Pinyon Environmental, Inc.

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July 30, 2021

Kraig Jashinsky
U.S. Army Corps of Engineers
201 West 8th Street, Suite 350
Pueblo, CO 81003

Subject: Request for an Approved Jurisdictional Determination for the Thunderbird Property Project, Pueblo County, Colorado

Dear Mr. Jashinsky:

Pinyon Environmental, Inc. (Pinyon), on behalf of Martin Marietta, is respectfully submitting this approved jurisdictional determination request for the non-wetland water and wetland features identified in the study area of the above-referenced project. To assist you in making this determination, we have enclosed a Biological Resources Report (BRR) as well as a "Request for Corps Jurisdictional Determination" form. A description of the non-wetland waters and wetlands identified in the project's study area is presented in detail in the enclosed BRR; specifically, *Section 3.4* and *Figure 2*. Wetland Determination Data Forms are also included in *Appendix B* of the BRR.

Of the wetlands and non-wetland waters delineated within the study area, Pinyon requests that the following be reviewed for approved jurisdictional determination:

- Arkansas River and associated wetlands (Arkansas River Wetland Complex – Wetland [WL] 1)
- Excelsior Ditch and associated wetlands (WL-2 through WL-8)
- An Abandoned Channel of the Arkansas River (Arkansas River Wetland Complex – WL-1)
- Thunderbird Lake and associated wetlands (WL-9)
- Unnamed Pond 1 and associated wetlands (WL-10)
- Unnamed Pond 2
- WL-11
- WL-12

If you have any questions or require additional information, do not hesitate to contact me at 303-980-5200, or by email at mintken@pinyon-env.com. We appreciate your time in this matter and look forward to your reply.

Sincerely,

PINYON ENVIRONMENTAL, INC.,

Korby Mintken
Biologist

Cc: Chase Taylor, Pinyon Environmental
Beth Haake, Martin Marietta

Appendix 1 - REQUEST FOR CORPS JURISDICTIONAL DETERMINATION (JD)

To: District Name Here

- I am requesting a JD on property located at: Thunderbird Project, Pueblo County, Colorado
  (Street Address)
  City/Township/Parish: Pueblo County: Pueblo State: CO
  Acreage of Parcel/Review Area for JD: 560
  Section: 6, 31, 32 Township: 20 and 21 S Range: 63W
  Latitude (decimal degrees): 39.265296° Longitude (decimal degrees): -104.478090°
  (For linear projects, please include the center point of the proposed alignment.)
- Please attach a survey/plat map and vicinity map identifying location and review area for the JD.
- ☐ I currently own this property. ___ I plan to purchase this property.
  ☑ I am an agent/consultant acting on behalf of the requestor.
  ☐ Other (please explain): _____.
- Reason for request: (check as many as applicable)
  ☐ I intend to construct/develop a project or perform activities on this parcel which would be designed to avoid all aquatic resources.
  ☐ I intend to construct/develop a project or perform activities on this parcel which would be designed to avoid all jurisdictional aquatic resources under Corps authority.
  ☑ I intend to construct/develop a project or perform activities on this parcel which may require authorization from the Corps, and the JD would be used to avoid and minimize impacts to jurisdictional aquatic resources and as an initial step in a future permitting process.
  ☐ I intend to construct/develop a project or perform activities on this parcel which may require authorization from the Corps; this request is accompanied by my permit application and the JD is to be used in the permitting process.
  ☐ I intend to construct/develop a project or perform activities in a navigable water of the U.S. which is included on the district Section 10 list and/or is subject to the ebb and flow of the tide.
  ☐ A Corps JD is required in order to obtain my local/state authorization.
  ☐ I intend to contest jurisdiction over a particular aquatic resource and request the Corps confirm that jurisdiction does/does not exist over the aquatic resource on the parcel.
  ☐ I believe that the site may be comprised entirely of dry land.
  ☐ Other: _____
- Type of determination being requested:
  ☑ I am requesting an approved JD.
  ☐ I am requesting a preliminary JD.
  ☐ I am requesting a "no permit required" letter as I believe my proposed activity is not regulated.
  ☐ I am unclear as to which JD I would like to request and require additional information to inform my decision.

By signing below, you are indicating that you have the authority, or are acting as the duly authorized agent of a person or entity with such authority, to and do hereby grant Corps personnel right of entry to legally access the site if needed to perform the JD. Your signature shall be an affirmation that you possess the requisite property rights to request a JD on the subject property.

*Signature: Chase Taylor Date: 7/30/2021

- Typed or printed name: Chase Taylor
  Company name: Pinyon Environmental, Inc.
  Address: 3222 S. Vance Street, Suite 200
  Lakewood, CO 80227
  Daytime phone no.: 303.980.5200
  Email address: Taylor@pinyon-env.com

***Authorities:** Rivers and Harbors Act, Section 10, 33 USC 403; Clean Water Act, Section 404, 33 USC 1344; Marine Protection, Research, and Sanctuaries Act, Section 103, 33 USC 1413; Regulatory Program of the U.S. Army Corps of Engineers; Final Rule for 33 CFR Parts 320-332.
Principal Purpose: The information that you provide will be used in evaluating your request to determine whether there are any aquatic resources within the project area subject to federal jurisdiction under the regulatory authorities referenced above.
Routine Uses: This information may be shared with the Department of Justice and other federal, state, and local government agencies, and the public, and may be made available as part of a public notice as required by federal law. Your name and property location where federal jurisdiction is to be determined will be included in the approved jurisdictional determination (AJD), which will be made available to the public on the District's website and on the Headquarters USACE website.
Disclosure: Submission of requested information is voluntary; however, if information is not provided, the request for an AJD cannot be evaluated nor can an AJD be issued.

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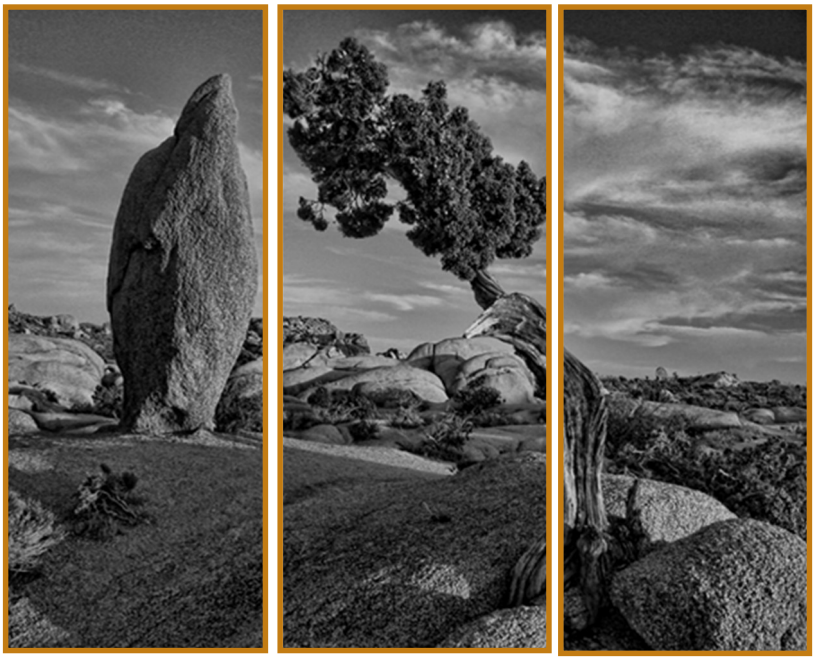
July 30 2021

Biological Resources Report

Thunderbird Property
Pueblo County, Colorado

Prepared for:
Martin Marietta
1910 Rand Avenue
Colorado Springs, Colorado 80905

Pinyon Project No.:
120115103.BIO001



July 30, 2021

Biological Resources Report

Thunderbird Property
Pueblo County, Colorado

Prepared for:
Martin Marietta
1910 Rand Avenue
Colorado Springs, Colorado 80905

Pinyon Project No.:
120115103.BIO001

Prepared by:

Brandee Anderson
Biologist

Reviewed by:

Karin McShea
Technical Group Manager - Biological Resources

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1. Introduction and Project Description

Martin Marietta has contracted Pinyon Environmental, Inc. (Pinyon), to conduct a biological survey for the Thunderbird Property Project (project) in Pueblo County, Colorado (Figure 1). Martin Marietta is considering developing aggregate materials on the Thunderbird Property and would like to understand potential impacts to biological resources prior to initiating development so that permit requirements can be assessed. A Clean Water Act Section 404 (Section 404) Permit may be required; however, the level of permitting (Nationwide versus Individual permit) cannot be determined until impacts to jurisdictional Waters of the U.S. (WUS) are known. Therefore, Martin Marietta would like to submit a request for a Jurisdictional Determination to the U.S. Army Corps of Engineers (USACE) to better understand potential Section 404 permitting steps. The purpose of this report is to summarize potential constraints on development posed by biological resources within the project area and to address existing conditions regarding biological resources and protected species in accordance with the following federal and state regulations or policies:

- **The Endangered Species Act (ESA):** This federal regulation protects listed plant and animal species with the goal of ensuring their long-term survival. The U.S. Fish and Wildlife Service (USFWS) administers these requirements.

- **The Colorado Non-game, Endangered, and Threatened Species Conservation Act:** Protects state-listed threatened (ST), state-listed endangered (SE), and state special concern species (SC) with the goal of ensuring their long-term survival. Colorado Parks and Wildlife (CPW) administers these requirements.

- **The Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA):** Federal regulations; vegetation clearing, earth-moving, bridge demolition, and other construction activities have the potential to disrupt nesting activity or destroy nests of bird species protected under the MBTA and BGEPA. The USFWS administers these requirements.

- **Section 404 of the Clean Water Act (CWA)**: Regulates WUS, which include non-wetland waters and wetlands, and impacts to these features would require permitting through the USACE.

- **Noxious Weeds:** The Colorado Department of Agriculture (CDA) Noxious Weed Act of 2003 (CRS 35-5-101; CRS 35-5.5-101; Executive Order (EO) D-006-99) defines and prioritizes management objectives for state-designated noxious weeds. The CDA classifies noxious weed species into three categories: List A, List B, and List C. List A species are designated by the Commissioner of the CDA for eradication. List B species are those species that are managed to stop continued spread. List C species are weed species that are not required to be managed by local jurisdictions but are monitored to provide additional education and research (CDA, 2021).

1.1 Project Location

The project is shown in Figure 1 and described in Table 1-1, below.

Table 1-1 Project Location

County	Pueblo
United States Geological Survey (USGS) 7.5-Minute Quadrangle	Devine, 2019
Section, Township, and Range (6th Principal Meridian)	Sections 31 and 32, Township 20 South, Range 63 West and Section 6, Township 21 South, Range 63 West
Elevation of Project (feet above mean sea level)	4,560
Approximate Central Location in World Geodetic System of 1984 (WGS84) Decimal Degrees	38.265296°, -104.478090°

2. Methods

Pinyon biologists Mark Fletcher and Tim Merlino visited the site on August 11 through 13, 2020, to assess the study area for biological resources. The weather during the site visit was clear and sunny, and the temperature was approximately 95° Fahrenheit.

On July 1, 2021, Pinyon biologist Korby Mintken visited the site with Martin Marietta and USACE personnel to review/discuss wetland and non-wetland waters that were assessed during the 2020 site visits. The weather was clear and sunny, and the temperature was approximately 90° Fahrenheit.

2.1 Study Area

Pinyon was provided with the boundaries where the maximum extent of project impacts are anticipated to occur. This area is further referred to in this report as the "study area."

2.2 Survey Parameters

Pinyon personnel surveyed the study area for biological resources by walking and/or driving throughout the study area and recording the locations of sensitive habitat features (Figure 2). During the site visit, data were recorded using tablet-based Collector for ArcGIS paired with a Trimble R1 antenna to obtain sub-meter accuracy. The data were downloaded and mapped in ArcGIS mapping software. Notes and photographs were taken to record field conditions (Appendix A).

