Aquatic Resources Delineation Report for the New Mexico Interstate Stream Commission Los Lunas River Mile 163 River-System Maintenance Project, Valencia County, New Mexico

**FEBRUARY 2022** 

PREPARED FOR

**U.S. Army Corps of Engineers** 

ON BEHALF OF

**New Mexico Interstate Stream Commission** 

PREPARED BY

**SWCA Environmental Consultants** 

#### AQUATIC RESOURCES DELINEATION REPORT FOR THE NEW MEXICO INTERSTATE STREAM COMMISSION LOS LUNAS RIVER MILE 163 RIVER-SYSTEM MAINTENANCE PROJECT, VALENCIA COUNTY, NEW MEXICO

Prepared for

U.S. Army Corps of Engineers Albuquerque Regulatory Office 4101 Jefferson Plaza NE Albuquerque, New Mexico 87109

On Behalf of

New Mexico Interstate Stream Commission 5550 San Antonio Dr NE Albuquerque, New Mexico 87109

Prepared by

SWCA Environmental Consultants 5647 Jefferson Street, NE Albuquerque, New Mexico 87109 (505) 254-1115

(505) 254-1115 www.swca.com

February 2022

## **EXECUTIVE SUMMARY**

The New Mexico Interstate Stream Commission (NMISC) contracted SWCA Environmental Consultants to conduct an aquatic resources delineation survey for the proposed Los Lunas River Mile 163 River-System Maintenance Project. The purpose of the project is to improve water conveyance, to improve and diversify riverine habitat, and to reduce flood risk based on the existing hydrologic and geomorphic regimes. The project would be located on lands managed jointly by the Middle Rio Grande Conservancy District (MRGCD) and the U.S. Bureau of Reclamation (Reclamation) within an approximately 43.8-acre project area, approximately 0.25 mile northeast of the village of Los Lunas in Valencia County, New Mexico. The goal of the aquatic resources delineation survey is to document potential jurisdictional wetlands, special aquatic sites, open waters, and other surface water features considered to be waters of the U.S. (WUS) and regulated by the U.S. Army Corps of Engineers (USACE) under the Clean Water Act (CWA) Section 404 Program. The survey will help in assessing potential impacts from the proposed project and inform measures to minimize impacts during project design.

This report provides the results of the formal aquatic resources delineation that was conducted in the project area in June and August 2021. During the delineation, the presence-absence of potential WUS was identified in the field using routine on-site delineation methods outlined in the *Corps of Engineers Wetlands Delineation Manual* (USACE 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0)* (USACE 2008).

The purpose of this aquatic resources delineation and associated report was to identify potentially jurisdictional WUS to inform the CWA permitting strategy in coordination with the USACE. Potential impacts to five of the eight features are greater than 0.5 acre each and may require a Standard Individual Permit per Section 404 of the CWA. However, a final permitting determination for the proposed project will be made after further consultation with the USACE, Reclamation, NMISC, and MRGCD.

# CONTENTS

1	Introduction	l
	1.1 Project Purpose	l
	1.2 Project Components	l
2	Methods	3
	2.1 Wetlands	3
	2.2 Non-Wetland Waters	3
	2.2.1 Open Waters	1
	2.3 Mapping	1
	2.4 Photographs	1
3	Results	1
	3.1 Landscape Setting	1
	3.2 Soils	1
	3.3 Aquatic Resources	5
	3.3.1 Wetlands	5
	3.3.2 Non-Wetland Waters	5
4	Summary	3
5	Conclusion	3
6	Literature Cited	)

#### Appendices

Appendix A. Maps Appendix B. Photographs Appendix C. Wetland Determination Data Forms

#### Tables

Table 1. Project Area Components	2
Table 2. Mapped Soil Types in the Project Area	. 5
Table 3. Vegetation Identified within Each Wetland within the Proposed Project Area	. 6
Table 4. SWCA's Mapped Surface Water Features within the Proposed Project Area	.7

## ACRONYMS AND ABBREVIATIONS

°F	Fahrenheit
CWA	Clean Water Act
CY	cubic yard
EPA	U.S. Environmental Protection Agency
MRGCD	Middle Rio Grande Conservancy District
NHD	National Hydrography Dataset
NMISC	New Mexico Interstate Stream Commission
NRCS	Natural Resources Conservation Service
NWI	National Wetlands Inventory
NWPR	Navigable Waters Protection Rule
OHWM	ordinary high-water mark
PCN	preconstruction notification
Reclamation	U.S. Bureau of Reclamation
RM	River Mile
SWCA	SWCA Environmental Consultants
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
WUS	waters of the U.S.

