



**QUESTA TAILINGS PIPELINE REMOVAL  
STAGE 6 WORK PLAN  
CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY  
QUESTA MINE**

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**February 22, 2019**

**Project #: 476-027-002**

**SUBMITTED BY:** Trihydro Corporation

707 West 1<sup>st</sup> Street, Casper, WY 82601

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ENGINEERING SOLUTIONS. ADVANCING BUSINESS.

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# 1.0 INTRODUCTION

Chevron Mining Inc. (CMI) submitted the revised “Questa Tailings Pipeline Removal MMD/NMED Work Plan, Chevron Environmental Management Company, Questa Mine” (Removal Work Plan) (Trihydro 2017) to New Mexico Energy, Minerals and Natural Resources Department (EMNRD), Mining and Minerals Division (MMD), New Mexico Environmental Department’s (NMED) Groundwater Bureau and U.S. Environmental Protection Agency, Region 6 (USEPA) on May 19, 2017. Approval for the Removal Work Plan was received from MMD and NMED on June 5, 2017 and from USEPA on June 14, 2017. The Removal Work Plan provides an overarching plan for the removal of the Questa tailings pipeline. The Removal Work Plan states that specific work plans will be developed to detail the removal plans for individual segments of the pipeline.

The pipeline removal project has been divided into eight stages. Stage 1 activities entailed the removal of HDPE and steel pipe from the existing tailings facility. Stage 1 work was performed solely under the process described in the Removal Work Plan. Stage 1 work commenced July 10, 2017 and was completed July 24, 2017. Stage 2 through Stage 8 work activities will be conducted under the Removal Work Plan as well as individual stage specific work plans. Stages 2 through 8 are outlined in Table 1-1 and are not anticipated to be completed in number order. The segment quantities in Table 1-1 have been updated from those presented in earlier work plans.

This document represents the individual plan for Stage 6 removal of the tailings pipeline. The work identified in this plan will result in the removal of approximately 3,500 ft. of pipe. The pipe will be removed principally from private property with a lesser amount from US Forest Service (USFS) and Chevron owned property.

**TABLE 1-1. PIPELINE SEGMENT AND STAGE IDENTIFICATION**

<b>Pipeline Segment Description</b>	<b>Approximate Length of Segment (feet)</b>	<b>Stage</b>
Tailing Facility	10,000	1
Columbine Wells Area	4,000	2
Tailing Facility Entrance	2,800	2
Corny's Corner Hillside	1,200	2
Singleton's Cut	2,900	2
Robinson's Property	850	2
East of Molycorp Baseball Field	1,400	2
Upstream of the Lower Dump Sump	1,600	2
Pressure Vessels to Underground	500	3
East of Middle Pile	1,000	3
Goat Hill Entrance Area	2,350	3
Bear Cut	2,500	3
USFS Office Area	3,200	4
Forest Service Property west of Molycorp Field	950	4
East of Sulphur Gulch	1,000	5
West of Sulphur Gulch	1,100	5
Sugar Shack South	4,000	5
1st Road Crossing (East Hwy 38 road)	90	5
Columbine Curve	1,400	5
Columbine Park Entrance-Downstream of 1st River Crossing	600	5
2nd Road Crossing	90	5
Admin Section	1,850	5
Between Goat Hill and Bear Cut	2,500	5
3rd Road Crossing	90	5
Rock Wall (Between Bear Cut and Forest Service) (aka "Rock and Hard Place")	3,300	5
Lower Embargo Road Crossing and Embargo Road	1,100	5
Mill Raw Water Line	200	5
<b>1st River Crossing (by Columbine Park)</b>	<b>120</b>	<b>6</b>
<b>2nd River Crossing (aka Thunder Bridge)</b>	<b>210</b>	<b>6</b>
<b>3rd River Crossing</b>	<b>190</b>	<b>6</b>
<b>Rael Property</b>	<b>550</b>	<b>6</b>
Elevated Trestle	2,160	7
Lower Dump Sump	0	8

## 2.0 AGENCY PERMITS AND NOTIFICATIONS

The bulk of Stage 6 activities will be covered by the MMD Mining Act Permit TA001RE, Revision 96-1 and NMED Discharge Permit DP-933. Any historic tailing spills encountered during the pipeline removal will be removed pursuant to the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), Administrative Order on Consent for Removal Actions (Removal AOC), Docket No. 06-09-12.

Additional permits/notifications required may include:

- An asbestos notification form under the National Emission Standards for Hazardous Air Pollutants (NESHAP) submitted to the NMED Air Quality Bureau (AQB) will be filed before any asbestos removal is undertaken. The pipeline and associated structures have been sampled for the presence of asbestos and lead under the guidelines presented in the Removal Work Plan. Above ground Stage 6 piping was found to be non-detect for asbestos during August 2017 sampling events. Underground piping (Rael property) will be inspected upon exposure and notification will be made to NMED AQB if necessary prior to asbestos removal.
- Consultation with the United States Fish and Wildlife Service (USFWS) and/or the New Mexico Department of Game and Fish (NMDGF) to ensure compliance with the Threatened and Endangered Species Act (USFWS 1973), Migratory Bird Treaty Act (USFWS 1918), and the Bald and Golden Eagle Protection Act (U.S.C. 1940). Response to this consultation request was received on April 6, 2018.
- Coordination with USFS for access, preservation of ditches, and/or trees that may be affected for that portion of Stage 6 that is located on USFS owned lands.
- A Storm Water Pollution Prevention Plan (SWPPP) has been developed for coverage under the Construction General Permit. The Notice of Intent (NOI) was submitted on January 7, 2019 and authorization from EPA was received on January 21, 2019.
- A roadway work permit will be obtained before work within New Mexico Department of Transportation (NMDOT) right of way begins along NM-38. The NMDOT Environmental Clearance Request was submitted on May 16, 2018. Entact will complete the NMDOT Roadway Work Permit for Segments 6.2 and 6.3 during the late second quarter or early third quarter of 2019.
- Consultation with the New Mexico Historic Preservation Division (NMHPD) of the New Mexico Department of Cultural Affairs regarding the historic structures survey being completed at the site. A survey was completed on May 16, 2018 and submitted to NMHPD on May 29, 2018.
- A Preconstruction Notice (PCN) was submitted to the United States Army Corps of Engineers (USACE) on February 4, 2019 and is pending approval. The draft PCN is included as Appendix A. The design proposed to

temporarily alter the stream flow in order for equipment to travel over and work within the Red River stream bed is shown on Figures 2-1 and 2-2.

- Coordination with the property owner for access to the Rael property. Chevron met with property owners on February 19, 2019 to discuss access.
- Coordination with Kit Carson Power Cooperative for any electrical utilities work needed at river crossings or the Rael property.
- Courtesy notification to Amigos Bravos, Trout Unlimited, and the Irrigation District regarding work near the pipeline segment.

Work will not begin until approval from appropriate stakeholders to proceed has been received.

### 3.0 STAGE 6 AREAS

A description of the areas included in the Stage 6 pipeline removal plan are presented below in Table 3-1. Figure 3-1 provides an overall view of the Stage 6 project areas. More detailed views of individual pipe sections are included as Figures 3-2 through 3-5.

**TABLE 3-1. AREAS INCLUDED IN STAGE 6 PIPELINE REMOVAL PLAN**

Pipeline Segment Description	Approximate Length of Segment (feet)	Seasonal Considerations or Preferred Months (Alternative 1)	Above (A) or Underground (U)?	CMI Ownership?	Figure
First River Crossing (aka Columbine Park)	120	After peak runoff	A	Y	3-2
Second River Crossing (aka Thunder Bridge)	210	After peak runoff	A	Y	3-3
Third River Crossing (aka USFS Bridge)	190	After peak runoff	A	N	3-4
Rael Property	550	Property owners discretion	A,U	N	3-5



## 4.0 REMOVAL ACTIVITIES

Prior to Stage 6 pipe removal activities, the pipe and associated structures were sampled and analyzed for lead based paint and asbestos using the methods detailed in the Removal Work Plan. Results from analysis showed that lead based paint was used to coat piping along the alignment. Concentrations of lead ranged between 240 mg/kg and 5,600 mg/kg along the Stage 6 pipe alignments. Results from asbestos sampling and analysis indicate non-detect along the Stage 6 alignment. The underground piping on the Rael property will be inspected upon its exposure. If suspect ACM is found on this pipe it will be treated as ACM and managed accordingly. Sample locations and results across the entire pipeline alignment are shown in Figures 4-1 and 4-2. Pertinent lead and asbestos sampling results are shown in Table 4-1. Pipe or pipeline structures found to contain lead-based paint or asbestos will be disposed of according to State and Federal requirements as well as Chevron's Third-Party Waste Stewardship (TWS) requirements. A complete data set of lead and asbestos analytical results can be found in Appendix B.

**TABLE 4-1. PERTINENT LEAD AND ASBESTOS ANALYTICAL RESULTS**

<b>Sample Identification</b>	<b>Pipeline Segment Sample Location</b>	<b>Date Sampled</b>	<b>Asbestos Analytical Result</b>	<b>Lead Analytical Result</b>
BA183017	2 <sup>nd</sup> River Crossing, Thunder Bridge	8/30/2017	Non-Detect	Non-Detect
BA283017	2 <sup>nd</sup> River Crossing, Thunder Bridge	8/30/2017	Non-Detect	Non-Detect
BA383017	2 <sup>nd</sup> River Crossing, Thunder Bridge	8/30/2017	Non-Detect	Non-Detect
BA483017	2 <sup>nd</sup> River Crossing, Thunder Bridge	8/30/2017	Non-Detect	Non-Detect
BA583017	2 <sup>nd</sup> River Crossing, Thunder Bridge	8/30/2017	Non-Detect	Non-Detect
BA683017	2 <sup>nd</sup> River Crossing, Thunder Bridge	8/30/2017	Non-Detect	Non-Detect
<b>BL183017</b>	<b>2<sup>nd</sup> River Crossing, Thunder Bridge</b>	<b>8/30/2017</b>	<b>Not Sampled</b>	<b>390 mg/kg</b>
<b>BL283017</b>	<b>2<sup>nd</sup> River Crossing, Thunder Bridge</b>	<b>8/30/2017</b>	<b>Not Sampled</b>	<b>340 mg/kg</b>
<b>BL383017</b>	<b>2<sup>nd</sup> River Crossing, Thunder Bridge</b>	<b>8/30/2017</b>	<b>Not Sampled</b>	<b>250 mg/kg</b>
<b>BL483017</b>	<b>2<sup>nd</sup> River Crossing, Thunder Bridge</b>	<b>8/30/2017</b>	<b>Not Sampled</b>	<b>630 mg/kg</b>
<b>BL583017</b>	<b>2<sup>nd</sup> River Crossing, Thunder Bridge</b>	<b>8/30/2017</b>	<b>Not Sampled</b>	<b>240 mg/kg</b>
<b>BL683017</b>	<b>2<sup>nd</sup> River Crossing, Thunder Bridge</b>	<b>8/30/2017</b>	<b>Not Sampled</b>	<b>5,600 mg/kg</b>

Utility locates, and any necessary surveying will be conducted prior to pipe removal activities. Stage 6 road closures and traffic control measures will be negotiated with the pertinent stakeholders prior to undertaking any closure activities.

Pipe removal will be conducted under the guidelines specified under Section 4.1 of the Removal Work Plan (Trihydro 2017). Stage 6 pipeline areas are primarily located on private property with river crossing portions of the pipeline located on USFS and CMI property.

Details of the pipeline removal process for each Stage 6 section can be found below. As outlined in Table 3-1, Stage 6 consists of four sections: three river crossings and buried pipe on property owned by the Rael family.

#### **4.1 1<sup>ST</sup> RIVER CROSSING (COLUMBINE PARK)**

Work at the first river crossing, also known as the Columbine Park Bridge, consists of removing two tailings pipes, the associated spill containment structures from the bridge structure, and relocating the UG and GWW water lines (Figure 3-2). Prior to any removal activities, a geotextile fabric will be temporarily installed beneath the structure to catch any falling debris during the disassembly and removal of the pipe. Couplings at either end of the bridge structure will be removed and the pipeline will be separated. On site personnel will check the open pipe for tailings visually. The existing handrails on the bridge may be improved to facilitate the safe removal of the spill containment structure. The spill containment structure will be disassembled and manually removed from above the pipeline. The pipeline will be dragged off the bridge and then broken into shorter segments by disassembling the Victaulic couplings. The remaining components of the spill containment structure will then be removed. The bridge structure will remain in place to provide support for the existing UG and GWW water lines. The water lines will be relocated closer to the centerline of the bridge in order to shorten the existing cantilevers on the bridge supports. Demolition refuse and pipe will be trucked to an approved disposal facility.

#### **4.2 2<sup>ND</sup> RIVER CROSSING (THUNDER BRIDGE)**

The second river crossing (Thunder Bridge) will be removed in its entirety. This includes the pipe, associated spill containment structures, bridge decking, handrails, concrete piers, and abutments (Figure 3-3). Dewatering and river diversion will take place prior to the removal of pipeline and demolition of the bridge. Sand filled bulk bag diversion structures will be used both up and downstream of the bridge to channelize water flow through an HDPE diversion pipe (Figure 2-1). Residual water between the diversion structures will be removed and pumped downstream. Geotextile fabric will be temporarily installed below the bridge to catch any debris or residual tailings, preventing it from landing in the stream bed. Victaulic couplings will be detached from the pipeline on either end of the bridge. On site personnel will visually check the open pipe for tailings. The pipeline will be dragged off the bridge and broken into shorter segments by disassembling the Victaulic couplings. If couplings separate during the removal of the pipeline, the spill containment structure will be removed to expose the pipe end and the pipe will continue to be dragged out. The remaining bridge superstructure will be detached from the substructure using a pneumatic impact wrench or acetylene

torch. The detached bridge components will be removed utilizing a crane or piece of heavy machinery placed adjacent to the bridge. The concrete bridge abutments and piers will be broken up with a hydraulic hammer mounted on an excavator. The broken concrete will be removed from the dry stream bed using heavy equipment. Following removal of the bridge, the stream banks and stream bed will be graded to match the surrounding topography and revegetated as necessary with plant species identified in Section 5. The diversion structures will be removed and the natural stream flow will be restored. Demolition refuse and pipe will be trucked to an approved disposal facility.

#### **4.3 3<sup>RD</sup> RIVER CROSSING (USFS BRIDGE)**

The third river crossing to be addressed in Stage 6 is the bridge in the vicinity of the USFS Division Office. This is typically referred to as the Forest Service Bridge. Two tailings pipelines and associated spill containment structures will be removed from this bridge. Prior to pipeline removal a geotextile fabric will be temporarily installed below the bridge and structures to catch any falling debris and prevent it from entering the river. Victaulic couplings will be detached from the pipeline on either end of the bridge. The pipe will be inspected visually to check if tailings are present in the pipe. The spill prevention structure will be disassembled and manually lifted in sections off the bridge. The pipe will be lifted and cribbed so that it can be dragged off of the bridge and broken into shorter segments by disassembling the Victaulic couplings. The bridge structure will remain in place to provide support for existing conduits which house electric and communication utilities owned and operated by Kit Carson Power Cooperative (Figure 3-4). Demolition refuse and pipe will be trucked to an approved disposal facility.

#### **4.4 RAEL PROPERTY**

The fourth segment of Stage 6 is the removal of all pipe from property owned by the Rael family. This pipe is both above and underground (Figure 3-5).

The pipeline will be exposed and removed using two excavators working in tandem. Trench slope walls will be at a 1.5:1 slope. The trenched excavation will be barricaded as necessary to prevent un-authorized personnel from entering the work zone. Pipeline will then be cut into manageable sections, as determined by on site field personnel, using an excavator mounted hydraulic shear. Prior to removing the pipe from the trench, the pipes will be inspected for tailings and appropriate measures will be taken to reduce the potential for spills. Typically this will entail covering the ends with plastic prior to transportation or shaking the tailing from the pipe into an approved container for transportation to the tailing facility. The pipe will then be removed from the trench, broken up into individual sections and moved to the adjacent Chevron property. The pipe will be trucked to an approved disposal facility with Stage 7 pipe later in 2019.

Four pipes are buried along the alignment. It is assumed that the oldest pipes will have an ACM wrap. If wrapping is encountered, it will be characterized as friable or non-friable and appropriate PPE will be donned. Two poly sheets large enough for the pipe segment will be laid out and the ACM coated pipe will be carefully placed on the poly sheets. The pipe will be wrapped and appropriately labeled as ACM, the ends of the piping will be sealed, and the pipe staged for disposal in labeled ACM roll off bins.

Structures such as pipe couplings, anchor structures, pipe bend structures, and concrete thrust blocks will be removed in accordance with Section 4.2 of the Removal Work Plan (Trihydro 2017).

All waste will be disposed of according to the methods outlined in Sections 2.3.3 and 4.0 in the Removal Work Plan.

Approximate quantities of material to be removed are detailed in Table 4-2.

**TABLE 4-2. QUANTITIES OF DEMOLITION MATERIALS**

Pipeline Segment Description	Approximate Quantity of Pipe to be Removed (feet)	Approximate Quantity of Concrete (tons)	Approximate Quantity of Steel (tons)
1st River Crossing (by Columbine Park)	240	0	0
2nd River Crossing (aka Thunder Bridge)	627	77	5
3rd River Crossing (USFS bridge)	374	0	0
Rael Property	2,196	0	0.4

## 5.0 RECLAMATION

Areas disturbed during pipe removal, tailing removal, and other demolition activities conducted under this work plan will be reclaimed according to the procedures outlined in Section 4.2.10 of the Removal Work Plan (Trihydro 2017). The pipeline right of way and other disturbed areas will be regraded to match the natural grade of the area. Clean fill, if necessary, will be imported from previously approved borrow sources. A map indicating the locations of borrow material is included as Appendix C.

Once the grading has been completed disturbed areas will be reseeded using the mix detailed in Table 5-1. Alternate seed mixes may be used for private properties depending upon the anticipated land use or if availability of certain seed species is limited. The seed mix may be negotiated with the proper regulatory agencies based on the area of application.

**TABLE 5-1. SEED MIXTURE**

<b>Grasses</b>	<b>Scientific Name</b>	<b>Drill Seeding lbs/acre</b>	<b>Hydroseeding lbs/acre</b>
Western Wheatgrass, var. Arriba	<i>Pascopyrum smithii</i>	4.1	8.2
Slender Wheatgrass, var. San Luis	<i>Elymus trachycaulus</i>	1.7	3.4
Bluebunch Wheatgrass, var. Goldar	<i>Pseudoroegneria spicata</i>	2.3	4.6
Blue Grama, var. Hachita	<i>Bouteloua gracilis</i>	0.5	1.0
Arizona Fescue, var. Redondo	<i>Festuca arizonica</i>	0.7	1.4
<b>Forbs</b>			
Western Yarrow	<i>Achillea millefolium</i>	0.15	0.3
Rocky Mountain Penstemon, var. Bandera	<i>Penstemon strictus</i>	1.2	2.4
Prairie Coneflower	<i>Ratibida columnifera</i>	0.8	1.6
Tufted Evening Primrose	<i>Oenothera speciosa</i>	0.15	0.3
<b>Shrubs</b>			
Mountain Big Sagebrush, var. Hobble Creek	<i>Artemisia tridentata var vaseyana</i>	0.3	0.6
Apache Plume	<i>Fallugia paradoxa</i>	0.3	0.6

## 6.0 STAKEHOLDER ENGAGEMENT

The key stakeholders for this stage of pipeline removal include:

- NMDGF
- NMDOT
- USFWS
- USFS (property owner)
- Rael Family (property owner)
- NMHPD
- USACE
- Amigos Bravos/Trout Unlimited
- Kit Carson Power Cooperative
- Village of Questa

Outreach to the key stakeholders has begun and will continue throughout the pipeline removal project. Stage 6 activities will be discussed with the public during the scheduled monthly meeting with the Village of Questa.

## 7.0 SCHEDULE

The schedule for Stage 6 of the Questa pipeline removal project is detailed below in Table 7-1.

**TABLE 7-1. STAGE 6 PIPELINE REMOVAL SCHEDULE**

Pipeline Segment Description	Target Start Date for Pipe Removal	Target End Date for Pipe Removal
1st River Crossing (by Columbine Park)	August 2019	August 2019
2nd River Crossing (aka Thunder Bridge)	August 2019	September 2019
3rd River Crossing	March 2019	March 2019
Rael Property	March 2019	April 2019

## 8.0 HEALTH AND SAFETY

CMI, Entact, and Trihydro put safety first and foremost in all operations. A project specific Health and Safety Plan (HASP) will be developed for the pipeline removal activities. The project specific HASP will be similar in scope and detail as presented in the December 20, 2016 HASP (Trihydro 2016) prepared for coordination, sampling, and surveying activities completed in the initial phases of the pipeline dismantling and stabilization. The project specific HASP will include the following details:

- Emergency response procedures and reporting
- Project team organization and responsibilities
- Training, orientation, and medical monitoring requirements
- A site hazard analysis
- Analysis of chemical, physical, and biological hazards
- Required personal protective equipment
- Air monitoring requirements
- Site control measures
- Waste management
- Motor vehicle safety requirements

Other documents used to identify and mitigate hazards associated with the project will include the forms listed below. Examples of the listed forms are included in Appendix D.

- Pre-fieldwork safety readiness reviews. This document provides project management an opportunity to interact with field personnel prior to commencement of field activities.
- Job Safety Analyses (JSA). JSAs are drafted for each task. Job steps, potential hazards and mitigation steps are identified and communicated to team members. The JSA form is included in Appendix D.
- Field observations. Observations will be conducted throughout the project to verify compliance with operational safety standards.
- Near Miss investigations. Near misses identified by team members will be investigated to determine root causes and means to avoid similar incidents in future operations. The outcome of these investigations will be shared with all team members.



- Daily tailgate safety meetings. Daily tailgate safety meeting will be conducted every day prior to commencement of operations. The meetings are an opportunity to review JSAs, discuss changing conditions, lessons learned and operational details.
- Weekly management safety meetings. This meeting is an opportunity for the project leadership to discuss upcoming operations, lessons learned, near loss investigations and other potential issues covered in the weekly project meeting.
- Journey management plans (JMP). JMPs are used to identify hazards associated with transportation. These plans identify hazard and provide mitigation steps for enhancing vehicle operational safety.

The use of these documents creates the foundation for hazard awareness and mitigation. Our companies have embedded their use into our respective corporate cultures and freely share best practices and lesson learned.

## 9.0 CONTRACTORS KEY PERSONNEL

Entact LLC will be the primary contractor for Stage 6 pipe removal, waste management, and regrading of the right of way. Key Entact personnel include:

- **Michael Cinciripini.** Michael is the Project Manager and primary operations contact for Entact on the tailings pipeline removal project (Project). Michael holds a Bachelor of Science degree in Civil and Environmental Engineering, a Construction Management Certificate and is a Lean Sigma Green Belt. He has a significant level of experience at the Questa Mine facility. He can be reached at (412) 417-8460 or [mcinciripini@entact.com](mailto:mcinciripini@entact.com).
- **Nicholas Cain.** Nicholas fills the role of Health and Safety Officer for Entact on the Project.

Trihydro Corporation will be responsible for engineering, contractor oversight, environmental sampling, permitting and regulatory support. Key Trihydro personnel include:

- **Shaun Harshman.** Shaun is the Project Manager and primary contact for Trihydro on the Project. Shaun has a Bachelor of Science degree in Soil Science. He has over 30 years of experience in the environmental field, with over 18 years of experience on Chevron projects. He can be reached at (307) 259-5909 or [sharshman@trihydro.com](mailto:sharshman@trihydro.com).
- **Tony Kupilik.** Tony will be Trihydro's primary construction oversight and health and safety manager. Tony has over 25 years of experience in heavy construction and mining. He is a certified MSHA instructor, New Mexico Surface Coal Foreman, Excavation Competent Person, 3D Driving instructor and has OSHA 40-hour HAZWOPER training. He is also a certified instructor for Red Cross CPR, AED, and First Aid. He can be reached at (307) 760-8082 or [tkupilik@trihydro.com](mailto:tkupilik@trihydro.com).

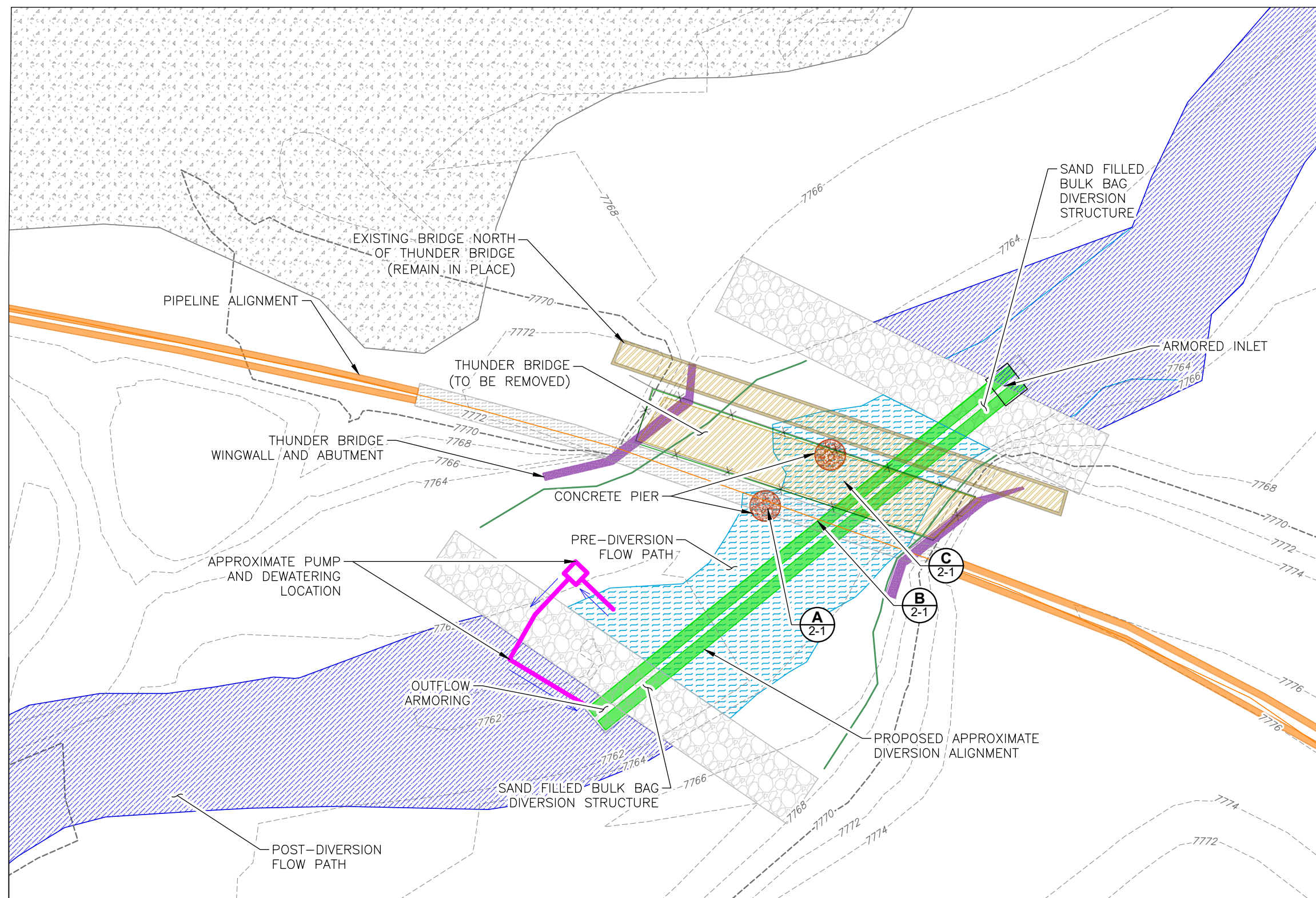
## 10.0 REFERENCES

Trihydro Corporation. 2016. Health and Safety Plan (HASP), Field Summary, Chevron Environmental Management Company (CEMC), Environmental Activities, Questa Mine. December 20, 2016.

Trihydro. 2017. Questa Tailings Pipeline Removal MMD/NMED Work Plan, Chevron Environmental Management Company, Questa Mine. May 19, 2017.

## FIGURES

\\TRIHYRO.COM\CLIENTS\CHEVRON\CEMC\MINING\QUESTA\MINE\PIPELINE\CADD\REGULATORY\WMD\STAGE6-WORKPLAN\76-QM-S6-TB\_DIV\_FIG2-1\_201901

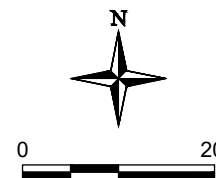


#### EXPLANATION

	STRAW WATTLE
	24" HDPE DIVERSION PIPE
	QUARRY SPALL
	ESTIMATED TEMPORARY STREAM FLOWPATH (HY-8)
	STREAM FLOWPATH BEFORE DAM PLACEMENT
	PIPELINE BEING REMOVED
	NM 38 TURN-OUT
	SURFACE CONTOUR

#### NOTES:

1. PIPELINE BEING REMOVED INCLUDES TWO 14" DIA. STEEL PIPES, BRIDGE STRUCTURE, PIERS, AND ABUTMENTS.
2. UTILITY CROSSING BRIDGE SHALL STAY IN PLACE.



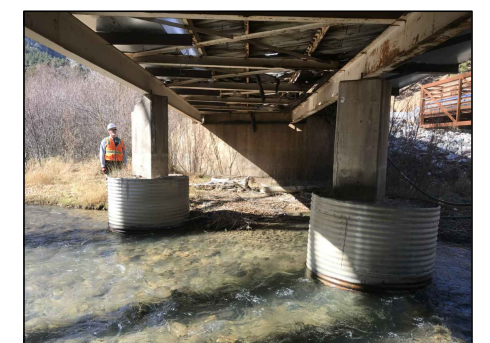
Drawn By: DF    Checked By: RN    Scale: 1" = 20'    Date: 1/18/19    File: 476-QM-S6-TB\_DIV\_FIG2-1\_201901



**A** CONDITION OF THUNDER BRIDGE  
Image Citation: Trihydro Corporation Field Photos, January 2017



**B** CONDITION OF THUNDER BRIDGE  
Image Citation: Trihydro Corporation Field Photos, January 2017



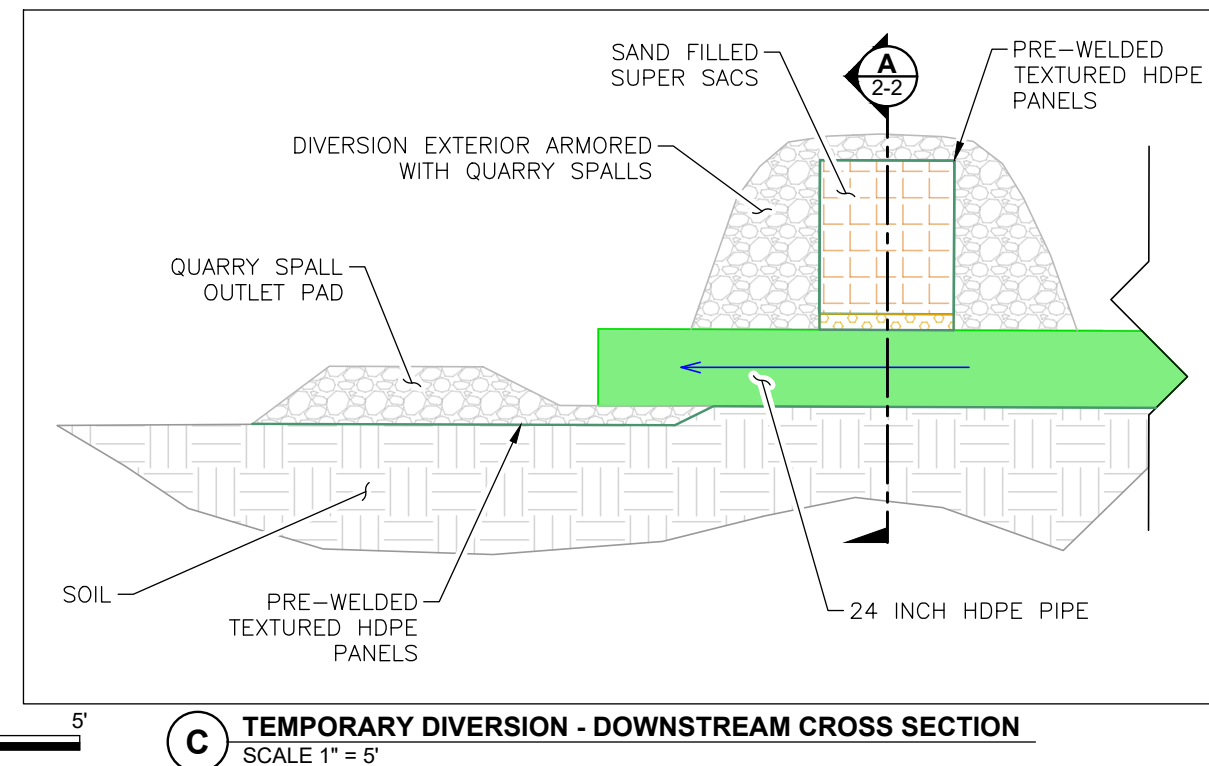
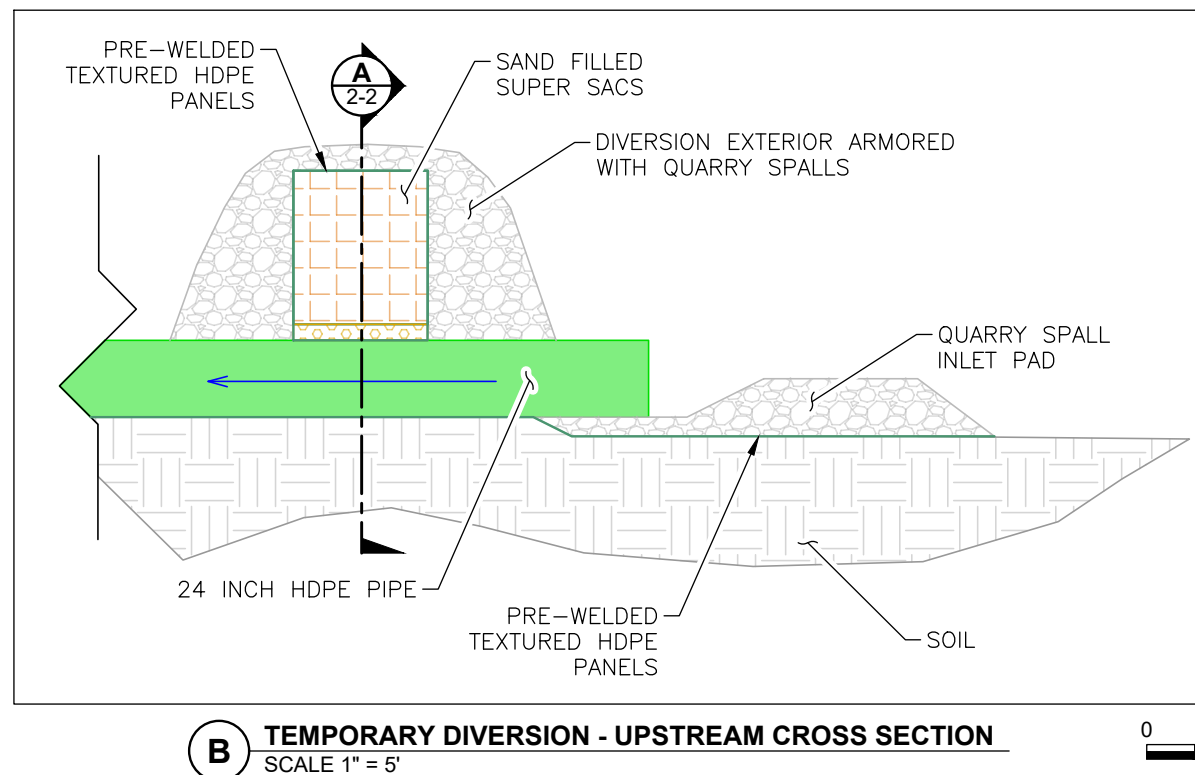
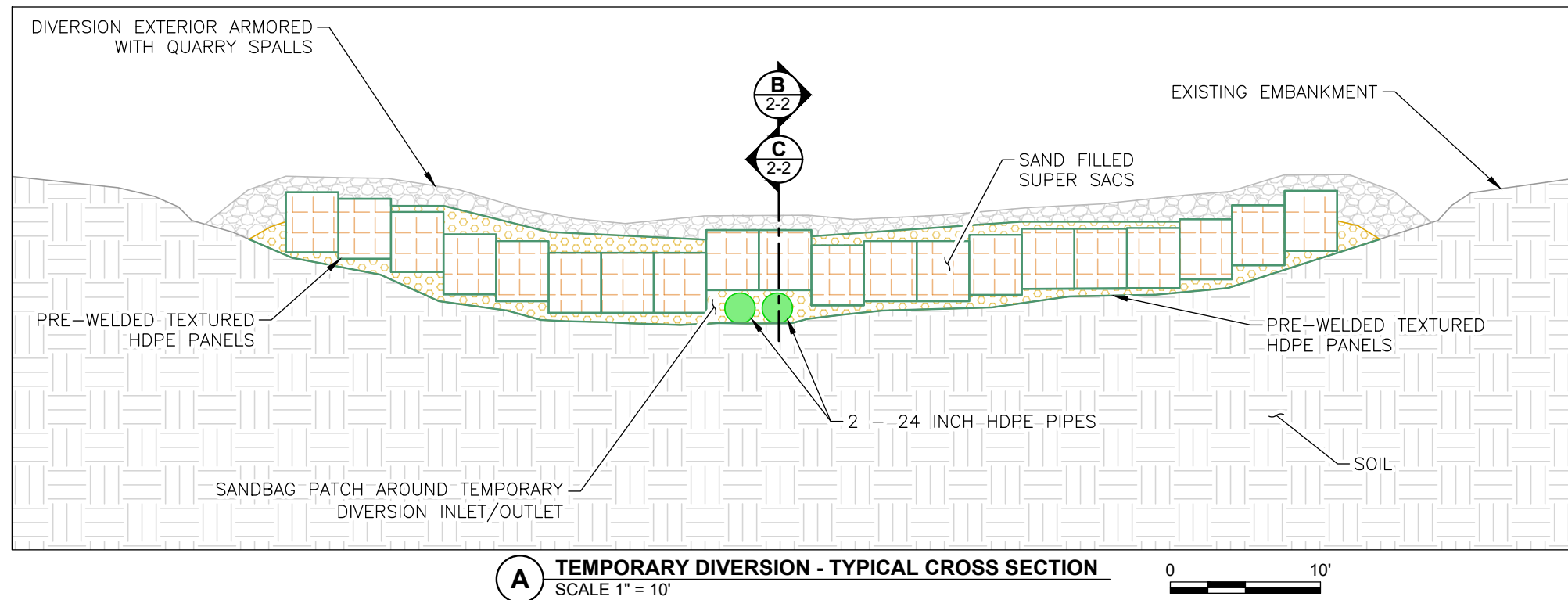
**C** CONDITION OF THUNDER BRIDGE  
Image Citation: Trihydro Corporation Field Photos, January 2017

#### FIGURE 2-1

**RED RIVER TEMPORARY DIVERSION  
THUNDER BRIDGE**

**CEMC QUESTA MINE  
QUESTA, NEW MEXICO**

\\TRIHEDRO.COM\CLIENTS\CHEVRON\CEMC\_MINING\QUESTA\MINE\PIPELINE\WORKPLAN\476-QM-S6-RR\_DIV\_X-SEC\_FIG2-2



**EXPLANATION**

- SANDBAGS
- SAND FILLED SUPER SACS
- 24" HDPE DIVERSION PIPE
- QUARRY SPALL
- STREAM FLOWPATH
- PRE-WELDED TEXTURED HDPE PANELS

**NOTES:**

1. EMBANKMENTS ARE APPROXIMATED.
2. THE SAND FILLED SUPER SAC CORE IS WRAPPED WITH PRE-WELDED TEXTURED HDPE PANELS
3. DIVERSION STRUCTURE IS SET UPON A LAYER OF PRE-WELDED TEXTURED HDPE PANELS



**FIGURE 2-2**

**RED RIVER TEMPORARY DIVERSION  
DAM CROSS SECTION**

**CEMC QUESTA MINE  
QUESTA, NEW MEXICO**





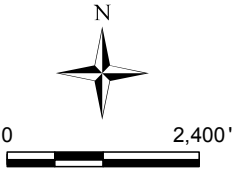
M:\CHEVRON\CEMC\_Mining\QUESTA\MINEPIPELINE\GIS\MAPPING\STAGE6\WORKPLAN\FIG3-1\_STAGE6PIPELINEWP.MXD



Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

**EXPLANATION**

- |   |   |   |                                    |
|---|---|---|------------------------------------|
|  | 1ST RIVER CROSSING (BY COLUMBINE PARK)  |  | PIPELINE                           |
|  | 2ND RIVER CROSSING (AKA THUNDER BRIDGE) |  | PRIMARY STATE HIGHWAY              |
|  | 3RD RIVER CROSSING                      |  | SECONDARY STATE HIGHWAY            |
|  | RAEL PROPERTY                           |  | LOCAL, NEIGHBORHOOD, OR RURAL ROAD |



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**FIGURE 3-1**

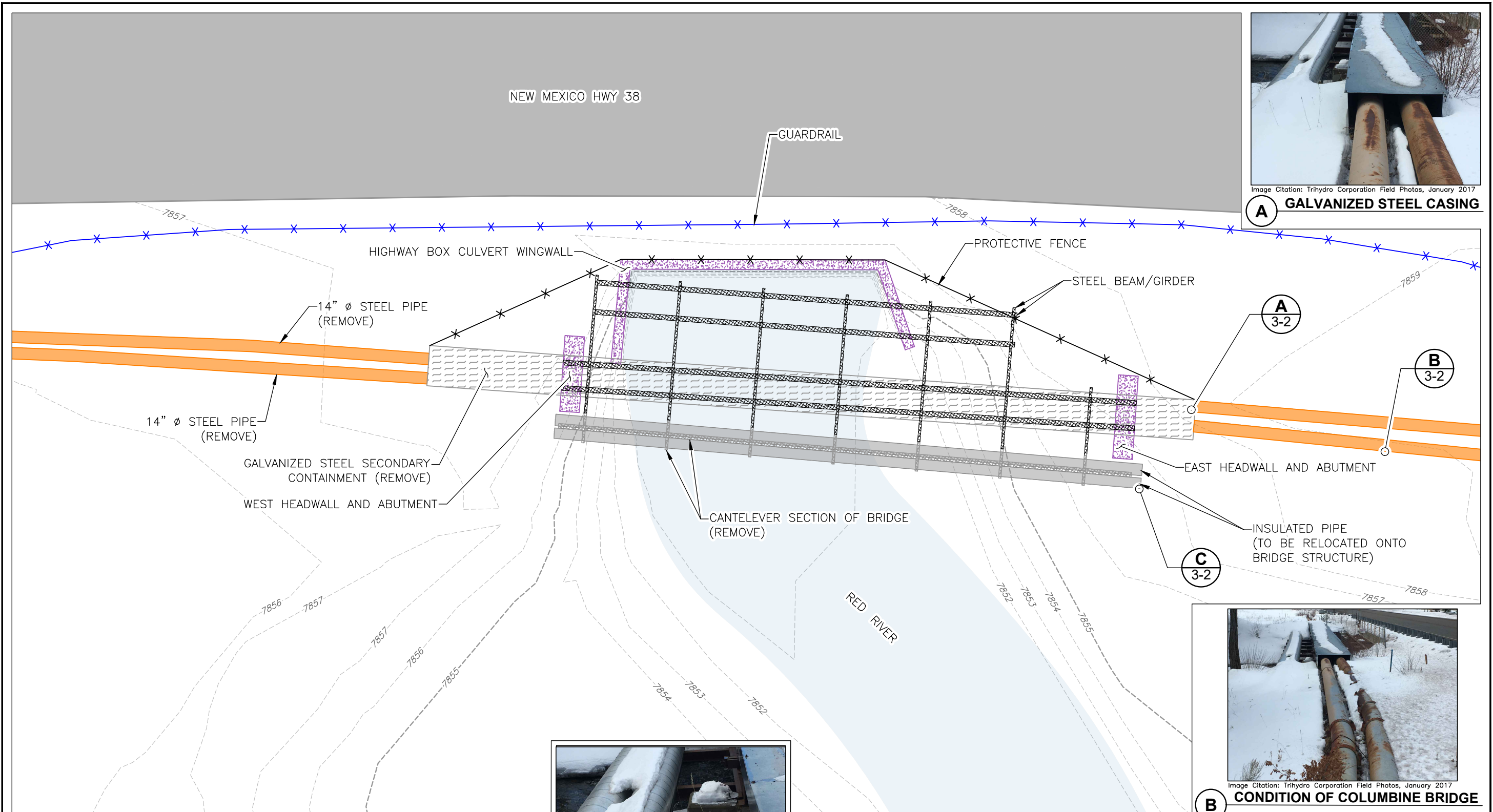
**STAGE 6 PIPELINE REMOVAL LOCATIONS**

**CEMC QUESTA MINE  
QUESTA, NEW MEXICO**

Drawn By: DH | Checked By: RN | Scale: 1" = 2,400' | Date: 1/25/18 | File: Fig3-1\_Stage6PipelineWP.mxd



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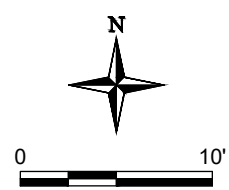


REMOVAL QUANTITY ESTIMATE			
ITEM	QUANTITY	UNIT	MAP SYMBOL
1 GALVANIZED STEEL CASING	440	SF	

**C** INSULATED PIPES AT COLUMBINE BRIDGE

**B** CONDITION OF COLUMBINE BRIDGE

**FIGURE 3-2**  
**FIRST RIVER CROSSING**  
**(AKA COLUMBINE BRIDGE)**  
  
**CEMC QUESTA MINE**  
**QUESTA, NEW MEXICO**



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Image Citation: Trihydro Corporation Field Photos, January 2017

**A** CONDITION OF THUNDER BRIDGE

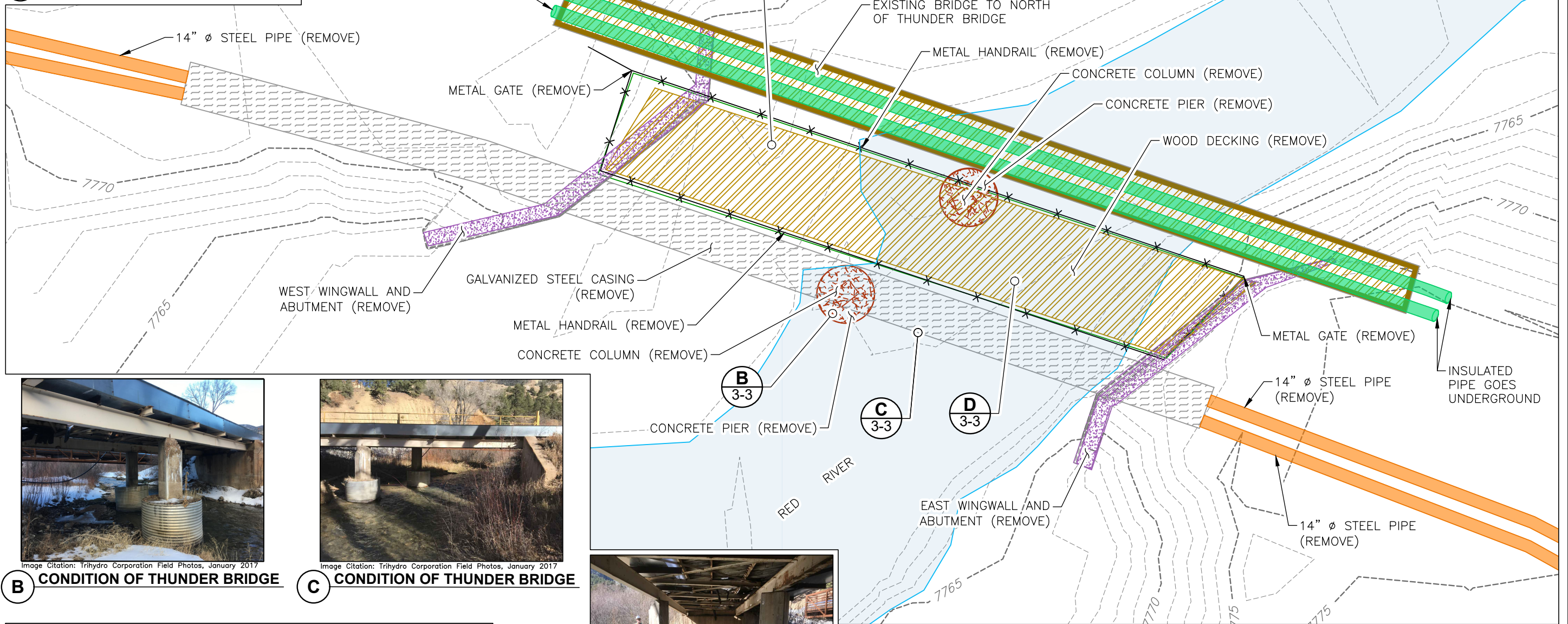


Image Citation: Trihydro Corporation Field Photos, January 2017

**B** CONDITION OF THUNDER BRIDGE



Image Citation: Trihydro Corporation Field Photos, January 2017

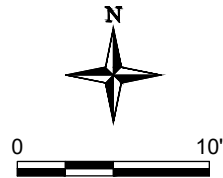
**C** CONDITION OF THUNDER BRIDGE



Image Citation: Trihydro Corporation Field Photos, January 2017

**D** CONDITION OF THUNDER BRIDGE

REMOVAL QUANTITY ESTIMATE				
	ITEM	QUANTITY	UNIT	MAP SYMBOL
1	CONCRETE WINGWALL	18.6	CY	
2	GATE/FENCE	145	FT.	
4	WOOD DECKING	595	SF	
5	STEEL CASING	753	SF	
6	BRIDGE PIERS & COLUMNS	21	CY	



**FIGURE 3-3**  
**SECOND RIVER CROSSING**  
**(AKA THUNDER BRIDGE)**  
**CEMC QUESTA MINE**  
**QUESTA, NEW MEXICO**





Image Citation: Trihydro Corporation Field Photos, January 2017

**C 14" Ø PAINTED STEEL AND 8" Ø WRAPPED PIPE WITH GALVANIZED COVER**

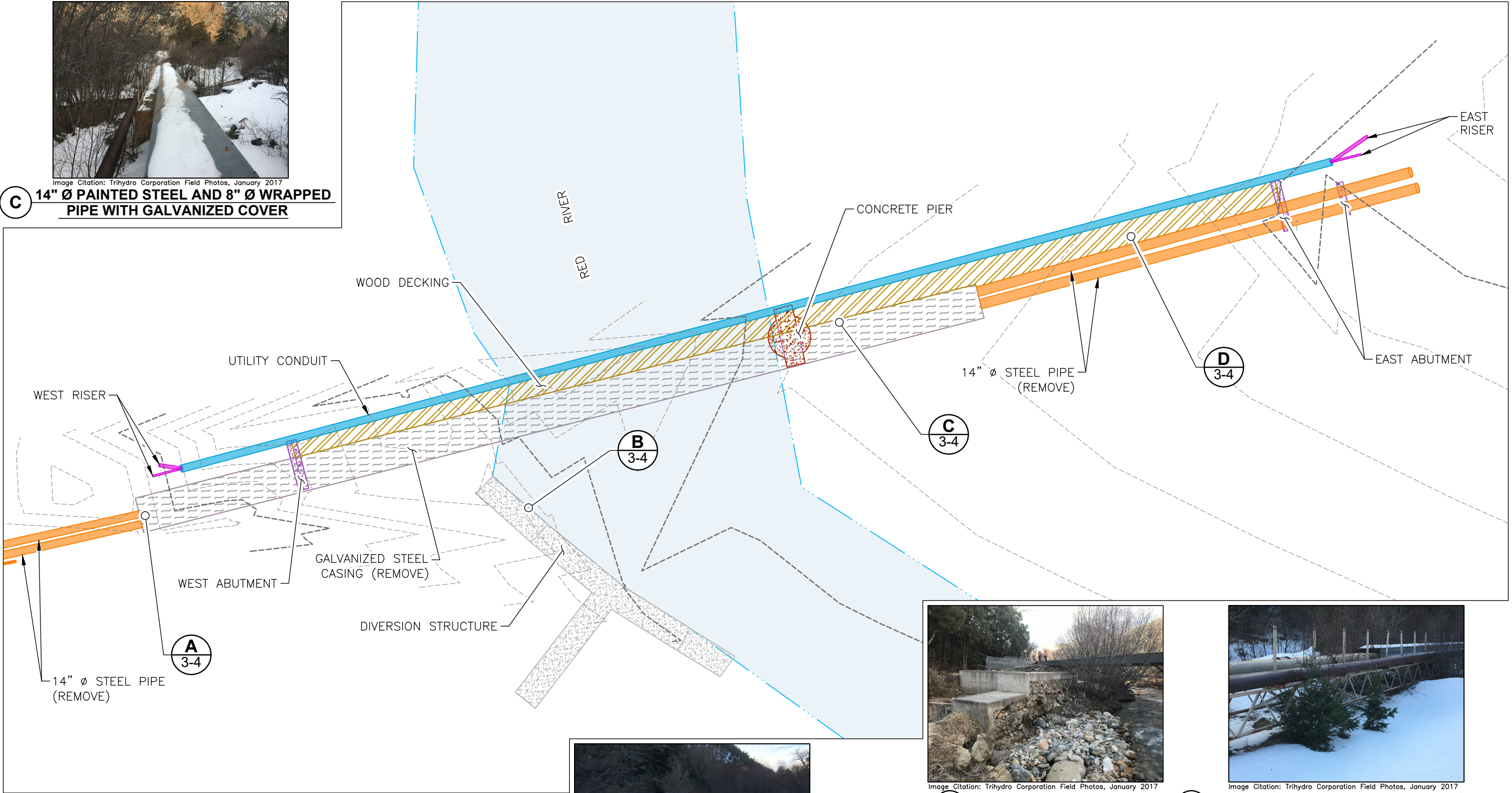


Image Citation: Trihydro Corporation Field Photos, January 2017

**B USFS BRIDGE AND DIVERSION STRUCTURE**



Image Citation: Trihydro Corporation Field Photos, January 2017

**D 14" Ø PAINTED STEEL AND 8" Ø WRAPPED PIPE ON ELEVATED TRESTLES**



Image Citation: Trihydro Corporation Field Photos, January 2017

**A 14" Ø PAINTED STEEL AND 8" Ø WRAPPED PIPE - WEST VIEW**

REMOVAL QUANTITY ESTIMATE			
ITEM	QUANTITY	UNIT	MAP SYMBOL
1 STEEL CASING	480	SF	



0 12'

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Drawn By: PAC Checked By: TH Scale: 1" = 12' Date: 11/5/2018 File: 476-QM-S6-3RDRIVERXING201811

**FIGURE 3-4**  
**THIRD RIVER CROSSING**  
**(AKA USFS BRIDGE)**  
**CEMC QUESTA MINE**  
**QUESTA, NEW MEXICO**







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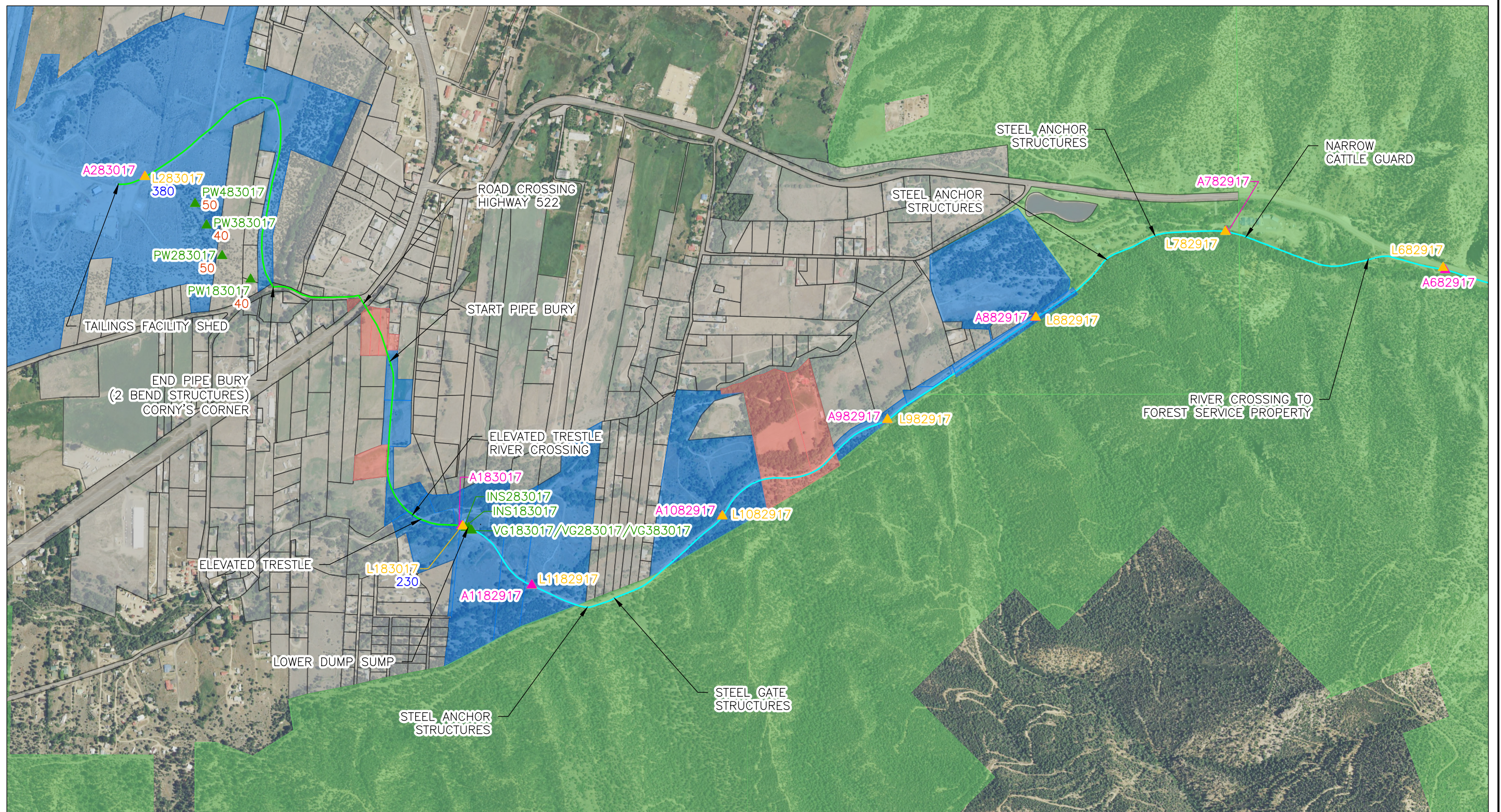
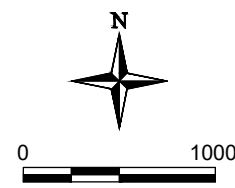


Image Cite: USDA National Agriculture Imagery Program (NAIP) Colored Orthophoto, Taos County, New Mexico, 2016

#### EXPLANATION

- ▲ SAMPLE POINT AND DESIGNATION
- 230 DETECTED LEAD, IN MILLIGRAMS PER KILOGRAM (mg/kg)
- 40 DETECTED ASBESTOS IN % CHRYSOTILE
- TAILINGS PIPELINE ALIGNMENT - EAST OF LOWER DUMP SUMP
- TAILINGS PIPELINE ALIGNMENT - WEST OF LOWER DUMP SUMP

- PRIVATE PROPERTY NEAR PIPELINE
- CMI PROPERTY
- CARSON NATIONAL FOREST
- OTHER PROPERTY



**FIGURE 4-1**  
**PIPELINE SAMPLING LOCATIONS**  
**EXISTING SITE PLAN - WEST AREA DETAIL**  
**CMI TAILINGS PIPELINE**

**CEMC QUESTA**  
**QUESTA, NEW MEXICO**

Drawn By: PC Checked By: CS Scale: 1" = 1000' Date: 6/18/18 File: 476-QM-PRMT-SITEDetail201806



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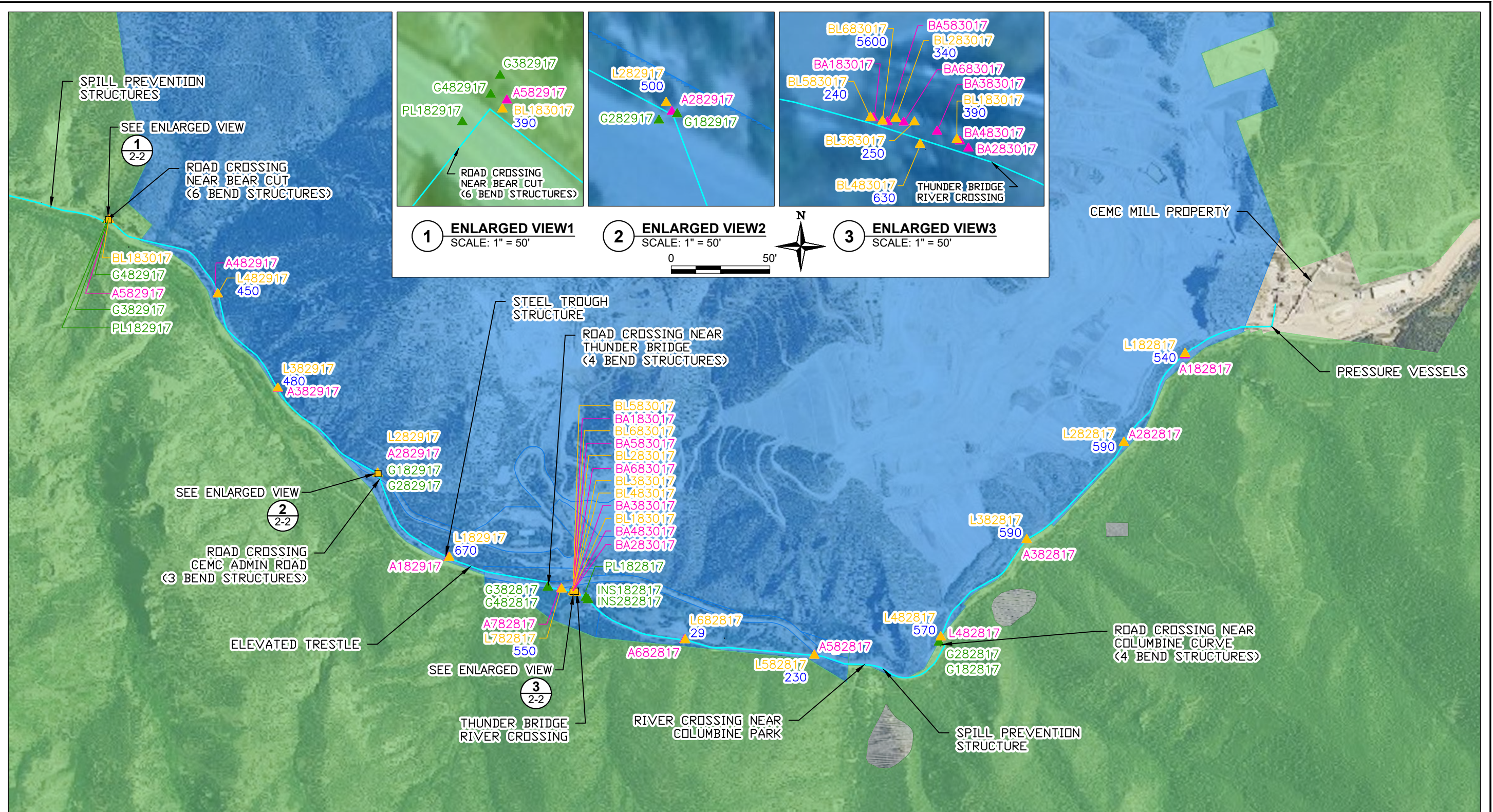
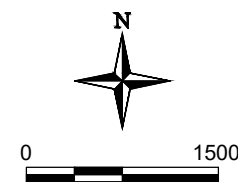


Image Cite: USDA National Agriculture Imagery Program (NAIP) Colored Orthophoto, Taos County, New Mexico, 2016

#### EXPLANATION

			SAMPLE POINT AND DESIGNATION
550			DETECTED LEAD, IN MILLIGRAMS PER KILOGRAM (mg/kg)
			TAILINGS PIPELINE ALIGNMENT - EAST OF LOWER DUMP SUMP
			CMI PROPERTY
			CARSON NATIONAL FOREST
			OTHER PROPERTY



**FIGURE 4-2**  
**PIPELINE SAMPLING LOCATIONS**  
**EXISTING SITE PLAN - EAST AREA**  
**CMI TAILINGS PIPELINE**

**CEMC QUESTA**  
**QUESTA, NEW MEXICO**

Drawn By: PC    Checked By: CS    Scale: 1" = 1500'    Date: 4/26/17    File: 476-QM-PRMT-SITEDetail201806



## **APPENDIX A**

### **US ARMY CORPS OF ENGINEERS NATIONWIDE PERMIT PRE-CONSTRUCTION NOTIFICATION**



January 14, 2019

Ms. Deanna Cummings  
Regulatory Project Manager  
U.S. Army Corps of Engineers – Albuquerque District  
4101 Jefferson Plaza NE  
Albuquerque, NM 87109

RE: Pre-construction Notification – Nationwide Permit 12 for the Questa Pipeline Removal Stages 3-7  
Project  
Taos County, New Mexico  
Corps File No.:

Dear Ms. Cummings:

Trihydro Corporation on behalf of Chevron (CEMC or Applicant) is pleased to submit the attached pre-construction notification (PCN) for work activates in wetlands and waters of the United States (WOUS) required for the removal of a decommissioned mill tailings pipeline (utility line) pursuant to nationwide permit (NWP) 12 under Section 404 of the Clean Water Act.

Attached to this PCN is a technical memorandum detailing adherence to guideline 9 of the NWP-12 general conditions (Attachment 1), responses to United States Army Corps of Engineers New Mexico Regional Conditions (Attachment 2), and the New Mexico Environmental Department Clean Water Act Section 401 Water Quality Certification for United State Army Corps of Engineers 2017 Nationwide Permits (Attachment 3).

Also attached to this PCN is a draft Aquatic Resource Inventory (ARI) identifying wetlands and WOUS at four crossings associated with the pipeline removal project (Attachment 4). Based on the ARI and the proposed construction footprints for removal of the pipeline, temporary impacts to wetlands and WOUS are proposed at two of the four crossings, the Elevated Trestle and Thunder Bridge. This PCN requests approval for approximately 0.137 acre of temporary impact to WOUS and 0.171 acre of impact to wetlands.



Ms. Deanna Cummings  
January 14, 2019  
Page 2

Should you require any additional information or have a question regarding the attached PCN, please do not hesitate to contact me at (970) 492-6022 or via email at [pcoit@trihydro.com](mailto:pcoit@trihydro.com).

Sincerely,  
Trihydro Corporation



Parker Coit, P.G.  
Assistant Project Geologist

476-027-002

Enclosures

cc: Ms. Cynthia Murray Gulde, CEMC  
[cgulde@chevron.com](mailto:cgulde@chevron.com)  
Mr. Gabriel Herrera, CEMC  
[Gabriel.herrera@chevron.com](mailto:Gabriel.herrera@chevron.com)  
Mr. Abraham Franklin, New Mexico Environmental Department  
[Abraham.franklin@state.nm.us](mailto:Abraham.franklin@state.nm.us)



## PCN FORM

# U.S. Army Corps of Engineers South Pacific Division



## Nationwide Permit Pre-Construction Notification (PCN)

This form integrates requirements of the U.S. Army Corps of Engineers (Corps) Nationwide Permit Program within the South Pacific Division (SPD). Boxes 1-10 must be completed to include all information required by General Condition 32. Box 11 (or other sufficient information to show compliance with all General Conditions) must be completed for activities in Arizona, California, Nevada, and Utah, and is recommended for activities in Colorado and New Mexico. If additional space is needed, please provide as a separate attachment. Please refer to the *Instructions for the South Pacific Division Nationwide Permit Pre-Construction Notification (PCN)* (Instructions) for instructions for completing the PCN, as well as additional information on the attachments and tables included with this PCN that may be used.

### 0. To be filled by the Corps

<b>Application Number:</b>	<b>Date Received:</b>	<b>Date Complete:</b>

### 1. Prospective Permittee and Agent Name and Addresses (see Instructions)

#### a. Prospective Permittee

First - \_\_\_\_\_ Middle - \_\_\_\_\_ Last - \_\_\_\_\_  
Company - \_\_\_\_\_ Email Address - \_\_\_\_\_  
Address - \_\_\_\_\_ City - \_\_\_\_\_ State - \_\_\_\_\_ Zip - \_\_\_\_\_  
Phone (Residence/Mobile) - \_\_\_\_\_ Phone (Business) - \_\_\_\_\_

#### b. Agent (if applicable)

First - \_\_\_\_\_ Middle - \_\_\_\_\_ Last - \_\_\_\_\_  
Company - \_\_\_\_\_ Email Address - \_\_\_\_\_  
Address - \_\_\_\_\_ City - \_\_\_\_\_ State - \_\_\_\_\_ Zip - \_\_\_\_\_  
Phone (Residence/Mobile) - \_\_\_\_\_ Phone (Business) - \_\_\_\_\_

**c. Statement of Authorization:** I hereby authorize \_\_\_\_\_, to act in my behalf as my agent for the proposed activity. (Optional, see instructions)

\_\_\_\_\_  
Signature of Applicant

\_\_\_\_\_  
Date

## 2. Name and Location of the Proposed Activity (see Instructions)

☐ The proposed work would involve multiple-single and complete projects. See attachment for the information required in Boxes 2 through 10, and 11, if applicable.

a. Project Name or Title:

b. County, State:

c. Name of Waterbody:

d. Coordinates:

☐ Unknown (please provide other location descriptions below)

Latitude -

Longitude -

\*See attached Table 1 for Lat/Long Coordinates

e. Other Location Description (optional, see instructions):

f. Driving Directions to the site (optional, see instructions):

## 3. Specific NWP(s) you want to use to authorize the proposed activity (see Instructions)

## 4. Description of the Proposed Activity (see Instructions)

### a. Complete description of the Proposed Activity:

The proposed project entails demolition and reclamation of a decommissioned mill tailings pipeline and ancillary structures associated with the Questa Mine to pre-mining conditions. The tailings pipeline was constructed to transport mill tailings, as a slurry, from the mine to the Tailings Facility (see Figure 1). The tailings pipeline begins approximately 7 miles east of the Village of Questa, NM, at the Questa Mine, parallels State Route 38, down the Red River Canyon, through the Village of Questa, NM, terminating at the Tailings Facility. The majority of the tailings pipeline was constructed on property owned by Chevron (CEMC) and the USFS. A portion of the pipeline crosses private property. The pipeline crosses Red River, Columbine Creek (a tributary to the Red River), Embargo Ditch, and unnamed ditches (see Figure 1 and Attachment 4). The pipeline and associated structures will be removed including one bridge (Thunder Bridge) and the Elevated Trestle. Based on the Aquatic Resource Inventory (Attachment 4) and planned demolition activities, temporary impacts to waters of the United States (WOUS) and wetlands are expected at only the two of Red River crossings, the Elevated Trestle and Thunder Bridge (see Table 1). No impacts to WOUS or wetlands will occur at the other river crossings. The bridge at Columbine Park will remain per USFS request. The pipeline and associated above ground structures will be removed from the Questa Mine to the Tailings Facility and to a CEMC designated recycling provider. Underground pipeline is to be grouted in place.

b. Purpose of the Proposed Activity:

**c. Direct and indirect adverse environmental effects the activity would cause, including the anticipated amount of loss of wetlands and other waters of the U.S. expected to result from the NWP(s) activity:**

The attached Aquatic Resource Inventory (Attachment 4) provides the context for determining the direct and indirect effects of the proposed pipeline removal on wetlands and waters of the U.S. (WOUS). Ordinary highwater mark for the Red River, and wetlands were delineated at all of the crossings and the Lower Dump Sump to calculate impacts of the proposed project. Direct and indirect impacts are shown in Table 2 and on Figures 2 through 7. The environmental benefits from the project are expected to outweigh the temporary impacts. Temporary impacts to WOUS and wetlands are expected to be minimal while removing the pipeline and associated structures, and are expected to last for approximately three weeks at both the Elevated Trestle and Thunder Bridge. No permanent loss of wetlands and WOUS will occur from the proposed activity. Both the Elevated Trestle and Thunder Bridge pipeline river crossings will require temporary earthen and bulk bag diversion structures and two 24-inch diversion HDPE pipelines to allow for the removal of the pipeline and associated structures (Figures 2 through 7, Attachment 1, and Attachment 4). The project will also require vehicle and foot traffic through wetlands and WOUS for access to remove the pipeline installed under bridge structures and to remove any unused bridge structures not needed for other purposes.

**d. Description of any proposed mitigation measures intended to reduce the adverse environmental effects caused by the proposed activity:**

**e. Any other NWP(s), Regional/Programmatic General Permit(s) or Individual Permit(s) used or intended to be used to authorize any part of the proposed activity or any related activity:**

**f. Have sketches been provided containing sufficient detail to provide an illustrative description of the proposed activity?**

\*(See attached Figures 2 through 7 and photographs in Appendix B of Attachment 4)

☐ Yes, Attached ☐ No

☐ N/A; The activity is located in the Los Angeles District boundaries of Arizona and California, See Attachment 1

☐ N/A; The activity is located in the San Francisco District boundaries of California, See Attachment 2

☐ N/A; The activity is located in the Sacramento District boundaries of California, Nevada, or Utah, See Attachment 3

**5. Aquatic Resource Delineation (see Instructions)**

**a. Has a delineation of aquatic resources been conducted in accordance with the current method required by the Corps?** ☐ Yes ☐ No \*see Attachment 4

If yes, please attach a copy of the delineation

Note: If no, your PCN is not complete. In accordance with General Condition 32, you may request the Corps delineate the special aquatic sites and other waters on the project site, but there may be a delay. In addition, the PCN will not be considered complete until the delineation has either been submitted to or completed by the Corps, as appropriate.

**b. If a delineation has been submitted, would you like the Corps to conduct a jurisdictional determination (preliminary or approved)?** ☐ Yes ☐ No

If yes, please complete, sign and return the attached *Appendix 1 – Request for Corps Jurisdictional Determination (JD)* sheet or provide a separate attachment with the information identified in Appendix 1.

## 6. Compensatory Mitigation (see Instructions)

a. Will the proposed activity result in the loss of greater than 1/10-acre of wetlands? ☐ Yes ☐ No

If yes, describe how you propose to compensate for the loss of each type of wetland: \*see Attachment 1

Note: for the loss of less than 1/10 acre of wetlands, or if no compensatory mitigation is proposed, the Corps may determine on a case-by-case basis that compensatory mitigation is required to ensure that the activity results in only minimal adverse environmental effects.

b. Will the proposed activity result in the loss of streams or other open waters of the U.S.? ☐ Yes ☐ No

If yes, provide a description of any proposed compensatory mitigation for the loss of each type of stream or other open water:

Note: if no compensatory mitigation is proposed, the Corps may determine on a case-by-case basis that compensatory mitigation is required to ensure that the activity results in no more than minimal adverse environmental effects.

## 7. Endangered Species Act (ESA) Compliance (see Instructions)

a. For non-Federal permittees (if Federal permittee, check N/A and skip to 7(d)): ☐ N/A

(1) Is there any Federally-listed endangered or threatened species or critical habitat that might be affected or is in the vicinity of the activity? ☐ Yes ☐ No

(2) Is the activity located in designated critical habitat for Federally-listed endangered or threatened species? ☐ Yes ☐ No

If yes to either (1) or (2), include the name(s) of those endangered or threatened species that might be affected by the proposed activity or might utilize the designated critical habitat that might be affected by the proposed activity:

1.

2.

3.

4.

5.

6.

\*see Attachment 4 for details

If no to both (1) and (2), proceed to Box 8.

Note: If yes to either (1) or (2), note per General Condition 18(c), you shall not begin work on the activity until notified by the Corps that the requirements of the ESA have been satisfied and that the activity is authorized.

**b. Has information sufficient to initiate consultation with the U.S. Fish and Wildlife Service/National Marine Fisheries Service for compliance with Section 7 of the ESA been prepared?** ☐ Yes ☐ No

\* see Attachment 4 for details

If yes, please attach a copy of the information.

**c. Additional information you wish to provide regarding compliance with the ESA, if applicable:**

**d. For Federal permittees, you must provide documentation demonstrating compliance with ESA as a separate attachment.**

## **8. Historic Properties (see Instructions)**

**a. For non-Federal permittees** (if Federal permittee, check N/A and skip to 8(d)): ☐ N/A

(1) Is there a known historic property listed on, determined to be eligible for listing on, or potentially eligible for listing on, the National Register of Historic Places that the NWP may have the potential to affect? ☐ Yes ☐ No

If yes to (1), state which historic property may have the potential to be affected by the proposed activity:

1.

2.

3.

4.

5.

6.

OR

☐ A vicinity map indicating the location of the historic property is enclosed \*see Appendix E of Attachment 4 for details

(2) If no to (1), describe the potential for the proposed work to affect a previously unidentified historic property:

Note: If yes to (1), note per General Condition 20(c), you shall not begin the activity until notified by the Corps that the activity has no potential to cause effects or that consultation under Section 106 of the National Historic Preservation Act (NHPA) has been completed.

**b. Has information sufficient to initiate consultation with the State Historic Preservation Officer/Tribal Preservation Officer for compliance with Section 106 of the National Historic Preservation Act (NHPA) been prepared?**

☐ Yes ☐ No \*see Appendix E of Attachment 4

If yes, please attach a copy of the information.

**c. Additional information you wish to provide regarding compliance with the NHPA, if applicable:**

**d. For Federal permittees, you must provide documentation demonstrating compliance with NHPA in a separate attachment.**

## 9. National Wild and Scenic Rivers (see Instructions)

**a. Will the proposed activity(s) occur in a component of the National Wild and Scenic River System or a river officially designated by Congress as a “Study River” for possible inclusion in the system while the river is in an official study status?**

☐ Yes, in a component of a National Wild and Scenic River System; ☐ Yes, in a “study” river ☐ No

If yes, identify the Wild and Scenic River or the “study river”

The Red River is a tributary to the Rio Grande. The Rio Grande and the lower reach of the Red River are designated as a wild and scenic river in New Mexico, administered by the BLM/USFS. The Elevated Trestle is approximately 2.5 miles upriver and Thunder Bridge approximately 6.65 miles upriver of the Red River Wild and Scenic River designation. The pipeline removal activities are not expected to impact the Wild and Scenic River area.

Note: per General Condition 16(b), you shall not begin the NWP activity until notified by the Corps that the Federal agency with direct management responsibility for that river has determined in writing that the proposed NWP activity will not adversely affect the Wild and Scenic River designation or study status. If you have received written notification from the Federal agency, please attach the correspondence.

## 10. Section 408 Permissions (see Instructions)

**a. Will the NWP also require permissions from the Corps pursuant to 33 U.S.C. 408 because it will alter or temporarily or permanently occupy or use a Corps federally authorized Civil Works project?** ☐ Yes ☐ No

If yes, have you received Section 408 permission to alter, occupy, or use the Corps project? ☐ Yes ☐ No

If yes, please attach the Section 408 permission

If yes, note per General Condition 31, an activity that requires Section 408 permission is not authorized by NWP until the Corps issues the Section 408 permission to alter, occupy, or use the Corps project, and the Corps issues a written NWP verification.

## 11. Compliance with NWP General Conditions (see Instructions)

Check	General Condition	Rationale for Compliance with General Condition
<input type="checkbox"/>	1. Navigation	
<input type="checkbox"/>	2. Aquatic Life Movements	Minimal impacts are anticipated. The project will result in a temporary barrier to movement up and down the stream by fish or other aquatic species during the construction. Approximately 100 linear feet of stream at both the Elevated Trestle and Thunder Bridge will be blocked off from movement during construction. During placement of the diversion, fish and aquatic species will be allowed to relocate up or downstream out of the diverted area. Following construction, fish and aquatic species will be able re-establish in the construction area (see Attachment 4).
<input type="checkbox"/>	3. Spawning Areas	No or very minimal impacts are anticipated. A number of game fish occur in the section of the Red River crossed by the pipeline including triploid (sterile) rainbow trout ( <i>Oncorhynchus mykiss</i> ) raised in a hatchery downstream of the project area and a wild, introduced brown trout ( <i>Salmo trutta</i> ) population. BMPs designed to control erosion would minimize sedimentation on any gravel beds used by spawning fish. No fish spawning areas were observed at the pipeline crossing of the Red River (see Attachment 4).
<input type="checkbox"/>	4. Migratory Bird Breeding Areas	No or very minimal impacts are anticipated. Habitat for nesting birds is present along the pipeline route, especially in wooded areas. No trees will be removed during project activities, which will minimize direct impacts to breeding birds. Any occupied bird nests discovered in shrubs, on the ground, or on human made structures will be avoided during project activities. No raptor nests were observed in the area, during the aquatic resources survey. Two migratory bird nests were found, but, they were unoccupied. No direct impacts to breeding birds is expected (see Attachment 4)
<input type="checkbox"/>	5. Shellfish Beds	No or very minimal impacts are anticipated. BMPs designed to control erosion would minimize sedimentation and any adverse effects on shellfish. The Sangre de Cristo peacocks, a New Mexico Game and Fish threatened species, is only found in Middle Fork Lake in Taos County, which is over 7 miles to the south of the project area near Taos Ski Valley (BISON-M 2017).
<input type="checkbox"/>	6. Suitable Material	The project is a pipeline removal/grout-in-place and restoration project. The project is designed to have a zero cut/fill balance. The project is being completed under EPA- and MMD-approval of stage-specific work plans and engineering design drawings.



<input type="checkbox"/>	7. Water Supply Intakes	
<input type="checkbox"/>	8. Adverse Effects from Impoundments	
<input type="checkbox"/>	9. Management of Water Flows	
<input type="checkbox"/>	10. Fills Within 100-Year Floodplains	
<input type="checkbox"/>	11. Equipment	
<input type="checkbox"/>	12. Soil Erosion and Sediment Controls	

<input type="checkbox"/>	13. Removal of Temporary Fills	
<input type="checkbox"/>	14. Proper Maintenance	
<input type="checkbox"/>	15. Single and Complete Project	
<input type="checkbox"/>	16. Wild and Scenic Rivers	
<input type="checkbox"/>	17. Tribal Rights	
<input type="checkbox"/>	18. Endangered Species	See Box 7 above.
<input type="checkbox"/>	19. Migratory Bird and Bald and Golden Eagle Permits	

<input type="checkbox"/>	20. Historic Properties	See Box 8 above. *See Appendix E in Attachment 4.
<input type="checkbox"/>	21. Discovery of Previously Unknown Remains and Artifacts	
<input type="checkbox"/>	22. Designated Critical Resource Waters	
<input type="checkbox"/>	23. Mitigation	See Boxes 4(d) and 6 above
<input type="checkbox"/>	24. Safety of Impoundment Structures	
<input type="checkbox"/>	25. Water Quality, including status of Section 401 Water Quality Certification	
<input type="checkbox"/>	26. Coastal Zone Management, including status of CZM Consistency Certification from the State of California (for projects in or affecting the Coastal Zone)	

<input type="checkbox"/>	27. Regional and Case-by-Case Conditions	
<input type="checkbox"/>	28. Use of Multiple Nationwide Permits	
<input type="checkbox"/>	29. Transfer of Nationwide Permit Verifications	
<input type="checkbox"/>	30. Compliance Certification	
<input type="checkbox"/>	31. Activities Affecting Structures or Works Built by the United States	See Box 10 above. Not applicable.
<input type="checkbox"/>	32. Pre-Construction Notification	

## TABLES

TABLE 1. U.S. ARMY CORPS OF ENGINEERS PRECONSTRUCTION NOTIFICATION  
QUESTA TAILINGS PIPELINE REMOVAL  
CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY, QUESTA MINE  
JANUARY 2019

Pipeline Section Name (From Mill Area to Tailings Facility)	Description	Watershed	USGS Watershed Code	Waterbody Name at Crossing	Downstream Tributary	Latitude	Longitude	Expected Impacts
1st Red River Crossing (By Columbine Park)	Red River at confluence with Columbine Creek (tributary)	Upper Rio Grande	13020101	Red River	Red River	36°40'53.33"N	105°30'53.97"W	None
2nd Red River Crossing (Thunder Bridge Crossing)	Red River crossing	Upper Rio Grande	13020101	Red River	Rio Grande	36°41'4.29"N	105°31'47.83"W	Temporary diversion structure and pipeline Vehicle and Foot Traffic
3rd Red River Crossing (East of Ranger Station)	Red River crossing	Upper Rio Grande	13020101	Red River	Rio Grande	36°42'6.96"N	105°33'47.96"W	None
Elevated Trestle Red River Crossing	Red River crossing	Upper Rio Grande	13020101	Red River	Rio Grande	36°41'41.97"N	105°35'45.20"W	Temporary diversion structure and pipeline Vehicle and Foot Traffic

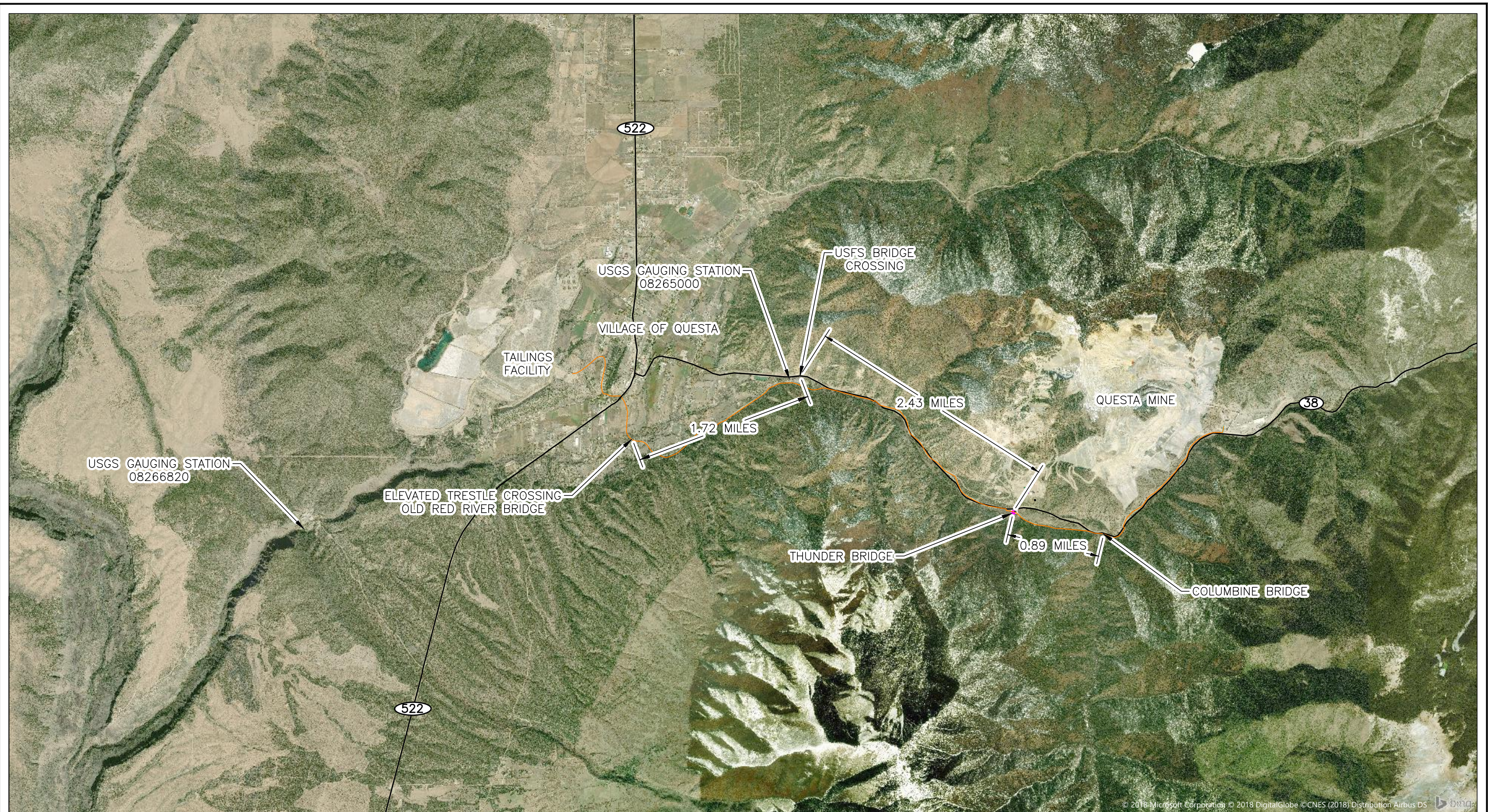
**TABLE 2. U.S. ARMY CORPS OF ENGINEERS PRECONSTRUCTION NOTIFICATION  
QUESTA TAILINGS PIPELINE REMOVAL  
CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY, QUESTA MINE  
DECEMBER 2018**

Description	Temporary Impact to Wetlands	Temporary Impact to Waters of the U.S. (WOUS)
	Area (acres)	Area (acres)
1st Red River Crossing (By Columbine Park)	0	0
2nd Red River Crossing (Thunder Bridge Crossing)	0.067	0.054
3rd Red River Crossing (East of Ranger Station)	0	0
Elevated Trestle Red River Crossing	0.104	0.083
<b>Total</b>	<b>0.171</b>	<b>0.137</b>

## FIGURES



\\TRIHYRO.COM\CLIENTS\CHEVRON\CEMC\_MINING\QUESTA\MINE\PIPELINE\CADD\REGULATORY\USACE\_PERMIT\SPILT\_PONS\476-QM\_OVERVIEW\_201812



#### EXPLANATION

- TAILINGS PIPELINE ALIGNMENT
- AREA ROADS



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#### FIGURE 1

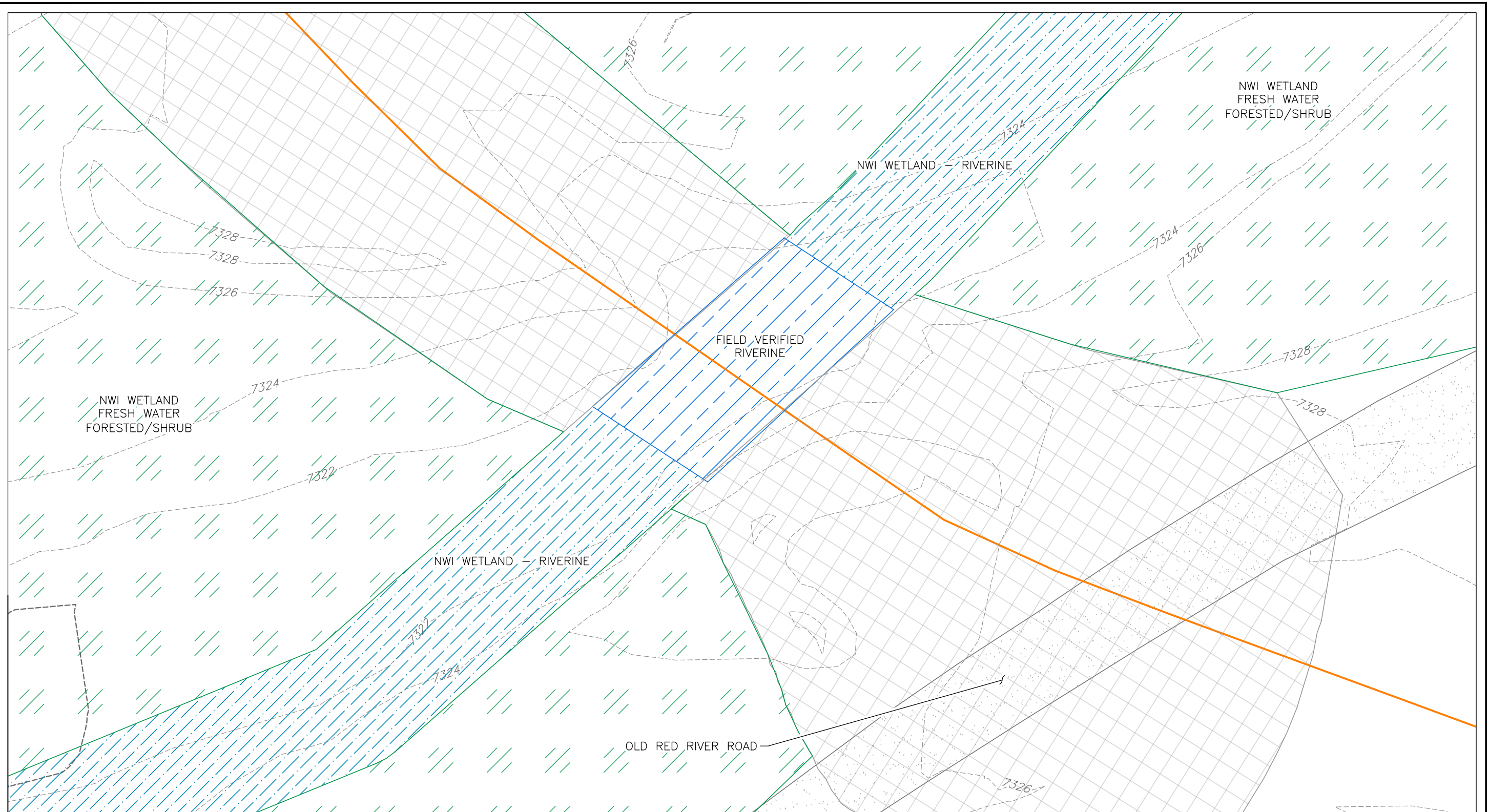
#### RED RIVER TEMPORARY DIVERSIONS OVERVIEW

#### PRE-CONSTRUCTION NOTIFICATION CEMC QUESTA MINE QUESTA, NEW MEXICO

Drawn By: DF    Checked By: TH    Scale: 1" = 5,000'    Date: 12/17/18    File: 476-QM\_OVERVIEW\_201812



\\TRIHYDRO.COM\CLIENTS\CHEVRON\CEMC\MINING\QUESTA\MINE\PIPELINE\CADD\REGULATORY\USAGE\_PERMIT\SPILT\_PONS\476-QM\_ELETRESTLE\_NWI\_201812

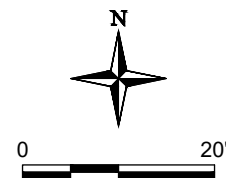


#### EXPLANATION

	NWI - RIVERINE (WOUS)
	NWI WETLAND - FRESH WATER FORESTED/SHRUB
	FIELD-VERIFIED RIVERINE (WOUS)
	TAILINGS PIPELINE ALIGNMENT
	FIELD-VERIFIED NON-WETLAND
	SURFACE CONTOUR

#### NOTE:

1. PIPELINE BEING REMOVED INCLUDES TWO 14" DIA. STEEL PIPES.
2. AREAS WITHIN THE FIELD VERIFIED AND NWI RIVERINE BOUNDARY WILL BE CONSIDERED AS WATERS OF THE US (WOUS) (HIGH WATER BOUNDARY).

