C-147 REGISTRATION PACKAGE

NE Lybrook 2306-06P WSW Pad
Recycling Containment and Recycling Facility

April 2025

ENDURING RESOURCES IV, LLC

200 Energy Court
Farmington, New Mexico 87401
Phone: (505) 636-9720

District I
1625 N. French Dr., Hobbs, NM 88240
District II
811 S. First St., Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural Resources
Department
Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-147
Revised April 3, 2017

Recycling Facility and/or Recycling Containment

Type of Facility: ☒ Recycling Facility ☒ Recycling Containment*

Type of action: ☒ Permit ☒ Registration
☐ Modification ☐ Extension
☐ Closure ☐ Other (explain) _____

*** At the time C-147 is submitted to the division for a Recycling Containment, a copy shall be provided to the surface owner.**

Be advised that approval of this request does not relieve the operator of liability should operations result in pollution of surface water, ground water or the environment. Nor does approval relieve the operator of its responsibility to comply with any other applicable governmental authority's rules, regulations or ordinances.

1.

Operator: **Enduring Resources, LLC** (For multiple operators attach page with information) OGRID #: **372286**

Address: **200 Energy Court, Farmington, New Mexico 87401**

Facility or well name (include API# if associated with a well): **NE Lybrook 2306-06P WSW Pad**

OCD Permit Number: 3RF-88 (For new facilities the permit number will be assigned by the district office)

U/L or Qtr/Qtr **SE/SE** Section **6** Township **23N** Range **06W** County: **Rio Arriba**

Surface Owner: ☒ Federal ☐ State ☐ Private ☐ Tribal Trust or Indian Allotment

2.

☒ **Recycling Facility:**

Location of recycling facility (if applicable): Latitude **36.247787** Longitude **-107.503662** NAD83

Proposed Use: ☒ Drilling* ☒ Completion* ☒ Production* ☐ Plugging *

The re-use of produced water may NOT be used until fresh water zones are cased and cemented

☐ Other, ***requires permit for other uses. Describe use, process, testing, volume of produced water and ensure there will be no adverse impact on groundwater or surface water.***

☒ Fluid Storage

☒ Above ground tanks ☒ Recycling containment ☐ Activity permitted under 19.15.17 NMAC explain type_____

☐ Activity permitted under 19.15.36 NMAC explain type:_____ ☐ Other explain _____

☐ For multiple or additional recycling containments, attach design and location information of each containment

☐ **Closure Report (required within 60 days of closure completion):** ☐ Recycling Facility Closure Completion Date:_____

3.

☒ **Recycling Containment:**

☐ Annual Extension after initial 5 years (attach summary of monthly leak detection inspections for previous year)

Center of Recycling Containment (if applicable): Latitude **36.247787** Longitude **-107.503662** NAD83

☒ For multiple or additional recycling containments, attach design and location information of each containment

☒ Lined ☐ Liner type: Thickness **40** mil ☒ LLDPE ☐ HDPE ☐ PVC ☐ Other _____

☒ String-Reinforced

Liner Seams: ☒ Welded ☒ Factory ☐ Other _____ Volume: **626,000** bbl

Dimensions: Radius **x9 60K ASTs 90' Radius & x2 43K ASTs 81'2" Radius** x Height **12' each**

☐ Recycling Containment Closure Completion Date:_____

4.

Bonding:

☒ Covered under bonding pursuant to 19.15.8 NMAC per 19.15.34.15(A)(2) NMAC **(These containments are limited to only the wells owned or operated by the owners of the containment.)**

☐ Bonding in accordance with 19.15.34.15(A)(1). Amount of bond $_____ **(work on these facilities cannot commence until bonding amounts are approved)**

☐ Attach closure cost estimate and documentation on how the closure cost was calculated.

5.

Fencing:

☐ Four foot height, four strands of barbed wire evenly spaced between one and four feet

☒ Alternate. Please specify _____**See variance request in registration package Exhibit H** _____

6.

Signs:

☒ 12"x 24", 2" lettering, providing Operator's name, site location, and emergency telephone numbers

☐ Signed in compliance with 19.15.16.8 NMAC

7.

Variances:

Justifications and/or demonstrations that the proposed variance will afford reasonable protection against contamination of fresh water, human health, and the environment.

Check the below box only if a variance is requested:

☒ Variance(s): Requests must be submitted to the appropriate division district for consideration of approval. If a Variance is requested, include the variance information on a separate page and attach it to the C-147 as part of the application.

If a Variance is requested, it must be approved prior to implementation.

8.

Siting Criteria for Recycling Containment

Instructions: The applicant must provide attachments that demonstrate compliance for each siting criteria below as part of the application. Potential examples of the siting attachment source material are provided below under each criteria.

General siting	
Ground water is less than 50 feet below the bottom of the Recycling Containment. NM Office of the State Engineer - iWATERS database search; USGS; Data obtained from nearby wells	☐ Yes ☒ No ☐ NA
Within incorporated municipal boundaries or within a defined municipal fresh water well field covered under a municipal ordinance adopted pursuant to NMSA 1978, Section 3-27-3, as amended. - Written confirmation or verification from the municipality; written approval obtained from the municipality	☐ Yes ☒ No ☐ NA
Within the area overlying a subsurface mine. - Written confirmation or verification or map from the NM EMNRD-Mining and Minerals Division	☐ Yes ☒ No
Within an unstable area. - Engineering measures incorporated into the design; NM Bureau of Geology & Mineral Resources; USGS; NM Geological Society; topographic map	☐ Yes ☒ No
Within a 100-year floodplain. FEMA map	☐ Yes ☒ No
Within 300 feet of a continuously flowing watercourse, or 200 feet of any other significant watercourse, or lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark). - Topographic map; visual inspection (certification) of the proposed site	☐ Yes ☒ No
Within 1000 feet from a permanent residence, school, hospital, institution, or church in existence at the time of initial application. - Visual inspection (certification) of the proposed site; aerial photo; satellite image	☐ Yes ☒ No
Within 500 horizontal feet of a spring or a fresh water well used for domestic or stock watering purposes, in existence at the time of initial application. - NM Office of the State Engineer - iWATERS database search; visual inspection (certification) of the proposed site	☐ Yes ☒ No
Within 500 feet of a wetland. - US Fish and Wildlife Wetland Identification map; topographic map; visual inspection (certification) of the proposed site	☐ Yes ☒ No

9.
Recycling Facility and/or Containment Checklist:
Instructions: Each of the following items must be attached to the application. Indicate, by a check mark in the box, that the documents are attached.

☒ Design Plan - based upon the appropriate requirements. **– Section 3 of the C-147 Registration Package**
☒ Operating and Maintenance Plan - based upon the appropriate requirements. - **Section 4 of the C-147 Registration Package**
☒ Closure Plan - based upon the appropriate requirements. - **Section 5 of the C-147 Registration Package**
☒ Site Specific Groundwater Data **– Exhibit D of the C-147 Registration Package**
☒ Siting Criteria Compliance Demonstrations **– Section 2 of the C-147 Registration Package**
☒ Certify that notice of the C-147 (only) has been sent to the surface owner(s) **– C-147 package is being submitted concurrently to the Division and BLM FFO. See Exhibit C of the C-147 Registration Package for additional surface owner notification.**

10.
Operator Application Certification:
I hereby certify that the information and attachments submitted with this application are true, accurate and complete to the best of my knowledge and belief.

Name (Print): **Heather Huntington** Title: **Permitting Technician**
Signature: Heather Huntington Date: **04/03/2025**
e-mail address: **hhuntington@enduringresources.com** Telephone: **505-636-9751**

11.
OCD Representative Signature: Victoria Venegas **Approval Date:** 05/27/2025
Title: Environmental Specialist **OCD Permit Number:** 3RF-88
☒ OCD Conditions
☒ Additional OCD Conditions on Attachment

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1. INTRODUCTION

Applicant	Enduring Resources, LLC
OGRID	372286
Project Name	NE Lybrook 2306-06P WSW Pad Recycling Containment and Recycling Facility
Project Type	Recycling Facility & Recycling Containment
Legal Location	Southeast ¼ of the Southeast ¼, of Section 6, Township 23N, Range 06W
Surface Owner	Federal surface managed by the Bureau of Land Management Farmington Field Office

In accordance with 19.15.34 NMAC, Enduring Resources, LLC (Enduring) requests registration of their NE Lybrook 2306-06P WSW Pad (NEL 2306-06P) Recycling Containment and Recycling Facility through the approval of this C-147 registration and permit package.

The recycling containment will consist of nine 60,000 barrel above ground storage tanks (AST) and two 43,000 barrel ASTs for a combined volume of 626,000 barrels. Per 19.15.34.7 B. NMAC a *"**Recycling containment**" is a storage containment which incorporates a synthetic liner as the primary and secondary containment device and is used solely in conjunction with a recycling facility for the storage, treatment or recycling of produced water only for the purpose of drilling, completion, production or plugging of wells used in connection with the development of oil or gas or both.* These AST containments fall within this definition and must meet all applicable requirements of a Recycling Containment in Rule 19.15.34 NMAC.

The recycling facility will consist of two potential facility phases. The initial phase will consist of up to (30) 400 bbl vertical frac tanks with a consolidated volume of 12,000 barrels to treat (mechanical and chemical reconditioning process) produced water for reuse (Enduring will only set as many tanks deemed to be needed based on incoming volumes and extent of treatment necessary). These tanks will be used as upright gunbarrel oil water separators. The secondary phase if deemed to be necessary and replacing phase one, will consist of (2) 750 BBL gunbarrel tanks, (8) 500 or 400 barrel vertical tanks, (2) coalescer units or Heater Treaters, and (1) pump system to increase instantaneous capacity for produced water reuse and (1) fuel gas separator for serving operational needs (Enduring will only set as many tanks deemed to be needed based on incoming volumes and extent of treatment necessary). This phase 2 facility will have a maximum consolidated volume of 5,500 barrels but allow for higher throughput volumes. These two recycling facility designs will ensure oil separation to prevent having any visible layer of oil on the surface of the recycling containments in accordance with Rule 19.15.34.13 B.(1). As defined in 19.15.34.7 A. NMAC a ***"Recycling facility"** is a stationary or portable facility used exclusively for the treatment, re-use or recycling of produced water. A recycling facility does not include oilfield equipment such as separators, heater treaters and scrubbers in which produced water may be used.*

Per 19.15.34.9 A. water (produced water and Entrada water) stored/processed through this temporary recycling facility will be used as part of a permitted operation for drilling, completing, and producing Enduring Resources, LLC wells and DJR Operating, LLC. Enduring Resources, LLC & DJR Operating, LLC are wholly owned subsidiaries of Enduring Resources, LLC. Leases, rights of ways, wells, and other property interests will continue to be held in their current entity names.

See Exhibit A for site survey plat and Exhibit B for a site diagram of the proposed ASTs and recycling facility layout. This facility will not be used for the disposal of produced water.

The NEL 2306-06P Pad is located at 36.247787° N, -107.503662° W, within Section 6, Township 23N, Range 06W, in Rio Arriba County, New Mexico. The site is located on federal lands managed by the Bureau of Land Management Farmington Field Office (BLM FFO). Enduring is the operator of the applicable oil and gas mineral rights in this area.

BLM FFO has been notified and approved of this site for water storage and water recycling. Enduring planned and permitted this site with the BLM FFO to host a non-potable entrada water supply well (WSW), associated water supply and recycling facility, and AST tank storage. See Exhibit C, approved grant of right of way for the NE Lybrook 2306-06P WSW pad. Additionally, per New Mexico Oil Conservation Division (NMOCD) Form C-147, Enduring will provide A copy of this registration package to the BLM FFO concurrently with submittal to the division.

This document provides supplemental information to NMOCD Form C-147 that is required for registration, including siting criteria and demonstrations, design and construction plan, operating and maintenance plan, closure plan, site reclamation requirements, and surface owner notification.

Upon approval of this registration package, the recycling containments located at this facility will be operated for up to five years.

If the AST containments are found to be needed beyond five years, Enduring will submit annual extensions to NMOCD on Form C-147 at least 30 days prior to the expiration. The extension request will include a summary of all monthly inspections of the containments, including monitoring of the leak detection systems indicating that the containments integrity has not been compromised.

2. SITING CRITERIA

2.1. Depth to Groundwater 19.15.34.11 A.(1)

Per 19.15.34.11 B. NMAC, Enduring requests use of multiple ground water determination sources in the surrounding area. These sources are listed below.

TABLE 1. NEAREST GROUND WATER DETERMINATIONS

Source Name	Type of Well	Location	Elevation	Well Depth	Water Depth	Distance & Direction to Center of NEL 2306-06P Pad	Elevation at NEL 2306-06P Pad
Chaco 176H Ground Bed Drilling Log	Cathodic Protection Ground Bed	36.2575, -107.51595	6990' AMSL	300'	205'	5,000' Southeast	6840' AMSL
Chaco 412H Gound Bed Drilling Log	Ground water depth log for BGT	36.255573, -107.465313	6701' AMSL	60'	55'	11,700' West-Southwest	6840' AMSL
POD SJ01156	Water Well	NE ¼, NW ¼, Sec 18, T23N, R06W	6896' AMSL	1500'	200'	5,990' North-Northeast	6840' AMSL

With the proposed containments being ASTs sitting above ground level, the groundwater depth is greater than 50 feet below the bottom of the recycling containments. See Exhibit D for well records of the aforementioned wells supporting this determination.

2.2. Distance to Surface Water 19.15.34.11 A.(2)

There are no continuously flowing watercourses within 300 feet; nor, any significant watercourses, lakebeds, sinkholes, or playa lakes within 200 feet of the proposed AST as shown in Exhibit B, Exhibit E Map 2, and Exhibit F Figure A-2.

Enduring contracted SWCA Environmental Consultants in April and August of 2023 and May of 2024 to assess all surrounding drainages per 19.15.34.11 A.(2) NMAC. In the report provided to Enduring titled, *Aquatic Resources Delineation Technical Memorandum,* SWCA Summarized the following. This report is attached hereto as Exhibit F:

Based on the regulatory considerations provided in Section 2, evaluation of the survey area, and SWCA's understanding of the USACE Albuquerque District's current policies regarding jurisdictional determinations, it is SWCA's professional opinion that per the 2023 Amended Rule, no features present within the survey area would be considered jurisdictional WOTUS by the USACE.

Pursuant to 19.15.34 NMAC, no OHWMs were observed within 200 feet of the project area. Therefore, no significant watercourse is likely to occur within 200 feet of the proposed recycling containment. Although, the southwest corner of the water source well pad does intersect a FEMA 100-year flood zone (Flood Zone A), the recycling containment area within the water source well pad does not intersect a FEMA 100-year flood zone.

2.3. Distance to Structures 19.15.34.11 A.(3)

The recycling facility/containments are not located within 1,000 feet of a permanent residence, school, hospital, institution, or church in existence at the time of this application. As shown on the aerial map in Exhibit E Map 2, there are no permanent residences, schools, hospitals, institutions, or churches within the 1000-foot buffer ring of the pad. A field visit verified there has been no new structure erected since the aerial imagery was obtained.

2.4. Distance to Non-Public Water Supply and Springs 19.15.34.11 A.(4)

The recycling facility/containments are not located within 500 horizontal feet of a spring or fresh water well used for domestic or stock watering purposes in existence at the time of this application as shown on Exhibit E Map 1 and 2. Map 1 shows wells and springs/seeps regardless of use type in the surrounding area and Map 2 shows that no water wells, springs, or seeps are located within the 500-foot buffer of the pad. The nearest fresh water well according to New Mexico Office of the State Engineer (NM-OSE) is referenced above in subsection 2.1 at 1.13 miles away. Nearest spring/seep according to the National Hydrologic Dataset (NHD) is 3.21 miles West-Northwest.

2.5. Distance to Municipal Boundaries and Defined Municipal Fresh Water Well Fields 19.15.34.11 A.(5)

The recycling facility is not within any incorporated municipal boundaries nor within a defined municipal fresh water well field covered by a municipal ordinance adopted pursuant to Section 3- 27-3 NMSA 1978, as amended. Please see Exhibit E Map 1 showing the nearest municipal boundary being Cuba, New Mexico 32.7 miles Southeast.

2.6. Distance to Wetland 19.15.34.11 A.(6)

The recycling facility/containment is not located within 500 feet of a wetland per the evidence provided below. According to the US Fish and Wildlife Service National Wetland Inventory (NWI) and Exhibit E Map 2, the proposed site is located within 500 feet of a drainage that has been mapped as "Riverine" with classification code: R4SBJ. Please see decoded description below from US Fish and Wildlife Service.

R4SBJ:

*System **Riverine (R)** : The Riverine System includes all wetlands and deepwater habitats contained within a channel, with two exceptions: (1) wetlands dominated by trees, shrubs, persistent emergents, emergent mosses, or lichens, and (2) habitats with water containing ocean-derived salts of 0.5 ppt or greater. A channel is an open conduit either naturally or artificially created which periodically or continuously contains moving water, or which forms a connecting link between two bodies of standing water.*

*Subsystem **Intermittent (4)** : This Subsystem includes channels that contain flowing water only part of the year. When the water is not flowing, it may remain in isolated pools or surface water may be absent.*

*Class **Streambed (SB)** : Includes all wetlands contained within the Intermittent Subsystem of the Riverine System and all channels of the Estuarine System or of the Tidal Subsystem of the Riverine System that are completely dewatered at low tide.*

*Water Regime **Intermittently Flooded (J)** : The substrate is usually exposed, but surface water is present for variable periods without detectable seasonal periodicity. Weeks, months, or even years may intervene between periods of inundation. The dominant plant communities under this Water Regime may change as soil moisture conditions change. **Some areas exhibiting this Water Regime do not fall within our definition of wetland***

because they do not have hydric soils or support hydrophytes. This Water Regime is generally limited to the arid West.

The data used and displayed near the project area on the US Fish and Wildlife Service Wetland Inventory was mapped as described in the San Juan, Estancia Basin, and Sante Fe County, NM - Supplemental Map Information document as follows:

All feature creation and attribution was completed with on-screen digitization procedures using Esri, ArcGIS Pro 2.7.0, and ArcMap 10.7.1, with advanced editing tools.

The wetland mapping of this project involved an area-wide inventory of wetlands and non-wetland riparian habitats using 2018, year color infrared and true-color aerial imagery. Fieldwork review was conducted for the purpose of verification of wetland features and non-wetland features and a "selective key" of photo-signatures was created. This baseline information served as a guide for identifying and classifying features (as interpreted from the project imagery) within the NWI (version 2.0), and the Landscape Position Landform Water Flow Path and Water Body Type (LLWW, version 2) Classification Systems.

Since the Wetlands Inventory is identified and mapped from a desktop perspective utilizing photo-signatures the resulting data is a desktop approximation of potential wetlands and non-wetland riparian habitat. Thus, field investigation is necessary to confirm or deny wetland status based on the presents of hydric soils or support hydrophytes. Riparian habitat in this region would be indicated by cottonwood, willow, elm, invasive salt cedar and russian olive.

Enduring contracted SWCA Environmental Consultants in April and August of 2023 and May of 2024 to assess all surrounding drainages per 19.15.34.11 A.(6) NMAC. In the report provided to Enduring titled, *Aquatic Resources Delineation Technical Memorandum,* SWCA Summarized the following. This report is attached hereto as Exhibit F:

SWCA did not observe or delineate any wetland features during the field surveys due to the lack of three-parameter wetlands within the survey area. Three livestock ponds (P01, P02, and P03) were observed within the survey area but did not intersect the project area and also lacked three-parameter wetland indicators (see Figure A-2 in Appendix A). Table 5 summarizes the potential three-parameter wetlands investigated.

2.7. Distance to Subsurface Mines 19.15.34.11 A.(7)

According to New Mexico Energy, Minerals and Natural Resources Department (EMNRD) Mining and Minerals Divisions database, there are no subsurface mines in Township 23N, Range 06W, Rio Arriba County, New Mexico. See Exhibit E Map 1 showing mines near the project area. The nearest EMNRD permit is a Humate pit approximately 19.9 miles south.

2.8. Site Stability 19.15.34.11 A.(8)

The recycling containments are not located in an unstable area. Enduring's construction practices will provide adequate compaction of the pad surface for the anticipated load of the recycling facility and AST containments.

The following additional best management practices are implemented during pad construction to prevent equipment settling and ensure site stability.

- Prior to earthwork, all trees (if applicable) and slash/brush is mulched and incorporated into the topsoil. Tree roots and trunks are removed from the site. The topsoil (vegetative root layer) and mulched organic matter is stripped from location and windrowed along the perimeter of location. Topsoil is not used for pad construction as the organic matter mixed within the soil prevents adequate compaction.
- Subsoil horizons are then utilized to construct a balanced (high areas are cut and used to fill low areas) location. Fill slopes are deposited and compacted in approximate 6-inch lifts with optimal soil moisture content.
- If soil is deemed too wet from inclement weather, it is not utilized as adequate compaction cannot be achieved. Additionally, if construction occurs during winter months, the frost layer if applicable is stripped and sub frost line soil horizons are utilized for construction to achieve adequate compaction that will not settle with warming temperatures.
- Cut and fill slopes around location are 3:1 or better to ensure surface and slope stability.

- The windrowed topsoil and any additional diversions found to be necessary are used to prevent surface sheet flow from entering location.
- Each AST containment will have a properly constructed foundation consisting of a firm, unyielding base, smooth and free of rocks, debris, sharp edges or irregularities to prevent the liner's rupture or tear.

Other factors contributing to site stability include:

- Per 19.15.34.11 A.(7) the location is not in an area overlying a subsurface mine according to the New Mexico EMNRD Mining and Minerals Divisions database.
- This area of New Mexico is not known for underlying caves and karst features.

2.9. Distance to 100-Year Floodplain 19.15.34.11 A.(9)

The recycling facility/containments are not located within a 100-year (1% annual) floodplain. As shown in Exhibit B, Exhibit E Map 2, and Exhibit F Figure A-2, the AST containments are located on the pad in Zone X (area of minimal flood hazard).

As seen in Exhibit B, Exhibit E Map 2, and Exhibit F Figure A-2, the northeastern most and southwestern most margins of the location/material storage fall just within mapped FEMA Flood Zone A (100-year floodplain). There is no site-specific base flood elevation data in this region for more accurate analysis, thus, Enduing proposes variance to NMAC 19.15.34.11 (C)(4) which applies to placement of excavated material during construction within a 100-year floodplain. To provide equal or better protection to excavated material from pad construction Enduring proposes to construct a 4-foot tall flood wall along the interior perimeter of the location extending 20 feet beyond the 100-year floodplain boundary for added protection. This floodwall will be constructed with Redi-Rock R28 or larger series retaining wall blocks. Please see general block and construction details in Exhibit H and placement locations in Exhibit B. This block wall is expected to provide equal or better protection to excavated material as the higher elevation protection from the wall will be greater in elevation than the alternative to round the corners of the location out of the floodplain.

3. DESIGN AND CONSTRUCTION SPECIFICATIONS

Pursuant to 19.15.34.12 NMAC, the following Design Plan presents the minimum standards and specifications for the design and construction of the proposed recycling containments at the NEL 2306-06P pad. The facility and recycling containments have been designed to prevent release and potential overtopping due to wave action (by wind) or rainfall. To supplement the information provided below, the manufacturers specifications for the design and construction of the aboveground containments are provided as Exhibit G.

3.1. Foundation Construction

The containment ASTs will be constructed on Enduring's existing NEL 2306-06P Water Supply Well site. The AST footprints will have properly constructed foundations consisting of a firm, unyielding base, smooth and free of rocks, debris, sharp edges or irregularities to prevent the liner's rupture or tear. The containments will ensure confinement of produced water, to prevent releases and to prevent overtopping due to wave action or rainfall. Geotextile is used under the liner to reduce localized stress-strain or protuberances that otherwise may compromise the liner's integrity. The containments are above ground and are not subject to water run-on.

3.2. Liner and Leak Detection

The containments will be double-lined frac water tank systems. These tank systems are designed to incorporate a 40-mil thickness LLDPE primary (upper) string-reinforced liner and a 30-mil LLDPE secondary (lower) string-reinforced liner. The primary liner is designed to be impervious, synthetic material that will resist deterioration by ultraviolet light, petroleum hydrocarbons, salt solutions, and acidic/alkaline solutions. Liners meet or exceed the compatibility requirements of EPA SW-846 Method 9090A. Steel bolts secure the liners to the top of the AST tanks. Specifications provided by Well Water Solutions and Rentals, Inc. are attached as Exhibit G.

Liner seams are minimized and are oriented vertically up and down the containment walls, not horizontally across the containment. Factory welded seams are incorporated, where possible. Field seams, welding, and testing on the geosynthetic liners is performed by a manufacturer qualified person. For any field seams, the liners overlap 4 to 6 inches and are thermally sealed. Field seams are avoided or minimized in corners and irregularly shaped areas. At a point of discharge into, or suction from, the recycling containment, the liner is protected from excessive hydrostatic force or mechanical damage. External discharge or suction lines do not penetrate the liners.

A leak detection system is installed between the upper and lower liners of each containment and consists of a 200-mil geonet drainage layer. The leak detection system covers the bottom and sides of the containment and includes a minimum of 3 feet of freeboard. A 6-inch PVC pipe is inserted in the sump at the bottom of the containment and between the liners. Each containment is slightly sloped, with the sump placed at the location with the lowest elevation to facilitate the earliest possible leak detection. A schematic of the leak detection system is included in Exhibit G.

