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

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

Form C-147
Revised April 3, 2017

Recycling Facility and/or Recycling Containment

Type of Facility: ☒ Recycling Facility ☒ Recycling Containment*

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

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

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

1.
Operator: Mewbourne Oil Company (For multiple operators attach page with information) OGRID #: 14744
Address: 4801 Business Park, Hobbs NM, 88241
Facility or well name (include API# if associated with a well): Red Hills Containment & Recycling Facility
OCD Permit Number: _____ (For new facilities the permit number will be assigned by the district office)
U/L or Qtr/Qtr SESE Section 16 Township 26 South Range 32 East County: Lea
Surface Owner: ☐ Federal ☒ State ☐ Private ☐ Tribal Trust or Indian Allotment

2.
☒ **Recycling Facility:**
Location of recycling facility (if applicable): Latitude 32.040318 Longitude -103.675988 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 32.041060 Longitude -103.677453 NAD83
☐ For multiple or additional recycling containments, attach design and location information of each containment
☒ Lined ☒ Liner type: Thickness 60 mil ☐ LLDPE ☒ HDPE ☐ PVC ☒ Other 40-mil HDPE Secondary Liner
☐ String-Reinforced
Liner Seams: ☒ Welded ☐ Factory ☐ Other _____ Volume: 412,793 bbl Dimensions: L 408' x W 268' x D 19'
☐ 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 Eight foot game fence with chain link gates

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): Tyler Tupman Title: Petroleum Engineer

Signature: Date: 7/10/17

e-mail address: ttupman@mewbourne.com Telephone: 575-390-3739

11.
OCD Representative Signature: **Approval Date:**

Title: **OCD Permit Number:**

☐ OCD Conditions
☐ Additional OCD Conditions on Attachment

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

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

Form C-147
Revised April 3, 2017

Recycling Facility and/or Recycling Containment

Type of Facility: ☐ Recycling Facility ☒ Recycling Containment*

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

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

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

1.

Operator: Mewbourne Oil Company (For multiple operators attach page with information) OGRID #: 14744

Address: 4801 Business Park, Hobbs NM, 88241

Facility or well name (include API# if associated with a well): Red Hills Containment (South)

OCD Permit Number: _____ (For new facilities the permit number will be assigned by the district office)

U/L or Qtr/Qtr SESE Section 16 Township 26 South Range 32 East County: Lea

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

2.

☐ **Recycling Facility:**

Location of recycling facility (if applicable): Latitude _____ Longitude _____ 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 32.039531 Longitude -103.677514 NAD83

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

☒ Lined ☒ Liner type: Thickness 60 mil ☐ LLDPE ☒ HDPE ☐ PVC ☒ Other 40-mil HDPE Secondary Liner

☐ String-Reinforced

Liner Seams: ☒ Welded ☐ Factory ☐ Other _____ Volume: 412,793 bbl Dimensions: L 408' x W 268' x D 19'

☐ 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 Eight foot game fence with chain link gates

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): Tyler Tupman Title: Petroleum Engineer

Signature: Date: 7/10/17

e-mail address: ttupman@mewbourne.com Telephone: 575-390-3739

11.
OCD Representative Signature: **Approval Date:**

Title: **OCD Permit Number:**

☐ OCD Conditions
☐ Additional OCD Conditions on Attachment

MEWBOURNE
OIL COMPANY

C-147 Registration Application Form

Red Hills Containment & Recycling Facility

July 18, 2017

SITING REQUIREMENTS

1. DISTANCE TO GROUNDWATER

Figure 1 shows the nearest active water wells to the recycling containment. A borehole was completed by Phoenix Environmental and the results are shown in **Figure 2**. A bore-hole was drilled down to 100' and was left open for twenty-four hours. No groundwater was encountered down to this depth.

2. DISTANCE TO MUNICIPAL BOUNDARIES AND FRESH WATER FIELDS

Figure 1 also illustrates that the recycling containment is not located within incorporated municipal boundaries or within defined municipal fresh water well fields covered by a municipal ordinance pursuant to Section 3-27-3 NMSA 1978 as amended.

3. DISTANCE TO SUBSURFACE MINES

Based off local knowledge of the area and according to the NM EMNRD Mining and Minerals Division there are no subsurface mines within the proximity of the recycling containment. **Figure 3** shows the active mines within Lea County in respect to the location of the recycling containment

4. DISTANCE TO KARST FEATURES

Figure 4 shows the recycling containment is located within a BLM-identified medium potential karst zone. BLM inventory data of existing karst features are indicated in the figure and verify that the recycling containment is not located within an unstable area.

5. DISTANCE TO 100 YEAR FLOODPLAINS

Based off of information from the Federal Emergency Management Agency, the recycling containment is located within the FEMA identified Zone D. **Figure 5** demonstrates that the area is not located within a 100-year floodplain.

6. DISTANCE TO SURFACE WATER

Figure 6 illustrates that the recycling containment is not located 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).

7. DISTANCE TO PERMANENT RESIDENCE OR INSTITUTIONS

Figure 7 illustrates that the recycling containment is not located within 1,000 feet of a permanent residence, school, hospital, institution or church in existence at the time of this initial registration.

8. DISTANCE TO DOMESTIC AND STOCK WATER SUPPLIES

Figure 8 illustrates that the recycling containment is not located within 500 feet of a spring or fresh water well used for domestic or stock watering purposes at the time of this initial registration. The nearest water well listed is 4900 feet to the southwest of the recycling containment (refer to figure 1).

9. DISTANCE TO WETLANDS

Figure 6 illustrates that the recycling containment is not located within 500 feet of any identified wetland.

DESIGN AND CONSTRUCTION PLAN

10. PROJECT OVERVIEW

The following bullet points will be followed and met during the construction of the recycling containment:

- The recycling containment will be constructed to ensure the confinement of produced water, to prevent releases and to prevent overtopping due to wave action or rainfall
- The foundation will be properly constructed and interior slopes will consist of a firm unyielding base that will be smooth and free of rocks, debris or and sharp edges that may penetrate the liner.
- 10 ounce geotextile will be laid on the base of the containment to add another layer of protection for the liner from any sharp edges.
- A levee will be constructed with an inside and outside grade of three horizontal feet to one vertical foot (3H:1V).
- The recycling containment will be constructed with a 60 mil HDPE **conductive** primary liner and a 40 mil HDPE secondary liner.
- The edges of both liners will be anchored with an 24-inch deep compacted earth-filled trench.
- Liner seems will minimized and will oriented up and down, not across, the slope of the levee. Factory welded seams will be used anywhere possible and no horizontal seams will be within five feet of the slope's toe.

- All field seems will be tested and logged to ensure the seams are thermally sealed.
- The conductive primary liner will be spark tested to ensure no cuts are present.
- The liner will be protected from excessive hydrostatic force or mechanical damage. External discharge or suction lines will not penetrate the liner.
- The recycling containment will be constructed with a leak detection system between the primary and secondary liner. The leak detection system will consist of 200-mil geonet and will be sloped to facilitate the earliest possible leak detection.
- The containment will be designed to prevent run-on of surface water. Diversion ditches will be used where necessary.

11. STOCKPILING OF TOPSOIL

Topsoil will be stockpiled beside the recycling containment and will be used as final layer at the time of the enclosure of the containment.

12. SIGNS

Mewbourne Oil Co will provide easily read sign(s) in a conspicuous place around the perimeter of the fence that will include:

- The operator's name
- The location of the site by quarter-quarter, section, township and range
- Emergency telephone numbers

13. FENCING

An 8-foot tall game fence will be provided around the perimeter of the containment to deter an unauthorized human or wildlife access. Gates will be used for authorized personnel only and will be kept locked at all times.

14. NETTING AND WILDLIFE PLAN

The fence indicated above will be effective in excluding any terrestrial wildlife. Due to infeasibility of installing netting on the recycling containment of this magnitude, an audible avian deterrence system will be installed similar to setups by other operators in southeast New Mexico. The system has provided effective protection for migratory birds.

Mewbourne Oil will inspect the containment monthly and will report to NM Game and Fish Department and NMOCD any dead migratory birds within 30 days.

OPERATING AND MAINTENANCE PLAN

15.Overview

The recycling containment will be operated and maintained to contain liquids and solids and maintain 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 this lined containment is to facilitate recycling, reuse, and reclamation of produced water from nearby oil and gas wells to be used in new well completions. When the treated produced water is not needed for completion of new wells, it will be pumped to and injected in a third party authorized SWD. This containment will not be used for the disposal of produced water or other oilfield waste.

The operation of the Recycling Containment is outlined below:

- Produced water from nearby oil and gas wells will be pumped via permanent pipeline to the treatment system near the recycling containment.
- After being treated, the produced water will be pumped into the recycling containment.
- When sufficient volume is reached in the recycling containment, it will be removed from the containment and used for either well stimulation (hydraulic fracturing) or drilling below fresh water zones (beneath surface casing).
- When the containment reaches maximum capacity, either treatment and discharge to the containment will cease or current plans will have a permanent 12-inch line in place to send treated produced water to a separate recycling containment in the same area.
- Accurate records will be kept and monthly reports will be sent in showing 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.
- Inspections will be performed regularly and records will also be kept that identify sources and disposition of all recycled water and will be made available for review upon request.
- These inspections will include monitoring the leak detection system to make sure the primary liner has not been compromised; removal of any visible layer of oil from the liquid surface and verification that the three foot freeboard is being maintained.
- If a liner breach is identified above the liquid surface, the liner will be repaired or replaced within 48 hours. Alternatively, the NMOCD district office will be contacted within 48 hours to seek and extension for the liner repair or replacement.
- If a liner breach is identified below the liquid surface, all liquid above the identified breach will be removed, the NMOCD district office will be notified and the liner repair or replacement will be initiated within 48 hours of discovery.

- The berm will be visually inspected to ensure the integrity and condition is such to prevent surface water run-on.
- Finally, oil absorbent pads will be kept on site to contain an unexpected release.

The 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. Records will be kept using form C-148. If these records indicate that less than 20% of the total fluid capacity is used within six months, the appropriate division district office will be notified.

CLOSURE PLAN

After operations cease (insufficient volume used or permit expires), all fluids will be removed within 60 days and the recycling containment will be closed within six months. All removed liquids, solids and liner materials will be removed and transferred to a NMOCD-approved disposal facility within six months.

A five-point composite sample will be collected from beneath the containment and anywhere soils are stained or wet and tested for contamination. The samples will be analyzed for the criteria listed in Table 1 of 19.15.34.14 NMAC.

- If the contaminant concentration is higher than the parameters listed in Table 1, the NMOCD district office will be notified and a request will be submitted before completing the enclosure on the containment.
- If all parameters from Table 1 are met, closure will proceed by backfilling with non-waste containing, uncontaminated, earthen material.

Within 60 days of closure completion, a closure report on form C-147, including required attachments, will be submitted to document all closure activities including sampling results and details of any backfilling, capping, or covering, where applicable. The closure report will certify that all information in the report and attachments is correct and that all applicable closure requirements and conditions have been met.

Once the containment has been closed, the containment's location will be reclaimed to a safe and stable condition that blends with the surrounding undisturbed area. Top soils and subsoils will 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 area will then be reseeded in the first favorable growing season following the enclosure of the recycling containment as to best restore the area to the condition that existed prior to the construction of the containment.

Reclamation of the area will 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 50% of pre-disturbance levels and a total percent plant cover of at least 70% of pre-disturbance levels, excluding noxious weeds.

Surface reclamation obligations imposed by the BLM or the NM State Trust Land on lands managed by those agencies will supersede these requirements, provided that these other requirements provide equal or greater protection of fresh water, human health, and the environment.

The NMOCD district division office will be notified when the reclamation and re-vegetation are complete.

FINANCIAL ASSURANCE REQUIREMENTS

Mewbourne Oil Company has an existing financial assurance in place with NMOCD as required by 19.15.8 NMAC. Use of the recycling containment will be used solely for wells owned or operated by MOC.

VARIANCE REQUESTS

Netting

Due to the size and infeasibility of constructing and maintaining a netting system over a containment of this size, Mewbourne is requesting an alternative solution. The recycling containment will instead be equipped with an audible avian protection system. This system will be designed to deter birds from approaching the containment. Mewbourne will use the **Bird-X Mega Blaster PRO**. This device has been used by other operators with registered recycling containments in southeast New Mexico as an effective means of deterring birds.

