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DISTRICT II-ARTESIA O.C.D.

Form 3160-3
(June 2015)

FORM APPROVED
OMB No. 1004-0137
Expires: January 31, 2018

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

APPLICATION FOR PERMIT TO DRILL OR REENTER

5. Lease Serial No.
NMNM104684

6. If Indian, Allotee or Tribe Name

1a. Type of work: ☑ DRILL ☐ REENTER

1b. Type of Well: ☑ Oil Well ☐ Gas Well ☐ Other

1c. Type of Completion: ☐ Hydraulic Fracturing ☑ Single Zone ☐ Multiple Zone

7. If Unit or CA Agreement, Name and No.

8. Lease Name and Well No.
SND 12 01 FED 002
4H
322 939

2. Name of Operator
CHEVRON USA INCORPORATED

9. API Well No.
30-015-46241

3a. Address
6301 Deauville Blvd. Midland TX 79706

3b. Phone No. *(include area code)*
(432)687-7866

10. Field and Pool or Exploratory
~~SAND DUNES~~ / BONE SPRING
Corrected 13367

4. Location of Well *(Report location clearly and in accordance with any State requirements.*)*
At surface SESW / 985 FSL / 1715 FWL / LAT 32.227344 / LONG -103.73452
At proposed prod. zone NWNE / 100 FNL / 2178 FEL / LAT 32.253394 / LONG -103.730026

11. Sec., T. R. M. or Blk. and Survey or Area
SEC 12 / T24S / R31E / NMP

14. Distance in miles and direction from nearest town or post office*	12. County or Parish	13. State
32 miles	EDDY	NM

15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any)	16. No of acres in lease	17. Spacing Unit dedicated to this well
330 feet	160	320

18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft.	19. Proposed Depth	20. BLM/BIA Bond No. in file
830 feet	9022 feet / 19397 feet	FED: CA0329

21. Elevations (Show whether DF, KDB, RT, GL, etc.)	22. Approximate date work will start*	23. Estimated duration
3552 feet	12/01/2019	130 days

24. Attachments

The following, completed in accordance with the requirements of Onshore Oil and Gas Order No. 1, and the Hydraulic Fracturing rule per 43 CFR 3162.3-3 (as applicable)

1. Well plat certified by a registered surveyor.
2. A Drilling Plan.
3. A Surface Use Plan (if the location is on National Forest System Lands, the SUPO must be filed with the appropriate Forest Service Office).
4. Bond to cover the operations unless covered by an existing bond on file (see Item 20 above).
5. Operator certification.
6. Such other site specific information and/or plans as may be requested by the BLM.

25. Signature	Name *(Printed/Typed)*	Date
(Electronic Submission)	Laura Becerra / Ph: (432)687-7665	01/31/2019
Title: Permitting Specialist		
Approved by *(Signature)*: (Electronic Submission)	Name *(Printed/Typed)*: Cody Layton / Ph: (575)234-5959	Date: 08/16/2019
Title: Assistant Field Manager Lands & Minerals	Office: CARLSBAD	

Application approval does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.
Conditions of approval, if any, are attached.

Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

APPROVED WITH CONDITIONS

Approval Date: 08/16/2019

RWP 8-27-19.

(Continued on page 2)

*(Instructions on page 2)

INSTRUCTIONS

GENERAL: This form is designed for submitting proposals to perform certain well operations, as indicated on Federal and Indian lands and leases for action by appropriate Federal agencies, pursuant to applicable Federal laws and regulations. Any necessary special instructions concerning the use of this form and the number of copies to be submitted, particularly with regard to local, area, or regional procedures and practices, either are shown below or will be issued by, or may be obtained from local Federal offices.

ITEM I: If the proposal is to redrill to the same reservoir at a different subsurface location or to a new reservoir, use this form with appropriate notations. Consult applicable Federal regulations concerning subsequent work proposals or reports on the well.

ITEM 4: Locations on Federal or Indian land should be described in accordance with Federal requirements. Consult local Federal offices for specific instructions.

ITEM 14: Needed only when location of well cannot readily be found by road from the land or lease description. A plat, or plats, separate or on the reverse side, showing the roads to, and the surveyed location of, the wen, and any other required information, should be furnished when required by Federal agency offices.

ITEMS 15 AND 18: If well is to be, or has been directionany drilled, give distances for subsurface location of hole in any present or objective productive zone.

ITEM 22: Consult applicable Federal regulations, or appropriate officials, concerning approval of the proposal before operations are started.

ITEM 24: If the proposal will involve hydraulic fracturing operations, you must comply with 43 CFR 3162.3-3, including providing information about the protection of usable water. Operators should provide the best available information about all formations containing water and their depths. This information could include data and interpretation of resistivity logs run on nearby wells. Information may also be obtained from state or tribal regulatory agencies and from local BLM offices.

NOTICES

The Privacy Act of 1974 and regulation in 43 CFR 2.48(d) provide that you be furnished the following information in connection with information required by this application.
AUTHORITY: 30 U.S.C. 181 et seq., 25 U.S.C. 396; 43 CFR 3160
PRINCIPAL PURPOSES: The information will be used to: (1) process and evaluate your application for a permit to drill a new oil, gas, or service wen or to reenter a plugged and abandoned well; and (2) document, for administrative use, information for the management, disposal and use of National Resource Lands and resources including (a) analyzing your proposal to discover and extract the Federal or Indian resources encountered; (b) reviewing procedures and equipment and the projected impact on the land involved; and (c) evaluating the effects of the proposed operation on the surface and subsurface water and other environmental impacts.
ROUTINE USE: Information from the record and/or the record win be transferred to appropriate Federal, State, and local or foreign agencies, when relevant to civil, criminal or regulatory investigations or prosecution, in connection with congressional inquiries and for regulatory responsibilities.
EFFECT OF NOT PROVIDING INFORMATION: Filing of this application and disclosure of the information is mandatory only if you elect to initiate a drilling or reentry operation on an oil and gas lease.

The Paperwork Reduction Act of 1995 requires us to inform you that:
The BLM conects this information to anow evaluation of the technical, safety, and environmental factors involved with drilling for oil and/or gas on Federal and Indian oil and gas leases. This information will be used to analyze and approve applications. Response to this request is mandatory only if the operator elects to initiate drilling or reentry operations on an oil and gas lease. The BLM would like you to know that you do not have to respond to this or any other Federal agency-sponsored information collection unless it displays a currently valid OMB control number.

BURDEN HOURS STATEMENT: Public reporting burden for this form is estimated to average 8 hours per response, including the time for reviewing instructions, gathering and maintaining data, and completing and reviewing the form. Direct comments regarding the burden estimate or any other aspect of this form to U.S. Department of the Interior, Bureau of Land Management (1004-0137), Bureau Information Conection Clearance Officer (WO-630), 1849 C Street, N.W., Mail Stop 401 LS, Washington, D.C. 20240.

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Additional Operator Remarks

Location of Well

1. SHL: SESW / 985 FSL / 1715 FWL / TWSP: 24S / RANGE: 31E / SECTION: 12 / LAT: 32.227344 / LONG: -103.73452 (TVD: 0 feet, MD: 0 feet)
   PPP: SESW / 330 FSL / 2178 FEL / TWSP: 24S / RANGE: 31E / SECTION: 12 / LAT: 32.225538 / LONG: -103.730031 (TVD: 9022 feet, MD: 9557 feet)
   BHL: NWNE / 100 FNL / 2178 FEL / TWSP: 24S / RANGE: 31E / SECTION: 1 / LAT: 32.253394 / LONG: -103.730026 (TVD: 9022 feet, MD: 19397 feet)

BLM Point of Contact

Name: Tanja Baca
Title: Admin Support Assistant
Phone: 5752345940
Email: tabaca@blm.gov

Approval Date: 08/16/2019

Review and Appeal Rights

A person contesting a decision shall request a State Director review. This request must be filed within 20 working days of receipt of the Notice with the appropriate State Director (see 43 CFR 3165.3). The State Director review decision may be appealed to the Interior Board of Land Appeals, 801 North Quincy Street, Suite 300, Arlington, VA 22203 (see 43 CFR 3165.4). Contact the above listed Bureau of Land Management office for further information.

PECOS DISTRICT
DRILLING CONDITIONS OF APPROVAL

OPERATOR'S NAME:	CHEVRON USA INCORPORATED
LEASE NO.:	NMNM104684
WELL NAME & NO.:	4H – SND 12 01 FED 002
SURFACE HOLE FOOTAGE:	985'/S & 1715'/W
BOTTOM HOLE FOOTAGE	100'/N & 2178/'W
LOCATION:	SECTION 12, T24S, R31E, NMPM
COUNTY:	EDDY

COA

H2S	○ Yes	◉ No	
Potash	○ None	◉ Secretary	○ R-111-P
Cave/Karst Potential	◉ Low	○ Medium	○ High
Variance	○ None	◉ Flex Hose	○ Other
Wellhead	○ Conventional	○ Multibowl	◉ Both
Other	☐ 4 String Area	☐ Capitan Reef	☐ WIPP
Other	☐ Fluid Filled	☐ Cement Squeeze	☐ Pilot Hole
Special Requirements	☐ Water Disposal	☐ COM	☑ Unit

A. HYDROGEN SULFIDE

Hydrogen Sulfide (H2S) monitors shall be installed prior to drilling out the surface shoe. If H2S is detected in concentrations greater than 100 ppm, the Hydrogen Sulfide area shall meet Onshore Order 6 requirements, which includes equipment and personnel/public protection items. If Hydrogen Sulfide is encountered, provide measured values and formations to the BLM.

B. CASING

Casing Design:

1. The **13-3/8** inch surface casing shall be set at approximately **840** feet (a minimum of **70 feet (Eddy County)** into the Rustler Anhydrite and above the salt) and cemented to the surface.

    a. If cement does not circulate to the surface, the appropriate BLM office shall be notified and a temperature survey utilizing an electronic type temperature survey with surface log readout will be used or a cement bond log shall be run to verify the top of the cement. Temperature survey will be run a minimum of six hours after pumping cement and ideally between 8-10 hours after

completing the cement job.

b. Wait on cement (WOC) time for a primary cement job will be a minimum of **24 hours in the Potash Area** or 500 pounds compressive strength, whichever is greater. (This is to include the lead cement)

c. Wait on cement (WOC) time for a remedial job will be a minimum of 4 hours after bringing cement to surface or 500 pounds compressive strength, whichever is greater.

d. If cement falls back, remedial cementing will be done prior to drilling out that string.

2. The minimum required fill of cement behind the **9-5/8** inch intermediate casing is:

Option 1 (Single Stage):

- Cement to surface. If cement does not circulate see B.1.a, c-d above. **Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry due to cave/karst or potash.**

Option 2:

Operator has proposed a DV tool, the depth may be adjusted as long as the cement is changed proportionally. The DV tool may be cancelled if cement circulates to surface on the first stage.

a. First stage to DV tool: Cement to circulate. If cement does not circulate off the DV tool, contact the appropriate BLM office before proceeding with second stage cement job.

b. Second stage above DV tool:

- Cement to surface. If cement does not circulate, contact the appropriate BLM office.
  Wait on cement (WOC) time for a primary cement job is to include the lead cement slurry due to cave/karst or potash.

3. The minimum required fill of cement behind the **5-1/2** inch production casing is:

Option 1 (Single Stage):

- Cement to surface. If cement does not circulate, contact the appropriate BLM office. **Excess calculates to 7% - additional cement might be required.**

Option 2:

Operator has proposed a DV tool, the depth may be adjusted as long as the cement is changed proportionally. The DV tool may be cancelled if cement circulates to surface on the first stage.

a. First stage to DV tool: Cement to circulate. If cement does not circulate off the DV tool, contact the appropriate BLM office before proceeding with second stage cement job.

b. Second stage above DV tool:

- Cement to surface. If cement does not circulate, contact the appropriate BLM office.

C. PRESSURE CONTROL

1. Variance approved to use flex line from BOP to choke manifold. Manufacturer's specification to be readily available. No external damage to flex line. Flex line to be installed as straight as possible (no hard bends).'

2.

Option 1:

a. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be **5000 (5M)** psi.

b. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the intermediate casing shoe shall be **5000 (5M)** psi.

Option 2:

1. Operator has proposed a multi-bowl wellhead assembly. This assembly will only be tested when installed on the surface casing. Minimum working pressure of the blowout preventer (BOP) and related equipment (BOPE) required for drilling below the surface casing shoe shall be **5000 (5M)** psi.

    a. Wellhead shall be installed by manufacturer's representatives, submit documentation with subsequent sundry.
    b. If the welding is performed by a third party, the manufacturer's representative shall monitor the temperature to verify that it does not exceed the maximum temperature of the seal.
    c. Manufacturer representative shall install the test plug for the initial BOP test.

d. If the cement does not circulate and one inch operations would have been possible with a standard wellhead, the well head shall be cut off, cementing operations performed and another wellhead installed.
e. Whenever any seal subject to test pressure is broken, all the tests in OOGO2.III.A.2.i must be followed.

D. SPECIAL REQUIREMENT (S)

Unit Wells

The well sign for a unit well shall include the unit number in addition to the surface and bottom hole lease numbers. This also applies to participating area numbers. If a participating area has not been established, the operator can use the general unit designation, but will replace the unit number with the participating area number when the sign is replaced.

Well Name:

Operator shall submit a sundry to add 'Unit' to the well name.

Commercial Well Determination

A commercial well determination shall be submitted after production has been established for at least six months.

GENERAL REQUIREMENTS

The BLM is to be notified in advance for a representative to witness:

a. Spudding well (minimum of 24 hours)
b. Setting and/or Cementing of all casing strings (minimum of 4 hours)
c. BOPE tests (minimum of 4 hours)

☒ Chaves and Roosevelt Counties
Call the Roswell Field Office, 2909 West Second St., Roswell NM 88201.
During office hours call (575) 627-0272.
After office hours call (575)

☒ Eddy County
Call the Carlsbad Field Office, 620 East Greene St., Carlsbad, NM 88220, (575) 361-2822

☒ Lea County
Call the Hobbs Field Station, 414 West Taylor, Hobbs NM 88240, (575) 393-3612

1. Unless the production casing has been run and cemented or the well has been properly plugged, the drilling rig shall not be removed from over the hole without prior approval.

   a. In the event the operator has proposed to drill multiple wells utilizing a skid/walking rig. Operator shall secure the wellbore on the current well, after installing and testing the wellhead, by installing a blind flange of like pressure rating to the wellhead and a pressure gauge that can be monitored while drilling is performed on the other well(s).
   b. When the operator proposes to set surface casing with Spudder Rig
      - Notify the BLM when moving in and removing the Spudder Rig.
      - Notify the BLM when moving in the 2nd Rig. Rig to be moved in within 90 days of notification that Spudder Rig has left the location.
      - BOP/BOPE test to be conducted per Onshore Oil and Gas Order No. 2 as soon as 2nd Rig is rigged up on well.

2. Floor controls are required for 3M or Greater systems. These controls will be on the rig floor, unobstructed, readily accessible to the driller and will be operational at all times during drilling and/or completion activities. Rig floor is defined as the area immediately around the rotary table; the area immediately above the substructure on which the draw works are located, this does not include the dog house or stairway area.

3. The record of the drilling rate along with the GR/N well log run from TD to surface (horizontal well – vertical portion of hole) shall be submitted to the BLM office as well as all other logs run on the borehole 30 days from completion. If available, a digital copy of the logs is to be submitted in addition to the paper copies. The Rustler top and top and bottom of Salt are to be recorded on the Completion Report.

A. CASING

1. Changes to the approved APD casing program need prior approval if the items substituted are of lesser grade or different casing size or are Non-API. The Operator can exchange the components of the proposal with that of superior strength (i.e. changing from J-55 to N-80, or from 36# to 40#). Changes to the approved cement program need prior approval if the altered cement plan has less volume or strength or if the changes are substantial (i.e. Multistage tool, ECP, etc.). The initial wellhead installed on the well will remain on the well with spools used as needed.

2. Wait on cement (WOC) for Potash Areas: After cementing but before commencing any tests, the casing string shall stand cemented under pressure until both of the following conditions have been met: 1) cement reaches a minimum compressive strength of 500 psi for all cement blends, 2) until cement has been in place at least 24 hours. WOC time will be recorded in the driller's log. The casing intergrity test can be done (prior to the cement setting up) immediately after bumping the plug.

3. Wait on cement (WOC) for Water Basin: After cementing but before commencing any tests, the casing string shall stand cemented under pressure until both of the following conditions have been met: 1) cement reaches a minimum compressive strength of 500 psi at the shoe, 2) until cement has been in place at least 8 hours. WOC time will be recorded in the driller's log. See individual casing strings for details regarding lead cement slurry requirements. The casing intergrity test can be done (prior to the cement setting up) immediately after bumping the plug.

4. Provide compressive strengths including hours to reach required 500 pounds compressive strength prior to cementing each casing string. Have well specific cement details onsite prior to pumping the cement for each casing string.

5. No pea gravel permitted for remedial or fall back remedial without prior authorization from the BLM engineer.

6. On that portion of any well approved for a 5M BOPE system or greater, a pressure integrity test of each casing shoe shall be performed. Formation at the shoe shall be tested to a minimum of the mud weight equivalent anticipated to control the formation pressure to the next casing depth or at total depth of the well. This test shall be performed before drilling more than 20 feet of new hole.

7. If hardband drill pipe is rotated inside casing, returns will be monitored for metal. If metal is found in samples, drill pipe will be pulled and rubber protectors which have a

larger diameter than the tool joints of the drill pipe will be installed prior to continuing drilling operations.

8. Whenever a casing string is cemented in the R-111-P potash area, the NMOCD requirements shall be followed.

B. PRESSURE CONTROL

1. All blowout preventer (BOP) and related equipment (BOPE) shall comply with well control requirements as described in Onshore Oil and Gas Order No. 2 and API RP 53 Sec. 17.

2. If a variance is approved for a flexible hose to be installed from the BOP to the choke manifold, the following requirements apply: Check condition of flexible line from BOP to choke manifold, replace if exterior is damaged or if line fails test. Line to be as straight as possible with no hard bends and is to be anchored according to Manufacturer's requirements. The flexible hose can be exchanged with a hose of equal size and equal or greater pressure rating. Anchor requirements, specification sheet and hydrostatic pressure test certification matching the hose in service, to be onsite for review. These documents shall be posted in the company man's trailer and on the rig floor.

3. 5M or higher system requires an HCR valve, remote kill line and annular to match. The remote kill line is to be installed prior to testing the system and tested to stack pressure.

4. If the operator has proposed a multi-bowl wellhead assembly in the APD. The following requirements must be met:

    a. Wellhead shall be installed by manufacturer's representatives, submit documentation with subsequent sundry.
    b. If the welding is performed by a third party, the manufacturer's representative shall monitor the temperature to verify that it does not exceed the maximum temperature of the seal.
    c. Manufacturer representative shall install the test plug for the initial BOP test.
    d. Whenever any seal subject to test pressure is broken, all the tests in OOGO2.III.A.2.i must be followed.
    e. If the cement does not circulate and one inch operations would have been possible with a standard wellhead, the well head shall be cut off, cementing operations performed and another wellhead installed.

5. The appropriate BLM office shall be notified a minimum of 4 hours in advance for a representative to witness the tests.

    a. In a water basin, for all casing strings utilizing slips, these are to be set as soon as the crew and rig are ready and any fallback cement remediation has been

done. The casing cut-off and BOP installation can be initiated four hours after installing the slips, which will be approximately six hours after bumping the plug. For those casing strings not using slips, the minimum wait time before cut-off is eight hours after bumping the plug. BOP/BOPE testing can begin after cut-off or once cement reaches 500 psi compressive strength (including lead when specified), whichever is greater. However, if the float does not hold, cut-off cannot be initiated until cement reaches 500 psi compressive strength (including lead when specified).

b. In potash areas, for all casing strings utilizing slips, these are to be set as soon as the crew and rig are ready and any fallback cement remediation has been done. For all casing strings, casing cut-off and BOP installation can be initiated at twelve hours after bumping the plug. However, **no tests** shall commence until the cement has had a minimum of 24 hours setup time, except the casing pressure test can be initiated immediately after bumping the plug (only applies to single stage cement jobs).

c. The tests shall be done by an independent service company utilizing a test plug not a cup or J-packer. The operator also has the option of utilizing an independent tester to test without a plug (i.e. against the casing) pursuant to Onshore Order 2 with the pressure not to exceed 70% of the burst rating for the casing. Any test against the casing must meet the WOC time for water basin (8 hours) or potash (24 hours) or 500 pounds compressive strength, whichever is greater, prior to initiating the test (see casing segment as lead cement may be critical item).

d. The test shall be run on a 5000 psi chart for a 2-3M BOP/BOP, on a 10000 psi chart for a 5M BOP/BOPE and on a 15000 psi chart for a 10M BOP/BOPE. If a linear chart is used, it shall be a one hour chart. A circular chart shall have a maximum 2 hour clock. If a twelve hour or twenty-four hour chart is used, tester shall make a notation that it is run with a two hour clock.

e. The results of the test shall be reported to the appropriate BLM office.

f. All tests are required to be recorded on a calibrated test chart. A copy of the BOP/BOPE test chart and a copy of independent service company test will be submitted to the appropriate BLM office.

g. The BOP/BOPE test shall include a low pressure test from 250 to 300 psi. The test will be held for a minimum of 10 minutes if test is done with a test plug and 30 minutes without a test plug. This test shall be performed prior to the test at full stack pressure.

h. BOP/BOPE must be tested by an independent service company within 500 feet of the top of the Wolfcamp formation if the time between the setting of the intermediate casing and reaching this depth exceeds 20 days. This test

does not exclude the test prior to drilling out the casing shoe as per Onshore Order No. 2.

C. DRILLING MUD

Mud system monitoring equipment, with derrick floor indicators and visual and audio alarms, shall be operating before drilling into the Wolfcamp formation, and shall be used until production casing is run and cemented.

D. WASTE MATERIAL AND FLUIDS

All waste (i.e. drilling fluids, trash, salts, chemicals, sewage, gray water, etc.) created as a result of drilling operations and completion operations shall be safely contained and disposed of properly at a waste disposal facility. No waste material or fluid shall be disposed of on the well location or surrounding area.

Porto-johns and trash containers will be on-location during fracturing operations or any other crew-intensive operations.

NMK862019

PECOS DISTRICT
SURFACE USE
CONDITIONS OF APPROVAL

OPERATOR'S NAME:	CHEVRON USA INCORPORATED
LEASE NO.:	
WELL NAME & NO.:	4H – SND 12 01 FED 002
SURFACE HOLE FOOTAGE:	985'/S & 1715'/W
BOTTOM HOLE FOOTAGE	100'/N & 2178/'W
LOCATION:	SECTION 31, T23S, R31E, NMPM
COUNTY:	EDDY

TABLE OF CONTENTS

Standard Conditions of Approval (COA) apply to this APD. If any deviations to these standards exist or special COAs are required, the section with the deviation or requirement will be checked below.

I. GENERAL PROVISIONS

The approval of the Application For Permit To Drill (APD) is in compliance with all applicable laws and regulations: 43 Code of Federal Regulations 3160, the lease terms, Onshore Oil and Gas Orders, Notices To Lessees, New Mexico Oil Conservation Division (NMOCD) Rules, National Historical Preservation Act As Amended, and instructions and orders of the Authorized Officer. Any request for a variance shall be submitted to the Authorized Officer on Form 3160-5, Sundry Notices and Report on Wells.

II. PERMIT EXPIRATION

If the permit terminates prior to drilling and drilling cannot be commenced within 60 days after expiration, an operator is required to submit Form 3160-5, Sundry Notices and Reports on Wells, requesting surface reclamation requirements for any surface disturbance. However, if the operator will be able to initiate drilling within 60 days after the expiration of the permit, the operator must have set the conductor pipe in order to allow for an extension of 60 days beyond the expiration date of the APD. (Filing of a Sundry Notice is required for this 60 day extension.)

III. ARCHAEOLOGICAL, PALEONTOLOGY & HISTORICAL SITES

Any cultural and/or paleontological resource discovered by the operator or by any person working on the operator's behalf shall immediately report such findings to the Authorized Officer. The operator is fully accountable for the actions of their contractors and subcontractors. The operator shall suspend all operations in the immediate area of such discovery until written authorization to proceed is issued by the Authorized Officer. An evaluation of the discovery shall be made by the Authorized Officer to determine the appropriate actions that shall be required to prevent the loss of significant cultural or scientific values of the discovery. The operator shall be held responsible for the cost of the proper mitigation measures that the Authorized Officer assesses after consultation with the operator on the evaluation and decisions of the discovery. Any unauthorized collection or disturbance of cultural or paleontological resources may result in a shutdown order by the Authorized Officer.

IV. NOXIOUS WEEDS

The operator shall be held responsible if noxious weeds become established within the areas of operations. Weed control shall be required on the disturbed land where noxious weeds exist, which includes the roads, pads, associated pipeline corridor, and adjacent land affected by the establishment of weeds due to this action. The operator shall consult with the Authorized Officer for

acceptable weed control methods, which include following EPA and BLM requirements and policies.

V. SPECIAL REQUIREMENT(S)

Timing Limitation Stipulation / Condition of Approval for lesser prairie-chicken:
Oil and gas activities including 3-D geophysical exploration, and drilling will not be allowed in lesser prairie-chicken habitat during the period from March 1st through June 15th annually. During that period, other activities that produce noise or involve human activity, such as the maintenance of oil and gas facilities, pipeline, road, and well pad construction, will be allowed except between 3:00 am and 9:00 am. The 3:00 am to 9:00 am restriction will not apply to normal, around-the-clock operations, such as venting, flaring, or pumping, which do not require a human presence during this period. Additionally, no new drilling will be allowed within up to 200 meters of leks known at the time of permitting. Normal vehicle use on existing roads will not be restricted. Exhaust noise from pump jack engines must be muffled or otherwise controlled so as not to exceed 75 db measured at 30 feet from the source of the noise.

Below Ground-level Abandoned Well Marker to avoid raptor perching:
Upon the plugging and subsequent abandonment of the well, the well marker will be installed at ground level on a plate containing the pertinent information for the plugged well. For more installation details, contact the Carlsbad Field Office at 575-234-5972.

Timing Limitation Exceptions:
The Carlsbad Field Office will publish an annual map of where the LPC timing and noise stipulations and conditions of approval (Limitations) will apply for the identified year (between March 1 and June 15) based on the latest survey information. The LPC Timing Area map will identify areas which are Habitat Areas (HA), Isolated Population Area (IPA), and Primary Population Area (PPA). The LPC Timing Area map will also have an area in red crosshatch. The red crosshatch area is the only area where an operator is required to submit a request for exception to the LPC Limitations. If an operator is operating outside the red crosshatch area, the LPC Limitations do not apply for that year and an exception to LPC Limitations is not required.

Hydrology

The entire well pad will be bermed to prevent oil, salt, and other chemical contaminants from leaving the well pad. Topsoil shall not be used to construct the berm. No water flow from the uphill side(s) of the pad shall be allowed to enter the well pad. The berm shall be maintained through the life of the well and after interim reclamation has been completed. Any water erosion that may occur

due to the construction of the well pad during the life of the well will be quickly corrected and proper measures will be taken to prevent future erosion.

Tank battery locations will be lined and bermed. A 20 mil permanent liner will be installed with a 4 oz. felt backing to prevent tears or punctures. Tank battery berms must be large enough to contain 1 ½ times the content of the largest tank or 24 hour production, whichever is greater. Automatic shut off, check valves, or similar systems will be installed for tanks to minimize the effects of catastrophic line failures used in production or drilling.

A leak detection plan will be submitted to the BLM Carlsbad Field Office for approval prior to pipeline installation. The method could incorporate gauges to detect pressure drops, situating valves and lines so they can be visually inspected periodically or installing electronic sensors to alarm when a leak is present. The leak detection plan will incorporate an automatic shut off system that will be installed for proposed pipelines to minimize the effects of an undesirable event.

VI. CONSTRUCTION

A. NOTIFICATION

The BLM shall administer compliance and monitor construction of the access road and well pad. Notify the Carlsbad Field Office at (575) 234-5909 at least 3 working days prior to commencing construction of the access road and/or well pad.

When construction operations are being conducted on this well, the operator shall have the approved APD and Conditions of Approval (COA) on the well site and they shall be made available upon request by the Authorized Officer.

B. TOPSOIL

The operator shall strip the top portion of the soil (root zone) from the entire well pad area and stockpile the topsoil along the edge of the well pad as depicted in the APD. The root zone is typically six (6) inches in depth. All the stockpiled topsoil will be redistributed over the interim reclamation areas. Topsoil shall not be used for berming the pad or facilities. For final reclamation, the topsoil shall be spread over the entire pad area for seeding preparation.

Other subsoil (below six inches) stockpiles must be completely segregated from the topsoil stockpile. Large rocks or subsoil clods (not evident in the surrounding terrain) must be buried within the approved area for interim and final reclamation.

C. CLOSED LOOP SYSTEM

Tanks are required for drilling operations: No Pits.

The operator shall properly dispose of drilling contents at an authorized disposal site.

D. FEDERAL MINERAL MATERIALS PIT

Payment shall be made to the BLM prior to removal of any federal mineral materials. Call the Carlsbad Field Office at (575) 234-5972.

E. WELL PAD SURFACING

Surfacing of the well pad is not required.

If the operator elects to surface the well pad, the surfacing material may be required to be removed at the time of reclamation. The well pad shall be constructed in a manner which creates the smallest possible surface disturbance, consistent with safety and operational needs.

F. EXCLOSURE FENCING (CELLARS & PITS)

Exclosure Fencing
The operator will install and maintain exclosure fencing for all open well cellars to prevent access to public, livestock, and large forms of wildlife before and after drilling operations until the pit is free of fluids and the operator initiates backfilling. (For examples of exclosure fencing design, refer to BLM's Oil and Gas Gold Book, Exclosure Fence Illustrations, Figure 1, Page 18.)

G. ON LEASE ACCESS ROADS

Road Width
The access road shall have a driving surface that creates the smallest possible surface disturbance and does not exceed fourteen (14) feet in width. The maximum width of surface disturbance, when constructing the access road, shall not exceed twenty-five (25) feet.

Surfacing
Surfacing material is not required on the new access road driving surface. If the operator elects to surface the new access road or pad, the surfacing material may be required to be removed at the time of reclamation.

Where possible, no improvements should be made on the unsurfaced access road other than to remove vegetation as necessary, road irregularities, safety issues, or to fill low areas that may sustain standing water.

The Authorized Officer reserves the right to require surfacing of any portion of the access road at any time deemed necessary. Surfacing may be required in the event the road deteriorates, erodes, road traffic increases, or it is determined to be beneficial for future field development. The surfacing depth and type of material will be determined at the time of notification.

Crowning
Crowning shall be done on the access road driving surface. The road crown shall have a grade of approximately 2% (i.e., a 1" crown on a 14' wide road). The road shall conform to Figure 1; cross section and plans for typical road construction.