The following activities were completed during the site visit:

- General habitat conditions and land uses were noted. Dominant plant species and plant habitats were recorded.
- The study area was evaluated for protected species and their habitats, including:
    - Federally listed threatened and endangered species, as specified by the USFWS online Information for Planning and Consultation (IPaC) System (USFWS, 2021).
    - State-listed endangered, threatened, and sensitive species, as specified by USGS quadrangle on the CPW and Colorado Natural Heritage Program (CNHP) websites (CPW, 2019; CNHP, 2021).
    - Migratory birds.
- Potential WUS were mapped/delineated in accordance with the 1987 USACE "Wetland Delineation Manual" and the 2010 Corps "Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Great Plains Region (Version 2.0)" (Environmental Laboratory, 1987; USACE, 2010). The boundaries of the ordinary-high water mark (OHWM) were identified in accordance with the 2014 USACE "A Guide to Ordinary High Water Mark (OHWM) Delineation for Non-Perennial Streams in the Western Mountains, Valleys, and Coast Region of the United States" (USACE, 2014). In general, the OHWM was determined based on the presence of bed and bank, a visible impression on the shoreline, a change in substrate type or texture, or a change in vegetation. Wetland determination data forms are included in Appendix B.
- Noxious weeds were documented but not mapped.

3. Results

3.1 Habitat Description

3.1.1 Land Use

The study area is located in a rural area east of Pueblo, generally between U.S. Highway 50 and the Arkansas River (Figure 1). The study area is located in the floodplain of the Arkansas River and Saint Charles River and numerous non-wetland waters, such as Thunderbird Lake, and wetlands were noted throughout the study area (see *Section 3.4 Non-wetland Waters and Wetlands*) (Figure 2). No structures are currently located in the study area; although, a powerline traverses the western portion of the site from north to south and various two-track roads are located in the western portion of the study area. The Town of Baxter is located just north of the study area and numerous small residential areas and agricultural fields are located near the study area.

3.1.2 General Habitat and Vegetation Description

Dominant species along portions of the upland habitats included grasses such as smooth brome (*Bromus inermis*), blue grama (*Bouteloua gracilis*), purple threeawn (*Aristida purpurea*), and cheatgrass (*Bromus tectorum).* Common herbaceous species were field bindweed (*Convolvulus arvensis*), diffuse knapweed (*Centaurea diffusa*), Canada thistle (*Cirsium arvense*), annual sunflower (*Helianthus annuus*), American licorice (*Glycyrrhiza lepidota*), and kochia (*Bassia scoparia*). Common shrubs included rubber rabbitbrush (*Ericameria nauseosa*) and saltcedar (*Tamarix chinensis*). Trees were dominated by stands of plains cottonwood (*Populus deltoides).* Less dense scattered trees included Siberian elm *(Ulmus pumila).*

The site is located along the Arkansas River; therefore, riparian habitat makes up much of the study area. Dominant species in the riparian areas included smooth brome, purple threeawn, coyote willow (*Salix exigua*), saltcedar, Russian olive (*Elaeagnus angustifolia*), and plains cottonwood. Other common species included reed canary grass (*Phalaris arundinacea*), common threesquare (*Schoenoplectus pungens*), narrowleaf cattail (*Typha angustifolia*), Canada thistle, and various grass species (Poaceae). No sensitive or rare plant species were noted within the study area.

Wetlands were delineated within the study area and are described further in *Section 3.4.2 Wetlands*.

3.2 Threatened and Endangered Species

3.2.1 Federally Listed Species

Based on a review of the USFWS online IPaC System, there are three federally listed species with the potential to occur in, or be impacted by, a project in this location (USFWS, 2021). The habitat and distribution of each of the species was reviewed, and the potential for occurrence was assigned based on the conditions within the study area (Table 3-1). Per the USFWS, no critical habitats are mapped in the study area.

Table 3-1 Federally Listed Species and Their Potential to Occur in the Study Area

Common Name	Species	Federal Status	Habitat[1]	Potential for Occurrence in Study Area
Birds				
Eastern Black Rail	*Laterallus jamaicensis ssp. jamaicensis*	FT	In the interior U.S., Eastern Black Rail uses wet sedge meadows with dense cover. In Colorado, the birds generally use shallow wetlands often dominated by cattails.	Low. See discussion below table.
Fish				
Greenback Cutthroat Trout	*Oncorhynchus clarki stomias*	FT	Occurs in cold and clear headwater streams with a gravel substrate. Also occurs in cold mountain lakes. Requires a rich supply of insects for food.	None. Suitable habitat does not occur within the study area. The closest known population is located in the upper reaches of Bear Creek, west of Colorado Springs, Colorado.
Mammals				
Canada Lynx	*Lynx canadensis*	FT	Uneven-aged stands with relatively open canopies and well-developed understories of coniferous forests. Moist boreal forests with cold, snowy winters and high-density snowshoe hare prey base. Restricted to isolated areas of the central portion of Colorado.	None. Suitable habitat does not occur within the study area.

Notes:
FT = federally listed as threatened.
[1] – Based on a review of Colorado Parks and Wildlife, Threatened and Endangered List (CPW, 2021); Colorado Parks and Wildlife, Species Activity Mapping (CPW, 2019); U.S. Fish and Wildlife Service, Information for Planning and Consultation (USFWS, 2021).

3.2.1.1 Eastern Black Rail

In Colorado, the Eastern Black Rail is known to use shallow wetlands, dominated by cattails. Per CPW data, core habitat for the Eastern Black Rail is located along the Arkansas River, approximately from Interstate 25 in Pueblo to the Colorado/Kansas state-line (CPW, 2018). The projects study area is adjacent to the Arkansas River and consists of wetland habitat, which includes few, small, cattail patches. Although most of the wetlands within the study area are dominated by shrubs, marginal Eastern Black Rail habitat may occur within the study area.

3.2.2 State-Listed and Special Concern Species

Based on a review of the CPW Species Activity Mapping data and the CNHP Tracking List, there are three state-listed species that have potential to occur within the study area (CPW, 2019; CNHP, 2021). These species are the Burrowing Owl (*Athene cunicularia*; ST), Bald Eagle (*Haliaeetus leucocephalus*; ST), and plains orangethroat darter (*Etheostoma spectabile*; SC). Due to the lack of suitable habitat (e.g., black-tailed prairie dog [*Cynomys ludovicianus*] burrows) within or near the study area, Burrowing Owls are not expected to occur in the study area. Further, per CPW data, the plains orangethroat darter only occurs in the Republican River basin, which is not within/near the study area (CPW, 2020). Therefore, the plains orangethroat darter is not expected to occur within the study area. The Burrowing Owl and plains orangethroat darter are not discussed further in this report. The remaining state-listed species (i.e., the Bald Eagle) may occur in the study area or be impacted by the project and is discussed below.

3.2.2.1 Bald Eagle

The Bald Eagle is a federal recovery species (i.e., formerly federally listed) and a state-listed threatened species and has a low potential to occur in the study area. The study area is located within the species mapped winter range and foraging habitat (CPW, 2019). Per CPW data, no winter roosts or nests are located within the study area or within 0.5 mile of the study area. Although, surveys were conducted during the growing season, which reduces visibility. Further, per CPW data, the closest nest site is located approximately 6.5 miles east of the study area, and the closest roost site is located approximately 5 miles west of the study area (CPW, 2019). No Bald Eagles were observed during the site visit. However, Bald Eagles may utilize the large trees in study area for perching/hunting throughout the year.

3.3 Migratory Birds

Large trees were noted within the study area, as well as within 0.5 mile of the study area (within the CPW Recommended Buffer Zones for raptors) that could be used by nesting raptors (CPW, 2008). Five potential raptor nests were noted within the study area (Figure 2). An adult Swainson's Hawk (*Buteo swainsoni*) was noted near one of the nests (Potential Nest 2) and one of the nests may be an Osprey (*Pandion haliaetus*) nest based on the distinctive nest placement (Potential Nest 1) (Figure 2; Appendix A, Photos 1 and 2). However, no nests were observed to be active during the site visits. If any of the nests were active during the 2020 season, the young had fully fledged from the nests. The site visits were conducted during the raptor nesting season, which occurs approximately between February and August. Raptors may use the same nests from year-to-year; therefore, it is likely that the nests will become active (i.e., will contain eggs and/or hatchlings) during subsequent nesting seasons. Raptors may also construct new nests within the 0.5-mile buffer of the project area prior to the onset of construction.

Large trees also provide suitable habitat for non-raptor species. The study area also had small- to medium-sized trees, shrubs, as well as grassy habitat, which provide suitable nesting habitats for other (non-raptor) birds.

3.4 Non-wetland Waters and Wetlands

The Arkansas River and an associated oxbow/abandoned channel, Saint Charles River, Excelsior Ditch, Thunderbird Lake, and two unnamed ponds, as well as numerous associated wetlands, were mapped within the study area (Figure 2; Appendix A). Wetland and non-wetland water features are described below.

3.4.1 Non-wetland Waters

Seven non-wetland waters and/or OHWMs were delineated in the study area (Table 3-2).

Table 3-2 Summary of Non-Wetland Waters Delineated in the Study Area

Name/ID	Latitude[1]	Longitude[1]	Type	Acres within Study Area
Arkansas River	38.263383°	-104.473814°	Riverine	30.88
Saint Charles River	38.263900°	-104.467462°	Riverine	0.25
Excelsior Ditch	38.268015°	-104.484564°	Ditch	2.15
Abandoned Channel of the Arkansas River	38.266586°	-104.463309°	Riverine	6.20
Thunderbird Lake	38.261030°	-104.492899°	Lake	3.88
Unnamed Pond 1	38.262176°	-104.489737°	Pond	0.66
Unnamed Pond 2	38.262069°	-104.490891°	Pond	0.09

[1]Approximate central location in World Geodetic System of 1984 (WGS84) Decimal Degrees

3.4.1.1 Arkansas River

The Arkansas River is a perennial water feature represented as solid blue line on the USGS Devine, Colorado 7.5-minute quadrangle (Figure 1; Appendix A, Photo 3; USGS, 2019). Hydrophytic vegetation was noted along the river and in the floodplain (see *Section 3.4.2.1 Arkansas River Wetland Complex* for a description of the wetlands). The river flows to the east through the study area. Substrate within the river was primarily sand and unconsolidated silt material. In the western portion of the study area, the riverbank was lined with concrete rubble. In the eastern portion of the study area, the soil of the riverbank was comprised of sandy loam and is mapped as Bankard sand, 0 to 2 percent slopes, frequently flooded (USDA, 2019). Within the study area, the river width was approximately 250 feet. Water depth may vary depending on location and time of year. An OHWM was mapped along the river edge (Figure 2).

3.4.1.2 Saint Charles River

The Saint Charles River is a perennial water feature represented as a solid blue line on the USGS Devine, Colorado 7.5-minute quadrangle (Figure 1; USGS, 2019). Hydrophytic vegetation was noted along the river and in the floodplain (see *Section 3.4.2.1 Arkansas River Wetland Complex* for a description of the wetlands). The river flows to the east through the study area and flows into the Arkansas River immediately east of the study area. Substrate within the river is unknown as the biologists did not have access to this area during the site visit. The soil of the riverbank is mapped as Glenberg-Haversid complex, 0 to 2 percent slopes, occasionally flooded (USDA, 2019). Within the study area, the river width was approximately 25 feet. Depths may vary depending on location and time of year. An OHWM was mapped along the river edge based on aerial imagery (Figures 2f and 2g).

