown there. The remainder of that section maintains stands of native salt grass and alkali sacaton pasture. The project is located on a privately-owned property adjacent to Tamarack SWA in Logan County, Colorado. It is located on the north side of the South Platte River a few miles north and east of the town of Iliff, Colorado. The tract is owned by Mr. Kevin LaFleur. Colorado Open Lands holds a conservation easement, funded by the North American Wetlands Conservation Act, on approximately 527 acres of the property whereupon wetland restoration activities funded by CWCB occurred. The property is managed by Mr. LaFleur. There is no public access on the property.

The project area has been managed as irrigated crop and pasture for many decades. A center-pivot irrigation system was recently installed on the eastern portion of the property. Row crops and hay are grown there. The remainder of that section maintains stands of native salt grass and alkali sacaton pasture. The area under consideration for wetland restoration is protected in perpetuity by a conservation easement held by Colorado Open Lands.

Our intent on the site is to promote the growth of desirable wetland vegetation communities that provide the seeds and substrate for invertebrates that will attract and nourish foraging waterfowl species. Hydrologic manipulation of water levels in the irrigated wetlands will result in stands of native graminoid and forb plant communities preferred by nonbreeding populations of ducks and geese. The increased size and quality of marsh and wet meadow habitats on the site will assist non-breeding waterfowl in maintaining body condition by providing excellent foraging and roosting habitat in a stretch of the river deficient in these habitat types. Waterfowl in good body condition are more likely to survive the nonbreeding period and return to the breeding grounds with a higher likelihood of successful breeding effort, thus aiding managers in achieving waterfowl population goals.

The target species for this project include mallards and northern pintails, although all dabbling ducks will benefit. The intent of the project is to increase the availability and quality of shallow-water wetlands to spring and fall migrants, such that body condition is maintained and pre-breeding physiological demands are met.

Generally, high quality wetland foraging and thermal refuge are the limiting factors for nonbreeding waterfowl utilizing this stretch of the South Platte River. These habitats provide the critical nutrition and local environmental conditions that improve and promote waterfowl survival during the migration and overwintering seasons. Ensuring these habitats remain intact and in functioning order will ensure that our populations will extend the duration of their stay, will maintain historic distribution up and down the river, and will arrive on the breeding grounds in better condition – which makes it more probable that they will be successful nesters, returning more birds to Colorado. These habitat types are in decline along Colorado's South Platte River. Historically, floodplain terraces flooded and provided migrating birds with areas with easily-accessible invertebrate and plant food resources. Increased upstream development and diversions have shifted the hydrograph such that these overbank flooding events have become much less frequent, are of diminished volume, and of limited duration. All of which have led to decrease in spring habitat suitability. There is increasing evidence gathered on mallards, canvasbacks, and redheads suggesting that early nesting hens within a species contribute more young to the fall flight each year than later nesting hens. Survival of early broods is greater than later broods. Abundant, high quality spring migration habitat may allow hens to replenish nutrient reserves, move on to breeding areas, initiate nests earlier, and achieve greater reproductive success than would have otherwise been possible.

The project addresses three of five strategies identified under the principal goal listed on page 29 of the South Platte Focus Area Committee Strategic Plan: "Conserve a sufficient quantity, quality, and diversity of wetlands to maintain and enhance existing biodiversity." We will complete wetland enhancements on the property (Strategy 1), we will consider the impacts of our activities on species of concern during project development and implementation (Strategy 3).

The project delivered on one of two goals identified in the CPW's Wetlands Program Strategic Plan: "Goal 1. Improve the distribution and abundance of ducks, and opportunities for public waterfowl hunting." The plan and subsequent infrastructure improvements will maintain and increase the

availability of quality migration habitat in a traditionally important migration corridor (subgoal 1a). And, they will improve the number and diversity of public hunting opportunities in a region heavily used by most Colorado waterfowl hunters (subgoal 1c). In delivering the project, we follow the strategies outlined in the plan that focus on planning, enhancement and creation of habitats, efficiency in operations and maintenance of existing complexes, and a focus on the value of utilizing partnerships to leverage funding of wetlands conservation.