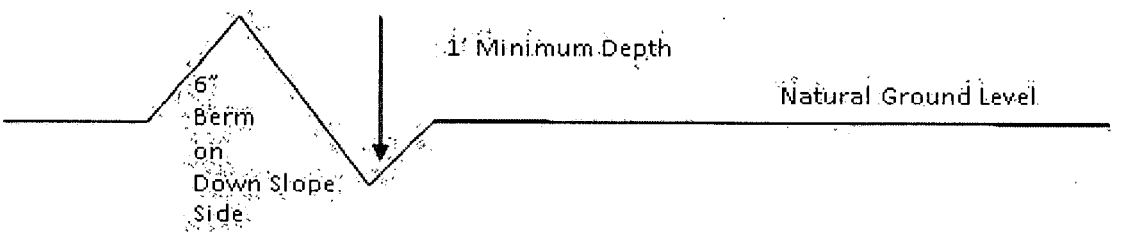
Ditching
Ditching shall be required on both sides of the road.

Turnouts
Vehicle turnouts shall be constructed on the road. Turnouts shall be intervisible with interval spacing distance less than 1000 feet. Turnouts shall conform to Figure 1; cross section and plans for typical road construction.

Drainage
Drainage control systems shall be constructed on the entire length of road (e.g. ditches, sidehill outsloping and insloping, lead-off ditches, culvert installation, and low water crossings).

A typical lead-off ditch has a minimum depth of 1 foot below and a berm of 6 inches above natural ground level. The berm shall be on the down-slope side of the lead-off ditch.

Cross Section of a Typical Lead-off Ditch



All lead-off ditches shall be graded to drain water with a 1 percent minimum to 3 percent maximum ditch slope. The spacing interval are variable for lead-off ditches and shall be determined according to the formula for spacing intervals of lead-off ditches, but may be amended depending upon existing soil types and centerline road slope (in %);

Formula for Spacing Interval of Lead-off Ditches

Example - On a 4% road slope that is 400 feet long, the water flow shall drain water into a lead-off ditch. Spacing interval shall be determined by the following formula:

$$\text{400 foot road with 4\% road slope: } \frac{400'}{4\%} + 100' = 200' \text{ lead-off ditch interval}$$

Cattle guards

An appropriately sized cattle guard sufficient to carry out the project shall be installed and maintained at fence/road crossings. Any existing cattle guards on the access road route shall be repaired or replaced if they are damaged or have deteriorated beyond practical use. The operator shall be responsible for the condition of the existing cattle guards that are in place and are utilized during lease operations.

Fence Requirement

Where entry is granted across a fence line, the fence shall be braced and tied off on both sides of the passageway prior to cutting. The operator shall notify the private surface landowner or the grazing allotment holder prior to crossing any fences.

Public Access

Public access on this road shall not be restricted by the operator without specific written approval granted by the Authorized Officer.

Construction Steps

1. Salvage topsoil
2. Construct road
3. Redistribute topsoil
4. Revegetate slopes

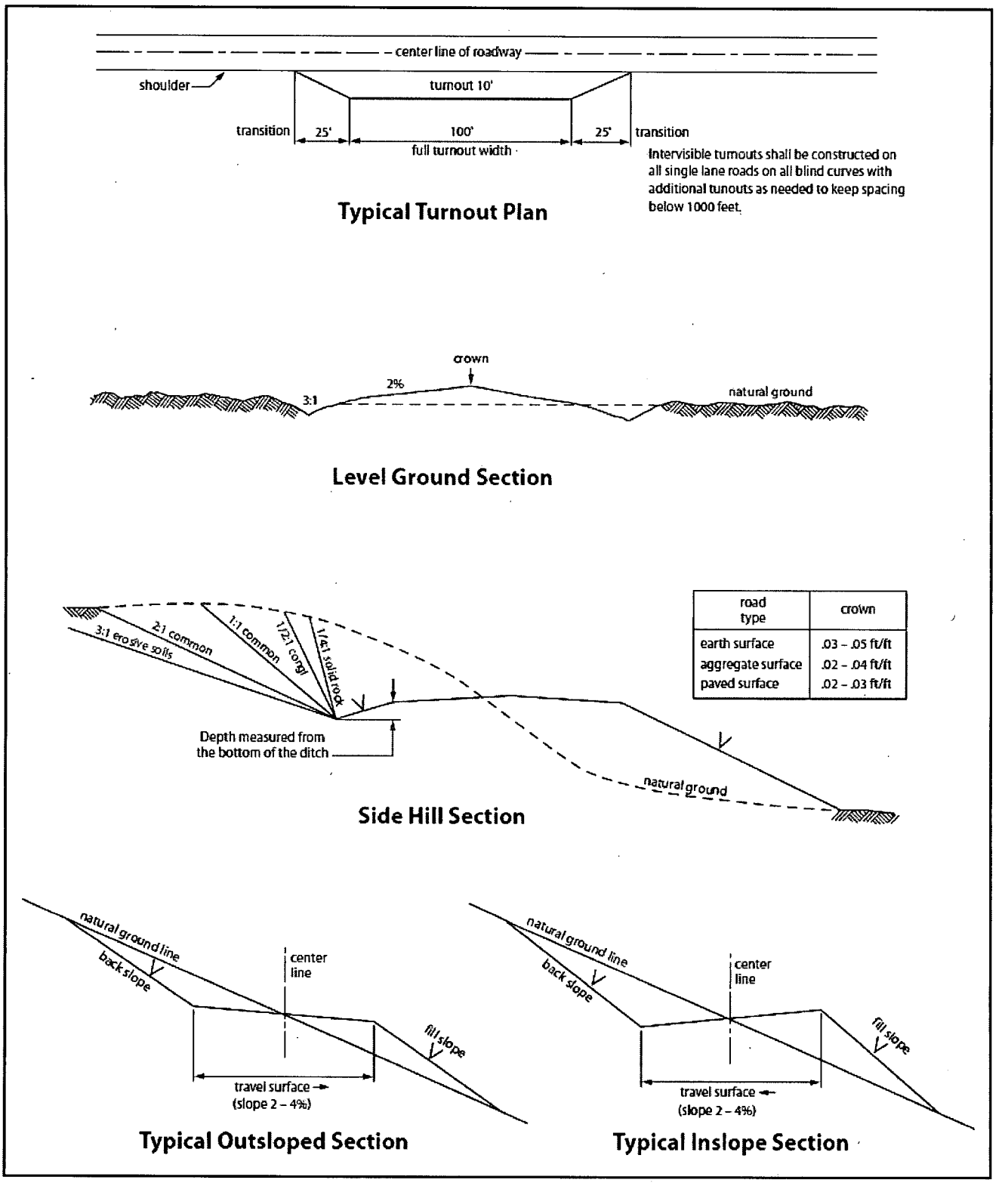


Figure 1. Cross-sections and plans for typical road sections representative of BLM resource or FS local and higher-class roads.

VII. PRODUCTION (POST DRILLING)

A. WELL STRUCTURES & FACILITIES

Placement of Production Facilities
Production facilities should be placed on the well pad to allow for maximum interim recontouring and revegetation of the well location.

Exclosure Netting (Open-top Tanks)
Immediately following active drilling or completion operations, the operator will take actions necessary to prevent wildlife and livestock access, including avian wildlife, to all open-topped tanks that contain or have the potential to contain salinity sufficient to cause harm to wildlife or livestock, hydrocarbons, or Resource Conservation and Recovery Act of 1976-exempt hazardous substances. At a minimum, the operator will net, screen, or cover open-topped tanks to exclude wildlife and livestock and prevent mortality. If the operator uses netting, the operator will cover and secure the open portion of the tank to prevent wildlife entry. The operator will net, screen, or cover the tanks until the operator removes the tanks from the location or the tanks no longer contain substances that could be harmful to wildlife or livestock. Use a maximum netting mesh size of 1 ½ inches. The netting must not be in contact with fluids and must not have holes or gaps.

Chemical and Fuel Secondary Containment and Exclosure Screening
The operator will prevent all hazardous, poisonous, flammable, and toxic substances from coming into contact with soil and water. At a minimum, the operator will install and maintain an impervious secondary containment system for any tank or barrel containing hazardous, poisonous, flammable, or toxic substances sufficient to contain the contents of the tank or barrel and any drips, leaks, and anticipated precipitation. The operator will dispose of fluids within the containment system that do not meet applicable state or U. S. Environmental Protection Agency livestock water standards in accordance with state law; the operator must not drain the fluids to the soil or ground. The operator will design, construct, and maintain all secondary containment systems to prevent wildlife and livestock exposure to harmful substances. At a minimum, the operator will install effective wildlife and livestock exclosure systems such as fencing, netting, expanded metal mesh, lids, and grate covers. Use a maximum netting mesh size of 1 ½ inches.

Open-Vent Exhaust Stack Exclosures
The operator will construct, modify, equip, and maintain all open-vent exhaust stacks on production equipment to prevent birds and bats from entering, and to discourage perching, roosting, and nesting. (*Recommended exclosure structures on open-vent exhaust stacks are in the shape of a cone.*) Production

equipment includes, but may not be limited to, tanks, heater-treaters, separators, dehydrators, flare stacks, in-line units, and compressor mufflers.

Containment Structures
Proposed production facilities such as storage tanks and other vessels will have a secondary containment structure that is constructed to hold the capacity of 1.5 times the largest tank, plus freeboard to account for precipitation, unless more stringent protective requirements are deemed necessary.

Painting Requirement
All above-ground structures including meter housing that are not subject to safety requirements shall be painted a flat non-reflective paint color, **Shale Green** from the BLM Standard Environmental Color Chart (CC-001: June 2008).

B. PIPELINES
STANDARD STIPULATIONS FOR SURFACE INSTALLED PIPELINES

A copy of the Grant and attachments, including stipulations, survey plat(s) and/or map(s), shall be on location during construction. BLM personnel may request to review a copy of your permit during construction to ensure compliance with all stipulations.

Holder agrees to comply with the following stipulations to the satisfaction of the Authorized Officer:

1. Holder shall indemnify the United States against any liability for damage to life or property arising from the occupancy or use of public lands under this grant.

2. Holder shall comply with all applicable Federal laws and regulations existing or hereafter enacted or promulgated. In any event, Holder shall comply with the Toxic Substances Control Act of 1976 as amended, 15 USC § 2601 *et seq.* (1982) with regard to any toxic substances that are used, generated by or stored on the right-of-way or on facilities authorized under this right-of-way grant (*see* 40 CFR, Part 702-799 and in particular, provisions on polychlorinated biphenyls, 40 CFR 761.1-761.193). Additionally, any release of toxic substances (leaks, spills, etc.) in excess of the reportable quantity established by 40 CFR, Part 117 shall be reported as required by the Comprehensive Environmental Response, Compensation, and Liability Act, section 102b. A copy of any report required or requested by any Federal agency or State government as a result of a reportable release or spill of any toxic substances shall be furnished to the Authorized Officer concurrent with the filing of the reports to the involved Federal agency or State government.

3. Holder agrees to indemnify the United States against any liability arising from the release of any hazardous substance or hazardous waste (as these terms are defined in the Comprehensive Environmental Response, Compensation and

Liability Act of 1980, 42 U.S.C. § 9601, *et seq.* or the Resource Conservation and Recovery Act, 42 U.S.C. 6901, *et seq.*) on the Right-of-Way (unless the release or threatened release is wholly unrelated to activity of the Right-of-Way Holder's activity on the Right-of-Way), or resulting from the activity of the Right-of-Way Holder on the Right-of-Way. This provision applies without regard to whether a release is caused by Holder, its agent, or unrelated third parties.

4. Holder shall be liable for damage or injury to the United States to the extent provided by 43 CFR Sec. 2883.1-4. Holder shall be held to a standard of strict liability for damage or injury to the United States resulting from pipe rupture, fire, or spills caused or substantially aggravated by any of the following within the right-of-way or permit area:

a. Activities of Holder including, but not limited to: construction, operation, maintenance, and termination of the facility;

b. Activities of other parties including, but not limited to:
   (1) Land clearing
   (2) Earth-disturbing and earth-moving work
   (3) Blasting
   (4) Vandalism and sabotage;

c. Acts of God.

The maximum limitation for such strict liability damages shall not exceed one million dollars ($1,000,000) for any one event, and any liability in excess of such amount shall be determined by the ordinary rules of negligence of the jurisdiction in which the damage or injury occurred.

This section shall not impose strict liability for damage or injury resulting primarily from an act of war or from the negligent acts or omissions of the United States.

5. If, during any phase of the construction, operation, maintenance, or termination of the pipeline, any oil, salt water, or other pollutant should be discharged from the pipeline system, impacting Federal lands, the control and total removal, disposal, and cleaning up of such oil, salt water, or other pollutant, wherever found, shall be the responsibility of Holder, regardless of fault. Upon failure of Holder to control, dispose of, or clean up such discharge on or affecting Federal lands, or to repair all damages resulting therefrom, on the Federal lands, the Authorized Officer may take such measures as he/she deems necessary to control and clean up the discharge and restore the area, including, where appropriate, the aquatic environment and fish and wildlife habitats, at the full expense of Holder. Such action by the Authorized Officer shall not relieve Holder of any responsibility as provided herein.

6. All construction and maintenance activity shall be confined to the authorized right-of-way width of **20** feet. If the pipeline route follows an existing road or

buried pipeline right-of-way, the surface pipeline shall be installed no farther than 10 feet from the edge of the road or buried pipeline right-of-way. If existing surface pipelines prevent this distance, the proposed surface pipeline shall be installed immediately adjacent to the outer surface pipeline. All construction and maintenance activity shall be confined to existing roads or right-of-ways.

7. No blading or clearing of any vegetation shall be allowed unless approved in writing by the Authorized Officer.

8. Holder shall install the pipeline on the surface in such a manner that will minimize suspension of the pipeline across low areas in the terrain. In hummocky of duney areas, the pipeline shall be "snaked" around hummocks and dunes rather than suspended across these features.

9. The pipeline shall be buried with a minimum of **24** inches under all roads, "two-tracks," and trails. Burial of the pipe will continue for 20 feet on each side of each crossing. The condition of the road, upon completion of construction, shall be returned to at least its former state with no bumps or dips remaining in the road surface.

10. The holder shall minimize disturbance to existing fences and other improvements on public lands. The holder is required to promptly repair improvements to at least their former state. Functional use of these improvements will be maintained at all times. The holder will contact the owner of any improvements prior to disturbing them. When necessary to pass through a fence line, the fence shall be braced on both sides of the passageway prior to cutting of the fence. No permanent gates will be allowed unless approved by the Authorized Officer.

11. In those areas where erosion control structures are required to stabilize soil conditions, the holder will install such structures as are suitable for the specific soil conditions being encountered and which are in accordance with sound resource management practices.

12. Excluding the pipe, all above-ground structures not subject to safety requirement shall be painted by the holder to blend with the natural color of the landscape. The paint used shall be a color which simulates "Standard Environmental Colors" – **Shale Green**, Munsell Soil Color No. 5Y 4/2; designated by the Rocky Mountain Five State Interagency Committee.

13. The pipeline will be identified by signs at the point of origin and completion of the right-of-way and at all road crossings. At a minimum, signs will state the holder's name, BLM serial number, and the product being transported. Signs will be maintained in a legible condition for the life of the pipeline.

14. The holder shall not use the pipeline route as a road for purposes other than

routine maintenance as determined necessary by the Authorized Officer in consultation with the holder. The holder will take whatever steps are necessary to ensure that the pipeline route is not used as a roadway.

15. Any cultural and/or paleontological resource (historic or prehistoric site or object) discovered by the holder, or any person working on his behalf, on public or Federal land shall be immediately reported to the authorized officer. Holder shall suspend all operations in the immediate area of such discovery until written authorization to proceed is issued by the authorized officer. An evaluation of the discovery will be made by the authorized officer to determine appropriate cultural or scientific values. The holder will be responsible for the cost of evaluation and any decision as to proper mitigation measures will be made by the authorized officer after consulting with the holder.

16. The operator shall be held responsible if noxious weeds become established within the areas of operations. Weed control shall be required on the disturbed land where noxious weeds exist, which includes the roads, powerline corridor, and adjacent land affected by the establishment of weeds due to this action. The operator shall consult with the Authorized Officer for acceptable weed control methods, which include following EPA and BLM requirements and policies.

17. Surface pipelines shall be less than or equal to 4 inches and a working pressure below 125 psi.

18. Special Stipulations:

a. **Lesser Prairie-Chicken:** Oil and gas activities will not be allowed in lesser prairie-chicken habitat during the period from March 1st through June 15th annually. During that period, other activities that produce noise or involve human activity, such as the maintenance of oil and gas facilities and pipeline, road, and well pad construction, will be allowed except between 3:00 am and 9:00 am. The 3:00 am to 9:00 am restriction will not apply to normal, around-the-clock operations, such as venting, flaring, or pumping, which do not require a human presence during this period. Normal vehicle use on existing roads will not be restricted.

BURIED PIPELINE STIPULATIONS

A copy of the application (Grant, APD, or Sundry Notice) and attachments, including conditions of approval, survey plat and/or map, will be on location during construction. BLM personnel may request to you a copy of your permit during construction to ensure compliance with all stipulations.

Holder agrees to comply with the following stipulations to the satisfaction of the Authorized Officer:

1. The Holder shall indemnify the United States against any liability for damage to life or property arising from the occupancy or use of public lands under this grant.

2. The Holder shall comply with all applicable Federal laws and regulations existing or hereafter enacted or promulgated. In any event, the holder shall comply with the Toxic Substances Control Act of 1976 as amended, 15 USC 2601 et seq. (1982) with regards to any toxic substances that are used, generated by or stored on the right-of-way or on facilities authorized under this right-of-way grant. (See 40 CFR Part 702-799 and especially, provisions on polychlorinated biphenyls, 40 CFR 761.1-761.193.) Additionally, any release of toxic substances (leaks, spills, etc.) in excess of the reportable quantity established by 40 CFR Part 117 shall be reported as required by the Comprehensive Environmental Response, Compensation, and Liability Act, section 102b. A copy of any report required or requested by any Federal agency or State government as a result of a reportable release or spill of any toxic substances shall be furnished to the authorized officer concurrent with the filing of the reports to the involved Federal agency or State government.

3. The holder agrees to indemnify the United States against any liability arising from the release of any hazardous substance or hazardous waste (as these terms are defined in the Comprehensive Environmental Response, Compensation and Liability Act of 1980, 42 U.S.C. 9601, et seq. or the Resource Conservation and Recovery Act, 42 U.S.C.6901, et seq.) on the Right-of-Way (unless the release or threatened release is wholly unrelated to the Right-of-Way holder's activity on the Right-of-Way), or resulting from the activity of the Right-of-Way holder on the Right-of-Way. This agreement applies without regard to whether a release is caused by the holder, its agent, or unrelated third parties.

4. If, during any phase of the construction, operation, maintenance, or termination of the pipeline, any oil or other pollutant should be discharged from the pipeline system, impacting Federal lands, the control and total removal, disposal, and cleaning up of such oil or other pollutant, wherever found, shall be the responsibility of holder, regardless of fault. Upon failure of holder to control, dispose of, or clean up such discharge on or affecting Federal lands, or to repair all damages resulting therefrom, on the Federal lands, the Authorized Officer may take such measures as he deems necessary to control and clean up the discharge and restore the area, including where appropriate, the aquatic environment and fish and wildlife habitats, at the full expense of the holder. Such action by the Authorized Officer shall not relieve holder of any responsibility as provided herein.

5. All construction and maintenance activity will be confined to the authorized right-of-way.

6. The pipeline will be buried with a minimum cover of **36** inches between the top of the pipe and ground level.

7. The maximum allowable disturbance for construction in this right-of-way will be **30** feet:

- Blading of vegetation within the right-of-way will be allowed: maximum width of blading operations will not exceed **20** feet. The trench is included in this area. (*Blading is defined as the complete removal of brush and ground vegetation.*)

- Clearing of brush species within the right-of-way will be allowed: maximum width of clearing operations will not exceed **30** feet. The trench and bladed area are included in this area. (*Clearing is defined as the removal of brush while leaving ground vegetation (grasses, weeds, etc.) intact. Clearing is best accomplished by holding the blade 4 to 6 inches above the ground surface.*)

- The remaining area of the right-of-way (if any) shall only be disturbed by compressing the vegetation. (*Compressing can be caused by vehicle tires, placement of equipment, etc.*)

8. The holder shall stockpile an adequate amount of topsoil where blading is allowed. The topsoil to be stripped is approximately 6 inches in depth. The topsoil will be segregated from other spoil piles from trench construction. The topsoil will be evenly distributed over the bladed area for the preparation of seeding.

9. The holder shall minimize disturbance to existing fences and other improvements on public lands. The holder is required to promptly repair improvements to at least their former state. Functional use of these improvements will be maintained at all times. The holder will contact the owner of any improvements prior to disturbing them. When necessary to pass through a fence line, the fence shall be braced on both sides of the passageway prior to cutting of the fence. No permanent gates will be allowed unless approved by the Authorized Officer.

10. Vegetation, soil, and rocks left as a result of construction or maintenance activity will be randomly scattered on this right-of-way and will not be left in rows, piles, or berms, unless otherwise approved by the Authorized Officer. The entire right-of-way shall be recontoured to match the surrounding landscape. The backfilled soil shall be compacted and a 6 inch berm will be left over the ditch line to allow for settling back to grade.

11. In those areas where erosion control structures are required to stabilize soil conditions, the holder will install such structures as are suitable for the specific soil conditions being encountered and which are in accordance with sound resource management practices.

12. The holder will reseed all disturbed areas. Seeding will be done according to the attached seeding requirements, using the following seed mix.

( ) seed mixture 1 ( ) seed mixture 3

() seed mixture 2 ( ) seed mixture 4

(X) seed mixture 2/LPC ( ) Aplomado Falcon Mixture

13. All above-ground structures not subject to safety requirements shall be painted by the holder to blend with the natural color of the landscape. The paint used shall be color which simulates "Standard Environmental Colors" – **Shale Green**, Munsell Soil Color No. 5Y 4/2.

14. The pipeline will be identified by signs at the point of origin and completion of the right-of-way and at all road crossings. At a minimum, signs will state the holder's name, BLM serial number, and the product being transported. All signs and information thereon will be posted in a permanent, conspicuous manner, and will be maintained in a legible condition for the life of the pipeline.

15. The holder shall not use the pipeline route as a road for purposes other than routine maintenance as determined necessary by the Authorized Officer in consultation with the holder before maintenance begins. The holder will take whatever steps are necessary to ensure that the pipeline route is not used as a roadway. As determined necessary during the life of the pipeline, the Authorized Officer may ask the holder to construct temporary deterrence structures.

16. Any cultural and/or paleontological resources (historic or prehistoric site or object) discovered by the holder, or any person working on his behalf, on public or Federal land shall be immediately reported to the Authorized Officer. Holder

shall suspend all operations in the immediate area of such discovery until written authorization to proceed is issued by the Authorized Officer. An evaluation of the discovery will be made by the Authorized Officer to determine appropriate actions to prevent the loss of significant cultural or scientific values. The holder will be responsible for the cost of evaluation and any decision as to proper mitigation measures will be made by the Authorized Officer after consulting with the holder.

17. The operator shall be held responsible if noxious weeds become established within the areas of operations. Weed control shall be required on the disturbed land where noxious weeds exist, which includes associated roads, pipeline corridor and adjacent land affected by the establishment of weeds due to this action. The operator shall consult with the Authorized Officer for acceptable weed control methods, which include following EPA and BLM requirements and policies.

18. Escape Ramps - The operator will construct and maintain pipeline/utility trenches [that are not otherwise fenced, screened, or netted] to prevent livestock, wildlife, and humans from becoming entrapped. At a minimum, the operator will construct and maintain escape ramps, ladders, or other methods of avian and terrestrial wildlife escape in the trenches according to the following criteria:

a. Any trench left open for eight (8) hours or less is not required to have escape ramps; however, before the trench is backfilled, the contractor/operator shall inspect the trench for wildlife, remove all trapped wildlife, and release them at least 100 yards from the trench.
b. For trenches left open for eight (8) hours or more, earthen escape ramps (built at no more than a 30 degree slope and spaced no more than 500 feet apart) shall be placed in the trench.

19. Special Stipulations:

Lesser Prairie-Chicken

Oil and gas activities will not be allowed in lesser prairie-chicken habitat during the period from March 1st through June 15th annually. During that period, other activities that produce noise or involve human activity, such as the maintenance of oil and gas facilities, geophysical exploration other than 3-D operations, and pipeline, road, and well pad construction, will be allowed except between 3:00 am and 9:00 am. The 3:00 am to 9:00 am restriction will not apply to normal, around-the-clock operations, such as venting, flaring, or pumping, which do not require a human presence during this period. Normal vehicle use on existing roads will not be restricted. Exhaust noise from pump jack engines must be muffled or otherwise controlled so as not to exceed 75 db measured at 30 ft. from the source of the noise.

C. ELECTRIC LINES

STANDARD STIPULATIONS FOR OVERHEAD ELECTRIC DISTRIBUTION LINES

A copy of the grant and attachments, including stipulations, survey plat and/or map, will be on location during construction. BLM personnel may request to you a copy of your permit during construction to ensure compliance with all stipulations.

Holder agrees to comply with the following stipulations to the satisfaction of the Authorized Officer:

1. The holder shall indemnify the United States against any liability for damage to life or property arising from the occupancy or use of public lands under this grant.

2. The holder shall comply with all applicable Federal laws and regulations existing or hereafter enacted or promulgated. In any event, the holder shall comply with the Toxic Substances Control Act of 1976 as amended, 15 USC 2601 et seq. (1982) with regards to any toxic substances that are used, generated by or stored on the right-of-way or on facilities authorized under this right-of-way grant. (See 40 CFR, Part 702-799 and especially, provisions on polychlorinated biphenyls, 40 CFR 761.1-761.193.) Additionally, any release of toxic substances (leaks, spills, etc.) in excess of the reportable quantity established by 40 CFR, Part 117 shall be reported as required by the Comprehensive Environmental Response, Compensation, and Liability Act, section 102b. A copy of any report required or requested by any Federal agency or State government as a result of a reportable release or spill of any toxic substances shall be furnished to the authorized officer concurrent with the filing of the reports to the involved Federal agency or State government.

3. The holder agrees to indemnify the United States against any liability arising from the release of any hazardous substance or hazardous waste (as these terms are defined in the Comprehensive Environmental Response, Compensation and Liability Act of 1980, 42 U.S.C. 9601, et seq. or the Resource Conservation and Recovery Act, 42 U.S.C. 6901, et seq.) on the Right-of-Way (unless the release or threatened release is wholly unrelated to the Right-of-Way holder's activity on the Right-of-Way), or resulting from the activity of the Right-of-Way holder on the Right-of-Way. This agreement applies without regard to whether a release is caused by the holder, its agent, or unrelated third parties.

4. There will be no clearing or blading of the right-of-way unless otherwise agreed to in writing by the Authorized Officer.

5. Power lines shall be constructed and designed in accordance to standards

outlined in "Suggested Practices for Avian Protection on Power lines: The State of the Art in 2006" Edison Electric Institute, APLIC, and the California Energy Commission 2006 . The holder shall assume the burden and expense of proving that pole designs not shown in the above publication deter raptor perching, roosting, and nesting. Such proof shall be provided by a raptor expert approved by the Authorized Officer. The BLM reserves the right to require modification or additions to all powerline structures placed on this right-of-way, should they be necessary to ensure the safety of large perching birds. Such modifications and/or additions shall be made by the holder without liability or expense to the United States.

Raptor deterrence will consist of but not limited to the following: triangle perch discouragers shall be placed on each side of the cross arms and a nonconductive perching deterrence shall be placed on all vertical poles that extend past the cross arms.

6. The holder shall minimize disturbance to existing fences and other improvements on public lands. The holder is required to promptly repair improvements to at least their former state. Functional use of these improvements will be maintained at all times. The holder will contact the owner of any improvements prior to disturbing them. When necessary to pass through a fence line, the fence shall be braced on both sides of the passageway prior to cutting the fence. No permanent gates will be allowed unless approved by the Authorized Officer.

7. The BLM serial number assigned to this authorization shall be posted in a permanent, conspicuous manner where the power line crosses roads and at all serviced facilities. Numbers will be at least two inches high and will be affixed to the pole nearest the road crossing and at the facilities served.

8. Upon cancellation, relinquishment, or expiration of this grant, the holder shall comply with those abandonment procedures as prescribed by the Authorized Officer.

9. All surface structures (poles, lines, transformers, etc.) shall be removed within 180 days of abandonment, relinquishment, or termination of use of the serviced facility or facilities or within 180 days of abandonment, relinquishment, cancellation, or expiration of this grant, whichever comes first. This will not apply where the power line extends service to an active, adjoining facility or facilities.

10. Any cultural and/or paleontological resource (historic or prehistoric site or object) discovered by the holder, or any person working on his behalf, on public or Federal land shall be immediately reported to the Authorized Officer. Holder shall suspend all operations in the immediate area of such discovery until written authorization to proceed is issued by the Authorized Officer. An evaluation of the discovery will be made by the Authorized Officer to determine appropriate actions

to prevent the loss of significant cultural or scientific values. The holder will be responsible for the cost of evaluation and any decision as to proper mitigation measures will be made by the Authorized Officer after consulting with the holder.

11. Special Stipulations:
    - For reclamation remove poles, lines, transformer, etc. and dispose of properly.
    - Fill in any holes from the poles removed.

Timing Limitation Stipulation/Condition of Approval for Lesser Prairie-Chicken:
Oil and gas activities including 3-D geophysical exploration, and drilling will not be allowed in lesser prairie-chicken habitat during the period from March 1st through June 15th annually. During that period, other activities that produce noise or involve human activity, such as the maintenance of oil and gas facilities, geophysical exploration other than 3-D operations, and pipeline, road, and well pad construction, will be allowed except between 3:00 am and 9:00 am. The 3:00 am to 9:00 am restriction will not apply to normal, around-the-clock operations, such as venting, flaring, or pumping, which do not require a human presence during this period. Additionally, no new drilling will be allowed within up to 200 meters of leks known at the time of permitting. Normal vehicle use on existing roads will not be restricted. Exhaust noise from pump jack engines must be muffled or otherwise controlled so as not to exceed 75 db measured at 30 ft. from the source of the noise.

VIII. INTERIM RECLAMATION

During the life of the development, all disturbed areas not needed for active support of production operations should undergo interim reclamation in order to minimize the environmental impacts of development on other resources and uses.

Within six (6) months of well completion, operators should work with BLM surface management specialists (Jim Amos: 575-234-5909) to devise the best strategies to reduce the size of the location. Interim reclamation should allow for remedial well operations, as well as safe and efficient removal of oil and gas.

During reclamation, the removal of caliche is important to increasing the success of revegetating the site. Removed caliche that is free of contaminants may be used for road repairs, fire walls or for building other roads and locations. In order to operate the well or complete workover operations, it may be necessary to drive, park and operate on restored interim vegetation within the previously disturbed area. Disturbing revegetated areas for production or workover operations will be allowed. If there is significant disturbance and loss of vegetation, the area will need to be revegetated. Communicate with the appropriate BLM office for any exceptions/exemptions if needed.

All disturbed areas after they have been satisfactorily prepared need to be reseeded with the seed mixture provided below.

Upon completion of interim reclamation, the operator shall submit a Sundry Notices and Reports on Wells, Subsequent Report of Reclamation (Form 3160-5).

IX. FINAL ABANDONMENT & RECLAMATION

At final abandonment, well locations, production facilities, and access roads must undergo "final" reclamation so that the character and productivity of the land are restored.