3.4.1.3 Excelsior Ditch

Excelsior Ditch is represented as a solid blue line on the 2019 USGS Devine, Colorado 7.5-minute quadrangle and a dashed blue line on the 1960 USGS Devine, Colorado 7.5-minute quadrangle (Figure 1; Appendix A, Photo 4; USGS, 2019; USGS, 1960). Hydrophytic vegetation was noted in patches along the fringe (see *Section 3.4.2.2 Excelsior Ditch* for a description of the wetlands). The ditch flows to the east through the study area. Substrate within the ditch was generally comprised of sand and small rock/cobble intermixed. The soil of the bank of the ditch was comprised of sandy clay and is mapped as Las Animas fine sandy loam, 0 to 2 percent slopes, frequently flooded (USDA, 2019). Within the study area, the average width was approximately 18 feet. An OHWM was mapped along the ditch edge (Figure 2). Per aerial imagery, Excelsior Ditch is fed by the

Arkansas River through a controlled water structure west of the study area and is assumed to be an agricultural ditch (Google Earth, 2021). Excelsior Ditch then flows to the east and connects with Chico Creek, a tributary of the Arkansas River, east of the study area.

3.4.1.4 Abandoned Channel of the Arkansas River

The Abandoned Channel of the Arkansas is represented as a dashed blue line on the 2019 USGS Devine, Colorado 7.5-minute quadrangle and was once the mainstem of the Arkansas River according to the 1960 USGS Devine Colorado 7.5-minute quadrangle (Figure 1; Appendix A, Photos 5 and 6; USGS, 2019; USGS, 1960). The western portion of the channel was primarily covered with common duckweed (*Lemna minor*), a floating aquatic plant (Appendix A, Photo 5). Flows in the western portion of the channel were obstructed by a North American beaver (*Castor canadensis*) dam to the east. An OHWM was mapped for the western portion of the channel and the width was approximately 70 feet. Water started flowing in the eastern portion of the channel, east of the beaver dam. The average width of the eastern portion of the channel was approximately three feet and an OHWM was mapped along the channels edge (Figure 2; Appendix A, Photo 6). Substrate within the western portion of the channel was generally sand and small rock/cobble. The soil of the banks of the channel were mapped as Las Animas fine sandy loam, 0 to 2 percent slopes, frequently flooded and Bankard sand, 0 to 2 percent slopes, frequently flooded (USDA, 2019). The channel flows east and connects with the Arkansas River, just east of the study area.

3.4.1.5 Thunderbird Lake

Thunderbird Lake is represented as a lake on the USGS Devine, Colorado 7.5-minute quadrangle (Figure 1; Appendix A, Photo 7; USGS, 2019). Hydrophytic vegetation was noted in patches along the fringe (see *Section 3.4.2.3 Thunderbrid Lake Wetlands* for a description of the wetlands). Substrate within the lake was comprised of sand, clay, and loam materials. The soil of the bank of the lake was comprised of sandy loams and loamy sands and is mapped as Glenberg-Haversid complex, 0 to 2 percent slopes, occasionally flooded (USDA, 2019). The lake is a total of 3.88 acres. The depth of the lake is unknown. An OHWM was mapped around the lake (Figure 2). The lake appears to be isolated with no downstream connection to other waterbodies. The lake is approximately 350 feet north of the Arkansas River and is believed to be created from past mining activities.

3.4.1.6 Unnamed Pond 1

Unnamed Pond 1 was noted in the study area east of Unnamed Pond 2 and Thunderbird Lake (Figure 1; Appendix A, Photo 8). The pond is not represented on the USGS Devine, Colorado 7.5-minute quadrangle (USGS, 2019). Hydrophytic vegetation was noted in patches along the fringe (see *Section 3.4.2.4 Unnamed Pond 1 Wetlands* for a description of the wetlands). Substrate within the pond was comprised of sand, clay, and loam materials. The pond is a total of 0.66 acre. The depth of the pond is unknown. An OHWM was mapped around the pond (Figure 2). The pond appears to be isolated with no downstream connection to other waterbodies. The pond is approximately 500 feet northeast of the Arkansas River and is believed to be created from past mining activities.

3.4.1.7 Unnamed Pond 2

Unnamed Pond 2 is represented as a pond on the USGS Devine, Colorado 7.5-minute quadrangle (Figure 1; Appendix A, Photo 9; USGS, 2019). The pond was covered in common duckweed. Substrate within the pond was comprised of sand, clay, and loam materials. The pond is a total of 0.09 acre with an approximate length of 90 feet and an approximate width of 50 feet. The depth of the pond is unknown. An OHWM was mapped around the pond (Figure 2). The pond appears to be isolated with no downstream connection to other waterbodies. The pond is approximately 500 feet northeast of the Arkansas River and is believed to be created from past mining activities.

3.4.2 Wetlands

Twelve wetland areas were identified within the study area (Figure 2; Table 3-3). The wetland areas were grouped based on hydrological source (e.g., Arkansas River, Excelsior Ditch, Unnamed Pond 1). Multiple wetland classifications may be included in each wetland area (e.g., Palustrine scrub shrub [PSS], palustrine emergent [PEM]) (Cowardin, et al., 1979). In general, vegetation, soils, and hydrology were similar between each of the wetland areas grouped by hydrologic source. Therefore, the wetland determination data forms completed generally represent each wetland as grouped by hydrologic source, rather than individual wetlands where completed. Reference pits were excavated throughout each wetland to confirm wetland boundaries or the presence of hydric soils. The following sections discuss each wetland area.

Table 3-3 Summary of Wetlands Delineated in the Study Area

Name/ID	Associated Waterbodies	Latitude[1]	Longitude[1]	Cowardian Classification[2]	Acres
Wetland 1 (WL-1)	Arkansas River Wetland Complex, includes Arkansas River, the Abandoned Channel of Arkansas River, and Saint Charles River	38.264728°	-104.470642°	PSS	68.56
Wetland 2 (WL-2)	Excelsior Ditch	38.268948°	-104.482343°	PEM	0.01
Wetland 3 (WL-3)	Excelsior Ditch	38.265981°	-104.493097°	PEM	<0.01
Wetland 4 (WL-4)	Excelsior Ditch	38.265138°	-104.493243°	PEM	0.09
Wetland 5 (WL-5)	Excelsior Ditch	38.264120°	-104.493103°	PEM	0.01
Wetland 6 (WL-6)	Excelsior Ditch	38.263508°	-104.493890°	PEM	0.01
Wetland 7 (WL-7)	Excelsior Ditch	38.262081°	-104.494601°	PEM	<0.01
Wetland 8 (WL-8)	Excelsior Ditch	38.261434°	-104.494379°	PEM	0.03
Wetland 9 (WL-9)	Thunderbird Lake	38.260980°	-104.492623°	PSS	0.04
Wetland 10 (WL-10)	Unnamed Pond 1	38.262234°	-104.489596°	PSS	0.06
Wetland 11 (WL-11)	None, Isolated	38.266524°	-104.493578°	PEM	0.05
Wetland 12 (WL-12)	None, Isolated	38.262463°	-104.493060°	PEM	0.38

[1]Approximate central location in World Geodetic System of 1984 (WGS84) Decimal Degrees
[2] Cowardin, et al., 1979
PEM=Palustrine Emergent, PSS=Palustrine Scrub Shrub

3.4.2.1 Arkansas River Wetland Complex

Wetland 1

Wetland (WL) 1 included PSS wetlands associated with the Arkansas River, the Abandoned Channel of the Arkansas River, and the Saint Charles River (the Arkansas River Wetland Complex) (Figure 2; Appendix A, Photo 10). Due to the water depth and dense vegetation (i.e., lack of access), portions of the Arkansas River Wetland Complex were not formally delineated; rather, these areas were assumed (conservatively) to be wetland based on similar vegetation in delineated areas. The Arkansas River Wetland Complex was dominated by Russian olive and saltcedar. Coyote willow and plains cottonwoods were also noted intermixed in some areas. The understory consisted of a variety of herbaceous species such as reed canary grass, scratchgrass (*Muhlenbergia asperifolia*), narrowleaf cattail, and softstem bulrush (*Schoenoplectus tabernaemontani*) along the Abandoned Channel of the Arkansas River and annual beard-grass (*Polypogon monspeliensis*), redtop (*Agrostis gigantea*), prostrate knotweed (*Polygonum aviculare*), common spikerush (*Eleocharis palustris*), and Baltic rush (*Juncus balticus*) along the Arkansas River. As noted above, the Abandoned Channel of the Arkansas River was primarily covered with common duckweed, a floating aquatic plant, within the OHWM. Because common duckweed is an unrooted aquatic plant it can change with changes in water flows and therefore these areas were deemed non-wetland waters instead of wetlands. Sampling Point (SP) 5 and SP-7 were excavated in WL-1 (Figure 2f and 2g; Appendix B). The areas passed the Dominance Test for Hydrophytic Vegetation. Hydric soil indicators observed were Redox Dark Surface (F6) and Hydrogen Sulfide (A4) for SP-5 and Depleted Matrix (F3) for SP-7. Primary wetland hydrology indicators observed were High Water Table (A2) at ten and eight inches and Saturation (A3) at one inch and from two to 20 inches for SP-5 and SP-7, respectively. Hydrogen Sulfide Odor (C1) was also observed at SP-5. Secondary hydrology indicators for SP-5 and SP-7 included Geomorphic Position (D2) and both areas passed the FAC-Neutral Test (D5).

3.4.2.2 Excelsior Ditch Wetlands

Wetlands 2 through 8

WL-2 through WL-8 included PEM wetlands associated with the Excelsior Ditch (Figure 2; Appendix A, Photo 11). SP-3 was excavated in WL-3, while the remaining wetlands associated with Excelsior Ditch were delineated based on similar vegetation and hydrologic conditions and reference pits were excavated throughout to confirm hydric soils and hydrology. Wetlands 2 through 8 contained species such as reed canary grass, annual beard-grass, common spikerush, and Pennsylvania smartweed (*Polygonum pensylvanicum*). SP-3 was completed in WL-3, on the south bank of Excelsior Ditch (Figure 2a; Appendix B). The area passed the Rapid Test for Hydrophytic Vegetation. The hydric soil indicator observed was a Depleted Matrix (F3). The primary wetland hydrology indicator observed was Oxidized Rhizospheres on Living Roots (C3). Secondary hydrology indicators included Geomorphic Position (D2) and the area passed the FAC-Neutral Test (D5).

3.4.2.3 Thunderbird Lake Wetlands

Wetland 9

WL-9 included PSS wetlands around Thunderbird Lake (Figure 2b; Appendix A, Photo 12). WL-9 contained an overstory of Russian olive and a diverse understory of reed canary grass, scratchgrass, rough barnyard grass (*Echinochloa muricata*), common sunflower, swamp verbena (*Verbena hastata*), and common threesquare. SP-1 was completed in WL-9, on the east bank of Thunderbird Lake on a small peninsula (Figure 2b; Appendix B). The area passed the Dominance Test for Hydrophytic Vegetation. The hydric soil indicator observed was a Depleted Matrix (F3). Primary wetland hydrology indicators observed were High Water Table (A2) at ten inches and Saturation (A3) at ground surface to 20 inches. Secondary hydrology indicators included Geomorphic Position (D2) and the area passed the FAC-Neutral Test (D5). Numerous reference soil pits were excavated around the lake in areas with hydrophytic vegetation to confirm the presence of hydric soils and hydrology.

3.4.2.4 Unnamed Pond 1 Wetlands

Wetland 10

WL-10 included PSS wetlands around Unnamed Pond 1 (Figure 2b; Appendix A, Photo 13). WL-10 contained an overstory of Russian olive and an understory of narrowleaf cattail. WL-10 was delineated as a wetland based on similar vegetation and hydrologic conditions as noted at SP-1 completed in WL-9 around Thunderbird Lake and reference pits were excavated throughout to confirm hydric soils (see Section 3.4.2.3).

3.4.2.5 Isolated Wetlands

Wetland 11

WL-11 was an isolated, PEM wetland located in the northeastern portion of the study area (Figure 2a; Appendix A, Photo 14). WL-11 was dominated by common threesquare and a reference pit was excavated to confirm the presence of hydric soils and hydrology. WL-11 was delineated as a wetland based on similar vegetation and hydrologic conditions as noted at SP-1 completed in WL-9 around Thunderbird Lake and reference pits were excavated throughout to confirm hydric soils (see Section 3.4.2.3).