The sump piping is checked weekly with a water-level meter to determine if leakage is occurring through the primary liner. If water is detected in the leak detection sump, water will be removed to assess if water returns indicating a leak in the primary liner. Controls for surface water run-on is not needed due to the containments being above ground tanks.

3.3. Signage

The facility will have a sign no less than 12" by 24" with lettering not less than 2" in height in a conspicuous place near the facility entrance. The sign will contain the operator's name, location of the facility by quarter-quarter or unit letter, Section, Township, Range, and emergency phone numbers.

3.4. Entrance Protection

Please see the variance request attached as Exhibit H.

With the recycling containments being ASTs with 12-foot wall height, entrance would have to be intentional. There is no risk of accidental entrance into the containments by wildlife or the public. The site will be maintained to prevent harm to wildlife and the public.

3.5. Netting

Enduring will install bird netting provided by the tank manufacturer over each containment. The netting will be inspected monthly for disrepair. The containments will be inspected weekly for dead migratory birds. Enduring will report dead migratory birds and/or other wildlife to the appropriate wildlife agency, surface management agency, and NMOCD.

4. Maintenance and Operating Plan

4.1. Inspection Timing and Maintenance

Pursuant to 19.15.34.13 NMAC, Enduring will follow the maintenance and operational requirements described below. At a minimum, Enduring will perform weekly inspections on the containments and leak detection systems while the containments hold fluid. Enduring will maintain records and make them available for review by the NMOCD.

- If fluids are found in the sump, the fluids will be sampled and then pumped out.
- Enduring will remove any visible oil from the surface of the containments upon discovery.
- Enduring will maintain a minimum of three feet of freeboard in the containments at all times.
- The injection and withdrawal of fluids from the containments shall be accomplished through a header, diverter or other hardware that prevents damage to the liner by erosion, fluid jets or impact from installation and removal of hoses or pipes.
- If a leak is discovered in the containments' primary liner above the liquid level, Enduring will repair the primary liner within 48 hours, or request an extension on repair within the 48-hour time limit.

- If a leak is discovered in the containments' primary liner below the liquid level, Enduring will notify the division office of the leak, remove all fluids above the leak level, and repair the primary liner within 48 hours, or request an extension on repair within the 48-hour time limit.
- The facility will be operated in such a way to prevent the collection of surface water.
- An oil absorbent boom or other device will be onsite to contain an unanticipated release.
- The facility will not be used for the storage or discharge of hazardous waste.

4.2. Reporting and Record Keeping

During operation of the recycling facility, Enduring will keep accurate records and report monthly to the NMOCD the total volume of water received for recycling, with the volume of fresh water received listed separately, and the total volume of water leaving the facility for disposition of use. Water volume totals will be submitted on NMOCD Form C-148. Accurate records identifying the sources and disposition of recycled water will be maintained during the operation of the facility and made available for review to the NMOCD upon request.

4.3. Cessation of Operations

Enduring will consider the recycling containments to have ceased operations if less than 20% of the total fluid volume is used every six (6) months following the first withdrawal of produced water for use. Enduring will report cessation of operations to the appropriate NMOCD district office. If additional time is needed for closure, Enduring will request an extension from the appropriate NMOCD district office prior to the expiration of the initial six (6) month time period.

5. CLOSURE PLAN

Pursuant to 19.15.34.14 NMAC, the activities summarized below describe the closure and reclamation requirements for the NEL 2306-06P Pad. Within 60 days of closure completion, Enduring will submit a closure report on NMOCD Form C-147 and include required attachments to document all closure activities, sampling results, and details on backfilling, capping, or covering, where applicable.

5.1. Containment Closure

Enduring will remove all fluids from the facility within 60 days from the date that operations cease and close the containments from use within six months from the date that Enduring ceases operations. Alternatively, Enduring can request an extension for the removal of fluids from the NMOCD not to exceed an additional two months. Enduring can also request an extension for the closure of the containments, not to exceed an additional six months.

Enduring will remove all fluids, contents, synthetic liners, and leak detection piping and transfer these materials to an NMOCD-approved facility for disposal. All other equipment associated with the recycling containments and recycling facility will be removed from the site.

5.2. Closure Soil Sampling

Once the containments are removed, Enduring will test the soils beneath each containment for contamination with a five-point composite sample which includes stained or wet soils, if any, and that sample shall be analyzed for the constituents listed in the following table:

TABLE 2. CONTAMINATED SOIL TEST CONSTITUENTS

Constituents	Test Method	Groundwater Depth 51 – 100 Feet	Groundwater Depth >100 Feet
Chloride	EPA 300.0	10,000 mg/kg	20,000 mg/kg
TPH (GRO+DRO+MRO)	EPA SW-846 Method 8015M	2,500 mg/kg	2,500 mg/kg
GRO + DRO	EPA SW-846 Method 8015M	1,000 mg/kg	1,000 mg/kg
BTEX	EPA SW-846 Method 8021B or 8260B	50 mg/kg	50 mg/kg

Benzene	EPA SW-846 Method 8021B or 8260B	10 mg/kg	10 mg/kg

If any contaminant concentration is higher than the parameter limits listed above, the NMOCD may require additional delineation upon review of the results and Enduring must receive approval before proceeding with closure. If all contaminant concentrations are less than or equal to the parameter limits listed above, then Enduring can proceed to backfill with non-waste containing, uncontaminated, earthen material.

5.3. Reclamation

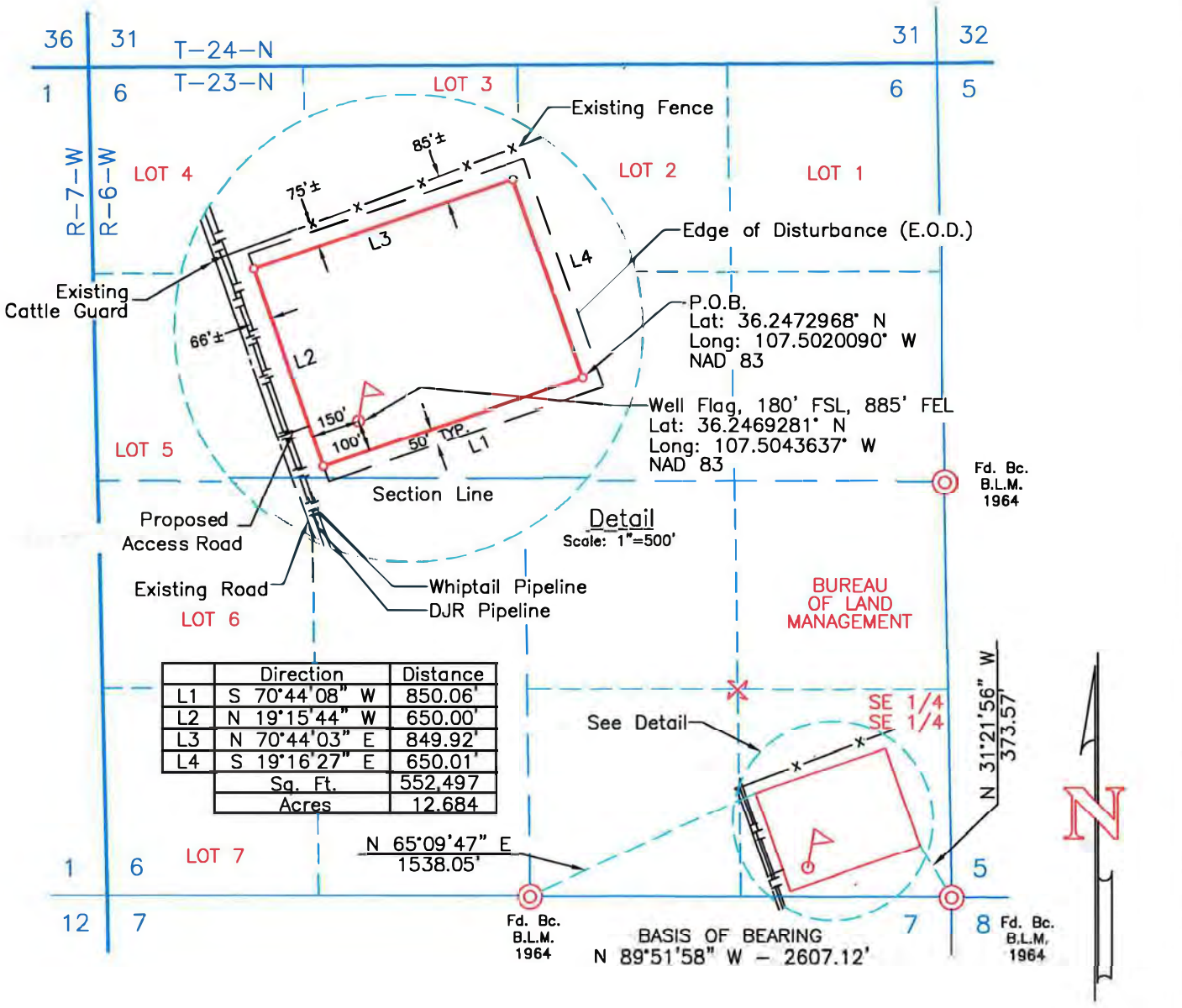
The location will be reclaimed upon completion of use in accordance with the reclamation plan approved by the BLM FFO associated with the grant of right of way for the NE Lybrook 21306-06P WSW pad. This reclamation plan was developed with, and approved by, the surface managing agency.

EXHIBIT A. PLAT

Enduring Resources, LLC

2306 06P WSW

SE 1/4 SE 1/4 of Sec. 6, T23N, R6W, NMPM,
Rio Arriba County, New Mexico



	Direction	Distance
L1	S 70°44'08" W	850.06'
L2	N 19°15'44" W	650.00'
L3	N 70°44'03" E	849.92'
L4	S 19°16'27" E	650.01'
	Sq. Ft.	552,497
	Acres	12.684

NOTES:

1. Basis of Bearing: Monumented South line of the Southeast Quarter of Section 6, T23N, R6W, NMPM, Rio Arriba County, New Mexico. Bears: N 89°51'58" W – 2607.12'
2. All bearings & distances shown are based upon the New Mexico Coordinate System, West Zone, NAD 83, in U.S. survey feet.

P.O.B. = Point of Beginning

Owner		Square Feet	Acres
BUREAU OF LAND MANAGEMENT	WELLPAD	552,497	12.684
	E.O.D.	122,543	2.813
	TOTAL	675,040	15.497

I, John A. Vukonich, New Mexico Professional Surveyor No. 14831, do hereby certify that this survey plat and the actual survey on the ground upon which it is based were performed by me or under my direct supervision; that I am responsible for this survey; that this survey meets the minimum standards for surveying in New Mexico; and that it is true and correct to the best of my knowledge and belief, I further certify that this survey is not a land division or subdivision as defined in the New Mexico Subdivision Act.

NEW MEXICO 14831 PROFESSIONAL SURVEYOR

John A. Vukonich, P.S. #14831 — Date 8/23/22

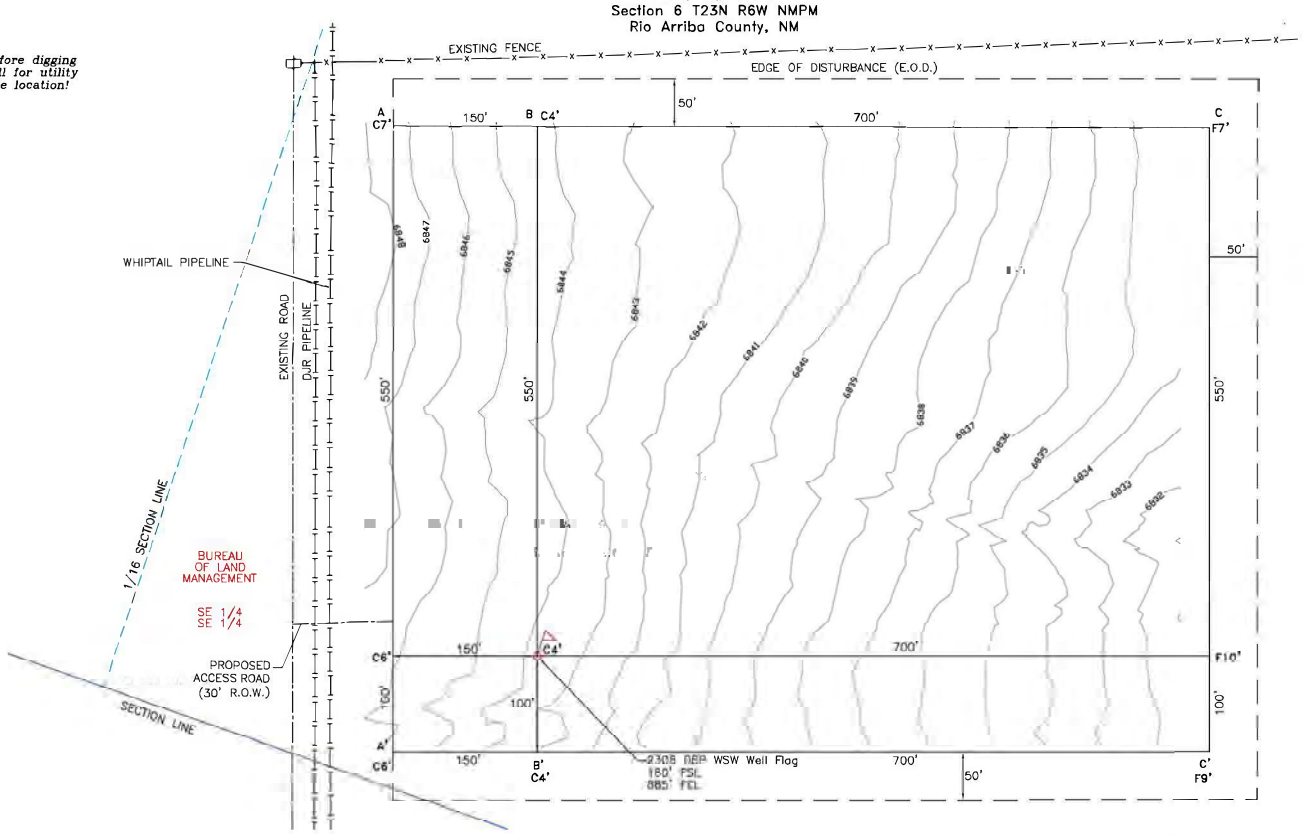
United Field Services Inc.
P.O. Box 3651
Farmington, NM 87499
Office: (505) 334-0408

DWG. No. : 11690-WSW		Revision: 3
Drawn by: A.A.D.	Date Drawn: 7/22/22	Rev. Date: 8/8/22
Surveyed: 7/14-7/25/22	App by: J.A.V.	Sheet: 1

Enduring Resources, LLC

2306-06P WSW
Section 6 T23N R6W NMPM
Rio Arriba County, NM

iBefore digging call for utility line location!



Proposed Pad Elevation 6840'

Sheet 1 of 2

Notes:

1. All Bearings and distances are based upon the New Mexico State Plane Coordinate System, West Zone, NAD 83, in U.S. survey feet.
2. Basis of elevation is referenced to the North American Vertical Datum of 1988.
3. Contractor shall contact "One-Call" for location of any marked or unmarked buried pipelines or cables on pad and/or access road at least two (2) working days prior to construction.
4. United Field Services Inc. is not liable for underground utilities or pipelines.
5. Cut and fill calculations are rounded to the nearest foot.

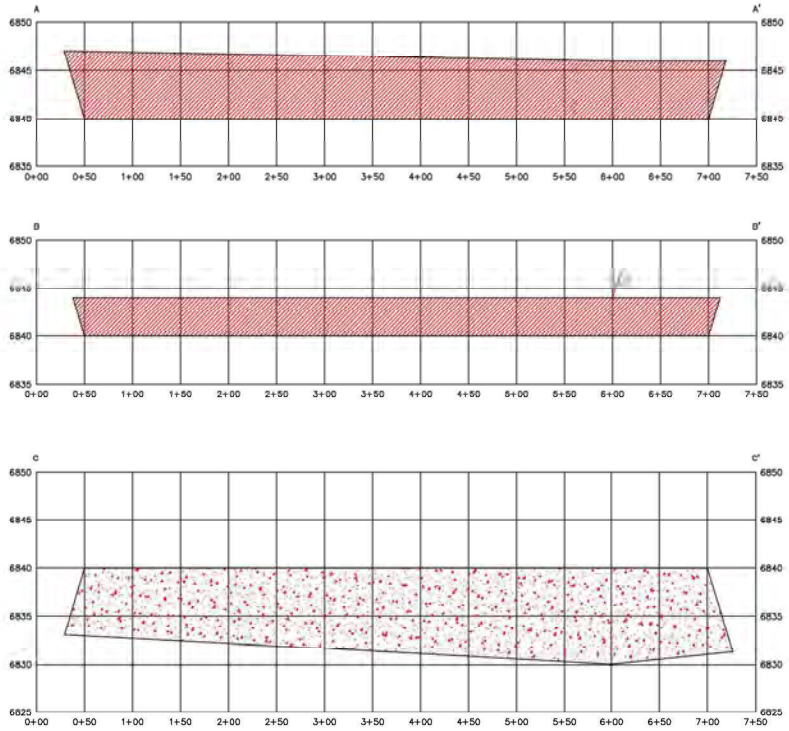
CUT	FILL	NET (CUT)
38889 Cu. Yd.	38889 Cu. Yd.	0 Cu. Yd.

United Field Services Inc.
P.O. Box 3651
Farmington, NM 87499
Office: (505) 334-0408

Surveyed: 7/14-7/25/22	Rev. date:	App. by: J.A.V.
Drawn by: K.S.	Date drawn: 08/12/22	File name: 11690-C01

Enduring Resources, LLC

2306-06P WSW
Section 6 T23N R6W NMPM
Rio Arriba County, NM



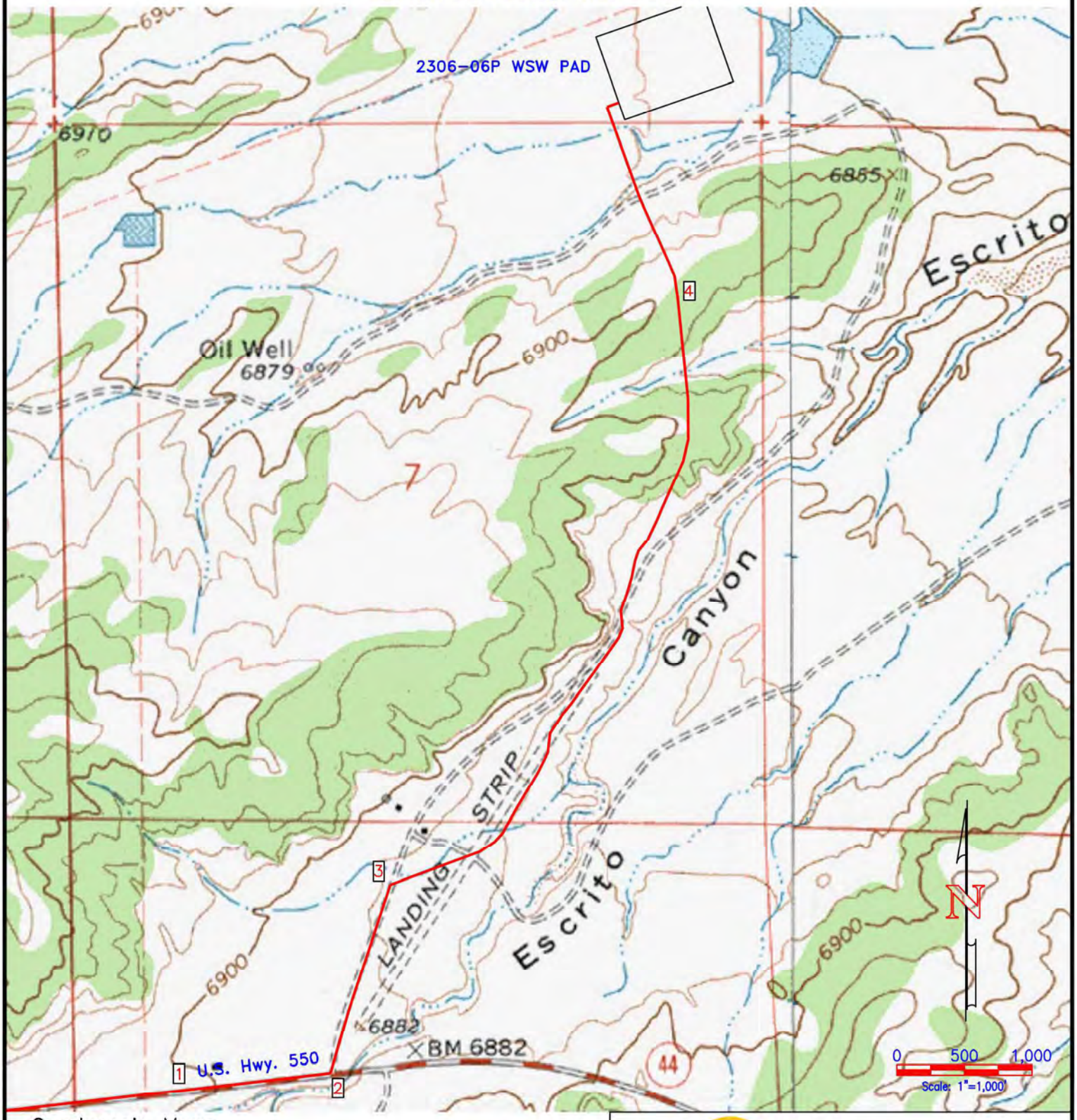
Horizontal Scale: 1" = 100'
Vertical Scale: 1" = 10'

Sheet 2 of 2

United Field Services Inc.
P.O. Box 5851
Farmington, NM 87499
Office: (505) 334-0408

Surveyed: 7/14-7/25/22	Rev. date:	App. by: J.A.V.
Drawn by: K.S.	Date drawn: 08/12/22	File name: 11690-C01

ENDURING RESOURCES, LLC
2306 06P WSW
Driving Directions
Sec. 6, T23N, R6W, NMPM,
Rio Arriba County, New Mexico



Quadrangle Maps
Lybrook
Counselor

United Field Services Inc.

P.O. Box 3651
Farmington, NM 87499
Office: (505) 334-0408

DWG. No. : 11690-Directions		Revision/By:
Drawn by: K.S.	Date Drawn: 08/10/22	Rev. Date:
Surveyed: 7/14-7/25/22	App by: J.A.V.	Sheet: 1 of 2

ENDURING RESOURCES, LLC
2306 06P WSW
Driving Directions
Sec. 6, T23N, R6W, NMPM,
Rio Arriba County, New Mexico

Directions

1) From the intersection of U.S. Hwy. 550 and U.S. Hwy 64 in Bloomfield: Travel Southerly on U.S. Hwy. 550 for 51.2 miles.
2) Turn left off highway on to dirt road, continue Northerly 0.3 mile.
3) Bear right at the "Y" intersection and proceed Northerly 0.9 mile.
4) Bear left at the "Y" intersection and continue Northwesterly 0.2 mile to proposed access road on the right for 2306 069 WSW staked location.

2306 069 WSW well flag located at Lat. 36.2469281°N, Long. 107.5043637°W (NAD 83).