Earthwork for final reclamation must be completed within six (6) months of well plugging. All pads, pits, facility locations and roads must be reclaimed to a satisfactory revegetated, safe, and stable condition, unless an agreement is made with the landowner or BLM to keep the road and/or pad intact.

After all disturbed areas have been satisfactorily prepared, these areas need to be revegetated with the seed mixture provided below. Seeding should be accomplished by drilling on the contour whenever practical or by other approved methods. Seeding may need to be repeated until revegetation is successful, as determined by the BLM.

Operators shall contact a BLM surface protection specialist prior to surface abandonment operations for site specific objectives (Jim Amos: 575-234-5909).

Below Ground-level Abandoned Well Marker to avoid raptor perching: Upon the plugging and subsequent abandonment of the well, the well marker will be installed at ground level on a plate containing the pertinent information for the plugged well.

Seed Mixture for LPC Sand/Shinnery Sites

Holder shall seed all disturbed areas with the seed mixture listed below. The seed mixture shall be planted in the amounts specified in pounds of pure live seed (PLS)* per acre. There shall be no primary or secondary noxious weeds in the seed mixture. Seed will be tested and the viability testing of seed shall be done in accordance with State law(s) and within nine (9) months prior to purchase. Commercial seed shall be either certified or registered seed. The seed container shall be tagged in accordance with State law(s) and available for inspection by the Authorized Officer.

Seed will be planted using a drill equipped with a depth regulator to ensure proper depth of planting where drilling is possible. The seed mixture will be evenly and uniformly planted over the disturbed area (smaller/heavier seeds have a tendency to drop the bottom of the drill and are planted first). Holder shall take appropriate measures to ensure this does not occur. Where drilling is not possible, seed will be broadcast and the area shall be raked or chained to cover the seed. When broadcasting the seed, the pounds per acre are to be doubled. Seeding shall be repeated until a satisfactory stand is established as determined by the Authorized Officer. Evaluation of growth may not be made before completion of at least one full growing season after seeding.

Species to be planted in pounds of pure live seed* per acre:

Species	lb/acre
Plains Bristlegrass	5lbs/A
Sand Bluestem	5lbs/A
Little Bluestem	3lbs/A
Big Bluestem	6lbs/A
Plains Coreopsis	2lbs/A
Sand Dropseed	1lbs/A

*Pounds of pure live seed:

Pounds of seed **x** percent purity **x** percent germination = pounds pure live seed

Alternatives to Reduce Flaring

Below are alternatives considered from a conceptual standpoint to reduce the amount of gas flared.

- Power Generation – On Lease
  - Only a portion of gas is consumed operating the generator, remainder of gas will be flared.
- Compressed Natural Gas – On Lease
  - Gas flared would be minimal but might be uneconomical to operate when gas volume declines.
- NGL Removal – On lease and trucked from condensate tanks
  - Plants are expensive and uneconomical to operate when gas volume declines.
  - Any residue gas that results in the future may be flared.

1. FORMATION TOPS

The estimated tops of important geologic markers are as follows:
Elevation: 3552 ft

FORMATION	SUB-SEA TVD	TVD	MD	LITHOLOGIES	MIN. RESOURCES	PROD. FORMATION
Rustler	2786	766	766	ANHYD	N/A	
Castile	562	2,990	2,990	SALT	N/A	
Lamar	-1023	4,575	4,575	LIMESTONE	N/A	
Bell Canyon	-1074	4,626	4,626	SAND STONE	N/A	
Cherry Canyon	-1928	5,480	5,480	SAND STONE	N/A	
Brushy Canyon	-3208	6,760	6,760	SAND STONE	N/A	
Avalon	-4891	8,443	8,443	SHALE	Oil	
Lateral TD (Lower Avalon)	-5470	9,022	19,397	SHALE	Oil	Yes
First Bone Spring	-5828	9,380		SHALE	N/A	
Second Bone Spring	-6480	10,032		SHALE	N/A	
Third Bone Spring	-7778	11,330		SHALE	N/A	
Wolfcamp A	-8217	11,769		SHALE	N/A	
Wolfcamp B	-8993	12,545		SHALE	N/A	

WELLBORE LOCATIONS	SUB-SEA TVD	RKB TVD	MD
SHL	3552	-	
KOP	-4897	8,449	8,657
FTP	-5470	9,022	9,557
LTP	-5470	9,022	19,397

2. ESTIMATED DEPTH OF WATER, OIL, GAS & OTHER MINERAL BEARING FORMATIONS

The estimated depths at which the top and bottom of the anticipated water, oil, gas, or other mineral bearing formations are expected to be encountered are as follows:

Substance	Formation	Depth
Deepest Expected Base of Fresh Water		400
Water	Castile	2,990
Water	Cherry Canyon	5,480
Oil/Gas	Brushy Canyon	6,760
Oil/Gas	Avalon	8,443
Oil/Gas	First Bone Spring	9,380
Oil/Gas	Second Bone Spring	10,032
Oil/Gas	Third Bone Spring	11,330
Oil/Gas	Wolfcamp A	11,769
Oil/Gas	Wolfcamp B	12,545

All shows of fresh water and minerals will be reported and protected.

3. BOP EQUIPMENT

Chevron will have a minimum of a 5,000 psi rig stack (see proposed schematic) for drill out below surface casing. The stack will be tested as specified in the attached testing requirements. Batch drilling of the surface, intermediate, and production will take place. A full BOP test will be performed per hole section, unless approval from BLM is received otherwise. Flex choke hose will be used for all wells on the pad (see attached specs and variance). BOP test will be conducted by a third party.

Chevron requests a variance to use a FMC Technologies UH-S Multibowl wellhead, which will be run through the rig floor on surface casing. BOPE will be nippled up and tested after cementing surface casing. Subsequent tests will be performed as needed, not to exceed 30 days. The field report from FMC Technologies and BOP test information will be provided in a subsequent report at the end of the well. Please see the attached wellhead schematic. An installation manual has been placed on file with the BLM office and remains unchanged from previous submittal. All tests performed by third party.

4. **CASING PROGRAM**

a. The proposed casing program will be as follows:

Purpose	From	To	Hole Size	Csg Size	Weight	Grade	Thread	Condition
Surface	0'	800'	17-1/2"	13-3/8"	54.5 #	J-55	STC	New
Intermediate	0'	4,550'	12-1/4"	9-5/8"	43.5 #	L-80	LTC	New
Production	0'	19,397'	8-1/2"	5-1/2"	20.0 #	P-110	TXP BTC	New

Proposed	Hole Size	Casing Size	Top (MD)	Btm (MD)	Top (TVD)	Btm (TVD)	*Top (SSTVD)*	*Btm (SSTVD)*	Grade	Weight	Joint type
Surface	17-1/2"	13-3/8"	0'	800'	0'	800'	3,552'	2,752'	J-55	54.5 #	STC
Intermediate	12-1/4"	9-5/8"	0'	4,550'	0'	4,500'	3,552'	-948'	L-80	43.5 #	LTC
Production	8-1/2"	5-1/2"	0'	19,397'	0'	9,022'	3,552'	-5,470'	P110	20.0 #	TXP-BTC

b. **Casing design subject to revision based on geologic conditions encountered.**

c. **A "Worst Case" casing design for wells in a particular area is used below to calculate the Casing Safety Factors. If for any reason the casing design for a particular well requires setting casing deeper than the following "worst case" design, then the Casing Safety Factors will be recalculated & sent to the BLM prior to drilling.**

d. **Chevron will fill casing at a minimum of every 20 jts (~840') while running for intermediate and production casing in order to maintain collapse SF.**

SF Calculations based on the following "Worst Case" casing design:

Surface Casing:	800'	ftTVD
Intermediate Casing:	4,500'	ftTVD
Production Casing:	19,397'	ftMD

Casing String	Min SF Burst	Min SF Collapse	Min SF Tension	Min SF Tri-Axial
Surface	1.80	3.12	3.17	2.26
Intermediate	1.23	1.28	1.60	1.50
Production	1.15	1.39	2.09	1.38

The following worst case load cases were considered for calculation of the above Min. Safety Factors:

Burst Design	Surf	Int	Prod
Pressure Test- Surface, Int, Prod Csg P external: Mud weight above TOC, PP below P internal: Test psi + next section heaviest mud in csg	X	X	X
Displace to Gas- Surf Csg P external: Mud weight above TOC, PP below P internal: Dry Gas from Next Csg Point	X		
Gas over mud (60/40) - Int Csg P external: Mud weight above TOC, PP below P internal: 60% gas over 40% mud from hole TD PP		X	
Stimulation (Frac) Pressures- Prod Csg P external: Mud weight above TOC, PP below P internal: Max inj pressure w/ heaviest injected fluid			X
Tubing leak- Prod Csg (packer at KOP) P external: Mud weight above TOC, PP below P internal: Leak just below surf, 8.45 ppg packer fluid			X
Collapse Design	Surf	Int	Prod
Full Evacuation P external: Mud weight gradient P internal: none	X	X	X
Cementing- Surf, Int, Prod Csg P external: Wet cement P internal: displacement fluid - water	X	X	X
Tension Design	Surf	Int	Prod
100k lb overpull	X	X	X

5. **CEMENTING PROGRAM**

Slurry	Type	Top	Bottom	*Sacks*	Yield	Density	%Excess	Water	*Volume*	Additives
Surface					(cu ft/sk)	(ppg)	Open Hole	gal/sk	cuft	
Tail	Class C	0'	800'	1076	1.34	14.8	100	6.40	1442	Extender, Antifoam, Retarder
Intermediate Csg:										
Lead	Class C	0'	3,550'	565	2.56	11.9	30	14.66	1445	Extender, Antifoam, Retarder, Viscosifier
Tail	Class C	3,550'	4,550'	334	1.33	14.8	30	6.38	445	Extender, Antifoam, Retarder, Viscosifier
Production										
Lead 1	Class C	0'	8,500'	873	2.46	11.9	10	14.05	2147	Extender, Antifoam, Retarder, Viscosifier
Lead 2	Class C	8,500'	18,397'	1348	1.85	13.2	10	9.87	2494	Extender, Antifoam, Retarder, Viscosifier
Tail	Acid Sol Class H	18,397'	19,397'	115	2.19	15	10	9.54	252	Extender, Antifoam, Retarder, Viscosifier

1. Final cement volumes will be determined by caliper.
2. Surface casing shall have at least one centralizer installed on each of the bottom three joints starting with the shoe joint.
3. Production casing will have one solid body type centralizer on every joint in the lateral, then every other joint to KOP. Bowspring type centralizers will be run from KOP to intermediate casing and surface.

6. **MUD PROGRAM**

From	To	Type	Weight	Viscosity	Filtrate
0'	800'	Fresh water mud	8.3 - 8.9	28-30	N/C
800'	4,550'	Brine	9.0 - 10.1	28-31	15-25
4,550'	19,397'	OBM	8.3 - 9.5	10-15	15-25

A closed system will be used consisting of above ground steel tanks. All wastes accumulated during drilling operations will be contained in a portable trash cage and removed from location and deposited in an approved sanitary landfill. Sanitary wastes will be contained in a chemical porta-toilet and then hauled to an approved sanitary landfill.

All fluids and cuttings will be disposed of in accordance with New Mexico Oil Conservation Division rules and regulations. And transportating of E&P waste will follow EPA regulations and accompanying manifests.

A mud test shall be performed every 24 hours after mudding up to determine, as applicable: density, viscosity, gel strength, filtration, and pH.

Visual mud monitoring equipment shall be in place to detect volume changes indicating loss or gain of circulating fluid volume. When abnormal pressures are anticipated -- a pit volume totalizer (PVT), stroke counter, and flow sensor will be used to detect volume changes indicating loss or gain of circulating fluid volume.

A weighting agent and lost circulating material (LCM) will be onsite to mitigate pressure or lost circulation as hole conditions dictate.

7. **TESTING, LOGGING, AND CORING**

The anticipated type and amount of testing, logging, and coring are as follows:

a. Drill stem tests are not planned.
b. The logging program will be as follows:

TYPE	Logs	Interval	Timing
Mudlogs	2 man mudlog	Surface casing shoe through prod hole TD	While drilling or circulating
LWD	MWD Gamma	Int. and Prod. Hole	While Drilling

c. Conventional whole core samples are not planned.
d. A directional survey will be run.

8. **ABNORMAL PRESSURES AND HYDROGEN SULFIDE**

a. No abnormal pressure or temperatures are expected. Estimated BHP is: 4,457 psi
b. Hydrogen sulfide gas is not anticipated. An H2S Contingency plan is attached with this APD in the event that H2S is encountered

H_2S Preparedness and Contingency Plan Summary

SND 12 01 Fed 002 1H, 2H, 3H, 4H

Training

MCBU Drilling and Completions H_2S training requirements are intended to define the minimum level of training required for employees, contractors and visitors to enter or perform work at MCBU Drilling and Completions locations that have known concentrations of H_2S.

Awareness Level

Employees and visitors to MCBU Drilling and Completions locations that have known concentrations of H_2S, who are not required to perform work in H_2S areas, will be provided with an awareness level of H_2S training prior to entering any H_2S areas. At a minimum, awareness level training will include:

1. Physical and chemical properties of H_2S
2. Health hazards of H_2S
3. Personal protective equipment
4. Information regarding potential sources of H_2S
5. Alarms and emergency evacuation procedures

Awareness level training will be developed and conducted by personnel who are qualified either by specific training, educational experience and/or work-related background.

Advanced Level H_2S Training

Employees and contractors required to work in areas that may contain H_2S will be provided with Advanced Level H_2S training prior to initial assignment. In addition to the Awareness Level requirements, Advanced Level H_2S training will include:

1. H_2S safe work practice procedures;
2. Emergency contingency plan procedures;
3. Methods to detect the presence or release of H_2S (e.g., alarms, monitoring equipment), including hands-on training with direct reading and personal monitoring H_2S equipment.
4. Basic overview of respiratory protective equipment suitable for use in H_2S environments. Note: Employees who work at sites that participate in the Chevron Respirator User program will require separate respirator training as required by the MCBU Respiratory Protection Program;
5. Basic overview of emergency rescue techniques, first aid, CPR and medical evaluation procedures. Employees who may be required to perform "standby" duties are required to receive additional first aid and CPR training, which is not covered in the Advanced Level H_2S training;
6. Proficiency examination covering all course material.

Advanced H_2S training courses will be instructed by personnel who have successfully completed an appropriate H_2S train-the-trainer development course (ANSI/ASSE Z390.1-2006) or who possess significant past experience through educational or work-related background.

H_2S Training Certification

All employees and visitors will be issued an H_2S training certification card (or certificate) upon successful completion of the appropriate H_2S training course. Personnel working in an H_2S environment will carry a current H_2S training certification card as proof of having received the proper training on their person at all times.

Briefing Area

A minimum of two briefing areas will be established in locations that at least one area will be up-wind from the well at all times. Upon recognition of an emergency situation, all personnel should assemble at the designated upwind briefing areas for instructions.

H_2S Equipment

Respiratory Protection

a) Six 30 minute SCBAs – 2 at each briefing area and 2 in the Safety Trailer.

b) Eight 5 minute EBAs – 5 in the dog house at the rig floor, 1 at the accumulator, 1 at the shale shakers and 1 at the mud pits.

Visual Warning System

a) One color code sign, displaying all possible conditions, will be placed at the entrance to the location with a flag displaying the current condition.

b) Two windsocks will be on location, one on the dog house and one on the Drill Site Manager's Trailer.

H_2S Detection and Monitoring System

a) H_2S monitoring system (sensor head, warning light and siren) placed throughout rig.

- Drilling Rig Locations: at a minimum, in the area of the Shale shaker, rig floor, and bell nipple.
- Workover Rig Locations: at a minimum, in the area of the Cellar, rig floor and circulating tanks or shale shaker.

Well Control Equipment

a) Flare Line 150' from wellhead with igniter.

b) Choke manifold with a remotely operated choke.

c) Mud / gas separator

Mud Program

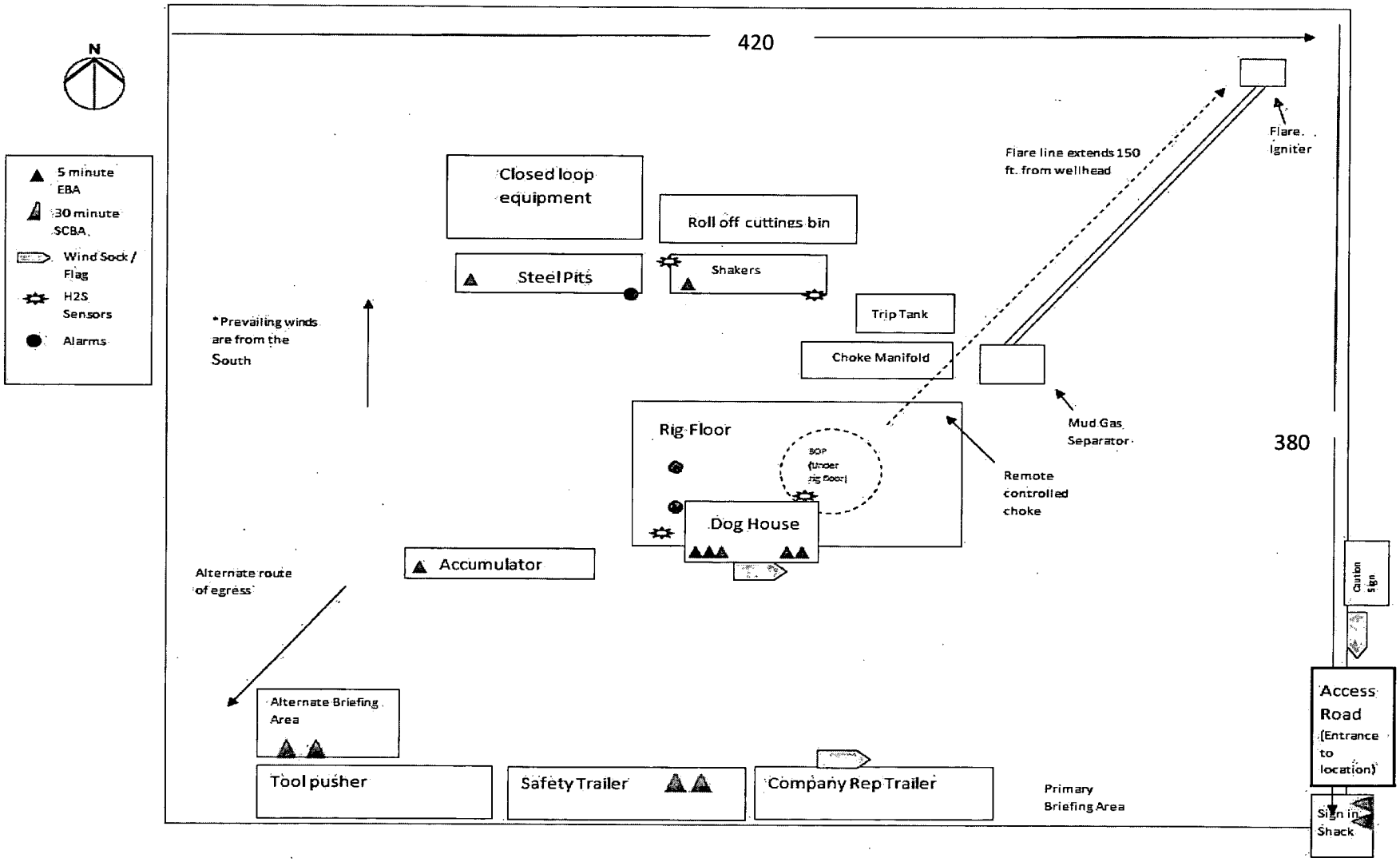
In the event of drilling, completions, workover and well servicing operations involving a hydrogen sulfide concentration of 100 ppm or greater the following shall be considered:

1. Use of a degasser
2. Use of a zinc based mud treatment
3. Increasing mud weight

Public Safety - Emergency Assistance

Agency	Telephone Number
Eddy County Sheriff's Department	575-887-7551
Carlsbad Fire Department	575-885-3125
Carlsbad Medical Center	575-887-4100
Eddy County Emergency Management	575-885-3581
Poison Control Center	800-222-1222

H_2S Preparedness and Contingency Plan Summary



Schlumberger

Chevron SND 12 01 FED 002 4H Rev1 APS 11Dec18 Proposal Geodetic Report

(Def Plan)

Report Date:	December 11, 2018 - 05:34 PM	**Survey / DLS Computation:**	Minimum Curvature / Lubinski
Client:	Chevron	**Vertical Section Azimuth:**	359.710 ° (Grid North)
Field:	NM Eddy County (NAD 27)	**Vertical Section Origin:**	0.000 ft, 0.000 ft
Structure / Slot:	Chevron SND 12 01 FED 002 4H / New Slot	**TVD Reference Datum:**	RKB
Well:	Chevron SND 12 01 FED 002 4H	**TVD Reference Elevation:**	3580.000 ft above MSL
Borehole:	Chevron SND 12 01 FED 002 4H	**Seabed / Ground Elevation:**	3552.000 ft above MSL
UWI / API#:	Unknown / Unknown	**Magnetic Declination:**	6.818 °
Survey Name:	Chevron SND 12 01 FED 002 4H Rev1 APS 11Dec18	**Total Gravity Field Strength:**	998.4319mgn (9.80665 Based)
Survey Date:	September 19, 2018	**Gravity Model:**	GARM
Tort / AHD / DDI / ERD Ratio:	120.003 ° / 12085.897 ft / 6.494 / 1.340	**Total Magnetic Field Strength:**	47978.800 nT
Coordinate Reference System:	NAD27 New Mexico State Plane, Eastern Zone, US Feet	**Magnetic Dip Angle:**	59.940 °
Location Lat / Long:	N 32° 13' 37.98800", W 103° 44' 2.53993"	**Declination Date:**	September 19, 2018
Location Grid N/E Y/X:	N 446898.020 ftUS, E 685319.979 ftUS	**Magnetic Declination Model:**	HDGM 2018
CRS Grid Convergence Angle:	0.3196 °	**North Reference:**	Grid North
Grid Scale Factor:	0.99994842	**Grid Convergence Used:**	0.3196 °
Version / Patch:	2.10.753.0	**Total Corr Mag North->Grid North:**	6.4980 °
		Local Coord Referenced To:	Well Head

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (°/100ft)	Northing (ftUS)	Easting (ftUS)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")
Surface	0.00	0.00	0.00	0.00	0.00	0.00	0.00	N/A	446898.02	685319.98	N 32 13 37.99	W 103 44 2.54
	100.00	0.00	123.66	100.00	0.00	0.00	0.00	0.00	446898.02	685319.98	N 32 13 37.99	W 103 44 2.54
	200.00	0.00	123.66	200.00	0.00	0.00	0.00	0.00	446898.02	685319.98	N 32 13 37.99	W 103 44 2.54
	300.00	0.00	123.66	300.00	0.00	0.00	0.00	0.00	446898.02	685319.98	N 32 13 37.99	W 103 44 2.54
	400.00	0.00	123.66	400.00	0.00	0.00	0.00	0.00	446898.02	685319.98	N 32 13 37.99	W 103 44 2.54
	500.00	0.00	123.66	500.00	0.00	0.00	0.00	0.00	446898.02	685319.98	N 32 13 37.99	W 103 44 2.54
KOP, Build 1.5° DLS	600.00	0.00	123.66	600.00	0.00	0.00	0.00	0.00	446898.02	685319.98	N 32 13 37.99	W 103 44 2.54
	700.00	1.50	123.66	699.99	-0.73	-0.73	1.09	1.50	446897.29	685321.07	N 32 13 37.98	W 103 44 2.53
	800.00	3.00	123.66	799.91	-2.92	-2.90	4.36	1.50	446895.12	685324.34	N 32 13 37.96	W 103 44 2.49
	900.00	4.50	123.66	899.69	-6.58	-6.53	9.80	1.50	446891.49	685329.78	N 32 13 37.92	W 103 44 2.43
	1000.00	6.00	123.66	999.27	-11.69	-11.60	17.42	1.50	446886.42	685337.39	N 32 13 37.87	W 103 44 2.34
	1100.00	7.50	123.66	1098.57	-18.25	-18.11	27.20	1.50	446879.91	685347.18	N 32 13 37.81	W 103 44 2.22
	1200.00	9.00	123.66	1197.54	-26.27	-26.07	39.14	1.50	446871.95	685359.12	N 32 13 37.73	W 103 44 2.09
	1300.00	10.50	123.66	1296.09	-35.72	-35.45	53.24	1.50	446862.57	685373.21	N 32 13 37.63	W 103 44 1.92
	1400.00	12.00	123.66	1394.16	-46.62	-46.27	69.47	1.50	446851.75	685389.45	N 32 13 37.53	W 103 44 1.73
	1500.00	13.50	123.66	1491.70	-58.95	-58.50	87.84	1.50	446839.52	685407.82	N 32 13 37.40	W 103 44 1.52
	1600.00	15.00	123.66	1588.62	-72.69	-72.15	108.33	1.50	446825.88	685428.30	N 32 13 37.27	W 103 44 1.28
Hold	1600.12	15.00	123.66	1588.73	-72.71	-72.16	108.35	1.50	446825.86	685428.33	N 32 13 37.27	W 103 44 1.28
	1700.00	15.00	123.66	1685.21	-87.15	-86.49	129.87	0.00	446811.53	685449.84	N 32 13 37.12	W 103 44 1.03
	1800.00	15.00	123.66	1781.80	-101.61	-100.84	151.42	0.00	446797.18	685471.39	N 32 13 36.98	W 103 44 0.78
	1900.00	15.00	123.66	1878.39	-116.07	-115.19	172.96	0.00	446782.83	685492.93	N 32 13 36.84	W 103 44 0.53
	2000.00	15.00	123.66	1974.98	-130.52	-129.54	194.50	0.00	446768.49	685514.47	N 32 13 36.70	W 103 44 0.28
	2100.00	15.00	123.66	2071.57	-144.98	-143.89	216.05	0.00	446754.14	685536.02	N 32 13 36.55	W 103 44 0.03
	2200.00	15.00	123.66	2168.17	-159.44	-158.24	237.59	0.00	446739.79	685557.56	N 32 13 36.41	W 103 43 59.78
	2300.00	15.00	123.66	2264.76	-173.89	-172.58	259.14	0.00	446725.44	685579.10	N 32 13 36.27	W 103 43 59.53
	2400.00	15.00	123.66	2361.35	-188.35	-186.93	280.68	0.00	446711.10	685600.65	N 32 13 36.12	W 103 43 59.28
	2500.00	15.00	123.66	2457.94	-202.81	-201.28	302.23	0.00	446696.75	685622.19	N 32 13 35.98	W 103 43 59.03
	2600.00	15.00	123.66	2554.53	-217.27	-215.63	323.77	0.00	446682.40	685643.73	N 32 13 35.84	W 103 43 58.79
	2700.00	15.00	123.66	2651.13	-231.72	-229.98	345.31	0.00	446668.05	685665.27	N 32 13 35.69	W 103 43 58.54
	2800.00	15.00	123.66	2747.72	-246.18	-244.33	366.86	0.00	446653.71	685686.82	N 32 13 35.55	W 103 43 58.29
	2900.00	15.00	123.66	2844.31	-260.64	-258.67	388.40	0.00	446639.36	685708.36	N 32 13 35.41	W 103 43 58.04
	3000.00	15.00	123.66	2940.90	-275.09	-273.02	409.95	0.00	446625.01	685729.90	N 32 13 35.26	W 103 43 57.79
	3100.00	15.00	123.66	3037.49	-289.55	-287.37	431.49	0.00	446610.66	685751.45	N 32 13 35.12	W 103 43 57.54
	3200.00	15.00	123.66	3134.08	-304.01	-301.72	453.03	0.00	446596.32	685772.99	N 32 13 34.98	W 103 43 57.29
	3300.00	15.00	123.66	3230.68	-318.47	-316.07	474.58	0.00	446581.97	685794.53	N 32 13 34.83	W 103 43 57.04
	3400.00	15.00	123.66	3327.27	-332.92	-330.42	496.12	0.00	446567.62	685816.07	N 32 13 34.69	W 103 43 56.79
	3500.00	15.00	123.66	3423.86	-347.38	-344.76	517.67	0.00	446553.27	685837.62	N 32 13 34.55	W 103 43 56.54
	3600.00	15.00	123.66	3520.45	-361.84	-359.11	539.21	0.00	446538.93	685859.16	N 32 13 34.40	W 103 43 56.29
	3700.00	15.00	123.66	3617.04	-376.29	-373.46	560.75	0.00	446524.58	685880.70	N 32 13 34.26	W 103 43 56.04
	3800.00	15.00	123.66	3713.64	-390.75	-387.81	582.30	0.00	446510.23	685902.25	N 32 13 34.12	W 103 43 55.79
	3900.00	15.00	123.66	3810.23	-405.21	-402.16	603.84	0.00	446495.88	685923.79	N 32 13 33.98	W 103 43 55.54
	4000.00	15.00	123.66	3906.82	-419.67	-416.51	625.39	0.00	446481.54	685945.33	N 32 13 33.83	W 103 43 55.29
	4100.00	15.00	123.66	4003.41	-434.12	-430.85	646.93	0.00	446467.19	685966.88	N 32 13 33.69	W 103 43 55.04
	4200.00	15.00	123.66	4100.00	-448.58	-445.20	668.48	0.00	446452.84	685988.42	N 32 13 33.55	W 103 43 54.79
	4300.00	15.00	123.66	4196.59	-463.04	-459.55	690.02	0.00	446438.49	686009.96	N 32 13 33.40	W 103 43 54.54
	4400.00	15.00	123.66	4293.19	-477.50	-473.90	711.56	0.00	446424.15	686031.50	N 32 13 33.26	W 103 43 54.29
	4500.00	15.00	123.66	4389.78	-491.95	-488.25	733.11	0.00	446409.80	686053.05	N 32 13 33.12	W 103 43 54.04
	4600.00	15.00	123.66	4486.37	-506.41	-502.60	754.65	0.00	446395.45	686074.59	N 32 13 32.97	W 103 43 53.79
	4700.00	15.00	123.66	4582.96	-520.87	-516.94	776.20	0.00	446381.10	686096.13	N 32 13 32.83	W 103 43 53.54
	4800.00	15.00	123.66	4679.55	-535.32	-531.29	797.74	0.00	446366.75	686117.68	N 32 13 32.69	W 103 43 53.29
	4900.00	15.00	123.66	4776.15	-549.78	-545.64	819.28	0.00	446352.41	686139.22	N 32 13 32.54	W 103 43 53.04
	5000.00	15.00	123.66	4872.74	-564.24	-559.99	840.83	0.00	446338.06	686160.76	N 32 13 32.40	W 103 43 52.79
	5100.00	15.00	123.66	4969.33	-578.70	-574.34	862.37	0.00	446323.71	686182.31	N 32 13 32.26	W 103 43 52.54
	5200.00	15.00	123.66	5065.92	-593.15	-588.69	883.92	0.00	446309.36	686203.85	N 32 13 32.11	W 103 43 52.29
	5300.00	15.00	123.66	5162.51	-607.61	-603.03	905.46	0.00	446295.02	686225.39	N 32 13 31.97	W 103 43 52.04
	5400.00	15.00	123.66	5259.10	-622.07	-617.38	927.01	0.00	446280.67	686246.93	N 32 13 31.83	W 103 43 51.79
	5500.00	15.00	123.66	5355.70	-636.52	-631.73	948.55	0.00	446266.32	686268.48	N 32 13 31.68	W 103 43 51.54
	5600.00	15.00	123.66	5452.29	-650.98	-646.08	970.09	0.00	446251.97	686290.02	N 32 13 31.54	W 103 43 51.29
	5700.00	15.00	123.66	5548.88	-665.44	-660.43	991.64	0.00	446237.63	686311.56	N 32 13 31.40	W 103 43 51.04
	5800.00	15.00	123.66	5645.47	-679.90	-674.78	1013.18	0.00	446223.28	686333.11	N 32 13 31.25	W 103 43 50.79
	5900.00	15.00	123.66	5742.06	-694.35	-689.12	1034.73	0.00	446208.93	686354.65	N 32 13 31.11	W 103 43 50.54
	6000.00	15.00	123.66	5838.65	-708.81	-703.47	1056.27	0.00	446194.58	686376.19	N 32 13 30.97	W 103 43 50.29
	6100.00	15.00	123.66	5935.25	-723.27	-717.82	1077.81	0.00	446180.24	686397.74	N 32 13 30.83	W 103 43 50.04
	6200.00	15.00	123.66	6031.84	-737.72	-732.17	1099.36	0.00	446165.89	686419.28	N 32 13 30.68	W 103 43 49.79
	6300.00	15.00	123.66	6128.43	-752.18	-746.52	1120.90	0.00	446151.54	686440.82	N 32 13 30.54	W 103 43 49.54
	6400.00	15.00	123.66	6225.02	-766.64	-760.87	1142.45	0.00	446137.19	686462.36	N 32 13 30.40	W 103 43 49.29
	6500.00	15.00	123.66	6321.61	-781.10	-775.21	1163.99	0.00	446122.85	686483.91	N 32 13 30.25	W 103 43 49.04
	6600.00	15.00	123.66	6418.21	-795.55	-789.56	1185.53	0.00	446108.50	686505.45	N 32 13 30.11	W 103 43 48.79
	6700.00	15.00	123.66	6514.80	-810.01	-803.91	1207.08	0.00	446094.15	686526.99	N 32 13 29.97	W 103 43 48.54
	6800.00	15.00	123.66	6611.39	-824.47	-818.26	1228.62	0.00	446079.80	686548.54	N 32 13 29.82	W 103 43 48.29
	6900.00	15.00	123.66	6707.98	-838.93	-832.61	1250.17	0.00	446065.46	686570.08	N 32 13 29.68	W 103 43 48.04
	7000.00	15.00	123.66	6804.57	-853.38	-846.96	1271.71	0.00	446051.11	686591.62	N 32 13 29.54	W 103 43 47.79
Drop 1.5° DLS	7057.71	15.00	123.66	6860.31	-861.73	-855.24	1284.14	0.00	446042.83	686604.05	N 32 13 29.45	W 103 43 47.65
	7100.00	14.37	123.66	6901.22	-867.71	-861.18	1293.07	1.50	446036.89	686612.98	N 32 13 29.39	W 103 43 47.54
	7200.00	12.87	123.66	6998.41	-880.86	-874.23	1312.66	1.50	446023.84	686632.57	N 32 13 29.26	W 103 43 47.32
	7300.00	11.37	123.66	7096.18	-892.59	-885.87	1330.13	1.50	446012.20	686650.04	N 32 13 29.15	W 103 43 47.11
	7400.00	9.87	123.66	7194.47	-902.88	-896.08	1345.47	1.50	446001.99	686665.37	N 32 13 29.05	W 103 43 46.94
	7500.00	8.37	123.66	7293.20	-911.73	-904.86	1358.66	1.50	445993.21	686678.56	N 32 13 28.96	W 103 43 46.78