Wetland 12

WL-12 was an isolated, PEM wetland located north of Thunderbird Lake (Figure 2b; Appendix A, Photo 15). WL-12 was dominated by narrowleaf cattail and a reference pit was excavated to confirm the presence of hydric soils and hydrology. WL-12 was delineated as a wetland based on similar vegetation and hydrologic conditions as noted at SP-1 completed in WL-9 around Thunderbird Lake and reference pits were excavated throughout to confirm hydric soils (see Section 3.4.2.3).

3.5 Noxious Weeds

Weeds listed on the CDA Noxious Weed List were observed in the study area and the weeds present within the study area were typical of those located along Colorado's Front Range (CDA, 2021). No List-A noxious weed species were noted. Noxious weeds noted in the study area included: cheatgrass, field bindweed, diffuse knapweed, spotted knapweed (*Centaurea stoebe*), Canada thistle, common teasel (*Dipsacus fullonum*), saltcedar, and Russian olive. These weeds were scattered throughout the study area and were not mapped.

4. Conclusions and Mitigation Recommendations

Pinyon has completed this Biological Resources Report for the Thunderbird Property Project in Pueblo County, Colorado. The study area was assessed for the presence of biological resources including federally and state-listed species, migratory birds, non-wetland waters and wetlands, and noxious weeds.

4.1 Threatened and Endangered Species

4.1.1 Federally Listed Species

The study area was assessed for the federally listed species with the potential to occur in the study area or be impacted by the project. Based on the habitat present, the project would have ***no effect*** on the greenback cutthroat trout and Canada lynx. No further consultation or mitigation for these species is required.

The study area is within core habitat for the Eastern Black Rail. Because PEM wetlands occur on-site, habitat for the Eastern Black Rail may occur; therefore, consultation with the USFWS may be required if these areas are impacted by the Project.

4.1.2 State-Listed Species

The study area was assessed for ST, SE, and SC species with the potential to be impacted by the project. The Bald Eagle was identified as having potential to occur in the project area and is discussed below.

4.1.2.1 Bald Eagle

Per CPW data, no Bald Eagle nests or winter roosts are located within 0.5 mile of the study area. However, Bald Eagles can build new nests and expand their winter roost habitat Because the site visits were conducted during the growing season, which reduces visibility, Pinyon recommends that the project perform additional nesting surveys prior to the commencement of work. If new (unmapped) Bald Eagle nests are noted, coordination with USFWS and/or CPW may be warranted.

4.2 Migratory Birds

Potential habitat for nesting birds, including potential raptor nests, were identified in and within a 0.5-mile buffer of the study area. The nesting season for most birds generally occurs from April through August, although raptors may nest as early as February and nests are protected at all times. Pinyon recommends that the project complies with the MBTA at all times, as well as follow recommended guidelines set by CPW for nesting raptors. If active raptor nests are confirmed to occur within a 0.5-mile buffer of the project area prior to the onset of construction, it is recommended that a qualified wildlife biologist coordination with USFWS and/or CPW to identify an appropriate action to ensure that project activities do not disrupt nesting activities. Pinyon also recommends that nesting surveys be completed for non-raptor species prior to construction if project activities occur during the nesting season.

4.3 Non-wetland Waters and Wetlands

Non-wetland waters and wetlands occur in the study area. Martin Marietta intends to limit impacts to WUS, to the extent practical. The project will submit a request for a Jurisdictional Determination to the USACE to determine areas under the jurisdiction of the USACE. Prior to the beginning of work and after design is complete, impacts to WUS will be determined. If impacts to WUS are anticipated to occur, Section 404 permitting would be required. The type of permitting (Nationwide Permit or Individual Permit) will be

dependent on the amount and type of impacts to WUS. If no impacts to WUS are anticipated, then no further action is required.

4.4 Noxious Weeds

Noxious weeds typical of Colorado's Front Range are present in the study area. No List-A noxious weed species were noted, and the List B and List C weeds identified did not appear to be greater in densities than the surrounding areas (outside of the study area). Nevertheless, the project is required to minimize the spread of noxious weeds during operations. Pinyon recommends that the project implements Best Management Practices into the project plans to reduce the spread of noxious weeds.

5. Limitations

This report was prepared by Pinyon, at the request of and for the sole benefit of Martin Marietta, or any entity controlling, controlled by, or under common control with Martin Marietta. The conclusions and recommendations offered in this report are based on the data obtained from a limited number of samples, within a prescribed study area as described in the text. Soil, hydrologic, vegetation, biological, and ecological conditions typically vary even over short distances, by season, by elevation, and by meteorological conditions. Thus, the nature and extent of variations outside this biological investigation may not become evident except through further investigation. It is possible that ecological conditions may change from those observed, particularly over time.

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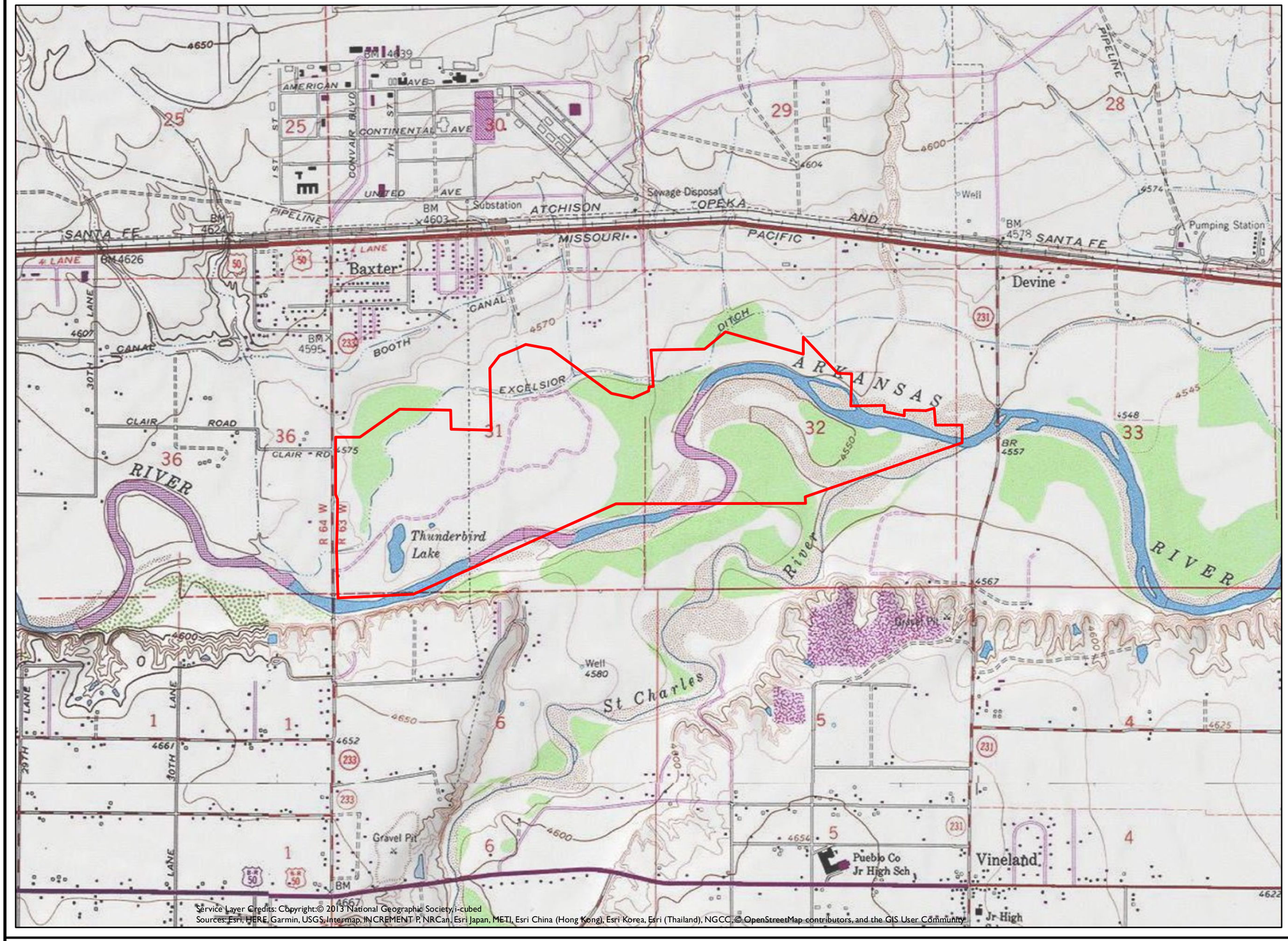
Figures



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Pinyon Project Number: 1/20-1151-03	Reviewed By: BCA	Date: 9/9/2020

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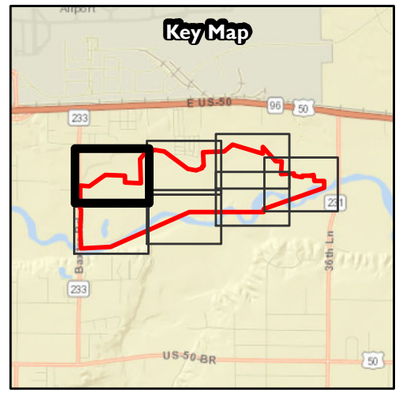

Legend

- Study Area
- Areas Not to be Impacted
- Wetlands
- Non-wetland Waters
- Ordinary High Water Mark
- Potential Raptor Nests
- Sampling Points
- Flow Direction

1 inch = 300 feet

0 150 300 Feet

Pinyon Environmental, Inc.

BIOLOGICAL RESOURCES

Thunderbird Property
Pueblo County, Colorado

Site Location: Multiple Sections, Townships 20 and 21S, Range 63W, 6th Principal Meridian	Drawn By: JAF	Figure: 2a
Pinyon Project Number: 1/20-1151-03	Reviewed By: BCA	Date: 7/16/2021

