May 2023
Revised July 2023

Rule 34 Registration: Volume 1
Dagger Recycling Facility & Containments
Section 14 T19S, R25E, Eddy County

- ***Transmittal Letter***
- ***Siting Criteria Demonstration with Plates & Appendices***

View east from southeast corner of Dagger Recycling Project area showing nature of landscape.

Prepared for:
Silverback Operating II, LLC
San Antonio, Texas

Prepared by:

R.T. Hicks Consultants, Ltd.
901 Rio Grande NW F-142
Albuquerque, New Mexico

Cascade Services, LLC
4400 N Big Spring Street #114
Midland, TX 79705

R. T. HICKS CONSULTANTS, LTD.

901 Rio Grande Blvd NW ▲ Suite F-142 ▲ Albuquerque, NM 87104 ▲ 505.266.5004 ▲ Since 1996

July 10, 2023

Ms. Victoria Venegas
NMOCD - District 2
811 S. First St.
Artesia, NM 88210
Via E-Mail

RE: Silverback Operating II, LLC, Dagger Recycling Facility and Containments
Section 14 T19S, R25E, Eddy County

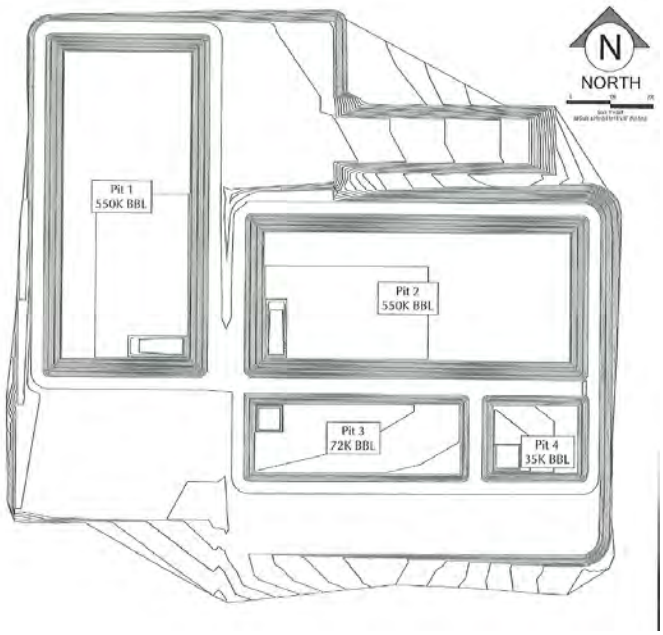
Dear Ms. Venegas:

On behalf Silverback Operating II, LLC, R.T. Hicks Consultants is pleased to submit a *REVISED* C-147 *registration* (Volumes 1 and 2) for the above-referenced project. The submission complies with the mandates of Rule 34 and no variances are required. Thus, Silverback can use these containments without OCD approval and plans to do so, beginning tomorrow.

This submission updates the June 2, 2023 registration for Containment #2. Except for this cover letter, Volume 1 is verbatim from June. Our examination of the as-built drawings shows that the project area shown in the Plates of Volume 1 include all four containments.

Volume 2 includes the following additions:

1. As-built drawings, a portion of which is below, shows:
    a. Pit #2, the original (northern) containment that is the subject of the June 2023 registration
    b. Containment (Pit) #1, which is the same design as southern containment presented in the engineering plans submitted with the June 2023 registration – but is located west and north of Containment (pit) #2 as shown.
    c. Containments #3 and #4, south of Containment #2, obviate the need for an AST and are also constructed in the same manner as described in June 2023 for Containment (pit) #2.



2. The letter from RR Contracting LLC that follows this transmittal letter attests that all four containments were designed and constructed using the same protocols as presented in the June 2023 registration package. Because the as-built drawings did not include the notes and design details as the April 2023 design package, the letter from RR Contacting ties the two sets of drawings together.

Silverback will transmit the registration package to OCD via the OCD.Online portal. In compliance with 19.15.34.10 of the Rule, this submission is copied to Silverback II LLC, the surface owner.

No variances from the Rule are necessary for the Dagger in-ground containment as Volumes 1 and 2 demonstrates compliance with all mandates of the Rule. Since the adjacent recycling facility will supply treated water to the Dagger in-ground Containment, it meets the criteria of 19.15.34.9.B.7, the recycling facility also requires registration. Thus, the Rule does not require approval by OCD in advance of using the in-ground containment.

This submission refers to the following elements that some OCD reviewers have considered variances:

1. An equivalency demonstration written by experts for the proposed 40-mil HDPE secondary liner has been previously approved by OCD. We maintain that the language of the Rule is clear, and a variance is not required. The previously submitted equivalency demonstration is lengthy and we can submit it under separate cover if requested by OCD.
2. OCD has approved the proposed Avian Protection Plan (Bird-X Mega Blaster Pro) for other containments. Thus, the plan meets the requirement of the rule that the "otherwise protective of wildlife, including migratory birds" and a variance is not required.
3. Using the proposed deer fence in lieu of a 4-strand barbed wire fence is not a variance. Because feral pigs, javelina and deer are present in the area, a fence is required to comply with Section 19.15.34.12 D.1 of the Rule. The specification for fencing provided in 19.15.34.12 D.2 contradicts D.1 because pigs will move beneath the lower strand of a 4-foot high barbed wire fence and deer will jump over. Thus, compliance with D.2 results in a violation of D.1. We maintain that compliance with D.1 is the critical component of the Rule and operators need not be required to submit a variance request to follow Best Management Practices and comply with the Rule. Nevertheless, Silverback will attach 4 strands of barbed wire to the game fence if required by OCD.

This registration package applies to all in-ground containment shown in the as-built drawings. No AST Containment is planned for this project. If you have any questions or concerns regarding this permit or the attached C-147, please contact me. As always, we appreciate your work ethic and diligence.

Sincerely,
R.T. Hicks Consultants

Randall T. Hicks PG
Principal

Copy: Silverback Operating II, LLC

PO Box 126 Leesville, TX 78122

Chris Robinson
210-649-9628

Travis Robinson
210-748-8547

July 10, 2023

Ms. Crain:

As Cascade Services, Silverback Operating and OCD are aware, hard bedrock required relocation of the proposed large southern containment to the west. Silverback also elected to construct two smaller containments in a portion of the area originally proposed for the southern containment in lieu of an AST.

This letter affirms that RRC LLC complied with all of the engineering requirements set forth in the April 11, 2023 engineering drawings and notes for all four containments (labeled "pits" in the July 10, 2023 as-built drawings). Additionally, RRC LLC complied with the construction elements of the Design/Construction Plan that follows the stamped drawings in the registration.

Travis Robinson

Travis Robinson, Operations Manager

RR Contracting, LLC

SITING CRITERIA DEMONSTRATION

Distance to Groundwater

Plate 1, Plate 2, and the discussion below demonstrates that groundwater (fresh water as defined by NMOCD Rules) at the location is greater than 50 feet beneath the area of interest that will include the Silverback Exploration Containments.

Plate 1 is a topographic map that shows:

1. The area in which the Dagger Recycling Facility Containments will be placed is identified by the blue stippled polygon.
2. Water wells from the OSE database as a blue triangle inside colored circles. OSE wells are often mislocated in the WATERS database as older wells are plotted in the center of the quarter, quarter, quarter, of the Section Township and Range. Additionally, the OSE database can include locations of proposed wells (i.e., permit applications). The permit data generally show "no date" and "DTW=0" as data. Plate 1 has screened the OSE data and eliminated permit information locations. Note that depth to water data for the OSE wells do not represent static water levels and can be misleading.
3. Water wells from the USGS database as large triangles color-coded to the formation from which the well draws water. Depth to water and the date of measurement are presented in the Plate.
4. Water wells, which are not documented in the public databases but were identified by field inspection or other published reports as colored squares (Misc. well database.

Field inspection found that USGS-9499, USGS-9467 and Misc-390 are the same well. Misc-390 is the location for all three measurements indicated on Plate 1. This well is less than 1 mile northwest of the Dagger RF.

All wells measured in the first two decades of the 20th Century (e.g., 1909, 1912) are no longer present. We hypothesize that private developers or the Federal government installed these artesian wells during the early life of the Carlsbad Irrigation Project. None of these well were found during the site inspection. A photograph of USGS-9215, which we believe is located adjacent to MISC-87, is presented in Appendix Site Photos.

Plate 2 is an area topographic and geologic map that shows:

1. The recycling facility identified by the blue stippled polygon with the surface elevation noted.
2. Water wells measured by the USGS, the year of the measurement and the calculated elevation of the groundwater surface.
3. Water wells measured by professionals and documented in published reports or by staff of Hicks Consultants (Misc.).

Plate 2 presents data from wells completed in the alluvial aquifer, which is the uppermost water-bearing zone. The artesian wells from the early 20th century are screened from the data set.

Hydrogeology

As shown in Plate 2, the Permian Artesia Group crops out about 1 mile east of the proposed Dagger Containments and Recycling Facility. The surface geology at the containment sites is

Quaternary Piedmont Deposits. Within the RF area, limestone bedrock crops out locally (see Appendix Site Photos). Most of the area is covered by a thin veneer of sand/soil.

Well RA-13210, located about ¾ mile due south of the RF, provides a good driller's log that shows the following relationships:

- The boring is dry to more than 59 feet below surface.
- Between 59 feet and 101 feet below grade, the boring penetrated saturated material.
- Two days after drilling ended, static groundwater is 83.7 feet below grade.
- At 34 feet below grade, the driller reports consolidated, reddish brown claystone, which we believe is probably Permian bedrock.
- The saturated zone from 80-101 feet is fine sand and clay, which is probably broken limestone units (described as sand) interbedded with clay horizons.

Geotechnical borings at the site do not exceed 25 feet in depth and thus do not reveal data on any saturated units. All boring logs and RA-13210 are in Appendix Well Logs & USGS Data.

Groundwater Data

Plate 2 presents groundwater elevation data closest to the Dagger Containments. Recent data from the following wells provide an excellent estimate of the groundwater surface elevation:

- MISC-390 is less than one mile northwest of the site. In March of 2023, the solar pump was quiet, and Hicks Consultants measured the depth to water in the well, yielding a water table elevation of 3335.8. The USGS measured this well in 2015 and reports a water table elevation of 3335. Historical data from this well is in Appendix Well Logs & USGS Data. Groundwater elevations have declined over time by about 15 feet over the past 30 years.
- USGS-9403 is about 1.5 miles due north of the Dagger facility. This well also shows a 15-foot decline of groundwater elevation over the past 30 years.
- Less than a mile south is MISC-391/RA-13210. As reported in the well log, static water in 2022 is 3334.3 feet above sea level.
- Three miles east of Dagger is a cluster of measurements, two of which are relatively recent. USGS-9326 records a 2005 groundwater elevation of 3275 and Misc-130 is an Interstate Stream Commission measurement in a well of 3264.3 feet asl in 2013.

The 2015 groundwater surface elevation 1.5 miles north of the Dagger RF and ¾ miles south a 2022 measurement of static groundwater is 3334. In 2015, USGS-9324, southwest of the RF, and USGS-9499 (aka MISC-390) report groundwater elevations of 3339 and 3335, respectively. Theses excellent data support a conclusion that the groundwater surface is higher than 3330 and lower than 3340.

Thus, the smallest distance between the groundwater surface (3340) and the bottom of an in-ground containment (3420-15= 3405) is (3405-3340=) 65 feet.

Distance to Municipal Boundaries and Fresh Water Fields

Plate 3 demonstrates that the Dagger RF and Containments are not within incorporated municipal boundaries or within defined municipal fresh water well fields covered under a municipal ordinance adopted pursuant to NMSA 1978, Section 3-27-3, as amended.

- The closest municipality is Atoka, approximately 7 miles northeast.
- The closest mapped public wells belong to the City of Carlsbad, more than 19 miles to the southeast.

Distance to Subsurface Mines

Plate 4 and our general reconnaissance of the Dagger RF and Containments demonstrate that the nearest mines are caliche pits. This location is not within an area overlying a subsurface mine.

- A caliche pit is more than 7 miles northeast

Distance to High or Critical Karst Areas

Plate 5 shows the Dagger RF and Containments are not within mapped zone of high or critical Karst with respect to BLM mapped areas.

- The proposed containments are located within a “medium” potential karst area.
- The nearest “high” potential karst area is located slightly more than 2 miles south.
- We observed no evidence of solution voids or unstable ground near the site during the field inspection.

Distance to 100-Year Floodplain

Plate 6 demonstrates that the Dagger RF and Containments are within Zone D as designated by the Federal Emergency Management Agency with respect to the Flood Insurance Rate 100-Year Floodplain.

- FEMA describes the location as an area with possible but undetermined flood hazards. No flood hazard analysis has been conducted.
- Our field inspection and examination of the topography permits a conclusion that the location is not within any floodplain and has low risk for flooding.
- The nearest mapped flood hazard is about 1/2 mile north and is associated with Fourmile Draw

Distance to Surface Water

Plate 7 shows the closest surface water bodies are beyond the setback requirements of Rule 34. Specifically:

- A Lake/Pond plots more than ¾ mile east of the Dagger RF and Containments.
- As suggested above, Fourmile Draw is the closest watercourse, about ½ mile north.
- A reservoir plots more than ¾ mile south of the RF.
- The site visit and photographs demonstrate that the recycling project area is not within 300 feet of a continuously flowing watercourse or 200-feet of any other significant watercourse, lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark) or spring.

Distance to Permanent Residence or Structures

Plate 8 and the site visit demonstrates that the location is not within 1000 feet from an occupied permanent residence, school, hospital, institution, church, or other structure in existence at the time of initial application.

- The nearest structures are tank batteries, well pads, ,pipelines and lease roads constructed after the date of the image in Plate 8.
- The closest residences are near wells RA-9295 and RA9293/94, nearly 4500 feet due east of the Dagger RF and Containments.
- The artesian wells shown on Plate 8 are no longer present and presumably are plugged and abandoned.

Distance to Non-Public Water Supply

Plates 1 and 7 demonstrate that the Dagger RF and Containments are not within 500 horizontal feet of a spring or fresh water well used for domestic or stock watering purposes, in existence at the time of initial application.

- Plate 1 shows the locations of all area water wells, active or plugged.
- There are no domestic water wells located within 1,000 feet of the area of interest.
- No springs were identified within the mapping area (see Plate 7)

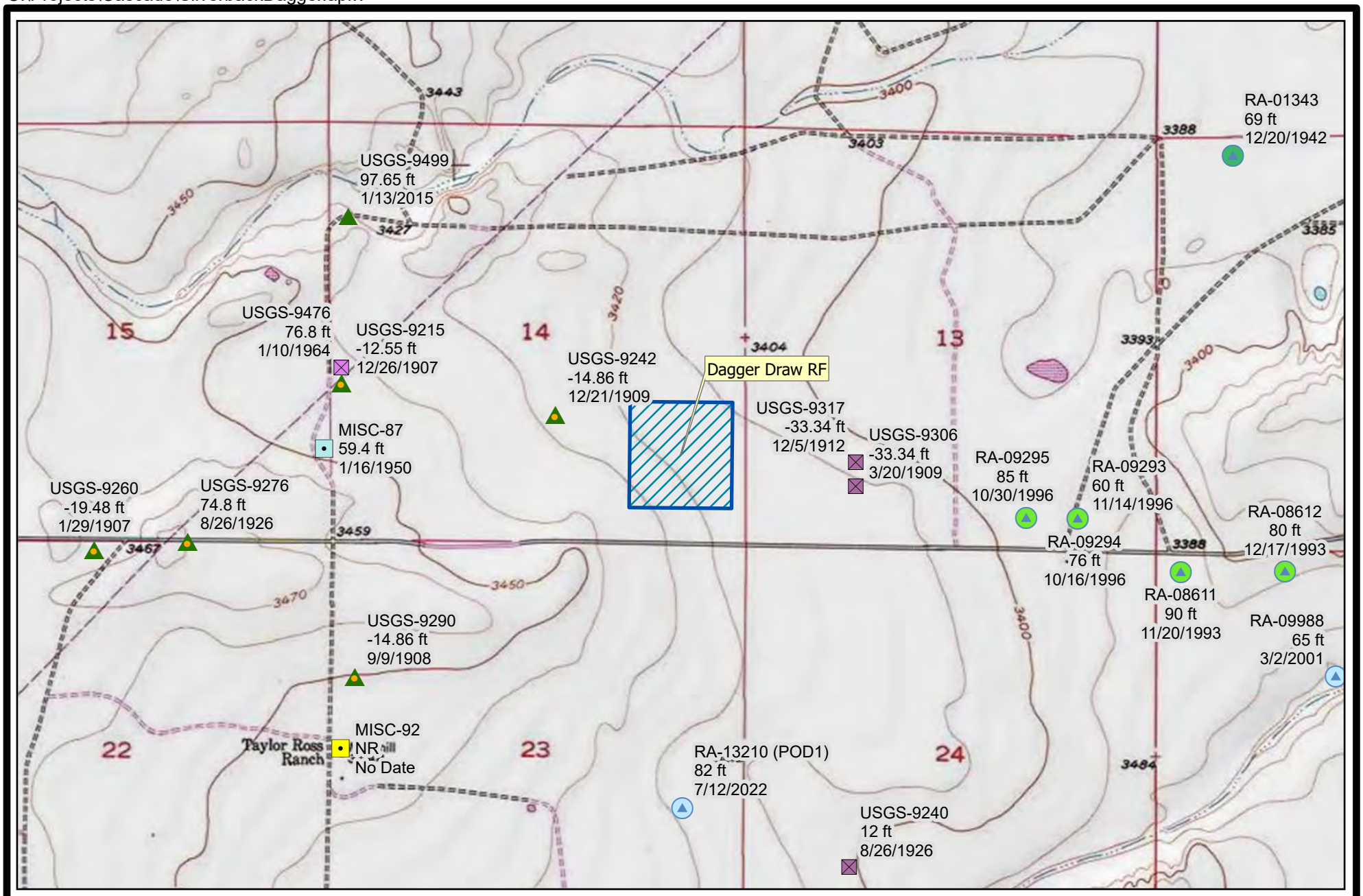
Distance to Wetlands

Plate 9 demonstrates the Dagger RF and Containments are not within 500 feet of mapped wetlands using the New Mexico database.

- The nearest designated wetland is 1.4 miles south and is associated with a windmill discharge.
- Surprisingly, no mapped wetlands are associated with surface water bodies presented in Plate 7.

SITING CRITERIA DEMONSTRATION PLATES

C:\Projects\Cascade\SilverbackDagger.aprx



N
W E
S

0 1,000 2,000 US Feet

R.T. Hicks Consultants, Ltd 901 Rio Grande Blvd NW Suite F-142 Albuquerque, NM 87104 Ph: 505.266.5004	Nearby Wells and Borings with Depth to Water	Plate 1
	Silverback - Dagger Draw Recycling Facility	February 2023

C:\Projects\Cascade\SilverbackDagger.aprx

polygon_spe

Recycling Containment Area

USGS Gauging Station (GW Elev, Date)

Aquifer Code, Well Status

Alluvium/Bolsom

Alluviu/Bolsom, Site was being pumped.

Artesia Group

313GRBG, <Null>

313GRBG, Site was being pumped.

313SADR, Other conditions existed that would affect the measured water level (explain in remarks).

OSE Water Wells (DTW/Date)

Well Depth (ft)

<=150

151-350

351-500

Misc. Water Wells (GW Elev, Date)

Well Depth (ft)

No Data

<= 150

NM_Geology

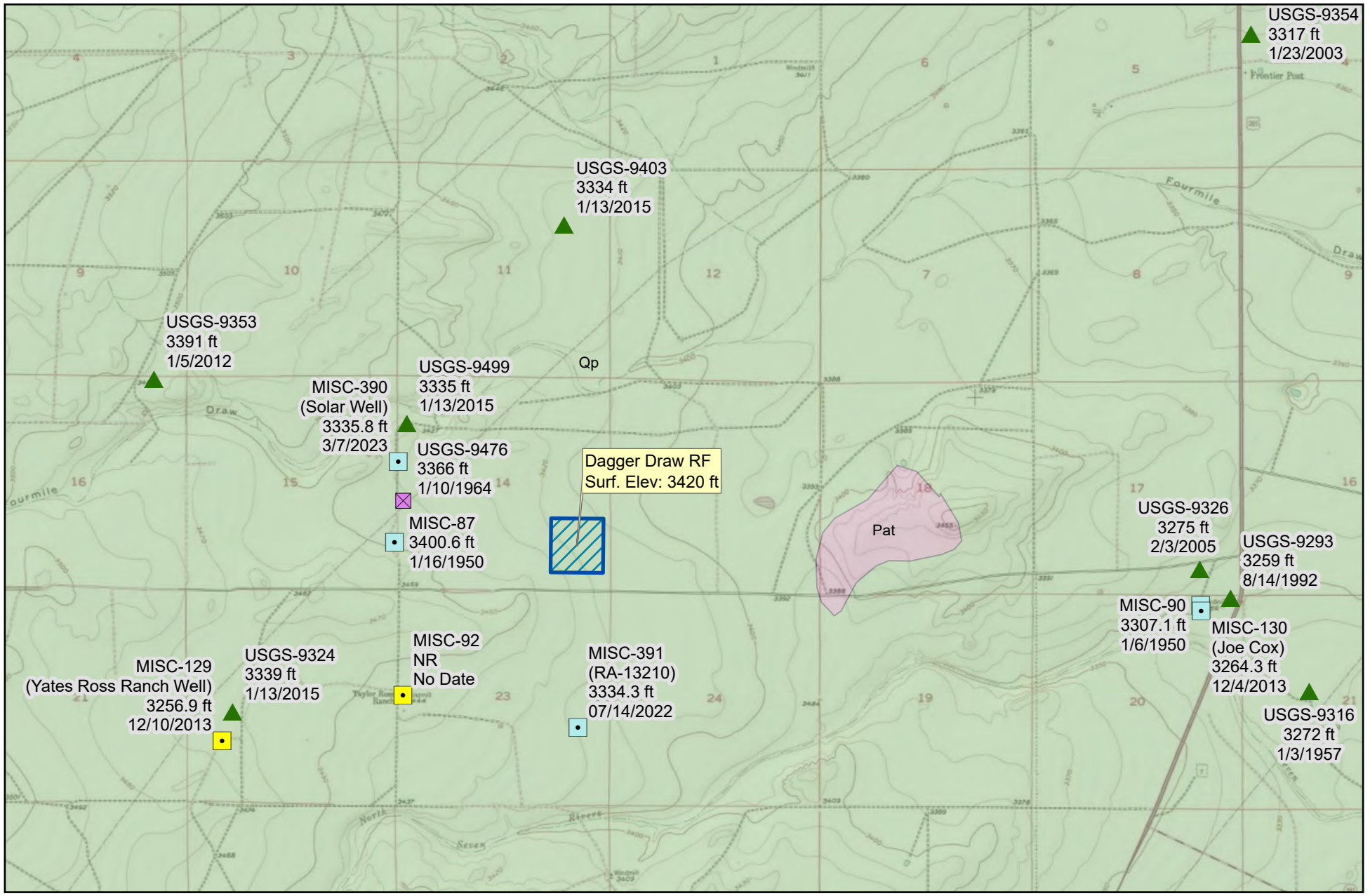
Map Unit,Description

Pat,Permian-Artesia Group; shelf facies forming south-southeast trending outcrop,Pat,Permian-Artesia Group; shelf facies forming south-southeast trending outcrop

Qp, Quaternary-Piedmont Alluvial Deposits,Qp, Quaternary-Piedmont Alluvial Deposits

R.T. Hicks Consultants, Ltd 901 Rio Grande Blvd NW Suite F-142 Albuquerque, NM 87104 Ph: 505.266.5004	Plates 1 & 2 Legend	
	Silverback - Dagger Draw Recycling Facility	February 2023

C:\Projects\Cascade\SilverbackDagger.aprx



N
W E
S

0 0.5 1 Miles

R.T. Hicks Consultants, Ltd
901 Rio Grande Blvd NW Suite F-142
Albuquerque, NM 87104
Ph: 505.266.5004

Groundwater Elevation & Geology
USGS and MISC Data

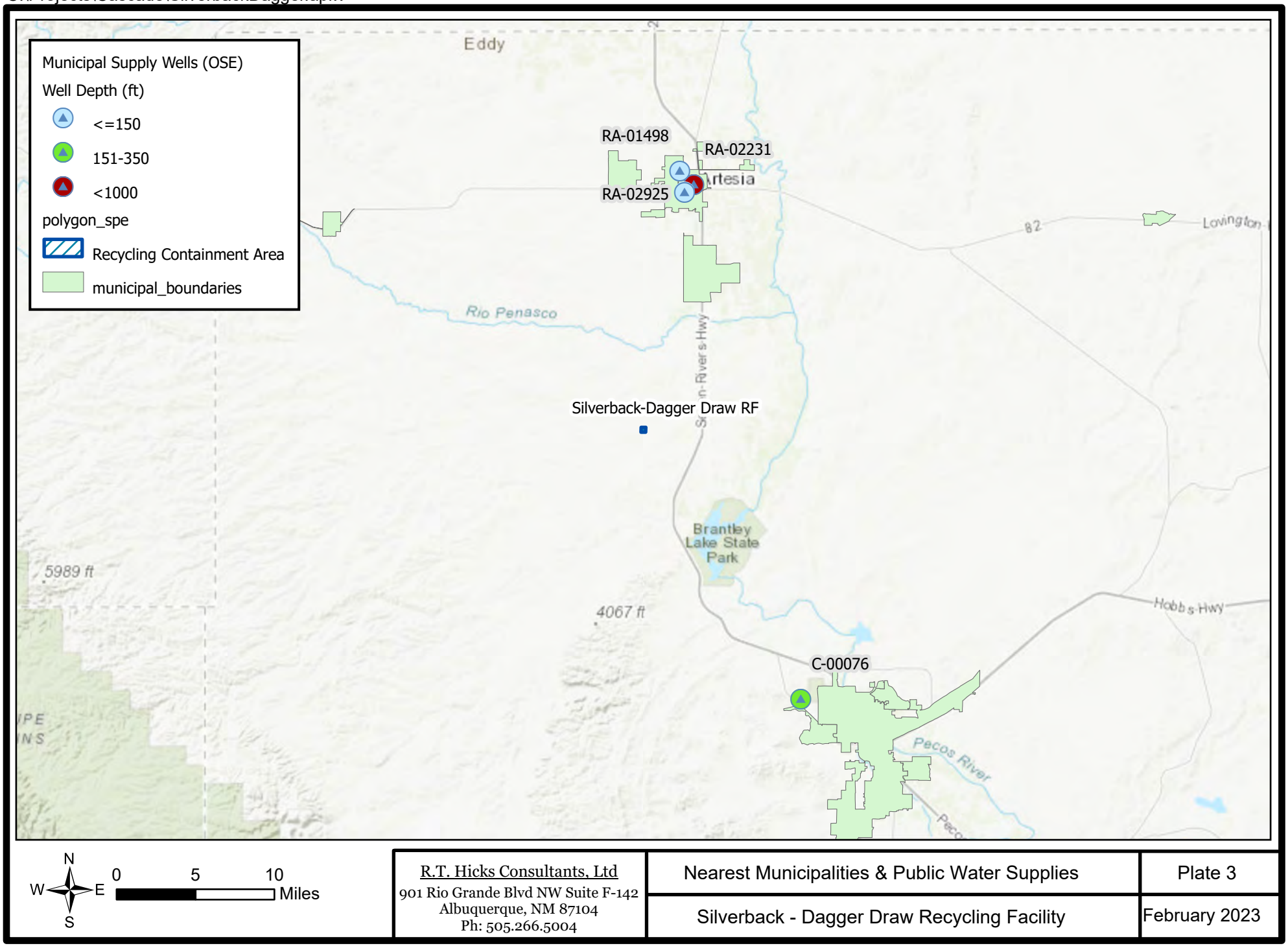
Plate 2

Silverback - Dagger Draw Recycling Facility

March 2023

Plate 3

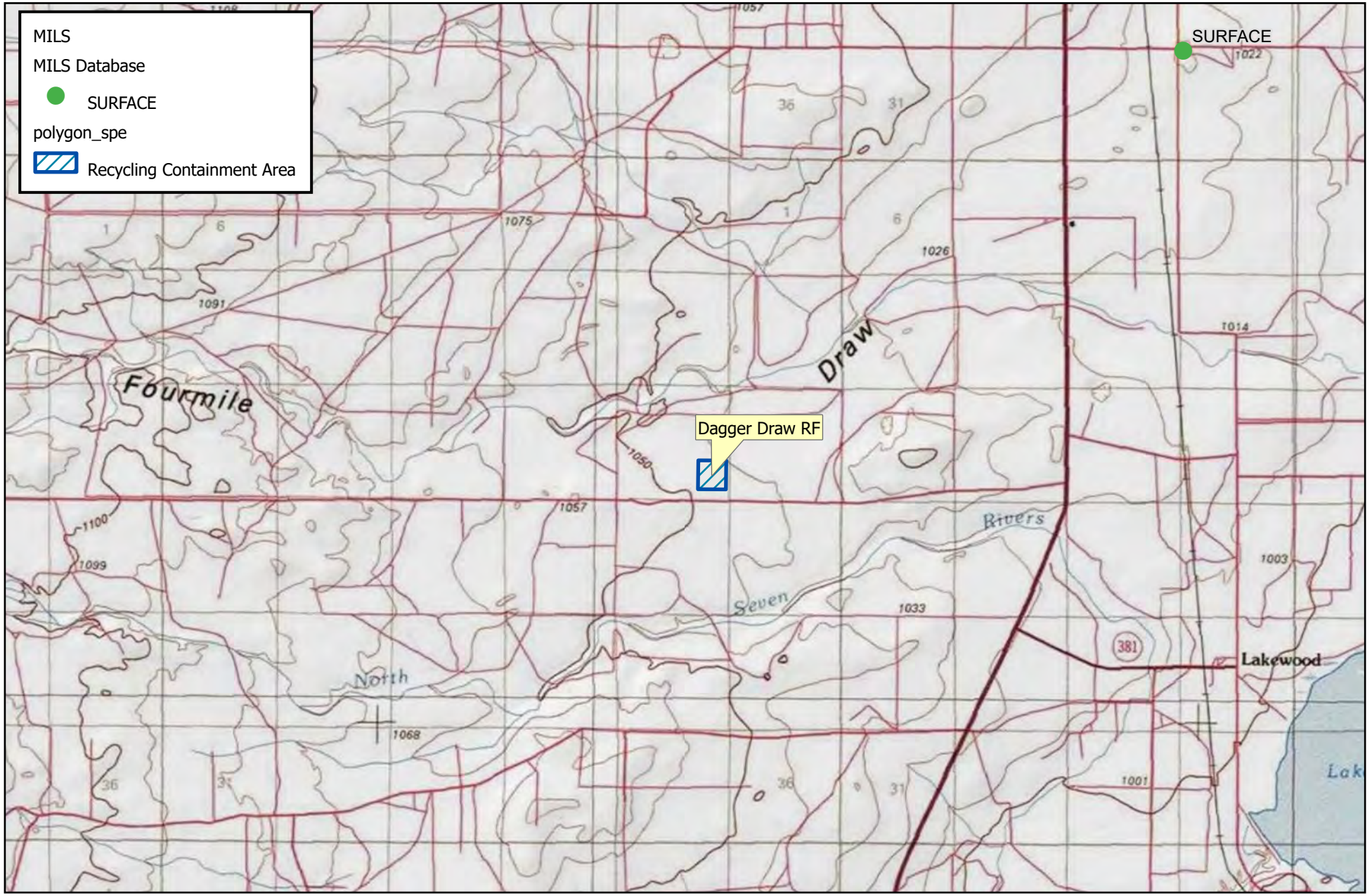
C:\Projects\Cascade\SilverbackDagger.aprx



R.T. Hicks Consultants, Ltd 901 Rio Grande Blvd NW Suite F-142 Albuquerque, NM 87104 Ph: 505.266.5004	Nearest Municipalities & Public Water Supplies	Plate 3
	Silverback - Dagger Draw Recycling Facility	February 2023

Plate 4

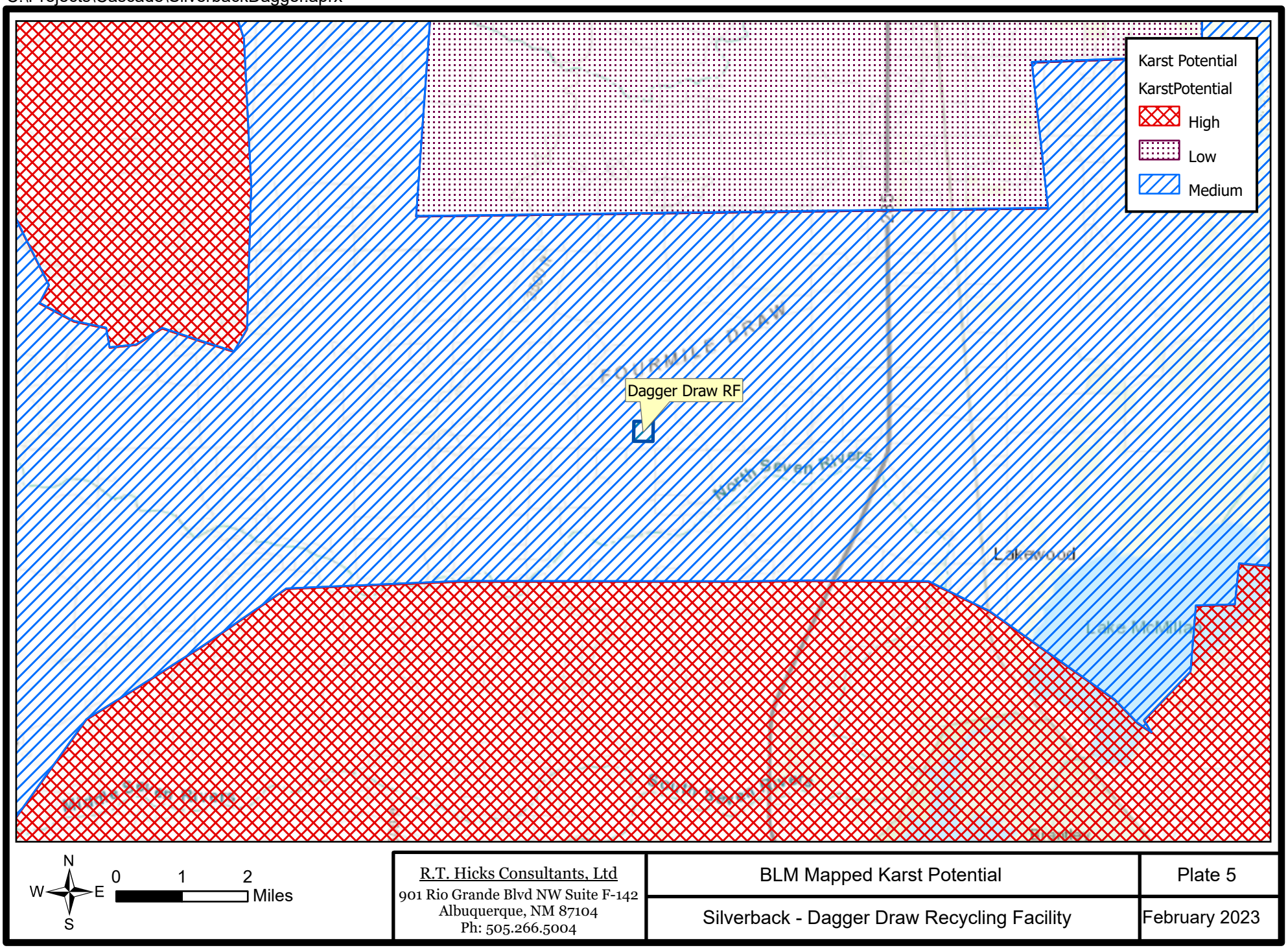
C:\Projects\Cascade\SilverbackDagger.aprx