Finally, the project also addresses continental waterbird plan objectives as established in Playa Lakes Joint Venture planning documents: 'Waterfowl Conservation Strategy' and 'Area Implementation Plan for the Shortgrass Prairie Bird Conservation Region (18) of Colorado.' These documents imply that habitat conservation efforts in this region of the Central Flyway should focus on maintaining, enhancing and restoring migration and wintering habitats for waterfowl and shorebirds. The AIP states: 'During the nonbreeding season, waterfowl must obtain food resources to maintain body condition during winter and increase body condition during fall and spring for subsequent migration.' This project increased the quantity and quality of habitats available to nonbreeding waterfowl of the South Platte. Further, we believe the project is responsive to PLJV recommendations to increase the amount of wet meadow habitat available to short-eared owls in the Platte drainage.

Methods

DU staff performed topographic surveys of the identified project tract delineating the topography of critical areas, facilities and infrastructure. Based on this surface model a plan of wetland restoration was developed; identifying what new structures and facilities need to be installed to achieve desired levels of wetland function and management efficiency. DU and Mr. LaFleur executed our standard 30-year Site Conservation Agreements, ensuring benefits persist and wetlands are flooded when water is physically and legally available. Using these plans, requisite local, state, and federal permits were pulled allowing the work to proceed. U.S. Partners for Fish and Wildlife assisted in federal regulatory review to accomplish categorical exclusion under NEPA and provisioning archaeological review. A permit to fill wetlands under Section 404 of the Clean Water Act was required for this work under Nationwide Permit 27. Representatives from the Division of Water Resources visited the property with DU staff on February 12th, 2019 whereupon they approved of the wetland design and use of water under current guidance.

Once permitted, DU staff completed a final planset detailing project construction elements, standards and specifications. DU has a strict, vetted bidding process that ensures equitability, objectiveness, and cost-savings. DU engineers were on-site to oversee the implementation and delivery of the proposed enhancements to ensure they are consistent with the final construction plan set.

DU engineers designed the project improvements to last the 30-year term of the agreement. They also engineered project elements to make the system as trouble-free as possible to maintain. Water supply and conveyance is gravity-fed; there are no pumps involved in the project. Water control was accomplished through standard AgriDrain type inverted-t, stoplog structures. Under DU's construction management we accomplished: More than 1,200 hours of bio-engineering time spent on project development, design, permitting, drafting, bidding, staking, & construction management; Subcontracted with Morningstar Construction, LLC; 24,000 cubic yards of earthmoving to improve water conveyance, impoundment & drainage; Installed 18 structures for water diversion, measurement and management; and, Please see the appended conceptual plan. The full planset is available upon request.

The following photos illustrate the different construction activities performed to complete the South Platte Shallow Water Wetlands project on LaFleur Farms.

Figure 1. Earth-moving on South Platte Shallow Water Wetlands, LaFleur Farms.

Figure 2. Finishing the west wetland embankment.

Figure 3. Installing a 24” Agri-drain water-control structure on the west wetland.

Figure 4. Installing outlet pipe on structure. Note anti-seep collar.

Figure 5. Installing Parshall Flume with sheetpile wingwalls.

Figure 6. Earth-moving to build embankments on east wetland levees.

Results

We developed 118 acres of shallow water wetlands on the property through our construction activities. We executed a 30-year Site Conservation Agreement with the landowner to ensure management of the site for migratory birds and other wetland dependent wildlife species will continue for at least 30-years. We executed an agreement with the landowner requiring him to enter into negotiations with Colorado Parks & Wildlife to allow limited public access on the restored wetlands. Project wetlands will be managed such that habitat availability is maximized during spring and fall migration events. Availability is governed by river flows, but existing restored wetlands have evinced good bird response. Wetland basins were designed to optimize habitat suitability. Management and operation of the site are the responsibility of the landowner. Management will focus on providing nonbreeding waterfowl with suitable shallow-water wetlands to provide foraging and roosting habitat. This will be accomplished through the following management actions: 1.) When physically and legally available, water levels in wetlands will be manipulated under a moist-soil regime such that beneficial grasses, forbs and sedges are promoted. Furthermore, water levels in the ponds will be managed such that saturated soils will be minimized during the growing season, thus preventing conditions conducive to the growth of cattail and bulrush stands; and, 2.) When physically and legally available, water levels in the ponds will be managed such that available forage and roosting habitats are made available during spring and fall migration as well as (when appropriate) made available to over-wintering populations of waterfowl.