Figures

Boundary References

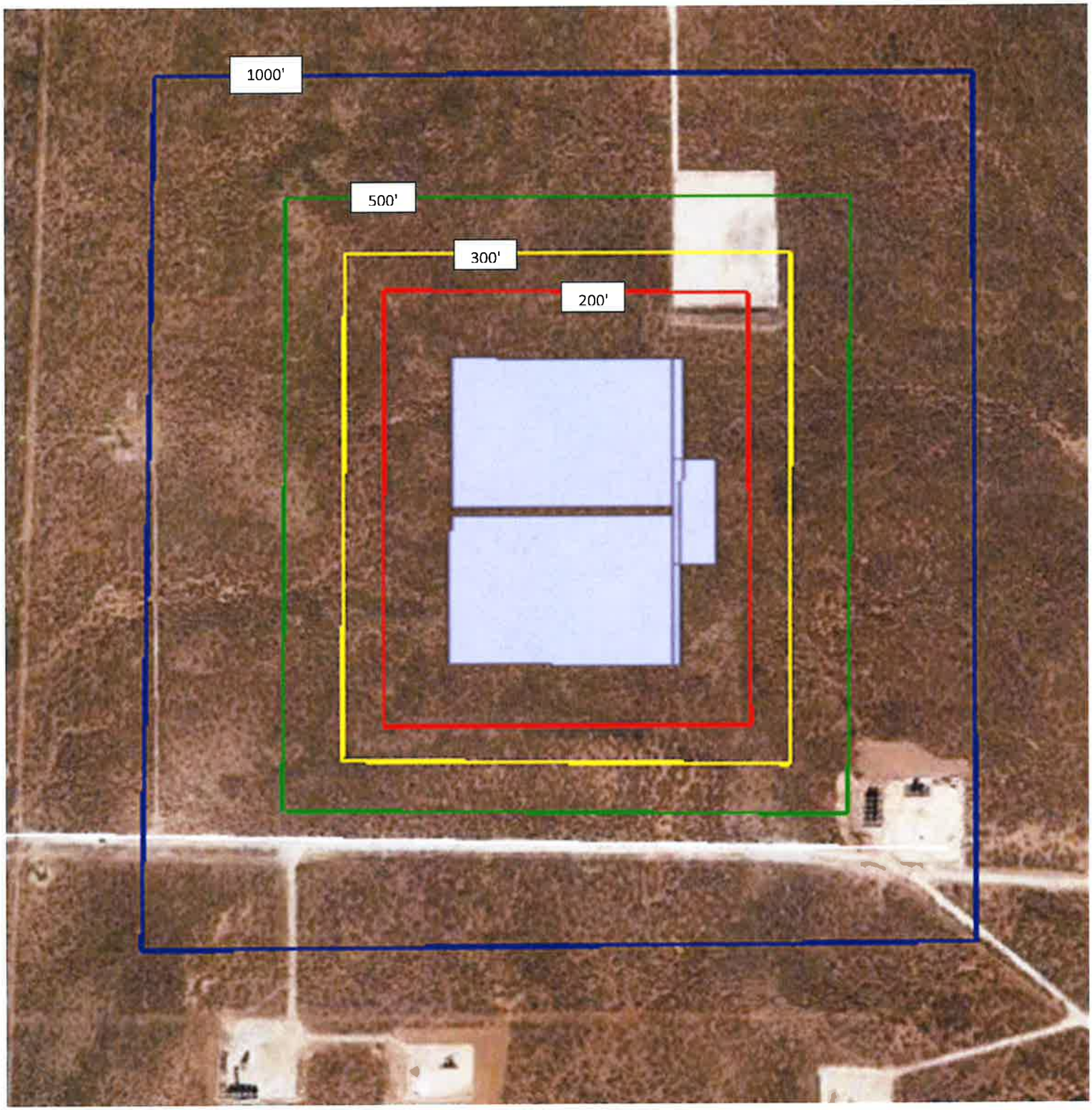
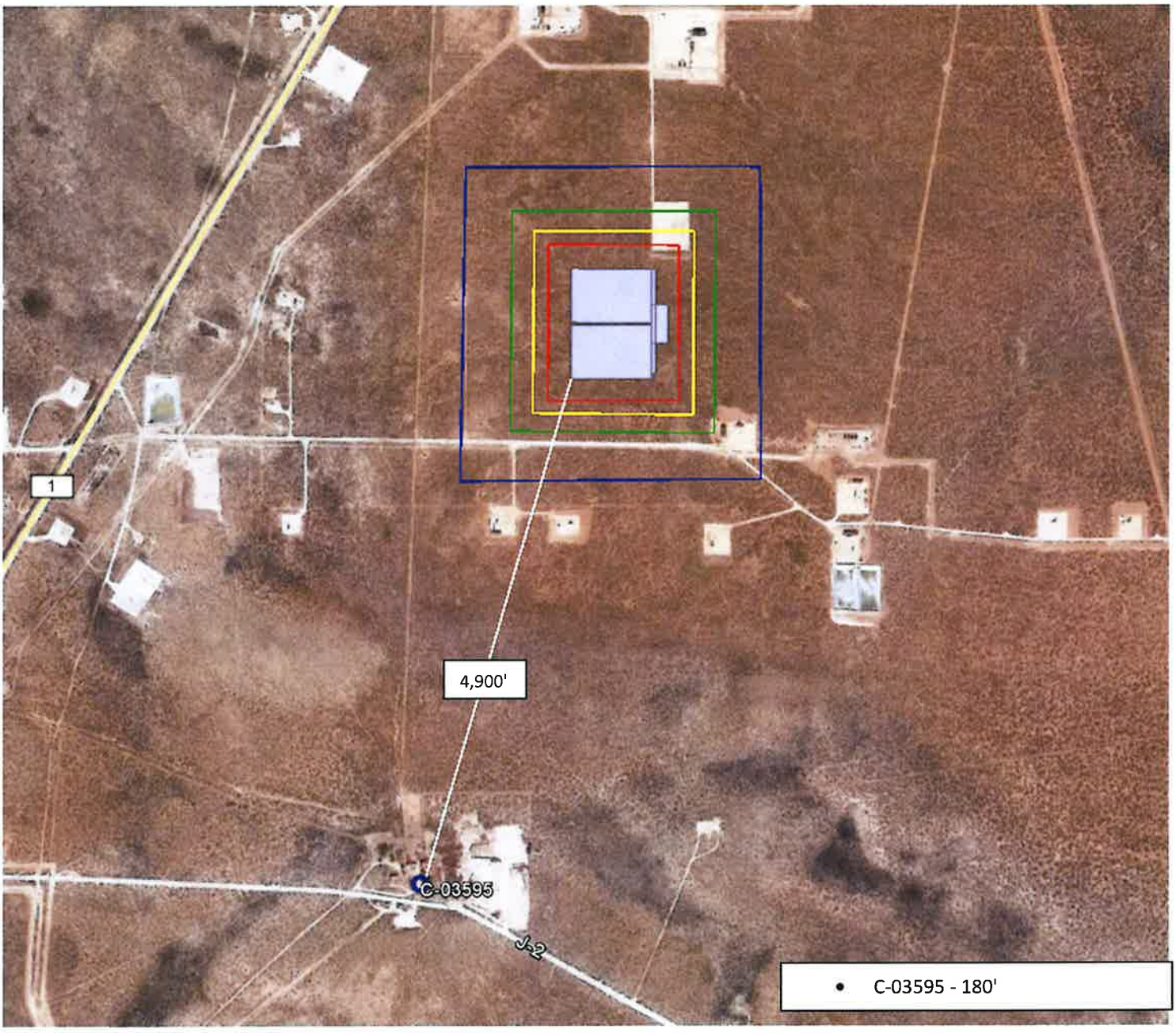


Figure 1: Nearest Water Wells



HCI DRILLING

THE DRILLING PROFESSIONALS

Soil Boring Log

Client	Phoenix Environmental LLC
Contractor	HCI Drilling
Date Completed	07/15/2017
Location	Red Hills West 21
Soil Boring Number	SB-1
Lithology	
0' – 11'	Caliche – White
11' – 12'	Sandstone – Pink
50' – 100'	Red Clay
GPS Coordinates	32.042248, 103.676538

Copies: Email (Phoenix Env)