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (°/100ft)	Northing (ftUS)	Easting (ftUS)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")
	7600.00	6.87	123.66	7392.31	-919.13	-912.21	1369.69	1.50	445985.86	686689.59	N 32 13 28.89	W 103 43 46.66
	7700.00	5.37	123.66	7491.74	-925.08	-918.12	1378.56	1.50	445979.95	686698.46	N 32 13 28.83	W 103 43 46.55
	7800.00	3.87	123.66	7591.41	-929.58	-922.58	1385.26	1.50	445975.49	686705.16	N 32 13 28.78	W 103 43 46.48
	7900.00	2.37	123.66	7691.26	-932.61	-925.59	1389.78	1.50	445972.48	686709.69	N 32 13 28.75	W 103 43 46.42
	8000.00	0.87	123.66	7791.22	-934.19	-927.16	1392.13	1.50	445970.91	686712.04	N 32 13 28.74	W 103 43 46.40
Hold Vertical	8057.82	0.00	123.66	7849.04	-934.44	-927.40	1392.50	1.50	445970.67	686712.40	N 32 13 28.73	W 103 43 46.39
	8100.00	0.00	123.66	7891.22	-934.44	-927.40	1392.50	0.00	445970.67	686712.40	N 32 13 28.73	W 103 43 46.39
	8200.00	0.00	123.66	7991.22	-934.44	-927.40	1392.50	0.00	445970.67	686712.40	N 32 13 28.73	W 103 43 46.39
	8300.00	0.00	123.66	8091.22	-934.44	-927.40	1392.50	0.00	445970.67	686712.40	N 32 13 28.73	W 103 43 46.39
	8400.00	0.00	123.66	8191.22	-934.44	-927.40	1392.50	0.00	445970.67	686712.40	N 32 13 28.73	W 103 43 46.39
	8500.00	0.00	123.66	8291.22	-934.44	-927.40	1392.50	0.00	445970.67	686712.40	N 32 13 28.73	W 103 43 46.39
	8600.00	0.00	123.66	8391.22	-934.44	-927.40	1392.50	0.00	445970.67	686712.40	N 32 13 28.73	W 103 43 46.39
KOP, Build 10° DLS	8657.82	0.00	123.66	8449.04	-934.44	-927.40	1392.50	0.00	445970.67	686712.40	N 32 13 28.73	W 103 43 46.39
	8700.00	4.22	359.71	8491.18	-932.88	-925.85	1392.49	10.00	445972.22	686712.39	N 32 13 28.75	W 103 43 46.39
	8800.00	14.22	359.71	8589.76	-916.89	-909.85	1392.41	10.00	445988.22	686712.31	N 32 13 28.91	W 103 43 46.39
	8900.00	24.22	359.71	8684.07	-884.01	-876.98	1392.24	10.00	446021.09	686712.14	N 32 13 29.23	W 103 43 46.39
	9000.00	34.22	359.71	8771.24	-835.26	-828.22	1391.99	10.00	446069.84	686711.89	N 32 13 29.72	W 103 43 46.39
	9100.00	44.22	359.71	8848.61	-772.11	-765.08	1391.66	10.00	446132.98	686711.57	N 32 13 30.34	W 103 43 46.39
	9200.00	54.22	359.71	8913.85	-696.49	-689.46	1391.28	10.00	446208.60	686711.18	N 32 13 31.09	W 103 43 46.39
	9300.00	64.22	359.71	8964.96	-610.69	-603.65	1390.84	10.00	446294.40	686710.74	N 32 13 31.94	W 103 43 46.39
	9400.00	74.22	359.71	9000.40	-517.31	-510.28	1390.36	10.00	446387.77	686710.26	N 32 13 32.86	W 103 43 46.39
	9500.00	84.22	359.71	9019.08	-419.20	-412.17	1389.85	10.00	446485.87	686709.76	N 32 13 33.83	W 103 43 46.39
Landing Point	9557.82	90.00	359.71	9022.00	-361.48	-354.45	1389.56	10.00	446543.59	686709.46	N 32 13 34.40	W 103 43 46.39
	9600.00	90.00	359.71	9022.00	-319.30	-312.27	1389.34	0.00	446585.76	686709.25	N 32 13 34.82	W 103 43 46.39
	9700.00	90.00	359.71	9022.00	-219.30	-212.27	1388.83	0.00	446685.76	686708.73	N 32 13 35.81	W 103 43 46.39
	9800.00	90.00	359.71	9022.00	-119.30	-112.27	1388.32	0.00	446785.75	686708.22	N 32 13 36.80	W 103 43 46.39
	9900.00	90.00	359.71	9022.00	-19.30	-12.28	1387.80	0.00	446885.74	686707.71	N 32 13 37.79	W 103 43 46.39
	10000.00	90.00	359.71	9022.00	80.70	87.72	1387.29	0.00	446985.74	686707.19	N 32 13 38.78	W 103 43 46.39
	10100.00	90.00	359.71	9022.00	180.70	187.72	1386.78	0.00	447085.73	686706.68	N 32 13 39.77	W 103 43 46.38
	10200.00	90.00	359.71	9022.00	280.70	287.72	1386.26	0.00	447185.72	686706.17	N 32 13 40.76	W 103 43 46.38
	10300.00	90.00	359.71	9022.00	380.70	387.72	1385.75	0.00	447285.72	686705.66	N 32 13 41.75	W 103 43 46.38
	10400.00	90.00	359.71	9022.00	480.70	487.72	1385.24	0.00	447385.71	686705.14	N 32 13 42.74	W 103 43 46.38
	10500.00	90.00	359.71	9022.00	580.70	587.72	1384.72	0.00	447485.70	686704.63	N 32 13 43.73	W 103 43 46.38
	10600.00	90.00	359.71	9022.00	680.70	687.72	1384.21	0.00	447585.70	686704.12	N 32 13 44.72	W 103 43 46.38
	10700.00	90.00	359.71	9022.00	780.70	787.71	1383.70	0.00	447685.69	686703.60	N 32 13 45.71	W 103 43 46.38
	10800.00	90.00	359.71	9022.00	880.70	887.71	1383.19	0.00	447785.68	686703.09	N 32 13 46.70	W 103 43 46.38
	10900.00	90.00	359.71	9022.00	980.70	987.71	1382.67	0.00	447885.68	686702.58	N 32 13 47.69	W 103 43 46.38
	11000.00	90.00	359.71	9022.00	1080.70	1087.71	1382.16	0.00	447985.67	686702.06	N 32 13 48.67	W 103 43 46.38
	11100.00	90.00	359.71	9022.00	1180.70	1187.71	1381.65	0.00	448085.66	686701.55	N 32 13 49.66	W 103 43 46.38
	11200.00	90.00	359.71	9022.00	1280.70	1287.71	1381.13	0.00	448185.66	686701.04	N 32 13 50.65	W 103 43 46.38
	11300.00	90.00	359.71	9022.00	1380.70	1387.71	1380.62	0.00	448285.65	686700.53	N 32 13 51.64	W 103 43 46.38
	11400.00	90.00	359.71	9022.00	1480.70	1487.70	1380.11	0.00	448385.64	686700.01	N 32 13 52.63	W 103 43 46.38
	11500.00	90.00	359.71	9022.00	1580.70	1587.70	1379.59	0.00	448485.64	686699.50	N 32 13 53.62	W 103 43 46.38
	11600.00	90.00	359.71	9022.00	1680.70	1687.70	1379.08	0.00	448585.63	686698.99	N 32 13 54.61	W 103 43 46.38
	11700.00	90.00	359.71	9022.00	1780.70	1787.70	1378.57	0.00	448685.62	686698.47	N 32 13 55.60	W 103 43 46.38
	11800.00	90.00	359.71	9022.00	1880.70	1887.70	1378.06	0.00	448785.62	686697.96	N 32 13 56.59	W 103 43 46.37
	11900.00	90.00	359.71	9022.00	1980.70	1987.70	1377.54	0.00	448885.61	686697.45	N 32 13 57.58	W 103 43 46.37
	12000.00	90.00	359.71	9022.00	2080.70	2087.70	1377.03	0.00	448985.60	686696.94	N 32 13 58.57	W 103 43 46.37
	12100.00	90.00	359.71	9022.00	2180.70	2187.70	1376.52	0.00	449085.60	686696.42	N 32 13 59.56	W 103 43 46.37
	12200.00	90.00	359.71	9022.00	2280.70	2287.69	1376.00	0.00	449185.59	686695.91	N 32 14 0.55	W 103 43 46.37
	12300.00	90.00	359.71	9022.00	2380.70	2387.69	1375.49	0.00	449285.58	686695.40	N 32 14 1.54	W 103 43 46.37
	12400.00	90.00	359.71	9022.00	2480.70	2487.69	1374.98	0.00	449385.58	686694.88	N 32 14 2.53	W 103 43 46.37
	12500.00	90.00	359.71	9022.00	2580.70	2587.69	1374.47	0.00	449485.57	686694.37	N 32 14 3.52	W 103 43 46.37
	12600.00	90.00	359.71	9022.00	2680.70	2687.69	1373.95	0.00	449585.56	686693.86	N 32 14 4.51	W 103 43 46.37
	12700.00	90.00	359.71	9022.00	2780.70	2787.69	1373.44	0.00	449685.56	686693.34	N 32 14 5.50	W 103 43 46.37
	12800.00	90.00	359.71	9022.00	2880.70	2887.69	1372.93	0.00	449785.55	686692.83	N 32 14 6.49	W 103 43 46.37
	12900.00	90.00	359.71	9022.00	2980.70	2987.69	1372.41	0.00	449885.54	686692.32	N 32 14 7.48	W 103 43 46.37
	13000.00	90.00	359.71	9022.00	3080.70	3087.68	1371.90	0.00	449985.54	686691.81	N 32 14 8.47	W 103 43 46.37
	13100.00	90.00	359.71	9022.00	3180.70	3187.68	1371.39	0.00	450085.53	686691.29	N 32 14 9.46	W 103 43 46.37
	13200.00	90.00	359.71	9022.00	3280.70	3287.68	1370.87	0.00	450185.52	686690.78	N 32 14 10.44	W 103 43 46.37
	13300.00	90.00	359.71	9022.00	3380.70	3387.68	1370.36	0.00	450285.52	686690.27	N 32 14 11.43	W 103 43 46.37
	13400.00	90.00	359.71	9022.00	3480.70	3487.68	1369.85	0.00	450385.51	686689.75	N 32 14 12.42	W 103 43 46.37
	13500.00	90.00	359.71	9022.00	3580.70	3587.68	1369.34	0.00	450485.50	686689.24	N 32 14 13.41	W 103 43 46.37
	13600.00	90.00	359.71	9022.00	3680.70	3687.68	1368.82	0.00	450585.50	686688.73	N 32 14 14.40	W 103 43 46.36
	13700.00	90.00	359.71	9022.00	3780.70	3787.67	1368.31	0.00	450685.49	686688.22	N 32 14 15.39	W 103 43 46.36
	13800.00	90.00	359.71	9022.00	3880.70	3887.67	1367.80	0.00	450785.48	686687.70	N 32 14 16.38	W 103 43 46.36
	13900.00	90.00	359.71	9022.00	3980.70	3987.67	1367.28	0.00	450885.48	686687.19	N 32 14 17.37	W 103 43 46.36
	14000.00	90.00	359.71	9022.00	4080.70	4087.67	1366.77	0.00	450985.47	686686.68	N 32 14 18.36	W 103 43 46.36
	14100.00	90.00	359.71	9022.00	4180.70	4187.67	1366.26	0.00	451085.46	686686.16	N 32 14 19.35	W 103 43 46.36
	14200.00	90.00	359.71	9022.00	4280.70	4287.67	1365.74	0.00	451185.46	686685.65	N 32 14 20.34	W 103 43 46.36
	14300.00	90.00	359.71	9022.00	4380.70	4387.67	1365.23	0.00	451285.45	686685.14	N 32 14 21.33	W 103 43 46.36
	14400.00	90.00	359.71	9022.00	4480.70	4487.67	1364.72	0.00	451385.44	686684.63	N 32 14 22.32	W 103 43 46.36
	14500.00	90.00	359.71	9022.00	4580.70	4587.66	1364.21	0.00	451485.44	686684.11	N 32 14 23.31	W 103 43 46.36
	14600.00	90.00	359.71	9022.00	4680.70	4687.66	1363.69	0.00	451585.43	686683.60	N 32 14 24.30	W 103 43 46.36
	14700.00	90.00	359.71	9022.00	4780.70	4787.66	1363.18	0.00	451685.42	686683.09	N 32 14 25.29	W 103 43 46.36
	14800.00	90.00	359.71	9022.00	4880.70	4887.66	1362.67	0.00	451785.42	686682.57	N 32 14 26.28	W 103 43 46.36
	14900.00	90.00	359.71	9022.00	4980.70	4987.66	1362.15	0.00	451885.41	686682.06	N 32 14 27.27	W 103 43 46.36
	15000.00	90.00	359.71	9022.00	5080.70	5087.66	1361.64	0.00	451985.40	686681.55	N 32 14 28.26	W 103 43 46.36
	15100.00	90.00	359.71	9022.00	5180.70	5187.66	1361.13	0.00	452085.40	686681.03	N 32 14 29.25	W 103 43 46.36
	15200.00	90.00	359.71	9022.00	5280.70	5287.65	1360.62	0.00	452185.39	686680.52	N 32 14 30.24	W 103 43 46.36
	15300.00	90.00	359.71	9022.00	5380.70	5387.65	1360.10	0.00	452285.38	686680.01	N 32 14 31.23	W 103 43 46.35
	15400.00	90.00	359.71	9022.00	5480.70	5487.65	1359.59	0.00	452385.38	686679.50	N 32 14 32.21	W 103 43 46.35
	15500.00	90.00	359.71	9022.00	5580.70	5587.65	1359.08	0.00	452485.37	686678.98	N 32 14 33.20	W 103 43 46.35
	15600.00	90.00	359.71	9022.00	5680.70	5687.65	1358.56	0.00	452585.36	686678.47	N 32 14 34.19	W 103 43 46.35
	15700.00	90.00	359.71	9022.00	5780.70	5787.65	1358.05	0.00	452685.36	686677.96	N 32 14 35.18	W 103 43 46.35
	15800.00	90.00	359.71	9022.00	5880.70	5887.65	1357.54	0.00	452785.35	686677.44	N 32 14 36.17	W 103 43 46.35
	15900.00	90.00	359.71	9022.00	5980.70	5987.65	1357.02	0.00	452885.34	686676.93	N 32 14 37.16	W 103 43 46.35
	16000.00	90.00	359.71	9022.00	6080.70	6087.64	1356.51	0.00	452985.34	686676.42	N 32 14 38.15	W 103 43 46.35
	16100.00	90.00	359.71	9022.00	6180.70	6187.64	1356.00	0.00	453085.33	686675.91	N 32 14 39.14	W 103 43 46.35
	16200.00	90.00	359.71	9022.00	6280.70	6287.64	1355.49	0.00	453185.32	686675.39	N 32 14 40.13	W 103 43 46.35
	16300.00	90.00	359.71	9022.00	6380.70	6387.64	1354.97	0.00	453285.32	686674.88	N 32 14 41.12	W 103 43 46.35
	16400.00	90.00	359.71	9022.00	6480.70	6487.64	1354.46	0.00	453385.31	686674.37	N 32 14 42.11	W 103 43 46.35
	16500.00	90.00	359.71	9022.00	6580.70	6587.64	1353.95	0.00	453485.30	686673.85	N 32 14 43.10	W 103 43 46.35
	16600.00	90.00	359.71	9022.00	6680.70	6687.64	1353.43	0.00	453585.30	686673.34	N 32 14 44.09	W 103 43 46.35
	16700.00	90.00	359.71	9022.00	6780.70	6787.64	1352.92	0.00	453685.29	686672.83	N 32 14 45.08	W 103 43 46.35
	16800.00	90.00	359.71	9022.00	6880.70	6887.63	1352.41	0.00	453785.28	686672.31	N 32 14 46.07	W 103 43 46.35
	16900.00	90.00	359.71	9022.00	6980.70	6987.63	1351.90	0.00	453885.28	686671.80	N 32 14 47.06	W 103 43 46.35
	17000.00	90.00	359.71	9022.00	7080.70	7087.63	1351.38	0.00	453985.27	686671.29	N 32 14 48.05	W 103 43 46.35
	17100.00	90.00	359.71	9022.00	7180.70	7187.63	1350.87	0.00	454085.26	686670.78	N 32 14 49.04	W 103 43 46.34
	17200.00	90.00	359.71	9022.00	7280.70	7287.63	1350.36	0.00	454185.26	686670.26	N 32 14 50.03	W 103 43 46.34
	17300.00	90.00	359.71	9022.00	7380.70	7387.63	1349.84	0.00	454285.25	686669.75	N 32 14 51.02	W 103 43 46.34
	17400.00	90.00	359.71	9022.00	7480.70	7487.63	1349.33	0.00	454385.24	686669.24	N 32 14 52.01	W 103 43 46.34
	17500.00	90.00	359.71	9022.00	7580.70	7587.62	1348.82	0.00	454485.24	686668.72	N 32 14 52.99	W 103 43 46.34
	17600.00	90.00	359.71	9022.00	7680.70	7687.62	1348.30	0.00	454585.23	686668.21	N 32 14 53.98	W 103 43 46.34
	17700.00	90.00	359.71	9022.00	7780.70	7787.62	1347.79	0.00	454685.22	686667.70	N 32 14 54.97	W 103 43 46.34
	17800.00	90.00	359.71	9022.00	7880.70	7887.62	1347.28	0.00	454785.22	686667.19	N 32 14 55.96	W 103 43 46.34
	17900.00	90.00	359.71	9022.00	7980.70	7987.62	1346.77	0.00	454885.21	686666.67	N 32 14 56.95	W 103 43 46.34
	18000.00	90.00	359.71	9022.00	8080.70	8087.62	1346.25	0.00	454985.20	686666.16	N 32 14 57.94	W 103 43 46.34

Comments	MD (ft)	Incl (°)	Azim Grid (°)	TVD (ft)	VSEC (ft)	NS (ft)	EW (ft)	DLS (°/100ft)	Northing (ftUS)	Easting (ftUS)	Latitude (N/S ° ' ")	Longitude (E/W ° ' ")
	18100.00	90.00	359.71	9022.00	8180.70	8187.62	1345.74	0.00	455085.20	686665.65	N 32 14 58.93	W 103 43 46.34
	18200.00	90.00	359.71	9022.00	8280.70	8287.62	1345.23	0.00	455185.19	686665.13	N 32 14 59.92	W 103 43 46.34
	18300.00	90.00	359.71	9022.00	8380.70	8387.61	1344.71	0.00	455285.18	686664.62	N 32 15 0.91	W 103 43 46.34
	18400.00	90.00	359.71	9022.00	8480.70	8487.61	1344.20	0.00	455385.18	686664.11	N 32 15 1.90	W 103 43 46.34
	18500.00	90.00	359.71	9022.00	8580.70	8587.61	1343.69	0.00	455485.17	686663.60	N 32 15 2.89	W 103 43 46.34
	18600.00	90.00	359.71	9022.00	8680.70	8687.61	1343.17	0.00	455585.16	686663.08	N 32 15 3.88	W 103 43 46.34
	18700.00	90.00	359.71	9022.00	8780.70	8787.61	1342.66	0.00	455685.16	686662.57	N 32 15 4.87	W 103 43 46.34
	18800.00	90.00	359.71	9022.00	8880.70	8887.61	1342.15	0.00	455785.15	686662.06	N 32 15 5.86	W 103 43 46.33
	18900.00	90.00	359.71	9022.00	8980.70	8987.61	1341.64	0.00	455885.14	686661.54	N 32 15 6.85	W 103 43 46.33
	19000.00	90.00	359.71	9022.00	9080.70	9087.60	1341.12	0.00	455985.14	686661.03	N 32 15 7.84	W 103 43 46.33
	19100.00	90.00	359.71	9022.00	9180.70	9187.60	1340.61	0.00	456085.13	686660.52	N 32 15 8.83	W 103 43 46.33
	19200.00	90.00	359.71	9022.00	9280.70	9287.60	1340.10	0.00	456185.12	686660.00	N 32 15 9.82	W 103 43 46.33
	19300.00	90.00	359.71	9022.00	9380.70	9387.60	1339.58	0.00	456285.12	686659.49	N 32 15 10.81	W 103 43 46.33
Chevron SND 12 01 FED 002 4H - BHL	19397.71	90.00	359.71	9022.00	9478.41	9485.30	1339.08	0.00	456382.82	686658.99	N 32 15 11.77	W 103 43 46.33

Survey Type: Def Plan

Survey Error Model: ISCWSA Rev 3 *** 3-D 97.071% Confidence 3.0000 sigma
Survey Program:

Description	Part	MD From (ft)	MD To (ft)	EOU Freq (ft)	Hole Size (in)	Casing Diameter (in)	Expected Max Inclination (deg)	Survey Tool Type	Borehole / Survey
	1	0.000	28.000	1/100.000	30.000	30.000		B001Ma_MWD+HDGM-Depth Only	Chevron SND 12 01 FED 002 4H / Chevron SND 12 01 FED 002 4H Rev1 APS 11Dec18
	1	28.000	19397.705	1/100.000	30.000	30.000		B001Ma_MWD+HDGM	Chevron SND 12 01 FED 002 4H / Chevron SND 12 01 FED 002

Chevron U.S.A. Inc. (CUSA)
SUNDRY ATTACHMENT: SPUDDER RIG

DATA OPERATOR NAME: Chevron U.S.A. Inc.

1. SUMMARY OF REQUEST:

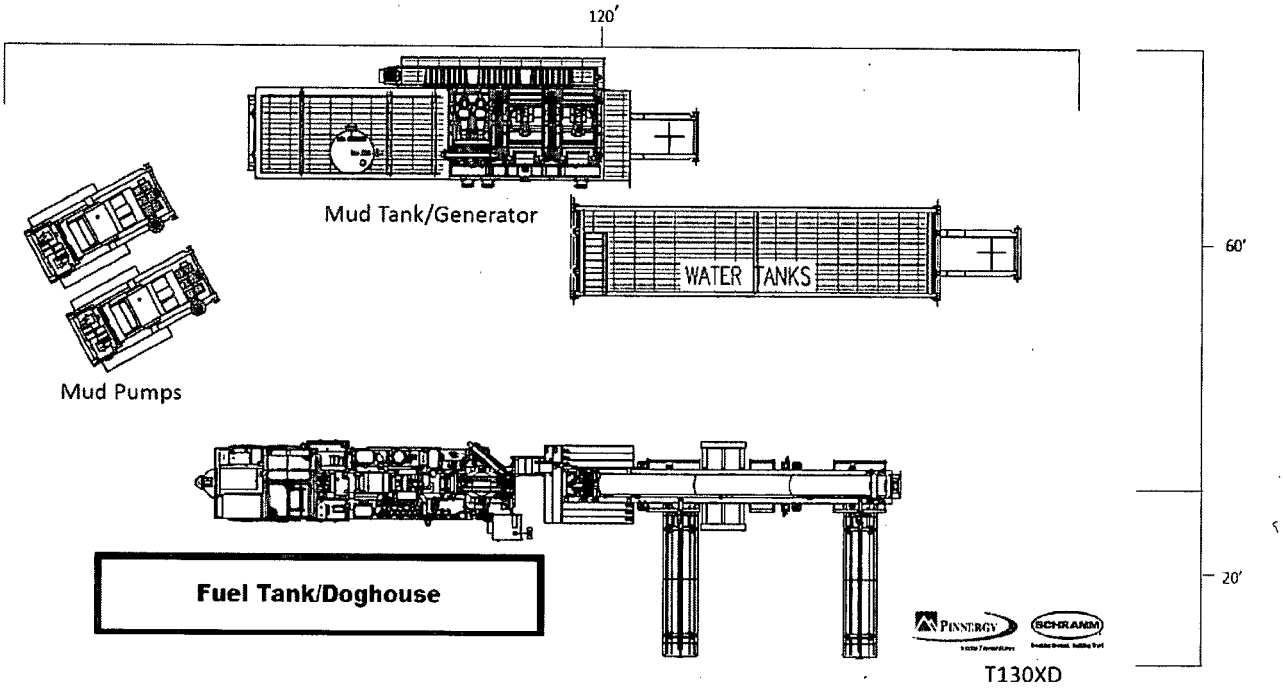
CUSA respectfully requests approval for the following operations for the surface hole in the drill plan:

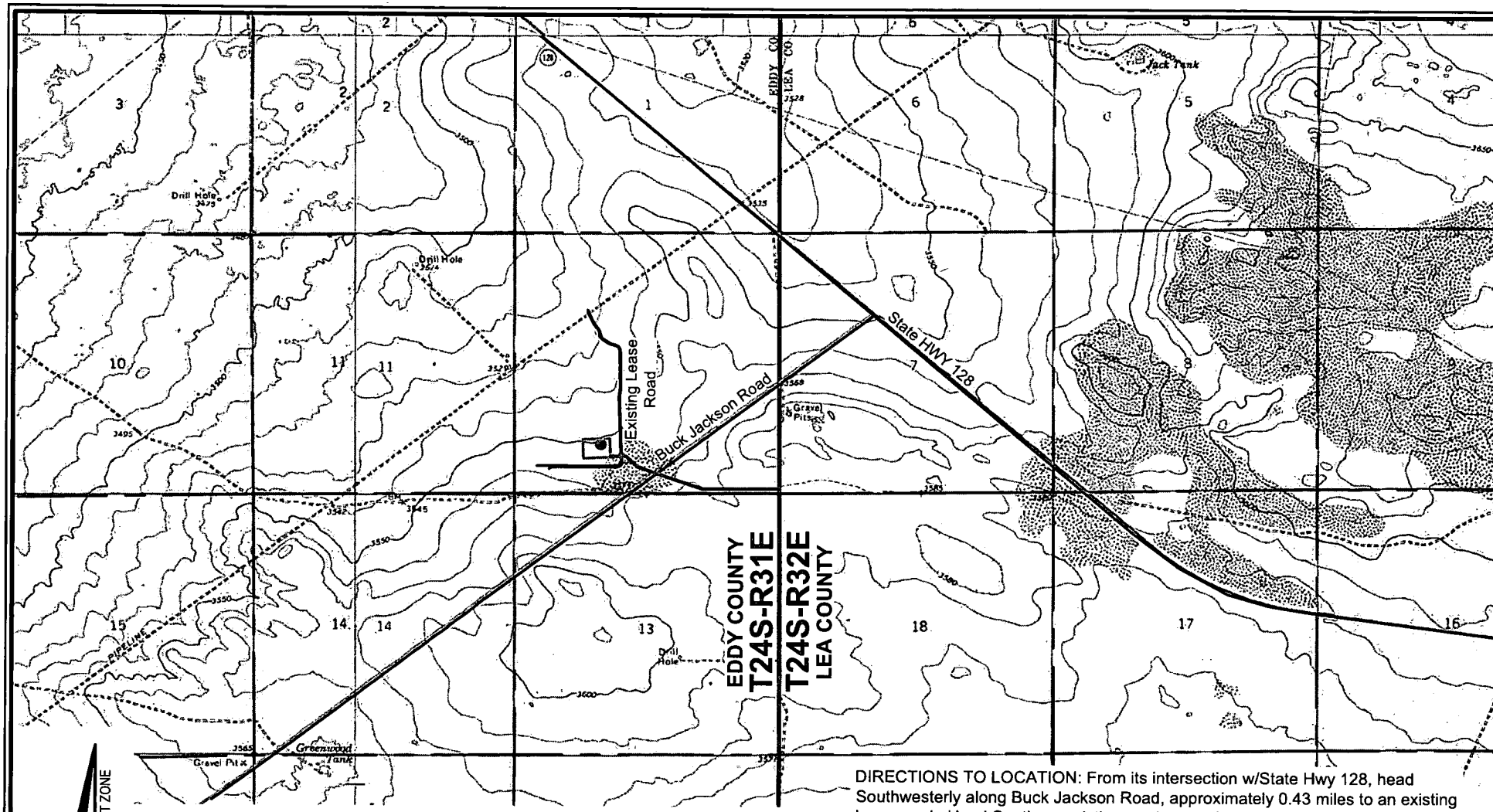
1. Utilize a spudder rig to pre-set surface casing for time and cost savings.