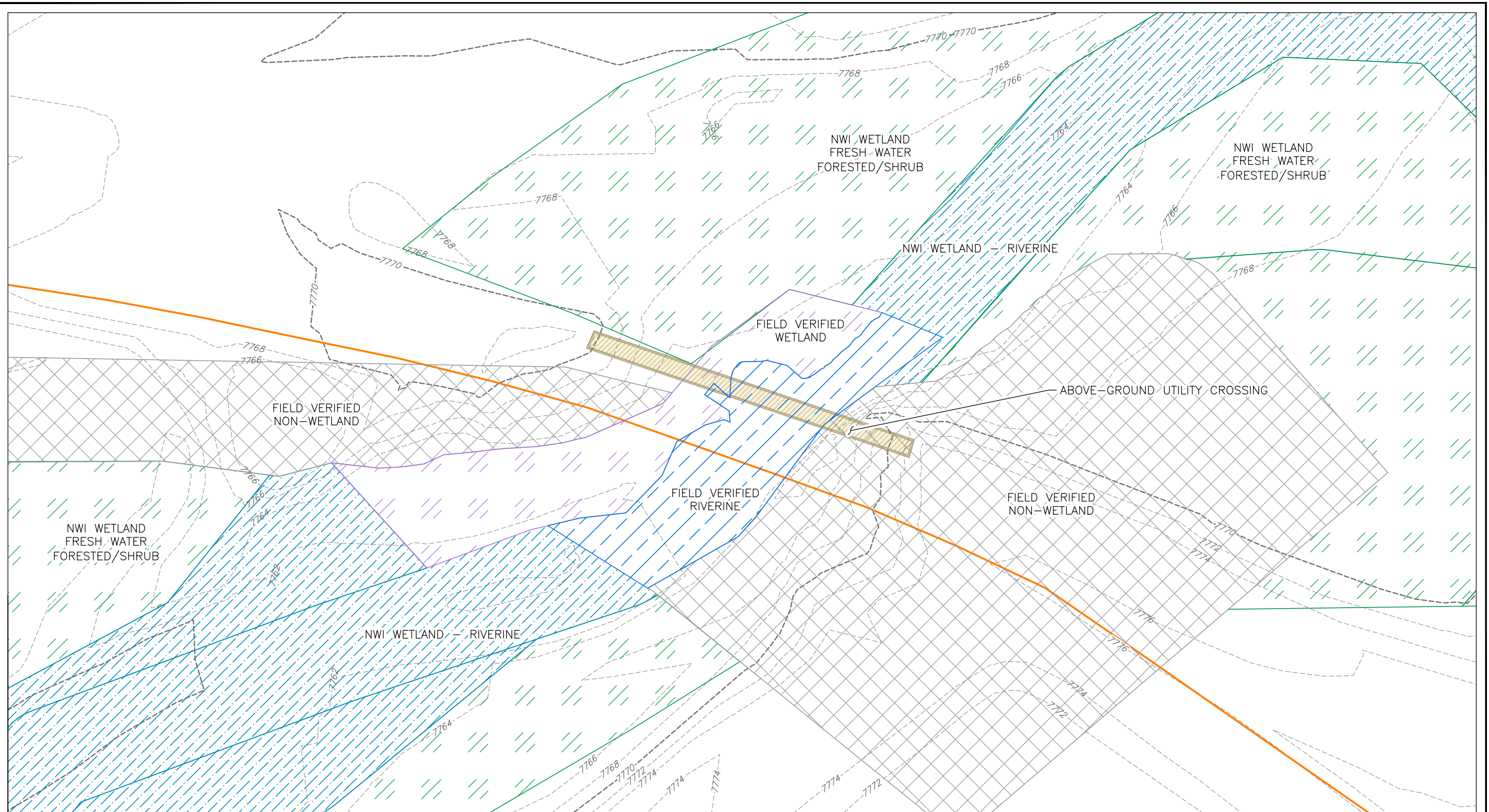


Drawn By: DF    Checked By: TH    Scale: 1" = 20'    Date: 12/18/18    File: 476-QM\_ELETRESTLE\_NWI\_201812

#### FIGURE 2

**WETLANDS AND WOUS AT  
ELEVATED TRESTLE / OLD RED RIVER  
BRIDGE CROSSING  
PRE-CONSTRUCTION NOTIFICATION  
CEMC QUESTA MINE  
QUESTA, NEW MEXICO**

\\TRIHYRO.COM\CLIENTS\CHEVRON\CEMC\_MINING\QUESTA\MINE\PIPELINE\CADD\REGULATORY\USAGE\_PERMIT\SPILT\_PONS\476-QM-TB\_201812



**EXPLANATION**

- |  |  |
|--|--|
|  | NWI - RIVERINE (WOUS)                    |
|  | NWI WETLAND - FRESH WATER FORESTED/SHRUB |
|  | FIELD-VERIFIED RIVERINE (WOUS)           |
|  | FIELD-VERIFIED WETLAND                   |
|  | FIELD-VERIFIED NON-WETLAND               |
|  | TAILINGS PIPELINE                        |
|  | SURFACE CONTOUR                          |

**NOTE:**

1. PIPELINE BEING REMOVED INCLUDES TWO 14" DIA. STEEL PIPES.
2. AREAS WITHIN THE FIELD VERIFIED AND NWI RIVERINE BOUNDARY WILL BE CONSIDERED AS WATERS OF THE US (WOUS) (HIGH WATER BOUNDARY).



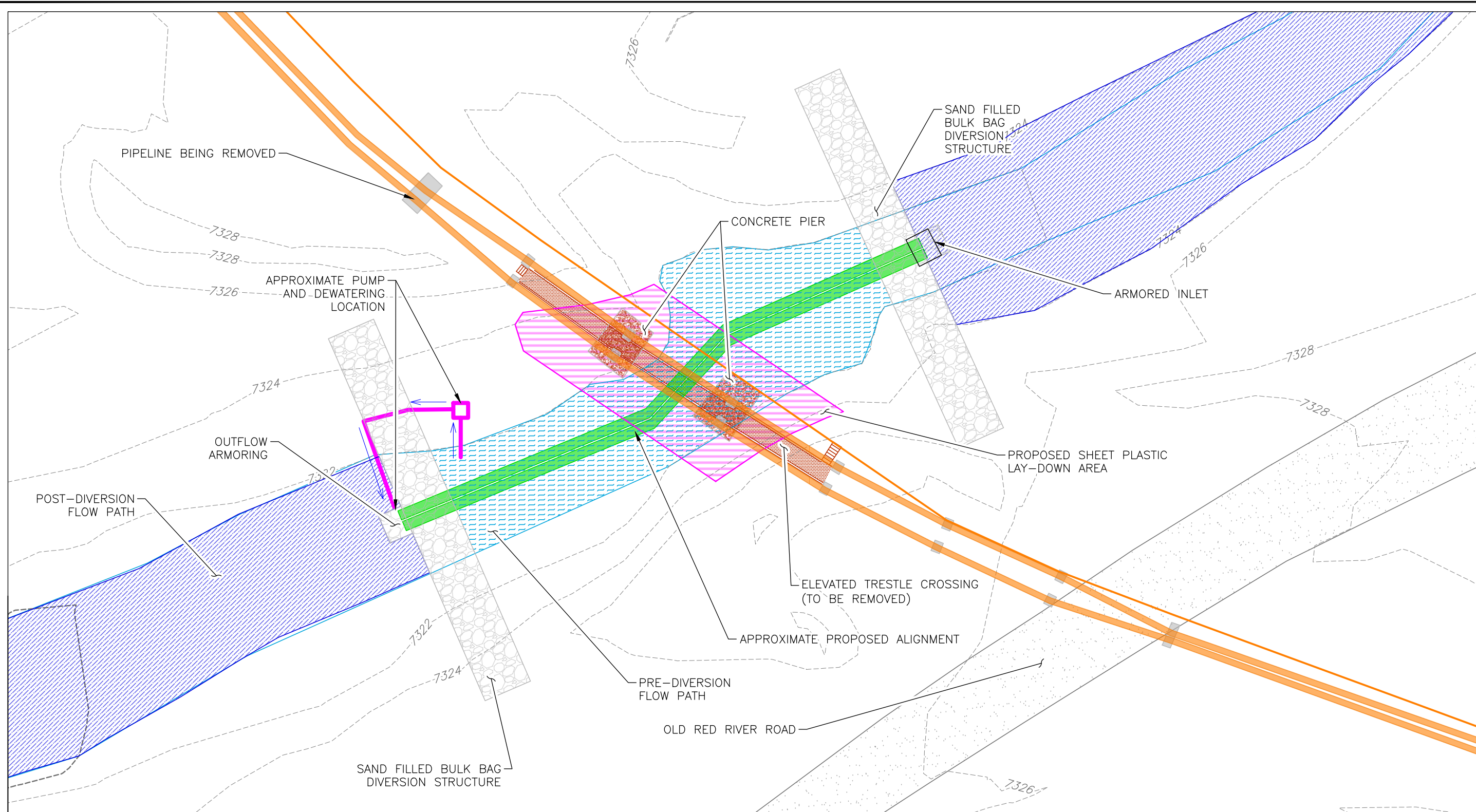


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FIGURE 3			
WETLANDS AND WOUS AT THUNDER BRIDGE CROSSING			
PRE-CONSTRUCTION NOTIFICATION			
CEMC QUESTA MINE			
QUESTA, NEW MEXICO			
Drawn By: DF	Checked By: TH	Scale: 1" = 25'	Date: 12/18/18
File: 476-QM-TB_201812			



\\TRIHYDRO.COM\CLIENTS\CHEVRON\CEMC\MINING\QUESTAMINE\PIPELINE\CADD\REGULATORY\USAGE\_PERMIT\PREVIOUS\SPILT\_PONS\476-QM\_ELERESTLE\_NWI\_201812



**EXPLANATION**

	24" HDPE DIVERSION PIPE		PROPOSED SHEET PLASTIC LAY-DOWN AREA (SECONDARY CONTAINMENT)
	QUARRY SPALL		SURFACE CONTOUR
	ESTIMATED TEMPORARY STREAM FLOWPATH (HY-8)		
	STREAM FLOWPATH BEFORE DAM PLACEMENT		
	WALKWAY		
	PIPELINE BEING REMOVED		

**NOTE:**

1. PIPELINE BEING REMOVED INCLUDES TWO 14" DIA. STEEL PIPES AND ONE 14" DIA. WRAPPED PIPE.



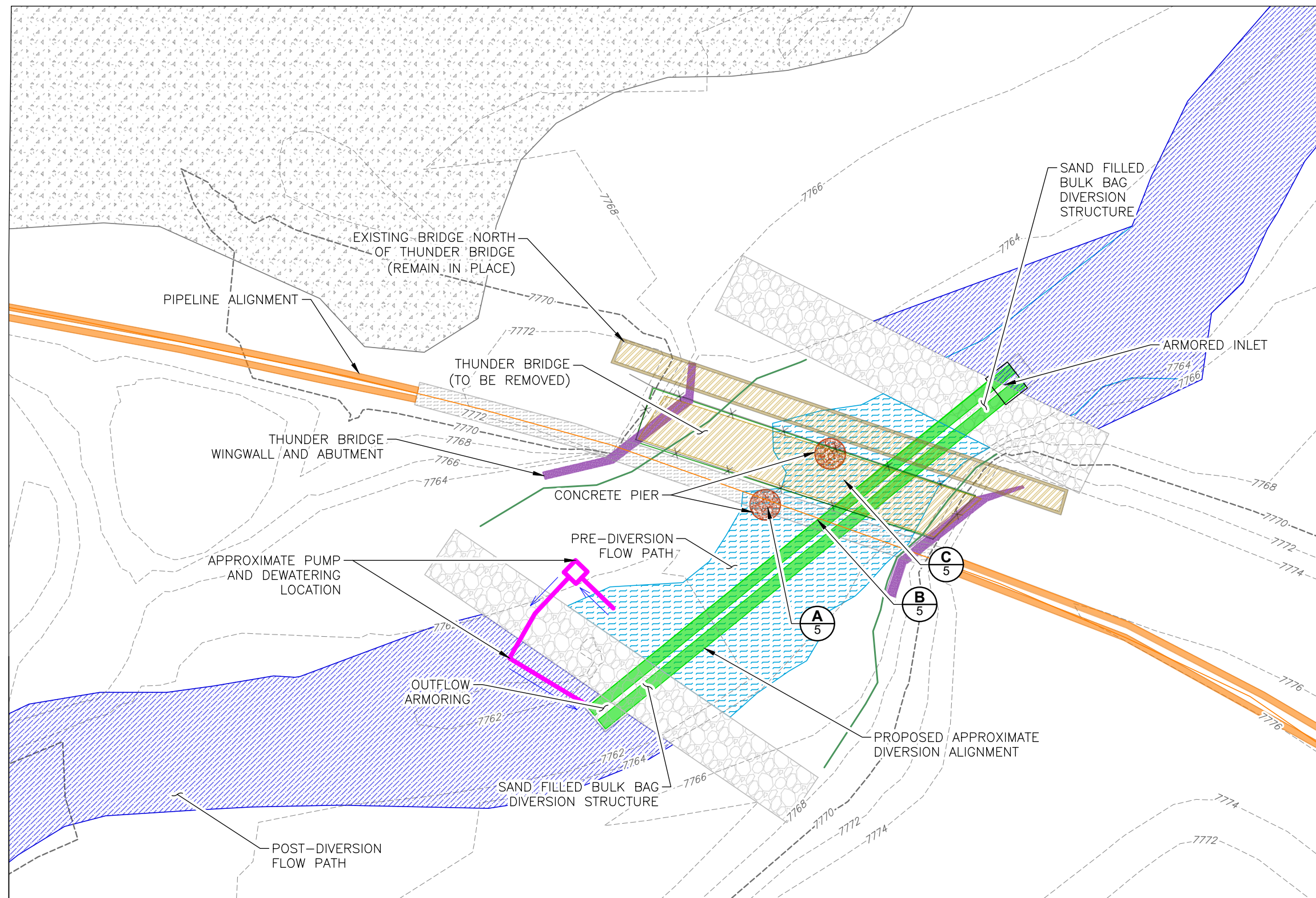
**FIGURE 4**

**RED RIVER TEMPORARY DIVERSION  
ELEVATED TRESTLE  
BRIDGE CROSSING  
PRE-CONSTRUCTION NOTIFICATION  
CEMC QUESTA MINE  
QUESTA, NEW MEXICO**

Drawn By: DF    Checked By: TH    Scale: 1" = 20'    Date: 12/18/18    File: 476-QM\_ELERESTLE\_NWI\_201812



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**EXPLANATION**

- STRAW WATTLE
- 24" HDPE DIVERSION PIPE
- QUARRY SPALL
- ESTIMATED TEMPORARY STREAM FLOWPATH (HY-8)
- STREAM FLOWPATH BEFORE DAM PLACEMENT
- PIPELINE BEING REMOVED
- NM 38 TURN-OUT
- SURFACE CONTOUR

**NOTES:**

1. PIPELINE BEING REMOVED INCLUDES TWO 14" DIA. STEEL PIPES, BRIDGE STRUCTURE, PIERS, AND ABUTMENTS.
2. UTILITY CROSSING BRIDGE SHALL STAY IN PLACE.





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FIGURE 5			
RED RIVER TEMPORARY DIVERSION THUNDER BRIDGE			
PRE-CONSTRUCTION NOTIFICATION CEMC QUESTA MINE QUESTA, NEW MEXICO			
Drawn By: DF	Checked By: TH	Scale: 1" = 20'	Date: 12/17/18
File: 476-QM_OVERVIEW_201812			



Image Citation: Trihydro Corporation Field Photos, January 2017

**A** CONDITION OF THUNDER BRIDGE



Image Citation: Trihydro Corporation Field Photos, January 2017

**B** CONDITION OF THUNDER BRIDGE

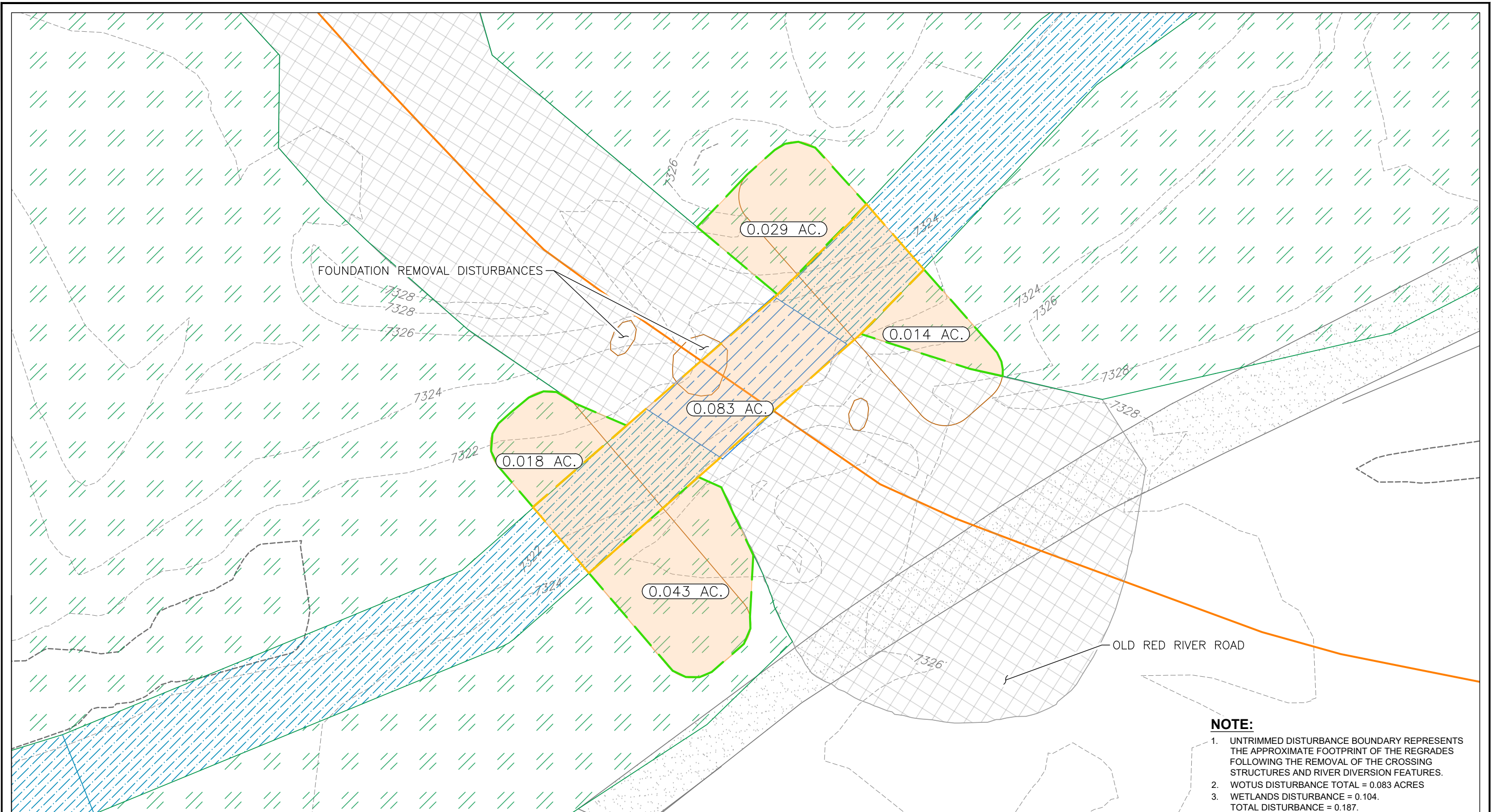


Image Citation: Trihydro Corporation Field Photos, January 2017

**C** CONDITION OF THUNDER BRIDGE



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EXPLANATION			
	NWI - RIVERINE		JURISDICTIONAL DISTURBANCE AREA
	NWI WETLAND - FRESH WATER FORESTED/SHRUB		DISTURBANCE BOUNDARY
	FIELD-VERIFIED RIVERINE		SURFACE CONTOUR
	TAILINGS PIPELINE ALIGNMENT		
	FIELD-VERIFIED NON-WETLAND		
	WOTUS DISTURBANCE BOUNDARY		
	WETLAND DISTURBANCE BOUNDARY		

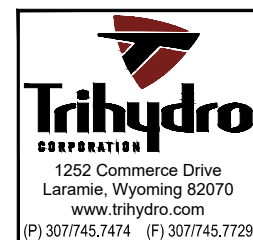
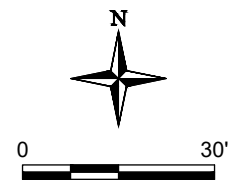
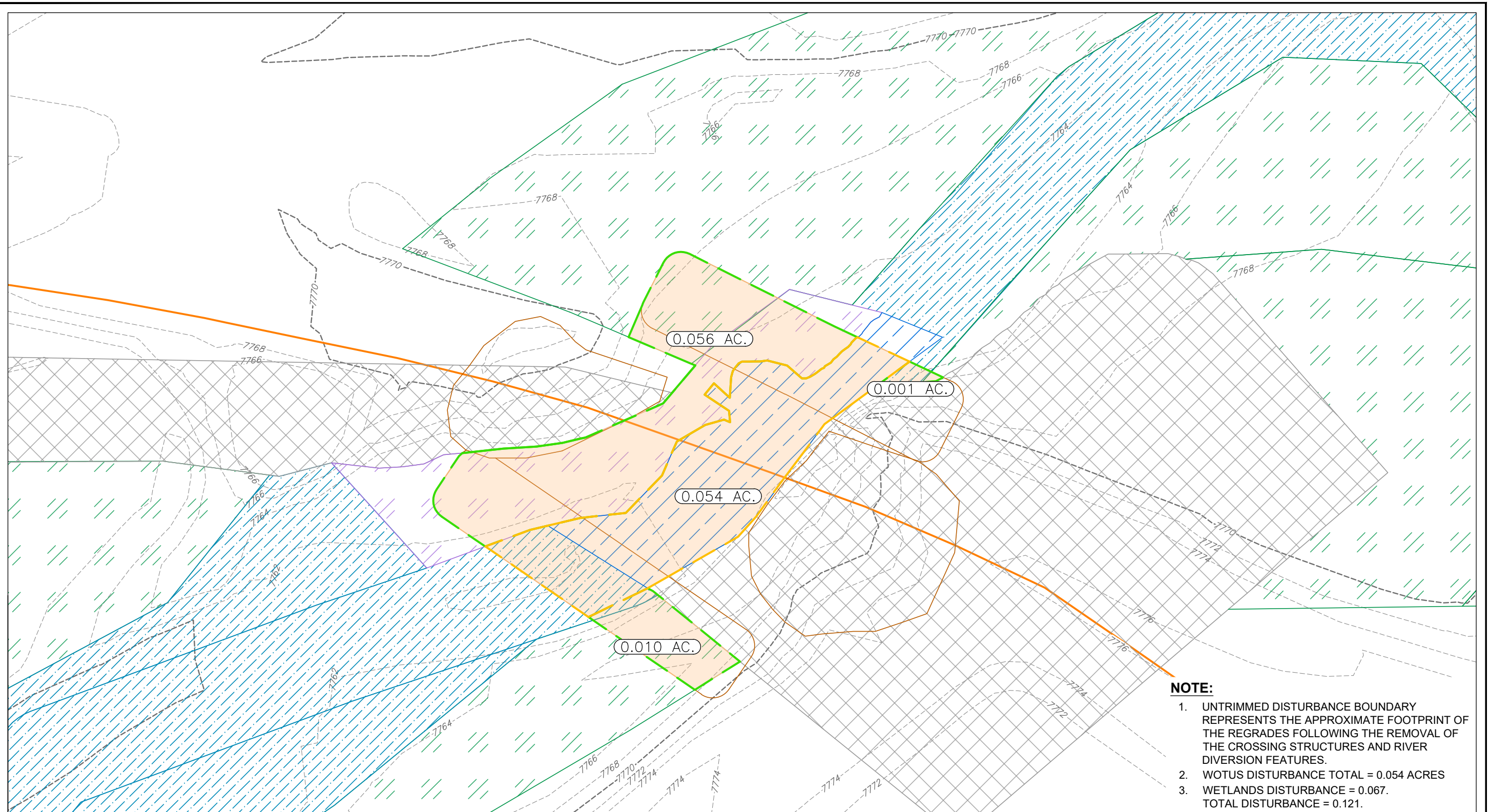


FIGURE 6 PROPOSED TEMPORARY IMPACTS TO WETLANDS AND WOUS ELEVATED TRESTLE BRIDGE CROSSING				
PRE-CONSTRUCTION NOTIFICATION CEMC QUESTA MINE QUESTA, NEW MEXICO				
Drawn By: DF	Checked By: TH	Scale: 1" = 30'	Date: 12/18/18	File: 476-QM_ELETRESTLE_NWI_201812

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- NOTE:**
1. UNTRIMMED DISTURBANCE BOUNDARY REPRESENTS THE APPROXIMATE FOOTPRINT OF THE REGRADES FOLLOWING THE REMOVAL OF THE CROSSING STRUCTURES AND RIVER DIVERSION FEATURES.
  2. WOTUS DISTURBANCE TOTAL = 0.054 ACRES
  3. WETLANDS DISTURBANCE = 0.067. TOTAL DISTURBANCE = 0.121.

EXPLANATION			
	NWI - RIVERINE (WOUS)		JURISDICTIONAL DISTURBANCE AREA
	NWI WETLAND - FRESH WATER FORESTED/SHRUB		DISTURBANCE BOUNDARY
	FIELD-VERIFIED RIVERINE (WOUS)		FIELD-VERIFIED NON-WETLAND
	FIELD-VERIFIED WETLAND		TAILINGS PIPELINE
	WOTUS DISTURBANCE BOUNDARY		SURFACE CONTOUR
	WETLAND DISTURBANCE BOUNDARY		



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**FIGURE 7**  
**PROPOSED TEMPORARY IMPACTS TO WETLANDS AND WOUS**  
**THUNDER BRIDGE CROSSING**  
**PRE-CONSTRUCTION NOTIFICATION**  
**CEMC QUESTA MINE**  
**QUESTA, NEW MEXICO**

Drawn By: DF	Checked By: TH	Scale: 1" = 25'	Date: 12/18/18	File: 476-QM-TB_201812
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**ATTACHMENT 1**





## technical memorandum

**To:** Ms. Cynthia Murray Gulde and Mr. Gabriel Herrera,  
CEMC

**From:** Mr. Tyrel Hulet, P.E., Trihydro Corporation

**cc:** File

**Date:** January 14, 2018

**Re:** U.S. Army Corps of Engineers (Corps)  
Pre-construction Notification (PCN) Attachment 1 –  
Questa Pipeline Removal Stage 3-7 Red River  
Diversions Design and Execution

---

Trihydro Corporation (Trihydro) prepared this technical memorandum to summarize recommendations for constructing temporary stream diversions during the removal of a decommissioned tailings pipeline (pipeline) between Questa Mine (Mine) Mill Area and Tailings Facility. The tailings pipeline parallels the Red River for approximately half of the 8.5-mile pipeline length, crossing the Red River at four locations. Stream diversions will be required at two locations (Figure 1); one at the Thunder Bridge (Figure 2) near Highway 38 between Questa, NM and the Mine and one for the Elevated Trestle Crossing/Old Red River Bridge (Figure 3) south of Questa. Entact, LLC has been awarded the decommissioning project, and will perform the stream diversion. As with the greater decommissioning project, Chevron Environmental Management Company (CEMC) will oversee the stream diversion work, ensuring the project is completed in general accordance with the designs and specifications as well as applicable regulations.

The stream diversion design constraints were primarily derived from the United States Army Corps of Engineers (Corps) Nationwide Permit (NWP) 12 General Conditions.

NWP-12 General Conditions (General Condition 9) require diversions be constructed to withstand expected high flows without restricting or impeding flows, and while maintaining benefits to the aquatic environment. In order to fulfill the NWP requirements, Trihydro compiled historic flow data for the Red River using United States Geologic Service (USGS) stream gauging stations located at two points downstream of the proposed diversion locations (Figure 1). The stream gauging stations maintained by the USGS are located sufficiently close to the project areas that either location may have been used as a basis for establishing expected high flows. To estimate flow averages and peaks, Trihydro used averaged flow data between USGS gauging stations 0826500 and 08266820 for the Elevated Trestle Crossing, and used the flow data from downstream USGS station 0826500 for the Thunder Bridge crossing. Trihydro believes using the stream data in this manner serves as a conservative assumption for the flow averages and peaks. USGS monthly flow data for both stations were available from 2000 to 2016. Monthly flow data for the USGS station 08265000 are included in Table 1; those for the USGS station 08266820 are included in Table 2.



Based on prior experience shared by Trihydro and Entact, a diversion plan was selected where protected berms at each diversion location will temporarily convey flow through two high density polyethylene (HDPE) conveyance pipes. Berms will be constructed using 42"x42"x48" sacks (Super Sacs) of sand. The sand sack structure will be wrapped with an impermeable barrier consisting of pre-welded, textured HDPE panels. The diversion structure will be armored with quarry spalls/riprap or other suitable materials conforming to NWP-12 General Condition 6. The conveyance pipes shall be approximately 100 feet for the Thunder Bridge Crossing and 200 feet for the Elevated Trestle Crossing, to allow for a suitable boundary to be maintained in the river on either side of the planned work areas. The diversion pipe outflows will be secured with a constructed berm that is similar to the upstream berm. Figures 2 through 4 details the proposed diversions including plan views of the structures and standard construction details. Streambanks near the diversion areas will be protected with erosion control features (e.g. straw wattles) while the pipeline and associated structures are decommissioned. Erosion controls conforming to NWP-12 General Condition 12 will remain in place until post-removal grading has been completed, and the areas have been re-vegetated.

The two diversion conveyance pipes at each diversion site were sized to accommodate flow as described in the NWP. In the event of a high-flow discharge while the diversion is in place, water will accumulate behind the upstream diversion driving discharge through the conveyance pipes as the head from the upstream surface increases. Table 3 and Table 4 summarize the upstream high-water depths for three sizes of conveyance pipe: 18-inch, 24-inch, and 30-inch. The water surface elevations were calculated using the Federal Highway Administration's (FHA) HY-8 modeling software. The model outputs suggest a conveyance system using two, 24-inch HDPE pipes will provide adequate relief to prevent excessive headwater height during the low-flow months of August through March. Between April and July, peak flows may cause overtopping of the diversion dams. The features will be constructed to withstand overtopping if the peak flows occur, but construction will be planned during the low flow months as described in the NWP-12 General Conditions. The following caveats will be taken into consideration to more safely manage the diversion project:

At Thunder Bridge:

- The 24-inch configuration will provide sufficient diversion structure height for maximum flow conditions between October and March with the single tier of Super Sacs.
- Overtopping may occur between April and September if peak flow conditions develop.
- Quarry spalls will cap the single tier of Super Sacs to allow for controlled overtopping.

At the Elevated Trestle Crossing:

- The 24-inch configuration will provide sufficient diversion structure height for average flow conditions between August and March with the single tier of Super Sacs; but not for maximum flows.
- Maximum flows during these months may result in overtopping.



Ms. Cynthia Murray Gulde and Mr. Gabriel Herrera

January 14, 2018

Page 3

- Average and maximum flows between April and July may result in overtopping.
- Quarry spalls will cap the single tier of Super Sacs to allow for controlled overtopping.

Additional information originating from the 24-inch pipe HY-8 model is included in Attachment A.

Following decommissioning of the tailings pipeline and associated structures, the area will be restored to the pre-diversion state.

476-027-002

## TABLES

**TABLE 1. TAOS COUNTY, NEW MEXICO**  
**HYDROLOGIC UNIT CODE 13020101**  
**LATITUDE 36°42'11.92", LONGITUDE 105°34'06.35" NAD83**  
**DRAINAGE AREA 113 SQUARE MILES**  
**CONTRIBUTING DRAINAGE AREA 113 SQUARE MILES**  
**GAGE DATUM 7,451.92 FEET ABOVE NGVD29**

<b>USGS 08265000 RED RIVER NEAR QUESTA, NM</b>												
<b>00060, Discharge, cubic feet per second,</b>												
<b>Monthly mean in ft<sup>3</sup>/s (Calculation Period: 2000-01-01 -&gt; 2016-09-30)</b>												
	<b>Jan</b>	<b>Feb</b>	<b>Mar</b>	<b>Apr</b>	<b>May</b>	<b>Jun</b>	<b>Jul</b>	<b>Aug</b>	<b>Sep</b>	<b>Oct</b>	<b>Nov</b>	<b>Dec</b>
<b>2000</b>	12.4	13.5	16	28.6	37.9	22.4	13.3	16.5	11.2	13.4	8.66	4.85
<b>2001</b>	8.87	10.5	11.2	39.9	151.9	102	44.3	38.2	25.7	14.9	10.9	9.98
<b>2002</b>	10.4	10.5	10	12	9.61	7.03	8.47	5.64	12.9	12.5	9.75	4.9
<b>2003</b>	5.35	6.87	12	30.7	80.7	70.2	26.6	17.5	28.3	17.5	11.8	6.52
<b>2004</b>	6.6	7.93	15.7	35.3	95.7	51.7	27.8	17.1	18.9	20.9	13.5	7.47
<b>2005</b>	13	13.8	14.3	79.7	255.5	215	74.5	42.6	28	30.7	18.5	11.5
<b>2006</b>	12.6	11.6	11.7	24	35.4	24.5	21.3	25.2	22.8	23.4	16.8	7.92
<b>2007</b>	12.9	11.2	23	46.2	109.8	99.5	48.5	38	32.9	27.5	15.6	19.3
<b>2008</b>	19	19.6	30.9	78.1	162	236.8	107.2	60	42.3	29.9	22	18.2
<b>2009</b>	20.9	22.5	32.7	65.4	231.9	144.1	70.8	37.6	32.4	23.7	18.8	15.3
<b>2010</b>	17.1	16.2	17.6	63.5	152.3	150.5	53.8	37.6	24	18.8	14.3	14.3
<b>2011</b>	11.7	13.2	15.8	18.3	34	52.7	24.7	15.6	17.5	13.6	13.2	11
<b>2012</b>	11.3	11.2	20.5	69	85.7	46.4	24.8	18	14.8	13	10.5	10.6
<b>2013</b>	9.69	11.9	13.4	25.7	47.1	33.7	21.9	16.1	27.2	19.7	16.1	10.6
<b>2014</b>	12	11.1	12.8	34.4	73.4	83.3	35.1	29.4	19.1	18.4	14.9	12.6
<b>2015</b>	12.3	11.5		52.7	122.6	198.1	87.5	47	27.1		20.9	17.6
<b>2016</b>	16.3	17.7	23.5	50.3	127.2	135	52	31.8	22.6			
<b>AVG.</b>	<b>12.49</b>	<b>12.99</b>	<b>17.57</b>	<b>44.34</b>	<b>106.63</b>	<b>98.41</b>	<b>43.68</b>	<b>29.05</b>	<b>23.98</b>	<b>19.86</b>	<b>14.76</b>	<b>11.42</b>
<b>MAX</b>	<b>20.90</b>	<b>22.50</b>	<b>32.70</b>	<b>79.70</b>	<b>255.50</b>	<b>236.80</b>	<b>107.20</b>	<b>60.00</b>	<b>42.30</b>	<b>30.70</b>	<b>22.00</b>	<b>19.30</b>

**TABLE 2. TAOS COUNTY, NEW MEXICO**  
**HYDROLOGIC UNIT CODE 13020101**  
**LATITUDE 36°40'58.22", LONGITUDE 105°39'14.84" NAD83**  
**DRAINAGE AREA 185 SQUARE MILES**  
**CONTRIBUTING DRAINAGE AREA 185 SQUARE MILES**  
**GAGE DATUM 7,105 FEET ABOVE NGVD29**

<b>USGS 08266820 RED RIVER BELOW FISH HATCHERY, NEAR QUESTA, NM</b>												
<b>00060, Discharge, cubic feet per second, Monthly mean in ft3/s (Calculation Period: 2000-01-01 -&gt; 2016-11-30)</b>												
	<b>Jan</b>	<b>Feb</b>	<b>Mar</b>	<b>Apr</b>	<b>May</b>	<b>Jun</b>	<b>Jul</b>	<b>Aug</b>	<b>Sep</b>	<b>Oct</b>	<b>Nov</b>	<b>Dec</b>
<b>2000</b>	39.9	39.2	40.5	52.8	59	49	38.2	38.9	32.3	41.6	34	33.5
<b>2001</b>	32.3	37.8	38.5	67.3	176.6	120.8	64.1	58.7	46.7	40.2	37.1	37.2
<b>2002</b>	40.4	40.1	35.7	32.8	27	27.4	29.3	25.1	34.4	32.3	33.1	29.3
<b>2003</b>	30.8	30.9	34.6	52.5	98.7	87.4	46.7	43.2	57	39.4	38.1	39.9
<b>2004</b>	31.7	30.8	42.8	61.7	110.3	66.9	44.2	34.3	38.3	40.1	34.1	30.3
<b>2005</b>	35.2	37.1	38.3	106	280.7	252.7	101.6	71.2	50.6	58.4	50.5	43.5
<b>2006</b>	42.3	37.2	38.3	47	57.3	46	42.5	47.5	46.8	50.3	43.3	36.6
<b>2007</b>	40.2	41.8	52.1	73.6	162.5	136.3	81.8	70.5	63.8	57.7	39.9	55.1
<b>2008</b>	49.1	47.1	65.6	118.7	239.2	285.8	137.7	91.8	73.5	63	53.3	44.9
<b>2009</b>	47.2	49.8	62.5	101.4	285.3	181.7	88.7	56.9	55.8	55.8	52.5	44.1
<b>2010</b>	46	45.9	46.4	98	180.8	169.1	85.2	77.4	50.7	46.3	42.9	42.1
<b>2011</b>	38.2	38.9	38.8	35.9	52.8	85.8	46.3	39.2	43.1	47.4	46.8	39.8
<b>2012</b>	39	35.9	43.7	103.9	108.4	61.1	48.2	38.6	35.2	33	32.2	32.7
<b>2013</b>	27.5	32.9	34.6	46.3	63.1	54.6	46.8	45.9	59.7	52.3	48.3	41.7
<b>2014</b>	34.5	32.9	33.6	56.5	111.6	138.9	57.5	55.6	43.7	49.1	40.1	38.8
<b>2015</b>	38.5	36	53.1	86.3	160.7	232.7	111.5	72.2	54.2	50.4	50.3	45.5
<b>2016</b>	43.4	45.1	50.7	70.8	158.6	161.7	77	59	48.6	46	45.8	
<b>AVG.</b>	<b>38.60</b>	<b>38.79</b>	<b>44.11</b>	<b>71.26</b>	<b>137.21</b>	<b>126.94</b>	<b>67.49</b>	<b>54.47</b>	<b>49.08</b>	<b>47.25</b>	<b>42.49</b>	<b>39.69</b>
<b>MAX</b>	<b>49.10</b>	<b>49.80</b>	<b>65.60</b>	<b>118.70</b>	<b>285.30</b>	<b>285.80</b>	<b>137.70</b>	<b>91.80</b>	<b>73.50</b>	<b>63.00</b>	<b>53.30</b>	<b>55.10</b>

**TABLE 3. ELEVATED TRESTLE CROSSING  
QUESTA MINE RED RIVER DIVERSIONS**

USGS 08266820 RED RIVER BELOW FISH HATCHERY, NEAR QUESTA, NM												
00060, Discharge, cubic feet per second, Monthly mean in ft3/s (Calculation Period: 2000-01-01 -> 2016-11-30)												
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
AVG.	38.60	38.79	44.11	71.26	137.21	126.94	67.49	54.47	49.08	47.25	42.49	39.69
MAX	49.10	49.80	65.60	118.70	285.30	285.80	137.70	91.80	73.50	63.00	53.30	55.10
AVERAGE OF 08265000 & 08266820												
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
AVG.	25.55	25.89	30.84	57.80	121.92	112.67	55.58	41.76	36.53	33.56	28.63	25.55
MAX	35.00	36.15	49.15	99.20	270.40	261.30	122.45	75.90	57.90	46.85	37.65	37.20
Average Aug - Mar:		31.04	cfs	Dam Height:		6.0 ft						
18 in.				24 in.				30 in.				
Headwater Height (ft)	Total Discharge (cfs)	Div Pipe Discharge (cfs)	Overflow Discharge (cfs)	Headwater Height (ft)	Total Discharge (cfs)	Div Pipe Discharge (cfs)	Overflow Discharge (cfs)	Headwater Height (ft)	Total Discharge (cfs)	Div Pipe Discharge (cfs)	Overflow Discharge (cfs)	
1.37	10	10	0	1.23	10	10	0	1.01	10	10	0	
5.77	31.04	31.04	0	2.39	31.04	31.04	0	2.12	31.04	31.04	0	
6.27	62.08	32.56	29.35	6.04	62.08	60.4	1.54	3.31	62.08	62.08	0	
6.41	88.12	32.92	55.02	6.25	88.12	61.74	26.23	5.29	88.12	88.12	0	
6.52	114.16	33.25	80.71	6.39	114.16	62.56	51.42	6.18	114.16	98.15	15.98	
6.62	140.2	33.58	106.51	6.47	140.2	71.2	68.9	6.33	140.2	99.79	40.18	
6.71	166.24	33.81	132.1	6.57	166.24	71.87	94.04	6.45	166.24	101.02	64.9	
6.76	192.28	35.96	156.68	6.67	192.28	72.49	119.6	6.56	192.28	102.18	89.99	
6.84	218.32	35.87	182.23	6.75	218.32	73	143.15	6.65	218.32	103.13	114.83	
6.91	244.36	35.94	208.33	6.81	244.36	73.31	171.32	6.74	244.36	104.07	140.05	
6.99	270.4	35.94	234.42	6.88	270.4	73.47	197	6.79	270.4	104.56	165.99	
6	31.74	31.74	0	6	60.15	60.15	0	6	96.16	96.16	0	
Elevation for overtopping dam				Average flow during construction period is contained by 24-inch configuration with approximately 2.4 ft. of headwater elevation.								
Expected monthly flows during construction months												

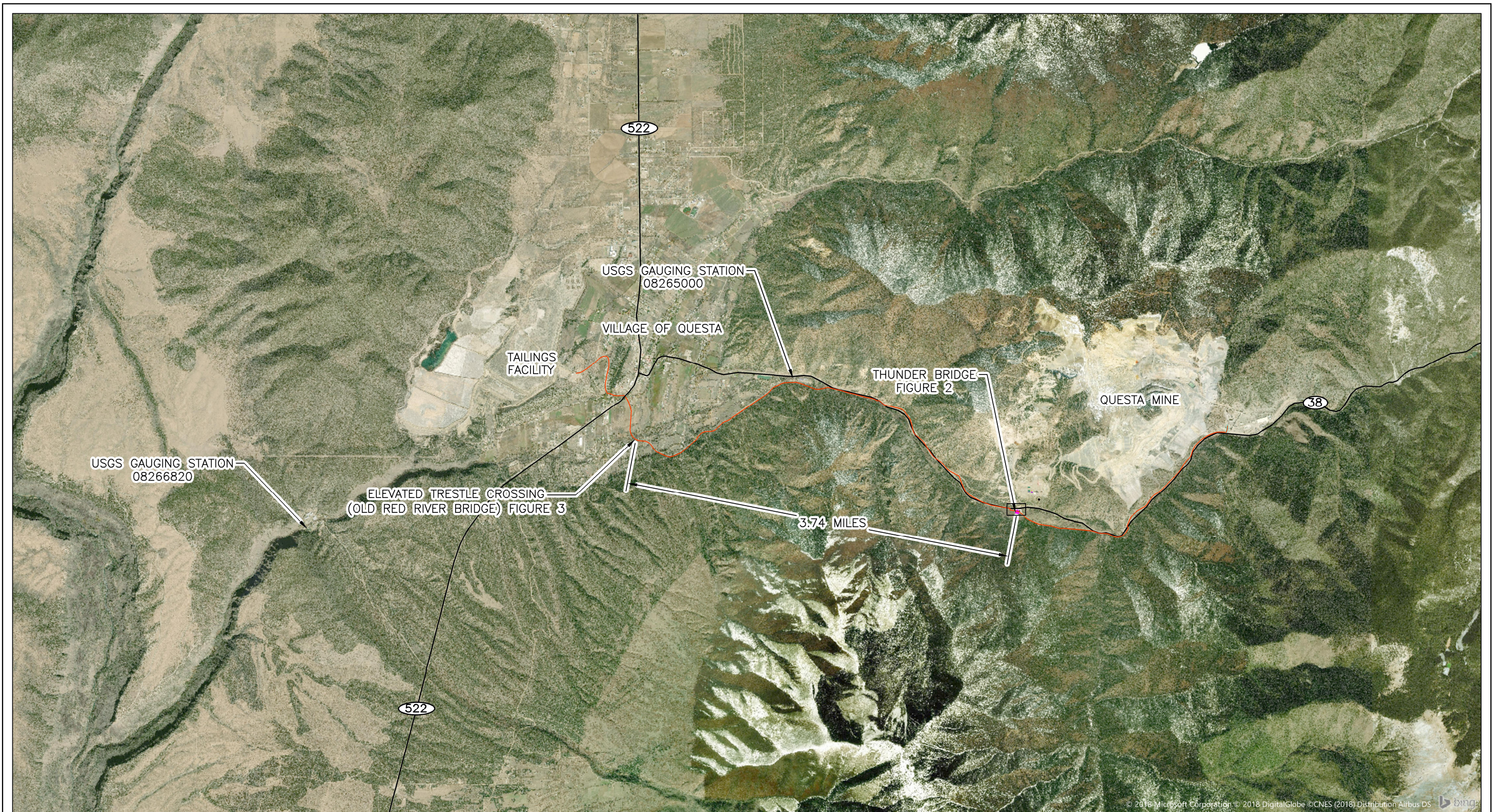
**TABLE 4. THUNDER BRIDGE  
QUESTA MINE RED RIVER DIVERSIONS**

USGS 08265000 RED RIVER NEAR QUESTA, NM												
00060, Discharge, cubic feet per second, Monthly mean in ft3/s (Calculation Period: 2000-01-01 -> 2016-09-30)												
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
AVG.	12.49	12.99	17.57	44.34	106.63	98.41	43.68	29.05	23.98	19.86	14.76	11.42
MAX	20.90	22.50	32.70	79.70	255.50	236.80	107.20	60.00	42.30	30.70	22.00	19.30
Average Aug - Mar: 17.77 cfs Dam Height: 6.0 ft												
18 in.				24 in.				30 in.				
Headwater Height (ft)	Total Discharge (cfs)	Div Pipe Discharge (cfs)	Overflow Discharge (cfs)	Headwater Height (ft)	Total Discharge (cfs)	Div Pipe Discharge (cfs)	Overflow Discharge (cfs)	Headwater Height (ft)	Total Discharge (cfs)	Div Pipe Discharge (cfs)	Overflow Discharge (cfs)	
1.37	10	10	0	1.23	10	10	0	1.01	10	10	0	
2.1	17.77	17.77	0	1.69	17.77	17.77	0	1.4	17.77	17.77	0	
6.19	55.36	37.88	17.26	4.5	55.36	55.36	0	3.01	55.36	55.36	0	
6.33	78.04	38.39	39.43	6.13	78.04	68.8	9.15	4.16	78.04	78.04	0	
6.44	100.72	38.81	61.7	6.28	100.72	69.94	30.65	5.84	100.72	100.72	0	
6.53	123.4	39.16	84.13	6.39	123.4	70.7	52.41	6.2	123.4	104.92	18.31	
6.62	146.08	39.48	106.31	6.49	146.08	71.35	74.59	6.33	146.08	106.38	39.52	
6.7	168.76	39.77	128.75	6.58	168.76	71.93	96.5	6.43	168.76	107.57	60.99	
6.75	191.44	39.95	153.34	6.66	191.44	72.46	118.72	6.53	191.44	108.61	82.72	
6.81	214.12	40.17	173.97	6.74	214.12	72.95	140.95	6.61	214.12	109.54	104.29	
6.88	236.8	40.41	196.36	6.78	236.8	73.21	163.87	6.69	236.8	110.41	126.16	
6	37.2	37.2	0	6	67.97	67.97	0	6	102.63	102.63	0	
Elevation for Overtopping Dam Average flow during construction period is contained by 24-inch configuration with approximatley 1.7 ft. of headwater elevation.												
Expected monthly flows during construction months												



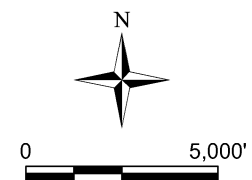
## FIGURES






**EXPLANATION**

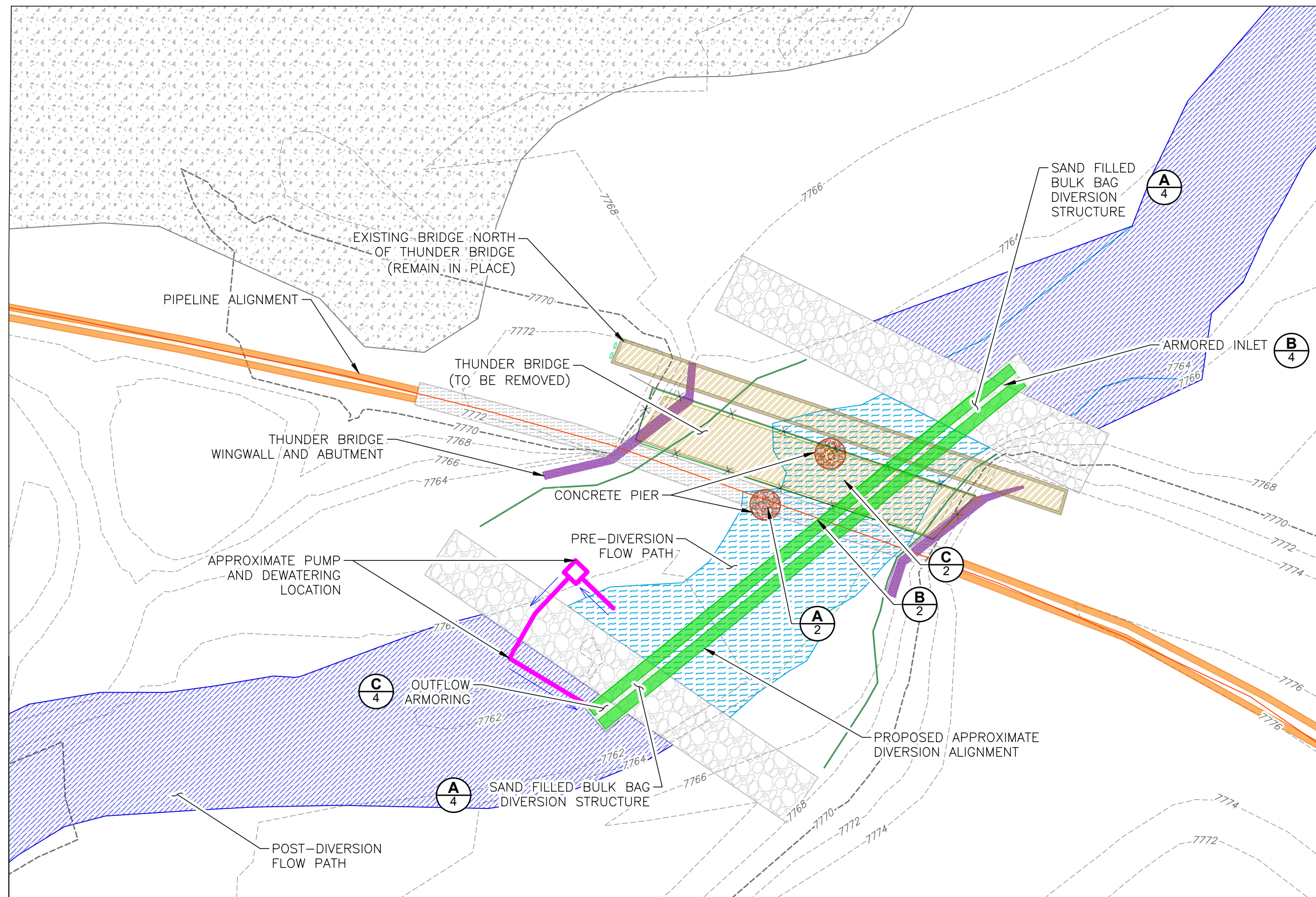
- TAILINGS PIPELINE ALIGNMENT
- AREA ROADS



 1252 Commerce Drive Laramie, Wyoming 82070 www.trihydro.com (P) 307/745.7474 (F) 307/745.7729		FIGURE 1			
		RED RIVER TEMPORARY DIVERSIONS OVERVIEW			
		USACE PERMIT MEMO CEMC QUESTA MINE QUESTA, NEW MEXICO			
Drawn By: DF	Checked By: TH	Scale: 1"=5,000'	Date: 12/21/18	File: 476-QM_F-1&TB-2_201812	



\\TRIHYDRO.COM\CLIENTS\CHEVRON\CEMC\MINING\QUESTA\MINE\CADD\REGULATORY\USAGE\_PERMIT\PCN\_476-QM\_F-1&TB-2\_201812



**EXPLANATION**

	STRAW WATTLE
	24" HDPE DIVERSION PIPE
	QUARRY SPALL
	TEMPORARY STREAM FLOWPATH
	STREAM FLOWPATH BEFORE DAM PLACEMENT
	PIPELINE BEING REMOVED
	NM 38 TURN-OUT

**NOTES:**

1. PIPELINE BEING REMOVED INCLUDES TWO 14" DIA. STEEL PIPES.
2. UTILITY CROSSING BRIDGE SHALL STAY IN PLACE.



Drawn By: DF    Checked By: TH    Scale: 1" = 20'    Date: 12/21/18    File: 476-QM\_F-1&TB-2\_201812



Image Citation: Trihydro Corporation Field Photos, January 2017

**A** CONDITION OF THUNDER BRIDGE



Image Citation: Trihydro Corporation Field Photos, January 2017

**B** CONDITION OF THUNDER BRIDGE



Image Citation: Trihydro Corporation Field Photos, January 2017

**C** CONDITION OF THUNDER BRIDGE

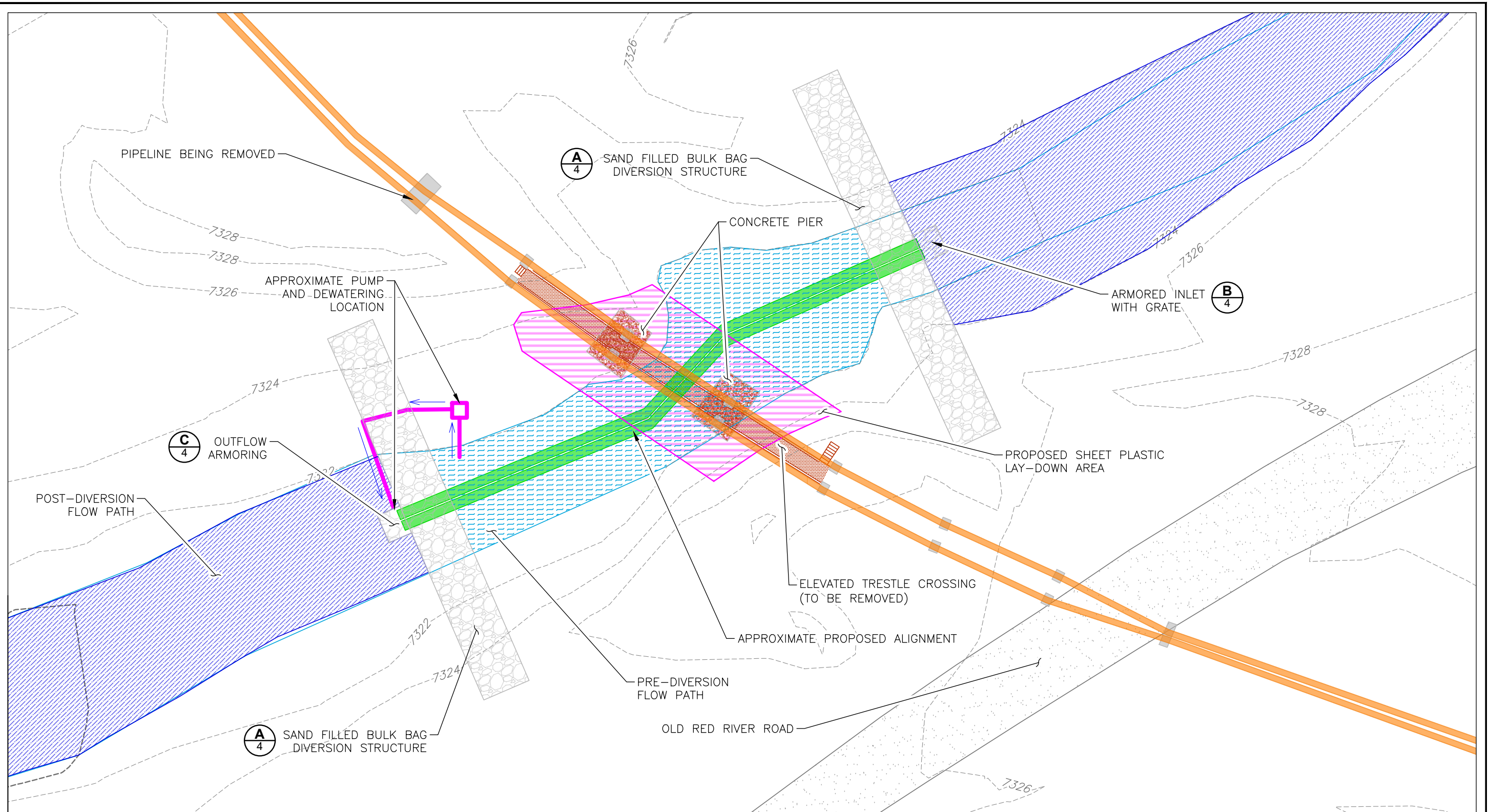
**FIGURE 2**

**RED RIVER TEMPORARY DIVERSION  
THUNDER BRIDGE**








**USACE PERMIT MEMO  
CEMC QUESTA MINE  
QUESTA, NEW MEXICO**



\\TRIHYDRO.COM\CLIENTS\CHEVRON\CEMC\MINING\QUESTA\MINE\PIPELINE\CADD\REGULATORY\USAGE\_PERMIT\CON\RT\ATT-1\_09\_CALCUS 476-QM-ETC\_F-3\_201901



**EXPLANATION**

-  24" HDPE DIVERSION PIPE
-  QUARRY SPALL
-  TEMPORARY STREAM FLOWPATH
-  STREAM FLOWPATH BEFORE DAM PLACEMENT
-  WALKWAY
-  PIPELINE BEING REMOVED
-  PROPOSED SHEET PLASTIC LAY-DOWN AREA (SECONDARY CONTAINMENT)

**NOTE:**

1. PIPELINE BEING REMOVED INCLUDES THREE 14" DIA. STEEL PIPES AND ONE 12" DIA. WRAPPED STEEL PIPE.

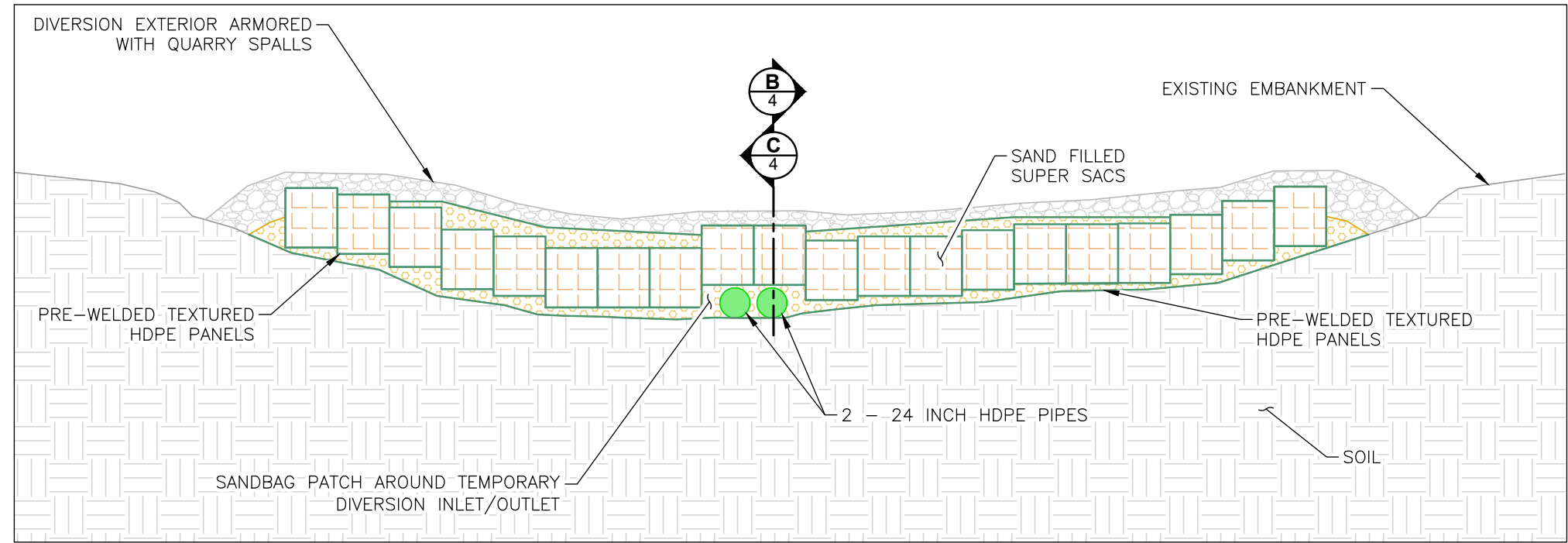




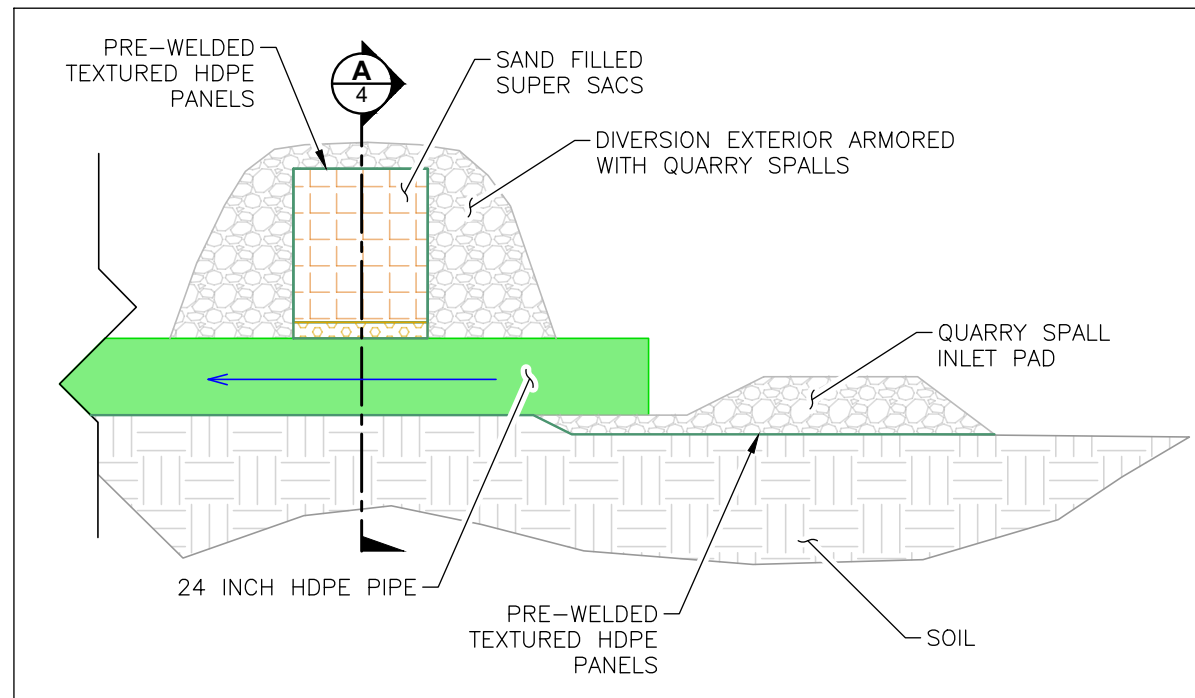
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Laramie, Wyoming 82070  
www.trihydro.com  
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FIGURE 3			
RED RIVER TEMPORARY DIVERSION ELEVATED TRESTLE / OLD RED RIVER			
USACE PERMIT MEMO CEMC QUESTA MINE QUESTA, NEW MEXICO			
Drawn By: DF	Checked By: TH	Scale: 1" = 20'	Date: 12/21/2018 File: 476-QM-ETC_F-3_201901

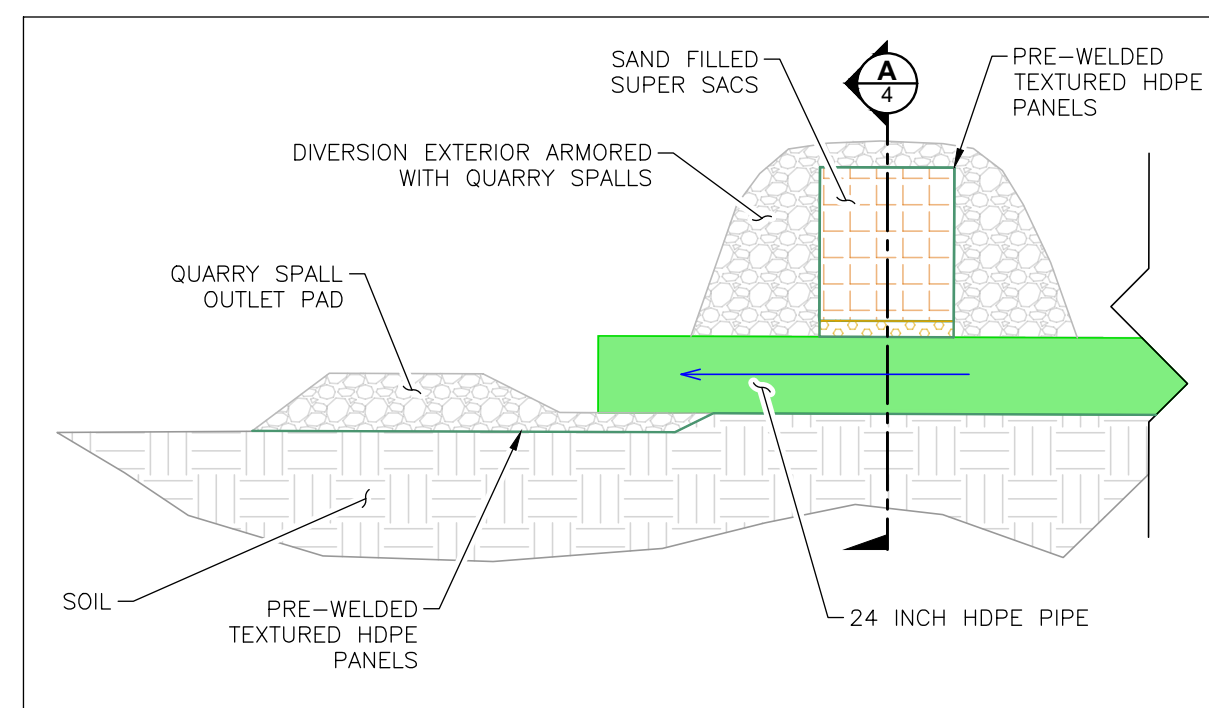
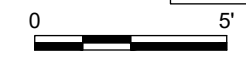
\\TRIHEDRO.COM\CLIENTS\CHEVRON\CEMC\_MINE\QUESTA\MINE\PIPELINE\CONSTRUCTION\PERMIT\CONSTRUCTION\476-QM-TB-FIG-4\_201901



**A** TEMPORARY DIVERSION - TYPICAL CROSS SECTION  
SCALE 1" = 10'



**B** TEMPORARY DIVERSION - UPSTREAM CROSS SECTION  
SCALE 1" = 5'



**C** TEMPORARY DIVERSION - DOWNSTREAM CROSS SECTION  
SCALE 1" = 5'

**EXPLANATION**

- SANDBAGS
- SAND FILLED SUPER SACS
- 24" HDPE DIVERSION PIPE
- QUARRY SPALL
- STREAM FLOWPATH
- PRE-WELDED TEXTURED HDPE PANELS

**NOTES:**

1. EMBANKMENTS ARE APPROXIMATED.
2. THE SAND FILLED SUPER SAC CORE IS WRAPPED WITH PRE-WELDED TEXTURED HDPE PANELS
3. DIVERSION STRUCTURE IS SET UPON A LAYER OF PRE-WELDED TEXTURED HDPE PANELS

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**FIGURE 4**

**RED RIVER TEMPORARY DIVERSION  
DAM CROSS SECTION**

**CEMC QUESTA MINE  
QUESTA, NEW MEXICO**

**ATTACHMENT A**

## THUNDER BRIDGE - 18-INCH DIAMETER

Crossing Properties

Name: TB-18

Parameter	Value	Units
<b>DISCHARGE DATA</b>		
Discharge Method	Minimum, Design, and Maximum	
Minimum Flow	10.000	cfs
Design Flow	17.770	cfs
Maximum Flow	236.800	cfs
<b>TAILWATER DATA</b>		
Channel Type	Trapezoidal Channel	
Bottom Width	20.000	ft
Side Slope (H:V)	8.000	_:1
Channel Slope	0.0030	ft/ft
Manning's n (channel)	0.060	
Channel Invert Elevation	0.000	ft
Rating Curve	View...	
<b>ROADWAY DATA</b>		
Roadway Profile Shape	Constant Roadway Elevation	
First Roadway Station	0.000	ft
Crest Length	80.000	ft
Crest Elevation	6.300	ft
Roadway Surface	Gravel	
Top Width	5.000	ft

Culvert Properties

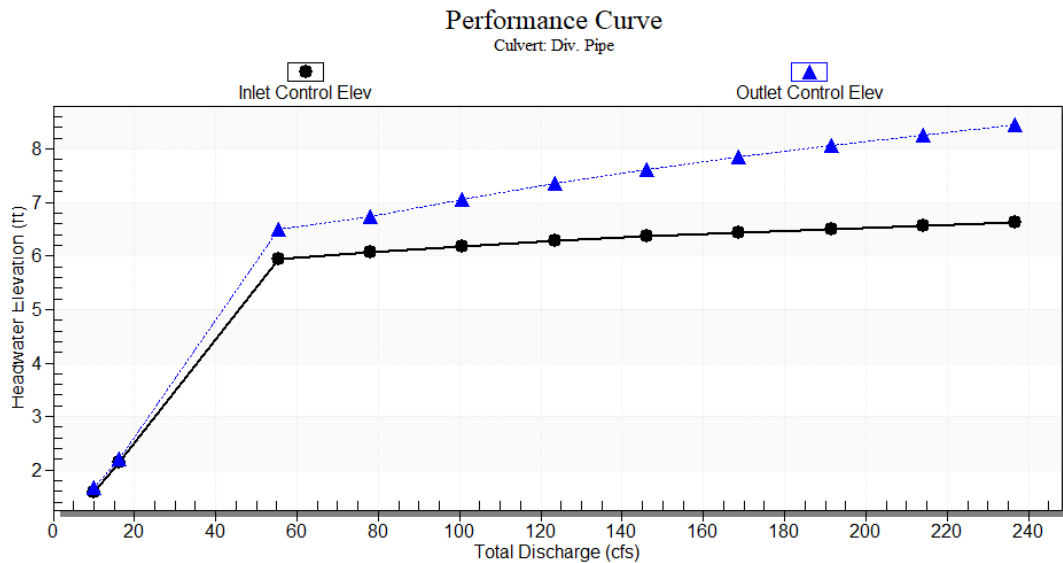
Div. Pipe

Add Culvert

Duplicate Culvert

Delete Culvert

Parameter	Value	Units
<b>CULVERT DATA</b>		
Name	Div. Pipe	
Shape	Circular	
Material	PVC	
Diameter	1.500	ft
Embedment Depth	0.000	in
Manning's n	0.011	
Culvert Type	Straight	
Inlet Configuration	Square Edge with Headwall	
Inlet Depression?	No	
<b>SITE DATA</b>		
Site Data Input Option	Culvert Invert Data	
Inlet Station	0.000	ft
Inlet Elevation	0.300	ft
Outlet Station	100.000	ft
Outlet Elevation	0.000	ft



Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
10.00	10.00	1.67	1.30	<b>1.37</b>	2-M2c	0.93	0.86	0.86	0.52	4.80	0.79
17.77	17.77	2.40	2.01	<b>2.10</b>	7-M2c	1.50	1.15	1.15	0.72	6.12	0.95
55.36	37.88	6.49	5.64	<b>6.19</b>	6-FFc	1.50	1.50	1.50	1.34	10.72	1.35
78.04	38.39	6.63	5.78	<b>6.43</b>	4-FFf	1.50	1.50	1.50	1.60	10.86	1.49
100.72	38.81	6.74	5.88	<b>6.76</b>	4-FFf	1.50	1.50	1.50	1.82	10.98	1.60
123.40	39.16	6.83	5.98	<b>7.05</b>	4-FFf	1.50	1.50	1.50	2.02	11.08	1.69
146.08	39.48	6.92	6.06	<b>7.32</b>	4-FFf	1.50	1.50	1.50	2.20	11.17	1.77
168.76	39.77	7.00	6.14	<b>7.56</b>	4-FFf	1.50	1.50	1.50	2.36	11.25	1.84
191.44	39.95	7.05	6.19	<b>7.76</b>	4-FFf	1.50	1.50	1.50	2.51	11.30	1.90
214.12	40.17	7.11	6.25	<b>7.96</b>	4-FFf	1.50	1.50	1.50	2.65	11.37	1.96
236.80	40.41	7.18	6.32	<b>8.16</b>	4-FFf	1.50	1.50	1.50	2.78	11.43	2.02

Display

☐ Crossing Summary Table

☒ Culvert Summary Table Div. Pipe

☐ Water Surface Profiles

☐ Tapered Inlet Table

☐ Customized Table Options...

Geometry

Inlet Elevation: 0.30 ft

Outlet Elevation: 0.00 ft

Culvert Length: 100.00 ft

Culvert Slope: 0.0030

Inlet Crest: 0.00 ft

Inlet Throat: 0.00 ft

Outlet Control: Profiles

Plot

Crossing Rating Curve

Culvert Performance Curve

Selected Water Profile

Water Surface Profile Data

## THUNDER BRIDGE - 24-INCH DIAMETER

Crossing Properties

Name: TB - 24

Parameter	Value	Units
<b>DISCHARGE DATA</b>		
Discharge Method	Minimum, Design, and Maximum	
Minimum Flow	10.000	cfs
Design Flow	17.770	cfs
Maximum Flow	236.800	cfs
<b>TAILWATER DATA</b>		
Channel Type	Trapezoidal Channel	
Bottom Width	20.000	ft
Side Slope (H:V)	8.000	_:1
Channel Slope	0.0030	ft/ft
Manning's n (channel)	0.060	
Channel Invert Elevation	0.000	ft
Rating Curve	View...	
<b>ROADWAY DATA</b>		
Roadway Profile Shape	Constant Roadway Elevation	
First Roadway Station	0.000	ft
Crest Length	80.000	ft
Crest Elevation	6.300	ft
Roadway Surface	Gravel	
Top Width	5.000	ft

Culvert Properties

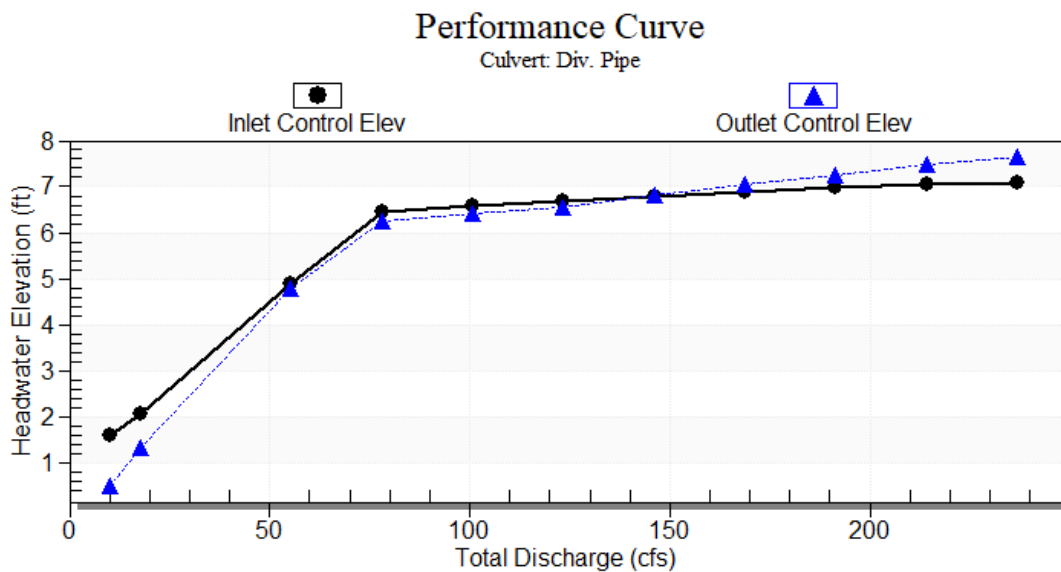
Div. Pipe

Add Culvert

Duplicate Culvert

Delete Culvert

Parameter	Value	Units
<b>CULVERT DATA</b>		
Name	Div. Pipe	
Shape	Circular	
Material	PVC	
Diameter	2.000	ft
Embedment Depth	0.000	in
Manning's n	0.011	
Culvert Type	Straight	
Inlet Configuration	Square Edge with Headwall	
Inlet Depression?	No	
<b>SITE DATA</b>		
Site Data Input Option	Culvert Invert Data	
Inlet Station	0.000	ft
Inlet Elevation	0.300	ft
Outlet Station	100.000	ft
Outlet Elevation	0.000	ft



Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
10.00	10.00	1.53	1.11	<b>1.23</b>	2-M2c	0.78	0.78	0.78	0.52	4.38	0.79
17.77	17.77	1.99	1.58	<b>1.69</b>	2-M2c	1.09	1.06	1.06	0.72	5.24	0.95
55.36	55.36	4.80	4.41	<b>4.50</b>	7-M2c	2.00	1.82	1.82	1.34	9.21	1.35
78.04	68.80	6.43	6.11	<b>6.13</b>	7-M2c	2.00	1.88	1.88	1.60	11.23	1.49
100.72	69.94	6.58	<b>6.28~</b>	0.0*	7-M2c	2.00	1.85	1.85	1.82	11.54	1.60
123.40	70.70	6.69	6.39	<b>6.41</b>	4-FFF	2.00	1.83	2.00	2.02	11.25	1.69
146.08	71.35	6.79	6.49	<b>6.67</b>	4-FFF	2.00	1.82	2.00	2.20	11.36	1.77
168.76	71.93	6.88	6.58	<b>6.91</b>	4-FFF	2.00	1.81	2.00	2.36	11.45	1.84
191.44	72.46	6.96	6.66	<b>7.13</b>	4-FFF	2.00	1.77	2.00	2.51	11.53	1.90
214.12	72.95	7.04	6.74	<b>7.34</b>	4-FFF	2.00	1.75	2.00	2.65	11.61	1.96
236.80	73.21	7.08	6.78	<b>7.51</b>	4-FFF	2.00	1.74	2.00	2.78	11.65	2.02

Display

☐ Crossing Summary Table

☒ Culvert Summary Table    Div. Pipe

☐ Water Surface Profiles

☐ Tapered Inlet Table

☐ Customized Table    Options...

Geometry

Inlet Elevation: 0.30 ft

Outlet Elevation: 0.00 ft

Culvert Length: 100.00 ft

Culvert Slope: 0.0030

Inlet Crest: 0.00 ft

Inlet Throat: 0.00 ft

Plot

Crossing Rating Curve

Culvert Performance Curve

Selected Water Profile

Water Surface Profile Data

\* Full Flow Headwater elevation is below inlet invert.  
~ Inlet control is shown, but flow profile is substantially FF.



## THUNDER BRIDGE - 30-INCH DIAMETER

Crossing Properties

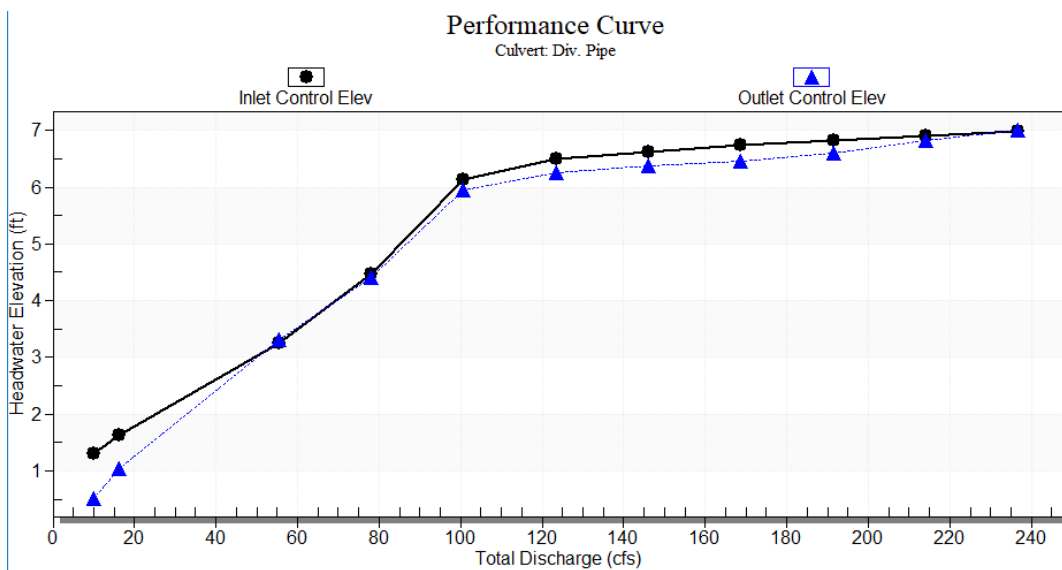
Name: **TB - 30**

Parameter	Value	Units
<b>DISCHARGE DATA</b>		
Discharge Method	Minimum, Design, and Maximum	
Minimum Flow	10.000	cfs
Design Flow	17.770	cfs
Maximum Flow	236.800	cfs
<b>TAILWATER DATA</b>		
Channel Type	Trapezoidal Channel	
Bottom Width	20.000	ft
Side Slope (H:V)	8.000	_:1
Channel Slope	0.0030	ft/ft
Manning's n (channel)	0.060	
Channel Invert Elevation	0.000	ft
Rating Curve	View...	
<b>ROADWAY DATA</b>		
Roadway Profile Shape	Constant Roadway Elevation	
First Roadway Station	0.000	ft
Crest Length	80.000	ft
Crest Elevation	6.300	ft
Roadway Surface	Gravel	
Top Width	5.000	ft

Culvert Properties

**Div. Pipe** Add Culvert Duplicate Culvert Delete Culvert

Parameter	Value	Units
<b>CULVERT DATA</b>		
Name	Div. Pipe	
Shape	Circular	
Material	PVC	
Diameter	2.500	ft
Embedment Depth	0.000	in
Manning's n	0.011	
Culvert Type	Straight	
Inlet Configuration	Square Edge with Headwall	
Inlet Depression?	No	
<b>SITE DATA</b>		
Site Data Input Option	Culvert Invert Data	
Inlet Station	0.000	ft
Inlet Elevation	0.300	ft
Outlet Station	100.000	ft
Outlet Elevation	0.000	ft



Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
10.00	10.00	1.31	<b>1.01</b>	0.22	1-S2n	0.72	0.73	0.72	0.52	4.16	0.79
17.77	17.77	1.70	<b>1.40</b>	0.80	1-S2n	0.97	0.99	0.97	0.72	4.88	0.95
55.36	55.36	3.31	2.95	<b>3.01</b>	7-M2c	2.50	1.79	1.79	1.34	7.35	1.35
78.04	78.04	4.46	<b>4.16~</b>	4.12	7-M2c	2.50	2.11	2.11	1.60	8.84	1.49
100.72	100.72	6.14	<b>5.84~</b>	5.64	7-M2c	2.50	2.30	2.30	1.82	10.65	1.60
123.40	104.92	6.50	<b>6.20~</b>	5.96	7-M2c	2.50	2.33	2.33	2.02	11.01	1.69
146.08	106.38	6.63	<b>6.33~</b>	6.07	7-M2c	2.50	2.34	2.34	2.20	11.14	1.77
168.76	107.57	6.73	<b>6.43~</b>	6.16	7-M2t	2.50	2.34	2.36	2.36	11.21	1.84
191.44	108.61	6.83	<b>6.53~</b>	6.31	4-FFF	2.50	2.35	2.50	2.51	11.06	1.90
214.12	109.54	6.91	<b>6.61~</b>	6.52	4-FFF	2.50	2.35	2.50	2.65	11.16	1.96
236.80	110.41	6.99	6.69	<b>6.72</b>	4-FFF	2.50	2.36	2.50	2.78	11.25	2.02

Display

☐ Crossing Summary Table

☒ Culvert Summary Table **Div. Pipe**

☐ Water Surface Profiles

☐ Tapered Inlet Table

☐ Customized Table Options...

Geometry

Inlet Elevation: 0.30 ft

Outlet Elevation: 0.00 ft

Culvert Length: 100.00 ft

Culvert Slope: 0.0030

Inlet Crest: 0.00 ft

Inlet Throat: 0.00 ft

Outlet Control: Profiles

Plot

Crossing Rating Curve

Culvert Performance Curve

Selected Water Profile

Water Surface Profile Data

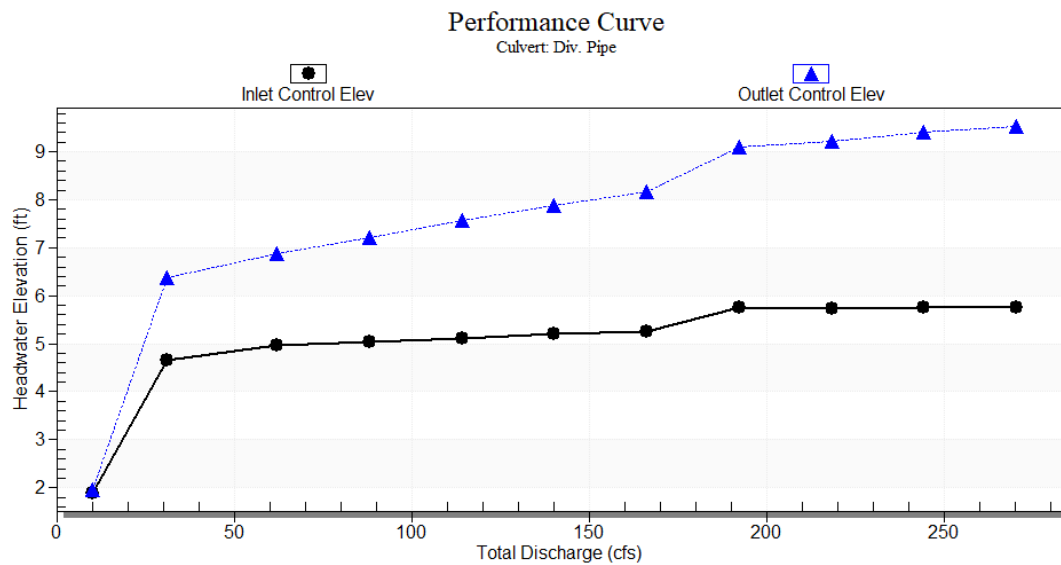
~ Inlet control is shown, but flow profile is substantially FF.

## ELEVATED TRESTLE - 18-INCH DIAMETER

Parameter	Value	Units
<b>DISCHARGE DATA</b>		
Discharge Method	Minimum, Design, and Maximum	
Minimum Flow	10.000	cfs
Design Flow	31.040	cfs
Maximum Flow	270.400	cfs
<b>TAILWATER DATA</b>		
Channel Type	Trapezoidal Channel	
Bottom Width	20.000	ft
Side Slope (H:V)	8.000	1:1
Channel Slope	0.0030	ft/ft
Manning's n (channel)	0.060	
Channel Invert Elevation	0.000	ft
Rating Curve	View...	
<b>ROADWAY DATA</b>		
Roadway Profile Shape	Constant Roadway Elevation	
First Roadway Station	0.000	ft
Crest Length	80.000	ft
Crest Elevation	6.600	ft
Roadway Surface	Gravel	
Top Width	5.000	ft

Parameter	Value	Units
<b>CULVERT DATA</b>		
Name	Div. Pipe	
Shape	Circular	
Material	PVC	
Diameter	1.500	ft
Embedment Depth	0.000	in
Manning's n	0.011	
Culvert Type	Straight	
Inlet Configuration	Square Edge with Headwall	
Inlet Depression?	No	
<b>SITE DATA</b>		
Site Data Input Option	Culvert Invert Data	
Inlet Station	0.000	ft
Inlet Elevation	0.600	ft
Outlet Station	200.000	ft
Outlet Elevation	0.000	ft



Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
10.00	10.00	1.97	1.30	<b>1.37</b>	2-M2c	0.93	0.86	0.86	0.52	4.80	0.79
31.04	31.04	6.37	4.06	<b>5.77</b>	7-M2c	1.50	1.41	1.41	0.98	8.99	1.13
62.08	32.56	6.87	4.37	<b>6.27</b>	7-M2c	1.50	1.42	1.42	1.42	9.39	1.39
88.12	32.92	7.01	4.45	<b>6.62</b>	4-FFF	1.50	1.43	1.50	1.70	9.31	1.54
114.16	33.25	7.12	4.52	<b>6.97</b>	4-FFF	1.50	1.43	1.50	1.94	9.41	1.65
140.20	33.58	7.22	4.59	<b>7.29</b>	4-FFF	1.50	1.41	1.50	2.15	9.50	1.75
166.24	33.81	7.31	4.65	<b>7.56</b>	4-FFF	1.50	1.39	1.50	2.34	9.57	1.83
192.28	35.96	7.36	5.16	<b>8.50</b>	4-FFF	1.50	1.45	1.50	2.51	10.17	1.91
218.32	35.87	7.44	5.14	<b>8.62</b>	4-FFF	1.50	1.40	1.50	2.67	10.15	1.97
244.36	35.94	7.51	5.15	<b>8.80</b>	4-FFF	1.50	1.41	1.50	2.82	10.17	2.03
270.40	35.94	7.59	5.16	<b>8.94</b>	4-FFF	1.50	1.42	1.50	2.96	10.17	2.09

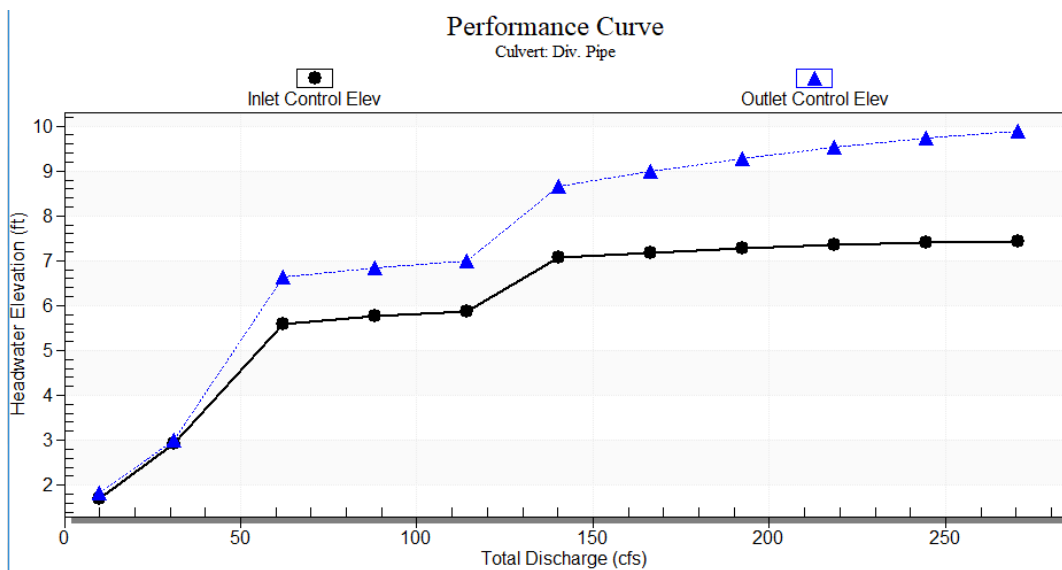
<b>Display</b> <input type="radio"/> Crossing Summary Table <input checked="" type="radio"/> Culvert Summary Table <input type="radio"/> Water Surface Profiles <input type="radio"/> Tapered Inlet Table <input type="radio"/> Customized Table	<div>Div. Pipe</div> <div>Options...</div>	<b>Geometry</b> Inlet Elevation: 0.60 ft Outlet Elevation: 0.00 ft Culvert Length: 200.00 ft Culvert Slope: 0.0030 Inlet Crest: 0.00 ft Inlet Throat: 0.00 ft	<b>Plot</b> <div>Crossing Rating Curve</div> <div>Culvert Performance Curve</div> <div>Selected Water Profile</div> <div>Water Surface Profile Data</div>
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Outlet Control: Profiles

## ELEVATED TRESTLE - 24-INCH DIAMETER

Parameter	Value	Units
<b>DISCHARGE DATA</b>		
Discharge Method	Minimum, Design, and Maximum	
Minimum Flow	10.000	cfs
Design Flow	31.040	cfs
Maximum Flow	270.400	cfs
<b>TAILWATER DATA</b>		
Channel Type	Trapezoidal Channel	
Bottom Width	20.000	ft
Side Slope (H:V)	8.000	:1
Channel Slope	0.0030	ft/ft
Manning's n (channel)	0.060	
Channel Invert Elevation	0.000	ft
Rating Curve	View...	
<b>ROADWAY DATA</b>		
Roadway Profile Shape	Constant Roadway Elevation	
First Roadway Station	0.000	ft
Crest Length	80.000	ft
Crest Elevation	6.600	ft
Roadway Surface	Gravel	
Top Width	5.000	ft

Parameter	Value	Units
<b>CULVERT DATA</b>		
Name	Div. Pipe	
Shape	Circular	
Material	PVC	
Diameter	2.000	ft
Embedment Depth	0.000	in
Manning's n	0.011	
Culvert Type	Straight	
Inlet Configuration	Square Edge with Headwall	
Inlet Depression?	No	
<b>SITE DATA</b>		
Site Data Input Option	Culvert Invert Data	
Inlet Station	0.000	ft
Inlet Elevation	0.600	ft
Outlet Station	200.000	ft
Outlet Elevation	0.000	ft



Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
10.00	10.00	1.83	1.11	<b>1.23</b>	2-M2c	0.78	0.78	0.78	0.52	4.38	0.79
31.04	31.04	2.99	2.32	<b>2.39</b>	7-M2c	2.00	1.42	1.42	0.98	6.53	1.13
62.08	60.40	6.64	5.00	<b>6.04</b>	7-M2c	2.00	1.87	1.87	1.42	9.90	1.39
88.12	61.74	6.85	5.17	<b>6.25</b>	7-M2c	2.00	1.88	1.88	1.70	10.08	1.54
114.16	62.56	6.99	5.27	<b>6.40</b>	7-M2t	2.00	1.88	1.94	1.94	10.04	1.65
140.20	71.20	7.07	6.47	<b>8.07</b>	4-FFF	2.00	1.82	2.00	2.15	11.33	1.75
166.24	71.87	7.17	6.57	<b>8.38</b>	4-FFF	2.00	1.81	2.00	2.34	11.44	1.83
192.28	72.49	7.27	6.67	<b>8.67</b>	4-FFF	2.00	1.77	2.00	2.51	11.54	1.91
218.32	73.00	7.35	6.75	<b>8.93</b>	4-FFF	2.00	1.74	2.00	2.67	11.62	1.97
244.36	73.31	7.41	6.80	<b>9.13</b>	4-FFF	2.00	1.84	2.00	2.82	11.67	2.03
270.40	73.47	7.48	6.82	<b>9.30</b>	4-FFF	2.00	1.83	2.00	2.96	11.69	2.09

**Display**

- ☐ Crossing Summary Table
- ☒ Culvert Summary Table Div. Pipe
- ☐ Water Surface Profiles
- ☐ Tapered Inlet Table
- ☐ Customized Table Options...