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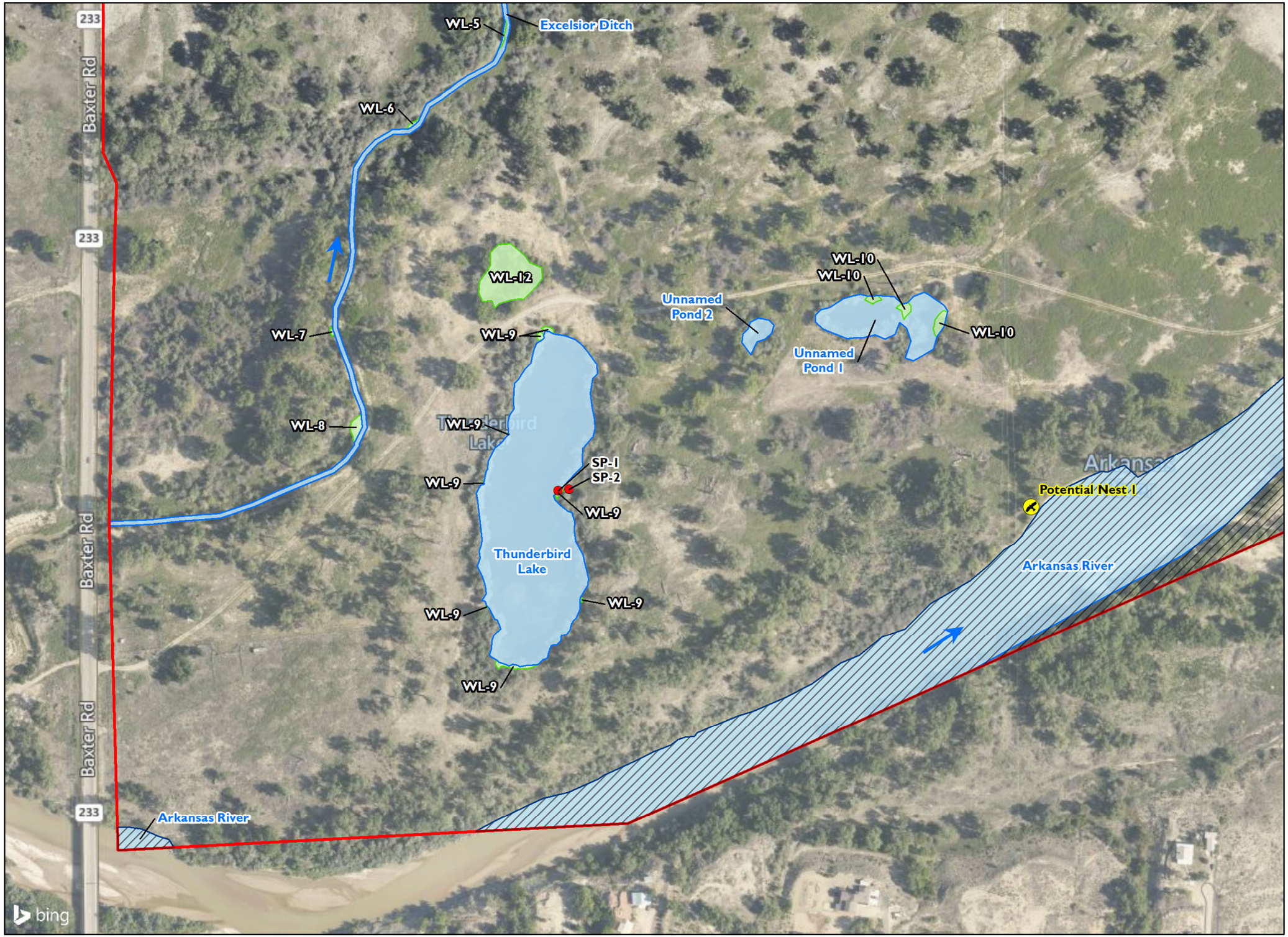

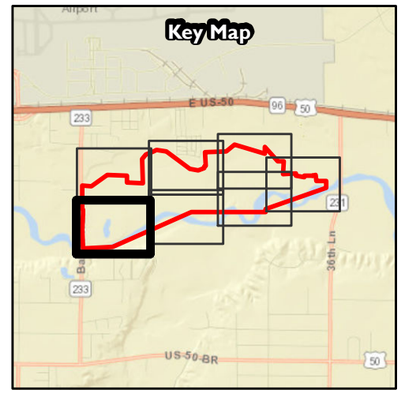

Legend

- Study Area
- Areas Not to be Impacted
- Wetlands
- Non-wetland Waters
- Ordinary High Water Mark
- Potential Raptor Nests
- Sampling Points
- Flow Direction

1 inch = 300 feet

0 150 300 Feet

Pinyon Environmental, Inc.

BIOLOGICAL RESOURCES

Thunderbird Property
Pueblo County, Colorado

Site Location: Multiple Sections, Townships 20 and 21S, Range 63W, 6th Principal Meridian	Drawn By: JAF	Figure: 2b
Pinyon Project Number: 1/20-1151-03	Reviewed By: BCA	Date: 7/16/2021

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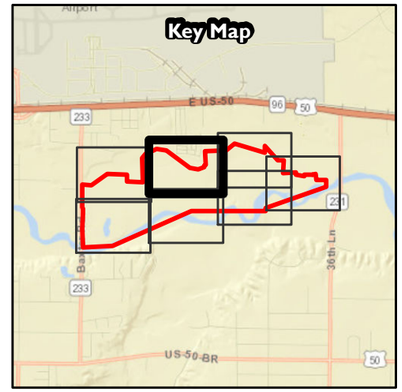

Legend

- Study Area
- Areas Not to be Impacted
- Wetlands
- Non-wetland Waters
- Ordinary High Water Mark
- Potential Raptor Nests
- Sampling Points
- Flow Direction

1 inch = 300 feet

0 150 300 Feet

Pinyon Environmental, Inc.

BIOLOGICAL RESOURCES

Thunderbird Property
Pueblo County, Colorado

Site Location: Multiple Sections, Townships 20 and 21S, Range 63W, 6th Principal Meridian	Drawn By: JAF	Figure: 2c
Pinyon Project Number: 1/20-1151-03	Reviewed By: BCA	Date: 7/16/2021

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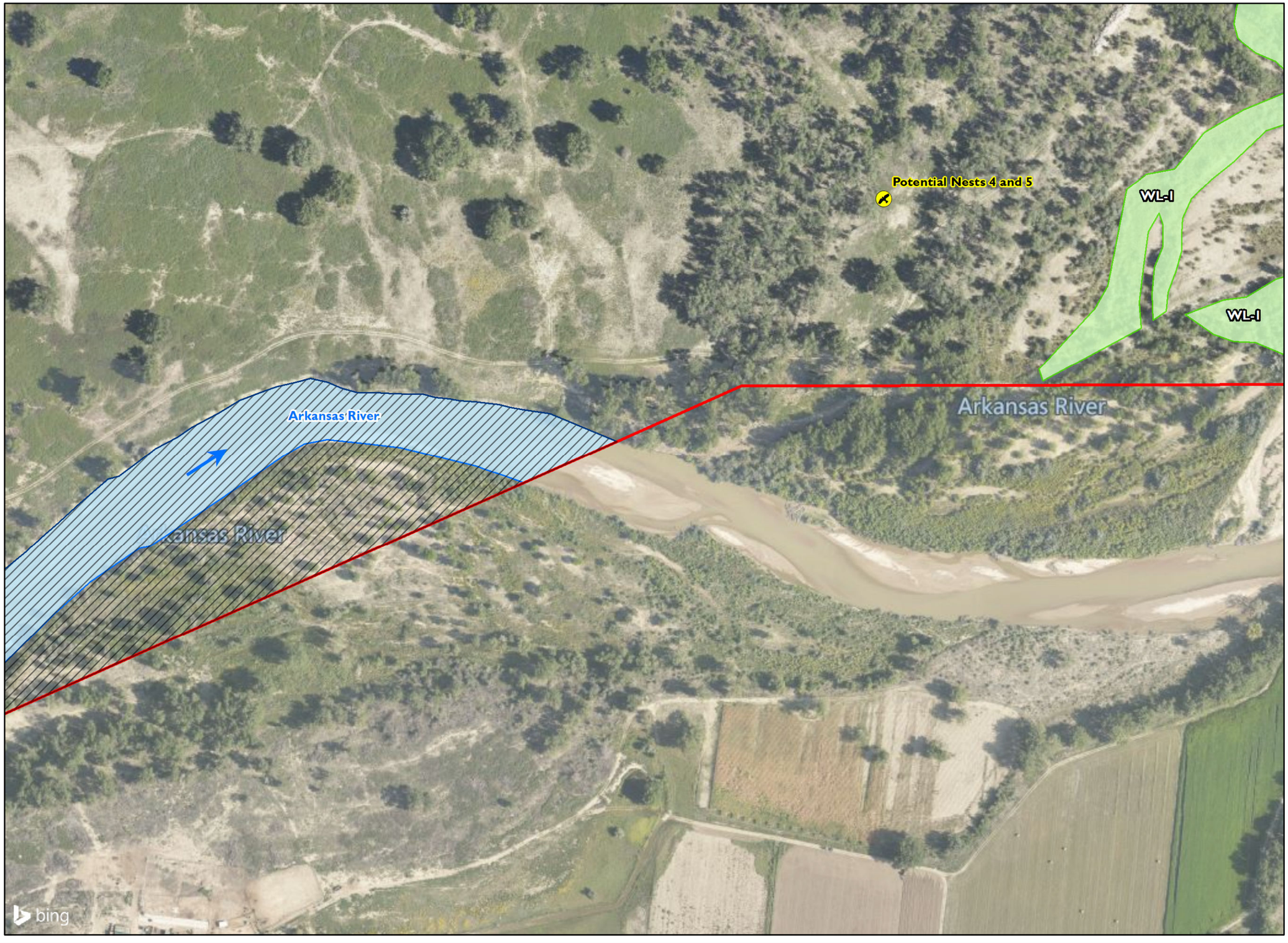

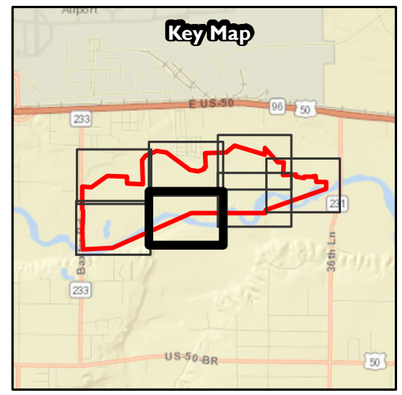

Legend

- Study Area
- Areas Not to be Impacted
- Wetlands
- Non-wetland Waters
- Ordinary High Water Mark
- Potential Raptor Nests
- Sampling Points
- Flow Direction

1 inch = 300 feet

0 150 300 Feet

Pinyon Environmental, Inc.

BIOLOGICAL RESOURCES

Thunderbird Property
Pueblo County, Colorado

Site Location: Multiple Sections, Townships 20 and 21S, Range 63W, 6th Principal Meridian	Drawn By: JAF	Figure: 2d
Pinyon Project Number: 1/20-1151-03	Reviewed By: BCA	Date: 7/16/2021

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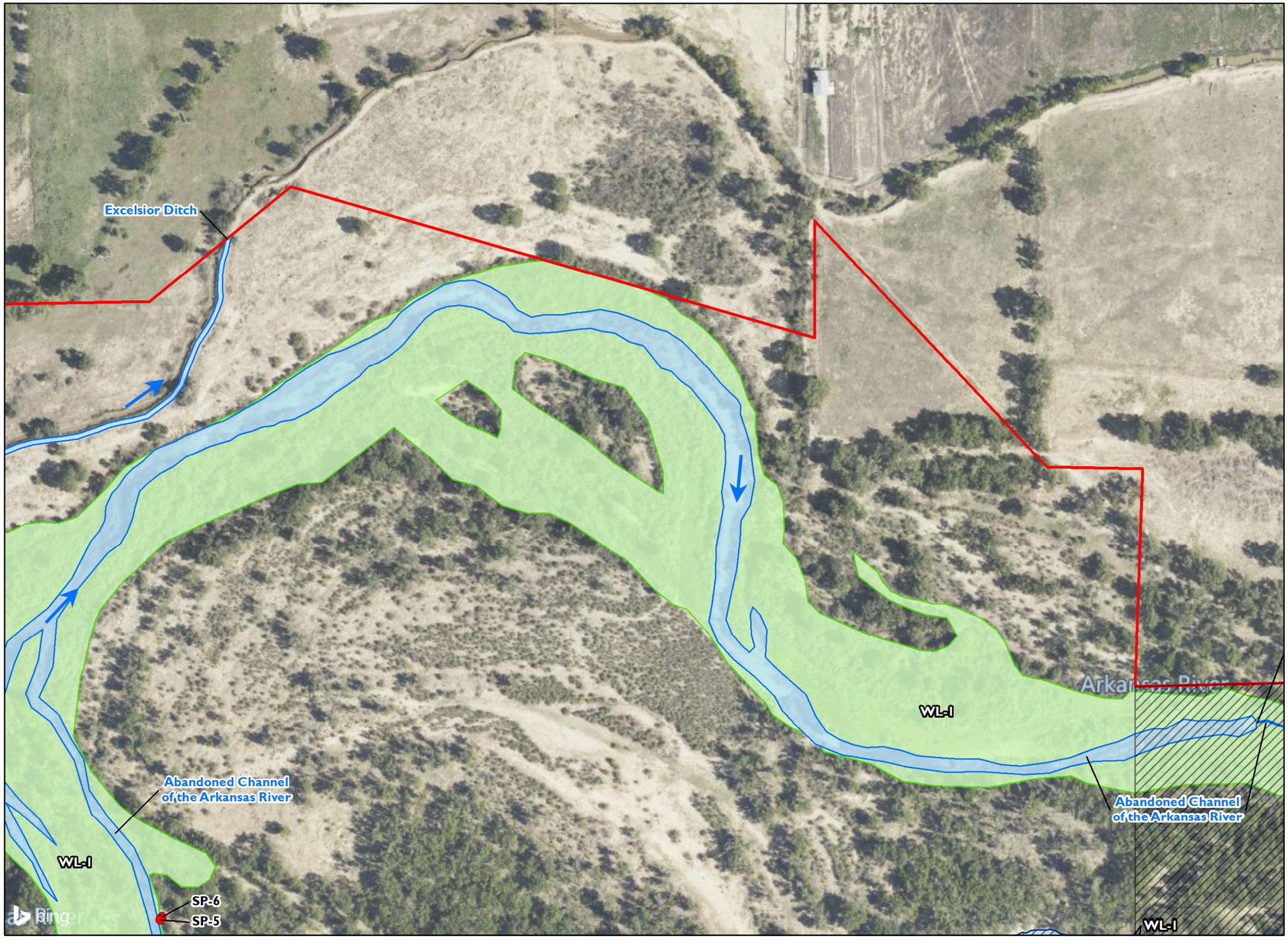