R.T. Hicks Consultants, Ltd 901 Rio Grande Blvd NW Suite F-142 Albuquerque, NM 87104 Ph: 505.266.5004	Nearby Mines - Caliche Pits	Plate 4
	Silverback - Dagger Draw Recycling Facility	February 2023

Plate 5

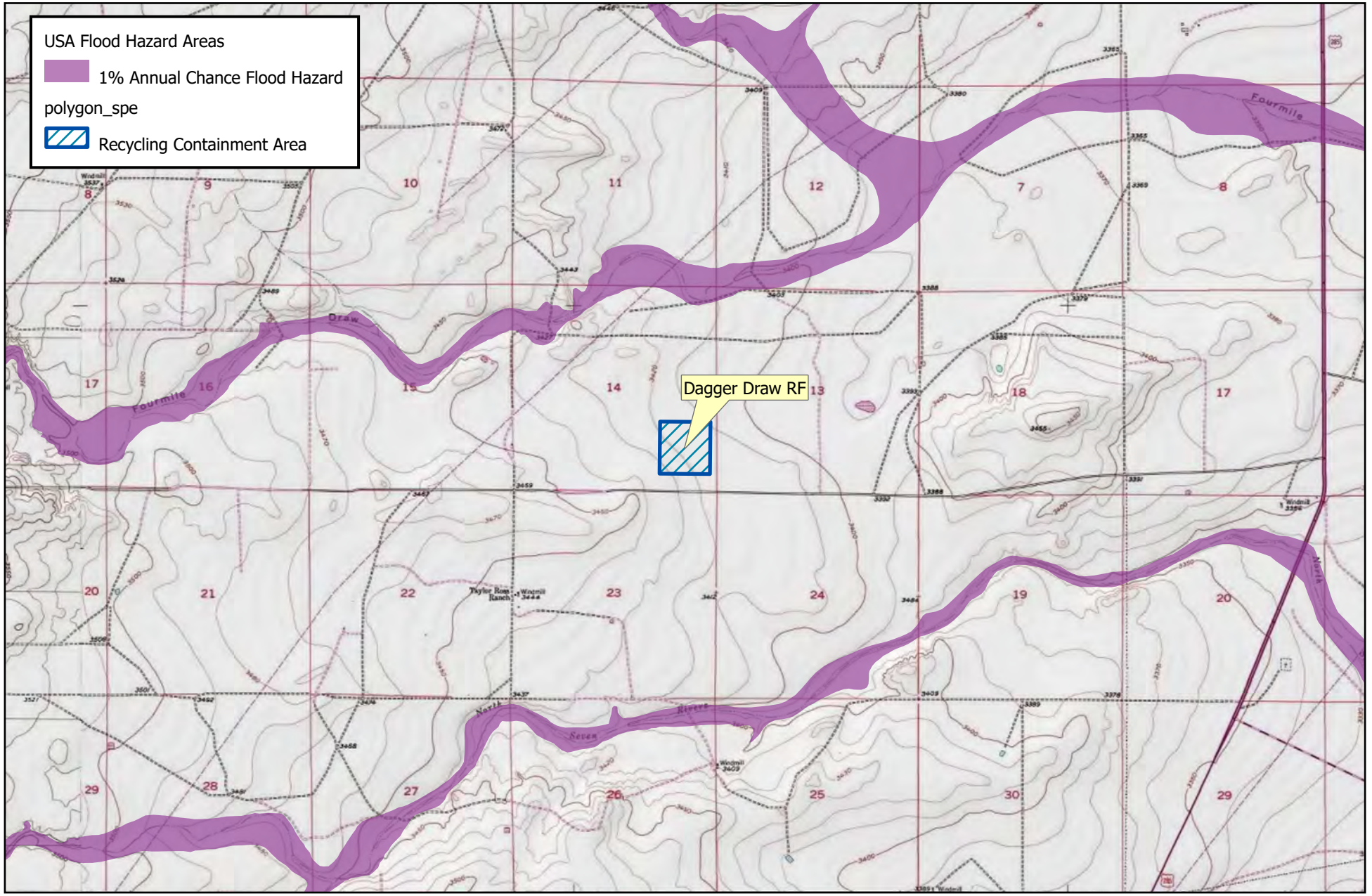
C:\Projects\Cascade\SilverbackDagger.aprx



R.T. Hicks Consultants, Ltd 901 Rio Grande Blvd NW Suite F-142 Albuquerque, NM 87104 Ph: 505.266.5004	BLM Mapped Karst Potential	Plate 5
	Silverback - Dagger Draw Recycling Facility	February 2023

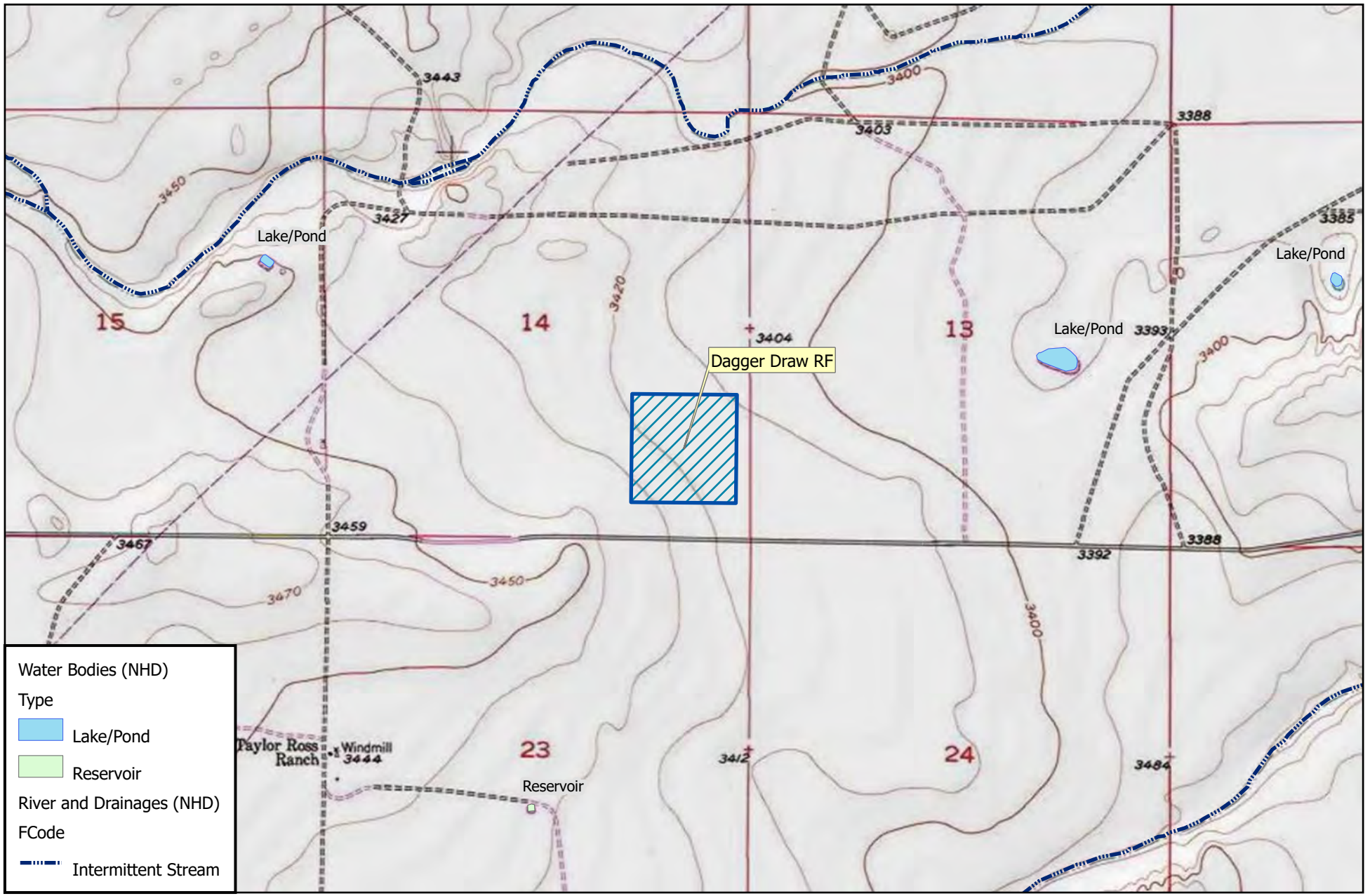
Plate 6

C:\Projects\Cascade\SilverbackDagger.aprx



R.T. Hicks Consultants, Ltd 901 Rio Grande Blvd NW Suite F-142 Albuquerque, NM 87104 Ph: 505.266.5004	FEMA Mapped Flood Zones	Plate 6
	Silverback - Dagger Draw Recycling Facility	February 2023

C:\Projects\Cascade\SilverbackDagger.aprx



R.T. Hicks Consultants, Ltd
901 Rio Grande Blvd NW Suite F-142
Albuquerque, NM 87104
Ph: 505.266.5004

Mapped Surface Water

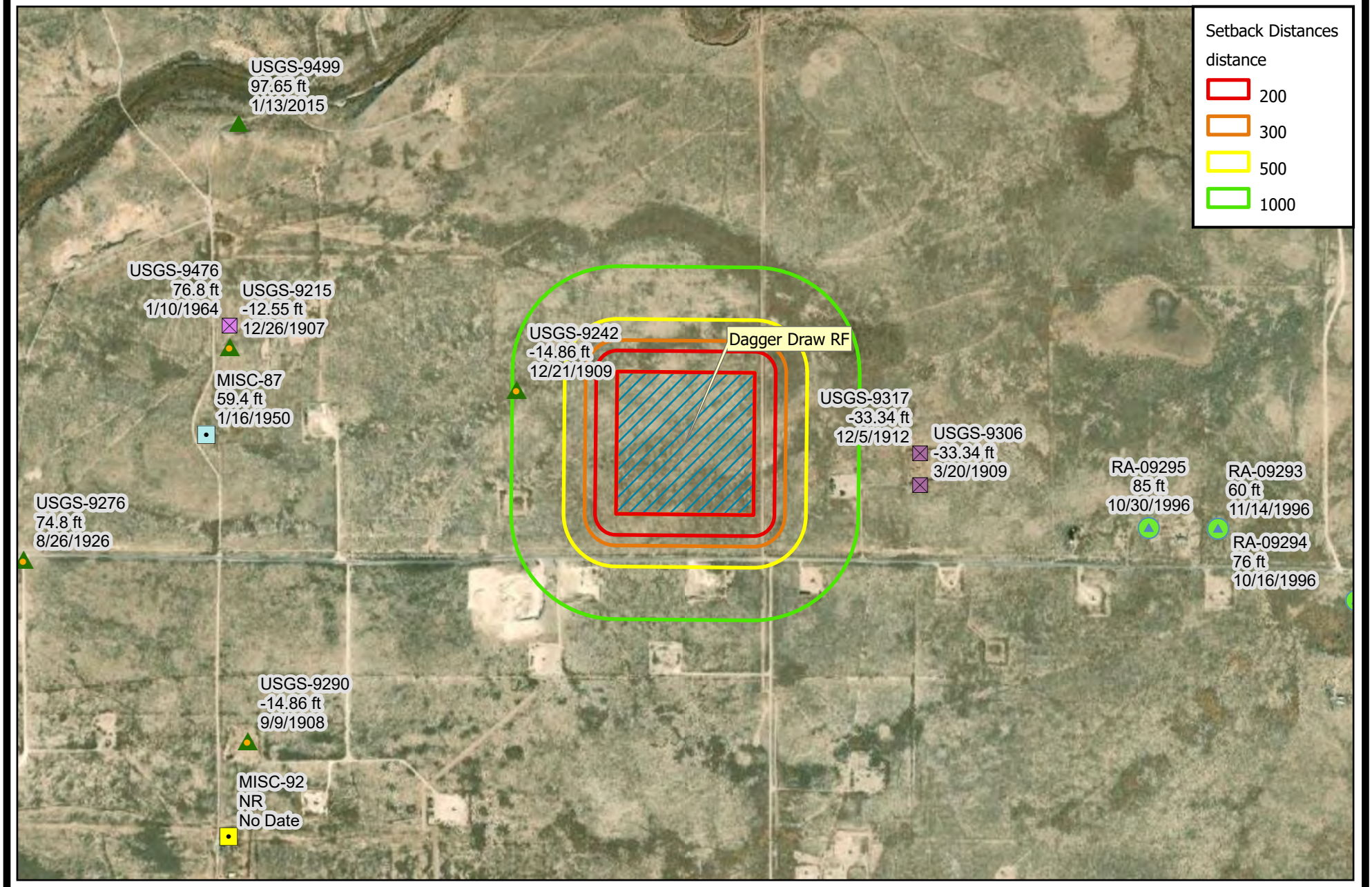
Plate 7

Silverback - Dagger Draw Recycling Facility

February 2023

Plate 8

C:\Projects\Cascade\SilverbackDagger.aprx



R.T. Hicks Consultants, Ltd
901 Rio Grande Blvd NW Suite F-142
Albuquerque, NM 87104
Ph: 505.266.5004

Nearest Structures & Wells

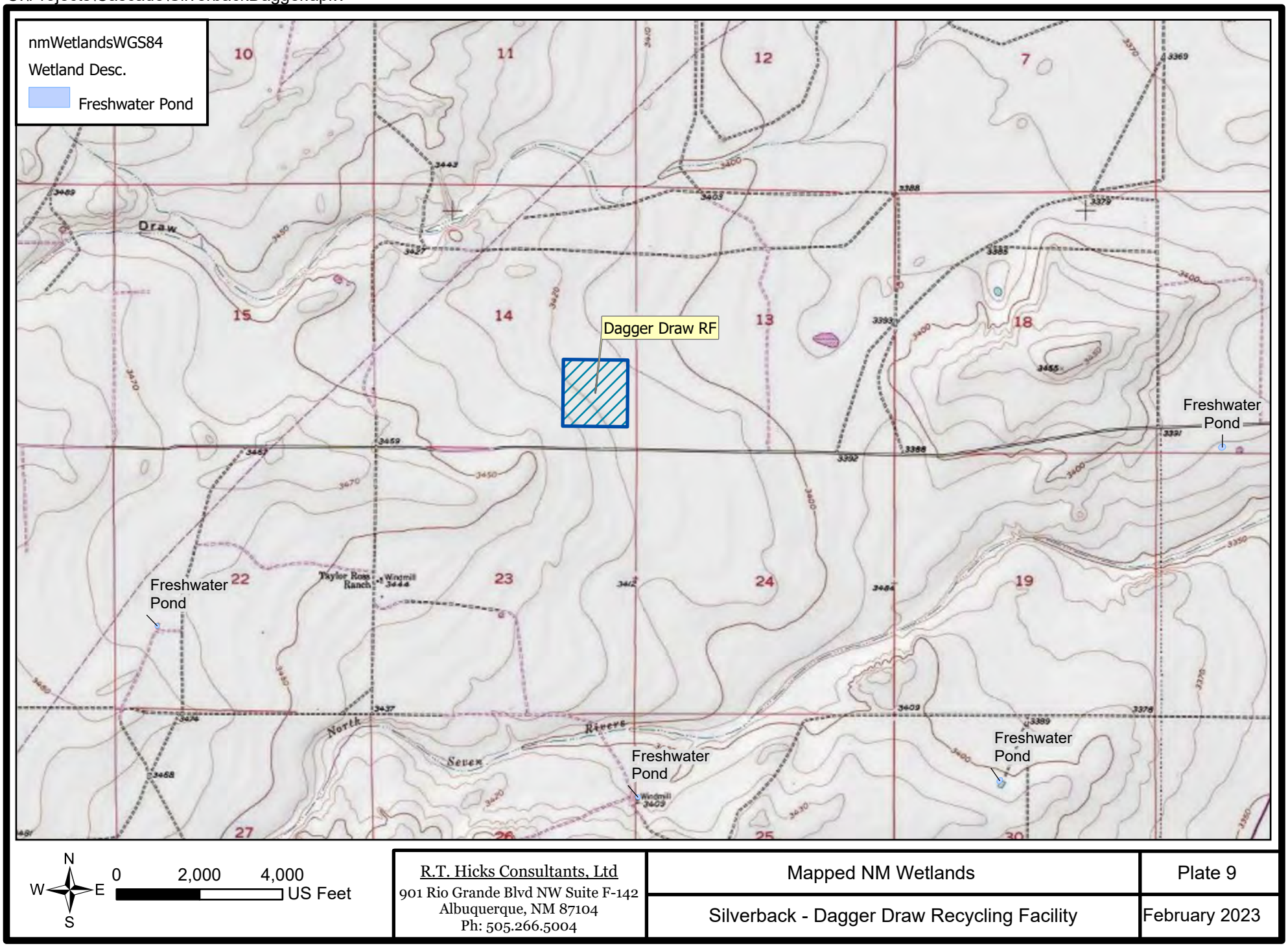
Plate 8

Silverback - Dagger Draw Recycling Facility

February 2023

Plate 9

C:\Projects\Cascade\SilverbackDagger.aprx



R.T. Hicks Consultants, Ltd 901 Rio Grande Blvd NW Suite F-142 Albuquerque, NM 87104 Ph: 505.266.5004	Mapped NM Wetlands	Plate 9
	Silverback - Dagger Draw Recycling Facility	February 2023

APPENDIX WELL LOGS & USGS DATA

WELL RECORD & LOG

OFFICE OF THE STATE ENGINEER

www.ose.state.nm.us

1. GENERAL AND WELL LOCATION

OSE POD NO. (WELL NO.)	WELL TAG ID NO.	OSE FILE NO(S).
POD-1	n/a	RA-13210

WELL OWNER NAME(S)	PHONE (OPTIONAL)
Spur Energy Partners LLC	

WELL OWNER MAILING ADDRESS	CITY	STATE	ZIP
919 Milam St Ste 2475	Houston	TX	77002

WELL LOCATION (FROM GPS)		DEGREES	MINUTES	SECONDS	
	LATITUDE	32	38	39.29	N
	LONGITUDE	104	26	57.69	W

* ACCURACY REQUIRED: ONE TENTH OF A SECOND
* DATUM REQUIRED: WGS 84

DESCRIPTION RELATING WELL LOCATION TO STREET ADDRESS AND COMMON LANDMARKS – PLSS (SECTION, TOWNSHJIP, RANGE) WHERE AVAILABLE

SE NE SE Sec. 23 T19S R25E, NMPM

2. DRILLING & CASING INFORMATION

LICENSE NO.	NAME OF LICENSED DRILLER	NAME OF WELL DRILLING COMPANY
1249	Jackie D. Atkins	Atkins Engineering Associates, Inc.

DRILLING STARTED	DRILLING ENDED	DEPTH OF COMPLETED WELL (FT)	BORE HOLE DEPTH (FT)	DEPTH WATER FIRST ENCOUNTERED (FT)
7/12/2022	7/12/2022	Soil Boring	±101	±82

COMPLETED WELL IS: ☐ ARTESIAN ☐ DRY HOLE ☑ SHALLOW (UNCONFINED)

STATIC WATER LEVEL IN COMPLETED WELL (FT): 83.7

DATE STATIC MEASURED: 7/14/2022

DRILLING FLUID: ☐ AIR ☐ MUD ADDITIVES – SPECIFY:

DRILLING METHOD: ☐ ROTARY ☐ HAMMER ☐ CABLE TOOL ☑ OTHER – SPECIFY: Hollow Stem Auger

CHECK HERE IF PITLESS ADAPTER IS INSTALLED ☐

DEPTH (feet bgl) FROM	DEPTH (feet bgl) TO	BORE HOLE DIAM (inches)	CASING MATERIAL AND/OR GRADE (include each casing string, and note sections of screen)	CASING CONNECTION TYPE (add coupling diameter)	CASING INSIDE DIAM. (inches)	CASING WALL THICKNESS (inches)	SLOT SIZE (inches)
0	101	±6.5	Soil Boring	--	--	--	--

OSE DII AUG 29 2022 AM 8:45

3. ANNULAR MATERIAL

DEPTH (feet bgl) FROM	DEPTH (feet bgl) TO	BORE HOLE DIAM. (inches)	LIST ANNULAR SEAL MATERIAL AND GRAVEL PACK SIZE-RANGE BY INTERVAL	AMOUNT (cubic feet)	METHOD OF PLACEMENT

FOR OSE INTERNAL USE

WR-20 WELL RECORD & LOG (Version 01/28/2022)

FILE NO. RA-13210	POD NO. 1	TRN NO. 729257	
LOCATION 19S.25E.23.3.2.4		WELL TAG ID NO. —	PAGE 1 OF 2

4. HYDROGEOLOGIC LOG OF WELL

DEPTH (feet bgl) FROM	DEPTH (feet bgl) TO	THICKNESS (feet)	COLOR AND TYPE OF MATERIAL ENCOUNTERED - INCLUDE WATER-BEARING CAVITIES OR FRACTURE ZONES (attach supplemental sheets to fully describe all units)	WATER BEARING? (YES / NO)	ESTIMATED YIELD FOR WATER-BEARING ZONES (gpm)
0	9	9	Sand, medium/fine grained, poorly graded, with clay, Brown	Y ✓ N	
9	24	15	Clay, with Sand, fine grained, poorly graded, Tan Brown	Y ✓ N	
24	34	10	Sand, medium/fine grained, poorly graded, with clay, Brown	Y ✓ N	
34	39	5	Claystone, Consolidated, Reddish Brown	Y ✓ N	
39	54	15	Sand, medium/fine grained, poorly graded, with clay, Reddish Brown	Y ✓ N	
54	59	5	Claystone, Consolidated, Reddish Brown	Y ✓ N	
59	101	42	Clay, medium plastic,with sand, fine grained, Tan Brown, moist	✓ Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	

METHOD USED TO ESTIMATE YIELD OF WATER-BEARING STRATA:

☐ PUMP ☐ AIR LIFT ☐ BAILER ☐ OTHER – SPECIFY:

TOTAL ESTIMATED WELL YIELD (gpm): 0.00

5. TEST; RIG SUPERVISION

WELL TEST: TEST RESULTS - ATTACH A COPY OF DATA COLLECTED DURING WELL TESTING, INCLUDING DISCHARGE METHOD, START TIME, END TIME, AND A TABLE SHOWING DISCHARGE AND DRAWDOWN OVER THE TESTING PERIOD.

MISCELLANEOUS INFORMATION: Drilled soil boring, landed temporary well material, collected water sample. Removed casing material, grouted from total depth to surface using augers as tremie Plugged using Type I/II neat cement (5.2 gallons per 94 lb. sack)

OSE DII AUG 29 2022 AM8:45

PRINT NAME(S) OF DRILL RIG SUPERVISOR(S) THAT PROVIDED ONSITE SUPERVISION OF WELL CONSTRUCTION OTHER THAN LICENSEE:

Shane Eldridge, Cameron Pruitt,

6. SIGNATURE

THE UNDERSIGNED HEREBY CERTIFIES THAT, TO THE BEST OF HIS OR HER KNOWLEDGE AND BELIEF, THE FOREGOING IS A TRUE AND CORRECT RECORD OF THE ABOVE DESCRIBED HOLE AND THAT HE OR SHE WILL FILE THIS WELL RECORD WITH THE STATE ENGINEER AND THE PERMIT HOLDER WITHIN 30 DAYS AFTER COMPLETION OF WELL DRILLING:

Jack Atkins — Jackie D. Atkins — 8/25/2022

SIGNATURE OF DRILLER / PRINT SIGNEE NAME — DATE

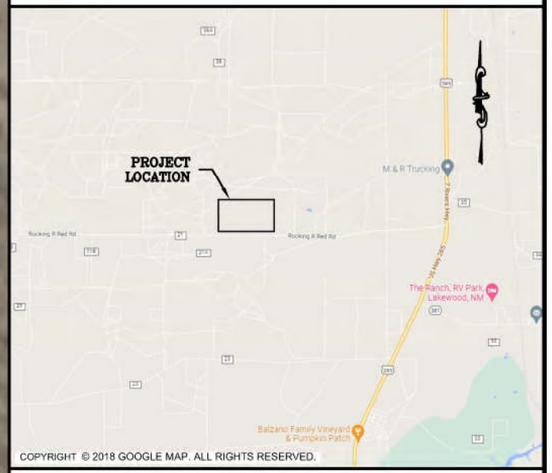
FOR OSE INTERNAL USE — WR-20 WELL RECORD & LOG (Version 01/28/2022)

FILE NO. RA-13210	POD NO. 1	TRN NO. 729257	
LOCATION 19S.25E.23.3.2.4		WELL TAG ID NO. —	PAGE 2 OF 2

APPENDIX A

BORING LOCATION PLAN

VICINITY MAP



TEST BORING COORDINATES

BORING	DEPTH	LATITUDE	LONGITUDE
B–1	25'	32° 39' 28.72" N	104° 27' 04.92" W
B–2	25'	32° 39' 29.07" N	104° 26' 51.70" W
B–3	25'	32° 39' 25.34" N	104° 26' 58.12" W
B–4	25'	32° 39' 17.89" N	104° 27' 04.78" W
B–5	25'	32° 39' 17.96" N	104° 26' 51.41" W

LEGEND

SYMBOL	DESCRIPTION
⊕	TEST BORING LOCATION
———	APPROX. POND BOUNDARY

Tolunay-Wong Engineers, Inc.

TEST BORING LOCATION PLAN
BOYD 40AC FRAC POND
SILVERBACK EXPLORATION
LIA ENERGY
EDDY COUNTY, NEW MEXICO

Drawn	*A.Q.*	*11–09–2022*
Checked	*N.H.*	*11–09–2022*
Approved	*P.R.*	*11–09–2022*
Scale	*N.T.S.*	

TWE DRAWING NO. 22.61.061–1

APPENDIX B

SOIL BORING LOGS AND A KEY TO
SYMBOLS AND TERMS USED ON THE LOGS

LOG OF BORING B-1

PROJECT: Boyd Frac Water Pond
Eddy County, New Mexico

CLIENT: LJA Engineering, Inc.
Beaumont, Texas

COORDINATES: N 32° 39' 28.72"
W 104° 27' 04.92"

SURFACE ELEVATION:

DRILLING METHOD:
Dry Augered: 0' to 25'
Wash Bored: -- to --

ELEVATION (FT) / DEPTH (FT)	SAMPLE TYPE	SYMBOL	MATERIAL DESCRIPTION	(P) POCKET PEN (tsf) (T) TORVANE (tsf)	STD. PENETRATION TEST BLOWCOUNT	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (pcf)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	LAB MINI VANE SHEAR (tsf)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN (%)	CONFINING PRESSURE (psi)	PASSING #200 SIEVE (%)	OTHER TESTS PERFORMED
0			Firm, brown LEAN CLAY with SAND (CL)		2/6" 2/6" 4/6"	11		32	18					77	
			-becomes very stiff, brown and white sand at 2.5'		5/6" 10/6" 10/6"										
5			Very stiff, brown and white SANDY FAT CLAY (CH)		7/6" 10/6" 12/6"	14		54	32					67	
			-becomes hard, reddish white at 6.5'		11/6" 18/6" 22/6"										
10			-becomes hard at 8.5'		15/6" 21/6" 38/6"	13		50	34					67	
					15/6" 23/6" 34/6"										
15			Hard, reddish white LEAN CLAY with SAND (CL)		9/6" 16/6" 35/6"	22								80	
20					50/0"										
25					50/0"										
			Bottom @ 25'												
30															
35															

COMPLETION DEPTH: 25 ft
DATE BORING STARTED: 10/19/2022
DATE BORING COMPLETED: 10/19/2022
LOGGER: Matthew C.
PROJECT NO.: 22.61.061

NOTES: Groundwater was not encountered during drilling. Borehole was backfilled with soil-cuttings.

TOLUNAY-WONG ENGINEERS, INC.

LOG OF BORING B-2

PROJECT: Boyd Frac Water Pond
Eddy County, New Mexico

CLIENT: LJA Engineering, Inc.
Beaumont, Texas

COORDINATES: N 32° 39' 29.07"
W 104° 26' 51.70"

SURFACE ELEVATION:

DRILLING METHOD:
Dry Augered: 0' to 25'
Wash Bored: -- to --

ELEVATION (FT) / DEPTH (FT)	SAMPLE TYPE	SYMBOL	MATERIAL DESCRIPTION	(P) POCKET PEN (tsf) (T) TORVANE (tsf)	STD. PENETRATION TEST BLOWCOUNT	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (pcf)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	LAB MINI VANE SHEAR (tsf)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN (%)	CONFINING PRESSURE (psi)	PASSING #200 SIEVE (%)	OTHER TESTS PERFORMED
0			Stiff, brown LEAN CLAY with SAND (CL)		3/6" 5/6" 4/6"										
					5/6" 9/6" 11/6"	8		34	21					79	
5					10/6" 11/6" 11/6"										
					10/6" 11/6" 14/6"	9		42	29					87	
			-becomes very stiff red and brown at 8.5'		11/6" 11/6" 13/6"										
10			-becomes hard at 10.5'		11/6" 13/6" 18/6"	11								76	
			-becomes hard, and reddish white at 13.5'		16/6" 33/6" 44/6"										
15															
					50/0"	16								81	
20															
					50/0"										
25			Bottom @ 25'												
30															
35															

COMPLETION DEPTH: 25 ft
DATE BORING STARTED: 10/19/2022
DATE BORING COMPLETED: 10/19/2022
LOGGER:
PROJECT NO.: 22.61.061

NOTES: Groundwater was not encountered during drilling. Borehole was backfilled with soil-cuttings.

TOLUNAY-WONG ENGINEERS, INC.

LOG OF BORING B-3

PROJECT: Boyd Frac Water Pond
Eddy County, New Mexico

CLIENT: LJA Engineering, Inc.
Beaumont, Texas

COORDINATES: N 32° 39' 25.34"
W 104° 26' 58.12"
SURFACE ELEVATION:
DRILLING METHOD:
Dry Augered: 0' to 25'
Wash Bored: -- to --

ELEVATION (FT) / DEPTH (FT)	SAMPLE TYPE	SYMBOL	MATERIAL DESCRIPTION	(P) POCKET PEN (tsf) (T) TORVANE (tsf)	STD. PENETRATION TEST BLOWCOUNT	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (pcf)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	LAB MINI VANE SHEAR (tsf)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN (%)	CONFINING PRESSURE (psi)	PASSING #200 SIEVE (%)	OTHER TESTS PERFORMED
0			Firm, brown LEAN CLAY with SAND (CL)		2/6" 3/6" 3/6"	10		28	15					79	
			-becomes stiff at 2.5'		4/6" 6/6" 6/6"										
5			Hard, brown and white SANDY LEAN CLAY (CL)		4/6" 18/6" 50/5"	10		31	13					70	
			-becomes red and white at 6.5'		50/4"										
10					20/6" 50/3"	16								60	
					50/5"										
15			Hard, red LEAN CLAY with SAND (CL)		20/6" 32/6" 50/5"	15		38	18					81	
20					31/6" 50/4"										
25					50/0"										
			Bottom @ 25'												
30															
35															

COMPLETION DEPTH: 25 ft
DATE BORING STARTED: 10/19/2022
DATE BORING COMPLETED: 10/19/2022
LOGGER: Matthew C.
PROJECT NO.: 22.61.061

NOTES: Groundwater was not encountered during drilling. Borehole was backfilled with soil-cuttings.

TOLUNAY-WONG ENGINEERS, INC.

LOG OF BORING B-4

PROJECT: Boyd Frac Water Pond
Eddy County, New Mexico

CLIENT: LJA Engineering, Inc.
Beaumont, Texas

COORDINATES: N 32° 39' 17.89"
W 104° 27' 0.78"

SURFACE ELEVATION:

DRILLING METHOD:
Dry Augered: 0' to 25'
Wash Bored: -- to --

ELEVATION (FT) / DEPTH (FT)	SAMPLE TYPE	SYMBOL	MATERIAL DESCRIPTION	(P) POCKET PEN (tsf) (T) TORVANE (tsf)	STD. PENETRATION TEST BLOWCOUNT	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (pcf)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	LAB MINI VANE SHEAR (tsf)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN (%)	CONFINING PRESSURE (psi)	PASSING #200 SIEVE (%)	OTHER TESTS PERFORMED
0			Soft, brown SANDY LEAN CLAY (CL)		1/6" 1/6" 3/6"	9		29	14					71	
			-becomes hard, brown and white at 2.5'		9/6" 50/5"										
5			-becomes reddish white at 4.5'		50/4"	11		40	20					53	
					50/5"										
10					31/6" 50/5"										
			Hard, reddish white LEAN CLAY with SAND (CL)		50/3"	19								81	
15					50/5"										
20					50/4"										
			Hard, reddish white SANDY LEAN CLAY (CL)		50/0"	19								70	
25			Bottom @ 25'												
30															
35															

COMPLETION DEPTH: 25 ft
DATE BORING STARTED: 10/19/2022
DATE BORING COMPLETED: 10/19/2022
LOGGER: Matthew C.
PROJECT NO.: 22.61.061

NOTES: Groundwater was not encountered during drilling. Borehole was backfilled with soil-cuttings.

TOLUNAY-WONG ENGINEERS, INC.

LOG OF BORING B-5

PROJECT: Boyd Frac Water Pond
Eddy County, New Mexico

CLIENT: LJA Engineering, Inc.
Beaumont, Texas

COORDINATES: N 32° 39' 17.98"
W 104° 26' 51.41"

SURFACE ELEVATION:

DRILLING METHOD:
Dry Augered: 0' to 25'
Wash Bored: -- to --

ELEVATION (FT) / DEPTH (FT)	SAMPLE TYPE	SYMBOL	MATERIAL DESCRIPTION	(P) POCKET PEN (tsf) (T) TORVANE (tsf)	STD. PENETRATION TEST BLOWCOUNT	MOISTURE CONTENT (%)	DRY UNIT WEIGHT (pcf)	LIQUID LIMIT (%)	PLASTICITY INDEX (%)	LAB MINI VANE SHEAR (tsf)	COMPRESSIVE STRENGTH (tsf)	FAILURE STRAIN (%)	CONFINING PRESSURE (psi)	PASSING #200 SIEVE (%)	OTHER TESTS PERFORMED
0			Very stiff, brown SANDY SILTY CLAY (CL-ML)		2/6" 7/6" 12/6"										
			Hard, brown LEAN CLAY with SAND (CL)		9/6" 15/6" 20/6"	17		38	20					80	
5					12/6" 19/6" 19/6"										
			Very stiff, red and brown SANDY LEAN CLAY (CL)		11/6" 13/6" 15/6"	10		44	29					69	
			-becomes hard, red and white at 8.5'		50/4"										
10					50/5"	21								68	
			-becomes white at 13.5'		50/1"										
15															
			-becomes reddish white at 18.5'		50/0"										
20															
25					17/6" 50/4"										
			Bottom @ 25'												
30															
35															

COMPLETION DEPTH: 25 ft
DATE BORING STARTED: 10/18/2022
DATE BORING COMPLETED: 10/18/2022
LOGGER: Matthew C.
PROJECT NO.: 22.61.061

NOTES: Groundwater was not encountered during drilling. Borehole was backfilled with soil-cuttings.

TOLUNAY-WONG ENGINEERS, INC.