Figure 3: Subsurface Mine Locations

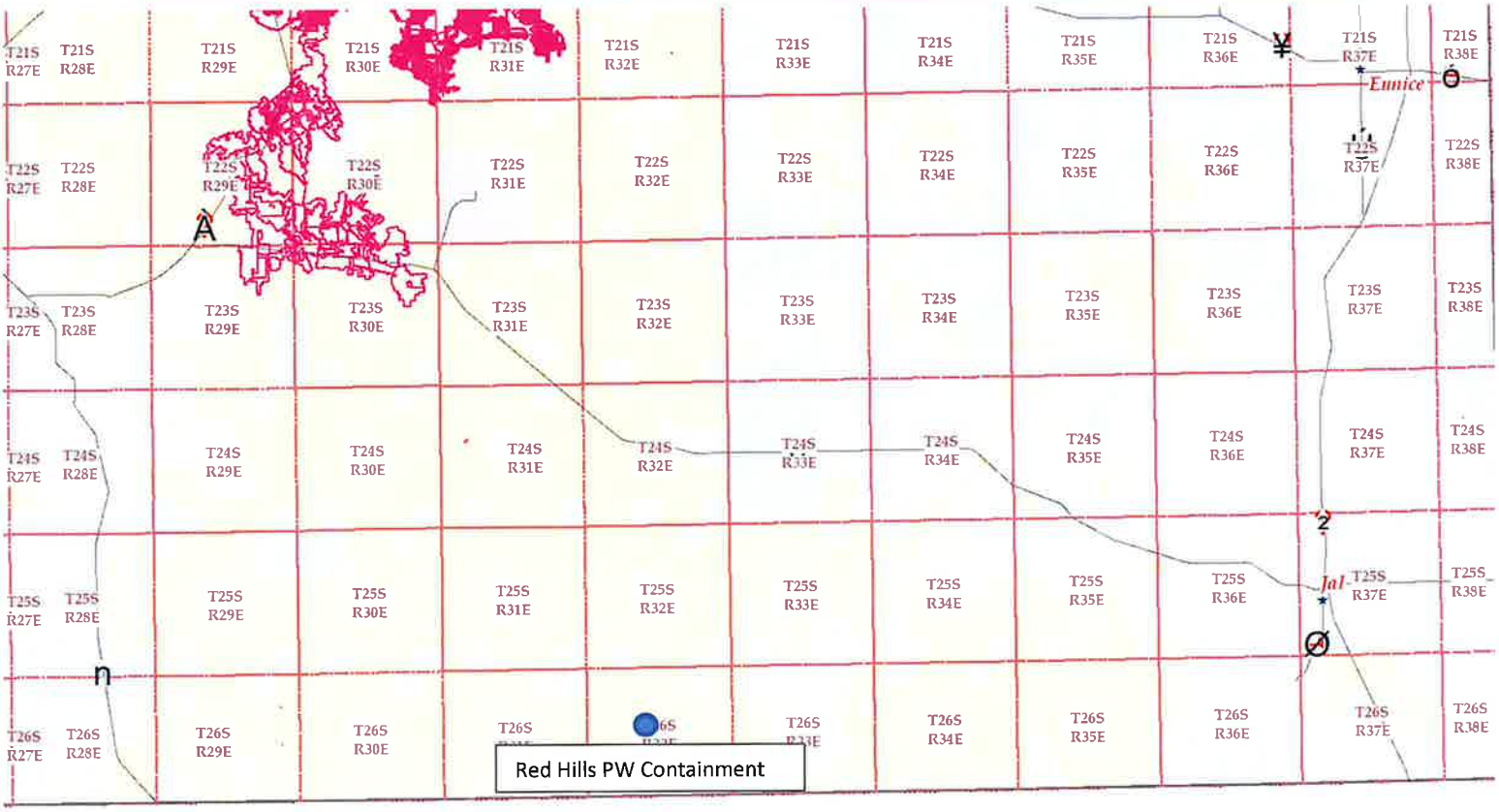


FIGURE 4 - KARST POTENTIAL

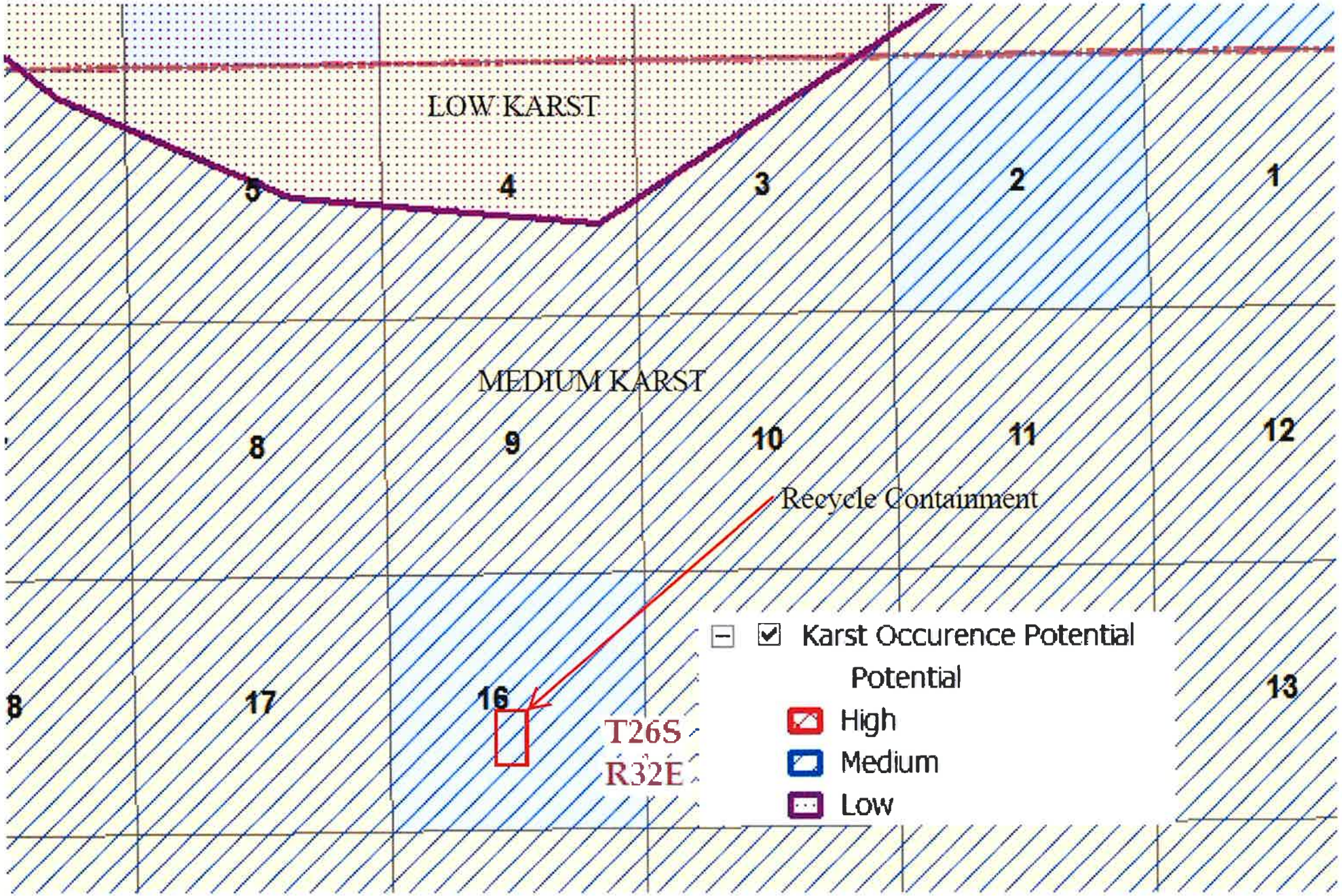


Figure 5: 100 Year Floodplain

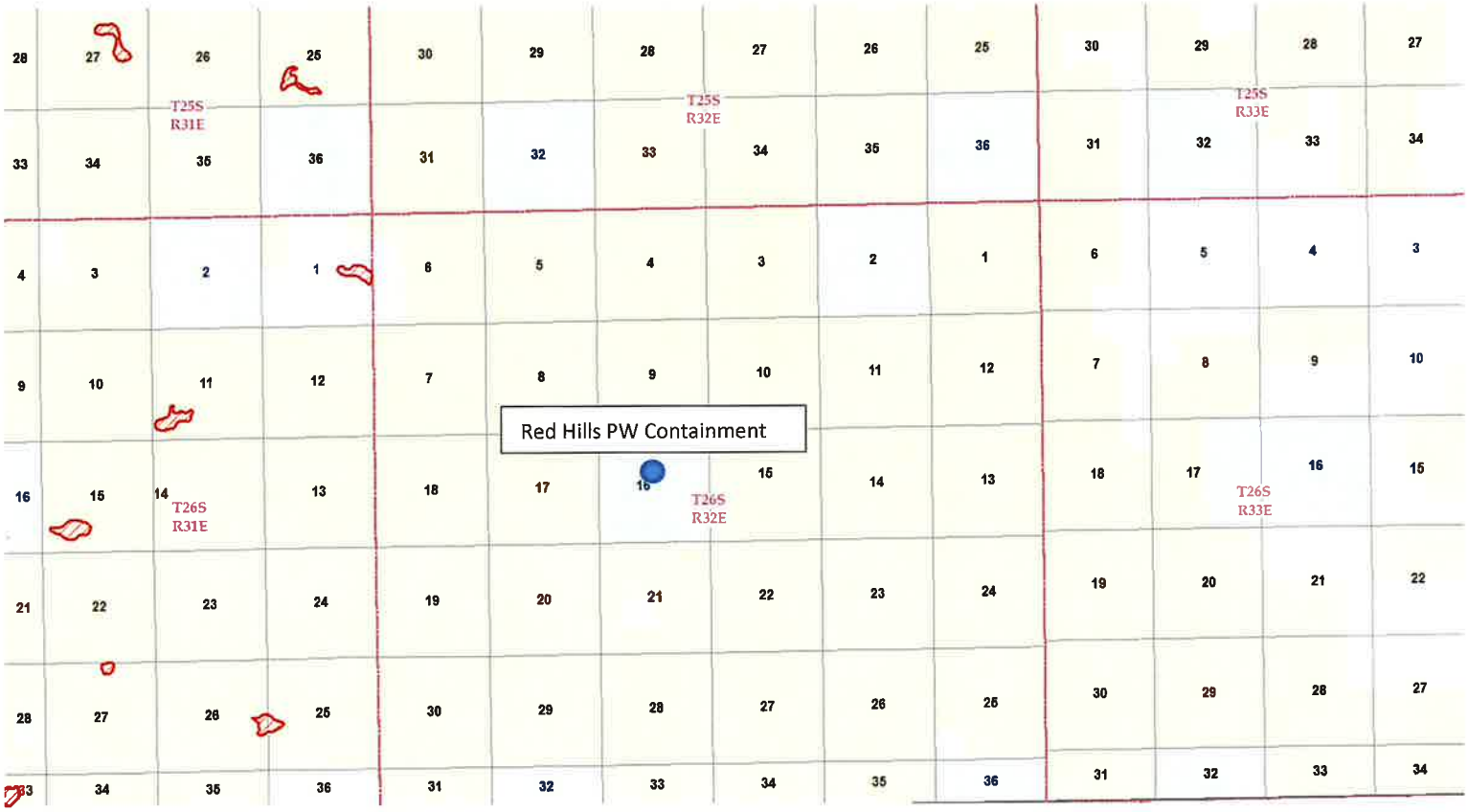


Figure 6: Distance to Surface Water

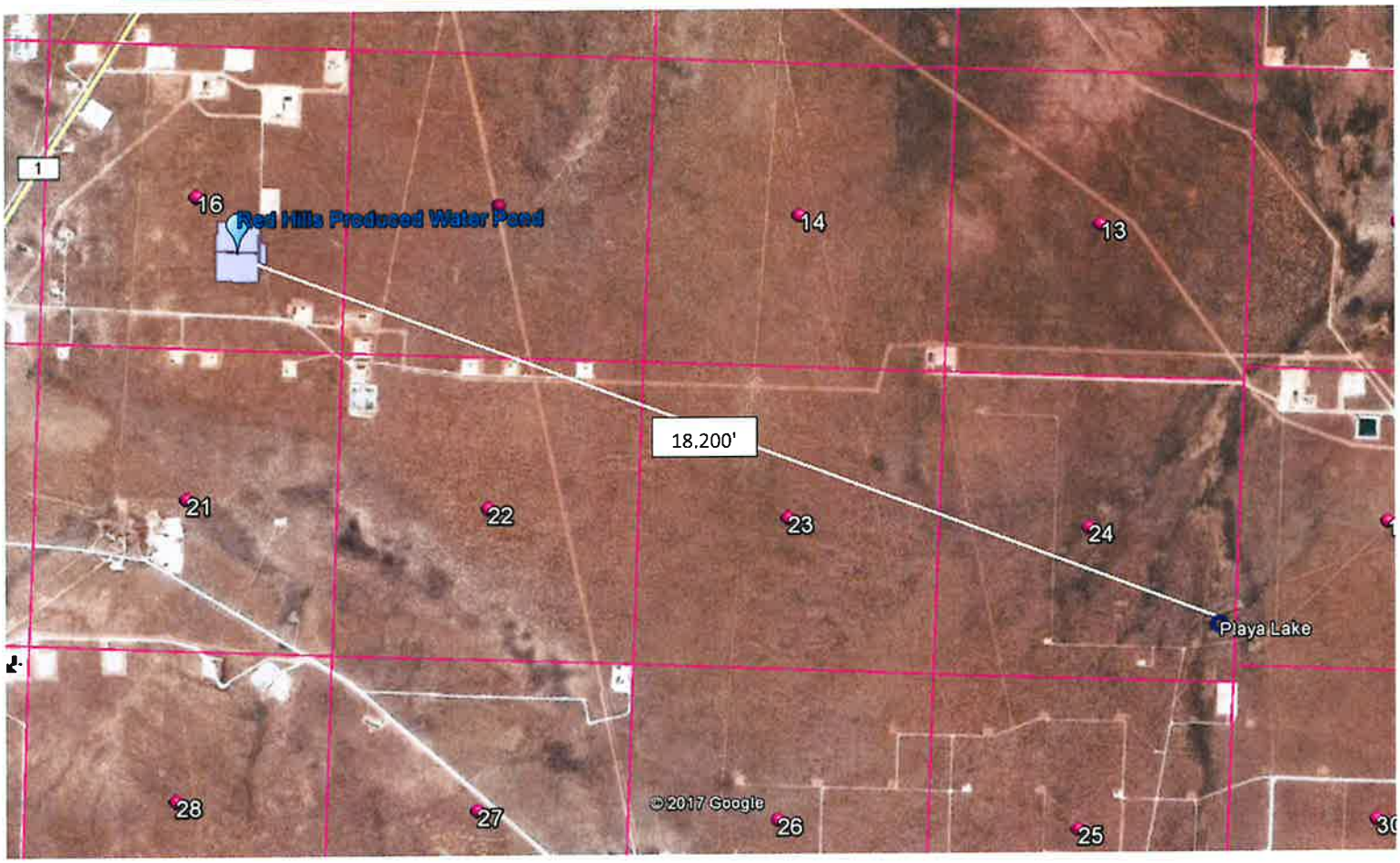


Figure 7: Distance to Residence

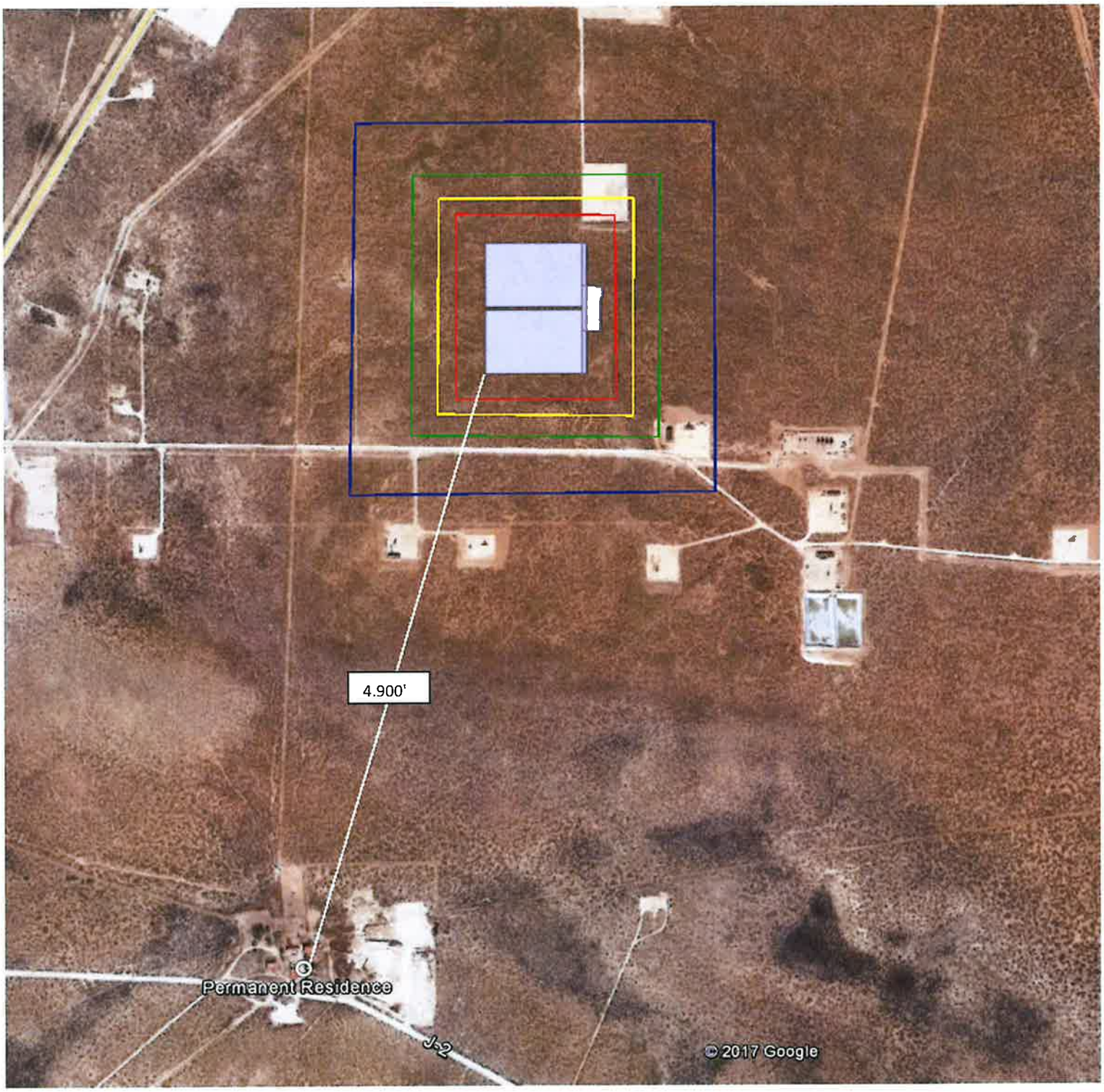
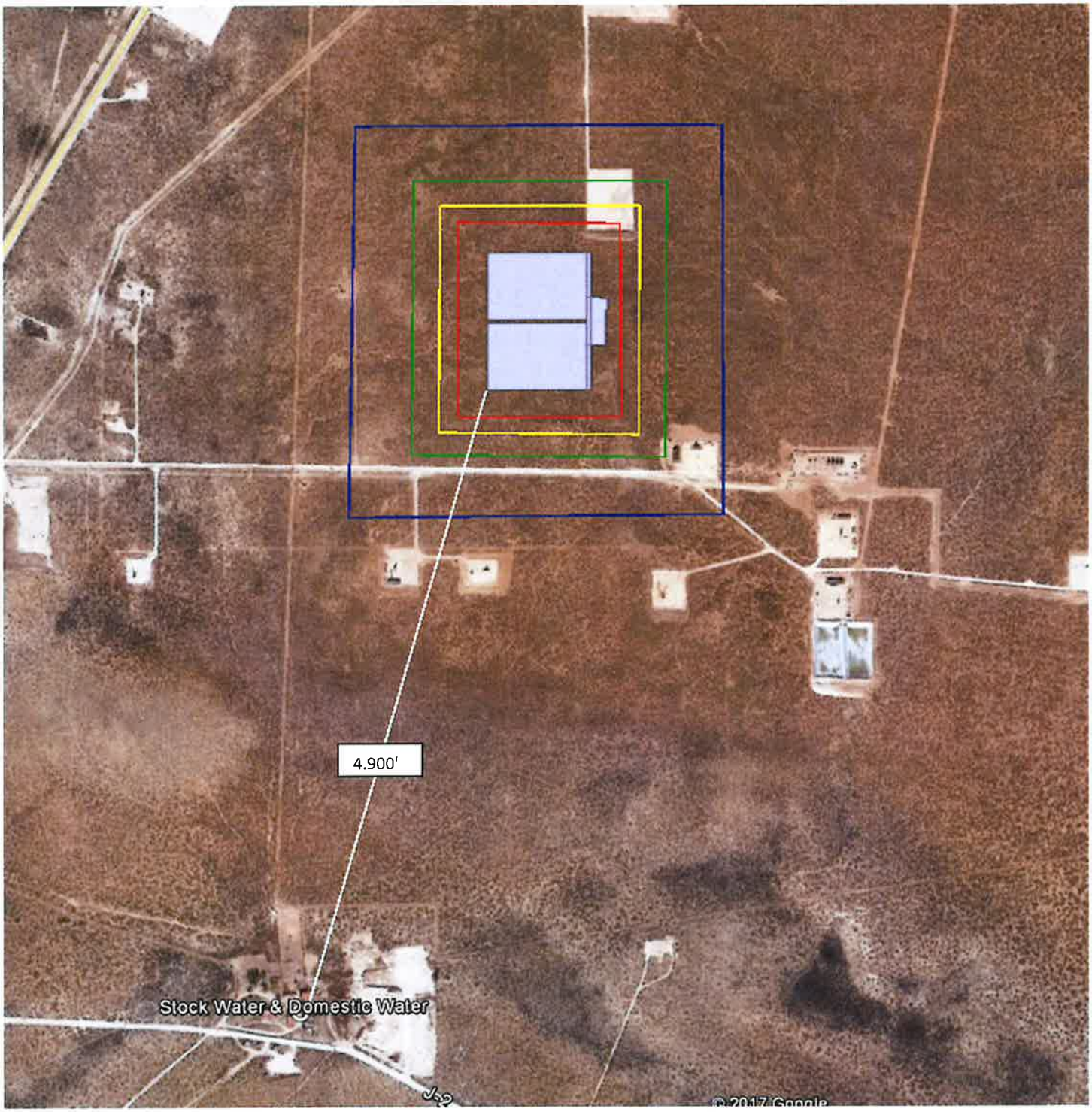
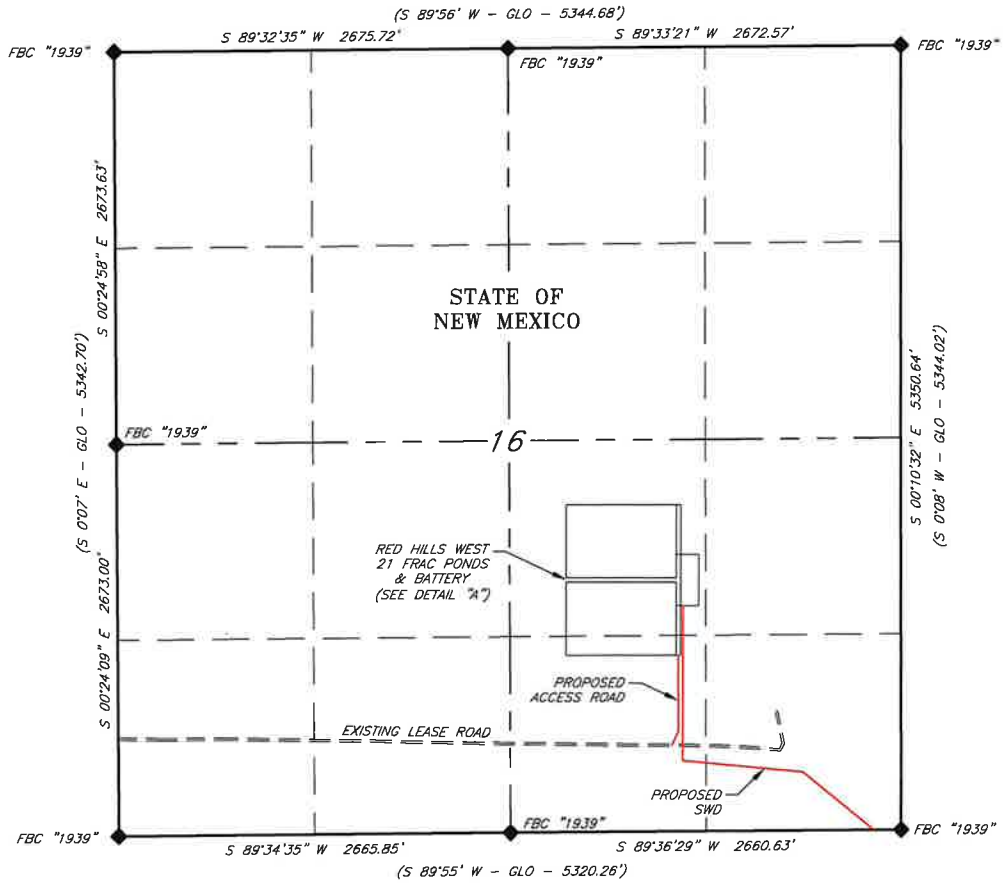