The photos included on the following pages illustrate the intended result of the restoration work we performed. Namely, Ramsey ditch water conveyed to a series of impoundments controlled by water-control structures to inundate shallow-water basins at depths conducive to wetland plant growth and waterbird foraging.

Figure 7. The first diversion of water into the restored wetlands.

Figure 8. First inundation of the West Wetland (looking east).

Figure 9. Inundation of West Wetland from structure looking west.

Figure 10. A flight of yellowlegs using the new wetlands during migration.

Conclusions and Discussion

Project objectives were met. Wetland hydrology was restored and management capability enabled such that habitat conditions will improve on the project tract. Habitat benefits to migratory populations of waterbirds utilizing the South Platte River Basin will persist for at least 30 years. Management and operation of the site are the responsibility of the landowner. Management will focus on providing nonbreeding waterfowl with suitable shallow-water wetlands to provide foraging and roosting habitat. This will be accomplished through the following management actions: 1.) When physically and legally available, water levels in wetlands will be manipulated under a moist-soil regime such that beneficial grasses, forbs and sedges are promoted. Furthermore, water levels in the ponds will be managed such that saturated soils will be minimized during the growing season, thus preventing conditions conducive to the growth of cattail and bulrush stands; and, 2.) When physically and legally available, water levels in the ponds will be managed such that available forage and roosting habitats are made available during spring and fall migration as well as (when appropriate) made available to over-wintering populations of waterfowl.

Monitoring of project outcomes will be accomplished through the establishment of photopoints. A time series of photos at locations with good vantage of the delivered habits will reveal the progression of the habitat from low-quality to high-quality. This monitoring will be performed by Colorado Open Lands staff as part of their annual conservation easement monitoring and stewardship activities.

We consider this to be an outstanding project accomplished with few issues. Our standard design principles and project delivery processes worked well and resulted in what we believe to be one of the highest quality private wetland complexes managed for migratory birds found in the Platte River watershed in Colorado. We hope that the success of this project will lead to similar endeavors on both private and public lands associated with that river.

Actual Expense Budget

Table 1. CWCB Water Plan Grant Budget and Schedule.

COLORADO
Colorado Water Conservation Board
Department of Natural Resources

Colorado Water Conservation Board

Water Plan Grant - Exhibit B
Budget and Schedule
Date: 7/15/2019
Name of Applicant: Ducks Unlimited, Inc.
Name of Water Project: South Platte Basin Shallow Water Wetlands
Project Start Date: 7/22/2019
Project End Date: 06/30/2020

Task No.	Task Description	Task Start Date	Task End Date	Grant Funding Request	Match Funding	Total	Actual Grant Funding ($)	Match Funding ($)	Total ($)
1	LaFleur Wetlands & Water Conveyance	7/22/2019	6/30/2020	84,802	129,787	214,589	84,802	304,465	389,267
			Total	84,802	141,433	226,235	84,802	304,465	389,267

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By DU invoice GPRO-2020-86, we invoiced CWCB $84,802. This includes $16,842 in personnel charges and $67,960 in construction charges. These pay for:

- 30 hours of Matthew A. Reddy's time on the project. Matt was project manager and provided biological oversight of the work;
- 50 hours of Jason Roudebush's time on the project. Jason was the construction manager on the project and coordinated our work with water interests; and,
- 68 hours of Kevin Warner, P.E.'s time on the project. Kevin was the supervising engineer on the project and coordinated project planning and construction.

Construction charges were levied by our sub-contractor on the project, Morningstar Construction, LLC. Please refer to the invoice detail documents for a specific accounting of all of the construction charges included in the expense budget.