United Field Services Inc.
P.O. Box 3651
Farmington, NM 87499
Office: (505) 334-0408

DWG. No. : 11690-Directions		Revision/By:
Drawn by: K.S.	Date Drawn: 08/10/22	Rev. Date:
Surveyed: 7/14-7/25/22	App by: J.A.V.	Sheet: 2 of 2

EXHIBIT B. RECYCLING FACILITY AND RECYCLING CONTAINMENT SITE DIAGRAM

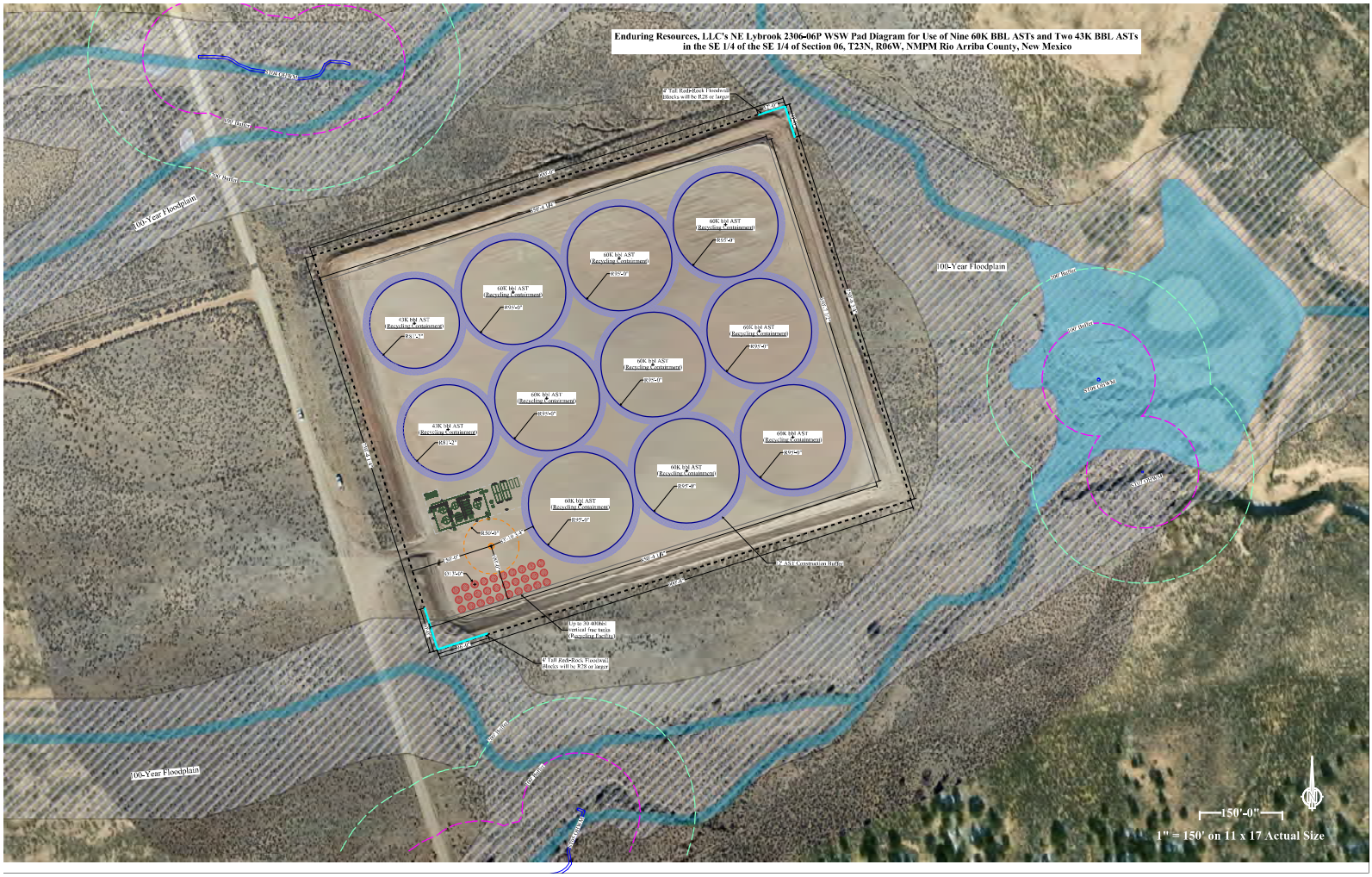

Enduring Resources, LLC's NE Lybrook 2306-06P WSW Pad Diagram for Use of Nine 60K BBL ASTs and Two 43K BBL ASTs in the SE 1/4 of the SE 1/4 of Section 06, T23N, R06W, NMPM Rio Arriba County, New Mexico
60K bbl AST (Recycling Containment)
43K bbl AST (Recycling Containment)
100-Year Floodplain
500' Buffer
150'-0"
1" = 150' on 11 x 17 Actual Size

EXHIBIT C. SURFACE OWNER NOTIFICATION

C

Form 2800-14
(August 1985)

Issuing Office
Farmington Field Office

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
RIGHT-OF-WAY GRANT

NMNM106707816

1. A right-of-way is hereby granted pursuant to Section 28 of the Mineral Leasing Act of 1920, as amended (30 U.S.C. 185).

2. Nature of Interest:
   a. By this instrument, the holder:

      Enduring Resources IV, LLC
      6300 S. Syracuse Way, Suite 525
      Centennial, CO 80111

      receives the right to construct, operate, maintain, and terminate a well pad facility for the NE Lybrook 2306-06P WSW. The well pad will be located on public land located within the following legal description:

      New Mexico Principal Meridian
      Rio Arriba County, New Mexico
      T. 23 N., R. 6 W.,
      sec. 6, SE1/4SE1/4.

   b. The right-of-way or permit area granted herein is 850 feet wide, 650 feet long and contains 12.680 acres, more or less. If a site type facility, the facility contains 12.680 acres.

      This instrument shall terminate on December 31, 2054, 30 years from its effective date unless, prior thereto, it is relinquished, abandoned, terminated, or modified pursuant to the terms and conditions of this instrument or of any applicable Federal law or regulation.

   c. This instrument may/may not be renewed. If renewed, the right-of-way shall be subject to the regulations existing at the time of renewal and any other terms and conditions that the Authorized Officer deems necessary to protect the public interest.

   d. Notwithstanding the expiration of this instrument or any renewal thereof, early relinquishment, abandonment, or termination, the provisions of this instrument, to the extent applicable, shall continue in effect and shall be binding on the holder, its successors, or assigns, until they have fully satisfied the obligations and/or liabilities accruing herein before or on account of the expiration, or prior termination, of the grant.

3. Rental:
   a. For and in consideration of the rights granted, the holder agrees to pay the Bureau of Land Management fair market value rental as determined by the Authorized Officer unless specifically exempted from such payment by regulation. Provided, however, that the rental may be adjusted by the Authorized Officer, whenever necessary, to reflect changes in the fair market rental value as determined by the application of sound business management principles, and so far as practicable and feasible, in accordance with comparable commercial practices.

4. Terms and Conditions:
   a. This grant is issued subject to the holder's compliance with all applicable regulations contained in Title 43 Code of Federal Regulations parts 2800 and 2880.

b. Upon termination by the Authorized Officer, all improvements shall be removed from the public lands within 180 days or otherwise disposed of as provided in paragraph (4)(d) or as directed by the Authorized Officer.

c. Each grant issued pursuant to the authority of paragraph (1) for a term of 20 years or more, shall at a minimum, be reviewed by the Authorized Officer at the end of the 20th year and at regular intervals thereafter not to exceed 10 years. Provided, however, that a right-of-way granted herein may be reviewed at any time deemed necessary by the Authorized Officer.

d. The stipulations, plans, maps, or designs set forth in Exhibit A (Stipulations), Exhibit B (Map), attached hereto, are incorporated into and made a part of this grant instrument as fully and effectively as if they were set forth herein in their entirety.

e. Failure of the holder to comply with applicable law or any provision of this right-of-way grant shall constitute grounds for suspension or termination thereof.

f. The holder shall perform all operations in a good and workmanlike manner so as to ensure protection of the environment and the health and safety of the public.

g. This decision does not authorize open pits on the right-of-way.

IN WITNESS WHEREOF, The undersigned agrees to the terms and conditions of this right-of-way grant.

Alex Campbell (Feb 14, 2025 14:55 MST)	Digitally signed by MAUREEN JOE Date: 2025.03.20 20:15:54 -06'00'
(Signature of Holder)	**(Signature of BLM Authorized Officer)**
Vice President	**Maureen Joe** Farmington Field Manager
(Title)	**(Title)**
02/14/2025	
(Date)	**(Effective Date)**

EXHIBIT D. GROUND WATER REPORT

D

Ground Bed Drilling Log

Company: WPX Energy Well: Chaco 176 H / Chaco 177 H Date: 10-24 27

Location: T-23-N R-6-W Sec 6 State: New Mexico Rig: Stacy #1

Ground Bed Depth: 300' Water Depth: 205' Diameter: 6 3/4

Fuel Usage: 130 gal

DEPTH	FORMATION	OTHER
0-20'	Sand Stone, Shale, Sand w/ Shale w/ Sand	PVC (2)
20-80	Sand Stone, Shale, Sand w/ Shale w/ Sand	
80-100	Sand Stone, Shale, Sand w/ Shale w/ Sand	
100-140	Sand Stone, Shale, Sand w/ Shale w/ Sand	
140-220	Sand Stone, Shale, Sand w/ Shale w/ Sand	
220-306	Sand Stone, Shale, Sand w/ Shale w/ Sand	
	Sand Stone, Shale, Sand w/ Shale w/ Sand	
	Sand Stone, Shale, Sand w/ Shale w/ Sand	
	Sand Stone, Shale, Sand w/ Shale w/ Sand	
	Sand Stone, Shale, Sand w/ Shale w/ Sand	
	Sand Stone, Shale, Sand w/ Shale w/ Sand	
	Sand Stone, Shale, Sand w/ Shale w/ Sand	

OCD
~ 36.2575 N
107.51595 W

GROUNDWATER DEPTH LOG

Company: WPX Energy			Location: Chaco #176H / #177H
Probe type: Pavers			
Date	Time	Depth	Comments
10/24/14	1:30pm	300ft	Drilled hole to 300ft let sit
10/25/14	7:20Am	205ft	Tested w/ probe water at 205ft

GROUNDWATER DEPTH LOG

Company: WPX Energy			Location: Chaco #412H, #413 H
Probe type: Power well sounder			
Date	Time	Depth	Comments
3/16/15	9:22 AM	60 ft	Water at 60ft
3/16/15	10:45 AM	55ft	water leveled out at 55ft

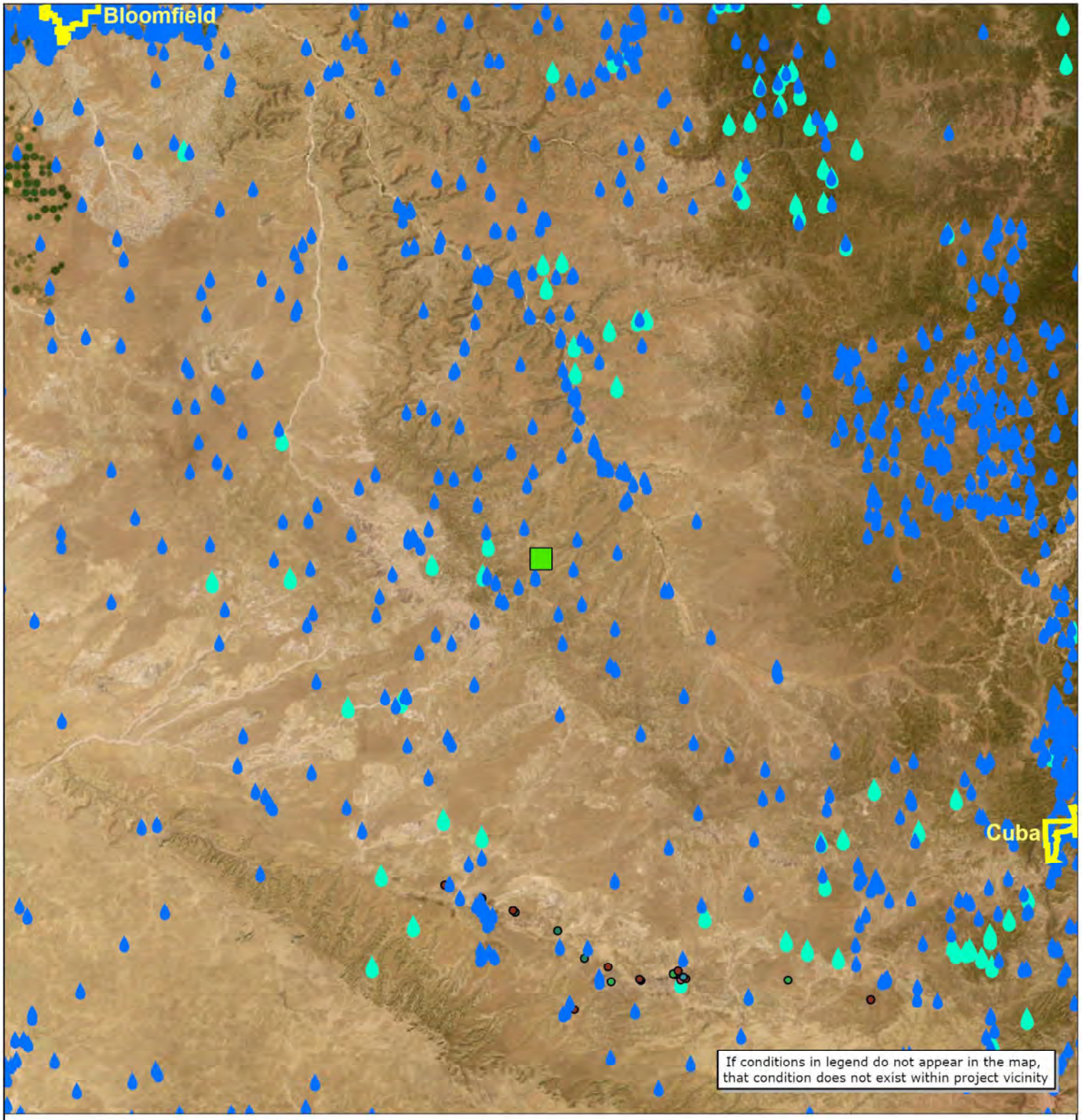
New Mexico Office of the State Engineer
Point of Diversion Summary

Well Tag	POD Number	(quarters are 1=NW 2=NE 3=SW 4=SE) (quarters are smallest to largest) Q64	Q16	Q4	Sec	Tws	Rng	(NAD83 UTM in meters) X	Y
	SJ 01156	2	2	1	18	23N	06W	274330	4012555*

Driller License:	867	**Driller Company:**	HUTCHESON DRILLING CO.		
Driller Name:	WESTERN DRILLING				
Drill Start Date:	04/10/1980	**Drill Finish Date:**	04/20/1980	**Plug Date:**	
Log File Date:	06/16/1980	**PCW Rcv Date:**		**Source:**	
Pump Type:		**Pipe Discharge Size:**		**Estimated Yield:**	
Casing Size:	7.00	**Depth Well:**	1500 feet	**Depth Water:**	200 feet

***UTM location was derived from PLSS - see Help**

EXHIBIT E. SITING CRITERIA MAPS



NE Lybrook 2306-06P WSW Location Map 1
Siting Criteria

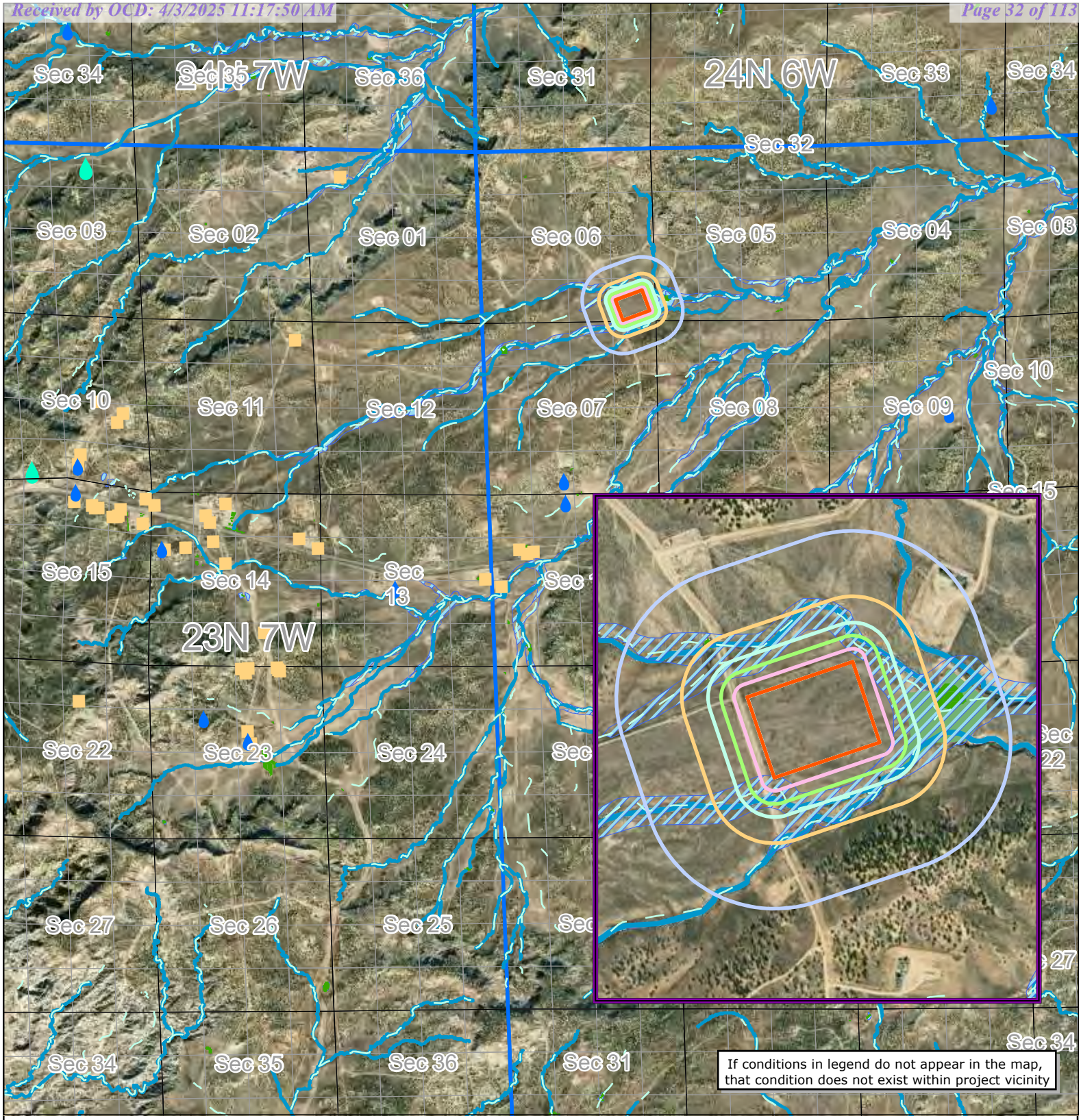
2306-06P WSW
OSE Water Wells
Spring Seep
Active Mining
Active Mining, Active Reclamation
Approved
Enforcement
No Permit
No Response
Pending
Released
Temporary Suspension
Under Development
New_Mexico_incorporated_places_April2023

ENDURING RESOURCES, LLC

Miles
0 5 10 15 20

Data Source Statement:
BLM-FFO, Enduring Resources GIS, ESRI Inc., NCE Surveys, USGS

NAD 1983 2011 StatePlane New Mexico West FIPS 3003 Ft US	Author: drogers	Date: 2/13/2025



NEL 2306-06P Containment Location Map 2
Siting Criteria

- OSE Water Wells
- Spring Seep
- Residence
- NEL 2306-06P
- Active Mining
- Active Mining, Active Reclamation
- Approved
- Enforcement
- No Permit
- No Response
- Pending
- Released
- Temporary Suspension
- Under Development
- NHDWaterbody
- FEMA High Risk Flood Zone
- USGS Water Courses
- Marine
- Estuary
- Marsh, Swamp, Bog, Prairie
- Riverine
- Lake, Reservoir

distance
- 100
- 200
- 300
- 500
- 1000

ENDURING RESOURCES, LLC

Miles
0 0.5 1 1.5 2

Data Source Statement:
BLM-FFO, Enduring Resources GIS, ESRI Inc., NCE Surveys, USGS

NAD 1983 2011 StatePlane New Mexico West FIPS 3003 Ft US	Author: drogers	Date: 2/20/2025

EXHIBIT F. AQUATIC RESOURCES INVENTORY REPORT

SWCA ENVIRONMENTAL CONSULTANTS
Sound Science. Creative Solutions.®

7770 Jefferson Street NE, Suite 410
Albuquerque, New Mexico 87109
Tel 505.254.1115 fax 505.254.1116
www.swca.com

AQUATIC RESOURCES DELINEATION TECHNICAL MEMORANDUM

To: Casey Haga, Enduring Resources IV, LLC

From: SWCA Environmental Consultants

Date: March 27, 2025

Re: **Enduring's NE Lybrook WSW 2306-06P Oil and Gas Project, Rio Arriba County, New Mexico, Aquatic Resources Delineation Technical Memorandum / SWCA Project No. 75253-082**

1. INTRODUCTION

SWCA Environmental Consultants (SWCA) was retained by Enduring Resources IV, LLC (Enduring), to complete an aquatic resources delineation survey, commonly referred to as a wetland delineation, and associated technical memorandum for a recycling containment facility (project). in Rio Arriba County, New Mexico. The project area comprises 71.3 acres of land managed by the Bureau of Land Management Farmington Field Office. The project components consist of one facility water source well pad, one access road, one buried pipeline, two temporary use areas, and one temporary surface layflat water pipeline; however, this technical memorandum only analysis the aquatic resources within the water source well pad (project area) (see Figure A-1 in Appendix A). A survey area that consists of the project area plus a 500-foot buffer was evaluated for aquatic resources. The approximate center point of the survey area is at latitude 36.248405, longitude −107.505777.

The goal of conducting this aquatic resources delineation survey was to identify the potential presence and extent of features that may be jurisdictional waters of the United States (WOTUS) under Section 404 of the Clean Water Act (CWA) of 1972, as amended (*Federal Register* 88:61964). A delineation of aquatic resources includes the identification and recording of features if present, that may be determined to be WOTUS by the U.S. Army Corps of Engineers (USACE).

SWCA prepared this aquatic resources delineation technical memorandum, which summarizes aquatic resources desktop and field data, to support Enduring's application for permit or registration specific to 19.15.34 New Mexico Administrative Code (NMAC) via Form C-147. This technical memorandum serves as a record of existing aquatic resources that may be determined to be WOTUS, including wetlands and aquatic resources exhibiting an ordinary high-water mark (OHWM) in accordance with the USACE methods and guidance. The NMAC does not provide methods or guidance on determining watercourses or wetlands.

Regulatory considerations, survey methodology, survey results, and a summary are presented below.

2. Regulatory Considerations

Waters of the United States

On September 8, 2023, the "Revised Definition of 'Waters of the United States'" rule as amended (2023 Amended Rule) (*Federal Register* 88:61964) went into effect and is currently applicable in the State of New Mexico.

WOTUS regulations, including the current 2023 Amended Rule, do not clearly define the differences between flow duration regimes (i.e., ephemeral, intermittent, and perennial). Because the 2023 Amended Rule removes the former significant nexus test, we no longer have a tool to assess connectivity for certain features where continuous connectivity is questionable. Currently, the USACE is developing guidance for how districts will assess non-relatively permanent waters and non-adjacent wetland waters (*Federal Register* 88:61964).

In general, WOTUS include traditional navigable waters, wetlands adjacent to traditional navigable waters, and relatively permanent waters defined as tributaries and wetlands adjacent to navigable waters that have a continuous surface connection and standing or continuously flowing bodies of water (U.S. Environmental Protection Agency 2024).

Wetlands are special aquatic sites defined by the USACE as "areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" (USACE 1987). To meet the basic definition of a wetland, an area must contain the following three parameters under normal circumstances: 1) the presence of wetland hydrology indicators showing regular inundation, 2) a dominance of hydrophytic (water-loving) vegetation, and 3) soil characteristics and indicators of frequent saturation (i.e., hydric soils) (USACE 1987).

SWCA evaluated the presence/absence and characteristics of field-delineated surface aquatic resources to develop a professional opinion of potential WOTUS jurisdiction based on the 2023 Amended Rule and current guidance received by the USACE Albuquerque District at the time this document was prepared. The USACE has the regulatory authority and discretion in determining the jurisdictional status of aquatic resources at a given site.

19.15.34 New Mexico Administrative Code

19.15.34 NMAC applies to the transportation, disposal, recycling, reuse, or the direct surface or subsurface disposition by use of water produced or used in connection with the development or production of oil or gas or both; in road construction or maintenance, or other construction; and in the generation of electricity or in other industrial processes. 19.15.34 NMAC also applies to the transportation of drilling fluids and liquid oil field waste.

A permit or registration, depending on the proposed activity, for recycling and reuse of produced water, drilling fluids, and liquid oil field waste including recycling containment is required via New Mexico Energy, Minerals and Natural Resources Department Oil Conservation Division's (NMOCD's) Form C-147.

Enduring is proposing recycling containment as part of the project, requiring compliance with 19.15.34.11 NMAC. As defined in 19.15.34.10(B) recycling containments may hold produced water for use in connection with drilling, completion, producing, or processing oil or gas or both. Such fluids may include fresh water, brackish water, recycled and treated water, fluids added to water to facilitate well drilling or completion, water produced with oil and gas, flowback from operations, water generated by an

oil or gas processing facility, or other waters that are gathered for well drilling or completion but may not include any hazardous waste. Form C-147 siting criteria require that a recycling containment not be located:

- where groundwater is less than 50 feet below the bottom of the containment;
- within 300 feet of a continuously flowing watercourse, or 200 feet of any other significant watercourse or lakebed, sinkhole or playa lake (measured from the OHWM);
- within 500 feet of a spring or freshwater well used for domestic or stock watering purposes in existence at the time of the initial registration;
- within incorporated municipal boundaries or within a defined municipal freshwater well field covered by a municipal ordinance adopted pursuant to Section 3-27-3 New Mexico Statutes 1978, as amended, unless the municipality specifically approves the recycling containment in writing;
- within 500 feet of a wetland; or
- within a 100-year floodplain.

Watercourse is defined in 19.15.2.7 NMAC as "a river, creek, arroyo, canyon, draw or wash or other channel having definite banks and bed with visible evidence of the occasional flow of water." Wetlands are defined in 19.15.2.7 NMAC as "areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions in New Mexico." The term "significant" is not defined in NMAC.

3. METHODOLOGY

The aquatic resources inventory included a desktop review of existing data and a field survey of the project area plus the 500-foot buffer.

3.1 Existing Data Review

A desktop review of existing publicly available data prior to the aquatic resources field survey was completed to evaluate surface aquatic resources within and adjacent to the proposed project area.