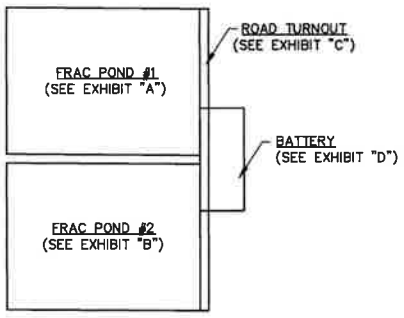
Figure 8: Distance to Stock & Domestic Water



Survey Plats

MEWBOURNE OIL COMPANY
OVERALL SURVEY OF THE PROPOSED
RED HILLS WEST 21 FRAC PONDS #1 & #2
WITH ROAD TURNOUT & BATTERY, ACCESS ROAD & SWD
SECTION 16, T26S, R32E,
N. M. P. M., LEA CO., NEW MEXICO





DETAIL "A"
N.T.S.

SCALE: 1" = 1000'
0 500' 1000'

BEARINGS ARE GRID NAD 83
NM EAST
DISTANCES ARE HORIZ. GROUND.

LEGEND
( ) RECORD DATA - GLO
◆ FOUND MONUMENT AS NOTED

Firm No.: TX 10193838 NM 4655451

NO.	REVISION	DATE

JOB NO.: LS1705281R
DWG. NO.: 1705281-1

RRC

308 W. BROADWAY ST., HOBBS, NM 88240 (575) 964-8200

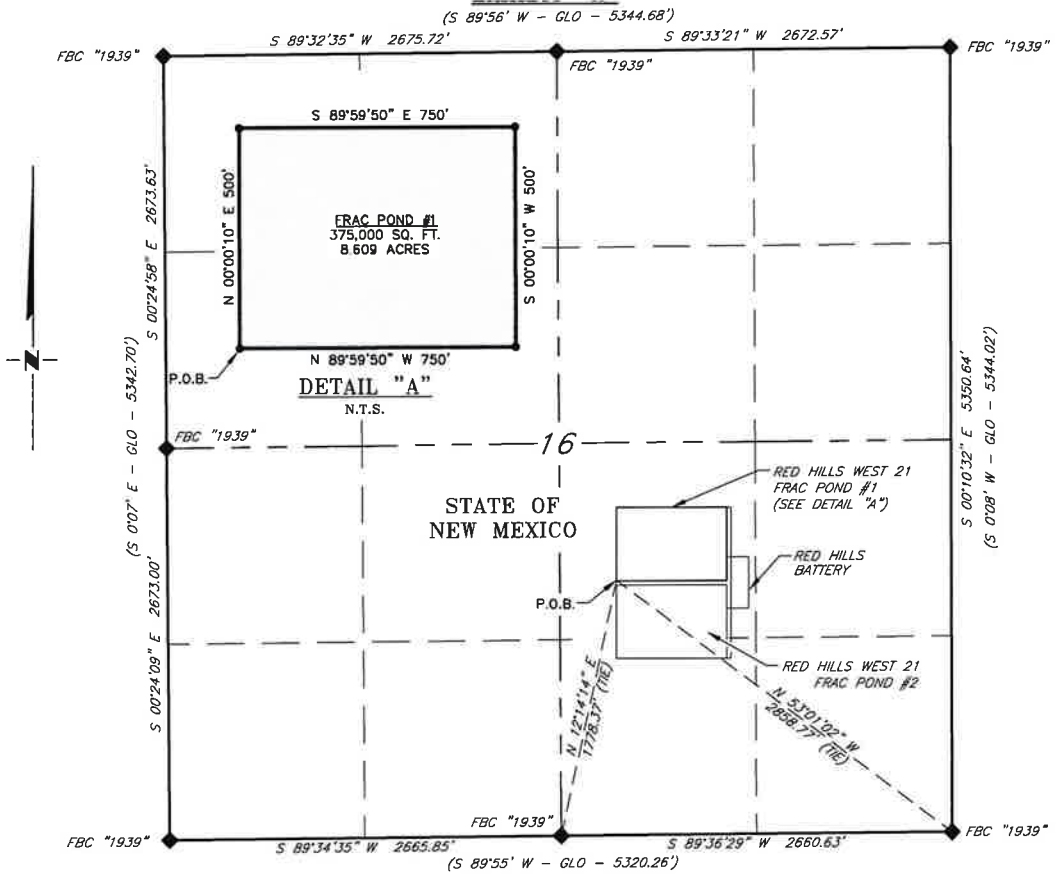
SCALE: 1" = 1000'
DATE: 6-26-2017
SURVEYED BY: ML/JL
DRAWN BY: LPS
APPROVED BY: RMH
SHEET: 1 OF 7

MEWBOURNE OIL COMPANY

SURVEY OF THE PROPOSED RED HILLS WEST 21 FRAC POND #1

SECTION 16, T26S, R32E,
N. M. P. M., LEA CO., NEW MEXICO

EXHIBIT "A"



DESCRIPTION

A tract of land situated within the Southeast quarter of Section 16, Township 26 South, Range 32 East, N. M. P. M., Lea County, New Mexico, across State of New Mexico land, and being more particularly described by metes and bounds as follows:

BEGINNING at a point, which bears N 53°01'02" W, 2,858.77 feet, from a brass cap, stamped "1939", found for the Southeast corner of Section 16 and bears N 12°14'14" E, 1,778.37 feet from a brass cap, stamped "1939", found for the South quarter corner of Section 16;

Thence N 00°00'10" E, 500 feet, to a point;

Thence S 89°59'50" E, 750 feet, to a point;

Thence S 00°00'10" E, 500 feet, to a point;

Thence N 89°59'50" W, 750 feet, to the Point Of Beginning.

Said tract of land contains 375,000 square feet or 8.609 acres, more or less. and is allocated by forties as follows:

NW 1/4 SE 1/4	375,000 Sq. Ft.	8.609 Acres

SCALE: 1" = 1000'

0 500' 1000'

BEARINGS ARE GRID NAD 83 NM EAST
DISTANCES ARE HORIZ. GROUND.

LEGEND

( )	*RECORD DATA - GLO*
◆	*FOUND MONUMENT AS NOTED*
P.O.B.	*POINT OF BEGINNING*

I, R. M. Howett, a N. M. Professional Surveyor, hereby certify that I prepared this plat from an actual survey made on the ground under my direct supervision, said survey and plat meet the Min. Stds. for Land Surveying in the State of N. M. and are true and correct to the best of my knowledge and belief.

Robert M. Howett

Robert M. Howett NM PS 19680

ROBERT M. HOWETT
NEW MEXICO
19680
6/29/17
PROFESSIONAL SURVEYOR

Firm No.: TX 10193838 NM 4655451

NO.	REVISION	DATE

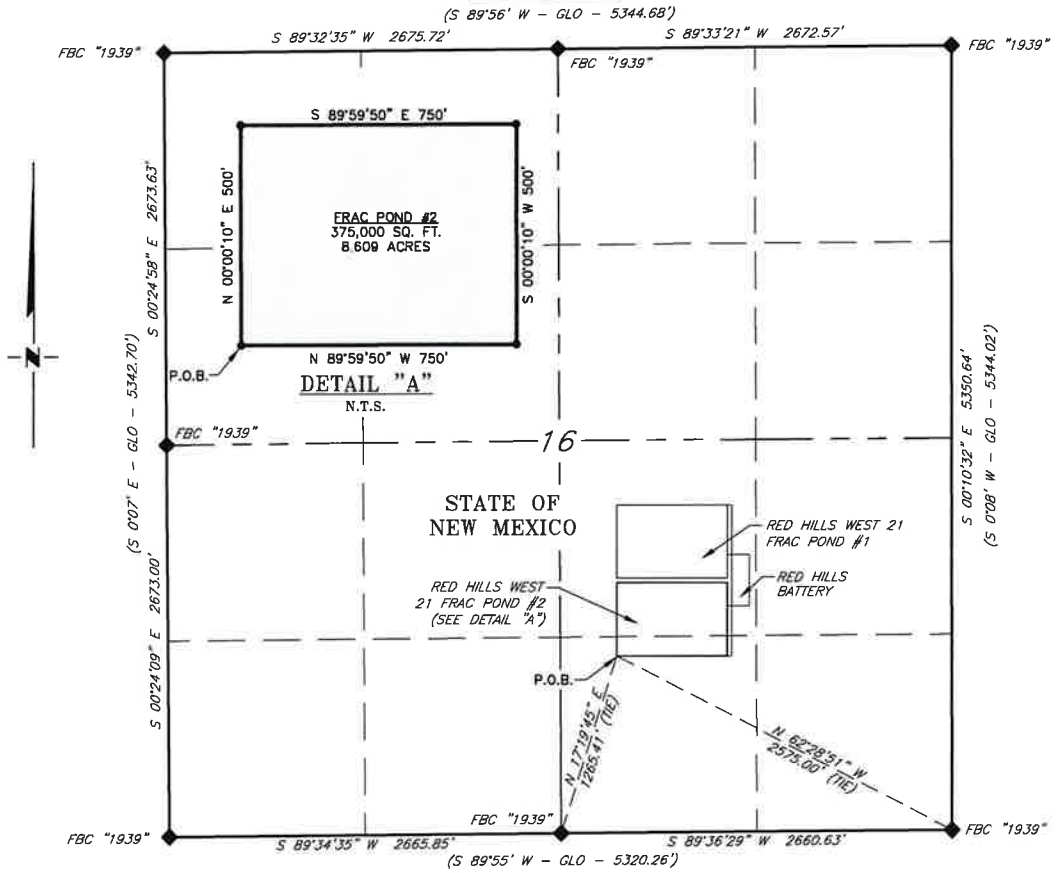
JOB NO.: LS1705281R
DWG. NO.: 1705281-2

RRC

308 W. BROADWAY ST., HOBBS, NM 88240 (575) 964-8200

SCALE: 1" = 1000'
DATE: 6-26-2017
SURVEYED BY: ML/JL
DRAWN BY: LPS
APPROVED BY: RMH
SHEET: 2 OF 5

MEWBOURNE OIL COMPANY
SURVEY OF THE PROPOSED RED HILLS WEST 21 FRAC POND #2
SECTION 16, T26S, R32E,
N. M. P. M., LEA CO., NEW MEXICO
EXHIBIT "B"



DESCRIPTION

A tract of land situated within the Southeast quarter of Section 16, Township 26 South, Range 32 East, N. M. P. M., Lea County, New Mexico, across State of New Mexico land, and being more particularly described by metes and bounds as follows:

BEGINNING at a point, which bears N 62°28'51" W, 2,575.00 feet, from a brass cap, stamped "1939", found for the Southeast corner of Section 16 and bears N 17°19'45" E, 1,265.41 feet from a brass cap, stamped "1939", found for the South quarter corner of Section 16;

Thence N 00°00'10" E, 500 feet, to a point;

Thence S 89°59'50" E, 750 feet, to a point;

Thence S 00°00'10" W, 500 feet, to a point;

Thence N 89°59'50" W, 750 feet, to the Point Of Beginning.

Said tract of land contains 375,000 square feet or 8.609 acres, more or less. and is allocated by forties as follows:

NW 1/4 SE 1/4	274,347 Sq. Ft.	6.298 Acres
SW 1/4 SE 1/4	100,653 Sq. Ft.	2.311 Acres

SCALE: 1" = 1000'
0 500' 1000'

BEARINGS ARE GRID NAD 83 NM EAST
DISTANCES ARE HORIZ. GROUND.

LEGEND

( ) RECORD DATA - GLO
◆ FOUND MONUMENT AS NOTED
P.O.B. POINT OF BEGINNING

Firm No.: TX 10193838 NM 4655451

I, R. M. Howett, a N. M. Professional Surveyor, hereby certify that I prepared this plat from an actual survey made on the ground under my direct supervision, said survey and plat meet the Min. Stds. for Land Surveying in the State of N. M. and are true and correct to the best of my knowledge and belief.