KEY TO SYMBOLS AND TERMS USED ON BORING LOGS FOR SOIL

Most Common Unified Soil Classifications System Symbols

- Lean Clay (CL)
- Lean Clay w/ Sand (CL)
- Sandy Lean Clay (CL)
- Fat Clay (CH)
- Fat Clay w/ Sand (CH)
- Sandy Fat Clay (CH)
- Silty Clay (CL-ML)
- Sandy Silty Clay (CL-ML)
- Silty Clayey Sand (SC-SM)
- Clayey Sand (SC)
- Sandy Silt (ML)
- Silty Sand (SM)
- Silt w/ Sand (ML)
- Well Graded Sand (SW)
- Well Graded Sand w/ Gravel (SW-GM)
- Poorly Graded Sand (SP)
- Poorly Graded Sand w/ Silt (SP-SM)
- Silt (ML)
- Elastic Silt (MH)
- Elastic Silt w/ Sand (MH-SP)
- Silty Gravel (GM)
- Clayey Gravel (GC)
- Well Graded Gravel (GW)
- Well Graded Gravel w/ Sand (SP-GM)
- Poorly Graded Gravel (GP)
- Peat

Miscellaneous Materials

Fill, Concrete, Asphalt and/or Base

Sampler Symbols	Meaning
	Pavement core
	Thin - walled tube sample
	Standard Penetration Test (SPT)
	Auger sample
	Sampling attempt with no recovery
	TxDOT Cone Penetrometer Test

Field Test Data

2.50	Pocket penetrometer reading in tons per square foot
(T)1.13	Torvane Measurement in tons per square foot
8/6"	Blow count per 6 - in. interval of the Standard Penetration Test
	Observed free water during drilling
	Observed static water level

Laboratory Test Data

Wc (%)	Moisture content in percent
Dens. (pcf)	Dry unit weight in pounds per cubic foot
Qu (tsf)	Unconfined compressive strength in tons per square foot
UU (tsf)	Compressive strength under confining pressure in tons per square foot
Str. (%)	Strain at failure in percent
LL	Liquid Limit in percent
PI	Plasticity Index
#200 (%)	Percent passing the No. 200 mesh sieve
( )	Confining pressure in pounds per square inch
*	Slickensided failure
**	Did not fail @ 15% strain

RELATIVE DENSITY OF COHESIONLESS & SEMI-COHESIONLESS SOILS

The following descriptive terms for relative density apply to cohesionless soils such as gravels, silty sands, and sands as well as semi-cohesive and semi-cohesionless soils such as sandy silts, and clayey sands.

Relative Density	Typical N_{60} Value Range*
Very Loose	0-4
Loose	5-10
Medium Dense	11-30
Dense	31-50
Very Dense	Over 50

* N_{60} is the number of blows from a 140-lb weight having a free fall of 30-in. required to penetrate the final 12-in. of an 18-in. sample interval, corrected for field procedure to an average energy ratio of 60% (Terzaghi, Peck, and Mesri, 1996).

CONSISTENCY OF COHESIVE SOILS

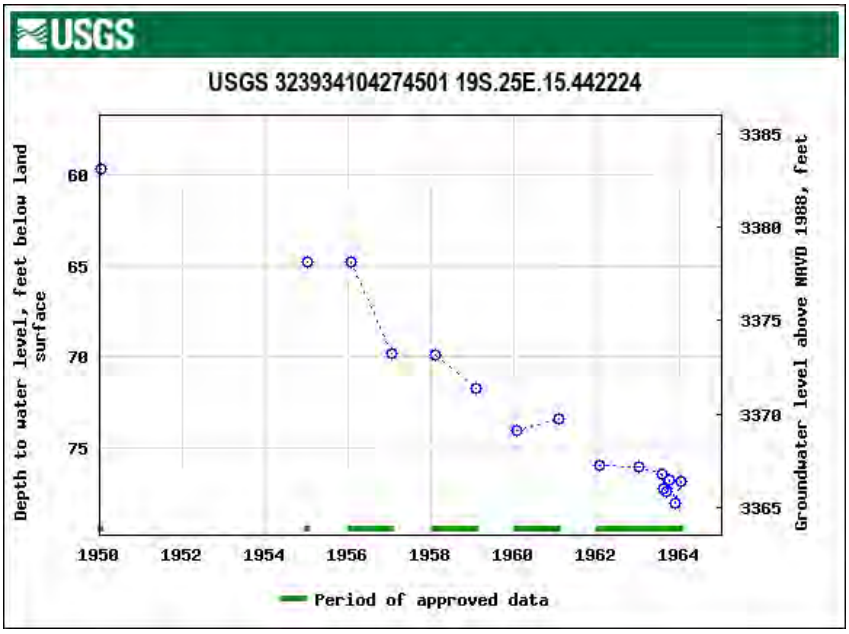
The following descriptive terms for consistency apply to cohesive soils such as clays, sandy clays, and silty clays.

Typical Compressive Strength (tsf)	Consistency	Typical SPT "N_{60}" Value Range**
$q_u < 0.25$	Very soft	≤ 2
$0.25 \leq q_u < 0.50$	Soft	3-4
$0.50 \leq q_u < 1.00$	Firm	5-8
$1.00 \leq q_u < 2.00$	Stiff	9-15
$2.00 \leq q_u < 4.00$	Very Stiff	16-30
$q_u \geq 4.00$	Hard	≥ 31

** An "N_{60}" value of 31 or greater corresponds to a hard consistency. The correlation of consistency with a typical SPT "N_{60}" value range is approximate.

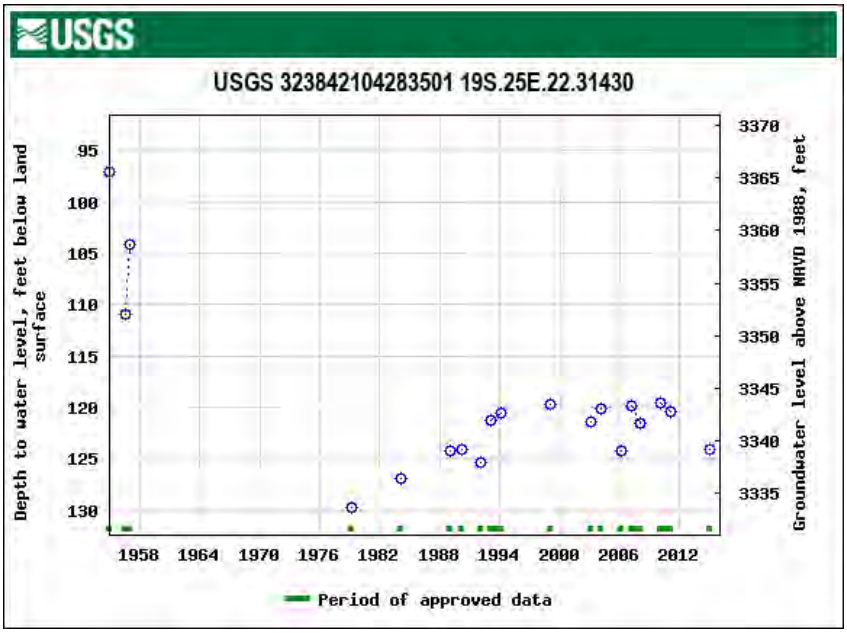
USGS 323934104274501 19S.25E.15.442224 AKA USGS-9476

Eddy County, New Mexico
Hydrologic Unit Code 13060011
Latitude 32°39'34",
Longitude 104°27'45" NAD27
Land-surface elevation 3,443 feet above NAVD88
The depth of the well is 100 feet below land surface.
This well is completed in the Roswell Basin aquifer system (S400RSWLBS) national aquifer.
This well is completed in the Alluvium, Bolson Deposits and Other Surface Deposits (110AVMB) local aquifer.



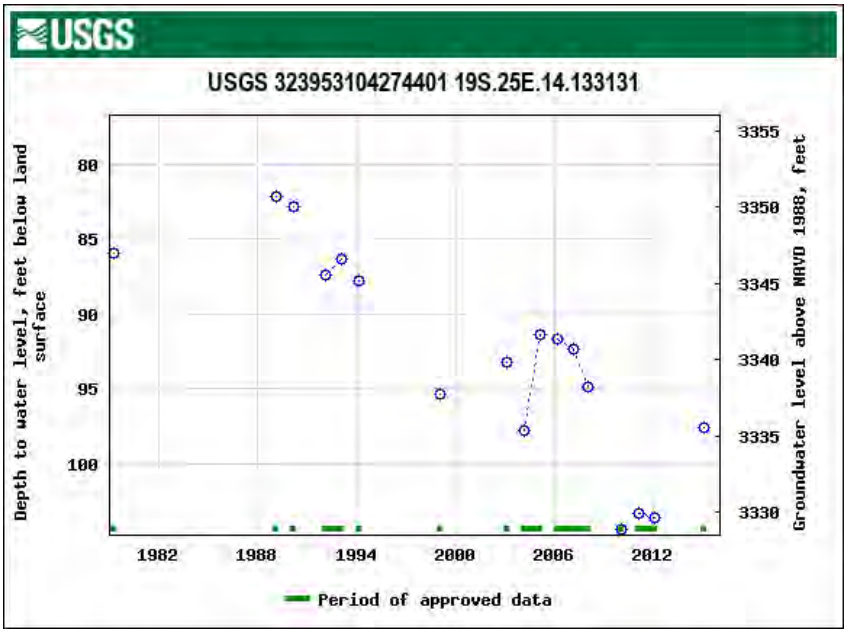
USGS 323842104283501 19S.25E.22.31430 AKA USGS-9324

Eddy County, New Mexico
Hydrologic Unit Code 13060011
Latitude 32°38'42",
Longitude 104°28'35" NAD27
Land-surface elevation 3,463 feet above NAVD88
The depth of the well is 180 feet below land surface.
This well is completed in the Roswell Basin aquifer system (S400RSWLBS) national aquifer.
This well is completed in the Alluvium, Bolson Deposits and Other Surface Deposits (110AVMB) local aquifer.



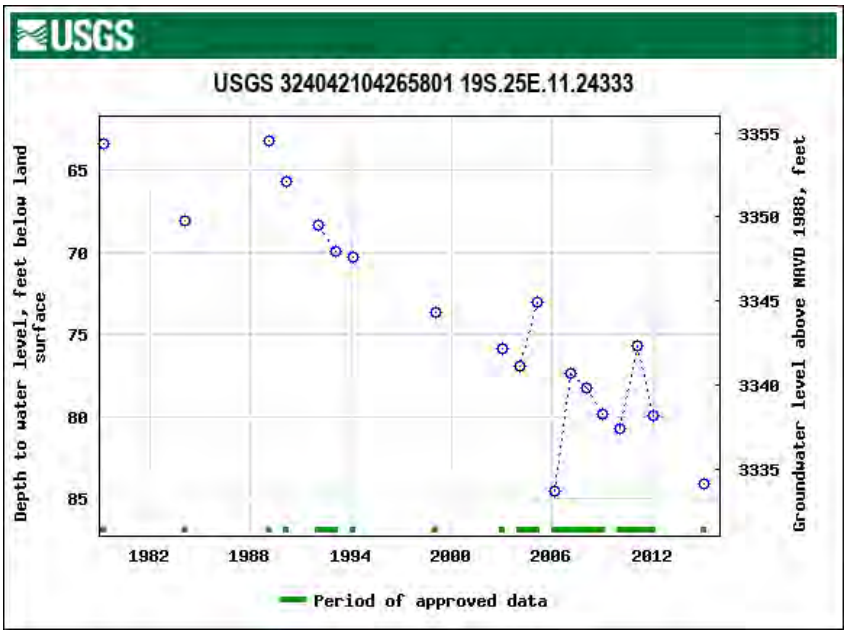
USGS 323953104274401 19S.25E.14.133131 AKA USGS-9499

Eddy County, New Mexico
Hydrologic Unit Code 13060011
Latitude 32°39'53", Longitude 104°27'44" NAD27
Land-surface elevation 3,433 feet above NAVD88
This well is completed in the Roswell Basin aquifer system (S400RSWLBS) national aquifer.
This well is completed in the Alluvium, Bolson Deposits and Other Surface Deposits (110AVMB) local aquifer.



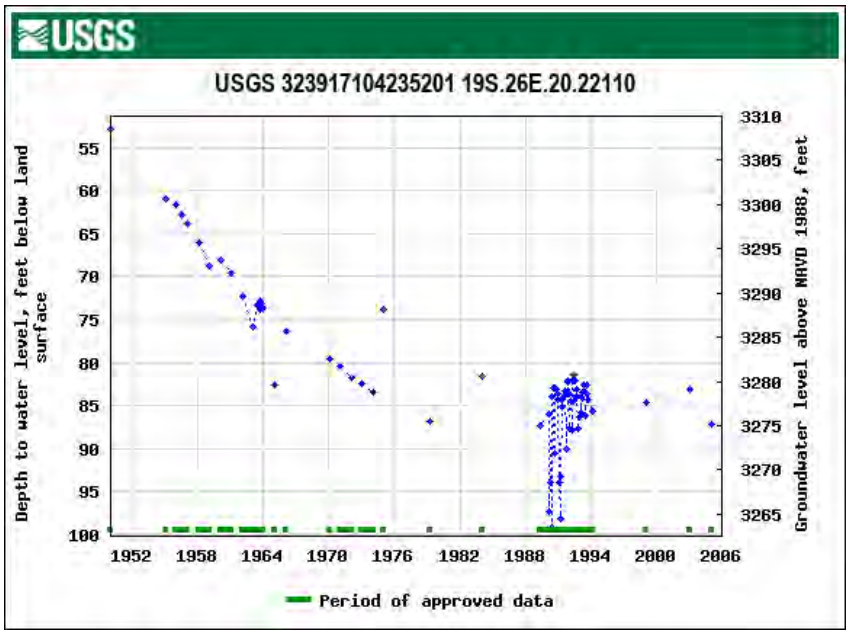
USGS 324042104265801 19S.25E.11.24333 AKA USGS-9403

Eddy County, New Mexico
Hydrologic Unit Code 13060011
Latitude 32°40'42",
Longitude 104°26'58" NAD27
Land-surface elevation 3,418 feet above NAVD88
The depth of the well is 211 feet below land surface.
This well is completed in the Roswell Basin aquifer system (S400RSWLBS) national aquifer.
This well is completed in the Alluvium, Bolson Deposits and Other Surface Deposits (110AVMB) local aquifer.



USGS 323917104235201 19S.26E.20.22110 AKA USGS-9326

Eddy County, New Mexico
Hydrologic Unit Code 13060011
Latitude 32°39'17",
Longitude 104°23'52" NAD27
Land-surface elevation 3,362 feet above NAVD88
The depth of the well is 110 feet below land surface.
This well is completed in the Roswell Basin aquifer system (S400RSWLBS) national aquifer.
This well is completed in the Alluvium, Bolson Deposits and Other Surface Deposits (110AVMB) local aquifer.



APPENDIX SITE PHOTOGRAPHS

SP-1 – View west from near center of Dagger RF footprint. White pickup truck in right horizon is near the western edge of proposed project area.

SP-2 View east from eastern edge of RF project area. Trees on horizon just left of labeled lath are the nearest residences. Rocking R Red Road is south (right) of power line.

SP-3 View south of bedrock clasts exposed at surface within the Dagger RF project area.

SP-4 View southeast from MISC-390. Trees on horizon on right are the residential units east of the proposed Dagger RF project. Note that solar pump is disconnected.

C-147 Registration for Dagger In-Ground Containment

Section 14 , T19S , R 25E, Eddy County NM

Volume 2:

C-147 Form
Stamped Design Drawings
Recently Approved Plans
Design/Construction
Operations & Maintenance
Closure Plans

View proposed Dagger Containment showing nature of landscape and vegetation.

Prepared for:
Silverback Operating II, LLC
San Antonio, Texas

Prepared by:

R.T. Hicks Consultants, Ltd.
901 Rio Grande NW F-142
Albuquerque, New Mexico

Cascade Services, LLC
4400 N Big Spring Street #114
Midland, TX 79705

C-147

State of New Mexico
Energy Minerals and Natural Resources
Department Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505
https://www.emnrd.nm.gov/ocd/ocd-e-permitting/

Form C-147
Revised October 11, 2022

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: Silverback Operating II, LLC (For multiple operators attach page with information) OGRID #: 330968
Address: 19707 West IH 10, Suite 201 San Antonio, TX 78257
Facility or well name (include API# if associated with a well): Dagger In-Ground Containment
OCD Permit Number: 2RF-194 (For new facilities the permit number will be assigned by the district office)
U/L or Qtr/Qtr P Section 14 Township 19S Range 25E County: Eddy
Surface Owner: ☐ Federal ☐ State ☑ Private ☐ Tribal Trust or Indian Allotment

2.
☑ **Recycling Facility:**
Location of recycling facility (if applicable): Latitude 32°39'22.69' Longitude 104°26'59.11" 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 32°39'22.69' Longitude 104°26'59.11" NAD83
☐ For multiple or additional recycling containments, attach design and location information of each containment
☑ Lined ☐ Liner type: Thickness 60 Primary mil ☐ LLDPE ☑ HDPE ☐ PVC ☐ Other See Drawings
☐ String-Reinforced
Liner Seams: ☑ Welded ☐ Factory ☐ Other _____ Volume: _____bbl Dimensions: L_____ x W_____ x D_____
☐ 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 Game Fence

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.
- ☑ Operating and Maintenance Plan - based upon the appropriate requirements.
- ☑ Closure Plan - based upon the appropriate requirements.
- ☑ Site Specific Groundwater Data -
- ☑ Siting Criteria Compliance Demonstrations –
- ☑ **Certify that notice of the C-147 (only) has been sent to the surface owner(s)**

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): Michael Feaga Title: Facilities Engineering Manager

Signature: Michael A. Feaga Date: 05/10/23

e-mail address: mfeaga@silverbackexp.com Telephone: 713 882 0485

11.
OCD Representative Signature: Victoria Venegas **Approval Date:** 07/18/2023

Title: Environmental Specialist **OCD Permit Number:** 2RF-194

☒ OCD Conditions

☐ Additional OCD Conditions on Attachment

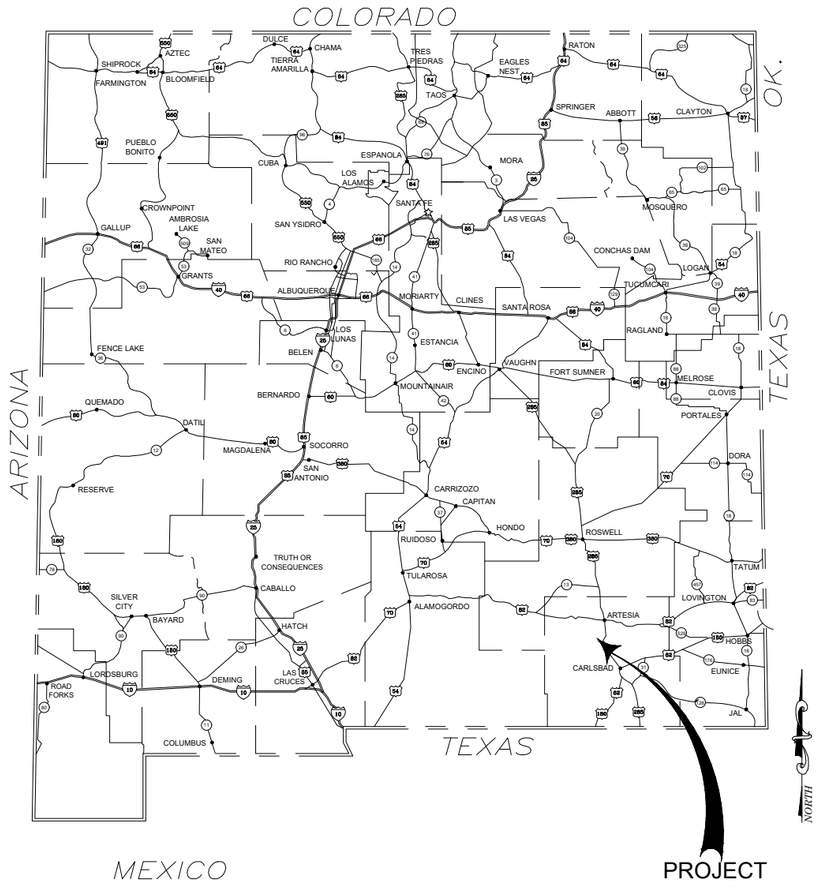
RECYCLING CONTAINMENT DESIGN DRAWINGS &

AS BUILT DRAWINGS JULY 10, 2023

AVIAN DETERRENT SYSTEM

SILVERBACK EXPLORATION DAGGER 1.2MM BBL
PRODUCED WATER CONTAINMENT & RECYCLING FACILITY

SEC. 14, TOWNSHIP 19S, RANGE 25E
EDDY COUNTY, NEW MEXICO



LOCATION MAP
SCALE: NTS

VICINITY MAP
SCALE: NTS

THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE WAY ONLY AND HAVE NOT BEEN INDEPENDENTLY VERIFIED BY THE OWNER OR ITS REPRESENTATIVE. THE CONTRACTOR SHALL DETERMINE THE EXACT LOCATION OF ALL EXISTING UTILITIES BEFORE COMMENCING WORK, AND AGREES TO BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MAY OCCUR BY THE CONTRACTOR'S FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

SUMMARY OF QUANTITIES

NO.	ITEM	QTY	UNIT
1	CLEARING AND GRUBBING	25.0	AC
2	STRIP AND STOCKPILE TOPSOIL (6" AVERAGE)	19877.0	CU YD
3	ESTIMATED CUT (BELOW EXISTING GRADE)	150702.0	CU YD
4	ESTIMATED FILL (ABOVE EXISTING GRADE)	136058.0	CU YD
5	8' FENCE	4730.0	LF
6	20' DOUBLE GATE	3.0	EA
7	3' WALK GATE	1.0	EA
8	12" x 12" WATER TRANSFER GATE	10.0	EA
9	RUB SHEET 60 MIL HDPE (TEXTURED)	23200.0	SQ FT
10	PRIMARY LINER 60 MIL HDPE (SMOOTH)	662190.0	SQ FT
11	GEONET 200 MIL	662190.0	SQ FT
12	SECONDARY LINER 40 MIL HDPE (SMOOTH)	662190.0	SQ FT
13	10 OZ GEOTEXTILE	662190.0	SQ FT
14	RECYCLE X TRM-450 (BROWN)	198390.0	SQ FT
15	6" HDPE DR11 PIPE WITH PERFORATIONS	200.0	LF
16	GAGE LADDER	2.0	EA
17	DRAIN ROCK	2.0	CU YD
18	ANCHOR TRENCH	8980.0	LF
19	Ø12" RCP CULVERT	80.0	LF

NOTE: SUMMARY OF QUANITIES ARE ESTIMATES ONLY, AND SHALL BE VERIFIED BY CONTRACTOR

LJA Energy, Inc.
3600 W Sam Houston Parkway S
Suite 600
Houston, Texas 77042
Phone 713.953.5200
Fax 713.953.5026
FRN - F-23057

ROBIN C. WARRICK NEW MEXICO 22888 PROFESSIONAL ENGINEER

4/11/23
ROBIN C. WARRICK, P.E. *22888

ISSUE	DATE	BY	DESCRIPTION	CHK'D	APP'D
0	04/11/23	JLG	ISSUED FOR CONSTRUCTION	HER	RCW

SILVERBACK EXPLORATION

SILVERBACK EXPLORATION 1.2MM BBL
PRODUCED WATER CONTAINMENT & RECYCLING FACILITY
COVER SHEET

DRAWN BY	PROJ. MGR.	SCALE	PROJ. NO.
JLG	HER	NOTED	B1242-1006

DRAWING NO.	ISSUE NO.
1242-1006-C-1000	0

GENERAL NOTES:

GENERAL NOTES

1. NEW MEXICO ADMINISTRATIVE CODE TITLE 19, CHAPTER 15, PART 34, DESIGN CRITERIA FOR RECYCLING CONTAINMENTS SHALL APPLY TO THIS PROJECT.
2. ALL BOUNDARY, TOPOGRAPHIC AND UTILITY INFORMATION SHOWN ARE BASED ON SURVEY INFORMATION FURNISHED BY ATWELL GROUP WITH FILE NAME 22003802 - SILVERBACK - DAGGER FRAC.DWG SENT TO LJA ON 08/29/2022.
3. THE CONTRACTOR SHALL IDENTIFY AND LOCATE UTILITY LINES, MONITORING WELLS, SURVEY MONUMENTS, AND OTHER NEARBY STRUCTURES PRIOR TO PERFORMING WORK.
4. COORDINATE INFORMATION IS BASED ON STATE PLANE COORDINATES, NEW MEXICO EAST, NAD 83. THE CONTRACTOR SHALL IDENTIFY ANY DISCREPANCIES PRIOR TO PROCEEDING WITH CONSTRUCTION.
5. THE OPERATOR WILL PLACE AN UPRIGHT SIGN NO LESS THAN 12 INCHES BY 24 INCHES WITH LETTERING NOT LESS THAN TWO INCHES IN HEIGHT IN A CONSPICUOUS PLACE ON THE FENCE SURROUNDING THE CONTAINMENT. THE SIGN IS POSTED IN A MANNER AND LOCATION SUCH THAT A PERSON CAN EASILY READ THE LEGEND. THE SIGN WILL PROVIDE THE FOLLOWING INFORMATION:
   - THE OPERATOR'S NAME
   - THE LOCATION OF THE SITE BY QUARTER-QUARTER OR UNIT LETTER, SECTION, TOWNSHIP AND RANGE, AND
   - EMERGENCY TELEPHONE NUMBERS

LINER NOTES

1. INSTALLER TO SIGN SUBGRADE ACCEPTANCE FORM (PROVIDED BY OWNER REPRESENTATIVE) DAILY PRIOR TO INSTALLATION.
2. CONTRACTOR TO PROVIDE SUBMITTAL OF LINER PANEL LAYOUT.
3. A 3' DIAMETER MINIMUM PIECE OF 40MIL LINER SHALL BE EXTRUDED WELDED WHERE THE PIE SHAPED CORNER SECTIONS MEET FOR SEAM REINFORCEMENT.
4. INSTALL A FULL DOUBLE WIDTH SECTION OF BLACK OR WHITE 60 MIL TEXTURED HDPE GEOMEMBRANE RUB SHEET. EXTRUDE WELD TO LINER. WELDS SHALL BE 2" LONG AND SPACED EVERY 12" ALONG BOTH SIDES OF THE SHEET. DO NOT WELD END EDGES. SECTION SHALL EXTEND FROM SUMP AND INSTALLED INTO LINER ANCHOR TRENCH AS SHOWN.
5. CONTRACTOR SHALL PLACE SANDBAGS ON LINER DURING INSTALLATION AS REQUIRED TO PREVENT WIND UPLIFT UNTIL POND IS FILLED TO A DEPTH OF 3 FEET.
6. CONTRACTOR SHALL INSPECT GRADED SURFACE FOR DEBRIS, ROCKS OR OTHER MATERIAL THAT MAY DAMAGE THE LINER.
7. CONTRACTOR SHALL ROLL SURFACE WITH A SMOOTH ROLLER TO ELIMINATE RUTS.
8. CONTRACTOR SHALL USE BLACK 60 MIL HDPE SMOOTH GEOMEMBRANE AS THE PRIMARY LINER AND BLACK 40 MIL HDPE SMOOTH GEOMEMBRANE AS THE SECONDARY LINER.
9. LINER TO BE INSTALLED PER MANUFACTURER'S RECOMMENDING PROCEDURES.
10. ALL SEAMS MUST BE WELDED WITH A 6" MINIMUM OVERLAP.
11. CONTRACTOR SHALL NON-DESTRUCTIVELY TEST ALL SEAMS THEIR FULL LENGTH USING AN AIR PRESSURE OR VACUUM TEST, THE PURPOSE OF THIS TEST IS TO CHECK THE CONTINUITY OF THE SEAM PER THE INSTALLATION QUALITY ASSURANCE MANUAL.
12. FOR AIR PRESSURE TESTING (ASTM 5820), THE FOLLOWING PROCEDURES ARE APPLICABLE TO THE SEAMS WELD WITH DOUBLE SEAM FUSION WELDER.
    a. THE EQUIPMENT USED SHALL CONSIST OF AN AIR TANK OR PUMP CAPABLE OF PRODUCING A MINIMUM 35 PSI AND A SHARP NEEDLE WITH A PRESSURE GAUGE ATTACHED TO INSERT INTO THE AIR CHAMBER.
    b. SEAL BOTH ENDS OF THE SEAM BY HEATING AND SQUEEZING THEM TOGETHER. INSERT THE NEEDLE WITH THE GAUGE INTO THE AIR CHANNEL. PRESSURIZE THE AIR CHANNEL TO A MINIMUM OF 35 PSI. NOTE TIME STARTS AND WAIT A MINIMUM OF 5 MINUTES TO CHECK. IF PRESSURE AFTER 5 MINUTES HAD DROPPED LESS THAN 2 PSI THE TEST IS SUCCESSFUL (THICKNESS OF MATERIAL MAY CAUSE VARIANCE).
    c. CUT OPPOSITE SEAM END AND LISTEN FOR PRESSURE RELEASE TO VERIFY FULL SEAM HAS BEEN TESTED.
    d. IF THE TEST FAILS, FOLLOW THESE PROCEDURES.
       I. WHILE CHANNEL IS UNDER PRESSURE WALK THE LENGTH OF THE SEAM LISTENING FOR A LEAK.
       II. WHILE CHANNEL IS UNDER PRESSURE APPLY A SOAPY SOLUTION TO THE SEAM EDGE AND LOOK FOR BUBBLES FORMED BY AIR ESCAPING.
       III. RE-TEST THE SEAM IN SMALLER INCREMENTS UNTIL THE LEAK IS FOUND.
    e. ONCE LEAK IS FOUND USING ONE OF THE PROCEDURES ABOVE, CUT OUT THE AREA AND RETEST THE PORTIONS OF THE PORTIONS OF THE SEAMS BETWEEN THE LEAK AREAS PER 6A AND 6B ABOVE. CONTINUE THIS PROCEDURE UNTIL ALL SECTIONS OF THE SEAM PASS THE PRESSURE TEST.
    f. REPAIR THE LEAK WITH A PATCH AND VACUUM TEST.
13. ALL NON-DESTRUCTIVE TESTS WILL BE NOTED IN THE NON-DESTRUCTIVE LOGS.
14. LINER SHALL BE PROTECTED WITH A 10 OZ. NONWOVEN GEOTEXTILE IF ROCK OR OTHER ANGULAR MATERIALS WITH A DIMENSION GREATER THAN 3/4 INCH ARE PRESENT.
15. SUMPS SHALL BE BACKFILLED WITH NON-ANGULAR MAXIMUM 3/8 INCH SIZED PEA GRAVEL.
16. LINER GAS VENTS SHALL BE SPACED ALONG THE INSIDE SLOPE AT APPROXIMATELY 100 FEET ON CENTER OR MINIMUM 2 VENTS PER SIDE.
17. WHEN ANY PIPING EQUIPMENT, INLET, OR OUTLET IS IN DIRECT CONTACT WITH THE LINER, AN APRON CONSISTING OF 60 MIL HDPE MATERIAL SHALL BE INSTALLED BENEATH THE EQUIPMENT OR STRUCTURE TO PROTECT THE PRIMARY LINER SYSTEM.
18. LAY BOTH LINERS IN ANCHOR TRENCH. BACKFILL ANCHOR TRENCH IN 2 LIFTS AND COMPACT IN ACCORDANCE WITH SITE PREPARATION NOTES THIS SHEET.

EARTHWORK NOTES

1. FILL FOR LEVEES SHALL BE PLACED AND COMPACTED IN ACCORDANCE WITH THE SITE PREP NOTES ABOVE AND THE GEOTECHNICAL REPORT. CONSTRUCT EACH LAYER CONTINUOUSLY AND APPROXIMATELY HORIZONTAL FOR THE WIDTH AND LENGTH OF THE DIKE. FILL SHALL BE COMPACTED IN ACCORDANCE WITH THE SITE PREP NOTES ABOVE AND THE GEOTECHNICAL REPORT.
2. FILL SHALL NOT BE PLACED AND COMPACTED WHEN THE MATERIALS ARE TOO WET TO PROPERLY COMPACT. MATERIAL WHICH IS TOO WET SHALL BE SPREAD ON THE FILL AREA AND PERMITTED TO DRY, ASSISTED BY HARROWING IF NECESSARY, UNTIL THE MOISTURE CONTENT IS REDUCED TO ALLOWABLE LIMITS. IF THE ENGINEER DETERMINED THAT ADDED MOISTURE IS REQUIRED, WATER SHALL BE APPLIED UNIFORMLY OVER THE AREA TO BE TREATED, AND GIVE COMPLETE AND ACCURATE CONTROL OF THE AMOUNT OF WATER TO BE USED. IF TOO MUCH WATER IS ADDED, THAT AREA SHALL BE PERMITTED TO DRY BEFORE COMPACTION IS CONTINUED.
3. PERFORM ONE NUCLEAR DENSITY GAGE TEST PER 2500 CY OR AS DIRECTED BY ENGINEER.
4. EARTHWORK CONTRACTOR SHALL PERFORM A VISUAL INSPECTION OF THE FINISHED COMPACTED POND BOTTOM AND SIDE SLOPES BEFORE HDPE LINER INSTALLATION, REMOVING ALL DEBRIS, SHARP OBJECTS AND GRAVEL LARGER THAN 3/4 INCH.
5. ALL REPLACED TOP SOIL TO BE SMOOTH DRUM ROLLED UP TO FENCELINE.