**Geometry**

- Inlet Elevation: 0.60 ft
- Outlet Elevation: 0.00 ft
- Culvert Length: 200.00 ft
- Culvert Slope: 0.0030
- Inlet Crest: 0.00 ft
- Inlet Throat: 0.00 ft

**Plot**

- 
- 
- 
-

Outlet Control: Profiles

## ELEVATED TRESTLE - 30-INCH DIAMETER

Crossing Properties

Name: ET - 30

Parameter	Value	Units
<b>DISCHARGE DATA</b>		
Discharge Method	Minimum, Design, and Maximum	
Minimum Flow	10.000	cfs
Design Flow	31.040	cfs
Maximum Flow	270.400	cfs
<b>TAILWATER DATA</b>		
Channel Type	Trapezoidal Channel	
Bottom Width	20.000	ft
Side Slope (H:V)	8.000	_:1
Channel Slope	0.0030	ft/ft
Manning's n (channel)	0.060	
Channel Invert Elevation	0.000	ft
Rating Curve	View...	
<b>ROADWAY DATA</b>		
Roadway Profile Shape	Constant Roadway Elevation	
First Roadway Station	0.000	ft
Crest Length	80.000	ft
Crest Elevation	6.600	ft
Roadway Surface	Gravel	
Top Width	5.000	ft

Culvert Properties

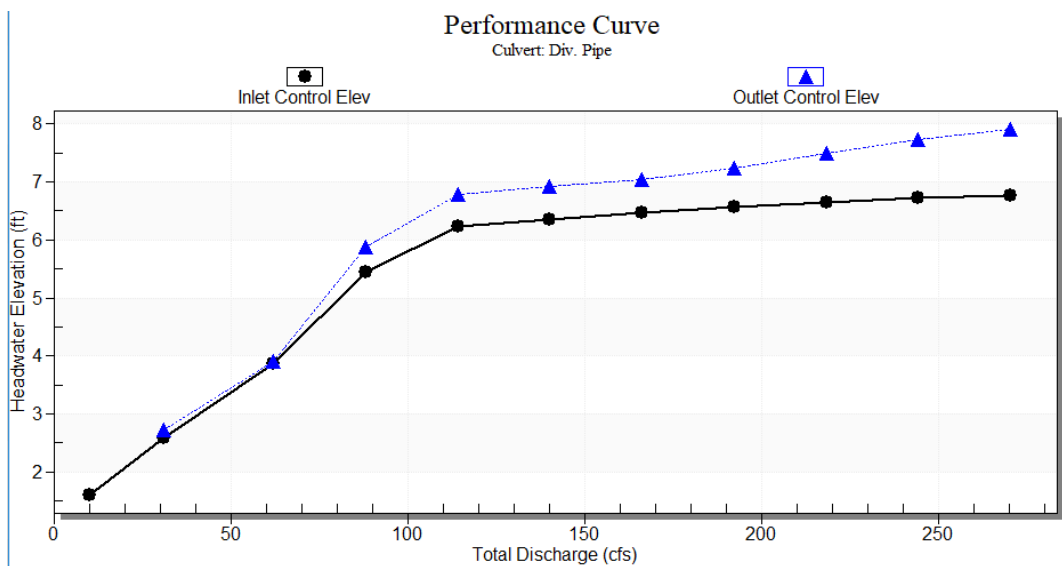
Div. Pipe

Add Culvert

Duplicate Culvert

Delete Culvert

Parameter	Value	Units
<b>CULVERT DATA</b>		
Name	Div. Pipe	
Shape	Circular	
Material	PVC	
Diameter	2.500	ft
Embedment Depth	0.000	in
Manning's n	0.011	
Culvert Type	Straight	
Inlet Configuration	Square Edge with Headwall	
Inlet Depression?	No	
<b>SITE DATA</b>		
Site Data Input Option	Culvert Invert Data	
Inlet Station	0.000	ft
Inlet Elevation	0.600	ft
Outlet Station	200.000	ft
Outlet Elevation	0.000	ft



Total Discharge (cfs)	Culvert Discharge (cfs)	Headwater Elevation (ft)	Inlet Control Depth (ft)	Outlet Control Depth (ft)	Flow Type	Normal Depth (ft)	Critical Depth (ft)	Outlet Depth (ft)	Tailwater Depth (ft)	Outlet Velocity (ft/s)	Tailwater Velocity (ft/s)
10.00	10.00	1.61	1.01	0.0*	1-S2n	0.72	0.73	0.72	0.52	4.16	0.79
31.04	31.04	2.72	1.98	2.12	2-M2c	1.34	1.33	1.33	0.98	5.86	1.13
62.08	62.08	3.91	3.26	3.31	7-M2c	2.50	1.90	1.90	1.42	7.77	1.39
88.12	88.12	5.89	4.85	5.29	7-M2c	2.50	2.21	2.21	1.70	9.60	1.54
114.16	98.15	6.78	5.62	6.18	7-M2c	2.50	2.29	2.29	1.94	10.42	1.65
140.20	99.79	6.93	5.76	6.33	7-M2c	2.50	2.30	2.30	2.15	10.57	1.75
166.24	101.02	7.05	5.86	6.45	7-M2t	2.50	2.31	2.34	2.34	10.57	1.83
192.28	102.18	7.16	5.96	6.65	4-FFF	2.50	2.31	2.50	2.51	10.41	1.91
218.32	103.13	7.25	6.04	6.89	4-FFF	2.50	2.32	2.50	2.67	10.50	1.97
244.36	104.07	7.34	6.12	7.13	4-FFF	2.50	2.32	2.50	2.82	10.60	2.03
270.40	104.56	7.39	6.17	7.32	4-FFF	2.50	2.33	2.50	2.96	10.65	2.09

Display

☐ Crossing Summary Table

☒ Culvert Summary Table Div. Pipe

☐ Water Surface Profiles

☐ Tapered Inlet Table

☐ Customized Table Options...

Geometry

Inlet Elevation: 0.60 ft

Outlet Elevation: 0.00 ft

Culvert Length: 200.00 ft

Culvert Slope: 0.0030

Inlet Crest: 0.00 ft

Inlet Throat: 0.00 ft

Plot

Crossing Rating Curve

Culvert Performance Curve

Selected Water Profile

Water Surface Profile Data

\* Full Flow Headwater elevation is below inlet invert.

Outlet Control: Profiles

## **ATTACHMENT 2**

## ATTACHMENT 2. NEW MEXICO REGIONAL CONDITIONS

This attachment lists the regional conditions applicable for New Mexico.

1. *Dredge and Fill Activities in Intermittent and Perennial Streams, and Special Aquatic Sites:* (a) For all activities subject to regulation under the CWA Section 404 in intermittent and perennial streams, and special aquatic sites (including wetlands, riffle and pool complexes, and sanctuaries and refuges), Pre-Construction Notification to the District Engineer is required in accordance with General Condition 32.

**Response:** This application package constitutes the PCN.

- (b) For projects in intermittent and perennial streams in which the New Mexico Environment Department (NMED) is the water quality certifying agency, the applicant must also notify the NMED Surface Water Quality Bureau and obtain confirmation of CWA, Section 401 Water Quality Certification prior to commencing work. Electronic submittals are preferred. A copy of NMED's confirmation must be provided to the USACE within 10 days of NMED's receipt of the applicant's notification.

**Response:** CEMC will notify NMED per Attachment 3.

2. *Individual Water Quality Certification and Pre-Construction Notification.* For all activities subject to regulation under the CWA Section 404 where Section 401 individual water quality certification is required, the applicant must provide Pre-Construction Notification to the District Engineer in accordance with General Condition 32 at the same time notification is provided to the water quality certifying authority. A copy of the individual 401 water quality certification must be provided to the District Engineer prior to commencing the regulated activity. A list of state agencies and tribes with Section 401 authority is on our website available at:  
<http://www.spa.usace.army.mil/Missions/Regulatory-Program-and-Permits/Water-Quality-Certification/>

**Response:** 401 Water Quality Certification is included in Attachment 3.

4. *Special Status Waters in New Mexico.* The waters listed in **Attachment 1 of the Regional Conditions** have been designated by the State of New Mexico as waters important for the protection of water quality or the protection and conservation of certain species. For all activities subject to regulation under the CWA Section 404 occurring in these waters, Pre-Construction Notification is required to the USACE in accordance with General Condition 32. The applicant must also provide Pre-Construction Notification to the New Mexico Department of Game and Fish, Ecological and Environmental Planning Division. Electronic submittals are preferred.

**Response:** The removal project is not in special status waters.

5. *Activities in all Waters of the United States.* Any activity subject to regulation under the CWA Section 404 that exceeds 1/2 acre of permanent fill in waters of the United States will require Pre-Construction Notification to the USACE in accordance with General Condition 32

**Response:** No permanent fill is anticipated. Temporary impacts will not exceed 0.171 acre of impact to wetlands and 0.137 acre of WOUS.

6. *Springs.* For all discharges of dredged or fill material within 100 feet of the point of groundwater discharge of natural springs, Pre-Construction Notification is required to the USACE in accordance with General Condition

## ATTACHMENT 2. NEW MEXICO REGIONAL CONDITIONS

32. *A natural spring is defined as any location where ground water emanates from a point in the ground and has a defined surface water connection to another waters of the United States. For purposes of this regional condition, springs do not include seeps or other groundwater discharges which lack a defined surface water connection.*

**Response:** No Springs exist within 100 feet of the project area.

7. Channelization. *General Condition 9 for Management of Water Flows is amended to add the following: Projects that would result in permanent channelization to previously un-channelized streams require Pre-Construction Notification to the District Engineer in accordance with General Condition 32.*

**Response:** The project would not result in permanent channelization.

8. Suitable Fill. *Use of broken concrete as fill or bank stabilization material is prohibited unless the applicant demonstrates that its use is the only practicable material (with respect to cost, existing technology, and logistics). Any applicant who wishes to use broken concrete as bank stabilization must provide notification to the District Engineer in accordance with General Condition 32 (Pre-Construction Notification) along with justification for such use. Use of broken concrete with rebar or used tires (loose or formed into bales) is prohibited in all waters of the United States. See Note 'a' below.*

**Response:** The repairs will not include broken concrete or used tires.

9. Fens. *All nationwide permits, except 3, 5, 6, 20, 27, 32 and 38, are revoked in fens and wetlands adjacent to fens. For activities in fens and wetlands adjacent to fens, use of nationwide permits 3, 20, and 27 requires Pre-Construction Notification to the District Engineer, in accordance with General Condition 32. For the purposes of this regional condition, fens are defined as follows:*

*Fen soils (histosols) are normally saturated throughout the growing season, although they may not be during drought conditions. The primary source of hydrology for fens is groundwater. Histosols are defined in accordance with the U.S. Department of Agriculture, Natural Resources Conservation Service publications on Keys to Soil Taxonomy and Field Indicators of Hydric Soils in the United States (<http://soils.usda.gov/technical/classification/taxonomy> and <http://soils.usda.gov/technical/>).*

*Additionally, peat lands with spongy, water-logged soil containing a histosol or a mineral soil with a histic epipedon that may be termed in some literature as cienagas, marshes, or bogs (for example, the Alamo bog complex and the floating mat fen complex at Santo Domingo Pueblo) are included in this regional condition.*

**Response:** Not applicable.

### **ATTACHMENT 3**





SUSANA MARTINEZ  
Governor

JOHN A. SANCHEZ  
Lt. Governor

## NEW MEXICO ENVIRONMENT DEPARTMENT

Harold Runnels Building  
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BUTCH TONGATE  
Cabinet Secretary

J. C. BORREGO  
Deputy Secretary

March 1, 2017

Mr. Allan Steinle  
U.S. Army Corps of Engineers  
Albuquerque District, Regulatory Branch  
4101 Jefferson Plaza NE  
Albuquerque, New Mexico 87109-3434

Re: Clean Water Act Section 401 Water Quality Certification  
United States Army Corps of Engineers 2017 Nationwide Permits

Dear Mr. Steinle:

The New Mexico Environment Department (NMED) has examined both the January 6, 2017 final notice of the Reissuance of Nationwide Permits (NWP) under the Clean Water Act (CWA) §404 and Section 10 of the Harbors and Rivers Act, issued by the U.S. Army Corps of Engineers ("Corps") (see 84-4 FR 1860) and the January 6, 2017 Corps Albuquerque District public notice of the final NWP and NMED's intent to consider certification of those permits under the CWA §401 (Certification). Certification is required by CWA §401 to ensure that the NWP are consistent with state law, comply with the state Water Quality Standards (20.6.4 NMAC), the Water Quality Management Plan/Continuing Planning Process, including Total Maximum Daily Loads (TMDLs), and the Antidegradation Policy. Certification is also required to comply with General Condition 25 (Water Quality) and General Condition 27 (Regional and Case-By-Case Conditions) of the NWP.

Pursuant to State regulations for permit certification (20.6.2.2002, NMAC), NMED issued a public notice of this activity and announced a public comment period, posted on the Surface Water Quality Bureau's web site: ([www.nmenv.state.nm.us/swqb/WQA/Notice](http://www.nmenv.state.nm.us/swqb/WQA/Notice)) on January 10, 2017. The public comment period ended on February 7, 2017. No comments were received.

The following conditions are necessary to assure compliance with the applicable provisions of the Clean Water Act §§301, 302, 303, 306, and 307 and with applicable requirements of State law. Compliance with the terms and conditions of the permit and this certification will provide reasonable assurance that the permitted activities will be conducted in a manner which will not violate applicable water quality standards or the Statewide Water Quality Management Plan, and will be in compliance with the state's antidegradation policy. The State of New Mexico certifies that the discharge will comply with these provisions and requirements upon inclusion of the following conditions in the permit:

**Conditional Section 401 Certification of NWP's:**

The following conditions apply to all uses of NWP's within State of New Mexico 401 certification authority area or region:

1. All proposed projects must avoid discharges to the maximum extent practicable; however, if discharges cannot be avoided the project must utilize the best available and practicable means to minimize adverse impacts. NMED encourages approaches based on natural ecosystem processes. Examples of Best Management Practices (BMPs) that may be applicable include:
  - Limit work in the channel to periods of no flow.
  - Store fuel, oil, hydraulic fluid, lubricants, and other petrochemicals in a secondary containment system capable of containing twice the volume of the product.
  - Restrict temporary crossings to a single location and construct perpendicular to and at a narrow point of the stream or wetland to minimize disturbance.
  - Design and install permeable fills in wetlands when practicable.
  - For culvert projects, NMED encourages lower-impact techniques such as bottomless and embedded culverts.
  - Schedule construction activities in wetlands during low water or winter (frozen) conditions.
2. NMED notification:
  - a. Activities that require preconstruction notification to NMED can be found in the USACE's New Mexico Regional Condition 2.b. NMED preconstruction notification must include:
    - i. Detailed project purpose and construction plans, including why the proposed approach does not result in more than minimal impact to the aquatic resource.
      1. Notification of projects to maintain or repair existing structures must include a description of how the existing structure failed and what will be done to prevent failure in the future.
      2. Notification of projects to extend existing bank stabilization must include a description of the existing bank stabilization, including the length, location, and the type of materials that were used.
      3. Notification of projects to install or repair culverts must include a description of how the culvert sizing was determined.
      4. Notification of projects to reshape an existing drainage ditch must describe the handling of excavation materials and how the structure, when fully operational, will maintain or improve water quality.
    - ii. Description of potential adverse water quality impacts including the project's potential impact on turbidity, an optical measurement of water affected by the amount of suspended material, as well as oil, grease, or hydraulic fluid, and all other potential contaminants.
    - iii. Description of methods to be used to prevent water quality impacts, including BMPs designed to minimize sediment, oil, grease, and other pollutants from entering the water.

1. Projects to remove riparian vegetation must describe methods to prevent subsequent erosion into aquatic resources.
  2. Projects that would result in dredge or fill in waterbodies listed as impaired under Section 303(d) of the CWA must include specific measures that will be used to avoid causing or contributing to a violation of water quality standards. The current EPA-approved New Mexico list of impaired waters is available at <https://www.env.nm.gov/swqb/303d-305b/> (see "All Impairments (Cat. 4 or 5)" spreadsheet).
- b. Additionally, the following types of projects require notification to NMED:
- i. NMED must be notified at least five days before starting construction to allow time to schedule monitoring or inspections.
  - ii. NMED must be notified immediately if the project results in an exceedance of applicable water quality standards. This condition applies to projects in any water of the State, including ephemeral waters.
  - iii. NMED must be notified if the project is delayed into times of predictable flooding (seasonal monsoons or snowmelt). Notification must describe BMPs to protect the stream from excessive turbidity, such as diversion structures capable of conveying the potential flood flows.
  - iv. NMED must be notified if the project involves work in standing or flowing surface water. Notification must include a description of planned methods to minimize turbidity in the stream and to avoid spills that would contaminate the surface water.
  - v. NMED must be notified of any proposed project to channelize a stream, whether previously channelized or not. Notification must include the information described under certification condition 2.a, above.
  - vi. NMED must be notified at least five days before starting construction to allow time to schedule monitoring or inspections. The NMED must be notified immediately if the project results in an exceedance of applicable Standards.
3. Unless approved by NMED:
- a. Projects must not alter the natural stream channel size or shape (width, depth, gradient, direction or meander pattern), streamflow velocity (sediment transport rates), or water flow capacity. Requests for approval of such deviations must include descriptions of planned methods to minimize turbidity and avoid spills, as well as to stabilize the modified hydraulic geometry.
  - b. Bank stabilization projects must incorporate native vegetation or other bioengineered design techniques (e.g. willow plantings, root wads, large woody debris, etc.). Requests for such approval must describe why native vegetation or other bioengineered design techniques were rejected.
  - c. Stormwater management structures must not be located within natural drainage systems, such as sediment basins within a stream channel. Requests for such approval must include a description of "off-line" designs considered and why they were rejected.
  - d. Flowing water must be temporarily diverted around the work area, but remain within the existing channel to minimize erosion and turbidity and to provide for aquatic life movement. Requests for such approval must include descriptions of planned methods to minimize turbidity, to avoid



- spills, and to provide a continuous zone of passage for aquatic life through or around the project area in which the water quality meets all applicable criteria including turbidity.
- e. Heavy equipment must be operated from the bank or work platforms and not enter surface water. Requests for such approval must include a description of BMPs to minimize turbidity and to avoid spills.
  - f. Disturbed areas outside stream channels that are not otherwise physically protected from erosion must be reseeded or planted with native vegetation. Requests for approval of deviation from this condition must describe methods to minimize turbidity and avoid spills, as well as final grading plans.
  - g. All areas adjacent to the watercourse that are disturbed because of the project, including temporary access roads, stockpiles and staging areas, must be restored to pre-project elevations.
  - h. Culvert design must allow for the passage of fish and other aquatic organisms.
  - i. Wetland crossings must be restricted to a single location and constructed perpendicular to and at a narrow point of the wetland.
4. The permittee shall allow NMED representatives to inspect the authorized activity and any mitigation areas at any time deemed necessary to determine compliance with applicable State Water Quality Standards.
5. Structure design:
- a. Structures at stream crossings must be properly designed, installed and maintained to allow passage of sediment, bedload, and woody debris, and to prevent erosion problems or post-construction diversion of the stream from its natural channel.
  - b. Culverts at stream crossings must be designed and installed to prevent upstream headcutting, downstream channel incision, and erosion of the stream banks or the crossing. Culverts at stream crossings must also be designed to prevent flood flows from being diverted away from the natural channel when the culvert is overtopped.
6. Scheduling: Project activities must avoid times of predictable flooding (seasonal monsoons or snowmelt) to avoid working in high water. Releases from dams must be incorporated into the work schedule to avoid working in high water.
7. Construction diversions: Diversion structures must be non-erodible, such as sand bags, water bladders, concrete barriers, or channel lined with geotextile or plastic sheeting. Dirt cofferdams are not acceptable diversion structures.
8. Use of heavy equipment:
- a. All heavy equipment used in the project area must be pressure washed and/or steam cleaned before the start of the project and inspected daily for leaks. A written log of inspections and maintenance must be completed and maintained throughout the project period. Leaking equipment must not be used in or near surface water.
  - b. Fuel, oil, hydraulic fluid, lubricants, and other petrochemicals must not be stored within the 100-year floodplain. Refuel equipment at least 100 feet from surface water.

- c. Heavy equipment must not be parked within the stream channel.

9. Construction materials and fuels:

- a. Except as specified in the application, no debris, silt, sand, cement, concrete, oil or petroleum, organic material, or other construction related materials or wastes shall be allowed to enter into or be stored where it may be washed by rainfall or runoff into aquatic resources. Appropriate spill clean-up materials such as booms and absorbent pads must be available on-site at all times during construction. Dumping of any waste materials is prohibited.
- b. Poured concrete must be fully contained in mortar-tight forms and/or placed behind non-erodible cofferdams to prevent contact with surface or ground waters. Appropriate measures must be used to prevent wastewater from concrete batching, vehicle wash-down, or aggregate processing impacting aquatic resources.

10. Construction (temporary) impacts:

- a. Water used in dust suppression shall not contain contaminants that could violate water quality standards.
- b. Protective measures must be used to prevent blast, ripped or excavated soil or rock from entering surface waters.
- c. Materials associated with repair, demolition, treatments, or cleaning activities of bridges or associated structures must be kept out of the channel. Generally, impermeable containment material (e.g., plastic sheet, canvas, tarpaulins or other catchment devices) must be secured under the structure to capture falling debris. Sandblasting must include vacuum systems or the structures must be completely bagged to collect all paint and concrete debris. Any debris that falls onto the containment area or channel must be properly disposed in accordance with the New Mexico Solid Waste Regulations (20.9.1 NMAC). Applicable Material Safety Data Sheets of water repellants and surface finish treatments must be maintained at the project area.

11. Trenching:

- a. Excavated trenches within or adjacent to aquatic resources must be backfilled and compacted to match the adjacent undisturbed soil.
- b. Except for dewatering activities described in the submitted construction plans, excavated trenches must not result in draining any aquatic resource including wetlands.
- c. Excavation dewatering discharges must be uncontaminated. Aquatic resources must be protected from excessive turbidity associated with dewatering, such as discharging to an uplands area behind a vegetative buffer. Note that dewatering discharges may be subject to NMED Discharge Permits. 20.6.2.1201 NMAC requires any person intending to make a new water contaminant discharge to file a notice of intent to discharge with the Ground Water Quality Bureau (<https://www.env.nm.gov/gwb/>) for discharges that may affect ground water and/or with the Surface Water Quality Bureau (<https://www.env.nm.gov/swqb/>) for discharges that may affect surface water. Based on the information provided in the notice of intent, the Bureau will notify the person if a discharge permit is required.



12. Wetlands: Wetland vegetation and excavated top soil must be retained and reused to improve seeding success. Flows to wetlands must not be permanently disrupted.
13. Post-construction stabilization:
- a. Permittees and their contractors shall take necessary steps to minimize channel and bank erosion during and after construction. Where applicable, banks shall be reseeded or replanted with native vegetation.
  - b. Disturbed areas outside stream channels that are not otherwise physically protected from erosion must be reseeded or planted with native vegetation. Stabilization measures including vegetation are required at the earliest practicable date, but by the end of the first full growing season following construction. Native woody riparian and/or wetland species must be used in areas that support such vegetation. Plantings must be monitored and replaced for an overall survival rate of at least 80 percent by the end of the second growing season. Once established, native plants adapted to the site must be able to thrive with no supplemental water or treatment. Silt fences, seed free straw mulch, biodegradable straw wattles, and other techniques must be employed as appropriate to protect waters from sedimentation and other pollutants.
14. Posting: A copy of this Certification must be kept at the project site during all phases of construction. All contractors involved in the project must be provided a copy of this certification and made aware of the conditions prior to starting construction.

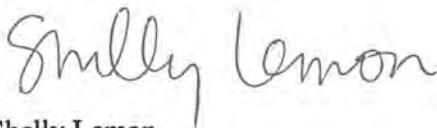
**Denial of Certification of NWPs**

NMED denies Certification for NWP-37 (Emergency Repair Activities), in favor of handling "emergency repairs" with an Emergency Regional General Permit Number (Repair and Protection Activities in Emergency Situations) or expedited permitting under another NWP permit.

For proposed activities in Outstanding National Resource Waters (ONRW, 20.6.4.9 NMAC) NMED denies Certification of all NWPs except NWP-27. NMED hereby certifies NWP-27 for restoration activities within ONRWs, pursuant to 20.6.4.8.A.4 NMAC. The certification process for activities covered by nationwide permits other than NWP-27 will be conducted pursuant to 20.6.2.2002 NMAC.

Please contact Neal Schaeffer of my staff at (505) 476-3017 should you have any questions.

Sincerely,



Shelly Lemon  
Acting Chief  
Surface Water Quality Bureau

SL: cns

xc: Tom Nystrom, Wetlands, Region 6, USEPA  
Matthew Wunder, New Mexico Department of Game and Fish  
U.S. Fish and Wildlife Service  
401 Certification File 1299

**ATTACHMENT 4**



**QUESTA TAILINGS PIPELINE REMOVAL PROJECT  
AQUATIC RESOURCE INVENTORY REPORT  
CHEVRON ENVIRONMENTAL MANAGEMENT COMPANY  
QUESTA, NM**

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**January 14, 2019**

**Project #: 476-027-003**

**SUBMITTED BY:** Trihydro Corporation

1252 Commerce Drive, Laramie, WY 82070

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ENGINEERING SOLUTIONS. ADVANCING BUSINESS.



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# 1.0 INTRODUCTION

On behalf of Chevron Environmental Management Company (CEMC), Trihydro Corporation (Trihydro) hereby submits this aquatic resource inventory report for the Questa Tailings Pipeline Removal Project to the United States Army Corps of Engineers (Corps). The Questa Mine is a former underground and open pit molybdenum mine and milling operation owned by Chevron Mining Inc. (CMI). The mine and mill facilities are located approximately 7 miles east of the Village of Questa, New Mexico (Questa), in Taos County along New Mexico Highway 38 and the adjacent Red River. The Questa Mine's Tailing Facility is located approximately 9 miles west of the mine, near Questa, NM. The tailings pipeline was constructed to transport mill tailings, as a slurry, to the tailings facility. Conventional underground mining operations began in 1918 and continued until 1958. Underground mining resumed in 1982 and continued through approximately 2012. Open pit mining was conducted between 1965 and 1983. CMI announced the cessation of operations at the mine on June 2, 2014 and initiated closeout activities.

In the 1960's, the Questa Mine constructed a pipeline from the Mill Area of the mine approximately 9 miles west to the Tailings Facility. From east to west, the pipeline typically consists of two 14-inch outside diameter, rubber lined steel pipes that parallel Highway 38 down the Red River Canyon, through the Village of Questa, to the Tailings Facility on the west side of town (Figure 1). In some areas, additional sections of pipeline were constructed to provide a backup line where access was limited. The pipe transitioned to HDPE at the Tailings Facility Flow Monitoring Building.

The Questa Mine stopped using the pipeline to transfer tailings in April of 2012, but continued to pump mine collected waters from the Mine Site groundwater collection systems and the underground mine to the Tailings Facility. The collected water likely flushed any remaining tailings from the pipeline, but some of the collected water may remain in low areas of the pipeline upon cessation of its use. The currently active pipeline was flushed with fresh water prior to cessation.

The pipeline crosses CMI property, United States Forest Service (USFS) property, New Mexico Department of Transportation (NMDOT) right of way (ROW), along with four private landowners' property. The pipeline crosses over the Red River at four locations and under Highway 38 at four locations. Most of the pipeline is above ground, running along Highway 38 or on CMI or USFS property. Some sections of the pipeline are buried and may either be abandoned in place or excavated and removed, depending on depth of burial and/or ease of access. There are structures along the route including three small pressure vessels, the Upper Dump Sump, the Lower Dump Sump and support buildings, three old bridges, two elevated trestles, and the Tailings Facility Flow Monitoring Building. For this report, bridges are defined as structures crossing streams, and are capable of carrying foot or vehicular traffic as well as pipe and other utilities. A trestle is an above ground structure designed for carrying pipe or other utilities only.

## 1.1 PURPOSE

The purpose of the Tailings Pipeline Removal Project is to remove the entire tailing pipelines from the Mill Area to the Tailings Facility Catchment Pond, or abandon the buried tailing pipeline in place where necessary. The work scope also includes demolition and removal of the three small pressure vessels, the Lower Dump Sump and support buildings, non-utility bearing bridges, the trestle, and the flow monitoring building.

The primary purpose of this report is to present the results of an aquatic resource inventory conducted on May 9 and 10, 2018 which is included as an appendix to the preconstruction notification (PCN) submitted to the Corps

The tailings pipeline parallels the Red River for about half of the 8.5-mile pipeline length, crossing the Red River at four locations. The Red River is a jurisdictional water of the U.S. (WOUS), requiring permitting through the Corps prior to beginning the regulated activity. The pipeline also crosses the Embargo Ditch and other irrigation ditches located near the Tailings Facility. The Embargo Ditch draws water from the Red River and returns water downstream to the Red River. In the State of New Mexico, irrigation ditches that draw water from a WOUS and return water to WOUS remain WOUS. Therefore, the Embargo Ditch (and possibly other irrigation ditches in the area) are considered jurisdictional WOUS. Wetlands associated with jurisdictional waters are WOUS. and are also jurisdictional.

## 1.2 REGULATORY AUTHORITY

The Corps Nationwide Permit NWP-12 applies to utility line activities. the Corps concurred that NWP-12 should be applicable to the tailings pipeline removal effort. NWP-12 limits loss of wetlands to ½-acres of waters of the U.S. for each completed Project. The Corps has indicated that the tailings pipeline removal Project, including the Lower Dump Sump, is considered to be a single and complete Project. NWP-12 requires PCN submittal. Section 11 of the PCN requires confirmation that all 32 of the NWP general conditions have been adequately addressed by the prospective permittee, including aquatic resources inventory, aquatic life movement and breeding, migratory bird breeding, bat roosting sites, and cultural resources.

## 1.3 PROJECT AREA DESCRIPTION

The Project Area is located in northern New Mexico on the west slope of the Sangre de Cristo Mountain Range in the Southern Rocky Mountains. The Project Area crosses west to east through four distinct ecoregions including the Taos Plateau, Foothill Woodlands and Shrublands, Volcanic Mid-Elevation Forests and Shrublands, and Crystalline Mid-Elevation Forests and Shrublands (Griffith et al. 2006).

The western extent of the Project Area and tailing ponds area is located in the Taos Plateau, an ecoregion that is characterized by rolling to level plateau, some volcanic cones and the deep Rio Grande River gorge. Most streams within the Taos Plateau are ephemeral and intermittent. The geology of the area comprises Quaternary Eolian deposits, colluvium, piedmont and fan alluvium, and primarily Pliocene basalt and volcanic rocks. Soils comprise Aridisols and Alfisols. Vegetation is dominated by big sagebrush shrub lands with other shrubs, some grasses, and occasional piñon and juniper.

Upslope from the Taos Plateau is the Foothill Woodland and Shrublands ecoregion that consists of hills, ridges, and footslopes with moderate to high gradient perennial, intermittent, and ephemeral streams. The geology of the area is varied and includes Quaternary colluvium and alluvium deposits, sedimentary rock, and various volcanic formations. Soils include Alfisols, Inceptisols, and Entisols. Vegetation in this ecoregion is typically dominated by a combination of piñon and juniper woodlands, sagebrush, mountain mahogany stands, and Gambel oak woodlands. Varied foothill-mountain grasslands are interspersed with blue grama, prairie junegrass, or western wheatgrass.

Volcanic Mid-Elevation Forests and Shrublands occur higher in elevation than Foothill Woodland and Shrublands and are characterized by low mountain ridges, slopes, and outwash fans with moderate to high gradient perennial streams. Geology is similar to the Foothills and Woodlands and soils consist of Alfisols, Mollisols, and Inceptisols. Ponderosa pine forests dominate with understory species that may include Gambel oak, mountain mahogany, and other shrubs and grasses. At the higher elevations in this ecoregion, Douglas and white fir forests and small aspen stands may occur.

The eastern extent of the Project Area is in the Crystalline Mid-Elevation Forests and Shrublands which consists of similar physiography to the Volcanic Mid-Elevation Forests and Shrublands and similar geology though with more granitic rock. Soils comprise Alfisols, Inceptisols, and Entisols. Vegetation is similar to that found in the Volcanic Mid-Elevation Forests and Shrublands and is dominated by ponderosa pine at the lower elevations with a greater amount of Douglas and white fir, limber pine, and small aspen stands found at higher elevations.

### **1.3.1 SOILS**

Eleven soil map units are crossed by the Project (NRCS 2017) with the two most prevalent being Cumulic Haploborolls, nearly level (14%) and Rock outcrop-badland complex, very steep (12%). Cumulic Haploborolls, nearly level, are found in alluvial fans and valley sides. The parent material is alluvium derived from igneous and metamorphic rock. Soil is generally considered well drained and comprises loam and sandy clay loam. Rock outcrop-badland complex, very steep, are found on mountain slopes with a typical profile consisting of bedrock. All soil units occurring within the 50-foot buffer area are presented in Table 1 and Figure 1.

### 1.3.2 VEGETATION

Vegetation communities vary across the Project Area and generally transition from sagebrush shrub-steppe dominated communities at the western extent of the tailings pipeline to higher elevation conifer forests at the eastern extent of the tailing pipeline. The primary vegetation communities within the Project Area include sagebrush-steppe, ponderosa pine forest, riparian, and disturbed.

Sagebrush (*Artemisia tridentata*) shrub-steppe communities are dominated by sagebrush and rabbitbrush (*Ericameria nauseosa*), with a sparse understory of grasses and forbs. These communities may also include piñon and juniper associations. Portions of the soil surface may be covered with cryptogamic crusts. This is the predominant vegetation community along the western extent of the tailing pipeline.

Ponderosa pine forest occurs at elevations from the Lower Dump Sump (7,300 feet) to the east extent of the tailings pipeline at 8,100 feet. This vegetation community is dominated by mature ponderosa pine in open stands with an understory of shrubs and herbaceous cover. Dominant understory species include smooth brome (*Bromus inermis*), Rocky Mountain juniper (*Juniperus scopularum*), big sagebrush, rabbitbrush, Gambel oak (*Quercus gambellii*), skunkbush (*Rhus aromatica*), and Wood's rose (*Rosa woodsii*). White fir (*Abies concolor*), Englemann spruce (*Picea engelmannii*), and quaking aspen (*Populus tremuloides*) increase with elevation from west to east up the Red River Canyon.

Riparian areas are present along the Red River where it is intersected by the tailings pipeline. Riparian areas in the Project Area are dominated by woody species. Narrowleaf cottonwood (*Populus angustifolia*) is the dominant tree species in riparian areas with small trees and shrubs consisting of speckled alder (*Alnus incana*), river birch (*Betula occidentalis*), narrowleaf willow (*Salix exigua*), and Wood's rose. Grasses and forbs along the Red River include redtop (*Agrostis stolonifera*), smooth brome, and field horsetail (*Equisetum arvense*).

Disturbed areas are common along the pipeline route but primarily occur along the western extent of the tailings pipeline near the tailings ponds, at the lower dump sump, and generally along the roadsides. Vegetation comprises a variety of weedy plants with cheatgrass (*Bromus tectorum*), smooth brome, and Mexican fireweed (*Bassia scoparia*) common.

### 1.3.3 HYDROLOGY

The Project Area is located within Hydrologic Unit Code 13020101, the Upper Rio Grande Watershed, that begins at the Colorado/New Mexico border and drains an area of approximately 3,220 square miles (USGS 2010), including 94.79 percent of Taos County (USDA 2008). The Red River is the primary hydrologic feature in the Project Area. It is



a perennial stream that originates in the Sangre de Cristo Mountains and forms a confluence with the Rio Grande River southwest of Questa. Numerous ephemeral streams designed as R4SBC (Riverine, intermittent, streambed, seasonally flooded) cross under the tailings pipeline and drain into the Red River. These ephemeral streams consist of steep, rocky drainages that flow during high precipitation events.

There are a number of man-made ditches that are crossed by the tailings pipeline including a drainage ditch that generally follows Moly Mine Road from east to west and is designated as R5UBFx (Riverine, unknown perennial, unconsolidated bottom, semi-permanently flooded, excavated) in the National Wetland Inventory (NWI). The Embargo Ditch, an Acequia, also crosses the tailings pipeline along the western portion of the Project. It is classified as R4SBCx (riverine, intermittent, streambed, seasonally flooded, excavated). The Embargo Ditch takes water from the Red River just west of the U.S. Forest Service building and apparently returns water approximately 1.5 miles downstream of Questa.

## 2.0 METHODS

### 2.1 DATA REVIEW

A review of available information relative to jurisdictional WOUS was performed in-house prior to visiting the Project Area. Potential wetlands were determined by overlaying the tailings pipeline (including a 50 foot-wide buffer) and all other areas of the Project over aerial photographs of the area, topographic maps, NWI maps (USFWS 2017), and NRCS soil maps (NRCS 2017). In addition, previous environmental reports from the area were reviewed prior to conducting the onsite assessment.

### 2.2 AQUATIC RESOURCE DELINEATION METHODOLOGY

Trihydro conducted an onsite assessment of aquatic resources on May 9 and 10, 2018. Erik Schmude, a Trihydro biologist, led the onsite assessment. Methods used to delineate aquatic resources in the Project Area were based on a combination of desktop mapping using NWI data, photo documentation of all aquatic features crossed by the tailings pipeline, and onsite delineation of aquatic resources where Project impacts are expected (i.e. bridge crossings, Lower Dump Sump). These methods were discussed with the Corps prior to the onsite assessment.

According to NWI data, the Project Area intersects a number of aquatic resources including the Red River and adjacent wetlands, the Embargo Ditch, a number of unnamed ditches and ephemeral drainages classified as intermittent riverine, and isolated emergent wetlands associated with the Lower Dump Sump. Onsite determination of aquatic resource presence and boundaries were completed only in areas where impacts may have been expected at crossings of the Red River and at the Lower Dump Sump. However, every aquatic resource indicated in the NWI dataset was field checked and photographed.

For areas where impacts are expected, wetland determinations were completed using the Routine Determination protocol described in the *Corps of Engineers Wetland Delineation Manual* (USACE 1987). Wetland determination field methods followed the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valley, and Coasts* (USACE 2010) based on location and vegetation in the area (primarily ponderosa pine forest). Determinations of wetlands included an evaluation of plant species and percent cover by vegetation strata, digging of a soil pit to observe soil characteristics and presence of hydric soil indicators, and observations of hydrological indicators at the soil pit location. Wetland determination data forms were completed for each wetland and a paired upland observation point. For locations where no wetlands were found, a single upland point was evaluated and documented. If aquatic resources and their boundaries matched NWI data, no field delineation was completed, only

verification of the presence of the aquatic resource. If NWI was found to be inaccurate, based on the field assessment, then the aquatic resource information and/or boundaries were updated for the segment of the pipeline (50 foot wide area) crossing the resource. Wetland determination points and any updated aquatic resource boundaries were recorded using a Trimble sub-meter accuracy global positioning system (GPS) and photographs were taken of each feature. A unique ID was given to each determination point. Photographs of additional aquatic resources, with no expected impacts, were also given unique IDs.

Wetlands were identified in the field as areas having positive evidence of three environmental parameters: hydric soils, wetland hydrology, and hydrophytic vegetation as indicated by greater than 50% OBL, FACW, or FAC species or less than or equal to 3.0 prevalence index. Aquatic resources were classified using the Cowardin system (Cowardin et al. 1979). Aquatic resources within the Project Area include Palustrine Emergent Wetlands (PEM), Palustrine Scrub-shrub (PSS), Palustrine Forested (PFO), and various River classifications streams, ditches, and other drainage features.

PEM wetlands are those aquatic features dominated by herbaceous emergent plants. Plant species commonly found in PEM wetlands in northern New Mexico include hydrophytic grasses, cattails (*Typha angustifolia*), sedges (*Carex* spp.), and rushes (*Juncus* spp.). PSS wetlands are those aquatic features dominated by shrubs under 20 feet tall or with trunks or stems less than 3 inches in diameter. Common PSS plant species found in this region include willow (*Salix* spp.), alder (*Alnus* spp.) and small cottonwoods (*Populus* spp.). PFO wetlands are dominated by trees greater than 20 feet high with stems greater than 3 inches in diameter. PFO wetland species composition commonly includes cottonwood, larger willows, and river birch (*Betula occidentalis*). Combinations of these communities may also be present in a wetland.

## 3.0 RESULTS

This section provides a discussion of the results of the onsite and desktop aquatic resource inventory including detailed information pertaining to each area where temporary impacts to aquatic resources are expected. Wildlife and cultural resource assessments required for the PCN are presented in section 3.1.2 and 3.2.

### 3.1 AQUATIC RESOURCE FINDINGS

Aquatic resources intersected by the Project Area include the Red River (4 crossings), 13 ephemeral streams, the Embargo ditch, 4 unnamed man-made ditches, 7 PSS wetlands, and 2 PFF wetlands, according to information gathered during the onsite assessment on May 9 and 10, 2018. The NWI data showed that Columbine Creek, an intermittent stream, was crossed by the Project. However, the onsite assessment indicated this stream intersects the Red River to the east of the NWI location and is not actually crossed by the Project. In addition, NWI data indicated the presence of two PEM wetlands in and adjacent to the Lower Dump Site; however, these areas were checked during the onsite delineation and no wetlands indicators were observed for each area.

A summary of aquatic resources delineated in the onsite wetland assessment are presented in Table 2 which includes a total of 0.53 acres of perennial riverine (R3RB1H, Red River), and 0.06 of PSS wetland present within the 50 foot wide pipeline corridor. These acreage calculations are based NWI data with slight modifications in areas of river crossings where onsite wetland assessments were completed on May 9 and 10, 2018. For the purpose of this project, all areas delineated riverine have been assumed to be WOUS. Figures 2 through 9 show all aquatic resources in the Project Area.

Based on this inventory, and the proposed construction footprints for removal of the pipeline, temporary impacts to wetlands and waters will be limited to two of the Red River bridge crossings, the Elevated Trestle and Thunder Bridge, and include temporary impacts to 0.137 acre of riverine areas (assumed to be WOUS) and 0.171 acre of scrub-shrub wetland (Table 3). No impacts to the Embargo Ditch or any other irrigation ditches are expected to occur. Temporary impact acreage calculations are based on the onsite assessment and delineation of resource boundaries on May 9 and 10 and NWI data. Where construction footprints for the proposed activity extended beyond on the buffer the resource boundary delineated in the field, the NWI dataset was used to calculate impacts. No permanent loss of wetlands or WOUS will occur. Figures 6 and 7 in the PCN show areas where temporary impacts to aquatic resources are expected.

The results from each of the 10 field determination points are included in digital copies of Wetland Determination Data Forms in Appendix A. Photographs of each determination point as well as photographs of each of the ponds and



streams, are provided in Appendix B. All aquatic resources including determination points, NWI data, field verified aquatic resource, and photo points are shown in Figures 3-9.

### **3.1.1 AQUATIC RESOURCES IMPACTED BY PROJECT**

As described in Section 2.0, onsite delineation of aquatic resources was completed in areas where construction activities associated with removal of the tailings pipeline may occur. Temporary impacts will include disturbance to aquatic resources resulting from temporary installation of diversion structures and diversion pipelines, vehicle and foot traffic, removal of concrete supports during pipeline removal. Five distinct areas were assessed. These areas include the crossing of potential wetlands at the Lower Dump Sump (according to NWI data) and four pipeline/bridge crossings of the Red River. A summary of findings for each of these areas is presented below.

#### **3.1.1.1 LOWER DUMP SUMP**

According to NWI data, there are two PEM wetlands present at the Lower Dump Sump including one onsite and one offsite, where impacts may occur. Determination points (Q-1 and Q-2) were placed in each of the potential wetlands. No wetland indicators were observed at either location indicating that wetlands are absent from this area (Figure 4). Vegetation, soils, and hydrology were found to be highly disturbed at both locations. Both areas are within man-made, bermed depressions constructed to contain tailings materials. Vegetation in both areas was sparse and inhabited by weedy plant species common associated with disturbed areas including Mexican fireweed, cheatgrass, and hairy golden aster (*Heterotheca villosa*). Soils showed no sign of hydric indicators. Based on the delineation and proposed demolition footprint, no impacts to WOUS or wetlands will occur at this location.

#### **3.1.1.2 RED RIVER CROSSING (ELEVATED TRESTLE)**

The tailings pipeline crosses the Red River, on an elevated trestle, from 36°41'41.97"N, 105°35'45.20"W to 36°41'45.07"N, 105°35'48.90"W. From the east, this is the 4th crossing of the Red River as shown in Figure 3. The pipeline is suspended above the river by an elevated steel trestle (Photo 9 and Photo 10 of Appendix B). The river is approximately 26 feet wide at the crossing. In order to perform the pipeline removal, the project will involve the installation of two temporary diversion structures and two 24-inch diversion pipelines. Pipeline removal would consist of removing two 14-inch steel pipes, removal of one 14" wrapped pipe, and removal of concrete supports located at the east and west bank of the river, within the river channel. NWI data indicates that a small amount of PFO wetland occurs approximately 20 feet to the south of the pipeline on both the east and west side of the river.

Two determination points were assessed at this location including Q-3a placed 20 feet and Q-3b placed approximately 100 feet from the edge of the ordinary high-water mark (OHWM) of the river. No wetlands were documented within the 50-foot wide pipeline buffer based on a lack of two or more wetland indicators.

Hydrophytic vegetation was present at Q-3a (primarily water birch); however, no hydrology indicators were observed and hydric soil indicators were weak with no depleted matrix. No wetland indicators were observed at Q-3b; however, hydric soil indicators were lacking at both locations. As is indicated by the NWI data, wetlands are absent beneath the pipeline trestle. The NWI data does indicate that wetland is present just inside the 50-foot buffer, along the south end. However, no wetland was documented in this area based on conditions observed at the determination points and an assessment of onsite conditions. Only WOUS would be affected within the 50-foot buffer. The river boundary indicated by NWI was found to be accurate (Figure 3).

#### **3.1.1.3 RED RIVER CROSSING (EAST OF RANGER STATION)**

The tailings pipeline crosses the Red River at approximately 36°42'6.96"N, 105°34'47.96"W east of the ranger station. From the east, this is the 3<sup>rd</sup> crossing of the Red River as shown in Figure 5. The pipeline is suspended above the river by a steel bridge (Photo 20a and 20b of Appendix B). The river is approximately 21 feet wide at the crossing. Pipeline removal would involve removal of two 14-inch steel pipes from the bridge structure. The bridge structure shall remain in place. . Based on the delineation and proposed construction footprint, no impacts to WOUS or wetlands will occur at this location. The two sections of 14-inch steel pipe will be pulled out of the WOUS.

NWI data indicates that no wetlands occur on either side of the riverine area. Two determination points were assessed at this location including Q-4a placed on the west side of the river and Q-4b placed on the east side of the river. Q-4b was placed in an area just outside of the apparent riparian area. No wetland indicators were observed. Vegetation was dominated by Rocky Mountain juniper. Vegetation has been removed in the 50-foot buffer on the both banks, on the south side of the pipeline. In this area, the river bank consists of river rock and concrete.

Determination point Q-4a was placed within the riparian area, at a low spot along the west bank of the river. Hydrophytic vegetation was present with water birch the dominant woody plant. However, hydric soil and hydrology indicators were not met at this location. Some redoximorphic features were observed; however, the soil matrix was not depleted enough to be considered a wetland soil.

NWI was correct in that no wetlands are present, at this crossing. The exact location of the riverine area was found to be inaccurate by approximately 40 feet. The actual boundary of the riverine area was delineated and is shown on Figure 5.

#### **3.1.1.4 RED RIVER CROSSING (THUNDER BRIDGE)**

The tailings pipeline crosses the Red River at approximately 36°41'4.29"N, 105°31'47.83"W. From the east, this is the 2<sup>nd</sup> crossing of the Red River as shown in Figure 7. This is known as the Thunder Bridge crossing. The river is approximately 25 feet wide at the crossing. The pipeline is suspended above the river by a wide steel bridge with wooden planks on top (Photo 21, 21a, and 21b of Appendix B). In order to perform the pipeline removal, the project will involve the installation of two temporary diversion structures and two 24-inch diversion pipelines. Pipeline removal would consist of removing two 14-inch steel pipes, and removal of the concrete supports and abutments located at the east and west bank of the river.

NWI indicates that the 50-foot pipeline corridor intersects a small amount of palustrine forested wetland and palustrine scrub-shrub wetland to the east and north of the crossing and palustrine scrub-shrub wetland to the west and south of the crossing. Two determination points were assessed at this location, one on the west side of the crossing and one on the east side of the crossing. The exact location of the riverine area was found to be inaccurate and was delineated in the field. The area to the east of the river sloped steeply into an upland area. No hydric soil or hydrology indicators were observed at point Q-5b. However, hydrophytic vegetation was observed as evidenced by 80 percent FAC and FACW species with narrowleaf cottonwood, speckled alder and Bebb's willow (*Salix bebbiana*) the dominant woody plants in the riparian zone.

All three wetland indicators were observed at point Q-5a, on the west side of the river. Hydric soil indicators observed include 30 percent redox concentrations in pore linings in a depleted matrix (10YR 4/2). In addition, hydrology indicators were observed including saturation (6" below ground surface), algal mat, iron deposits, water-stained leaves, and drainages patterns. All dominant plant species were FAC, FACW, or OBL species with water birch and willows dominating the shrub stratum. The boundary the PSS wetland as indicated by NWI data was found to be slightly inaccurate and was delineated in the field (Figure 7), within the 50-foot pipeline buffer. The NWI data was correct in classifying the wetland to the west of the river crossing as a PSS wetland.

#### **3.1.1.5 1<sup>ST</sup> RED RIVER CROSSING (BY COLUMBINE PARK)**

The tailings pipeline crosses the Red River at approximately 36°40'53.33"N, 105°30'53.97"W by Columbine Park. From the east, this is the 1<sup>st</sup> crossing of the Red River as shown in Figure 7. The pipeline is suspended above the river by a steel bridge (Photo 22a and 22b of Appendix B). The river is approximately 26 feet wide at the crossing. Pipeline removal would involve removal of two 14-inch steel pipes, the bridge cantilever, and the GWW liner. NWI data indicates that no wetlands occur on either side of the riverine area. Two determination points were assessed at this location including Q-6a placed 5 feet and Q-6b placed approximately 15 feet from the edge of the OHWM of the river. Hydrophytic vegetation was present at both locations; however, hydric soil indicators were lacking at both locations.

Therefore, NWI was correct in that no wetland is present, adjacent to the Red River, at this crossing. The exact location of the riverine area was found to be inaccurate by approximately 75 feet. The actual boundary of the riverine area was delineated and is shown on Figure 7. Narrowleaf cottonwood is the dominant woody species along the riparian area with sparse shrubs, grasses, and forbs in the understory. Sphagnum moss was observed in an area within 5 or 6 feet of the riverine area.

### 3.1.2 TERRESTRIAL AND AQUATIC WILDLIFE

During the onsite aquatic resource assessment, a cursory wildlife survey was conducted to identify any potential terrestrial or wildlife issues for the Project. This included documentation of any raptor or migratory bird nests, bat roosts, endangered species, aquatic life movements, or fish spawning areas potentially impacted by the Project. In addition, potential presence of threatened or endangered (T&E) species was assessed for the Project Area.

An official species list was provided by the USFWS New Mexico Ecological Services Field Office and indicates a total of five T&E species may be present in the area of the Project (Appendix C). T&E species on the list include Canada lynx (*Lynx Canadensis*), New Mexico meadow jumping mouse (*Zapus hudsonius luteus*), Mexican spotted owl (*Strix occidentalis lucida*), Southwestern willow flycatcher (*Empidonax traillii extimus*), and yellow-billed cuckoo (*Coccyzus americanus*). There are no Critical Habitats within the Project Area. The New Mexico meadow jumping mouse and southwestern willow flycatcher are also designated as endangered by NMGF. All federal T&E species are considered rare for Taos county and there are no documented occurrences in or near the Project Area. Although riparian and wetland habitat is available, the closest occurrence of New Mexico jumping mouse is an individual trapped at Taos Ski Valley in 1966 (BISON-M 2017). None of these species are expected to occupy habitats affected by the Project.

Wildlife species observed during the survey included a variety of mammals and birds. Mammals in the area included big horn sheep (*Ovis Canadensis*), Abert's squirrel (*Sciurus aberti*), cottontail (*Sylvilagus* sp.), sign of elk (*Cervus elaphus*) and mule deer (*Odocoileus hemionus*), and sign of roosting bats (*Vespertilionidae*). Birds observed included a northern goshawk (*Accipiter gentilis*), western meadowlarks (*Sturnella neglecta*), spotted towhees (*Pipilo maculatus*), northern flickers (*Colaptes auratus*), bushtits (*Psaltiriparus minimus*), barn swallows (*Hirundo rustica*), violet-green swallows (*Tachycineta thalassina*), Canada geese (*Branta canadensis*), mallard ducks (*Anas platyrhynchos*), a western tanager (*Piranga ludoviciana*), yellow-rumped warblers (*Setophaga coronate*), dark-eyed juncos (*Junco hyemalis*), house finches (*Haemorhous mexicanus*), American robins (*Turdus migratorius*), American crows (*Corvus brachyrhynchos*), and turkey vultures (*Cathartes aura*). No raptor nests were observed in the area. Two unoccupied migratory bird nests were observed; a northern flicker cavity nest near the Embargo Ditch, and a cup nest built by an unknown species, beneath the bridge at the river crossing east of the Ranger Station.



Bridge crossings were checked for potential bat roost sites. With the exception of Thunder Bridge (2<sup>nd</sup> Red River Crossing) no suitable roosting habitat was observed at the bridges. The Thunder Bridge has a number of microhabitat features which could be used by bats; however, no signs of bat use were observed. An acoustic bat monitor was used during the day to check for ultrasonic vocalizations beneath the bridge. No bat vocalizations were recorded. A bat night roost was observed inside a large concrete culvert adjacent to the tailings pipeline (Photo 26 of Appendix B). This culvert crosses below Highway 38. Bat droppings were prevalent in the culvert indicating this is a commonly used roost site during the summer months. Suitable day roost or hibernacula habitat was not observed at this site. The culvert will not be removed during pipeline removal.

A number of game fish occur in the section of the Red River crossed by the pipeline. These game fish include triploid (sterile) rainbow trout (*Oncorhynchus mykiss*), raised in a hatchery downstream of the Project Area, and an introduced, wild brown trout (*Salmo trutta*) population. Stream substrate at the river crossing consisted of primarily cobbles. Spawning areas (i.e. gravel beds) were not observed in areas where concrete structures are to be removed from the stream.

### **3.1.3 OTHER WETLANDS ASSESSMENT**

CEMC contracted with URS Corporation (URS) (URS 2013 and 2014) to assess wetlands in locations near the pipeline removal corridor shown on Figures 1 through 9 of this report. The areas delineated by URS were outside of the scope of this ARI report. Copies of the URS reports are presented in Appendix D. Wetlands were determined to be present outside of the pipeline removal corridor, between the west and east ends of the Questa Tailings Pipeline Removal Project (Figure 1). The pipeline removal project will not impact the wetlands delineated by URS.

## **3.2 CULTURAL RESOURCES**

CEMC contracted with Arcadis to evaluate irrigation ditches within the pipeline removal corridor as potential historic resources and to evaluate if the pipeline removal activities will impact historic ditches. Arcadis submitted two reports (Arcadis 2018a and 2018b) to the New Mexico Minerals and Mining Division (MMD) and the New Mexico Historic Preservation Division (HPD). A summary of the findings as reported in personal communications is presented in Appendix E. Future work plans submitted to MMD and EPA will propose grouting pipeline segments in place if those areas determine to present high risk of impacts to historic irrigation ditches.

## 4.0 CONCLUSIONS

Temporary impacts to wetlands and waters are limited to two of the four Red River bridge crossings, the Elevated Trestle and Thunder Bridge and include temporary impacts to 0.137 acre of riverine areas (WOUS) and 0.171 acre of wetland. No impacts to the Embargo Ditch or any other irrigation ditches are expected to occur. Temporary impact acreage calculations are based on the onsite assessment and delineation of resource boundaries on May 9 and 10, 2018 and the NWI dataset. No permanent impacts to wetlands or WOUS will occur.

No raptor nests were observed in the area, during the onsite assessment. Two migratory bird nests were found; however, both were unoccupied. Therefore, no direct impacts to breeding birds are expected. An onsite assessment of the bridge crossings indicated that there are no roosting bats in these areas. A bat night roost was identified in a large concrete culvert at Photo Point 26 of Appendix B. This point is where a large number of bat droppings were observed. This culvert will not be removed and because pipeline removal will be short-lived and completed during the daytime. No significant impacts to bats are expected. No fish spawning areas were observed at the pipeline crossing of the Red River. No adverse impacts to aquatic species movements are anticipated during removal of the pipeline because the project will be short-lived. .

## 5.0 REFERENCES

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- Arcadis. 2018b. Chevron Questa Mine Tailings Pipeline Removal Project Cultural Resources Survey, Taos County, New Mexico (NMCRIS No. 140384). May 29, 2018.
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U.S. Department of the Interior Fish and Wildlife Service (FWS). 2017. National Wetlands Inventory. Wetlands Mapper. <http://wetlands.fws.gov/>.



## TABLES

**TABLE 1. SOIL MAP UNITS IN THE PROJECT AREA**

<b>Soil Code</b>	<b>Soil Map Unit Name</b>	<b>Square Feet</b>	<b>Acres</b>
CUB	Cumulic Haplaquolls, nearly level	232,160.24	5.33
CYB	Cumulic Haploborolls, nearly level	629,025.73	14.44
FeC	Fernando clay loam, 3 to 5 percent slopes	75,972.85	1.74
FLB	Fluvents, nearly level	38,939.44	0.89
LoB	Loveland clay loam, 0 to 3 percent slopes	22,273.01	0.51
RdG	Rock outcrop-Badland complex, very steep	505,220.28	11.60
RUG	Rock outcrop-Ustorthents complex, very steep	279,100.10	6.41
SED	Sedillo-Silva association, strongly sloping	177,506.59	4.08
SmB	Silva loam, 0 to 2 percent slopes	65,450.85	1.50
TeB	Tenorio loam, 0 to 3 percent slopes	13,264.50	0.30
TeC	Tenorio loam, 1 to 5 percent slopes	202,163.02	4.64

This summary is for the 50' Wetland Inventory Area, ending at the west end of the pipeline removal project.

**TABLE 2. AQUATIC RESOURCES WITHIN THE PROJECT AREA \***

<b>Cowardin Code</b>	<b>Wetland Type</b>	<b>Acres</b>	<b>Crossing</b>
R3RB1H	Riverine - Upper Perennial Stream with Rock Bottom	0.42	1st Red River Crossing (by Columbine Park)
PSS1C	Freshwater Scrub-shrub Wetland	0.06	2nd Red River Crossing (Thunder Bridge)
R3RB1H	Riverine - Upper Perennial Stream with Rock Bottom	0.05	2nd Red River Crossing (Thunder Bridge)
R3RB1H	Riverine - Upper Perennial Stream with Rock Bottom	0.03	3rd Red River Crossing (east of Ranger Station)
R3RB1H	Riverine - Upper Perennial Stream with Rock Bottom	0.03	4th Red River Crossing (Elevated Trestle)
<b>Total Riverine (WOUS)</b>		0.53	
<b>Total Wetland</b>		0.06	

\* Project Area = pipeline buffered by 50 feet

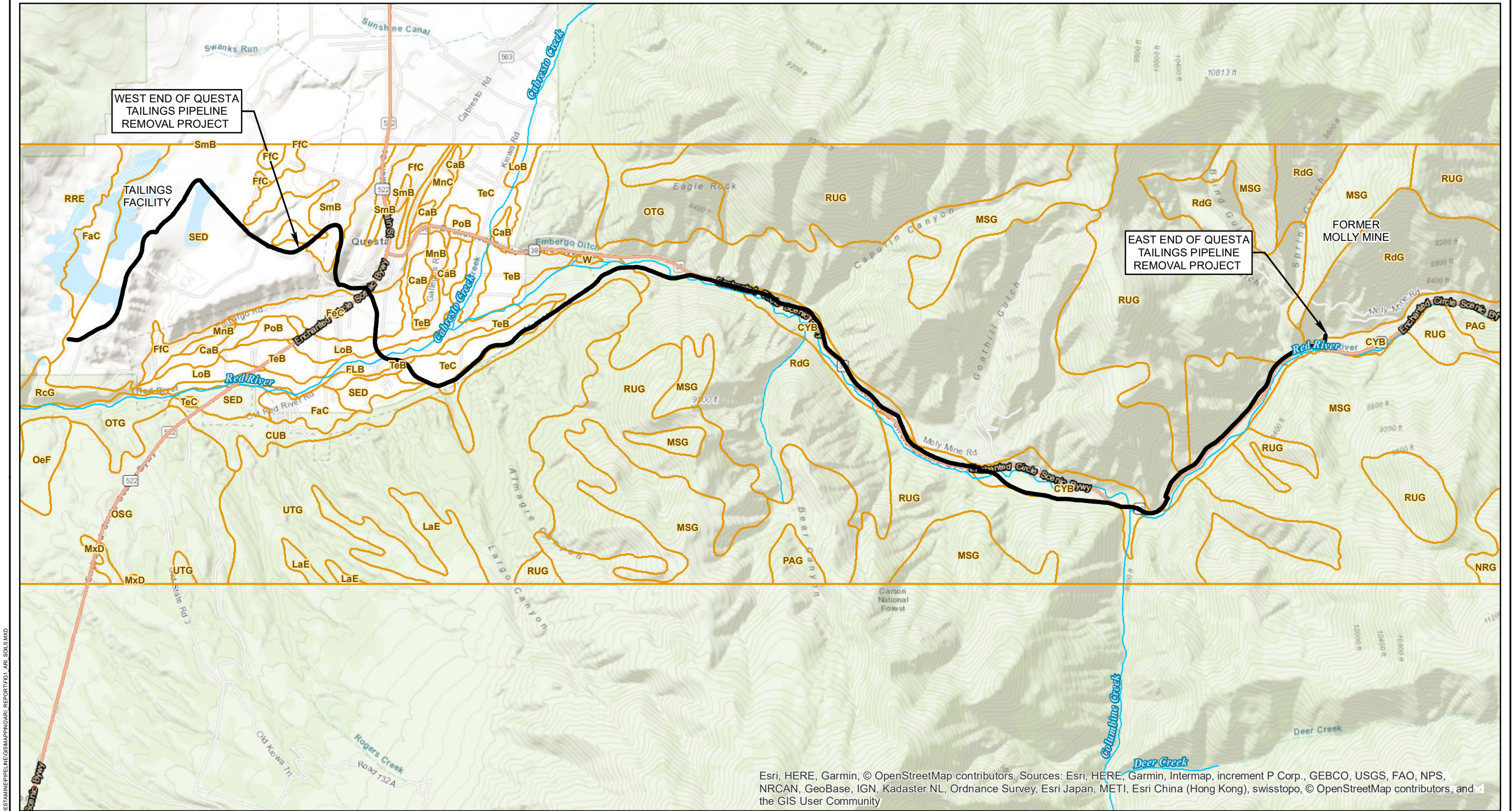
**TABLE 3. AQUATIC RESOURCES IMPACTS SUMMARY**

<b>COWARDIN CODE</b>	<b>RESOURCE TYPE</b>	<b>ACRES</b>	<b>NOTES</b>
R3RB1H	Riverine - Upper Perennial Stream with Rock Bottom (from delineation)	0.047	2nd Red River Crossing (Thunder Bridge)
R3RB1H	Riverine - Upper Perennial Stream with Rock Bottom (from NWI)	0.007	2nd Red River Crossing (Thunder Bridge)
PSS1C	PSS1C - Freshwater Scrub-shrub Wetland (from delineation)	0.0565	2nd Red River Crossing (Thunder Bridge)
PSS1C	PSS1C - Freshwater Scrub-shrub Wetland (from NWI)	0.0105	2nd Red River Crossing (Thunder Bridge)
R3RB1H	Riverine - Upper Perennial Stream with Rock Bottom (from delineation)	0.031	4th Red River Crossing (Elevated Trestle)
R3RB1H	Riverine - Upper Perennial Stream with Rock Bottom (from NWI)	0.052	4th Red River Crossing (Elevated Trestle)
PSS1C	PSS1C - Freshwater Scrub-shrub Wetland (from delineation)	0.00	4th Red River Crossing (Elevated Trestle)
PSS1C	PSS1C - Freshwater Scrub-shrub Wetland (from NWI)	0.104	4th Red River Crossing (Elevated Trestle)
TOTAL Riverine		0.137	
TOTAL Wetland		0.171	



## FIGURES

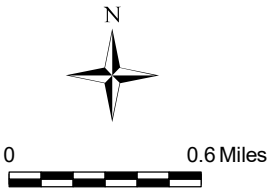




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**EXPLANATION**

- PIPELINE
- SOILS (NRCS 2018)



**FIGURE 1**

**SOILS**

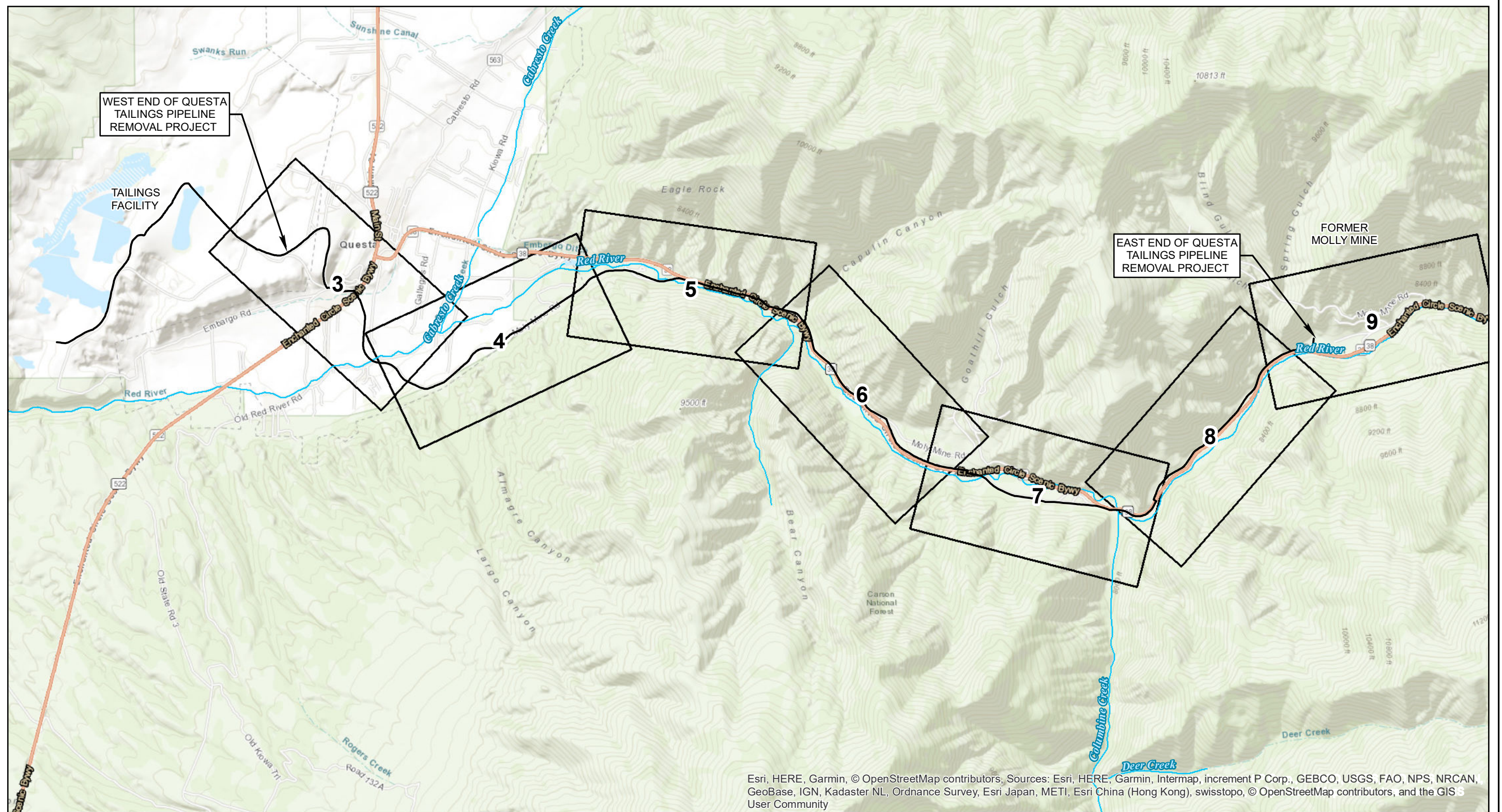
**CEMC QUESTA MINE  
QUESTA, NEW MEXICO**

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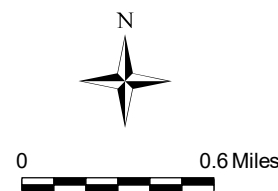
Esri, HERE, Garmin, © OpenStreetMap contributors, Sources: Esri, HERE, Garmin, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, © OpenStreetMap contributors, and the GIS User Community

**EXPLANATION**

- PIPELINE
- MAP INDEX

**NOTES:**

1. WETLANDS TYPE AND LOCATIONS BASED ON NATIONAL WETLANDS INVENTORY (NWI) ONLINE DATABASE WITH MINOR MODIFICATIONS BASED ON AERIAL IMAGERY.
2. NWI DATA MAY BE LIMITED TO REMOTE SENSING OF PLANT AND WATER SIGNATURES WITH LIMITED OR NO IN-FIELD CONFIRMATION.
3. SOME OF THE AQUATIC FEATURES IN THE NWI DO NOT EXIST DUE TO THE NATURE OF THE DATA, DEVELOPMENT, AND OTHER ACTIVITIES IN THE AREA. FIELD CONFIRMATION OF WETLANDS LOCATIONS IS RECOMMENDED PRIOR TO PROCEEDING WITH PIPELINE REMOVAL PROJECT.

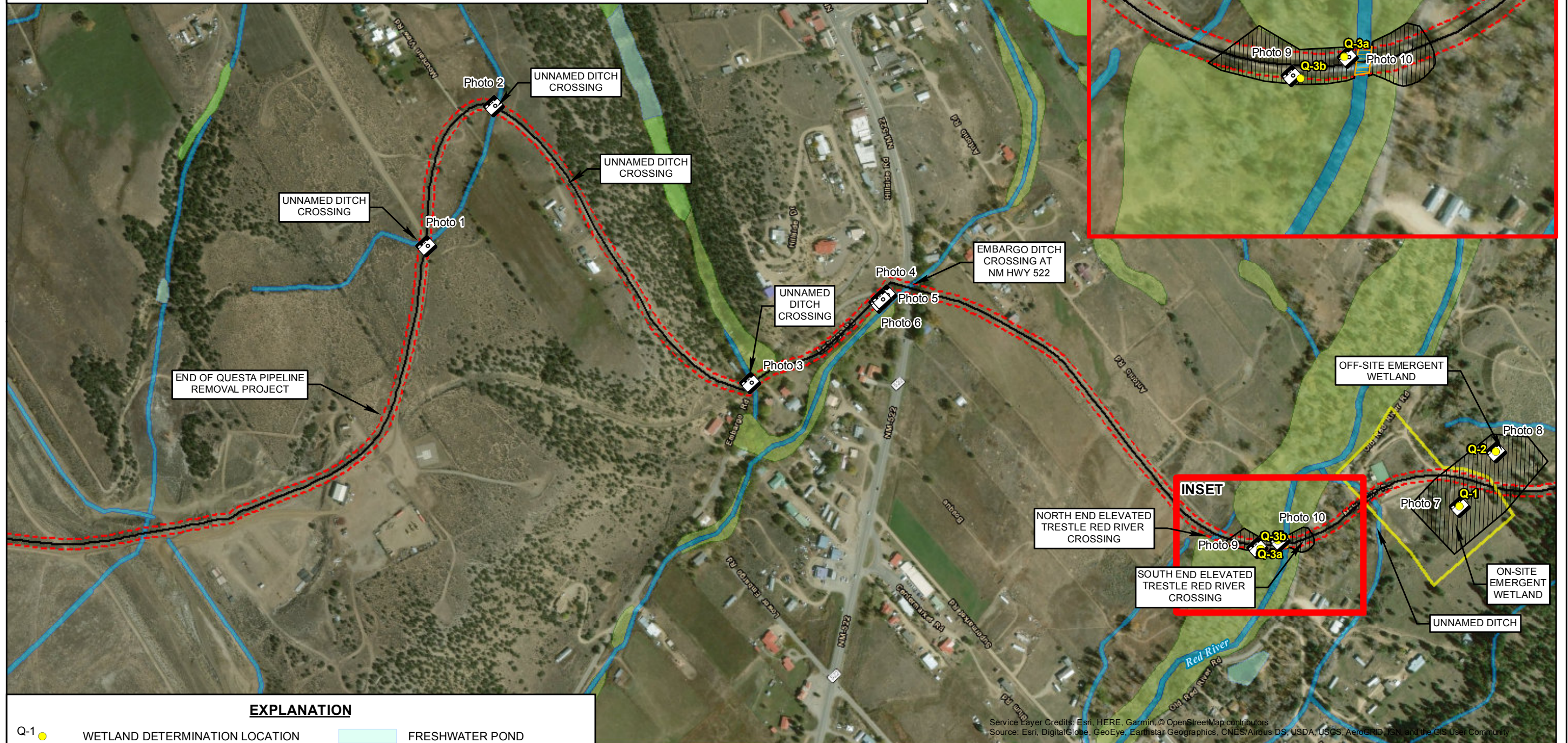


 1252 Commerce Drive Laramie, WY 82070 www.trihydro.com (P) 307/745.7474 (F) 307/745.7729	<b>FIGURE 2</b>			
	<b>NWI WETLANDS OVERVIEW</b>			
	<b>CEMC QUESTA MINE QUESTA, NEW MEXICO</b>			
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**NOTES:**

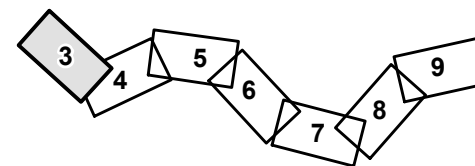
1. EXCEPT WHERE NOTED AS FIELD VERIFIED, WETLANDS TYPE AND LOCATIONS BASED ON NATIONAL WETLANDS INVENTORY (NWI) ONLINE DATABASE WITH MINOR MODIFICATIONS BASED ON AERIAL IMAGERY.
2. NWI DATA MAY BE LIMITED TO REMOTE SENSING OF PLANT AND WATER SIGNATURES WITH LIMITED OR NO IN-FIELD CONFIRMATION.
3. SOME OF THE AQUATIC FEATURES IN THE NWI DO NOT EXIST DUE TO THE NATURE OF THE DATA, DEVELOPMENT, AND OTHER ACTIVITIES IN THE AREA. FIELD CONFIRMATION OF WETLANDS LOCATIONS IS RECOMMENDED PRIOR TO PROCEEDING WITH PIPELINE REMOVAL PROJECT.



**EXPLANATION**

- |                                   |                                |                            |
|-----------------------------------|--------------------------------|----------------------------|
| Q-1                               | WETLAND DETERMINATION LOCATION | FRESHWATER POND            |
| PHOTO POINT                       |                                | RIVERINE                   |
| PIPELINE                          |                                | LOWER DUMP SUMP AREA       |
| 50' WETLAND INVENTORY AREA        |                                | FIELD-VERIFIED NON-WETLAND |
| NWI WETLANDS (2017 USFWS)         |                                | FIELD-VERIFIED RIVERINE    |
| FRESHWATER EMERGENT WETLAND       |                                |                            |
| FRESHWATER FORESTED/SHRUB WETLAND |                                |                            |

**MAP INDEX**



**FIGURE 3**

**NWI AND FIELD VERIFIED WETLANDS**

**CEMC QUESTA MINE  
QUESTA, NEW MEXICO**

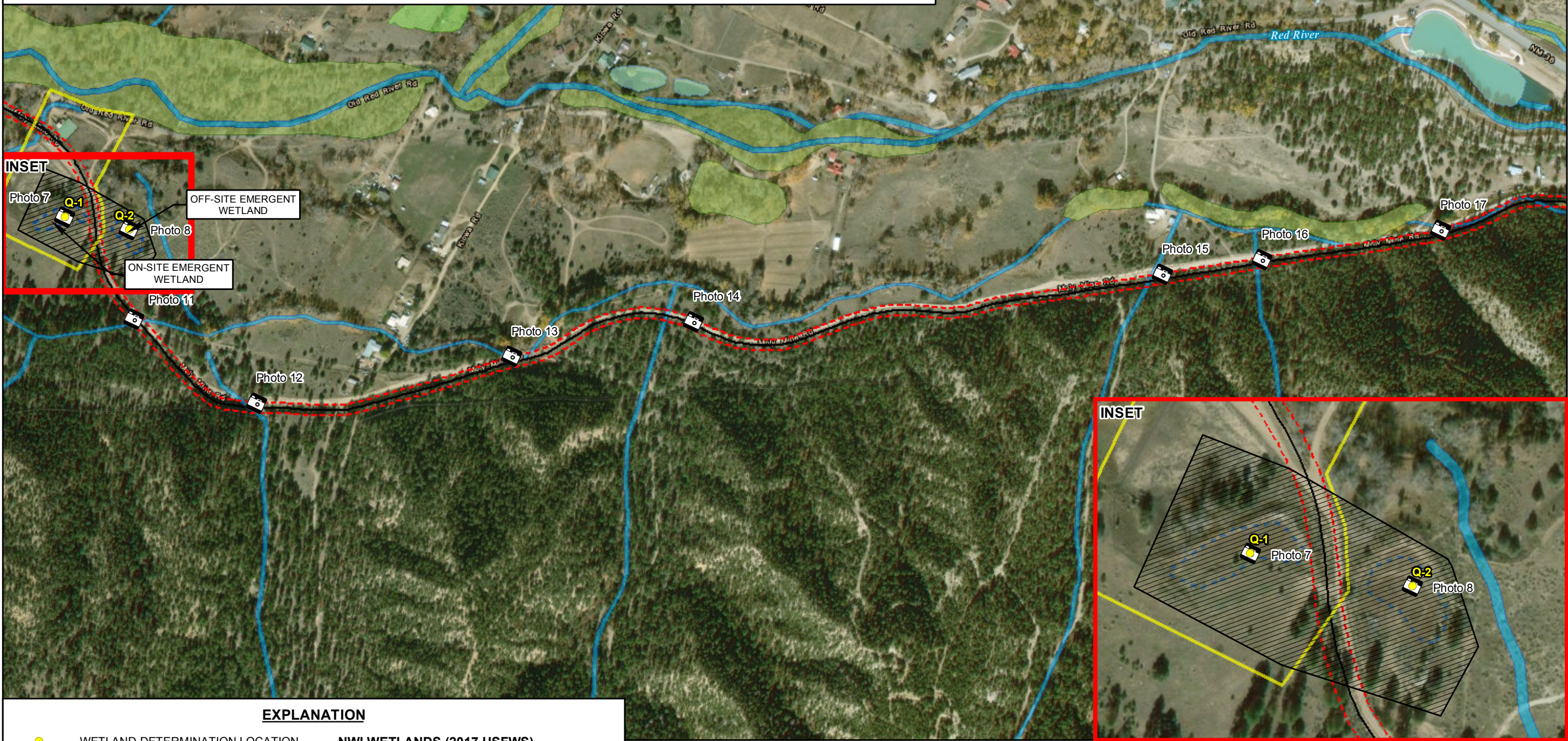
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**NOTES:**

1. EXCEPT WHERE NOTED AS FIELD VERIFIED, WETLANDS TYPE AND LOCATIONS BASED ON NATIONAL WETLANDS INVENTORY (NWI) ONLINE DATABASE WITH MINOR MODIFICATIONS BASED ON AERIAL IMAGERY.
2. NWI DATA MAY BE LIMITED TO REMOTE SENSING OF PLANT AND WATER SIGNATURES WITH LIMITED OR NO IN-FIELD CONFIRMATION.
3. SOME OF THE AQUATIC FEATURES IN THE NWI DO NOT EXIST DUE TO THE NATURE OF THE DATA, DEVELOPMENT, AND OTHER ACTIVITIES IN THE AREA. FIELD CONFIRMATION OF WETLANDS LOCATIONS IS RECOMMENDED PRIOR TO PROCEEDING WITH PIPELINE REMOVAL PROJECT.

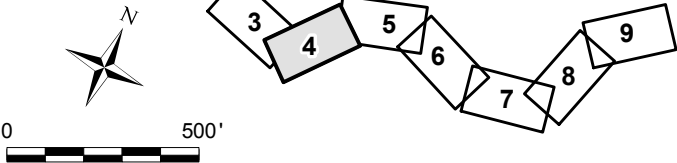
Service Layer Credits: Esri, HERE, Garmin, © OpenStreetMap contributors  
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



**EXPLANATION**

- |  |   |
|--|---|
| <ul style="list-style-type: none"><li>● WETLAND DETERMINATION LOCATION</li><li>📷 PHOTO POINT</li><li>— PIPELINE</li><li>- - - 50' WETLAND INVENTORY AREA</li><li>▭ LOWER DUMP SUMP AREA</li><li>▨ FIELD-VERIFIED NON-WETLAND</li></ul> | <b>NWI WETLANDS (2017 USFWS)</b> <ul style="list-style-type: none"><li>■ FRESHWATER EMERGENT WETLAND</li><li>■ FRESHWATER FORESTED/SHRUB WETLAND</li><li>■ FRESHWATER POND</li><li>■ RIVERINE</li><li>- - - INTERMITTENT WATER LEVEL (FIELD VERIFIED NON-WETLAND)</li></ul> |
|--|---|

**MAP INDEX**



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**FIGURE 4**

**NWI AND FIELD VERIFIED WETLANDS**

**CEMC QUESTA MINE  
QUESTA, NEW MEXICO**

Drawn By: DH | Checked By: BH | Scale: 1" = 500' | Date: 6/14/18 | File: Fig4\_ARI\_WetDelin.mxd



**NOTES:**

1. EXCEPT WHERE NOTED AS FIELD VERIFIED, WETLANDS TYPE AND LOCATIONS BASED ON NATIONAL WETLANDS INVENTORY (NWI) ONLINE DATABASE WITH MINOR MODIFICATIONS BASED ON AERIAL IMAGERY.
2. NWI DATA MAY BE LIMITED TO REMOTE SENSING OF PLANT AND WATER SIGNATURES WITH LIMITED OR NO IN-FIELD CONFIRMATION.
3. SOME OF THE AQUATIC FEATURES IN THE NWI DO NOT EXIST DUE TO THE NATURE OF THE DATA, DEVELOPMENT, AND OTHER ACTIVITIES IN THE AREA. FIELD CONFIRMATION OF WETLANDS LOCATIONS IS RECOMMENDED PRIOR TO PROCEEDING WITH PIPELINE REMOVAL PROJECT.

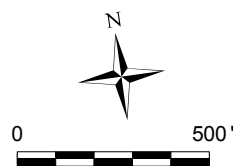
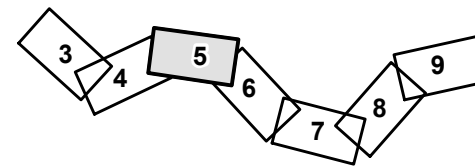
Service Layer Credits: Esri, HERE, Garmin, © OpenStreetMap contributors  
Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



**EXPLANATION**

- |                                   |                             |
|-----------------------------------|-----------------------------|
| WETLAND DETERMINATION LOCATION    | FRESHWATER POND             |
| PHOTO POINT                       | RIVERINE                    |
| PIPELINE                          | FIELD-VERIFIED RIVERINE     |
| 50' WETLAND INVENTORY AREA        | FIELD-VERIFIED NON-RIVERINE |
| NWI WETLANDS (2017 USFWS)         |                             |
| FRESHWATER FORESTED/SHRUB WETLAND |                             |

**MAP INDEX**



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**FIGURE 5**

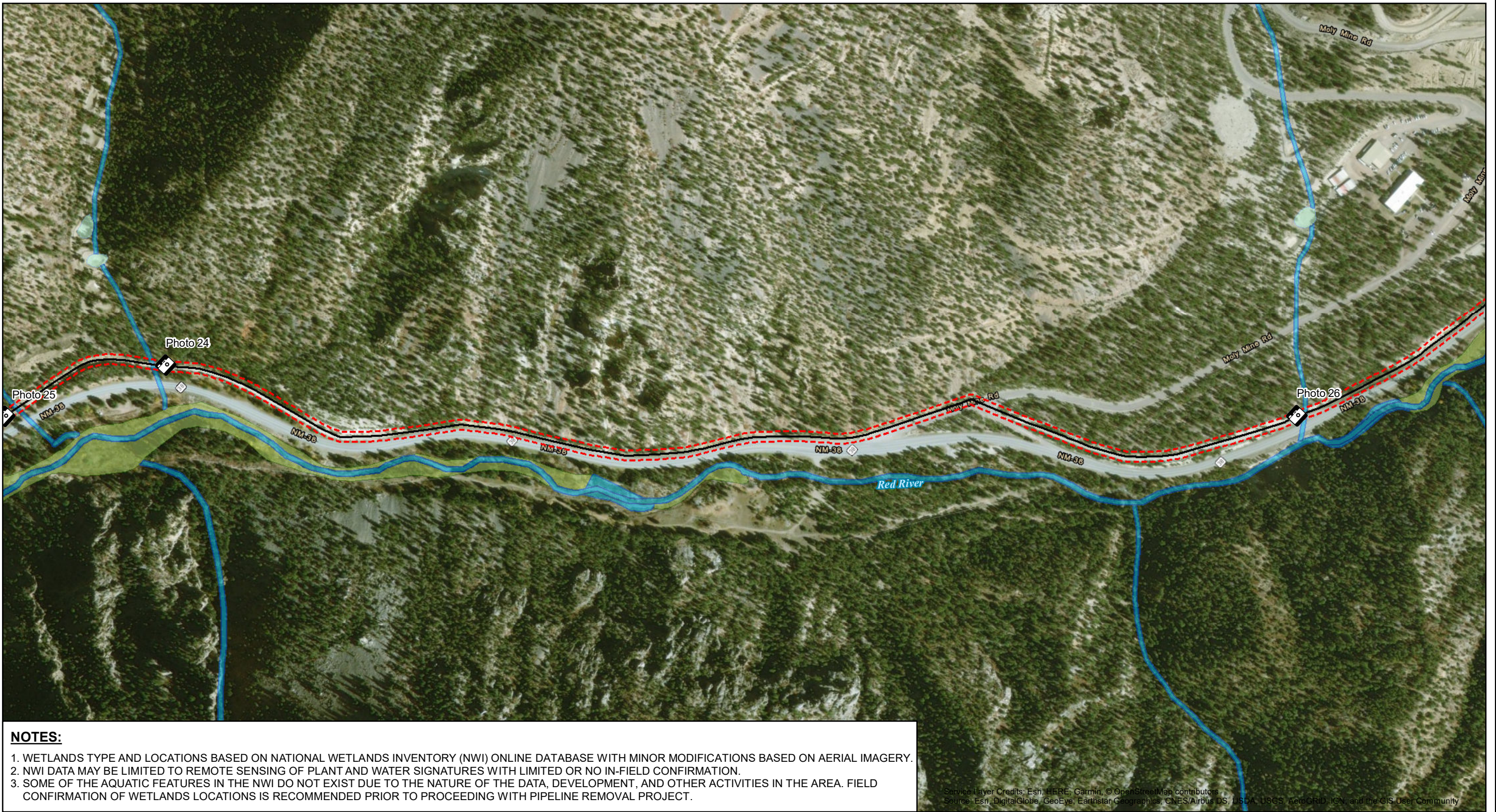
**NWI AND FIELD VERIFIED WETLANDS**

**CEMC QUESTA MINE  
QUESTA, NEW MEXICO**

Drawn By: DH | Checked By: BH | Scale: 1" = 500' | Date: 6/14/18 | File: Fig5\_ARI\_WetDelin.mxd



\\TRIHYRO.COM\CLIENTS\CHEVRON\CEMC\_MINEING\QUESTA\MINE\GIS\MAPPING\ARI\_REPORT\FIG6\_ARI\_WETDELIN.MXD



**NOTES:**

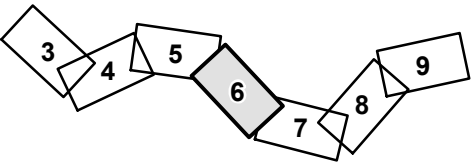
1. WETLANDS TYPE AND LOCATIONS BASED ON NATIONAL WETLANDS INVENTORY (NWI) ONLINE DATABASE WITH MINOR MODIFICATIONS BASED ON AERIAL IMAGERY.
2. NWI DATA MAY BE LIMITED TO REMOTE SENSING OF PLANT AND WATER SIGNATURES WITH LIMITED OR NO IN-FIELD CONFIRMATION.
3. SOME OF THE AQUATIC FEATURES IN THE NWI DO NOT EXIST DUE TO THE NATURE OF THE DATA, DEVELOPMENT, AND OTHER ACTIVITIES IN THE AREA. FIELD CONFIRMATION OF WETLANDS LOCATIONS IS RECOMMENDED PRIOR TO PROCEEDING WITH PIPELINE REMOVAL PROJECT.