Sources reviewed included the U.S. Geological Survey (USGS) National Hydrography Dataset (NHD) (USGS 2016), U.S. Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) maps (USFWS 2024), Federal Emergency Management Agency (FEMA) National Flood Hazard Layer (FEMA 2024), Natural Resources Conservation Service (NRCS) Web Soil Survey (NRCS 2024a) and hydrologic soil groups (NRCS 2024b), historic and current aerial imagery of the project area (Google Earth Pro 2024), and the USGS Watershed Boundary Dataset (USGS 2021). SWCA used the USACE's Antecedent Precipitation Tool (Version 2.0.0) (USACE 2023) to evaluate the conditions leading up to, and during, the site visit relative to normal conditions, seasonality, and typical-year considerations.

3.2 Field Survey

3.2.1 Wetlands

The presence/absence of wetlands is determined in the field using delineation methods described in the *Corps of Engineers Wetlands Delineation Manual* (USACE 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0)* (Regional Supplement) (USACE 2008a). Data at each potential wetland are recorded on Regional Supplement wetland

determination data forms (data sheets). Determination of wetland habitat type is based on the classification system developed by Cowardin et al. (1979). Wetland plant indicator status is based on the 2020 National Wetland Plant List (USACE 2020) for each species and is recorded on data sheets. Soil colors are identified using Munsell Soil Color Charts (Munsell Color 2010). Wetland boundaries are delineated where the three fundamental characteristics of hydrophytic vegetation, hydric soils, and hydrology are present.

3.2.2 Non-wetland Waters

The presence and extent of non-wetland water features (e.g., streams, creeks, and ponds) was determined in the field using the guidance and methods provided in the USACE Regulatory Guidance Letter 05-05 (USACE 2005) and the USACE technical guidance, *A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States* (USACE 2008b). An OHWM is the line on a shore or bank established by fluctuations of water and is typically identified by physical characteristics such as a clear, natural line impressed on the bank, shelving, changes in the character of soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas. The spatial extent of non-wetland waters was delineated using the identified OHWM for each feature.

For stream features exhibiting an OHWM, SWCA conducted a streamflow duration assessment in the field using *User Manual for a Beta Streamflow Duration Assessment Method for the Arid West of the United States* (Mazor et al. 2023). The Streamflow Duration Assessment Method (SDAM) is a rapid, field-based method to determine flow duration class at the reach scale in the absence of long-term hydrologic data. Use of the SDAM may inform a range of activities where information on streamflow duration is useful, including certain jurisdictional determinations under the CWA; however, the SDAM is not a jurisdictional determination (Mazor et al. 2023). The method is specific to the Arid West Region and relies on five indicators to determine stream flow classification: perennial, intermittent, ephemeral, at least intermittent, and need more information. The field delineation crews recorded the status of these five indicators on a field form for every surface water feature in the survey area with an OHWM.

In January 2025, the USACE released an updated field guide, *National Ordinary High Water Mark Field Delineation Manual for Rivers and Streams: Final Version,* for all geographic regions, presenting a methodology for nationwide identification and delineation of the OHWM to ensure consistency and uniformity across the country. Field surveys conducted after January 1, 2025, will utilize the new USACE methodology and technical guidance outlined and OHWM datasheets provided within the appendix of this document in association with full OHWM delineations (USACE 2025). The project surveys were conducted using the previous version of this manual, prior to the issuance of this newest manual.

3.2.3 Mapping

A handheld GPS receiver set to submeter accuracy was used to record the spatial extent of features, geographically reference data points, and demarcate wetland and water body boundaries during the field survey. Geographic information system (GIS) software was used to analyze recorded features, calculate areas, and generate the survey area maps.

4. RESULTS

4.1 Existing Data Review Results

The project area is entirely within the Outlet Canon Largo watershed (HUC 140801306) (USGS 2021). Portions of the survey area are within a special flood hazard area (Zone A, subject to flooding by a 1%

annual chance flood meaning the flood has a 1% chance of being equaled or exceeded in any given year (FEMA 2024). The recycling containment area, within the water source well pad, is within FEMA Flood Zone X, an area of minimal flood hazard. According to the existing data review, two NWI-mapped wetlands (totaling 4.2 acres) and five NHD-mapped surface water features intersect the survey area but do not intersect the project area (USFWS 2024; USGS 2016) (see Figure A-2 in Appendix A).

Hydric soils are formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions (NRCS 2024b) and are one of the three fundamental characteristics of wetlands unless problematic conditions exist. There are no mapped soil units in the project area that are considered hydric (Table 1).

Table 1. Mapped Soil Units in the Survey Area

Soil Map Unit Name	Soil Map Unit Number or Symbol	Hydric	Total Acres in Survey Area	Percent of Survey Area
Sparank-San Mateo silt loams, saline, sodic, 0 to 3 percent slopes	10	No	69.8	97.9%
Vessilla-Menefee-Orlie complex, 1 to 30 percent slopes	110	No	1.6	2.2%
Total	–	–	71.4	100.0

Source: NRCS (2024a, 2024b)

Based on the results of the Antecedent Precipitation Tool (Product of 12 or 13), the project area experienced normal wetness conditions (Table 2) (USACE 2023). The survey was conducted during the dry season, and the drought index was rated as "normal" or "mild drought." Any wetland hydrology indicators observed during SWCA's April 2023, August 2023, and May 2024 field survey reflect those that would be expected in a typical year for this area.

Table 2. Antecedent Precipitation Tool Results for Survey Area

30 Days Ending	30th Percentile (inches)*	70th Percentile (inches)†	Observed (inches)‡	Wetness Condition§	Condition Value¶	Month Weight±	Product**
April 24, 2023, Survey							
April 24, 2023	0.11	0.76	0.0	Dry	1	3	3
March 25, 2023	0.22	0.55	2.19	Wet	3	2	6
February 23, 2023	0.29	0.66	1.09	Wet	3	1	3
April 24, 2023, Result							**12 (Normal)**
August 23, 2023, Survey							
August 23, 2023	1.53	2.32	4.71	Wet	3	3	9
July 24, 2023	0.66	1.91	0.0	Dry	1	2	2
June 24, 2023	0.08	0.39	0.05	Dry	1	1	1
August 23, 2023, Result							**12 (Normal)**
May 8, 2024, Survey							
May 8, 2024	0.11	0.81	0.67	Normal	2	3	6

30 Days Ending	30th Percentile (inches)*	70th Percentile (inches)†	Observed (inches)‡	Wetness Condition§	Condition Value¶	Month Weight±	Product**
April 8, 2024	0.27	0.73	0.43	Normal	2	2	4
March 9, 2024	0.23	0.69	0.88	Wet	3	1	3
May 8, 2024, Result							**13 (Normal)**

* 30th percentile represents the lower limit of the 30-year normal range for the month.

† 70th percentile represents the upper limit of the 30-year normal range for the month.

‡ Observed: Total precipitation recorded during the month.

§ Wetness Condition: Observed value above 30-year normal range (wet), observed value less than 30-year normal range (dry).

¶ Condition Value: wet = 3, normal = 2, dry =1.

± Month Weight: first 30-day period = 3, second 30-day period = 2, third 30-day period = 1.

** Product: Antecedent Condition Calculation (condition value × month weight).

4.2 Field Results

The aquatic resources delineation survey was completed on April 24, 2023, August 23, 2023, and May 8, 2024. The August 2023 and May 2024 field surveys took place during the growing season (May 4 through October 21) (NRCS 2024c). The April 2023 survey was conducted during conditions exhibiting plant growth. At the time of the survey, construction of the well pad and access road had not begun.

4.2.1 Wetlands

SWCA did not observe or delineate any wetland features during the field surveys due to the lack of three-parameter wetlands within the survey area. Three livestock ponds (P01, P02, and P03) were observed within the survey area but did not intersect the project area and also lacked three-parameter wetland indicators (see Figure A-2 in Appendix A). Table 5 summarizes the potential three-parameter wetlands investigated.

Table 5. Summary of Potential Three-Parameter Wetlands within the Survey Area

Wetland Areas and SWCA Unique Identifier	Coinciding Mapped NHD Hydrographic Category	NHD Mapped Permanent Identifier	Coinciding Mapped NWI Wetland Classification Code*	Three-Parameter Wetland Present?	FEMA Flood Zone	Latitude, Longitude	Total Acres within Survey Area
P01	Pond/lake	14080103000765	R4SBC*	No	Zone A	36.2494, −107.506	773.43
P02	Pond/lake	14080103004431	R4SBC*	No	Zone A	36.2489, −107.506	443.95
P03	N/A	N/A	PUBF*	No	Zone A	36.24821, −107.501	222.27

Note: N/A = not applicable.

*Classification Code Definitions:

PUBF = Palustrine unconsolidated bottom semipermanently flooded
R4SBC = Riverine intermittent streambed seasonally flooded

4.2.2 Non-wetland Waters

SWCA observed four non-wetland water features (ST04, ST05, ST07, and ST08) within the survey area but not within the project area containing strong relevant and reliable OHWM indicators (see Figure A-2

in Appendix A; Photographs B-7 through B-10 and B-13 through B-16 in Appendix B; OHWM datasheets in Appendix C). These features are located beyond 200 feet of the recycling containment area.

In addition to the mapped features, one erosional feature (EF04) was identified along the fence line surrounding the pad (Photograph B-17 in Appendix B).

4.2.2.1 Streamflow Duration assessment method Results

Based on the SDAM results, SWCA classified the observed streams exhibiting an OHWM (ST04, ST05, ST07, and ST08) as ephemeral (see Table 6) because all five indicators listed in the method were absent from each feature (Appendix D; see Photographs B-7 through B-10 and B-13 through B-16 in Appendix B).

Table 6. Summary of Non-Wetland Water Features, Total Acreage, and Total Linear Feet of Features within the Survey Area

SWCA Unique Identifier	Coinciding Mapped NHD Feature Type	Coinciding Mapped NHD Permanent Identifier	OHWM Present (Yes/No)	Arid West SDAM Classification	FEMA Flood Zone	Latitude, Longitude	Total Acres of OHWM within Survey Area	Total Linear Feet of OHWM within Survey Area
ST01	Stream/river	14080103000765	No	N/A	Zone A	36.2493, −107.503	N/A	N/A
ST02	Stream/river	14080103000764	No	N/A	Zone A	36.2463, −107.505	N/A	N/A
ST03	Stream/river	1408013004431	No	N/A	Zone A	36.24899, −107.5057	N/A	N/A
ST04	Stream/river	14080103000765	Yes	Ephemeral	Zone A	36.24928, −107.5058	N/A	N/A
ST05	Stream/river	14080103004458	Yes	Ephemeral	Zone A	36.24532, −107.5043	N/A	N/A
ST06	Stream/river	14080103000764	No	N/A	Zone A	36.24656, −107.5018	N/A	N/A
ST07	Stream/river	N/A	Yes	Ephemeral	Zone A	36.2474, −107.5004	N/A	N/A
ST08	Stream/river	N/A	Yes	Ephemeral	Zone A	36.24786, −107.5007	N/A	N/A
EF04	N/A	N/A	N/A	N/A	N/A	36.24888, −107.5039	N/A	N/A

N/A = not applicable.

5. Summary

Based on the regulatory considerations provided in Section 2, evaluation of the survey area, and SWCA's understanding of the USACE Albuquerque District's current policies regarding jurisdictional determinations, it is SWCA's professional opinion that per the 2023 Amended Rule, no features present within the survey area would be considered jurisdictional WOTUS by the USACE.

Pursuant to 19.15.34 NMAC, no OHWMs were observed within 200 feet of the project area. Therefore, no significant watercourse is likely to occur within 200 feet of the proposed recycling containment. Although, the southwest corner of the water source well pad does intersect a FEMA 100-year flood zone

(Flood Zone A), the recycling containment area within the water source well pad does not intersect a FEMA 100-year flood zone.

The results and summary provided are based on SWCA's professional opinion. Only the USACE has final and legal authority for determining the presence of jurisdictional WOTUS and the extent of their boundaries. Only the NMOCD has final and legal authority for determining the presence of continuously flowing watercourses, significant watercourses, or wetlands and the extent of their boundaries for the purposes of permitting and/or registration applicable to 19.15.34 NMAC.

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APPENDIX A

AQUATIC RESOURCES DELINEATION FIGURE

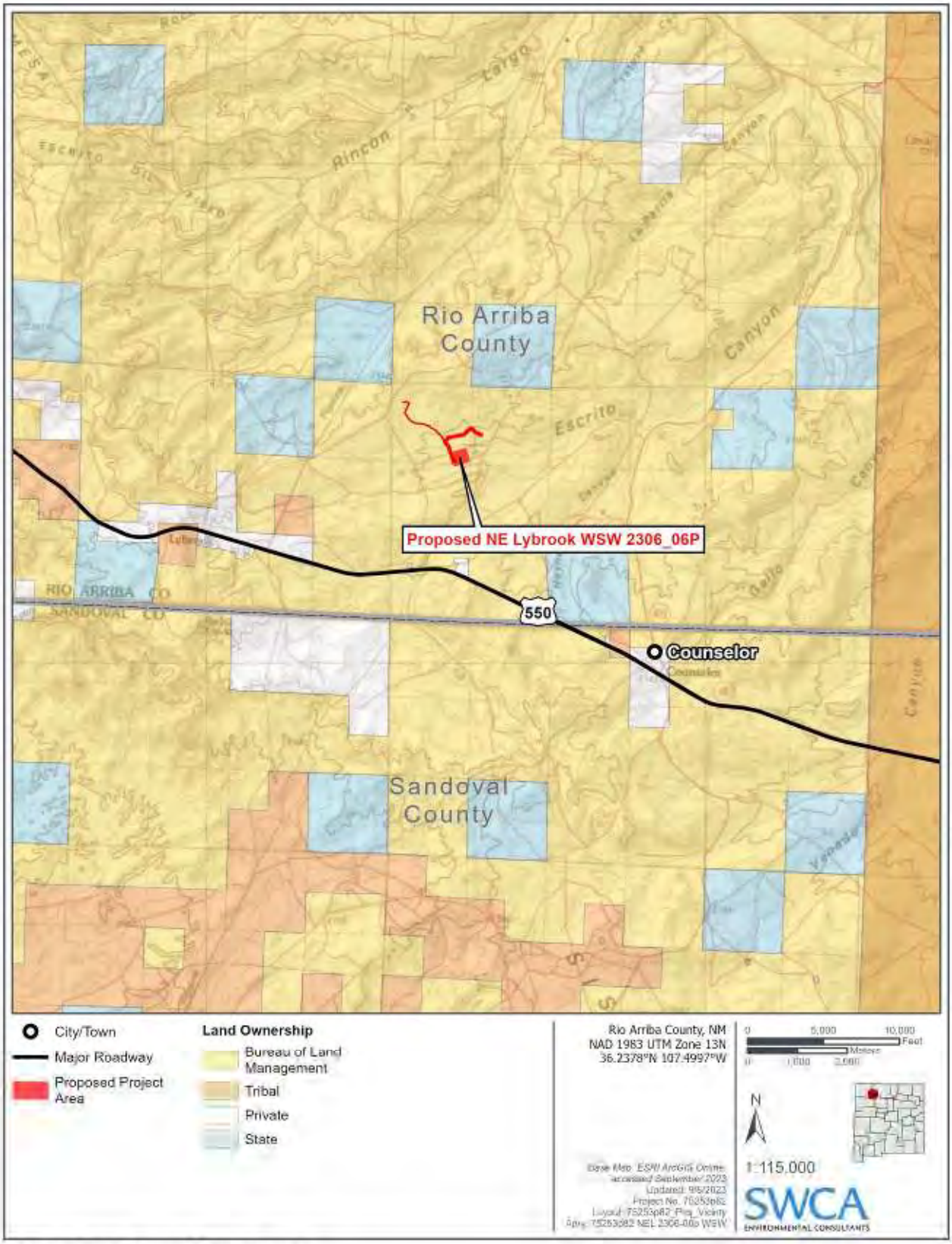


Figure A-1. Project Vicinity Map

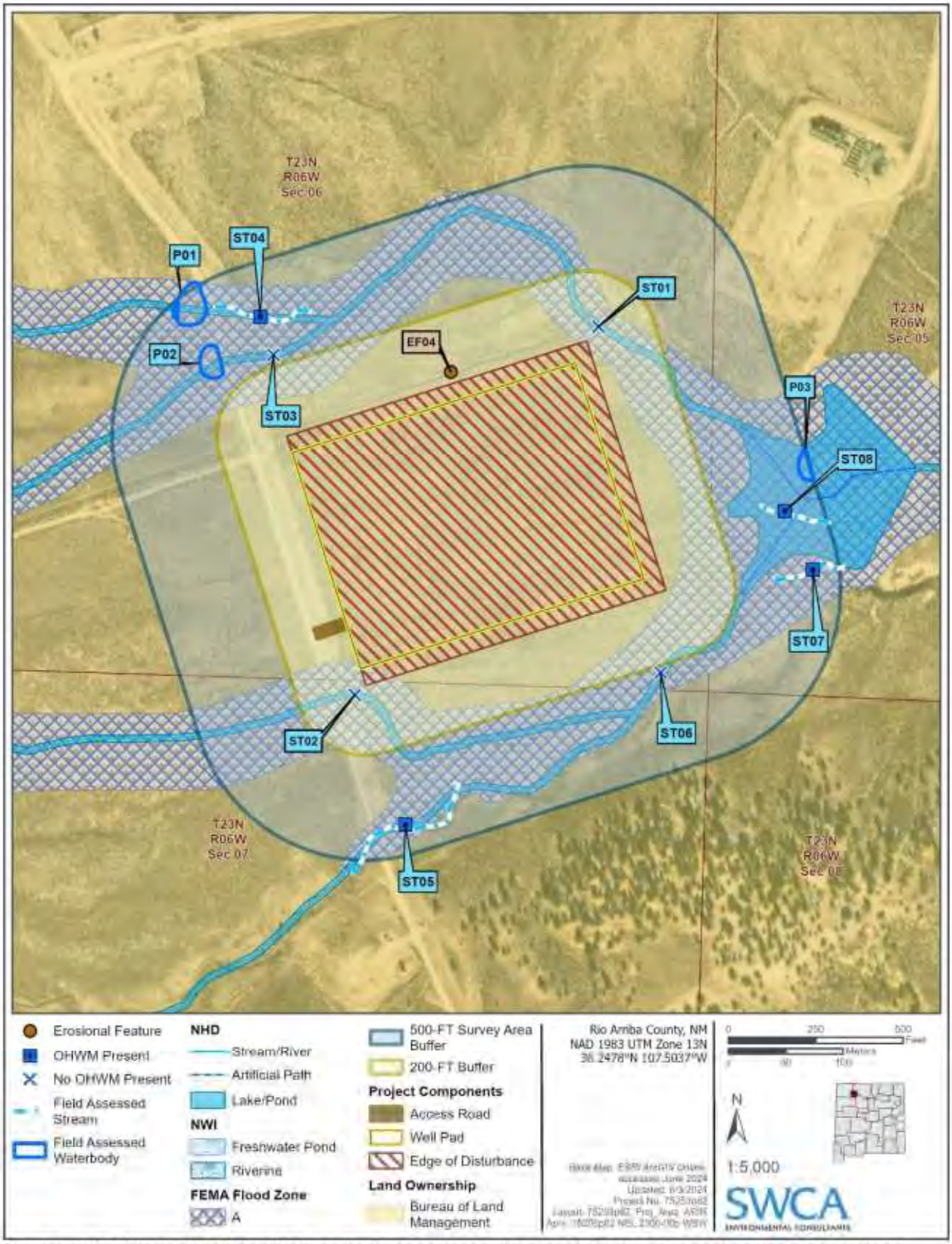


Figure A-2. Overview of desktop aquatic resources data and field-assessed aquatic resources data within the survey area.

APPENDIX B

PHOTOGRAPHS

Photograph B-1. Overview of ST01, a non-wetland surface aquatic feature (stream) not containing an OHWM, facing upstream (north).

Photograph B-2. Overview of ST01, a non-wetland surface aquatic feature (stream) not containing an OHWM, facing downstream (southeast).

Photograph B-3. Overview of ST02, a non-wetland surface aquatic feature (stream) not containing an OHWM, facing upstream (northeast).

Photograph B-4. Overview of ST02, a non-wetland surface aquatic feature (stream) not containing an OHWM, facing downstream (southwest).

Photograph B-5. Overview of ST03, a non-wetland surface aquatic feature (stream) not containing an OHWM, facing upstream (northwest).

Photograph B-6. Overview of ST03, a non-wetland surface aquatic feature (stream) not containing an OHWM, facing downstream (southeast).

Photograph B-7. Overview of ST04, a non-wetland surface aquatic feature (stream) containing an OHWM, facing upstream (west).

Photograph B-8. Overview of ST04, a non-wetland surface aquatic feature (stream) containing an OHWM, facing downstream (east).

Photograph B-9. Overview of ST05, a non-wetland surface aquatic feature (stream) containing an OHWM, facing upstream (northwest).

Photograph B-10. Overview of ST05, a non-wetland surface aquatic feature (stream) containing an OHWM, facing downstream (southeast).

Photograph B-11. Overview of ST06, a non-wetland surface aquatic feature (stream) not containing an OHWM, facing upstream (northwest).

Photograph B-12. Overview of ST06, a non-wetland surface aquatic feature (stream) not containing an OHWM, facing downstream (southeast).

Photograph B-13. Overview of ST07, a non-wetland surface aquatic feature (stream) containing an OHWM, facing upstream (northwest).

Photograph B-14. Overview of ST07, a non-wetland surface aquatic feature (stream) containing an OHWM, facing downstream (southeast).

Photograph B-15. Overview of ST08, a non-wetland surface aquatic feature (stream) containing an OHWM, facing upstream (northwest).

Photograph B-16. Overview of ST08, a non-wetland surface aquatic feature (stream) containing an OHWM, facing downstream (southeast).

Photograph B-17. Overview of EF04, a non-wetland erosional feature (stream) not containing an OHWM, facing upstream (northeast).

APPENDIX C

OHWM Datasheets

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Enduring NE Lybrook WSI
Project Number: 75253-082
Stream: ST04
Investigator(s): SWCA
Date: 4/24/2023 **Time:** 1:46pm
Town: Nageezi **State:** NM
Photo begin file#: **Photo end file#:**
see photos in associated report

Y ■ / N ☐ Do normal circumstances exist on the site?

Y ☐ / N ■ Is the site significantly disturbed?

Location Details:
north of HWY550 near Nageezi

Projection: **Datum:**
Coordinates: 36.249358, -107.506215

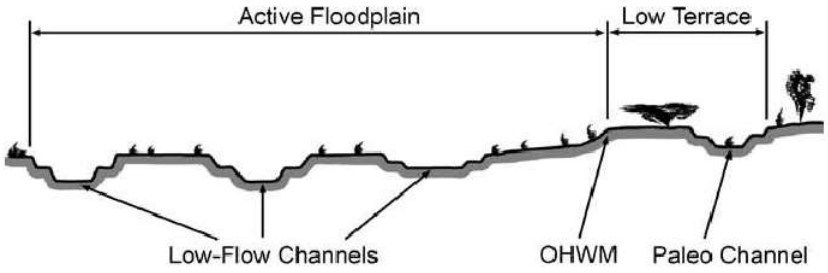
Potential anthropogenic influences on the channel system:
Located in oil fields. Runs perpendicular to road. Likely primarily fed by runoff from road. Used heavily as cattle trail.

Brief site description:
Single thread stream at this location flowing northeast to southwest.