Robert M. Howett

Robert M. Howett NM PS 19680

ROBERT M. HOWETT
NEW MEXICO
19680
6/29/17
PROFESSIONAL SURVEYOR

NO.	REVISION	DATE

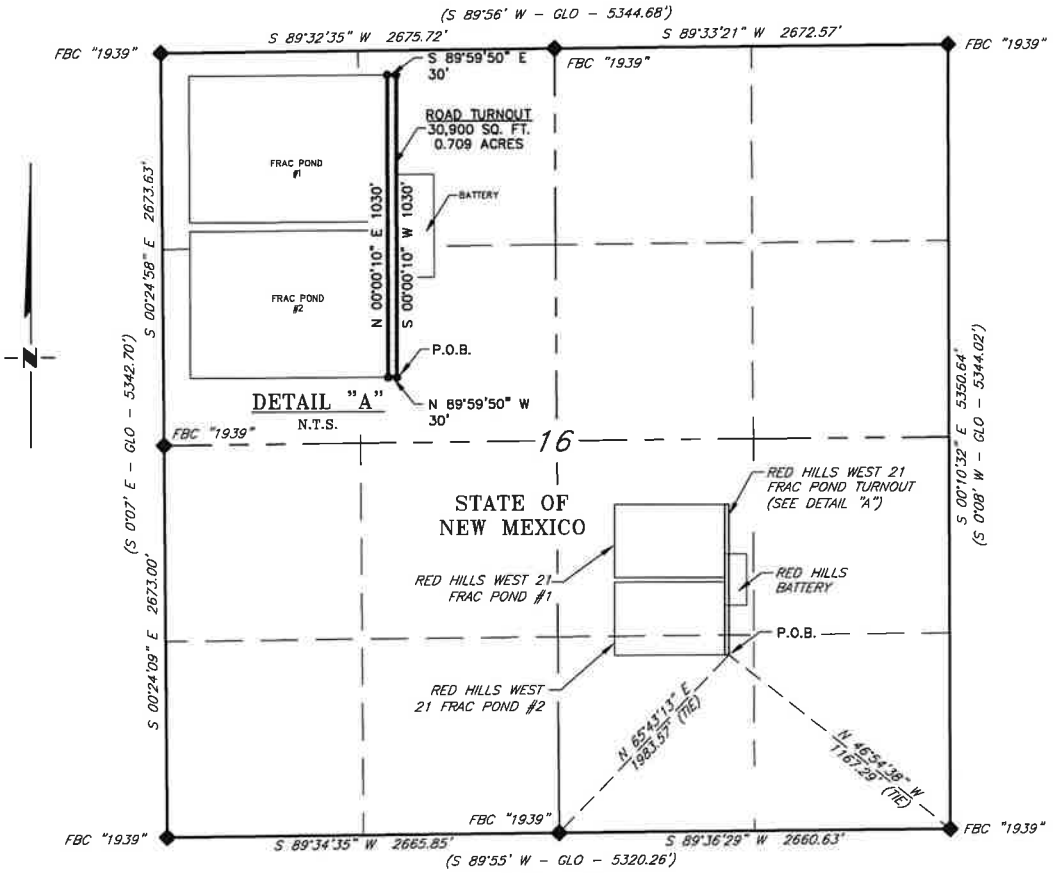
JOB NO.: LS1705281R
DWG. NO.: 1705281-3

RRC

308 W. BROADWAY ST., HOBBS, NM 88240 (575) 964-8200

SCALE: 1" = 1000'
DATE: 6-7-2017
SURVEYED BY: ML/JL
DRAWN BY: LPS
APPROVED BY: RMH
SHEET: 3 OF 5

MEWBOURNE OIL COMPANY
PROPOSED ROAD TURNOUT FOR THE RED HILLS WEST 21 FRAC PONDS #1 & #2
SECTION 16, T26S, R32E,
N. M. P. M., LEA CO., NEW MEXICO
EXHIBIT "C"



DESCRIPTION

A tract of land situated within the Southeast quarter of Section 16, Township 26 South, Range 32 East, N. M. P. M., Lea County, New Mexico, across State of New Mexico land, and being more particularly described by metes and bounds as follows:

BEGINNING at a point, which bears N 46°54'38" W, 1,167.29 feet, from a brass cap, stamped "1939", found for the Southeast corner of Section 16 and bears N 65°43'13" E, 1,983.57 feet from a brass cap, stamped "1939", found for the South quarter corner of Section 16;

Thence N 89°59'50" W, 30 feet, to a point;

Thence N 00°00'10" E, 1,030 feet, to a point;

Thence S 89°59'50" E, 30 feet, to a point;

Thence S 00°00'10" W, 1,030 feet, to the Point Of Beginning.

Said tract of land contains 30,900 square feet or 0.709 acres, more or less and is allocated by forties as follows:

NW 1/4 SE 1/4	26,790 Sq. Ft.	0.615 Acres
SW 1/4 SE 1/4	4,110 Sq. Ft.	0.094 Acres

SCALE: 1" = 1000'
0 500' 1000'

BEARINGS ARE GRID NAD 83 NM EAST
DISTANCES ARE HORIZ. GROUND.

LEGEND
( ) RECORD DATA - GLO
◆ FOUND MONUMENT AS NOTED
P.O.B. POINT OF BEGINNING

I, R. M. Howett, a N. M. Professional Surveyor, hereby certify that I prepared this plat from an actual survey made on the ground under my direct supervision, said survey and plat meet the Min. Stds. for Land Surveying in the State of N. M. and are true and correct to the best of my knowledge and belief.

Robert M. Howett
Robert M. Howett NM PS 19680

ROBERT M. HOWETT NEW MEXICO 19680 6/29/17 PROFESSIONAL SURVEYOR

Firm No.: TX 10193838 NM 4655451

NO.	REVISION	DATE

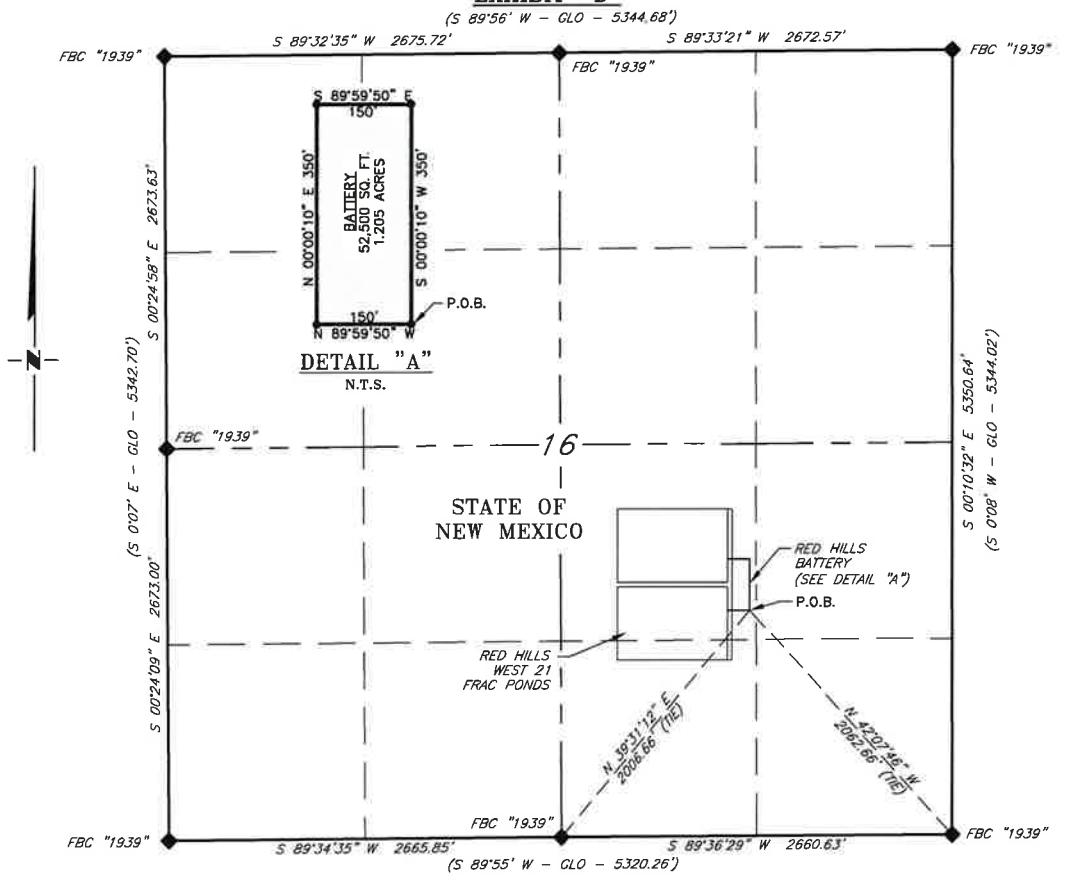
JOB NO.: LS1705281R
DWG. NO.: 1705281-4

RRC

308 W. BROADWAY ST., HOBBS, NM 88240 (575) 964-8200

SCALE: 1" = 1000'
DATE: 6-7-2017
SURVEYED BY: ML/JL
DRAWN BY: LPS
APPROVED BY: RMH
SHEET: 4 OF 5

MEWBOURNE OIL COMPANY
SURVEY OF THE PROPOSED RED HILLS BATTERY
SECTION 16, T26S, R32E,
N. M. P. M., LEA CO., NEW MEXICO
EXHIBIT "D"



DESCRIPTION

A tract of land situated within the Southeast quarter of Section 16, Township 26 South, Range 32 East, N. M. P. M., Lea County, New Mexico, across State of New Mexico land, and being more particularly described by metes and bounds as follows:

BEGINNING at a point, which bears N 42°07'46" W, 2,062.66 feet, from a brass cap, stamped "1939", found for the Southeast corner of Section 16 and bears N 39°31'12" E, 2,006.66 feet from a brass cap, stamped "1939", found for the South quarter corner of Section 16;

Thence N 89°59'50" W, 150 feet, to a point;

Thence N 00°00'10" E, 350 feet, to a point;

Thence S 89°59'50" E, 150 feet, to a point;

Thence S 00°00'10" W, 350 feet, to the Point Of Beginning.

Said tract of land contains 52,500 square feet or 1.205 acres, more or less. and is allocated by forties as follows:

NW 1/4 SE 1/4	52,500 Sq. Ft.	1.205 Acres

SCALE: 1" = 1000'
0 500' 1000'

BEARINGS ARE GRID NAD 83 NM EAST
DISTANCES ARE HORIZ. GROUND.

LEGEND

( ) RECORD DATA - GLO
◆ FOUND MONUMENT AS NOTED
P.O.B. POINT OF BEGINNING

Firm No.: TX 10193838 NM 4655451

I, R. M. Howett, a N. M. Professional Surveyor, hereby certify that I prepared this plat from an actual survey made on the ground under my direct supervision, said survey and plat meet the Min. Stds. for Land Surveying in the State of N. M. and are true and correct to the best of my knowledge and belief.

Robert M. Howett

Robert M. Howett NM PS 19680

ROBERT M. HOWETT
NEW MEXICO
19680
6/29/17
PROFESSIONAL SURVEYOR

NO.	REVISION	DATE

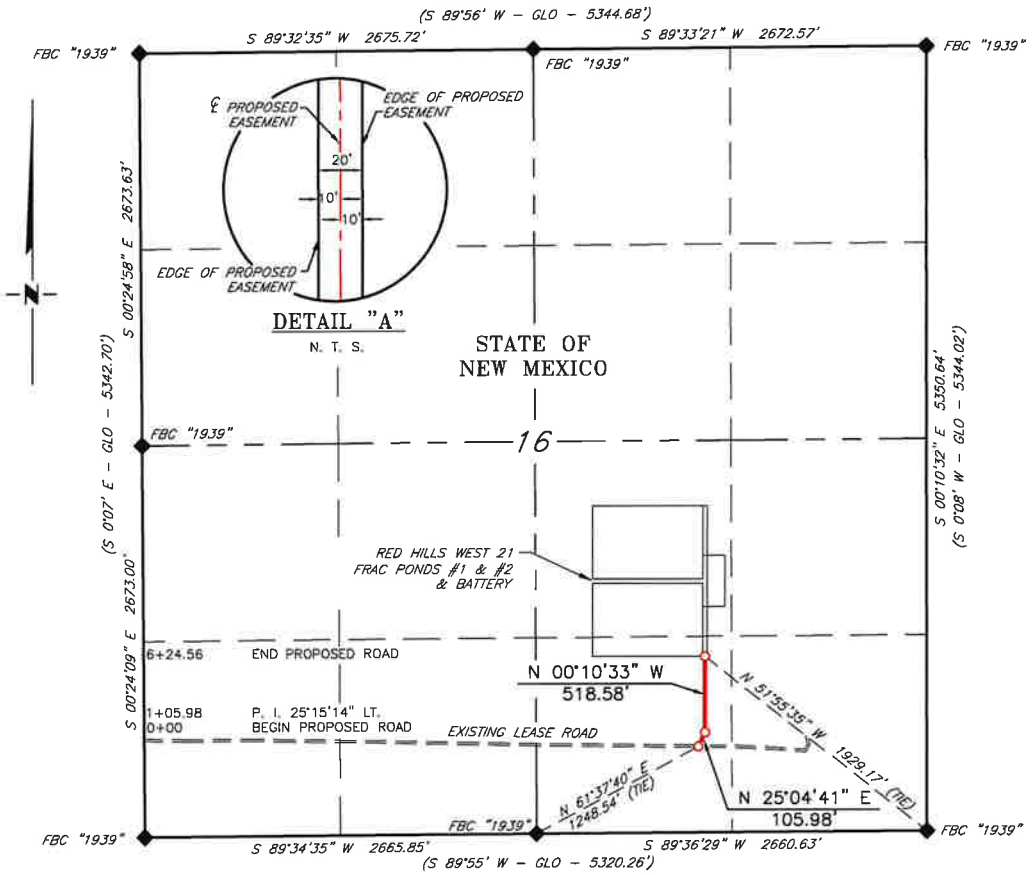
JOB NO.: LS1705281R
DWG. NO.: 1705281-5

RRC

308 W. BROADWAY ST., HOBBS, NM 88240 (575) 964-8200

SCALE:	1" = 1000'
DATE:	5-25-2017
SURVEYED BY:	BC/AB
DRAWN BY:	LPS
APPROVED BY:	RMH
SHEET:	5 OF 5

MEWBOURNE OIL COMPANY
SURVEY OF PROPOSED ACCESS ROAD
FOR THE RED HILLS WEST 21 FRAC PONDS #1 & #2
SECTION 16, T26S, R32E,
N. M. P. M., LEA CO., NEW MEXICO



DESCRIPTION

A strip of land 20 feet wide, being 624.56 feet or 37.852 rods in length, lying in Section 16, Township 26 South, Range 32 East, N. M. P. M., Eddy County, New Mexico, being 10 feet left and 10 feet right of the following described survey of a centerline across State of New Mexico land:

BEGINNING at Engr. Sta. 0+00, a point in the Southeast quarter of Section 16, which bears, N 61°37'40" E, 1,248.54 feet, from a brass cap, stamped "1939", found for the South quarter corner of Section 16;

Thence N 25°04'41" E, 105.98 feet, to Engr. Sta. 1+05.98, a P. I. of 25°15'14" left;

Thence N 00°10'33" W, 518.58 feet, to Engr. Sta 6+24.56, the End of Survey, a point in the Southeast quarter of Section 16, which bears, N 51°55'35" W, 1,929.17 feet, from a brass cap, stamped "1939", found for the Southeast corner of Section 16.

Said strip of land contains 0.287 acres, more or less, and is allocated by forties as follows:

SW 1/4 SE 1/4	37.852 Rods	0.287 Acres

SCALE: 1" = 1000'
0 500' 1000'

BEARINGS ARE GRID NAD 83 NM EAST
DISTANCES ARE HORIZ. GROUND.

LEGEND
( ) RECORD DATA – GLO
◆ FOUND MONUMENT AS NOTED
PROPOSED ACCESS ROAD

I, R. M. Howett, a N. M. Professional Surveyor, hereby certify that I prepared this plat from an actual survey made on the ground under my direct supervision, said survey and plat meet the Min. Stds. for Land Surveying in the State of N. M. and are true and correct to the best of my knowledge and belief.