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**EXPLANATION**

- PHOTO POINT
- PIPELINE
- 50' WETLAND INVENTORY AREA
- NWI WETLANDS (2017 USFWS)
  - FRESHWATER FORESTED/SHRUB WETLAND
  - FRESHWATER POND
- RIVERINE

**MAP INDEX**



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**FIGURE 6**

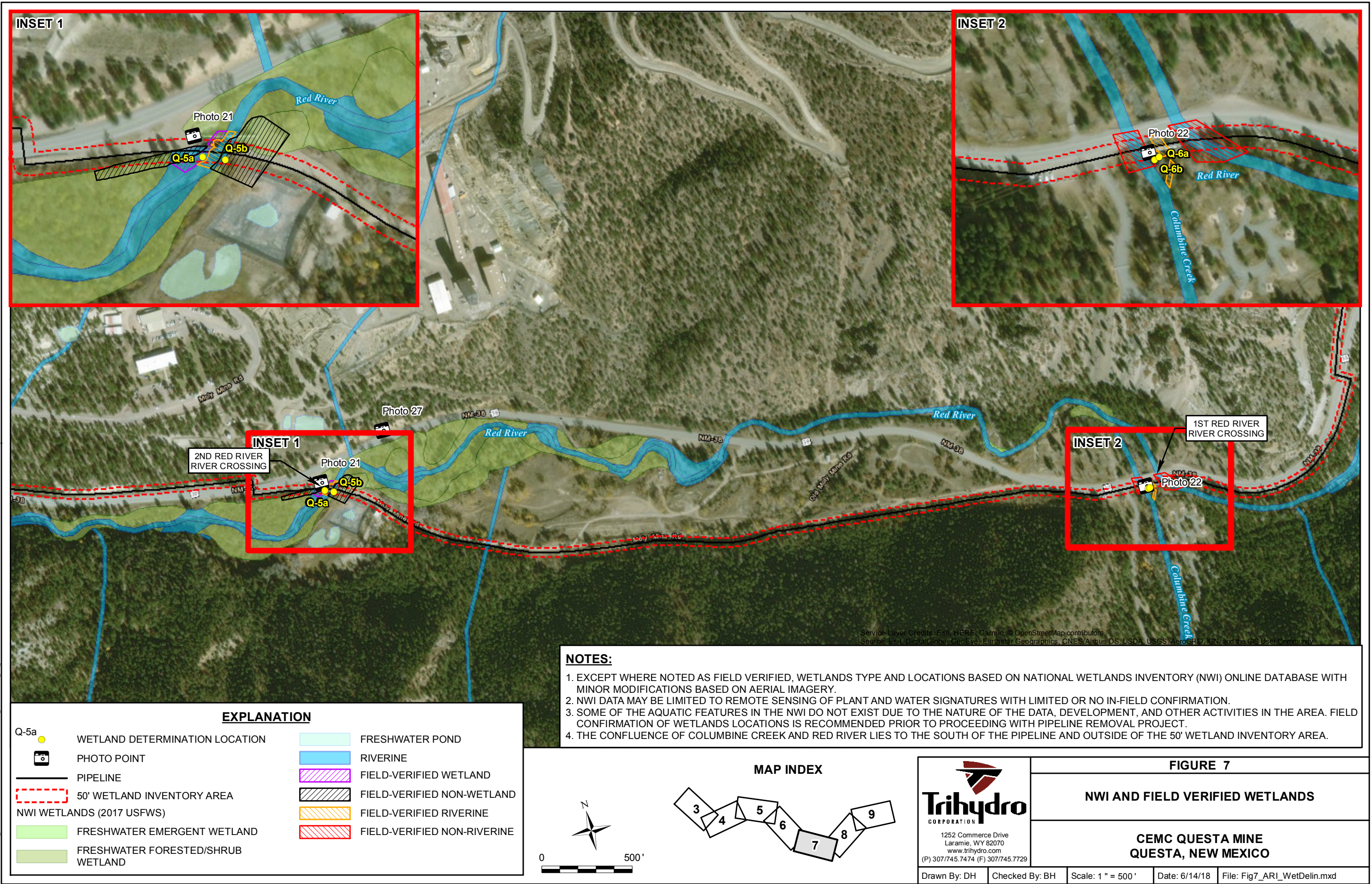
**NWI WETLANDS**

**CEMC QUESTA MINE  
QUESTA, NEW MEXICO**

Drawn By: DH | Checked By: BH | Scale: 1" = 500' | Date: 6/1/18 | File: Fig6\_ARI\_WetDelin.mxd



M:\CHEVRON\CEMC\_MiningQuestaMine\PIPELINE\GIS\MAPPING\ARI\_REPORT\FIG7\_ARI\_WetDelin.mxd





M:\CHEVRON\CEMC\_Mining\QUESTA\MINE\PIPELINE\GIS\MAPPING\ARI\_REPORT\Fig8\_ARI\_WetDelin.mxd



**NOTES:**

1. EXCEPT WHERE NOTED AS FIELD VERIFIED, WETLANDS TYPE AND LOCATIONS BASED ON NATIONAL WETLANDS INVENTORY (NWI) ONLINE DATABASE WITH MINOR MODIFICATIONS BASED ON AERIAL IMAGERY.
2. NWI DATA MAY BE LIMITED TO REMOTE SENSING OF PLANT AND WATER SIGNATURES WITH LIMITED OR NO IN-FIELD CONFIRMATION.
3. SOME OF THE AQUATIC FEATURES IN THE NWI DO NOT EXIST DUE TO THE NATURE OF THE DATA, DEVELOPMENT, AND OTHER ACTIVITIES IN THE AREA. FIELD CONFIRMATION OF WETLANDS LOCATIONS IS RECOMMENDED PRIOR TO PROCEEDING WITH PIPELINE REMOVAL PROJECT.

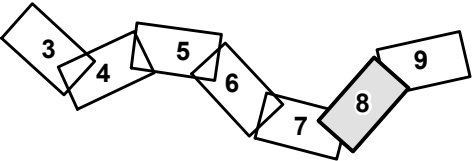
Service Layer Credits: Esri, HERE, Garmin, © OpenStreetMap contributors, Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community

**EXPLANATION**

- |   |                                   |  |                             |
|---|-----------------------------------|--|-----------------------------|
| ● | WETLAND DETERMINATION LOCATION    |  | RIVERINE                    |
|   | PHOTO POINT                       |  | FIELD-VERIFIED RIVERINE     |
|   | PIPELINE                          |  | FIELD-VERIFIED NON-RIVERINE |
|   | 50' WETLAND INVENTORY AREA        |  |                             |
|   | NWI WETLANDS (2017 USFWS)         |  |                             |
|   | FRESHWATER FORESTED/SHRUB WETLAND |  |                             |



**MAP INDEX**



**FIGURE 8**

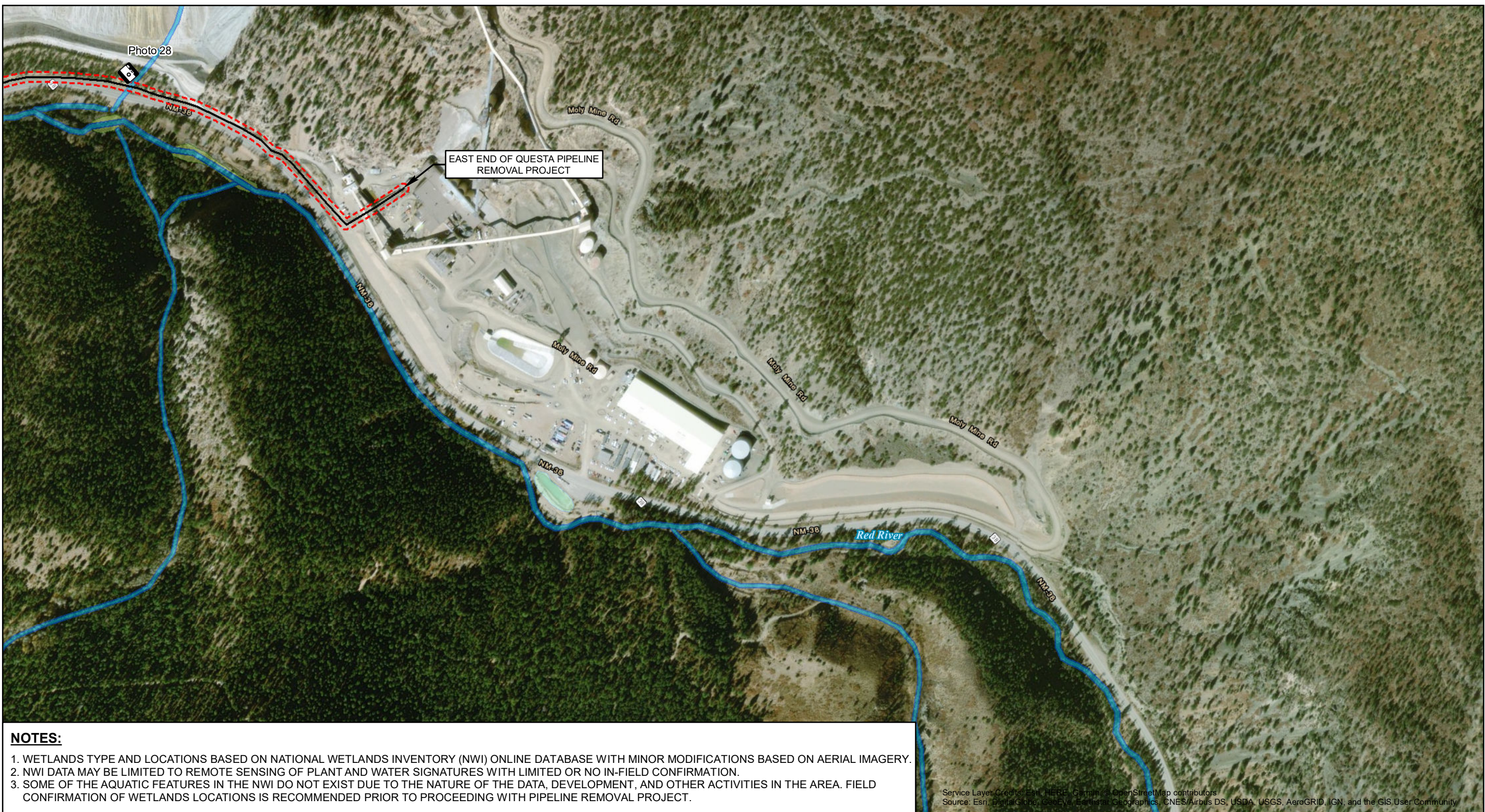
**NWI AND VERIFIED WETLANDS**

**CEMC QUESTA MINE  
QUESTA, NEW MEXICO**

Drawn By: DH | Checked By: BH | Scale: 1" = 500' | Date: 6/13/18 | File: Fig8\_ARI\_WetDelin.mxd



\\TRIHYDRO\COM\CLIENTS\CHEVRON\CEMC\_Mining\QUESTA\PIPELINE\GIS\MAPPING\ARI\_WETDELIN.MXD



**NOTES:**

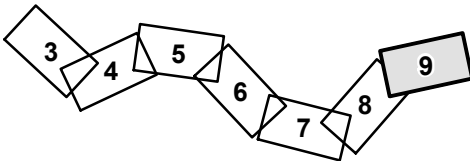
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**EXPLANATION**

- PHOTO POINT
- PIPELINE
- 50' WETLAND INVENTORY AREA
- NWI WETLANDS (2017 USFWS)
- FRESHWATER FORESTED/SHRUB WETLAND
- FRESHWATER POND
- RIVERINE



**MAP INDEX**



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**FIGURE 9**

**NWI WETLANDS**

**CEMC QUESTA MINE  
QUESTA, NEW MEXICO**

Drawn By: DH | Checked By: BH | Scale: 1" = 500' | Date: 6/1/18 | File: Fig9\_ARI\_WetDelin.mxd



## **APPENDIX A**

### **WETLAND DETERMINATION DATA FORMS**



# WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Questa Pipeline Removal Project City/County: Questa/Taos Sampling Date: 5/9/2018  
 Applicant/Owner: Chevron State: NM Sampling Point: Q-1  
 Investigator(s): Erik Schmude, Tony Kupilik Section, Township, Range: \_\_\_\_\_  
 Landform (hillslope, terrace, etc.): man-made depression Local relief (concave, convex, none): concave Slope (%): 0-1  
 Subregion (LRR): LRRE Lat: \_\_\_\_\_ Long: \_\_\_\_\_ Datum: \_\_\_\_\_  
 Soil Map Unit Name: Tenorio loam, 1 to 5 % slopes NWI classification: PEM1Ch

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation yes, Soil yes, or Hydrology yes significantly disturbed? Are "Normal Circumstances" present? Yes ☒ 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 <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/>
Hydric Soil Present?	Yes _____ No <input checked="" type="checkbox"/>	
Wetland Hydrology Present?	Yes _____ No <input checked="" type="checkbox"/>	
Remarks:  Disturbed area, previously created holding pond for tailings		

## VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>30'</u> )	Absolute % Cover	Dominant Species?	Indicator Status	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A)  Total Number of Dominant Species Across All Strata: <u>2</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A/B)
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
_____ = Total Cover				<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species <u>1</u> x 3 = <u>3</u> FACU species <u>1</u> x 4 = <u>4</u> UPL species _____ x 5 = _____ Column Totals: <u>2</u> (A) <u>7</u> (B)  Prevalence Index = B/A = <u>3.5</u>
Sapling/Shrub Stratum (Plot size: <u>15'</u> )				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
_____ = Total Cover				
Herb Stratum (Plot size: <u>5'</u> )				<b>Hydrophytic Vegetation Indicators:</b> ___ 1 - Rapid Test for Hydrophytic Vegetation ___ 2 - Dominance Test is >50% ___ 3 - Prevalence Index is ≤3.0 <sup>1</sup> ___ 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) ___ 5 - Wetland Non-Vascular Plants <sup>1</sup> ___ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain) <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. <u>Bromus tectorum</u>	<u>7</u>	<u>yes</u>	<u>NL</u>	
2. <u>Heterotheca villosa</u>	<u>8</u>	<u>yes</u>	<u>NL</u>	
3. <u>Bassia scoparia</u>	<u>2</u>	<u>no</u>	<u>FAC</u>	
4. <u>Crytantha cinera</u>	<u>1</u>	<u>no</u>	<u>NL</u>	
5. <u>Verbascum thaspus</u>	<u>1</u>	<u>no</u>	<u>FACU</u>	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
_____ = Total Cover				
Woody Vine Stratum (Plot size: <u>30'</u> )				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
_____ = Total Cover				
% Bare Ground in Herb Stratum <u>81</u>				
Remarks:				

## SOIL

Sampling Point: Q-1

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

[illegible]

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

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

### Indicators for Problematic Hydric Soils<sup>3</sup>:

- |  |  |   |
|--|--|---|
| <input type="checkbox"/> Histosol (A1)                     | <input type="checkbox"/> Sandy Redox (S5)                                  | <input type="checkbox"/> 2 cm Muck (A10)                  |
| <input type="checkbox"/> Histic Epipedon (A2)              | <input type="checkbox"/> Stripped Matrix (S6)                              | <input type="checkbox"/> Red Parent Material (TF2)        |
| <input type="checkbox"/> Black Histic (A3)                 | <input type="checkbox"/> Loamy Mucky Mineral (F1) ( <b>except MLRA 1</b> ) | <input type="checkbox"/> Very Shallow Dark Surface (TF12) |
| <input type="checkbox"/> Hydrogen Sulfide (A4)             | <input type="checkbox"/> Loamy Gleyed Matrix (F2)                          | <input type="checkbox"/> Other (Explain in Remarks)       |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Matrix (F3)                              |   |
| <input type="checkbox"/> Thick Dark Surface (A12)          | <input type="checkbox"/> Redox Dark Surface (F6)                           |   |
| <input type="checkbox"/> Sandy Mucky Mineral (S1)          | <input type="checkbox"/> Depleted Dark Surface (F7)                        |   |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4)          | <input type="checkbox"/> Redox Depressions (F8)                            |   |
- <sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

<sup>3</sup>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 ✓

Remarks:

## HYDROLOGY

### Wetland Hydrology Indicators:

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

- |  |   |
|--|---|
| <input type="checkbox"/> Surface Water (A1)                        | <input type="checkbox"/> Water-Stained Leaves (B9) <b>(except</b>       |
| <input type="checkbox"/> High Water Table (A2)                     | <b>MLRA 1, 2, 4A, and 4B)</b>   |
| <input type="checkbox"/> Saturation (A3)                           | <input type="checkbox"/> Salt Crust (B11)                               |
| <input type="checkbox"/> Water Marks (B1)                          | <input type="checkbox"/> Aquatic Invertebrates (B13)                    |
| <input type="checkbox"/> Sediment Deposits (B2)                    | <input type="checkbox"/> Hydrogen Sulfide Odor (C1)                     |
| <input type="checkbox"/> Drift Deposits (B3)                       | <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)  |
| <input type="checkbox"/> Algal Mat or Crust (B4)                   | <input type="checkbox"/> Presence of Reduced Iron (C4)                  |
| <input type="checkbox"/> Iron Deposits (B5)                        | <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)     |
| <input type="checkbox"/> Surface Soil Cracks (B6)                  | <input type="checkbox"/> Stunted or Stressed Plants (D1) <b>(LRR A)</b> |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Other (Explain in Remarks)                     |
| <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)   |   |

Secondary Indicators (2 or more required)

- ☐ Water-Stained Leaves (B9) (**MLRA 1, 2, 4A, and 4B**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☒ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (**LRR A**)
- ☐ Frost-Heave Hummocks (D7)

**Field Observations:**

Surface Water Present? Yes ☐ No ☒ Depth (inches):

Water Table Present? Yes \_\_\_\_\_ No ☒ Depth (inches): \_\_\_\_\_

Saturation Present? Yes \_\_\_\_\_ No ☒ Depth (inches): \_\_\_\_\_  
(includes capillary fringe)

Wetland Hydrology Present? Yes No ✓

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

Remarks:

Area has been constructed with berms around outside and is a depression. No evidence of water ponding on aerial imagery.

# WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Questa Tailing Pipeline Removal Project City/County: Questa/Taos Sampling Date: 5/10/2018  
 Applicant/Owner: Chevron State: NM Sampling Point: Q-2  
 Investigator(s): Erik Schmude Section, Township, Range: \_\_\_\_\_  
 Landform (hillslope, terrace, etc.): man-made depression Local relief (concave, convex, none): concave Slope (%): 0-1  
 Subregion (LRR): LRR E Lat: \_\_\_\_\_ Long: \_\_\_\_\_ Datum: \_\_\_\_\_  
 Soil Map Unit Name: Tenorio loam, 1 to 5% slopes NWI classification: PEM1Ch

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation yes, Soil yes, or Hydrology yes significantly disturbed? Are "Normal Circumstances" present? Yes ☒ 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 <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/>
Hydric Soil Present?	Yes _____ No <input checked="" type="checkbox"/>	
Wetland Hydrology Present?	Yes _____ No <input checked="" type="checkbox"/>	
Remarks:  Disturbed area, previously created holding pond for tailings		

## VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>30'</u> )	Absolute % Cover	Dominant Species?	Indicator Status	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>50</u> (A/B)
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
_____ = Total Cover				<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species <u>10</u> x 3 = <u>30</u> FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: <u>10</u> (A) <u>30</u> (B) Prevalence Index = B/A = <u>3.00</u>
<b>Sapling/Shrub Stratum (Plot size: <u>15'</u>)</b> 1. _____ 2. _____ 3. _____ 4. _____ 5. _____ _____ = Total Cover				
<b>Herb Stratum (Plot size: <u>5'</u>)</b> 1. <u>Polygonum ramosissimum</u> <u>10</u> <u>yes</u> <u>FAC</u> 2. <u>Bromus tectorum</u> <u>4</u> <u>yes</u> <u>NL</u> 3. <u>Heterotheca villosa</u> <u>5</u> <u>yes</u> <u>NL</u> 4. <u>Antennaria sp.</u> <u>1</u> <u>no</u> <u>NL</u> 5. <u>Descurainia pinnata</u> <u>1</u> <u>no</u> <u>NL</u> 6. _____ 7. _____ 8. _____ 9. _____ 10. _____ 11. _____ _____ = Total Cover				
<b>Woody Vine Stratum (Plot size: <u>30'</u>)</b> 1. _____ 2. _____ _____ = Total Cover				
<b>% Bare Ground in Herb Stratum</b> <u>79</u>				
Remarks:  Mostly non-listed species that are indicative of upland areas				<b>Hydrophytic Vegetation Indicators:</b> ___ 1 - Rapid Test for Hydrophytic Vegetation ___ 2 - Dominance Test is >50% ___ 3 - Prevalence Index is ≤3.0 <sup>1</sup> ___ 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) ___ 5 - Wetland Non-Vascular Plants <sup>1</sup> ___ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain) <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
				<b>Hydrophytic Vegetation Present?</b> Yes _____ No <input checked="" type="checkbox"/>



# SOIL

Sampling Point: Q-2

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-5	7.5YR 3/2	100					silty clay loam	
5-16	7.5YR 3/2	100					sandy clay loam	

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

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

- |  |  |
|--|--|
| <input type="checkbox"/> Histosol (A1)                     | <input type="checkbox"/> Sandy Redox (S5)                                  |
| <input type="checkbox"/> Histic Epipedon (A2)              | <input type="checkbox"/> Stripped Matrix (S6)                              |
| <input type="checkbox"/> Black Histic (A3)                 | <input type="checkbox"/> Loamy Mucky Mineral (F1) ( <b>except MLRA 1</b> ) |
| <input type="checkbox"/> Hydrogen Sulfide (A4)             | <input type="checkbox"/> Loamy Gleyed Matrix (F2)                          |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Matrix (F3)                              |
| <input type="checkbox"/> Thick Dark Surface (A12)          | <input type="checkbox"/> Redox Dark Surface (F6)                           |
| <input type="checkbox"/> Sandy Mucky Mineral (S1)          | <input type="checkbox"/> Depleted Dark Surface (F7)                        |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4)          | <input type="checkbox"/> Redox Depressions (F8)                            |

### Indicators for Problematic Hydric Soils<sup>3</sup>:

- |   |
|---|
| <input type="checkbox"/> 2 cm Muck (A10)                  |
| <input type="checkbox"/> Red Parent Material (TF2)        |
| <input type="checkbox"/> Very Shallow Dark Surface (TF12) |
| <input type="checkbox"/> Other (Explain in Remarks)       |

<sup>3</sup>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 ☒

Remarks:

Disturbed soil mostly consistent throughout

# HYDROLOGY

## Wetland Hydrology Indicators:

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

- |  |  |
|--|--|
| <input type="checkbox"/> Surface Water (A1)                        | <input type="checkbox"/> Water-Stained Leaves (B9) ( <b>except MLRA 1, 2, 4A, and 4B</b> ) |
| <input type="checkbox"/> High Water Table (A2)                     | <input type="checkbox"/> Salt Crust (B11)  |
| <input type="checkbox"/> Saturation (A3)                           | <input type="checkbox"/> Aquatic Invertebrates (B13)                                       |
| <input type="checkbox"/> Water Marks (B1)                          | <input type="checkbox"/> Hydrogen Sulfide Odor (C1)  |
| <input type="checkbox"/> Sediment Deposits (B2)                    | <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)                     |
| <input type="checkbox"/> Drift Deposits (B3)                       | <input type="checkbox"/> Presence of Reduced Iron (C4)                                     |
| <input type="checkbox"/> Algal Mat or Crust (B4)                   | <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)                        |
| <input type="checkbox"/> Iron Deposits (B5)                        | <input type="checkbox"/> Stunted or Stressed Plants (D1) ( <b>LRR A</b> )                  |
| <input type="checkbox"/> Surface Soil Cracks (B6)                  | <input type="checkbox"/> Other (Explain in Remarks)  |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) |  |
| <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)   |  |

Secondary Indicators (2 or more required)

- |   |
|---|
| <input type="checkbox"/> Water-Stained Leaves (B9) ( <b>MLRA 1, 2, 4A, and 4B</b> ) |
| <input checked="" type="checkbox"/> Drainage Patterns (B10)                         |
| <input type="checkbox"/> Dry-Season Water Table (C2)                                |
| <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)                  |
| <input checked="" type="checkbox"/> Geomorphic Position (D2)                        |
| <input type="checkbox"/> Shallow Aquitard (D3)                                      |
| <input type="checkbox"/> FAC-Neutral Test (D5)                                      |
| <input type="checkbox"/> Raised Ant Mounds (D6) ( <b>LRR A</b> )                    |
| <input type="checkbox"/> Frost-Heave Hummocks (D7)                                  |

### Field Observations:

Surface Water Present?	Yes _____ No <input checked="" type="checkbox"/>	Depth (inches): _____
Water Table Present?	Yes _____ No <input checked="" type="checkbox"/>	Depth (inches): _____
Saturation Present? (includes capillary fringe)	Yes _____ No <input checked="" type="checkbox"/>	Depth (inches): _____

Wetland Hydrology Present? Yes \_\_\_\_\_ No ☒

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

Remarks:

Area has been constructed with berms around outside and is a depression. No evidence of water ponding on aerial imagery.

# WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Questa Tailings Pipeline Removal Project City/County: Questa/Taos Sampling Date: 5/10/2018  
 Applicant/Owner: Chevron State: \_\_\_\_\_ Sampling Point: Q-3a  
 Investigator(s): Erik Schmude, Tony Kupilik Section, Township, Range: \_\_\_\_\_  
 Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): concave Slope (%):<sup>1</sup> \_\_\_\_\_  
 Subregion (LRR): LRR E Lat: \_\_\_\_\_ Long: \_\_\_\_\_ Datum: \_\_\_\_\_  
 Soil Map Unit Name: Fluvents nearly level NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation no, Soil yes, or Hydrology yes significantly disturbed? Are "Normal Circumstances" present? Yes ☒ 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 <input checked="" type="checkbox"/> No _____	Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/>
Hydric Soil Present?	Yes _____ No <input checked="" type="checkbox"/>	
Wetland Hydrology Present?	Yes _____ No <input checked="" type="checkbox"/>	
Remarks: determination point placed below pipeline tressle, adjacent to river. Soil in this area has been disturbed and the ground surface has been elevated a couple feet above the river level and likely does not get inundated with water long enough to develop hydric soil.		

## VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>30'</u> )	Absolute % Cover	Dominant Species?	Indicator Status	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>7</u> (A)  Total Number of Dominant Species Across All Strata: <u>7</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
1. <u>Populus angustifolia</u>	<u>5</u>	<u>yes</u>	<u>FACW</u>	
2. <u>Betula occidentalis</u>	<u>10</u>	<u>yes</u>	<u>FACW</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B)  Prevalence Index = B/A = _____
Sapling/Shrub Stratum (Plot size: <u>15'</u> ) 1. <u>Betula occidentalis</u> <u>60</u> <u>yes</u> <u>FACW</u> 2. <u>Salix exigua</u> <u>20</u> <u>yes</u> <u>FACW</u> 3. <u>Alnus incana</u> <u>5</u> <u>no</u> <u>FACW</u> 4. _____ 5. _____				
Herb Stratum (Plot size: <u>5'</u> ) 1. <u>Agrostis stolonifera</u> <u>30</u> <u>yes</u> <u>FAC</u> 2. <u>Poa pratensis</u> <u>10</u> <u>yes</u> <u>FAC</u> 3. <u>Equisetum arvense</u> <u>3</u> <u>no</u> <u>FAC</u> 4. <u>Teraxacum officianle</u> <u>2</u> <u>no</u> <u>NL</u> 5. <u>Carex praeagrailis</u> <u>10</u> <u>yes</u> <u>FACW</u> 6. _____ 7. _____ 8. _____ 9. _____ 10. _____ 11. _____				
Woody Vine Stratum (Plot size: <u>30'</u> ) 1. _____ 2. _____ % Bare Ground in Herb Stratum <u>45</u> _____ = Total Cover				
55 = Total Cover Remarks: vegetation is strongly hydrophytic, and typical riparian vegetation for the area				<b>Hydrophytic Vegetation Indicators:</b> 1 - Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% 3 - Prevalence Index is ≤3.0 <sup>1</sup> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) 5 - Wetland Non-Vascular Plants <sup>1</sup> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain) <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
				<b>Hydrophytic Vegetation Present?</b> Yes <input checked="" type="checkbox"/> No _____

# SOIL

Sampling Point: Q-3a

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-6	10YR 3/2	48	10YR 5/8	2	C	M	loam	
0-6	10YR 4/4	48	10YR 5/8	2	C	M	sandy loam	
6-10	10YR 4/3	98	10YR 5/8	2	C	M	sandy	course sand
10-15	10YR 5/3	80	7.5YR 5/8	20	C	M	sandy	fine sand
15-18	10YR 5/3	80	7.5YR 5/8	20	C	M	sandy gavel	small river cobbles below 15"

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.

<sup>2</sup>Location: PL=Pore Lining, M=Matrix.

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

- |  |  |
|--|--|
| <input type="checkbox"/> Histosol (A1)                     | <input type="checkbox"/> Sandy Redox (S5)                                  |
| <input type="checkbox"/> Histic Epipedon (A2)              | <input type="checkbox"/> Stripped Matrix (S6)                              |
| <input type="checkbox"/> Black Histic (A3)                 | <input type="checkbox"/> Loamy Mucky Mineral (F1) ( <b>except MLRA 1</b> ) |
| <input type="checkbox"/> Hydrogen Sulfide (A4)             | <input type="checkbox"/> Loamy Gleyed Matrix (F2)                          |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Matrix (F3)                              |
| <input type="checkbox"/> Thick Dark Surface (A12)          | <input type="checkbox"/> Redox Dark Surface (F6)                           |
| <input type="checkbox"/> Sandy Mucky Mineral (S1)          | <input type="checkbox"/> Depleted Dark Surface (F7)                        |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4)          | <input type="checkbox"/> Redox Depressions (F8)                            |

## Indicators for Problematic Hydric Soils<sup>3</sup>:

- |   |
|---|
| <input type="checkbox"/> 2 cm Muck (A10)                  |
| <input type="checkbox"/> Red Parent Material (TF2)        |
| <input type="checkbox"/> Very Shallow Dark Surface (TF12) |
| <input type="checkbox"/> Other (Explain in Remarks)       |

<sup>3</sup>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 ☒

Remarks:

Redoximorphic features weak above 6 inches, but strong below 6 inches. Soil did not show sign of reduction indicating hydric condition

# HYDROLOGY

## Wetland Hydrology Indicators:

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

- |  |  |
|--|--|
| <input type="checkbox"/> Surface Water (A1)                        | <input type="checkbox"/> Water-Stained Leaves (B9) ( <b>except MLRA 1, 2, 4A, and 4B</b> ) |
| <input type="checkbox"/> High Water Table (A2)                     | <input type="checkbox"/> Salt Crust (B11)  |
| <input type="checkbox"/> Saturation (A3)                           | <input type="checkbox"/> Aquatic Invertebrates (B13)                                       |
| <input type="checkbox"/> Water Marks (B1)                          | <input type="checkbox"/> Hydrogen Sulfide Odor (C1)  |
| <input type="checkbox"/> Sediment Deposits (B2)                    | <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)                     |
| <input type="checkbox"/> Drift Deposits (B3)                       | <input type="checkbox"/> Presence of Reduced Iron (C4)                                     |
| <input type="checkbox"/> Algal Mat or Crust (B4)                   | <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)                        |
| <input type="checkbox"/> Iron Deposits (B5)                        | <input type="checkbox"/> Stunted or Stressed Plants (D1) ( <b>LRR A</b> )                  |
| <input type="checkbox"/> Surface Soil Cracks (B6)                  | <input type="checkbox"/> Other (Explain in Remarks)  |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) |  |
| <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)   |  |

### Secondary Indicators (2 or more required)

- |   |
|---|
| <input type="checkbox"/> Water-Stained Leaves (B9) ( <b>MLRA 1, 2, 4A, and 4B</b> ) |
| <input type="checkbox"/> Drainage Patterns (B10)                                    |
| <input type="checkbox"/> Dry-Season Water Table (C2)                                |
| <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)                  |
| <input type="checkbox"/> Geomorphic Position (D2)                                   |
| <input type="checkbox"/> Shallow Aquitard (D3)                                      |
| <input checked="" type="checkbox"/> FAC-Neutral Test (D5)                           |
| <input type="checkbox"/> Raised Ant Mounds (D6) ( <b>LRR A</b> )                    |
| <input type="checkbox"/> Frost-Heave Hummocks (D7)                                  |

## Field Observations:

Surface Water Present? Yes \_\_\_\_\_ No ☒ Depth (inches): \_\_\_\_\_

Water Table Present? Yes \_\_\_\_\_ No ☒ Depth (inches): \_\_\_\_\_

Saturation Present? Yes \_\_\_\_\_ No ☒ Depth (inches): \_\_\_\_\_  
(includes capillary fringe)

Wetland Hydrology Present? Yes \_\_\_\_\_ No \_\_\_\_\_

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

Remarks:

No sign of recent water flow over this area. No drift deposits or sediment.



# WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Questa Tailings Pipeline Removal Project City/County: Questa/Taos Sampling Date: 5/10/2018  
 Applicant/Owner: Chevron State: \_\_\_\_\_ Sampling Point: Q-3b  
 Investigator(s): Erik Schmude, Tony Kupilik Section, Township, Range: \_\_\_\_\_  
 Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): concave Slope (%): 3  
 Subregion (LRR): LRR E Lat: \_\_\_\_\_ Long: \_\_\_\_\_ Datum: \_\_\_\_\_  
 Soil Map Unit Name: Fluvents nearly level NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation yes, Soil yes, or Hydrology yes significantly disturbed? Are "Normal Circumstances" present? Yes ☒ 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 <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/>
Hydric Soil Present?	Yes _____ No <input checked="" type="checkbox"/>	
Wetland Hydrology Present?	Yes _____ No <input checked="" type="checkbox"/>	
Remarks: determination point placed just west of pipeline tressle. Vegetation appears to have been maintained at some point.		

## VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>30'</u> )	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u>Populus angustifolia</u>	<u>10</u>	<u>yes</u>	<u>FACW</u>	
2. <u>Juniperus scoparium</u>	<u>20</u>	<u>yes</u>	<u>NL</u>	Total Number of Dominant Species Across All Strata: <u>8</u> (B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>25</u> (A/B)
4. _____	_____	_____	_____	Prevalence Index worksheet:
<u>15</u> = Total Cover				
Sapling/Shrub Stratum (Plot size: <u>15'</u> )				Total % Cover of: _____ Multiply by: _____
1. <u>Ceanothus fendleri</u>	<u>20</u>	<u>yes</u>	<u>NL</u>	OBL species _____ x 1 = _____
2. <u>Rosa woodsii</u>	<u>30</u>	<u>yes</u>	<u>FACU</u>	FACW species <u>10</u> x 2 = <u>20</u>
3. <u>Juniperus scoparium</u>	<u>10</u>	<u>yes</u>	<u>NL</u>	FAC species <u>10</u> x 3 = <u>30</u>
4. _____	_____	_____	_____	FACU species <u>34</u> x 4 = <u>136</u>
5. _____	_____	_____	_____	UPL species _____ x 5 = _____
<u>85</u> = Total Cover				Column Totals: <u>54</u> (A) <u>186</u> (B)
Herb Stratum (Plot size: <u>5'</u> )				Prevalence Index = B/A = <u>3.44</u>
1. <u>Agrostis stolonifera</u>	<u>8</u>	<u>yes</u>	<u>FAC</u>	Hydrophytic Vegetation Indicators: ___ 1 - Rapid Test for Hydrophytic Vegetation ___ 2 - Dominance Test is >50% ___ 3 - Prevalence Index is ≤3.0 <sup>1</sup> ___ 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) ___ 5 - Wetland Non-Vascular Plants <sup>1</sup> ___ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain) <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. <u>Bromus tectorum</u>	<u>4</u>	<u>yes</u>	<u>NL</u>	
3. <u>Muhlenbergia wrightii</u>	<u>3</u>	<u>yes</u>	<u>FACU</u>	
4. <u>Helianthus annuus</u>	<u>1</u>	<u>no</u>	<u>FACU</u>	
5. <u>Rumex crispus</u>	<u>1</u>	<u>no</u>	<u>FAC</u>	
6. <u>Poa pratensis</u>	<u>1</u>	<u>no</u>	<u>FAC</u>	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
<u>55</u> = Total Cover				Hydrophytic Vegetation Present? Yes _____ No <input checked="" type="checkbox"/>
Woody Vine Stratum (Plot size: <u>30'</u> )				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
<u>45</u> = Total Cover				
% Bare Ground in Herb Stratum _____				
Remarks: vegetation is strongly hydrophytic, and typical riparian vegetation for the area				

# SOIL

Sampling Point: Q-3b

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-5	7.5YR 3/2	100					clay loam	some small gravel and sand
5-7	7.5YR 3/2	95	7.5YR 5/8	5	C	M	clay loam	some small gravel and sand
7-16	7.5YR 3/3	90	10YR 5/8	10	C	M	sandy loam	some gravel and small cobbles

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

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

- |  |  |
|--|--|
| <input type="checkbox"/> Histosol (A1)                     | <input type="checkbox"/> Sandy Redox (S5)                                  |
| <input type="checkbox"/> Histic Epipedon (A2)              | <input type="checkbox"/> Stripped Matrix (S6)                              |
| <input type="checkbox"/> Black Histic (A3)                 | <input type="checkbox"/> Loamy Mucky Mineral (F1) ( <b>except MLRA 1</b> ) |
| <input type="checkbox"/> Hydrogen Sulfide (A4)             | <input type="checkbox"/> Loamy Gleyed Matrix (F2)                          |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Matrix (F3)                              |
| <input type="checkbox"/> Thick Dark Surface (A12)          | <input type="checkbox"/> Redox Dark Surface (F6)                           |
| <input type="checkbox"/> Sandy Mucky Mineral (S1)          | <input type="checkbox"/> Depleted Dark Surface (F7)                        |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4)          | <input type="checkbox"/> Redox Depressions (F8)                            |

## Indicators for Problematic Hydric Soils<sup>3</sup>:

- |   |
|---|
| <input type="checkbox"/> 2 cm Muck (A10)                  |
| <input type="checkbox"/> Red Parent Material (TF2)        |
| <input type="checkbox"/> Very Shallow Dark Surface (TF12) |
| <input type="checkbox"/> Other (Explain in Remarks)       |

<sup>3</sup>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 ☒

Remarks:

Redox concentrations below 5", but soil matrix has not been depleted indicating upland soil

# HYDROLOGY

## Wetland Hydrology Indicators:

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

- |  |  |
|--|--|
| <input type="checkbox"/> Surface Water (A1)                        | <input type="checkbox"/> Water-Stained Leaves (B9) ( <b>except MLRA 1, 2, 4A, and 4B</b> ) |
| <input type="checkbox"/> High Water Table (A2)                     | <input type="checkbox"/> Salt Crust (B11)  |
| <input type="checkbox"/> Saturation (A3)                           | <input type="checkbox"/> Aquatic Invertebrates (B13)                                       |
| <input type="checkbox"/> Water Marks (B1)                          | <input type="checkbox"/> Hydrogen Sulfide Odor (C1)  |
| <input type="checkbox"/> Sediment Deposits (B2)                    | <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)                     |
| <input type="checkbox"/> Drift Deposits (B3)                       | <input type="checkbox"/> Presence of Reduced Iron (C4)                                     |
| <input type="checkbox"/> Algal Mat or Crust (B4)                   | <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)                        |
| <input type="checkbox"/> Iron Deposits (B5)                        | <input type="checkbox"/> Stunted or Stressed Plants (D1) ( <b>LRR A</b> )                  |
| <input type="checkbox"/> Surface Soil Cracks (B6)                  | <input type="checkbox"/> Other (Explain in Remarks)  |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) |  |
| <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)   |  |

### Secondary Indicators (2 or more required)

- |   |
|---|
| <input type="checkbox"/> Water-Stained Leaves (B9) ( <b>MLRA 1, 2, 4A, and 4B</b> ) |
| <input type="checkbox"/> Drainage Patterns (B10)                                    |
| <input type="checkbox"/> Dry-Season Water Table (C2)                                |
| <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)                  |
| <input type="checkbox"/> Geomorphic Position (D2)                                   |
| <input type="checkbox"/> Shallow Aquitard (D3)                                      |
| <input checked="" type="checkbox"/> FAC-Neutral Test (D5)                           |
| <input type="checkbox"/> Raised Ant Mounds (D6) ( <b>LRR A</b> )                    |
| <input type="checkbox"/> Frost-Heave Hummocks (D7)                                  |

## Field Observations:

Surface Water Present? Yes \_\_\_\_\_ No ☒ Depth (inches): \_\_\_\_\_  
Water Table Present? Yes \_\_\_\_\_ No ☒ Depth (inches): \_\_\_\_\_  
Saturation Present? Yes \_\_\_\_\_ No ☒ Depth (inches): \_\_\_\_\_  
(includes capillary fringe)

Wetland Hydrology Present? Yes \_\_\_\_\_ No ☒

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

Remarks:

# WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Questa Tailings Pipeline Removal Project City/County: Questa/Taos Sampling Date: 5/10/2018  
 Applicant/Owner: Chevron State: NM Sampling Point: Q-4a  
 Investigator(s): Erik Schmude, Tony Kupilik Section, Township, Range: \_\_\_\_\_  
 Landform (hillslope, terrace, etc.): floodplain Local relief (concave, convex, none): concave Slope (%): 1-3  
 Subregion (LRR): LRR E Lat: \_\_\_\_\_ Long: \_\_\_\_\_ Datum: \_\_\_\_\_  
 Soil Map Unit Name: Rock outcrop-badland complex, very steep NWI classification: none  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation yes, Soil yes, or Hydrology no significantly disturbed? Are "Normal Circumstances" present? Yes ☒ 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 <input checked="" type="checkbox"/>	No _____	Is the Sampled Area within a Wetland?	Yes _____	No <input checked="" type="checkbox"/>
Hydric Soil Present?	Yes _____	No <input checked="" type="checkbox"/>			
Wetland Hydrology Present?	Yes _____	No <input checked="" type="checkbox"/>			
Remarks:					

## VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>30'</u> )	Absolute % Cover	Dominant Species?	Indicator Status	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A)  Total Number of Dominant Species Across All Strata: <u>3</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>66</u> (A/B)
1. <u>Betula occidentalis</u>	<u>95</u>	<u>yes</u>	<u>FACW</u>	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
<u>95</u> = Total Cover <b>Sapling/Shrub Stratum (Plot size: <u>15'</u>)</b>				<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B)  Prevalence Index = B/A = _____
1. <u>Betula occidentalis</u>	<u>40</u>	<u>yes</u>	<u>FACW</u>	
2. <u>Abies concolor</u>	<u>2</u>	<u>no</u>	<u>NL</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
<u>42</u> = Total Cover <b>Herb Stratum (Plot size: <u>5'</u>)</b>				<b>Hydrophytic Vegetation Indicators:</b> ___ 1 - Rapid Test for Hydrophytic Vegetation ___ 2 - Dominance Test is >50% ___ 3 - Prevalence Index is ≤3.0 <sup>1</sup> ___ 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) ___ 5 - Wetland Non-Vascular Plants <sup>1</sup> ___ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain) <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. <u>Bromus inermis</u>	<u>25</u>	<u>yes</u>	<u>UPL</u>	
2. <u>Agrostis stolonifera</u>	<u>2</u>	<u>no</u>	<u>FAC</u>	
3. <u>Geum macrophyllum</u>	<u>2</u>	<u>no</u>	<u>FAC</u>	
4. <u>Equisetum arvense</u>	<u>2</u>	<u>no</u>	<u>FAC</u>	
5. <u>Maianthemum racemosum</u>	<u>2</u>	<u>no</u>	<u>FAC</u>	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
<u>33</u> = Total Cover <b>Woody Vine Stratum (Plot size: <u>30'</u>)</b>				<b>Hydrophytic Vegetation Present?</b> Yes <input checked="" type="checkbox"/> No _____
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
<u>67</u> = Total Cover <b>% Bare Ground in Herb Stratum</b>				
Remarks:				
Betula occidentalis dominated riparian area				



# SOIL

Sampling Point: Q-4a

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-7	7.5YR 4/3	92	7.5YR 5/8	8	C	M	sandy	
7-10	7.5YR 3/2	45	7.5YR 5/8	5	C	M	sandy loam	
7-10	7.5YR 4/3	45	7.5YR 5/8	10	C	M	sand	coarser than 0.7 layer
10-16	7.5YR 4/3	98	7.5YR 5/8	2	C	M	gravelly sand	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.

<sup>2</sup>Location: PL=Pore Lining, M=Matrix.

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

- |  |  |
|--|--|
| <input type="checkbox"/> Histosol (A1)                     | <input type="checkbox"/> Sandy Redox (S5)                                  |
| <input type="checkbox"/> Histic Epipedon (A2)              | <input type="checkbox"/> Stripped Matrix (S6)                              |
| <input type="checkbox"/> Black Histic (A3)                 | <input type="checkbox"/> Loamy Mucky Mineral (F1) ( <b>except MLRA 1</b> ) |
| <input type="checkbox"/> Hydrogen Sulfide (A4)             | <input type="checkbox"/> Loamy Gleyed Matrix (F2)                          |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Matrix (F3)                              |
| <input type="checkbox"/> Thick Dark Surface (A12)          | <input type="checkbox"/> Redox Dark Surface (F6)                           |
| <input type="checkbox"/> Sandy Mucky Mineral (S1)          | <input type="checkbox"/> Depleted Dark Surface (F7)                        |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4)          | <input type="checkbox"/> Redox Depressions (F8)                            |

## Indicators for Problematic Hydric Soils<sup>3</sup>:

- |   |
|---|
| <input type="checkbox"/> 2 cm Muck (A10)                  |
| <input type="checkbox"/> Red Parent Material (TF2)        |
| <input type="checkbox"/> Very Shallow Dark Surface (TF12) |
| <input type="checkbox"/> Other (Explain in Remarks)       |

<sup>3</sup>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 ☒

Remarks:

Some redox is present, however, the matrix has no been sufficiently depleted to be considered hydric

# HYDROLOGY

## Wetland Hydrology Indicators:

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

- |  |   |
|--|---|
| <input type="checkbox"/> Surface Water (A1)                        | <input checked="" type="checkbox"/> Water-Stained Leaves (B9) ( <b>except MLRA 1, 2, 4A, and 4B</b> ) |
| <input type="checkbox"/> High Water Table (A2)                     | <input type="checkbox"/> Salt Crust (B11)   |
| <input type="checkbox"/> Saturation (A3)                           | <input type="checkbox"/> Aquatic Invertebrates (B13)  |
| <input type="checkbox"/> Water Marks (B1)                          | <input type="checkbox"/> Hydrogen Sulfide Odor (C1)   |
| <input type="checkbox"/> Sediment Deposits (B2)                    | <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)                                |
| <input checked="" type="checkbox"/> Drift Deposits (B3)            | <input type="checkbox"/> Presence of Reduced Iron (C4)  |
| <input type="checkbox"/> Algal Mat or Crust (B4)                   | <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)                                   |
| <input type="checkbox"/> Iron Deposits (B5)                        | <input type="checkbox"/> Stunted or Stressed Plants (D1) ( <b>LRR A</b> )                             |
| <input type="checkbox"/> Surface Soil Cracks (B6)                  | <input type="checkbox"/> Other (Explain in Remarks)   |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) |   |
| <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)   |   |

Secondary Indicators (2 or more required)

- |   |
|---|
| <input type="checkbox"/> Water-Stained Leaves (B9) ( <b>MLRA 1, 2, 4A, and 4B</b> ) |
| <input type="checkbox"/> Drainage Patterns (B10)                                    |
| <input type="checkbox"/> Dry-Season Water Table (C2)                                |
| <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)                  |
| <input checked="" type="checkbox"/> Geomorphic Position (D2)                        |
| <input type="checkbox"/> Shallow Aquitard (D3)                                      |
| <input type="checkbox"/> FAC-Neutral Test (D5)                                      |
| <input type="checkbox"/> Raised Ant Mounds (D6) ( <b>LRR A</b> )                    |
| <input type="checkbox"/> Frost-Heave Hummocks (D7)                                  |

## Field Observations:

Surface Water Present? Yes \_\_\_\_\_ No ☒ Depth (inches): \_\_\_\_\_

Water Table Present? Yes \_\_\_\_\_ No ☒ Depth (inches): \_\_\_\_\_

Saturation Present? Yes ☒ No \_\_\_\_\_ Depth (inches): 13  
(includes capillary fringe)

Wetland Hydrology Present? Yes ☒ No \_\_\_\_\_

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

Remarks:

point is located near river and sign of water flowing and inundating this area is present.

# WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Questa Tailings Pipeline Removal Project City/County: Questa/Taos Sampling Date: 5/10/2018  
 Applicant/Owner: Chevron State: NM Sampling Point: Q-4b  
 Investigator(s): Erik Schmude, Tony Kupilik Section, Township, Range: \_\_\_\_\_  
 Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): Convex Slope (%): 3<sup>3</sup>  
 Subregion (LRR): LRR E Lat: \_\_\_\_\_ Long: \_\_\_\_\_ Datum: \_\_\_\_\_  
 Soil Map Unit Name: Rock outcrop-badland complex, very steep NWI classification: none  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation no, Soil no, or Hydrology no significantly disturbed? Are "Normal Circumstances" present? Yes ☒ 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 <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/>
Hydric Soil Present?	Yes _____ No <input checked="" type="checkbox"/>	
Wetland Hydrology Present?	Yes _____ No <input checked="" type="checkbox"/>	
Remarks:  point placed just to west of pipeline tressle. Area has been disturbed and appears vegetation has been maintained in past.		

## VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>30'</u> )	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u>Juniperus scoparium</u>	<u>80</u>	<u>yes</u>	<u>NL</u>	
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>3</u> (B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A/B)
4. _____	<u>80</u>	<u>= Total Cover</u>		Prevalence Index worksheet:
Sapling/Shrub Stratum (Plot size: <u>15'</u> )				
1. <u>Atriplex canescens</u>	<u>10</u>	<u>yes</u>	<u>NL</u>	Total % Cover of: _____ Multiply by: _____
2. _____	_____	_____	_____	OBL species _____ x 1 = _____
3. _____	_____	_____	_____	FACW species _____ x 2 = _____
4. _____	_____	_____	_____	FAC species _____ x 3 = _____
5. _____	_____	_____	_____	FACU species _____ x 4 = _____
Herb Stratum (Plot size: <u>5'</u> )				UPL species _____ x 5 = _____
1. <u>Bromus inermis</u>	<u>80</u>	<u>yes</u>	<u>UPL</u>	Column Totals: _____ (A) _____ (B)
2. <u>Antennaria sp.</u>	<u>5</u>	<u>no</u>	<u>NL</u>	Prevalence Index = B/A = _____
3. <u>Bassia scoparia</u>	<u>5</u>	<u>no</u>	<u>FAC</u>	Hydrophytic Vegetation Indicators:
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	___ 1 - Rapid Test for Hydrophytic Vegetation
6. _____	_____	_____	_____	___ 2 - Dominance Test is >50%
7. _____	_____	_____	_____	___ 3 - Prevalence Index is ≤3.0 <sup>1</sup>
8. _____	_____	_____	_____	___ 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)
9. _____	_____	_____	_____	___ 5 - Wetland Non-Vascular Plants <sup>1</sup>
10. _____	_____	_____	_____	___ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
11. _____	_____	_____	_____	<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
Woody Vine Stratum (Plot size: <u>30'</u> )				Hydrophytic Vegetation Present? Yes _____ No <input checked="" type="checkbox"/>
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
% Bare Ground in Herb Stratum <u>10</u>				
Remarks:  Upland species dominate area on hillslope				

# SOIL

Sampling Point: Q-4b

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-3	10YR 3/3	100					clay loam	many fibrous roots
3-16	2.5Y 5/3	100					clay	

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

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

- |  |  |
|--|--|
| <input type="checkbox"/> Histosol (A1)                     | <input type="checkbox"/> Sandy Redox (S5)                                  |
| <input type="checkbox"/> Histic Epipedon (A2)              | <input type="checkbox"/> Stripped Matrix (S6)                              |
| <input type="checkbox"/> Black Histic (A3)                 | <input type="checkbox"/> Loamy Mucky Mineral (F1) ( <b>except MLRA 1</b> ) |
| <input type="checkbox"/> Hydrogen Sulfide (A4)             | <input type="checkbox"/> Loamy Gleyed Matrix (F2)                          |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Matrix (F3)                              |
| <input type="checkbox"/> Thick Dark Surface (A12)          | <input type="checkbox"/> Redox Dark Surface (F6)                           |
| <input type="checkbox"/> Sandy Mucky Mineral (S1)          | <input type="checkbox"/> Depleted Dark Surface (F7)                        |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4)          | <input type="checkbox"/> Redox Depressions (F8)                            |

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- |   |
|---|
| <input type="checkbox"/> 2 cm Muck (A10)                  |
| <input type="checkbox"/> Red Parent Material (TF2)        |
| <input type="checkbox"/> Very Shallow Dark Surface (TF12) |
| <input type="checkbox"/> Other (Explain in Remarks)       |

<sup>3</sup>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 ☒**

Remarks:

# HYDROLOGY

**Wetland Hydrology Indicators:**

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

- |  |  |
|--|--|
| <input type="checkbox"/> Surface Water (A1)                        | <input type="checkbox"/> Water-Stained Leaves (B9) ( <b>except MLRA 1, 2, 4A, and 4B</b> ) |
| <input type="checkbox"/> High Water Table (A2)                     | <input type="checkbox"/> Salt Crust (B11)  |
| <input type="checkbox"/> Saturation (A3)                           | <input type="checkbox"/> Aquatic Invertebrates (B13)                                       |
| <input type="checkbox"/> Water Marks (B1)                          | <input type="checkbox"/> Hydrogen Sulfide Odor (C1)  |
| <input type="checkbox"/> Sediment Deposits (B2)                    | <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)                     |
| <input type="checkbox"/> Drift Deposits (B3)                       | <input type="checkbox"/> Presence of Reduced Iron (C4)                                     |
| <input type="checkbox"/> Algal Mat or Crust (B4)                   | <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)                        |
| <input type="checkbox"/> Iron Deposits (B5)                        | <input type="checkbox"/> Stunted or Stressed Plants (D1) ( <b>LRR A</b> )                  |
| <input type="checkbox"/> Surface Soil Cracks (B6)                  | <input type="checkbox"/> Other (Explain in Remarks)  |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) |  |
| <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)   |  |

Secondary Indicators (2 or more required)

- |   |
|---|
| <input type="checkbox"/> Water-Stained Leaves (B9) ( <b>MLRA 1, 2, 4A, and 4B</b> ) |
| <input type="checkbox"/> Drainage Patterns (B10)                                    |
| <input type="checkbox"/> Dry-Season Water Table (C2)                                |
| <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)                  |
| <input type="checkbox"/> Geomorphic Position (D2)                                   |
| <input type="checkbox"/> Shallow Aquitard (D3)                                      |
| <input type="checkbox"/> FAC-Neutral Test (D5)                                      |
| <input type="checkbox"/> Raised Ant Mounds (D6) ( <b>LRR A</b> )                    |
| <input type="checkbox"/> Frost-Heave Hummocks (D7)                                  |

**Field Observations:**

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

(includes capillary fringe)

**Wetland Hydrology Present? Yes \_\_\_\_\_ No ☒**

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

Remarks:



# WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Questa Tailings Pipeline Removal Project City/County: Questa/Taos Sampling Date: 5/10/2018  
 Applicant/Owner: Chevron State: NM Sampling Point: Q-5a  
 Investigator(s): Erik Schmude, Tony Kupilik Section, Township, Range: \_\_\_\_\_  
 Landform (hillslope, terrace, etc.): floodplain Local relief (concave, convex, none): none Slope (%):<sup>1</sup> \_\_\_\_\_  
 Subregion (LRR): LRR E Lat: \_\_\_\_\_ Long: \_\_\_\_\_ Datum: \_\_\_\_\_  
 Soil Map Unit Name: Cumulic haploborolls, nearly level NWI classification: R3USC

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation no, Soil no, or Hydrology no significantly disturbed? Are "Normal Circumstances" present? Yes ☒ 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 <input checked="" type="checkbox"/> No _____	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No _____
Hydric Soil Present?	Yes <input checked="" type="checkbox"/> No _____	
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/> No _____	
Remarks: point placed in adjacent area to river, which is only slightly elevated from the river. Water clearly flows here, on occasion.		

## VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>30'</u> )	Absolute % Cover	Dominant Species?	Indicator Status	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>4</u> (A)  Total Number of Dominant Species Across All Strata: <u>4</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
_____ = Total Cover				<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B)  Prevalence Index = B/A = _____
<b>Sapling/Shrub Stratum (Plot size: <u>15'</u>)</b> 1. <u>Betula occidentalis</u> 20 yes FACW 2. <u>Salix monticola</u> 15 yes OBL 3. <u>Salix exigua</u> 10 yes FACW 4. _____ 5. _____				
_____ = Total Cover				
<b>Herb Stratum (Plot size: <u>5'</u>)</b> 1. <u>Agrostis stolonifera</u> 70 yes FAC 2. <u>Equisetum arvense</u> 10 no FAC 3. <u>Barbarea vulgaris</u> 4 no FAC 4. <u>Mentha arvensis</u> 2 no FACW 5. _____ 6. _____ 7. _____ 8. _____ 9. _____ 10. _____ 11. _____				
_____ = Total Cover				
<b>Woody Vine Stratum (Plot size: <u>30'</u>)</b> 1. _____ 2. _____ _____ = Total Cover  % Bare Ground in Herb Stratum <u>14</u>				<b>Hydrophytic Vegetation Indicators:</b> ___ 1 - Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% ___ 3 - Prevalence Index is ≤3.0 <sup>1</sup> ___ 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) ___ 5 - Wetland Non-Vascular Plants <sup>1</sup> ___ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain) <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
<b>Hydrophytic Vegetation Present?</b> Yes <input checked="" type="checkbox"/> No _____				
Remarks:				

# SOIL

Sampling Point: Q-5a

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-3	10YR 4/3	90	5YR 5/8	10	C	M/PL	sandy loam	
3-5	10YR 4/2	70	5YR 5/8	30	C	M/PL	silty clay loam	
5-6	10YR 4/2	70	5YR 5/8	30	C	PL	silty clay	
6-9	7.5YR 4/3	60	5YR 5/8	40	C	M/PL	loamy sand	small gravel

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.

<sup>2</sup>Location: PL=Pore Lining, M=Matrix.

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

- |  |  |
|--|--|
| <input type="checkbox"/> Histosol (A1)                     | <input type="checkbox"/> Sandy Redox (S5)                                  |
| <input type="checkbox"/> Histic Epipedon (A2)              | <input type="checkbox"/> Stripped Matrix (S6)                              |
| <input type="checkbox"/> Black Histic (A3)                 | <input type="checkbox"/> Loamy Mucky Mineral (F1) ( <b>except MLRA 1</b> ) |
| <input type="checkbox"/> Hydrogen Sulfide (A4)             | <input type="checkbox"/> Loamy Gleyed Matrix (F2)                          |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input checked="" type="checkbox"/> Depleted Matrix (F3)                   |
| <input type="checkbox"/> Thick Dark Surface (A12)          | <input type="checkbox"/> Redox Dark Surface (F6)                           |
| <input type="checkbox"/> Sandy Mucky Mineral (S1)          | <input type="checkbox"/> Depleted Dark Surface (F7)                        |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4)          | <input type="checkbox"/> Redox Depressions (F8)                            |

## Indicators for Problematic Hydric Soils<sup>3</sup>:

- |   |
|---|
| <input type="checkbox"/> 2 cm Muck (A10)                  |
| <input type="checkbox"/> Red Parent Material (TF2)        |
| <input type="checkbox"/> Very Shallow Dark Surface (TF12) |
| <input type="checkbox"/> Other (Explain in Remarks)       |

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

## Restrictive Layer (if present):

Type: River rock  
Depth (inches): 9

Hydric Soil Present? Yes ☐ No ☐

Remarks:

Strong redox concentrations in the matrix and pore linings below 3 inches. 3' to 6" depleted matrix = hydric soil.

# HYDROLOGY

## Wetland Hydrology Indicators:

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

- |  |   |
|--|---|
| <input type="checkbox"/> Surface Water (A1)                        | <input checked="" type="checkbox"/> Water-Stained Leaves (B9) ( <b>except MLRA 1, 2, 4A, and 4B</b> ) |
| <input type="checkbox"/> High Water Table (A2)                     | <input type="checkbox"/> Salt Crust (B11)   |
| <input checked="" type="checkbox"/> Saturation (A3)                | <input type="checkbox"/> Aquatic Invertebrates (B13)  |
| <input type="checkbox"/> Water Marks (B1)                          | <input type="checkbox"/> Hydrogen Sulfide Odor (C1)   |
| <input type="checkbox"/> Sediment Deposits (B2)                    | <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)                                |
| <input type="checkbox"/> Drift Deposits (B3)                       | <input type="checkbox"/> Presence of Reduced Iron (C4)  |
| <input checked="" type="checkbox"/> Algal Mat or Crust (B4)        | <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)                                   |
| <input checked="" type="checkbox"/> Iron Deposits (B5)             | <input type="checkbox"/> Stunted or Stressed Plants (D1) ( <b>LRR A</b> )                             |
| <input type="checkbox"/> Surface Soil Cracks (B6)                  | <input type="checkbox"/> Other (Explain in Remarks)   |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) |   |
| <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)   |   |

Secondary Indicators (2 or more required)

- |   |
|---|
| <input type="checkbox"/> Water-Stained Leaves (B9) ( <b>MLRA 1, 2, 4A, and 4B</b> ) |
| <input checked="" type="checkbox"/> Drainage Patterns (B10)                         |
| <input type="checkbox"/> Dry-Season Water Table (C2)                                |
| <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)                  |
| <input checked="" type="checkbox"/> Geomorphic Position (D2)                        |
| <input type="checkbox"/> Shallow Aquitard (D3)                                      |
| <input type="checkbox"/> FAC-Neutral Test (D5)                                      |
| <input type="checkbox"/> Raised Ant Mounds (D6) ( <b>LRR A</b> )                    |
| <input type="checkbox"/> Frost-Heave Hummocks (D7)                                  |

## Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches): \_\_\_\_\_  
Water Table Present? Yes ☐ No ☒ Depth (inches): \_\_\_\_\_  
Saturation Present? Yes ☒ No ☐ Depth (inches): 6  
(includes capillary fringe)

Wetland Hydrology Present? Yes ☒ No ☐

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

Remarks:

iron deposits/sheen observed in standing puddles near point. Many drainage patters in the area.

# WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Questa Tailings Pipeline Removal Project City/County: Questa/Taos Sampling Date: 5/10/2018  
 Applicant/Owner: Chevron State: NM Sampling Point: Q-5b  
 Investigator(s): Erik Schmude, Tony Kupilik Section, Township, Range: \_\_\_\_\_  
 Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 4-5  
 Subregion (LRR): LRR E Lat: \_\_\_\_\_ Long: \_\_\_\_\_ Datum: \_\_\_\_\_  
 Soil Map Unit Name: Cumulic haploborolls, nearly level NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation no, Soil no, or Hydrology no significantly disturbed? Are "Normal Circumstances" present? Yes ☒ 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 <input checked="" type="checkbox"/> No _____	Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/>
Hydric Soil Present?	Yes _____ No <input checked="" type="checkbox"/>	
Wetland Hydrology Present?	Yes _____ No <input checked="" type="checkbox"/>	
Remarks:		

## VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>30'</u> )	Absolute % Cover	Dominant Species?	Indicator Status	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>4</u> (A) Total Number of Dominant Species Across All Strata: <u>5</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>80</u> (A/B)
1. <u>Populus angustifolia</u>	<u>50</u>	<u>yes</u>	<u>FACW</u>	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	<u>50</u>	<u>= Total Cover</u>		<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
<b>Sapling/Shrub Stratum (Plot size: <u>15'</u>)</b>				
1. <u>Alnus incana</u>	<u>50</u>	<u>yes</u>	<u>FACW</u>	
2. <u>Salix bebbiana</u>	<u>20</u>	<u>yes</u>	<u>FACW</u>	
3. <u>Rosa woodsii</u>	<u>10</u>	<u>no</u>	<u>FACU</u>	
4. _____	_____	_____	_____	<b>Hydrophytic Vegetation Indicators:</b> ___ 1 - Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% ___ 3 - Prevalence Index is ≤3.0 <sup>1</sup> ___ 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) ___ 5 - Wetland Non-Vascular Plants <sup>1</sup> ___ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain) <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
5. _____	<u>80</u>	<u>= Total Cover</u>		
<b>Herb Stratum (Plot size: <u>5'</u>)</b>				
1. <u>Agrostis stolonifera</u>	<u>40</u>	<u>yes</u>	<u>FAC</u>	
2. <u>Bromus inermis</u>	<u>40</u>	<u>yes</u>	<u>UPL</u>	
3. <u>Taraxacum officianale</u>	<u>5</u>	<u>no</u>	<u>NL</u>	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
<b>Woody Vine Stratum (Plot size: <u>30'</u>)</b>				<b>Hydrophytic Vegetation Present?</b> Yes <input checked="" type="checkbox"/> No _____
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
<b>% Bare Ground in Herb Stratum <u>15</u></b>				<b>Hydrophytic Vegetation Present?</b> Yes <input checked="" type="checkbox"/> No _____
<b>Remarks:</b>				



# SOIL

Sampling Point: Q-5b

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-4	10YR 3/2	100					clay loam	
4-6	10YR 7/6	100					loam	
6-16	10YR 4/3	99	10YR 5/6	1	C	M	sandy loam	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.

<sup>2</sup>Location: PL=Pore Lining, M=Matrix.

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

- |  |  |
|--|--|
| <input type="checkbox"/> Histosol (A1)                     | <input type="checkbox"/> Sandy Redox (S5)                                  |
| <input type="checkbox"/> Histic Epipedon (A2)              | <input type="checkbox"/> Stripped Matrix (S6)                              |
| <input type="checkbox"/> Black Histic (A3)                 | <input type="checkbox"/> Loamy Mucky Mineral (F1) ( <b>except MLRA 1</b> ) |
| <input type="checkbox"/> Hydrogen Sulfide (A4)             | <input type="checkbox"/> Loamy Gleyed Matrix (F2)                          |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Matrix (F3)                              |
| <input type="checkbox"/> Thick Dark Surface (A12)          | <input type="checkbox"/> Redox Dark Surface (F6)                           |
| <input type="checkbox"/> Sandy Mucky Mineral (S1)          | <input type="checkbox"/> Depleted Dark Surface (F7)                        |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4)          | <input type="checkbox"/> Redox Depressions (F8)                            |

## Indicators for Problematic Hydric Soils<sup>3</sup>:

- |   |
|---|
| <input type="checkbox"/> 2 cm Muck (A10)                  |
| <input type="checkbox"/> Red Parent Material (TF2)        |
| <input type="checkbox"/> Very Shallow Dark Surface (TF12) |
| <input type="checkbox"/> Other (Explain in Remarks)       |

<sup>3</sup>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 ☒

Remarks:

# HYDROLOGY

## Wetland Hydrology Indicators:

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

- |  |  |
|--|--|
| <input type="checkbox"/> Surface Water (A1)                        | <input type="checkbox"/> Water-Stained Leaves (B9) ( <b>except MLRA 1, 2, 4A, and 4B</b> ) |
| <input type="checkbox"/> High Water Table (A2)                     | <input type="checkbox"/> Salt Crust (B11)  |
| <input type="checkbox"/> Saturation (A3)                           | <input type="checkbox"/> Aquatic Invertebrates (B13)                                       |
| <input type="checkbox"/> Water Marks (B1)                          | <input type="checkbox"/> Hydrogen Sulfide Odor (C1)  |
| <input type="checkbox"/> Sediment Deposits (B2)                    | <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)                     |
| <input type="checkbox"/> Drift Deposits (B3)                       | <input type="checkbox"/> Presence of Reduced Iron (C4)                                     |
| <input type="checkbox"/> Algal Mat or Crust (B4)                   | <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)                        |
| <input type="checkbox"/> Iron Deposits (B5)                        | <input type="checkbox"/> Stunted or Stressed Plants (D1) ( <b>LRR A</b> )                  |
| <input type="checkbox"/> Surface Soil Cracks (B6)                  | <input type="checkbox"/> Other (Explain in Remarks)  |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) |  |
| <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)   |  |

### Secondary Indicators (2 or more required)

- |   |
|---|
| <input type="checkbox"/> Water-Stained Leaves (B9) ( <b>MLRA 1, 2, 4A, and 4B</b> ) |
| <input type="checkbox"/> Drainage Patterns (B10)                                    |
| <input type="checkbox"/> Dry-Season Water Table (C2)                                |
| <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)                  |
| <input type="checkbox"/> Geomorphic Position (D2)                                   |
| <input type="checkbox"/> Shallow Aquitard (D3)                                      |
| <input checked="" type="checkbox"/> FAC-Neutral Test (D5)                           |
| <input type="checkbox"/> Raised Ant Mounds (D6) ( <b>LRR A</b> )                    |
| <input type="checkbox"/> Frost-Heave Hummocks (D7)                                  |

## Field Observations:

Surface Water Present? Yes \_\_\_\_\_ No ☒ Depth (inches): \_\_\_\_\_

Water Table Present? Yes \_\_\_\_\_ No ☒ Depth (inches): \_\_\_\_\_

Saturation Present? Yes \_\_\_\_\_ No ☒ Depth (inches): \_\_\_\_\_  
(includes capillary fringe)

Wetland Hydrology Present? Yes \_\_\_\_\_ No ☒

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

Remarks:

# WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Questa Tailings Pipeline Removal Project City/County: Questa/Taos Sampling Date: 5/10/2018  
 Applicant/Owner: Chevron State: NM Sampling Point: Q-6a  
 Investigator(s): Erik Schmude, Tony Kupilik Section, Township, Range: \_\_\_\_\_  
 Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): concave Slope (%): 1-2  
 Subregion (LRR): LRR E Lat: \_\_\_\_\_ Long: \_\_\_\_\_ Datum: \_\_\_\_\_  
 Soil Map Unit Name: Cumulic haploborolls, nearly level NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation yes, Soil yes, or Hydrology no significantly disturbed? Are "Normal Circumstances" present? Yes ☒ 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 <input checked="" type="checkbox"/> No _____	Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/>
Hydric Soil Present?	Yes _____ No <input checked="" type="checkbox"/>	
Wetland Hydrology Present?	Yes <input checked="" type="checkbox"/> No _____	
Remarks:  Point placed a few feet from river edge in area of fairly sparse vegetation, with sphagnum moss the dominant herbaceous species.		

## VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>30'</u> )	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u>Populus angustifolia</u>	<u>40</u>	<u>yes</u>	<u>FACW</u>	
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>4</u> (B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>75</u> (A/B)
4. _____	<u>40</u>	= Total Cover		Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
Sapling/Shrub Stratum (Plot size: <u>15'</u> )				
1. <u>Salix amygdaloides</u>	<u>10</u>	<u>yes</u>	<u>FACW</u>	
2. <u>Betula occidentalis</u>	<u>10</u>	<u>yes</u>	<u>FACW</u>	
3. <u>Acer glabrum</u>	<u>2</u>	<u>no</u>	<u>FACU</u>	
4. <u>Quercus gambelii</u>	<u>2</u>	<u>no</u>	<u>NL</u>	Hydrophytic Vegetation Indicators: ___ 1 - Rapid Test for Hydrophytic Vegetation ___ 2 - Dominance Test is >50% ___ 3 - Prevalence Index is ≤3.0 <sup>1</sup> ___ 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) ___ 5 - Wetland Non-Vascular Plants <sup>1</sup> ___ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain) <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
5. _____	<u>24</u>	= Total Cover		
Herb Stratum (Plot size: <u>5'</u> )				
1. <u>Agrostis stolonifera</u>	<u>5</u>	<u>no</u>	<u>FAC</u>	
2. <u>Sphagnum spp.</u>	<u>40</u>	<u>yes</u>	<u>NL</u>	
3. <u>Trifolium repens</u>	<u>3</u>	<u>no</u>	<u>FAC</u>	
4. <u>Descuriana sp.</u>	<u>1</u>	<u>no</u>	<u>NL</u>	
5. <u>Achillea millefolium</u>	<u>1</u>	<u>no</u>	<u>FACU</u>	
6. <u>Bromus inermis</u>	<u>2</u>	<u>no</u>	<u>UPL</u>	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
Woody Vine Stratum (Plot size: <u>30'</u> )				Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
% Bare Ground in Herb Stratum <u>48</u>	<u>52</u>	= Total Cover		
Remarks:  moss spp. primary vegetation in the herbaceous layer				

# SOIL

Sampling Point: Q-6a

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-3	10YR 6/4	85	7.5YR 6/8	15	C	PL	loamy sand	
3-5	10YR 3/2	85	7.5YR 6/8	15	C	PL	clay	some organics (dark leaves)
5-7	7.5YR 4/3	55	7.5YR 6/8	45	C	M	loamy sand	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.

<sup>2</sup>Location: PL=Pore Lining, M=Matrix.

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

- |  |  |
|--|--|
| <input type="checkbox"/> Histosol (A1)                     | <input type="checkbox"/> Sandy Redox (S5)                                  |
| <input type="checkbox"/> Histic Epipedon (A2)              | <input type="checkbox"/> Stripped Matrix (S6)                              |
| <input type="checkbox"/> Black Histic (A3)                 | <input type="checkbox"/> Loamy Mucky Mineral (F1) ( <b>except MLRA 1</b> ) |
| <input type="checkbox"/> Hydrogen Sulfide (A4)             | <input type="checkbox"/> Loamy Gleyed Matrix (F2)                          |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Matrix (F3)                              |
| <input type="checkbox"/> Thick Dark Surface (A12)          | <input type="checkbox"/> Redox Dark Surface (F6)                           |
| <input type="checkbox"/> Sandy Mucky Mineral (S1)          | <input type="checkbox"/> Depleted Dark Surface (F7)                        |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4)          | <input type="checkbox"/> Redox Depressions (F8)                            |

## Indicators for Problematic Hydric Soils<sup>3</sup>:

- |   |
|---|
| <input type="checkbox"/> 2 cm Muck (A10)                  |
| <input type="checkbox"/> Red Parent Material (TF2)        |
| <input type="checkbox"/> Very Shallow Dark Surface (TF12) |
| <input type="checkbox"/> Other (Explain in Remarks)       |

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

## Restrictive Layer (if present):

Type: River rock  
Depth (inches): 7

Hydric Soil Present? Yes ☐ No ☒

Remarks:

Redox features present, but no depletion on the matrix observed.

# HYDROLOGY

## Wetland Hydrology Indicators:

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

- |  |  |
|--|--|
| <input type="checkbox"/> Surface Water (A1)                        | <input type="checkbox"/> Water-Stained Leaves (B9) ( <b>except MLRA 1, 2, 4A, and 4B</b> ) |
| <input type="checkbox"/> High Water Table (A2)                     | <input type="checkbox"/> Salt Crust (B11)  |
| <input type="checkbox"/> Saturation (A3)                           | <input type="checkbox"/> Aquatic Invertebrates (B13)                                       |
| <input type="checkbox"/> Water Marks (B1)                          | <input type="checkbox"/> Hydrogen Sulfide Odor (C1)  |
| <input checked="" type="checkbox"/> Sediment Deposits (B2)         | <input checked="" type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)          |
| <input type="checkbox"/> Drift Deposits (B3)                       | <input type="checkbox"/> Presence of Reduced Iron (C4)                                     |
| <input type="checkbox"/> Algal Mat or Crust (B4)                   | <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)                        |
| <input type="checkbox"/> Iron Deposits (B5)                        | <input type="checkbox"/> Stunted or Stressed Plants (D1) ( <b>LRR A</b> )                  |
| <input type="checkbox"/> Surface Soil Cracks (B6)                  | <input type="checkbox"/> Other (Explain in Remarks)  |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) |  |
| <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)   |  |

Secondary Indicators (2 or more required)

- |   |
|---|
| <input type="checkbox"/> Water-Stained Leaves (B9) ( <b>MLRA 1, 2, 4A, and 4B</b> ) |
| <input type="checkbox"/> Drainage Patterns (B10)                                    |
| <input type="checkbox"/> Dry-Season Water Table (C2)                                |
| <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)                  |
| <input checked="" type="checkbox"/> Geomorphic Position (D2)                        |
| <input type="checkbox"/> Shallow Aquitard (D3)                                      |
| <input checked="" type="checkbox"/> FAC-Neutral Test (D5)                           |
| <input type="checkbox"/> Raised Ant Mounds (D6) ( <b>LRR A</b> )                    |
| <input type="checkbox"/> Frost-Heave Hummocks (D7)                                  |

## Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches):                       
Water Table Present? Yes ☐ No ☐ Depth (inches): unknown  
Saturation Present? Yes ☐ No ☐ Depth (inches): unknown  
(includes capillary fringe)

Wetland Hydrology Present? Yes ☒ No ☐

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

Remarks:

Could not dig below 7" due to river rock. This point appears to be occasionally inundated with flowing water from stream.



# WETLAND DETERMINATION DATA FORM – Western Mountains, Valleys, and Coast Region

Project/Site: Questa Tailings Pipeline Removal Project City/County: Questa/Taos Sampling Date: 5/10/2018  
 Applicant/Owner: Chevron State: NM Sampling Point: Q-6b  
 Investigator(s): Erik Schmude, Tony Kupilik Section, Township, Range: \_\_\_\_\_  
 Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): none Slope (%): 4  
 Subregion (LRR): LRR E Lat: \_\_\_\_\_ Long: \_\_\_\_\_ Datum: \_\_\_\_\_  
 Soil Map Unit Name: Cumulic haploborolls, nearly level NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation no, Soil no, or Hydrology no significantly disturbed? Are "Normal Circumstances" present? Yes ☒ 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 <input checked="" type="checkbox"/> No _____	Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/>
Hydric Soil Present?	Yes _____ No <input checked="" type="checkbox"/>	
Wetland Hydrology Present?	Yes _____ No <input checked="" type="checkbox"/>	
Remarks:  Point placed on terrace elevated slightly above river level, but in riparian vegetation		

## VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: <u>30'</u> )	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u>Populus angustifolia</u>	<u>65</u>	<u>yes</u>	<u>FACW</u>	
2. <u>Abies concolor</u>	<u>10</u>	<u>no</u>	<u>NL</u>	Total Number of Dominant Species Across All Strata: <u>4</u> (B)
3. <u>Juniperus scoparium</u>	<u>5</u>	<u>no</u>	<u>NL</u>	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>25</u> (A/B)
4. _____	<u>80</u>			
				<b>Prevalence Index worksheet:</b>
Sapling/Shrub Stratum (Plot size: <u>15'</u> )				Total % Cover of: _____ Multiply by: _____
1. <u>Abies concolor</u>	<u>2</u>	<u>no</u>	<u>NL</u>	OBL species _____ x 1 = _____
2. <u>Salix exigua</u>	<u>2</u>	<u>no</u>	<u>FACW</u>	FACW species <u>67</u> x 2 = <u>134</u>
3. <u>Holodiscus discolor</u>	<u>5</u>	<u>yes</u>	<u>FACU</u>	FAC species _____ x 3 = _____
4. <u>Acer glabrum</u>	<u>5</u>	<u>yes</u>	<u>FACU</u>	FACU species <u>11</u> x 4 = <u>44</u>
5. <u>Rosa woodsii</u>	<u>1</u>	<u>no</u>	<u>FACU</u>	UPL species <u>1</u> x 5 = <u>5</u>
				Column Totals: <u>79</u> (A) <u>183</u> (B)
				Prevalence Index = B/A = <u>2.32</u>
Herb Stratum (Plot size: <u>5'</u> )				<b>Hydrophytic Vegetation Indicators:</b>
1. <u>Clematis occidentalis</u>	<u>5</u>	<u>yes</u>	<u>NL</u>	___ 1 - Rapid Test for Hydrophytic Vegetation
2. <u>Bromus inermis</u>	<u>1</u>	<u>no</u>	<u>UPL</u>	___ 2 - Dominance Test is >50%
3. <u>Acnatherum robustum</u>	<u>1</u>	<u>no</u>	<u>NL</u>	<input checked="" type="checkbox"/> 3 - Prevalence Index is ≤3.0 <sup>1</sup>
4. _____				___ 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)
5. _____				___ 5 - Wetland Non-Vascular Plants <sup>1</sup>
6. _____				___ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
7. _____				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
8. _____				
9. _____				
10. _____				
11. _____				
Woody Vine Stratum (Plot size: <u>30'</u> )				<b>Hydrophytic Vegetation Present?</b> Yes <input checked="" type="checkbox"/> No _____
1. _____				
2. _____				
% Bare Ground in Herb Stratum <u>93</u>				
Remarks:  Populus angustifolia dominated riparian area				

# SOIL

Sampling Point: Q-6b

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-2	10YR 2/2	100					loam	mostly organic
2-12	10YR 4/2	98	7.5YR 6/8	2	C	M	sandy	

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

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

- |  |  |
|--|--|
| <input type="checkbox"/> Histosol (A1)                     | <input type="checkbox"/> Sandy Redox (S5)                                  |
| <input type="checkbox"/> Histic Epipedon (A2)              | <input type="checkbox"/> Stripped Matrix (S6)                              |
| <input type="checkbox"/> Black Histic (A3)                 | <input type="checkbox"/> Loamy Mucky Mineral (F1) ( <b>except MLRA 1</b> ) |
| <input type="checkbox"/> Hydrogen Sulfide (A4)             | <input type="checkbox"/> Loamy Gleyed Matrix (F2)                          |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Matrix (F3)                              |
| <input type="checkbox"/> Thick Dark Surface (A12)          | <input type="checkbox"/> Redox Dark Surface (F6)                           |
| <input type="checkbox"/> Sandy Mucky Mineral (S1)          | <input type="checkbox"/> Depleted Dark Surface (F7)                        |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4)          | <input type="checkbox"/> Redox Depressions (F8)                            |

## Indicators for Problematic Hydric Soils<sup>3</sup>:

- |   |
|---|
| <input type="checkbox"/> 2 cm Muck (A10)                  |
| <input type="checkbox"/> Red Parent Material (TF2)        |
| <input type="checkbox"/> Very Shallow Dark Surface (TF12) |
| <input type="checkbox"/> Other (Explain in Remarks)       |

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

## Restrictive Layer (if present):

Type: roots  
Depth (inches): 12"

Hydric Soil Present? Yes ☐ No ☒

Remarks:

# HYDROLOGY

## Wetland Hydrology Indicators:

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

- |  |  |
|--|--|
| <input type="checkbox"/> Surface Water (A1)                        | <input type="checkbox"/> Water-Stained Leaves (B9) ( <b>except MLRA 1, 2, 4A, and 4B</b> ) |
| <input type="checkbox"/> High Water Table (A2)                     | <input type="checkbox"/> Salt Crust (B11)  |
| <input type="checkbox"/> Saturation (A3)                           | <input type="checkbox"/> Aquatic Invertebrates (B13)                                       |
| <input type="checkbox"/> Water Marks (B1)                          | <input type="checkbox"/> Hydrogen Sulfide Odor (C1)  |
| <input type="checkbox"/> Sediment Deposits (B2)                    | <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)                     |
| <input type="checkbox"/> Drift Deposits (B3)                       | <input type="checkbox"/> Presence of Reduced Iron (C4)                                     |
| <input type="checkbox"/> Algal Mat or Crust (B4)                   | <input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)                        |
| <input type="checkbox"/> Iron Deposits (B5)                        | <input type="checkbox"/> Stunted or Stressed Plants (D1) ( <b>LRR A</b> )                  |
| <input type="checkbox"/> Surface Soil Cracks (B6)                  | <input type="checkbox"/> Other (Explain in Remarks)  |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) |  |
| <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)   |  |

### Secondary Indicators (2 or more required)

- |   |
|---|
| <input type="checkbox"/> Water-Stained Leaves (B9) ( <b>MLRA 1, 2, 4A, and 4B</b> ) |
| <input type="checkbox"/> Drainage Patterns (B10)                                    |
| <input type="checkbox"/> Dry-Season Water Table (C2)                                |
| <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)                  |
| <input type="checkbox"/> Geomorphic Position (D2)                                   |
| <input type="checkbox"/> Shallow Aquitard (D3)                                      |
| <input type="checkbox"/> FAC-Neutral Test (D5)                                      |
| <input type="checkbox"/> Raised Ant Mounds (D6) ( <b>LRR A</b> )                    |
| <input type="checkbox"/> Frost-Heave Hummocks (D7)                                  |

## Field Observations:

Surface Water Present? Yes ☐ No ☒ Depth (inches):             
Water Table Present? Yes ☐ No ☒ Depth (inches):             
Saturation Present? Yes ☐ No ☒ Depth (inches):             
(includes capillary fringe)

Wetland Hydrology Present? Yes ☐ No ☒

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

Remarks:

**APPENDIX B**

**PHOTOGRAPH LOG**



## PHOTO LOG – AQUATIC RESOURCES REPORT, QUESTA TAILINGS PIPELINE REMOVAL PROJECT



Photo 1.



Photo 2.



Photo 3.



Photo 4.



## PHOTO LOG – AQUATIC RESOURCES REPORT, QUESTA TAILINGS PIPELINE REMOVAL PROJECT



Photo 5.



Photo 6. Flicker Nest



Photo 7.



Photo 8.



## PHOTO LOG – AQUATIC RESOURCES REPORT, QUESTA TAILINGS PIPELINE REMOVAL PROJECT



Photo 9.



Photo 10. 4<sup>th</sup> Red River Crossing



Photo 11.



Photo 12.



## PHOTO LOG – AQUATIC RESOURCES REPORT, QUESTA TAILINGS PIPELINE REMOVAL PROJECT



Photo 13.



Photo 14.



Photo 15.



Photo 16.



## PHOTO LOG – AQUATIC RESOURCES REPORT, QUESTA TAILINGS PIPELINE REMOVAL PROJECT



Photo 17.



Photo 18.



Photo 19.



Photo 20a. 3<sup>rd</sup> Red River Crossing



## PHOTO LOG – AQUATIC RESOURCES REPORT, QUESTA TAILINGS PIPELINE REMOVAL PROJECT



Photo 20b. 3<sup>rd</sup> Red River Crossing



Photo 21. 2<sup>nd</sup> Red River Crossing (Thunder Bridge)



Photo 21a. 2<sup>nd</sup> Red River Crossing (Thunder Bridge)



Photo 21b. 2<sup>nd</sup> Red River Crossing (Thunder Bridge)



## PHOTO LOG – AQUATIC RESOURCES REPORT, QUESTA TAILINGS PIPELINE REMOVAL PROJECT



Photo 22a. 1<sup>st</sup> Red River Crossing



Photo 22b. 1<sup>st</sup> Red River Crossing



Photo 23a.



Photo 23b.



## PHOTO LOG – AQUATIC RESOURCES REPORT, QUESTA TAILINGS PIPELINE REMOVAL PROJECT



Photo 24.



Photo 25.



Photo 26. Culvert Crossing – Bat Roost



Photo 27.



## PHOTO LOG – AQUATIC RESOURCES REPORT, QUESTA TAILINGS PIPELINE REMOVAL PROJECT



Photo 28a. Culverts Under Road



Photo 28b.



Photo 29.



Photo Q-1.



## PHOTO LOG – AQUATIC RESOURCES REPORT, QUESTA TAILINGS PIPELINE REMOVAL PROJECT



Photo Q-2



Photo Q-3a. Non-hydric Soil



Photo Q-3a.



Photo Q-3b. General Area



## PHOTO LOG – AQUATIC RESOURCES REPORT, QUESTA TAILINGS PIPELINE REMOVAL PROJECT



Photo Q-3b. Toward River



Photo Q-3b Under Trestle – Away From River



Photo Q-4. Non-hydric Soil (Chroma greater than 2)



Photo Q-4a



## PHOTO LOG – AQUATIC RESOURCES REPORT, QUESTA TAILINGS PIPELINE REMOVAL PROJECT



Photo Q-4b.



Photo Q-5a. Iron Deposits



Photo Q-5a. PSS Wetland



Photo Q-5a



## PHOTO LOG – AQUATIC RESOURCES REPORT, QUESTA TAILINGS PIPELINE REMOVAL PROJECT



Photo Q-5b. Non-hydric Soil (High Chroma)



Photo Q-5b.



Photo Q-6a.



Photo Q-6b

## **APPENDIX C**

### **USFWS OFFICIAL SPECIES LIST**





# United States Department of the Interior



FISH AND WILDLIFE SERVICE  
New Mexico Ecological Services Field Office  
2105 Osuna Road Ne

Albuquerque, NM 87113-1001

Phone: (505) 346-2525 Fax: (505) 346-2542

<http://www.fws.gov/southwest/es/NewMexico/>

[http://www.fws.gov/southwest/es/ES\\_Lists\\_Main2.html](http://www.fws.gov/southwest/es/ES_Lists_Main2.html)

In Reply Refer To:

April 06, 2018

Consultation Code: 02ENNM00-2018-SLI-0619

Event Code: 02ENNM00-2018-E-01355

Project Name: Questa Tailings Pipeline Removal

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

Thank you for your recent request for information on federally listed species and important wildlife habitats that may occur in your project area. The U.S. Fish and Wildlife Service (Service) has responsibility for certain species of New Mexico wildlife under the Endangered Species Act (ESA) of 1973 as amended (16 USC 1531 et seq.), the Migratory Bird Treaty Act (MBTA) as amended (16 USC 701-715), and the Bald and Golden Eagle Protection Act (BGEPA) as amended (16 USC 668-668c). We are providing the following guidance to assist you in determining which federally imperiled species may or may not occur within your project area and to recommend some conservation measures that can be included in your project design.

## **FEDERALLY-LISTED SPECIES AND DESIGNATED CRITICAL HABITAT**

Attached is a list of endangered, threatened, and proposed species that may occur in your project area. Your project area may not necessarily include all or any of these species. Under the ESA, it is the responsibility of the Federal action agency or its designated representative to determine if a proposed action "may affect" endangered, threatened, or proposed species, or designated critical habitat, and if so, to consult with the Service further. Similarly, it is the responsibility of the Federal action agency or project proponent, not the Service, to make "no effect" determinations. If you determine that your proposed action will have "no effect" on threatened or endangered species or their respective critical habitat, you do not need to seek concurrence with the Service. Nevertheless, it is a violation of Federal law to harm or harass any federally-listed threatened or endangered fish or wildlife species without the appropriate permit.



If you determine that your proposed action may affect federally-listed species, consultation with the Service will be necessary. Through the consultation process, we will analyze information contained in a biological assessment that you provide. If your proposed action is associated with Federal funding or permitting, consultation will occur with the Federal agency under section 7(a)(2) of the ESA. Otherwise, an incidental take permit pursuant to section 10(a)(1)(B) of the ESA (also known as a habitat conservation plan) is necessary to harm or harass federally listed threatened or endangered fish or wildlife species. In either case, there is no mechanism for authorizing incidental take "after-the-fact." For more information regarding formal consultation and HCPs, please see the Service's Consultation Handbook and Habitat Conservation Plans at [www.fws.gov/endangered/esa-library/index.html#consultations](http://www.fws.gov/endangered/esa-library/index.html#consultations).

The scope of federally listed species compliance not only includes direct effects, but also any interrelated or interdependent project activities (e.g., equipment staging areas, offsite borrow material areas, or utility relocations) and any indirect or cumulative effects that may occur in the action area. The action area includes all areas to be affected, not merely the immediate area involved in the action. Large projects may have effects outside the immediate area to species not listed here that should be addressed. If your action area has suitable habitat for any of the attached species, we recommend that species-specific surveys be conducted during the flowering season for plants and at the appropriate time for wildlife to evaluate any possible project-related impacts.

### **Candidate Species and Other Sensitive Species**

A list of candidate and other sensitive species in your area is also attached. Candidate species and other sensitive species are species that have no legal protection under the ESA, although we recommend that candidate and other sensitive species be included in your surveys and considered for planning purposes. The Service monitors the status of these species. If significant declines occur, these species could potentially be listed. Therefore, actions that may contribute to their decline should be avoided.

Lists of sensitive species including State-listed endangered and threatened species are compiled by New Mexico state agencies. These lists, along with species information, can be found at the following websites:

Biota Information System of New Mexico (BISON-M): [www.bison-m.org](http://www.bison-m.org)

New Mexico State Forestry. The New Mexico Endangered Plant Program:  
[www.emnrd.state.nm.us/SFD/ForestMgt/Endangered.html](http://www.emnrd.state.nm.us/SFD/ForestMgt/Endangered.html)

New Mexico Rare Plant Technical Council, New Mexico Rare Plants: [nmrareplants.unm.edu](http://nmrareplants.unm.edu)

Natural Heritage New Mexico, online species database: [nhnm.unm.edu](http://nhnm.unm.edu)

### **WETLANDS AND FLOODPLAINS**

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Under Executive Orders 11988 and 11990, Federal agencies are required to minimize the destruction, loss, or degradation of wetlands and floodplains, and preserve and enhance their natural and beneficial values. These habitats should be conserved through avoidance, or mitigated to ensure that there would be no net loss of wetlands function and value.

We encourage you to use the National Wetland Inventory (NWI) maps in conjunction with ground-truthing to identify wetlands occurring in your project area. The Service's NWI program website, [www.fws.gov/wetlands/Data/Mapper.html](http://www.fws.gov/wetlands/Data/Mapper.html) integrates digital map data with other resource information. We also recommend you contact the U.S. Army Corps of Engineers for permitting requirements under section 404 of the Clean Water Act if your proposed action could impact floodplains or wetlands.

## **MIGRATORY BIRDS**

The MBTA prohibits the taking of migratory birds, nests, and eggs, except as permitted by the Service's Migratory Bird Office. To minimize the likelihood of adverse impacts to migratory birds, we recommend construction activities occur outside the general bird nesting season from March through August, or that areas proposed for construction during the nesting season be surveyed, and when occupied, avoided until the young have fledged.

We recommend review of Birds of Conservation Concern at website [www.fws.gov/migratorybirds/CurrentBirdIssues/Management/BCC.html](http://www.fws.gov/migratorybirds/CurrentBirdIssues/Management/BCC.html) to fully evaluate the effects to the birds at your site. This list identifies birds that are potentially threatened by disturbance and construction.

## **BALD AND GOLDEN EAGLES**

The bald eagle (*Haliaeetus leucocephalus*) was delisted under the ESA on August 9, 2007. Both the bald eagle and golden eagle (*Aquila chrysaetos*) are still protected under the MBTA and BGEPA. The BGEPA affords both eagles protection in addition to that provided by the MBTA, in particular, by making it unlawful to "disturb" eagles. Under the BGEPA, the Service may issue limited permits to incidentally "take" eagles (e.g., injury, interfering with normal breeding, feeding, or sheltering behavior nest abandonment). For information on bald and golden eagle management guidelines, we recommend you review information provided at [www.fws.gov/midwest/eagle/guidelines/bgepa.html](http://www.fws.gov/midwest/eagle/guidelines/bgepa.html).

On our web site [www.fws.gov/southwest/es/NewMexico/SBC\\_intro.cfm](http://www.fws.gov/southwest/es/NewMexico/SBC_intro.cfm), we have included conservation measures that can minimize impacts to federally listed and other sensitive species. These include measures for communication towers, power line safety for raptors, road and highway improvements, spring developments and livestock watering facilities, wastewater facilities, and trenching operations.

We also suggest you contact the New Mexico Department of Game and Fish, and the New Mexico Energy, Minerals, and Natural Resources Department, Forestry Division for information regarding State fish, wildlife, and plants.

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Thank you for your concern for endangered and threatened species and New Mexico's wildlife habitats. We appreciate your efforts to identify and avoid impacts to listed and sensitive species in your project area. For further consultation on your proposed activity, please call 505-346-2525 or email [nmesfo@fws.gov](mailto:nmesfo@fws.gov) and reference your Service Consultation Tracking Number.