This page intentionally left blank.

Aquatic Resources Delineation Report for the NMISC Los Lunas River Mile 163 River-System Maintenance Project, Valencia County, New Mexico

# **1** INTRODUCTION

On behalf of the New Mexico Interstate Stream Commission (NMISC), SWCA Environmental Consultants (SWCA) completed an aquatic resources delineation, commonly referred to as a wetland and other waters of the U.S. (WUS) delineation, for the proposed 43.8-acre project area for the Los Lunas River Mile (RM) 163 River-System Maintenance Project in Valencia County, New Mexico (see Appendix A, Figures A-1 through A-9). The U.S. Bureau of Reclamation (Reclamation), in partnership with the NMISC and the Middle Rio Grande Conservancy District (MRGCD), is proposing to conduct the project in the Rio Grande approximately 2 miles north of the New Mexico State Highway 6 bridge in Los Lunas, New Mexico. Land ownership of the project area includes federal ownership (Reclamation) and the MRGCD. To comply with the Clean Water Act (CWA), SWCA conducted the aquatic resources delineation to assess the presence of aquatic resources that may be considered WUS to inform the CWA permitting strategy in coordination with the U.S. Army Corps of Engineers (USACE). The delineation included a pre-field desktop review of publicly available mapped resources followed by in-field identification and recording of physical features that may indicate an area as a WUS. The methods and results of the desktop review and field survey are presented in this report.

## 1.1 Project Purpose

The purpose of the Los Lunas RM 163 project is to improve water conveyance, to improve and diversify riverine habitat, and to reduce flood risk through the Los Lunas Subreach. The primary goal is to reduce the water surface elevation by increasing channel capacity to prevent overbanking into the historic floodplain at flows less than 3,500 cubic feet per second (cfs) between RM 164 and RM 162. To keep the project within one construction season, the excavation is limited to less than 100,000 cubic yards (CY). However, more work is needed within the reach to improve conveyance capacity. Thus, this will be a pilot project for a future width maintenance program that will include partner agency cooperation from the NMISC, Reclamation, and MRGCD.

The secondary goals of this project are to consider the environmental and geomorphic benefits and impacts, and to be cost-effective. Thus, project components were selected to include areas where encroaching vegetation and bar/island accretion have resulted in reduced channel capacity while keeping the excavations to less than 100,000 CY. Terraced banks were used to increase the inundated areas at lower flows in some of the areas to provide inundated nursery habitat for the Rio Grande silvery minnow (*Hybognathus amarus*). This will provide low velocity floodplain habitat for the Rio Grande silvery minnow during low flow years when there is a minimal spring runoff peak, with expected transition into riparian habitat for the endangered Southwestern willow flycatcher (*Empidonax traillii extimus*) and the threatened Western yellow-billed cuckoo (*Coccyzus americanus*).

# 1.2 Project Components

The project components consist of five bank lowering polygon areas within the historic channel and one relic berm removal in the eastern historic floodplain (Table 1). These project components would improve channel conveyance by increasing the width of the river on both the west and east banks of the river. The relic berm would also be removed as it has been holding water on the floodplain against the levee and preventing the water from flowing downstream. Other project components include associated access roads, staging areas for equipment, and spoils areas (Reclamation 2021). The project components are depicted on Figures A-1 through A-9 in Appendix A. The site disturbance includes 21 acres for the construction area, 12.3 acres for staging and access, and 21 acres for spoil disposal (see Table 1).

Work is not planned to occur between April 15 and September 1 in consideration of nesting migratory birds. If work is needed during this time, the NMISC and Reclamation would coordinate with the U.S. Fish and Wildlife Service (USFWS) prior to the beginning of any work.