Robert M. Howett
Robert M. Howett NM PS 19680

ROBERT M. HOWETT NEW MEXICO 19680 6/29/17 PROFESSIONAL SURVEYOR

Firm No.: TX 10193838 NM 4655451

NO.	REVISION	DATE

JOB NO.: LS1705281R
DWG. NO.: 1705281RD

RRC

308 W. BROADWAY ST., HOBBS, NM 88240 (575) 964-8200

SCALE: 1" = 1000'
DATE: 6-26-2017
SURVEYED BY: ML/JL
DRAWN BY: LPS
APPROVED BY: RMH
SHEET: 1 OF 1

Engineering Drawings

MEWBORNE OIL COMPANY

RED HILLS WEST 21 FRAC PONDS

Section 16 - Township 26 South, Range 32 East, - Lea County, New Mexico NMPM

MEWBOURNE OIL COMPANY

JAMES R. STALLINGS NEW MEXICO 21043 PROFESSIONAL ENGINEER

6/14/2017

Index to Drawings

Sheet No.	Description
1.	Cover Sheet
2.	Project Location Plan
3.	Site Plan
4.	Dimension Plan
5.	Cross Sections
6.	Cross Sections
7.	Sump Plans and Details
8.	Miscellaneous Details
9.	Miscellaneous Details

Contacts

Mewborne Oil Company - Tyler Tupman

Envirotech Engineering - Jimmy Stallings 580-234-8780
(Design Engineer)

ENVIROTECH

nm811 Know what's below. Call before you dig.

north

Owner	MOC		
Site Name	Red Hills Pits		
	Top FB	Bottom	Max
Lagoon Feature			Liq. Level
Sideslope Ratio	3		3
Maximum Depth (ft)	22.00		20.00
Lagoon Top Width (ft)	540	408	524.0
Lagoon Top Length (ft)	400	268	384.0
Maximum Total Vol (ft^3)	3,514,896		3,094,080
Maximum Total Vol (bbls)	625,986		515,043

Lagoon Liq Depth ft	Storage ft	Surface Area ac	Remaining Stor Vol ft3	Remaining Stor Vol gal	Remaining Stor Vol bbls	Percent of Total Volume %	Vol in lagoon ft^3	Vol in Lagoon bbls	Vol in Lagoon ac-ft	Percent Total Vol %
22.00	0.0	4.96	-	-	-	0.0%	3,514,896	625,986	80.69	100%
21.5	0.5	4.89	55,181	412,750	9,827	1.6%	3,407,600	606,877	78.23	97%
21.0	1.0	4.83	111,384	-	-	3.2%	3,301,704	588,018	75.80	94%
20.5	1.5	4.77	168,620	1,261,274	30,030	4.8%	3,197,201	569,406	73.40	91%
20.0	2.0	4.70	226,896	1,697,162	40,409	6.5%	3,094,080	551,041	71.03	88%
19.5	2.5	4.64	286,223	2,140,944	50,975	8.1%	2,992,334	532,920	68.69	85%
19.0	3.0	4.58	346,608	2,592,628	61,729	9.9%	2,891,952	515,043	66.39	82%
18.5	3.5	4.52	408,062	3,052,300	72,674	11.6%	2,792,927	497,407	64.12	79%
18.0	4.0	4.46	470,592	3,520,028	83,810	13.4%	2,695,248	480,011	61.87	77%
17.5	4.5	4.39	534,209	3,995,880	95,140	15.2%	2,598,908	462,853	59.66	74%
17.0	5.0	4.33	598,920	4,479,922	106,665	17.0%	2,503,896	445,932	57.48	71%
16.5	5.5	4.27	664,736	4,972,222	118,386	18.9%	2,410,205	429,246	55.33	69%
16.0	6.0	4.21	731,664	5,472,847	130,306	20.8%	2,317,824	412,793	53.21	66%
15.5	6.5	4.15	799,715	5,981,864	142,425	22.8%	2,226,746	396,573	51.12	63%
15.0	7.0	4.09	868,896	6,499,342	154,746	24.7%	2,136,960	380,582	49.06	61%
14.5	7.5	4.03	939,218	7,025,347	167,270	26.7%	2,048,459	364,821	47.03	58%
14.0	8.0	3.98	1,010,688	7,559,946	179,999	28.8%	1,961,232	349,286	45.02	56%
13.5	8.5	3.92	1,083,317	8,103,207	192,934	30.8%	1,875,272	333,977	43.05	53%
13.0	9.0	3.86	1,157,112	8,655,198	206,076	32.9%	1,790,568	318,892	41.11	51%
12.5	9.5	3.80	1,232,084	9,215,985	219,428	35.1%	1,707,113	304,029	39.19	49%
12.0	10.0	3.75	1,308,240	9,785,635	232,991	37.2%	1,624,896	289,386	37.30	46%
11.5	10.5	3.69	1,385,591	10,364,217	246,767	39.4%	1,543,910	274,963	35.44	44%
11.0	11.0	3.63	1,464,144	10,951,797	260,757	41.7%	1,464,144	260,757	33.61	42%
10.5	11.5	3.58	1,543,910	11,548,443	274,963	43.9%	1,385,591	246,767	31.81	39%
10.0	12.0	3.52	1,624,896	12,154,222	289,386	46.2%	1,308,240	232,991	30.03	37%
9.5	12.5	3.47	1,707,113	12,769,202	304,029	48.6%	1,232,084	219,428	28.28	35%
9.0	13.0	3.42	1,790,568	13,393,449	318,892	50.9%	1,157,112	206,076	26.56	33%
8.5	13.5	3.36	1,875,272	14,027,031	333,977	53.4%	1,083,317	192,934	24.87	31%
8.0	14.0	3.31	1,961,232	14,670,015	349,286	55.8%	1,010,688	179,999	23.20	29%
7.5	14.5	3.26	2,048,459	15,322,470	364,821	58.3%	939,218	167,270	21.56	27%
7.0	15.0	3.20	2,136,960	15,984,461	380,582	60.8%	868,896	154,746	19.95	25%
6.5	15.5	3.15	2,226,746	16,656,056	396,573	63.4%	799,715	142,425	18.36	23%

MEWBOURNE OIL COMPANY

ENVIROTECH

MEWBOURNE OIL COMPANY

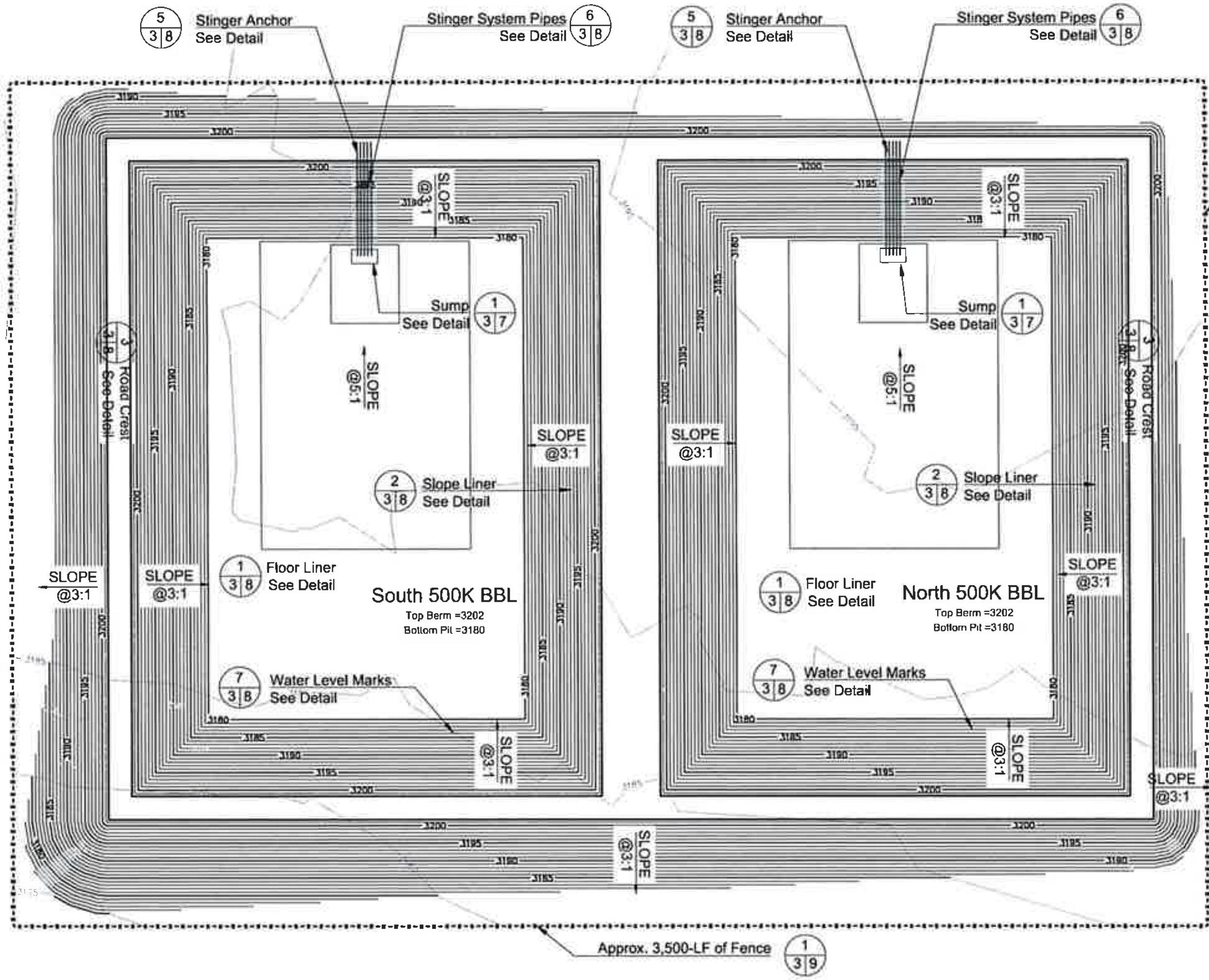
LOCATION PLAN

Red Hills West 21

Section 16-Township 26 South, Range 32 East

N.M.P.M. - Lea County, New Mexico

June 2017	NTS	T. Williams	17.233.02



Preliminary Site Volume Table: Adjusted

					Cut	Fill	NET	
Site	Stratum	Surface 1	Surface 2	% factor	cubic yard	cubic yard	cubic yard	Method
Red Hills West 21	Pits	Existing	Proposed	20%	125104	120996	4108(C)	Grid
	Quantities do not include removal and replacement of topsoil						4108(C)	

ENVIROTECH

6/14/2017

MEWBOURNE OIL COMPANY

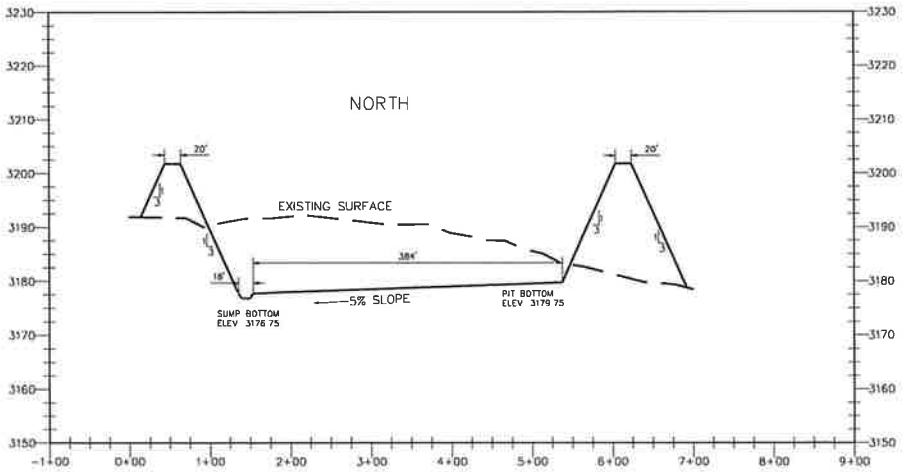
SITE PLAN

Red Hills West 21
Section 16-Township 26 South, Range 32 East
N.M.P.M. - Lea County, New Mexico

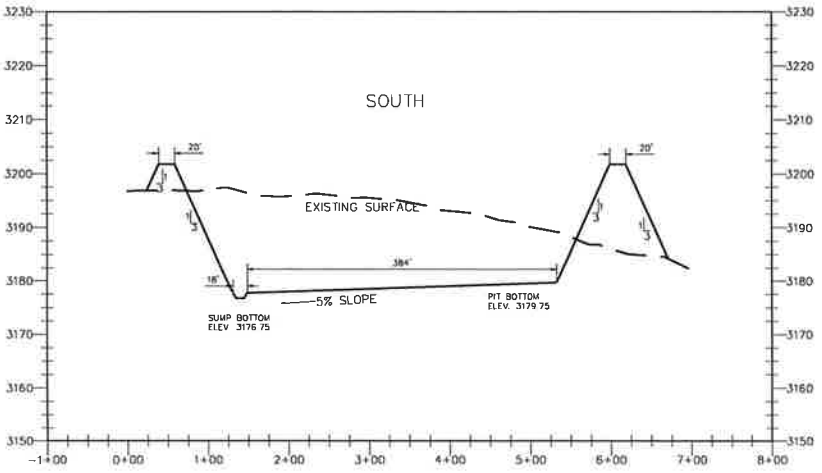
June 2017 | 1"=100' | F. Williams | R. Stout | J. Stallings | 17232.01

DIMENSION PLAN
Red Hills West 21
Section 16-Township 26 South, Range 32 East
N.M.P.M. - Lea County, New Mexico
MEWBOURNE OIL COMPANY
ENVIROTECH
north
North 500K BBL
Top Berm =3202
Bottom Pit =3180
South 500K BBL
Top Berm =3202
Bottom Pit =3180
540'
408'
400'
268'
28'
20'
50'
4 of 9