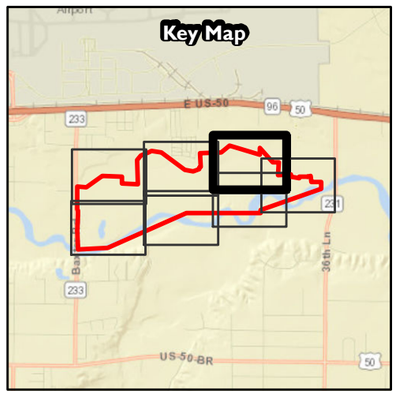

Legend

- Study Area
- Areas Not to be Impacted
- Wetlands
- Non-wetland Waters
- Ordinary High Water Mark
- Potential Raptor Nests
- Sampling Points
- Flow Direction

1 inch = 300 feet

0 150 300 Feet

Pinyon Environmental, Inc.

BIOLOGICAL RESOURCES

Thunderbird Property
Pueblo County, Colorado

Site Location: Multiple Sections, Townships 20 and 21S, Range 63W, 6th Principal Meridian	Drawn By: JAF	Figure: 2e
Pinyon Project Number: 1/20-1151-03	Reviewed By: BCA	Date: 7/16/2021

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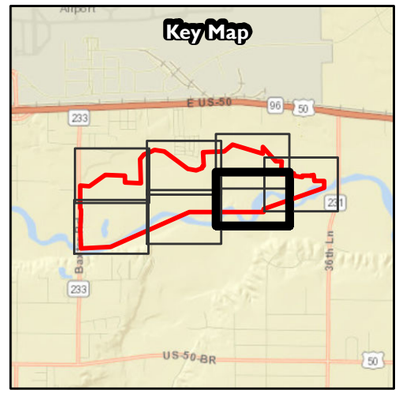

Legend

- Study Area
- Areas Not to be Impacted
- Wetlands
- Non-wetland Waters
- Ordinary High Water Mark
- Potential Raptor Nests
- Sampling Points
- Flow Direction

1 inch = 300 feet

0 150 300 Feet

Pinyon Environmental, Inc.

BIOLOGICAL RESOURCES

Thunderbird Property
Pueblo County, Colorado

Site Location: Multiple Sections, Townships 20 and 21S, Range 63W, 6th Principal Meridian	Drawn By: JAF	Figure: 2f
Pinyon Project Number: 1/20-1151-03	Reviewed By: BCA	Date: 7/16/2021

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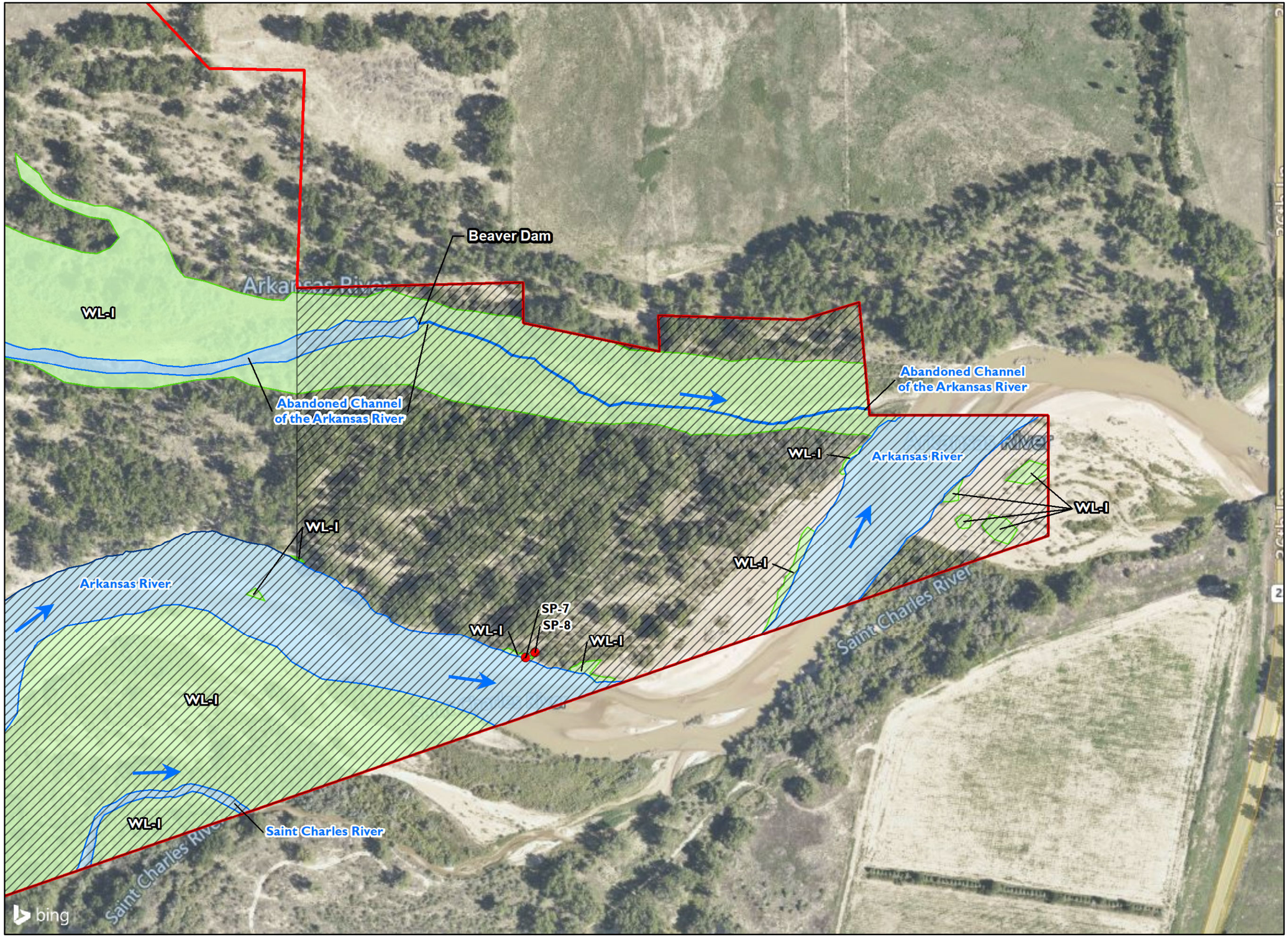

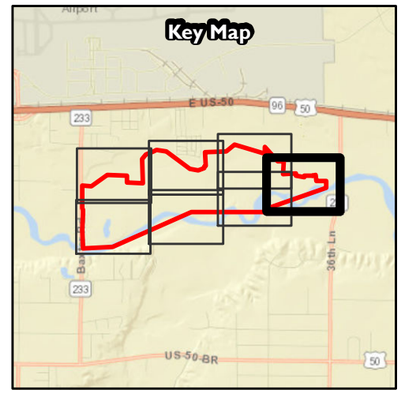

Legend

- Study Area
- Areas Not to be Impacted
- Wetlands
- Non-wetland Waters
- Ordinary High Water Mark
- Potential Raptor Nests
- Sampling Points
- Flow Direction

N

1 inch = 300 feet

0 150 300 Feet

Pinyon Environmental, Inc.

BIOLOGICAL RESOURCES

Thunderbird Property
Pueblo County, Colorado

Site Location: Multiple Sections, Townships 20 and 21S, Range 63W, 6th Principal Meridian	Drawn By: JAF	Figure: 2g
Pinyon Project Number: 1/20-1151-03	Reviewed By: BCA	Date: 7/16/2021

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Appendices

Appendix A Photographic Log

Photo 1.
View of a Potential Nest 2 noted in the study area, just south of Excelsior Ditch. A Swainson's Hawk (*Buteo swainsoni*) was observed near this nest.

Photo 2.
View of Potential Nest 1 noted in the study area, just north of the Arkansas River. Nest may be a potential Osprey (*Pandion haliaetus*) nest based on nest placement.

Photo 3. Representative view of the Arkansas River where it flows through the study area.

Photo 4. Representative view of the Excelsior Ditch where it flows through the study area.

Photo 5. Representative view of the western portion of the abandoned channel of the Arkansas River in the study area.

Photo 6. Representative view of the eastern portion of the abandoned channel of the Arkansas River in the study area.

Photo 7. Representative view of Thunderbird Lake in the study area.

Photo 8. Representative view of Unnamed Pond 1 in the study area.

Photo 9. Representative view of Unnamed Pond 2 in the study area.

Photo 10. Representative view of Wetland 1 (the Arkansas River Wetland Complex). Sampling Point 5 (SP-5) was completed in this area.

Photo 11. View of Wetland 7, which is representative of Wetlands 2 through 8, located along the Excelsior Ditch.

Photo 12. View of Wetland 9, located around Thunderbird Lake.

Photo 13. View of Wetland 10, located around Unnamed Pond 1.

Photo 14. View of Wetland 11, an isolated wetland located in the northwestern portion of the study area.

Photo 15. View of Wetland 12, an isolated wetland located north of Thunderbird Lake in the study area.

Appendix B Wetland Determination Data Forms

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Thunderbird Property City/County: Pueblo County Sampling Date: 8/11/2020

Applicant/Owner: Martin Marietta State: CO Sampling Point: SP-1

Investigator(s): MRF/TLM, Pinyon Environmental Inc. Section, Township, Range: S31, T20S, R63W

Landform (hillslope, terrace, etc.): Peninsula Local relief (concave, convex, none): Concave Slope (%): 2

Subregion (LRR): Western Great Plains Range and Irrigated Region Lat: 38.260995° Long: -104.492626° Datum: WGS 84

Soil Map Unit Name: Glenberg-Haversid complex, 0 to 2 percent slopes, occasionally flooded NWI classification: PUBF

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X No _____	
Wetland Hydrology Present?	Yes X No _____	

Remarks:

Peninsula within pond. Pond is surrounded by Russian olive trees. Hydrophytic vegetation, wetland hydrology, and hydric soils noted.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 Ft radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Elaeagnus angustifolia	30	Y	FACU
2.			
3.			
4.			
	30 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 Ft radius)			
1. N/A			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 5 Ft radius)			
1. Schoenoplectus pungens	55	Y	OBL
2. Phalaris arundinacea	20	Y	FACW
3. Muhlenbergia asperifolia	10	N	FACW
4. Verbena hastata	5	N	FACW
5. Echinochloa muricata	5	N	FACW
6. Helianthus annuus	5	N	FACU
7.			
8.			
9.			
10.			
	100 = Total Cover		
Woody Vine Stratum (Plot size: 15 Ft radius)			
1. N/A			
2.			
	0 = Total Cover		
% Bare Ground in Herb Stratum 0	130 = Total Veg Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): 2 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 66 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	0 (A)		0 (B)

Prevalence Index = B/A = NaN

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50% (All dominants are FACW and/or OBL.)