No indirect charges were levied on CWCB accounts.

Appendix

Figure 11. Location Map of The South Platte Shallow Water Wetlands Project.

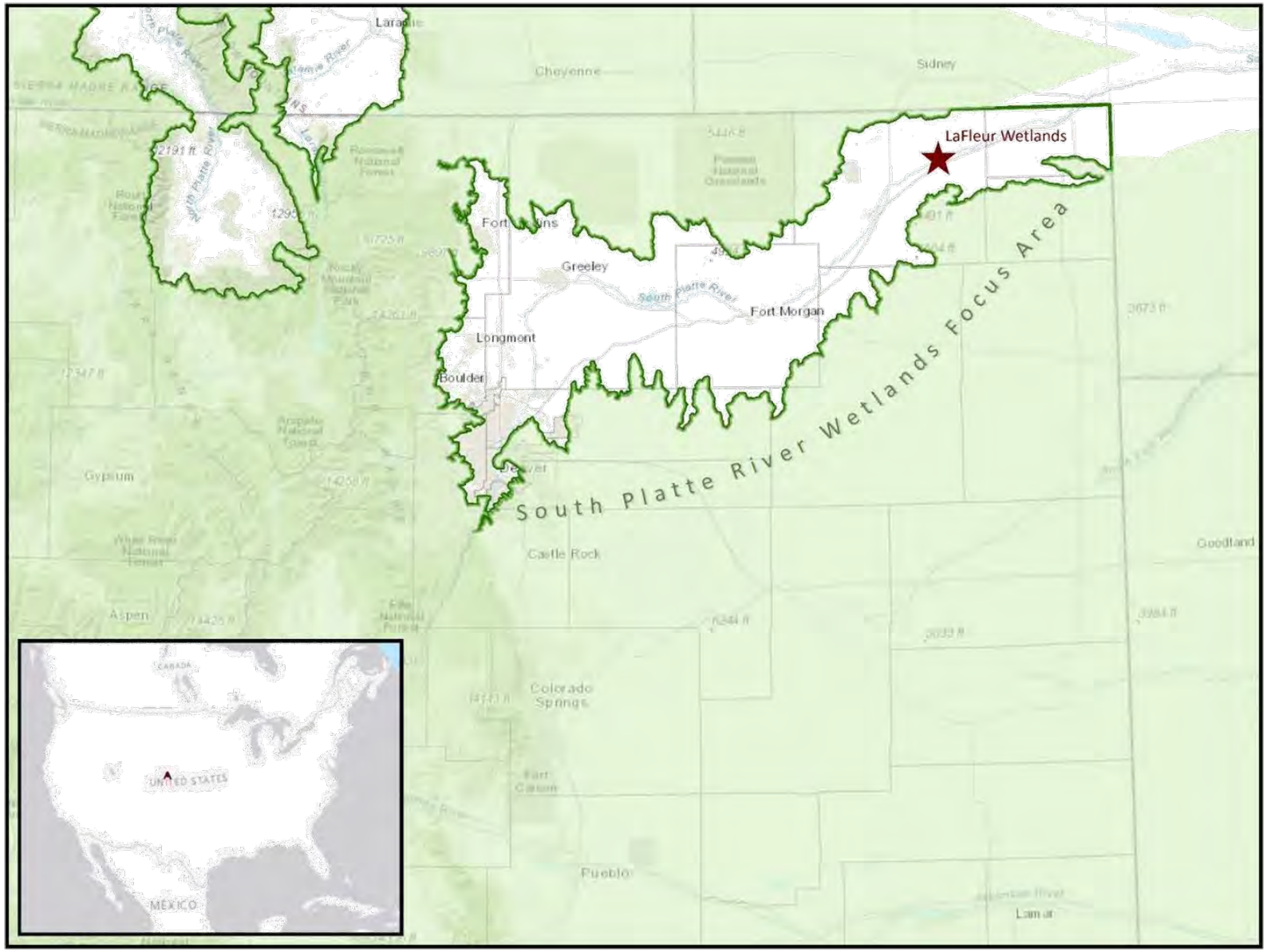


Figure 12. Directions Map of The South Platte Shallow Water Wetlands Project.