Project Component	<b>Rive Mile Extent</b>	Side of River	Туре	Volume (CY)	Area (Acres)
RM 162 Bank Lowering	RM 162.1-162.9	West	Inset floodplain bank lowering	57,402	13
RM 163.1 Bank Lowering	RM 163.1-163.3	West	Inset floodplain bank lowering	7,652	2
RM 163.3 East Bank Lowering	RM 163.3-163.4	East	Inset floodplain bank lowering	5,354	1
RM 163.4 Bank Lowering	RM 163.4-165.5	West	Inset floodplain bank lowering	13,828	2
RM 163.6 Bank Lowering	RM 163.6-163.8	West	Inset floodplain bank lowering	7,758	2
Berm Removal RM 163.4-163.6 East Inset floodpla		Inset floodplain bank lowering	4,030	1	
	96,024	21			
River Access Road	RM 162-164	West	Access road	*	2.7
Eastern Access Road	RM 163.4	East	Access road		0.13
East/West Bosque Access Roads (5)	RM 162-164	West	Access road	*	1.5
Western Staging Area	RM 162.6	West	Staging area	*	7
West Spoils Area	RM 162-164	West	Levee spoiling	9,384	20
East Spoils Area	RM 162-164	East	Levee spoiling	86,640	1
	Total Project Access	s, Staging, and Spoils	5	96,024	32.33

#### **Table 1. Project Area Components**

Source: Reclamation (2021)

\*Possible vegetation removal

# 2 METHODS

Prior to the survey, SWCA reviewed baseline data for the project area, including the U.S. Geological Survey (USGS) topographic quadrangle, National Wetlands Inventory (NWI) maps (USFWS 2021), National Hydrography Dataset (NHD) data (USGS 2021), and Natural Resources Conservation Service (NRCS) soils data (NRCS 2021). Aerial photographs of the project area were accessed using Google Earth (Google Earth 2021).

On June 24, 25, and 28, 2021, SWCA biologists conducted a formal aquatic resources delineation survey of the proposed project area to identify and map the boundaries of potential jurisdictional wetlands, special aquatic sites, open waters, and other surface water features considered to be WUS under the U.S. Environmental Protection Agency's (EPA's) Navigable Waters Protection Rule (NWPR). In August 2021 the 2020 NWPR, including the elimination of ephemeral drainages from jurisdiction, was vacated. Currently, the EPA and USACE are reconsidering the definition of "waters of the United States" (The National Agricultural Law Center 2021).

The survey included the identification and recording of physical features that could be considered WUS as defined by the USACE and EPA. As currently defined under Section 404 of the CWA, WUS include 1) the territorial seas and traditional navigable waters; 2) perennial, intermittent, and ephemeral tributaries with a significant nexus to a traditional navigable water; 3) lakes, ponds, and impoundments of jurisdictional waters; and 4) wetlands. Special aquatic sites—including sanctuaries, refuges, wetlands, mud flats, vegetated shallows, coral reefs, and riffle and pool complexes (USACE 1987)—were identified separately from other WUS, as required by the USACE for CWA Section 404 permit applications.

#### 2.1 Wetlands

Wetlands are defined by the USACE as "areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" (USACE 1987:9). According to the USACE (1987), for an area to be considered a wetland, it must contain the following three parameters under normal circumstances: 1) the presence of wetland hydrology showing regular inundation, 2) a predominance of hydrophytic (water-loving) vegetation, and 3) soils characteristic of frequent saturation (i.e., hydric soils). The presence-absence of wetlands was identified in the field using routine on-site delineation methods outlined in the *Corps of Engineers Wetlands Delineation Manual* (USACE 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0)* (USACE 2008).

## 2.2 Non-Wetland Waters

The potential jurisdictional limits of any lotic systems (e.g., creeks, rivers, arroyos, human-made ditches; collectively "streams") in the project area were identified in the field using the methods outlined in *A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States* (Lichvar and McColley 2008). An ordinary high-water mark (OHWM) is a "line on the shore established by the fluctuations of water and indicated by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas" (33 CFR 328.3(c)). The OHWM is a defining element for identifying the lateral limits of non-wetland waters. Federal jurisdiction over a non-wetland WUS typically extends to the feature's OHWM.

Identified streams were characterized by seasonal persistence as perennial, intermittent, or ephemeral based on field observations and available desktop data. Perennial streams typically flow year-round

because the water table is located above the streambed; groundwater is therefore the primary source of surface water in the stream, but flows are also supplemented by upstream rainfall and snowmelt runoff. By contrast, intermittent streams only flow seasonally as the result of rainfall, snowmelt runoff, and/or rising groundwater that discharges into the stream channel. The groundwater rises in response to seasonal increases in upstream precipitation. Finally, ephemeral streams are above the water table throughout the year and only flow during and shortly after precipitation events.