SITE PREPARATION NOTES:

1. GEOTECHNICAL REPORT PROVIDED BY TOLUNAY-WONG PROJECT NO. 22.61.061, REPORT NO. 2814, NOVEMBER 29, 2022.
2. SITE PREPARATION FOR THE PROJECT SITE SHOULD INCLUDE STRIPPING ALL SURFACE VEGETATION, TOPSOIL, DELETERIOUS AND/OR WEAK SOILS, TO EXPOSE A COMPETENT SUBGRADE.
3. THE EXPOSED SOIL SUBGRADE SHOULD CONSIST OF COMPETENT, NATURAL STIFF CLAY AND BE PROOF-ROLLED WITH AT LEAST A 20-TON PNEUMATIC ROLLER, LOADED DUMP TRUCK OR EQUIVALENT TO DETECT WEAK AREAS UPON WHICH PROPER COMPACTION WOULD BE DIFFICULT TO OBTAIN ON THE BACKFILL MATERIALS. WEAK AREAS ARE GENERALLY DEFINED AS LOCATIONS THAT PUMP AND/OR RUT IN EXCESS OF ABOUT 2-INCHES OR AS DEEMED UNSATISFACTORY BASED ON OBSERVATIONS OF THE PROOF-ROLL PROCESS BY THE GEOTECHNICAL ENGINEER-OF-RECORD OR THEIR QUALIFIED REPRESENTATIVE. UPON IDENTIFICATION, WEAK AREAS SHOULD BE REMOVED DOWN TO COMPETENT MATERIAL AND REPLACED WITH PROPERLY COMPACTED STRUCTURAL CLAY FILL.
4. CONTAINMENT LEVEE MATERIAL SHOULD BE GENERAL CLAY FILL OF MODERATE TO HIGH PLASTICITY AND LOW PERMEABILITY . CLAY SOILS WITH A LIQUID LIMIT (LL) RANGE OF 40 TO 60 AND A PLASTICITY INDEX (PI) RANGE OF 20 TO 40 SHOULD MEET LOW PERMEABILITY CRITERIA FOR A CONTAINMENT BERM. FOR RE-USE OF THE EXCAVATED SOILS FROM CONSTRUCTION OF THE POND, THE ONSITE MATERIALS SHOULD BE CHECKED FOR COMPLIANCE WITH THIS CRITERIA AND WITH THE APPROPRIATE REGULATORY GUIDELINES PRIOR TO USE.
5. CONTAINMENT LEVEE MATERIAL SHOULD BE FREE OF ROOTS, DEBRIS, ORGANIC MATTER OR OTHER DELETERIOUS MATERIALS. THE CLAY BERM MATERIAL SHOULD BE PLACED IN THIN LIFTS, NOT EXCEEDING 8-IN LOOSE MEASURE, MOISTURE-CONDITIONED BETWEEN ±3% OF OPTIMUM MOISTURE CONTENT AND COMPACTED TO AT LEAST 95% OF THE MAXIMUM DRY DENSITY AS DETERMINED BY ASTM D698.
6. SANDS (SM, SC OR SP) OR SILTY CLAYS (CL-ML) SHOULD NOT BE USED FOR CONSTRUCTION OF CONTAINMENT LEVEES. THESE SOILS HAVE THE POTENTIAL TO TRAP WATER AND CREATE SEEPAGE PATHS.
7. THE AREA OF THE CONTAINMENT BERM FOOTPRINTS SHALL BE STRIPPED DOWN TO COMPETENT FOUNDATION SOILS. WE ANTICIPATE A DEPTH OF STRIPPING ON THE ORDER OF 4 TO 6 INCHES WILL BE NEEDED TO REMOVE VEGETATION AND DELETERIOUS MATERIAL. ONCE COMPETENT BEARING SOILS ARE REACHED AT THE DESIGN BASE ELEVATION, THE SUBGRADE SHOULD BE PROOFROLLED WITH AT LEAST A 20-TON PNEUMATIC ROLLER, LOADED DUMP TRUCK, OR EQUIVALENT, TO DETECT WEAK AREAS. IF WEAK AREAS ARE ENCOUNTERED, THEY SHOULD BE REMOVED AND REPLACED WITH PROPERLY-COMPACTED FILL SOILS AS INDICATED ABOVE.
8. SIDE SLOPES SHALL BE 1(V):3(H) FOR THE PROPOSED CONTAINMENT BERMS. SIDE SLOPES OF CLAY SOILS STEEPER THAN 1(V):3(H) COULD HAVE THE POTENTIAL FOR INSTABILITY AND SHALLOW SURFACE SLIDES. IF SIDE SLOPES STEEPER THAN 1(V):3(H) ARE PLANNED ONCE THE CONTAINMENT BERM SYSTEM ARRANGEMENT IS FINALIZED, TWE SHOULD BE ALLOWED TO REVIEW THE FINAL LEVEE LAYOUT AND TYPICAL CROSS- SECTION AND PROVIDE COMMENTS. THE LEVEE SIDE SLOPES SHOULD BE PROTECTED FROM EROSION DUE TO NORMAL SURFACE RUNOFF AND TEMPORARY INUNDATION BY VARYING WATER LEVELS WITHIN THE CONTAINMENT SYSTEMS.
9. STRUCTURAL CLAY FILL USED AS BACKFILL AND/OR FILL FOR THIS PROJECT SHOULD CONSIST OF A CLEAN SANDY LEAN CLAY (CL) OR LEAN CLAY WITH SAND (CL) MATERIAL WITH A LIQUID LIMIT (LL) OF 40 OR LESS AND A PLASTICITY INDEX (PI) FROM 10 TO 20. STRUCTURAL CLAY FILL SHOULD BE PLACED IN THIN LIFTS, MOISTURE CONDITIONED BETWEEN -1% AND +3% OF OPTIMUM MOISTURE CONTENT AND COMPACTED TO AT LEAST 95% OF THE MAXIMUM DRY DENSITY AS DETERMINED BY THE STANDARD TEST METHOD FOR LABORATORY COMPACTION CHARACTERISTICS OF SOIL USING STANDARD EFFORTS (ASTM D 698).
10. WE ANTICIPATE THE ONSITE SOILS COULD BE CONSIDERED SUITABLE FOR REUSE AS STRUCTURAL CLAY FILL; HOWEVER, TESTING SHOULD BE PERFORMED TO ENSURE COMPLIANCE PRIOR TO PLACEMENT.
11. MAINTAINING THE SITE TO PREVENT PONDING AND/OR STANDING WATER DURING AND FOLLOWING CONSTRUCTION IS ESSENTIAL. PONDING OF SURFACE RUNOFF COULD CAUSE CONSTRUCTION DELAYS AND/OR INHIBIT SITE ACCESS. IF THE SUBGRADE MATERIALS BECOME WET AND SOFT, CONSIDERATION CAN BE GIVEN TO EITHER DRYING EFFORTS OR REMOVAL/REPLACEMENT OF THE WET MATERIAL WITH STRUCTURAL FILL. ALLOWING WATER TO POND ONSITE COULD RESULT IN SOIL SWELLING AND/OR SOFTENING THEREBY RESULTING IN HIGH MAINTENANCE COSTS AND POTENTIAL FAILURE. WE RECOMMEND POSITIVE DRAINAGE BE ESTABLISHED TO TRANSMIT WATER AWAY FROM THE SITE SO THAT PERCHED OR PONDED WATER DOES NOT COLLECT ADJACENT TO ANY NEW FOUNDATIONS.
12. EARTHWORK CONTRACTOR TO COMPLY WITH THE DESIGN AND CONSTRUCTION PLAN IN GROUND CONTAINMENTS, INCLUDED IN THIS SET.

SITE NOTES:

1. ALL BEARINGS, DISTANCES AND COORDINATES ARE BASED UPON THE NEW MEXICO STATE PLANE COORDINATE SYSTEM, EAST ZONE, NAD 83, IN US SURVEY FEET
2. 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.
3. LJA ENERGY IS NOT RESPONSIBLE FOR UNDERGROUND UTILITIES OR PIPELINES.
4. CONTOUR INTERVALS = 1 FT

SWPPP NOTES:

1. THE CONTRACTOR SHALL DEVELOP AND IMPLEMENT A STORM WATER POLLUTION PREVENTION PLAN (SWPPP) IN ACCORDANCE WITH THE CONSTRUCTION GENERAL PERMIT (CGP) OF THE EPA. THE STORM WATER POLLUTION PREVENTION PLAN SHALL INCLUDE DEVELOPING, PERMITTING, INSTALLING AND MAINTAINING SWPPP BMP'S AS WELL AS PERMANENT SEEDING WHEN THE PROJECT IS COMPLETED.
2. THE CONTRACTOR SHALL PREVENT SOILS FROM ERODING FROM THE SITE ONTO OTHER PROPERTY BY CONSTRUCTING TEMPORARY EROSION CONTROL BERMS OR INSTALLING SILT FENCES AT THE PROPERTY LINES AS INDICATED ON THE APPROVED SWPPP.
3. THE CONTRACTOR SHALL MITIGATE EROSION OF TEMPORARY OR PERMANENT DIRT SWALES BY INSTALLING CHECK DAMS IN THE SWALES PERPENDICULAR TO THE DIRECTION OF FLOW, AND AT INTERVALS SPECIFIED ON THE SWPPP.
4. THE CONTRACTOR SHALL PREPARE AND MAINTAIN A COPY OF THE SWPPP ON-SITE AT ALL TIMES, AND SHALL COMPLY WITH THE REQUIREMENTS INDICATED ON THAT PLAN. COST IS INCIDENTAL TO CONSTRUCTION.
5. BEST MANAGEMENT PRACTICES (BMPS) SHALL BE UTILIZED TO CONTROL SEDIMENT SO THAT NO ADDITIONAL SEDIMENT RESULTING FORM CONSTRUCTION ACTIVITIES DISCHARGE TO WATERWAYS.
6. THE CONTRACTOR SHALL CONFORM TO ALL CITY, COUNTY, STATE AND FEDERAL DUST AND EROSION CONTROL REGULATIONS. THE CONTRACTOR SHALL PREPARE AND OBTAIN ANY NECESSARY DUST OR EROSION CONTROL PERMITS FROM REGULATORY AGENCIES.
7. THE CONTRACTOR SHALL PROMPTLY REMOVE ANY MATERIAL EXCAVATED WITHIN THE PUBLIC RIGHT-OF-WAY TO KEEP IT FROM WASHING OFF THE PROJECT SITE.

LJA Energy, Inc.
3600 W Sam Houston Parkway S
Suite 600
Houston, Texas 77042
Phone 713.953.5200
Fax 713.953.5026
FRN - F-23057

ROBIN C. WARRICK NEW MEXICO 22888 PROFESSIONAL ENGINEER

4/11/23
ROBIN C. WARRICK, P.E. #22888

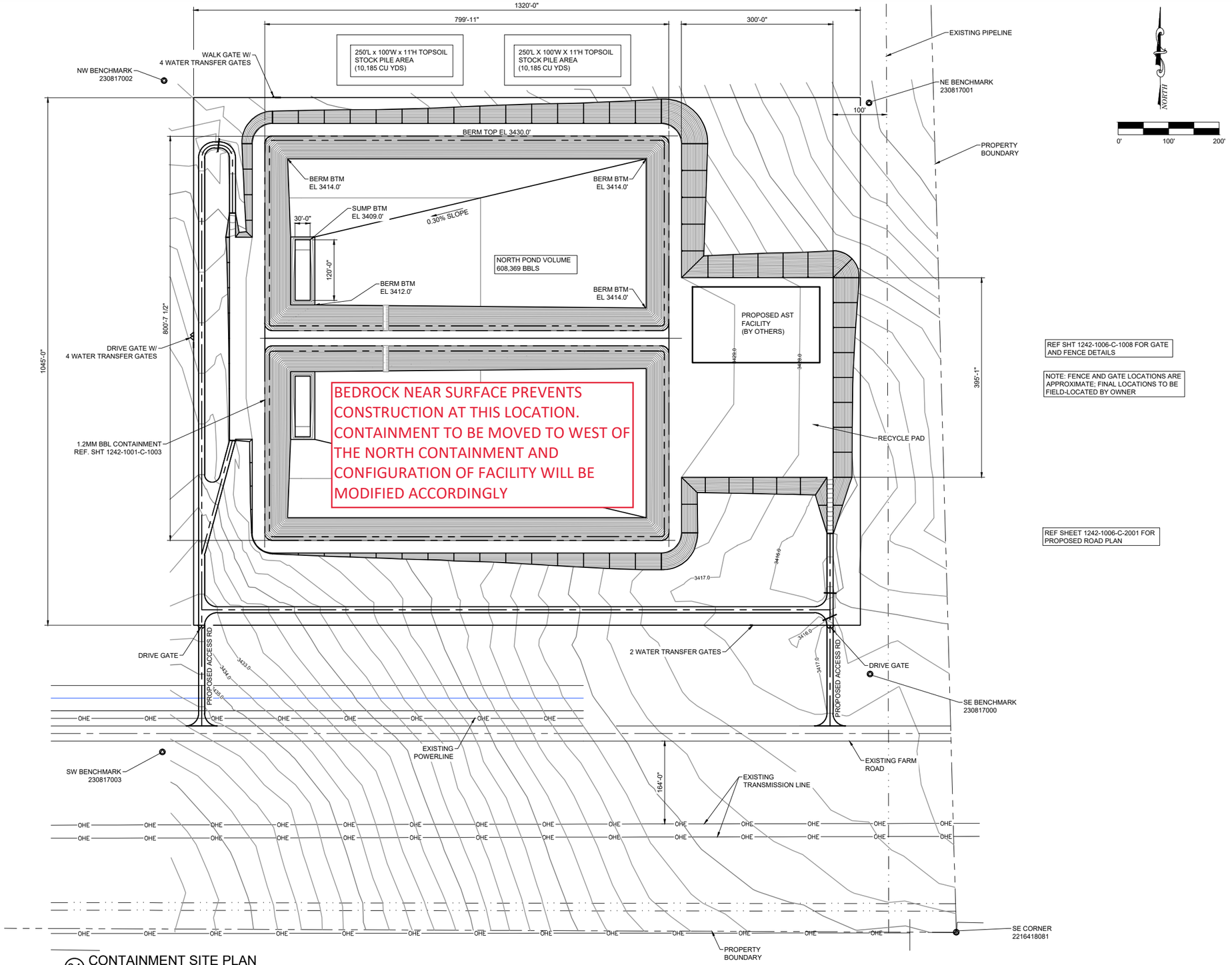
ISSUE	DATE	BY	DESCRIPTION	CH'KD	APP'D
0	04/11/23	JLG	ISSUED FOR CONSTRUCTION	HER	RCW

SILVERBACK EXPLORATION

SILVERBACK EXPLORATION 1.2MM BBL
PRODUCED WATER CONTAINMENT & RECYCLING FACILITY
PROJECT NOTES

DRAWN BY	PROJ. MGR.	SCALE	PROJ. NO.
JLG	HER	1" = 200'	B1242-1006

DRAWING NO.	ISSUE NO.
1242-1006-C-1001	0



REF SHT 1242-1006-C-1008 FOR GATE AND FENCE DETAILS

NOTE: FENCE AND GATE LOCATIONS ARE APPROXIMATE; FINAL LOCATIONS TO BE FIELD-LOCATED BY OWNER

REF SHEET 1242-1006-C-2001 FOR PROPOSED ROAD PLAN

01 CONTAINMENT SITE PLAN
SCALE: 1" = 200'

BENCHMARKS

POINT NUMBER	NORTHING (FT)	EASTING (FT)	ELEV (FT)	DESCRIPTION	TYPE
230817000	602094.18	506320.80	3416.78	1/2" IRON ROD/REBAR	SE BENCHMARK
230817001	603224.77	506318.85	3405.25	1/2" IRON ROD/REBAR	NE BENCHMARK
230817002	603268.99	504923.15	3422.20	1/2" IRON ROD/REBAR	NW BENCHMARK
230817003	601929.86	504919.82	3439.11	1/2" IRON ROD/REBAR	SW BENCHMARK
2216418081	601582.73	506491.43	3419.77	1/2" IRON ROD/REBAR	SE PROPERTY CORNER

LJA Energy, Inc.
3600 W Sam Houston Parkway S
Suite 600
Houston, Texas 77042
Phone 713.953.5200
Fax 713.953.5026
FRN - F-23057

ROBIN C. WARRICK NEW MEXICO 22888 PROFESSIONAL ENGINEER

4/11/23
ROBIN C. WARRICK, P.E. *22888

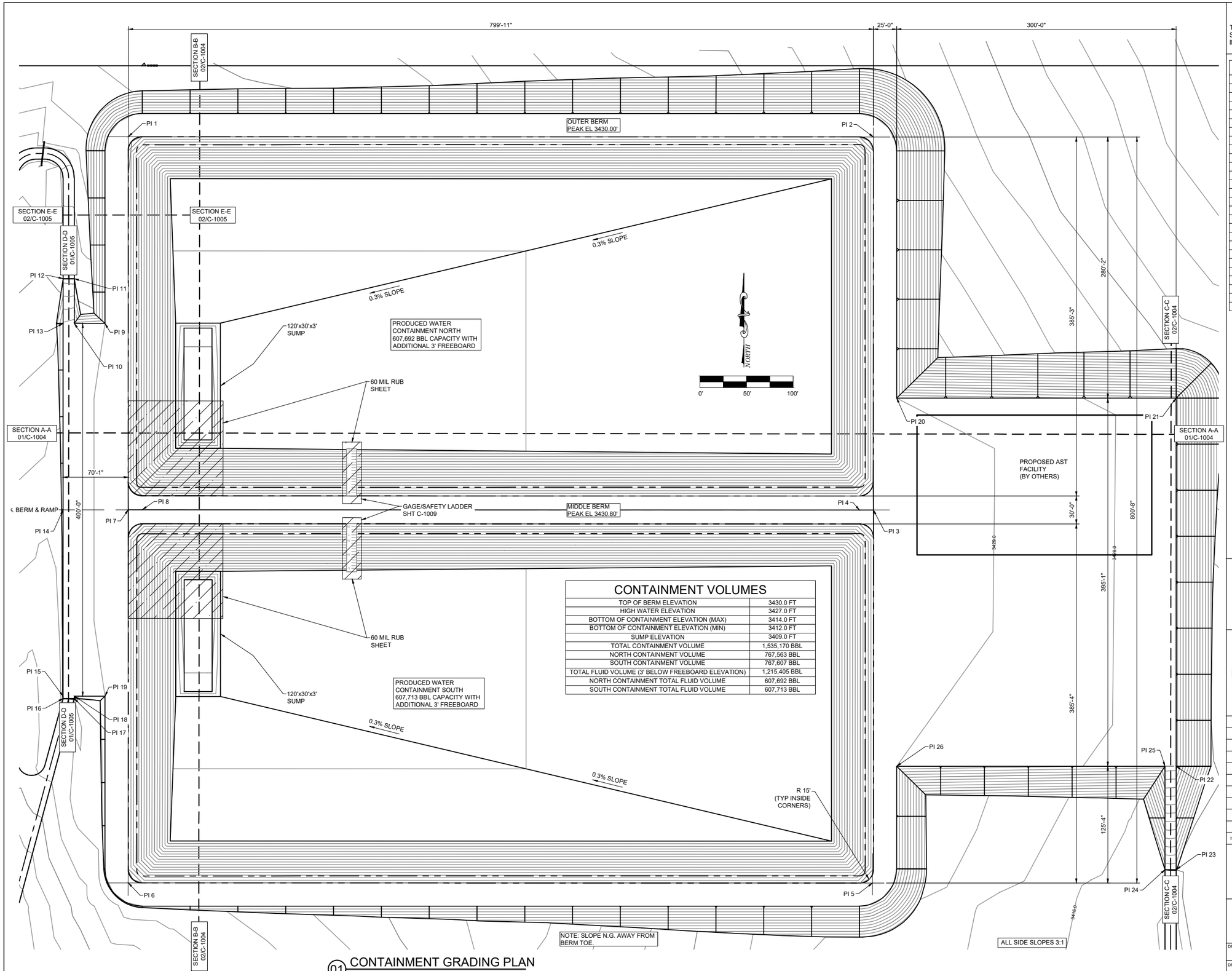
ISSUE	DATE	BY	DESCRIPTION	CHK'D	APP'D
0	04/11/23	JLG	ISSUED FOR CONSTRUCTION	HER	RCW

SILVERBACK EXPLORATION

SILVERBACK EXPLORATION 1.2MM BBL
PRODUCED WATER CONTAINMENT & RECYCLING FACILITY
SITE PLAN & NOTES

DRAWN BY	PROJ. MGR.	SCALE	PROJ. NO.
JLG	HER	1" = 200'	B1242-1006

DRAWING NO. 1242-1006-C-1002
ISSUE NO. 0



CONTAINMENT VOLUMES

TOP OF BERM ELEVATION	3430.0 FT
HIGH WATER ELEVATION	3427.0 FT
BOTTOM OF CONTAINMENT ELEVATION (MAX)	3414.0 FT
BOTTOM OF CONTAINMENT ELEVATION (MIN)	3412.0 FT
SUMP ELEVATION	3409.0 FT
TOTAL CONTAINMENT VOLUME	1,535,170 BBL
NORTH CONTAINMENT VOLUME	767,563 BBL
SOUTH CONTAINMENT VOLUME	767,607 BBL
TOTAL FLUID VOLUME (3' BELOW FREEBOARD ELEVATION)	1,215,405 BBL
NORTH CONTAINMENT TOTAL FLUID VOLUME	607,692 BBL
SOUTH CONTAINMENT TOTAL FLUID VOLUME	607,713 BBL

01 CONTAINMENT GRADING PLAN
SCALE: 1" = 100'

CONTAINMENT COORDINATES

PI	NORTHING	EASTING	ELEV
1	603159.41	505122.60	3430.00
2	603159.15	505922.51	3430.00
3	602758.92	505922.46	3430.00
4	602758.88	505907.49	3430.80
5	602358.51	505921.41	3430.00
6	602358.77	505122.50	3430.00
7	602759.13	505122.54	3430.00
8	602759.14	505137.63	3430.80
9	602959.07	505097.55	3429.00
10	602959.07	505064.49	3428.34
11	603007.03	505064.55	3424.57
12	603007.07	505052.55	3424.69
13	602959.07	505052.55	3428.10
14	602759.13	505052.56	3428.10
15	602559.06	505052.58	3428.10
16	602556.60	505052.58	3427.91
17	602556.56	505064.58	3427.74
18	602559.07	505064.57	3428.34
19	602559.07	505097.54	3429.00
20	602878.92	505947.51	3429.00
21	602878.92	506247.51	3427.50
22	602483.86	506247.51	3427.50
23	602372.86	506247.51	3415.20
24	602372.86	506235.51	3415.20
25	602483.86	506235.51	3427.56
26	602483.86	505947.51	3429.00

STAGE STORAGE

ELEVATION	N. CONT. (BBL)	S. CONT. (BBL)
3409	0.00	0.00
3410	209.77	209.78
3411	992.36	992.41
3412	2038.51	2038.62
3413	8611.87	8611.51
3414	33626.94	33624.81
3415	71436.52	71432.51
3416	110264.42	110259.00
3417	150121.51	150115.20
3418	191018.68	191012.03
3419	232966.80	232960.42
3420	275976.77	275971.27
3421	320059.46	320055.51
3422	365225.75	365224.05
3423	411486.53	411487.81
3424	458852.67	458857.71
3425	507335.06	507344.67
3426	556944.58	556959.60
3427	**607692.10**	**607713.42**
3428	659588.52	659617.06
3429	712644.72	712681.43
3430	730757.38	737101.62

LJA Energy, Inc.
3600 W Sam Houston Parkway S
Suite 600
Houston, Texas 77042
Phone 713.953.5200
Fax 713.953.5026
FRN - F-23057

ROBIN C. WARRICK NEW MEXICO 22888 PROFESSIONAL ENGINEER

4/11/23
ROBIN C. WARRICK, P.E. *22888

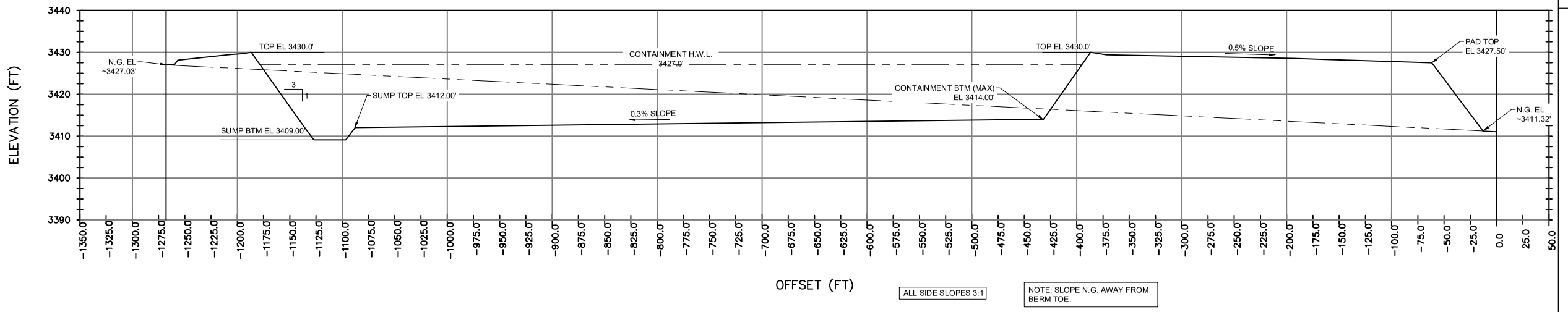
ISSUE	DATE	BY	DESCRIPTION	CHK'D	APP'D
0	04/11/23	JLG	ISSUED FOR CONSTRUCTION	HER	RCW

SILVERBACK EXPLORATION

SILVERBACK EXPLORATION 1.2MM BBL
PRODUCED WATER CONTAINMENT & RECYCLING FACILITY
GRADING PLAN

DRAWN BY	PROJ. MGR.	SCALE	PROJ. NO.
JLG	HER	1" = 100'	B1242-1006

DRAWING NO. 1242-1006-C-1003
ISSUE NO. 0

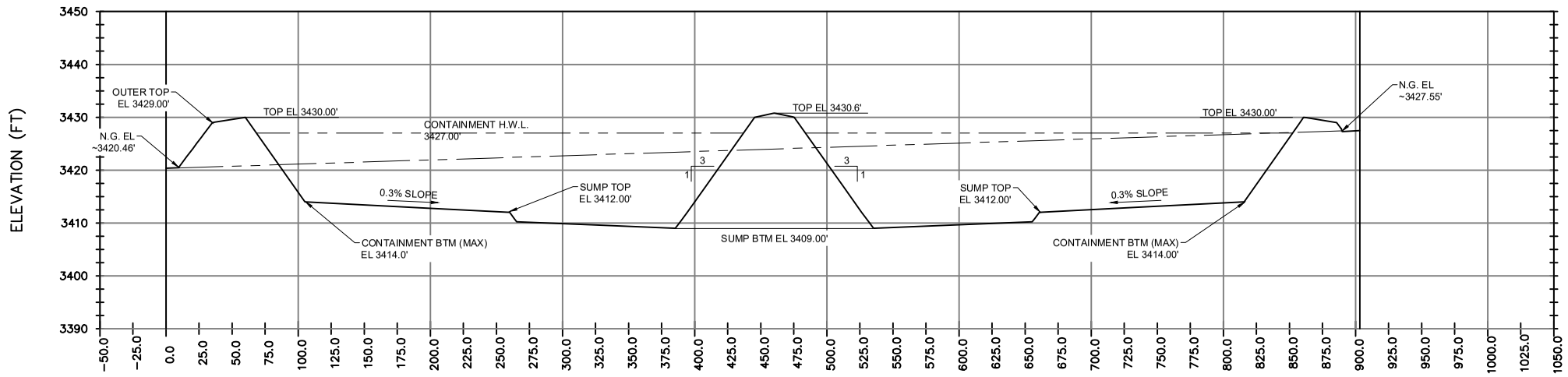


ALL SIDE SLOPES 3:1

NOTE: SLOPE N.G. AWAY FROM BERM TOE.

01 CONTAINMENT SECTION A-A

SCALE:N.T.S. 1H:4V

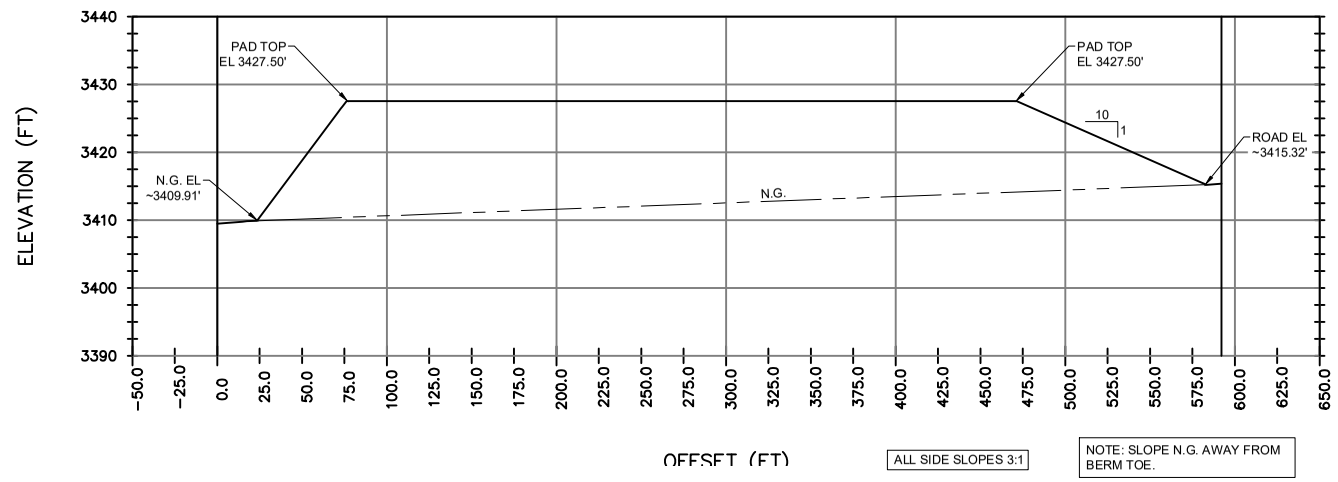


ALL SIDE SLOPES 3:1

NOTE: SLOPE N.G. AWAY FROM BERM TOE.

02 CONTAINMENT SECTION B-B

SCALE: N.T.S. 1H:4V



ALL SIDE SLOPES 3:1

NOTE: SLOPE N.G. AWAY FROM BERM TOE.

03 CONTAINMENT SECTION C-C

SCALE: N.T.S. 1H:4V

LJA Energy, Inc.
3600 W Sam Houston Parkway S
Suite 600
Houston, Texas 77042
Phone 713.953.5200
Fax 713.953.5026
FRN - F-23057

ROBIN C. WARRICK NEW MEXICO 22888 PROFESSIONAL ENGINEER

4/11/23

ROBIN C. WARRICK, P.E. #22888

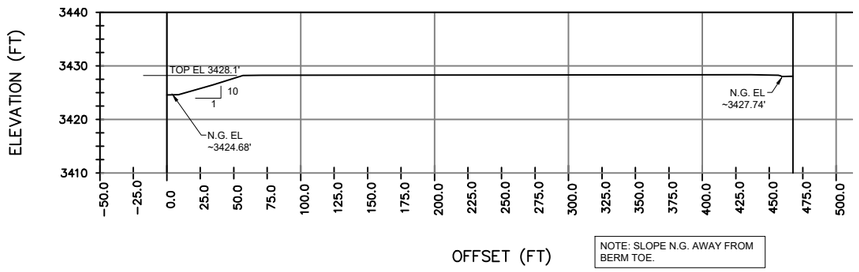
ISSUE	DATE	BY	DESCRIPTION	CHK'D	APP'D
0	04/11/23	JLG	ISSUED FOR CONSTRUCTION	HER	RCW

SILVERBACK EXPLORATION

SILVERBACK EXPLORATION 1.2MM BBL
PRODUCED WATER CONTAINMENT & RECYCLING FACILITY
SECTIONS

DRAWN BY	PROJ. MGR.	SCALE	PROJ. NO.
JLG	HER	N.T.S.	B1242-1006

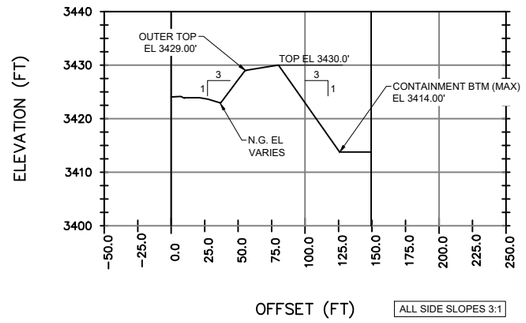
DRAWING NO.	ISSUE NO.
1242-1006-C-1004	0



NOTE: SLOPE N.G. AWAY FROM BERM TOE.

01 RAMP SECTION D-D

SCALE: N.T.S. 1H:4V



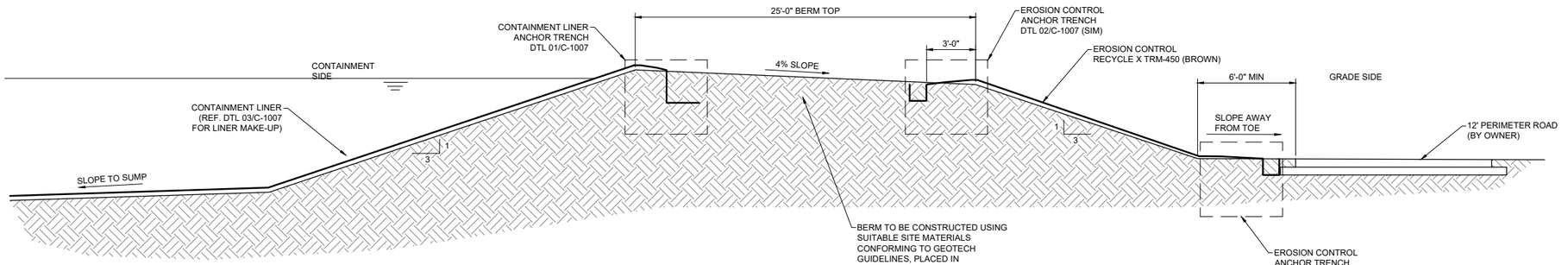
ALL SIDE SLOPES 3:1

NOTE: SLOPE N.G. AWAY FROM BERM TOE.