2. Description of Operations

1. Spudder rig will move in to drill the surface hole and pre-set surface casing on the well.
    a. After drilling the surface hole section, the spudder rig will run casing and cement following all the applicable rules and regulations (OnShore Order 2, all COAs and NMOCD regulations).
    b. The spudder rig will utilize fresh water-based mud to drill the surface hole to TD. Solids control will be handled entirely on a closed loop basis. No earth pits will be used.
2. The wellhead will be installed and then tested offline after the WOC time has been reached.
3. An abandonment cap at the same pressure rating as the wellhead will be installed to seal the wellbore. Pressure will be monitored with needle valves installed on one wing-valve.
    a. A means for intervention will be maintained while the drilling rig is not over the well.
4. Spudder rig operations are expected to take 2-3 days per well on the pad.
5. The BLM will be contacted and notified 24 hours prior to commencing spudder rig operations.
6. Drilling operations will begin with a larger rig and a BOP stack equal to or greater than the pressure rating that was permitted will be nippled up and tested on the wellhead before drilling operations resume on each well.
    a. The larger rig will move back onto the location within 90 days from the point at which the wells are secured and the spudder rig is moved off location.
    b. The BLM will be contacted / notified 24 hours before the larger rig moves back on the pre-set locations.
7. CUSA will have supervision on the rig to ensure compliance with all BLM and NMOCD regulations and to oversee operations.
8. Once the rig is removed, CUSA will secure the wellhead area by placing a guard rail around the cellar area.

Surface Rig Layout





NAD 27 NEW MEXICO EAST ZONE

LEGEND

- Proposed Well
- Proposed Access Road
- Proposed Drillsite
- Existing Road
- Section Line

Scale: 1" = 3,000'

3,000' 0 1,500' 3,000'

FOR THE EXCLUSIVE USE OF CHEVRON U.S.A. INC.

I, Robert L. Lastrapes, Professional Surveyor, do hereby state this plat is true and correct to the best of my knowledge.

ROBERT L. LASTRAPES NEW MEXICO 01/28/2019 23006 PROFESSIONAL SURVEYOR

Robert L. Lastrapes
Registration No. 23006

DIRECTIONS TO LOCATION: From its intersection w/State Hwy 128, head Southwesterly along Buck Jackson Road, approximately 0.43 miles to an existing lease road. Head South on existing road approximately 0.41 miles to the access entrance on the West side of the road.

ROAD PLAT

CHEVRON U.S.A. INC.

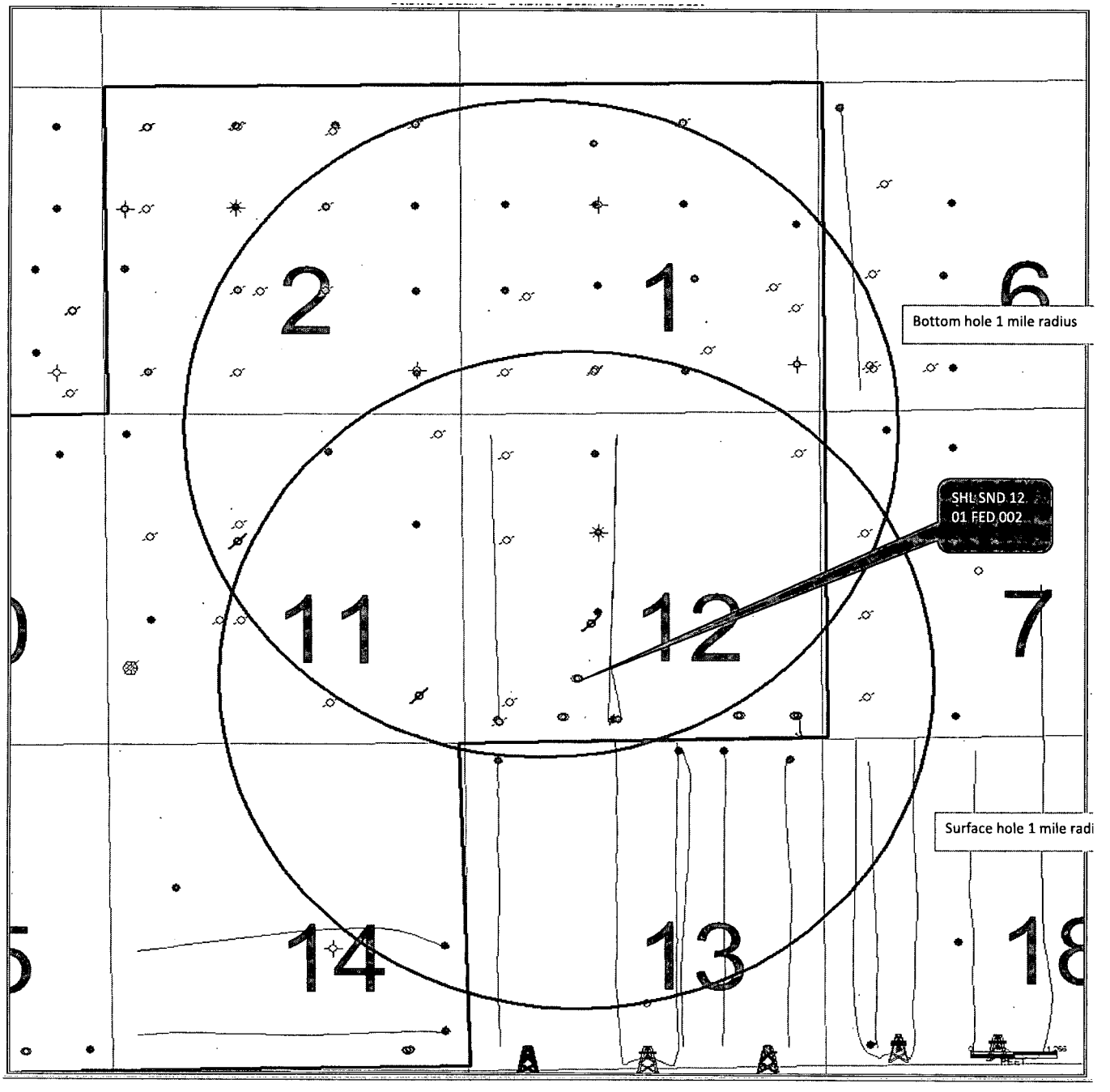
SND 12 01 FED 002 NO. 4H WELL
LOCATED 985' FSL & 1715' FWL
SECTION 12, T24S-R31E
EDDY COUNTY, NEW MEXICO

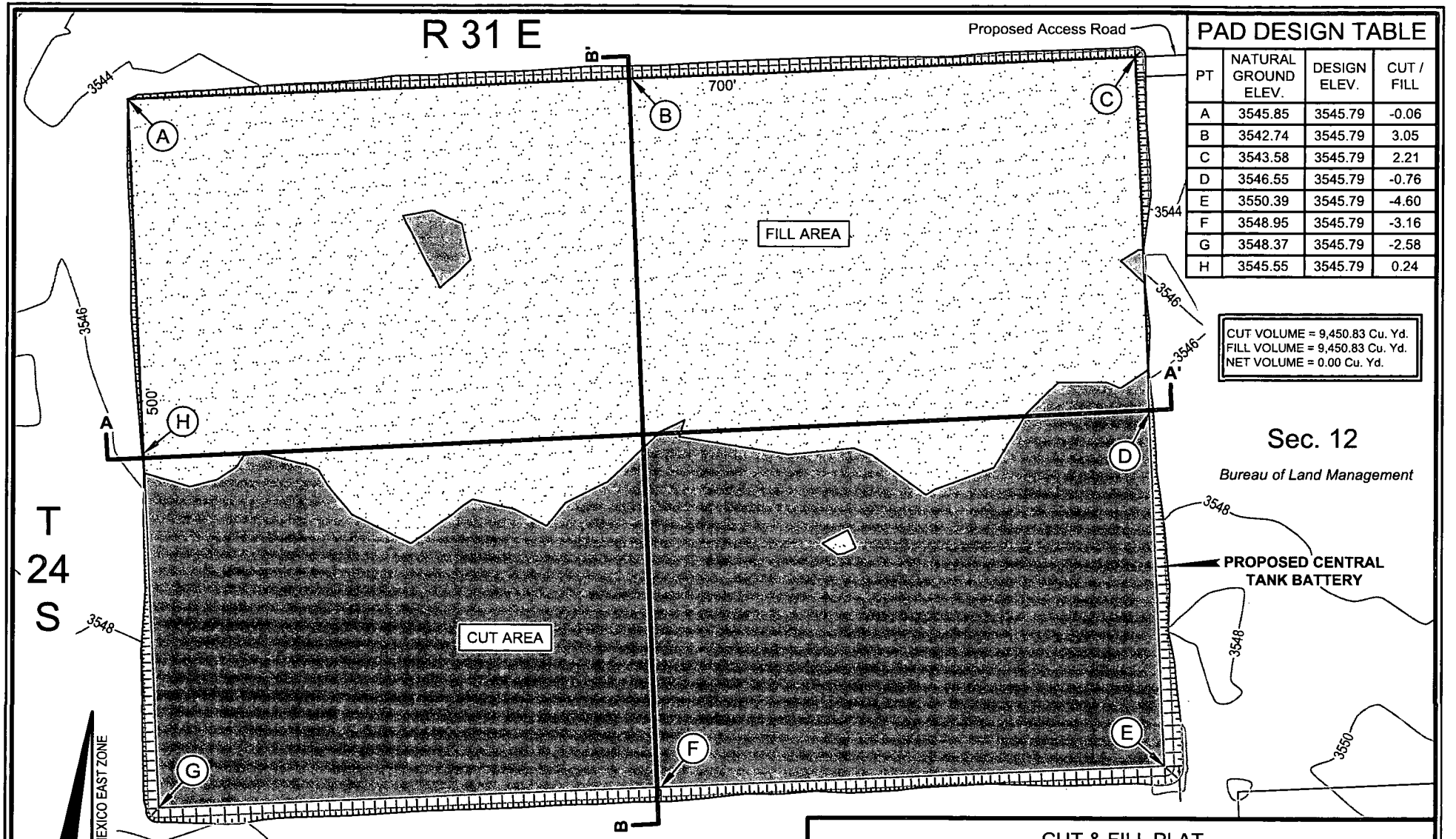
	REVISIONS			
DRAWN BY: VHV	#	BY:	DATE:	DESCRIPTION:
PROJ. MGR.: VHV				
DATE: 01/28/2019				

FILENAME: T:\2017\2176260\DWG\SND 12 01 Fed 002 4H_Road Plat.dwg

FENSTERMAKER

C. H. Fenstermaker & Associates, L.L.C.
135 Regency Sq. Lafayette, LA 70508
Ph. 337-237-2200 Fax. 337-232-3299
www.fenstermaker.com


2
1
6
11
12
7
14
13
18
Bottom hole 1 mile radius
SHL SND 12
01 FED 002
Surface hole 1 mile radi



PAD DESIGN TABLE

PT	NATURAL GROUND ELEV.	DESIGN ELEV.	CUT / FILL
A	3545.85	3545.79	-0.06
B	3542.74	3545.79	3.05
C	3543.58	3545.79	2.21
D	3546.55	3545.79	-0.76
E	3550.39	3545.79	-4.60
F	3548.95	3545.79	-3.16
G	3548.37	3545.79	-2.58
H	3545.55	3545.79	0.24

CUT VOLUME = 9,450.83 Cu. Yd.
FILL VOLUME = 9,450.83 Cu. Yd.
NET VOLUME = 0.00 Cu. Yd.

FOR THE EXCLUSIVE USE OF
CHEVRON U.S.A. INC.
I, Robert L. Lastrapes, Professional Surveyor, do hereby state this plat is true and correct to the best of my knowledge.

ROBERT L. LASTRAPES
NEW MEXICO
06/28/2018
23006
PROFESSIONAL SURVEYOR

Robert L. Lastrapes
Registration No. 23006

FENSTERMAKER
C. H. Fenstermaker & Associates, L.L.C.
135 Regency Sq. Lafayette, LA 70508
Ph. 337-237-2200 Fax. 337-232-3299
www.fenstermaker.com

CUT & FILL PLAT

CHEVRON U.S.A. INC.

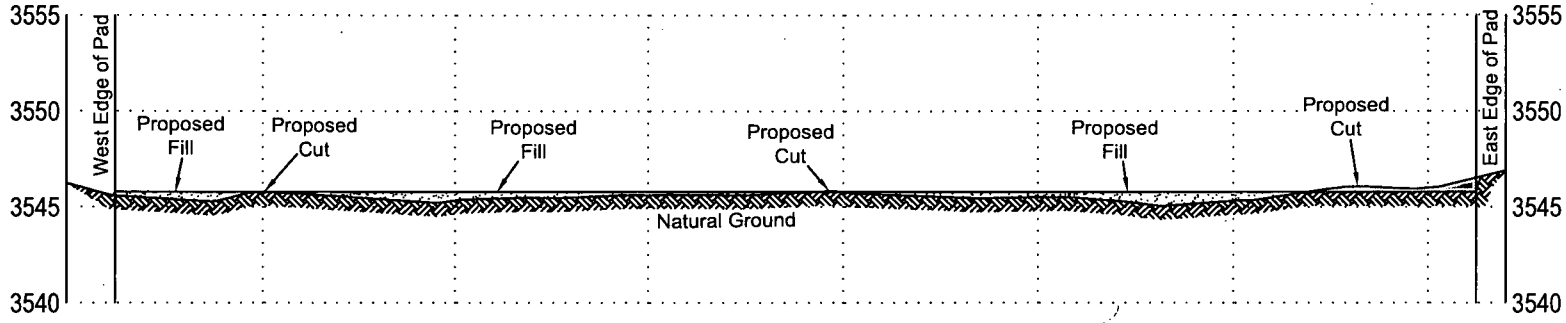
PROPOSED SAND DUNES
CENTRAL TANK BATTERY
SECTION 12, T24S-R31E
EDDY COUNTY, NEW MEXICO

	REVISIONS			
DRAWN BY: DMB	#	BY:	DATE:	DESCRIPTION:
PROJ. MGR.: VHV				
DATE: 06/26/2018				

FILENAME: T:\2017\2176483\DWG\Sand Dunes Sec 12 CTB_Cut & Fill.dwg

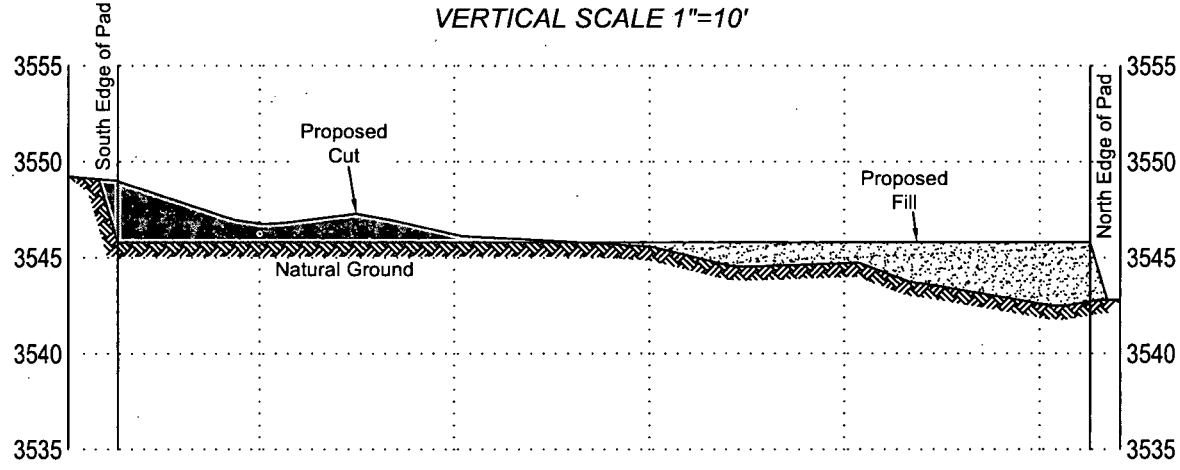
CROSS SECTION A-A'

HORIZONTAL SCALE 1"=100'
VERTICAL SCALE 1"=10'



CROSS SECTION B-B'

HORIZONTAL SCALE 1"=100'
VERTICAL SCALE 1"=10'



FOR THE EXCLUSIVE USE OF
CHEVRON U.S.A. INC.
I, Robert L. Lastrapes, Professional Surveyor, do hereby state this plat is true and correct to the best of my knowledge.

ROBERT L. LASTRAPES
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06/28/2018
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www.fenstermaker.com

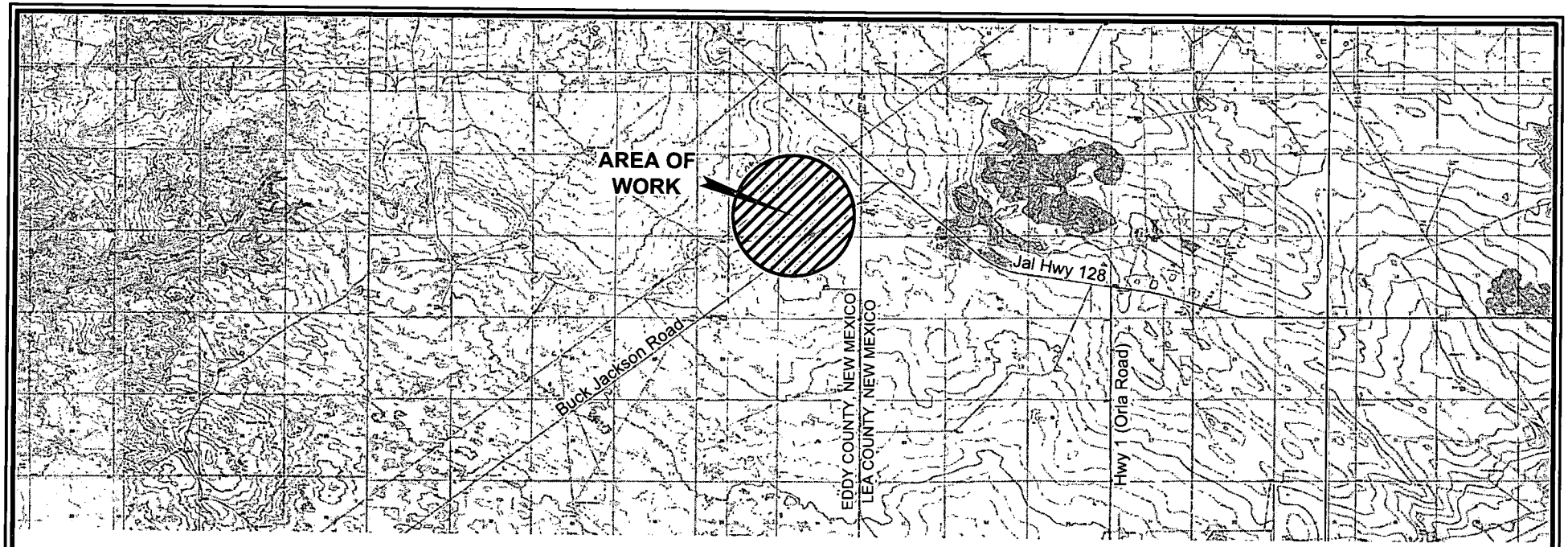
CUT & FILL PLAT

CHEVRON U.S.A. INC.

PROPOSED SAND DUNES
CENTRAL TANK BATTERY
SECTION 12, T24S-R31E
EDDY COUNTY, NEW MEXICO

	REVISIONS			
DRAWN BY: DMB	#	BY:	DATE:	DESCRIPTION:
PROJ. MGR.: VHV				
DATE: 06/26/2018				

FILENAME: T:\2017\2176483\DWG\Sand Dunes Sec 12 CTB_Cut & Fill.dwg



NOTE:

1. Many states maintain information centers that establish links between those who dig (excavators) and those who own and operate underground facilities (operators). It is advisable and in most states, law, for the contractor to contact the center for assistance in locating and marking underground utilities. For guidance: New Mexico One Call www.nmonecall.org.

2. The design pad elevation recommendation is based solely on a cut and fill (1:1 ratio) balance of the pad and does not include material required for the access roads. A detailed soil test and slope stability analysis shall be performed prior to construction to ensure proper compaction and working performance of the pad under the anticipated loadings. This material balance sheet does not constitute a foundation design and C. H. Fenstermaker & Associates, L.L.C. makes no warranty to the structural integrity of the site layout as shown. Fenstermaker also makes no recommendation or warranty about the layout relative to flood hazards, erosion control, or soil stability issues. Elevations refer to the North American Vertical Datum of 1988.

3.Please be advised, that while reasonable efforts are made to locate and verify pipelines and anomalies using our standard pipeline locating equipment, it is impossible to be 100 % effective. As such, we advise using caution when performing work as there is a possibility that pipelines and other hazards, such as fiber optic cables, PVC pipelines, etc. may exist undetected on site.

NAD 27 NEW MEXICO EAST ZONE

DISCLAIMER: At this time, C. H. Fenstermaker & Associates, L.L.C. has not performed nor was asked to perform any type of engineering, hydrological modeling, flood plain, or "No Rise" certification analyses, including but not limited to determining whether the project will impact flood hazards in connection with federal/FEMA, state, and/or local laws, ordinances and regulations. Accordingly, Fenstermaker makes no warranty or representation of any kind as to the foregoing issues, and persons or entities using this information shall do so at their own risk.

Scale: 1" = 10,000'

10,000' 0 5,000' 10,000'

FOR THE EXCLUSIVE USE OF CHEVRON U.S.A. INC.

I, Robert L. Lastrapes, Professional Surveyor, do hereby state this plat is true and correct to the best of my knowledge.

ROBERT L. LASTRAPES NEW MEXICO 06/28/2018 23006 PROFESSIONAL SURVEYOR

Robert L. Lastrapes
Registration No. 23006

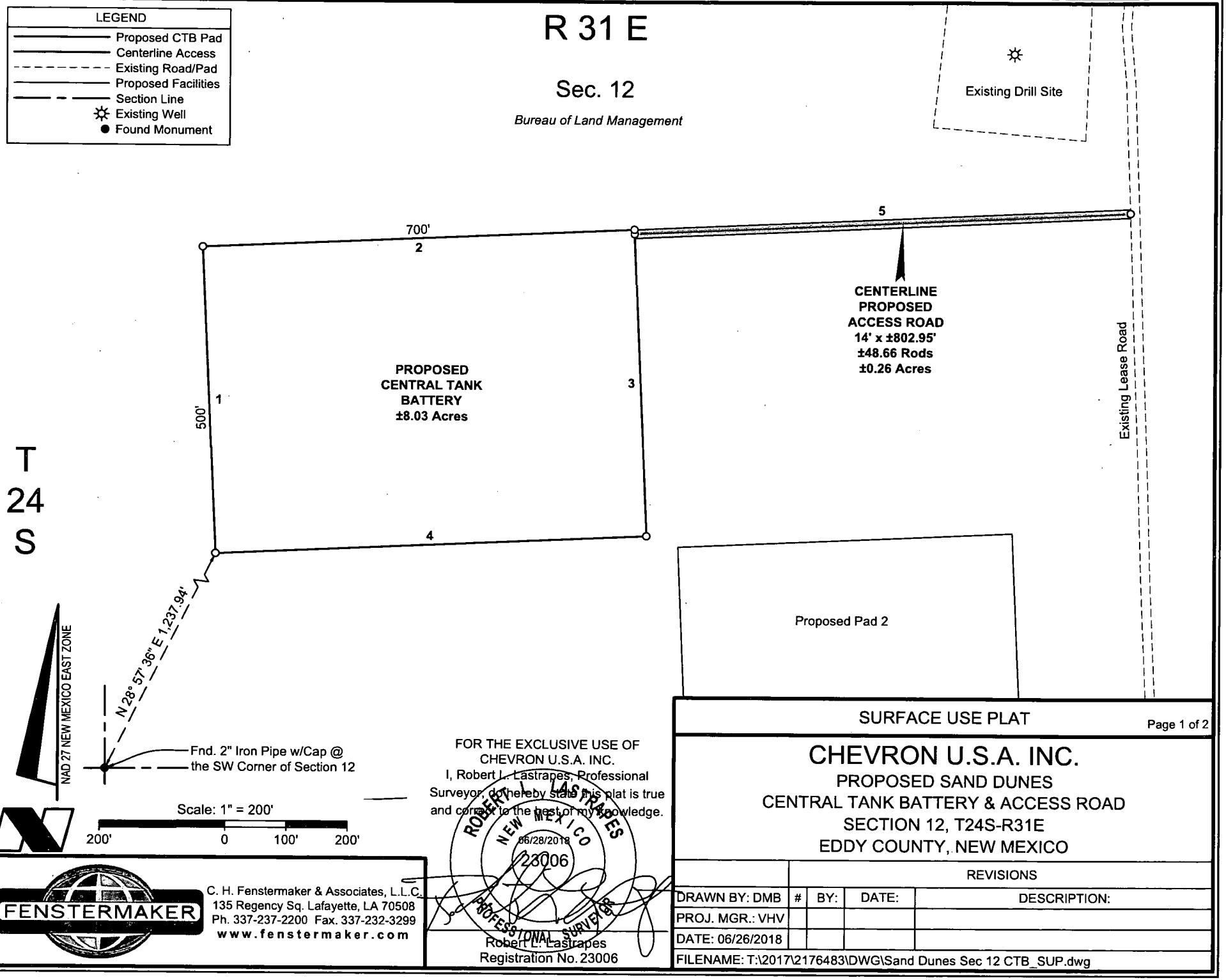
FENSTERMAKER
C. H. Fenstermaker & Associates, L.L.C.
135 Regency Sq. Lafayette, LA 70508
Ph. 337-237-2200 Fax. 337-232-3299
www.fenstermaker.com

CUT & FILL PLAT

CHEVRON U.S.A. INC.

PROPOSED SAND DUNES CENTRAL TANK BATTERY SECTION 12, T24S-R31E EDDY COUNTY, NEW MEXICO

	REVISIONS			
DRAWN BY: DMB	#	BY:	DATE:	DESCRIPTION:
PROJ. MGR.: VHV				
DATE: 06/26/2018				
FILENAME: T:\2017\2176483\DWG\Sand Dunes Sec 12 CTB_Cut & Fill.dwg				


LEGEND
Proposed CTB Pad
Centerline Access
Existing Road/Pad
Proposed Facilities
Section Line
Existing Well
Found Monument
R 31 E
Sec. 12
Bureau of Land Management
Existing Drill Site
5
700'
2
CENTERLINE
PROPOSED
ACCESS ROAD
14' x ±802.95'
±48.66 Rods
±0.26 Acres
Existing Lease Road
PROPOSED
CENTRAL TANK
BATTERY
±8.03 Acres
500'
1
3
4
T
24
S
N 28° 57' 36" E 1,237.94'
Proposed Pad 2
NAD 27 NEW MEXICO EAST ZONE
Fnd. 2" Iron Pipe w/Cap @
the SW Corner of Section 12
Scale: 1" = 200'
200' 0 100' 200'
FOR THE EXCLUSIVE USE OF
CHEVRON U.S.A. INC.
I, Robert L. Lastrapes, Professional
Surveyor, do hereby state this plat is true
and correct to the best of my knowledge.
ROBERT L. LASTRAPES
NEW MEXICO
06/28/2018
23006
PROFESSIONAL SURVEYOR
Robert L. Lastrapes
Registration No. 23006
FENSTERMAKER
C. H. Fenstermaker & Associates, L.L.C.
135 Regency Sq. Lafayette, LA 70508
Ph. 337-237-2200 Fax. 337-232-3299
www.fenstermaker.com
SURFACE USE PLAT
Page 1 of 2
CHEVRON U.S.A. INC.
PROPOSED SAND DUNES
CENTRAL TANK BATTERY & ACCESS ROAD
SECTION 12, T24S-R31E
EDDY COUNTY, NEW MEXICO
REVISIONS
DRAWN BY: DMB
PROJ. MGR.: VHV
DATE: 06/26/2018
BY: DATE: DESCRIPTION:
FILENAME: T:\2017\2176483\DWG\Sand Dunes Sec 12 CTB_SUP.dwg

DISCLAIMER: At this time, C. H. Fenstermaker & Associates, L.L.C. has not performed nor was asked to perform any type of engineering, hydrological modeling, flood plain, or "No Rise" certification analyses, including but not limited to determining whether the project will impact flood hazards in connection with federal/FEMA, state, and/or local laws, ordinances and regulations. Accordingly, Fenstermaker makes no warranty or representation of any kind as to the foregoing issues, and persons or entities using this information shall do so at their own risk.

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NOTE:
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NW CTB CORNER			NE CTB CORNER		
X=	684,188	NAD 27	X=	684,887	NAD 27
Y=	447,488		Y=	447,520	
LAT.	32.228858 N		LAT.	32.228934 N	
LONG.	103.737690 W		LONG.	103.735428 W	
X=	725,372	NAD83/2011	X=	726,071	NAD83/2011
Y=	447,547		Y=	447,578	
LAT.	32.228981 N		LAT.	32.229057 N	
LONG.	103.738173 W		LONG.	103.735911 W	
ELEVATION +3546' NAVD 88			ELEVATION +3544' NAVD 88		
SW CTB CORNER			SE CTB CORNER		
X=	684,210	NAD 27	X=	684,910	NAD 27
Y=	446,988		Y=	447,020	
LAT.	32.227484 N		LAT.	32.227561 N	
LONG.	103.737626 W		LONG.	103.735364 W	
X=	725,394	NAD83/2011	X=	726,093	NAD83/2011
Y=	447,047		Y=	447,079	
LAT.	32.227608 N		LAT.	32.227684 N	
LONG.	103.738109 W		LONG.	103.735847 W	
ELEVATION +3548' NAVD 88			ELEVATION +3550' NAVD 88		

PROPOSED CENTRAL TANK BATTERY		
COURSE	BEARING	DISTANCE
1	N 02° 35' 27" W	500.00'
2	N 87° 24' 33" E	700.00'
3	S 02° 35' 27" E	500.00'
4	S 87° 24' 33" W	700.00'

CENTERLINE PROPOSED ACCESS ROAD		
COURSE	BEARING	DISTANCE
5	N 87° 24' 33" E	802.95'

FOR THE EXCLUSIVE USE OF
CHEVRON U.S.A. INC.
I, Robert L. Lastrapes, Professional Surveyor, do hereby state this plat is true and correct to the best of my knowledge.