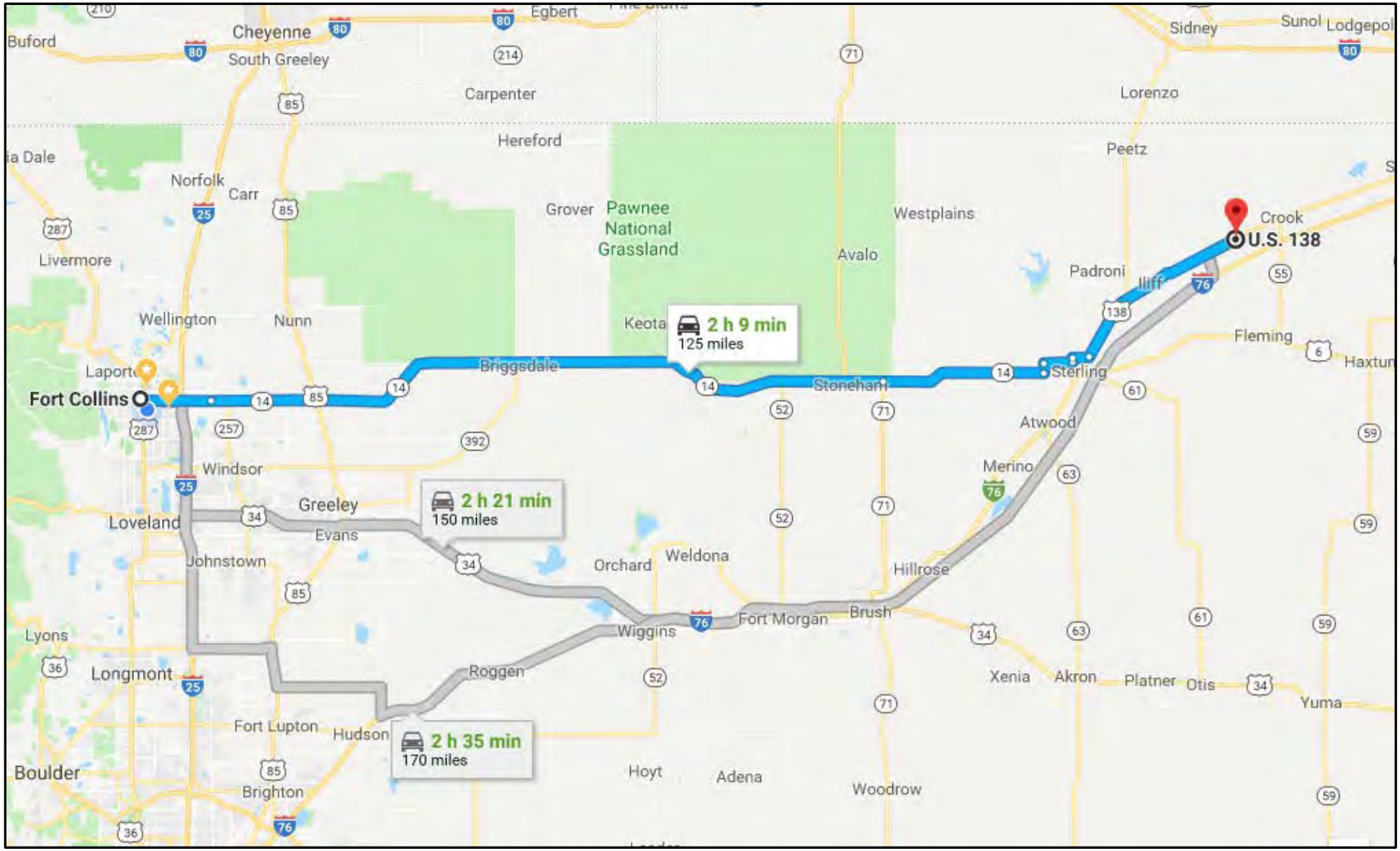


Figure 13. LaFleur Farms Tract.