The potential jurisdictional limits of any lentic systems (e.g., ponds, lakes, oxbows) and other open-water areas (e.g., outflows, deltas) in the project area were identified based on the presence of OHWM indicators.

#### 2.2.1 Open Waters

The presence-absence of lentic systems (e.g., ponds, lakes, oxbows) and other open water areas (e.g., outflows, deltas) was identified in the project area by identifying the presence of OHWMs.

## 2.3 Mapping

A GPS unit with submeter accuracy was used to determine the spatial extent of features, geographically reference data points, and demarcate boundaries during the delineation survey.

Geographic information system software was used to analyze collected features, calculate impact areas, and generate the maps provided in Appendix A.

#### 2.4 Photographs

During the delineation survey, ground-level photographs were taken of the surface water features within the proposed project area. Photographs are provided in Appendix B.

## 3 **RESULTS**

# 3.1 Landscape Setting

The average elevation of the project area is approximately 4,852 feet above mean sea level. Based on the climatic records for Los Lunas in Valencia County, New Mexico (COOP Station No. 295150), the project area has an average annual maximum temperature of 73 degrees Fahrenheit (°F) and an average annual minimum temperature of 37.8°F. The average annual rainfall is 8.93 inches, with the majority occurring between July and October, whereas the average annual total snowfall is 4.3 inches, which largely occurs between December and February (Western Regional Climate Center 2021). Weather during the delineation survey was approximately 80°F–90°F and sunny with winds of approximately 0 to 3 miles per hour.

## 3.2 Soils

According to the NRCS (2021), there are two mapped soil types in the proposed project area: mixed alluvial land and riverwash (Table 2). Both soils are deemed hydric.

Soil Map Unit	Soil Type Symbol	Drainage Class	Project Area (acres)	Project Area (%)		
Mixed alluvial land	Mn	Moderately low to very high	11	25.1%		
Riverwash	Rv	High to very high	32.83	74.9%		
Total			43.83	100.00%		

#### Table 2. Mapped Soil Types in the Project Area

Source: NRCS (2021)

#### 3.3 Aquatic Resources

The project area crosses one watershed: Canon Monte Largo-Rio Grande (Hydrologic Unit Code 1302020306). The project area occurs within the Rio Grande surface and groundwater basins.

During the delineation survey in late June 2021, eight potentially jurisdictional surface water features were documented in the proposed project area: one perennial stream (Rio Grande), one freshwater pond, and six wetlands (see Figures A-2 through A-9 in Appendix A and Photographs B-1 through B-22 in Appendix B). Vegetation within each wetland, along with the wetland indicator status, percent cover, and dominance of each species, is listed in Table 3.

#### 3.3.1 Wetlands

According to NWI maps (USFWS 2021), two wetlands (PEM1A and R2UBH) occur within the project area. The two NWI wetlands occur continuously throughout the entire active channel of the Rio Grande. PEM1A wetlands are defined as a palustrine emergent with persistent, dominant vegetation within a temporarily flooded water regime. R2UBH wetlands are defined as riverine, lower perennial wetlands with an unconsolidated bottom that is permanently flooded. The PUBFx freshwater pond is identified as palustrine, unconsolidated bottom that is semipermanently flooded that was excavated by humans.

During the delineation survey, five separate wetlands (R2UBH) were identified by SWCA biologists that overlap with the project area components (Table 4). Each of these wetland areas occurred within one or both NWI-mapped wetland areas and exhibited the three wetland parameters: wetland hydrology, a predominance of hydrophytic vegetation, and hydric soils. The 0.05-acre PEM1A wetland was recorded during the survey, but does not overlap any of the project area components (see Table 4). See Appendix C for the wetland determination data forms completed at each observation point.

#### 3.3.2 Non-Wetland Waters

#### 3.3.2.1 STREAMS

According to the NHD (USGS 2021), there is one linear feature that overlaps with the project area components, the Rio Grande (see Table 4). During the delineation survey, SWCA biologists confirmed the presence of the Rio Grande as a perennial stream within the proposed project area. The extent of the Rio Grande, including the boundaries of the OHWM, were mapped by SWCA during the delineation survey (see Figures A-2 through A-9 in Appendix A and Photographs B-1 through B-22 in Appendix B).