ROBERT L. LASTRAPES
NEW MEXICO
06/28/2018
23006
PROFESSIONAL SURVEYOR

Robert L. Lastrapes
Registration No. 23006

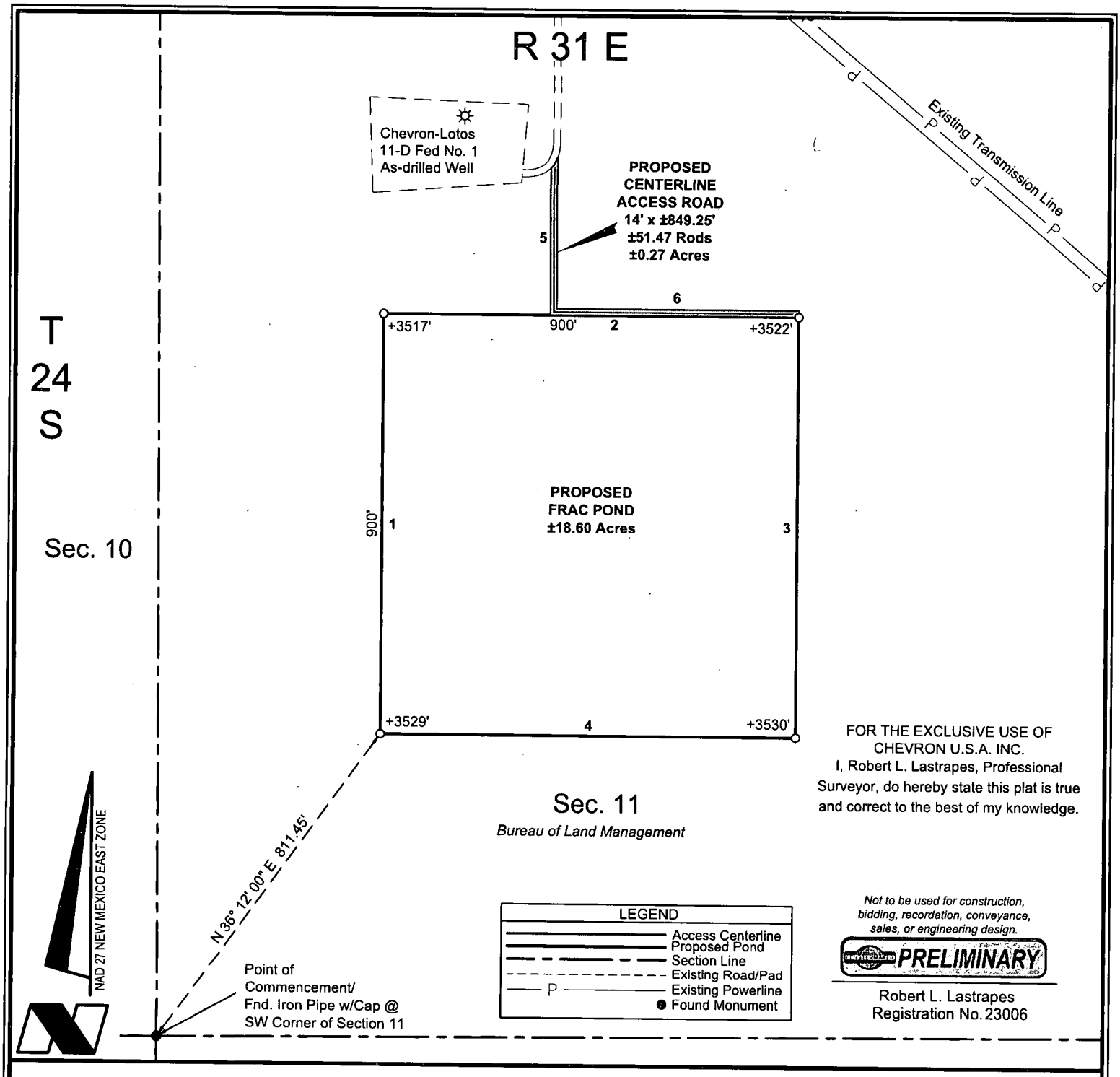
FENSTERMAKER
C. H. Fenstermaker & Associates, L.L.C.
135 Regency Sq. Lafayette, LA 70508
Ph. 337-237-2200 Fax. 337-232-3299
www.fenstermaker.com

SURFACE USE PLAT

CHEVRON U.S.A. INC.

PROPOSED SAND DUNES
CENTRAL TANK BATTERY & ACCESS ROAD
SECTION 12, T24S-R31E
EDDY COUNTY, NEW MEXICO

	REVISIONS			
DRAWN BY: DMB	#	BY:	DATE:	DESCRIPTION:
PROJ. MGR.: VHV				
DATE: 06/26/2018				
FILENAME: T:\2017\2176483\DWG\Sand Dunes Sec 12 CTB_SUP.dwg				



PAGE 1 OF 2

SURFACE USE PLAT

Scale: 1" = 300'

300' 0 150' 300'

CHEVRON U.S.A. INC.

PROPOSED
SAND DUNES FRAC POND & ACCESS ROAD
SECTION 11, T24S-R31E
EDDY COUNTY, NEW MEXICO

FENSTERMAKER
C. H. Fenstermaker & Associates, L.L.C.
135 Regency Sq. Lafayette, LA 70508
Ph. 337-237-2200 Fax. 337-232-3299
www.fenstermaker.com

	REVISIONS			
DRAWN BY: DMB	#	BY:	DATE:	DESCRIPTION:
PROJ. MGR.: VHV	1	DMB	10/31/2017	Added Proposed Access Road
DATE: 09/25/2017				
FILENAME: T:\2017\2176483\DWG\Sand Dunes Frac Pond_Sec 11_SUP.dwg				

DISCLAIMER: At this time, C. H. Fenstermaker & Associates, L.L.C. has not performed nor was asked to perform any type of engineering, hydrological modeling, flood plain, or "No Rise" certification analyses, including but not limited to determining whether the project will impact flood hazards in connection with federal/FEMA, state, and/or local laws, ordinances and regulations. Accordingly, Fenstermaker makes no warranty or representation of any kind as to the foregoing issues, and persons or entities using this information shall do so at their own risk.

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NW FRAC POND CORNER		NE FRAC POND CONER	
X=	678,804 NAD 27	X=	679,704 NAD 27
Y=	447,428	Y=	447,428
LAT.	32.228775	LAT.	32.228762
LONG.	103.755101	LONG.	103.752191
X=	719,988 NAD83	X=	720,888 NAD83
Y=	447,487	Y=	447,487
LAT.	32.228898	LAT.	32.228885
LONG.	103.755584	LONG.	103.752674
ELEVATION +3517' NAVD 88		ELEVATION +3522' NAVD 88	
SW FRAC POND CORNER		SE FRAC POND CORNER	
X=	678,804 NAD 27	X=	679,704 NAD 27
Y=	446,528	Y=	446,528
LAT.	32.226301	LAT.	32.226288
LONG.	103.755117	LONG.	103.752207
X=	719,988 NAD83	X=	720,888 NAD83
Y=	446,587	Y=	446,587
LAT.	32.226424	LAT.	32.226411
LONG.	103.755600	LONG.	103.752689
ELEVATION +3529' NAVD 88		ELEVATION +3530' NAVD 88	

FOR THE EXCLUSIVE USE OF
CHEVRON U.S.A. INC.
I, Robert L. Lastrapes, Professional Surveyor, do hereby state this plat is true and correct to the best of my knowledge.

Not to be used for construction, bidding, recordation, conveyance, sales, or engineering design.

PRELIMINARY

Robert L. Lastrapes
Registration No. 23006

PROPOSED FRAC POND		
COURSE	BEARING	DISTANCE
1	NORTH	900.00'
2	EAST	900.00'
3	SOUTH	900.00'
4	WEST	900.00'

CENTERLINE PROPOSED ACCESS ROAD		
COURSE	BEARING	DISTANCE
5	S 00° 24' 44" E	317.38'
6	EAST	531.87'

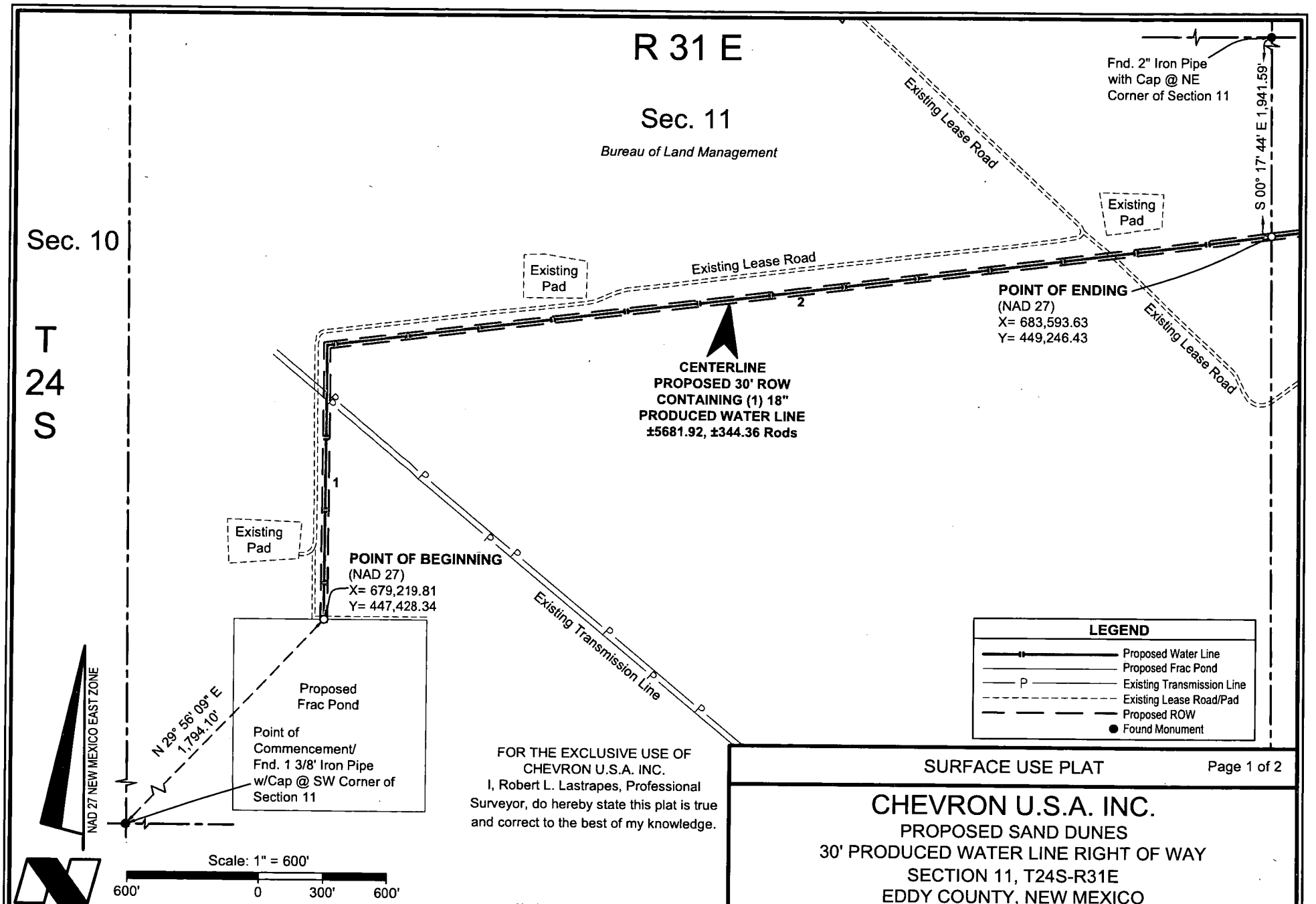
SURFACE USE PLAT

CHEVRON U.S.A. INC.

PROPOSED
SAND DUNES FRAC POND & ACCESS ROAD
SECTION 11, T24S-R31E
EDDY COUNTY, NEW MEXICO

FENSTERMAKER
C. H. Fenstermaker & Associates, L.L.C.
135 Regency Sq. Lafayette, LA 70508
Ph. 337-237-2200 Fax. 337-232-3299
www.fenstermaker.com

	REVISIONS			
DRAWN BY: DMB	#	BY:	DATE:	DESCRIPTION:
PROJ. MGR.: VHV	1	DMB	10/31/2017	Added Proposed Access Road
DATE: 09/25/2017				
FILENAME: T:\2017\2176483\DWG\Sand Dunes Frac Pond_Sec 11_SUP.dwg				



FOR THE EXCLUSIVE USE OF CHEVRON U.S.A. INC.
I, Robert L. Lastrapes, Professional Surveyor, do hereby state this plat is true and correct to the best of my knowledge.

SURFACE USE PLAT Page 1 of 2

CHEVRON U.S.A. INC.

PROPOSED SAND DUNES
30' PRODUCED WATER LINE RIGHT OF WAY
SECTION 11, T24S-R31E
EDDY COUNTY, NEW MEXICO

	REVISIONS			
DRAWN BY: AMT	#	BY:	DATE:	DESCRIPTION:
PROJ. MGR.: VHV				
DATE: 10/31/2017				

FILENAME: T:\2017\2176483\DWG\Sand Dunes (Frac Pond) Produced Water Line_Sec 11_ROW.dwg

FENSTERMAKER
C. H. Fenstermaker & Associates, L.L.C.
135 Regency Sq. Lafayette, LA 70508
Ph. 337-237-2200 Fax. 337-232-3299
www.fenstermaker.com

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PRELIMINARY

Robert L. Lastrapes
Registration No. 23006

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NOTE:
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METES AND BOUNDS DESCRIPTION OF A
PROPOSED 30' PRODUCED WATER LINE ROW
SECTION 11, T24S-R31E
EDDY COUNTY, NEW MEXICO

PROPOSED 30' PRODUCED WATER LINE ROW

Survey of the centerline of a Proposed 30 foot wide Produced Water Line ROW easement with 15 feet on each side of centerline, 5,681.92 feet or 344.36 Rods crossing Bureau of Land Management land in Section 11 of Township 24 South Range 31 East, Eddy County, New Mexico.

COMMENCING at a Found 1 3/8" Iron Pipe with Cap, located at the Southwest Corner of said Section 11 Township 24 South Range 31 East; **THENCE** North 29 degrees 56 minutes 09 seconds East 1,794.10 feet to the **POINT OF BEGINNING**, said **POINT OF BEGINNING** having the following coordinates: X= 679,219.81 and Y= 447,428.34 (New Mexico State Plane Coordinate System, East Zone, NAD 27).

THENCE North 00 degrees 14 minutes 55 seconds East 1,280.73 feet to a point;

THENCE North 82 degrees 59 minutes 13 seconds East 4,401.19 feet to the **POINT OF ENDING** at the common section line between Sections 11 and 12, said **POINT OF ENDING** having the following coordinates: X= 683,593.63 and Y= 449,246.43 (New Mexico State Plane Coordinate System, East Zone, NAD 27).

The bearings recited hereon are oriented to New Mexico State Plane Coordinate System, East Zone, NAD 27.

This description represents a survey made on the ground for the centerline of a Proposed Produced Water Line ROW and intended solely for that purpose. This description does not represent a boundary survey.

CENTERLINE PROPOSED 30' PRODUCED WATER LINE ROW		
COURSE	BEARING	DISTANCE
1	N 00° 14' 55" E	1280.73'
2	N 82° 59' 13" E	4401.19'

FOR THE EXCLUSIVE USE OF
CHEVRON U.S.A. INC.
I, Robert L. Lastrapes, Professional Surveyor, do hereby state this plat is true and correct to the best of my knowledge.

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PRELIMINARY

Robert L. Lastrapes
Registration No. 23006

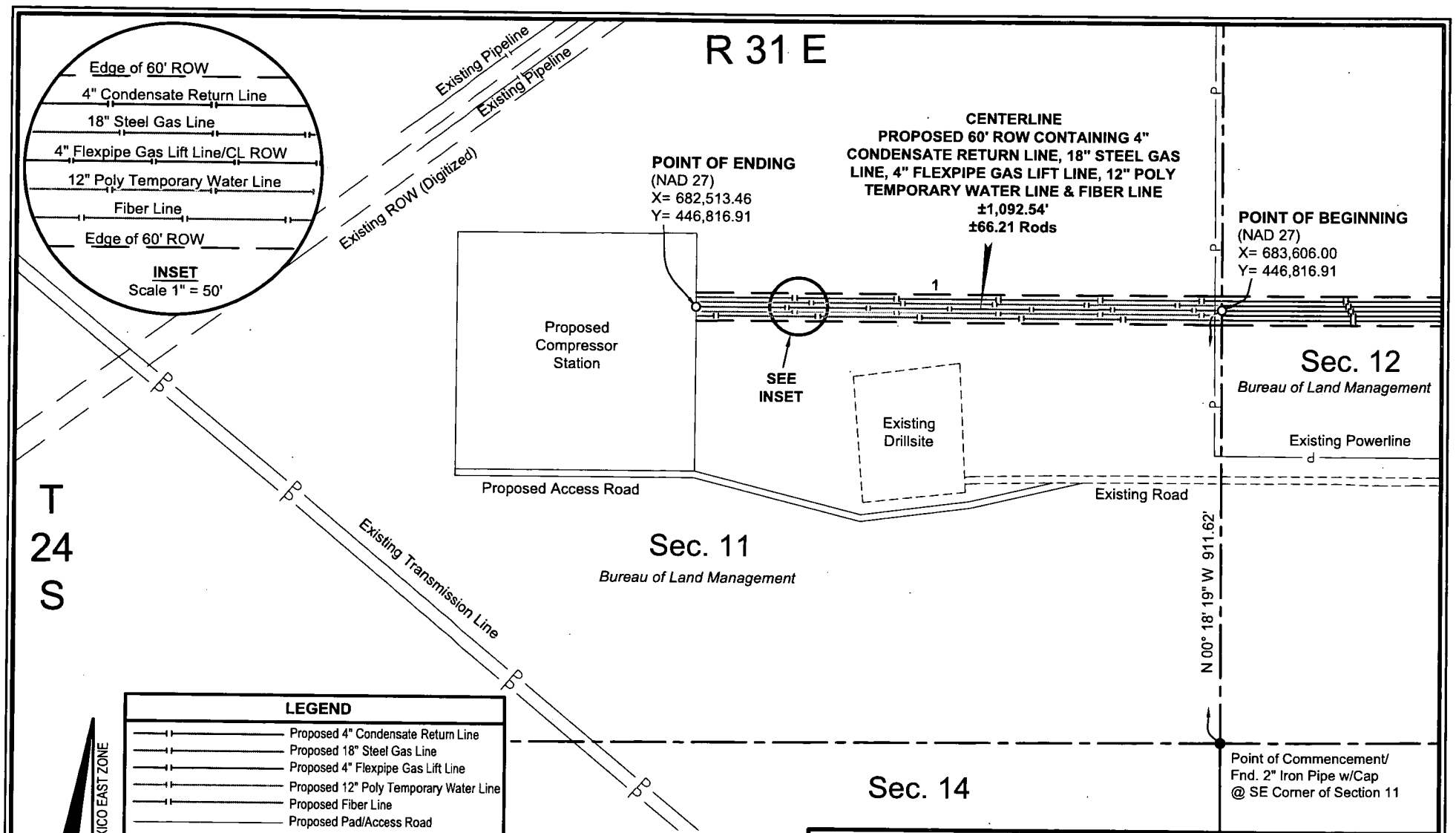
SURFACE USE PLAT

CHEVRON U.S.A. INC.

PROPOSED SAND DUNES
30' PRODUCED WATER LINE RIGHT OF WAY
SECTION 11, T24S-R31E
EDDY COUNTY, NEW MEXICO

	REVISIONS			
DRAWN BY: AMT	#	BY:	DATE:	DESCRIPTION:
PROJ. MGR.: VHV				
DATE: 10/31/2017				

FILENAME: T:\2017\2176483\DWG\Sand Dunes (Frac Pond) Produced Water Line_Sec 11_ROW.dwg



FOR THE EXCLUSIVE USE OF CHEVRON U.S.A. INC.
I, Robert L. Lastrapes Professional Surveyor, do hereby state this plat is true and correct to the best of my knowledge.

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PRELIMINARY

Robert L. Lastrapes
Registration No. 23006

SURFACE USE PLAT

CHEVRON U.S.A. INC.

PROPOSED SAND DUNES
60' RIGHT OF WAY
SECTION 11, T24S-R31E
EDDY COUNTY, NEW MEXICO

	REVISIONS			
DRAWN BY: DMB	#	BY:	DATE:	DESCRIPTION:
PROJ. MGR.: VHV	1	DMB	11/03/2017	Add Fiber Line
DATE: 11/01/2017				
FILENAME: T:\2017\2176483\DWG\Sand Dunes 60' ROW_Sec 11_ROW.dwg				

DISCLAIMER: At this time, C. H. Fenstermaker & Associates, L.L.C. has not performed nor was asked to perform any type of engineering, hydrological modeling, flood plain, or "No Rise" certification analyses, including but not limited to determining whether the project will impact flood hazards in connection with federal/FEMA, state, and/or local laws, ordinances and regulations. Accordingly, Fenstermaker makes no warranty or representation of any kind as to the foregoing issues, and persons or entities using this information shall do so at their own risk.

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METES AND BOUNDS DESCRIPTION OF A
PROPOSED 60' ROW
SECTION 11, T24S-R31E
EDDY COUNTY, NEW MEXICO

PROPOSED 60' ROW

Survey of the centerline of a Proposed 60 foot wide ROW easement with 30 feet on each side of centerline, containing 1,092.54 feet or 66.21 Rods crossing Bureau of Land Management land in Section 11 of Township 24 South Range 31 East, Eddy County, New Mexico.

COMMENCING at a Found 2" Iron Pipe with Cap, located at the Southeast Corner of said Section 11 Township 24 South Range 31 East; **THENCE** North 00 degrees 18 minutes 19 seconds West 911.62 feet to the **Point of Beginning** at the common section line between Sections 11 and 12, said **Point of Beginning** having the following coordinates: X= 683,606.00 and Y= 446,816.91 (New Mexico State Plane Coordinate System, East Zone, NAD 27).

THENCE West 1,092.54 feet to **Point of Ending** having the following coordinates: X= 682,513.46 and Y= 446,816.91 (New Mexico State Plane Coordinate System, East Zone, NAD 27).

The bearings recited hereon are oriented to New Mexico State Plane Coordinate System, East Zone, NAD 27.

This description represents a survey made on the ground for the centerline of a Proposed ROW and intended solely for that purpose. This description does not represent a boundary survey.

CENTERLINE PROPOSED 60' ROW		
COURSE	BEARING	DISTANCE
1	WEST	1092.54'

FOR THE EXCLUSIVE USE OF
CHEVRON U.S.A. INC.
I, Robert L. Lastrapes Professional Surveyor, do hereby state this plat is true and correct to the best of my knowledge.

Not to be used for construction, bidding, recordation, conveyance, sales, or engineering design.

PRELIMINARY

Robert L. Lastrapes
Registration No. 23006

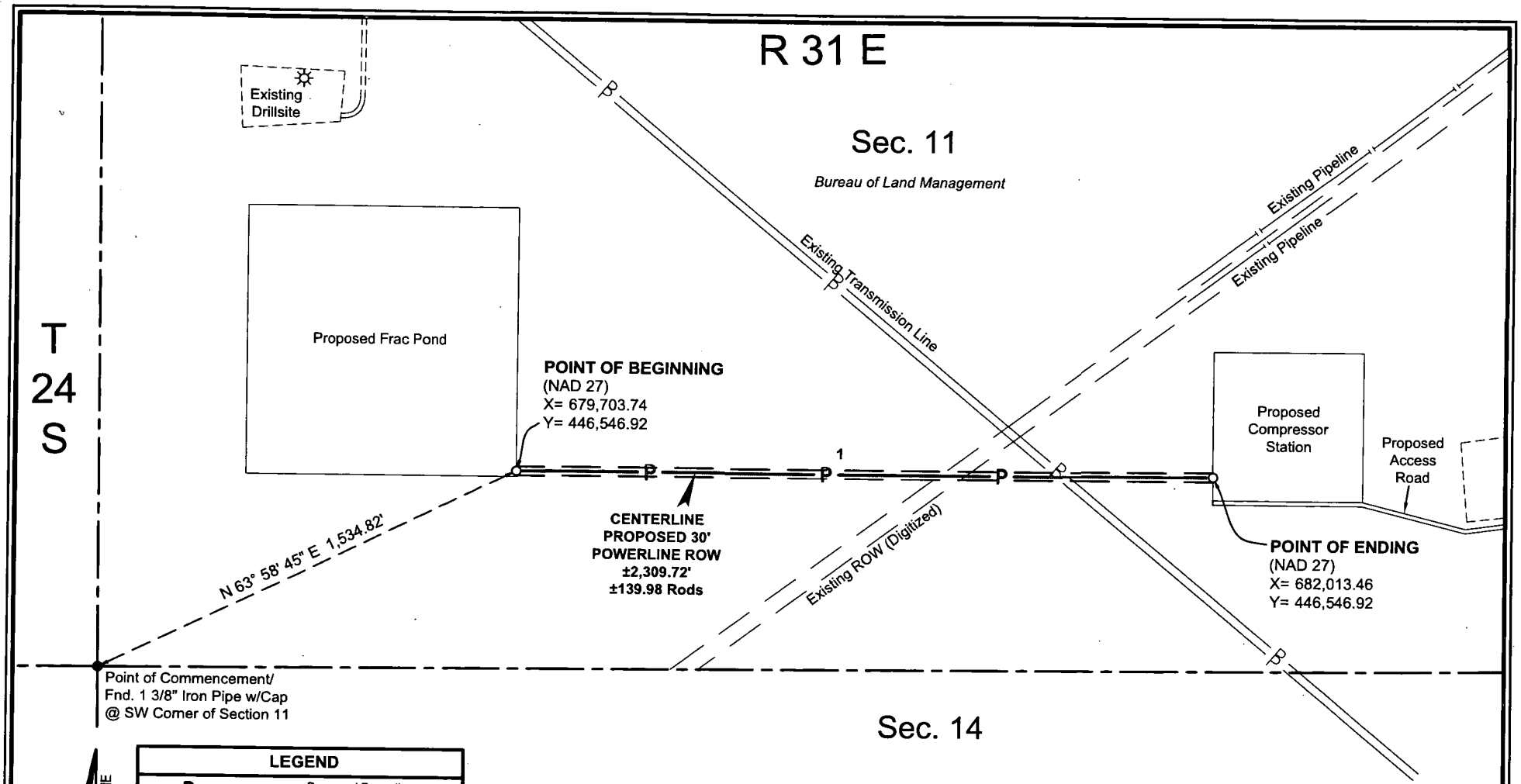
FENSTERMAKER
C. H. Fenstermaker & Associates, L.L.C.
135 Regency Sq. Lafayette, LA 70508
Ph. 337-237-2200 Fax. 337-232-3299
www.fenstermaker.com

SURFACE USE PLAT

CHEVRON U.S.A. INC.

PROPOSED SAND DUNES
60' RIGHT OF WAY
SECTION 11, T24S-R31E
EDDY COUNTY, NEW MEXICO

	REVISIONS			
DRAWN BY: DMB	#	BY:	DATE:	DESCRIPTION:
PROJ. MGR.: VHV	1	DMB	11/03/2017	Add Fiber Line
DATE: 11/01/2017				
FILENAME: T:\2017\2176483\DWG\Sand Dunes 60' ROW_Sec 11_ROW.dwg				



NAD 27 NEW MEXICO EAST ZONE

LEGEND

- Proposed Powerline
- Proposed Pad/Access Road
- Existing Road/Drillsite
- Existing Pipeline
- Existing Utility Line
- Existing Pipeline ROW
- Section Line
- Proposed ROW
- As-Drilled Well

Scale: 1" = 500'

500' 0 250' 500'

FOR THE EXCLUSIVE USE OF CHEVRON U.S.A. INC.

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PRELIMINARY

Robert L. Lastrapes
Registration No. 23006

SURFACE USE PLAT

CHEVRON U.S.A. INC.

PROPOSED SAND DUNES
30' POWERLINE RIGHT OF WAY
SECTION 11, T24S-R31E
EDDY COUNTY, NEW MEXICO

	REVISIONS			
DRAWN BY: DMB	#	BY:	DATE:	DESCRIPTION:
PROJ. MGR.: VHV				
DATE: 10/31/2017				
FILENAME: T:\2017\2176483\DWG\Sand Dunes (Frac Pond) Powerline_Sec 11_ROW.dwg				

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METES AND BOUNDS DESCRIPTION OF A
PROPOSED 30' POWERLINE ROW
SECTION 11, T24S-R31E
EDDY COUNTY, NEW MEXICO

PROPOSED 30' POWERLINE ROW

Survey of the centerline of a Proposed 30 foot wide Powerline ROW easement with 15 feet on each side of centerline, containing 2,309.72 feet or 139.98 rods crossing Bureau of Land Management land in Section 11 of Township 24 South Range 31 East, Eddy County, New Mexico.

COMMENCING at a Found 1 3/8" Iron Pipe with Cap, located at the Southwest Corner of said Section 11 Township 24 South Range 31 East; **THENCE** North 63 degrees 58 minutes 45 seconds East 1,534.82 feet to the **Point of Beginning**, said **Point of Beginning** having the following coordinates: X= 679,703.74 and Y= 446,546.92 (New Mexico State Plane Coordinate System, East Zone, NAD 27).

THENCE East 2,309.72 feet to **Point of Ending** having the following coordinates: X= 682,013.46 and Y= 446,546.92 (New Mexico State Plane Coordinate System, East Zone, NAD 27).

The bearings recited hereon are oriented to New Mexico State Plane Coordinate System, East Zone, NAD 27.

This description represents a survey made on the ground for the centerline of a Proposed Powerline ROW and intended solely for that purpose. This description does not represent a boundary survey.

CENTERLINE PROPOSED 30' POWERLINE ROW		
COURSE	BEARING	DISTANCE
1	EAST	2309.72'

FOR THE EXCLUSIVE USE OF
CHEVRON U.S.A. INC.
I, Robert L. Lastrapes, Professional Surveyor, do hereby state this plat is true and correct to the best of my knowledge.