Attachment(s):

- Official Species List



## Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

**New Mexico Ecological Services Field Office**

2105 Osuna Road Ne

Albuquerque, NM 87113-1001

(505) 346-2525

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## Project Summary

Consultation Code: 02ENNM00-2018-SLI-0619

Event Code: 02ENNM00-2018-E-01355

Project Name: Questa Tailings Pipeline Removal

Project Type: \*\* OTHER \*\*

**Project Description:** The proposed project entails demolition of a decommissioned mill tailings pipeline and ancillary structures associated with the Questa Mine. The tailings pipeline was constructed to transport mill tailings, as a slurry, from the mine to the Tailings Facility. The tailings pipeline begins approximately 7 miles east of the Village of Questa, NM, at the Questa Mine, parallels Highway 38, down the Red River Canyon, through the Village of Questa, NM, terminating at the Tailings Facility. The majority of the tailings pipeline was constructed on property owned by Chevron (CEMC) and the USFS (see Figure 10). A portion of the pipeline crosses private property. The pipeline crosses Red River, Columbine Creek (a tributary to the Red River), Embargo Ditch, and unnamed ditches (see Table 1). Structures associated with the pipeline will also be removed, including the Lower Dump Sump and support buildings, three old bridges, and two elevated trestles. The pipeline and associated above ground structures will be removed from the Questa Mine to the Tailings Facility.

**Project Location:**

Approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/place/36.69288813708551N105.49927318090664W>



Counties: Taos, NM

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## Endangered Species Act Species

There is a total of 5 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species. Note that 1 of these species should be considered only under certain conditions.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries<sup>1</sup>, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

- 
1. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

## Mammals

NAME	STATUS
Canada Lynx <i>Lynx canadensis</i> Population: Wherever Found in Contiguous U.S. There is <b>final</b> critical habitat for this species. Your location is outside the critical habitat. Species profile: <a href="https://ecos.fws.gov/ecp/species/3652">https://ecos.fws.gov/ecp/species/3652</a>	Threatened
New Mexico Meadow Jumping Mouse <i>Zapus hudsonius luteus</i> There is <b>final</b> critical habitat for this species. Your location is outside the critical habitat. This species only needs to be considered under the following conditions: <ul style="list-style-type: none"><li>▪ If project affects dense herbaceous riparian vegetation along waterways (stream, seep, canal/ditch).</li></ul> Species profile: <a href="https://ecos.fws.gov/ecp/species/7965">https://ecos.fws.gov/ecp/species/7965</a>	Endangered

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## Birds

NAME	STATUS
Mexican Spotted Owl <i>Strix occidentalis lucida</i> There is <b>final</b> critical habitat for this species. Your location is outside the critical habitat. Species profile: <a href="https://ecos.fws.gov/ecp/species/8196">https://ecos.fws.gov/ecp/species/8196</a>	Threatened
Southwestern Willow Flycatcher <i>Empidonax traillii extimus</i> There is <b>final</b> critical habitat for this species. Your location is outside the critical habitat. Species profile: <a href="https://ecos.fws.gov/ecp/species/6749">https://ecos.fws.gov/ecp/species/6749</a>	Endangered
Yellow-billed Cuckoo <i>Coccyzus americanus</i> Population: Western U.S. DPS There is <b>proposed</b> critical habitat for this species. Your location is outside the critical habitat. Species profile: <a href="https://ecos.fws.gov/ecp/species/3911">https://ecos.fws.gov/ecp/species/3911</a>	Threatened

## Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

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## **APPENDIX D**

### **URS QUESTA REMOVAL ACTION WETLAND ASSESSMENT REPORT**



# **R E P O R T**

## **QUESTA REMOVAL ACTION WETLAND ASSESSMENT REPORT**

### **REVISION 1**

*Prepared for*  
Chevron Mining Inc.  
Questa, New Mexico

June 28, 2013

# **URS**

URS Corporation  
8181 E. Tufts Avenue  
Denver, CO 80237

Project No. 22242831

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# ACRONYMS

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APD	Approved Jurisdictional Determination
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
CMI	Chevron Mining, Inc.
CWA	Clean Water Act
EDC	Eastern Diversion Channel
E.O.	Executive Order
EPA	Environmental Protection Agency (United States)
ERL	Eagle Rock Lake
GPS	Global positioning system
HTS	Historic Tailing Spills
mg/kg	Milligram per kilogram
N	North
NRCS	Natural Resource Conservation Service
OW	Other water
PCB	Polychlorinated biphenyls
PEM	Palustrine Emergent
PFO	Palustrine Forested
PJD	Preliminary Jurisdictional Determination
PSS	Palustrine Scrub-shrub
R	Range
RA	Removal Action
RI/FS	Remedial Investigation/Feasibility Study
SOW	Statement of Work
T	Township
URS	URS Corporation
USACE	United States Army Corps of Engineers
USDA	United States Department of Agriculture
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
W	West
WUS	Waters of the United States



The Chevron Questa Mine, which is owned and operated by Chevron Mining Inc. (CMI), includes an active underground molybdenum mine, a milling facility, a historic open pit, and waste rock piles. The Questa Mine encompasses approximately three square miles of land located 3.5 miles east of the village of Questa, New Mexico. The Questa Mine property also includes tailing disposal impoundments (Tailing Facility) covering approximately 2 square miles of land located west of the village of Questa.

The Questa Mine site was the focus of the CMI Remedial Investigation/Feasibility Study (RI/FS) (URS 2009a, URS 2009b). The Removal Action (RA) was required by the United States Environmental Protection Agency (EPA) Administrative Settlement Agreement and Order on Consent for Removal Actions, CERCLA Docket No. 06-09-12 and its appended Statement of Work (SOW) (EPA 2012). The RA to be conducted includes:

- Installation of inlet storm water controls at Eagle Rock Lake, removal of sediment from the lake, and on-site disposal of excavated material
- Removal of polychlorinated biphenyl (PCB) –contaminated soil in the Mill Area and off-site disposal of the evacuated soil
- Installation of pipe to convey unused irrigation water in the Eastern Diversion Channel (EDC) to prevent infiltration through historic buried tailing
- Removal of historic tailing spill deposits along the Red River riparian area and on-site disposal at the Tailing Facility.

The RA work to be accomplished in compliance with the SOW has the potential to impact wetlands and surface water features. This Wetland Assessment Report discusses the regulatory framework, substantive requirements, methodology, and results of wetland delineations within areas subject to RA. The report does not include the analysis of impacts and mitigation strategies to avoid and minimize any impacts to wetlands, or to compensate for wetland impacts that cannot be minimized by other methods. Project Specific Technical Memorandum addressing impacts and mitigation will be submitted under separate cover. This report was prepared by URS Corporation (URS) on behalf of Chevron Environmental Management Company (CEMC).

## **1.1 REMOVAL ACTION**

Three RA areas were considered in this report. These include the Historic Tailing Spills (HTS) Deposits (Tailing Spill Deposits), Eagle Rock Lake, and Eastern Diversion Channel. The RA areas are located near the Village of Questa, Taos County, New Mexico (Appendix A, Figure 1) and can be found on the Questa United States Geological Survey (USGS) 7.5-minute topographic quadrangle map (USGS 1963) within Township (T) 29 North (N), Range (R) 12 West (W), Sections 25 and 36 (Eastern Diversion Channel), and T 28 N, R 13 W (Eagle Rock Lake and HTS). Eagle Rock Lake is located along Highway 38, east of Questa. The Eastern Diversion Channel is located within the Questa Mine Tailing Facility, adjacent to the west of Questa.

The tailing spill deposit sites occur at various locations along the tailing pipeline between the mill and the Tailing Facility. The tailing pipeline is 9 miles long, but most of the sites are

located in the first 2.5 miles below the mill. The senior wetland delineator was part of the field team that initially identified the HTS sites in 2002, and subsequently re-visited the HTS sites in 2010, 2011, 2012, and 2013. Based on these previous field visits, only one of the HTS sites was considered to have a potential to be a wetland, Tailing Spill Deposit 1, and was included in the wetland delineation field work. All of the other sites are dominated by upland vegetation and have no evidence of wetland hydrology and were not re-visited for the wetland delineation.

Descriptions of activities related to the RA are provided in the respective RA work plans - Historic Tailing Spills RA Work Plan (URS 2012), Eagle Rock Lake RA Work Plan (Arcadis 2012), and Eastern Diversion Channel RA Work Plan (AECOM 2012). At this time, proposed remedial action activities within the Eastern Diversion Channel have not been approved by the EPA.

## **1.2 REGULATORY AUTHORITY**

The following provides a summary of applicable regulatory requirements pertinent to wetlands.

### **1.2.1 Regulatory Requirements**

#### ***Office of Solid Waste Management Response Directive 9280.0-02 (August 1985)***

Under the Office of Solid Waste Management Response Directive 9280.0-02, the Environmental Protection Agency (EPA) must meet the substantive requirements of Executive Order (E.O.) 11988 (Floodplain Management Executive Order) and E.O. 11990 (Executive Order for the Protection of Wetlands). The EPA is directed to avoid the short- and long-term destruction or modification of wetlands and to avoid direct or indirect support of new construction in wetlands when there is a practicable alternative within CERCLA sites.

#### ***Clean Water Act***

Section 404 of the Clean Water Act (CWA), implemented by the U.S. Army Corps of Engineers (USACE) and EPA, regulates discharges of dredged or fill material into waters of the United States (WUS), including special aquatic sites such as wetlands. Federal regulations promulgated under Section 404 define wetlands as “areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.” (33 Code of Federal Regulations [CFR] 328.3(b).) Section 404 also protects a variety of surface waters such as lakes, ponds, streams, and rivers.

In general, response actions selected under CERCLA that involve the discharge of dredge or fill material into waters of the United States or associated areas under CWA Section 404 jurisdiction must meet the substantive requirements of Section 404. RAs must seek to avoid or minimize impacts to WUS whenever practicable, as long as the alternative does not have other significant adverse environmental consequences. When unavoidable impacts to WUS occur, these impacts must be mitigated.

***New Mexico State Regulations and Guidance***

The State of New Mexico does not have state regulations equivalent to the Section 404 permit program operated by the USACE; however, the State reviews 404 projects under CWA Section 401 state certification provisions. An individual state Water Quality Certification is required for discharges to all intermittent, perennial, and wetland surface waters. This program is administered by the Surface Water Quality Bureau of the New Mexico Environment Department.



## 2.1 SITE DESCRIPTION

The Tailing Spill Deposit 1 and Eagle Rock Lake RA areas are located in the Volcanic Mid-Elevation Forests of New Mexico (Griffith et al. 2006). The Volcanic Mid-Elevation Forest ecoregion is a region of mostly Pliocene basaltic lavas with distinct cones of Pliocene composite volcanoes in an area of low mountain ridges, slopes, and outwash fans. Dominant vegetative communities in the region are ponderosa pine (*Pinus ponderosa*) forests with an understory of shrubs and a sparsely vegetated herbaceous stratum.

The Eastern Diversion Channel is located within the Taos Plateau ecoregion (Griffith et al. 2006) and is characterized by a rolling to level plateau with volcanic cones. A dominant feature of the Taos Plateau is the Rio Grande River Gorge and its steep side canyons. The geology of the area comprises Quaternary eolian deposits, colluvium, piedmont and fan alluvium, block-rubble colluvium, and Tertiary (mostly Pliocene) basalt and volcanic rocks. Big sagebrush (*Artemisia tridentata*) is the dominant vegetative community in the ecoregion.

### 2.1.1 Soils

Soils within the RA areas comprise two dominant types. Sedillo-Silva association, strongly sloping, are loamy-skeletal or fine, mixed, mesic Ustollic Haplargids, consisting of loams, with rooting depths of more than 60 inches. The parent material comprises alluvium derived from igneous and metamorphic rock and eolian material (NRCS 2012). These are the dominant soils within the Eastern Diversion Channel. Cumulic Haplaquolls, nearly level, are the taxonomic type whose parent material is alluvium derived from igneous and metamorphic rock. This soil is classified as predominantly hydric and is found around Eagle Rock Lake and Tailing Spill Deposit 1.

### 2.1.2 Vegetation

General vegetation communities in the study areas include ponderosa pine forest, mixed conifer/riparian forest, sagebrush shrub steppe, wetlands/riparian, and disturbed/barren.

**Ponderosa pine forest** vegetative community occurs at the elevation of Eagle Rock Lake and is dominated by mature ponderosa pine in open stands with an understory of shrubs and herbaceous cover. Typical shrub cover varies from 10 to 40 percent, with approximately 25 percent herbaceous cover. Dominant understory species include smooth brome (*Bromus inermis*), Apache plume (*Fallugia paradoxa*), Rocky Mountain juniper (*Juniperus scopularum*), silvery lupine (*Lupinus argenteus*), Gambel oak (*Quercus gambellii*), skunkbush (*Rhus aromatica*), and Wood's rose (*Rosa woodsii*).

**Mixed conifer/riparian** is the dominant vegetative community around Tailing Spill Deposit 1. Engelmann spruce (*Picea engelmannii*) and narrowleaf cottonwood (*Salix angustifolia*) comprise the dominant tree species. Understory shrub species include Rocky Mountain juniper, smooth brome, Wood's rose, mountain snowberry (*Symphoricarpos oreophilis*), Rocky Mountain maple (*Acer glabrum*), field sagewort (*Artemisia campestris*), fringed sage (*Artemisia frigida*), rubber rabbitbrush (*Ericameria nauseosus*), ninebark (*Physocarpus monogynus*), and intermediate wheatgrass (*Thinopyrum intermedium*). Approximately half of the soil cover comprises small rocks and litter.

**Sagebrush** (*Artemisia tridentata*) **shrub steppe** communities are dominated by sagebrush and rabbitbrush (*Ericameria nauseosa*), with a sparse understory of grasses and caespitose forbs. These communities may also include pinyon/juniper associations. Portions of the soil surface may be covered with cryptogamic crusts. This is the predominant vegetation community on the slopes of the EDC.

**Wetland/riparian** areas are found within all the RA areas. This vegetative community occurs as two distinct classifications: emergent or marsh dominated, and tree dominated. Emergent wetlands are dominated by sedges (*Carex* spp.), rushes (*Juncus* spp.) and other hydrophytic grasses and forbs. These areas may also support a small percentage of shrub cover. Tree dominated wetlands are dominated by woody species providing about 50 to 75 percent cover, primarily of narrowleaf cottonwood, speckled alder (*Alnus incana*), river birch (*Betula occidentalis*), and sandbar willow (*Salix exigua*). Wetland/riparian areas are discussed in more detail in Section 4, Results.

**Barren/disturbed** areas are the result of human-made disturbance and include two-track and paved roads, buildings, and other structures. These areas may support some weedy or landscape vegetation.

### **2.1.3 Hydrology**

The RA areas are located within Hydrologic Unit Code 13020101, the Upper Rio Grande Watershed, that begins at the Colorado/New Mexico border and drains an area of approximately 3,220 square miles (USGS 2010), including 94.79 percent of Taos County (USDA 2008). The largest waterbody associated with the RA areas is the Red River, a perennial stream that originates in the Sangre de Cristo Mountains and forms a confluence with the Rio Grande River southwest of Questa.

### **2.1.4 Wildlife**

Dominant life forms in the region include large and small mammals and birds. Wildlife or their signs observed within the RA areas included North American beaver (*Castor canadensis*), elk (*Cervus elaphus*), belted kingfisher (*Ceryle alcyon*), pocket gopher (*Geomys bursarius*), junco (*Junco hyemalis*), mule deer (*Odocoileus hemionus*), raccoon (*Procyon lotor*), and bushtit (*Psaltirparus minimus*).

Study areas were determined by overlaying the Project drawings over aerial photographs and applying a buffer. Buffer widths varied depending on topography. Field maps were created with ESRI® ArcGIS® software (1 inch equals 200 feet). Pre-field research included the review of National Wetland Inventory maps (USFWS 2012), topographic maps (USGS 1963), and previous environmental reports from the area.

URS ecologists Jeffrey Dawson and Susan Hall walked the RA areas between October 15 and 18, 2012, to delineate wetlands and surface water features. Ambient temperatures averaged between approximately 45 and 70 degrees Fahrenheit. Weather was sunny throughout the delineation period.

Wetland delineations were conducted using the Routine Determination protocol discussed in the *Corps of Engineers Wetland Delineation Manual Technical Report 4-87-1* (Environmental Laboratory 1987) and two supplemental delineation manuals. The *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coasts* (Environmental Laboratory 2010) was used within the ponderosa forest and mixed conifer/riparian upland vegetative communities. The *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (Environmental Laboratory 2008) was used in the sagebrush shrub steppe upland vegetative community. Delineation field methods included evaluation of dominant plant species and percent cover, digging of a soil pit to observe soil characteristics, and observations of hydrological indicators in the soil pit and on the surface. Standard data sheets were completed for each wetland and a nearby paired upland observation point.

Wetlands were identified in the field as areas having positive evidence of three environmental parameters: hydric soils, wetland hydrology, and greater than five percent hydrophytic vegetation. Some wetlands can be difficult to identify because wetland indicators are missing due to natural processes or recent disturbances. The supplemental delineation manuals include procedures to follow for wetlands that naturally lack indicators and for atypical situations where indicators are absent due to disturbance. Wetland data were recorded on USACE approved individual wetland data forms. Features delineated but subsequently excluded as wetlands were also recorded on data forms.

During field surveys, wetland vegetation was classified using the Cowardin classification system (Cowardin, et al. 1979), a USACE accepted vegetation classification system. Wetlands within the RA areas were classified as Palustrine Emergent (PEM), Palustrine Scrub-shrub (PSS), or Palustrine Forested (PFO), or combinations of these classifications.

PEM wetlands are those aquatic features dominated by herbaceous emergent plants. Plant species commonly found in PEM wetlands in northern New Mexico include cattails (*Typha angustifolia*), sedges (*Carex* spp.), and rushes (*Juncus* spp.). PSS wetlands are those aquatic features dominated by shrubs under 20 feet tall or with trunks or stems less than 3 inches in diameter. Common PSS plant species found in this region include willow (*Salix* spp.), alder (*Alnus* spp.) and small cottonwoods (*Populus* spp.). PFO wetlands are dominated by trees greater than 20 feet high with stems greater than 3 inches in diameter. PFO wetland species composition commonly includes cottonwood, larger willows, and river birch (*Betula occidentalis*). Combinations of these communities may also be present in a wetland.



Surface water features (i.e., streams and ponds) were identified by the presence of a defined bed and bank, evidence of an ordinary high water or bankfull indicator, and less than 50 percent vegetative cover within the bed. Information recorded for each surface water feature included depth and width of the average ordinary high water mark, average bankfull depth, bank slope, substrate composition, source of hydrology, dominant vegetation, other vegetation, percent overstory, and any wildlife or their signs observed.

The boundaries of wetlands and surface water features were recorded using a Trimble® sub-meter hand-held global positioning system (GPS) and photographs were taken of each feature. Unique identifiers were assigned to each feature delineated based on location. For example, the first wetland identified within the Eastern Diversion Channel was assigned a unique identifier of EDC-1.

A total of eight aquatic features encompassing approximately 5.9 acres occur within the RA areas. Characteristics of wetland and surface water features are included in Tables 1 and 2 respectively, and are briefly discussed according to RA area below. RA area figures and associated photographs are included in Appendices A and B, respectively. Additional information regarding each wetland and surface water feature is included in the individual data forms in Appendix C.

**Table 1**  
**Delineated Wetlands in the Removal Action Areas**

Type/ Classification	Wetland Identifier	Location (Latitude, Longitude)*	Size (acres)*	Proximity	Figure Number	Photograph Number
PEM wetland	HTS-2	36.5949/- 105.4958	0.04	Adjacent to Red River	1	2
PEM wetland	ERL-PEM	36.7032/- 105.5730	0.24	Abuts OW-ERL-1	2	4
PFO wetland	ERL-PFO	36.7035/- 105.5727	0.31	Abuts OW-ERL-3	2	6, 7, 8
PEM wetland	EDC-1/ EDC-2	36.7086/- 105.6096, 36.7077/- 105.6099	2.71	Isolated	3	13, 14, 15
PEM/PSS wetland	EDC-3	36.6993/- 105.6195	<0.01	Isolated	4	21
<b>Total Wetlands</b>			<b>3.3</b>			

\* All measurements are approximate.

EDC = Eastern Diversion Channel

ERL = Eagle Rock Lake

HTS = Historic Tailing Spills

OW = Other Water

PEM = Palustrine Emergent (Cowardin et al. 1979)

PSS = Palustrine Scrub-Shrub (Cowardin et al. 1979)

PFO = Palustrine Forested (Cowardin et al. 1979)

**Table 2**  
**Delineated Surface Water Features in the Removal Action Areas**

Type/ Classification	Surface Water Identifier	Location (Latitude, Longitude)*	Size (lf / acres)*	Flow Frequency	Flows to	Figure Number	Photograph Number
Impoundment	OW-ERL-1	36.7034/- 105.5742	2.42	Perennial	Red River	2	3, 4, 5
Perennial Stream	OW-ERL-2	36.7030/- 105.5751	759 / 0.18	Perennial	Rio Grande	2	9, 10, 11, 12
Ditch	OW-ERL-3	36.7035/- 105.5725	468 / 0.04	Perennial	Eagle Rock Lake	2	7, 8
<b>Total Surface Water Features</b>			<b>1,227 / 2.64</b>				

\* All measurements are approximate.

ERL = Eagle Rock Lake

lf = linear feet

OW = Other Water

#### 4.1 TAILING SPILL DEPOSITS

One wetland, identified as HTS-2 and totaling 0.04 acre was delineated within Tailing Spill Deposit 1. Wetland HTS-2 is a perched depression that formed between Highway 38 and a two-track road within the Red River riparian buffer. Although much of the feature is barren, a fringe of PEM vegetation is present around the edges of the feature, and dominated by Arctic rush (*Juncus arcticus*).

A second area within Tailing Deposit 1 that supports hydrophytic vegetation was also investigated as a wetland; however, it was determined that this feature did not meet the USACE wetland criteria for hydric soils and lacked evidence of hydrology. The soil pit for this feature (HTS-1) is included on Appendix A, Figure 2 and described in an Individual Wetland Data Form included in Appendix C.

No surface water features were delineated within the Tailing Spill Deposits area. Native soils occurring within the Tailing Spill Deposits area are not listed as hydric by the Natural Resource Conservation Service (NRCS 2012).

#### 4.2 EAGLE ROCK LAKE

Eagle Rock Lake was originally a borrow pit for aggregate during the 1950's, used for construction of New Mexico State Highway 38 (Arcadis 2012). Subsequently, the depression was filled with water and a small park was established. The lake is currently maintained by the U.S. Forest Service and is used for recreation including fishing. Water is supplied from the Red River and discharge of water back to the Red River is controlled by outlet culverts.

Two wetlands totaling 0.55 acre and three surface water features totaling approximately 2.64 acres occur within the Eagle Rock Lake RA area. Eagle Rock Lake (OW-ERL-1) and its diversion channel (OW-ERL-3) support both PEM and PFO wetlands in distinct communities. A PEM wetland (ERL-PEM) (0.24 acre), dominated by beaked sedge (*Carex utriculuta*) and aquatic sedge (*Carex aquatilis*) occurs at the eastern edge of the lake. A discontinuous PEM fringe abuts the remainder of the shoreline and comprises redtop (*Agrostis gigantea*), creeping bentgrass (*Agrostis stolonifera*), showy milkweed (*Asclepias speciosa*), Nebraska sedge (*Carex nebrascensis*), orchardgrass (*Dactylis glomerata*), quackgrass (*Elymus repens*), finged willow-herb (*Epilobium ciliatum*), knotted rush (*Juncus nodosus*), bog orchis (*Limnorchis* sp.), and narrowleaf cattail (*Typha angustifolia*). Small populations of sandbar willow and park willow (*Salix monticola*) are scattered throughout the feature.

Mature PFO wetlands are generally uncommon in western states, but can be found in the mountains of New Mexico, where they abut perennial streams in the lower reaches of canyons. The PFO wetland ERL-PFO primarily occurs along the Eagle Rock Lake diversion channel (OW-ERL-3) and encompasses 0.31 acre within the Eagle Rock Lake RA area. The wetland is characterized by a mature stand of narrowleaf cottonwood and speckled alder and this mature overstory cover comprises approximately 35 percent of the canopy. Understory shrubs make up approximately 67 percent of cover, and are dominated by narrowleaf cottonwood, speckled alder, sandbar willow and river birch. The herbaceous understory is sparse, evident only in forest openings and edges. Herbaceous species observed include redtop, fringed willow-herb, wintercress (*Barbarea vulgaris*), and reed canarygrass (*Phalaris arundinacea*).



Surface water features delineated within the Eagle Rock Lake RA area include Eagle Rock Lake (OW-ERL-1), the Red River (OW-ERL-2), and the Eagle Rock Lake diversion channel (OW-ERL-3). Eagle Rock Lake is a 2.5 acre manmade pond that is almost completely sustained by a diversion of the Red River, returning flows to the river via a restricted outlet. Water clarity in the lake is poor due to dissolved solids. The lake is used primarily for recreation, although it provides wildlife habitat, including habitat for North American beaver, which maintain a lodge on the north side of the lake. Recent conversations with the USFS indicate that the beaver habitat is undesirable in its current location and has been detrimental to mature vegetation around the lake. The USFS plans to remove the beaver lodge during some planned future work in the Red River stream bed. The Eagle Rock Lake diversion channel (OW-ERL-3) is a straight reach supporting a mature riparian buffer for approximately half its length. Where the channel grade reaches lake elevation, the channel supports a large PFO wetland (ERL-PFO described earlier).

The Red River is a perennial tributary of the Red River. Outside the Eagle Rock Lake RA area, the river maintains a low gradient and slow flows, and supports a mature woody overstory along shallow banks. Riffle-pool-run complexes occur regularly within the river in these reaches. Within the RA area, channel banks are severely downcut with evidence of erosion, flow velocity increases, and the banks are predominantly mature open ponderosa pine with no riparian buffer until the river reaches the western end of the lake. The Red River is not anticipated to be impacted by RA activities.

Native soils occurring within Eagle Rock Lake are listed as hydric by the Natural Resource Conservation Service (NRCS 2012). Soils exhibited a typical matrix hue of 10YR and high oxidized redox concentrations were the most common sign of hydric conditions. Evidence of gleying was only observed in small concentrations.

### **4.3 EASTERN DIVERSION CHANNEL**

The Eastern Diversion channel is part of the tailing facility and was constructed in 1975 (AECOM 2012). Modifications were made to the channel over the years; most notably the channel embankments were excavated and used as borrow material for dam raises, which resulted in widening of the channel bottom in certain areas. Historically, the diversion channel was dry except after substantial rainfall, and was observed to be dry during the Remedial Investigations (RI) (2002 - 2004) (URS, 2009a). Beginning in 2004, water began to accumulate in the channel due to flood irrigation practices in the fields east of the tailing facility, and from discharge of unused irrigation water from the Cabresto Creek Ditch Lateral No. 4. The channel typically begins to fill with water in May and water has been observed in the channel throughout the year.

The largest wetland occurs within the Eastern Diversion Channel (EDC-1/EDC-2), totaling 2.71 acres. EDC-1 and EDC-2 were initially separated based on the presence of water and density of vegetation, but were subsequently determined to be part of the same feature. Data were collected to record changes in vegetation composition and other indicators. The wetland covers most of the channel bed. Dominant vegetation includes foxtail barley (*Hordeum jubatum*), narrowleaf cattail, and willow dock (*Rumex salicifolius*), with sandbar willow lining the edges of the channel bed. This feature supports three species of freshwater snail including disk gyro (*Gyraulus circumstriatus*), marsh pond snail (*Lymnaea elodes*), and pygmy fossaria (*Lymnaea parva*). Wetland vegetation is also present within the Eastern Diversion Channel upstream of the delineated area and within a side channel that is separated by a berm.

Inundation, which occurs from the ponding of surface runoff and shallower grades, was observed in EDC-1 but was absent in EDC-2 at the time of the survey. It is likely that EDC-2 is inundated less frequently and/or for shorter periods than EDC-1.

The area immediately down-channel from EDC-1 and EDC-2 was investigated for wetland characteristics. This area is physically separated by a mine road and culverts, which are perched on the upslope side and partially filled with sediment. Although hydrology was observed in two of the five years for which aerial photography is available, this area did not meet the criteria to be delineated as a wetland. The soil pit for this feature (EDC-6) is included on Appendix A, Figure 5 and described in an Individual Wetland Data Form included in Appendix C.

To the south of EDC-6, the bottom of the EDC is much narrower and has little apparent gradient until it drops off steeply. Small to medium sized cottonwoods are common along the bottom of the channel in the level areas but no wetlands or stream channels are present. The steep portion of the channel is mostly rock.

A PEM/PSS wetland (EDC-3) totaling less than 0.01 acre was delineated near the southern end of the Eastern Diversion Channel, on a slope above the lower part the steep portion of the channel. EDC-3 is supported by a small spring that outflows to the Eastern Diversion Channel and wets a small portion of the channel bottom. The channel does not have an ordinary high water mark and the wetland is isolated. Two additional spring-supported wetlands were also observed along the slope of this area outside of the Study Area (Appendix A, Figure 6). The three spring-supported wetlands are located within a grove of cottonwoods and other woody plants.

Hydric soils were not observed in any soil pits within the Eastern Diversion Channel.

#### **4.4 WETLAND FUNCTIONAL ASSESSMENT**

A wetland functional assessment was not conducted because the areas delineated were either not natural wetlands or did not meet the size requirements of the New Mexico Rapid Assessment Method (Muldavin et al. 2011).

#### **4.5 JURISDICTION**

The decision in *Rapanos v. United States*, [547 U.S. 715](#) (2006), and the post-*Rapanos* guidance issued by the USACE and the EPA (2007), addressed the geographic extent of USACE jurisdiction. Under the guidance, traditional navigable waters, perennial or relatively permanent surface water features forming a confluence with a WUS, or features formed as a result of diversions from WUS and returning to WUS would also be considered jurisdictional by the USACE, as would wetlands abutting jurisdictional waterways. Under *Rapanos*, intermittent or ephemeral waterways, their abutting or adjacent wetlands, or wetlands adjacent to WUS are subject to additional review to determine if the feature has a “significant nexus” to a WUS.

As stated previously, CERCLA actions must meet the substantive requirements of other federal environmental laws. As such, Eagle Rock Lake (OW-ERL-1), the Red River (OW-ERL-2), the Eagle Rock Lake diversion channel (OW-ERL-3), and their abutting wetlands (ERL-PEM and ERL-PFO) would be considered USACE jurisdictional aquatic features. Conversely, upland ditches that are excavated wholly in and draining only uplands and without relatively permanent flow are excluded from jurisdiction under the *Rapanos* decision and guidance. Wetland

EDC-1/EDC-2 falls under this category and would not be considered jurisdictional by the USACE. Determining the jurisdiction of wetland HTS-2 based on the USACE criteria is not conclusive; while it is located adjacent to the Red River it is perched above it and has no surface connection to the river.

The USACE defines isolated waters as those that are not traditionally navigable or interstate, including their tributaries, and abutting and adjacent wetlands. Isolated wetlands and surface water features were removed from USACE jurisdiction under the Solid Waste Agency of Northern Cook County (SWANCC) decision (*SWANCC v. USACE*, 531 U.S. 159 [2001]). Therefore, wetland EDC-3 would be excluded from USACE jurisdiction.



Please refer to the Project Specific Technical Memorandum prepared to address the impact analysis for each individual removal action project and submitted under separate cover.

Please refer to the Project Specific Technical Memorandum prepared to address mitigation for each individual removal action project and submitted under separate cover.

Five wetlands and three surface water features totaling approximately 3.3 acres were identified and delineated within the RA areas. Of these, approximately 2.99 acres comprise PEM wetland, with approximately 0.31 acre of PFO wetlands present. A total of approximately 2.6 acres, or 1,227 linear feet of surface water features occur within the Eagle Rock Lake RA area. Surface water features include Eagle Rock Lake, the Red River, and the Eagle Rock Lake diversion channel.

CERCLA actions must meet the substantive requirements of other federal environmental laws, including Section 404 regulations. The determination of jurisdiction is a required element of the Section 404 program. Of the aquatic features, Eagle Rock Lake, the Red River, the Eagle Rock Lake diversion channel, and their abutting wetlands would be considered USACE jurisdictional aquatic features. Conversely, wetland EDC-1/EDC-2 would not be considered jurisdictional by the USACE due to its landscape position, construction, and lack of connectivity. EDC-3 would not be considered jurisdictional because it is an isolated feature. Determining the jurisdiction of wetland HTS-2 based on the USACE criteria is not conclusive.



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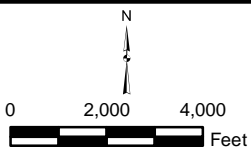
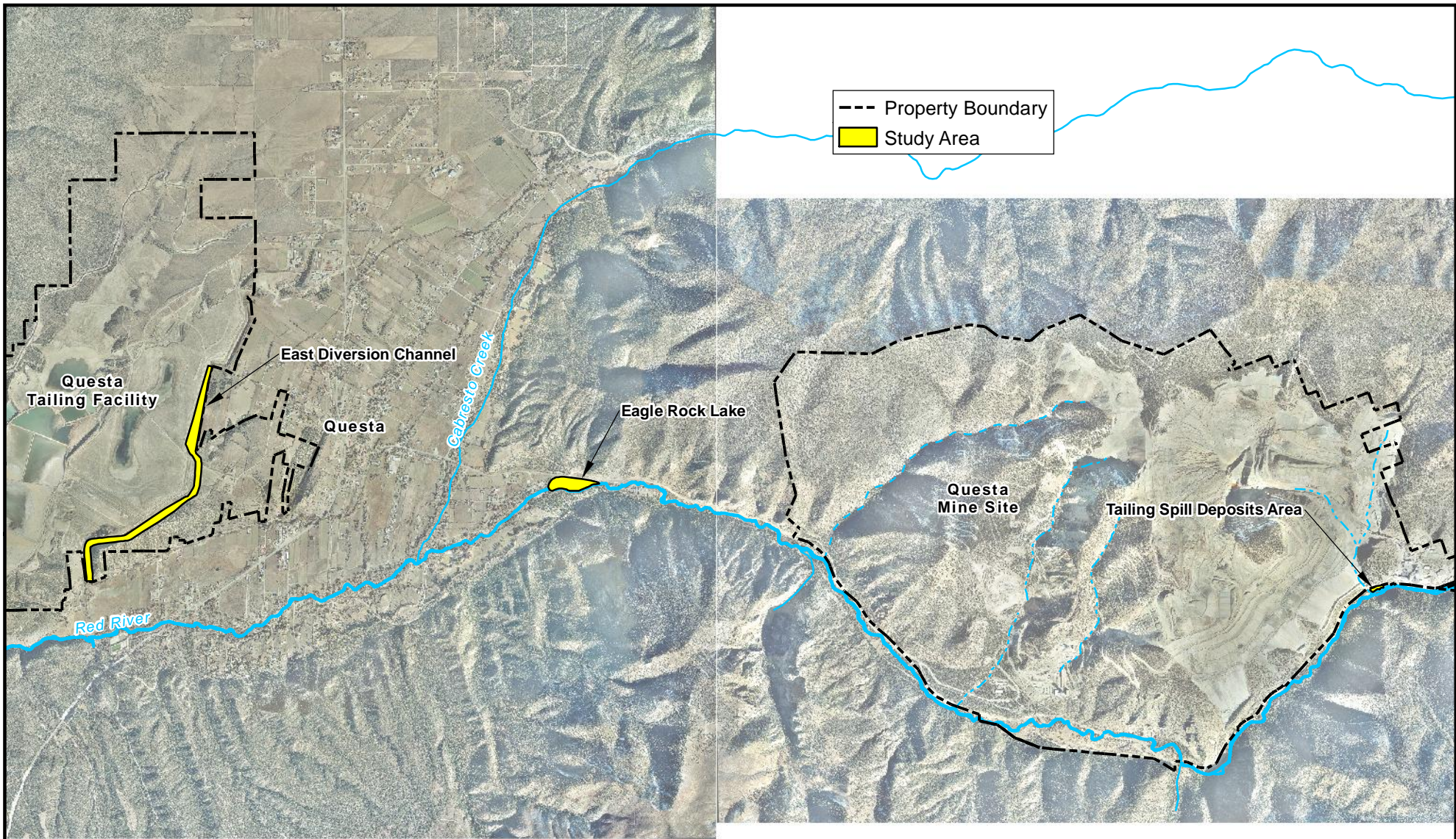
## **Appendix A**

### **Figures**









NOTES  
1. Aerial photograph provided by Chevron Mining Inc. - Questa Mine (2007).

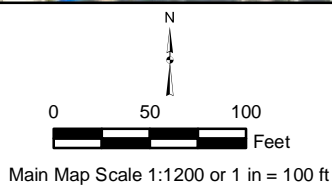
Main Map Scale 1:48,00 or 1 in = 4000 ft

Job No. :	22242831
Prepared By :	Denver/GIS
Date :	12/18/2012

FIGURE 1 OF 6  
STUDY AREAS

Removal Action - Wetland Assessment





NOTES  
1. Aerial photograph provided by  
Chevron Mining Inc. - Questa  
Mine (2007).

PEM-Palustrine Emergent Wetland

Job No. :	22242831
Prepared By :	Denver/GIS
Date :	12/18/2012

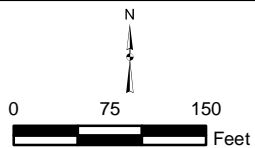
FIGURE 2 OF 6  
TAILING SPILL DEPOSITS AREA

*Removal Action - Wetland Assessment*





- Soil Pit
- Wetland - PEM
- Wetland - PFO
- Surface Water Feature



NOTES  
1. Aerial photograph provided by Chevron Mining Inc. - Questa Mine (2007).

PEM-Palustrine Emergent Wetland  
PFO-Palustrine Forested Wetland

Job No. :	22242831
Prepared By :	Denver/GIS
Date :	12/18/2012

FIGURE 3 OF 6  
EAGLE ROCK LAKE AREA

*Removal Action - Wetland Assessment*

Main Map Scale 1:1800 or 1 in = 150 ft



0 300 600 Feet

Main Map Scale 1:7200 or 1 in = 600 ft

Non-Delineated Wetland

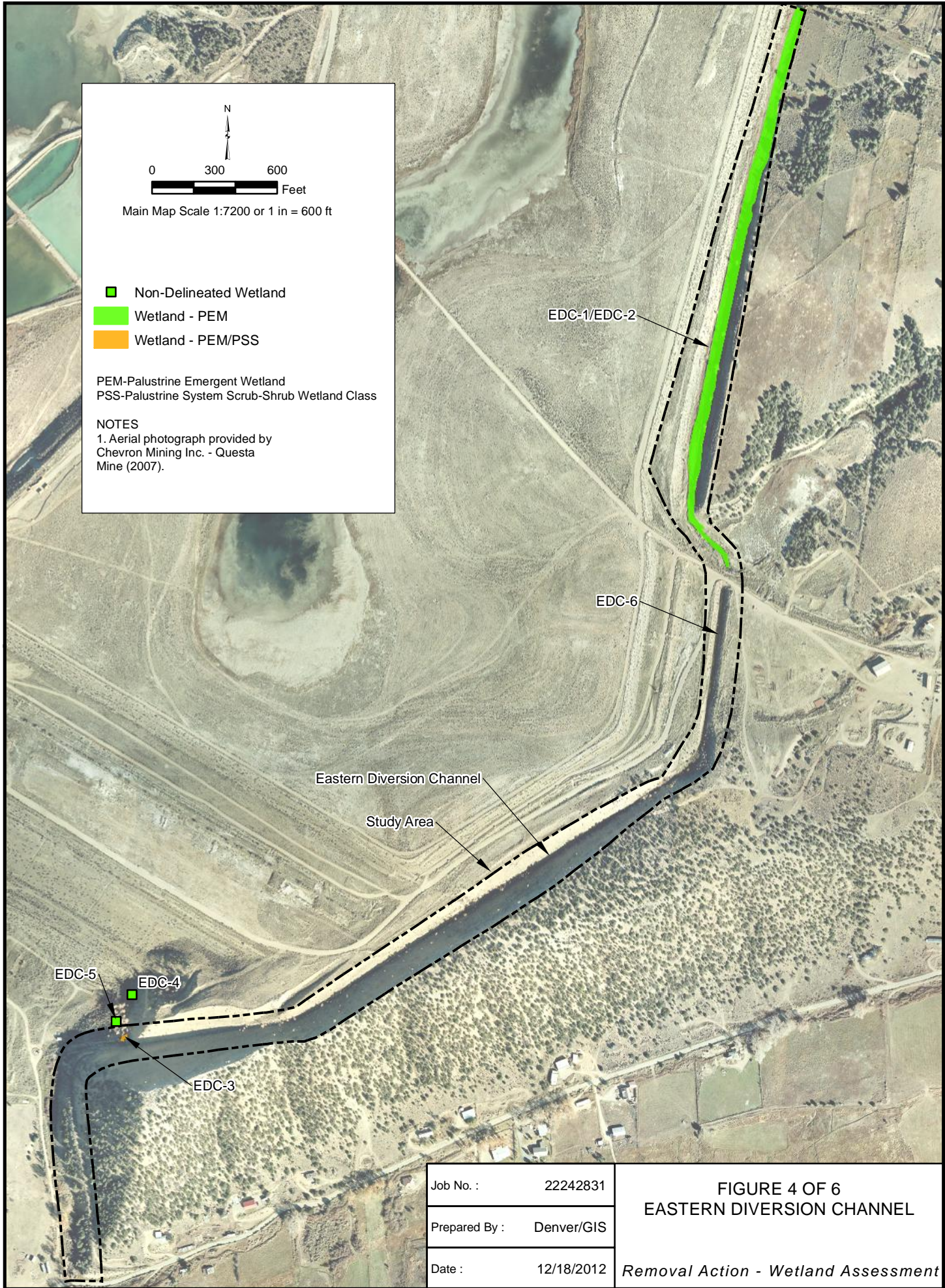
Wetland - PEM

Wetland - PEM/PSS

PEM-Palustrine Emergent Wetland  
PSS-Palustrine System Scrub-Shrub Wetland Class

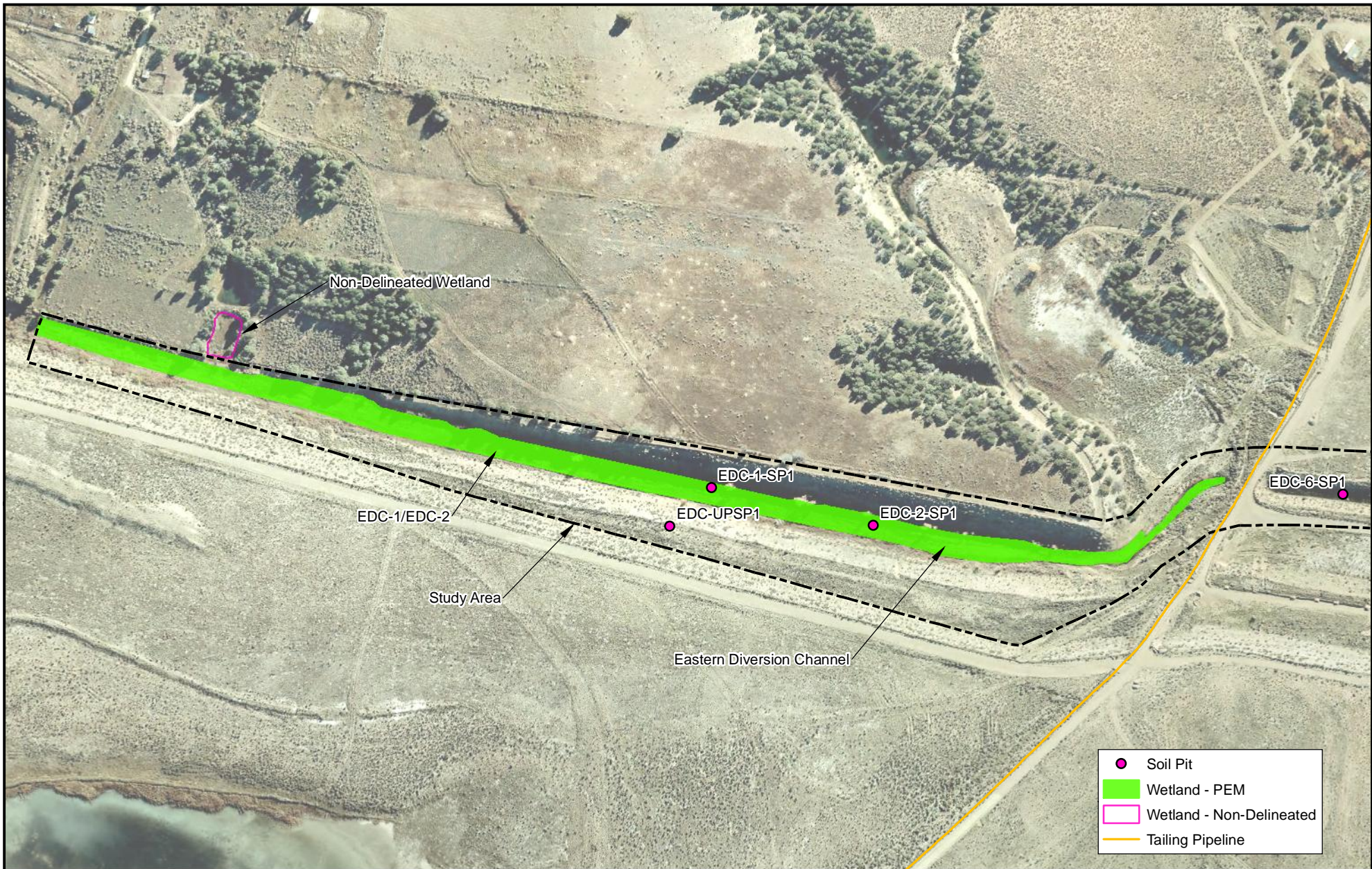
**NOTES**  
1. Aerial photograph provided by Chevron Mining Inc. - Questa Mine (2007).

Y:\GIS\Projects\Molycorp\Home\data\_sp\_nondeliverable\Remedial Action\Wetlands\Maps\Fig 4 RA\_Wtnd EDC1.mxd 6/28/2013



Job No. :	22242831	<div style="text-align: center;"> <p><b>FIGURE 4 OF 6</b></p> <p><b>EASTERN DIVERSION CHANNEL</b></p> </div>
Prepared By :	Denver/GIS	
Date :	12/18/2012	
		<i>Removal Action - Wetland Assessment</i>





- Soil Pit
- Wetland - PEM
- Wetland - Non-Delineated
- Tailing Pipeline

0 150 300  
Feet  
Main Map Scale 1:3600 or 1 in = 300 ft

NOTES  
1. Aerial photograph provided by  
Chevron Mining Inc. - Questa  
Mine (2007).

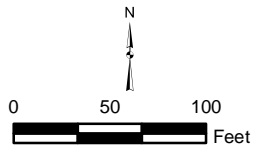
PEM-Palustrine Emergent Wetland

Job No. : 22242831  
Prepared By : Denver/GIS  
Date : 12/18/2012

## FIGURE 5 OF 6 EASTERN DIVERSION CHANNEL

*Removal Action - Wetland Assessment*





**NOTES**

1. Aerial photograph provided by Chevron Mining Inc. - Questa Mine (2007).

PEM-Palustrine Emergent Wetland  
PSS-Palustrine System Scrub-Shrub Wetland Class

Job No. : 22242831

Prepared By : Denver/GIS

Date : 12/18/2012

**FIGURE 6 OF 6  
EASTERN DIVERSION CHANNEL**

*Removal Action - Wetland Assessment*

Main Map Scale 1:1800 or 1 in = 100 ft

## **Appendix B**

### **Photographs**





Photograph 1. To Southwest. View of feature HTS-1. This area did not meet the three substantive criteria for wetlands.



Photograph 2. To East. View of wetland HTS-2.





Photograph 3. To East. View of Eagle Rock Lake (OW-ERL1).



Photograph 4. To Southeast. View of wetland ERL-PEM at the mouth of the diversion ditch (OW-ERL3). Wetland ERL-PFO can be seen behind the feature. Eagle Rock Lake (OW-ERL1) in foreground.



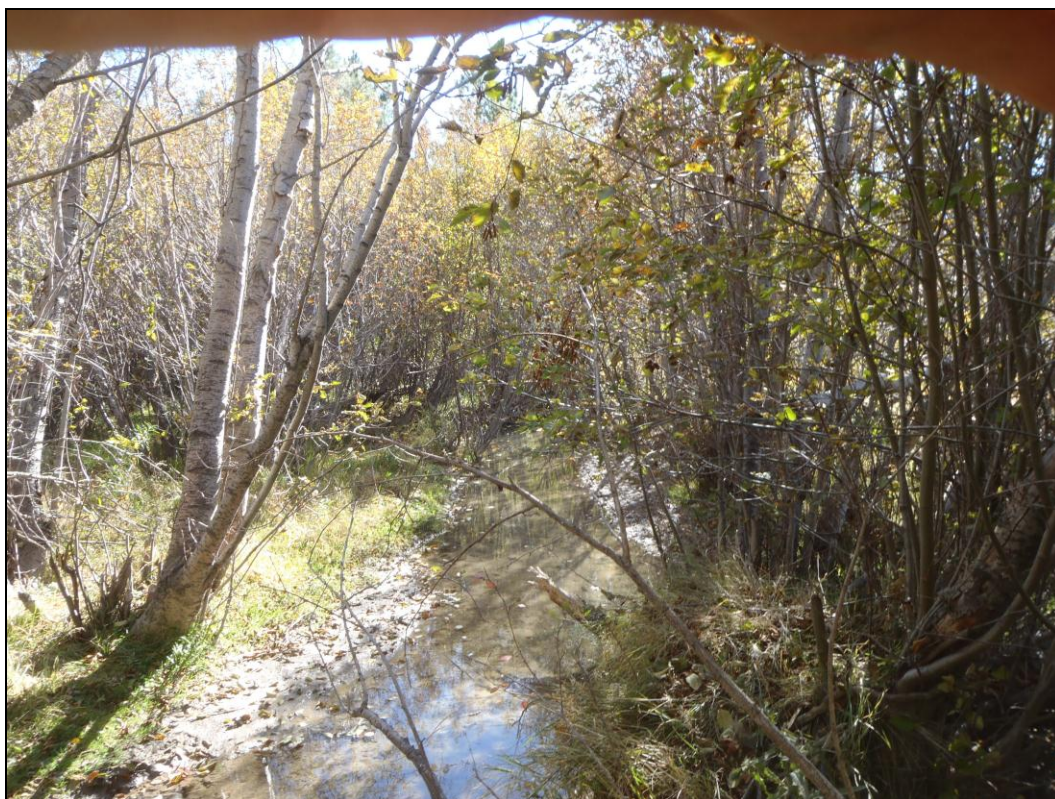


Photograph 5. To West. Beaver lodge on the north shore of Eagle Rock Lake (OW-ERL1).



Photograph 6. To Northeast. View of wetland ERL-PFO. Wetland ERL-PEM occurs in photograph foreground.





Photograph 7. To West. View of wetland ERL-PFO and Eagle Rock Lake diversion channel (OW-ERL3) near Eagle Rock Lake.



Photograph 8. To West. View of diversion channel OW-ERL3 upstream of wetland ERL-PFO.





Photograph 9. To East. View upstream of Red River (OW-ERL2) at the headgate of the diversion channel (OW-ERL3).

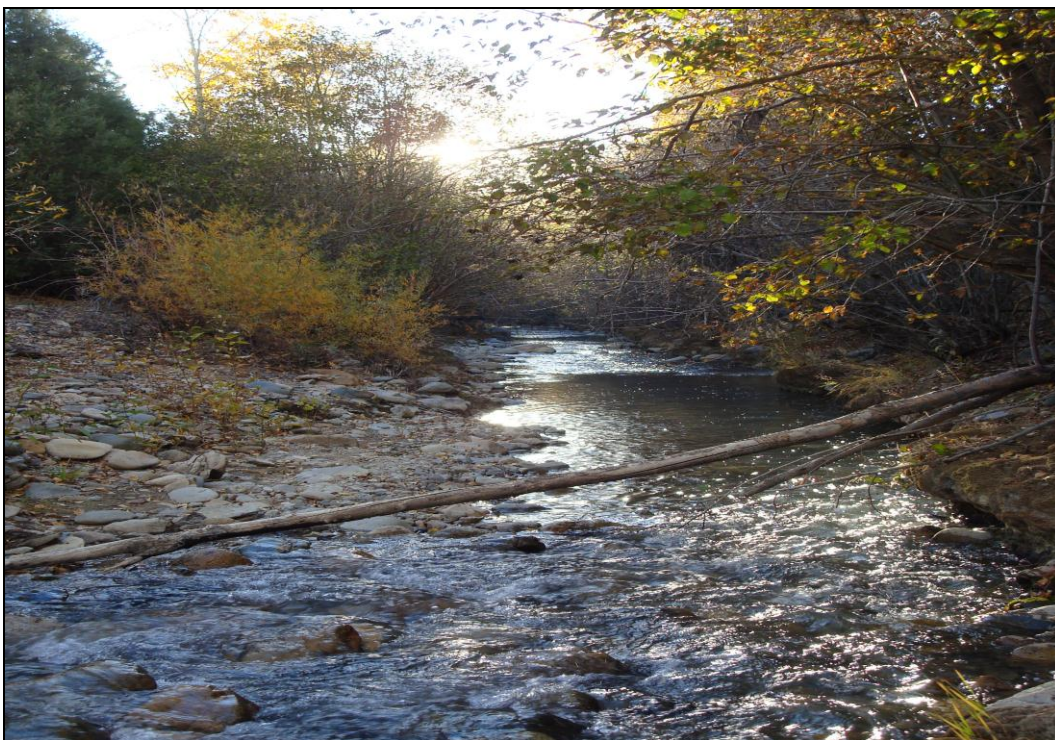


Photograph 10. To South. View of a reach of the Red River (OW-ERL2) adjacent to Eagle Rock Lake (OW-ERL1).





Photograph 11. To South. View of beaver dam within Red River (OW-ERL2) at the western end of the Eagle Rock Lake remediation area.



Photograph 12. To West. View of the Red River (OW-ERL2) downstream of the Eagle Rock Lake remediation area.





Photograph 13. To South. Overview of wetland EDC-1/EDC-2 within the Eastern Diversion Channel remediation area.



Photograph 14. To North. View of wetland EDC-1 within the Eastern Diversion Channel.





Photograph 15. To North. View of EDC-2.



Photograph 16. To East. View of upland above Eastern Diversion Channel EDC-1/EDC-2.





Photograph 17. To North. View of feature EDC-6 within the Eastern Diversion Channel. This area did not meet the three substantive criteria for wetlands.



Photograph 18. To East. Overview of the Eastern Diversion Channel and surrounding upland south of feature EDC-6.





Photograph 19. To Southwest. View within the Eastern Diversion Channel below EDC-6.

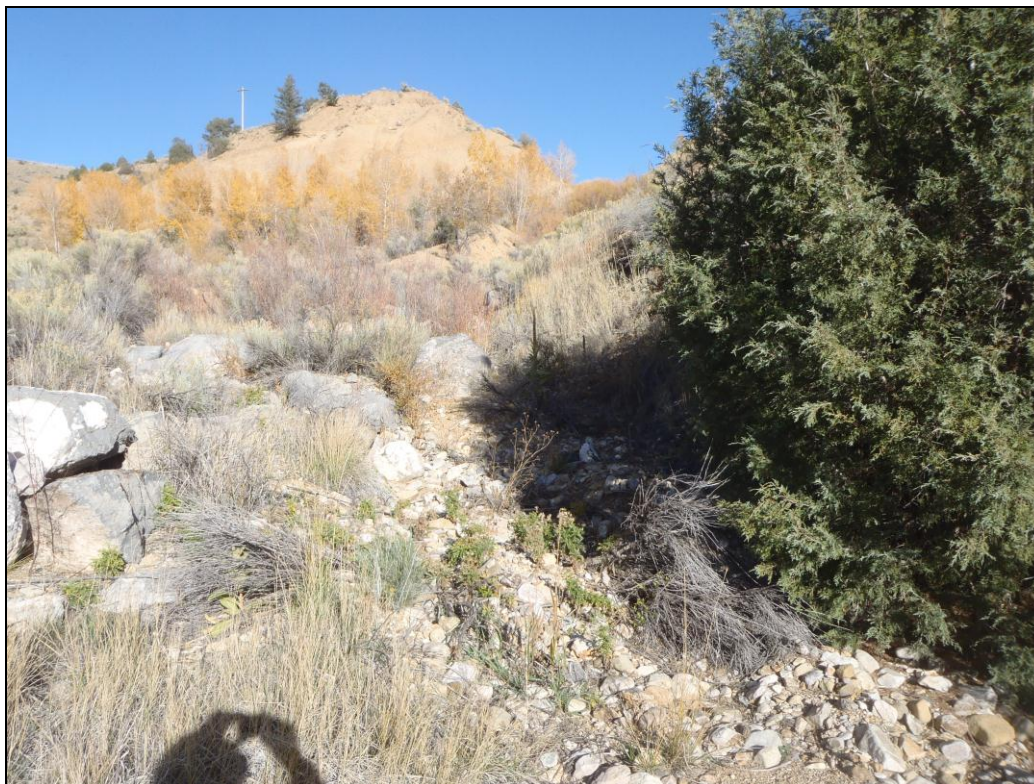


Photograph 20. To Northeast. View of Eastern Diversion Channel along the channel's lower reach.





Photograph 21. To North. View of wetland EDC-3.



Photograph 22. To Northeast. View of the upland near EDC-3. A portion of the Eastern Diversion lower channel appears in the photograph center.

**Appendix C**  
**Individual Wetland Data Forms**





# WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast

Project/Site: Questa Mine Remediation Removal Action City/County: Questa/Taos Sampling Date: 10-15-12  
 Applicant/Owner: Chevron Mining, Inc. State: NM Sampling Point: HTS-1  
 Investigator(s): J. Dawson/ S. Hall Section, Township, Range: T28N  
 Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): None Slope (%): 1:1  
 Subregion (LRR): MLRA 39 - Arizona and New Mexico Mts. Lat: 36.694758 Long: -105.496439 Datum: NAD83  
 Soil Map Unit Name: Cumulic Haploborolls, nearly level NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)  
 Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐  
 Are Vegetation ☐ Soil ☐ or Hydrology ☐ 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 <input checked="" type="radio"/>	No <input type="radio"/>	Is the Sampled Area within a Wetland?	Yes <input type="radio"/>	No <input checked="" type="radio"/>
Hydric Soil Present?	Yes <input type="radio"/>	No <input checked="" type="radio"/>			
Wetland Hydrology Present?	Yes <input type="radio"/>	No <input checked="" type="radio"/>			
Remarks: Feature lies between Hy. 38 and the Red River. Feature may have established under conditions that no longer exist. PEM/PSS vegetation present; no evidence of hydric soils or hydrology. Feature perched and receives runoff from road. PSS portion almost barren understory. Soil sample yielded 1 potential concentration, likely oxidized tailings.					

## VEGETATION - Use scientific names of plants.

Tree Stratum	Plot size: <u>30 x 30</u>	Absolute % Cover	Dominant Species?	Indicator Status
1. <u>Populus angustifolia</u>		5	Yes	FACW
2. _____				
3. _____				
4. _____				
Sapling/Shrub Stratum Plot size: <u>30 x 30</u>		5 = Total Cover		
1. <u>Salix monticola</u>		10	Yes	OBL
2. <u>Salix exigua</u>		5	No	FACW
3. <u>Salix lucida</u>		5	No	FAC
4. <u>Betula occidentalis</u>		5	No	FACW
5. <u>Cornus sericea</u>		4	No	FACW
Herb Stratum Plot size <u>30 x 30</u>		29 = Total Cover		
1. <u>Bromus inermis</u>		40	Yes	FACU
2. <u>Juncus arcticus</u>		14	Yes	FACW
3. <u>Agrostis stolonifera</u>		1	No	FACW
4. <u>Artemisia frigida</u>		1	No	Not Listed
5. <u>Carex nebrascensis</u>		2	No	OBL
6. <u>Achnatherum perplexum</u>		1	No	Not Listed
7. <u>Thinopyrum intermedium</u>		1	No	Not Listed
8. _____				
9. _____				
10. _____				
Woody Vine Stratum Plot size: _____		60 = Total Cover		
1. _____				
2. _____				
		_____ = Total Cover		
% Bare Ground in Herb Stratum <u>40 %</u>				
Remarks: Distinct Salix/ Juncus communities. Salix roots in the top six inches. Minors include Elymus lanceolatus, Rosa woodsii, Verbascum thapsus, Vicia americana, Poa sp. Two pair of juncos observed.				

**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: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 75.0 % (A/B)

**Prevalence Index worksheet:**

Total % Cover of:	Multiply by:	
OBL species <u>12</u>	x 1 =	<u>12</u>
FACW species <u>29</u>	x 2 =	<u>58</u>
FAC species <u>5</u>	x 3 =	<u>15</u>
FACU species <u>40</u>	x 4 =	<u>160</u>
UPL species <u>3</u>	x 5 =	<u>15</u>
Column Totals: <u>89</u> (A)		<u>260</u> (B)
Prevalence Index = B/A =		<u>2.92</u>

**Hydrophytic Vegetation Indicators:**

☐ 1 - Rapid Test for Hydrophytic Vegetation

☒ 2 - Dominance Test is >50%

☒ 3 - Prevalence Index is ≤3.0<sup>1</sup>

☐ 4 - Morphological Adaptations<sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)

☐ 5 - Wetland Non-Vascular Plants<sup>1</sup>

☐ Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)

<sup>1</sup>Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

**Hydrophytic Vegetation Present?** Yes ☒ No ☐

## SOIL

Sampling Point: HTS-1

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
SP1/0 - 5	10YR 5/2	99	7.5YR 5/8	1	C	M	Sa	Some organic streaking
5 - 14	10YR 6.5/1	100	-	-			Ash sand	Tailings
SP2/0 - 1	10YR 3/2	50	-	-			Sa	Some organic streaking
SP2/0 - 1	10YR 6.5/1	50	-	-			Sa	
1 - 14	10YR 6.5/1	100	-	-			Ash sand	Tailings

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains<sup>2</sup>Location: PL=Pore Lining, M=Matrix**Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)**

- |  |   |
|--|---|
| <input type="checkbox"/> Histosol (A1)                     | <input type="checkbox"/> Sandy Redox (S5)                                 |
| <input type="checkbox"/> Histic Epipedon (A2)              | <input type="checkbox"/> Stripped Matrix (S6)                             |
| <input type="checkbox"/> Black Histic (A3)                 | <input type="checkbox"/> Loamy Mucky Mineral (F1) ( <b>except MLRA1</b> ) |
| <input type="checkbox"/> Hydrogen Sulfide (A4)             | <input type="checkbox"/> Loamy Gleyed Matrix (F2)                         |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Matrix (F3)                             |
| <input type="checkbox"/> Thick Dark Surface (A12)          | <input type="checkbox"/> Redox Dark Surface (F6)                          |
| <input type="checkbox"/> Sandy Mucky Mineral (S1)          | <input type="checkbox"/> Depleted Dark Surface (F7)                       |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4)          | <input type="checkbox"/> Redox Depressions (F8)                           |

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- ☐ 2 cm Muck (A10)  
☐ Red Parent Material (TF2)  
☐ Very Shallow Dark Surface (TF12)  
☐ Other (Explain in Remarks)

<sup>3</sup> 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 ☒

Remarks: Low chroma results from color of tailings, not reduction. Vegetation at pit: SP1 - barren. SP2 - Juncus arcticus. Reduction not consistently present throughout the wetland. One potential redox feature found in first soil pit. Likely oxidized tailings. Additional soil pits dug in area with results similar to SP2. Ash sand is a pulverized material.

## HYDROLOGY

**Wetland Hydrology Indicators:**

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

- |  |  |
|--|--|
| <input type="checkbox"/> Surface Water (A1)                        | <input type="checkbox"/> Water-Stained Leaves (B9) ( <b>except MLRA 1, 2, 4a, and 4b</b> ) |
| <input type="checkbox"/> High Water Table (A2)                     | <input type="checkbox"/> Salt Crust (B11)  |
| <input type="checkbox"/> Saturation (A3)                           | <input type="checkbox"/> Aquatic Invertebrates (B13)                                       |
| <input type="checkbox"/> Water Marks (B1)                          | <input type="checkbox"/> Hydrogen Sulfide Odor (C1)  |
| <input type="checkbox"/> Sediment Deposits (B2)                    | <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)                        |
| <input type="checkbox"/> Drift Deposits (B3)                       | <input type="checkbox"/> Presence of Reduced Iron (C4)                                     |
| <input type="checkbox"/> Algal Mat or Crust (B4)                   | <input type="checkbox"/> Recent Iron Reductions in Tilled Soils (C6)                       |
| <input type="checkbox"/> Iron Deposits (B5)                        | <input type="checkbox"/> Stunted or Stressed Plants (D1) ( <b>LRR A</b> )                  |
| <input type="checkbox"/> Surface Soil Cracks (B6)                  | <input type="checkbox"/> Other (Explain in Remarks)  |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) |  |
| <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)   |  |

Secondary Indicators (minimum of two required)

- ☐ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4a, and 4b**)  
☐ Drainage Patterns (B10)  
☐ Dry-Season Water Table (C2)  
☐ Saturation Visible on Aerial Imagery (C9)  
☐ Geomorphic Position (D2)  
☐ Shallow Aquitard (D3)  
☐ FAC-Neutral Test (D5)  
☐ Raised Ant Mounds (D6) (**LRR A**)  
☐ Frost-Heave Hummocks (D7) (**LRR F**)

**Field Observations:**Surface Water Present? Yes ☐ No ☒ Depth (inches): \_\_\_\_\_Water Table Present? Yes ☐ No ☒ Depth (inches): \_\_\_\_\_Saturation Present? Yes ☐ No ☒ Depth (inches): \_\_\_\_\_  
(includes capillary fringe)**Wetland Hydrology Present?** Yes ☐ No ☒

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

None.

Remarks: Concrete runoff conveyance from roadway slopes to the site. Site is perched above Red River and restricted by a two-track road. Surveyors have never seen water in the feature.

# WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast

Project/Site: Questa Mine Remediation Removal Action City/County: Questa/Taos Sampling Date: 10-16-12  
 Applicant/Owner: Chevron Mining, Inc. State: NM Sampling Point: HTS-1-UP  
 Investigator(s): J. Dawson/ S. Hall Section, Township, Range: T28N R13E  
 Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Hillslope Slope (%): 25  
 Subregion (LRR): MLRA 39 - Arizona and New Mexico Mts. Lat: 36.694872 Long: -105.495723 Datum: NAD 83  
 Soil Map Unit Name: Cumulic Haploborolls, nearly level NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)  
 Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐  
 Are Vegetation ☐ Soil ☐ or Hydrology ☐ 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 <input type="radio"/>	No <input checked="" type="radio"/>	Is the Sampled Area within a Wetland?	Yes <input type="radio"/>	No <input checked="" type="radio"/>
Hydric Soil Present?	Yes <input type="radio"/>	No <input checked="" type="radio"/>			
Wetland Hydrology Present?	Yes <input type="radio"/>	No <input checked="" type="radio"/>			
Remarks: <u>Upland soil pit for HTS-1 and HTS-2. Pit located on south side slope of HTS-2.</u>					

## VEGETATION - Use scientific names of plants.

Tree Stratum	Plot size:	Absolute % Cover	Dominant Species?	Indicator Status
1. <i>Picea engelmannii</i>	<u>30 x 30</u>	<u>2</u>	<u>Yes</u>	<u>FAC</u>
2. <i>Populus deltoides</i>		<u>5</u>	<u>Yes</u>	<u>FAC</u>
3. <i>Juniperus scopularum</i>		<u>1</u>	<u>No</u>	<u>Not Listed</u>
4. _____				
		<u>8</u>	<u>= Total Cover</u>	
Sapling/Shrub Stratum	Plot size:	Absolute % Cover	Dominant Species?	Indicator Status
1. <i>Symphoricarpos oreophilis</i>	<u>30 x 30</u>	<u>5</u>	<u>Yes</u>	<u>Not Listed</u>
2. <i>Acer glabrum</i>		<u>3</u>	<u>Yes</u>	<u>FACU</u>
3. <i>Ericameria nauseosus</i>		<u>1</u>	<u>No</u>	<u>Not Listed</u>
4. <i>Physocarpus monogynus</i>		<u>1</u>	<u>No</u>	<u>UPL</u>
5. <i>Rosa woodsii</i>		<u>1</u>	<u>No</u>	<u>FACU</u>
		<u>11</u>	<u>= Total Cover</u>	
Herb Stratum	Plot size:	Absolute % Cover	Dominant Species?	Indicator Status
1. <i>Artemisia campestris</i>	<u>30 x 30</u>	<u>25</u>	<u>Yes</u>	<u>Not Listed</u>
2. <i>Bromus inermis</i>		<u>15</u>	<u>Yes</u>	<u>FACU</u>
3. <i>Thinopyrum intermedium</i>		<u>13</u>	<u>No</u>	<u>Not Listed</u>
4. <i>Artemisia frigida</i>		<u>1</u>	<u>No</u>	<u>Not Listed</u>
5. <i>Antennaria sp.</i>		<u>1</u>	<u>No</u>	<u>Not Listed</u>
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
		<u>55</u>	<u>= Total Cover</u>	
Woody Vine Stratum	Plot size:	Absolute % Cover	Dominant Species?	Indicator Status
1. _____				
2. _____				
			<u>= Total Cover</u>	
% Bare Ground in Herb Stratum <u>45 %</u>				
Remarks: <u>Plot located on a terrace within the riparian buffer of the Red River. Tree strata occurs within obvious upland areas. Bare ground comprised of little and small rocks.</u>				

### 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: 6 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33.3 % (A/B)

### Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	<u>0</u>
FACW species	x 2 =	<u>0</u>
FAC species	x 3 =	<u>30</u>
FACU species	x 4 =	<u>76</u>
UPL species	x 5 =	<u>205</u>
Column Totals:		<u>70</u> (A) <u>311</u> (B)
Prevalence Index = B/A =		<u>4.44</u>

### Hydrophytic Vegetation Indicators:

☐ 1 - Rapid Test for Hydrophytic Vegetation

☒ 2 - Dominance Test is >50%

☒ 3 - Prevalence Index is ≤3.0<sup>1</sup>

☐ 4 - Morphological Adaptations<sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)

☐ 5 - Wetland Non-Vascular Plants<sup>1</sup>

☐ Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)

<sup>1</sup>Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

### Hydrophytic Vegetation Present?

Yes ☐ No ☒



## SOIL

Sampling Point: HTS-1-UP

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0 - 6	10YR 3/4	100	-	-			Si	Many roots, organic mottles
6 - 14	10YR 5/3	100	-	-			GrSi	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains<sup>2</sup>Location: PL=Pore Lining, M=Matrix**Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)**

- |  |   |
|--|---|
| <input type="checkbox"/> Histosol (A1)                     | <input type="checkbox"/> Sandy Redox (S5)                                 |
| <input type="checkbox"/> Histic Epipedon (A2)              | <input type="checkbox"/> Stripped Matrix (S6)                             |
| <input type="checkbox"/> Black Histic (A3)                 | <input type="checkbox"/> Loamy Mucky Mineral (F1) ( <b>except MLRA1</b> ) |
| <input type="checkbox"/> Hydrogen Sulfide (A4)             | <input type="checkbox"/> Loamy Gleyed Matrix (F2)                         |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Matrix (F3)                             |
| <input type="checkbox"/> Thick Dark Surface (A12)          | <input type="checkbox"/> Redox Dark Surface (F6)                          |
| <input type="checkbox"/> Sandy Mucky Mineral (S1)          | <input type="checkbox"/> Depleted Dark Surface (F7)                       |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4)          | <input type="checkbox"/> Redox Depressions (F8)                           |

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- ☐ 2 cm Muck (A10)  
☐ Red Parent Material (TF2)  
☐ Very Shallow Dark Surface (TF12)  
☐ Other (Explain in Remarks)

<sup>3</sup> 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 ☒

Remarks: No soil indicators. Soil pit 3 feet up from floor of HTS-2.

Soils may be native or fill material from road construction. Vegetation at pit: Rosa woodsii, Bromus inermis, Artemisia campestris.

## HYDROLOGY

**Wetland Hydrology Indicators:**

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

- |  |  |
|--|--|
| <input type="checkbox"/> Surface Water (A1)                        | <input type="checkbox"/> Water-Stained Leaves (B9) ( <b>except MLRA 1, 2, 4a, and 4b</b> ) |
| <input type="checkbox"/> High Water Table (A2)                     | <input type="checkbox"/> Salt Crust (B11)  |
| <input type="checkbox"/> Saturation (A3)                           | <input type="checkbox"/> Aquatic Invertebrates (B13)                                       |
| <input type="checkbox"/> Water Marks (B1)                          | <input type="checkbox"/> Hydrogen Sulfide Odor (C1)  |
| <input type="checkbox"/> Sediment Deposits (B2)                    | <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)                        |
| <input type="checkbox"/> Drift Deposits (B3)                       | <input type="checkbox"/> Presence of Reduced Iron (C4)                                     |
| <input type="checkbox"/> Algal Mat or Crust (B4)                   | <input type="checkbox"/> Recent Iron Reductions in Tilled Soils (C6)                       |
| <input type="checkbox"/> Iron Deposits (B5)                        | <input type="checkbox"/> Stunted or Stressed Plants (D1) ( <b>LRR A</b> )                  |
| <input type="checkbox"/> Surface Soil Cracks (B6)                  | <input type="checkbox"/> Other (Explain in Remarks)  |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) |  |
| <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)   |  |

Secondary Indicators (minimum of two required)

- ☐ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4a, and 4b**)  
☐ Drainage Patterns (B10)  
☐ Dry-Season Water Table (C2)  
☐ Saturation Visible on Aerial Imagery (C9)  
☐ Geomorphic Position (D2)  
☐ Shallow Aquitard (D3)  
☐ FAC-Neutral Test (D5)  
☐ Raised Ant Mounds (D6) (**LRR A**)  
☐ Frost-Heave Hummocks (D7) (**LRR F**)

**Field Observations:**Surface Water Present? Yes ☐ No ☒

Depth (inches): \_\_\_\_\_

Water Table Present? Yes ☐ No ☒

Depth (inches): \_\_\_\_\_

Saturation Present? Yes ☐ No ☒  
(includes capillary fringe)

Depth (inches): \_\_\_\_\_

**Wetland Hydrology Present?** Yes ☐ No ☒

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

None.

Remarks: No hydrologic indicators.

# WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast

Project/Site: Questa Mine Remediation Removal Action City/County: Questa/Taos Sampling Date: 10-16-12  
 Applicant/Owner: Chevron Mining, Inc. State: NM Sampling Point: HTS-2  
 Investigator(s): J. Dawson/ S. Hall Section, Township, Range: T28N R13E  
 Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): None Slope (%): 1:1  
 Subregion (LRR): MLRA 39 - Arizona and New Mexico Mts. Lat: 36.694878 Long: -105.495816 Datum: NAD83  
 Soil Map Unit Name: Cumulic Haploborolls, nearly level NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)  
 Are Vegetation ☐ Soil ☒ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☐ No ☒  
 Are Vegetation ☐ Soil ☐ or Hydrology ☐ 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 <input checked="" type="radio"/>	No <input type="radio"/>	Is the Sampled Area within a Wetland?	Yes <input checked="" type="radio"/>	No <input type="radio"/>
Hydric Soil Present?	Yes <input checked="" type="radio"/>	No <input type="radio"/>			
Wetland Hydrology Present?	Yes <input checked="" type="radio"/>	No <input type="radio"/>			
Remarks: Barren depression with herbaceous/woody fringe near HTS-1. Feature lies between road and Red River in historic tailings spill area. Feature perched above Red River and disturbed by berm and two-track road with fill on three sides. Two track road likely older than 50 years. Some tailings in barren portion of the feature.					

## VEGETATION - Use scientific names of plants.

Tree Stratum	Plot size: <u>30 x 30</u>	Absolute % Cover	Dominant Species?	Indicator Status	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC-): <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100.0 %</u> (A/B)																								
1. <u>Populus angustifolia</u>		<u>5</u>	<u>Yes</u>	<u>FACW</u>																									
2. _____																													
3. _____																													
4. _____																													
Sapling/Shrub Stratum Plot size: _____		<u>5</u> = Total Cover			<b>Prevalence Index worksheet:</b> <table border="1"> <thead> <tr> <th>Total % Cover of:</th> <th>Multiply by:</th> <th></th> </tr> </thead> <tbody> <tr> <td>OBL species</td> <td>x 1 =</td> <td><u>0</u></td> </tr> <tr> <td>FACW species</td> <td>x 2 =</td> <td><u>44</u></td> </tr> <tr> <td>FAC species</td> <td>x 3 =</td> <td><u>0</u></td> </tr> <tr> <td>FACU species</td> <td>x 4 =</td> <td><u>0</u></td> </tr> <tr> <td>UPL species</td> <td>x 5 =</td> <td><u>0</u></td> </tr> <tr> <td>Column Totals:</td> <td><u>22</u> (A)</td> <td><u>44</u> (B)</td> </tr> <tr> <td colspan="2">Prevalence Index = B/A =</td> <td><u>2.00</u></td> </tr> </tbody> </table>	Total % Cover of:	Multiply by:		OBL species	x 1 =	<u>0</u>	FACW species	x 2 =	<u>44</u>	FAC species	x 3 =	<u>0</u>	FACU species	x 4 =	<u>0</u>	UPL species	x 5 =	<u>0</u>	Column Totals:	<u>22</u> (A)	<u>44</u> (B)	Prevalence Index = B/A =		<u>2.00</u>
Total % Cover of:	Multiply by:																												
OBL species	x 1 =	<u>0</u>																											
FACW species	x 2 =	<u>44</u>																											
FAC species	x 3 =	<u>0</u>																											
FACU species	x 4 =	<u>0</u>																											
UPL species	x 5 =	<u>0</u>																											
Column Totals:	<u>22</u> (A)	<u>44</u> (B)																											
Prevalence Index = B/A =		<u>2.00</u>																											
1. _____																													
2. _____																													
3. _____																													
4. _____																													
5. _____																													
Herb Stratum Plot size <u>30 x 30</u>					<b>Hydrophytic Vegetation Indicators:</b> <input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input checked="" type="checkbox"/> 3 - Prevalence Index is ≤3.0 <sup>1</sup> <input type="checkbox"/> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> 5 - Wetland Non-Vascular Plants <sup>1</sup> <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain) <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.																								
1. <u>Juncus arcticus</u>		<u>18</u>	<u>Yes</u>	<u>FACW</u>																									
2. <u>Agrostis stolonifera</u>		<u>4</u>	<u>No</u>	<u>FACW</u>																									
3. _____																													
4. _____																													
5. _____																													
6. _____																													
7. _____																													
8. _____																													
9. _____																													
10. _____																													
Woody Vine Stratum Plot size: _____		<u>22</u> = Total Cover			<b>Hydrophytic Vegetation Present?</b> Yes <input checked="" type="radio"/> No <input type="radio"/>																								
1. _____																													
2. _____																													
% Bare Ground in Herb Stratum <u>78 %</u>																													
Remarks: A substantial portion of the wetland is a sparsely vegetated depression. Wetland vegetation nearest to barren area is dead/blackened. Minors include Artemesia campestris, Betula occidentalis, Rosa woodsii, Salix exigua, Salix monticola. Deer tracks and scat observed.																													

## SOIL

Sampling Point: HTS-2

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
SP1/0 - 6	5Y 8/3	70	7.5YR 6/8	30	C	M	Si	Tailings
	-	-	10YR 5/3	2	RM	M	Cl	One area
SP1/6 - 18	10YR 5.5/3.5	55	7.5YR 5/8	5	C	M	Cobbly GrLo	High sand content, native soil
			7.5YR 5/6	40	C	M	-	
SP2/0 - 6	10YR 5/3	100	-	-			SiLo	
SP2/6 - 9	-	-	-	-			Cobbles	
SP2/9 - 16	10YR 5/3	100	-	-			GrLo	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains<sup>2</sup>Location: PL=Pore Lining, M=Matrix**Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)**

- |  |   |
|--|---|
| <input type="checkbox"/> Histosol (A1)                     | <input type="checkbox"/> Sandy Redox (S5)                                 |
| <input type="checkbox"/> Histic Epipedon (A2)              | <input type="checkbox"/> Stripped Matrix (S6)                             |
| <input type="checkbox"/> Black Histic (A3)                 | <input type="checkbox"/> Loamy Mucky Mineral (F1) ( <b>except MLRA1</b> ) |
| <input type="checkbox"/> Hydrogen Sulfide (A4)             | <input type="checkbox"/> Loamy Gleyed Matrix (F2)                         |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input checked="" type="checkbox"/> Depleted Matrix (F3)                  |
| <input type="checkbox"/> Thick Dark Surface (A12)          | <input type="checkbox"/> Redox Dark Surface (F6)                          |
| <input type="checkbox"/> Sandy Mucky Mineral (S1)          | <input type="checkbox"/> Depleted Dark Surface (F7)                       |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4)          | <input type="checkbox"/> Redox Depressions (F8)                           |

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- ☐ 2 cm Muck (A10)  
☐ Red Parent Material (TF2)  
☐ Very Shallow Dark Surface (TF12)  
☐ Other (Explain in Remarks)

<sup>3</sup> 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 ☐

Remarks: Patchy clay loam surface in spots. Mottles in tailings were also observed at soil surface.  
 SP3 - 0-4: Matrix -10YR 6/2 75%; Redox 7.5YR 5/8. 25%; RC, C; PL, M. Tailings, root matter. Restrictive layer of cobble at 4 inches. Atypical soils - may be fill. Only SP3 was hydric.

## HYDROLOGY

**Wetland Hydrology Indicators:**

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

- |   |  |
|---|--|
| <input type="checkbox"/> Surface Water (A1)                                 | <input type="checkbox"/> Water-Stained Leaves (B9) ( <b>except MLRA 1, 2, 4a, and 4b</b> ) |
| <input type="checkbox"/> High Water Table (A2)                              | <input type="checkbox"/> Salt Crust (B11)  |
| <input type="checkbox"/> Saturation (A3)                                    | <input type="checkbox"/> Aquatic Invertebrates (B13)                                       |
| <input type="checkbox"/> Water Marks (B1)                                   | <input type="checkbox"/> Hydrogen Sulfide Odor (C1)  |
| <input type="checkbox"/> Sediment Deposits (B2)                             | <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)                        |
| <input type="checkbox"/> Drift Deposits (B3)                                | <input type="checkbox"/> Presence of Reduced Iron (C4)                                     |
| <input type="checkbox"/> Algal Mat or Crust (B4)                            | <input type="checkbox"/> Recent Iron Reductions in Tilled Soils (C6)                       |
| <input type="checkbox"/> Iron Deposits (B5)                                 | <input type="checkbox"/> Stunted or Stressed Plants (D1) ( <b>LRR A</b> )                  |
| <input type="checkbox"/> Surface Soil Cracks (B6)                           | <input type="checkbox"/> Other (Explain in Remarks)  |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)          |  |
| <input checked="" type="checkbox"/> Sparsely Vegetated Concave Surface (B8) |  |

Secondary Indicators (minimum of two required)

- ☐ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4a, and 4b**)  
☐ Drainage Patterns (B10)  
☐ Dry-Season Water Table (C2)  
☐ Saturation Visible on Aerial Imagery (C9)  
☐ Geomorphic Position (D2)  
☐ Shallow Aquitard (D3)  
☒ FAC-Neutral Test (D5)  
☐ Raised Ant Mounds (D6) (**LRR A**)  
☐ Frost-Heave Hummocks (D7) (**LRR F**)

**Field Observations:**Surface Water Present? Yes ☐ No ☒

Depth (inches): -

Water Table Present? Yes ☐ No ☒

Depth (inches): -

Saturation Present? (includes capillary fringe) Yes ☐ No ☒

Depth (inches): -

**Wetland Hydrology Present?** Yes ☒ No ☐

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

None.

Remarks: Observed saturated mud at surface. Rain occurred 3 days prior. Area appears to collect water due to topographic position.



# WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast

Project/Site: Questa Mine Remediation Removal Action City/County: Questa/Taos Sampling Date: 10-16-12  
 Applicant/Owner: Chevron Mining, Inc. State: NM Sampling Point: ERL-PEM  
 Investigator(s): J. Dawson/ S. Hall Section, Township, Range: T29N R13W S32  
 Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): Concave Slope (%): 1  
 Subregion (LRR): MLRA 39 - Arizona and New Mexico Mts. Lat: 36.703224 Long: -105.572951 Datum: NAD83  
 Soil Map Unit Name: Cumulic Haplaquolls, nearly level NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)  
 Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐  
 Are Vegetation ☐ Soil ☐ or Hydrology ☐ 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 <input checked="" type="radio"/>	No <input type="radio"/>	Is the Sampled Area within a Wetland?	Yes <input checked="" type="radio"/>	No <input type="radio"/>
Hydric Soil Present?	Yes <input checked="" type="radio"/>	No <input type="radio"/>			
Wetland Hydrology Present?	Yes <input checked="" type="radio"/>	No <input type="radio"/>			
Remarks: PEM wetland fringe abutting Eagle Rock Lake. Largest part of wetland occurs at mouth of diversion channel with discontinuous wetland fringe of approximately 2 feet wide occurring around the lake perimeter. Beaver lodge observed on north side of lake.					

## VEGETATION - Use scientific names of plants.

Tree Stratum	Plot size:	Absolute % Cover	Dominant Species?	Indicator Status
1.				
2.				
3.				
4.				
			= Total Cover	
Sapling/Shrub Stratum	Plot size:			
1.				
2.				
3.				
4.				
5.				
			= Total Cover	
Herb Stratum	Plot size	0.25 acre		
1. <i>Carex aquatilis</i>		25	Yes	FACW
2. <i>Agrostis gigantea</i>		10	No	FAC
3. <i>Carex utriculata</i>		50	Yes	OBL
4. <i>Agrostis stolonifera</i>		3	No	FACW
5. <i>Asclepias speciosa</i>		1	No	FAC
6. <i>Carex nebrascensis</i>		3	No	FACW
7. <i>Eleocharis palustris</i>		3	No	OBL
8. <i>Phleum pratense</i>		5	No	FAC
9.				
10.				
		100	= Total Cover	
Woody Vine Stratum	Plot size:			
1.				
2.				
			= Total Cover	
% Bare Ground in Herb Stratum		%		

**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: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0 % (A/B)

**Prevalence Index worksheet:**

Total % Cover of:	Multiply by:	
OBL species	53	x 1 = 53
FACW species	31	x 2 = 62
FAC species	16	x 3 = 48
FACU species		x 4 = 0
UPL species		x 5 = 0
Column Totals:	100	(A) 163 (B)

Prevalence Index = B/A = 1.63

**Hydrophytic Vegetation Indicators:**

☐ 1 - Rapid Test for Hydrophytic Vegetation

☒ 2 - Dominance Test is >50%

☒ 3 - Prevalence Index is ≤3.0<sup>1</sup>

☐ 4 - Morphological Adaptations<sup>1</sup>(Provide supporting data in Remarks or on a separate sheet)

☐ 5 - Wetland Non-Vascular Plants<sup>1</sup>

☐ Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)

<sup>1</sup>Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

**Hydrophytic Vegetation Present?** Yes ☒ No ☐

Remarks: Minors include *Dactylis glomerata*, *Elymus repens*, *Epilobium ciliatum*, *Juncus effusus*, *Juncus nodosus*, *Limnorchis* sp., *Salix exigua*, *Salix monticola*, *Typha angustifolia*, *Trifolium pratense*. Beaver lodge and trails through wetland, raccoon tracks.

## SOIL

Sampling Point: ERL-PEM

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

Depth (inches)	Matrix		Redox Features			Loc <sup>2</sup>	Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>			
0 - 3	10YR 4/2	88	2.5/5B	2	RM	M	Cl	
0-3	-	-	7.5YR 4/6	10	C	M	Cl	
3 - 4	10YR 7/6	60	10YR 5/8	40	C	M	Cl	
4 - 7	10YR 4/2	60	7.5 YR 5/4	40	C	M	Cl	
7 - 15	5Y 7/3	40	10YR 5/6	30	C	M	Cl	Many tiny roots
7 - 15	-	-	10YR 7/6	30	C	M	ClSi	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains<sup>2</sup>Location: PL=Pore Lining, M=Matrix**Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)**

- |  |   |
|--|---|
| <input type="checkbox"/> Histosol (A1)                     | <input type="checkbox"/> Sandy Redox (S5)                                 |
| <input type="checkbox"/> Histic Epipedon (A2)              | <input type="checkbox"/> Stripped Matrix (S6)                             |
| <input type="checkbox"/> Black Histic (A3)                 | <input type="checkbox"/> Loamy Mucky Mineral (F1) ( <b>except MLRA1</b> ) |
| <input type="checkbox"/> Hydrogen Sulfide (A4)             | <input type="checkbox"/> Loamy Gleyed Matrix (F2)                         |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input checked="" type="checkbox"/> Depleted Matrix (F3)                  |
| <input type="checkbox"/> Thick Dark Surface (A12)          | <input type="checkbox"/> Redox Dark Surface (F6)                          |
| <input type="checkbox"/> Sandy Mucky Mineral (S1)          | <input type="checkbox"/> Depleted Dark Surface (F7)                       |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4)          | <input type="checkbox"/> Redox Depressions (F8)                           |

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- ☐ 2 cm Muck (A10)  
☐ Red Parent Material (TF2)  
☐ Very Shallow Dark Surface (TF12)  
☐ Other (Explain in Remarks)

<sup>3</sup> 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 ☐

Remarks: Vegetation at pit - Carex utriculata.

## HYDROLOGY

**Wetland Hydrology Indicators:**

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

- |  |  |
|--|--|
| <input type="checkbox"/> Surface Water (A1)                        | <input type="checkbox"/> Water-Stained Leaves (B9) ( <b>except MLRA 1, 2, 4a, and 4b</b> ) |
| <input type="checkbox"/> High Water Table (A2)                     | <input type="checkbox"/> Salt Crust (B11)  |
| <input checked="" type="checkbox"/> Saturation (A3)                | <input type="checkbox"/> Aquatic Invertebrates (B13)                                       |
| <input type="checkbox"/> Water Marks (B1)                          | <input type="checkbox"/> Hydrogen Sulfide Odor (C1)  |
| <input type="checkbox"/> Sediment Deposits (B2)                    | <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)                        |
| <input type="checkbox"/> Drift Deposits (B3)                       | <input type="checkbox"/> Presence of Reduced Iron (C4)                                     |
| <input type="checkbox"/> Algal Mat or Crust (B4)                   | <input type="checkbox"/> Recent Iron Reductions in Tilled Soils (C6)                       |
| <input type="checkbox"/> Iron Deposits (B5)                        | <input type="checkbox"/> Stunted or Stressed Plants (D1) ( <b>LRR A</b> )                  |
| <input type="checkbox"/> Surface Soil Cracks (B6)                  | <input type="checkbox"/> Other (Explain in Remarks)  |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) |  |
| <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)   |  |

Secondary Indicators (minimum of two required)

- ☐ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4a, and 4b**)  
☐ Drainage Patterns (B10)  
☐ Dry-Season Water Table (C2)  
☐ Saturation Visible on Aerial Imagery (C9)  
☒ Geomorphic Position (D2)  
☐ Shallow Aquitard (D3)  
☒ FAC-Neutral Test (D5)  
☐ Raised Ant Mounds (D6) (**LRR A**)  
☐ Frost-Heave Hummocks (D7) (**LRR F**)

**Field Observations:**Surface Water Present? Yes ☐ No ☒

Depth (inches): -

Water Table Present? Yes ☐ No ☒

Depth (inches): -

Saturation Present? Yes ☒ No ☐  
(includes capillary fringe)

Depth (inches): 0

**Wetland Hydrology Present?** Yes ☒ No ☐

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

Aerial photographs.

Remarks: Source of hydrology is Eagle Rock Lake and some groundwater from the diversion channel (OW-ERL3).

# WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast

Project/Site: Questa Mine Remediation Removal Action City/County: Questa/Taos Sampling Date: 10-16-12  
 Applicant/Owner: Chevron Mining, Inc. State: NM Sampling Point: ERL-PFO  
 Investigator(s): J. Dawson/ S. Hall Section, Township, Range: T29N R13W S32  
 Landform (hillslope, terrace, etc.): Floodplain Local relief (concave, convex, none): Concave Slope (%): 1  
 Subregion (LRR): MLRA 39 - Arizona and New Mexico Mts. Lat: 36.703471 Long: -105.572715 Datum: NAD83  
 Soil Map Unit Name: Cumulic Haplaquolls, nearly level NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)  
 Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐  
 Are Vegetation ☐ Soil ☒ or Hydrology ☐ 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 <input checked="" type="radio"/>	No <input type="radio"/>	Is the Sampled Area within a Wetland?	Yes <input checked="" type="radio"/>	No <input type="radio"/>
Hydric Soil Present?	Yes <input checked="" type="radio"/>	No <input type="radio"/>			
Wetland Hydrology Present?	Yes <input checked="" type="radio"/>	No <input type="radio"/>			
Remarks: PSS/PFO wetland at and around the Eagle Rock Lake diversion channel (see surface water feature data sheet for OW-ERL3). Land rises to east; wetland characteristics drop out midway between the lake and the diversion channel headgate. Hydric soils not present; area appears to drop sediment.					