REF DTL 03/THIS SHEET & 04/THIS SHEET FOR DETAILED BERM SECTIONS

02 TYPICAL BERM SECTION E-E

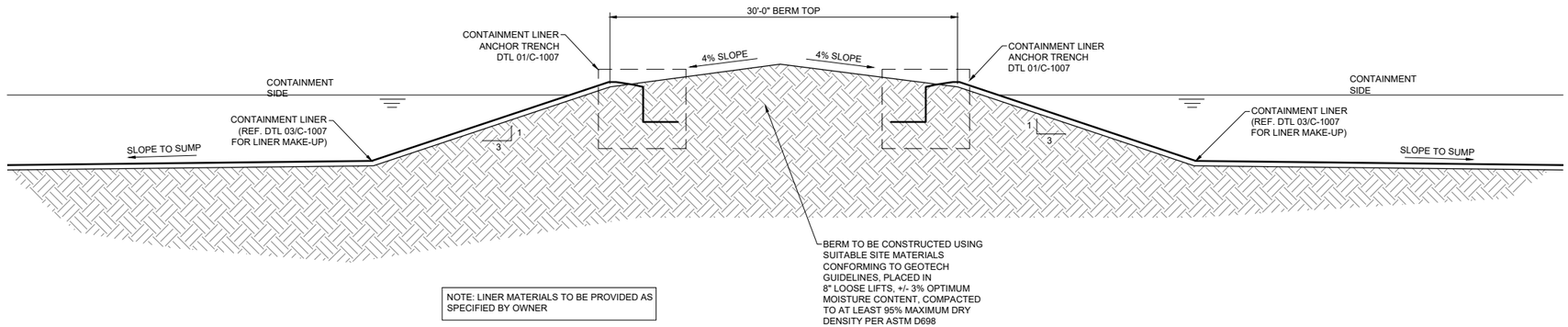
SCALE: N.T.S. 1H:4V



NOTE: LINER MATERIALS TO BE PROVIDED AS SPECIFIED BY OWNER

03 DETAILED OUTER BERM SECTION

SCALE: 1/8" = 1'-0"



NOTE: LINER MATERIALS TO BE PROVIDED AS SPECIFIED BY OWNER

04 DETAILED MIDDLE BERM SECTION

SCALE: 1/8" = 1'-0"

LJA Energy, Inc.
3600 W Sam Houston Parkway S
Suite 600
Houston, Texas 77042
Phone 713.953.5200
Fax 713.953.5026
FRN - F-23057

ROBIN C. WARRICK NEW MEXICO 22888 PROFESSIONAL ENGINEER

4/11/23

ROBIN C. WARRICK, P.E. #22888

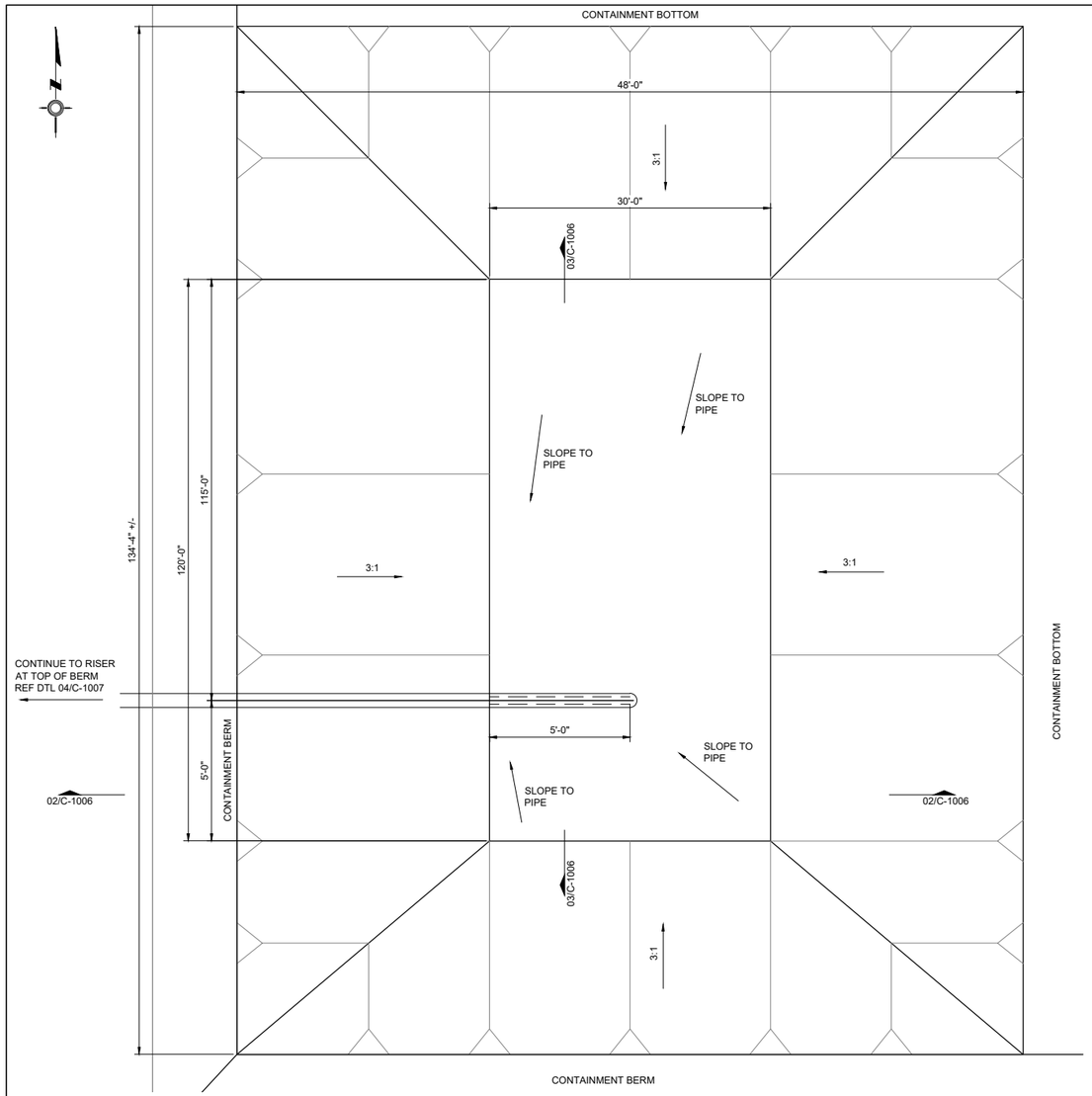
ISSUE	DATE	BY	DESCRIPTION	CHK'D	APP'D
0	04/11/23	JLG	ISSUED FOR CONSTRUCTION	HER	RCW

SILVERBACK EXPLORATION

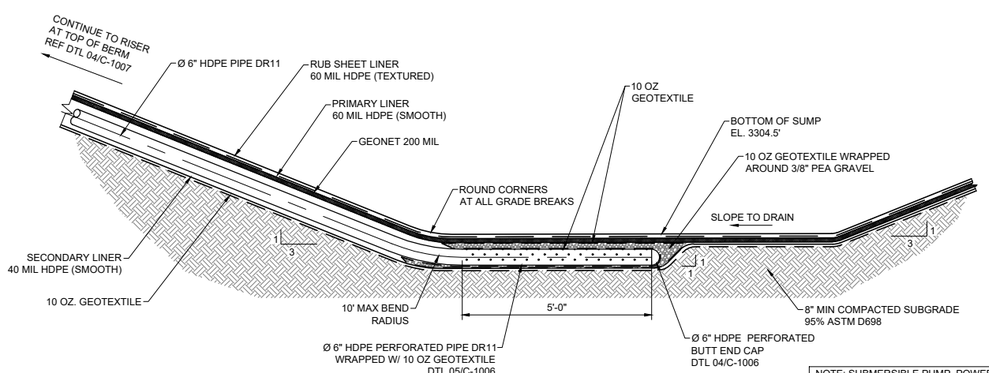
SILVERBACK EXPLORATION 1.2MM BBL
PRODUCED WATER CONTAINMENT & RECYCLING FACILITY
SECTIONS/DETAILS

DRAWN BY	PROJ. MGR.	SCALE	PROJ. NO.
JLG	HER	N.T.S.	B1242-1006

DRAWING NO.	ISSUE NO.
1242-1006-C-1005	0

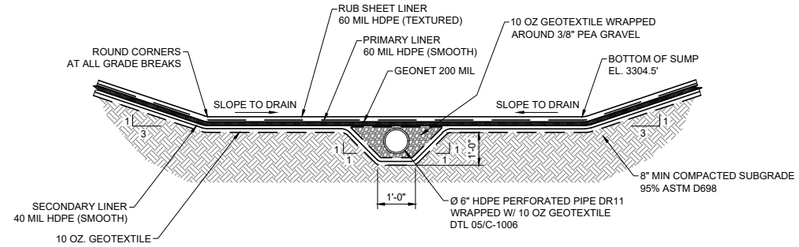


01 CONTAINMENT SUMP PLAN VIEW
SCALE: N.T.S.

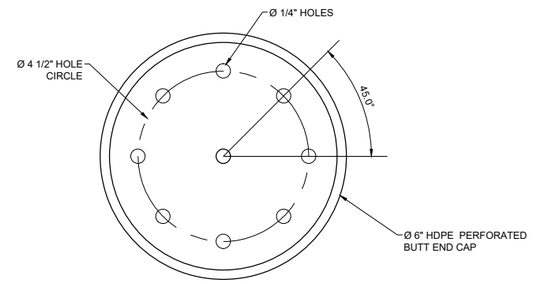


NOTE: SUBMERSIBLE PUMP, POWER CORD AND PULL CABLE SPECIFIED BY OWNER

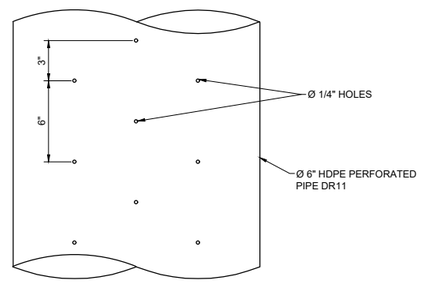
02 LEAK DETECTION SYSTEM
SCALE: N.T.S.

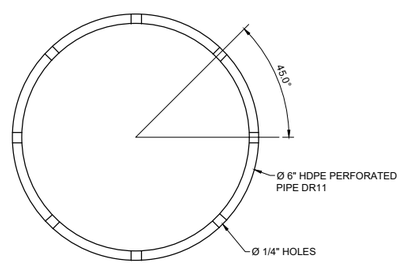


03 LEAK DETECTION SYSTEM
SCALE: N.T.S.



04 PERFORATED END CAP DETAIL
SCALE: 3" = 1'-0"





05 PIPE PERFORATION DETAIL
SCALE: NTS

LJA Energy, Inc.
3600 W Sam Houston Parkway S
Suite 600
Houston, Texas 77042
Phone 713.953.5200
Fax 713.953.5026
FRN - F-23057

ROBIN C. WARRICK NEW MEXICO 22888 PROFESSIONAL ENGINEER

4/11/23
ROBIN C. WARRICK, P.E. #22888

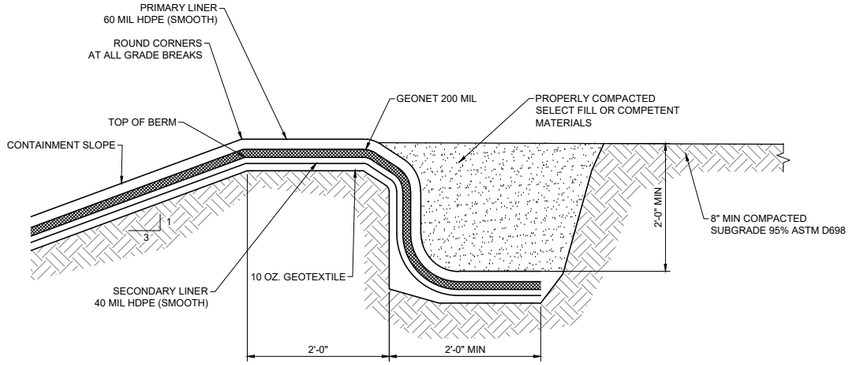
ISSUE	DATE	BY	DESCRIPTION	CHK'D	APP'D
0	04/11/23	JLG	ISSUED FOR CONSTRUCTION	HER	RCW

SILVERBACK EXPLORATION

SILVERBACK EXPLORATION 1.2MM BBL
PRODUCED WATER CONTAINMENT & RECYCLING FACILITY
SUMP & LEAK DETECTION DETAILS

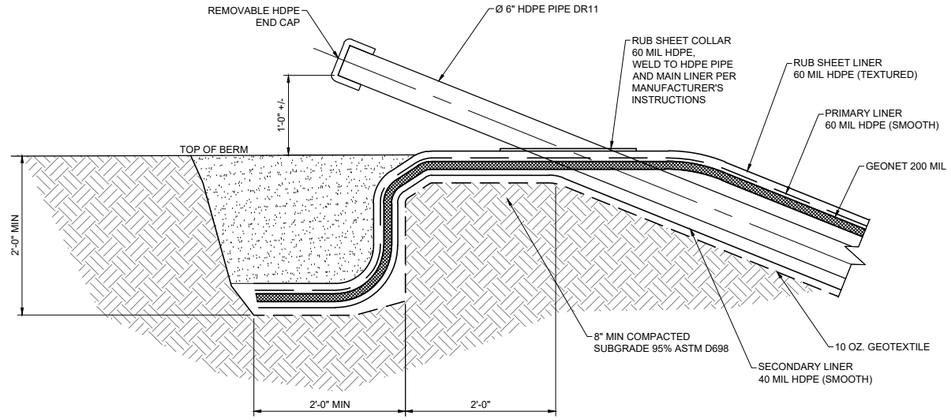
DRAWN BY	PROJ. MGR.	SCALE	PROJ. NO.
JLG	HER	NOTED	B1242-1006

DRAWING NO. 1242-1006-C-1006
ISSUE NO. 0



01 CONTAINMENT LINER ANCHOR TRENCH DETAIL

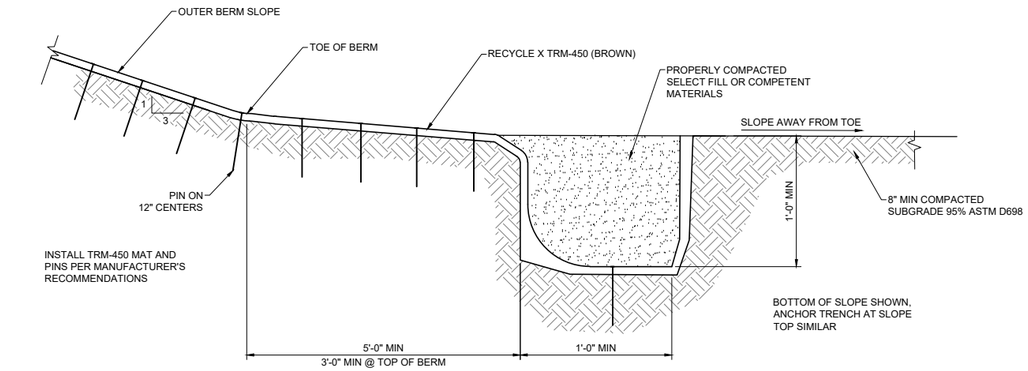
SCALE: 1/2" = 1'-0"



NOTE: SUBMERSIBLE PUMP, POWER CORD AND PULL CABLE SPECIFIED BY OWNER

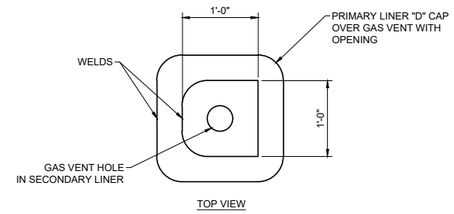
04 LEAK DETECTION PIPE RISER

SCALE: 1/2" = 1'-0"

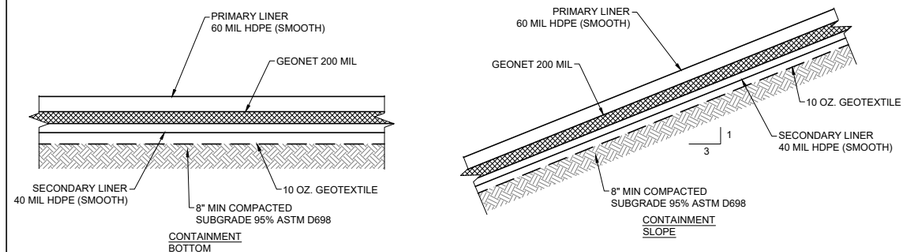


02 EROSION CONTROL ANCHOR TRENCH DETAIL

SCALE: 1/2" = 1'-0"

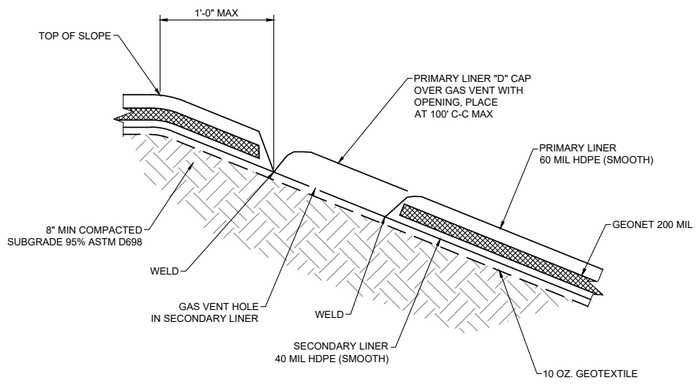


TOP VIEW



03 TYPICAL CONTAINMENT LINER DETAIL

SCALE: 3/4" = 1'-0"



ELEVATION

05 TYPICAL GAS VENT

SCALE: 3/4" = 1'-0"

LJA Energy, Inc.
3600 W Sam Houston Parkway S
Suite 600
Houston, Texas 77042
Phone 713.953.5200
Fax 713.953.5026
FRN - F-23057

ROBIN C. WARRICK NEW MEXICO 22888 PROFESSIONAL ENGINEER

4/11/23

ROBIN C. WARRICK, P.E. #22888

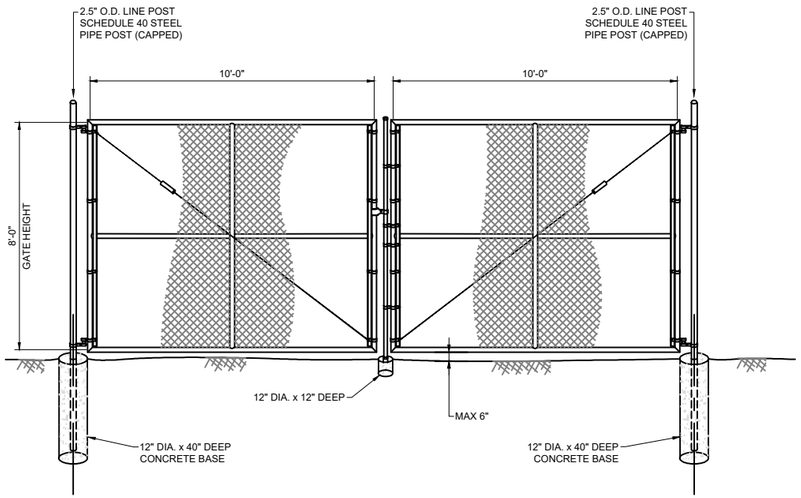
ISSUE	DATE	BY	DESCRIPTION	CH'KD	APP'D
0	04/11/23	JLG	ISSUED FOR CONSTRUCTION	HER	RCW

SILVERBACK EXPLORATION

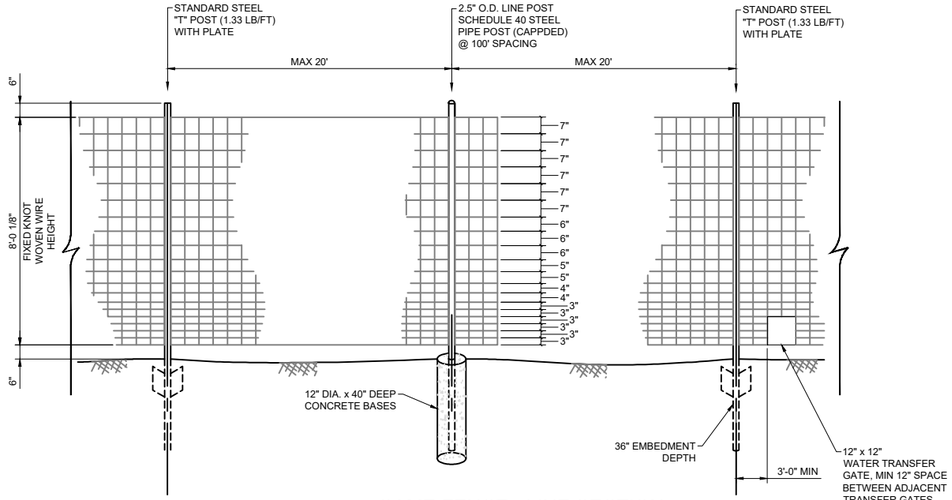
SILVERBACK EXPLORATION 1.2MM BBL
PRODUCED WATER CONTAINMENT & RECYCLING FACILITY
LINER & ANCHOR TRENCH DETAILS

DRAWN BY	PROJ. MGR.	SCALE	PROJ. NO.
JLG	HER	NOTED	B1242-1006

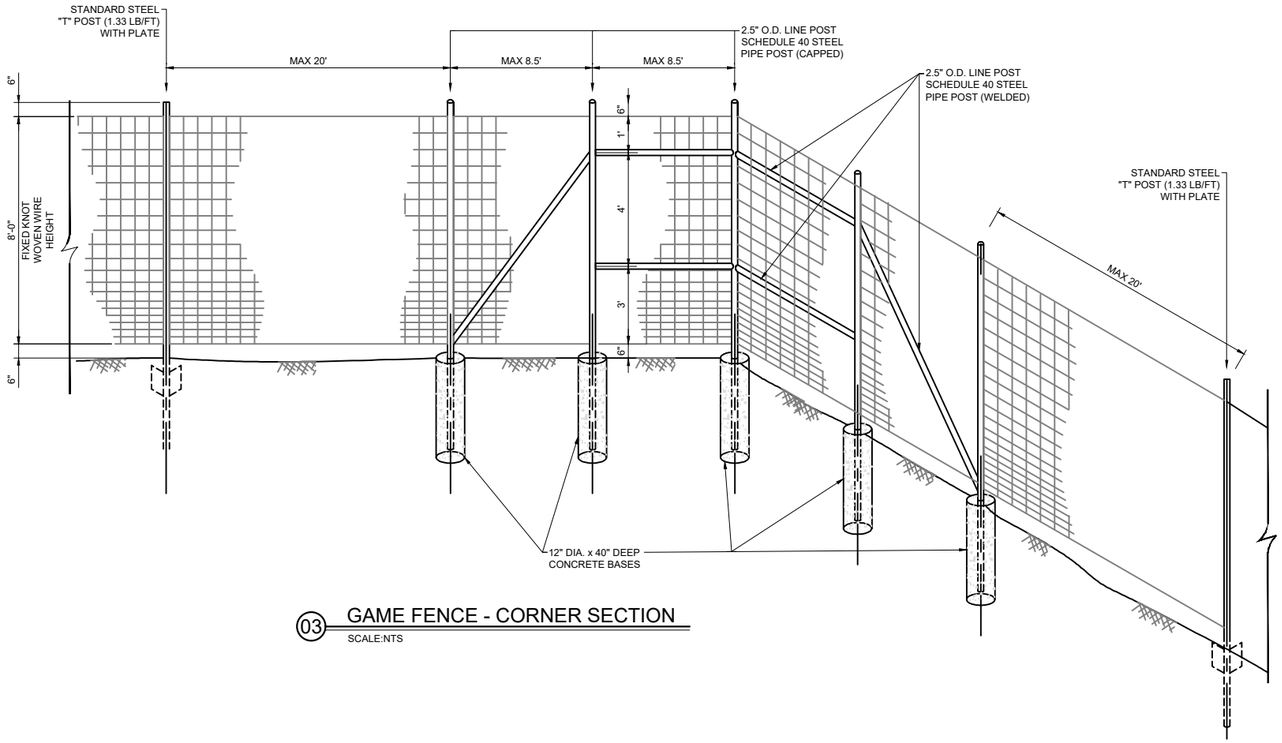
DRAWING NO. 1242-1006-C-1007
ISSUE NO. 0



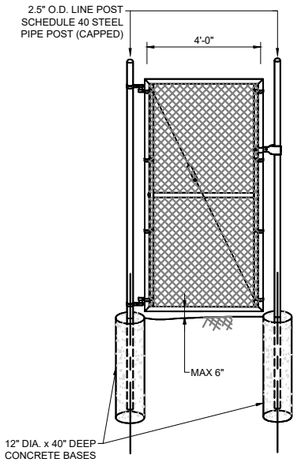
01 DOUBLE SWING GATE
SCALE:NTS



02 GAME FENCE - LINE SECTION
SCALE:NTS



03 GAME FENCE - CORNER SECTION
SCALE:NTS



04 WALK GATE
SCALE:NTS

CONFIDENTIAL - RESTRICTED USE

NOTES:
1. GATES AND FENCE LOCATED AS DIRECTED BY OWNER.
2. FENCE SHALL BE ELECTRONICALLY GROUNDED IN ACCORDANCE WITH GROUNDING REGULATIONS AROUND SUBSTATIONS AND WHERE OVERHEAD POWER LINES CROSSES FENCE LINES.
3. FENCE POSTS FOUNDATIONS TO BE A MINIMUM 2' FROM ALL PIPELINES.
4. LOCAL BUILDING CODES AND PERMITS PREVAIL.
5. ALL FENCE AND GATE MATERIAL TO BE HOT-DIP GALVANIZED.
6. END OF EMBEDDED POST TO BE 4" ABOVE BOTTOM OF CONCRETE.
7. FOR WOVEN WIRE, TOP AND BOTTOM STRANDS SHALL BE 12 1/2 GAUGE OR HEAVIER; INTERMEDIATE STRANDS SHALL BE 14 1/2 GAUGE OR HEAVIER.
8. ALL WIRE SHALL HAVE CLASS III GALVANIZATION.
9. STANDARD WOVEN WIRE FENCES MAY HAVE LINE POSTS SPACED UP TO 15 FEET APART. HI-TENSILE WOVEN WIRE FENCE MAY HAVE LINE POSTS SPACED UP TO 20 FEET APART. CLOSER SPACING IS REQUIRED WHERE NEEDED FOR INCLINES OR CHANGES IN TOPOGRAPHY.
10. CONCRETE FOOTINGS SHALL HAVE TOPS CROWNED.
11. TO PREVENT WIRE FROM SLIPPING ON STEEL POST, DOUBLE WRAP ALL WIRE AROUND STEEL POST OR WELD CHAIN LINK LOOPS.

LJA Energy, Inc.
3600 W Sam Houston Parkway S
Suite 600
Houston, Texas 77042
Phone 713.953.5200
Fax 713.953.5026
FRN - F-23057

ROBIN C. WARRICK NEW MEXICO 22888 PROFESSIONAL ENGINEER

4/11/23
ROBIN C. WARRICK, P.E. *22888

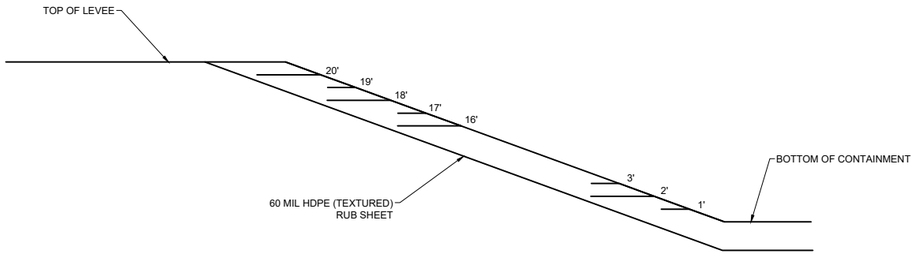
ISSUE	DATE	BY	DESCRIPTION	CHK'D	APP'D
0	04/11/23	JLG	ISSUED FOR CONSTRUCTION	HER	RCW

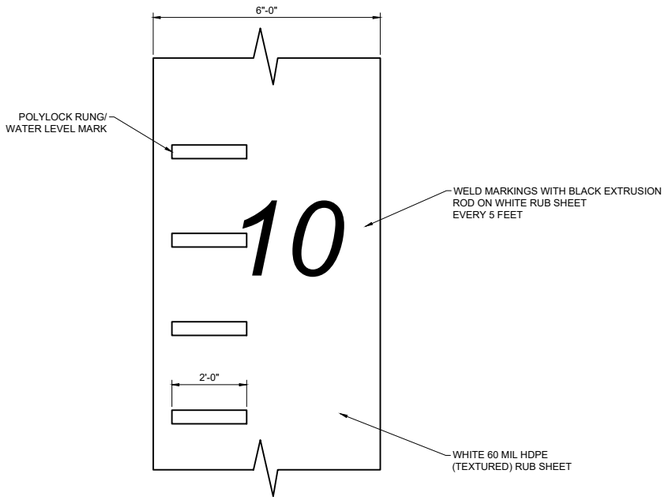
SILVERBACK EXPLORATION

SILVERBACK EXPLORATION 1.2MM BBL
PRODUCED WATER CONTAINMENT & RECYCLING FACILITY
FENCE DETAILS

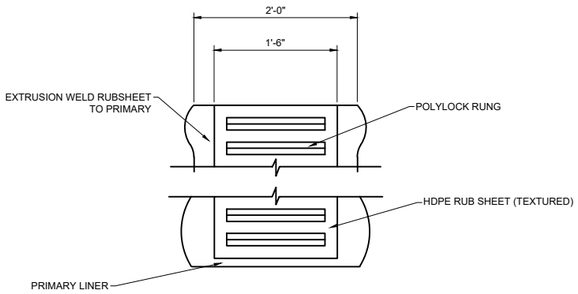
DRAWN BY	PROJ. MGR.	SCALE	PROJ. NO.
JLG	HER	NOTED	B1242-1006

DRAWING NO.	ISSUE NO.
1242-1006-C-1008	0

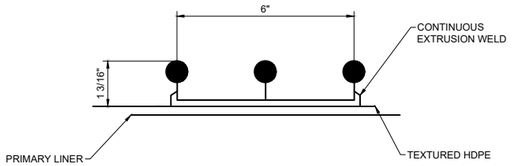




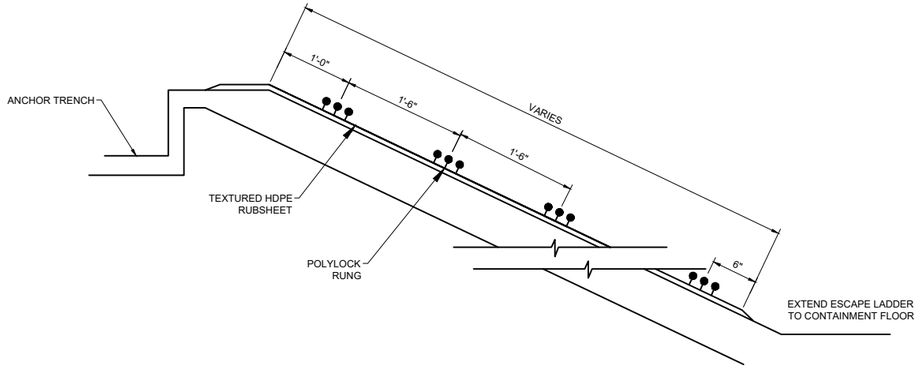
01 WATER LEVEL MARKS
SCALE: NTS



ESCAPE LADDER FRONT VIEW



POLYLOCK RUNG



02 ESCAPE LADDER DETAILS
SCALE: NTS

NOTE: GAGE LADDER SPECIFIED BY OWNER

LJA Energy, Inc.
3600 W Sam Houston Parkway S
Suite 600
Houston, Texas 77042
Phone 713.953.5200
Fax 713.953.5026
FRN - F-23057

ROBIN C. WARRICK NEW MEXICO 22888 PROFESSIONAL ENGINEER
4/11/23
ROBIN C. WARRICK, P.E. #22888

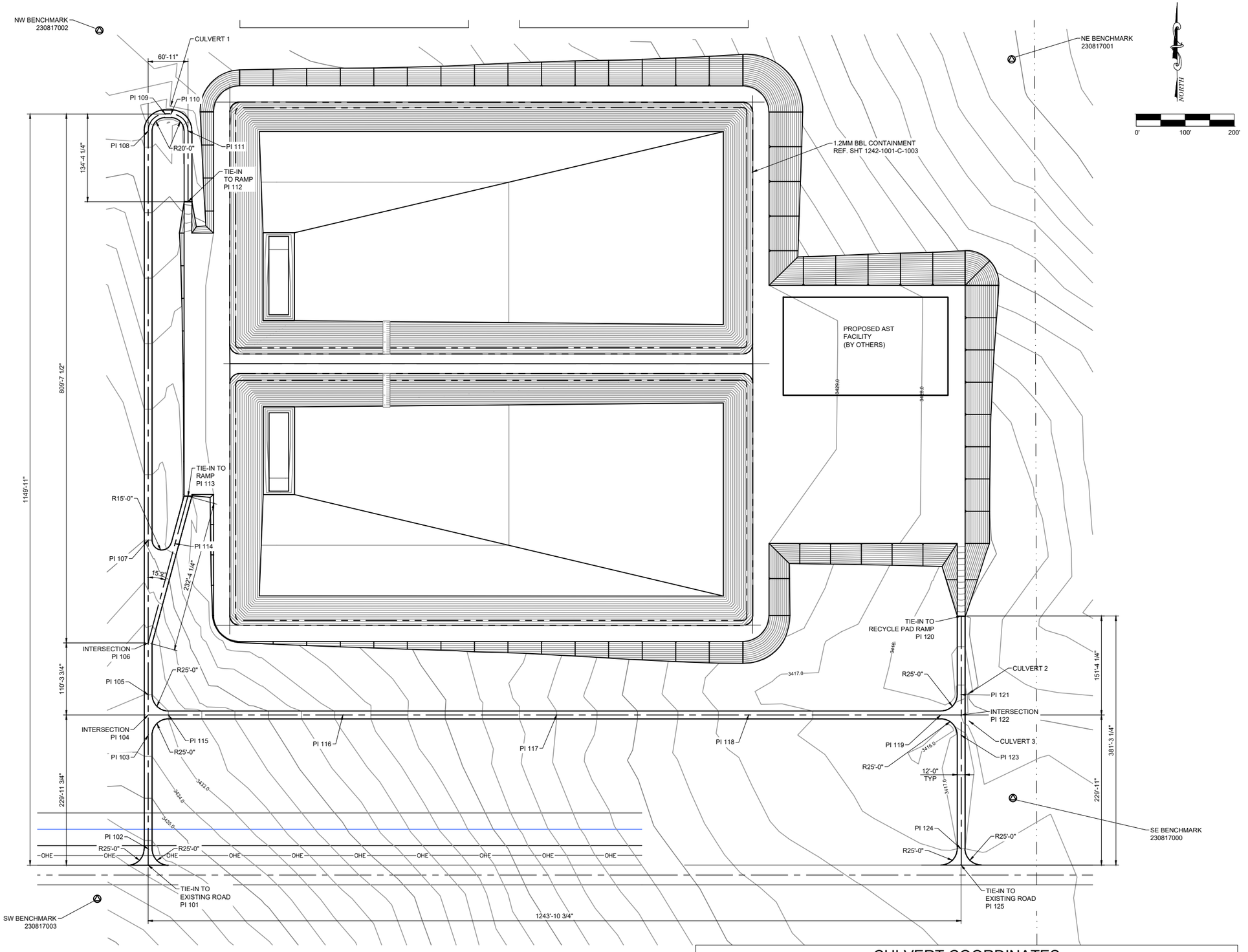
ISSUE	DATE	BY	DESCRIPTION	CH'KD	APP'D
0	04/11/23	JLG	ISSUED FOR CONSTRUCTION	HER	RCW

SILVERBACK EXPLORATION

SILVERBACK EXPLORATION 1.2MM BBL
PRODUCED WATER CONTAINMENT & RECYCLING FACILITY
GAGE LADDER DETAILS

DRAWN BY	PROJ. MGR.	SCALE	PROJ. NO.
JLG	HER	NOTED	B1242-1006

DRAWING NO.	ISSUE NO.
1242-1006-C-1009	0



01 CONTAINMENT SITE ACCESS ROAD PLAN

SCALE: 1" = 200'

ROAD COORDINATES

PI	NORTHING	EASTING	ELEV
101	601991.53	504997.62	3436.60
102	602016.53	504997.62	3436.32
103	602190.50	504997.62	3433.62
104	602221.50	504997.62	3433.25
105	602252.50	504997.62	3433.12
106	602331.81	504997.62	3432.62
107	602489.07	504997.62	3430.12
108	603115.44	504997.62	3423.87
109	603141.44	505023.62	3424.77
110	603141.44	505032.55	3424.77
111	603115.65	505058.54	3423.87
112	603007.08	505058.55	3424.63
113	602556.56	505058.58	3428.00
114	602483.60	505038.79	3428.72
115	602221.50	505028.65	3433.12
116	602221.50	505295.52	3427.87
117	602221.50	505622.49	3422.12
118	602221.50	505916.50	3417.37
119	602221.50	506210.51	3416.62
120	602372.86	506241.51	3415.32
121	602252.50	506241.51	3417.37
122	602221.50	506241.60	3417.37
123	602190.50	506241.60	3417.37
124	602016.60	506241.51	3417.12
125	601991.60	506241.51	3417.16

CULVERT COORDINATES

	INVERT			DISCHARGE				
CULVERT	NORTHING	EASTING	ELEV	NORTHING	EASTING	ELEV	LENGTH	TYPE
1	603128.50	505029.32	3422.90	603154.34	505032.32	3422.70	26.0	Ø12" RCP
2	602254.99	506229.90	3415.00	602254.21	506253.48	3414.90	24.0	Ø12" RCP
3	602200.30	506227.54	3415.50	602212.06	506254.18	3415.40	30.0	Ø12" RCP

REF SHT 1242-1006-C-1008 FOR GATE AND FENCE DETAILS

NOTE: FENCE AND GATE LOCATIONS ARE APPROXIMATE; FINAL LOCATIONS TO BE FIELD-LOCATED BY OWNER

REF SHT 1242-1001-C-1002 FOR BENCHMARK TABLE

LJA Energy, Inc.
3600 W Sam Houston Parkway S
Suite 600
Houston, Texas 77042
Phone 713.953.5200
Fax 713.953.5026
FRN - F-23057

ROBIN C. WARRICK NEW MEXICO 22888 PROFESSIONAL ENGINEER

4/11/23
ROBIN C. WARRICK, P.E. #22888

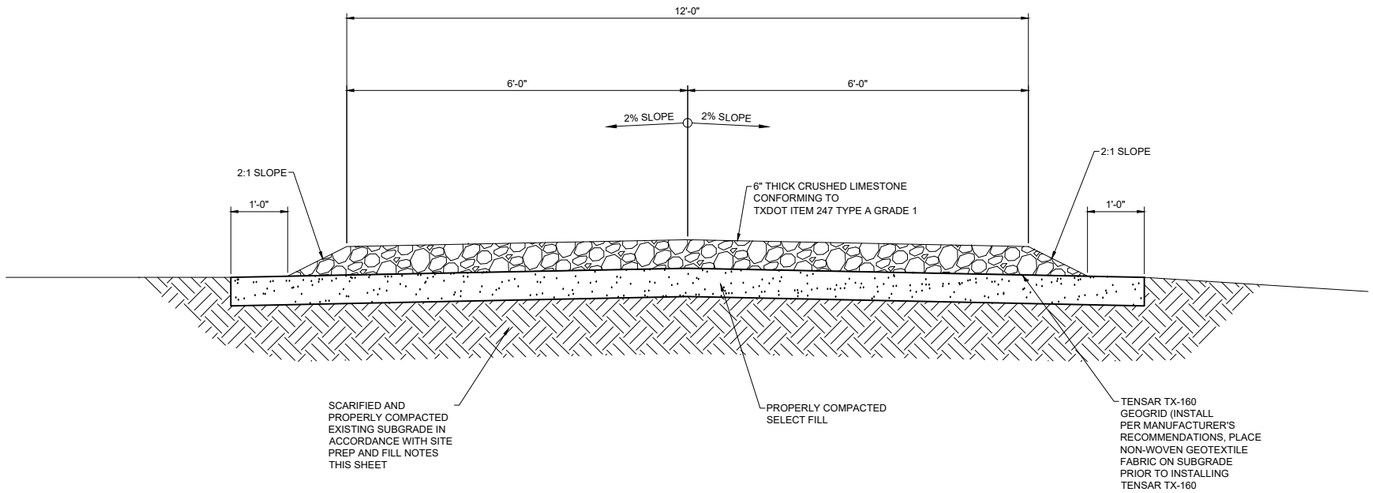
ISSUE	DATE	BY	DESCRIPTION	CHK'D	APP'D
0	04/11/23	JLG	ISSUED FOR CONSTRUCTION	HER	RCW

SILVERBACK EXPLORATION

SILVERBACK EXPLORATION 1.2MM BBL
PRODUCED WATER CONTAINMENT & RECYCLING FACILITY
ACCESS ROAD PLAN

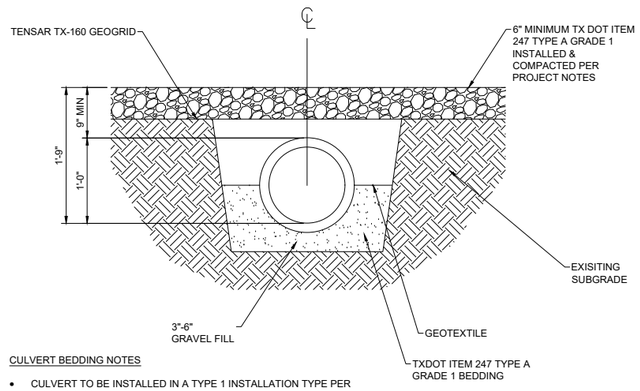
DRAWN BY	PROJ. MGR.	SCALE	PROJ. NO.
JLG	HER	1" = 200'	B1242-1006

DRAWING NO.	ISSUE NO.
1242-1006-C-2001	0



01 TYPICAL ROAD SECTION

SCALE: 3/8" = 1'-0"



CULVERT BEDDING NOTES

- CULVERT TO BE INSTALLED IN A TYPE 1 INSTALLATION TYPE PER ACPA DESIGN MANUAL.
- CULVERT TO BE Ø12" CLASS 3 REINFORCED CONCRETE PIPE.