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PRELIMINARY

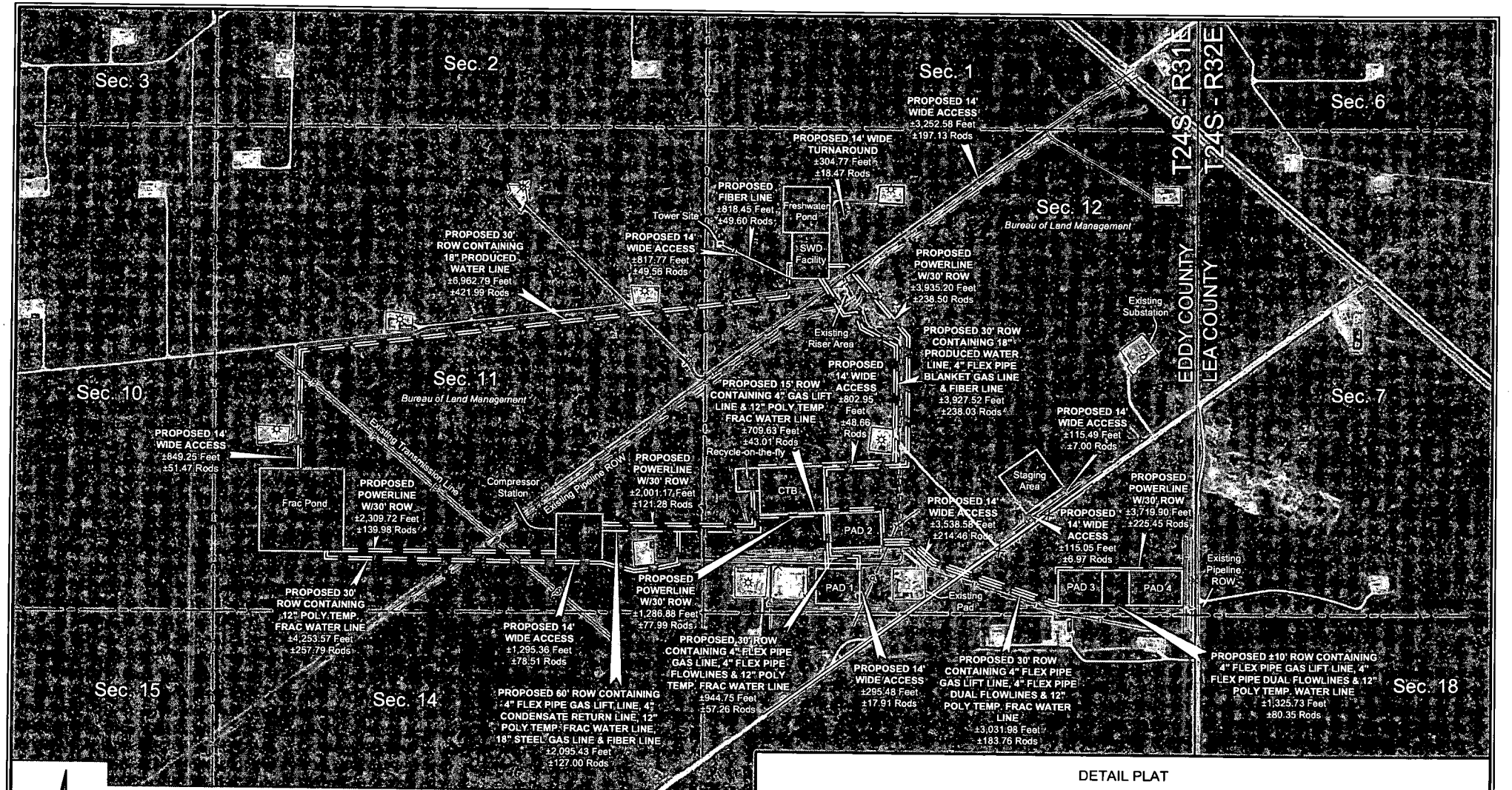
Robert L. Lastrapes
Registration No. 23006

SURFACE USE PLAT

CHEVRON U.S.A. INC.

PROPOSED SAND DUNES
30' POWERLINE RIGHT OF WAY
SECTION 11, T24S-R31E
EDDY COUNTY, NEW MEXICO

	REVISIONS			
DRAWN BY: DMB	#	BY:	DATE:	DESCRIPTION:
PROJ. MGR.: VHV				
DATE: 10/31/2017				
FILENAME: T:\2017\2176483\DWG\Sand Dunes (Frac Pond) Powerline_Sec 11_ROW.dwg				



DETAIL PLAT

CHEVRON U.S.A. INC

AERIAL DETAIL
PROPOSED SAND DUNES FACILITIES & ROWS
SECTIONS 11 & 12, T24S-R31E
EDDY COUNTY, NEW MEXICO

FENSTERMAKER
C. H. Fenstermaker & Associates, L.L.C.
135 Regency Sq. Lafayette, LA 70508
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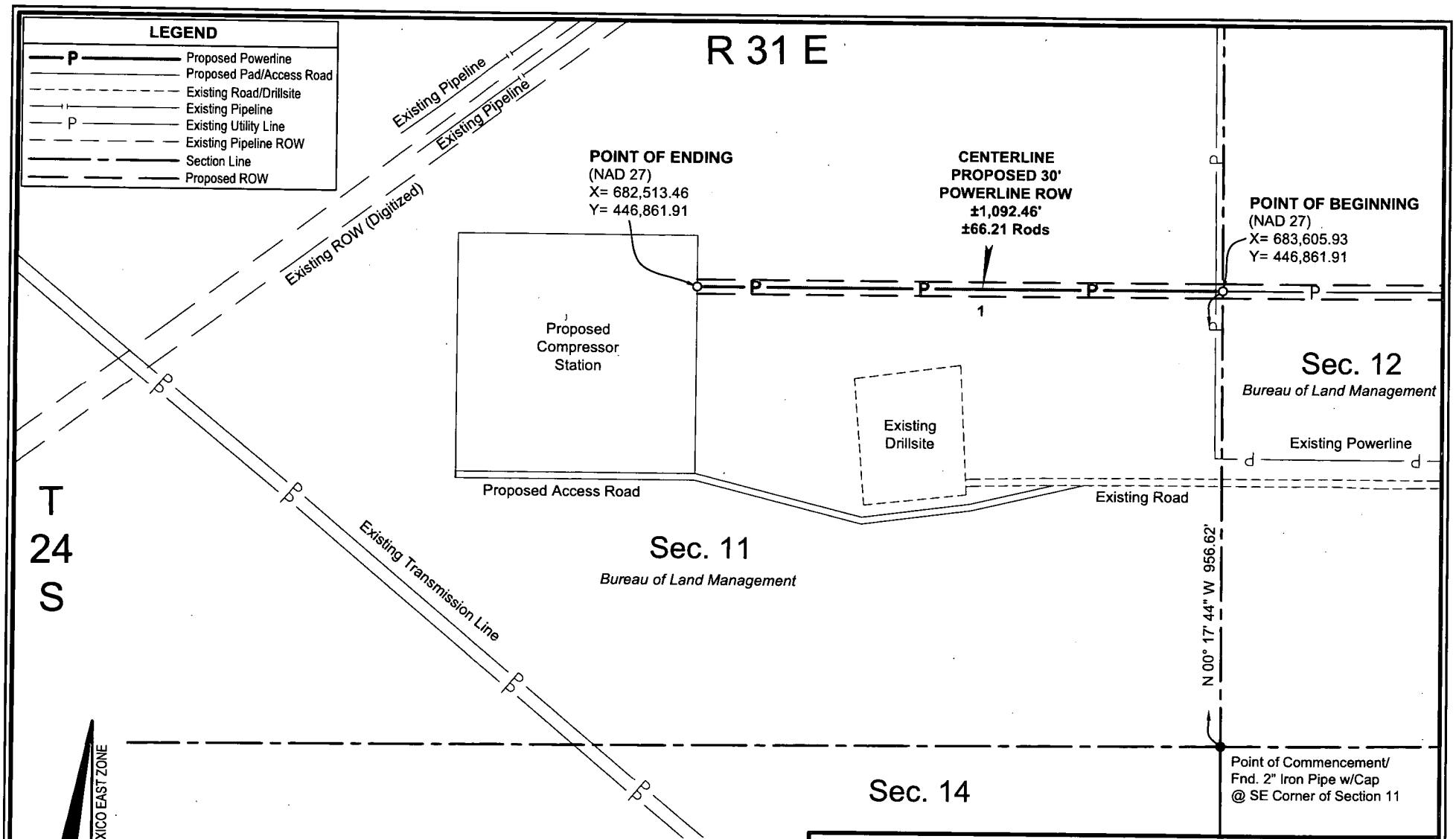
www.fenstermaker.com

REVISIONS				
DRAWN BY: DMB	#	BY:	DATE:	DESCRIPTION:
PROJ. MGR.: VHV	1	DMB	11/03/2017	Add Fiber Line
DATE: 10/30/2017	2	DMB	11/06/2017	Power Re-route & Addition
FILENAME: T:\2017\2176483\DWG\Sand Dunes Aerial Detail 11x17.dwg				



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SURFACE USE PLAT

CHEVRON U.S.A. INC.

PROPOSED SAND DUNES
30' POWERLINE RIGHT OF WAY
SECTION 11, T24S-R31E
EDDY COUNTY, NEW MEXICO

	REVISIONS			
DRAWN BY: DMB	#	BY:	DATE:	DESCRIPTION:
PROJ. MGR.: VHV				
DATE: 10/31/2017				

FILENAME: T:\2017\2176483\DWG\Sand Dunes (Comp.Stat.) Powerline_Sec 11_ROW.dwg

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METES AND BOUNDS DESCRIPTION OF A
PROPOSED 30' POWERLINE ROW
SECTION 11, T24S-R31E
EDDY COUNTY, NEW MEXICO

PROPOSED 30' POWERLINE ROW

Survey of the centerline of a Proposed 30 foot wide Powerline ROW easement with 15 feet on each side of centerline, containing 1,092.46 feet or 66.21 Rods crossing Bureau of Land Management land in Section 11 of Township 24 South Range 31 East, Eddy County, New Mexico.

COMMENCING at a Found 2" Iron Pipe with Cap, located at the Southeast Corner of said Section 11 Township 24 South Range 31 East; **THENCE** North 00 degrees 17 minutes 44 seconds East 956.62 feet to the **Point of Beginning** at the common section line between Sections 11 and 12, said **Point of Beginning** having the following coordinates: X= 683,605.93 and Y= 446,861.91 (New Mexico State Plane Coordinate System, East Zone, NAD 27).

THENCE West 1,092.46 feet to **Point of Ending** having the following coordinates: X= 682,513.46 and Y= 446,861.91 (New Mexico State Plane Coordinate System, East Zone, NAD 27).

The bearings recited hereon are oriented to New Mexico State Plane Coordinate System, East Zone, NAD 27.

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CENTERLINE PROPOSED 30' POWERLINE ROW		
COURSE	BEARING	DISTANCE
1	WEST	1092.46'

FENSTERMAKER
C. H. Fenstermaker & Associates, L.L.C.
135 Regency Sq. Lafayette, LA 70508
Ph. 337-237-2200 Fax. 337-232-3299
www.fenstermaker.com

FOR THE EXCLUSIVE USE OF CHEVRON U.S.A. INC.
I, Robert L. Lastrapes Professional Surveyor, do hereby state this plat is true and correct to the best of my knowledge.

Not to be used for construction, bidding, recordation, conveyance, sales, or engineering design.

PRELIMINARY

Robert L. Lastrapes
Registration No. 23006

SURFACE USE PLAT

CHEVRON U.S.A. INC.

PROPOSED SAND DUNES
30' POWERLINE RIGHT OF WAY
SECTION 11, T24S-R31E
EDDY COUNTY, NEW MEXICO

	REVISIONS			
DRAWN BY: DMB	#	BY:	DATE:	DESCRIPTION:
PROJ. MGR.: VHV				
DATE: 10/31/2017				
FILENAME: T:\2017\2176483\DWG\Sand Dunes (Comp.Stat.) Powerline_Sec 11_ROW.dwg				

NW TOWER CORNER	NE TOWER CORNER
X= 683,714 NAD 27 Y= 449,950	X= 683,774 NAD 27 Y= 449,950
ELEVATION +3516' NAVD 88	ELEVATION +3516' NAVD 88
SW TOWER / NW CALICHE PAD CORNER	SE TOWER / NE CALICHE PAD CORNER
X= 683,714 NAD 27 Y= 449,905	X= 683,774 NAD 27 Y= 449,905
ELEVATION +3516' NAVD 88	ELEVATION +3517' NAVD 88
SW CALICHE PAD CORNER	SE CALICHE PAD CORNER
X= 683,714 NAD 27 Y= 449,890	X= 683,774 NAD 27 Y= 449,890
ELEVATION +3517' NAVD 88	ELEVATION +3517' NAVD 88

PROPOSED SAND DUNES TOWER SITE (CENTER)	
X=	683,744 NAD 27
Y=	449,928
LAT.	32.235571
LONG.	103.739080
X=	724,928 NAD83
Y=	449,987
LAT.	32.235695
LONG.	103.739563

R 31 E

Point of Commencement/ Fnd. 2" Iron Pipe with Cap @ the NW Corner of Section 12

S 06° 01' 49" E 1,244.40'

LEGEND

- Section Line
- Tower Site
- Caliche Pad
- P — Existing Powerline
- Access Centerline

Sec. 11

Bureau of Land Management

T 24 S

Existing Powerline

PROPOSED TOWER SITE ±0.06 ACRES

60'

30'

45'

30'

23'

Sand Dunes Tower Site Center
1261' FNL
154' FWL

PROPOSED CALICHE PAD ±0.02 ACRES

200' Radius

Sec. 12

Bureau of Land Management

NAD 27 NEW MEXICO EAST ZONE

Scale: 1" = 100'

100' 0 50' 100'

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TOWER SITE PLAT

CHEVRON U.S.A. INC.

PROPOSED SAND DUNES TOWER SITE & ACCESS ROAD
SECTION 12, T24S-R31E
EDDY COUNTY, NEW MEXICO

	REVISIONS			
DRAWN BY: DMB	#	BY:	DATE:	DESCRIPTION:
PROJ. MGR.: VHV	1	AMT	11/20/2017	Add Access Road.
DATE: 10/24/2017				
FILENAME: T:\2017\2176638\DWG\Sand Dunes Tower Site_SUP.dwg				

R 31 E

Sec. 12

Bureau of Land Management

See Page 1

T 24 S

PROPOSED CENTERLINE ACCESS ROAD
14' x ±817.77
±49.56 Rods
±0.26 Acres

1

Proposed SWD Facility

Proposed SWD Facility Access Road

LEGEND

Access Centerline

Proposed Facility

NAD 27 NEW MEXICO EAST ZONE

Scale: 1" = 100'

100' 0 50' 100'

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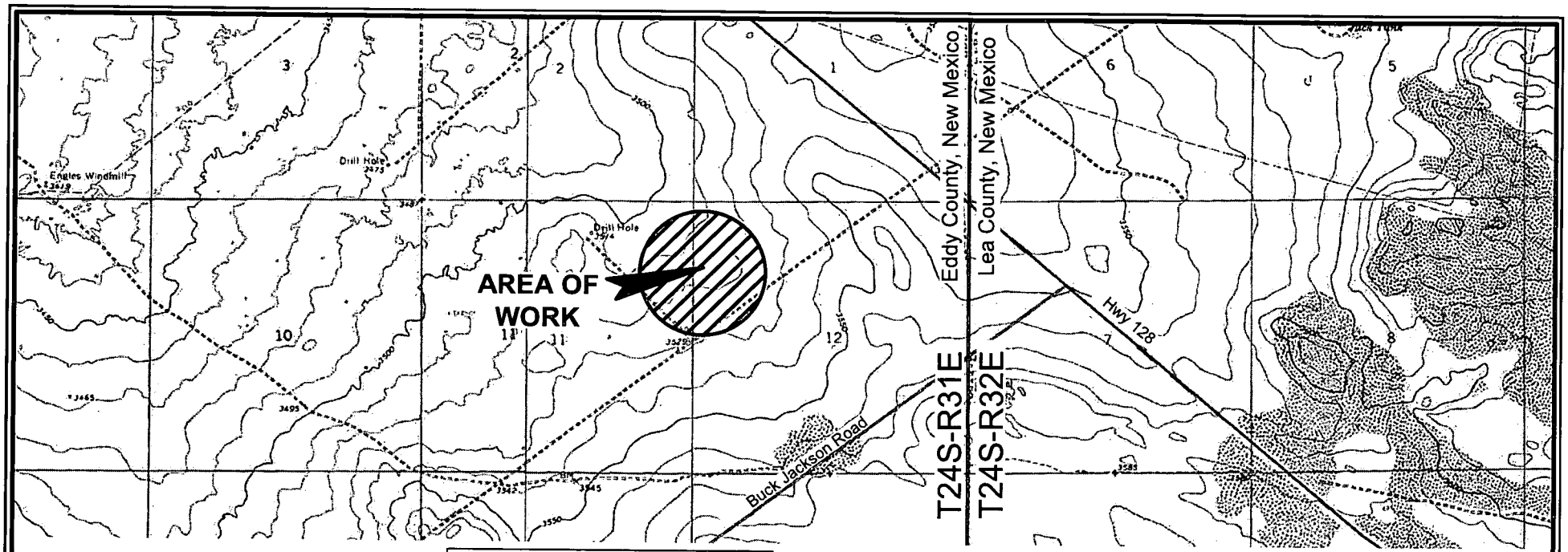
TOWER SITE PLAT PAGE 2 of 3

CHEVRON U.S.A. INC.

PROPOSED SAND DUNES
TOWER SITE & ACCESS ROAD
SECTION 12, T24S-R31E
EDDY COUNTY, NEW MEXICO

	REVISIONS			
DRAWN BY: DMB	#	BY:	DATE:	DESCRIPTION:
PROJ. MGR.: VHV	1	AMT	11/20/2017	Add Access Road.
DATE: 10/24/2017				

FILENAME: T:\2017\2176638\DWG\Sand Dunes Tower Site_SUP.dwg



PROPOSED CENTERLINE ACCESS ROAD		
COURSE	BEARING	DISTANCE
1	N 65° 00' 06" W	817.77'

PROPOSED TOWER SITE		
COURSE	BEARING	DISTANCE
1	S 89° 42' 19" E	60.00'
2	S 00° 17' 41" W	45.00'
3	N 89° 42' 19" W	60.00'
4	N 00° 17' 41" E	45.00'

PROPOSED CALICHE PAD		
COURSE	BEARING	DISTANCE
5	S 89° 42' 19" E	60.00'
6	S 00° 17' 41" W	15.00'
7	N 89° 42' 19" W	60.00'
8	N 00° 17' 41" E	15.00'

NOTE:
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NAD 27 NEW MEXICO EAST ZONE

Scale: 1" = 3,000'

3,000' 0 1,500' 3,000'

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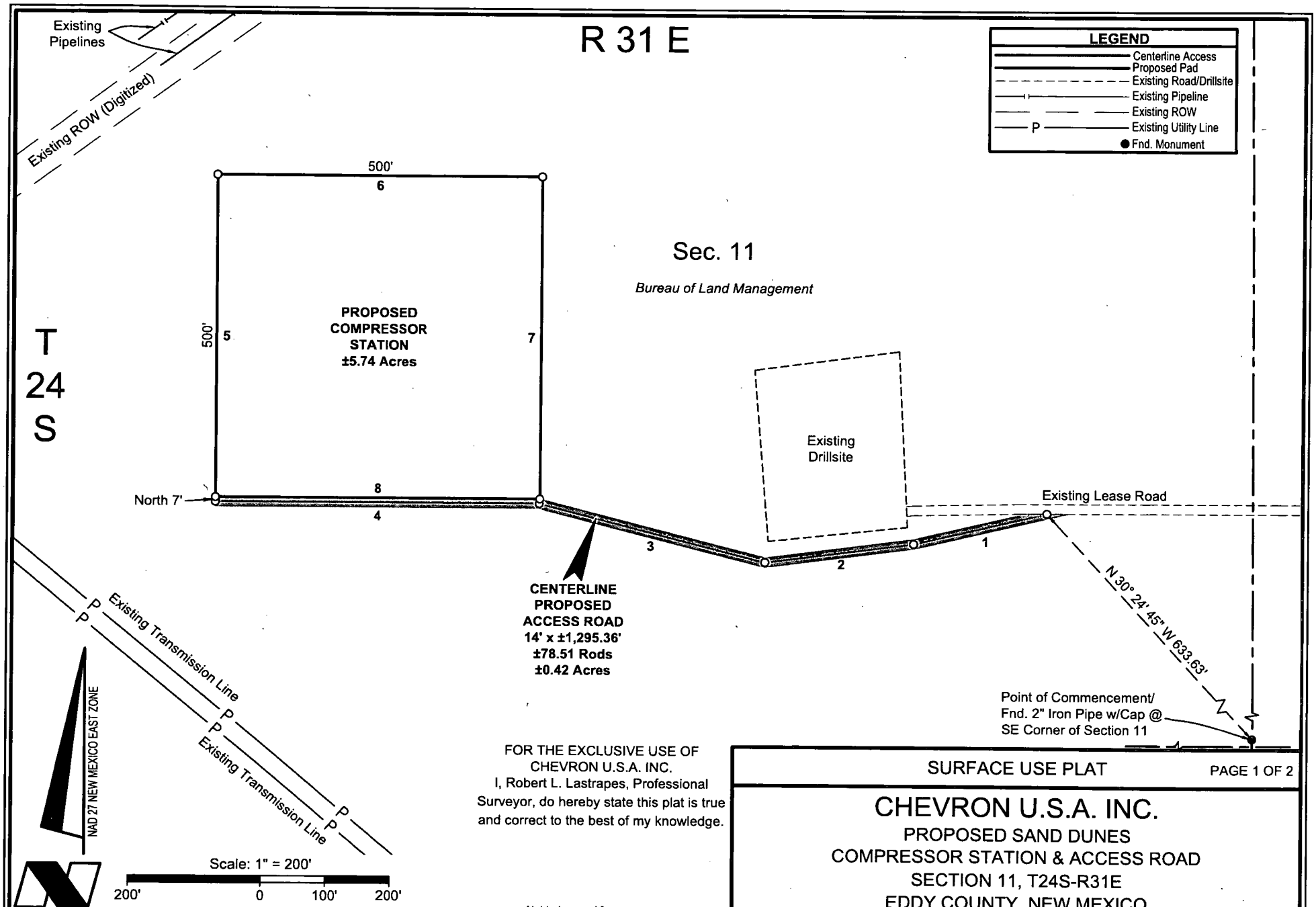
TOWER SITE PLAT PAGE 3 OF 3

CHEVRON U.S.A. INC.

PROPOSED SAND DUNES TOWER SITE & ACCESS ROAD SECTION 12, T24S-R31E EDDY COUNTY, NEW MEXICO

	REVISIONS			
DRAWN BY: DMB	#	BY:	DATE:	DESCRIPTION:
PROJ. MGR.: VHV	1	AMT	11/20/2017	Add Access Road.
DATE: 10/24/2017				

FILENAME: T:\2017\2176638\DWG\Sand Dunes Tower Site_SUP.dwg



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SURFACE USE PLAT

CHEVRON U.S.A. INC.

PROPOSED SAND DUNES COMPRESSOR STATION & ACCESS ROAD
SECTION 11, T24S-R31E
EDDY COUNTY, NEW MEXICO

	REVISIONS			
DRAWN BY: DMB	#	BY:	DATE:	DESCRIPTION:
PROJ. MGR.: VHV	1	BOR	11/01/2017	Pad moved and added access road.
DATE: 09/08/2017				
FILENAME: T:\2017\2176483\DWG\Sand Dunes Compressor_SUP.dwg				

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NW COMPRESSOR STATION CORNER		NE COMPRESSOR STATION CORNER	
X= 682,013	NAD 27	X= 682,513	NAD 27
Y= 446,970		Y= 446,970	
LAT. 32.227466		LAT. 32.227458	
LONG. 103.744730		LONG. 103.743113	
X= 723,198	NAD83	X= 723,698	NAD83
Y= 447,029		Y= 447,029	
LAT. 32.227589		LAT. 32.227582	
LONG. 103.745212		LONG. 103.743596	
ELEVATION +3543' NAVD 88		ELEVATION +3542' NAVD 88	
SW COMPRESSOR STATION CORNER		SE COMPRESSOR STATION CORNER	
X= 682,013	NAD 27	X= 682,513	NAD 27
Y= 446,470		Y= 446,470	
LAT. 32.226092		LAT. 32.226084	
LONG. 103.744739		LONG. 103.743122	
X= 723,198	NAD83	X= 723,698	NAD83
Y= 446,529		Y= 446,529	
LAT. 32.226215		LAT. 32.226208	
LONG. 103.745221		LONG. 103.743604	
ELEVATION +3546' NAVD 88		ELEVATION +3550' NAVD 88	

CENTERLINE PROPOSED ACCESS ROAD		
COURSE	BEARING	DISTANCE
1	S 76° 41' 50" W	208.78'
2	S 82° 32' 22" W	229.43'
3	N 75° 39' 11" W	358.03'
4	WEST	499.12'

PROPOSED COMPRESSOR STATION		
COURSE	BEARING	DISTANCE
5	NORTH	500.00'
6	EAST	500.00'
7	SOUTH	500.00'
8	WEST	500.00'

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SURFACE USE PLAT

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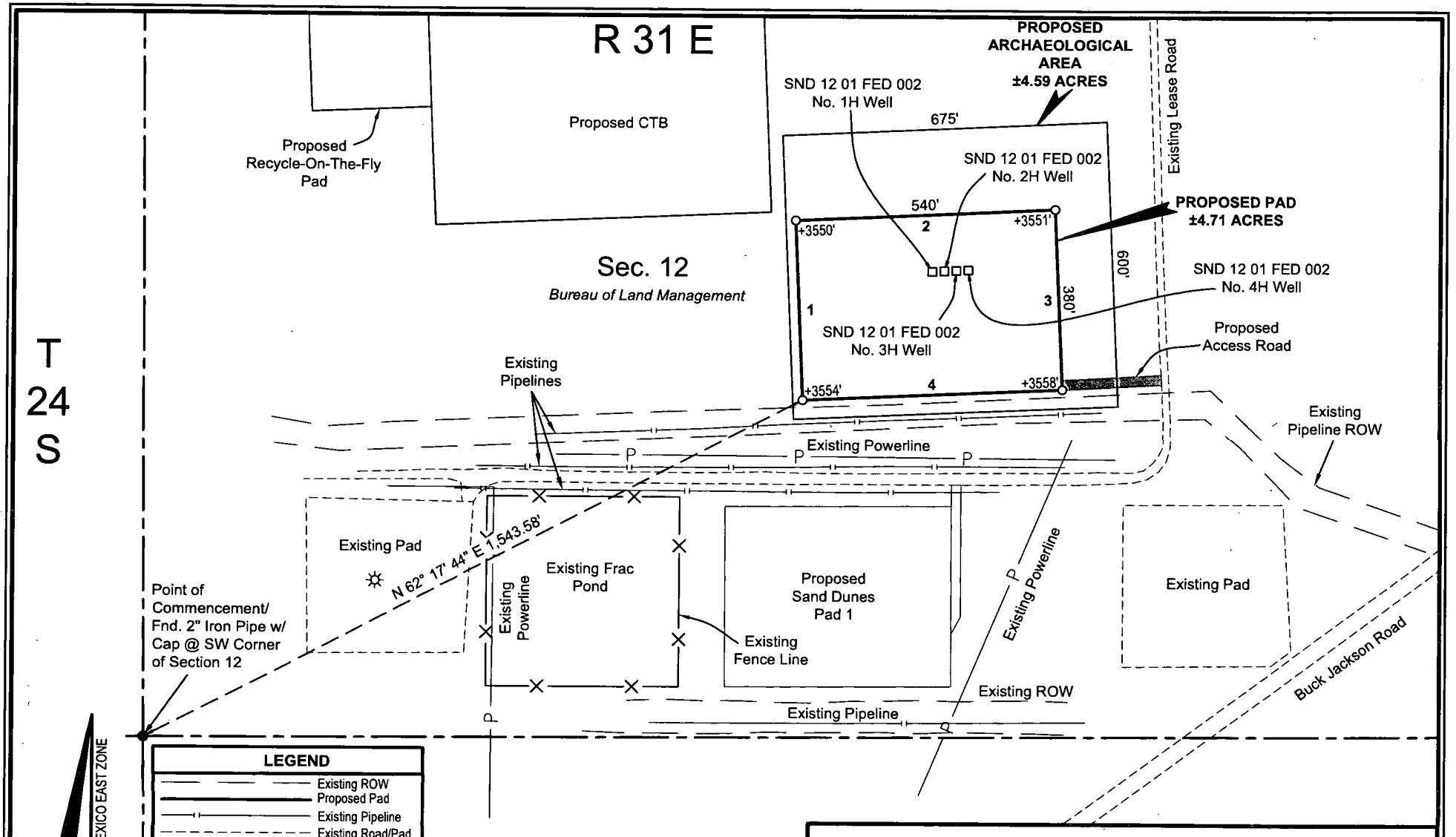
PROPOSED SAND DUNES COMPRESSOR STATION & ACCESS ROAD
SECTION 11, T24S-R31E
EDDY COUNTY, NEW MEXICO

	REVISIONS			
DRAWN BY: DMB	#	BY:	DATE:	DESCRIPTION:
PROJ. MGR.: VHV	1	BOR	11/01/2017	Pad moved and added access road.
DATE: 09/08/2017				
FILENAME: T:\2017\2176483\DWG\Sand Dunes Compressor_SUP.dwg				



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PAD PLAT

CHEVRON U.S.A. INC.