Checklist of resources (if available):

- ☐ Aerial photography
  Dates:
- ■ Topographic maps
- ☐ Geologic maps
- ☐ Vegetation maps
- ■ Soils maps
- ☐ Rainfall/precipitation maps
- ☐ Existing delineation(s) for site
- ■ Global positioning system (GPS)
- ■ Other studies NHD, NWI, FEMA
- ☐ Stream gage data
  Gage number:
  Period of record:
- ☐ History of recent effective discharges
- ☐ Results of flood frequency analysis
- ☐ Most recent shift-adjusted rating
- ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units



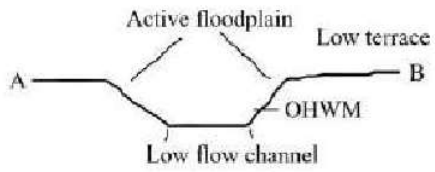
Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - ☐ Mapping on aerial photograph
   - ■ GPS
   - ☐ Digitized on computer
   - ☐ Other:

Project ID: 75253-082 **Cross section ID:** ST04 **Date:** 4/24/2023 **Time:** 1:46pm

Cross section drawing:

OHWM Width(ft): 4
OHWM Depth(ft): 1



OHWM

GPS point: see recorded spatial data

Indicators:

- [x] Change in average sediment texture
- [ ] Change in vegetation species
- [ ] Change in vegetation cover
- [x] Break in bank slope
- [ ] Other: _____
- [ ] Other: _____

Comments:

OHWM Rationale: The change in vegetation density and change in soil coarseness were the strongest indicators.
OHWM width (ft): 4
OHWM depth (ft): 1
Dominant vegetation below OHWM: None
Dominant vegetation at OHWM: Chamisa
Dominant vegetation above OHWM: Chamisa

Floodplain unit:

- [x] Low-Flow Channel
- [ ] Active Floodplain
- [ ] Low Terrace

GPS point: see recorded spatial data

Characteristics of the floodplain unit:

Average sediment texture: Clay
Total veg cover: 10 % Tree: 0 % Shrub: 0 % Herb: 10 %
Community successional stage:

- [ ] NA
- [x] Early (herbaceous & seedlings)
- [ ] Mid (herbaceous, shrubs, saplings)
- [ ] Late (herbaceous, shrubs, mature trees)

Indicators:

- [ ] Mudcracks
- [ ] Ripples
- [ ] Drift and/or debris
- [x] Presence of bed and bank
- [ ] Benches
- [x] Soil development
- [ ] Surface relief
- [ ] Other: _____
- [ ] Other: _____
- [ ] Other: _____

Comments:

Dominant vegetation below OHWM: Unknown grass seedlings

Project ID: 75253-082 **Cross section ID:** ST04 **Date:** 5/24/2023 **Time:** 1:46pm

Floodplain unit: ☐ Low-Flow Channel ■ Active Floodplain ☐ Low Terrace

GPS point: see recorded spatial data

Characteristics of the floodplain unit:

Average sediment texture: Medium Sand

Total veg cover: 40 % Tree: 0 % Shrub: 30 % Herb: 10 %

Community successional stage:

- ☐ NA
- ■ Early (herbaceous & seedlings)
- ■ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ■ Benches
- ■ Soil development
- ■ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Dominant vegetation at OHWM: SATR12, ARTR2, ACHY

Floodplain unit: ■ Low-Flow Channel ☐ Active Floodplain ■ Low Terrace

GPS point: see recorded spatial data

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: 75 % Tree: 0 % Shrub: 60 % Herb: 15 %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ■ Mid (herbaceous, shrubs, saplings)
- ■ Late (herbaceous, shrubs, mature trees)

Indicators:

- ■ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ■ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Dominant vegetation above OHWM: Forbs: SATR12, ARTR2, ACHY, ATCA2

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Enduring NE Lybrook WSI
Project Number: 75253-082
Stream: ST05
Investigator(s): SWCA
Date: 4/24/2023 **Time:** 12:49
Town: Nageezi **State:** NM
Photo begin file#: **Photo end file#:**
see photos in associated report

Y ■ / N ☐ Do normal circumstances exist on the site?

Y ☐ / N ■ Is the site significantly disturbed?

Location Details:
north of HWY550 near Nageezi

Projection: **Datum:**
Coordinates: 36.249156, -107.506125

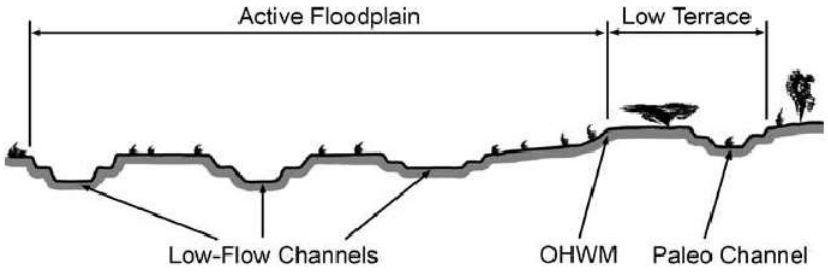
Potential anthropogenic influences on the channel system:
No signs of recent flow. Road crosses perpendicular to NHD and culvert has been installed beneath road. Bank and OHWM widen and pool around culvert entrances. Data is based on where NHD crosses project ROW.

Brief site description:
Single thread stream at this location flowing northeast to southwest.

Checklist of resources (if available):

- ☐ Aerial photography
  Dates:
- ■ Topographic maps
- ☐ Geologic maps
- ☐ Vegetation maps
- ■ Soils maps
- ☐ Rainfall/precipitation maps
- ☐ Existing delineation(s) for site
- ■ Global positioning system (GPS)
- ■ Other studies NHD, NWI, FEMA
- ☐ Stream gage data
  Gage number:
  Period of record:
  - ☐ History of recent effective discharges
  - ☐ Results of flood frequency analysis
  - ☐ Most recent shift-adjusted rating
  - ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units



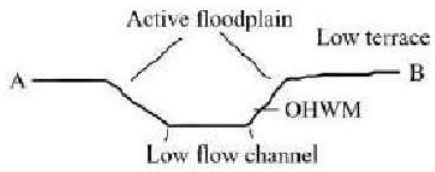
Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - ☐ Mapping on aerial photograph
   - ■ GPS
   - ☐ Digitized on computer
   - ☐ Other:

Project ID: 75253-082 **Cross section ID:** ST05 **Date:** 4/24/2023 **Time:** 12:49

Cross section drawing:

OHWM Width(ft): 4
OHWM Depth(ft): 1



OHWM

GPS point: see recorded spatial data

Indicators:

- [x] Change in average sediment texture
- [ ] Change in vegetation species
- [ ] Change in vegetation cover
- [x] Break in bank slope
- [ ] Other: _____
- [ ] Other: _____

Comments:

OHWM Rationale: The change in vegetation density and change in soil coarseness were the strongest indicators.
OHWM width (ft): 4
OHWM depth (ft): 1
Dominant vegetation below OHWM: None
Dominant vegetation at OHWM: Chamisa
Dominant vegetation above OHWM: Chamisa

Floodplain unit:

- [x] Low-Flow Channel
- [ ] Active Floodplain
- [ ] Low Terrace

GPS point: see recorded spatial data

Characteristics of the floodplain unit:

Average sediment texture: Clay
Total veg cover: 10 % Tree: 0 % Shrub: 0 % Herb: 10 %
Community successional stage:

- [ ] NA
- [x] Early (herbaceous & seedlings)
- [ ] Mid (herbaceous, shrubs, saplings)
- [ ] Late (herbaceous, shrubs, mature trees)

Indicators:

- [ ] Mudcracks
- [ ] Ripples
- [ ] Drift and/or debris
- [ ] Presence of bed and bank
- [ ] Benches
- [x] Soil development
- [ ] Surface relief
- [x] Other: Undercut banks
- [x] Other: Silt Deposits
- [x] Other: Matted vegetation

Comments:

Dominant vegetation below OHWM: BOGR2, SATR12, PLJA

Project ID: 75253-082 **Cross section ID:** ST05 **Date:** 5/24/2023 **Time:** 12:49

Floodplain unit: ☐ Low-Flow Channel ■ Active Floodplain ☐ Low Terrace

GPS point: see recorded spatial data

Characteristics of the floodplain unit:

Average sediment texture: Medium Sand

Total veg cover: 40 % Tree: 0 % Shrub: 30 % Herb: 10 %

Community successional stage:

- ☐ NA
- ■ Early (herbaceous & seedlings)
- ■ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ■ Soil development
- ☐ Surface relief
- ■ Other: Exposed Roots
- ☐ Other: _____
- ☐ Other: _____

Comments:

Dominant vegetation at OHWM: Graminoids

Floodplain unit: ■ Low-Flow Channel ☐ Active Floodplain ■ Low Terrace

GPS point: see recorded spatial data

Characteristics of the floodplain unit:

Average sediment texture: _____

Total veg cover: 75 % Tree: 0 % Shrub: 60 % Herb: 15 %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ■ Mid (herbaceous, shrubs, saplings)
- ■ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ■ Presence of bed and bank
- ☐ Benches
- ■ Soil development
- ☐ Surface relief
- ■ Other: Shelving at top of bank
- ☐ Other: _____
- ☐ Other: _____

Comments:

Dominant vegetation above OHWM: ECNA10, ARTR2, BOGR2, PLJA

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Enduring NE Lybrook WSI
Project Number: 75253-082
Stream: ST07
Investigator(s): SWCA
Date: 5/8/2024 **Time:** 11:39
Town: Nageezi **State:** NM
Photo begin file#: **Photo end file#:**
see photos in associated report

Y ■ / N ☐ Do normal circumstances exist on the site?

Y ☐ / N ■ Is the site significantly disturbed?

Location Details:
north of HWY550 near Nageezi

Projection: **Datum:**
Coordinates: 36.247444, -107.50009

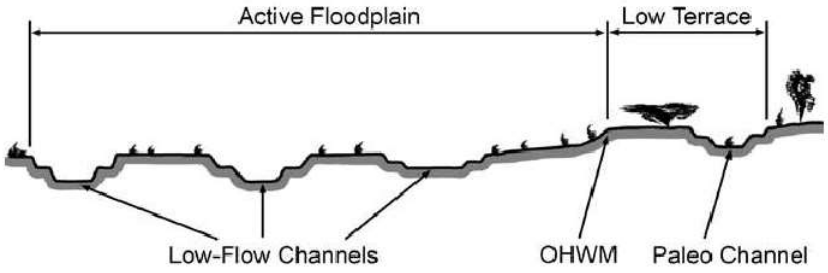
Potential anthropogenic influences on the channel system:
On cattle grazing, oil, and gas land. No recent or extreme weather events.

Brief site description:
Single thread stream at this location flowing northeast to southwest.

Checklist of resources (if available):

- ☐ Aerial photography
  Dates:
- ■ Topographic maps
- ☐ Geologic maps
- ☐ Vegetation maps
- ■ Soils maps
- ☐ Rainfall/precipitation maps
- ☐ Existing delineation(s) for site
- ■ Global positioning system (GPS)
- ■ Other studies NHD, NWI, FEMA
- ☐ Stream gage data
  Gage number:
  Period of record:
  - ☐ History of recent effective discharges
  - ☐ Results of flood frequency analysis
  - ☐ Most recent shift-adjusted rating
  - ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units



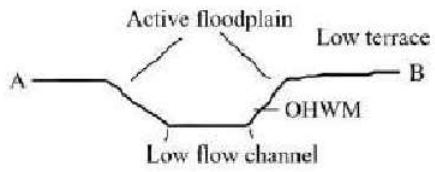
Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - ☐ Mapping on aerial photograph
   - ■ GPS
   - ☐ Digitized on computer
   - ☐ Other:

Project ID: 75253-082 **Cross section ID:** ST07 **Date:** 5/8/2024 **Time:** 11:39

Cross section drawing:

OHWM Width(ft): 3.3
OHWM Depth(ft): 0.04



OHWM

GPS point: see recorded spatial data

Indicators:

- ☐ Change in average sediment texture
- ☐ Change in vegetation species
- ☐ Change in vegetation cover
- ☐ Break in bank slope
- ☒ Other: Changes in character of soil
- ☐ Other: _____

Comments:

OHWM Rationale: The change in vegetation density and change in soil coarseness were the strongest indicators.
OHWM width (ft): 3.3
OHWM depth (ft): 0.04
Dominant vegetation below OHWM: None
Dominant vegetation at OHWM: Chamisa
Dominant vegetation above OHWM: Chamisa

Floodplain unit:

☒ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace

GPS point: see recorded spatial data

Characteristics of the floodplain unit:

Average sediment texture: Very Fine Sand
Total veg cover: 0 % Tree: 0 % Shrub: 0 % Herb: 0 %
Community successional stage:

- ☒ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☒ Other: berms: No shelf, channel is incredibly low and old
- ☐ Other: _____
- ☐ Other: _____

Comments:

Dominant vegetation below OHWM: Absent

Project ID: 75253-082 **Cross section ID:** ST07 **Date:** 5/8/2024 **Time:** 11:39

Floodplain unit: ☐ Low-Flow Channel ■ Active Floodplain ☐ Low Terrace

GPS point: see recorded spatial data

Characteristics of the floodplain unit:

Average sediment texture: Very Fine Sand

Total veg cover: 75 % Tree: 0 % Shrub: 50 % Herb: 25 %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ■ Mid (herbaceous, shrubs, saplings)
- ■ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ■ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ■ Soil development
- ■ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Dominant vegetation above OHWM: Woody Shrubs

Floodplain unit: ■ Low-Flow Channel ☐ Active Floodplain ■ Low Terrace

GPS point: see recorded spatial data

Characteristics of the floodplain unit:

Average sediment texture: Fine Sand

Total veg cover: 75 % Tree: 1 % Shrub: 60 % Herb: 14 %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ■ Mid (herbaceous, shrubs, saplings)
- ■ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ■ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ■ Soil development
- ■ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Dominant vegetation above OHWM: Woody Shrubs

Arid West Ephemeral and Intermittent Streams OHWM Datasheet

Project: Enduring NE Lybrook WS\
Project Number: 75253-082
Stream: ST08
Investigator(s): SWCA

Date: 5/8/2024 **Time:** 10:58
Town: Nageezi **State:** NM
Photo begin file#: **Photo end file#:**
see photos in associated report

Y ■ / N ☐ Do normal circumstances exist on the site?

Y ☐ / N ■ Is the site significantly disturbed?

Location Details:
north of HWY550 near Nageezi

Projection: **Datum:**
Coordinates: 36.247914, -107.500918

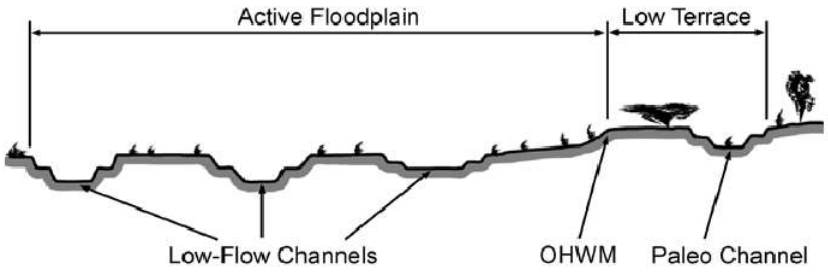
Potential anthropogenic influences on the channel system:
On cattle grazing, oil, and gas land. No recent or extreme weather events.

Brief site description:
Single thread stream at this location flowing northeast to southwest.

Checklist of resources (if available):

- ☐ Aerial photography
  Dates:
- ■ Topographic maps
- ☐ Geologic maps
- ☐ Vegetation maps
- ■ Soils maps
- ☐ Rainfall/precipitation maps
- ☐ Existing delineation(s) for site
- ■ Global positioning system (GPS)
- ■ Other studies NHD, NWI, FEMA
- ☐ Stream gage data
  Gage number:
  Period of record:
- ☐ History of recent effective discharges
- ☐ Results of flood frequency analysis
- ☐ Most recent shift-adjusted rating
- ☐ Gage heights for 2-, 5-, 10-, and 25-year events and the most recent event exceeding a 5-year event

Hydrogeomorphic Floodplain Units



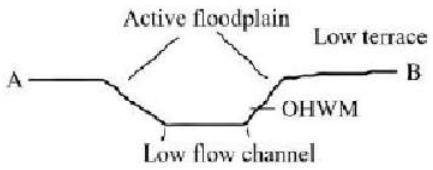
Procedure for identifying and characterizing the floodplain units to assist in identifying the OHWM:

1. Walk the channel and floodplain within the study area to get an impression of the geomorphology and vegetation present at the site.
2. Select a representative cross section across the channel. Draw the cross section and label the floodplain units.
3. Determine a point on the cross section that is characteristic of one of the hydrogeomorphic floodplain units.
   a) Record the floodplain unit and GPS position.
   b) Describe the sediment texture (using the Wentworth class size) and the vegetation characteristics of the floodplain unit.
   c) Identify any indicators present at the location.
4. Repeat for other points in different hydrogeomorphic floodplain units across the cross section.
5. Identify the OHWM and record the indicators. Record the OHWM position via:
   - ☐ Mapping on aerial photograph
   - ■ GPS
   - ☐ Digitized on computer
   - ☐ Other:

Project ID: 75253-082 **Cross section ID:** ST08 **Date:** 5/8/2024 **Time:** 10:58

Cross section drawing:

OHWM Width(ft): 5.5
OHWM Depth(ft): 0.04



OHWM

GPS point: see recorded spatial data

Indicators:

- ☐ Change in average sediment texture
- ☐ Change in vegetation species
- ☐ Change in vegetation cover
- ☐ Break in bank slope
- ☒ Other: Changes in character of soil
- ☐ Other: _____

Comments:

OHWM Rationale: The change in vegetation density and change in soil coarseness were the strongest indicators.
OHWM width (ft): 5.5
OHWM depth (ft): 0.04
Dominant vegetation below OHWM: None
Dominant vegetation at OHWM: Chamisa
Dominant vegetation above OHWM: Chamisa

Floodplain unit:

☒ Low-Flow Channel ☐ Active Floodplain ☐ Low Terrace

GPS point: see recorded spatial data

Characteristics of the floodplain unit:

Average sediment texture: Very Fine Sand
Total veg cover: 0 % Tree: 0 % Shrub: 0 % Herb: 0 %
Community successional stage:

- ☒ NA
- ☐ Early (herbaceous & seedlings)
- ☐ Mid (herbaceous, shrubs, saplings)
- ☐ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☐ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☐ Soil development
- ☐ Surface relief
- ☒ Other: berms: No shelf, channel is incredibly low and old
- ☐ Other: _____
- ☐ Other: _____

Comments:

Dominant vegetation below OHWM: Absent

Project ID: 75253-082 **Cross section ID:** ST08 **Date:** 5/8/2024 **Time:** 10:58

Floodplain unit: ☐ Low-Flow Channel ☒ Active Floodplain ☐ Low Terrace

GPS point: see recorded spatial data

Characteristics of the floodplain unit:

Average sediment texture: Very Fine Sand

Total veg cover: 75 % Tree: 0 % Shrub: 50 % Herb: 25 %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☒ Mid (herbaceous, shrubs, saplings)
- ☒ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☒ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☒ Soil development
- ☒ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Dominant vegetation above OHWM: Woody Shrubs

Floodplain unit: ☒ Low-Flow Channel ☐ Active Floodplain ☒ Low Terrace

GPS point: see recorded spatial data

Characteristics of the floodplain unit:

Average sediment texture: Fine Sand

Total veg cover: 75 % Tree: 1 % Shrub: 60 % Herb: 14 %

Community successional stage:

- ☐ NA
- ☐ Early (herbaceous & seedlings)
- ☒ Mid (herbaceous, shrubs, saplings)
- ☒ Late (herbaceous, shrubs, mature trees)

Indicators:

- ☐ Mudcracks
- ☐ Ripples
- ☒ Drift and/or debris
- ☐ Presence of bed and bank
- ☐ Benches
- ☒ Soil development
- ☒ Surface relief
- ☐ Other: _____
- ☐ Other: _____
- ☐ Other: _____

Comments:

Dominant vegetation above OHWM: Woody Shrubs

APPENDIX D

SDAM REPORT FORM

Beta Arid West Streamflow Duration Assessment Method

General site information

Project name or number: Enduring NE Lybrook WSW

Site code or identifier: 75253-082

Assessor(s): SWCA

Waterway name: ST04

Visit date: 04/24/2023

Current weather conditions (check one)
- ☐ Storm/heavy rain
- ☐ Steady rain
- ☐ Intermittent rain
- ☐ Snowing
- ■ Cloudy (50 % cover)
- ☐ Clear/Sunny

Notes on current or recent weather conditions (e.g., precipitation in previous week):

No precipitation and sunny the previous week. Slightly cooler temperatures.

Coordinates at downstream end (decimal degrees):
Lat (N): 36.24928
Long (W): −107.5058
Datum:

Surrounding land-use within 100 m (check one or two):
- ☐ Urban/industrial/residential
- ■ Agricultural (farmland, crops, vineyards, pasture)
- ☐ Developed open-space (e.g., golf course)
- ☐ Forested
- ☐ Other natural
- ■ Other: _____

Describe reach boundaries:

The boundaries of the OHWM begin and end with the survey boundary.

Mean channel width (m): 4.0

Reach length (m): 40x width; min 40 m; max 200 m. 92

Enter photo ID, or check if completed
Top down: X Mid down: X
Mid up: X Bottom up: X

Disturbed or difficult conditions (check all that apply):
- ☐ Recent flood or debris flow
- ☐ Stream modifications (e.g., channelization)
- ☐ Diversions
- ☐ Discharges
- ☐ Drought
- ☐ Vegetation removal/limitations
- ■ Other (explain in notes)
- ☐ None

Notes on disturbances or difficult site conditions:

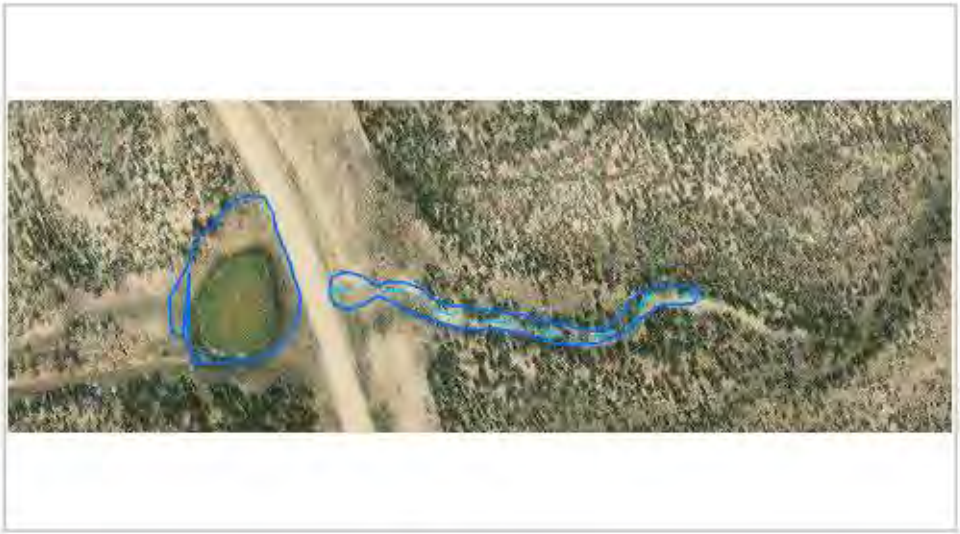
Located in oil fields. Runs perpendicular to the road. Likely fed by runoff from the road. Used heavily as cattle trail.

Observed hydrology:
0 % of reach with surface flow
0 % of reach with sub-surface or surface flow
0 # of isolated pools

Comments on observed hydrology:

Strong, reliable, consistent OHWM present.

Site sketch:



1. Hydrophytic plant species

Record up to 5 hydrophytic plant species (FACW or OBL in the **Arid West** regional wetland plant list) within the assessment area: **within the channel or up to one half-channel width**. Explain in notes if species has an odd distribution (e.g., covers less than 2% of assessment area, long-lived species solely represented by seedlings, or long-lived species solely represented by specimens in decline), or if there is uncertainty about the identification. Enter photo ID, or check if photo is taken.

Check if applicable: ☐ No vegetation in assessment area ☑ No hydrophytes in assessment area

Species	Odd distribution?	Notes	Photo ID

Notes on hydrophytic vegetation:

2 and 3. Aquatic invertebrates

2. How many aquatic invertebrates are quantified in a 15-minute search?

Number of individuals quantified: ☑ None ☐ 1 to 19 ☐ 20 +

(Do not count mosquitos)

Photo ID: N/A

3. Is there evidence of aquatic stages of EPT (Ephemeroptera, Plecoptera and Trichoptera)?

Yes (No)

Ephemeroptera larva
Image credit: Dieter Tracey

Plecoptera larva
Tracey Saxby

Trichoptera larva
Tracey Saxby

Notes on aquatic invertebrates:

4. Algal Cover

Are algae found on the streambed?		Notes on algae cover:	Photo ID:
☐ Check if *all* observed algae appear to be deposited from an upstream source.	☑ Not detected ☐ Yes, < 10% cover ☐ Yes, ≥ 10% (check Yes in single indicator below)		

5. Are single indicators observed?

Indicator	Present	Notes	Photo ID
Fish	☐ Yes ☑ No, no fish ☐ No, only non-native mosquitofish		
Algae cover ≥ 10%	☐ Yes ☑ No		

Photo log

Indicate if any other photos taken during the assessment

Photo ID	Description
	See Aquatic Resource Inventory Report for photos

Additional notes about the assessment:

Field form for the beta Arid Streamflow Duration Assessment Method
Revision Date November 2023

Classification: Ephemeral

1. Hydrophytic plant species	2. Aquatic invertebrates	3. EPT taxa	4. Algae	5. Single indicators • fish present • algae cover ≥ 10%	Classification
None	None	Absent	Absent	Absent	**Ephemeral**
				Present	**At least intermittent**
			Present		**Intermittent**
	Few (1-19)	Absent	Absent	Absent	**Less than Perennial**
				Present	**At least intermittent**
			Present		**At least intermittent**
		Present	Absent		**Intermittent**
			Present		**Perennial**
	Many (20+)	Absent	Absent	Absent	**Ephemeral**
				Present	**At least intermittent**
			Present	Absent	**Ephemeral**
				Present	**At least intermittent**
		Present			**Intermittent**
Few (1-2)	None				**Intermittent**
	Few (1-19)	Absent			**Intermittent**
		Present	Absent		**Intermittent**
			Present		**Perennial**
	Many (20+)	Absent			**Intermittent**
		Present	Absent		**Perennial**
			Present		**Intermittent**
Many (3+)	None				**Intermittent**
	Few (1-19)	Absent	Absent		**Intermittent**
			Present		**Perennial**
		Present			**Perennial**
	Many (20+)				**Perennial**

Shading provided to enhance readability by increasing the contrast between neighboring cells; empty cells indicate the classification will not change with additional information however it is recommended that all five indicators be measured and recorded during every assessment.