Red Hills Alignment – A–A PROFILE



Red Hills Alignment – B–B PROFILE



ENVIROTECH

MEWBOURNE OIL COMPANY

CROSS SECTIONS

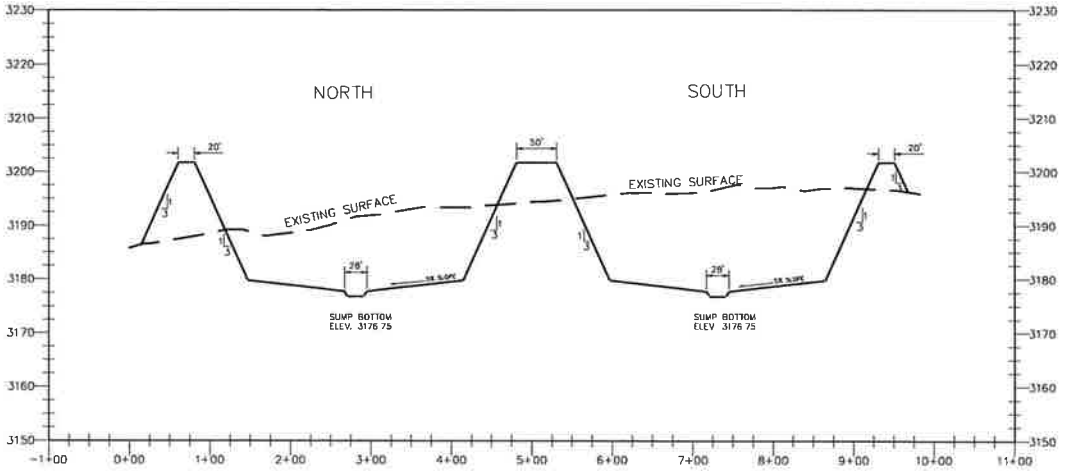
Red Hills West 21

Section 16-Township 26 South, Range 32 East

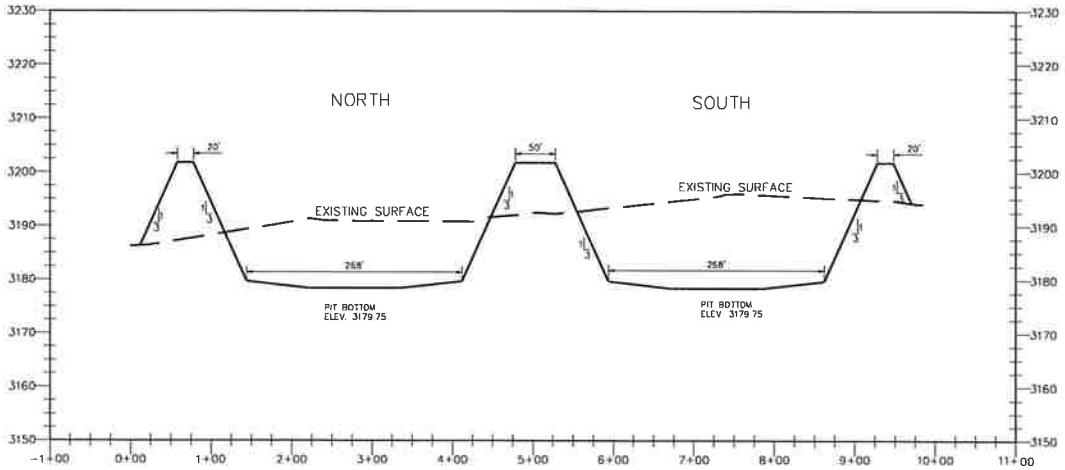
N.M.P.M. – Lea County, New Mexico

June 2017

Red Hills Alignment – C–C PROFILE



Red Hills Alignment – D–D PROFILE



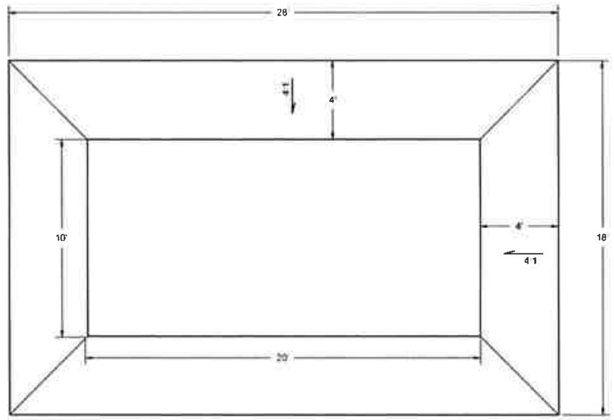
ENVIROTECH

MEWBOURNE OIL COMPANY

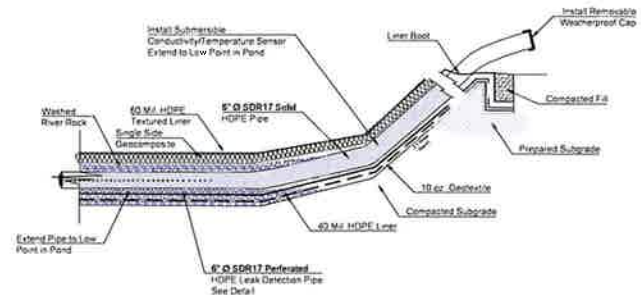
CROSS SECTION (2)

Red Hills West 21
Section 16-Township 26 South, Range 32 East
N.M.P.M. - Lea County, New Mexico

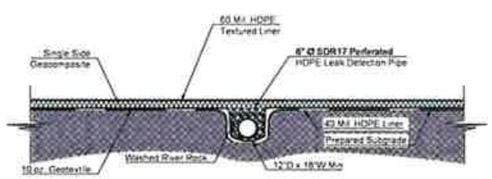
6/14/2017



POND SUMP PLAN VIEW
Not to Scale
1 / 3 7

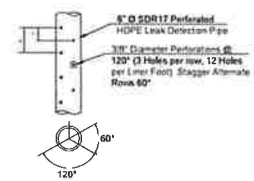


LEAK DETECTION/SAMPLING SYSTEM DETAIL
Not to Scale
2 / 3 7



LEAK DETECTION PIPE DETAIL
Not to Scale
3 / 3 7

NOTES
1. LEAK DETECTION SENSOR TO BE INSTALLED BY OWNER
2. PERFORATED PIPE TO BE ALONG THE BOTTOM OF THE POND. SOLID PIPE ON THE SIDE SLOPE
3. CONSTRUCT COMPACTED SUBGRADE TO 95% STANDARD PROCTOR AS PER ASTM D 698
4. EXTEND 60 MIL RUB SHEET 1.5 FT PAST TOP OF SHOULDER OF SUMP
5. WASH RIVER ROCK SHALL BE 3/8" MIN & 3/4" MAX



PERFORATED PIPE DETAIL
Not to Scale
4 / 3 7

ENVIROTECH

MEWBOURNE OIL COMPANY

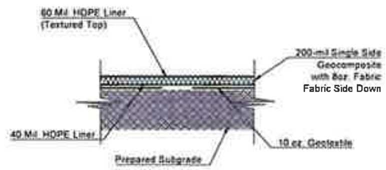
6/14/2017

SUMP PLANS AND DETAILS

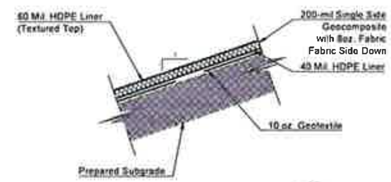
Red Hills West 21
Section 16-Township 26 South, Range 32 East
N.M.P.M. - Lea County, New Mexico

June 2017
NTS
E. Williams
R. Stout
J. Stallings
17232.01

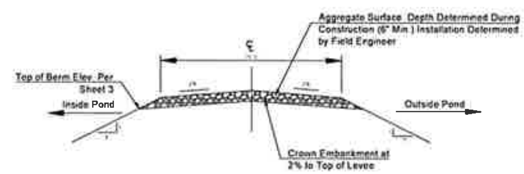
7 of 9



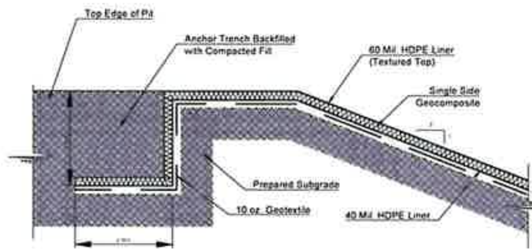
LINER SYSTEM FLOOR DETAIL
Not to Scale
1 / 3 | 8



LINER SYSTEM SIDE SLOPE DETAIL
Not to Scale
2 / 3 | 8

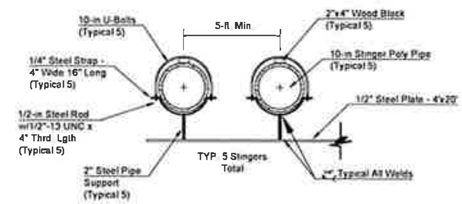


TYPICAL CREST DETAIL
Not to Scale
3 / 3 | 8

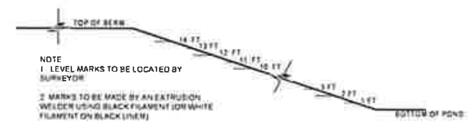


ANCHOR TRENCH DETAIL
Not to Scale
4 / 3 | 8

GENERAL NOTES
1. PREPARED SUBGRADE MEANS COMPACTED SMOOTH SUBGRADE FREE OF ROCK, ROOTS, WOOD DEBRIS, CONCRETE RUBBLE AND ANY SHARP OBJECTS THAT MIGHT PUNCTURE THE HDPE LINER
2. ALL INTERIOR SLOPES AND TOP OF BERMS TO BE SMOOTH DRUM ROLLED
3. ALL EMBANKMENT SLOPES SHALL HAVE A RATIO OF 3:1. COMPACTED EARTH EMBANKMENTS TO BE CONSTRUCTED WITH 12 INCH (MAXIMUM LOOSE LIFTS) COMPACTED TO 95% STANDARD PROCTOR DENSITY
4. PERFORM GEOTECHNICAL ANALYSIS ON EXISTING SOIL TO CONFIRM SOIL IS SUITABLE FOR USE IN THE LEVEE
5. ALL BOTTOM OF PITS SHALL SLOPE TO THE SUMP @ 0.5%

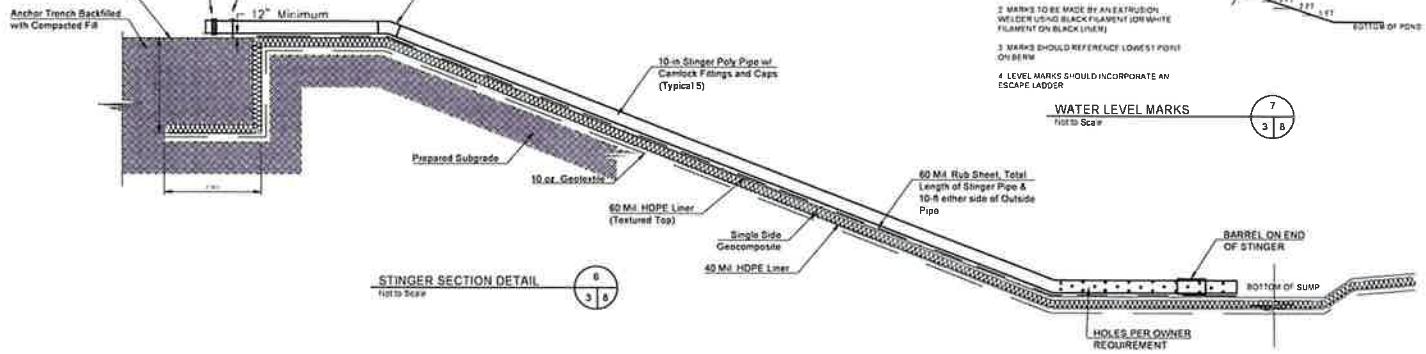


Stinger System Anchor Detail
Not to Scale
5 / 3 | 8



NOTE
1. LEVEL MARKS TO BE LOCATED BY SURVEYOR
2. MARKS TO BE MADE BY AN EXTRUSION WELDER USING BLACK FILAMENT (OR WHITE FILAMENT ON BLACK LINER)
3. MARKS SHOULD REFERENCE LOWEST POINT ON BERM
4. LEVEL MARKS SHOULD INCORPORATE AN ESCAPE LADDER

WATER LEVEL MARKS
Not to Scale
7 / 3 | 8



STINGER SECTION DETAIL
Not to Scale
6 / 3 | 8

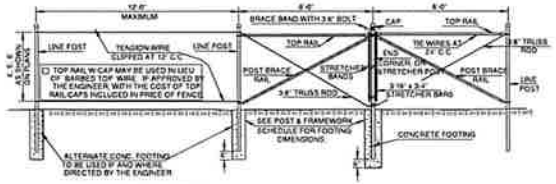
ENVIROTECH

MEWBOURNE OIL COMPANY

MISC DETAILS
Red Hills West 21
Section 16-Township 26 South, Range 32 East
N.M.P.M. - Lea County, New Mexico

June 2017
NTS
T. Williams
R. Stout
E. Stallings
17.232.01

6/14/2017

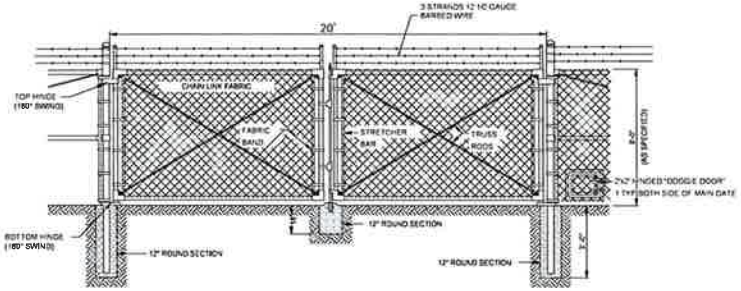


TYPICAL LINE POST DETAIL

NOTE LINE POSTS MAY BE DRIVEN OR EARTH EMBEDED SEE SPECIFICATIONS

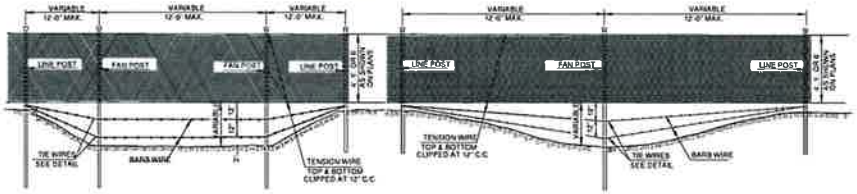
END, CORNER, & STRETCHER DETAILS

USE STRETCHER DETAILS AT ALL CORNERS, BENDS IN R/W, ON HILLTOPS IN VALLEYS OR DEEP DEPRESSIONS, AND AT 500' MAXIMUM SPACING (REQUIRES CONCRETE FOOTING)



DOUBLE HUNG GATE DETAIL 2/3/9

Not to Scale



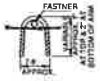
FAN DETAILS

SEE PLANS FOR APPROX. LOCATION OF FANS

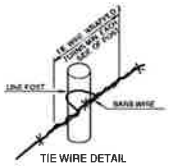
BARRIER FENCE 1/3/9

Not to Scale

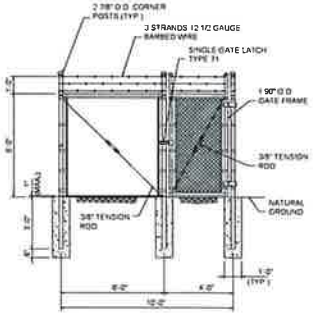
ALTERNATE POST CAP DETAIL (W/TOP RAIL)