#### 3.3.2.2 OPEN WATERS

According to the NHD (USGS 2021), one freshwater pond is mapped within the project area. The pond is also mapped as an NWI wetland (PUBFx). The NHD-mapped freshwater pond was recorded (0.03 acres) within the project area during the delineation survey, but does not overlap any of the project area components (see Table 4). The pond is approximately 50 feet from the proposed east–west haul road (see Figure A-8 in Appendix A and Photograph B-21 in Appendix B).

Los Lunas RM 163 River-System Maintenance Project Wetland Delineation Plant Data			Wetland 1 (R2UBH)		Wetland 2 (R2UBH)		Wetland 3 (R2UBH)		Wetland 4 (PEM1A)		Wetland 5 (R2UBH)		Wetland 6 (R2UBH)	
Common Name	Scientific Name	Indicator Status	Cover (%)	Dominant (Y/N)										
Alkali sacaton	Sporobolus airoides	FACW	1	Ν	-	-	-	-	-	-	-	-	-	-
Annual rabbitsfoot grass*	Polypogon monspeliensis	FACW	9	Y	-	-	-	-	_	-	-	-	2	N
Broadleaved pepperweed <sup>†</sup>	Lepidium latifolium	FAC	<1	Ν	6	Y	-	-	-	_	-	-	-	-
Canadian horseweed	Conyza canadensis	N/A	4	N	-	-	-	-	-	-	-	-	2	N
Curly dock*	Rumex crispus	FAC	<1	Ν	<1		-	-	-	-	-	-	-	-
Giant reed <sup>†</sup>	Arundo donax	FACW	-	-	1	Ν	-	-	-	-	<1	Ν	2	N
Goodding's willow	Salix gooddingii	FACW	-	-	4	Ν	-	-	-	_	3	Ν	-	-
Narrowleaf willow	Salix exigua	FACW	64	Y	65	Y	47	Y	15	Y	68	Y	64	Y
Ravennagrass <sup>†</sup>	Saccharum ravennae	FAC	-	-	-	-	-	-	2	Ν	6	Y	-	-
Rio Grande cottonwood	Populus deltoides wislizenii	FAC	4	Ν	<1	Ν	13	Y	30	Y	10	Y	2	N
Rough cocklebur	Xanthium strumarium	FAC	5	Y	-	-	-	-	_	-	-	-	2	N
Russian olive <sup>†</sup>	Elaeagnus angustifolia	FAC	2	Ν	-	-	-	-	-	_	-	-	-	-
Saltcedar <sup>†</sup>	Tamarix sp.	FAC	7	Y	4	Ν	4	Ν	-	-	-	-	-	-
Saltgrass	Distichlis spicata	FAC	7	Y	_	-	1	Ν	2	Ν	1	Ν	4	N
Sand dropseed	Sporobolus cryptandrus	FACU	<1	Ν	-	-	-	-	-	_	_	-	-	_
Scouringrush horsetail	Equisetum hyemale	FACW	-	-	-	-	2	Ν	2	Ν	-	-	-	-
Siberian elm <sup>†</sup>	Ulmus pumila	UPL	2	N	_	-	5	Y	3	N	-	-	6	Y
Spreading dogbane	Apocynum androsaemifolium	UPL	_	-	-	-	_	-	3	Ν	-	-	-	-
Sweetclover	Melilotus albus	FACU	2	Ν	-	-	-	-	-	-	-	-	3	Ν
Tobosagrass	Pleuraphis mutica	UPL	-	-	<1	Ν	-	-	-	-	-	-	-	-
Vine mesquite	Hopia obtusa	FACU	2	Ν	3	Ν	20	Y	3	Ν	-	-	_	
Virginia creeper	Parthenocissus quinquefolia	FAC	-	-	-	-	3	Ν	5	Y	-	-	-	-
White mulberry*	Morus alba	FACU	-	_	-	-	20	Y	7	Y	1	Ν	15	Y

#### Table 3. Vegetation Identified within Each Wetland within the Proposed Project Area

\*Non-native †NMDA (New Mexico Department of Agriculture) Noxious Weed; FAC : Facultative; FACU: Facultative Upland; FACW: Facultative Wetland; UPL: Upland.