Field form for the beta Arid Streamflow Duration Assessment Method
Revision Date November 2023

Beta Arid West Streamflow Duration Assessment Method

General site information

Project name or number: Enduring NE Lybrook WSW

Site code or identifier: 75253-082

Assessor(s): SWCA

Waterway name: ST05

Visit date: 04/24/2023

Current weather conditions (check one)
- ☐ Storm/heavy rain
- ☐ Steady rain
- ☐ Intermittent rain
- ☐ Snowing
- ■ Cloudy (50 % cover)
- ☐ Clear/Sunny

Notes on current or recent weather conditions (e.g., precipitation in previous week):

No precipitation and sunny the previous week. Slightly cooler temperatures.

Coordinates at downstream end (decimal degrees):
Lat (N): 36.24532
Long (W): −107.5043
Datum:

Surrounding land-use within 100 m (check one or two):
- ☐ Urban/industrial/residential
- ■ Agricultural (farmland, crops, vineyards, pasture)
- ☐ Developed open-space (e.g., golf course)
- ☐ Forested
- ☐ Other natural
- ■ Other: _____

Describe reach boundaries:

The boundaries of the OHWM begin with the survey boundary and end with the survey boundary.

Mean channel width (m): 4.0

Reach length (m): 40x width; min 40 m; max 200 m: 143

Enter photo ID, or check if completed
Top down: X Mid down: X
Mid up: X Bottom up: X

Disturbed or difficult conditions (check all that apply):
- ☐ Recent flood or debris flow
- ☐ Stream modifications (e.g., channelization)
- ☐ Diversions
- ☐ Discharges
- ☐ Drought
- ☐ Vegetation removal/limitations
- ■ Other (explain in notes)
- ☐ None

Notes on disturbances or difficult site conditions:

No signs of recent flow. Road crossed perpendicular to the NHD and culvert entrances.

Observed hydrology:
0 % of reach with surface flow
0 % of reach with sub-surface or surface flow
0 # of isolated pools

Comments on observed hydrology:

Strong, reliable, consistent OHWM present.

Site sketch:

1. Hydrophytic plant species

Record up to 5 hydrophytic plant species (FACW or OBL in the **Arid West** regional wetland plant list) within the assessment area: **within the channel or up to one half-channel width**. Explain in notes if species has an odd distribution (e.g., covers less than 2% of assessment area, long-lived species solely represented by seedlings, or long-lived species solely represented by specimens in decline), or if there is uncertainty about the identification. Enter photo ID, or check if photo is taken.

Check if applicable: ☐ No vegetation in assessment area ☑ No hydrophytes in assessment area

Species	Odd distribution?	Notes	Photo ID

Notes on hydrophytic vegetation:

2 and 3. Aquatic invertebrates

2. How many aquatic invertebrates are quantified in a 15-minute search?

Number of individuals quantified: ☑ None ☐ 1 to 19 ☐ 20 +

(Do not count mosquitos)

Photo ID: N/A

3. Is there evidence of aquatic stages of EPT (Ephemeroptera, Plecoptera and Trichoptera)?

Yes (No)

Ephemeroptera larva
Image credit: Dieter Tracey

Plecoptera larva
Tracey Saxby

Trichoptera larva
Tracey Saxby

Notes on aquatic invertebrates:

4. Algal Cover

Are algae found on the streambed?		Notes on algae cover:	Photo ID:
☐ Check if *all* observed algae appear to be deposited from an upstream source.	☑ Not detected ☐ Yes, < 10% cover ☐ Yes, ≥ 10% (check Yes in single indicator below)		

5. Are single indicators observed?

Indicator	Present	Notes	Photo ID
Fish	☐ Yes ☑ No, no fish ☐ No, only non-native mosquitofish		
Algae cover ≥ 10%	☐ Yes ☑ No		

Photo log

Indicate if any other photos taken during the assessment

Photo ID	Description
	See Aquatic Resource Inventory Report for photos

Additional notes about the assessment:

Field form for the beta Arid Streamflow Duration Assessment Method
Revision Date November 2023 Page 4 of 4

Classification: Ephemeral

1. Hydrophytic plant species	2. Aquatic invertebrates	3. EPT taxa	4. Algae	5. Single indicators • fish present • algae cover ≥ 10%	Classification
None	None	Absent	Absent	Absent	**Ephemeral**
				Present	**At least intermittent**
			Present		**Intermittent**
	Few (1-19)	Absent	Absent	Absent	**Less than Perennial**
				Present	**At least intermittent**
			Present		**At least intermittent**
		Present	Absent		**Intermittent**
			Present		**Perennial**
	Many (20+)	Absent	Absent	Absent	**Ephemeral**
				Present	**At least intermittent**
			Present	Absent	**Ephemeral**
				Present	**At least intermittent**
		Present			**Intermittent**
Few (1-2)	None				**Intermittent**
	Few (1-19)	Absent			**Intermittent**
		Present	Absent		**Intermittent**
			Present		**Perennial**
	Many (20+)	Absent			**Intermittent**
		Present	Absent		**Perennial**
			Present		**Intermittent**
Many (3+)	None				**Intermittent**
	Few (1-19)	Absent	Absent		**Intermittent**
			Present		**Perennial**
		Present			**Perennial**
	Many (20+)				**Perennial**

Shading provided to enhance readability by increasing the contrast between neighboring cells; empty cells indicate the classification will not change with additional information however it is recommended that all five indicators be measured and recorded during every assessment.

Field form for the beta Arid Streamflow Duration Assessment Method
Revision Date November 2023

Beta Arid West Streamflow Duration Assessment Method

General site information

Project name or number: Enduring NE Lybrook WSW

Site code or identifier: 75253-082

Assessor(s): SWCA

Waterway name: ST07

Visit date: 05/08/24

Current weather conditions (check one)
- ☐ Storm/heavy rain
- ☐ Steady rain
- ☐ Intermittent rain
- ☐ Snowing
- ☐ Cloudy (_ % cover)
- ☒ Clear/Sunny

Notes on current or recent weather conditions (e.g., precipitation in previous week):

No precipitation and sunny the previous week. Slightly warmer temperatures.

Coordinates at downstream end (decimal degrees):
Lat (N): 36.247413
Long (W): -107.500073
Datum:

Surrounding land-use within 100 m (check one or two):
- ☐ Urban/industrial/residential
- ☐ Agricultural (farmland, crops, vineyards, pasture)
- ☐ Developed open-space (e.g., golf course)
- ☐ Forested
- ☑ Other natural
- ☒ Other: _____

Describe reach boundaries:

From upstream beginning of OHWM at erosional headcut to survey boundary.

Mean channel width (m): 1.0

Reach length (m): 40x width; min 40 m; max 200 m
100

Enter photo ID, or check if completed
Top down: X Mid down: X
Mid up: X Bottom up: X

Disturbed or difficult conditions (check all that apply):
- ☐ Recent flood or debris flow
- ☐ Stream modifications (e.g., channelization)
- ☐ Diversions
- ☐ Discharges
- ☐ Drought
- ☐ Vegetation removal/limitations
- ☒ Other (explain in notes)
- ☐ None

Notes on disturbances or difficult site conditions:

Erosion from side cut walls and cattle disturbance hides OHWM at times.

Observed hydrology:
0 % of reach with surface flow
0 % of reach with sub-surface or surface flow
0 # of isolated pools

Comments on observed hydrology:

Strong, reliable, consistent OHWM present.

Site sketch:

1. Hydrophytic plant species

Record up to 5 hydrophytic plant species (FACW or OBL in the **Arid West** regional wetland plant list) within the assessment area: **within the channel or up to one half-channel width**. Explain in notes if species has an odd distribution (e.g., covers less than 2% of assessment area, long-lived species solely represented by seedlings, or long-lived species solely represented by specimens in decline), or if there is uncertainty about the identification. Enter photo ID, or check if photo is taken.

Check if applicable: ☐ No vegetation in assessment area ☑ No hydrophytes in assessment area

Species	Odd distribution?	Notes	Photo ID

Notes on hydrophytic vegetation:

2 and 3. Aquatic invertebrates

2. How many aquatic invertebrates are quantified in a 15-minute search?

Number of individuals quantified: ☑ None ☐ 1 to 19 ☐ 20 +

(Do not count mosquitos)

Photo ID: N/A

3. Is there evidence of aquatic stages of EPT (Ephemeroptera, Plecoptera and Trichoptera)?

Yes (No)

Ephemeroptera larva
Image credit: Dieter Tracey

Plecoptera larva
Tracey Saxby

Trichoptera larva
Tracey Saxby

Notes on aquatic invertebrates:

4. Algal Cover

Are algae found on the streambed?		Notes on algae cover:	Photo ID:
☐ Check if *all* observed algae appear to be deposited from an upstream source.	☑ Not detected ☐ Yes, < 10% cover ☐ Yes, ≥ 10% (check Yes in single indicator below)		

5. Are single indicators observed?

Indicator	Present	Notes	Photo ID
Fish	☐ Yes ☑ No, no fish ☐ No, only non-native mosquitofish		
Algae cover ≥ 10%	☐ Yes ☑ No		

Photo log

Indicate if any other photos taken during the assessment

Photo ID	Description
	See Aquatic Resource Inventory Report for photos

Additional notes about the assessment:

Field form for the beta Arid Streamflow Duration Assessment Method
Revision Date November 2023 Page 4 of 4

Classification: Ephemeral

1. Hydrophytic plant species	2. Aquatic invertebrates	3. EPT taxa	4. Algae	5. Single indicators • fish present • algae cover ≥ 10%	Classification
None	None	Absent	Absent	Absent	**Ephemeral**
				Present	**At least intermittent**
			Present		**Intermittent**
	Few (1-19)	Absent	Absent	Absent	**Less than Perennial**
				Present	**At least intermittent**
			Present		**At least intermittent**
		Present	Absent		**Intermittent**
			Present		**Perennial**
	Many (20+)	Absent	Absent	Absent	**Ephemeral**
				Present	**At least intermittent**
			Present	Absent	**Ephemeral**
				Present	**At least intermittent**
		Present			**Intermittent**
Few (1-2)	None				**Intermittent**
	Few (1-19)	Absent			**Intermittent**
		Present	Absent		**Intermittent**
			Present		**Perennial**
	Many (20+)	Absent			**Intermittent**
		Present	Absent		**Perennial**
			Present		**Intermittent**
Many (3+)	None				**Intermittent**
	Few (1-19)	Absent	Absent		**Intermittent**
			Present		**Perennial**
		Present			**Perennial**
	Many (20+)				**Perennial**

Shading provided to enhance readability by increasing the contrast between neighboring cells; empty cells indicate the classification will not change with additional information however it is recommended that all five indicators be measured and recorded during every assessment.

Photo log

Field form for the beta Arid Streamflow Duration Assessment Method
Revision Date November 2023

Beta Arid West Streamflow Duration Assessment Method

General site information

Project name or number: Enduring NE Lybrook WSW		
Site code or identifier: 75253-082	Assessor(s): SWCA	
Waterway name: ST08		Visit date: 05/08/24
Current weather conditions (check one) ☐ Storm/heavy rain ☐ Steady rain ☐ Intermittent rain ☐ Snowing ☐ Cloudy (_ % cover) ☑ Clear/Sunny	Notes on current or recent weather conditions (e.g., precipitation in previous week): No precipitation and sunny the previous week. Slightly warmer temperatures.	Coordinates at downstream end (decimal degrees): Lat (N): 36.247928 Long (W): -107.500935 Datum:
Surrounding land-use within 100 m (check one or two): ☐ Urban/industrial/residential ☐ Agricultural (farmland, crops, vineyards, pasture) ☐ Developed open-space (e.g., golf course) ☐ Forested ☑ Other natural ☑ Other: _____	Describe reach boundaries: From upstream beginning of OHWM to survey boundary.	
Mean channel width (m) 1.5	Reach length (m): 40x width: min 40 m; max 200 m 100	Enter photo ID, or check if completed Top down: X Mid down: X Mid up: X Bottom up: X
Disturbed or difficult conditions (check all that apply): ☐ Recent flood or debris flow ☐ Stream modifications (e.g., channelization) ☐ Diversions ☐ Discharges ☐ Drought ☐ Vegetation removal/limitations ☑ Other (explain in notes) ☐ None	Notes on disturbances or difficult site conditions: Erosion from side cut walls and cattle disturbance hides OHWM at times.	
Observed hydrology: 0 % of reach with surface flow 0 % of reach with sub-surface or surface flow 0 # of isolated pools	Comments on observed hydrology: Strong, reliable, consistent OHWM present.	

Site sketch:

1. Hydrophytic plant species

Record up to 5 hydrophytic plant species (FACW or OBL in the **Arid West** regional wetland plant list) within the assessment area: **within the channel or up to one half-channel width**. Explain in notes if species has an odd distribution (e.g., covers less than 2% of assessment area, long-lived species solely represented by seedlings, or long-lived species solely represented by specimens in decline), or if there is uncertainty about the identification. Enter photo ID, or check if photo is taken.

Check if applicable: ☐ No vegetation in assessment area ☑ No hydrophytes in assessment area

Species	Odd distribution?	Notes	Photo ID

Notes on hydrophytic vegetation:

2 and 3. Aquatic invertebrates

2. How many aquatic invertebrates are quantified in a 15-minute search?

Number of individuals quantified: ☑ None ☐ 1 to 19 ☐ 20 +

(Do not count mosquitos)

Photo ID: N/A

3. Is there evidence of aquatic stages of EPT (Ephemeroptera, Plecoptera and Trichoptera)?

Yes (No)

Ephemeroptera larva
Image credit: Dieter Tracey

Plecoptera larva
Tracey Saxby

Trichoptera larva
Tracey Saxby

Notes on aquatic invertebrates:

4. Algal Cover

Are algae found on the streambed?		Notes on algae cover:	Photo ID:
☐ Check if *all* observed algae appear to be deposited from an upstream source.	☑ Not detected ☐ Yes, < 10% cover ☐ Yes, ≥ 10% (check Yes in single indicator below)		

5. Are single indicators observed?

Indicator	Present	Notes	Photo ID
Fish	☐ Yes ☑ No, no fish ☐ No, only non-native mosquitofish		
Algae cover ≥ 10%	☐ Yes ☑ No		

Photo log

Indicate if any other photos taken during the assessment

Photo ID	Description
	See Aquatic Resource Inventory Report for photos

Additional notes about the assessment:

Field form for the beta Arid Streamflow Duration Assessment Method
Revision Date November 2023

Classification: Ephemeral

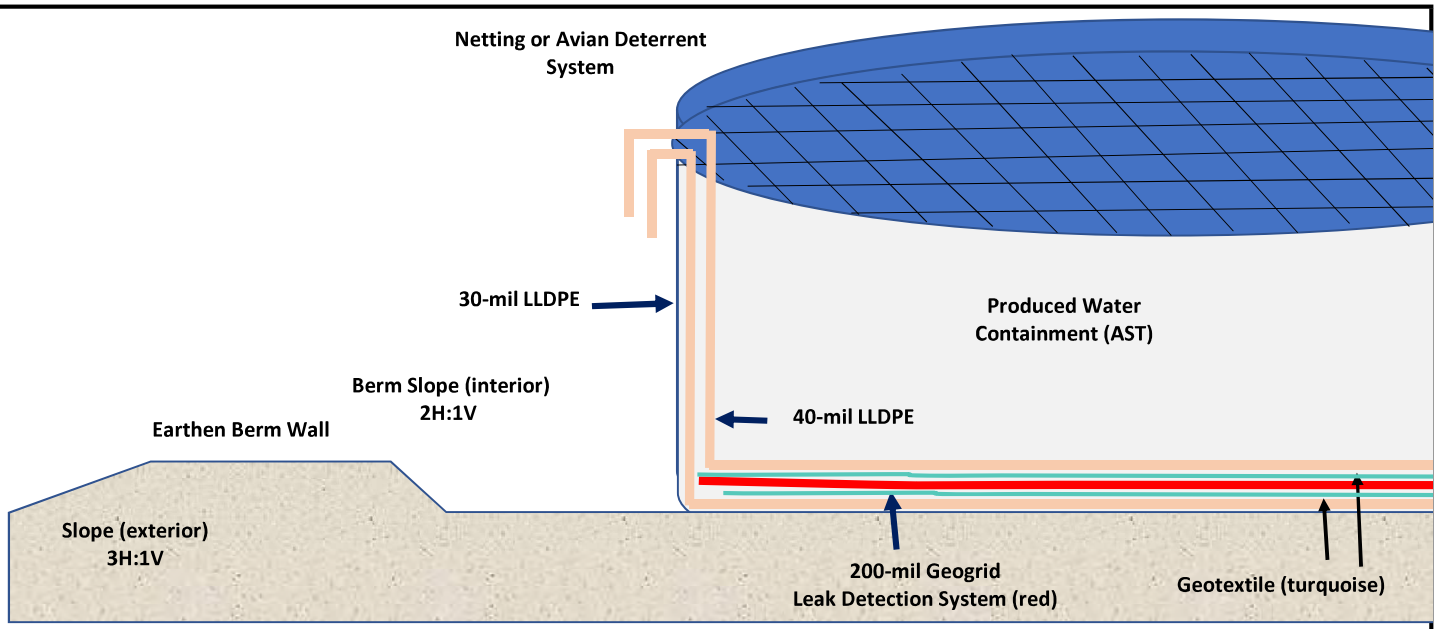
1. Hydrophytic plant species	2. Aquatic invertebrates	3. EPT taxa	4. Algae	5. Single indicators • fish present • algae cover ≥ 10%	Classification
None	None	Absent	Absent	Absent	**Ephemeral**
				Present	**At least intermittent**
			Present		**Intermittent**
	Few (1-19)	Absent	Absent	Absent	**Less than Perennial**
				Present	**At least intermittent**
			Present		**At least intermittent**
		Present	Absent		**Intermittent**
			Present		**Perennial**
	Many (20+)	Absent	Absent	Absent	**Ephemeral**
				Present	**At least intermittent**
			Present	Absent	**Ephemeral**
				Present	**At least intermittent**
		Present			**Intermittent**
Few (1-2)	None				**Intermittent**
	Few (1-19)	Absent			**Intermittent**
		Present	Absent		**Intermittent**
			Present		**Perennial**
	Many (20+)	Absent			**Intermittent**
		Present	Absent		**Perennial**
			Present		**Intermittent**
Many (3+)	None				**Intermittent**
	Few (1-19)	Absent	Absent		**Intermittent**
			Present		**Perennial**
		Present			**Perennial**
	Many (20+)				**Perennial**

Shading provided to enhance readability by increasing the contrast between neighboring cells; empty cells indicate the classification will not change with additional information however it is recommended that all five indicators be measured and recorded during every assessment.

Photo log

EXHIBIT G. MANUFACTURE SPECIFICATION

G



Description of Leak Detection System

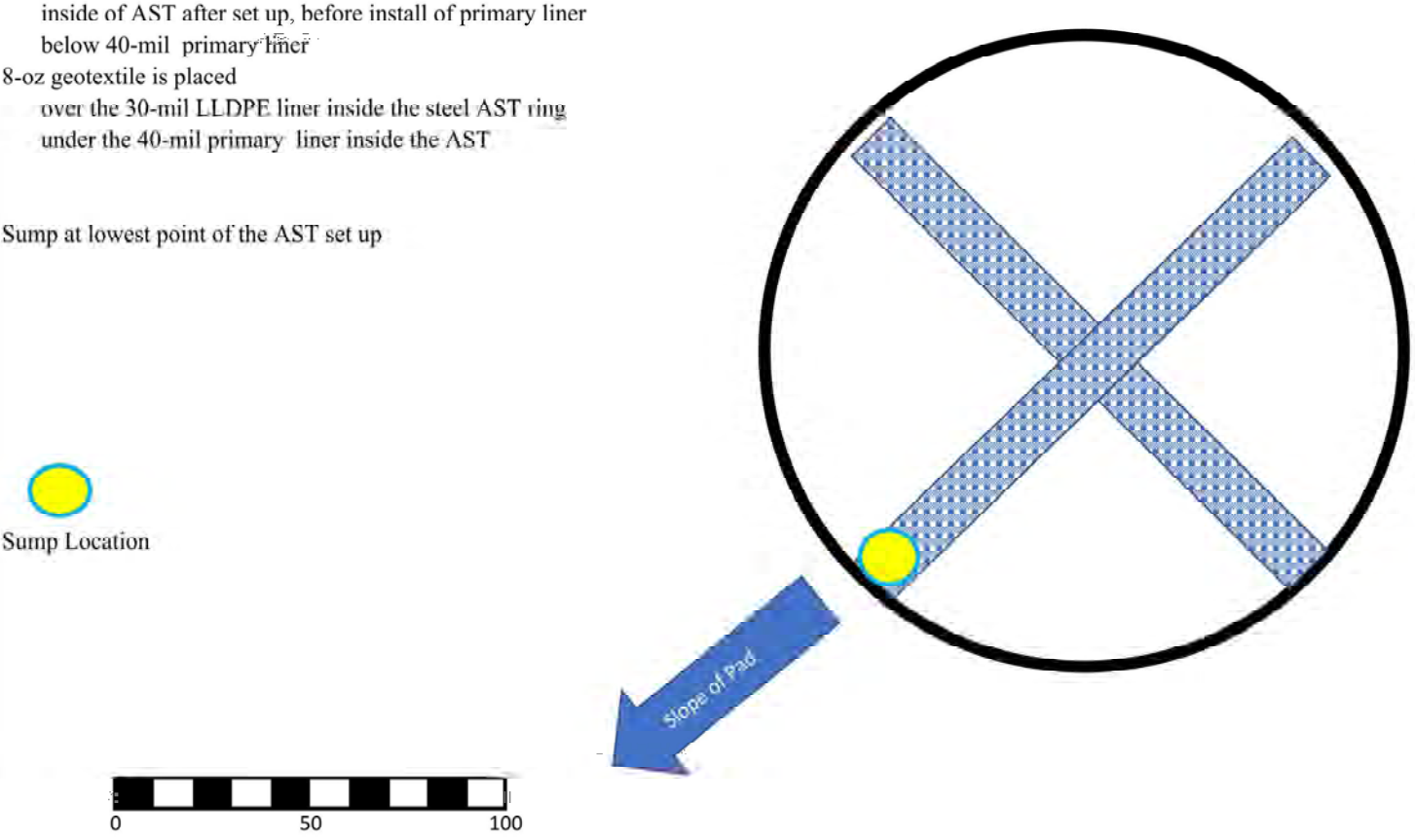
- 40-mil LLDPE comprise primary liner and 30-mil LLDPE comprise the secondary liner
- 200-mil geogrid drainage layer lies between the primary and secondary liner per Plate 2
- Geotextile between the geogrid and each liner
- > 3-inch deep sump excavated on down slope side of AST per Sump Design Drawing
- A small hose runs from the collection sump to top of AST via tube (see Section D)
- Every week, a portable self-priming peristaltic pump connects to the leak detection system.
- The self-priming pump discharge hose runs back into the AST, on top of the primary liner
- If fluid is detected, it is tested for conductance to determine the origin of the water (i.e. produced water or condensation)

R.T. Hicks Consultants Albuquerque, NM	**Design Sketch**	**Plate 1**
	Well Water Solutions	**May-21**

Use laser level to determine slope of pad and low point of AST

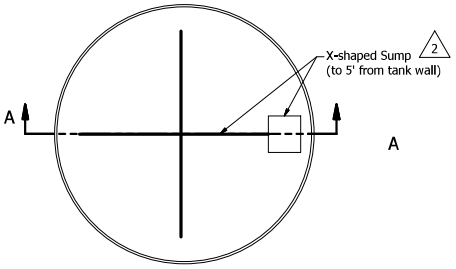
200 mil geogrid placed
above 8-oz geotextile and 30-mil secondary liner
inside of AST after set up, before install of primary liner
below 40-mil primary liner
8-oz geotextile is placed
over the 30-mil LLDPE liner inside the steel AST ring
under the 40-mil primary liner inside the AST

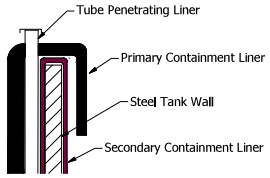
Sump at lowest point of the AST set up



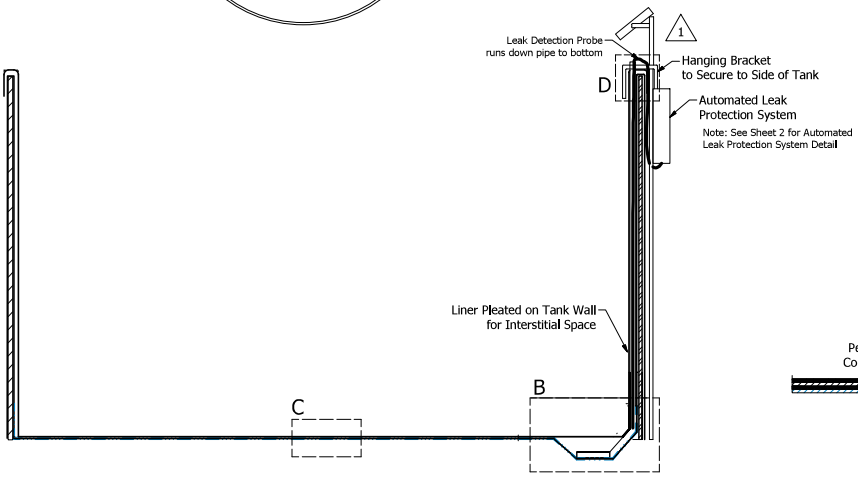
R.T. Hicks Consultants Albuquerque, NM	Layout of Geogrid Drainage Mat	Plate 1
	WWS - New Mexico Produced Water Set Up	June 2021