## VEGETATION - Use scientific names of plants.

Tree Stratum	Plot size:	Absolute % Cover	Dominant Species?	Indicator Status
1. <i>Populus angustifolia</i>	30 x 30	25	Yes	FACW
2. <i>Alnus incana</i>		10	Yes	FACW
3.				
4.				
		35	= Total Cover	
Sapling/Shrub Stratum Plot size: 30 x 30				
1. <i>Populus angustifolia</i>		30	Yes	FACW
2. <i>Alnus incana</i>		15	Yes	FACW
3. <i>Salix exigua</i>		15	Yes	FACW
4. <i>Betula occidentalis</i>		5	No	FACW
5. <i>Prunus virginiana</i>		2	No	FACU
		67	= Total Cover	
Herb Stratum Plot size 30 x 30				
1. <i>Phalaris arundinacea</i>		2	No	FACW
2. <i>Agrostis gigantea</i>		1	No	FAC
3. <i>Arctium minus</i>		1	No	UPL
4. <i>Epilobium ciliatum</i>		1	No	FACW
5. <i>Barbarea vulgaris</i>		1	No	FAC
6.				
7.				
8.				
9.				
10.				
		6	= Total Cover	
Woody Vine Stratum Plot size:				
1.				
2.				
			= Total Cover	
% Bare Ground in Herb Stratum %				

**Dominance Test worksheet:**

Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC-): 5 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0 % (A/B)

**Prevalence Index worksheet:**

Total % Cover of:	Multiply by:	
OBL species	x 1 =	0
FACW species	x 2 =	156
FAC species	x 3 =	6
FACU species	x 4 =	8
UPL species	x 5 =	5
Column Totals:		83 (A) 175 (B)
Prevalence Index = B/A =		2.11

**Hydrophytic Vegetation Indicators:**

☐ 1 - Rapid Test for Hydrophytic Vegetation

☒ 2 - Dominance Test is >50%

☒ 3 - Prevalence Index is ≤3.0<sup>1</sup>

☐ 4 - Morphological Adaptations<sup>1</sup>(Provide supporting data in Remarks or on a separate sheet)

☐ 5 - Wetland Non-Vascular Plants<sup>1</sup>

☐ Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)

<sup>1</sup>Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

**Hydrophytic Vegetation Present?** Yes ☒ No ☐

Remarks: Minors include *Heracleum maximum*, *Equisetum arvense*, *Cardamine cordifolia*, *Cirsium arvense*, *Leucanthemum vulgare*, *Maianthemum stellatum*, *Ratibida* sp., *Rumex altissimus*, *Saxifrage odontoloma*, *Urtica dioica*, *Viola* sp.  
 Kingfisher, junco, bushtit observed. Beaver cut alders.



## SOIL

Sampling Point: ERL-PFO

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0 - 2	10YR 3/2	100	-	-			SaLo	Roots
2 - 7	10YR 4/4	100	-	-			LoSa	Coarse sand - alluvium
7 - 15	10YR 6/4	30	7.5 YR 5/8	40	C	M	ClSi	
-	10YR 4/3	30	-					

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains<sup>2</sup>Location: PL=Pore Lining, M=Matrix**Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)**

- |  |  |
|--|--|
| <input type="checkbox"/> Histosol (A1)                     | <input type="checkbox"/> Sandy Redox (S5)                        |
| <input type="checkbox"/> Histic Epipedon (A2)              | <input type="checkbox"/> Stripped Matrix (S6)                    |
| <input type="checkbox"/> Black Histic (A3)                 | <input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA1) |
| <input type="checkbox"/> Hydrogen Sulfide (A4)             | <input type="checkbox"/> Loamy Gleyed Matrix (F2)                |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input checked="" type="checkbox"/> Depleted Matrix (F3)         |
| <input type="checkbox"/> Thick Dark Surface (A12)          | <input type="checkbox"/> Redox Dark Surface (F6)                 |
| <input type="checkbox"/> Sandy Mucky Mineral (S1)          | <input type="checkbox"/> Depleted Dark Surface (F7)              |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4)          | <input type="checkbox"/> Redox Depressions (F8)                  |

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- ☐ 2 cm Muck (A10)  
☐ Red Parent Material (TF2)  
☐ Very Shallow Dark Surface (TF12)  
☒ Other (Explain in Remarks)

<sup>3</sup> 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 ☐

Remarks: Alternating layers of coarse gravel and clay.  
 Vegetation at pit: Alnus incana, Barbarea vulgaris.  
 Problematic hydric soil - vegetated sand and gravel bar.

## HYDROLOGY

**Wetland Hydrology Indicators:**

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

- |  |  |
|--|--|
| <input type="checkbox"/> Surface Water (A1)                        | <input checked="" type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4a, and 4b) |
| <input type="checkbox"/> High Water Table (A2)                     | <input type="checkbox"/> Salt Crust (B11)  |
| <input type="checkbox"/> Saturation (A3)                           | <input type="checkbox"/> Aquatic Invertebrates (B13)   |
| <input type="checkbox"/> Water Marks (B1)                          | <input type="checkbox"/> Hydrogen Sulfide Odor (C1)  |
| <input type="checkbox"/> Sediment Deposits (B2)                    | <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)                          |
| <input type="checkbox"/> Drift Deposits (B3)                       | <input type="checkbox"/> Presence of Reduced Iron (C4)                                       |
| <input type="checkbox"/> Algal Mat or Crust (B4)                   | <input type="checkbox"/> Recent Iron Reductions in Tilled Soils (C6)                         |
| <input type="checkbox"/> Iron Deposits (B5)                        | <input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)                             |
| <input type="checkbox"/> Surface Soil Cracks (B6)                  | <input type="checkbox"/> Other (Explain in Remarks)  |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) |  |
| <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)   |  |

Secondary Indicators (minimum of two required)

- ☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4a, and 4b)  
☒ Drainage Patterns (B10)  
☐ Dry-Season Water Table (C2)  
☐ Saturation Visible on Aerial Imagery (C9)  
☐ Geomorphic Position (D2)  
☐ Shallow Aquitard (D3)  
☐ FAC-Neutral Test (D5)  
☐ Raised Ant Mounds (D6) (LRR A)  
☐ Frost-Heave Hummocks (D7) (LRR F)

**Field Observations:**Surface Water Present? Yes ☐ No ☒ Depth (inches): \_\_\_\_\_Water Table Present? Yes ☐ No ☒ Depth (inches): \_\_\_\_\_Saturation Present? Yes ☐ No ☒ Depth (inches): \_\_\_\_\_  
 (includes capillary fringe)**Wetland Hydrology Present?** Yes ☒ No ☐

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

NHD shows diversion channel.

Remarks: Dry season delineation. Lower areas in the wetland are saturated.

Also see OW-ERL-3.

# WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast

Project/Site: Questa Mine Remediation Removal Action City/County: Questa/Taos Sampling Date: 10-16-12  
 Applicant/Owner: Chevron Mining, Inc. State: NM Sampling Point: ERL-UP  
 Investigator(s): J. Dawson/ S. Hall Section, Township, Range: T29N R13W S32  
 Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Hillslope Slope (%): 45  
 Subregion (LRR): MLRA 39 - Arizona and New Mexico Mts. Lat: 36.703167 Long: -105.57263 Datum: NAD83  
 Soil Map Unit Name: Cumulic Haplaquolls, nearly level NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)  
 Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐  
 Are Vegetation ☐ Soil ☐ or Hydrology ☐ 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 <input type="radio"/> No <input checked="" type="radio"/>	Is the Sampled Area within a Wetland?	Yes <input type="radio"/> No <input checked="" type="radio"/>
Hydric Soil Present?	Yes <input type="radio"/> No <input checked="" type="radio"/>		
Wetland Hydrology Present?	Yes <input type="radio"/> No <input checked="" type="radio"/>		
Remarks: <u>Upland soil pit for ERL-PEM and ERL-PFO. Point taken on side slope south of wetland and diversion channel.</u>			

## VEGETATION - Use scientific names of plants.

Tree Stratum	Plot size:	Absolute % Cover	Dominant Species?	Indicator Status
1. <i>Pinus ponderosa</i>		10	Yes	FACU
2. <i>Populus angustifolia</i>		1	No	FACW
3. <i>Juniperus scopularum</i>		2	No	Not Listed
4.				
		13	= Total Cover	
Sapling/Shrub Stratum	Plot size:			
1. <i>Fallugia paradoxa</i>		35	Yes	Not Listed
2. <i>Rhus aromatica</i>		1	No	UPL
3. <i>Quercus gambellii</i>		1	No	Not Listed
4. <i>Pinus edulis</i>		1	No	Not Listed
5. <i>Rosa woodsii</i>		2	No	FACU
		40	= Total Cover	
Herb Stratum	Plot size:			
1. <i>Bromus inermis</i>		15	Yes	FACU
2. <i>Chrysopsis villosa</i>		1	No	Not Listed
3. <i>Thinopyrum intermedium</i>		1	No	Not Listed
4. <i>Lupinus argenteus</i>		5	No	Not Listed
5. <i>Carex sp.</i>		1	No	
6. <i>Cirsium sp.</i>		1	No	
7.				
8.				
9.				
10.				
		24	= Total Cover	
Woody Vine Stratum	Plot size:			
1.				
2.				
			= Total Cover	
% Bare Ground in Herb Stratum <u>76 %</u>				

**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: 0.0 % (A/B)

**Prevalence Index worksheet:**

Total % Cover of:	Multiply by:	
OBL species	x 1 =	0
FACW species	x 2 =	2
FAC species	x 3 =	0
FACU species	x 4 =	72
UPL species	x 5 =	45
Column Totals:		119 (B)

Prevalence Index = B/A = 4.25

**Hydrophytic Vegetation Indicators:**

☐ 1 - Rapid Test for Hydrophytic Vegetation

☒ 2 - Dominance Test is >50%

☒ 3 - Prevalence Index is ≤3.0<sup>1</sup>

☐ 4 - Morphological Adaptations<sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)

☐ 5 - Wetland Non-Vascular Plants<sup>1</sup>

☐ Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)

<sup>1</sup>Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

**Hydrophytic Vegetation Present?** Yes ☐ No ☒

Remarks: Minors include Antennaria sp. Evidence of beaver damage. Bare ground is rock and litter.

## SOIL

Sampling Point: ERL-UP

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

[illegible]

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains

<sup>2</sup>Location: PL=Pore Lining, M=Matrix

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

- |  |   |
|--|---|
| <input type="checkbox"/> Histosol (A1)                     | <input type="checkbox"/> Sandy Redox (S5)                               |
| <input type="checkbox"/> Histic Epipedon (A2)              | <input type="checkbox"/> Stripped Matrix (S6)                           |
| <input type="checkbox"/> Black Histic (A3)                 | <input type="checkbox"/> Loamy Mucky Mineral (F1) <b>(except MLRA1)</b> |
| <input type="checkbox"/> Hydrogen Sulfide (A4)             | <input type="checkbox"/> Loamy Gleyed Matrix (F2)                       |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Matrix (F3)                           |
| <input type="checkbox"/> Thick Dark Surface (A12)          | <input type="checkbox"/> Redox Dark Surface (F6)                        |
| <input type="checkbox"/> Sandy Mucky Mineral (S1)          | <input type="checkbox"/> Depleted Dark Surface (F7)                     |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4)          | <input type="checkbox"/> Redox Depressions (F8)                         |

### Indicators for Problematic Hydric Soils<sup>3</sup>:

- ☐ 2 cm Muck (A10)  
☐ Red Parent Material (TF2)  
☐ Very Shallow Dark Surface (TF12)  
☐ Other (Explain in Remarks)

<sup>3</sup> 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 ☒

Remarks: Barren at pit.

## HYDROLOGY

### Wetland Hydrology Indicators:

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

- |  |  |
|--|--|
| <input type="checkbox"/> Surface Water (A1)                        | <input type="checkbox"/> Water-Stained Leaves (B9) <b>(except MLRA 1, 2, 4a, and 4b)</b> |
| <input type="checkbox"/> High Water Table (A2)                     |  |
| <input type="checkbox"/> Saturation (A3)                           | <input type="checkbox"/> Salt Crust (B11)  |
| <input type="checkbox"/> Water Marks (B1)                          | <input type="checkbox"/> Aquatic Invertebrates (B13)                                     |
| <input type="checkbox"/> Sediment Deposits (B2)                    | <input type="checkbox"/> Hydrogen Sulfide Odor (C1)                                      |
| <input type="checkbox"/> Drift Deposits (B3)                       | <input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)                      |
| <input type="checkbox"/> Algal Mat or Crust (B4)                   | <input type="checkbox"/> Presence of Reduced Iron (C4)                                   |
| <input type="checkbox"/> Iron Deposits (B5)                        | <input type="checkbox"/> Recent Iron Reductions in Tilled Soils (C6)                     |
| <input type="checkbox"/> Surface Soil Cracks (B6)                  | <input type="checkbox"/> Stunted or Stressed Plants (D1) <b>(LRR A)</b>                  |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Other (Explain in Remarks)                                      |
| <input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)   |  |

Secondary Indicators (minimum of two required)

- ☐ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4a, and 4b**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Geomorphic Position (D2)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)
- ☐ Raised Ant Mounds (D6) (**LRR A**)
- ☐ Frost-Heave Hummocks (D7) (**LRR F**)

**Field Observations:**

Surface Water Present?      Yes ☐      No ☒

Water Table Present? Yes ☐ No ☒

Saturation Present? Yes ☐ No ☒  
(includes capillary fringe)

**Wetland Hydrology Present?** Yes ☐ No ☒

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

Aerial photographs.

Remarks: No hydrologic indicator. Pit located approximately 10 feet vertically above ERL-PFO.



<b>Surface Waters Features Data Sheet</b>	
Project -	Questa Mine Remediation Removal Action
Date -	Tuesday, October 16, 2012
Investigators -	J. Dawson/ S. Hall
Area ID -	OW-ERL1 (Eagle Rock Lake)
Centerpoint coordinates -	36.7034/-105.5742
HUC -	13020101
Land Use -	Recreation
<b>Physical</b>	
Type of feature (pond or stream)-	Pond
Source-	Red River
Connectivity -	Red River
Water Clarity (clear, murky, turbid)-	Cloudy
Water Color (if obvious)-	Turquoise
<b>For Streams Only</b>	
Average Width of OHWM (bankfull)-	N/A
Average observed width-	N/A
Bankfull depth-	N/A
Observed Depth-	N/A
Bank Slope (X:X) (on each side if different - use N/S or E/W)-	N/A
Evidence of undercutting or excessive erosion-	N/A
Occurance of riffle-pool-run complexes (Natural hydro only)-	N/A
Channelized or meandering (Natural hydro only)-	
Bed substrate composition-	N/A
Velocity (slow, moderate, fast)-	N/A
Flow Direction (to)-	N/A
<b>For Ponds Only</b>	
Inlet/Outlet present?	Yes, inlet is diversion channel from Red River.
Restricted outlet?	Yes, outlets to Red River through culvert.
<b>Biological</b>	
Percent estimated bank cover-	80, discontinuous fringe around feature
Bank vegetation (dominant species/if associated with wetland refer to data sheet)-	See wetland data sheet WL-ERL-PEM
Aquatic vegetation present (Y/N, list species if known)-	No
Percent overstory (amount hanging over the channel, streams only)-	0
Evidence of rafted/submerged large woody debris-	No
Evidence of other rafting (smaller debris, etc.)-	No
Aquatic or terrestrial wildlife present (list species)-	Kingfisher, beaver lodge
Notes: Outlet plugged by beaver activity.	

<b>Surface Waters Features Data Sheet</b>	
Project -	Questa Mine Remediation Removal Action
Date -	Tuesday, October 16, 2012
Investigators -	J. Dawson/ S. Hall
Area ID -	OW-ERL2 (Red River)
Centerpoint coordinates -	36.7030/-105.5751
HUC -	13020101
Land Use -	Recreation
<b>Physical</b>	
Type of feature (pond or stream)-	Stream
Source-	Confluence of several high altitude Sangre de Christo streams
Connectivity -	Rio Grande
Water Clarity (clear, murky, turbid)-	Slightly cloudy
Water Color (if obvious)-	N/A
<b>For Streams Only</b>	
Average Width of OHWM (bankfull)-	18', widens to 20' at southern end of Study Area
Average observed width-	15'
Bankfull depth-	18 to 24"
Observed Depth-	6-18"
Bank Slope (X:X) (on each side if different - use N/S or E/W)-	1:8
Evidence of undercutting or excessive erosion-	In places. More evident upstream near diversion.
Occurance of riffle-pool-run complexes (Natural hydro only)-	some human made obstructions, and a beaver dam. More pronounced downstream of Study Area.
Channelized or meandering (Natural hydro only)-	Slight meandering.
Bed substrate composition-	Cobble
Velocity (slow, moderate, fast)-	Moderate flow adjacent to lake, slows below beaver dam.
Flow Direction (to)-	West
<b>For Ponds Only</b>	
Inlet/Outlet present?	N/A
Restricted outlet?	N/A
<b>Biological</b>	
Percent estimated bank cover-	70
Bank vegetation (dominant species/if associated with wetland refer to data sheet)-	<i>Alnus</i> sp., <i>Bromus inermis</i> , <i>Populus angustifolia</i>
Aquatic vegetation present (Y/N, list species if known)-	No
Percent overstory (amount hanging over the channel, streams only)-	10, predominantly south of beaver dam
Evidence of rafted/submerged large woody debris-	Yes
Evidence of other rafting (smaller debris, etc.)-	Yes
Aquatic or terrestrial wildlife present (list species)-	Kingfisher, beaver dam
Notes: It appears that the channel may have been diverted when Eagle Rock Lake was constructed. This reach is distinctly different from the channel above the lake and again below the bridge. Flows are higher and the channel sides appear to be cut deep into the substrate.	

<b>Surface Waters Features Data Sheet</b>	
Project -	Questa Mine Remediation Removal Action
Date -	Tuesday, October 16, 2012
Investigators -	J. Dawson/ S. Hall
Area ID -	OW-ERL3 (Eagle Rock Lake Diversion Ditch)
Centerpoint coordinates -	36.7035/-105.5725
HUC -	13020101
Land Use -	Recreation
<b>Physical</b>	
Type of feature (pond or stream)-	Stream
Source-	Red River
Connectivity -	Eagle Rock Lake
Water Clarity (clear, murky, turbid)-	Milky (dissolved aluminum)
Water Color (if obvious)-	None
<b>For Streams Only</b>	
Average Width of OHWM (bankfull)-	2 feet
Average observed width-	2 feet, widens to 6 feet at inlet to lake
Bankfull depth-	18 inches
Observed Depth-	12 inches
Bank Slope (X:X) (on each side if different - use N/S or E/W)-	1:1 sloping to level at confluence
Evidence of undercutting or excessive erosion-	No
Occurance of riffle-pool-run complexes (Natural hydro only)-	N/A
Channelized or meandering (Natural hydro only)-	N/A
Bed substrate composition-	Unconsolidated
Velocity (slow, moderate, fast)-	Slow
Flow Direction (to)-	West
<b>For Ponds Only</b>	
Inlet/Outlet present?	
Restricted outlet?	
<b>Biological</b>	
Percent estimated bank cover-	100
Bank vegetation (dominant species/if associated with wetland refer to data sheet)-	<i>Alnus</i> sp., also see wetland data sheet WL-ERL-PFO
Aquatic vegetation present (Y/N, list species if known)-	No
Percent overstory (amount hanging over the channel, streams only)-	100
Evidence of rafted/submerged large woody debris-	No
Evidence of other rafting (smaller debris, etc.)-	No
Aquatic or terrestrial wildlife present (list species)-	None
Notes: Wetland vegetation emerges when banks reach lake elevation.	



# WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Questa Mine Remediation Removal Action City/County: Questa/Taos Sampling Date: 10-17-2012  
 Applicant/Owner: Chevron Mining, Inc. State: NM Sampling Point: EDC-1  
 Investigator(s): J. Dawson/ S. Hall Section, Township, Range: T29N R12W S25, 36  
 Landform (hillslope, terrace, etc.): Constructed channel Local relief (concave, convex, none): None Slope (%): <1  
 Subregion (LRR): D - Interior Deserts Lat: 36.708668 Long: -105.609575 Datum: NAD83  
 Soil Map Unit Name: FfC, SED, SmB NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)  
 Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐  
 Are Vegetation ☐ Soil ☒ or Hydrology ☐ 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 <input checked="" type="radio"/>	No <input type="radio"/>	Is the Sampled Area within a Wetland?	Yes <input checked="" type="radio"/>	No <input type="radio"/>
Hydric Soil Present?	Yes <input checked="" type="radio"/>	No <input type="radio"/>			
Wetland Hydrology Present?	Yes <input checked="" type="radio"/>	No <input type="radio"/>			
Remarks: PEM wetland within a constructed channel. <i>Salix exigua</i> occurs as a minor distinct community along channel edges. Portions of the ditch were inundated and evidence of inundation is present during the growing season through plant remnants, shells, and previous aerial photos. Hydric soils not present within this feature.					

## VEGETATION - Use scientific names of plants.

Tree Stratum	Plot size: <u>N/A</u>	Absolute % Cover	Dominant Species?	Indicator Status	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100.0 %</u> (A/B)																								
1.																													
2.																													
3.																													
4.																													
Sapling/Shrub Stratum Plot size: _____			= Total Cover		<b>Prevalence Index worksheet:</b> <table border="1"> <thead> <tr> <th>Total % Cover of:</th> <th colspan="2">Multiply by:</th> </tr> </thead> <tbody> <tr> <td>OBL species <u>32</u></td> <td>x 1 =</td> <td><u>32</u></td> </tr> <tr> <td>FACW species <u>12</u></td> <td>x 2 =</td> <td><u>24</u></td> </tr> <tr> <td>FAC species <u>35</u></td> <td>x 3 =</td> <td><u>105</u></td> </tr> <tr> <td>FACU species _____</td> <td>x 4 =</td> <td><u>0</u></td> </tr> <tr> <td>UPL species _____</td> <td>x 5 =</td> <td><u>0</u></td> </tr> <tr> <td>Column Totals: <u>79</u></td> <td>(A)</td> <td><u>161</u> (B)</td> </tr> <tr> <td colspan="3">Prevalence Index = B/A = <u>2.04</u></td> </tr> </tbody> </table>	Total % Cover of:	Multiply by:		OBL species <u>32</u>	x 1 =	<u>32</u>	FACW species <u>12</u>	x 2 =	<u>24</u>	FAC species <u>35</u>	x 3 =	<u>105</u>	FACU species _____	x 4 =	<u>0</u>	UPL species _____	x 5 =	<u>0</u>	Column Totals: <u>79</u>	(A)	<u>161</u> (B)	Prevalence Index = B/A = <u>2.04</u>		
Total % Cover of:	Multiply by:																												
OBL species <u>32</u>	x 1 =	<u>32</u>																											
FACW species <u>12</u>	x 2 =	<u>24</u>																											
FAC species <u>35</u>	x 3 =	<u>105</u>																											
FACU species _____	x 4 =	<u>0</u>																											
UPL species _____	x 5 =	<u>0</u>																											
Column Totals: <u>79</u>	(A)	<u>161</u> (B)																											
Prevalence Index = B/A = <u>2.04</u>																													
1.																													
2.																													
3.																													
4.																													
5.																													
Herb Stratum Plot size: <u>100 x 60</u>			= Total Cover		<b>Hydrophytic Vegetation Indicators:</b> <input checked="" type="checkbox"/> Dominance Test is >50% <input checked="" type="checkbox"/> Prevalence Index is ≤3.0 <sup>1</sup> <input type="checkbox"/> Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)  <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present.  <b>Hydrophytic Vegetation Present?</b> Yes <input checked="" type="radio"/> No <input type="radio"/>																								
1. <i>Hordeum jubatum</i>	<u>35</u>	Yes	FAC																										
2. <i>Typha angustifolia</i>	<u>25</u>	Yes	OBL																										
3. <i>Rumex salicifolius</i>	<u>12</u>	No	FACW																										
4. <i>Rorippa curvipes</i>	<u>4</u>	No	OBL																										
5. <i>Carex nebrascensis</i>	<u>2</u>	No	OBL																										
6. <i>Eleocharis palustris</i>	<u>1</u>	No	OBL																										
7.																													
8.																													
9.																													
10.																													
Woody Vine Stratum Plot size: <u>N/A</u>			= Total Cover																										
1.																													
2.																													
			= Total Cover																										
% Bare Ground in Herb Stratum <u>21 %</u>		% Cover of Biotic Crust _____ %																											

Remarks: *Salix exigua* and scattered *Populus* spp. occurs up both slopes into non-wetland areas. Willows on east edge of channel are clearly out of the wetland. Willows on west side occur approx. 1 foot into the wetland. PEM vegetation is dominant. Minors include *Beckmannia syzigachne*, *Conyza canadensis*, *Epilobium ciliatum*, *Heliathus annuus*, *Mentha arvensis*, *Polygonum ramosissimum*.

## SOIL

Sampling Point: EDC-1

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0 - 0.5	10YR 3/2	100	-	-			Gravels	Organic, fibrous, shells
0.5 - 3	7.5 YR 5/3	100	-	-			GrSaCl	
3 - 14	7.5 YR 5/3	96	7.5 YR 4/6	2	C	M	GrSaCl	
			5YR 4/6	2	C	M		

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix. <sup>2</sup>Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

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

- |  |   |
|--|---|
| <input type="checkbox"/> Histosol (A1)                     | <input type="checkbox"/> Sandy Redox (S5)           |
| <input type="checkbox"/> Histic Epipedon (A2)              | <input type="checkbox"/> Stripped Matrix (S6)       |
| <input type="checkbox"/> Black Histic (A3)                 | <input type="checkbox"/> Loamy Mucky Mineral (F1)   |
| <input type="checkbox"/> Hydrogen Sulfide (A4)             | <input type="checkbox"/> Loamy Gleyed Matrix (F2)   |
| <input type="checkbox"/> Stratified Layers (A5) (LRR C)    | <input type="checkbox"/> Depleted Matrix (F3)       |
| <input type="checkbox"/> 1 cm Muck (A9) (LRR D)            | <input type="checkbox"/> Redox Dark Surface (F6)    |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Dark Surface (F7) |
| <input type="checkbox"/> Thick Dark Surface (A12)          | <input type="checkbox"/> Redox Depressions (F8)     |
| <input type="checkbox"/> Sandy Mucky Mineral (S1)          | <input type="checkbox"/> Vernal Pools (F9)          |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4)          |   |

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- ☐ 1 cm Muck (A9) (LRR C)  
☐ 2 cm Muck (A10) (LRR B)  
☐ Reduced Vertic (F18)  
☐ Red Parent Material (TF2)  
☒ Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present.

**Restrictive Layer (if present):**

Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

**Hydric Soil Present?** Yes ☒ No ☐

Remarks: Marginal hydric soils. Vegetation at pit: *Hordeum jubatum*  
 Problematic soil - recently developed/seasonally flooded (based on historic photos).

## HYDROLOGY

**Wetland Hydrology Indicators:**Primary Indicators (any one indicator is sufficient)

- |  |  |
|--|--|
| <input checked="" type="checkbox"/> Surface Water (A1)             | <input checked="" type="checkbox"/> Salt Crust (B11)                   |
| <input type="checkbox"/> High Water Table (A2)                     | <input type="checkbox"/> Biotic Crust (B12)                            |
| <input type="checkbox"/> Saturation (A3)                           | <input checked="" type="checkbox"/> Aquatic Invertebrates (B13)        |
| <input type="checkbox"/> Water Marks (B1) (Nonriverine)            | <input type="checkbox"/> Hydrogen Sulfide Odor (C1)                    |
| <input type="checkbox"/> Sediment Deposits (B2) (Nonriverine)      | <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) |
| <input type="checkbox"/> Drift Deposits (B3) (Nonriverine)         | <input type="checkbox"/> Presence of Reduced Iron (C4)                 |
| <input type="checkbox"/> Surface Soil Cracks (B6)                  | <input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6)    |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Thin Muck Surface (C7)                        |
| <input type="checkbox"/> Water-Stained Leaves (B9)                 | <input type="checkbox"/> Other (Explain in Remarks)                    |

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (Riverine)  
☐ Sediment Deposits (B2) (Riverine)  
☐ Drift Deposits (B3) (Riverine)  
☐ Drainage Patterns (B10)  
☒ Dry-Season Water Table (C2)  
☐ Crayfish Burrows (C8)  
☒ Saturation Visible on Aerial Imagery (C9)  
☐ Shallow Aquitard (D3)  
☐ FAC-Neutral Test (D5)

**Field Observations:**

Surface Water Present?	Yes <input checked="" type="radio"/> No <input type="radio"/>	Depth (inches): 1.5
Water Table Present?	Yes <input checked="" type="radio"/> No <input type="radio"/>	Depth (inches): 11
Saturation Present? (includes capillary fringe)	Yes <input checked="" type="radio"/> No <input type="radio"/>	Depth (inches): 0

**Wetland Hydrology Present?** Yes ☒ No ☐

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

Remarks: Three species of gastropod present in surface layer.

Flat sided construction channel approx. 60' wide. No evidence of directional flow. West side - 3-4' wide vegetated ditch inundated to 6" with standing water. ditch appears slightly elevated. Approx. 35 percent standing water 1-2" deep near soil pit. More inundation on the eastern side of the channel then on the west. Previous aerial photographs show this feature to be completely inundated in previous years.

# WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Questa Mine Remediation Removal Action City/County: Questa/Taos Sampling Date: 10-17-2012  
 Applicant/Owner: Chevron Mining, INC. State: NM Sampling Point: EDC-1-UP  
 Investigator(s): J. Dawson/ S. Hall Section, Township, Range: T29N R12W S36  
 Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%):   
 Subregion (LRR): D - Interior Deserts Lat: 36.708926 Long: -105.609871 Datum: NAD83  
 Soil Map Unit Name: Ffc, Sep, SmB NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)  
 Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐  
 Are Vegetation ☐ Soil ☐ or Hydrology ☐ 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 <input type="radio"/> No <input checked="" type="radio"/>	Is the Sampled Area within a Wetland?	Yes <input type="radio"/> No <input checked="" type="radio"/>
Hydric Soil Present?	Yes <input type="radio"/> No <input checked="" type="radio"/>		
Wetland Hydrology Present?	Yes <input type="radio"/> No <input checked="" type="radio"/>		
Remarks: Upland soil pit for EDC-1. Terrace on east side of tailings facility at about same elevation as the opposite top of bank of the Eastern Diversion Channel. Greater than 1:1 slope to channel bottom.			

## VEGETATION - Use scientific names of plants.

Tree Stratum	Plot size:	Absolute % Cover	Dominant Species?	Indicator Status
1.				
2.				
3.				
4.				
			= Total Cover	
Sapling/Shrub Stratum Plot size: <u>25 x 25</u>				
1. <i>Artemisia tridentata</i>		28	Yes	Not Listed
2. <i>Ericameria nauseosus</i>		5	No	Not Listed
3.				
4.				
5.				
		33	= Total Cover	
Herb Stratum Plot size:				
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
			= Total Cover	
Woody Vine Stratum Plot size:				
1.				
2.				
			= Total Cover	
% Bare Ground in Herb Stratum <u>96 %</u>		% Cover of Biotic Crust <u>1 %</u>		
Remarks: Artemisia tridentata to 4 feet tall. Minors include Achnatherum hymenoides, Agropyron cristatum, Elymus elymoides, Juniperus monosperma, Heterotheca villosa, Medicago sativa, Sporobolus cryptandrus, Thinopyrum intermedium. One cryptogamic crust community.				

### Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0 % (A/B)

### Prevalence Index worksheet:

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

Prevalence Index = B/A =

### Hydrophytic Vegetation Indicators:

☒ Dominance Test is >50%

☒ Prevalence Index is ≤3.0<sup>1</sup>

☐ Morphological Adaptations<sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)

<sup>1</sup>Indicators of hydric soil and wetland hydrology must be present.

### Hydrophytic Vegetation Present?

Yes ☐ No ☒



## SOIL

Sampling Point: EDC-1-1

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0 - 14	7.5 YR 5/3	100	-	-			GrSi	Alluvium - cobbles

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix. <sup>2</sup>Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

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

- |  |   |
|--|---|
| <input type="checkbox"/> Histosol (A1)                           | <input type="checkbox"/> Sandy Redox (S5)           |
| <input type="checkbox"/> Histic Epipedon (A2)                    | <input type="checkbox"/> Stripped Matrix (S6)       |
| <input type="checkbox"/> Black Histic (A3)                       | <input type="checkbox"/> Loamy Mucky Mineral (F1)   |
| <input type="checkbox"/> Hydrogen Sulfide (A4)                   | <input type="checkbox"/> Loamy Gleyed Matrix (F2)   |
| <input type="checkbox"/> Stratified Layers (A5) ( <b>LRR C</b> ) | <input type="checkbox"/> Depleted Matrix (F3)       |
| <input type="checkbox"/> 1 cm Muck (A9) ( <b>LRR D</b> )         | <input type="checkbox"/> Redox Dark Surface (F6)    |
| <input type="checkbox"/> Depleted Below Dark Surface (A11)       | <input type="checkbox"/> Depleted Dark Surface (F7) |
| <input type="checkbox"/> Thick Dark Surface (A12)                | <input type="checkbox"/> Redox Depressions (F8)     |
| <input type="checkbox"/> Sandy Mucky Mineral (S1)                | <input type="checkbox"/> Vernal Pools (F9)          |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4)                |   |

**Indicators for Problematic Hydric Soils:<sup>3</sup>**

- ☐ 1 cm Muck (A9) (**LRR C**)  
☐ 2 cm Muck (A10) (**LRR B**)  
☐ Reduced Vertic (F18)  
☐ Red Parent Material (TF2)  
☐ Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present.

**Restrictive Layer (if present):**

Type: \_\_\_\_\_

Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes ☐ No ☒

Remarks: No indicators. Numerous cobbles in soil pit.

## HYDROLOGY

**Wetland Hydrology Indicators:**Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)  
☐ High Water Table (A2)  
☐ Saturation (A3)  
☐ Water Marks (B1) (**Nonriverine**)  
☐ Sediment Deposits (B2) (**Nonriverine**)  
☐ Drift Deposits (B3) (**Nonriverine**)  
☐ Surface Soil Cracks (B6)  
☐ Inundation Visible on Aerial Imagery (B7)  
☐ Water-Stained Leaves (B9)

- ☐ Salt Crust (B11)  
☐ Biotic Crust (B12)  
☐ Aquatic Invertebrates (B13)  
☐ Hydrogen Sulfide Odor (C1)  
☐ Oxidized Rhizospheres along Living Roots (C3)  
☐ Presence of Reduced Iron (C4)  
☐ Recent Iron Reduction in Plowed Soils (C6)  
☐ Thin Muck Surface (C7)  
☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)  
☐ Sediment Deposits (B2) (**Riverine**)  
☐ Drift Deposits (B3) (**Riverine**)  
☐ Drainage Patterns (B10)  
☐ Dry-Season Water Table (C2)  
☐ Crayfish Burrows (C8)  
☐ Saturation Visible on Aerial Imagery (C9)  
☐ Shallow Aquitard (D3)  
☐ FAC-Neutral Test (D5)

**Field Observations:**Surface Water Present? Yes ☐ No ☒

Depth (inches): \_\_\_\_\_

Water Table Present? Yes ☐ No ☒

Depth (inches): \_\_\_\_\_

Saturation Present? (includes capillary fringe) Yes ☐ No ☒

Depth (inches): \_\_\_\_\_

Wetland Hydrology Present? Yes ☐ No ☒

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

None.

Remarks: No hydrologic indicators present.

# WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Questa Mine Remediation Removal Action City/County: Questa/Taos Sampling Date: 10-17-2012  
 Applicant/Owner: Chevron Mining, Inc. State: NM Sampling Point: EDC-2  
 Investigator(s): J. Dawson/ S. Hall Section, Township, Range: T29N R12W S36  
 Landform (hillslope, terrace, etc.): Constructed channel Local relief (concave, convex, none): None Slope (%): <1  
 Subregion (LRR): D - Interior Deserts Lat: 36.707669 Long: -105.609874 Datum: NAD 83  
 Soil Map Unit Name: Sedillo-Silva association, strongly sloping NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)  
 Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☐ No ☒  
 Are Vegetation ☐ Soil ☒ or Hydrology ☐ 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 <input checked="" type="radio"/>	No <input type="radio"/>	Is the Sampled Area within a Wetland?	Yes <input checked="" type="radio"/>	No <input type="radio"/>
Hydric Soil Present?	Yes <input checked="" type="radio"/>	No <input type="radio"/>			
Wetland Hydrology Present?	Yes <input checked="" type="radio"/>	No <input type="radio"/>			
Remarks: Continuation of EDC-1. Willow community extends along edges of channel with salt deposits, algal mats and shells on channel floor. Aerial photographs show area to be inundated or regularly ponded. Severe extended drought in region, but recent precipitation may explain inundation. Soils have not fully developed hydric characteristics.					

## VEGETATION - Use scientific names of plants.

Tree Stratum	Plot size:	Absolute % Cover	Dominant Species?	Indicator Status	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100.0 %</u> (A/B)																					
1.																										
2.																										
3.																										
4.																										
Sapling/Shrub Stratum Plot size:		<u>8</u> = Total Cover			<b>Prevalence Index worksheet:</b> <table border="1"> <thead> <tr> <th>Total % Cover of:</th> <th>Multiply by:</th> <th></th> </tr> </thead> <tbody> <tr> <td>OBL species <u>3</u></td> <td>x 1 =</td> <td><u>3</u></td> </tr> <tr> <td>FACW species <u>24</u></td> <td>x 2 =</td> <td><u>48</u></td> </tr> <tr> <td>FAC species <u>37</u></td> <td>x 3 =</td> <td><u>111</u></td> </tr> <tr> <td>FACU species</td> <td>x 4 =</td> <td><u>0</u></td> </tr> <tr> <td>UPL species <u>1</u></td> <td>x 5 =</td> <td><u>5</u></td> </tr> <tr> <td>Column Totals: <u>65</u></td> <td>(A)</td> <td><u>167</u> (B)</td> </tr> </tbody> </table> Prevalence Index = B/A = <u>2.57</u>	Total % Cover of:	Multiply by:		OBL species <u>3</u>	x 1 =	<u>3</u>	FACW species <u>24</u>	x 2 =	<u>48</u>	FAC species <u>37</u>	x 3 =	<u>111</u>	FACU species	x 4 =	<u>0</u>	UPL species <u>1</u>	x 5 =	<u>5</u>	Column Totals: <u>65</u>	(A)	<u>167</u> (B)
Total % Cover of:	Multiply by:																									
OBL species <u>3</u>	x 1 =	<u>3</u>																								
FACW species <u>24</u>	x 2 =	<u>48</u>																								
FAC species <u>37</u>	x 3 =	<u>111</u>																								
FACU species	x 4 =	<u>0</u>																								
UPL species <u>1</u>	x 5 =	<u>5</u>																								
Column Totals: <u>65</u>	(A)	<u>167</u> (B)																								
1. <i>Salix exigua</i>		<u>8</u>	Yes	FACW																						
2.																										
3.																										
4.																										
5.																										
Herb Stratum Plot size: <u>60 x 100</u>		<u>8</u> = Total Cover			<b>Hydrophytic Vegetation Indicators:</b> <input checked="" type="checkbox"/> Dominance Test is >50% <input checked="" type="checkbox"/> Prevalence Index is ≤3.0 <sup>1</sup> <input type="checkbox"/> Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)  <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present.																					
1. <i>Hordeum jubatum</i>		<u>35</u>	Yes	FAC																						
2. <i>Rorippa curvipes</i>		<u>15</u>	Yes	FACW																						
3. <i>Rumex triangularis</i>		<u>1</u>	No	FACW																						
4. <i>Polygonum ramosissimum</i>		<u>2</u>	No	FAC																						
5. <i>Koeleria macrantha</i>		<u>1</u>	No	Not Listed																						
6. <i>Typha angustifolia</i>		<u>1</u>	No	OBL																						
7. <i>Eleocharis obtusa</i>		<u>2</u>	No	OBL																						
8.																										
9.																										
10.																										
Woody Vine Stratum Plot size: <u>N/A</u>		<u>57</u> = Total Cover			<b>Hydrophytic Vegetation Present?</b> Yes <input checked="" type="radio"/> No <input type="radio"/>																					
1.																										
2.																										
% Bare Ground in Herb Stratum <u>45 %</u>		% Cover of Biotic Crust <u>      </u> %																								
Remarks: Relatively sparsely vegetated area. Biotic crust was dry, later determined to be an <i>Eleocharis obtusa</i> . Minors include <i>Beckmannia syzigachne</i> , <i>Chenopodium glaucum</i> .																										

## SOIL

Sampling Point: EDC-2

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0 - 1	10YR 8/2	100	-	-			Si	
1 - 14	7.5YR 5/6	100	-	-			See Remarks	Cobbly gravelly silt

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix. <sup>2</sup>Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

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

- |  |   |
|--|---|
| <input type="checkbox"/> Histosol (A1)                           | <input type="checkbox"/> Sandy Redox (S5)           |
| <input type="checkbox"/> Histic Epipedon (A2)                    | <input type="checkbox"/> Stripped Matrix (S6)       |
| <input type="checkbox"/> Black Histic (A3)                       | <input type="checkbox"/> Loamy Mucky Mineral (F1)   |
| <input type="checkbox"/> Hydrogen Sulfide (A4)                   | <input type="checkbox"/> Loamy Gleyed Matrix (F2)   |
| <input type="checkbox"/> Stratified Layers (A5) ( <b>LRR C</b> ) | <input type="checkbox"/> Depleted Matrix (F3)       |
| <input type="checkbox"/> 1 cm Muck (A9) ( <b>LRR D</b> )         | <input type="checkbox"/> Redox Dark Surface (F6)    |
| <input type="checkbox"/> Depleted Below Dark Surface (A11)       | <input type="checkbox"/> Depleted Dark Surface (F7) |
| <input type="checkbox"/> Thick Dark Surface (A12)                | <input type="checkbox"/> Redox Depressions (F8)     |
| <input type="checkbox"/> Sandy Mucky Mineral (S1)                | <input type="checkbox"/> Vernal Pools (F9)          |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4)                |   |

**Indicators for Problematic Hydric Soils:<sup>3</sup>**

- ☐ 1 cm Muck (A9) (**LRR C**)  
☐ 2 cm Muck (A10) (**LRR B**)  
☐ Reduced Vertic (F18)  
☐ Red Parent Material (TF2)  
☒ Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present.

**Restrictive Layer (if present):**

Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

**Hydric Soil Present?** Yes ☒ No ☐

Remarks: Vegetation at pit: Hordeum jubatum, Chenopodium glaucum.  
 Problematic soils - recently developed/seasonally flooded (based on aerial photos).

## HYDROLOGY

**Wetland Hydrology Indicators:**Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)  
☐ High Water Table (A2)  
☐ Saturation (A3)  
☐ Water Marks (B1) (**Nonriverine**)  
☐ Sediment Deposits (B2) (**Nonriverine**)  
☐ Drift Deposits (B3) (**Nonriverine**)  
☐ Surface Soil Cracks (B6)  
☒ Inundation Visible on Aerial Imagery (B7)  
☐ Water-Stained Leaves (B9)

- ☒ Salt Crust (B11)  
☐ Biotic Crust (B12)  
☒ Aquatic Invertebrates (B13)  
☐ Hydrogen Sulfide Odor (C1)  
☐ Oxidized Rhizospheres along Living Roots (C3)  
☐ Presence of Reduced Iron (C4)  
☐ Recent Iron Reduction in Plowed Soils (C6)  
☐ Thin Muck Surface (C7)  
☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)  
☐ Sediment Deposits (B2) (**Riverine**)  
☐ Drift Deposits (B3) (**Riverine**)  
☐ Drainage Patterns (B10)  
☐ Dry-Season Water Table (C2)  
☐ Crayfish Burrows (C8)  
☐ Saturation Visible on Aerial Imagery (C9)  
☐ Shallow Aquitard (D3)  
☐ FAC-Neutral Test (D5)

**Field Observations:**

Surface Water Present? Yes ☐ No ☒ Depth (inches): \_\_\_\_\_  
 Water Table Present? Yes ☐ No ☒ Depth (inches): \_\_\_\_\_  
 Saturation Present? (includes capillary fringe) Yes ☐ No ☒ Depth (inches): \_\_\_\_\_

**Wetland Hydrology Present?** Yes ☒ No ☐

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:  
 Aerial photos show inundation in dry pond.

Remarks:



# WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Questa Mine Remediation Removal Action City/County: Questa/Taos Sampling Date: 10-17-2012  
 Applicant/Owner: Chevron Mining, INC. State: NM Sampling Point: EDC-3  
 Investigator(s): J. Dawson/ S. Hall Section, Township, Range: T29N R12W S36  
 Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Terrace Slope (%): 45  
 Subregion (LRR): D - Interior Deserts Lat: 36.708668 Long: -105.609575 Datum: NAD83  
 Soil Map Unit Name: Sedillo-Silva association, strongly sloping NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)  
 Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐  
 Are Vegetation ☐ Soil ☒ or Hydrology ☐ 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 <input checked="" type="radio"/>	No <input type="radio"/>	Is the Sampled Area within a Wetland?	Yes <input checked="" type="radio"/>	No <input type="radio"/>
Hydric Soil Present?	Yes <input checked="" type="radio"/>	No <input type="radio"/>			
Wetland Hydrology Present?	Yes <input checked="" type="radio"/>	No <input type="radio"/>			
Remarks: PEM/PSS wetland formed from a hillside spring. Spring outflows to Eastern Diversion Channel. No distinct channel. Three additional spring wetlands occur north of this feature.					

## VEGETATION - Use scientific names of plants.

Tree Stratum	Plot size:	Absolute % Cover	Dominant Species?	Indicator Status	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>3</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100.0 %</u> (A/B)																					
1.																										
2.																										
3.																										
4.																										
Sapling/Shrub Stratum Plot size: <u>30 x 20</u>		<u>17</u> = Total Cover			<b>Prevalence Index worksheet:</b> <table border="1"> <thead> <tr> <th>Total % Cover of:</th> <th>Multiply by:</th> <th></th> </tr> </thead> <tbody> <tr> <td>OBL species <u>2</u></td> <td>x 1 =</td> <td><u>2</u></td> </tr> <tr> <td>FACW species <u>95</u></td> <td>x 2 =</td> <td><u>190</u></td> </tr> <tr> <td>FAC species</td> <td>x 3 =</td> <td><u>0</u></td> </tr> <tr> <td>FACU species <u>10</u></td> <td>x 4 =</td> <td><u>40</u></td> </tr> <tr> <td>UPL species</td> <td>x 5 =</td> <td><u>0</u></td> </tr> <tr> <td>Column Totals: <u>107</u></td> <td>(A)</td> <td><u>232</u> (B)</td> </tr> </tbody> </table> Prevalence Index = B/A = <u>2.17</u>	Total % Cover of:	Multiply by:		OBL species <u>2</u>	x 1 =	<u>2</u>	FACW species <u>95</u>	x 2 =	<u>190</u>	FAC species	x 3 =	<u>0</u>	FACU species <u>10</u>	x 4 =	<u>40</u>	UPL species	x 5 =	<u>0</u>	Column Totals: <u>107</u>	(A)	<u>232</u> (B)
Total % Cover of:	Multiply by:																									
OBL species <u>2</u>	x 1 =	<u>2</u>																								
FACW species <u>95</u>	x 2 =	<u>190</u>																								
FAC species	x 3 =	<u>0</u>																								
FACU species <u>10</u>	x 4 =	<u>40</u>																								
UPL species	x 5 =	<u>0</u>																								
Column Totals: <u>107</u>	(A)	<u>232</u> (B)																								
1. <u>Salix exigua</u>		<u>10</u>	Yes	FACW																						
2. <u>Populus angustifolia</u>		<u>5</u>	Yes	FACW																						
3. <u>Eleagnus angustifolia</u>		<u>2</u>	No	OBL																						
4.																										
5.																										
Herb Stratum Plot size: <u>30 x 20</u>		<u>17</u> = Total Cover			<b>Hydrophytic Vegetation Indicators:</b> <input checked="" type="checkbox"/> Dominance Test is >50% <input checked="" type="checkbox"/> Prevalence Index is ≤3.0 <sup>1</sup> <input type="checkbox"/> Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)  <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present.																					
1. <u>Agrostis stolonifera</u>		<u>80</u>	Yes	FACW																						
2. <u>Bromus inermis</u>		<u>10</u>	No	FACU																						
3.																										
4.																										
5.																										
6.																										
7.																										
8.																										
9.																										
10.																										
Woody Vine Stratum Plot size:		<u>90</u> = Total Cover			<b>Hydrophytic Vegetation Present?</b> Yes <input checked="" type="radio"/> No <input type="radio"/>																					
1.																										
2.																										
% Bare Ground in Herb Stratum <u>10 %</u>		% Cover of Biotic Crust <u>    </u> %																								
Remarks: Predominantly PEM around spring with single stems of Salix exigua. Populus angustifolia and Eleagnus angustifolia line the perimeter of the feature.																										

## SOIL

Sampling Point: EDC-3

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0 - 5	10YR 4/2	100	-	-			Cl	Organic streaking
5 - 14	2.5YR 6/3	80	10YR 6/8	20	C	M	Cl	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix. <sup>2</sup>Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

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

- |  |   |
|--|---|
| <input type="checkbox"/> Histosol (A1)                     | <input type="checkbox"/> Sandy Redox (S5)           |
| <input type="checkbox"/> Histic Epipedon (A2)              | <input type="checkbox"/> Stripped Matrix (S6)       |
| <input type="checkbox"/> Black Histic (A3)                 | <input type="checkbox"/> Loamy Mucky Mineral (F1)   |
| <input type="checkbox"/> Hydrogen Sulfide (A4)             | <input type="checkbox"/> Loamy Gleyed Matrix (F2)   |
| <input type="checkbox"/> Stratified Layers (A5) (LRR C)    | <input type="checkbox"/> Depleted Matrix (F3)       |
| <input type="checkbox"/> 1 cm Muck (A9) (LRR D)            | <input type="checkbox"/> Redox Dark Surface (F6)    |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Dark Surface (F7) |
| <input type="checkbox"/> Thick Dark Surface (A12)          | <input type="checkbox"/> Redox Depressions (F8)     |
| <input type="checkbox"/> Sandy Mucky Mineral (S1)          | <input type="checkbox"/> Vernal Pools (F9)          |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4)          |   |

**Indicators for Problematic Hydric Soils:<sup>3</sup>**

- ☐ 1 cm Muck (A9) (LRR C)  
☐ 2 cm Muck (A10) (LRR B)  
☐ Reduced Vertic (F18)  
☐ Red Parent Material (TF2)  
☒ Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present.

**Restrictive Layer (if present):**

Type: \_\_\_\_\_

Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes ☐ No ☒

Remarks: Vegetation at pit: Agrostis stolonifera.  
 Problematic soil - recently developed wetland.

## HYDROLOGY

**Wetland Hydrology Indicators:**Primary Indicators (any one indicator is sufficient)

- |  |  |
|--|--|
| <input checked="" type="checkbox"/> Surface Water (A1)             | <input type="checkbox"/> Salt Crust (B11)                              |
| <input checked="" type="checkbox"/> High Water Table (A2)          | <input type="checkbox"/> Biotic Crust (B12)                            |
| <input checked="" type="checkbox"/> Saturation (A3)                | <input type="checkbox"/> Aquatic Invertebrates (B13)                   |
| <input type="checkbox"/> Water Marks (B1) (Nonriverine)            | <input type="checkbox"/> Hydrogen Sulfide Odor (C1)                    |
| <input type="checkbox"/> Sediment Deposits (B2) (Nonriverine)      | <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) |
| <input type="checkbox"/> Drift Deposits (B3) (Nonriverine)         | <input type="checkbox"/> Presence of Reduced Iron (C4)                 |
| <input type="checkbox"/> Surface Soil Cracks (B6)                  | <input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6)    |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Thin Muck Surface (C7)                        |
| <input type="checkbox"/> Water-Stained Leaves (B9)                 | <input type="checkbox"/> Other (Explain in Remarks)                    |

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (Riverine)  
☐ Sediment Deposits (B2) (Riverine)  
☐ Drift Deposits (B3) (Riverine)  
☐ Drainage Patterns (B10)  
☒ Dry-Season Water Table (C2)  
☐ Crayfish Burrows (C8)  
☐ Saturation Visible on Aerial Imagery (C9)  
☐ Shallow Aquitard (D3)  
☐ FAC-Neutral Test (D5)

**Field Observations:**Surface Water Present? Yes ☒ No ☐Water Table Present? Yes ☒ No ☐Saturation Present? (includes capillary fringe) Yes ☒ No ☐

Depth (inches): 1

Depth (inches): 10

Depth (inches): 0

Wetland Hydrology Present? Yes ☒ No ☐

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

Remarks: Flow is retained in a depression between a human-made berm and the hillslope. Spring outflows to the Eastern Diversion Channel, but no evidence of flow down slope of the confluence was observed. Three other seeps and springs were observed on this hillslope; this is the smallest, but closest to the remediation area.

# WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Questa Mine Remediation Removal Action City/County: Questa/Taos Sampling Date: 10-18-2012  
 Applicant/Owner: Chevron Mining, INC. State: NM Sampling Point: EDC-3-UP  
 Investigator(s): J. Dawson/ S. Hall Section, Township, Range: T29N R12W S36  
 Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Terrace Slope (%):   
 Subregion (LRR): D - Interior Deserts Lat: 36.699571 Long: -105.619925 Datum: NAD83  
 Soil Map Unit Name: Sedillo-Silva association, strongly sloping NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)  
 Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐  
 Are Vegetation ☐ Soil ☐ or Hydrology ☐ 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 <input type="radio"/>	No <input checked="" type="radio"/>	Is the Sampled Area within a Wetland?	Yes <input type="radio"/>	No <input checked="" type="radio"/>
Hydric Soil Present?	Yes <input type="radio"/>	No <input checked="" type="radio"/>			
Wetland Hydrology Present?	Yes <input type="radio"/>	No <input checked="" type="radio"/>			
Remarks: Upland soil pit for EDC-3.					

## VEGETATION - Use scientific names of plants.

Tree Stratum	Plot size:	Absolute % Cover	Dominant Species?	Indicator Status
1.				
2.				
3.				
4.				
			= Total Cover	
Sapling/Shrub Stratum Plot size: <u>20 x 20</u>				
1. <i>Artemisia tridentata</i>		54	Yes	Not Listed
2. <i>Ericameria nauseosus</i>		10	No	Not Listed
3. <i>Juniperus monosperma</i>		3	No	Not Listed
4.				
5.				
		67	= Total Cover	
Herb Stratum Plot size: <u>20 x 20</u>				
1. <i>Agropyron cristatum</i>		25	Yes	Not Listed
2. <i>Thinopyrum intermedium</i>		12	Yes	Not Listed
3. <i>Heterotheca villosa</i>		2	No	Not Listed
4. <i>Bahia absinthifolia</i>		1	No	Not Listed
5.				
6.				
7.				
8.				
9.				
10.				
		40	= Total Cover	
Woody Vine Stratum Plot size: <u></u>				
1.				
2.				
			= Total Cover	
% Bare Ground in Herb Stratum	<u>60 %</u>	% Cover of Biotic Crust	<u></u> %	

**Dominance Test worksheet:**

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0 % (A/B)

**Prevalence Index worksheet:**

Total % Cover of:	Multiply by:	
OBL species	x 1 =	<u>0</u>
FACW species	x 2 =	<u>0</u>
FAC species	x 3 =	<u>0</u>
FACU species	x 4 =	<u>0</u>
UPL species	x 5 =	<u>200</u>
Column Totals:	<u>40</u> (A)	<u>200</u> (B)
Prevalence Index = B/A =		<u>5.00</u>

**Hydrophytic Vegetation Indicators:**

☒ Dominance Test is >50%

☒ Prevalence Index is ≤3.0<sup>1</sup>

☐ Morphological Adaptations<sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)

<sup>1</sup>Indicators of hydric soil and wetland hydrology must be present.

**Hydrophytic Vegetation Present?** Yes ☐ No ☒

Remarks: *Artemisia tridentata* heights to 6 feet. Bare ground includes up to 14 percent moss.



## SOIL

Sampling Point: EDC-3-1

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0 - 13	7.5YR 4/4	100	-	-			SaGrLo	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix. <sup>2</sup>Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

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

- |  |   |
|--|---|
| <input type="checkbox"/> Histosol (A1)                           | <input type="checkbox"/> Sandy Redox (S5)           |
| <input type="checkbox"/> Histic Epipedon (A2)                    | <input type="checkbox"/> Stripped Matrix (S6)       |
| <input type="checkbox"/> Black Histic (A3)                       | <input type="checkbox"/> Loamy Mucky Mineral (F1)   |
| <input type="checkbox"/> Hydrogen Sulfide (A4)                   | <input type="checkbox"/> Loamy Gleyed Matrix (F2)   |
| <input type="checkbox"/> Stratified Layers (A5) ( <b>LRR C</b> ) | <input type="checkbox"/> Depleted Matrix (F3)       |
| <input type="checkbox"/> 1 cm Muck (A9) ( <b>LRR D</b> )         | <input type="checkbox"/> Redox Dark Surface (F6)    |
| <input type="checkbox"/> Depleted Below Dark Surface (A11)       | <input type="checkbox"/> Depleted Dark Surface (F7) |
| <input type="checkbox"/> Thick Dark Surface (A12)                | <input type="checkbox"/> Redox Depressions (F8)     |
| <input type="checkbox"/> Sandy Mucky Mineral (S1)                | <input type="checkbox"/> Vernal Pools (F9)          |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4)                |   |

**Indicators for Problematic Hydric Soils:<sup>3</sup>**

- ☐ 1 cm Muck (A9) (**LRR C**)
- ☐ 2 cm Muck (A10) (**LRR B**)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present.

**Restrictive Layer (if present):**

Type: \_\_\_\_\_

Depth (inches): \_\_\_\_\_

**Hydric Soil Present?** Yes ☐ No ☒

Remarks: No indicators. Vegetation at pit: Thinopyrum intermedium.

## HYDROLOGY

**Wetland Hydrology Indicators:**Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (**Nonriverine**)
- ☐ Sediment Deposits (B2) (**Nonriverine**)
- ☐ Drift Deposits (B3) (**Nonriverine**)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)

- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in Plowed Soils (C6)
- ☐ Thin Muck Surface (C7)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)
- ☐ Sediment Deposits (B2) (**Riverine**)
- ☐ Drift Deposits (B3) (**Riverine**)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

**Field Observations:**Surface Water Present? Yes ☐ No ☒

Depth (inches): \_\_\_\_\_

Water Table Present? Yes ☐ No ☒

Depth (inches): \_\_\_\_\_

Saturation Present? (includes capillary fringe) Yes ☐ No ☒

Depth (inches): \_\_\_\_\_

**Wetland Hydrology Present?** Yes ☐ No ☒

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

Remarks: No hydrologic indicators present.

# WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Questa Mine Remediation Removal Action City/County: Questa/Taos Sampling Date: 10-18-2012  
 Applicant/Owner: Chevron Mining, Inc. State: NM Sampling Point: EDC-6  
 Investigator(s): J. Dawson/ S. Hall Section, Township, Range: T29N R12W S36  
 Landform (hillslope, terrace, etc.): Constructed channel Local relief (concave, convex, none): None Slope (%): <1  
 Subregion (LRR): D - Interior Deserts Lat: 36.704765 Long: -105.609659 Datum: NAD83  
 Soil Map Unit Name: Sedillo-Silva association, strongly sloping NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)  
 Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐  
 Are Vegetation ☐ Soil ☐ or Hydrology ☐ 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 <input checked="" type="radio"/>	No <input type="radio"/>	Is the Sampled Area within a Wetland?	Yes <input type="radio"/>	No <input checked="" type="radio"/>
Hydric Soil Present?	Yes <input type="radio"/>	No <input checked="" type="radio"/>			
Wetland Hydrology Present?	Yes <input type="radio"/>	No <input checked="" type="radio"/>			
Remarks: Continuation of EDC-1 and EDC-2 downstream of mine road. This feature lacks the wetland integrity present in EDC-1 and EDC-2. Marginal wetland vegetation: lack of hydric soils. Previous aerial photography shows inundation three of the six years arials are available, but no other hydrologic indicators are present.					

## VEGETATION - Use scientific names of plants.

Tree Stratum	Plot size:	Absolute % Cover	Dominant Species?	Indicator Status
1.				
2.				
3.				
4.				
			= Total Cover	
Sapling/Shrub Stratum	Plot size:			
1.				
2.				
3.				
4.				
5.				
			= Total Cover	
Herb Stratum	Plot size: 60 x 100			
1. <i>Heleanthus annuus</i>		22	Yes	FACU
2. <i>Polygonum aviculare</i>		30	Yes	FACW
3. <i>Persicaria penslyvanica</i>		5	No	FACW
4. <i>Hordeum jubatum</i>		3	No	FAC
5. <i>Polygonum ramosissimum</i>		3	No	FAC
6. <i>Conyza canadensis</i>		2	No	FACU
7. <i>Rumex triangularis</i>		2	No	FACW
8. <i>Bromus japonicus</i>		1	No	Not Listed
9. <i>Thinopyrum intermedium</i>		2	No	Not Listed
10.				
		70	= Total Cover	
Woody Vine Stratum	Plot size:			
1.				
2.				
			= Total Cover	
% Bare Ground in Herb Stratum	30 %	% Cover of Biotic Crust		
Remarks: Minors include Grindelia squarrosa. Gopher mounds present.				

### Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 50.0 % (A/B)

### Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species	x 1 =	0
FACW species	x 2 =	74
FAC species	x 3 =	18
FACU species	x 4 =	96
UPL species	x 5 =	15
Column Totals:		203 (B)

Prevalence Index = B/A = 2.90

### Hydrophytic Vegetation Indicators:

☒ Dominance Test is >50%

☒ Prevalence Index is ≤3.0<sup>1</sup>

☐ Morphological Adaptations<sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)

☐ Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)

<sup>1</sup>Indicators of hydric soil and wetland hydrology must be present.

### Hydrophytic Vegetation Present?

Yes ☒ No ☐

## SOIL

Sampling Point: EDC-6

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0 - 9	10YR 5/3	100					SiCL	Dry
9 - 14	10YR 5/3	100					SiCL	Mixed with tailings

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix.    <sup>2</sup>Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

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

- |  |   |
|--|---|
| <input type="checkbox"/> Histosol (A1)                           | <input type="checkbox"/> Sandy Redox (S5)           |
| <input type="checkbox"/> Histic Epipedon (A2)                    | <input type="checkbox"/> Stripped Matrix (S6)       |
| <input type="checkbox"/> Black Histic (A3)                       | <input type="checkbox"/> Loamy Mucky Mineral (F1)   |
| <input type="checkbox"/> Hydrogen Sulfide (A4)                   | <input type="checkbox"/> Loamy Gleyed Matrix (F2)   |
| <input type="checkbox"/> Stratified Layers (A5) ( <b>LRR C</b> ) | <input type="checkbox"/> Depleted Matrix (F3)       |
| <input type="checkbox"/> 1 cm Muck (A9) ( <b>LRR D</b> )         | <input type="checkbox"/> Redox Dark Surface (F6)    |
| <input type="checkbox"/> Depleted Below Dark Surface (A11)       | <input type="checkbox"/> Depleted Dark Surface (F7) |
| <input type="checkbox"/> Thick Dark Surface (A12)                | <input type="checkbox"/> Redox Depressions (F8)     |
| <input type="checkbox"/> Sandy Mucky Mineral (S1)                | <input type="checkbox"/> Vernal Pools (F9)          |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4)                |   |

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- ☐ 1 cm Muck (A9) (**LRR C**)  
☐ 2 cm Muck (A10) (**LRR B**)  
☐ Reduced Vertic (F18)  
☐ Red Parent Material (TF2)  
☐ Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present.

**Restrictive Layer (if present):**

Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

**Hydric Soil Present?** Yes ☐ No ☒

Remarks: Between 9 and 14 inches, soil mixed with oxidized rock, no real reduction or concentrations observed. Part of this area has a cracked clay surface, part has surface tailings visible with many gopher mounds. Soil indicators consistent with the marginal hydric indicators within the entirety of the EDC.

## HYDROLOGY

**Wetland Hydrology Indicators:**Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)  
☐ High Water Table (A2)  
☐ Saturation (A3)  
☐ Water Marks (B1) (**Nonriverine**)  
☐ Sediment Deposits (B2) (**Nonriverine**)  
☐ Drift Deposits (B3) (**Nonriverine**)  
☒ Inundation Visible on Aerial Imagery (B7)  
☐ Water-Stained Leaves (B9)

- ☐ Salt Crust (B11)  
☐ Biotic Crust (B12)  
☐ Aquatic Invertebrates (B13)  
☐ Hydrogen Sulfide Odor (C1)  
☐ Oxidized Rhizospheres along Living Roots (C3)  
☐ Presence of Reduced Iron (C4)  
☐ Recent Iron Reduction in Plowed Soils (C6)  
☐ Thin Muck Surface (C7)  
☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1) (**Riverine**)  
☐ Sediment Deposits (B2) (**Riverine**)  
☐ Drift Deposits (B3) (**Riverine**)  
☐ Drainage Patterns (B10)  
☐ Dry-Season Water Table (C2)  
☐ Crayfish Burrows (C8)  
☐ Saturation Visible on Aerial Imagery (C9)  
☐ Shallow Aquitard (D3)  
☐ FAC-Neutral Test (D5)

**Field Observations:**

Surface Water Present? Yes ☐ No ☒  
 Water Table Present? Yes ☐ No ☒  
 Saturation Present? (includes capillary fringe) Yes ☐ No ☒  
 Depth (inches): \_\_\_\_\_

**Wetland Hydrology Present?** Yes ☐ No ☒

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

Three of six photos available show inundation.

Remarks: Aerial taken in summers of 2004, 2009 and 2010 show this feature to be flooded. Currently, no evidence of an OHWM, channeling, or drainage patterns observed within the feature. Soil cracking consistent with dry soil observations in this area, does not resemble cracks from ponding.



**FINAL**

# **HISTORIC TAILING SPILLS REMOVAL ACTION COMPLETION REPORT CHEVRON QUESTA MINE SUPERFUND SITE**

**Revision 1**

*Prepared for*  
Chevron Mining Inc.  
Questa, New Mexico

September 26, 2014

**URS**

URS Corporation  
8181 E. Tufts Avenue  
Denver, CO 80237

Project No. 22242874

## Appendix C

### Lower Dump Sump Wetland Delineation

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**DRAFT**

# LOWER DUMP SUMP WETLAND DELINEATION REPORT CHEVRON QUESTA MINE SUPERFUND SITE

Revision 0

*Prepared for*  
Chevron Mining Inc.  
Questa, New Mexico

February 5, 2014

**URS**

URS Corporation  
8181 E. Tufts Avenue  
Denver, CO 80237

Project No. 22242874



## 1.0 INTRODUCTION

URS conducted a wetland delineation on July 24, 2013 to support removal of the historic tailing spill at the Lower Dump Sump (LDS). Wetland delineation is the evaluation process used to determine whether wetlands meeting the Section 404 definition are present or absent in an area, as described in *the Overall Site Plan for Removal Actions, Chevron Questa Mine Superfund Site* (URS 2012).

Tailing was removed at the LDS site in 2013 under the United States Environmental Protection Agency (EPA) Administrative Settlement Agreement and Order on Consent for Removal Actions, Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Docket No. 06-09-12 and its appended Statement of Work (EPA 2012). During the EPA final inspection of the removal at the LDS, EPA requested an exploratory trench down-gradient and west of the LDS to evaluate whether tailing was present in that area. Because the area was observed to contain potential wetland vegetation, EPA requested wetland delineation be conducted prior to excavation of the exploratory trench.

No wetlands were identified. A map of the study is provided in Attachment A.

## 2.0 SITE DESCRIPTION

The study area for the delineation included about 2 acres of land west of the LDS, including about 300 feet of the Gallegos Ditch, wooded and shrubby areas along the ditch and in the Red River riparian area, and meadows. The study area boundary is shown on Figure 1, along with the location of soil pit locations and the exploratory trench. The study area extended about 250 feet west from the edge of the LDS to the edge of the property and included a minimum of 100 feet along the southwestern and western edge of the LDS. It was designed to include potential areas that could be affected by excavation of an exploratory trench and a minimum 50 foot buffer. Photographs of the study area are provided in Attachment B.

### Soils

Three soil map units are present within the study area, according to soils maps included in the Soil Survey of Taos County and Parts of Arriba and Mora Counties [Natural Resource Conservation Service (NRCS) 2013]. Tenorio loam, 0 to 3 percent slopes and 1 to 5 percent slopes, are soils of valley sides. They are deep, well-drained non-saline soils that are formed in alluvium derived from igneous and metamorphic rock. They are classified as farmland of statewide importance. Based on the NRCS 1:24,000 scale mapping, they occupy most of the study area. A small portion of the study area on the north edge is mapped as Fluvents, nearly level. These are deep, well-drained, non-saline soils comprised of gravelly sand, with a water table at 0 to 24 inches below ground surface. They occur on floodplains. About 20 percent of the Fluvents map unit has a loam or clay loam subsoil.

### Vegetation

Vegetation types present in the study area include riparian woodland and shrub, mesic meadow, wet meadow, disturbed, and upland shrub. All of the vegetation types have been strongly affected by past human activities or result from human activity.

**Riparian Woodland and Shrub** occupies most of the northern third of the study area and is part of a large area of riparian woodland (bosque) associated with the Red River at Questa. Common species in these areas are listed below in Table 1. The common grass species are non-native, while the shrubs and trees are all native. The wetland status of the common species ranges from upland (UPL) to facultative wetland species (FACW).

**Table 1**  
**Common Species in Riparian Woodland and Shrub**

Name	Species	Wetland Indicator <sup>1</sup>
<b>Grasses and Grass-like Plants</b>		
Creeping wildrye	<i>Elymus repens</i>	FAC
Kentucky bluegrass	<i>Poa pratensis</i>	FAC
<b>Shrubs and Trees</b>		
Deciduous traveller's joy	<i>Clematis ligusticifolia</i>	FAC
Narrow-leaf cottonwood	<i>Populus angustifolia</i>	FACW
Chokecherry	<i>Prunus virginiana</i>	FACU
Woods' rose	<i>Rosa woodsii</i>	FACU
Narrow-leaf willow	<i>Salix exigua</i>	OBL
Round-leaf snowberry	<i>Symphoricarpos rotundifolius</i>	UPL

<sup>1</sup>Lichvar 2013.

Wetland indicator categories:

Obligate (OBL) – occurs almost always in wetlands under natural conditions (estimated probability >99%)

Facultative wetland (FACW) – usually occurs in wetlands (estimated probability 67-99%)

Facultative (FAC) – equally likely to occur in wetlands or non-wetlands (estimated probability 34-66%)

Facultative upland (FACU) – usually occurs in non-wetlands but occasionally found in wetlands (estimated probability 1-33%)

Obligate upland (UPL) – Almost always occurs in uplands in the region (estimated probability >99% in non-wetlands).

**Mesic meadow** vegetation occupies most of the study area. Mesic meadow vegetation occurs on relatively level areas on both sides of the Gallegos Ditch. The vegetation is a mixture of grasses and forbs, and of native and non-native species. Forbs provide a larger portion of the cover than grasses. Thickets of the shrub Wood's rose (*Rosa woodsii*) occur in two areas.

Most of the common species are facultative (FAC) indicators, meaning they occur equally in wetland and non-wetland areas, but indicator status ranges from UPL to FACW. The majority of vegetation cover is comprised of wetland indicator species (FAC and FACW). Several of the common species are non-native including smooth brome (*Bromus inermis*), creeping wildrye (*Elymus repens*), Kentucky bluegrass (*Poa pratensis*), and Mexican fireweed (*Kochia scoparia*). Common species are listed in Table 2.

**Table 2**  
**Common Species in Mesic Meadow**

Name	Species	Wetland Indicator <sup>1</sup>
<b>Grasses and Grass-like Plants</b>		
Sleepygrass	<i>Acnatherum robustum</i>	UPL
Smooth brome	<i>Bromus inermis</i>	FAC
Creeping wildrye (quackgrass)	<i>Elymus repens</i>	FAC
Smooth scouring rush	<i>Equisetum laevigatum</i>	FACW
Kentucky bluegrass	<i>Poa pratensis</i>	FAC
<b>Forbs</b>		
Tarragon	<i>Artemisia dracunculus</i>	UPL
Mexican fireweed	<i>Bassia scoparia</i>	FAC
<b>Shrubs</b>		
Woods' rose	<i>Rosa woodsii</i>	FACU

<sup>1</sup>Lichvar 2013

Wetland indicator categories:

Obligate (OBL) – occurs almost always in wetlands under natural conditions (estimated probability >99%)

Facultative wetland (FACW) – usually occurs in wetlands (estimated probability 67-99%)

Facultative (FAC) – equally likely to occur in wetlands or non-wetlands (estimated probability 34-66%)

Facultative upland (FACU) – usually occurs in non-wetlands but occasionally found in wetlands (estimated probability 1-33%)

Obligate upland (UPL) – Almost always occurs in uplands in the region (estimated probability >99% in non-wetlands).

**Wet meadow** vegetation occurs in limited and narrow areas within and along the banks of the Gallegos Ditch. Common species in these areas are listed in the Table 3. Most of the vegetation in these areas was comprised of FAC and obligate (OBL) wetland indicators, and therefore these areas were evaluated in the wetland delineation, as described in Section 4.0 Results. Several of the common species are non-native, including spreading bent, common timothy and Kentucky bluegrass. Other portions of the Gallegos Ditch banks were dominated by non-wetland vegetation.

**Table 3**  
**Common Species in Wet Meadow**

Name	Species	Wetland Indicator <sup>1</sup>
<b>Grasses and Grass-like Plants</b>		
Spreading bent	<i>Agrostis stolonifera</i>	FAC
Water sedge	<i>Carex aquatilis</i>	OBL
Nebraska sedge	<i>Carex nebrascensis</i>	OBL



## Lower Dump Sump Wetland Delineation Report

**Table 3**  
**Common Species in Wet Meadow**

Name	Species	Wetland Indicator <sup>1</sup>
Common timothy	<i>Phleum pretense</i>	FAC
Kentucky bluegrass	<i>Poa pratensis</i>	FAC
<b>Shrubs</b>		
Wood's rose	<i>Rosa woodsii</i>	FACU

<sup>1</sup>Lichvar 2013

Wetland indicator categories:

Obligate (OBL) – occurs almost always in wetlands under natural conditions (estimated probability >99%)

Facultative wetland (FACW) – usually occurs in wetlands (estimated probability 67-99%)

Facultative (FAC) – equally likely to occur in wetlands or non-wetlands (estimated probability 34-66%)

Facultative upland (FACU) – usually occurs in non-wetlands but occasionally found in wetlands (estimated probability 1-33%)

Obligate upland (UPL) – Almost always occurs in uplands in the region (estimated probability >99% in non-wetlands).

**Disturbed** occurs at the edge of the northern portion of the study area and west of the Gallegos Ditch at the former Reddell residence. It occurs around the former residence, a shed, former canal, and driveway. Vegetation is patchy with nearly 50 percent bare ground. A large number of species are present but most occur in limited amounts. The vegetation includes both native and introduced species, but the most common species are weedy. Wetland indicator status ranges from FAC to UPL. All of the common species are non-native with the exception of narrow-leaf willow (*Salix exigua*) and mealy goosefoot (*Chenopodium incanum*). Common species are shown in Table 4.

**Table 4**  
**Common Species in Disturbed**

Name	Species	Wetland Indicator <sup>1</sup>
<b>Grasses and Grass-like Plants</b>		
Quackgrass, creeping wild-rye	<i>Elymus repens</i>	FAC
<b>Forbs</b>		
Mexican fireweed	<i>Bassia scoparia</i>	FAC
Mealy goosefoot	<i>Chenopodium incanum</i>	UPL
Tall hedge-mustard	<i>Sisymbrium altissimum</i>	FACU
<b>Shrubs</b>		
Narrow-leaf willow	<i>Salix exigua</i>	FACW

<sup>1</sup>Lichvar 2013

Wetland indicator categories:

Obligate (OBL) – occurs almost always in wetlands under natural conditions (estimated probability >99%)

## Lower Dump Sump Wetland Delineation Report

Facultative wetland (FACW) – usually occurs in wetlands (estimated probability 67-99%)

Facultative (FAC) – equally likely to occur in wetlands or non-wetlands (estimated probability 34-66%)

Facultative upland (FACU) – usually occurs in non-wetlands but occasionally found in wetlands (estimated probability 1-33%)

Obligate upland (UPL) – Almost always occurs in uplands in the region (estimated probability >99% in non-wetlands).

**Upland shrub** occurs on slopes at the south end of the study area. The only wetland indicator species are weedy FAC species, including Mexican fireweed and Russian olive. Scattered Russian olive (*Elaeagnus angustifolia*) and Rocky Mountain juniper (*Juniperus scopulorum*) trees are present. Most of the species are native. Common species are listed in Table 5.

**Table 5**  
**Common Species in Upland**

Species	Name	Wetland Indicator <sup>1</sup>
<b>Grasses and Grass-like Plants</b>		
Blue grama	<i>Bouteloua gracilis</i>	UPL
<b>Forbs</b>		
Tarragon	<i>Artemisia dracunculus</i>	UPL
Mexican fireweed	<i>Bassia scoparia</i>	FAC
<b>Shrubs and Trees</b>		
Fringed sage	<i>Artemisia frigida</i>	UPL
Rubber rabbitbrush	<i>Ericameria nauseosa</i>	UPL
Russian olive	<i>Elaeagnus angustifolia</i>	FAC
Rocky Mountain juniper	<i>Juniperus scopulorum</i>	UPL
Twisted spine prickly pear	<i>Opuntia macrorhiza</i>	UPL

<sup>1</sup>Lichvar 2013

Wetland indicator categories:

Obligate (OBL) – occurs almost always in wetlands under natural conditions (estimated probability >99%)

Facultative wetland (FACW) – usually occurs in wetlands (estimated probability 67-99%)

Facultative (FAC) – equally likely to occur in wetlands or non-wetlands (estimated probability 34-66%)

Facultative upland (FACU) – usually occurs in non-wetlands but occasionally found in wetlands (estimated probability 1-33%)

Obligate upland (UPL) – Almost always occurs in uplands in the region (estimated probability >99% in non-wetlands).

### Hydrology

The study area is located in the Upper Rio Grande Watershed (HUC 13020101) and is a short distance from the Red River. The only feature mapped by the National Wetlands Inventory (NWI) (USFWS 2010) in the study area is Gallegos Ditch. Gallegos Ditch is mapped as R4SBC – riverine, intermittent, streambed, seasonally flooded, which is consistent with observations

made during the delineation. The NWI map unit includes two small drainages that are intercepted by the Gallegos Ditch outside of the study area. The Gallegos Ditch originates from the Red River just east of the LDS, and terminates in uplands just east of Four Hill Road, west of the study area. Its' total length is about 2, 900 feet, of which about 300 feet are located within the study area.

### **Wildlife**

American elk (*Cervus elaphi*) droppings were common in the study area. A number of bird species were observed, including black-billed magpie (*Pica pica*), American kestrel (*Falco sparverius*), house wren (*Troglodytes aedon*), and violet-green swallow (*Tachycineta thalassina*).

## **3.0 METHODS**

The study area was determined in the field by including potential areas that could be affected by excavation of an exploratory trench and a minimum 50 foot buffer. Field maps were created with ESRI® ArcGIS® software (1 inch equals 50 feet). Pre-field research included review of NWI maps, detailed air photos, topographic maps (USGS 1995), and previous environmental reports from the area.

The wetland delineation was conducted on July 24, 2013, by Jeffrey Dawson and Eric Bunnell. Wetland delineations were conducted using the Routine Determination protocol discussed in the *Corps of Engineers Wetland Delineation Manual Technical Report 4-87-1* (Environmental Laboratory 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coasts* (Environmental Laboratory 2010). Wetlands are identified in the field as areas having positive evidence of three environmental parameters: hydric soils, wetland hydrology, and greater than five percent hydrophytic vegetation. Data for potential wetlands (Attachment C) were recorded on wetland data forms provided in the regional supplement.

Surface water features (i.e., streams and ponds) were identified by the presence of a defined bed and bank, evidence of an ordinary high water or bankfull indicator, and less than 50 percent vegetative cover within the bed. Field information recorded for surface water features included depth and width of the average ordinary high water mark, average bankfull depth, bank slope, substrate composition, source of hydrology, dominant vegetation, other vegetation, percent overstory, and any wildlife or their signs observed.

Locations of soil pits and other GPS data were recorded using a Trimble® sub-meter hand-held global positioning system (GPS). Photographs were taken of each feature. Unique identifiers were assigned to each feature delineated based on location. For example, the first potential wetland was assigned a unique identifier of WL-1.

Plant species were identified using Allred and Ivey (2012) and other botanical sources. Plant names follow Lichvar (2013) for wetland indicator species, and Allred (2003) for common names of upland species.

## **4.0 RESULTS**

No wetlands were delineated in the study area and one surface water feature (Gallegos Ditch) was delineated. Based on an initial reconnaissance, two potential wetlands were identified – an



herbaceous area (WL-1) along a portion of the Gallegos Ditch and a scrub-shrub area (WL-2) below a section of the ditch. During the field assessment, these areas did not meet the requirements to be considered wetlands under the applicable Corps Manuals because they lacked indicators for soils and hydrology.

The potential herbaceous wetland area is identified as WL-1 in the data sheets and is shown in Photos 1 and 2 in Attachment B. This was an area about 75 feet long and about 2 to 3 feet wide on each side of the Gallegos Ditch in the central part of the study area. The area of potential wetland was bounded by the open water of the ditch and by raised berms of soil and sediment excavated from the ditch, which are visible on the aerial photo. The vegetation was dominated by hydrophytic sedges and grasses, with all 3 dominant species having wetland indicators, Nebraska sedge, Kentucky bluegrass and timothy. Three soil pits were dug and no hydric soil indicators were found. No water or saturation was found in the soil pits, and no evidence of hydrology was found in vegetated areas immediately adjacent to Gallegos Ditch. The irrigation channel was flowing at the time of the survey, but did not provide wetland hydrology to adjoining soils.

The potential scrub-shrub wetland area (WL-2 in the data sheets) consisted of a dense thicket of narrow-leaf willow located on a slope the east side of Gallegos Ditch and extending to the terrace below the ditch (Attachment B Photos 4 and 5). The vegetation was hydrophytic, with 3 of 4 species having wetland indicators, including narrow-leaf willow, deciduous traveller's joy (*Clematis ligusticifolia*), and Kentucky bluegrass. One soil pit was dug, located at the bottom of the slope about 5 feet vertically below Gallegos Ditch. No soil or hydrology indicators were observed. There was no observed evidence of overflow, leaks, or seepage from the ditch.

Water flowing in Gallegos Ditch was about 4 feet wide, about 8 inches deep, and flowing slowly at the time of the survey. The ditch is mostly elevated above the surrounding terrace in the study area. More information is provided on the surface water features data sheet in Attachment C. There were no irrigation turnouts or places that appeared to regularly receive irrigation in the study area. According to the US Geological Survey (USGS) map (USGS 1995) and air photos, Gallegos Ditch ends in an upland area. The downstream portions of the ditch were not observed during this field survey.

In addition to WL-1 and WL-2, the meadows and riparian forest in the study area were also dominated by plant species that are considered hydrophytic, including several meadow grasses, a common annual weed (Mexican fireweed), and the dominant tree species in the Red River riparian area (narrowleaf cottonwood, *Populus angustifolia*). These areas were not addressed in data sheets because they had no FACW or OBL species with the exception of narrowleaf cottonwood; there was no evidence of wetland hydrology with the exception of yellow sediment discussed below; and soils were non-hydric.

Thin deposits of yellow sediment were found on vegetation and surface soils along the ditch and in the meadow north of the ditch (Attachment B, Photo 10). The sediment deposits appear to have resulted from a recent storm event that sent excess water down the ditch from the Red River and overtopped the edges of the ditch. There was no apparent relationship between areas of sediment deposition and presence of wetland plant species. The sediment deposits and presumed overtopping were interpreted as an uncommon event that does not result in wetland hydrology.

### 5.0 CONCLUSION

No wetlands were delineated in the study area. Gallegos Ditch was delineated as an “other water” feature, and may be under the jurisdiction of the Clean Water Act.

### 6.0 LITERATURE CITED

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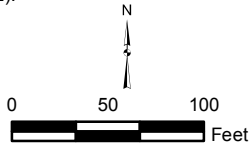




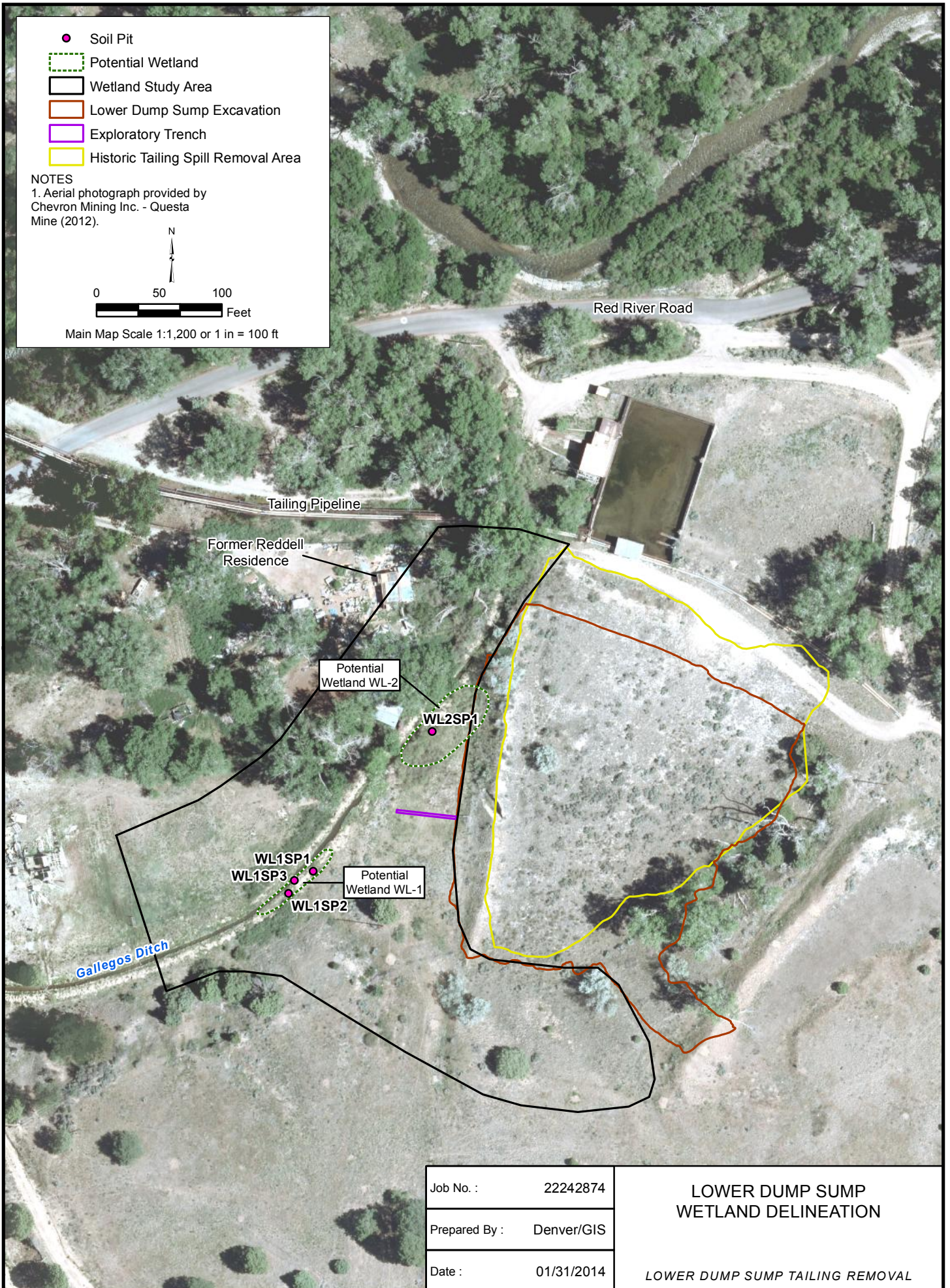
- Soil Pit
- ▭ Potential Wetland
- ▭ Wetland Study Area
- ▭ Lower Dump Sump Excavation
- ▭ Exploratory Trench
- ▭ Historic Tailing Spill Removal Area

NOTES

1. Aerial photograph provided by Chevron Mining Inc. - Questa Mine (2012).



Main Map Scale 1:1,200 or 1 in = 100 ft



Job No. :	22242874
Prepared By :	Denver/GIS
Date :	01/31/2014

## LOWER DUMP SUMP WETLAND DELINEATION

LOWER DUMP SUMP TAILING REMOVAL





**Photo 1.** WL-1, looking west along Gallegos Ditch. Shrub on right is Wood's rose.



**Photo 2.** WL-1, looking east along Gallegos Ditch.





**Photo 3.** Upland shrub on slope south of WL-1.



**Photo 4.** WL-2, looking west.





**Photo 5.** WL-2 (on left), looking north. LDS excavation is on right.



**Photo 6.** Weedy area and shed at former Reddell Residence, looking southeast. Gallegos Ditch is behind shed.





**Photo 7.** Riparian woodland and shrub, Gallegos Ditch and back of shed, looking south.



**Photo 8.** Riparian woodland east of former Reddell residence, looking northwest. Elevated tailing pipeline is in right background.





**Photo 9.** Meadow north of Gallegos Ditch, looking west.



**Photo 10.** Recent sediment deposits in meadow.





**Photo 11.** Meadow north of Gallegos Ditch, looking east.



**Photo 12.** Meadow adjacent to LDS, looking south.



<b>Surface Waters Features Data Sheet</b>	
Project -	HTS Project
Date -	Wednesday, July 24, 2013
Investigators -	Jeff Dawson
Area ID -	Gallegos Ditch
Centerpoint coordinates -	
HUC -	13020101 (Upper Rio Grande)
Land Use -	Dispersed residential
<b>Physical</b>	
Type of feature (pond or stream)-	irrigation ditch
Source-	Red River
Connectivity -	unknown, appears to end in upland
Water Clarity (clear, murky, turbid)-	cloudy
Water Color (if obvious)-	whitish
<b>For Streams Only</b>	
Average Width of OHWM (bankfull)-	4 feet
Average observed width-	4 feet
Bankfull depth-	14 inches
Observed Depth-	8 inches
Bank Slope (X:X) (on each side if different - use N/S or E/W)-	vertical
Evidence of undercutting or excessive erosion-	No
Occurance of riffle-pool-run complexes (Natural hydro only)-	NA
Channelized or meandering (Natural hydro only)-	NA
Bed substrate composition-	clayey silt
Velocity (slow, moderate, fast)-	slow
Flow Direction (to)-	west
<b>For Ponds Only</b>	
Inlet/Outlet present?	
Restricted outlet?	
<b>Biological</b>	
Percent estimated bank cover-	100
Bank vegetation (dominant species/if associated with wetland refer to data sheet)-	sedges and grasses
Aquatic vegetation present (Y/N, list species if known)-	none
Percent overstory (amount hanging over the channel, streams only)-	10
Evidence of rafted/submerged large woody debris-	NA
Evidence of other rafting (smaller debris, etc.)-	NA
Aquatic or terrestrial wildlife present (list species)-	magpie, kestrel, house wren, violet-green swallow
Notes:	



# WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast

Project/Site: HTS Project/Lower Dump Sump City/County: Questa, Taos County Sampling Date: 7/24/13  
 Applicant/Owner: Chevron State: NM Sampling Point: WL-1  
 Investigator(s): Jeff Dawson, Eric Bunnell Section, Township, Range: Section 6, T28N, R13E  
 Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): convex Slope (%): 2  
 Subregion (LRR): E - Rocky Mountain Forests and Rangeland Lat: 36.69401 Long: -105.5292 Datum: NAD 1983  
 Soil Map Unit Name: Tenorio loam, 1-3% slope NWI classification: NA

Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)  
 Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐  
 Are Vegetation ☐ Soil ☐ or Hydrology ☐ 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 <input checked="" type="radio"/> No <input type="radio"/>	Is the Sampled Area within a Wetland?	Yes <input type="radio"/> No <input checked="" type="radio"/>
Hydric Soil Present?	Yes <input type="radio"/> No <input checked="" type="radio"/>		
Wetland Hydrology Present?	Yes <input type="radio"/> No <input checked="" type="radio"/>		
Remarks: Potential wetland along a portion of Gallegos Ditch with some FACW and OBL vegetation. The ditch at the pit and to the west is at the base of a 4:1 slope to the south. To the east, the ditch is elevated above the Lower Dump Sump and Red River Valley. To the north is a mesic meadow about 5 feet lower than ditch			

## VEGETATION - Use scientific names of plants.

Tree Stratum	Plot size:	Absolute % Cover	Dominant Species?	Indicator Status	<b>Dominance Test worksheet:</b> Number of Dominant Species That Are OBL, FACW, or FAC (excluding FAC-): <u>3</u> (A) Total Number of Dominant Species Across All Strata: <u>3</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100.0 %</u> (A/B)																										
1.																															
2.																															
3.																															
4.																															
= Total Cover					<b>Prevalence Index worksheet:</b> <table border="1"> <thead> <tr> <th>Total % Cover of:</th> <th>Multiply by:</th> <th></th> </tr> </thead> <tbody> <tr> <td>OBL species</td> <td>31</td> <td>x 1 = 31</td> </tr> <tr> <td>FACW species</td> <td>4</td> <td>x 2 = 8</td> </tr> <tr> <td>FAC species</td> <td>69</td> <td>x 3 = 207</td> </tr> <tr> <td>FACU species</td> <td></td> <td>x 4 = 0</td> </tr> <tr> <td>UPL species</td> <td></td> <td>x 5 = 0</td> </tr> <tr> <td>Column Totals:</td> <td>104</td> <td>(A)</td> <td>246 (B)</td> </tr> <tr> <td colspan="2">Prevalence Index = B/A =</td> <td colspan="2">2.37</td> </tr> </tbody> </table>	Total % Cover of:	Multiply by:		OBL species	31	x 1 = 31	FACW species	4	x 2 = 8	FAC species	69	x 3 = 207	FACU species		x 4 = 0	UPL species		x 5 = 0	Column Totals:	104	(A)	246 (B)	Prevalence Index = B/A =		2.37	
Total % Cover of:	Multiply by:																														
OBL species	31	x 1 = 31																													
FACW species	4	x 2 = 8																													
FAC species	69	x 3 = 207																													
FACU species		x 4 = 0																													
UPL species		x 5 = 0																													
Column Totals:	104	(A)	246 (B)																												
Prevalence Index = B/A =		2.37																													
<b>Sapling/Shrub Stratum</b> Plot size: _____																															
1.																															
2.																															
3.																															
4.																															
5.																															
= Total Cover																															
<b>Herb Stratum</b> Plot size <u>10 x 2 m</u>																															
1. <i>Carex aquatilis</i>		6	No	OBL																											
2. <i>Poa pratensis</i>		30	Yes	FAC																											
3. <i>Geum macrophyllum</i>		2	No	FAC																											
4. <i>Epilobium ciliatum</i>		4	No	FACW																											
5. <i>Rumex crispus</i>		4	No	FAC																											
6. <i>Agrostis stolonifera</i>		5	No	FAC																											
7. <i>Bromus inermis</i>		3	No	FAC																											
8. <i>Carex nebrascensis</i>		25	Yes	OBL																											
9. <i>Phleum pratense</i>		25	Yes	FAC																											
10.																															
104 = Total Cover																															
<b>Woody Vine Stratum</b> Plot size: _____																															
1.																															
2.																															
= Total Cover																															
<b>Hydrophytic Vegetation Indicators:</b> <input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input checked="" type="checkbox"/> 3 - Prevalence Index is ≤3.0 <sup>1</sup> <input type="checkbox"/> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> 5 - Wetland Non-Vascular Plants <sup>1</sup> <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain) <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.																															
<b>Hydrophytic Vegetation Present?</b> Yes <input checked="" type="radio"/> No <input type="radio"/>																															

## SOIL

Sampling Point: WL-1

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-14	10YR4/4	95					silty clay loam	mixed matrix
	10YR2/1	3					silty clay loam	
	10YR7/4	2					silty clay loam	
14-18	10YR4/3	95					silty clay loam	mixed matrix
	7.5YR6/6	5					silty clay loam	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains      <sup>2</sup>Location: PL=Pore Lining, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)		Indicators for Problematic Hydric Soils <sup>3</sup> :	
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)	
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)	
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA1)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)	
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (Explain in Remarks)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)		
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)		
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)		
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)		

<sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

<b>Restrictive Layer (if present):</b> Type: _____ Depth (inches): _____	<b>Hydric Soil Present?</b> Yes <input type="radio"/> No <input checked="" type="radio"/>
--	---

Remarks: No hydric indicators. Soils may be modified by ditch maintenance, although spoil from most recent ditch cleaning is deposited outside area of potential wetland. Yellowish material appears to be lenses of fine sand. Soil pits 2 and 3 were similar. All soil pits within 2 to 3 feet of edge of open water in ditch.