Feature ID	Corresponding NHD/NWI	Field Survey Date	Location	Jurisdictional Determination	Average OHWM Width (feet)	Length (feet)	Cowardin Classification	Potentially Jurisdictional Waters within the Proposed Project Area (acres)
Rio Grande	NHD Perennial River	8/20/2021	34.818086° -106.715428°	5° Potentially 35.8 8 28° Jurisdictional		8,782.60	Perennial Stream	0.73
Freshwater Pond	NHD/NWI Open Water (NWI Code: PUBFx)	6/27/2021	34.825837° -106.714542°	Potentially Jurisdictional	N/A	N/A	PUBFx	0.00
Wetland 1	NWI Wetland (NWI Code: PEM1A)	6/27/2021	34.818750° -106.713830°	Potentially Jurisdictional	N/A	N/A	R2UBH	9.10
Wetland 2	NWI Wetland (NWI Code: PEM1A)	6/27/2021	34.829599° -106.715724°	Potentially Jurisdictional	N/A	N/A	R2UBH	1.39
Wetland 3	NWI Wetland (NWI Code: PEM1A)	6/28/2021	34.831587° -106.715251°	Potentially Jurisdictional	N/A	N/A	R2UBH	0.76
Wetland 4	NWI Wetland (NWI Code: PEM1A)	6/28/2021	34.832447° -106.714075°	Potentially Jurisdictional	N/A	N/A	PEM1A	0.00
Wetland 5	NWI Wetland (NWI Code: PEM1A)	6/28/2021	34.832415° -106.715572°	Potentially Jurisdictional	N/A	N/A	R2UBH	1.62
Wetland 6	NWI Wetland (NWI Code: PEM1A)	6/28/2021	34.834023° -106.715414°	Potentially Jurisdictional	N/A	N/A	R2UBH	1.19
							TOTAL	14.79

#### Table 4. SWCA's Mapped Surface Water Features within the Proposed Project Area

Source: USGS (2021); USFWS (2021) Note: N/A = not applicable

## 4 SUMMARY

SWCA conducted a wetland and waterbody delineation of the proposed project area on June 24, 25, and 28, 2021. SWCA delineated six wetlands, one freshwater pond, and one perennial stream (Rio Grande). Based on our data collection and analysis, we conclude that the project would result in the temporary construction impact of 14.06 acres of riverine wetlands and 0.73 acre of WUS. Impacts from construction at these locations are expected to be in the form of sediment and vegetation removal.

Although individual wetland or stream crossings would result in the loss of greater than 0.5 acre of WUS from the proposed project, impacts from these activities are expected to be short-term and temporary as riparian and wetland habitat would increase due to increased inundation in the floodplain. Following construction, an increased amount of substrate would have the potential to be inundated and/or saturated for significant time periods, which should lead to a net gain in both the area and function of wetlands. Often, restored low-flow, slackwater areas develop a fine sediment layer that is conducive to re-establishing diverse herbaceous wetland communities. Some of the expected effects on wetland function include an increase in surface water storage, increase in the ability of wetlands to perform water quality improvement functions, an increased amount of organic carbon available for export, and beneficial effects on the ecosystem diversity. The proposed project is expected to improve conditions for native herbaceous wetland vegetation, as well as native shrubs and trees such as coyote willow (*Salix exigua*), Goodding's willow (*Salix gooddingii*), and Rio Grande cottonwood (*Populus deltoides wislizenii*), through increasing moist soil conditions at seed dispersal. This would also increase the age diversity and structure of these species and connect the floodplain as an active ecological process.

# 5 CONCLUSION

Eight potential WUS were identified within the project area during SWCA's aquatic resources delineation surveys: one perennial stream (Rio Grande), one freshwater pond, and six wetlands. Potential impacts to five of the eight features are greater than 0.5 acre and could require a Standard Individual Permit per Section 404 of the CWA. However, a final permitting determination for the proposed project will be made after further consultation with the USACE, Reclamation, NMISC, and MRGCD (SWCA 2021).