WWS DOUBLE-LINED
FRAC WATER TANK SYSTEM

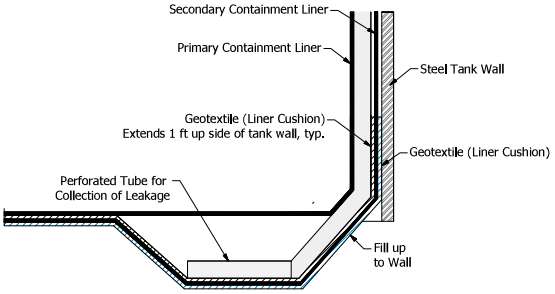




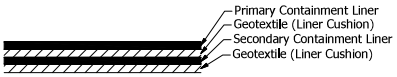
SECTION D
TUBE DETAIL
(Automated Leak Detection
System Removed for Clarity)



VIEW A-A
TANK DETAIL



SECTION B
SUMP DETAIL



SECTION C
LINER DETAIL

REVISION HISTORY			
REV	DESCRIPTION	DATE	BY
0	INITIAL DWG	10/29/2015	SES
1	ADDED LEAK DETECTION SYSTEM	11/6/2015	SES
2	REVISED SUMP	11/6/2015	SES
3	ADDED GEOTEXTILE UNDER AND BETWEEN LINERS	11/24/15	SES

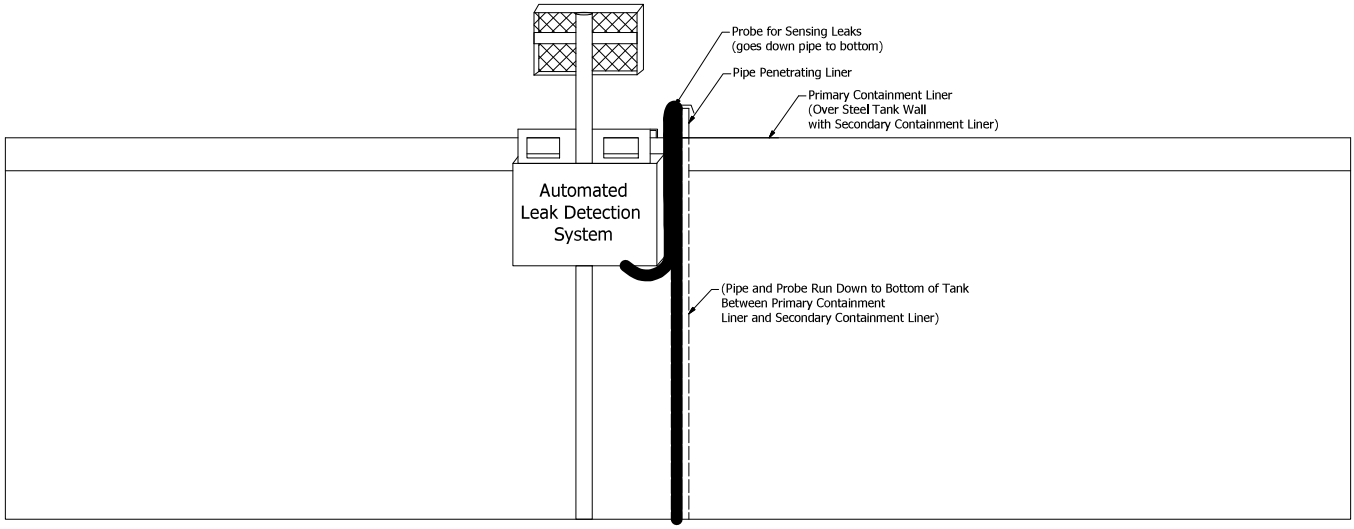
LUCID
DRAFTING & DESIGN LLC
sarah@luciddrafting.com 307.752.7388

TITLE: Double-Lined Frac Tank System
CUSTOMER:
PROJECT/JOB: WWS Double-Lined Tank System
APPROVAL:
DRAFTER: SES
DATE: 10/28/2015

WELL WATER SOLUTIONS AND RENTALS, INC.

SIZE: C
DWG NO: LDD15-WWS-02
REV: 3
SHEET 1 OF 2

1 AUTOMATED LEAK DETECTION SYSTEM

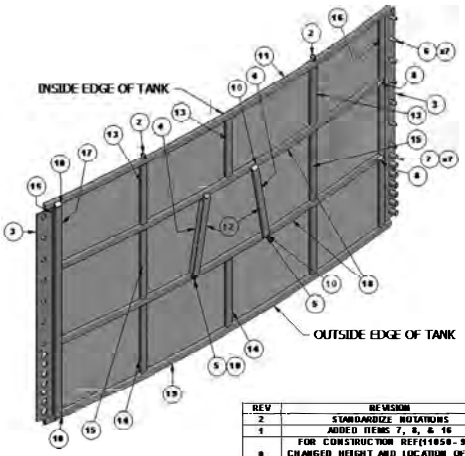


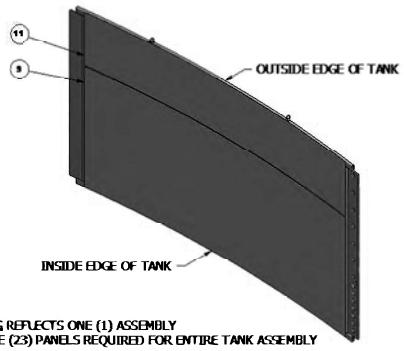
TITLE	Double-Lined Frac Tank System
CUSTOMER	
PROJECT/JOB	WWS Double-Lined Tank System
APPROVAL	
DRAFTER	SES
DATE	10/28/2015
SIZE	C
DWG NO	LDD15-WWS-02
REV	3
SHEET	2 OF 2

WELL WATER SOLUTIONS AND RENTALS, INC.

Parts List

CK	ITEM	QTY	DESCRIPTION	WIDTH	LENGTH	MATERIAL	CLENGTH (in)	WEIGHT
	1	14	BAR, ROUND, 5/8" (LOCK PIN)		6 1/2 in	A36	6.50	
	2	2	D-RING, 1/2" G30, WORKING LOAD 4000 lbs			A29/A29M-91 1045(C-1045), MODIFIED TO WELD DOWN		2
	3	2	FBAR, 1"	10 in	131 1/2 in	A36	131.50	272
	4	2	FBAR, 10GA	3 in	43 1/8 in	A36	86.25	99
	5	2	PAD EYE, #2			CROSBY GROUP, S-264		0
	6	7	PIN, 2" DIA		4 1/2 in	KUSTOM KONCEPTS, A1018	31.50	3
	7	7	PIN, 3 " DIA		4 1/2 in	KUSTOM KONCEPTS, A1018	31.50	8
	8	2	PLATE, 3/16"	3 in	5 in	A36	10.00	2
	9	1	PLATE, 3/16"	96 in	240 in	A36	240.00	156
	10	6	SHEET, 10GA	2 1/2 in	3 3/4 in	A36	22.50	3
	11	1	SHEET, 10GA	42 1/2 in	240 in	A36	240.00	58
	12	2	TUBE, 4" x 2" x 1/4" (MITER BOTH ENDS)		52 in	A500B CLEAR COAT	104.00	55
	13	3	TUBE, 4" x 2" x 3/16"		37 1/4 in	A500B CLEAR COAT	74.50	43
	14	3	TUBE, 4" x 2" x 3/16"		42 3/4 in	A500B CLEAR COAT	128.25	74
	15	2	TUBE, 4" x 2" x 3/16"		44 in	A500B CLEAR COAT	88.00	50
	16	2	TUBE, 4" x 2" x 3/16"		132 in	A500B CLEAR COAT	264.00	151
	17	1	TUBE, 4" x 2" x 3/16" (MITER BOTH ENDS)		137 1/2 in	A500B CLEAR COAT	137.50	78
	18	2	TUBE, 4" x 2" x 3/16", (ROLL TO 155'-6 7/8" I.D.)		236 3/8 in	A500B CLEAR COAT	472.75	271
	19	2	TUBE, 4" x 2" x 3/16", (ROLL TO 155'-6 7/8" I.D.)		253 7/8 in	A500B CLEAR COAT	507.75	291





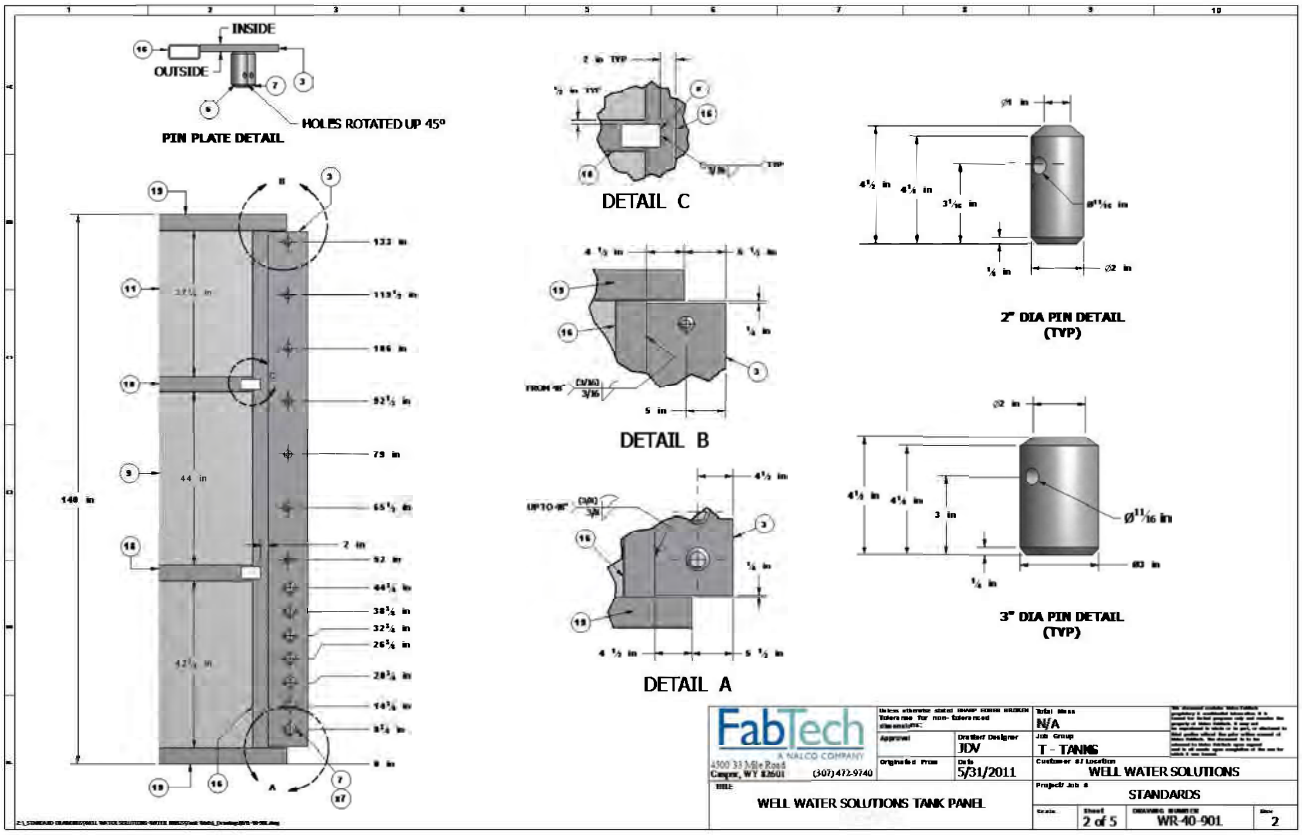
NOTES:
-THIS DRAWING REFLECTS ONE (1) ASSEMBLY
-TWENTY THREE (23) PANELS REQUIRED FOR ENTIRE TANK ASSEMBLY

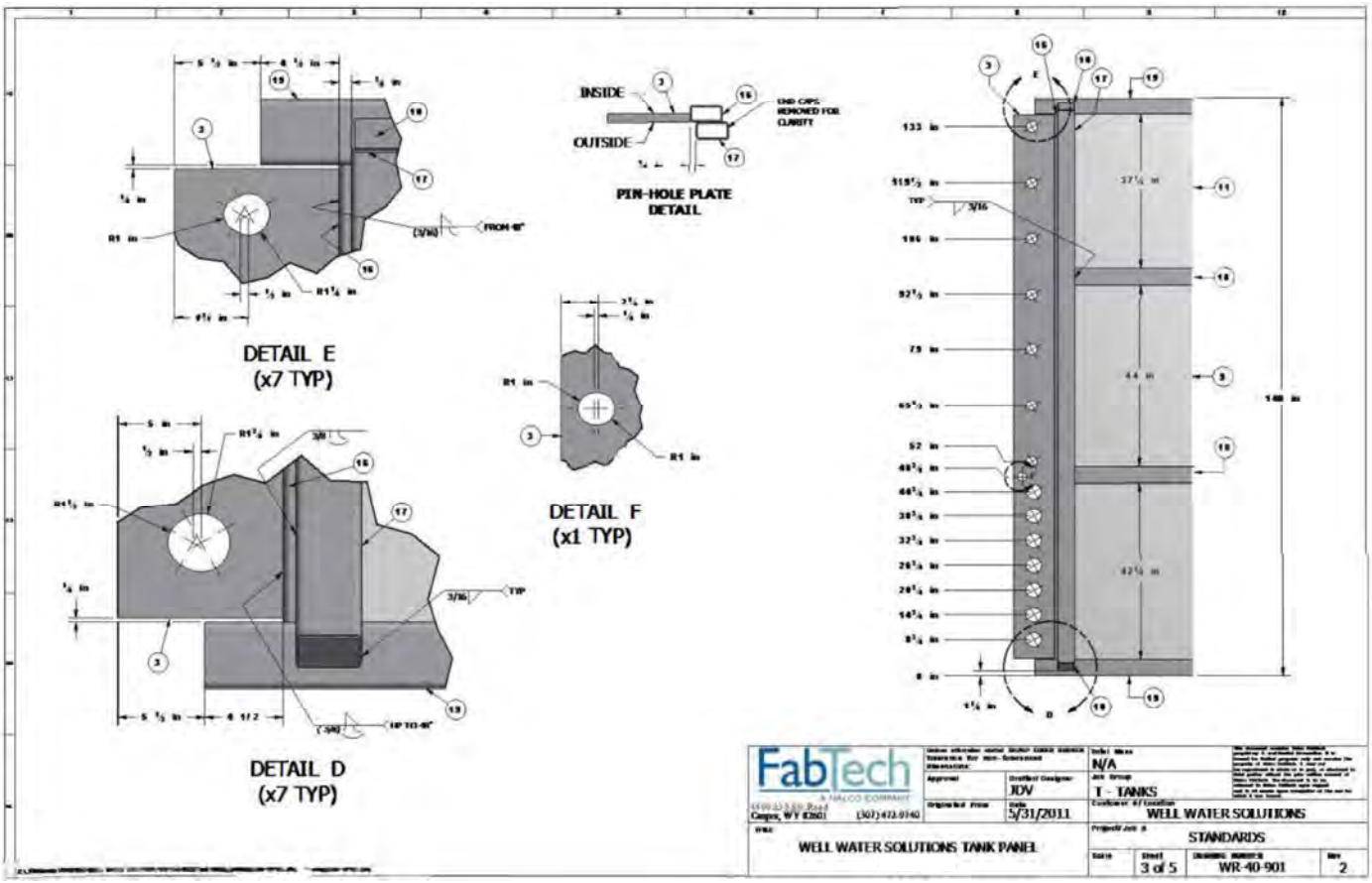
REV	REVISION	DATE	BY
2	STANDARDIZE NOTATIONS	11/17/2012	JDV
1	ADDED ITEMS 7, 8, & 16	12/09/11	DSG
0	FOR CONSTRUCTION REF(11050-901) CHANGED HEIGHT AND LOCATION OF PINS REF(11078-40-901)	9/1/2011	CJD

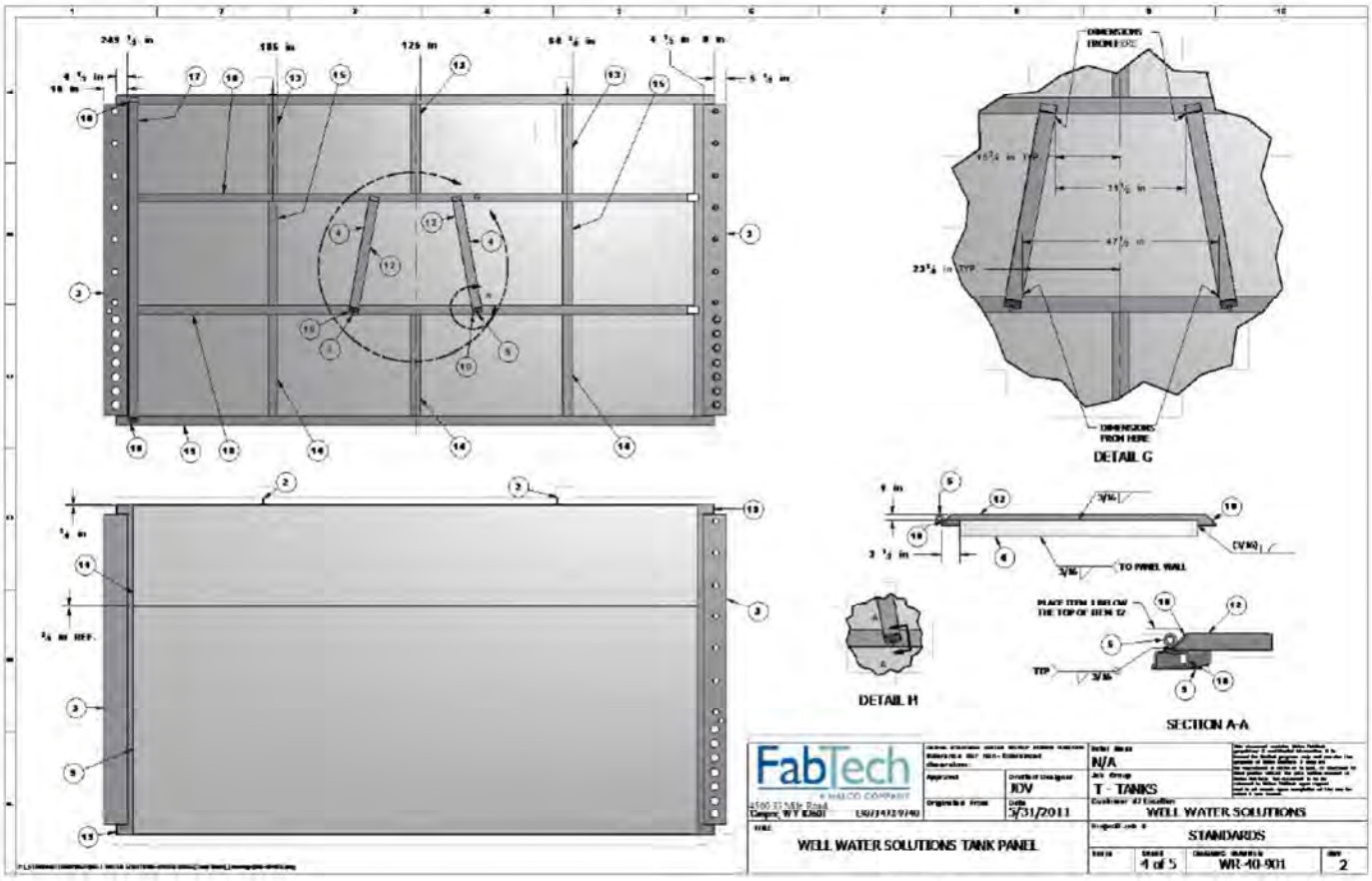
FabTech
A NALCO COMPANY
4500 33 Mile Road
Casper, WY 82601
(307)472-9740

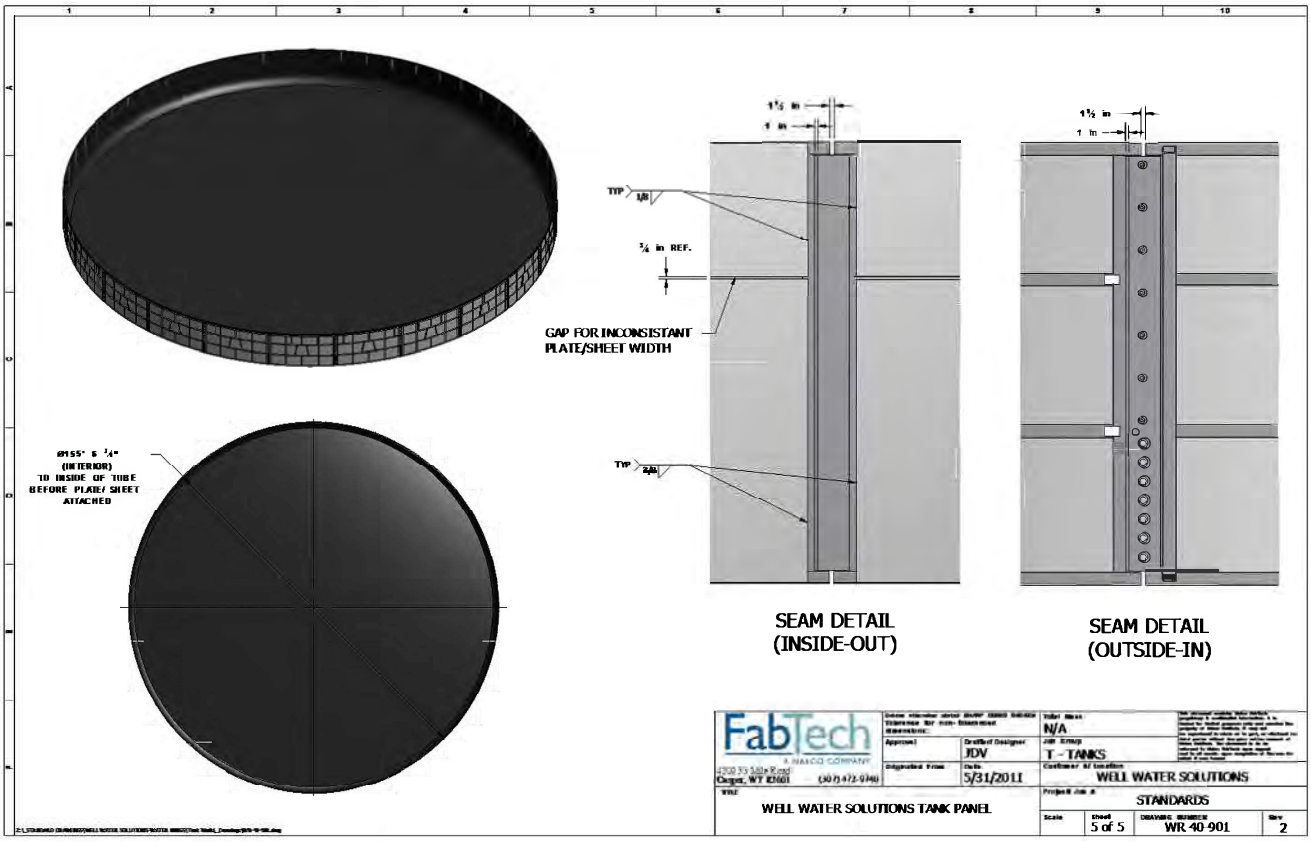
Unless otherwise stated SHARP EDGES SHOWN
Tolerance for non-toleranced dimensions:
Approved
Originated From
Drafted Designer: JDV
Date: 5/31/2011
Title Block: N/A
Job Group: T - TANKS
Customer or Division: WELL WATER SOLUTIONS
Project Job #: STANDARDS
Scale
Sheet: 1 of 5
DRAWING NUMBER: WR-40-901
Rev: 2

TITLE: WELL WATER SOLUTIONS TANK PANEL


INSIDE
OUTSIDE
HOLES ROTATED UP 45°
PIN PLATE DETAIL
DETAIL C
DETAIL B
DETAIL A
2" DIA PIN DETAIL
(TYP)
3" DIA PIN DETAIL
(TYP)
148 in
44 in
42 1/4 in
133 in
113 1/2 in
186 in
93 1/2 in
79 in
65 1/2 in
2 in
52 in
44 1/4 in
38 3/4 in
32 1/4 in
26 3/4 in
20 3/4 in
14 3/4 in
8 1/4 in
0 in
FabTech
A NALCO COMPANY
4500 S.S.B.I. Road
Casper, WY 82601
(307) 472-9740
Drafter Designer
JDV
Date
5/31/2011
Total Mass
N/A
Job Group
T - TANKS
Customer or Location
WELL WATER SOLUTIONS
STANDARDS
WELL WATER SOLUTIONS TANK PANEL
Sheet
2 of 5
WR-40-901
2