02 RCP CULVERT BEDDING SECTION

SCALE: 1/4"" = 1'-0"

LJA Energy, Inc.
3600 W Sam Houston Parkway S
Suite 600
Houston, Texas 77042
Phone 713.953.5200
Fax 713.953.5026
FRN - F-23057

ROBIN C. WARRICK NEW MEXICO 22888 PROFESSIONAL ENGINEER

4/11/23
ROBIN C. WARRICK, P.E. •22888

ISSUE	DATE	BY	DESCRIPTION	CH'KD	APP'D
0	04/11/23	JLG	ISSUED FOR CONSTRUCTION	HER	RCW

SILVERBACK EXPLORATION

SILVERBACK EXPLORATION 1.2MM BBL
PRODUCED WATER CONTAINMENT & RECYCLING FACILITY
ROAD AND CULVERT SECTIONS

DRAWN BY	PROJ. MGR.	SCALE	PROJ. NO.
RNM	HER	AS NOTED	B1242-1006

DRAWING NO.	ISSUE NO.
1242-1006-C-2002	0

DAGGER FACILITY
SILVERBACK EXPLORATION

Section 14, Township 19 South, Range 25 East

32° 39' 20.4012", -104° 27' 1.5984"
32.655667°, -104.450444°

SILVERBACK EXPLORATION

Index to Drawings
11X17

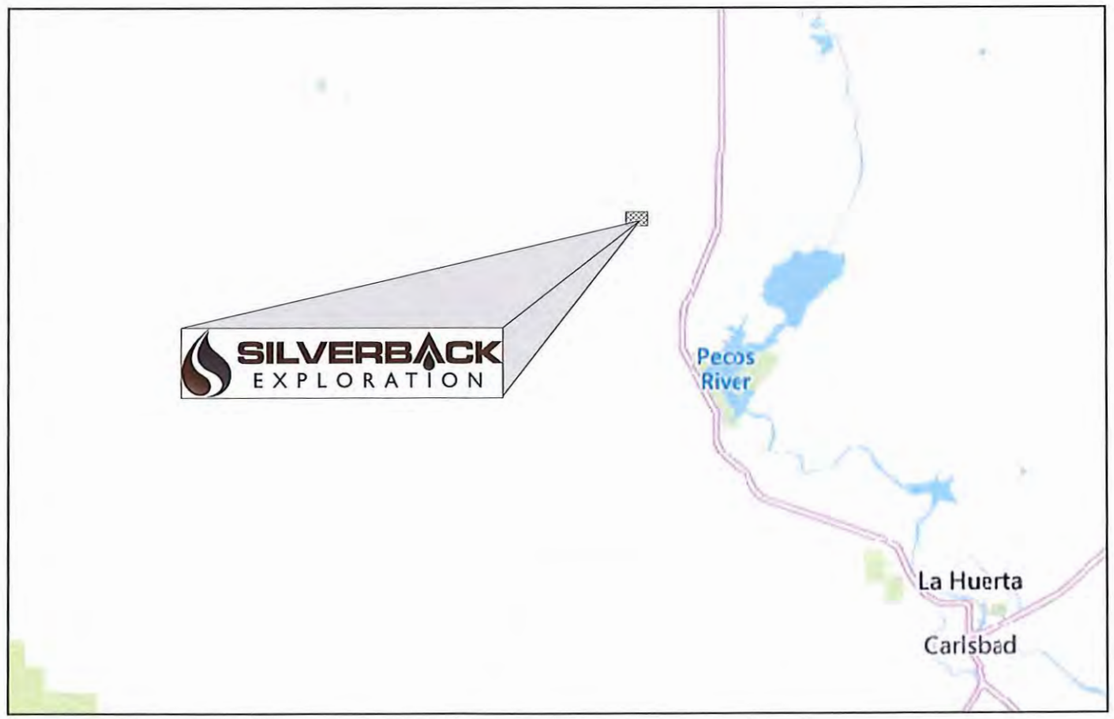
Sheet No.	Description
1.	Cover Sheet
2.	Project Location
3.	Site Plan
4.	Pit Capacities
5.	Cross Sections
6.	Cross Sections

Contacts

Bobbi Jo Crain - Cascade Services - (210) 632-8670

Envirotech Engineering Consulting - Mitchell Ratke, EIT (580)-234-8780 (Design Engineer)

Envirotech Engineering Consulting - Tyler Williams, PE (580)-234-8780 (Supervising Engineer)

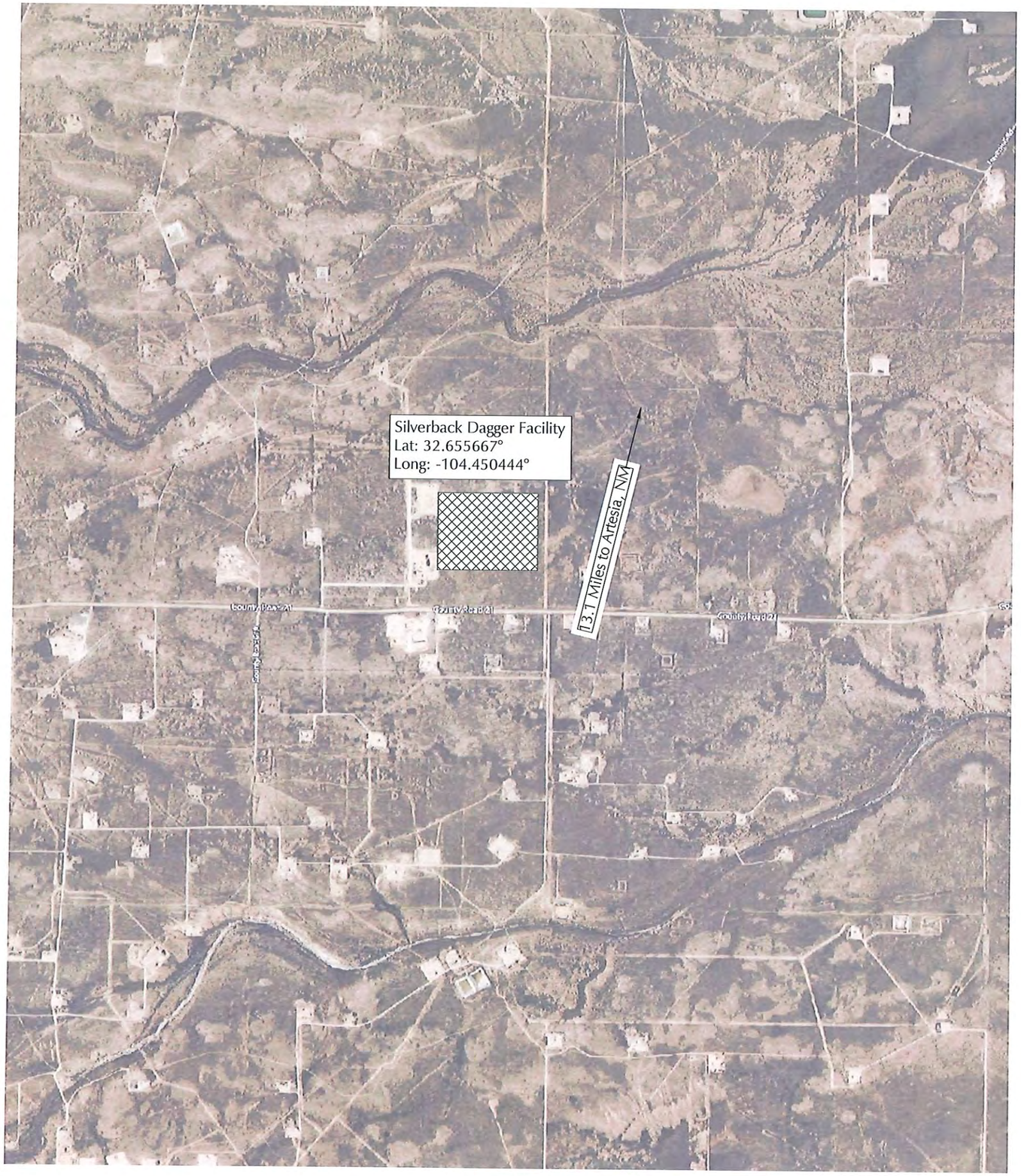


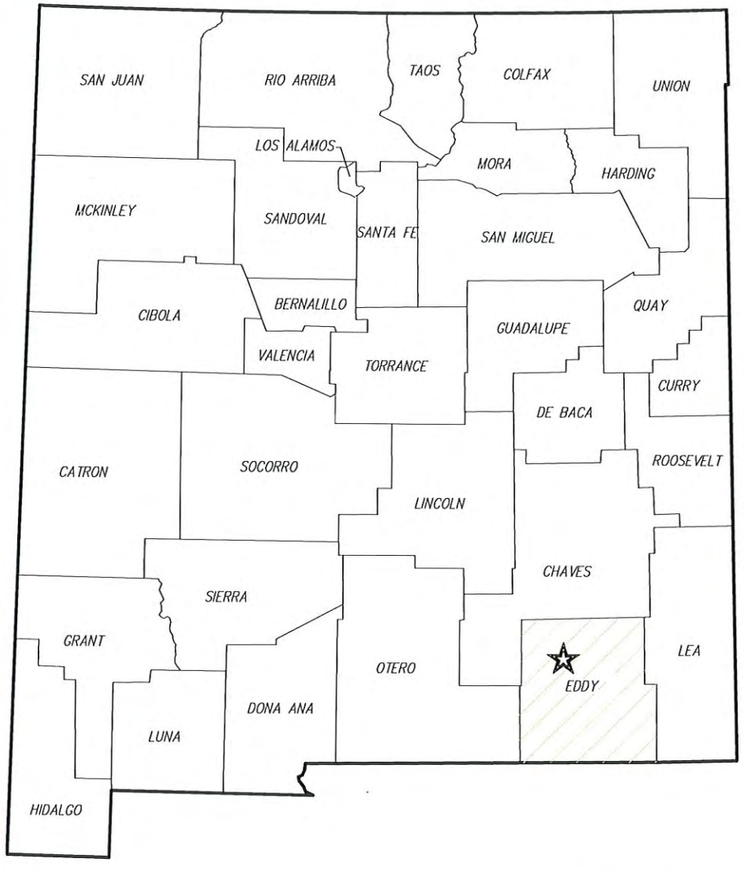
nm811 Professional Resources for Damage Prevention

TYLER JOE WILLIAMS
NEW MEXICO
26432
PROFESSIONAL ENGINEER
7/10/2023

ENVIROTECH
ENGINEERING

2500 N. Eleventh Street Enid, OK 73701 • 580.234.8780 • envirotechconsulting.com
License #26432 - Expiration Data: 12-31-2024





N
NORTH
0 1000 2000
Scale 1"=2000'
Bar Scale is intended for 11"x 17" (Full Size)

ENVIROTECH ENGINEERING
2350 North Eleventh Street
Enid, Oklahoma
580.234.8720
envirotech@envirotechinc.com
PE #26432 - Expiration Date: 12-31-2024

NO.	DATE	DESCRIPTION

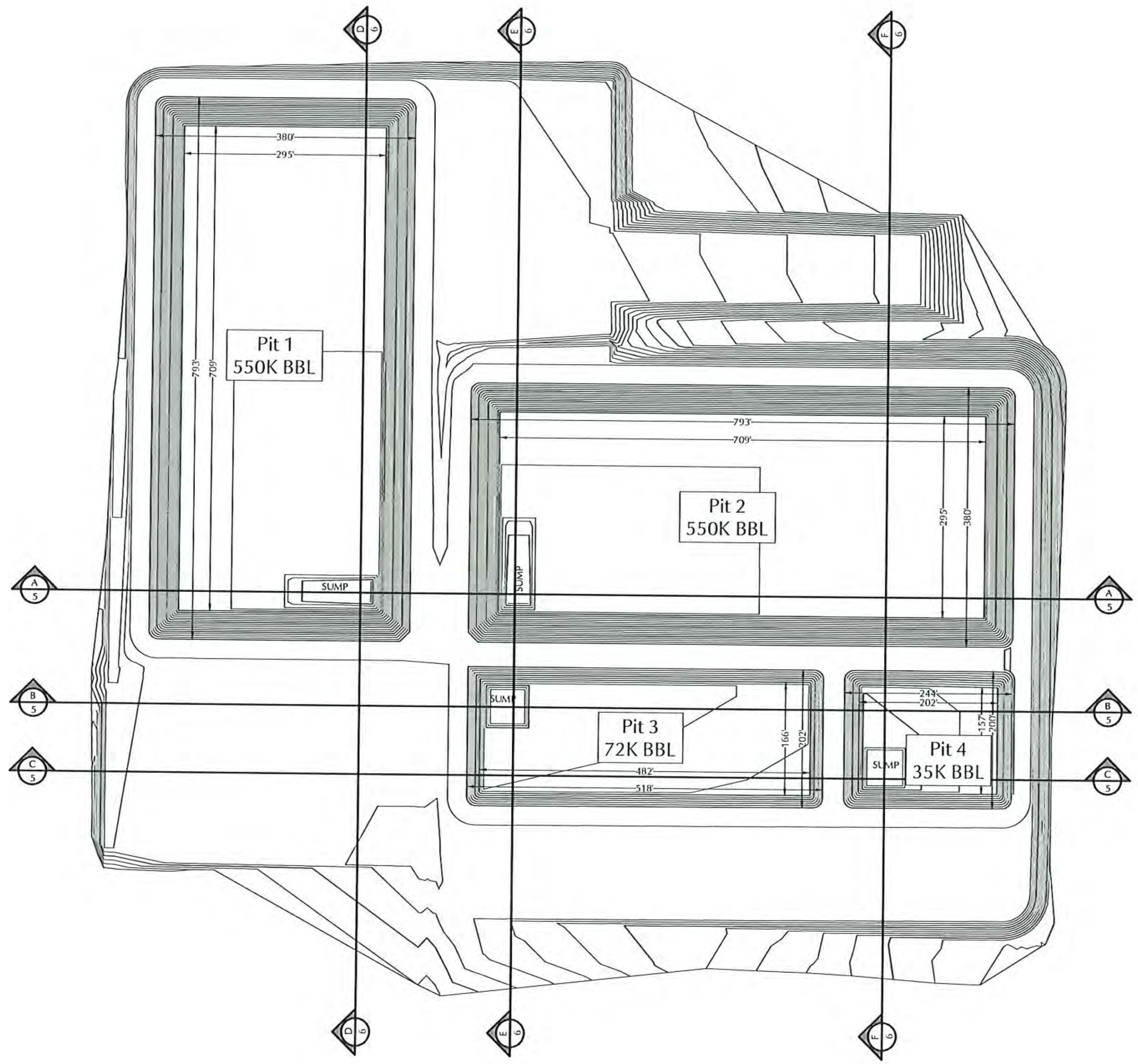
SILVERBACK EXPLORATION

PROJECT LOCATION
Silverback Dagger
Eddy County, New Mexico

TYLER JOE WILLIAMS
NEW MEXICO
26462
PROFESSIONAL ENGINEER
7/10/2023

DATE:	July 2023
SCALE:	1" = 2000'
DESIGNED BY:	OTHER
DRAWN BY:	M. Ratke
CHECKED BY:	T. Williams
PROJECT NO.	023169-00
SHEET NO.	2 of 6

NOTE*
Data used for the Drawing Set was provided to Envirotech by T. Robinson of RR Contracting via email to M. Ratke on 6/26/2023. Envirotech accepts no liability for the accuracy of the data provided or any discrepancies that are a result of faulty data.



NORTH
Scale 1"=200'

ENVIROTECH ENGINEERING
2500 North Eleventh Street
Enid, Oklahoma
580.234.8780
envirotechconsulting.com
PE #26432 - Expiration Date: 12-31-2024

NO.	DATE	DESCRIPTION

SILVERBACK EXPLORATION

PROJECT LOCATION
Silverback Dagger
Eddy County, New Mexico

TYLER JOE WILLIAMS
NEW MEXICO
26432
PROFESSIONAL ENGINEER
7/10/2023

DATE:	July 2023
SCALE:	1" = 200'
DESIGNED BY:	OTHER
DRAWN BY:	M. Ratke
CHECKED BY:	T. Williams
PROJECT NO.	023169-00
SHEET NO.	3 of 6

Owner	Silverback Exploration			
Site Name	Dagger Facility Pit 1			
	Top FB	Bottom	Max Liq. Level	
Lagoon Features				Freeboard
Side slope Ratio	3		2	Maximum Volume
Maximum Depth (ft)	20.0		18.0	Storage Volume
Lagoon Top Width (ft)	793	838	781	Floor
Lagoon Top Length (ft)	380	273	368	Sump
Maximum Total Vol (ft³)	3,961,335		3,372,332	
Maximum Total Vol (bbls	705,495		600,677	

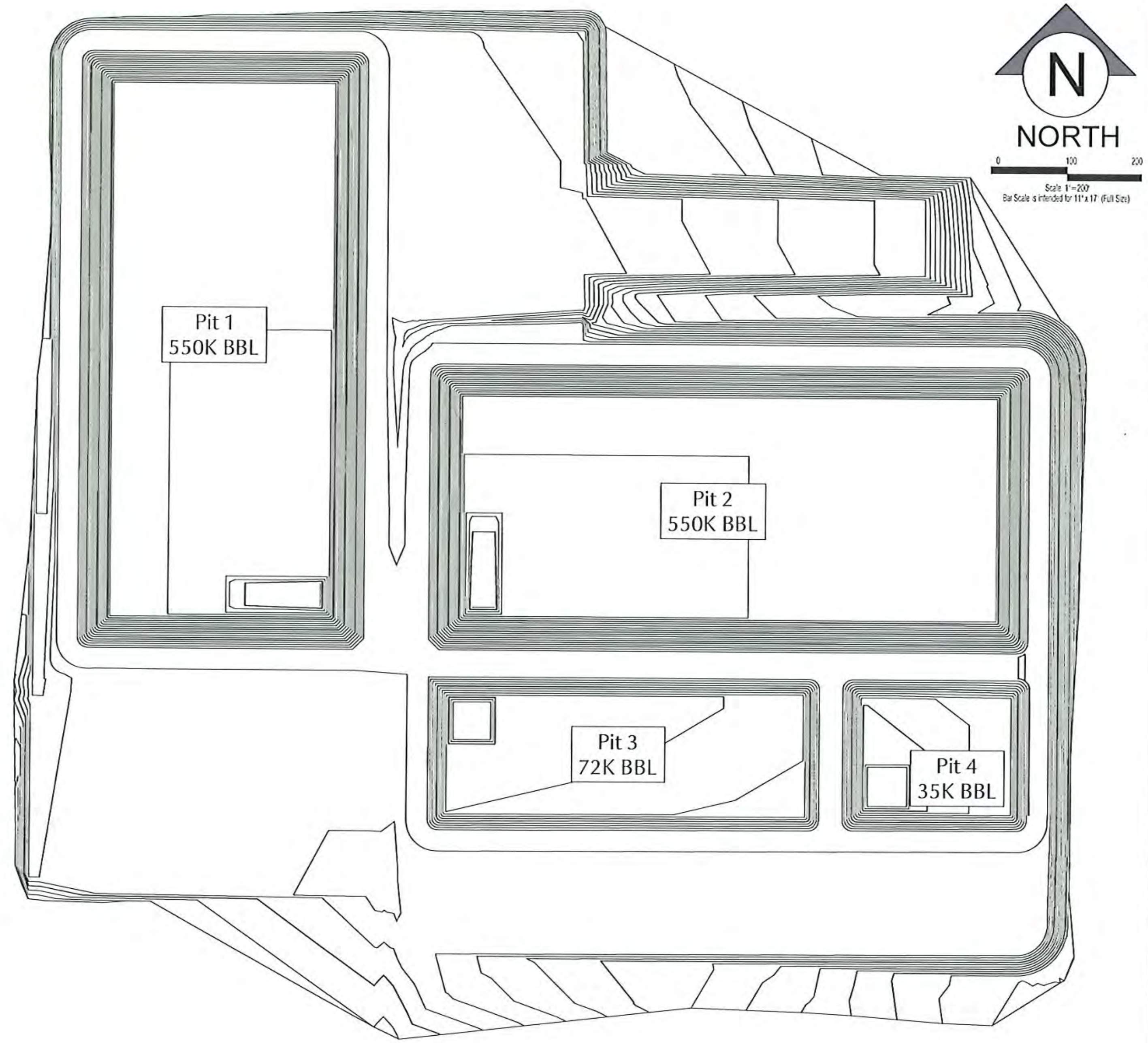
Lagoon Liq Depth ft	Storage ft	Remaining Stor Vol ft3	Gallons Storage gal	BBLS Storage bbls	Percent of Total Volume %	Vol In lagoon ft³	Gallons Storage gal	Vol In Lagoon bbls	Vol In Lagoon ac-ft	Percent Total Vol %
20.0	0.0	-	-	-	0.0%	3,961,335	29,634,748	705,589	90.94	100%
19.0	1.0	1,350	6,495	155	0.0%	3,663,634	27,407,644	652,563	84.11	92%
18.0	2.0	7,786	37,451	892	0.2%	3,372,332	25,228,417	600,677	77.42	85%
17.0	**3.0**	**16,640**	**80,037**	**1,906**	**0.4%**	**3,087,495**	**23,097,547**	**549,942**	**70.88**	**78%**
16.0	4.0	48,509	233,328	5,555	1.2%	2,809,060	21,014,574	500,347	64.49	71%
15.0	5.0	235,278	1,131,685	26,945	5.9%	2,536,966	18,979,042	451,882	58.24	64%
14.0	6.0	565,100	2,718,131	64,717	14.3%	2,271,149	16,990,469	404,535	52.14	57%
13.0	7.0	903,824	4,347,393	103,509	22.8%	2,011,556	15,048,452	358,296	46.18	51%
12.0	8.0	1,251,553	6,019,969	143,333	31.6%	1,758,118	13,152,477	313,154	40.36	44%
11.0	9.0	1,608,380	7,736,306	184,198	40.6%	1,510,774	11,302,100	269,098	34.68	38%
10.0	10.0	1,974,400	9,496,862	226,116	49.8%	1,269,464	9,496,862	226,116	29.14	32%
9.0	11.0	2,349,709	11,302,100	269,098	59.3%	1,034,127	7,736,306	184,198	23.74	26%
8.0	12.0	2,734,403	13,152,477	313,154	69.0%	804,701	6,019,969	143,333	18.47	20%
7.0	13.0	3,128,576	15,048,452	358,296	79.0%	581,125	4,347,393	103,509	13.34	15%
6.0	14.0	3,532,322	16,990,469	404,535	89.2%	363,338	2,718,131	64,717	8.34	9%
5.0	15.0	3,945,747	18,979,042	451,882	99.6%	151,275	1,131,685	26,945	3.47	4%
4.0	16.0	4,368,934	21,014,574	500,347	110.3%	31,169	233,328	5,555	0.72	1%
3.0	17.0	4,801,985	23,097,547	549,942	121.2%	10,699	80,037	1,906	0.25	0%
2.0	18.0	5,244,993	25,228,417	600,677	132.4%	5,006	37,451	892	0.11	0%
1.0	19.0	5,698,055	27,407,644	652,563	143.8%	868	6,495	155	0.02	0%
0.0	20.0	6,161,070	29,634,748	705,589	155.5%	-	-	-	-	0%

Owner	Silverback Exploration			
Site Name	Dagger Facility Pit 2			
	Top FB	Bottom	Max Liq. Level	
Lagoon Features				Freeboard
Side slope Ratio	3		2	Maximum Volume
Maximum Depth (ft)	20.0		18.0	Storage Volume
Lagoon Top Width (ft)	793	838	781	Floor
Lagoon Top Length (ft)	380	273	368	Sump
Maximum Total Vol (ft³)	3,962,798		3,373,823	
Maximum Total Vol (bbls	705,756		600,942	

Lagoon Liq Depth ft	Storage ft	Remaining Stor Vol ft3	Gallons Storage gal	BBLS Storage bbls	Percent of Total Volume %	Vol In lagoon ft³	Gallons Storage gal	Vol In Lagoon bbls	Vol In Lagoon ac-ft	Percent Total Vol %
20.0	0.0	-	-	-	0.0%	3,962,798	29,645,694	705,850	90.97	100%
19.0	1.0	1,350	6,495	155	0.0%	3,665,133	27,418,859	652,830	84.14	92%
18.0	2.0	7,786	37,451	892	0.2%	3,373,823	25,239,571	600,942	77.45	85%
17.0	**3.0**	**16,640**	**80,037**	**1,906**	**0.4%**	**3,088,975**	**23,108,623**	**550,205**	**70.91**	**78%**
16.0	4.0	50,558	243,182	5,790	1.3%	2,810,528	21,025,557	500,608	64.52	71%
15.0	5.0	237,331	1,141,561	27,180	6.0%	2,538,420	18,989,921	452,141	58.27	64%
14.0	6.0	567,161	2,728,043	64,953	14.3%	2,272,591	17,001,253	404,792	52.17	57%
13.0	7.0	905,902	4,357,388	103,747	22.9%	2,012,979	15,059,099	358,550	46.21	51%
12.0	8.0	1,253,648	6,030,049	143,573	31.6%	1,759,524	13,163,002	313,405	40.39	44%
11.0	9.0	1,610,496	7,746,485	184,440	40.6%	1,512,165	11,312,505	269,345	34.71	38%
10.0	10.0	1,976,538	9,507,150	226,361	49.9%	1,270,839	9,507,150	226,361	29.17	32%
9.0	11.0	2,351,872	11,312,505	269,345	59.3%	1,035,488	7,746,485	184,440	23.77	26%
8.0	12.0	2,736,591	13,163,002	313,405	69.1%	806,049	6,030,049	143,573	18.50	20%
7.0	13.0	3,130,790	15,059,099	358,550	79.0%	582,461	4,357,388	103,747	13.37	15%
6.0	14.0	3,534,564	17,001,253	404,792	89.2%	364,663	2,728,043	64,953	8.37	9%
5.0	15.0	3,948,009	18,989,921	452,141	99.6%	152,595	1,141,561	27,180	3.50	4%
4.0	16.0	4,371,218	21,025,557	500,608	110.3%	32,507	243,182	5,790	0.75	1%
3.0	17.0	4,804,287	23,108,623	550,205	121.2%	10,699	80,037	1,906	0.25	0%
2.0	18.0	5,247,312	25,239,571	600,942	132.4%	5,006	37,451	892	0.11	0%
1.0	19.0	5,700,387	27,418,859	652,830	143.8%	868	6,495	155	0.02	0%
0.0	20.0	6,163,346	29,645,694	705,850	155.5%	-	-	-	-	0%

Owner	Silverback Exploration			
Site Name	Dagger Facility Pit 3			
	Top FB	Bottom	Max Liq. Level	
Lagoon Features				Freeboard
Side slope Ratio	3		2	Maximum Volume
Maximum Depth (ft)	11.0		9.0	Storage Volume
Lagoon Top Width (ft)	518	838	506	Floor
Lagoon Top Length (ft)	202	273	190	Sump
Maximum Total Vol (ft³)	699,149		498,012	
Maximum Total Vol (bbls	124,515		88,705	

Lagoon Liq Depth ft	Storage ft	Remaining Stor Vol ft3	Gallons Storage gal	BBLS Storage bbls	Percent of Total Volume %	Vol In lagoon ft³	Gallons Storage gal	Vol In Lagoon bbls	Vol In Lagoon ac-ft	Percent Total Vol %
11.0	0.0	-	-	-	0.0%	699,149	5,230,334	124,532	16.05	100%
10.0	1.0	4,373	21,034	501	0.6%	596,466	4,462,163	106,242	13.69	85%
9.0	2.0	9,791	47,095	1,121	1.4%	498,012	3,725,629	88,705	11.43	71%
8.0	**3.0**	**26,132**	**125,696**	**2,993**	**3.7%**	**403,719**	**3,020,225**	**71,910**	**9.27**	**58%**
7.0	4.0	107,864	518,827	12,353	15.4%	313,520	2,345,446	55,844	7.20	45%
6.0	5.0	225,724	1,085,731	25,851	32.3%	227,347	1,700,784	40,495	5.22	33%
5.0	6.0	353,593	1,700,784	40,495	50.6%	145,132	1,085,731	25,851	3.33	21%
4.0	7.0	487,619	2,345,446	55,844	69.7%	69,353	518,827	12,353	1.59	10%
3.0	8.0	627,905	3,020,225	71,910	89.8%	16,802	125,696	2,993	0.39	2%
2.0	9.0	774,559	3,725,629	88,705	110.8%	6,295	47,095	1,121	0.14	1%
1.0	10.0	927,685	4,462,163	106,242	132.7%	2,812	21,034	501	0.06	0%
0.0	11.0	1,087,387	5,230,334	124,532	155.5%	-	-	-	-	0%



Owner	Silverback Exploration			
Site Name	Dagger Facility Pit 4			
	Top FB	Bottom	Max Liq. Level	
Lagoon Features				Freeboard
Side slope Ratio	3		2	Maximum Volume
Maximum Depth (ft)	11.0		9.0	Storage Volume
Lagoon Top Width (ft)	518	838	506	Floor
Lagoon Top Length (ft)	202	273	190	Sump
Maximum Total Vol (ft³)	329,527		237,212	
Maximum Total Vol (bbls	58,687		42,252	

Lagoon Liq Depth ft	Storage ft	Remaining Stor Vol ft3	Gallons Storage gal	BBLS Storage bbls	Percent of Total Volume %	Vol In lagoon ft³	Gallons Storage gal	Vol In Lagoon bbls	Vol In Lagoon ac-ft	Percent Total Vol %
11.0	0.0	-	-	-	0.0%	329,527	2,465,192	58,695	7.56	100%
10.0	1.0	4,782	23,001	548	1.5%	282,109	2,110,460	50,249	6.48	86%
9.0	2.0	12,961	62,343	1,484	3.9%	237,212	1,774,580	42,252	5.45	72%
8.0	**3.0**	**36,100**	**173,641**	**4,134**	**11.0%**	**194,822**	**1,457,460**	**34,701**	**4.47**	**59%**
7.0	4.0	76,377	367,373	8,747	23.2%	154,878	1,158,643	27,587	3.56	47%
6.0	5.0	127,663	614,059	14,620	38.7%	117,319	877,662	20,897	2.69	36%
5.0	6.0	182,466	877,662	20,897	55.4%	82,083	614,059	14,620	1.88	25%
4.0	7.0	240,882	1,158,643	27,587	73.1%	49,108	367,373	8,747	1.13	15%
3.0	8.0	303,006	1,457,460	34,701	92.0%	23,211	173,641	4,134	0.53	7%
2.0	9.0	368,938	1,774,580	42,252	112.0%	8,334	62,343	1,484	0.19	3%
1.0	10.0	438,765	2,110,460	50,249	133.1%	3,075	23,001	548	0.07	1%
0.0	11.0	512,514	2,465,192	58,695	155.5%	-	-	-	-	0%

TYLER JOE WILLIAMS
NEW MEXICO
26432
PROFESSIONAL ENGINEER
7/10/2023

ENVIROTECH ENGINEERING
2500 North Eleventh Street
Enid, Oklahoma
580.234.8780
envirotechconsulting.com
PE #26432 - Expiration Date: 12-31-2024

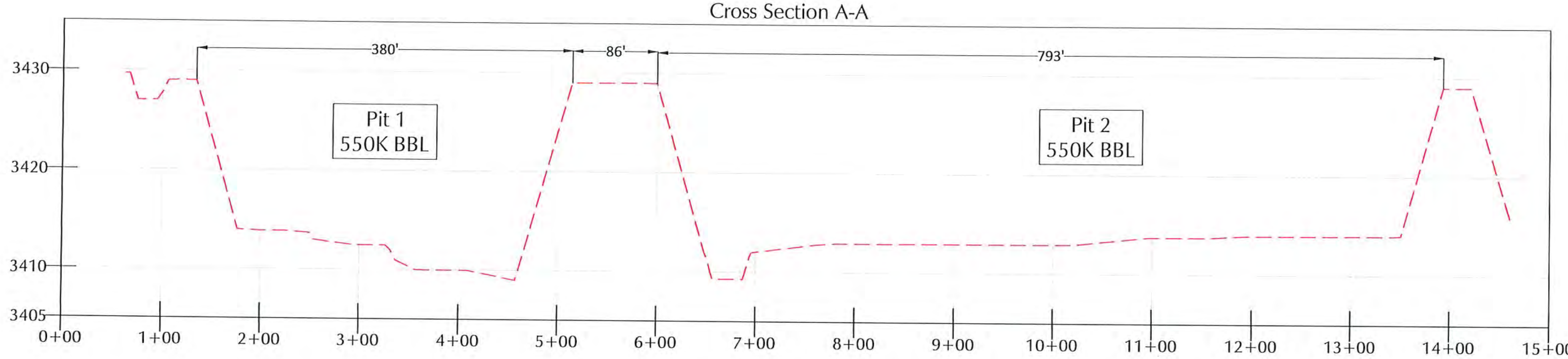
NO.	DATE	DESCRIPTION

SILVERBACK EXPLORATION

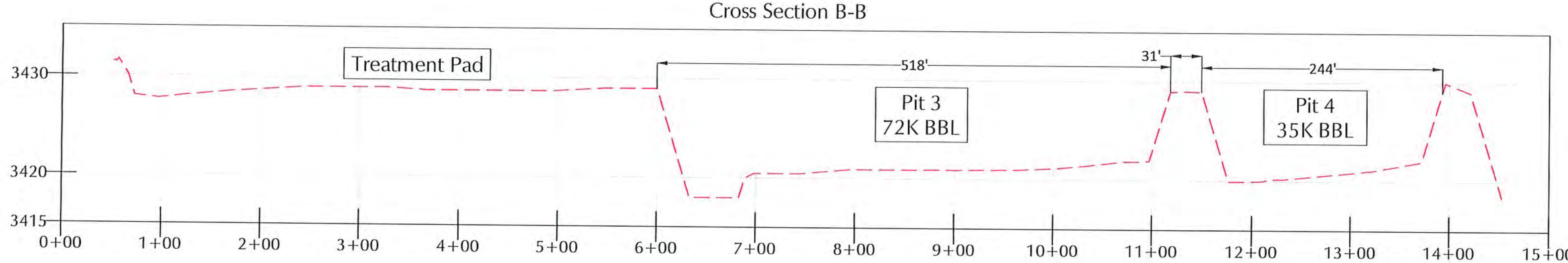
PROJECT LOCATION
Silverback Dagger
Eddy County, New Mexico