PROPOSED PAD
SND 12 01 FED 002 NOS. 1H-4H WELLS
SECTION 12, T24S-R31E
EDDY COUNTY, NEW MEXICO

	REVISIONS			
DRAWN BY: VHV	#	BY:	DATE:	DESCRIPTION:
PROJ. MGR.: VHV	2	DMB	11/17/2017	Removed frac pond. Added CTB/ROTF.
DATE: 08/14/2017	3	VHV	01/24/2019	Added 4th well.
FILENAME: T:\2017\2176260\DWG\SND 12 01 Fed 002 1H-4H Pad_Pad Plat.dwg				

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NW ARCH. AREA CORNER		NE ARCH. AREA CORNER	
X=	684,932 NAD 27	X=	685,606 NAD 27
Y=	447,181	Y=	447,212
LAT.	32.228004	LAT.	32.228077
LONG.	103.735288	LONG.	103.733107
X=	726,116 NAD83	X=	726,790 NAD83
Y=	447,240	Y=	447,271
LAT.	32.228127	LAT.	32.228200
LONG.	103.735771	LONG.	103.733590
SW ARCH. AREA CORNER		SE ARCH. AREA CORNER	
X=	684,959 NAD 27	X=	685,633 NAD 27
Y=	446,582	Y=	446,612
LAT.	32.226356	LAT.	32.226429
LONG.	103.735212	LONG.	103.733030
X=	726,143 NAD83	X=	726,818 NAD83
Y=	446,641	Y=	446,671
LAT.	32.226480	LAT.	32.226552
LONG.	103.735694	LONG.	103.733513

NW PAD CORNER		NE PAD CORNER	
X=	684,960 NAD 27	X=	685,500 NAD 27
Y=	447,003	Y=	447,027
LAT.	32.227512	LAT.	32.227570
LONG.	103.735200	LONG.	103.733455
X=	726,145 NAD83	X=	726,684 NAD83
Y=	447,061	Y=	447,086
LAT.	32.227635	LAT.	32.227694
LONG.	103.735682	LONG.	103.733937
ELEVATION +3550' NAVD 88		ELEVATION +3551' NAVD 88	
SW PAD CORNER		SE PAD CORNER	
X=	684,977 NAD 27	X=	685,517 NAD 27
Y=	446,623	Y=	446,647
LAT.	32.226468	LAT.	32.226526
LONG.	103.735151	LONG.	103.733407
X=	726,162 NAD83	X=	726,701 NAD83
Y=	446,682	Y=	446,706
LAT.	32.226591	LAT.	32.226650
LONG.	103.735634	LONG.	103.733889
ELEVATION +3554' NAVD 88		ELEVATION +3558' NAVD 88	

PROPOSED PAD		
COURSE	BEARING	DISTANCE
1	N 02° 34' 27" W	380.00'
2	N 87° 25' 33" E	540.00'
3	S 02° 34' 27" E	380.00'
4	S 87° 25' 33" W	540.00'

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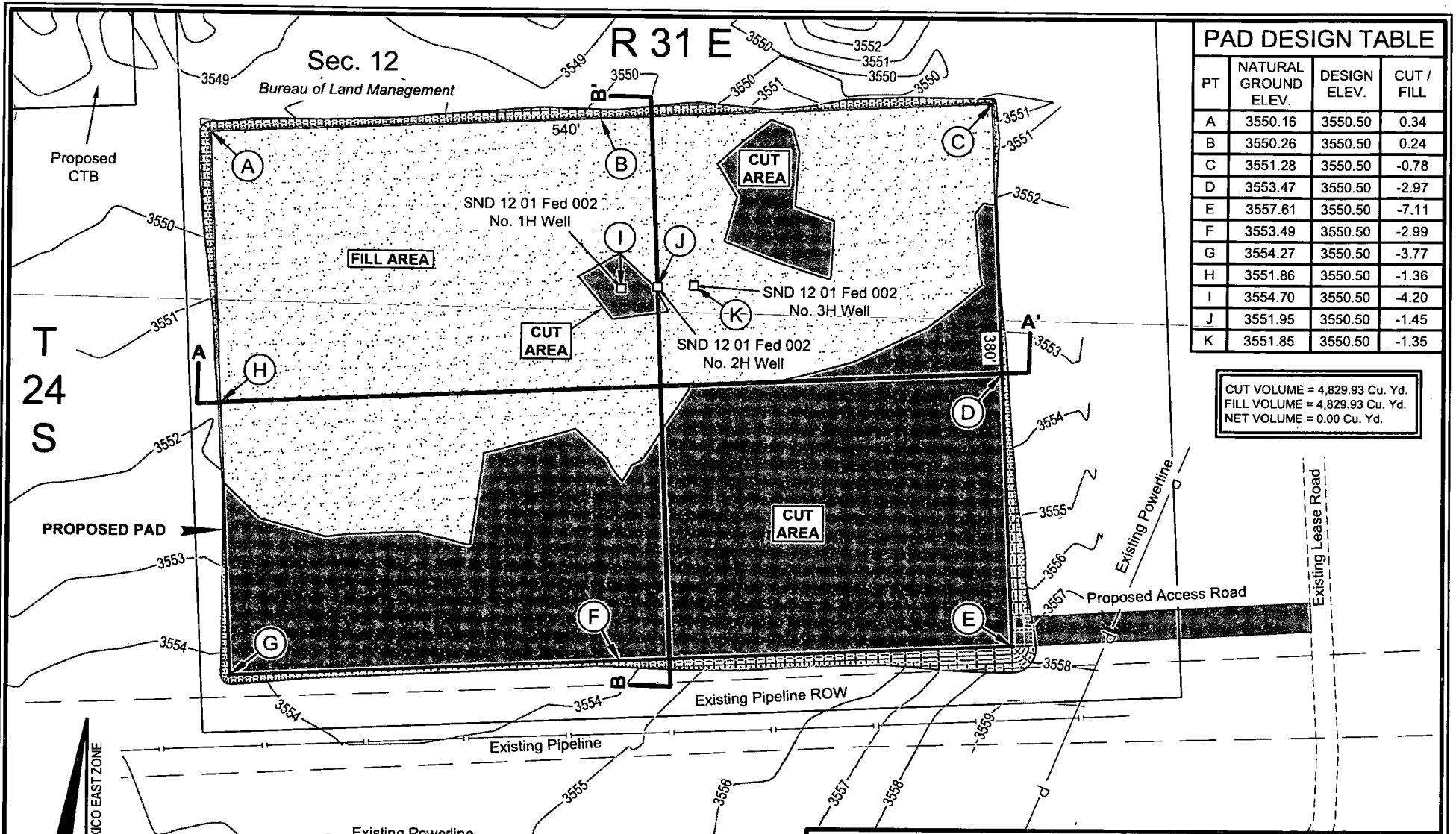
PAD PLAT

CHEVRON U.S.A. INC.

PROPOSED PAD
SND 12 01 FED 002 NOS. 1H-4H WELLS
SECTION 12, T24S-R31E
EDDY COUNTY, NEW MEXICO

	REVISIONS			
DRAWN BY: VHV	#	BY:	DATE:	DESCRIPTION:
PROJ. MGR.: VHV	2	DMB	11/17/2017	Removed frac pond. Added CTB/ROTF.
DATE: 08/14/2017	3	VHV	01/24/2019	Added 4th well.
FILENAME: T:\2017\2176260\DWG\SND 12 01 Fed 002 1H-4H Pad_Pad Plat.dwg				



PAD DESIGN TABLE

PT	NATURAL GROUND ELEV.	DESIGN ELEV.	CUT / FILL
A	3550.16	3550.50	0.34
B	3550.26	3550.50	0.24
C	3551.28	3550.50	-0.78
D	3553.47	3550.50	-2.97
E	3557.61	3550.50	-7.11
F	3553.49	3550.50	-2.99
G	3554.27	3550.50	-3.77
H	3551.86	3550.50	-1.36
I	3554.70	3550.50	-4.20
J	3551.95	3550.50	-1.45
K	3551.85	3550.50	-1.35

CUT VOLUME = 4,829.93 Cu. Yd.
FILL VOLUME = 4,829.93 Cu. Yd.
NET VOLUME = 0.00 Cu. Yd.

NAD 27 NEW MEXICO EAST ZONE

Existing Powerline
Existing Pipeline
Existing Lease Road

Scale: 1" = 100'
100' 0 50' 100'

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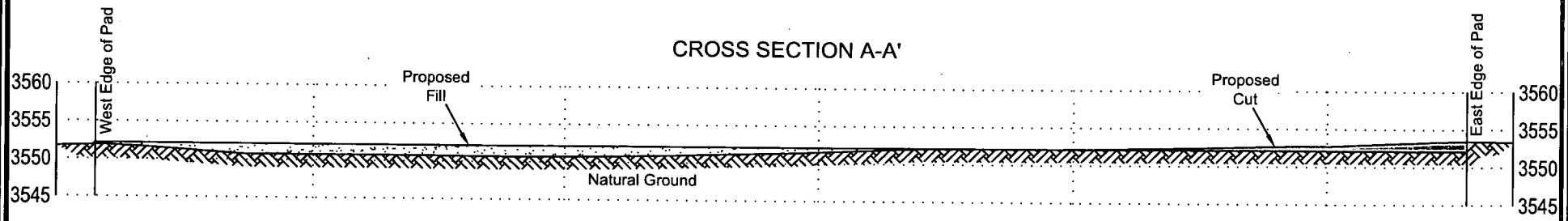
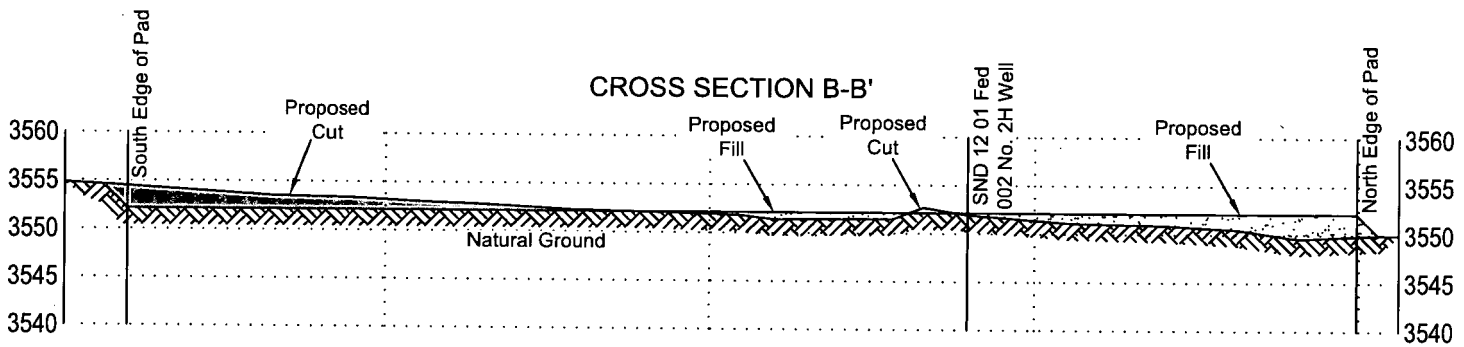
CUT & FILL PLAT

CHEVRON U.S.A. INC.

PROPOSED PAD
SND 12 01 FED 002 NOS. 1H-3H WELLS
SECTION 12, T24S-R31E
EDDY COUNTY, NEW MEXICO

	REVISIONS			
DRAWN BY: BOR	#	BY:	DATE:	DESCRIPTION:
PROJ. MGR.: VHV	1	DMB	10/18/2017	Pad shift.
DATE: 09/13/2017	2	VHV	11/17/2017	Removed frac pond. Added CTB.
FILENAME: T:\2017\2176260\DWG\SND 12 01 Fed 002 1H-3H Pad_CutFill.dwg				





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	REVISIONS			
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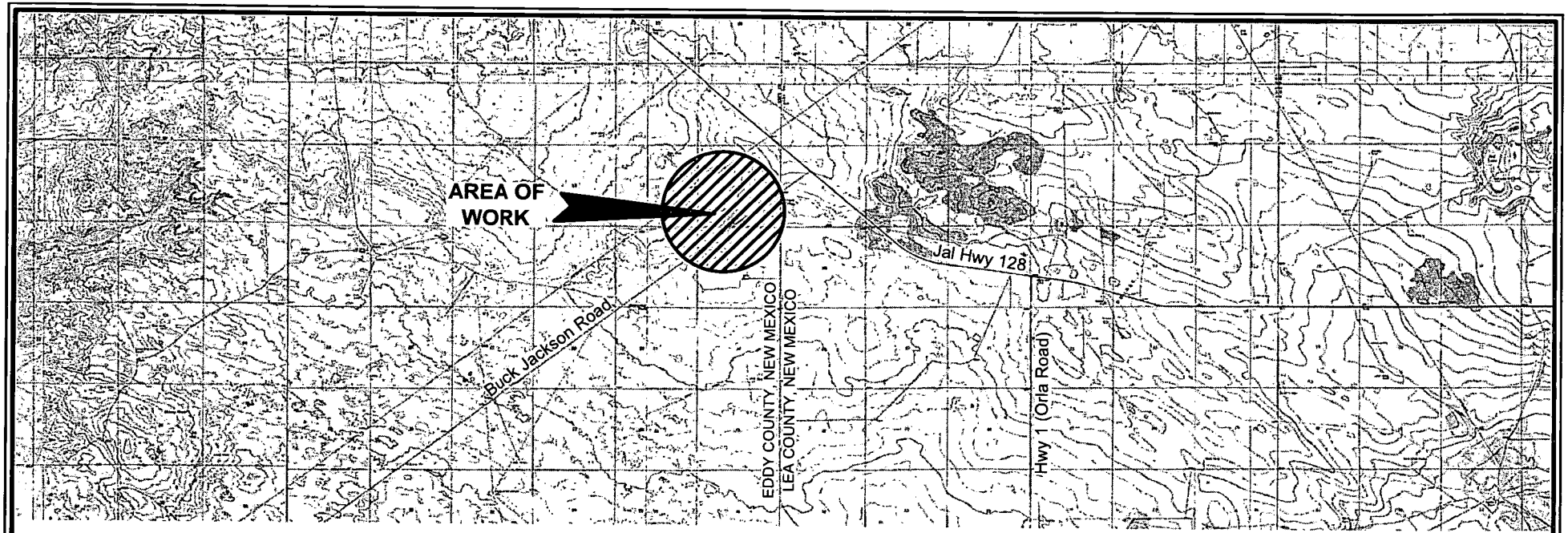
FILENAME: T:\2017\2176260\DWG\SND 12 01 Fed 002 1H-3H Pad_CutFill.dwg				



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2. The design pad elevation recommendation is based solely on a cut and fill (1:1 ratio) balance of the pad and does not include material required for the access roads. A detailed soil test and slope stability analysis shall be performed prior to construction to ensure proper compaction and working performance of the pad under the anticipated loadings. This material balance sheet does not constitute a foundation design and C. H. Fenstermaker & Associates, L.L.C. makes no warranty to the structural integrity of the site layout as shown. Fenstermaker also makes no recommendation or warranty about the layout relative to flood hazards, erosion control, or soil stability issues. Elevations refer to the North American Vertical Datum of 1988.

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NAD 27 NEW MEXICO EAST ZONE

Scale: 1" = 10,000'

10,000' 0 5,000' 10,000'

FOR THE EXCLUSIVE USE OF CHEVRON U.S.A. INC.

I, Robert L. Lastrapes, Professional Surveyor, do hereby state this plat is true and correct to the best of my knowledge.

Not to be used for construction, bidding, recordation, conveyance, sales, or engineering design.

PRELIMINARY

Robert L. Lastrapes
Registration No. 23006

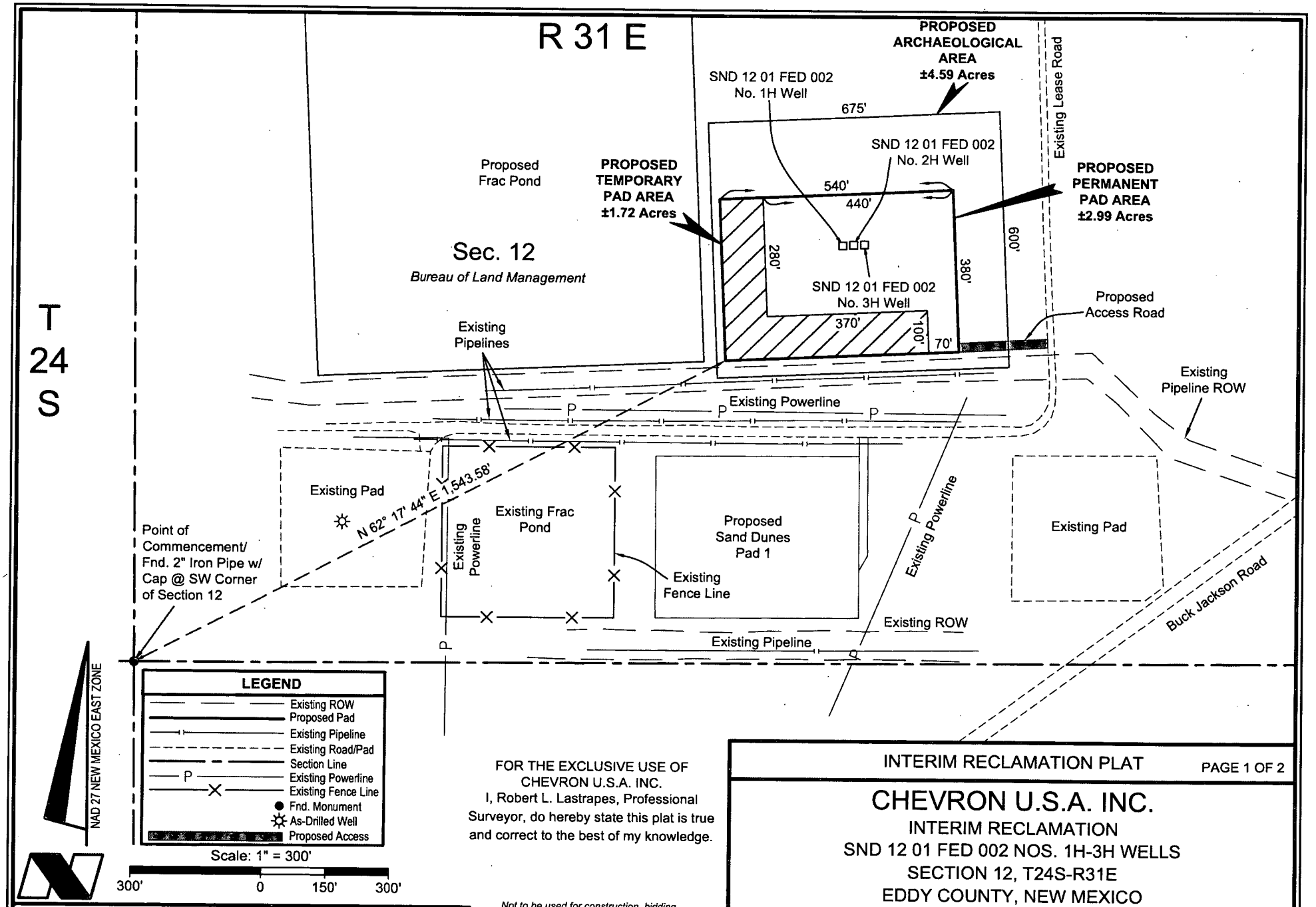
FENSTERMAKER
C. H. Fenstermaker & Associates, L.L.C.
135 Regency Sq. Lafayette, LA 70508
Ph. 337-237-2200 Fax. 337-232-3299
www.fenstermaker.com

CUT & FILL PLAT

CHEVRON U.S.A. INC.

PROPOSED PAD
SND 12 01 FED 002 NOS. 1H-3H WELLS
SECTION 12, T24S-R31E
EDDY COUNTY, NEW MEXICO

	REVISIONS			
DRAWN BY: BOR	#	BY:	DATE:	DESCRIPTION:
PROJ. MGR.: VHV	1	DMB	10/18/2017	Pad shift.
DATE: 09/13/2017	2	VHV	11/17/2017	Removed frac pond. Added CTB.
FILENAME: T:\2017\2176260\DWG\SND 12 01 Fed 002 1H-3H Pad_CutFill.dwg				



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INTERIM RECLAMATION PLAT PAGE 1 OF 2

CHEVRON U.S.A. INC.

INTERIM RECLAMATION
SND 12 01 FED 002 NOS. 1H-3H WELLS
SECTION 12, T24S-R31E
EDDY COUNTY, NEW MEXICO

	REVISIONS			
DRAWN BY: BOR	#	BY:	DATE:	DESCRIPTION:
PROJ. MGR.: VHV				
DATE: 11/02/2017				
FILENAME: T:\2017\2176260\DWG\SND 12 01 Fed 002 1H-3H_IR.dwg				

DISCLAIMER: At this time, C. H. Fenstermaker & Associates, L.L.C. has not performed nor was asked to perform any type of engineering, hydrological modeling, flood plain, or "No Rise" certification analyses, including but not limited to determining whether the project will impact flood hazards in connection with federal/FEMA, state, and/or local laws, ordinances and regulations. Accordingly, Fenstermaker makes no warranty or representation of any kind as to the foregoing issues, and persons or entities using this information shall do so at their own risk.

NOTE:
Please be advised, that while reasonable efforts are made to locate and verify pipelines and anomalies using our standard pipeline locating equipment, it is impossible to be 100 % effective. As such, we advise using caution when performing work as there is a possibility that pipelines and other hazards, such as fiber optic cables, PVC pipelines, etc. may exist undetected on site.

NOTE:
Many states maintain information centers that establish links between those who dig (excavators) and those who own and operate underground facilities (operators). It is advisable and in most states, law, for the contractor to contact the center for assistance in locating and marking underground utilities. For guidance, New Mexico One Call www.nmonecall.org

NW ARCH. AREA CORNER		NE ARCH. AREA CORNER	
X=	684,932 NAD 27	X=	685,606 NAD 27
Y=	447,181	Y=	447,212
LAT.	32.228004	LAT.	32.228077
LONG.	103.735288	LONG.	103.733107
X=	726,116 NAD83	X=	726,790 NAD83
Y=	447,240	Y=	447,271
LAT.	32.228127	LAT.	32.228200
LONG.	103.735771	LONG.	103.733590
SW ARCH. AREA CORNER		SE ARCH. AREA CORNER	
X=	684,959 NAD 27	X=	685,633 NAD 27
Y=	446,582	Y=	446,612
LAT.	32.226356	LAT.	32.226429
LONG.	103.735212	LONG.	103.733030
X=	726,143 NAD83	X=	726,818 NAD83
Y=	446,641	Y=	446,671
LAT.	32.226480	LAT.	32.226552
LONG.	103.735694	LONG.	103.733513

NW PAD CORNER		NE PAD CORNER	
X=	684,960 NAD 27	X=	685,500 NAD 27
Y=	447,003	Y=	447,027
LAT.	32.227512	LAT.	32.227570
LONG.	103.735200	LONG.	103.733455
X=	726,145 NAD83	X=	726,684 NAD83
Y=	447,061	Y=	447,086
LAT.	32.227635	LAT.	32.227694
LONG.	103.735682	LONG.	103.733937
ELEVATION +3550' NAVD 88		ELEVATION +3551' NAVD 88	
SW PAD CORNER		SE PAD CORNER	
X=	684,977 NAD 27	X=	685,517 NAD 27
Y=	446,623	Y=	446,647
LAT.	32.226468	LAT.	32.226526
LONG.	103.735151	LONG.	103.733407
X=	726,162 NAD83	X=	726,701 NAD83
Y=	446,682	Y=	446,706
LAT.	32.226591	LAT.	32.226650
LONG.	103.735634	LONG.	103.733889
ELEVATION +3554' NAVD 88		ELEVATION +3558' NAVD 88	

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PRELIMINARY

Robert L. Lastrapes
Registration No. 23006

INTERIM RECLAMATION PLAT PAGE 2 OF 2

CHEVRON U.S.A. INC.

INTERIM RECLAMATION
SND 12 01 FED 002 NOS. 1H-3H WELLS
SECTION 12, T24S-R31E
EDDY COUNTY, NEW MEXICO

	REVISIONS			
DRAWN BY: BOR	#	BY:	DATE:	DESCRIPTION:
PROJ. MGR.: VHV				
DATE: 11/02/2017				

FILENAME: T:\2017\2176260\DWG\SND 12 01 Fed 002 1H-3H_IR.dwg

CHEVRON U.S.A. Inc
SND 12 01 FED 002 4H
NMNM 120901 & NMNM 069369
SECTION 12, T24S-R31E
SHL 985' FSL & 1715' FWL

SECTION 1, T24S, R31E
BHL 100' FNL & 2178' FEL

APD Surface Use Plan of Operations

Existing Roads

- The operator will improve or maintain existing roads in a condition the same as or better than before operations begin. The operator will repair pot holes, clear ditches, repair the crown, etc. All existing structures on the entire access route such as cattle guards, other range improvement projects, culverts, etc. will be properly repaired or replaced if they are damaged or have deteriorated beyond practical use. We will prevent and abate fugitive dust as needed, whether created by vehicular traffic, equipment operations, or wind events. BLM written approval will be acquired before application of surfactants, binding agents, or other dust suppression chemicals on roadways.
- Driving Directions – From Jal, New Mexico. The location is approximately 33 miles from the nearest town, which is Jal, New Mexico. From Jal, proceed west on Highway 128 approximately 32 miles and turn left (Southwest) onto Buck Jackson Rd. and go approximately .5 miles on Buck Jackson until the road reaches an existing lease road. Travel approximately .2 miles on this lease road and location is on the south side of the road.

New or Reconstructed Access Roads – Survey plat

- There will be 206' of new road construction for the well pad and facilities.
- Road Width: The access road shall have a driving surface that creates the smallest possible surface disturbance and does not exceed 14'. The maximum width of surface disturbance shall not exceed 25'.
- Maximum Grade: 3%
- Crown Design: Crowning shall be done on the access road driving surface. The road crown shall have a grade of approximately 2%. The road shall conform to cross section and plans for typical road construction found in the BLM Gold Book.
- Turnouts: 50-60'
- Ditch Design: Ditching will be constructed on both sides of road.
- Cattle guards: Suggested
- Major Cuts and Fills: 2:1 during drilling and completions. Cuts and fills taken back to 3:1 at interim.
- Type of Surfacing Material: Caliche

CHEVRON U.S.A. Inc
SND 12 01 FED 002 3H
NMNM 120901 & NMNM 69369
SECTION 12, T24S-R31E SECTION 1, T24S, R31E
SHL 984' FSL & 1690' FWL BHL 100' FNL & 2178' FWL

Location of Existing Wells

- 1-Mile radius map is attached

Location of Existing and/or Proposed Production Facilities

- Facilities: New production facilities are to be constructed located in the SW quarter of Sec. 12, T24S-R31E where oil and gas sales will take place.
    - Proposed Facility Pad is 500' x 700'
    - The facility is proposed in SW4 of Sec. 12, T24S-R31E
    - Gas purchaser pipeline will be brought to the tank battery.
    - Open top tanks or open containments will be netted.
    - Open vent exhaust stacks will be modified to prevent birds or bats from entering, discourage perching, roosting, and nesting.
    - Facilities will have a secondary containment 1.5 times the holding capacity of largest storage tank.
    - All above ground structures will be painted non-reflective shale green for blending with surrounding environment.
    - The tank battery will be connected to the existing water gathering system in the field for permanent water disposal. The system design will be determined and approved prior to construction of any water transfer pipeline. Until permanent water takeaway is available, produced water will be hauled off location in trucks.
- Pipelines:
    - One 4" buried pipeline gas lift line, approximately 710', will be laid from well running north to CTB pad in Section 12.
    - Three buried flowlines, approximately 710', will be laid from well running north to CTB pad in Section 12.
    - No ROW will be required from the BLM (On-lease).
    - Pipeline will follow existing disturbances.
    - All construction activity will be confined to the approved BLM Standards.

Location and Types of Water Supply

- New pond in SW/4 of Section 11, T24S-R31E will be utilized for fresh water.
- Pond measures 900' x 900'.
- Fresh water will be obtained from a private water source.
- A temporary 12" expanding pipe transfer line will run from frac pond to well location in section 12.
    - Fresh water line will run parallel to road and will stay within 10' of access road.

- A BLM ROW will not be required for the water transfer line.

Construction Material

- Caliche will be used to construct well pad and roads. Material will be purchased from the nearest federal, state, or private permitted pit.
  - Primary: Use caliche on existing location.
  - Secondary: To be determined
- The proposed source of construction material will be located and purchased by construction contractor.
  - Payment shall be made by contractor prior to any removal of federal minerals material by contacting agent at (575) 234-5972.
  - Notification shall be given to BLM at (575) 234-5909 at least 3 working days prior to commencing construction of access road and/or well pad.

Methods for Handling Waste

- Drilling fluids and produced oil and water from the well during drilling and completion operations will be stored safely and disposed of properly in an NMOCD approved disposal facility.
- Garbage and trash produced during drilling and completion operations will be collected in a trash container and disposed of properly at a state approved disposal facility. All trash on and around the well site will be collected for disposal.
- Human waste and grey water will be properly contained and disposed of properly at a state approved disposal facility.
- After drilling and completion operations, trash, chemicals, salts, frac sand and other waste material will be removed and disposed of properly at a state approved disposal facility.
- The well will be drilled utilizing a closed loop system. Drill cutting will be properly disposed of into steel tanks and taken to an NMOCD approved disposal facility.

Ancillary Facilities

- Ancillary Facilities are included in the SUP for SND 12 01 004 1-4H Drill Pad and include:
  - SWD Facility
  - Fresh Water Pond
  - Recycle-on-the-fly Facility
  - Compressor Station
  - Staging Area

CHEVRON U.S.A. Inc
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Well Site Layout

- Surveyor Plat
  - Exterior well pad dimensions are 380' x 540'.
  - Interior well pad dimensions from point of entry (well head) of the easternmost well are N-120', S-260', E-210, W-330.
  - Topsoil placement is on the North where interim reclamation is planned to be completed upon completion of well and evaluation of best management practices.
  - Cut and fill: will be minimal. Diagram attached.
- Rig Layout (attached)

Plans for Surface Reclamation

Reclamation Objectives

- The objective of interim reclamation is to restore vegetative cover and a portion of the landform sufficient to maintain healthy, biologically active topsoil; control erosion; and minimize habitat and forage loss, visual impact, and weed infestation, during the life of the well or facilities.
- The long-term objective of final reclamation is to return the land to a condition similar to what existed prior to disturbance. This includes restoration of the landform and natural vegetative community, hydrologic systems, visual resources, and wildlife habitats. To ensure that the long-term objective will be reached through human and natural processes, actions will be taken to ensure standards are met for site stability, visual quality, hydrological functioning, and vegetative productivity.
- The BLM will be notified at least 3 days prior to commencement of any reclamation procedures.
- If circumstances allow, interim reclamation and/or final reclamation actions will be completed no later than 6 months from when the final well on the location has been completed or plugged. We will gain written permission from the BLM if more time is needed.
- Reclamation will be performed by using the following procedures:

Interim Reclamation Procedures

- Within 6 months, Chevron will contact BLM Surface Management Specialists to devise the best strategies to reduce the size of the location. Current plans for interim reclamation include reducing the pad size to approximately 3.16 (permanent pad) acres from the proposed size of 4.94 acres (temporary pad). Within 30 days of well completion, the well location and surrounding areas will be cleared of, and maintained free of, all materials, trash, and equipment not required for production. A plan will be submitted showing where interim reclamation will be completed in order to allow for safe operations, protection of the environment outside of drilled well, and following best management practices found in the BLM "Gold Book".
- In areas planned for interim reclamation, all the surfacing material will be removed

and returned to the original mineral pit or recycled to repair or build roads and well pads.

- The areas planned for interim reclamation will then be recontoured to the original contour if feasible, or if not feasible, to an interim contour that blends with the surrounding topography as much as possible. Where applicable, the fill material of the well pad will be backfilled into the cut to bring the area back to the original contour. The interim cut and fill slopes prior to re-seeding will not be steeper than a 3:1 ratio, unless the adjacent native topography is steeper. Note: Constructed slopes may be much steeper during drilling, but will be recontoured to the above ratios during interim reclamation.
- Topsoil will be evenly respread and aggressively revegetated over the entire disturbed area not needed for all-weather operations including cuts & fills. To seed the area, the proper BLM seed mixture (BLM #2), free of noxious weeds, will be used.
- Proper erosion control methods will be used on the area to control erosion, runoff and siltation of the surrounding area.
- The interim reclamation will be monitored periodically to ensure that vegetation has reestablished

Final Reclamation (well pad, buried pipelines, and power lines, etc.)

- Prior to final reclamation procedures, the well pad, road, and surrounding area will be cleared of material, trash, and equipment.
- All surfacing material will be removed and returned to the original mineral pit or recycled to repair or build roads and well pads.
- All disturbed areas, including roads, pipelines, pads, production facilities, and interim reclaimed areas will be recontoured to the contour existing prior to initial construction or a contour that blends in distinguishably with the surrounding landscape. Topsoil that was spread over the interim reclamation areas will be stockpiled prior to recontouring. The topsoil will be redistributed evenly over the entire disturbed site to ensure successful revegetation.
- After all the disturbed areas have been properly prepared; the areas will be seeded with the proper BLM seed mixture (BLM #2), free of noxious weeds.
- Proper erosion control methods will be used on the entire area to control erosion, runoff and siltation of the surrounding area.
- Plat attached.

Surface Ownership

- BLM Surface
    - Surface Tenant – Richardson Cattle Company

- **Nearest Post Office:** Jal Post Office; 50 Miles East

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BHL 100' FNL & 2178' FWL

Other Information

- On-site performed by BLM NRS: Paul Murphy 10/13/2017
- Cultural report attached: **Yes** Participating Agreement attached: N/A

Chevron Representatives

Primary point of contact:
Kevin Dickerson
Kevin.Dickerson@chevron.com
C- 432-250-4489