DETAIL E
(x7 TYP)
INSIDE
OUTSIDE
END CAPS REMOVED FOR CLARITY
PIN-HOLE PLATE DETAIL
DETAIL F
(x1 TYP)
DETAIL D
(x7 TYP)
FabTech
A NALCO COMPANY
Casper, WY 82601
(307) 472-9140
Approved
Drafted/Designed: JDV
Originated From
Date: 5/31/2011
N/A
T - TANKS
WELL WATER SOLUTIONS
STANDARDS
WELL WATER SOLUTIONS TANK PANEL
Sheet 3 of 5
WR-40-901
Rev 2


DETAIL G
DETAIL H
SECTION A-A
TO PANEL WALL
FabTech
WELL WATER SOLUTIONS TANK PANEL
N/A
T - TANKS
WELL WATER SOLUTIONS
STANDARDS
WR-40-901
5/31/2011
JDV


1½ in
1 in
TYP 1/8
¾ in REF.
GAP FOR INCONSISTANT PLATE/SHEET WIDTH
TYP 2in
Ø155" ± ¼" (INTERIOR) TO INSIDE OF TUBE BEFORE PLATE/ SHEET ATTACHED
SEAM DETAIL (INSIDE-OUT)
SEAM DETAIL (OUTSIDE-IN)
FabTech
A NAVCO COMPANY
Cheyenne, WY 82001 (307) 472-9740
Drafted Designer JDV
Date 5/31/2011
Title WELL WATER SOLUTIONS TANK PANEL
Job Name T - TANKS
Customer or Location WELL WATER SOLUTIONS
STANDARDS
Sheet 5 of 5
WR 40-901
Rev 2

TANK SIZE CHART

TANK SIZE BBLS	PANEL COUNT	INSIDE DIAMETER (FEET)	VOLUME BBLS	BBLS/INCH	SECONDARY CONTAINMENT (ADD 2 PANELS)	SECONDARY CONTAINMENT DIAMETER	TOTAL FEET OF CONTAINMENT
6,000	9	60' 2"	6,090	43.5	11	75'	234'
10,000	12	81' 2"	10,753	76.8	14	95'	298'
13,000	13	87' 10-5/8"	12,609	90.1	15	101'	318'
17,000	15	101.4285	16,800	120	17	115'	361'
20,000	16	108' 2"	19,115	136.53	18	122'	384'
22,000	17	114' 11-7/16"	21,564	154.03	19	135'	426'
27,000	19	128' 6-1/4"	26,954	192.53	21	142'	446"
30,000	20	135' 3-3/8"	29,867	213.35	22	149'	468'
33,000	21	142' 0-9/16"	32,928	235.2	23	156'	489'
36,000	22	148' 9-11/16"	36,139	258.14	24	163'	510'
40,000	23	155' 6-7/8"	39,499	282.14	25	170'	532'
43,000	24	162' 4-1/16"	43,008	307.2	26	176'	553'
47,000	25	169' 1-3/16"	46,667	333.34	27	183'	574'
50,000	26	175' 10-5/16"	50,475	360.54	28	190'	595'
55,000	27	182' 7-9/16"	54,433	388.8	29	196'	617'
60,000	28	189' 4-11/16"	58,539	418.14	30	203'	638'
62,500	29	196' 1/16"	62,500	446.43	31	210'	658'
67,000	30	202' 10 6/16"	66,885	477.75	32	216'	678'
72,000	31	209' 7-7/16"	71,705	512.18	33	223'	701'
77,000	32	216' 4-9/16"	76,405	545.75	34	230'	722'
81,000	33	223' 1-11/16"	81,254	580.39	35	237'	744'

EXHIBIT H. VARIANCE REQUESTS

ENDURING RESOURCES IV LLC
6300 S Syracuse Way Centennial, CO 80111
Field Office: 505.636.9720 | Main Office: 303.573.1222

Enduring Resources IV, LLC NE Lybrook 2306-06P Recycling Containment and Recycling Facility Variance Request to 19.15.34 NMAC

New Mexico Oil Conservation Division
Attn: Victoria Venegas

Enduring Resources is requesting variances to the below listed items as outlined in 19.15.34 NMAC. This Recycling Containment/Facility will consist of self-contained free-standing structures instead of a lined earthen pit. The variances requested below will provide equal or better protection of fresh water, public health, and the environment.

Variance Requests:

Inside/Outside Levee Slopes: Enduring Resources requests a variance to NMAC 19.15.34.12 (A)(2) which pertains to a lined earthen pit. The containments are above ground tanks (AST) not an in-ground pond; therefore, will not have inside/outside levee slopes. The ASTs are self-contained free-standing structures that will provide equal or better protection than the requirements listed in 19.15.34.12 (A)(2) NMAC.

Liner Anchoring: Enduring Resources requests a variance to NMAC 19.15.34.12 (A)(3) which pertains to a lined earthen pit. This statute is not applicable to the circular steel ASTs with liners clamped to the top of the steel containment panels. We believe this will provide equal or better protection than the requirements listed in 19.15.34.12 (A)(3) NMAC.

Primary Liner: Enduring Resources requests a variance to NMAC 19.15.34.12 (A)(4) which applies to the thickness of the primary liner. Enduring Resources proposes the use of a 40-mil LLDPE primary liner and 30-mil LLPDE secondary liner. The proposed variance will provide equal or better protection of fresh water, public health and the environment, as the proposed liner meets all other the requirements of NMAC 19.15.34.12 (A)(4) and meets or exceeds the EPA SW-846 method 9090A or subsequent relevant publication.

Fencing: Enduring Resources requests a variance to NMAC 19.15.34.12 (D)(1) and (2) which applies to fencing or enclosing the containments. With the recycling containments being ASTs with 12-foot walls, entrance would have to be intentional. There is no risk of accidental entrance into containments by wildlife or the public. The site will be maintained to prevent harm to wildlife and the public. The freestanding above grade ASTs will provide equal or better protection to public health and the environment, as the fencing requirements of NMAC 19.15.34.12 (D)(1) and (2).

Floodplain: Enduring Resources requests a variance to NMAC 19.15.34.11 (C)(4) which applies to placement of excavated material during construction within a 100-year floodplain. As seen in Exhibit B, Exhibit E Map 2, and Exhibit F Figure A-2, the northeastern most and southwestern most margins of the location fall just within the mapped FEMA Flood Zone A, also known as the 100-year floodplain. There is no site-specific base flood elevation data in this region for more accurate analysis, thus, Enduing proposes variance with mitigation implementation. Enduring proposes to construct a 4-foot tall flood wall along the interior perimeter of the location extending 20 feet beyond the 100-year floodplain boundary for added protection on the northeast and southwest corners of location. This floodwall will be constructed with Redi-Rock R28 or larger series retaining wall blocks. Please see general block and construction details on page two and three of this variance request. This block wall will provide equal or better protection to excavated material as the higher elevation protection from the wall will be greater in elevation than the alternative to round the corners of the location out of the floodplain.

Thank you,

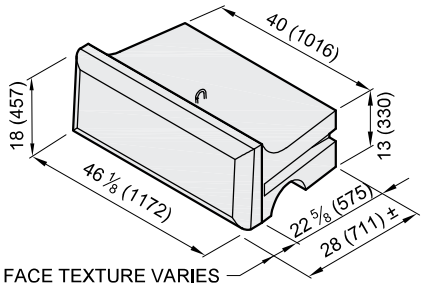
Casey Haga
Regulatory Specialist
Enduring Resources, LLC.
970.769.8814 – Cell

RETAINING BLOCKS

Block Library

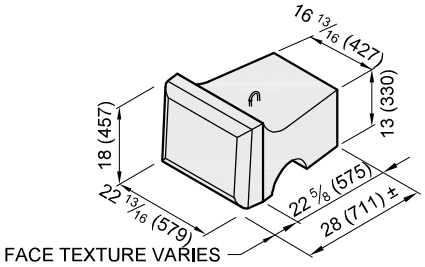
R-28T 28" (710mm) TOP

Face Texture:	Cobble / Limestone	Kingstone / Ledgestone
Block Weight:	1230 lb (557 kg)	1160 lb (530 kg)
Block Volume:	8.57 ft^3 (0.243 m^3)	8.07 ft^3 (0.229 m^3)
Center of Gravity:	14.9" (378mm)	14.2" (362mm)



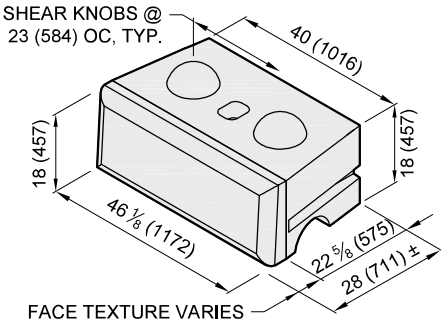
R-28HT 28" (710mm) HALF TOP

Face Texture:	Cobble / Limestone	Kingstone / Ledgestone
Block Weight:	570 lb (260 kg)	540 lb (240 kg)
Block Volume:	4.01 ft^3 (0.113 m^3)	3.76 ft^3 (0.106 m^3)
Center of Gravity:	15.3" (389 mm)	14.7" (373 mm)



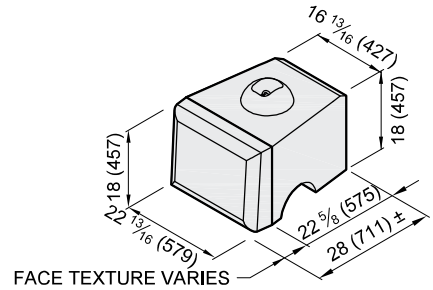
R-28M 28" (710mm) MIDDLE

Face Texture:	Cobble / Limestone	Kingstone / Ledgestone
Block Weight:	1610 lb (730 kg)	1540 lb (700 kg)
Block Volume:	11.28 ft^3 (0.319 m^3)	10.78 ft^3 (0.305 m^3)
Center of Gravity:	13.9" (354 mm)	13.4" (340 mm)



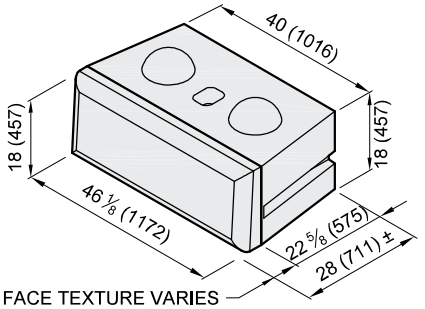
R-28HM 28" (710mm) HALF MIDDLE

Face Texture:	Cobble / Limestone	Kingstone / Ledgestone
Block Weight:	750 lb (340 kg)	710 lb (320 kg)
Block Volume:	5.23 ft^3 (0.148 m^3)	4.98 ft^3 (0.141 m^3)
Center of Gravity:	14.3" (364 mm)	13.8" (350 mm)



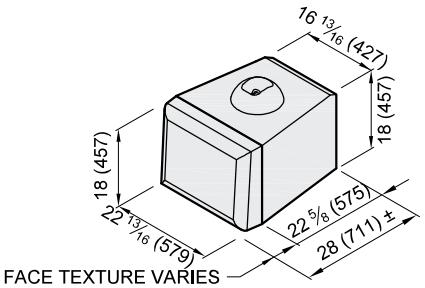
R-28B 28" (710mm) BOTTOM

Face Texture:	Cobble / Limestone	Kingstone / Ledgestone
Block Weight:	1740 lb (790 kg)	1670 lb (760 kg)
Block Volume:	12.19 ft^3 (0.345 m^3)	11.70 ft^3 (0.331 m^3)
Center of Gravity:	14.0" (355 mm)	13.5" (343 mm)



R-28HB 28" (710mm) HALF BOTTOM

Face Texture:	Cobble / Limestone	Kingstone / Ledgestone
Block Weight:	810 lb (370 kg)	770 lb (350 kg)
Block Volume:	5.66 ft^3 (0.160 m^3)	5.41 ft^3 (0.153 m^3)
Center of Gravity:	14.3" (364 mm)	13.8" (352 mm)



1. Units for dimensions are inches (mm), typical unless noted otherwise.
2. Block production varies with each licensed Redi-Rock manufacturer. Confirm availability before Specifying or Ordering.
3. Center of Gravity is measured from the back of block.
4. Actual block volumes and weights may vary.
5. Weights are based upon a concrete density of 143 lb/ft^3 (2291kg/m^3).
6. Half blocks contain a fork slot on only one side of the block.
7. Interface Shear knobs are typically 10" (254mm) diameter by 4" (102mm) tall. Smaller knob diameters are available.

ϕ = 30° | FINE TO MEDIUM SAND or SILTY SAND

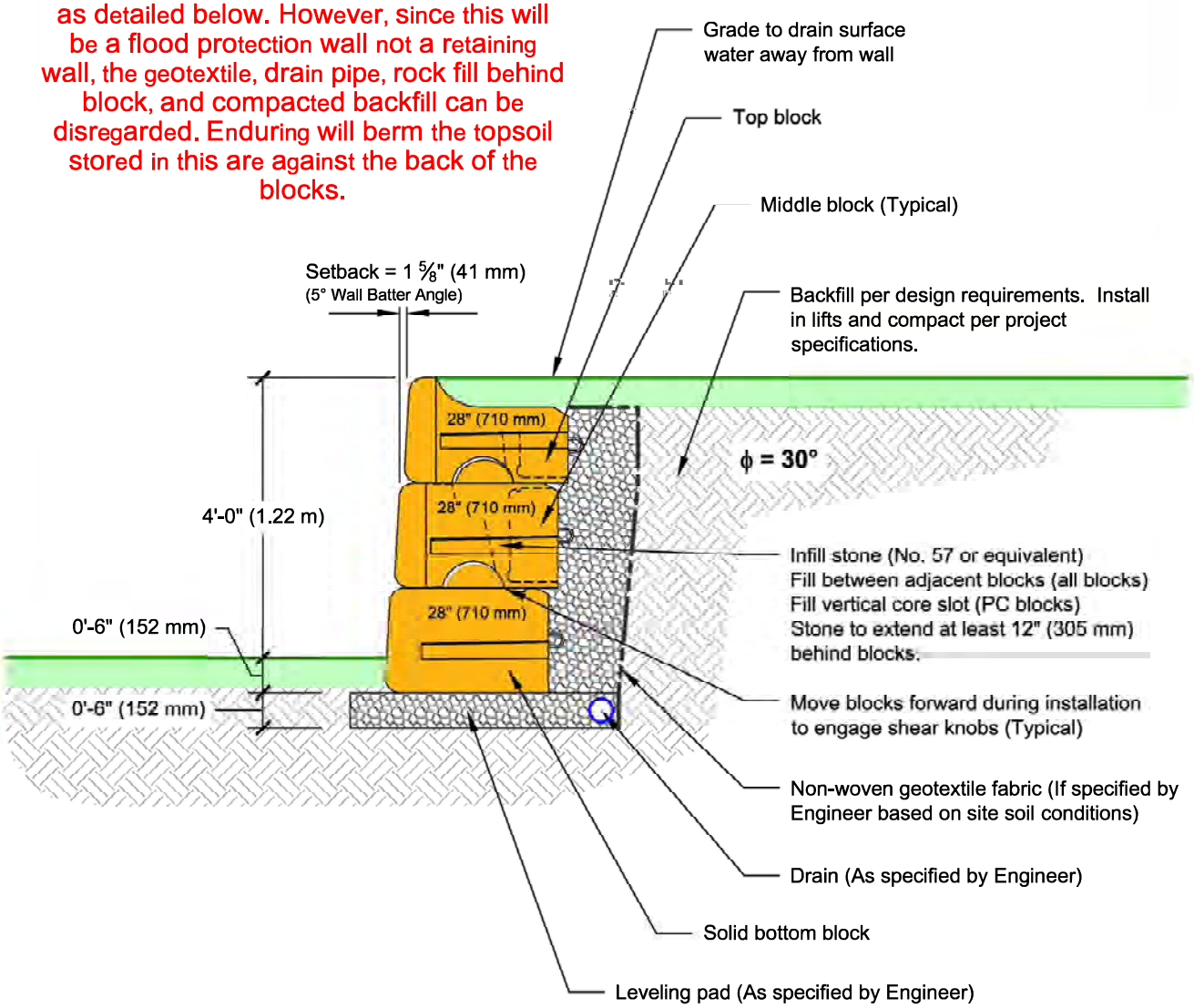
LOAD CONDITION A | NO LIVE LOAD SURCHARGE, NO BACK SLOPE, NO TOE SLOPE

3 BLOCK HIGH SECTION

(3) 28" (710 mm) Blocks

PRELIMINARY
Professional Engineering Design
Required for Construction

This diagram shows general construction details of a Redi-Rock wall 4' tall with 6" below grade. Enduring will construct the wall as detailed below. However, since this will be a flood protection wall not a retaining wall, the geotextile, drain pipe, rock fill behind block, and compacted backfill can be disregarded. Enduring will berm the topsoil stored in this are against the back of the blocks.



DRAWN BY:	C. Kruger	TITLE:	**Preliminary Wall Section**
APPROVED BY:	J. Johnson		Fine to Medium Sand or Silty Sand, ϕ = 30°
DATE:	June 8, 2015		No Live Load Surcharge, No Back Slope, No Toe Slope
SHEET:	1 of 1	FILE:	A_30_B_28_54_cad.dwg

REDI-ROCK
05481 US 31 SOUTH, CHARLEVOIX, MI 49720
(866) 222-8400 ext 3010 • engineering@redi-rock.com
www.redi-rock.com

Venegas, Victoria, EMNRD

From: Venegas, Victoria, EMNRD
Sent: Tuesday, May 27, 2025 2:29 PM
To: Heather Huntington; Casey Haga
Subject: 3RF-88 - NE LYBROOK 2306-06P WSW PAD [fVV2514749907].
Attachments: C-147 3RF-88 - NE LYBROOK 2306-06P WSW PAD [fVV2514749907].pdf

3RF-88 - NE LYBROOK 2306-06P WSW PAD [fVV2514749907].

Good afternoon Ms. Huntington.

NMOCD has reviewed the recycling containment permit application and related documents, submitted by [372286] ENDURING RESOURCES, LLC on 04/03/2025, Application ID 448435, for 3RF-88 - NE LYBROOK 2306-06P WSW PAD [fVV2514749907] in P-06-23N-06W, Rio Arriba County, New Mexico. [372286] ENDURING RESOURCES, LLC requested variances from 19.15.34 NMAC for 3RF-88 - NE LYBROOK 2306-06P WSW PAD [fVV2514749907].

The following variances have been approved:

- The variance to 19.15.34.12.A.(2) NMAC for the no side-slope requirement for the AST containment with vertical walls is approved.
- The variance to 19.15.34.12.A.(3) NMAC for the liners to be anchored to the top of the AST steel walls and no anchor trenches is approved.
- The variance to 19.15.34.12.A.(4) NMAC for the installation on the AST containment of a 40-mil non-reinforced LLDPE primary liner is approved. [372286] ENDURING RESOURCES, LLC proposes the use of a 40-mil LLDP E primary liner and 30-mil LLPDE secondary liner provided by Water Well Solutions and Rentals, Inc.
- [372286] ENDURING RESOURCES, LLC requests a variance to NMAC 19.15.34.12 (D)(l) and (2) which applies to fencing or enclosing the containment. The freestanding 12-foot wall height above grade ASTs will provide equal or better protection to public health and the environment, as the fencing requirements of NMAC 19.15.34.12 (D)(l) and (2). This variance is approved.
- [372286] ENDURING RESOURCES, LLC proposes to construct a 4-foot-tall flood wall along the interior perimeter of the location extending 20 feet beyond the 100-year floodplain boundary for added protection on the northeast and southwest corners of location. This variance is approved.

The form C-147 and related documents for 3RF-88 - NE LYBROOK 2306-06P WSW PAD [fVV2514749907] are approved with the following conditions of approval:

- The purpose of this permit is for oil and gas activities regulated under the NMAC 19.15.34.3 STATUTORY AUTHORITY: 19.15.34 NMAC is adopted pursuant to the Oil and Gas Act, Paragraph (15) of Section 70-2-12(B) NMSA 1978, which authorizes the division to regulate the disposition of water produced or used in connection with the drilling for or producing of oil and gas or both and Paragraph (21) of Section 70-2-12(B) NMSA 1978 which authorizes the regulation of the disposition of nondomestic wastes from the exploration, development, production or storage of crude oil or natural gas.
- 3RF-88 - NE LYBROOK 2306-06P WSW PAD [fVV2514749907] is approved for five years of operation from the date of permit application of 04/03/2025. 3RF-88 - NE LYBROOK 2306-06P WSW PAD [fVV2514749907] permit expires on 04/03/2030. If [372286] ENDURING RESOURCES, LLC wishes to extend operations past five years, an annual permit extension request must be submitted using an OCD form C-147 through OCD Permitting by 03/03/2030.
- 3RF-88 - NE LYBROOK 2306-06P WSW PAD [fVV2514749907] will consist of nine 60,000 barrels above ground storage tanks (AST) and two 43,000-barrel ASTs for a combined volume of 626,000 barrels. The

recycling facility will consist of up to (30) 400 bbl vertical frac tanks with a consolidated volume of 12,000 barrels to treat (mechanical and chemical reconditioning process) produced water for reuse.

- [372286] ENDURING RESOURCES, LLC must submit a “recycling facility” modification in the event the number of frac tanks exceeds the approved number of thirty (30) 400 bbl vertical frac tanks.
- Water reuse and recycling from 3RF-88 - NE LYBROOK 2306-06P WSW PAD [fVV2514749907] is limited to wells owned or operated by [372286] ENDURING RESOURCES, LLC per 19.15.34.15(A)(2) NMAC.
- [372286] ENDURING RESOURCES, LLC shall construct, operate, maintain, close, and reclaim 3RF-88 - NE LYBROOK 2306-06P WSW PAD [fVV2514749907] in compliance with NMAC 19.15.34 NMAC.
- [372286] ENDURING RESOURCES, LLC shall notify OCD, through OCD Permitting when construction of 3RF-88 - NE LYBROOK 2306-06P WSW PAD [fVV2514749907] commences.
- [372286] ENDURING RESOURCES, LLC shall notify NMOCD through OCD Permitting when recycling operations commence and cease at 3RF-88 - NE LYBROOK 2306-06P WSW PAD [fVV2514749907].
- A minimum 3-feet freeboard must be maintained at 3RF-88 - NE LYBROOK 2306-06P WSW PAD [fVV2514749907] at all times during operations.
- If less than 20% of the total fluid capacity is utilized every six months, beginning from the first withdrawal, operations of the 3RF-88 - NE LYBROOK 2306-06P WSW PAD [fVV2514749907] are considered ceased and a notification of cessation of operations should be sent electronically to OCD Permitting. A request to extend the operations, not to exceed six months, may be submitted using a C-147 form through OCD Permitting. If after that 6-month extension period, the 3RF-88 - NE LYBROOK 2306-06P WSW PAD [fVV2514749907] is not utilized at a minimum of 20% fluid capacity, no additional extensions would be granted, and the operator would be directed to remove all fluids and proceed with the closure requirements.
- [372286] ENDURING RESOURCES, LLC shall submit monthly reports of recycling and reuse of produced water, drilling fluids, and liquid oil field waste on OCD form C-148 via OCD Permitting even if there is zero activity.
- [372286] ENDURING RESOURCES, LLC shall inspect the recycling containment and associated leak detection systems weekly while it contains fluids. The operator shall maintain a current log of such inspections and make the log available for review by the division upon request according to 19.15.34.13.A.
- [372286] ENDURING RESOURCES, LLC shall comply with 19.15.29 NMAC Releases in the event of any release of produced water or other oil field waste at 3RF-88 - NE LYBROOK 2306-06P WSW PAD [fVV2514749907].

Please reference number 3RF-88 - NE LYBROOK 2306-06P WSW PAD [fVV2514749907] in all future communications.
Regards,

Victoria Venegas ● Environmental Specialist Advanced
EMNRD - Oil Conservation Division
506 W. Texas Ave. Artesia, NM 88210
575.909.0269 | Victoria.Venegas@emnrd.nm.gov

Sante Fe Main Office
Phone: (505) 476-3441

General Information
Phone: (505) 629-6116

Online Phone Directory
https://www.emnrd.nm.gov/ocd/contact-us

State of New Mexico
Energy, Minerals and Natural Resources
Oil Conservation Division
1220 S. St Francis Dr.
Santa Fe, NM 87505

CONDITIONS

Operator: ENDURING RESOURCES, LLC 6300 S Syracuse Way Centennial, CO 80111	OGRID: 372286
	Action Number: 448435
	Action Type: [C-147] Water Recycle Long (C-147L)

CONDITIONS

Created By	Condition	Condition Date
vvenegas	3RF-88 - NE LYBROOK 2306-06P WSW PAD [fVV2514749907] permit expires on 04/03/2030. If [372286] ENDURING RESOURCES, LLC wishes to extend operations past five years, an annual permit extension request must be submitted using an OCD form C-147 through OCD Permitting by 03/03/2030. • [372286] ENDURING RESOURCES, LLC shall construct, operate, maintain, close, and reclaim 3RF-88 - NE LYBROOK 2306-06P WSW PAD [fVV2514749907] in compliance with NMAC 19.15.34 NMAC. • [372286] ENDURING RESOURCES, LLC shall comply with 19.15.29 NMAC Releases in the event of any release of produced water or other oil field waste at 3RF-88 - NE LYBROOK 2306-06P WSW PAD [fVV2514749907].	5/27/2025