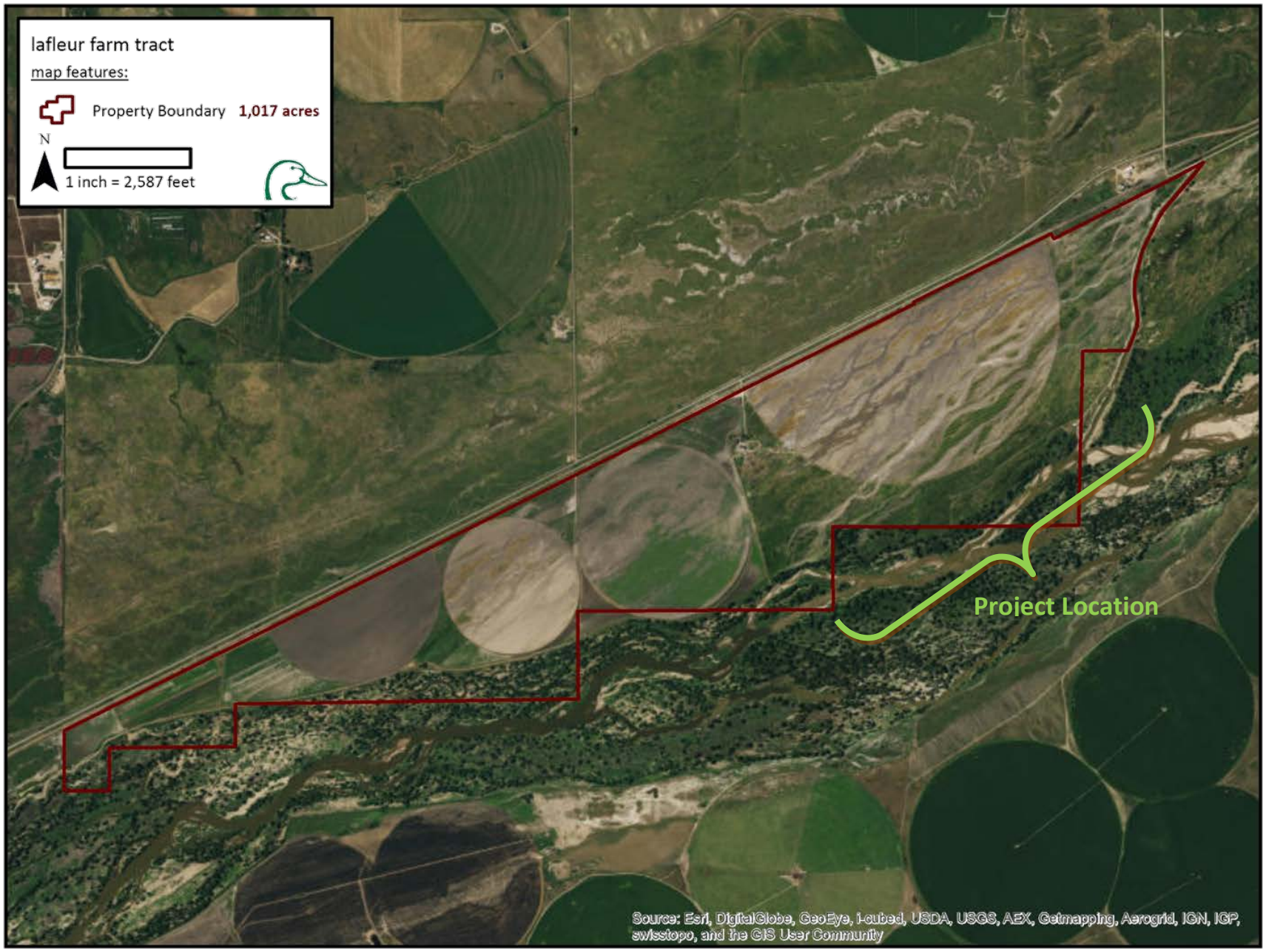
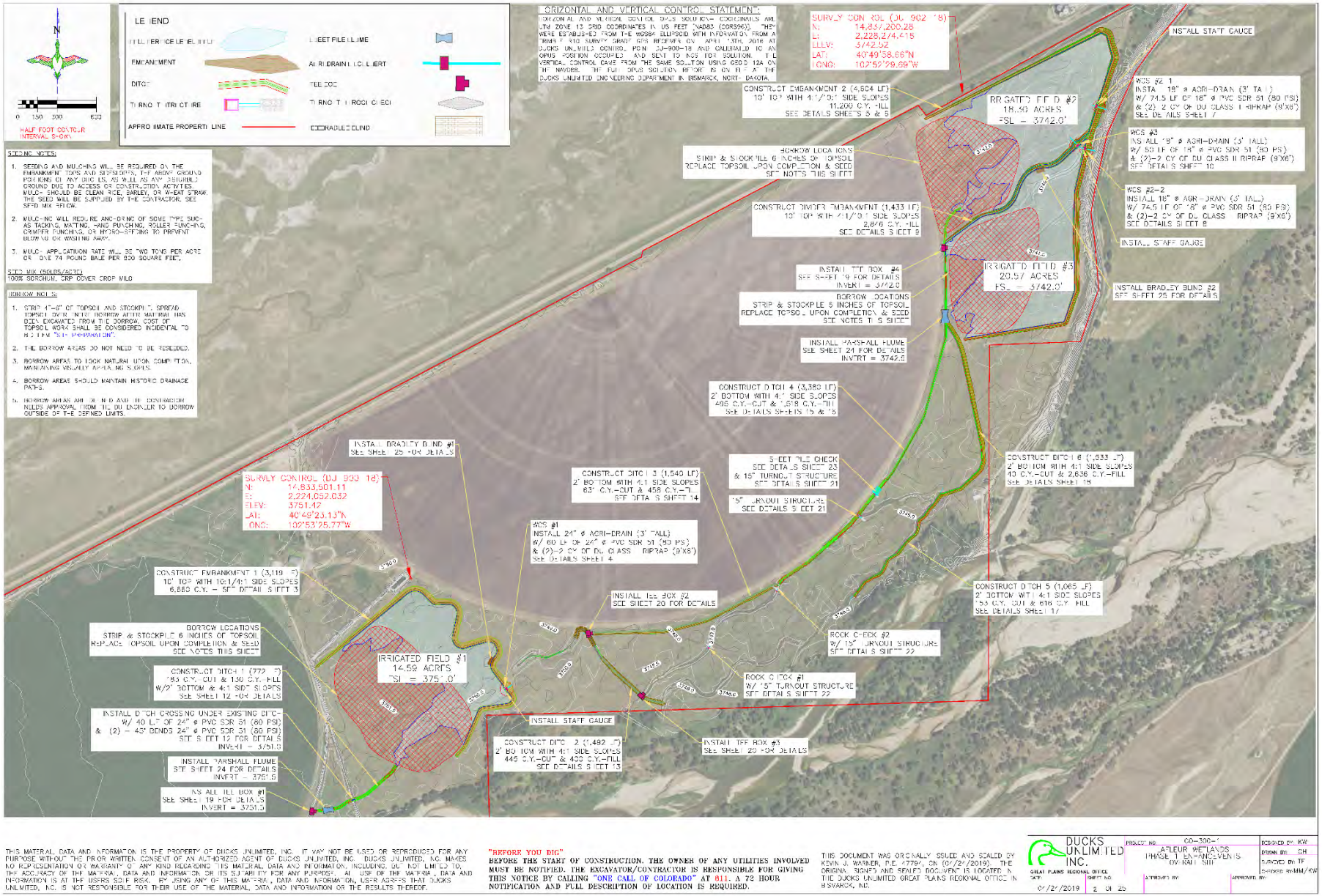


Figure 14. Planview of the South Platte Shallow Water Wetlands Project on LaFleur Farms.



References

No references were used throughout the project.