## HYDROLOGY

Wetland Hydrology Indicators:		Secondary Indicators (minimum of two required)	
Primary Indicators (minimum of one required; check all that apply)			
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4a, and 4b)	<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4a, and 4b)	
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)	
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres on Living Roots (C3)	<input type="checkbox"/> Geomorphic Position (D2)	
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)	
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reductions in Tilled Soils (C6)	<input type="checkbox"/> FAC-Neutral Test (D5)	
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)	
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7) (LRR F)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)			
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)			

<b>Field Observations:</b> Surface Water Present?    Yes <input type="radio"/> No <input checked="" type="radio"/> Depth (inches): _____ Water Table Present?    Yes <input type="radio"/> No <input checked="" type="radio"/> Depth (inches): _____ Saturation Present?    Yes <input type="radio"/> No <input checked="" type="radio"/> Depth (inches): _____ (includes capillary fringe)				<b>Wetland Hydrology Present?</b> Yes <input type="radio"/> No <input checked="" type="radio"/>
---	--	--	--	---

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

Remarks: No hydrology indicators. There is no evidence of regular overflow, leaks or seepage from the ditch, which was flowing at

# WETLAND DETERMINATION DATA FORM - Western Mountains, Valleys, and Coast

Project/Site: HTS Project/Lower Dump Sump City/County: Questa, Taos County Sampling Date: 7/24/13  
 Applicant/Owner: Chevron State: NM Sampling Point: WL-2  
 Investigator(s): Jeff Dawson, Eric Bunnell Section, Township, Range: Section 6, T28N, R13E  
 Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): convex Slope (%): 2  
 Subregion (LRR): E - Rocky Mountain Forests and Rangeland Lat: 36.69432 Long: -105.5949 Datum: NAD 1983  
 Soil Map Unit Name: Tenorio loam, 1-3% slope NWI classification: NA  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes ☒ No ☐ (If no, explain in Remarks.)  
 Are Vegetation ☐ Soil ☐ or Hydrology ☐ significantly disturbed? Are "Normal Circumstances" present? Yes ☒ No ☐  
 Are Vegetation ☐ Soil ☐ or Hydrology ☐ 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 <input checked="" type="radio"/> No <input type="radio"/>	Is the Sampled Area within a Wetland? Yes <input type="radio"/> No <input checked="" type="radio"/>
Hydric Soil Present?	Yes <input type="radio"/> No <input checked="" type="radio"/>	
Wetland Hydrology Present?	Yes <input type="radio"/> No <input checked="" type="radio"/>	
Remarks:		

## VEGETATION - Use scientific names of plants.

Tree Stratum	Plot size:	Absolute % Cover	Dominant Species?	Indicator Status
1.				
2.				
3.				
4.				
Sapling/Shrub Stratum Plot size: <u>10 x 5 m</u>		= Total Cover		
1. <i>Salix exigua</i>		100	Yes	FACW
2. <i>Clematis ligustifolia</i>		25	Yes	FAC
3.				
4.				
5.				
Herb Stratum Plot size: <u>10 x 5 m</u>		= Total Cover		
1. <i>Cynoglossum officinale</i>		6	Yes	FACU
2. <i>Poa pratensis</i>		6	Yes	FAC
3. <i>Cirsium arvense</i>		2	No	FAC
4.				
5.				
6.				
7.				
8.				
9.				
10.				
Woody Vine Stratum Plot size:		14	= Total Cover	
1.				
2.				
			= Total 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: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 75.0 % (A/B)

**Prevalence Index worksheet:**

Total % Cover of:	Multiply by:	
OBL species	x 1 =	0
FACW species	x 2 =	200
FAC species	x 3 =	99
FACU species	x 4 =	24
UPL species	x 5 =	0
Column Totals:		139 (A) 323 (B)
Prevalence Index = B/A =		2.32

**Hydrophytic Vegetation Indicators:**

☐ 1 - Rapid Test for Hydrophytic Vegetation

☒ 2 - Dominance Test is >50%

☒ 3 - Prevalence Index is ≤3.0<sup>1</sup>

☐ 4 - Morphological Adaptations<sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)

☐ 5 - Wetland Non-Vascular Plants<sup>1</sup>

☐ Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)

<sup>1</sup>Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

**Hydrophytic Vegetation Present?** Yes ☒ No ☐



## SOIL

Sampling Point: WL-2**Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)**

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-14	10YR4/4	100					Loam	slightly moist, crumb structure

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains<sup>2</sup>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)  
☐ Depleted Below Dark Surface (A11)  
☐ Thick Dark Surface (A12)  
☐ Sandy Mucky Mineral (S1)  
☐ Sandy Gleyed Matrix (S4)

- ☐ Sandy Redox (S5)  
☐ Stripped Matrix (S6)  
☐ Loamy Mucky Mineral (F1) (**except MLRA1**)  
☐ Loamy Gleyed Matrix (F2)  
☐ Depleted Matrix (F3)  
☐ Redox Dark Surface (F6)  
☐ Depleted Dark Surface (F7)  
☐ Redox Depressions (F8)

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

- ☐ 2 cm Muck (A10)  
☐ Red Parent Material (TF2)  
☐ Very Shallow Dark Surface (TF12)  
☐ Other (Explain in Remarks)

<sup>3</sup> 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 ☒

Remarks: No hydric indicators

## 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)  
☐ Surface Soil Cracks (B6)  
☐ Inundation Visible on Aerial Imagery (B7)  
☐ Sparsely Vegetated Concave Surface (B8)
- ☐ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4a, and 4b**)  
☐ Salt Crust (B11)  
☐ Aquatic Invertebrates (B13)  
☐ Hydrogen Sulfide Odor (C1)  
☐ Oxidized Rhizospheres on Living Roots (C3)  
☐ Presence of Reduced Iron (C4)  
☐ Recent Iron Reductions in Tilled Soils (C6)  
☐ Stunted or Stressed Plants (D1) (**LRR A**)  
☐ Other (Explain in Remarks)

Secondary Indicators (minimum of two required)

- ☐ Water-Stained Leaves (B9) (**except MLRA 1, 2, 4a, and 4b**)  
☐ Drainage Patterns (B10)  
☐ Dry-Season Water Table (C2)  
☐ Saturation Visible on Aerial Imagery (C9)  
☐ Geomorphic Position (D2)  
☐ Shallow Aquitard (D3)  
☐ FAC-Neutral Test (D5)  
☐ Raised Ant Mounds (D6) (**LRR A**)  
☐ Frost-Heave Hummocks (D7) (**LRR F**)

**Field Observations:**

Surface Water Present? Yes ☐ No ☒ Depth (inches): \_\_\_\_\_  
 Water Table Present? Yes ☐ No ☒ Depth (inches): \_\_\_\_\_  
 Saturation Present? Yes ☐ No ☒ Depth (inches): \_\_\_\_\_  
 (includes capillary fringe)

Wetland Hydrology Present? Yes ☐ No ☒

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

Remarks: No hydrology indicators. Soil pit is at bottom of steep slope, directly below Gallegos Ditch, which was flowing at the time

## **APPENDIX E**

### **CHEVRON QUESTA MINE TAILINGS PIPELINE REMOVAL PROJECT CULTURAL RESOURCES SURVEY**

## APPENDIX E. AQUATIC RESOURCES REPORT, QUESTA TAILINGS PIPELINE REMOVAL PROJECT

### 1.0 CULTURAL RESOURCES SURVEY SUMMARY

At the request of Chevron Environmental Management Company (CEMC), Arcadis surveyed ditches and other cultural resources along the Tailings Pipeline removal corridor in December 2017 and in April and May 2018. The survey results were submitted to the New Mexico Historic Preservation Office (SHPO) under New Mexico Cultural Resource Information System (NMCRIS) numbers 139651 and 140384 (ARCADIS 2018a and 2018b). The cultural resources were surveyed in or near the pipeline removal stages shown in Attachment A. A finding of No Adverse Effect on Historic Properties was documented by Arcadis in both surveys.

This document summarizes the cultural survey results as they pertain to the Chevron Questa Mine Tailings Pipeline Removal Project. Excerpts from the Arcadis cultural surveys are attached to this summary, including the report cover letters, NMCRIS Investigation Abstract Forms (NIAF), and select report figures. The following historic structures were found and evaluated for eligibility in the National Register of Historic Places (NRHP) during the cultural surveys.

NMCRIS No.: 139651 (see attached Cover Letter, NIAF, and FIG-4)

South Ditch (aka: Questa Citizens South Ditch, South Side Ditch, HCPI 44457/LA83968)

Thunder Bridge (aka: Second River Crossing, HCPI 44458/CQTP-01)

NMCRIS 140384 (see attached Cover Letter, NIAF, FIG-2, and FIG-3)

Elevated Trestle (aka: HCPI 44844)

Lower Dump Sump (aka: HCPI 44845)

North Ditch (aka: Embargo Ditch, Embargo Acequia, HCPI 44846)

Acequia Del Molina (aka: Molina Ditch, HCPI 44847)

Middle Ditch (aka: HCPI 44848)

Two of the historic structures found during the cultural surveys are considered eligible for inclusion in the NRHP. The two eligible structures are the South Ditch and the North Ditch (Embargo Ditch). All other historic structures found during the surveys are recommended as not eligible for inclusion in the NRHP as they fail to meet any of the Eligibility Criteria.

The South Ditch has been previously documented and evaluated as eligible for inclusion in the National Register of Historic Places. The extent of the South Ditch on Chevron property was documented in December 2017 and the effects of the project upon it evaluated (ARCADIS 2018a). Only non-significant portions of the ditch were potentially to be impacted by the Tailings Pipeline Removal project. A finding of No Adverse Effect on a Historic Property received concurrence from the New Mexico SHPO. The Forest Service did not indicate any adverse effects to the portion of the South Ditch on their property in their report.

The North Ditch (Embargo Ditch) was evaluated by Arcadis in May 2018 and has not been formally documented or evaluated for NRHP eligibility by the New Mexico SHPO. The North Ditch is primarily located on private lands with short portions located on NM Department of Highways lands where it crosses NM State Highway 38 and NM State Highway 522 in Questa. A portion of the North Ditch is in the Tailings Pipeline Removal project Area of Potential Effect (APE) where it parallels Lower Embargo Road and crosses underneath State Highway 522. The North Ditch is recommended as eligible for the NRHP. The Chevron former tailing pipeline



## **APPENDIX E. AQUATIC RESOURCES REPORT, QUESTA TAILINGS PIPELINE REMOVAL PROJECT**

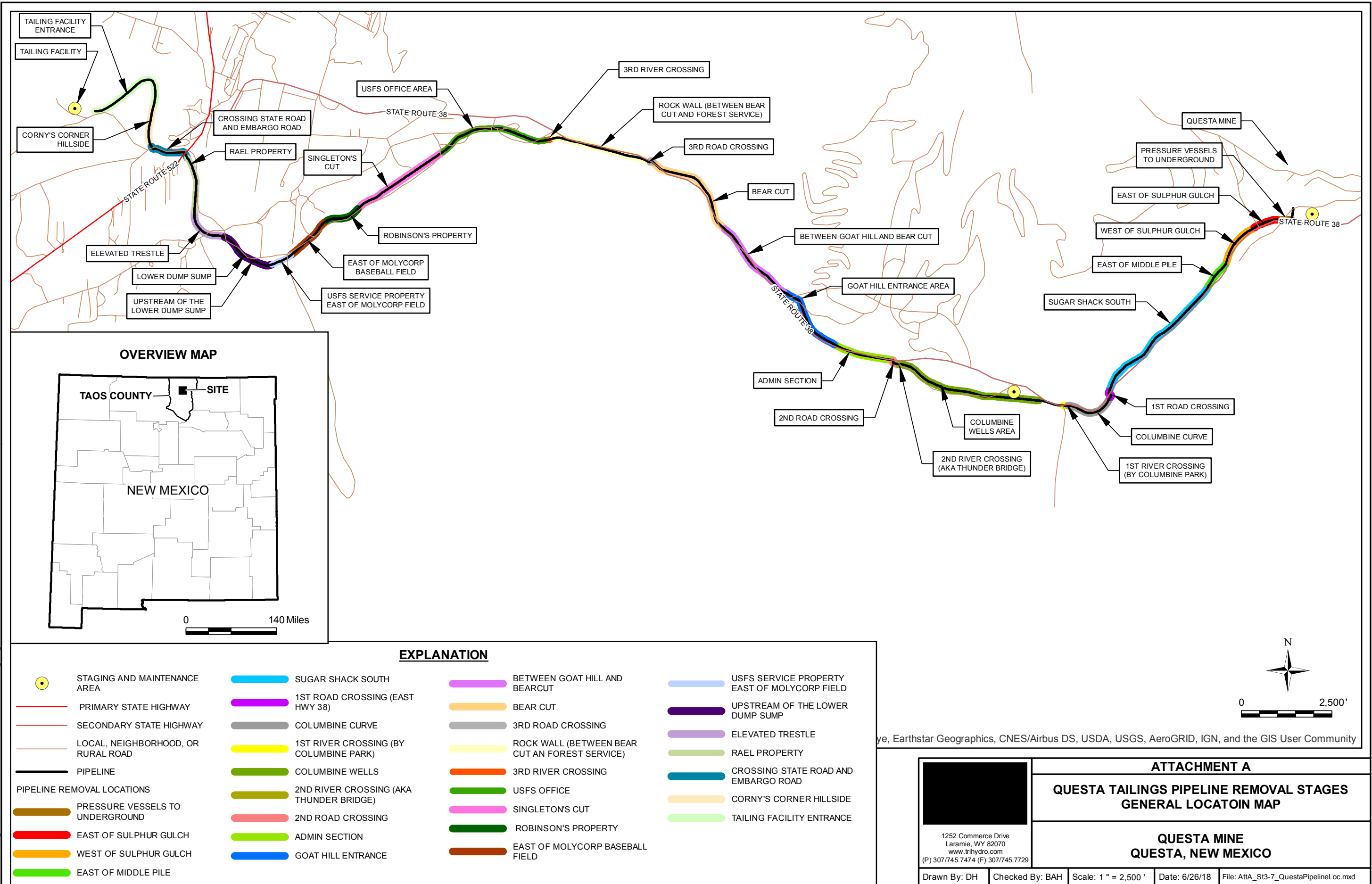
will be abandoned in place where it crosses the North Ditch. Therefore, the project will have No Adverse Effect on Historic Properties.

### **2.0 REFERENCES**

ARCADIS. 2018a. Chevron Questa Mine Tailings Pipeline Removal Project, Cultural Resources Survey, Taos County, New Mexico (NMCRIS No. 139651). January 12, 2018.

ARCADIS. 2018b. Chevron Questa Mine Tailings Pipeline Removal Project, Cultural Resources Survey, Taos County, New Mexico (NMCRIS No. 140384). May 29, 2018.

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Mr. Clinton Chisler  
Mining Act Reclamation Program  
Mining and Minerals Division  
Energy, Minerals, and Natural Resources Department  
1220 South St. Francis Drive  
Santa Fe, NM 87505

Subject:

**Chevron Questa Mine Tailings Pipeline Removal Project Cultural Resources  
Survey, Taos County, New Mexico (NMCRIS No. 139651)**

Dear Mr. Chisler:

Enclosed please find our cultural resources inventory report for the Chevron Mining, Inc. (CMI) Questa Tailings Pipeline Removal Project in Taos County, New Mexico. The enclosed report covers four segments of Stage 2 that are located on CMI property (Above Lower Dump Sump, East of MolyCorp Baseball Field, Singleton's Cut and Columbine Wells Area) and one segment on private property (Robinson's Property). One previously recorded historic ditch (Questa Citizens South Ditch/HCP1 44457/LA83968) is located within the Area of Effect (APE) of the project crossing through the Above Lower Dump Sump, East of MolyCorp Baseball Field, Robinson Property, and Singleton's Cut segments. The Ditch has been determined to be eligible for the National Register of Historic Places (NRHP) by the New Mexico Historic Preservation Office (SHPO). Only non-contributing portions of the Ditch are located within the project APE and no further work is recommended. One newly recorded historic structure is located within the APE of the project segments. The Thunder Bridge (HCP1 44458) is located in Red River Canyon at the west end of the Columbine Wells Area segment. This structure has been evaluated as not eligible for inclusion in the NRHP as it meets none of the NRHP eligibility criteria. No further work is recommended. Nine historic isolated finds (IF #s 1-9) were also documented during this investigation, all of which are recommended as not eligible for the NRHP. The proposed project will therefore have No Adverse Effect on Historic Properties.

The report has been filed electronically with the New Mexico SHPO through the New Mexico Cultural Resources Information System (NMCRIS). A hard copy of this report has also been forwarded to Bob Estes, Staff Archaeologist at the New Mexico Historic Preservation Division, for concurrence with the recommendations of eligibility and effect. The SHPO will have up to 30 days to comment and/or

Environmental Business Consulting

Date:  
January 12, 2018

Contact:  
Dulaney Barclay

Phone:  
720-344-3830

Email:  
dulaney.barclay@arcadis.co  
m

Our ref:  
B0046795.0075



Mr. Clinton Chisler  
January 12, 2018

concur with these findings. Please feel free to contact me if you have any questions or concerns.

Sincerely,

A handwritten signature in black ink, reading "Dulaney Barclay". The signature is written in a cursive style with a long horizontal flourish at the end.

Dulaney Barclay  
Senior Archaeologist

Arcadis U.S., Inc.

Copies:

Bob Estes, New Mexico Historic Preservation Division, Santa Fe, NM

NMCRIS No.: 139651

## NMCRIS INVESTIGATION ABSTRACT FORM (NIAF)

<b>1. NMCRIS Activity No.:</b>  139651	<b>2a. Lead Agency:</b> NM Energy, Minerals & Natl. Res. Dept. Mining and Minerals Division	<b>2b. Other Agency(ies):</b>	<b>3. Lead Agency Report No.:</b>
<b>4. Title of Report:</b> Chevron Questa Tailings Pipeline Cultural Resources Inventory Stage 2 Sections B Thru D  <b>Author(s)</b> Dulaney Barclay			<b>5. Type of Report</b> <input type="checkbox"/> Negative <input checked="" type="checkbox"/> Positive
<b>6. Investigation Type</b> <input type="checkbox"/> Research Design <input checked="" type="checkbox"/> Archaeological Survey/Inventory <input type="checkbox"/> Architectural Survey/Inventory <input type="checkbox"/> Test Excavation <input type="checkbox"/> Excavation <input type="checkbox"/> Collections/Non-Field Study <input type="checkbox"/> Compliance Decision Based on Previous Inventory <input type="checkbox"/> Overview/Lit Review <input type="checkbox"/> Monitoring <input type="checkbox"/> Ethnographic Study <input type="checkbox"/> Site/Property Specific Visit <input type="checkbox"/> Historic Structures Report <input type="checkbox"/> Other			
<b>7. Description of Undertaking (what does the project entail?):</b> Project involves the removal of a slurry pipeline that extends between the Questa Mine and the Tailings Facility. The current investigation focused on inventory of the portion of the pipeline on Chevron property and one private parcel			
[ ] Continuation			
<b>8. Dates of Investigation:</b> from: 12-Dec-2017 to: 13-Dec-2017		<b>9. Report Date:</b> 12-Jan-2018	
<b>10. Performing Agency/Consultant:</b> ARCADIS <b>Principal Investigator:</b> Dulaney Barclay <b>Field Supervisor:</b> Dulaney Barclay  <b>Field Personnel Names:</b>  <b>Historian / Other:</b>			
<b>11. Performing Agency/Consultant Report No.:</b>			
<b>12. Applicable Cultural Resource Permit No(s):</b>			

NMCRIS No.: 139651

13. Client/Customer (project proponent):

NM Energy, Minerals & Natl. Res. Dept. Mining and Minerals D

Contact:

Address:

Phone:

14. Client/Customer Project No.:

15. Land Ownership Status (must be indicated on project map):

Land Owner (By Agency)	Acres Surveyed	Acres in APE
Private Corporation (see records for company name)	24.80	24.80
<b>TOTALS</b>	24.80	24.80

16. Records Search(es):

Date(s) of HPD/ARMS File Review: November 30, 2017	Name of Reviewer(s): Dulaney Barclay
Date(s) of Other Agency File Review:	Name of Reviewer(s): Agency:

17. Survey Data:

a. Source Graphics [ ] NAD 27 [ X ] NAD 83 Note: NAD 83 is the NMCRIS standard.

☒ USGS 7.5' (1:24,000) topo map ☐ Other topo map, Scale:

☒ GPS Unit Accuracy ☐ <1.0m ☒ 1-10m ☐ 10-100m ☐ >100m

☐ Aerial Photo(s)

Other Source Graphic(s):

b. USGS 7.5' Topographic Map Name

USGS Quad Code

Questa, NM

36105-F5

c. County(ies): TAOS

d. Nearest City or Town: Questa, NM

e. Legal Description:

Township (N/S)	Range (E/W)	Section
29N	12E	36
29N	13E	31
28N	13E	6
28N	13E	5

Projected legal description? [ ] Yes [ X ] No [ ] Unplatted

f. Other Description (e.g. well pad footages, mile markers, plats, land grant name, etc.):



NMCRIS No.: 139651

---

**18. Survey Field Methods:**

**Intensity:** ☒ 100% coverage ☐ <100% coverage

**Configuration:** ☐ block survey units ☒ linear survey units (l x w):

☐ other survey units (specify):

**Scope:** ☒ non-selective (all sites/properties recorded) ☐ selective/thematic (selected sites/properties recorded)

**Coverage Method:** ☒ systematic pedestrian coverage

☐ other method (describe):

**Survey Interval (m):** 15 **Crew Size:** 1 **Fieldwork Dates:** from: 12-Dec-2017 to: 13-Dec-2017

**Survey Person Hours:** 8.00 **Recording Person Hours:** 4.00 **Total Hours:** 12.00

**Additional Narrative:**

[ ] Continuation

---

**19. Environmental Setting (NRCS soil designation; vegetative community; elevation; etc.):**

Elevations vary from approximately 7400 to 7600 feet AMSL. Vegetation consists of an overstory of pine and juniper trees with understory of low shrubs, mixed forbs, cactus, and grasses. Soils consist of gravelly sandy loams derived from alluvium and colluvium. Project area is located in the Red River Canyon and on the gentle slopes at the base of the Taos Mountains, an extension of the Sangre DeCristo Range.

[ ] Continuation

---

**20.a. Percent Ground Visibility:**

Ranges from 100 % on bladed road to 50% on slopes above pipeline; averages 70-80%.

---

**b. Condition of Survey Area (grazed, bladed, undistributed, etc.):**

Survey corridor was primarily along a bladed access road that runs parallel to the pipeline on north side. Eroded along steep slopes on south side of pipeline. Pipeline parallels transmission line in places.

[ ] Continuation

---

**21. CULTURAL RESOURCE FINDINGS**

☒ Yes, see next report section

☐ No, discuss why:

[ ] Continuation

---

**22. Attachments (check all appropriate boxes):**

[ X] USGS 7.5 Topographic Map with sites, isolates, and survey area clearly drawn (required)

[ X] Copy of NMCRIS Map Check (required)

[ ] LA Site Forms - new sites (with sketch map & topographic map) if applicable

[ ] LA Site Forms (update) - previously recorded & un-relocated sites (first 2 pages minimum)

[ X] Historic Cultural Property Inventory Forms, if applicable

[ ] List and Description of Isolates, if applicable

NMCRIS No.: 139651

☒ Photographs and Log

☐ Other Attachments (Describe):

24. I certify the information provided above is correct and accurate and meets all applicable agency standards.

Principal Investigator/Qualified Supervisor: Printed Name: Dulaney Barclay

Signature: Dulaney Barclay Date: 1/12/18 Title: Principal Investigator

25. Reviewing Agency

Reviewer's Name/Date:

Accepted ☐ Rejected ☐

26. SHPO

Reviewer's Name/Date:

HPD Log #:

Date sent to ARMS:

### CULTURAL RESOURCE FINDINGS

*[fill in appropriate section(s)]*

#### SURVEY RESULTS:

Archaeological Sites discovered and registered: 0

Archaeological Sites discovered and NOT registered: 0

Previously recorded archaeological sites revisited (site update form required): 0

Previously recorded archaeological sites not relocated (site update form required): 0

TOTAL ARCHAEOLOGICAL SITES (visited & recorded): 0

Total isolates recorded: 9

☐ Non-selective isolate recording?

HCPI properties discovered and registered: 2

HCPI properties discovered and NOT registered: 0

Previously recorded HCPI properties revisited: 0

Previously recorded HCPI properties not relocated: 0

TOTAL HCPI PROPERTIES (visited & recorded, including acequias): 2

**MANAGEMENT SUMMARY:** Questa Citizens South Ditch (HCPI 44457/LA83968) previously determined eligible for National Register.

Only non-contributing portions of the Questa Citizens South Ditch (HCPI 44457/LA83968) are within the Area of Potential Effect.

No adverse effects to Ditch from proposed project. No further work is necessary.

Thunder Bridge (HCPI 44458) is recommended not eligible for National Register. No further work is necessary.

☐ Continuation

IF REPORT IS NEGATIVE, YOU ARE DONE AT THIS POINT.

SURVEY LA/HCPI NUMBER LOG

**NMCRIS No.: 139651**

**LA/HCPI No.      Field/Agency No.**

HCPI44457      LA83968

HCPI44458      CQTP-01

**Eligible? (Y/N/U, applicable criteria)**

Y under Criteria A, C, and D per SHPO

N

**Previously recorded revisited sites/HCPI properties:**

**LA/HCPI No.      Field/Agency No.**

**Eligible? (Y/N/U, applicable criteria)**

---

**MONITORING LA NUMBER LOG (site form required)**

**Sites Discovered (site form required):**

**Previously recorded sites (site update form required):**

**LA No.      Field/Agency No.**

**LA No.      Field/Agency No.**

**Areas outside known nearby site boundaries monitored?      ☐ Yes**

**☐ No, Explain why:**

---

**TESTING & EXCAVATION LA NUMBER LOG (site form required)**

**Tested LA number(s)**

**Excavated LA number(s)**

---





**Legend**

- Pipeline Features
- Questa Ditch (HCPI 44457)
- Questa Tailing Pipeline

Notes:  
State Plane Coordinate Datum:  
NAD83 State Plane NM Central Feet (ft)  
Base Imagery provided by ESRI ArcGIS online Bing  
Map Hybrid and Bing Maps Aerial 2012



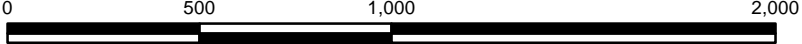
CHEVRON MINING INC. QUESTA MINE

**Cultural Resource Location Map**  
**Questa Ditch Segments**



**ARCADIS**

FIGURE  
**4**





Mr. Clinton Chisler  
Mining Act Reclamation Program  
Mining and Minerals Division  
Energy, Minerals, and Natural Resources Department  
1220 South St. Francis Drive  
Santa Fe, NM 87505

Subject:

**Chevron Questa Mine Tailings Pipeline Removal Project Cultural Resources  
Survey, Taos County, New Mexico (NMCRIS No. 140384)**

Dear Mr. Chisler:

Enclosed please find our cultural resources inventory report for the Chevron Mining, Inc. (CMI) Questa Tailings Pipeline Removal Project in Taos County, New Mexico. The enclosed report covers Stage 2 Section A and portions of Stages 3 thru 8 that are located on CMI property. Five historic structures including the Elevated Trestle (HCPI 44844), Lower Dump Sump (HCPI 44845), Embargo Ditch (HCPI 44846), Acequia Del Molina (HCPI 44847) and Middle Ditch (HCPI 44848) were found within the Area of Potential Effect. The Embargo Ditch (HCPI 448446) is recommended as eligible for the National Register of Historic Places (NRHP) under Criterion C of the National Register Eligibility Criteria. The Embargo Ditch will not be adversely affected as the Tailings Pipeline will be abandoned in place where it crosses the Ditch. The other historic structures are all recommended as not eligible for inclusion in the NRHP as they fail to meet any of the Eligibility Criteria. The proposed project will therefore have No Adverse Effect on Historic Properties.

A copy of this report will also be attached to a Pre-Construction Notification (PCN) for the US Army Corp of Engineers (USACE) to fulfill the conditions for use of Nationwide Permit (NWP) 12. A USACE permit is required as the pipeline crosses the Red River, a jurisdictional waterway, in four locations within the current inventory area. The Embargo Ditch, Acequia Del Molina Ditch, and Middle Ditch are also considered jurisdictional waterways of the United States as they draw water from, and return water to, the Red River. A USACE NWP 12 for utility line activities is required for them as well. The USACE will have 30 days to review the PCN and determine if it is complete.

The report has been filed electronically with the New Mexico SHPO through the New Mexico Cultural Resources Information System (NMCRIS). A hard copy of this report has also been forwarded to Bob Estes, Staff Archaeologist at the New

Environmental Business Consulting

Date:  
May 29, 2018

Contact:  
Dulaney Barclay

Phone:  
720-344-3830

Email:  
dulaney.barclay@arcadis.co  
m

Our ref:  
B0046795.0075

Mr. Clinton Chisler  
May 29, 2018

Mexico Historic Preservation Division, for concurrence with the recommendations of eligibility and effect. The SHPO will have up to 30 days to comment and/or concur with these findings. Please feel free to contact me if you have any questions or concerns.

Sincerely,

A handwritten signature in black ink, reading "Dulaney Barclay". The signature is fluid and cursive, with a long horizontal stroke extending from the end of the name.

Dulaney Barclay  
Senior Archaeologist

Arcadis U.S., Inc.

Copies:

Bob Estes, New Mexico Historic Preservation Division, Santa Fe, NM

US Army Corp of Engineers, Albuquerque District, Albuquerque, NM



NMCRIS No.: 140384

## NMCRIS INVESTIGATION ABSTRACT FORM (NIAF)

<b>1. NMCRIS Activity No.:</b>  140384	<b>2a. Lead Agency:</b> NM Energy, Minerals & Natl. Res. Dept. Mining and Minerals Division	<b>2b. Other Agency(ies):</b>	<b>3. Lead Agency Report No.:</b>
<b>4. Title of Report:</b> Questa Tailings Pipeline Cultural Resources Inventory Stages 2 Thru 8, Taos County, New Mexico  <b>Author(s)</b> Dulaney Barclay			<b>5. Type of Report</b> <input type="checkbox"/> Negative <input checked="" type="checkbox"/> Positive
<b>6. Investigation Type</b> <input type="checkbox"/> Research Design <input checked="" type="checkbox"/> Archaeological Survey/Inventory <input type="checkbox"/> Architectural Survey/Inventory <input type="checkbox"/> Test Excavation <input type="checkbox"/> Excavation <input type="checkbox"/> Collections/Non-Field Study <input type="checkbox"/> Compliance Decision Based on Previous Inventory <input type="checkbox"/> Overview/Lit Review <input type="checkbox"/> Monitoring <input type="checkbox"/> Ethnographic Study <input type="checkbox"/> Site/Property Specific Visit <input type="checkbox"/> Historic Structures Report <input type="checkbox"/> Other			
<b>7. Description of Undertaking (what does the project entail?):</b> Arcadis U.S., Inc conducted an inventory of approximately 2.6 miles of the Questa Tailings Pipeline that extends between the Questa Molybdenum Mine and the Tailings Facility.			
[ ] Continuation			
<b>8. Dates of Investigation:</b> from: 05-Apr-2018 to: 16-May-2018		<b>9. Report Date:</b> 29-May-2018	
<b>10. Performing Agency/Consultant:</b> ARCADIS <b>Principal Investigator:</b> Dulaney Barclay <b>Field Supervisor:</b> Dulaney Barclay  <b>Field Personnel Names:</b>   <b>Historian / Other:</b>			
<b>11. Performing Agency/Consultant Report No.:</b>			
<b>12. Applicable Cultural Resource Permit No(s):</b>			

NMCRIS No.: 140384

13. Client/Customer (project proponent):

Chevron Mining Inc.

Contact: Gabriel Herrera

Address: PO Box 469, Questa, NM 87556

Phone: (575) 586-7571

14. Client/Customer Project No.:

15. Land Ownership Status (must be indicated on project map):

Land Owner (By Agency)	Acres Surveyed	Acres in APE
Chevron Mining Inc.	32.90	32.90
TOTALS	32.90	32.90

16. Records Search(es):

Date(s) of HPD/ARMS File Review: 12/8/2017; 3/5/2018; 3/6/2018	Name of Reviewer(s): Dulaney Barclay	
Date(s) of Other Agency File Review:	Name of Reviewer(s):	Agency:

17. Survey Data:

a. Source Graphics [ ] NAD 27 [X] NAD 83 Note: NAD 83 is the NMCRIS standard.

☒ USGS 7.5' (1:24,000) topo map ☐ Other topo map, Scale:

☒ GPS Unit Accuracy ☒ <1.0m ☐ 1-10m ☐ 10-100m ☐ >100m

☐ Aerial Photo(s)

Other Source Graphic(s):

b. USGS 7.5' Topographic Map Name

USGS Quad Code

Questa, NM	36105-F5
Red River, NM	36105-F4

c. County(ies): TAOS

d. Nearest City or Town:

e. Legal Description:

Township (N/S)

Range (E/W)

Section

29N	13E	31
28N	13E	6

Projected legal description? [ ] Yes [X] No [ ] Unplatted

f. Other Description (e.g. well pad footages, mile markers, plats, land grant name, etc.):

**NMCRIS No.: 140384**

**Intensity:** ☒ 100% coverage ☐ <100% coverage

**Configuration:** ☒ block survey units ☒ linear survey units (l x w):

☐ other survey units (specify):

**Scope:** ☒ non-selective (all sites/properties recorded) ☐ selective/thematic (selected sites/properties recorded)

**Coverage Method:** ☒ systematic pedestrian coverage

☐ other method (describe):

**Survey Interval (m):** 15 **Crew Size:** 2 **Fieldwork Dates:** from: 05-Apr-2018 to: 16-May-2018

**Survey Person Hours:** 16.00 **Recording Person Hours:** 16.00 **Total Hours:** 32.00

**Additional Narrative:**

[ ] Continuation

**19. Environmental Setting (NRCS soil designation; vegetative community; elevation; etc.):**

Project is situated in the Red River Valley of north-central New Mexico at elevation of 7400-7480 feet above mean sea level. It is located within a High Desert Shrub vegetative community and includes scrub pines, junipers, sagebrush, cactus, and scrub oak. Riparian areas along Red River have thick grasses, mixed forbs, cottonwood trees, and willows.

[ ] Continuation

**20.a. Percent Ground Visibility:**

**b. Condition of Survey Area (grazed, bladed, undistributed, etc.):**

Visibility ranges from 30% in riparian areas to 80% in open areas. Project area has been impacted by grazing and development including mine and residential development.

[ ] Continuation

**21. CULTURAL RESOURCE FINDINGS**

☒ Yes, see next report section

☐ No, discuss why:

[ ] Continuation

**22. Attachments (check all appropriate boxes):**

[X] USGS 7.5 Topographic Map with sites, isolates, and survey area clearly drawn (required)

[X] Copy of NMCRIS Map Check (required)

[ ] LA Site Forms - new sites (with sketch map & topographic map) if applicable

[ ] LA Site Forms (update) - previously recorded & un-relocated sites (first 2 pages minimum)

[X] Historic Cultural Property Inventory Forms, if applicable

[ ] List and Description of Isolates, if applicable

[ ] List and Description of Collections, if applicable



NMCRIS No.: 140384

24. I certify the information provided above is correct and accurate and meets all applicable agency standards.

Principal Investigator/Qualified Supervisor: Printed Name: Dulaney Barclay

Signature: Dulaney Barclay Date: 5/29/18 Title: Principal Investigator

25. Reviewing Agency

Reviewer's Name/Date:

Accepted [ ] Rejected [ ]

26. SHPO

Reviewer's Name/Date:

HPD Log #:

Date sent to ARMS:

### CULTURAL RESOURCE FINDINGS

*[fill in appropriate section(s)]*

#### SURVEY RESULTS:

Archaeological Sites discovered and registered: 0

Archaeological Sites discovered and NOT registered: 0

Previously recorded archaeological sites revisited (site update form required): 0

Previously recorded archaeological sites not relocated (site update form required): 0

TOTAL ARCHAEOLOGICAL SITES (visited & recorded): 0

Total isolates recorded: 0

☐ Non-selective isolate recording?

HCPI properties discovered and registered: 5

HCPI properties discovered and NOT registered: 0

Previously recorded HCPI properties revisited: 0

Previously recorded HCPI properties not relocated: 0

TOTAL HCPI PROPERTIES (visited & recorded, including acequias): 5

**MANAGEMENT SUMMARY:** Five historic structures within Area of Potential Effect consisting of two structures associated with the Tailings Pipeline and three historic ditches (acequias). Only one resources is evaluated as eligible for inclusion in the National Register. The Embargo Ditch (HCPI44846) is recommended eligible for the National Register under Criterion C as representative of middle to late 19th Century acequia in the Red River Valley. All other resources are recommended not eligible for the National Register.

[ ] Continuation

**IF REPORT IS NEGATIVE, YOU ARE DONE AT THIS POINT.**

**SURVEY LA/HCPI NUMBER LOG**

**NMCRIS No.: 140384**

HCPI44844	N
HCPI44845	N
HCPI44846	Y, Criterion C
HCPI44847	N
HCPI44848	N

**Previously recorded revisited sites/HCPI properties:**

LA/HCPI No.	Field/Agency No.	Eligible? (Y/N/U, applicable criteria)
-------------	------------------	--

---

**MONITORING LA NUMBER LOG (site form required)**

**Sites Discovered (site form required):**

**Previously recorded sites (site update form required):**

LA No.	Field/Agency No.
--------	------------------

LA No.	Field/Agency No.
--------	------------------

**Areas outside known nearby site boundaries monitored?**      ☐ **Yes**      ☐ **No, Explain why:**

---

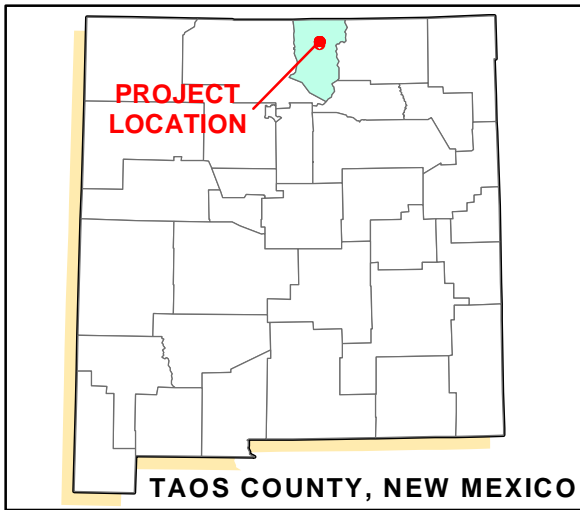
**TESTING & EXCAVATION LA NUMBER LOG (site form required)**

**Tested LA number(s)**

**Excavated LA number(s)**

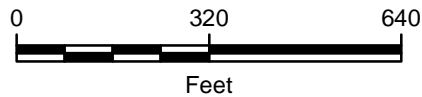
---





**Legend**

- Headgate
- Headgate for Unnamed Ditch No. 2
- Headgate on Embargo Ditch
- West End of Segment
- East End of Segment
- Embargo Ditch
- Unnamed Ditch No. 1
- Unnamed Ditch No. 2



Questa Tailings Pipeline  
Removal Project

**Cultural Resources Location Map**

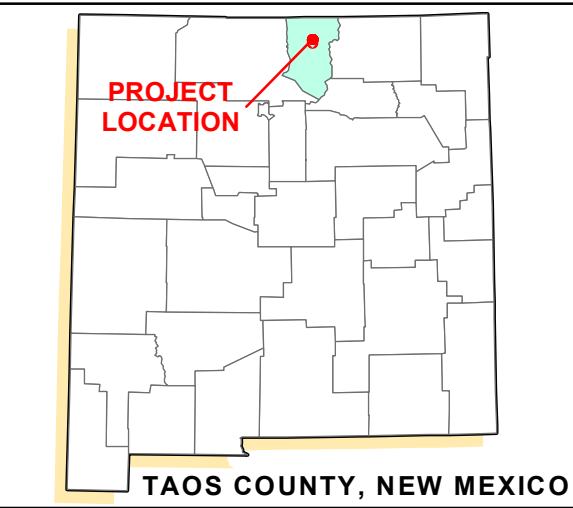
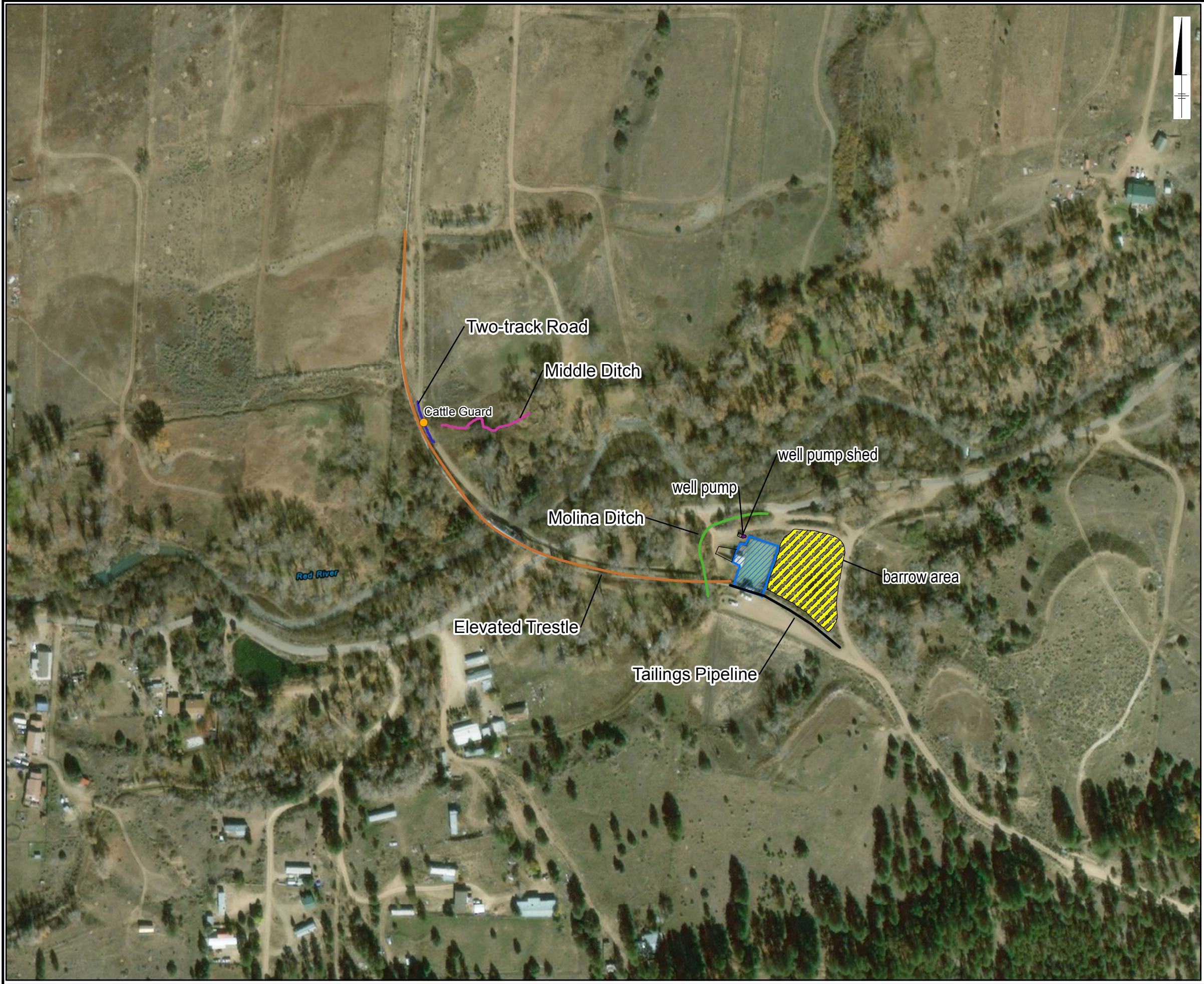


FIGURE

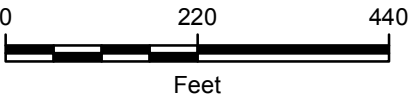
2



CITY:(DEN-TECH) DIV:(GROUP:(ENV/GIS) DB: KGPETERS LD: PIC: PM: TM:  
PROJECT: PATH: Z:\GIS\Projects\ENV\Chevron\_Questa\Map\_MXD\2018\Fig3\_QuestaTailings\_CulturalResourcesLocationMap.mxd



- Legend**
- Cattle Guard
  - Elevated Trestle
  - Middle Ditch
  - Molina Ditch
  - Tailings Pipeline
  - Two-track Road
- Sump Dump Area**
- Barrow Area
  - Reservoir
  - Underground Access
  - Well Pump
  - Well Pump Shed



Questa Tailings Pipeline  
Removal Project

Cultural Resources Location Map


 **ARCADIS**

FIGURE  
3



## **APPENDIX B**

### **ASBESTOS AND LEAD SAMPLING LAB DATA**

# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

## ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Denver

4955 Yarrow Street

Arvada, CO 80002

Tel: (303)736-0100

TestAmerica Job ID: 280-100940-1

Client Project/Site: Questa Pipeline - Lead and Asbestos

For:

Trihydro Corporation

1252 Commerce Drive

Laramie, Wyoming 82070

Attn: Tony Kupilik



Authorized for release by:

9/21/2017 4:43:36 PM

Michelle Johnston, Project Manager II

(303)736-0110

[michelle.johnston@testamericainc.com](mailto:michelle.johnston@testamericainc.com)

Designee for

Donna Rydberg, Senior Project Manager

(303)736-0192

[donna.rydberg@testamericainc.com](mailto:donna.rydberg@testamericainc.com)

### LINKS

Review your project  
results through

TotalAccess

Have a Question?



Visit us at:

[www.testamericainc.com](http://www.testamericainc.com)

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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## Definitions/Glossary

Client: Trihydro Corporation  
Project/Site: Questa Pipeline - Lead and Asbestos

TestAmerica Job ID: 280-100940-1

### Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

# Case Narrative

Client: Trihydro Corporation  
Project/Site: Questa Pipeline - Lead and Asbestos

TestAmerica Job ID: 280-100940-1

**Job ID: 280-100940-1**

**Laboratory: TestAmerica Denver**

## Narrative

### CASE NARRATIVE

**Client: Trihydro Corporation**

**Project: Questa Pipeline - Lead and Asbestos**

**Report Number: 280-100940-1**

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

#### RECEIPT

The samples were received on 09/07/2017; the samples arrived in good condition, properly preserved and on ice. The temperature of the coolers at receipt was 22.2 C.

TestAmerica Denver subcontracted the Asbestos analyses to EMLab P&K. A copy of their report has been included.

#### TOTAL METALS (ICP)

Samples L182817 (280-100940-8), L282817 (280-100940-9), L382817 (280-100940-10), L482817 (280-100940-11), L582817 (280-100940-12), L682817 (280-100940-13), L782817 (280-100940-14), L182917 (280-100940-33), L282917 (280-100940-34), L382917 (280-100940-35), L482917 (280-100940-36), L582917 (280-100940-37), L682917 (280-100940-38), L782917 (280-100940-39), L882917 (280-100940-40), L982917 (280-100940-41), L1082917 (280-100940-42), L1182917 (280-100940-43), L183017 (280-100940-57), L283017 (280-100940-58), BL183017 (280-100940-59), BL283017 (280-100940-60), BL383017 (280-100940-61), BL483017 (280-100940-62), BL583017 (280-100940-63) and BL683017 (280-100940-64) were analyzed for Total Metals (ICP) in accordance with EPA SW-846 Method 6010C. The samples were prepared on 09/11/2017 and analyzed on 09/12/2017 and 09/13/2017.

A deviation from the Standard Operating Procedure (SOP) occurred. Details are as follows: There was insufficient volume to weigh out the SOP specified 1.0-1.5g for the following samples: L1182917 (280-100940-43), BL183017 (280-100940-59), BL283017 (280-100940-60), BL383017 (280-100940-61), BL483017 (280-100940-62), BL583017 (280-100940-63) and BL683017 (280-100940-64).

Samples L582817 (280-100940-12)[5X], L682817 (280-100940-13)[2X], L382917 (280-100940-35)[2X], L782917 (280-100940-39)[5X], L283017 (280-100940-58)[5X], BL183017 (280-100940-59)[10X], BL283017 (280-100940-60)[10X], BL383017 (280-100940-61)[5X], BL483017 (280-100940-62)[20X], BL583017 (280-100940-63)[5X] and BL683017 (280-100940-64)[5X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 280-387084. Method precision and accuracy have been verified by the acceptable LCS/LCSD analyses data.

Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate (MS/MSD) associated with preparation batch 280-387083. Method precision and accuracy have been verified by the acceptable LCS/LCSD analyses data.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.



## Detection Summary

Client: Trihydro Corporation  
Project/Site: Questa Pipeline - Lead and Asbestos

TestAmerica Job ID: 280-100940-1

**Client Sample ID: A182817**

**Lab Sample ID: 280-100940-1**

No Detections.

**Client Sample ID: A282817**

**Lab Sample ID: 280-100940-2**

No Detections.

**Client Sample ID: A382817**

**Lab Sample ID: 280-100940-3**

No Detections.

**Client Sample ID: A482817**

**Lab Sample ID: 280-100940-4**

No Detections.

**Client Sample ID: A582817**

**Lab Sample ID: 280-100940-5**

No Detections.

**Client Sample ID: A682817**

**Lab Sample ID: 280-100940-6**

No Detections.

**Client Sample ID: A782817**

**Lab Sample ID: 280-100940-7**

No Detections.

**Client Sample ID: L182817**

**Lab Sample ID: 280-100940-8**

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Lead	540		0.77	0.27	mg/Kg	1		6010C	Total/NA

**Client Sample ID: L282817**

**Lab Sample ID: 280-100940-9**

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Lead	590		0.66	0.23	mg/Kg	1		6010C	Total/NA

**Client Sample ID: L382817**

**Lab Sample ID: 280-100940-10**

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Lead	590		0.75	0.26	mg/Kg	1		6010C	Total/NA

**Client Sample ID: L482817**

**Lab Sample ID: 280-100940-11**

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Lead	570		0.82	0.28	mg/Kg	1		6010C	Total/NA

**Client Sample ID: L582817**

**Lab Sample ID: 280-100940-12**

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Lead	230		4.1	1.4	mg/Kg	5		6010C	Total/NA

**Client Sample ID: L682817**

**Lab Sample ID: 280-100940-13**

This Detection Summary does not include radiochemical test results.

TestAmerica Denver

## Detection Summary

Client: Trihydro Corporation  
Project/Site: Questa Pipeline - Lead and Asbestos

TestAmerica Job ID: 280-100940-1

### Client Sample ID: L682817 (Continued)

Lab Sample ID: 280-100940-13

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Lead	29		1.2	0.42	mg/Kg	2		6010C	Total/NA

### Client Sample ID: L782817

Lab Sample ID: 280-100940-14

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Lead	550		0.83	0.29	mg/Kg	1		6010C	Total/NA

### Client Sample ID: INS182817

Lab Sample ID: 280-100940-15

No Detections.

### Client Sample ID: INS282817

Lab Sample ID: 280-100940-16

No Detections.

### Client Sample ID: PL182817

Lab Sample ID: 280-100940-17

No Detections.

### Client Sample ID: G182817

Lab Sample ID: 280-100940-18

No Detections.

### Client Sample ID: G282817

Lab Sample ID: 280-100940-19

No Detections.

### Client Sample ID: G382817

Lab Sample ID: 280-100940-20

No Detections.

### Client Sample ID: G482817

Lab Sample ID: 280-100940-21

No Detections.

### Client Sample ID: A182917

Lab Sample ID: 280-100940-22

No Detections.

### Client Sample ID: A282917

Lab Sample ID: 280-100940-23

No Detections.

### Client Sample ID: A382917

Lab Sample ID: 280-100940-24

No Detections.

### Client Sample ID: A482917

Lab Sample ID: 280-100940-25

No Detections.

This Detection Summary does not include radiochemical test results.

TestAmerica Denver

## Detection Summary

Client: Trihydro Corporation  
Project/Site: Questa Pipeline - Lead and Asbestos

TestAmerica Job ID: 280-100940-1

**Client Sample ID: A582917**

**Lab Sample ID: 280-100940-26**

No Detections.

**Client Sample ID: A682917**

**Lab Sample ID: 280-100940-27**

No Detections.

**Client Sample ID: A782917**

**Lab Sample ID: 280-100940-28**

No Detections.

**Client Sample ID: A882917**

**Lab Sample ID: 280-100940-29**

No Detections.

**Client Sample ID: A982917**

**Lab Sample ID: 280-100940-30**

No Detections.

**Client Sample ID: A1082917**

**Lab Sample ID: 280-100940-31**

No Detections.

**Client Sample ID: A1182917**

**Lab Sample ID: 280-100940-32**

No Detections.

**Client Sample ID: L182917**

**Lab Sample ID: 280-100940-33**

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Lead	670		0.73	0.25	mg/Kg	1		6010C	Total/NA

**Client Sample ID: L282917**

**Lab Sample ID: 280-100940-34**

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Lead	500		0.87	0.30	mg/Kg	1		6010C	Total/NA

**Client Sample ID: L382917**

**Lab Sample ID: 280-100940-35**

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Lead	480		1.5	0.53	mg/Kg	2		6010C	Total/NA

**Client Sample ID: L482917**

**Lab Sample ID: 280-100940-36**

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Lead	450		0.73	0.25	mg/Kg	1		6010C	Total/NA

**Client Sample ID: L582917**

**Lab Sample ID: 280-100940-37**

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Lead	280		0.79	0.27	mg/Kg	1		6010C	Total/NA

**Client Sample ID: L682917**

**Lab Sample ID: 280-100940-38**

This Detection Summary does not include radiochemical test results.

TestAmerica Denver



## Detection Summary

Client: Trihydro Corporation  
Project/Site: Questa Pipeline - Lead and Asbestos

TestAmerica Job ID: 280-100940-1

### Client Sample ID: L682917 (Continued)

Lab Sample ID: 280-100940-38

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Lead	120		0.77	0.27	mg/Kg	1		6010C	Total/NA

### Client Sample ID: L782917

Lab Sample ID: 280-100940-39

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Lead	810		4.3	1.5	mg/Kg	5		6010C	Total/NA

### Client Sample ID: L882917

Lab Sample ID: 280-100940-40

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Lead	32		0.86	0.30	mg/Kg	1		6010C	Total/NA

### Client Sample ID: L982917

Lab Sample ID: 280-100940-41

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Lead	430		0.78	0.27	mg/Kg	1		6010C	Total/NA

### Client Sample ID: L1082917

Lab Sample ID: 280-100940-42

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Lead	460		0.72	0.25	mg/Kg	1		6010C	Total/NA

### Client Sample ID: L1182917

Lab Sample ID: 280-100940-43

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Lead	290		1.1	0.38	mg/Kg	1		6010C	Total/NA

### Client Sample ID: G182917

Lab Sample ID: 280-100940-44

No Detections.

### Client Sample ID: G282917

Lab Sample ID: 280-100940-45

No Detections.

### Client Sample ID: G382917

Lab Sample ID: 280-100940-46

No Detections.

### Client Sample ID: G482917

Lab Sample ID: 280-100940-47

No Detections.

### Client Sample ID: PL182917

Lab Sample ID: 280-100940-48

No Detections.

### Client Sample ID: A183017

Lab Sample ID: 280-100940-49

No Detections.

This Detection Summary does not include radiochemical test results.

TestAmerica Denver

## Detection Summary

Client: Trihydro Corporation  
Project/Site: Questa Pipeline - Lead and Asbestos

TestAmerica Job ID: 280-100940-1

**Client Sample ID: A283017**

**Lab Sample ID: 280-100940-50**

No Detections.

**Client Sample ID: BA183017**

**Lab Sample ID: 280-100940-51**

No Detections.

**Client Sample ID: BA283017**

**Lab Sample ID: 280-100940-52**

No Detections.

**Client Sample ID: BA383017**

**Lab Sample ID: 280-100940-53**

No Detections.

**Client Sample ID: BA483017**

**Lab Sample ID: 280-100940-54**

No Detections.

**Client Sample ID: BA583017**

**Lab Sample ID: 280-100940-55**

No Detections.

**Client Sample ID: BA683017**

**Lab Sample ID: 280-100940-56**

No Detections.

**Client Sample ID: L183017**

**Lab Sample ID: 280-100940-57**

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Lead	330		0.99	0.34	mg/Kg	1		6010C	Total/NA

**Client Sample ID: L283017**

**Lab Sample ID: 280-100940-58**

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Lead	380		5.0	1.7	mg/Kg	5		6010C	Total/NA

**Client Sample ID: BL183017**

**Lab Sample ID: 280-100940-59**

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Lead	390		9.3	3.2	mg/Kg	10		6010C	Total/NA

**Client Sample ID: BL283017**

**Lab Sample ID: 280-100940-60**

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Lead	340		8.3	2.9	mg/Kg	10		6010C	Total/NA

**Client Sample ID: BL383017**

**Lab Sample ID: 280-100940-61**

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Lead	250		4.3	1.5	mg/Kg	5		6010C	Total/NA

**Client Sample ID: BL483017**

**Lab Sample ID: 280-100940-62**

This Detection Summary does not include radiochemical test results.

TestAmerica Denver

## Detection Summary

Client: Trihydro Corporation  
Project/Site: Questa Pipeline - Lead and Asbestos

TestAmerica Job ID: 280-100940-1

### Client Sample ID: BL483017 (Continued)

Lab Sample ID: 280-100940-62

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Lead	630		15	5.3	mg/Kg	20		6010C	Total/NA

### Client Sample ID: BL583017

Lab Sample ID: 280-100940-63

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Lead	240		5.5	1.9	mg/Kg	5		6010C	Total/NA

### Client Sample ID: BL683017

Lab Sample ID: 280-100940-64

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Lead	5600		5.6	1.9	mg/Kg	5		6010C	Total/NA

### Client Sample ID: INS183017

Lab Sample ID: 280-100940-65

No Detections.

### Client Sample ID: INS283017

Lab Sample ID: 280-100940-66

No Detections.

### Client Sample ID: VG183017

Lab Sample ID: 280-100940-67

No Detections.

### Client Sample ID: VG283017

Lab Sample ID: 280-100940-68

No Detections.

### Client Sample ID: VG383017

Lab Sample ID: 280-100940-69

No Detections.

### Client Sample ID: PW183017

Lab Sample ID: 280-100940-70

No Detections.

### Client Sample ID: PW283017

Lab Sample ID: 280-100940-71

No Detections.

### Client Sample ID: PW383017

Lab Sample ID: 280-100940-72

No Detections.

### Client Sample ID: PW483017

Lab Sample ID: 280-100940-73

No Detections.

This Detection Summary does not include radiochemical test results.

TestAmerica Denver



## Method Summary

Client: Trihydro Corporation  
Project/Site: Questa Pipeline - Lead and Asbestos

TestAmerica Job ID: 280-100940-1

Method	Method Description	Protocol	Laboratory
6010C	Metals (ICP)	SW846	TAL DEN
Asbestos - PLM by EPA 600/R-93/116 (pric	General Sub Contract Method	NONE	

### Protocol References:

NONE = NONE

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

### Laboratory References:

= EMLab P&K - Denver, 4955 Yarrow Street, Arvada, CO 80002

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100

# Sample Summary

Client: Trihydro Corporation  
Project/Site: Questa Pipeline - Lead and Asbestos

TestAmerica Job ID: 280-100940-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-100940-1	A182817	Solid	08/28/17 13:15	09/07/17 09:15
280-100940-2	A282817	Solid	08/28/17 13:54	09/07/17 09:15
280-100940-3	A382817	Solid	08/28/17 14:20	09/07/17 09:15
280-100940-4	A482817	Solid	08/28/17 14:40	09/07/17 09:15
280-100940-5	A582817	Solid	08/28/17 15:10	09/07/17 09:15
280-100940-6	A682817	Solid	08/28/17 15:35	09/07/17 09:15
280-100940-7	A782817	Solid	08/28/17 16:15	09/07/17 09:15
280-100940-8	L182817	Solid	08/28/17 13:15	09/07/17 09:15
280-100940-9	L282817	Solid	08/28/17 13:54	09/07/17 09:15
280-100940-10	L382817	Solid	08/28/17 14:20	09/07/17 09:15
280-100940-11	L482817	Solid	08/28/17 14:40	09/07/17 09:15
280-100940-12	L582817	Solid	08/28/17 14:50	09/07/17 09:15
280-100940-13	L682817	Solid	08/28/17 15:35	09/07/17 09:15
280-100940-14	L782817	Solid	08/28/17 16:15	09/07/17 09:15
280-100940-15	INS182817	Solid	08/28/17 15:55	09/07/17 09:15
280-100940-16	INS282817	Solid	08/28/17 15:55	09/07/17 09:15
280-100940-17	PL182817	Solid	08/28/17 15:55	09/07/17 09:15
280-100940-18	G182817	Solid	08/28/17 14:50	09/07/17 09:15
280-100940-19	G282817	Solid	08/28/17 14:50	09/07/17 09:15
280-100940-20	G382817	Solid	08/28/17 16:40	09/07/17 09:15
280-100940-21	G482817	Solid	08/28/17 16:40	09/07/17 09:15
280-100940-22	A182917	Solid	08/29/17 08:35	09/07/17 09:15
280-100940-23	A282917	Solid	08/29/17 09:10	09/07/17 09:15
280-100940-24	A382917	Solid	08/29/17 09:45	09/07/17 09:15
280-100940-25	A482917	Solid	08/29/17 10:05	09/07/17 09:15
280-100940-26	A582917	Solid	08/29/17 10:25	09/07/17 09:15
280-100940-27	A682917	Solid	08/29/17 11:05	09/07/17 09:15
280-100940-28	A782917	Solid	08/29/17 11:40	09/07/17 09:15
280-100940-29	A882917	Solid	08/29/17 11:55	09/07/17 09:15
280-100940-30	A982917	Solid	08/29/17 12:30	09/07/17 09:15
280-100940-31	A1082917	Solid	08/29/17 15:10	09/07/17 09:15
280-100940-32	A1182917	Solid	08/29/17 16:40	09/07/17 09:15
280-100940-33	L182917	Solid	08/29/17 08:35	09/07/17 09:15
280-100940-34	L282917	Solid	08/29/17 09:10	09/07/17 09:15
280-100940-35	L382917	Solid	08/29/17 09:45	09/07/17 09:15
280-100940-36	L482917	Solid	08/29/17 10:05	09/07/17 09:15
280-100940-37	L582917	Solid	08/29/17 10:25	09/07/17 09:15
280-100940-38	L682917	Solid	08/29/17 11:05	09/07/17 09:15
280-100940-39	L782917	Solid	08/29/17 11:40	09/07/17 09:15
280-100940-40	L882917	Solid	08/29/17 11:55	09/07/17 09:15
280-100940-41	L982917	Solid	08/29/17 12:30	09/07/17 09:15
280-100940-42	L1082917	Solid	08/29/17 15:10	09/07/17 09:15
280-100940-43	L1182917	Solid	08/29/17 16:40	09/07/17 09:15
280-100940-44	G182917	Solid	08/29/17 09:20	09/07/17 09:15
280-100940-45	G282917	Solid	08/29/17 09:25	09/07/17 09:15
280-100940-46	G382917	Solid	08/29/17 10:20	09/07/17 09:15
280-100940-47	G482917	Solid	08/29/17 10:25	09/07/17 09:15
280-100940-48	PL182917	Solid	08/29/17 10:30	09/07/17 09:15
280-100940-49	A183017	Solid	08/30/17 09:40	09/07/17 09:15
280-100940-50	A283017	Solid	08/30/17 11:10	09/07/17 09:15
280-100940-51	BA183017	Solid	08/30/17 11:15	09/07/17 09:15
280-100940-52	BA283017	Solid	08/30/17 11:20	09/07/17 09:15
280-100940-53	BA383017	Solid	08/30/17 11:25	09/07/17 09:15

TestAmerica Denver

# Sample Summary

Client: Trihydro Corporation  
Project/Site: Questa Pipeline - Lead and Asbestos

TestAmerica Job ID: 280-100940-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
280-100940-54	BA483017	Solid	08/30/17 11:30	09/07/17 09:15
280-100940-55	BA583017	Solid	08/30/17 11:40	09/07/17 09:15
280-100940-56	BA683017	Solid	08/30/17 11:50	09/07/17 09:15
280-100940-57	L183017	Solid	08/30/17 09:40	09/07/17 09:15
280-100940-58	L283017	Solid	08/30/17 11:10	09/07/17 09:15
280-100940-59	BL183017	Solid	08/30/17 11:15	09/07/17 09:15
280-100940-60	BL283017	Solid	08/30/17 11:20	09/07/17 09:15
280-100940-61	BL383017	Solid	08/30/17 11:25	09/07/17 09:15
280-100940-62	BL483017	Solid	08/30/17 11:30	09/07/17 09:15
280-100940-63	BL583017	Solid	08/30/17 11:40	09/07/17 09:15
280-100940-64	BL683017	Solid	08/30/17 11:50	09/07/17 09:15
280-100940-65	INS183017	Solid	08/30/17 09:10	09/07/17 09:15
280-100940-66	INS283017	Solid	08/30/17 09:15	09/07/17 09:15
280-100940-67	VG183017	Solid	08/30/17 09:20	09/07/17 09:15
280-100940-68	VG283017	Solid	08/30/17 09:30	09/07/17 09:15
280-100940-69	VG383017	Solid	08/30/17 09:40	09/07/17 09:15
280-100940-70	PW183017	Solid	08/30/17 15:10	09/07/17 09:15
280-100940-71	PW283017	Solid	08/30/17 15:20	09/07/17 09:15
280-100940-72	PW383017	Solid	08/30/17 15:30	09/07/17 09:15
280-100940-73	PW483017	Solid	08/30/17 15:40	09/07/17 09:15



# Client Sample Results

Client: Trihydro Corporation  
Project/Site: Questa Pipeline - Lead and Asbestos

TestAmerica Job ID: 280-100940-1

## Method: 6010C - Metals (ICP)

Client Sample ID: L182817  
Date Collected: 08/28/17 13:15  
Date Received: 09/07/17 09:15

Lab Sample ID: 280-100940-8  
Matrix: Solid

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	540		0.77	0.27	mg/Kg	-	09/11/17 13:30	09/12/17 02:35	1

Client Sample ID: L282817  
Date Collected: 08/28/17 13:54  
Date Received: 09/07/17 09:15

Lab Sample ID: 280-100940-9  
Matrix: Solid

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	590		0.66	0.23	mg/Kg	-	09/11/17 13:30	09/12/17 02:37	1

Client Sample ID: L382817  
Date Collected: 08/28/17 14:20  
Date Received: 09/07/17 09:15

Lab Sample ID: 280-100940-10  
Matrix: Solid

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	590		0.75	0.26	mg/Kg	-	09/11/17 13:30	09/12/17 02:40	1

Client Sample ID: L482817  
Date Collected: 08/28/17 14:40  
Date Received: 09/07/17 09:15

Lab Sample ID: 280-100940-11  
Matrix: Solid

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	570		0.82	0.28	mg/Kg	-	09/11/17 13:30	09/12/17 02:42	1

Client Sample ID: L582817  
Date Collected: 08/28/17 14:50  
Date Received: 09/07/17 09:15

Lab Sample ID: 280-100940-12  
Matrix: Solid

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	230		4.1	1.4	mg/Kg	-	09/11/17 13:30	09/13/17 07:21	5

Client Sample ID: L682817  
Date Collected: 08/28/17 15:35  
Date Received: 09/07/17 09:15

Lab Sample ID: 280-100940-13  
Matrix: Solid

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	29		1.2	0.42	mg/Kg	-	09/11/17 13:30	09/13/17 07:24	2

Client Sample ID: L782817  
Date Collected: 08/28/17 16:15  
Date Received: 09/07/17 09:15

Lab Sample ID: 280-100940-14  
Matrix: Solid

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	550		0.83	0.29	mg/Kg	-	09/11/17 13:30	09/12/17 03:00	1

Client Sample ID: L182917  
Date Collected: 08/29/17 08:35  
Date Received: 09/07/17 09:15

Lab Sample ID: 280-100940-33  
Matrix: Solid

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	670		0.73	0.25	mg/Kg	-	09/11/17 13:30	09/12/17 03:03	1

Client Sample ID: L282917  
Date Collected: 08/29/17 09:10  
Date Received: 09/07/17 09:15

Lab Sample ID: 280-100940-34  
Matrix: Solid

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	500		0.87	0.30	mg/Kg	-	09/11/17 13:30	09/12/17 03:05	1

TestAmerica Denver

# Client Sample Results

Client: Trihydro Corporation  
Project/Site: Questa Pipeline - Lead and Asbestos

TestAmerica Job ID: 280-100940-1

## Method: 6010C - Metals (ICP)

Client Sample ID: L382917  
Date Collected: 08/29/17 09:45  
Date Received: 09/07/17 09:15

Lab Sample ID: 280-100940-35  
Matrix: Solid

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	480		1.5	0.53	mg/Kg	—	09/11/17 13:30	09/13/17 07:44	2

Client Sample ID: L482917  
Date Collected: 08/29/17 10:05  
Date Received: 09/07/17 09:15

Lab Sample ID: 280-100940-36  
Matrix: Solid

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	450		0.73	0.25	mg/Kg	—	09/11/17 13:30	09/12/17 03:10	1

Client Sample ID: L582917  
Date Collected: 08/29/17 10:25  
Date Received: 09/07/17 09:15

Lab Sample ID: 280-100940-37  
Matrix: Solid

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	280		0.79	0.27	mg/Kg	—	09/11/17 13:30	09/12/17 03:12	1

Client Sample ID: L682917  
Date Collected: 08/29/17 11:05  
Date Received: 09/07/17 09:15

Lab Sample ID: 280-100940-38  
Matrix: Solid

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	120		0.77	0.27	mg/Kg	—	09/11/17 13:30	09/12/17 03:15	1

Client Sample ID: L782917  
Date Collected: 08/29/17 11:40  
Date Received: 09/07/17 09:15

Lab Sample ID: 280-100940-39  
Matrix: Solid

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	810		4.3	1.5	mg/Kg	—	09/11/17 13:30	09/13/17 14:37	5

Client Sample ID: L882917  
Date Collected: 08/29/17 11:55  
Date Received: 09/07/17 09:15

Lab Sample ID: 280-100940-40  
Matrix: Solid

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	32		0.86	0.30	mg/Kg	—	09/11/17 13:30	09/12/17 03:43	1

Client Sample ID: L982917  
Date Collected: 08/29/17 12:30  
Date Received: 09/07/17 09:15

Lab Sample ID: 280-100940-41  
Matrix: Solid

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	430		0.78	0.27	mg/Kg	—	09/11/17 13:30	09/12/17 03:45	1

Client Sample ID: L1082917  
Date Collected: 08/29/17 15:10  
Date Received: 09/07/17 09:15

Lab Sample ID: 280-100940-42  
Matrix: Solid

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	460		0.72	0.25	mg/Kg	—	09/11/17 13:30	09/12/17 03:48	1

Client Sample ID: L1182917  
Date Collected: 08/29/17 16:40  
Date Received: 09/07/17 09:15

Lab Sample ID: 280-100940-43  
Matrix: Solid

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	290		1.1	0.38	mg/Kg	—	09/11/17 13:30	09/12/17 03:50	1

TestAmerica Denver

# Client Sample Results

Client: Trihydro Corporation  
Project/Site: Questa Pipeline - Lead and Asbestos

TestAmerica Job ID: 280-100940-1

## Method: 6010C - Metals (ICP)

Client Sample ID: L183017  
Date Collected: 08/30/17 09:40  
Date Received: 09/07/17 09:15

Lab Sample ID: 280-100940-57  
Matrix: Solid

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	330		0.99	0.34	mg/Kg	-	09/11/17 13:30	09/12/17 03:53	1

Client Sample ID: L283017  
Date Collected: 08/30/17 11:10  
Date Received: 09/07/17 09:15

Lab Sample ID: 280-100940-58  
Matrix: Solid

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	380		5.0	1.7	mg/Kg	-	09/11/17 13:30	09/13/17 06:16	5

Client Sample ID: BL183017  
Date Collected: 08/30/17 11:15  
Date Received: 09/07/17 09:15

Lab Sample ID: 280-100940-59  
Matrix: Solid

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	390		9.3	3.2	mg/Kg	-	09/11/17 13:30	09/13/17 06:28	10

Client Sample ID: BL283017  
Date Collected: 08/30/17 11:20  
Date Received: 09/07/17 09:15

Lab Sample ID: 280-100940-60  
Matrix: Solid

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	340		8.3	2.9	mg/Kg	-	09/11/17 13:30	09/13/17 06:31	10

Client Sample ID: BL383017  
Date Collected: 08/30/17 11:25  
Date Received: 09/07/17 09:15

Lab Sample ID: 280-100940-61  
Matrix: Solid

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	250		4.3	1.5	mg/Kg	-	09/11/17 13:30	09/13/17 06:33	5

Client Sample ID: BL483017  
Date Collected: 08/30/17 11:30  
Date Received: 09/07/17 09:15

Lab Sample ID: 280-100940-62  
Matrix: Solid

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	630		15	5.3	mg/Kg	-	09/11/17 13:30	09/13/17 08:09	20

Client Sample ID: BL583017  
Date Collected: 08/30/17 11:40  
Date Received: 09/07/17 09:15

Lab Sample ID: 280-100940-63  
Matrix: Solid

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	240		5.5	1.9	mg/Kg	-	09/11/17 13:30	09/13/17 06:38	5

Client Sample ID: BL683017  
Date Collected: 08/30/17 11:50  
Date Received: 09/07/17 09:15

Lab Sample ID: 280-100940-64  
Matrix: Solid

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	5600		5.6	1.9	mg/Kg	-	09/11/17 13:30	09/13/17 06:46	5



# QC Association Summary

Client: Trihydro Corporation  
Project/Site: Questa Pipeline - Lead and Asbestos

TestAmerica Job ID: 280-100940-1

## Metals

### Prep Batch: 387083

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-100940-39	L782917	Total/NA	Solid	3050B	
280-100940-40	L882917	Total/NA	Solid	3050B	
280-100940-41	L982917	Total/NA	Solid	3050B	
280-100940-42	L1082917	Total/NA	Solid	3050B	
280-100940-43	L1182917	Total/NA	Solid	3050B	
280-100940-57	L183017	Total/NA	Solid	3050B	
280-100940-58	L283017	Total/NA	Solid	3050B	
280-100940-59	BL183017	Total/NA	Solid	3050B	
280-100940-60	BL283017	Total/NA	Solid	3050B	
280-100940-61	BL383017	Total/NA	Solid	3050B	
280-100940-62	BL483017	Total/NA	Solid	3050B	
280-100940-63	BL583017	Total/NA	Solid	3050B	
280-100940-64	BL683017	Total/NA	Solid	3050B	
MB 280-387083/1-A	Method Blank	Total/NA	Solid	3050B	
LCS 280-387083/2-A	Lab Control Sample	Total/NA	Solid	3050B	
LCSD 280-387083/3-A	Lab Control Sample Dup	Total/NA	Solid	3050B	

### Prep Batch: 387084

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-100940-8	L182817	Total/NA	Solid	3050B	
280-100940-9	L282817	Total/NA	Solid	3050B	
280-100940-10	L382817	Total/NA	Solid	3050B	
280-100940-11	L482817	Total/NA	Solid	3050B	
280-100940-12	L582817	Total/NA	Solid	3050B	
280-100940-13	L682817	Total/NA	Solid	3050B	
280-100940-14	L782817	Total/NA	Solid	3050B	
280-100940-33	L182917	Total/NA	Solid	3050B	
280-100940-34	L282917	Total/NA	Solid	3050B	
280-100940-35	L382917	Total/NA	Solid	3050B	
280-100940-36	L482917	Total/NA	Solid	3050B	
280-100940-37	L582917	Total/NA	Solid	3050B	
280-100940-38	L682917	Total/NA	Solid	3050B	
MB 280-387084/1-A	Method Blank	Total/NA	Solid	3050B	
LCS 280-387084/2-A	Lab Control Sample	Total/NA	Solid	3050B	
LCSD 280-387084/3-A	Lab Control Sample Dup	Total/NA	Solid	3050B	

### Analysis Batch: 387317

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-100940-8	L182817	Total/NA	Solid	6010C	387084
280-100940-9	L282817	Total/NA	Solid	6010C	387084
280-100940-10	L382817	Total/NA	Solid	6010C	387084
280-100940-11	L482817	Total/NA	Solid	6010C	387084
280-100940-14	L782817	Total/NA	Solid	6010C	387084
280-100940-33	L182917	Total/NA	Solid	6010C	387084
280-100940-34	L282917	Total/NA	Solid	6010C	387084
280-100940-36	L482917	Total/NA	Solid	6010C	387084
280-100940-37	L582917	Total/NA	Solid	6010C	387084
280-100940-38	L682917	Total/NA	Solid	6010C	387084
280-100940-40	L882917	Total/NA	Solid	6010C	387083
280-100940-41	L982917	Total/NA	Solid	6010C	387083
280-100940-42	L1082917	Total/NA	Solid	6010C	387083

TestAmerica Denver

# QC Association Summary

Client: Trihydro Corporation  
Project/Site: Questa Pipeline - Lead and Asbestos

TestAmerica Job ID: 280-100940-1

## Metals (Continued)

### Analysis Batch: 387317 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-100940-43	L1182917	Total/NA	Solid	6010C	387083
280-100940-57	L183017	Total/NA	Solid	6010C	387083
MB 280-387083/1-A	Method Blank	Total/NA	Solid	6010C	387083
MB 280-387084/1-A	Method Blank	Total/NA	Solid	6010C	387084
LCS 280-387083/2-A	Lab Control Sample	Total/NA	Solid	6010C	387083
LCS 280-387084/2-A	Lab Control Sample	Total/NA	Solid	6010C	387084
LCSD 280-387083/3-A	Lab Control Sample Dup	Total/NA	Solid	6010C	387083
LCSD 280-387084/3-A	Lab Control Sample Dup	Total/NA	Solid	6010C	387084

### Analysis Batch: 387473

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-100940-12	L582817	Total/NA	Solid	6010C	387084
280-100940-13	L682817	Total/NA	Solid	6010C	387084
280-100940-35	L382917	Total/NA	Solid	6010C	387084
280-100940-58	L283017	Total/NA	Solid	6010C	387083
280-100940-59	BL183017	Total/NA	Solid	6010C	387083
280-100940-60	BL283017	Total/NA	Solid	6010C	387083
280-100940-61	BL383017	Total/NA	Solid	6010C	387083
280-100940-62	BL483017	Total/NA	Solid	6010C	387083
280-100940-63	BL583017	Total/NA	Solid	6010C	387083
280-100940-64	BL683017	Total/NA	Solid	6010C	387083

### Analysis Batch: 387616

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
280-100940-39	L782917	Total/NA	Solid	6010C	387083

# QC Sample Results

Client: Trihydro Corporation  
Project/Site: Questa Pipeline - Lead and Asbestos

TestAmerica Job ID: 280-100940-1

## Method: 6010C - Metals (ICP)

Lab Sample ID: MB 280-387083/1-A  
Matrix: Solid  
Analysis Batch: 387317

Client Sample ID: Method Blank  
Prep Type: Total/NA  
Prep Batch: 387083

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	ND		0.90	0.31	mg/Kg		09/11/17 13:30	09/12/17 03:33	1

Lab Sample ID: LCS 280-387083/2-A  
Matrix: Solid  
Analysis Batch: 387317

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA  
Prep Batch: 387083

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Lead	50.0	50.2		mg/Kg		100	86 - 110

Lab Sample ID: LCSD 280-387083/3-A  
Matrix: Solid  
Analysis Batch: 387317

Client Sample ID: Lab Control Sample Dup  
Prep Type: Total/NA  
Prep Batch: 387083

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
Lead	50.0	50.4		mg/Kg		101	86 - 110	0	20

Lab Sample ID: MB 280-387084/1-A  
Matrix: Solid  
Analysis Batch: 387317

Client Sample ID: Method Blank  
Prep Type: Total/NA  
Prep Batch: 387084

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	ND		0.90	0.31	mg/Kg		09/11/17 13:30	09/12/17 02:25	1

Lab Sample ID: LCS 280-387084/2-A  
Matrix: Solid  
Analysis Batch: 387317

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA  
Prep Batch: 387084

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Lead	50.0	50.7		mg/Kg		101	86 - 110

Lab Sample ID: LCSD 280-387084/3-A  
Matrix: Solid  
Analysis Batch: 387317

Client Sample ID: Lab Control Sample Dup  
Prep Type: Total/NA  
Prep Batch: 387084

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
Lead	50.0	49.9		mg/Kg		100	86 - 110	1	20



# Lab Chronicle

Client: Trihydro Corporation  
Project/Site: Questa Pipeline - Lead and Asbestos

TestAmerica Job ID: 280-100940-1

**Client Sample ID: L182817**

**Date Collected: 08/28/17 13:15**

**Date Received: 09/07/17 09:15**

**Lab Sample ID: 280-100940-8**

**Matrix: Solid**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			1.165 g	100 mL	387084	09/11/17 13:30	SEJ	TAL DEN
Total/NA	Analysis	6010C		1			387317	09/12/17 02:35	CML	TAL DEN

**Client Sample ID: L282817**

**Date Collected: 08/28/17 13:54**

**Date Received: 09/07/17 09:15**

**Lab Sample ID: 280-100940-9**

**Matrix: Solid**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			1.371 g	100 mL	387084	09/11/17 13:30	SEJ	TAL DEN
Total/NA	Analysis	6010C		1			387317	09/12/17 02:37	CML	TAL DEN

**Client Sample ID: L382817**

**Date Collected: 08/28/17 14:20**

**Date Received: 09/07/17 09:15**

**Lab Sample ID: 280-100940-10**

**Matrix: Solid**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			1.193 g	100 mL	387084	09/11/17 13:30	SEJ	TAL DEN
Total/NA	Analysis	6010C		1			387317	09/12/17 02:40	CML	TAL DEN

**Client Sample ID: L482817**

**Date Collected: 08/28/17 14:40**

**Date Received: 09/07/17 09:15**

**Lab Sample ID: 280-100940-11**

**Matrix: Solid**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			1.101 g	100 mL	387084	09/11/17 13:30	SEJ	TAL DEN
Total/NA	Analysis	6010C		1			387317	09/12/17 02:42	CML	TAL DEN

**Client Sample ID: L582817**

**Date Collected: 08/28/17 14:50**

**Date Received: 09/07/17 09:15**

**Lab Sample ID: 280-100940-12**

**Matrix: Solid**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			1.096 g	100 mL	387084	09/11/17 13:30	SEJ	TAL DEN
Total/NA	Analysis	6010C		5			387473	09/13/17 07:21	CRR	TAL DEN

**Client Sample ID: L682817**

**Date Collected: 08/28/17 15:35**

**Date Received: 09/07/17 09:15**

**Lab Sample ID: 280-100940-13**

**Matrix: Solid**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			1.491 g	100 mL	387084	09/11/17 13:30	SEJ	TAL DEN
Total/NA	Analysis	6010C		2			387473	09/13/17 07:24	CRR	TAL DEN

TestAmerica Denver

# Lab Chronicle

Client: Trihydro Corporation  
Project/Site: Questa Pipeline - Lead and Asbestos

TestAmerica Job ID: 280-100940-1

**Client Sample ID: L782817**

**Date Collected: 08/28/17 16:15**

**Date Received: 09/07/17 09:15**

**Lab Sample ID: 280-100940-14**

**Matrix: Solid**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			1.078 g	100 mL	387084	09/11/17 13:30	SEJ	TAL DEN
Total/NA	Analysis	6010C		1			387317	09/12/17 03:00	CML	TAL DEN

**Client Sample ID: L182917**

**Date Collected: 08/29/17 08:35**

**Date Received: 09/07/17 09:15**

**Lab Sample ID: 280-100940-33**

**Matrix: Solid**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			1.226 g	100 mL	387084	09/11/17 13:30	SEJ	TAL DEN
Total/NA	Analysis	6010C		1			387317	09/12/17 03:03	CML	TAL DEN

**Client Sample ID: L282917**

**Date Collected: 08/29/17 09:10**

**Date Received: 09/07/17 09:15**

**Lab Sample ID: 280-100940-34**

**Matrix: Solid**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			1.033 g	100 mL	387084	09/11/17 13:30	SEJ	TAL DEN
Total/NA	Analysis	6010C		1			387317	09/12/17 03:05	CML	TAL DEN

**Client Sample ID: L382917**

**Date Collected: 08/29/17 09:45**

**Date Received: 09/07/17 09:15**

**Lab Sample ID: 280-100940-35**

**Matrix: Solid**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			1.171 g	100 mL	387084	09/11/17 13:30	SEJ	TAL DEN
Total/NA	Analysis	6010C		2			387473	09/13/17 07:44	CRR	TAL DEN

**Client Sample ID: L482917**

**Date Collected: 08/29/17 10:05**

**Date Received: 09/07/17 09:15**

**Lab Sample ID: 280-100940-36**

**Matrix: Solid**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			1.227 g	100 mL	387084	09/11/17 13:30	SEJ	TAL DEN
Total/NA	Analysis	6010C		1			387317	09/12/17 03:10	CML	TAL DEN

**Client Sample ID: L582917**

**Date Collected: 08/29/17 10:25**

**Date Received: 09/07/17 09:15**

**Lab Sample ID: 280-100940-37**

**Matrix: Solid**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			1.134 g	100 mL	387084	09/11/17 13:30	SEJ	TAL DEN
Total/NA	Analysis	6010C		1			387317	09/12/17 03:12	CML	TAL DEN

TestAmerica Denver

# Lab Chronicle

Client: Trihydro Corporation  
Project/Site: Questa Pipeline - Lead and Asbestos

TestAmerica Job ID: 280-100940-1

**Client Sample ID: L682917**

**Date Collected: 08/29/17 11:05**

**Date Received: 09/07/17 09:15**

**Lab Sample ID: 280-100940-38**

**Matrix: Solid**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			1.164 g	100 mL	387084	09/11/17 13:30	SEJ	TAL DEN
Total/NA	Analysis	6010C		1			387317	09/12/17 03:15	CML	TAL DEN

**Client Sample ID: L782917**

**Date Collected: 08/29/17 11:40**

**Date Received: 09/07/17 09:15**

**Lab Sample ID: 280-100940-39**

**Matrix: Solid**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			1.049 g	100 mL	387083	09/11/17 13:30	SEJ	TAL DEN
Total/NA	Analysis	6010C		5			387616	09/13/17 14:37	CML	TAL DEN

**Client Sample ID: L882917**

**Date Collected: 08/29/17 11:55**

**Date Received: 09/07/17 09:15**

**Lab Sample ID: 280-100940-40**

**Matrix: Solid**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			1.044 g	100 mL	387083	09/11/17 13:30	SEJ	TAL DEN
Total/NA	Analysis	6010C		1			387317	09/12/17 03:43	CML	TAL DEN

**Client Sample ID: L982917**

**Date Collected: 08/29/17 12:30**

**Date Received: 09/07/17 09:15**

**Lab Sample ID: 280-100940-41**

**Matrix: Solid**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			1.160 g	100 mL	387083	09/11/17 13:30	SEJ	TAL DEN
Total/NA	Analysis	6010C		1			387317	09/12/17 03:45	CML	TAL DEN

**Client Sample ID: L1082917**

**Date Collected: 08/29/17 15:10**

**Date Received: 09/07/17 09:15**

**Lab Sample ID: 280-100940-42**

**Matrix: Solid**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			1.257 g	100 mL	387083	09/11/17 13:30	SEJ	TAL DEN
Total/NA	Analysis	6010C		1			387317	09/12/17 03:48	CML	TAL DEN

**Client Sample ID: L1182917**

**Date Collected: 08/29/17 16:40**

**Date Received: 09/07/17 09:15**

**Lab Sample ID: 280-100940-43**

**Matrix: Solid**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			0.825 g	100 mL	387083	09/11/17 13:30	SEJ	TAL DEN
Total/NA	Analysis	6010C		1			387317	09/12/17 03:50	CML	TAL DEN

TestAmerica Denver



# Lab Chronicle

Client: Trihydro Corporation  
Project/Site: Questa Pipeline - Lead and Asbestos

TestAmerica Job ID: 280-100940-1

**Client Sample ID: L183017**

**Date Collected: 08/30/17 09:40**

**Date Received: 09/07/17 09:15**

**Lab Sample ID: 280-100940-57**

**Matrix: Solid**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			0.905 g	100 mL	387083	09/11/17 13:30	SEJ	TAL DEN
Total/NA	Analysis	6010C		1			387317	09/12/17 03:53	CML	TAL DEN

**Client Sample ID: L283017**

**Date Collected: 08/30/17 11:10**

**Date Received: 09/07/17 09:15**

**Lab Sample ID: 280-100940-58**

**Matrix: Solid**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			0.901 g	100 mL	387083	09/11/17 13:30	SEJ	TAL DEN
Total/NA	Analysis	6010C		5			387473	09/13/17 06:16	CRR	TAL DEN

**Client Sample ID: BL183017**

**Date Collected: 08/30/17 11:15**

**Date Received: 09/07/17 09:15**

**Lab Sample ID: 280-100940-59**

**Matrix: Solid**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			0.482 g	50 mL	387083	09/11/17 13:30	SEJ	TAL DEN
Total/NA	Analysis	6010C		10			387473	09/13/17 06:28	CRR	TAL DEN

**Client Sample ID: BL283017**

**Date Collected: 08/30/17 11:20**

**Date Received: 09/07/17 09:15**

**Lab Sample ID: 280-100940-60**

**Matrix: Solid**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			0.541 g	50 mL	387083	09/11/17 13:30	SEJ	TAL DEN
Total/NA	Analysis	6010C		10			387473	09/13/17 06:31	CRR	TAL DEN

**Client Sample ID: BL383017**

**Date Collected: 08/30/17 11:25**

**Date Received: 09/07/17 09:15**

**Lab Sample ID: 280-100940-61**

**Matrix: Solid**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			0.526 g	50 mL	387083	09/11/17 13:30	SEJ	TAL DEN
Total/NA	Analysis	6010C		5			387473	09/13/17 06:33	CRR	TAL DEN

**Client Sample ID: BL483017**

**Date Collected: 08/30/17 11:30**

**Date Received: 09/07/17 09:15**

**Lab Sample ID: 280-100940-62**

**Matrix: Solid**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			0.588 g	50 mL	387083	09/11/17 13:30	SEJ	TAL DEN
Total/NA	Analysis	6010C		20			387473	09/13/17 08:09	CRR	TAL DEN

TestAmerica Denver

# Lab Chronicle

Client: Trihydro Corporation  
Project/Site: Questa Pipeline - Lead and Asbestos

TestAmerica Job ID: 280-100940-1

**Client Sample ID: BL583017**

**Date Collected: 08/30/17 11:40**

**Date Received: 09/07/17 09:15**

**Lab Sample ID: 280-100940-63**

**Matrix: Solid**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			0.814 g	100 mL	387083	09/11/17 13:30	SEJ	TAL DEN
Total/NA	Analysis	6010C		5			387473	09/13/17 06:38	CRR	TAL DEN

**Client Sample ID: BL683017**

**Date Collected: 08/30/17 11:50**

**Date Received: 09/07/17 09:15**

**Lab Sample ID: 280-100940-64**

**Matrix: Solid**

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			0.402 g	50 mL	387083	09/11/17 13:30	SEJ	TAL DEN
Total/NA	Analysis	6010C		5			387473	09/13/17 06:46	CRR	TAL DEN

## Laboratory References:

= EMLab P&K - Denver, 4955 Yarrow Street, Arvada, CO 80002

TAL DEN = TestAmerica Denver, 4955 Yarrow Street, Arvada, CO 80002, TEL (303)736-0100



Report for:

**Donna Rydberg**  
**TestAmerica-Denver**  
4955 Yarrow Street  
Arvada, CO 80002

Regarding: Project: 280-100940-1; Questa Pipeline- Lead and Asbestos  
EML ID: 1790994

Approved by:

Dates of Analysis:  
Asbestos PLM: 09-19-2017

Approved Signatory  
Noah Lazarte

Service SOPs: Asbestos PLM (EPA Methods 600/R-93/116 & 600/M4-82-020, SOP EM-AS-S-1267)

All samples were received in acceptable condition unless noted in the Report Comments portion in the body of the report. The results relate only to the items tested. The results include an inherent uncertainty of measurement associated with estimating percentages by polarized light microscopy. Measurement uncertainty data for sample results with >1% asbestos concentration can be provided when requested.