SECTION A-A



TIE WIRE DETAIL



MAN GATE DETAIL 3/3/9

Not to Scale

POST & FRAMEWORK SCHEDULE

	LINE POST				END CORNER OR STRETCHER POSTS		GATE POSTS ○			TOP RAIL OR POST BRACE RAIL		GATE FRAMES		
SHAPE	○	⊏	⊏	I	○	◪	○	○	○	○	▯	○	○	○
NOMENCLATURE	1 5/8" PIPE	ROLL FORMED HEAVY STAND.	ROLL FORMED STAND.	"H" RAIL	2" PIPE	ROLL FORMED	2.5" PIPE	3.5" PIPE	5.0" PIPE	1 1/4" PIPE	ROLL FORMED	1 1/4" PIPE	1 1/2" PIPE	1 1/2" PIPE
DIMENSIONS	1.9" O.D. 1.5" I.D. 0.145" THK	2.25" x 1.7" 0.120" THK	1.875" x 1.625" 0.105" THK	2.25" x 1.7" 0.120" THK	2.38" O.D. 2.07" I.D. 0.154" THK	3.5" x 3.5" 0.128" THK	2.88" O.D. 2.47" I.D. 0.205" THK	4.0" O.D. 3.55" I.D. 0.225" THK	5.563" O.D. 5.047" I.D. 0.258" THK	1.66" O.D. 1.44 I.D. 0.11" THK	1.625" x 1.25" 0.075" THK	1.66" O.D. 1.44" I.D. 0.11" THK	1.9" O.D. 1.61" I.D. 0.145" THK	1.9" O.D. 1.61" I.D. 0.145" THK
CRITICAL SEC. MODULUS	.306 IN.³	.505 IN.³	.368 IN.²	.661 IN.²	.551 IN.³	1.02 IN.³	1.06 IN.³	2.39 IN.³	5.35 IN.³	▼ 0.155 IN.³	▼ 0.163 IN.³	● 0.195 IN.³	● 0.270 IN.³	● 0.305 IN.³
WEIGHT	2.72 (lbs/ft)	2.64 (lbs/ft)	1.85 (lbs/ft)	3.26 (lbs/ft)	3.65 (lbs/ft)	4.65 (lbs/ft)	5.79 (lbs/ft)	9.11 (lbs/ft)	18.62 (lbs/ft)	1.81 (lbs/ft)	1.25 (lbs/ft)	1.81 (lbs/ft)	2.17 (lbs/ft)	2.72 (lbs/ft)
LENGTH FOR GIVEN FENCE HEIGHT	6'-6" = W/CONC. FOOTING, 7'-6" WHEN DRIVEN 8'-6" = W/CONC. FOOTING, 9'-0" WHEN DRIVEN 10'-6" = W/CONC. FOOTING, 9'-12" WHEN DRIVEN				7'-6" W/CONC. FOOTING 9'-0" W/CONC. FOOTING 9'-12" W/CONC. FOOTING									
EMBEDMENT FOR GIVEN FENCE HEIGHT	24" IN CONC. FOOTING, 30" WHEN DRIVEN 30" IN CONC. FOOTING, 32" WHEN DRIVEN 36" IN CONC. FOOTING, 36" WHEN DRIVEN				30" IN CONC. FOOTING 32" IN CONC. FOOTING 36" IN CONC. FOOTING									
FOOTING DIA. IN EARTH	12" DIA. 30" DEEP				9" DIA.	14" DIA.	12" DIA.	16" DIA.	18" DIA.					
FOOTING DIA IN ROCK	6" DIA. 6" DEEP				6" DIA. 9" DIA.	6" DIA. 16" DIA.	9" DIA. 1'-3" DIA.	8" DIA. 16" DIA.	8" DIA. 24" DIA.					

○ MINIMUM WIDTH OF SINGLE SWING GATE TO BE 18 FT., OPENING MAY BE UP TO 36 FT. WIDE

DIAMETERS AS SHOWN ARE MINIMUM VALUES. DEPTHS FOR ROCK ARE MINIMUMS. DEPTHS SHOWN FOR CONCRETE FOOTINGS IN EARTH ARE MINIMUM FOR 6 FT. HIGH FENCE AND MAY BE REDUCED 3 IN. FOR EACH FOOT OF FENCE HEIGHT LESS THAN 6 FT. HIGH.

▲ WIRE FABRIC TO BE WOVEN INTO LOCK LOOPS FOR THE ENTIRE WIDTH OF THE FABRIC.

▼ SECTION MODULUS AS SHOWN IS BASED UPON ASTM A53, AND AASHTO M181. SEE SPECIFICATIONS FOR SUBSTITUTION FORMULA ON CLASS 2 COLD FORMED STEEL PIPE

● SECTION MODULUS AS SHOWN IS BASED UPON ASTM A 501 AND AASHTO M 181, SEE SPECIFICATIONS FOR SUBSTITUTION FORMULA ON CLASS 2 COLD FORMED STEEL PIPE

ENVIROTECH

MEWBOURNE OIL COMPANY

MISC DETAILS (2)

Red Hills West 21

Section 16-Township 26 South, Range 32 East

N.M.P.M. - Lea County, New Mexico

June 2017			
NTS			
T. Williams			
M. Stout			
J. Stallings			
17 JUN 21			

Material Spec Sheets

Sales Office:
Engineered Synthetic Products, Inc.
Phone (770) 564-1857
Fax (770) 564-1818
www.espgeosynthetics.com

Geotextile Product Description Sheet

SKAPS Mustang-10
Nonwoven Geotextile

SKAPS Mustang-10 is a needle-punched nonwoven geotextile made of 100% polypropylene staple fibers, which are formed into a random network for dimensional stability. SKAPS Mustang-10 resists ultraviolet deterioration, rotting, biological degradation, naturally encountered basics and acids. Polypropylene is stable within a pH range of 2 to 13. SKAPS Mustang-10 conforms to the physical property values listed below:

PROPERTY	TEST METHOD	UNIT	M.A.R.V. (Minimum Average Roll Value)
Grab Tensile	ASTM D 4632	lbs	225
Grab Elongation	ASTM D 4632	%	50
Trapezoid Tear Strength	ASTM D 4533	lbs	90
CBR Puncture Resistance	ASTM D 6241	lbs	600
Permittivity*	ASTM D 4491	sec^{-1}	1.26
Flow Rate*	ASTM D 4491	gpm/ft^2	100
AOS*	ASTM D 4751	US Sieve (mm)	80 (.180)
UV Resistance	ASTM D 4355	%/hrs	70/500

* At the time of manufacturing. Handling, storage, and shipping may change these properties.

PACKAGING	
Roll Dimensions (W x L) – ft	15 x 1200
Square Yards Per Roll	2000
Estimated Roll Weight - lbs	1100

This information is provided for reference purposes only and is not intended as a warranty or guarantee. SKAPS assumes no liability in connection with the use of this information.

SKAPS Industries, 316 S. Holland Dr., Pendergrass, GA 30567, Phone (706) 693-3440, Fax (706) 693-3450, Email: info@skaps.com

Made in U.S.A.

TECHNICAL DATA SHEET

Premium HD Series, 40 mils

Black, Smooth

2801 Boul. Marie-Victorin Varennes, Quebec Canada J3X 1P7
Tel: (450) 929-1234 Sales: (450) 929-2544 Toll free in North America:1-800-571-3904 www.Solmax.com www.solmax.com

PROPERTY	TEST METHOD	FREQUENCY[1]	UNIT Imperial	1001375
SPECIFICATIONS				
Thickness (min. avg.)	ASTM D-5199	Every roll	mils	40.0
Thickness (min.)	ASTM D-5199	Every roll	mils	36.0
Melt Index - 190/2.16 (max.)	ASTM D-1238	1/Batch	g/10 min	1.0
Sheet Density (8)	ASTM D-792	Every 10 rolls	g/cc	≥ 0.94
Carbon Black Content (9)	ASTM D-4218	Every 2 rolls	%	2.0 - 3.0
Carbon Black Dispersion	ASTM D-5596	Every 10 rolls	Category	Cat. 1 & Cat. 2
OIT - standard (avg.)	ASTM D-3895	Per formulation	min	160
HPOIT - High Pressure (avg)	ASTM D-5885	Per formulation	min	800
Tensile Properties (min. avg) (2)	ASTM D-6693	Every 2 rolls		
Strength at Yield			ppi	84
Elongation at Yield			%	13
Strength at Break			ppi	152
Elongation at Break			%	750
Tear Resistance (min. avg.)	ASTM D-1004	Every 5 rolls	lbf	28
Puncture Resistance (min. avg.)	ASTM D-4833	Every 5 rolls	lbf	85
Dimensional Stability	ASTM D-1204	Certified	%	± 2
Stress Crack Resistance (SP-NCTL) (avg.)	ASTM D-5397	1/Batch	hr	1000
Multi-Axial Tensile (min. avg.)	ASTM D-5617	Per formulation	%	15
Oven Aging - % retained after 90 days	ASTM D-5721	Per formulation		
HP OIT (min. avg.)	ASTM D-5885		%	80
UV Res. - % retained after 1600 hr	GRI-GM-11	Per formulation		
HP-OIT (min. avg.)	ASTM D-5885		%	80
SUPPLY SPECIFICATIONS (Roll dimensions may vary ±1%)				
Roll Dimension - Width	-		ft	22.3
Roll Dimension - Length	-		ft	780
Area (Surface/Roll)	-		sf	17394

NOTES

1. Testing frequency based on standard roll dimension and one batch is approximately 180,000 lbs (or one railcar).
2. Machine Direction (MD) and Cross Machine Direction (XMD or TD) average values should be on the basis of 5 specimens each direction.
8. Correlation table is available for ASTM D792 vs ASTM D1505. Both methods give the same results.
9. Correlation table is available for ASTM D1603 vs ASTM D4218. Both methods give the same results.

* All values are nominal test results, except when specified as minimum or maximum.
* The information contained herein is provided for reference purposes only and is not intended as a warranty of guarantee. Final determination of suitability for use contemplated is the sole responsability of the user. SOLMAX assumes no liability in connection with the use of this information.

(Rev 03 / 2016-03-31)

Solmax is not a design professional and has not performed any design services to determine if Solmax's goods comply with any project plans or specifications, or with the application or use of Solmax's goods to any particular system, project, purpose, installation or specification.

SKAPS Industries
571 Industrial Parkway
Commerce, GA 30529 (U.S.A.)
Phone (706) 336-7000 Fax (706) 336-7007
e-mail: info@skaps.com

SKAPS TRANSNET™ (TN)
HDPE GEONET 220

SKAPS TRANSNET™ Geonet consists of SKAPS GeoNet made from HDPE resin.

Property	Test Method	Unit	Required Value	Qualifier
Geonet				
Thickness	ASTM D 5199	mil.	220±20	Range
Carbon Black	ASTM D 4218	%	2 to 3	Range
Tensile Strength	ASTM D 7179	lb/in	45	Minimum
Melt Flow	ASTM D 1238[3]	g/10 min.	1	Maximum
Density	ASTM D 1505	g/cm^3	0.94	Minimum
Transmissivity[1]	ASTM D 4716	$m^2/sec.$	$2x10^{-3}$	MARV[2]

Notes:
1. Transmissivity measured using water at 21 ± 2°C (70 ± 4°F) with a gradient of 0.1 and a confining pressure of 10000 psf between stainless steel plates after 15 minutes. Values may vary between individual labs.
2. MARV is statistically defined as mean minus two standard deviations and it is the value which is exceeded by 97.5% of all the test data.
3. Condition 190/2.16

SOLMAX

TECHNICAL DATA SHEET

Premium HD Series, 60 mils

Conductive, Smooth

2801 Boul. Marie-Victorin Varennes, Quebec Canada J3X 1P7
Tel: (450) 929-1234 Sales: (450) 929-2544 Toll free in North America:1-800-571-3904 www.Solmax.com www.solmax.com

PROPERTY	TEST METHOD	FREQUENCY[1]	UNIT Imperial	1001688
SPECIFICATIONS				
Thickness (min. avg.)	ASTM D-5199	Every roll	mils	60.0
Thickness (min.)	ASTM D-5199	Every roll	mils	54.0
Melt Index - 190/2.16 (max.)	ASTM D-1238	1/Batch	g/10 min	1.0
Sheet Density (8)	ASTM D-792	Every 10 rolls	g/cc	≥ 0.94
Carbon Black Content (9)	ASTM D-4218	Every 2 rolls	%	2.0 - 3.0
Carbon Black Dispersion	ASTM D-5596	Every 10 rolls	Category	Cat. 1 & Cat. 2
OIT - standard (avg.)(6)	ASTM D-3895	Per formulation	min	160
HPOIT - High Pressure (avg)(6)	ASTM D-5885	Per formulation	min	800
Tensile Properties (min. avg) (2)	ASTM D-6693	Every 2 rolls		
Strength at Yield			ppi	132
Elongation at Yield			%	13
Strength at Break			ppi	243
Elongation at Break			%	750
Tear Resistance (min. avg.)	ASTM D-1004	Every 5 rolls	lbf	42
Puncture Resistance (min. avg.)	ASTM D-4833	Every 5 rolls	lbf	125
Dimensional Stability	ASTM D-1204	Certified	%	± 2
Stress Crack Resistance (SP-NCTL) (avg.)	ASTM D-5397	1/Batch	hr	1000
Multi-Axial Tensile (min. avg.)	ASTM D-5617	Per formulation	%	15
Oven Aging - % retained after 90 days	ASTM D-5721	Per formulation		
HP OIT (min. avg.)	ASTM D-5885		%	80
UV Res. - % retained after 1600 hr	GRI-GM-11	Per formulation		
HP-OIT (min. avg.)	ASTM D-5885		%	80
Volume Resistivity (max.)	ASTM D-4496	Every 10 rolls	Ohm•m	10
SUPPLY SPECIFICATIONS (Roll dimensions may vary ±1%)				
Roll Dimension - Width	-		ft	22.0
Roll Dimension - Length	-		ft	520
Area (Surface/Roll)	-		sf	11440
Application (10)	-	-	-	Conductive

NOTES

1. Testing frequency based on standard roll dimension and one batch is approximately 180,000 lbs (or one railcar).
2. Machine Direction (MD) and Cross Machine Direction (XMD or TD) average values should be on the basis of 5 specimens each direction.
6. Modified. Samples should be taken on the core layer only.
6. Modified. Samples should be taken on the core layer only.
8. Correlation table is available for ASTM D792 vs ASTM D1505. Both methods give the same results.
9. Correlation table is available for ASTM D1603 vs ASTM D4218. Both methods give the same results.
10. The conductive layer may cause the carbon black content results to be higher than 3%, specified on the data sheet.

* All values are nominal test results, except when specified as minimum or maximum.
* The information contained herein is provided for reference purposes only and is not intended as a warranty of guarantee. Final determination of suitability for use contemplated is the sole responsability of the user. SOLMAX assumes no liability in connection with the use of this information.

Solmax is not a design professional and has not performed any design services to determine if Solmax's goods comply with any project plans or specifications, or with the application or use of Solmax's goods to any particular system, project, purpose, installation or specification.

Avian Protection Device Specs

MEGABLASTER PRO (MEGA) SPECS

- Coverage: Up to 30 acres from single unit
- Box dimensions: 32" x 24" x 5" / Shipping weight: 17 lbs
- Power Input: 12vDC (3 amps) via solar panel and battery
- Sound Pressure: up to 125 decibels
- Frequency: 2,000–10,000 Hz
- Compliance: UL and CE listed
- EPA Est. 075310-OR-001
- Included: 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.
- Proudly made in the USA