#### 6 LITERATURE CITED

- Google Earth. 2021. U.S. Department of State Geographer Image Landsat. Available at: https://www.google.com/earth/. Accessed October 2021.
- Lichvar, R.W., and S.M. McColley. 2008. *Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States*. Hanover, New Hampshire: Cold Regions Research and Engineering Laboratory, USACE Research and Development Center.
- The National Agricultural Law Center. 2021. Arizona Court Vacates WOTUS Rule. Available at: https://nationalaglawcenter.org/arizona-court-vacates-wotus-rule/. Accessed October 2021.
- Natural Resources Conservation Service (NRCS). 2021. Web Soil Survey of Los Lunas, New Mexico. Available at: http://websoilsurvey.nrcs.usda.gov/app/. Accessed October 2021.
- SWCA Environmental Consultants (SWCA). 2021. Personal communication with Chris Parrish, USACE. October 19, 2021.
- U.S. Army Corps of Engineers (USACE). 1987. U.S. Army Corps of Engineers Wetlands Delineation Manual. Technical Report Y-87-1. Vicksburg, Mississippi: U.S. Army Engineers Waterways Experiment Station Environmental Laboratory.
  - 2008. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0), edited by J.S. Wakeley, R.W. Lichvar, and C.V. Noble. ERDC/EL TR-08-28. Vicksburg, Mississippi: U.S. Army Engineer Research and Development Center.
- U.S. Bureau of Reclamation (Reclamation). 2021. *Project Description: Los Lunas RM 163 Conveyance Capacity Project*. Technical Report. Bureau of Reclamation, Upper Colorado Basin, Albuquerque, New Mexico.
- U.S. Fish and Wildlife Service (USFWS). 2021. National Wetlands Inventory. Available at: http://www.fws.gov/wetlands/Data/Mapper.html. Accessed October 2021.
- U.S. Geological Survey (USGS). 2021. National Hydrography Dataset. Available at: http://nhd.usgs.gov/. Accessed October 2021.
- Western Regional Climate Center. 2021. New Mexico Climate Summaries. Los Lunas 3 SSW, New Mexico (COOP Station No. 295150). Available at: https://wrcc.dri.edu/cgi-bin/cliMAIN.pl?nm 5150. Accessed October 2021.

This page intentionally left blank.

#### **APPENDIX A**

Maps



Figure A-1. Project vicinity map.



Figure A-2. Project area map with Wetland 1 (map 1 of 8).



Figure A-3. Project area map with Wetland 2 (map 2 of 8).



Figure A-4. Project area map with Wetland 3 (map 3 of 8).



Figure A-5. Project area map with Wetland 4 (map 4 of 8).



Figure A-6. Project area map with Wetland 5 (map 5 of 8).



Figure A-7. Project area map with Wetland 6 (map 6 of 8).



Figure A-8. Project area map with the Freshwater Pond (map 7 of 8).



Figure A-9. Project area map with the Rio Grande OHWM (Map 8 of 8).

#### **APPENDIX B**

Photographs



Photograph B-1. View of the Rio Grande channel within the project area, facing south.



Photograph B-2. View of the Rio Grande channel within the project area, facing north.



Photograph B-3. View of upland vegetation within the project area, facing north.



Photograph B-4. View of upland vegetation within the project area, facing south.



Photograph B-5. Representative view of proposed east-west haul road, facing east.



Photograph B-6. Representative view of proposed east-west haul road (OP76), facing east.



Photograph B-7. View of proposed river access road (OP32), facing south.



Photograph B-8. View of proposed river access road (OP50), facing south.



Photograph B-9. View of Wetland 1 (OP16), facing south.



Photograph B-10. View of Wetland 1 (OP10), facing south.



Photograph B-11. View of Wetland 2 (OP108), facing northwest.



Photograph B-12. View of Wetland 2 (OP110), facing north.



Photograph B-13. View of Wetland 3, facing south.



Photograph B-14. View of Wetland 3 (OP101), facing west.



Photograph B-15. View of Wetland 4 (OP99), facing west.



Photograph B-16. View of Wetland 4 (OP99), facing south.



Photograph B-17. View of Wetland 5 (OP95), facing south.



Photograph B-18. View of Wetland 5 (OP92), facing south.



Photograph B-19. View of Wetland 6 (OP84), facing west.



Photograph B-20. View of Wetland 6 (OP87), facing west.



Photograph B-21. View of pond (OP08), facing west.



Photograph B-22. View of wetland soil profile with hydric soil indicators.

This page intentionally left blank.

#### **APPENDIX C**

Wetland Determination Data Forms