DATE:	July 2023
SCALE:	1" = 200'
DESIGNED BY:	OTHER
DRAWN BY:	M. Ratke
CHECKED BY:	T. Williams
PROJECT NO.	023169-00
SHEET NO.	4 of 6

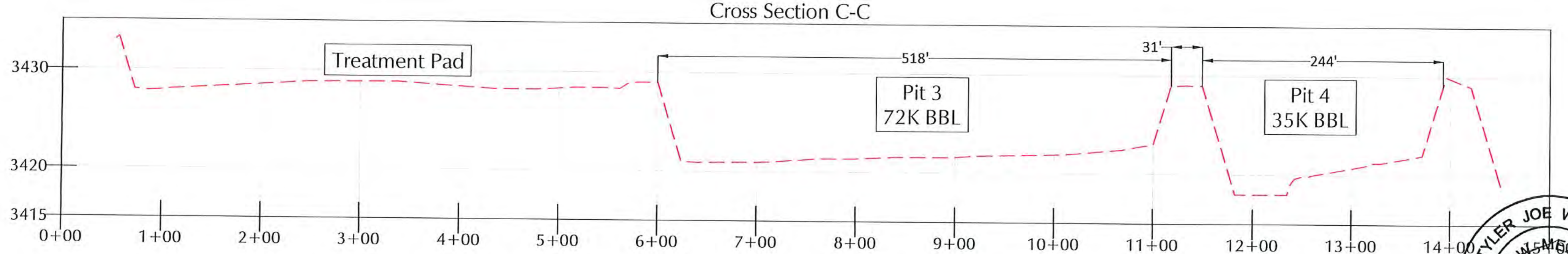
Cross Section A-A



Cross Section B-B



Cross Section C-C



TYLER JOE WILLIAMS
NEW MEXICO
28432
PROFESSIONAL ENGINEER
7/10/2023

ENVIROTECH ENGINEERING

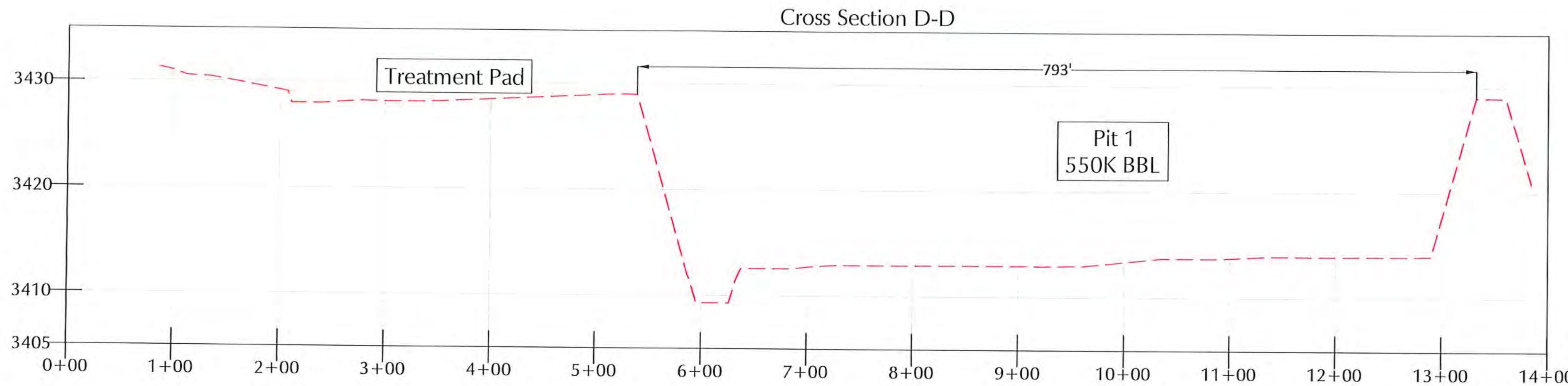
COPYRIGHT

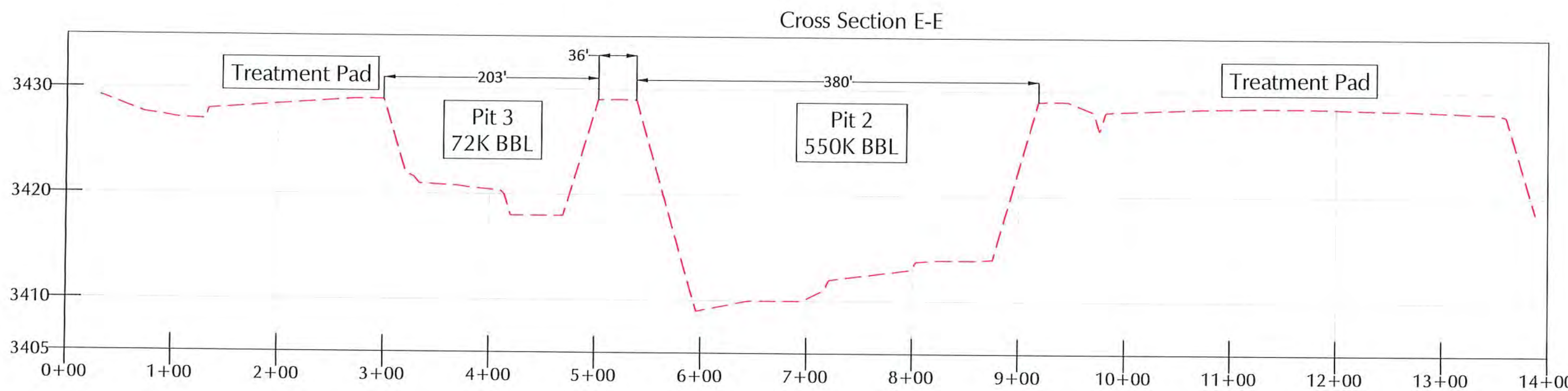
NO.	DATE	DESCRIPTION

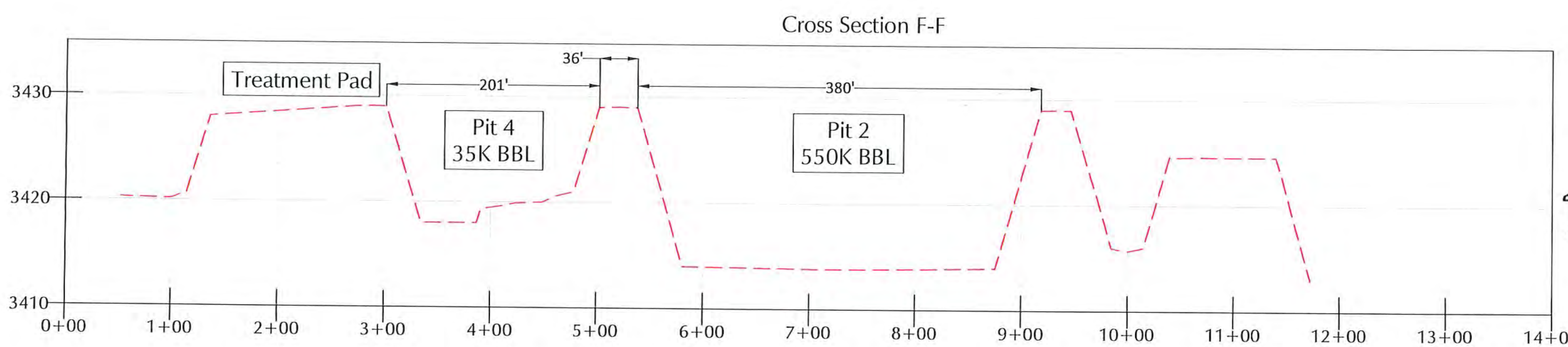
SILVERBACK EXPLORATION

PROJECT LOCATION
Silverback Dagger
Eddy County, New Mexico

DATE:	July 2023
SCALE:	NTS
DESIGNED BY:	OTHER
DRAWN BY:	M. Ratke
CHECKED BY:	T. Williams
PROJECT NO.	023169-00
SHEET NO.	5 of 6







TYLER JOE WILLIAMS
NEW MEXICO
26432
PROFESSIONAL ENGINEER

7/10/2023

ENVIROTECH ENGINEERING
2500 North Eleventh Street
Enid, Oklahoma
580.234.8780
envirotechconsulting.com
PE #26432 - Expiration Date: 12-31-2024

NO.	DATE	DESCRIPTION

SILVERBACK EXPLORATION

PROJECT LOCATION
Silverback Dagger
Eddy County, New Mexico

DATE:	July 2023
SCALE:	NTS
DESIGNED BY:	OTHER
DRAWN BY:	M. Ratke
CHECKED BY:	T. Williams
PROJECT NO.	023169-00
SHEET NO.	6 of 6

Design and Construction Plan In Ground Containments

This plan addresses construction of the earthen containments.

Dike Protection and Structural Integrity

The design and operation provide for the confinement of produced water, prevention of releases and prevention of overtopping due to wave action or rainfall. Additionally, the design prevents run-on of surface water as the containment is surrounded by an above-grade levee (a berm) and/or diversion ditch (between the levee and the soil stockpile) to prevent run-on of surface water.

19.15.34.12 A Design and Construction Specifications
(1). The operator shall design and construct a recycling containment to ensure the confinement of produced water, to prevent releases and to prevent overtopping due to wave action or rainfall.
(8). The operator of a recycling containment shall design the containment to prevent run-on of surface water. The containment shall be surrounded by a berm, ditch or other diversion to prevent run-on of surface water

Stockpile Topsoil

Where topsoil is present, prior to constructing containment, the operator will strip and stockpile the topsoil for use as the final cover or fill at the time of closure.

19.15.34.12 B. Prior to constructing containment, the operator shall strip and stockpile the topsoil for use as the final cover or fill at the time of closure

Signage

The operator will place an upright sign no less than 12 inches by 24 inches with lettering not less than two inches in height in a conspicuous place on the fence surrounding the containment. The sign is posted in a manner and location such that a person can easily read the legend. The sign will provide the following information:

- the operator's name,
- the location of the site by quarter-quarter or unit letter, section, township and range, and
- emergency telephone numbers

19.15.34.12 C. Signs.
The operator shall post an upright sign no less than 12 inches by 24 inches with lettering not less than two inches in height in a conspicuous place on the fence surrounding the containment. The operator shall post the sign in a manner and location such that a person can easily read the legend. The sign shall provide the following information: the operator's name, the location of the site by quarter-quarter or unit letter, section, township and range, and emergency telephone numbers

Fencing

The operator will provide for a fence to enclose the recycling containment in a manner that deters unauthorized wildlife and human access. As specified in the transmittal letter and design drawings, the operator will employ a chain-link or game fence rather than a four foot, four-strand wire fence Because feral pigs, javelina and deer are present in the area, a chain link or game fence is required in order to comply with Section 19.15.34.12 D.1 of the Rule. The specification for fencing provided in 19.15.34.12 D.2 contradicts D.1 because pigs will move beneath the lower strand of a 4-strand, 4-foot high barbed wire fence and deer will jump over. Thus, compliance with D.2 results in a violation of D.1. Compliance with D.1 is the critical component of the Rule and operators need not submit a variance request in order to follow Best Management Practices and comply with the Rule.

19.15.34.12 D. Fencing
(1) The operator shall fence or enclose a recycling containment in a manner that deters unauthorized wildlife and human access and shall maintain the fences in good repair. The operator shall ensure that all gates associated with the fence are closed and locked when responsible personnel are not onsite.
(2) Recycling containments shall be fenced with a four-foot fence that has at least four strands of barbed wire evenly spaced in the interval between one foot and four feet above ground level.

As stated in the O&M plan, the operator will ensure that all gates associated with the fence are closed and locked when responsible personnel are not onsite.

Netting and Protection of Wildlife

The perimeter game/chain-link fence will be effective in excluding stock and most terrestrial wildlife. If requested by the surface owner, the game fence can include a fine mesh from the base to 1 foot above the ground to exclude the small reptiles (e.g. dune sagebrush lizard).

19.15.34.12 E Netting.
The operator shall ensure that a recycling containment is screened, netted or otherwise protective of wildlife, including migratory birds. The operator shall on a monthly basis inspect for and, within 30 days of discovery, report the discovery of dead migratory birds or other wildlife to the appropriate wildlife agency and to the division district office in order to facilitate assessment and implementation of measures to prevent incidents from reoccurring.

The recycling containment will be protective of wildlife, including migratory birds through the implementation of an Avian Protection Plan, routine inspections and the perimeter fence.

The avian protection plan includes the use of a Bird-X Mega Blaster Pro as a primary hazing program for avian species. The device will be equipped with sounds suitable for the Permian Basin environment. In addition to this sonic device, staff will routinely inspect the containment for the presence of avian species.

The O&M plan calls for the operator to inspect (per BLM, at least once every two weeks) for and, within 30 days of discovery (24 hours for federally protected bird or wildlife), report the discovery of dead migratory birds or other wildlife to the appropriate wildlife agency and to the division district office in order to facilitate assessment and implementation of measures to prevent incidents from reoccurring.

Earthwork

The containment will have a properly constructed foundation and interior slopes consisting of a firm, unyielding base, smooth and free of rocks, debris, sharp edges or irregularities to prevent the liner's rupture or tear. Geotextile is required under the liner when needed to reduce localized stress-strain or protuberances that otherwise may compromise the liner's integrity.

19.15.34.12 A
(2) A recycling containment shall have a properly constructed foundation and interior slopes consisting of a firm, unyielding base, smooth and free of rocks, debris, sharp edges or irregularities to prevent the liner's rupture or tear. Geotextile is required under the liner when needed to reduce localized stress-strain or protuberances that otherwise may compromise the liner's integrity…

Appendix A provides the slope calculations:

a) levee has inside grade no steeper than two horizontal feet to one vertical foot (2H: 1V).
b) levee outside grade is no steeper than three horizontal feet to one vertical foot (3H: 1V)
c) top of the levee is wide enough to install an anchor trench and provide adequate room for inspection and maintenance.

d) The containment floor design calls for a slope toward the sump in the corner(s). The location of the leak detection system , as shown in Photo 3 and 4 on page 39, is on the west center wall, at the location of the sump.

Liner and Drainage Geotextile Installation

The containment has a primary (upper) liner and a secondary (lower) liner with a leak detection system appropriate to the site's conditions.

The primary (upper) liner is a geomembrane liner composed of an impervious, synthetic material that is resistant to ultraviolet light, petroleum hydrocarbons, salts and acidic and alkaline solutions. It is 60-mil HDPE. The secondary liner is specified in the design drawings and is 40-mil HDPE or thicker and is equivalent to 30-mil LLDPEr (in accordance with a previously approved variance) Liner compatibility meets or exceeds a subsequent relevant publication to EPA SW-846 method 9090A.

The recycling containment design has a leak detection system between the upper and lower geomembrane liners of 200-mil geonet to facilitate drainage. The leak detection system consists of a properly designed drainage and collection and removal system placed above the lower geomembrane liner in depressions and sloped to facilitate the earliest possible leak detection. The containment floor design calls for a slope toward the sump in the corner(s) of the containment, as shown in the design drawings. This slope combined with the highly transmissive geonet drainage layer provide for rapid leak detection.

The liners and drainage material will be installed consistent with the Manufacturer's specifications. In addition to any specifications of the Manufacturer, protocols for liner installation include measures to:

i. minimizing liner seams and orient them up and down, not across, a slope of the levee.
ii. use factory-welded seams where possible.
iii. use field seams in geosynthetic material that are thermally seamed and prior to field seaming, overlap liners four to six inches.
iv. minimize the number of field seams and comers and irregularly shaped areas.
v. provide for no horizontal seams within five feet of the slope's toe.
vi. use qualified personnel to perform field welding and testing.

19.15.34.12 A
(2) …The operator shall construct the containment in a levee with an inside grade no steeper than two horizontal feet to one vertical foot (2H:1V). The levee shall have an outside grade no steeper than three horizontal feet to one vertical foot (3H:1V). The top of the levee shall be wide enough to install an anchor trench and provide adequate room for inspection and maintenance.

19.15.34.12 A
(3) Each recycling containment shall incorporate, at a minimum, a primary (upper) liner and a secondary (lower) liner with a leak detection system appropriate to the site's conditions.

19.15.34.12 A
(4) All primary (upper) liners in a recycling containment shall be geomembrane liners composed of an impervious, synthetic material that is resistant to ultraviolet light, petroleum hydrocarbons, salts and acidic and alkaline solutions. All primary liners shall be 30-mil flexible PVC, 45-mil LLDPE string reinforced or 60-mil HDPE liners. Secondary liners shall be 30-mil LLDPE string reinforced or equivalent with a hydraulic conductivity no greater than 1 x 10-9 cm/sec. Liner compatibility shall meet or exceed the EPA SW-846 method 9090A or subsequent relevant publications.

19.15.34.12 A
(7) The operator of a recycling containment shall place a leak detection system between the upper and lower geomembrane liners that shall consist of 200-mil geonet or two feet of compacted soil with a saturated hydraulic conductivity of 1 x 10-5 cm/sec or greater to facilitate drainage. The leak detection system shall consist of a properly designed drainage and collection and removal system placed above the lower geomembrane liner in depressions and sloped to facilitate the earliest possible leak detection.

19.15.34.12 A
(5) The operator of a recycling containment shall minimize liner seams and orient them up and down, not across, a slope of the levee. Factory welded seams shall be used where possible. The operator shall ensure field seams in geosynthetic material are thermally seamed. Prior to field seaming, the operator shall overlap liners four to six inches…

vii. avoid excessive stress-strain on the liner
viii. The edges of all liners are anchored in the bottom of a compacted earth-filled trench that is at least 18 inches deep

19.15.34.12 A
(5) …The operator shall minimize the number of field seams and corners and irregularly shaped areas. There shall be no horizontal seams within five feet of the slope's toe. Qualified personnel shall perform field welding and testing.

At points of discharge into the lined earthen containment the pipe configuration effectively protects the liner from excessive hydrostatic force or mechanical damage during filling.

19.15.34.12 A
(3) The edges of all liners shall be anchored in the bottom of a compacted earth-filled trench. The anchor trench shall be at least 18 inches deep.

The design shows that at any 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 liner.

19.15.34.12 A
(6) At a point of discharge into or suction from the recycling containment, the operator shall insure that the liner is protected from excessive hydrostatic force or mechanical damage. External discharge or suction lines shall not penetrate the liner.

Pumping from the containment to hydraulic fracturing operations is the responsibility of stimulation contractors. Typically, lines are permanently placed in the containment with floats attached to prevent damage to the liner system. The containment may be equipped with permanent HDPE stinger (supported by a sacrificial liner or geotextile) for withdrawal of fluid if the owner deems necessary during operations.

Leak Detection and Fluid Removal System Installation

The leak detection system, contains the following design elements

a. The 200-mil HyperNet Geonet drainage material between the primary and secondary liner that is sufficiently permeable to allow the transport of fluids to the observation ports (Appendix A).
b. The containment floor is sloped towards the monitoring riser pipe to facilitate the earliest possible leak detection of the containment bottom. A pump may be placed in the observation port to provide for fluid removal.
c. Piping will withstand chemical attack from any seepage, structural loading from stresses and disturbances from overlying water, cover materials, equipment operation or expansion or contraction.

EFFECTIVE WIDE-AREA BIRD CONTROL!

Mega Blaster PRO sonic bird repeller covers 30 acres!

Mega Blaster PRO uses intermittent distress calls to create a "danger zone" that frightens infesting birds away for good.

PREDATOR cries help scare all the birds.

- NEMA Rated Case
- Crystal-Clear Digital Sounds

- *Laughing Gull*
- *Ring-Billed Gull*
- *Herring Gull*
- *California Gull*
- *Black-Headed Gull*
- *Glaucous-Winged Gull*
- *Double Crested Cormorant*
- *Marsh Hawk*

Perfect for Landfills, Airfields, Fish Farms, Farm Fields or any multi-acre facility.

Our most powerful system features two high-output amplifiers that drive our specially-designed 20 speaker tower. The intense sound output covers up to 30 acres (12 hectares).

It features solid-state electronics mounted inside a NEMA-type control box, suitable for most any application.

The generating unit mounts easily to a post or pole using the included hardware. The unit comes pre-recorded in four different configurations for the most common bird infestations.

Choose any or all of the 8 sounds, including predators to give the birds even more of a sense of danger. Customize by choosing volume and silent time between sounds.

CONFIGURATIONS AVAILABLE:

- Agricultural
  # MEGA-AG
- Crow / Raven
  # MEGA-CROW
- Woodpecker
  # MEGA-WP
- Marine / Gull
  # MEGA-MAR

Mega Blaster PRO

Complete system includes the generating unit with two built-in high-output amplifiers, 20-speaker tower with audio cables, 40 watt solar panel, battery clips and all mounting hardware.

BIRD-X

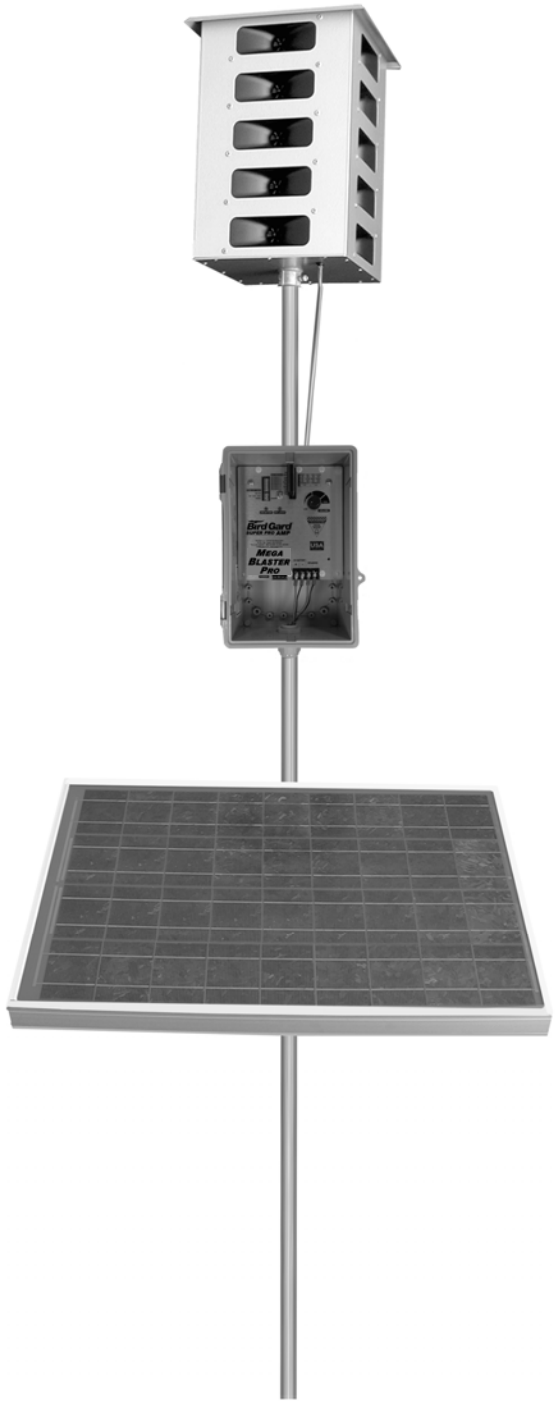
The Bird Control 'X'-Perts

NOTE: This unit is capable of sound output up to 125 decibels. **HEARING PROTECTION IS RECOMMENDED.**

MEGA BLASTER PRO

BIRD-X

User's Manual



Overview

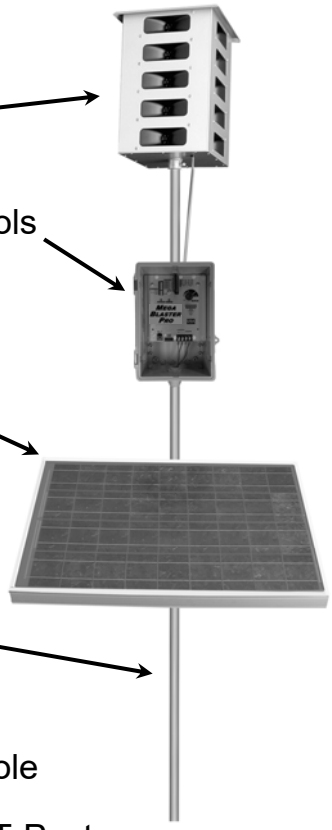
The Bird-X Mega Blaster Pro utilizes the innate power of the natural survival instincts of birds to effectively repel them. Digital recordings of distressed and alarmed birds, along with the sounds made by their natural predators are broadcast through high fidelity weather-resistant speakers over the top of areas. This action triggers a primal fear and flee response. Pest birds soon relocate to where they can feed without feeling threatened.

Your Bird-X Mega Blaster Pro system consists of:

20-Speaker Tower broadcasts the bird sounds

Control Unit produces the bird sounds and contains all operational controls

Solar Panel recharges the 12-volt deep cycle battery



Items needed but not included:

(1) **Mounting Pole** or **Mast** tall enough to raise the 20-Speaker Tower at least 5 feet above the top of the areas, trees or other obstructions

(1) **12-volt Deep Cycle Battery** (RV/Marine) Group 27 or larger wet cell

(1) **T-Post** or similar (Optional) may be needed to support the mounting pole

(1) **Bailing Wire or zip-tie** (Optional) to secure the Mounting Pole to the T-Post

CAUTION: THE MEGA BLASTER PRO IS CAPABLE OF PRODUCING SOUNDS UP TO 125 DECIBELS. PROPER HEARING PROTECTION MUST BE WORN ANYTIME THE UNIT IS TURNED ON.

Bird Control Management Guidelines

An active bird control management program is a key to successfully repelling pest birds. Bird feeding patterns may take several days or weeks to break. Follow all suggestions for maximum effectiveness. Read all instructions prior to installation.

For best results:

- **It is extremely important to fully protect your entire area from birds.** Any areas not fully protected will allow birds to begin feeding at the fringes of the sound coverage. They will soon become bolder and learn the sounds are nothing to fear. This will cause the effectiveness to diminish. Complete Bird-X product coverage forces birds to leave the area entirely.
- Install the Mega Blaster Pro unit at least two weeks before birds are attracted to your area. It is much easier to keep birds away before they have found a food source than it is to repel them once they have developed a feeding pattern.
- Most birds begin feeding from the perimeter of an area. Place Mega Blaster Pro units so the sound protection covers past the edges of the area.
- Birds will often use tall trees for roosting and observation. If birds are in bordering trees it is necessary to position the units so the sound protection covers the trees as well.
- Mount the 20-Speaker Tower at least five feet above trees, areas and structures for maximum coverage. The higher the better. Sound will disperse or reflect off structures or foliage. Mount control unit out of direct sun, if possible.
- When first installed, run Mega Blaster Pro units at FULL volume and on SHORT time off periods. This ensures maximum “bird stress” and creates a hostile environment.
- Watch for changes in bird activity and adjust the location of your Mega Blaster Pro unit if needed.
- **Check the battery and unit settings often to insure continuous bird control. Be certain that the system is not turned down or has a dead battery. Field hands or harvesters may turn down the volume.**
- Changing settings and switches often helps to prevent bird habituation. Periodically change the switch settings of the eight sounds (turning them ON or OFF). NEVER turn OFF the distress calls of the target birds you are trying to repel and always keep at least one predator bird sound turned ON.
- If different bird species enter the protected area and begin causing damage contact us immediately for an updated Sound Recording Card designed to repel the new invading birds.
- Remember that the Mega Blaster Pro system is a management tool, and should be used as part of your overall bird control strategy, sometimes in conjunction with other bird control techniques and devices.

Be aware that under extreme drought or other adverse conditions, birds will disregard all deterrents and risks in order to survive

R.K. FROBEL & ASSOCIATES
Consulting Engineers

Technical Memorandum: 40-mil HDPE as Alternative Secondary Liner System for In Ground Recycling Containment Facilities

NMAC 19.15.34.12 A

I have investigated the suitability of application for 40 mil HDPE geomembrane as an equivalent secondary liner to 30 mil scrim reinforced LLDPE (LLDPEr) in the application for In Ground Recycling Containment facilities. *In summary, it is my professional opinion that the specified 40 mil HDPE geomembrane will provide a secondary liner system that is equal to or better than 30 mil scrim reinforced LLDPEr and will provide the requisite protection of fresh water, public health and the environment for many years when engineering design provides requisite site/soil/slope preparation and when used in concert with requisite primary liners and drainage layers.*

It is understood that the lining system under discussion is composed of a 60 mil HDPE Primary liner, geonet drainage layer and a 40 mil HDPE Secondary liner. *In consideration of the secondary lining system application, size of impoundment and depth, design details as well as the chemical nature of typical processed water, it is my professional opinion that the 40 mil HDPE geomembrane will provide the requisite barrier against processed water loss and will function effectively as a secondary liner.*

The following are discussion points that hopefully will exhibit the equivalency of a 40 mil HDPE secondary liner to that of a 30 mil LLDPEr.

The nature and formulation of the 40 mil HDPE resin is the same as the Primary 60 mil HDPE. The major difference is that the 40 mil HDPE is lower in thickness (more flexible and less puncture resistant). However, in covered conditions, HDPE will resist aging and degradation and remain intact for many decades. In fact, a secondary liner of 40 mil HDPE will outlast an exposed 60 mil HDPE liner. According to the Geosynthetic Research Institute (GRI) study on lifetime prediction (GRI Paper No. 6), the half life of HDPE (GRI GM 13) exposed is > 36 years and the half-life of HDPE covered or buried is greater than 100 years. It is understood that in order to ensure compliance of materials, the primary 60 mil HDPE to be used must meet or exceed GRI GM 13 Standards. Likewise, the secondary liner that is not exposed to the same environmental and chemical conditions must meet or exceed GRI GM 13 for non-reinforced HDPE. Adhering to the minimum requirements of the GRI Specifications, 40 mil HDPE when used as a secondary liner will be equally as protective as the primary 60 mil HDPE liner (reference: www.geosynthetic-institute.org/grispecs) and equally as protective as a 30 mil scrim reinforced LLDPEr liner.

Durability of Geomembranes is directly affected by exposure conditions. Buried or covered geomembranes are not affected by the same degradation mechanisms (UV, Ozone, Chemical, Stress, Temperature, etc) as are fully exposed geomembranes. In this regard, the secondary liner material and thickness can be much less robust than the fully exposed primary liner which in this case is 60 mil HDPE. This is also the case for

32156 Castle Court / Suite 211-240 / Evergreen, CO 80439
Ph 720-289-0300 / geosynthetics@msn.com

landfill lining systems where the secondary geomembrane in a bottom landfill cell may be 40 mil HDPE.

Thermal Fusion Seaming Requirements. Thermal seaming and QC seam test requirements for geomembranes are product specific and usually prescribed by the sheet manufacturer. Dual wedge thermal fusion welding is commonly used on HDPE and QC testing by air channel (ASTM D 5820) is fully acceptable and recognized as an industry standard. In this regard, there should be no exception requirement for seaming and QC testing as both the Primary and Secondary geomembranes are HDPE. This is fully covered in comprehensive specifications for both the Primary and Secondary geomembranes (Reference: www.ASTM.org/Standards).

Potential for Leakage through the Primary and Secondary Liners. Leakage through geomembrane liners is directly a function of the height of liquid head above any hole or imperfection. The geonet drainage media provides immediate drainage to a low point or sump and thus no hydrostatic head or driving gradient is available to push leakage water through a hole in the secondary liner. In this regard, secondary geomembrane materials can be (and usually are) much less in thickness and also polymer type. Hydraulic Conductivity through the 40 mil HDPE liner material is extremely low due to the polymer type, structure and crystallinity and exceeds requirements of EPA SW-846 Method 9090A.

Chemical Attack. Chemical attack to polymeric geomembranes is directly a function of type of chemical, temperature and exposure time. Again, the HDPE Primary provides the chemically resistant liner and is QC tested to reduce potential defects or holes. If there is a small hole, the geonet drain takes any leakage water immediately to the sump for extraction. Thus, exposure time is very limited on a secondary liner in addition to low temperature, little volume and virtually no head pressure. In this regard, a chemically resistant geomembrane material such as 40 mil HDPE can be specified for the secondary and is a fully acceptable alternate to 30 mil scrim reinforced LLDPEr.

Mechanical Properties Characteristics. Geomembranes of different polymer and/or structure (i.e., reinforced vs non-reinforced) cannot be readily compared using such characteristics as tensile stress/strain, tear, puncture and polymer requirements. For a 40 mil HDPE liner material to function as a Secondary liner it should meet or exceed the manufacturers minimum requirements for Density, Tensile Properties, Tear, Puncture as well as other properties such as UV resistance. The sheet material must also meet or exceed GRI GM 13 minimum requirements. *In this regard, a 40 mil HDPE will be equivalent to a 30 mil LLDPEr as a secondary liner for the conditions listed below:*

- *The subgrade or compacted earth foundation will be smooth, free of debris or loose rocks, dry, unyielding and will support the lining system.*
- *The side slopes for the containment shall be equal to or less than 3H:1V.*
- *The physical properties and condition of the subgrade or liner foundation*

(i.e., density, slope, moisture) will be inspected and certified by a Professional Engineer that it meets or exceeds specification requirements.

- *Immediately prior to installation, the installation contractor shall inspect and sign off on the subgrade conditions that they meet or exceed the HDPE manufacturer and installers requirements.*
- *A protective geotextile will be placed on the finished and accepted subgrade between subgrade and the 40 mil HDPE Secondary liner.*
- *A 200 mil geonet will be placed over the 40 mil HDPE Secondary Liner.*
- *A 60 mil HDPE Primary liner will be placed over the 200 mil geonet drainage layer.*

If you have any questions on the above technical memorandum or require further information, give me a call at 720-289-0300 or email geosynthetics@msn.com

Sincerely Yours,

R K Frobel

Ronald K. Frobel, MSCE, PE

References:

NMAC 19.15.34.12 A DESIGN AND CONSTRUCTION SPECIFICATIONS FOR A RECYCLING CONTAINMENT

Geosynthetic Research Institute (GRI) Published Standards and Papers 2017
www.geosynthetic-institute.org

ASTM Geosynthetics Standards 2017
www.ASTM.org/Standards

SOLMAX

Mustang Extreme

December 9, 2019

Attn: Mr. Steven Roeder
Re: 40 mil HDPE Geomembrane – Hydraulic Conductivity

Dear Mr. Roeder:

Hydraulic Conductivity of HDPE geomembranes can be indirectly obtained through ASTM E96 method (Designing with Geosynthetics, page 437, fifth edition – Robert Koerner).

Based on our test results and the method pointed out in the above reference, it can be concluded that Solmax HDPE geomembranes have a typical Hydraulic Conductivity no higher than 10^{-12} cm/s

Should you need further information, please do not hesitate to contact us.

Sincerely,

Mauricio Ossa
Senior Technical Manager
Houston- Texas

T +1 800 435-2008

GSE ENVIRONMENTAL, LLC | A SOLMAX COMPANY
19103 GUNDLE ROAD, HOUSTON, TX 77073, USA

SOLMAX.COM

SOLMAX

Solmax Reflective HDPE Specification

HDPE 40 mils Smooth Geomembrane Properties

Tested Property	Test Description	Test Method	Unit	Test Value[2]
Thickness	Min. Average	ASTM D5199	mils	40
	Min.	ASTM D5199	mils	36
Resin Density	-	ASTM D1505	g/cm^3	≥ 0.932
Sheet Density	-	ASTM D1505	g/cm^3	≥ 0.940
Carbon Black Content[4]	-	ASTM D4218	%	2.0-3.0
Carbon Black Dispersion[5]	-	ASTM D5596	Category	1 & 2
OIT – Standard	Average	ASTM D3895	min	100
Tensile Properties[1]	Min. Average	ASTM D-6693		
Strength at Yield			ppi	84
Elongation at Yield			%	13
Strength at Break			ppi	162
Elongation at Break			%	700
Tear Resistance	Min. Average	ASTM D1004	lbf	28
Puncture Resistance	Min. Average	ASTM D4833	lbf	80
Dimensional Stability	-	ASTM D1204	%	±2
Stress Crack Resistance	SP-NCTL	ASTM D5397	hours	500
Oven Aging[6]	% retained after 90 days	ASTM D5721		
HP-OIT	Min. Average	ASTM D5885	%	80
UV Resistance[7]	% retained after 1600 hours	ASTM D7238		
HP-OIT	Min. Average	ASTM D5885	%	50
Color	Topside	-	-	White

DESIGN/CONSTRUCTION PLAN

Design and Construction Plan In Ground Containments

This plan addresses construction of the earthen containments.