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No _____

Remarks:

Passes dominance test for hydrophytic vegetation.

D5 - FAC Neutral Test for hydrology. Drop all FAC, cross examine all other dominants. If > 50% remaining are FACW to OBL, then YES to D5.

SOIL

Sampling Point: SP-1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 5/2	95	5YR 4/6	5	C	M	SaL	Redox prominent
12-20	10YR 4/2	100					LSa	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR F**)
- ___ 1 cm Muck (A9) (**LRR F, G, H**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR I, J**)
- ___ Coast Prairie Redox (A16) (**LRR F, G, H**)
- ___ Dark Surface (S7) (**LRR G**)
- ___ High Plains Depressions (F16) (**LRR H outside of MLRA 72 & 73**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** _____

Remarks:

Soil sample meets requirements for F3.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where not tilled**)
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where tilled**)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- X Geomorphic Position (D2)
- X FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) (**LRR F**)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes X No _____ Depth (inches): 10

Saturation Present? (includes capillary fringe) Yes X No _____ Depth (inches): 0-20

Wetland Hydrology Present? **Yes** X **No** _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Meets requirements for A2, A3, D2, and passes FAC-Neutral Test (D5).

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Thunderbird Property City/County: Pueblo County Sampling Date: 8/11/2020

Applicant/Owner: Martin Marietta State: CO Sampling Point: SP-2

Investigator(s): MRF/TLM, Pinyon Environmental Inc. Section, Township, Range: S31, T20S, R63W

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Concave Slope (%): 1

Subregion (LRR): Western Great Plains Range and Irrigated Region Lat: 38.260998° Long: -104.492533° Datum: WGS 84

Soil Map Unit Name: Glenberg-Haversid complex, 0 to 2 percent slopes, occasionally flooded NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

SP-2 is located upslope from SP-1. The area was dominated by upland vegetation. Hydric soils and wetland hydrology were not noted.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 Ft radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Elaeagnus angustifolia	40	Y	FACU
2.			
3.			
4.			
	40 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 Ft radius)			
1. N/A			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 5 Ft radius)			
1. Bassia scoparia	50	Y	FACU
2. Chenopodium album	25	Y	FACU
3. Helianthus annuus	10	N	FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
	85 = Total Cover		
Woody Vine Stratum (Plot size: 15 Ft radius)			
1. N/A			
2.			
	0 = Total Cover		
% Bare Ground in Herb Stratum 15	125 = Total Veg Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): 0 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	125	x 4 =	500
UPL species	0	x 5 =	0
Column Totals:	125 (A)		500 (B)

Prevalence Index = B/A = 4

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50% (All dominants are FACW and/or OBL.)

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No X

Remarks:

Area dominated by upland vegetation.

D5 - FAC Neutral Test for hydrology. Drop all FAC, cross examine all other dominants. If > 50% remaining are FACW to OBL, then YES to D5.

SOIL

Sampling Point: SP-2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-14	10YR 4/2	100					SaL	No redox noted

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR F**)
- ___ 1 cm Muck (A9) (**LRR F, G, H**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR I, J**)
- ___ Coast Prairie Redox (A16) (**LRR F, G, H**)
- ___ Dark Surface (S7) (**LRR G**)
- ___ High Plains Depressions (F16) (**LRR H outside of MLRA 72 & 73**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** X

Remarks:

No hydric soil indicators noted.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where not tilled**)
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where tilled**)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) (**LRR F**)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? **Yes** _____ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No hydrology indicators noted.

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Thunderbird Property City/County: Pueblo County Sampling Date: 8/11/2020

Applicant/Owner: Martin Marietta State: CO Sampling Point: SP-3

Investigator(s): MRF/TLM, Pinyon Environmental Inc. Section, Township, Range: S31, T20S, R63W

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%): 1

Subregion (LRR): Western Great Plains Range and Irrigated Region Lat: 38.265960° Long: -104.493068° Datum: WGS 84

Soil Map Unit Name: Las Animas fine sandy loam, 0 to 2 percent slopes, frequently flooded NWI classification: Rp1FO

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X No _____	
Wetland Hydrology Present?	Yes X No _____	

Remarks:

SP-3 is located on a terrace along an irrigation ditch. The banks of the ditch are steeply incised and small wetland patches are present on terraced areas within the ditch. Hydrophytic vegetation, wetland hydrology, and hydric soils noted.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 Ft radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. N/A			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15 Ft radius)			
1. N/A			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Herb Stratum (Plot size: 5 Ft radius)			
1. Eleocharis palustris	60	Y	OBL
2. Phalaris arundinacea	10	N	FACW
3. Polypogon monspeliensis	10	N	FACW
4. Persicaria pensylvanica	10	N	FACW
5. Helianthus annuus	5	N	FACU
6.			
7.			
8.			
9.			
10.			
	95	= Total Cover	
Woody Vine Stratum (Plot size: 15 Ft radius)			
1. N/A			
2.			
	0	= Total Cover	
% Bare Ground in Herb Stratum 5	95	= Total Veg Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): 1 (A)

Total Number of Dominant Species Across All Strata: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	0 (A)		0 (B)

Prevalence Index = B/A = NaN

Hydrophytic Vegetation Indicators:

X 1 - Rapid Test for Hydrophytic Vegetation (All dominants are FACW and/or OBL.)

___ 2 - Dominance Test is >50%

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No _____

Remarks:

Vegetation passes the Rapid and Dominance Tests.

D5 - FAC Neutral Test for hydrology. Drop all FAC, cross examine all other dominants. If > 50% remaining are FACW to OBL, then YES to D5.

SOIL

Sampling Point: SP-3

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-7	2.5Y 5/1	80	7.5YR 5/8	20	C	PL/M	SaCL	Redox prominent
7-20	Gley 1 4/N	100					SaCL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR F**)
- ___ 1 cm Muck (A9) (**LRR F, G, H**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR I, J**)
- ___ Coast Prairie Redox (A16) (**LRR F, G, H**)
- ___ Dark Surface (S7) (**LRR G**)
- ___ High Plains Depressions (F16) (**LRR H outside of MLRA 72 & 73**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** _____

Remarks:

Soil sample meets requirements for F3.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- X Oxidized Rhizospheres on Living Roots (C3) (**where not tilled**)
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where tilled**)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- X Geomorphic Position (D2)
- X FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) (**LRR F**)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? **Yes** X **No** _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Meets requirements for C3, D2, and passes the FAC-Neutral Test (D5).

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Thunderbird Property City/County: Pueblo County Sampling Date: 8/12/2020

Applicant/Owner: Martin Marietta State: CO Sampling Point: SP-4

Investigator(s): MRF/TLM, Pinyon Environmental Inc. Section, Township, Range: S31, T20S, R63W

Landform (hillslope, terrace, etc.): None Local relief (concave, convex, none): Concave Slope (%): 1

Subregion (LRR): Western Great Plains Range and Irrigated Region Lat: 38.265930° Long: -104.493089° Datum: WGS 84

Soil Map Unit Name: Las Animas fine sandy loam, 0 to 2 percent slopes, frequently flooded NWI classification: Rp1FO

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____	No X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

SP-4 is located in the upland area adjacent to the irrigation ditch, above SP-3. Area lacking hydrophytic vegetation, wetland hydrology, and hydric soils.

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30 Ft radius)			
1. N/A			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15 Ft radius)			
1. N/A			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Herb Stratum (Plot size: 5 Ft radius)			
1. Helianthus annuus	20	Y	FACU
2. Bassia scoparia	15	Y	FACU
3. Bromus tectorum	15	Y	UPL
4. Cirsium arvense	5	N	FACU
5. Conyza canadensis	5	N	UPL
6. Chenopodium album	5	N	FACU
7.			
8.			
9.			
10.			
	65	= Total Cover	
Woody Vine Stratum (Plot size: 15 Ft radius)			
1. N/A			
2.			
	0	= Total Cover	
% Bare Ground in Herb Stratum 35	65	= Total Veg Cover	

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): 0 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	45	x 4 =	180
UPL species	20	x 5 =	100
Column Totals:	65 (A)		280 (B)

Prevalence Index = B/A = 4.3076923076923075

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50% (All dominants are FACW and/or OBL.)

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No X

Remarks:

D5 - FAC Neutral Test for hydrology. Drop all FAC, cross examine all other dominants. If > 50% remaining are FACW to OBL, then YES to D5.

Vegetation does not pass the Dominance Test or Prevalence Index.

SOIL

Sampling Point: SP-4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-20	2.5Y 5/3	100					SaL	No redox noted

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR F**)
- ___ 1 cm Muck (A9) (**LRR F, G, H**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR I, J**)
- ___ Coast Prairie Redox (A16) (**LRR F, G, H**)
- ___ Dark Surface (S7) (**LRR G**)
- ___ High Plains Depressions (F16) (**LRR H outside of MLRA 72 & 73**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** X

Remarks:

No hydric soil indicators noted.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where not tilled**)
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where tilled**)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) (**LRR F**)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? **Yes** _____ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No wetland hydrology indicators noted.

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Thunderbird Property City/County: Pueblo County Sampling Date: 8/13/2020

Applicant/Owner: Martin Marietta State: CO Sampling Point: SP-5

Investigator(s): MRF/TLM, Pinyon Environmental Inc. Section, Township, Range: S32, T20S, R63W

Landform (hillslope, terrace, etc.): Oxbow Local relief (concave, convex, none): Concave Slope (%): 2

Subregion (LRR): Western Great Plains Range and Irrigated Region Lat: 38.265770° Long: -104.474828° Datum: WGS84

Soil Map Unit Name: Bankard sand, 0 to 2 percent slopes, frequently flooded NWI classification: R2UBH

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X No _____	
Wetland Hydrology Present?	Yes X No _____	

Remarks:

SP-5 is located in an abandoned channel of the Arkansas River. There is standing water approximately 3 feet west of SP-5 and the water is covered by common duckweed. Much of the surrounding area is densely vegetated with Russian olive and tamarisk. Hydrophytic vegetation, wetland hydrology, and hydric soils noted.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 Ft radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Elaeagnus angustifolia	35	Y	FACU
2. Populus deltoides	15	Y	FAC
3.			
4.			
	50 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 Ft radius)			
1. Salix exigua	20	Y	FACW
2. Tamarix chinensis	5	Y	FACW
3.			
4.			
5.			
	25 = Total Cover		
Herb Stratum (Plot size: 5 Ft radius)			
1. Phalaris arundinacea	40	Y	FACW
2. Lemna minor	25	Y	OBL
3. Typha angustifolia	20	Y	OBL
4. Schoenoplectus tabernaemontani	10	N	OBL
5. Muhlenbergia asperifolia	2	N	FACW
6.			
7.			
8.			
9.			
10.			
	97 = Total Cover		
Woody Vine Stratum (Plot size: 15 Ft radius)			
1. N/A			
2.			
	0 = Total Cover		
% Bare Ground in Herb Stratum 3	172 = Total Veg Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): 6 (A)

Total Number of Dominant Species Across All Strata: 7 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 86 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	0 (A)		0 (B)

Prevalence Index = B/A = NaN

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50% (All dominants are FACW and/or OBL.)

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No _____

Remarks:

Vegetation passes the dominance test.

D5 - FAC Neutral Test for hydrology. Drop all FAC, cross examine all other dominants. If > 50% remaining are FACW to OBL, then YES to D5.