EMLab P&K ("the Company") shall have no liability to the client or the client's customer with respect to decisions or recommendations made, actions taken or courses of conduct implemented by either the client or the client's customer as a result of or based upon the Test Results. In no event shall the Company be liable to the client with respect to the Test Results except for the Company's own willful misconduct or gross negligence nor shall the Company be liable for incidental or consequential damages or lost profits or revenues to the fullest extent such liability may be disclaimed by law, even if the Company has been advised of the possibility of such damages, lost profits or lost revenues. In no event shall the Company's liability with respect to the Test Results exceed the amount paid to the Company by the client therefor.



Client: TestAmerica-Denver  
 C/O: Donna Rydberg  
 Re: 280-100940-1; Questa Pipeline- Lead and Asbestos

Date of Sampling: 08-28-2017  
 Date of Receipt: 09-08-2017  
 Date of Report: 09-19-2017

**ASBESTOS PLM REPORT: EPA-600/M4-82-020 & EPA METHOD 600/R-93-116**

**Total Samples Submitted:** 47

**Total Samples Analyzed:** 47

**Total Samples with Layer Asbestos Content > 1%:** 4

**Location: 280-100940-1, A182817**

Lab ID-Version‡: 8373424-1

Sample Layers	Asbestos Content
Gray Compound	ND
<b>Sample Composite Homogeneity:</b> Good	

**Location: 280-100940-2, A282817**

Lab ID-Version‡: 8373425-1

Sample Layers	Asbestos Content
Brown Compound	ND
<b>Sample Composite Homogeneity:</b> Good	

**Location: 280-100940-3, A382817**

Lab ID-Version‡: 8373426-1

Sample Layers	Asbestos Content
Brown Compound	ND
<b>Sample Composite Homogeneity:</b> Good	

**Location: 280-100940-4, A482817**

Lab ID-Version‡: 8373427-1

Sample Layers	Asbestos Content
Brown Compound	ND
<b>Sample Composite Homogeneity:</b> Good	

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‡ A "Version" indicated by "-x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".

Client: TestAmerica-Denver  
 C/O: Donna Rydberg  
 Re: 280-100940-1; Questa Pipeline- Lead and  
 Asbestos

Date of Sampling: 08-28-2017  
 Date of Receipt: 09-08-2017  
 Date of Report: 09-19-2017

**ASBESTOS PLM REPORT: EPA-600/M4-82-020 & EPA METHOD 600/R-93-116****Location: 280-100940-5, A582817**

Lab ID-Version‡: 8373428-1

Sample Layers	Asbestos Content
Red Non-Fibrous Material	ND
<b>Sample Composite Homogeneity:</b>	Good

**Location: 280-100940-6, A682817**

Lab ID-Version‡: 8373429-1

Sample Layers	Asbestos Content
Gray Compound	ND
<b>Sample Composite Homogeneity:</b>	Good

**Location: 280-100940-7, A782817**

Lab ID-Version‡: 8373430-1

Sample Layers	Asbestos Content
Brown Compound	ND
<b>Sample Composite Homogeneity:</b>	Good

**Location: 280-100940-15, INS182817**

Lab ID-Version‡: 8373431-1

Sample Layers	Asbestos Content
Yellow Insulation	ND
<b>Composite Non-Asbestos Content:</b>	90% Glass Fibers 7% Cellulose
<b>Sample Composite Homogeneity:</b>	Good

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Client: TestAmerica-Denver  
 C/O: Donna Rydberg  
 Re: 280-100940-1; Questa Pipeline- Lead and Asbestos

Date of Sampling: 08-28-2017  
 Date of Receipt: 09-08-2017  
 Date of Report: 09-19-2017

**ASBESTOS PLM REPORT: EPA-600/M4-82-020 & EPA METHOD 600/R-93-116****Location: 280-100940-16, INS282817**

Lab ID-Version‡: 8373432-1

Sample Layers	Asbestos Content
Yellow Insulation	ND
<b>Composite Non-Asbestos Content:</b>	95% Glass Fibers
<b>Sample Composite Homogeneity:</b>	Good

**Location: 280-100940-17, PL182817**

Lab ID-Version‡: 8373433-1

Sample Layers	Asbestos Content
Brown Non-Fibrous Material	ND
<b>Sample Composite Homogeneity:</b>	Good

**Location: 280-100940-18, G182817**

Lab ID-Version‡: 8373434-1

Sample Layers	Asbestos Content
Brown Non-Fibrous Material	ND
<b>Sample Composite Homogeneity:</b>	Good

**Location: 280-100940-19, G282817**

Lab ID-Version‡: 8373435-1

Sample Layers	Asbestos Content
Brown Non-Fibrous Material	ND
<b>Sample Composite Homogeneity:</b>	Good

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Client: TestAmerica-Denver  
 C/O: Donna Rydberg  
 Re: 280-100940-1; Questa Pipeline- Lead and  
 Asbestos

Date of Sampling: 08-28-2017  
 Date of Receipt: 09-08-2017  
 Date of Report: 09-19-2017

**ASBESTOS PLM REPORT: EPA-600/M4-82-020 & EPA METHOD 600/R-93-116****Location: 280-100940-20, G382817**

Lab ID-Version‡: 8373436-1

Sample Layers	Asbestos Content
Brown Non-Fibrous Material	ND
<b>Sample Composite Homogeneity:</b>	Good

**Location: 280-100940-21, G482817**

Lab ID-Version‡: 8373437-1

Sample Layers	Asbestos Content
Brown Non-Fibrous Material	ND
<b>Sample Composite Homogeneity:</b>	Good

**Location: 280-100940-22, A182817**

Lab ID-Version‡: 8373438-1

Sample Layers	Asbestos Content
Brown Compound	ND
<b>Sample Composite Homogeneity:</b>	Good

**Location: 280-100940-23, A282817**

Lab ID-Version‡: 8373439-1

Sample Layers	Asbestos Content
Brown Compound	ND
<b>Sample Composite Homogeneity:</b>	Good

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Client: TestAmerica-Denver  
 C/O: Donna Rydberg  
 Re: 280-100940-1; Questa Pipeline- Lead and  
 Asbestos

Date of Sampling: 08-28-2017  
 Date of Receipt: 09-08-2017  
 Date of Report: 09-19-2017

**ASBESTOS PLM REPORT: EPA-600/M4-82-020 & EPA METHOD 600/R-93-116****Location: 280-100940-24, A382817**

Lab ID-Version‡: 8373440-1

Sample Layers	Asbestos Content
Gray Compound	ND
<b>Sample Composite Homogeneity:</b>	Good

**Location: 280-100940-25, A482817**

Lab ID-Version‡: 8373441-1

Sample Layers	Asbestos Content
Brown Compound	ND
<b>Sample Composite Homogeneity:</b>	Good

**Location: 280-100940-26, A582817**

Lab ID-Version‡: 8373442-1

Sample Layers	Asbestos Content
Brown Compound	ND
<b>Sample Composite Homogeneity:</b>	Good

**Location: 280-100940-27, A682817**

Lab ID-Version‡: 8373443-1

Sample Layers	Asbestos Content
Gray Compound	ND
<b>Sample Composite Homogeneity:</b>	Good

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Client: TestAmerica-Denver  
 C/O: Donna Rydberg  
 Re: 280-100940-1; Questa Pipeline- Lead and  
 Asbestos

Date of Sampling: 08-28-2017  
 Date of Receipt: 09-08-2017  
 Date of Report: 09-19-2017

**ASBESTOS PLM REPORT: EPA-600/M4-82-020 & EPA METHOD 600/R-93-116****Location: 280-100940-28, A782817**

Lab ID-Version‡: 8373444-1

Sample Layers	Asbestos Content
Gray Compound	ND
<b>Sample Composite Homogeneity:</b> Good	

**Location: 280-100940-29, A882817**

Lab ID-Version‡: 8373445-1

Sample Layers	Asbestos Content
Brown Compound	ND
<b>Sample Composite Homogeneity:</b> Good	

**Location: 280-100940-30, A982817**

Lab ID-Version‡: 8373446-1

Sample Layers	Asbestos Content
Gray Compound	ND
<b>Sample Composite Homogeneity:</b> Good	

**Location: 280-100940-31, A1082817**

Lab ID-Version‡: 8373447-1

Sample Layers	Asbestos Content
Brown Compound	ND
<b>Sample Composite Homogeneity:</b> Good	

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‡ A "Version" indicated by "-x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".



Client: TestAmerica-Denver  
C/O: Donna Rydberg  
Re: 280-100940-1; Questa Pipeline- Lead and Asbestos

Date of Sampling: 08-28-2017  
Date of Receipt: 09-08-2017  
Date of Report: 09-19-2017

**ASBESTOS PLM REPORT: EPA-600/M4-82-020 & EPA METHOD 600/R-93-116****Location: 280-100940-32, A1182817**

Lab ID-Version‡: 8373448-1

Sample Layers	Asbestos Content
Brown Compound	ND
<b>Sample Composite Homogeneity:</b>	Good

**Location: 280-100940-44, G182917**

Lab ID-Version‡: 8373449-1

Sample Layers	Asbestos Content
Brown Non-Fibrous Material	ND
<b>Sample Composite Homogeneity:</b>	Good

**Location: 280-100940-45, G282917**

Lab ID-Version‡: 8373450-1

Sample Layers	Asbestos Content
Brown Non-Fibrous Material	ND
<b>Sample Composite Homogeneity:</b>	Good

**Location: 280-100940-46, G382917**

Lab ID-Version‡: 8373451-1

Sample Layers	Asbestos Content
Brown Non-Fibrous Material	ND
<b>Sample Composite Homogeneity:</b>	Good

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Client: TestAmerica-Denver  
 C/O: Donna Rydberg  
 Re: 280-100940-1; Questa Pipeline- Lead and  
 Asbestos

Date of Sampling: 08-28-2017  
 Date of Receipt: 09-08-2017  
 Date of Report: 09-19-2017

**ASBESTOS PLM REPORT: EPA-600/M4-82-020 & EPA METHOD 600/R-93-116****Location: 280-100940-47, G482917**

Lab ID-Version‡: 8373452-1

Sample Layers	Asbestos Content
Brown Non-Fibrous Material	ND
<b>Sample Composite Homogeneity:</b>	Good

**Location: 280-100940-48, PL182917**

Lab ID-Version‡: 8373453-1

Sample Layers	Asbestos Content
Brown Non-Fibrous Material	ND
<b>Sample Composite Homogeneity:</b>	Good

**Location: 280-100940-49, A183017**

Lab ID-Version‡: 8373454-1

Sample Layers	Asbestos Content
Gray Compound	ND
<b>Sample Composite Homogeneity:</b>	Good

**Location: 280-100940-50, A283017**

Lab ID-Version‡: 8373455-1

Sample Layers	Asbestos Content
Red Non-Fibrous Material	ND
<b>Sample Composite Homogeneity:</b>	Good

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Client: TestAmerica-Denver  
 C/O: Donna Rydberg  
 Re: 280-100940-1; Questa Pipeline- Lead and  
 Asbestos

Date of Sampling: 08-28-2017  
 Date of Receipt: 09-08-2017  
 Date of Report: 09-19-2017

**ASBESTOS PLM REPORT: EPA-600/M4-82-020 & EPA METHOD 600/R-93-116****Location: 280-100940-51, BA183017**

Lab ID-Version‡: 8373456-1

Sample Layers	Asbestos Content
Brown/Black Non-Fibrous Material with Paint	ND
<b>Sample Composite Homogeneity:</b>	Good

**Location: 280-100940-52, BA283017**

Lab ID-Version‡: 8373457-1

Sample Layers	Asbestos Content
Brown/Black Non-Fibrous Material with Paint	ND
<b>Sample Composite Homogeneity:</b>	Good

**Location: 280-100940-53, BA383017**

Lab ID-Version‡: 8373458-1

Sample Layers	Asbestos Content
Brown/Black Non-Fibrous Material with Paint	ND
<b>Sample Composite Homogeneity:</b>	Good

**Location: 280-100940-54, BA483017**

Lab ID-Version‡: 8373459-1

Sample Layers	Asbestos Content
Brown/Black Non-Fibrous Material with Paint	ND
<b>Sample Composite Homogeneity:</b>	Good

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Client: TestAmerica-Denver  
 C/O: Donna Rydberg  
 Re: 280-100940-1; Questa Pipeline- Lead and  
 Asbestos

Date of Sampling: 08-28-2017  
 Date of Receipt: 09-08-2017  
 Date of Report: 09-19-2017

**ASBESTOS PLM REPORT: EPA-600/M4-82-020 & EPA METHOD 600/R-93-116****Location: 280-100940-55, BA583017**

Lab ID-Version‡: 8373460-1

Sample Layers	Asbestos Content
Yellow Coating	ND
<b>Sample Composite Homogeneity:</b>	Good

**Location: 280-100940-56, BA683017**

Lab ID-Version‡: 8373461-1

Sample Layers	Asbestos Content
Yellow Coating	ND
<b>Sample Composite Homogeneity:</b>	Good

**Location: 280-100940-65, INS183017**

Lab ID-Version‡: 8373462-1

Sample Layers	Asbestos Content
Multicolored Insulation	ND
<b>Composite Non-Asbestos Content:</b>	95% Glass Fibers
<b>Sample Composite Homogeneity:</b>	Good

**Location: 280-100940-66, INS283017**

Lab ID-Version‡: 8373463-1

Sample Layers	Asbestos Content
Yellow Insulation	ND
<b>Composite Non-Asbestos Content:</b>	95% Glass Fibers
<b>Sample Composite Homogeneity:</b>	Good

The test report shall not be reproduced except in full, without written approval of the laboratory. The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government. EMLab P&K reserves the right to dispose of all samples after a period of thirty (30) days, according to all state and federal guidelines, unless otherwise specified.

Inhomogeneous samples are separated into homogeneous subsamples and analyzed individually. ND means no fibers were detected. When detected, the minimum detection and reporting limit is less than 1% unless point counting is performed. Floor tile samples may contain large amounts of interference material and it is recommended that the sample be analyzed by gravimetric point count analysis to lower the detection limit and to aid in asbestos identification.

‡ A "Version" indicated by "-x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".

Client: TestAmerica-Denver  
 C/O: Donna Rydberg  
 Re: 280-100940-1; Questa Pipeline- Lead and Asbestos

Date of Sampling: 08-28-2017  
 Date of Receipt: 09-08-2017  
 Date of Report: 09-19-2017

**ASBESTOS PLM REPORT: EPA-600/M4-82-020 & EPA METHOD 600/R-93-116****Location: 280-100940-67, VG183017**

Lab ID-Version‡: 8373464-1

Sample Layers	Asbestos Content
Black Non-Fibrous Material	ND
<b>Composite Non-Asbestos Content:</b>	3% Glass Fibers
<b>Sample Composite Homogeneity:</b>	Good

**Location: 280-100940-68, VG283017**

Lab ID-Version‡: 8373465-1

Sample Layers	Asbestos Content
Black Non-Fibrous Material	ND
<b>Composite Non-Asbestos Content:</b>	3% Glass Fibers
<b>Sample Composite Homogeneity:</b>	Good

**Location: 280-100940-69, VG383017**

Lab ID-Version‡: 8373466-1

Sample Layers	Asbestos Content
Black Non-Fibrous Material	ND
<b>Composite Non-Asbestos Content:</b>	3% Glass Fibers
<b>Sample Composite Homogeneity:</b>	Good

**Location: 280-100940-70, PW183017**

Lab ID-Version‡: 8373467-1

Sample Layers	Asbestos Content
Gray Felt	40% Chrysotile
Black Tar	ND
<b>Composite Non-Asbestos Content:</b>	20% Cellulose
<b>Sample Composite Homogeneity:</b>	Moderate

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‡ A "Version" indicated by "-x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".

Client: TestAmerica-Denver  
 C/O: Donna Rydberg  
 Re: 280-100940-1; Questa Pipeline- Lead and  
 Asbestos

Date of Sampling: 08-28-2017  
 Date of Receipt: 09-08-2017  
 Date of Report: 09-19-2017

**ASBESTOS PLM REPORT: EPA-600/M4-82-020 & EPA METHOD 600/R-93-116****Location: 280-100940-71, PW283017**

Lab ID-Version‡: 8373468-1

Sample Layers	Asbestos Content
Gray Felt	50% Chrysotile
Black Tar	ND
<b>Composite Non-Asbestos Content:</b>	15% Cellulose
<b>Sample Composite Homogeneity:</b>	Moderate

**Location: 280-100940-72, PW383017**

Lab ID-Version‡: 8373469-1

Sample Layers	Asbestos Content
Gray Felt	40% Chrysotile
Black Tar	ND
<b>Composite Non-Asbestos Content:</b>	20% Cellulose
<b>Sample Composite Homogeneity:</b>	Moderate

**Location: 280-100940-73, PW483017**

Lab ID-Version‡: 8373470-1

Sample Layers	Asbestos Content
Gray Felt	50% Chrysotile
Black Tar	ND
<b>Composite Non-Asbestos Content:</b>	15% Cellulose
<b>Sample Composite Homogeneity:</b>	Moderate

The test report shall not be reproduced except in full, without written approval of the laboratory. The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the federal government. EMLab P&K reserves the right to dispose of all samples after a period of thirty (30) days, according to all state and federal guidelines, unless otherwise specified.

Inhomogeneous samples are separated into homogeneous subsamples and analyzed individually. ND means no fibers were detected. When detected, the minimum detection and reporting limit is less than 1% unless point counting is performed. Floor tile samples may contain large amounts of interference material and it is recommended that the sample be analyzed by gravimetric point count analysis to lower the detection limit and to aid in asbestos identification.

‡ A "Version" indicated by "-x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".



4955 Yarrow Street  
 Aurora, CO 80002  
 Phone (903) 736-0100 Fax (903) 431-7171

Chain of Custody Record



<b>Client Information (Sub Contract Lab)</b>		Sample:		Lab Pk:		Carrier Tracking Number:		COC No:	
Client Contact:		Phone:		E-Mail:		State of Origin:		Page:	
Shipping/Receiving:		Company:		Address:		Job #:		Page 1 of 6	
City:		State:		Zip:		Job #:		280-100940-1	
CO: 80002		PO #:		W/O #:		Project #:		28017197	
Phone:		Fax:		Project #:		Project #:		28017197	
Email:		Project #:		Project #:		Project #:		28017197	
Project Name:		Project #:		Project #:		Project #:		28017197	
Quota Pipeline - Lead and Asbestos		Project #:		Project #:		Project #:		28017197	
Site:		Project #:		Project #:		Project #:		28017197	
Sample Identification - Client ID (Lab ID)		Sample Date		Sample Time		Sample Type (G/Grabs)		Matrix (Type, Brand, Quantity, etc.)	
A182817 (280-100940-1)		8/28/17		13:15		Mountain		Solid	
A282817 (280-100940-2)		8/28/17		13:54		Mountain		Solid	
A382817 (280-100940-3)		8/28/17		14:20		Mountain		Solid	
A482817 (280-100940-4)		8/28/17		14:40		Mountain		Solid	
A582817 (280-100940-5)		8/28/17		15:10		Mountain		Solid	
A682817 (280-100940-6)		8/28/17		15:35		Mountain		Solid	
A782817 (280-100940-7)		8/28/17		16:15		Mountain		Solid	
A882817 (280-100940-8)		8/28/17		16:45		Mountain		Solid	
A982817 (280-100940-9)		8/28/17		17:15		Mountain		Solid	
A1082817 (280-100940-10)		8/28/17		17:45		Mountain		Solid	
A1182817 (280-100940-11)		8/28/17		18:15		Mountain		Solid	
A1282817 (280-100940-12)		8/28/17		18:45		Mountain		Solid	
A1382817 (280-100940-13)		8/28/17		19:15		Mountain		Solid	
A1482817 (280-100940-14)		8/28/17		19:45		Mountain		Solid	
A1582817 (280-100940-15)		8/28/17		20:15		Mountain		Solid	
A1682817 (280-100940-16)		8/28/17		20:45		Mountain		Solid	
A1782817 (280-100940-17)		8/28/17		21:15		Mountain		Solid	
A1882817 (280-100940-18)		8/28/17		21:45		Mountain		Solid	
A1982817 (280-100940-19)		8/28/17		22:15		Mountain		Solid	
A2082817 (280-100940-20)		8/28/17		22:45		Mountain		Solid	
A2182817 (280-100940-21)		8/28/17		23:15		Mountain		Solid	
A2282817 (280-100940-22)		8/28/17		23:45		Mountain		Solid	
A2382817 (280-100940-23)		8/28/17		24:15		Mountain		Solid	
A2482817 (280-100940-24)		8/28/17		24:45		Mountain		Solid	
A2582817 (280-100940-25)		8/28/17		25:15		Mountain		Solid	
A2682817 (280-100940-26)		8/28/17		25:45		Mountain		Solid	
A2782817 (280-100940-27)		8/28/17		26:15		Mountain		Solid	
A2882817 (280-100940-28)		8/28/17		26:45		Mountain		Solid	
A2982817 (280-100940-29)		8/28/17		27:15		Mountain		Solid	
A3082817 (280-100940-30)		8/28/17		27:45		Mountain		Solid	
A3182817 (280-100940-31)		8/28/17		28:15		Mountain		Solid	
A3282817 (280-100940-32)		8/28/17		28:45		Mountain		Solid	
A3382817 (280-100940-33)		8/28/17		29:15		Mountain		Solid	
A3482817 (280-100940-34)		8/28/17		29:45		Mountain		Solid	
A3582817 (280-100940-35)		8/28/17		30:15		Mountain		Solid	
A3682817 (280-100940-36)		8/28/17		30:45		Mountain		Solid	
A3782817 (280-100940-37)		8/28/17		31:15		Mountain		Solid	
A3882817 (280-100940-38)		8/28/17		31:45		Mountain		Solid	
A3982817 (280-100940-39)		8/28/17		32:15		Mountain		Solid	
A4082817 (280-100940-40)		8/28/17		32:45		Mountain		Solid	
A4182817 (280-100940-41)		8/28/17		33:15		Mountain		Solid	
A4282817 (280-100940-42)		8/28/17		33:45		Mountain		Solid	
A4382817 (280-100940-43)		8/28/17		34:15		Mountain		Solid	
A4482817 (280-100940-44)		8/28/17		34:45		Mountain		Solid	
A4582817 (280-100940-45)		8/28/17		35:15		Mountain		Solid	
A4682817 (280-100940-46)		8/28/17		35:45		Mountain		Solid	
A4782817 (280-100940-47)		8/28/17		36:15		Mountain		Solid	
A4882817 (280-100940-48)		8/28/17		36:45		Mountain		Solid	
A4982817 (280-100940-49)		8/28/17		37:15		Mountain		Solid	
A5082817 (280-100940-50)		8/28/17		37:45		Mountain		Solid	
A5182817 (280-100940-51)		8/28/17		38:15		Mountain		Solid	
A5282817 (280-100940-52)		8/28/17		38:45		Mountain		Solid	
A5382817 (280-100940-53)		8/28/17		39:15		Mountain		Solid	
A5482817 (280-100940-54)		8/28/17		39:45		Mountain		Solid	
A5582817 (280-100940-55)		8/28/17		40:15		Mountain		Solid	
A5682817 (280-100940-56)		8/28/17		40:45		Mountain		Solid	
A5782817 (280-100940-57)		8/28/17		41:15		Mountain		Solid	
A5882817 (280-100940-58)		8/28/17		41:45		Mountain		Solid	
A5982817 (280-100940-59)		8/28/17		42:15		Mountain		Solid	
A6082817 (280-100940-60)		8/28/17		42:45		Mountain		Solid	
A6182817 (280-100940-61)		8/28/17		43:15		Mountain		Solid	
A6282817 (280-100940-62)		8/28/17		43:45		Mountain		Solid	
A6382817 (280-100940-63)		8/28/17		44:15		Mountain		Solid	
A6482817 (280-100940-64)		8/28/17		44:45		Mountain		Solid	
A6582817 (280-100940-65)		8/28/17		45:15		Mountain		Solid	
A6682817 (280-100940-66)		8/28/17		45:45		Mountain		Solid	
A6782817 (280-100940-67)		8/28/17		46:15		Mountain		Solid	
A6882817 (280-100940-68)		8/28/17		46:45		Mountain		Solid	
A6982817 (280-100940-69)		8/28/17		47:15		Mountain		Solid	
A7082817 (280-100940-70)		8/28/17		47:45		Mountain		Solid	
A7182817 (280-100940-71)		8/28/17		48:15		Mountain		Solid	
A7282817 (280-100940-72)		8/28/17		48:45		Mountain		Solid	
A7382817 (280-100940-73)		8/28/17		49:15		Mountain		Solid	
A7482817 (280-100940-74)		8/28/17		49:45		Mountain		Solid	
A7582817 (280-100940-75)		8/28/17		50:15		Mountain		Solid	
A7682817 (280-100940-76)		8/28/17		50:45		Mountain		Solid	
A7782817 (280-100940-77)		8/28/17		51:15		Mountain		Solid	
A7882817 (280-100940-78)		8/28/17		51:45		Mountain		Solid	
A7982817 (280-100940-79)		8/28/17		52:15		Mountain		Solid	
A8082817 (280-100940-80)		8/28/17		52:45		Mountain		Solid	
A8182817 (280-100940-81)		8/28/17		53:15		Mountain		Solid	
A8282817 (280-100940-82)		8/28/17		53:45		Mountain		Solid	
A8382817 (280-100940-83)		8/28/17		54:15		Mountain		Solid	
A8482817 (280-100940-84)		8/28/17		54:45		Mountain		Solid	
A8582817 (280-100940-85)		8/28/17		55:15		Mountain		Solid	
A8682817 (280-100940-86)		8/28/17		55:45		Mountain		Solid	
A8782817 (280-100940-87)		8/28/17		56:15		Mountain		Solid	
A8882817 (280-100940-88)		8/28/17		56:45		Mountain		Solid	
A8982817 (280-100940-89)		8/28/17		57:15		Mountain		Solid	
A9082817 (280-100940-90)		8/28/17		57:45		Mountain		Solid	
A9182817 (280-100940-91)		8/28/17		58:15		Mountain		Solid	
A9282817 (280-100940-92)		8/28/17		58:45		Mountain		Solid	
A9382817 (280-100940-93)		8/28/17		59:15		Mountain		Solid	
A9482817 (280-100940-94)		8/28/17		59:45		Mountain		Solid	
A9582817 (280-100940-95)		8/28/17		60:15		Mountain		Solid	
A9682817 (280-100940-96)		8/28/17		60:45		Mountain		Solid	
A9782817 (280-100940-97)		8/28/17		61:15		Mountain		Solid	
A9882817 (280-100940-98)		8/28/17		61:45		Mountain		Solid	
A9982817 (280-100940-99)		8/28/17		62:15		Mountain		Solid	
A10082817 (280-100940-100)		8/28/17		62:45		Mountain		Solid	
A10182817 (280-100940-101)		8/28/17		63:15		Mountain		Solid	
A10282817 (280-100940-102)		8/28/17		63:45		Mountain		Solid	
A10382817 (280-100940-103)		8/28/17		64:15		Mountain		Solid	
A10482817 (280-100940-104)		8/28/17		64:45		Mountain		Solid	
A10582817 (280-100940-105)		8/28/17		65:15		Mountain		Solid	
A10682817 (280-100940-106)		8/28/17		65:45		Mountain		Solid	
A10782817 (280-100940-107)		8/28/17		66:15		Mountain		Solid	
A10882817 (280-100940-108)		8/28/17		66:45		Mountain		Solid	
A10982817 (280-100940-109)		8/28/17		67:15		Mountain		Solid	
A11082817 (280-100940-110)		8/28/17		67:45		Mountain		Solid	
A11182817 (280-100940-111)		8/28/17		68:15		Mountain		Solid	
A11282817 (280-100940-112)		8/28/17		68:45		Mountain		Solid	
A11382817 (280-100940-113)		8/28/17		69:15		Mountain		Solid	
A11482817 (280-100940-114)		8/28/17		69:45		Mountain		Solid	
A11582817 (280-100940-115)		8/28/17		70:15		Mountain		Solid	
A11682817 (280-100940-116)		8/28/17		70:45		Mountain		Solid	
A11782817 (280-100940-117)		8/28/17		71:15		Mountain		Solid	
A11882817 (280-100940-118)		8/28/17		71:45		Mountain		Solid	
A11982817 (280-100940-119)		8/28/17		72:15		Mountain		Solid	
A12082817 (280-100940-120)		8/28/17		72:45		Mountain		Solid	
A12182817 (280-100940-121)		8/28/17		73:15		Mountain		Solid	
A12282817 (280-100940-122)		8/28/17		73:45		Mountain		Solid	
A12382817 (280-100940-123)		8/28/17		74:15		Mountain		Solid	
A12482817 (280-100940-124)		8/28/17		74:45		Mountain		Solid	
A12582817 (280-100940-125)		8/28/17		75:15		Mountain		Solid	
A12682817 (280-100940-126)		8/28/17		75:45		Mountain		Solid	
A12782817 (280-100940-127)		8/28/17		76:15		Mountain		Solid	
A12882817 (280-100940-128									

**TestAmerica Denver**  
4955 Yarrow Street  
Arvada, CO 80002  
Phone (303) 736-0100 Fax (303) 431-7171

# Chain of Custody Record

**TestAmerica**  
THE LEADER IN ENVIRONMENTAL TESTING

<b>Client Information (Sub Contract Lab)</b>		Sender:		Lab P/N:		Current Tracking No.:		DOC No:	
Client Contact:		Name:		Ryberg, Donna R		State of Origin:		280-411382.2	
Shipping/Receiving:		E-Mail:		donna.ryberg@testamerica.com		Colorado		Page 2 of 6	
Company:		Due Date Requested:		Analysis Requested		Job #:		280-100940-1	
Address:		9/19/2017		<input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For Months		Preservation Codes: A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - NaOH G - Ammonia H - Acetic Acid I - Ice J - DI Water K - EDTA L - EDA M - Hexane N - Nitro O - Ascorbic P - NaOCl Q - Na2SO4 R - Na2S2O3 S - H2SO4 T - Triphenylphosphine U - Acetone V - MeOH W - pH 4.5 Z - Other (Specify)			
City:		72AT Requested (days):		SUB (Asbestos - PLM by EPA 600/R-93/116 (price per tryer) Asbestos - PLM by EPA 600/R-93/116 (price per tryer)		001790994			
State, Zip:		CO, 80002							
Phone:		PO #:							
Email:		WO #:							
Project Name:		Project #:							
Site:		Source:							

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C-Comp, D-Comp, E-Comp, F-Comp, G-Comp, H-Comp, I-Comp, J-Comp, K-Comp, L-Comp, M-Comp, N-Comp, O-Comp, P-Comp, Q-Comp, R-Comp, S-Comp, T-Comp, U-Comp, V-Comp, W-Comp, X-Comp, Y-Comp, Z-Comp)	Matrix (Asbestos, Lead, Cadmium, Chromium, Copper, Iron, Manganese, Nickel, Silver, Vanadium, Zinc, Barium, Bismuth, Boron, Calcium, Carbon, Chlorine, Cobalt, Fluorine, Gallium, Germanium, Hydrogen, Iodine, Magnesium, Molybdenum, Nitrogen, Oxygen, Phosphorus, Potassium, Selenium, Silicon, Sodium, Strontium, Sulfur, Tellurium, Thallium, Tin, Titanium, Tungsten, Vanadium, Xenon, Zirconium)	Analysis Requested	Special Instructions/Notes
PL182817 (280-100940-17)	8/28/17	15:55	Solid	Solid		
G182817 (280-100940-18)	8/28/17	14:50	Solid	Solid		
G282817 (280-100940-19)	8/28/17	14:50	Solid	Solid		
G382817 (280-100940-20)	8/28/17	13:40	Solid	Solid		
G482817 (280-100940-21)	8/28/17	16:40	Solid	Solid		
A182817 (280-100940-22)	8/29/17	08:35	Solid	Solid		
A282817 (280-100940-23)	8/29/17	08:10	Solid	Solid		
A382817 (280-100940-24)	8/29/17	08:45	Solid	Solid		
A482817 (280-100940-25)	8/29/17	10:05	Solid	Solid		

Note: Since our laboratory accreditation is subject to change, TestAmerica Laboratories, Inc. placed the responsibility of making analysis & accreditation compliance upon our subcontracted laboratory. This sample information is forwarded under chain-of-custody. If this laboratory does not currently maintain accreditation in the State of Origin above for sample identification & testing analysis, the samples must be shipped back to the TestAmerica laboratory or other institution will be provided. Any changes to accreditation status should be brought to TestAmerica Laboratories, Inc. attention immediately. If all required accreditation and current to date, return the signed Chain of Custody detailing to said compliance to TestAmerica Laboratories, Inc.

**Possible Hazard Identification**  
Unconfirmed

Deliverable Requested: I, II, III, IV, Other (Specify) Primary Deliverable Rank: 2

Sample Kit Returned by: Date: Time: Method of Shipment

Received by: Date/Time: Company: 9/18/17 MCO

Received by: Date/Time: Company: Ewel Ben

Received by: Date/Time: Company:

Received by: Date/Time: Company:

Custody Seal Intact: A Yes A No Custody Seal No.: Colder Temperature, TC and other Rain area:

# Chain of Custody Record

<b>Client Information (Sub Contract Lab)</b>		Sample ID		Lab ID		Client Tracking No/ID		COG No:																																																																																	
Client Contact:		Phone:		E-Mail:		State of Origin:		Page:																																																																																	
Company:		Shipping/Receiving:		Accreditations Required (See note):		Colorado		Page 3 of 6																																																																																	
EXLAB P&K		Date Data Requested:		Job #:		280-100940-1		280-411382-3																																																																																	
Address:		9/19/2017		TAT Requested (Date):		Analysis Requested		Preservation Codes:																																																																																	
4955 Yarrow Street,								A-HCL B-NaOH C-Zn Acetate D-HF/HNO3 E-HNO3 F-H2SO4 G-Arsenic H-Arsenic Acid I-As J-DI Water K-EDTA L-CDA Other																																																																																	
City:		Avondale		Project #:		28017187		M-Hexane N-Nitro O-Acetic P-NaOAS Q-Na2SO4 R-Na2S2O8 S-H2SO4 T-TSP Dicalcium Phosphate U-Acetone V-MCAA W-pH 4.5 Z-Other (Specify)																																																																																	
State, Zip:		CO, 80002		SSDW#:																																																																																					
Phone:		PO #:		WFO #:																																																																																					
Email:																																																																																									
Project Name:		Quasda Pipeline - Lead and Asbestos		Project #:		28017187																																																																																			
Site:				SSDW#:																																																																																					
<p><b>Sample Identification - Client ID (Lab ID)</b></p> <table border="1"> <thead> <tr> <th>Sample ID</th> <th>Sample Date</th> <th>Sample Time</th> <th>Sample Type (Q-Comp, Segreg)</th> <th>Matrix (Inorganic, Organic, Other)</th> <th>Field # (Asbestos - PLM by EPA 800R-93/116 (Price per layer) Asbestos - PLM by EPA 800R-93/116 (Price per layer))</th> <th>Analysis Requested</th> <th>Preservation Codes</th> </tr> </thead> <tbody> <tr> <td>A582917 (280-100940-26)</td> <td>8/29/17</td> <td>10:25</td> <td>Mountain</td> <td>Solid</td> <td>X</td> <td></td> <td></td> </tr> <tr> <td>A682917 (280-100940-27)</td> <td>8/29/17</td> <td>11:05</td> <td>Mountain</td> <td>Solid</td> <td>X</td> <td></td> <td></td> </tr> <tr> <td>A782917 (280-100940-28)</td> <td>8/29/17</td> <td>11:40</td> <td>Mountain</td> <td>Solid</td> <td>X</td> <td></td> <td></td> </tr> <tr> <td>A882917 (280-100940-29)</td> <td>8/29/17</td> <td>11:55</td> <td>Mountain</td> <td>Solid</td> <td>X</td> <td></td> <td></td> </tr> <tr> <td>A982917 (280-100940-30)</td> <td>8/29/17</td> <td>12:30</td> <td>Mountain</td> <td>Solid</td> <td>X</td> <td></td> <td></td> </tr> <tr> <td>A1082917 (280-100940-31)</td> <td>8/29/17</td> <td>13:10</td> <td>Mountain</td> <td>Solid</td> <td>X</td> <td></td> <td></td> </tr> <tr> <td>A1182917 (280-100940-32)</td> <td>8/29/17</td> <td>16:40</td> <td>Mountain</td> <td>Solid</td> <td>X</td> <td></td> <td></td> </tr> <tr> <td>G182917 (280-100940-44)</td> <td>8/29/17</td> <td>09:20</td> <td>Mountain</td> <td>Solid</td> <td>X</td> <td></td> <td></td> </tr> <tr> <td>G282917 (280-100940-45)</td> <td>8/29/17</td> <td>09:25</td> <td>Mountain</td> <td>Solid</td> <td>X</td> <td></td> <td></td> </tr> </tbody> </table>										Sample ID	Sample Date	Sample Time	Sample Type (Q-Comp, Segreg)	Matrix (Inorganic, Organic, Other)	Field # (Asbestos - PLM by EPA 800R-93/116 (Price per layer) Asbestos - PLM by EPA 800R-93/116 (Price per layer))	Analysis Requested	Preservation Codes	A582917 (280-100940-26)	8/29/17	10:25	Mountain	Solid	X			A682917 (280-100940-27)	8/29/17	11:05	Mountain	Solid	X			A782917 (280-100940-28)	8/29/17	11:40	Mountain	Solid	X			A882917 (280-100940-29)	8/29/17	11:55	Mountain	Solid	X			A982917 (280-100940-30)	8/29/17	12:30	Mountain	Solid	X			A1082917 (280-100940-31)	8/29/17	13:10	Mountain	Solid	X			A1182917 (280-100940-32)	8/29/17	16:40	Mountain	Solid	X			G182917 (280-100940-44)	8/29/17	09:20	Mountain	Solid	X			G282917 (280-100940-45)	8/29/17	09:25	Mountain	Solid	X		
Sample ID	Sample Date	Sample Time	Sample Type (Q-Comp, Segreg)	Matrix (Inorganic, Organic, Other)	Field # (Asbestos - PLM by EPA 800R-93/116 (Price per layer) Asbestos - PLM by EPA 800R-93/116 (Price per layer))	Analysis Requested	Preservation Codes																																																																																		
A582917 (280-100940-26)	8/29/17	10:25	Mountain	Solid	X																																																																																				
A682917 (280-100940-27)	8/29/17	11:05	Mountain	Solid	X																																																																																				
A782917 (280-100940-28)	8/29/17	11:40	Mountain	Solid	X																																																																																				
A882917 (280-100940-29)	8/29/17	11:55	Mountain	Solid	X																																																																																				
A982917 (280-100940-30)	8/29/17	12:30	Mountain	Solid	X																																																																																				
A1082917 (280-100940-31)	8/29/17	13:10	Mountain	Solid	X																																																																																				
A1182917 (280-100940-32)	8/29/17	16:40	Mountain	Solid	X																																																																																				
G182917 (280-100940-44)	8/29/17	09:20	Mountain	Solid	X																																																																																				
G282917 (280-100940-45)	8/29/17	09:25	Mountain	Solid	X																																																																																				
<p><b>Special Instructions/Notes:</b></p> <p>Notes: Since laboratory accreditation is required, please the laboratory of method, analyze &amp; accreditation on compliance upon our subsequent laboratory. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Oregon listed above for any of the methods being analyzed, the samples must be shipped back to the TestAmerica laboratory or other laboratory with accreditation in the State of Oregon. TestAmerica, Inc. attention immediately. If an requested accreditation is current to date, retain the signed Chain of Custody attesting to said compliance to TestAmerica Laboratory, Inc.</p> <p><b>Possible Hazard Identification</b></p> <p>Unconfirmed</p> <p>Deliverable Requested: I, II, III, IV, Other (Specify) Primary Deliverable Rank: 2</p> <p>Empty Kit Returned by: Date: Time: Company: Received by: Date/Time: Company: 9/18/17 HOD</p> <p>Reinforced by: Date/Time: Company: Received by: Date/Time: Company: 9/18/17 HOD</p> <p>Custody/Seals Intact: Custody Seal No.: Order Temperature(s) °C and Other Remarks:</p>																																																																																									



## THE CAPDER IN ENVIRONMENTAL TESTING

Page 41 of 53

# Chain of Custody Record

<b>Client Information (Sub Contract Lab)</b>		Sample ID: <b>BA8B3017 (280-100940-55)</b>		Lab P/N: <b>Rydberg, Donna R.</b>		Current Testing Note:		GC# <b>280-411362.5</b>	
Client Contact: <b>Donna Rydberg</b>		Phone: <b>303.736.0100</b>		Email: <b>donna.rydberg@testamerica.com</b>		State & Zip: <b>Colorado</b>		Page: <b>5 of 6</b>	
Shipping/Receiving: <b>Company: EMLab P&amp;K</b>		Due Date Requested: <b>9/19/2017</b>		YAT Requested (days):		Accreditations Required (See note): <b>NECAP - Oregon</b>		Lab #:	
Address: <b>4955 Yarrow Street, Arvada, CO 80002</b>		City: <b>Arvada</b>		State: <b>CO</b>		Zip: <b>80002</b>		Sub #:	
Phone: <b>303.736.0100</b>		Fax: <b>303.431.7171</b>		PO #:		WO #:		Preservation Codes:	
Email: <b>donna.rydberg@testamerica.com</b>		Project #:		Project Name: <b>Questa Pipeline - Lead and Asbestos</b>		Sub: <b>SSCWAH</b>		Other:	
Sample Identification - Client ID (Lab ID)		Sample Date		Sample Time		Sample Type (Component, Matrix, etc.)		Matrix (Inorganic, Organic, etc.)	
BA8B3017 (280-100940-55)		8/30/17		11:50		Solid		Solid	
BA8B3017 (280-100940-56)		8/30/17		11:50		Solid		Solid	
INS183017 (280-100940-65)		8/30/17		09:10		Solid		Solid	
INS223017 (280-100940-66)		8/30/17		09:15		Solid		Solid	
VG183017 (280-100940-67)		8/30/17		09:20		Solid		Solid	
VG283017 (280-100940-68)		8/30/17		09:30		Solid		Solid	
VG383017 (280-100940-69)		8/30/17		09:40		Solid		Solid	
PW183017 (280-100940-70)		8/30/17		13:10		Solid		Solid	
PW283017 (280-100940-71)		8/30/17		13:20		Solid		Solid	
Possible Hazard Identification		Sample Disposed (A fee may be assessed if samples are retained longer than 1 month)		Return To Client		Dispose By Lab		Archive For	
Unconfirmed		Special Instructions/OC Requirements:		Special Instructions/OC Requirements:		Special Instructions/OC Requirements:		Special Instructions/OC Requirements:	
Deliverable Requested: I, II, III, IV, Other (specify):		Primary Deliverable Rank: 2		Time:		Method of Shipment:		Date/Time:	
Empty Kit Requisitioned by:		Order Time:		Company:		Received by:		Date/Time:	
Requisitioned by:		Order Time:		Company:		Received by:		Date/Time:	
Requisitioned by:		Order Time:		Company:		Received by:		Date/Time:	
Custody Seal Intact: <b>A Yes A No</b>		Custody Seal No.:		Custody Seal No.:		Custody Seal No.:		Custody Seal No.:	

### Chain of Custody Record

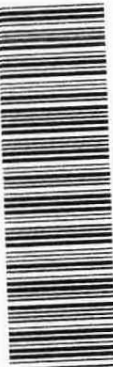
**TestAmerica**  
THE LEADER IN ENVIRONMENTAL TESTING

[illegible]



## Chain of Custody Record



<b>Client Information</b>			Lab PM:		Carrier Tracking No(s)		COC No: 280-67249-22759.1
Client Contact: Tony Kupilik			E-Mail: donna.rydborg@testamericainc.com		Rydborg, Donna R		Page: Page 1 of 1
Company: Trihydro Corporation 1252 Commerce Drive Laramie, WY 82070 Phone: Email: Project Name: Site:			Due Date Requested: TAT Requested (days):  PO #: Purchase Order Requested WO #: Project #: SSOW#:		Analysis Requested		Job #:
Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=ore/dust, B=bitumen, other)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	Total Number of Containers
A182817	8/28/17	1315	G	S	X	X	
A282817	8/28/17	1354	G	S	X	X	
A382817	8/28/17	1420	G	S	X	X	
A482817	8/28/17	1440	G	S	X	X	
A582817	8/28/17	1510	G	S	X	X	
A682817	8/28/17	1535	G	S	X	X	
A782817	8/28/17	1615	G	S	X	X	
							
280-100940 Chain of Custody							
Special Instructions/Note:							
Possible Hazard Identification <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input checked="" type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological Deliverable Requested: I, II, III, IV, Other (specify)							
Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return To Client <input checked="" type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months							
Special Instructions/QC Requirements:							
Empty Kit Relinquished by:							
Relinquished by:							
Relinquished by:							
Relinquished by:							
Date:							
Method of Shipment:							
Received by:							
Received by:							
Received by:							
Date/Time:							
Date/Time:							
Date/Time:							
Company:							
Company:							
Company:							
Custody Seal No.:							
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No							

Cooler Temperature(s) °C and Other Remarks:  
22.1(10.1°F) transferred by RT 9/7/17

## Chain of Custody Record

[illegible]



## Chain of Custody Record

<b>Client Information</b> Client Contact: Tony Kuplik Company: Trihydro Corporation Address: 1252 Commerce Drive City: Laramie State, Zip: WY, 82070 Phone: Email: tkuplik@trihydro.com Project Name: Questa Pipeline - Lead and Asbestos Site:		Sampler: KUPLIK Lab PM: Rydberg, Donna R Phone: (307) 745-7474 E-Mail: donna.rydberg@testamericainc.com	Carrier Tracking No(s): COC No: 285-67249-227593 Page: Page 1 of 1 Job #:
<b>Analysis Requested</b> Due Date Requested: TAT Requested (days): 10 DAY PO #: 17-252VNO-L WO #: 28017197 Project #: SSOW#:		Preservation Codes: A - HCL M - Hexane B - NaOH N - None C - Zn Acetate O - AsNaO2 D - Nitric Acid P - Na2O4S E - NaHSO4 Q - Na2SO3 F - MeOH R - Na2S2O3 G - Amchlor S - H2SO4 H - Ascorbic Acid T - TSP Dodecahydrate I - Ice U - Acetone J - DI Water V - MCAA K - EDTA W - pH 4-5 L - EDA Z - other (specify) Other:	
<b>Sample Identification</b> INS182817 INS282817 PL182817 G182817 G282817 G382817 G482817		Sample Date: 8/28/17 Sample Time: 1555 Sample Type (C=Comp, G=grab): G Matrix (Weigher, Sealer, Ovens, etc.): S Field Filtered Sample (Yes or No): Perform MS/MSD (Yes or No): Total Number of Containers:	
<b>Possible Hazard Identification</b> <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input checked="" type="checkbox"/> Unknown <input type="checkbox"/> Radiological Deliverable Requested: I, II, III, IV, Other (specify)		Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months	
Empty Kit Relinquished by:		Special Instructions/QC Requirements:	
Relinquished by: T. KUPLIK Relinquished by: Relinquished by:		Date: 9/6/17 @ 1500 Date: 9/6/17 @ 0910 Date: 9/6/17 @ 0910 Date: 9/6/17 @ 0910	
Custody Seals Intact: Δ Yes Δ No		Cooler Temperature(s) °C and Other Remarks:	



## Chain of Custody Record

<b>Client Information</b> Client Contact: Tony Kuplik Company: Trihydro Corporation Address: 1252 Commerce Drive City: Laramie State, Zip: WY, 82070 Phone: (307) 745-7474 Email: tkuplik@trihydro.com Project Name: Questa Pipeline - Lead and Asbestos Site:		Sampler: Kuplik Lab PM: Rydberg, Donna R E-Mail: donna.rydberg@testamericainc.com Carrier Tracking No(s):		COC No: 4 Page: Page 1 of 1 Job #:	
Due Date Requested: TAT Requested (days): 10 DAY PO #: 17252W0-L WO #: 28017197 Project #: 28017197 SSOW#:		<b>Analysis Requested</b>			
Sample Identification A182917 A282917 A382917 A482917 A582917 A682917 A782917 A882917 A982917 A1082917 A1182917		Sample Date 8/29/17	Sample Time 0835	Sample Type G-Grab	Matrix (Wet, Dry, Solid, On-site, Off-site)
Preservation Code:		Total Number of Containers			
Special Instructions/Note:		Special Instructions/Note:			
Possible Hazard Identification <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input checked="" type="checkbox"/> Unknown <input type="checkbox"/> Radiological Deliverable Requested: I, II, III, IV, Other (specify)		Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return To Client <input checked="" type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months			
Empty Kit Relinquished by:		Special Instructions/QC Requirements:			
Relinquished by: T. Kuplik Relinquished by:		Method of Shipment:			
Relinquished by:		Date/Time: 9/17/17 0910 Company: TAD			
Relinquished by:		Date/Time:			
Relinquished by:		Date/Time:			
Relinquished by:		Date/Time:			
Custody Seals Intact: <input type="checkbox"/> Yes <input type="checkbox"/> No		Cooler Temperature(s) °C and Other Remarks:			

# Chain of Custody Record

<b>Client Information</b> Client Contact: Tony Kuplik Company: Trihydro Corporation Address: 1252 Commerce Drive City: Laramie State, Zip: WY, 82070 Phone: Email: tkuplik@trihydro.com Project Name: Questa Pipeline - Lead and Asbestos Site:		Sampler: KUPLIK Lab PM: Rydberg, Donna R Phone: (307) 745-7474 E-Mail: donna.rydberg@testamericainc.com		Carrier Tracking No(s): COC No: 5 Page: Page 1 of 1 Job #:																													
Due Date Requested: TAT Requested (days): 10 DAY PO #: 17-252WO-L WO #: 28017197 Project #: SSOW#:		<b>Analysis Requested</b> <table border="1"> <tr> <td colspan="2">Preservation Codes:</td> </tr> <tr> <td>A - HCL</td> <td>M - Hexane</td> </tr> <tr> <td>B - NaOH</td> <td>N - None</td> </tr> <tr> <td>C - Zn Acetate</td> <td>O - AsNaO2</td> </tr> <tr> <td>D - Nitric Acid</td> <td>P - Na2O4S</td> </tr> <tr> <td>E - NaHSO4</td> <td>Q - Na2SO3</td> </tr> <tr> <td>F - MeOH</td> <td>R - Na2S2O3</td> </tr> <tr> <td>G - Amchlor</td> <td>S - H2SO4</td> </tr> <tr> <td>H - Ascorbic Acid</td> <td>T - TSP Dodecahydrate</td> </tr> <tr> <td>I - Ice</td> <td>U - Acetone</td> </tr> <tr> <td>J - DI Water</td> <td>V - MCAA</td> </tr> <tr> <td>K - EDTA</td> <td>W - pH 4-5</td> </tr> <tr> <td>L - EDA</td> <td>Z - other (specify)</td> </tr> <tr> <td colspan="2">Other:</td> </tr> </table>				Preservation Codes:		A - HCL	M - Hexane	B - NaOH	N - None	C - Zn Acetate	O - AsNaO2	D - Nitric Acid	P - Na2O4S	E - NaHSO4	Q - Na2SO3	F - MeOH	R - Na2S2O3	G - Amchlor	S - H2SO4	H - Ascorbic Acid	T - TSP Dodecahydrate	I - Ice	U - Acetone	J - DI Water	V - MCAA	K - EDTA	W - pH 4-5	L - EDA	Z - other (specify)	Other:	
Preservation Codes:																																	
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J - DI Water	V - MCAA																																
K - EDTA	W - pH 4-5																																
L - EDA	Z - other (specify)																																
Other:																																	
Sample Identification L102917 L282917 L382917 L482917 L582917 L682917 L782917 L882917 L982917 L1082917 L1182917		Perform MS/MSD (Yes or No) LEAD Field Filtered Sample (Yes or No) Sample Date: 8/29/17 Sample Time: 0835 Sample Type: G=grab Matrix: S Preservation Code: G Total Number of Containers:																															
Possible Hazard Identification <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input checked="" type="checkbox"/> Unknown <input type="checkbox"/> Radiological Deliverable Requested: I, II, III, IV, Other (specify) L EVEL 11		Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return To Client <input checked="" type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For Months																															
Empty Kit Relinquished by: T. KUPLIK Relinquished by:		Method of Shipment:																															
Date/Time: 9/16/17 @ 1500 Relinquished by:		Date/Time: 9/17/17 0910 Received by:																															
Date/Time:		Date/Time:																															
Date/Time:		Date/Time:																															
Custody Seals Intact Yes No		Cooler Temperature(s) °C and Other Remarks:																															



## Chain of Custody Record

<b>Client Information</b> Client Contact: Tony Kupilik Company: Trihydro Corporation		Lab PM: Rydberg, Donna R E-Mail: donna.rydberg@lestamerica.com		Carrier Tracking No(s): <u>6</u> Page: Page 1 of 1 Job #:			
<b>Analysis Requested</b>				<b>Preservation Codes:</b> A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Anchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA Other:			
Due Date Requested: TAT Requested (days): <u>10 DAY</u> PO #: <u>17-252W0-L</u> WO #: <u>28017197</u> Project #: <u>SSOW#:</u>		Perform MS/MSD (Yes or No) <u>ASBESTOS</u> Field Filtered Sample (Yes or No) <u>X</u> Matrix (W=water, S=solid, O=oil, A=air) <u>S</u>		Total Number of Containers: <u>X</u> Special Instructions/Note:			
Sample Identification <u>G182917</u> <u>G282917</u> <u>G382917</u> <u>G482917</u> <u>PL182917</u>		Sample Date <u>8/29/17</u> <u>0925</u> <u>1020</u> <u>1025</u> <u>1030</u>		Sample Time <u>0920</u> <u>0925</u> <u>1020</u> <u>1025</u> <u>1030</u>		Sample Type (C=Comp, G=grab) <u>G</u> <u>G</u> <u>G</u> <u>G</u> <u>G</u>	
Possible Hazard Identification <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input checked="" type="checkbox"/> Unknown <input type="checkbox"/> Radiological				Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months			
Deliverable Requested: I, II, III, IV, Other (specify) <u>LEVEL II</u>				Special Instructions/QC Requirements:			
Empty Kit Relinquished by:		Date: <u>9/6/17</u>		Method of Shipment:		Received by: <u>[Signature]</u> Date/Time: <u>9/7/17 0915</u> Company: <u>THC</u>	
Relinquished by: <u>T. KUPILIK</u>		Date/Time: <u>9/6/17 @ 1500</u>		Company: <u>THC</u>		Received by: <u>[Signature]</u> Date/Time: <u>9/7/17 0915</u> Company: <u>THC</u>	
Relinquished by:		Date/Time:		Company:		Received by: <u>[Signature]</u> Date/Time: <u>9/7/17 0915</u> Company: <u>THC</u>	
Relinquished by:		Date/Time:		Company:		Received by: <u>[Signature]</u> Date/Time: <u>9/7/17 0915</u> Company: <u>THC</u>	
Custody Seals Intact: <u>Yes</u>				Custody Seal No.:			



## Chain of Custody Record

<b>Client Information</b> Client Contact: Tony Kupilik Company: Trifhydro Corporation Address: 1252 Commerce Drive City: Laramie State, Zip: WY, 82070 Phone: Email: tkupilik@trifhydro.com Project Name: Questa Pipeline - Lead and Asbestos Site:		Sampler: KUPILIK Lab PM: Ryberg, Donna R Phone: (307) 745-7474 E-Mail: donna.ryberg@testamericainc.com		Carrier Tracking No(s): Lab No: 7 Page: Page 1 of 1 Job #:	
Due Date Requested: TAT Requested (days): 10 DAY PO #: 17-252W0-L WO #: 28017197 Project #: 28017197 SSOW#:		<b>Analysis Requested</b>			
Sample Identification A183017 A283017 BAI83017 BA283017 BA383017 BA483017 BA583017 BA683017		Sample Date 8/30/17	Sample Time 0940	Sample Type G=grab	Matrix (W=water, S=solid, O=other) S
Possible Hazard Identification <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input checked="" type="checkbox"/> Unknown <input type="checkbox"/> Radiological Deliverable Requested: I, II, III, IV, Other (specify) LEVSL 11		Field Filtered Sample (Yes or No) <input checked="" type="checkbox"/> Perform MS/MSD (Yes or No) <input checked="" type="checkbox"/> Total Number of Containers <input checked="" type="checkbox"/>			
Empty Kit Relinquished by: Relinquished by: T. KUPILIK Relinquished by: Relinquished by:		Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return To Client <input checked="" type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months Special Instructions/OC Requirements:			
Relinquished by: Relinquished by: Relinquished by:		Date/Time: 9/6/17 @ 1500 Date/Time: Date/Time:			
Custody Seals Intact: Δ Yes Δ No		Cooler Temperature(s) °C and Other Remarks:			

## Chain of Custody Record

<b>Client Information</b> Client Contact: Tony Kupilik Company: Trihydro Corporation Address: 1252 Commerce Drive City: Laramie State, Zip: WY, 82070 Phone: Email: tkupilik@trihydro.com Project Name: Questa Pipeline - Lead and Asbestos Site:		Sampler: KUPILIK Lab PM: Rydberg, Donna R E-Mail: donna.rydberg@testamericainc.com Carrier Tracking No(s): GOC No: 8 Page: Page 1 of 1 Job #:
Due Date Requested: TAT Requested (days): 10 DAY PO #: 17-252W0-L WO #: 28017197 Project #: SSOW#:		Analysis Requested Preservation Codes: A - HCL M - Hexane B - NaOH N - None C - Zn Acetate O - AsNaO2 D - Nitric Acid P - Na2O4S E - NaHSO4 Q - Na2SO3 F - MeOH R - Na2S2O3 G - Amchlor S - H2SO4 H - Ascorbic Acid T - TSP Dodecahydrate I - Ice U - Acetone J - DI Water V - MCAA K - EDTA W - pH 4-5 L - EDA Z - other (specify) Other:
<b>Sample Identification</b> L1B3017 L2B3017 B3L1B3017 B3L2B3017 B3L3B3017 B3L4B3017 B3L5B3017 B3L6B3017	Sample Date 8/30/17 1110 1115 1120 1125 1130 1140 1150	Sample Type (C=comp, G=grab) G S S S S S S S
Matrix (W=water, S=solid, O=other (specify)) S S S S S S S S		Field Filtered Sample (Yes or No) X X X X X X X X
Perform MS/MSD (Yes or No) X X X X X X X X		Total Number of Containers X X X X X X X X
Special Instructions/Note: LEAD X X X X X X X		Special Instructions/Note: X X X X X X X X
Possible Hazard Identification <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological Deliverable Requested: I, II, III, IV, Other (specify) LEVEL 11		
Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For Months		
Special Instructions/QC Requirements: Empty Kit Relinquished by: T.KUPILIK Relinquished by: 9/6/17 @ 1500 Relinquished by: 9/6/17 @ 1500 Relinquished by: 9/6/17 @ 1500		
Method of Shipment: Date/Time: 9/6/17 @ 1500 Date/Time: 9/6/17 @ 1500 Date/Time: 9/6/17 @ 1500		
Company: THC Company: THC Company: THC		
Custody Seal No.: Custody Seal No.: Custody Seal No.:		



## Chain of Custody Record

Client Information		Carrier Tracking No(s):	
Company:	Lab PM:	Carrier Tracking No(s):	
Client Contact:	Rydberg, Donna R		
Client Name:	E-Mail:		
Tony Kupilik	donna.rydberg@lestamerica.com		
Company:		Page: 1 of 1	
Trihydro Corporation		Job #:	
Address:		Preservation Codes:	
1252 Commerce Drive		A - HCL	
City:		B - NaOH	
Laramie		C - Zn Acetate	
State:		D - Nitric Acid	
WY, 82070		E - NaHSO4	
Phone:		F - MeOH	
		G - Anchlor	
		H - Ascorbic Acid	
		I - Ice	
		J - DI Water	
		K - EDTA	
		L - EDA	
		Other:	
		M - Hexane	
		N - None	
		O - AsNaO2	
		P - Na2O4S	
		Q - Na2SO3	
		R - Na2S2O3	
		S - H2SO4	
		T - TSP Dodecahydrate	
		U - Acetone	
		V - MCAA	
		W - pH 4.5	
		Z - other (specify)	
Due Date Requested:		Analysis Requested	
TAT Requested (days):			
10 DAY			
PO #:			
WO #:			
17-252W0-L			
Project #:			
28017197			
SSOW#:			
Sample Identification		Special Instructions/Note:	
INS183017	Sample Date	Sample Time	Sample Type
INS283017	8/30/17	0910	G
VG183017		0915	
VG283017		0920	
VG383017		0930	
PW183017		0940	
PW283017		1510	
PW383017		1520	
PW483017		1530	
		1540	
Possible Hazard Identification		Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)	
<input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input checked="" type="checkbox"/> Unknown <input type="checkbox"/> Radiological		<input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For <input type="checkbox"/> Months	
Deliverable Requested: I, II, III, IV, Other (specify)		Special Instructions/QC Requirements:	
LEVEL 11			
Empty Kit Relinquished by:		Method of Shipment:	
Relinquished by:		Date/Time:	
T. KUPILIK		9/10/17 @ 1500	
Relinquished by:		Date/Time:	
Relinquished by:		Date/Time:	
Relinquished by:		Date/Time:	
Custody Seals Intact:		Cooler Temperature(s) °C and Other Remarks:	
<input type="checkbox"/> Yes <input type="checkbox"/> No			

- 1
- 2
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- 13
- 14



## Login Sample Receipt Checklist

Client: Trihydro Corporation

Job Number: 280-100940-1

Login Number: 100940

List Source: TestAmerica Denver

List Number: 1

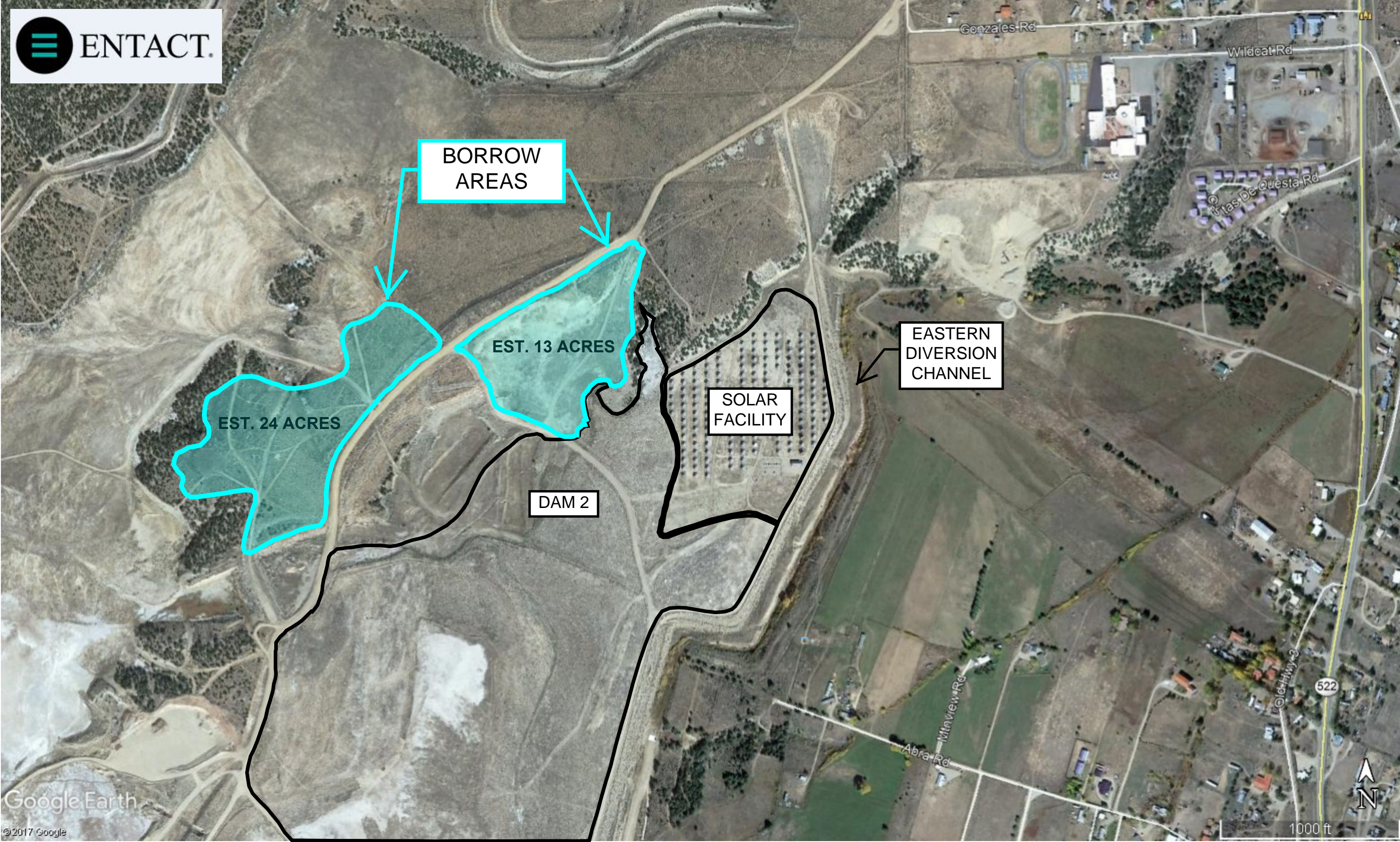
Creator: True, Joshua A

Question	Answer	Comment
Radioactivity wasn't checked or is $\leq$ background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is $<6\text{mm}$ (1/4").	N/A	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

**APPENDIX C**

**BORROW AREA MAP**







## **APPENDIX D**

### **EXAMPLE FIELD AND HEALTH AND SAFETY FORMS**

# Pre-Fieldwork Safety-Readiness Review Form

For all field projects



Business unit name: \_\_\_\_\_  
 Client name: \_\_\_\_\_  
 Project name and number: \_\_\_\_\_  
 Date review performed: \_\_\_\_\_  
 Scheduled project-start date: \_\_\_\_\_  
 Scheduled project-end date: \_\_\_\_\_

## Names and initials of required participants:

1. BUL, BUM, or TL: \_\_\_\_\_
2. Project Director: \_\_\_\_\_
3. Project Manager: \_\_\_\_\_
4. Field Supervisor: \_\_\_\_\_
5. Safety Officer/Lead: \_\_\_\_\_

## Names and initials of other participants:

1. Project-team members: \_\_\_\_\_
2. Contractor(s): \_\_\_\_\_
3. Subcontractor(s): \_\_\_\_\_

Work-Scope Tasks	Work-Related Hazards (refer to the 3x5 Hazard-Assessment Triangle)	Anticipated Hazard-Mitigation Measures

Pre-Fieldwork Safety-Readiness Review Checklist	Yes	No	N/A	CAN
1 Has the project team secured the necessary safety and other work permits required to complete the proposed work?				
2 Has a project-specific or site-specific HASP been prepared and/or updated, and have all project-team members reviewed the HASP?				
3 If a contractor(s) will be used on this project, have they prepared and/or updated their HASP and JSA forms?				
4 Has the project team been reminded that JSAs need to be prepared by the project's subject-matter experts, reviewed by all members of the project team, and marked up where appropriate before starting and during work each day?				
5 If this project involves one or more lone workers, is a plan to manage lone worker safety in place and communicated with the project team?				
6 Do we know if the project site has reliable cell-phone coverage? <i>[If not, request a phone booster from Autumn Bainer.]</i>				
7 Has a hand-safety evaluation been completed for this project?				
8 Has each work space been evaluated (and documented) for the possible presence of confined-space work conditions?				
9 Have team members—including contractors and subcontractors—reviewed and understand the project-site hazards and requirements?				
10 Do all project-team members—including contractors and subcontractors—understand Stop Work Authority and the "Slow Down" approach?				
11 Have all applicable PPE (e.g., PID, FID, H2S detector, etc.) and emergency-response equipment been secured and checked for this project?				
12 Have suitable vehicles been secured and are team members familiar with the vehicle types and operation?				
13 If a client site-specific orientation is required, have all team members completed the required training?				
14 Have SSE mentors been assigned and provided with instructions for overseeing each SSE team member?				
15 Is a plan in-place and assignments made to provide oversight of "low-use" or special contractor/subcontractor team members?				
16 Have topics been developed and assignments made for the daily project-safety meetings, including discussing potential daily- and task-specific hazards?				
17 Has the plan for performing and reporting observations, near misses, and incidents been communicated?				
18 Has the project team been reminded that journey-management plans (JMPs) should be used during the project where appropriate?				
19 Is a traffic-management plan needed for this project and has it been completed and communicated to the project team?				
20 Have procedures for work in or near hazardous areas (e.g., trenches, confined spaces, active units) been communicated?				
21 Have procedures for work in or around equipment (e.g., lockout / tag out, swinging, rotating, backing) been communicated?				
22 Has the Trihydro Excavation, Drilling, and Utility-Locating Checklist been completed for each drilling/excavation project?				
23 Have all employees expecting to oversee or perform drilling/excavation work completed the Trihydro "Subsurface Utility Location and Excavation Safety Best Practices" training session?				
24 Have utility locates been assigned and/or performed in accordance with Trihydro and client procedures?				
25 Is a plan in place for communicating, managing, and reporting changed conditions (e.g., hazards, weather, team roles)?				
26 Is a plan in place for transitioning and training changes in personnel on this project?				
27 Has the project team assessed potential task- or site-specific hazards and developed a plan(s) to eliminate or mitigate the hazards?				
28 Is a BUL, BUM, TL, or Senior Manager scheduled to be on site for the onboarding, kickoff, and initial stages of each major field project (e.g., projects involving subcontractors, complex or different work types, > one week duration, etc.)? If so, please indicate the name of the BUL, BUM, TL, or Senior Manager and the date she or he is scheduled to be on site in the "Review / Non-CAN Item Comments" box below.				
29 Have all contractors/subcontractors been evaluated, qualified, selected, and approved by the BUL based on Trihydro and/or client-specific requirements?				
30 Is a safety audit with a Senior Manager planned for the early stages of all major field projects? If so, please indicate the Senior Manager's name and the date he or she plans to perform the safety audit in the "Review / Non-CAN Item Comments" box below.				

## Findings / Corrective-Action Needed (CAN) Summary

CAN Item No. (i.e., 1 through 30 from the checklist above)	Description of CAN Item	Responsible Person	Target Date	Completed Date	Initials

## Review / Non-CAN Item Comments:

## Pre-Fieldwork Safety-Readiness Review Form

*For all field projects*

### Instructions:

1. While using this form, attempts should be made to address or correct the items warranting Corrective Action Needed (CAN) at the time of the evaluation. If this is not practical, each CAN item / finding should be documented above, including assignment of an individual responsible for addressing the CAN item and a target completion date. Once all of the CAN items have been completed, the Project Manager should review them with the responsible TL, BUM, or BUL and secure sign-off initials that each CAN item has been addressed satisfactorily.

2. Copies of this form should be retained by the responsible TL, BUM, and/or BUL and submitted to the Trihydro H&S Team via e-mail [HealthSafety@Trihydro.com](mailto:HealthSafety@Trihydro.com) or fax (307) 755-4959. Please contact the Trihydro H&S Team for help conducting pre-fieldwork safety-readiness reviews, or if you have questions, suggestions, or comments about the forms.



# JOB SAFETY ANALYSIS



JSA Version Date: February 29, 2012

Job Description: Driving

Project: Questa

Site Location: Site wide

## Development Team

Please include the team members employer and email if not employed by Trihydro Corporation:

**Position/Title:**

**Primary Contact**

1. Pat Henricks

Geologist

(307) 760-9447

2.

3.

## Reviewed By

Please include the reviewers employer and email if not employed by Trihydro Corporation:

**Position**

**Review Date  
(MM/DD/YYYY)**

1. Todd Forry

Health and Safety Manager

10/25/2012

2. Torrey Fox

Geologist

6/10/11

3.

## Personal Protective Equipment (PPE) Needed:

### Eye and Face Protection

☐ Safety Glasses

☐ Face Shield

☐ Chemical Goggles

### Head Protection

☐ Hard Hat

### Hearing Protection

☐ Ear Plugs

☐ Ear Muffs

### Hand Protection

☐ Industrial Work Gloves

☐ Chemical Resistant Gloves

☐ Laceration Resistant Gloves

### Foot Protection

☐ Leather Boots

☐ Steel-Toed Boots

☐ Chemical Resistant Boots

### Water Safety

☐ Personal Flotation Device

☐ Waders

☒ **Other:** Fire extinguisher

☒ **Other:** First aid/vehicle kit

### Body Protection

☐ Fire Retardant Coveralls

☐ Poly-coated Tyvek Coveralls

☐ Chemical Resistant Coveralls

☐ Chemical Resistant Apron

☐ Reflective Safety Vest

☐ Cooling Vest

☐ Long sleeved shirt

### Biological Protection

☐ Snake Gaiters

☐ Sunscreen

☐ Insect Repellent

### Hazardous Atmosphere Protection

☐ Air Monitoring Equipment

☐ Ventilation Fan

☐ Level C

☐ Level B (contact H&S dept.)

☐ Level A (contact H&S dept.)

### Decontamination Materials

☐ Equipment Decontamination

☐ Personnel Decontamination

☒ **Other:** GOAL cones

### Fall Protection

☐ Barriers/Guard Rails

☐ Safety Net

☐ Personal Fall Arrest System

### Respiratory Protection

☐ Half-Face Air Purifying Respirator

☐ Full-Face Air Purifying Respirator

☐ Chemical Cartridge

☐ Particulate Filter

☐ Cartridge/Filter Combo

☐ Ammonia Cartridge

☐ H2S Escape Cartridge

☐ Asbestos Filter (P-100)


























☐ Powered Air Purifying Respirator (PAPR) (contact H&S dept.)









☐ Supplied Air Respirator (SAR) (contact H&S dept.)

☐ Self-Contained Breathing Apparatus (SCBA) (contact H&S dept.)













☐ **Other:**



☐ **Other:**

Job Steps	Hazard(s)				Potential Hazard(s)	Critical Action(s)	Responsible Person
Routine or non-routine journey management plan (JMP) – check (all drivers)					A. Personal Injury (Gravity) B. Property damage or physical injury (Motion)	A. Check the JMP before proceeding to the vehicle. B. Assess if journey is needed due to weather conditions (e.g., snow, ice, rain, wind). Check before each vehicle trip around the site since work areas can be changed throughout the day.	
							
							
		x					
							
Perform vehicle inspection (all drivers)					A. Vehicle failure; Accident or injury (Gravity) (Motion)	A. Fill out vehicle inspection form for any vehicles used for the day. DO NOT use vehicle until issues are addressed. • Clean mirrors and windows. Inspect the interior of the vehicle; including seat belts and gauges. • Remove any clutter or items that may affect your driving, visibility or pedal control. • Follow appropriate maintenance schedule for your vehicle. • Verify insurance card, registration, and inspection. • Refer to the owner/operator manual generally kept in the glove box. • Verify presence of spill kit, first aid kit, and fire extinguisher within inspection period	
							
							
		x					
							
4. Pre vehicle entry					A. Personal Injury or accident;	A. GOAL: before entering your	

Job Steps	Hazard(s)				Potential Hazard(s)	Critical Action(s)	Responsible Person
				x			
Configure seating and controls and lock doors (all drivers)				x	A. Personal Injury Visibility; poor driver ergonomics and/or poor driver control (Motion)	A. Adjust seating to a comfortable position and so that you can easily reach the pedals and steering wheel. <ul style="list-style-type: none"> <li>• Adjust all mirrors.</li> <li>• Wear seat belt.</li> <li>• If you haven't operated this vehicle before, become familiar with all the controls and where everything is located in the vehicle.</li> <li>• Look for blind spots in your viewing area.</li> <li>• Refer to the owner's manual if necessary.</li> </ul>	
Starting vehicle (all drivers)				x	A. Unexpected vehicle movement; engine damage or failure (Motion)	A. Before starting, ensure that the vehicle is in park and the parking brake is applied. <ul style="list-style-type: none"> <li>• After starting, check all gauges for proper temperatures, pressures, etc.</li> </ul>	
Pulling away from parked area (all drivers)		x		x	A. Collision with other vehicles, objects or persons (Gravity) (Motion)	A. Check mirrors and over the shoulder before pulling away. <ul style="list-style-type: none"> <li>• Vehicle should be situated so the first movement is forward, however if backing, either use a spotter or blow horn to warn others.</li> <li>• Proceed cautiously.</li> </ul>	
Driving (all drivers)		x		x	A. Vehicle strikes; vehicle accidents; equipment damage (Gravity) (Motion) B. Collision with wildlife (Biological)	A. Follow JMP applicable to your journey. Review driving JSA. Plan your route, review maps before leaving. <ul style="list-style-type: none"> <li>• Obey all laws of the land as well as site procedures.</li> </ul>	



Job Steps	Hazard(s)				Potential Hazard(s)	Critical Action(s)	Responsible Person
						<p>Follow posted speed limit.</p> <ul style="list-style-type: none"> <li>• Be prepared to 'expect the unexpected'. You never know what someone else (or animals) might do.</li> <li>• NEVER drive under the influence of drugs or alcohol.</li> <li>• Follow posted signs at other locations.</li> <li>• Never operate the vehicle if you are abnormally tired.</li> <li>• Cell phone usage is prohibited while driving a vehicle, including hands free devices such as headset and speaker phones.</li> <li>• Implement 'first move forward' by backing into locations upon arrival.</li> <li>• Be observant of pedestrians (main field office area) and other traffic around you.</li> <li>• Engage parking brake once vehicle is parked. Do not place equipment/supplies above mirror line of sight (i.e., inside cab and or truck bed).</li> <li>• Pull off the road if necessary during bad weather.</li> </ul> <p>B. Scan the area for wildlife including dogs, cats, deer, cows, horses, elk, coyotes, fox's, badgers, and prairie dogs while traveling on site. Watch road sides for movement and pull vehicle to side of road if animal observed. Be particularly aware of animals present in roadway during dusk and morning.</p>	
Parking (all drivers)	   		   	   	A. Pedestrian collision / Property damage(Gravity)(Motion)	<p>A. Use pull through parking spots when available</p> <ul style="list-style-type: none"> <li>• Use signals before pulling from curb and during any change of lane or turn</li> </ul>	

Job Steps	Hazard(s)				Potential Hazard(s)	Critical Action(s)	Responsible Person
						<ul style="list-style-type: none"> <li>• Back into parking space when possible and safe</li> <li>• Maintain a cushion of safety from fixed objects when parking</li> <li>• Set parking brake if on incline; chock wheels if working on steep slopes</li> </ul>	
Post drive (all drivers)		<div>x</div>		<div>x</div>	A. Personal Injury / Property damage (Gravity)(Motion)	A. Report vehicle problems to company representative or rental car agency.	



As the Supervisor my signature below indicates that the requirements, conditions, and procedures listed above are in place and have been verified and reviewed with the affected personnel prior to the start of work.

**Supervisor Name (print):**

**Signature**

**Date**

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Prior to work, I have read and understand the PPE, safety tools/equipment/instruments, and associated permits needed for this task. I also understand the job steps, potential hazards, and critical actions identified for employee task and hazard awareness. I agree to have this JSA on site and identify daily variances and understand I can make pen and ink changes to meet those variances. JSAs used at the task site that contain pen-and-ink changes ("dirtying up") are to be kept in the project folder for record.

**Name (print):**

**Signature**

**Date**

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**END OF DAY**

**REVISIONS TO JSA**  
**(Any tasks that were “dirtied up”)**

Date	Job Step #	REVISION	Does JSA need to be updated permanently?		Responsible Person
			Yes	No	

# DAILY TAILGATE SAFETY MEETING



**NOTE:** A new tailgate meeting must be conducted if conditions, location, or personnel change.

Date: \_\_\_\_\_ Time: \_\_\_\_\_ ☐ a.m. ☐ p.m. Location: \_\_\_\_\_ (city, state)

Project Name: \_\_\_\_\_ Client: \_\_\_\_\_

Current Objective/Description: \_\_\_\_\_

## Commitment to Safety

1. I will protect myself for me, my family, Trihydro, clients, and contractors by watching for and mitigating risky behaviors, exercising stop-work authority to prevent incidents and injuries and by complying with Trihydro and client policies, procedures, and JSAs/JLAs
2. I understand that safety is my personal responsibility and that working safely is a key component in providing quality work.
3. I will set an example for my fellow employees, contractors, clients, and family by working safely.
4. I will drive defensively and "Safely for My Family," abiding by Trihydro and client policies and applicable laws and regulations.
5. I will "slow down" appropriately to work at a pace that will allow me and others to complete each task efficiently and safely.
6. I will hold myself accountable for my safety and the safety of those around me. I will think about the safety of me, my coworkers, contractors, and our clients before I conduct each task.



**\* Stop Work Authority (SWA) – "Everyone has the authority and obligation to immediately stop all unsafe work."**

## Identify High-Hazard Work:

- |   |   |   |   |
|---|---|---|---|
| <input type="checkbox"/> Hot Work             | <input type="checkbox"/> Elevated/overhead work | <input type="checkbox"/> Boat / over-water operations                           | <input type="checkbox"/> Work involving equipment within 15' of active overhead electrical line or pole supporting an electric line |
| <input type="checkbox"/> LOTO                 | <input type="checkbox"/> Excavations - any      | <input type="checkbox"/> Demolition, removal of pipelines and buried structures |   |
| <input type="checkbox"/> Confined Space Entry | <input type="checkbox"/> Drilling - any         |   |   |

## Associated and Identified Hazards:

- |  |   |   |   |
|--|---|---|---|
| <input type="checkbox"/> Abrasions, cuts, scrapes      | <input type="checkbox"/> Earthquake           | <input type="checkbox"/> High-pressure processes    | <input type="checkbox"/> Pinch points         |
| <input type="checkbox"/> Allergies (self & co-workers) | <input type="checkbox"/> Electrical           | <input type="checkbox"/> High-temperature processes | <input type="checkbox"/> Power tools          |
| <input type="checkbox"/> Asbestos                      | <input type="checkbox"/> Equipment failure    | <input type="checkbox"/> High wind                  | <input type="checkbox"/> Pulled into          |
| <input type="checkbox"/> Biological                    | <input type="checkbox"/> Ergonomic            | <input type="checkbox"/> Laceration                 | <input type="checkbox"/> Radiation/X-ray      |
| <input type="checkbox"/> Buried utilities              | <input type="checkbox"/> Excavations in area? | <input type="checkbox"/> Lightning                  | <input type="checkbox"/> Security             |
| <input type="checkbox"/> Burn hazards                  | <input type="checkbox"/> Falling              | <input type="checkbox"/> Loud noise                 | <input type="checkbox"/> Severe weather       |
| <input type="checkbox"/> Chemical exposure             | <input type="checkbox"/> Fire/explosion       | <input type="checkbox"/> Machine guarding           | <input type="checkbox"/> Scaffolds            |
| <input type="checkbox"/> Cold stress                   | <input type="checkbox"/> H <sub>2</sub> S     | <input type="checkbox"/> Motor vehicle crash        | <input type="checkbox"/> Slips, trips, falls  |
| <input type="checkbox"/> Compressed gases              | <input type="checkbox"/> Hand injury          | <input type="checkbox"/> No locking/fixed blades    | <input type="checkbox"/> Subsurface utilities |
| <input type="checkbox"/> Crane or lifting equipment    | <input type="checkbox"/> Heat stress          | <input type="checkbox"/> Overexertion               | <input type="checkbox"/> Traffic              |
| <input type="checkbox"/> Drilling in area?             | <input type="checkbox"/> Heavy equipment      | <input type="checkbox"/> Overhead utilities         | <input type="checkbox"/> Water                |
|  |   | <input type="checkbox"/> Pedestrian                 | <input type="checkbox"/> Other: _____         |

## See it! Identify Current Objective Hazards:

### Assess Trihydro's 3 Most Serious Risks

- |  |  |
|--|--|
|  | <input type="checkbox"/> Traffic/Heavy Equipment |
|  | <input type="checkbox"/> Hazardous Atmosphere    |
|  | <input type="checkbox"/> Utility Contact         |

### Assess Trihydro's 5 Most Frequent Risks

- |  |  |
|--|--|
|  | <input type="checkbox"/> Hand Injuries       |
|  | <input type="checkbox"/> Lifting             |
|  | <input type="checkbox"/> Biological Hazards  |
|  | <input type="checkbox"/> Chemical Exposure   |
|  | <input type="checkbox"/> Slips, trips, falls |

### Other Hazards

- |  |   |
|--|---|
|  | <input type="checkbox"/> Weather            |
|  | <input type="checkbox"/> Working at Heights |

**Personal Protective Equipment (PPE):**

- |  |  |  |  |
|--|--|--|--|
| <input type="checkbox"/> Hard hat              | <input type="checkbox"/> Arm sleeves           | <input type="checkbox"/> Dust mask                                       | Other special equipment:<br><br><input type="checkbox"/> _____<br><input type="checkbox"/> _____<br><input type="checkbox"/> _____<br><input type="checkbox"/> _____<br><input type="checkbox"/> _____<br><input type="checkbox"/> _____ |
| <input type="checkbox"/> Safety glasses        | <input type="checkbox"/> High visibility vest  | <input type="checkbox"/> Respirator                                      |  |
| <input type="checkbox"/> Safety toed boots     | <input type="checkbox"/> Rain gear             | Cartridges/filters: <input type="checkbox"/> VOC/H <sub>2</sub> S escape |  |
| <input type="checkbox"/> Ear plugs (as needed) | <input type="checkbox"/> Rubber boots          | <input type="checkbox"/> H <sub>2</sub> S monitor                        |  |
| <input type="checkbox"/> Face shield           | <input type="checkbox"/> SCBA                  | <input type="checkbox"/> Bump test                                       |  |
| <input type="checkbox"/> Fall protection       | <input type="checkbox"/> Snake chaps           | <input type="checkbox"/> FRCs/Nomex                                      |  |
| <input type="checkbox"/> Gloves (as needed)    | <input type="checkbox"/> Sunscreen (as needed) | <input type="checkbox"/> Tyvek®  |  |
|  |  | <input type="checkbox"/> Insect repellent                                |  |
|  |  | *Do not apply DEET to FRCs*  |  |

**Before Beginning Work:**

- |   |                              |  |
|---|------------------------------|--|
| <input type="checkbox"/> Sign in and out of process unit  | <input type="checkbox"/> N/A | <input type="checkbox"/> Review the JSA and "dirty up" if necessary  |
| <input type="checkbox"/> HASP reviewed & acknowledged   |                              | <input type="checkbox"/> Weather forecast: <input type="checkbox"/> Hot <input type="checkbox"/> Cold <input type="checkbox"/> Inclement |
| <input type="checkbox"/> Locate the nearest evacuation point and a secondary location   |                              | Wind Direction: _____  |
| <input type="checkbox"/> Identify the nearest fire extinguisher, eyewash station, first aid kit, and Material Safety Data Sheets (MSDS) |                              | <input type="checkbox"/> Employee(s) are wearing proper PPE  |
| <input type="checkbox"/> Identify CPR/AED/first aid certified employees   |                              | <input type="checkbox"/> Perform a "self check" on each personal H <sub>2</sub> S monitor  |
| <input type="checkbox"/> If lone worker, implement lone worker procedures   | <input type="checkbox"/> N/A | <input type="checkbox"/> Perform a Work-Site Self Assessment (WSSA)  |
| <input type="checkbox"/> Identify SSE, visitor(s), or guest(s)  | <input type="checkbox"/> N/A | <input type="checkbox"/> Review the dashboard emergency flyer for the specific site; place in a visible location inside vehicle          |
| <input type="checkbox"/> Determine and acquire necessary permits  | <input type="checkbox"/> N/A | <input type="checkbox"/> Barricade work zone (as needed)   |
| Permit required: _____  |                              | <input type="checkbox"/> Review WorkCare Injury Accident Program card  |
|   |                              | <input type="checkbox"/> PPE Action Levels (PID: 10ppm)  |

**Safe Vehicle Use:**

- |   |  |  |
|---|--|--|
| <input type="checkbox"/> Pre-inspection complete            | <input type="checkbox"/> Mileage sheet filled out          | <input type="checkbox"/> GOAL sticker in window        |
| <input type="checkbox"/> Seat belt                          | <input type="checkbox"/> No cell phones used while driving | <input type="checkbox"/> Spotter used (if available)   |
| <input type="checkbox"/> Follow all speed and traffic rules | <input type="checkbox"/> Parked in a safe location         | <input type="checkbox"/> First move forward, backed in |
| <input type="checkbox"/> Emergency brake used               | <input type="checkbox"/> Orange cone used                  | <input type="checkbox"/> Load secured in vehicle       |
| <input type="checkbox"/> Keys left in vehicle               | <input type="checkbox"/> Chock tires (if needed)           | <input type="checkbox"/> 3D-Driving (every 2 years)    |
| <input type="checkbox"/> Trailer Safety Inspection form     | <input type="checkbox"/> Other: _____                      | <input type="checkbox"/> Other: _____                  |

**Site-Specific Comments:** \_\_\_\_\_**Positive Reinforcement (R+):** \_\_\_\_\_**Signatures:**

Meeting Conducted By: \_\_\_\_\_ (designated project on-site safety responder) Company: \_\_\_\_\_

Printed Name	Signature	Company	Attended Mid-Day Safety Focus	Is this worker new on-site?
1.			<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
2.			<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
3.			<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
4.			<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
5.			<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
6.			<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
7.			<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No
8.			<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No



# JOURNEY MANAGEMENT PLAN



Date: \_\_\_\_\_ Project Number: \_\_\_\_\_ Driver: \_\_\_\_\_

Destination: \_\_\_\_\_ Driver Cell Number: \_\_\_\_\_

Departure Time: \_\_\_\_\_ Anticipated Arrival Time: \_\_\_\_\_

Total Hours (not to exceed 16 hours): \_\_\_\_\_ = Work Hrs \_\_\_\_\_ + Driving Hrs \_\_\_\_\_

Plan the journey and notify personnel at destination of your plans. Notify arrival contact if you will not arrive at scheduled time. Keep a copy of this plan with you. Trihydro's main phone number is 307-745-7474. Normal business hours are 8am-5pm, M-F.

**In case of an emergency or incident, contact the Health & Safety Response Team at (307) 755-4888.**

## Purpose of Trip

## Hazards

## Pre-Trip Questions

Is this trip necessary? ☐ Yes ☐ No

Is there an alternative that does not involve driving? ☐ Yes ☐ No

If yes, by what means: \_\_\_\_\_

Is someone else already going to the same destination? ☐ Yes ☐ No

Do I have a map to my destination? ☐ Yes ☐ No

Has the proper vehicle been selected? ☐ Yes ☐ No

Is the vehicle equipped with emergency supplies? ☐ Yes ☐ No

Do I have current driver training for this trip? ☐ Yes ☐ No

Am I well rested and alert for the journey? ☐ Yes ☐ No

Do I have effective means of communications during my journey? ☐ Yes ☐ No

Has a pre-trip vehicle inspection been completed and documented? ☐ Yes ☐ No

Have road condition reports been reviewed prior to the journey? ☐ Yes ☐ No

**Weather:** ☐ Dry ☐ Windy ☐ Rain ☐ Snow ☐ Icy ☐ Fog ☐ Dust

**Road Conditions:** ☐ Dirt Road ☐ Construction ☐ Paved Road ☐ Mixed Conditions

**Night Driving:** ☐ Yes ☐ No Is it essential? ☐ Yes ☐ No

**Vehicle:** ☐ Fleet Vehicle ☐ Rental Vehicle ☐ Personal Vehicle

Make\*: \_\_\_\_\_ Model\*: \_\_\_\_\_ Year\*: \_\_\_\_\_ Color\*: \_\_\_\_\_

VIN\* or Fleet Number: \_\_\_\_\_ License Plate State/Number\*: \_\_\_\_\_

Condition: ☐ Satisfactory

Vehicle Inspection Form Completed? ☐ Yes ☐ No

Vehicle preventive maintenance up to date? ☐ Yes ☐ No

**When traveling to the site, contact your supervisor/project manager to confirm your safe arrival.**

**On return journey, contact your supervisor/project manager when you depart from site and upon arrival back to start point to confirm your safe travels.**

*\*For rental or personal vehicle, if available.*

<b>For Overnight Stays</b>	Hotel Name: _____	Telephone: _____
	City: _____	State: _____
<b>Route Planned</b>	(Auto route, train information, and/or flight information): <input type="checkbox"/> Route/Information Attached Separately <input type="checkbox"/> Map Attached Separately	
<b>Unconventional Travel</b>		
<input type="checkbox"/> Helicopter	Verify the following: <ul style="list-style-type: none"><li>Name is on the aircraft manifest</li><li>Pilot performs safety briefing prior to takeoff</li><li>Hats are not worn on flight line</li><li>Do not approach aircraft from the rear; approach from front quadrant or side</li><li>Stay clear of tail rotor</li></ul>	
<input type="checkbox"/> Private Aircraft	Verify the following: <ul style="list-style-type: none"><li>Name is on the aircraft manifest</li><li>Pilot performs safety briefing prior to takeoff</li><li>Hats are not worn on flight line</li><li>Do not approach aircraft from the rear; approach from front quadrant or side</li></ul>	
<input type="checkbox"/> Watercraft	Verify the following: <ul style="list-style-type: none"><li>Registration number is on the watercraft manifest</li><li>Captain performs safety briefing prior to launch</li><li>Personal flotation devices are available/worn</li><li>Notify supervisor of vessel number</li></ul>	
<input type="checkbox"/> Other:		

Supervisor/PM Approval: \_\_\_\_\_ Date: \_\_\_\_\_

Employee site arrival: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_

Employee site departure: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_

Employee home arrival: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_