Magrym Engineers is providing the design of the containment and their plans are presented in this submission.

Dike Protection and Structural Integrity

The design and operation provide for the confinement of produced water, prevention of releases and prevention of overtopping due to wave action or rainfall. Additionally, the design prevents run-on of surface water as the containment is surrounded by an above-grade levee (a berm) and/or diversion ditch (between the levee and the soil stockpile) to prevent run-on of surface water.

19.15.34.12 A Design and Construction Specifications
(1). The operator shall design and construct a recycling containment to ensure the confinement of produced water, to prevent releases and to prevent overtopping due to wave action or rainfall.
(8). The operator of a recycling containment shall design the containment to prevent run-on of surface water. The containment shall be surrounded by a berm, ditch or other diversion to prevent run-on of surface water

Stockpile Topsoil

Where topsoil is present, prior to constructing containment, the operator will strip and stockpile the topsoil for use as the final cover or fill at the time of closure.

19.15.34.12 B. Prior to constructing containment, the operator shall strip and stockpile the topsoil for use as the final cover or fill at the time of closure

Signage

The operator will place an upright sign no less than 12 inches by 24 inches with lettering not less than two inches in height in a conspicuous place on the fence surrounding the containment. The sign is posted in a manner and location such that a person can easily read the legend. The sign will provide the following information:

- the operator's name,
- the location of the site by quarter-quarter or unit letter, section, township and range, and
- emergency telephone numbers

19.15.34.12 C. Signs.
The operator shall post an upright sign no less than 12 inches by 24 inches with lettering not less than two inches in height in a conspicuous place on the fence surrounding the containment. The operator shall post the sign in a manner and location such that a person can easily read the legend. The sign shall provide the following information: the operator's name, the location of the site by quarter-quarter or unit letter, section, township and range, and emergency telephone numbers

Fencing

The operator will provide for a fence to enclose the recycling containment in a manner that deters unauthorized wildlife and human access. As specified in the design drawings, the operator will employ a chain-link or game fence. If required by the District Office, the operator will add four-strands of barbed wire to comply with the text of the Rule. Because feral pigs, javelina and deer are present in the area, a chain link or game fence is required in order to comply with Section 19.15.34.12 D.1 of the Rule because pigs will move beneath the lower strand of a 4-strand, 4-foot high barbed wire fence and deer will jump over. However, 19.15.34.12 D.2 requires "a four-foot fence that has at least four strands of barbed wire evenly spaced in the interval between one foot and four feet above ground level". Therefore, a barbed wire specification will be added to the game fence to avoid a variance if required by the OCD District Office.

19.15.34.12 D. Fencing
(1) The operator shall fence or enclose a recycling containment in a manner that deters unauthorized wildlife and human access and shall maintain the fences in good repair. The operator shall ensure that all gates associated with the fence are closed and locked when responsible personnel are not onsite.
(2) Recycling containments shall be fenced with a four-foot fence that has at least four strands of barbed wire evenly spaced in the interval between one foot and four feet above ground level.

As stated in the O&M plan, the operator will ensure that all gates associated with the fence are closed and locked when responsible personnel are not onsite.

Netting and Protection of Wildlife

The perimeter game/chain-link fence will be effective in excluding stock and most terrestrial wildlife. If requested by the surface owner, the game fence can include a fine mesh from the base to 1 foot above the ground to exclude the small reptiles (e.g. dune sagebrush lizard).

19.15.34.12 E Netting.
The operator shall ensure that a recycling containment is screened, netted or otherwise protective of wildlife, including migratory birds. The operator shall on a monthly basis inspect for and, within 30 days of discovery, report the discovery of dead migratory birds or other wildlife to the appropriate wildlife agency and to the division district office in order to facilitate assessment and implementation of measures to prevent incidents from reoccurring.

The recycling containment will be protective of wildlife, including migratory birds through the implementation of an Avian Protection Plan, routine inspections and the perimeter fence.

The avian protection plan includes the use of a Bird-X Mega Blaster Pro[1] as a primary hazing program for avian species. The device will be equipped with sounds suitable for the Permian Basin environment. In addition to this sonic device, staff will routinely inspect the containment for the presence of avian species and, if detected, will use a blank cartridge or shell in a handgun, starter pistol or shotgun as additional hazing. Decoys of birds of prey may be placed on the game fence and other roosts around the open water to provide additional hazing.

The O&M plan calls for the operator to inspect for and, within 30 days of discovery, report the discovery of dead migratory birds or other wildlife to the appropriate wildlife agency and to the division district office in order to facilitate assessment and implementation of measures to prevent incidents from reoccurring.

Earthwork

The containment will have a properly constructed foundation and interior slopes consisting of a firm, unyielding base, smooth and free of rocks, debris, sharp edges or irregularities to prevent the liner's rupture or tear. Geotextile is required under the liner when needed to reduce localized stress-strain or protuberances that otherwise may compromise the liner's integrity.

19.15.34.12 A
(2) A recycling containment shall have a properly constructed foundation and interior slopes consisting of a firm, unyielding base, smooth and free of rocks, debris, sharp edges or irregularities to prevent the liner's rupture or tear. Geotextile is required under the liner when needed to reduce localized stress-strain or protuberances that otherwise may compromise the liner's integrity…

This volume provides the stamped drawings for the containment with the following design/construction specifications:

a) levee has inside grade no steeper than two horizontal feet to one vertical foot (2H: 1V).

b) levee outside grade is no steeper than three horizontal feet to one vertical foot (3H: 1V)
c) top of the levee is wide enough to install an anchor trench and provide adequate room for inspection and maintenance.
d) The containment floor design calls for a slope toward the sump in the corner(s).

19.15.34.12 A
(2) …The operator shall construct the containment in a levee with an inside grade no steeper than two horizontal feet to one vertical foot (2H:1V). The levee shall have an outside grade no steeper than three horizontal feet to one vertical foot (3H:1V). The top of the levee shall be wide enough to install an anchor trench and provide adequate room for inspection and maintenance.

Liner and Drainage Geotextile Installation

The containment has a primary (upper) liner and a secondary (lower) liner with a leak detection system appropriate to the site's conditions.

19.15.34.12 A
(3) Each recycling containment shall incorporate, at a minimum, a primary (upper) liner and a secondary (lower) liner with a leak detection system appropriate to the site's conditions.

The primary (upper) liner is a geomembrane liner composed of an impervious, synthetic material that is resistant to ultraviolet light, petroleum hydrocarbons, salts and acidic and alkaline solutions. It is 60-mil HDPE. The secondary liner is specified in the design drawings and is 40-mil HDPE or thicker and is equivalent to 30-mil LLDPEr (in accordance with a previously approved variance) Liner compatibility meets or exceeds a subsequent relevant publication to EPA SW-846 method 9090A.

19.15.34.12 A
(4) All primary (upper) liners in a recycling containment shall be geomembrane liners composed of an impervious, synthetic material that is resistant to ultraviolet light, petroleum hydrocarbons, salts and acidic and alkaline solutions. All primary liners shall be 30-mil flexible PVC, 45-mil LLDPE string reinforced or 60-mil HDPE liners. Secondary liners shall be 30-mil LLDPE string reinforced or equivalent with a hydraulic conductivity no greater than 1 x 10-9 cm/sec. Liner compatibility shall meet or exceed the EPA SW-846 method 9090A or subsequent relevant publications.

The recycling containment design has a leak detection system between the upper and lower geomembrane liners of 200-mil geonet to facilitate drainage. The leak detection system consists of a properly designed drainage and collection and removal system placed above the lower geomembrane liner in depressions and sloped to facilitate the earliest possible leak detection. The containment floor design calls for a slope toward the sump in the corner(s) of the containment, as shown in the design drawings. This slope combined with the highly transmissive geonet drainage layer provide for rapid leak detection.

19.15.34.12 A
(7) The operator of a recycling containment shall place a leak detection system between the upper and lower geomembrane liners that shall consist of 200-mil geonet or two feet of compacted soil with a saturated hydraulic conductivity of 1 x 10-5 cm/sec or greater to facilitate drainage. The leak detection system shall consist of a properly designed drainage and collection and removal system placed above the lower geomembrane liner in depressions and sloped to facilitate the earliest possible leak detection.

The liners and drainage material will be installed consistent with the Manufacturer's specifications. In addition to any specifications of the Manufacturer, protocols for liner installation include measures to:

i. minimizing liner seams and orient them up and down, not across, a slope of the levee.
ii. use factory-welded seams where possible.
iii. use field seams in geosynthetic material that are thermally seamed and prior to field seaming, overlap liners four to six inches.
iv. minimize the number of field seams and comers and irregularly shaped areas.
v. provide for no horizontal seams within five feet of the

19.15.34.12 A
(5) The operator of a recycling containment shall minimize liner seams and orient them up and down, not across, a slope of the levee. Factory welded seams shall be used where possible. The operator shall ensure field seams in geosynthetic material are thermally seamed. Prior to field seaming, the operator shall overlap liners four to six inches…

slope's toe.

vi. use qualified personnel to perform field welding and testing.

vii. avoid excessive stress-strain on the liner

viii. The edges of all liners are anchored in the bottom of a compacted earth-filled trench that is at least 18 inches deep

19.15.34.12 A
(5) …The operator shall minimize the number of field seams and corners and irregularly shaped areas. There shall be no horizontal seams within five feet of the slope's toe. Qualified personnel shall perform field welding and testing.

At points of discharge into the lined earthen containment the pipe configuration effectively protects the liner from excessive hydrostatic force or mechanical damage during filling.

19.15.34.12 A
(3) The edges of all liners shall be anchored in the bottom of a compacted earth-filled trench. The anchor trench shall be at least 18 inches deep.

The design shows that at any 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 liner.

19.15.34.12 A
(6) At a point of discharge into or suction from the recycling containment, the operator shall insure that the liner is protected from excessive hydrostatic force or mechanical damage. External discharge or suction lines shall not penetrate the liner.

Pumping from the containment to hydraulic fracturing operations is the responsibility of stimulation contractors. Typically, lines are permanently placed in the containment with floats attached to prevent damage to the liner system. The containment may be equipped with permanent HDPE stinger (supported by a sacrificial liner or geotextile) for withdrawal of fluid if the owner deems necessary during operations.

Leak Detection and Fluid Removal System Installation

The leak detection system, contains the following design elements

a. The 200-mil HyperNet Geonet drainage material between the primary and secondary liner that is sufficiently permeable to allow the transport of fluids to the observation ports (Appendix A).
b. The containment floor is sloped towards the monitoring riser pipe to facilitate the earliest possible leak detection of the containment bottom. A pump may be placed in the observation port to provide for fluid removal.
c. Piping will withstand chemical attack from any seepage, structural loading from stresses and disturbances from overlying water, cover materials, equipment operation or expansion or contraction (see Appendix A).

OPERATIONS AND MAINTENANCE PLAN

CLOSURE PLAN

Operation and Maintenance Plan
In Ground Containments

Overview

The operator will operate and maintain the lined earthen containment to contain liquids and solids (blow sand and minimal precipitates from the produced water) and maintain the integrity of the liner system in a manner that prevents contamination of fresh water and protects public health and the environment as described below. The purpose of the lined earthen containment is to facilitate recycling, reuse and reclamation of produced water derived from oil and gas wells. During periods when water for E&P operations is not needed, produced water will discharge to injection wells or to a pipeline for transfer to another recycling facility. The containment will not be used for the disposal of produced water or other oilfield waste.

19.15.34.10 D
Recycling containments may not be used for the disposal of produced water or other oilfield wastes.

The operation of the containment is summarized below.

A. Produced water generated from nearby oil and gas wells is delivered to a treatment system located as indicated in the C-147.
B. Unless specified in the transmittal letter, after treatment, the produced water discharges into the containment.
C. When required, produced water is removed from the containment for E&P operations. At this time, produced water will be used for drilling beneath the freshwater zones (beneath surface casing), for well stimulation (e.g. hydraulic fracturing) and other E&P uses as approved by OCD.
D. Whenever the maximum fluid capacity of the containment is reached, treatment and discharge to the containment ceases (see Freeboard and Overtopping Plan, below).
E. The operator will keep accurate records and shall report monthly to the division the total volume of water received for recycling, with the amount of fresh water received listed separately, and the total volume of water leaving the facility for disposition by use on form C-148 (see attached example).
F. The operator will maintain accurate records that identify the sources and disposition of all recycled water that shall be made available for review by the division upon request.

19.15.34.9 E
The operator of a recycling facility shall keep accurate records and shall report monthly to the division the total volume of water received for recycling, with the amount of fresh water received listed separately, and the total volume of water leaving the facility for disposition by use on form C-148.

19.15.34.9 F
The operator of a recycling facility shall maintain accurate records that identify the sources and disposition of all recycled water that shall be made available for review by the division upon request.

G. The containment shall be deemed to have ceased operations if less than 20% of the total fluid capacity is used every six months following the first withdrawal of produced water for use. The operator will report cessation of operations to the appropriate division district office. The appropriate division district office may grant an extension to this determination of cessation of operations not to exceed six months.

19.15.34.13 C
A recycling containment shall be deemed to have ceased operations if less than 20% of the total fluid capacity is used every six months following the first withdrawal of produced water for use. The operator must report cessation of operations to the appropriate division district office. The appropriate division district office may grant an extension to this determination of cessation of operations not to exceed six months.

The operation of the lined earthen containment will follow the mandates listed below:

1. The operator will not discharge into or store any hazardous waste (as defined by 40 CFR 261 and NMAC 19.15.2.7.H.3) in the containments.
2. If the containment's primary liner is compromised above the fluid's surface, the operator will repair the damage or initiate replacement of the primary liner within 48 hours of discovery or seek an extension of time from the division district office.
3. If the primary liner is compromised below the fluid's surface, the operator will remove all fluid above the damage or leak within 48 hours of discovery, notify the division district office and repair the damage or replace the primary liner.
4. If any penetration of the containment liner is confirmed by sampling of fluid in the leak detection system (see Monitoring, Inspection, and Reporting Plan; below), the operator will:
    a. Begin and maintain fluid removal from the leak detection/pump-back system,
    b. Notify the district office within 48 hours (phone or email) of the discovery,
    c. Identify the location of the leak, and
    d. Repair the damage or, if necessary, replace the containment liner.
5. The operator will install, or maintain on site, an oil absorbent boom or other device to contain an unanticipated release and the operator will remove any visible layer of oil from the surface of the recycling containment.
6. The operator will report releases of fluid in a manner consistent with NMAC 19.15.29
7. The containment will be operated to prevent the collection of surface water run-on.

19.15.34.13 B
(4) If the containment's primary liner is compromised above the fluid's surface, the operator shall repair the damage or initiate replacement of the primary liner within 48 hours of discovery or seek an extension of time from the division district office.
(5) If the primary liner is compromised below the fluid's surface, the operator shall remove all fluid above the damage or leak within 48 hours of discovery, notify the division district office and repair the damage or replace the primary liner.

19.15.34.13 B
(7) The operator shall install, or maintain on site, an oil absorbent boom or other device to contain an unanticipated release.
(1) The operator shall remove any visible layer of oil from the surface of the recycling containment.
19.15.34.8 A

(6) All releases from the recycling and re-use of produced water shall be handled in accordance with 19.15.29 NMAC.

8. The operator will maintain the containment free of miscellaneous solid waste or debris.
9. The operator will maintain at least three feet of freeboard for the containment and will use a free-standing staff gauge to allow easy determination of the required 3-foot of freeboard.
10. As described in the design/construction plan, the injection or withdrawal of fluids from the containment is accomplished through hardware that prevents damage to the liner by erosion, fluid jets or impact from installation and removal of hoses or pipes.
11. The operator shall ensure that all gates associated with the fence are closed and locked when responsible personnel are not onsite.
12. The operator will maintain the fences in good repair.

19.15.34.13
(6) The containment shall be operated to prevent the collection of surface water run-on.

19.15.34.13 B
(2) The operator shall maintain at least three feet of freeboard at each containment.

19.15.34.13 B
(3) The injection or withdrawal of fluids from the containment 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.

19.15.34.12 D
(1) The operator shall fence or enclose a recycling containment in a manner that deters unauthorized wildlife and human access and shall maintain the fences in good repair. The operator shall ensure that all gates associated with the fence are closed and locked when responsible personnel are not onsite.

19.15.34.13 A
The operator 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.

Monitoring, Inspection, and Reporting Plan

The operator will 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.

Weekly inspections consist of:

- reading and recording the fluid height of staff gauges,
- recording any evidence that the pond surface shows visible oil,
- visually inspecting the containment's exposed liners
- checking the leak detection system for any evidence of a loss of integrity of the primary liner.
- inspect diversion ditches and berms around the containment to check for erosion and collection of surface water run-on.
- inspect the leak detection system for evidence of damage or malfunction and monitor for leakage.

As stated above, if a liner's integrity is compromised, or if any penetration of the liner occurs, then the operator will take appropriate action within 48 hours, based on if above or below water surface, as noted above.

Monthly, the operator will:

A. Inspect the containment for dead migratory birds and other wildlife. Within 30 days of discovery, report the discovery of dead migratory birds or other wildlife to the appropriate wildlife agency and to the division district office in order to facilitate assessment and implementation of measures to prevent incidents from reoccurring.
B. Report to the division the total volume of water received for recycling, with the amount of fresh water received listed separately, and the total volume of water leaving the facility for disposition by use on form C-148.
C. Record sources and disposition of all recycled water.

19.15.34.12 E
The operator shall on a monthly basis inspect for and, within 30 days of discovery, report the discovery of dead migratory birds or other wildlife to the appropriate wildlife agency and to the division district office in order to facilitate assessment and implementation of measures to prevent incidents from reoccurring.

19.15.34.9 E
The operator of a recycling facility shall keep accurate records and shall report monthly to the division the total volume of water received for recycling, with the amount of fresh water received listed separately, and the total volume of water leaving the facility for disposition by use on form C-148.

19.15.34.9 F
The operator of a recycling facility shall maintain accurate records that identify the sources and disposition of all recycled water that shall be made available for review by the division upon request.

The operator will maintain a log of all inspections and make the log available for the appropriate Division district office's review upon request. An example of the log is attached to this section of the permit application.

Freeboard and Overtopping Prevention Plan

The method of operation of the containment allows for maintaining freeboard with very few potential problems. When the capacity of the containment is reached (3-feet of freeboard), the discharge of produced water ceases and the produced water generated by nearby oil and gas wells is managed by an injection well(s).

If rising water levels suggest that 3-feet of freeboard will not be maintained, the operator will implement one or more of the following options:

I. Cease discharging produced water to the containment.
II. Accelerate re-use of the produced water for purposes approved by the Division.

III. Transfer produced water from the containment to injection wells.

The reading of the staff gauge typically occurs daily when treatment operations are ongoing and weekly when discharge to the containment is not occurring.

Protocol for Leak Detection Monitoring, Fluid Removal and Reporting

As shown in Appendix A, the leak detection system includes a monitoring system. Any fluid released from the primary liner will flow to the collection sump, where fluid level monitoring is possible at the monitoring riser pipe associated with the leak detection system.

Staff may employ a portable electronic water level meter to determine if fluid exists in the monitoring riser pipe. Obtaining accurate readings of water levels in a sloped pipe beneath a containment can be a challenge. An electrician's wire snake may be required to push the probe to the bottom of the port and the probe may be fixed in a 2-inch pipe "dry housing" to avoid false readings due to water condensation on the pipe. There are many techniques to determine the existence of water in the sumps – including low flow pumps and a simple small bailer affixed to an electrician's snake. The operator will use the method that works best for this containment.

If seepage from the containment into the leak detection system is suspected by a positive fluid level measurement, the operator will:

1. Re-measure fluid levels in the monitoring riser pipe on a daily basis for one week to determine the rate of seepage.
2. Collect a water sample from the monitoring riser pipe to confirm the seepage is produced water from the containment via electrical conductivity and chloride measurements.
3. Notify NMOCD of a confirmed positive detection in the system within 48 hours of sampling (initial notification).
4. Install a pump into the monitoring riser pipe sump to continually (manually on a daily basis or via automatic timers) remove fluids from the leak detection system into the containment until the liner is repaired or replaced.
5. Dispatch a liner professional to inspect the portion of the containment suspected of leakage during a "low water" monitoring event.
6. Provide NMOCD a second report describing the inspection and/or repair within 20 days of the initial notification.

If the point of release is obvious from a low water inspection, the liner professional will repair the loss of integrity. If the point of release cannot be determined by the inspection, the liner professional will develop a more robust plan to identify the point(s) of release. The inspection plan and schedule will be submitted to OCD with the second report. The operator will implement the plan upon OCD approval.

Closure Plan
In Ground Containments

Overview

After operations cease, the operator will remove all fluids within 60 days and close the containment within six months from the date the operator ceases operations from the containment for use.

19.15.34.14 A
Once the operator has ceased operations, the operator shall remove all fluids within 60 days and close the containment within six months from the date the operator ceases operations from the containment for use.

The operator shall substantially restore the impacted surface area to

a. the condition that existed prior to the construction of the recycling containment or
b. to a condition imposed by federal, state trust land or tribal agencies on lands managed by those agencies as these provisions govern the obligations of any operator subject to those provisions,

19.15.34.14 E
The operator shall substantially restore the impacted surface area to the condition that existed prior to the construction of the recycling containment.

19.15.34.14 G
The re-vegetation and reclamation obligations imposed by federal, state trust land or tribal agencies on lands managed by those agencies shall supersede these provisions and govern the obligations of any operator subject to those provisions, provided that the other requirements provide equal or better protection of fresh water, human health and the environment.

The surface owner will impose a closure design that conforms to their needs for the site. The operator understands that a variance will be submitted to OCD to allow for any alternative closure protocol.

Excavation and Removal Closure Plan – Protocols and Procedures

The containment is expected to hold a small volume of solids, the majority of which will be windblown sand and dust with some mineral precipitates from the water

1. The operator will remove all liquids from the containment and either:
    a. Dispose of the liquids in a division-approved facility, or
    b. Recycle, reuse or reclaim the water for reuse in drilling and stimulation.
2. The operator will close the recycling containment by first removing all fluids, contents and synthetic liners and transferring these materials to a division approved facility.
3. After the removal of the containment contents and liners, soils beneath the containment will be tested by collection of a five-point (minimum) composite sample which includes stained or wet soils, if any, and that sample shall be analyzed for the constituents listed in Table I of 19.15.34.14.
4. After review of the laboratory results:
    a. If any contaminant concentration is higher than the parameters listed in Table I, additional delineation may be required, and the operator must receive approval before proceeding with closure.

19.15.34.14 B
The operator shall close a recycling containment by first removing all fluids, contents and synthetic liners and transferring these materials to a division approved facility.

19.15.34.14 C
The operator shall test the soils beneath the 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 Table I below.

19.15.34.14 C
(1) If any contaminant concentration is higher than the parameters listed in Table I, the division may require additional delineation upon review of the results and the operator must receive approval before proceeding with closure.

b. If all contaminant concentrations are less than or equal to the parameters listed in Table I, then the operator will proceed to
    i. backfill with non-waste containing, uncontaminated, earthen material - Or
    ii. undertake an alternative closure process pursuant to a variance request after approval by OCD.

19.15.34.14 C
(2) If all contaminant concentrations are less than or equal to the parameters listed in Table I, then the operator can proceed to backfill with non-waste containing, uncontaminated, earthen material.

Reclamation and Re-vegetation

a. The operator will reclaim the containment's location to a safe and stable condition that blends with the surrounding undisturbed area.
b. Topsoils and subsoils shall be replaced to their original relative positions and contoured so as to achieve erosion control, long-term stability and preservation of surface water flow patterns.
c. The disturbed area shall then be reseeded in the first favorable growing season following closure of a recycling containment.

19.15.34.14 E
Once the operator has closed the recycling containment, the operator shall reclaim the containment's location to a safe and stable condition that blends with the surrounding undisturbed area. Topsoils and subsoils shall be replaced to their original relative positions and contoured so as to achieve erosion control, long-term stability and preservation of surface water flow patterns. The disturbed area shall then be reseeded in the first favorable growing season following closure of a recycling containment.

Closure Documentation

Within 60 days of closure completion, the operator shall submit a closure report on form C-147, including required attachments, to document all closure activities including sampling results and the details on any backfilling, capping or covering, where applicable. The closure report shall certify that all information in the report and attachments is correct and that the operator has complied with all applicable closure requirements and conditions specified in division rules or directives.

19.15.34.14 D
Within 60 days of closure completion, the operator shall submit a closure report on form C-147, including required attachments, to document all closure activities including sampling results and the details on any backfilling, capping or covering, where applicable. The closure report shall certify that all information in the report and attachments is correct and that the operator has complied with all applicable closure requirements and conditions specified in division rules or directives.

The operator shall notify the division when reclamation and re-vegetation are complete. Specifically the notice will document that all ground surface disturbing activities at the site have been completed, and a uniform vegetative cover has been established that reflects a life-form ratio of plus or minus fifty percent (50%) of pre-disturbance levels and a total percent plant cover of at least seventy percent (70%) of pre-disturbance levels, excluding noxious weeds.

19.15.34.14 H
The operator shall notify the division when reclamation and re-vegetation are complete.

19.15.34.14 F
Reclamation of all disturbed areas no longer in use shall be considered complete when all ground surface disturbing activities at the site have been completed, and a uniform vegetative cover has been established that reflects a life-form ratio of plus or minus fifty percent (50%) of pre-disturbance levels and a total percent plant cover of at least seventy percent (70%) of pre-disturbance levels, excluding noxious weeds.

Venegas, Victoria, EMNRD

From: Venegas, Victoria, EMNRD
Sent: Tuesday, July 18, 2023 2:53 PM
To: 'Michael Feaga'; Fatma Abdallah; 'Greg Miller'
Cc: BobbiJo@CascadeServicesLLC.com; Randall Hicks
Subject: 2RF-194 - DAGGER IN-GROUND CONTAINMENTS FACILITY ID [fVV2319934806]
Attachments: C-147 2RF-194 - DAGGER IN-GROUND CONTAINMENTS FACILITY ID [fVV2319934806].pdf

2RF-194 - DAGGER IN-GROUND CONTAINMENTS FACILITY ID [fVV2319934806].

Good afternoon Mr. Feaga,
NMOCD has reviewed the recycling containment permit application and related documents, submitted by [330968] Silverback Operating II, LLC on July 11, 2023, for 2RF-194 - DAGGER IN-GROUND CONTAINMENTS FACILITY ID [fVV2319934806] in Unit Letter P, Section 14, Township 19S, Range 25E, Eddy County, New Mexico.

The form C-147 and related documents for 2RF-194 - DAGGER IN-GROUND CONTAINMENTS FACILITY ID [fVV2319934806] is 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.
- 2RF-194 - DAGGER IN-GROUND CONTAINMENTS FACILITY ID [fVV2319934806] is approved for five years of operation from the date of the permit application.
- 2RF-194 - DAGGER IN-GROUND CONTAINMENTS FACILITY ID [fVV2319934806] permit expires on July 11, 2028. If [330968] Silverback Operating II, 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 June 11, 2028.
- [330968] Silverback Operating II, LLC shall construct, operate, maintain, close, and reclaim 2RF-194 - DAGGER IN-GROUND CONTAINMENTS FACILITY ID [fVV2319934806] in compliance with NMAC 19.15.34 NMAC.
- 2RF-194 - DAGGER IN-GROUND CONTAINMENTS FACILITY ID [fVV2319934806] is bonded pursuant to 19.15.8 NMAC per 19.15.34.15(A)(2) NMAC.
- Water reuse and recycling from 2RF-194 - DAGGER IN-GROUND CONTAINMENTS FACILITY ID [fVV2319934806] is limited to wells owned or operated by [330968] Silverback Operating II, LLC.
- 2RF-194 - DAGGER IN-GROUND CONTAINMENTS FACILITY ID [fVV2319934806] consists of four (4) inground containments with the following capacity each: Pit 1; 550,000.00 BBL; Pit 2; 550,000.00 BBL; Pit 3; 72,000.00 BBL and Pit 4; 35,000.00 BBL. The total capacity of permit 2RF-194 - DAGGER IN-GROUND CONTAINMENTS FACILITY ID [fVV2319934806] is 1,207,000.00 BBL.
- [330968] Silverback Operating II, LLC shall notify NMOCD, through OCD Permitting, when construction at 2RF-194 - DAGGER IN-GROUND CONTAINMENTS FACILITY ID [fVV2319934806] commences.
- [330968] Silverback Operating II, LLC shall notify NMOCD through OCD Permitting when recycling operations commence and cease at 2RF-194 - DAGGER IN-GROUND CONTAINMENTS FACILITY ID [fVV2319934806].
- A minimum of 3-feet freeboard must be maintained at 2RF-194 - DAGGER IN-GROUND CONTAINMENTS FACILITY ID [fVV2319934806] 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 2RF-194 - DAGGER IN-GROUND CONTAINMENTS FACILITY ID [fVV2319934806] is considered

ceased and a notification of cessation of operations should be sent electronically to OCD Permitting. A request to extend the cessation of operation, not to exceed six months, may be submitted using a C-147 form through OCD Permitting.

- If after that 6-month extension period, the 2RF-194 - DAGGER IN-GROUND CONTAINMENTS FACILITY ID [fVV2319934806] 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.
- [330968] Silverback Operating II, 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.
- [330968] Silverback Operating II, 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 as per 19.15.34.13.A.
- [330968] Silverback Operating II, LLC shall comply with 19.15.29 NMAC Releases in the event of any release of produced water or other oil field waste at 2RF-194 - DAGGER IN-GROUND CONTAINMENTS FACILITY ID [fVV2319934806].

Please reference number 2RF-194 - DAGGER IN-GROUND CONTAINMENTS FACILITY ID [fVV2319934806] in all future communications.
Regards,

Victoria Venegas ● Environmental Specialist
Environmental Bureau
EMNRD - Oil Conservation Division
506 W. Texas Ave. Artesia, NM 88210
(575) 909-0269 | Victoria.Venegas@emnrd.nm.gov
https://www.emnrd.nm.gov/ocd/

State of New Mexico
Energy Minerals and Natural Resources
Department Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505
https://www.emnrd.nm.gov/ocd/ocd-e-permitting/

Form C-147
Revised October 11, 2022

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: Silverback Operating II, LLC (For multiple operators attach page with information) OGRID #: 330968
Address: 19707 West IH 10, Suite 201 San Antonio, TX 78257
Facility or well name (include API# if associated with a well): Dagger In-Ground Containment
OCD Permit Number: 2RF-194 (For new facilities the permit number will be assigned by the district office)
U/L or Qtr/Qtr P Section 14 Township 19S Range 25E County: Eddy
Surface Owner: ☐ Federal ☐ State ☑ Private ☐ Tribal Trust or Indian Allotment

2.
☑ **Recycling Facility:**
Location of recycling facility (if applicable): Latitude 32°39'22.69' Longitude 104°26'59.11" 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 32°39'22.69' Longitude 104°26'59.11" NAD83
☐ For multiple or additional recycling containments, attach design and location information of each containment
☑ Lined ☐ Liner type: Thickness 60 Primary mil ☐ LLDPE ☑ HDPE ☐ PVC ☐ Other See Drawings
☐ String-Reinforced
Liner Seams: ☑ Welded ☐ Factory ☐ Other _____ Volume: _____bbl Dimensions: L_____ x W_____ x D_____
☐ 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 Game Fence

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.
- ☑ Operating and Maintenance Plan - based upon the appropriate requirements.
- ☑ Closure Plan - based upon the appropriate requirements.
- ☑ Site Specific Groundwater Data -
- ☑ Siting Criteria Compliance Demonstrations –
- ☑ **Certify that notice of the C-147 (only) has been sent to the surface owner(s)**

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): Michael Feaga Title: Facilities Engineering Manager

Signature: Michael A. Feaga Date: 05/10/23

e-mail address: mfeaga@silverbackexp.com Telephone: 713 882 0485

11.
OCD Representative Signature: Victoria Venegas **Approval Date:** 07/18/2023

Title: Environmental Specialist **OCD Permit Number:** 2RF-194

☐ OCD Conditions

☐ Additional OCD Conditions on Attachment

District I
1625 N. French Dr., Hobbs, NM 88240
Phone:(575) 393-6161 Fax:(575) 393-0720
District II
811 S. First St., Artesia, NM 88210
Phone:(575) 748-1283 Fax:(575) 748-9720
District III
1000 Rio Brazos Rd., Aztec, NM 87410
Phone:(505) 334-6178 Fax:(505) 334-6170
District IV
1220 S. St Francis Dr., Santa Fe, NM 87505
Phone:(505) 476-3470 Fax:(505) 476-3462

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

COMMENTS

Action 238307

COMMENTS

Operator: Silverback Operating II, LLC 19707 IH10 West, Suite 201 San Antonio, TX 78256	OGRID: 330968
	Action Number: 238307
	Action Type: [C-147] Water Recycle Long (C-147L)

COMMENTS

Created By	Comment	Comment Date
vvenegas	• 2RF-194 - DAGGER IN-GROUND CONTAINMENTS FACILITY ID [fVV2319934806] permit expires on July 11, 2028. If [330968] Silverback Operating II, 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 June 11, 2028.•[330968] Silverback Operating II, LLC shall construct, operate, maintain, close, and reclaim 2RF-194 - DAGGER IN-GROUND CONTAINMENTS FACILITY ID [fVV2319934806] in compliance with NMAC 19.15.34 NMAC. • [330968] Silverback Operating II, LLC shall comply with 19.15.29 NMAC Releases in the event of any release of produced water or other oil field waste at 2RF-194 - DAGGER IN-GROUND CONTAINMENTS FACILITY ID [fVV2319934806].	7/19/2023

District I
1625 N. French Dr., Hobbs, NM 88240
Phone:(575) 393-6161 Fax:(575) 393-0720
District II
811 S. First St., Artesia, NM 88210
Phone:(575) 748-1283 Fax:(575) 748-9720
District III
1000 Rio Brazos Rd., Aztec, NM 87410
Phone:(505) 334-6178 Fax:(505) 334-6170
District IV
1220 S. St Francis Dr., Santa Fe, NM 87505
Phone:(505) 476-3470 Fax:(505) 476-3462

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

CONDITIONS

Action 238307

CONDITIONS

Operator: Silverback Operating II, LLC 19707 IH10 West, Suite 201 San Antonio, TX 78256	OGRID: 330968
	Action Number: 238307
	Action Type: [C-147] Water Recycle Long (C-147L)

CONDITIONS

Created By	Condition	Condition Date
vvenegas	• 2RF-194 - DAGGER IN-GROUND CONTAINMENTS FACILITY ID [fVV2319934806] permit expires on July 11, 2028. If [330968] Silverback Operating II, 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 June 11, 2028.•[330968] Silverback Operating II, LLC shall construct, operate, maintain, close, and reclaim 2RF-194 - DAGGER IN-GROUND CONTAINMENTS FACILITY ID [fVV2319934806] in compliance with NMAC 19.15.34 NMAC. • [330968] Silverback Operating II, LLC shall comply with 19.15.29 NMAC Releases in the event of any release of produced water or other oil field waste at 2RF-194 - DAGGER IN-GROUND CONTAINMENTS FACILITY ID [fVV2319934806].	7/19/2023