SOIL

Sampling Point: SP-5

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 3/2	92	10YR 4/6	8	C	M	SaL	Redox prominent
8-20	10YR 3/2	85	10YR 4/6	2	C	M	SaL	Redox prominent
8-20	Gley 1 3/N	13					SaL	Soil sample has dark mottling from 8-20 inches

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- X Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR F**)
- ___ 1 cm Muck (A9) (**LRR F, G, H**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- X Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR I, J**)
- ___ Coast Prairie Redox (A16) (**LRR F, G, H**)
- ___ Dark Surface (S7) (**LRR G**)
- ___ High Plains Depressions (F16) (**LRR H outside of MLRA 72 & 73**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** _____

Remarks:

Hydrogen sulfide odor noted. Soil sample meets requirements for A4 and F6.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- X Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where not tilled**)
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where tilled**)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- X Geomorphic Position (D2)
- X FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) (**LRR F**)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes X No _____ Depth (inches): 10

Saturation Present? (includes capillary fringe) Yes X No _____ Depth (inches): 1

Wetland Hydrology Present? **Yes** X **No** _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Meets requirements for A2, A3, C1, D2, and the vegetation passes the FAC-Neutral Test (D5).

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Thunderbird Property City/County: Pueblo County Sampling Date: 8/13/2020

Applicant/Owner: Martin Marietta State: CO Sampling Point: SP-6

Investigator(s): MRF/TLM, Pinyon Environmental Inc. Section, Township, Range: S32, T20S, R63W

Landform (hillslope, terrace, etc.): None Local relief (concave, convex, none): None Slope (%): 0

Subregion (LRR): Western Great Plains Range and Irrigated Region Lat: 38.265793° Long: -104.474809° Datum: WGS84

Soil Map Unit Name: Bankard sand, 0 to 2 percent slopes, frequently flooded NWI classification: Rp1SS

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes _____ No X	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____ No X	
Wetland Hydrology Present?	Yes _____ No X	

Remarks:

SP-6 is in an upland area, above SP-5. The area is lacking hydrophytic vegetation, hydric soils, and hydrology.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 Ft radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Elaeagnus angustifolia	25	Y	FACU
2. Populus deltoides	10	Y	FAC
3.			
4.			
	35 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 Ft radius)			
1. Salix exigua	10	Y	FACW
2. Tamarix chinensis	5	Y	FACW
3.			
4.			
5.			
	15 = Total Cover		
Herb Stratum (Plot size: 5 Ft radius)			
1. Bromus inermis	20	Y	UPL
2. Ambrosia psilostachya	15	Y	FACU
3. Muhlenbergia asperifolia	5	N	FACW
4. Bromus tectorum	5	N	UPL
5.			
6.			
7.			
8.			
9.			
10.			
	45 = Total Cover		
Woody Vine Stratum (Plot size: 15 Ft radius)			
1. N/A			
2.			
	0 = Total Cover		
% Bare Ground in Herb Stratum 55	95 = Total Veg Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): 3 (A)

Total Number of Dominant Species Across All Strata: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	20	x 2 =	40
FAC species	10	x 3 =	30
FACU species	40	x 4 =	160
UPL species	25	x 5 =	125
Column Totals:	95 (A)		355 (B)

Prevalence Index = B/A = 3.736842105263158

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50% (All dominants are FACW and/or OBL.)

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No X

Remarks:

D5 - FAC Neutral Test for hydrology. Drop all FAC, cross examine all other dominants. If > 50% remaining are FACW to OBL, then YES to D5.

Vegetation does not pass the Dominance Test or Prevalence Index.

SOIL

Sampling Point: SP-6

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-20	10YR 4/3	100					SaL	No redox noted

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR F**)
- ___ 1 cm Muck (A9) (**LRR F, G, H**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR I, J**)
- ___ Coast Prairie Redox (A16) (**LRR F, G, H**)
- ___ Dark Surface (S7) (**LRR G**)
- ___ High Plains Depressions (F16) (**LRR H outside of MLRA 72 & 73**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** X

Remarks:

No hydric soil indicators noted.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where not tilled**)
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where tilled**)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) (**LRR F**)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? **Yes** _____ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No hydrology indicators noted.

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Thunderbird Property City/County: Pueblo County Sampling Date: 8/13/2020

Applicant/Owner: Martin Marietta State: CO Sampling Point: SP-7

Investigator(s): MRF/TLM, Pinyon Environmental Inc. Section, Township, Range: S32, T20S, R63W

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%): 3

Subregion (LRR): Western Great Plains Range and Irrigated Region Lat: 38.264843° Long: -104.464321° Datum: WGS84

Soil Map Unit Name: Bankard sand, 0 to 2 percent slopes, frequently flooded NWI classification: Rp1SS

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X No _____	**Is the Sampled Area within a Wetland?** Yes X No _____
Hydric Soil Present?	Yes X No _____	
Wetland Hydrology Present?	Yes X No _____	

Remarks:

SP-7 is located on a terrace along the banks of the Arkansas River. Hydrophytic vegetation, wetland hydrology, and hydric soils. noted.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 Ft radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Elaeagnus angustifolia	15	Y	FACU
2.			
3.			
4.			
	15 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 Ft radius)			
1. Salix exigua	30	Y	FACW
2. Tamarix chinensis	5	N	FACW
3.			
4.			
5.			
	35 = Total Cover		
Herb Stratum (Plot size: 5 Ft radius)			
1. Eleocharis palustris	20	Y	OBL
2. Juncus balticus	15	Y	FACW
3. Polypogon monspeliensis	15	Y	FACW
4. Agrostis gigantea	5	N	FACW
5. Polygonum aviculare	5	N	FACU
6.			
7.			
8.			
9.			
10.			
	60 = Total Cover		
Woody Vine Stratum (Plot size: 15 Ft radius)			
1. N/A			
2.			
	0 = Total Cover		
% Bare Ground in Herb Stratum 40	110 = Total Veg Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): 4 (A)

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 80 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	0 (A)		0 (B)

Prevalence Index = B/A = NaN

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

X 2 - Dominance Test is >50% (All dominants are FACW and/or OBL.)

___ 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No _____

Remarks:

Vegetation passes the Dominance Test.

D5 - FAC Neutral Test for hydrology. Drop all FAC, cross examine all other dominants. If > 50% remaining are FACW to OBL, then YES to D5.

SOIL

Sampling Point: SP-7

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-8	2.5Y 5/2	90	10YR 5/6	10	C	M	SaL	Redox prominent
8-20	10YR 4/2	100					Sa	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR F**)
- ___ 1 cm Muck (A9) (**LRR F, G, H**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- X Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR I, J**)
- ___ Coast Prairie Redox (A16) (**LRR F, G, H**)
- ___ Dark Surface (S7) (**LRR G**)
- ___ High Plains Depressions (F16) (**LRR H outside of MLRA 72 & 73**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** _____

Remarks:

Soil sample meets requirements for F3.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- X High Water Table (A2)
- X Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where not tilled**)
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where tilled**)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- X Geomorphic Position (D2)
- X FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) (**LRR F**)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes X No _____ Depth (inches): 8

Saturation Present? (includes capillary fringe) Yes X No _____ Depth (inches): 2-20

Wetland Hydrology Present? **Yes** X **No** _____

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

Meets requirements for A2, A3, D2, and the vegetation passes the FAC-Neutral test.

WETLAND DETERMINATION DATA FORM – Great Plains Region

Project/Site: Thunderbird Property City/County: Pueblo County Sampling Date: 8/13/2020

Applicant/Owner: Martin Marietta State: CO Sampling Point: SP-8

Investigator(s): MRF/TLM, Pinyon Environmental Inc. Section, Township, Range: S32, T20S, R63W

Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): None Slope (%): 8

Subregion (LRR): Western Great Plains Range and Irrigated Region Lat: 38.264874° Long: -104.464246° Datum: WGS 84

Soil Map Unit Name: Bankard sand, 0 to 2 percent slopes, frequently flooded NWI classification: Rp1SS

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No _____ (If no, explain in Remarks.)

Are Vegetation No, Soil No, or Hydrology No significantly disturbed? Are "Normal Circumstances" present? Yes X No _____

Are Vegetation No, Soil No, or Hydrology No naturally problematic? (If needed, explain any answers in Remarks.)

SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	Yes X	No _____	**Is the Sampled Area within a Wetland?** Yes _____ No X
Hydric Soil Present?	Yes _____	No X	
Wetland Hydrology Present?	Yes _____	No X	

Remarks:

SP-8 is located on the hillslope above SP-7, along the banks of the Arkansas River. The area is lacking hydrophytic vegetation, wetland hydrology, and hydric soils.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30 Ft radius)	Absolute % Cover	Dominant Species?	Indicator Status
1. Elaeagnus angustifolia	10	Y	FACU
2.			
3.			
4.			
	10 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15 Ft radius)			
1. Salix exigua	60	Y	FACW
2. Tamarix chinensis	20	Y	FACW
3.			
4.			
5.			
	80 = Total Cover		
Herb Stratum (Plot size: 5 Ft radius)			
1. Chenopodium album	5	Y	FACU
2. Cirsium arvense	5	Y	FACU
3. Phalaris arundinacea	5	Y	FACW
4. Verbascum thapsus	5	Y	UPL
5.			
6.			
7.			
8.			
9.			
10.			
	20 = Total Cover		
Woody Vine Stratum (Plot size: 15 Ft radius)			
1. N/A			
2.			
	0 = Total Cover		
% Bare Ground in Herb Stratum 80	110 = Total Veg Cover		

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC−): 3 (A)

Total Number of Dominant Species Across All Strata: 7 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 43 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	85	x 2 =	170
FAC species	0	x 3 =	0
FACU species	20	x 4 =	80
UPL species	5	x 5 =	25
Column Totals:	110 (A)		275 (B)

Prevalence Index = B/A = 2.5

Hydrophytic Vegetation Indicators:

___ 1 - Rapid Test for Hydrophytic Vegetation

___ 2 - Dominance Test is >50% (All dominants are FACW and/or OBL.)

X 3 - Prevalence Index is ≤3.0[1]

___ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes X No _____

Remarks:

D5 - FAC Neutral Test for hydrology. Drop all FAC, cross examine all other dominants. If > 50% remaining are FACW to OBL, then YES to D5.

The vegetation passes the Prevalence Index. However, the area is lacking hydric soils and hydrology.

SOIL

Sampling Point: SP-8

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[2]	Texture	Remarks
0-20	10YR 4/3	100					SaL	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. [2]Location: PL=Pore Lining, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR F**)
- ___ 1 cm Muck (A9) (**LRR F, G, H**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ 2.5 cm Mucky Peat or Peat (S2) (**LRR G, H**)
- ___ 5 cm Mucky Peat or Peat (S3) (**LRR F**)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ High Plains Depressions (F16) (**MLRA 72 & 73 of LRR H**)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR I, J**)
- ___ Coast Prairie Redox (A16) (**LRR F, G, H**)
- ___ Dark Surface (S7) (**LRR G**)
- ___ High Plains Depressions (F16) (**LRR H outside of MLRA 72 & 73**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** X

Remarks:

No hydric soil indicators noted.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1)
- ___ Sediment Deposits (B2)
- ___ Drift Deposits (B3)
- ___ Algal Mat or Crust (B4)
- ___ Iron Deposits (B5)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Aquatic Invertebrates (B13)
- ___ Hydrogen Sulfide Odor (C1)
- ___ Dry-Season Water Table (C2)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where not tilled**)
- ___ Presence of Reduced Iron (C4)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ___ Surface Soil Cracks (B6)
- ___ Sparsely Vegetated Concave Surface (B8)
- ___ Drainage Patterns (B10)
- ___ Oxidized Rhizospheres on Living Roots (C3) (**where tilled**)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Geomorphic Position (D2)
- ___ FAC-Neutral Test (D5)
- ___ Frost-Heave Hummocks (D7) (**LRR F**)

Field Observations:

Surface Water Present? Yes _____ No X Depth (inches): _____

Water Table Present? Yes _____ No X Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): _____

Wetland Hydrology Present? **Yes** _____ **No** X

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

No hydrology indicators noted.